Sayers, Margery

From: Rahul <rdayal@gmail.com>
Sent: Thursday, July 13, 2017 4:12 PM
To: CouncilMail
Cc: Dipa Dayal
Subject: Opposition to CB60 Without Major Amendments

County Council Members -
I am very concerned with CB60 which will allow for industrial mulching and composting on agricultural preserve farmland and on all of RR/RC throughout Howard County. The current zoning language contained in CB60 is unacceptable and not only puts the rural communities at risk for well-documented safety and health concerns from industrial mulching, but now also makes this a countywide issue.

As it currently reads, there are clear loopholes that will allow those posing as tree farmers to conduct industrial mulching activities from 2 acres up to 5 acres, depending on whether on Howard County ag (ALPP), RR or RC parcels. This will result in unacceptable risks to ensuring the well-being of children, families and all individuals living in affected areas. Furthermore, DPZ has demonstrated a clear inability to enforce clear violators of CB20. We now ask, how can DPZ protect our families when loopholes in CB60 will allow for industrial mulching to occur, making enforcement even more challenging?

County Executive Kittleman, through CB60 introduced on his behalf, has simply not keep to his campaign promise to ensure that there is no possibility of industrial mulching on both Howard County and State of MD ag preserve parcels, despite his recent claims to the contrary. There is no separate section in CB60 that deals with State of MD ag (MALPF) restrictions (only Howard County ag). We worked hard to get State of MD ag restrictions included in the current zoning language for CB20 and are disappointed that it has been omitted from CB60.

There are many other key amendments needed in CB60 to make it acceptable to the health and well-being of thousands of families throughout Howard County.

I am counting on the County Council to course correct with amendments added to CB60 to clearly prevent any chance of industrial mulch facilities from operating throughout farmland in Howard County, other than in M1/M2 commercially zoned land. This is the only way our Council members will ensure everyone in potentially affected areas continues to be protected by current zoning regulations defined in CB20.

Concerns:

- Here are our MAJOR concerns with CB60
- NO restrictions on use or scale
- NO restrictions on amount of mulch/compost/wood waste in or out of the facility
- NO restrictions on commercial sale of any kind ENDLESS/LIMITLESS trucking in and out of wood waste into the facility (18-wheeler tractor-trailers and 3-axle large commercial trucks)
- ENDLESS/LIMITLESS mulch or compost trucked out after industrial processing at the facility (18-wheeler tractor-trailers and 3-axle large commercial trucks)
- NO requirement to be associated with tree farming or legitimate farming of ANY kind
- NO restriction on size or frequency of trucks in and out of the facility all day long
- NO restrictions on State of MD ag farmland (MALPF)
- ALLOWS for retail sale on site at the facility

- ALLOWS for Tier I and Tier II composting, which means on Howard County ag, RR and RC composting of grass, leaves, food waste, manure and in some case animal carcasses is allowed (3-5 acres near you).
- NO ability for DPZ to enforce CB60 for mulching/composting given what it allows (unacceptable). DPZ has shown an inability to enforce, or has chosen to exercise selective enforcement discretion, for even clear violators of CB20. To expect anything more from DPZ would be ridiculous (how can they distinguish between mulch and compost when they admit they can't even measure/enforce something as simple as mulch pile height).

Please take this matter seriously and add needed amendments to CB60 that I feel is unacceptable as it now stands.

Thanks,

Rahul Dayal
301.523.6026
rdayal@gmail.com

Sayers, Margery

From: Robert Scales <roberthscales@gmail.com>
Sent: Thursday, July 13, 2017 4:04 PM
To: CouncilMail
Subject: Mulching

All
I'm Bob Scales and I live on Big Branch Drive in Dayton. For the past few months I've been watching heavy trucks drive down Howard Road and into the RLO farm. I can't believe that after all the promises you guys made that apparently Mf Orndorf is at it again.
To me this is not about mulching, it's about integrity and public trust. How in the world could Mr Kettleman make promises and then renage on them?
If this turns against the citizens of the county I will devote my time and money to guarantee that the representatives we elected never serve in office again.
Bob Scales

Sayers, Margery

From: djmcmah <djmcmah@aol.com>
Sent: Thursday, July 13, 2017 2:57 PM
To: CouncilMail

Subject: Opposition to CB60 Without Major Amendments
County Council,

We are very concerned with CB60 which will allow for industrial mulching and composting on ag preserve farmland and on all of RR/RC throughout Howard County. The current zoning language contained in CB60 is unacceptable and not only puts the rural communities at risk for well-documented safety and health concerns from industrial mulching, but now also makes this a countywide issue.

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County Executive Kittleman, through CB60 introduced on his behalf, has simply not keep to his campaign promise to ensure that there is no possibility of industrial mulching on both Howard County and State of MD ag preserve parcels, despite his recent claims to the contrary. There is no separate section in CB60 that deals with State of MD ag (MALPF) restrictions (only Howard County ag). We worked hard to get State of MD ag restrictions included in the current zoning language for CB20 and are disappointed that it has been omitted from CB60.

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Thank you.

Sayers, Margery

From: Harry Behre <evan.behre@icloud.com>
Sent: Thursday, July 13, 2017 1:54 PM
To: CouncilMail
Cc: Becky Behre; Michelle Schwelling
Subject: Subject: Opposition to CB60 Without Major Amendments

County Council,

We are very concerned with CB60 which will allow for industrial mulching and composting on ag preserve farmland and on all of RR/RC throughout Howard County. The current zoning language contained in CB60 is unacceptable and not only puts the rural communities at risk for well-documented safety and health concerns from industrial mulching, but now also makes this a countywide issue.

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Thank you.

H. Evan Behre
5159 Green Bridge Rd
Dayton, MD 21036

Sayers, Margery

From: Joanna Pyper <jpyper@comcast.net>
Sent: Thursday, July 13, 2017 12:02 PM
To: CouncilMail
Subject: Opposition to CB60 without major amendments

Dear Members of the Howard County Council,

I am writing for my husband and myself to express our strong opposition to CB60-2017 as currently written. Although we are writing to express concerns that affect Dayton, many of our concerns are applicable county-wide. These concerns include:

- Allowance of small Tier 2 composting operations in RC and RR districts; Tier 2 includes animal waste and carcasses
- The lack of clear definitions of the allowed scale of operations (area of land for operation does not adequately address scale of operations, although 2-acre and 5-acre sized facilities are of concern)
- The lack of restrictions/regulations on the amount of mulch/compost/natural wood waste trafficked into or out of facilities
- The lack of truck traffic specifications on size and frequency, especially on small Dayton roads
    - Green Bridge and Ten Oaks, although deemed collector roads, are narrow and lack shoulders; there is often poor visibility. They have many school bus stops and are also widely used by bicyclists.
- The lack of restrictions/specifications on scope of commercial sales operations
- The lack of a requirement to be associated with tree farming or legitimate farming of any kind
- The lack of restrictions on MD ag farmland
- Serious concerns regarding potential pollution, including groundwater (all houses in vicinity have wells), airborne particulates that can cause serious respiratory problems, and noise

The history of poor enforcement of the illegal mulching operation that occurred at Oak Ridge Farm in Woodbine makes it imperative that any modifications to zoning regulations be specific with specific consequences if rules are broken. We believe that industrial scale mulching/ composting operations are appropriate only for M1/M2 commercially zoned land.

Sincerely,
Joanna Pyper
Richard Wormsbecher

Sayers, Margery

From: jewell debnam <jcdebnam@gmail.com>
Sent: Thursday, July 13, 2017 10:46 AM
To: CouncilMail
Subject: Opposition to CB60 Without Major Amendments

County Council,

We are very concerned with CB60 which will allow for industrial mulching and composting on ag preserve farmland and on all of RR/RC throughout Howard County. The current zoning language contained in CB60 is unacceptable and not only puts the rural communities at risk for well-documented safety and health concerns from industrial mulching, but now also makes this a countywide issue.

As it currently reads, there are clear loopholes that will allow those posing as tree farmers to conduct industrial mulching activities from 2 acres up to 5 acres, depending on whether on Howard County ag (ALPP), RR or RC parcels. This will result in unacceptable risks to ensuring the well-being of children, families and all individuals living in affected areas. Furthermore, DPZ has demonstrated a clear inability to enforce clear violators of CB20. We now ask, how can DPZ protect our families when loopholes in CB60 will allow for industrial mulching to occur, making enforcement even more challenging?

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There are many other key amendments needed in CB60 to make it acceptable to the health and well-being of thousands of families throughout Howard County. We are counting on the County Council to course correct with amendments added to CB60 to clearly prevent any chance of industrial mulch facilities from operating throughout farmland in Howard County, other than in M1/M2 commercially zoned land. This is the only way our Councilmembers will ensure everyone in potentially affected areas continues to be protected by current zoning regulations defined in CB20. Please take this matter seriously and add needed amendments to CB60 that we feel is unacceptable as it now stands.

Thank you.

Jewell C. Debnam
Dayton, MD

--
jewell c. debnam

Sayers, Margery

From: sandy tedrow <sandytedrow@yahoo.com>
Sent: Thursday, July 13, 2017 10:20 AM
To: CouncilMail
Subject: Opposition to CB60 Without Major Amendments

County Council,
We are very concerned with CB60 which will allow for industrial mulching and composting on ag preserve farmland and on all of RR/RC throughout Howard County. The current zoning language contained in CB60 is unacceptable and not only puts the rural communities at risk for well-documented safety and health concerns from industrial mulching, but now also makes this a countywide issue.

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There are many other key amendments needed in CB60 to make it acceptable to the health and well-being of thousands of families throughout Howard County. We are counting on the County Council to course correct with amendments added to CB60 to clearly prevent any chance of industrial mulch facilities from operating throughout farmland in Howard County, other than in M1/M2 commercially zoned land. This is the only way our Councilmembers will ensure everyone in potentially affected areas continues to be protected by current zoning regulations defined in CB20. Please take this matter seriously and add needed amendments to CB60 that we feel is unacceptable as it now stands.

Thank you,
Sandy Tedrow
4144 Sharp Road
Glenelg, MD 21737

Sayers, Margery

From: Carol Sirchio <csirchio@turfvalley.com>
Sent: Thursday, July 13, 2017 8:42 AM
To: Fox, Greg; Weinstein, Jon; Ball, Calvin B; Terrasa, Jen; Sigaty, Mary Kay; Kittleman, Allan; CouncilMail
Subject: Opposition to CB60 Without Major Amendments

Dear County Council,

We are very concerned with CB60 which will allow for industrial mulching and composting on ag preserve farmland and on all of RR/RC throughout Howard County. The current zoning language contained in CB60 is unacceptable and not only puts the rural communities at risk for well-documented safety and health concerns from industrial mulching, but now also makes this a countywide issue.

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We do not want up to 50 large semi and commercial trucks on our rural roads per day. We do not want to jeopardize the safety of our school children, runners, cyclists. We do not want groundwater and air contamination threatening our family's health.

There are many other key amendments needed in CB60 to make it acceptable to the health and well-being of thousands of families throughout Howard County. We are counting on the County Council to course correct with amendments added to CB60 to clearly prevent any chance of industrial mulch facilities from operating throughout farmland in Howard County, other than in M1/M2 commercially zoned land. This is the only way our Councilmembers will ensure everyone in potentially affected areas continues to be protected by current zoning regulations defined in CB20. Please take this matter seriously and add needed amendments to CB60 that we feel is unacceptable as it now stands.

Thank you.

Carol A. Sirchio
Neighborhood Dayton MD

Sayers, Margery

From: Richard Taber <rbtaber@gmail.com>
Sent: Thursday, July 13, 2017 7:36 AM
To: CouncilMail
Subject: I Oppose CB60

Amendments are needed in CB60 to make it acceptable to the health and well-being of thousands of families throughout Howard County. Industrial

mulching processing and distribution operations do not belong in a rural zone.

Richard Taber
14032 Big Branch Drive, Dayton, MD 21036

Sayers, Margery

From: garyandpatr <garyandpatr@yahoo.com>
Sent: Thursday, July 13, 2017 7:25 AM
To: CouncilMail
Subject: opposition to industrial mulching on rural farmland

Subject: Opposition to CB60 Without Major Amendments

County Council,

We are very concerned with CB60 which will allow for industrial mulching and composting on ag preserve farmland and on all of RR/RC throughout Howard County. The current zoning language contained in CB60 is unacceptable and not only puts the rural communities at risk for well-documented safety and health concerns from industrial mulching, but now also makes this a countywide issue.

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only way our Councilmembers will ensure everyone in potentially affected areas continues to be protected by current zoning regulations defined in CB20. Please take this matter seriously and add needed amendments to CB60 that we feel is unacceptable as it now stands.

Thank you.

Pat Heinz

Sayers, Margery

From: Terry Dolce <tdolce@comcast.net>
Sent: Thursday, July 13, 2017 6:46 AM
To: CouncilMail
Subject: Opposition to CB60 Without Major Amendments

County Council,

We are very concerned with CB60 which will allow for industrial mulching and composting on ag preserve farmland and on all of RR/RC throughout Howard County. The current zoning language contained in CB60 is unacceptable and not only puts the rural communities at risk for well-documented safety and health concerns from industrial mulching, but now also makes this a countywide issue.

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Thank you,

Terry Dolce, Glenelg

Sayers, Margery

From: Lynne Layug <thelayugs@verizon.net>
Sent: Wednesday, July 12, 2017 10:05 PM
To: CouncilMail
Subject: Dayton Rural Preservation Society - Letter to Council CB-60-2017

Even Clarksville residents are concerned and will be affected by the mulching
http://www.preservedayton.com/letter-to-council-cb-60-2017

Lynne Layug

Sayers, Margery

From: Lisa Snyder <les5079@yahoo.com>
Sent: Wednesday, July 12, 2017 9:38 PM
To: CouncilMail
Subject: Opposition to CB60 Without Major Amendments

County Council,

We are very concerned with CB60 which will allow for industrial mulching and composting on ag preserve farmland and on all of RR/RC throughout Howard County. The current zoning language contained in CB60 is unacceptable and not only puts the rural communities at risk for well-documented safety and health concerns from industrial mulching, but now also makes this a countywide issue.

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Thank you.

Lisa Snyder

Sayers, Margery

From: Dean Turner <potroast2010@gmail.com>
Sent: Wednesday, July 12, 2017 9:01 PM
To: CouncilMail
Subject: Opposition to CB60 Without Major Amendments

County Council,

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Thank you.

Dean Turner

Cattail Overlook Community

Sayers, Margery

From: Astrid Pages <astridpages@hotmail.com>
Sent: Wednesday, July 12, 2017 8:46 PM
To: CouncilMail
Subject: Kill Bill CB60 Please!!!

Sayers, Margery

From: steven patterson <steven_patterson@hotmail.com>
Sent: Wednesday, July 12, 2017 7:25 PM
To: CouncilMail
Subject: Opposition to CB60

I'm sure you all know how few Republicans there are in HoCO, and I think you need our support to be re-elected. If you keep these types of things up I and others will fight/donate HARD to see that you are not re-elected. This is 2 fold issue for you since instead of giving you the max donation I and my family will give giving the max to ANYONE running against you. I have never voted for a democrat in my life but the next election against you will be a first unless you listen now.

Form letter below states this latest issue well enough;

I am very concerned with CB60 which will allow for industrial mulching and composting on ag preserve farmland and on all of RR/RC throughout Howard County. The current zoning language contained in CB60 is unacceptable and not only puts the rural communities at risk for well-documented safety and health concerns from industrial mulching, but now also makes this a countywide issue.

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Sincerely,
Steven L. Patterson

Sayers, Margery

From: Gary Goad <grgoad2003@yahoo.com>
Sent: Wednesday, July 12, 2017 4:51 PM
To: CouncilMail
Subject: RLO is already clearing property

Subject: Opposition to CB60 Without Major Amendments
County Council,

I curently live adjasent to RLO property which he bought in 2013 to move his mulching industry from Rt 1. Over the last few weeks he has begun clearing a 5 acre spot of land and building a road / bridge to access the property from a different direction. If you think that he his spending nearly $500,000 on building a road and bridge (see building permits and drawings submitted in his 2014 moving plan) to get a small little mulch area think again. He his clearly planning on bringing all of the material from his Rt32 widening contract and his Rt 1 facility to this location. This new road will pass within a 200 yards behind my house allowing 50 to a 100 trucks a day 6 days a week. My housing value has already dropped by 100,00 just with the possibility of a mulch factory. I can't image what it will be worth once the factory is up and running.

Please save Howard County's reputation has one on the top counties to move to by stopping industry and add the to CB60.

As it currently reads, there are clear loopholes that will allow those posing as tree farmers to conduct industrial mulching activities from 2 acres up to 5 acres, depending on whether on Howard County ag (ALPP), RR or RC parcels. This will result in unacceptable risks to ensuring the well-being of children, families and all individuals living in affected areas. Furthermore, DPZ has demonstrated a clear inability to enforce clear violators of CB20. We now ask, how can DPZ protect our families when loopholes in CB60 will allow for industrial mulching to occur, making enforcement even more challenging?

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Thank you.

Gary
5030 Green Bridge Rd

Sayers, Margery

From: Kathleen E Erskine <kathleen.e@verizon.net>
Sent: Wednesday, July 12, 2017 4:31 PM
To: CouncilMail
Subject: CB60

Dear Council member,

Subject: Opposition to CB60 Without Major Amendments
County Council,

We are very concerned with CB60 which will allow for industrial mulching and composting on ag preserve farmland and on all of RR/RC throughout Howard County. The current zoning language contained in CB60 is unacceptable and not only puts the rural communities at risk for well-documented safety and health concerns from industrial mulching, but now also makes this a countywide issue.

As it currently reads, there are clear loopholes that will allow those posing as tree farmers to conduct industrial mulching activities from 2 acres up to 5 acres, depending on whether on Howard County ag (ALPP), RR or RC parcels. This will result in unacceptable risks to ensuring the well-being of children, families and all individuals living in affected areas. Furthermore, DPZ has demonstrated a clear inability to enforce clear violators of CB20. We now ask, how can DPZ protect our families when loopholes in CB60 will allow for industrial mulching to occur, making enforcement even more challenging?

County Executive Kittleman, through CB60 introduced on his behalf, has simply not keep to his campaign promise to ensure that there is no possibility of industrial mulching on both Howard County and State of MD ag preserve parcels, despite his recent claims to the contrary. There is no separate section in CB60 that deals with State of MD ag (MALPF) restrictions (only Howard County ag). We worked hard to get State of MD ag restrictions included in the current zoning language for CB20 and are disappointed that it has been omitted from CB60.

There are many other key amendments needed in CB60 to make it acceptable to the health and well-being of thousands of families throughout Howard County. We are counting on the County Council to course correct with amendments added to CB60 to clearly prevent any chance of industrial mulch facilities from operating throughout farmland in Howard County, other than in M1/M2 commercially zoned land. This is the only way our Councilmembers will ensure everyone in potentially affected areas continues to be protected by current zoning regulations defined in CB20. Please take this matter seriously and add needed amendments to CB60 that we feel is unacceptable as it now stands.

Thank you.

Kathleen Erskine

Sayers, Margery

From: Bowers B & D <bowersbdn@yahoo.com>
Sent: Wednesday, July 12, 2017 4:20 PM
To: CouncilMail
Subject: CB-60-2017

Dear Council Members:

I am writing to express my concern about the recently introduced bill CB-60-2017.

I live in western Howard County, in Sykesville, just off of Route 32. Several years ago a farm (formerly a Turf Farm) on 32 just north of West Friendship was for sale. An interested businessman buyer wanted to use the property for industrial mulch processing involving trucking in cut down trees to process as mulch. There were several community meetings in which many homeowners and farmers attended. At the time, the way the zoning regulations were vaguely written, this would have been allowed. Thankfully, the farm was sold to someone who chose to farm the land. This same businessman then purchased land in Dayton in order to set up his industrial mulching business. That has not moved forward thanks to provisions put in place by clearer zoning language in 2014.(currently CB-20-2014).

CB-60-2017 appears incomplete. I am not sure what is the necessity of this new bill. Beyond defining terms and making technical corrections, is this intended to override CB-20-1014? If so, the vague language seems to allow for industrial mulching on farmland in the agriculture preserve, whether by Howard County or by the State of Maryland. I understand that normal farming entails some mulching, but this bill, as currently written, seems to allow for someone to "work the system" by setting up a tree farm business and then expanding this into industrial mulching onsite by being allowed to truck in limitless wood from other sources to process on the property. I believe this type of business is industrial and should be in M1 M2 commercial zoned properties. This bill even allows for this activity on RR/RC zoned land. This is unacceptable.

Rural communities are at risk from this mulching activity. Clearly this bill requires some amendments. This bill, as written, requires some limitations and specifics, such as those which were included in CB-20-1014 for the protection of ALL Howard County residents. In addition, there should be some language to allow the Department of Zoning to enforce the regulations, to make sure these types of industrial businesses are operating properly, even in the commercial zones.

I am strongly hoping that members of our County Council will see this as a serious matter and attach some much needed amendments to this bill. I will be attending the public council meeting regarding this issue.

Sincerely,

Deborah Bowers

Sayers, Margery

From: David Smith <dosmith99@gmail.com>
Sent: Wednesday, July 12, 2017 2:24 PM
To: Sigaty, Mary Kay
Cc: CouncilMail
Subject: Re: CB-60 Concerns

Thanks for the email but it appears to be a copy and paste. #1 - I asked specific questions that I was hoping to get answers to.. #2 - I also mentioned that I already watched the Council meeting from 10 July and that is why I was emailing the council.

Below is my email from July 10 that was sent - please address my concerns without using a template email.

Good Evening,

Ref CB-60 - I listened to monthly council meeting today and still do not understand why Mr. Lazdins' feels there shouldn't be concerns with industrial mulching on ALPP. There are definite concerns when a 13 acre tree farm can be established and that entitles the ALPP owner to truck in wood waste material, process it into mulch, and then truck it off property for commercial sale, even if only on 2 acres. This is an industrial mulching facility on a 13 acre tree farm located in ALPP in the middle of residential areas. Maybe one of the council members should explain to him the concerns because during the meeting today there was no mention of trucking in material and trucking off mulch.

Regards,
David

On Wed, Jul 12, 2017 at 2:11 PM, Sigaty, Mary Kay <mksigaty@howardcountymd.gov> wrote:

> Good afternoon Mr. Smith,
>
> Thank you for contacting the Howard County Council regarding Council Bill 60-2017.
>
> It appears that you were given information that leads you to believe that this legislation allows for industrial mulching on land zoned Rural Conservation or Rural Residential and on agriculturally preserved land. The bill does not allow for the size, scale or scope of natural wood waste recycling (NWWR) that is often described as industrial mulching.
>
> The Howard County Department of Planning and Zoning has prepared a document of Frequently Asked Questions which clarify the purpose of the legislation. Here is the link to the document's webpage, https://www.howardcountymd.gov/LinkClick.aspx?fileticket=HI5bRNBrxvA%3d&portalid=0.

In addition, the Council held a meeting on July 10, 2017 and there was a detailed discussion of Council Bill 60-2017. You may view the meeting on the Council's website, http://cc.howardcountymd.gov/Online-Tools/Watch-Us. Please select the pull down menu for the Council's monthly meetings and watch the video for the July Monthly Meeting.

Hopefully, this information will be of use to you.

Sincerely,

Mary Kay Sigaty

Howard County Council Member

District 4

410-313-2001

From: David Smith [mailto:dosmith99@gmail.com]
Sent: Tuesday, June 27, 2017 9:48 AM
To: CouncilMail <CouncilMail@howardcountymd.gov>
Subject: CB-60 Concerns

Good Morning,

I'm writing this letter to express my opposition to CB-60 as it is currently written. I am a resident of Dayton and feel there are several loopholes to allow industrial size mulching facilities that can be disguised as a "Tree Farm", even on Agriculture Preservation farmland. There are several negative factors which will effect local residents: wood dust particles in the air, increased truck traffic on roads were are kid's bus stop are located, possible water contamination, increased fire risk, loud grinding machines, decreased property values.

Please do not move forward with CB-60 until this loophole is fixed. I appreciate your understanding.

Regards,
David Smith

Sayers, Margery

From: Bob Francis <bfrancis42@gmail.com>
Sent: Wednesday, July 12, 2017 12:15 PM
To: CouncilMail
Subject: Opposition to CB60 Without Major Amendments

County Council,

We are very concerned with CB60 which will allow for industrial mulching and composting on ag preserve farmland and on all of RR/RC throughout Howard County. The current zoning language contained in CB60 is unacceptable and not only puts the rural communities at risk for well-documented safety and health concerns from industrial mulching, but now also makes this a countywide issue.

As it currently reads, there are clear loopholes that will allow those posing as tree farmers to conduct industrial mulching activities from 2 acres up to 5 acres, depending on whether on Howard County ag (ALPP), RR or RC parcels. This will result in unacceptable risks to ensuring the well-being of children, families and all individuals living in affected areas. Furthermore, DPZ has demonstrated a clear inability to enforce clear violators of CB20. We now ask, how can DPZ protect our families when loopholes in CB60 will allow for industrial mulching to occur, making enforcement even more challenging?

County Executive Kittleman, through CB60 introduced on his behalf, has simply not keep to his campaign promise to ensure that there is no possibility of industrial mulching on both Howard County and State of MD ag preserve parcels, despite his recent claims to the contrary. There is no separate section in CB60 that deals with State of MD ag (MALPF) restrictions (only Howard County ag). We worked hard to get State of MD ag restrictions included in the current zoning language for CB20 and are disappointed that it has been omitted from CB60.

There are many other key amendments needed in CB60 to make it acceptable to the health and well-being of thousands of families throughout Howard County. We are counting on the County Council to course correct with amendments added to CB60 to clearly prevent any chance of industrial mulch facilities from operating throughout farmland in Howard County, other than in M1/M2 commercially zoned land. This is the only way our Councilmembers will ensure everyone in potentially affected areas continues to be protected by current zoning regulations defined in CB20. Please take this matter seriously and add needed amendments to CB60 that we feel is unacceptable as it now stands.

Thank you,

Bob Francis

Sayers, Margery

From: bhakti harp <bhakti.harp@gmail.com>
Sent: Wednesday, July 12, 2017 11:08 AM
To: CouncilMail
Subject: MAJOR concerns with CB60

NO restrictions on use or scale

NO restrictions on amount of mulch/compost/wood waste in or out of the facility

NO restrictions on commercial sale of any kind ENDLESS/LIMITLESS trucking in and out of wood waste into the facility (18-wheeler tractor-trailers and 3-axle large commercial trucks)

ENDLESS/LIMITLESS mulch or compost trucked out after industrial processing at the facility (18-wheeler tractor-trailers and 3-axle large commercial trucks)

NO requirement to be associated with tree farming or legitimate farming of ANY kind

NO restriction on size or frequency of trucks in and out of the facility all day long

NO restrictions on State of MD ag farmland (MALPF)

ALLOWS for retail sale on site at the facility

NO ability for DPZ to enforce CB60 for mulching/composting given what it allows (unacceptable). DPZ has shown an inability to enforce, or has chosen to exercise selective enforcement discretion, for even clear violators of CB20. To expect anything more from DPZ would be ridiculous (how can they distinguish between mulch and compost when they admit they can't even measure/enforce something as simple as mulch pile height).

PLEASE DO NOT ALLOW THIS IS TO HAPPEN! There are too many things that can go wrong and cause a detrimental effect on our community.
DO the right thing!

Dr. Bhakti Petigara Harp, Ph.D

Sayers, Margery

From: Linda Jun <lindajun2@gmail.com>
Sent: Wednesday, July 12, 2017 10:47 AM
To: CouncilMail
Subject: Opposition to CB60 Without Major Amendments

County Council,

I am very concerned with CB60 which will allow for industrial mulching and composting on ag preserve farmland and on all of RR/RC throughout Howard County. The current zoning language contained in CB60 is unacceptable and not only puts the rural communities at risk for well-documented safety and health concerns from industrial mulching, but now also makes this a countywide issue.

As it currently reads, there are clear loopholes that will allow those posing as tree farmers to conduct industrial mulching activities from 2 acres up to 5 acres, depending on whether on Howard County ag (ALPP), RR or RC parcels. This will result in unacceptable risks to ensuring the well-being of children, families and all individuals living in affected areas. Furthermore, DPZ has demonstrated a clear inability to enforce clear violators of CB20. I now ask, how can DPZ protect our families when loopholes in CB60 will allow for industrial mulching to occur, making enforcement even more challenging?

There are many other key amendments needed in CB60 to make it acceptable to the health and well-being of thousands of families throughout Howard County. We are counting on the County Council to course correct with amendments added to CB60 to clearly prevent any chance of industrial mulch facilities from operating throughout farmland in Howard County, other than in M1/M2 commercially zoned land. This is the only way our Council members will ensure everyone in potentially affected areas continues to be protected by current zoning regulations defined in CB20. Please take this matter seriously and add needed amendments to CB60 that we feel is unacceptable as it now stands.

Thank you.

Linda Jun

Sayers, Margery

From: Kurt Schwarz <krschwa1@verizon.net>
Sent: Wednesday, July 12, 2017 10:37 AM
To: CouncilMail
Subject: Opposition to CB60 Without Major Amendments County Council,

Dear Council Members Fox, Sigaty, Terrasa, Weinstein, and Ball:

I am very concerned about CB60 which will allow for industrial mulching and composting on agricultural preserve farmland and on all of RR/RC throughout Howard County. The current zoning language contained in CB60 is unacceptable and not only puts the rural communities at risk for well-documented safety and health concerns from industrial mulching, but now also makes this a countywide issue.

As it currently reads, there are clear loopholes that will allow those posing as tree farmers to conduct industrial mulching activities from 2 acres up to 5 acres, with size depending on whether the land in question is Howard County ag (ALPP), RR or RC parcels. This will result in unacceptable risks to ensuring the well-being of children, families and all individuals living in affected areas. Furthermore, DPZ has demonstrated a clear inability to enforce clear violators of CB20. How can DPZ protect our families when loopholes in CB60 will allow for industrial mulching to occur, making enforcement even more challenging?

County Executive Kittleman, through CB60 introduced on his behalf, has not kept to his campaign promise to ensure that there is no possibility of industrial mulching on both Howard County and on state-sponsored agricultural preserve parcels. There is no separate section in CB60 that deals with State of MD ag (MALPF) restrictions (only Howard County ag). State of MD ag restrictions included in the current zoning language for CB20 have been omitted from CB60.

There are many other key amendments needed in CB60 to make it acceptable to the health and well-being of thousands of families throughout Howard County. I hope that County Council will have amendments added to CB60 to clearly prevent any chance of industrial mulch facilities from operating throughout farmland in Howard County, other than in M1/M2 commercially zoned land. This is the only way our Councilmembers will ensure everyone in potentially affected areas continues to be protected by current zoning regulations defined in CB20. Please take this matter seriously and add needed amendments to CB60 that I feel is unacceptable as it now stands.

Thank you.

Kurt Schwarz
krschwa1@verizon.net

Sayers, Margery

From: John Masters <jwkmasters@aol.com>
Sent: Wednesday, July 12, 2017 10:18 AM
To: CouncilMail
Subject: Opposition to CB60 Without Major Amendments County Council,

We are very concerned with CB60 which will allow for industrial mulching and composting on ag preserve farmland and on all of RR/RC throughout Howard County. The current zoning language contained in CB60 is unacceptable and not only puts the rural communities at risk for well-documented safety and health concerns from industrial mulching, but now also makes this a countywide issue.

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County Executive Kittleman, through CB60 introduced on his behalf, has simply not keep to his campaign promise to ensure that there is no possibility of industrial mulching on both Howard County and State of MD ag preserve parcels, despite his recent claims to the contrary. There is no separate section in CB60 that deals with State of MD ag (MALPF) restrictions (only Howard County ag). We worked hard to get State of MD ag restrictions included in the current zoning language for CB20 and are disappointed that it has been omitted from CB60.

There are many other key amendments needed in CB60 to make it acceptable to the health and well-being of thousands of families throughout Howard County. We are counting on the County Council to course correct with amendments added to CB60 to clearly prevent any chance of industrial mulch facilities from operating throughout farmland in Howard County, other than in M1/M2 commercially zoned land. This is the only way our Councilmembers will ensure everyone in potentially affected areas continues to be protected by current zoning regulations defined in CB20. Please take this matter seriously and add needed amendments to CB60 that we feel is unacceptable as it now stands.

Thank you.

John Masters
14859 Michele Dr
Glenelg MD 21737

Sayers, Margery

From: Carol Werlinich <carolwerlinich@gmail.com>
Sent: Wednesday, July 12, 2017 10:13 AM
To: CouncilMail
Subject: Opposition to Industrial mulching
Attachments: SUPPORT LETTER.docx

Dear County Council members,

This email is to express my strong and total opposition to industrial mulching on our rural farmland in Dayton The attached Sierra Club information delineates the many reasons that " Farmland Forever" standards and values must be honored and upheld.

Sincerely,
Dr. Carol Werlinich

SUPPORT LETTER: Sierra Club of Maryland, Howard County chapter (2014)

Agricultural Preservation in HoCo is at risk!

Robert Orndorff/RLO Contractors petitioned to move 16 acres of industrial mulching and composting of off-site materials from Route 1 to Dayton Ag Preserve farmland risking our safety, health, environment, house values, and quality of life as rural residents. This effort was stopped by the passing of CB 20-2014 in June 2014. However, Mr. Orndorff purchased the Muth farm in February 2014 for this purpose and we will watch any attempt to use that property for anything other than true farming operations.

Woodbine: An illegally operating mulch grinding facility on State Ag Preserve was shut down by HoCo DPZ after being in violation of MDE's requirement to have an NWWR license to operate such a facility and for seven years illegally operating on Ag Preserve farmland instead of M1 or M2 zoned properties.

We have stayed on these issues and CB 60-2017 is attempting to undo the efforts of CB-20-2014! We won't let this happen and we will preserve Dayton and surrounding farmland communities in Howard County, Maryland.

Do you want...

- up to 50 large semi and commercial trucks on our rural roads per day?
- to jeopardize the safety of our school children, runners, cyclists?
- groundwater and air contamination threatening your family's health?
- overbearing odor for miles reaching your property and the school yard?
- mulch-grinder, back-up vehicle beepers and "Jake Brake" truck noises?
- large industries moving onto our local farms?

If not, we urge you to join our efforts!

We **must protect** Howard County farmland and make MAJOR amendments to the currently proposed CB 60-2017.

OUR CHALLENGE IS THIS COMING BACK...

JBRK, LLC/Orndorff Project 2014 Proposal:
Industrial MulchManufacturing, Soil Processing and Composting Facility on Dayton agricultural preservation farmland

Site: Green Bridge Road, Dayton, Maryland

Bob Orndorff still owns the Dayton farm!

Help DRPS to Preserve Dayton

Donate ~ Join our Email list ~ Like us on Facebook ~ Follow us on Twitter
Knock on Doors ~ Post Flyers ~ Volunteer your Time and Talent!!

Howard County has added to over 21,000 acres of permanently preserved farmland in Howard County's Rural West.

County Executive Kittleman made a strong campaign promise back in 2014 when we gave him a platform to voice his position on the issue of industrial mulching. He publicly stated:

"In response to your inquiry regarding industrial mulching on agricultural farm land, I can unequivocally state that I am opposed.There have been three major public hearings on this issues: one at Dayton Oaks Elementary School, one in Sykesville and another at the Ten Oaks Ballroom with an estimated attendance of over five hundred, where I stated that I firmly opposed industrial mulching. As County Executive, I will actively continue my opposition."

Please hold County Executive Kittleman to his promise!

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Next upcoming event...

County Council Meeting
July 17, 2017
Banneker Room
George Howard Bldg
Ellicott City, MD

Get updates, cause for concern and call to action.

Keep your signs for
future legal matters!
Stay tuned for more info!

DRPS Mission:

Working to change zoning laws and preserve the rural nature of Dayton, Maryland and those farms in agricultural preserve.
HELP PRESERVE DAYTON

Please send a donation with a CHECK or Money Order to:
Dayton Rural Preservation Society, LLC
P.O. Box 88
Dayton, MD 21036

or PAY ONLINE by clicking on the Donate button below.

Donate

Dayton Rural Preservation Society, LLC
P.O. Box 88
Dayton, Maryland 21036
Email: info@PreserveDayton.com

Sayers, Margery

From: Donna Smeins Howard <daeva77@verizon.net>
Sent: Wednesday, July 12, 2017 10:12 AM
To: CouncilMail
Subject: CB60

Dear Council Members,
I am writing to let you know that I am opposed to CB60 without major amendments being made to it to protect the health and safety of the residents of the county and to close loopholes that allow businessmen to exploit what was meant to protect legitimate farming.

Donna Smeins Howard
daeva77@verizon.net

Sayers, Margery

From: michael pantos <mjpantos@yahoo.com>
Sent: Wednesday, July 12, 2017 10:07 AM
To: CouncilMail
Subject: CB60 NEEDS Amendments

Subject: Opposition to CB60 Without Major Amendments
County Council,

We are very concerned with CB60 which will allow for industrial mulching and composting on ag preserve farmland and on all of RR/RC throughout Howard County. The current zoning language contained in CB60 is unacceptable and not only puts the rural communities at risk for well-documented safety and health concerns from industrial mulching, but now also makes this a countywide issue.

As it currently reads, there are clear loopholes that will allow those posing as tree farmers to conduct industrial mulching activities from 2 acres up to 5 acres, depending on whether on Howard County ag (ALPP), RR or RC parcels. This will result in unacceptable risks to ensuring the well-being of children, families and all individuals living in affected areas. Furthermore, DPZ has demonstrated a clear inability to enforce clear violators of CB20. We now ask, how can DPZ protect our families when loopholes in CB60 will allow for industrial mulching to occur, making enforcement even more challenging?

County Executive Kittleman, through CB60 introduced on his behalf, has simply not keep to his campaign promise to ensure that there is no possibility of industrial mulching on both Howard County and State of MD ag preserve parcels, despite his recent claims to the contrary. There is no separate section in CB60 that deals with State of MD ag (MALPF) restrictions (only Howard County ag). We worked hard to get State of MD ag restrictions included in the current zoning language for CB20 and are disappointed that it has been omitted from CB60.

There are many other key amendments needed in CB60 to make it acceptable to the health and well-being of thousands of families throughout Howard County. We are counting on the County Council to course correct with amendments added to CB60 to clearly prevent any chance of industrial mulch facilities from operating throughout farmland in Howard County, other than in M1/M2 commercially zoned land. This is the only way our Councilmembers will ensure everyone in potentially affected areas continues to be protected by current zoning regulations defined in CB20. Please take this matter seriously and add needed amendments to CB60 that we feel is unacceptable as it now stands.

Here are our MAJOR concerns with CB60

NO restrictions on use or scale

NO restrictions on amount of mulch/compost/wood waste in or out of the facility

NO restrictions on commercial sale of any kind ENDLESS/LIMITLESS trucking in and out of wood waste into the facility (18-wheeler tractor-trailers and 3-axle large commercial trucks)

ENDLESS/LIMITLESS mulch or compost trucked out after industrial processing at the facility (18-wheeler tractor-trailers and 3-axle large commercial trucks)

NO requirement to be associated with tree farming or legitimate farming of ANY kind

NO restriction on size or frequency of trucks in and out of the facility all day long

NO restrictions on State of MD ag farmland (MALPF)

ALLOWS for retail sale on site at the facility

NO ability for DPZ to enforce CB60 for mulching/composting given what it allows (unacceptable). DPZ has shown an inability to enforce, or has chosen to exercise selective enforcement discretion, for even clear violators of CB20. To expect anything more from DPZ would be ridiculous (how can they distinguish between mulch and compost when they admit they can't even measure/enforce something as simple as mulch pile height).

Thank you.

Dr. Michael Pantos

Sayers, Margery

From: Richard Taber <rbtaber@gmail.com>
Sent: Wednesday, July 12, 2017 8:42 AM
To: CouncilMail
Subject: I Oppose CB60

Industrial mulching processing and distribution operations do not belong in a rural zone. Amendments are needed in CB60 to make it acceptable to the health and well-being of thousands of families throughout Howard County

Richard Taber
14032 Big Branch Drive, Dayton, MD 21036

Sayers, Margery

From: rstevo1@verizon.net
Sent: Wednesday, July 12, 2017 7:57 AM
To: CouncilMail
Subject: CB60

Dear County Council,

I am very concerned with CB60 which will allow for industrial mulching and composting on ag preserve farmland and on all of RR/RC throughout Howard County. The current zoning language contained in CB60 is unacceptable and not only puts the rural communities at risk for well-documented safety and health concerns from industrial mulching, but now also makes this a countywide issue.

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There are many other key amendments needed in CB60 to make it acceptable to the health and well-being of thousands of families throughout Howard County. We are counting on the County Council to course correct with amendments added to CB60 to clearly prevent any chance of industrial mulch facilities from operating throughout farmland in Howard County, other than in M1/M2 commercially zoned land. This is the only way our Councilmembers will ensure everyone in potentially affected areas continues to be protected by current zoning regulations defined in CB20. Please take this matter seriously and add needed amendments to CB60 that we feel is unacceptable as it now stands.

Thank you.
Russell S Staley

R. Steven Staley, CFP®, MBA
Retirement Planning Specialist
Paramount Planning Group
AXA Advisors, LLC.

6200 Old Dobbin Lane, Suite 100

Columbia, MD 21045
Office: (410) 309-3664
Facsimile: (410) 312-3157

Web Site: www.rstevenstaley.com

Sayers, Margery

From: Allison Colgan <abcolgan@yahoo.com>
Sent: Tuesday, July 11, 2017 9:51 PM
To: CouncilMail
Subject: Opposition to CB60

Dear County Council,

I am very concerned with CB60 which will allow for industrial mulching and composting on ag preserve farmland and on all of RR/RC throughout Howard County. The current zoning language contained in CB60 is unacceptable and not only puts the rural communities at risk for well-documented safety and health concerns from industrial mulching, but now also makes this a countywide issue.

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Thank you.
Allison Colgan Staley

Sayers, Margery

From: Faiza Malik <fmalik27@gmail.com>
Sent: Tuesday, July 11, 2017 6:06 PM
To: Fox, Greg; Weinstein, Jon; Ball, Calvin B; Terrasa, Jen; Sigaty, Mary Kay; Kittleman, Allan; CouncilMail
Subject: Opposition to CB60 Without Major Amendments

Dear County Council,

We are very concerned with CB60 which will allow for industrial mulching and composting on ag preserve farmland and on all of RR/RC throughout Howard County. The current zoning language contained in CB60 is unacceptable and not only puts the rural communities at risk for well-documented safety and health concerns from industrial mulching, but now also makes this a countywide issue.

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County Executive Kittleman, through CB60 introduced on his behalf, has simply not kept to his campaign promise to ensure that there is no possibility of industrial mulching on both Howard County and State of MD ag preserve parcels, despite his recent claims to the contrary. There is no separate section in CB60 that deals with State of MD ag (MALPF) restrictions (only Howard County ag). We worked hard to get State of MD ag restrictions included in the current zoning language for CB20 and are disappointed that it has been omitted from CB60.

We do not want up to 50 large semi and commercial trucks on our rural roads per day. We do not want to jeopardize the safety of our school children, runners, cyclists. We do not want groundwater and air contamination threatening our family's health.

There are many other key amendments needed in CB60 to make it acceptable to the health and well-being of thousands of families throughout Howard County. We are counting on the County Council to course correct with amendments added to CB60 to clearly prevent any chance of industrial mulch facilities from operating throughout farmland in Howard County, other than in M1/M2 commercially zoned land. This is the only way our Councilmembers will ensure everyone in potentially affected areas continues to be protected by current zoning regulations defined in CB20. Please take this matter seriously and add needed amendments to CB60 that we feel is unacceptable as it now stands.

Thank you

Concerned Maryland Resident

US Composting Council®

Compost: Nature's Way to Grow!

July 11, 2017

Howard County Council
3430 Court House Dr,
Ellicott City, MD 21043

Dear County Councilmembers:

The US Composting Council has received the proposed CB-60-2017 ZR 180 amending Howard County Zoning Regulations, and supports the intent of the bill to allow activities supporting on-farm composting as an accessory use.

After review of the bill the USCC believes that it would allow composting to enhance the preservation of farming in Howard County, one of Maryland's sixth most-populous jurisdictions. By providing the accessory use conditions proposed, farmers can take advantage of using locally sourced feedstock to produce soil-amending compost. This will be of benefit to Howard County, especially in a state where infrastructure is insufficient for the desires of large counties like Howard for increased diversion of compostable materials. From an economic development standpoint, this allows the local farm community to take advantage of the increased desire of municipalities and citizenry to divert compostable materials by allowing them to update their practices and serve the community at the same time. Moreover, more composting on farms will lead to greater use of compost in farming, which recycles nutrients back to the soil, improving the health of the soil and the helping to protect our water resources.

While achieving this goal, the proposed bill is sensitive to the community by ensuring these facilities are farm-oriented by limiting the size of facilities and limiting collection and processing of excess wood waste for emergencies such as storms. The USCC, and our sister organization, the Composting Council Research and Education Foundation, can provide training and other resources for farmers and others engaged in making compost.

We urge you to support on-farm composting in Howard County with your passage of this bill.

Sincerely,

Frank Franciosi
Executive Director

US Composting Council • 11130 Sunrise Valley Dr. Suite 350 Reston VA 20191
phone: 301.897.2715 • fax: 703-435-4390 • uscc@compostingcouncil.org • www.compostingcouncil.org

Sayers, Margery

From: Cary Oshins <cary.oshins@compostingcouncil.org>
Sent: Tuesday, July 11, 2017 5:00 PM
To: CouncilMail
Cc: Keith Ohlinger; Frank Franciosi
Subject: Letter in support of ZRA 180
Attachments: Howard Cnty MD ZRA 180 on farm composting USCC support letter FINAL.pdf

Please find attached the letter in support of ZRA 180 from the US Composting Council.

Regards,
Cary Oshins | Associate Director | US Composting Council
phone: 301.897.2715 x4 | Mobile: 484.547.1521 | fax: 301.530.5072 | cary.oshins@compostingcouncil.org
CA Office: 709 Modesto Ave, Santa Cruz, CA 95060
Main Office: 11130 Sunrise Valley Drive, Suite 350, Reston, VA 20191
compostingcouncil.org | buy-compost.com/
Follow us:

Sayers, Margery

From: Jason Aungst <jaung001@gmail.com>
Sent: Tuesday, July 11, 2017 3:41 PM
To: Fox, Greg; Weinstein, Jon; Ball, Calvin B; Terrasa, Jen; Sigaty, Mary Kay; Kittleman, Allan; CouncilMail
Subject: opposition to CB-60
Attachments: Oppose CB-60 letter to HCC.doc

Howard County Council members,

CB-60 as written threatens the health and safety of our families and presents the potential for long term disabilities and neurodevelopmental dysfunction in babies and children. One of the most insidious effects of industrial mulching/composting is the potential for ground water contamination. State of the art facilities, such as the Alpha Ridge Landfill site, have extensive prevention and mitigation systems in place to prevent just such contamination. CB-60 will permit industrial mulching without these safeguards in place and does not safeguard the community from the potential contamination.

Groundwater contamination from industrial mulching and composting is a serious issue with multiple demonstrated cases available for review. Recently in 2016, the Suffolk county NY Department of Health Services issued a report titled *Investigation of the Impacts to Groundwater Quality from Compost/Vegetative Organic Waste Management Facilities in Suffolk County*. (http://www.suffolkcountyny.gov/Portals/30/reports/2016/groundwaterquality_report_012216.pdf) To quote from that report "The primary constituent that exceeded groundwater and drinking water standards most frequently, and at the highest concentrations, was manganese. Other metals such as antimony, arsenic, beryllium, cadmium, chromium, cobalt, germanium, molybdenum, thallium, titanium and vanadium exhibited detection rates that were at least two times that of typical Suffolk County shallow private

wells."

A number of these chemicals I just mentioned are carcinogens – well demonstrated cancer causing compounds. The others can produce varying types of toxicity to various organs including the kidneys, liver, and brain. The toxicity of these compounds is well documented with information readily available online for anyone who cares to look.

To be brief, let's focus on the serious debilitating consequences of the compound mentioned that was found at the "highest concentrations" - manganese. Several aspects of manganese toxicity have been known and well documented for some time, for example, increases in infant mortality, liver damage, reproductive effects, and neurotoxicity or brain damage. For this area of neurotoxicity, recent scientific research on how manganese builds up in the body and how it acts in the brain and nervous system suggests the potential for serious

implications during brain development, for example, in fetuses and infants, with long lasting repercussion throughout life.

A 2012 scientific article[1] in Current Environmental Health Reports states that "Exposure to manganese (Mn) causes clinical signs and symptoms resembling, but not identical to, Parkinson's disease." Another recent article in Frontiers in Aging Neuroscience[2] describes manganese toxicity as "comprising cognitive deficits, neuropsychological abnormalities, and parkinsonism." Symptoms of Parkinson's disease are often due to effects on the dopaminergic system and motor control areas of the brain. However, this same article cites additional recent research studies suggesting effects on the cerebral cortex, the cognitive or thinking part of the brain, as well.

We have all seen the motor control problems associated with Parkinson's disease and the memory and cognitive problems often displayed with Alzheimer's disease. These symptoms are debilitating and would be horrendous to suffer due to manganese poisoning as an adult with a brain that is fully developed. Now imagine what this type of toxicity would do to a developing brain. The dopamine transmitter system and the neural connections controlling thinking and movement are still growing and forming the proper pathways and connections during pregnancy, as an infant, and well into childhood. Interruption or disruption of any of the myriad of processes involved in this neurodevelopment could have long term and disastrous effects on IQ and cognitive and motor function. These effects would result in a lifetime of medical care and expense.

Research is currently underway aimed at addressing and better characterizing the varying components of manganese toxicity on neurodevelopment. There are still data gaps in understanding the susceptibility and sensitivity of the brains of fetuses, infants, and children to the effects of manganese toxicity. This is evident in the number of recent research articles found by searching the US National Library of Medicine's database, Pubmed.gov, for manganese and neurodevelopment.

Part of the potential risk of manganese poisoning in infant and children is that there are no clear biomarkers for properly measuring body load or body burden of manganese. As stated in a 2016 Environmental Health research article[3] "research on biomarkers feasible for fetuses and infants is urgently needed given their unique vulnerability to excessive Mn." Manganese does not stay in the blood long, making these types of measurements inconclusive. However, as stated in the Current Environmental Health Reports article I mentioned earlier, "Recent data suggest Mn accumulates substantially in bone, with a half-life of about 8–9 years expected in human bones." Eight to nine years! That means manganese is slow to leave the body. With a source of chronic exposure, such as through contaminated drinking water, manganese levels will continue to build up and remain in the body for years. This means that even minimal levels of ground water contamination could result in excessive body burdens and the delayed onset of effects, which might not be seen for years. Infants, children, or adults could have subclinical (subtle) symptoms that would be overlooked and not realized or evaluated until years after the poisoning and damage has been done.

Manganese toxicity is well recognized in the scientific, medical, and regulatory communities. This is evident from the number of regulatory limits set on water, food, and occupational exposures. These groups also

recognize the potential for disastrous and debilitating health effects of manganese poisoning and that the mechanisms and potential sensitivities and susceptibilities of fetuses, infants, and children are still not fully understood. As a parent and a member of the Howard County Community with education and training in neuroscience, I find that CB-60 permitting industrial mulching and the potential contamination and serious health impacts as a result are unacceptable. I urge the Committee to amend CB-60 to reject industrial mulching and protect the health and safety of our community and families.

Jason Aungst, Ph.D.

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[1] Manganese Toxicity Upon Overexposure: a Decade in Review. Curr Environ Health Rep. 2015 Sep; 2(3): 315–328.

[2] Guilarte TR. 2013. Manganese neurotoxicity: new perspectives from behavioral, neuroimaging, and neuropathological studies in humans and non-human primates. Front Aging Neurosci 5:23

[3] Measuring the impact of manganese exposure on children's neurodevelopment: advances and research gaps in biomarker-based approaches. Environ Health. 2016 Aug 30;15(1):91.

7/11/2017

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To be brief, let's focus on the serious debilitating consequences of the compound mentioned that was found at the "highest concentrations" - manganese. Several aspects of manganese toxicity have been known and well documented for some time, for example, increases in infant mortality, liver damage, reproductive effects, and neurotoxicity or brain damage. For this area of neurotoxicity, recent scientific research on how manganese builds up in the body and how it acts in the brain and nervous system suggests the potential for serious implications during brain development, for example, in fetuses and infants, with long lasting repercussion throughout life.

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Research is currently underway aimed at addressing and better characterizing the varying components of manganese toxicity on neurodevelopment. There are still data gaps in understanding the susceptibility and sensitivity of the brains of fetuses, infants, and children to the effects of manganese toxicity. This is evident in the number of recent research articles found by searching the US National Library of Medicine's database, Pubmed.gov, for manganese and neurodevelopment.

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Manganese toxicity is well recognized in the scientific, medical, and regulatory communities. This is evident from the number of regulatory limits set on water, food, and occupational exposures. These groups also recognize the potential for disastrous and debilitating health effects of manganese poisoning and that the mechanisms and potential sensitivities and susceptibilities of fetuses, infants, and children are still not fully understood. As a parent and a member of the Howard County Community with education and training in neuroscience, I find that CB-60 permitting industrial mulching and the

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Jason Aungst, Ph.D.

Sayers, Margery

From: Ellen Sowry <ellenbsowry@yahoo.com>
Sent: Tuesday, July 11, 2017 2:47 PM
To: CouncilMail
Cc: James Sowry
Subject: CB60

Dear County Council Members-

We would like to first thank you all immensely for the work that you do to help our county. We are so grateful to have such hardworking individuals representing us and working together to make our county the amazing place that it is to live!

The reason that we are writing today is that we are very concerned with CB60 as it is currently written, which could allow for industrial mulching and composting on agricultural preserve farmland and on all of RR/RC throughout Howard County. The current zoning language contained in CB60 is unacceptable and not only puts the rural communities at risk for well-documented safety and health concerns from industrial mulching, but now also makes this a countywide issue.

As it currently reads, there are clear loopholes that will allow those posing as tree farmers to conduct industrial mulching activities from 2 acres up to 5 acres. This will result in unacceptable risks to the residents of Howard County. Like many of the county's western residents, we are on well water, which will become undrinkable with large scale mulching in the area. In addition, the large trucks that would be used to bring raw materials in and take mulch out would be unsafe on our rural roads, where our community members ride their bikes, my children get the bus to school, and our local farmers drive their farm equipment. There are also the added risks of mulch fires, which are difficult if not impossible to control with the limited public water supply in the western county, air pollution and the associated health risks, and noise pollution.

County Executive Kittleman, through CB60 introduced on his behalf, has simply not keep to his campaign promise to ensure that there is no possibility of industrial mulching on both Howard County and State of MD ag preserve parcels, despite his recent claims to the contrary. There is no separate section in CB60 that deals with State of MD ag (MALPF) restrictions (only Howard County ag). We worked hard to get State of MD ag restrictions included in the current zoning language for CB20 and are disappointed that it has been omitted from CB60.

There are many other key amendments needed in CB60 to make it acceptable to the health and well-being of thousands of families throughout Howard County. We are counting on the County Council to course correct with amendments added to CB60 to clearly prevent any chance of industrial mulch facilities from operating throughout farmland in Howard County, other than in M1/M2 commercially zoned land. This is the only way our Councilmembers will ensure everyone in potentially affected areas continues to be protected by current zoning regulations defined in CB20. Please take this matter seriously and add needed amendments to CB60 that we feel is unacceptable as it now stands.

Thank you very much for your time and consideration-

Ellen and James Sowry

Sayers, Margery

From: Albert Risdorfer <arisdorfer@yahoo.com>
Sent: Tuesday, July 11, 2017 11:52 AM
To: CouncilMail
Cc: John Tegeris
Subject: CB60

I have MAJOR concerns with CB60 as it is currently proposed: To summarize this bill has:

NO restrictions on use or scale

NO restrictions on amount of mulch/compost/wood waste in or out of the facility

NO restrictions on commercial sale of any kind (even retail sales on site at the facility)

ENDLESS/LIMITLESS trucking in and out of wood waste into the facility (18-wheeler tractor-trailers and 3-axle large commercial trucks)

ENDLESS/LIMITLESS mulch or compost trucked out after industrial processing at the facility (18-wheeler tractor-trailers and 3-axle large commercial trucks)

NO requirement to be associated with tree farming or legitimate farming of ANY kind

NO restriction on size or frequency of trucks in and out of the facility all day long

NO restrictions on State of MD ag farmland (MALPF)

NO ability for DPZ to enforce CB60 for mulching/composting given what it allows (unacceptable). DPZ has shown an inability to enforce, or exercised selective enforcement discretion, for even clear violators of CB20. To expect anything more from DPZ would be ridiculous (how can they distinguish between mulch and compost when they admit they can't even enforce something as simple as mulch pile height).

ALLOWS for Tier I and Tier II composting, which means on Howard County ag, RR and RC composting of grass, leaves, food waste, manure and in some case animal carcasses is allowed (3-5 acres near you).

If this is Kittleman's idea of good leadership, then he needs to go!! And so does any other person on the council who can't put the needs of the citizens first over $$$.

CB60 is blatantly irresponsible and reckless in terms of the risks it puts on residents, families, children throughout all of Howard County.

Bottom line, CB60 does not get the job done to protect residents in the rural communities and beyond. Keep industrial mulching/composting facilities located in M1/M2 commercial zones, and make sure if they exist in those areas they are run properly to also keep nearby residents safe from any health risks (i.e., protection from mulch dust). Please stand with us as one unified voice of thousands to express your unwillingness to accept CB60 as is.

DO YOUR JOB!!!!!!

Sayers, Margery

From: Gus and Katie Truedson <gktruedson@yahoo.com>
Sent: Tuesday, July 11, 2017 11:07 AM
To: Ball, Calvin B; Kittleman, Allan; CouncilMail; Terrasa, Jen; Sigaty, Mary Kay; Fox, Greg; Weinstein, Jon
Subject: Opposition to CB60 Without Major Amendments

County Council,
We are very concerned with CB60 which will allow for industrial mulching and composting on ag preserve farmland and on all of RR/RC throughout Howard County. The current zoning language contained in CB60 is unacceptable and not only puts the rural communities at risk for well-documented safety and health concerns from industrial mulching, but now also makes this a countywide issue.

As it currently reads, there are clear loopholes that will allow those posing as tree farmers to conduct industrial mulching activities from 2 acres up to 5 acres, depending on whether on Howard County ag (ALPP), RR or RC parcels. This will result in unacceptable risks to ensuring the well-being of children, families and all individuals living in affected areas. Furthermore, DPZ has demonstrated a clear inability to enforce clear violators of CB20. We now ask, how can DPZ protect our families when loopholes in CB60 will allow for industrial mulching to occur, making enforcement even more challenging?

County Executive Kittleman, through CB60 introduced on his behalf, has simply not keep to his campaign promise to ensure that there is no possibility of industrial mulching on both Howard County and State of MD ag preserve parcels, despite his recent claims to the contrary. There is no separate section in CB60 that deals with State of MD ag (MALPF) restrictions (only Howard County ag). We worked hard to get State of MD ag restrictions included in the current zoning language for CB20 and are disappointed that it has been omitted from CB60.

We do not want up to 50 large semi and commercial trucks on our rural roads per day. We do not want to jeopardize the safety of our school children, runners, cyclists. We do not want groundwater and air contamination threatening our family's health.

There are many other key amendments needed in CB60 to make it acceptable to the health and well-being of thousands of families throughout Howard County. We are counting on the County Council to course correct with amendments added to CB60 to clearly prevent any chance of industrial mulch facilities from operating throughout farmland in Howard County, other than in M1/M2 commercially zoned land. This is the only way our Councilmembers will ensure everyone in potentially affected areas continues to be protected by current zoning regulations defined in CB20. Please take this matter seriously and add needed amendments to CB60 that we feel is unacceptable as it now stands.

Thank you.

Gus and Katie Truedson

Sayers, Margery

From: Bill Banwarth <billbanwarth@verizon.net>
Sent: Tuesday, July 11, 2017 11:04 AM
To: CouncilMail
Subject: Opposed to Council Bill 60

I am very opposed to CB 60 and urge the Council to not approve this Bill as it is written. The Citizens of Howard County have for many years faithfully entrusted the County Council to allocate our tax revenues to purchase agricultural preservation commitments on over 70 farms in the County. We have relied upon our elected officials (You) to continue to promote the ag preservation programs for the future good of our County. The CB 60 is skillfully worded in a manner so that it can be used to develop and operate industrial operations such as mulch plants on Agricultural Preservation properties . The Bill should be rewritten so that any mulching done on the Ag preservation properties must come from only trees actually grown on that property and be as a minor accessory use to that farm's primary farming program. The land area involved for the mulching activity should be limited to one quarter acre, including all mulching processes, equipment, and the storage of trees, stumps and finished mulch. In addition, the mulching activities should be permitted only on land that is actively farmed. Also, the mulching operation should be permitted only when the operator of the mulching activity is the same active farmer of the Ag preservation farm.

We have spent millions of dollars of tax revenue to promote and preserve farming in our beautiful County. Farms operating on Ag preservation property receive a much lower tax rate. Any and all Ag preservation property used for commercial/industrial activities such as mulch manufacturing should be at the tax rate comparable to the tax rate of similar commercial and/or industrial business firms, and not at the lower farm preservation rate.

Again, I ask you not act on this Bill as it is written. It needs to be rewritten in a fair and equitable manner, by a work group of involved parties that is composed of an equal balance of farmers, citizens, and involved parties. The working group that prepared the recommendations leading to CB 60 certainly lacked a fair balance, and appears to be heavily composed of members who were very pre disposed toward permitting mulching activities on Ag preservation properties.

Respectfully submitted,

Bill Banwarth
Email:billbanwarth@verizon.net
Sent from my iPad

Sayers, Margery

From: angela@thefreitags.net
Sent: Tuesday, July 11, 2017 10:58 AM
To: boe@hcpss.org; schoolplanning@hcpss.org; CouncilMail; Weinstein, Jon; Ball, Calvin B; Terrasa, Jen; Sigaty, Mary Kay; Fox, Greg
Subject: 2017 Feasibility Study

Dear Board of Education Members, County Council Members, and School Planning Committee,

I am writing to express my concerns about the redistricting plan as described in the Howard County Board of Education 2017 Feasibility Study.

My family lives in Polygon 179 and I have concerns about the proposed High school redistricting. Although I understand the challenges the county is experiencing with overcrowding and I support plans to solve the problems starting in the lower schools (elementary and middle), I have significant concerns about moving my high school student, or any high school student, when they have already started their high school career.

My daughter, Natalie is a rising 9th grader at Marriotts Ridge HS. She has attended Manor Woods ES for 6 years, and Mt. View MS for 3 years. The proposal is that she would move after her 9th grade year from Marriotts Ridge HS to Glenelg HS. My concerns have nothing to do with the school that she is proposed to attend, but with the significant, emotional toll a move like this would place on her, or any high school aged student, for that matter. After 9 years with her core group of friends and given the social connections that she has made through her activities, a move to another high school could have serious potential detrimental effects on her emotional and mental state. When a student is removed from their peer group and social connections at this stage of their lives, the risk of depression, anxiety, and even suicidal ideation potentially increases. I have sadly witnessed this in my work. No one should have to experience this first hand in their own families.

But unfortunately, a friend and co-worker did experience this. Several years ago, her son was redistricted to another high school after 9th grade. In his 10th grade year, tragically, he committed suicide.
Obviously, other factors may have played a role in his decision, but his mom recalls that he came home each day complaining that he missed his old friends and that "things just weren't the same."

I have completed the survey and shared my concerns above, but wanted to include some additional points:

- Polygon 179, along with other polygons in our area, are slated to be redistricted from Marriotts Ridge High School to Glenelg High School. On Page 67 of the Feasibility study, the Post Measures chart demonstrates that these students will be moved from the UNDER CAPACITY MRHS to the OVER CAPACITY GHS. According to the Feasibility study, MRHS remains under capacity through the graduation of the class of 2021, who will be entering high school this fall. And GHS would be over capacity for all those 4 years.
- The High School redistricting plan is consistent with a movement of all level students across the county to more western schools. However, the Feasibility Study does not take into account the "game changing" factor of a new high school proposed for the Northeastern sector of the county, which would surely shift high school students back to a more eastern high school once the new high school is opened.
- The feasibility study proposes sweeping changes across the county, which I recognize are needed to balance enrollments at the schools. I am concerned, however, that by making so much change all at once that some factors will be overlooked. I am deeply concerned about having to readjust enrollments again in a few years to ameliorate unforeseen circumstances.
- The list of 14 criteria in Policy 6010 that are used for redistricting

planning does not include minimizing disruption to current students. How redistricting impacts the children, which I thought was the main priority in Howard County is not even on the list. This is shocking.

I am hopeful that the Board of Education, County Council Members, School Planning Committee, and all stakeholders of Howard County will put students first, and will recommend any or all of these measures in consideration of these factors:

- High School redistricting should be postponed until the opening of HS#13.
- In recognition of the under capacity state of MRHS, students who enter MRHS this fall in the 9th grade should be allowed to complete their high school education at MRHS rather than being moved to an over capacity GHS.
- Following siblings either across the county or certainly at MRHS, which is under capacity, should be permitted to complete their education with their siblings.

Thank you very much for your consideration of my points above. Please let me know if you want to discuss this further or if there is any other ways I can communicate my concerns.

Sincerely,
Angela Freitag
12312 Ericole Court
Ellicott City, MD 21042
410-531-3363

Sayers, Margery

From: Erin Allen <erin@contemps.com>
Sent: Tuesday, July 11, 2017 10:45 AM
To: Kittleman, Allan; CouncilMail
Subject: CB 60
Attachments: groundwaterquality_report_012216.pdf

So I have heard several times on various occasions through various channels that Industrial Mulch can't happen with CB-60. The following illustrates clearly how simple that process would be.

Through the ALPP

Step 1: Buy a farm

Step 2: Set up 3 acre composting facility for commercial shipment under county permit Section 128

Step 3: Plant 13.3 acres of trees on farm

Step 4: Apply for CU to operate NWWR on 2 acres

Step 5: Combine compost & mulching operations totalling 5 acres.

Under the above steps an operator can ship in and out minimally 40,000 tons of product each year using twenty 18 wheelers in and out everyday, spewing carcinogenic dust, and contaminating well water.

Through the MALPF it's even worse

Same as above, but instead of a 5-acre facility, the operator sets up a 10-acre NWWR/compost facility combined (5-acres of each through the CU process).

ALLOWS for Tier I and Tier II composting, which means on Howard County ag, RR and RC composting of grass, leaves, food waste, manure and in some case animal carcasses is allowed (3-5 acres near you)

ALLOWS for retail sales on site

Now you can continue to say there is no way industrial mulch can happen with CB60 but we all know that is simply not true.

It comes down to this there is NO way DPZ can enforce what will be allowed per CB60 (they can't even enforce clear violators of CB20)

Minimally you need to amend the bill to prevent shipping Mulch off of the "farm" through the ALPP and tie MALPF to the same rules ALPP lives under. This would satisfy true farmers that need mulch on their farms and prevent industrial size mulch facilities within vulnerable areas.

Finally I would like to point out a something you may not have considered previously. In Flint, MI the officials that helped create the drinking water disaster are being prosecuted. Keep in mind those officials didn't know from the outset the peril their residents would be subjected to. In contrast you folks have been made aware of the contamination that will happen to our drinking water as a result of Mulching facilities nearby. I believe the term is Gross Negligence. I have attached the NY study on contaminated well water near mulch facilities for your reference, flip back to the last paragraph of the conclusion before you hit tables and appendices.

Is the prosperity of an already very successful businessman really more important than the health and safety of your residents? I believe Howard County is better than that.

Thanks for your time,

Erin Allen
President
301-565-0445
301-565-0452 fax
erin@contemps.com
www.contemps.com
WOSB, DBE

CONTEMPORARIES
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COUNTY OF SUFFOLK

STEVEN BELLONE
SUFFOLK COUNTY EXECUTIVE

DEPARTMENT OF HEALTH SERVICES

JAMES L. TOMARKEN, MD, MPH, MBA, MSW
Commissioner

January 27, 2016

Eugene Leff, Esq.
Deputy Commissioner
New York State Department of Environmental Conservation
625 Broadway
Albany, NY 12233

David Vitale, P.E.
Director, Division of Materials Management
New York State Department of Environmental Conservation
625 Broadway
Albany, NY 12233

Carrie Meek Gallagher, MS, MBA, LEED AP BD&C
Regional Director
New York State Department of Environmental Conservation
SUNY @ Stony Brook
50 Circle Road
Stony Brook, NY 11790-3409

Dear Ms. Gallagher:

Attached is a Suffolk County Department of Health Services (SCDHS) report summarizing additional groundwater sampling conducted in the vicinity of vegetative organic waste management facilities (VOWM). This "Investigation of the Impacts to Groundwater Quality from Compost/Vegetative Organic Waste Management Facilities in Suffolk County" was conducted in follow up to a prior SCDHS groundwater investigation in the vicinity of the Great Gardens/Long Island Compost facility in Yaphank, NY, results of which were released by the New York State Department of Environmental Conservation (NYSDEC) in a 2013 report titled; *Horseblock Road Investigation, Yaphank NY.*

SCDHS initiated this additional study to investigate whether groundwater impacts similar to those observed in the Horseblock Road investigation would be observed downgradient of other VOWM sites. The attached report provides the results of groundwater samples taken downgradient of eleven VOWM sites between July of 2011 and October 2014.

OFFICE OF THE COMMISSIONER
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The results of this groundwater sampling effort confirm the prior observation of elevated metals, primarily manganese, and atypical elevated concentrations of radiological parameters, in groundwater downgradient of VOWM facilities. Based on these findings, the attached report provides specific recommendations to address these groundwater concerns, including revisions to NYSDEC Solid Waste Management regulations.

SCDHS would like to acknowledge our appreciation to the Region 1 Office of the New York State Department of Environmental Conservation for their assistance, and the New York State Department of Health (NYSDOH) Wadsworth Laboratory for performing a subset of the radiological analyses of the groundwater samples.

Sincerely,

James L Tomarken

James L. Tomarken, MD, MPH, MBA, MSW
Commissioner

JLT/srg

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Investigation of the Impacts to Groundwater Quality from Compost/Vegetative Organic Waste Management Facilities in Suffolk County

SUFFOLK COUNTY
DEPARTMENT OF HEALTH SERVICES

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January 22, 2016

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Executive Summary

The Suffolk County Department of Health Services (SCDHS) Office of Water Resources investigated impacts to groundwater at eleven current or former vegetative organic waste management (VOWM) sites located throughout Suffolk County. These investigations were prompted after samples collected from a residential drinking water well, and subsequently installed monitoring wells, located downgradient of the Long Island Compost/Great Gardens facility in Yaphank indicated several contaminants at concentrations in excess of New York State drinking water maximum contaminant levels (MCLs) and New York State Department of Environmental Conservation (NYSDEC) groundwater standards/guidance values. This report summarizes the data from 233 groundwater and two surface water samples that were collected from 30 temporary profile wells and six permanent monitoring wells installed by the SCDHS primarily downgradient of VOWM related sites. The general investigation approach used in this study is consistent with other landuse impact studies the SCDHS has performed in the past.

Samples were collected from July of 2011 through October of 2014. Elevated metals concentrations were the primary impact observed to the groundwater downgradient of the sites investigated. Elevated metals concentrations were observed in monitoring wells downgradient of 10 sites, and in four private wells downgradient of one site. The primary constituent that exceeded groundwater and drinking water standards most frequently, and at the highest concentrations, was manganese. Other metals such as antimony, arsenic, beryllium, cadmium, chromium, cobalt, germanium, molybdenum, thallium, titanium and vanadium exhibited detection rates that were at least two times that of typical Suffolk County shallow private wells. Additionally, the number of radiological detections (gross alpha and gross beta) was higher than what is typically observed in native Suffolk County groundwater. Relatively low concentrations of pesticides were reported at a majority of the sites, but due to past and current farming activities at many of the sites, these impacts cannot be exclusively attributable to VOWM activities. The pesticide dichlorvos was reported at two sites that have no apparent history of farming, and therefore its presence could be attributable to the VOWM activity. Additionally, low concentrations of pharmaceuticals, personal care products and wastewater related contaminants (PPCPWRCs) were consistently detected downgradient of the sites, and in some instances may be attributable to the VOWM activity at the sites.

The potential for the existence of private wells downgradient of the investigation sites was evaluated. Private well sampling surveys were performed at three of the sites. Site #1 was the only site that has private wells downgradient which exhibited degraded water quality consistent with VOWM related groundwater impacts. This information has been forwarded to the NYSDEC. The location of public water supply wellfields in the vicinity of each investigation site was also evaluated. Three of the eleven sites have public water supply wellfields located in the downgradient

groundwater flow direction. Two of the sites are located greater than 100 years of groundwater travel time to the wellfields, and the third site is located outside the wellfield's groundwater contributing area, therefore no public wellfields have been identified as being imminently threatened by the groundwater impacts observed in this study.

The data collected indicates that water quality downgradient of the vegetative organic waste management facilities studied exhibited impacts. Further evaluation indicates that groundwater impacts are attributable to VOWM activities at eight of the sites, and impacts were indeterminate at three sites. The water quality data shows similar impacts to the groundwater quality that was previously observed in the SCDHS data collected at the Great Gardens/Long Island Compost facility in Yaphank NY, and documented in the report entitled *Horseblock Road Investigation, Yaphank NY* issued by the New York State Department of Environmental Conservation. Most notably, an increase in metals concentrations, particularly manganese, and increased detections of radiological parameters (gross alpha and gross beta) were observed downgradient of both the Great Gardens/Horseblock Road Facility and the sites evaluated in this study. The groundwater impacts observed downgradient of the Great Gardens/Horseblock Road Facility do not appear to be unique to this facility. Similar groundwater impacts have now been observed at many compost/vegetative organic waste facilities throughout Suffolk County and appear to be related to the compost/vegetative waste operations taking place at these sites.

Based upon the study's findings and conclusions, the following recommendations are made:

- The NYSDEC should ensure that mechanisms are in place and that operating practices at VOWM facilities prevent detrimental impacts to groundwater and surface water quality.

- NYSDEC Part 360 Solid Waste Management Regulations governing VOWM facilities should be revised to protect against impacts to groundwater and surface water quality. Until this is accomplished, prior to the issuance of any new VOWM permits/registrations, the NYSDEC should evaluate, and take measures to ensure that any potential impacts to public/private wells, and/or surface water bodies located hydraulically downgradient of these facilities are mitigated.

- NYSDEC Part 360 Solid Waste Management Regulations should be expanded to include facilities that process vegetative organic type materials which currently do not fall under the purview of current regulations.

- The NYSDEC should further investigate the detection of parameters typically related to septic waste (e.g., pharmaceuticals, personal care products, wastewater related

contaminants, etc.) observed downgradient and within surface water run-off related to vegetative organic wastes.

- The NYSDEC should investigate the mechanisms that cause elevated concentrations of gross alpha/gross beta, metals, inorganic parameters and detections of pharmaceuticals and personal care products downgradient of compost/vegetative organic waste management sites.

- The Suffolk County Department of Health Services should continue to identify areas where private wells may be used downgradient of VOWM sites, and conduct private well sampling surveys as appropriate. The NYSDEC should provide an alternative water supply or filtration to owners whose on-site water sources are determined to have been impacted from VOWM operations.

- New or current facilities that are permitted or registered for vegetative organic waste operations should be required by the NYSDEC to assess the quality of the groundwater migrating from the site.

Summary of Findings

Site #	Site Name	Location	Impacted Groundwater from VOWM Activity Observed	Comments
1	Fifth Avenue	Speonk	Yes	Significant impacts observed in the on-site and 3 downgradient private wells.
2	Moriches-Riverhead Rd Farm	Eastport	Yes	Significant groundwater impacts observed in 2 of 3 monitoring wells.
3	Papermill Rd Facility	Manorville	Yes	Significant impacts observed in all 3 monitoring wells. Groundwater impacts from historical site use (landfill, septic sludge lagoons) also observed.
4	Exit 69 LIE Ramp	Manorville	Yes	Significant groundwater impacts observed in the groundwater profile well. Contaminants typically associated with septic waste observed in a pool of run-off water.
5	South Street Farm	Manorville	Indeterminate	Although slight groundwater impacts were observed, no definitive conclusions can be drawn due to the significant distance from the compost windrows to the monitoring wells.
6	Moriches-Yaphank Rd Farm	Manorville	Indeterminate	Although slight groundwater impacts were observed, no definitive conclusions can be drawn most likely due to the site not having any significant VOWM activity for 5 years prior to groundwater sampling.
7	East Main Street	Yaphank	Yes	Significant groundwater impacts observed in 4 of 5 monitoring wells.
8	LIE North Service Rd Farm	Yaphank	Indeterminate	Additional wells need to be installed further to the east in order to appropriately assess potential impacts from vegetative organic wastes. The significant distance from potential sources to well locations could be a confounding factor.
9	Islip Town Compost Facility	Ronkonkoma	Yes	Significant groundwater impacts observed in both the monitoring wells installed at this site.
10	Conklin St. Site	Farmingdale	Yes	Moderate groundwater impacts observed in 1 of 3 monitoring wells.
11	Peconic Ave Site	Medford	Yes	Significant groundwater impacts observed in 3 of 5 downgradient monitoring wells.

Background

In order to investigate the source of impacts to a private well located on Horseblock Road in Yaphank, in 2009, the Suffolk County Department of Health Services (SCDHS) initiated a groundwater investigation in the vicinity of the Great Gardens/Long Island Compost facility in Yaphank, N.Y. This groundwater investigation consisted of the installation and sampling of groundwater monitoring wells. The results of this investigation are included in a report entitled *Horseblock Road Investigation, Yaphank NY* and was released by the New York State Department of Environmental Conservation (NYSDEC) in July of 2013. This report concluded that the Great Gardens/Long Island Compost Facility was the source of the exceedances of groundwater standards for manganese, iron, thallium, gross alpha, gross beta, radium, chloride and ammonia.

The present study was undertaken to evaluate the groundwater quality downgradient of other vegetative organic waste management (VOWM) sites (e.g., storing of land clearing debris, composting, mulching, etc.) to determine if impacts similar to those documented at the Great Gardens/Long Island Compost facility were occurring. This study was performed in conjunction with the NYSDEC and the New York State Department of Health (NYSDOH). The NYSDEC primarily assisted in obtaining access for the SCDHS to install groundwater monitoring wells at the Town of Islip Compost Facility, and Brookhaven Town's Papermill Road Composting Facility, and also coordinating a subset of radiological analyses performed by the NYSDOH Wadsworth Laboratory.

Approach to Investigations

The investigations consisted of the installation of between one and five temporary profile monitoring wells at 10 of the sites, and six permanent monitoring wells at one site, for a total of 36 wells. These wells were located hydraulically downgradient of the site with respect to the direction of regional groundwater flow. Wells were installed to depths ranging from 65 feet to 135 feet deep, with a well screen five feet in length. Each of the temporary profile wells were initially sampled at the deepest level and then pulled up every ten feet and sampled again. This process was repeated until the top of the water table was reached. This procedure resulted in the collection of five to nine samples in each well, producing in an analytical profile of the groundwater from the top of the water table down to the depth at which the well was drilled. A total of 233 groundwater samples were collected. Samples were collected beginning in July of 2011 and continued through October of 2014. At two locations, surface water samples were collected and analyzed.

It should be noted that, except for Site #11, temporary profile wells were only installed in the general downgradient groundwater flow direction. The general approach used in this investigation is consistent with other landuse impact studies the SCDHS has performed in the past.

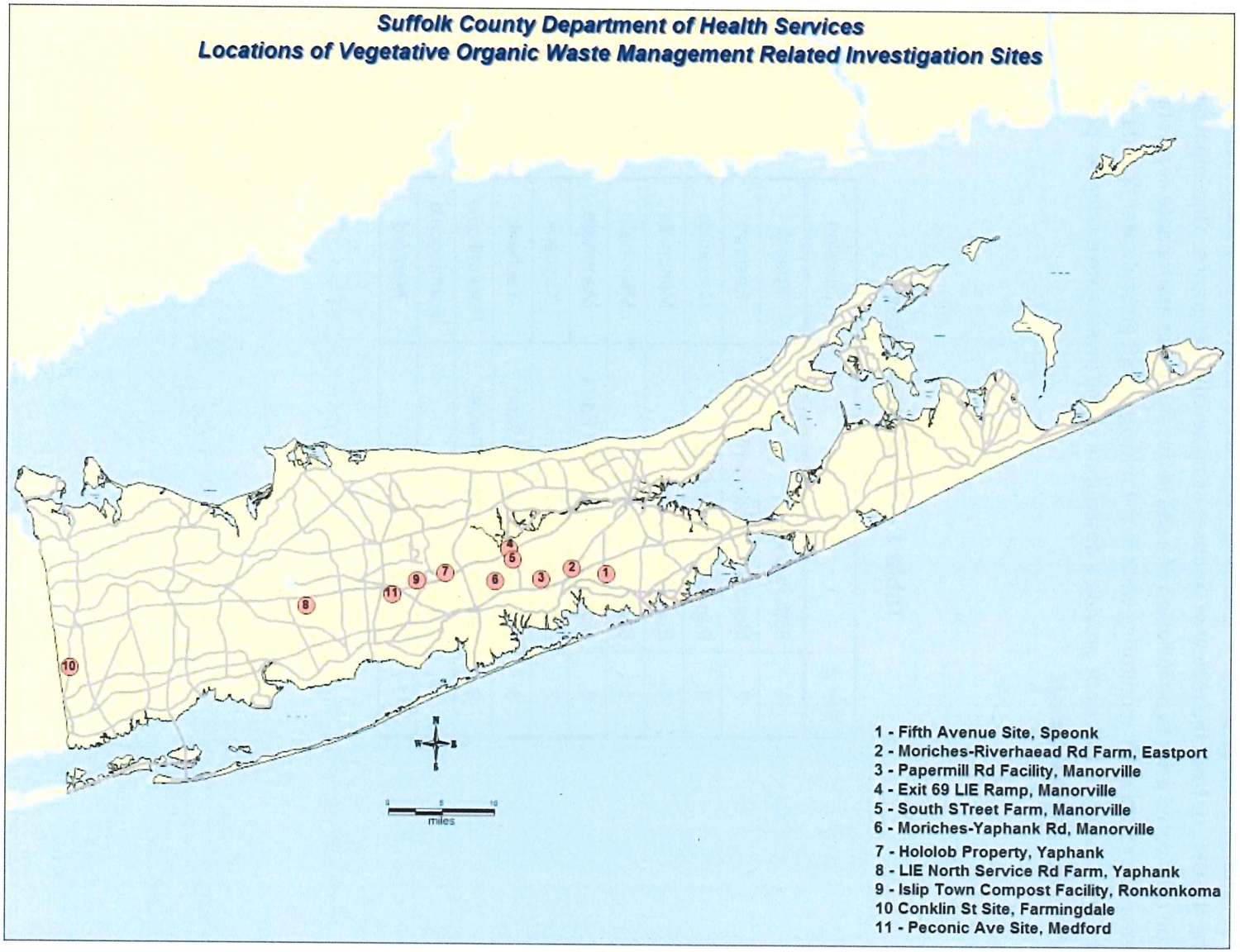
Sites

Table 1 lists the sites investigated for this study. Sites were selected either from information obtained from the NYSDEC, or from the review of landuses using aerial photographs. One important factor that had to be considered prior to an inclusion of a site in this study was appropriate access for the installation of groundwater monitoring wells in the downgradient groundwater flow direction from the site. The subsequent sections provide a description of the investigative activities performed at each of the sites and the findings.

Table 1 - List of Study Sites

Site #	Site Name	Location
1	Fifth Avenue	Speonk
2	Moriches-Riverhead Rd Farm	Eastport
3	Papermill Rd Facility	Manorville
4	Exit 69 LIE Ramp	Manorville
5	South Street Farm	Manorville
6	Moriches-Yaphank Rd Farm	Manorville
7	East Main Street	Yaphank
8	LIE North Service Rd Farm	Yaphank
9	Islip Town Compost Facility	Ronkonkoma
10	Conklin St. Site	Farmingdale
11	Peconic Ave Site	Medford

Figure 1 –Study Site Locations



Site #1
Fifth Avenue
Speonk, NY

Site Description

The site is located on a nine acre tax lot along Fifth Avenue in Speonk. Review of historical aerial photography (Appendix A) indicates that approximately half the site was cleared in 1947, and by 1969-70 the entire site was cleared and being used for the storage of vehicles. This site use appears to be consistent through 1999. The 2001 photograph shows the first indication of possible vegetative organic waste material on the site, primarily on the northern half of the property. All the subsequent aerial photographs (2004 – 2013) indicate significant VOWM activity across most of the site. The site is regulated by NYSDEC as a Part 360 Registered Facility, and is authorized to process unaltered wood. Another NYSDEC registered yard waste composting facility (Long Island Compost Farm #30) is located in the vicinity, to the northwest of this site (Figure 2).

SCDHS Monitoring Wells

The SCDHS installed 3 temporary profile monitoring wells in the vicinity of this site. The locations of these wells were based upon a south-southwest regional groundwater flow direction. Subsequent to the installation and sampling of these wells, additional site-specific groundwater flow direction information became available from the NYSDEC BB&S Lumber Superfund site, located just to the west of the facility (Figure 2). This site specific groundwater flow information indicated a slight variation from the regional groundwater flow direction, suggesting a more south-southeast groundwater flow direction. A consequence of the slight shift in groundwater flow direction is that the three temporary profile wells do not appear to be located downgradient of the target site. Therefore, the results from the three profile wells are not indicative of the water quality downgradient of this facility, and cannot be used to assess potential impacts of the site related activity on groundwater quality.

In each of the three wells, six levels were sampled resulting in the collection of 18 distinct groundwater samples. None of the parameters tested exceed their respective drinking water maximum contaminant levels (MCLs), guidance values or groundwater standards. However, as discussed above, information obtained subsequent to the installation of these wells indicate that they were not optimally located downgradient of the facility, and the results cannot be used to assess impacts to water quality from the operations from this facility.

Figure 2 - Site #1 & Vicinity – Fifth Ave, Speonk

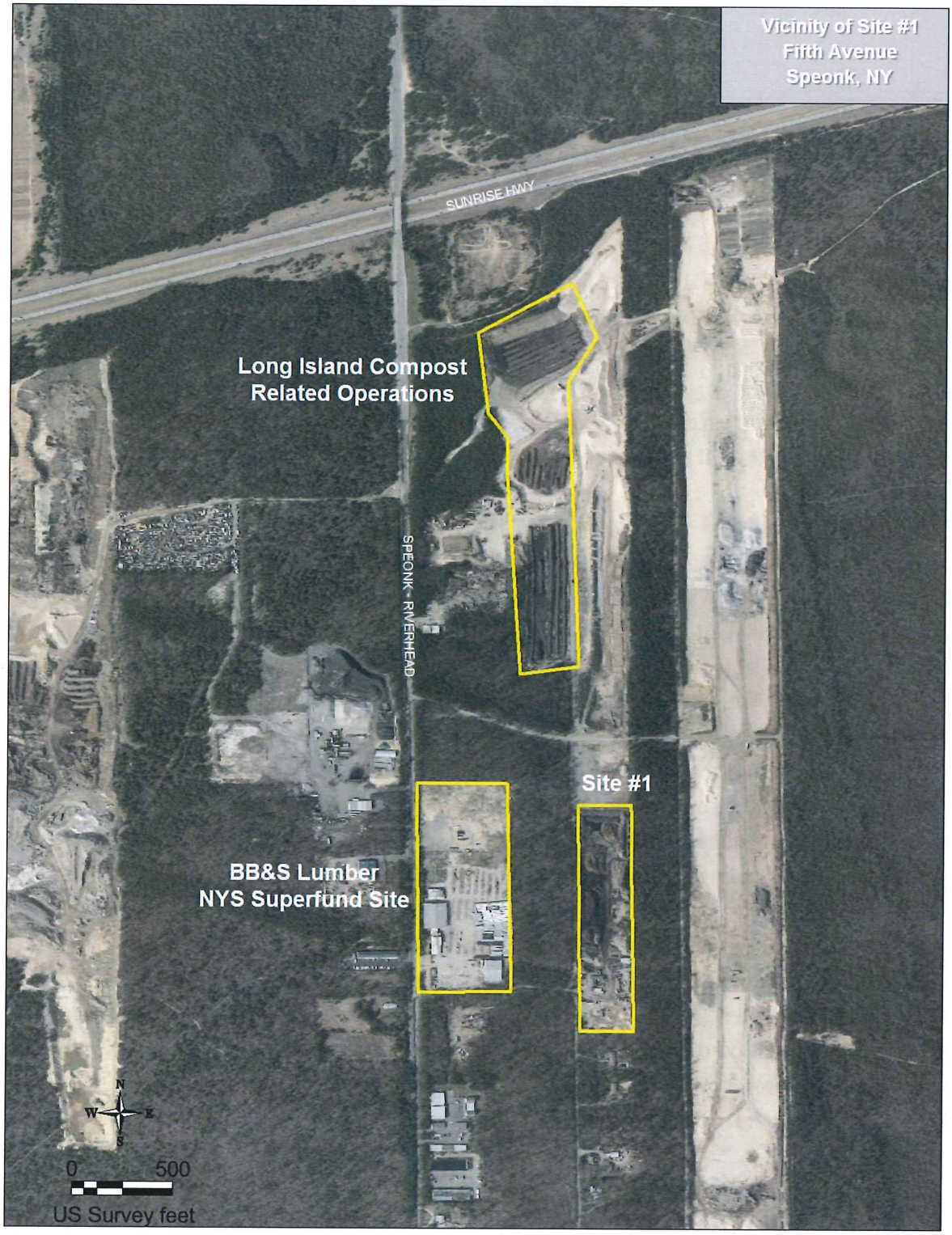


Figure 3 - Site #1 – Fifth Ave, Speonk Well Locations

Private Wells

Ten properties in the vicinity of this facility are located in the general downgradient direction from the site and are served by private wells (including the facility itself). Due to the proximity of this facility to the NYSDEC BB&S Lumber Superfund Site, the SCDHS and NYSDEC have historically conducted a number of private well sampling surveys in the area. Samples have been collected on some of these properties as early as 1999. A review of the data (SCDHS & NYSDEC) indicates that the quality of the water in four private wells are exhibiting impacts consistent with those from groundwater impacted at other vegetative organic waste management sites within Suffolk County. Recent sampling in all four of these private wells shows a general increasing trend in metal concentrations when compared with the older samples. Metals such as barium, manganese and potassium, which were also found at elevated concentrations downgradient of the Great Gardens/Long Island Compost Facility in Yaphank, exhibited particularly significant increases in these wells (e.g., in one well the 1999 manganese concentration was 8.8 parts per billion (ppb), by 2013 it had increased to 1,070 ppb). Since the older private well samples had relatively low concentration of these metals, it appears likely that more recent landuse activity upgradient of these wells has caused the degradation of the water quality in this area. The following analytes have been detected in these private wells at concentrations exceeding a drinking water and/or groundwater standard:

Manganese	**Zinc**
Copper	**Iron**

Public Wellfields

The nearest public supply wellfield is approximately 0.75 miles from the site and is not located downgradient of the site. Any impacts to groundwater quality as results of this site's operations would not be expected to affect the water quality of this wellfield.

Summary of Significant Analytical Results

Metals

As noted above, there was an increasing trend in the concentration of manganese, zinc, copper and iron in four of the private wells located downgradient of the site (e.g., in one well the 1999 manganese concentration was 8.8 parts per billion (ppb), by 2013 it had increased to 1,070 ppb). Other metals such as barium and potassium also showed increasing trends.

Discussion

The three groundwater monitoring wells installed at this site were subsequently found to be located side gradient of the site rather than downgradient, and therefore the results from these wells cannot be used to assess impacts to groundwater quality occurring from operations at this site. However,

since these wells are not located downgradient of this site, the information can be used to provide information on the general background water quality that may be expected in this area. Review of the private well data indicates that at least 4 private wells appear to have been impacted by VOWM related activities.

Wells Impacted by VOWM Activity

There were no profile wells that were affected; however, at least 4 private wells appear to be impacted in connection with VOWM related activities.

Table 2
Summary of Detected Analytes
Monitoring Wells Installed in the Vicinity of Site #1
Speonk, NY

Well Information			Parameters					Metals											
Well ID	Screen Interval (ft) (depth below grade)	Sample Date	Depth To Water (Feet)	Dissolved Oxygen(mg/L)	Temperature (Celsius)	pH	Conductivity (uS)	Aluminum (ppb)	Barium (ppb)	Cobalt (ppb)	Manganese (ppb)	Molybdenum (ppb)	Nickel (ppb)	Lead (ppb)	Strontium (ppb)	Magnesium (ppm)	Sodium (ppm)	Calcium (ppm)	Potassium (ppm)
DEC TOGS 1.1.1 Guidance Values			-	-	-	-	-	-	-	-	-	-	-	-	-	35	-	-	-
DEC Part 703 Class GA Groundwater Standards			-	-	-	-	-	-	1,000	-	300	-	100	25	-	-	20	-	-
DOH Drinking Water Standards Subpart 5-1			-	-	-	-	-	-	2,000	-	300	-	100	15***	-	-	-	-	-
CF-1	50-55	1/31/2012	41	6.24	11.8	5.4	74	28	17	<1	15	<1	<0.5	<1	64	2.9	5.6	2.7	0.9
	60-65	1/31/2012	41	6.44	11.7	5.6	43	12	8	<1	3	<1	<0.5	<1	24	1.3	3.8	1.4	0.5
	70-75	1/31/2012	41	6.52	11.7	5.7	49	7	9	<1	1	<1	<0.5	<1	19	1.5	4.2	1.7	0.6
	80-85	1/4/2012	41	8.75	10.2	6.12	62	<5	9	<1	<1	<1	<0.5	<1	17	1.9	5.3	1.5	0.5
	90-95	1/4/2012	41	9.93	10.2	6.2	48	<5	7	<1	<1	<1	<0.5	<1	12	1.2	4.2	0.9	0.4
	100-105	1/4/2012	41	9.36	9.2	6.1	61	<5	8	<1	<1	<1	<0.5	<1	16	1.7	4.7	1.5	0.4
CF-2	50-55	2/6/2012	41.65	5.99	12.9	6.71	69	19	18	2	39	<1	<0.5	<1	60	1.7	5.7	1.8	0.7
	60-65	2/6/2012	41.65	6.27	13.3	6.78	61	6	12	<1	2	<1	<0.5	<1	34	1.7	4.5	1.7	0.6
	70-75	2/6/2012	41.65	5.98	13	6.84	58	<5	11	<1	<1	<1	<0.5	<1	26	1.5	4.2	2.7	0.6
	80-85	2/6/2012	41.65	6.45	13	6.8	69	5	12	<1	<1	<1	<0.5	<1	23	2.2	5.6	1.7	0.6
	90-95	2/6/2012	41.65	7.04	13.4	6.98	50	15	7	<1	<1	<1	<0.5	<1	14	1.4	4.1	1	4
	100-105	2/6/2012	41.65	6.78	NA	7.32	60	<5	7	2	<1	<1	<0.5	1	17	1.6	4.4	1.3	0.4
CF-3	50-55	2/15/2012	41.6	6.71	12.5	6.55	77	32	2.1	<1	90	<1	1.1	<1	55	1.7	6.1	2.6	0.8
	60-65	2/15/2012	41.6	7.79	12.2	6.78	65	25	12	<1	4	<1	<0.5	<1	36	1.8	4.6	2.4	0.6
	70-75	2/15/2012	41.6	7.54	11.4	7.17	74	8	14	<1	2	<1	0.5	<1	31	2	5.3	2.5	0.7
	80-85	2/14/2012	41.6	7.08	11.8	8.71	175	18	15	<1	1	2	0.6	<1	26	2.7	5.7	2.1	0.7
	90-95	2/14/2012	41.6	8.41	11.6	7.55	53	<5	7	<1	<1	<1	<0.5	<1	15	1.5	4.2	1.1	0.4
	100-105	2/14/2012	41.6	8.43	11.4	9.93	69	<5	9	<1	<1	<1	<0.5	<1	22	1.9	4.9	1.8	0.4

Notes:
NA = Sample collected, analyte not reported
NS = No Sample Collected
"<" = less than, indicating no detection
ppb = part per billion
ppm = part per million
uS = micro siemens
☐ indicates concentration exceeds a standard or guidance value

Table 2
Summary of Detected Analytes
Monitoring Wells Installed in the Vicinity of Site #1
Speonk, NY

Well Information			Radiologicals (pCi/L)												Standard Inorganics				VOCs (ppb)
			SCDHS PEHL			NYSDOH Wadsworth													
Well ID	Screen Interval (ft) (depth below grade)	Sample Date	Gross Alpha	Gross Beta	Adjusted Gross Beta*(AGB)	Gross Alpha	Gross Beta	Ruthenium 106	Cesium 137	Zirconium 95	Potassium 40	Actinium 228	Radium 224	Radium 226	Chloride (ppm)	Sulfate (ppm)	Nitrate (ppm)	Total Alkalinity(mg CaCO3/L)	Chloroform (ppb)
DEC TOGS 1.1.1 Guidance Values			-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-
DEC Part 703 Class GA Groundwater Standards			15^	1,000^^	-	15^	1,000	-	-	-	-	-	-	-	250	250	10	-	7
DOH Drinking Water Standards Subpart 5-1			15	-	50**	15	-	-	-	-	-	-	-	5^^^	250	250	10	-	80
CF-1	50-55	1/31/2012	<1	6.9±0.7	6.7±0.7	<0.25	3.1 ±0.8	<2.9	<0.3	<0.78	<2.5	<1	NA	NA	10	11	<0.5	NA	1.3
	60-65	1/31/2012	<1	4.9±0.7	4.5±0.7	<0.18	0.8 ±0.7	<2.3	<0.23	<0.66	<2.1	<0.84	NA	NA	7	5	<0.5	NA	0.7
	70-75	1/31/2012	<1	5.0±0.7	4.5±0.7	<0.18	<0.8	<2.6	<0.24	<0.98	<2.1	<0.79	NA	NA	7	6	<0.5	NA	1.3
	80-85	1/4/2012	<1	<1	<1	<0.18	<0.8	<2.5	<0.24	<0.87	<1.9	<0.81	NA	NA	7	7	<0.5	8	0.7
	90-95	1/4/2012	<1	<1	<1	<0.17	<0.8	<3.1	<0.32	<1.2	<2.8	<1.1	NA	NA	6	6	<0.5	4	1.2
	100-105	1/4/2012	<1	<1	<1	<0.31	<0.8	<2.9	<0.31	<1.2	0.4 ±0.29	<1	NA	NA	7	7	<0.5	9	1.4
CF-2	50-55	2/6/2012	<1	3.1±0.2	2.5±0.2	<0.35	3 ±0.7	<2.4	<0.24	<0.8	<2.1	NA	NA	NA	9	6	<0.5	NA	0.8
	60-65	2/6/2012	<1	<1	<1	<0.37	1.4 ±0.6	<2.4	<0.24	<0.8	<2	NA	NA	NA	8	5	<0.5	NA	0.7
	70-75	2/6/2012	<1	<1	<1	<0.24	<1	<2.2	<0.25	<0.63	0.8 ±0.73	<0.64	NA	NA	7	6	<0.5	NA	1.2
	80-85	2/6/2012	<1	<1	<1	<0.25	<1	<2.7	<0.29	<0.7	<2.5	<0.82	NA	NA	8	6	<0.5	NA	1.4
	90-95	2/6/2012	<1	<1	<1	<0.22	<0.7	<2.2	<0.27	<0.57	<2.1	<0.82	NA	NA	5	6	0.5	NA	0.9
	100-105	2/6/2012	<1	<1	<1	<0.22	<0.7	<3.3	<2.8	<1.1	<2.4	1.3 ±0.8	NA	NA	5	7	0.6	NA	<0.5
CF-3	50-55	2/15/2012	<1	3.1+/-0.2	2.4±0.2	<0.2	3 ±0.8	<2.2	<0.27	<0.74	3.5 ±1.7	NA	NA	NA	11	5	<0.5	11	0.7
	60-65	2/15/2012	<1	1.4+/-0.1	0.9±0.1	<0.2	1.5 ±0.7	<2.4	<0.27	<0.73	1.9 ±1.2	NA	NA	NA	8	7	<0.5	7	0.9
	70-75	2/15/2012	<1	<1	<1	<0.28	<0.8	<2.5	<0.25	<0.64	<2.2	NA	0.88 ±0.76	NA	9	6	<0.5	10	1
	80-85	2/14/2012	<1	<1	<1	0.55 ±0.43	<0.8	<2.8	<0.32	<0.88	0.5 ±0.46	NA	NA	NA	8	6	<0.5	NA	1
	90-95	2/14/2012	<1	<1	<1	<0.22	<0.6	<2.6	<0.26	<0.66	3.5 ±1.9	NA	NA	NA	6	5	0.9	NA	0.9
	100-105	2/14/2012	<1	<1	<1	<0.27	<0.6	<3.1	<0.3	<0.87	<2.6	NA	NA	NA	6	7	0.8	NA	<0.5

Notes:
NA = Sample collected, analyte not reported
NS = No Sample Collected
"<" = less than, indicating no detection
ppb = part per billion
ppm = part per million
pCi = picocurie

^ = excluding radon and uranium
^^ = excluding strobtium-90 and alpha emitters
^^^ = MCL is for combined Radium 226 + Radium 228
* AGB = gross beta - 0.82* potassium conc. in mg/l
**AGB has a guidance activity value of 50 pCi/l that is used for screening under Subpart 5-1 of the NYS Sanitary Code
☐ indicates concentration exceeds a standard or guidance value

Site #2
Moriches-Riverhead Road Farm
Eastport NY

Site Description

The site is located on the south-west corner of Moriches-Riverhead Road and Port Jefferson-Westhampton Road, in Eastport. It consists of two tax parcels totaling 27 acres in size. Review of aerial photography (Appendix B) shows that the site was vacant in 1947, and although some structures appear on the northeast portion of the site in the 1984 photo, the majority of the land was still vacant. This is consistent on the 1994 and 1996 photos. In 1999, the first compost windrows appear on the site, parallel to the site's northwestern boundary. With the exception of 2001, these windrows are consistent up to and including the 2006 aerial photo. Several additional, smaller windrows appear on the site's northern and southern boundary in 2003 and only on the northern boundary in 2004. No windrows appear on the 2007 photo, and the 2010 and 2013 photos do not indicate any evidence of compost windrows on the site. This site is regulated by the NYSDEC as "Long Island Compost Farm #18", and is authorized to accept yard waste for composting.

SCDHS Monitoring Wells

The SCDHS installed three temporary profile monitoring wells (RC-1, RC-2 and RC-3) in the vicinity of this site, on Moriches-Riverhead Road, south of Eastport Manor Road. Figure 4 shows the location of the profile wells on the 2010 aerial photograph, and Figure 5 shows the well locations relative to the historic windrow locations on the 2006 aerial photograph. The locations of these wells were based upon a south-southwest regional groundwater flow direction, and were sited to assess past and/or current impacts from vegetative organic waste activity occurring on the parcels located south of Eastport Manor Road. All three wells were installed to a depth of 95 feet below grade (fbg), and sampled at 10 foot intervals as they were retracted. Five levels were sampled from RC-1, with the uppermost located at the 50 to 55 foot interval, whereas six levels were sampled in both RC-2 and RC-3, with the uppermost level located at the 40-45 foot interval, yielding a total of 17 groundwater samples collected and analyzed from this site. The following analytes were detected in the indicated monitoring wells at concentrations exceeding drinking water and/or groundwater standards:

Manganese (RC-2, RC-3)	**Sodium (RC-1, RC-2, RC-3)**
Magnesium (RC-2)	**Nitrate (RC-3)**

Table 3 contains a summary of the results of the analytes detected.

Figure 4 - Site #2 Well Locations -2010 Aerial Photograph

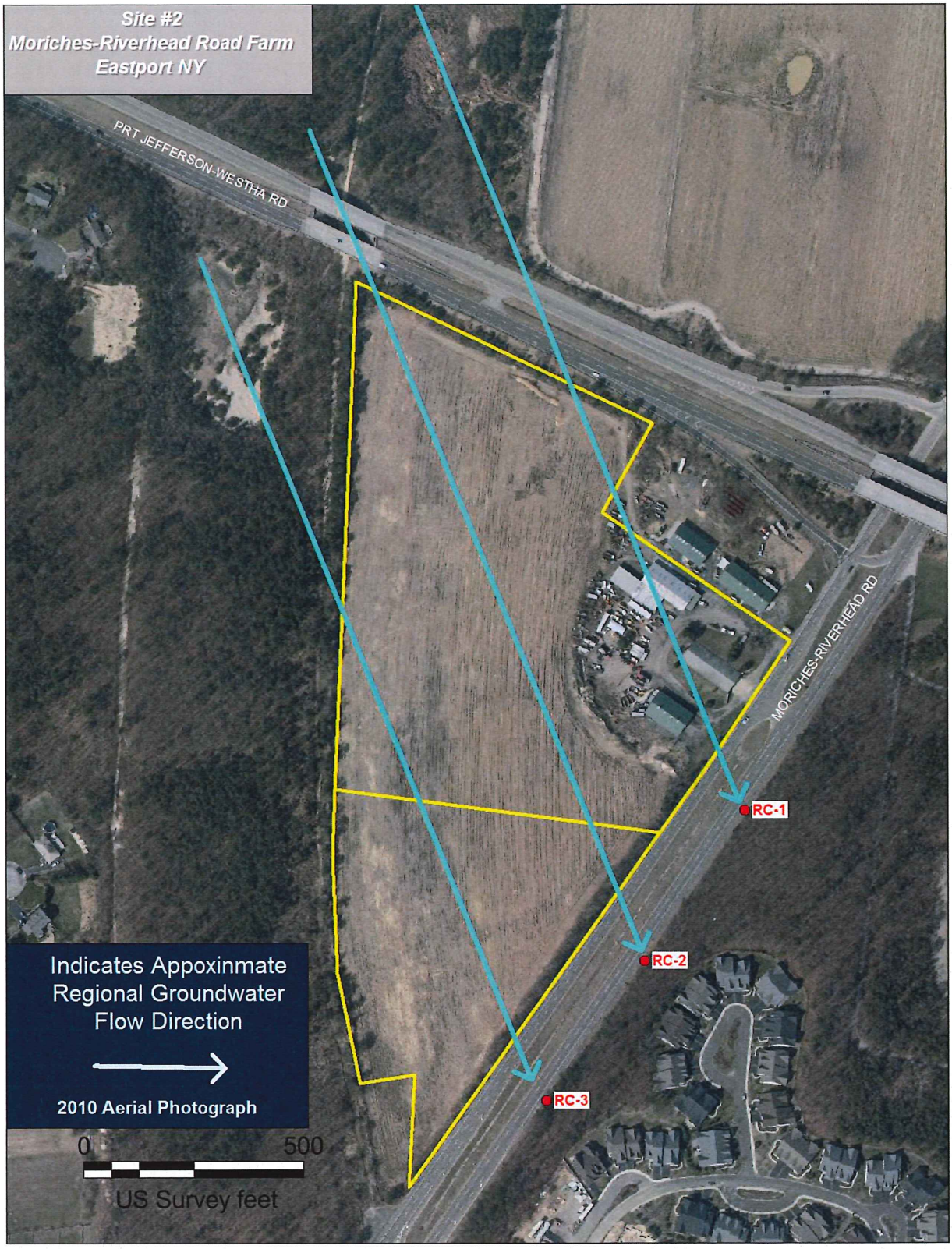


Figure 5– Site #2 Well Locations - 2006 Aerial Photograph

Private Wells

Five potential private wells were initially identified in the vicinity of this site. Subsequently, all five locations were confirmed to be served by public water.

Public Wellfields

The nearest public supply wellfield is approximately 1.1 miles from the site and is not located downgradient of the site. Any impacts to groundwater quality as results of this site's operations would not be expected to affect the water quality of this wellfield.

Summary of Significant Analytical Results

Metals

Of the three monitoring wells, RC-3 exhibited the most degraded water quality with manganese concentrations of 2,730 ppb, which is over nine times the NYS drinking water standard of 300 ppb. The sodium concentration exceeded the groundwater standard (20 ppm) in profile level 80-85 fbg (20.1 ppm). Other analytes were also detected in RC-3 at elevated concentrations, but their concentrations either did not exceed a drinking water standard, or no standard currently has been established. These include aluminum (up to 892 ppb), barium (up to 872 ppb), beryllium (up to 1.4 ppb), thallium (0.4 ppb), and potassium (up to 55.7 ppm).

Manganese concentrations in RC-2 also were elevated and exceeded standards in three profile levels (50-55 fbg, 60-65 fbg and 70-75 fbg) , with the highest concentration detected at 1,970 ppb in the 60-65 fbg profile level. Sodium concentrations were elevated, exceeding the groundwater standard (20 ppm) in four levels in both RC-1 (maximum 87.7 ppm) and RC-2 (maximum 70.4 ppm). The groundwater standard for magnesium (35 ppm) was exceeded in well RC-2 in the 50-55 fbg profile level (461 ppm), and for thallium (0.5 ppb) in RC-2 (0.6 ppb) and RC-3 (0.6 ppb) each at the 60-65 fbg profile level.

Radionuclides

Gross alpha concentrations, although not exceeding the drinking water standard, were elevated in RC-3 at concentrations above what is typically observed in Suffolk County groundwater (Table 16), the highest concentration (8.9 pCi/l) was in the 80-85 fbg profile level.

Other Notable Results

The drinking water and groundwater standards for nitrate (10 ppm) were exceeded in six of the eight profile levels of well RC-3 (up to 17.9 ppm). Ammonia was detected below the groundwater standard in the two deepest profile levels of well RC-3 (80-85 fbg and 90-95 fbg) at 0.76 ppm and 1.58 ppm respectively. All three wells had detections of the pesticide metolachlor and/or a

metolachlor metabolite. The pesticides simazine, atrazine and two atrazine metabolites were detected in low concentrations in well RC-3, as was the pesticide degredate 2,6-dichlorbenzamide.

Discussion

Review of historic aerial photographs of this site (Appendix B) indicates that the western portion of the site was used for VOWM activities for approximately eight years (1999 – 2006). VOWM activities are not evident in aerial photographs taken within the last seven years. Water quality data from the three monitoring wells installed hydraulically downgradient of this site indicate the western-most well (RC-3) exhibited the most degraded water quality, and the eastern well (RC-1) was the least impacted. The degraded water quality, particularly in well RC-3, is consistent with water quality impacts observed downgradient of the Great Gardens/Long Island Compost facility in Yaphank that were determined to be a result of VOWM activities.

Figure 5 is an aerial photograph of the site from 2006 that shows the site VOWM activity, the SCDHS monitoring wells, and the approximate direction of the regional groundwater flow direction in relation to each of the monitoring wells. This figure illustrates that water quality in well RC-3 appears to have been most influenced from the VOWM activity on this site. It also shows that water quality in well RC-2 may have been slightly influenced by the northern extent of VOWM activity, and water quality in well RC-1 does not appear to incur any influence from the VOWM activity. The extent of potential VOWM influence on each well's water quality, with respect to groundwater flow direction, appears to coincide with the severity of water quality degradation observed in each well (e.g., the more potential influence from VOWM activity, the more degraded the water quality).

Wells Impacted by VOWM Activity

Two of the three profile wells (RC-2 and RC-3) that were installed appear to have been impacted from past VOWM activity that occurred at this site.

Table 3
Summary of Detected Analytes
Monitoring Wells Installed in the Vicinity of Site #2
Eastport, NY

Well Information			Parameters					Metals												
Well ID	Screen Interval (ft)(depth below grade)	Sample Date	Depth To Water (Feet)	Dissolved Oxygen (mg/L)	Temperature (Celsius)	pH	Conductivity (µS)	Aluminum (ppb)	Barium (ppb)	Beryllium (ppb)	Chromium (ppb)	Manganese (ppb)	Nickel (ppb)	Strontium (ppb)	Thallium (ppb)	Titanium (ppb)	Magnesium (ppm)	Sodium (ppm)	Calcium (ppm)	Potassium (ppm)
DEC TOGS 1.1.1 Guidance Values			-	-	-	-	-	-	-	3	-	-	-	-	0.5	-	35	-	-	-
DEC Part 703 Class GA Groundwater Standards			-	-	-	-	-	-	1,000	-	50	300	100	-	-	-	-	20	-	-
DOH Drinking Water Standards Subpart 5-1			-	-	-	-	-	-	2,000	4	100	300	100	-	2	-	-	-	-	-
RC-1	50-55	2/21/2012	41.93	NS	NS	5.6	335	35	11	<1	<1	47	1.2	101	<0.3	<1	2.3	42.7	7.8	3.5
	60-65	2/21/2012	41.93	NS	NS	5.7	467	16	124	<1	<1	81	1.2	132	<0.3	<1	2.3	68.9	5.9	3.9
	70-75	2/21/2012	41.93	NS	NS	5.7	480	15	166	<1	<1	70	0.7	124	<0.3	<1	3.3	65.4	8.2	4.6
	80-85	2/21/2012	41.93	NS	NS	5.9	648	10	166	<1	<1	24	1	104	<0.3	<1	6.1	87.7	8	3.5
	90-95	2/21/2012	41.93	NS	NS	6.4	118	<5	8	<1	<1	3	<0.5	16	<0.3	<1	1.3	15.5	2	0.6
RC-2	40.45	3/6/2012	38.74	6.57	14.3	6.5	482	29	67	<1	<1	128	1.6	101	<0.3	2	3	70.4	11.7	3.6
	50-55	3/6/2012	38.74	9.09	14.1	5.7	205	49	291	<1	<1	461	1.5	131	<0.3	<1	461	10.3	7.8	9.9
	60-65	2/28/2012	38.65	5.77	13.5	5.7	206	29	158	<1	<1	1,560	1.8	64	0.6	<1	3.8	18.2	4.2	6.5
	70-75	2/28/2012	38.65	6.47	12.8	6.2	208	<5	48	<1	<1	1,970	<0.5	14	<0.3	<1	0.6	28.7	1.6	5.2
	80-85	2/28/2012	38.65	6.29	12.7	6.4	218	6	42	<1	<1	155	<0.5	23	<0.3	<1	1.6	29.5	1.9	4.3
	90-95	2/28/2012	38.65	5.18	12.6	6.4	215	<5	66	<1	<1	64	0.6	38	<0.3	<1	2.9	22.3	3.8	6.8
RC-3	40-45	3/20/2012	35.69	2.64	16.3	5.3	253	280	107	0.5	2	111	1.5	23	<0.3	<1	6.3	10.3	20	5.2
	50-55	3/20/2012	35.69	2.27	15.6	4.8	342	892	50	1.4	3	677	2.6	31	<0.3	<1	6.2	10.4	20.4	24.6
	60-65	3/20/2012	35.69	0.65	15.2	5.1	352	546	66	0.7	2	549	1.7	12	0.6	<1	5.8	9.1	9.3	46.7
	70-75	3/6/2012	35.69	3.4	14.1	5.3	425	636	63	0.6	<1	793	2.1	<2	0.4	<1	7.5	12.4	8.4	55.7
	80-85	3/6/2012	35.69	1.07	14.4	5.6	348	167	461	<0.3	<1	2,650	1.2	34	<0.3	<1	4	20.1	8.5	28
	90-95	3/6/2012	35.69	11.49	14.5	5.9	375	37	872	<0.3	3	2,730	6.3	44	<0.3	<1	5	18.2	11.1	30.5

Notes:
NA = Sample collected, analyte not reported
NS = No Sample Collected
"<" = less than, indicating no detection
uS = micro siemens

ppm = part per million
ppb = part per billion
indicates concentration exceeds a standard or guidance value

Table 3
Summary of Detected Analytes
Monitoring Wells Installed in the Vicinity of Site #2
Eastport, NY

Well Information			Radiologicals (pCi/L)												Standard Inorganics						VOCs (ppb)	
			SCDHS PEHL			NYSDOH Wadsworth																
Well ID	Screen Interval (ft) (depth below grade)	Sample Date	Gross Alpha	Gross Beta	Adjusted Gross Beta* (AGB)	Gross Alpha	Gross Beta	Ruthenium 106	Cesium 137	Zirconium 95	Potassium 40	Actinium 228	Radium 224	Radium 226	Chloride (ppm)	Sulfate (ppm)	Nitrate (ppm)	Ammonia (ppm)	Total Alkalinity(mg CaCO3/L)	Perchlorate (ppb)	Chloroform (ppb)	Methyl-tertiary-butl-ether
DEC TOGS 1.1.1 Guidance Values			-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	10
DEC Part 703 Class GA Groundwater Standards			15^	1,000^^	-	-	1,000	-	-	-	-	-	-	-	250	250	10	2	-	-	7	-
DOH Drinking Water Standards Subpart 5-1			15	-	50**	15	-	-	-	-	-	-	-	5^^^	250	250	10	-	-	18	80	10
RC-1	50-55	2/21/2012	<1	3.6±0.2	<1	<0.6	3.3 ±0.8	<3	<0.27	<0.93	<2.3	NA	NA	NA	84	8	3.1	<0.5	5	1	<0.5	<0.5
	60-65	2/21/2012	1.2±0.6	6.4±0.6	3.2±0.6	<0.7	3.5 ±0.8	<3.1	<0.31	<0.94	1.4 ±1.2	NA	NA	NA	123	7	3.8	<0.5	6	<0.2	<0.5	<0.5
	70-75	2/21/2012	1.7±0.4	3.7±0.2	<1	1.8 ±1.3	4.7 ±0.9	<2.4	<0.25	<0.78	3.8 ±2.9	NA	NA	NA	129	<15	2.4	<0.5	5	1.2	<0.5	<0.5
	80-85	2/21/2012	1.1±0.7	5.0±0.6	2.13±0.6	<1.1	2.3 ±1.1	<3	<0.29	<0.84	<2.3	NA	NA	NA	180	<10	2.3	<0.5	7	0.7	<0.5	<0.5
	90-95	2/21/2012	<1	<1	<1	<0.3	<0.7	<2.7	<0.25	<1.4	<2.3	NA	NA	NA	24	<5	1.2	<0.5	8	0.2	0.7	<0.5
RC-2	40-45	3/6/2012	<1	4.1±0.2	1.1±0.2	<0.94	4.9 ±0.9	<2.6	<0.31	<0.8	5.9 ±4.9	NA	1.68 ±0.71	NA	102	20	4.7	<0.5	24	0.5	<0.5	<0.5
	50-55	3/6/2012	1.4±0.4	13.2±0.3	4.9±0.3	1.3 ±0.7	10 ±1.2	<2.3	<0.25	<0.6	9.9 ±2.8	NA	NA	1.5 ±1.2	24	16	6.7	<0.5	5	0.5	<0.5	<0.5
	60-65	2/28/2012	<1	7.8±0.2	2.5±0.2	0.5 ±0.5	6.2 ±0.9	<2.7	<0.32	<0.8	2.7 ±2.2	NA	NA	NA	39	10	4	<0.5	6	0.4	<0.5	0.6
	70-75	2/28/2012	<1	4.2±0.2	<1	<0.3	4.3 ±0.8	<2.4	<0.26	<0.76	3.7 ±2.6	NA	NA	NA	40	8	2.7	<0.5	13	0.4	<0.5	0.9
	80-85	2/28/2012	<1	3.0±0.2	<1	<0.3	2.6 ±0.7	<2.7	<0.32	<0.96	4.5 ±3.2	NA	NA	NA	52	5	<0.5	<0.5	11	0.2	<0.5	1
	90-95	2/28/2012	<1	6.0±0.2	<1	<0.3	4.4 ±0.8	<2.9	<0.27	<0.98	5.2 ±3.4	NA	NA	NA	54	<5	<0.5	<0.5	9	<0.2	0.6	<0.5
RC-3	40-45	3/20/2012	1.4±0.3	7.3±0.2	3.0±0.2	2.3 ±1	5.8 ±1	<3	<0.28	<1.2	5 ±2.7	NA	NA	NA	19	41	8.9	<0.5	5	0.2	<0.5	<0.5
	50-55	3/20/2012	3.0±0.3	26.7±0.6	5.8±0.6	2 ±1	22.9 ±2	<2.4	<0.26	<0.89	23 ±5.2	1.7 ±1.5	NA	NA	19	66	11.5	<0.5	1	0.4	<0.5	<0.5
	60-65	3/20/2012	6.0±0.5	49.7±1.1	10.7±1.1	4.1 ±1.3	43.3 ±3.2	<3.2	<0.34	<1.1	39 ±7.1	2.2 ±1.3	0.95 ±0.62	NA	17	73	9.6	<0.5	3	0.7	<0.5	<0.5
	70-75	3/6/2012	5.5±0.4	53.9±1.0	7.3±1.0	3.5 ±1.3	51 ±3.6	<2.8	<0.31	<0.79	61 ±9	2.4 ±1.5	NA	NA	21	76	14	<0.5	5	0.8	<0.5	<0.5
	80-85	3/6/2012	8.9±0.4	28.7±0.6	5.0±0.6	4.3 ±1.4	27 ±2.2	<3.1	<0.31	<0.74	27 ±7.2	2.4 ±1.6	NA	NA	46	16	14.5	0.76	3	0.7	<0.5	<0.5
	90-95	3/6/2012	7.8±0.4	30.4±0.6	5.0±0.6	5.7 ±1.6	29 ±2.4	<2.3	<0.25	<0.58	31 ±5.5	2.5 ±1.2	0.98 ±0.69	NA	40	17	17.9	1.58	9	1.1	<0.5	<0.5

Notes:
NA = Sample collected, analyte not reported
NS = No Sample Collected
"<" = less than, indicating no detection
ppb = part per billion
ppm = part per million
pCi = picocurie

^ = excluding radon and uranium
^^ = excluding strobtium-90 and alpha emitters
^^^ = MCL is for combined Radium 226 + Radium 228
* AGB = gross beta - 0.82* potassium conc. in mg/l
**AGB has a guidance activity value of 50 pCi/l that is used for screening under Subpart 5-1 of the NYS Sanitary Code
indicates concentration exceeds a standard or guidance value

Table 3
Summary of Detected Analytes
Monitoring Wells Installed in the Vicinity of Site #2
Eastport, NY

Well Information			Herb Mets (ppb)								Semi-Volatile Organic	
Well ID	Screen Interval (ft) (depth below grade)	Sample Date	Bisphenol A	Deisoprpylatrazine	Desethylatrazine	2,6-Dichlorobenzamide	Imidacloprid	Metolachlor	Metolachlor OA	Metolachlor ESA	Atrazine (ppb)	Simazine (ppb)
DEC TOGS 1.1.1 Guidance Values			-	-	-	-	-	-	50	50	7.5	0.5
DEC Part 703 Class GA Groundwater Standards			-	-	-	-	-	10	-	-	7.5	0.5
DOH Drinking Water Standards Subpart 5-1			50	50	50	50	50	50	50	50	3	4
RC-1	50-55	2/21/2012	<0.2	<0.2	<0.4	<0.5	0.3	<0.2	Trace	0.5	<0.1	<0.07
	60-65	2/21/2012	<0.2	<0.2	<0.4	<0.5	<0.2	Trace	0.4	0.6	<0.1	<0.07
	70-75	2/21/2012	<0.2	<0.2	<0.4	<0.5	<0.2	Trace	Trace	0.3	<0.1	<0.07
	80-85	2/21/2012	<0.2	<0.2	<0.4	<0.5	<0.2	Trace	Trace	0.3	<0.1	<0.07
	90-95	2/21/2012	<0.2	<0.2	<0.4	<0.5	<0.2	<0.2	<0.3	<0.3	<0.1	<0.07
RC-2	40,45	3/6/2012	<0.2	<0.2	<0.4	<0.5	<0.2	<0.2	Trace	0.3	<0.1	<0.07
	50-55	3/6/2012	<0.2	<0.2	<0.4	<0.5	<0.2	<0.2	0.3	0.4	<0.1	<0.07
	60-65	2/28/2012	Trace	<0.2	<0.4	<0.5	<0.2	<0.2	0.5	0.4	<0.1	<0.07
	70-75	2/28/2012	<0.2	<0.2	<0.4	<0.5	<0.2	<0.2	0.3	0.3	<0.1	<0.07
	80-85	2/28/2012	<0.2	<0.2	<0.4	<0.5	<0.2	<0.2	<0.3	Trace	<0.1	<0.07
	90-95	2/28/2012	<0.2	<0.2	<0.4	<0.5	<0.2	<0.2	<0.3	Trace	<0.1	<0.07
RC-3	40-45	3/20/2012	<0.2	0.2	Trace	<0.5	<0.2	<0.2	<0.3	0.3	0.4	<0.07
	50-55	3/20/2012	<0.2	Trace	Trace	<0.5	<0.2	<0.2	<0.3	Trace	0.2	<0.07
	60-65	3/20/2012	<0.2	Trace	Trace	<0.5	<0.2	<0.2	<0.3	0.3	<0.1	<0.07
	70-75	3/6/2012	<0.2	<0.2	<0.4	<0.5	<0.2	<0.2	<0.3	Trace	Trace	0.1
	80-85	3/6/2012	<0.2	<0.2	<0.4	Trace	<0.2	<0.2	<0.3	Trace	Trace	0.1
	90-95	3/6/2012	<0.2	<0.2	<0.4	<0.6	<0.2	<0.2	<0.3	Trace	<0.1	0.2

Notes: NA = Sample collected, analyte not reported
NS = No Sample Collected
"<" = less than, indicating no detection
ppm = part per million
ppb = part per billion
☐ indicates concentration exceeds a standard or guidance value

Site #3
Papermill Road Facility
Manorville NY

Site Description

The site is located in Manorville, at the northern end of Papermill Road and approximately 1,000 feet north of Jamaica Avenue, and is comprised of three tax parcels totaling approximately 33 acres. The Town of Brookhaven has owned and operated the Papermill Road Compost Facility (PRCF) site since the mid-1950's. The site has had a variety of waste disposal and waste treatment uses throughout the years, including landfilling and the disposal of septic and municipal sanitary waste sludges. Historical aerial photographs (Appendix C) indicate that the site was undeveloped in 1947, and by 1962 the center of the site was cleared and actively being used. The first compost windrows appear on the site in the 1994 aerial photograph, and these windrows are consistently present on all subsequent photos, up to and including the 2013 photograph. Currently, the site is regulated by the NYSDEC as a Part 360 permitted yard waste composting facility.

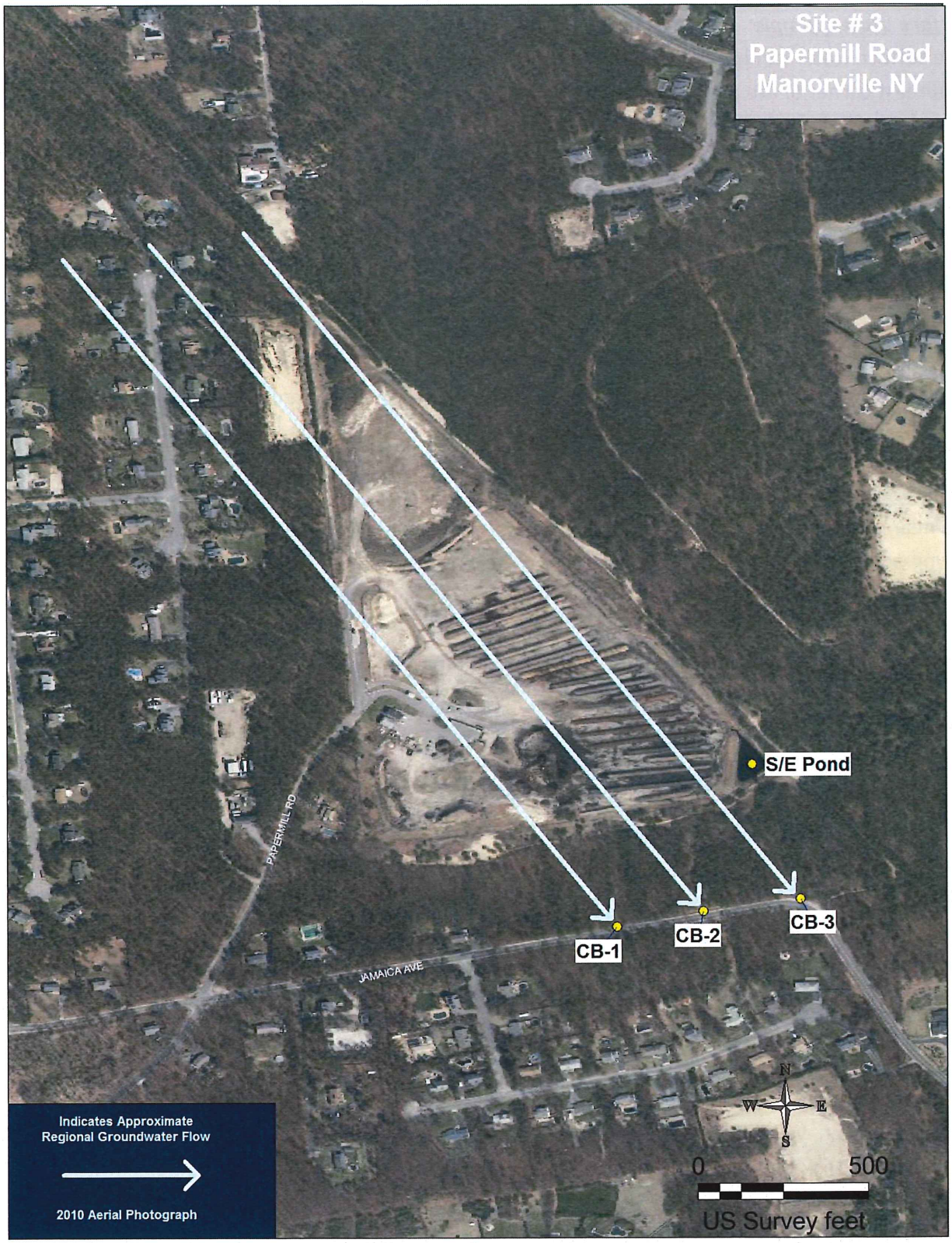
SCDHS Monitoring Wells

The SCDHS installed three temporary profile monitoring wells (CB-1, CB-2 and CB-3) south of the facility, on Chapman Blvd (Figure 6). The locations of these wells were based upon a south-southwest regional groundwater flow direction, and were sited to assess past and/or current impacts from vegetative organic waste activity occurring on the site. All three wells were installed to a depth of 115 fbg, and sampled at 10 foot intervals as they were retracted. Eight levels were sampled from CB-2, with the uppermost located at the 40 to 45 foot interval, whereas seven levels were sampled in both CB-1 and CB-3, with the uppermost level located at the 50-55 foot interval, yielding a total of 22 groundwater samples collected and analyzed from this site. The following analytes have been detected in these monitoring wells at concentrations exceeding the drinking water standard:

Arsenic	**(CB-3, Pond)**	**Sodium**	**(CB-1)**
Manganese	**(CB-1, CB-2, CB-3)**	**Gross Alpha**	**(CB-3)**
Thallium	**(CB-1, CB-2)**	**Gross Beta**	**(CB-3)**
Iron	**(CB-1, CB-2, CB-3, Pond)**	**Ammonia**	**(CB-1, CB-2, CB-3)**
		Chlorobenzene	**(CB-1, CB-2)**

Table 4 contains a summary of the results of the analytes detected.

Figure 6 – Site #3 Well Locations – 2010 Aerial Photograph



Surface Water Sample

One surface water sample (S/E Pond) was collected from an area of ponded water located on the southeast corner of the property (Figure 6). This area collects surface run-off from the site.

Private Wells

Six homes served by private wells were identified in the vicinity of the Papermill Road Facility and were sampled in 2012. Five of the homes were also sampled in 2008. Two of the private wells exhibited iron concentrations in excess of the drinking water standard. These homes, although located in the vicinity of the facility, are not located hydraulically downgradient with respect to groundwater flow, and therefore the private wells have not been impacted by activity at the site. Although results from 2 private wells indicated iron concentrations in exceedance of drinking water standards, other water quality parameters are not consistent with water quality impacts observed as a result of vegetative organic waste operations.

Public Wellfields

The nearest public supply wellfield is approximately 1 mile from the site and is not located downgradient of the site. Any impacts to groundwater quality as results of this site's operations would not be expected to affect the water quality of this wellfield.

Summary of Significant Analytical Results (Groundwater Samples)

Metals

Concentrations of manganese (up to 5,310 ppb) and iron (up to 28 ppm) significantly exceeded their respective groundwater and drinking water standards in all three profile wells. Thallium also exceeded the groundwater standard in wells CB-1 and CB-2, and sodium exceeded the groundwater standard in CB-1. Arsenic was detected in all three wells, and concentrations exceeding the drinking water standard were detected in three of the profile levels in well CB-2 (up to 14 ppb). There were a number of other metals that exhibited atypically elevated concentrations for Suffolk County groundwater (Table 13), including barium (up to 410 ppb), cobalt (up to 23 ppb), magnesium (up to 25.9 ppm), calcium (up to 50.5 ppm) and potassium (up to 39.3 ppm).

Volatile Organic Compounds (VOCs)

Five different volatile organic compounds (VOCs) were detected in well CB-1 and four compounds were detected in well CB-2. All these detections were at concentrations below standards (all were less than 2 ppb), with the exception of chlorobenzene. In CB-1, the chlorobenzene concentrations exceeded the drinking water and groundwater standard of 5 ppb in six of the seven profile levels (up to 27 ppb), and two of the five profile levels in well CB-2 (up to 7.5 ppb).

Radionuclides

Gross alpha was detected in all three wells, in all but four of the profile levels. The most significant detections were in wells CB-2 (10.6 pCi/l) and CB-3 (15.4 pCi/l), the latter exceeding the drinking water standard of 15 pCi/l. Gross beta was detected in all the groundwater samples collected for this site. The most significant gross beta detections were in the bottom four profile levels of well CB-3. These samples had relatively low potassium concentrations, so when these gross beta concentrations are adjusted for the potassium 40 contribution, they are still elevated (the adjusted gross beta concentration in the 80-85 fbg profile level (58 pCi/l) exceeds the drinking water screening level of 50 pCi/l).

Other Notable Results

Ammonia concentrations were elevated in all three wells (up to 18.4 ppm), trace concentrations of the pesticide dichlorvos was detected in one profile level of CB-2, and seven of nine profile levels in well CB-3. Bisphenol A was detected in low concentrations (less than 0.4 ppb) in numerous profile levels of wells CB-1 and CB-2. Contaminants typically associated impacts from septic waste were also detected at low concentrations, including MBAS (detergents), caffeine, DEET, and acetaminophen.

Summary of Significant Analytical Results (Surface Water Sample)

One surface water sample (S/E Pond) was collected from an area of ponded water that collects surface run-off from the site, located on the southeast corner of the property. The sample exhibited elevated concentrations of arsenic (15 ppb), iron (1.27 ppm), lead (23 ppb) and potassium (84.8 ppm). This sample also contained a trace concentration of the pesticide dichlorvos.

Discussion

Three profile wells were installed and sampled south of the PRCF site. Figure 6 indicates that, based upon the regional groundwater flow direction, all three wells were appropriately located to evaluate impacts to the groundwater as a result of activity from the PRCF site. The source of the groundwater contamination observed in the three SCDHS monitoring wells appears to be the PRCF site. The relative contribution of the potential historic on-site sources (legacy landfill/septic waste related sources remaining onsite) and/or the more recent and current composting activities has not been determined. The current groundwater data suggests that a combination of the historic sources and the current composting activity are both contributing to the degraded water quality observed downgradient of the site. The presence of ammonia and metals (e.g., arsenic, iron, potassium) at elevated concentrations in the surface water drainage pond indicates that an above-grade source for these contaminants is currently present on the site. Ammonia and metals have been observed at elevated concentrations in the groundwater downgradient at other VOWM sites, therefore the

presence of these contaminants in the groundwater may be related to the site's current activity (composting). The presence of chlorobenzene in the groundwater downgradient of the site has been long established as related to the legacy septic waste operation at the site[1], and this contaminant has not been observed in the groundwater downgradient of any other VOWM sites to date. Therefore the chlorobenzene detected in the groundwater is most likely due to historic site use and legacy sources from these past operations that remain on the site.

Wells Impacted by VOWM Activity

All three profile wells that were installed, as well as the on-site surface water sample, appear to have been impacted by this site; however, no private wells have been impacted from this site's operations.

[1] *Ground-Water Quality Near a Scavenger-Waste Disposal Facility in Manorville, Suffolk County, New York, 1984-85,* U.S. Geological Survey Water-Resources Investigations Report 88-4074, Scorca, M., 1990

Table 4
Summary of Detected Analytes
Monitoring Wells Installed in the Vicinity of Site #3
Manorville, NY

Well Information			Parameters					Metals																					
Well ID	Screen Interval (ft) (depth below grade)	Sample Date	Depth To Water (Feet)	Dissolved Oxygen (mg/L)	Temperature (Celsius)	pH	Conductivity (µS)	Aluminum (ppb)	Arsenic (ppb)	Barium (ppb)	Cobalt (ppb)	Chromium (ppb)	Copper (ppb)	Germanium (ppb)	Manganese (ppb)	Molybdenum (ppb)	Nickel (ppb)	Lead (ppb)	Antimony (ppb)	Strontium (ppb)	Thallium (ppb)	Titanium (ppb)	Vanadium (ppb)	Zinc (ppb)	Magnesium (ppm)	Iron (ppm)	Sodium (ppm)	Calcium (ppm)	Potassium (ppm)
DEC TOGS 1.1.1 Guidance Values			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	0.5	-	-	2,000	35	-	-	-	-
DEC Part 703 Class GA Groundwater Standards			-	-	-	-	-	-	25	1,000	-	50	200	-	300	-	100	25	3	-	-	-	-	-	-	0.3	20	-	-
DOH Drinking Water Standards Subpart 5-1			-	-	-	-	-	-	10	2,000	-	100	1300***	-	300	-	100	15***	6	-	2	-	-	5,000	-	0.3	-	-	-
CB-1	50-55	10/5/2011	47.5	1.83	14.7	6.4	170	43	<1	76	1	4	<1	<1	147	<1	2.8	<1	<0.4	69	<0.3	2	<1	<50	1.5	0.56	9.6	13.2	6.4
	60-65	10/5/2011	47.5	0.11	14.8	6.6	510	21	<1	190	3	5	5	<1	4,090	<1	3.1	<1	<0.4	62	0.8	<1	1	<50	7.5	0.97	20.8	25.3	26.1
	70-75	10/5/2011	47.5	0.1	14.7	6.6	690	7	<1	473	23	6	<1	2	2,695	<1	3.6	<1	<0.4	84	<0.3	<1	2	<50	9.8	25.75	23.9	25.2	28.2
	80-85	10/5/2011	47.5	0.14	14.9	6.91	278	<5	2	141	5	2	<1	<1	1,070	1	1.5	<1	<0.4	30	<0.3	<1	<1	<50	3.4	7.57	7.9	8.6	14.1
	90-95	10/4/2011	47.5	0.07	14.5	6.7	319	11	3	117	6	3	<1	1	1,950	<1	1.7	<1	<0.4	49	<0.3	<1	<1	<50	5.8	16	12.4	14.3	11.4
	100-105	10/4/2011	47.5	0.08	14.3	6.73	266	<5	1	95	5	2	<1	1	1,520	<1	1.8	<1	<0.4	35	<0.3	<1	<1	<50	6.3	12.8	10	13.5	8.5
	110-115	10/4/2011	47.5	0.1	14.1	6.57	257	<5	<1	195	8	2	<1	2	1,190	<1	3.2	<1	<0.4	33	<0.3	<1	<1	<50	4.7	20	13.5	13.2	4.6
CB-2	40.45	10/11/2011	39.76	3.74	16.6	6.16	15.8	41	<1	83	2	2	2	<1	383	<1	1.2	<1	<0.4	16	<0.3	2	<1	<50	2.7	0.64	4.5	5.4	11
	50-55	10/11/2011	39.76	1.42	17.1	6.3	420	19	1	337	9	2	3	1	2,960	<1	1.8	<1	<0.4	45	0.3	<1	<1	<50	6.7	11	11.8	13.7	26.1
	60-65	10/11/2011	39.76	0.72	14	6.64	778	<5	2	410	16	9	<1	3	1,890	<1	3.4	<1	<0.4	77	0.3	<1	3	<50	12.3	29	17.3	23.1	38.5
	70-75	10/6/2011	39.76	0.1	14.5	6.52	515	21	4	363	11	8	<1	2	5,310	<1	2.9	<1	<0.4	69	0.6	1	2	<50	8.2	18.3	13	19.9	30
	80-85	10/6/2011	39.76	0.08	14.3	6.78	308	8	5	139	6	4	<1	1	3,390	<1	2	<1	<0.4	45	<0.3	<1	1	<50	2.9	12.6	7.5	10.2	12.6
	90-95	10/6/2011	39.76	0.1	13.9	6.75	332	18	5	220	8	4	<1	1	2,760	<1	2.7	<1	<0.4	47	<0.3	<1	1	<50	3.4	12.7	7.5	9.3	16.9
	100-105	10/6/2011	39.76	0.58	13.7	6.41	360	24	2	275	13	4	1	1	3,600	<1	4.4	<1	<0.4	48	<0.3	1	1	<50	2.7	14.6	9	10.5	12.8
	110-115	10/6/2011	39.76	0.14	13.6	6.45	246	14	1	228	11	2	<1	<1	3,740	<1	3.2	<1	<0.4	31	<0.3	<1	<1	<50	1.7	10.6	6.8	6.6	8.9
CB-3	50-55	11/1/2011	44	NA	13.7	6.78	250	263	<1	131	2	2	3	<1	784	<1	1.8	<1	<0.4	34	<0.3	11	2	<50	4.5	1.15	5.3	10	15.6
	60-65	11/1/2011	44	NA	13.6	6.83	330	330	8	102	9	4	2	2	457	1	2.7	1	<0.4	33	<0.3	15	4	<50	4.7	28.7	5.3	13.2	32.1
	70-75	11/1/2011	44	NA	13.9	6.8	352	684	12	138	5	5	5	1	496	<1	2.6	4	<0.4	35	<0.3	33	11	<50	6.8	25	6	18.7	39.3
	80-85	10/26/2011	44	2.04	14.2	6.79	514	487	9	209	5	5	5	2	740	<1	2.3	4	<0.4	45	<0.3	27	9	<50	25.9	<0.1	9.9	50.5	2.4
	90-95	10/26/2011	44	1.84	14.1	6.67	506	128	14	233	5	5	5	2	902	<1	2.1	1	<0.4	48	<0.3	8	8	<50	1	<0.1	<1	1.4	0.3
	100-105	10/26/2011	44	2.82	13.5	6.64	373	92	14	250	8	4	2	2	1,009	<1	2.4	<1	<0.4	31	<0.3	6	6	<50	1	<0.1	<1	1.5	0.3
	110-115	10/26/2011	44	2.24	14	6.65	236	33	6	157	7	2	<1	2	1,029	<1	2.6	<1	<0.4	25	<0.3	2	1	<50	7.8	<0.1	17.6	40.7	1.9
S/E Pond	Surface Water	2/28/2012	-	7.25	6.3	7.75	528	825	15	22	2	3	45	<1	100	3	6.3	23	1	62	<0.3	40	7	74	7.3	1.27	12.6	22.2	84.8

Notes:
NA = Sample collected, analyte not reported
NS = No Sample Collected
"<" = less than, indicating no detection
ppm = part per million
uS = micro siemens
ppb = part per billion
*** Action Level for Public Water Suppliers for Lead and Copper
indicates concentration exceeds a standard or guidance value

Table 4
Summary of Detected Analytes
Monitoring Wells Installed in the Vicinity of Site #3
Manorville, NY

Well Information			Radiologicals (pCi/L)												Standard Inorganics							VOCs (ppb)				
			SCDHS PEHL			NYSDOH Wadsworth																				
Well ID	Screen Interval (ft) (depth below grade)	Sample Date	Gross Alpha	Gross Beta	Adjusted Gross Beta* (AGB)	Gross Alpha	Gross Beta	Ruthenium 106	Cesium 137	Zirconium 95	Potassium 40	Actinium 228	Radium 224	Radium 22 6	Chloride (ppm)	Sulfate (ppm)	Nitrate (ppm)	Ammonia (ppm)	Total Alkalinity (mg CaCO3/L)	MBAS (ppb)	Perchlorate (ppb)	Chlorodifluoromethane	1,2-Dichlorobenzene (o)	1,4-Dichlorobenzene (p)	Chlorobenzene	Benzene
DEC TOGS 1.1.1 Guidance Values			-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	3	3	5	1
DEC Part 703 Class GA Groundwater Standards			15^	1,000^^	-	-	1,000^^	-	-	-	-	-	-	-	250	250	10	2	-	500	-	-	3	3	5	1
DOH Drinking Water Standards Subpart 5-1			15	-	50**	15	-	-	-	-	-	-	-	5^^^	250	250	10	-	-	-	18	5	5	5	5	5
CB-1	50-55	10/5/2011	<1	7.9±0.9	2.7±0.9	NS	NS	NS	NS	NS	NS	NS	NS	NS	13	11	1.6	1.56	NA	NA	0.4	<0.5	<0.5	<0.5	0.8	<0.5
	60-65	10/5/2011	1.6±0.9	26.3±1.4	5.0±1.4	NS	NS	NS	NS	NS	NS	NS	NS	NS	41	<10	<1	14.4	NA	NA	<0.2	<0.5	<0.5	0.6	10	<0.5
	70-75	10/5/2011	6.1±1.5	33.0±1.3	9.9±1.3	NS	NS	NS	NS	NS	NS	NS	NS	NS	73	<100	<10	15.2	NA	NA	<0.2	0.8	0.6	1.4	27	0.7
	80-85	10/5/2011	1.3±0.7	13.9±1.1	2.3±1.1	NS	NS	NS	NS	NS	NS	NS	NS	NS	<60	<100	<2	7.62	NA	NA	<0.2	<0.5	<0.5	0.7	8.4	<0.5
	90-95	10/4/2011	1.1±0.6	13±0.9	3.7±0.9	NS	NS	NS	NS	NS	NS	NS	NS	NS	<30	<50	<5	5.04	NA	NA	<0.2	<0.5	<0.5	0.5	10	0.5
	100-105	10/4/2011	<1	8.1±0.7	1.1±0.7	NS	NS	NS	NS	NS	NS	NS	NS	NS	<30	<50	<5	1.74	NA	NA	<0.2	<0.5	<0.5	<0.5	5.6	<0.5
	110-115	10/4/2011	2	4.9±0.6	1.1±0.6	NS	NS	NS	NS	NS	NS	NS	NS	NS	<30	<50	<5	0.84	NA	NA	<0.2	<0.5	<0.5	<0.5	5.3	<0.5
CB-2	40.45	10/11/2011	<1	12.8±1.0	3.8±1	NS	NS	NS	NS	NS	NS	NS	NS	NS	8	22	1.3	0.42	NA	<0.1	0.6	<0.5	<0.5	<0.5	<0.5	<0.5
	50-55	10/11/2011	2.0±0.9	29.2±1.5	7.8±1.5	NS	NS	NS	NS	NS	NS	NS	NS	NS	32	26	<2	4.31	NA	<0.1	<0.2	<0.5	<0.5	<0.5	2.1	<0.5
	60-65	10/11/2011	10.6±2.4	48.8±2.1	17±2.1	NS	NS	NS	NS	NS	NS	NS	NS	NS	<150	<250	<25	10.9	NA	<0.1	<0.2	<0.5	<0.5	0.6	3.6	<0.5
	70-75	10/6/2011	2.7±1.0	34.7±1.3	10±1.3	NS	NS	NS	NS	NS	NS	NS	NS	NS	<60	<100	<10	18.4	NA	NA	<0.2	0.5	<0.5	1.1	7.5	<0.5
	80-85	10/6/2011	<1	13.8±0.9	3.5±0.9	NS	NS	NS	NS	NS	NS	NS	NS	NS	<60	<100	<10	11.6	NA	NA	<0.2	0.5	<0.5	0.5	2.3	<0.5
	90-95	10/6/2011	1.3±1.0	19.0±1.2	5.1±1.2	NS	NS	NS	NS	NS	NS	NS	NS	NS	<60	<100	<10	10.8	NA	NA	<0.2	0.5	<0.5	0.7	<0.5	<0.5
	100-105	10/6/2011	2.4±0.7	15.0±0.9	4.5±0.9	NS	NS	NS	NS	NS	NS	NS	NS	NS	<60	<100	<10	15.1	NA	NA	<0.2	0.5	<0.5	0.7	6.2	<0.5
	110-115	10/6/2011	1.5±0.7	9.7±0.8	2.4±0.8	NS	NS	NS	NS	NS	NS	NS	NS	NS	<60	<100	<10	9.6	NA	NA	<0.2	0.5	<0.5	0.5	4.6	<0.5
CB-3	50-55	11/1/2011	1.5+/-0.6	17.7+/-1.1	4.9±1.1	NS	NS	NS	NS	NS	NS	NS	NS	NS	<30	<50	<5	NA	NA	0.1	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	60-65	11/1/2011	2.3+/-1	35.4+/-1.6	9.1±1.6	NS	NS	NS	NS	NS	NS	NS	NS	NS	<150	<250	<25	NA	NA	<0.1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
	70-75	11/1/2011	2.9+/-1.1	38.7+/-1.	6.5±1	NS	NS	NS	NS	NS	NS	NS	NS	NS	<150	<250	<25	NA	NA	<0.1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
	80-85	10/26/2011	15.4±2.3	60.1±1.3	58±1.3	NS	NS	NS	NS	NS	NS	NS	NS	NS	<300	<500	<50	3.77	NA	<0.1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
	90-95	10/26/2011	3.8±1.2	49.3±1.5	49±1.5	NS	NS	NS	NS	NS	NS	NS	NS	NS	<300	<500	<50	2.93	NA	<0.1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
	100-105	10/26/2011	5.8+/-1.3	41.1+/-1.3	41±1.3	NS	NS	NS	NS	NS	NS	NS	NS	NS	<300	<500	<50	3.71	NA	0.1	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
	110-115	10/26/2011	1.8+/-0.7	23+/-1	21±1	NS	NS	NS	NS	NS	NS	NS	NS	NS	<300	<500	<50	1.08	NA	NA	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5
S/E Pond	Surface Water	2/28/2012	<1	79.3+/-2.8	9.5±2.8	<1.1	84 ±6.1	<2.7	<0.27	<0.74	87 ±10.1	NS	NS	NS	<300	<500	<50.0	1.5	132	NR	<2.0	<2.5	<2.5	<2.5	<2.5	<2.5

Notes:
NA = Sample collected, analyte not reported
NS = No Sample Collected
"<" = less than, indicating no detection
ppb = part per billion
ppm = part per million
pCi = picocurie

^ = excluding radon and uranium
^^ = excluding strobtium-90 and alpha emitters
^^^ = MCL is for combined Radium 226 + Radium 228
* AGB = gross beta - 0.82* potassium conc. in mg/l
**AGB has a guidance activity value of 50 pCi/l that is used for screening under Subpart 5-1 of the NYS Sanitary Code
indicates concentration exceeds a standard or guidance value

Table 4
Summary of Detected Analytes
Monitoring Wells Installed in the Vicinity of Site #3
Manorville, NY

Well Information			Herb Mets (ppb)				
Well ID	Screen Interval (ft) (depth below grade)	Sample Date	Bisphenol A	Caffeine	Dichlorvos	Diethyltoluamide (DEET)	Acetaminophen
DEC TOGS 1.1.1 Guidance Values			-	-	-	-	-
DEC Part 703 Class GA Groundwater Standards			-	-	-	-	-
DOH Drinking Water Standards Subpart 5-1			50	50	50	50	50
CB-1	50-55	10/5/2011	<0.2	<0.2	<0.6	Trace	<0.2
	60-65	10/5/2011	0.4	Trace	<0.6	0.7	<0.2
	70-75	10/5/2011	0.4	<0.2	<0.6	0.8	0.2
	80-85	10/5/2011	0.3	<0.2	<0.6	0.2	<0.2
	90-95	10/4/2011	0.3	<0.2	<0.6	0.4	<0.2
	100-105	10/4/2011	0.3	<0.2	<0.6	0.3	<0.2
	110-115	10/4/2011	0.2	<0.2	<0.6	0.3	<0.2
CB-2	40.45	10/11/2011	<0.2	<0.2	<0.6	<0.2	Trace
	50-55	10/11/2011	<0.2	<0.2	Trace	Trace	Trace
	60-65	10/11/2011	<0.2	<0.2	<0.6	Trace	0.2
	70-75	10/6/2011	Trace	Trace	<0.6	Trace	0.2
	80-85	10/6/2011	Trace	<0.2	<0.6	Trace	Trace
	90-95	10/6/2011	Trace	<0.2	<0.6	Trace	Trace
	100-105	10/6/2011	Trace	<0.2	<0.6	0.3	Trace
	110-115	10/6/2011	Trace	Trace	<0.6	0.3	<0.2
CB-3	50-55	11/1/2011	<0.2	<0.2	<0.6	<0.2	<0.2
	60-65	11/1/2011	<0.2	Trace	<0.6	<0.8	Trace
	70-75	11/1/2011	<0.2	<0.2	Trace	<1	Trace
	80-85	10/26/2011	<0.2	<0.2	Trace	<0.8	0.2
	90-95	10/26/2011	<0.2	<0.2	Trace	<0.8	0.2
	100-105	10/26/2011	<0.2	<0.2	Trace	<0.8	Trace
	110-115	10/26/2011	<0.2	<0.2	Trace	<0.4	Trace
S/E Pond	Surface Water	2/28/2012	<0.2	<0.2	Trace	<0.2	<0.2

Notes: NA = Sample collected, analyte not reported
NS = No Sample Collected
"<" = less than, indicating no detection
ppb = part per billion
ppm = part per million
☐ indicates concentration exceeds a standard or guidance value

Site #4
Exit 69 LIE Ramp
Manorville NY

Site Description

This site is located in Manorville, on the west side of Wading River Road, and is bounded on the north side by Long Island Railroad tracks and on the south side by the Long Island Expressway west-bound entrance ramp (Exit 69). The property consists of approximately 18 acres of farmland, and is registered by the NYSDEC as a Part 360 facility, authorized to accept yardwaste and source separated organics for composting. This facility is one of the Long Island Compost/Great Gardens "On Farm Composting sites ("Long Island Compost Farm #6"). The use of this site as a farm is evident on each of the aerial photographic records dating back to 1947 (see Appendix D). It also appears from the photographic record that some composting windrows are evident in the central portion of the site (on the western side) in the 1962, 1969 and 1984 aerial photos. These composting windows are no longer visible on the 1994 and 1996 aerials. The first evidence of composting windows occurring at the present location (southwest corner of the site) appears on the 1999 aerial photo, and is indicated on the remaining photographic record through 2013. A second area, located in the northwest corner of the property, appears initially on the 2007, and is also evident on the 2010 and 2013 aerial photographs.

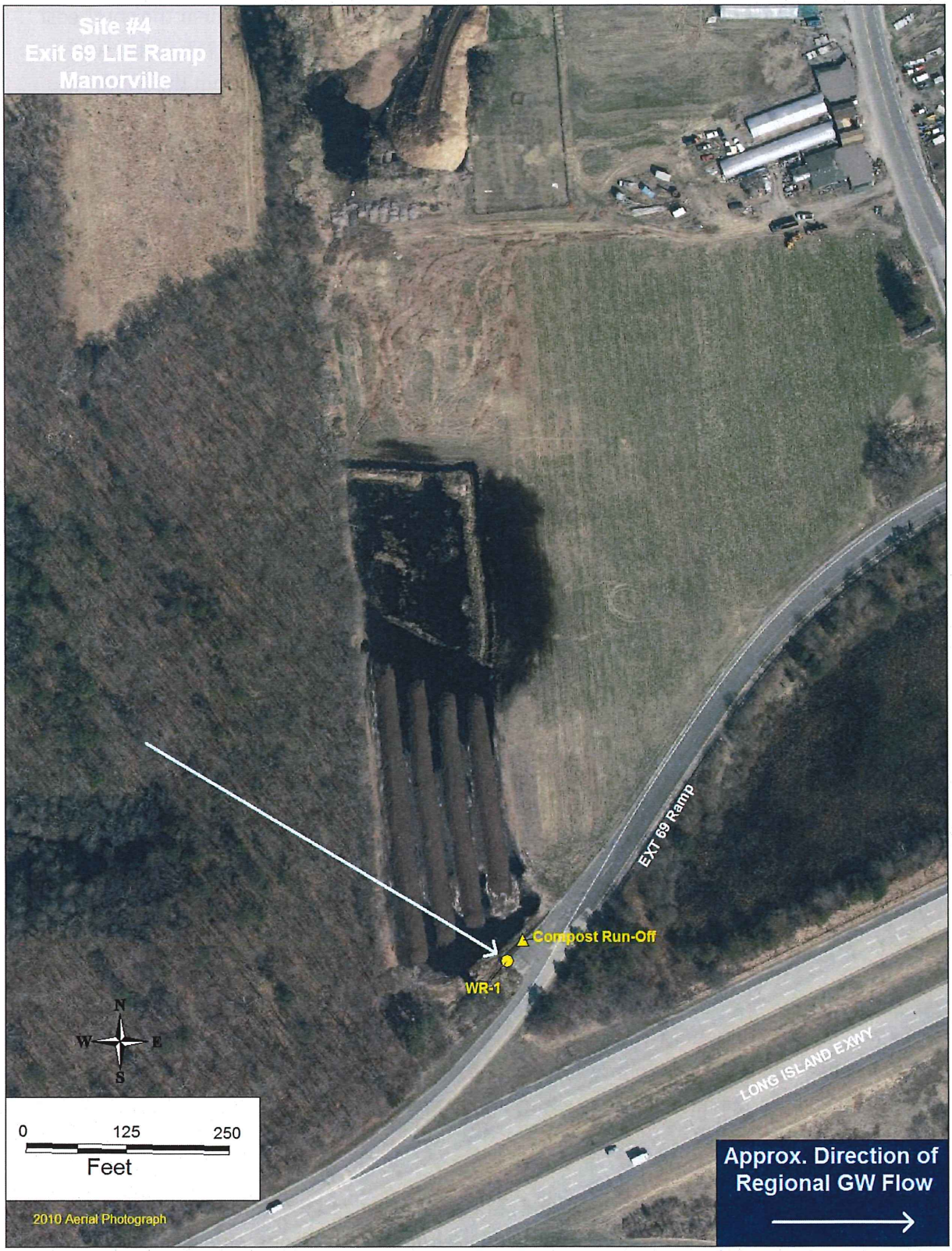
SCDHS Monitoring Wells

The SCDHS installed one temporary profile monitoring wells (WR-1) in the vicinity of this site, on the Long Island Expressway westbound Exit 69 entrance ramp (Figure 7). The location of this well was based upon a southwest regional groundwater flow direction, and was sited to assess impacts from vegetative organic waste activity occurring on the southwest corner of the site. This well was installed to a depth of 95 fbg, and sampled at 10 foot intervals as the well was retracted. Nine levels were sampled, with the uppermost level located at the 10 to 15 foot interval, yielding a total of nine groundwater samples. The depth to water is relatively shallow, at approximately 10 fbg. The following analytes have been detected in this monitoring well at concentrations exceeding a drinking water and/or groundwater standard:

Manganese (WR-1)
Arsenic (Compost Run-off Pond)
Iron (WR-1, Compost Run-off Pond)
Sodium (WR-1)
Chloride (WR-1)

Table 5 contains a summary of the results of the analytes detected.

Figure 7 – Site #4 Well Location – 2010 Aerial Photograph



Surface Water Sample

One surface water sample was collected from an area of ponded water located near the southeast corner of the property, on the road right of way, next to monitoring well WR-1. This water was beside the windrow and appears to have been generated by rainwater runoff from the windrow.

Private Wells

No potential private wells were identified downgradient of this site.

Public Wellfields

The nearest public supply wellfield is approximately 1.75 miles from the site and is not located downgradient of the site. Any impacts to groundwater quality as results of this site's operations would not be expected to affect the water quality of this wellfield.

Summary of Significant Analytical Results (Groundwater Samples)

Metals

Of the nine profile levels sampled in well WR-1, the uppermost level, closet to the water table (screened at 10 – 15 fbg), exhibited the most impacted water quality. The manganese concentrations in this level were 18,300 ppb, which is 61 times the drinking water and groundwater standard of 300 ppb. This level also had an iron concentration of 14.7 ppm, which is significantly above the drinking/groundwater standard of 0.3 ppm and sodium was reported at 110, which is above the groundwater standard of 20 ppm. Other parameters that were detected at elevated concentrations, but either did not exceed a standard or no standard has been established, include barium, cobalt, strontium, potassium.

Four of the remaining eight profile levels exhibited manganese is excess of the drinking water/groundwater standard, ranging in concentration between 359 ppb to 670 ppb. Manganese was the only parameter that exceeded a standard in all the remaining profile levels. Some other metals such as barium, strontium and potassium were slightly elevated in the 30 – 35 fbg profile level; however these were not as high as the concentrations exhibited in the uppermost profile level (10 – 15 fbg).

Radionuclides

Gross alpha was detected at 6 pCi/l in the top profile level (10-15 fbg), which is in excess of typical concentrations observed in Suffolk County groundwater (Table 16). Low concentrations of gross beta were detected in eight of the nine profile levels (it was not detected in the deepest level, 90-95 fbg).

Other Notable Results

The chloride concentration in the top profile level (272 ppm) exceeded the groundwater and drinking water standard of 250 ppm. Ammonia (0.77 ppm and 0.31 ppm) and the pesticide dichlorvos (trace

concentrations) were detected in two profile levels (10-15 fbg and 30-35 fbg, respectively). Acetaminophen (trace) and DEET (0.2 ppb) were detected in the top profile level.

Summary of Significant Analytical Results (Surface Water Sample)

One surface water run-off sample was collected from ponded water adjacent to the compost windrow, on the road right-of-way, located at the southwest corner of the site, near monitoring well WR-1. Arsenic (18 ppb), iron (1.29 ppm) and potassium (122 ppm) reported elevated concentrations. Gross alpha was detected at a low concentration (1.6 pCi/l), and although the gross beta was elevated (116.6 pCi/l), the adjustment for the potassium 40 contribution indicates the majority of the beta is from the potassium in the sample. The pesticide dichlorvos was detected at a trace concentration, and several pharmaceutical and personal care products were detected that are typically associated with water impacted by septic waste, including MBAS (detergents), caffeine, ibuprofen, DEET and acetaminophen.

Discussion

The compost windrows on this site are located at the extreme southwest corner of the property, which allowed for the installation of monitoring well WR-1 on the road right-of-way (Figure 7) to be very close to the windrows (less than 100 feet). Considering the southeast groundwater flow direction, the location of WR-1 was ideal to assess impacts the compost windrows may be having on the groundwater quality. It should be noted that hydraulically upgradient of these windows is appoximately 30 acres of vacant land owned by Suffolk County. Historical aerial photographs (Appendix D) indicate these 30 acres have been vacant since at least 1947. Therefore, it is very likely that the observed groundwater impacts (particularly at the top of the water table) are not from an upgradient source, but are from the compost windrows located in the southwest corner of the property. Elevated concentrations of manganese, iron, barium, cobalt, strontium and potassium appear to be consistent with elevated metals associated with groundwater impacted by VOWM sites. Since this well is located on a heavily trafficked Long Island Expressway on ramp, the elevated sodium and chloride concentrations observed in the uppermost sampling level (10 – 15 fbg) could be associated with road salting. Collectively the low-level detections of ammonia, DEET and trace detection of acetaminophen could be indicative of septic waste (although there is no obvious septic waste source in the vicinity), or potentially other wastes that contain these types of contaminants (e.g., animal waste).

One surface water run-off sample was collected from ponded water adjacent to the compost windrow located at the southwest corner of the site, near monitoring well WR-1. Several metals exhibited elevated concentrations (e.g., arsenic, iron and potassium), which is consistent with impacts observed in groundwater downgradient of VOWM sites. Additionally, several

pharmaceuticals and personal care products, as well as MBAS (detergents), were detected. The collective presence of these parameters in groundwater is typically indicative of septic waste. No obvious source of septic waste was identified in the vicinity of this sampling location.

Wells Impacted by VOWM Activity

The single profile well that was installed appears to have been impacted by the compost windrows located at this this facility. In addition, water quality results from one surface water (runoff) sample collected adjacent to this site also appears to be impacted from VOWM activity.

Table 5
Summary of Detected Analytes
Monitoring Wells Installed in the Vicinity of Site #4
Manorville, NY

Well Information			Parameters					Metals																					
Well ID	Screen Interval (ft) (depth below grade)	Sample Date	Depth To Water (Feet)	Dissolved Oxygen(mg/L)	Temperature (Celsius)	pH	Conductivity (µS)	Aluminum (ppb)	Arsenic (ppb)	Barium (ppb)	Cobalt (ppb)	Chromium (ppb)	Copper (ppb)	Manganese (ppb)	Molybdenum (ppb)	Nickel (ppb)	Lead (ppb)	Antimony (ppb)	Strontium (ppb)	Thallium (ppb)	Titanium (ppb)	Magnesium (ppm)	Vanadium (ppb)	Iron (ppm)	Zinc (ppb)	Sodium (ppm)	Calcium (ppm)	Potassium (ppm)	
DEC TOGS 1.1.1 Guidance Values			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	0.5	-	35	-	-	2,000	-	-	-	
DEC Part 703 Class GA Groundwater Standards			-	-	-	-	-	-	25	1,000	-	50	200	300	-	100	25	3	-	-	-	-	-	0.3	-	20	-	-	
DOH Drinking Water Standards Subpart 5-1			-	-	-	-	-	-	10	2,000	-	100	1300***	300	-	100	15***	6	-	2	-	-	-	0.3	5,000	-	-	-	
WR-1	10-15	9/1/2011	10.02	3.33	20.6	6.1	1,020	<5	2	226	53	6	2	18,300	<1	11.9	<1	<0.4	237	0.4	<1	11.8	2	14.7	<50	110	22.4	17.1	
	20-25	9/1/2011	10.02	4.38	17.2	6.8	91	23	<1	28	3	3	<1	188	<1	2.4	<1	<0.4	36	<0.3	<1	1.9	<1	<0.1	<50	7.3	4.1	1.8	
	30-35	9/1/2011	10.02	5	17.5	7	217	69	<1	144	7	3	2	1,670	<1	3.2	<1	<0.4	187	<0.3	<1	4.5	<1	<0.1	<50	8.9	14.2	5.9	
	40-45	8/31/2011	10.02	3.5	17.2	6.9	113	16	<1	46	6	2	<1	359	<1	5.8	<1	<0.4	100	<0.3	<1	3.4	<1	<0.1	<50	5.4	5.8	2.9	
	50-55	8/31/2011	10.02	5.08	16.8	7.27	60	27	<1	19	2	2	<1	447	<1	6.4	<1	<0.4	17	<0.3	<1	1.3	<1	<0.1	<50	4.6	2.8	1.3	
	60-65	8/31/2011	10.02	6.26	16.5	7.45	60	17	<1	19	2	1	<1	374	<1	6	1	<0.4	14	<0.3	<1	0.9	<1	<0.1	<50	3.9	2.9	1.4	
	70-75	8/31/2011	10.02	6.2	15.7	7.9	68	10	<1	28	2	1	1	228	<1	4.3	<1	<0.4	18	<0.3	<1	0.9	<1	<0.1	<50	4.4	4	1.8	
	80-85	8/25/2011	10.02	5.74	15.6	8.19	65	17	<1	24	2	1	2	189	<1	4.7	<1	<0.4	18	<0.3	<1	1	<1	<0.1	<50	4.3	4.8	1.6	
	90-95	8/25/2011	10.02	3.55	15.4	8.73	66	10	<1	20	<1	1	4	60	<1	1.5	<1	<0.4	22	<0.3	<1	1	<1	<0.1	<50	4.8	4.3	0.8	
Compost Run-off	Surface Water	11/22/2011	-	1.23	8.8	7.07	748	3,270	18	17	2	3	7	70	2	8.8	5	<0.4	81	<0.3	111	12	6	1.29	<50	11.5	26	122	

Notes:
NA = Sample collected, analyte not reported
NS = No Sample Collected
"<" = less than, indicating no detection
ppb = part per billion
ppm = part per million
uS = micro siemens
*** Action Level for Public Water Suppliers for Lead and Copper
indicates concentration exceeds a standard or guidance value

Table 5
Summary of Detected Analytes
Monitoring Wells Installed in the Vicinity of Site #4
Manorville, NY

Well Information			Rads (pCi/L)			Standard Inorganics						Herb Mets (ppb)					
Well ID	Screen Interval (ft.) (depth below grade)	Sample Date	Gross Alpha	Gross Beta	Adjusted Gross Beta* (AGB)	Chloride (ppm)	Sulfate (ppm)	Nitrate (ppm)	Ammonia (ppm)	MBAS (ppb)	Perchlorate (ppb)	2-Butanone (MEK)	Caffeine	Dichlorvos	Ibuprofen	Diethyltoluamide(DEET)	Acetaminophen
DEC TOGS 1.1.1 Guidance Values			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DEC Part 703 Class GA Groundwater Standards			15^	1,000^^	-	250	250	10	2	500	-	-	-	-	-	-	-
DOH Drinking Water Standards Subpart 5-1			15	-	50**	250	250	10	-	-	18	50	50	50	50	50	50
WR-1	10-15	9/1/2011	6.0+/-1.5	15.9+/-1.2	1.9±1.2	272	<15	<1.5	0.77	<0.1	<0.2	<20	<0.2	Trace	<0.2	0.2	Trace
	20-25	9/1/2011	<1	1.8+/-0.6	<1	12	9	<0.5	<0.02	<0.1	<0.2	<20	<0.2	<0.6	<0.2	<0.2	<0.2
	30-35	9/1/2011	1.1+/-1.0	7.7+/-1.0	2.9±1	45	8	1.5	0.31	<0.1	<0.2	<20	<0.2	Trace	<0.2	<0.2	<0.2
	40-45	8/31/2011	<1	2.5+/-0.7	<1	12	6	4.6	<0.02	<0.1	0.3	<20	<0.2	<0.6	<0.2	<0.2	<0.2
	50-55	8/31/2011	<1	1.1+/-0.6	<1	6	8	1.3	<0.02	<0.1	<0.2	<20	<0.2	<0.6	<0.2	<0.2	<0.2
	60-65	8/31/2011	<1	1.4+/-0.6	<1	5	7	1	<0.02	<0.1	<0.2	<20	<0.2	<0.6	<0.2	<0.2	<0.2
	70-75	8/31/2011	<1	1.7+/-0.6	<1	7	6	1.5	<0.02	0.1	<0.2	21	<0.2	<0.6	<0.2	<0.2	<0.2
	80-85	8/25/2011	<1	1.2+/-0.6	<1	6	7	1.5	<0.02	<0.1	<0.2	<20	<0.2	<0.6	<0.2	<0.2	<0.2
	90-95	8/25/2011	<1	<1	<1	7	8	0.7	<0.02	<0.1	<0.2	<20	<0.2	<0.6	<0.2	<0.2	<0.2
Compost Run-off	Surface Water	11/22/2011	1.6 +/-1.2	116.6+/-2.7	16.6±2.7	<150	<250	<25	N/A	0.3	<0.2	<0.5	0.2	Trace	0.2	0.2	Trace

Notes:
NA = Sample collected, analyte not reported
NS = No Sample Collected
"<" = less than, indicating no detection
ppb = part per billion
ppm = part per million
pCi = picocurie

^ = excluding radon and uranium
^^ = excluding strobtium-90 and alpha emitters
* AGB = gross beta - 0.82* potassium conc. in mg/l
**AGB has a guidance activity value of 50 pCi/l that is used for screening under Subpart 5-1 of the NYS Sanitary Code
indicates concentration exceeds a standard or guidance value

Site #5
South Street Farm
Manorville NY

Site Description

This site is located on the north side of South Street, and on the west side of Wading River Road, in Manorville, and consists of three separate tax parcels totaling about 107 acres. The site is regulated by NYSDEC as "Long Island Compost Farm #2" and is authorized to accept yard waste for composting. The use of this site as a farm is evident on each of the aerial photographic records dating back to 1947 (Appendix E). Figure 8 indicates that in 2004 two distinct areas of the site had compost windows, an area in the northwestern portion of the site ("western windrows"), and an area in central portion of the site ("center windrows"). The western compost windrows are first observable on the 1999 aerial photograph, and are evident in all the subsequent aerial photographs (Appendix E). The center windrows first appear on the 2004 aerial, and can also be observed on the 2005 aerial. However, by 2006 the center windows are no longer present and are not evident on any subsequent photos (Appendix E), including in 2010 (Figure 9).

SCDHS Monitoring Wells

The SCDHS installed five temporary profile monitoring wells (SS-1, SS-2, SS-3, SS-4 and SS-5) along southern property boundary of this site, on South Street in Manorville. Two wells (SS-1 and SS-2) are located approximately 1,800 feet southeast of the western windrows, and three wells (SS-3, SS-4 and SS-5) are located approximately 1,100 feet south of the center windrows. The locations of these wells were based upon a general south-southwest regional groundwater flow direction, in order to assess past and/or current impacts from vegetative organic waste activity. The final well locations were dependent upon well site accessibility (e.g., the presence of underground utilities, storm drains, overhead wires, etc.). Three of the wells (SS-2, SS-4, and SS-5) were installed to a depth of 70 fbg, one well (SS-1) was installed to a depth of 65 feet, and another well (SS-3) was installed to a depth of 85 feet. All the wells were sampled at 10 foot intervals as they were retracted. Five levels were sampled in well SS-1, with the uppermost located at the 20 – 25 foot interval. Six levels were sampled in wells SS-2, SS-4 and SS-5, with the uppermost level located at the 15 – 20 foot interval, while seven levels were sampled in well SS-3, with the uppermost interval located at 20 -25 feet. A total of 31 groundwater samples were collected from this site.

Figure 8 – Site #5 Well Locations – 2004 Aerial Photograph

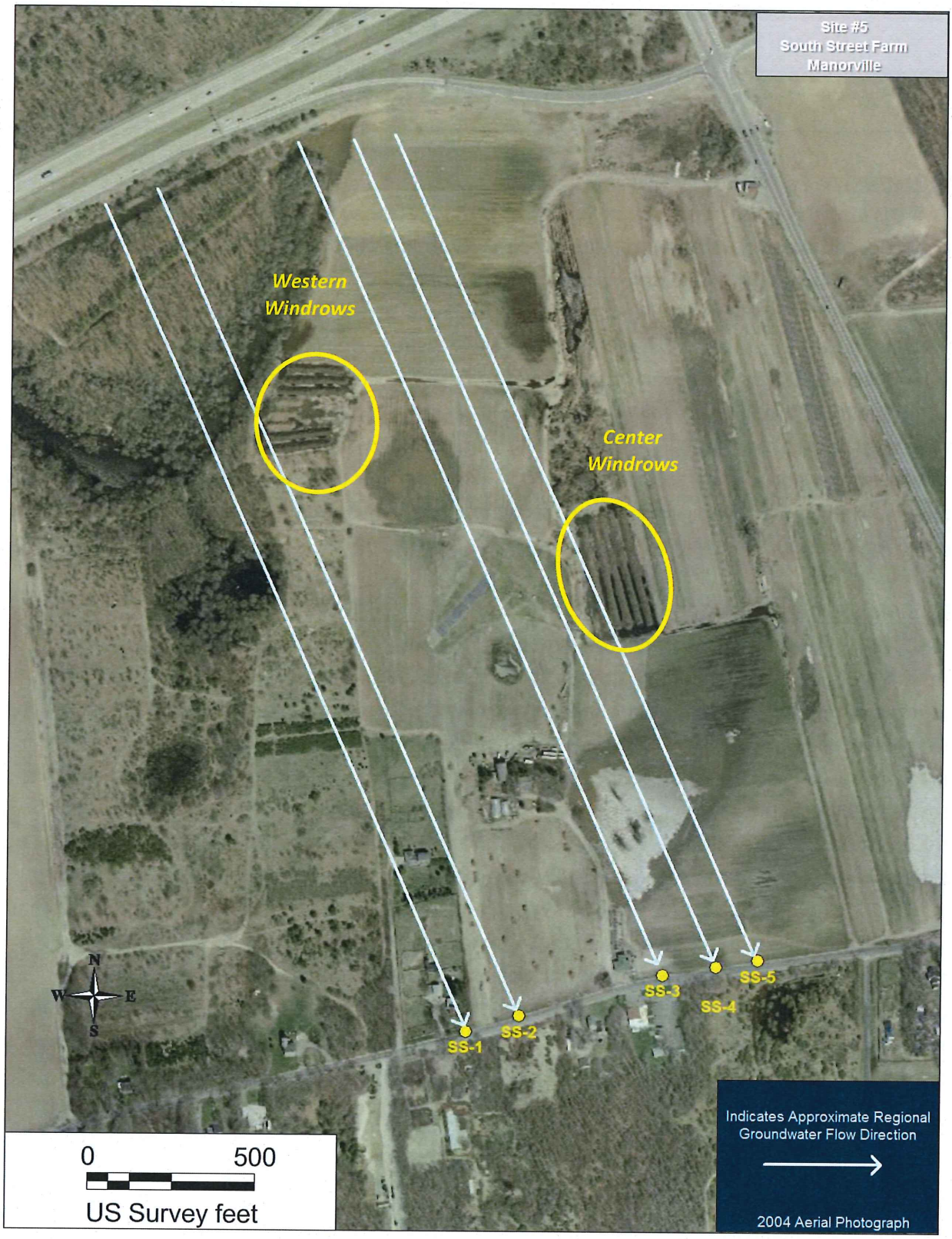
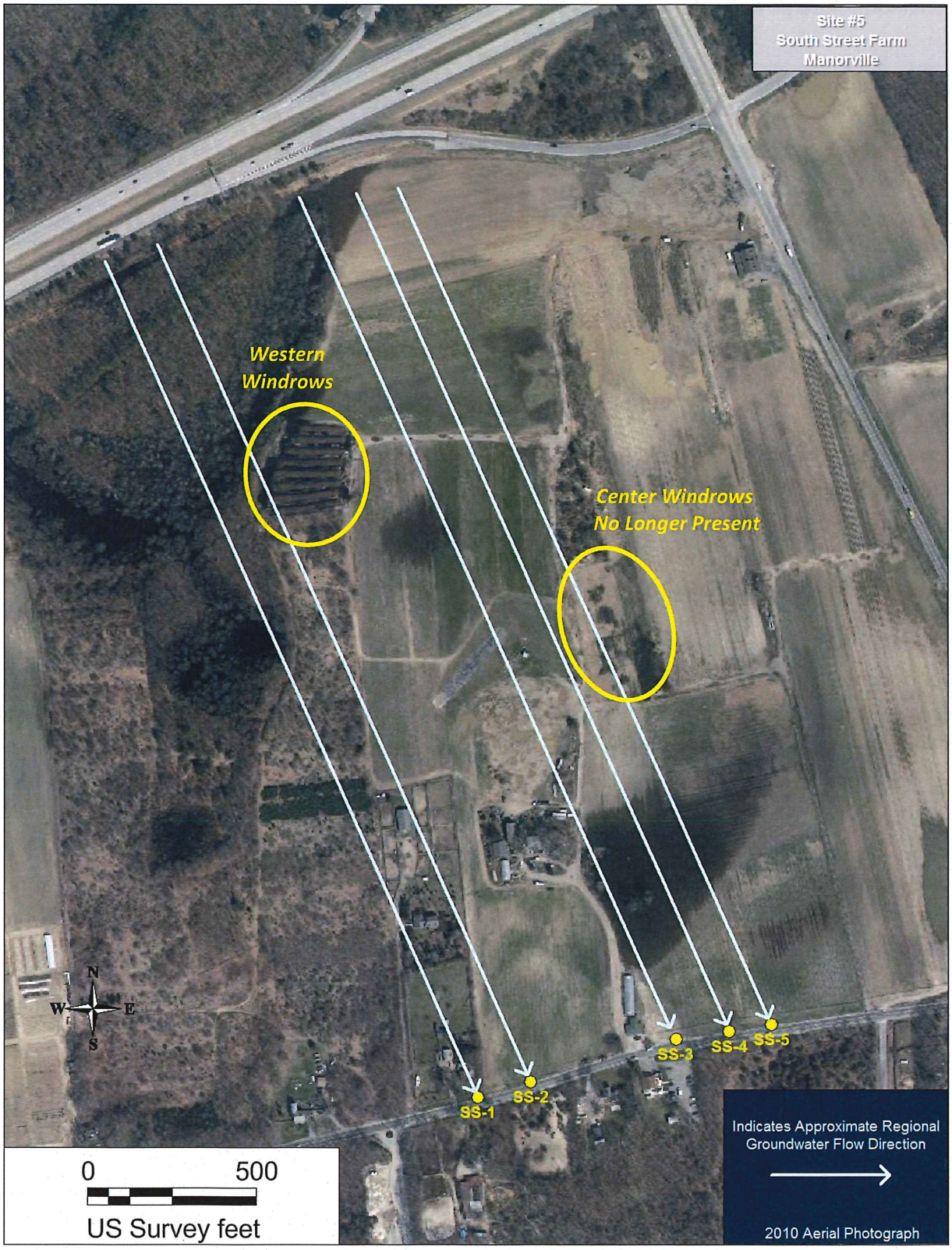


Figure 9 – Site #5 Well Locations – 2010 Aerial Photograph



The following analytes have been detected in these monitoring wells at concentrations exceeding a groundwater and/or drinking water standard:

Manganese	**(SS-4, SS-5)**	**Nitrate**	**(SS-1, SS-2, SS-3, SS-4, SS-5)**
Iron	**(SS-2, SS-4, SS-5)**	**Chloride**	**(SS-5)**
Sodium	**(SS-3, SS-4, SS-5)**	**1,2,3-Trichloropropane**	**(SS-5)**

Table 6 contains a summary of the results of the analytes detected.

Private Wells

No potential private wells were identified in the downgradient vicinity of this site.

Public Wellfields

The nearest public supply wellfield is approximately 3.75 miles from the site and although it is located in the general downgradient direction of the site, source water assessments indicate that water entering the water table at this site is not expected to reach this wellfield within 100 years.

Summary of Significant Analytical Results

Metals

Monitoring well SS-2 exceeded the drinking/groundwater standard of 0.3 ppm for iron in five of the seven profile levels sampled. Well SS-4 exceeded the drinking/groundwater standard for manganese in the top level (screened 15 to 20 fbg) and iron in three of the seven profile levels. Monitoring well SS-5 exceeded the groundwater/drinking water standard for manganese in the uppermost level (15 to 20 fbg) and the 55 to 60 fbg level, while iron exceeded in the bottom three levels. Chloride exceeded in the upper level, and barium appeared to be most elevated in well SS-2 (all levels) and SS-5 (upper two levels). Beryllium was also detected in SS-1 (bottom three levels), SS-2 (all levels) and SS-5 (top three levels). The highest potassium concentrations were reported in SS-2 (up to 13.9 ppm) and SS-5 (up to 10.6 ppm).

Radiologicals

Gross alpha was detected in four of the five wells (it was not detected in SS-4). None of the concentrations exceed he drinking water standard of 15 pCi/l, however, gross alpha concentrations were elevated in several samples above what is typically observed in Suffolk County groundwater (Table 16), particularly in the 45-50 fbg profile level of well SS-2 (6.3 pCi/l). Gross beta was detected in all the profile levels in each of the five wells. The adjusted gross beta concentrations (Table 6) indicate that the majority of the gross beta can be attributed to potassium, and were significantly

below the drinking water action level of 50 pCi/l (the highest concentration was 7.7 pCi/l in well SS-2). The NYSDOH Wadsworth Center analyzed split samples and confirmed the presence of potassium 40 in almost all of the samples.

Other Notable Results

Nitrate concentrations exceeded the 10 ppm drinking water and groundwater standard in at least one profile level in each well (up to 17.6 ppm). Low concentrations of pesticides and pesticide metabolites (less than 2 ppb), including metolachlor OA, metolachlor ESA, trichlorfon and Aldicarb sulfone were detected in all the monitoring wells except SS-1. Gemfibrozil (a pharmaceutical product) and caffeine were detected in SS-1 and SS-4 respectively, at low concentrations (less than 1 ppb).

Discussion

Five profile wells were installed along Moriches-Middle Island Road, downgradient of this site. Since this is a very large site, and the target compost windrows are located in the north and center of the site, the profile wells were located a great distance from the potential source areas (as far as 2,000 feet). Ideally, monitoring wells should be located as close to the potential source areas as possible, but that is not always possible. In situations where the wells are located a significant distance from the source areas, it can be difficult to observe impacts, and draw definitive conclusions. Although some water quality impairments were observed, the most significant impact was the nitrate concentrations. Elevated nitrates have not been observed at other VOWM sites, and are most likely a result of the use fertilizers as part of the historical farming that has taken place at the site. Also, the compost windrows located at the center of the site appear to have only been in place for a short period of time (approximately two years), making detection of impacts to the groundwater from these windrows difficult. Therefore, due to the constraints of this site, no conclusions can confidently be drawn with respect to the relation of the groundwater impacts observed at this site and the site's compost activity.

Wells Impacted by VOWM Activity

Although some parameters were slightly elevated, due to a number of confounding factors, no definitive conclusions can be drawn regarding impacts to groundwater from the compost activities on this site.

Table 6
Summary of Detected Analytes
Monitoring Wells Installed in the Vicinity of Site #5
Manorville, NY

Well Information			Parameters						Metals																			
Well ID	Screen Interval (ft)(depth below grade)	Sample Date	Depth To Water (Feet)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (Celsius)	pH	Conductivity (µS)	Aluminum (ppb)	Barium (ppb)	Beryllium (ppb)	Cobalt (ppb)	Chromium (ppb)	Copper (ppb)	Manganese (ppb)	Molybdenum (ppb)	Nickel (ppb)	Lead (ppb)	Antimony (ppb)	Strontium (ppb)	Titanium (ppb)	Zinc (ppb)	Magnesium (ppm)	Iron (ppm)	Sodium (ppm)	Calcium (ppm)	Potassium (ppm)
DEC TOGS 1.1.1 Guidance Values			-	-	-	-	-	-	-	-	3	-	-	-	-	-	-	-	3	-	-	2,000	35	-	-	-	-
DEC Part 703 Class GA Groundwater Standards			-	-	-	-	-	-	-	1,000	-	-	50	200	300	-	100	25	3	-	-	-	-	0.3	20	-	-
DOH Drinking Water Standards Subpart 5-1			-	-	-	-	-	-	-	2,000	4	-	100	1300***	300	-	100	15***	6	-	-	5,000	-	0.3	-	-	-
SS-1	20-25	4/11/2012	17.85	60	3.93	12.8	6.29	82	15	17	<0.3	<1	<1	<1	15	<1	0.8	<1	<0.4	27	<1	<50	1.8	<0.1	4.1	5.4	0.9
	30-35	4/11/2012	17.85	41	3.52	13.1	6	141	28	25	<0.3	<1	<1	<1	26	<1	0.8	<1	<0.4	24	<1	<50	3.2	<0.1	3.1	11.5	2.8
	40-45	3/21/2012	17.06	-	4.78	14.7	5.2	176	495	111	0.4	<1	2	1	82	<1	1.1	<1	<0.4	22	4	<50	5	<0.1	3.4	15.3	5.7
	50-55	3/21/2012	17.06	-	3.55	14.1	5	183	1060	173	0.6	<1	1	<1	133	<1	1.4	<1	<0.4	29	7	<50	5.7	<0.1	3.7	15.6	4.8
	60-65	3/21/2012	17.06	-	3.76	13.7	5.2	210	588	166	0.4	<1	<1	<1	86	<1	1.2	<1	<0.4	27	<1	<50	5.7	<0.1	3.5	19.1	5.4
SS-2	15-20	4/10/2012	12.8	59	2.45	11.8	5.1	220	479	217	0.7	<1	2	3	147	<1	5.9	<1	<0.4	27	5	<50	5.2	0.69	2.8	15.8	11.7
	25-30	4/10/2012	12.8	67	8.21	12.7	5	179	699	188	0.5	<1	<1	<1	107	<1	1.5	<1	<0.4	21	<1	<50	3.6	<0.1	2.5	10.2	10.5
	25-30	3/27/2012	12.85	-	4.01	10.9	5.3	178	618	206	0.7	<1	2	2	141	<1	3.2	3	<0.4	20	6	<50	4	0.79	2.9	11.4	10.1
	35-40	3/27/2012	12.85	-	4.25	11.7	4.9	235	919	255	0.6	<1	2	<1	126	<1	1.7	<1	<0.4	27	2	<50	5.6	<0.1	3.5	16	13.9
	45-50	3/27/2012	12.85	-	4	11.9	5.1	206	1133	185	0.8	<1	3	7	104	<1	2	<1	<0.4	25	9	312	4.9	0.42	3.1	13.4	10.8
	55-60	3/27/2012	12.85	-	3.24	11.8	5.3	183	936	204	0.7	<1	3	2	108	<1	2.9	<1	<0.4	25	11	<50	4.4.	0.95	2.9	13.5	7.7
	65-70	3/27/2012	12.85	-	2.6	11.2	5.8	178	515	153	0.6	<1	3	1	65	<1	1.3	<1	0.5	94	10	<50	4.5	0.48	4.4	15.1	3.6
SS-3	20-25	5/2/2012	11.1	-	11.1	13.5	5.8	581	120	60	<0.3	4	2	1	284	<1	13.4	<1	<0.4	117	3	126	6.6	<0.1	88.4	23.2	6.6
	30-35	5/2/2012	11.1	-	4.11	13.4	5.8	227	57	91	<0.3	<1	1	<1	159	<1	0.9	<1	<0.4	95	<1	<50	5.6	<0.1	5.2	19	6.9
	40-45	5/2/2012	11.1	-	3.12	13	5.6	139	51	63	<0.3	<1	1	<1	26	<1	0.7	<1	<0.4	73	<1	<50	3	<0.1	3.6	12.8	3.6
	50-55	5/2/2012	11.1	-	3.91	12.8	5.6	101	47	61	<0.3	<1	<1	1	98	<1	3.2	<1	<0.4	45	<1	<50	2.3	<0.1	3.7	6.9	3.7
	60-65	4/30/2012	11.1	-	7.41	13.7	5.9	129	28	48	<0.3	<1	1	<1	4	<1	3.1	<1	<0.4	80	<1	<50	2.9	<0.1	3.9	9.9	3
	70-75	4/30/2012	11.1	-	7.52	14.1	5.9	113	17	36	<0.3	<1	2	1	4	<1	1.2	<1	<0.4	64	<1	<50	2.1	<0.1	3.6	9.1	3.3
	80-85	4/30/2012	11.1	-	8.92	12.7	5.9	102	11	36	<0.3	<1	2	<1	2	<1	0.6	<1	<0.4	34	<1	<50	1.7	<0.1	3.6	8.2	2.8
SS-4	15-20	4/11/2012	10.25	-	8.11	11.8	6.5	382	18	96	<0.3	3	<1	<1	384	<1	3.9	<1	<0.4	77	<1	<50	2.5	<0.1	50.3	12	6.4
	25-30	4/9/2011	10.25	-	1.49	13.7	6.4	349	10	52	<0.3	1	<1	<1	173	<1	6.8	<1	<0.4	204	<1	<50	10.6	0.16	11.9	24.7	2.4
	35-40	4/9/2011	10.25	74	1.58	13.6	6	262	37	97	<0.3	3	<1	<1	265	<1	7.5	<1	<0.4	149	<1	<50	5.9	1	4.6	21.2	4.3
	45-50	4/9/2011	10.25	-	3.81	12.5	6.2	254	19	37	<0.3	<1	<1	<1	15	<1	2.2	<1	<0.4	133	4	<50	6.2	<0.1	6.5	24.5	3.1
	55-60	4/3/2012	11	68	0.42	12.5	6.1	186	75	29	<0.3	3	<1	<1	22	<1	1.6	<1	<0.4	115	4	<50	3.8	0.42	7.4	15.3	2.6
	65-70	4/3/2012	11	74	0.59	13	5.8	242	105	122	<0.3	3	<1	<1	57	1	3.3	<1	<0.4	187	5	<50	4.1	0.68	6.2	22.1	5.6
SS-5	15-20	4/3/2012	13.75	112	0.74	12.4	5.94	1070	360	287	0.6	4	3	2	326	<1	6.6	<1	<0.4	205	5	<50	10.4	0.49	146.1	22.8	10.6
	25-30	4/3/2012	13.75	85	2.79	13.2	6.25	708	1190	167	1.3	1	2	2	148	<1	2	<1	<0.4	47	2	53	6.9	<0.1	99.4	16.8	9.6
	35-40	4/2/2012	13.75	-	7.62	12.7	5	178	973	28	0.7	2	1	2	116	<1	6.8	<1	<0.4	34	4	1,320	4.7	0.22	4.6	13	3.4
	45-50	4/2/2012	13.75	36	2.94	12.2	6.2	334	59	52	<0.3	<1	2	<1	139	<1	4.3	<1	<0.4	186	3	<50	10.4	0.4	9.9	27.9	3.2
	55-60	4/2/2012	13.75	38	5.57	12	5.9	233	300	61	<0.3	4	6	1	475	4	16.5	<1	<0.4	109	19	<50	6.9	4.08	5.6	20.8	5.1
	65-70	4/2/2012	13.75	200	4.5	11.9	6.1	280	181	48	<0.3	<1	5	<1	69	2	3.2	<1	<0.4	135	9	<50	8.8	1.07	9	24.1	4.1

Notes:
NA = Sample collected, analyte not reported
NS = No Sample Collected
"<" = less than, indicating no detection
ppm = part per million
uS = micro siemens
ppb = part per billion
*** Action Level for Public Water Suppliers for Lead and Copper
indicates concentration exceeds a standard or guidance value

Table 6
Summary of Detected Analytes
Monitoring Wells Installed in the Vicinity of Site #5, Manorville, NY

Well Information			Radiologicals (pCi/L)												Standard Inorganics					VOCs (ppb)		Herb Mets (ppb)						Carba-mate Pests (ppb)
			SCDHS PEHL			NYSDOH Wadsworth																						
Well ID	Screen Interval (ft)(depth below grade)	Sample Date	Gross Alpha	Gross Beta	Adjusted Gross Beta* (AGB)	Gross Alpha	Gross Beta	Ruthenium 106	Cesium 137	Zirconium 95	Potassium 40	Actinium 228	Radium 224	Radium 226	Chloride (ppm)	Sulfate (ppm)	Nitrate (ppm)	Total Alkalinity (mg CaCO3/L)	Perchlorate (ppb)	1,2,3-Trichloropropane	1,2-Dichloropropane	Caffeine	Alachlor ESA	Metolachlor OA	Metolachlor ESA	Gemfibrozil	Trichlorfon	Aldicarb Sulfone
DEC TOGS 1.1.1 Guidance Values			-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	0.04	1	-	-	50	50	-	-	2
DEC Part 703 Class GA Groundwater Standards			15^	1,000^^	-	15^	1,000^^	-	-	-	-	-	-	-	250	250	10	-	-	0.04	1	-	-	-	-	-	-	-
DOH Drinking Water Standards Subpart 5-1			15	-	50**	15	-	-	-	-	-	-	-	5^^^	250	250	10	-	18	5	5	50	50	50	50	50	50	2
SS-1	20-25	4/11/2012	<1	1.2+/-0.1	<1	<0.3	0.9 ±0.7	<2.8	<0.28	<0.99	<2.3	NA	NA	NA	9	8	1.8	7	1.5	<0.5	<0.5	<0.2	<0.2	<0.3	<0.5	<0.4	<0.3	<0.5
	30-35	4/11/2012	1.8+/-0.2	4.1+/-0.2	1.8 ±0.2	<0.4	2.7 ±0.8	<2.8	<0.31	<1.3	<2.3	NA	NA	NA	12	18	3.9	7	1.1	<0.5	<0.5	<0.2	<0.2	<0.3	<0.5	0.4	<0.3	<0.5
	40-45	3/21/2012	3.6+/-0.3	8.5+/-0.3	3.8 ±0.3	2.3 ±0.9	7.4 ±1	<3.4	<0.31	<1.3	7 ±2.7	1.9 ±1.2	NA	NA	10	21	9.2	2	1.1	<0.5	<0.5	<0.2	<0.2	<0.3	<0.5	<0.4	<0.3	<0.5
	50-55	3/21/2012	2.7+/-0.4	8.9+/-0.3	5 ±0.3	2.9 ±1	5.9 ±1	<2.6	<0.24	<0.74	3.9 ±2.2	NA	NA	NA	12	12	12.4	<1	0.9	<0.5	<0.5	<0.2	<0.2	<0.3	<0.5	<0.4	<0.3	<0.5
	60-65	3/21/2012	<1	6.5+/-0.2	2.1 ±0.2	1.9 ±0.9	6.8 ±1.1	<2.6	<0.24	<0.69	5.3 ±3	NA	NA	NA	11	19	13.3	1	1.5	<0.5	<0.5	<0.2	<0.2	<0.3	<0.5	<0.4	<0.3	<0.5
SS-2	15-20	4/10/2012	4.4+/-0.4	14.1+/-0.4	4.4 ±0.4	2.1 ±1	12.3 ±1.4	<2.5	<0.26	<1.0	9.8 ±3.8	1.4 ±1.1	NA	NA	14	22	14.7	<1	1.4	<0.5	<0.5	<0.2	<0.2	<0.3	<0.5	<0.4	<0.3	<0.5
	25-30	4/10/2012	1.0+/-0.4	12±0.3	3.4 ±0.3	1.5 ±0.8	8.7 ±1.2	<3.5	<0.31	<1.3	6.5 ±3.3	NA	NA	NA	<12	22	9.9	<1	0.8	<0.5	<0.5	<0.2	<0.2	<0.3	<0.5	<0.4	<0.3	<0.5
	25-30	3/27/2012	<1	16.3+/-0.9	7.7 ±0.9	4.3 ±1.3	11.2 ±1.3	<2.9	<0.31	<0.84	16 ±6	NA	NA	NA	13	24	10.4	1	0.8	<0.5	<0.5	<0.2	<0.2	<0.3	<0.5	<0.4	<0.3	<0.5
	35-40	3/27/2012	2.6+/-0.4	17.6+/-0.5	6.6 ±0.5	4 ±1.3	14.1 ±1.5	<2.7	<0.29	<0.71	16 ±6.3	1.4 ±1.2	NA	NA	13	21	17.6	<1	0.9	<0.5	<0.5	<0.2	<0.2	<0.3	<0.5	<0.4	<0.3	0.5
	45-50	3/27/2012	6.3+/-0.5	16.3+/-0.4	7.1 ±0.4	3.7 ±1.2	12.5 ±1.4	<2.8	<0.31	<0.78	12 ±3.5	NA	NA	NA	13	18	14.5	<1	1	<0.5	<0.5	<0.2	<0.2	<0.3	<0.5	<0.4	<0.3	<0.5
	55-60	3/27/2012	2.1+/-0.2	10.4+/-0.3	3.7 ±0.3	4 ±1.3	8.6 ±1.1	<2.4	<0.24	<0.65	11 ±4	NA	NA	NA	13	16	12.7	1	1	<0.5	<0.5	<0.2	<0.2	<0.3	<0.5	<0.4	<0.3	<0.5
	65-70	3/27/2012	<1	5.6+/-0.2	2.6 ±0.2	1.9 ±0.9	5 ±1	<2.7	<0.3	<0.82	4.9 ±3	NA	NA	NA	11	14	11.2	2	1.5	<0.5	0.6	<0.2	<0.2	<0.3	<0.5	<0.4	Trace	<0.5
SS-3	20-25	5/2/2012	1.8+/-0.4	7.7+/-0.3	2.3 ±0.3	1.7 ±0.9	6.4 ±1.1	<3.1	<0.3	<0.79	14 ±4.4	NA	NA	NA	106	<50	10.2	15	0.8	<0.5	<0.5	<0.2	<0.2	<0.3	<0.5	<0.4	<0.3	<0.5
	30-35	5/2/2012	<1	9.3+/-0.3	3.6 ±0.3	<0.4	7.2 ±1	<3	<0.3	<0.77	4.6 ±3.2	NA	NA	NA	20	18	10.7	6	1	<0.5	<0.5	<0.2	<0.2	<0.3	<0.5	<0.4	<0.3	<0.5
	40-45	5/2/2012	<1	5.4+/-0.2	2.4 ±0.2	<0.4	4.2 ±0.8	<2.6	<0.27	<0.7	3.6 ±2.7	NA	NA	NA	11	14	5.7	4	0.6	<0.5	<0.5	<0.2	<0.2	<0.3	<0.5	<0.4	<0.3	<0.5
	50-55	5/2/2012	<1	4.8+/-0.2	1.8 ±0.2	0.7 ±0.5	4.1 ±0.9	<3.1	<0.32	<0.85	3.2 ±1.7	NA	NA	NA	6	20	<0.5	6	<.02	<0.5	<0.5	<0.2	<0.2	<0.3	Trace	<0.4	<0.3	<0.5
	60-65	4/30/2012	<1	4.4+/-0.2	1.9 ±0.2	<0.4	3.1 ±0.8	<2.8	<0.29	<0.86	2.3 ±1.7	NA	NA	NA	11	18	3.3	8	0.3	<0.5	<0.5	<0.2	<0.2	<0.3	Trace	<0.4	<0.3	<0.5
	70-75	4/30/2012	<1	4.9+/-0.2	2.2 ±0.2	1.5 ±0.7	4.2 ±0.9	<2.5	<0.26	<0.78	5.9 ±3.3	1.9 ±1.4	NA	NA	<12	<20	2.6	3	0.4	<0.5	<0.5	<0.2	<0.2	<0.3	<0.5	<0.4	<0.3	<0.5
	80-85	4/30/2012	<1	2.7±0.1	<1	0.5 ±0.4	3.6 ±0.7	<2.5	<0.27	<0.81	2.3 ±2	NA	NA	NA	5	19	2.5	1	0.2	<0.5	<0.5	<0.2	<0.2	<0.3	<0.5	<0.4	<0.3	<0.5
SS-4	15-20	4/11/2012	<1	3.4+/-0.2	<1	<0.8	3.8 ±1	<3	<0.28	<1.3	<2.6	NA	NA	NA	60	20	11.1	12	2.9	<0.5	<0.5	<0.2	<0.2	<0.3	<0.5	<0.4	<0.3	<0.5
	25-30	4/9/2011	<1	2.3±0.1	<1	1 ±0.9	2.4 ±0.8	<3	<0.28	<1.3	0.18 ±0.1	NA	NA	NA	24	47	15.2	14	0.5	<0.5	<0.5	Trace	0.2	<0.3	<0.5	<0.4	<0.3	<0.5
	35-40	4/9/2011	<1	5.8±0.2	2.3 ±0.2	<0.3	2.6 ±0.7	<3	<0.33	<1.2	<2.2	NA	NA	NA	17	20	14.8	10	0.9	<0.5	<0.5	<0.2	<0.2	<0.3	<0.5	<0.4	<0.3	<0.5
	45-50	4/9/2011	<1	3.7±0.2	1.2 ±0.2	<0.7	4.6 ±1	<3.1	<0.31	<1.2	4.7 ±3.2	NA	NA	NA	15	48	6.8	12	0.3	<0.5	<0.5	<0.2	0.2	<0.3	<0.5	<0.4	<0.3	<0.5
	55-60	4/3/2012	<1	2.8+/-0.2	<1	<0.4	2 ±0.7	<2.4	<0.26	<0.72	<2.4	NA	NA	NA	16	30	5.2	7	0.2	<0.5	<0.5	<0.2	<0.2	<0.3	0.5	<0.4	<0.3	<0.5
	65-70	4/3/2012	<1	6.5+/-0.2	1.9 ±0.2	1.7 ±0.8	5.4 ±0.9	<2.4	<0.23	<0.72	7.2 ±2.9	NA	NA	NA	17	39	8.6	4	<0.2	<0.5	<0.5	<0.2	<0.2	0.6	1.4	<0.4	<0.3	<0.5
SS-5	15-20	4/3/2012	<1	9.1+/-0.5	<1	3.8 ±2.7	8.6 ±2.3	<2.9	<0.33	<0.96	9.7 ±3.1	2 ±1.2	NA	NA	297	24	4.2	5	0.7	<0.5	<0.5	<0.2	<0.2	<0.3	<0.5	<0.4	<0.3	<0.5
	25-30	4/3/2012	3.7+/-0.6	4.8+/-0.2	<1	3.1 ±1.8	5.9 ±1.5	<3.7	<0.31	<1.5	5.6 ±3	1.3 ±0.9	NA	NA	187	33	9.3	<1	1.1	<0.5	<0.5	<0.2	<0.2	<0.3	<0.5	<0.4	<0.3	<0.5
	35-40	4/2/2012	<1	4.6+/-0.2	1.8 ±0.2	<0.4	3.6 ±0.8	<2.6	<0.25	<0.7	1.3 ±1.2	NA	NA	NA	16	22	7.1	<1	2.3	<0.5	<0.5	<0.2	<0.2	<0.3	<0.5	<0.4	<0.3	<0.5
	45-50	4/2/2012	<1	3.9+/-0.2	1.3 ±0.2	0.8 ±0.8	2.5 ±0.8	<2.5	<0.26	<0.83	1.3 ±1.1	NA	NA	NA	19	61	8.9	16	0.3	0.5	<0.5	<0.2	0.4	<0.3	<0.5	<0.4	<0.3	<0.5
	55-60	4/2/2012	<1	5.6+/-0.2	1.4 ±0.2	<0.5	4.2 ±0.9	<2.6	<0.26	<0.88	<2.7	NA	NA	NA	21	22	10.1	11	0.6	<0.5	<0.5	<0.2	Trace	<0.3	<0.5	<0.4	<0.3	<0.5
	65-70	4/2/2012	<1	4.3+/-0.2	<1	1.2 ±0.9	3.5 ±0.8	<2.7	<0.24	<0.87	3.2 ±2.5	NA	NA	NA	21	54	6.8	12	0.4	<0.5	<0.5	<0.2	0.2	<0.3	<0.5	<0.4	<0.3	<0.5

Notes:
NA = Sample collected, analyte not reported
NS = No Sample Collected
"<" = less than, indicating no detection
ppb = part per billion
ppm = part per million
pCi = picocurie
^ = excluding radon and uranium
^^ = excluding strobtium-90 and alpha emitters
^^^ = MCL is for combined Radium 226 + Radium 228
* AGB = gross beta - 0.82* potassium conc. in mg/l
**AGB has a guidance activity value of 50 pCi/l that is used for screening under Subpart 5-1 of the NYS Sanitary Code
indicates concentration exceeds a standard or guidance value

Site #6
Moriches-Yaphank Road Farm
Manorville NY

Site Description

This site is located northwest of the intersection of Weeks Ave and Moriches-Middle Island Road in Manorville, and consists of four separate tax parcels, three contiguous five acre parcels, and one non-contiguous 10 acre parcel located south of the northern three. This site is a former Long Island Compost NYSDEC Part 360 regulated site. Farming activities are evident from historical aerial photographs (Appendix F) on one or more of the parcels since 1947. What appear to be VOWM windrows first appear on the site in the 1999 photo, and are evident on the 2006 photo, but not on any of the subsequent photos (2007, 2010, 2013). Two sets of historical windrows appear to have been used; one set on the 10 acre parcel located approximately 150 feet north of Moriches-Middle Island Road, and the other set on the three five acre parcels located approximately 900 feet north of Moriches-Middle Island Road (Figure 10).

SCDHS Monitoring Wells

The SCDHS installed three temporary profile monitoring wells south of the site located on Moriches-Yaphank Road (MMIR-1, MMIR-2 and MMIR-3). The locations of these wells were based upon a southerly regional groundwater flow direction, and were sited to assess past and/or current impacts from vegetative organic waste activity occurring at the site. All three wells were installed to a depth of 115 fbg, and sampled at 10 foot intervals as they were retracted. Nine levels were sampled from each of the three wells, with the uppermost level screened at the 30 to 35 foot interval, yielding a total of 27 groundwater samples collected from this site. The following analytes have been detected in the indicated monitoring well at concentrations exceeding a groundwater and/or drinking water standard:

Manganese (MMIR-1)
Iron (MMIR-1)
Sodium (MMIR-1)

Table 7 contains a summary of the results of the analytes detected.

Private Wells

Five homes potentially served by private wells were identified downgradient of this site. Three of these homes were confirmed to be connected to the public water supply, one lot did not have a water supply, and no response was received from the final home.

Figure 10– Site #6 Well Locations on 2004 Aerial Photograph

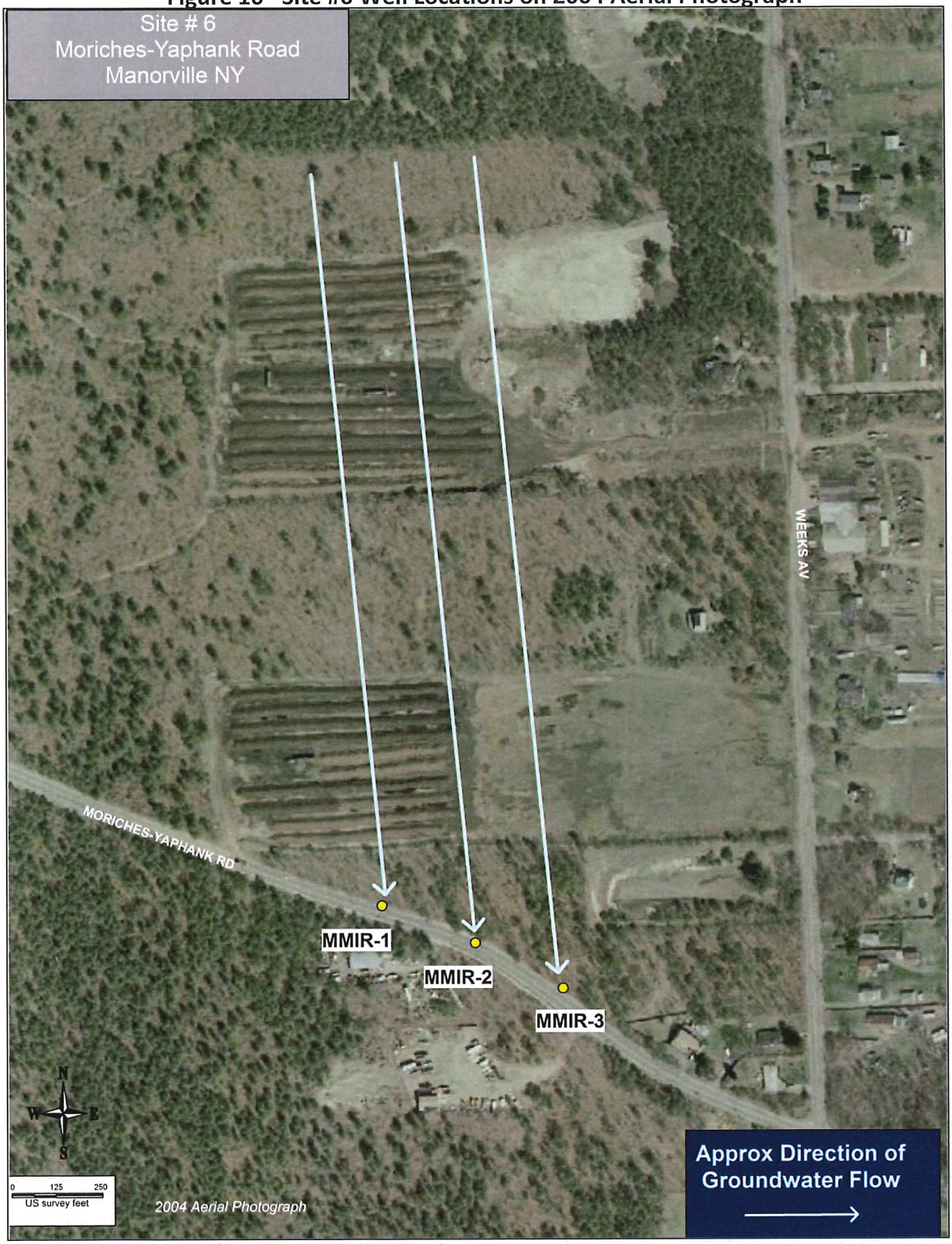


Figure 11– Site #6 Well Locations on 2010 Aerial Photograph

Public Wellfields

The nearest public supply wellfield is approximately 1.1 miles from the site and is not located downgradient of the site. Any impacts to groundwater quality as results of this site's operations would not be expected to affect the water quality of this wellfield.

Summary of Significant Analytical Results

Metals

Well MMIR-1 was the only one of the three wells installed that exhibited analytes with concentrations in excess of a standard. The uppermost profile level (30-35 fbg) had a manganese concentration of 804 ppb, exceeding the groundwater and drinking water standard of 300 ppb. The manganese concentration in the top profile level of MMIR-2 was elevated at 297 ppb, just below the groundwater/drinking water standard. The four profile levels of well MMIR 1, extending from 80 feet to 115 fbg, all exhibited iron concentrations in excess of groundwater and drinking water standards. There was also one exceedance of the sodium groundwater standard in the 80 to 85 fbg profile. Potassium concentrations were notably elevated in the upper profiles of MMIR-1 (7.2 ppm, 14.6 ppm and 6.5 ppm) and MMIR-2 (23.1 ppm).

Other Notable Results

Trace detections of the pesticide metabolite metolachlor OA was detected in the top profile level in each of the three wells, and a companion metabolite, metolachlor ESA, was also detected at trace concentrations in the top two profile levels of wells MMIR-1 and MMIR-2. Low concentrations of chloroform (less than 3 ppb) were reported in the same seven profile levels (50 – 115 fbg) in all three of the wells. Freon (trichlorofluoromethane) was also detected at low concentrations (less than 1 ppb) in two profile levels of MMIR-3 (70-75fbg and 80-85 fbg). Caffeine was detected in all three wells.

Discussion

Three profile monitoring wells were installed downgradient of this site, along Moriches-Yaphank Road. Figure 10 illustrates the compost windows as they existed in 2004 relative to the three monitoring wells, and Figure 11 shows the site as it existed in 2010, a year prior to the installation of the wells in 2011. The regional groundwater flow arrow for well MMIR-1 shows that this well is located downgradient of the historical windrows which are located approximately 150 feet to the north (on the 10 acre parcel), and 850 feet to the north (on the three five acre parcels). Well MMIR-2 is situated downgradient of the edge of the area of the windrows located 150 feet to the north, and is downgradient of the windrows that were located 850 feet to the north. Well MMIR-3 does not appear to be located directly downgradient of any of the historic windrows, but is downgradient of the land that had historical farmland use. The upper profile levels of wells MMIR-1 and MMIR-2 appear to exhibit slight impacts associated with VOWM sites (elevated manganese, potassium), while the water quality of well MMIR-3 did not appear to exhibit significant impacts. This is consistent with the locations of the wells relative to the historic locations of windrows and the regional groundwater flow direction (Figure 10). In addition,

the historical aerial photographic record (Appendix F) indicates that very little if any VOWM activity has occurred on this site since 2006. The five years of minimal VOWM activity may have allowed much of the potentially impacted water to have travelled past the wells, toward the south. For example, the most distant window from well MMIR-1 (the well optimally located to observe VOWM related groundwater impacts) is located approximately 1,350 feet to the north (on the most northern five acre parcel). Considering an average of 300 feet groundwater travel/year, it would take groundwater impacted from this window approximately 4.5 years to travel to well MMIR-1. MMIR-1 was installed and sampled in the fall of 2011; approximately 4.5 years after windows were removed in early 2007 (Appendix F).

Wells Impacted by VOWM Activity

One profile well, MMIR-1 appears to indicate slightly impacted groundwater quality (elevated concentrations of manganese, iron, sodium and potassium), which could be due to historic VOWM activity at the sight. However, since this site has not been used since approximately 2006 for significant VOWM related activities, no definitive conclusions can be drawn regarding VOWM related groundwater impacts from this site.

Table 7
Summary of Detected Analytes
Monitoring Wells Installed in the Vicinity of Site #6
Manorville, NY

Well Information			Parameters					Metals														
Well ID	Screen Interval (ft) (depth below grade)	Sample Date	Depth To Water (Feet)	Dissolved Oxygen(mg/L)	Temperature (Celsius)	pH	Conductivity (uS)	Aluminum (ppb)	Barium (ppb)	Cobalt (ppb)	Chromium (ppb)	Copper (ppb)	Manganese (ppb)	Molybdenum (ppb)	Nickel (ppb)	Strontium (ppb)	Titanium (ppb)	Magnesium (ppm)	Iron (ppm)	Sodium (ppm)	Calcium (ppm)	Potassium (ppm)
DEC TOGS 1.1.1 Guidance Values			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	35	-	-	-	-
DEC Part 703 Class GA Groundwater Standards			-	-	-	-	-	-	1,000	-	50	200	300	-	100	-	-	-	0.3	20	-	-
DOH Drinking Water Standards Subpart 5-1			-	-	-	-	-	-	2,000	-	100	1300***	300	-	100	-	-	-	0.3	-	-	-
MMIR-1	30-35	11/9/2011	26.25	7.5	14.8	5.44	145	63	38	<1	<1	1	804	<1	1.8	31	<1	6.7	<0.1	7.6	10.9	7.2
	40-45	11/9/2011	26.25	5.33	14.8	5.43	141	11	216	1	1	<1	209	<1	1	59	<1	3.2	<0.1	4.6	4.9	14.6
	50-55	11/9/2011	26.25	6.05	14.5	5.63	136	11	79	1	1	1	7	<1	1.3	110	<1	4.8	<0.1	7.9	9.3	6.5
	60-65	11/9/2011	26.25	8.34	14.5	6.04	101	6	14	1	1	1	4	<1	1.2	52	<1	3.6	<0.1	7.1	6.9	0.6
	70-75	11/9/2011	26.25	8.75	14.1	6.26	110	<5	13	<1	1	1	2	<1	1	45	<1	3.6	<0.1	6.6	8.5	0.6
	80-85	11/3/2011	26.25	9.59	14.2	6.31	53	117	8	<1	1	<1	15	<1	1.2	14	11	18	3.68	38.1	56.8	4.7
	90-95	11/3/2011	26.25	9.67	13.9	6.41	50	95	8	<1	1	<1	8	<1	1	15	6	1.5	0.36	4.2	3.5	0.5
	100-105	11/3/2011	26.25	8.96	14	6.84	50	111	9	<1	1	<1	13	<1	1.1	12	7	1	0.34	4	2.3	0.4
	110-115	11/3/2011	26.25	9.3	13.4	6.85	48	86	9	<1	2	<1	6	<1	<0.5	14	5	1.2	0.33	4.4	3.2	0.4
MMIR-2	30-35	11/22/2011	24.8	2.84	14.5	6.05	220	10	46	<1	<1	<1	297	<1	1.7	25	<1	5.9	<0.1	6.8	9.9	23.1
	40-45	11/22/2011	24.8	6.16	141	5.71	174	33	80	<1	<1	<1	20	<1	1.8	47	2	6.4	<0.1	8	9.7	4.5
	50-55	11/21/2011	24.8	8.28	14	6.32	129	115	35	<1	2	<1	23	<1	3	81	5	4.6	<0.1	6.1	8.5	1.5
	60-65	11/21/2011	24.8	8.62	14.2	6.65	99	164	16	<1	3	<1	27	<1	4.9	51	8	3.1	0.16	6	6.3	0.8
	70-75	11/21/2011	24.8	9.29	14.3	6.73	93	105	10	1	2	<1	15	<1	4.6	31	5	2.9	<0.1	4.3	6.8	0.5
	80-85	11/21/2011	24.8	9.52	14.3	7.02	82	132	9	2	2	<1	11	<1	1.7	24	6	2.4	<0.1	4.1	5.4	0.4
	90-95	11/14/2011	24.8	8.68	14.7	6.33	71	42	15	<1	<1	<1	10	<1	1.3	39	3	4.1	0.15	6.9	9.9	0.6
	100-105	11/14/2011	24.8	9.65	14.7	6.62	47	37	6	<1	1	<1	8	<1	1.2	14	2	1.3	<0.1	3.9	3.1	0.3
	110-115	11/14/2011	24.8	10.6	14.3	6.6	43	16	6	<1	1	<1	5	<1	0.7	12	<1	0.9	<0.1	4	2.2	0.3
MMIR-3	30-35	1/31/2012	23.45	7.63	12	7.01	93	152	21	<1	<1	<1	87	<1	0.6	6	<1	2.1	<0.1	3.9	3.4	5.3
	40-45	1/31/2012	23.45	7	11.8	7.46	171	19	72	<1	<1	<1	17	<1	0.5	53	<1	5.4	<0.1	7.8	7.6	2
	50-55	1/25/2012	23.45	7.47	11.5	5.35	200	13	30	<1	1	<1	6	<1	4	109	<1	6.9	<0.1	8.3	11.6	0.9
	60-65	1/25/2012	23.45	8.01	11.3	5.65	180	6	25	<1	<1	<1	2	<1	1.5	94	<1	5.5	<0.1	6	12.5	0.7
	70-75	1/25/2012	23.45	7.36	11.1	5.69	276	6	36	<1	<1	<1	2	<1	2.7	116	<1	8.9	<0.1	7.8	20.3	0.9
	80-85	1/25/2012	23.45	7.97	11.2	5.72	280	8	43	<1	1	<1	2	<1	6	115	<1	8.6	<0.1	7.5	20.5	0.9
	90-95	1/25/2012	23.45	9.03	11.1	6.39	50	5	7	<1	<1	<1	1	2	1.2	14	<1	1	<0.1	3.5	2.4	0.3
	100-105	1/25/2012	23.45	8.99	11.1	6.22	49	<5	7	<1	<1	<1	<1	<1	<0.5	15	<1	1	<0.1	3.5	2.3	0.3
	110-115	11/22/2011	23.95	7.46	13.5	6.41	50	192	10	<1	3	<1	16	<1	1.8	14	9	1	0.2	3.9	2	0.4

Notes: NA = Sample collected, analyte not reported
NS = No Sample Collected
ppb = part per billion
ppm = part per million
uS = micro siemens
"<" = less than, indicating no detection
*** Action Level for Public Water Suppliers for Lead and Copper
indicates concentration exceeds a standard or guidance value

Table 7
Summary of Detected Analytes
Monitoring Wells Installed in the Vicinity of Site #6
Manorville, NY

Well Information			Radiologicals (pCi/L)												Standard Inorganics				VOCs		Herb Mets (ppb)		
			SCDHS PEHL			NYSDOH Wadsworth																	
Well ID	Screen Interval (ft) (depth below grade)	Sample Date	Gross Alpha	Gross Beta	Adjusted Gross Beta* (AGB)	Gross Alpha	Gross Beta	Ruthenium 106	Cesium 137	Zirconium 95	Potassium 40	Actinium 228	Radium 224	Radium 226	Chloride (ppm)	Sulfate (ppm)	Nitrate (ppm)	Perchlorate (ppb)	Chloroform (ppb)	Trichlorofluoromethane (ppb)	Caffeine	Metolachlor OA	Metolachlor ESA
DEC TOGS 1.1.1 Guidance Values			-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	5	-	50	50
DEC Part 703 Class GA Groundwater Standards			15^	1,000^^	-	15^	1,000^^	-	-	-	-	-	-	-	250	250	10	-	7	5	-	-	-
DOH Drinking Water Standards Subpart 5-1			15	-	50**	15	-	-	-	-	-	-	-	5^^^	250	250	10	18	80	5	50	50	50
MMIR-1	30-35	11/9/2011	1.3±0.8	7.1±0.8	1.2±0.8	1.5 ±0.8	6.4 ±1.1	<2.8	<0.33	<0.67	5 ±2.2	NA	NA	NA	27	25	3.6	<0.2	<0.5	<0.5	<0.2	Trace	Trace
	40-45	11/9/2011	1.1±0.6	15.1±1.1	3.1±1.1	1 ±0.6	15 ±1.6	<3	<0.32	<0.65	8.1 ±4.7	NA	NA	NA	13	19	1.9	0.2	<0.5	<0.5	<0.2	<0.3	Trace
	50-55	11/9/2011	<1	6.7±0.8	1.4±0.8	<0.3	6.3 ±1.1	<2.9	<0.3	<0.64	3.6 ±1.6	NA	NA	NA	18	13	3.9	0.3	0.5	<0.5	Trace	<0.3	<0.3
	60-65	11/9/2011	<1	<1	<1	<0.6	<1	<2.6	<0.27	<0.7	<2.4	NA	NA	NA	12	9	1.6	0.3	1	<0.5	<0.2	<0.3	<0.3
	70-75	11/9/2011	<1	<1	<1	<0.5	<1	<2.8	<0.32	<0.64	<2.4	NA	NA	NA	14	10	1.2	0.2	1.1	<0.5	<0.2	<0.3	<0.3
	80-85	11/3/2011	<1	<1	<1	<0.4	<0.7	<3	<0.3	<0.61	NA	NA	NA	NA	<30	<50	<5	<0.2	1.9	<0.5	<0.2	<0.3	<0.3
	90-95	11/3/2011	<1	<1	<1	<0.3	<0.7	<2.7	<0.3	<0.64	0.9 ±0.4	NA	NA	NA	<9	<15	<1.5	<0.2	1.4	<0.5	<0.2	<0.3	<0.3
	100-105	11/3/2011	<1	<1	<1	0.9 ±0.5	<0.7	<2.9	<0.35	<0.7	<2.7	NA	NA	NA	<12	<20	<2	<0.2	1	<0.5	<0.2	<0.3	<0.3
	110-115	11/3/2011	<1	1.5±0.6	1.2±0.6	0.5 ±0.4	<0.7	<3	<0.32	<0.8	<2.2	NA	NA	NA	<9	<15	<1.5	<0.2	0.5	<0.5	<0.2	<0.3	<0.3
MMIR-2	30-35	11/22/2011	1.3+/-0.9	21.9+/-1.4	3.0±1.4	0.9 ±0.7	24 ±2.1	<3.1	<0.3	<0.86	20 ±8.2	<0.97	NA	NA	16	27	3.9	0.3	<0.5	<0.5	<0.2	Trace	Trace
	40-45	11/22/2011	<1	6.1+/-0.8	2.4±0.8	<0.5	4.1 ±1	<2.5	<0.22	<0.74	<2.3	<0.79	NA	NA	24	19	<0.2	0.4	<0.5	<0.5	0.2	<0.3	Trace
	50-55	11/21/2011	<1	1.3±0.6	<1	<0.4	1.5 ±0.6	<3.8	<0.33	<2.4	1.4 ±1.3	<0.91	NA	NA	14	10	4.5	0.3	0.6	<0.5	<0.2	<0.3	<0.3
	60-65	11/21/2011	<1	<1	<1	<0.5	<0.7	<2.9	<0.28	<0.85	<2.4	<0.86	NA	NA	11	<5	4.4	0.2	1.1	<0.5	<0.2	<0.3	<0.3
	70-75	11/21/2011	<1	<1	<1	<0.4	0.8 ±0.6	<2.5	<0.25	<0.81	<1.9	<0.78	NA	NA	9	<5	3.4	<0.2	1.3	<0.5	<0.2	<0.3	<0.3
	80-85	11/21/2011	<1	<1	<1	<0.4	0.8 ±0.6	<3.1	<0.29	<0.84	<2.2	<1	NA	NA	7	5	1.6	<0.2	1.7	<0.5	<0.2	<0.3	<0.3
	90-95	11/14/2011	<1	<1	<1	0.9 ±0.7	<1	<2.7	<0.3	<0.67	<2.6	1.3 ±1.1	NA	NA	<30	<50	5.9	<0.2	1.2	<0.5	<0.2	<0.3	<0.3
	100-105	11/14/2011	<1	<1	<1	<0.4	<0.7	<2.7	<0.3	<0.64	1.1 ±0.8	NA	NA	NA	<30	<50	<1	<0.2	1.4	<0.5	Trace	<0.3	<0.3
	110-115	11/14/2011	<1	<1	<1	<0.3	<0.7	<2.7	<0.31	<0.65	NA	NA	NA	NA	5	5	<0.5	<0.2	0.7	<0.5	<0.2	<0.3	<0.3
MMIR-3	30-35	1/31/2012	<1	9.0+/-0.8	4.7±0.8	0.5 ±0.4	4.9 ±0.9	<2.4	<0.25	<0.68	7.8 ±3.4	<0.82	NA	NA	7	18	<0.5	0.6	<0.5	<0.5	<0.2	Trace	<0.3
	40-45	1/31/2012	<1	6.7+/-0.7	5.0±0.7	<0.4	2.4 ±0.9	<3.5	<1.2	<2.6	<6.1	<2.9	NA	NA	17	22	2.9	0.3	<0.5	<0.5	<0.2	<0.3	<0.3
	50-55	1/25/2012	<1	<1	<1	<0.33	<1	<2.9	<0.32	<0.76	3.2 ±1.9	<1	1.4 ±0.7	NA	24	25	3.8	0.3	0.6	<0.5	<0.2	<0.3	<0.3
	60-65	1/25/2012	<1	<1	<1	<0.55	<0.7	<2.8	<0.3	<0.69	1.8 ±1.5	<0.93	NA	NA	17	15	6.3	0.2	1.1	<0.5	<0.2	<0.3	<0.3
	70-75	1/25/2012	<1	1.0+/-0.1	<1	<0.71	1.2 ±0.7	<2.6	<0.32	<0.73	<2.2	<0.88	NA	NA	26	40	5.5	0.3	0.7	0.7	<0.2	<0.3	<0.3
	80-85	1/25/2012	1.2+/-0.4	1.1+/-0.1	<1	<0.7	1.1 ±0.7	<3.1	<0.27	<1.5	<2.3	<1	NA	NA	25	38	6	0.2	0.9	0.8	<0.2	<0.3	<0.3
	90-95	1/25/2012	<1	<1	<1	<0.41	<0.7	<2.9	<0.32	<0.83	<2.3	<0.91	NA	NA	5	6	<0.5	<0.2	2.3	<0.5	<0.2	<0.3	<0.3
	100-105	1/25/2012	<1	<1	<1	<0.22	<0.6	<2.8	<0.29	<0.86	<1.9	<0.88	NA	NA	5	6	<0.5	<0.2	1.8	<0.5	0.4	<0.3	<0.3
	110-115	11/22/2011	<1	3.0+/-0.7	2.7±0.7	NS	NS	NS	NS	NS	NS	NS	NS	NS	<12	<20	<2	<0.2	1.4	<0.5	<0.2	<0.3	<0.3

Notes:
- NA = Sample collected, analyte not reported
- NS = No Sample Collected
- "<" = less than, indicating no detection
- ppb = part per billion
- ppm = part per million
- pCi = picocurie
- ^ = excluding radon and uranium
- ^^ = excluding strobtium-90 and alpha emitters
- ^^^ = MCL is for combined Radium 226 + Radium 228
- * AGB = gross beta - 0.82* potassium conc. in mg/l
- **AGB has a guidance activity value of 50 pCi/l that is used for screening under Subpart 5-1 of the NYS Sanitary Code
- ☐ indicates concentration exceeds a standard or guidance value

Site #7
East Main Street
Yaphank NY

Site Description

This site is located along East Main Street in Yaphank, just north of the Long Island Expressway and consists of four separate tax parcels totaling approximately 29 acres. As indicated on Figure 12, the two northern parcels are labelled "Froehlich" and total 19 acres; the southern parcel is 10 acres and is labelled "Hololob". With respect to VOWM activities, the NYSDEC currently designates the sites as follows:

Froehlich - Inactivated Part 360 Registered site; currently storing exempted wood mulch and some yard waste composting material.

Hololob - exempted land clearing debris processing facility.

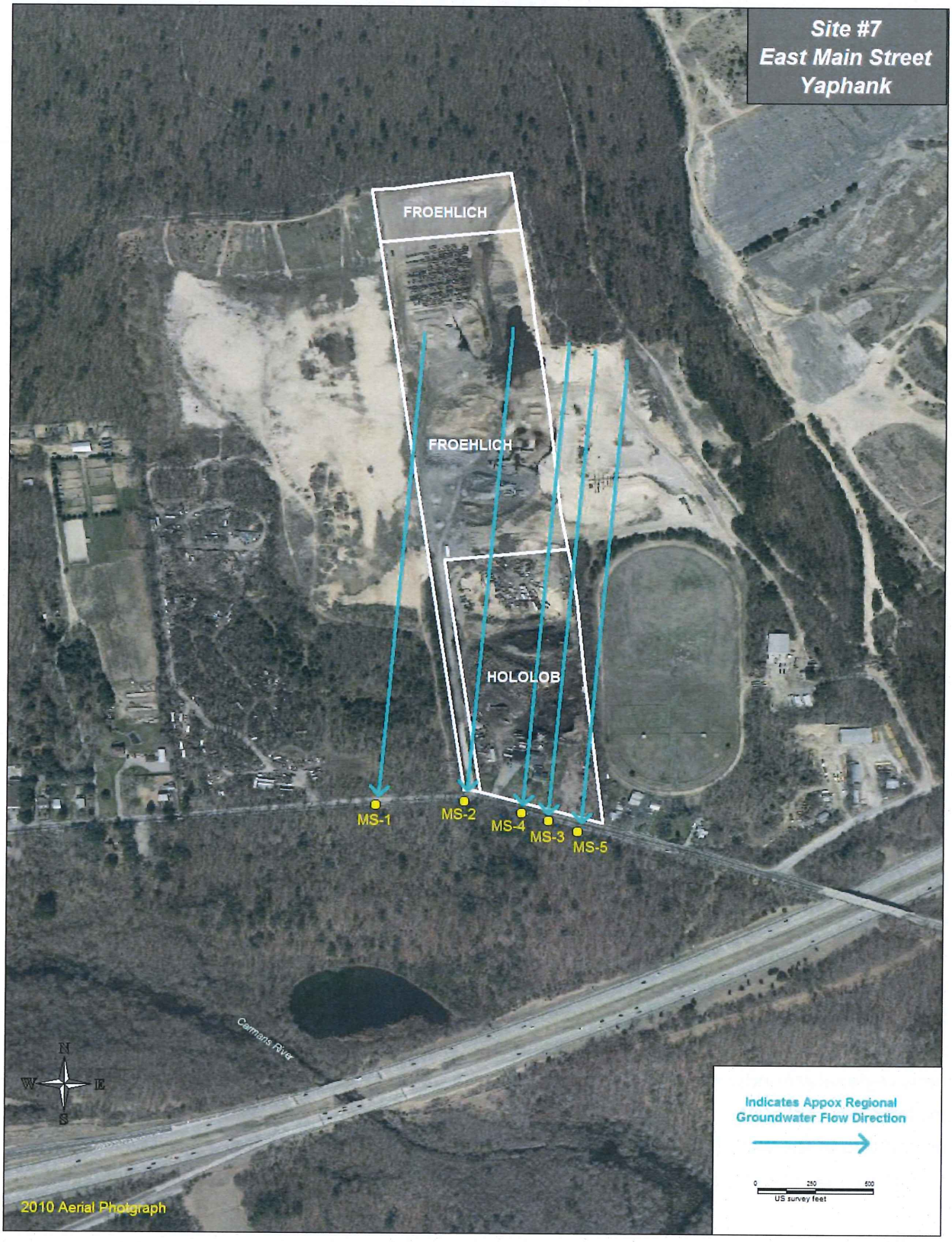
Historical aerial photographs (Appendix G) indicate that the southern portion of the site was already developed as farmland in 1947, and farming use is evident on the 1969 and 1978 photographs. The first indication of vegetative organic waste materials at the site occur on the southern Hololob property in the 2007 aerial photograph, and is also evident in the spring and fall 2013 photographs. Vegetative organic waste materials become evident on the northern Froehlich property in 2010, and are also present in both the spring and fall 2013 photographs. Additionally, the fall 2013 aerial photo shows a significant amount of flooding on the northern Froehlich property, as well as on the property to the west.

It should be noted that the Carmans river is located approximately 1,000 feet hydraulically downgradient of this site.

SCDHS Monitoring Wells

The SCDHS installed five temporary profile monitoring wells (MS-1, MS-2, MS-3, MS-4 and MS-5) south of this site, located on Main Street in Yaphank (Figure 12). The locations of these wells were based upon a southerly regional groundwater flow direction, and were sited to assess impacts from past and/or current landuses of this site. Three of the five wells (MS-1, MS-2, and MS-3) were installed to a depth of 95 fbg, and two of the wells (MS-4 and MS-5) were installed to a depth of 85 fbg. All the wells were sampled at 10 foot intervals as they were retracted. Eight levels were sampled from wells MS-1, MS-2

Figure 12– Site #7 Well Locations on 2010 Aerial Photograph



and MS-3, the uppermost at the 20 – 25 foot interval, and six levels were samples from wells MS-4 and MS-5, with the uppermost level screened at the 30 – 35 foot interval. A total of 41 groundwater samples were collected in the vicinity of this site, with the uppermost profile levels of each of the five wells being resampled in July of 2014 (the original sampling took place in 2011 and 2012). The following analytes were detected in the profile monitoring wells downgradient of this site at concentrations exceeding their respective drinking water and/or groundwater standards:

Manganese	**(MS-2, MS-3, MS-4, MS-5)**	**Nitrate**	**(MS-3, MS-5)**
Thallium	**(MS-4, MS-5)**	**Ammonia**	**(MS-3, MS-5)**
Iron	**(MS-3, MS-4, MS-5)**	**Benzene**	**(MS-3)**
Sodium	**(MS-3, MS-4, MS-5)**		

Table 8 contains a summary of the results of the analytes detected.

Private Wells

Thirteen potential private wells were identified in the vicinity of this site. Eleven wells were sampled, and two did not respond to the SCDHS offer to sample their wells. Of the eleven private wells sampled, only one is located in a potentially downgradient direction (the ten other wells are located side-gradient to the site). One private well slightly exceeded the drinking water standard for iron, and another slightly exceeded for iron and Total Aldicarb (a pesticide). Except for these two private wells, water quality for all the other private wells tested met drinking water standards. The private wells with the exceedances for iron were not located downgradient of the site and did not otherwise exhibit elevated water quality indicators of VOWM impacts that have been observed downgradient at other VOWM sites.

Public Wellfields

There were no public supply wellfields identified downgradient of this site.

Surface Waters

The Carmans River is located approximately 1,000 feet downgradient of this site. Groundwater modelling performed by Camp, Dresser and McKee for the Suffolk County Comprehensive Water Resources Management Plan indicates that the southern Hololob property is within the 0 to 2 year groundwater travel time to the Carmans River. This indicates that groundwater at the top of the water table located at the Hololob property would take between 0 to 2 years to discharge into the Carmans River. Additionally, the modelling shows that groundwater at the top of the water table on the Froehlich property takes between 2 and 5 years to discharge into the Carmans River.

Summary of Significant Analytical Results (2011 and 2012 Sampling Events)

Metals

Well MS-1 was the most westerly located well, and exhibited the least observed VOWM related water quality impacts. Figure 12 indicates that the regional groundwater flow direction is to the south-west, resulting in a landuse impact contribution from only a portion of the northernmost "Froehlich" property, which, although has had recent VOWM activity (since 2010), it does not appear to have had significant historical VOWM uses (Appendix G). The uppermost profile level (screened 20 to 25 fbg) of well MS-2 exhibited an exceedance of the groundwater and drinking water standard for manganese (3,990 ppb), which is over thirteen times the groundwater and drinking water standard of 300 ppb. Analytes in the deeper profile levels all indicated background concentrations for metals and do not indicate VOWM related impacts. This is an indication that the contaminant source is located in relative close proximity to the well, most likely the Hololob property. The five upper profile levels of well MS-3 (from 20 to 75 fbg) exhibited significantly elevated concentrations of manganese, up to 49,300 ppb, which is over 160 times the drinking water and groundwater standard of 300 ppb. Other metals such as thallium, iron and sodium also exceeded drinking water and/or groundwater standards. Several other metals such as barium, cobalt, strontium and potassium were also notably elevated relative to mean concentrations typically found in the shallow aquifer (Table 13). MS-4 and MS-5 also exhibited elevated concentrations of manganese (up to 17,500 ppb and 16,300 ppb, respectively). Elevated concentrations of iron were reported in these wells, and thallium exceeded the groundwater standard (0.5 ppb) in well MS-5.

Radionuclides

Gross alpha concentrations were below detection limits in well MS-1, and a low concentration (1.4 pCi/l) was reported in the uppermost profile level of MS-2. Although not exceeding the drinking water standard of 15 pCi/l, wells MS-3, MS-4 and MS-5 exhibited elevated concentrations of gross alpha (11.2 pCi/l, 8.46 pCi/l and 14.3 pCi/l respectively), primarily within the upper three profile sampling levels.

Well MS-3 exhibited the highest gross beta concentrations, 49.2 pCi/l in the 30–35 fbg level, and 44.4 pCi/l in the 40–45 fbg level. However, when these concentrations are adjusted for the gross beta contribution of potassium 40 (a naturally occurring radioactive isotope of potassium), the concentrations are 10.4 pCi/l and 6.9 pCi/l respectively, significantly below the drinking water guidance value of 50 pCi/l. Table 8 indicates all the gross beta concentration detections and their corresponding concentrations that are adjusted for potassium 40. A review of this information shows that the majority of the gross beta concentrations reported is a result of the relatively high potassium concentrations in the samples, and the potassium 40 contained therein.

Pesticides

The pesticides Alachlor OA, Alachlor ESA and pesticide metabolite 2,6-dichlorobenzamide were detected

in both trace (below quantifiable limits) and quantifiable concentrations (up to 8.8 ppb) in all five of the profile wells, significantly below the drinking water standard of 50 ppb. These pesticides were primarily found in the deeper profile sampling levels, indicating the source is not proximate to the wells, but is located a further distance away in the upgradient (northeast) direction. The pesticide Metalaxyl was detected in wells MS-2, MS-3, MS-4 and MS-5 at low concentrations (trace to 0.2 ppb). These detections were also reported primarily in the deeper sampling levels, indicating a relatively distant source. The pesticide dichlorvos was detected in trace concentrations in the top four sampling levels of well MS-3, and in the top level of MS-4 (30-35 fbg).

Volatile Organic Compounds (VOCs)

VOCs were detected in four of the five monitoring wells (they were not detected in well MS-5). Although the reported concentrations were relatively low (less than 3 ppb), the groundwater and drinking water standards for these types of compounds are also relatively low (e.g., the groundwater standard for benzene is 1 ppb). None of the reported VOCs concentrations exceeded their respective drinking water standards; however benzene did exceed the 1 ppb groundwater standard with 2.4 ppb in well MS-3 (30-35 fbg).

Other Notable Results

Ammonia was detected in four of the five wells (it was not detected in MS-1). Wells MS-2 and MS-4 only had detections in the uppermost sampling level, while MS-3 and MS-5 had detections in the upper five and four sampling levels respectively. The ammonia concentrations exceeded the groundwater standard of 2 ppm in three sample levels from MS-3 (from 40 to 65 fbg), and in the top sampling level of MS-5 (30-35 fbg). The highest concentration of ammonia was 9.74 ppm reported in well MS-3 at the 60-65 fbg sampling level.

The nitrate drinking water and groundwater standard of 10 ppm was exceeded in wells MS-3 and MS-5 (10.4 ppm and 12 ppm) at deep sampling levels (80-85 fbg). Although not exceeding standards, elevated nitrates were also reported in wells MS-2 and MS-4 also at the 80-85 fbg sampling level (7.3 ppm and 9 ppm respectively). It should be noted that due to elevated turbidity, the nitrate detection limit, which is typically 0.5 ppm, had to be raised significantly in some samples (as high as 10 ppm). These results can be found in Table 8.

DEET was reported at trace concentrations in wells MS-1, MS-3 and MS-4, and acetaminophen was reported at low concentrations in well MS-3 in the upper four sampling levels.

2014 Sampling Event

The uppermost levels of all five monitoring wells were resampled in July of 2014. The results were generally consistent with the results from the previous sampling performed in 2011-2012, with a few

exceptions. The manganese concentration reported in MS-2 (20-25 fbg) of 131 ppb was considerably lower than the concentration reported for that profile level in 2011 (3,990 ppb). Also, caffeine was detected at trace concentrations in MS-2, MS-3 and MS-4 (caffeine was reported in MS-3 in 2011, but at a much deeper profile level). Other compounds detected in 2014 that were not previously detected include the pesticide metolachlor (MS-3), the pesticide metabolites deisopropylatrazine (MS-3) and metolachlor OA (MS-4), and a metabolite of an antiepileptic pharmaceutical product, 4-hyroxyphenytoin (MS-4 and MS-5).

Discussion

Five profile wells were installed downgradient of this site, along East Main Street. The water quality in the western most well (MS-1) did not exhibit significant impairment, and did not have any analyte concentrations exceeding drinking water or groundwater standards. This well did have low concentrations of petroleum related VOCS (e.g., 1,2,4-trimethylbenzene, benzene, xylene, toluene) and chloroform. These were primarily detected in the deeper profile levels. MS-1 had low concentrations of pesticides and DEET also detected in the deeper profile levels. The VOC and pesticide detections in this well do not appear to be a result of VOWM activity. Figure 12 indicates that the groundwater flow to this well includes the property west of the Hololob property, and upper portion of the Froehlich property. Historical aerial photographs (Appendix G) indicate that since at least 1947, and through the mid-1970s, the Hololob property and property located to the west was farmland, therefore there exists a potential that the pesticide detections in this well are from the legacy farming of land upgradient of this well.

Only the top profile level in well MS-2 had elevated manganese concentrations (3,990 ppb), which would indicate water quality impacts could be a result of VOWM activity occurring at the Hololob property. MS-3, MS-4 and MS-5 all exhibited significant water quality impacts (e.g., significantly elevated metals concentrations, in addition to elevated gross alpha and ammonia concentrations) that appear to be from vegetative organic waste activity occurring at the Hololob site. Figure 12 demonstrates that these wells are appropriately located to assess any VOWM activity impacts to the groundwater. Also, consistent with other VOWM sites, trace to low concentrations of pharmaceutical and personal care product contaminants typically associated with septic waste (e.g., acetaminophen, DEET, caffeine, 4-Hydro-xyphenytoin (an antiepileptic metabolite)) were detected in the most impacted profile levels. Also, the Carmans River is located approximately 1,000 feet downgradient of this site and it is likely a discharge point for the contaminants observed in these wells.

Wells Impacted by VOWM Activity

Four of the five profile wells installed appear to have been impacted by the VOWM related landuse activity occurring at this site.

Table 8 - Summary of Detected Analytes
Monitoring Wells Installed in the Vicinity of Site #7, Yaphank, NY

Well Information			Parameters					Metals																			Rads (pCi/L)		
Well ID	Screen Interval (ft) (depth below grade)	Sample Date	Depth To Water (Feet)	Dissolved Oxygen (mg/L)	Temperature (Celsius)	pH	Conductivity (uS)	Aluminum (ppb)	Arsenic (ppb)	Barium (ppb)	Cobalt (ppb)	Chromium (ppb)	Copper (ppb)	Germanium (ppb)	Manganese (ppb)	Molybdenum (ppb)	Nickel (ppb)	Strontium (ppb)	Titanium (ppb)	Thallium (ppb)	Vanadium (ppb)	Magnesium (ppm)	Iron (ppm)	Sodium (ppm)	Calcium (ppm)	Potassium (ppm)	Zinc (ppb)	Gross Alpha	Gross Beta	Adjusted Gross Beta* (AGB)
DEC TOGS 1.1.1 Guidance Values			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.5	-	35	-	-	-	-	2,000	-	-	-
DEC Part 703 Class GA Groundwater Standards			-	-	-	-	-	-	25	1,000	-	50	200	-	300	-	100	-	-	-	-	-	0.3	20	-	-	-	15^	1,000^^	15^
DOH Drinking Water Standards Subpart 5-1			-	-	-	-	-	-	10	2,000	-	100	1300***	-	300	-	100	-	-	2	-	-	0.3	-	-	-	5,000	15	-	50**
MS-1	20-25	7/21/2011	15.97	7.03	12.7	5.42	64	63	<1	14	<1	<1	<1	<1	17	<1	0.9	28	4	<0.3	<1	1.3	<0.1	2.3	6.3	0.9	<50	<1	1.4 +/-0.6	<1
	30-35	7/21/2011	15.97	8.35	12.5	5.49	62	25	<1	15	<1	1	<1	<1	14	<1	0.8	31	2	<0.3	<1	2.2	<0.1	3.6	3.6	0.8	<50	<1	<1	<1
	40-45	7/21/2011	15.97	9.69	12.6	5.67	64	25	<1	10	<1	1	<1	<1	6	<1	0.7	25	2	<0.3	<1	1.9	<0.1	4.2	4.1	0.5	<50	<1	<1	<1
	50-55	7/20/2011	15.97	9.66	12.9	5.78	63	11	<1	10	<1	1	<1	<1	3	<1	<0.5	24	<1	<0.3	<1	1.9	<0.1	4.1	4.6	0.5	<50	<1	<1	<1
	60-65	7/20/2011	15.97	9.35	13	5.88	62	57	<1	9	<1	1	<1	<1	4	<1	0.6	25	1	<0.3	<1	1.9	<0.1	4.1	4.1	0.5	74	<1	<1	<1
	70-75	7/18/2011	15.97	9.65	13	5.93	84	26	<1	15	<1	1	<1	<1	21	<1	0.6	30	2	<0.3	<1	2.8	<0.1	4.3	5.9	0.5	<50	<1	<1	<1
	80-85	7/18/2011	15.97	8.84	13.1	5.95	132	46	<1	35	<1	1	<1	<1	11	<1	1	52	4	<0.3	<1	4.7	0.11	5	10.2	0.7	<50	<1	<1	<1
	90-95	7/18/2011	15.97	8.91	13.1	5.91	133	70	<1	6	<1	2	<1	<1	10	<1	1.2	45	6	<0.3	<1	4.3	0.17	7.2	9.8	0.7	<50	<1	<1	<1
MS-1 Resample	20-25	7/28/2014	15.67	5.02	12.2	5.8	60	24	<1	10	<1	<1	<5	<0.5	8	<1	0.4	26	<1	<0.2	<1	1.2	<0.1	2.6	4.2	0.9	<5	<1	1.4±0.1	<1
MS-2	20-25	7/26/2011	18.85	0.6	12.9	5.92	189	34	<1	97	22	<1	1	<1	3,990	<1	12	67	2	<0.3	<1	3.3	<0.1	8.1	15.3	8.6	<50	1.4+/-0.9	8.9+/-1.0	1.8±1
	30-35	7/26/2011	18.85	8.69	13.9	5.63	68	12	<1	16	<1	<1	<1	<1	9	<1	1.7	18	<1	<0.3	<1	1.9	<0.1	3.9	4.9	0.6	<50	<1	<1	<1
	40-45	7/26/2011	18.85	8.88	13.6	5.82	62	6	<1	13	<1	1	<1	<1	10	<1	0.7	24	<1	<0.3	<1	2	<0.1	3.6	3	0.5	<50	<1	<1	<1
	50-55	7/26/2011	18.85	8.7	13.4	5.8	91	17	<1	15	<1	1	<1	<1	6	<1	0.8	35	1	<0.3	<1	6	<0.1	5.2	5.9	0.7	<50	<1	<1	<1
	60-65	7/25/2011	18.85	9.2	13.4	6.08	134	37	<1	24	<1	1	<1	<1	7	<1	1	41	3	<0.3	<1	3.5	<0.1	5.6	7.9	0.7	<50	<1	<1	<1
	70-75	7/25/2011	18.85	8.95	13.1	6.02	161	22	<1	40	<1	<1	<1	<1	6	<1	1.2	59	2	<0.3	<1	5.7	<0.1	5.1	12.7	0.7	<50	<1	<1	<1
	80-85	7/25/2011	18.85	8.62	12.7	6.28	156	57	<1	38	<1	2	<1	<1	11	<1	1.2	63	1	<0.3	<1	5.7	<0.1	6.2	23.8	0.8	83	<1	<1	<1
	90-95	7/25/2011	18.85	8.42	12.5	6.43	120	77	<1	8	<1	2	<1	<1	9	<1	1	45	<1	<0.3	<1	4	<0.1	7.3	14.2	0.8	104	<1	<1	<1
MS-2 Resample	20-25	7/28/2014	18.54	2.08	12.3	6.4	125	21	<1	21	1.6	<1	<5	<0.5	131	<1	2.7	54	<1	<0.2	<1	1.6	0.2	7.6	9.3	3.7	36	<1	3.4±0.1	
MS-3	20-25	8/4/2011	19.92	0.27	14.8	7.3	656	72	<1	62	3	<1	4	<1	49,300	<1	3.3	178	3	<0.3	<1	10	<0.1	25.1	51.5	13.5	<50	4.3+/-2	14.6+/-1.7	3.5±1.7
	30-35	8/4/2011	19.92	0.93	14.8	7.49	915	82	<1	746	81	<1	6	<1	31,500	<1	26.4	229	3	1.6	<1	14	1.94	33.4	46	47.3	<50	11.2+/-2.5	49.2+/-4	10.4±4
	40-45	8/3/2011	19.92	0.29	14.7	7.5	800	7	2	468	28	6	2	<1	26,700	3	21.7	221	<1	2.7	2	12	1.07	31.1	46.7	45.7	<50	8.5+/-1.5	44.4+/-2.9	6.9±2.9
	50-55	8/3/2011	19.92	0.54	14.5	7.58	330	6	<1	154	4	2	<1	<1	3,790	3	3.8	89	<1	<0.3	<1	3.8	0.74	17.6	15	20.5	<50	<1	16.6+/-1.5	<1
	60-65	7/28/2011	19.92	2.65	15.4	7.57	184	9	<1	35	3	<1	<1	<1	6,270	1	1.5	56	<1	<0.3	<1	2.5	<0.1	18	10.1	3.2	<50	<1	2.3+/-0.6	<1
	70-75	7/28/2011	19.92	7.96	13.5	7.78	195	7	<1	28	2	<1	<1	<1	665	<1	3.2	37	<1	<0.3	<1	2.8	<0.1	25.8	6	1.2	<50	<1	1.1+/-0.6	<1
	80-85	7/27/2011	19.92	9.48	15	8.12	292	11	<1	30	<1	<1	<1	<1	7	<1	0.8	23	<1	<0.3	<1	7	<0.1	40.8	3.9	1.2	<50	<1	<1	<1
	90-95	7/27/2011	19.92	8.78	15.8	8.3	497	14	<1	35	<1	2	<1	<1	29	<1	1	45	1	<0.3	<1	3.7	<0.1	84.8	8.9	2	<50	<1	<1	<1
MS-3 Resample	20-25	7/30/2014	19.82	1.31	15.1	6.8	637	22	1.9	149	21	1.5	<5	0.9	21,082	<1	4	243	<1	0.2	<1	9.5	34	32	55	13	40	2.4±0.4	19±0.5	8.3±0.5
MS-4	30-35	6/5/2012	20.08	4.79	13.4	7.1	664	10	<1	198	20	<1	<1	1	17,500	2	5.8	246	10	<0.3	<1	9.6	9.68	32.5	61.3	9.9	<50	8.46	11.0+/-0.3	2.9±0.3
	40-45	6/5/2012	20.08	3.71	13.4	7	395	22	1	83	16	<1	<1	<1	8,050	<1	8.9	188	1	<0.3	<1	6.9	2.76	17.3	43.1	3.7	<50	2.5+/-0.3	4.6+/-0.2	1.6±0.2
	50-55	6/5/2012	20.08	3.29	13	6.8	290	17	<1	63	3	<1	<1	<1	3,030	<1	7.8	116	<1	<0.3	<1	8.8	1.56	13.4	28.1	2.2	<50	<1	2.8+/-0.2	<1
	60-65	6/5/2012	20.08	5.19	12.7	6.7	337	31	<1	56	3	2	1	<1	2,280	9	13.6	170	2	<0.3	<1	15	1.3	12.6	27.5	1.7	<50	3.1+/-0.4	3.3+/-0.2	1.9±0.2
	70-75	6/5/2012	20.08	6.92	12.3	6.4	183	32	<1	35	1	2	1	<1	220	4	6.8	78	1	<0.3	<1	6.7	0.97	6.1	14.8	0.7	<50	<1	1.9+/-0.1	1.3±0.1
	80-85	6/5/2012	20.08	7.18	12	6.2	185	55	<1	42	2	3	1	<1	374	8	9.6	78	3	<0.3	<1	6.6	1.77	5.9	14.7	0.8	<50	2.6+/-0.3	1.4+/-0.1	<1
MS-4 Resample	30-35	7/30/2014	20.16	1.75	14.9	7.4	406	31	6.8	143	11	<1	<5	0.6	12,300	1	3.6	173	<1	<0.2	<1	6.4	15	10	47	6.3	33	<1	6.9±0.2	1.7±0.2
MS-5	30-35	5/30/2012	22.31	NA	19	7.3	342	136	<1	104	4	4	4	<1	13,500	10	12.6	76	10	0.8	<1	5.7	0.54	15.5	12.6	18.5	<50	14.3+/-1	19.5+/-0.8	4.3±0.8
	40-45	5/30/2012	22.31	NA	18.2	7.1	240	188	<1	142	10	4	10	<1	7,430	2	6.9	59	12	1.1	<1	4.1	0.97	15.7	9.8	11	<50	2.2+/-0.4	11.3+/-0.3	2.3±0.3
	50-55	5/30/2012	22.31	NA	18.1	7.1	229	403	<1	106	6	17	15	<1	5,784	4	8.2	30	15	<0.3	1	3.3	1.7	19.6	5.8	15.2	<50	9.5+/-0.5	18+/-0.4	5.5±0.4
	60-65	5/30/2012	22.31	NA	NA	7	215	154	<1	51	11	7	9	<1	5,084	2	9.5	44	6	<0.3	<1	2.7	0.65	22.1	7.3	11.6	<50	4.9+/-0.4	11.7+/-0.3	2.2±0.3
	70-75	5/30/2012	22.31	NA	17.7	7	162	62	<1	27	4	2	2	<1	5,010	3	3.3	88	8	0.3	<1	3.8	1.31	5.9	11.5	1.4	<50	<1	2.5+/-0.2	1.4±0.2
	80-85	5/30/2012	22.31	NA	15.2	6.4	215	14	<1	238	31	<1	1	<1	16,300	<1	17.6	100	<1	<0.3	<1	3.4	<0.1	6	15	1	<50	2.6+/-0.3	1.5+/-0.1	<1
MS-5 Resample	30-35	7/30/2014	20	1.19	14.6	7.2	243	153	<1	57	11	2.7	<5	<0.5	11,135	<1	9.2	68	6.3	<0.2	<1	4	0.4	10	19	3.9	19	<1	3.7±0.2	<1

Notes: NA = Sample collected, analyte not reported
NS = No Sample Collected
"<" = less than, indicating no detection
ppm = part per million
ppb = part per billion
uS = micro siemens
^ = excluding radon and uranium
^^ = excluding strobtium-90 and alpha emitters
pCi = picocurie
* AGB = gross beta - 0.82* potassium conc. in mg/l
**AGB has a guidance activity value of 50 pCi/l that is used for screening under Subpart 5-1 of the NYS Sanitary Code
indicates concentration exceeds a standard or guidance value

Table 8 - Summary of Detected Analytes
Monitoring Wells Installed in the Vicinity of Site #7, Yaphank, NY

Well Information			Standard Inorganics						VOCs (ppb)					Herb Mets (ppb)											
Well ID	Screen Interval (ft) (depth below grade)	Sample Date	Chloride (ppm)	Sulfate (ppm)	Nitrate (ppm)	Ammonia (ppm)	Total Alkalinity (mg CaCO3/L)	Perchlorate (ppb)	1,2,4-trimethylbenzene	Chloroform	Benzene	Toluene	Total Xylene	Alachlor OA	Alachlor ESA	2,6-dichlorobenzamide	Caffeine	Dichlorvos	Diethyltoluamide (DEET)	Metalaxyl	Acetaminophen	Deisopropyl-atrazine	Metolachlor	Metolachlor OA	4-Hydroxyphenytoin
DEC TOGS 1.1.1 Guidance Values			-	-	-	-	-	-	5	7	1	5	-	-	-	-	-	-	-	-	-	-	-	50	-
DEC Part 703 Class GA Groundwater Standards			250	250	10	2	-	-	5	7	1	5	-	-	-	-	-	-	-	-	-	-	-	-	-
DOH Drinking Water Standards Subpart 5-1			250	250	10	-	-	18	5	80	5	5	5	50	50	50	50	50	50	50	50	50	50	50	50
MS-1	20-25	7/21/2011	4	12	<0.5	<0.2	NA	0.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.4	<0.2	<0.5	<0.2	<0.6	<0.2	<0.2	<0.2	<0.2	<0.2	<0.3	<0.5
	30-35	7/21/2011	4	9	0.5	<0.2	NA	0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.4	<0.2	<0.5	<0.2	<0.6	<0.2	<0.2	<0.2	<0.2	<0.2	<0.3	<0.5
	40-45	7/21/2011	5	9	<0.5	<0.2	NA	0.3	<0.5	0.8	<0.5	<0.5	<0.5	<0.4	<0.2	<0.5	<0.2	<0.6	<0.2	<0.2	<0.2	<0.2	<0.2	<0.3	<0.5
	50-55	7/20/2011	5	9	<0.5	<0.2	NA	<0.2	<0.5	0.8	<0.5	<0.5	<0.5	<0.4	<0.2	<0.5	<0.2	<0.6	<0.2	<0.2	<0.2	<0.2	<0.2	<0.3	<0.5
	60-65	7/20/2011	5	9	<0.5	<0.2	NA	<0.2	<0.5	0.9	<0.5	<0.5	<0.5	<0.4	<0.2	<0.5	<0.2	<0.6	<0.2	<0.2	<0.2	<0.2	<0.2	<0.3	<0.5
	70-75	7/18/2011	7	10	1.3	<0.2	NA	<0.2	<0.5	<0.5	<0.5	0.9	0.6	<0.4	0.2	Trace	<0.2	<0.6	Trace	<0.2	<0.2	<0.2	<0.2	<0.3	<0.5
	80-85	7/18/2011	8	21	3.4	<0.2	NA	0.2	0.6	<0.5	<0.5	2.1	1.8	Trace	5.2	4.6	<0.2	<0.6	<0.2	<0.2	<0.2	<0.2	<0.2	<0.3	<0.5
	90-95	7/18/2011	9	22	3.2	<0.2	NA	<0.2	0.5	<0.5	<0.5	2	1.7	<0.4	0.8	3.9	<0.2	<0.6	Trace	<0.2	<0.2	<0.2	<0.2	<0.3	<0.5
MS-1 Resample	20-25	7/28/2014	5	8	1	<0.5	7	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.4	<0.2	<0.5	<0.2	<0.6	<0.2	<0.2	<0.2	<0.2	<0.2	<0.3	<0.5
MS-2	20-25	7/26/2011	14	19	<0.3	0.11	NA	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.4	<0.2	<0.5	<0.2	<0.6	<0.2	<0.2	<0.2	<0.2	<0.2	<0.3	<0.6
	30-35	7/26/2011	4	13	0.6	<0.02	NA	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.4	<0.2	<0.5	<0.2	<0.6	<0.2	<0.2	<0.2	<0.2	<0.2	<0.3	<0.5
	40-45	7/26/2011	4	9	<0.1	<0.02	NA	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.4	<0.2	<0.5	<0.2	<0.6	<0.2	<0.2	<0.2	<0.2	<0.2	<0.3	<0.5
	50-55	7/26/2011	6	15	0.6	<0.02	NA	<0.2	<0.5	1.2	<0.5	<0.5	<0.5	<0.4	Trace	Trace	<0.2	<0.6	<0.2	<0.2	<0.2	<0.2	<0.2	<0.3	<0.5
	60-65	7/25/2011	7	17	0.9	<0.02	NA	<0.2	<0.5	0.9	<0.5	<0.5	<0.5	Trace	0.4	0.6	<0.2	<0.6	<0.2	<0.2	<0.2	<0.2	<0.2	<0.3	<0.5
	70-75	7/25/2011	8	22	5.8	<0.02	NA	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	2	3.8	5.1	<0.2	<0.6	<0.2	Trace	<0.2	<0.2	<0.2	<0.3	<0.5
	80-85	7/25/2011	9	18	7.3	<0.02	NA	0.3	<0.5	<0.5	<0.5	<0.5	<0.5	2.5	3.7	8.2	<0.2	<0.6	<0.2	<0.2	<0.2	<0.2	<0.2	<0.3	<0.6
	90-95	7/25/2011	8	8	<0.1	<0.02	NA	0.4	<0.5	0.5	<0.5	<0.5	<0.5	<0.4	<0.2	1.2	<0.2	<0.6	<0.2	<0.2	<0.2	<0.2	<0.2	<0.3	<0.5
MS-2 Resample	20-25	7/28/2014	13	12	<0.5	<0.5	21	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.4	<0.2	<0.5	Trace	<0.6	<0.2	<0.2	<0.2	<0.2	<0.2	<0.3	<0.5
MS-3	20-25	8/4/2011	37	51	<2	0.39	NA	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.4	<0.2	<0.5	<0.2	Trace	<0.2	<0.2	Trace	<0.2	<0.2	<0.3	<0.5
	30-35	8/4/2011	15	18	<1.5	0.09	NA	<0.2	<0.5	<0.5	2.4	<0.5	<0.5	<0.4	<0.2	<0.5	<0.2	Trace	Trace	Trace	0.3	<0.2	<0.2	<0.3	<0.5
	40-45	8/3/2011	54	<50	<5	3.94	NA	<0.2	<0.5	<0.5	0.7	<0.5	<0.5	<0.4	<0.2	<0.5	<0.2	Trace	Trace	<0.2	0.4	<0.2	<0.2	<0.3	<0.5
	50-55	8/3/2011	<50	<100	<10	3.99	NA	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.4	<0.2	<0.5	<0.2	Trace	Trace	<0.2	Trace	<0.2	<0.2	<0.3	<0.5
	60-65	7/28/2011	64	<100	<10	9.74	NA	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	Trace	0.2	0.8	<0.2	<0.6	<0.2	0.2	<0.2	<0.2	<0.2	<0.3	<0.5
	70-75	7/28/2011	11	19	9.6	<0.02	NA	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	1.2	1.5	5.5	<0.2	<0.6	<0.2	0.2	<0.2	<0.2	<0.2	<0.3	<0.5
	80-85	7/27/2011	21	25	10.4	<0.02	NA	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.3	8.7	Trace	<0.6	<0.2	Trace	<0.2	<0.2	<0.2	<0.3	<0.5
	90-95	7/27/2011	111	23	8.3	0.02	NA	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1	8.8	<0.2	<0.6	<0.2	Trace	<0.2	<0.2	<0.2	<0.3	<0.5
MS-3 Resample	20-25	7/30/2014	97	63	<20	0.4	220	NA	1.2	<0.5	<0.5	<0.5	1.5	Trace	<0.2	<0.5	Trace	<0.6	Trace	<0.2	<0.2	0.2	Trace	<0.3	<0.5
MS-4	30-35	6/5/2012	66	<100	<10	0.5	220	<0.2	<0.5	<0.5	0.6	<0.5	<0.5	<0.4	<0.2	<0.5	<0.2	Trace	<0.2	<0.2	<0.2	<0.2	<0.2	<0.3	<0.5
	40-45	6/5/2012	24	60	<2	<0.5	107	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.4	<0.2	<0.5	<0.2	<0.6	Trace	<0.2	<0.2	<0.2	<0.2	<0.3	<0.5
	50-55	6/5/2012	15	49	<2	<0.5	80	<0.2	<0.5	0.6	<0.5	<0.5	<0.5	<0.4	<0.2	<0.5	<0.2	<0.6	<0.2	<0.2	<0.2	<0.2	<0.2	<0.3	<0.5
	60-65	6/5/2012	23	55	<3	<0.5	85	<0.2	<0.5	0.6	<0.5	<0.5	<0.5	Trace	Trace	Trace	<0.2	<0.6	<0.2	<0.2	<0.2	<0.2	<0.2	<0.3	<0.5
	70-75	6/5/2012	<18	<30	6.4	<0.5	14	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	1.4	1.9	3.4	<0.2	<0.6	<0.2	Trace	<0.2	<0.2	<0.2	<0.3	<0.5
	80-85	6/5/2012	<18	<30	9	<0.5	11	0.2	<0.5	<0.5	<0.5	<0.5	<0.5	3.6	3.7	5.2	<0.2	<0.6	<0.2	<0.2	<0.2	<0.2	<0.2	<0.3	<0.5
MS-4 Resample	30-35	7/30/2014	47	43	<10	0.3	151	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.4	<0.2	<0.5	Trace	<0.6	<0.2	<0.2	<0.2	<0.2	<0.2	0.3	Trace
MS-5	30-35	5/30/2012	<30	<50	<5	3.51	137	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.4	<0.2	<0.5	<0.2	<0.6	<0.2	<0.2	<0.2	<0.2	<0.2	<0.3	<0.5
	40-45	5/30/2012	<30	<50	<5	1.27	88	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.4	<0.2	Trace	<0.2	<0.6	<0.2	<0.2	<0.2	<0.2	<0.2	<0.3	<0.5
	50-55	5/30/2012	<60	<100	<10	1.14	70	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.4	<0.2	Trace	<0.2	<0.6	<0.2	<0.2	<0.2	<0.2	<0.2	<0.3	<0.5
	60-65	5/30/2012	<30	<50	<5	0.55	63	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.4	Trace	Trace	<0.2	<0.6	<0.2	Trace	<0.2	<0.2	<0.2	<0.3	<0.5
	70-75	5/30/2012	<30	<50	<5	<0.5	39	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	0.8	1.5	2.5	<0.2	<0.6	<0.2	Trace	<0.2	<0.2	<0.2	<0.3	<0.6
	80-85	5/30/2012	11	18	12	<0.5	12	<0.2	<0.5	<0.5	<0.5	<0.5	<0.5	Trace	0.3	<0.5	<0.2	<0.6	<0.2	<0.2	<0.2	<0.2	<0.2	<0.3	<0.5
MS-5 Resample	30-35	7/30/2014	17	30	<0.5	0.3	60	NA	<0.5	<0.5	<0.5	<0.5	<0.5	Trace	0.7	Trace	<0.2	<0.6	<0.2	<0.2	<0.2	<0.2	<0.2	<0.3	Trace

Notes: NA = Sample collected, analyte not reported
NS = No Sample Collected
"<" = less than, indicating no detection
ppm = part per million
ppb = part per billion
indicates concentration exceeds a standard or guidance value

Site #8
LIE North Service Rd Farm
Yaphank NY

Site Description

This site is comprised of approximately 73 acres located on the north side of the Long Island Expressway (LIE) Service Road, west of LIE Exit 66, in Yaphank. Historical aerial photographs (Appendix H) indicate that the site was undeveloped in 1947, and in 1984 approximately 29 acres of the site, located south of a high tension wire right-of-way (HTRW), was developed as farmland. In 1996, unspecified activity can be noted on approximately 11 acres located on the northern side of the HTRW, while the 29 acres to the south was still used for farming. The 1999 and 2001 photographs show that 18 acres of land north of the HTRW was used for the storage of vegetative organic waste material, and farming continued on the southern portion of the site. The 2007, 2010 and 2013 aerials indicate that while the approximately 26 acres of land north of the HTRW was used for activities concerning vegetative organic waste materials, the 29 acres south of the HTRW did not appear to be actively used, except for about 2 acres used to store vegetative material in 2013. The NYSDEC currently considers this site a Part 360 exempt facility.

SCDHS Monitoring Wells

The SCDHS installed two temporary profile monitoring wells (CF-4 and CF-5) south of this site, on the Long Island Expressway North Service Road (Figure 13). The locations of these wells were based upon a southeast regional groundwater flow direction. Several more wells were originally intended to be installed, continuing east along the LIE Service Road. However, due to a number of confounding factors, these wells were ultimately not installed. Well CF-4 was installed to a depth of 125 fbg, and Well CF-5 was installed to a depth of 135 feet. Five profile levels were sampled in well CF-4 and CF-5, with the uppermost profile level in well CF-4 screened at the 80 to 85 fbg, and the uppermost profile level in well CF-5 screened at 90 to 95 fbg. The following analytes have been detected in these monitoring wells at concentrations exceeding their respective drinking water and/or groundwater standard:

Manganese (CF-4)
Sodium (CF-5)

Table 9 contains a summary of the results of the analytes detected.

Private Wells

No potential private wells were identified in the downgradient vicinity of this site.

Figure 13– Site #8 Well Locations on 2010 Aerial Photograph

Public Wellfields

The nearest public supply wellfield is approximately 0.70 miles from the site and is not located downgradient of the site. Any impacts to groundwater quality as results of this site's operations would not be expected to affect the water quality of this wellfield.

Summary of Significant Analytical Results

Metals

The uppermost profile level of well CF-4 (screened 80 to 85 fbg) had a manganese concentration of 603 ppb, which exceeds the drinking water and groundwater standard for manganese (300 ppb). Barium and potassium concentrations were also elevated in this level (142 ppb and 10.3 ppb respectively). The deeper profile levels (screened 90 to 125 fbg) did not have any analytes exceeding standards and metal concentrations were generally within concentration ranges typically associated with unimpacted groundwater. Although the upper two profile levels of well CF-5 (screened 90 to 105 fbg) had some metals with marginally elevated concentrations, none exceeded their respective standards. The sodium concentration of 21.9 ppm was slightly in excess of the groundwater standard of 20 ppm.

Discussion

Two profile wells were installed to the south of this site, along the Long Island Expressway (LIE) North Service Road. Several more wells were originally intended to be installed, continuing east along the LIE Service Road. However, due to a number of confounding factors, these wells were ultimately not installed. Figure 13 indicates that, although the two wells installed (CF-4 and CF-5) are downgradient of the southern portion of this site, the groundwater does not represent impacts from the VOWM activity occurring at this site. As discussed above, the historical aerial photographs of the site (Appendix H) indicate that the main VOWM activity at this site was, and continues to be, located on the northern portion of the site (north of the HTRW). Based upon the groundwater flow direction, the groundwater exhibiting impacts from the VOWM landuse flows to the east of wells CF-4 and CF-5. In order to appropriately assess landuse impacts from this site, additional profile wells would need to be installed and sampled to the east of well CF-5. The source of the impacts observed in the uppermost profile levels (slightly elevated metals concentrations) could be from a berm of VOW material that is apparent on the perimeter of the site, just to the north of these wells.

Wells Impacted by VOWM Activity

The two profile wells installed at this site did not exhibit significant groundwater quality impacts attributable to the VOWM activities of this site. In order to appropriately assess impacts from past and current VOWM activities, additional profile wells would have to be installed further to the east along the LIE North Service Road. It appears that one of the profile wells was potentially impacted by VOWM materials possibly from a berm of vegetative organic waste that runs along the southern boundary of the site.

Table 9
Summary of Detected Analytes
Monitoring Wells Installed in the Vicinity of Site #8
Yaphank, NY

Well Information			Parameters					Metals												
Well ID	Screen Interval (ft)(depth below grade)	Sample Date	Depth To Water (Feet)	Dissolved Oxygen(mg/L)	Temperature (Celsius)	pH	Conductivity (uS)	Aluminum (ppb)	Barium (ppb)	Cobalt (ppb)	Chromium (ppb)	Manganese (ppb)	Molybdenum(ppb)	Nickel (ppb)	Strontium (ppb)	Titanium (ppb)	Magnesium (ppm)	Sodium (ppm)	Calcium (ppm)	Potassium (ppm)
DEC TOGS 1.1.1 Guidance Values			-	-	-	-	-	-	-	-	-	-	-	-	-	-	35	-	-	-
DEC Part 703 Class GA Groundwater Standards			-	-	-	-	-	-	1,000	-	50	300	-	100	-	-	-	20	-	-
DOH Drinking Water Standards Subpart 5-1			-	-	-	-	-	-	2,000	-	100	300	-	100	-	-	-	-	-	-
CF-4	80-85	9/14/2011	81	3.4	16	4.85	322	132	142	<1	4	603	<1	3.7	37	<1	9.1	7.8	23.4	10.3
	90-95	9/14/2011	81	5.14	16.8	5.2	200	29	66	2	2	102	<1	2.5	46	1	3.5	18	9.3	3.5
	100-105	9/14/2011	81	5.58	16.3	5.15	225	16	70	<1	2	18	<1	1.4	85	<1	4.1	18.7	10.6	3.8
	110-115	9/14/2011	81	4.58	18.4	5.33	185	30	41	<1	2	15	<1	2.3	77	1	4.1	13.8	9	3.4
	120-125	9/13/2011	81	4.6	15.6	5.53	169	<5	37	<1	<1	3	<1	0.6	77	<1	2.8	11.2	9.4	4.1
CF-5	90-95	10/4/2011	82.2	3.05	14.8	5.26	218	29	129	5	4	221	<1	2.3	64	<1	6.5	11.3	13.5	5.3
	100-105	10/3/2011	82.2	3.44	14	5.25	202	26	104	3	2	201	<1	1.6	80	<1	3.9	17.7	9.4	4.5
	110-115	10/3/2011	82.2	3.39	14	5.36	218	21	128	3	3	97	<1	1.8	98	<1	2.7	21.9	9.2	5.9
	120-125	10/3/2011	82.2	3.37	13.8	5.64	115	6	23	4	3	5	<1	1.7	46	<1	2.7	10.4	5.2	3
	130-135	9/28/2011	82.2	7.36	24.8	5.66	115	9	19	<1	6	9	1	5.8	39	<1	3.2	8.3	6	1.5

Notes:
NA = Sample collected, analyte not reported
NS = No Sample Collected
"<" = less than, indicating no detection
uS = micro siemens

ppm = part per million
ppb = part per billion
indicates concentration exceeds a standard or guidance value

Table 9
Summary of Detected Analytes
Monitoring Wells Installed in the Vicinity of Site #8
Yaphank, NY

Well Information			Rads (pCi/L)			Standard Inorganics					VOCs (ppb)				Herb Mets (ppb)	
Well ID	Screen Interval (ft) (depth below grade)	Sample Date	Gross Alpha	Gross Beta	Adjusted Gross Beta*	Chloride (ppm)	Sulfate (ppm)	Nitrate (ppm)	Ammonia (ppm)	Perchlorate (ppb)	Chloroform	Tetrachloroethene	MTBE	Toluene	Caffeine	Metalaxyl
DEC TOGS 1.1.1 Guidance Values			-	-	-	-	-	-	-	-	7	5	10	5	-	-
DEC Part 703 Class GA Groundwater Standards			15^	1,000^^	-	250	250	10	2	-	7	5	-	5	-	-
DOH Drinking Water Standards Subpart 5-1			15	-	50**	250	250	10	-	18	80	5	10	5	50	50
CF-4	80-85	9/14/2011	<1	9.0±0.9	<1	47	25	8.6	<0.02	0.4	<0.5	<0.5	<0.5	<0.5	Trace	<0.2
	90-95	9/14/2011	<1	2.9±0.6	<1	29	18	3.6	<0.02	0.7	<0.5	<0.5	<0.5	<0.5	Trace	<0.2
	100-105	9/14/2011	NA	NA	NA	35	16	5.2	<0.02	1.1	<0.5	<0.5	1.4	<0.5	Trace	<0.2
	110-115	9/14/2011	NA	NA	NA	20	19	5.2	<0.02	0.5	<0.5	<0.5	0.8	<0.5	<0.2	Trace
	120-125	9/13/2011	NA	NA	NA	21	12	4.3	<0.02	0.3	0.8	<0.5	0.6	<0.5	<0.2	Trace
CF-5	90-95	10/4/2011	<1	6.6±0.7	2.3±0.7	24	18	8.2	<0.02	0.7	<0.5	<0.5	<0.5	0.6	<0.2	<0.2
	100-105	10/3/2011	<1	4.6±0.7	<1	29	15	5.6	0.02	1.1	<0.5	<0.5	3.1	<0.5	<0.2	<0.2
	110-115	10/3/2011	<1	8.1±0.7	3.3±0.7	30	17	6.6	<0.02	1.1	<0.5	<0.5	1.8	<0.5	<0.2	<0.2
	120-125	10/3/2011	<1	2.7±0.6	<1	11	17	2.3	<0.02	0.3	0.7	<0.5	<0.5	<0.5	<0.2	<0.2
	130-135	9/28/2011	<1	1.5±0.6	<1	12	14	2.9	<0.02	NA	1.3	0.6	1.2	<0.5	<0.2	<0.2

Notes:
NA = Sample collected, analyte not reported
NS = No Sample Collected
"<" = less than, indicating no detection
ppb = part per billion
ppm = part per million
pCi = picocurie

^ = excluding radon and uranium
^^ = excluding strobtium-90 and alpha emitters
* AGB = gross beta - 0.82* potassium conc. in mg/l
**AGB has a guidance activity value of 50 pCi/l that is used for screening under Subpart 5-1 of the NYS Sanitary Code
☐ indicates concentration exceeds a standard or guidance value

Site #9
Islip Town Compost Facility
Ronkonkoma NY

Site Description

This site is approximately 40 acres in size and is located on Railroad Avenue in Ronkonkoma, bordering on the northern portion of Islip's McArthur Airport, just south of the Long Island Railroad's Ronkonkoma train station. The property was developed as a yard waste composting facility in 1988[2]. Historical aerial photographs (Appendix I) show that the property was undeveloped in 1947 and 1984, indicating that the site has only ever been used as a composting facility. The historical aerial photos also show that, except for an expansion of recharge basins located at the southern portion of the site, the site's configuration has remained unchanged since being developed in the late 1980s. The facility is operated by the Town of Islip and is currently a Part 360 permitted composting, brush and leaf processing facility.

SCDHS Monitoring Wells

The SCDHS installed two temporary profile monitoring wells (ICF-1, and ICF-2) on this site, in the downgradient groundwater flow direction (Figure 14). The locations of these wells were based upon a south-southwest regional groundwater flow direction. Both of the wells were installed to a depth of 105 fbg, and sampled at 10 foot intervals as they were retracted. Six levels were sampled, with the uppermost screened at the 50 to 55 foot interval, yielding a total of 12 groundwater samples. The following analytes have been detected in the indicated monitoring wells at concentrations exceeding a drinking water and/or groundwater standard:

Manganese	**(ICF-1, ICF-2)**	**Sodium**	**(ICF-1, ICF-2)**
Thallium	**(ICF-1, ICF-2)**	**Gross Alpha**	**(ICF-1)**
Iron	**(ICF-1, ICF-2)**		

Table 10 contains a summary of the results of the analytes detected.

Private Wells

No potential private wells were identified in the downgradient vicinity of this site.

Public Wellfields

The nearest public supply wellfield is approximately 0.5 miles from the site and is not located downgradient of the site. Any impacts to groundwater quality as results of this site's operations would not be expected to affect the water quality of this wellfield.

[2] Islip Resource Recovery Agency website, http://toirra.com/mac_arthur_compost.html

Summary of Significant Analytical Results

Metals

Elevated metal concentrations were observed in both wells ICF-1 and ICF-2. The wells exhibited their highest manganese concentrations in the uppermost profile level (screened 50 to 55 fbg). Thallium, iron and sodium concentrations also exceeded drinking water and/or groundwater standards. Other metals that were also notably elevated above typical background concentrations (Table 13) include barium, strontium (well ICF-1 only) and potassium.

Radiologicals

Gross alpha concentrations were elevated in the five uppermost profile levels in well ICF-1 (screened 10 to 95 fbg). The most significant concentration was 16.8 pCi/l detected in the second profile level (screened 60 to 65 fbg), which is an exceedance of the 15 pCi/l drinking water standard. Gross alpha was detected only in the uppermost profile level of ICF-2 at 2.4 pCi/l. Gross beta was detected in all profile levels in both wells. All the concentrations were below the 1,000 pCi/l groundwater standard, and after adjusting the gross beta concentrations for potassium 40, all the concentrations were below the 50 pCi/l drinking water guidance value. The NYSDOH Wadsworth Center performed a gamma radiological analysis on all the samples. Detections of potassium 40 were reported in all the samples from well ICF-1, and three of the six samples collected in ICF-2. Detections of radium 224 and radium 226 were reported in the uppermost level of well ICF-1 (and could be contributing to the elevated gross alpha concentration of 12.4 pCi/l observed in this sample), and actinium 228 was detected in the uppermost level of ICF-2.

Other Notable Results

Two pesticides, hexazinone and dichlorvos, were detected at trace concentrations (detected below a quantifiable concentration) in well ICF-1. Hexazinone was detected in five of six sampling levels, and dichlorvos was detected in the upper two sampling levels (50-55 feet below grade and 60-65 feet below grade). Acetaminophen and caffeine were detected at trace concentrations in ICF-1, and a trace of acetaminophen was detected in the upper sampling level of ICF-2. Low concentrations of acetaminophen and caffeine are often associated with septic waste impacts.

Discussion

Each of the two profile wells installed downgradient of the compost windrows at this site had at least one parameter exceeding a drinking water and groundwater standard. The majority of these exceedances were for manganese, iron, thallium, sodium and gross alpha, which was primarily detected in the upper aquifer levels, indicating a nearby source. Impacts to groundwater quality observed from the two wells installed at this site are consistent with water quality impacts related to VOWM activities observed at other vegetative organic waste management sites.

Wells Impacted by VOWM Activity

The groundwater observed in profile wells ICF-1 and ICF-2 appeared to be impacted by this site's VOWM activities.

Figure 14– Site #9 Well Locations on 2010 Aerial Photograph

Table 10
Summary of Detected Analytes
Monitoring Wells Installed at Site #9
Ronkonkoma, NY

Well Information			Parameters					Metals																	
Well ID	Screen Interval (ft)(depth below grade)	Sample Date	Depth To Water (Feet)	Dissolved Oxygen (mg/L)	Temperature (Celsius)	pH	Conductivity (uS)	Aluminum (ppb)	Arsenic (ppb)	Barium (ppb)	Cobalt (ppb)	Chromium (ppb)	Copper (ppb)	Germanium (ppb)	Manganese (ppb)	Nickel (ppb)	Strontium (ppb)	Titanium (ppb)	Thallium (ppb)	Vanadium (ppb)	Magnesium (ppm)	Iron (ppm)	Sodium (ppm)	Calcium (ppm)	Potassium (ppm)
DEC TOGS 1.1.1 Guidance Values			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.5	-	35	-	-	-	-
DEC Part 703 Class GA Groundwater Standards			-	-	-	-	-	-	25	1,000	-	50	200	-	300	100	-	-	-	-	-	0.3	20	-	-
DOH Drinking Water Standards Subpart 5-1			-	-	-	-	-	-	10	2,000	-	100	1300***	-	300	100	-	-	2	-	-	0.3	-	-	-
ICF-1	50-55	12/20/2011	48.8	2.51	16.3	6.5	779	308	<1	237	4	2	4	<1	5,210	2.9	107	16	2	1	10	0.62	35	25	80
	60-65	12/19/2011	48.4	1.61	14.8	6.6	631	170	1	253	1	2	5	<1	1,581	2.5	92	9	1.1	<1	11	0.23	34	28	69
	70-75	12/19/2011	48.4	1.96	14.9	6.4	539	16	<1	159	<1	<1	1	<1	104	2.1	118	<1	0.8	<1	11	<0.1	32	25	37
	80-85	12/19/2011	48.4	2.1	14.2	6.6	521	16	<1	120	<1	1	2	<1	36	1.4	100	<1	<0.3	<1	9.4	<0.1	26	25	45
	90-95	12/19/2011	48.4	2.08	14.1	6.4	500	12	<1	83	<1	1	1	<1	28	1.2	100	<1	0.4	<1	9.2	<0.1	28	25	34
	100-105	12/19/2011	48.4	1.89	13.3	6.1	285	19	<1	63	<1	1	1	<1	58	0.9	121	<1	0.3	<1	5.1	<0.1	23	15	10
ICF-2	50-55	12/20/2011	46.8	2.08	15.8	6.5	304	166	3	78	6	1	2	2	8,840	2.1	33	9	1.1	<1	2.7	28	16	4.9	14
	60-65	12/19/2011	45.37	4.31	13.9	6.6	125	6	<1	13	1	<1	<1	<1	1,017	1	9	<1	0.4	<1	1	<0.1	17	2.1	5.7
	70-75	12/19/2011	45.37	5.62	14.1	6.7	119	<5	<1	6	<1	<1	<1	<1	94	0.7	6	<1	0.4	<1	0.4	<0.1	19	1.6	3.1
	80-85	12/19/2011	45.37	4.41	13.9	6.8	132	<5	<1	5	<1	<1	<1	<1	82	<0.5	4	<1	0.3	<1	0.2	<0.1	24	0.9	2.2
	90-95	12/19/2011	45.37	3.16	12.7	6.8	580	6	1	22	<1	<1	<1	<1	2,140	0.6	28	<1	0.8	<1	1.4	<0.1	84	5.7	4.8
	100-105	12/19/2011	45.37	4.41	13.3	6.4	313	8	<1	11	<1	<1	<1	<1	387	0.6	53	<1	<0.3	<1	1	<0.1	45	3.2	2.5

Notes:
NA = Sample collected, analyte not reported
NS = No Sample Collected
"<" = less than, indicating no detection
ppm = part per million
uS = micro siemens
ppb = part per billion
*** Action Level for Public Water Suppliers for Lead and Copper
indicates concentration exceeds a standard or guidance value

Table 10
Summary of Detected Analytes
Monitoring Wells Installed at Site #9
Ronkonkoma, NY

Well Information			Radiologicals (pCi/L)												Standard Inorganics					
			SCDHS PEHL			NYSDOH Wadsworth														
Well ID	Screen Interval (ft)(depth below grade)	Sample Date	Gross Alpha	Gross Beta	Adjusted Gross Beta* (AGB)	Gross Alpha	Gross Beta	Ruthenium 106	Cesium 137	Zirconium 95	Potassium 40	Actinium 228	Radium 224	Radium 226	Chloride (ppm)	Sulfate (ppm)	Nitrate (ppm)	Ammonia (ppm)	Total Alkalinity(mg CaCO3/L)	Perchlorate (ppb)
DEC TOGS 1.1.1 Guidance Values			-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-	-
DEC Part 703 Class GA Groundwater Standards			15^	1,000^^	-	15^	1,000^^	-	-	-	-	-	-	-	250	250	10	2	-	-
DOH Drinking Water Standards Subpart 5-1			15	-	50**	15	-	-	-	-	-	-	-	5^^^	250	250	10	-	-	18
ICF-1	50-55	12/20/2011	12.4±2.6	78.3±2.6	12.8±2.6	10.3 ±3.7	87.2 ±6.7	<2.3	<0.27	<0.49	79 ±9.8	<0.95	1.8 ±0.9	1.3±1.2	128	38	<0.4	0.23	112	<0.2
	60-65	12/19/2011	16.8±2.4	68.1±1.7	11.8±1.7	8.6 ±3.1	74.2 ±5.6	<3	<0.33	<0.67	61 ±9.7	<1	NA	NA	82	28	<1.0	0.23	129	0.3
	70-75	12/19/2011	9.6±1.7	45.1±1.4	15.2±1.4	3.8 ±2	44.4 ±3.7	<2.9	<0.33	<0.62	34 ±8	<1	NA	NA	91	35	1.4	<0.02	67	0.6
	80-85	12/19/2011	7.7±1.6	56.2±1.5	19.7±1.5	<1.5	48.7 ±4	<2.4	<0.27	<0.5	50 ±6.6	<0.78	NA	NA	62	41	1.9	<0.02	92	0.3
	90-95	12/19/2011	7.0±1.4	43.4±1.4	15.3±1.4	1.6 ±1.6	42 ±3.6	<2.7	<0.33	<0.65	44 ±7.8	<0.96	NA	NA	67	41	2.4	<0.02	73	0.4
	100-105	12/19/2011	1.8±1.1	12.0±1.0	3.6±1	1 ±0.9	11.2 ±1.4	<2.9	<0.3	<0.69	13 ±4.1	<0.99	NA	NA	45	24	2.9	<0.02	24	0.6
ICF-2	50-55	12/20/2011	2.4±0.6	18.1±0.8	6.5±0.8	<0.95	15.1 ±1.7	<2.9	<0.32	<1.2	14 ±3.5	2 ±1.1	NA	NA	<150	<250	<25	1.14	75	<0.2
	60-65	12/19/2011	<1	4.8±0.2	<1	<0.49	4.7 ±1	<2.9	<0.34	<0.88	7.5 ±2.5	<0.96	NA	NA	17	<5	1.1	<0.02	24	<0.2
	70-75	12/19/2011	<1	2.2±0.1	<1	<0.48	3 ±0.9	<2.6	<0.3	<0.82	<2.4	<0.9	NA	NA	18	5	1.1	<0.02	17	<0.2
	80-85	12/19/2011	<1	1.5±0.1	<1	<0.49	1.3 ±0.9	<3	<0.32	<0.86	3.1 ±2.1	<0.93	NA	NA	21	6	1.5	<0.02	17	0.7
	90-95	12/19/2011	<1	2.6±0.2	<1	<0.83	2.9 ±1	<2.9	<0.32	<0.83	<2.6	<1.1	NA	NA	166	<10	<1.0	<0.02	17	0.4
	100-105	12/19/2011	<1	1.9±0.1	<1	<0.39	1.5 ±0.7	<2.9	<0.31	<0.92	<2.3	<0.91	NA	NA	82	6	1.1	<0.02	7	<0.2

Notes:
NA = Sample collected, analyte not reported
NS = No Sample Collected
"<" = less than, indicating no detection
ppb = part per billion
ppm = part per million
pCi = picocurie

^ = excluding radon and uranium
^^ = excluding strobtium-90 and alpha emitters
^^^ = MCL is for combined Radium 226 + Radium 228
* AGB = gross beta - 0.82* potassium conc. in mg/l
**AGB has a guidance activity value of 50 pCi/l that is used for screening under Subpart 5-1 of the NYS Sanitary Code
indicates concentration exceeds a standard or guidance value

Table 10
Summary of Detected Analytes
Monitoring Wells Installed at Site #9
Ronkonkoma, NY

Well Information			Semi-Volatile	Herb Mets (ppb)		
Well ID	Screen Interval (ft) (depth below grade)	Sample Date	Hexazinone (ppb)	Acetaminophen	Caffeine	Dichlorvos
DEC TOGS 1.1.1 Guidance Values			50	-	-	-
DEC Part 703 Class GA Groundwater Standards			50	-	-	-
DOH Drinking Water Standards Subpart 5-1			50	50	50	50
ICF-1	50-55	12/20/2011	<1	<0.2	<0.2	Trace
	60-65	12/19/2011	Trace	<0.2	<0.2	Trace
	70-75	12/19/2011	Trace	<0.2	<0.2	<0.6
	80-85	12/19/2011	Trace	Trace	Trace	<0.6
	90-95	12/19/2011	Trace	<0.2	<0.2	<0.6
	100-105	12/19/2011	Trace	<0.2	<0.2	<0.6
ICF-2	50-55	12/20/2011	<1	Trace	<0.2	<0.6
	60-65	12/19/2011	<1	<0.2	<0.2	<0.6
	70-75	12/19/2011	<1	<0.2	<0.2	<0.6
	80-85	12/19/2011	<1	<0.2	<0.2	<0.6
	90-95	12/19/2011	<1	<0.2	<0.2	<0.6
	100-105	12/19/2011	<1	<0.2	<0.2	<0.6

Notes: NA = Sample collected, analyte not reported
NS = No Sample Collected
"<" = less than, indicating no detection
ppb = part per billion
ppm = part per million

☐ indicates concentration exceeds a standard or guidance value

Site #10
Conklin Street
Farmingdale NY

Site Description

This site is located in Farmingdale, east of Route 110, bordered on the north by the long Island Railroad tracks, and on the south by Conklin Street. The "Study Area" for this site consists of approximately 11 acres, comprised of three individual tax parcels (two complete tax parcels on the western side of the Study Area, and approximately 2.5 acres of the west side of a larger 20 acre tax parcel, see Figure 15). Historical aerial photographs (Appendix J) indicate that all three properties were industrially developed in 1947. The property contained within the northwestern portion of the study area first indicates the possible storage of materials (e.g., sand, gravel and/or vegetative organic waste) in the 1999 photo, and a similar use is consistent through the 2007 photograph. The 2010 and 2013 photos do not indicate the storage of materials on the site. The photographic record indicates that the southern parcel was never used for material storage, and the first indication of material storage on the 2.5 acre portion of the larger eastern parcel is in the 2010 photograph. This use is consistent in the 2013 aerial photograph. The NYSDEC currently classifies this site as an exempt Part 360 facility that processes land clearing debris.

SCDHS Monitoring Wells

The SCDHS installed three temporary profile monitoring wells (CS-1, CS-2 and CS-3) south of the site, on Conklin Street. The locations of these wells were based upon a predominantly southern regional groundwater flow direction. Well CS-1 was installed to a depth of 115 fbg, while well CS-2 and CS-3 were both installed to 95 fbg. All three wells were sampled at 10 foot intervals as they were retracted. The uppermost level sampled on all three wells was the 30 to 35 fbg interval, yielding nine samples for well CS-1, six samples in well CS-2 and seven samples in well CS-3. The following analytes have been detected in these monitoring wells at concentrations exceeding their respective drinking water and/or groundwater standard:

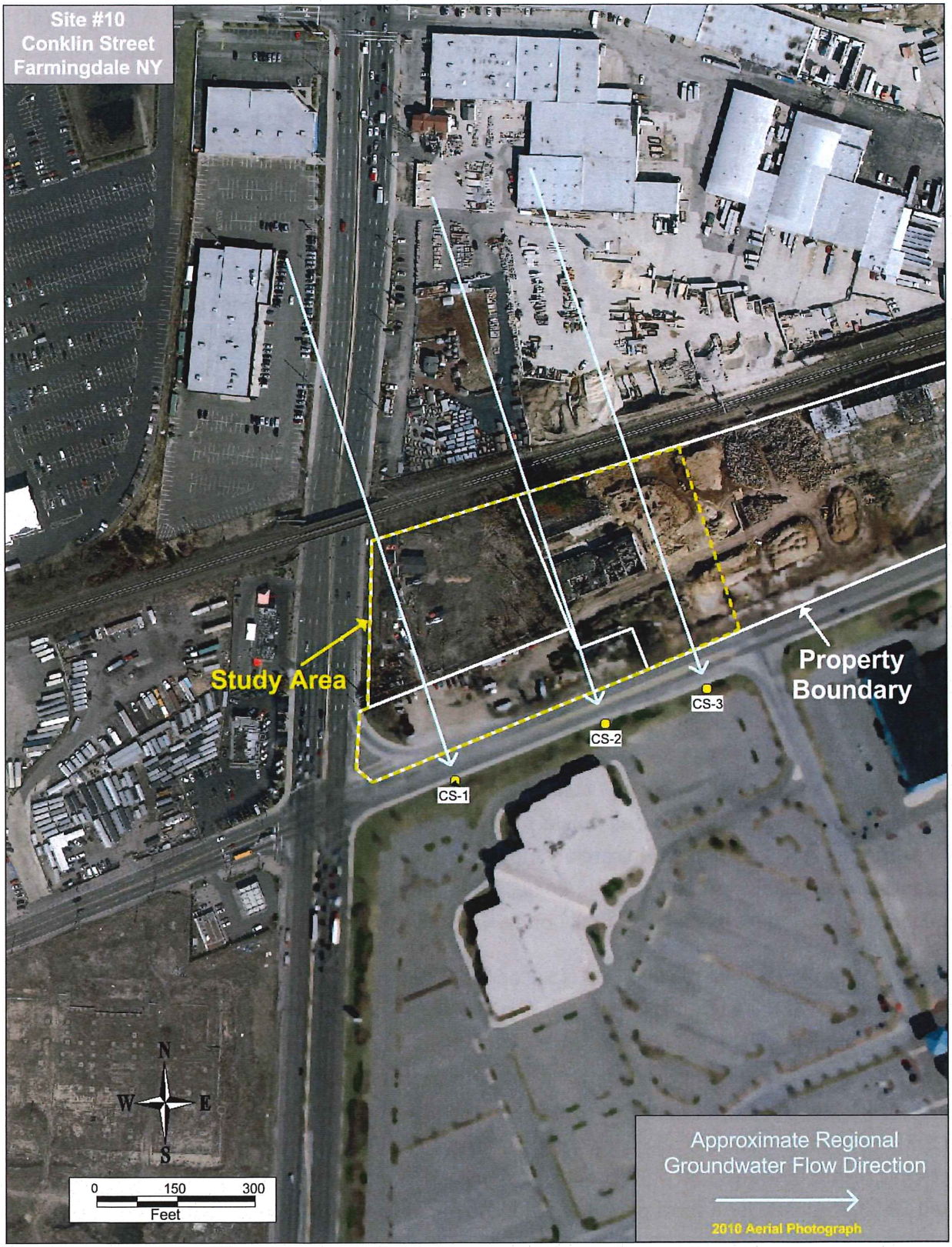
Manganese (CS-1, CS-3) **Sodium (CS-1, CS-2, CS-3)**
Iron (CS-2, CS-3)

Table 11 contains a summary of the results of the analytes detected.

Private Wells

No potential private wells were identified in the downgradient vicinity of this site.

Figure 15– Site #10 Well Locations on 2010 Aerial Photograph



Public Wellfields

The nearest public supply wellfield is approximately 4 miles from the site and is located in the general downgradient direction of the site. However, due to the distance from the site, source water assessments indicate that water entering the water table at this site is not expected to reach the wellfield for approximately 100 years.

Summary of Significant Analytical Results

Metals

Manganese concentrations exceeded the drinking water and groundwater standard of 300 ppb in the top profile level (screened 30 to 35 fbg) in well CS-1 (396 ppb), and all seven profile levels of well CS-3 (maximum 2,645 ppb at 80 to 85 fbg). Iron exceeded the drinking water and groundwater standard of 0.3 ppm in the uppermost profile level (screened 30 to 35 fbg) of well CS-2 (21.9 ppm) and in the 50 to 55 fbg screened level of well CS-3 (0.55 ppm). Sodium concentrations exceeded groundwater standards in five of nine profile levels in CS-1, two of five profile levels in CS-2 and six of seven profile levels in CS-3. Thallium was detected in the top profile levels in CS-3, screened from 30 to 65 fbg. Barium, strontium and potassium concentrations were notably elevated in the upper two profile levels of CS-3.

Other Notable Results

Two volatile organic compounds (VOCs), trichloroethene and tetrachloroethene, were detected at low concentrations (maximum of 2.4 ppb) in six profile levels of well CS-1 (from 50 to 115 fbg). The VOC chlorobenzene was detected at less than one ppb in two levels of profile well CS-3 (from 40 to 55 fbg). Low concentrations of bisphenol A, DEET and gemfibrozil were detected in CS-3, and a detection of bisphenol A was reported in well CS-1.

Discussion

The water quality data of well CS-3, in particular the elevated metals concentrations of barium, manganese, strontium and potassium, as well as the presence of cadmium, cobalt and thallium in the upper most profile levels, appear to indicate an impact consistent with VOWM related activity. The metals concentrations of wells CS-1 and CS-2 do not appear to be elevated, and in general are closer to metals concentrations more typical of Suffolk County groundwater (see Table 13).

Figure 15 indicates the location of wells CS-1, CS-2 and CS-3 and the regional groundwater flow direction with respect to each of the wells. According to the regional groundwater flow, CS-3 is ideally situated to observe landuse impacts to groundwater from VOWM activities occurring at the 2.5 acre portion of the larger eastern parcel. The water quality data did indicate that the metals concentrations were elevated in the upper profile levels of this well, and were similar to impacts observed at other VOWM sites. Wells CS-1 and CS-2 do not appear to be located downgradient of current VOWM activity. The historic aerial photographic record indicates that VOWM activity on the western portion of the study area upgradient of CS-1, and CS-2 lasted only for a short period of time, and had ceased by 2010. Since these wells are

located approximately 450 feet from the northern portion of the site, and considering an average groundwater flow velocity of 300 feet/year, it would take approximately 1.5 years from the removal of the source for all the impacted groundwater to pass south of monitoring wells. Since the VOWM source appears to have been removed on the properties upgradient of CS-1 and CS-2 in 2010, and the wells were sampled in 2012, it is possible that groundwater impacted from this site has travelled past the monitoring wells. This may explain the lack of apparent VOWM related impacts on the groundwater quality observed in these two wells.

Wells Impacted by VOWM Activity

One of three profile wells installed (CS-3) appears to have been impacted by this site.

Table 11
Summary of Detected Analytes
Monitoring Wells Installed at Site #10
Farmingdale, NY

Well Information			Parameters						Metals																	
Well ID	Screen Interval (ft) (depth below grade)	Sample Date	Depth To Water (Feet)	Turbidity (NTU)	Dissolved Oxygen(mg /L)	Temperature (Celsius)	pH	Conductivity (uS)	Aluminum (ppb)	Barium (ppb)	Cadmium (ppb)	Cobalt (ppb)	Chromium (ppb)	Copper (ppb)	Germanium (ppb)	Manganese (ppb)	Nickel (ppb)	Strontium (ppb)	Titanium (ppb)	Thallium (ppb)	Zinc (ppb)	Magnesium (ppm)	Iron (ppm)	Sodium (ppm)	Calcium (ppm)	Potassium (ppm)
DEC TOGS 1.1.1 Guidance Values			-	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-	0.5	2,000	35	-	-	-	-
DEC Part 703 Class GA Groundwater Standards			-	-	-	-	-	-	-	1,000	5	-	50	200	-	300	100	-	-	-	-	-	0.3	20	-	-
DOH Drinking Water Standards Subpart 5-1			-	-	-	-	-	-	-	2,000	5	-	100	1300***	-	300	100	-	-	2	5,000	-	0.3	-	-	-
CS-1	30-35	5/16/2012	24.32	-	5.37	17.1	6.7	520	162	58	<1	<1	1	<1	<1	396	2	150	6	<0.3	<50	4.9	<0.1	51.2	27.7	5.4
	40-45	5/16/2012	24.32	-	5.68	17.1	6.6	264	153	40	<1	<1	1	<1	<1	2	1	80	8	<0.3	<50	3.2	<0.1	23.2	15.5	2.6
	50-55	5/16/2012	24.32	-	4.58	17.1	6.5	235	57	39	<1	<1	<1	<1	<1	<1	0.6	58	2	<0.3	<50	2.7	<0.1	22.5	11.2	2.8
	60-65	5/15/2012	24.32	-	1.81	16.9	6.3	231	55	39	<1	<1	2	<1	<1	2	1.1	61	2	<0.3	<50	3.2	<0.1	20.3	11.8	2.8
	70-75	5/15/2012	24.32	-	3.71	16.7	6.2	284	25	57	<1	<1	1	<1	<1	1	0.8	71	1	<0.3	<50	4.1	<0.1	24.7	14.4	3.4
	80-85	5/15/2012	24.32	-	3.41	16.9	6.1	190	84	39	<1	<1	1	<1	<1	5	1.1	58	3	<0.3	<50	3.7	<0.1	12.3	12.4	2.4
	90-95	5/14/2012	24.32	-	3.14	16.5	5.9	171	66	37	<1	<1	<1	<1	<1	8	1.2	63	2	<0.3	<50	3.2	<0.1	11.4	10.8	2.5
	100-105	5/14/2012	24.32	-	2.19	16.9	5.9	168	135	37	<1	<1	<1	<1	<1	15	2	59	5	<0.3	<50	3.1	<0.1	10.8	10.6	2.3
	110-115	5/14/2012	24.32	-	3.21	16.1	5.9	175	31	40	<1	<1	<1	<1	<1	6	1	58	<1	<0.3	<50	3.1	<0.1	11.7	10.7	2.5
CS-2	30-35	1/9/2013	27.65	21.7	2.93	17.5	6.17	259	186	35	<1	<1	2	1	<1	10	1.3	88	8	<0.3	<50	6	21.9	36.8	31.6	3.4
	40-45	1/9/2013	27.65	20.2	3.75	17	6.07	230	78	35	<1	<1	1	1	<1	4	1.1	70	4	<0.3	<50	3.2	<0.1	20	17.5	3.2
	50-55	1/9/2013	27.65	2.3	3.31	16.7	6	234	8	39	<1	<1	<1	1	<1	2	0.6	74	<1	<0.3	<50	4.6	0.18	10.6	10.7	1.5
	60-65	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	70-75	7/11/2012	26.69	1.69	1.64	18	6.1	267	<5	40	<1	<1	<1	<1	<1	1	0.7	80	<1	<0.3	<50	3.6	<0.1	19.3	17.7	3
	80-85	7/11/2012	26.69	8.87	1.74	17.6	6.1	286	8	46	<1	<1	<1	<1	<1	2	0.8	80	<1	<0.3	<50	3.9	<0.1	21.6	18	3.1
	90-95	7/11/2012	26.69	6.1	1.28	17.7	6	265	<5	40	<1	<1	<1	<1	<1	22	1.1	76	<1	<0.3	<50	3.8	<0.1	19.6	16	3.1
CS-3	30-35	1/9/2013	29	14	0.17	20.2	6.8	385	NR	126	3	2	1	2	NR	1,438	1.8	276	NR	0.5	NR	5.5	0.24	19.1	39.1	12.3
	40-45	1/9/2013	29	1.07	0.18	20.1	6.42	439	16	89	<1	1	1	2	1	905	1.3	267	11	0.5	<50	4.9	<0.1	38.1	35.6	7.7
	50-55	1/9/2013	29	1.1	0.21	19.2	6.54	301	NR	77	<1	5	1	1	NR	432	1.5	105	NR	0.3	NR	3.7	0.55	30.3	21.2	3.7
	60-65	1/8/2013	29	1.7	0.12	19.2	6.6	299	43	56	<1	3	<1	2	<1	653	1.7	87	<1	0.4	53	3.8	<0.1	29.3	20	4.1
	70-75	1/8/2013	29	0.9	0.13	18.9	6.3	300	12	91	<1	5	<1	2	<1	1,889	1.4	71	<1	<0.3	<50	3.8	<0.1	29.8	18	4.3
	80-85	1/8/2013	29	2.3	0.1	18.1	6.4	317	101	96	<1	4	1	2	<1	2,645	1.4	68	2	<0.3	<50	3.7	0.15	31.9	16.9	4.4
	90-95	1/8/2013	29	2.7	0.15	17.5	6.5	256	64	31	<1	3	<1	2	<1	605	1.4	58	2	<0.3	<50	3.2	0.13	28.5	12	2.8

Notes:
NA = Sample collected, analyte not reported
NS = No Sample Collected
"<" = less than, indicating no detection
ppm = part per million
uS = micro siemens
ppb = part per billion
*** Action Level for Public Water Suppliers for Lead and Copper
indicates concentration exceeds a standard or guidance value

Table 11
Summary of Detected Analytes
Monitoring Wells Installed at Site #10
Farmingdale, NY

Well Information			Radiologicals (pCi/L)											
			SCDHS PEHL			NYSDOH Wadsworth								
Well ID	Screen Interval (ft) (depth below grade)	Sample Date	Gross Alpha	Gross Beta	Adjusted Gross Beta*(AGB)	Gross Alpha	Gross Beta	Ruthenium 106	Cesium 137	Zirconium 95	Potassium 40	Actinium 228	Radium 224	Radium 226
DEC TOGS 1.1.1 Guidance Values			-	-	-	-	-	-	-	-	-	-	-	3
DEC Part 703 Class GA Groundwater Standards			15^	1,000^^	-	15^	1,000^^	-	-	-	-	-	-	-
DOH Drinking Water Standards Subpart 5-1			15	-	50**	15	-	-	-	-	-	-	-	5^^^
CS-1	30-35	5/16/2012	1.2 ±0.4	5.9 ±0.2	1.5±0.2	<0.9	4.3 ±1.3	<2.4	<0.24	<0.71	5.6 ±2.8	NA	NA	NA
	40-45	5/16/2012	<1	2.6 ±0.2	<1	NA	NA	NA	NA	NA	NA	NA	NA	NA
	50-55	5/16/2012	<1	2.1 ±0.1	<1	0.6 ±0.6	2.5 ±0.7	<2.9	<0.29	<0.9	<0.3	NA	NA	NA
	60-65	5/15/2012	<1	2.0 ±0.1	<1	1 ±0.8	2.6 ±0.8	<2.6	<0.25	<0.85	2.3 ±1.3	NA	NA	NA
	70-75	5/15/2012	<1	2.5 ±0.1	<1	<0.8	2.6 ±0.8	<3	<0.33	<0.97	2.9 ±1.3	NA	NA	NA
	80-85	5/15/2012	1.1 ±0.2	2.8 ±0.1	<1	<0.6	2.6 ±0.8	<3	<0.32	<0.99	3.3 ±3.1	NA	NA	NA
	90-95	5/14/2012	1.6 ±0.3	2.8 ±0.1	<1	0.8 ±0.6	2.3 ±0.7	<3	<0.33	<0.94	2.2 ±0.9	NA	NA	NA
	100-105	5/14/2012	4.9 ±0.5	7.2 ±0.2	5.3±0.2	5.8 ±1.4	6.6 ±1	<3.1	<0.31	<0.89	7.6 ±4.1	2.4 ±1.57	1.3 ±0.9	NA
	110-115	5/14/2012	<1	3.8 ±0.2	1.8±0.2	<0.6	1.9 ±0.8	<2.6	<0.25	<0.72	2 ±1.3	NA	NA	NA
CS-2	30-35	1/9/2013	<1	2.7±0.1	<1	NS	NS	NS	NS	NS	NS	NS	NS	NS
	40.45	1/9/2013	<1	2.8±0.1	<1	NS	NS	NS	NS	NS	NS	NS	NS	NS
	50-55	1/9/2013	<1	2.8±0.1	1.6±0.1	NS	NS	NS	NS	NS	NS	NS	NS	NS
	60-65	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	70-75	7/11/2012	<1	3.5 ±0.2	1±0.2	NS	NS	NS	NS	NS	NS	NS	NS	NS
	80-85	7/11/2012	<1	3.6 ±0.2	1.1±0.2	NS	NS	NS	NS	NS	NS	NS	NS	NS
	90-95	7/11/2012	2.0 ±0.4	3.6 ±0.2	1.1±0.2	NS	NS	NS	NS	NS	NS	NS	NS	NS
CS-3	30-35	1/9/2013	2.6 ±0.2	11.2 ±0.3	1.1±0.3	NS	NS	NS	NS	NS	NS	NS	NS	NS
	40.45	1/9/2013	<1	6 ±0.2	<1	NS	NS	NS	NS	NS	NS	NS	NS	NS
	50-55	1/9/2013	<1	2.9 ±0.1	<1	NS	NS	NS	NS	NS	NS	NS	NS	NS
	60-65	1/8/2013	1.3 ±0.2	3.2 ±0.1	<1	NS	NS	NS	NS	NS	NS	NS	NS	NS
	70-75	1/8/2013	<1	3.5 ±0.2	<1	NS	NS	NS	NS	NS	NS	NS	NS	NS
	80-85	1/8/2013	<1	3.5 ±0.2	<1	NS	NS	NS	NS	NS	NS	NS	NS	NS
	90-95	1/8/2013	<1	2.5 ±0.1	<1	NS	NS	NS	NS	NS	NS	NS	NS	NS

Notes:
NA = Sample collected, analyte not reported
NS = No Sample Collected
"<" = less than, indicating no detection
ppb = part per billion
ppm = part per million
pCi = picocurie

^ = excluding radon and uranium
^^ = excluding strobtium-90 and alpha emitters
^^^ = MCL is for combined Radium 226 + Radium 228
* AGB = gross beta - 0.82* potassium conc. in mg/l
**AGB has a guidance activity value of 50 pCi/l that is used for screening under Subpart 5-1 of the NYS Sanitary Code
☐ indicates concentration exceeds a standard or guidance value

Table 11
Summary of Detected Analytes
Monitoring Wells Installed at Site #10
Farmingdale, NY

Well Information			Standard Inorganics					VOCs			Herb Mets (ppb)		
Well ID	Screen Interval (ft) (depth below grade)	Sample Date	Chloride (ppm)	Sulfate (ppm)	Nitrate (ppm)	Total Alkalinity (mg CaCO3/L)	Perchlorate (ppb)	Trichloroethene (ppb)	Chlorobenzene (ppb)	Tetrachloroethene (ppb)	Bisphenol A	Diethyltoluamide (DEET)	Gemfibrozil
DEC TOGS 1.1.1 Guidance Values			-	-	-	-	-	5	5	5	-	-	-
DEC Part 703 Class GA Groundwater Standards			250	250	10	-	-	5	5	5	-	-	-
DOH Drinking Water Standards Subpart 5-1			250	250	10	-	18	5	5	5	50	50	50
CS-1	30-35	5/16/2012	100	<20	<2.0	59	<0.2	<0.5	<0.5	<0.5	<0.2	<0.2	<0.4
	40-45	5/16/2012	42	14	1	30	0.2	<0.5	<0.5	<0.5	<0.2	<0.2	<0.4
	50-55	5/16/2012	37	15	1.7	18	0.5	1.1	<0.5	0.5	<0.2	<0.2	<0.4
	60-65	5/15/2012	35	17	2	16	0.4	1.5	<0.5	0.6	<0.2	<0.2	<0.4
	70-75	5/15/2012	52	19	2.1	9	0.4	1.9	<0.5	0.9	<0.2	<0.2	<0.4
	80-85	5/15/2012	23	20	2.3	12	0.4	2.4	<0.5	1.1	<0.2	<0.2	<0.4
	90-95	5/14/2012	19	23	2.3	4	0.3	2	<0.5	1.1	<0.2	<0.2	<0.4
	100-105	5/14/2012	20	25	2.3	6	0.4	2.4	<0.5	1.2	<0.2	<0.2	<0.4
	110-115	5/14/2012	19	23	2.3	3	0.4	2.4	<0.5	1.2	0.2	<0.2	<0.4
CS-2	30-35	1/9/2013	40	14	1.8	NA	NA	<0.5	<0.5	<0.5	<0.2	<0.2	<0.4
	40.45	1/9/2013	33	16	2.4	NA	NA	<0.5	<0.5	<0.5	<0.2	<0.2	<0.4
	50-55	1/9/2013	32	18	2.7	NA	NA	<0.5	<0.5	<0.5	<0.2	<0.2	<0.4
	60-65	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	70-75	7/11/2012	38	18	2.9	NR	NA	<0.5	<0.5	<0.5	<0.2	<0.2	<0.4
	80-85	7/11/2012	44	20	3.1	NR	NA	<0.5	<0.5	<0.5	<0.2	<0.2	<0.4
	90-95	7/11/2012	43	18	2.9	NR	NA	<0.5	<0.5	<0.5	<0.2	<0.2	<0.4
CS-3	30-35	1/9/2013	25	22	<2	NA	NA	<0.5	<0.5	<0.5	Trace	<0.2	<0.4
	40.45	1/9/2013	54	21	<1	NA	NA	<0.5	0.9	<0.5	0.5	<0.2	<0.4
	50-55	1/9/2013	49	16	<0.5	NA	NA	<0.5	0.7	<0.5	<0.2	<0.2	<0.4
	60-65	1/8/2013	49	17	2.2	NA	NA	<0.5	<0.5	<0.5	<0.2	<0.2	<0.4
	70-75	1/8/2013	49	16	2.8	NA	NA	<0.5	<0.5	<0.5	<0.2	Trace	Trace
	80-85	1/8/2013	53	15	2.3	NA	NA	<0.5	<0.5	<0.5	<0.2	<0.2	<0.4
	90-95	1/8/2013	47	16	<0.5	NA	NA	<0.5	<0.5	<0.5	<0.2	<0.2	<0.4

Notes: NA = Sample collected, analyte not reported
NS = No Sample Collected
"<" = less than, indicating no detection
ppb = part per billion
ppm = part per million

☐ indicates concentration exceeds a standard or guidance value

Site #11
Peconic Avenue
Medford NY

Site Description

The 139 Peconic Avenue site consists of nine acres located on the north side of Peconic Avenue, south of LIRR tracks, in Medford. Historical aerial photographs of the site (Appendix K) indicate the site was undeveloped in 1947, and was developed in 1962 with a structure located on the western side of the property. The aerial photographic record indicates that from 1984 through 1999 the site was primarily used for the storage of motor vehicles. From 2001 through 2007 the photographs show that approximately three acres of the eastern portion of the site was used for a sand/gravel operation, while the western six acres contained stored motor vehicles. The 2010 photograph shows an expansion of the eastern sand/gravel use from three acres to five acres, and this photograph is the first to indicate that small amount of darker material, potentially vegetative in nature, is present on the site. Figure 16 shows the profile well locations and groundwater flow directions on the 2007 aerial photograph, prior to the importing of significant vegetative organic waste material onto the site. Figure 17 shows the wells on the 2013 aerial photograph relative to the vegetative organic waste material stored on the site at that time. The 2013 photograph indicates approximately two acres of vegetative organic waste material is stored on the site, and the 2014 photograph (Appendix K) shows that the vegetative organic waste material is no longer present on the site. Records indicate the site was historically used as an auto wrecking yard and a scrap metal yard.

SCDHS Monitoring Wells

Permanent monitoring wells were installed in nine locations, with well PA-6 installed as an upgradient well (Figure 16). Due to a decrease in water table elevation after the 2010 sampling event, three of the original six wells (PA-2, PA-3 and PA-4) were re-drilled and set with 10 foot well screens (the originals had five foot screens) at the top of the water table. This was done to accommodate future water table fluctuations and ensure there would be enough water in the wells for sampling. The re-drilled wells were designated PA-2R, PA-3R and PA-4R. The wells were sampled in 2010, 2013 and 2014. Wells PA-2R, PA-3R and PA-4R were sampled twice in 2014 (June and October), and PA-6 was sampled twice in both 2013 and 2014 (June/November, and June/October, respectively).

Figure 16– Site #11 Well Locations on 2007 Aerial Photograph

Figure 17– Site #11 Well *Locations on 2013 Aerial Photograph*

The following analytes have been detected in these wells exceeding a drinking water and/or groundwater standard:

Arsenic	**(PA-3R, PA-4R, PA-5)**	**Gross Alpha**	**(PA-3R, PA-4R)**
Manganese	**(PA-3R, PA-4R, PA-5)**	**Sulfate**	**(PA-3)**
Lead	**(PA-3R, PA-4R, PA-5)**	**Nitrate**	**(PA-3)**
Thallium	**(PA-2R, PA-3R, PA-4R)**	**Sodium**	**(PA-1, PA-2R, PA-3R, PA-4R, PA-5, PA-6)**
Iron	**(PA-1, PA-2R, PA-3R, PA-4R, PA-5, PA-6)**		

Table 12 contains a summary of the results of the analytes detected.

Private Wells

No potential private wells were identified in the downgradient vicinity of this site.

Public Wellfields

The nearest public supply wellfield is approximately 1 mile from the site. Source water assessments indicate that the site is approximately 500 feet east of the source water contributing area for this wellfield, therefore, as long as there are no significant increases to water pumpage from this wellfield, impacts to groundwater quality as results of this site's operations would not be expected to affect the water quality of this wellfield.

Summary of Significant Analytical Results

2010 Sample Event

Metals

The five wells located downgradient of the site (PA-1, PA-2, PA-3, PA-4, PA-5) did not exceed groundwater and/or drinking water standards for metals in 2010, with the exception sodium, which exceeded the groundwater standard of 20 mg/l in all five wells (maximum concentration of 236 mg/l in well PA-3). Although they did not exceed any standards, in general, the barium and strontium concentrations were elevated above typical Suffolk County groundwater concentrations (see Table 13 for typical Suffolk County metals concentrations). The metals concentrations in the upgradient well, PA-6, met all standards with the exception of iron, which had a concentration of 0.6 mg/l, exceeding the groundwater and drinking water standard of 0.3 mg/l.

Radionuclides

Radiological samples were not collected in the 2010 sampling event.

2013 Sample Event

Metals

All six wells were sampled in 2013, and the upgradient well, PA-6, was sampled twice, both in June and November 2013. Iron and sodium concentrations exceeded groundwater and/or drinking water standards in all 4 downgradient wells sampled (PA-2R, PA-3R, PA-4R and PA-5), and only iron exceeded standards in the November 2013 sampling event in well (PA-6). Thallium concentrations exceeded groundwater standards in wells PA-2R, PA-3R and PA-4R. Arsenic, manganese and lead exceeded groundwater and/or drinking water standards in PA-3R, PA-4R and PA-5. It should be noted that there were a number of metals that exhibited significant increases in concentrations when compared to the 2010 sampling event, including aluminum, arsenic, manganese, lead, thallium and iron.

Radionuclides

Sampling for radionuclides (gross alpha, gross beta and tritium) were collected in five of the six wells in 2013 (no radiological sample was collected in PA-5 due to a low water level in the well). The drinking water standard of 15 pCi/l for gross alpha was exceeded in wells PA-3R and PA-4R (20.3 pCi/l and 18.1 pCi/l, respectively). There were no exceedances of either the groundwater or drinking water standards for gross beta.

2014 Sample Event

Metals

All six wells were sampled in June of 2014, and four of the wells (PA-2R, PA-3R, PA-5 and PA-6) were also sampled in October of 2014. All six wells exceeded the drinking water and/or groundwater standard for both iron and sodium in at least one of the 2014 sampling events. PA-3R, PA-4R and PA-5 exceeded the groundwater and drinking water standard for manganese (300 ppb) in at least one of the 2014 sampling events. Thallium exceeded the groundwater standard of 0.5 ppb in well PA-2R, and the drinking water standard of 2.0 ppb in well PA-4R in both the June and October sampling events. PA-3R and PA-4R also exceeded the drinking water and/or groundwater standard for arsenic in one or both 2014 Sampling events.

Radionuclides

All six wells were sampled for radionuclides in 2014 and detection of gross alpha was noted in five of the six wells (no gross alpha detection in PA-6). Although none of the detected concentration exceeded the 15 pCi/l drinking water standard (the highest concentration was exhibited in PA-4R at 14.2 pCi/l), the concentrations were above what is typically observed in Suffolk County groundwater (Table 16). Gross

beta was detected in all six wells, however concentrations were below both the drinking water and groundwater standard (50 pCi/l and 1,000 pCi/l respectively).

Other Notable Results – All Sampling Events

In 2010, well PA-3 exhibited sulfate (374 mg/l) and nitrate (16 mg/l) concentrations in exceedance of the drinking water and groundwater standards of 250 mg/l and 10 mg/l respectively. Also, low concentrations and traces of pharmaceuticals and personal care products typically associated with groundwater impacted by septic waste (e.g., MBAS (indicating the presence of detergents), caffeine, DEET, Dilantin) were detected in a number of wells, primarily in the 2013 and 2014 sampling events.

Discussion

The 139 Peconic Avenue site is unique among the sites evaluated in this study because wells were installed and sampled prior to VOWM activities occurring on the site. This "background" sampling event (relative to VOWM activities) that occurred in 2010 indicates generally unimpacted water quality with respect to metal concentrations. This may be somewhat unexpected, considering the historical use of the site as an auto wrecking and scrap metal yard. A general increase in metal concentrations is observed in samples collected in 2013 and 2014 in the downgradient wells, particularly in wells PA-3, PA-4 and PA-5, which are located downgradient of more vegetative organic waste material with respect to groundwater flow direction than PA-1 and PA-2 (Figure 16). The increase in metal concentrations in the groundwater observed downgradient of this site, as well as the timing of the increases, implicates the VOWM activity as a cause for the degraded water quality, most notably for arsenic, manganese, lead and thallium.

Wells Impacted by VOWM Activity

Three of the five downgradient profile wells appeared to have been impacted by the VOWM activities occurring at this site.

Table 12
Summary of Detected Analytes
Monitoring Wells Installed in the Vicinity of Site #11, Medford, NY

Well Information			Parameters				Metals																														
Well ID	Screen Interval	Sample Date	pH	D.O.	Temp	Conductivity (uS)	Lithium (ppb)	Beryllium (ppb)	Aluminum (ppb)	Antimony (ppb)	Arsenic (ppb)	Titanium (ppb)	Barium (ppb)	Cadmium (ppb)	Chromium (ppb)	Cobalt (ppb)	Copper (ppb)	Manganese (ppb)	Germanium (ppb)	Nickel (ppb)	Lead (ppb)	Molybdenum (ppb)	Selenium (ppb)	Strontium (ppb)	Thallium (ppb)	Thorium (ppb)	Tin (ppb)	Vanadium (ppb)	Uranium (ppb)	Zinc (ppb)	Calcium (ppm)	Iron (ppm)	Magnesium (ppm)	Potassium (ppm)	Sodium (ppm)
DEC TOGS 1.1.1 Guidance Values			-	-	-	-	-	3	-	3	-	-	-	5	-	-	-	-	-	-	-	-	10	-	0.5	-	-	-	-	2,000	-	-	35	-	20
DEC Part 703 Class GA Groundwater Standards			-	-	-	-	-	-	-	3	25	-	1,000	5	50	-	200	300	-	100	25	-	10	-	-	-	-	-	-	-	-	0.3	-	-	20
DOH Drinking Water Standards Part 5-1			-	-	-	-	-	4	-	6	10	-	2,000	5	100	-	1,300***	300	-	100	15***	-	50	-	2	-	-	-	-	5,000	-	0.3	-	-	-
PA-1	40-45	5/4/2010	-	3.77	15	940	NA	<0.3	61	<0.4	2	4	154	<1	2	<1	2	10	<1	3.6	<1	<1	<4	338	<0.3	<4	NA	<1	<1	<50	74.4	<0.1	6.8	9.7	103
PA-1	40-45	6/4/2013	6.3	3.8	15.4	308	NA	<0.3	9	<0.4	<1	<1	33	<1	<1	<1	1	1	<1	0.5	<1	<1	<4	135	<0.3	<4	NA	<1	<1	<50	30.7	<0.1	3.4	4.9	19.2
PA-1	40-45	6/11/2014	6.9	NA	NA	704	<1	<0.2	400	0.4	<1	19	148	<1	1	<1	8	24	0.5	2.1	2	<1	<1	292	0.3	<2	1.3	1	<0.5	21	68	0.8	10.9	26.1	44.7
PA-2	35-45	5/4/2010	-	4.79	17.3	664	-	<0.3	45	0.4	<1	3	98	<1	3	<1	3	15	<1	3.5	<1	<1	<4	250	<0.3	<4	-	<1	<1	<50	64.8	0.12	4.6	7	60.6
PA-2R	39-49	11/21/2013	6.8	3.4	12.7	577	2	0.3	3,008	2.1	4	147	268	<1	6	2	10	116	<0.5	5.1	10	<1	<1	187	0.6	<2	0.5	11	0.7	24	47.6	6.83	8.1	13	41
PA-2R	39-49	6/11/2014	6.8	NA	NA	612	2	0.2	2,410	0.4	2	93	281	<1	4	2	12	173	0.5	4.3	6	<1	<1	183	0.8	<2	1	7	<0.5	13	48.5	4.04	8.4	18	37
PA-2R	39-49	10/15/2014	6.8	2.2	15.8	714	2	0.3	3,282	0.4	4	148	396	<1	6	3	17	113	0.6	5.9	9	<1	<1	233	1.2	<2	0.5	11	0.6	33	58	5.44	11.5	36	37
PA-3	35-45	5/4/2010	-	5.92	20.6	1844	-	<0.3	129	<0.4	<1	5	111	<1	6	4	6	15	1	3.9	<5	<1	<4	635	<3	<10	-	<1	<5	<50	140	0.17	9.3	60	236
PA-3R	39-49	11/21/2013	6.7	2.45	15.4	663	9	2	17,026	0.7	38	708	127	2	23	28	44	4,121	2.3	17.9	46	3	<1	70	0.7	7	1.2	52	3.9	120	30.3	81.1	6.6	27	71.2
PA-3R	39-49	6/10/2014	7.6	NA	NA	944	2	0.4	3,9 82	0.4	64	141	147	<1	5	10	19	1,587	2.2	6.6	9	3	<1	141	0.3	<2	0.8	14	0.9	21	39	54	7.2	97	76
PA-3R	39-49	10/15/2014	6.9	2.3	17.1	786	<1	<0.2	1,662	<0.2	30	66	96	<1	2	11	10	2,620	1.5	4.9	5	<1	<1	189	<0.2	<2	<0.5	6	<0.5	56	42.4	33.8	6.5	37	43.7
PA-4	35-45	5/4/2010	-	5.32	16.3	668		<0.3	13	0.5	<1	<1	53	<1	1	<1	2	4	<1	2.1	<1	<1	<4	220	<0.3	<4	-	<1	<1	<50	53.5	<0.1	5.4	7.6	61.6
PA-4R	44-54	11/21/2013	7.2	2.6	13.5	951	4	0.5	6,025	1.1	13	249	120	<1	9	12	16	531	1.5	12.9	17	3	<1	334	1	2	0.8	20	2	106	86.3	30.9	14.1	46	55.4
PA-4R	44-54	6/10/2014	7.5	NA	NA	1,145	2	0.3	4,063	0.9	14	157	116	<1	8	16	32	266	1.6	9.7	11	5	2	406	2.9	<2	1.3	20	2.4	74	102	28.2	15.3	74	75.7
PA-4R	44-54	10/15/2014	6.9	3.55	16.5	988	<1	<0.2	1,674	0.5	5	71	61	<1	3	7	19	100	0.9	8	5	1	<1	331	2.1	<2	0.6	8	<0.5	37	78	5.22	11.8	31.4	60.8
PA-5	35-45	5/4/2010	-	3.02	22	710	-	<0.3	29	<0.4	<1	2	95	<1	2	<1	1	17	<1	3.3	<1	1	<4	249	<0.3	<4	-	<1	<1	<50	63.9	<0.1	5.9	9.9	73.4
PA-5	35-45	6/6/2013	6.88	-	16.1	280	<1	2.4	25,301	<0.4	21	651	96	<1	38	16	46	1,650	3	18.6	46	<1	<4	57	<0.3	7	<0.5	65	3	<50	26	71.4	5.8	9.8	25.8
PA-5	35-45	6/12/2014	6.63	NA	NA	602	3	0.6	4,742	0.3	7	182	94	<1	10	4	16	368	0.7	5.9	11	<1	<1	124	0.2	2	1.7	17	0.8	35	34.3	13.6	5.6	20	46.4
PA-6	35-45	5/4/2010	-	5.95	17	59	-	<0.3	434	<0.4	<1	10	6	<1	3	1	2	162	<1	4.8	<1	7	<4	26	<0.3	<4	-	<1	<1	<50	9.2	0.55	1.1	0.4	<1.0
PA-6	35-45	6/5/2013	6.4	7.7	17.3	247	-	<0.3	117	<0.4	<1	4	21	<1	1	<1	1	12	<1	0.7	<1	<1	<4	65	<0.3	<4	-	<1	<1	<50	50	0.13	3.2	1.7	14.6
PA-6	35-45	11/22/2013	7.3	7.6	13.5	218	<1	<0.2	164	<0.2	<1	13	16	<1	4	<1	<5	27	<0.5	1.5	<1	<1	<1	94	<0.2	<2	<0.5	<1	<0.5	7	31.1	0.81	2.9	1.3	6.5
PA-6	35-45	6/11/2014	7.2	NA	15.5	337	<1	<0.2	810	<0.2	<1	37	28	<1	4	<1	6	59	<0.5	1.6	2	<1	<1	54	<0.2	<2	<0.5	2	<0.5	<5	25.2	1.39	2.9	1.5	33.5
PA-6	35-45	10/15/2014	7.3	NA	NA	175	1	<0.2	1,510	<0.2	1	64	18	<1	10	1	7	143	<0.5	3.1	4	2	<1	53	<0.2	<2	<0.5	4	<0.5	6	20.8	2.84	2.9	1	4.3

Notes:
NA = Sample collected, analyte not reported
NS = No Sample Collected
"<" = less than, indicating no detection
ppm = part per million
ppb = part per billion pCi = picocurie
uS = micro siemens
*** Action Level for Public Water Suppliers for Lead and Copper
indicates concentration exceeds a standard or guidance value

Table 12
Summary of Detected Analytes
Monitoring Wells Installed in the Vicinity of Site #11, Medford, NY

Well Information			Rads (pCi/L)				Standard Inorganics						VOCs (ppb)	Herb Mets (ppb)								
Well ID	Screen Interval	Sample Date	Gross Alpha	Gross Beta	Adjusted Gross Beta* (AGB)	Tritium	Chloride (ppm)	Sulfate (ppm)	Nitrate (ppm)	Ammonia (ppm)	MBAS (ppm)	Total Alkalinity (mg CaCO3/L)	MTBE	Alachlor OA	Bisphenol A	Bisphenol B	Caffeine	DEET	Dinoseb	Metolachlor ESA	Phenytoin (Dilantin)	Propamocarb hydrochloride
DEC TOGS 1.1.1 Guidance Values			-	-		20,000	-	-	-	-		-	10	-	-	-	-	-	1	50	-	-
DEC Part 703 Class GA Groundwater Standards			15^	1,000^^		-	250	250	10	2		-	-	-	-	-	-	-	-	-	-	-
DOH Drinking Water Standards Part 5-1			15	-	50**	20,000	250	250	10	-		-	10	50	50	50	50	50	7	50	50	50
PA-1	40-45	5/4/2010	NS	NS	-	NS	163	148	3.8	<0.02	NS	NS	<0.5	<0.4	<0.2	<0.2	<0.2	NA	<0.3	<0.3	<0.2	<0.3
PA-1	40-45	6/4/2013	<1	4.2+/-0.2	<1	<200	31	33	1.5	<0.5	<0.1	NS	<0.5	<0.4	<0.2	<0.2	Trace	Trace	<0.3	<0.3	<0.2	<0.3
PA-1	40-45	6/11/2014	5.1±0.5	31.2±0.7	9.8	<200	84	57	4.3	<0.5	0.1	130	<0.5	<0.4	<0.2	<0.2	<0.2	<0.2	<0.3	<0.3	<0.2	<0.3
PA-2	35-45	5/4/2010	NS	NS	-	NS	97	130	2.5	0.4	NS	NS	<0.5	<0.4	<0.2	<0.2	<0.2	NA	<0.3	<0.3	<0.2	<0.3
PA-2R	39-49	11/21/2013	3.4+/-0.5	11.7+/-0.3	1.0	<200	70	58	<5	<0.5	NS	82	<0.5	<0.4	4.7	<0.2	<0.2	NR	<0.3	<0.3	<0.2	<0.3
PA-2R	39-49	6/11/2014	8.6±0.5	19.3±0.5	4.5	<200	85	47	4	<0.5	<0.1	91	<0.5	<0.4	<0.2	<0.2	Trace	<0.2	<0.3	<0.3	<0.2	<0.3
PA-2R	39-49	10/15/2014	3.2±0.4	29.2±0.6	<1	<200	81	52	5.6	<0.5	NS	122	<0.5	Trace	<0.2	<0.2	<0.2	<0.2	<0.3	<0.3	<0.2	<0.3
PA-3	35-45	5/4/2010	NS	NS	-	NS	245	374	16	<0.02	NS	NS	<0.5	<0.4	<0.2	<0.2	<0.2	NA	<0.3	<0.3	<0.2	<0.3
PA-3R	39-49	11/21/2013	20.3+/-1	21.7+/-0.6	<1	213	101	54	<5	<0.5	NS	77	1.4	<0.4	<0.2	<0.2	<0.2	<0.2	<0.3	<0.3	<0.2	<0.3
PA-3R	39-49	6/10/2014	16.2±0.9	105±2.5	25.5	<200	69	77	<5	0.58	0.1	262	<0.5	<0.4	<0.2	0.2	<0.2	<0.2	<0.3	<0.3	<0.2	<0.3
PA-3R	39-49	10/15/2014	6.2±0.6	47.2± 1.0	16.9	<200	104	<100	<10	<0.5	NS	165	2.2	<0.4	<0.2	<0.2	0.3	<0.2	<0.3	<0.3	<0.2	<0.3
PA-4	35-45	5/4/2010	NS	NS	-	NS	101	71	2.2	<0.02	NS	NS	<0.5	<0.4	<0.2	<0.2	<0.2	NA	<0.3	<0.3	<0.2	<0.3
PA-4R	44-54	11/21/2013	18.1+/-1	46.4+/-1.3	8.7	<200	80	150	<5	<0.5	NS	153	<0.5	<0.4	<0.2	<0.2	<0.2	<0.2	<0.3	<0.3	<0.2	<0.3
PA-4R	44-54	6/10/2014	14.2±0.9	61.6±1.6	<1	<200	90	192	6.8	<0.5	0.1	188	<0.5	<0.4	<0.2	<0.2	<0.2	<0.2	<0.3	<0.3	Trace	<0.3
PA-4R	44-54	10/15/2014	2±0.4	22.7±0.5	<1	<200	104	164	5.1	<0.5	NS	107	<0.5	Trace	<0.2	<0.2	<0.2	<0.2	<0.3	Trace	<0.2	<0.3
PA-5	35-45	5/4/2010	NS	NS	-	NS	101	77	1.8	<0.02	NS	NS	<0.5	<0.4	<0.2	<0.2	Trace	NA	<0.3	<0.3	<0.2	Trace
PA-5	35-45	6/6/2013	NS	NS	-	NS	NS	NS	NS	NS	<0.1	NS	<05	NS	NS	NS	NS	NS	NS	NS	NS	NS
PA-5	35-45	6/12/2014	10.4±0.5	19.2±0.5	2.8	<200	66	29	9.4	NS	<0.1	NS	<0.5	<0.4	Trace	<0.2	Trace	<0.2	<0.3	<0.3	<0.2	<0.3
PA-6	35-45	5/4/2010	NS	NS	-	NS	<12	<20	<2	<0.02	NS	NS	<0.5	<0.4	<0.2	<0.2	<0.2	NA	Trace	Trace	<0.2	<0.3
PA-6	35-45	6/5/2013	NS	NS	-	NS	23	23	<2	<0.5	<0.1	NS	<0.5	<0.4	<0.2	<0.2	<0.2	<0.2	<0.3	<0.3	<0.2	<0.3
PA-6	35-45	11/22/2013	<1	1.4+/-0.1	<1	<200	9	16	0.5	<0.5	NS	72	<05	<0.4	<0.2	<0.2	<0.2	<0.2	<0.3	<0.3	<0.2	<0.3
PA-6	35-45	6/11/2014	<1	1.2±0.1	<1	<200	56	18	0.8	<0.5	<0.1	54	<0.5	<0.4	<0.2	<0.2	<0.2	<0.2	<0.3	<0.3	<0.2	<0.3
PA-6	35-45	10/15/2014	<1	1.9±0.1	1.1	<200	16	<20	<2	<0.5	NS	53	<0.5	Trace	<0.2	<0.2	<0.2	<0.2	<0.3	<0.3	0.4	<0.3

Notes:
NA = Sample collected, analyte not reported
NS = No Sample Collected
"<" = less than, indicating no detection
ppb = part per billion
ppm = part per million
pCi = picocurie

^ = excluding radon and uranium
^^ = excluding strobtium-90 and alpha emitters
* AGB = gross beta - 0.82* potassium conc. in mg/l
**AGB has a guidance activity value of 50 pCi/l that is used for screening under Subpart 5-1 of the NYS Sanitary Code
indicates concentration exceeds a standard or guidance value

Significant Findings of the Investigation

Metals Data

The groundwater impacts attributable to VOWM activities consistently include elevated metals concentrations. Table 13 compares information on the number of detections and concentrations observed for metals in samples collected in this study, with almost 1,200 shallow groundwater samples collected by the SCDHS. These 1,200 SCDHS samples were collected between 2010 and 2014, and were compiled primarily from untreated private well samples, but also include some subdivision test wells. For comparison purposes, on the aggregate, this data can be considered "typical" for Suffolk County shallow water quality. For a number of metals, the percent of detection for samples from the study sites were significantly elevated compared to the typical Suffolk County water quality (e.g., arsenic, beryllium, germanium, thallium, etc.). Additionally, the concentrations observed in a number of the study samples had maximum concentrations and mean concentrations significantly exceeding the corresponding values reported in more typical Suffolk County groundwater (e.g., aluminum, arsenic, manganese, thallium, titanium, etc.).

Table 14 illustrates the analytes in the study that had concentrations reported in exceedance of a groundwater and/or drinking water standard, nine of which were metals (manganese, sodium, iron, thallium, arsenic, lead, copper, zinc, magnesium). Sodium, manganese, and iron exceeded a standard in the most number of wells (24, 22 and 22 wells respectively), and monitoring wells PA-3, PA-4 and PA-5 from Site # 11 (Peconic Avenue, Medford) each had six different metals exceeding a standard.

Manganese exceeded the groundwater/drinking water standard of 300 ppb most consistently at significant concentrations. Of the 233 groundwater samples analyzed for manganese, 34% (80) exceeded the standard, and 12% (27) had concentrations that were at least 10 times the standard. The well exhibiting the highest manganese concentration was MS-3 located at Site # 7 (East Main St., Yaphank) with the top three profile levels reporting concentrations of 49,300 ppb, 31,500 ppb and 26,700 ppb (20-25 fbg, 30-35 fbg, and 40-45 fbg respectively). Table 15 summarizes the manganese concentrations found at each site, and shows that each site had at least one downgradient well with a sample containing a manganese concentration in excess of the 300 ppb groundwater/drinking water standard.

Radiological Data

All the samples were analyzed by the SCDHS Public and Environmental Health Laboratory (PEHL) for the radiological parameters gross alpha, gross beta, and tritium. Four wells from three different sites (one from Site #3, one from Site #9, and two from Site #11) exceeded the gross alpha drinking water standard

Table 13 – Compost Study Metals Data Comparison to Metals in Suffolk County Private

Parameter	Investigation	# Samples Analyzed	# of Samples with Detection	% Samples with Detection	Maximum Concentration Detected	Overall Mean Concentration#	Mean Concentration of Detected^
Aluminum (ppb)	11 Study Sites*	230	208	90%	25,301	433	478
	Suffolk Shallow Private Wells**	1,196	655	55%	2,580	39	69
Antimony (ppb)	11 Study Sites	233	13	6%	2.1	0.22	0.66
	Suffolk Shallow Private Wells	1,196	1,183	1%	1.1	0.18	0.62
Arsenic (ppb)	11 Study Sites	233	37	16%	64	1.8	8.5
	Suffolk Shallow Private Wells	1,196	35	3%	7	0.55	2.1
Barium (ppb)	11 Study Sites	232	232	100%	872	92	92
	Suffolk Shallow Private Wells	1,196	1,166	97%	243	36	37
Beryllium (ppb)	11 Study Sites	233	26	11%	2.4	0.23	0.72
	Suffolk Shallow Private Wells	1,196	26	2%	1	0.15	0.5
Cadmium (ppb)	11 Study Sites	232	2	0.9%	3	0.52	2.5
	Suffolk Shallow Private Wells	1,196	9	0.8%	6	0.51	1.9
Calcium (ppm)	11 Study Sites	232	232	100%	140	17	17
	Suffolk Shallow Private Wells	1,197	1,187	99%	127	14	14
Chromium (ppb)	11 Study Sites	232	145	63%	38	2.2	3.2
	Suffolk Shallow Private Wells	1,196	216	18%	10	0.7	1.5
Cobalt (ppb)	11 Study Sites	232	100	43%	81	3.5	7.5
	Suffolk Shallow Private Wells	1,196	39	3%	25	0.62	4.1
Copper (ppb)	11 Study Sites	232	84	36%	46	2.3	5.3
	Suffolk Shallow Private Wells	1,196	1,160	97%	2,727	127	132
Germanium (ppb)	11 Study Sites	230	33	14%	3	0.6	1.4
	Suffolk Shallow Private Wells	1,195	8	0.67%	2	0.4	1.0
Iron (ppm)	10 VOWM Sites	232	88	38%	81	3.3	8.5
	Suffolk Shallow Private Wells	1,197	383	32%	33	0.3	0.9
Lead (ppb)	11 Study Sites	233	21	9%	46	1.3	9.4
	Suffolk Shallow Private Wells	1,196	620	52%	488	5.2	9.6
Magnesium (ppm)	11 Study Sites	232	231	100%	461	6.7	6.7
	Suffolk Shallow Private Wells	1,197	1,175	98%	212	5.0	5.1
Manganese (ppb)	11 Study Sites	232	221	95%	49,300	1,618	1,698
	Suffolk Shallow Private Wells	1,196	1,093	91%	7,000	102	112
Molybdenum (ppb)	11 Study Sites	233	29	12%	10	0.83	3.1
	Suffolk Shallow Private Wells	1,196	8	0.67%	17	0.5	3.3
Nickel (ppb)	11 Study Sites	232	210	91%	26	3.1	3.4
	Suffolk Shallow Private Wells	1,196	853	71%	57	1.4	1.9
Potassium (ppm)	11 Study Sites	232	232	100%	97	9.2	9.2
	Suffolk Shallow Private Wells	1,197	1,190	99%	53	2.6	2.6
Sodium (ppm)	11 Study Sites	232	229	99%	236	20	20
	Suffolk Shallow Private Wells	1,197	1,196	100%	1,360	22	22
Strontium (ppb)	11 Study Sites	232	231	100%	635	79	79
	Suffolk Shallow Private Wells	1,196	1,174	98%	1,030	68	69
Thallium (ppb)	11 Study Sites	232	38	16%	2.9	0.26	0.79
	Suffolk Shallow Private Wells	1,196	13	1%	0.62	0.1	0.4
Titanium (ppb)	11 Study Sites	230	108	47%	708	14	30
	Suffolk Shallow Private Wells	1,196	28	2%	20	0.6	3
Vanadium (ppb)	11 Study Sites	233	32	14%	65	1.7	9.3
	Suffolk Shallow Private Wells	1,196	27	2%	10	0.6	2.9
Zinc (ppb)	11 Study Sites	230	26	11%	1,320	34	108
	Suffolk Shallow Private Wells	1,195	560	47%	5,400	114	217

* Note that these statistics include data from all wells and profile levels included in the study, even those exhibiting little or no water quality degradation.

** Untreated water quality data from private wells collected by the SCDHS from January 2010 – June 2014.

One half the detection limit was used in the calculation of the mean for samples that had concentrations reported as not detected.

^ This is the mean concentration of only the samples that had concentrations above their respective detection limits.

Table 14 – Analytes Exceeding a Groundwater and/or Drinking Water Standard

Site #	Site Name	Site Location	Well	Manganese	Sodium	Iron	Nitrate	Thallium	Ammonia	Arsenic	Lead	Copper	Zinc	Gross Alpha	Gross Beta	Chloride	Magnesium	Sulfate	VOCs
1	Fifth Avenue	Speonk	CF-1																
			CF-2																
			CF-3																
			Private Wells	X		X						X	X						
2	Moriches-Riverhead Rd Farm	Eastport	RC-1		X														
			RC-2	X	X												X		
			RC-3	X	X		X												
3	Papermill Rd Facility	Manorville	CB-1	X	X	X		X	X										X
			CB-2	X		X		X	X										X
			CB-3	X		X			X	X				X	X				
4	Exit 69 LIE Ramp	Manorville	WR-1	X	X	X				x						X			
5	Doziak Farm	Manorville	SS-1				X												
			SS-2			X	X												
			SS-3		X		X												
			SS-4	X	X	X	X												
			SS-5	X	X	X	X									X			X
6	Bruno Farm	Manorville	MMIR-1	X	X	X													
			MMIR-2																
			MMIR-3																
7	Hololob/Froehlich Site	Yaphank	MS-1																
			MS-2	X															
			MS-3	X	X	X	X		X										X
			MS-4	X	X	X		X											
			MS-5	X	X	X	X	X	X										
8	LIE North Service Rd Farm	Yaphank	CF-4	X															
			CF-5		X														
9	Islip Town Compost Facility	Ronkonkoma	ICF-1	X	X	X		X						X					
			ICF-2	X	X	X		X											
10	Conklin Site	Farmingdale	CS-1	X	X														
			CS-2		X	X													
			CS-3	X	X	X													
11	Peconic Ave Site	Medford	PA-1		X	X													
			PA-2		X	X													
			PA-3	X	X	X	X	X		X	X			X				X	
			PA-4	X	X	X		X		X	X			X					
			PA-5	X	X	X		X		X	X								
			PA-6		X	X													
For Comparison																			
Great Gardens		Yaphank		X	X	X		X	X		X			X	X	X	X		

"X" means analyte exceeded a standard in one or more of the profile levels in the indicated well.

Table 15 - Summary of Manganese Concentrations by Site

Site #	Site Name	# Wells	Sampling Date Range	Manganese			
				# Detects/ # Analyzed	Range of Concentrations		# Samples Exceeding MCL (300 ppb)
					Min	Max	
1	Fifth Avenue (Private Wells)*	12	9/23/99 - 8/29/14	12/12*	<1	3,650	4*
2	Moriches-Riverhead Rd	3	2/21/12 - 3/20/12	17/17	3	2,730	8
3	Papermill Rd Facility	3	10/4/11 - 11/1/11	22/22	147	5,310	21
4	Exit 69 LIE Ramp	1	8/25/11 - 9/11/11	9/9	60	18,300	5
5	South Street Farm	5	3/21/12 - 5/2/12	31/31	2	475	3
6	Moriches-Yaphank Rd	3	11/3/11 - 1/31/12	26/27	1	804	1
7	East Main Street	5	7/18/11 - 6/5/12	36/36	3	49,300	18
8	LIE North Service Rd	2	9/14/11 - 10/4/11	10/10	3	603	1
9	Islip Town	2	12/19/11 - 12/20/11	12/12	28	8,840	6
10	Conklin St	3	5/14/12 - 1/9/13	21/22	<1	2,645	8
11	Peconic Ave	6	5/4/10 - 6/12/14	23/23	1	4,121	7
SURFACE WATERS							
3	Papermill Rd	-	2/28/12	1/1	100		-
4	Exit 69 LIE Ramp	-	11/22/11	1/1	70		-
For Comparison Purposes							
Great Gardens		26	9/1/09 - 11/13/12	130/130	2	31,600	59

of 15 pCi/l (Table 14 – Analytes Exceeding a Groundwater and/or Drinking Water Standard). The highest gross alpha concentration was 20.3 pCi/l reported from well PR-3R at Site #11 (Peconic Ave., Medford). Table 16 compares information on the number of detections and concentrations observed in the gross alpha samples collected for this study with 1,231 gross alpha concentrations from private well samples analyzed by the SCDHS from 1997 through 2014. For comparison purposes, these private well samples can be considered "typical" gross alpha concentrations for Suffolk County's shallow groundwater. Table 16 illustrates that gross alpha concentrations in Suffolk County's groundwater are typically low, with only 10% of the samples reporting concentrations above the detection limit. The mean concentration of gross alpha samples from "typical" Suffolk County shallow groundwater that exhibited detectable gross alpha concentrations was 2.0 pCi/l, and only one sample exceed the drinking water standard of 15 pCi/l. The

gross alpha samples collected in the vicinity of the vegetative organic waste management sites for this study had 38% of the samples reporting gross alpha detections, a mean concentration of detected samples of 4.9 pCi/l, and five samples with concentrations above the drinking water standard. This comparison illustrates that the groundwater downgradient of the VOWM sites studied generally have a higher frequency of detection, and higher concentrations of gross alpha than what is typically exhibited in Suffolk County's shallow groundwater.

Table 16
Comparison of Gross Alpha Concentrations

	# Samples Analyzed	Number of Detections	% Samples With Detections	Maximum Activity (pCi/l)	Mean Activity (pCi/l)[3]	Mean of Detects (pCi/l)	Number of Samples Exceeding MCL	% of Samples Exceeding MCL
11 Study Sites	221	83	38%	20.3	2.1	4.9	5	2.2%
SCDHS Private Well Samples	1,231	118	10%	21	0.65	2.0	1	0.09%

Gross beta was detected in 176 of the 221 samples, or 80% of the samples analyzed. Seven samples collected from four different sites exhibited elevated gross beta concentrations (above the NYSDOH guidance value of 50 pCi/l). However, since potassium has a naturally occurring form that is a beta-emitting isotope (potassium-40), gross beta concentrations can often be elevated when potassium concentrations are elevated. In order to adjust for the potassium-40 contribution to the gross beta concentrations, an adjustment based on the sample's total potassium concentration is made[4]. After adjustment for the potassium concentrations, only one of the seven samples exhibiting elevated gross beta still exceeded the 50 pCi/l guidance value (58 pCi/l in well CB-3 of Site #3).

The New York State Department of Health's Wadsworth Center (NYSDOHWC) performed analyses for gross alpha, gross beta and a gamma analysis on 113 samples collected from seven of the sites. Overall, four radionuclides had detectable concentrations; these were potassium 40, actinium 228, radium 224 and radium 226. Radium 226 has a groundwater standard of 3 pCi/l and a drinking water standard of 5 pCi/l[5]. The highest reported radium 226 concentration was 1.3 pCi/l observed in the top profile level of well ICF-1, from Site #9 (Islip Town Compost Facility, Ronkonkoma). These results also illustrate that postassiun-40 was the primary beta contributor of samples exhibiting elevated gross beta concentrations.

[3] One half the detection limit was used in the mean calculation for samples with concentrations below the reporting limit.
[4] Adjusted gross beta has a guidance value of 50 pCi/l that is used as a screening under Part 5-1 of the NYS Sanitary Code.
[5] This drinking water maximum contaminant level (MCL) is a combined MCL for the sum of radium 226 and radium 228.

It should be noted that gamma analyses were not performed on the four samples exhibiting gross alpha concentrations above the drinking water standard.

Pesticide Data

Nineteen different pesticides and pesticide breakdown products were detected in the study. The concentrations detected were generally low (ranging from trace detections to 8.8 ppb), and none exceeded their respective standards. The pesticides detected at the most number of sites were metolachlor, and/or one of its two metabolites (metolachlor OA and metolachlor ESA), which was detected at five different study sites, and dichlorvos, which was detected at four different sites. Table 17 summarizes the well detections for the six pesticides that were reported in monitoring wells at more than one site (alachlor, atrazine, 2,6-dichlorobenzimide, dichlorvos, metalaxyl, metolachlor). Since the historical aerial photographs contained in Appendices A through K indicate that a number of the study sites are current or former farms, many of the low level pesticide detections could be related to this land use. In these cases, it is not possible to distinguish the source of the pesticide detections as VOWM related or current/former farming related. However, historical aerial photographs for Site #3 (Appendix C - Papermill Road Facility, Manorville) and Site #9 (Appendix I - Islip Town Compost Facility) show that neither of these sites appear to have been used as farmland, and there are no indications of significant farming activity having taken place in the vicinity. These sites both exhibited trace detections of the pesticide dichlorvos, and considering there is no potential current/historical farming source, these detections could be related to the VOWM activities at these two sites.

Pharmaceuticals, Personal Care Products and Wastewater Related Contaminants (PPCPWRC) Data

Nine different pharmaceutical, personal care products and wastewater related contaminants were detected at low concentrations in the study (ranging from trace detections to 4.7 ppb). The PPCPWRCs detected at the most number of sites were caffeine, which was detected at seven different study sites, and DEET, which was detected at five different sites. Table 17 summarizes the well detections for the six PPCPWRs that were reported in monitoring wells at more than one site (acetaminophen, bisphenol A, caffeine, DEET, gemfibrozil, MBAS). When these types of PPCPWRCs co-occur in groundwater samples, the source is typically associated with a wastewater discharge (e.g., septic system). Although it would not be unusual to find low concentrations of PPCPWRCs in areas of high density residentially developed areas served by on-site septic systems, the majority of the study sites are located in less developed areas, with few if any potential upgradient septic system sources. For example, Figure 7 shows that the property upgradient of the Site #4 (Exit 69 LIE Ramp, Manorville) compost windrows is vacant land, and the historical aerial photographs in Appendix D show that this property has been undeveloped since at least 1947. Therefore, since there are no apparent septic system sources, the only potential source of DEET and acetaminophen detected in the top profile level (10 – 15 fbg) of well WR-1 is the compost windrows. Additionally, the "Compost Run-off" sample collected from a surface water puddle next to the site contained low concentrations of caffeine, ibuprofen, DEET, MBAS (detergents) and acetaminophen, further implicating the compost windrows as a potential source of the wastewater related contaminants.

Table 17 – Pesticides, Pharmaceuticals and Personal Care Product Detections

Site & Well Information				Pesticides Detected at More Than One Site						Multiple Pharmaceuticals/Personal Care Products/Wastewater Related Detects					
Site #	Site Name	Site Location	Well Number	Alachlor*	Atrazine*	2,6-dichlorobenzimide	Dichlorovos	Metalaxyl	Metolachlor*	Acetaminophen	Bisphenol A	Caffeine	DEET	Gemfibrozil	MBAS
1	Fifth Avenue	Speonk	CF-1												
			CF-2												
			CF-3												
			Private Wells									X			
2	Moriches-Riverhead Rd Farm	Eastport	RC-1						X						
			RC-2						X		X				
			RC-3		X	X			X						
3	Papermill Rd Facility	Manorville	CB-1							X	X	X	X		NS
			CB-2				X			X	X	X	X		
			CB-3				X			X		X			X
4	Exit 69 LIE Ramp	Manorville	WR-1				X			X			X		X
5	South Street Farm	Manorville	SS-1											X	
			SS-2												
			SS-3						X						
			SS-4	X					X			X			
			SS-5	X											
6	Moriches-Yaphank Rd Farm	Manorville	MMIR-1						X			X			
			MMIR-2						X			X			
			MMIR-3						X			X			
7	East Main Street Site	Yaphank	MS-1	X		X							X		
			MS-2	X		X		X				X			
			MS-3	X	X	X	X	X	X	X		X	X		
			MS-4	X		X	X	X	X			X	X		
			MS-5	X		X		X							
8	LIE North Service Rd Farm	Yaphank	CF-4					X				X			
			CF-5												
9	Islip Town Compost Facility	Ronkonkoma	ICF-1				X			X		X			
			ICF-2							X					
10	Conklin Street Site	Farmingdale	CS-1								X				
			CS-2												
			CS-3								X		X	X	
11	Peconic Ave Site	Medford	PA-1									X	X		X
			PA-2	X							X	X			
			PA-3									X			X
			PA-4	X					X						X
			PA-5								X	X			
			PA-6	X					X						
For Comparison															
	Great Gardens	Yaphank					X		X		X				

* Detections of parent compounds and/or metabolites

X means analyte was detected in one or more of the profile levels in the indicated well.

Private Well Assessments

The potential for the existence of private wells downgradient of the investigation sites was evaluated using information from past SCDHS private well sample locations, construction permits issued by the SCDHS and information obtained from the Suffolk County Water Authority. Four of the 11 sites (Site #1, #3, #6, and #7) were determined to have the potential for private wells to exist downgradient. Further investigation determined that the homes downgradient of Site #6 were connected to public water, and no private wells were located downgradient. Private well surveys were performed, and samples were collected at the remaining three sites. Site #1 was the only site that has private wells downgradient which exhibited degraded water quality consistent with VOWM related groundwater impacts. This information has been forwarded to the NYSDEC. Table 1 summarizes the results of the private well assessments performed for each of the sites.

Table 18
Summary of Private Well Assessments

Site #	Site Name	Potential Private Wells Downgradient?	Private Well Survey Conducted?	Samples Collected?	Wells Exceed MCLs?
1	Fifth Avenue	Yes	Yes	Yes	Yes
2	Moriches-Riverhead Rd	No	No	-	-
3	Papermill Rd Facility	Yes	Yes	Yes	No
4	Exit 69 LIE Ramp	No	No	-	-
5	South Street Farm	No	No	-	-
6	Moriches-Yaphank Rd	Yes	Yes	No	No
7	East Main Street	Yes	Yes	Yes	No
8	LIE North Service Rd	No	No	-	-
9	Islip Town Compost Facility	No	No	-	-
10	Conklin Site	No	No	-	-
11	139 Peconic Ave	No	No	-	-

Public Water Supply Wellfields

The location of public water supply wellfields in the vicinity of each investigation site was evaluated. Three of the eleven sites (Sites #5, #10 and #11) have public water supply wellfields located in the downgradient groundwater flow direction. Source water contributing areas for the wellfields downgradient of Site #5 and Site #10 indicate that these sites are beyond the 100 year travel time to the wells. The source water assessment for the wellfield downgradient of Site #11 indicates that the site is approximately 500 feet east of the wellfield contributing area,

therefore, as long as there are no significant increases to water pumpage from this wellfield, impacts to groundwater quality as results of this site's operations would not be expected to affect the water quality of this wellfield. Table 19 summarizes the results of the public wellfield assessments performed for each of the sites.

Table 19
Summary of Public Wellfield Assessments

Site #	Distance to Wellfield (miles)	Wellfield Downgradient?	Approximate Travel Time to Wellfield
1	0.75	No	-
2	1.1	No	-
3	1	No	-
4	1.75	No	-
5	3.75	Downgradient	Greater than 100 year
6	1.1	No	-
7	None	No	-
8	0.7	No	-
9	0.5	No	-
10	4	Downgradient	100 Years
11	1	Downgradient	Not in contributing area

Conclusions

In order to evaluate the potential impact of VOWM sites on the quality of groundwater, the SCDHS installed 30 temporary groundwater profile wells and six permanent wells in the vicinity of 11 VOWM related sites throughout Suffolk County. From these 36 wells, the SCDHS collected and analyzed 233 groundwater samples. Two surface water samples were also collected. 95 of these samples were sent to the NYSDOH Wadsworth Laboratory and analyzed for gamma emitting radiological parameters. One of the primary purposes of this study was to assess if the impacts to groundwater quality documented downgradient of the Great Gardens/Long Island Compost facility in Yaphank are unique to this facility, or if there are similar impacts occurring at other VOWM related sites throughout the County.

Ten of the eleven sites included in this investigation had at least one monitoring well sample exhibiting an exceedance of a groundwater and/or a drinking water standard. Eight sites had groundwater impacts observed in monitoring wells that can be attributable to current or past VOWM activities at the site (Table 20). A determination regarding VOWM related groundwater impacts at three sites could not be made due to a number of confounding factors, including significant distances from the monitoring wells to the vegetative organic waste material, wells not aligned with groundwater flow paths from potential sources, a time lag from when the source material was removed to when groundwater sampling occurred.

Elevated metals concentrations was the primary impact observed to the groundwater downgradient of the VOWM facilities investigated. An increase in the number of radiological detections (gross alpha and gross beta), was also generally observed. Elevated metals concentrations were observed in monitoring wells downgradient of 10 sites, and in four private wells in the vicinity of one site. The primary constituent that exceeded groundwater and drinking water standards most frequently, and at the highest concentrations, was manganese. Other metals such as antimony, arsenic, beryllium, cadmium, chromium, cobalt, germanium, molybdenum, thallium, titanium and vanadium were detected at rates that were at least two times that of typical Suffolk County shallow private wells. Gross alpha was detected in 83 of 221 samples, which is a 38 % detection rate, higher than the typical Suffolk County shallow private well detection rate of approximately 10%. The drinking water standard for gross alpha was exceeded in five of the 221 samples analyzed, which is an 2.2% rate of exceedance, higher than the typical Suffolk County shallow private well exceedance rate of 0.09%.

Nineteen different pesticides were reported at relatively low concentrations at a majority of the sites. It is not generally possible to attribute the source of these detections exclusively to VOWM operations, since many of the sites are current or former farms. The exception however, may be the pesticide dichlorvos, which was reported at two sites that have no apparent history of farming, and therefore the pesticide detections could be attributable to the

VOWM activity. Additionally, low concentrations of pharmaceuticals, personal care products and wastewater related contaminants (PPCPWRCs) were consistently detected downgradient of the sites, and in some instances may be attributable to the VOWM activity at the sites.

The potential for the existence of private wells downgradient of the investigation sites was evaluated. Private well sampling surveys were performed at three of the sites. Site #1 was the only site that has private wells downgradient which exhibited degraded water quality consistent with VOWM related groundwater impacts. This information has been forwarded to the NYSDEC. The location of public water supply wellfields in the vicinity of each investigation site was also evaluated. Three of the eleven sites have public water supply wellfields located in the downgradient groundwater flow direction. Two of the sites are located greater than 100 years of groundwater travel time to the wellfields, and the third site is located outside the wellfield's groundwater contributing area, therefore no public wellfields have been identified as being imminently threatened by the groundwater impacts observed in this study.

The data collected clearly indicates that water quality downgradient of the vegetative organic waste management facilities studied exhibited impacts. Further evaluation indicates that groundwater impacts are attributable to VOWM activities at eight of the sites, and impacts were indeterminate at three sites (Table 20). Wells that were located such that VOWM activity was occurring in their groundwater flow paths generally exhibited a greater degree of water quality degradation.

In general, the data evaluated for this study shows similar types of impacts to the groundwater quality previously observed in the SCDHS data collected at the Great Gardens/Long Island Compost facility in Yaphank NY, and documented in the report entitled *Horseblock Road Investigation, Yaphank NY* issued by the New York State Department of Environmental Conservation. The Horseblock Road Investigation provided compelling site-specific evidence of relatively distinctive groundwater impacts (i.e., a chemical fingerprint of elevated metals concentrations, particularly manganese, atypical elevated concentrations of radiological parameters and other contaminants). Because the same chemical fingerprint was detected immediately downgradient of the great majority of VOWM sites evaluated in this study, this evaluation significantly validates that the Horseblock Road findings are not unique to the Horseblock Road site, and that VOWM operations can have significant adverse impacts on groundwater. Similar groundwater impacts have now been observed at many compost/vegetative organic waste facilities throughout Suffolk County and appear to be related to the compost/vegetative waste operations taking place at these sites.

Table 20 – Summary of Site Impacts to Groundwater from VOWM Activity

Site #	Site Name	Location	Impacted Groundwater from VOWM Activity Observed	Comments
1	Fifth Avenue	Speonk	Yes	Significant impacts observed in the on-site and 3 downgradient private wells.
2	Moriches-Riverhead Rd Farm	Eastport	Yes	Significant groundwater impacts observed in 2 of 3 monitoring wells.
3	Papermill Rd Facility	Manorville	Yes	Significant impacts observed in all 3 monitoring wells. Groundwater impacts from historical site use (landfill, septic sludge lagoons) also observed.
4	Exit 69 LIE Ramp	Manorville	Yes	Significant groundwater impacts observed in the groundwater profile well. Contaminants typically associated with septic waste observed in a pool of run-off water.
5	South Street Farm	Manorville	Indeterminate	Although slight groundwater impacts were observed, no definitive conclusions can be drawn due to the significant distance from the compost windrows to the monitoring wells.
6	Moriches-Yaphank Rd Farm	Manorville	Indeterminate	Although slight groundwater impacts were observed, no definitive conclusions can be drawn most likely due to the site did not having any significant VOWM activity for 5 years prior to groundwater sampling.
7	East Main Street	Yaphank	Yes	Significant groundwater impacts observed in 4 of 5 monitoring wells.
8	LIE North Service Rd Farm	Yaphank	Indeterminate	Additional wells need to be installed further to the east in order to appropriately assess potential impacts from vegetative organic wastes. The significant distance from potential sources to well locations could be a confounding factor.
	Islip Town Compost Facility	Ronkonkoma	Yes	Significant groundwater impacts observed in both the monitoring wells installed at this site.
10	Conklin St. Site	Farmingdale	Yes	Moderate groundwater impacts observed in 1 of 3 monitoring wells.
11	Peconic Ave Site	Medford	Yes	Significant groundwater impacts observed in 3 of 5 downgradient monitoring wells.

Table 21

Statistical Data Comparison of Parameters Exceeding a Standard in this Study to Groundwater Data Collected in the Vicinity of the Great Gardens/Long Island Compost Facility (Horseblock Rd Investigation)

Parameters Exceeding a Standard	Investigation	# Samples Analyzed	Maximum Concentration	Minimum Concentration of Detected	Mean of Detected	# of Samples with Detection	% Samples with Detection	# Samples Exceeding a Standard	% of Detected Exceeding a Standard
Ammonia (ppm)	11 Study Sites	201	18.4	0.02	3.9	44	22%	18	41%
	Great Gardens	103	25	0.04	3.1	38	37%	17	17%
Arsenic (ppb)	11 Study Sites	233	64	1	8.5	37	16%	9	24%
	Great Gardens	103	5	1	2.0	12	12%	0	0%
Benzene	11 Study Sites	224	2.4	0.5	0.98	5	2.2%	1	0%
	Great Gardens	99	-	-	-	0	0%	-	-
Chloride (ppm)	11 Study Sites	231	297	4	38	195	84%	2	1%
	Great Gardens	103	445	5	55	88	85%	2	2%
Chlorobenzene	11 Study Sites	222	27	0.7	6.3	15	6.8%	8	53%
	Great Gardens	99	-	-	-	0	0%	-	-
Gross Alpha	11 Study Sites	221	20	1	4.9	83	38%	5	6%
	Great Gardens	103	58	1.0	7.4	36	35%	4	4%
Gross Beta	11 Study Sites	221	105	1	13	176	80%	1	0.5%
	Great Gardens	103	253	1.0	30	73	71%	2	2%
Iron (ppm)	11 Study Sites	232	81	0.11	8.5	88	38%	72	82%
	Great Gardens	103	34	0.1	3.4	43	42%	29	28%
Lead (ppb)	11 Study Sites	233	46	1	9.4	21	9%	3	14%
	Great Gardens	103	2	1	1.3	3	3%	0	0%
Magnesium (ppm)	11 Study Sites	232	461	0.2	6.7	232	100%	1	0.4%
	Great Gardens	103	42	0.3	6	102	99%	2	2%
Manganese (ppb)	11 Study Sites	232	49,300	1	1,698	221	95%	80	36%
	Great Gardens	103	31,600	3.0	3,824	103	100%	49	48%
Nitrate (ppm)	11 Study Sites	231	18	0.5	5.1	139	60%	21	15%
	Great Gardens	103	9.2	0.5	1.6	26	42%	0	0%
Perchlorate (ppb)	11 Study Sites	233	2.9	0.2	0.6	93	40%	0	0%
	Great Gardens	99	105	0.3	10	65	66%	12	12%
Sodium (ppm)	11 Study Sites	232	229	2.3	20	229	99%	67	29%
	Great Gardens	103	299	3.3	24	103	100%	32	31%
Sulfate (ppm)	11 Study Sites	231	374	5	27	178	77%	1	0.6%
	Great Gardens	103	74	5	17	62	99%	0	0%
1,2,3-Trichloropropane	11 Study Sites	228	0.5	0.5	0.5	1	0.44%	1	0%
	Great Gardens	99	-	-	-	0	0%	-	-
Thallium (ppb)	11 Study Sites	232	2.9	0.2	0.8	38	16%	19	50%
	Great Gardens	100	3.1	0.3	0.8	15	15%	7	7%

Recommendations

- The NYSDEC should ensure that mechanisms are in place and that operating practices at VOWM facilities prevent detrimental impacts to groundwater and surface water quality.

- NYSDEC Part 360 Solid Waste Management Regulations governing VOWM facilities should be revised to protect against impacts to groundwater and surface water quality. Until this is accomplished, prior to the issuance of any new VOWM permits/registrations, the NYSDEC should evaluate, and take measures to ensure that any potential impacts to public/private wells, and/or surface water bodies located hydraulically downgradient of these facilities are mitigated.

- NYSDEC Part 360 Solid Waste Management Regulations should be expanded to include facilities that process vegetative organic type materials which currently do not fall under the purview of current regulations.

- The NYSDEC should further investigate the detection of parameters typically related to septic waste (e.g., pharmaceuticals, personal care products, wastewater related contaminants, etc.) observed downgradient and within surface water run-off related to vegetative organic wastes.

- The NYSDEC should investigate the mechanisms that cause elevated concentrations of gross alpha/gross beta, metals, inorganic parameters and detections of pharmaceuticals and personal care products downgradient of compost/vegetative organic waste management sites.

- The Suffolk County Department of Health Services should continue to identify areas where private wells may be used downgradient of VOWM sites, and conduct private well sampling surveys as appropriate. The NYSDEC should provide an alternative water supply or filtration to owners whose on-site water sources are determined to have been impacted from VOWM operations.

- New or current facilities that are permitted or registered for vegetative organic waste operations should be required by the NYSDEC to assess the quality of the groundwater migrating from the site.

Appendices

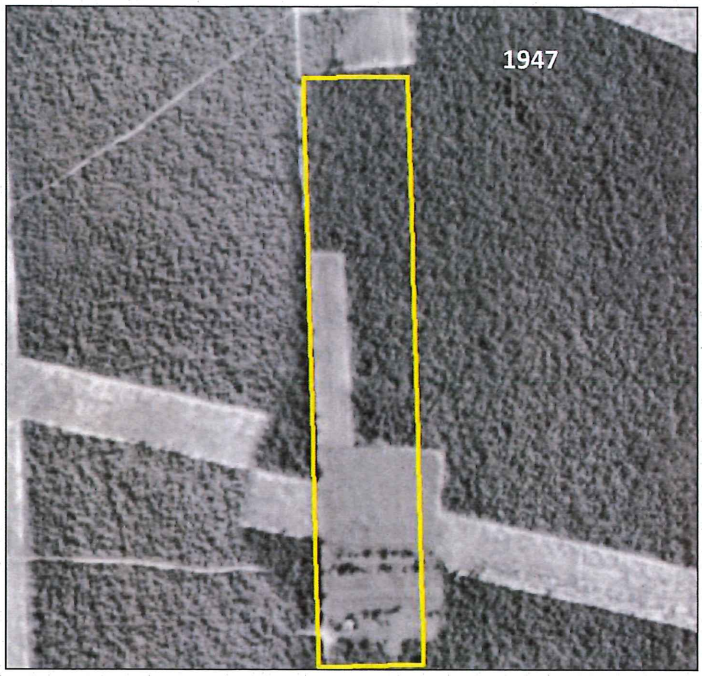
Appendix A

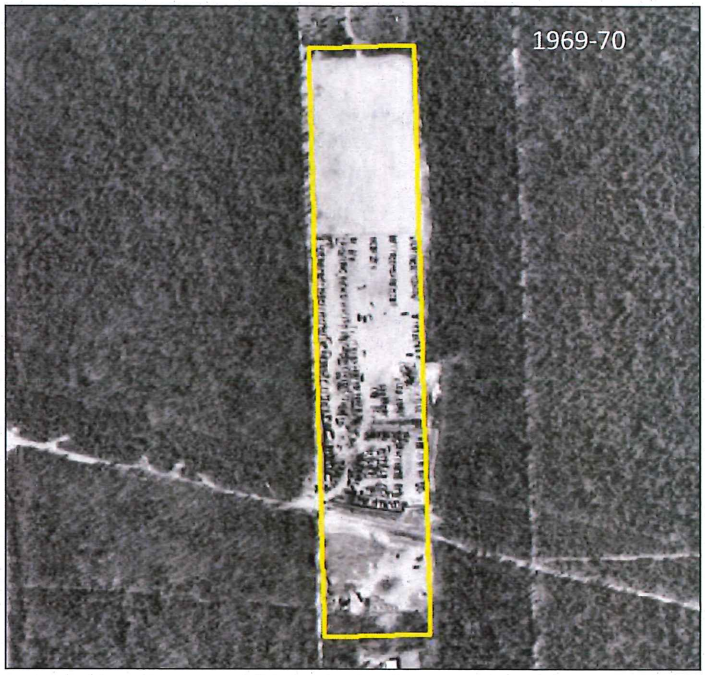
Site #1

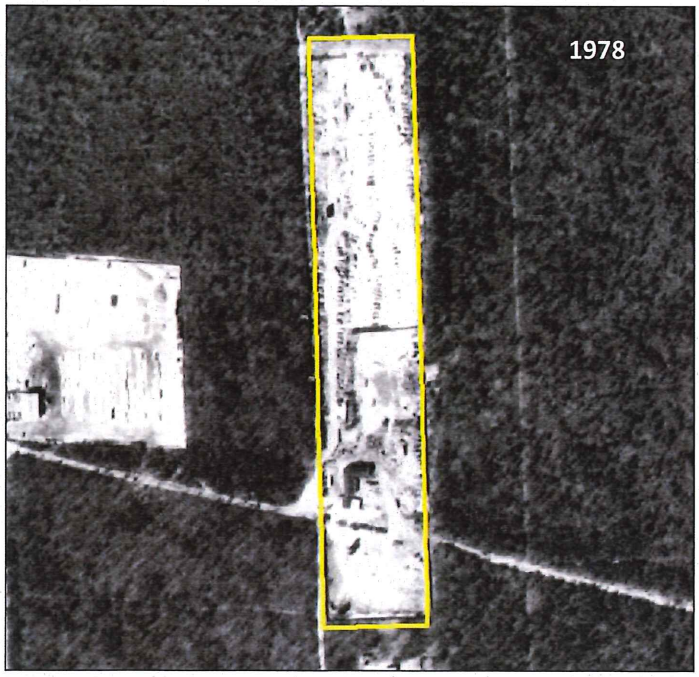
5th Avenue

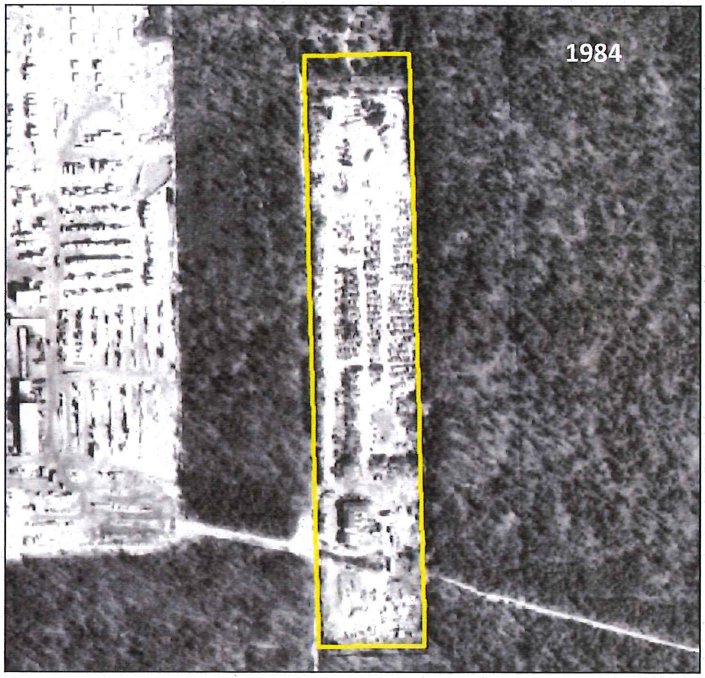
Speonk

Site #1 – 5th Avenue, Speonk

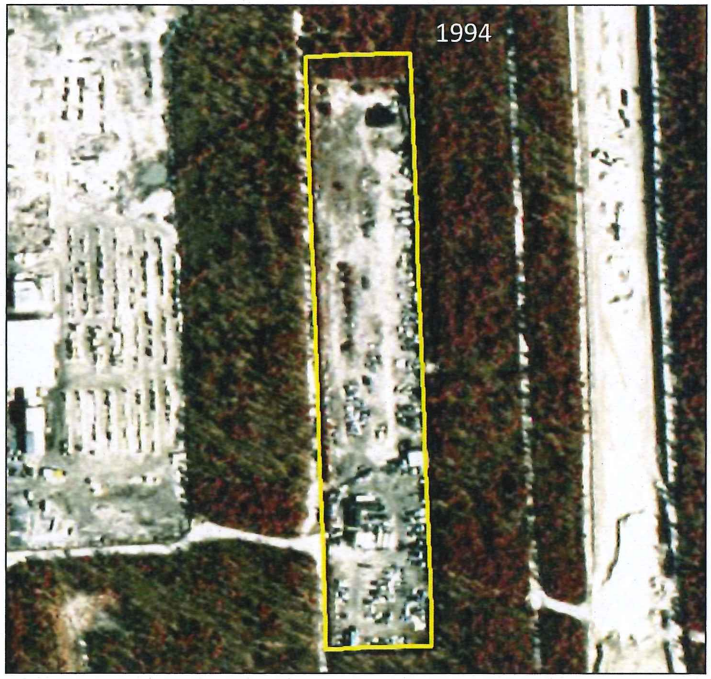


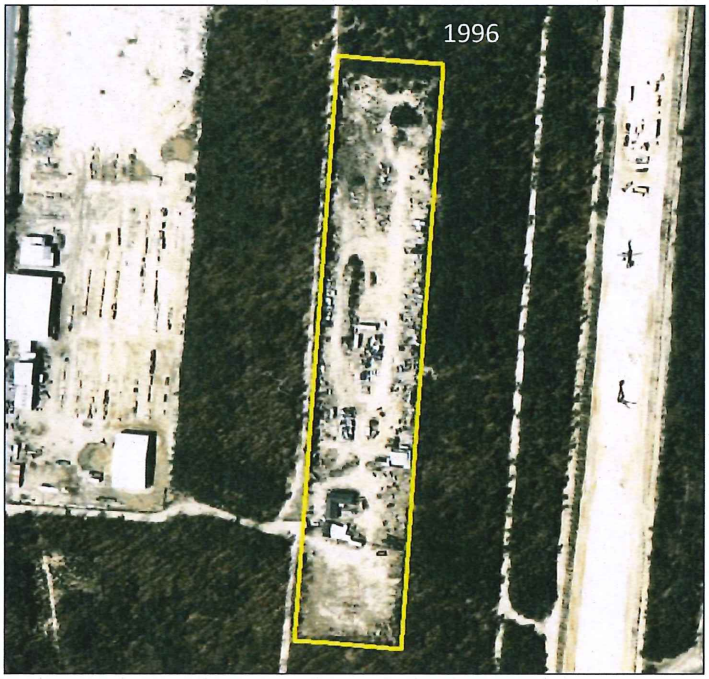


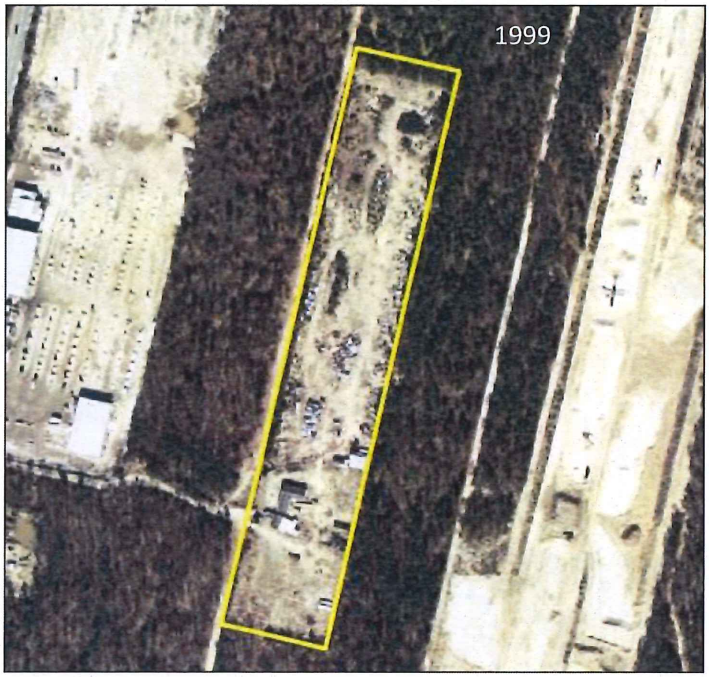




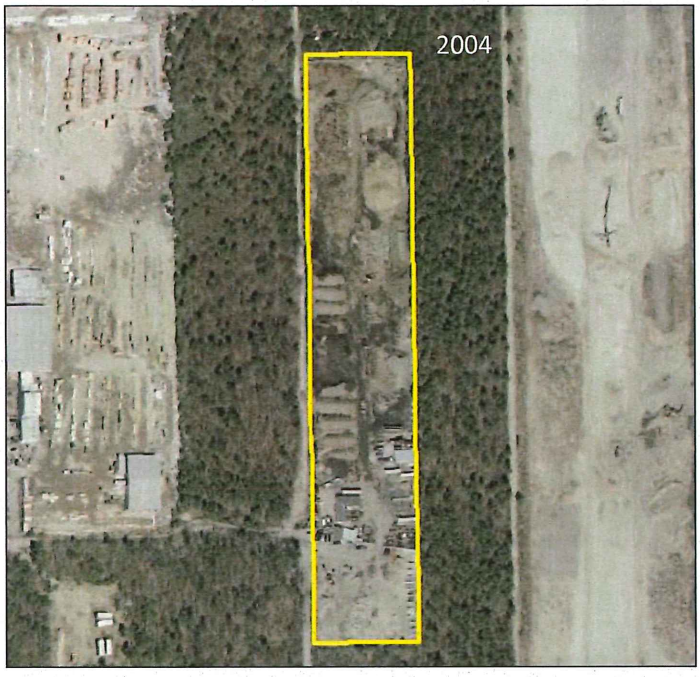
Site #1 – 5th Avenue, Speonk







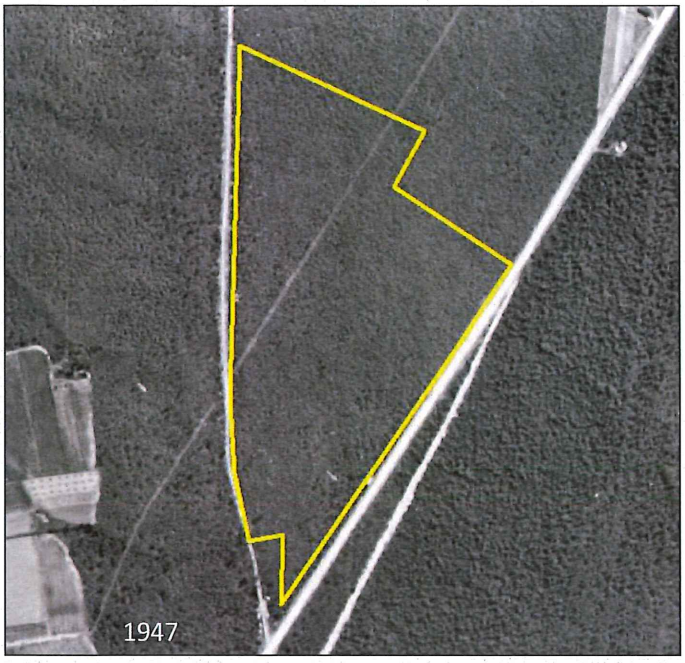
Site #1 – 5th Avenue, Speonk

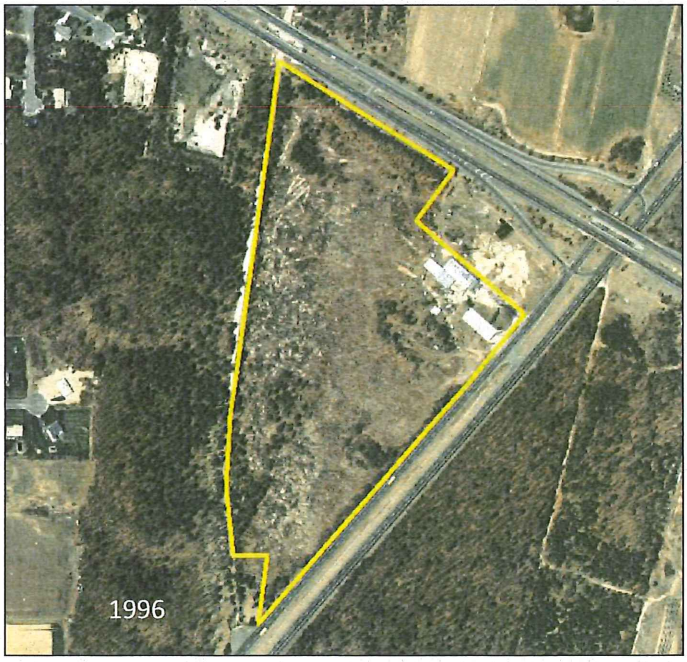


Appendix B

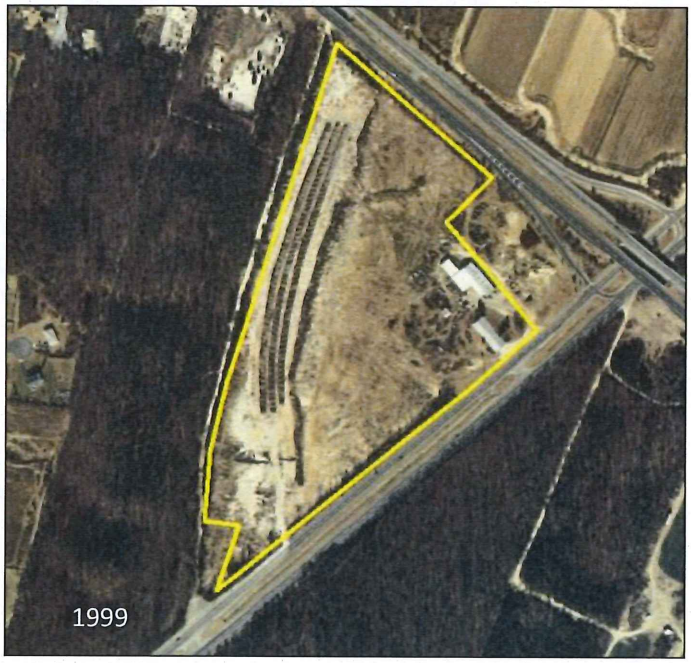
Site #2
Moriches-Riverhead Road Farm

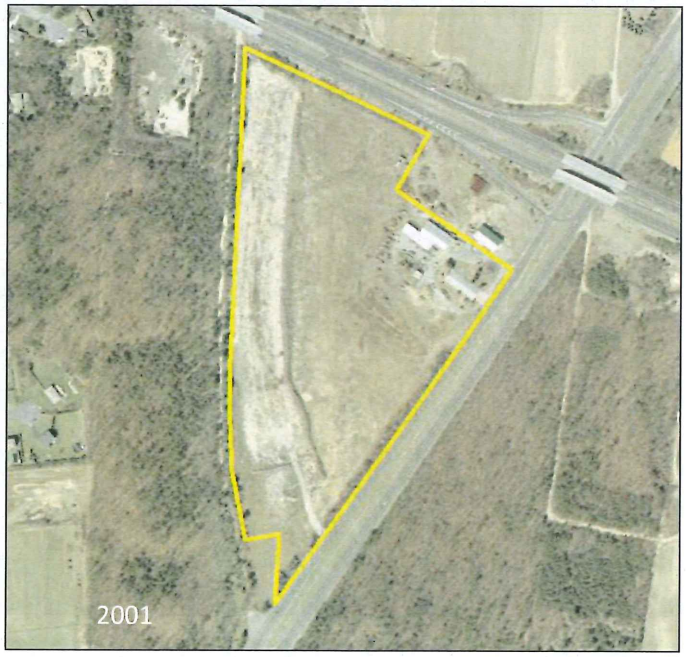
Site #2 – Moriches-Riverhead Road Farm, Eastport

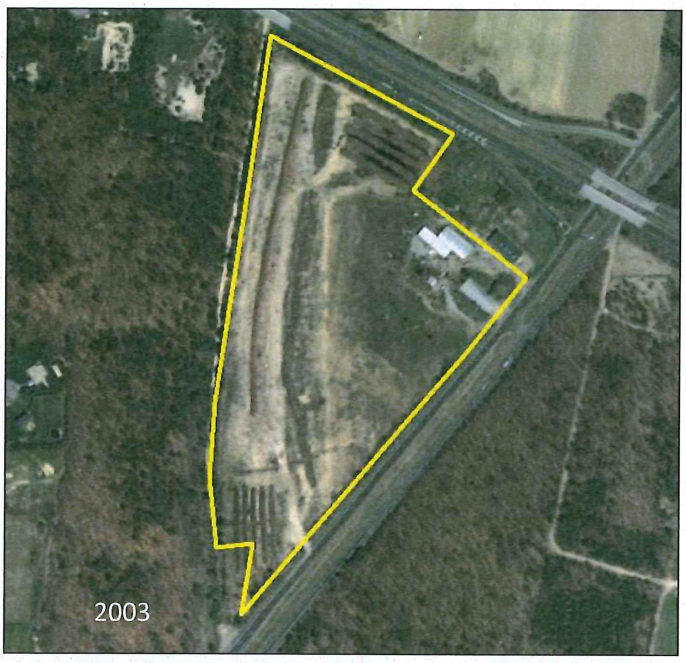


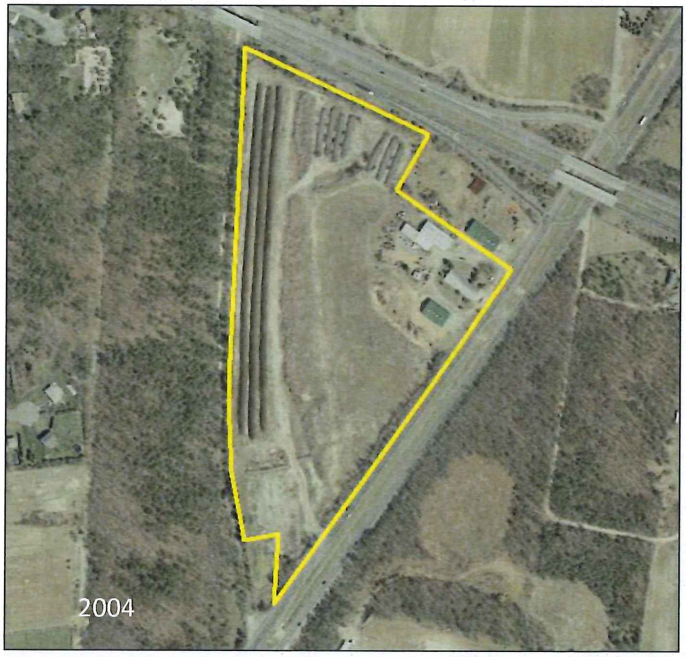


Site #2 – Moriches-Riverhead Road Farm, Eastport

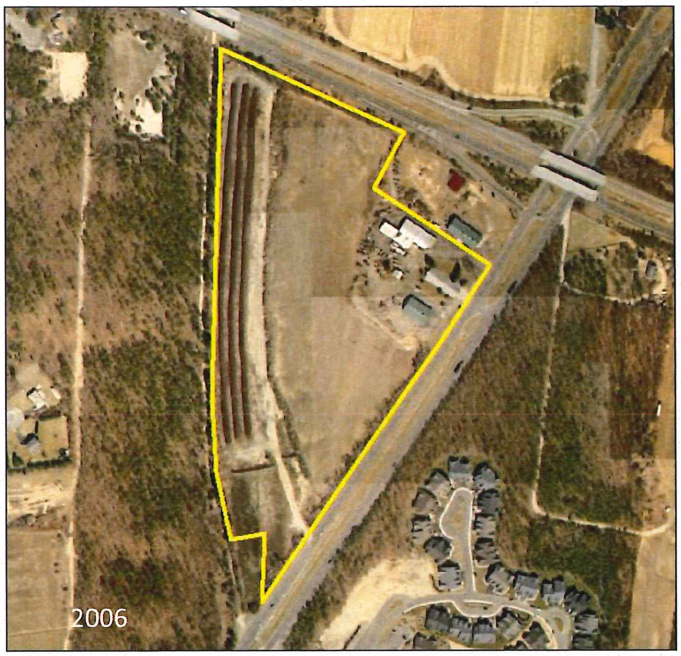


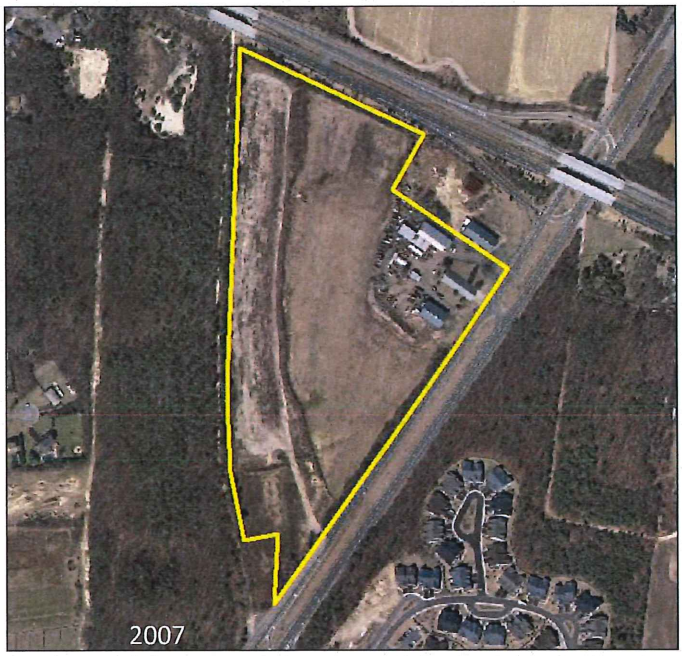


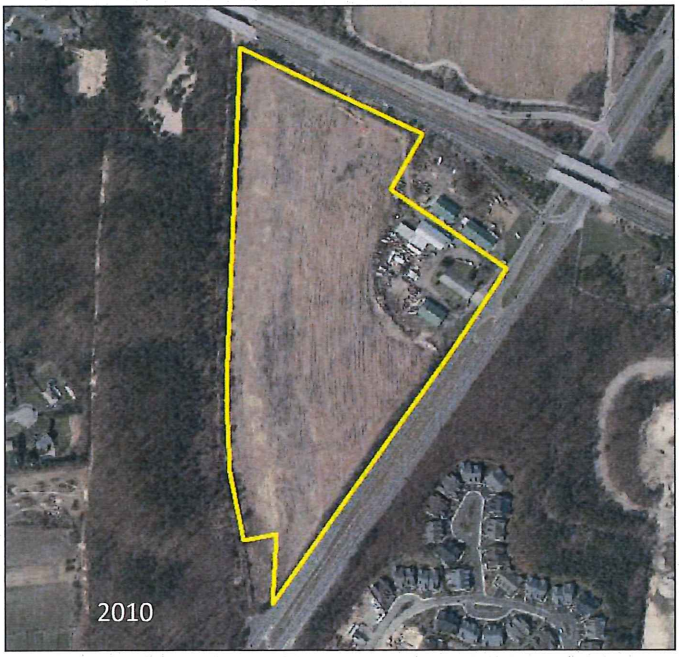




Site #2 – Moriches-Riverhead Road Farm, Eastport





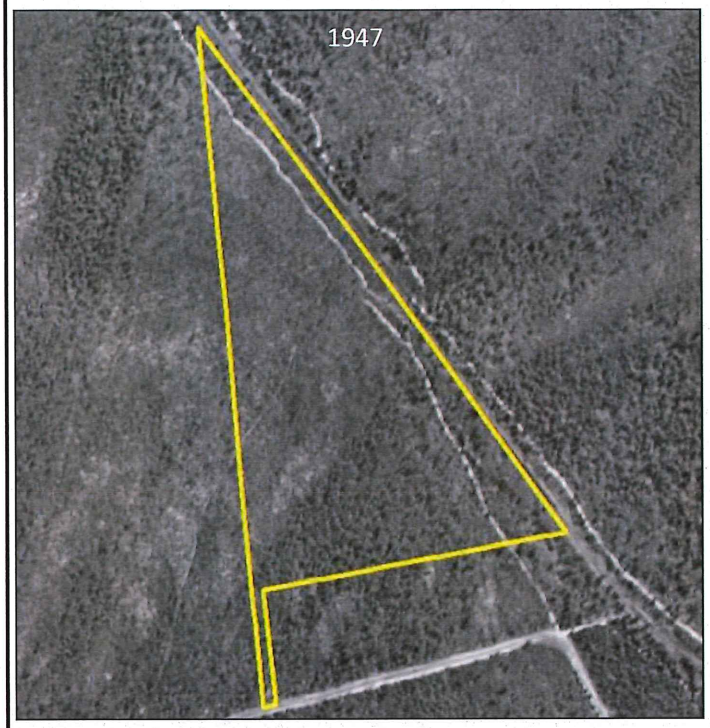


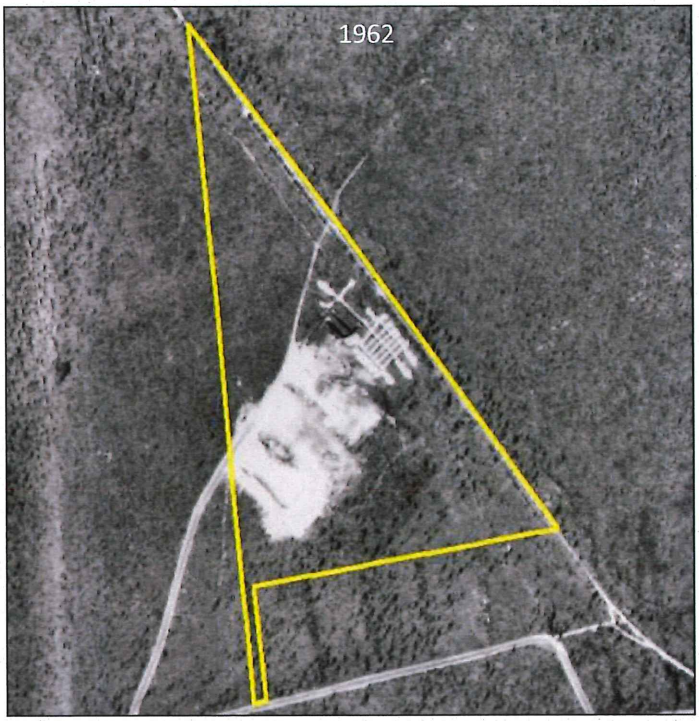
Appendix C

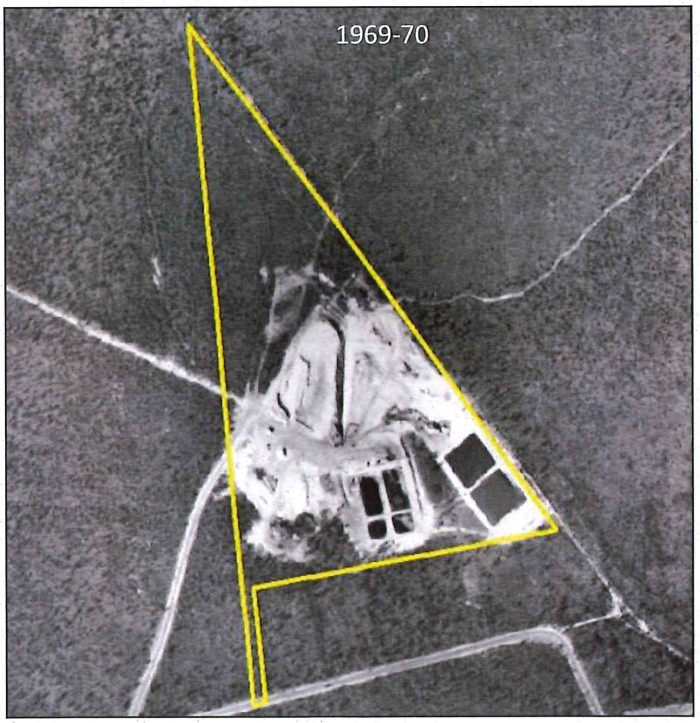
Site #3

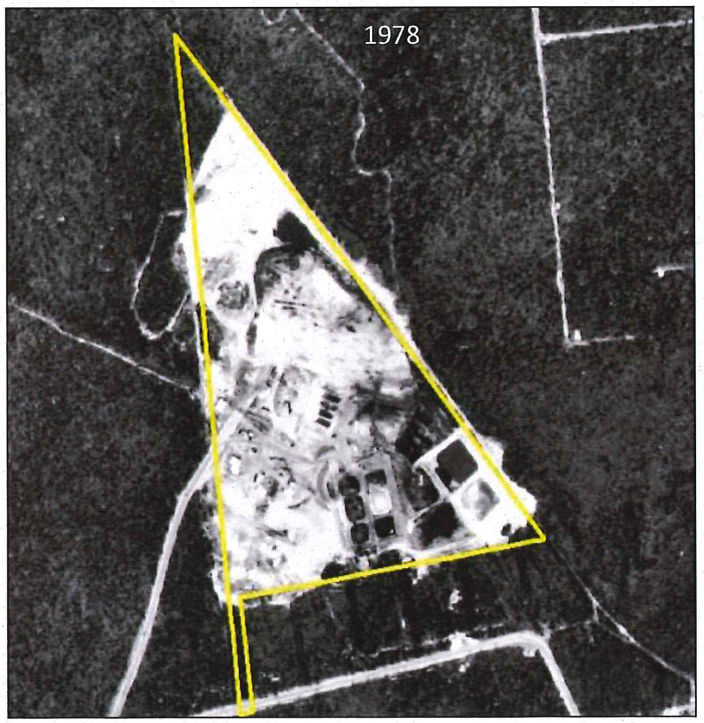
Papermill Road Facility
Manorville, NY

Site #3 – Papermill Road Facility, Manorville

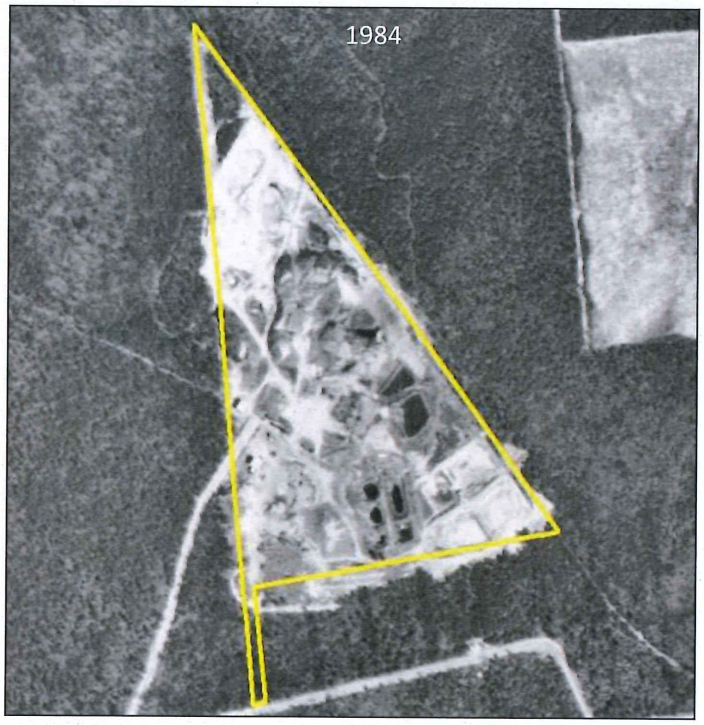


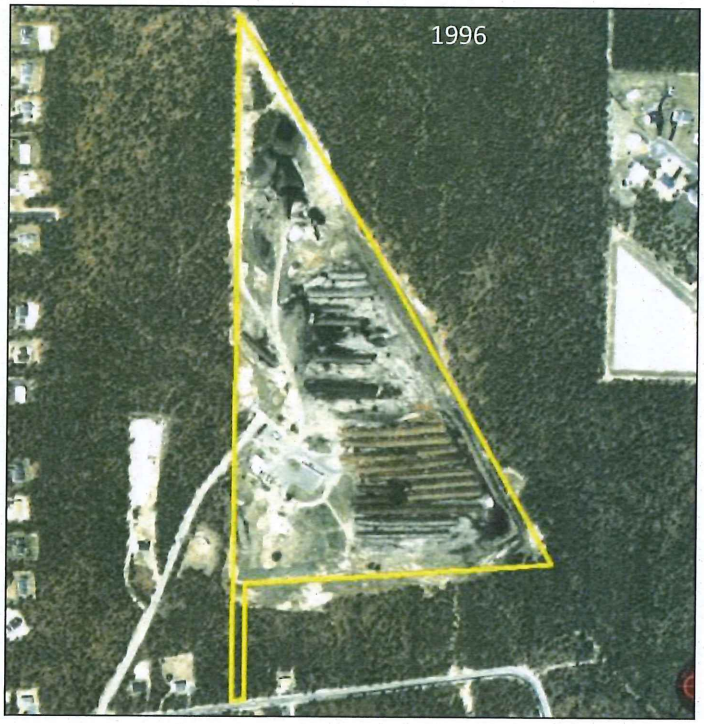


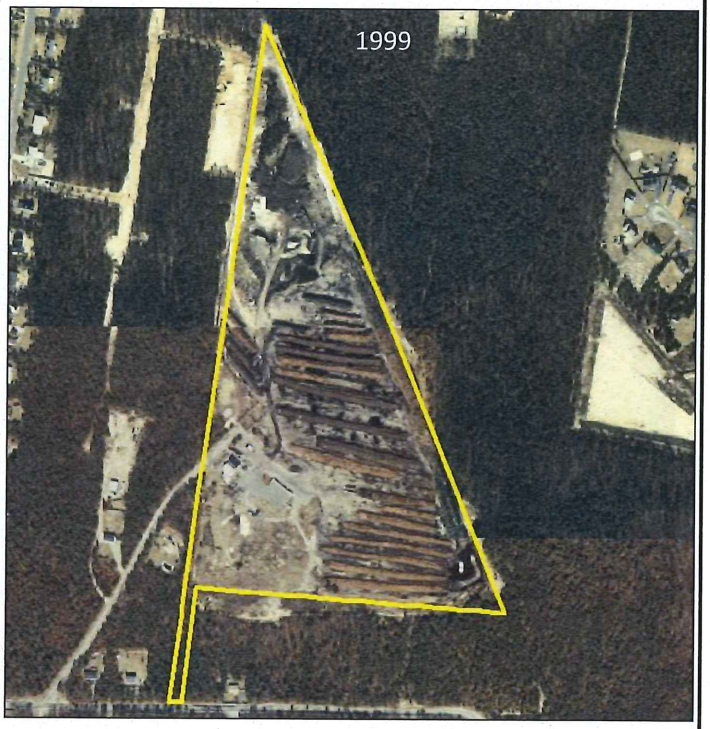




Site #3 – Papermill Road Facility, Manorville







Site #3 – Papermill Road Facility, Manorville

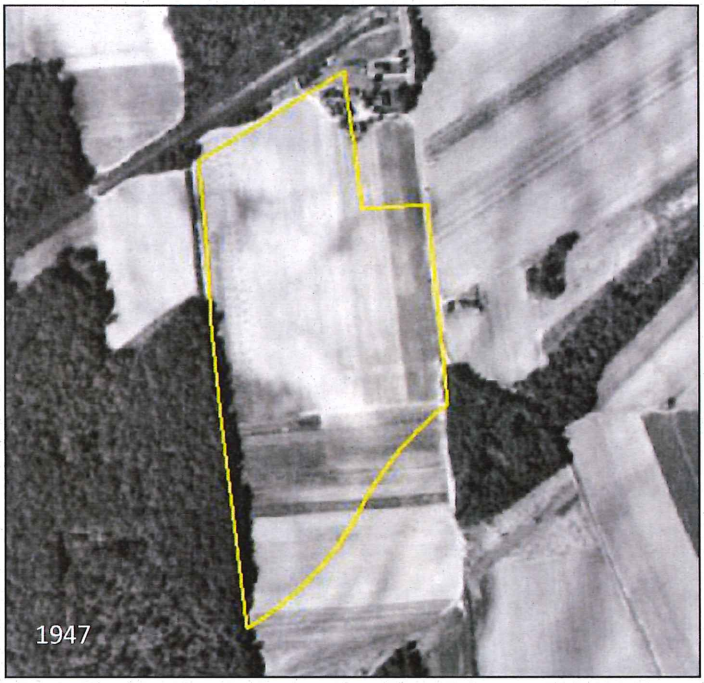
Appendix D

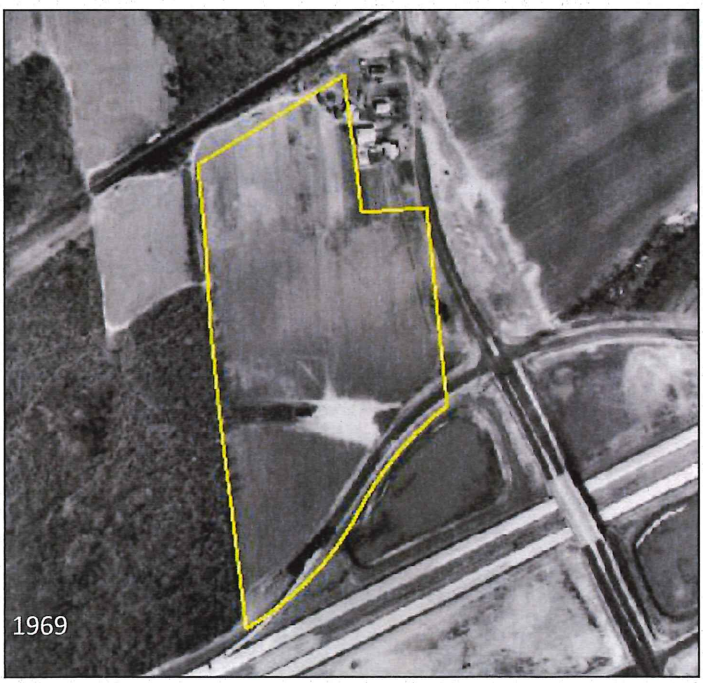
Site #4

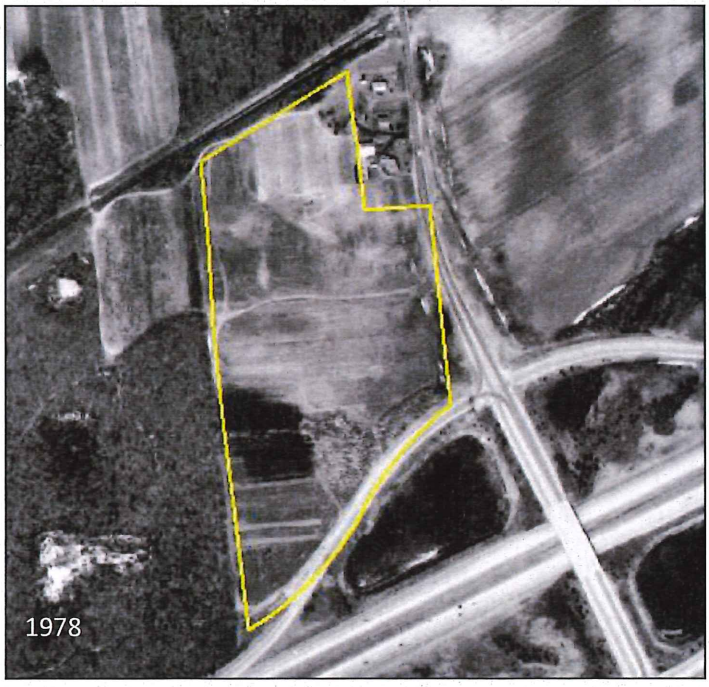
Exit 69 LIE Ramp

Yaphank, NY

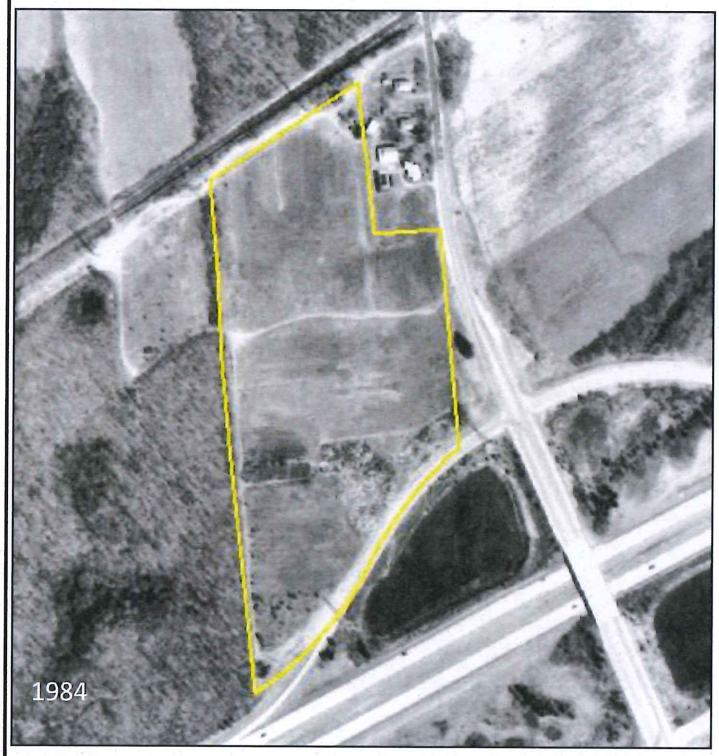
Site #4 – Exit 9 LIE Ramp, Yaphank

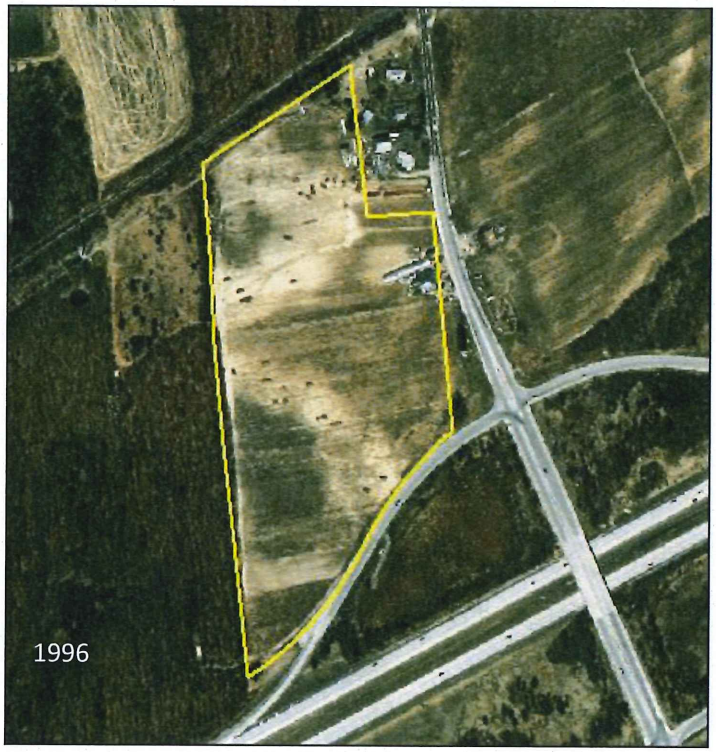




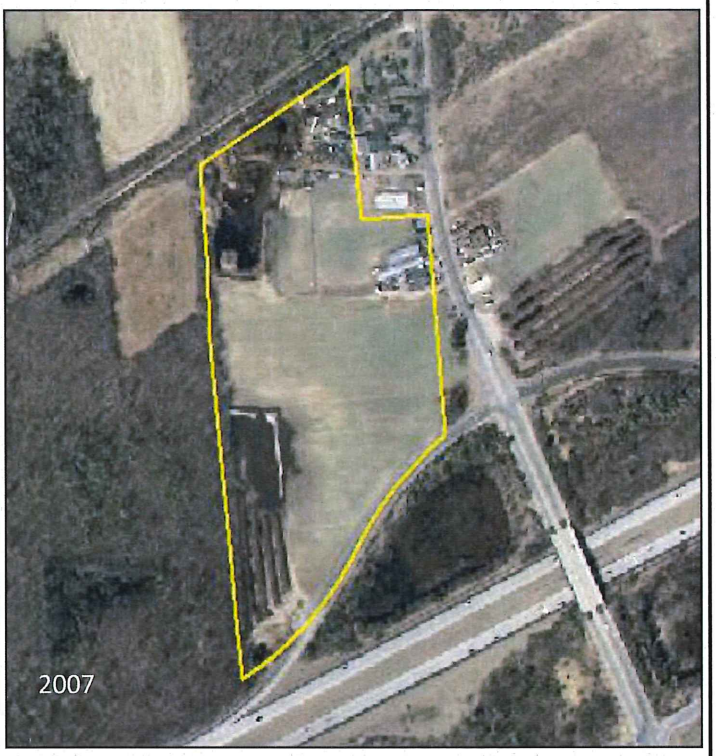


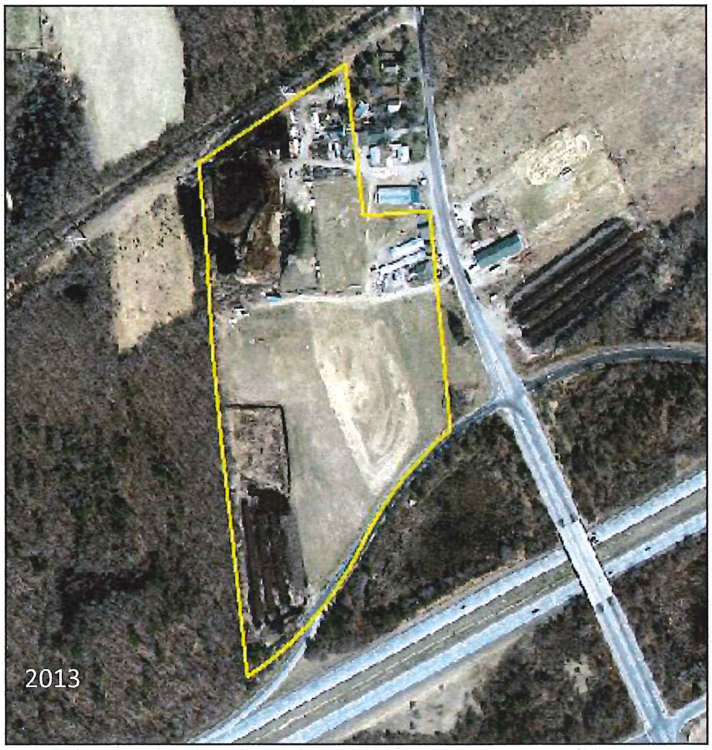
Site #4 – Exit 9 LIE Ramp, Yaphank





Site #4 – Exit 9 LIE Ramp, Yaphank





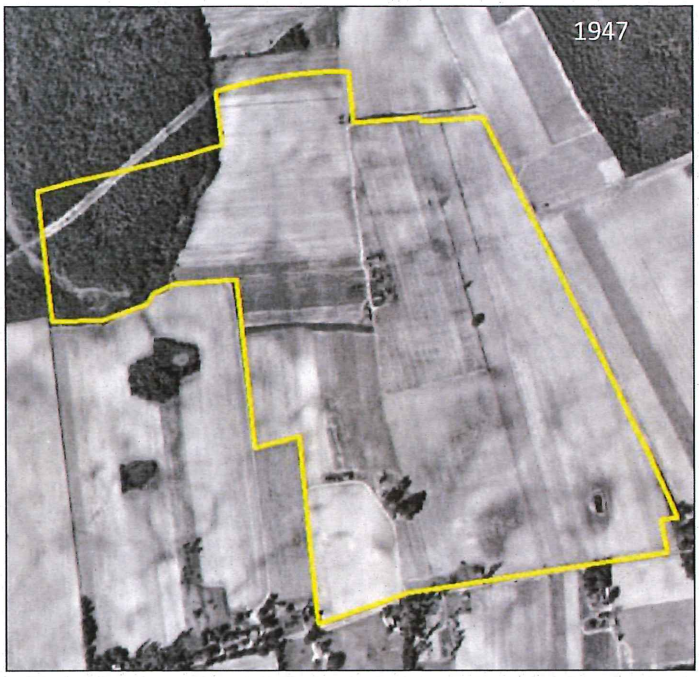
Appendix E

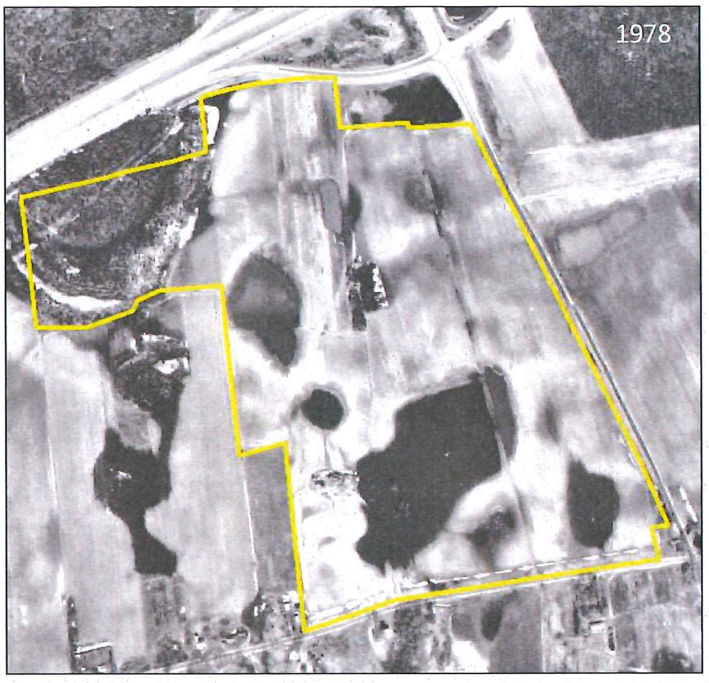
Site #5

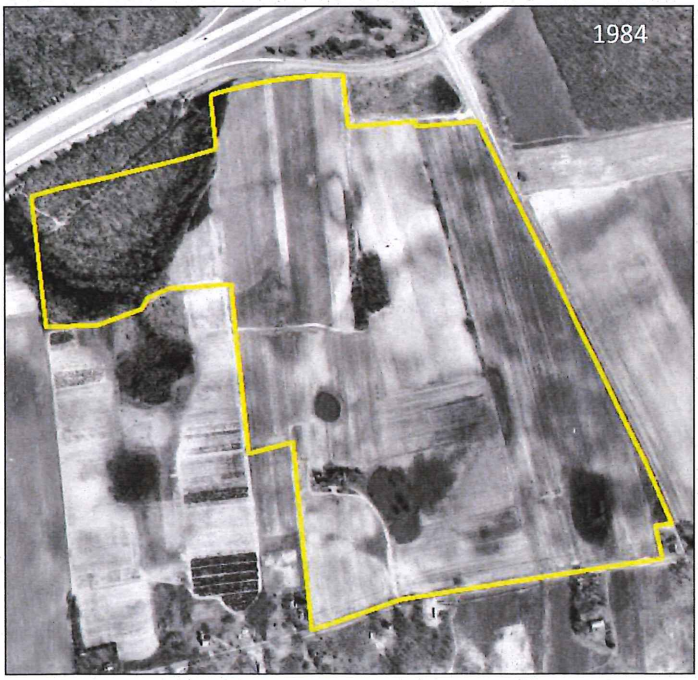
South Street Farm

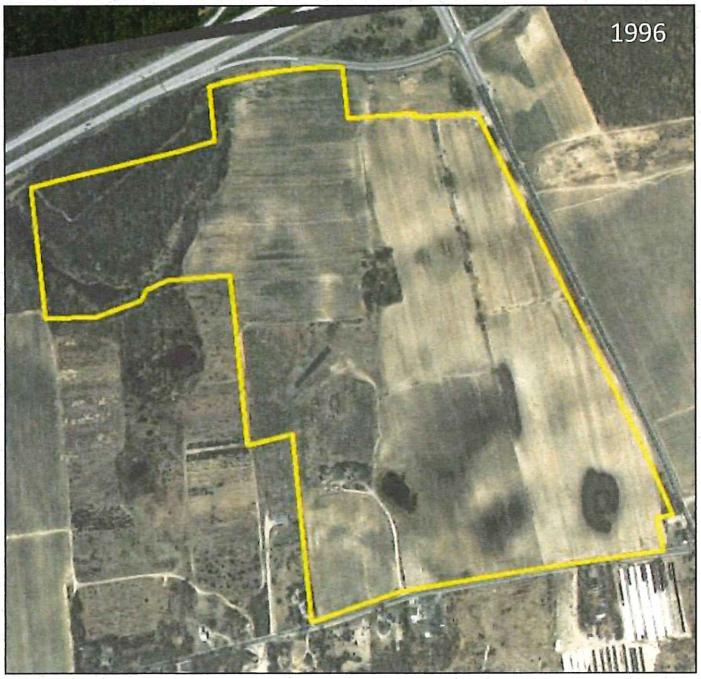
Manorville

Site #5 - South Street Farm, Manorville

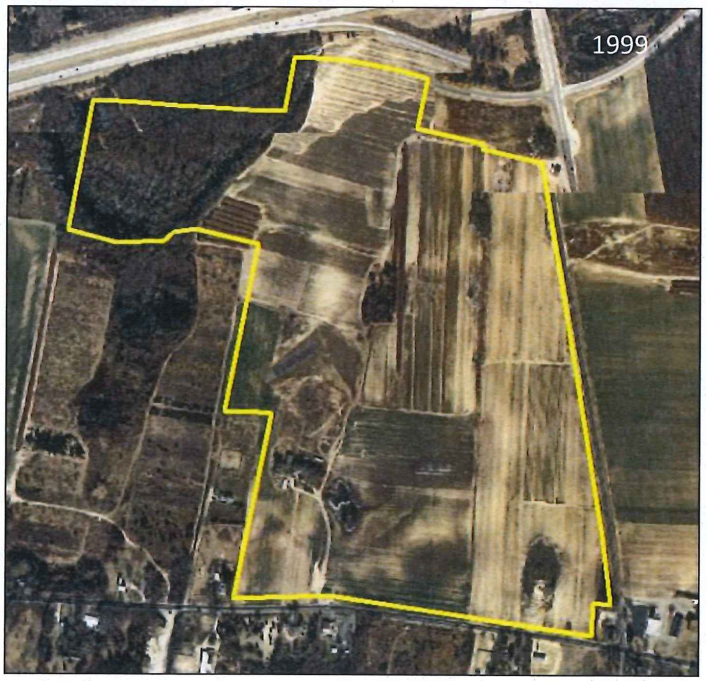


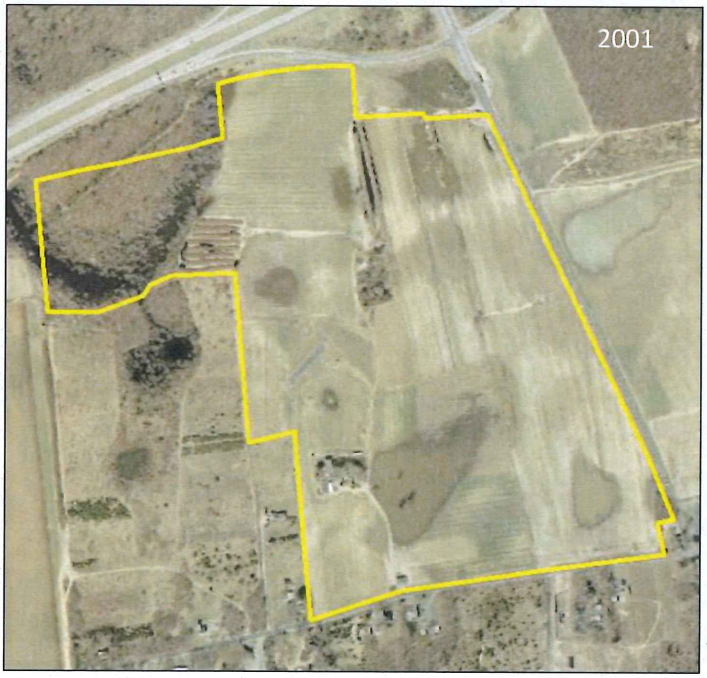


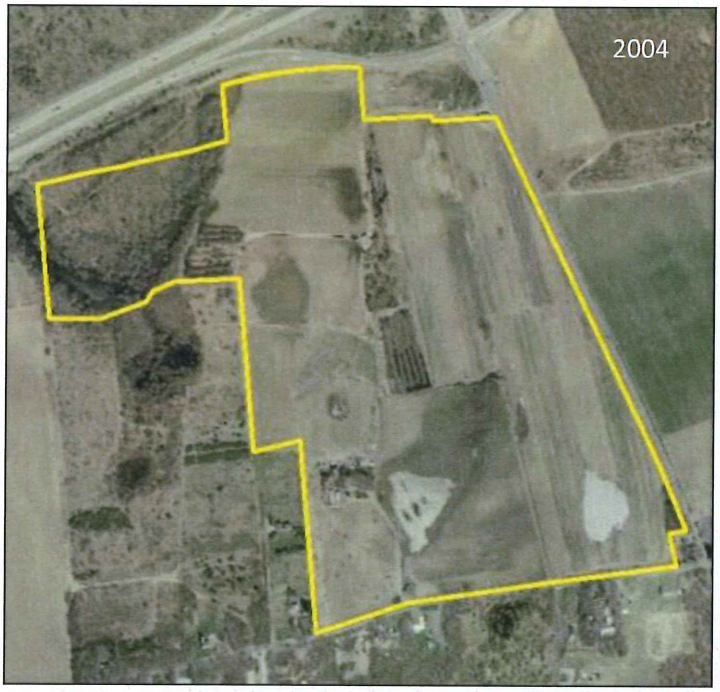


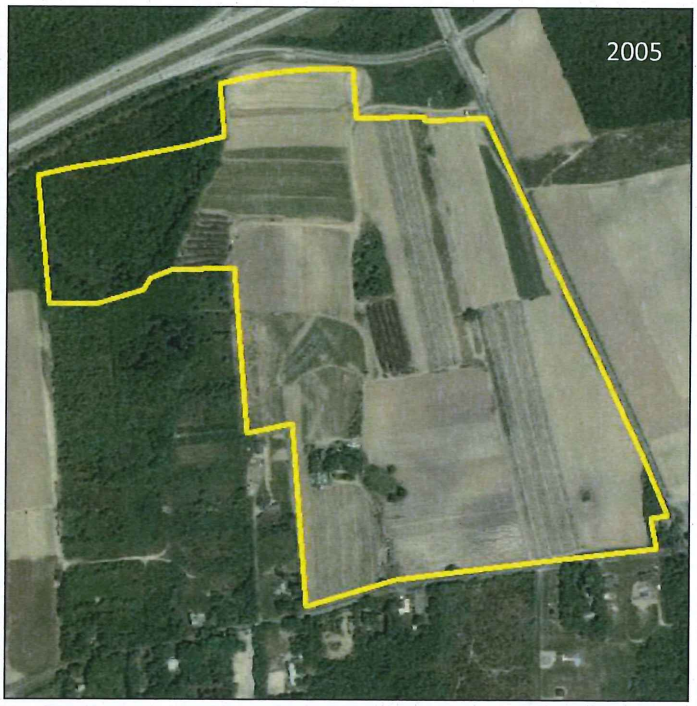


Site #5 - South Street Farm, Manorville

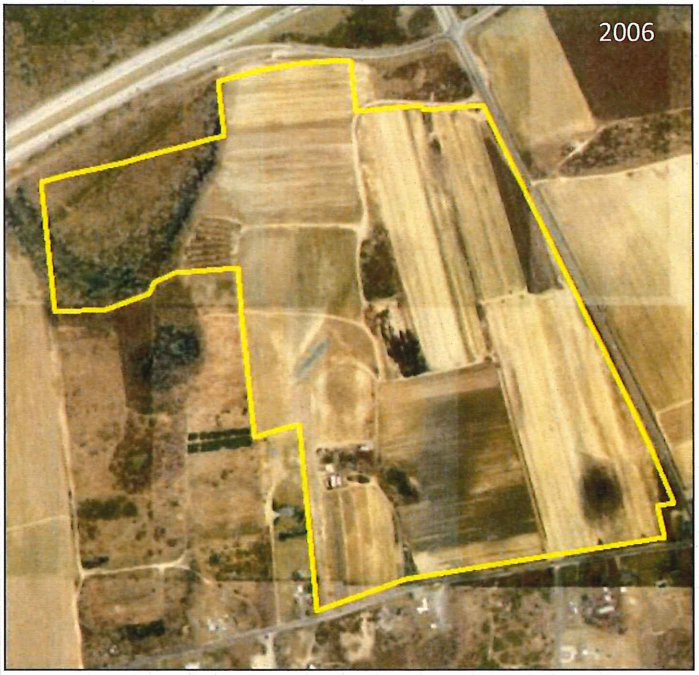


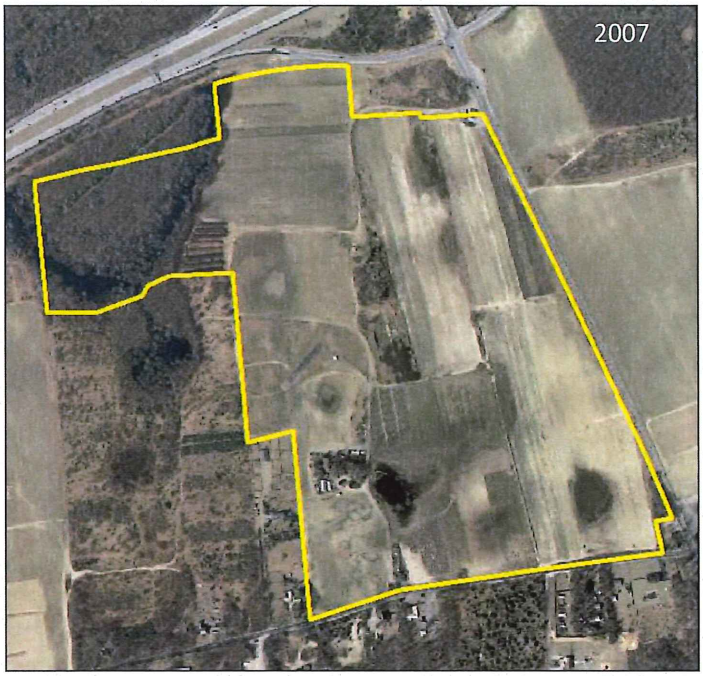


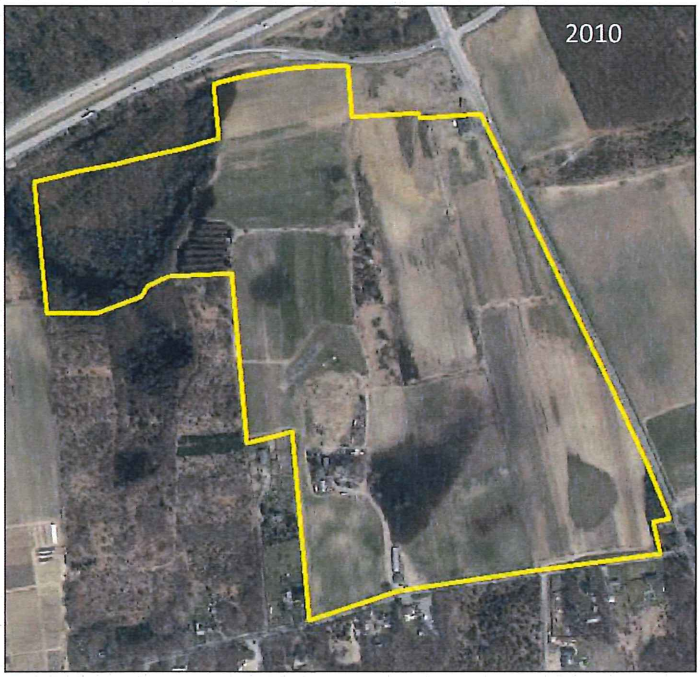


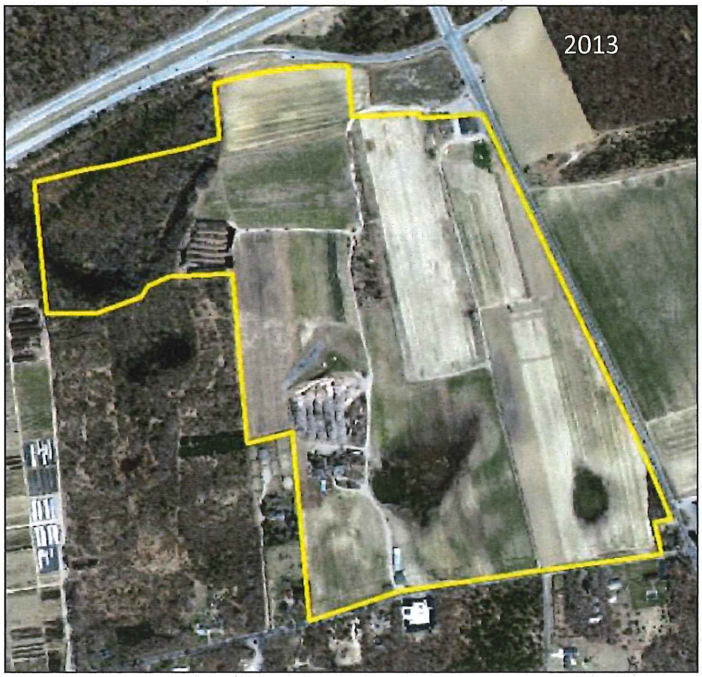


Site #5 - South Street Farm, Manorville





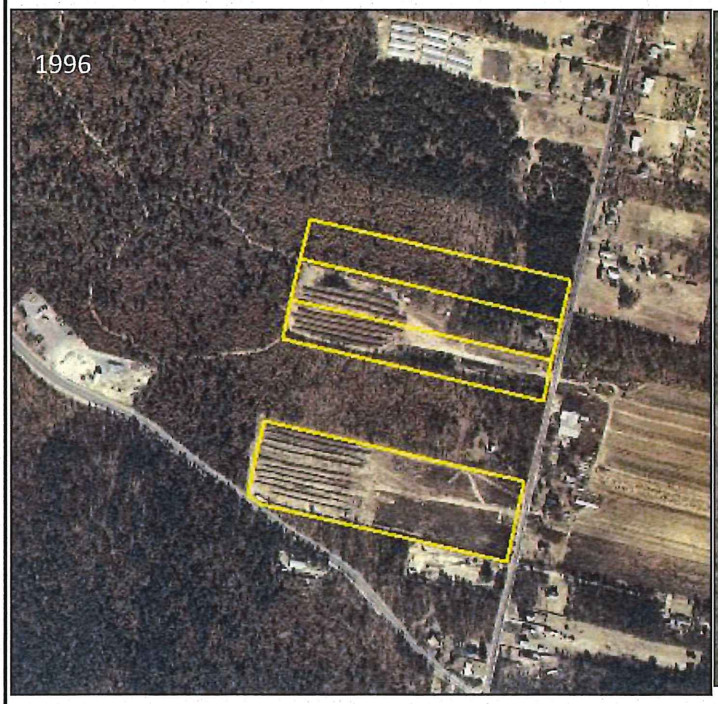


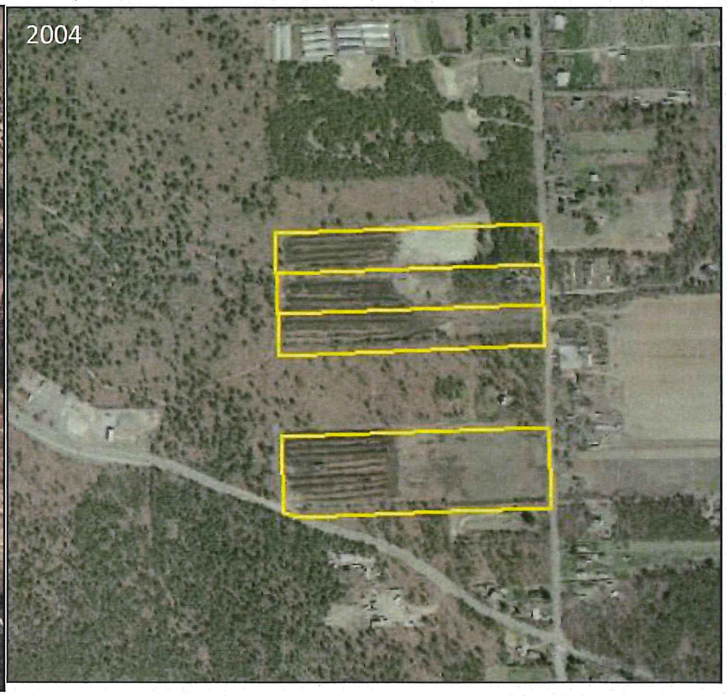


Appendix F

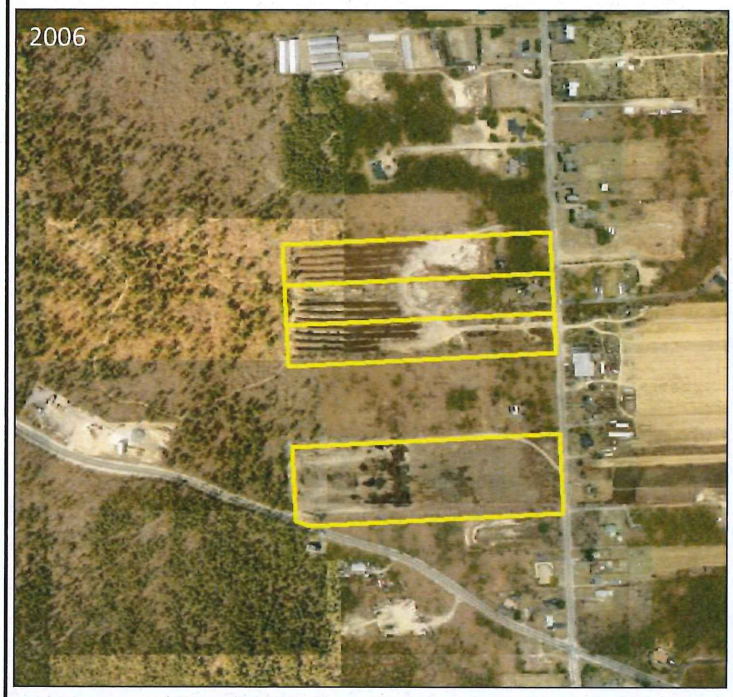
Site #6
Moriches –Yaphank Rd Farm
Moriches NY

Site #6 - Moriches-Yaphank Road Farm, Moriches





Site #6 - Moriches-Yaphank Road Farm, Moriches



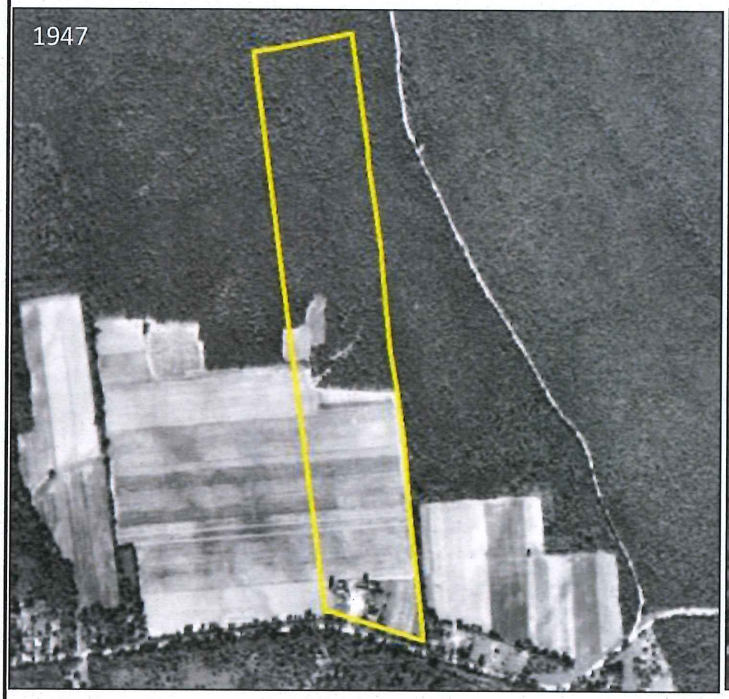
Appendix G

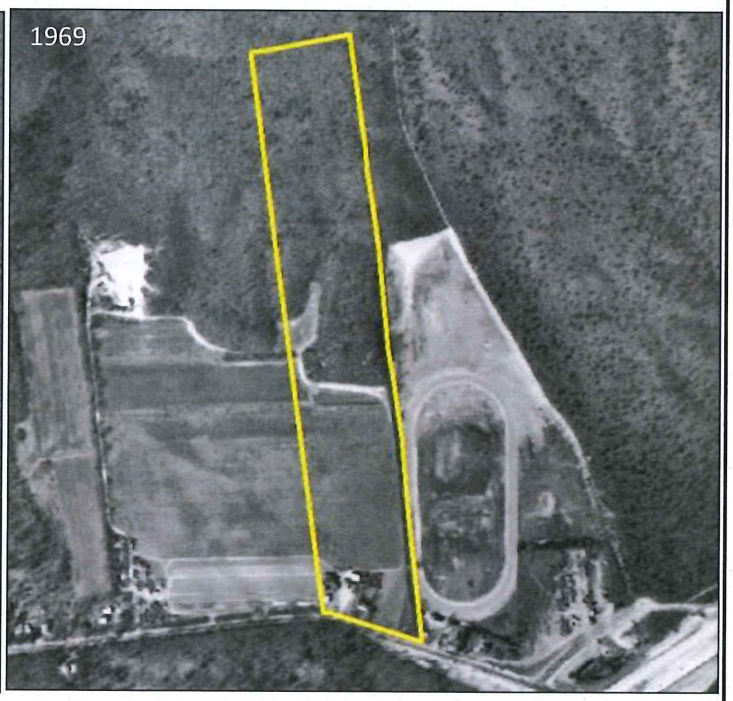
Site #7

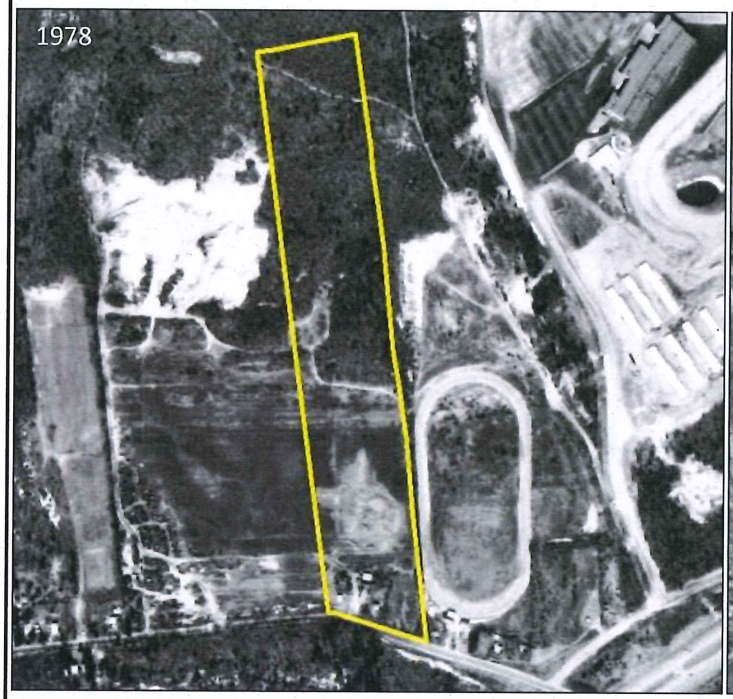
East Main St.

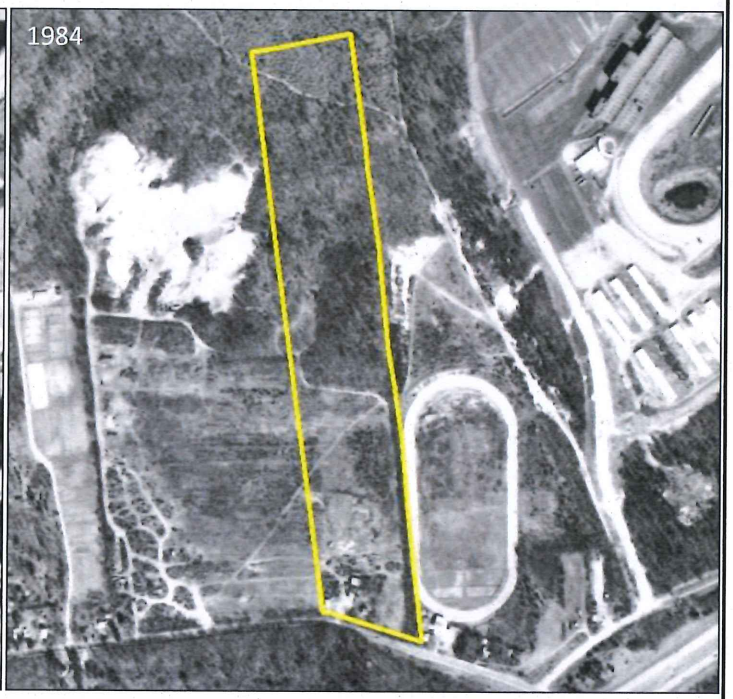
Yaphank, NY

Site #7 – East Main Street Site, Yaphank

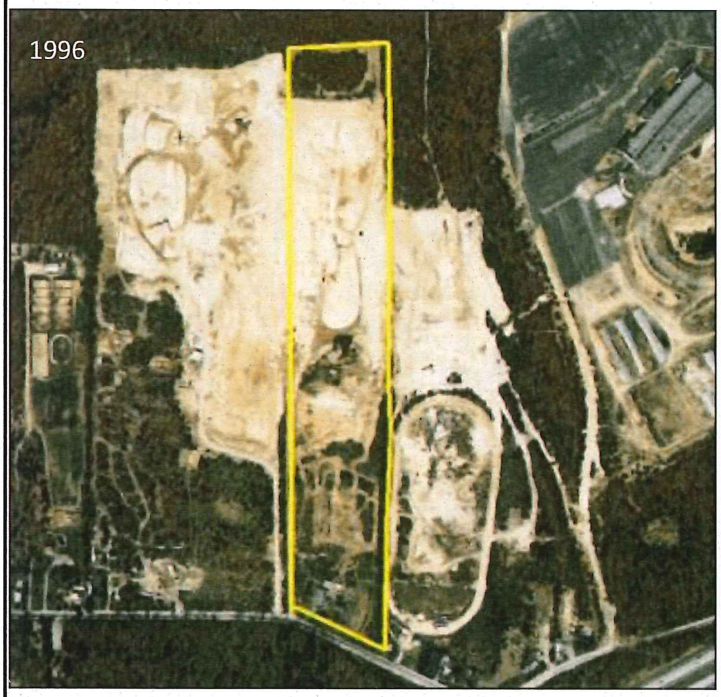


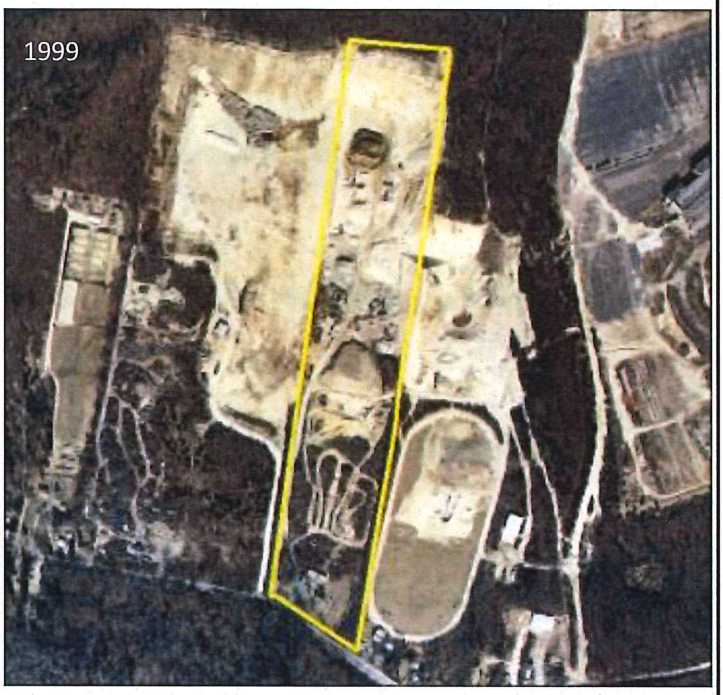






Site #7 – East Main Street Site, Yaphank





Site #7 – East Main Street Site, Yaphank

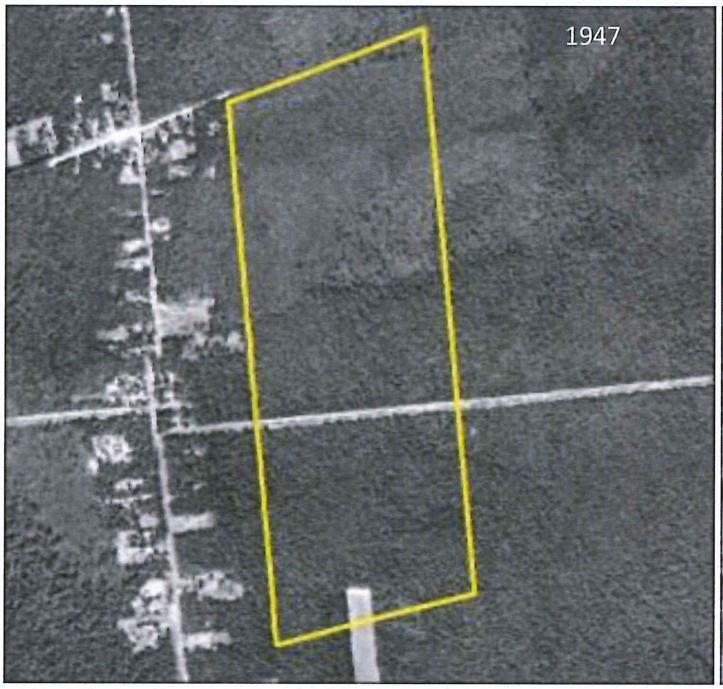
Appendix H

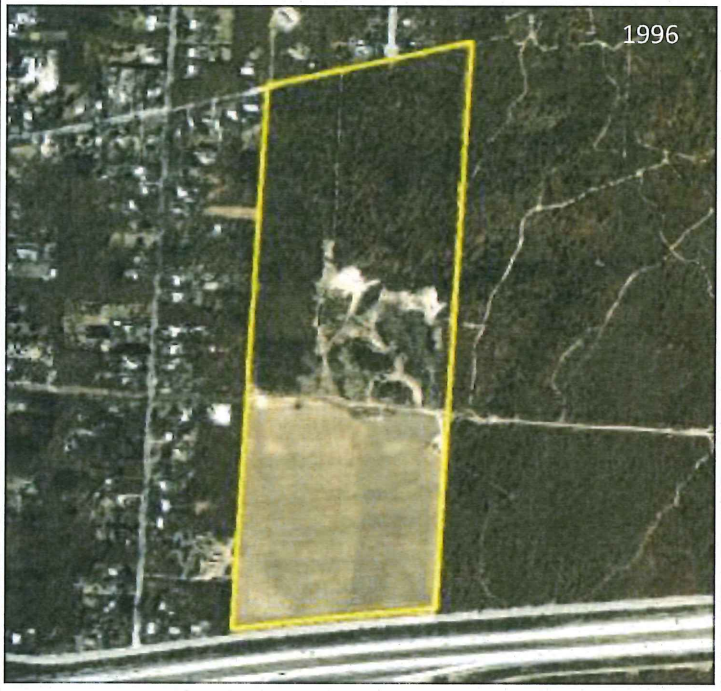
Site #8

LIE North Service Rd Farm

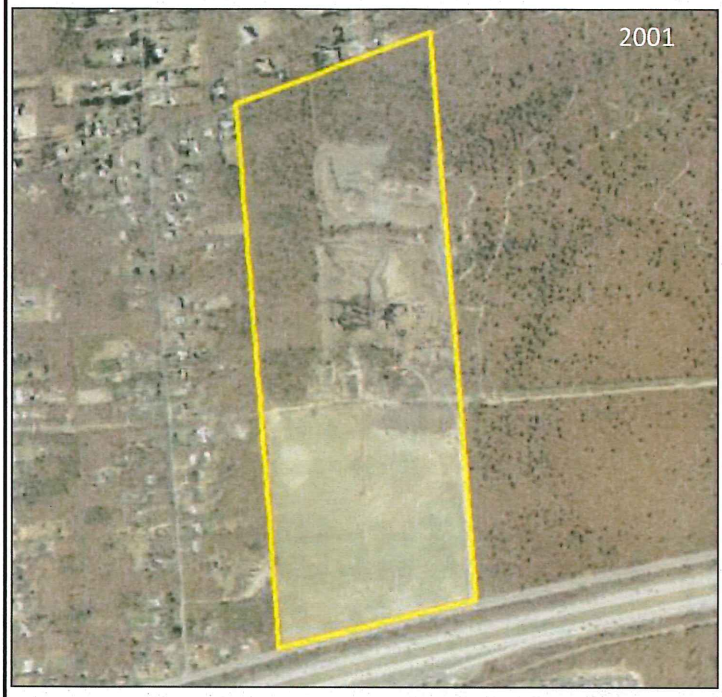
Yaphank, NY

Site #8 – LIE N. Service Rd Farm, Yaphank





Site #8 – LIE N. Service Rd Farm, Yaphank



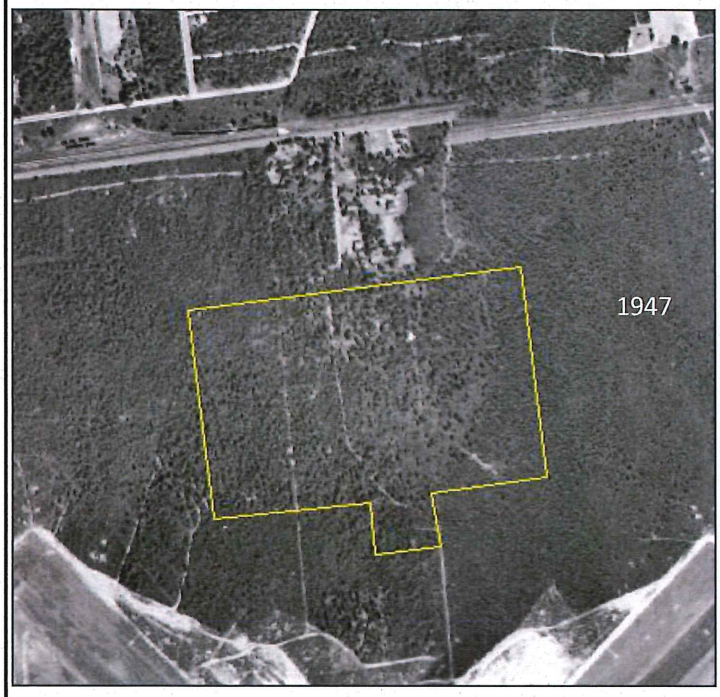
Appendix I

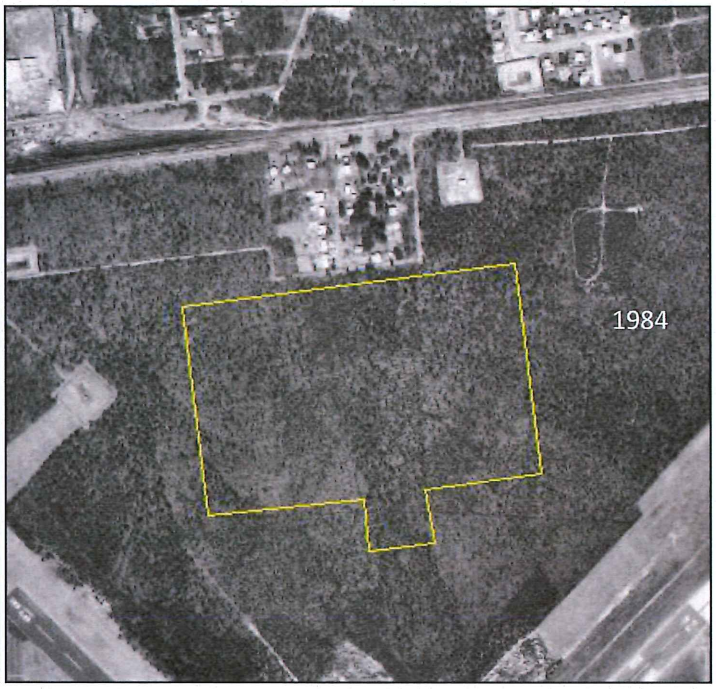
Site #9

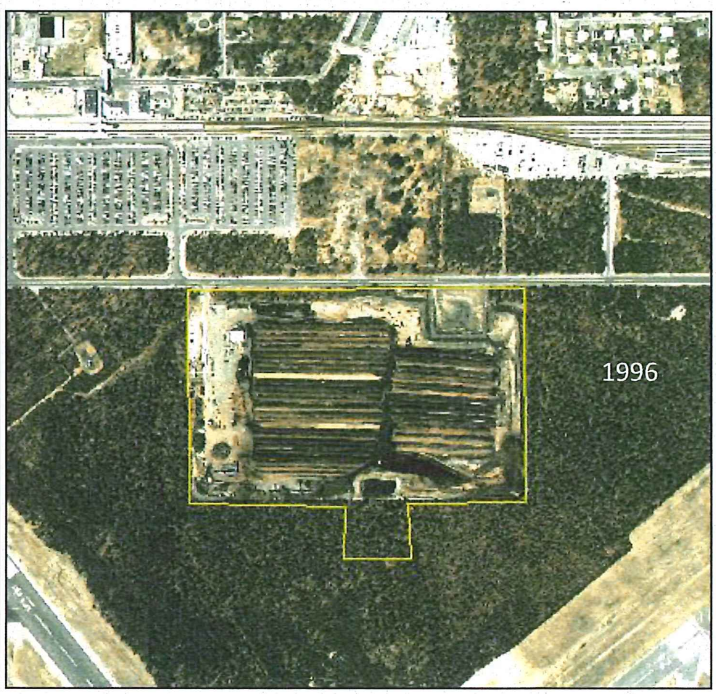
Islip Town Compost Facility

Ronkonkoma, NY

Site #9 – Islip Town Compost Facility, Ronkonkoma





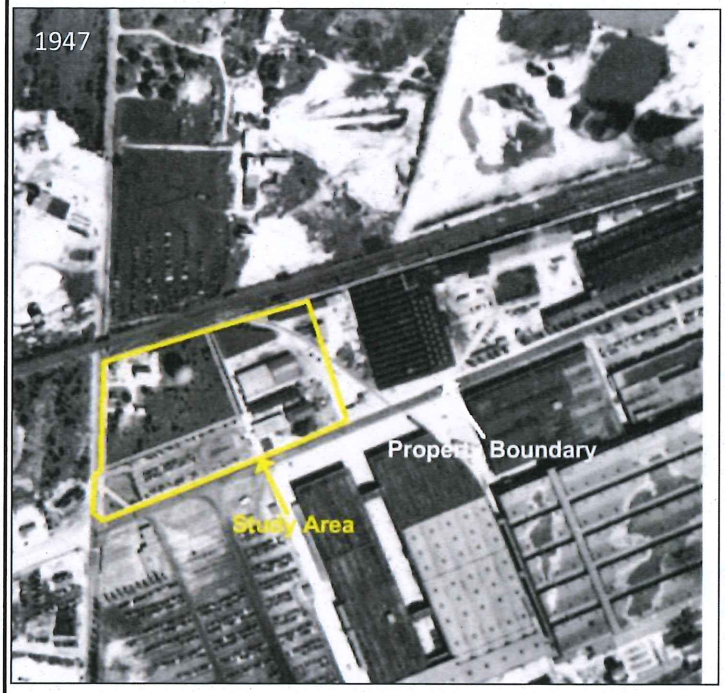


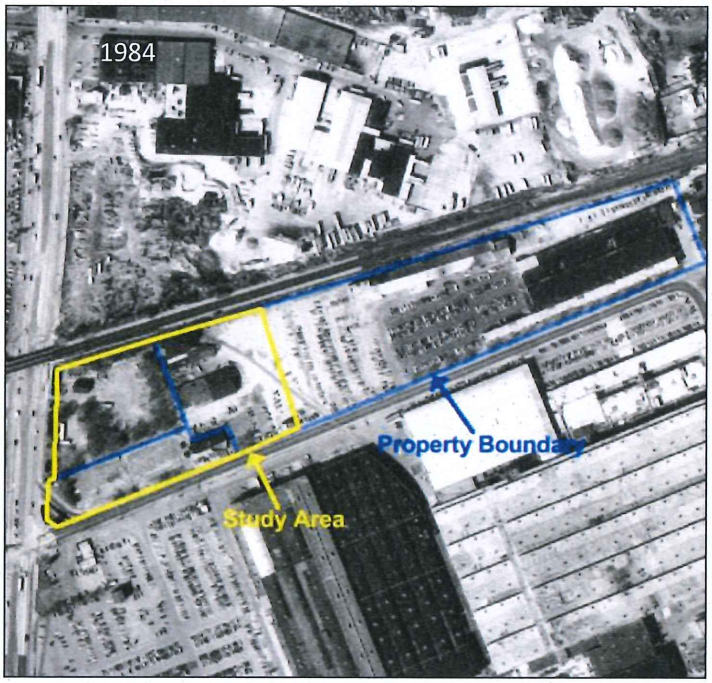
Site #9 – Islip Town Compost Facility, Ronkonkoma

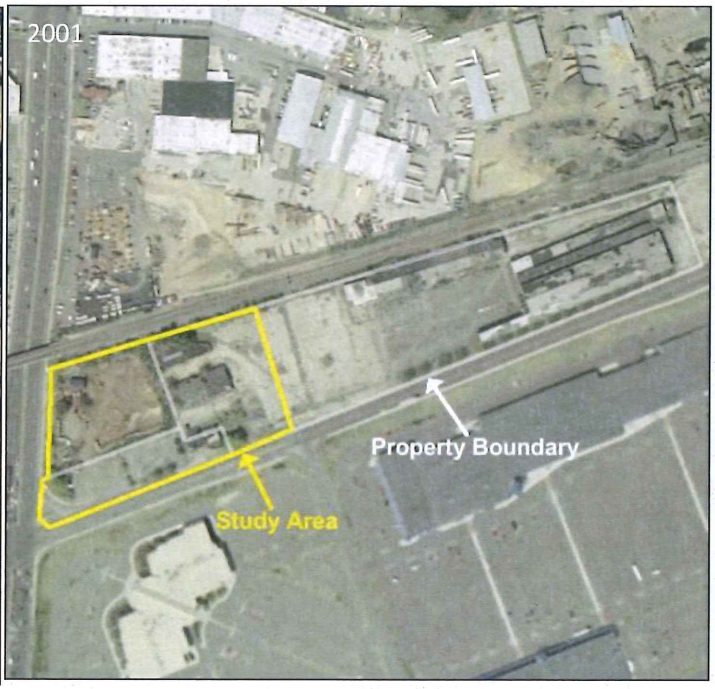
Appendix J

Site #10
Conklin Street
Farmingdale, NY

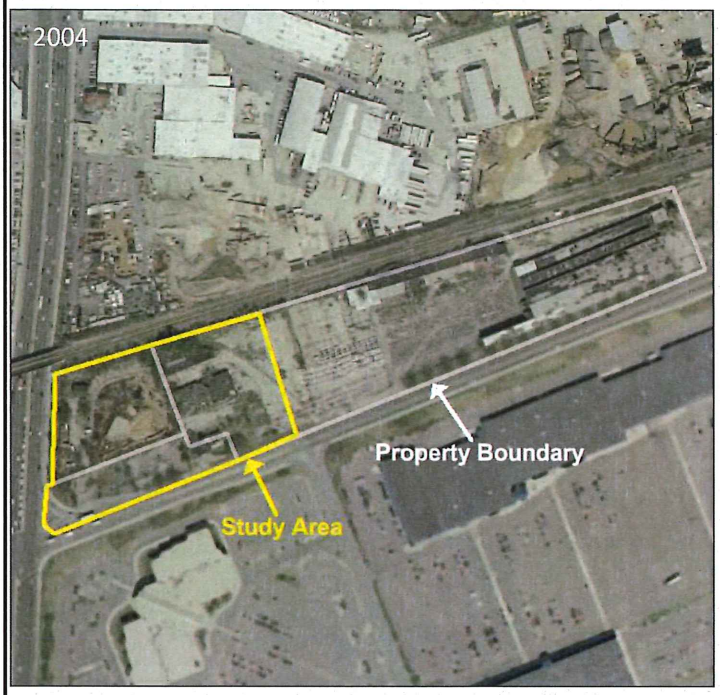
Site #10 – Conklin St, Farmingdale

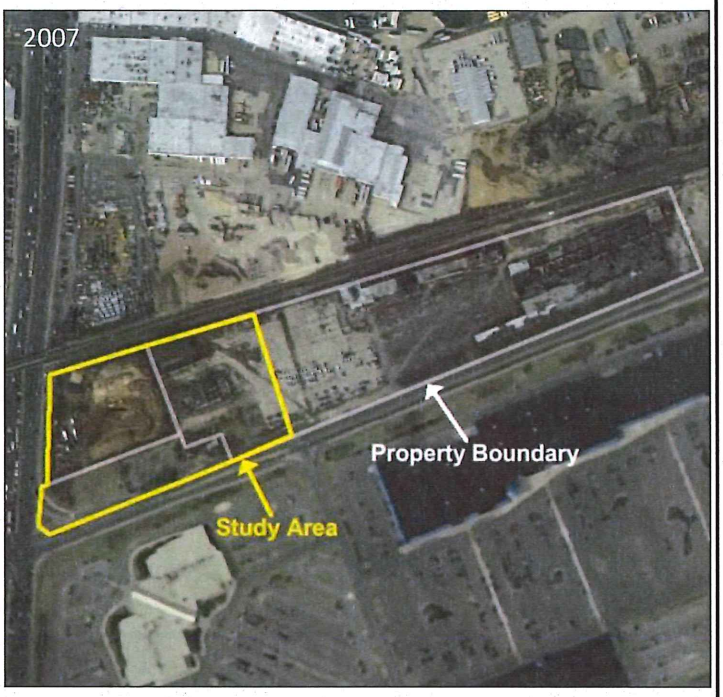


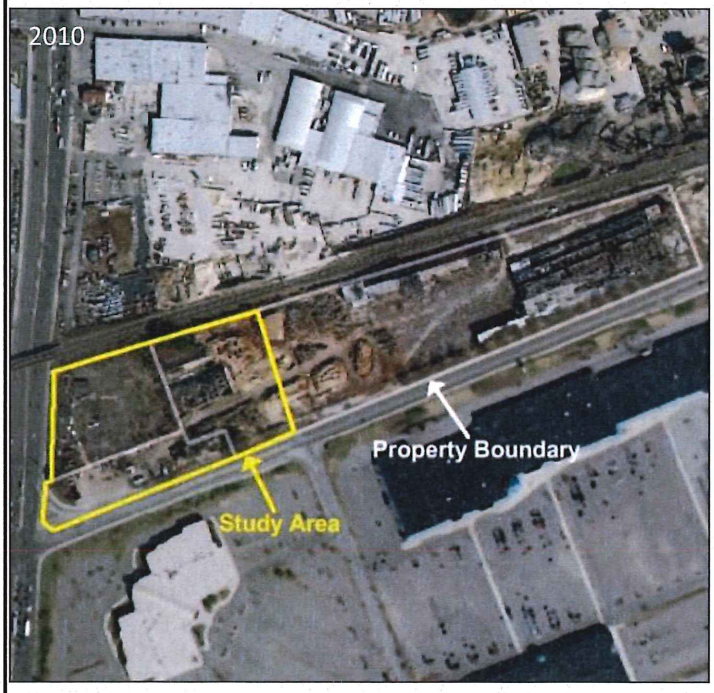


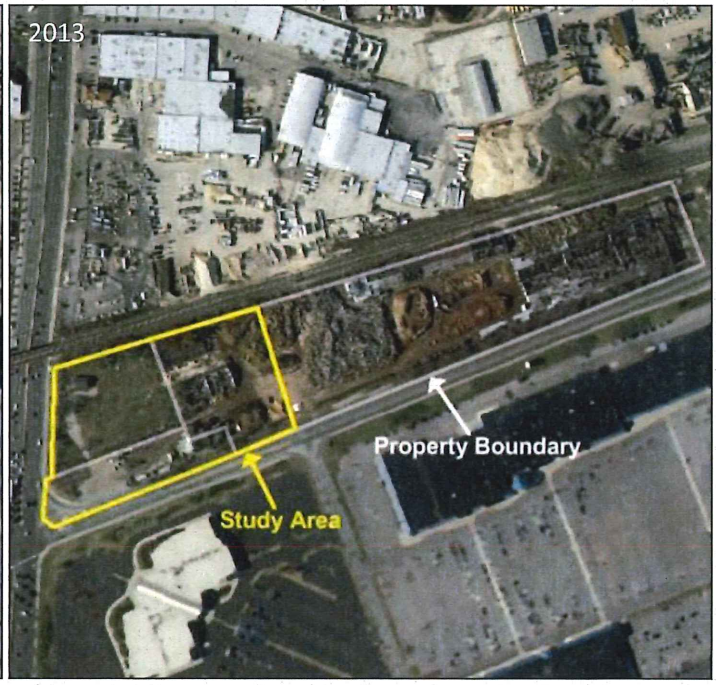


Site #10 – Conklin St, Farmingdale







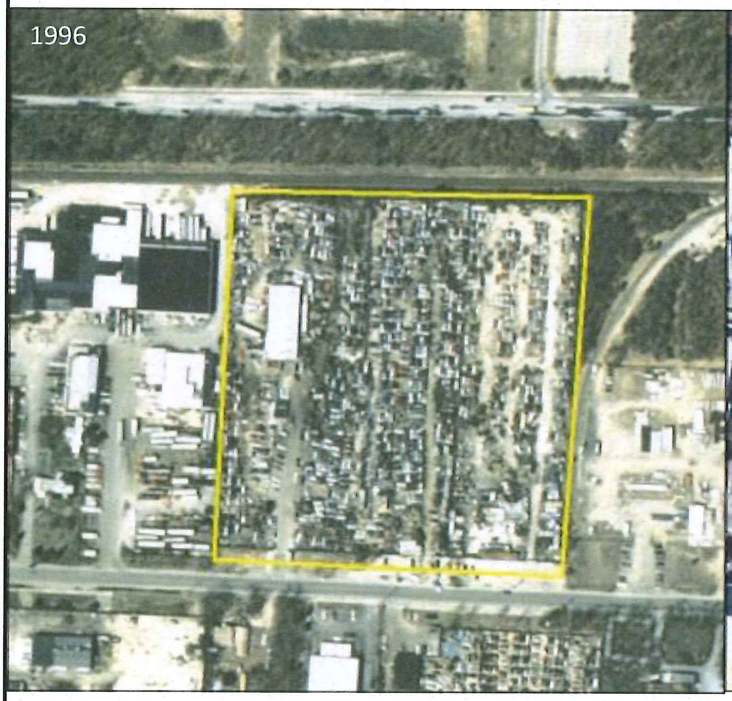


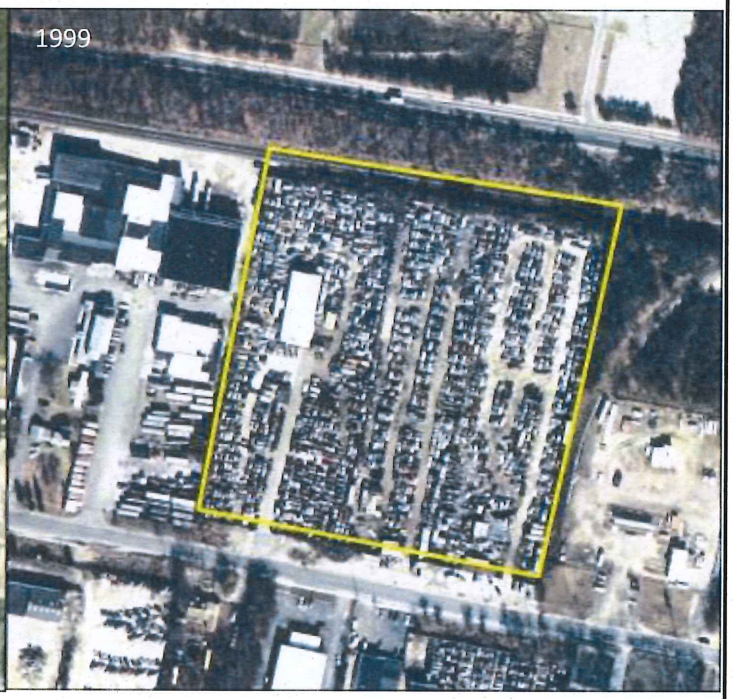
Appendix K

Site #11
Peconic Avenue
Medford, NY

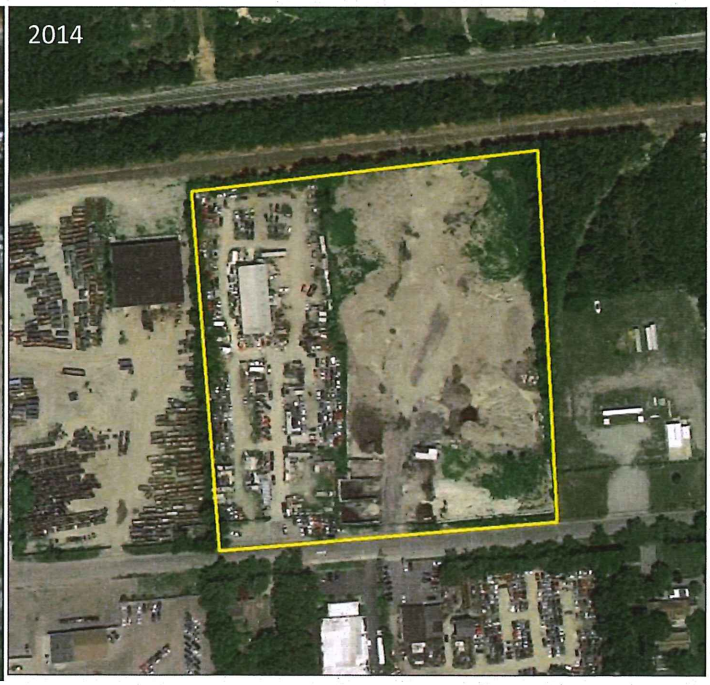
Site #11 –Peconic Ave Medford

Site #11 –Peconic Ave Medford





Site #11 –Peconic Ave Medford



Appendix L

SCDHS Analytical Parameters

Standard SCDHS Groundwater Analyte List

1,1,1,2-Tetrachloroethane ug/l
1,1,1-Trichloroethane ug/l
1,1,2,2-Tetrachloroethane ug/l
1,1,2-Trichloroethane ug/l
1,1-Dichloroethane ug/l
1,1-Dichloroethene ug/l
1,1-Dichloropropene ug/l
1,2,3-Trichlorobenzene ug/l
1,2,3-Trichloropropane ug/l
1,2,4,5-Tetramethylbenzene ug/l
1,2,4-Trichlorobenzene ug/l
1,2,4-Trimethylbenzene ug/l
1,2-Dibromo-3-chloropropane ug/l
1,2-Dichlorobenzene (o) ug/l
1,2-Dichloroethane ug/l
1,2-Dichloropropane ug/l
1,3,5-Trimethylbenzene ug/l
1,3-Dichlorobenzene (m) ug/l
1,3-Dichloropropane ug/l
1,4-Dichlorobenzene (p) ug/l
1,4-Dichlorobutane ug/l
17 alpha Ethynylestradiol ug/l
17 beta Estradiol ug/l
1-Bromo-2-chloroethane ug/l
1-Methylnaphthalene ug/l
2,2-Dichloropropane ug/l
2,3-Dichloropropene ug/l
2,6-Dichlorobenzamide ug/l
2-Bromo-1-chloropropane ug/l
2-Butanone (MEK) ug/l
2-Chlorotoluene ug/l
2-Methylnaphthalene ug/l
3-HYDROXY CARBO ug/l
4,4 DDD ug/l
4,4 DDE ug/l
4,4 DDT ug/l
4-Androstene-3,17-dione ug/l
4-Chlorotoluene ug/l
4-Hydroxyphenytoin ug/l
A.SULFONE ug/l
A.SULFOXIDE ug/l
Acenaphthene ug/l
Acenaphthylene ug/l
Acetaminophen ug/l
Acetochlor ug/l
Acrylonitrile ug/l
Alachlor ESA ug/l
Alachlor OA ug/l
Alachlor ug/l
Aldicarb ug/l
Aldrin ug/l
Allethrin ug/l
Allyl chloride ug/l
Alpha - BHC ug/l
Aluminum ug/l
Ammonia (not distilled) mg/l N
A-NAPHTHOL ug/l
Anthracene ug/l
Antimony ug/l
Arsenic ug/l
Atrazine ug/l
Azoxystrobin ug/l
Barium ug/l
Benfluralin ug/l
Benzene ug/l
Benzo(a)anthracene ug/l
Benzo(a)pyrene ug/l
Benzo(b)fluoranthene ug/l
Benzo(ghi)perylene ug/l
Benzo(k)fluoranthene ug/l
Benzophenone ug/l
Beryllium ug/l
Beta - BHC ug/l
bis(2-ethylhexyl) adipate ug/l
bis(2-ethylhexyl) phthalate ug/l
Bisphenol A ug/l
Bisphenol B ug/l
Bloc ug/l

Note: ug/l = microgram per liter; mg/l = milligram per liter

Bromacil ug/l
Bromide mg/l
Bromobenzene ug/l
Bromochloromethane ug/l
Bromodichloromethane ug/l
Bromoform ug/l
Bromomethane ug/l
Butachlor ug/l
Butyl benzyl phthalate ug/l
Butylated Hydroxyanisole ug/l
Butylated Hydroxytoluene ug/l
Cadmium ug/l
Caffeine ug/l
Calcium mg/l
Carbamazepine ug/l
CARBARYL ug/l
Carbazole ug/l
Carbofuran ug/l
Carbon disulfide ug/l
Carbon tetrachloride ug/l
Carisoprodol ug/l
CGA-354743 ug/l
CGA-37735 ug/l
CGA-40172 ug/l
CGA-41638 ug/l
CGA-51202 ug/l
CGA-67125 ug/l
Chlordane ug/l
Chloride mg/l
Chlorobenzene ug/l
Chlorodifluoromethane ug/l
Chloroethane ug/l
Chlorofenvinphos ug/l
Chloroform ug/l
Chloromethane ug/l
Chlorothalonil ug/l
Chloroxylenol ug/l
Chlorpyriphos ug/l
Chromium ug/l
Chrysene ug/l
cis-1,2-Dichloroethene ug/l
cis-1,3-Dichloropropene ug/l
Cobalt ug/l
Copper ug/l
Cyfluthrin ug/l
Cypermethrin ug/l
Dacthal ug/l
Delta - BHC ug/l
Deltamethrin ug/l
Dibenzo(a,h)anthracene ug/l
Dibromochloromethane ug/l
Dibromomethane ug/l
Dibutyl phthalate ug/l
Dichlobenil ug/l
Dichlorodifluoromethane ug/l
Dichlorvos ug/l
Dieldrin ug/l
Diethyl ether ug/l
Diethyl phthalate ug/l
Diethylstilbestrol ug/l
Diethyltoluamide (DEET) ug/l
Dimethyl phthalate ug/l
Dimethyldisulfide ug/l
Dinoseb ug/l
Dioctyl phthalate ug/l
Disulfoton sulfone ug/l
Disulfoton ug/l
Diuron ug/l
d-Limonene ug/l
Endosulfan I ug/l
Endosulfan II ug/l
Endosulfan Sulfate ug/l
Endrin Aldehyde ug/l
Endrin ug/l
EPTC ug/l
Estrone ug/l
Ethenylbenzene (Styrene) ug/l
Ethofumesate ug/l

Note: ug/l = microgram per liter; mg/l = milligram per liter

Ethyl parathion ug/l
Ethylbenzene ug/l
Ethylene dibromide ug/l
Ethylmethacrylate ug/l
Etofenprox alpha-CO ug/l
Etofenprox ug/l
Fluoranthene ug/l
Fluorene ug/l
Fluoride mg/l
Freon 113 ug/l
G-28273 ug/l
G-28279 ug/l
G-30033 ug/l
G-34048 ug/l
Gamma - BHC ug/l
Gemfibrozil ug/l
Germanium ug/l
Gross Alpha E pCi/l
Gross Beta pCi/l
Heptachlor Epoxide ug/l
Heptachlor ug/l
Hexachlorobenzene ug/l
Hexachlorobutadiene ug/l
Hexachlorocyclopentadiene ug/l
Hexachloroethane ug/l
Hexavalent Chromium ug/l
Hexazinone ug/l
Ibuprofen ug/l
Imidacloprid ug/l
Imidacloprid Urea ug/l
Indeno(1,2,3-cd)pyrene ug/l
Iodofenphos ug/l
Iprodione ug/l
Iron (Ferric) mg/l
Isobutane ug/l
Isofenphos ug/l
Isopropylbenzene ug/l
Kelthane ug/l
Lead ug/l
Lithium ug/l
m,p-Xylene ug/l
Magnesium mg/l
Malaoxon ug/l
Malathion ug/l
Manganese ug/l
MBAS (Low Sensitivity) mg/l
Mercury ug/l
Metalaxyl ug/l
Methacrylonitrile ug/l
METHIOCARB SULFONE ug/l
METHIOCARB ug/l
METHOMYL ug/l
Methoprene ug/l
Methoxychlor ug/l
Methyl isothiocyanate ug/l
Methyl parathion ug/l
Methyl sulfide ug/l
Methylene chloride ug/l
Methylmethacrylate ug/l
Methyl-tertiary-butyl-ether ug/l
Metolachlor ug/l
Metribuzin ug/l
Molybdenum ug/l
MONO METHYL ug/l
Naled (Dibrom) ug/l
Naphthalene ug/l
Napropamide ug/l
n-Butane ug/l
n-Butylbenzene ug/l
Nickel ug/l
Nitrate mg/l N
Nitrite mg/l N
n-Propylbenzene ug/l
Ortho-Phosphate mg/l P
OXAMYL ug/l
o-Xylene ug/l
p-Diethylbenzene ug/l
Pendimethalin ug/l

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Pentachlorobenzene ug/l
Pentachloronitrobenzene ug/l
Perchlorate ug/l
Permethrin ug/l
Phenanthrene ug/l
Phenytoin (Dilantin) ug/l
Picaridin ug/l
Piperonyl butoxide ug/l
p-Isopropyltoluene ug/l
Potassium mg/l
Prallethrin ug/l
Prometon ug/l
Prometryne ug/l
Propachlor ug/l
Propamocarb hydrochloride ug/l
Propanal ug/l
Propiconazole (TILT) ug/l
PROPOXUR ug/l
Pyrene ug/l
Resmethrin ug/l
Ronstar ug/l
sec-Butylbenzene ug/l
Selenium ug/l
Siduron ug/l
Silver ug/l
Simazine ug/l
Sodium mg/l
Strontium ug/l
Sulfate mg/l SO4
Sumithrin ug/l
TCTP ug/l
Tebuthiuron ug/l
Tellurium ug/l
Terbacil ug/l
tert-Butylbenzene ug/l
Tetrachloroethene ug/l
Tetrahydrofuran ug/l
Thallium ug/l
Thorium ug/l
Tin ug/l
Titanium ug/l
Toluene ug/l
Total Xylene ug/l
trans-1,2-Dichloroethene ug/l
trans-1,3-Dichloropropene ug/l
Triadimefon ug/l
Trichlorfon ug/l
Trichloroethene ug/l
Trichlorofluoromethane ug/l
Triclosan ug/l
Trifluralin ug/l
Tritium pCi/l
Uranium ug/l
Vanadium ug/l
Vinclozolin ug/l
Vinyl chloride ug/l
Zinc ug/l

Note: ug/l = microgram per liter; mg/l = milligram per liter

Sayers, Margery

From: Kim Bucci <kbucci8589@gmail.com>
Sent: Tuesday, July 11, 2017 8:49 AM
To: CouncilMail
Subject: No Industrial Mulch

We are very concerned with CB60 which will allow for industrial mulching and composting on ag preserve farmland and on all of RR/RC throughout Howard County. The current zoning language contained in CB60 is unacceptable and not only puts the rural communities at risk for well-documented safety and health concerns from industrial mulching, but now also makes this a countywide issue.

As it currently reads, there are clear loopholes that will allow those posing as tree farmers to conduct industrial mulching activities from 2 acres up to 5 acres, depending on whether on Howard County ag (ALPP), RR or RC parcels. This will result in unacceptable risks to ensuring the well-being of children, families and all individuals living in affected areas. Furthermore, DPZ has demonstrated a clear inability to enforce clear violators of CB20. We now ask, how can DPZ protect our families when loopholes in CB60 will allow for industrial mulching to occur, making enforcement even more challenging?

County Executive Kittleman, through CB60 introduced on his behalf, has simply not keep to his campaign promise to ensure that there is no possibility of industrial mulching on both Howard County and State of MD ag preserve parcels, despite his recent claims to the contrary. There is no separate section in CB60 that deals with State of MD ag (MALPF) restrictions (only Howard County ag). We worked hard to get State of MD ag restrictions included in the current zoning language for CB20 and are disappointed that it has been omitted from CB60.

There are many other key amendments needed in CB60 to make it acceptable to the health and well-being of thousands of families throughout Howard County. We are counting on the County Council to course correct with amendments added to CB60 to clearly prevent any chance of industrial mulch facilities from operating throughout farmland in Howard County, other than in M1/M2 commercially zoned land. This is the only way our Councilmembers will ensure everyone in potentially affected areas continues to be protected by current zoning regulations defined in CB20. Please take this matter seriously and add needed amendments to CB60 that we feel is unacceptable as it now stands.

Thank you.

Kim Bucci

Sayers, Margery

From: David Smith <dosmith99@gmail.com>
Sent: Tuesday, July 11, 2017 8:34 AM
To: CouncilMail
Subject: Opposition to CB60 Without Major Amendments

County Council,

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A very concerned Howard County Citizen,

David Smith

Sayers, Margery

From: Colleen Retzbach <Colleen_Retzbach@hcpss.org>
Sent: Sunday, July 09, 2017 10:34 PM
To: CouncilMail
Subject: Please no mulching in Dayton it's dangerous for our children

Dayton Rural Preservation Society
Supporting the preservation of rural farmland in HoCo, Md

- Home
- Letter from President
- Task Force
- Our Concerns
- Help Preserve Dayton
- More

NO Industrial Mulch
on Maryland and Howard County Ag!

June 29, 2017 - Community Meeting Presentation

Welcome, Preservers!

We are proud to represent our Howard County, Maryland community in preventing industrial mulch and compost businesses from moving onto or operating on Agricultural Preservation farmland.

Spring of 2014, we had a glorious victory with Council Bill 20-2014.

Fall of 2014, we were able to ensure an illegally operating mulch and compost business on Maryland Ag Preserve farmland was shut down.

Now, we face a new wave of push back from the industrial mulch businesses and their supporters. We just wrapped up the Mulch Task Force and our community report is ready for review complete with evidence supporting why industrial mulch/compost does not belong on Ag Preserve farmland in our rural communities but rather in industrial zoned areas of Maryland.

No More Industrial Mulch Operations on
Maryland Ag Preserve or Howard County Ag Preserve
in all of Howard County!

Council Bill 20's intent was to shut down the Woodbine industrial mulch facility on State Ag Preserve farmland and prevent future industrial mulch facilities in Dayton, Sykesville and any Howard County ag preserve land.

Task Force created in June 2014 was to tweak necessary language in Council Bill 20 that would ensure true farming operations remain supported.

We've had two huge victories, BUT
this fight is not over!

Now there is ZRA 180 or CB60 as it is now called.
We must not allow CB60 to pass as it is. It must have MAJOR amendments in order to pass!

We need you the community to rise up again and voice your concerns for safety, health and contamination of our water supply, etc... by the industrial process of mulching and composting. Our supporters include farmers and residents in Howard County and beyond. Our farmers only want the ability to mulch/compost made from their farm and used on their farm. Trucking in and out waste for resale is a business and belongs only in the State of Maryland's industrial zoned properties M1/M2 and NOT on farmland in Howard County owned by the county or owned by the state!

ACTION is needed now!
SUPPORT LETTER: Sierra Club of Maryland,
Howard County chapter (2014)

Agricultural Preservation in HoCo is at risk!

Robert Orndorff/RLO Contractors petitioned to move 16 acres of industrial mulching and composting of off-site materials from Route 1 to Dayton Ag Preserve farmland risking our safety, health, environment, house values, and quality of life as rural residents. This effort was stopped by the passing of CB 20-2014 in June

2014. However, Mr. Orndorff purchased the Muth farm in February 2014 for this purpose and we will watch any attempt to use that property for anything other than true farming operations.

Woodbine: An illegally operating mulch grinding facility on State Ag Preserve was shut down by HoCo DPZ after being in violation of MDE's requirement to have an NWWR license to operate such a facility and for seven years illegally operating on Ag Preserve farmland instead of M1 or M2 zoned properties.

We have stayed on these issues and CB 60-2017 is attempting to undo the efforts of CB-20-2014! We won't let this happen and we will preserve Dayton and surrounding farmland communities in Howard County, Maryland.

Do you want...
- up to 50 large semi and commercial trucks on our rural roads per day?
- to jeopardize the safety of our school children, runners, cyclists?
- groundwater and air contamination threatening your family's health?
- overbearing odor for miles reaching your property and the school yard?
- mulch-grinder, back-up vehicle beepers and "Jake Brake" truck noises?
- large industries moving onto our local farms?

If not, we urge you to join our efforts!

We **must protect** Howard County farmland and make MAJOR amendments to the currently proposed CB 60-2017.

OUR CHALLENGE IS THIS COMING BACK...

<u>JBRK, LLC/Orndorff Project 2014 Proposal:</u>
Industrial Mulch Manufacturing, Soil Processing and Composting Facility

on Dayton agricultural preservation farmland

Site: Green Bridge Road, Dayton, Maryland

Bob Orndorff still owns the Dayton farm!

Help DRPS to Preserve Dayton

Donate ~ Join our Email list ~ Like us on Facebook ~ Follow us on Twitter
Knock on Doors ~ Post Flyers ~ Volunteer your Time and Talent!!

Howard County has added to over 21,000 acres of permanently preserved farmland in Howard County's Rural West.

County Executive Kittleman made a strong campaign promise back in 2014 when we gave him a platform to voice his position on the issue of industrial mulching. He publicly stated:

"In response to your inquiry regarding industrial mulching on agricultural farm land, I can unequivocally state that I am opposed. There have been three major public hearings on this issues: one at Dayton Oaks Elementary School, one in Sykesville and another at the Ten Oaks Ballroom with an estimated attendance of over five hundred, where I stated that I firmly opposed industrial mulching. As County Executive, I will actively continue my opposition."

Please hold County Executive Kittleman to his promise!

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Our Current Letter from the President
July 1, 2017

Next upcoming event...

County Council Meeting
July 17, 2017
Banneker Room
George Howard Bldg
Ellicott City, MD

Get updates, cause for concern and call to action.

Keep your signs for
future legal matters!
Stay tuned for more info!

DRPS Mission:

Working to change zoning laws and preserve the rural nature of Dayton, Maryland and those farms in agricultural preserve.

HELP PRESERVE DAYTON

Please send a donation with a CHECK or Money Order to:
Dayton Rural Preservation Society, LLC
P.O. Box 88
Dayton, MD 21036

or PAY ONLINE by clicking on the Donate button below.

Dayton Rural Preservation Society, LLC
P.O. Box 88
Dayton, Maryland 21036
Email: info@PreserveDayton.com

Sent from my iPhone

Sayers, Margery

From: James Nickel <james.nickel55@gmail.com>
Sent: Tuesday, July 11, 2017 7:27 AM
To: CouncilMail
Subject: Monthly Meeting - 10 Jul 2017 and CB60-2017
Attachments: 0 - NWW_Recycling_Facilities.pdf; Howard County CB60 FAQ.pdf

Council Members,

I watched monthly meeting on CB60-2017. I was a bit surprised to hear one Council Member claim that the presentation cleared up some misinformation out there. I'm not sure what that was. There were two times during the presentation that I think were attempts to address the alleged misinformation.

(1) Does DPZ enforce zoning regulations?

I hope no one was expecting the Director of DPZ to admit in the monthly meeting that they don't enforce regulations. I've heard the same assertion I've heard before. Of course DPZ enforces zoning regulations, it takes YEARS. With "magically disappearing trucks" it's not a surprise it would take YEARS.

7 years and running with Oak Ridge Farms. With the latest violation placed on Oak Ridge Farms it's my understanding that DPZ has instructed Oak Ridge Farms can continue to operate while the case is being prosecuted. There was a resident who had photographic evidence of those magically disappearing trucks and DPZ has told the resident they won't need those photographs as evidence.

Let me digress briefly to another issue raised in the monthly meeting, that is fines. During those 7 years of violating Howard County Zoning regulations, Oak Ridge Farms has been issued a total of $1,000 in fines. That amounts to $1/day for less than 3 years. I don't think that would be deemed a deterrent to an operator in violation.

Next case. A NWWRF operating in Lisbon. I believe that is the NWWRF that was referred to as operating in proximity to I-70. That facility is not allowed under Howard County regulations. It never has been. I'm not sure how many years it's been operating. I can't imagine that DPZ is going to point to that case as an example of how they diligently enforce Howard County regulations.

Is there someone on the County Council that doesn't know that NWWRF has been operating in violation of zoning regulations? One member of the council has even indicated that there should be an amendment to CB60-2017 to accommodate that specific operation. In expectation of the "DPZ is complaint based", I'll mention the case of a Highland dairy farmer that DPZ went after and admitted there were no complaints.

(2) Does CB60-2017 allow industrial mulch operations?

The reply to that was "No." That's it. No further explanation was required. Did that correct the misinformation out there?

Refer to: Maryland Solid Waste Management Report - 2014. [See Tables 12- pages 15-16]
and the attachment listing of NWWRF in Maryland.

Grant County Mulch is an NWWRF in Frederick County. They have an NWWRF Permit for 3 acres. They marketed 36,131 tons of waste. That is 12,000 tons of marketed waste per acre per year. For two acres that would equate to 24,000 tons of marketed waste per year.

MARYLAND DEPARTMENT OF THE ENVIRONMENT
SOLID WASTE PROGRAM
NATURAL WOOD WASTE PERMITS
January 10, 2017

COUNTY	AI No.	FACILITY NAME	TYPE	PERMIT NUMBER	EXPIRATION DATE	SITE ACREAGE	SITE LOCATION	Phone Number
Allegany	90245	Braddock Construction, LLC	General	2012-NWW-GP01	09/20/2017	19.71	14000 blk of New Georges Creek Rd, SW, Midland, MD 21542	(301) 689-5979
Anne Arundel	18757	A-A Recycle & Sand, Inc.	General	2016-NWW-GP01	09/11/2021	9.90	8217 Baltimore Annapolis Blvd, Pasadena, MD 21122	(410) 437-7718
	66231	Bronson Contracting Inc.	General	2014-NWW-GP01	05/06/2019	8.00	1000 Kembo Rd, Curtis Bay, MD 21226	(410) 360-8587
	83691	L & W Recycling	General	2016-NWW-GP01	09/11/2021	12.00	8308 Lokus Rd, Odenton, MD 21113	(410) 551-9142
Baltimore	36664	King Mulch And Pallet	General	2012-NWW-GP01	04/24/2017	5.90	1112 Hengemihle Ave, Essex, MD 21221	(410) 682-2992
	23339	Wirtz & Daughters, Inc.	Individual	2015-NWW-0552	05/28/2020	14.00	6275 Days Cove Rd, White Marsh, MD 21162	(410) 335-0400
	157	Hollins Organic Products, Inc.	General	2015-NWW-GP01	06/14/2020	2.00	6247 Falls Rd, Baltimore, MD 21209	(410) 828-0210
	2371	Edrich Lumber Inc.	Individual	2015-NWW-0003	02/28/2021	12.00	9700 Old Court Rd, Windsor Mill, MD 21244	(410) 922-5959
	36762	Northwest Recycling, LLC	General	2015-NWW-GP01	11/03/2020	5.00	212 Cockeys Mill Rd, Reisterstown, MD 21136	(410) 833-9369
	154256	Hollins Organic Products, Inc.	Individual	2016-NWW-0004	12/11/2021	4.50	10155 Beaver Dam Rd, Cockeysville, MD 21030	(410)828-0210
Calvert	131800	231 Materials & Recycling Products, LLC	General	2016-NWW-GP01	06/12/2021	4.00	171 Skipjack Rd, Prince Frederick, MD 20678	(410) 532-0567
	37478	A & L Natural Wood Waste Recycling Facility	General	2016-NWW-GP01	05/01/2021	11.25	7185 Sawmill Rd, Lusby, MD 20657	(410) 586-3404
Caroline	92360	Cahall Construction, LLC	General	2012-NWW-GP01	09/27/2017	24.49	24480-A Pinewood Rd, Preston, MD 21655	(410) 479-5384
Carroll	19201	C.J. Miller, LLC	General	2016-NWW-GP01	09/01/2021	40.00	390 Vision Way Rd, Westminster, MD 21158	(410) 239-8006
	75852	Harvest RGI, LLC	General	2016-NWW-GP01	05/30/2021	30.00	7800 Kabik Ct, Woodbine, MD 21797	(410) 795-7666
		Hidey's Landscape Supply Yard	General	2016-NWW-GP02	09/28/2021	9.00	3112 Ridge Rd, Westminster, MD 21157	(410) 875-0289
Cecil	64652	Chesapeake Wood Recycling	General	2015-NWW-GP01	06/02/2020	25.00	1726 Old Philadelphia Rd, Elkton, MD 21921	(410) 398-6573
	142327	Mountain Mulch Elkton, LLC	General	2014-NWW-GP01	02/06/2019	4.80	Lot 9, 505 Blue Ball Road, Elkton MD 21921	(610) 652-2485
Charles	36735	Calvert Wood Recycling, LLC	General	2016-NWW-GP01	04/03/2021	8.50	6585 Ripley Rd, La Plata, MD 20646	(301) 934-7158
	66095	Beuchert Excavating, Inc.	General	2014-NWW-GP01	03/24/2019	12.50	12340 Crain Hwy, Ste 100, Newburg, MD 20664	(301) 399-5088
	22039	Mona Recycling	Individual	2014-NWW-0002	11/19/2019	7.60	6970 Our Place, Port Tobacco, MD 20677	(301) 440-1145
Frederick	68230	Bussard Brothers Landscape Supply	General	2014-NWW-GP01	11/19/2019	2.00	5307-B Green Valley Rd, Monrovia, MD 21770	(301) 865-3925
	94242	Grant County Mulch - Buckeystown, Inc.	General	2012-NWW-GP01	11/01/2017	3.00	6720 Manor Woods Rd, Frederick, MD 21703	(301) 732-5194
	36727	Butler Wood Recycling, LLC	General	2014-NWW-GP01	05/18/2019	2.70	4039 Tuscarora Rd, Point Of Rocks, MD 21777	(301) 607-4541
	2859	Comus Stone-Woodsboro Operation	General	2016-NWW-GP02	09/28/2021	12.00	10642 Woodsboro Rd, Woodsboro, MD 21798	(301) 349-0550
Harford	23145	Crouse Construction Co., Inc.	General	2015-NWW-GP01	06/08/2020	25.00	1001 Old Philadelphia Rd, Aberdeen, MD 21001	(410) 879-1822
	36670	Heston's Mulch	General	2012-NWW-GP01	10/16/2017	3.67	2304 Whiteford Rd, Whiteford, MD 21160	(410) 692-2253
	23199	Comer Construction, Inc.	General	2013-NWW-GP01	11/25/2018	6.00	900 Cirelli Ct, Aberdeen, MD 21001	(410) 879-6094
	2468	Brian Baker, Inc.	General	2014-NWW-GP01	09/23/2019	2.89	2001 Conowingo Road, Bel Air, MD 21014	(410) 937-2164
	153825	Harford Industrial Minerals, Inc	General	2016-NWW-GP01	12/13/2021	5.00	40 Fort Hoyle Rd, Joppa, MD 21001	(410) 679-9191
Howard	86502	R.L.O. Contractors	General	2014-NWW-GP01	09/18/2019	9.42	8615 Old Dorsey Run Rd, Jessup, MD 20794	(410) 977-8990
	144107	Oak Ridge Farm, LLC	General	2014-NWW-GP01	09/18/2019	4.20	2700 Woodbine Road, Woodbine, MD 21797	(410) 207-5758
	108262	Level Land NWWRF	General	2013-NWW-GP01	08/08/2018	5.00	1200-1281 Madison Street, Lisbon, MD 21765	(410) 489-4316
Kent	80268	Sharp Lawn & Tree, Inc.	General	2016-NWW-GP01	04/07/2021	3.00	10010 Lakeside Lane, Chestertown, MD 21620	(410) 778-6302
Montgomery	36558	Acme Biomass Reduction, Inc.	General	2014-NWW-GP01	12/16/2019	107.50	21601 New Hampshire Ave, Brookeville, MD 20833	(301) 540-2968
	101163	Country Nursery, Inc.	General	2013-NWW-GP01	06/16/2018	11.50	3330 Spencerville Road, Burtonsville, MD 20866	(301) 622-0212
	143038	Grant County Mulch, Inc.	General	2014-NWW-GP01	04/10/2019	6.35	24420 Frederick Road, Clarksburg MD 20871	(304) 749-7451
	98936	Allentuck Landscaping	General	2013-NWW-GP01	01/16/2019	1.20	24320 Frederick Road, Clarksburg MD 20871	(301) 515-1900
Prince George's	66631	Grant County Mulch, Inc.	General	2016-NWW-GP01	09/15/2021	25.00	5402 Van Dusen Road, Laurel MD 20707	(301) 317-6786
Queen Anne's	78519	Pardoe's Lawn And Tree Services, Inc.	General	2016-NWW-GP01	04/07/2021	15.98	112 Deep Landing Rd, Chestertown, MD 21620	(410) 778-2016
	75060	Cole Ventures, Inc.	General	2015-NWW-GP01	09/07/2020	9.06	437 Grange Hall Rd, Centreville, MD 21617	(410) 279-7620
	37443	Baker Rubble Landfill	Individual	2011-NWW-0620	01/08/2017	3.00	501 4-H Park Rd (Rte 18), Queenstown, MD 21658	(410) 827-8831
St. Mary's	147840	Charlotte Hall Lumber Yard	General	2015-NWW-GP01	08/11/2020	3.51	29850 Three Notch Road, Charlotte Hall, MD 20662	(301) 481-7304
Talbot	19995	Dependable Sand And Gravel Company, Inc.	General	2015-NWW-GP01	10/08/2020	343.00	13155 Ocean Gateway, Queen Anne, MD 21657	(410) 822-6363
Washington	87020	Hess Road Recycling Center	General	2012-NWW-GP01	04/10/2017	4.00	6502 Hess Rd, Hancock, MD 21750	(410) 796-7676
Wicomico	36719	Dunn's Tractor Service, Inc.	General	2014-NWW-GP01	08/19/2019	10.00	9042 Taylor Rd, Delmar, MD 21875	(410) 742-7429

Composting and Natural Wood Waste (Mulching)

Frequently Asked Questions about Howard County's CB60/ZRA180

What is the purpose of CB60/ZRA180?
To allow farmers to mulch or compost excess organic waste that is part of a farming operation whether their property is encumbered with an agricultural preservation easement or not; to limit commercial wood waste and composting operations in the RC and RR districts to properties that are not encumbered with an agricultural preservation easement only after receiving a Maryland Department of the Environment permit and conditional use approval; to establish criteria for the Compost and Natural Wood Waste conditional uses; and to allow Natural Wood Waste Recycling Facilities (NWWRF) and Composting Facilities (CF) in the M-1, M-2 and Solid Waste Overlay districts.

> **Response**: 12,200 farmers in Maryland and not even one is a NWWRF. It's as if 12,200 farmers don't know the benefits of NWWRFs. Or more likely, real farmers have no problem managing the typically minor amounts of natural wood waste that originates on farms. NWWRFs are already allowed in M-1 and M-2 as a conditional use. CB60-2017 changes that to a **right**. Given the health risk of airborne wood dust, bacterium, and fungal spores, it would seem wise to leave it as a conditional use to review each proposed site for impact to the surrounding area. Airborne fungal spores can travel greater than 3 miles. That fact was presented to the Task Force in 2014 and not disputed.
>
> CB60 does not require an MDE NWWRF Permit. See pages 19 and 30. CB60 requires a copy of an application for an MDE Permit. It doesn't even require proof that the application was submitted. CB60 should require an approved permit but does not. It should also require any other MD permit approvals where applicable, such as those that might be related to wetlands permits.

Will CB60/ZRA180 permit industrial mulching on Agricultural Land Preservation Program (ALPP) Properties?
No, the proposed amendment only allows Natural Wood Waste Recycling Facilities that have an MDE permit on ALPP Easements, if they are accessory to a tree farm and are able to obtain Conditional Use approval by the Hearing Authority through a public hearing.

> **Response**: The facts speak for themselves. In Frederick County, Grant County Mulch has an NWWRF Permit for 3 acres. In 2014, they marketed **36,131 TONS** of product. That would be about **12,000 TONS** per acre per year. On 2 acres, you could produce **24,000 TONS** of product per year. 24,000 Tons would rank 5th highest among all the 46 NWWR facilities in the entire State!

https://www.howardcountymd.gov/LinkClick.aspx?fileticket=HI5bRNBrxvA%3D&portalid=0

Composting and Natural Wood Waste (Mulching)

Additionally, far more than 24,000 TONS of wood waste goes into a facility to produce 24,000 TONS of mulch. That it is unarguably industrial scale.

What natural wood waste recycling activity would be permitted on land in agricultural preservation?
Natural wood waste recycling activities that do not require an MDE permit and are accessory to a farm are currently permitted on agricultural preservation properties and would continue to be permitted.

Natural Wood Waste Recycling Facilities would be permitted on ALPP purchased or dedicated easements only if they are accessory to a tree farm such as a tree nursery or Christmas tree farm. The minimum lot size for this use is 10 acres. The use area will be limited to15% of the area actively farmed in trees, 2% of the easement or 2 acres - whichever is smallest.

Emergency Natural Wood Waste Recycling Faculties would be permitted through a Special Permit for a 90-day period. Permits for emergency facilities would only be issued if an MDE NWWRF permit is required and if the wood waste disposal operation is necessary because of a natural catastrophe, such as a major weather event or disease.

Response: With respect to NWWRF on ALPP, see the response above to **Will CB60/ZRA180 permit industrial mulching on Agricultural Land Preservation Program (ALPP) Properties?**

"Emergency" NWWRFs; this makes no sense whatsoever. If an MDE permit is required, then why do they need an Emergency NWWRF declaration. If they need an MDE permit, they get one. If Howard County is waiving the requirement for an MDE permit with this emergency declaration, they should cite their authority delegated by MDE.

With the examples they cite, major weather event or disease, no MDE permit is required to remove trees from your own property. Disease doesn't cause sudden catastrophic damage to trees. It's a gradual deterioration of the forest.

I've had tree removal from my lot due to storm damage. I wasn't required to get an NWWRF permit. Someone in the area recently had some large trees removed. They didn't get an NWWRF permit. MDE doesn't require it. Ironically, this provision may delay removal of wood waste it was intended to facilitate by having the property owner seed an emergency declaration that in not needed.

The "emergency" provision is not needed and should be deleted from bill.

Composting and Natural Wood Waste (Mulching)

What criteria will be used to determine conditional use approval?
The Conditional Use is subject to over a dozen criteria that must be met including but not limited to setbacks to property lines, residential dwellings on other properties, wetlands and schools; screening and buffering; review by the Fire Marshall; hours of operation; and size limitations that consider the size of the property and the size of the tree farm. The size limitations preclude industrial scale wood waste facilities from operating on ALPP land.

> **Response**: I'm sorry but this is fluff and I've already covered the nonsense about the size limitations on precluding industrial mulch. This is the 3rd time that claim has been made and repetition doesn't make it true. The Grant County Mulch operation provides real data. Claiming 2 acres isn't industrial mulching is a false assertion. **24,000 TONS PER YEAR** can be produced on 2 acres.

What is included in the Conditional Use area?
All conditional uses require a Conditional Use Plan that shows the area of the conditional use. Included in the conditional uses area and depicted on the plan are all existing and proposed uses and structures, parking areas, storage areas for equipment, points of ingress and egress, landscaping, natural features such as wetlands and steep slopes, driveways, septic and well areas, and setbacks. This is a general requirement for all conditional uses and is therefore addressed in the general conditional use criteria and the petition.

> **Response**: A specific reference would be appreciated.

How are traffic and road safety addressed in CB-60-2017?
CB 60 requires that applicants for a NWWRF or CF Conditional Use provide a study of affected road and bridge conditions for the Hearing Authority to determine if the roads can adequately support truck traffic generated by the facility. Additionally, CB 60 limits hours of operation for proposed facilities and requires that a sight distance analysis be approved by the Department of Planning and Zoning (DPZ).

> **Response**: There is a general concern regarding truck traffic on Howard County's rural roads. On pages 28 and 32 are the following words:
>
> "ROADS SERVING THE SITE SHALL BE ADEQUATE FOR THE TRUCK TRAFFIC TO BE GENERATED BY THE FACILITY. THE PETITION SHALL INCLUDE A STUDY OF AFFECTED ROAD AND BRIDGE CONDITIONS TO ALLOW THE HEARING AUTHORITY TO MAKE THIS DETERMINATION."

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Composting and Natural Wood Waste (Mulching)

I frequently see triple axle dump trucks in our area of Howard County. It's rare that they don't cross over the double yellow lines. There is a bridge on Ten Oaks Road near the Linden Church exit. I'm not sure it's even possible for a triple axel dump truck to cross that bridge without crossing the double yellow lines.

The applicant will claim the amount of truck traffic that will be generated. I don't expect the applicant will claim a high estimate. If NWWRFs are allowed on rural roads as a profit center the motivation of the operator will be to increase business and increase the truck traffic along with it.

Is this really the kind of business operation we want to have on rural roads in Howard County?

What are the fire safety regulations and what would happen in case of a mulch fire?

The MDE General Permit limits mulch piles heights to 12 feet and the Howard County Fire Code limits pile heights to 18 feet. Therefore, the pile heights that have been reported in other counties would not be permitted under Howard County's Fire Code. The Howard County Fire Code also regulates distances between piles to allow for emergency vehicle access and requires a "reliable certified water supply" with capability to supply 1000 gallons for every 10,000 cubic feet of product or 30,000 gallons at all times.

Response: Yes, the MDE General Permit limits mulch piles to 12 feet. The mulch pile at the Kabik Ct. fire this past May was 68 feet high. Why does the Howard County Fire Code allow a mulch pile higher (18 feet) than Maryland allows? It should be equal or less. Then there is the problem that DPZ states they are incapable of measuring whether a pile of mulch exceeds 12 feet and rather, will rely on MDE for enforcement. DPZ makes that assertion knowing full well that the height of the Kabik Ct. mulch pile was 68 feet high.

Why are Maryland Agricultural Land Foundation Program (MALFP) properties not included in this Bill?

MALFP properties are governed by individual easements between a property owner and the State. In addition to easement restrictions, MALFP also imposes the following restrictions on mulching operations:

- Must not interfere with other agricultural or silvicultural operations.
- Must not limit future agricultural or silviculture production.
- Majority of the products must be produced on site; the remainder must be of species indigenous to Maryland.
- Facility (or sale area) and parking area must cover no more than 2% of the easement or two acres, whichever is smaller.

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Composting and Natural Wood Waste (Mulching)

- Parking area must be pervious.
- Accessory sales area must not exceed 600 square feet and in no case shall be greater than the area used for the sale of agricultural and forestry items.

Finally, Section 106.1 of the Howard County Zoning Regulations only applies to land preserved in the county's easement program. Therefore, all conditional use categories in the zoning regulations apply to the county's program only.

> **Response**: This section may no longer apply. DPZ and the County Executive Chief of Staff have indicated *the intent* to file an amendment to include MALPF properties along with ALPP properties. Hopefully, that will translate to the actual amendment.

What safeguards will CB 60 employ to ensure environmental, health, and safety concerns are addressed?
CB60 contains a number of provisions that protect health and safety of persons and the environment. To obtain Conditional Use approval for a CF or NWWRF, the County requires an MDE permit, operations plan, emergency preparedness plans, for review by the Fire Marshall, and an approved Howard Soil Conservation District (HSCD) Supplemental Project Evaluation (SPE). The SPE is a site-specific evaluation and plan to protect any natural resources potentially affected by the proposed facility. The SPE will cover three phases of evaluation:

1) Site selection - Soil types, slopes and other natural features will be analyzed to determine if a parcel is suitable.
2) Site design - HSCD will identify the optimal location of a facility based on MDE standards and specifications. Windbreak standards will be applied to control dust and odors. Buffering and setbacks will intercept sediment and other nutrients and mitigate potential pollutions.
3) Operations management - A soil and nutrient management plan will be required to maintain healthy, non-toxic soils.

Additionally, CB 60 applies substantial setbacks, as compared to other uses, to allow for dissipation of any airborne particles and requires screening and buffering as additional protection. Finally, all liquid, including leachate and stormwater runoff, must be treated prior to disposal to prevent groundwater contamination.

> **Response:** No, CB60 does not require an MDE NWWRF Permit. See pages 19 and 30. CB60 requires a copy of an application for an MDE Permit. It doesn't even require proof that the application was submitted. CB60 should require an approved permit but does not. It should also require any other MD permit approvals where applicable, such as those that might be related to wetlands permits.

https://www.howardcountymd.gov/LinkClick.aspx?fileticket=HI5bRNBrxvA%3D&portalid=0

Composting and Natural Wood Waste (Mulching)

There is a lot of fluff in the last paragraph. There are no details. Airborne bacterium and fungal spores may travel over 3 miles. There is nothing in CB60 or the last paragraph that would indicate how that will be prevented.

How was CB 60 developed?
CB 60 was developed by the Department of Planning and Zoning and Councilmembers Sigaty and Fox. To develop the proposed regulations, DPZ reviewed the work of the Wood Waste Task Force that met from July 2014 through February 2015 and convened a small working group consisting of farmers and residents from November 2015 through March 2016. Additionally, DPZ collaborated with subject matter experts from Fire and Rescue Services, Howard Soil Conservation District, Bureau of Environmental Services, Economic Development Authority and the Office of Community Sustainability to craft criteria that regulates areas not already addressed by the Maryland Department of the Environment (MDE), Maryland Department of Agriculture (MDA), or the Howard County Fire Code.

Response: The Wood Waste Task Force was a radically unbalanced representation of Stakeholders from the start. The Council appointed members without any public input which heavily stacked the predictable outcome in favor of special interests at the expense of resident's quality of life and safety. To now refer to the WWTF as an objective source would be laughable if it weren't so blatantly offensive to public safety interests from the start.

There is remarkably no mention of the Health Department. Is that why I can't get an answer as to the Health Department's comment on the Suffolk County Investigation into water contamination? Is that why Mr. Kittleman will not answer the question about remediation of ground water/well water that becomes contaminated?

Participants are listed as part of the development process for CB60. The implication is that the parties involved all agreed to at least ZRA180. However, on page 6 is the following paragraph. Some text is bolded for emphasis

> "The MWG concluded that "on-the-farm/for-the-farm" mulch operations constituted a bona fide farming activity that did not rise to a level triggering a Conditional Use and could be permitted on ALPP properties. **Generally, operations would be considered non-commercial if all materials were produced and used on the farm or another farm with the same ownership. However, consensus could not be reached regarding the sale of mulch or compost operations."**

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Composting and Natural Wood Waste (Mulching)

This is not a trivial disagreement. This can change the entire nature of a farm to an industrial operation. A farm could literally stop farming and solely exist to produce mulch and compost, especially on RC properties. Recall from above that there is not a single operating farm of the 12,200 farms in the state of Maryland this is a NWWRF.

Who is responsible for enforcing the limitations outlined in this legislation?

The Department of Planning and Zoning will enforce any of the zoning and conditional use requirements, the Maryland Department of the Environment will enforce its composting and natural wood waste recycling permits and the Howard County Department of Fire and Rescue Services will enforce the Howard County Fire Code. Should a complaint be filed with the County, it is likely that the above agencies will work together to address any violations.

Response: Level Land in Lisbon is a NWWRF on RC property that has been operating in non-compliance for years. Residents have complained about the Oak Ridge Farms NWWRF/Transfer Station for 7 years. The Director of DPZ at the Planning Board meeting said it's difficult to enforce regulations and it takes YEARS. 7 years so far for Oak Ridge Farms. He further said at the Planning Board meeting for ZRA 180 a problem is "magically disappearing trucks."

DPZ has stated they are incapable of measuring the height of a pile of mulch OR the acreage limitations. These are key factors and DPZ, by their own admission, can't enforce those regulations because they can't measure them.

What is it DPZ is going to enforce when they can't even enforce the regulation that doesn't allow an NWWRF on RC or MALPF Preservation property.

https://www.howardcountymd.gov/LinkClick.aspx?fileticket=HI5bRNBrxvA%3D&portalid=0

24,000 tons of marketed waste would place 5th in the top producers of NWWRF in the State of Maryland for that year. I believe placing 5th highest would constitute industrial. If not, why not?

I've sent this to the office of the County Executive twice. I've never received a reply to this point.

I've also prepared a response to the DPZ Frequently Asked Questions page for CB60-2017. I've attached that for your consideration.

Best Regards,

James Nickel

Sayers, Margery

From: 4 SaleSpot <4salespot@gmail.com>
Sent: Tuesday, July 11, 2017 7:13 AM
To: CouncilMail
Subject: Opposition to CB60 Without Major Amendments

Subject: Opposition to CB60 Without Major Amendments

County Council,

We are very concerned with CB60 which will allow for industrial mulching and composting on ag preserve farmland and on all of RR/RC throughout Howard County. The current zoning language contained in CB60 is unacceptable and not only puts the rural communities at risk for well-documented safety and health concerns from industrial mulching, but now also makes this a countywide issue.

As it currently reads, there are clear loopholes that will allow those posing as tree farmers to conduct industrial mulching activities from 2 acres up to 5 acres, depending on whether on Howard County ag (ALPP), RR or RC parcels. This will result in unacceptable risks to ensuring the well-being of children, families and all individuals living in affected areas. Furthermore, DPZ has demonstrated a clear inability to enforce clear violators of CB20. We now ask, how can DPZ protect our families when loopholes in CB60 will allow for industrial mulching to occur, making enforcement even more challenging?

County Executive Kittleman, through CB60 introduced on his behalf, has simply not keep to his campaign promise to ensure that there is no possibility of industrial mulching on both Howard County and State of MD ag preserve parcels, despite his recent claims to the contrary. There is no separate section in CB60 that deals with State of MD ag (MALPF) restrictions (only Howard County ag). We worked hard to get State of MD ag restrictions included in the current zoning language for CB20 and are disappointed that it has been omitted from CB60.

There are many other key amendments needed in CB60 to make it acceptable to the health and well-being of thousands of families throughout Howard County. We are counting on the County Council to course correct with amendments added to CB60 to clearly prevent any chance of industrial mulch facilities from operating throughout farmland in Howard County, other than in M1/M2 commercially zoned land. This is the only way our Councilmembers will ensure everyone in potentially affected areas continues to be protected by current zoning regulations defined in CB20. Please take this matter seriously and add needed amendments to CB60 that we feel is unacceptable as it now stands.

Thank you,

Betty Hernandez

Sayers, Margery

From: Colleen Retzbach <Colleen_Retzbach@hcpss.org>
Sent: Tuesday, July 11, 2017 6:06 AM
To: CouncilMail
Subject: Stop mulching in Dayton

http://www.preservedayton.com/

Sent from my iPhone

Sayers, Margery

From: Steven Tracey <steventracey@comcast.net>
Sent: Tuesday, July 11, 2017 12:54 AM
To: CouncilMail
Subject: Opposition to CB60 Without Major Amendments

Subject: Opposition to CB60 Without Major Amendments

County Council,

We are very concerned with CB60 which will allow for industrial mulching and composting on ag preserve farmland and on all of RR/RC throughout Howard County. The current zoning language contained in CB60 is unacceptable and not only puts the rural communities at risk for well-documented safety and health concerns from industrial mulching, but now also makes this a countywide issue.

As it currently reads, there are clear loopholes that will allow those posing as tree farmers to conduct industrial mulching activities from 2 acres up to 5 acres, depending on whether on Howard County ag (ALPP), RR or RC parcels. This will result in unacceptable risks to ensuring the well-being of children, families and all individuals living in affected areas. Furthermore, DPZ has demonstrated a clear inability to enforce clear violators of CB20. We now ask, how can DPZ protect our families when loopholes in CB60 will allow for industrial mulching to occur, making enforcement even more challenging?

County Executive Kittleman, through CB60 introduced on his behalf, has simply not keep to his campaign promise to ensure that there is no possibility of industrial mulching on both Howard County and State of MD ag preserve parcels, despite his recent claims to the contrary. There is no separate section in CB60 that deals with State of MD ag (MALPF) restrictions (only Howard County ag). We worked hard to get State of MD ag restrictions included in the current zoning language for CB20 and are disappointed that it has been omitted from CB60.

There are many other key amendments needed in CB60 to make it acceptable to the health and well-being of thousands of families throughout Howard County. We are counting on the County Council to course correct with amendments added to CB60 to clearly prevent any chance of industrial mulch facilities from operating throughout farmland in Howard County, other than in M1/M2 commercially zoned land. This is the only way our Councilmembers will ensure everyone in potentially affected areas continues to be protected by current zoning regulations defined in CB20. Please take this matter seriously and add needed amendments to CB60 that we feel is unacceptable as it now stands.

Thank you,

Steven Tracey

Sayers, Margery

From: John Tegeris <johntegeris@gmail.com>
Sent: Tuesday, July 11, 2017 12:31 AM
To: CouncilMail; John Tegeris
Subject: I Strongly Oppose CB60; Call for County Council to Add Major Amendments...

County Council,

We are very concerned with CB60 which will allow for industrial mulching and composting on ag preserve farmland and on all of RR/RC throughout Howard County. The current zoning language contained in CB60 is unacceptable and not only puts the rural communities at risk for well-documented safety and health concerns from industrial mulching, but now also makes this a countywide issue.

As it currently reads, there are clear loopholes that will allow those posing as tree farmers to conduct industrial mulching activities from 2 acres up to 5 acres, depending on whether on Howard County ag (ALPP), RR or RC parcels. This will result in unacceptable risks to ensuring the well-being of children, families and all individuals living in affected areas. Furthermore, DPZ has demonstrated a clear inability to enforce clear violators of CB20. We now ask, how can DPZ protect our families when loopholes in CB60 will allow for industrial mulching to occur, making enforcement even more challenging?

County Executive Kittleman, through CB60 introduced on his behalf, has simply not keep to his campaign promise to ensure that there is no possibility of industrial mulching on both Howard County and State of MD ag preserve parcels, despite his recent claims to the contrary. There is no separate section in CB60 that deals with State of MD ag (MALPF) restrictions (only Howard County ag). We worked hard to get State of MD ag restrictions included in the current zoning language for CB20 and are disappointed that it has been omitted from CB60.

There are many other key amendments needed in CB60 to make it acceptable to the health and well-being of thousands of families throughout Howard County. We are counting on the County Council to course correct with amendments added to CB60 to clearly prevent any chance of industrial mulch facilities from operating throughout farmland in Howard County, other than in M1/M2 commercially zoned land. This is the only way our Councilmembers will ensure everyone in potentially affected areas continues to be protected by current zoning regulations defined in CB20. Please take this matter seriously and add needed amendments to CB60 that we feel is unacceptable as it now stands. Thank you.

John Tegeris, PhD

President, DRPS

Sayers, Margery

From: Joanne Griesser <joanne.griesser@verizon.net>
Sent: Monday, July 10, 2017 10:24 PM
To: CouncilMail
Subject: Opposed to CB 60-2017.

I am writing to let you know we are opposed to the mulch facility being proposed in Dayton. We live right on the border of Dayton and already deal with a great deal of traffic on some very narrow roads. Adding these trucks on our streets would negatively impact an already congested situation.
The dust, pests and bacteria from the mulching operation is also of great concern to out health, not to mention our property values. Who wants to live next to a mulch factory? I do not and I do not think you would like it in your backyard either.
Please vote against this mulch facility in Dayton.
Thank you
Joanne Griesser
14831 Sapling way
Glenelg MD 21737

My spelling and typing are equally bad.

Sayers, Margery

From: David Smith <dosmith99@gmail.com>
Sent: Monday, July 10, 2017 8:42 PM
To: CouncilMail
Subject: Re: CB-60 Concerns

Good Evening,

Ref CB-60 - I listened to monthly council meeting today and still do not understand why Mr. Lazdins' feels there shouldn't be concerns with industrial mulching on ALPP. There are definite concerns when a 13 acre tree farm can be established and that entitles the ALPP owner to truck in wood waste material, process it into mulch, and then truck it off property for commercial sale, even if only on 2 acres. This is an industrial mulching facility on a 13 acre tree farm located in ALPP in the middle of residential areas. Maybe one of the council members should explain to him the concerns because during the meeting today there was no mention of trucking in material and trucking off mulch.

David Smith

On Tue, Jun 27, 2017 at 9:47 AM, David Smith <dosmith99@gmail.com> wrote:

> Good Morning,
>
> I'm writing this letter to express my opposition to CB-60 as it is currently written. I am a resident of Dayton and feel there are several loopholes to allow industrial size mulching facilities that can be disguised as a "Tree Farm", even on Agriculture Preservation farmland. There are several negative factors which will effect local residents: wood dust particles in the air, increased truck traffic on roads were are kid's bus stop are located, possible water contamination, increased fire risk, loud grinding machines, decreased property values.
>
> Please do not move forward with CB-60 until this loophole is fixed. I appreciate your understanding.
>
> Regards,
> David Smith

Sayers, Margery

From: Pamela Jock <pjock13@gmail.com>
Sent: Monday, July 10, 2017 8:25 PM
To: CouncilMail
Subject: Re: Opposition to CB60 Without Major Amendments

County Council,

We are very concerned with CB60 which will allow for industrial mulching and composting on ag preserve farmland and on all of RR/RC throughout Howard County. The current zoning language contained in CB60 is unacceptable and not only puts the rural communities at risk for well-documented safety and health concerns from industrial mulching, but now also makes this a countywide issue.

As it currently reads, there are clear loopholes that will allow those posing as tree farmers to conduct industrial mulching activities from 2 acres up to 5 acres, depending on whether on Howard County ag (ALPP), RR or RC parcels. This will result in unacceptable risks to ensuring the well-being of children, families and all individuals living in affected areas. Furthermore, DPZ has demonstrated a clear inability to enforce clear violators of CB20. We now ask, how can DPZ protect our families when loopholes in CB60 will allow for industrial mulching to occur, making enforcement even more challenging?

County Executive Kittleman, through CB60 introduced on his behalf, has simply not keep to his campaign promise to ensure that there is no possibility of industrial mulching on both Howard County and State of MD ag preserve parcels, despite his recent claims to the contrary. There is no separate section in CB60 that deals with State of MD ag (MALPF) restrictions (only Howard County ag). We worked hard to get State of MD ag restrictions included in the current zoning language for CB20 and are disappointed that it has been omitted from CB60.

There are many other key amendments needed in CB60 to make it acceptable to the health and well-being of thousands of families throughout Howard County. We are counting on the County Council to course correct with amendments added to CB60 to clearly prevent any chance of industrial mulch facilities from operating throughout farmland in Howard County, other than in M1/M2 commercially zoned land. This is the only way our Councilmembers will ensure everyone in potentially affected areas continues to be protected by current zoning regulations defined in CB20. Please take this matter seriously and add needed amendments to CB60 that we feel is unacceptable as it now stands.

Thank you from a very concerned citizen,

Pamela Jock

On Mon, Jul 10, 2017 at 3:03 PM, Tim Jock <tjock@salesforce.com> wrote:

> County Council,
>
> We are very concerned with CB60 which will allow for industrial mulching and composting on ag preserve farmland and on all of RR/RC throughout Howard County. The current zoning language contained in CB60 is unacceptable and not only puts the rural communities at risk for well-documented safety and health concerns from industrial mulching, but now also makes this a countywide issue.
>
> As it currently reads, there are clear loopholes that will allow those posing as tree farmers to conduct industrial mulching activities from 2 acres up to 5 acres, depending on whether on Howard County ag (ALPP), RR or RC parcels. This will result in unacceptable risks to ensuring the well-being of children, families and all individuals living in affected areas.

Furthermore, DPZ has demonstrated a clear inability to enforce clear violators of CB20. We now ask, how can DPZ protect our families when loopholes in CB60 will allow for industrial mulching to occur, making enforcement even more challenging?

County Executive Kittleman, through CB60 introduced on his behalf, has simply not keep to his campaign promise to ensure that there is no possibility of industrial mulching on both Howard County and State of MD ag preserve parcels, despite his recent claims to the contrary. There is no separate section in CB60 that deals with State of MD ag (MALPF) restrictions (only Howard County ag). We worked hard to get State of MD ag restrictions included in the current zoning language for CB20 and are disappointed that it has been omitted from CB60.

There are many other key amendments needed in CB60 to make it acceptable to the health and well-being of thousands of families throughout Howard County. We are counting on the County Council to course correct with amendments added to CB60 to clearly prevent any chance of industrial mulch facilities from operating throughout farmland in Howard County, other than in M1/M2 commercially zoned land. This is the only way our Councilmembers will ensure everyone in potentially affected areas continues to be protected by current zoning regulations defined in CB20. Please take this matter seriously and add needed amendments to CB60 that we feel is unacceptable as it now stands.

Thank you.

Tim Jock
Director, Solution Engineering
Salesforce
+1-443-812-4454

Sayers, Margery

From: Nicole Lovett <lovettnm@gmail.com>
Sent: Monday, July 10, 2017 7:56 PM
To: CouncilMail
Subject: I oppose CB60

County Council,

The current zoning language contained in CB60 introduced on behalf of County Executive Kittleman is unacceptable. As is, the loopholes in CB60 put the rural communities and all of RR/RC throughout Howard County at risk from well-documented safety and health concerns resulting from industrial mulching, and leave a large portion of Howard County (all State of MD ag farmland) completely unprotected.

Also of concern is the lack of enforcement by DPZ on current zoning violations involving mulching in Howard County. There is no reason to believe that enforcement will suddenly become a priority under the current County Executive administration.

There are many amendments needed in CB60 to make it acceptable to the health and well-being of thousands of families in potentially affected areas throughout Howard County. We are counting on the County Council to course correct with amendments added to CB60 to clearly prevent any chance of industrial mulch facilities from operating throughout Howard County.

The community fought hard for the zoning laws currently in place through CB20. We want those protections to stand. Please take this matter seriously and add needed amendments to CB60 to ensure the well-being of farmers, children, families, and all individuals living in affected areas.

Thank you.

Sayers, Margery

From: Criss, Thomas B. <Tom.Criss@jhuapl.edu>
Sent: Monday, July 10, 2017 4:28 PM
To: CouncilMail; Kittleman, Allan
Subject: opposition to CB60

From: Tom & Maxine Criss
13833 Dayton Meadows Court
Dayton, MD 21036

To: Executive and County Council,

Subject: Opposition to CB60 Without Major Amendments

Some changes to a neighborhood are occasionally necessary for the common good. This is not one of them. Issues of noise, etc. are important, but not automatically decisive. The danger of groundwater contamination and the spreading of disease spores by air should trump any other considerations. Those are not just low-probability concerns that can be disregarded, but have been documented repeatedly in existing open-air mulching operations. The danger of fires is hard to predict, but again exiting operations have a terrible record of preventing fires. The RLO mulching operation in Elkridge itself has experienced at least 4 fires in the past. The Dayton area has no public water supply to combat fires, and the nearby presence of extensive woodlands surrounding the local homes is a recipe for disaster if mulching operations were to begin.

The risks involved are totally unacceptable.

We very concerned with CB60 which will allow for industrial mulching and composting on ag preserve farmland and on all of RR/RC throughout Howard County. The current zoning language contained in CB60 is unacceptable and not only puts the rural communities at risk for well-documented safety and health concerns from industrial mulching, but now also makes this a countywide issue.

As it currently reads, there are clear loopholes that will allow those posing as tree farmers to conduct industrial mulching activities from 2 acres up to 5 acres, depending on whether on Howard County ag (ALPP), RR or RC parcels. This will result in unacceptable risks to ensuring the well-being of children, families and all individuals living in affected areas. Furthermore, DPZ has demonstrated a clear inability to enforce clear violators of CB20. We now ask, how can DPZ protect our families when loopholes in CB60 will allow for industrial mulching to occur, making enforcement even more challenging?

There are many other key amendments needed in CB60 to make it acceptable to the health and well-being of thousands of families throughout Howard County. We are counting on the County Council to course correct with amendments added to CB60 to clearly prevent any chance of industrial mulch facilities from operating throughout farmland in Howard County, other than in M1/M2 commercially zoned land. This is the only way our Councilmembers will ensure everyone in potentially affected areas continues to be protected by current zoning regulations defined in CB20. Please take this matter seriously and add needed amendments to CB60 that we feel is unacceptable as it now stands.

Thank you,

Tom and Maxine Criss

Sayers, Margery

From: BRETT D TAYLOR <bdtaylor8@gmail.com>
Sent: Monday, July 10, 2017 3:58 PM
To: CouncilMail
Subject: Opposition to CB60 Without Major Amendments

County Council,

I am very concerned with CB60 which will allow for industrial mulching and composting on ag preserve farmland and on all of RR/RC throughout Howard County. The current zoning language contained in CB60 is unacceptable and not only puts the rural communities at risk for well-documented safety and health concerns from industrial mulching, but now also makes this a countywide issue.

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County Executive Kittleman, through CB60 introduced on his behalf, has simply not keep to his campaign promise to ensure that there is no possibility of industrial mulching on both Howard County and State of MD ag preserve parcels, despite his recent claims to the contrary. There is no separate section in CB60 that deals with State of MD ag (MALPF) restrictions (only Howard County ag). We worked hard to get State of MD ag restrictions included in the current zoning language for CB20 and are disappointed that it has been omitted from CB60.

There are many other key amendments needed in CB60 to make it acceptable to the health and well-being of thousands of families throughout Howard County. We are counting on the County Council to course correct with amendments added to CB60 to clearly prevent any chance of industrial mulch facilities from operating throughout farmland in Howard County, other than in M1/M2 commercially zoned land. This is the only way our Councilmembers will ensure everyone in potentially affected areas continues to be protected by current zoning regulations defined in CB20. Please take this matter seriously and add needed amendments to CB60 that we feel is unacceptable as it now stands.

I have two children, ages 9 and 11, who attend schools in the Glenelg area. We moved to Dayton to have a safe home in a rural part of the county where our children can be safe, play outside, and attend superior schools. We love it here and wish to protect our children's ability to play outside.

Thank you for your thoughtful consideration,

Brett Taylor

Sayers, Margery

From: Karen Kloser <karenkloser@verizon.net>
Sent: Monday, July 10, 2017 3:25 PM
To: CouncilMail
Subject: Opposition to CB60 Without Major Amendments

County Council,

We are very concerned with CB60 which will allow for industrial mulching and composting on ag preserve farmland and on all of RR/RC throughout Howard County. The current zoning language contained in CB60 is unacceptable and not only puts the rural communities at risk for well-documented safety and health concerns from industrial mulching, but now also makes this a countywide issue.

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There are many other key amendments needed in CB60 to make it acceptable to the health and well-being of thousands of families throughout Howard County. We are counting on the County Council to course correct with amendments added to CB60 to clearly prevent any chance of industrial mulch facilities from operating throughout farmland in Howard County, other than in M1/M2 commercially zoned land. This is the only way our Councilmembers will ensure everyone in potentially affected areas continues to be protected by current zoning regulations defined in CB20. Please take this matter seriously and add needed amendments to CB60 that we feel is unacceptable as it now stands.

Thank you.

Karen Kloser

Sayers, Margery

From: Tim Jock <tjock@salesforce.com>
Sent: Monday, July 10, 2017 3:03 PM
To: CouncilMail
Subject: Opposition to CB60 Without Major Amendments

County Council,

We are very concerned with CB60 which will allow for industrial mulching and composting on ag preserve farmland and on all of RR/RC throughout Howard County. The current zoning language contained in CB60 is unacceptable and not only puts the rural communities at risk for well-documented safety and health concerns from industrial mulching, but now also makes this a countywide issue.

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County Executive Kittleman, through CB60 introduced on his behalf, has simply not keep to his campaign promise to ensure that there is no possibility of industrial mulching on both Howard County and State of MD ag preserve parcels, despite his recent claims to the contrary. There is no separate section in CB60 that deals with State of MD ag (MALPF) restrictions (only Howard County ag). We worked hard to get State of MD ag restrictions included in the current zoning language for CB20 and are disappointed that it has been omitted from CB60.

There are many other key amendments needed in CB60 to make it acceptable to the health and well-being of thousands of families throughout Howard County. We are counting on the County Council to course correct with amendments added to CB60 to clearly prevent any chance of industrial mulch facilities from operating throughout farmland in Howard County, other than in M1/M2 commercially zoned land. This is the only way our Councilmembers will ensure everyone in potentially affected areas continues to be protected by current zoning regulations defined in CB20. Please take this matter seriously and add needed amendments to CB60 that we feel is unacceptable as it now stands.

Thank you.

Tim Jock
Director, Solution Engineering
Salesforce
+1-443-812-4454

Sayers, Margery

From: Taylor <tgs1228@gmail.com>
Sent: Monday, July 10, 2017 2:51 PM
To: CouncilMail
Subject: Protesting industrial mulching

I am a current resident of Clarksville and strongly oppose the issues tied to CB60.

Subject: Opposition to CB60 Without Major Amendments

County Council,

We are very concerned with CB60 which will allow for industrial mulching and composting on ag preserve farmland and on all of RR/RC throughout Howard County. The current zoning language contained in CB60 is unacceptable and not only puts the rural communities at risk for well-documented safety and health concerns from industrial mulching, but now also makes this a countywide issue.

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There are many other key amendments needed in CB60 to make it acceptable to the health and well-being of thousands of families throughout Howard County. We are counting on the County Council to course correct with amendments added to CB60 to clearly prevent any chance of industrial mulch facilities from operating throughout farmland in Howard County, other than in M1/M2 commercially zoned land. This is the only way our Councilmembers will ensure everyone in potentially affected areas continues to be protected by current zoning regulations defined in CB20. Please take this matter seriously and add needed amendments to CB60 that we feel is unacceptable as it now stands.

Thank you.

Sayers, Margery

From: Lorraine <lctegeris@gmail.com>
Sent: Monday, July 10, 2017 2:36 PM
To: CouncilMail
Subject: I oppose CB60

County Council,

The current zoning language contained in CB60 introduced on behalf of County Executive Kittleman is unacceptable. As is, the loopholes in CB60 put the rural communities and all of RR/RC throughout Howard County at risk from well-documented safety and health concerns resulting from industrial mulching, and leave a large portion of Howard County (all State of MD ag farmland) completely unprotected.

Also of concern is the lack of enforcement by DPZ on current zoning violations involving mulching in Howard County. There is no reason to believe that enforcement will suddenly become a priority under the current County Executive administration.

There are many amendments needed in CB60 to make it acceptable to the health and well-being of thousands of families in potentially affected areas throughout Howard County. We are counting on the County Council to course correct with amendments added to CB60 to clearly prevent any chance of industrial mulch facilities from operating throughout Howard County.

The community fought hard for the zoning laws currently in place through CB20. We want those protections to stand. Please take this matter seriously and add needed amendments to CB60 to ensure the well-being of farmers, children, families, and all individuals living in affected areas.

Thank you.

Lorraine Tegeris