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Division of Waste Management
Solid Waste Section
Approved April 12, 2013
By D. Wilson
Facility ID 1906-COMPOST
Attch. 1, Part II, Doc 5
Doc ID 18160 (permit)
Doc ID 18162 (applic)

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Received
DEC 2012
Waste Management

McGill Environmental Systems

Regional Composting Facility

At Merry Oaks

Application for Modification to Permit Number SWC-19-06

December 2012

NORTH CAROLINA PROFESSIONAL SEAL 17069 ENGINEER GARY S. MACCONNELL

12/17/12

Owner:

McGill-Merry Oaks
634 Christian Chapel Church Road
New Hill, NC 27562

Telephone: (919) 362-1161
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MacConnell & Associates, P.C.
PO Box 129
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MACCONNELL
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1903 North Harrison Avenue
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Fax 919-319-6510

December 18, 2012

Received
DEC 2012
Waste Management

Ms. Donna J. Wilson
Environmental Engineer
NCDENR – Division of Waste Management
Solid Waste Section
Composting and Land Application Branch
1646 Mail Service Center
Raleigh, North Carolina 27699-1646

Re: McGill Environmental Systems
Regional Composting Facility at Merry Oaks
Application for Modification to Permit Number SWC-19-06
MacConnell & Associates, P.C. Project No.: A26712.00

Dear Ms. Wilson:

On behalf of McGill Environmental Systems and in response to your email dated November 30, 2012, enclosed for your review are two copies of the revised permit modification application and site plan for the above referenced facility. The permit modification application package is revised to remove any future phased upgrades and only include the previously completed facility upgrades. An Engineer's Certification statement that the current facility design will meet State Requirements for odor control and surface water runoff is added to site plan Sheet C-102. Relevant documents previously submitted are also included. Thank you for your continued assistance with this permit modification. If you have any questions, please do not hesitate to call me or Zachary L. Fuller, PE at (919) 467-1239.

Sincerely,

Gary S. MacConnell, PE
President

Enclosures

cc: Noel Lyons - McGill Environmental Systems
Steve Cockman - McGill Environmental Systems

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Introduction

McGill Environmental Systems of NC, Inc. requests a modification to the above permit related to replacement and upgrade of the McGill-Merry Oaks building roof structure, air handling volumes and materials storage.

McGill has been evaluating a major upgrade of the Merry Oaks facility for some time. This upgrade is primarily related to corrosion-resistant roof design and efficiencies related to air handling. The need for the upgrade took on a great urgency when the facility suffered damage from a storm in 2011.

Upgrades

Upgrades to the facility are completed as described in the Table below:

Upgrade	Timeline
Replacement of roof over blending building. Though identical in size to the original building, numerous upgrades/advancements include: • new roof has corrosion-resistant Resolite sheeting • metal components of new building were given two layers of corrosion prevention • main beams were painted with epoxy-coated paint • purlines were galvanized • all metal surfaces were encased in foam • all joints were foam-sealed	All completed
Improvements to blending building. All metal door jams on off-loading doors were replaced with reinforced concrete and perimeter concrete walls were raised to 18 feet.	Completed
Replacement of roof over processing bays 1, 3, 5, 7, 9, 11, 13, 15, 17 and 19 with individually-enclosed bays accommodating the isolation of each bay	Completed
Replacement of metal roof over aisle. New roof was corrosion-	Completed

Upgrade	Timeline
protected with epoxy paint and Resolite sheeting	
Deactivation of bays 2, 4, 6, 8, 10, 12, 14, 16, 18 and 20	Completed
Replacement of media in all active biofilter sections	Completed
Re-wiring of entire facility excluding deactivated bays. Electrical needs were supplemented with four generators during re-wiring.	Completed

Management of rainwater from inside the building

With the completion of the upgrades, 26% of the original roof structure is open. This open area is located within the building walls along the east side of the building and is in use. Material being stored in this area has met PFRP and is ultimately placed into the curing bays to meet VAR. A small portion of this area will be used for storage of amendments.

Both of these materials (amendments and material achieving PFRP) have immense potential to absorb water. We plan to maintain 60^{+} percent of the floor space covered to a maximum height of 15 feet. Any ponding water resulting from rainfall will be mopped up with compost, sawdust or other dry amendment and recycled back to the blending area. This water is always contained within the building. This practice has been in place since the commencement of the upgrades and has not at all posed a challenge.

Control of odors

Prevention will continue to be the primary focus in controlling odors. Proper and prompt blending are most critical. The upgraded buildings include many features that improve the confinement and collection of air that might require treatment.

The new processing bays greatly reduce the volume of air collected, but more importantly allow total isolation of an individual bay if required.

Biofiltration will continue to be the treatment option of choice. The volume of air required to be collected and treated is greatly reduced. This has been accomplished by having a lower profile roof over the processing bays and the isolation of each bay. The headspace exposed to odorous air inside the original roof was 1.4m cubic feet – this has been reduced to approximately 350,000 cubic feet. The volume of air and the biofilter residence time will remain identical to the original design with a much lower volume of air to manage. Six of the ten original biofilter fans are currently used as follows:

Biofilter Fan(s)	Usage area
1	Blending building (no change)
2, 4, 6 and 8	Ten active processing bays
10	Three curing bays (no change)

With the completion of the upgrades, all potentially odorous air is confined immediately above the bay and extracted directly to the biofilter.

Use of the biofilter during reconstruction

Use of the biofilter was less than optimal during reconstruction. This was addressed first and foremost by reducing incoming tonnages of materials. Tonnages of incoming materials with odor potential were reduced very substantially – a peak of 1,600^{+} incoming tons was frequently reduced to below 500 tons. A sufficient number of the biofilter fans were used at all times – matching the incoming tonnage. Prior to takedown of the building, three bays were upgraded with interior concrete walls and temporary roof. Ducting from these bays was upgraded with stainless steel.

Containment of spill from tank

Currently there is no secondary containment for the storage tank. Secondary containment was not required when it was originally permitted.

In the unlikely event of a spill from the above ground storage tank and related piping a supply of sawdust and wood chips are located next to the tank; this material is readily accessible with wheel loaders onsite and can be used to mop up a spill. Material would then be moved to the blending building to be processed. In addition a supply of bagged sand and hydrated lime is kept on hand to mop up smaller spills.

Changes to the amounts and types of materials

There will be no change to the types of materials accepted for composting. As 26% of the building will not be in use, there is a potential similar processing capacity reduction. We do however expect increased efficiencies due to a more controlled environment. McGill has consistently exercised a high level of discipline in making odor control a priority over incoming tonnages. This philosophy will not change.

Changes to the composting process

The core process, modified aerated static pile, will not change. The Glenville option will be used for primary processing. This option involves screening the material between PFRP and VAR. After feedstocks are blended the material is placed in a primary aerated compost bay for 4 to 8 days where PFRP is achieved. The material is then moved to the open area inside of the building to await screening; material will remain here 5 to 15 days. Once screened the material is stored outside of the building approximately 1 to 5 days before being placed in the curing bays for 12 to 14 days inside of the building where VAR is achieved. This material which has then met PFRP and VAR is moved to an outside area where it is screened and stored in bunkers awaiting distribution. There will be no changes to our blending operation. The only other operational change we are requesting is the increased storage of material in the uncovered area inside the building.

With the potential challenges looming in stormwater management, this step also brings us closer to our ultimate objective for this facility – a completely indoor facility.

Amounts of curing compost to be stored in the building

We anticipate using 3-5 bays for curing. We request storage of compost during active curing to a height of 10 feet. Five bays at a maximum height of 10 feet would amount to 5,000 cubic yards at any one time.

Additionally we wish to store material in the uncovered area. This would be material that has met PFRP but is awaiting screening and the VAR process. Material will be stored to a maximum height of 15 feet. This material will be surrounded on three sides by walls 16 feet high. Using 60 percent of the floor space for storage would allow for a maximum storage of 10,000 cubic yards of material.

Operation of the facility after upgrades

Fundamentally the facility will operate in a similar manner after completion of the upgrades as it has in the past. We expect management to be easier specifically related to maintenance, housekeeping and materials handling. Greater visibility within the building during adverse weather conditions will make for a more pleasant operating environment. Moving of all electrical controls into the controlled-environment room will improve reliability.

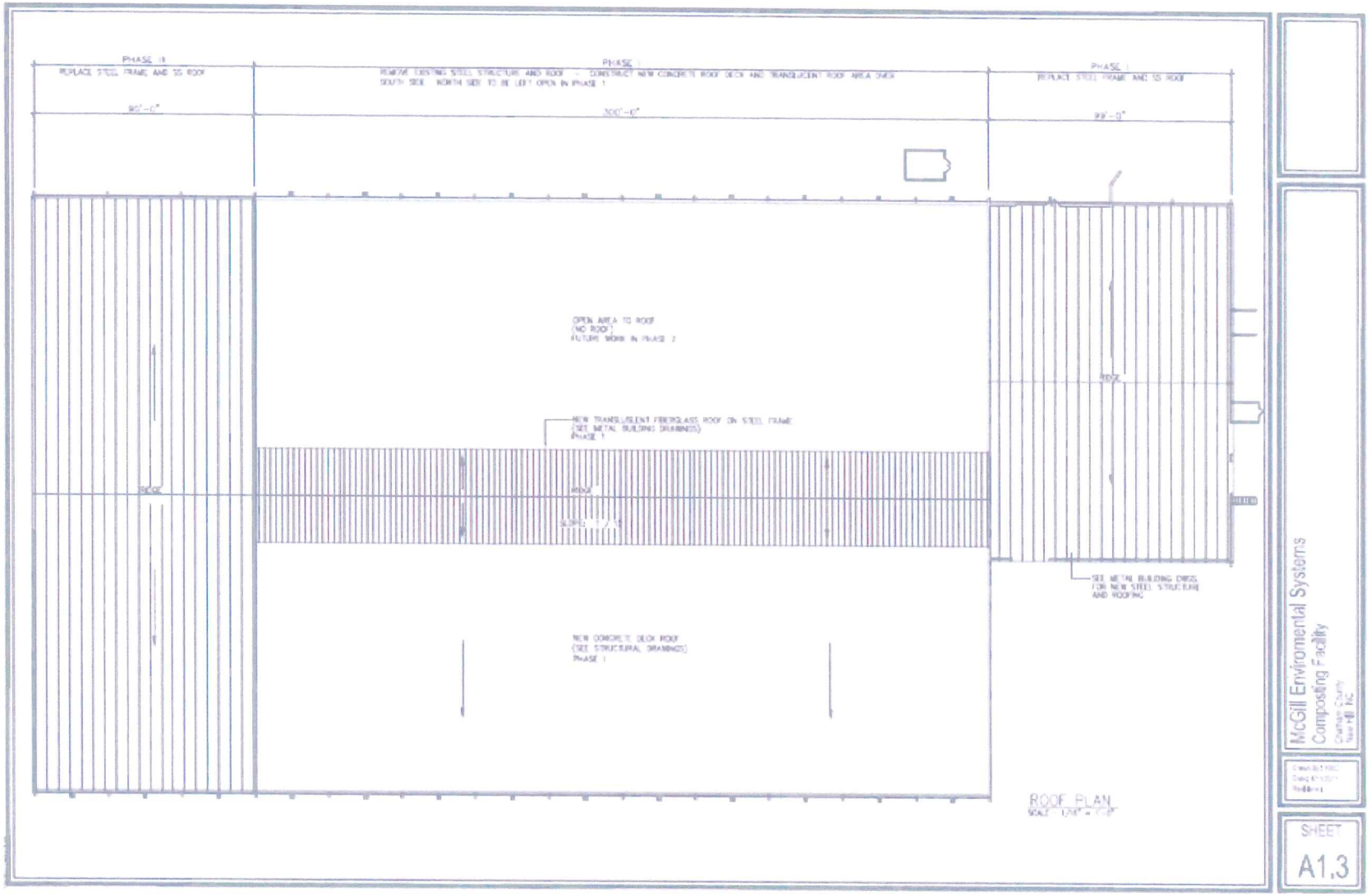
Attachment #1 – Building Modification Drawings

Sheet A1.3 - Composting Facility

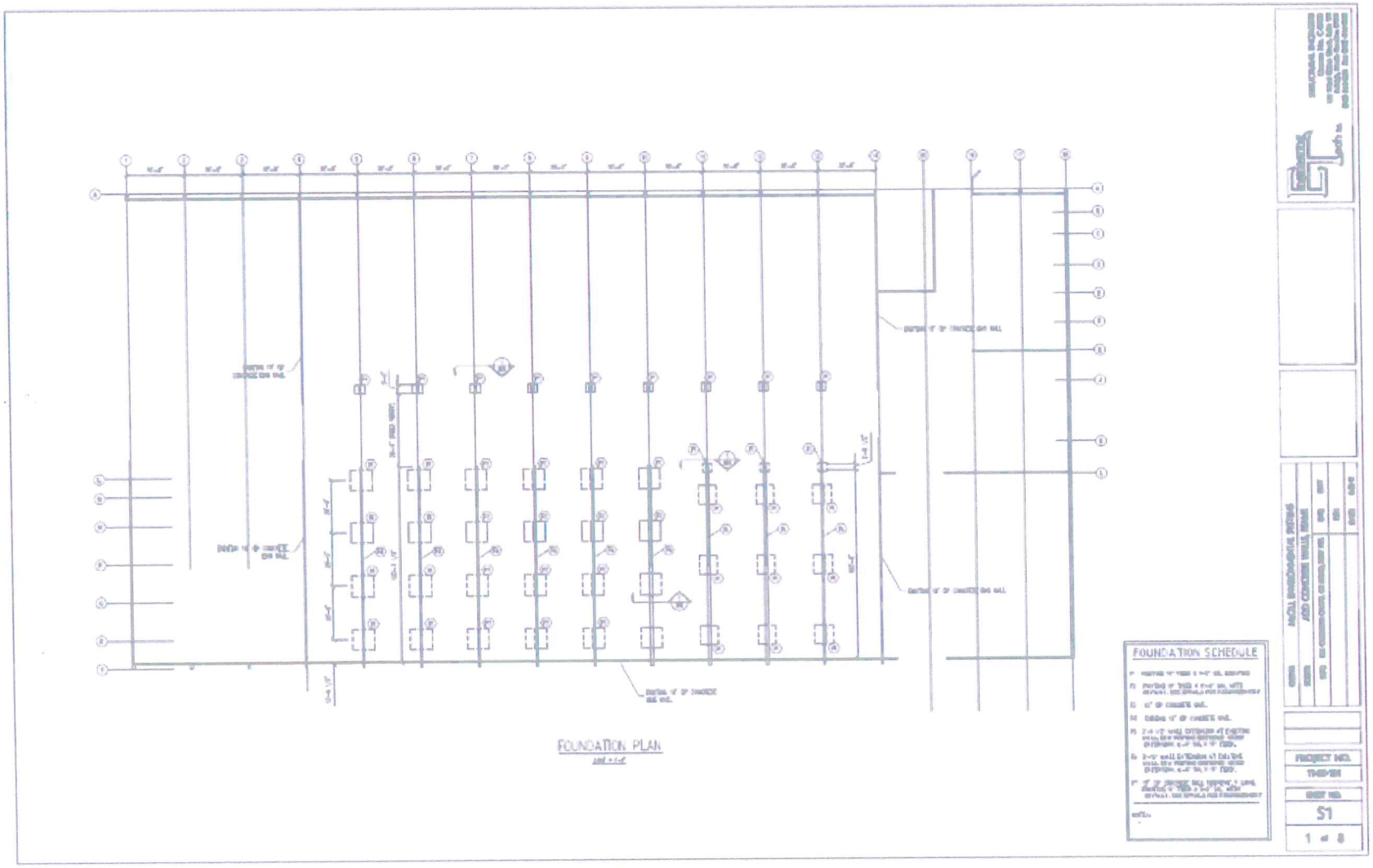
Sheet S1 - Foundation Plan

Sheet S2 - Framing Plan

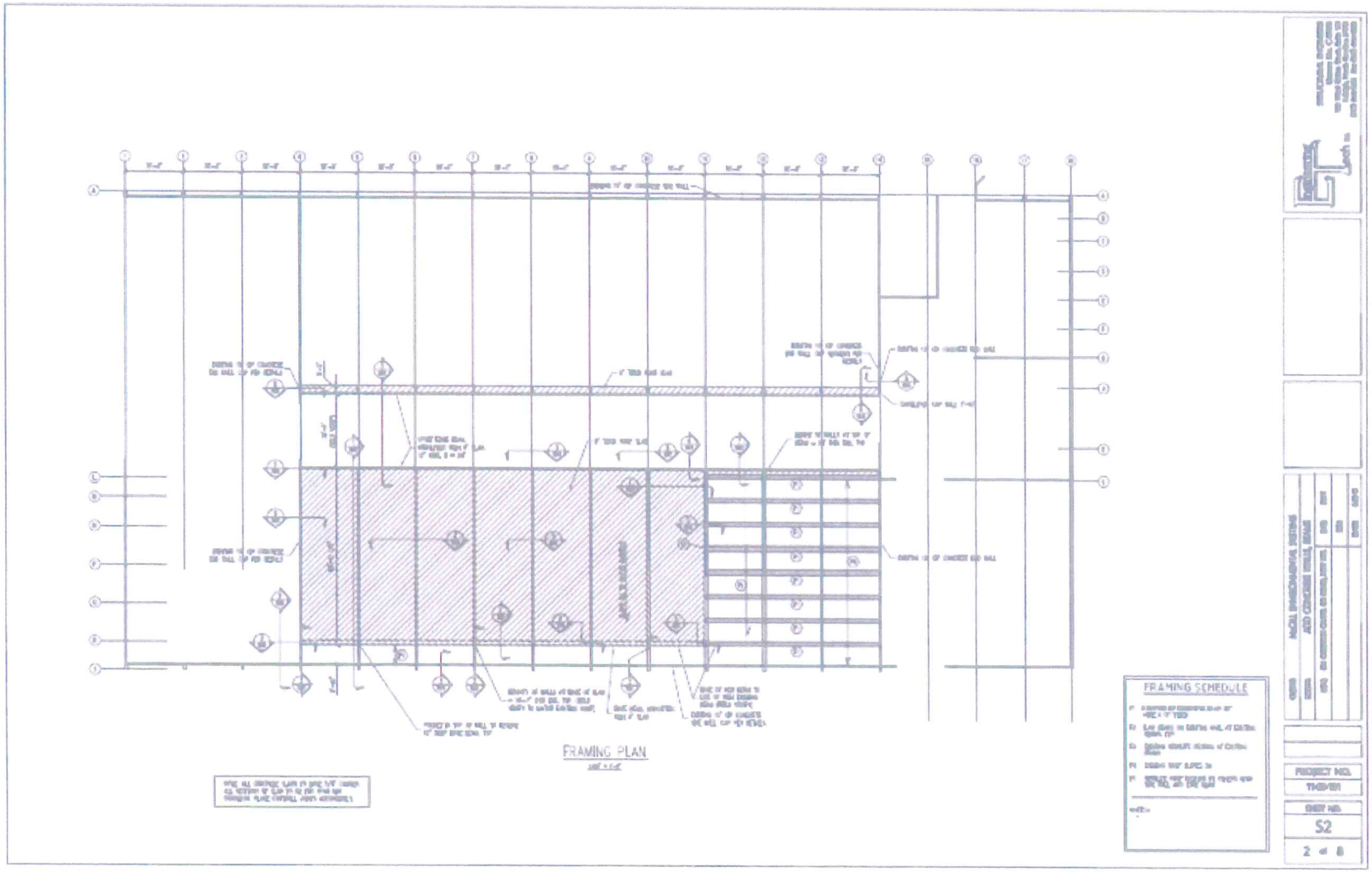
McGill Environmental Systems – Merry Oaks building modification drawings



McGill Environmental Systems – Merry Oaks building modification drawings



McGill Environmental Systems – Merry Oaks building modification drawings



Attachment #2 – Curtain Detail Drawings

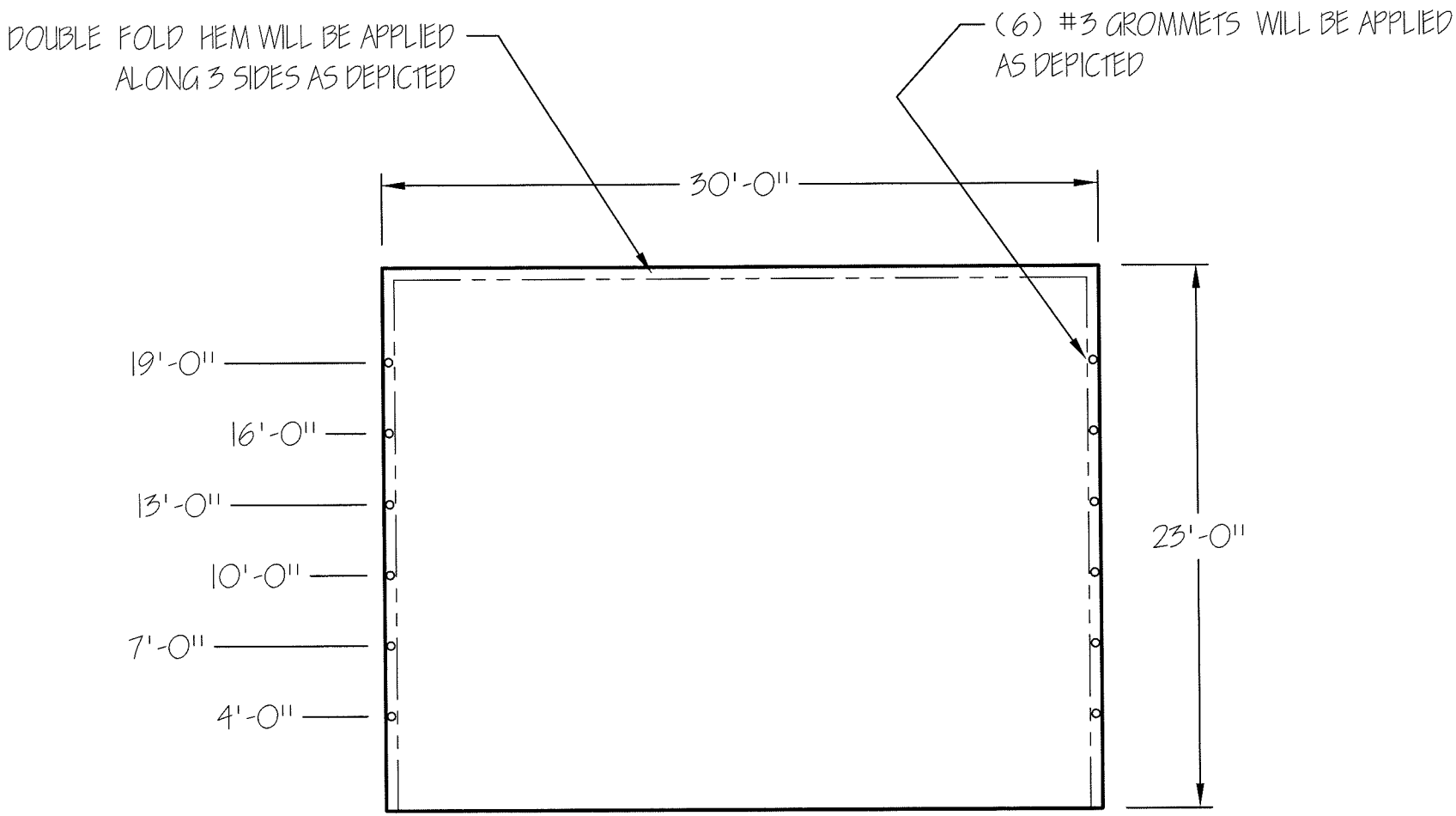
Curtain Detail - Processing Bay

Curtain Detail - Side Door

Curtain Detail - Aisle Door

Curtain Layout Diagram

REEF INDUSTRIES, INC.	MATERIAL: TX-1600	SALESMAN NAME & CODE: MY 0103	DRAWING 1 of 1	SO# Mc Gill Env.(Noel Lyons)
	COLOR: CLEAR	DWG. BY: RC	ITEM 1	DATE: 3-7-12



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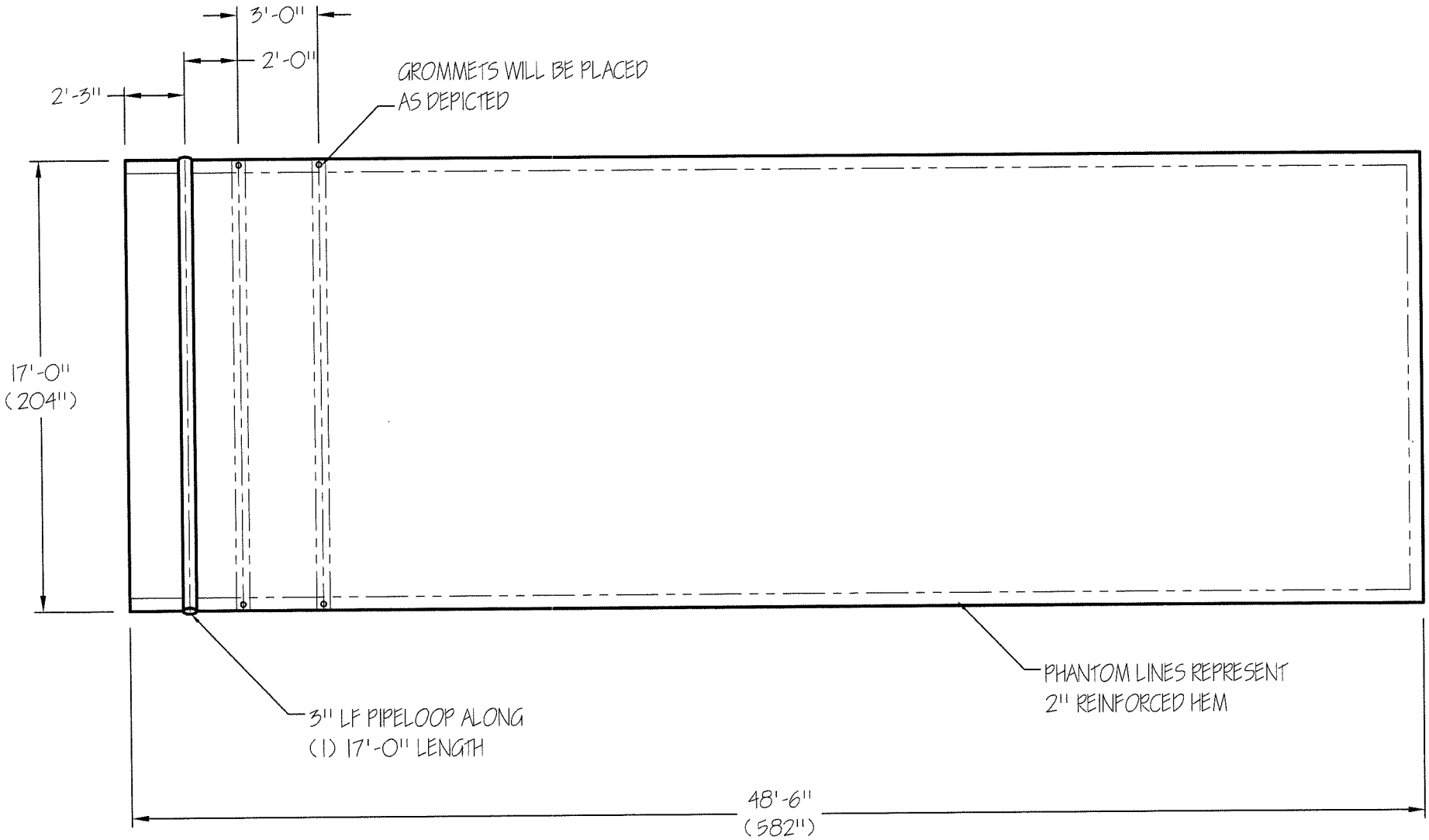
REEF INDUSTRIES, INC.	MATERIAL: TX-1600 GH	SALESMAN NAME & CODE: MY 0103	DRAWING: 1 OF 2	SO# McGILL ENVIRONMENTAL
	COLOR: CLEAR	DWG. BY: RC	ITEM 1 (SIDE DOOR)	DATE: 7-27-2012



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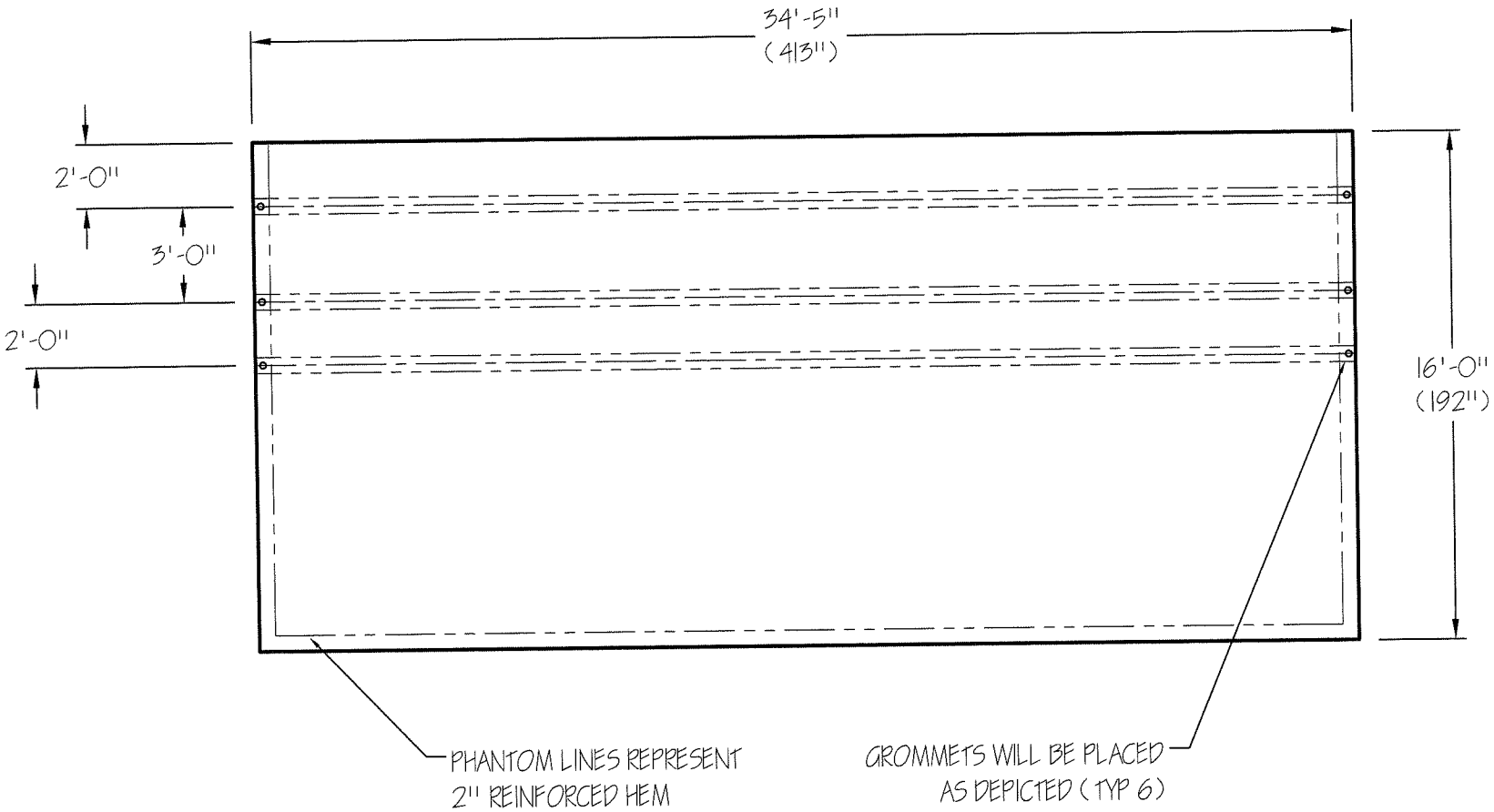
REEF INDUSTRIES, INC.	MATERIAL: TX-1600 GH	SALESMAN NAME & CODE: MY 0103	DRAWING: 2 OF 2	SO# McGILL ENVIRONMENTAL
	COLOR: CLEAR	DWG. BY: RC	ITEM 2 (AISLE DOOR)	DATE: 7-27-2012



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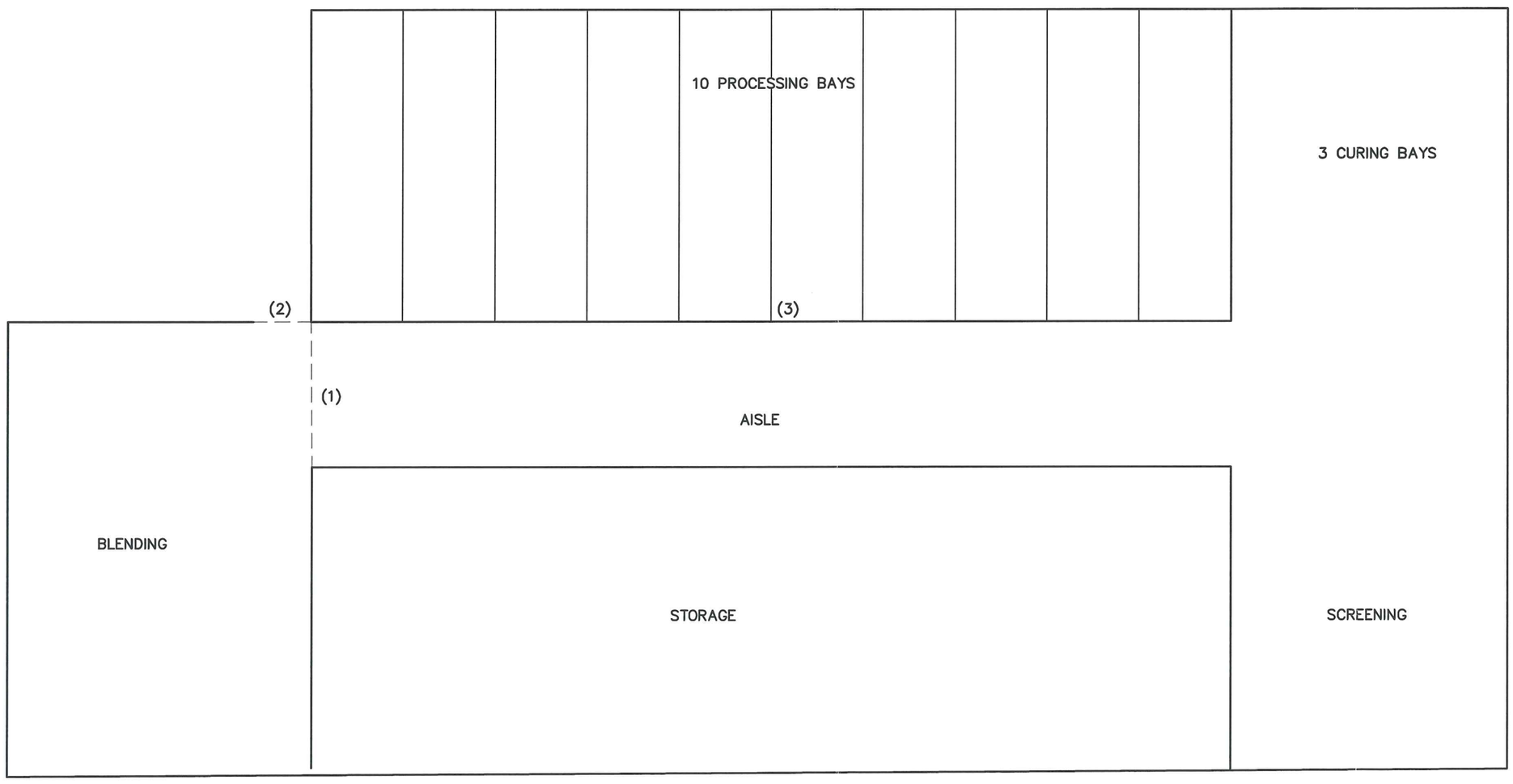
1. AISLE CURTAIN: RAISED & LOWERED TO ALLOW LOADER TRAFFIC. CURTAIN IS RAISED DURING THE WORK DAY AND LOWERED IN THE EVENING.

2. SIDE DOOR CURTAIN: RAISED & LOWERED TO ALLOW TRUCK & LOADER TRAFFIC. CURTAIN IS RAISED DURING THE WORK DAY AND LOWERED IN THE EVENING.

3. BAY CURTAIN: 10 CURTAINS RAISED & LOWERED TO ALLOW BAY FILLING AND BAY EMPTYING.



NORTH CAROLINA PROFESSIONAL SEAL 17069 ENGINEER GARY S. MacCONNELL

12/17/12

REFERENCE C—1

PROJECT: MCGILL ENVIRONMENTAL SYSTEMS

CURTAIN LAYOUT DIAGRAM

CHATHAM COUNTY, NC

BY: MAE

JOB #: A26712.00

DATE: 12/17/12

MacCONNELL & Associates, P. C.
1903 NORTH HARRISON AVE., SUITE 102
CARY, NORTH CAROLINA 27513
P. O. BOX 129
MORRISVILLE, NORTH CAROLINA 27560
TEL: (919) 467-1239 FAX: (919) 319-6510

Attachment #3 – Division of Waste Management Correspondence

Email Dated November 30, 2012

Memo Dated October 9, 2012

Email Dated July 11, 2012

Steve Cockman

From: Wilson, Donna <donna.wilson@ncdenr.gov>
Sent: Friday, November 30, 2012 10:46 AM
To: Steve Cockman
Cc: Noel Lyons; Scott, Michael; Gallagher, Tony; Patrone, John
Subject: McGill Compost Facility permit modification
Attachments: permit mod applic as of 11-30-12.pdf; 2010 apprvd permit app.pdf

Hello Steve – This email is to follow up the status of the permit modification application for the construction modifications.

Based on our conversations and your submittal, it is our understanding that McGill has chosen the option of leaving the building roof open on the east side. If that is not the case please let me know.

Because the building modifications have now involved changing the design and operation of the facility, the previous design and drawings signed and sealed by an engineer are no longer valid because the building is no longer enclosed. The permit modification application will require signature and seal by a NC registered professional engineer, and this signature and seal should accompany a statement that the design will meet state requirements for odor control and surface water runoff control.

Attached is the current copy of the application, that includes as attachments review comments dated 7-11-12, response to comments dated 8-24-12, Memo dated 10-9-12 concerning clarification to the response to comments, and a sketch received 10-9-12. The permit application should include the engineer's signature and seal. The engineer may change or add to the application as needed; however, a description of the changes should be provided with the submittal.

Also enclosed for the engineer's reference is a copy of the last approved application and operating plan.

Please provide the revised application within 30 days of this email. If you have any questions or if you will need more than 30 days, please let me know.
Thanks, Donna

Donna J. Wilson
Environmental Engineer
Solid Waste Section/Division of Waste Management/NC DENR
1646 Mail Service Center
Raleigh NC 27699-1646
**New Phone 919-707-8255
Email - donna.wilson@ncdenr.gov
Section webpage - http://portal.ncdenr.org/web/wm/sw

DWM offices have moved to the Green Square complex, 217 W. Jones St, Raleigh.
Mailing and delivery address is 1646 Mail Service Center, Raleigh NC 27699.

E-mail correspondence to and from this address may be subject to the
North Carolina Public Records Law and may be disclosed to third parties.

Memo

To: File

From: Donna Wilson

Subject: McGill Compost Facility, Clarification on response to comments dated 8-24-12

Date: Oct. 9, 2012

The following are my notes from my conversation October 1, 2012 with Steve Cockman concerning the polyethylene covers used at McGill Compost Facility and the response to comments dated 8-24-12. The notes below include his suggested changes to text.

I also asked Steve to provide a sketch of the layout of the facility showing the location of the polyethylene covers. Attached is the sketch provided by Steve Cockman on 10-9-12.

Covers - The covers are solid covers (not vertical strips), clear polyethylene material that is tarp-like, sized to fit the openings. The covers are raised and lowered with a person in a boom lift (like a cherry picker). The bottom edge of the cover is picked up and lifted so that the cover is essentially folded up. The bottom edge is then secured to the top of the opening.

Curing building - There is no cover between the primary (aisle) building and the curing building, so the curing building is not isolated. The opening between the two areas is the aisle only. The two areas are otherwise separated by walls. There are ducts at the farthest ends of the curing bays that pull air into the biofilters. The curing bays have a separate biofilter fan.

Blending building - The blending building is isolated from the primary building with a fitted one-piece cover. The cover is lifted and secured up and is not in use during the work day. The blending building is open to the environment during the day. It is lowered in place at the end of the day. The intake for the biofilter has been moved to be directly overhead of the blending of raw materials. The fans are pulling air during the day when the cover is not in place.

Primary building - The covers over the bays are kept in place except for the one bay that is being filled and one bay that is being emptied on that day. A bay is opened at the end of the primary processing period at 7-8 days and after it meets PFRP. The biofilter fans for the primary building run continuously.

Surface water inside – Water can't flow into the blending building because of a concrete wall or barrier. Water in the primary building is absorbed by compost or amendments in the open area and in the aisle.

Building changes/Permit modification, McGill Environmental Systems Compost Facility

Wilson, Donna

sent: Wednesday, July 11, 2012 3:55 PM

To: Steve Cockman (scockman@mcgillcompost.com);

Cc: Noel Lyons (nlyons@mcgillcompost.com); Patrone, John;

Steve – The Solid Waste Section has reviewed the permit modification application for the McGill Environmental Systems Compost Facility at Merry Oaks. The modification application pertained to the building changes at the facility. Please address the following questions/comments:

1. In order to concur with the plan to leave a portion of the building with an open roof, please provide more information on the bay covers and method of partitioning for the blending building and the curing bays. Are the covers in use now? Describe the covers on each bay. How is the blending building and the curing bays isolated for the biofilter? Describe the cover or partition to separate the blending building and the curing bays. Describe the material of the covers and the design/operation of the covers, and provide a sketch or drawing of its design and use. Describe the air collection to the biofilter with the covers/partitions. When are the bays covered and when are they not covered? Explain how this partitioning change is equivalent to or better than the original planned and approved design, including odor control and surface water control.
2. Secondary containment of the above ground storage tank is not required; however, the facility should have a plan and some means of controlling or mitigating a spill, leak, or release from the above ground storage tank and related piping, especially to prevent flow offsite or into surface waters. Please address.
3. Phase 3 is not considered part of this application because it is not proposed at this time. When this phase is proposed for installation, an application with construction/operation details should be submitted to this office in advance.

The additional information can either be submitted as an addendum to the previous submittal, or the additional information can be incorporated into the text of the previous submittal and resubmitted.

If you have any questions please let me know.
Thanks, Donna

Donna J. Wilson
Environmental Engineer
Solid Waste Section/Division of Waste Management/NC DENR
1646 Mail Service Center
Raleigh NC 27699-1646
**New Phone 919-707-8255
Email - donna.wilson@ncdenr.gov
Section webpage - http://portal.ncdenr.org/web/wm/sw

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North Carolina Public Records Law and may be disclosed to third parties.

Attachment #4 – McGill Response to Division of Waste Management

Addendum A - Received August 28, 2012

McGILL
The compost people®

August 22, 2012

Donna J. Wilson
Environmental Engineer
Solid Waste Section/Division of Waste Management/NCDENR
1646 Mail Service Center
Raleigh, NC 27699-1646

RECEIVED
AUG 28 2012
SOLID WASTE SECTION

Application for modification to McGill Environmental Systems Permit SWC-19-06
Dated February 27, 2012

Dear Donna:

Enclosed is a response to your email dated July 11, 2012 concerning our permit modification request dated February 27, 2012.

I have responded to your questions in the email in the following pages, a hard copy of this email has also been mailed to your address.

Please contact me at (919-542-8903 scockman@mcgillcompost.com) if you have any questions or comments.

Sincerely,

Steve Cockman
Operations Manager
(M) 919-542-8903
scockman@mcgillcompost.com

McGILL
The compost people

RECEIVED
AUG 28 2012
SOLID WASTE SECTION

Addendum A

1. In order to concur with the plan to leave a portion of the building with an open roof, please provide more information on the bay covers and method of partitioning for the blending building and the curing bays.

   The bay covers are of two types. The 1st 3 bays are a series of reinforced concrete beams with resolite sheeting as the outer layer. The remaining 7 bays have a reinforced concrete roof. There is a 6 foot section at the back which is constructed of resolite.
   All corners are sealed with high density spray foam making all roofs truly airtight. All primary processing is carried out within these bays.

2. Are the covers in use now?

   Yes

3. Describe the covers on each bay.

   Each primary processing bay consists of 3 permanent walls and a permanent roof constructed of concrete and resolite sheeting. The front of each bay facing the aisle is covered with a reinforced polyethylene laminate curtain that fits to the bay front.

4. How is the blending building and the curing bays isolated for the biofilter?

   The blending building is contained by a sealed roof and wall sheeting consisting of resolite and sealed with foam insulation. One personnel door located on the east side of the building is sealed with weatherstripping and remains closed when not in use. The opening leading from the blending building to the aisle is fitted with a reinforced polyethylene laminate curtain that can be raised and lowered to allow wheel loaders to pass through moving material to the processing bays. The door opening on the west side of the blending building is also fitted with a reinforced polyethylene laminate curtain that can be raised and lowered to allow trucks to enter the blending building and offload amendments (sawdust, sheetrock). The curing bays remain as the original building design with a building covering the bays and the ductwork at the back of the curing bays pulling air to the biofilter.

5. Describe the cover or partition to separate the blending building and the curing bays.

The blending building is located at the opposite end of the building from the curing bays and are therefore separated by the primary processing bays. They are three hundred feet apart.

6. Describe the material of the covers and the design/operation of the covers, and provide a sketch or drawing of its design and use.

The covers or bay doors are constructed of reinforced polyethylene laminate material that is special ordered and cut to fit each opening. The covers (bay doors) are designed to be raised and lowered as needed to accommodate filling the bays and removing the material from the bay. To date this is done manually. An operator using a lift raises the door and secures it overhead. The opposite action is performed when the door requires closing.

7. Describe the air collection to the biofilter with the covers/partitions.

Ductwork is located at the rear wall of each processing bay from the biofilter. With the bay cover (bay door) in the closed position the air within the bay is collected by the ductwork and travels to the biofilter.

8. When are the bays covered and when are they not covered?

The bays are always covered. The roof over all bays is a permanent structure. Only the door at the front of the bay is movable (bay doors).

9. Explain how this partitioning change is equivalent to or better than the original planned and approved design, including odor control and surface water control.

Blending building: In the case of the blending building the design is fundamentally the same as the original, however the various upgrades to the materials insure that this area is more airtight.
Specifically these include, raising the perimeter concrete wall by a minimum of 4 feet, offloading door jams made from concrete, new offloading doors, spray foam on all wall joints.
The intake point for the extraction pipe has been moved to directly over the offloading area. This will insure more rapid removal of odorous air from incoming materials to the biofilter.
Additionally the isolation of the blending area from the primary processing air makes for a brighter and dryer working environment in the blending area. The blending building changes should have no impact on surface water control.

Processing bays (building): In the old design odorous, high moisture air from the primary processing was allowed to disperse throughout the whole building. This had a significant impact on the working environment especially during adverse weather conditions. Specifically, during cooler weather hot air rising from the primary bays

resulted in significant condensation when it came in contact with the underside of the roof. This made the surface of each bay wetter than ideal. This has a real impact on everything from bay surface porosity, screening to reuse as an amendment. Dryer material screens more uniformly and is easier to maintain aerobic conditions during curing. The area consisting of the even numbered processing bays in the old building is taken out of use as a processing building. This area, now without a roof, is only used for the storage of overs, amendment and compost. In the old layout these materials could and would be stored outside. All the rainwater falling in this area, not absorbed by the materials stored here, is contained within the building and incorporated into the composting process. Given the dramatic improvement is drying within the new processing bays this extra moisture is of significant benefit to the process. All in all the upgrades to the processing should reduce the volume of surface water flow due to the reduced roof size.

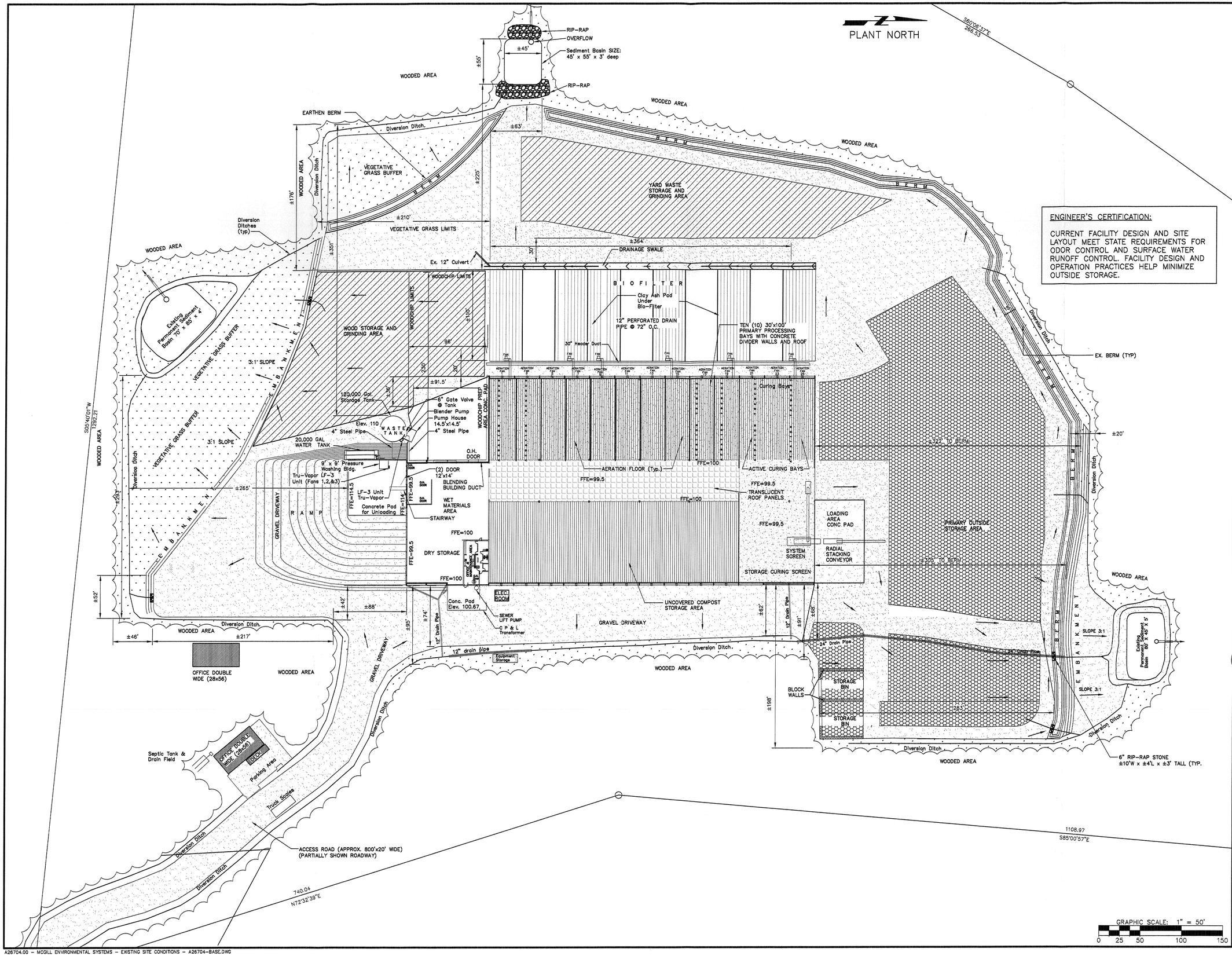
Curing: It is now anticipated that all curing will be done under roof. Unlike windrow curing this will allow aerobic conditions to be maintained at all times. This eliminates the potential of odor from turning windrows especially after periods when inclement weather disrupts the turning schedule. Moving the curing under roof makes the facility truly weather independent from offloading to final product. The outside, active footprint is greatly reduced which can only improve surface water management. Though no plan has been finalized yet consideration is been given to permanently reducing the former windrow curing area and putting it back in permanent vegetation.

10. Secondary containment of the above ground storage tank is not required; however, the facility should have a plan and some means of controlling or mitigating a spill, leak, or release from the above ground storage tank and related piping, especially to prevent flow offsite or into surface waters. Please address.

    In the unlikely event of a spill from the above ground storage tank and related piping a supply of sawdust and wood chips are located next to the tank; this material is readily accessible with wheel loaders onsite and can be used to mop up a spill. Material would then be moved to the blending building to be processed. In addition a supply of bagged sand and hydrated lime is kept on hand to mop up smaller spills.

11. Phase 3 is not considered part of this application because it is not proposed at this time. When this phase is proposed for installation, an application with construction/operation details should be submitted to this office in advance.

    McGill does not have a proposed date for Phase 3 at this time, when such a date is determined McGill will submit a request for Phase 3.



NOTES

1. SEE C-101 FOR ALL GENERAL NOTES.

LEGEND

- EXISTING TREE LINE
- DIVERSION DITCH
- (FLOW) SLOPE DIRECTION
- ALL AREA CLASSIFIED AS IMPERVIOUS, INCLUDING STRUCTURES, BUILDINGS, ROADWAYS, PARKING, AND PRODUCT STORAGE. SEE CHART BELOW FOR TOTAL
- RIP-RAP EROSION CONTROL PROTECTION
- STORAGE AREA
- AREA SEPARATION LIMITS LINE
- VEGETATIVE GRASS BUFFER AREA
- GRINDING AREA
- DRAINAGE SWALE (FLOW)
- ADJACENT PROPERTY

ENGINEER'S CERTIFICATION:

CURRENT FACILITY DESIGN AND SITE LAYOUT MEET STATE REQUIREMENTS FOR ODOR CONTROL AND SURFACE WATER RUNOFF CONTROL. FACILITY DESIGN AND OPERATION PRACTICES HELP MINIMIZE OUTSIDE STORAGE.

REVISIONS

NO.	DATE	DESCRIPTION
1	3/30/06	REVISED PER NCDENR REVIEW
2	5/18/06	FINAL REVIEW
3	5/31/06	FINAL SUBMITTAL
4	2/16/09	REVISED PER CLIENT
5	7/12/10	REVISED PER CLIENT
6	12/7/12	REVISED PER SWS

PROJECT MANAGER: GSM	PROJECT ENGINEER: ZLF
DRAWN BY: MAE	CHECKED BY: GSM

DATE: DECEMBER 08, 2005

NORTH CAROLINA PROFESSIONAL SEAL 17069 ENGINEER GARY S. MacCONNELL 12/7/12

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MCGILL ENVIRONMENTAL SYSTEMS

CHATHAM COUNTY FACILITY
CHATHAM COUNTY, NC

COMPOSTING FACILITY SITE PLAN

PROJECT NUMBER	DRAWING NUMBER
A26704.00	C-102

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