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February 27, 2012

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FEB 28 2012
SOLID WASTE SECTION

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

Re: Application for modification to McGill Environmental Systems Permit SWC-19-06

Dear Donna:

Enclosed is the permit modification application for permit SWC-19-06 for our Merry Oaks facility that you requested in your e-mail dated February 14, 2012.

I have addressed the key elements described in your e-mail and included pages from the blueprints that best illustrate the building changes. The paper copy and check for $500.00 are being mailed today.

Please contact me by email or phone if you require any additional information.

Sincerely,

M. Noel Lyons
President
(M) 910-990-3188
nylons@mcgillcompost.com

2011 USCC COMPOSTER OF THE YEAR

PAID
CK. NO. 32615 $500.00
DATE 2/28/12

Enclosures

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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.

As discussed in the 2010 permit renewal introduction (see Appendix A), 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.

Phases and timelines

Upgrades are to be performed in three distinct phases. A color-coded drawing that illustrates these phases is attached as Appendix B.

Phase 1

This phase encompasses:

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

Upgrade	Timeline
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-protected with epoxy paint and Resolite sheeting	Completed
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.	Ongoing – to be completed by mid-March

Phase 2

This phase involves replacement of the roof over even-numbered bays. Future use of this portion of the building is being evaluated. This area is not being used for processing and has not been since the commencement of Phase 1.

Options being considered are:

A. Return to production similar to odd-numbered bays
B. Leave uncovered and use for storage of compost and amendments
C. Use for covered storage and screening

At this time we request option B.

Phase 3

In this phase, we would replace the roof over three curing bays and the screening building. However, since the existing roof is intact and continues to function as it always has, we do not anticipate having to do this until well into the future.

Management of rainwater from inside the building

With the completion of Phase 1, 26% of the original roof structure is open. This area has not been in use since becoming open. We propose to use the area primarily to store compost. A small portion of this area will be used for storage of amendments.

Both the compost and the amendments 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 then be recycled back to the blending area. This water is always contained within the building. This practice has been in place since the commencement of Phase 1 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. Four of the ten biofilter fans become redundant until the even-numbered bays are reactivated. Biofilter fan usage will be 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 Phase 1, 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.

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. There will be no changes to our blending operation. The only substantive operational change we are requesting is the increased storage of compost in the Phase 2 area.

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 compost in the Phase 2 area. This would not be active curing but would replace some outside storage. Here we would store to a maximum height of 15 feet. This product will be surrounded on three sides by walls 16 feet high. Using 60 percent of the floor space for compost storage would allow for a maximum storage of 10,000 cubic yards of compost.

Operation of the facility after upgrades

Fundamentally the facility will operate in a similar manner after Phase 1 completion 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.

Appendix A – 2010 Permit Renewal

Introduction

When the McGill Chatham facility opened in 2002 it represented the best available and affordable design available to McGill.

Through the 7 years of operation at Chatham and the design and construction of 2 new McGill plants elsewhere in the world a number of design and operational improvements have been developed.

McGill is committed to bringing all of these advancements to the Chatham Facility where at all feasible and beneficial.

The newest design involves the further confining of the primary processing bays for the 1st 5 to 7 days. This would involve a cubicle type structure encasing each of these bays.

The benefits of this are as follows:

The air with the highest odor potential is confined in a small area. From here it can be better managed. The reduced quantity allows for extended residence time in the Biofilter

Confining this air greatly reduce corrosion on the main building. This is a challenge in all indoor composting facilities.

It dramatically improves the main building environment especially in wintertime.

It gives us the ability to have a dryer product going to curing.

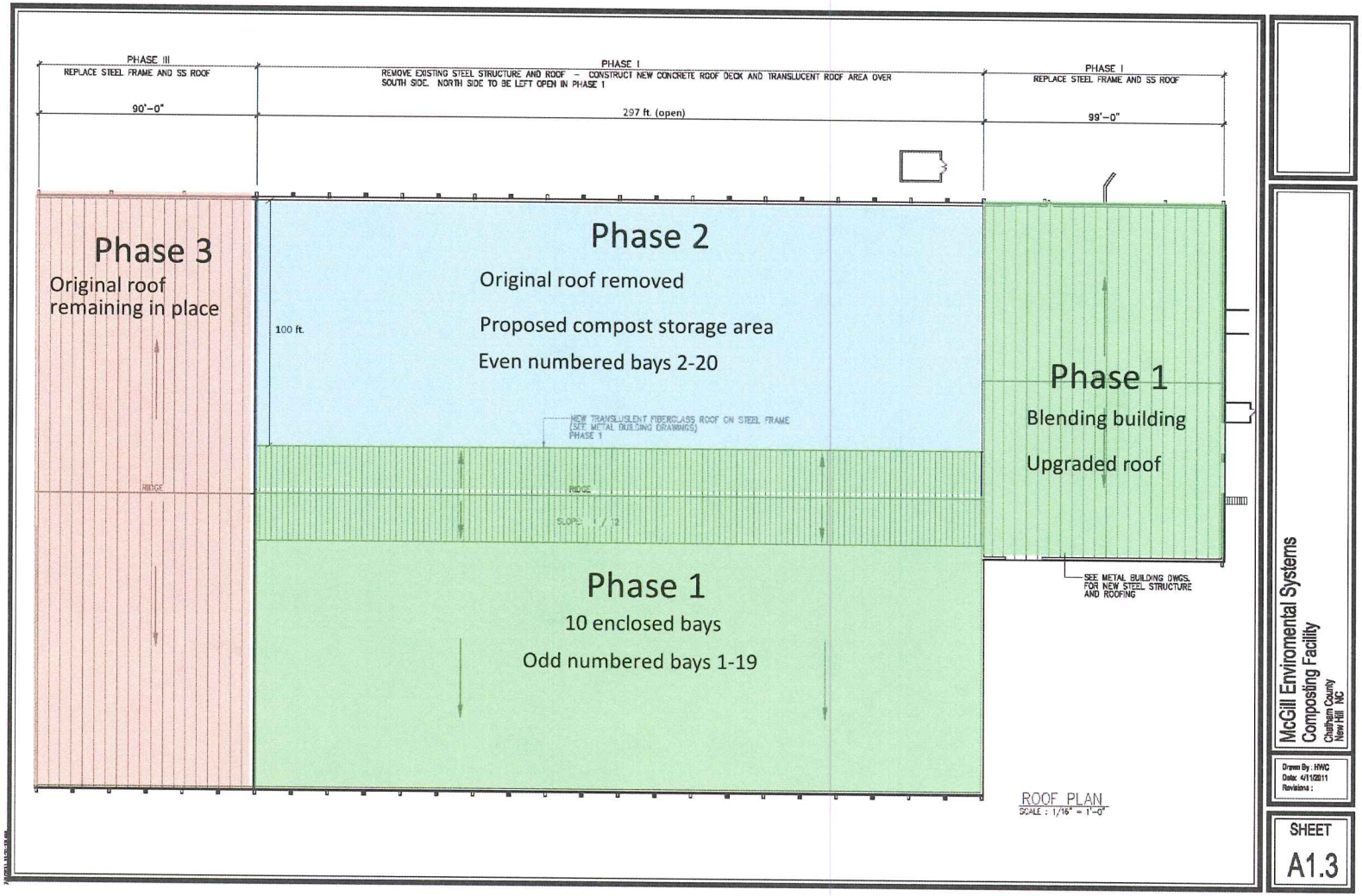
Overall this design has resulted in about 30% energy cost reduction.

In addition to the above benefits this further confinement would not change the present operational, regulatory and quality standards. For example achieving PFRP and VAR indoors. Air from all areas of the building would go to the same biofilter. Mixing ratios would not change. Feedstocks would not change.

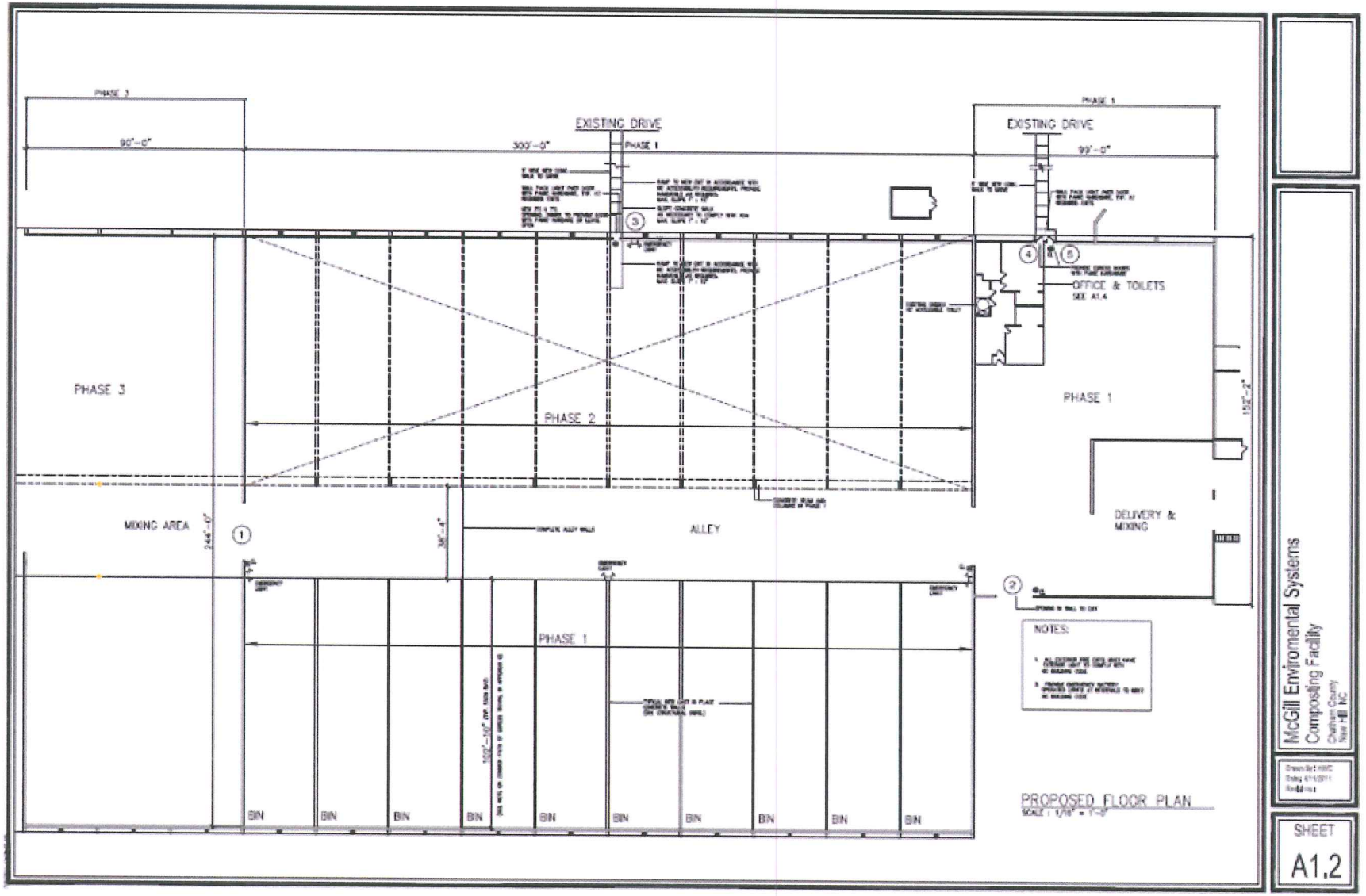
At this stage we are at the advanced stages of planning and budgeting. It does involve an enormous investment for a company of McGill's size.

Prior to making a final decision on this we will have clarity on our cost exposure to the Division of Water Quality "Stormwater" issue.

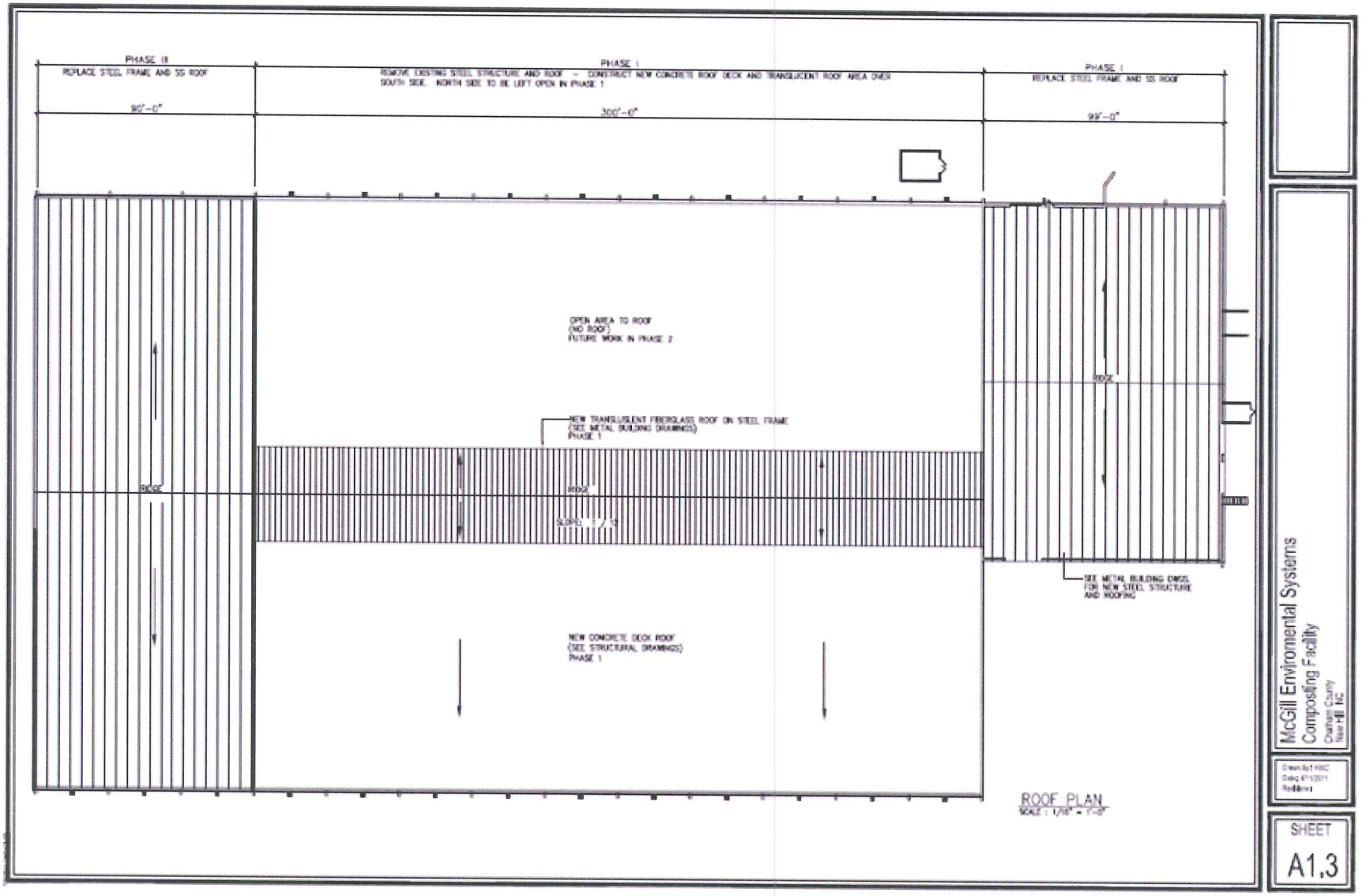
Appendix B – Drawing of Merry Oaks reconstruction

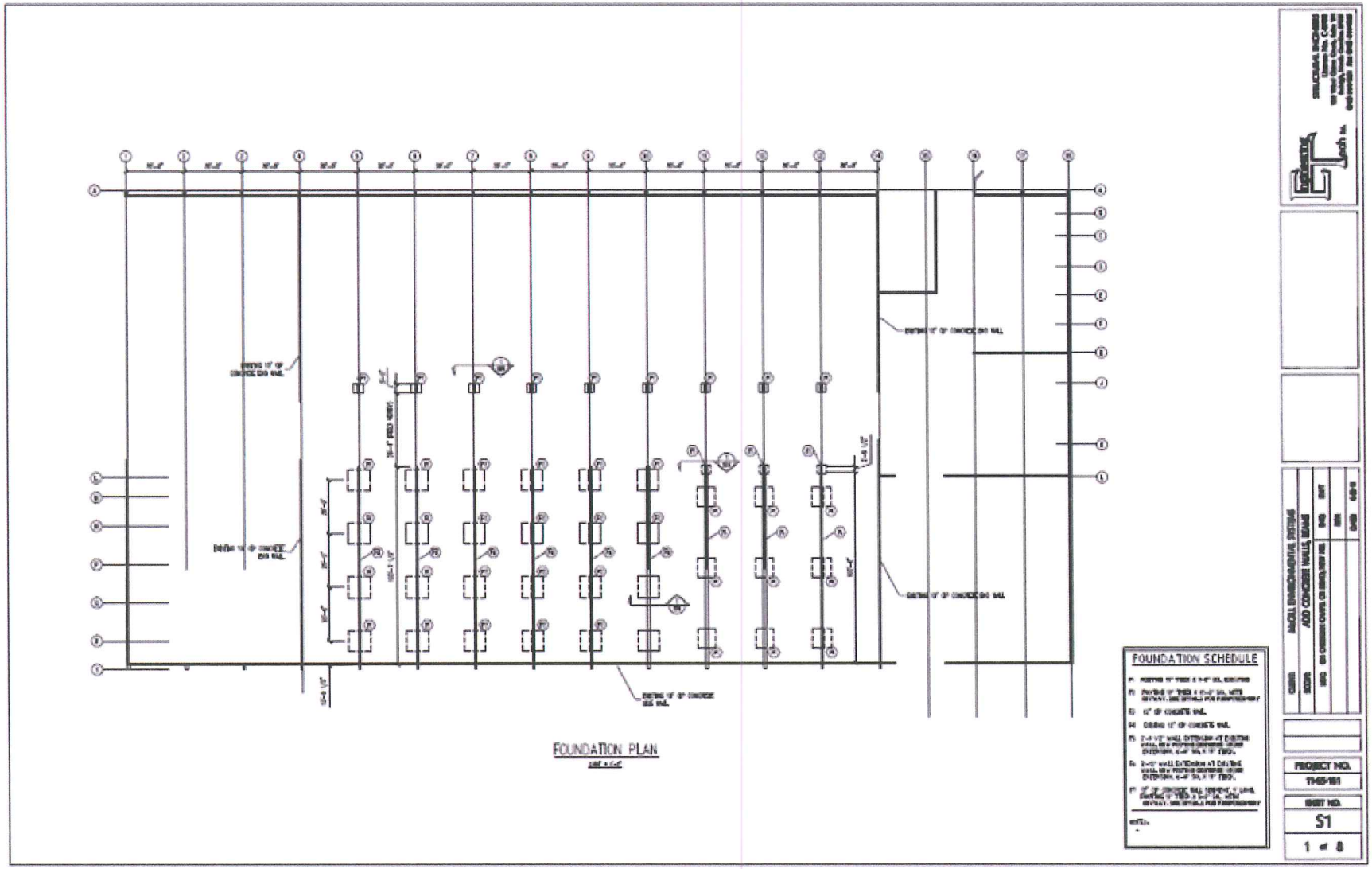


McGill Environmental Systems – Merry Oaks building modification drawings



McGill Environmental Systems – Merry Oaks building modification drawings

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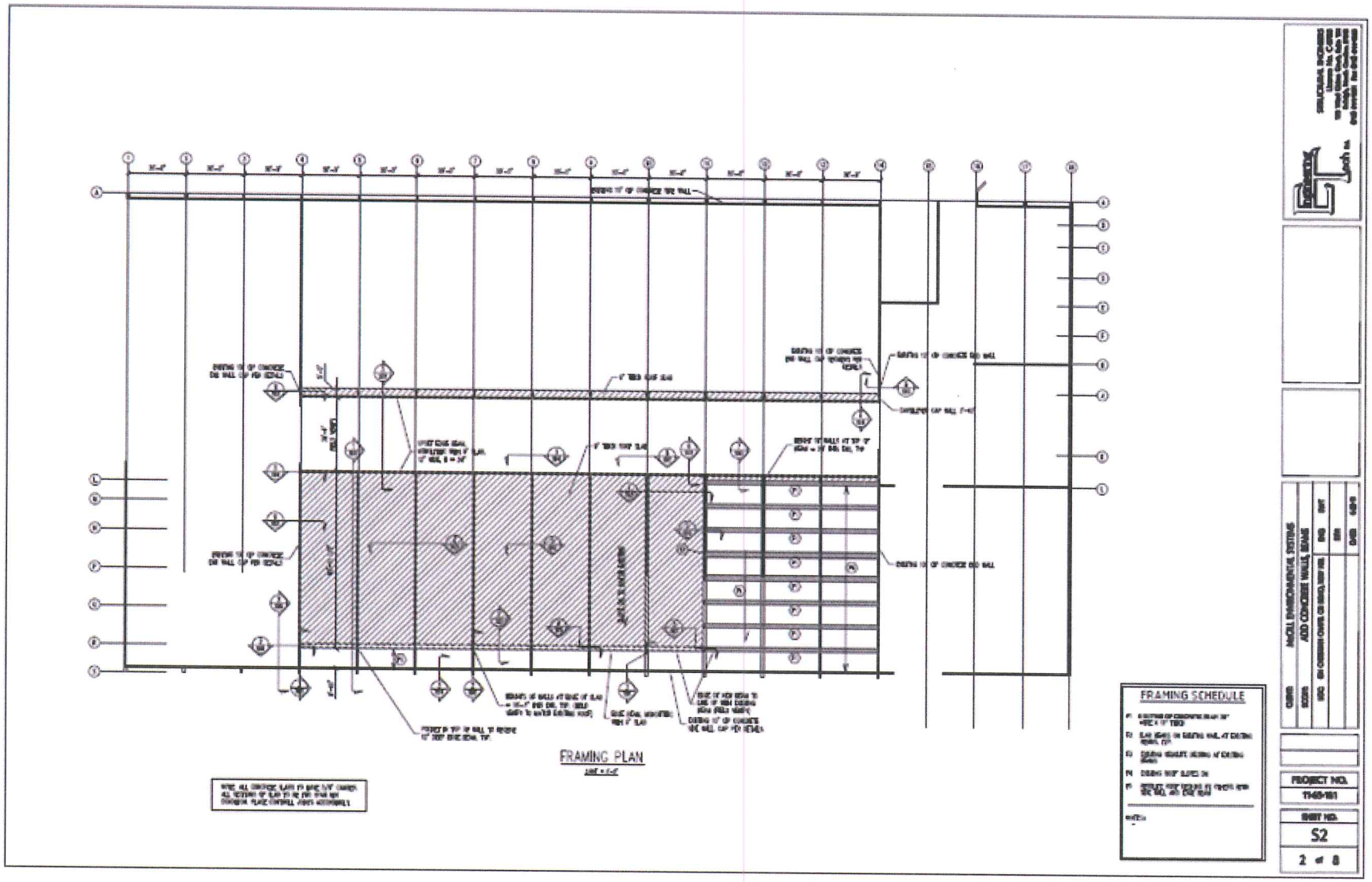
FOUNDATION SCHEDULE
PROJECT NO.
SHEET NO.
S1
1 of 8


FRAMING PLAN
FRAMING SCHEDULE
MCGILL ENVIRONMENTAL SYSTEMS
ADD CONCRETE WALL BEAM
PROJECT NO.
SHEET NO.
S2
2 of 8