



North Carolina Department of Environment and Natural Resources

Pat McCrory
Governor

John E. Skvarla, III
Secretary

June 30, 2014

Mr. Mike Gorman
Mr. Rich Deming
Mr. Henry Owen
Power Resource Group
3400 Highview Road
Charlotte, NC 28210

Solid Waste Compost Demonstration Approval (SWCD-60-04)

Dear Mr. Gorman, Mr. Deming, and Mr. Owen:

The Division of Waste Management, Solid Waste Section, has reviewed your request for approval of a Solid Waste Composting Demonstration Approval (SWCD-60-04) located at Reventure Park, 11823 Mount Holy Road, Building #21, Charlotte, NC 28214. Your request is considered approved in accordance with the N.C. Solid Waste Management Rules, 15A NCAC 13B .1409 and subject to the following conditions:

- (1) The approval period is from receipt of this letter to June 30, 2015. If an extension is needed it must be requested by March 30, 2015 with a justification for the extension.
- (2) A full Solid Waste Compost facility permit will not be issued for this facility without approval from the appropriate local zoning officials or a letter indicating that the property is not zoned. Any local zoning approvals necessary for the demonstration approval are the responsibility of the applicant.
- (3) Composting at this site shall be limited to the materials specified in the application.
- (4) **Prior to being used as a feedstock the biochar shall be tested and approved by the Solid Waste Section.**
- (5) The site shall be prepared to control run-off and run-on. Best management practices shall be utilized for this purpose. All run-off from the site and any leachate generated shall be managed to prevent any impact to ground or surface waters. A full Solid Waste Compost facility permit will not be issued for this facility until storm water and leachate from the site are managed according to the Division of Water Quality's standards.
- (6) This approval is subject to immediate revocation if activities on site result in a direct or potential threat to the public health or the environment or if significant odor problems are created. The Division of Waste Management reserves the right to apply any other requirements of 15A NCAC 13B Section .1400 as the Division deems necessary during the above approval period.

- (7) Operation of the facility and compost monitoring activities shall be in accordance with the approved application and Section .1406 of the Solid Waste Management Rules. Records of temperatures shall be maintained to show pathogen reduction and vector attraction reduction requirements have been met and shall be available to representatives of the Section upon request.
- (8) Compost testing, frequency of testing, and reporting of test results shall be in accordance with the approved application and Section .1408 of the Solid Waste Management Rules. Classification and distribution of compost shall be in accordance with Section .1407 of the Solid Waste Management Rules.
- (9) **All compost shall be tested and the results approved by the Solid Waste Section prior to being used at the facility or removed from the facility for any use.**
- (10) Any changes or additions to this facility, subsequent to receipt of this letter shall be approved prior to the start of the operation.
- (11) This approval is not transferable.
- (12) A pre-operational inspection is required to confirm the site's setbacks in accordance with NC Solid Waste Composting Rule 15A NCAC 13B .1404 **prior** to accepting feedstock's for composting.
- (13) Charles Dial, Environmental Specialist, with Mecklenburg County will be responsible for oversight and inspection of the facility and related activities. Mr. Dial can be contacted at (704)432-1753(office) or (704)634-7705(mobile).

If you have questions concerning this approval please contact me at (919) 707-8280.

Sincerely,



Martin A. Gallagher, Environmental Supervisor
Division of Waste Management, NCDENR

Cc: Charles Dial, Environmental Specialist, Mecklenburg County
Teresa Bradford, Environmental Senior Specialist, NCDENR
Jason Watkins, Western District Supervisor, NCDENR

Request For Compost Pilot/Demonstration Permit



Facility Location:
(see attached maps)

Reventure Park
11823 Mt Holly Rd
Bldg #21
Charlotte, NC 28214

Driving directions:

From the intersection of Mount Holly-Huntersville Rd. take NC 27 west approximately 1 mile to entrance on left.

Facility Description:

Facility is located within a 667 acre eco-industrial complex known as ReVenture Park. Complex is gated and fenced with security service 24/7. No access is allowed without scheduled appointment. All processing will be done within a metal building/concrete floor, 2,300 sq. ft. area of bldg #21 with loading dock access and space for storage and expansion.

Property Owner:

Reventure Park Inc.
11823 Mt Holly Rd.
Charlotte, NC 28214
Tom McKittrick
704-364-9100
tom@forsiteinc.com

Owner approval letter:
(see attached)

Facility Operators:

Power Resource Group

Mike Gorman
3400 Highview Rd.
Charlotte, NC 28210
704-502-0215
mike@fatcityorganics.com

Rich Deming
1625 South Blvd #202
Charlotte, NC 28203
980-226-8750
rich@shiftequity.com

Henry Owen
2101 Mandarin Blvd
Charlotte, NC 28205
704-975-4005
henry@friendship-gardens.org



Purpose:

Pilot/demonstration facility is designed to research processing food waste utilizing anaerobic fermentation with effective microbes (Bokashi) combined with vermicomposting resulting in three high value materials (microbial-cake, microbial-liquid, and worm castings) used for soil amendment applications. Materials can be packaged and sold separately or blended and packaged in various combinations with other ingredients. During the pilot project we will apply a variety of experimental blends and recipes at test ares within ReVenture Park. After a successful test run, facility and process will expand into a for-profit commercial scale entity.

Ingredients:

Pre-consumer, limited post-consumer food waste and shredded paper will be collected and processed only. Total estimated material volume during research period (12 months) will include; Food waste intake (<24 tons), shredded paper (<2 tons), processing material - wheat bran/spent brewers grain (1,000 lbs). Blending materials - biochar (<8 tons) and finished compost (<12 tons).

Benefits:

Benefits are numerous including: landfill diversion, greenhouse gas reduction, reduction of chemical fertilizers, increased crop production.

Schedule:

Project will require 12 months to maximize process efficiencies

**Methodology:**

Our process combines anaerobic fermentation and vermicomposting.

Anaerobic fermentation - utilizes an inoculant consisting of wheat bran (or similar) and effective microbes; lactobacilli, fungi/yeast, and phototrophic bacilli which act as a microbe community accelerating the breakdown of organic matter while suppressing growth of other potentially dangerous organisms. The totally enclosed fermentation process is much faster, more cost effective and environmentally friendly than windrow composting.

The fermentation process takes approximately 10-14 days to complete, creates no methane, eliminates foul odors and does not attract rodents or insects.

Vermicomposting - employs "Red Wiggler" worms to digest and break down organic material. The end substance is nutrient rich worm castings. Two 4' wide x 12' long x 4' tall flow through worm beds will be used. Beds are constructed of metal frames, 1/4" metal mesh screened bed, cutting bar/cable system for harvesting, and fiberglass sides. Poly trays will be located below beds to capture any liquids and used for harvesting worm castings. First harvest will occur approximately 20 weeks after start-up.

Procedures:

(see attached floor plan & flow chart)

Food waste will be collected from select locations and arrive in sealed containers (carts/buckets) weighed, inspected, and emptied into shredder. Inoculant is applied to layers of shredded material and placed into 55 gallon poly drums which are then vacuum sealed and stored for 14 days. During this time liquid is drained from drum fittings on a regular schedule and either stored as microbial liquid for packaging or applied to biochar for charging. A portion of microbial cake will then be applied to worm beds for worm casting production. The remaining cake is mixed in blending tubs with biochar, worm castings, and/or existing (finished) compost, or packaged and stored for future use/sale. At no point in the process any material (food waste, worm bin bedding, bran for bokashi, biochar comes into contact with the soil or grounds outside of facility.

Aeration: N/A

Monitoring temperature & Moisture:

Temperature and moisture content of worm beds will be monitored on a daily basis.

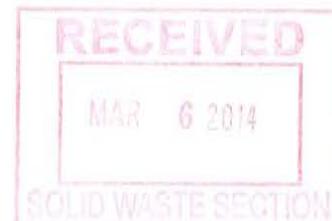
Leachate/Spill Containment:

All food waste is processed in sealed fermenting drums. Microbial liquid is drained from fittings in drums on a

scheduled basis and plumbed into microbial liquid storage drums. Shredding, fermenting, microbial liquid storage, and liquid packaging areas will be equipped with drain pans in case of leaks or spills.

On-Site Storage:

All food waste arrives in sealed containers and is processed immediately. Finished products will be stored in sealed containers/packaging until needed.



Product Testing:

Prior to application in test beds, finished products (microbial cake, microbial liquid, worm castings) will be analyzed by a private lab to detect pathogens (fecal coliform bacteria), nutrient content, and metal levels. Sterile techniques will be used in packaging samples. Additional analysis will be conducted every six months.

Record Keeping:

Records will be kept of the following: dates, volumes and weights of incoming food waste, shredded paper, and source; fermentation process dates per batch; moisture content, pH balance, food volume and type for vermicompost beds; dates, volumes, and weights of finished microbial cake, microbial liquid, and worm castings when harvested; dates, volumes, and weights of various ingredient blends at packaging; dates, blends, volumes and test bed locations; all analytical testing per batch.

Product Use:

After successful period of formulating blends, tests, and analysis to meet EPA and USDA standards, finished superior soil amendment products will be marketed and distributed to agricultural and horticultural operations.

Building/Siting:

(see attached maps)

Facility is located within a 667 acre eco-industrial complex known as ReVenture Park. Complex is gated and fenced with security service 24/7. No access is allowed without scheduled appointment. All processing will be done within the 2,300 sq. ft. area of bldg #21 with loading dock access and space for storage and expansion.



End Of Project Report:

At the end of the test project a report will be written and presented including the following information:

- 1) The amount and type of materials received in tons;
- 2) The amount of finished products produced in tons;
- 3) The amount of finished product distributed in tons;
- 4) Copies of all test results;
- 5) Monitoring records; and
- 6) A narrative explanation of why the project was a success.

Application for Compost Demonstration Pilot Project Permit at ReVenture Park

Addendum

1. Product testing will include in-house testing of foreign matter by passing dry weighted compost through 1/4" screen.
2. Food waste is not stored on-site. When a food waste cart arrives at facility it is immediately emptied for processing. The cart is then rinsed out in wash area (see floor plan diagram) which is designed with a screened particle catchment container allowing rinse water to pass through drain connected to sewer system.



March 5, 2014



To Whom It May Concern,

My company owns the site where the composting pilot project proposed by the Power Resource Group will be located. I have seen the application and have given my permission for the operation to proceed as long as PRG receives all required permitting and licensing.

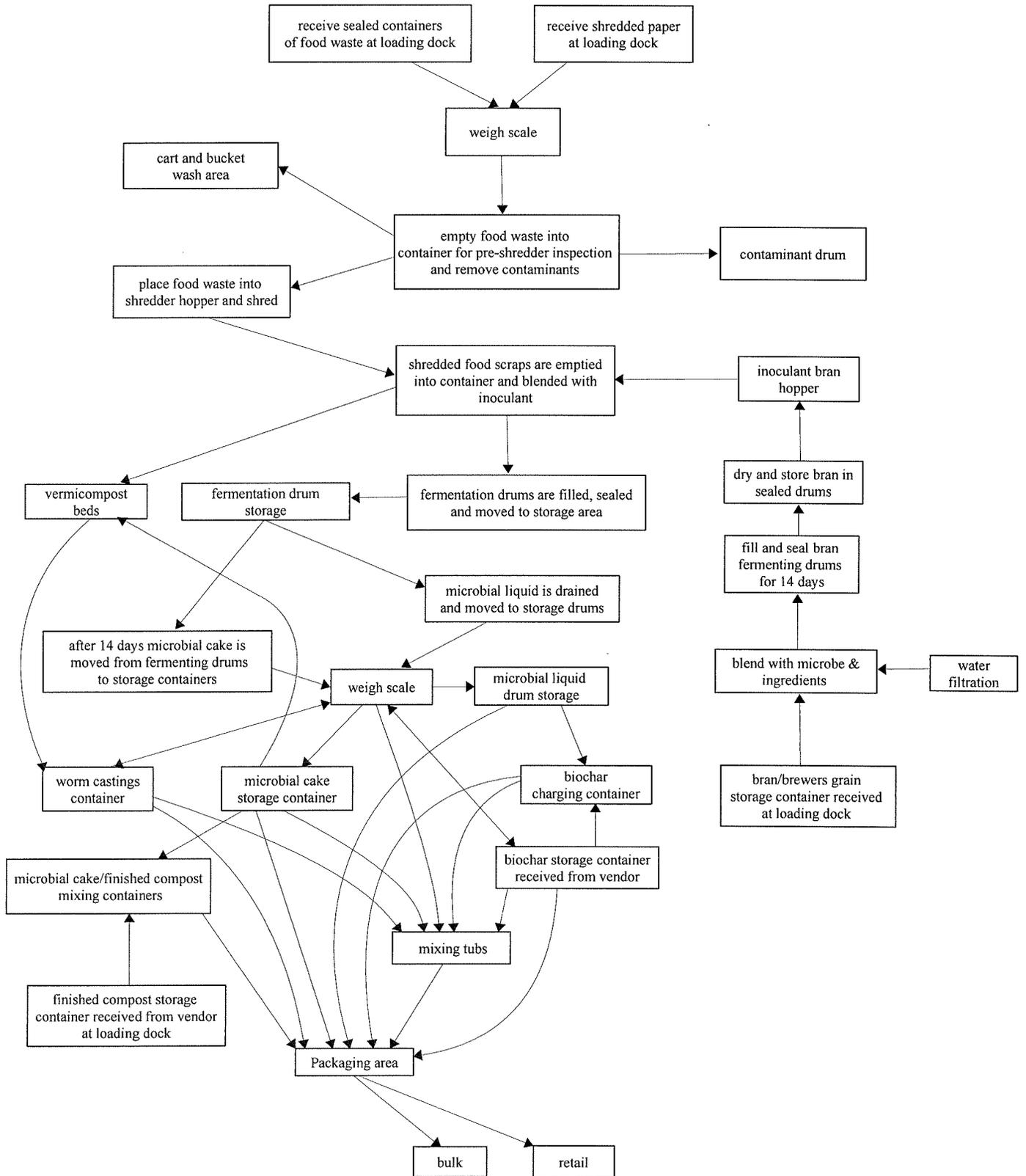
Please call my office for any questions.

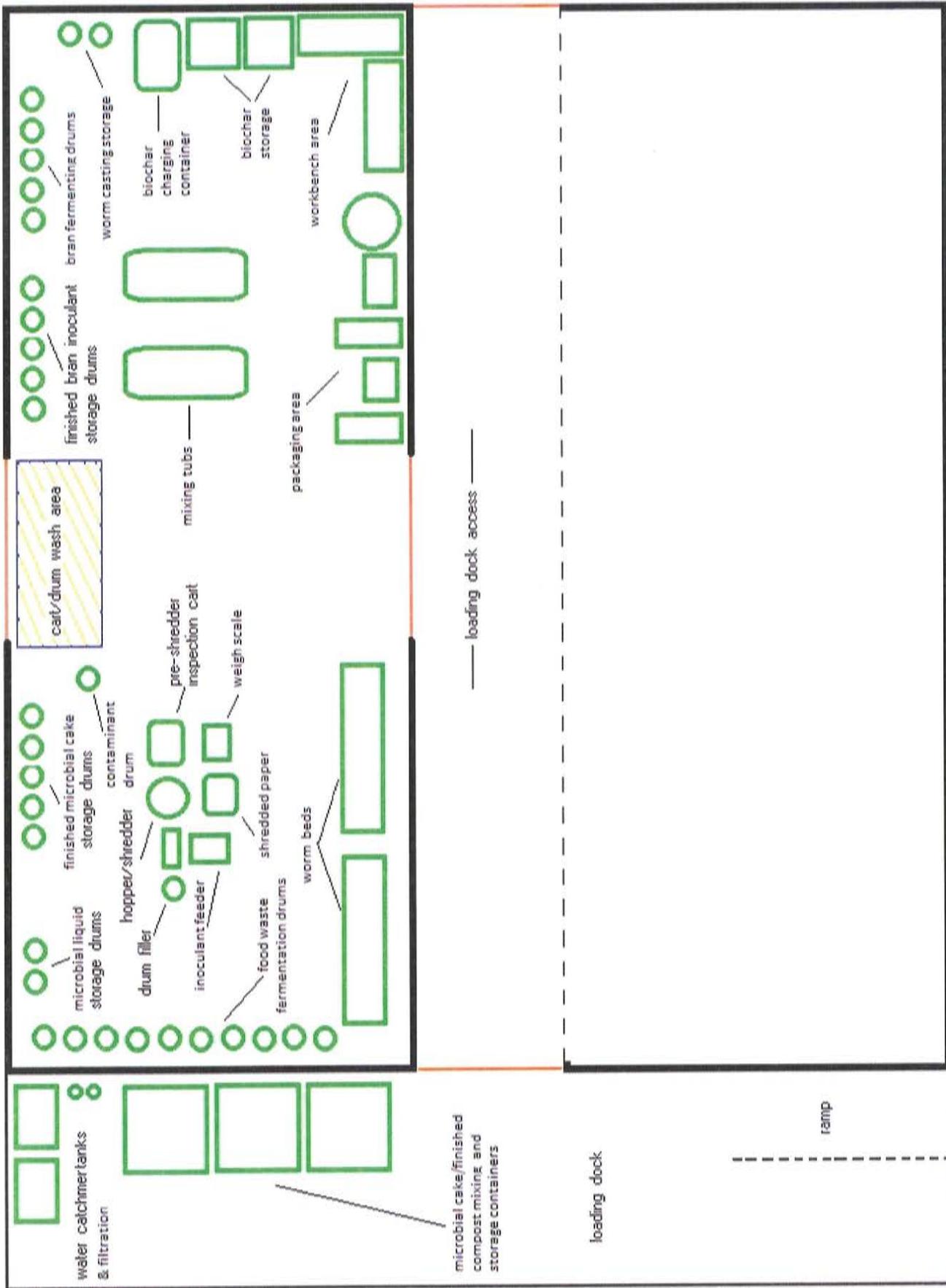
Sincerely,

A handwritten signature in blue ink, appearing to read "Tom McKittrick".

Tom McKittrick

Anaerobic Fermentation Process





March 5, 2014

To Whom It May Concern,

My company owns the site where the composting pilot project proposed by the Power Resource Group will be located. I have seen the application and have given my permission for the operation to proceed as long as PRG receives all required permitting and licensing.

Please call my office for any questions.

Sincerely,



Tom McKittrick

June 25, 2014

NCDENR – Composting
1646 Mail Service Center
Raleigh, NC 27699-1646



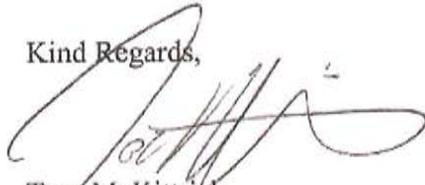
RE: Pending Permit - Power Resource Group

DENR Composting Permit Officials,

Forsite Development is the developer / owner of ReVenture Park. I am writing to confirm that a drain line has been installed from the site of building #31, where you have a pending permit for the Power Resource Group to conduct a pilot composting project. At the Park, we have our own waste water treatment facility---the drain line runs from the site previously inspected by your officials to that WWTF. We are attaching pictures to show this line.

We will assume that, by issuance of your permit, this requirement is approved and re-fill the ditch where the drain line is installed.

Kind Regards,

A handwritten signature in black ink, appearing to read "Tom McKittrick".

Tom McKittrick
President
Forsite Development, Inc.







Mt Holly Rd

27

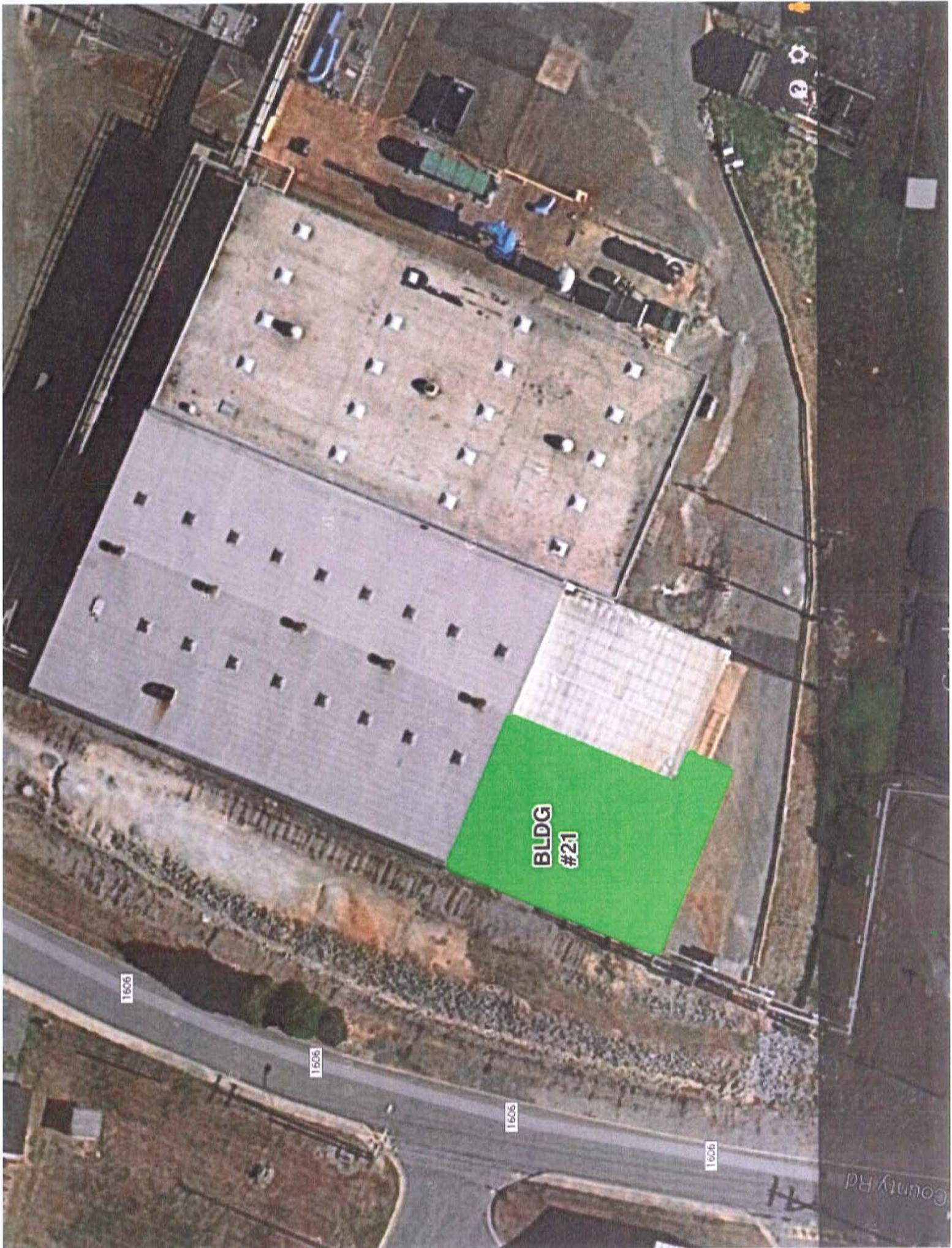
Southern District Dr

Mt Holly Rd

ReVenture Park

Yes! Mt Holly County Rd Southern





Polaris 3G Map – Mecklenburg County, North Carolina

Date Printed: 4/30/2014 3:41:29 PM



0 0.050.1

0.2 Miles

This map or report is prepared for the inventory of real property within Mecklenburg County and is compiled from recorded deeds, plats, tax maps, surveys, planimetric maps, and other public records and data. Users of this map or report are hereby notified that the aforementioned public primary information sources should be consulted for verification. Mecklenburg County and its mapping contractors assume no legal responsibility for the information contained herein.

Zoning Designations

City of Charlotte and Mecklenburg County

RU(CD) = Rural district—min. lot size 15,000 sq. ft. (conditional zoning)
R-15(CD) = Single family—min. lot size 15,000 sq. ft. (conditional zoning)
R-12(CD) = Single family—min. lot size 12,000 sq. ft. (conditional zoning)
R-9(CD) = Single family—min. lot size 9,000 sq. ft. (conditional zoning)
R-6(CD) = Single family—min. lot size 6,000 sq. ft. or 6 d.u. per acre (conditional zoning)
RR(CD) = Resort residential—min. lot size 9,000 sq. ft. (conditional zoning)
R-20MF = Innovative—min. lot size varies (conditional zoning)
R-15MF(CD) = Multi-family—12.0 units per acre (conditional zoning)
R-12MF(CD) = Multi-family—14.52 units per acre or 12.0 units per acre (conditional zoning)
R-9MF(CD) = Multi-family—17.42 units per acre (conditional zoning)
R-6MF(CD) = Multi-family—21.78 units per acre (conditional zoning)
R-6MFH = Multi-family—43.56 units per acre
R-6MFH(CD) = Multi-family—43.56 units per acre (conditional zoning)
R-10MF(CD) = Multi-family—Max. floor area ratio 1.0 (conditional zoning)
UR-1 = Urban residential—max. floor area ratio 0.25
UR-1(CD) = Urban residential—max. floor area ratio 0.25 (conditional zoning)
City of Charlotte and Mecklenburg County (cont.)
UR-2 = Urban residential—max. floor area ratio 1.0
UR-2(CD) = Urban residential—max. floor area ratio 1.0 (conditional zoning)
UR-3 = Urban residential—max. floor area ratio 2.0
UR-3(CD) = Urban residential—max. floor area ratio 2.0 (conditional zoning)
RE-1 = Research district—min. lot area 2.0 acres
RE-1(CD) = Research district—min. lot area 2.0 acres (conditional zoning)
RE-2 = Research district—min. lot area 4.0 acres
RE-2(CD) = Research district—min. lot area 4.0 acres (conditional zoning)
INST = Institutional
INST(CD) = Institutional (conditional zoning)
O-15(CD) = Office district—min. lot size 15,000 sq. ft. (conditional zoning)
O-9(CD) = Office district—min. lot size 9,000 sq. ft. (conditional zoning)
O-6(CD) = Office district—min. lot size 6,000 sq. ft. (conditional zoning)
UR-C = Urban residential—commercial—min. lot size 5,000 sq. ft.
UR-C(CD) = Urban residential—commercial—min. lot size 5,000 sq. ft. (conditional zoning)
B-1 = Business (neighborhood business)
B-1(CD) = Business (neighborhood business)—(conditional zoning)
B-2 = Business (general business)
B-2(CD) = Business (general business)—(conditional zoning)
UMUD = Uptown mixed use district
BP = Business (business park)
B-D = Business (distributive business)
UI = Industrial (urban industrial)
I-1 = Industrial (light industrial)
I-1(CD) = Industrial (light industrial) (conditional zoning)
I-2 = Industrial (general industrial)
I-2(CD) = Industrial (general industrial) (conditional zoning)
I-3(CD) = Industrial (general industrial in CBD) (conditional zoning)
HD = Historic district
R-MH = Residential—mobile home
R-MH(CD) = Residential—mobile home (conditional zoning)
R-I = Residential—institutional
R-PUD = Planned unit development with various development per approved plan
B-1SCD = Business (shopping center w/over 100,000 sq. ft.) (conditional zoning)
R-3 = Single family—3.0 units per acre
R-3(CD) = Single family—3.0 units per acre (conditional zoning)
R-4 = Single family—4.0 units per acre
R-4(CD) = Single family—4.0 units per acre (conditional zoning)
R-5 = Single family—5.0 units per acre
R-5(CD) = Single family—5.0 units per acre (conditional zoning)
R-6 = Single family—6.0 units per acre
City of Charlotte and Mecklenburg County (cont.)
R-8 = Single family—8.0 units per acre
R-8(CD) = Single family—8.0 units per acre (conditional zoning)
R-8MF = Multi-family—8.0 units per acre
R-8MF(CD) = Multi-family—8.0 units per acre (conditional zoning)
R-12MF = Multi-family—12.0 units per acre
R-17MF = Multi-family—17.0 units per acre
R-17MF(CD) = Multi-family—17.0 units per acre (conditional zoning)
R-22MF = Multi-family—22.0 units per acre
R-22MF(CD) = Multi-family—22.0 units per acre (conditional zoning)
R-43MF = Multi-family—43.0 units per acre
R-43MF(CD) = Multi-family—43.0 units per acre (conditional zoning)