

APPENDIX A

TOWN OF SOUTHOLD
SOLID WASTE DISTRICT
YARD WASTE COMPOSTING FACILITY

6 NYCRR PART 360
ENGINEERING REPORT

NOVEMBER 2001





PERMIT TO CONSTRUCT A
YARD WASTE COMPOSTING FACILITY
ENGINEERING REPORT
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1.0 INTRODUCTION

The Town of Southold Solid Waste District (Southold) has commissioned the preparation of the following engineering report to supplement the submission of a Part 360 Permit Application for the development of a yard waste composting facility (Facility). The Town proposes to locate a yard waste compost facility at a 17.22 acre site on Middle Road (County Road 48) in the Hamlet of Cutchogue. The site is identified in The County of Suffolk Tax Maps as District 1000, Section 96, Block 01, Lot 02. Development of the Facility, in accordance with 6 NYCRR Part 360 regulations dated November 24, 1999, supports the efforts of the town to implement an integrated solid waste management program that combines waste-to-energy with recycling, waste reduction and landfilling in conformance with the New York State Solid Waste Management Plan 1988/1989 Update.

The Town of Southold is facing a waste disposal crisis as landfills continue to fill up and the disposal capacity is not replaced. The Town is currently developing several alternatives to avert the crisis and is in the process of capping its landfill. As part of the Town's overall waste management strategy, yard waste composting offers a viable alternative by eliminating such waste from the landfill-bound wastestream and converting it into a useful and marketable product.

At present, yard waste within the Town of Southold is transported to the Cutchogue Landfill for processing and for disposal. A portion of the northwest property line of the proposed site is contiguous with the south property line of the Cutchogue Landfill. This site was selected on the basis of ease of access, existing availability of utilities, traffic patterns, existing land use, maximum buffer, minimal environmental impact, land availability, drainage control and access to existing facilities at the Cutchogue Landfill. The site is to be constructed with adequate access roads, substructure soil stability and drainage control to provide for a permanent facility. The facility will accept yard waste from sources within the Town of Southold and will accept yard waste from the Town of Huntington based on an intermunicipal agreement.

Municipal waste collected routinely from households includes a heterogeneous mixture of glass, plastic, metal, ceramic, leather, paper, cardboard, food waste, and yard waste (leaves, grass clippings, small branches and wood chips). Leaves differ from the rest of the wastestream in that they occur seasonally and are easier to segregate from the overall wastestream. In season, leaves may account for up to 50 percent (by volume) of the municipal waste collected. On a yearly basis, leaves may account for 2 to 20 percent of the total municipal solid waste (MSW) collected. These values depend on factors such as land use, population and character (urban, suburban or rural) of a community.

Because segregated leaf waste is homogeneous, seasonal, and organic in nature, it lends itself to treatment by relatively uncomplicated composting procedures. The end product of the process is compost, which can serve as an organic amendment for soil or be utilized as a supplement to landfill cover material.

Composting is a biological process in which organic matter is broken down under aerobic and thermophilic conditions into a humus-type end product. The composting process is dependent upon biological and environmental factors, including the population of microorganisms, the carbon-nitrogen content of the substrate material, temperature, oxygen concentration, moisture and pH. Composting is used to decompose the organic materials in municipal solid waste sewage sludge, agricultural wastes, industrial wastes and yard wastes. The properties of the end product, known as "compost," make it useful as a soil conditioner.

Composting has been identified by the New York State Department of Environmental Conservation (NYSDEC) as an acceptable form of recycling. The Town of Southold is committed to the integration of yard waste composting as a valuable component of the Town's comprehensive recycling program.

2.0 STATEMENT OF COMPLIANCE WITH THE GOALS AND OBJECTIVES OF THE NEW YORK STATE SOLID WASTE MANAGEMENT PLAN

The Town of Southold's proposed yard waste compost facility is compatible with the objectives of the New York State Solid Waste Management Plan.

To promote integrated solid waste management, the plan advances a "solid waste management method hierarchy," or order of preference. This order is as follows:

- *Waste Reduction*
- *Recycling and Reuse*
- *Waste-to-Energy and*
- *Landfilling*

By implementing a yard waste composting operation, the Town will be recycling the yard waste material which may otherwise be disposed of in a landfill. The end product of the composting process is compost, which is a soil conditioning material and, when used as such, is considered a recycled material.

The recovery and reuse of such recyclable material will (1) reduce the consumption of and the demand for scarce landfill capacity, and (2) aid in the conservation of vital natural resources and energy. In making use of an otherwise unusable waste, yard waste composting furthers the State's goal to reduce reliance on landfilling.

Finally, when properly operated a composting process will not produce a discharge or release to air or water. This asset, while not specifically addressed under the guise of solid waste management, furthers the goals and objectives of all environmental legislation whose fundamental purpose is to provide a safe and healthy environment for future generations.

3.0 PLANS

3.1 Regional Map

Located in the Hamlet of Cutchogue, the proposed site is north of Middle Road (CR 48), approximately 0.15 of a mile east of Depot Lane and 0.11 of a mile west of the Cutchogue Landfill entrance.

A regional map (scale 1:62,500) has been provided in Appendix 1 that delineates (shaded portion) the entire service area of the proposed composting facility. The regional map identifies the proposed and existing collection, processing and disposal operations, the major transportation systems in the area, including highways, airports, railways, ferry routes, and the closest population centers.

3.2 Site Vicinity Map

The proposed site area is located between Depot Lane to the west and the Cutchogue Landfill to the east as shown in Appendix 2. The site is approximately 720 feet east of Depot Lane and includes a 420 foot frontage on Middle Road (CR 48).

A vicinity map (scale 1:24,000) has been provided in Appendix 2 that delineates the project area within one mile of the proposed facilities boundaries. Depicted on this map are local surface waters, residences, access roads, railroads, airports and any historic sites.

3.3 Site Plan

The facility site plan and grading plan is provided in Appendix 3, which details the site in its relation to the Cutchogue Landfill complex.

The grading plan (scale 1:1200) depicts two foot topographic contours, existing roads and utilities. The grading plan also shows the locations of any soil borings, monitoring wells, gates, parking areas, drainage, culverts, storage facilities, loading areas , surface water-bodies and drainage swales on the proposed site.

The site plan details the anticipated locations within the site facility of the bagged leaf storage area, shredding and grinding area, screening area, compost storage area, and windrow pile area along with optional areas for future storage buildings.

3.4 Auxiliary Plans

Any wetlands and/or floodplains located within a 1,000 foot radius of the site are detailed in Appendix 3. Detailed information concerning land use, zoning, community facilities and a geological cross section of the area surrounding the facility are shown on plans located in Appendices 4 through 7.

4.0 DESCRIPTION OF THE ULTIMATE USE FOR THE FINISHED COMPOST

A Final Marketing/Utilization Plan (Plan) of the processed compost cannot be defined until the material is actually produced, analyzed and evaluated for local growing conditions. Before the Plan will be finalized, any and all local, State and Federal requirements for compost end-products and particular uses will be met. The Plan will include a description of the labeling or other information necessary to specify the sources of waste from which the compost is derived, restrictions on usage, and suggested application rates.

Initially, it is intended that the finished compost will be made available to local retail and residential users for gardening and soil enrichment purposes. It is also expected that finished compost will be used by the Town Parks and Highway Department in public projects to create natural berms and to improve water retention properties of the soil. Since the production of compost material by the yard waste composting facility is not expected to exceed the need for retail and town department purposes, there will not be a surplus of compost finished product at the site.

The NYSDEC has already approved the use of the Cutchogue Landfill as a Brush Processing Site based on a registration validation letter from NYSDEC dated September 4, 2001 and has been included in Appendix 8. The facility will be designed with the flexibility to accept mechanical equipment capable of producing a high quality compost. The cost-effectiveness of

providing this additional equipment for producing high quality compost for sale to agricultural or horticultural markets will be studied by the Town at a later date.

4.1 Case Histories

There are numerous yard waste composting facilities operating successfully in the United States at the present time. In the Tri-state area (New Jersey-New York-Connecticut), yard waste composting operations are experiencing success in marketing the compost to various users. A "market" for composted yard waste may be defined as a productive use for the material which would divert it from disposal. Users may pay for the compost, but this is not a necessary criteria for a successful marketing program.

Tenafly, New Jersey has been composting leaves for thirty years. They also make wood waste available to residents in the form of firewood and wood chips at no charge. Two products are distributed, a shredded product which sells for \$10.00 per cubic yard, and an unshredded product which sells for \$6.00 per cubic yard. These prices are for commercial businesses such as nurseries and garden centers. Residents are allowed to pickup material free of charge. Early in the program, the product was sold at \$5.00 per cubic yard and supply was exhausted in a short time. Subsequently, the Town Council raised the price in order to have more material available for residents.

In Webster Groves, Missouri residents annually pickup 1,200 cubic yards of compost from stockpiles that the City maintains in several municipal parks. There is no fee for the material. The City applies 3,500 cubic yards annually to its parklands. The Missouri Botanical Gardens uses approximately 500 yards per year. Other special, one-time projects consume significant quantities. The Town of Wellesley, Massachusetts produces approximately 5,000 to 8,000 cubic yards per year of material used by the Town in municipal projects. During 1999, Wellesley sold 10,000 cubic yards of composted leaves to a nursery for a credit of \$2,350 worth of plant material. Topsoil, which costs \$8.00 to \$10.00 per cubic yard, is no longer purchased for municipal projects. The public is allowed to take compost at no charge.

Greenwich, Connecticut composts leaf and yard waste with sewage sludge by the static pile method. Over 4,000 cubic yards of material are distributed annually with approximately 20 percent used in municipal projects, 20 percent used by residents and 60 percent sold to landscapers. The City allows residents to pickup the material at no charge and receive \$7.00 to \$9.00 per cubic yard from commercial landscapers. City officials estimate that several hundred individuals have used the compost product over the years. Since the material contains sewage sludge, the City analyzes the product for heavy metals and pathogens on a regular basis.

Midland, Michigan has been operating a leaf composting operation since 1968. The product has been used in a variety of municipal projects, including the preparation of landfill cover material. It is also blended with soil to prepare topsoil for landscaping public parks, buildings, cemeteries and highways. The finished compost is available to the public and to professional users at no charge in bulk form. City officials estimate saving \$37,000 per year in topsoil purchases. Topsoil sells for \$5.00 per yard.

At LaPere, Michigan approximately 2,000 to 3,000 cubic yards of compost are distributed annually. The City has not assigned a value to the product which is used entirely in municipal projects such as parks and cemeteries.

One of the few composting operations that delivers compost to end users in Hennepin County, Minnesota. Approximately 35 commercial landscapers and five nurseries receive the material at no charge. Officials estimate that 40 percent of the material is distributed in this way. Private residents pickup and use approximately 50 percent of the material produced. The remaining product is used by the municipalities. Total annual distribution is approximately 20,000 to 30,000 cubic yards.

Two of the larger and more sophisticated leaf and yard waste composting operations in the country are in California. The City of Davis operates its own facility, while in Berkeley a private firm called Urban Ore, Inc. is used to operate the compost facility.

At Davis, woody yard waste is ground and added to leaves and grass clippings to undergo composting. The high quality product is reground before distribution to create an even textured material. Due to the size constraints at the site, some material that is only partially decomposed is sold as mulch material. Other incompletely degraded material is dried and sold as boiler fuel. The City has found its primary markets to be local landscapers and nurseries. These users substitute the composted wastes for processed forest waste materials. However seasonal variation in materials received at the compost site results in variable products, thus limiting the value of the material to professional users who desire a consistent product. Approximately 25 percent of the compost produced is given free to residents for use in private gardens. The average price that Davis receives from commercial buyers is approximately \$4.00 per cubic yard or \$20.00 per ton. This is their breakeven cost.

Urban Ore, Inc. has marketed its compost products primarily to homeowners and private landscape firms. Composts and mulches were sold primarily to the same landscape contractors who brought in the brush. Urban Ore also sold directly to homeowners, renters and property managers. Small quantities of bagged materials were kept on hand for these smaller users. Material that was delivered in bulk was hauled by independent truckers.

Brookside Nurseries, Inc. of Darien, Connecticut provides complete leaf composting services to municipalities in Connecticut, New York, and New Jersey. Brookside's operations are unique in that the leaf compost is blended with other waste organics and inorganic materials to create more than 20 different soil amending products, mulches and soil substitutes. It has been the experience of Brookside that professional horticultural tradespeople do not want leaf compost per se. Where they do purchase leaf compost, they are blending it with other materials. Thus, the creation of the various specialty products from a leaf mold base is filling a well-defined need.

The Town of Islip, New York currently operates a 100,000 cubic yard per year yard waste composting facility. The demand for compost for public landscaping projects at Town facilities such as parks, ball fields, buildings, traffic islands, golf courses, beaches, road shoulders, landfill cover, etc., has exceeded the production to date. The Town anticipates that any excess compost material will be made available to Town residents at no charge.

Landscapers in the Town of Islip have expressed an interest in utilizing this material in their businesses.

Middlebush Compost Inc. currently operates a private composting facility in Somerset, New Jersey. The facility accepts from 100,000 cubic yards to 150,000 cubic yards of leaves per year from the New Jersey counties of Essex, Somerset, Middlesex and Union. The facility produces between 15,000 and 25,000 cubic yards of compost product per year which is sold to a local topsoil distributor. The topsoil distributor blends the leaf compost product with soil to increase the organic content of the soil. Different ratios of compost to soil are blended for sale to various uses such as at golf courses, garden centers and landscapers. To date the product demand has exceeded the production rate.

The Town of Southold has been operating a small scale yard waste composting facility since the Fall. The Town has determined that it will take a similar approach to the Town of Islip in marketing the compost product. This approach will stress using the compost products within the Town. These uses include roadside plantings, parks development and maintenance, as a soil amendment in school yards, and as a landfill final cover material. In addition to these in-town uses, Southold will try to develop a cooperative program with a local college to utilize the material not only on campus, but also to evaluate the use of the material for a wide variety of commercial applications. It is anticipated that these plots will lead to the development of contact with commercial nurseries and topsoil blenders who will ultimately pay the Town for the compost and thereby defray some of the processing costs.

A commercial operation for the processing of yard waste is currently operating in Yaphank, New York. The facility known as Long Island Compost Corporation utilizes approximately forty (40) one acre sites spread around the East End of Long Island. Each of the sites is a mini-yard waste composting site where after the yard waste has been processed into compost it is transported to the bagging plant in Yaphank. The Yaphank plant currently bags up to four (4) million bags for commercial distribution in the retail market as a soil amendment.

As might be expected, such a wide variety of products demand a variety of prices. Cost is related to the degree of processing required to produce the material, whether the material is fortified with fertilizer, and the quantity of material delivered. As examples, the least expensive product, wood chips, is available at \$13.50 a yard delivered in one yard quantities or for \$5.50 per yard delivered in 25 to 35 yard loads. A product referred to as "Light and Leafy Pot Mix" sells for \$52.50 per single yard load down to \$44.50 per yard in 25 to 35 yard loads. The various other products are available for prices intermediate to those quoted above.

4.2 Method for Removal

During the initial phases of the project when the product is used as a soil supplement, the compost product will be removed from the yard waste facility storage area with a front end loader, placed in dump trucks and transported to the Cuthogue Recycling Center at the Landfill Complex. If these dump trucks are required to transport the compost product on the Town roadways then the trucks will be equipped with tarps for covering the material during transport.

If, after the initial stages of the project, the compost product is marketed to the general public or commercial operations, then the options of removal by pickup or bulk deliveries will be examined.

4.3 Poor Quality Compost

Based on construction and operation permits previously issued by NYSDEC for yard waste composting facilities it is anticipated that periodic sampling and monitoring of the compost product will be required. The yard waste composting facility in the Town of Islip, New York is required to test on a periodic basis for cadmium, mercury, lead, copper, zinc, nickel, total chromium and pH.

The compost product is to be initially utilized as a soil amendment for local retail, homeowners and Town projects; any material not meeting NYSDEC testing guidelines will be disposed of at an offsite location. After the initial stages of the project, the compost product may be marketed to the general public or commercial operations. If the product does not meet NYSDEC testing guidelines, this material will then also be disposed of at an offsite location.

4.4 Change in Market Condition

The final marketing/utilization plan would incorporate multiple markets to ensure against over-dependence upon a single user. This strategy provides an economic buffer should a change in specific markets inhibit sales. In the event of such an occurrence, municipal uses will serve as the primary backup. Landfilling the compost by off site disposal will serve only as the “worst case” scenario means of disposal.

It is anticipated that numerous yard waste composting facilities will become operational in the Tri-state area within the next decade. The increased cost of solid waste disposal and closure of many landfills will necessitate that alternative technologies such as yard waste composting be implemented. This will increase the competition to sell compost on the open market.

The operations in which the most reliable quality of compost and greatest volumes of compost can be produced will have the greatest advantage in marketing its product. The Town yard waste composting operations will be the largest producer by volume on the east end of Long Island. If a reliable quality compost can be produced, the Town will be at an advantage in comparison to its competitors in the sale of the product.

5.0 DESCRIPTION OF FACILITY OPERATION

5.1 Schedule of Operation

a). Days and Hours

The facility will be open for receipt of incoming yard wastes during the same operational hours as the Town of Southold, Cutchogue Recycling Center. These operational hours are seven days per week from 8:00 a.m. to 4:00 p.m. It is anticipated that the compost processing operations will be conducted during an 8 to 10 hour workday and in the event of peak overloads, the Facility will either operate longer hours each day or operate on weekends until the overload is reduced.

The receiving and staging area of the site will be open to incoming vehicles during seasons in which yard waste is generated. It is expected that the yard waste will be received

between October 15th and December 31st of each year. Therefore the receiving and staging area will be open for a ten week period.

The actual composting process to include turning of the windrows and site maintenance will be conducted year round.

b). Preparations before Opening

There are no special procedures required prior to opening the yard waste compost facility. The operators will perform a quick survey of the area to make sure that no vandalism has occurred and that all mechanical equipment is operational. The site will be surveyed to identify for correction and repair any potential drainage problems or ponding areas.

c). Procedures for Closing

Routine maintenance will be performed after the operational day is completed. These services include greasing and oiling equipment, cleaning conveyors, and any other necessary procedures. The site will be prepared for closure by removing any debris from the on-site roadway, applying moisture to the windrows, completing paperwork and properly securing the site.

5.2 Anticipated Daily Traffic Flow

a). Present/Projected Traffic

This section of the report is limited to the potential impacts of yard waste truck traffic on the existing streets and roadways in the immediate vicinity of the composting site. All vehicles travel on designated routes. These vehicle routes are dependent on the location of the waste within the Town.

Almost all vehicles travel to the Cuthogue Landfill via Middle Road (CR 48). It is assumed that traffic in the landfill area, other than vehicles carrying refuse to the landfill, will increase slightly. This slight increase in vehicle traffic is due to the fact yard waste will be received from the Town of Huntington. Changes that will occur in the immediate area of the landfill, which are traffic related, will expedite traffic flow. They include the significant

decrease in overall truck traffic exiting the landfill, by routing the existing trucks and non-commercial vehicles to Depot Lane and Coxs Lane.

b). Traffic Routing

All vehicles containing yard waste destined for composting will enter the site via the Zacks Lane entrance to the Cutchogue Landfill and be weighed on the existing truck weigh scale. After weighing, the trucks will proceed to the proposed site along an access road at the southwest corner of the landfill to the drop off area at the composting facility. The trucks will then exit via Corporate Road, turning left into Depot Lane and then proceeding back to Middle Road (CR 48). All non-commercial vehicles will also enter on Zacks Lane and proceed directly to a drop off area at the Cutchogue Recycling Center. After the drop off of yard waste the vehicle will exit the site to the east on an interior road to Coxs Lane, turning right to Middle Road (CR 48). The non-commercial yard waste will be transported to the composting site by Town Trucks via the landfill perimeter access road.

c). Traffic Conditions

The Cutchogue Landfill Environmental Assessment Form contains traffic counts and studies of the existing roads and intersections and develops data on the existing and projected peak hour traffic demand. This data is presented in terms of traffic volumes for the peak hour of travel (determined to be the 7:00 to 8:00 a.m. period) and the computed traffic carrying capacities of the existing and proposed roads in the immediate vicinity of the Cutchogue Landfill. The ratios of traffic volumes to capacities (or V/C ratios) and Levels of Service (LOS) were computed in accordance with the procedures of the latest edition of the Highway Capacity Manual. These values provide a measure of the efficiency and stability of the traffic flow conditions for each of the roadways and intersections surveyed. It would appear from the analysis of this data, as it impacts the Yard Waste Composting Site, that the split-off of trucks from the overall truck traffic to the composting site presents a minor additional impact on the overall traffic-carrying capabilities of the surrounding road network. Basically, this is due to the fact that the portion of the yard waste which is now transported to the Cutchogue Landfill will now be trucked to adjacent Yard Waste Composting Facility.

5.3 Procedure for Unloading Vehicles

a) Frequency/Rate

Based on the traffic data presented above, it is anticipated that approximately 30 vehicles will enter the Facility daily during the receiving period. All vehicles will be unloaded at the bagged leaf storage area immediately after entry.

b) Method

In the initial year of the operation, leaves will be delivered in plastic bags by the Town of Huntington and will be delivered already cleaned by Town of Southold. Wastes to be accepted will be leaves, brush and grass. It is possible that the method of leaf collection may change in the future to utilize either paper or cornstarch bags which should degrade during the compost process. The only material permitted to be delivered to the site will be that carried by Town of Huntington contracted trucks or residential/commercial vehicles registered in the Town of Southold. These vehicles will only deposit the yard waste in a specially designated bagged leaf storage area, where the loads can be inspected by compost site personnel. The majority of yard waste handling on-site will be accomplished by use of a rubber tired payloader. This will be supplemented by a labor force to periodically check the incoming waste to ensure that only yard waste is being received at the site. Windrow piles will be turned periodically using a windrow turning device, and during the first month of operation the leaves will be turned weekly. Debagging, shredding and screening will also be included in the operations and are described in more detail in Section 6.9 – Process Flow Diagram.

5.4 Special Precautions or Procedures for Operation During Inclement Weather

Since the composting operations are conducted entirely outdoors, inclement weather can affect the operation in many ways. The Facility must be flexible in its design and operation to enable handling of peak loads of leaves during the fall

season and peak loads created by unscheduled maintenance, downtime of mechanical equipment, or Facility closure due to inclement weather.

a) Wind

A screened earthen berm will be placed at the site along the boundary of the direction of the prevailing wind to reduce the amount of leaves blown off-site during strong winds. As shown on the site plans, the compost facility is located adjacent to the Cutchogue Landfill, some residential areas and farm fields and any leaves blown off the composting site by high winds will have minimal effect on the surrounding landfill operations.

b) Heavy Rain

Standard operating procedures for composting operations require that the leaves be wet down to provide additional moisture for maximum decomposition by the bacteria. Moisture control will be monitored during the operations and utility water (water truck or water main) will be added to supplement rainfall events. The composting operation may be affected by heavy rains. The site chosen for the compost operation has adequate drainage so this should not impede the operation. If ponding precludes easy access to the windrows, then composting activities would be discontinued until the site is properly graded to allow access. When necessary, gravel and sand will be placed to facilitate access to each individual pile. Heavy rains can also hinder the biological activity in the pile. This would occur if the leaves became saturated and the pile turned anaerobic. This is most likely to occur when a pile is being formed since the surface area to volume ratio is highest and the rain is most easily absorbed. Since spring is typically the wettest season, this potential hindrance would be most closely monitored during spring. Once a pile is built, saturation is only likely to occur during the spring rains. If the windrows become too wet (>55% moisture), they will be turned to aerate and evaporate the excess moisture.

c) Snow/Freezing Conditions

Since the composting operations are not expected to receive yard waste during the winter season, the effect of snow/freezing conditions should be negligible. The roadways can become slick and make it difficult to deliver the yard waste material to the site. In these cases, common sense would dictate that collection and delivery to the site would cease during particularly hazardous ice and snow storms. All on-site and access roadways will be built of asphaltic concrete or crushed gravel. Therefore, access to and movement around the site by trucks delivering yard waste should not create any problems during normal snow/freezing conditions. During the winter season, the windrows will still be monitored and turned. Snow on top of the windrow piles will tend to act as an insulating blanket during the cold weather. Due to the insulating features of the snow blanket cover, and based on temperature monitoring, the windrows may require turning more frequently during large snowfalls as compared to small snowfalls. During the winter season, prolonged periods with freezing conditions and no snow may adversely affect the composting process. To maintain minimally acceptable temperatures in the compost pile the windrow turner would operate less than during warmer periods of the year. The less the pile is turned in cold weather and exposed to the freezing air temperatures, the better the windrow pile will be able to maintain higher temperatures. In extreme prolonged cold weather periods, the windrow piles may be combined and made larger to provide insulating properties for maintaining proper temperature controls. Maintenance of more stable temperatures will result in better biological decomposition of the yard waste.

6.0 DESCRIPTION OF FACILITY DESIGN

6.1 Equipment Needs

Equipment needs are projected utilizing intermediate level composting technology. The first few years (2001 and 2002) of the program will process the volume of leaves collected during a six week period in the Fall. Yard waste during other seasons will be processed beginning in the Spring of 2002.

Wheeled front end loaders will be utilized for moving leaves around the site, forming the initial windrows, feeding yard waste to shredding and screening equipment, keeping space between rows clear, and forming curing piles. The bucket capacity of the loaders will be 4 cubic yards. During the period when yard waste is delivered to the site a minimum of two (2) front end loaders will be needed. A minimum of one (1) loader will be needed during the remaining portion of the year for processing requirements. If front end processing is not required and delivered materials can be placed in rows, the number of front end loaders will be reduced.

Pre-processing equipment will include a shredding/grinding operation to break the plastic collection bags open and to shred any oversized material or clumps within the collection bags. A screening process will also be included in the pre-processing operation to remove the majority of the plastic and oversized material.

Self-propelled windrow turning machines will be utilized to turn the piles. Large capacity machines will be utilized during the initial and latter phases of the project. The machines will have the capacity to process a pile at least 6 to 8 feet high and 14 feet wide. During the initial years of the program, at least one (1) turning machine will be needed and it is recommended that a backup be available to be secured in short notice if the need arises.

To maintain the optimum moisture level in the compost piles a water truck will be utilized. The water truck can also be utilized for dust control. Materials will be moved around the site with dump trucks with a capacity of 10 to 20 cubic yards. The dump trucks will also be utilized to transport unacceptable or non-compostable material from the site for proper disposal. In lieu of a water truck, a water main with yard hydrants may be constructed to provide for wetting of the piles. The need for a water main to supplement the water truck usage will be more fully evaluated during the design phase of the project .

The end use proposed for the compost will determine the quality required. If necessary, a trommel screen will be utilized to enhance the quality of the compost product. The product should be suitable for distribution to residential and landscaping businesses in the Town of Southold. Monitoring the composting process is recommended. A temperature probe, moisture indicator and oxygen meter will assist in determining when piles should be turned or if moisture should be added.

The equipment needs for the initial and full scale program are summarized in Table 6-1.

6.2 Surface Water Control Methods

The general soil characteristics of the material underlying the site are considered poor subgrade from a structural standpoint, but good subgrade from a drainage standpoint. Stabilization of the site area for adequate composting operations will require the backfilling of recycled concrete aggregate (RCA). This material will also be used to slope the compost site area to minimize ponding on the site. Drainage swales will be constructed at the perimeter of the site to divert any off-site runoff away from the site.

The site may also require stone fill for stabilization and load bearing purposes. This will increase the ability of the site to drain. The existing topography of the site slopes down to the south.

It is expected that on-site drainage will be controlled by a combination of drainage swales and ½ to 1 percent slopes under the windrows. Surface water runoff will be directed to existing berms at the southern and western boundaries of the property and the existing drainage area will collect and absorb the runoff prior to discharge into the ground from the construction of a recharge basin.

6.3 Seed Material Description

Leaves have a high organic carbon to nitrogen (C/N) ratio, and this condition can slow microbial action early in the composting process which will increase composting time. The imbalance corrects itself as carbon is lost in the form of carbon dioxide, while nitrogen is conserved in the system. Addition of inorganic nitrogen at the beginning of the process will accelerate decomposition, but it is not a necessity for leaf composting. If nitrogen supplements are used to reduce composting time, the need for oxygen will be elevated, creating the need for a greater turning frequency.

Enrichment of the end product (compost) with nitrogen, and possibly phosphorus and potassium, would increase the fertilizer value of the compost. The compost is a good soil conditioner without supplements, although it has a low fertilizer value. The benefits and costs of adding the nutrients must be weighed.

The compost facility will not be operated initially with any seed material. In 2002 when the Facility begins to accept grass as part of the yard waste composting operation, then the nitrogen component of the grass will act as a seed material. If in the future the Town determines that a fertilizer market exists for the compost material then seed materials will be evaluated.

6.4 Process Time

As previously mentioned, the Town of Southold will only compost leaves for the Fall season of 2001. The leaf compost cycle will be approximately seven to nine months starting in November and ending in July of the following year. This allows two to three months to move the composted material to market. Beginning in the Spring of 2002 the composting facility will receive varied types of yard waste (grass, small brush). Brush and grass will be composted commencing in March and continuing through the Fall. The brush compost season may last at least one year unless a mulch market is developed which can utilize a less stabilized material. Grass will be composted with the other yard waste commencing during the spring and continuing during the Fall of 2002.

6.5 Windrow Construction

A front end loader will be used to construct the windrows of leaves. Windrows will be trapezoidal in shape, approximately 14 feet at the base, 4 feet wide at the top and 6 to 8 feet high. Self-propelled windrow turning machines require as little as 3 feet between windrows. During the initial phase of the program a minimum 6 foot spacing will be utilized to allow the operators to become familiar with the equipment. To allow for free movement of the water trucks, every other row will be 10 feet wide to provide space between the rows.

The windrows will be turned at least once per week. After one month, adjoining windrows will be combined with the front end loader. The piles will continue to be turned until a finished compost is produced. Water will be added, if necessary, between turnings to maintain optimum conditions.

The area required during the initial phase of the program does not include the typical reduction in area required by combining piles since collected material will be processed only during a six week period during the Fall season. Area requirements are adjusted for combining piles under the full scale program.

Based on the proposed windrow size and the proposed level of technology, one acre of land is required for every 6,000 cubic yards of yard waste that is collected and windrowed. During the initial phase of the program, approximately 10 acres of land will be required just for the windrow turning area. Staging and storage requirements are estimated at 15 percent of the windrow area, or 2 acres. Total land requirements during the initial phase of the program, excluding buffer and access roads, is 12 acres.

6.6 Aeration Method/Procedures

The air required for microbial activity will be supplied by frequent turning of the windrows and convective action caused by the temperature differential between the piles and the air. The windrows will be placed perpendicular to the prevailing wind direction so that all windrows will be uniformly aerated. During the summer months, windrow temperature may also determine the frequency of turning. Piles will be turned if internal temperatures approach 130° F, which will prevent microbial die-off from occurring. Turning the pile aerates the material and prevents the windrows from becoming anaerobic and producing odors.

6.7 Site Access Control

Site access will be limited to the Town of Southold employees or their designated representatives. In addition to the perimeter earthen berm at the compost site, there will also be an additional gate at the compost facility access roadway to ensure that solid waste destined for the Cutchogue Landfill does not get delivered to the yard waste composting facility. Town personnel will also be inspecting the contents of the leaf delivery vehicles as they deposit their loads at the receiving area to ensure that unapproved waste is not delivered.

6.8 Fire Safety Procedures

Leaves undergoing normal windrow composting will burn poorly because the interior of the windrow is wet. Vandals may be able to ignite dry surface leaves, but a major fire is unlikely. Based on the site security detailed above, it is not expected that vandals will easily enter the composting facility site.

Nevertheless, adequate fire protection will be provided by either water mains and fire hydrants constructed at strategic spots throughout the site or through the use of a water truck which will be used to extinguish fires at the site. In addition, soil-spreading with front end loaders could be used to control or extinguish fires at the site.

In addition, the windrows will be kept adequately wet and the facility design allows for quick access, via the aisles, to all parts of each pile in case of a fire.

In an emergency, the on-site telephone at the Cutchogue Landfill will be utilized to contact the local Fire District. All appropriate emergency personnel have been notified of the proposed facilities construction including the Cutchogue Fire Department. Easy access to any local emergency personnel is provided by the Zacks Lane landfill entrance or Corporate Road access off Depot Lane access points. Copies of the notification letter to the affected agencies to respond to emergency conditions follow this section. All appropriate fire protection and fire safety equipment will be provided in accordance with all State and local fire codes.

6.9 Process Flow Diagram

The Process Flow Diagram for the facility is detailed in Figure 6-9. The leaves are received from local and Town of Huntington vehicles at the Bagged Leaf Storage Area. The leaves are then transported to the Debagging Area where the plastic bags of leaves are broken open and the majority of the plastic is removed. This debagging area may include a combination of shredding, grinding and screening to remove the plastic material. The plastic material will be disposed of off site if no market can be found for the material. The compostable material is then transported either by a front-end loader or dump truck and this homogeneous mixture of leaves will then be placed in the windrow composting area where it will stay for a minimum of six months.

The windrow piles will be formed initially by a front end loader and turned periodically by a windrow turning machine. By turning the windrow piles, oxygen will be added to be utilized by the bacteria to maintain aerobic conditions. Water will also be added during this stage to maintain the optimum moisture content of at least 50 percent (wet weight basis).

During the biodegradation of the organic matter (leaves) oxygen is consumed, heat is produced and carbon dioxide and water are given off. After the minimum six month period of turning, the material should be completely composted and the material would then be used as a soil supplement. The Town may elect at a later date to screen the finished compost to market the higher quality compost product on a public or commercial basis. Any residuals recovered in the screening process will be disposed of at an off site permitted location.

7.0 OWNERSHIP/LEASING ARRANGEMENT

The Town of Southold owns the property where the compost site is located. The Solid Waste District operates the Cutchogue Landfill and will be operating the composting facility. Initially only Southold & Town of Huntington collected yard waste will be accepted for composting at the facility. The Town will utilize equipment purchased under a capital program to run the Facility. This equipment will include mechanical equipment as detailed in Section 6.1 – Equipment Needs and mobile equipment such as front end loaders, water trucks and transport vehicles for both disposing of residue and moving compost for distribution to local users. To the extent that additional equipment is necessary it will be procured to ensure that adequate maintenance capability is available. The equipment will be owned and operated by the Town. All equipment necessary to operations will be maintained by the Town, and backup equipment can be leased on a short-term basis from suppliers if this becomes necessary.

8.0 PERSONNEL REQUIREMENTS/RESPONSIBILITIES

Two to five full-time employees are proposed for assignment to the composting facility during the six week receiving period of leaves in the Fall. The number of personnel will be reduced during the non-receiving period of the year. An operations manager will coordinate and oversee the daily activities. The manager will be responsible for completing the paperwork required for monitoring and operations at the site. A truck scale attendant will preview all incoming material, will direct vehicles to the proper area for depositing their loads, and will be trained to identify unapproved wastes. The site manager will be responsible for disposing in a roll-off container any small size unapproved material received at the compost facility. Records of incoming/outgoing material will be maintained by the operations manager. The remaining employees during the six week Fall period will include construction equipment operators, mechanics, heavy equipment operators who will operate the equipment (i.e., front end loaders, windrow turning equipment, screens) used for the composting operation.

Prior to operation of the site, all personnel will be trained in proper composting operations including compost biology, pile building, monitoring and troubleshooting. The Town may contract with a yard waste composting operations consultant to provide a one month operator training startup and troubleshooting service after this facility has been constructed.

The Town will be responsible for the technical aspects of the composting program. Seminars will be conducted by staff biologists to instruct compost facility employees in the proper operation of all phases of composting and to stress the importance of maintaining accurate records of all field data described in the operations and maintenance manual. A detailed operation and maintenance manual will be prepared for NYSDEC review and approval prior to commencing operation of the facility.

9.0 SOIL/GROUNDWATER CHARACTERISTICS

Based on a series of test pits conducted at the site, the property is comprised of approximately one-foot thick layer of topsoil and surface vegetation. Below the topsoil layer is approximately three to four feet thick layer of loam which has been removed from the site in the areas inside the 50' perimeter buffer zone. Below the loam layer is well-graded sand to depth of 12' below grade in most areas of the site. The test pits were stopped at twelve feet below the grade surface based on the capability of the backhoe excavating the test pits. The sand layer is well graded sand with excellent drainage capabilities. Based on groundwater monitoring well data from the Cutchogue Landfill groundwater flows in a general northeasterly direction in the general vicinity of the composting site.

10.0 YARD WASTE COMPOSITION

10.1 Source of Yard Waste

The proposed Yard Waste composting Facility will only accept wastes generated within the Town of Southold and from the Town of Huntington. Because the Towns are located in the Northeast and contains deciduous foliage, leaf waste is generated in its greatest quantities during the Autumn months of September, October and November. In addition, grass and brush waste are generated throughout the growing season. The major contributors to yard waste production are property owners and, to a lesser degree, landscaping contractors. These contractors typically collect and dispose of yard wastes for private landowners, businesses and industry. The Highway Department is responsible for the disposal of yard waste generated in all Town parks.

The amount of yard waste generated differs between Towns as a result of the land area in each Town that contains foliage. The Town of Southold is larger in land surface area than the Town of Huntington. Southold contains less residential properties and more farmland and therefore will produce less yard waste on an

annual basis than the Town of Huntington. In order to determine the yard waste to be expected at the composting facility, total waste quantities and compositional data for the Town's were analyzed.

10.2 Yard Waste Quantities

To determine the design criteria, such as acreage and equipment needs, estimates of the amounts of yard waste to be expected at the Facility are necessary. Methods used to make this estimate include use of previous compositional studies and yard waste generation rate data. To utilize compositional studies, total waste stream quantity data is needed.

The Town of Southold and Huntington operates weighing stations at each of their active solid waste disposal and transfer facilities. The data recorded at these stations is accumulated in the Monthly Tonnage Report. Given the location of each of these facilities, the total yard waste generated in each Town can be determined. Based on historic data the amount of yard waste generated in the Town of Southold is expected to be approximately 10,000 tons per year. The amount of yard waste to be received from the Town of Huntington during the initial year of operation (2002) will be approximately 10,000 tons per year. After the initial year of operation the Facility is expected to receive approximately 20,000 tons per year of yard waste from the Town of Huntington.

Initially, only yard waste collected material in the Towns of Southold and Huntington will be accepted and processed at the composting facility. Total waste and yard waste brought in to the Cutchogue Landfill and Recovery Center vehicles has not changed significantly over the past three years.

Waste composition data in combination with the total waste stream data, will give an estimate of yard waste generation rates. The yard waste components of the waste stream have been determined in studies for several cities as shown in Table 10-2.

TABLE 10-2
YARD WASTE COMPOSTING PROJECT

Yard Waste as a Percentage by Weight of Total Waste Stream									
Location	Spring	Summer	Fall	Winter	Average	Leaves	Grass	Lv&Gr	Other
(1) Hempstead, NY	14.4	27.1	6.2	0.4	18.0	-	-	-	-
(2) Cincinnati, OH	27.2	12.6	33	4.1	19.6	-	-	16.9	2.7
(2) Phoenix, AR.	-	-	-	-	23.5	8.8	14.7	-	-
(2) Tuscon, AR.	-	-	-	-	17.1	11.1	5.9	-	-
(2) Minneapolis, MN.	-	-	-	-	23.8	-	-	-	-
(2) Portland, OR.	-	-	-	-	17.5	-	-	-	-
(2) Berkely, CA.	-	-	-	-	11.4	-	-	-	-
(3) E.Northport, NY	-	-	-	-	14.1	-	-	-	-
(4) Seattle, WA.	-	-	-	-	12.0	-	-	-	-

(1) From Multi-Town Engineering Report prepared for the Town of Huntington, Islip, Smithtown, Babylon, NY by Metcalf and Eddy/H2M Group (1979)

(2) From Draft Literature for the City of New York Waste Composition Study prepared by SCS Engineers of Reston, VA. (Oct'89)

(3) From Town of Huntington, NY, Yard Waste Composting Facility Permit prepared by Dvirka and Bartilucci of Syosset, NY (Aug'88)

(4) From Yard Waste Composting: A Study of Eight Programs prepared by USEPA (Apr'89)

The data accumulated in Table 10-2 shows a range of values for percentage composition of yard waste. In a nationwide survey, Franklin Associates estimates that 20 percent of the total waste stream is considered yard waste; this figure has been affirmed by NYSDEC by inclusion in the New York State Solid Waste Management Plan.

Other estimates of percentage by weight of yard waste include 18 percent by USEPA and 17 percent by Massachusetts DEP. It is estimated that leaves alone constitute from one-fifth to one-third of yard waste and between 5 and 20 percent of the total waste stream. As previously mentioned, this range varies widely based on suburban, urban or rural areas.

This range includes estimates of 5 to 20 percent of the total waste stream in a New Jersey DEP publication, 5 to 10 percent according to a University of Connecticut Cooperative Extension Service publication and 6 percent in Massachusetts DEP publication. Some cities calculated compositional data on a seasonal basis and some further divided the yard waste into leaves, grass and others. These figures are somewhat inconsistent between cities, but can be used for estimation purposes. All figures in Table 10-2 are subject to different definitions and varying accuracy. Some of the figures presented for the cities include the geographical boundary of Long Island.

As previously mentioned, the Yard Waste Composting Facility will initially accept only leaves collected in the Town of Southold and Huntington for the Year 2001. In addition, only leaves will be collected initially and yard waste, by definition, consists of leaves, grass, small brush and wood chips. Taking the above two factors into consideration and in light of the fact that there is no compositional data detailing the percentage of leaves for urbanized areas in the total waste stream, a more accurate estimate of the leaf to total waste generated in The Town of Southold is between 5 to 8 percent. Based on the above

assumptions it is estimated that approximately 80,000 cubic yards of leaves will be received at the Yard Waste Composting Facility for the ten week collection period for 2001.

10.3 Composition of Yard Waste

Little general data is available on the components of yard waste by percentage because much of it arrives in a mixed form at solid waste facilities. Some data is detailed in Table 10-2; the basic components are leaves and grass. "Others" typically include brush, shrub trimmings and garden waste and wood chips.

Results of a Cornell Cooperative Extension survey of Brooklyn landscaping contractors give an indication of the composition of yard waste generated in New York City: 66 percent are grass clippings, 20 percent are leaves, 10 percent is brush and 4 percent is wood. These values are based on estimates by each contractor of the percentages of each component of yard waste and may range in accuracy from actual recorded weights to inaccurate estimates. Therefore, use of these figures in further calculations may lead to erroneous results. Chemically, yard waste is composed of nitrogen, phosphorus and potassium, the same ingredients found in fertilizer. Low levels of lead are sometimes found in compost but are rarely a constraint on marketing and use. This is a result of lead in auto emissions which is absorbed by leaves. The lead concentration figures have decreased with stricter emissions regulations.

11.0 MONITORING

Signs will be posted at the entrance to the facility to indicate the purpose of the facility and the materials that will be accepted (i.e., leaves, grass, small brush) and materials that will not be accepted (i.e., construction and demolition, municipal solid waste, paper, metal products, and toxic and hazardous wastes).

All deliveries of compostable material will be inspected at the Bagged Leaf Storage Area prior to incorporation into the windrows. While it is unlikely that hazardous waste will be deliberately delivered to the site, personnel will be properly instructed to immediately identify such waste and to arrange for immediate and proper disposal by a NYSDEC licensed contractor. NYSDEC will be notified of such an occurrence and pertinent information will be maintained on the daily log sheets.

11.1 Compost Process Monitoring

If the Town of Southold decides to market the compost on a public or commercial basis, the compost will be periodically tested. The purpose of compost sampling and analysis will be to determine the chemical mixture of the final product prior to distribution. Composite compost samples will be analyzed as required by the Permit to Operate conditions and as required by NYSDEC. Samples will be collected from a minimum of six (6) windrows and analyzed according to NYSDEC protocols by a NYSDOH certified laboratory.

For the composting process to be most efficient, the critical items to be monitored include moisture content, temperature, pH and oxygen level. These monitoring activities will be the responsibility of the operations manager who will record the data on the forms detailed in Section 13 (Operating Records) of this document. This data will then be examined to determine the frequency of turning of the windrow piles. Troubleshooting and process monitoring control will be provided in the Operations and Maintenance Manual for the composting facility.

11.2 Site Monitoring

Adjacent to the composting site is the Cuthogue Landfill. Groundwater monitoring wells are on the landfill site. These wells are to be installed under the landfill capping program. These monitoring wells will be utilized for monitoring the potential impact of the composting operation on the groundwater quality.

Compost leachate is not expected to be a problem at the Facility site for two reasons, namely, the existing land use is agricultural and analytical data has demonstrated that yard waste compost leachate toxicity is not a significant environmental problem.

With respect to the latter, E.P. Toxicity analysis performed by the Town of Islip, New York on a composite sample of leaf compost supports this conclusion. The Town of Southold will also collect periodic composite samples for analysis as required by NYSDEC.

It is assumed that test results from the existing groundwater monitoring wells at the landfill will indicate the presence of leachate from past solid waste disposal practices and chemical agents used in farming operations. Therefore, it may be difficult to determine the impact of the composting facility leachate on the groundwater quality. Samples of any surface water ponding on the composting site may be more representative of the potential impact of compost leachate on the groundwater. Leachate indicators including specific conductance, total dissolved solids, total organic carbon, chloride, ammonia, alkalinity and pH will be sampled on a periodic basis.

If, as a result of operation of the compost site, significant groundwater contamination is detected, the Town will undertake contingency steps to remediate the site. This may include the installation of groundwater monitoring wells at the perimeter of the yard waste composting site.

The impact of composting on surficial soils will be evaluated by the chemical analysis of composite compost samples collected from beneath a minimum of six (6) windrows prior to distribution of the final compost product.

Soil samples will be analyzed for the same chemical constituents as the composite compost analysis and as required by NYSDEC under the Permit to Operate.

Samples will be collected from a minimum of six (6) windrows and analyzed according to NYSDEC protocols by a NYSDOH certified laboratory.

12.0 CONTINGENCY PLAN

12.1 Equipment Breakdown

Equipment used during on-site operations of the Facility will be owned and regularly maintained by Town personnel. In this instances where specialized equipment, i.e., screens, grinders, etc., may be utilized on a lease basis, a maintenance agreement will be provided by the vendor to ensure continuous operation. If an unforeseen equipment breakdown does occur, the equipment will be replaced immediately in-kind while the repairs are performed. Rolling stock such as collection and transport vehicles are maintained on a regular basis by the Town or outside contractor. Spare parts will be provided for the mechanical pieces of equipment, which are deemed critical to the operation.

12.2 Odor Control

Odor control at the Facility site will be accomplished through a combination of best management practices, site drainage and pro-active odor monitoring. Best management practices include proper construction and maintenance of windows to ensure maximum aeration and elimination of odor-causing conditions. Site drainage will direct runoff from the window to the south and west away from nearest neighbors that may be affected by odors from standing water. In addition, on-site drainage into the soil will eliminate standing water and any runoff from the construction of drainage swales. The location of the site is also advantageous with respect to minimizing odor impacts due to the fact that the nearest residences are located south of the site and the prevailing winds at the site are from a west to east direction. These receptors in the south are located approximately 500 feet from the compost site.

12.3 Vector Control

Insect and mammalian vectors, such as rodents, are attracted to a given location if water, food and shelter are readily available. The operation of a compost facility is not conducive to vector habitation, if properly managed. For example, ponding due to excessive application of water, may be a potential source of insect vectors, such as mosquitoes. Properly trained personnel will be aware of this potential concern and will be instructed to inform the site manager and will assist in preventing such an occurrence.

Rodents are especially troublesome if decomposable food is readily available. Problems in this regard will be prevented in two ways. Initially, yard waste will be monitored by site personnel to eliminate the inclusion of food waste with the yard waste. Routine site inspection will be conducted by personnel to monitor for the presence of rodents. A program of rodent baiting will be conducted if rodents are detected, in accordance with the requirements and recommendations of the County Health Department.

12.4 Spill Control

Spill releases may occur at an active site where light or heavy equipment is routinely used during the workday. In this regard, liquid fuel spills will be eliminated by frequent inspections ensuring that no leaks are occurring. Fuel storage on-site will be de-emphasized by the transportation of heavy equipment to and from the Facility before and shortly after daily closing. Equipment retained on-site will be done so in a secure, fenced-in area or a storage building at the landfill facility to minimize vandalism.

If an unforeseen spill does occur, immediate steps will be taken to reduce environmental impacts to groundwater. Absorbent pads will be used to contain and collect any spilled fuel or lubricant materials. In addition, contaminated soils will be excavated and transported to an approved disposal site. Daily log sheets will also be maintained for inspection. Finally, appropriate Town and NYSDEC personnel will be notified if a spill does occur.

12.5 Delivery of Unapproved Wastes

The Facility will only accept leaves for the Fall Season of 2001. In the Spring of 2002, the Facility will begin accepting small brush and grass. All the waste including garbage and hazardous waste will be banned from the Facility and as indicated by the placement of a suitable sign at the Facility entrance. All truck deliveries of compostable material will also be inspected in the storage area and prior to incorporation into the windrows. Inadvertent deliveries of unacceptable waste will be handled by removal of such material from the site and transportation to the Town of Southhold collection and recycling facility.

12.6 Emergency Response Arrangements

Emergency actions on-site include not only responses to fires but medical assistance to personnel.

Fires are uncommon at a properly managed yard waste compost site. Because water is periodically applied to windrows, the potential of fires is minimal. However, if a fire should occur, immediate steps will be taken to extinguish the fire. These measures include the immediate application of water through the use of a water truck and on-site water supply, as well as the application of quantities of sand to immediately smother a fire. Since the payloaders would be used to transport sand needed to smother a fire, personnel will be properly trained in the appropriate techniques of fighting such a fire. If additional help is needed, telephone contact will be made with the local fire department.

Similarly, personnel will be properly instructed in the use of all equipment in an effort to prevent work-related injuries. A first aid kit will be available on-site for minor injuries; however, telephone and radio contact will be maintained with the emergency medical technicians available in the local response team.

In both instances, fire or medical emergencies will be recorded on daily log sheets.

12.7 Emergency Equipment

As indicated in Section 12.6 (Emergency Response Arrangements), emergency response equipment will be either on-site or immediately available to service the Facility in the event of a fire or medical emergency. Since the yard waste compost operation is a medium technology management technique, extraordinary measures are not considered necessary to respond to potential emergency occurrences. Other than fires, the potential for illegal delivery of hazardous waste may be possible. Under such circumstances, the area would be immediately isolated from use and the hazardous emergency response team from the Suffolk County Department of Health Services would be notified along with Town officials, the local fire department and the NYSDEC. Removal of hazardous waste would be immediate and such waste would be transported to an NYSDEC permitted landfill by a properly licensed NYSDEC contractor.

Copies of letters forwarded to the local emergency responders are included at the end of the report to familiarize the agencies with the location and operations of the composting facility.

12.8 Evacuation Procedures

Evacuation of the Facility would be accomplished in cooperation with Town officials, the local fire department and the local police department.

Initially, personnel would be instructed to immediately notify their superiors and take immediate steps to prevent further access to the Facility. All personnel would leave the premises in an evacuation situation. The entrance/exit gates would be closed and locked pending final determination of the acceptability of re-entry into the Facility through joint determination by Town and State officials.

If additional steps are needed to evacuate the immediate businesses or residences near the Facility, Town public safety and police officials will do so through door-to-door notification.

13.0 OPERATING RECORDS

The operations manager or his designee will keep the following records:

1. Log of daily deliveries of yard waste to the site; including volumes, and types of material entering the site.
2. Log of daily removal of compost, other products, and residuals.
3. Logs of temperatures, moisture, pH and oxygen achieved in the piles.
4. Logs of routine monitoring results on compost quality.
5. Logs of operational problems on the site.
6. Records of water consumption

Sample copies of the data/log sheets are provided in Appendix 9.

14.0 FACILITY MAINTENANCE MEASURES

14.1 Roadway Maintenance

Facility entrance and exit roadways will be maintained by Town personnel to ensure continued operation of the Facility. Appropriate coarse base materials will be applied to maintain on-site roads as needed; and paved roadway surfaces will be provided as the access roadway from Middle Road (C.R. 48).

14.2 Equipment Maintenance

All equipment will be maintained in operational condition through a preventive maintenance program managed by the Town. On-site repairs will be accomplished by Town personnel. A maintenance record will be kept for each piece of equipment used at the Facility site. It will be the responsibility of the operations manager to ensure that all equipment is maintained and in proper working condition.

14.3 Utility Maintenance

Maintenance of Utility service to the Facility will be the responsibility of the respective utilities including Long Island Power Authority and the local Telephone Service Provider. Site personnel will be instructed to immediately notify the respective utility if failure does occur and to maintain a written record of each occurrence.

14.4 Closure

As previously discussed, the composting facility is located on a separate and adjacent site from the Southold landfill. The composting facility is to be considered a permanent facility as the Town has in its long range plans, determined that the site will be utilized for long term processing of yard waste into a marketable compost material. Therefore, closure of the composting facility site will be predicated on the requirements of NYSDEC at the time in the future if the town determines to no longer operate the yard waste composting facility.

15.0 PERMIT TO CONSTRUCT APPLICATION/ SEQR DETERMINATION

The application for Approval to Construct a Solid Waste Management Facility (NYSDEC form 47-19-2 (4/85)) is included as Appendix 10. The application has been executed by the Applicant. Also included in Appendix 10 is the New York State Environmental Quality Review (SEQR) Determination of Non-Significance and Full Environmental Assessment Form which have been completed by the Town of Southold for the Composting Project and Site.

TABLE 6-1
TOWN OF SOUTHOLD
SOLID WASTE DISTRICT
YARD WASTE COMPOSING
EQUIPMENT REQUIREMENTS

<u>ITEM</u>	<u>QUANTITY OF EQUIPMENT</u>
Wheeled Front End Loader, 4 cu.yd. bucket	Two (2)
Debagging Operation (Optional)	One (1)
Trommel Screen, Pre-processing	One (1)
Shredding/Grinding System	One (1)
Windrow Turning Machine	One (1)
Water Truck	One (1)
Dump Trucks, 10 to 20 cu.yd.	Two (2)
Conveyor System	---
Trommel Screen, Post-processing (Optional)	One (1)

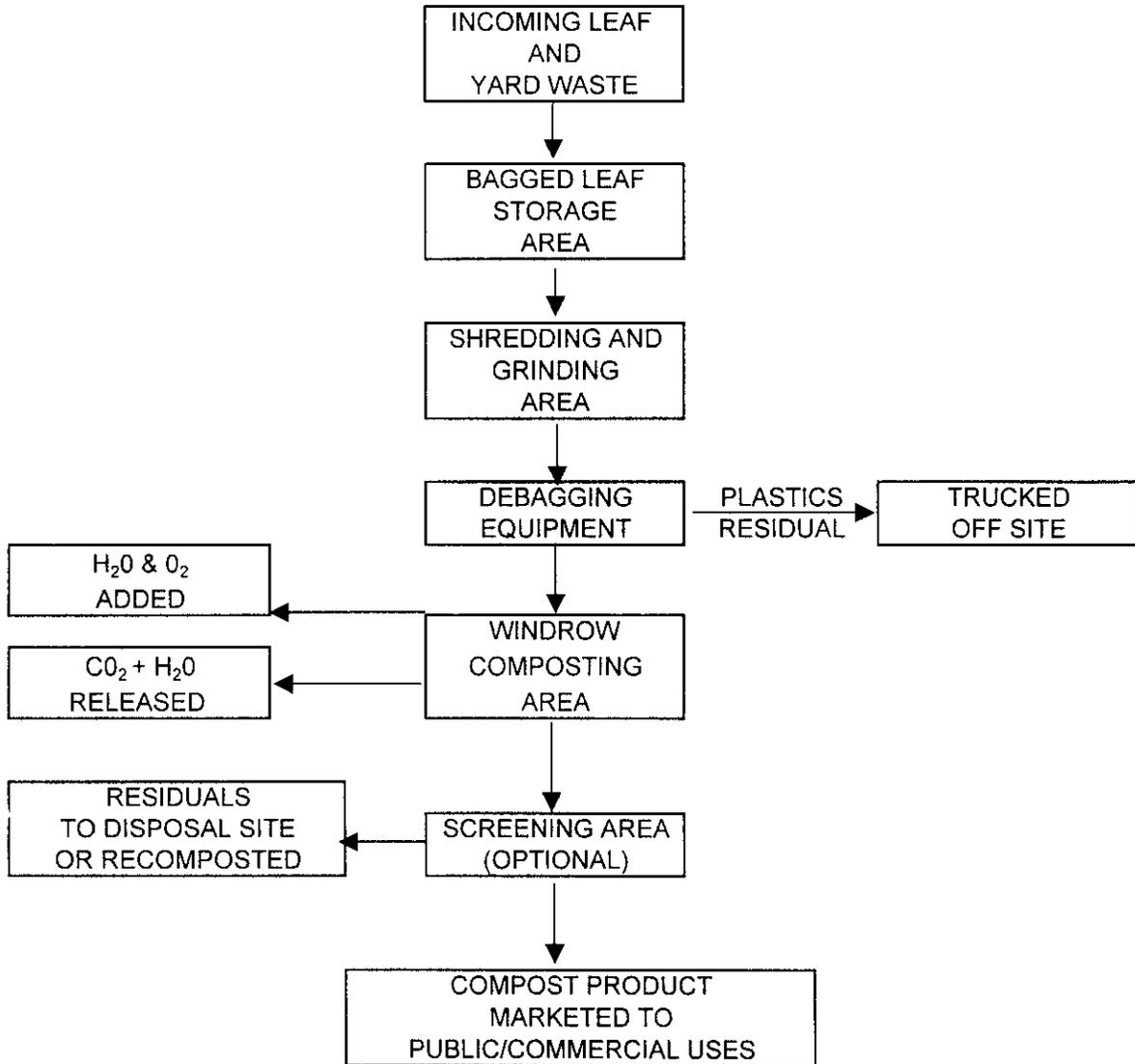
PROCESS FLOW DIAGRAM

Figure 6-9

TOWN OF SOUTHOLD - SOLID WASTE DISTRICT

YARD WASTE COMPOSTING FACILITY

NOVEMBER, 2001





Holzmacher, McLendon & Murrell, P.C. ▲ H2M Associates, Inc.
H2M Labs, Inc. ▲ H2M Construction Management, Inc.

575 Broad Hollow Road, Melville, New York 11747

(631) 756-8000, Fax: (631) 694-4122

e-mail: h2m@h2m.com

web: www.h2m.com

November 9, 2001

Chief Carlisle Cochran
Southold Town Police Department
Main Road
Peconic, New York

**Re: Town of Southold
Yard Waste Composting Facility
Notification to Emergency Coordinators
SOHT 01-01**

Dear Chief Cochran:

The Town of Southold plans to operate a yard waste composting facility at a site adjacent to the Cuthchogue Landfill and just east of Depot Lane on Middle Road (C.R. 48). H2M Group, is responsible for the design and permit preparation for this project. As a part of the permit to construct and operate a solid waste management facility, the New York State Department of Environmental Conservation requires that the applicant notify and familiarize local emergency response personnel with the facility. This is done as a preventative measure.

Enclosed is a list of the other persons to whom this letter was sent along with an organizational chart detailing the order in which emergency response personnel will be contacted. Also enclosed is a map detailing the location of the composting facility and a site plan detailing the facility itself.

Please review the enclosures, and if you have any questions, please contact our office at (631) 756-8000, Extension 1610.

Very truly yours,

HOLZMACHER, McLENDON & MURRELL, P.C.

George W. Desmarais, P.E.
Vice President

GWD:hap

Enclosure

cc: James Bunchuck/Solid Waste Coordinator
P:\GWD\October 19mrgletter.doc



Holzmacher, McLendon & Murrell, P.C. ▴ H2M Associates, Inc.
H2M Labs, Inc. ▴ H2M Construction Management, Inc.

575 Broad Hollow Road, Melville, New York 11747
(631) 756-8000, Fax: (631) 694-4122

e-mail: h2m@h2m.com

web: www.h2m.com

November 9, 2001

Paul J. Connor, President
Eastern Lane Island Hospital
Manor Place
Greenport, New York

**Re: Town of Southold
Yard Waste Composting Facility
Notification to Emergency Coordinators
SOHT 01-01**

Dear Mr. Connor:

The Town of Southold plans to operate a yard waste composting facility at a site adjacent to the Cuthogue Landfill and just east of Depot Lane on Middle Road (C.R. 48). H2M Group, is responsible for the design and permit preparation for this project. As a part of the permit to construct and operate a solid waste management facility, the New York State Department of Environmental Conservation requires that the applicant notify and familiarize local emergency response personnel with the facility. This is done as a preventative measure.

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George W. Desmarais, P.E.
Vice President

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Enclosure

cc: James Bunchuck/Solid Waste Coordinator
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web: www.h2m.com

November 9, 2001

Andrew J. Mitchell, President
Central Suffolk Hospital
1300 Roanoke Avenue
Riverhead, New York

**Re: Town of Southold
Yard Waste Composting Facility
Notification to Emergency Coordinators
SOHT 01-01**

Dear Mr. Mitchell:

The Town of Southold plans to operate a yard waste composting facility at a site adjacent to the Cuthchogue Landfill and just east of Depot Lane on Middle Road (C.R. 48). H2M Group, is responsible for the design and permit preparation for this project. As a part of the permit to construct and operate a solid waste management facility, the New York State Department of Environmental Conservation requires that the applicant notify and familiarize local emergency response personnel with the facility. This is done as a preventative measure.

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George W. Desmarais, P.E.
Vice President

GWD:hap

Enclosure

cc: James Bunchuck/Solid Waste Coordinator
P:\GWD\October 19mrgletter.doc



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e-mail: h2m@h2m.com

web: www.h2m.com

November 9, 2001

Chief Dale Butler
Cuthogue Fire Department
Northwest Suffolk Lane
Cuthogue, New York 11935

**Re: Town of Southold
Yard Waste Composting Facility
Notification to Emergency Coordinators
SOHT 01-01**

Dear Chief Butler:

The Town of Southold plans to operate a yard waste composting facility at a site adjacent to the Cuthogue Landfill and just east of Depot Lane on Middle Road (C.R. 48). H2M Group, is responsible for the design and permit preparation for this project. As a part of the permit to construct and operate a solid waste management facility, the New York State Department of Environmental Conservation requires that the applicant notify and familiarize local emergency response personnel with the facility. This is done as a preventative measure.

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HOLZMACHER, McLENDON & MURRELL, P.C.

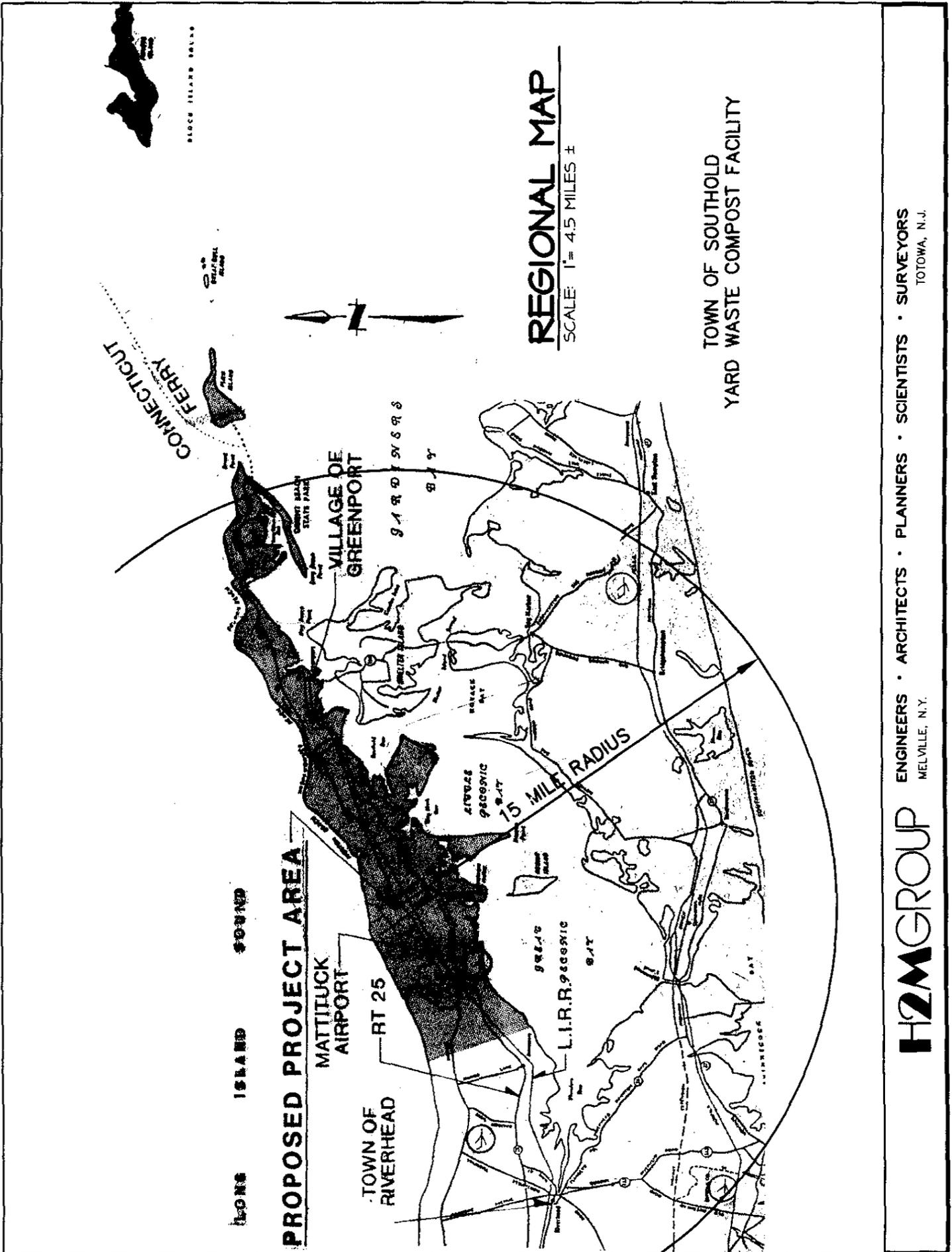
George W. Desmarais, P.E.
Vice President

GWD:hap

Enclosure

cc: James Bunchuck/Solid Waste Coordinator
P:\GWD\October 19mrgletter.doc

APPENDIX 1



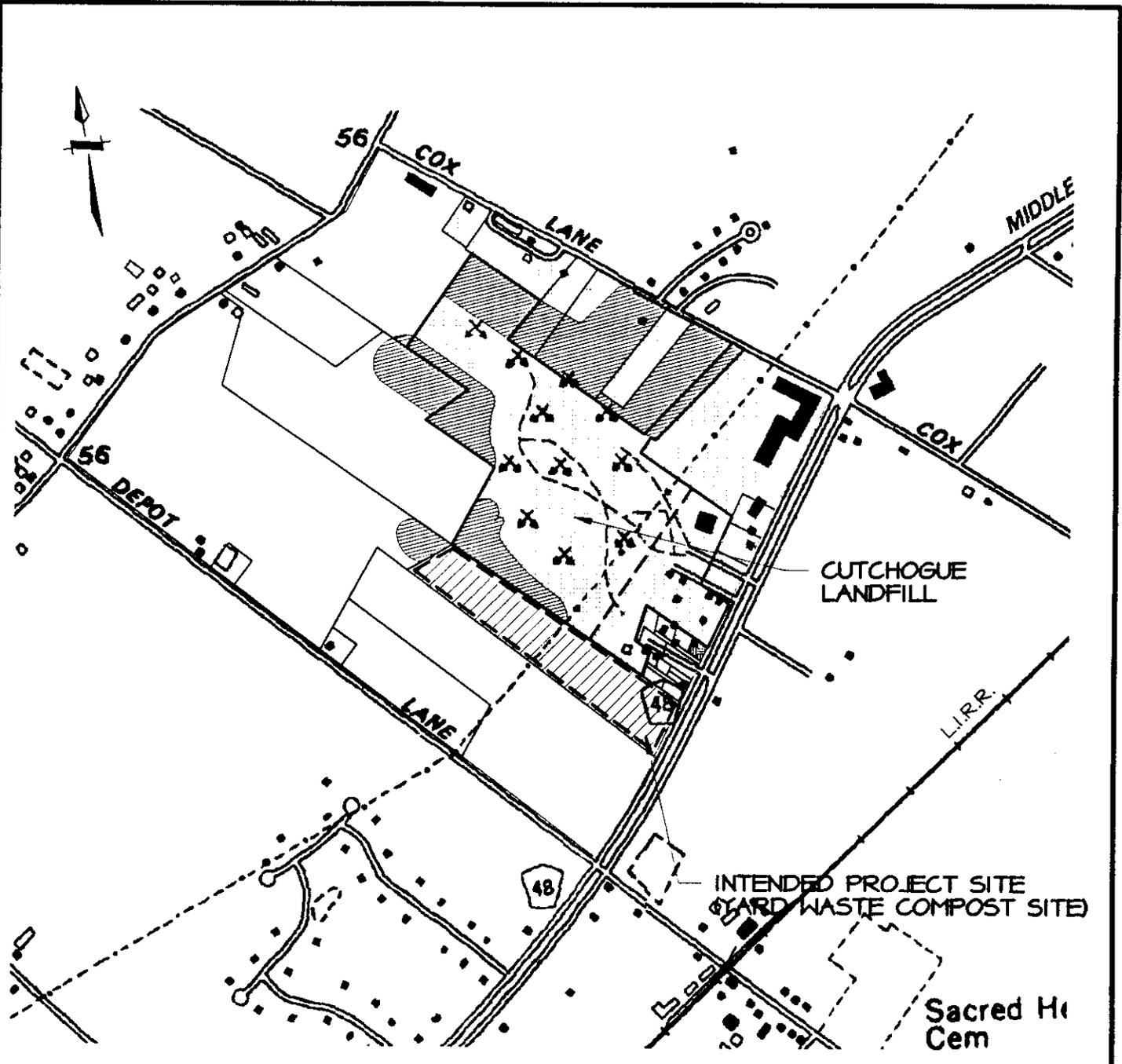
ENGINEERS • ARCHITECTS • PLANNERS • SCIENTISTS • SURVEYORS
MELVILLE, N.Y.

TOTOWA, N.J.

H2M GROUP

APPENDIX 2

M:\codd\SOHT\0101\VICINITY MAP.dwg Last Modified: Nov 07, 2001 - 12:14pm Plotted on: Nov 07, 2001 - 12:14pm By codd112



SITE VICINITY MAP
SCALE: 1" = 800'

**YARD WASTE COMPOSTING FACILITY
TOWN OF SOUTHOLD**

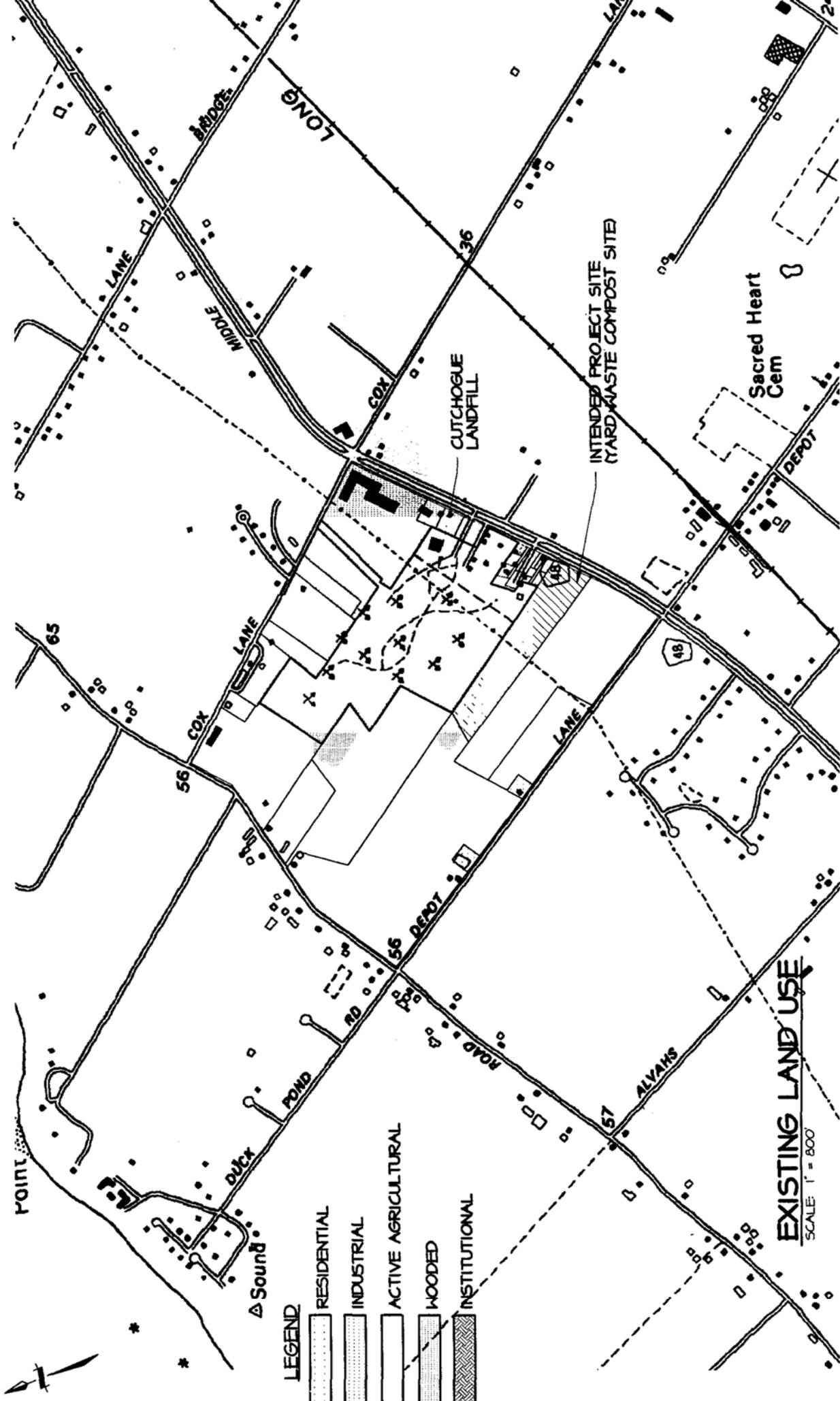
REFERENCE: SOUTHOLD AND MATTITUCK HILLS QUADRANGLE

NEW YORK - SUFFOLK COUNTY
7.5 MINUTES

H2M GROUP

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MELVILLE, N.Y. TOTOWA, N.J.

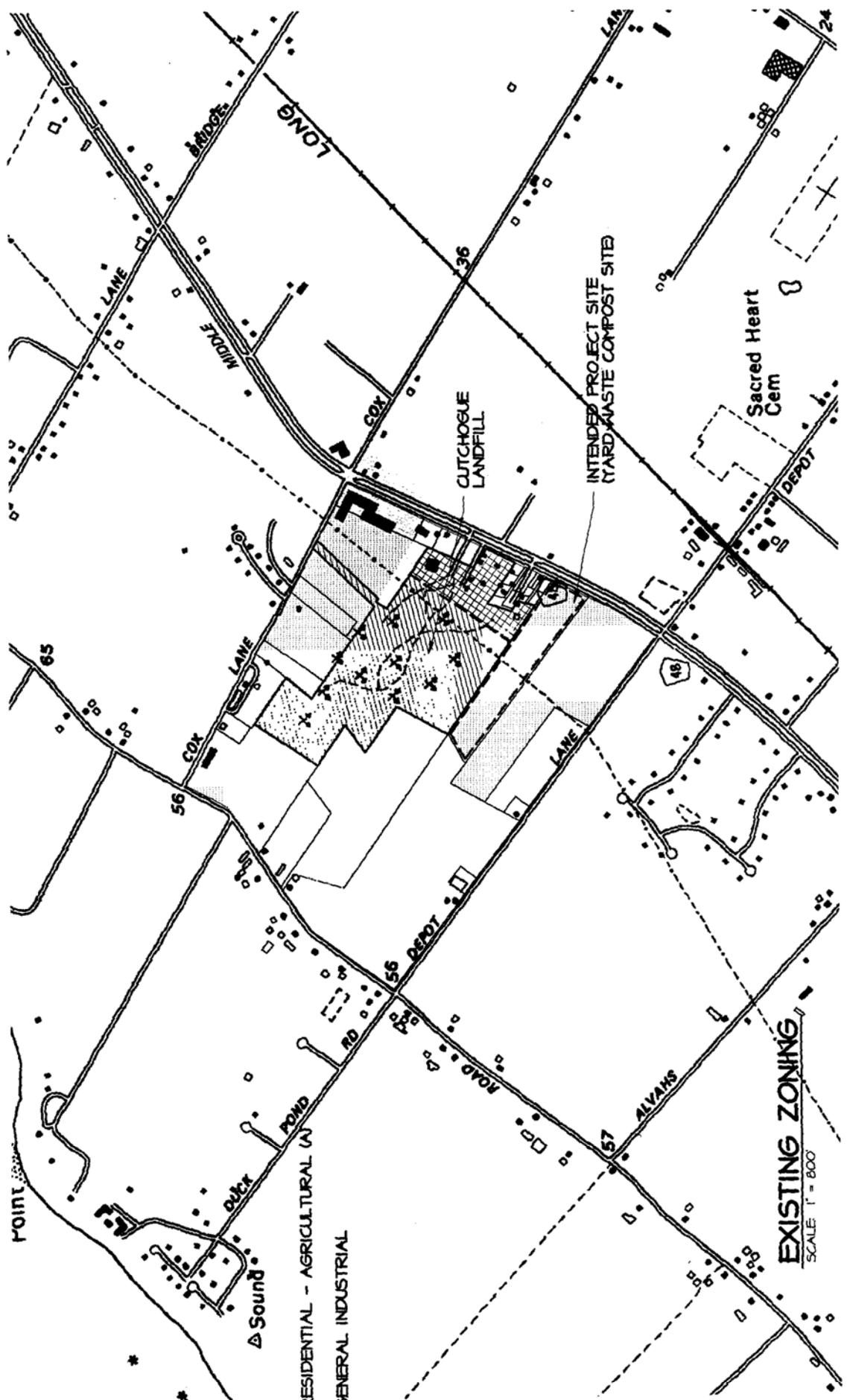
APPENDIX 4



- LEGEND**
-  RESIDENTIAL
 -  INDUSTRIAL
 -  ACTIVE AGRICULTURAL
 -  WOODED
 -  INSTITUTIONAL

EXISTING LAND USE
SCALE 1" = 800'

APPENDIX 5

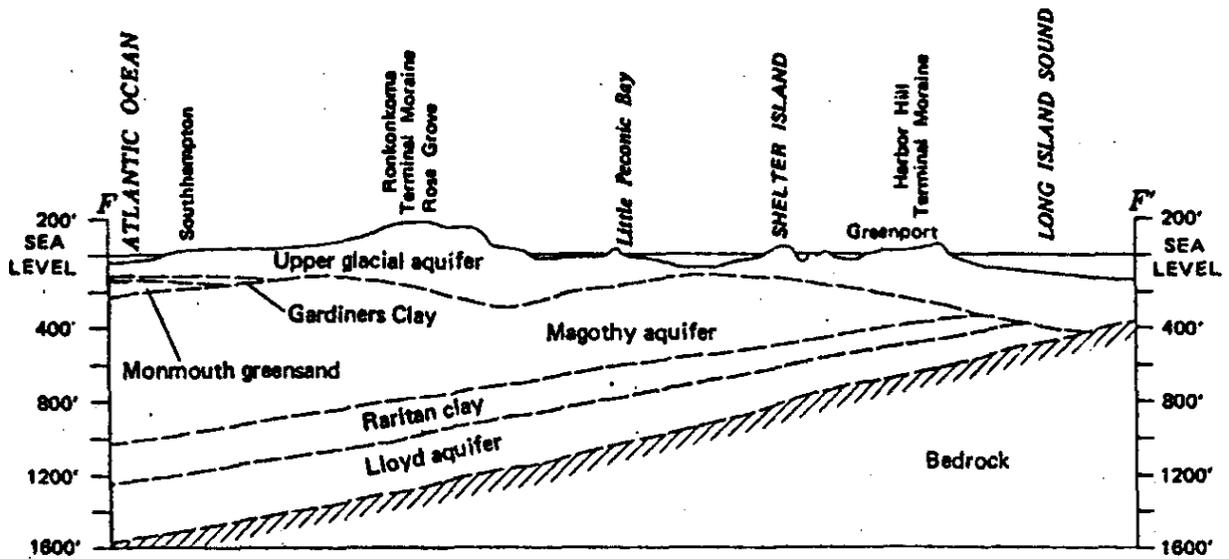
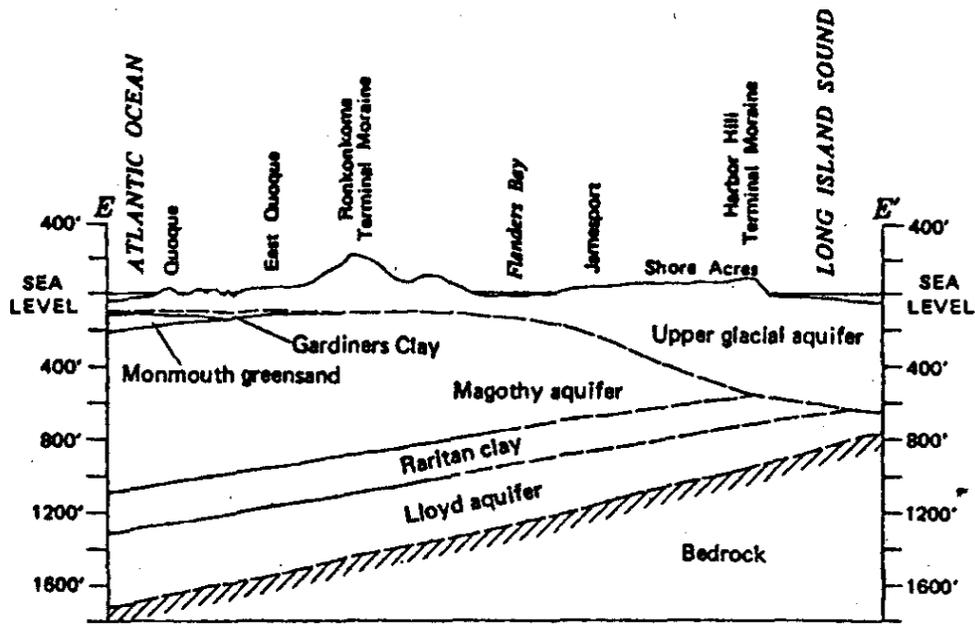


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MELVILLE, N.Y. TOTOWA, N.J.

APPENDIX 6

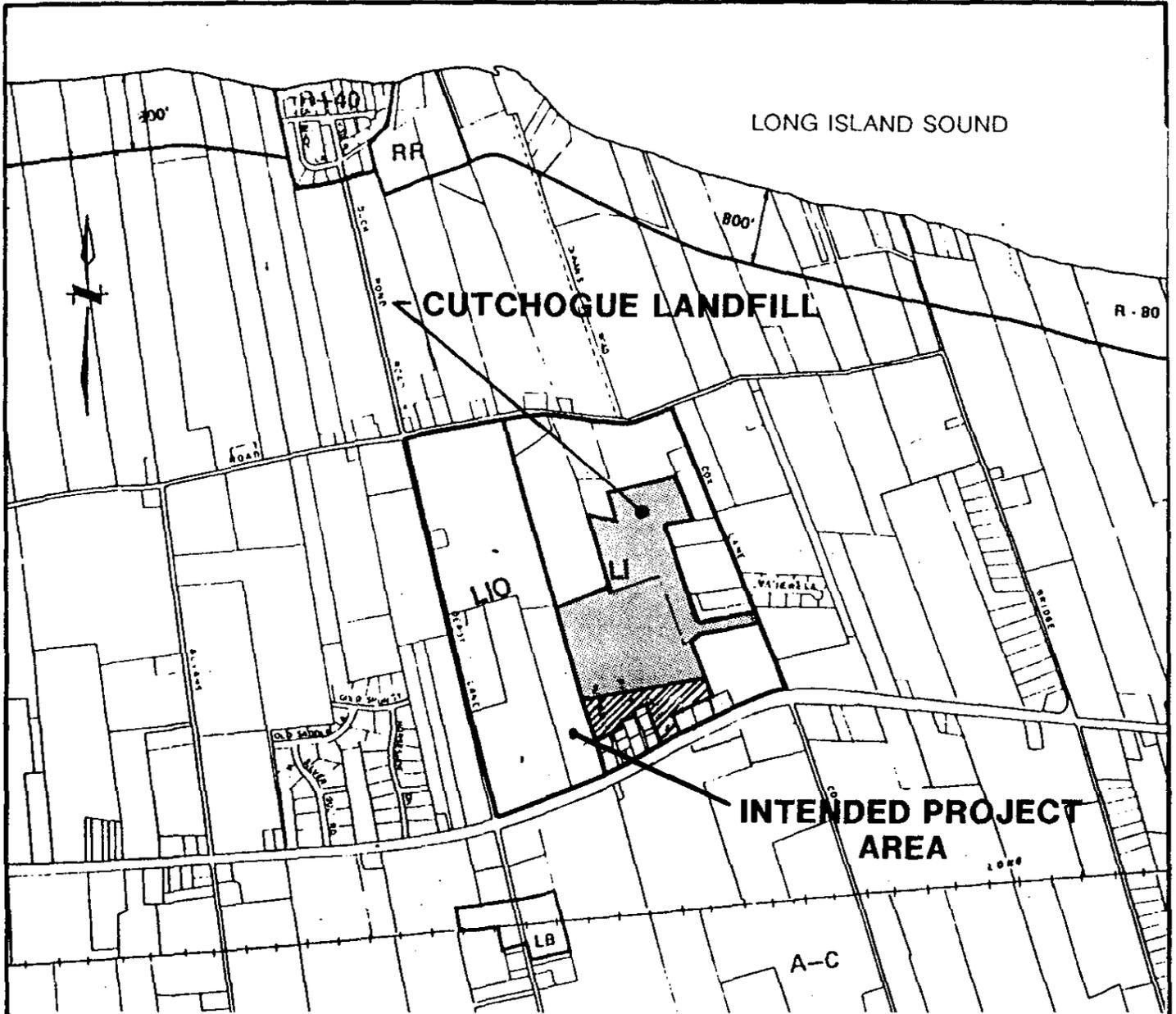
M:\cadd\SOHT\0101\vicinity map.dwg Last Modified: Nov 07, 2001 - 9:53am Plotted on: Nov 07, 2001 - 9:53am By cadd112



HYDROGEOLOGIC CROSS SECTION
(VERTICAL EXAGGERATION ABOUT x20)

PROJECT SITE IS LOCATED EQUIDISTANT FROM CROSS SECTION EE' & FF'
SOURCE: JENSEN ABD SOREN, 1974

APPENDIX 7



PROPOSED ZONING

SCALE: 1"= 1600'

LEGEND

A-C	Agricultural Conservation	RR	Resort/Residential
R-40	Residential Low Density AA	RO	Residential/Office
R-80	Residential Low Density A	LB	Limited Business
R-120	Residential Low Density B	HB	Hamlet Business
R-200	Residential Low Density C	B	General Business
R-400	Residential Low Density D	MI	Marine I
HD	Hamlet Density Residential	MII	Marine II
		LIO	Light Industrial/Office Park
		LI	Light Industrial

**PROPOSED ZONING MAP. TOWN OF SOUTHOLD.
MASTER PLAN UPDATE**

SOURCE: LATEST REVISION AUGUST 9, 1988



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MELVILLE, N.Y.

APPENDIX 8

**New York State Department of Environmental Conservation
Division of Solid & Hazardous Materials, Region One**

Building 40 - SUNY, Stony Brook, New York 11790-2356
Phone: (631) 444-0375 FAX: (631) 444-0231



Erin M. Crotty
Commissioner

SEP 4 2001

James Bunchuck
Solid Waste Coordinator
Town of Southold
P.O. Box 962
Cutchogue, New York 11935

Re: Registration for Southold Brush Processing Site
County Road 48 and Zacks Lane, Cutchogue, New York

Dear Mr. Bunchuck:

Enclosed is a validated copy of your registration form submitted to the New York State Department of Environmental Conservation pursuant to 6 NYCRR Part 360.

This letter only acknowledges receipt of your registration form and does not, in any way, verify that the information which you provided on the form is true or correct. Also, please be advised that the validation of this registration is contingent upon you being the owner or having legal authority to use the described site. In addition, you are responsible for obtaining any other permits and approvals that may be required; and for complying with all other applicable State and Federal laws, rules, regulations and all other applicable local ordinances including, but not limited to, zoning ordinances, building codes, Fire Marshal codes, etc.

This registered activity shall in no way conflict with any mined land reclamation permit and approved reclamation plan.

You are reminded that 6 NYCRR Part 360 contains various requirements that must be followed to warrant your facility's continued status as a registered facility. This information was provided in the registration package.

If you have any questions regarding this matter or need an additional copy of the registration requirements, please contact me at the above telephone number.

Sincerely,

Anthony J. Cava, P.E.
Regional Solid and Hazardous Materials Engineer

cc: Greg Yakaboski, Southold Town Attorney
Bob Terry, Terry Contracting and Materials
George Desmarais, H2M
Igor Sikiric, NYSDEC

APPENDIX 9

APPENDIX 9

Town of Southold

Solid Waste District

Yard Waste Compost Facility

Composting Laboratory Worksheet

Sample Name: _____

Sample Type: _____

Date Collected: _____

By: _____

Date Analyzed: _____

By: _____

A. Dry Solids (%TS) _____

B. Total Volatile Solids (*dry weight percent*) _____

C. pH _____

D. Total Nitrogen – TKN (*dry weight percent*) _____

E. Ammonia Nitrogen – NH3 (*dry weight percent*) _____

F. Total Phosphorous (*dry weight percent*) _____

G. Potassium (*dry weight percent*) _____

H. Metals (mg/kg): _____

I
i. Cd _____ ii. Cu _____ iii. Cr _____ iv. Hg _____

v. Ni _____ vi. Pb _____ vii. Zn _____

APPENDIX 9

(3) Water Trucks

FORM 1
Page 2 of 2

No. of Loads	Area Wetted	Windrow		Remarks
		No.	Section	

(4) Utility Activities

Activity	Quantity	Remarks

(5) Odor Occurrence

Pile * Condition	Odor ** Description	Location		Lime Usage		Remarks
		No.	Section	Quantity	Area	

*Pile condition described as either Aerobic or Anaerobic.

**Odor Description:

(a) Aerobic – mild earthy

(b) Anaerobic – Presence of volatile organic acids, creates vinegar, cheesy, goaty or sour odors. Presence of alcohols create a fruity, floral, alcohol like odor. Presence of amines and sulfur compounds creates a barnyard or rotten odor.

APPENDIX 9

FORM 3

Date: _____
 Month: _____

LEAF COMPOSTING PROJECT
 MONTHLY REPORT

PARAMETER	WEEK 1	WEEK 2	WEEK 3	WEEK 4	TOTAL
-----------	--------	--------	--------	--------	-------

1. LEAF DELIVERY
Cubic Yards
2. PERSONNEL
Total Man Hours
3. WATER TRUCK
Total Loads/Gals.
4. UTILITY WORK
Total Bags/Volume
5. ODOR OCCURRENCES
#/Week
6. TEMPERATURE
Readings/Average
7. MOISTURE
Readings/Average
8. NUMBER OF WINDROW TURNINGS
 - Windrow #1
 - Windrow #2
 - Windrow #3
 - Windrow #4
 - Windrow #5
 - Windrow #6

COMMENTS/OBSERVATIONS