RECYCLING TECHNICAL ASSISTANCE
Project #588

FINAL REPORT

CITY OF READING
BERKS COUNTY, PENNSYLVANIA

YARD WASTE PROCESSING EVALUATION

November 2015

Sponsored by the Pennsylvania Department of Environmental Protection through the Pennsylvania State Association of Township Supervisors

RECYCLING TECHNICAL ASSISTANCE
Project #588

CITY OF READING
BERKS COUNTY, PENNSYLVANIA

LEAF WASTE COLLECTION & MANAGEMENT EVALUATION

Project Completed By:

PO Box 67100
Harrisburg, PA 17106-7100
717.763.7212 x2538
sdeasy@gfnet.com

1.0 STATEMENT OF PROBLEM

This study was conducted for the City of Reading (City) under the Recycling Technical Assistance program that is sponsored by the Pennsylvania Department of Environmental Protection (PADEP) through the Pennsylvania State Association of Township Supervisors (PSATS). The City was recently declared financially distressed under the Financially Distressed Municipalities Act (Act of 1987, P.L. 246, No. 47), known as Act 47. The City's Act 47 Plan (amended November 21, 2014) recommended that the City replace a portion of its curbside leaf waste collection services with a leaf waste drop off program to reduce costs and to allocate staff to higher priority tasks. In 2014, the City's third party organics processor began charging the City for each truckload of yard waste removed from the City-owned facility referred to as the Wood Shed. The City requested assistance to evaluate its curbside leaf waste management program and to identify future outlets and end-uses for City-collected yard waste.

2.0 SUMMARY OF WORK

2.1 Yard Waste Services Overview

The City is mandated by Pennsylvania's Municipal Waste, Planning, Recycling and Waste Reduction Act (Act 101 of 1988) to provide curbside collection of leaf waste for recycling. "Leaf waste" is defined under Act 101 of 1988 as leaves, garden residues, shrubbery, tree trimmings and similar material, but not including grass clippings. "Yard Waste" is defined as leaves, grass clippings, garden residue, tree trimmings, chipped shrubbery, and other vegetative material. The City provides curbside collection of bundled and bagged yard wastes plus leaf vacuum services. Services are provided to approximately 27,000 residential units. The City does not operate a public yard waste drop-off site or compost facility.

2.2 Curbside Yard Waste Collection

Curbside yard wastes are bundled or placed in biodegradable paper bags by residents and are collected Monday, Tuesday, and Wednesday from mid-March until late November. Bagged and bundled yard waste collections are conducted by the Pubic Work's Streets Division using a dump truck and/or rear-load packer truck and one employee. Based on three days per week and 42 weeks per year of operations, annual curbside yard waste collection costs are estimated by the City to cost $40,000 for labor plus $25,000 for equipment use and maintenance. The City does not keep detailed or accurate records of collected yard waste quantities.

2.3 Vacuum Leaf Collection Equipment, Labor, and Budget

Leaf vacuum service is provided from mid-October through the beginning of December. Operating in different collection zones, City crews vacuum leaves six days per week, Monday through Saturday. Leaves are vacuumed using dump trucks fitted with a leaf box and a pull-behind leaf vacuum machine (See **Appendix A, Yard Waste**

Management Photos). The leaf boxes are approximately 10 cubic yards. When filled, the dump truck carrying the leaf box is detached from the tow-behind vacuum and driven to the disposal site. A separate dump truck and leaf box is connected to the vacuum unit to continue the collection. Two crews collect leaves Monday, Tuesday, Thursday, and Friday; four crews collect leaves on Wednesdays; and five crews are used on Saturdays. Based on leaf services provided over six weeks, the City estimates the annual labor and equipment costs at $90,000.

2.4 Existing Yard Waste Consolidation Sites and Processing

The collected yard wastes and leaves are delivered to the Wood Shed site located near the intersection of Angora Road and Hill Road (**Appendix A, Yard Waste Management Photos**). The site is two miles from downtown Reading. The useable operating area of the Wood Shed is approximately two acres. The site is also utilized for paper processing, storage of materials and equipment (e.g., park benches, lamp posts, woody waste, road cuttings, etc.) and for storing larger woody wastes such as stumps, logs, and brush. Leaves are dumped in a large pile near the center of the site behind an earthen loading ramp. Bagged and bundled yard waste is placed immediately inside the access gate along the western edge of the site. Space limitations on the site preclude the use of active composting techniques such as windrow composting. In 2014, the City paid $10,600 to remove 803 tons of accumulated leaves and curbside yard wastes from the Wood Shed. Roughly two-thirds of the 803 tons was leaves while remaining material was yard waste. Material removal was not a budgeted expense because historically leaf waste was taken by Natural Soils, Inc. at no cost. According to Natural Soils, Inc. it will charge the City $260 per load (45' box truck) through 2016.

Occasionally, leaves and wood chips are delivered to the City's wastewater treatment facility located at 899 Morgantown Road. On rare occasions, wood chips are used in the waste water treatment process. Some curbside collected leaves are stockpiled in an unpaved area on the treatment plant property away from structures and equipment.

2.5 Site Visit

Gannett Fleming visited yard waste sites on September 22, 2015. Key observations and findings for these visits are included under Findings, Section 3.0. Photographs from the site visits are included in **Appendix A, Yard Waste Management Photos**.

3.0 FINDINGS

3.1 Collection of Yard Wastes

3.1.1 Bagged and Bundled Yard Waste Collections

The Municipalities Financial Recovery Act Amended Recovery Plan (November 21, 2014) includes a recommendation to eliminate curbside collections of yard waste. This recommendation does not fully comply with Act 101 of 1988 leaf waste management requirements and is not aligned with the **PADEP Guidelines for Yard Waste Composting**

Facilities, Document Number: 254-5403-100 (Department of Environmental Protection, January 6, 2009), **Appendix B**. At minimum, the City is required to provide either monthly collection of leaf waste or one leaf waste collection in the spring and one leaf waste collection in the fall provided a supplemental yard waste drop off site (i.e., compost facility) is available for use by the public to periodically drop off yard wastes.

3.1.2 Leaf Vacuum Service Analysis

With consideration of the City's Act 47 recommendations to allocate staff to high priority tasks, Gannett Fleming evaluated opportunities to reduce the number of staff allocated to leaf vacuum service. Gannett Fleming completed a comparative analysis of the City's 10 cubic yard tow-behind vacuum systems and 25 cubic yard self-contained vacuum trucks (refer to the **Leaf Waste Vacuum Comparative Analysis, Appendix C**, and to the **Leaf Vacuum Truck Specifications, Appendix D)**. The assumptions and calculations presented below were used for the comparative analysis:

- Based on the reported numbers of crews out on each of the six collection days in the six-week collection season, there are 102 truck-days of leaf collection.
- On average, trucks collect two 10-cubic yard loads per day, totaling 20 cubic yards per day. This is equivalent to 2,040 cubic yards of leaves vacuumed per season (102 truck-days x 2 loads/day x 10 yds/load).
- Round-trip hauling to the Wood Shed is four miles. The round trip distance to an alternative commercial processing facility is assumed to be 30 miles.
- The variable vehicle cost per mile for hauling to the unload site is $1.00. Vehicle costs on the collection route were not estimated and are not included in the cost comparison. Because the collection route would be similar under either scenario, the only expected cost difference would relate to comparative operating efficiencies (e.g., fuel efficiency) of the new truck compared to the existing trucks.
- The average employee expense per day with benefits is $272, based on average pay of $20 per hour and benefits expense at 70% of salary. Saturday's hourly rate is 1.5 times the base hourly rate.
- The 25 cubic yard truck hauls three loads per day (75 cubic yards/day) to the Wood Shed site. At the same fill rate, it could haul 2.3 loads (53 cubic yards per day) traveling to a processor located 15 miles away. Actual performance data obtained from State College Borough reports that the 25 cubic yard self-contained trucks routinely collect four loads per day and often collect five or more loads per day.
- Dumping at the Wood Shed, one 25 cubic yard truck could collect the season total (2,040 cubic yards) in less than five workdays per week. Because of the additional haul time to a remote disposal site, it would take nearly six work days per week to haul the same amount of leaves with a 25 cubic yard truck self-contained unit.

The key findings from the leaf vacuum equipment analysis are as follows:

- The collection rate of one 25 cubic yard self-contained truck is equivalent to the collection performance of three and a half to three and three-quarters of the current

trucks under reported operation characteristics. For labor, the comparative efficiency would be nearly doubled that of the equipment efficiency since the crew size would be reduced from two to one. One worker operating a 25 cubic yard self-contained truck could collect as much as seven or more workers using the tow behind trucks.

- Using the Wood Shed for unloading, a 25 cubic yard self-contained leaf vacuum truck would save approximately $53,000 in annual labor cost and save negligible vehicle haul costs compared to the status quo. Since it is assumed the City would not eliminate labor positions, this amount represents the value of labor that could be re-allocated to priority Public Works functions.
- Using an alternative disposal facility 15 miles away, the status quo labor and vehicle operating costs would increase by approximately $13,000 compared to using a local site. The costs of using the 25 cubic yard truck would increase by nearly $5,000. In this scenario, the savings from changing to the use of the 25 cubic yard truck increases to roughly $61,000 per year.

The costs presented above are intended for comparison purposes only to illustrate efficiency gains from transitioning from tow-behind units to a 25 cubic yard self-contained vacuum truck. The analysis is not appropriate for budget predictions. It also should be noted that the leaf volumes may be higher than the assumptions used in this analysis. Higher volumes would require more operating hours and overtime on the 25 cubic yard truck, or require supplementing the self-contained truck with one or more of the tow-behind leaf units.

3.2 Yard Waste Processors and Organic Product End-Uses

In October 2015, Gannett Fleming identified and contacted (via phone) known area compost facilities, soil manufacturers, and other potential outlets and processors for City yard wastes and leaves. A summary table with information including facility name, address, travel distance, and notes pertaining to suitability to accept City yard wastes is provided in **Appendix E, Local Yard Waste Processors and Outlets**. From this preliminary review of organics markets, the City does not have reliable outlets nearby or agreements in place for processing its yard waste. Without secure outlets for leaf waste, the City is at risk of incurring high leaf waste transportation and processing costs. Limited organics outlets can turn into logistical challenges, particularly if a processor stops accepting City yard wastes. As seen in **Appendix E**, Zwicky Processing & Recycling, Inc. is the only organics processor within 20 miles that expressed interest in accepting unprocessed yard waste from the City. The findings below characterize the City's position pertaining to yard waste processors and end uses:

- The City's primary outlet for yard waste processing is Natural Soils, Inc. located 43 miles away, making transportation costs a risk factor. The City does not have a formal written agreement with Natural Soils, Inc. that defines the agreed operating conditions, length of contract, or costs for yard waste transport and processing. Natural Soils, Inc. increased its cost from $0 per load to $260 per load in 2015.
- The City does not operate a permitted municipal yard waste compost facility. The City does not have essential equipment to process organics and operate a City scale

composting facility. Compost facility operations typically include some combination of the following equipment, with the minimum equipment including a front-end loader and some type of chipping or grinding equipment for woody wastes:

  - A front-end loader for moving material and turning windrows.
  - A woody waste grinder. A tub grinder is located at the Wood Shed but it is not operational. The City estimates it will cost $11,000 to repair the grinder.
  - A trommel screen to remove plastics and other unwanted residual material to yield clean or finished compost products.
  - A windrow turner used for turning windrows thoroughly, which accelerates active composting.

- The Wood Shed is used temporarily for yard waste consolidation, but this site does not have adequate processing capacity or the equipment to manage and process City yard waste. It is not feasible to develop the Wood Shed into a municipal yard waste compost facility for the following reasons:
  - The site does not meet siting criteria established under the **PADEP Guidelines for Yard Waste Composting Facilities**, **Appendix B**. For example, the Rose Valley Creek appears to be within the 300 foot buffer distance for streams established in the siting restrictions. Site boundary details were not provided.
  - The site is too small to effectively conduct windrow composting, a common but land intensive technique for composting leaves. Based on evaluations of compost sites across Pennsylvania, the majority of PADEP-approved municipal compost facilities are three to five acres.
  - Steep slopes along eastern and southern site boundary prevent expansion.
- Local municipally operated compost facilities, including Exeter Township and Muhlenberg Township, do not have the capacity and are not willing to accept City-collected yard wastes or yard wastes delivered by City residents.
- With the exception of chipping Christmas trees, tree limbs, and shrubs, the City does not process yard wastes into useable finished products. Processing includes composting, screening compost to remove unwanted materials, brush grinding, and chipping. Without processing for volume reduction and to produce finished products, the City increases its yard waste management costs and risks due to the factors listed below:
  - The City rapidly accumulates large volumes of unprocessed organics that must be processed at a PADEP-approved, permitted facility.
  - Using the Wood Shed for intermediate material staging means that yard waste must be reloaded, adding to labor effort and transportation. Moreover, because the material is unprocessed, it has greater volume and therefore incurs more handling, hauling, and cost than if size-reduction was achieved through processing. Third party processors charge processing fees or tip fees to convert raw organics into finished products. The market value and demand for unprocessed organics is usually less than processed organics.
  - Since the City does not process yard wastes into finished products it does not cost effectively return organics to the community in an environmentally

beneficial manner through its use on municipal projects or distribution to City residents and businesses.
    - Limited potential material outlets exist because few markets desire unprocessed yard wastes, particularly when the organics contain plastics and other contaminants. Ridgewood Soils, for example, is only six miles away, but indicated that they will not take City leaves due to contamination.
- Leaves can be land applied on farms that have completed a land application form that is included in the **PADEP Guidelines for Yard Waste Composting Facilities, Appendix B**. Land application farms were not identified in this Study. At this time, the City does not land apply leaves.

3.3 Evaluation of a City-Operated Yard Waste Drop-off Program

The City's Act 47 Plan recommends that the City replace curbside yard waste collections with a yard waste drop off facility. Gannett Fleming conducted a preliminary investigation regarding the City's implementation of one or more yard waste drop-off facilities within City limits, and determined the following:

- PADEP requires that all municipally operated yard waste drop-off sites are permitted in accordance with the **PADEP Guidelines for Yard Waste Composting Facilities**, **Appendix B**. Therefore, Gannett Fleming interprets the term City "yard waste drop-off facility" at the City scale to be a fully operational compost facility where material receiving, processing, and distribution is conducted in accordance with permit requirements. Therefore, the City cannot simply designate a location for residents to drop-off yard waste that is taken offsite for processing.
- The City is not required by Act 101 of 1988 to implement a yard waste drop off program (i.e., compost facility) provided that the City collects leaf waste from residences at least once per month. Since the City already provides leaf vacuum service during three months of the year, the City would need to offer curbside leaf waste collection once per month for the remaining nine months of the year.
- Gannett Fleming could not identify a public or private processor within 20 miles that could serve as a cost effective alternative to a City-developed compost facility. However, a detailed feasibility analysis was not conducted and is outside of the scope of this Study.
- The City does not operate a public yard waste drop off facility and residents and businesses do not appear to have convenient yard waste drop-off options.
- The benefits of a City yard waste composting operation (Section 3.2) include reduced material loading and transportation costs, volume reduction, municipal use of finished products, and potential revenue from sale of finished products. As scale increases, the benefits can be maximized at an effectively managed compost facility.

3.4 Yard Waste Program Record Keeping

The City does not obtain detailed, accurate records of yard waste quantities and the associated collection, transportation, and disposal costs. Without detailed material quantities and cost information, it is not possible to accurately calculate collection efficiency

or determine the feasibility of collection and disposal alternatives. Further, accurate material quantities benefits negotiations with compost facilities and/or other processors and end users.

3.5 Act 101 Recycling Grants

Act 101 of 1988 funding is important to the City's sustained delivery of beneficial recycling programs. In 2014, the City of Reading received $250,000 in Act 101, Section 902 Recycling Grant funds for the purchase of a universal baler for processing mixed paper. In 2014, the City received $98,682 in Act 101, Section 904 Performance Grant funds based on the reported quantities of eligible Act 101 recyclables recovered by the City that year.

4.0 SOLUTIONS

The City is financially distressed and in a difficult situation. It must balance the cost effective delivery of yard waste management services, meet State recycling requirements, and provide reasonable opportunities for residents to properly recycle leaves and other yard wastes. The City does not operate a compost facility for residential drop-off or material processing, and the availability of private and public outlets for unprocessed organics are limited. Local public yard waste drop off sites and private processors are either unwilling to allow residents to deliver yard wastes or are not conveniently located for use by City residents and businesses. The following solutions and actions are proposed to improve the City's yard waste management program. These solutions address the following priorities reviewed with City staff and identified in the City's Act 47 Plan: reduce yard waste management labor and costs; allocate labor to higher priority City tasks; evaluate yard waste drop-off alternatives; and identify outlets for unprocessed yard waste, mulch, compost, and woodchips.

4.1 Reduce Curbside Yard Waste Collections

Gannett Fleming recommends that the City complete the following actions to improve the performance of its curbside yard waste collection program:

- To reduce yard waste management costs while maintaining compliance with Act 101 of 1988, reduce but do not eliminate residential yard waste collections. Reduce the curbside yard waste collections from three times per week to one scheduled day per month from January through September. Begin monthly curbside collections for yard wastes in January 2016, preceded by the distribution of educational information no later than December 2015 to inform residents of the service change. To create predictable materials recovery volumes that facilitate labor and equipment planning and utilization, establish curbside set out limits for monthly yard waste collections. An example of a set out limit is a maximum of four bags or bundles or combination thereof per household per collection.
- The curbside leaf vacuum service October through December should be continued. Procure a self-contained, 25 cubic yard leaf waste vacuum truck to greatly improve leaf vacuum efficiency, as described in Section 3.1. Submit for Act 101, Section 902

Recycling Grant funding in year 2016 to offset 90 percent of eligible leaf vacuum truck costs (approximately $175,000). The vacuum truck can be procured through the Pennsylvania Department of General Service's cooperative purchasing Costars program. (www.dgs.pa.gov/Local%20Government%20and%20Schools/costars)

4.2 Yard Waste Drop-off, Processing, and End Uses

4.2.1 Perform a Compost Facility Feasibility Study

Due to the City's current condition related to yard waste management and risk factors associated with managing and transporting unprocessed yard wastes (see Section 3.2), it is not recommended the City implement a yard waste drop-off program at this time. It is recommended that the City complete a feasibility study to evaluate the siting, development, and operation of a centrally located compost facility. The purpose of investigating and possibly developing a compost facility would be to process curbside collected yard wastes plus provide residents and eligible commercial establishments a convenient option to drop off yard wastes that are not collected at the curbside. The feasibility study should identify two potential compost site locations that meet the siting restrictions established in the **PADEP Guidelines for Yard Waste Composting Facilities**, **Appendix B**. A report with feasibility findings, including cost analysis and recommendations regarding compost site implementation or feasible alternatives to compost facility implementation, should be provided to City Council by December 2016.

4.2.2 Increase Yard Waste Processing Options and Organic Product Uses

The City should develop and maintain several yard waste processing options or outlets to place the City in an improved position to manage yard waste program costs and material distribution. Immediately, the City should negotiate and implement processing arrangements with at least two, and preferably more, organics processors. The City should prioritize negotiations by starting with Zwicky Processing & Recycling, Inc. and by evaluating the land application of leaves at Ontelaunee Orchards and other farms that are permitted to accept leaves. City agreements with organics processors should describe operating terms, define material quality requirements, and establish tip fees and/or processing costs. Within these processing arrangements, the City should request that a portion of the finished products are made available to the City for use on municipal projects and to share with City residents.

As part of expanding the City's end uses for organics, it is recommended that the City develop an organics give-back program where compost, mulch, and wood chips are shared with the community. Distributing organics products can be an economically feasible way to manage material and is extremely popular among residents. Due to the size of the City, Gannett Fleming suggests that six organics give-away locations are established across the City. In these locations, compost, mulch, and wood chips should be staged periodically for residents to self-load these materials for their use on gardens and landscaping projects. The organics give-away locations should be paved, identified by signage, and located where parking and loading can be performed safely (e.g., the back corner of a parking lot at a local park). Gannett Fleming recommends the follow locations be evaluated by the City for organics give-away locations:

- The Glidden lot on 5th Street at Highway Street and Berns Street
- City Park
- Schlegal Park (pool parking lot)
- Designated Area of Parcel 51, Reading Redevelopment property
- Hillside Playground
- Egleman's Park (parking lot)

The City should execute a formal internal commitment to use a portion of recovered organics on municipal projects. Identify specific uses (e.g., soil amendment, landscaping, construction, waste water, etc.) and implement a tracking program to record the allocation of organics to these projects. It is noted that organics give-away programs and using organics products on municipal projects can be streamlined when the City operates a compost facility.

4.2.3 Wood Shed Site Cleanup

As soon as feasible, the City should discontinue deliveries of yard waste to the Wood Shed and accumulated organics should be removed from the Wood Shed. To complete the cleanup of the Wood Shed Site, it is recommended that the City either negotiate directly with organics processors and/or waste disposal contractors, or develop and release a concise bid specification for the cleanup services. At least three price quotes from qualified vendors are recommended. Negotiations or bid specifications should include the following services:

- Grinding accumulated woody wastes on site.
- Removal of processed woody wastes.
    - The City should consider its options to retain a portion of the ground woody waste or wood chips for municipal projects and to distribute to residents in designated areas such as parking lots at local parks.
- Removal of all bagged and bundled yard wastes. Consideration should be given to grinding this material prior to removal, which could include a request to each vendor for a cost or fee comparison.
- Removal of all leaves collected by the City's leaf vacuum trucks.
- Staging of roll-off containers for non-recyclable waste materials that will be removed for delivery to a permitted landfill.
- Staging of roll-off containers for scrap metal to be removed from the site to a permitted recycling facility.

4.3 Community Education and Awareness

The City should implement an educational campaign to improve community awareness of the benefits of organics recycling. The campaign should include the specifics regarding the City's yard waste program, including changes to the collection schedule and information about investigating a compost facility, etc. Organics give-away sites can serve as hands-on education centers, relaying the message of the value of mulch and compost. Since the level of curbside yard waste collections will be reduced, education should include information regarding backyard composting, grass-cycling, and alternative organics disposal options.

APPENDIX

Appendix A – Yard Waste Management Photos
Appendix B – PADEP Guidelines for Yard Waste Composting Facilities
Appendix C – Leaf Waste Vacuum Comparative Analysis
Appendix D – Leaf Vacuum Truck Specifications
Appendix E – Local Yard Waste Processors and Outlets

City of Reading
Yard Waste Management Photos (09-22-15)

Photo 1: 09-22-15. Wood Shed
Accumulated Curbside Leaf Waste

Photo 2: 09-22-15. Wood Shed
Vacuumed Leaves

Photo 3: 09-22-15. Wood Shed
Accumulated Woody Waste

Photo 4: 09-22-15. Wood Shed
Tub Grinder (not operational)

Photo 5: 09-22-15. Wood Shed
Paper Processing Building

Photo 6: 09-22-15. Wood Shed
Earthen load ramp with interlock block wall

City of Reading
Leaf Waste Management Photos (09-22-15)

Photo 7: 09-22-15. Public Works Yard
Leaf vacuum attachments

Photo 8: 09-22-15. Public Works Yard
Dump truck fitted with leaf box

Photo 9: 09-22-15. City Park
Christmas tree drop off and chipping area.

Photo 10: 09-22-15. Egelman Park
Parking lot (possible distribution area for compost, mulch, and woodchips)

Photo 11: 09-22-15. Waste Water Treatment Plant
Level area near plant entrance (possible future leaf waste compost area)

Photo 12: 09-22-15. Waste Water Treatment Plant
Vacuumed leaves Stockpile

DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Waste Management

DOCUMENT NUMBER: 254-5403-100

TITLE: Guidelines for Yard Waste Composting Facilities

EFFECTIVE DATE: September 1, 1997
Minor changes made January 6, 2009

AUTHORITY: Solid Waste Management Act (35 P.S. §§ 6018.101 et seq.) and regulations at 25 Pa. Code Chapters 271, 281, and 285 (the "municipal waste regulations").

POLICY: It is the Department's policy to provide a person, municipality, or county with the information necessary to operate a yard waste compost facility.

PURPOSE: The purpose of this document is to provide instructions and operating procedures for the operation of a yard waste composting facility operating under permit-by-rule.

APPLICABILITY: This guidance applies to all persons, municipalities, and counties who own or operate a yard waste composting facility operating under 25 Pa. Code Section 271.103(h) Permit-By-Rule.

DISCLAIMER: The policies and procedures outlined in this guidance are intended to supplement existing requirements. Nothing in the policies or procedures shall affect regulatory requirements.

The policies and procedures herein are not an adjudication or a regulation. There is no intent on the part of DEP to give the rules in these policies that weight or deference. This document establishes the framework within which DEP will exercise its administrative discretion in the future. DEP reserves the discretion to deviate from this policy statement if circumstances warrant.

PAGE LENGTH: 19 pages

LOCATION: Volume 6 Tab 27

DEFINITIONS: The definitions listed below are found in 25 Pa. Code Section 271.1.

"Yard Waste": Leaves, grass clippings, garden residue, tree trimmings, chipped shrubbery, and other vegetative material.

"Yard Waste Composting Facility": A facility that is used to compost leaf waste, or leaf waste and grass clippings, garden residue, tree trimmings, chipped shrubbery, and other vegetative material. The term includes land affected during the lifetime of the operation, including, but

not limited to, areas where composting actually occurs, support facilities, borrow areas, offices, equipment sheds, air and water pollution control and treatment systems, access roads, associated on-site or contiguous collection and transportation activities, and other activities in which the natural surface has been disturbed as a result of or incidental to operation of the facility.

Table of Contents

INTRODUCTION

Composting has been demonstrated to be an effective waste management technique that can produce a useful end-product while diverting a portion of the wastestream from disposal. It has been estimated that yard wastes--including leaves, trimmings, grass, and related yard debris--can comprise up to 18 percent of the municipal waste stream, with a greater percentage realized in some municipalities on a seasonal basis.

Certain yard waste composting facilities are eligible for permit-by-rule under Section 271.103(h) of the municipal waste regulations if they comply with these guidelines. Section 271.103(h) provides that a person, municipality, or county that operates a yard waste composting facility that is less than 5 acres, other than an individual backyard composting facility, shall be deemed to have a municipal waste processing permit-by-rule if the person, municipality, or county meets the requirements of Subsections 271.103(a)-(c)(relating to storage, PPC plan, daily records, financial assurances, and inappropriate activity), and the facility is operated in accordance with these guidelines on yard waste composting.

These guidelines have been established to promote yard waste composting and reuse in the Commonwealth while providing protection to human health and the environment. Health or environmental problems, resulting from the improper operation of a yard waste composting facility operated under Section 271.103(h), will be treated in the same manner as health or environmental problems at other solid waste management facilities.

More than 450 municipalities and counties in the Commonwealth are conducting yard waste collection and composting programs. In an effort to increase awareness of the benefits of composting and to promote the proper environmental and technical practices involved, the Department has designated several of these facilities as yard waste composting demonstration sites. Many of the other sites also present backyard composting demonstrations for homeowners. The Department has developed a reference manual, brochures, and educational videos to provide further information. To learn more about these and other related resources, contact your DEP regional office or the Web site at www.depweb.state.pa.us).

Yard waste composting operations must comply with these guidelines to comply with Section 271.103(h) of the municipal waste regulations. Please contact your DEP regional office for further information.

DEP REGIONAL OFFICES

REGION 1:	DEP SOUTHEAST REGION 2 East Main Street Norristown, PA 19401 Telephone: 484-250-5960	Counties Served: Bucks, Chester, Delaware, Montgomery and Philadelphia
REGION 2:	DEP NORTHEAST REGION 2 Public Square Wilkes-Barre, PA 18711-0790 Telephone: 717-826-2516	Counties Served: Carbon, Lackawanna, Lehigh, Luzerne, Monroe, Northampton, Pike, Schuylkill, Susquehanna, Wayne and Wyoming
REGION 3:	DEP SOUTHCENTRAL REGION 909 Elmerton Avenue Harrisburg, PA 17110-8200 Telephone: 717-705-4706	Counties Served: Adams, Bedford, Berks, Blair, Cumberland, Dauphin, Franklin, Fulton, Huntingdon, Juniata, Lancaster, Lebanon, Mifflin, Perry and York
REGION 4:	DEP NORTHCENTRAL REGION 208 West 3rd Street, Suite 101 Williamsport, PA 17701 Telephone: 717-327-3653	Counties Served: Bradford, Cameron, Center, Clearfield, Clinton, Columbia, Lycoming, Montour, Northumberland, Potter, Snyder, Sullivan, Tioga and Union
REGION 5:	DEP SOUTHWEST REGION 400 Waterfront Drive Pittsburgh, PA 15222-4745 Telephone: 412-442-4000	Counties Served: Allegheny, Armstrong, Beaver, Cambria, Fayette, Greene, Indiana, Somerset, Washington and Westmoreland
REGION 6:	DEP NORTHWEST REGION 230 Chestnut Street Meadville, PA 16335-3481 Telephone: 814-332-6848	Counties Served: Butler, Clarion, Crawford, Elk, Erie, Forest, Jefferson, Lawrence, McKean, Mercer, Venango and Warren

TECHNICAL GUIDANCE FOR THE OPERATION OF A YARD WASTE COMPOSTING FACILITY UNDER PERMIT-BY-RULE

A person, municipality, or county that operates a yard waste composting facility under permit-by-rule shall comply with these guidelines, as required by 25 Pa. Code Section 271.103(h).

General Requirements

The following operational information must be submitted to the Department on the attached Yard Waste Composting Facility Application Form:

a. The name, address, and telephone number of the operator of the facility.

b. The sponsoring municipality or county (where applicable).

c. The location of the facility, including identification of the site by outlying perimeter site boundaries on a United States Geological Survey 7.5 minute topographic map.

d. Proof that the operator has the legal right to enter the land and perform the approved activities.

e. A general site plan drawn to scale for the facility indicating the following:

   i. The location of access roads and gates in relation to public and private roads, wells, and property lines.

   ii. The location of the tipping area.

   iii. The location of the processing area, including compost piles and windrows.

   iv. The location of storage and curing areas.

   v. Surface water controls.

f. The operational narrative describing:

   i. The yard waste collection methods that will be employed by the facility.

   ii. The methods that will be utilized at the facility to construct compost piles.

   iii. The proposed dimensions of compost piles and windrows at the facility.

   iv. The source of supplemental water that will be used to maintain an optimal 50 percent moisture content of compost piles or windrows at the facility.

   v. The proposed method of turning windrows, the turning frequency for composting at the facility and the method for determining that frequency.

vi. The proposed duration of the composting process, including curing time, storage time, and the proposed term of compost distribution.

vii. A plan for the marketing and distribution of the finished compost.

viii. A residue disposal plan, including the location of disposal sites.

ix. Provisions for emergency response.

x. A public information and education program.

g. The projected volume of material that will be processed by the facility during the calendar year.

Siting Restrictions

Yard waste composting operations, including storage, composting, and curing, shall not occur in the following areas or the following distances, unless the operator takes special precautions and receives written authorization from the Department:

a. In a 100-year flood plain.

b. In or within 300 feet of an exceptional value wetland.

c. In or within 100 feet of a wetland other than an exceptional value wetland.

d. Within 100 feet of a sinkhole or area draining into a sinkhole.

e. Within 300 feet measured horizontally from an occupied dwelling unless the owner has provided a written waiver consenting to the facility being closer than 300 feet.

f. Within 50 feet of a property line, unless the operator demonstrates that only curing of compost is occurring within that distance.

g. Within 300 feet of a water source.

h. Within 3.3 feet of a regional groundwater water table.

i. Within 100 feet of a perennial stream.

Access Control

1. A gate or other barrier shall be maintained at all potential vehicular access points to block unauthorized access to the site.

2. Access to the site shall be limited to those times when an attendant is on duty.

Operational Requirements

1. No person, municipality, or county shall bring to or receive any material at a yard waste composting facility other than shrubbery and tree trimmings that have been shredded or chipped, unless shredding or chipping is provided at the facility, leaves, grass, and similar related yard debris.

2. The Department may prohibit the use of grass clippings at a yard waste composting facility if the grass clippings cause or contribute to nuisances, or if the site is adversely affecting, or has potential to adversely affect, the citizens or environment of the Commonwealth. Grass clippings shall not be brought to or received at a yard waste composting facility unless:

    a. Grass clippings delivered to the yard waste composting facility in bulk, bags or other collection containers are emptied of all grass clippings within 24 hours of delivery to the facility.

    b. Grass clippings are incorporated into the windrows of partially composted leaves or other yard waste within twenty-four (24) hours of delivery to the facility.

    c. Grass clippings are incorporated into the partially composted windrows of partially composted leaves or other yard waste at a ratio not to exceed one part grass clippings to three parts yard waste, by volume.

3. No more than 3,000 cubic yards of yard waste shall be placed, stored, or processed on any acre of a facility where composting activity occurs or is planned to occur.

4. A person, municipality, or county operating a yard waste composting facility shall, for the duration of yard waste composting activities, identify the operation by posting and maintaining signs that are clearly visible at the junction of each access road and public road. The signs shall be easily seen and read. They should be constructed of a durable, weather-resistant material. The sign wording shall include the name, address, and telephone number of the person(s), municipality(ies), or county(ies) operating the facility, the operating hours, and the materials that can be received by the facility.

5. Each yard waste composting facility shall be operated in a manner which results in the active biological decomposition of the vegetative material received.

6. Yard waste compost piles or windrows shall be constructed and maintained as follows:

    a. The compost area shall be constructed in a well drained area with a workable surface and slope of 2-4 percent to prevent ponding and control surface water.

    b. The size of the compost piles or windrows should not exceed eight feet in height or sixteen feet in width unless the composting technology can adequately manage the compost piles, and is approved by the Department.

    c. Compost piles or windrows shall be constructed within one week following receipt of compostable material at the facility.

d. During the active composting process, the optimal moisture content of the windrows or compost piles shall range from 40 to 60 percent to promote decomposition.

e. All surface water shall be diverted away from tipping, processing, composting, curing and storage areas. Surface water controls shall be based on a 24-hour precipitation event to be expected once every 25 years. Proper drainage must be maintained to prevent ponding and excessive moisture.

f. To promote decomposition, compost piles and windrows shall be turned and reconstructed at least once every three (3) months. A higher turning frequency may be required, depending on the composting technology unless the composting technology requires more intensive management.

7. The operator shall maintain sufficient distance between windrows or piles to allow the proper use of equipment during the deposit, removal, and turning of the compost.

8. The operator shall establish an adequate frequency for inspecting the facility to detect hot spots in any composting, curing or storage areas, dust or litter accumulation, surface water accumulation, erosion or sedimentation, vectors, odors, and other problems. The operator shall take prompt, necessary corrective actions.

9. The operator shall not allow compostable materials or residues to be blown or otherwise deposited offsite.

Residue Disposal

1. The operator shall not allow non-compostable residues or solid waste other than yard waste to accumulate at the facility, and shall provide for proper disposal or processing.

2. Yard waste and other municipal waste received at the facility that are not suitable for composting shall be removed weekly and disposed or processed at a permitted municipal waste facility.

Nuisance Control

1. The operator shall not cause or allow the attraction, harborage, or breeding of vectors.

2. The operator shall not cause or allow conditions that are harmful to the environment or public health, or which create safety hazards, odors, noise, or other public nuisances.

Emergency Response

1. Adequate space shall be maintained to allow the unobstructed movement of emergency personnel and equipment.

2. The operator of each yard waste composting facility shall immediately contact local police or fire departments or other appropriate state or local emergency response agencies in the event of fire, spill, or other hazards that threaten public health, safety, and welfare, or the environment, and whenever necessary in the event of personal injury.

Air Resources Protection

1. The operator shall implement fugitive dust control measures.

2. No person, municipality, or county shall cause or allow open burning at the facility.

Water Quality Protection

1. The operator shall manage surface water and control erosion and sedimentation in accordance with the requirements of 25 Pa. Code Chapter 102, Erosion Control.

2. The operator shall not cause or allow a point or non-point source pollution discharge from or on the facility to any surface waters of the Commonwealth.

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WASTE MANAGEMENT

YARD WASTE COMPOSTING FACILITY APPLICATION FORM

Please familiarize yourself with the Pennsylvania Department of Environmental Protection GUIDELINES FOR YARD WASTE COMPOSTING FACILITIES prior to filling out this form.

1. Operator (Name and Mailing Address) _____ Telephone Number _____

2. Name of Facility _____ Contact Telephone Number _____
   Contact Person _____
   Property Owner's Name _____
   Address of Facility _____
   _____
   _____
   (include Access Road Name and Legislative Route Number)
   State _____ Zip _____
   City-Borough-Township _____
   County _____
   Sponsoring Municipality (where applicable) _____
   Attach a United States Geological Survey 7.5 minute topographic map identifying the yard waste composting facility site boundaries outlined on it.
   Provide proof the operator has the legal right to enter the land and perform the approved activities.

3. The proposed composting method _____
   Total Acres of the composting facility _____
   The maximum quantity of yard waste and composted materials to be on the site at any one time:
   Yard waste in cubic yards _____
   Finished compost in cubic yards _____

4. Prepare and include in this application a general site plan* for the facility which illustrates the location of the following items:
   Access roads in relation to the nearest public road and private roads, wells, and property lines
   Tipping area
   Gate location
   Surface water controls, erosion and sedimentation controls
   Processing area including location, orientation, and size of compost piles or windrows
   Curing or storage areas
   North arrow scale of drawing

**Please note that a hand drawn sketch that includes site dimensions is acceptable. An engineer's drawing is not required.*

5. Please address the following items: (attach additional sheet(s) if necessary)

- Provide a complete list of source(s) of yard waste to be received.

- Describe how the yard waste will be collected and received at the facility.

- Describe the method for inspecting incoming yard waste and for removing unacceptable material.

- Describe the windrow construction methods including equipment to be used.

- Describe the windrow size: Initial dimensions will be _____ wide x _____ high x _____ long.

- Describe the source of supplemental water which will be used to maintain an optimal 40 to 60% moisture content of compost piles or windrows.

- Indicate the frequency of windrow turning. _____

  Indicate the temperature range to be maintained. _____

  Indicate the method of windrow turning. _____

- Describe method for determining turning frequency.

- Describe the approximate duration of the composting cycle (in days). _____

  Describe the composting process. _____

  Describe the curing period for compost. _____

  Indicate the time required for storage and distribution. _____

  Indicate the total time required for the composting operation. _____

- Describe the marketing and distribution plan for the finished compost product.

- Describe the residue disposal plan and identify the disposal or processing site(s) to be used.

- Describe the plan for emergency response (fire, police, etc.).

- Outline the public information and education program (attach samples of literature if available).

LAND APPLICATION OF YARD WASTE

A municipality or county that collects yard waste and delivers it to any person to land apply as part of a normal farming operation, shall comply with the following guidelines in order to comply with the permit-by-rule requirements of 25 Pa. Code Section 271.103(h).

General Requirements

1. A municipality or county must notify the Department with the following information:

    a. Sponsoring municipality or county.

    b. Responsible official/contact person, including name, address, and telephone number.

    c. Location, including identification of the site on a U.S.G.S. 7.5' topographic map.

    d. Operational plan:

        i. A general site plan must be included which contains the following information for land application sites:

            A. Access road

            B. Tipping area

            C. Surface water controls (tipping area only)

            D. Farm soil conservation plan and nutrient management plan.

        ii. The operational narrative must include a description of each of the following:

            A. Operational hours for receiving yard waste

            B. Land application and incorporation frequency

            C. Plan for removal of yard waste from bags

            D. Spreading and incorporation methods and frequency

            E. Source of leaves and grass clippings.

        iii. Volume of yard waste processed during the previous year or expected to be processed during the first year of operation.

Operational Requirements

1. All surface water shall be diverted away from the tipping or storage area. Proper drainage must be maintained to prevent ponding.

2. Yard waste should be delivered to the farm in bulk. Where bags or other containers are used for collection, the bags or containers must be emptied of all yard waste delivered to the farm by the end of each day.

3. The Department may prohibit the use of grass clippings at the farm if the grass clippings cause or contribute to nuisances, or if the site has the potential to adversely affect the citizens or environment of the Commonwealth. Grass clippings shall not be brought to or received at a farm unless:

   a. The grass clippings are delivered to the farm in bulk. Where bags or other containers are used for collection, the bags and containers must be emptied of the grass clippings delivered to the farm by the end of each day.

   b. The grass clippings are to be spread in layers not to exceed six (6) inches in depth within one (1) week of delivery to the site.

   c. Grass clippings mixed with manure and stored in an acceptable manure storage facility may be stored for up to 120 days, provided the storage of the material does not create a nuisance or environmental impact.

4. The operator shall not allow compostable materials or residues to be blown or otherwise deposited offsite.

5. No yard waste may be disposed of in waters of the Commonwealth.

Residue Disposal

1. The operator shall not allow non-compostable residues or solid waste other than yard waste to accumulate at the farm, and shall provide for proper disposal or processing.

2. Yard waste and other municipal waste that is received at the farm, that is not suitable for land application, shall be removed weekly and disposed or processed at a permitted municipal waste facility.

Nuisance Control

1. The operator shall not cause or allow the attraction, harborage, or breeding of vectors.

2. The operator shall not cause or allow conditions that are harmful to the environment or public health, or that create safety hazards, odors, noise, and other public nuisances.

Air Resources Protection

1. The operator shall implement fugitive dust control measures when necessary.

2. No person, municipality, or county shall cause or allow open burning at the facility.

Water Quality Protection

1. The operator shall manage surface water and control erosion and sedimentation in accordance with the requirements of 25 Pa. Code Chapter 102, Erosion Control.

2. The operator shall not cause or allow a point or non-point source pollution discharge from or on the facility to any surface waters of the Commonwealth.

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WASTE MANAGEMENT

LAND APPLICATION OF YARD WASTE APPLICATION FORM

Please familiarize yourself with the Pennsylvania Department of Environmental Protection GUIDELINES FOR LAND APPLICATION OF YARD WASTE prior to filling out this form.

1. Sponsoring Municipality or County (Name and Mailing Address) _____ Telephone Number _____

2. Name of Farm _____ Contact Telephone Number _____
   Contact Person at Farm _____
   Property Owner's Name _____
   Address of Facility _____
   _____
   (include Access Road Name and Legislative Route Number)
   _____ Zip _____
   City-Borough-Township _____
   County _____
   Attach a U.S.G.S. 7.5" map identifying the farm and the yard waste site boundaries.

3. Total acres for farm land application area: _____

4. Volume of yard waste to be received annually in cubic yards: _____

5. Prepare and include in this application a general site plan* for the facility which illustrates the location of the following items:

   Access roads in relation to the nearest public road
   Tipping area
   Surface water controls (tipping area only)
   Fields proposed for land application.

   ** Please note that a hand drawn sketch that includes site dimensions is acceptable. An engineer's drawing is not required.*

6. Please address the following items:

   - A complete list of source(s) of yard waste to be received.

   _____
   _____
   _____
   _____
   _____

- Describe the method for inspecting incoming yard waste.

- Describe the plan for rejecting or disposing of unacceptable materials and residuals.

- Provide the name and location of the disposal or processing site for unacceptable materials and residuals.

- Attach the farm soil conservation plan and nutrient management plan.
- Describe the volume of yard waste processed during the previous year or expected to be processed during the first year of operation.

- Please provide an operational narrative which includes a description of each of the following:
  - Operational hours for receiving yard waste
  - Land application and incorporation frequency
  - Plan for removal of yard waste from bags
  - Spreading and incorporation methods and frequency
  - Source of leaves and grass clippings.

Appendix C - Leaf Waste Vacuum Comparative Analysis

Line Number	Item Description	Local Disposal Site			Off-Site Disposal		
		Existing Trucks	New 25 yd truck	Savings from 25 yd truck	Existing Trucks	New 25 yd truck	Savings from 25 yd truck
(1)	Crew Size per Truck	2	1		2	1	
(2)	Volume per load	10	25		10	25	
(3)	Total Loads	204	82		204	82	
(4)	Total volume collected	2,040	2,040		2,040	2,040	
(5)	Loads per vehicle/day	2.0	3.0		2.0	2.3	
(6)	Variable cost/mile	$ 1.00	$ 1.00		$ 1.00	$ 1.00	
(7)	Trip distance per load (miles)	4	4		30	30	
(8)	Additional Round Trip Haul and Unload Time (hrs)	NA	NA		1	1	
(9)=(3) x (7)	Total haul miles	816	328		6,120	2,460	
(10) = (6) x (9)	Variable mileage based cost	$ 816	$ 328	$ 488	$ 6,120	$ 2,460	$ 3,660
(11)=(3) / (5) x (1)	Collection Labor (days)	204	28		204	36	
(12)	Extra Haul Labor for Off-Site disposal (days)*	NA	NA		26	NA	
(13)	Labor subject to Overtime Rate (days) **	60			68	6	
(14)	Hourly Wage	$ 20.00	$ 20.00		$ 20.00	$ 20.00	
(15)	Benefits Multiplier	1.70	1.70		1.70	1.70	
(16)=[(11)+(12)]x8x(14)x(15)	Base Labor Cost	$ 55,488	$ 7,616		$ 62,560	$ 9,792	
(17)=(13) x 8 x (14) x 0.5	Overtime Premium Cost	$ 4,800	$ -		$ 5,440	$ 480	
(18) = (16) + (17)	Total Labor cost	$ 60,288	$ 7,616	$ 52,672	$ 68,000	$ 10,272	$ 57,728
(19) = (10) + (18)	Labor Plus Mileage-based Haul Costs	$ 61,104 *	$ 7,944	$ 53,160	$ 74,120	$ 12,732	$ 61,388

Notes: All calculations rounded up to nearest whole number.

* Additonal truck drivers required to haul filled trucks to the off site compost facility. Does not apply to 25 cubic yard self-contained truck; driver-collectors do the hauling and their extra labor is included as an extra day per week in the base collection labor.

** Status Quo overtime for Local Site based on reported work schedule of five crews on six Saturday. Off-site adds extra driver labor on six Saturdays to haul filled trucks to disposal site.

***Dave Ruyak memo of 9/28/15 estimated $90,000 for personnel and equipment. Costs shown above do not include vehicle costs on collection route and any amortized vehicle capital costs.

SPECIFICATION FOR
TRUCK MOUNTED SELF-CONTAINED DEBRIS COLLECTOR

1.0 General:			Deviations
1.01	The intent of these specifications is to cover the requirement to manufacture a heavy-duty one-man operated truck mounted self-contained debris collector that vacuums from the right (passenger) side of the unit.	YES___ NO___	
1.02	The design of the unit shall incorporate the latest available technology and engineering capacities.	YES___ NO___	
1.03	All bolts shall have aircraft quality nylon lock nuts on the unit and any component that is riveted shall use only stainless steel rivets.	YES___ NO___	
1.04	For superior strength and durability of the machine, tab and slot construction procedures shall be used for all metal fabricated components.	YES___ NO___	
1.05	The proposed unit shall be a current production model; proto type or obsolete units will not be considered.	YES___ NO___	
1.06	The proposed unit bid must be a regularly manufactured unit with at least ten (10) references available within the past two years (please provide references with bid).	YES___ NO___	
1.07	The leaf collection unit shall meet or exceed all OSHA, federal and state regulations and requirements.	YES___ NO___	
1.08	Each bidder must check either “Yes” or “No” for each section. If “Yes” is checked, bidder will be expected to supply exactly what is described. If “No” is checked, please provide a detail explanation of the deviation, no matter how minor it may be. If the bidder fails to respond either “Yes” or “No”, the bid will be rejected for non-compliance.	YES___ NO___	

2.0 Power:			Deviations
2.01	A four-cylinder turbo charged diesel engine rated for a minimum 74HP at 2400 RPMs that complies with Interim Tier 4 emissions provides the power.	YES___ NO___	
2.02	The engine shall have replaceable wet type cylinder liners.	YES___ NO___	
2.03	The engine is equipped with a 12-volt starter, alternator and a heavy-duty air cleaner.	YES___ NO___	
2.04	A heavy-duty 6.62” diameter x 21” long muffler that is horizontally mounted shall be supplied.	YES___ NO___	
2.05	The engine sound rating shall be no higher than 80 dBa at 50 feet.	YES___ NO___	
2.06	For maximum safety, a 4” diameter stainless steel exhaust pipe shall route the engine exhaust out to the underside of the unit.	YES___ NO___	
2.07	To reduce the possibility of the radiator from becoming clogged with leaf dust, a pressurized “trash” style radiator shall be used.	YES___ NO___	
2.08	The radiator shall have a minimum of 3 cores to provide maximum cooling.	YES___ NO___	
2.09	For maximum engine cooling, an 18” diameter fan with seven 5” wide blades shall be provided.	YES___ NO___	
2.10	The fan blades shall be at a 40° chord angle and are capable of producing 7,600 cfm to pull the air through the radiator.	YES___ NO___	
2.11	The radiator shall be equipped with a bottom hinged secondary screen.	YES___ NO___	
2.12	The radiator screen shall be constructed out of ½” expanded metal backed with 1/8” hardware screening. The use of fine window screening is not acceptable due to the lack of air that can pass through and the overall durability of it.	YES___ NO___	
2.13	The secondary radiator screen shall be powder coated black to prevent corrosion.	YES___ NO___	
2.14	The secondary radiator screen shall be held in place by two adjustable over-center clamps and can be opened and cleaned without powering down the unit.	YES___ NO___	

3.0 Cab Mounted Controls: Deviations

3.01	The auxiliary engine and hydraulic functions shall be controlled and monitored by an electronic control system with a master display module.	YES___	NO___
3.02	The master display module shall have a 3.5" transflective TFT full color display.	YES___	NO___
3.03	There shall be five navigation buttons and four "soft" function buttons to make interaction with the control simple for the operator.	YES___	NO___
3.04	The master display module shall be mounted on a swivel mount system in between the driver seats.	YES___	NO___
3.05	The swivel mount system shall allow the operator to rotate and or tilt the display module for optimal viewing from either side of the cab.	YES___	NO___
3.06	The control system shall monitor the auxiliary engine's rpm's, water temperature, oil pressure and fuel.	YES___	NO___
3.07	The display module shall show electronic gauges for all of the above engine functions.	YES___	NO___
3.08	The control system shall indicate when fuel supply reaches 5% reserve and will shutdown the engine when a 2% reserve is reached.	YES___	NO___
3.09	For engine protection, the control system will shut the engine down immediately if the water temperature becomes too high or loss of engine oil pressure.	YES___	NO___
3.10	The following conditions will cause the control system to perform a safe engine shutdown mode: turning the control system off; trap door on blower housing open; high hydraulic oil temperature; and low fuel.	YES___	NO___
3.11	The safe engine shutdown mode function will automatically lower the engine's rpm's down to an idle, disengage the clutch/PTO and allow the engine to run for approximately 30 seconds after a system error has occurred.	YES___	NO___
3.12	The control system will not let the clutch/PTO engage if the engine's rpm's are higher than 900 rpm's.	YES___	NO___
3.13	The control system will automatically disengage the clutch/PTO if the engine has been running too long at idle.	YES___	NO___
3.14	There shall be a true "Emergency" kill switch located on the control panel that will shut down everything immediately.	YES___	NO___
3.15	The control system shall also oversee all hydraulic functions of the unit including the 3 axis hose boom, hydraulic dump and rear door latches.	YES___	NO___
3.16	There shall be a provision that will not let the hopper raise the load until the rear door latches have first been opened.	YES___	NO___
3.17	The display monitor also has an emergency mode that will allow you to work all the hydraulic functions but will disable the clutch and engine rpm functions.	YES___	NO___
3.18	The control system shall also have the capability to log and store critical engine and hydraulic functions to assist with maintenance.	YES___	NO___
3.19	The control system shall have the capability of remote access via telephone modem for diagnostics purposes.	YES___	NO___

4.0 Engine Enclosure: Deviations

4.01	The engine is fully enclosed in a custom metal housing.	YES___	NO___
4.02	The enclosure shall have front and rear access doors that protect operators from all belts, fans and moving parts.	YES___	NO___
4.03	Front and rear access doors shall have stamped louvers for optimum ventilation.	YES___	NO___
4.04	The top of the engine enclosure shall be completely removable without the use of tools; enclosures that are bolted together are not desirable.	YES___	NO___
4.05	All access doors shall be securely held in place by adjustable twist latches.	YES___	NO___
4.06	The top of the engine compartment shall have hinged doors for convenient access to the radiator cap and oil fill.	YES___	NO___
4.07	Adjustable twist latches shall secure the top access door.	YES___	NO___

5.0 Fuel Tank: Deviations

5.01	A 40-gallon minimum capacity fuel tank separate from the chassis shall be supplied.	YES___ NO___
5.02	The tank shall be constructed out of the strongest of cross link polyethylene resins and is roto-molded in a manner to have a wall thickness of ¼" over the entire surface of the tank.	YES___ NO___
5.03	Stainless steel, aluminum or steel fuel tank(s) are not desirable due to their corrosive nature and or their tendency to crack due to vibration with this type of machine.	YES___ NO___

6.0 PTO and Power Transmission Belt Drive: Deviations

6.01	The power take off is a heavy-duty spring loaded automotive type clutch with a 2-1/4" diameter hardened shaft.	YES___ NO___
6.02	PTO shaft shall turn on 2 roller bearings that are pressed into the housing.	YES___ NO___
6.03	The PTO shall be separate from the clutch assembly and bolt directly to the engine bell housing.	YES___ NO___
6.04	The clutch shall consist of an automotive style industrial quality 13" pressure plate and a one-piece clutch disc.	YES___ NO___
6.05	All clutch linkage must be on the outside of the housing so that it is not necessary to remove the clutch housing for adjustments.	YES___ NO___
6.06	Power is transferred from the engine to the impeller shaft via a 4-grooved power band belt.	YES___ NO___
6.07	Power band belt shall provide the suction fan with a 1:1 ratio with the engine PTO shaft speed.	YES___ NO___
6.08	The engine shall be capable of turning the suction impeller 2,400 RPM's when operating.	YES___ NO___
6.09	Both of the drive pulleys shall have a minimum diameter of 11".	YES___ NO___
6.10	To minimize belt stretching, the maximum distance between the engine PTO shaft and the impeller drive shaft shall be 18".	YES___ NO___
6.11	Means of adjusting the belt tension shall be by raising and lowering the height of the engine via four (4) threaded sleeves. Sliding the engine from side to side to adjust the belt tension is not desirable.	YES___ NO___
6.12	The engine base that supports the threaded adjustment sleeves shall have a minimum thickness of ½".	YES___ NO___
6.13	To aid the replacement of the power band belt, a cam rod shall be supplied so that the PTO end of the engine shall be capable of being raised a minimum of 1-1/2".	YES___ NO___

7.0 PTO Safety Engagement System: Deviations

7.01	The PTO and clutch shall be equipped with a non-electric safety engagement system that prevents abrupt engagement of the PTO at high RPM's. Information MUST be provided with bid packet on this item.	YES___ NO___
7.02	The PTO and clutch shall have an adjustable hydraulic cylinder that automatically ensures that every engagement is exactly the same no matter what operator activates it.	YES___ NO___
7.03	The assist cylinder shall be leak proof and incorporate a constant velocity speed control to ensure precise engagement speed of the PTO every time.	YES___ NO___
7.04	Bidder shall supply of a list of ten (10) references that are currently using a PTO safety engagement system on their unit.	YES___ NO___
7.05	For safety reasons, the operator must be able to completely disengage the drive mechanism while the engine is running; fluid drive couplers are not desirable alternatives to the PTO safety engagement system.	YES___ NO___

8.0 Skid Main Frame: Deviations

8.01	The skid frame is constructed of heavy-duty enclosed tubular steel, formed and welded for a properly balanced frame.	YES___	NO___
8.02	The frame is constructed out of 3" x 8" tubular steel with ¼" thick walls.	YES___	NO___
8.01	The skid shall be properly installed and mounted on the chassis frame by the successful bidder.	YES___	NO___

9.0 BE Series Box Container (Bottom Exhaust): Deviations

9.01	The box has a useable inside capacity of not less than 25 cubic yards and is self-dumping.	YES___	NO___
9.02	Top of the box is equipped three easily removable ½" expanded metal mesh screens with a smaller 1/8" metal screening on the inside of the box for proper ventilation. The use of larger sized screening or dust tarps is not desirable.	YES___	NO___
9.03	The top screens slide into a channel and are bolted in place for ease of replacement.	YES___	NO___
9.04	Top screens shall be capable of being removed without requiring personnel to enter the interior of the hopper.	YES___	NO___
9.05	Hinged access panels with over-center latches shall be provided to gain access to the top screens.	YES___	NO___
9.06	To ensure that all material exits the hopper during the dumping cycle, both interior sides of the hopper shall be solid steel panels.	YES___	NO___
9.07	The box is constructed out of 12-gauge steel and shall be bolted to the platform floor should replacement be necessary.	YES___	NO___
9.08	The box is structurally supported by a minimum of four 3" channels vertically positioned on the sides and tied into cross members across the top. Units without top cross members are not desirable.	YES___	NO___
9.09	The interior walls of the box are smooth and the floor has drain holes to help eliminate additional water weight.	YES___	NO___
9.10	The floor of the box shall be supported by channel cross members.	YES___	NO___
9.11	The front of the box shall extend over the suction blower and engine to provide additional protection.	YES___	NO___
9.12	Front of the box shall be angled at approximately 45 degrees to provide a built-in brush guard to guide low hanging branches up and over the unit.	YES___	NO___
9.13	There shall be a ¼" thick abrasion resistant deflector and an in-line deflector to insure proper settlement of leaves in the box.	YES___	NO___
9.14	There shall be metal ductwork so to direct the exhausted air across the top of the box, down the sides and exit at the bottom of the unit.	YES___	NO___
9.15	At the final exit point of the exhausted air shall be angled inward towards the bottom center of the unit.	YES___	NO___
9.16	To help dissipate the exhausted airflow, the air exhaust ducting shall be at it largest opening at the final exit point of the system.	YES___	NO___
9.17	The box is equipped with a single top hinged rear door securely fastened at the bottom corners of the door.	YES___	NO___
9.18	The rear door shall have adjustable tension trusses on each side to maintain a proper seal.	YES___	NO___
9.19	The rear door latch mechanism shall be hydraulically controlled from inside the cab.	YES___	NO___
9.20	As a safety feature, the hopper shall not be able to dump unless the rear door latches have been opened.	YES___	NO___

10.0 Dumping Hoist: Deviations

10.01	The box is dumped via a scissors style lifting mechanism incorporating twin hydraulic cylinders capable of dumping 26.6 tons.	YES___	NO___
10.02	Both dumping cylinders shall have a 5" diameter piston with a minimum stroke of 27".	YES___	NO___
10.03	The lift mechanism is powered up and down. Single acting dump systems are not desirable.	YES___	NO___
10.04	The hopper shall be capable of dumping to not less than a 52° dump angle to assure that all material exits the hopper.	YES___	NO___
10.05	The rear dumping hinge assembly shall be a minimum of 1/2" thick steel with a 2" diameter pins.	YES___	NO___
10.06	The dumping hoist shall come standard with a five-year warranty provided by the hoist manufacture.	YES___	NO___
10.07	The dumping of the hopper shall be from within the cab and activated by the electronic control system.	YES___	NO___
10.08	There shall be a hydraulic check valve incorporated into the container box dump cylinders that prevents the box container from falling should a hydraulic line, hose or fitting fail.	YES___	NO___
10.09	The hopper shall have a solid 2" diameter steel shaft mounted from the center of the hopper front floor to align with a guide system to realign the hopper and the blower housing when the hopper is lowered back down into a working position.	YES___	NO___
10.10	The unit shall be designed so that the hopper cannot be raised until the rear door latches have been opened.	YES___	NO___

11.0 Hydraulic Systems: Deviations

11.01	The unit shall be equipped with independent hydraulic systems to provide proper flow and pressure to the dump hoist; rear door latches and 3-axis hose boom assembly.	YES___	NO___
11.02	The unit shall have a gear driven hydraulic pump that is directly coupled to the engine's auxiliary drive. Belt driven or electric/hydraulic pumps are not acceptable.	YES___	NO___
11.03	Hydraulic speed for all boom functions will be adjustable from 0-100% by the control system.	YES___	NO___
11.04	There shall be a multi-port proportional valve body designed to operate all the hydraulic functions.	YES___	NO___
11.05	Each section of the valve body shall have electric solenoids to proportionally activate the proper hydraulic function.	YES___	NO___
11.06	The proportional valve shall allow for multiple hydraulic functions at the same time	YES___	NO___
11.07	A hydraulic reservoir is supplied with a suction and return hydraulic filter.	YES___	NO___
11.08	Hydraulic tank shall be conveniently mounted on the side of the chassis frame and include a sight gauge and fill cap that are easily accessible.	YES___	NO___
11.09	All hydraulic hoses shall be securely fastened with clamps and protective sheathing.	YES___	NO___
11.10	Hydraulic rubber hoses laying on the deck or not securely fastened will not be accepted.	YES___	NO___
11.11	All hydraulic hoses shall be supplied with JIC swivel type fittings and straight thread o-rings fittings.	YES___	NO___

12.0 Suction Impeller: Deviations

12.01	The impeller diameter shall be a minimum of 32" with 6 gusseted blades.	YES___	NO___
12.02	The blades are constructed out of 3/8" thick abrasive resistant steel with a Brinell hardness exceeding 360.	YES___	NO___
12.03	For maximum vacuum and superior wear characteristics, the suction blades shall be straight (flat) with no curve or cups formed in them.	YES___	NO___
12.04	The suction blades are to be robotically welded to a backing plate.	YES___	NO___
12.05	The impeller back plate shall have a minimum thickness of ¼".	YES___	NO___
12.06	The suction impeller blades shall be keyed and notched into the back plating.	YES___	NO___
12.07	Each impeller blade shall have fully enclosed gussets on the back side for support and shall be designed so material can not accumulate on the gusset.	YES___	NO___
12.08	The suction impeller blades shall have a gently serrated tip to lower the operating noise level.	YES___	NO___
12.09	The suction impeller shall be secured to the drive shaft via a taper locking hub to provide a better-fit and easy removal.	YES___	NO___
12.10	The taper locking hub shall have a safety ring to protect it from direct impact of foreign material.	YES___	NO___
12.11	The suction impeller shall be both statically and dynamically balanced.	YES___	NO___
12.12	The suction impeller shall be stress relieved via Bonal stress relief technology. This will ensure the safest and most durable impeller. A copy of the Bonal stress report shall be supplied with the new unit	YES___	NO___

13.0 Impeller Support Shaft (Belt Drive) Deviations

13.01	The impeller is supported by a minimum of 2-1/4" diameter shaft.	YES___	NO___
13.02	The impeller shaft shall be supported by two (2) 2-1/4" diameter four bolt flange bearings.	YES___	NO___
13.03	The four bolt flange bearings shall have a double row of precision spherical roller bearings and shall utilize an eccentric locking collar to lock to the shaft.	YES___	NO___
13.04	The impeller bearings shall be heavy duty type with a minimum dynamic load rating of 26,500 pounds. Please indicate the dynamic load rating_____lbs	YES___	NO___
13.05	The impeller bearings shall be heavy duty type with a minimum static load rating of 31,000 pounds. Please indicate static load rating_____lbs	YES___	NO___
13.06	The flange bearings shall be mounted to steel plates with a nominal thickness not less than 7/16".	YES___	NO___
13.07	The flange bearings shall have a Teflon seal to prevent any foreign material from seeping through the blower-housing opening.	YES___	NO___
13.08	After the removal of the blower housing cover plate, the entire suction fan, shaft and bearings shall be removable as a complete assembly by the removal of only 8 bolts.	YES___	NO___

14.0 Blower Housing: Deviations

14.01	Blower housing shall be located at the curbside of the truck & bolted in place.	YES___	NO___
14.02	The outer scroll of the blower housing is constructed out of 10-gague steel.	YES___	NO___
14.03	The front and back plates of the blower housing are constructed out of 7-gauge steel.	YES___	NO___
14.04	The interior of the housing is equipped with a two-piece slip in liner constructed out of ¼" thick abrasion resistant steel that requires no bolts.	YES___	NO___
14.05	An additional bolt in ¼" thick liner shall be provided to protect the housing from material that gets carried over before it exits the housing.	YES___	NO___
14.06	An inspection/clean out door is provided with a safety kill switch that shuts the engine down when opened or improperly closed.	YES___	NO___
14.07	The inspection/clean out door shall be side hinged and require no more than two (2) nuts to be removed to open.	YES___	NO___
14.08	The bottom of the blower housing shall have a drain to help prevent water from accumulating when not in use.	YES___	NO___

15.0 Intake Hose: Deviations

15.01	The intake hose shall be 16" diameter x 144" long of heavy-duty wire reinforced flexible urethane hose with a wall thickness of 0.70".	YES___	NO___
15.02	The hose support tube shall connect to a metal hose support band wrapped around the hose for a secure and safe connection. The use of rubber or belting materials to support the weight of the intake hose is not desirable.	YES___	NO___
15.03	The intake hose is equipped with a 16" nozzle that is constructed out of 12-gauge steel.	YES___	NO___
15.04	The suction nozzle shall be connected to the boom assembly via an I-beam structure that is designed to pivot at both ends. This design provides a secure connection for both vertical and horizontal movement of the assembly.	YES___	NO___
15.05	The suction nozzle shall have wear strips welded to the bottom to prevent the nozzle from being sucked to the ground surface.	YES___	NO___
15.06	The suction hose shall be secured to the straight inlet via an over-center clamp.	YES___	NO___
15.07	The hose shall be capable of pivoting forward or reward and secure itself to the unit for transport without having to remove the hose.	YES___	NO___

16.0 Exhaust Duct: Deviations

16.01	A rectangular extension of the blower housing shall couple to the bottom side of the box that extends over the engine and blower housing.	YES___	NO___
16.02	There shall be 1.5" thick closed cell rubber gasket to insure a proper seal between and the blower housing and the box.	YES___	NO___
16.03	The rubber gasket shall be mounted to a transition piece that is easily adjusted to maintain a proper seal.	YES___	NO___

17.0 Hydraulic Boom: Deviations

17.01	The intake hose boom shall be a 3-axis (in/out, up/down & forward/reverse) that is hydraulically operated.	YES___	NO___
17.02	The boom assembly must be capable of having a 180° working arc that allows the hose to be pointed toward the front of the truck and swing all the way towards the rear of the truck.	YES___	NO___
17.03	The boom shall raise and lower by a hydraulic cylinder with a minimum 1-1/2" diameter piston with a minimum stroke length of 12".	YES___	NO___
17.04	A double acting hydraulic cylinder shall provide the in/out function of the boom assembly.	YES___	NO___
17.05	A hydraulic motor coupled to a single reduction spindle planetary wheel drive shall provide the 180° forward/reverse boom motion.	YES___	NO___
17.06	Single 2" diameter 4-bolt flange bearings shall support the 3-axis pivot shaft.	YES___	NO___
17.07	Adjustable boom "stops" shall be provided to limit the forward/reverse motion of the boom assembly.	YES___	NO___
17.08	The hydraulic boom shall be capable of working off of the front bumper of the truck and store along the side of the hopper.	YES___	NO___
17.09	Units that store along side the passenger's side of the cab are not desirable.	YES___	NO___
17.10	The pivot point of the boom shall include a bushing and grease fitting for proper lubrication.	YES___	NO___
17.11	The 3-axis hydraulic boom assembly shall be mounted directly over the center of the suction hose so that it can work freely to the front or rear of the unit.	YES___	NO___
17.12	The hydraulic boom shall be straight for maximum strength, booms with kinks or bends are not desirable.	YES___	NO___
17.13	For maximum strength, the first section of the boom shall be constructed out of a minimum of 4" x 4" x ¼" tubing, with the second section out of 2" x 3" x ¼" tubing.	YES___	NO___

17.14	The boom assembly shall be mounted to 4" square tubing H-frame that is attached to the 3" x 8" mainframe of the unit.	YES___	NO___
17.15	The entire H-frame assembly shall have a hinge assembly that allows it to swing completely out of the way to gain full access to the blower housing.	YES___	NO___
17.16	Complete access for service and maintenance of the impeller and blower housing liners shall not require the removal of the suction hose or 3-axis boom assembly.	YES___	NO___
17.17	Boom controls shall be located in side the cab of the truck.	YES___	NO___
17.18	A 3-way joystick shall be used to control the functions of the boom assembly.	YES___	NO___
17.19	The joystick will determine how fast the desired boom function is based on how much pressure is applied to the joystick.	YES___	NO___
17.20	The joystick shall control the hydraulic boom functions up/down, in/out, and forward/reverse as well as each functions speed.	YES___	NO___
17.21	The joystick shall have the ability to adjust the engine's rpm's.	YES___	NO___
17.22	The joystick shall have the ability to raise and lower the hopper dump function.	YES___	NO___
17.23	The joystick must incorporate a "dead man" trigger that must be pulled in order to activate the joystick.	YES___	NO___

18.0 Mounting: Deviations

18.01	The unit shall be mounted to the truck chassis using standard body mounting procedures.	YES___	NO___
18.02	The unit shall two oak strips in between the truck frame and the unit frame along with all necessary mounting hardware shall be supplied.	YES___	NO___
18.03	Poly rear fenders shall cover the rear tires.	YES___	NO___
18.04	All wiring shall be run through protective looming and have protective rubber grommets when passing through steel openings.	YES___	NO___
18.05	There shall be a rear bumper mounted approximately 19" from the ground.	YES___	NO___
18.06	The bumper shall have four flush mounted LED type stop and taillights with turn signal indicators.	YES___	NO___
18.07	LED type clearance lights and red/white reflective tape shall be supplied.	YES___	NO___
18.08	At the rear of the unit two (2) LED amber flasher lights shall be flush mounted within the skirting of the box container. Lights mounted on the rear doors of the unit are not desirable.	YES___	NO___
18.09	A rear mounted color camera system that includes audio. System must turn on when transmission is placed in reverse. A 5.6" full color monitor shall be mounted in the cab viewable from both driving position.	YES___	NO___

19.0 Paint: Deviations

19.01	Automotive style paint shall be provided.	YES___	NO___
19.02	To provide the long lasting paint job, all components must be painted prior to assembly. No exceptions to this requirement.	YES___	NO___
19.03	Units that have latches, bolts, nuts, wires, cables, bearings, filters or grease fittings painted will not be accepted.	YES___	NO___
19.04	The unit's engine shall be left the original color so that no wires or labels are painted over. No exceptions to this requirement.	YES___	NO___
19.05	The entire unit must be painted with a finish coat including under the hopper decking and engine compartment.	YES___	NO___
19.06	All hardware shall be cadium plated and left unpainted.	YES___	NO___
19.07	Each component shall be properly prepared, primed with an acid etching primer, than painted with two coats of customer's choice of color.	YES___	NO___
19.08	The skid frame and underside of the container box shall be painted black.	YES___	NO___

20.0 Warranty and Manuals: Deviations

20.01	The entire unit shall carry a one-year warranty for parts and labor against manufacturing defects and materials.	YES___	NO___
20.02	The engine and the PTO clutch shall have a minimum two–year warranty.	YES___	NO___
20.03	An unconditional 30-day guarantee shall be submitted on the bidder's letterhead stating, "If the end user is not pleased or satisfied in the quality and performance of the proposed equipment within 30 days after delivery, a full refund including freight will be furnished to the customer."	YES___	NO___
20.04	Delivery shall be included in the cost of the unit.	YES___	NO___
20.05	Training DVD shall be provided showing maintenance and operating procedures.	YES___	NO___
20.06	Complete parts, operating and service manuals for both the unit and the engine shall be supplied on cd-rom.	YES___	NO___
20.07	Unit shall be provided with all safety decals in both English and Spanish.	YES___	NO___

SCL800SM-3X

"One Man Operation" Leaf Collector

- Reduce Labor Costs
- Collect Leaves Faster
- Increase Productivity
- Save Money

Your City or Town Can't Afford Not to Have One!

- The fast, efficient way to collect leaves.
- One person, one vehicle
- Collect leaves safely, without mess from the cab of the truck.

THE ODB CO

ODB Company

Municipal Products Since 1910

800-446-9823

www.leafcollector.com

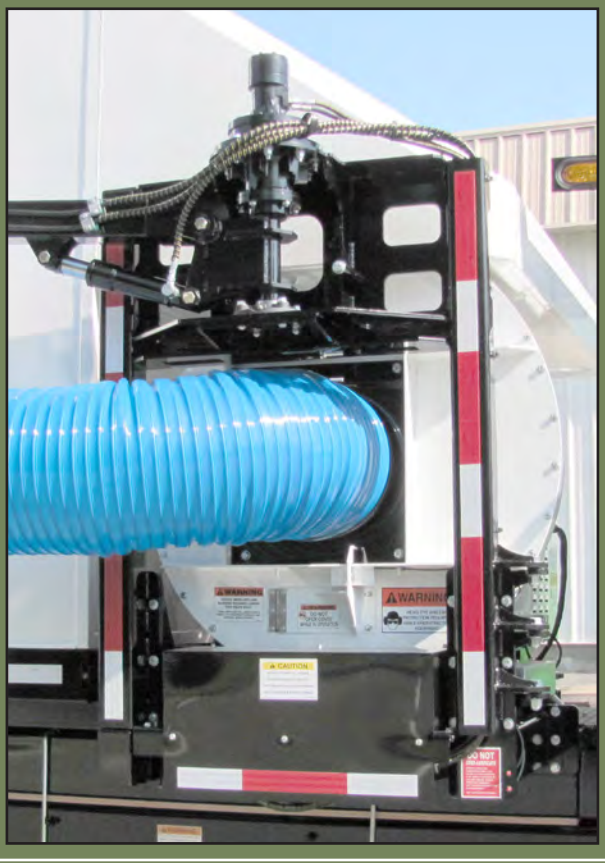
SCL800SM-3X

IN-CAB CONTROLS

The entire leaf collection process is controlled from the cab. All controls and engine monitoring is done by a multi-function joystick and the full color IQAN display system with 3.5” transflective TFT color display. This system completely controls and monitors the engine, boom and hydraulic systems.

3 AXIS BOOM ASSEMBLY

ODB’s 3 axis boom allows smooth, precise movement of the suction hose to the leaf pile. Combining two hydraulic cylinders for the up/down and in/out movements, plus a planetary, wheel drive hydraulic motor for the left/right movement allows the operator to place the suction hose in the desired location smoothly and precisely. The boom is controlled with a joystick located in the cab for effortless leaf collection.



BOOM SUPPORT MOUNT

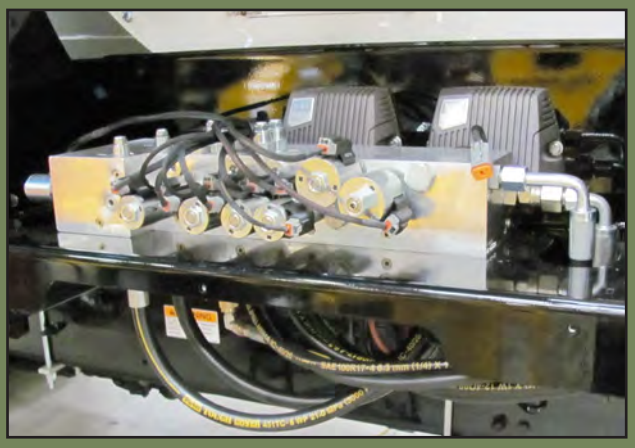
ODB’s 3 axis boom is supported on its own tubular steel mount. This keeps the weight of the boom off the blower housing making for a sturdier boom. The boom support is hinged to allow the blower housing face to be removed without having to remove the entire boom assembly or without having to disconnect any hydraulic lines. This is a tremendous labor saving feature.

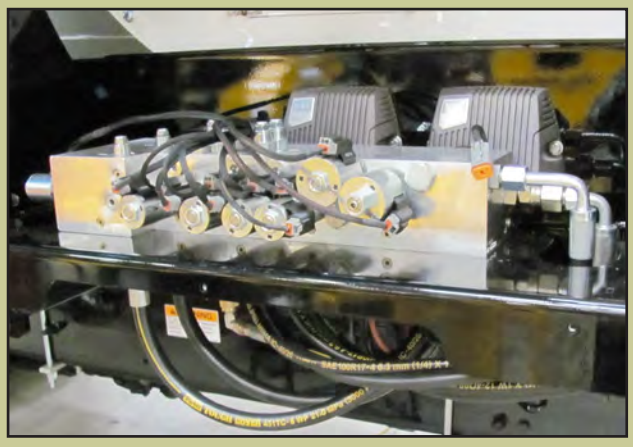
5118 Glen Alden Drive, Richmond, VA 23231

“One Man Operation” Leaf Collector

MULTI FUNCTION, PROPORTIONAL VALVE BODY

The heart of the multi-axis hose boom is the state-of-the-art valve body. The multi-function proportional valve body allows the boom to be moved in multiple directions at the same time as well as allowing the user to precisely control the speed of the boom. If the user moves the joystick slightly to the left the boom moves slowly left, but if the user moves the joystick all the way to the left then the boom moves to the left much faster. This valve body includes a pressure relief valve, “dead man cartridge”, flow divider and multi-port cartridges and solenoid assemblies. The entire assembly is conveniently located for easy access to all components of the valve body assembly.





AUTOMATIC DOOR LATCH

The top hinge door and hydraulically controlled door latches allow the operator to open and close the rear door with the press of a switch from inside the cab.

ODB Company

Municipal Products Since 1910

800-446-9823

SCL800SM-3X Computer Control

"One Man Operation" Leaf Collector

IQAN, Computer Controlled Automated Leaf Collection

Computer controls provide "real-time" engine and control monitoring. This allows for automated safety features to keep the unit working efficiently for years to come.

IQAN Computer Controls provide real-time system monitoring with alarm logging and full color, on-screen error messages.

IQAN System Controls

IQAN controls allows for a "user friendly" access to all controls and features. Simple function keys and full color graphics allow the operator to easily use all the features of the unit.

THE ODB CO

ODB Company

Municipal Products Since 1910

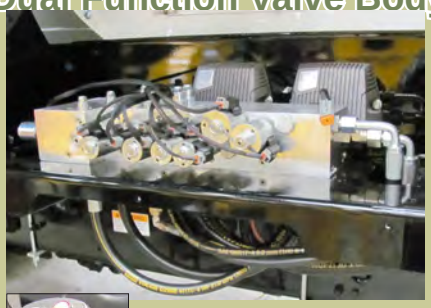
5118 Glen Alden Drive, Richmond, VA 23231 | www.leafcollector.com | 800-446-9823

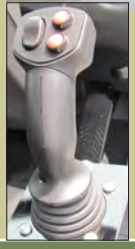
SCL800SM-3X Computer Control

"One Man Operation" Leaf Collector

IQAN Display System

Dual Function Valve Body





Joystick Assembly

FEATURES

IQAN DISPLAY SYSTEM - By Parker Hydraulics

- User friendly - Full Color graphics, anyone can operate it.
- Simple logic driven menu's make performing tasks extremely easy and efficient.
- Easily customizable to work the way the operator wants it to work.

COMPUTER CONTROLS

- Real time monitoring of engine and system functions.
- Real time alerts and warnings of sytem errors.
- Alert logging with time and date.
- Safety "controlled shutdown" of unit when critical errors are reached. For instance, this prevents shutting down the engine immediately at full throttle with the PTO engaged - serious damage to the PTO could occur. The computer system will automatically shutdown the unit in a safe manner to prevent such damage.
- Prevents harmful operator actions such as trying to dump the body with the doors locked (a warning message will appear on the screen to let you know that this can not be done.)

VALVE BODY

The multi function, proportional valve body allows the boom to be moved in multiple directions at the same time as well as giving precise speed control of the boom. The proportional valve allows the user to precisely control the speed the boom moves by how much pressure the user applies to the joystick. This makes the boom move more accurately, faster and is much easier on the the mechanical components of the boom - thus extending the life of the boom.

JOYSTICK

The joystick is conveniently mounted in the armrest (Freightliner trucks) of the truck for great access. The proportional joystick controls the boom direction, speed, engine throttle and box container dump.

ODB Company

Municipal Products Since 1910

5118 Glen Alden Drive, Richmond, VA 23231 | www.leafcollector.com | 800-446-9823

Bottom Exhaust System
(Add-On Option for SCL800 units)

Optional Bottom Exhaust System re-directs the unit's exhaust to the ground, keeps debris from flying high into the air.

Air is vented through heavy duty mesh screens mounted in the top of the box and then directed to the sides by all steel duct work and is exhausted on to the ground.

Directs air to the ground instead of high into the air.

Hinged doors allow easy access to the exhaust screens

Top of the unit is fully enclosed so debris will not fly overhead

Hinged doors allow easy access to the exhaust screens

ODB Company

Municipal Products Since 1910

5118 Glen Alden Drive, Richmond, VA 23231 | www.leafcollector.com | 800-446-9823

SCL800SM-3X

"One Man Operation" Leaf Collector

The fast, efficient way to collect leaves. One person, one vehicle - Collect leaves safely, without mess from the cab of the truck.

- **Reduce Labor Costs**
- **Collect Leaves Faster**
- **Increase Productivity**
- **Save Money**

One Man controls the entire leaf collection process from the cab of the truck. The operator controls the engine, engage / disengage PTO, controls the suction hose and dumps the body without ever leaving the truck. There is no leaf crew or operator fatique and leaves are collected up to 25% faster than with traditional leaf crew units.

THE ODB CO

ODB Company

Municipal Products Since 1910

5118 Glen Alden Drive, Richmond, VA 23231 | www.leafcollector.com | 800-446-9823

SCL800SM-3X
"One Man Operation" Leaf Collector

Engine
John Deere 4045T water-cooled, 4-cylinder turbo diesel engine; 74HP; 4.5 liter (276 CID) with wet-sleeve liners.

Air Cleaner
Dry element with pre-cleaner

Radiator
Pressurized, heavy-duty

Radiator Screen
Constructed of 1/2" expanded flattened steel with steel mesh. Screen is bottom hinged to allow for cleaning without powering down the engine.

Engine Controls
All engine controls and engine monitoring is through the IQAN full-color display system. Engine RPM, oil pressure, water temperature and fuel levels are displayed on the 3.5" transflective TFT full color display. There is an automatic safety shutdown for high temperature or low oil pressure.

In-Cab Controls
All engine controls as described above as well as joystick control of the 3-axis boom, engine throttle and dump body. Other in-cab controls include: in-cab dump body control, clutch engage / disengagement, rear door open/close control.

Engine Sheet Metal
Engine is covered by a custom sheet metal enclosure constructed of 16-gauge steel. The enclosure has front and rear doors, which are louvered for proper air circulation. Two doors are provided on top of the enclosure for convenient access to the radiator cap and oil fill cap.

PTO
Heavy duty 13" automotive style PTO and clutch with safety engagement system.

Belt Drive
Power is transferred from the engine to the impeller via a 4-groove power band belt. The power band is adjusted by raising and lowering the engine by simply turning four, 2" diameter engine supports.

Skid (truck-mounted)
Heavy-duty channel steel construction, formed and welded. Skid is constructed of 3" x 8" tubular steel with a 1/4" wall thickness. Designed to mount on any truck with 32" centers. The skid frame supports the power unit and self-dumping box container.

Skid (truck-mounted)
Heavy duty A-framed skid. The frame assembly is constructed of 8" x 2" x 1/4" thick steel tubing. The A-frame and rear lock-downs are manufactured to specific manufacturer's specifications. The two steel rollers are 8" wide by 4" diameter with 1/4" thick tubing.

Lighting
LED type stop/turn signals as well as clearance lights; rear of unit has two oval LED amber strobe lights. Unit has reflective tape running the length of the unit.

Impeller
32" diameter with 6 gusseted blades constructed of 3/8" thick abrasive resistant T-1 steel with a Brinell hardness exceeding 400. The impeller is completely stress relieved via Bonal stress relief technology to eliminate weld cracking and weld distortion for the highest structural integrity possible. This makes for the strongest and longest lasting impeller on the market.

All specifications subject to change without notice.

Blower Housing
45-degree exhaust. Outer housing is constructed of 10 gauge welded steel, front and back plates are 7-gauge steel. Inspection / clean out door is located on the face to facilitate convenient inspection of internal contents or condition. A safety kill switch is located on the door to shut down the engine when the door is opened.

Liners
Slip-in style, which require no bolts. Made of 1/4" abrasive resistant steel.

Suction Inlet
Located on curb side of unit capable of a 180 degree range of motion.

Intake Hose
16" diameter x 144" long. Heavy duty wire reinforced urethane hose.

Hose Boom
Three axis hydraulically controlled boom assembly. The boom moves up/down, in/out via 2" hydraulic cylinders and left/right via a planetary wheel drive motor. Incorporating a fully adjustable proportional hydraulic system, the operator can precisely maneuver the boom placement and speed from a joystick controller mounted in the cab.

Boom Controls
Proportional joystick mounted in the cab controls the boom movement as well as the engine's RPMs. A time-sensitive "dead man" trigger is provided on the joystick for operator safety.

Hydraulics
The hydraulics for all boom functions, as well as dumping and optional rear-door latches, are provided through a gear-driven pump off the engine's auxillary drive. The proportional hydraulic valve body provides the operator with precise and adjustable speed control. Mult-function boom movements are capable with the proportional hydraulics. The valve body is conveniently mounted below the H-frame assembly on the boom. A steel hydraulic reservoir is provided along with proper hydraulic filters for worry free operations.

Dumping Hoist
Uses a Crysteel scissor-style hoist capable of dumping 30,400 pounds (14CY), 43,000 pounds (20CY), 53,200 pounds (25CY / 30CY).

Box Container
Self dumping container constructed of 12-gauge steel with vented top. Available in 14, 20, 25 and 30 CY capacities.

Vented Top Screens
Easily removable 1/2" expanded steel mesh screens with 1/8" hardware cloth on the bottom side are located on top of the box container. Two screens for the 14 and 20 CY boxes and 3 screens for the 25 and 30 CY containers.

Fuel Tank
44 gallon capacity fuel tank manufactured of 1/4" thick roto-molded polyethylene.

Paint
All metal parts are thoroughly cleaned, primed and dried separately. Two coats of automotive quality paint is then applied.

Options Available:

- Bottom exhaust
- Air scoop
- Hydraulic tailgate latch controls
- Chipper door with trailer hitch
- Rear camera system
- Front light bar with 4 amber LED lights
- Urethane liners
- Rear arrow-stick
- Consult factory for other engine options
- Fluid drive coupler in lieu of clutch and PTO

032315

5118 Glen Alden Drive, Richmond, VA 23231 | www.leafcollector.com | 800-446-9823