Appendix B

Executive Summary from Benchmarking Analysis

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CITY OF ATLANTA
SOLID WASTE COLLECTION EFFICIENCY AND BENCHMARKING ANALYSIS

EXECUTIVE SUMMARY

Introduction

The City of Atlanta Solid Waste Services (SWS), a division of the Public Works Department, is currently a $47 million annual operation that provides a wide range of solid waste collection, disposal, and beautification services for the benefit of virtually every resident and business in the City. Broadly speaking, the City provides collection, recycling, and disposal services directly to over 120,600 single family and multi-family customers, as well as beautification services and landfill post-closure maintenance for the benefit of all City residents and businesses.

In 2001, the City established the SWS Revenue Fund (SWS Fund), an enterprise fund to manage a subset of services that have historically been provided by SWS and funded by the General Fund. The transition from general-funded to enterprise-funded solid waste services represents a significant positive step towards creating a best-in-class solid waste management system that is responsive to customer needs and financially self-sustaining. In the FY2004 budget year, the City has continued this transition by reorganizing the SWS Fund internal cost accounts used to manage the range of services provided by SWS. The cost center reorganization represents another positive step that, when completed, will improve the usefulness of reported expenditure data to SWS and City management that can be used to better manage the system.

The City retained the Project Team consisting of R. W. Beck and a Joint Venture between CH2M HILL and Williams-Russell and Johnson, Inc. (the JV) to conduct a detailed operational and cost benchmarking evaluation of the City's collection services. The objectives of the project were to evaluate the operational efficiency and direct costs of the City's core waste and recycling collection services and compare Atlanta's service model and performance against relevant benchmarks, including both public and private sector service delivery models.

Although SWS provides a wide range of services, this analysis was limited to core collection activities. Core collection services include:

- Residential single-family refuse collection;

- Residential multi-family refuse collection;
- Residential recycling collection;
- Residential yard waste collection;
- Residential bulky item collection; and
- City building (institutional) refuse collection.

This project excluded a wide range of other services provided by SWS, including: street basket collection, street sweeping, dead animal collection, vacant lot cleaning, right-of-way maintenance, signage removal, and other services that benefit all City residents and businesses rather than one class of customer directly.

Methodology

In order to comprehensively and accurately evaluate the City's core collection services; our analysis included the following components:

- **Field Observations**: R. W. Beck conducted field observations of all core collection services to gather pertinent operational parameters of the City's collection operations. These observations encompassed multiple routes for each of the core collection services provided by the City, departing from all four of the City's substations.
- **Interviews and Focus Groups**: Interviews were conducted with SWS' management, substation operations managers and collection crews, as well as representatives from Motor Transport, Finance, and other City departments that were needed to provide additional background.
- **Benchmarking**: To place Atlanta's operations and costs in the context of other municipalities across the country, we benchmarked City of Atlanta operating and cost parameters against roughly 30 other cities (some of which use private haulers) that provide solid waste collection services to residential and commercial/institutional customers.
- **Desktop Operational and Cost Analysis**: The data obtained from field observations, interviews and focus groups, and from benchmark communities, were compiled in a detailed operational and cost analysis of daily service levels, vehicle inventories and staffing levels, the SWS budget, and other available cost and expenditure data.

Key Findings and Conclusions

Based on the analyses, observations, and benchmarking performed, we identified the following three key findings that must be addressed for Atlanta to achieve best-in-class solid waste collection service capabilities and to reduce costs:

- Fleet replacement and maintenance policies and practices;
- Set-out limit policies and enforcement; and
- Collection productivity.

These findings are discussed below.

Fleet Replacement and Maintenance

It was reported from multiple sources within the City (SWS and Motor Transport) and subsequently confirmed by our analysis of the solid waste fleet inventory, that the City's fleet replacement and maintenance program for solid waste vehicles has been inconsistent. SWS fleet is aged and underfunded. The City's fleet age and maintenance costs exceed industry averages as compared to both public and private entities. In February 2004, United Parcel Service (UPS) performed an assessment of the fleet and recommended the implementation of a maintenance and replacement schedule. However, implementation of this type of program requires a high capital investment that is currently not available.

The age of the fleet has an impact on the City's productivity and operating costs. Data gathered indicated that:

- There has been no consistent equipment replacement since 1996, which is consistent with UPS' report.
- In total, the average age of solid waste fleet vehicles is roughly double the age one would expect if the City were to maintain industry-standard fleet replacement practices.
- The City's spare vehicle rate, at 42 percent, is high and indicative of the age of the fleet. A consistently maintained and replaced fleet typically requires no more than a 20 to 25 percent spare ratio.
- The City's repair and maintenance costs exceed expected levels by 50 to 100 percent, depending on the type of truck.

Based on the recommendations contained in the UPS report, the City is in the process of implementing a fleet replacement program that will help reduce overall costs. To upgrade and right-size the fleet in accordance with solid waste industry fleet maintenance standards, the City will need additional capital By upgrading and right-sizing the fleet, the City can immediately realize $2.8 million reduction in annual vehicle operating and maintenance costs. Although this may require a higher up-front capital outlay, failure to address the solid waste fleet needs will constrain SWS from providing the most cost effective solid waste collection service.

Set-out Limits

During the field observations, the JV team observed that single family and multi-family residents are accustomed to setting out almost anything and having it removed on a timely basis by the City. As part of our comparative analysis, we noted that:

- Set-out limits established in the City ordinances are higher than most cities and private haulers. *Article II. Municipal Collection and Disposal System, Division 1. Section 130-37. Residential Garbage from Single-Family Dwellings*, allows for a high amount of solid waste to be placed at the curbside. The ordinance allows for a 90 gallon Herbie Curbie and

additional five bags of refuse to be placed at the curbside and collected. Section 130-36, of the same ordinance, stipulates requirements for the preparation and type of containers to be used for yard waste; however, there are no limits on the quantity of yard waste that residents can set out on a given week. In addition, field observations conducted by R. W. Beck found several residents not adhering to the set-out limits in the City ordinances and were observed placing out higher amounts of refuse.

- There are opportunities for the City to educate residents regarding the need to place all non-bulky waste items in the City-provided Herbie Curbies. Compared to other cities and private haulers that provide semi-automated, cart-based solid waste collection, Atlanta was observed to have a far higher out-of-cart set-out rate, which negatively impacts the City's collection productivity. Other cities and private haulers that provide cart-based service tend to charge a higher rate for households that require additional carts to handle waste that does not fit into the cart included in the base level of service, which more equitably recoups collection and disposal costs than a flat rate system.
- State law and City code requires the separation of bulky brush from other bulky waste items in the bulky waste collection system, because yard waste cannot be sent to a landfill. We observed that bulky brush was not separated from bulky waste, which results in large quantities of bulky brush being disposed at the higher landfill tip fee, rather than at a lower yard waste processing fee.

Compared to other cities and private haulers across the country and the Southeast, Atlanta is among the least restrictive for set-outs in their solid waste system. While this may be perceived as a customer-friendly service to City residents, it limits the City's ability to control costs by standardizing collection system operational parameters.

Collection Productivity

Based on our analysis of collection practices, Atlanta has numerous opportunities to improve its operational productivity. Detailed examples and recommendations are contained in the body of this report; several of the more important productivity improvements are highlighted below to achieve "best-in-class" solid waste status:

- The City could achieve higher productivity with dedicated collection crews working four 10-hour or five 8-hour days each week, with separate dedicated clean-up crews. The current use of the City's refuse collection resources from scheduled, routed collection on Monday through Thursday to a "clean-up day" on Friday is not efficient. Clean-up activities normally exclude regular solid waste contained in Herbie Curbies. This waste can be collected on the regular collection day. Bulky item collection from residential households could be managed in the regular semi-automated or bulky waste systems.
- The size of the yard waste collected was large in comparison to other cities and private haulers and at times was not easy to collect in the rear loader.
- Use of the rubber-tire loaders for bulky waste collection is inefficient. A loader is slower than a grapple truck, has no bed for storing materials, and has limited range. Grapple

trucks can be supported by fewer dump trucks, assuming proper logistics management of the dump trucks going to and from the grapple trucks and the landfill.

Direct Cost Summary

The benchmarking study performed as part of this project observes that Atlanta's base solid waste rate, at $337.19 per year (including recycling) plus a frontage fee, and the direct cost for core collection services, are high compared to most other cities and private haulers. These higher costs are attributed to the large amount of services that the City provides (refuse, recycling, and yard waste collection, beautification services, and landfill post-closure maintenance); the high set-out limits and lack of adherence to the limits; the aging fleet and productivity issues. This benchmarking study, however, only evaluated the direct costs of the core collection services provided by the City, and did not conduct a cost of service and rate analysis for all of the services provided by SWS.

Recommendations

Based on the key findings and conclusions, we believe that the City should consider implementing the following recommendations. It is understandable that some of these recommendations can be implemented more rapidly than others. For that reason, the recommendations have been divided into two categories – Short-Term and Long-Term.

Short-term Recommendations

Short-term recommendations are defined as those that can be initiated in the next 12 – 18 months. Based on our analysis, it is recommended that the City can take several steps in the short term to begin to improve its solid waste collection system. These include:

1. Establishing and consistently funding a fleet replacement program to significantly reduce fleet costs. The City's fleet is aging and has an impact on the City's productivity and operating costs. The City is in the process of implementing this type of program, which will help drive overall operational costs down, however additional capital is needed. We recommend that the City allow SWS to continue to establish a long-term vehicle replacement plan that projects the capital funding needs for a ten-year time horizon, and that the City subsequently fund these vehicle replacement needs.

2. Potentially modifying set-out limits, educating residents on established limits, and subsequently enforcing the limits for residential garbage, yard and bulky waste. Specifically:

    - Eliminate the allowance of up to five bags to be placed outside of the Herbie Curbie, and instead require all waste (with the exception of bulky items) be placed in the Herbies.

    - Continue to educate residents through the Solid Waste Education and Enforcement Team (SWEET) program, that all refuse must be placed in Herbie Curbies.

    - Continue to educate residents (through the SWEET program) about the separation of bulky brush from bulky waste items when set out at the curb.

- Establish set-out limits in the yard waste/bulky waste system.
- Take enforcement action regarding set-out limits after the educational process has been completed. The goal is to encourage compliance while balancing customer satisfaction, litter control, and illegal dumping.

3. Addressing the productivity and operational efficiency opportunities identified in this report. These improvements can be made in a relatively short (six months or less) timeframe if the City dedicates resources to resolving these issues. Additional productivity recommendations are included in Section 2 of this report for each of the core collection services provided by the City. The City of Atlanta has an opportunity to increase productivity and collection efficiency while reducing costs. Key recommendations to consider are:
   - Implementing a Task Pay System. Task pay systems have been shown to greatly improve collection productivity, provided the tools are available to define the customer base and to track route-specific collection quantities.
   - Returning to a weekly yard waste collection system. This change would reduce the size of the set-out, allowing for easier and more cost-effective collection by the more efficient rear loader.
   - Retiring the rubber-tire loaders from providing bulky waste collection and replace with grapple trucks, since rubber-tire loaders are slower, have no bed for storing materials, and have a limited range. As mentioned in the conclusions, use of a grapple truck is more efficient.
   - Considering the use of dedicated collection crews working either four 10-hour days or five 8–hour days each week to achieve higher productivity.
4. Perform a cost of service and rate analysis study. We recommend that the City conduct a cost of service analysis that would identify the cost of providing each of the solid waste services and develop options for recovery of these costs in a fair and equitable manner from those benefiting from the services provided. In addition, an economic assessment of the solid waste program (current costs plus changes contained in the Updated Long-Term Solid Waste Management Plan) should be performed to determine the future full cost of solid waste management in the City. This analysis will build on information obtained during the benchmarking study and will determine the cost of the solid waste program to customers. Recommendations will be made regarding rates and future revenues sufficient to support the full cost of the Solid Waste Services Department throughout the 10-year planning period.
5. Continuing the financial management transition that SWS is currently implementing that will more closely align the SWS Fund internal cost centers with the range of services provided, improving management's ability to manage the system and implement positive change. This transition appears to be moving SWS in the right direction by making accurate system costs more readily available by the end of FY06. When the full transition is complete, the City will have more accurate data on the direct costs of each component of its collection system.

Long-term Recommendations

Long term recommendations are those that may take longer than 12 months to 18 months to implement. Over the long term, we recommend that the City consider the following:

1. Use of a routing software package to improve the overall route balance. Atlanta is large enough that a routing software system could significantly improve the overall route balance and flexibility of making routing improvements, especially in light of the City's impending transition to a new disposal facility location. Based on discussions with SWS staff, we understand that the City purchased the RouteSmart software package. However, since the software was cumbersome and not user friendly, the software has not been maintained or utilized. It is our opinion that such a system would greatly benefit the City. We suggest one of the two options listed below:

    - Resurrect the use of the RouteSmart software package and use an independent firm to maintain and update the system on a regular basis. The RouteSmart system is current through 1998 and would need to be updated to include residential data through 2004.

    - If the City prefers not to use RouteSmart, then conduct an evaluation of software packages to determine the advantages, disadvantages, and comparative costs. Depending on the ease of use, the City can then decide if an independent firm is needed to maintain the system.

2. Compile and maintain detailed service level and unit count data for all multi-family (apartments, condominiums and public housing) properties serviced by SWS. Multi-family rates differ widely based on the type of service (Herbie or dumpster) provided to the property. We recommend that the City continue to monitor that the rates currently being charged, are in alignment with the services provided.

3. Continue to monitor and re-evaluate the operational efficiency of the collection program on a regular basis. Specifically, assess the level of fleet replacement and productivity improvement, within 12 to 18 months to determine if significant progress has been made in both areas. If little or no progress has been made to the fleet replacement program, set-out limits, or the productivity issues identified herein, the City should formally re-evaluate and re-assess their collection program.

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Appendix C

Assurance of Disposal Capacity

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Golder Associates Inc.
3730 Chamblee Tucker Road
Atlanta, GA USA 30341
Telephone (770) 496-1893
Fax (770) 934-9476

March 29, 2004

Republic Services of Georgia, LP
967 Carl-Bethlehem Road
Winder, GA 30680

Attn: Mr. Mark Allen
General Manager

RE: **CERTIFICATION FOR DISPOSAL CAPACITY AND PROJECTED LIFE PINE RIDGE LANDFILL**

Dear Mr. Allen:

Pursuant to Section 3.1 and 3.2 of the City of Atlanta Request for Bids (RFB) (FC-7650-04, Disposal of Municipal Solid Waste), this letter provides certification of the disposal capacity for the Pine Ridge Landfill, Permit Number 018-008D(MSWL).

As of March 31, 2003, the facility's remaining airspace is calculated to be 38,941,460 cubic yards. Currently, the facility accepts approximately 2,000 tons per day of municipal solid waste. Utilizing this disposal rate from March 31, 2003 through November 30, 2004 (approximately 453 operational days) and the facility's compaction ratio, the consumed airspace over this time period is calculated to be 1,449,600 cubic yards. Therefore, the remaining capacity of the disposal facility as of November 30, 2004 is calculated to be 37,491,860 cubic yards.

Assuming the contract to accept and dispose of the City of Atlanta's waste lasts five years (60 months), and that the additional disposal rate from the City's waste is 3,200 tons per day, the total disposal rate over the next five years is estimated to be 5,200 tons per day. Using the facility's compaction ratio, the airspace consumed over the next five years at this disposal rate is 11,897,600 cubic yards, which is less than the 37,491,860 cubic yards of remaining capacity calculated above.

Therefore, per Section 3.2 of the RFB, the disposal capacity of the Pine Ridge Landfill is sufficient to accept the current waste disposal under contract plus the City's waste disposal quantities over the next 36 to 60 months.

The remaining life of the facility without disposal of the City's waste is calculated to be approximately 41 years as of November 30, 2004 using a disposal rate of 2,000 tons per day.

Including the City's waste stream (maximum 3,200 tons per day) in addition to the waste stream currently under contract (2,000 tons per day), the estimated remaining life of the facility is approximately 16 years. ***Therefore, per section 3.1 of the RFB, the Pine Ridge Landfill has sufficient disposal capacity to accept the City's waste plus waste already under contract for the next 10 years.***

If you have any questions regarding this letter, or if you need additional information, please call.

Very truly yours,

GOLDER ASSOCIATES INC.

Kevin S. Brown, P.E.
Senior Geotechnical Engineer and Associate

3/29/2004

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Golder Associates Inc.

3730 Chamblee Tucker Road
Atlanta, GA USA 30341
Telephone (770) 496-1893
Fax (770) 934-9476

March 22, 2004

Republic Services of Georgia, LP
967 Carl-Bethlehem Road
Winder, GA 30680

Attn: Mr. Mark Allen
General Manager

RE: **CERTIFICATION FOR MAXIMUM DAILY INTAKE**
PINE RIDGE LANDFILL AND LEE TRANSFER STATION

Dear Mr. Allen:

Pursuant to Section 3.5 of the City of Atlanta Request for Bids (FC-7650-04, Disposal of Municipal Solid Waste), this letter provides certification of the disposal rate for the Lee Transfer Station located approximately 1.6 miles west of the City of Atlanta limits and the Pine Ridge Landfill which will serve as the disposal facility for the City's waste.

The Lee Transfer Station has the capacity for simultaneous loading of two 22-ton capacity transfer trailers. Using the required disposal rate of 1,500 tons per day, a total of 69 trailers would need to be loaded each day. Utilizing the operational time of 9 hours (8:00 am to 5:00 pm) and two loading bays, eight trailers would need to be loaded each hour. This translates into loading two trucks every 15 minutes.

Based on our experience, this loading time is within acceptable ranges for typical operational conditions at the Lee Transfer Station. ***Therefore, the Lee Transfer Station is capable of accepting 1,500 tons per day of municipal solid waste within the hours of 8:00 am to 5:00 pm.***

The Pine Ridge Landfill currently accepts approximately 2000 tons per day of solid waste. The landfill facility is designed such that there are sufficient staging areas to handle an additional 69 transfer trailers (1,500 tpd) during normal operational hours. ***Therefore, the Pine Ridge Landfill is capable of accepting the additional waste from the City of Atlanta plus the waste already under contract at the facility.***

If you have any questions regarding this letter, or if you need additional information, please call.

Very truly yours,

GOLDER ASSOCIATES INC.

Kevin S. Brown, P.E.
Senior Geotechnical Engineer and Associate

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GEORGIA
REGISTERED
No. 22003
PROFESSIONAL
ENGINEER
KEVIN S. BROWN

3/29/2004

HODGES, HARBIN, NEWBERRY & TRIBBLE, INC.

CONSULTING ENGINEERS

484 MULBERRY STREET, SUITE 265 • POST OFFICE BOX 974
MACON, GEORGIA 31201

H. LOWRY TRIBBLE, JR., PE
WILLIAM F. HODGES, PE
HAROLD L. NEWBERRY, PE
J. STEVEN HARBIN, PE
JEFFREY M. BROWNE, PE

TELEPHONE (478) 743-7175
FAX (478) 743-1703

September 13, 2001

Mr. Wally Hall
Advanced Disposal Services, Inc.
9250 Baymeadows Road
Suite 220
Jacksonville, FL 32256

Re: **Eagle Point Landfill**
(Formerly FSL Landfill)
HHNT Project No. 1210-010-01

Dear Mr. Hall:

This letter serves as a demonstration of capacity of the subject landfill. This facility is permitted to dispose of a total of 29,403,000 cubic yards (total airspace minus landfill cap). Based on this permitted capacity, at a disposal rate of 1500 TPD, the facility has a life expectancy of 46 years.

Therefore, this facility can serve the City of Atlanta for 20 years, 30 years, 40 years, or 46 years.

Should you have any questions, please call.

Sincerely,

HODGES, HARBIN, NEWBERRY & TRIBBLE, INC.

GEORGIA REGISTERED No. 15689 PROFESSIONAL WILLIAM F. HODGES

William F. Hodges, PE
Principal

ENVIRONMENTAL PROTECTION DIVISION
LAND PROTECTION BRANCH
4244 INTERNATIONAL PARKWAY, SUITE 104
ATLANTA, GA 30354
For assistance call: (404) 362-2696

REMAINING MSW CAPACITY REPORT

Permit Holder: Federal Road, LLC

Address: 9250 Baymeadows Road, Suite 220, Jacksonville, Fl. 32256

Site Name: Eagle Point Municipal Solid Waste Landfill

EPD Permit Number: 058-012D(MSWL)

		CALCULATED	
I.	**SURVEY DATA**		
A.	Date of Topographic Survey	Not Applicable	
B.	Remaining MSW Volume (Available Fill Volume Based on Survey)	30,451,597	cy
C.	Estimated Percent by Volume of Total Used by Cover Soil	8	%
D.	Net Remaining MSW Waste Volume (Line B Reduced by Line C)	28,015,469	cy
II.	**AMOUNT OF SOLID WASTE DISPOSED**		
E.	Tons Per Day Received for Disposal	800	ton/day
F.	Total Operational Days Per Year	286	days
G.	Total Estimated Annual Tons Disposed	228,800	tons
III.	**WASTE PLACEMENT**		
H.	Estimated Waste Compaction Density	1200	lbs/cy
I.	Estimated Waste Compaction Density	0.6	tons/cy
J.	Net Volume Used Per Day (Line E Divided by Line I)	1,333	cy/day
K.	Net Volume Used Per Year (Line G Divided by Line I)	381,333	cy/yr
IV.	**REMAINING CAPACITY (SITE LIFE)**		
L.	Remaining Capacity (Line D Divided by Line J)	21,017	days
M.	Remaining Capacity (Line D Divided by Line K)	73.47	years
N.	Estimated Date of Completion for Facility	December 19, 2075	

V. ADDITIONAL INFORMATION

1. This report covers data from 04/05/02 - 06/30/02
2. Since the site recently opened, a topographic survey was not available. Prior to the 2003 remaining capacity report submittal a topographic survey of waste in place will be conducted.

I hereby certify the above determinations were performed under my direct supervision.

William M. Stubbs

Registered Professional Engineer
Georgia Registration No. 27108
8/7/02

GEORGIA REGISTERED NO. 27108 PROFESSIONAL ENGINEER WILLIAM M. STUBBS

8/7/02

Permit Holder

Date

DATE ENTRY _____

RETURN TO:
REMAINING CAPACITY REPORT
ENVIRONMENTAL PROTECTION DIVISION
LAND PROTECTION BRANCH
4244 INTERNATIONAL PARKWAY, SUITE 104
ATLANTA, GA 30354
For assistance call: (404) 362-2696

REMAINING MSW CAPACITY REPORT

Permit Holder: FSL Corporation
Address: 3210 Peachtree Road, Suite 16 Atlanta, GA 30305
Site Name: Hightower Road Municipal Solid Waste Landfill
EPD Permit Number: 058-012D(MSWL)

	CALCULATED		
I. SURVEY DATA			
A. Date of Topographic Survey	Not Applicable		
B. Remaining MSW Volume (Available Fill Volume Based on Survey)	29,403,000		cy
C. Estimated Percent by Volume of Total Used by Cover Soil	12.33		%
D. Net Remaining MSW Waste Volume (Line B Reduced by Line C)		25,775,000	cy
II. AMOUNT OF SOLID WASTE DISPOSED			
E. Tons Per Day Received for Disposal (est.)	1,000		ton/day
F. Total Operational Days Per Year (est.)	286		days
G. Total Estimated Annual Tons Disposed		286,000	tons
III. WASTE PLACEMENT			
H. Estimated Waste Compaction Density (est.)	1350		lbs/cy
I. Estimated Waste Compaction Density	0.675		tons/cy
J. Net Volume Used Per Day (Line E Divided by Line I)		1,481	cy/day
K. Net Volume Used Per Year (Line G Divided by Line I)		423,704	cy/yr
IV. REMAINING CAPACITY (SITE LIFE)			
L. Remaining Capacity (Line D Divided by Line J)		17,404	days
M. Remaining Capacity (Line D Divided by Line K)		60.9	years
N. Estimated Date of Completion for Facility	January 22, 2063		

V. ADDITIONAL INFORMATION

1. This site is not operational as of September, 2001. This site plans to accept waste in 2002. Estimates were made in areas required on this form.
2. Assumes a start date of March 1, 2002.

I hereby certify the above determinations were performed under my direct supervision.

William F. Hodges, P.E.
Registered Professional Engineer
Georgia Registration No. 15689
September 16, 2001
Date

GEORGIA REGISTERED No. 15689 PROFESSIONAL (SEAL) ENGINEER WILLIAM F. HODGES 9/16/01

_____
Permit Holder

_____
Date

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Appendix D

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