Item # 14

SEMINOLE COUNTY GOVERNMENT
AGENDA MEMORANDUM

SUBJECT: Innovative Waste Reduction and Recycling Grant

DEPARTMENT: Fiscal Services **DIVISION:** Grants Administration

AUTHORIZED BY: Lisa Spriggs **CONTACT:** Jennifer Bero **EXT.** 7125

Agenda Date 12/20/05 **Regular** ☐ **Consent** ☒ **Work Session** ☐ **Briefing** ☐
Public Hearing – 1:30 ☐ **Public Hearing – 7:00** ☐

MOTION/RECOMMENDATION:

Approve and authorize Chairman to execute the grant agreement with the Florida Department of Environmental Protection in acceptance of the Innovative Waste Reduction and Recycling Grant, the related Intergovernmental Work Agreement with the University of Central Florida.

Countywide (Jennifer Bero, Grants Coordinator; Ed Torres, Principal Engineer, ext 5941)

BACKGROUND:

On 10/26/04, the Board of County Commissioners authorized submittal of an application to the Florida Department of Environmental Protection (FDEP) for the Innovative Waste Reduction and Recycling Grant. Seminole County, in partnership with the Stormwater Management Academy at the University of Central Florida (UCF), was selected as a recipient of this $200,000 grant. This grant will enable the partnership to undertake development and testing of experimental uses of waste tires by incorporating this material into a septic drain field installation at a County trailhead as well as stormwater management installations for two County road projects.

To secure participation in the grant program and allow essential research activity to begin, the FDEP funding agreement and related agreement with UCF are recommended for approval at this time. A budget summary for this grant is attached; the budget amendment to establish an appropriate new fund and account lines for the grant will be presented to the Board in January.

Attachments: **Budget Summary**
Grant Agreement with FDEP
Intergovernmental Agreement with UCF

Reviewed by:
Co Atty:
DFS:
Other:
DCM:
CM:
File No. CFSA01

Innovative Waste Reduction and Recycling
Grant Agreement Budget Summary

Sources		Uses	
Grant from Florida Department of Environmental Protection	$200,000	Field Implementation	$394,350
Transfer from 2001 Sales Tax	$170,282	Research & Development	$117,031
Transfer from Environmental Services	$110,000		
University of Central Florida Contribution	$31,099		
Total	**$511,381**	**Total**	**$511,381**

Under Review/discussion will be revised and BAR submitted
LH
12/2/05

2005-2006 INNOVATIVE WASTE REDUCTION AND RECYCLING GRANT AGREEMENT

FOR STATE ASSISTANCE UNDER SECTION 403.7095, FLORIDA STATUTES

PART I - GRANT NOTIFICATION INFORMATION

1. Grant Agreement Number: IG06-03 2. Date of Award: August 9, 2005

3. Grant Title: **INNOVATIVE WASTE REDUCTION AND RECYCLING GRANT**

4. Grant Period: **October 1, 2005 or Execution (whichever is later) – April, 30, 2007**

5. Grant Amount: $200,000 6. Grantee Match Amount: $311,381

7. CSFA # and Project Name: 37.050/Innovative Waste Reduction and Recycling Grant

8. Issuing Office:

   Florida Department of Environmental Protection
   Bureau of Solid and Hazardous Waste
   Waste Reduction Section (MS 4570)
   2600 Blair Stone Road
   Tallahassee, Florida 32399-2400
   (850) 245-8716

9. Grantee(s): **Seminole County**

   Address: 177 Bush Loop
   Sanford, Florida 32773

10. Grantee Fiscal Year End: 9/30/05

11. Federal Employer Identification Number: 59-6000856

12. Grantee's Representative Authorized to execute Agreement:

    Name: Eduardo J. Torres
    Title: Principal Engineer
    Phone: 407-665-5941

13. Grantee's Grant Manager:

    Name: Jennifer Bero
    Title: Grants Coordinator
    Address: 1101 East First Street
    Sanford, Florida 32771
    Phone: 407-665-7125

14. Department's Grant Manager:

    Name: Lisa Bujak
    Title: Environmental Specialist
    Address: 2600 Blair Stone Road
    MS4570

Tallahassee, Florida 32399
Phone: 850-245-8727

PART II – GRANT CONDITIONS

GENERAL CONDITIONS:

15. The Florida Department of Environmental Protection (hereinafter referred to as the "Department" or "DEP") does hereby enter into an Innovative Waste Reduction and Recycling Grant Agreement with Seminole County (hereinafter referred to as "Grantee" or "Recipient") to conduct the project described in **Attachment A** - Project Work Plan, **Attachment B** - Grant Proposal, and **Attachment C** – Certification by Engineer or Other Qualified Professional, attached hereto and made a part hereof.

16. The method of payment, for the period beginning October 1, 2005 or upon Agreement execution, whichever is later, through **April 30, 2007**, will be on a reimbursement basis for direct costs only. All work must be completed and grant funds expended by **April 30, 2007.**

17. The Grantee shall submit reimbursement requests on a quarterly basis. An original of the reimbursement request, with summaries and appropriate contracts attached, shall be due on the 15th day of the month following the end of the quarterly reporting period. For purposes of this Agreement, the term "quarterly" shall represent the calendar quarters ending March 31st, June 30th, September 30th, and December 31st. Each reimbursement request shall be submitted in detail sufficient for pre-audit and post-audit review. A final reimbursement request must be submitted no later than **April 30, 2007.**

18. A. The Grantee shall submit an original and two copies of **Attachment D** – Payment Request Summary Form, attached hereto and made a part hereof, in conjunction with the required progress report to the DEP Grant Manager. In addition to the summary form, the Grantee must provide from its accounting system, a listing of expenditures charged against this Agreement. The listing shall include, at a minimum, a description of the goods or services purchased, date of the transaction, voucher number, amount paid, and vendor name. Five percent (5%) of each request, up to a maximum of five percent (5%) of the total Grant amount shall be withheld until the final report has been received and accepted by the Department. Reimbursement requests must be signed by the Grantee's designated authorized representative. This should be the same person who signed the Grant Agreement. If there is a change in the authorized representative during the Grant period, the Department must be notified in writing.

B. In addition to the requirements in the paragraph above, the Department will periodically request proof of a transaction (invoice, payroll register, etc.) to evaluate the appropriateness of costs to the Grant Agreement pursuant to State and Federal guidelines (including cost allocation guidelines), as appropriate. This information, when requested, must be provided within 30 calendar days of such request. The Grantee may also be required to submit a cost allocation plan to the Department in support of its multipliers (overhead, indirect, general administrative costs, and fringe benefits). All bills for amounts due under this Grant Agreement shall be submitted in detail sufficient for a proper pre-audit and post-audit thereof. State guidelines for allowable costs can be found in the Department of Financial Services' Reference Guide for State Expenditures at http://www.dbf.state.fl.us/aadir/reference_guide.

C. Travel expenses incurred are included in the amount of this Grant and no additional travel expenses will be authorized. Any requests for reimbursement of travel expenses must be submitted in accordance with Section 112.061, Florida Statutes. The travel forms can be found at http://www.dep.state.fl.us/admin/forms/FinAcct_forms.htm.

D. Progress reports shall be submitted in conjunction with reimbursement requests and shall clearly describe the activities undertaken during the reporting period, activities anticipated for the next reporting period, problems encountered, problem resolutions, a financial summary of the project (including matching and in-kind services), and any schedule updates. In addition to the progress reports required above, the Grantee shall submit the deliverables specified in **Attachment A** – Project Work Plan. The Grantee shall submit a final project report (as described in paragraph 19, below) no later than thirty (30) days following the completion date of this Agreement. Upon receipt and approval of all deliverables specified herein and an invoice requesting payment, the Department will release all funds retained pursuant to 18.A above.

E. The State of Florida's performance and obligation to pay under this Grant Agreement is contingent upon an annual appropriation by the Legislature.

19. The Grantee's final report should be presented in a technical or scientific manner. It should be able to stand on its own so individuals with first time knowledge of the project might understand it. The final report shall be submitted in hardcopy and MS Word or PDF electronic format and include, but not be limited to, the following information:

A. An introduction briefly describing the project and the contents of the final report. It should also include, but not be limited to, the following:

1. The background of how this project came about.
2. The objectives or goals of the project.
3. What made this project innovative?
4. The proposed audience and date for the formal presentation about the project at an appropriate state or national workshop. Are any published articles in recognized trade journals or professional journals planned?

B. The implementation of the project including, but not limited to, the following:

1. What equipment and/or services were purchased and how it was utilized.
2. A description of the various elements or components and a project timeline.
3. Problems encountered during the project and how they were resolved or addressed.

C. The project results including, but not limited to, the following:

1. How the objectives or goals were or were not met for this project.
2. How this project demonstrated or utilized advanced technologies or processes, which are not in common use on a statewide basis in jurisdictions of similar size or demographics.
3. How this project lead to greater quantities of recovered materials and/or created a product that is more recyclable and/or marketable.
4. The transferability of the technology or processes realized from this project and how it was or will be applicable to other communities, businesses or individuals.

5. A detailed analysis and discussion of how this project resulted in substantial improvements in recycling program cost effectiveness and efficiency as measured against statewide average costs for the same or similar programs. Include the following:
   a. Total dollar figures of the various elements or components of the project, including administration, equipment, operations, advertising, education and any other expenses incurred during the project.
   b. Project expenditures categorized for both the public versus private sectors and the sources of project funding comparing the county (including in-kind services) versus the innovative grant.
   c. Tipping fees avoided as a result of waste diversion/reduction.
   d. A cost/benefit ration for the project comparing the cost of project versus the benefits that were achieved. Include any assumptions made in deriving this information. Discussion should include the following:
      1. Avoided material tonnages and space (in cubic yards) at area landfills.
      2. Possible impacts made conserving natural resources.
      3. Cost per capita and per ton of specific material(s) recovered or recycled as part of this project.
   e. How the project has collected and recycled nontraditional materials, and enhanced their marketability and availability to end markets.

20. The Grantee shall maintain accurate records of all expenditures of Grant funds and shall assure that these records are available at all reasonable times for inspection, review or audit by Department personnel and other personnel authorized by the Department. Records shall be kept for a period of at least 5 years following the end of the Grant period. The Grantee agrees that it will expeditiously initiate and complete the program work for which assistance has been awarded under this Grant Agreement in accordance with all applicable provisions of Florida Statutes and the Florida Administrative Code. In the event any work is subcontracted, the Grantee shall similarly require each subcontractor to maintain and allow access to such records for audit purposes.

21. A. In addition to the requirements of the preceding paragraph, the Grantee shall comply with the applicable provisions contained in **Attachment E** (**Special Audit Requirements**), attached hereto and incorporated herein by reference. **Exhibit 1** to **Attachment E** summarizes the funding sources supporting the Agreement for purposes of assisting the Grantee in complying with the requirements of **Attachment E**. A revised copy of **Exhibit 1** must be provided to the Grantee for each amendment which authorizes a funding increase or decrease. If the Grantee fails to receive a revised copy of **Exhibit 1**, the Grantee shall notify the Department's Grants Development and Review Manager at 850/245-2361 to request a copy of the updated information.

B. The Grantee is hereby advised that the Federal and/or Florida Single Audit Act requirements may further apply to lower tier transactions that may be a result of this Agreement. The Grantee shall consider the type of financial assistance (federal and/or state) identified in **Attachment E, Exhibit 1** when making its determination. For federal financial assistance, the Grantee shall utilize the guidance provided under OMB Circular A-133, Subpart B, Section ___.210 for determining whether the relationship represents that of a subrecipient or vendor. For state financial assistance, the Grantee shall utilize the form entitled "Checklist for Nonstate Organizations Recipient/Subrecipient vs Vendor Determination" (form number FSAA_CL2) that can be found under the "Links/Forms" section appearing at the following website:

http://www.fsaa.state.fl.us/

The Grantee should confer with its chief financial officer, audit director or contact the Department for assistance with questions pertaining to the applicability of these requirements.

22. The Department has the right to terminate this Agreement and demand refund of grant funds for non-compliance with the terms of this Agreement. Such action may also result in the Department declaring the Grantee ineligible for further participation in the program until the Grantee complies with the terms of this Agreement.

23. When applicable, the Grantee shall obtain all necessary construction-related permits before initiating construction.

24. A. The Grantee may subcontract work under this Agreement with the prior written consent of the Department's Grant Manager. The Grantee agrees to be responsible for the fulfillment of all work elements included in any subcontract and agrees to be responsible for the payment of all monies due under any subcontract. It is understood and agreed by the Grantee that the Department shall not be liable to any subcontractor for any expenses or liabilities incurred under the subcontract and that the Grantee shall be solely liable to the subcontractor for all expenses and liabilities incurred under the subcontract.

B. The Department of Environmental Protection supports diversity in its procurement program and requests that all subcontracting opportunities afforded by this Agreement embrace diversity enthusiastically. The award of subcontracts should reflect the full diversity of the citizens of the State of Florida. The Department will be glad to furnish a list of minority owned businesses for consideration in subcontracting opportunities.

C. The Grantee must comply with the applicable requirements of Section 287.055, F.S., when acquiring professional services (professional engineers, architects, landscape architects, and/or survey and mappers).

D. The Grantee shall acquire all contractual services and/or commodities utilizing procurement methods comparable to those described in Chapter 287, F.S.

25. This Agreement may be unilaterally canceled by the Department for refusal by the Grantee to allow public access to all documents, papers, letters, or other material subject made or received by the Grantee in conjunction with this Agreement, unless the records are exempt from Section 24(a) of Article I of the State Constitution and Section 119.07(1), Florida Statutes.

26. Pursuant to section 216.347, Florida Statutes, the Grantee is prohibited from using Grant funds for the purpose of lobbying the Legislature, the judicial branch, or a State Agency.

27. To the extent required by law, the Grantee will be self-insured against, or will secure and maintain during the life of this Grant Agreement, Workers' Compensation Insurance for all of its employees connected with the work of this project and, in case any work is subcontracted, the Grantee shall require the subcontractor similarly to provide Workers' Compensation Insurance for all of the latter's employees unless such employees are covered by the protection afforded by the Grantee. Such self-insurance program or insurance coverage shall comply fully with the Florida Workers' Compensation law. In case any class of employees engaged in hazardous work under this Grant Agreement is not protected under Workers' Compensation statutes, the Grantee shall provide, and cause each subcontractor to provide, adequate insurance satisfactory to the Department, for the protection of his employees not otherwise protected.

28. The Grantee, as an independent contractor and not an agent, representative, or employee of the Department, agrees to carry adequate liability and other appropriate forms of insurance. The Department shall have no liability except as specifically provided in this Agreement.

29. Each party hereto agrees that it shall be solely responsible for the negligent or wrongful acts of its employees and agents. However, nothing contained herein shall constitute a waiver by either party of its sovereign immunity or the provisions of Section 768.28, Florida Statutes.

30. The Grantee covenants that it presently has no interest and shall not acquire any interest, which would conflict in any manner or degree with the performance of services required.

31. Upon satisfactory completion of this Grant Agreement, the Grantee may retain ownership of the equipment purchased under this Grant Agreement. However, the Grantee shall complete and sign a Property Reporting Form, provided as **Attachment F**, and forward it along with the appropriate invoice to the Department's Grant Manager. The following terms shall apply:

    A. The Grantee shall have use of the equipment for the authorized purposes of the contractual arrangement as long as the required work is being performed.

    B. The Grantee is responsible for the implementation of adequate maintenance procedures to keep the equipment in good operating condition.

    C. The Grantee is responsible for any loss, damage, or theft of, and any loss, damage or injury caused by the use of, non-expendable personal property or equipment purchased with state funds and held in his possession for use in a contractual arrangement with the Department.

    D. The Grantee shall report the inventory of the equipment, on an annual basis, no later than January 31st for each year this Agreement is in effect.

    E. The equipment may be leased or loaned to a private business, if necessary for this project. If leased, proceeds received from lease shall be documented and used to offset reimbursement requests made under this Agreement.

    F. For a period of three years following the completion date of this Grant Agreement, the Grantee shall maintain ownership of all equipment purchased with funds from this Grant, shall list said equipment purchases on its property inventory, and shall assure that said equipment is used exclusively in some recycling capacity in the

State of Florida. Within the above stated three-year period, the Grantee may sell the equipment for fair market value provided that the proceeds of such sale are returned to the Department.

G. A "release of lien" for any structures built or purchased with grant funds must be provided to the Department with the final report. Any site containing state purchased equipment must provide records disclosure/access to state auditors.

32. A. No person, on the grounds of race, creed, color, national origin, age, sex, or disability, shall be excluded from participation in; be denied the proceeds or benefits of; or be otherwise subjected to discrimination in performance of this Grant Agreement.

B. An entity or affiliate who has been placed on the discriminatory vendor list may not submit a bid on a contract to provide goods or services to a public entity, may not submit a bid on a contract with a public entity for the construction or repair of a public building or public work, may not submit bids on leases of real property to a public entity, may not award or perform work as a contractor, supplier, subcontractor, or consultant under contract with any public entity, and may not transact business with any public entity. The Florida Department of Management Services is responsible for maintaining the discriminatory vendor list and intends to post the list on its website. Questions regarding the discriminatory vendor list may be directed to the Florida Department of Management Services, Office of Supplier Diversity, at 850/487-0915.

33. A person or affiliate who has been placed on the convicted vendor list following a conviction for a public entity crime may not perform work as a Grantee, contractor, supplier, subcontractor, or consultant under a contract with any public entity, and may not transact business with any public entity in excess of the threshold amount provided in Section 287.017, F.S., for Category Two, for a period of 36 months from the date of being placed on the convicted vendor list.

34. Grantee shall comply with all applicable federal, state and local rules and regulations in conducting the project funded under this Grant Agreement. The Grantee acknowledges that this requirement includes compliance with all applicable federal, state and local health and safety rules and regulations. The Grantee further agrees to include this provision in all subcontracts issued as a result of this Grant Agreement.

35. If the Grantee's project involves environmentally related measurements or data generation, the Grantee shall develop and implement quality assurance practices consisting of policies, procedures, specifications, standards, and documentation sufficient to produce data of quality adequate to meet project objectives and to minimize loss of data due to out-of-control conditions or malfunctions. All sampling and analyses performed under this Agreement must conform to the requirements set forth in Chapter 62-160, Florida Administrative Code, and the Quality Assurance Requirements, attached hereto and made a part hereof as **Attachment G**.

36. Land acquisition is not authorized under the terms of this Agreement.

37. The Department may at any time, by written order designated to be a change order, make any change in the work within the general scope of this Agreement (e.g., specifications, task timeline within current authorized Agreement period, method or manner of performance, requirements, etc.). All change orders are subject to the mutual agreement of both parties as evidenced in writing. Any change, which causes an increase or decrease in the Grantee's cost or time, shall require formal amendment to this Agreement.

38. This Agreement represents the entire agreement of the parties. Any alterations, variations, changes, modifications or waivers of provisions of this Agreement shall only be valid when they have been reduced to writing, duly signed by each of the parties hereto, and attached to the original of this Agreement, unless otherwise provided herein.

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PART III - OFFER AND ACCEPTANCE

The State of Florida, acting by and through the Department of Environmental Protection, hereby offers assistance to Seminole County for all allowable costs incurred up to and not exceeding $200,000.

STATE OF FLORIDA, DEPARTMENT OF ENVIRONMENTAL PROTECTION:

William W. Hinkley, Chief
Bureau of Solid & Hazardous Waste

8/15/05
Date

Approved as to form and legality:

DEP Program Attorney

8/16/05
Date

In accepting this award and any payments made pursuant thereto, (1) the undersigned represents that he is duly authorized to act on behalf of the Grantee, and (2) the Grantee agrees to the general and special conditions.

BY AND ON BEHALF OF THE GRANTEE:

Signature of Authorized Representative
Name:
Title:

Date

Please return to:

Department of Environmental Protection
Bureau of Solid and Hazardous Waste
Waste Reduction Section - M.S. # 4570
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

List of attachments/exhibits included as part of this Agreement:

Specify Type	Letter/ Number	Description (include number of pages)
Attachment	A	Project Work Plan (2 Pages)
Attachment	B	Grant Proposal (10 Pages)
Attachment	C	Certification by Engineer or Other Qualified Professional (1 Page)
Attachment	D	Payment Request Form (1 Page)
Attachment	E	Special Audit Requirements (5 Pages)
Attachment	F	Property Reporting Form (1 Page)
Attachment	G	Quality Assurance Requirements (9 Pages)

ATTACHMENT D

PAYMENT REQUEST SUMMARY FORM

GRANTEE: Seminole County

GRANTEE'S GRANT MANAGER:
Jennifer Bero

DEP AGREEMENT NO.: IG06-03

PAYMENT REQUEST NO.: _____

DATE OF REQUEST: _____

PERFORMANCE PERIOD COVERED: _____

AMOUNT REQUESTED THIS PERIOD: _____

TOTAL MATCHING FUNDS REQUIRED: _____

GRANT EXPENDITURES SUMMARY SECTION

[Effective Date of Grant through End-of-Grant Period]

CATEGORY OF EXPENDITURE	AMOUNT OF THIS REQUEST	TOTAL CUMULATIVE PAYMENTS	MATCHING FUNDS
Salaries	$	$	$
Fringe Benefits	$	$	$
Travel (if authorized)	$	$	$
Subcontracting:			
	$	$	$
	$	$	$
	$	$	$
	$	$	$
Land Purchase	$	$	$
Equipment Purchases*	$	$	$
Supplies/Other Expenses	$	$	$
TOTAL INVOICES SUBMITTED	$	$	$
Less 5% (unless final invoice)	$		
Amount Retained (for final invoice only)	$		
Total Reimbursement Requested	$		
Less Total Cumulative Payments of:	$		
TOTAL REMAINING IN GRANT	$		

*Single purchases over $1,000. See Attachment F

GRANTEE CERTIFICATION

The undersigned certifies that the amount being requested for reimbursement above was for items that were charged to and utilized only for the above-cited grant activities.

Grantee's Grant Manager's Signature	Grantee's Fiscal Agent
Print Name Jennifer Bero	Print Name
Telephone Number 407-665-7125	Telephone Number

Seminole County
Waste Tire Use in Pollution Control
FY 04/05 Innovative Recycling Grant Scope of Services

County Project Manager
Name: Ed Torres
Address: Seminole County Public Works
177 Bush Loop
Sanford, FL 32773
Phone: (407) 665-5941 E-mail:etorres@seminolecountyfl.gov
FEID Number: 59-6000856

Task	Activities	Deliverables	Cost	In-Kind	Grant	Schedule 1Q	2Q	3Q	4Q	5Q	6Q
MOBILIZATION AND WORK ASSIGNMENTS	Identify potential Project Team members and solicit their participation; conduct Project Team meetings and solicit member input	1) List of Project Team members	$800	$212.59	$587.41	X					
LITERATURE REVIEW	Review of past work and on-going work associated with the use of waste tire crumb for pollution control	2) A literature search section of the final report	$2,750	$730.77	$2,019.23	X	X	X	X	X	X
LABORATORY VERIFICATION	Conduct laboratory scale models to document the pollution control effectiveness	3) Feasibility information and sizing data for the final report	$24,280	$6,452.03	$17,827.97		X	X			
UNIVERSITY CAMPUS FIELD TEST SITE	Scale up of the laboratory results to illustrate operational effectiveness at a near full scale operation	4) Document the construction and operation of a campus site	$64,900	$17,246.15	$47,653.85			X	X		
SEMINOLE COUNTY DEMONSTRATION SITES	For three sites, construct and place in operation full scale models	5) Initial operating results with locations and costs	$370,350	$256,281.82	$114,068.18			X	X	X	
COST EFFECTIVENESS COMPARISONS	Removal effectiveness and costs will be documented	6) A comparison of efficiencies and costs in the final report	$16,500	$4,384.62	$12,115.38					X	X
PROGRESS REPORTS	On a quarterly basis, a report indicating the status of the project will be generated	7) Electronic and hard copies	$2,301	$611.45	$1,689.55	X	X	X	X	X	

Seminole County
Waste Tire Use in Pollution Control
FY 04/05 Innovative Recycling Grant Scope of Services

Task	Activities	Deliverables	Cost	In-Kind	Grant	1 Q	2 Q	3 Q	4 Q	5 Q	6 Q
FINAL REPORT	Develop a final report with details of the results	8) Electronic and hard copies	$5,500	$1,461.57	$4,038.43						X
DISSEMINATION OF INFORMATION	Seminole County owns and operates its own television station, which will be used to communicate and educate.	9) Materials to educate the general public on the value of the project	$24,000	$24,000.00	$0.00				X	X	X
Totals			$511,381	$311,381.00	$200,000.00						

Attachment B

Florida Department of Environmental Protection
FY 2005-06 INNOVATIVE GRANT APPLICATION FORM

Project Information

1) **Applicant Name:**	**Seminole County with University of Central Florida**
2) **Primary contact person:**	**Ed Torres, Public Works**
3) **Complete Address:**	**Seminole County** **Department of Fiscal Services** **1101 East First St., Sanford, FL 32771-1468**
4) **Telephone Number(s)**	**(407) 665-7125**
(including SunCom number):	**335-5767**
5) **E-mail address:**	**etorres@co.seminole.fl.us**
6) **Project Title:**	**Feasibility Study of Waste Tire Use in Pollution Control for Stormwater Management and Water Conservation in Florida**
7) **Grant Request Amount:**	**$200,000**
8) **Length of project (months):**	**12 months**

_____

Authorizing Signature

_____

Title

PROJECT ABSTRACT

(No more than 20 lines. Every word over 20 lines will result in a one point deduction by grant application reviewers.)

Objective: Seminole County and its partner, the Stormwater Management Academy (Academy) at the University of Central Florida (UCF), will benchmark an innovative use for waste tires in stormwater and septic tank pollution control. The springboard for our proposal is based on documented use of processed waste tires in pollution control in a demonstration of nitrogen removal for a golf course (University of Wisconsin). The purpose of our proposal is to perform a viability study and benefits assessment for the specific use of processed waste tires in stormwater treatment facilities, septic tank drain fields, etc. We expect a new market for processed waste tires.

Methodology: This particular method of recycling chipped/crumb tires for the runoff from stormwater and from the septic tank drainage will be documented in at least the following: wet detention ponds, exfiltation trenches, and septic drain fields. The UCF Stormwater Management Academy will oversee the research using the processed waste tires as the media collection device. Factors such as the removal efficiencies, life expectancies, cost, and other pertinent factors will be documented. Laboratory and pilot studies to document efficiencies and leaching of metals from the processed tires will be completed first. We will study past research and verification of research from Maine, Texas, Virginia, Wisconsin, and South Carolina .

Benefits: Findings from this project will provide guidance on the applicability of waste tries for use in pollution control in Florida. Environmental benefits would include water pollution control and water conservation. The control methods for stormwater and septic tanks will help reduce the cost of Total Maximum Daily Load (TMDL) control. Economic development projects will be forthcoming because we expect new markets for waste tires. Both partners will provide technology transfer and dissemination of the outcomes.

PROJECT DESCRIPTION

(1 page)

Project Goals: Our project goals are to: 1) recycle and reduce the volume of municipal solid waste (MSW) - specifically, **waste tires** requiring final disposal by conducting and evaluating demonstration projects to determine the applicability of an *innovative* use for a stormwater management facility and septic tank drain fields, 2) discover advantages using processed chips and crumb waste tires in public stormwater facilities and septic drain fields, 3) explore an application with the potential to encourage and accelerate additional market development for waste tire products to further utilize this resource and to promote the market development of products, resulting in a widespread applicability for both private and public uses.

Research Facilitator: The Stormwater Management Academy at the University of Central Florida, College of Engineering and Computer Science, will manage the research for our project. The purpose of the Stormwater Academy is to conduct research and fund partnerships for research. It is highly qualified to plan, conduct, and evaluate such demonstration projects. The Academy operates under a Board of Directors comprised of representatives from the Florida DOT, Florida Stormwater Association, Florida DEP, Florida Water Management Districts, and consulting firms. The Academy participates with the UCF Academic Departments in the offering of both undergraduate and graduate courses in hydrology, water pollution control, economics, social acceptance, soil dynamics and geotechnical engineering. It provides presentations, workshops, and symposiums under the leadership of Dr. Martin Wanielista, Ph.D. in Environmental Engineering, Cornell University, 1971. Dr. Wanielista has over 200 publications in the stormwater management and pollution control areas.

Objectives: To document the pollution removal effectiveness of stormwater management facilities;
To document the pollution removal effectiveness of septic tank drain fields;
To document the construction and maintenance cost of control;
To observe potential adverse effects and consequences of the projects; and
To make observations regarding this process and engender additional ideas.

Methodology: This project will implement an innovative demonstration for the use of waste tires and will be monitored and evaluated by the Stormwater Management Academy at UCF. Processed waste tires will be used as the media for removal of pollutants at: 1) Howell Branch and/or Red Bug Lake Road wet detention pond; 2) Markham Woods Road and/or Montgomery Road exfiltration trenches; 3) septic drain field at Wilson's Landing near Wekiva; and/or 4) pervious pavement near Markham Woods Road. All properties belong to Seminole County. Seminole County's Public Works employees will provide the labor under the direction of the Stormwater Management Academy. Processed tire crumb and chips will be placed beneath the pervious pavements, under the irrigation fields and septic drain fields, and in stormwater filtration systems for evaluation. UCF students in Engineering and Computer Science will participate in the research. UCF Stormwater Management Academy will license any and all of the resulting applications to State Agencies free of charge for use by State and County governments. Other private companies will be encouraged through a license agreement to use the TIRE BLACK & GOLD® for pollution control; Seminole County could require the process in its design criteria. Both partners will disseminate the information (*see Criteria 4*).

Partnership: The collaborating partners in this project are Seminole County Government and the UCF Stormwater Management Academy (College of Engineering).

Principal Investigators: Ed Torres, Principal Engineer and Manager, Capital Projects, Seminole County; David Gregory, Manager Solid Waste Division, Seminole County; and Dr. Martin Wanielista, Director of the Stormwater Management Academy, UCF.

Criteria 1: TECHNOLOGIES

Sub-criteria 1 – Not in common use in Florida

Processed waste tires for pollution control are not among the current uses by the waste tire processing facilities cited in the "Waste Tires in Florida, State of the State, March 24, 2004" Report.* Of the facilities cited, thirteen of these are fixed site facilities and 6 are mobile. *Seminole County and UCF staff enhanced by Dr. Wanielista conducted an informal telephone survey* of the uses for waste tires by specific companies in October 2004. Partial results of the telephone surveys were as follows:

USE OF WASTE TIRE	NAME OF FACILITY
Chip tires using grinders to make landscaping mulch	1. American Rubber Technologies 2. Cemex ("Green Man Technology")
Cut into 8 pieces and send to landfill Send to landfill Grind at the landfill & leave them there	1. B & S Tires 2. Jimmie Crowder 3. Belcorp Inc.
Tire derived fuel (TDF) –incinerate- for cement kiln supplement/ to generate electricity	1. Cemex ("Green Man Technology") 2. Cumbaa Enterprises 3. B & D Recycling 4. Florida Crushed Stone 5. Modern Recycling Inc. of Florida 6. Ridge Generating LP (Power Plant)
Crum rubber for various by-products: horse arenas, pro ball fields, welcome mats	1. Cemex ("Green Man Technology") 2. Florida Tire Recycling 3. Global Tire Recycling
Export out of country for re-use	Paul's Tires
Send to landfill in Alabama	Opal Blum Tire Disposal

Dr. Wanielista visited Global Tire Recycling and Affordable Tire Recycling to collect samples of crumb and chips and to review the status of waste tire recycling processes.

* *http://www.dep.state.fl.us/waste/quick_topics/publications/shw/tires/SOSfinal2004.pdf*

Sub-criteria 2 – Novel application of an existing technology or process.

Pollution control using a waste tire media is not currently used, except for a Wisconsin golf course location where it is buried under the fairways for pollution control (http://www.news.wisc.edu/). Virginia (DEQ, standard 160) and South Carolina have specifications for the use of 2 inch nominal diameter chips in septic tanks, but not for pollution control. Leaching studies of tire chips have been completed and reported by D.N. Humphrey and L.E. Katz. They report no violation of primary drinking water standards from the leaching of metals. The Civil Engineering projects include various drainage systems: landfill, septic drain fields, and golf course drainage. Civil Engineering is the category for these pollution control applications. Documenting the pollution control properties at various drainage systems in Seminole County will expand the market place and would be a novel application.

Sub-criteria 3 – Overcoming obstacles to recycling/waste reduction in innovative ways

Seminole County's recycling/waste reduction of **400.83 tons of waste tires** last year was overwhelming! The obstacles include: 1) to find a **cost effective alternative** that can be used to reduce pollution from septic tanks and stormwater drainage. Waste tires would then become valued for stormwater and septic tank pollution control; 2) to find an **environmental use** that would encourage additional waste tire processing; 3) to find a **widespread use** that would provide application for a variety of uses on public and private lands.

Criteria 2: TARGETS

(1 page)

(10 Points) Demonstrate innovative processes to collect and recycle or reduce these targeted materials/sectors: Construction and Demolition Materials, Commercial/Institutional Sectors, Waste Tires. Note: if the proposed project also includes materials/sectors other than those targeted by this criteria, the project will receive less than the maximum 10 points allocated for the criteria.

The targeted materials/sectors for this project are WASTE TIRES requiring final disposal, per HB 851 modified Section 403.709(5), F.S. Furthermore, source reduction (reuse) of WASTE TIRES is the sole target of the proposed project.

A. Innovative process to collect and recycle

A review of the literature reveals the current use of waste tires in landscaping applications to be primarily in the following types of applications:

- *Soil amendments* for golf courses, football fields, baseball fields, soccer fields and public parks,
- *ground cover* for recreational use trails and play turf,
- *rubberized paths and running trails* in parks, playgrounds, equestrian arenas and open space,
- *backfill* behind retaining walls,
- erosion control *embankments*,
- drain field aggregate, and
- *terracing*.

Seminole County's Public Works and Dr. Martin Wanielista propose a crumb size based on a 20 mesh screen and a 3/8 inch chip size for initial use. Other sizes may be used, if the 20 mesh and 3/8 sizes are not effective in pollution control. Both of these sizes have limited steel and thus the release of iron and zinc are low and most likely will not add to the effluent waters. The major advantage is in the removal of nitrate from the waste stream and additional filtration of particulate materials. Upon completion of this project, evidence would exist that the use of chips and crumb ***in Florida*** septic drain fields and stormwater facilities would be beneficial. This method has the potential for widespread applicability.

B. Solution to solving solid waste problems resulting from waste tires

Using waste tires at stormwater facilities and septic tank drain fields would help solve the problem of meeting Total Maximum Daily Load (TMDL) standards and increasing the market potential for waste tires. If waste tires were viewed as an inexpensive means to provide private and public facility benefits such as pollution control, while reducing the costs for pollution control, then construction and pollution control businesses would seek out waste tires as a material to use in pollution control facilities. In addition, under grass applications, i.e., ball fields and golf courses may be possible after the pollution control attributes are identified.

C. Activities to promote market development of waste tire products

The Stormwater Management Academy program called **H2O4U** is an educational and marketing program to inform the public of possible ways to save water using innovative products. A **H2O4U** seal of approval is attached to products. Products related to Stormwater Management are given priority, and the latest environmental research is taken public! We will develop literature for crumb and chip tires that will be used for marketing and general distribution. We have tentatively labeled this pollution control material as **TIRE BLACK & GOLD®**. For additional information on the Academy and the **H2O4U** program, visit the web site, www.stormwater.ucf.edu. Additionally, through SGTV, Seminole County's television station, and the Seminole County's web site, information will be disseminated to large numbers of viewers.

Criteria 3: BENEFITS

(1 page)

(35 points) Demonstrate the potential economic, environmental, and cost-effectiveness of the program's approach. Note: applicant may adjust space used to address each sub-criteria.

Sub-criteria 1 - Environmental Benefits (15 points)

- Methodology

Our demonstration project, which will evaluate and use the pollution control potential of crumb and chips as a septic drain field material and stormwater pollution control material, will prove to be *environmental feasible*. Further, this project will evaluate the resultant pollution control benefits. There is reason to believe that the process will be successful based on: 1) a demonstration in Wisconsin, 2) the preliminary literature review, and 3) stormwater research at the University of Central Florida. The project will perform a viability study and benefits assessment for this specific use of processed waste tires. The methodology starts with laboratory documentation using septic tank and stormwater effluent waters. Full scale applications will be done in Seminole County on existing public lands that consist of stormwater control facilities, including pervious pavements, wet detention ponds, septic drain fields and exfiltration trenches. The processed tire crumb and chips will be placed beneath the pervious pavements, under the irrigation fields and septic drain fields, and in stormwater filtration systems for evaluation.

- Toxicity

When waste tires are processed into crumb and 3/8 inch chips, potential leaching of steel related materials are *reduced* because steel residuals are minimized. Also, this usage of waste-tires will reduce exposure to the release of emissions produced by incineration of tires. The use of crumb and chips under sod ***will not release hazardous or toxic materials***, as measured by primary and secondary drinking water standards. Tire components include rubber compounds, steel cords and monofilament steel cords, fabric of polyester, and nylon or rayon cords. Chemicals used in tires include antioxidants, accelerators, activators, pitman arm, sulfur and synthetic rubber. All of these components however small will be examined for their toxicity. If found, control measures will be sought to either remove the substances or reduce their toxicity. Using the chip and crumb does reduce the toxicity of some metal pollutants relative to the larger ship sizes.

Sub-criteria 2 – Economic Benefits/Cost Effectiveness (10 Points)

"*The Florida Department of Environmental Protection (DEP) is interested in defining and initiating additional measures to enhance product markets in Florida.*" Our proposed project will provide documentation of the benefits and/or obstacles to using crumb waste tires such as in stormwater facilities, and septic tank drain fields. We believe it will prove to be cost-effective (sub-criteria 3). Then products can be developed and marketed with a Stormwater Management Academy **H2O4U** seal of approval. Currently, there are limited numbers of processes for the control of nitrate in waste waters and none that are considered to be cost effective. However, the stormwater and septic drain field alternatives for nitrate control will be documented and their life cycle cost comparisons to **tire black and gold®** will be completed.

Sub-criteria 3 – Cost Effectiveness (10 Points) Includes, but not limited to cost reduction, payback period, sustainability, and cost-effectiveness.

Comparative analysis will provide knowledge of economic feasibility (cost effectiveness). When economic feasibility is proven, the demonstration will then provide a basis for the identification of markets. Potential markets would include private and public development with septic tanks, stormwater facilities, golf courses, county parks and recreation areas to name a few.

1. The cost involved would include the purchase of the crumb and chip ($80-240/ton depending on type and size), installation and maintenance and for life cycle analyses.
2. Savings in reduced need to build alternative pollution control systems.

Criteria 4: TRANSFERABILITY

(1 page)

(10 Points) Demonstrate transferability of technology and processes and specify how the project will promote transferability. Note: applicant may adjust space used to address each sub-criteria.

Sub-criteria 1 – Transferability of technology and processes (5 points)

Universities, city and county governments and residential construction developers will be able to compare their geographic area's unique characteristics in weather, rainfall, construction projects, construction growth, recreational services growth, etc. to the results of this demonstration project and economic cost-effectiveness. As the demonstrations encompass at least three unique types of systems, widespread applicability would be inherent in the project results. At the very least, the project would be transferable throughout Florida. At the most, the project would be transferable throughout the United States and other parts of the world. International applications are not excluded. The demonstration sites will also be open to tours and lectures, making hands on operational demonstrations valuable "selling" points.

Seminole County has already identified demonstration site locations as: 1) Howell Branch Wet Detention Pond, 2) Red Bug Lake Road Wet Detention Pond, 3) Markham Woods Road Exfiltration Trenches, 4) Montgomery Road Exfiltration Trenches, 5) Winward Community Park, 6) Wilson's Landing (septic) near Wekiva, and 7) Markham Woods Road Pervious Pavement. Others may also be identified to add more visibility.

The project will promote transferability of the process in the following ways:

- Seminole County can include the process in its design criteria;
- Seminole County employees will mentor other public and private organizations; and
- The University of Central Florida Stormwater Management Academy will promote the project through its established series of presentations, workshops, symposiums, technical classroom presentations, life long learning courses, and published research.

Sub-criteria 2 – How project will promote transferability (5 points)

The project will promote transferability in the following ways:

- UCF Stormwater Management Academy will license any and all of the resulting applications to State Agencies free of charge for use by State and County governments. Other private companies will be encouraged through a license agreement to use the **TIRE BLACK & GOLD®** for pollution control;
- Seminole County has its own television station--SGTV. The County will promote the project on SGTV. Further, Seminole County will provide internet access of information on its web site.

Criteria 5: LOCAL SUPPORT

(1 page)

(10 Points) Demonstrate local support for the proposed project in commitment of cash or in-kind matching funds.

- **00 points** **0% up to and including 1% of total project cost**
- **01 points** **Greater than 1% up to and including 10% of total project cost**
- **02 points** **Greater than 10% up to and including 20% of total project cost**
- **03 points** **Greater than 20% up to and including 30% of total project cost**
- **04 points** **Greater than 30% up to and including 40% of total project cost**
- **05 points** **Greater than 40% up to and including 50% of total project cost**
- **06 points** **Greater than 50% up to and including 60% of total project cost**
- **07 points** **Greater than 60% up to and including 70% of total project cost**
- **08 points** **Greater than 70% up to and including 80% of total project cost**
- **09 points** **Greater than 80% up to and including 90% of total project cost**
- **10 points** **Greater than 90% up to and including 100% of total project cost**

Our total project cost is $511,381 with a local in-kind match of $311,381- a commitment of 61%. The following is a break out of the inkind match:

1) Personnel for mobilization and work assignments (UCF) - $212.59
2) Personnel for review of the literature (UCF)- $730.77
3) Construction, supplies, and personnel for laboratory verification (UCF) -$6,452.03
4) University personnel for field test site construction (UCF) -$17,246.15
5) Demonstration sites/Management costs (Seminole County) - $256,281.82
6) Personnel for cost effectiveness comparisons (UCF/Seminole County) -$4,384.62
7) Progress Reporting and Final Report (UCF/Seminole County) -$2,072.99
8) Dissemination of project results (UCF/Seminole County) - $24,000.

BUDGET

(1 page using Budget Table Template)

Describe the project's budget allocated by task and budget categories per the Budget Table Template available from DEP's Innovative Grants web site in Microsoft Excel digital format (www.dep.state.fl.us/waste/categories/recycling/pages/InnovativeGrants2005-06.htm).

TASKS	DESCRIPTION
1) MOBILIZATION AND WORK ASSIGNMENTS	Costs associated with UCF Academy professional personnel to implement the project at $800; this reflects $213 in inkind cost, $28 - indirect cost, and a request of $587 to accomplish this task.
2) LITERATURE REVIEW	The review of literature will be continuous throughout the project and be performed by UCF Academy professional staff and students at a projected cost of $2,400 of grant request and $731 inkind; supplies are estimated to cost $350 which relate to technology supplies. The indirect cost is $96.00, and the total cost for review of literature is $2,750.
3) LABORATORY VERIFICATION FOR REMOVALS AND LIFE CYCLE REPLACEMENT	The costs associated with this task ($24,280) include UCF Academy personnel and graduate students' time in laboratory confirmation of results; the cost of laboratory supplies is $3,480. Additionally there are construction costs to the laboratory setup reflecting $1,800; indirect cost - $849.00.
4) UNIVERSITY CAMPUS FIELD TEST SITE CONSTRUCTION OF STORMWATER FACILITY DEMONSTRATIONS	These costs include $39,000 of professional Academy staff and also construction crews to create demonstration field test sites, $19,500 in actual construction materials needed to create field test sites, and $6,400 for needed supplies; indirect costs are $2,269.
5) SEMINOLE COUNTY DEMONSTRATION SITES AND MANAGEMENT COSTS	Construction costs include the purchase of the crumb and chip waste tire at $80-240/ton, installation and maintenance and for life cycle analyses for a total of $236,000. The personnel management costs and labor required for the demonstration sites will be included in the in-kind match from Seminole County at $120,000 and supplies at $13,500. Further, travel costs between Public Works physical location and the demonstration sites and several trips to neighboring UCF campus are foreseen at an estimated cost of $850. Our indirect cost of 5% or $4,432 is included in this budget category.
6) COST EFFECTIVENESS COMPARISONS TO INCLUDE AN ECONOMIC LIFE CYCLE CALCULATION	Costs occurring in this task are related to the intellectual applications of the demonstration project that involve the professional personnel at UCF Stormwater Academy at a direct cost of $11,538.46, an inkind match at $4,384.62, and a 5% indirect cost of $576.92. The sum of this task totals $16,500.
7) PROGRESS REPORTS	Periodic reports on the progress of the demonstration project will be the responsibility of the Academy involving professional personnel estimated at $1,800 and $501.00 of supplies associated with technology to accomplish the reporting which will be provided inkind. The indirect cost is calculated to be $80.45.

8) FINAL REPORT	The final report is both the compilation of the final results of the demonstration project prepared by the professional personnel at UCF's Academy, but it is also the required final report including budgetary reporting of the management of the grant to be completed by the staff of Seminole County Government's Departments of Public Works and Fiscal Services. The cost estimates include: $4,500.00 personnel (15 hours x $40/per hour salary/benefits) of which $1,462 will be inkind; $500 travel to cover transportation reimbursement between UCF and Seminole County; and $500 for printing and publishing the final document
9) DISSEMINATION OF INFORMATION VIA THE SEMINOLE COUNTY TV STATION WITH MULTIPLE PUBLIC SERVICE ANNOUNCEMENTS	Dissemination costs will be an inkind cost and shared between Seminole County and the UCF Stormwater academy. Seminole County owns and operates its own television station, which will be used to report our progress and certainly the final results. Special programming will be scheduled to insure Central Florida communities are informed of the innovative use of waste tires. Further, as mentioned in the narrative the Academy provides presentations, workshops, and symposiums of which all will be used to further disseminate the information to a targeted audience. Both entities will use their websites to provide information to the public. The cost of dissemination is estimated to be valued at $24,000.

Attachment B

Florida Department of Environmental Protection
FY 2005-06 INNOVATIVE GRANT APPLICATION FORM

Project Information

1) **Applicant Name:**	**Seminole County with University of Central Florida**
2) **Primary contact person:**	**Ed Torres, Public Works**
3) **Complete Address:**	**Seminole County** **Department of Fiscal Services** **1101 East First St., Sanford, FL 32771-1468**
4) **Telephone Number(s)**	**(407) 665-7125**
(including SunCom number):	**335-5767**
5) **E-mail address:**	**etorres@co.seminole.fl.us**
6) **Project Title:**	**Feasibility Study of Waste Tire Use in Pollution Control for Stormwater Management and Water Conservation in Florida**
7) **Grant Request Amount:**	**$200,000**
8) **Length of project (months):**	**12 months**

_____

Authorizing Signature

_____

Title

PROJECT ABSTRACT

(No more than 20 lines. Every word over 20 lines will result in a one point deduction by grant application reviewers.)

Objective: Seminole County and its partner, the Stormwater Management Academy (Academy) at the University of Central Florida (UCF), will benchmark an innovative use for waste tires in stormwater and septic tank pollution control. The springboard for our proposal is based on documented use of processed waste tires in pollution control in a demonstration of nitrogen removal for a golf course (University of Wisconsin). The purpose of our proposal is to perform a viability study and benefits assessment for the specific use of processed waste tires in stormwater treatment facilities, septic tank drain fields, etc. We expect a new market for processed waste tires.

Methodology: This particular method of recycling chipped/crumb tires for the runoff from stormwater and from the septic tank drainage will be documented in at least the following: wet detention ponds, exfiltation trenches, and septic drain fields. The UCF Stormwater Management Academy will oversee the research using the processed waste tires as the media collection device. Factors such as the removal efficiencies, life expectancies, cost, and other pertinent factors will be documented. Laboratory and pilot studies to document efficiencies and leaching of metals from the processed tires will be completed first. We will study past research and verification of research from Maine, Texas, Virginia, Wisconsin, and South Carolina .

Benefits: Findings from this project will provide guidance on the applicability of waste tries for use in pollution control in Florida. Environmental benefits would include water pollution control and water conservation. The control methods for stormwater and septic tanks will help reduce the cost of Total Maximum Daily Load (TMDL) control. Economic development projects will be forthcoming because we expect new markets for waste tires. Both partners will provide technology transfer and dissemination of the outcomes.

PROJECT DESCRIPTION

(1 page)

Project Goals: Our project goals are to: 1) recycle and reduce the volume of municipal solid waste (MSW) - specifically, **waste tires** requiring final disposal by conducting and evaluating demonstration projects to determine the applicability of an *innovative* use for a stormwater management facility and septic tank drain fields, 2) discover advantages using processed chips and crumb waste tires in public stormwater facilities and septic drain fields, 3) explore an application with the potential to encourage and accelerate additional market development for waste tire products to further utilize this resource and to promote the market development of products, resulting in a widespread applicability for both private and public uses.

Research Facilitator: The Stormwater Management Academy at the University of Central Florida, College of Engineering and Computer Science, will manage the research for our project. The purpose of the Stormwater Academy is to conduct research and fund partnerships for research. It is highly qualified to plan, conduct, and evaluate such demonstration projects. The Academy operates under a Board of Directors comprised of representatives from the Florida DOT, Florida Stormwater Association, Florida DEP, Florida Water Management Districts, and consulting firms. The Academy participates with the UCF Academic Departments in the offering of both undergraduate and graduate courses in hydrology, water pollution control, economics, social acceptance, soil dynamics and geotechnical engineering. It provides presentations, workshops, and symposiums under the leadership of Dr. Martin Wanielista, Ph.D. in Environmental Engineering, Cornell University, 1971. Dr. Wanielista has over 200 publications in the stormwater management and pollution control areas.

Objectives: To document the pollution removal effectiveness of stormwater management facilities;
To document the pollution removal effectiveness of septic tank drain fields;
To document the construction and maintenance cost of control;
To observe potential adverse effects and consequences of the projects; and
To make observations regarding this process and engender additional ideas.

Methodology: This project will implement an innovative demonstration for the use of waste tires and will be monitored and evaluated by the Stormwater Management Academy at UCF. Processed waste tires will be used as the media for removal of pollutants at: 1) Howell Branch and/or Red Bug Lake Road wet detention pond; 2) Markham Woods Road and/or Montgomery Road exfiltration trenches; 3) septic drain field at Wilson's Landing near Wekiva; and/or 4) pervious pavement near Markham Woods Road. All properties belong to Seminole County. Seminole County's Public Works employees will provide the labor under the direction of the Stormwater Management Academy. Processed tire crumb and chips will be placed beneath the pervious pavements, under the irrigation fields and septic drain fields, and in stormwater filtration systems for evaluation. UCF students in Engineering and Computer Science will participate in the research. UCF Stormwater Management Academy will license any and all of the resulting applications to State Agencies free of charge for use by State and County governments. Other private companies will be encouraged through a license agreement to use the TIRE BLACK & GOLD® for pollution control; Seminole County could require the process in its design criteria. Both partners will disseminate the information (*see Criteria 4*).

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Principal Investigators: Ed Torres, Principal Engineer and Manager, Capital Projects, Seminole County; David Gregory, Manager Solid Waste Division, Seminole County; and Dr. Martin Wanielista, Director of the Stormwater Management Academy, UCF.

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Our demonstration project, which will evaluate and use the pollution control potential of crumb and chips as a septic drain field material and stormwater pollution control material, will prove to be *environmental feasible*. Further, this project will evaluate the resultant pollution control benefits. There is reason to believe that the process will be successful based on: 1) a demonstration in Wisconsin, 2) the preliminary literature review, and 3) stormwater research at the University of Central Florida. The project will perform a viability study and benefits assessment for this specific use of processed waste tires. The methodology starts with laboratory documentation using septic tank and stormwater effluent waters. Full scale applications will be done in Seminole County on existing public lands that consist of stormwater control facilities, including pervious pavements, wet detention ponds, septic drain fields and exfiltration trenches. The processed tire crumb and chips will be placed beneath the pervious pavements, under the irrigation fields and septic drain fields, and in stormwater filtration systems for evaluation.

- Toxicity

When waste tires are processed into crumb and 3/8 inch chips, potential leaching of steel related materials are *reduced* because steel residuals are minimized. Also, this usage of waste-tires will reduce exposure to the release of emissions produced by incineration of tires. The use of crumb and chips under sod ***will not release hazardous or toxic materials***, as measured by primary and secondary drinking water standards. Tire components include rubber compounds, steel cords and monofilament steel cords, fabric of polyester, and nylon or rayon cords. Chemicals used in tires include antioxidants, accelerators, activators, pitman arm, sulfur and synthetic rubber. All of these components however small will be examined for their toxicity. If found, control measures will be sought to either remove the substances or reduce their toxicity. Using the chip and crumb does reduce the toxicity of some metal pollutants relative to the larger ship sizes.

Sub-criteria 2 – Economic Benefits/Cost Effectiveness (10 Points)

"*The Florida Department of Environmental Protection (DEP) is interested in defining and initiating additional measures to enhance product markets in Florida.*" Our proposed project will provide documentation of the benefits and/or obstacles to using crumb waste tires such as in stormwater facilities, and septic tank drain fields. We believe it will prove to be cost-effective (sub-criteria 3). Then products can be developed and marketed with a Stormwater Management Academy **H2O4U** seal of approval. Currently, there are limited numbers of processes for the control of nitrate in waste waters and none that are considered to be cost effective. However, the stormwater and septic drain field alternatives for nitrate control will be documented and their life cycle cost comparisons to **tire black and gold®** will be completed.

Sub-criteria 3 – Cost Effectiveness (10 Points) Includes, but not limited to cost reduction, payback period, sustainability, and cost-effectiveness.

Comparative analysis will provide knowledge of economic feasibility (cost effectiveness). When economic feasibility is proven, the demonstration will then provide a basis for the identification of markets. Potential markets would include private and public development with septic tanks, stormwater facilities, golf courses, county parks and recreation areas to name a few.

1. The cost involved would include the purchase of the crumb and chip ($80-240/ton depending on type and size), installation and maintenance and for life cycle analyses.
2. Savings in reduced need to build alternative pollution control systems.

Criteria 4: TRANSFERABILITY

(1 page)

(10 Points) Demonstrate transferability of technology and processes and specify how the project will promote transferability. Note: applicant may adjust space used to address each sub-criteria.

Sub-criteria 1 – Transferability of technology and processes (5 points)

Universities, city and county governments and residential construction developers will be able to compare their geographic area's unique characteristics in weather, rainfall, construction projects, construction growth, recreational services growth, etc. to the results of this demonstration project and economic cost-effectiveness. As the demonstrations encompass at least three unique types of systems, widespread applicability would be inherent in the project results. At the very least, the project would be transferable throughout Florida. At the most, the project would be transferable throughout the United States and other parts of the world. International applications are not excluded. The demonstration sites will also be open to tours and lectures, making hands on operational demonstrations valuable "selling" points.

Seminole County has already identified demonstration site locations as: 1) Howell Branch Wet Detention Pond, 2) Red Bug Lake Road Wet Detention Pond, 3) Markham Woods Road Exfiltration Trenches, 4) Montgomery Road Exfiltration Trenches, 5) Winward Community Park, 6) Wilson's Landing (septic) near Wekiva, and 7) Markham Woods Road Pervious Pavement. Others may also be identified to add more visibility.

The project will promote transferability of the process in the following ways:

- Seminole County can include the process in its design criteria;
- Seminole County employees will mentor other public and private organizations; and
- The University of Central Florida Stormwater Management Academy will promote the project through its established series of presentations, workshops, symposiums, technical classroom presentations, life long learning courses, and published research.

Sub-criteria 2 – How project will promote transferability (5 points)

The project will promote transferability in the following ways:

- UCF Stormwater Management Academy will license any and all of the resulting applications to State Agencies free of charge for use by State and County governments. Other private companies will be encouraged through a license agreement to use the **TIRE BLACK & GOLD®** for pollution control;
- Seminole County has its own television station--SGTV. The County will promote the project on SGTV. Further, Seminole County will provide internet access of information on its web site.

Criteria 5: LOCAL SUPPORT

(1 page)

(10 Points) Demonstrate local support for the proposed project in commitment of cash or in-kind matching funds.

- **00 points** **0% up to and including 1% of total project cost**
- **01 points** **Greater than 1% up to and including 10% of total project cost**
- **02 points** **Greater than 10% up to and including 20% of total project cost**
- **03 points** **Greater than 20% up to and including 30% of total project cost**
- **04 points** **Greater than 30% up to and including 40% of total project cost**
- **05 points** **Greater than 40% up to and including 50% of total project cost**
- **06 points** **Greater than 50% up to and including 60% of total project cost**
- **07 points** **Greater than 60% up to and including 70% of total project cost**
- **08 points** **Greater than 70% up to and including 80% of total project cost**
- **09 points** **Greater than 80% up to and including 90% of total project cost**
- **10 points** **Greater than 90% up to and including 100% of total project cost**

Our total project cost is $511,381 with a local in-kind match of $311,381- a commitment of 61%. The following is a break out of the inkind match:

1) Personnel for mobilization and work assignments (UCF) - $212.59
2) Personnel for review of the literature (UCF)- $730.77
3) Construction, supplies, and personnel for laboratory verification (UCF) -$6,452.03
4) University personnel for field test site construction (UCF) -$17,246.15
5) Demonstration sites/Management costs (Seminole County) - $256,281.82
6) Personnel for cost effectiveness comparisons (UCF/Seminole County) -$4,384.62
7) Progress Reporting and Final Report (UCF/Seminole County) -$2,072.99
8) Dissemination of project results (UCF/Seminole County) - $24,000.

BUDGET

(1 page using Budget Table Template)

Describe the project's budget allocated by task and budget categories per the Budget Table Template available from DEP's Innovative Grants web site in Microsoft Excel digital format (www.dep.state.fl.us/waste/categories/recycling/pages/InnovativeGrants2005-06.htm).

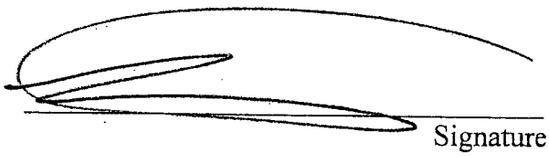
TASKS	DESCRIPTION
1) MOBILIZATION AND WORK ASSIGNMENTS	Costs associated with UCF Academy professional personnel to implement the project at $800; this reflects $213 in inkind cost, $28 - indirect cost, and a request of $587 to accomplish this task.
2) LITERATURE REVIEW	The review of literature will be continuous throughout the project and be performed by UCF Academy professional staff and students at a projected cost of $2,400 of grant request and $731 inkind; supplies are estimated to cost $350 which relate to technology supplies. The indirect cost is $96.00, and the total cost for review of literature is $2,750.
3) LABORATORY VERIFICATION FOR REMOVALS AND LIFE CYCLE REPLACEMENT	The costs associated with this task ($24,280) include UCF Academy personnel and graduate students' time in laboratory confirmation of results; the cost of laboratory supplies is $3,480. Additionally there are construction costs to the laboratory setup reflecting $1,800; indirect cost - $849.00.
4) UNIVERSITY CAMPUS FIELD TEST SITE CONSTRUCTION OF STORMWATER FACILITY DEMONSTRATIONS	These costs include $39,000 of professional Academy staff and also construction crews to create demonstration field test sites, $19,500 in actual construction materials needed to create field test sites, and $6,400 for needed supplies; indirect costs are $2,269.
5) SEMINOLE COUNTY DEMONSTRATION SITES AND MANAGEMENT COSTS	Construction costs include the purchase of the crumb and chip waste tire at $80-240/ton, installation and maintenance and for life cycle analyses for a total of $236,000. The personnel management costs and labor required for the demonstration sites will be included in the in-kind match from Seminole County at $120,000 and supplies at $13,500. Further, travel costs between Public Works physical location and the demonstration sites and several trips to neighboring UCF campus are foreseen at an estimated cost of $850. Our indirect cost of 5% or $4,432 is included in this budget category.
6) COST EFFECTIVENESS COMPARISONS TO INCLUDE AN ECONOMIC LIFE CYCLE CALCULATION	Costs occurring in this task are related to the intellectual applications of the demonstration project that involve the professional personnel at UCF Stormwater Academy at a direct cost of $11,538.46, an inkind match at $4,384.62, and a 5% indirect cost of $576.92. The sum of this task totals $16,500.
7) PROGRESS REPORTS	Periodic reports on the progress of the demonstration project will be the responsibility of the Academy involving professional personnel estimated at $1,800 and $501.00 of supplies associated with technology to accomplish the reporting which will be provided inkind. The indirect cost is calculated to be $80.45.

8) FINAL REPORT	The final report is both the compilation of the final results of the demonstration project prepared by the professional personnel at UCF's Academy, but it is also the required final report including budgetary reporting of the management of the grant to be completed by the staff of Seminole County Government's Departments of Public Works and Fiscal Services. The cost estimates include: $4,500.00 personnel (15 hours x $40/per hour salary/benefits) of which $1,462 will be inkind; $500 travel to cover transportation reimbursement between UCF and Seminole County; and $500 for printing and publishing the final document
9) DISSEMINATION OF INFORMATION VIA THE SEMINOLE COUNTY TV STATION WITH MULTIPLE PUBLIC SERVICE ANNOUNCEMENTS	Dissemination costs will be an inkind cost and shared between Seminole County and the UCF Stormwater academy. Seminole County owns and operates its own television station, which will be used to report our progress and certainly the final results. Special programming will be scheduled to insure Central Florida communities are informed of the innovative use of waste tires. Further, as mentioned in the narrative the Academy provides presentations, workshops, and symposiums of which all will be used to further disseminate the information to a targeted audience. Both entities will use their websites to provide information to the public. The cost of dissemination is estimated to be valued at $24,000.

ATTACHMENT C

CERTIFICATION BY ENGINEER OROTHER QUALIFIED PROFESSIONAL

I, the undersigned authorized representative of Seminole County, certify that I have reviewed the Innovative Recycling Grant proposal, including the detailed scope of services for this project, and evaluated those impacts on the environment and public health which might reasonably be expected to result from the implementation of this project. In my professional judgment, this project, if implemented in accordance with the detailed scope of services, will comply with all applicable rules of the Department and will not create a significant threat to public health or the environment. I also agree to provide the Project Manager with a set of instructions for proper implementation of the project if needed as part of this Certification.



Signature

Eduardo J. Torres

Name and Title (please type or print)

177 Bush Loop

Mailing Address

Sanford, FL 32773

City, State, Zip Code

(407) 665-5941

Telephone Number

9/31/05

Date

ATTACHMENT E

SPECIAL AUDIT REQUIREMENTS

The administration of resources awarded by the Department of Environmental Protection *(which may be referred to as the "Department", "DEP", "FDEP" or "Grantor", or other name in the contract/agreement)* to the recipient *(which may be referred to as the "Contractor", Grantee" or other name in the contract/agreement)* may be subject to audits and/or monitoring by the Department of Environmental Protection, as described in this attachment.

MONITORING

In addition to reviews of audits conducted in accordance with OMB Circular A-133 and Section 215.97, F.S., as revised (see "AUDITS" below), monitoring procedures may include, but not be limited to, on-site visits by Department staff, limited scope audits as defined by OMB Circular A-133, as revised, and/or other procedures. By entering into this Agreement, the recipient agrees to comply and cooperate with any monitoring procedures/processes deemed appropriate by the Department of Environmental Protection. In the event the Department of Environmental Protection determines that a limited scope audit of the recipient is appropriate, the recipient agrees to comply with any additional instructions provided by the Department to the recipient regarding such audit. The recipient further agrees to comply and cooperate with any inspections, reviews, investigations, or audits deemed necessary by the Chief Financial Officer or Auditor General.

AUDITS

PART I: FEDERALLY FUNDED

This part is applicable if the recipient is a State or local government or a non-profit organization as defined in OMB Circular A-133, as revised.

1. In the event that the recipient expends $500,000 or more in Federal awards in its fiscal year, the recipient must have a single or program-specific audit conducted in accordance with the provisions of OMB Circular A-133, as revised. EXHIBIT 1 to this Agreement indicates Federal funds awarded through the Department of Environmental Protection by this Agreement. In determining the Federal awards expended in its fiscal year, the recipient shall consider all sources of Federal awards, including Federal resources received from the Department of Environmental Protection. The determination of amounts of Federal awards expended should be in accordance with the guidelines established by OMB Circular A-133, as revised. An audit of the recipient conducted by the Auditor General in accordance with the provisions of OMB Circular A-133, as revised, will meet the requirements of this part.

2. In connection with the audit requirements addressed in Part I, paragraph 1., the recipient shall fulfill the requirements relative to auditee responsibilities as provided in Subpart C of OMB Circular A-133, as revised.

3. If the recipient expends less than $500,000 in Federal awards in its fiscal year, an audit conducted in accordance with the provisions of OMB Circular A-133, as revised, is not required. In the event that the recipient expends less than $500,000 in Federal awards in its fiscal year and elects to have an audit conducted in accordance with the provisions of OMB Circular A-133, as revised, the cost of the audit must be paid from non-Federal resources (i.e., the cost of such an audit must be paid from recipient resources obtained from other than Federal entities).

4. The recipient may access information regarding the Catalog of Federal Domestic Assistance (CFDA) via the internet at **http://12.46.245.173/cfda/cfda.html**.

PART II: STATE FUNDED

This part is applicable if the recipient is a nonstate entity as defined by Section 215.97(2)(l), Florida Statutes.

1. In the event that the recipient expends a total amount of State financial assistance equal to or in excess of $500,000 in any fiscal year of such recipient, the recipient must have a State single or project-specific audit for such fiscal year in accordance with Section 215.97, Florida Statutes; applicable rules of the Executive Office of the Governor and the Chief Financial Officer; and Chapters 10.550 (local governmental entities) or 10.650 (nonprofit and for-profit organizations), Rules of the Auditor General. EXHIBIT 1 to this Agreement indicates State financial assistance awarded through the Department of Environmental Protection by this Agreement. In determining the State financial assistance expended in its fiscal year, the recipient shall consider all sources of State financial assistance, including State financial assistance received from the Department of Environmental Protection, other state agencies, and other nonstate entities. State financial assistance does not include Federal direct or pass-through awards and resources received by a nonstate entity for Federal program matching requirements.

2. In connection with the audit requirements addressed in Part II, paragraph 1, the recipient shall ensure that the audit complies with the requirements of Section 215.97(7), Florida Statutes. This includes submission of a financial reporting package as defined by Section 215.97(2)(d), Florida Statutes, and Chapters 10.550 (local governmental entities) or 10.650 (nonprofit and for-profit organizations), Rules of the Auditor General.

3. If the recipient expends less than $500,000 in State financial assistance in its fiscal year, an audit conducted in accordance with the provisions of Section 215.97, Florida Statutes, is not required. In the event that the recipient expends less than $500,000 in State financial assistance in its fiscal year and elects to have an audit conducted in accordance with the provisions of Section 215.97, Florida Statutes, the cost of the audit must be paid from the non-State entity's resources (i.e., the cost of such an audit must be paid from the recipient's resources obtained from other than State entities).

4. For information regarding the Florida Catalog of State Financial Assistance (CSFA), a recipient should access the Florida Single Audit Act website located at http://state.fl.us/fsaa/catalog or the Governor's Office of Policy and Budget website located at http://www.myflorida.com/myflorida/government/contacts/opbOffice.html for assistance. In addition to the above websites, the following websites may be accessed for information: Legislature's Website http://www.leg.state.fl.us/, Governor's Website http://www.myflorida.com/, Department of Financial Services' Website http://www.dbf.state.fl.us/ and the Auditor General's Website http://www.state.fl.us/audgen.

PART III: OTHER AUDIT REQUIREMENTS

(NOTE: This part would be used to specify any additional audit requirements imposed by the State awarding entity that are solely a matter of that State awarding entity's policy (i.e., the audit is not required by Federal or State laws and is not in conflict with other Federal or State audit requirements). Pursuant to Section 215.97(7)(m), Florida Statutes, State agencies may conduct or arrange for audits of State financial assistance that are in addition to audits conducted in accordance with Section 215.97, Florida Statutes. In such an event, the State awarding agency must arrange for funding the full cost of such additional audits.)

PART IV: REPORT SUBMISSION

1. Copies of reporting packages for audits conducted in accordance with OMB Circular A-133, as revised, and required by PART I of this Attachment shall be submitted, when required by Section .320 (d), OMB Circular A-133, as revised, by or on behalf of the recipient directly to each of the following:

A. The Department of Environmental Protection at the following address:

Audit Director
Florida Department of Environmental Protection
Office of the Inspector General, MS 40
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

B. The Federal Audit Clearinghouse designated in OMB Circular A-133, as revised (the number of copies required by Sections .320 (d)(1) and (2), OMB Circular A-133, as revised, should be submitted to the Federal Audit Clearinghouse), at the following address:

Federal Audit Clearinghouse
Bureau of the Census
1201 East 10th Street
Jeffersonville, IN 47132

C. Other Federal agencies and pass-through entities in accordance with Sections .320 (e) and (f), OMB Circular A-133, as revised.

2. Pursuant to Section .320(f), OMB Circular A-133, as revised, the recipient shall submit a copy of the reporting package described in Section .320(c), OMB Circular A-133, as revised, and any management letters issued by the auditor, to the Department of Environmental Protection the following address:

Audit Director
Florida Department of Environmental Protection
Office of the Inspector General, MS 40
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

3. Copies of financial reporting packages required by PART II of this Attachment shall be submitted by or on behalf of the recipient directly to each of the following:

A. The Department of Environmental Protection at the following address:

Audit Director
Florida Department of Environmental Protection
Office of the Inspector General, MS 40
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

B. The Auditor General's Office at the following address:

State of Florida Auditor General
Room 401, Claude Pepper Building
111 West Madison Street
Tallahassee, Florida 32399-1450

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4. Copies of reports or management letters required by PART III of this Attachment shall be submitted by or on behalf of the recipient directly to the Department of Environmental Protection at the following address:

Audit Director
Florida Department of Environmental Protection
Office of the Inspector General, MS 40
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

5. Any reports, management letters, or other information required to be submitted to the Department of Environmental Protection pursuant to this Agreement shall be submitted timely in accordance with OMB Circular A-133, Florida Statutes, or Chapters 10.550 (local governmental entities) or 10.650 (nonprofit and for-profit organizations), Rules of the Auditor General, as applicable.

6. Recipients, when submitting financial reporting packages to the Department of Environmental Protection for audits done in accordance with OMB Circular A-133, or Chapters 10.550 (local governmental entities) or 10.650 (nonprofit and for-profit organizations), Rules of the Auditor General, should indicate the date that the reporting package was delivered to the recipient in correspondence accompanying the reporting package.

PART V: RECORD RETENTION

The recipient shall retain sufficient records demonstrating its compliance with the terms of this Agreement for a period of **5** years from the date the audit report is issued, and shall allow the Department of Environmental Protection, or its designee, Chief Financial Officer, or Auditor General access to such records upon request. The recipient shall ensure that audit working papers are made available to the Department of Environmental Protection, or its designee, Chief Financial Officer, or Auditor General upon request for a period of **3** years from the date the audit report is issued, unless extended in writing by the Department of Environmental Protection.

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EXHIBIT – 1

FUNDS AWARDED TO THE RECIPIENT PURSUANT TO THIS AGREEMENT CONSIST OF THE FOLLOWING:

Federal Resources Awarded to the Recipient Pursuant to this Agreement Consist of the Following:					
Federal Program Number	Federal Agency	CFDA Number	CFDA Title	Funding Amount	State Appropriation Category

State Resources Awarded to the Recipient Pursuant to this Agreement Consist of the Following Matching Resources for Federal Programs:					
Federal Program Number	Federal Agency	CFDA	CFDA Title	Funding Amount	State Appropriation Category

State Resources Awarded to the Recipient Pursuant to this Agreement Consist of the Following Resources Subject to Section 215.97, F.S.:						
State Program Number	Funding Source	State Fiscal Year	CSFA Number	CSFA Title or Funding Source Description	Funding Amount	State Appropriation Category
Original Agreement	Solid Waste Management Trust Fund – GAA Line Item 1761	2005-2006	37.050	Innovative Waste Reduction and Recycling Grants		140134

Total Award		[redacted]

For each program identified above, the recipient shall comply with the program requirements described in the Catalog of Federal Domestic Assistance (CFDA) [http://12.46.245.173/cfda/cfda.html] and/or the Florida Catalog of State Financial Assistance (CSFA) [http://state.fl.us/fsaa/catalog]. The services/purposes for which the funds are to be used are included in the Contract scope of services/work. Any match required by the recipient is clearly indicated in the Contract.

ATTACHMENT F

PROPERTY REPORTING FORM FOR DEP CONTRACT NO. IG06-03
(For Property With Grantee/Contractor Assigned Property Control Numbers)

GRANTEE/CONTRACTOR: List non-expendable equipment/personal property* costing $1,000 or more purchased under the above Contract. Also list all upgrades* under this contract, costing $1,000 or more, of property previously purchased under a DEP contract (identify the property upgraded and the applicable DEP contract on a separate sheet). Complete the serial no./cost, location/address and property control number columns of this form. The Grantee/Contractor shall establish a unique identifier for tracking all personal property/equipment purchased under this Contract and shall report the inventory of said property, on an annual basis, to the Department's Project Manager, by DEP Contract number, no later than January 31st for each year this Contract is in effect.

DESCRIPTION	SERIAL NO./COST**	LOCATION/ADDRESS	GRANTEE/CONTRACTOR ASSIGNED PROPERTY CONTROL NUMBER

*Not including software. **Attach copy of invoice, bill of sale, or other documentation to support purchase.

GRANTEE/CONTRACTOR:	Grantee's/Contractor's Project Manager:	Date:

BELOW FOR DEP USE ONLY

DEP CONTRACT MANAGER: **MAINTAIN THIS DOCUMENT WITH A COPY OF THE INVOICES SUPPORTING THE COST OF EACH ITEM IDENTIFIED ABOVE IN YOUR CONTRACT FILE. IF THE CONTRACT IS A COST REIMBURSEMENT CONTRACT, MAKE SURE TO SEND INVOICES SUPPORTING THE COST OF THE ITEMS TO FINANCE AND ACCOUNTING FOR THE PROCESSING OF THE GRANTEE'S/CONTRACTOR'S INVOICE FOR PAYMENT. REFER TO DEP DIRECTIVE 320 FOR PROPERTY GUIDELINES.**

DEP Contract Manager Signature: _____ Date: _____

DEP FINANCE AND ACCOUNTING: No processing required by Finance & Accounting as the Grantee/Contractor is responsible for retaining ownership of the equipment/property upon satisfactory completion of the Contract.
DEP PROPERTY MANAGEMENT: No processing required by the Property Management section as the Grantee/Contractor will retain ownership of the equipment/property upon satisfactory completion of the Contract.

ATTACHMENT G

Quality Assurance Requirements

1. All sampling and analyses performed under this Contract must conform to the requirements set forth in Chapter 62-160, Florida Administrative Code (F.A.C.) and "Requirements for Field and Analytical Work performed for the Department of Environmental Protection under Contract" (DEP-QA-002/02), February 2002.

2. **LABORATORIES**
   a. The CONTRACTOR shall ensure that all laboratory testing activities are performed by laboratories certified by the Florida Department of Health Environmental Laboratory Certification Program (DoH ELCP) for all applicable matrix/method/analyte combinations to be measured.
   b. If the laboratory is not certified for some or all of the proposed test measurements, the laboratory shall apply for certification within one month of Contract execution. Within six months of Contract execution, the laboratory shall be fully certified for all applicable matrix/method/analyte combinations to be performed. Regardless of when the laboratory receives certification, the laboratory must implement all applicable standards of the National Environmental Laboratory Accreditation Conference (NELAC) upon Contract execution.
   c. Laboratories shall maintain certification as specified in item 2.a above during the life of the Contract. Should certification for an analyte or test method be lost, all affected tests shall be immediately sub-contracted to a laboratory with current DoH ELCP certification in the appropriate matrix/method/analyte combination(s). The CONTRACTOR shall notify the DEP contract manager in writing before such changes are made.
   d. A copy of the DoH ELCP Certificate and the associated list of specific fields of accreditation for each contracted or sub-contracted laboratory shall be provided to the DEP contract manager upon Contract execution or upon receiving DoH certification (see items 2.a and 2.b above).
   e. The CONTRACTOR shall ensure that an acceptable initial demonstration of capability (IDOC), as described in Appendix C of Chapter 5 of NELAC Standards is performed. Each laboratory that performs any of the proposed matrix/method/analyte combination(s) must have the requisite IDOC documentation and supporting laboratory records. IDOCs shall be performed before the test procedure is used to generate data for this Contract. If requested by the Department, documentation that supports the IDOC shall be made available for review.
   f. When performance test samples are not required by DoH ELCP for certification, or certification is not required (see item 2.g below), the laboratory shall obtain, analyze and evaluate performance test samples, standard reference materials (SRM) or other externally assayed quality control (QC) samples, hereinafter known collectively as quality control check (QCC) samples.
      (i) The laboratory shall ensure that the selected QCC samples(s) represent all matrix/method/analyte combinations that are not subject to certification requirements.
      (ii) These samples shall be analyzed at six-month intervals and the results shall be within the acceptable range established by the QCC sample provider.
      (iii) Before providing analytical services for this Contract, the laboratory must provide to the DEP contract manager the results of the QCC sample(s) and the associated acceptable range(s) as established by the QCC sample provider. The submitted results must be from QCC samples that have been completed within six months prior to the submission date.
   g. For those test measurements for which the Department has determined that certification by the DoH ELCP is not necessary, all laboratory activities associated with the test measurements shall conform to the NELAC Quality Systems (Chapter 5) Standards.
   h. Any non-standard laboratory procedure or methods (i.e., those not approved by DEP for standard environmental analyses) that are proposed for use shall be submitted for review and approval in

accordance with DEP-QA-001/01, "New and Alternative Analytical Laboratory Methods," February 1, 2004. These procedures or methods shall be approved by the DEP contract manager before use under this Contract and must be cited or described in the required planning document (see Section 6).

i. The CONTRACTOR shall ensure that Practical Quantitation Limits (PQLs) and Method Detection Limits (MDLs) are established for the Contract, and are listed in the planning document (see Section 6).

j. The CONTRACTOR shall ensure that the selected laboratory test methods can provide results that meet the Contract data quality objectives.

k. The CONTRACTOR shall ensure that all laboratory testing procedures follow the analytical methods as approved in the planning document (see Section 6).

l. The CONTRACTOR shall ensure that the essential laboratory quality control measures are consistent with Chapter 5 of the NELAC standards. In addition, the CONTRACTOR shall ensure that the quality control requirements specified in the attached addenda are followed.

3. **FIELD ACTIVITIES**

a. "Sample" refers to samples that have been either collected or analyzed under the terms of this Contract.

b. The CONTRACTOR shall ensure that all sample collection and field testing activities are performed in accordance with the Department's "Standard Operating Procedures for Field Activities" (DEP-SOP-001/01, February 1, 2004). The specific standard operating procedures (SOPs) shall be cited in the planning document (see Section 6).

c. Any non-standard field procedure shall be submitted for review and approval to the DEP contract manager in accordance with section FA 2000 of DEP-SOP-001/01. All non-standard procedures and methods must be approved by the DEP contract manager before use under this Contract and must be cited or described in the planning document.

d. Per the quality control measures outlined in the DEP SOPs (FQ 1000 and the calibration requirements of the FT-series for field testing), the CONTRACTOR shall ensure that the following field quality controls (and any additional quality control measures specified in the addenda) are incorporated into the project design:

(i) Matrix-Related Quality Controls - The CONTRACTOR shall ensure that the laboratory is provided with sufficient sample volume to analyze at least one set of matrix spikes, and either matrix spike duplicates or laboratory duplicates as follows:

(1) The first time a sample from a sample collection matrix (see Table FA 1000-1) is collected;

(2) One in each additional 20 samples of the sample collection matrix, after the first 20 samples; and

(3) The last time samples are collected for the sample collection matrix.

(ii) Field duplicates (not to be confused as laboratory duplicates) shall be collected and analyzed at a frequency of 5% of the total number of samples collected for each matrix/analyte combination (see FQ 1220).

(1) All field duplicate results greater than the PQL should agree within 20% RPD for each measured analyte. In the event that the field duplicate agreement is not observed, the CONTRACTOR shall investigate and attempt to determine the cause of poor precision. The outcome of these investigations shall be reported including corrective measures to minimize future problems.

(iii) Field-Generated Blanks – Blanks associated with field activities as defined in FQ 1210 of the DEP SOPs, shall be collected according to the requirements of FQ 1230.

(1) If the reported analyte is reported in any field blank, equipment blank or trip blank, the CONTRACTOR shall investigate and attempt to determine the cause unless the affected samples are at least 10 times the reported blank value. The outcome of these

investigations shall be reported including corrective measures to minimize future occurrences.

4. **REPORTING, DOCUMENTATION AND RECORDS RETENTION**

a. The CONTRACTOR shall ensure that all laboratory and field records as outlined in Rules 62-160.240 and .340, F.A.C. are retained for a minimum of five years after the project completion.

b. All field and laboratory records that are associated with work performed under this Contract shall be organized so that any information can be quickly and easily retrieved for inspection, copying or distribution.

c. The CONTRACTOR shall ensure that all laboratory reports are issued in accordance with NELAC requirements. These reports shall be submitted to the DEP contract manager and shall include the following information:

- Laboratory sample identification (ID) and associated Field ID
- Analytical/test method
- Parameter name
- Analytical result (including dilution factor)
- Result unit
- Applicable DEP Qualifiers per Table 1 of Chapter 62-160, F.A.C.
- Result comment(s) to include corrective/preventive actions taken for any failed QC, unacceptable measurement or other problem related to the analysis of the samples
- Date and time of sample preparation (if applicable)
- Date and time of sample analysis
- Laboratory verification results of field preservation
- Sample matrix
- DoH ELCP certification number for each laboratory (must be associated with the test result(s) generated by the laboratory)
- MDL
- PQL
- Sample type (such as blank, duplicate, etc.)
- Field and laboratory blank results:
  - Laboratory blank results (results for any laboratory blank analysis as required by the method and the planning document) (see Section 6);
  - Field quality control results including trip blanks, field blanks, equipment blanks, and field replicates as specified in the planning document (see Section 6)
- Results of sample matrix spikes, laboratory duplicates or matrix spike duplicates, as applicable
- Results of surrogate spike analysis (if performed)
- Results of laboratory control samples (LCS)
- Link between each quality control sample and the related sample results
- Acceptance criteria for each reported quality control measure

d. The CONTRACTOR shall ensure that the following field-related information is reported to the DEP contract manager:

- Site and/or facility name, address and phone number
- Field ID for each sample container and the associated analytes (test methods) for which the container was collected
- Date and time of sample collection
- Sample collection depth
- Sample collection method identified by the DEP SOP number
- If performed, indicate samples that were filtered
- Field test measurement results:

- DEP SOP followed
- Parameter name
- Result
- Result unit
- Applicable Data Qualifiers per Table 1 of Chapter 62-160, F.A.C.

▸ Narrative comments discussing corrective/preventive actions taken for any failed QC or unacceptable field measurement or other problems related to the sampling event.

5. **AUDITS**
   a. AUDITS BY THE DEPARTMENT – Pursuant to Rule 62-160.650, F.A.C., the Department may conduct audits of field and/or laboratory activities. In addition to allowing Department representatives to conduct onsite audits, the CONTRACTOR, upon request, must provide the Department with the requested information, including all field and laboratory records pertinent to the contracted field and laboratory activities. If an audit by the Department results in a determination that the data are not usable for the contracted proposed purpose, the DEP contract manager shall pursue remedies available to the Department including those outlined in Addendum 1.
   b. PLANNING REVIEW AUDITS –
      (i) Initial: Prior to the completion of the sampling and analysis events, and as specified in the addendum, the CONTRACTOR and all associated subcontractors shall review the planning document (see Section 6 below) relative to the completed field and laboratory activities to determine if the data quality objectives are being met, identify any improvements to be made to the process, and refine the sampling and/or analytical design or schedule. Within one month of the review, a summary of the review, including any corrective action plans or amendments to the planning document, shall be sent to the DEP contract manager, and a copy shall be maintained with the permanent project records.
      (ii) Ongoing: Planning reviews as described in item (1) above shall occur annually.
   c. QUALITY SYSTEMS AUDITS – The CONTRACTOR and all subcontractors shall ensure that any required laboratory and field quality system and management systems audits are performed according to the respective Quality Manuals for each contracted and sub-contracted entity. These audits shall be documented in the CONTRACTOR's and subcontractors' records.
   d. STATEMENTS OF USABILITY – As a part of the audit process and the final report, the CONTRACTOR shall provide statements about data usability relative to the Project Data Quality Objectives and Data Quality Indicators specified in the planning document.

6. **PLANNING DOCUMENT**
   a. The CONTRACTOR shall submit the planning document specified in the addendum to this attachment to the DEP contract manager no later than 120 days prior to the commencement of field and laboratory activities. Failure to submit the planning document by the above-mentioned time shall result in a delay of approval to begin work until the document has been submitted to the Department and approved by the DEP contract manager.
   b. The CONTRACTOR and subcontractors may submit a version of the planning document to the Department for approval no more than three times. If the CONTRACTOR fails to obtain approval for the planning document after the third (final) submission to the Department, the DEP contract manager may suspend or terminate the Contract.
   c. The DEP Contract number shall appear on the title page of the submitted planning document. Within forty-five (45) days of receipt of properly identified documents by the Department, the Department shall review and either approve the planning document or provide comments to the CONTRACTOR and affected subcontractors as to why the planning document is not approved. If further revisions are needed, the CONTRACTOR shall then have fifteen (15) days from the receipt of review comments to respond. The Department shall respond to all revisions to the planning document within thirty (30) days of receipt.

d. If the review of the planning document by the Department is delayed, through no fault of the CONTRACTOR, beyond sixty (60) days after the planning document is received by the Department, the CONTRACTOR shall have the option, after the planning document is approved, of requesting and receiving an extension in the term of the Contract for a time period not to exceed the period of delayed review and approval. This option must be exercised at least sixty (60) days prior to the current termination date of the Contract.

e. Work may not begin for specific Contract tasks until approval has been received by the CONTRACTOR from the DEP contract manager. Sampling and analysis for the Contract may not begin until the planning document has been approved.

f. Once approved, the CONTRACTOR shall follow the protocols specified in the approved planning document including, but not limited to:
   - Ensuring that all stated quality control measures are collected, analyzed and evaluated for acceptability;
   - Using only the protocols approved in the planning document; and
   - Using only the equipment approved in the planning document.

g. If any significant changes in procedures or test methods, changes in subcontractor organizations, or changes in key personnel occur, the CONTRACTOR shall submit appropriate revisions to the planning document to the DEP contract manager for review. The proposed revisions may not be implemented until they have been approved by the DEP contract manager. If the CONTRACTOR fails to submit the required revisions, the DEP contract manager may suspend or terminate the Contract.

7. **DELIVERABLES**

a. The following lists the expected schedule for the deliverables that are associated with the Quality Assurance requirements of this Contract:
   (i) Copy of DoH ELCP Certificate(s) and the associated list of specific fields of accreditation, per item 2.d above.
   (ii) Copies of the QCC sample results per item 2.f. above.
   (iii) Non-standard laboratory or field procedures – The CONTRACTOR shall submit to the DEP contract manager all required information necessary for review of non-standard procedures per items 2.h. and 3.b. above.
   (iv) Reports of planning review audits as specified in item 5.b. above.
   (v) Statements of Usability as specified in item 5.d. above.
   (vi) Planning document per Section 6, above.

b. Failure to provide any of the above items may result in the pursuit of remedies available to the Department.

Addendum 1
Modifications to Attachment G, Quality Assurance Requirements

1. Failure to comply with any requirement of this attachment may result in:
   a. Immediate termination of the Contract.
   b. Withheld payment for the affected activities.
   c. Contract suspension until the requirement(s) has been met.
   d. A request to refund already disbursed payments.
   e. A request to redo work affected by the non compliance.
   f. Other remedies available to the Department.
2. **LABORATORIES**
   e. The following quality control addenda must be followed:
      (i) Addendum 2, Quality Control Requirements for Laboratories Performing Chemical Analysis with the following modifications:
         (1) 1. b. After the first 20 samples from the sample collection matrix.
         (2) 8. deleted
         (3) 9. deleted
      (ii) Addendum 3, Quality Control Requirements for Laboratories Performing Microbiological Testing.
3. **FIELD ACTIVITIES**
   a. The following Section 3 requirements are amended as follows:
      (i) 3.d.i. (2) After the first 20 matrix samples.
      (ii) Field duplicates (item 3.d.ii) shall not be collected
4. **REPORTING, DOCUMENTATION AND RECORDS RETENTION**
   a. The CONTRACTOR shall submit the data electronically using the following format:
      (i) Excel 97 file or Access 2000 file. Adobe PDF file with final report.
   b. In addition to the information in item 4.d, the CONTRACTOR shall ensure that the following field information is reported:
      (i) N/A
5. **AUDITS**
   a. The initial planning review audit will be performed in accordance with Section 5.b.1 within 30 days of completion of the first sampling event.
6. **PLANNING DOCUMENT**
   a. Per Section 6 requirements, the type of planning document to be submitted is a:
      (i) Quality Assurance Project Plan (QAPP). This document shall be submitted to the DEP Project Manager for review and approval. The plan shall be consistent with the EPA Document EPA-QA/R-5, EPA Requirements for Quality Assurance Project Plans, dated March 2001.
   b. When the approved planning document requires modification, at the discretion of the DEP Project Manager the amendments shall be:
      (i) Provided in a new planning document, or
      (ii) Provided as amended sections of the current document, or
      (iii) Documented through written or electronic correspondence that becomes part of the planning document.
7. **DELIVERABLES**
   a. The following deliverables are not required under the terms of this Contract:
      (i) 7.a.iii deleted.

Addendum 2
Quality Control Requirements for Laboratories Performing Chemical Analysis

In addition to the quality control requirements outlined in Chapter 5 of the NELAC Standards, the following quality control measures shall be implemented for this Contract. Note: "Sample" refers to samples that have been either collected or analyzed under the terms of this Contract.

1. Matrix-Related Quality Control Samples - The CONTRACTOR shall ensure that samples associated with this Contract are used for matrix spikes, and either laboratory duplicates or matrix spike duplicates. The laboratory shall analyze these samples:
   a. The first time a sample from a sample collection matrix (see Table FA 1000-1) is collected.
   b. After the first 20 samples from the sample collection matrix, at least one matrix spike and either laboratory duplicates or matrix spike duplicates in each additional 20 samples of the sample collection matrix.
   c. The last collection event for the sample collection matrix.
   d. Spike levels must be at concentrations specified in item 3 below.
   e. The results of matrix spikes must meet the specific acceptance criteria established for the Contract or the data must be appropriately qualified.
   f. Sample duplicates or matrix spike duplicates must be evaluated for precision criteria established for the Contract. If the selected sample concentration is expected to be below the laboratory's PQL, then matrix spike duplicates must be used.
2. Per NELAC Chapter 5 requirements, as least one Laboratory Control Sample (LCS also known as Laboratory Fortified Blank) shall be prepared, analyzed and evaluated with each batch of 20 samples or less.
   a. If the LCS is unacceptable, the samples associated with the LCS shall be reprocessed with a new LCS. If samples cannot be reprocessed, the data must be appropriately qualified.
3. Spiking/Fortification Requirements - All spike fortifications must take place prior to any required sample preparation steps (e.g., sample extraction, sample digestion, etc.). The final concentration of any spike fortification shall be at the applicable level identified below.
   a. If any of the samples in the preparation batch are non-detect, the spiking level must not be greater than 2 times the Contract-established practical quantitation limit (PQL).
   b. The concentration in a spiked sample cannot exceed 5 times the highest concentration of any contracted sample in the preparation batch.
4. Instrument Calibration – The following discussions supplement the method specified calibration procedures, which must be followed:
   a. Initial Calibration Requirements
      (i) Unless otherwise specified by the method, all sample results shall be based on the initial calibration curve responses.
      (ii) If a linear regression is used, the correlation coefficient shall be equal to or greater than 0.995.
      (iii) Immediately after performing an initial calibration, the accuracy of the calibration shall be verified using a second source. A second source may be a standard, a Standard Reference Material (SRM), or other sample type with a verified concentration such as a QC Check Sample. The standard must have been prepared from a different lot or vendor, and the verified SRM or QC Check sample must have been verified by an organization that is external to the laboratory.
      (iv) Sample analysis cannot proceed if an initial calibration is unacceptable.
   b. Continuing Calibration Requirements:

(i) When an initial calibration is not performed on the day of analysis, a continuing calibration standard shall be analyzed, evaluated and determined to be acceptable prior to analyzing samples.

(ii) A continuing calibration standard shall be analyzed and evaluated at the end of the analytical run.

(iii) For each analytical run, the analytical sensitivity must be evaluated using a continuing calibration standard prepared at the PQL. The analyzed value of this standard must be within 70 – 130% of the expected value. If this PQL check fails, the blank and associated sample results must be reported as "estimated" per Chapter 62-160, F.A.C. unless the affected results are at least 10 times the absolute value of the observed bias.

(iv) The samples shall be chronologically bracketed between acceptable continuing calibration evaluations.

(v) If a continuing calibration verification fails, samples run after the failure must be reanalyzed or appropriately qualified.

c. Sample results below the practical quantitation limit (PQL) and above the highest calibration standard shall be appropriately qualified.

5. Blanks
   a. If the analyte is detected in any analytical blank, the sample results that are associated with the blank must be reported with the appropriate qualifier from Chapter 62-160, F.A.C., unless the affected results are at least 10 times the calculated blank value.
   b. Sample results must be bracketed with an acceptable beginning and ending analytical blanks.
   c. If the analyte is detected in the field blank, equipment blank or trip blank, the result must be confirmed by reanalyzing a new aliquot of the blank unless the sample results associated with the blank are at least 10 times the calculated blank value. The laboratory must investigate sufficiently to determine that positive blank results are not due to a laboratory error, and report results with appropriate qualifiers and/or comments.
6. If any quality control measure or calibration verification (including those specified above) fails, samples that are associated with the failure must be reanalyzed, if possible. Sample data that are associated with a failed quality control measure must be appropriately qualified as specified in Chapter 62-160, F.A.C. An explanatory comment must be attached to the final report for each result that has a qualifier code other than U, I, or A. Any additional qualifier codes used but not explicitly provided for in Chapter 62-160, F.A.C. must be identified and defined in the report.
7. The reported MDL and PQL for each sample must be adjusted for dilution factors, and any relevant preparation weights and volumes.
8. Field duplicates - The CONTRACTOR shall ensure that field duplicates (not to be confused as laboratory duplicates) are analyzed. All field duplicate results greater than the PQL should agree within 20% RPD for each measured analyte. In the event that field duplicate agreement is not observed, the laboratory must investigate sufficiently to determine that poor precision is not due to a laboratory error, and report the results with appropriate qualifiers and/or comments.
9. For all organic analyses using either gas chromatography or HPLC, analytes with concentrations above the method detection limit shall be confirmed by at least one of the qualitative identification measures listed below. Confirmation must occur the first time an analyte is detected at a sampling point.
   - Second column/same detector
   - Second column/alternate detector
   - Same column/alternate detector
   - Mass spectrometry
   - Alternate wavelength

Addendum 3

Quality Control Requirements for Laboratories performing Microbiological Testing

In addition to the quality control requirements outlined in Chapter 5 of the NELAC Standards, the following quality control measures shall be implemented for this Contract. Note: "Sample" refers to samples that have been either collected or analyzed under the terms of this Contract.

1. Blanks
   a. If the membrane filter technique was used, the sample set(s) shall be associated with a beginning and ending filtration blank.
   b. The results of any blank must be < 1 CFU/100 mL or the associated sample results must be reported with the appropriate qualifier from Chapter 62-160, F.A.C.
   c. All duplicate results shall be evaluated per method specifications. In the event that field duplicate agreement is not observed, the laboratory must investigate sufficiently to determine that poor precision is not due to a laboratory error, and report the results with appropriate qualifiers and/or comments.
2. All microbiological analyses must conform to requirements for facilities, personnel and equipment specifications and quality control measures discussed in *AWWA Standard Methods 20th edition, section 9020.*
3. At least 10% of the samples (or one per test run) shall be duplicated.
4. Colony Counts
   a. The laboratory shall make every attempt to ensure that colony counts are in the ideal range of 20 – 60 colonies per plate. Reported values from colony plate counts outside this range shall be qualified with a "B" (unless reported value is from a 100 mL sample and the count is less than 20).
   b. If all counts are above 60, the result shall be calculated and reported from the highest dilution. This result must be reported as "estimated".
   c. The laboratory shall follow the reporting requirements specified in the method for other results that are outside the ideal range (item 3.a of Addendum 3)
   d. If the sample result is "too numerous to count (TNTC)" the laboratory shall report the filtration volume with the data qualifier "Z".
   e. Colony counts from samples that have been verified shall be adjusted based on the verification results as specified in the method.

INTERGOVERNMENTAL WORK AGREEMENT
(INNOVATIVE WASTE REDUCTION AND RECYCLING GRANT)
BETWEEN SEMINOLE COUNTY AND THE
UNIVERSITY OF CENTRAL FLORIDA

THIS INTERGOVERNMENTAL WORK AGREEMENT is effective as of the ___ day of _____, 2005, by and between **SEMINOLE COUNTY**, a political subdivision of the State of Florida, whose address is Seminole County Services Building, 1101 East First Street, Sanford, Florida 32771, hereinafter referred to as the ."COUNTY," and the **UNIVERSITY OF CENTRAL FLORIDA**, on behalf of its Board of Trustees, a public body corporate existing and operating under the laws of the State of Florida, with an office at 12443 Research Parkway, Suite 207, Orlando, Florida 32826-3252 hereinafter referred to as "UCF."

W I T N E S S E T H:

WHEREAS, the COUNTY has received a grant from the State of Florida (IG06-03) regarding the use of waste tires in pollution control (the "Grant Agreement"); and

WHEREAS, UCF has the necessary expertise to provide services under the Grant Agreement; and

WHEREAS, the COUNTY and UCF wish to enter into this Agreement in order to implement the provisions of the Grant Agreement; and

WHEREAS, by entering into this Agreement UCF acknowledges receipt of a copy of the Grant Agreement, including all attachments thereto; and

WHEREAS, is willing to provide services to the COUNTY in accordance with the terms and conditions of the Grant Agreement.

NOW, THEREFORE, in consideration of the mutual promises, covenants and the good and valuable monetary consideration all hereinafter set forth, the sufficiency of

which is hereby acknowledged, the parties do hereby covenant and agree as follows:

SECTION 1. RECITALS The above recitals are true and correct and form a material part of this Agreement upon which the parties have relied.

SECTION 2. SCOPE OF SERVICES Subject to the terms of this agreement, the COUNTY agrees to purchase from UCF, and UCF agrees to provide to the COUNTY, the services described in Exhibit "A" attached hereto and incorporated herein by this reference (the "Services").

SECTION 3. TERM The term of this Agreement shall commence upon execution by both parties and, unless terminated earlier in accordance with the terms hereof, remain in effect until completion of the Services or January 1, 2008, whichever comes first.

SECTION 4. TOTAL COST OF THE SERVICES The parties agree that the total cost of the Services to be provided by UCF is ~~eighty-five thousand nine hundred thirty-one dollars and eighty-two cents~~ Two hundred thousand dollars 200,000 ($~~85,931.82~~) as shown on the attached Exhibit "B".

SECTION 5. REPORTS AND BILLINGS Beginning three (3) months after the execution of this Agreement and each quarter thereafter UCF shall provide the COUNTY with the deliverables called for in the Grant Agreement according to the schedule contained therein. Billing shall be on a quarterly basis and shall reflect the percentage of completion of the applicable Services.

SECTION 6. FORCE MAJEURE In the event any party hereto is prevented from performing this Agreement in a timely manner due to hurricane, flood, tornado, civil disorder, act of God, or other force majeure, then said party shall not be in default hereunder if it provides prompt notice to the other party; provided, however, that

performance shall recommence upon the cessation of such event and its effects that caused the inability to perform.

SECTION 7. ASSIGNMENT This Agreement shall not be assigned by either party without the prior written approval of the other.

SECTION 8. PUBLIC RECORDS In accordance with Chapter 119, Florida Statutes, the parties shall retain and allow public access to all documents, papers, letters and other materials which have been made or received in conjunction with this Agreement and the Services, except for records disposed of in compliance with Section 119.041, Florida Statutes. If either party asserts an exemption from disclosure of the contents of any record, that exemption shall not be binding on the other party unless it receives adequate notice of such exemption from the asserting party.

SECTION 9. RECORDS AND AUDITS UCF shall maintain at its Office of Research, 12443 Research Parkway, Suite 207, Orlando, Florida 32826, the Finance and Accounting Office, 12424 Research Parkway Suite 300, Orlando, Florida 32826, or at the College of Engineering and Computer Science, 4000 Central Florida Boulevard, Building 91, Suite 442, Orlando, Florida 32816, all books, documents, papers and other evidence related to the Services or this Agreement, unless UCF gives notice of the actual location of another site under UCF's control where such records may be accessed by the public. All of UCF's records related to this Agreement shall be maintained for at least five (5) years after the last to occur of the following events: (a) completion of an audit by the COUNTY's auditor; (b) termination of the Agreement, or (c) resolution of any claim or litigation. Upon reasonable notice, UCF will provide proper facilities for inspection and copying of such records. Upon reasonable notice the COUNTY or its duly authorized representative shall have access to audit, examine and

copy any of UCF's books, documents, papers and records related to this Agreement. UCF agrees that payments made under this Agreement shall be subject to refund for any amounts overcharged as shown by a later audit.

SECTION 10. NOTICES

(a) Whenever either party desires to give notice unto the other, such notice will be sufficient only if sent in writing, with an original signature of the party's authorized officer or employee to:

For COUNTY:

Ed Torres, Principal Engineer
Seminole County Services Building
1101 East First Street
Sanford, Florida 32771

For UCF:

Andrea Miller
12443 Research Parkway, Suite 207
Orlando, Florida 32826-3252
Phone: 407-823-2806
Fax: 407-823-3299
E-mail: andrea@mail.ucf.edu

With a copy to:

Martin Wanielista
College of Engineering and Computer Science
4000 Central Florida Boulevard
Building 91, Suite 442
Orlando, Florida 32816
Phone: 407-823-4144

(b) Either of the parties may change, by written notice as provided herein, the address or persons for receipt of notices or invoices. All notices shall be effective upon receipt, or, if evidenced by a receipt of the third-party carrier or post office, the day of dispatch.

(c) UCF shall deliver invoices, deliverables to be provided as specified in the

Grant Agreement to the foregoing person and address shown for Seminole County or to such other addressee as the COUNTY may by notice designate for this purpose from time to time.

SECTION 11. INDEMNITY AND INSURANCE

(a) Each party to the Agreement is responsible for all personal injury and property damage attributable to the negligent acts or omissions of that party and officers, employees and agents thereof.

(b) To the extent allowed by law, each party to this Agreement shall indemnify, defend and hold harmless the other and the other party's officers, employees and agents from and against all losses and all Claims, demands, payments, suits, actions, recoveries and judgments of every nature and description whatsoever, including claims for property damage and claims for injury to or death of persons brought or recovered against the other party to this Agreement by reason of any act or omission of the responsible party or its own officers, agents, subcontractors or employees, in the provision of Services related to this Agreement.

(c) Nothing contained herein shall be construed or interpreted as denying to any party any remedy or defense available to such party under the laws of the State of Florida, nor as a waiver of sovereign immunity of the COUNTY or UCF beyond the waiver provided for in Section 768.28, Florida Statutes.

(d) Each party shall be responsible for providing its own workers compensation coverage and unemployment compensation as required by law.

SECTION 12. CONFLICT OF INTEREST

(a) UCF agrees that it will not knowingly engage in any action that would create a conflict of interest in the performance of its obligations pursuant to this Agreement with

the COUNTY or which would violate or cause others to violate the provisions of Part III, Chapter 112, Florida Statutes, relating to ethics in government.

(b) UCF hereby certifies that to the best of its knowledge no officer, agent or employee of the COUNTY has any material interest (as defined in Section 112.312, Florida Statutes) either directly or indirectly, in the business of UCF to be conducted here and that no such person shall have any such interest at any time during the term of this Agreement.

(c) Pursuant to Section 216.347, Florida Statutes, UCF hereby agrees that monies received from the COUNTY pursuant to this Agreement will not be used for the purpose of lobbying the Legislature or other State or federal agency.

SECTION 13. EQUAL OPPORTUNITY EMPLOYMENT

(a) UCF agrees that it will not discriminate against any contractor, employee or applicant for employment or work under this Agreement because or on account of race, color, religion, sex, age or national origin and will insure that applicants and employees are treated during employment without regard to race, color, religion, sex, age or national origin. This provision shall include but not be limited to, the following: retention, award of contracts, employment, upgrading, demotion or transfer, recruitment advertising, layoff or termination, rates of pay or other forms of compensation and selection for training, including apprenticeship.

(b) UCF agrees that it will comport all of its activities with the provisions of Chapter 760, Florida Statutes.

SECTION 14. COMPLIANCE WITH LAWS AND REGULATIONS In performing under this Agreement, the parties shall abide by all laws, statutes, ordinances, rules and regulations pertaining to, or regulating the performance set forth herein, including those

now in effect and hereinafter adopted. Any material violation of said laws, statutes, ordinances, rules or regulations shall constitute a material breach of this Agreement.

SECTION 15. TERMINATION

(a) For Convenience. Either party may terminate this agreement without cause upon thirty (30) days written notice. In the event of such a termination UCF shall be entitled to payment of allowable costs and expenses through the date of termination, including the cancellation costs of any subcontracts, however, in no event shall the amount payable to UCF exceed the amount specified in Section 4 above.

(b) For Cause. Either party may terminate this agreement for cause upon ten (10) days written notice provided that the party in default has first been given written notice of the cause and at least twenty (20) days opportunity to cure. In such an event the parties may pursue any remedies available at law for breach of contract. In the event that a termination for cause is later determined to have been inappropriate, the termination shall be converted to one for convenience.

SECTION 16. EMPLOYEE STATUS

(a) Persons employed or retained by UCF in the performance of services and functions pursuant to this Agreement shall have no claim to pension, workers' compensation, unemployment compensation, civil service or other employee rights or privileges granted to the COUNTY's officers and employees either by operation of law or by the COUNTY.

(b) UCF assumes total responsibility for salaries, employment benefits, contractual rights and benefits, contract payments, and applicable federal, State and local employment taxes, if any, attributable to UCF personnel or employees.

(c) In performing this Agreement, planning, development, constructing, equipping

and operating the project or carrying out any of the activities to be carried out by UCF, UCF will be acting independently, in the capacity of an independent entity and not as a joint venturer, partner, associate, employee, agent or representative of the COUNTY.

SECTION 17. NO THIRD PARTY BENEFICIARIES This Agreement is made for the sole benefit of the parties hereto and their respective successors and assigns, and is not intended to and shall not benefit a third party. No third party shall have any rights hereunder or as a result of this Agreement or any rights to enforce any provisions of this Agreement.

SECTION 18. INTELLECTUAL PROPERTY As used herein, the term "Intellectual Property" means software, negatives, plates, dyes, molds, prints, paintings, artwork, sketches, designs, processes, product names and logos, discoveries, know-how, methods, writings, photographs, etchings, drawings, mechanicals, ideas, concepts, inventions, prototypes, copyrights, copyrightable works, patents, pending patent applications, trademarks/servicemarks, trade secrets or any other work or material or property (both tangible and intangible). "Background Intellectual Property" is Intellectual Property which was in existence prior to the effective date of this Agreement. For the purposes of this Section, the "making" of inventions shall be governed in accordance with 42 USC 5908 et seq.

Intellectual Property made solely by COUNTY employees under this Agreement will be solely owned by the COUNTY. Intellectual Property made jointly by faculty and staff of both UCF and COUNTY will be owned jointly by UCF and COUNTY, who agree to jointly determine patent filing and licensing responsibilities. Intellectual Property made solely by UCF faculty and staff will be solely owned by UCF. All persons who perform any part of the work under this Agreement and who may be reasonably

expected to make inventions or any copyrightable material or other intellectual property, including screening compounds or materials synthesized, are covered by this Agreement.

Nothing in this Agreement shall circumvent or restrict UCF's pre-existing obligations with the U.S. government pertaining to any kind of Intellectual Property or any copyrightable material or other intellectual property , including but not limited to such pre-existing obligations contained in grants, contracts and other types of Agreements or arrangements between UCF and the U.S. government. These obligations may include granting licenses to the U.S. government for certain Intellectual Property which is being developed.

Notwithstanding any provision to the contrary in the Agreement, UCF shall retain the right to practice any invention and discovery developed hereunder for its own academic, non-commercial research and teaching purposes.

SECTION 19. CONTINGENT FEES OR CONFLICTING EMPLOYMENT UCF covenants that it has employed and retained only bona fide employees working for UCF to solicit or secure this Agreement. The COUNTY warrants that it has not paid or agreed to pay any person, company, corporation, individual or firm, other than a bona fide employee working for UCF, any fee, commission, percentage, gift or any other consideration contingent upon or resulting from the award of making this Agreement. The COUNTY shall not be responsible for commissions or other consideration claimed by any third party.

SECTION 20. GOVERNING LAW This Agreement shall be construed according to the laws of the State of Florida. Jurisdiction and venue for any legal action in connection herewith, whether sounding in contract or tort, shall lie only in the Circuit

Court of the Eighteenth Judicial Circuit in and for Seminole County, Florida.

SECTION 21. CONSTRUCTION OF AGREEMENT This Agreement shall not be construed more strictly against one party than against the other merely by virtue of the fact that it may have been prepared by counsel for one of the parties, it being recognized that both parties, the COUNTY and UCF, have contributed substantially and materially to the preparation hereof.

SECTION 22. AUTHORITY OF SIGNATORY The undersigned person signing for UCF represents that (s)he, as a corporate officer or contracting officer, has all legal authority necessary to make this Agreement on behalf of and binding upon UCF.

SECTION 23. COUNTERPARTS This Agreement may be executed in any number of counterparts each of which, when executed and delivered, shall be original, but all counterparts shall together constitute one and the same instrument.

SECTION 24. SEVERABILITY If any provision, term or clause of this Agreement is determined to be invalid or unenforceable, the parties intend the remainder to be effective.

SECTION 25. THE GRANT AGREEMENT UCF services under this Agreement shall be subject to all the terms and conditions of the Grant Agreement. UCF shall not take any action that might violate or cause the COUNTY to violate the terms and conditions of the Grant Agreement and shall indemnify the COUNTY against any claims by the State of Florida that UCF's actions, services or work products fail to meet the requirements or standards of the Grant Agreement.

THE BALANCE OF THIS PAGE IS INTENTIONALLY BLANK

IN WITNESS WHEREOF, the parties have executed this Agreement as of the date hereinabove first shown.

WITNESSES:

Ashuantay Houston
Name:

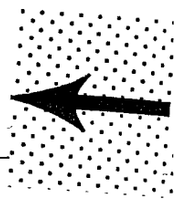
UNIVERSITY OF CENTRAL FLORIDA

Name: Andrea Miller
Title: Contract Manager

11/14/2005
Date

ATTEST:

BOARD OF COUNTY COMMISSIONERS
SEMINOLE COUNTY, FLORIDA



By: _____
CARLTON HENLEY, Chairman

Date: _____

MARYANNE MORSE
Clerk to the Board of
County Commissioners of
Seminole County, Florida.

For the use and reliance of Seminole County only. Approved as to form and legal sufficiency.

As authorized for execution by the Board of County Commissioners at its _____, 2005, regular meeting

_____
County Attorney

SPL 10/19/05
P:\Users\Casl01\Agreements\UCF Agreement (Innovative Waste)3.doc

EXHIBIT A
UCF SERVICES
Waste Tire Use in Pollution Control

County Project Manager
Name: Ed Torres
Address: Seminole County Public Works
177 Bush Loop
Sanford, FL 32773
Phone: (407) 665-5941 E-mail:etorres@seminolecountyfl.gov
FEID Number: 59-6000856

Task	Activities	Deliverables	Total Cost	In Kind by UCF	Grant by FDEP	Schedule 1Q	2Q	3Q	4Q	5Q	6Q
MOBILIZATION AND WORK ASSIGNMENTS	Identify potential Project Team members and solicit their participation; conduct Project Team meetings and solicit member input	1) List of Project Team members	$800	$212.59	$587.41	X					
LITERATURE REVIEW	Review of past work and on-going work associated with the use of waste tire crumb for pollution control	2) A literature search section of the final report	$2,750	$730.77	$2,019.23	X	X	X	X	X	X
LABORATORY VERIFICATION	Conduct laboratory scale models to document the pollution control effectiveness	3) Feasibility information and sizing data for the final report	$24,280	$6,452.03	$17,827.97		X	X			
UNIVERSITY CAMPUS FIELD TEST SITE	Scale up of the laboratory results to illustrate operational effectiveness at a near full scale operation	4) Document the construction and operation of a campus site	$64,900	$17,246.15	$47,653.85			X	X		
COST EFFECTIVENESS COMPARISONS	Removal effectiveness and costs will be documented	6) A comparison of efficiencies and costs in the final report	$16,500	$4,384.62	$12,115.38					X	X
PROGRESS REPORTS	On a quarterly basis, a report indicating the status of the project will be generated	7) Electronic and hard copies	$2,301	$611.45	$1,689.55	X	X	X	X	X	
FINAL REPORT	Develop a final report with details of the results	8) Electronic and hard copies	$5,500	$1,461.57	$4,038.43						X
Totals			$117,031	$31,099.18	$85,931.82						

EXHIBIT B

Salary	$ 52,872
Fringe 30.5%	$ 16,126
Expense	$ 10,109
Outside Services	$108,636
Travel	$ 2,733
Total Direct	$190,476
*5% O.H.	$ 9,524
Total	$200,000

*The 5% overhead rate is based on Seminole County being restricted to a 5% rate to FDEP.