

GRANT AGREEMENT
BETWEEN THE
USDA FOREST SERVICE
PACIFIC SOUTHWEST RESEARCH STATION
AND THE
EL DORADO COUNTY, DEPARTMENT OF TRANSPORTATION

Urban Stormwater Fine Sediment Filtration Using Granular Perlite

Upon execution of this document an award to El Dorado County, Department of Transportation, in an amount of \$73,254 is made under the Forest and Rangeland Renewable Resources Research Act of 1978 (16 U.S.C. 1641-1646), and the Intergovernmental Cooperation Act of (P.L. 90-577), and accepted for the objectives and purposes described in the attached Application for Federal Assistance, which is incorporated and made a part of this Agreement and subject to the requirements set forth below. Funding for this project has been awarded under the SNPLMA Round 9 RFP competitive selection process.

This is an award of Federal Financial Assistance and as such is subject to the Office of Management and Budget: OMB Circular A-102, Administrative Requirements for Grants and Cooperative Agreements with State and Local Governments; A-87 Cost Principles for State and Local Governments; 7CFR 3016, Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments; 7 CFR 3017, Government-wide Regulations for Drug-Free Workplace; and 7CFR 3052, States, local governments, and non-profit organizations. Subawards are subject to the provisions of this prime award; plus, OMB and CFRs specific to cooperator type (i.e., public, private, non-profit). OMB Circulars are available at: <http://www.whitehouse.gov/OMB/grants>. Electronic copies of CFRs can be obtained at: <http://www.gpoaccess.gov/cfr/index.html>.

The following administrative provisions apply to this agreement:

1. FOREST SERVICE ACKNOWLEDGED IN PUBLICATIONS AND AUDIOVISUALS.

Forest Service support shall be acknowledged in any publications and audiovisuals developed as a result of this instrument.

2. FINANCIAL STATUS AND CASH REPORTING. A Financial Status Report Form SF-269A, or SF-269, shall be submitted on a quarterly basis that ends March 31, June 30, September, and December 31, for each year of the agreement period. This form is available at: <http://www.whitehouse.gov/OMB/grants/index.html>. The final Form SF-269A or SF-269 shall be submitted either with the final payment request or no later than 90 days from the expiration date of the instrument.

A new standard format has been developed for recipients to report the financial status of their grants and cooperative agreements. The new form, SF-425, replaces the following standard forms: SF-269, SF-269A, SF-272, and SF-272A.

The SF-425 can be used immediately and MUST be used by cooperators as of 10/01/2009. The form is available at: http://www.whitehouse.gov/omb/grants_forms

3. MODIFICATION. Modifications within the scope of the instrument shall be made by mutual consent of the parties, by the issuance of a written modification, signed and dated by all parties, prior to any changes being performed. Modification requests require submittal of the following:

- a. Written justification for the change

- b. Revised Application for Federal Assistance Form SF-424
- c. Revised Budget Information Form SF-424A (if applicable)
- d. Revised written narrative (if applicable)

The Forest Service is not obligated to fund any changes not properly approved in advance.

4. NONDISCRIMINATION. The recipient shall comply with all Federal statutes relating to nondiscrimination and all applicable requirements of all other Federal laws, Executive orders, regulations, and policies. These include but are not limited to: (a) Title VI of the Civil Rights Act of 1964 (42 U.S.C. 2000d, 2000e-16), which prohibits discrimination on the basis of race, color, disability, or national origin; (b) Title IX of the Education amendments of 1972, as amended (20 U.S.C. 1681-1683, and 1685-1686), which prohibits discrimination on the basis of sex; and Section 504 of the Rehabilitation Act of 1973 as amended (29 U.S.C. 794) which prohibits discrimination on the basis of disabilities. The nondiscrimination statement which follows shall be posted in primary and secondary recipient offices, at the public service delivery contact point and included, in full, on all materials regarding such recipients' programs that are produced by the recipients for public information, public education, or public distribution:

"In accordance with Federal law and U.S. Department of Agriculture policy, this institution is prohibited from discriminating on the basis of race, color, national origin, sex, age, or disability. (Not all prohibited bases apply to all programs.)"

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 1400 Independence Avenue, SW, Washington, DC 20250-9410 or call (202) 720-5964 (voice and TDD). USDA is an equal opportunity provider and employer."

If the material is too small to permit the full statement to be included, the material will at minimum include the statement, in print size no smaller than the text, *"This institution is an equal opportunity provider."*

5. COMMENCEMENT/EXPIRATION DATE. The instrument is executed as of the date of the last signature and is effective through July 30, 2011, at which time it will expire unless extended. *Pre-award costs are approved.*

6. EXTENSION OF PERFORMANCE PERIOD. The Forest Service, by written modification may extend the performance period of this instrument for a total duration not to exceed 5 years from its original date of execution.

7. COPYRIGHTING. The recipient is granted sole and exclusive right to copyright publications generated as a result of this agreement, including the right to publish and vend throughout the world in any language and in all media and forms, in whole or in part, for the full term of copyright and all renewals thereof in accordance with this grant or cooperative agreement. No original text or graphics produced and submitted by the Forest Service shall be copyrighted. The Forest Service reserves a royalty-free, nonexclusive, and irrevocable right to reproduce, publish, or otherwise use, and to authorize others to use, the work for Federal government purposes. This right shall be transferred to any subgrants or subcontracts. This provision includes:

- a. The copyright in any work developed by the Cooperator under this grant or cooperative agreement.
- b. Any rights of copyright to which the Cooperator purchases ownership with any Federal contributions.

8. PRINCIPAL CONTACTS. The principal contacts for this instrument are:

Forest Service Project Contact

Jonathan W. Long, Research Biologist
SNPLMA Manager
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Tahoe Environmental Research Center
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Incline Village, NV 89451
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Cooperator Project Contact

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FAX: 530-541-7049
E-Mail: russell.wigart@edcgov.us

Forest Service Administrative Contact

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Grants & Agreements Specialist
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Cooperator Administrative Contact

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Department of Transportation
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FAX: 530-541-7049
E-Mail: justin.rall@edcgov.us

The cooperator must name any contact representative change in writing to the Forest Service administrative contact.

9. REIMBURSABLE PAYMENTS. Reimbursable payments are approved under this instrument. Only costs for those project activities approved in (1) the initial instrument, or (2) modifications thereto, are allowable. Requests for payment shall be submitted on Standard Form 270 (SF-270), Request for Advance or Reimbursement, and shall be submitted no more than quarterly, this form is available at: <http://www.whitehouse.gov/OMB/grants/index.html>. Each invoice shall display the cooperator's actual expenditures to date of the invoice, displayed by separate cost elements, as documented in the Financial Plan. The following items must also be included on the invoice for payment: 1) period of performance, and 2) agreement number.

Invoices must be submitted to:

**USDA Forest Service
Albuquerque Service Center (ASC)
Payments – Grants and Agreements
101B Sun Ave NE
Albuquerque, NM 87109
-or-
e-mailed to asc_ga@fs.fed.us**

The customer service number to call for invoicing questions and/or payments is:

**Phone: 877-372-7248, Select Option "0"
Fax: 877-687-4894
E-mail: asc_support@fs.fed.us**

All invoice and payment questions should be directed to the Albuquerque Service Center. Please have the Forest Service agreement number and the invoice in question available for reference.

10. PROGRAM PERFORMANCE REPORTS. Provide performance report(s) and/or data as defined in the Plan of Work, attached. The final performance report shall be submitted with your final payment request no later than 90 days from the expiration date of the instrument.

11. PROGRAM INCOME. If any program income is generated as a result of this instrument, the income shall be applied using the alternative as described in 7 CFR 3016.25 and 3019.24.

12. RIGHT TO TRANSFER EQUIPMENT AND SUPPLIES. Equipment and supplies approved for purchase under this instrument are available only as authorized. The Forest Service reserves the right to transfer title to the Federal government of equipment and supplies, valued over \$5,000 per unit, purchased by the recipient using any Federal funding. Upon expiration of this instrument the recipient shall forward equipment and supply inventory to the Forest Service, listing all equipment purchases throughout the life of the project and unused supplies. Disposition instructions will be issued by the Forest Service within 120 calendar days.

13. PROPERTY IMPROVEMENTS. Improvements placed on National Forest System land at the direction of either of the parties, shall thereupon become property of the United States, and shall be subject to the same regulations and administration of the Forest Service as other National Forest improvements of a similar nature. No part of this instrument shall entitle the cooperator to any share or interest in the project other than the right to use and enjoy the same under the existing regulations of the Forest Service.

14. PATENT RIGHTS. This clause is incorporated by reference. Full text of this clause can be found at: <http://www.fs.fed.us/business>. Click on Standard & Discretionary Clauses and search for Patent Rights (number 48)..

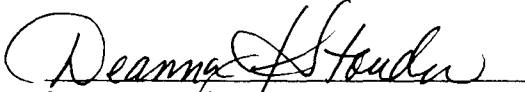
15. DUNS NUMBER. The cooperator shall furnish their DUNS number upon execution of this instrument. A DUNS number may be obtained by contacting Dun and Bradstreet at 800-234-3867 or 866-794-1580, and a DUNS number will be provided immediately. A DUNS number can also be obtained at this website: www.dnb.com

16. AS A CONDITION OF THIS AGREEMENT: The recipient assures and certifies that it is in compliance with, and will comply during the course of the agreement, with all applicable laws, regulations, Executive Orders, and other generally applicable requirements, which hereby are incorporated in this Agreement by reference, and such other statutory provisions as are specifically set forth herein.

17. AUTHORIZED REPRESENTATIVES: By signature below, the cooperator certifies that the individuals listed in this document as representatives of the cooperator are authorized to act in their respective areas for matters related to this agreement.

APPROVALS:

This award of Federal financial assistance is effective as of the date of last signature shown below and fully executed upon signature of both parties.


DEANNA J. STOUDE, Station Director
Pacific Southwest Research Station
USDA Forest Service

17 Aug 09
Date

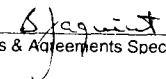
NAME AND TITLE
El Dorado County
Department of Transportation

Date

Attachments

- Plan of Work/Project Proposal
- SF-424 Application for Federal Assistance
- SF-424A Budget Information
- SF-424B Assurances-Non-Construction Programs
- AD-1049 Certification Regarding Drug-Free Workplace Requirements
- AD-1047 Certification Regarding Debarment, Suspension, and Other Responsibility Matters
- Trafficking in Persons Information

The authority and format of this instrument has been reviewed and approved for signature.



Gants & Agreements Specialist

8-14-09
Date

TRAFFICKING IN PERSONS.

- a. Provisions applicable to a recipient that is a private entity.
 1. You as the recipient, your employees, subrecipients under this award, and subrecipients' employees may not—
 - i. Engage in severe forms of trafficking in persons during the period of time that the award is in effect;
 - ii. Procure a commercial sex act during the period of time that the award is in effect; or
 - iii. Use forced labor in the performance of the award or subawards under the award.
 2. We as the Federal awarding agency may unilaterally terminate this award, without penalty, if you or a subrecipient that is a private entity —
 - i. Is determined to have violated a prohibition in paragraph a.1 of this award term; or
 - ii. Has an employee who is determined by the agency official authorized to terminate the award to have violated a prohibition in paragraph a.1 of this award term through conduct that is either—
 - A. Associated with performance under this award; or
 - B. Imputed to you or the subrecipient using the standards and due process for imputing the conduct of an individual to an organization that are provided in 2 CFR part 180, "OMB Guidelines to Agencies on Government wide Debarment and Suspension (Nonprocurement)," as implemented by our agency at 7 CFR 3017.
- b. Provision applicable to a recipient other than a private entity. We as the Federal awarding agency may unilaterally terminate this award, without penalty, if a subrecipient that is a private entity—
 1. Is determined to have violated an applicable prohibition in paragraph a.1 of this award term; or
 2. Has an employee who is determined by the agency official authorized to terminate the award to have violated an applicable prohibition in paragraph a.1 of this award term through conduct that is either—
 - i. Associated with performance under this award; or
 - ii. Imputed to the subrecipient using the standards and due process for imputing the conduct of an individual to an organization that are provided in 2 CFR part 180, "OMB Guidelines to Agencies on Governmentwide Debarment and Suspension (Nonprocurement)," as implemented by our agency at 7 CFR 3017.
- c. Provisions applicable to any recipient.
 1. You must inform us immediately of any information you receive from any source alleging a violation of a prohibition in paragraph a.1 of this award term.
 2. Our right to terminate unilaterally that is described in paragraph a.2 or b of this section:
 - i. Implements section 106(g) of the Trafficking Victims Protection Act of 2000 (TVPA), as amended (22 U.S.C. 7104(g)), and
 - ii. Is in addition to all other remedies for noncompliance that are available to us under this award.
 3. You must include the requirements of paragraph a.1 of this award term in any subaward you make to a private entity.
- d. Definitions. For purposes of this award term:

1. "Employee" means either:
 - i. An individual employed by you or a subrecipient who is engaged in the performance of the project or program under this award; or
 - ii. Another person engaged in the performance of the project or program under this award and not compensated by you including, but not limited to, a volunteer or individual whose services are contributed by a third party as an in-kind contribution toward cost sharing or matching requirements.
2. "Forced labor" means labor obtained by any of the following methods: the recruitment, harboring, transportation, provision, or obtaining of a person for labor or services, through the use of force, fraud, or coercion for the purpose of subjection to involuntary servitude, peonage, debt bondage, or slavery.
3. "Private entity":
 - i. Means any entity other than a State, local government, Indian tribe, or foreign public entity, as those terms are defined in 2 CFR 175.25.
 - ii. Includes:
 - A. A nonprofit organization, including any nonprofit institution of higher education, hospital, or tribal organization other than one included in the definition of Indian tribe at 2 CFR 175.25(b).
 - B. A for-profit organization.
4. "Severe forms of trafficking in persons," "commercial sex act," and "coercion" have the meanings given at section 103 of the TVPA, as amended (22 U.S.C. 7102).

I Title page

Southern Nevada Public Land Management Act

Research Proposal in Support of the Lake Tahoe Restoration Act and the Lake Tahoe Environmental Improvement Program

- I.a. Project title:** Urban stormwater fine sediment filtration using granular perlite.
- I.b. Theme and subtheme:** Water Quality and Effectiveness of urban and roadway BMPs in removing fine sediment from stormwater runoff.
- I.c. Principal investigators:**
- | | |
|--|--|
| Steve Kooyman, P.E.
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924 B Emerald Bay Rd.
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|--|--|
- I.d. Grant contact person:**
- Justin Rall
El Dorado County DOT
924 B Emerald Bay Rd.
South Lake Tahoe, CA 96150
Phone: (530) 573-7906
Fax: (530) 541-7049
Justin.rall@edcgov.us
- I.e. Total funding requested:** \$73,300
- I.f. Total cost share:** \$14,700

II Proposal narrative

II.a Project abstract:

The infiltration of stormwater is not always practical as a treatment BMP in the Lake Tahoe basin, so an effective and economical treatment alternative is needed. The operation of manned sedimentation or filtration systems for stormwater is not technically or economically feasible. Granular Perlite has been tested and utilized as an unmanned stormwater filter media. However, the benefits and costs relative to improving Lake Tahoe clarity are not well understood. In order to further the understanding of the benefits and costs of a perlite filter media as a treatment BMP in the Lake Tahoe Basin, El Dorado County proposes to conduct full scale testing of this BMP in an existing urban stormwater system that currently discharges directly to Trout Creek.

II.b Justification statement:

Disturbance within the Lake Tahoe Basin increased rapidly in the late 1950s' including an extensive road network located mainly in the lower reaches of the watershed (Reuter, 2003). The most dominant pollutant of concern for Lake Tahoe clarity is sediment particles less than 16-microns (Swift, 2005). Roberts (2007) estimated that 72% of the less than 20-micron sediment load to Lake Tahoe originated from the urban upland source category establishing the importance of treating urban stormwater. In order to improve the clarity of Lake Tahoe, the cost effective removal of fine sediment from urban runoff is a fundamental problem since the benefits of erosion control measures that target total suspended sediment may be less than anticipated as earlier hypothesized by Jassby (1999).

A highly effective and economical means of reducing the transport of fine sediment from the urban environment to Lake Tahoe involves infiltration of runoff into subsurface soils. However, the infiltration of stormwater is not always practical due to surface water proximity, high groundwater, or the absence of available land for the construction of infiltration systems at stormwater outlets. In order to meet the Total Maximum Daily Load (TMDL) goals as identified by Roberts (2007), an effective and economical treatment alternative to infiltration must be identified.

II.c Concise background and problem statement:

Sedimentation of fine sediment by gravity or filtration of stormwater are alternatives to infiltration for the removal of sediment from urban runoff. However, in order to achieve high removal efficiencies of fine sediment from highway runoff using sedimentation, some type of particle coagulation and flocculation methods are required (Kang, 2007). Furthermore, the California Department of Transportation investigated the feasibility of treating stormwater in the Lake Tahoe Basin by sedimentation and fine sand filtration. They found that without chemical dosing, none of the sedimentation and fine sand filtration systems tested consistently met surface water discharge standards that included a maximum turbidity of 20 NTUs (Cal Trans, 2003). Treatment of stormwater using manned stoichiometric particle destabilization systems is difficult and undesirable (Kang, 2007) and for these reasons a more effective filtration alternative for treatment is required for locations where infiltration is not feasible.

Granular perlite media is proposed as a filtration media because of its use in proprietary treatment systems for the removal of fine sediment from stormwater. Aqua Filter stormwater filter has demonstrated between 65% and 80% reduction in total suspended sediment (tss) including sediment less than 20-micron (Mailloux, 2006). In 2008, El Dorado County DOT

El Dorado County DOT
Tahoe Engineering Division

conducted a series of small-scale filtration tests to evaluate the effectiveness of perlite for reducing turbidity in simulated stormwater. The effectiveness was measured to range between a 40% and 90% reduction in turbidity. These small-scale tests, existing Aqua Filter literature, the inert composition of perlite, and the low cost of the media have demonstrated the potential for perlite to reduce fine sediment, turbidity and tss in stormwater.

The granular perlite filter media will be installed in existing drainage inlets within a functioning stormwater collection system that discharges directly to Trout Creek. The filter will be maintained, operated, and evaluated for 12 months allowing for development of accurate sediment reduction credits for use in the Pollutant Load Reduction Model (PLRM).

II.d. Goals, objectives, and hypotheses to be tested:

The goal of this research is to advance understanding in the Lake Tahoe Basin relative to media filtration options available for the treatment of fine sediment in urban runoff by evaluating perlite filtration media. This research will quantify the water quality benefits, fine sediment treatment, and actual load reduction. This understanding will be used to evaluate the cost effectiveness of granular perlite relative to other treatment systems, and will also be used to accurately apply credits for the PLRM and TMDL. The objective of these experiments will be to demonstrate the water quality benefits, life cycle of the filter media, and the costs associated with the installation and operation of perlite media filters in an existing stormwater system. The water quality benefits will be determined by comparing the turbidity, fine sediment concentration, and total suspended sediment between the unfiltered and filtered stormwater. The hypothesis of this research is that filtering urban stormwater with granular perlite is:

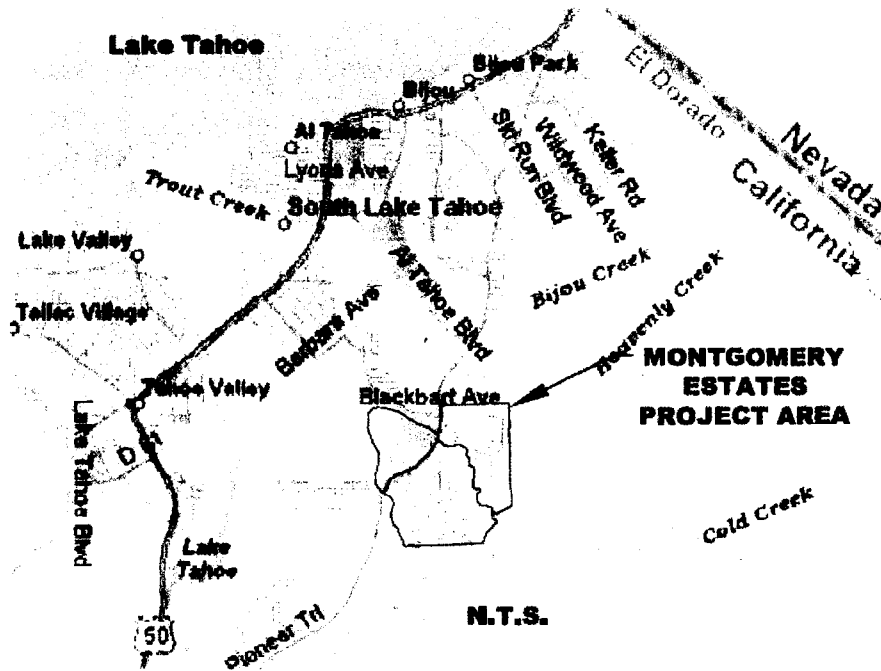
- effective in significantly reducing fine sediment from urban runoff
- practical for installation and operation in a drainage inlet within an extensive storm drain system
- economic relative to other filtration alternatives for the treatment of fine sediment.

II.e. Approach, methodology and location of research:

The approach to this research will include direct installation, operation, and maintenance of three perlite granular filters in three different existing drainage inlets within an existing stormwater system. The filters will be operated and maintained for 12 months using urban stormwater. This approach will allow for the measurement and evaluation of the filter during a complete hydrological season based on average stormwater conditions. The research will be conducted in the Montgomery Estates subdivision bounded by the Cold Creek and Trout Creek watersheds, see Figure 1. Montgomery Estates was selected due to the presence of an existing stormwater conveyance system, lack of treatment of stormwater in the subdivision, stormwater outfall connectivity directly to Trout Creek, location within half of a mile to the Sierra House meteorological station, and the proximity to the residences of the principal investigators.

The typical spacing between drainage inlets in the Montgomery Estates subdivision is approximately 300 feet. With drainage inlets on each side of the 24-foot road, the impervious surface contributing flow for each drainage inlet is approximately 3,600 ft². The design rain intensities range from the most typical intensity equal to 0.1 inches per hour to a maximum of 1 inches per hour, which will result in runoff ranging from 0.01 to 0.1 cfs. Three existing concrete drainage inlets will be modified using steel framing, concrete anchor bolts, and grating to direct

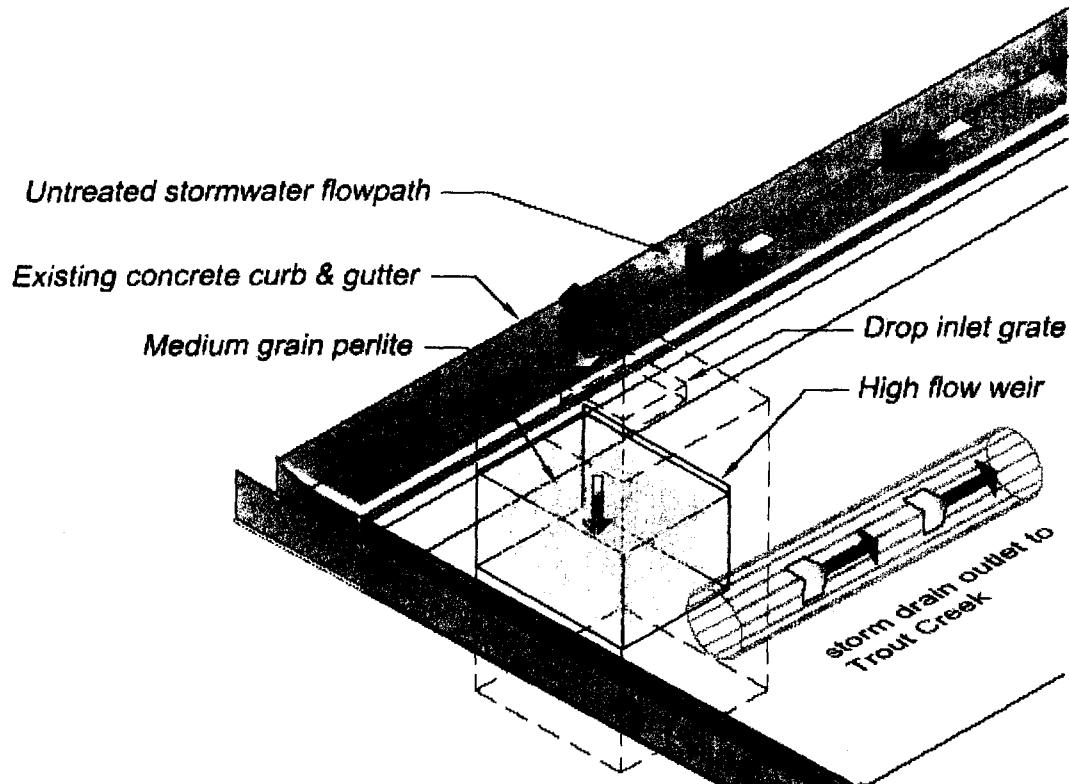
Figure 1 Montgomery Estates Project Location



stormwater into the granular perlite filter media each with a surface area of approximately 2 ft². The proposed configuration of the filter is presented in Figure 2. The stormwater loading rate will range from a typical flow rate of 2 gpm/ft² to a maximum of 20 gpm/ft², which is within the application rate tested by Aqua Filter (Mailloux, 2006). These flow rates are based on existing 15-minute rain intensity measurements maintained by El Dorado County from the Sierra House station. A high flow diversion weir will allow flow to bypass the filter into the existing storm drain system if the flow exceeds the filter capacity of the perlite media. Granular perlite will be purchased from a landscaping supply company at a cost of approximately 3 dollars per cubic foot. Depending on the hydrologic conditions and measured treatment effectiveness of the filter during the experiment, the perlite filter media will be replaced at 6-month or 12-month intervals.

Unfiltered stormwater samples will be collected manually as flow enters the drainage inlet and filtered stormwater will be collected at the filter outlet. As each sample is collected, the flow rate will be measured volumetrically. Precipitation will be documented using measurements from the existing Sierra House meteorological station maintained by El Dorado County and used to develop a continuously simulated hydrologic model. Measured flow rates will be used to calibrate and validate the hydrologic model. The turbidity of the unfiltered and filtered stormwater will be measured in the field using a Hach 2100 portable turbidimeter. Water quality samples will be collected and analyzed in accordance with the BMP performance monitoring and reporting protocol guidance document which is currently in development.

Figure 2 Modified Drainage Inlet Perlite Media Filter

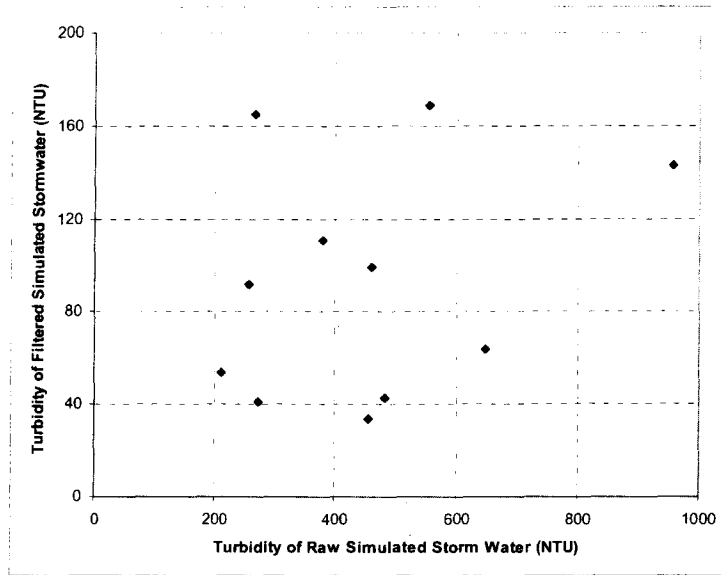


II.f. Relationship of the research to previous relevant research, monitoring, and/or environmental improvement efforts:

Aqua Filter has measured the effectiveness of reducing tss in simulated stormwater using Sil-Co-Sil 106 sediment which has a d_{50} particle size of approximately 21-microns. At application rates of 10 and 20 gpm/ft² the filter reduced tss between 80% and 65% respectively (Mailloux, 2006). This study did not measure turbidity or particles size distribution of the influent or effluent and was conducted using simulated stormwater only.

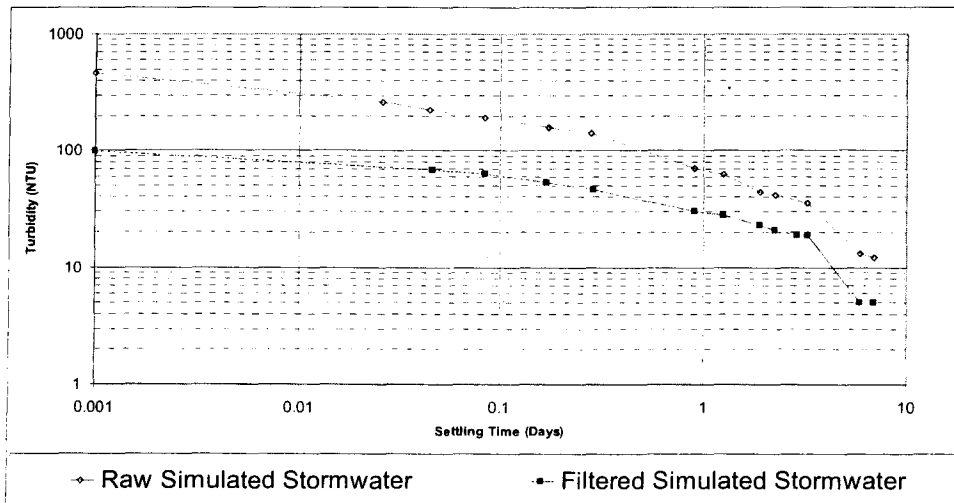
Between July and September 2008, El Dorado County DOT prepared thirteen different batches of simulated stormwater by suspending abrasive cinders in water, washing sediment from asphalt with water, and suspending sediment collected from various eroding slopes and channels in water. Each sample was screened through a 63-micron sieve so all sediment that contributed to a reduction in turbidity was less than 63-micron. Each sample was filtered through an 8" medium grained perlite filter fabricated by El Dorado County specifically for small-scale tests at a flow rate of approximately 1 gpm/ft². The turbidity of the simulated stormwater before and after filtration is presented in Figure 3. From the thirteen samples the average raw turbidity was 440 NTUs and the average treated turbidity was 91 NTUs representing an average reduction in turbidity of approximately 80%.

Figure 3 Simulated Stormwater Turbidity



This study did not measure particle size distribution and for this reason the results presented in Figure 3 do not assure that filtration of stormwater with perlite is effective in removing 20-micon and less particles. Furthermore, the long term water clarity benefits of perlite filtration were not demonstrated by these experiments. In order to partially address these unknowns, one of the simulated stormwater samples was allowed to settle in an imhoff cone for 7 days. The turbidity of the raw and filtered sample is presented in Figure 4 for the 7 day experiment. The unfiltered turbidity was 460 NTUs and the filtered turbidity was equal to 99 NTUs which represented a 78% reduction in turbidity. After 7 days, the turbidity of the unfiltered and filtered samples were 12 NTU and 5 NTU respectively representing a water clarity benefit based on 7 days of settling of approximately 60%.

Figure 4 Raw and Filter Turbidity Verse Time



El Dorado County DOT
Tahoe Engineering Division

II.g. Strategy for engaging with managers:

Mr. Kooyman and Mr. Wigart regularly meet with and discuss critical aspects of the Environmental Improvement Program (EIP) as representatives of various committees and subcommittees including:

- Storm Water Quality Improvement Committee (SQWIC)
- Pollutant Load Reduction Model (PLRM)
- Credit Accounting and Tracking committee
- Lake Tahoe Interagency Monitoring Program (LTIMP)
- Regional Stormwater Monitoring Program (RSWMP)
- Tahoe Science Agency Coordination Committee (TSACC)

In addition, El Dorado County is currently engaged in planning and implementing numerous water quality and erosion control projects. From these meetings and discussions and as an implementer of the EIP Dorado County is developing a keen understanding of the scientific needs relative to meaningful research to improve the benefits of the EIP.

II.h. Description of deliverables/products:

The Deliverables for this project will include the hydrologic and water quality results as necessary to comply with the BMP performance monitoring and reporting protocol guidance document that is currently in development. In addition, the results will be presented in a database once the protocols are developed. The results will include the following:

- Meteorological measurements at Sierra House station
- Flow measurements at the perlite media filter
- Water quality characteristics of the unfiltered and filtered stormwater including turbidity, particle size distribution and total suspended sediment (the methods will be developed and adjusted as appropriate once the reporting protocols are finalized)
- Hydrological and water quality modeling results presenting the annual flow volume. In addition, the benefit of the filter will be quantified by determining the mass of sediment captured by the filters.
- Cost of the construction and maintenance of the perlite granular filter systems and a calculation of the benefit/cost ratio of the filter for use as a BMP in areas where infiltration of stormwater is not feasible.

El Dorado County DOT
Tahoe Engineering Division

III Schedule

Milestones/Deliverables:	Starting Date	Ending Date
Establish agreement between PSW and El Dorado County	6/1/2009	9/15/2009
Kickoff meeting	9/30/2009	10/31/2009
Quarterly Progress Reports	12/31/2009	12/31/2010
Develop Sampling Plan and Protocols	9/30/2009	10/30/2009
Design Filter System	9/30/2009	11/30/2009
Order, Fabricate and Install Filters	10/30/2009	12/15/2009
Monitoring Filter	12/1/2009	12/1/2010
Replace Filter Media	TBD	TBD
Compile Results	12/1/2010	2/15/2011
Prepare Draft Findings Report	1/1/2011	2/29/2011
Prepare and submit final Findings Report	2/28/2010	4/15/2011

IV. References

Caltrans (2007). Caltrans Lake Tahoe Storm Water Small-Scale Pilot Treatment Project Phas II Report. December, 2003.

Jassby, Alan D. et al. (1999). Origins and scale dependence of temporal variability in the transparency of Lake Tahoe, California-Nevada. *Limnology and Oceanolgraphy* 11 (2): 282-294

Kang, Joo H. et al. (2007). Particle destabilization in highway runoff to optimize pollutant removal. *Journal of Environmental Engineering*. 133 (4): 426-434.

Mailloux, James T. (2006). Verification testing of the gravity-flow aqua-filter filtration cartridge with Sil-Co-Sil 106.

Reuter, J. E. et al., (2003). An integrated watershed approach to studying ecosystem health at Lake Tahoe, CA-NV. *Managing for Healthy Ecosystems*, 1283-1298.

Roberts, David M. and Reuter, John E. Draft Lake Tahoe Total Maximum Daily Load Technical Report, California and Nevada, September 2007.

Swift, Theodore J. et al. (2005). Water clarity modeling in Lake Tahoe: Linking suspended matter characteristics to secchi depth. *Aquatic Science* 68: 1-15.

V. Figures (contained within the text)

El Dorado County DOT
Tahoe Engineering Division

Curriculum Vitae – Russell C. Wigart
Assistant Civil Engineer
El Dorado County Department of Transportation
924B Emerald Bay Rd.
South Lake Tahoe, CA 96150 (530) 573-7924

Biography

Russell has 10 years experience in the Lake Tahoe Basin with emphasis on stormwater management, stormwater treatment and monitoring. His focus is on water quality issues, regulatory compliance, infrastructure maintenance tracking/training, project coordination, research and monitoring. Russell has managed projects including erosion control, water quality improvement, restoration, monitoring and research & development. The Planning and monitoring unit he works in is responsible for County compliance with the State of California NPDES program including implementation of the County's Tahoe Stormwater Management Plan (SWMP).

Education

Bachelor of Science- Forestry and Natural Resources Management, Cal Poly San Luis Obispo

Employment

- El Dorado County Department of Transportation (EDOT), South Lake Tahoe, CA. Assistant Civil Engineer, May 2007-present
- California Tahoe Conservancy, South Lake Tahoe, CA. Watershed Restoration Specialist, February 2006 - May 2007
- The City of South Lake Tahoe, CA. Assistant Civil Engineer, January 2000 - February 2006
- Lahontan Regional Water Quality Control Board, South Lake Tahoe, CA. Environmental Scientist, June 1999 - January 2000

Selected Project Experience

- **National Pollutant Discharge Elimination System (NPDES), Stormwater Management Plan (SWMP) and Maintenance Efficiency Plan (MEP) Implementation / Compliance, El Dorado County 2007-2008 and the City of South Lake Tahoe 2000-2006.** Responsibilities included; coordinating and conducting analysis to present detailed information regarding public works activities and compliance with both Lahontan and TRPA requirements. Responsible for the tracking and training of all maintenance division staff with regard to public works infrastructure and treatment systems for water quality improvement project areas; including sweeping of public roads / recovery, vector waste removal and disposal. Responsible for annual reporting requirements to the various jurisdictions. Other responsibilities include maintenance database management, illicit discharge detection / elimination, public outreach and education, pollutant load modeling and water quality monitoring.

El Dorado County DOT
Tahoe Engineering Division

- **Rubicon Estates and Montgomery Estates Erosion Control and Water Quality Improvements Projects, EDOT 2007-2008.** Under the Project Manager, conducted analyses and prepared a variety of planning reports for the evaluation of the water quality deficiencies within the project areas. Coordinated the hydrologic and water quality monitoring and modeling in order to identify the quantity and characteristics of pollutants originating from within the project areas. Helped Prepare and evaluate alternatives to mitigate the existing impacts to water quality including the design of source control, hydraulic conveyance, and treatment of urban stormwater.
- **Rocky Point and Park Avenue Erosion Control and Water Quality Improvements Projects, CSLT 2003-2006.** Acted as interim project manager to bring the project through the project delivery process to construction. Worked with a variety of consultants ranging from planning, design, environmental documentation to construction. Performed minor drafting and modeling with regard to final design and worked with consultants on technical aspects including site selection, site acquisition, R&D, design considerations and monitoring. Conducted water quality monitoring to estimate water volume and pollutant loads associated with the water quality improvement project. Developed detailed monitoring study designs to evaluate the project for both pre and post construction and received Forest Service monies to increase scientific understanding with regard to infiltration and pollutant transport.
- **Upper Truckee River Restoration Project Management and Monitoring, City of South Lake Tahoe, CA 2002-2005.** Managed various aspects of the Restoration project from the conceptual design and working with airport staff to development of alternatives for the project area. Until my departure in January 2006, was responsible for the coordination and contracting with the various consultants involved with the planning of this complex project. Also as part of this project, conducted water quality monitoring on the Upper Truckee River with regard to existing conditions in the project area using full time deployed automatic sensors and gauges.
- **Trout Creek Restoration and Wildlife Enhancement Project, City of South Lake Tahoe, CA 2000-2006.** The Trout Creek Stream Restoration and Wildlife Enhancement Project reconstructed 9000 channel feet of stream, enhancing sinuosity, raising the channel bed, increasing sediment deposition in pools and along floodplains. For this complex project I took the lead as project manager after the lead engineer left City service in 2001. Managed contracts with regard to the final construction, and various consultants involved in the design and monitoring of the project.
- **Water Quality Monitoring (Various Projects) 2000-2008.** Managed many individual monitoring projects to evaluate and develop understanding of pollutant process, transport and treatment with regard to stormwater and stream systems. Studies have utilized SNPLMA, CURTEM and CTC funding to answer specific scientific questions and develop understanding for specific treatment systems and individual projects.

VI.a. Personnel

Sr. Civil Engineer \$ 51.55 Assistant in Civil Engineering \$ 37.04

Task	hours	hours	Cost
Kickoff	4	4	\$ 354.36
Progress Reports	20	0	\$ 1,031.00
Develop Sampling Plan and Protocols	8	12	\$ 856.88
Design Filter System	8	8	\$ 708.72
Order, Fabricate and Install Filters	16	16	\$ 1,417.44
Monitoring Filter	80	80	\$ 7,087.20
Replace Filter Media	8	8	\$ 708.72
Compile Results	16	32	\$ 2,010.08
Prepare Draft Findings Report	16	20	\$ 1,565.60
Prepare Final Findings Report	8	8	\$ 708.72
	184	188	\$ 16,448.72

FY 09-10	FY 10-11
\$ 354.36	\$ -
\$ 515.50	\$ 515.50
\$ 856.88	\$ -
\$ 708.72	\$ -
\$ 1,417.44	\$ -
\$ 3,543.60	\$ 3,543.60
\$ -	\$ 708.72
\$ -	\$ 2,010.08
\$ -	\$ 1,565.60
\$ -	\$ 708.72
\$ 7,396.50	\$ 9,052.22

VI.b. Fringe

\$ 25.39 \$ 18.24

Task	hours	hours	Cost
Kickoff	4	4	\$ 174.52
Progress Reports	20	0	\$ 507.80
Develop Sampling Plan and Protocols	8	12	\$ 422.00
Design Filter System	8	8	\$ 349.04
Order, Fabricate and Install Filters	16	16	\$ 698.08
Monitoring Filter	80	80	\$ 3,490.40
Replace Filter Media	8	8	\$ 349.04
Compile Results	16	32	\$ 989.92
Prepare Draft Findings Report	16	20	\$ 771.04
Prepare Final Findings Report	8	8	\$ 349.04
	184	188	\$ 8,100.88

FY 09-10	FY 10-11
\$ 174.52	\$ -
\$ 253.90	\$ 253.90
\$ 422.00	\$ -
\$ 349.04	\$ -
\$ 698.08	\$ -
\$ 1,745.20	\$ 1,745.20
\$ -	\$ 349.04
\$ -	\$ 989.92
\$ -	\$ 771.04
\$ -	\$ 349.04
\$ 3,642.74	\$ 4,458.14

VI.c. Travel

Trucks

\$ 1,000.00	\$ 500.00	\$ 500.00
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VI.d. Equipment

There will be no equipment costs

VI.e. Supplies

Steel, grating and screening supplies
Perlite
Sample Bottles and Miscellaneous Supplies

\$ 2,000.00	\$ 2,000.00	\$ -
\$ 1,000.00	\$ 1,000.00	\$ -
\$ 1,000.00	\$ 1,000.00	\$ -
\$ 4,000.00	\$ 4,000.00	\$ -

VI.f. Contractual

Particle Size Distribution # of Samples 300 Cost per Sample \$ 38.00
Total Suspended Sediment 300 \$ 15.00

\$ 11,400.00	\$ 5,700.00	\$ 5,700.00
\$ 4,500.00	\$ 2,250.00	\$ 2,250.00
\$ 15,900.00	\$ 7,950.00	\$ 7,950.00

VI.h. Other

Sample shipments

\$ 3,000.00	\$ 1,500.00	\$ 1,500.00
-------------	-------------	-------------

VI.i. Total Direct Costs

\$ 48,449.60	\$ 24,989.24	\$ 23,460.36
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VI.j. Indirect Costs

\$ 77.74 \$ 55.85

Task	hours	hours	Cost
Kickoff	4	4	\$ 534.36
Progress Reports	20	0	\$ 1,554.80
Develop Sampling Plan and Protocols	8	12	\$ 1,292.12
Design Filter System	8	8	\$ 1,068.72
Order, Fabricate and Install Filters	16	16	\$ 2,137.44
Monitoring Filter	80	80	\$ 10,687.20
Replace Filter Media	8	8	\$ 1,068.72
Compile Results	16	32	\$ 3,031.04
Prepare Draft Findings Report	16	20	\$ 2,360.84
Prepare Final Findings Report	8	8	\$ 1,068.72
	184	188	\$ 24,803.96

FY 09-10	FY 10-11
\$ 534.36	\$ -
\$ 777.40	\$ 777.40
\$ 1,292.12	\$ -
\$ 1,068.72	\$ -
\$ 2,137.44	\$ -
\$ 5,343.60	\$ 5,343.60
\$ -	\$ 1,068.72
\$ -	\$ 3,031.04
\$ -	\$ 2,360.84
\$ -	\$ 1,068.72
\$ 11,153.64	\$ 13,650.32

VI.k Total Budget Requested

SNPLMA Round 9 (this proposal)
Matching Funds (In kind services and existing water quality grant funds)

Total Cost	FY 09-10	FY 10-11
\$ 73,253.56	\$ 36,142.88	\$ 37,110.68
\$ 14,650.71	\$ 7,228.58	\$ 7,422.14

Application for Federal Assistance SF-424 Version 02

*1. Type of Submission: <input type="checkbox"/> Preapplication <input checked="" type="checkbox"/> Application <input type="checkbox"/> Changed/Corrected Application	*2. Type of Application * If Revision, select appropriate letter(s) <input checked="" type="checkbox"/> New <input type="checkbox"/> Continuation <input type="checkbox"/> Revision *Other (Specify) _____
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3. Date Received: 7-15-09	4. Applicant Identifier:
-------------------------------------	---------------------------------

5a. Federal Entity Identifier:	*5b. Federal Award Identifier: 09-DG-11272170-063
---------------------------------------	---

State Use Only:

6. Date Received by State:	7. State Application Identifier:
-----------------------------------	---

8. APPLICANT INFORMATION:

***a. Legal Name:** El Dorado County

*b. Employer/Taxpayer Identification Number (EIN/TIN): 94-6000511	*c. Organizational DUNS: 62-140-9171
---	--

d. Address:

***Street 1:** 924B Emerald Bay Rd
Street 2: _____
***City:** South Lake Tahoe
County: El Dorado County
***State:** CA
Province: _____
***Country:** US
***Zip / Postal Code:** 96150

e. Organizational Unit:

Department Name: Transportation	Division Name: Tahoe Engineering
---	--

f. Name and contact information of person to be contacted on matters involving this application:

Prefix: _____ ***First Name:** Steve _____
Middle Name: _____
***Last Name:** Kooyman _____
Suffix: _____

Title: Supervising Civil Engineer

Organizational Affiliation:

*Telephone Number: 530-573-7910	Fax Number: 530-541-7049
--	---------------------------------

*Email: skooyman@edcgov.us	09-1148.B.20
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Application for Federal Assistance SF-424

Vers on 02

***9. Type of Applicant 1: Select Applicant Type:**

B. County Government

Type of Applicant 2: Select Applicant Type:

Type of Applicant 3: Select Applicant Type:

*Other (Specify)

***10 Name of Federal Agency:**

United States Forest Service - Lake Tahoe Basin Management Unit

11. Catalog of Federal Domestic Assistance Number:

10-652 _____

CFDA Title: **FORESTRY RESEARCH**

Lake Tahoe Restoration Act/Southern Nevada Public Lands Management Act

***12 Funding Opportunity Number:**

9-2A01 _____

*Title:

Round 9 - Tahoe Science Program

13. Competition Identification Number:

Title:

14. Areas Affected by Project (Cities, Counties, States, etc.):

El Dorado County

***15. Descriptive Title of Applicant's Project:**

Urban stormwater fine sediment filtration using granular perlite.

Application for Federal Assistance SF-424 Version 02

16. Congressional Districts Of:
 *a. Applicant: 14 *b. Program/Project: 14

17. Proposed Project:
 *a. Start Date: 7/15/09 *b. End Date: 12/31/12

18. Estimated Funding (\$):

*a. Federal	\$73,254
*b. Applicant	
*c. State	
*d. Local	
*e. Other	\$14,651
*f. Program Income	
*g. TOTAL	\$87,905

***19. Is Application Subject to Review By State Under Executive Order 12372 Process?**
 a. This application was made available to the State under the Executive Order 12372 Process for review on ____
 b. Program is subject to E.O. 12372 but has not been selected by the State for review.
 c. Program is not covered by E. O. 12372

***20. Is the Applicant Delinquent On Any Federal Debt? (If "Yes", provide explanation.)**
 Yes No

21. *By signing this application, I certify (1) to the statements contained in the list of certifications** and (2) that the statements herein are true, complete and accurate to the best of my knowledge. I also provide the required assurances** and agree to comply with any resulting terms if I accept an award. I am aware that any false, fictitious, or fraudulent statements or claims may subject me to criminal, civil, or administrative penalties. (U. S. Code, Title 218, Section 1001)
 ** I AGREE
 ** The list of certifications and assurances, or an internet site where you may obtain this list, is contained in the announcement or agency specific instructions

Authorized Representative:

Prefix: _____ *First Name: James
 Middle Name: W.
 *Last Name: Ware
 Suffix: _____

*Title: Director of Transportation

*Telephone Number: 530-621-7533 Fax Number: 530-541-7049

* Email: jim.ware@co.el-dorado.ca.us

*Signature of Authorized Representative:  *Date Signed: July 1, 2009

Application for Federal Assistance SF-424

Version 02

***Applicant Federal Debt Delinquency Explanation**

The following should contain an explanation if the Applicant organization is delinquent of any Federal Debt.

BUDGET INFORMATION - Non-Construction Programs

OMB Approval No. 0348-0044

SECTION A - BUDGET SUMMARY						
Grant Program Function or Activity (a)	Catalog of Federal Domestic Assistance Number (b)	Estimated Unobligated Funds		New or Revised Budget		
		Federal (c)	Non-Federal (d)	Federal (e)	Non-Federal (f)	Total (g)
1. Forestry Research	10.652	\$	\$	\$ 73,254.00	\$	\$ 73,254.00
2.						0.00
3.						0.00
4.						0.00
5. Totals		\$ 0.00	\$ 0.00	\$ 73,254.00	\$ 0.00	\$ 73,254.00
SECTION B - BUDGET CATEGORIES						
6. Object Class Categories	GRANT PROGRAM, FUNCTION OR ACTIVITY					Total (5)
	(1)	(2)	(3)	(4)	(5)	
a. Personnel	\$ 16,449.00	\$	\$	\$	\$	\$ 16,449.00
b. Fringe Benefits	8,101.00					8,101.00
c. Travel	1,000.00					1,000.00
d. Equipment						0.00
e. Supplies	4,000.00					4,000.00
f. Contractual	15,900.00					15,900.00
g. Construction						0.00
h. Other	3,000.00					3,000.00
i. Total Direct Charges (sum of 6a-6h)	48,450.00	0.00	0.00	0.00	0.00	48,450.00
j. Indirect Charges	24,804.00					24,804.00
k. TOTALS (sum of 6i and 6j)	\$ 73,254.00	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.00	\$ 73,254.00
7. Program Income		\$	\$	\$	\$	\$ 0.00

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Standard Form 424A (Rev. 7-97)
Prescribed by OMB Circular A-102

Previous Edition Usable

09-1148.B.24

SECTION C - NON-FEDERAL RESOURCES				
(a) Grant Program	(b) Applicant	(c) State	(d) Other Sources	(e) TOTALS
8. In-kind services and existing water quality grant funds	\$ 14,651	\$	\$	\$ 14,651
9.				
10.				
11.				
12. TOTAL (sum of lines 8-11)	\$ 14,651	\$	\$	\$ 14,651

SECTION D - FORECASTED CASH NEEDS					
	Total for 1st Year	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
13. Federal	\$ 36,143	\$ 9,036	\$ 9,036	\$ 9,036	\$ 9,036
14. Non-Federal	7,326	1,831	1,832	1,831	1,832
15. TOTAL (sum of lines 13 and 14)	\$ 43,469	\$ 10,867	\$ 10,868	\$ 10,867	\$ 10,867

SECTION E - BUDGET ESTIMATES OF FEDERAL FUNDS NEEDED FOR BALANCE OF THE PROJECT				
(a) Grant Program	FUTURE FUNDING PERIODS (Years)			
	(b) First	(c) Second	(d) Third	(e) Fourth
16. Perlite Study	\$ 36,143	\$ 37,111	\$	\$
17.				
18.				
19.				
20. TOTAL (sum of lines 16-19)	\$ 36,143	\$ 37,111	\$	\$

SECTION F - OTHER BUDGET INFORMATION	
21. Direct Charges:	22. Indirect Charges:
23. Remarks: Fringe Charges: 16.61%	

ASSURANCES - NON-CONSTRUCTION PROGRAMS

Public reporting burden for this collection of information is estimated to average 15 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0040), Washington, DC 20503.

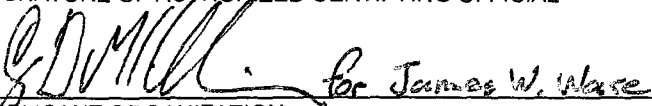
PLEASE DO NOT RETURN YOUR COMPLETED FORM TO THE OFFICE OF MANAGEMENT AND BUDGET. SEND IT TO THE ADDRESS PROVIDED BY THE SPONSORING AGENCY.

NOTE: Certain of these assurances may not be applicable to your project or program. If you have questions, please contact the awarding agency. Further, certain Federal awarding agencies may require applicants to certify to additional assurances. If such is the case, you will be notified.

As the duly authorized representative of the applicant, I certify that the applicant:

1. Has the legal authority to apply for Federal assistance and the institutional, managerial and financial capability (including funds sufficient to pay the non-Federal share of project cost) to ensure proper planning, management and completion of the project described in this application.
2. Will give the awarding agency, the Comptroller General of the United States and, if appropriate, the State, through any authorized representative, access to and the right to examine all records, books, papers, or documents related to the award; and will establish a proper accounting system in accordance with generally accepted accounting standards or agency directives.
3. Will establish safeguards to prohibit employees from using their positions for a purpose that constitutes or presents the appearance of personal or organizational conflict of interest, or personal gain.
4. Will initiate and complete the work within the applicable time frame after receipt of approval of the awarding agency.
5. Will comply with the Intergovernmental Personnel Act of 1970 (42 U.S.C. §§4728-4763) relating to prescribed standards for merit systems for programs funded under one of the 19 statutes or regulations specified in Appendix A of OPM's Standards for a Merit System of Personnel Administration (5 C.F.R. 900, Subpart F).
6. Will comply with all Federal statutes relating to nondiscrimination. These include but are not limited to: (a) Title VI of the Civil Rights Act of 1964 (P.L. 88-352) which prohibits discrimination on the basis of race, color or national origin; (b) Title IX of the Education Amendments of 1972, as amended (20 U.S.C. §§1681-1683, and 1685-1686), which prohibits discrimination on the basis of sex; (c) Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. §794), which prohibits discrimination on the basis of handicap; (d) the Age Discrimination Act of 1975, as amended (42 U.S.C. §§6101-6107), which prohibits discrimination on the basis of age; (e) the Drug Abuse Office and Treatment Act of 1972 (P.L. 92-255), as amended, relating to nondiscrimination on the basis of drug abuse; (f) the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment and Rehabilitation Act of 1970 (P.L. 91-616), as amended, relating to nondiscrimination on the basis of alcohol abuse or alcoholism; (g) §§523 and 527 of the Public Health Service Act of 1912 (42 U.S.C. §§290 dd-3 and 290 ee-3), as amended, relating to confidentiality of alcohol and drug abuse patient records; (h) Title VIII of the Civil Rights Act of 1968 (42 U.S.C. §§3601 et seq.), as amended, relating to nondiscrimination in the sale, rental or financing of housing; (i) any other nondiscrimination provisions in the specific statute(s) under which application for Federal assistance is being made; and, (j) the requirements of any other nondiscrimination statute(s) which may apply to the application.
7. Will comply, or has already complied, with the requirements of Titles II and III of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (P.L. 91-646) which provide for fair and equitable treatment of persons displaced or whose property is acquired as a result of Federal or federally-assisted programs. These requirements apply to all interests in real property acquired for project purposes regardless of Federal participation in purchases.
8. Will comply, as applicable, with provisions of the Hatch Act (5 U.S.C. §§1501-1508 and 7324-7328) which limit the political activities of employees whose principal employment activities are funded in whole or in part with Federal funds.

9. Will comply, as applicable, with the provisions of the Davis-Bacon Act (40 U.S.C. §§276a to 276a-7), the Copeland Act (40 U.S.C. §276c and 18 U.S.C. §874), and the Contract Work Hours and Safety Standards Act (40 U.S.C. §§327-333), regarding labor standards for federally-assisted construction subagreements.
10. Will comply, if applicable, with flood insurance purchase requirements of Section 102(a) of the Flood Disaster Protection Act of 1973 (P.L. 93-234) which requires recipients in a special flood hazard area to participate in the program and to purchase flood insurance if the total cost of insurable construction and acquisition is \$10,000 or more.
11. Will comply with environmental standards which may be prescribed pursuant to the following: (a) institution of environmental quality control measures under the National Environmental Policy Act of 1969 (P.L. 91-190) and Executive Order (EO) 11514; (b) notification of violating facilities pursuant to EO 11738; (c) protection of wetlands pursuant to EO 11990; (d) evaluation of flood hazards in floodplains in accordance with EO 11988; (e) assurance of project consistency with the approved State management program developed under the Coastal Zone Management Act of 1972 (16 U.S.C. §§1451 et seq.); (f) conformity of Federal actions to State (Clean Air) Implementation Plans under Section 176(c) of the Clean Air Act of 1955, as amended (42 U.S.C. §§7401 et seq.); (g) protection of underground sources of drinking water under the Safe Drinking Water Act of 1974, as amended (P.L. 93-523); and, (h) protection of endangered species under the Endangered Species Act of 1973, as amended (P.L. 93-205).
12. Will comply with the Wild and Scenic Rivers Act of 1968 (16 U.S.C. §§1271 et seq.) related to protecting components or potential components of the national wild and scenic rivers system.
13. Will assist the awarding agency in assuring compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. §470), EO 11593 (identification and protection of historic properties), and the Archaeological and Historic Preservation Act of 1974 (16 U.S.C. §§469a-1 et seq.).
14. Will comply with P.L. 93-348 regarding the protection of human subjects involved in research, development, and related activities supported by this award of assistance.
15. Will comply with the Laboratory Animal Welfare Act of 1966 (P.L. 89-544, as amended, 7 U.S.C. §§2131 et seq.) pertaining to the care, handling, and treatment of warm blooded animals held for research, teaching, or other activities supported by this award of assistance.
16. Will comply with the Lead-Based Paint Poisoning Prevention Act (42 U.S.C. §§4801 et seq.) which prohibits the use of lead-based paint in construction or rehabilitation of residence structures.
17. Will cause to be performed the required financial and compliance audits in accordance with the Single Audit Act Amendments of 1996 and OMB Circular No. A-133, "Audits of States, Local Governments, and Non-Profit Organizations."
18. Will comply with all applicable requirements of all other Federal laws, executive orders, regulations, and policies governing this program.

SIGNATURE OF AUTHORIZED CERTIFYING OFFICIAL  for James W. Ware	TITLE Director of Transportation
APPLICANT ORGANIZATION El Dorado County	DATE SUBMITTED July 1, 2009

ASSURANCES - NON-CONSTRUCTION PROGRAMS

Public reporting burden for this collection of information is estimated to average 15 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0040), Washington, DC 20503.


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As the duly authorized representative of the applicant, I certify that the applicant:

1. Has the legal authority to apply for Federal assistance and the institutional, managerial and financial capability (including funds sufficient to pay the non-Federal share of project cost) to ensure proper planning, management and completion of the project described in this application.
2. Will give the awarding agency, the Comptroller General of the United States and, if appropriate, the State, through any authorized representative, access to and the right to examine all records, books, papers, or documents related to the award; and will establish a proper accounting system in accordance with generally accepted accounting standards or agency directives.
3. Will establish safeguards to prohibit employees from using their positions for a purpose that constitutes or presents the appearance of personal or organizational conflict of interest, or personal gain.
4. Will initiate and complete the work within the applicable time frame after receipt of approval of the awarding agency.
5. Will comply with the Intergovernmental Personnel Act of 1970 (42 U.S.C. §§4728-4763) relating to prescribed standards for merit systems for programs funded under one of the 19 statutes or regulations specified in Appendix A of OPM's Standards for a Merit System of Personnel Administration (5 C.F.R. 900, Subpart F).
6. Will comply with all Federal statutes relating to nondiscrimination. These include but are not limited to: (a) Title VI of the Civil Rights Act of 1964 (P.L. 88-352) which prohibits discrimination on the basis of race, color or national origin; (b) Title IX of the Education Amendments of 1972, as amended (20 U.S.C. §§1681-1683, and 1685-1686), which prohibits discrimination on the basis of sex; (c) Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. §794), which prohibits discrimination on the basis of handicaps; (d) the Age Discrimination Act of 1975, as amended (42 U.S.C. §§6101-6107), which prohibits discrimination on the basis of age; (e) the Drug Abuse Office and Treatment Act of 1972 (P.L. 92-255), as amended, relating to nondiscrimination on the basis of drug abuse; (f) the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment and Rehabilitation Act of 1970 (P.L. 91-616), as amended, relating to nondiscrimination on the basis of alcohol abuse or alcoholism; (g) §§523 and 527 of the Public Health Service Act of 1912 (42 U.S.C. §§290 dd-3 and 290 ee-3), as amended, relating to confidentiality of alcohol and drug abuse patient records; (h) Title VIII of the Civil Rights Act of 1968 (42 U.S.C. §§3601 et seq.), as amended, relating to nondiscrimination in the sale, rental or financing of housing; (i) any other nondiscrimination provisions in the specific statute(s) under which application for Federal assistance is being made; and, (j) the requirements of any other nondiscrimination statute(s) which may apply to the application.
7. Will comply, or has already complied, with the requirements of Titles II and III of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (P.L. 91-646) which provide for fair and equitable treatment of persons displaced or whose property is acquired as a result of Federal or federally-assisted programs. These requirements apply to all interests in real property acquired for project purposes regardless of Federal participation in purchases.
8. Will comply, as applicable, with provisions of the Hatch Act (5 U.S.C. §§1501-1508 and 7324-7328) which limit the political activities of employees whose principal employment activities are funded in whole or in part with Federal funds.

9. Will comply, as applicable, with the provisions of the Davis-Bacon Act (40 U.S.C. §§276a to 276a-7), the Copeland Act (40 U.S.C. §276c and 18 U.S.C. §874), and the Contract Work Hours and Safety Standards Act (40 U.S.C. §§327-333), regarding labor standards for federally-assisted construction subagreements.
10. Will comply, if applicable, with flood insurance purchase requirements of Section 102(a) of the Flood Disaster Protection Act of 1973 (P.L. 93-234) which requires recipients in a special flood hazard area to participate in the program and to purchase flood insurance if the total cost of insurable construction and acquisition is \$10,000 or more.
11. Will comply with environmental standards which may be prescribed pursuant to the following: (a) institution of environmental quality control measures under the National Environmental Policy Act of 1969 (P.L. 91-190) and Executive Order (EO) 11514; (b) notification of violating facilities pursuant to EO 11738; (c) protection of wetlands pursuant to EO 11990; (d) evaluation of flood hazards in floodplains in accordance with EO 11988; (e) assurance of project consistency with the approved State management program developed under the Coastal Zone Management Act of 1972 (16 U.S.C. §§1451 et seq.); (f) conformity of Federal actions to State (Clean Air) Implementation Plans under Section 176(c) of the Clean Air Act of 1955, as amended (42 U.S.C. §§7401 et seq.); (g) protection of underground sources of drinking water under the Safe Drinking Water Act of 1974, as amended (P.L. 93-523); and, (h) protection of endangered species under the Endangered Species Act of 1973, as amended (P.L. 93-205).
12. Will comply with the Wild and Scenic Rivers Act of 1968 (16 U.S.C. §§1271 et seq.) related to protecting components or potential components of the national wild and scenic rivers system.
13. Will assist the awarding agency in assuring compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. §470), EO 11593 (identification and protection of historic properties), and the Archaeological and Historic Preservation Act of 1974 (16 U.S.C. §§469a-1 et seq.).
14. Will comply with P.L. 93-348 regarding the protection of human subjects involved in research, development, and related activities supported by this award of assistance.
15. Will comply with the Laboratory Animal Welfare Act of 1966 (P.L. 89-544, as amended, 7 U.S.C. §§2131 et seq.) pertaining to the care, handling, and treatment of warm blooded animals held for research, teaching, or other activities supported by this award of assistance.
16. Will comply with the Lead-Based Paint Poisoning Prevention Act (42 U.S.C. §§4801 et seq.) which prohibits the use of lead-based paint in construction or rehabilitation of residence structures.
17. Will cause to be performed the required financial and compliance audits in accordance with the Single Audit Act Amendments of 1996 and OMB Circular No. A-133, "Audits of States, Local Governments, and Non-Profit Organizations."
18. Will comply with all applicable requirements of all other Federal laws, executive orders, regulations, and policies governing this program.

SIGNATURE OF AUTHORIZED CERTIFYING OFFICIAL  for James W. Wise	TITLE Director of Transportation
APPLICANT ORGANIZATION El Dorado County	DATE SUBMITTED July 1, 2009

UNITED STATES DEPARTMENT OF AGRICULTURE
CERTIFICATION REGARDING
DRUG-FREE WORKPLACE REQUIREMENTS (GRANTS)
ALTERNATIVE I - FOR GRANTEES OTHER THAN INDIVIDUALS

This certification is required by the regulations implementing Sections 5151-5160 of the Drug-Free Workplace Act of 1988 (Pub. L. 100-690, Title V, Subtitle D; 41 U.S.C. 701 *et seq.*), 7 CFR Part 3017, Subpart F, Section 3017.600, Purpose. The January 31, 1989, regulations were amended and published as Part II of the May 25, 1990 *Federal Register* (pages 21681-21691). Copies of the regulations may be obtained by contacting the Department of Agriculture agency offering the grant.

(Before completing Certification, read instructions on page 2)

Alternative I

A. The grantee certifies that it will or will continue to provide a drug-free workplace by:

(a) Publishing a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the grantee's workplace and specifying the actions that will be taken against employees for violation of such prohibition;

(b) Establishing an ongoing drug-free awareness program to inform employees about --

- (1) The dangers of drug abuse in the workplace;
- (2) The grantee's policy of maintaining a drug-free workplace;
- (3) Any available drug counseling, rehabilitation, and employee assistance programs; and
- (4) The penalties that may be imposed upon employees for drug abuse violations occurring in the workplace;

(c) Making it a requirement that each employee to be engaged in the performance of the grant be given a copy of the statement required by paragraph (a);

(d) Notifying the employee in the statement required by paragraph (a) that, as a condition of employment under the grant, the employee will --

- (1) Abide by the terms of the statement; and
- (2) Notify the employer in writing of his or her conviction for a violation of a criminal drug statute occurring in the workplace no later than five calendar days after such conviction;

(e) Notifying the agency in writing, within ten calendar days after receiving notice under subparagraph (d)(2) from an employee or otherwise receiving actual notice of such conviction. Employers of convicted employees must provide notice, including position title, to every grant officer on whose grant activity the convicted employee was working, unless the Federal agency has designated a central point for the receipt of such

notices. Notice shall include the identification number(s) of each affected grant;

Taking one of the following actions, within 30 calendar days of receiving notice under subparagraph (d)(2), with respect to any employee who is so convicted --

(1) Taking appropriate personnel action against such an employee, up to and including termination, consistent with the requirements of the Rehabilitation Act of 1973, as amended; or

(2) Requiring such employee to participate satisfactorily in a drug abuse assistance or rehabilitation program approved for such purposes by a Federal, State, or local health, law enforcement, or other appropriate agency;

(g) Making a good faith effort to continue to maintain a drug-free workplace through implementation of paragraphs (a), (b), (c), (d), (e) and (f).

B. The grantee may insert in the space provided below the site(s) for the performance of work done in connection with the specific grant:

Place of Performance (Street address, city, county, State, zip code)

Check if there are workplaces on file that are not identified here.

Organization Name _____

Award Number or Project Name _____

Name and Title of Authorized Representative _____

Signature _____ Date _____

INSTRUCTIONS FOR CERTIFICATION

1. By signing and submitting this form, the grantee is providing the certification set out on pages 1 and 2.
2. The certification set out on pages 1 and 2 is a material representation of fact upon which reliance is placed when the agency awards the grant. If it is later determined that the grantee knowingly rendered a false certification, or otherwise violates the requirements of the Drug-Free Workplace Act, the agency, in addition to any other remedies available to the Federal Government, may take action authorized under the Drug-Free Workplace Act.
3. Workplaces under grants, for grantees other than individuals, need not be identified on the certification. If known, they may be identified in the grant application. If the grantee does not identify the workplaces at the time of application, or upon award, if there is no application, the grantee must keep the identity of the workplace(s) on file in its office and make the information available for Federal inspection. Failure to identify all known workplaces constitutes a violation of the grantee's drug-free workplace requirements.
4. Workplace identifications must include the actual address of buildings (or parts of buildings) or other sites where work under the grant takes place. Categorical descriptions may be used (e.g., all vehicles of a mass transit authority or State highway department while in operation, State employees in each local unemployment office, performers in concert halls or radio studios).
5. If the workplace identified to the agency changes during the performance of the grant, the grantee shall inform the agency of the change(s), if it previously identified the workplaces in question (see paragraph three).
6. Definitions of terms in the Nonprocurement Suspension and Debarment common rule and Drug-

Free Workplace common rule apply to this certification. Grantees' attention is called, in particular, to the following definitions from these rules:

"Controlled" substance means a controlled substance in Schedules I through V of the Controlled Substances Act (21 U.S.C. 812) and as further defined by regulation (21 CFR 1308.11 through 1308.15);

"Conviction" means a finding of guilt (including a plea of nolo contendere) or imposition of sentence, or both, by any judicial body charged with the responsibility to determine violations of the Federal or State criminal drug statutes;

"Criminal drug statute" means a Federal or non-Federal criminal statute involving the manufacture, distribution, dispensing, use, or possession of any controlled substance;

"Employee" means the employee of a grantee directly engaged in the performance of work under a grant, including: (i) all "direct charge" employees; (ii) all "indirect charge" employees unless their impact or involvement is insignificant to the performance of the grant; and, (iii) temporary personnel and consultants who are directly engaged in the performance of work under the grant and who are on the grantee's payroll. This definition does not include workers not on the payroll of the grantee (e.g., volunteers, even if used to meet a matching requirement; consultants or independent contractors not on the grantee's payroll; or employees of subrecipients or subcontractors in covered workplaces).

**Certification Regarding Debarment, Suspension, and Other
Responsibility Matters - Primary covered Transactions**

This certification is required by the regulations implementing Executive Order 12549, Debarment and Suspension, 7 CFR Part 3017, Section 3017.510, Participants' responsibilities. The regulations were published as Part IV of the January 30, 1989, Federal Register (pages 4722-4733). Copies of the regulations may be obtained by contacting the Department of Agriculture agency offering the proposed covered transaction.

(BEFORE COMPLETING CERTIFICATION, READ INSTRUCTIONS ON REVERSE)

- (1) The prospective primary participant certifies to the best of its knowledge and belief, that it and its principals:
- (a) are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
 - (b) have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
 - (c) are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any other the offenses enumerated in paragraphs (1)(b) of this certification; and
 - (d) have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.
2. Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

 Organization Name

 PR/Award Number or Project Name

 Name(s) and Title(s) of Authorized Representative(s)

 Signature(s)

 Date (mm/dd/yyyy)

Instructions for Certification

(Pg 2 of 2)

1. By signing and submitting this form, the prospective primary participant is providing the certification set out on the reverse side in accordance with these instructions.
2. The inability of a person to provide the certification required below will not necessarily result in denial of participation in this covered transaction. The prospective participant shall submit an explanation of why it cannot provide the certification set out on this form. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective primary participant to furnish a certification or an explanation shall disqualify such person from participation in this transaction.
3. The certification in this clause is a material representation of fact upon which reliance was placed when the department or agency determined to enter into this transaction. If it is later determined that the prospective primary participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.
4. The prospective primary participant shall provide immediate written notice to the department or agency to whom this proposal is submitted if at any time the prospective primary participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.
5. The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction," "participant," "person," "primary covered transaction," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and coverage sections of the rules implementing Executive Order 12549. You may contact the department or agency to which this proposal is being submitted for assistance in obtaining a copy of those regulations.
6. The prospective primary participant agrees by submitting this form that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.
7. The prospective primary participant further agrees by submitting this form that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transactions," provided by the department or agency entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.
8. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant, may but is not required to, check the Nonprocurement List.
9. Nothing contained in the foregoing shall be constructed to require establishment of a system of records in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.
10. Except for transactions authorized under paragraph 6 of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.