NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SERVICE CONTRACT

CONTRACT #C009762

THIS Agreement entered into between the New York State Department of Environmental Conservation (hereinafter referred to as the Department), having offices at 625 Broadway, Albany, New York 12233 and Cornell University (hereinafter referred to as the Contractor), with offices at Office of Sponsored Programs, Cornell University, 373 Pine Tree Road, Ithaca, NY 14853-2802.

WITNESSETH:

WHEREAS, the Department requires certain program services consisting of yogurt acid whey value-added products research; and,

WHEREAS, the performance of these program services is essential to the Department; and,

WHEREAS, after fully examining all of its internal capabilities and thoroughly investigating possible alternative approaches, the Department has determined that these services can best be accomplished through a Contract:

NOW, THEREFORE, in consideration of the mutual promises herein contained, the parties hereto agree as follows:

ARTICLE 1: SERVICES

(a) The Department agrees to retain and hereby does retain the Contractor to perform, and the Contractor agrees to furnish and perform, the services described in Scope of Work, attached hereto as Schedule 1. Such services are hereinafter referred to as "Services" or "Work".

(b) All Services shall be performed in a prompt manner in accordance with accepted professional practices.

(c) All Services performed by the Contractor must conform to the Scope of Work, attached hereto as Schedule 1, and shall be subject to acceptance of the Department. Evidence of the Department's acceptance shall be a required document in all payment requests. The Contractor shall revise and correct, without additional compensation therefore, any required work of this Contract until the Department, such acceptance not to be unreasonably withheld, shall accept the same.

(d) All accepted original and other drawings, as well as all notes computations, if applicable, and reports prepared by the Contractor, or other products of the services performed under this Contract, which are required deliverables under this Contract, shall

become the property of the Department. Contractor shall have the unrestricted, non-exclusive right to use such deliverables for its purpose.

(e) Title to, and the right to determine the disposition of any copyrights, or copyrightable material, first produced or created solely by Contractor in the performance of this work shall remain with the Contractor; provided that the Contractor shall grant to the Department and the State a nonexclusive, nontransferable, irrevocable, paid-up license to practice or have practiced for on behalf of the Department and the State the subject copyright throughout the world , where the Contractor is able to do so.

Title to, and the right to determine the disposition of any copyrights, or copyrightable material, first produced or created solely by Department or State in the performance of this work shall remain with the State; provided that the Department or State shall grant to the Contractor a nonexclusive, nontransferable, irrevocable, paid-up license to use for non-commercial research, educational, and public service purposes.

Title to, and the right to determine the disposition of any copyrights, or copyrightable material, first produced or created jointly by Contractor and Department or State in the performance of this work shall be jointly held by the Contractor and Department or State.

(f) Any invention or discovery made or conceived and reduced to practice in the performance of this Contract solely by Contractor shall remain with the Contractor; provided that the Contractor shall grant to the Department and the State a nonexclusive, nontransferable, irrevocable, paid-up license to practice or have practiced for on behalf of the Department and the State the subject copyright throughout the world, where the Contractor is able to do so.

Any invention or discovery made or conceived and reduced to practice in the performance of this Contract solely by Department or State shall remain with the State; provided that the Department or State shall grant to the Contractor a nonexclusive, nontransferable, irrevocable, paid-up license to use for non-commercial research, educational, and public service purposes.

Any invention or discovery made or conceived and reduced to practice in the performance of this Contract jointly by Contractor and Department or State in the performance of this work shall be jointly held by the Contractor and Department or State.

(g) The Services to be rendered by the Contractor shall include all necessary conferences with the Department and its representatives.

(h) It is understood between the parties that this Contract is intended to secure the services of the Contractor because of its ability and reputation.

(i) The Department shall furnish or make available to the Contractor all available data in its possession pertinent to the work. The Contractor shall perform all necessary

field and office work to supplement such data in accordance with Schedule 1, Scope of Work.

(j) The Contractor recognizes that employees in performing this Contract may have access to data provided by the Department of a sensitive nature, which should not be released without Department consultation.

(i) The Department agrees to identify the data, which will be subject to confidentiality agreements. Release of such data is subject to the provisions in Article 23 Publication and Information Release. Such agreements shall be effective for the life of the Contract and for a period of two (2) years after completion of the contract.

(ii) On a case by case basis, the Contractor agrees to obtain confidentiality agreements (as identified by the Department) from all subcontractors and consultants working on requirements under this Contract. Such agreements shall contain provisions which stipulate that each person agrees that he/she will not disclose, either in whole or in part, to any entity other than the Contractor and the Department, New York State Department of Health or the New York State Department of Law, any information or data provided under this Contract or first generated by the subcontractor or consultant under this Contract, any site-specific cost information, or any enforcement strategy without first complying with the following provisions:

(iii) The Contractor's acceptance and use of any proprietary data, which may be supplied by the Department in the course of the Contract shall be subject to the following:

(iv) (a) The data must be marked or designated in writing as proprietary to the Department.

(b) The Contractor retains the right to refuse to accept any such data, which it does not consider to be essential to the completion of the project or which it believes to be improperly designated, or for any other reason.

(c) Where the Contractor does accept such data as proprietary, it agrees to exercise its reasonable efforts, comparable to efforts taken with its own data not to publish or otherwise reveal the data to others without the permission of the Department, unless the data has already been published or disclosed publicly by third parties or is required to be disclosed by order of a court of law.

ARTICLE 2: PAYMENT

(a) The Department shall pay to the Contractor and the Contractor shall accept from the Department as full compensation for the performance of services defined herein an amount not to exceed $500,000, as described in the Budget, Schedule 2 which is attached hereto.

(b) If the term of this Contract encompasses more than one State fiscal year, the Contractor shall incur no costs hereunder in subsequent fiscal years without the express written authority of the Department.

(c) As soon as practicable after the close of each quarter the Contractor shall submit requests for payment to the Department for services rendered, including but not limited to an itemized invoice and, as requested by the Department, additional supporting documentation. These invoices will be processed in accordance with established procedures of the Department and the New York State Office of the State Comptroller. Payments will be made in accordance with Article 11A of the State Finance Law. Requests for payment must be submitted within 45 days of the end of each fiscal year, which is March 31. Failure to comply with this request or notify the Department in writing prior to March 31 that it is unable to request payment may operate as a waiver by the Contractor for reimbursement by the Department. Failure of the Department to accept the services and provide evidence thereof, as set forth in Article 1 (c) above, shall not operate as a waiver.

(d) Contractor shall provide complete and accurate billing invoices to the Department in order to receive payment. Billing invoices submitted to the Department must contain all information and supporting documentation required by the Contract, the Department and the State Comptroller. Payment for invoices submitted by the Contractor shall only be rendered electronically unless payment by paper check is expressly authorized by the Commissioner, in the Commissioner's sole discretion, due to extenuating circumstances. Such electronic payment shall be made in accordance with ordinary State procedures and practices. The Contractor shall comply with the State Comptroller's procedures to authorize electronic payments. Authorization forms are available at the State Comptroller's website at www.osc.state.ny.us/epay/index.htm, by email at epunit@osc.state.ny.us, or by telephone at 518-474-4032. Contractor acknowledges that it will not receive payment on any invoices submitted under this Contract if it does not comply with the State Comptroller's electronic payment procedures, except where the Commissioner has expressly authorized payment by paper check as set forth above.

ARTICLE 3: TERM

(a) Unless modified as provided herein, this contract shall begin on October 1, 2015 and end on September 30, 2018. The Contract shall be effective upon approval by the Office of the State Comptroller.

(b) This Contract may be amended and/or extended for a maximum of two

additional one-year periods upon the mutual written consent of both parties and the approval of the Office of the State Comptroller. To modify this Agreement, the parties shall prepare new appendices, to the extent that any require modification, and an amendment. Any terms of this Agreement not modified shall remain in effect for the Term of this Agreement. The rate of compensation shall be negotiated for each of the respective periods. Costs may be escalated as supported by documentation provided by the Contractor, provided however, that no increase may exceed five percent.

ARTICLE 4: PROGRESS SCHEDULE

The Contractor shall prepare and submit for the Department's acceptance a detailed progress schedule for the completion of the services required by this Contract. The progress schedule shall be consistent with the payment schedule of this Contract, and shall identify, for purposes of payment, milestone dates for completion of such services, and for delivery of any documents required by this Contract. The progress schedule, including milestones, may be altered only with the written approval of the Department.

ARTICLE 5: NOTICES

Wherever it is provided in this Contract that notice shall be given or other communications sent to the Department or the Contractor, such notices or communications shall be delivered or sent by First Class Mail or email to:

Department:

Sally Rowland, Supervisor
NYS Dept. of Environmental Conservation
Organic Reduction and Recycling Section
625 Broadway
Albany, NY 12233
Telephone Number: (518) 402-8706
E-Mail: sally.rowland@dec.ny.gov

Contractor:

Carmen I. Moraru, Project Manager
Cornell University
364 Stocking Hall Ithaca, NY 14853
Telephone Number: (607) 255-8121
E-Mail: Cim24@cornell.edu

ARTICLE 6: KEY PERSONNEL

(a) The Key Personnel of the Contractor, as identified in Schedule 1, Scope of Work, who are to perform the work under this Contract shall be subject to the approval of the Department. In case of the death, disability, or end of employment of one or more but not all the

persons so approved, the Contractor shall identify if possible a successor or replacement for such Key Personnel; however, the Department shall have the right to approve successor Key Personnel to perform the work under this Contract. If the Department does not approve such Key Personnel, then this Contract will terminate.

(b) In case of the death, disability or end of employment of all the persons so approved without approved replacements, all data and records pertaining to the project shall be delivered within sixty (60) days to the Department or its duly authorized representative.

ARTICLE 7: COMPLIANCE WITH LAWS

The Contractor agrees to comply with the provisions of the Labor Law and all State and Federal laws, local statutes, ordinances, and regulations that are applicable to the performance of this Contract.

ARTICLE 8: TITLE TO CAPITAL EQUIPMENT

Any equipment purchased with funds provided by the Department under this Contract shall be the property of the Department, unless specifically provided for otherwise. An item with a unit cost of $5,000 or more and a useful life of two years will be considered Capital Equipment. Anything not meeting the criteria will be considered consumable supplies.

ARTICLE 9: CONTRACTOR'S RESPONSIBILITY

All services to be performed under this Contract shall be performed with the Contractor's own employees, unless the Department agrees in writing that the Contractor may subcontract such services. The Contractor's use of subcontractors does not diminish the Contractor's obligations to complete the work in accordance with the Contract. The Contractor shall control, coordinate, and be responsible for the work of its subcontractors. The Contractor is responsible for informing subcontractors of all relevant terms, conditions and requirements of the Contract. The Department considers the Contractor, as prime, to be the sole point of contact, and solely responsible for performance under this Contract.

ARTICLE 10: DEFAULT AND TERMINATION

(a) If the Department reasonably determines that the Contractor has breached a material term of this Contract, it shall issue a written notice, providing the Contractor with 30 days to correct the defect. If the Contractor fails to correct the defect within this time period, or fails to make a good faith effort to do so as reasonably determined by the Department, the Department may terminate this Contract for cause.

(b) The Department shall have the right to postpone, suspend, abandon, or terminate this Contract, and such actions shall in no event be deemed a breach of Contract. In any of these events, the Contractor will be reimbursed for all expenses incurred and

non-cancelable commitments entered in accordance with the terms of this Agreement prior to the postponement, suspension, abandonment, or termination of the Contract.

(c) Upon written notice of any termination, postponement, delay, suspension or abandonment, the Contractor shall immediately stop work, take steps to incur no additional obligations, and to limit further expenditures. Within 30 days of receipt of written notice, the Contractor shall deliver to the Department all Department owned data, reports, plans, or other documentation related to the performance of this Contract, including but not limited to source codes and specifications, guarantees, warranties, as-built plans and shop drawings. In any of these events, the Department shall make settlement with the Contractor upon an equitable basis as reasonably determined by the Department which shall fix the value of the work which was performed by the Contractor prior to the postponement, suspension, abandonment or termination of this contract and all outstanding obligations which could not be cancelled in good faith by the Contractor. This clause shall take precedence over Appendix B (I).

(d) In addition to whatever other rights it has to terminate the Contract resulting from this procurement, the Department reserves the right to terminate this contract in the event it is found that the certification filed by the Contractor in accordance with New York State Finance Law §139-k was intentionally false or intentionally incomplete. Upon such finding, the Department may exercise its termination right by providing written notification to the Contractor in accordance with the written notification terms of this contract.

(e) Termination for Non- Responsibility: Upon written notice to the Contractor, and a reasonable opportunity to be heard with appropriate Department officials or staff, the Contract may be terminated by the Commissioner or his or her designee at the Contractor's expense where the Contractor is determined by the Commissioner or his or her designee to be non-responsible. In such event, the Commissioner or his or her designee may complete the contractual requirements in any manner he or she may deem advisable and pursue available legal or equitable remedies for breach.

ARTICLE 11: ENTIRE CONTRACT

This Contract consists of the following documents in the following order of precedence.

1. Appendix A
2. Appendix B
3. The Contract *(including Appendix C, Schedule 1, and Schedule 2)*

ARTICLE 12: NO THIRD PARTY RIGHTS

Nothing in this Contract shall create or give to third parties any claim or right of action against the Contractor or the State of New York beyond such as may legally exist irrespective of this Contract.

ARTICLE 13: SEVERABILITY

If any part of this Contract is determined to be invalid, illegal or unenforceable, such determination shall not affect the validity, legality or enforceability of any other part of this Contract, and the remaining parts of this Contract shall be enforced as if the invalid, illegal or unenforceable part were not contained therein.

ARTICLE 14: FORCE MAJEURE

Neither party shall be liable for any failure or delay in the performance of its respective obligations hereunder if and to the extent that such delay or failure is due to a cause or circumstance beyond the reasonable control of such party, including, without limitation, acts of God or the public enemy, naturally occurring conditions over which the Contractor has no control, expropriation or confiscation of lands or facilities, compliance with any law, order or request of any Federal, State, municipal or local governmental authority, acts of war, rebellion or sabotage or damage resulting therefrom, fires, floods, storms, explosions, accidents, riots, strikes or the delay or failure to perform by any subcontractor by reason of any cause or circumstances beyond the reasonable control of such subcontractor.

ARTICLE 15: AFFIRMATIVE ACTION REQUIREMENTS

The Contractor must make good faith efforts to subcontract 0% of the contract amount to Minority Owned Business Enterprises (MBE's) and 0% to Women Owned Business Enterprises (WBE's). The contractor must make good faith efforts to employ 10% minority group members and 10% women for a portion of the workforce hours required to perform the work under this contract. Appendix B further defines the M/WBE and EEO provisions required by Executive Law, Article 15A.

ARTICLE 16: STANDARD CONTRACT CLAUSES

The Contractor will be required to comply with all of the mandatory New York State and Department contracting provisions contained in the following two attached documents:

Appendix A - Standard Clauses for All New York State Contracts;
Appendix B - Standard Clauses for All NYSDEC Contracts.

ARTICLE 17: MACBRIDE FAIR EMPLOYMENT PRINCIPLES/NON COLLUSION REQUIREMENTS/STATE ETHICS LAW/PROCUREMENT LOBBYING LAW PROVISION

The Contractor is required to complete the combined "Non-Collusion/Nondiscrimination in Employment in Northern Ireland: MacBride Fair Employment Principles/State Ethics Law/Procurement Lobbying Law Provision" form attached to this contract.

ARTICLE 18: FREEDOM OF INFORMATION LAW REQUIREMENTS

The Contractor must provide to the Department all information, records, and other written material it produces, possesses, or relies upon if such material is the object of a legitimate request to the Department pursuant to the Freedom of Information Law.

ARTICLE 19: CONSULTANT DISCLOSURE REQUIREMENTS

Chapter 10 of the Laws of 2006 amended State Finance Law §§ 8 and 163 by instituting new reporting requirements in contracts for consultant services. As a result of this amendment to the law, State contractors are required to disclose, by employment category, the number of persons employed to provide services under a contract for consulting services, the number of hours worked, and the amount paid to the contractor by the State as compensation for work performed by these employees. Chapter 10 of the Laws of 2006 expands the definition of contracts for consulting services to include any contract entered into by a State agency for analysis, evaluation, research, training, data processing, computer programming, engineering, environmental, health, and mental health services, accounting, auditing, paralegal, legal, or similar services.

In order to comply with these requirements, the Contractor is required to complete the State Consultant Services Contractor's Planned Employment From Contract Start Date Through the End of the Contract Term ("Form A"). The completed form must include information for all employees providing service under the Contract whether employed by the Contractor or a subcontractor.

Additionally, the Contractor is required to submit annual employment reports to the Department, Office of the State Comptroller, and Department of Civil Service. This reporting will be accomplished through the State Consultant Services Contractor's Annual Employment Report ("Form B"). Form B must be submitted each year the contract is in effect and will capture historical information, detailing actual employment data for the most recently concluded State fiscal year (April 1 - March 31).

Information regarding Consultant Disclosure Legislation can be obtained on the website of the Office of the State Comptroller at http://www.osc.state.ny.us/agencies/gbull/g-226.htm.

ARTICLE 20: PROCUREMENT LOBBYING LAW

Pursuant to State Finance Law §§139-j and 139-k, this procurement includes and imposes certain restrictions on communications between the New York State Department of Environmental Conservation (Department) and a vendor during the procurement process. A vendor is restricted from making contacts from the earliest notice of intent to enter into a Contract through final award and approval of the Contract by the Department and, if applicable, Office of the State Comptroller ("restricted period") to other than designated staff unless it is a contact that is included among certain statutory exceptions set forth in State Finance Law §139-j(3)(a). Designated staff, as of the date hereof, is identified below. Department employees are also required to obtain certain information when contacted during the restricted period and make a determination of the responsibility of the vendor pursuant to these two statutes. Certain findings of non-responsibility can result in rejection for contract award and in the event of two findings within a 4-year period, the vendor is debarred from obtaining governmental Procurement Contracts.

Further information about these requirements, including a copy of the lobbying law, can be found at: http://www.ogs.ny/gov/ACPL/.

For information concerning the Department's guidelines, see Appendix C: New York State Department of Environmental Conservation Guidelines Regarding Permissible Contacts during a Procurement and the Prohibition of Inappropriate Lobbying Influence.

Designated Department Staff:
Sally Rowland, Supervisor
New York State Department of Environmental Conservation
Organic Reduction and Recycling Section
625 Broadway, Albany, New York 12233-7253, (518) 402-8706

ARTICLE 21: INSURANCE CONSIDERATIONS

The successful contractor agrees to procure and maintain at its own expense and without expense to the Department until final acceptance by the Department of the services covered by this Contract, insurance of the kinds and amounts hereinafter provided by insurance companies licensed to do business in the State of New York, covering all operations under this Contract.

Upon execution of this Contract, the successful contractor shall furnish to the Department a certificate or certificates, in form satisfactory to the Department, showing that it has complied with this Article, which certificate or certificates shall provide that the policies shall not be changed or canceled until thirty (30) days written notice has been given to the Department. The certificate shall list the Department and the State of New York as additional insureds, except with respect to worker's compensation and disability coverage. The insurance certificate(s) must contain an endorsement in writing added to and made part of the insurance contract for the purpose of changing the original terms such that the Department and the State of New York are added as additional insured. In addition, the applicable insurance policy number(s) referenced on the ACORD form must be referenced on the endorsement. A copy of the endorsement page, showing the Department and the State of New York as additional insured, must be provided to the

Department. This Contract shall be void and of no effect unless the successful Contractor procures the required insurance policies and maintains them until acceptance of the work. The kinds and amounts of insurance required are as follows:

(a) Policy covering the obligations of the successful contractor in accordance with the provisions of the Worker's Compensation Law, Employers Liability, and Disability Benefits.

The *only* forms which are accepted as proof of Workers' Compensation Insurance are as follows:

FORM #	FORM TITLE
C-105.2	Certificate of Workers' Compensation Insurance
CE-200	Certificate of Attestation of Exemption – (no employees)
U-26.3	State Insurance Fund Version of the C-105.2 form
SI-12	Certificate of Workers' Compensation Self-Insurance
GSI-105.2	Certificate of Participation in Worker's Comp Group Self-Insurance

The *only* forms which are accepted as proof of Disability Benefit Insurance are as follows:

FORM #	FORM TITLE
DB-120.1	Certificate of Disability Benefit Insurance
DB-155	Certificate of Disability Benefit Self-Insurance
CE-200	Certificate of Attestation of Exemption – (no employees)

An ACORD form is **NOT** an acceptable proof of Workers' Compensation coverage. **ALL OF THE ABOVE REFERENCED FORMS, EXCEPT CE-200, SI-12 & DB-155 MUST NAME**: The New York State Department of Environmental Conservation, 625 Broadway, Albany, NY 12233 as the Entity Requesting Proof of Coverage (Entity being listed as the Certificate Holder).

Additional information can be obtained at the Worker's Compensation website:
http://www.wcb.ny.gov/content/main/Employers/Employers.jsp

(b) Commercial General Liability Insurance with a limit of not less than $1,000,000 each occurrence. Such insurance shall cover liability arising from premises operations, independent contractors, products-completed operations, broad form property damage, personal and

advertising injury, cross liability assumed in a contract (including tort liability of another assumed in a contract).

(c) Comprehensive Business Automobile Liability Insurance with a limit of not less than $1,000,000 each accident. Such insurance shall cover liability arising out of any automobile including owned, leased, hired and non owned automobiles.

(d) The successful contractor shall require that any subcontractors hired, carry insurance with the same limits and provisions as provided herein.

(e) In lieu of insurance, Department agrees to accept Contractor's program of self-insurance, or other program as provided by NYS Law.

ARTICLE 22: PUBLICATION AND INFORMATION RELEASE

(a) The Contractor may publish papers or other material pertaining to the work performed or to be performed under the Contract after first providing the Department a copy of the proposed publication for review and comment on matters pertaining to sponsor confidential information, intellectual property, pending investigations or enforcement actions. The Department will provide its comments within 30 working days and the Contractor agrees to seriously consider these comments and not unreasonable reject the Department's comments and suggestions. The Contractor shall comply with all comments that are mutually agreeable to the Department and the Contract. If in a formal response to the reviews described herein, the Department notifies the Contractor that its deliverables or any part thereof will be used as part of an ongoing investigation or enforcement action, the Contractor will limit any presentation or publication to educational, scholarly or scientific venues without identifying information if practical, until resolution thereof. The Contractor will give the Department credit for the support provided to the Contractor in any publication or other copy resulting from this work. The Department may request the Contractor to delay release of such proposed publication for a maximum of an additional thirty (30) days in order to protect Intellectual Property, or Confidential or Proprietary Data described therein. Such delay shall not be imposed on the filing of any student thesis or dissertation.

(b) The Contractor agrees not to release any information relevant to the work under this Contract for media presentations, press conferences or any other elements of a publicity nature without submitting such release to the Department for review and approval thirty (30) days prior to its intended release. This shall not preclude Cornell from announcing the award in normal internal documents available to the public or Cornell internet sites that announce the existence of this award.

(c) If the Contractor, through an employee or otherwise, is subpoenaed to testify or produce documents, which could result in such disclosure, the Contractor must provide, where allowed by law, prompt advance notification to the Department.

ARTICLE 23: DIESEL EMISSIONS REDUCTION ACT 2006

In 2007 New York State passed legislation establishing the Diesel Emissions Reduction Act 2006 (DERA). This Act amended the Environmental Conservation Law (ECL) by

adding Section 19-0323 which requires the use of best available retrofit technology (BART) and ultra low sulfur diesel fuel (ULSD) for heavy duty vehicles owned or operated by, including on behalf of, state agencies and state or regional public authorities. The Department has promulgated regulations (6 NYCRR Part 248) to provide guidance on provisions of the law. The regulations may be found on the Department's website at http://www.dec.ny.gov/regulations/56126.html.

The Contractor will be required to certify that they are in compliance with the provisions of ECL Section 19-0323 by attesting to the following:

The Contractor certifies and warrants that all heavy duty vehicles, as defined in New York State Environmental Conservation Law (ECL) section 19-0323, to be used under this Contract, will comply with the specifications and provisions of ECL Section 19-0323 and the regulations promulgated thereto, which requires the use of Best Available Retrofit Technology (BART) and Ultra Low Sulfur Diesel (ULSD), unless specifically waived by the Department. Qualifications for a waiver under this law will be the responsibility of the Contractor.

ARTICLE 24: IRAN DIVESTMENT ACT

By entering into this Contract, Contractor certifies that it is not on the "Entities Determined To Be Non-Responsive Bidders/Offerers Pursuant to The New York State Iran Divestment Act of 2012" list ("Prohibited Entities List") posted on the OGS website at: http://www.ogs.ny.gov/about/regs/docs/ListofEntities.pdf and further certifies that it will not utilize on such Contract any subcontractor that is identified on the Prohibited Entities List.

Contractor agrees that should it seek to renew or extend this Contract, it must provide the same certification at the time the Contract is renewed or extended. Contractor also agrees that any proposed Assignee of the Contract will be required to certify that it is not on the Prohibited Entities List before the Department may approve a request for Assignment of Contract.

During the term of the Contract, should the Department receive information that a person (as defined in State Finance Law §165-a) is in violation of the above-referenced certifications, the Department will review such information and offer the person an opportunity to respond. If the person fails to demonstrate that it has ceased its engagement in the investment activity which is in violation of the Act within 90 days after the determination of such violation, then the Department shall take such action as may be appropriate and provided for by law, rule, or contract, including, but not limited to, seeking compliance, recovering damages, or declaring the Contractor in default.

The Department reserves the right to reject any request for renewal, extension, or assignment for an entity that appears on the Prohibited Entities List prior to the renewal, extension, or assignment of the Contract, and to pursue a responsibility review with Contractor should it appear on the Prohibited Entities List hereafter.

ARTICLE 25: ENVIRONMENTAL PROTECTION FUND ACKNOWLEDGEMENT

If applicable, in recognition of a portion of the Department funds utilized for any work completed under this Contract, the Contractor agrees to acknowledge in any communication to

the public, that such funding was provided from the Environmental Protection Fund as administered by the New York State Department of Environmental Conservation.

ARTICLE 26: VENDOR RESPONSIBILITY

(a) General Responsibility: The Contractor shall at all times during the Contract term remain responsible. The Contractor agrees, if requested by the Commissioner or his or her designee, to present evidence of its continuing legal authority to do business in New York State, integrity, experience, ability, prior performance, and organizational and financial capacity.

(b) Suspension of Work (for Non-Responsibility): The Commissioner or his or her designee, in his or her sole discretion, reserves the right to suspend any or all activities under this Contract, at any time, when he or she discovers information that calls into question the responsibility of the Contractor. In the event of such suspension, the Contractor will be given written notice outlining the particulars of such suspension. Upon issuance of such notice, the Contractor must comply with the terms of the suspension order. Contract activity may resume at such time as the Commissioner or his or her designee issues a written notice authorizing a resumption of performance under the Contract.

(c) The Department recommends that vendors file a required Vendor Responsibility Questionnaire online via the New York State VendRep System. To enroll in and use the New York State VendRep System, see the VendRep System Instructions available at http://www.osc.state.ny.us/vendrep/vendor_index.htm or go directly to the VendRep System online at https://portal.osc.state.ny.us.

(d) Vendors must provide their New York State Identification Number when enrolling. To request assignment of a Vendor ID or for VendRep System assistance, contact the Office of the State Comptroller's Help Desk at 866-370-4672 or 518-408-4672 or by email at ciohelpdesk@osc.state.ny.us. Vendors opting to complete and submit a paper questionnaire can obtain the appropriate questionnaire from the VendRep website www.osc.state.ny.us/vendrep or may contact the Department of the Office of the State Comptroller's Help Desk for a copy of the paper form.

SIGNATURE PAGE

Contract Number: C009762

IN WITNESS WHEREOF, this Contract has been duly executed by the parties hereto on the day and year appearing following their respective signatures.

Agency Certification:

"In addition to the acceptance of this contract, I also certify that original copies of this signature page will be attached to all other exact copies of this contract."

Contractor Certification:

The Contractor certifies and warrants that all heavy duty vehicles, as defined in NewYork State Environmental Conservation Law (ECL) section 19-0323, to be used under this Contract, will comply with the specifications and provisions of ECL Section 19-0323 and the regulations promulgated thereto, which requires the use of Best Available Retrofit Technology (BART) and Ultra Low Sulfur Diesel (ULSD), unless specifically waived by the Department. Qualifications for a waiver under this law will be the responsibility of the Contractor.

CONTRACTOR SIGNATURE

Jerry D. Corbin
Sr. Grant & Contract Officer
Office of Sponsored Programs

DATED: 12/9/2015

AGENCY SIGNATURE

DATED: FEB 16 2016

ATTORNEY GENERAL'S SIGNATURE

APPROVED AS TO FORM
NYS ATTORNEY GENERAL

FEB 22 2016

DATED: Benjamin L. Maggi
BENJAMIN L. MAGGI
ASSISTANT ATTORNEY GENERAL

APPROVED:
Thomas P. DiNapoli
STATE COMPTROLLER

DATED: 3/11/16

P.C. $500,000.00

Acknowledgement Form

State of New York)

) ss.:

County of Tompkins)

On the 9th day of December in the year 2015, before me, the undersigned notary public, personally appeared Jeffery D. Corbin, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name(s) is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

Linda Griswold Notary Public

LINDA GRISWOLD
Notary Public-State of New York
No. 01GR6054708
Qualified in Schuyler County
Commission Expires 02-12-2019

STANDARD CLAUSES FOR NYS CONTRACTS

The parties to the attached contract, license, lease, amendment or other agreement of any kind (hereinafter, "the contract" or "this contract") agree to be bound by the following clauses which are hereby made a part of the contract (the word "Contractor" herein refers to any party other than the State, whether a contractor, licenser, licensee, lessor, lessee or any other party):

1. **EXECUTORY CLAUSE.** In accordance with Section 41 of the State Finance Law, the State shall have no liability under this contract to the Contractor or to anyone else beyond funds appropriated and available for this contract.

2. **NON-ASSIGNMENT CLAUSE.** In accordance with Section 138 of the State Finance Law, this contract may not be assigned by the Contractor or its right, title or interest therein assigned, transferred, conveyed, sublet or otherwise disposed of without the State's previous written consent, and attempts to do so are null and void. Notwithstanding the foregoing, such prior written consent of an assignment of a contract let pursuant to Article XI of the State Finance Law may be waived at the discretion of the contracting agency and with the concurrence of the State Comptroller where the original contract was subject to the State Comptroller's approval, where the assignment is due to a reorganization, merger or consolidation of the Contractor's business entity or enterprise. The State retains its right to approve an assignment and to require that any Contractor demonstrate its responsibility to do business with the State. The Contractor may, however, assign its right to receive payments without the State's prior written consent unless this contract concerns Certificates of Participation pursuant to Article 5-A of the State Finance Law.

3. **COMPTROLLER'S APPROVAL.** In accordance with Section 112 of the State Finance Law (or, if this contract is with the State University or City University of New York, Section 355 or Section 6218 of the Education Law), if this contract exceeds $50,000 (or the minimum thresholds agreed to by the Office of the State Comptroller for certain S.U.N.Y. and C.U.N.Y. contracts), or if this is an amendment for any amount to a contract which, as so amended, exceeds said statutory amount, or if, by this contract, the State agrees to give something other than money when the value or reasonably estimated value of such consideration exceeds $10,000, it shall not be valid, effective or binding upon the State until it has been approved by the State Comptroller and filed in his office. Comptroller's approval of contracts let by the Office of General Services is required when such contracts exceed $85,000 (State Finance Law Section 163.6-a). However, such pre-approval shall not be required for any contract established as a centralized contract through the Office of General Services or for a purchase order or other transaction issued under such centralized contract.

4. **WORKERS' COMPENSATION BENEFITS.** In accordance with Section 142 of the State Finance Law, this contract shall be void and of no force and effect unless the Contractor shall provide and maintain coverage during the life of this contract for the benefit of such employees as are required to be covered by the provisions of the Workers' Compensation Law.

5. **NON-DISCRIMINATION REQUIREMENTS.** To the extent required by Article 15 of the Executive Law (also known as the Human Rights Law) and all other State and Federal statutory and constitutional non-discrimination provisions, the Contractor will not discriminate against any employee or applicant for employment because of race, creed, color, sex (including gender identity or expression), national origin, sexual orientation, military status, age, disability, predisposing genetic characteristics, marital status or domestic violence victim status. Furthermore, in accordance with Section 220-e of the Labor Law, if this is a contract for the construction, alteration or repair of any public building or public work or for the manufacture, sale or distribution of materials, equipment or supplies, and to the extent that this contract shall be performed within the State of New York, Contractor agrees that neither it nor its subcontractors shall, by reason of race, creed, color, disability, sex, or national origin: (a) discriminate in hiring against any New York State citizen who is qualified and available to perform the work; or (b) discriminate against or intimidate any employee hired for the performance of work under this contract. If this is a building service contract as defined in Section 230 of the Labor Law, then, in accordance with Section 239 thereof, Contractor agrees that neither it nor its subcontractors shall by reason of race, creed, color, national origin, age, sex or disability: (a) discriminate in hiring against any New York State citizen who is qualified and available to perform the work; or (b) discriminate against or intimidate any employee hired for the performance of work under this contract. Contractor is subject to fines of $50.00 per person per day for any violation of Section 220-e or Section 239 as well as possible termination of this contract and forfeiture of all moneys due hereunder for a second or subsequent violation.

6. **WAGE AND HOURS PROVISIONS.** If this is a public work contract covered by Article 8 of the Labor Law or a building service contract covered by Article 9 thereof, neither Contractor's employees nor the employees of its subcontractors may be required or permitted to work more than the number of hours or days stated in said statutes, except as otherwise provided in the Labor Law and as set forth in prevailing wage and supplement schedules issued by the State Labor Department. Furthermore, Contractor and its subcontractors must pay at least the prevailing wage rate and pay or provide the prevailing supplements, including the premium rates for overtime pay, as determined by the State Labor Department in accordance with the Labor Law. Additionally, effective April 28, 2008, if this is a public work contract covered by Article 8 of the Labor Law, the Contractor understands and agrees that the filing of payrolls in a manner consistent with Subdivision 3-a of Section 220 of the Labor Law shall be a condition precedent to payment by the State of

any State approved sums due and owing for work done upon the project.

7. **NON-COLLUSIVE BIDDING CERTIFICATION.** In accordance with Section 139-d of the State Finance Law, if this contract was awarded based upon the submission of bids, Contractor affirms, under penalty of perjury, that its bid was arrived at independently and without collusion aimed at restricting competition. Contractor further affirms that, at the time Contractor submitted its bid, an authorized and responsible person executed and delivered to the State a non-collusive bidding certification on Contractor's behalf.

8. **INTERNATIONAL BOYCOTT PROHIBITION.** In accordance with Section 220-f of the Labor Law and Section 139-h of the State Finance Law, if this contract exceeds $5,000, the Contractor agrees, as a material condition of the contract, that neither the Contractor nor any substantially owned or affiliated person, firm, partnership or corporation has participated, is participating, or shall participate in an international boycott in violation of the federal Export Administration Act of 1979 (50 USC App. Sections 2401 et seq.) or regulations thereunder. If such Contractor, or any of the aforesaid affiliates of Contractor, is convicted or is otherwise found to have violated said laws or regulations upon the final determination of the United States Commerce Department or any other appropriate agency of the United States subsequent to the contract's execution, such contract, amendment or modification thereto shall be rendered forfeit and void. The Contractor shall so notify the State Comptroller within five (5) business days of such conviction, determination or disposition of appeal (2NYCRR 105.4).

9. **SET-OFF RIGHTS.** The State shall have all of its common law, equitable and statutory rights of set-off. These rights shall include, but not be limited to, the State's option to withhold for the purposes of set-off any moneys due to the Contractor under this contract up to any amounts due and owing to the State with regard to this contract, any other contract with any State department or agency, including any contract for a term commencing prior to the term of this contract, plus any amounts due and owing to the State for any other reason including, without limitation, tax delinquencies, fee delinquencies or monetary penalties relative thereto. The State shall exercise its set-off rights in accordance with normal State practices including, in cases of set-off pursuant to an audit, the finalization of such audit by the State agency, its representatives, or the State Comptroller.

10. **RECORDS.** The Contractor shall establish and maintain complete and accurate books, records, documents, accounts and other evidence directly pertinent to performance under this contract (hereinafter, collectively, "the Records"). The Records must be kept for the balance of the calendar year in which they were made and for six (6) additional years thereafter. The State Comptroller, the Attorney General and any other person or entity authorized to conduct an examination, as well as the agency or agencies involved in this contract, shall have access to the Records during normal business hours at an office of the Contractor within the State of New York or, if no such office is available, at a mutually agreeable and reasonable venue within the State, for the term specified above for the purposes of inspection, auditing and copying. The State shall take reasonable steps to protect from public disclosure any of the Records which are exempt from disclosure under Section 87 of the Public Officers Law (the "Statute") provided that: (i) the Contractor shall timely inform an appropriate State official, in writing, that said records should not be disclosed; and (ii) said records shall be sufficiently identified; and (iii) designation of said records as exempt under the Statute is reasonable. Nothing contained herein shall diminish, or in any way adversely affect, the State's right to discovery in any pending or future litigation.

11. **IDENTIFYING INFORMATION AND PRIVACY NOTIFICATION.** (a) Identification Number(s). Every invoice or New York State Claim for Payment submitted to a New York State agency by a payee, for payment for the sale of goods or services or for transactions (e.g., leases, easements, licenses, etc.) related to real or personal property must include the payee's identification number. The number is any or all of the following: (i) the payee's Federal employer identification number, (ii) the payee's Federal social security number, and/or (iii) the payee's Vendor Identification Number assigned by the Statewide Financial System. Failure to include such number or numbers may delay payment. Where the payee does not have such number or numbers, the payee, on its invoice or Claim for Payment, must give the reason or reasons why the payee does not have such number or numbers.

(b) Privacy Notification. (1) The authority to request the above personal information from a seller of goods or services or a lessor of real or personal property, and the authority to maintain such information, is found in Section 5 of the State Tax Law. Disclosure of this information by the seller or lessor to the State is mandatory. The principal purpose for which the information is collected is to enable the State to identify individuals, businesses and others who have been delinquent in filing tax returns or may have understated their tax liabilities and to generally identify persons affected by the taxes administered by the Commissioner of Taxation and Finance. The information will be used for tax administration purposes and for any other purpose authorized by law. (2) The personal information is requested by the purchasing unit of the agency contracting to purchase the goods or services or lease the real or personal property covered by this contract or lease. The information is maintained in the Statewide Financial System by the Vendor Management Unit within the Bureau of State Expenditures, Office of the State Comptroller, 110 State Street, Albany, New York 12236.

12. **EQUAL EMPLOYMENT OPPORTUNITIES FOR MINORITIES AND WOMEN.** In accordance with Section 312 of the Executive Law and 5 NYCRR 143, if this contract is: (i) a written agreement or purchase order instrument, providing for a total expenditure in excess of $25,000.00,

whereby a contracting agency is committed to expend or does expend funds in return for labor, services, supplies, equipment, materials or any combination of the foregoing, to be performed for, or rendered or furnished to the contracting agency; or (ii) a written agreement in excess of $100,000.00 whereby a contracting agency is committed to expend or does expend funds for the acquisition, construction, demolition, replacement, major repair or renovation of real property and improvements thereon; or (iii) a written agreement in excess of $100,000.00 whereby the owner of a State assisted housing project is committed to expend or does expend funds for the acquisition, construction, demolition, replacement, major repair or renovation of real property and improvements thereon for such project, then the following shall apply and by signing this agreement the Contractor certifies and affirms that it is Contractor's equal employment opportunity policy that:

(a) The Contractor will not discriminate against employees or applicants for employment because of race, creed, color, national origin, sex, age, disability or marital status, shall make and document its conscientious and active efforts to employ and utilize minority group members and women in its work force on State contracts and will undertake or continue existing programs of affirmative action to ensure that minority group members and women are afforded equal employment opportunities without discrimination. Affirmative action shall mean recruitment, employment, job assignment, promotion, upgradings, demotion, transfer, layoff, or termination and rates of pay or other forms of compensation;

(b) at the request of the contracting agency, the Contractor shall request each employment agency, labor union, or authorized representative of workers with which it has a collective bargaining or other agreement or understanding, to furnish a written statement that such employment agency, labor union or representative will not discriminate on the basis of race, creed, color, national origin, sex, age, disability or marital status and that such union or representative will affirmatively cooperate in the implementation of the Contractor's obligations herein; and

(c) the Contractor shall state, in all solicitations or advertisements for employees, that, in the performance of the State contract, all qualified applicants will be afforded equal employment opportunities without discrimination because of race, creed, color, national origin, sex, age, disability or marital status.

Contractor will include the provisions of "a", "b", and "c" above, in every subcontract over $25,000.00 for the construction, demolition, replacement, major repair, renovation, planning or design of real property and improvements thereon (the "Work") except where the Work is for the beneficial use of the Contractor. Section 312 does not apply to: (i) work, goods or services unrelated to this contract; or (ii) employment outside New York State. The State shall consider compliance by a contractor or subcontractor with the requirements of any federal law concerning equal employment opportunity which effectuates the purpose of this section. The contracting agency shall determine whether the imposition of the requirements of the provisions hereof duplicate or conflict with any such federal law and if such duplication or conflict exists, the contracting agency shall waive the applicability of Section 312 to the extent of such duplication or conflict. Contractor will comply with all duly promulgated and lawful rules and regulations of the Department of Economic Development's Division of Minority and Women's Business Development pertaining hereto.

13. CONFLICTING TERMS. In the event of a conflict between the terms of the contract (including any and all attachments thereto and amendments thereof) and the terms of this Appendix A, the terms of this Appendix A shall control.

14. GOVERNING LAW. This contract shall be governed by the laws of the State of New York except where the Federal supremacy clause requires otherwise.

15. LATE PAYMENT. Timeliness of payment and any interest to be paid to Contractor for late payment shall be governed by Article 11-A of the State Finance Law to the extent required by law.

16. NO ARBITRATION. Disputes involving this contract, including the breach or alleged breach thereof, may not be submitted to binding arbitration (except where statutorily authorized), but must, instead, be heard in a court of competent jurisdiction of the State of New York.

17. SERVICE OF PROCESS. In addition to the methods of service allowed by the State Civil Practice Law & Rules ("CPLR"), Contractor hereby consents to service of process upon it by registered or certified mail, return receipt requested. Service hereunder shall be complete upon Contractor's actual receipt of process or upon the State's receipt of the return thereof by the United States Postal Service as refused or undeliverable. Contractor must promptly notify the State, in writing, of each and every change of address to which service of process can be made. Service by the State to the last known address shall be sufficient. Contractor will have thirty (30) calendar days after service hereunder is complete in which to respond.

18. PROHIBITION ON PURCHASE OF TROPICAL HARDWOODS. The Contractor certifies and warrants that all wood products to be used under this contract award will be in accordance with, but not limited to, the specifications and provisions of Section 165 of the State Finance Law, (Use of Tropical Hardwoods) which prohibits purchase and use of tropical hardwoods, unless specifically exempted, by the State or any governmental agency or political subdivision or public benefit corporation. Qualification for an exemption under this law will be the responsibility of the contractor to establish to meet with the approval of the State.

In addition, when any portion of this contract involving the use of woods, whether supply or installation, is to be performed by any subcontractor, the prime Contractor will indicate and certify in the submitted bid proposal that the subcontractor has been informed and is in compliance with specifications and provisions regarding use of tropical hardwoods as detailed in §165 State Finance Law. Any such use must meet with the approval of the State; otherwise, the bid may not be considered responsive. Under bidder certifications, proof of qualification for exemption will be the responsibility of the Contractor to meet with the approval of the State.

19. MACBRIDE FAIR EMPLOYMENT PRINCIPLES. In accordance with the MacBride Fair Employment Principles (Chapter 807 of the Laws of 1992), the Contractor hereby stipulates that the Contractor either (a) has no business operations in Northern Ireland, or (b) shall take lawful steps in good faith to conduct any business operations in Northern Ireland in accordance with the MacBride Fair Employment Principles (as described in Section 165 of the New York State Finance Law), and shall permit independent monitoring of compliance with such principles.

20. OMNIBUS PROCUREMENT ACT OF 1992. It is the policy of New York State to maximize opportunities for the participation of New York State business enterprises, including minority and women-owned business enterprises as bidders, subcontractors and suppliers on its procurement contracts.

Information on the availability of New York State subcontractors and suppliers is available from:

NYS Department of Economic Development
Division for Small Business
Albany, New York 12245
Telephone: 518-292-5100
Fax: 518-292-5884
email: opa@esd.ny.gov

A directory of certified minority and women-owned business enterprises is available from:

NYS Department of Economic Development
Division of Minority and Women's Business Development
633 Third Avenue
New York, NY 10017
212-803-2414
email: mwbecertification@esd.ny.gov
https://ny.newnycontracts.com/FrontEnd/VendorSearchPublic.asp

The Omnibus Procurement Act of 1992 requires that by signing this bid proposal or contract, as applicable, Contractors certify that whenever the total bid amount is greater than $1 million:

(a) The Contractor has made reasonable efforts to encourage the participation of New York State Business Enterprises as suppliers and subcontractors, including certified minority and women-owned business enterprises, on this project, and has retained the documentation of these efforts to be provided upon request to the State;

(b) The Contractor has complied with the Federal Equal Opportunity Act of 1972 (P.L. 92-261), as amended;

(c) The Contractor agrees to make reasonable efforts to provide notification to New York State residents of employment opportunities on this project through listing any such positions with the Job Service Division of the New York State Department of Labor, or providing such notification in such manner as is consistent with existing collective bargaining contracts or agreements. The Contractor agrees to document these efforts and to provide said documentation to the State upon request; and

(d) The Contractor acknowledges notice that the State may seek to obtain offset credits from foreign countries as a result of this contract and agrees to cooperate with the State in these efforts.

21. RECIPROCITY AND SANCTIONS PROVISIONS. Bidders are hereby notified that if their principal place of business is located in a country, nation, province, state or political subdivision that penalizes New York State vendors, and if the goods or services they offer will be substantially produced or performed outside New York State, the Omnibus Procurement Act 1994 and 2000 amendments (Chapter 684 and Chapter 383, respectively) require that they be denied contracts which they would otherwise obtain. NOTE: As of May 15, 2002, the list of discriminatory jurisdictions subject to this provision includes the states of South Carolina, Alaska, West Virginia, Wyoming, Louisiana and Hawaii. Contact NYS Department of Economic Development for a current list of jurisdictions subject to this provision.

22. COMPLIANCE WITH NEW YORK STATE INFORMATION SECURITY BREACH AND NOTIFICATION ACT. Contractor shall comply with the provisions of the New York State Information Security Breach and Notification Act (General Business Law Section 899-aa; State Technology Law Section 208).

23. COMPLIANCE WITH CONSULTANT DISCLOSURE LAW. If this is a contract for consulting services, defined for purposes of this requirement to include analysis, evaluation, research, training, data processing, computer programming, engineering, environmental, health, and mental health services, accounting, auditing, paralegal, legal or similar services, then, in accordance with Section 163 (4-g) of the State Finance Law (as amended by Chapter 10 of the Laws of 2006), the Contractor shall timely, accurately and properly comply with the requirement to submit an annual employment report for the contract to the agency that awarded

the contract, the Department of Civil Service and the State Comptroller.

24. **PROCUREMENT LOBBYING.** To the extent this agreement is a "procurement contract" as defined by State Finance Law Sections 139-j and 139-k, by signing this agreement the contractor certifies and affirms that all disclosures made in accordance with State Finance Law Sections 139-j and 139-k are complete, true and accurate. In the event such certification is found to be intentionally false or intentionally incomplete, the State may terminate the agreement by providing written notification to the Contractor in accordance with the terms of the agreement.

25. **CERTIFICATION OF REGISTRATION TO COLLECT SALES AND COMPENSATING USE TAX BY CERTAIN STATE CONTRACTORS, AFFILIATES AND SUBCONTRACTORS.**
To the extent this agreement is a contract as defined by Tax Law Section 5-a, if the contractor fails to make the certification required by Tax Law Section 5-a or if during the term of the contract, the Department of Taxation and Finance or the covered agency, as defined by Tax Law 5-a, discovers that the certification, made under penalty of perjury, is false, then such failure to file or false certification shall be a material breach of this contract and this contract may be terminated, by providing written notification to the Contractor in accordance with the terms of the agreement, if the covered agency determines that such action is in the best interest of the State.

26. **IRAN DIVESTMENT ACT**. By entering into this Agreement, Contractor certifies in accordance with State Finance Law §165-a that it is not on the "Entities Determined to be Non-Responsive Bidders/Offerers pursuant to the New York State Iran Divestment Act of 2012" ("Prohibited Entities List") posted at:
http://www.ogs.ny.gov/about/regs/docs/ListofEntities.pdf

Contractor further certifies that it will not utilize on this Contract any subcontractor that is identified on the Prohibited Entities List. Contractor agrees that should it seek to renew or extend this Contract, it must provide the same certification at the time the Contract is renewed or extended. Contractor also agrees that any proposed Assignee of this Contract will be required to certify that it is not on the Prohibited Entities List before the contract assignment will be approved by the State.

During the term of the Contract, should the state agency receive information that a person (as defined in State Finance Law §165-a) is in violation of the above-referenced certifications, the state agency will review such information and offer the person an opportunity to respond. If the person fails to demonstrate that it has ceased its engagement in the investment activity which is in violation of the Act within 90 days after the determination of such violation, then the state agency shall take such action as may be appropriate and provided for by law, rule, or contract, including, but not limited to, imposing sanctions, seeking compliance, recovering damages, or declaring the Contractor in default.

The state agency reserves the right to reject any bid, request for assignment, renewal or extension for an entity that appears on the Prohibited Entities List prior to the award, assignment, renewal or extension of a contract, and to pursue a responsibility review with respect to any entity that is awarded a contract and appears on the Prohibited Entities list after contract award.

APPENDIX B

Standard Clauses for All New York State Department of Environmental Conservation Contracts

The parties to the attached contract, license, lease, grant, amendment or other agreement of any kind (hereinafter "the contract" or "this contract") agree to be bound by the following clauses which are hereby made a part of the contract. The word "Contractor" herein refers to any party to the contract, other than the New York State Department of Environmental Conservation (hereinafter "Department").

I. **Postponement, suspension, abandonment or termination by the Department:** The Department shall have the right to postpone, suspend, abandon or terminate this contract, and such actions shall in no event be deemed a breach of contract. In the event of any termination, postponement, delay, suspension or abandonment, the Contractor shall immediately stop work, take steps to incur no additional obligations, and to limit further expenditures. Within 15 days of receipt of notice, the Contractor shall deliver to the Department all data, reports, plans, or other documentation related to the performance of this contract, including but not limited to source codes and specifications, guarantees, warranties, as-built plans and shop drawings. In any of these events, the Department shall make settlement with the Contractor upon an equitable basis as determined by the Department which shall fix the value of the work which was performed by the Contractor prior to the postponement, suspension, abandonment or termination of this contract. This clause shall not apply to this contract if the contract contains other provisions applicable to postponement, suspension or termination of the contract.

II. **Indemnification and Hold harmless** The Contractor agrees that it will indemnify and save harmless the Department and the State of New York from and against all losses from claims, demands, payments, suits, actions, recoveries and judgments of every nature and description brought or recovered against it by reason of any negligent act or omission of the Contractor, its agents, employees, suppliers or subcontractors in the performance of this contract. The Department and the State of New York may retain such monies from the amount due Contractor as may be necessary to satisfy any claim for damages, costs and the like, which is asserted against the Department and/or the State of New York.

III. **Conflict of Interest** (a) Organizational Conflict of Interest. To the best of the Contractor's knowledge and belief, the Contractor warrants that there are no relevant facts or circumstances which could give rise to an organizational conflict of interest, as herein defined, or that the Contractor has disclosed all such relevant information to the Department.

(1) An organizational conflict of interest exists when the nature of the work to be performed under this contract may, without some restriction on future activities, impair or appear to impair the Contractor's objectivity in performing the work for the Department.

(2) The Contractor agrees that if an actual, or potential organizational conflict of interest is discovered at any time after award, whether before or during performance, the Contractor will immediately make a full disclosure in writing to the Department. This disclosure shall include a description of actions which the Contractor has taken or proposes to take, after consultation with the Department, to avoid, mitigate, or minimize the actual or potential conflict.

(3) To the extent that the work under this contract requires access to personal, proprietary or confidential business or financial data of persons or other companies, and as long as such data remains proprietary or confidential, the Contractor shall protect such data from unauthorized use and disclosure and agrees not to use it to compete with such companies.

(b) Personal Conflict of Interest: The following provisions with regard to management or professional level employee personnel performing under this contract shall apply until the earlier of the termination date of the affected employee(s) or the duration of the contract.

(1) A personal conflict of interest is defined as a relationship of an employee, subcontractor employee, or consultant with an entity that may impair or appear to impair the objectivity of the employee, subcontractor employee, or consultant in performing the contract work. The Contractor agrees to notify the Department immediately of any actual, or potential personal conflict of interest with regard to any such person working on or having access to information regarding this contract, as soon as Contractor becomes aware of such conflict. The Department will notify the Contractor of the appropriate action to be taken.

(2) The Contractor agrees to advise all management or professional level employees involved in the work of this contract, that they must report any personal conflicts of interest to the Contractor. The Contractor must then advise the Department which will advise the Contractor of the appropriate action to be taken.

(3) Unless waived by the Department, the Contractor shall certify annually that, to the best of the Contractor's knowledge and belief, all actual, apparent or potential conflicts of interest, both personal and organizational, as defined herein, have been reported to the Department. Such certification must be signed by a senior executive of the Contractor and submitted in accordance with instructions provided by the Department. Along with the annual certification, the Contractor shall also submit an update of any changes in any conflict of interest plan submitted with its proposal for this contract. The initial certification shall cover the one-year period from the date of contract award, and all subsequent certifications shall cover successive annual periods thereafter. The certification is to be submitted no later than 45 days after the close of the previous certification period covered.

(4) In performing this contract, the Contractor recognizes that it may have access to data provided by the Department of a sensitive nature which should not be released without Department approval. If this situation occurs, the Contractor agrees to obtain confidentiality agreements from all subcontractors and consultants working on requirements under this contract, as provided in the Contract.

(c) Remedies - The Department may terminate this contract in whole or in part, if it deems such termination necessary to avoid an organizational or personal conflict of interest, or an unauthorized disclosure of information. If the Contractor fails to make required disclosures or misrepresents relevant information to the Department, the Department may terminate the contract, or pursue such other remedies as may be permitted by the terms of Clause I of this Appendix or other applicable provisions of this contract regarding termination.

(d) The Contractor will be ineligible to make a proposal or bid on a contract for which the Contractor has developed the statement of work or the solicitation package

(e) The Contractor agrees to insert in each subcontract or consultant agreement placed hereunder (except for subcontracts or consultant agreements for well drilling, fence erecting, plumbing, utility hookups, security guard services, or electrical services) provisions which shall conform substantially to the language of this clause, including this paragraph (e), unless otherwise authorized by the Department.

If this is a contract for work related to action at an inactive hazardous waste site, the following paragraph shall apply to those Contractors whose work requires the application of professional judgment: It does not apply to construction contracts.

(f) Due to the scope and nature of this contract, the Contractor shall observe the following restrictions on future hazardous waste site contracting for the duration of the contract.

(1) The Contractor, during the life of the work assignment and for a period of three (3) years after the completion of the work assignment, agrees not to enter into a contract with or to represent any party with respect to any work relating to remedial activities or work pertaining to a site where the Contractor previously performed work for the Department under this contract without the prior written approval of the Department.

(2) The Contractor agrees in advance that if any bids/proposals are submitted for any work for a third party that would require written approval of the Department prior to entering into a contract because of the restrictions of this clause, then the bids/proposals are submitted at the Contractor's own risk, and no claim shall be made against the Department to recover bid/proposal costs as a direct cost whether the request for authorization to enter into the contract is denied or approved.

IV. **Requests for Payment** All requests for payment by the Contractor must be submitted on forms supplied and approved by the Department. Each payment request must contain such items of information and supporting documentation as are required by the Department, and shall be all-inclusive for the period of time covered by the payment request.

V. **Compliance with Federal requirements** To the extent that federal funds are provided to the Contractor or used in paying the Contractor under this contract, the Contractor agrees that it will comply with all applicable federal laws and regulations, including but not limited to those laws and regulations under which the Federal funds were authorized.

The Contractor further agrees to insert in any subcontract hereunder, provisions which shall conform substantially to the language of this clause.

VI. **Independent Contractor** The Contractor shall have the status of an independent contractor. Accordingly, the Contractor agrees that it will conduct itself in a manner consistent with such status, and that it will neither hold itself out as, nor claim to be, an officer or employee of the Department by reason of this contract. It further agrees that it will not make any claim, demand or application to the Department for any right or privilege applicable to an officer or employee of the Department, including but not limited to worker's compensation coverage, unemployment insurance benefits, social security coverage, or retirement membership or credit.

VII. **Compliance with applicable laws**

(a) Prior to the commencement of any work under this contract, the Contractor is required to meet all legal requirements necessary in the performance of the contract. This includes but is not limited to compliance with all applicable federal, state and local laws and regulations promulgated thereunder. It is the Contractor's responsibility to obtain any necessary permits, or other authorizations. By signing this contract, the Contractor affirmatively represents that it has complied with said laws, unless it advises the Department otherwise, in writing. The Department signs this contract in reliance upon this representation.

(b) During the term of this contract, and any extensions thereof, the Contractor must remain in compliance with said laws. A failure to notify the Department of noncompliance of which the Contractor was or should have been aware, may be considered a material breach of this contract.

VIII. **Dispute Resolution** The parties agree to the following steps, or as many as are necessary to resolve disputes between the Department and the Contractor.

(a) The Contractor specifically agrees to submit, in the first instance, any dispute relating to this contract to the designated individual, who shall render a written decision and furnish a copy thereof to the Contractor.

(1) The Contractor must request such decision in writing no more than fifteen days after it knew or should have known of the facts which are the basis of the dispute.

(2) The decision of the designated individual shall be the final agency determination, unless the Contractor files a written appeal of that decision with the designated appeal individual ("DAI") within twenty days of receipt of that decision.

(b) Upon receipt of the written appeal, the DAI, will review the record and decision. Following divisional procedures in effect at that time, the DAI will take one of the following actions, with written notice to the Contractor.
(1) Remand the matter to the program staff for further negotiation or information if it is determined that the matter is not ripe for review; or
(2) Determine that there is no need for further action, and that the determination of the designated individual is confirmed; or
(3) Make a determination on the record as it exists.
(c) The decision of the DAI shall be the final agency decision unless the Contractor files a written appeal of that decision with the Chair of the Contract Review Committee ("CRC") within twenty days of receipt of that decision.

The designated individual to hear disputes is:

Peter Pettit, Environmental Engineer 4
NYS Department of Environmental Conservation
Division of Materials Management
625 Broadway Albany, NY 12233-7253
Telephone: (518) 402-8706

The designated appeal individual to review decisions is:

Robert Phaneuf, Assistant Division Director
NYS Department of Environmental Conservation
Division of Materials Management
625 Broadway Albany, NY 12233-7250
Telephone: (518) 402-8652

The Chair of the Contract Review Committee is:

Department of Environmental Conservation
Nancy W. Lussier, Chair
Contract Review Committee
625 Broadway, 10th Floor
Albany, NY 12233-5010
Telephone: (518) 402-9228

(d) Upon receipt of the written appeal, the Chair of the CRC, in consultation with the members of the CRC and the Office of General Counsel, will take one of the following actions, or a combination thereof, with written notice to the Contractor.

(1) Remand the matter to program staff for additional fact finding, negotiation, or other appropriate action; or

(2) Adopt the decision of the DAI; or

(3) Consider the matter for review by the CRC in accordance with its procedures.

(e) Following a decision to proceed pursuant to (d) 3, above, the Chair of the CRC shall convene a proceeding in accordance with the CRC's established contract dispute resolution guidelines. The proceeding will provide the Contractor with an opportunity to be heard.

(f) Following a decision pursuant to (d) 2 or (d) 3, the CRC shall make a written recommendation to the Assistant Commissioner for Administration who shall render the final agency determination.

(g) At any time during the dispute resolution process, and upon mutual agreement of the parties, the Office of Hearings and Mediation Services (OHMS) may be requested to provide mediation services or other appropriate means to assist in resolving the dispute. Any findings or recommendations made by the OHMS will not be binding on either party.

(h) Final agency determinations shall be subject to review only pursuant to Article 78 of the Civil Practice Law and Rules.

(i) Pending final determination of a dispute hereunder, the Contractor shall proceed diligently with the performance of the Contract in accordance with the decision of the designated individual. Nothing in this Contract shall be construed as making final the decision of any administrative officer upon a question of law.

(j) (1) Notwithstanding the foregoing, at the option of the Contractor, the following shall be subject to review by the CRC: Disputes arising under Article 15-A of the Executive Law (Minority and Women Owned Business participation), the Department's determination with respect to the adequacy of the Contractor's Utilization Plan, or the Contractor's showing of good faith efforts to comply therewith. A request for a review before the CRC should be made, in writing, within twenty days of receipt of the Department's determination.

(2) The CRC will promptly convene a review in accordance with Article 15-A of the Executive Law and the regulations promulgated thereunder.

IX. **Labor Law Provisions**

(a) When applicable, the Contractor shall post, in a location designated by the Department, a copy of the New York State Department of Labor schedules of prevailing wages and supplements for this project, a copy of all re-determinations of such schedules for the project, the Workers' Compensation Law Section 51 notice, all other notices required by law to be posted at the site, the Department of Labor notice that this project is a public work project on which each worker is entitled to receive the prevailing wages and supplements for their occupation, and all other notices which the Department directs the Contractor to post. The Contractor shall provide a surface for such notices which is satisfactory to the Department. The Contractor shall maintain such notices in a legible manner and shall replace any notice or schedule which is damaged, defaced, illegible or removed for any reason. Contractor shall post such notices before commencing any work on the site and shall maintain such notices until all work on the site is complete.

(b) When appropriate, contractor shall distribute to each worker for this Contract a notice, in a form provided by the Department, that this project is a public work project on which each worker is entitled to receive the prevailing wage and supplements for the occupation at which he or she is working. Worker includes employees of Contractor and all Subcontractors and all employees of suppliers entering the site. Such notice shall be distributed to each worker before they start performing any work of this contract. At the time of distribution, Contractor shall have each worker sign a statement, in a form provided by the Department, certifying that the worker has received the notice required by this section, which signed statement shall be maintained with the payroll records required by the following paragraph (c).

(c) Contractor shall maintain on the site the original certified payrolls or certified transcripts thereof which Contractor and all of its Subcontractors are required to maintain pursuant to the New York Labor Law Section 220. Contractor shall maintain with the payrolls or transcripts thereof, the statements signed by each worker pursuant to paragraph (b).

(d) Within thirty days of issuance of the first payroll, and every thirty days thereafter, the Contractor and every subcontractor must submit a transcript of the original payroll to the Department, which transcript must be subscribed and affirmed as true under penalty of perjury.

X. **Offset** In accordance with State Law, the Department has the authority to administratively offset any monies due it from the Contractor, from payments due to the Contractor under this contract. The Department may also (a) assess interest or late payment charges, and collection fees, if applicable; (b) charge a fee for any dishonored check; (c) refuse to renew certain licenses and permits.

XI. **Tax Exemption** Pursuant to Tax Law Section 1116, the State is exempt from sales and use taxes. A standard state voucher is sufficient evidence thereof. For federal excise taxes, New York's registration Number 14740026K covers tax-free transactions under the Internal Revenue Code.

XII. **Litigation Support** In the event that the Department becomes involved in litigation related to the subject matter of this contract, the Contractor agrees to provide background support and other litigation support, including but not limited to depositions, appearances, and testimony. Compensation will be negotiated and based on rates established in the contract, or as may otherwise be provided in the contract.

XIII. **Equipment** Any equipment purchased with funds provided under this contract, shall remain the property of the Department, unless otherwise provided in the contract. The Contractor shall be liable for all costs for maintaining the property in good, usable condition. It shall be returned to the Department upon completion of the contract, in such condition, unless the Department elects to sell the equipment to the Contractor, upon mutually agreeable terms.

XIV. **Inventions or Discoveries** Any invention or discovery first made in performance of this Contract shall be the property of the Department, unless otherwise provided in the contract. The Contractor agrees to provide the Department with any and all materials related to this property. At the Department's option, the Contractor may be granted a non-exclusive license.

XV. **Patent and Copyright Protection**

If any patented or copyrighted material is involved in or results from the performance of this Contract, this Article shall apply.

(a) The Contractor shall, at its expense, defend any suit instituted against the Department and indemnify the Department against any award of damages and costs made against the Department by a final judgment of a court of last resort based

on the claim that any of the products, services or consumable supplies furnished by the Contractor under this Contract infringes any patent, copyright or other proprietary right; provided the Department gives the Contractor:

(I) prompt written notice of any action, claim or threat of infringement suit, or other suit, and

(2) the opportunity to take over, settle or defend such action at the Contractor's sole expense, and

(3) all available information, assistance and authority necessary to the action, at the Contractor's sole expense.

The Contractor shall control the defense of any such suit, including appeals, and all negotiations to effect settlement, but shall keep the Department fully informed concerning the progress of the litigation.

(b) If the use of any item(s) or parts thereof is held to infringe a patent or copyright and its use is enjoined, or Contractor believes it will be enjoined, the Contractor shall have the right, at its election and expense to take action in the following order of precedence:

(I) procure for the Department the right to continue using the same item or parts thereof;

(2) modify the same so that it becomes non-infringing and of at least the same quality and performance;

(3) replace the item(s) or parts thereof with noninfringing items of at least the same quality and performance;

(4) if none of the above remedies are available, discontinue its use and eliminate any future charges or royalties pertaining thereto. The Contractor will buy back the infringing product(s) at the State's book value, or in the event of a lease, the parties shall terminate the lease. If discontinuation or elimination results in the Contractor not being able to perform the Contract, the Contract shall be terminated.

(c) In the event that an action at law or in equity is commenced against the Department arising out of a claim that the Department's use of any item or material pursuant to or resulting from this Contract infringes any patent, copyright or proprietary right, and such action is forwarded by the Department to the Contractor for defense and indemnification pursuant to this Article, the Department shall copy all pleadings and documents forwarded to the Contractor together with the forwarding correspondence and a copy of this Contract to the Office of the Attorney General of the State of New York. If upon receipt of such request for defense, or at any time thereafter, the Contractor is of the opinion that the allegations in such action, in whole or in part, are not covered by the indemnification set forth in this Article, the Contractor shall immediately notify the Department and the Office of the Attorney General of the State of New York in writing and shall specify to what extent the Contractor believes it is and is not obligated to defend and indemnify under the terms and conditions of this Contract. The Contractor shall in such event protect the interests of the Department and State of New York and secure a continuance to permit the State of New York to appear and defend its interests in cooperation with Contractor as is appropriate, including any jurisdictional defenses which the Department and State shall have.

(d) The Contractor shall, however, have no liability to the Department under this Article if any infringement is based upon or arises out of: (1) compliance with designs, plans, or specifications furnished by or on behalf of the Department as to the items; (2) alterations of the items by the Department; (3) failure of the Department to use updated items provided by the Contractor for avoiding infringement; (4) use of items in combination with apparatus or devices not delivered by the Contractor; (5) use of items in a manner for which the same were neither designed nor contemplated; or (6) a patent or copyright in which the Department or any affiliate or subsidiary of the Department has any direct or indirect interest by license or otherwise.

(e) The foregoing states the Contractor's entire liability for, or resulting from, patent or copyright infringement or claim thereof.

XVI. **Force Majeure** The term Force Majeure shall include acts of God, work stoppages due to labor disputes or strikes, fires, explosions, epidemics, riots, war rebellion, sabotage or the like. If a failure of or delay in performance by either party results from the occurrence of a Force Majeure event, the delay shall be excused and the time for performance extended by a period equivalent to the time lost because of the Force majeure event, if and to the extent that:

(a) The delay or failure was beyond the control of the party affected and not due to its fault or negligence; and

(b) The delay or failure was not extended because of the affected party's failure to use all reasonable diligence to overcome the obstacle or to resume performance immediately after such obstacle was overcome; and

(c) The affected party provides notice within (5) days of the onset of the event, that it is invoking the protection of this provision.

XVII. **Freedom of Information Requests** The Contractor agrees to provide the Department with any records which must be released in order to comply with a request pursuant to the Freedom of Information Law. The Department will provide the contractor with an opportunity to identify material which may be protected from release and to support its position.

XIII. **Precedence** In the event of a conflict between the terms of this Appendix B and the terms of the Contract (including any and all attachments thereto and amendments thereof, but not including Appendix A), the terms of this Appendix B shall control. In the event of a conflict between the terms of this Appendix B, and the terms of Appendix A, the terms of Appendix A shall control.

XIX. **Article 15-Requirements**

PARTICIPATION BY MINORITY GROUP MEMBERS AND WOMEN WITH RESPECT TO STATE CONTRACTS: REQUIREMENTS AND PROCEDURES

(a) General Provisions

(1)The Department is required to implement the provisions of New York State Executive Law Article 15-A and 5 NYCRR Parts 142-144 ("MWBE Regulations") for all State contracts as defined therein, with a value (1) in excess of $25,000 for labor, services, equipment, materials, or any combination of the foregoing or (2) in excess of $100,000 for real property renovations and construction.

(2)The Contractor to the subject contract (the "Contractor" and the "Contract," respectively) agrees, in addition to any other nondiscrimination provision of the Contract and at no additional cost to the New York State Department (the "Department", to fully comply and cooperate with the Department in the implementation of New York State Executive Law Article 15-A. These requirements include equal employment opportunities for minority group members and women ("EEO") and contracting opportunities for certified minority and women-owned business enterprises ("MWBEs"). Contractor's demonstration of "good faith efforts" pursuant to 5 NYCRR §142.8 shall be a part of these requirements. These provisions shall be deemed supplementary to, and not in lieu of, the nondiscrimination provisions required by New York State Executive Law Article 15 (the "Human Rights Law") or other applicable federal, state or local laws.

(3)Failure to comply with all of the requirements herein may result in a finding of non-responsiveness, non-responsibility and/or a breach of contract, leading to the withholding of funds or such other actions, liquidated damages pursuant to Section VII of this Article or enforcement proceedings as allowed by the Contract.

(b) Contract Goals

(1)For purposes of this procurement, the Department hereby establishes an overall goal of 0% for Minority and Women-Owned Business Enterprises ("MWBE") participation, 0% for Minority-Owned Business Enterprises ("MBE") participation and 0% for Women-Owned Business Enterprises ("WBE") participation (based on the current availability of qualified MBEs and WBEs).

(2)For purposes of providing meaningful participation by MWBEs on the Contract and achieving the Contract Goals established in Section II-A hereof, Contractor should reference the directory of New York State Certified MWBEs found at the following internet address;

http://www.esd.ny.gov/mwbe.html

Additionally, the Contractor is encouraged to contact the Division of Minority and Woman Business Development ((518) 292-5250; (212) 803-2414; or (716) 846-8200) to discuss additional methods of maximizing participation by MWBEs on the Contract.

(3)Where MWBE goals have been established herein, pursuant to 5 NYCRR §142.8, Contractor must document "good faith efforts" to provide meaningful participation by MWBEs as subcontractors or suppliers in the performance of the Contract. In accordance with Section 316-a of Article 15-A and 5 NYCRR §142.13, the Contractor acknowledges that if Contractor is found to have willfully and intentionally failed to comply with the MWBE participation goals set forth in the Contract, such a finding constitutes a breach of contract and the Contractor shall be liable to the Department for liquidated or other appropriate damages, as set forth herein.

(c) Equal Employment Opportunity (EEO)

(1) Contractor agrees to be bound by the provisions of Article 15-A and the MWBE Regulations promulgated by the Division of Minority and Women's Business Development of the Department of Economic Development (the "Division"). If any of these terms or provisions conflict with applicable law or regulations, such laws and regulations shall supersede these requirements. Contractor shall comply with the following provisions of Article 15-A:

(i)Contractor and Subcontractors shall undertake or continue existing EEO programs to ensure that minority group members and women are afforded equal employment opportunities without discrimination because of race, creed, color, national origin, sex, age, disability or marital status. For these purposes, EEO shall apply in the areas of recruitment, employment, job assignment, promotion, upgrading, demotion, transfer, layoff, or termination and rates of pay or other forms of compensation.

(ii)The Contractor shall submit an EEO policy statement to the Department within seventy two (72) hours after the date of the notice by Department to award the Contract to the Contractor.

(iii)If Contractor or Subcontractor does not have an existing EEO policy statement, the Department may provide the Contractor or Subcontractor a model statement. This statement can be found at the link provided in Section 8.

(iv)The Contractor's EEO policy statement shall include the following language:

a. The Contractor will not discriminate against any employee or applicant for employment because of race, creed, color, national origin, sex, age, disability or marital status, will undertake or continue existing EEO programs to ensure that minority group members and women are afforded equal employment opportunities without discrimination, and shall make and document its conscientious and active efforts to employ and utilize minority group members and women in its work force.

b. The Contractor shall state in all solicitations or advertisements for employees that, in the performance of the contract, all qualified applicants will be afforded equal employment opportunities without discrimination because of race, creed, color, national origin, sex, age, disability or marital status.

c. The Contractor shall request each employer Department, labor union, or authorized representative of workers with which it has a collective bargaining or other agreement or understanding, to furnish a written statement that such employer Department, labor union, or representative will not discriminate on the basis of race, creed, color, national origin, sex age, disability or marital status and that such union or representative will affirmatively cooperate in the implementation of the Contractor's obligations herein.

d. The Contractor will include the provisions of Subdivisions (a) through (c) of this Subsection 4 and Paragraph "E" of this Section III, which provides for relevant provisions of the Human Rights Law, in every subcontract in such a manner that the requirements of the subdivisions will be binding upon each subcontractor as to work in connection with the Contract.

e. **EEO Contract Goals** for the purposes of this procurement, the Department hereby establishes a goal of 10% Minority Labor Force Participation, 10% Female Labor Force Participation.

(2) Staffing Plan Form

To ensure compliance with this Section, the Contractor shall submit a staffing plan to document the composition of the proposed workforce to be utilized in the performance of the Contract by the specified categories listed, including ethnic background, gender, and Federal occupational categories. Contractors shall complete the Staffing plan form and submit it as part of their bid or proposal or within a reasonable time, but no later than the time of award of the contract.

(3) Workforce Employment Utilization Report Form ("Workforce Report")

(i) Once a contract has been awarded and during the term of Contract, Contractor is responsible for updating and providing notice to the Department of any changes to the previously submitted Staffing Plan. This information is to be submitted on a quarterly basis during the term of the Contract to report the actual workforce utilized in the performance of the Contract by the specified categories listed including ethnic background, gender, and Federal occupational categories. The Workforce Report must be submitted to report this information.

(ii) Separate forms shall be completed by Contractor and any subcontractor performing work on the Contract.

(iii) In limited instances, Contractor may not be able to separate out the workforce utilized in the performance of the Contract from Contractor's and/or subcontractor's total workforce. When a separation can be made, Contractor shall submit the Workforce Report and indicate that the information provided related to the actual workforce utilized on the Contract. When the workforce to be utilized on the contract cannot be separated out from Contractor's and/or subcontractor's total workforce, Contractor shall submit the Workforce Report and indicate that the information provided is Contractor's total workforce during the subject time frame, not limited to work specifically under the Contract.

(2) Contractor shall comply with the provisions of the Human Rights Law, all other State and Federal statutory and constitutional non-discrimination provisions. Contractor and subcontractors shall not discriminate against any employee or applicant for employment because of race, creed (religion), color, sex, national origin, sexual orientation, military status, age, disability, predisposing genetic characteristic, marital status or domestic violence victim status, and shall also follow the requirements of the Human Rights Law with regard to non-discrimination on the basis of prior criminal conviction and prior arrest.

(d) MWBE Utilization Plan

(1) The Contractor represents and warrants that Contractor has submitted an MWBE Utilization Plan either prior to, or at the time of, the execution of the contract.

(2) Contractor agrees to use such MWBE Utilization Plan for the performance of MWBEs on the Contract pursuant to the prescribed MWBE goals set forth in Section III-A of this Appendix.

(3)Contractor further agrees that a failure to submit and/or use such MWBE Utilization Plan shall constitute a material breach of the terms of the Contract. Upon the occurrence of such a material breach, Department shall be entitled to any remedy provided herein, including but not limited to, a finding of Contractor non-responsiveness.

(e) Waivers

(1)For Waiver Requests Contractor should use Waiver Request Form.

(2)If the Contractor, after making good faith efforts, is unable to comply with MWBE goals, the Contractor may submit a Request for Waiver form documenting good faith efforts by the Contractor to meet such goals. If the documentation

included with the waiver request is complete, the Department shall evaluate the request and issue a written notice of acceptance or denial within twenty (20) days of receipt.

(4) If the Department, upon review of the MWBE Utilization Plan and updated Quarterly MWBE Contractor Compliance Reports determines that Contractor is failing or refusing to comply with the Contract goals and no waiver has been issued in regards to such non-compliance, the Department may issue a notice of deficiency to the Contractor. The Contractor must respond to the notice of deficiency within seven (7) business days of receipt. Such response may include a request for partial or total waiver of MWBE Contract Goals.

(f) Quarterly MWBE Contractor Compliance Report

Contractor is required to submit a Quarterly MWBE Contractor Compliance Report Form to the Department by the 10th day following each end of quarter over the term of the Contract documenting the progress made towards achievement of the MWBE goals of the Contract.

(g) Liquidated Damages - MWBE Participation

(1)Where Department determines that Contractor is not in compliance with the requirements of the Contract and Contractor refuses to comply with such requirements, or if Contractor is found to have willfully and intentionally failed to comply with the MWBE participation goals, Contractor shall be obligated to pay to the Department liquidated damages.

(2) Such liquidated damages shall be calculated as an amount equaling the difference between:

(i) All sums identified for payment to MWBEs had the Contractor achieved the contractual MWBE goals; and

(ii) All sums actually paid to MWBEs for work performed or materials supplied under the Contract.

(3) In the event a determination has been made which requires the payment of liquidated damages and such identified sums have not been withheld by the Department, Contractor shall pay such liquidated damages to the Department within sixty (60) days after they are assessed by the Department unless prior to the expiration of such sixtieth day, the Contractor has filed a complaint with the Director of the Division of Minority and Woman Business Development pursuant to Subdivision 8 of Section 313 of the Executive Law in which event the liquidated damages shall be payable if Director renders a decision in favor of the Department.

(h) Forms

The following forms referenced in Article XVIII 3-A-3, 3B, 3C and 5A can be found at
http://www.dec.ny.gov/about/48854.html.

Schedule 1: Scope of Services

I.COVER SHEET

Project Information	
Project Name	**A comprehensive strategy for the value added utilization of acid whey streams**

Project Description	The disposal of a large volume of acid whey remains a significant problem for the booming Greek style yogurt industry in NY State and represents an important source of environmental pollution. Although it is scientifically established that many of the components of whey (proteins, minerals) have both functional properties valuable in food manufacturing (hydration, gelation, emulsifying, foaming) and health benefits for the consumer, isolating these components from acid whey is still a challenge. The main issues relate to a) technical challenges associated with processing of acid whey; and b) high costs associated with acid whey processing. The low pH and high mineral content of Greek yogurt acid whey create technical difficulties for spray drying and membrane separation, which are the main methods currently used for processing whey streams in the dairy industry. Fermentation of acid whey in digesters for the production of biogas is also possible and used to some extent, but the process is less economically attractive than the use of corn.
	This proposal offers **a comprehensive approach** for utilization of Greek yogurt acid whey, and consists of **multiple new or improved methods** of acid whey utilizations, including:
	- Development of <u>new, economical alternatives for pre-treatment of acid whey</u>, which will improve the efficiency and selectivity of membrane filtration (ultrafiltration), and allow the economical isolation of valuable components from Greek yogurt acid whey
	- Novel utilization of <u>acid whey as a direct ingredient</u> for the manufacture of foods:
	  o Formulated food products (dairy based desserts, sauces and beverages)
	  o Extruded savory puffed snacks manufactured at low temperature
	- <u>Novel acid whey fermentations</u> for the creation of high value added products:
	  o Fermented brewed beverages (novelty beers)
	  o High value biochemicals (medium-chain carboxylic acids)
	- Utilization of <u>acid whey as a processing aid</u> / pickling agent for vegetable based products
	At the end of the project, we will organize a <u>symposium and extension activities</u> to share the research results with the dairy industry and all interested stakeholders, and facilitate the transfer these results into commercial methods and processes for handling of acid whey.

Project Start Date	10/01/2015
Project End Date	09/30/2018
State Contract Number	

Organization Information			
Organization Name	**Cornell University**		
Federal ID Number	150532082		
Contact Information	Organization Contact	Project Manager	Fiscal Contact
Name	**Eric Van Ostenbridge**	**Carmen I. Moraru**	**Ilene Lambiase**
Street Address	373 Pine Tree Road	364 Stocking Hall	341 Pine Tree Rd
City, State	Ithaca, NY	Ithaca, NY	Ithaca, NY
Zip Code + 4	14850	14853	14850
Telephone	(607) 255-5337	(607) 255-8121	(607) 255-0875
Fax	(607) 255-5058	(607) 254-4868	
Email	ecv25@cornell.edu	cim24@cornell.edu	lml22@cornell.edu

II.PROJECT TASKS MATRIX

Describe the specific project objectives and identify the tasks that will be performed to meet those objectives. Identify the estimated start and end dates, responsible party, and anticipated deliverables for each task. All segments and/or phases of the project should be included here.

Objective	Tasks	Estimated Start Date (MM/YY)	Estimated End Date (MM/YY)	Responsible Party	Anticipated Deliverables (products and outcomes)
A. Strategy for improving the fractionation and recovery of high value components in acid whey					
A1. Development of novel, economical and highly efficient demineralization pre-treatments of whey, based on ion exchange and chemical precipitation	i. Perform bench scale demineralization of acid whey using ion exchange resins	10/16	06/17	G. Sacks	Protocols / technical data sheets for recommended demineralization pre-treatments of acid whey using ion exchange resins and chemical precipitation methods
	ii. Perform bench scale precipitation of insoluble calcium salts from acid whey	10/16	06/17	G. Sacks	
	iii. Perform chemical characterization of demineralized whey samples (pH, minerals, protein content, sugar content)	01/17	06/17	G. Sacks	Composition of demineralized whey streams
A2. Optimize membrane filtration processes for fractionation and concentration of proteins from acid whey	iv. Evaluate effect of demineralization treatments on improvement of acid whey filterability / reduction of membrane fouling during ultrafiltration recovery of whey proteins (bench scale)	01/17	09/17	C. I. Moraru	Composition of streams from demineralized acid whey ultrafiltration (concentrate/ whey proteins; permeate)
	v. Scale up demineralization treatments and evaluate top-performing treatments using pilot scale membrane filtration	09/17	06/18	G. Sacks, C. I. Moraru	Data sheets on expected improvements and costs associated with pre-treatments
	vi. Comprehensive compositional characterization of all streams from pre-treatments and membrane filtration	10/15	06/18	G. Sacks, C. I. Moraru	Two scientific papers detailing the main findings of the work

Objective	Tasks	Estimated Start Date (MM/YY)	Estimated End Date (MM/YY)	Responsible Party	Anticipated Deliverables (products and outcomes)
B. Value added utilizations of acid whey in formulated food products	1. Utilize acid whey as an ingredient for dairy based desserts	10/2015	09/2016	Olga Padilla-Zakour and Carmen Moraru	Optimal levels of acid whey addition in at least 2 types of dairy based desserts.
	2. Utilize acid whey as an ingredient for beverages and sauces	10/2016	09/2017	Olga Padilla-Zakour	Optimized formulations for incorporating acid whey in at least 2 beverages and 2 sauces
	3. Utilize acid whey as a pickling agent for vegetable-based products	10/2017	06/2018	Olga Padilla-Zakour	Identification of type of pickled vegetables best suited for utilizing acid whey in the pickling process. Guidelines for concentration of acid whey that is needed to achieve target acidification.

Objective	Tasks	Estimated Start Date (MM/YY)	Estimated End Date (MM/YY)	Responsible Party	Anticipated Deliverables (products and outcomes)
C. Direct use of acid whey in extruded savory snacks made at low temperatures	1. Develop consumer-acceptable savory snack foods by direct addition of acid whey during extrusion in lieu of water for competitive advantages.	10/15	06/16	Sy Rizvi & one grad student	A first generation extruded and puffed savory snack foods containing liquid acid whey
	2. Compare the effects of addition of acid whey "as is" and after concentration to 20% solids on extruder operations.	07/16	12/16	Sy Rizvi & one grad student	A second generation extruded and puffed savory snack foods containing liquid acid whey concentrated to 20% solids
	3. Quantify the effects of 1 and 2 above on the textural (mechanical) properties of the extrudates	07/16	12/16	Sy Rizvi, Robin Dando & one grad student	Several formulations with characteristics of consumer acceptable savory snack foods
	4. Conduct economic estimates of the scaled up process and uptake and demonstrate to potential users	01/17	09/17	Sy Rizvi & one grad student	Best product-process protocols bench-marked against commercial products.
				Sy Rizvi & one grad student	The costs of investment and operating this technology at alternative sizes. The potential interest of commercial organizations

Objective	Tasks	Estimated Start Date (MM/YY)	Estimated End Date (MM/YY)	Responsible Party	Anticipated Deliverables (products and outcomes)
D. Convert acid whey into high value biochemical (medium-chain carboxylic acids)	1. Operate a liter-scale bioreactor with an open culture (reactor microbiome) to convert acid whey into medium-chain carboxylic acids (MCCAs) such as *n*-caproic acid and *n*-caprylic acid.	10/15	09/17	L. Angenent	Research paper on the conversion of acid whey into a useful biochemical, which can be a replacement for antibiotic growth promoters in the animal husbandry sector
	2. Ascertain with anaerobic bottle studies the intermediate compound that is the important source of carbon, reducing equivalents, and energy for chain elongation of short-chain carboxylic acids into MCCAs.	10/15	09/17	L. Angenent	Mechanistic information that can inform future engineering of a full-scale bioprocess to convert acid whey into a useful biochemical; and presentation at research symposia with Greek yogurt stakeholders

Objective	Tasks	Estimated Start Date (MM/YY)	Estimated End Date (MM/YY)	Responsible Party	Anticipated Deliverables (products and outcomes)
E. Explore the potential of using acid whey as a fermentation base in a brewing process	**E1. Determine impact of acid whey addition on the brewing process** 1. Brew batches of beer incorporating acid whey at different process points (mash, kettle boil, post-kettle). 2. Analyze subsequent wort for protein, sugar, free amino acids, pH, and mineral content.	08/16	05/17	S. Alcaine	• Technical paper outlining incorporation of acid whey in the brewhouse • Presentation at industry (brewing and dairy) specific conferences.
	E2. Evaluate the fermentation of acid whey into ethanol 1. Evaluate the fermentation of selected worts from goal E1 under two conditions: a. Addition of lactase and subsequent fermentation by *S. cerevisiae.* b. Co-fermentation by *S. cerevisiae* and *K. marxianus.* 2. Monitor fermentation dynamics: sugar utilization, ethanol production, pH, biomass. 3. Analyze aromatic compounds of subsequent beer.	05/17	12/17	S. Alcaine	• Technical paper outlining lactose fermentation • Presentation at industry (brewing and dairy) specific conferences. • Potential "public" tasting of beer made with whey.
	E3. Evaluate the use of acid whey in secondary fermentation 1. Blend acid whey into a secondary fermentation containing lactic acid bacteria and/or lactose fermenting *Brettanomyces spp.* cultures. 2. Monitor fermentation dynamics: sugar utilization, acid production, pH, biomass. 3. Analyze aromatic compounds of subsequent beer.	10/17	05/18	S. Alcaine	• Technical paper outlining impact of acid whey use on secondary fermentation • Presentation at industry (brewing and dairy) specific conferences.
	E4. Production of a neutral beer base using acid whey 1. Based on learning from goals A-C, design a fermentation leveraging acid whey that results in the production of a neutral beer base, a.k.a. a clear beer.	01/18	09/18	S. Alcaine	• Technical paper outlining a novel production method for neutral beer base. • Presentation at industry (brewing and dairy) specific conferences.

Objective	Tasks	Estimated Start Date (MM/YY)	Estimated End Date (MM/YY)	Responsible Party	Anticipated Deliverables (products and outcomes)
F. Organize Research Symposium & Industry Outreach on Acid Whey Research Results	• Host a Research Symposium at Cornell University for Acid Whey producers, stakeholders and interested parties	3/18	5/18	Carmen I. Moraru, Cornell Researchers and Dairy Foods Extension Staff	• Research symposium on Acid Whey utilization at Cornell University
	• Host webinar highlighting acid whey research results	5/18	08/18	Cornell Researchers (rep. C.I. Moraru) and Dairy Foods Extension Staff	• Webinar on acid whey utilizations
	• Record videos of technical presentations for future use and/or distribution	5/18	08/18	Cornell Dairy Foods Extension Staff	• Video recordings for future use
	• Create educational materials for industry on acid whey research and findings	10/17	9/18	Cornell Dairy Foods Extension Staff	• Educational materials (web based and printed) on acid whey utilizations for the food industry

III. PROJECT SUMMARY

For each of the headings below, provide a narrative description or list with appropriate detail to ensure proper conduct of a project that meets all NYSDEC requirements. All segments and/or phases of the project should be included here. Attach additional pages as necessary.

A. Activities to be accomplished

Objective A: Strategy for improving the fractionation and recovery of high value components in acid whey (Gavin Sacks and Carmen I. Moraru)

Acid whey contains highly valuable whey proteins that can be isolated and purified. Acid whey from Greek style (strained) yogurt has a lower solids and protein content than other types of acid whey because of the depletion of beta-lactoglobulin (LG) that occurs during the extended heat treatment used in yogurt making. During that step, LG interacts with kappa-casein and thus is retained in the body of yogurt, a step that is critical in obtaining a good structure and texture of the final product. This stripping of acid whey of LG may in fact represent an opportunity to isolate the remaining alpha-lactalbumin (LA). LA is a high value ingredient for numerous applications, particularly in the manufacture of baby food.

Currently, ultrafiltration is used to isolate valuable proteins from acid whey – however, these filtrations are challenging, primarily because of membrane fouling. Membrane fouling during membrane filtration of acid whey leads to a reduction in permeate flux, which leads to a low productivity of the filtration process, and a change in selectivity of the membrane, which affect the quality of the final fractions obtained. The main culprits for membrane fouling in acid whey filtration are minerals and proteins. In acid whey filtration, the high level of calcium salts (123 mg/ 100 g in Greek yogurt acid whey as compared to 103 mg/ 100 g in cheese acid whey and 45 mg/ 100 g in sweet whey) is particularly challenging, much more so then for filtration of milk, sweet whey or acid whey from cheese making. Calcium and phosphates lead to the formation of insoluble calcium salts during the membrane filtration of acid whey, and can also act as bridging agents between the membrane and proteins.

Although there are several commercially available technical solutions for de-mineralization of whey prior to membrane filtration, particularly ion exchange and electro-dialysis, they are costly and can be themselves affected by fouling by minerals (electro-dialysis). Some commercially adopted methods for whey processing in fact use membrane filtration prior to de-mineralization, and thus the potentially positive effect of de-mineralization prior to membrane filtration is not properly utilized.

We are proposing to develop new, economical alternatives for pre-treatment of acid whey, which will improve the efficiency and selectivity of membrane filtration (ultrafiltration), and allow the cost effective isolation of valuable components from Greek yogurt acid whey. The proposed project has two components:

A1. Development of novel, economical and highly efficient demineralization pre-treatments of whey, based on ion exchange and chemical precipitation (Gavin Sacks)

1) Approach

We propose to investigate chemical strategies to demineralize acid yogurt whey prior to ultrafiltration. This approach has been successfully demonstrated for cottage cheese acid whey, but has not been extended to acid whey from Greek yogurt production. The two general demineralization approaches we will evaluate are:

- Use of ion-exchange resins
    a. Cation exchange to remove calcium, magnesium, and other metals
    b. Anion exchange to remove phosphates and sulfates
    c. Combined cation and anion exchange
- Precipitation of calcium as a salt
    d. Organic acid salts (tartaric acid, citric acid)
    e. Hydroxide salt (pH adjustment)

The efficacy of demineralization treatments will be evaluated by determining the most cost-effective approach that minimizes membrane fouling while preventing the loss of valuable whey proteins. Initial work will occur with bench size treatments (5-20L), and will be scaled up at the Cornell Dairy Pilot Plant following initial proof of principle.

2) Key deliverables

We will identify the best performing demineralization pre-treatments. We will use this to develop step-by-step protocols for pre-treatment of yogurt acid whey, appropriate for distribution to New York State producers. We will also develop data sheets that compare factors (costs, filterability improvements, water quality improvements, etc.) for different treatment strategies in a matrix format. The main findings will also be incorporated in scientific papers and presentations, which will be shared with the scientific community and the Dairy industry.

A2: Optimize membrane filtration processes for fractionation and concentration of proteins from acid whey (Carmen I. Moraru)

1) Approach

We will test the feasibility of a membrane separation strategy for the extraction and purification of alpha-lactalbumin (LA) and other protein fractions from the acid whey obtained as a byproduct in the manufacture of Greek style yogurt, after the de-mineralization using the strategy described above. As a membrane separation method we will use ultrafiltration (UF). We are now proposing to use 50 kDa cutoff membranes, but other pore sizes will also be tested (30 kDa, 100 kDa) for the possible isolation of other protein fractions. These decisions will be based on the protein composition of the de-mineralized acid whey.

First, we will evaluate effect of demineralization treatments on improvement of acid whey filterability / reduction of membrane fouling during ultrafiltration recovery of whey proteins, using a bench scale UF system.

After identifying and scaling up the top-performing whey pre-treatments (component A1), we will conduct pilot scale UF of the pre-treated streams. The effect of operating conditions (temperature, pH, transmembrane pressure) on the filtration rate and composition of the filtration streams (retentate and permeate) will be evaluated.

The resulting retentates (protein concentrates) could be used as ingredients for food manufacturing (particularly baby food) or as health supplements. The resulting permeate could be used as a substrate for fermentation in the other components of this project, particularly for the brewing process for obtaining novelty beers.

2) Key deliverables

We will identify the appropriate pore size and optimal processing conditions for the UF of de-mineralized acid whey. We will develop UF protocols for fractionation of Greek yogurt acid whey and share then with New York State dairy processors.

We will also generate a comprehensive compositional characterization of the retentates and permeates obtained using the combined pre-treatment & membrane filtration processes.

The main findings will also be incorporated in scientific papers and presentations, which will be shared with the scientific community and the Dairy industry.

Overall, this project could help the Dairy Industry recover valuable components from acid whey, while lowering the biological burden of the waste streams.

Objective B: Value added utilizations of acid whey in formulated food products

(Olga Padilla-Zakour and Carmen I. Moraru)

1. Approach

Specialty foods' sales in 2013 surpassed $88 billion, with an 18% growth from 2011 to 2013. Formulated foods such as dairy-based desserts, beverages, sauces, dips and pickled vegetables constitute a significant portion of the specialty foods category, thus providing strategic opportunities to incorporate acid whey as an ingredient in their formulations. As Cornell Food Venture Center maintains a database of all products that have received safety and stability reviews for commercial sale since the year 2000 (~10,000 products), we will be able to identify the type of products that are best suited to include acid whey in their formulation. We will focus on work performed by the Center over the last 5 years to reflect current trends in formulated specialty foods. The research will be conducted with graduate and undergraduate students to determine the optimal amount of acid whey that can be added to each category of products to maintain or enhance the overall quality of the final food products while ensuring economic viability.

2. Key deliverables

We will develop specific guidelines for the food industry on utilization of acid whey in formulated food products. For each category of products, we will deliver optimal ranges of acid whey addition and best processing techniques to incorporate the acid whey in the formulations. Specific food products in each category will be produced to demonstrate the successful formulations based on quality, sensory attributes and economic feasibility.

Objective C: Direct use of acid whey in extruded savory snacks made at low temperatures

(Sy Rizvi and Robin Dando)

1. Approach

Acid whey has become a poster problem-child of Greek yogurt's otherwise phenomenal growth and popularity in recent years. The total yogurt production in New York alone nearly tripled between 2007 and 2013 and projections indicate the volume of acid whey to increase to over a billion pounds by year's end. Compositionally, Greek yogurt whey contains mostly lactose, some minerals and a small amount of protein in a very dilute stream, which makes its cost-effective utilization a challenge. Consequently, most Greek yogurt manufacturers generally practice uneconomical options of giving it away mostly for use as animal feed and a small portions for energy production. Although several strategies for its value-added processing have been proposed, an economically attractive solution to make profit off of it remains a challenge.

The savory snack industry is expected to grow by $12 billion by 2015, according to Business Insights. At the same time, consumers are seeking more natural and organic ingredients, spices and exotic ethnic touches while clamoring for fewer additives such as MSG, hydrolyzed proteins and hydrogenated oils. Recognizing that one cup (8 fl oz.) of Greek yogurt whey offers approximately the following micronutrients:

- 0.4 mg vitamin B-2 (riboflavin), 30-35% of adult RDA
- 0.7 µg vitamin B-12, 29 % of adult RDA
- 116 mg calcium, 11% of adult RDA
- 113 mg phosphorous, 16% of adult RDA, and acidity of orange juice, it is thus reasonable

to believe that its direct addition to make savory snack foods offers a very attractive possibility for converting large volumes into exciting new line of products. Furthermore, it is now well-understood that Greek yogurt whey helps bread to be more airy than using water alone due to the thermosetting properties of residual proteins. Thus extruded savory snack foods with puffed architecture attained at low temperatures using dense gas extrusion technology offers one of the most promising avenues for

Greek whey utilization. Concentrating liquid whey by a factor of 2-3 to about 20-25% solids, and by adding it at the rate of 20 to 30% in dough formulations, a significant increase in the nutrient density of the final product may be achieved.

The overall goal of the proposed activity is to develop the scientific understanding that is required to establish manufacturing protocols for making savory snack foods by extrusion processing that would make a long-term impact on utilization of acid whey. This will involve an integration of experimental measurement and refinement of product/process interactions using 'best practices' for value addition to a dairy co-product that are economically viable and ecologically sustainable.

2. Key deliverables

Our documented ability to generate novel, nutritionally superior, shelf-stable extruded products invites opportunities to design savory snacks of defined nutritional values by utilizing an industrially attractive byproducts like acid whey. By the end of the proposed work we should have established a process for making acid whey-based savory snacks as well as the requirements for delivering a product of high keeping and eating qualities. By understanding the process mechanics we will define a basic set of requirements necessary for production of these novel products economically. Also, it would help us understand the link between process and food product properties, in particular the preservation of micronutrients. The salts in whey provide a unique combination of minerals that may help lower the sodium content of the product without impairing the taste and quality, an attractive feature for many consumers. The liquid whey also acts as a plasticizer to provide final products with balanced textural qualities such as adequate hardness, less brittleness. Our ultimate goal is to provide an innovative technology for delivery of crunchy and nutritious products via expanded, cellular foods like snack food and others that can be effectively marketed. We will develop several savory snack prototypes and based on their quality and acceptability, healthy, portable savory bite-size snacks or bars will be manufactured and evaluated. A model snack formulation will be used as a control so that the results will be more meaningful to industry. The conventional cooking extrusion process generally involves high temperatures (~160^{0}C) which is not suitable for formulations with heat sensitive micronutrients like whey and high concentration of lactose in whey also creates severe discoloration in the product. We propose to use our already documented process of dense gas based extrusion to generate extrudates at <100^{0}C and thus preserve the nutritional and organoleptic qualities of the final products. We will also examine economic aspects of the technology: The costs of investment and operating this technology at alternative sizes to construct cost and return estimates. We will also construct cost production curves in which costs are presented for specific operation size (e.g., small, medium, large) and whey type (e.g., "as is" or concentrated).

Objective D: Convert acid whey into high value biochemical (medium-chain carboxylic acids)

(Largus Angenent)

1. Approach

Operate a liter-scale bioreactor with an open culture (reactor microbiome) to convert acid whey into medium-chain carboxylic acids (MCCAs) such as *n*-caproic acid and *n*-caprylic acid:

Since we already have obtained promising preliminary results to convert acid whey into our product (*e.g.*, *n*-caproic acid) within small anaerobic bottles, we propose a bench-scale bioreactor study that includes extraction of the product from the bioreactor broth. This work is performed with open cultures of microbial consortia (reactor microbiomes), which is an advantage because the acid whey from the milk centrifuges does not need to be maintained sterile. In addition, we do not need axenic fermentors, resulting in reduced the capital and operating costs at the yogurt factory. With these reactor

microbiomes we already have achieved very high *n*-caproic acid volumetric production rates and selectivities with corn kernel-to-ethanol beer and other substrates - as high as with anaerobic digestion, but our product has a >20x higher value than methane in biogas. For this proposed study, we will continuously operate a 1-L upflow anaerobic filter with acid whey as a substrate for 9 months with an acclimated open-culture biomass (from another ongoing study) that is already shaped to elongate short-chain carboxylic acids (SCCAs) into medium-chain carboxylic acids (MCCAs). MCCAs are fatty acids with 6-12 carbon chains (C6-C12; *n*-caproic acid [C6], *n*-caprylic acid [C8], etc), which as a platform biochemical has many uses, including as antimicrobials, biofuel precursors, and specialty animal feed additives. Most importantly, MCCAs have a low maximum solubility when in the acid (undissociated) form, and therefore MCCAs can be separated with at a much lower energetic cost than, for example, with distillation of ethanol. We have been able to continuously extract and separate MCCA oil from a bench-scale bioreactor *via* phase separation by integrating an in-line extraction system and an electrochemical separation system with the bioreactor. Here, we will only integrate the already optimized extraction system (a membrane liquid-liquid extraction [*i.e.*, pertraction] system) with the bioreactor since we already have shown the concept of phase separation without chemical addition to work in my lab. During an operating period of 9 months, we will measure the performance of the bioreactor while optimizing the pH (4.0; 4.5; 5.0; 8.0; 8.5; 9.0) in the bioreactor and also by feeding two different acid whey solutions from separate NYS Greek yogurt facilities. One of the facilities will be from FAGE in Johnstown, New York. The other facility will be chosen based on acid whey characteristics. Throughout the operating period, we will monitor fermentation gases and carboxylic acids with GCs and sugars with an HPLC or IC (all available in my lab already).

<u>Ascertain the intermediate compound that is the important source of carbon, reducing equivalents, and energy for chain elongation of short-chain carboxylic acids into MCCAs:</u>

Even though our preliminary data from anaerobic bottle studies with acid whey from FAGE has shown production of *n*-caproic acid, we do not know the intermediate chemical that supplies the chain-elongation (reverse-beta-oxidation) pathway with the carbon, reducing power, and energy. Knowledge about the intermediate chemical is important to inform engineers to optimally design the bioconversion systems. My lab has already shown, based on information from the literature, that ethanol is one possibly intermediate chemical with one other complex substrate. Anaerobic fermentation can, indeed, convert the sugars in acid whey into ethanol, but with an open culture this occurs at the higher pH levels of ~8.5, while the pH in our anaerobic bottles was only 5.5. Therefore, we believe that the intermediate chemical is not ethanol, but possibly lactic acid. We will perform more anaerobic bottle studies and perturbations to observe whether the intermediate chemical will temporarily accumulate. Other techniques, such as the use of stable-isotope labeled substrates (lactose), may also be used when the perturbation studies are not conclusive.

2. <u>Key deliverables</u>

We will write a research paper about the conversion of acid whey into MCCAs. In addition, we will communicate the results to the proposed research symposium as part of this proposal, which will be well attended by stakeholders in the NYS Greek yogurt industry. As part of these communications we will perform an initial techno-economic analyses of this conversion by using the performance data from the liter-scale bioreactor study. The information of the second task (intermediate chemical) may also be used in the research paper and for the optimization of a pilot system when this conversion remains promising and the techno-economic analysis looks positive.

Objective E: Explore the potential of using acid whey as a fermentation base in a brewing process
(Sam Alcaine)

E1: Determine impact of acid whey addition on the brewing process.
Approach: Liquid acid whey, in standard or concentrated form, can be incorporated at various points during the brewing process in addition to, or as a replacement for, water. The point of acid whey incorporation may have a significant impact on the fermentability and organoleptic qualities of the wort produced. For example, acid whey could be incorporated into the mash step of the brewing process. During the mash, endogenous enzymes within the grain, like amylases and proteases, are leveraged to convert complex carbohydrates into simple sugars and proteins into free amino acids. Barley is known to contain beta-galactosidase, and it may be possible to optimize the mash to allow for the digestion of lactose into galactose and glucose which can be utilized by *S. cerevisiae* during fermentation. On the other hand the acidity and high mineral content of acid whey may adversely impact the function of these endogenous enzymes, resulting in low sugar yield or poor fermentation. There are similar pros and cons at each potential addition step in the brewing process which need to be understand to ensure the most successful incorporation of acid whey into a fermented alcoholic beverage.

Key deliverables: (1) Publish a technical paper outlining incorporation of acid whey in the brewhouse as a novel adjunct for the industry. (2) Present findings at industry specific conferences, like the World Brewing Congress, to raise awareness of the potential use of acid whey in beer production.

E2: Evaluate the fermentation of acid whey into ethanol.
Approach: *Saccharomyces cerevisiae*, the yeast primarily used in the production of beer, is incapable of fermenting lactose. If the lactose in acid whey cannot be digested with mash optimization, or if acid whey is used after the mash in the brewing process, another method for the conversion of lactose into ethanol must be used. In the production of light beers it is common to add glucoamylase during fermentation to ensure all the starch present is broken down into simple sugar and converted to into ehtanol. Likewise it may be feasible to add lactase to the fermentation. Alternatively, another yeast, like *Kluyveromyces marxianus*, with the ability to convert lactose into ethanol, could be used in a co-fermentation with *S. cerevisiae* for beer production. The dynamics of these fermentations and the analytical and organoleptic properties of the resulting beer need to be understood so that brewers have a roadmap to successful incorporate acid whey into their production.

Key deliverables: (1) Publish a technical paper on the fermentation of acid whey. (2) Presentation at industry specific conferences, like the World Brewing Congress, to raise awareness of the use of acid whey in beer production. (3) Potentially partner with a local brewery to develop a product that can be used to showcase the use of acid whey at public events.

E3: Evaluate the use of acid whey in secondary fermentation.
Approach: Secondary fermentation utilizing cultures of lactic acid bacteria and/or *Brettanomyces spp.* has gained traction in the craft brewing industry. Acid whey, with its lactose and mineral content, could make it an ideal additive to support robust and consistent secondary fermentations by these cultures. We would monitor sugar utilization, acid production, pH, biomass, and the production of aromatic compounds in secondary fermentations supplemented with acid whey versus a control beer.

Key deliverables: (1) Publish a technical paper on the benefits of secondary fermentation supplementation with acid whey. (2) Present findings at industry specific conferences, like the World Brewing Congress, to raise awareness of the use of acid whey in beer production.

E4: Production of a neutral beer base using acid whey.
Approach: Neutral beer bases, i.e. a beer with low flavor and color, are the primary components in progressive adult beverages (PABs). PABs, alongside craft beer, represent one of the few segments with high growth in the beer industry. Their production typically requires the use of expensive processes, like ultrafiltration, or time consuming methods like carbon filtration. Brewers would be interested in alternative processes. Acid whey is a nutrient rich, low color substrate, which, if supplemented with an appropriate sugar source and fermented based on the learnings from the above goals, could represent a less intensive process method for a neutral beer base production.

Key deliverables: (1) Publish a technical paper on a novel process for neutral beer base production. (2) Presentation at industry specific conferences, like the World Brewing Congress, to raise awareness of the use of acid whey in beer production.

Objective F: Organize Research Symposium & Industry Outreach on Acid Whey Research Results
(Carmen I. Moraru and Dairy Extension group)

Share research results with the dairy manufacturing industry, food industry at large, State and Federal agencies and all interested stakeholders who may transfer results into new and/or improved methods and processes for handling of acid whey

1. Approach
    a. Upon completion of research, the Cornell University researchers will develop presentations for a research symposium.
    b. Invite researchers from other universities and industry representatives who have conducted research on acid whey to discuss their research that may benefit the NYS dairy foods industry
    c. Create section on Cornell Dairy Foods Extension website on acid whey research

2. Key deliverables
    a. Host a research symposium that will showcase the main results of the various project research components
    b. Create online forum / webinar to disseminate presentations
    c. Develop educational materials that will be website accessible displaying research results on each of the research components

B. Water quality benefits

Currently, acid whey is shipped all over NYS with an environmentally negative impact due to trucking large distances from yogurt plants to farms. In addition, the acid whey that is trucked to farms as a low-quality animal feed, as a substrate in anaerobic digesters, and as water for land irrigation can have an environmentally negative impact because of nutrients that will run off from farmland. This project will develop alternative utilizations of acid whey that will directly mitigate these impacts and improve the water quality in NY State, as follows:

- Direct utilization of acid whey as ingredient in a range of food products will decrease the amount of whey that is transported and / or disposed in the water streams in NYS.
- The concentration of whey to 20% solids prior to use in extruded products (one of the proposed strategies) will reduce considerably the cost of transporting acid whey to extrusion facilities. Additionally, the water resulting from the concentration step could be recovered and recycled at the plant, and thus provide a near 20% reduction of water usage by the Greek yogurt processors.
- Decreasing the mineral content and increasing the pH of acid whey will increase the effectiveness of membrane separation and allow the isolation of valuable proteins, thus reducing the amount of whey disposed in the water streams. The byproduct of UF will be permeate that is primarily a solution of lactose, which may be either utilized as a fermentation base or could be further used to recover water from it. Even if disposed, this byproduct will have a much lower biochemical oxygen demand of the waste stream as compared to acid whey.
- Converting acid whey by fermentation at the plant will result in a reduced nutrient run off into NYS rivers and streams.

C. Dairy farming benefits

This project will support a sustainable and thriving Greek yogurt industry in NYS, which will benefit dairy farming for various reasons:

- The value addition utilization or transformation of acid whey (as food ingredient in dairy and non-dairy based foods, as a substrate for fermented beverages/ specialty beers, manufacture of protein and possibly milk minerals preparations, *n*-caproic and *n*-caprylic acids and possibly other MCCAs) will be a significant source of revenue for the NYS Greek yogurt industry. Just as an example, the market price of MCCA oil is ~$1000-$1500 per ton, which is more than twice the price of ethanol. On the other hand, utilization of acid whey in extruded snacks will allow this dairy byproduct to penetrate the savory snack food industry, which is a large volume, multibillion dollar operation.
- The demand for milk will increase in our region with a flourishing NYS Greek yogurt industry.
- Resource recovery from the Greek yogurt industry can deliver specialty feed additives for dairy cows. MCCAs are knows as green antimicrobials, and they are already added to animal feed as growth promoters, because antibiotics are banned in Europe for this purpose. In addition, they can also be used as a local energy source to dairy feed rations. This is another reason why they are already utilized as popular additives for specialty animal feeds. Therefore, MCCA production can make the dairy farmer more sustainable by using locally produced MCCAs rather than importing them from Asia (they now are extracted from palm oil in Asia). In other words, this specific component of the project, when successful and scaled up, would provide an elegant way to close local material circles. Possibly, our organic carbon conversion system can also be linked to a nutrient (N and P) conversion and separation system as part of a larger resource recovery system.
- The novel approaches proposed can serve as an example and trigger of innovation for the dairy industry and could drive growth and increase the demand for milk, to the benefit of the entire Dairy sector.

Any meaningful contribution to the utilization of acid whey must have substantial potential in terms of volume because of large volumes of this byproduct produced each year. The solutions proposed here have the potential to utilize large volumes of acid whey and thus help increase the profitability of the entire dairy supply chain. If successful, this project will help turn a liability into an asset and put the NYS Dairy industry on a firm footing.

IV. KEY PERSONNEL

Provide information on the key personnel for the project. Add rows if necessary. Please DO NOT attach resumes.

Brief Professional Bios

Project Role	Name	Organization	Qualifications	Experience
Organization Contact				
Project Manager (PI)	Carmen I. Moraru	Cornell University Department of Food Science	PhD in Food Engineering Associate Professor	Extensive background in Dairy / Food Processing. Strong connections with the Diary Processing industry.
Fiscal Contact	Ilene Lambiase	Cornell University	Manager of Sponsored Financial Services	Extensive experience overseeing contract and grant financials, as well as financial staff
Project coordinators				
Component A Co-PI (A1)	Gavin Sacks	Cornell University Department of Food Science	PhD in Chemistry Associate Professor of Food Science at Cornell University	Strong research background in extractions and separations. Several recent collaborative publications with food industry to understand the effects of processing conditions on beverage composition.
Co-PI (A2)	Carmen I. Moraru	Cornell University Department of Food Science	PhD in Food Engineering (membrane filtration); Associate Professor of Unit Operations and Dairy Foods Processing	Extensive background in Dairy / Food Processing. Specific expertise in membrane filtration of fluid foods (milk, juice, beer). Strong connections with the Diary Processing industry.
Component B PD	Olga Padilla-Zakour	Cornell University Department of Food Science	Professor of Food Processing; Recognized Process Authority for acidified, formulated acid and water activity controlled foods; Director of NYS Food Venture Center since 1997	Twenty five years of academic and industrial experience working on developing new products/processes, improving or retaining quality in processed foods, increasing economic viability of farm-based ventures, and identifying the key factors that affect the safety, quality and stability of specialty foods
Co-PI	Carmen I. Moraru	Cornell University Department of Food Science	PhD in Food Engineering Associate Professor of Unit Operations and Dairy Foods Processing	Extensive background in Dairy / Food Processing. Strong connections with the Diary Processing industry.
Component C PD	Sy Rizvi	Cornell University	Ph.D. (Food Engineering) Professor, Food Engineering	Twenty years of extrusion R&D Food processing and engineering
Co-PI	Robin Dando	Cornell University	Ph.D. (Biophysics)	Sensory expertise

Project Role	Name	Organization	Qualifications	Experience
Project coordinators				
Component D PD	Largus Angenent	Cornell University Department of Biological and Environmental Engineering	Professor, 12-years of leading a lab and 25-years of bioprocessing engineering research. Worked on many resource recovery projects from many industries.	Anaerobic digestion, anaerobic fermentation, carboxylate platform, bioprocessing engineering, syngas fermentation with pure cultures, bioerosols, microbiome analysis
Component E PD	Samuel Alcaine	Cornell University Department of Food Science	Assistant Professor of Dairy Foods Fermentations	Experience in brewing industry on product development and fermentation optimization projects for 3.5 year and in the dairy industry for 3 years.
Component F PD	Carmen I. Moraru	Cornell University Department of Food Science	Associate Professor of Unit Operations and Dairy Foods Processing	Extensive dairy research experience. Has organized and moderated numerous research events. Experience in communicating with the Diary Industry.

V. PROJECT BUDGET AND BUDGET JUSTIFICATION (Schedule 2)

Component A: Gavin Sacks & Carmen I. Moraru

Budget category	Amount requested year 1 (USD)	Amount requested year 2 (USD)	Amount requested year 3 (USD)	Justification
Component A1: CoPI Gavin Sacks				
Personnel	$ -	$ 24,165	$ 47,321	3 semesters of support for 1 MS student who will perform the research
Supplies	$ -	$ 1,685	$ 2,315	Supplies for research (incl. acid whey, resins, chemicals)
Services	$ -	$ 1,000	$ 1,000	Funds for external analytical tests (minerals, proteins)
Total direct costs	**$ -**	**$ 26,850**	**$ 50,636**	**Total / 3 years: $ 77,486**
Component A2: CoPI Carmen I. Moraru				
Personnel	$ -	$ -	$ 25,149	Most of the work (1 year) will be performed by a self-funded postdoctoral associate (already identified). One semester of graduate student support requested to perfom rest of the work.
Supplies	$ 2,200	$ 2,000	$ 2,800	Supplies for research (incl. acid whey, membranes, chemicals)
Services	$ 2,000	$ 1,500	$ 1,500	Funds for external analytical tests (minerals, proteins)
Publications	$ -	$ -	$ 2,000	One paper at the end of project
Travel	$ 508	$ -	$ 2,000	Travel associated with project management for Overall Project PI Moraru and to 1 conference
Communication	$ 50	$ 50	$ 100	Communications associated with the entire project for Overall Project PI Moraru
Total direct costs	$ 4,758	$ 3,550	$ 33,549	**Total / 3 years: $ 41,857**

Component B: PI Olga Padilla-Zakour

Budget category	Amount requested year 1 (USD)	Amount requested year 2 (USD)	Amount requested year 3 (USD	Justification
Personnel	$ 1,000	$ 2,000	$ 2,000	A self-funded MS student has been identified to work on the project. Funds are required only for one hourly undergraduate student who will assist with the project work.
Supplies	$ 3,996	$ 4,000	$ 2,004	Funds are necessary to purchase supplies associated with the project, including acid whey and other food ingredients, chemicals and minor laboratory supplies for physico-chemical analyses of samples produced as part of the project
Services	$ 4,500	$ 4,000	$ 1,500	Funds are needed to pay for: a) outside laboratory services for sample characterization (for analyses that are not available in house); b) sensory testing of the created products in the Cornell Sensory facility
Pilot plant	$ 1,000	$ 1,000	$ -	Production of prototype products resembling commercial manufacturing practices will be conducted in the Cornell Pilot Plants; funds requested for fees associated with facilities use
Publication	$ -	$ -	$ 3,000	Funds will be used to pay for the publication of one manuscript
Total direct costs	**$ 10,496**	**$ 11,000**	**$ 8,504**	**Total / 3 years: $ 30,000**

Component C: PI Sy Rizvi

Budget category	Amount requested year 1 (USD)	Amount requested year 2 (USD)	Amount requested year 3 (USD	Justification
Personnel Graduate student	$ 24,165	$ 47,321	$ -	Three semesters of support for one graduate student to conduct the experimental and theoretical work.
Hourly worker	$ 5,000	$ 3,000	$ -	Technician / undergraduate to assist with research
Supplies	$ 6,000	$ 5,000	$ -	Purchase of ingredients, chemicals and lab supplies
Services	$ 2,000	$ 1,000	$ -	Analytical services at Cornell facilities (chemical, sensory)
Pilot plant charges	$ -	$ 900	$ -	Fees for storage of whey and use of pilot plant facilities
Total direct costs	**$ 37,165**	**$ 57,221**	**$ -**	**Total / 3 years: $ 94,386**

Component D: PI Largus Angenent

Budget category	Amount requested year 1 (USD)	Amount requested year 2 (USD)	Amount requested year 3 (USD	Justification
Personnel	$60,000	$ -	$ -	Post-doc salary to operate bioreactors, analyze samples
Supplies	$13,000	$ -	$ -	Miscellaneous supplies for operating bioreactor for long-operating periods, for GC and HPLC analysis of many samples, and for general laboratory activities.
Services	$ -	$ -	$ -	No services needed.
Other (specify)	$ -	$2,000	$ -	Publication costs
Total direct costs	**$73,000**	**$2,000**	**$ -**	**Total / 3 years: $ 75,000**

Component E: PI Sam Alcaine

Budget category	Amount requested year 1 (USD)	Amount requested year 2 (USD)	Amount requested year 3 (USD	Justification
Personnel	$ -	$ 45,684	$ 22,500	Support for graduate student who will conduct the research
Supplies	$ 1,000	$ 1,000	$ 1,116	Purchase of acid whey, grain, yeast strains, minor lab equipment, reagents
Services	$ 700	$ 1,000	$ 1,000	Cover cost of chemical analysis of wort and beer produced from acid whey
Other (specify)	$ -	$ -	$ 1,000	Support travel for presentation of findings at conferences
Total direct costs	**$ 1,700**	**$ 47,684**	**$ 25,616**	**Total / 3 years: $ 75,000**

Component F: PI Carmen I. Moraru

Budget category	Amount requested year 1 (USD)	Amount requested year 2 (USD)	Amount requested year 3 (USD	Justification
Personnel	$ -	$ -	18,000	Speaker honorarium, travel expenses, extension staff time support
Supplies	$ -	$ -	3,000	Printed materials for distribution to the Dairy Industry
Services	$ -	$ -	3,000	Website development, webinar and technical support
Other (specify)	$ -	$ -	6,000	Room fee, catering for research symposium
Total direct costs	$ -	$ -	**30,000**	**Total / 3 years: $ 30,000**

Overall project request

Budget category	Amount requested year 1 (USD)	Amount requested year 2 (USD)	Amount requested year 3 (USD)	Total for the duration of the project
Personnel (graduate students, postdocs, hourly workers)	$ 90,165	$ 122,170	$ 114,970	$ 327,305
Supplies	$ 26,196	$ 13,685	$ 11,235	$ 51,116
Services	$ 9,200	$ 8,500	$ 8,000	$ 25,700
Fees for facility use (pilot plant)	$ 1,000	$ 1,900	$ 6,000	$ 8,900
Travel	$ 508	$ -	$ 3,000	$ 3,508
Publications	$ -	$ 2,000	$ 5,000	$ 7,000
Communications	$ 50	$ 50	$ 100	$ 200
Total direct costs	**$ 127,119**	**$ 148,305**	**$ 148,305**	**$ 423,729**
Indirect costs (18%)	$ 22,881	$ 26,695	$ 26,695	$ 76,271
TOTAL REQUEST	**$ 150,000**	**$ 175,000**	**$ 175,000**	**$ 500,000**

Appendix C
New York State Department of Environmental Conservation Guidelines Regarding Permissible Contacts During a Procurement and the Prohibition of Inappropriate Lobbying Influence

Chapter 1 of the Laws of 2005, as amended by Chapter 596 of the Laws of 2005 (collectively referred to as the "Lobbying Law"), makes major changes to the Legislative Law and State Finance Law relative to lobbying on government procurements. More specifically, the Lobbying Law creates two new sections in the State Finance Law: Section 139-j addresses restrictions on "contacts" during the procurement process; and Section 139-k addresses the disclosure of contacts and the responsibility of offerers[1] during the procurement process. The Lobbying Law applies to all procurements initiated on or after January 1, 2006. In this regard, a procurement means a contract or agreement involving an annual expenditure in excess of $15,000 for a commodity, service, technology, public work, or construction; purchase, sale or lease of real property; or revenue contract.

In conformity with the Lobbying Law, during a procurement's restricted period[2] the only New York State Department of Environmental Conservation (Department) officer(s) or employee(s) that the offerer may "contact" is/are the Department designated contact person(s) for that procurement. In this regard, "contact" means any oral, written, or electronic communication under circumstances where a reasonable person would infer that the communication was intended to influence a procurement. Exceptions to this rule include:

- submission of a written proposal in response to an RFP, IFB or any other solicitation method;
- submission of written questions as part of an RFP, IFB or other solicitation method where all written questions and written responses will be provided to all offerers;
- participation in a pre-proposal or pre-bid conference scheduled as part of an RFP, IFB or other solicitation process;
- written complaints by an offerer that the Department designated contact for a procurement fails to respond to in a timely manner;
- negotiations with the Department following tentative award;
- contacts between designated Department staff and offerer to request the review of a contract award; and
- communications with the Department regarding an appeal, protest or other review of a procurement, participation in an administrative or judicial proceeding regarding a procurement, and complaints regarding a procurement made to the Attorney General, Inspector General, District Attorney, or State Comptroller.

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[1] Individual or entity, or any employee, agent, consultant or person acting on behalf of such individual or entity, that contacts the Department about a procurement during the restricted period.

[2] The period of time commencing with the earliest written notice, advertisement or solicitation of a Request for Proposals (RFP), Invitation for Bids (IFB), solicitation of proposals or any other method for soliciting responses from offerers intending to result in a procurement contract by the Department, and ending with the final contract award and approval by the Department, and the Office of the State Comptroller (if required).

An offerer shall not, under any circumstances, attempt to influence a Department procurement in a way that violates or attempts to violate: Public Officers Law Section 73(5), relating to gifts intended to influence; or Public Officers Law Section 74, relating to the code of ethics for employees of state agencies, public authorities and public benefit corporations, members of the New York State Legislature, and Legislative employees.

An offerer who contacts the Department designated contact person for a procurement during the restricted period must be prepared to provide the following information: name, address, telephone number, place of principal employment and occupation of the person or organization making the contact, and whether the person/organization making the contact is the offerer or is retained, employed or designated by or on behalf of the offerer to appear before or contact the Department about the procurement.

An offerer that submits a proposal, bid or other response to a Department RFP, IFB or other solicitation method must: certify that it understands and agrees to comply with these guidelines regarding permissible contacts during a procurement and the prohibition of inappropriate lobbying influence; and disclose whether any governmental entity has, within the prior four years, found the offerer non-responsible due to a violation of the Lobbying Law or the intentional provision of false or incomplete information. Further, all Department procurement contracts will contain: a certification by the offerer that all information provided to the Department with respect to the Lobbying Law is complete, true and accurate; and a provision authorizing the Department to terminate the contract in the event such information is found to be intentionally false or incomplete.

The Department will investigate all allegations of violations of the Department guidelines regarding permissible contacts during a procurement and the prohibition of inappropriate lobbying influence. A finding that an offerer has knowingly and willfully committed such a violation may result in a determination that the offerer and its subsidiaries are non-responsible and therefore ineligible for award of the procurement contract. A second determination of non-responsibility for such a violation within four (4) years of the first such determination may render the offerer and its subsidiaries ineligible to submit a bid or proposal or be awarded a procurement contract for four (4) years from the date of the second determination. The Department will notify the New York State Office of General Services (OGS) of any determination of non-responsibility or debarments due to violations of the Lobbying Law.

If you require further guidance on the new Lobbying Law, you are encouraged to visit the Advisory Council on Procurement Lobbying website at the following address: http://ogs.ny.gov/aboutOgs/regulations/defaultAdvisoryCouncil.html. A copy of the new Procurement Lobbying Law is also available on this website. Frequently Asked Questions (FAQ's) and answers adopted by the council may be found at the following address: https://online.ogs.ny.gov/legal/lobbyinglawfaq/default.asp.