COOPERATION AGREEMENT

BETWEEN THE

UNIVERSITY OF PUERTO RICO AT MAYAGÜEZ

REGISTRO DE CONTRATOS

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AND

THE RESEARCH FOUNDATION OF STATE UNIVERSITY OF NEW YORK on behalf of MULTIDISCIPLINARY CENTER FOR EARTHQUAKE ENGINEERING RESEARCH, UNIVERSITY AT BUFFALO

THIS AGREEMENT is made by and between the University of Puerto Rico at Mayagüez(UPRM),here represented by Dr. Miguel A. Muñoz,Chancellor,and The ResearchFoundation of State University of New York on behalf of Multidisciplinary Center for EarthquakeEngineering Research (RF),a non-profit,educational corporation here represented by Bradley Bermudez, Sr. Agreement Administrator.

Prof. Guoquan Wang of the Department of Geology at the University of Puerto Rico at Mayaguez, PR (UPRM), and Prof. George C. Lee of the Multidisciplinary Center for Earthquake Engineering Research (MCEER), University at Buffalo, Buffalo, NY (UB) have a joint interest to explore the application of high precision GPS technology for the structural health monitoring of deformational responses of civil engineering structures. At present, Prof. Wang is working on a GPS technology to further improve its accuracy and capability, and Prof. Lee is working on the development of experimental approaches to understand the inelastic responses of full scale bridges. Both agreed that a joint exploratory study of the high precision GPS system of Professor Wang may be conducted by utilizing the full scale bridge structure of the bridge experimental study program of MCEER currently being conducted at the Experimental Campus for Large Infrastructure Protection, Sustainability and Enhancement (ECLIPSE Campus), operated in Ashford, NY by MCEER, at the University at Buffalo. Success of this exploratory study will yield experimental evidence as the basis for proposals to be jointly developed in the future between the Department of Geology of UPRM and UB's MCEER. Furthermore, if the exploratory study is successful, the GPS technology, or its improved / modified version, may be used as a component in future cooperative research activities in the applications of the technology to other full scale (or

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large scale) civil engineering systems. In consideration of the mutual understanding set forth, the Parties do hereby mutually agree as follows:

I. PURPOSE

- a. The fundamental purpose of this joint project is to carry out an exploratory research project on deformation response monitoring of the full scale seismically isolated test bridge of MCEER located at the ECLIPSE Campus using high-precision GPS technology. Initial demonstration of successful bridge displacement measurements under dynamic loading conditions will serve as the basis for researchers at UPRM and MCEER to develop research proposals related to Structural Health Monitoring (SHM) and long-term performance evaluation of bridges. Data obtained in the long term will also provide additional information to the current study on longterm elastomeric bearing performance and other future studies to be conducted on the bridge.
- b. This Agreement sets forth a basis for future agreements between UPRM and RF (MCEER) to initiate and conduct cooperation in research and education.

II. IMPLEMENTATION

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The intent of this Agreement shall be implemented by collaborative research, proposals, and the implementation of joint interdisciplinary programs in areas of education, research, and dissemination of knowledge. UPRM and RF (MCEER) will appoint Dr. Guoquan Wang and Dr. George Lee, as project managers in charge of implementing this Agreement, respectively. Future agreement managers will be appointed by mutual agreement in writing with the same formality as the original.

III. SUPPLEMENTAL AGREEMENTS

This Agreement may be supplemented by agreements for specific projects by authorized representatives of UPRM and RF (MCEER). Each agreement shall specify: a) Objectives; b) Implementation plan; c) Responsibilities of each institution; d) Budget and funding sources; e) Timetables and evaluation criteria; f) Non-disclosure and intellectual property agreements and; g) When applicable, the costs apportioned to each institution.

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The relationship of the parties to this agreement shall not be construed to constitute a partnership, joint venture or any other relationship, other than that of independent contractors.

IV. OTHER TERMS AND CONDITIONS

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a. Professor Wang at UPRM will supply a total of three GPS systems, two strong sensors, and their shipment. The cost will be covered by his NSF Project (-xxxx-220-331431500101-00). Prof. Lee at MCEER will be responsible for the cost of installation including the purchase of cables and necessary mechanical parts for system installation. RF (MCEER) will provide Internet access, on-site AC power for 24h/day and 365d/year operation of the GPS system, at no cost to the project investigators. All recorded data will be shared by both parties. Payment for cost associated with future agreements will be subject to negotiations between UPRM and MCEER.

b. Nothing in this Agreement shall obligate UPRM and RF (MCEER) individually or collectively, to any current or future expenditure of resources in advance of the availability of appropriations through their respective fiscal authorization procedures.

c. UPRM inventions and copyrights shall remain at all time property of the UPRM. RF (MCEER) inventions and copyrights shall remain at all time property of RF (MCEER). If any intellectual property (including any new invention, modification or copyrightable material) is first conceived or developed in the performance of this Agreement both parties agree to enter into a separate intellectual property agreement to negotiate the terms and conditions regarding the invention, modification or copyrightable material.

d. The two parties are committed to maintaining their own records of all reports of timesheets for jobs, communications and/or all other documents related to the coordination of activities discussed in this agreement in order that they be available for examination or copying by the Office of Internal Auditors of the University of Puerto Rico, by a firm of outside auditors hired by the University of Puerto Rico, by the Office of the Comptroller of Puerto Rico in its auditing of the University of Puerto Rico as required by law. Audits will be carried out at reasonable times during the course of the services or after their completion, in accordance with generally recognized auditing practices. Said documents will be kept for a period of no less than six (6) years or until the Office of the Controller of Puerto Rico has made its investigation, whichever occurs first.

e. Neither party shall use the stamp, logos, seal, or any other identifying emblem or distinctive symbol of the other institution without the express written authorization of the institution to which said objects belong. Either party may use the name of the other party in reports and publications for educational purposes only and related to the work done under this Agreement.

f. Neither the parties shall assume any liabilities to each other. As to liability to each other the parties do not waive any defense as a result of this agreement. Likewise, this provision shall not be construed to limit the parties' rights, claims or defenses which arise as a matter of law pursuant to any provisions of this agreement. Additionally, this agreement shall not be construed to limit the sovereign immunity of the Government of Puerto Rico and the University of Puerto Rico.

g. Each of the parties consents to exempt and exonerate the other party from responsibility in the case of any judicial or extrajudicial claim, and to provide indemnity for damages and/or mental or moral anguish that may be suffered by any person or legal entity, when said damages are alleged to have been caused by the negligent, reckless, and/or culpable actions, conduct, or omissions of the other party, its agents or employees, when such damages shall have occurred totally or partially during the realization of this Agreement.

V. PERIOD OF AGREEMENT

MAH This Agreement shall be effective when signed by authorized representatives of both UPRM and RF, and registered at the UPRM office. This Agreement shall remain in force until November 30, 2015, unless, terminated according to the provisions of paragraph VIII below. This Agreement can be renewable in writing for additional time period as mutually agreed upon by representatives of UPRM and RF.

VI. EQUAL OPPORTUNITY

UPRM and RF subscribe to the policy of Equal Opportunity and will not discriminate on the basis of race, sex, age, political orientation, ethnicity, religion, or natural origin. UPRM and RF shall abide by these principles in the administration of this Agreement, and neither entity nor any of its representatives shall knowingly impose criteria for the exchange of scholars, staff, or students that would violate the principles of nondiscrimination.

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VII. MODIFICATION

This Agreement may be modified only in writing by authorized representatives of UPRM and RF. Modifications shall be incorporated by reference and made a part of this Agreement.

VIII. TERMINATION

This Agreement may be terminated at any time by written mutual agreement or upon 90 days advanced notice by either Party. Either party may terminate this agreement in the event of a substantial breach of the terms contained herein, as permitted by the University Laws and Rules and Regulations of the University of Puerto Rico and the laws and regulations governing RF. The parties to this Agreement shall expend their best efforts to amicably resolve any dispute that may arise under this Agreement. Any dispute that they are unable to resolve shall be submitted to the designee of RF and to the University of Puerto Rico at Mayagüez Chancellor or designee for resolution. Any unresolved dispute may be brought to a court of competent jurisdiction.



IX. FORCE MAJEURE

In the event that the performance of the obligations under this Agreement are impeded by reason of Force Majeure, the parties shall be released from their obligations and neither party shall be responsible for any damage sustained and have no further recourse against the other party. Force Majeure shall mean accident before and after the installation of the equipment, fire, earthquake, hurricane, flood, Act of God or natural disaster, epidemics or pandemics, nuclear explosions, strike, work stoppages, or other labor disturbance, riots or civil commotions, vandalism, war or other act of any nation, terrorism, power of government, or government agency, or any other cause which is beyond the control of the parties.

UNIVERSITY OF PUERTO RICO, MAYAGUEZ CAMPUS

Miguel Muñoz Muñoz

Miguel Muñoz Muñoz G Chancellor UNIVERSITY OF PUERTO RICO, MAYAGUEZ CAMPUS Date: <u>Sanuary 18, 2011</u> City: <u>Mayaguez</u>, PR

Recommended by:

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Dr. Jorge Rivera Santos Director – R&D Center, UPRM

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Prof. Gubquan Wang Department of Geology UPRM

RESEARCH FOUNDATION OF STATE UNIVERSITY OF NEW YORK

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Bradley Bermudez Sr. Agreement Admin.

Date: 2/7/11 City: BUFFALO, NEW YORE