

AMENDMENT 1

EXHIBIT A

This is Amendment 1 to Exhibit A to the Award Agreement entered on May 28, 2019 by and between Coastal Community Resilience, Inc., d.b.a. RISE and Infra-SGA, Inc.

PHASE TWO – PROJECT DEVELOPMENT AND IMPLEMENTATION

STATEMENT OF WORK AND BUDGET

Brief overview:

Infra-SGA will design, develop, manufacture prototypes for, and demonstrate a resilience value of a RAFT System product. RAFT is a bioretention solution that will provide a comprehensive solution for mitigating flooding and improving water quality to help communities solve their stormwater management issues without committing to massive stormwater system overhauls. RAFT will marry simplicity, uniformity and adaptability in a cost-effective package for urbanized and highly constrained environments.

Period of Performance: September 1, 2019 – August 31, 2021

Task 2.1: Administration and Mobilization

In order to conduct the effort that will be required to develop, prototype, and demonstrate technical feasibility of the RAFT System product for a real-world application, the necessary assets, administrative resources, and company infrastructure for Infra-SGA, Inc. will need to be put in place. The administrative setup will include administrative services such as legal, accounting, and bookkeeping, as well as physical company infrastructure like IT infrastructure, modeling equipment/tools, design software, and other office supplies.

Task 2.1 Deliverable

- Summary of administrative and grant reporting tasks completed (includes updates on press coverage, press releases, interviews, and community presentations highlighting Infra-SGA, RAFT System or RISE)

Task 2.1 Deliverable Subtasks

- 2.1.1: SGA administrative support for bookkeeping, invoicing, and grant reporting

Task 2.1 Other Direct Costs

- 2.1.2: Purchase of company PC
- 2.1.3: Purchase of company phone, VoIP/voicemail service, and monthly phone contract
- 2.1.4: Purchase of physical modeling equipment, including 3D printer and other supplies

- 2.1.5: Purchase of design software licenses/subscriptions for the described software packages
- 2.1.6: Purchase of administrative support software licenses/subscriptions for the described software packages
- 2.1.7: Purchase of accounting/tax preparation services and financial forecasting/modeling support services
- 2.1.8: Purchase of design references, office supplies, and supplemental training, as needed

Task 2.1 Timeline

- September 1, 2019 – August 31, 2021

Task 2.2: RAFT System Design Refinement

2.2.1: RAFT System Component Development.

In order to advance the design process of the RAFT System Product as rapidly as possible, Infra-SGA will update the design of the system components to be able to manufacture most of the system parts primarily using one material. Rather than a composite system of plastic and precast concrete, as was initially proposed in the RIF application, Infra-SGA will develop a design built primarily using precast concrete for the system's component parts. This will be done in order to ensure the ability to develop and manufacture the product on a condensed timeline, which was deemed more feasible through Infra-SGA's discussions with manufacturing partners. In order to execute this primarily concrete solution, Infra-SGA must first make design adjustments and refine system components to ensure the system will work as a precast concrete system. Infra-SGA will engage in a comprehensive review of each individual component of the design. This thorough review of each individual part and its function within the system will allow Infra-SGA to refine the RAFT System design and ensure assembly conflicts are identified and resolved to the extent possible prior to the prototyping stage.

2.2.2: RAFT Preliminary Design Drawing Set for Modeling.

Infra-SGA will create preliminary shop drawings for the RAFT System including each system component to be part of the RAFT system prototype. These drawings will be advanced to the prototype stage based on the conclusions reached in Subtask 2.2.1. The preliminary shop drawings will become the basis of the final technical drawings for the RAFT System eventually deployable in a real-world environment. They will include dimensions, tolerances, and material specifications for all product components to be used in prototype fabrication.

2.2.3: RAFT Preliminary Specification Development.

Accompanying preliminary shop drawings being advanced to the prototype modeling stage, Infra-SGA will also develop a set of preliminary specifications for the RAFT System product. These specifications will become the basis for the final package of technical specifications to be established working with Infra-SGA's manufacturing partner(s).

Task 2.2 Deliverable

- A memo inclusive of:
 - Final list of parts and proposed materials for RAFT System
 - Preliminary product shop drawings for use in model-building
 - Preliminary specifications package for RAFT System

Task 2.2 Deliverable Subtasks Summary

- 2.2.1: RAFT system component development
- 2.2.2: RAFT preliminary design drawing set for modeling
- 2.2.3: RAFT preliminary specification development

Task 2.2 Timeline

- September 1, 2019 – December 30, 2019

Task 2.3: RAFT Marketing and Product Launch Strategy

Infra-SGA will build on its existing knowledgebase of the industry and its potential competitors, to develop and refine a strategy to position itself against other existing stormwater management products in the marketplace. The research effort will include further investigation into both potential direct competitors for the RAFT System and tangentially linked stormwater management products as well as projects relevant to the product development effort. Infra-SGA will use this research effort to advance its go-to-market strategy. Infra-SGA will also develop and launch a website for Infra-SGA and the RAFT System product. As part of the marketing package, Infra-SGA will additionally join and/or attend conferences for various industry professional associations. As was determined through the ICAP process, a direct sales model is likely not feasible for the RAFT System product and Infra-SGA has instead identified conference presentations and other press as ways to get the product out to the market.

Task 2.3 Deliverable

- Marketing strategy memo, including sample promotional materials and a link to Infra-SGA/RAFT website

Task 2.3 Deliverable Subtasks

- 2.3.1: Development of RAFT marketing package and Infra-SGA/RAFT website

Task 2.3 Other Direct Costs

- 2.3.2: Professional association membership and conference attendance fees

Task 2.3 Timeline

- September 1, 2019 – December 31, 2020

RAFT marketing strategy and product launch strategy development will occur concurrently to other product design tasks over a timeline of up to approximately one (1) year.

Task 2.4: Digital and Physical Modeling

2.4.1: Digital Preliminary 3D Model Development.

In addition to the 2D shop drawings for the product and its components, a full, detailed 3D digital building

information model (BIM) will also be developed for use in product development and prototyping. This model will be to-scale and match what is being produced in the accompanying 2D shop drawings. The digital model will be produced in 3D prototype modeling software. The model will be transitioned and converted to other digital formats necessary for presentation and collaboration purposes. The digital model will be used for digital fabrication of physical scaled prototype models as well as in company informational and marketing materials for the RAFT System product. File formats, model configurations, and file management practices will be coordinated with in-house fabrication processes and manufacturing partners to streamline the physical prototyping.

2.4.2: Desktop Scale Model Development.

Infra-SGA will develop in-house physical scaled prototypes/study models of RAFT System components to beta test fit tolerances and assembly strategies. The scaled prototypes/study models will be developed using a combination of in-house modeling tools and equipment as well as through the utilization of the Slover Library Digital Media Lab and 757 Maker Space in Norfolk, Virginia.

2.4.3: Manufacturing of Workshop Mockup Prototype.

Infra-SGA will utilize the drawings and 3D digital models produced in other subtasks and apply them to the development of a large-scale physical prototype model (between 1:2 and 1:1 scale, depending on equipment capabilities). Infra-SGA, with input from their manufacturing partner, will work with them to create mockup components that can be constructed in a workshop environment to establish necessary tolerances and identify potential assembly flaws in the design prior to full-scale manufacturing. The prototype model will be manufactured from foam, wood, or another lightweight prototyping material in order to make handling and construction of the prototype easy in a workshop environment. Infra-SGA will assess machining capabilities and other factors to determine the best and most cost-efficient material to use for the scaled prototype.

2.4.4: Construction and Evaluation of Workshop Mockup Prototype.

Once the component parts of the scaled prototype have been fabricated by Infra-SGA, the staff will then engage in the assembly of the RAFT System prototype components in a controlled space. Once initial assembly is completed, Infra-SGA will engage in a full evaluation of each part for potential weaknesses in the design or tolerance defects with fit/constructability. Infra-SGA and their support staff will assess the product once it has been constructed to address potential concerns that arise or identify improvements that can be made before advancing to the manufacturing stage of the effort. This process will allow for a review of each component in the RAFT System's kit of parts and offer an effective quality control step before the design proceeds to refinement with the manufacturer.

Task 2.4 Deliverable

- A memo summarizing findings of final workshop mockup prototype evaluation based on digital and physical modeling.

Task 2.4 Deliverable Subtasks Summary

- 2.4.1: Digital preliminary 3D model development
- 2.4.2: Desktop scale model development
- 2.4.3: Manufacturing of workshop mockup prototype
- 2.4.4: Construction and evaluation of workshop mockup prototype

Task 2.4 Other Direct Costs

- 2.4.5: Workshop mockup prototype construction materials
- 2.4.6: One-year access to tools and equipment at 757 Maker Space

Task 2.4 Timeline

- September 1, 2019 – January 31, 2020

Digital and physical modeling will feature some overlap but will also trail design refinement work in Task 2.2. Timeline for digital and physical modeling is anticipated to take approximately three (3) to four (4) months and will trail the start of Task 2.2 by approximately one (1) to two (2) months.

Task 2.5: Manufacturer Design Coordination, RAFT Product Finalization, and Prototype Project Development for Real World Application

2.5.1: Refined Preliminary Drawing Package for Manufacturer

Based on information gained from the scaled prototyping effort and initial meetings with its manufacturing partner(s), the Infra-SGA team will optimize the design of the RAFT System components. Portions of the system that caused concerns during the study model and workshop mockup prototyping stages will be refined and finalized as necessary. This will include required engineering calculations to support adjustments in structural components of the wall and bracing configurations. Infra-SGA will also determine if tolerances need to be adjusted for individual components to ensure proper fit in the field during construction. The refined shop drawing package will then be provided to Infra-SGA's manufacturing partner(s), including Nansemond Precast Concrete Company, who has been identified as the primary manufacturing partner for precast concrete components.

2.5.2: Design Review with Manufacturing Partner (quality control & logistics)

Upon completion of the refined shop drawing package, Infra-SGA will re-engage with its manufacturing partner(s), including Nansemond Precast Concrete Company, to obtain additional final design and engineering input on the individual system components. RAFT system components will be subject to an in-depth evaluation by the manufacturer, considering manufacturing processes and concerns with logistics related to fabrication of forms, manufacturing, shipping, and field construction of RAFT System components. Infra-SGA will meet with the manufacturing partners as needed to review the design, address logistics, and respond to informational requests from the manufacturer. At the conclusion of the manufacturing partner review process, the product design will be in position to be finalized.

2.5.3: Final Product Drawing Package for Manufacturer

Once the RAFT System manufacturing and logistics design review is complete, Infra-SGA will make final adjustments and modifications to the shop drawings and specification package. A full internal audit will be conducted for each system component to ensure all potential tolerance, conflicts, defects, and constructability concerns identified in previous design steps have been addressed. Upon completion of that audit, final fabrication shop drawings for manufacturing, preliminary engineering documents, and digital BIM modeling will be prepared by Infra-SGA to facilitate the manufacturing of the RAFT System.

2.5.4: Development of Prototype Project for Real World Application.

Based on discussions that Infra-SGA has held with municipalities interested in the RAFT System product, Infra-SGA will develop a project prototype for modeling a real-world product application using a location agreed upon with RISE and one (1) municipality within the Hampton Roads region of Virginia. The location will be representative of nuisance flooding issues in an urban environment in Hampton Roads and other coastal communities to demonstrate replicability. The development of this project prototype will provide a hypothetical demonstration of how the product will be deployed in a site-specific real-world environment using a real-world problem associated with the selected location. Infra-SGA will develop project prototype engineered demonstration package to make a compelling argument of how RAFT would solve a real-world problem.

Once a location is agreed upon, Infra-SGA will perform a preliminary hydrologic and contextual analysis of the area to determine project prototype limits. Once the limits have been established, Infra-SGA will coordinate and oversee a topographic/boundary/utility survey performed by a professional surveyor of the project prototype demonstration area. Infra-SGA will utilize the survey as the basis for demonstration scenario modeling of the project prototype.

For the project prototype, Infra-SGA will develop a site-specific, yet hypothetical implementation demonstration package based on the real-world site scenario selected and surveyed. The hypothetical implementation demonstration package will include a theoretical prototype deployment of the RAFT application including a package of supporting technical documents, cost evaluations and narrative about resilience value added.

Task 2.5 Deliverable

- The project prototype technical package demonstrating a hypothetical real-world application of the RAFT System product. Based on the engineering design and cost evaluations, the package will also include a narrative describing added resilience value proposition of the RAFT System product solution and demonstrate performance comparisons between existing gray infrastructure prevalently used in Hampton Roads and other flood-prone communities and RAFT System benefits. The narrative will also describe replicability of the product in the Hampton Roads region and other areas. Finally, Infra-SGA commits to delivering at least one (1) presentation to Hampton Roads localities at a regional forum arranged by RISE.

Task 2.5 Deliverable Subtasks

- 2.5.1: Refined preliminary drawing package for manufacturer
- 2.5.2: Design review with manufacturing partner (quality control & logistics)
- 2.5.3: Final product drawing package for manufacturer
- 2.5.4: Development of prototype project for real world application

Task 2.5 Other Direct Costs

- 2.5.5: Design development assistance performed by manufacturing partner, Nansemond Precast Concrete Company (application partner)
- 2.5.6: Survey of prototype project area performed by professional land surveyor.

Task 2.5 Timeline

- September 1, 2019 – August 31, 2020

Portions of Task 2.5 will begin in September 2019 and occur concurrently to design refinement and modeling work in Tasks 2.2 and 2.4. Other portions of Task 2.5 will be reliant on completion of items within Tasks 2.2 and 2.4 to proceed. Overall timeline of Task 2.5 includes work concurrent with and trailing other tasks.

Equipment and Supplies Purchases

Awardee agrees to comply with the regulations at 2 CFR Part 200 regarding the title, use, management, and disposition of equipment and supplies.

Budget/Sources and Uses of Funds

TASK	DESCRIPTION	RIF COST
Task 2.1 - Administrative and Mobilization Support		
Task 2.1 Deliverable		
2.1.1	SGA administrative support for bookkeeping, invoicing, and grant reporting	
Task 2.1 ODCs		
2.1.2	Purchase of company PC	
2.1.3	Purchase of company phone, VoIP/voicemail service, and monthly phone contract	
2.1.4	Purchase of physical modeling equipment, including 3D printer and other supplies	
2.1.5	Purchase of design software licenses/subscriptions for the described software packages	
2.1.6	Purchase of administrative support software licenses/subscriptions for the described software packages	
2.1.7	Purchase of accounting/tax preparation services and financial forecasting/modeling support services	
2.1.8	Purchase of design references, office supplies, and supplemental training, as needed	
Task 2.1 Deliverable Fee Subtotal		\$23,520.00
Task 2.1 ODCs Subtotal		\$34,155.00
Task 2.2 - RAFT System Design Refinement		
Task 2.2 Deliverable Subtasks		
2.2.1	RAFT system component development	
2.2.2	RAFT preliminary design drawing set for modeling	
2.2.3	RAFT preliminary specification development	
Task 2.2 Deliverable Fee Subtotal		\$26,700.00
Task 2.2 ODCs Subtotal		\$0
Task 2.3 - RAFT Marketing and Product Launch Strategy		
Task 2.3 Deliverable Subtasks		
2.3.1	Development of RAFT marketing package and InfraSGA/RAFT website	
Task 2.3 ODCs		
2.3.2	Professional association membership and conference attendance fees	
Task 2.3 Deliverable Fee Subtotal		\$10,700
Task 2.3 ODCs Subtotal		\$2,500
Task 2.4 - Digital and Physical Modeling		
Task 2.4 Deliverable Subtasks		
2.4.1	Digital preliminary 3D model development	
2.4.2	Desktop scale model development	
2.4.3	Manufacturing of workshop mockup prototype	
2.4.4	Construction and evaluation of workshop mockup prototype	
Task 2.4 ODCs		
2.4.5	Workshop mockup prototype construction materials	
2.4.6	One year access to tools and equipment at 757 Maker Space	
Task 2.4 Deliverable Fee Subtotal		\$25,500.00
Task 2.4 ODCs Subtotal		\$6,200.00
Task 2.5 - Manufacturer Design Coordination, Product Finalization and Prototype Project Development		
Task 2.5 Deliverable Subtasks		
2.5.1	Refined preliminary drawing package for manufacturer	
2.5.2	Design review with manufacturing partner (quality control & logistics)	
2.5.3	Final product drawing package for manufacturer	
2.5.4	Development of prototype project for real world application	
Task 2.5 ODCs		
2.5.5	Concrete Company	
2.5.6	Survey of prototype project area performed by professional land surveyor	
Task 2.5 Deliverable Fee Subtotal		\$57,400.00
Task 2.5 ODCs Subtotal		\$20,000.00
RIF Phase 2 Total Deliverables		\$143,820.00
RIF Phase 2 Total ODCs		\$62,855.00
RIF Phase 2 TOTAL AMOUNT		\$206,675.00

Awardee

By: Timothy J. Stromberg

Name: Timothy J. Stromberg

Title: President, Infra-SGA, Inc.

Date: 8/29/2019

Coastal Community Resilience, Inc., DBA RISE

By: Paul Robinson

Name: Paul A. Robinson, Ph.D.

Title: Executive Director, RISE

Date: 8/29/2019