# Appendix A: Application Form for Grant Requests for All Categories

Virginia Department of Conservation and Recreation
Virginia Community Flood Preparedness Fund Grant Program

**Name of Local Government:**

City of Chesapeake

**Category of Grant Being Applied for (check one):**

____**Capacity Building/Planning**

_____**Project**

✓ **Study**

**NFIP/DCR Community Identification Number (CID)** 510034

**If a state or federally recognized Indian tribe, Name of tribe**_____

**Name of Authorized Official:** Sam Sawan, PE, CSM

**Signature of Authorized Official:** Sam Sawan

**Mailing Address (1):** City of Chesapeake - Department of Public Works

**Mailing Address (2):** 306 Cedar Road

**City:** Chesapeake **State:** Virginia **Zip:** 23322

**Telephone Number:** ([redacted] **Cell Phone Number:** (____) _____

**Email Address:** [redacted]

**Contact Person (If different from authorized official):** Deva K. Borah, Ph.D., P.E., F.ASCE

**Mailing Address (1):** City of Chesapeake – Department of Public Works

**Mailing Address (2):** 306 Cedar Road

**City:** Chesapeake **State:** Virginia **Zip:** 23322

**Telephone Number:** [redacted] **Cell Phone Number:** [redacted]

**Email Address:** [redacted]

Is the proposal in this application intended to benefit a low-income geographic area as defined in the Part 1 Definitions? Yes ____ No ✓

**Categories (select applicable project):**

**Project Grants (Check All that Apply)**

- ☐ Acquisition of property (or interests therein) and/or structures for purposes of allowing floodwater inundation, strategic retreat of existing land uses from areas vulnerable to flooding; the conservation or enhancement of natural flood resilience resources; or acquisition of structures, provided the acquired property will be protected in perpetuity from further development.
- ☐ Wetland restoration.
- ☐ Floodplain restoration.
- ☐ Construction of swales and settling ponds.
- ☐ Living shorelines and vegetated buffers.
- ☐ Structural floodwalls, levees, berms, flood gates, structural conveyances.
- ☐ Storm water system upgrades.
- ☐ Medium and large scale Low Impact Development (LID) in urban areas.
- ☐ Permanent conservation of undeveloped lands identified as having flood resilience value by *ConserveVirginia* Floodplain and Flooding Resilience layer or a similar data driven analytic tool.
- ☐ Dam restoration or removal.
- ☐ Stream bank restoration or stabilization.
- ☐ Restoration of floodplains to natural and beneficial function.
- ☐ Developing flood warning and response systems, which may include gauge installation, to notify residents of potential emergency flooding events.

**Study Grants (Check All that Apply)**

- ☐ Studies to aid in updating floodplain ordinances to maintain compliance with the NFIP or to incorporate higher standards that may reduce the risk of flood damage. This must include establishing processes for implementing the ordinance, including but not limited to, permitting, record retention, violations, and variances. This may include revising a floodplain ordinance when the community is getting new Flood Insurance Rate Maps (FIRMs), updating a floodplain ordinance to include floodplain setbacks or freeboard, or correcting issues identified in a Corrective Action Plan.
- ☐ Revising other land use ordinances to incorporate flood protection and mitigation goals, standards and practices.
- ✓ Conducting hydrologic and hydraulic studies of floodplains. Applicants who create new maps must apply for a Letter of Map Revision or a Physical Map Revision through the Federal Emergency Management Agency (FEMA). For example, a local government might conduct a hydrologic and hydraulic study for an area that had not been studied because the watershed is less than one square mile. Modeling the floodplain in an area that has numerous letters of map change that suggest the current map might not be fully accurate or doing a detailed flood study for an A Zone is another example.
- ☐ Studies and Data Collection of Statewide and Regional Significance.
- ☐ Revisions to existing resilience plans and modifications to existing comprehensive and hazard.
- ☐ Other relevant flood prevention and protection project or study.

**<u>Capacity Building and Planning Grants</u>**

- ☐ Floodplain Staff Capacity.
- ☐ Resilience Plan Development
  - ☐ Revisions to existing resilience plans and modifications to existing comprehensive and hazard mitigation plans.
  - ☐ Resource assessments, planning, strategies and development.
    - Policy management and/or development.
    - Stakeholder engagement and strategies.

**Location of Project (Include Maps):** Southern Chesapeake - Watershed 5

**NFIP Community Identification Number (CID#):(See appendix F** 510034

**Is Project Located in an NFIP Participating Community?** ✓ Yes □ No

**Is Project Located in a Special Flood Hazard Area?** ✓ Yes □ No

**Flood Zone(s) (If Applicable):** AE, X shaded

**Flood Insurance Rate Map Number(s) (If Applicable):** 5100340077D, 5100340078D, 5100340080D, 5100340081D, 5100340090D, 5100340091D, 5100340092D, 5100340093D, 5100340094D, 5100340095D, 5100340096D, 5100340102D, 5100340103D, 5100340104D, 5100340105D, 5100340106D, 5100340107D, 5100340108D, 5100340109D, 5100340116D, 5100340117D, 5100340118D, 5100340119D, 5100340120D, 5100340121D, 5100340122D

**Total Cost of Project:** $182,808.88

**Total Amount Requested** $91,404.44

# Appendix C: Scoring Criteria for Studies

Virginia Department of Conservation and Recreation
Virginia Community Flood Preparedness Fund Grant Program

| Applicant Name: | City of Chesapeake | |
|---|---|---|
| **Eligibility Information** | | |
| **Criterion** | **Description** | **Check One** |
| **1. Is the applicant a local government (including counties, cities, towns, municipal corporations, authorities, districts, commissions, or political subdivisions created by the General Assembly or pursuant to the Constitution or laws of the Commonwealth, or any combination of these)?** | | |
| Yes | Eligible for consideration | ✓ |
| No | Not eligible for consideration | |
| **2. Does the local government have an approved resilience plan and has provided a copy or link to the plan with this application?** | | |
| Yes | Eligible for consideration under all categories | |
| No | Eligible for consideration for studies, capacity building, and planning only | ✓ |
| **3. If the applicant is <u>not a town, city, or county</u>, are letters of support from all affected local governments included in this application?** | | |
| Yes | Eligible for consideration | |
| No | Not eligible for consideration | |
| **4. Has this or any portion of this project been included in any application or program previously funded by the Department?** | | |
| Yes | Not eligible for consideration | |
| No | Eligible for consideration | ✓ |
| **5. Has the applicant provided evidence of an ability to provide the required matching funds?** | | |
| Yes | Eligible for consideration | ✓ |
| No | Not eligible for consideration | |
| N/A | Match not required | |

| Studies Eligible for Consideration | ✓ Yes ☐ No |
|---|---|

| Applicant Name: | City of Chesapeake |
|---|---|

**Scoring Information**

| Criterion | Point Value | Points Awarded |
|---|---|---|
| **6. Eligible Studies (Select all that apply)** | | |
| Revising floodplain ordinances to maintain compliance with the NFIP or to incorporate higher standards that may reduce the risk of flood damage. This must include establishing processes for implementing the ordinance, including but not limited to, permitting, record retention, violations, and variances. This may include revising a floodplain ordinance when the community is getting new Flood Insurance Rate Maps (FIRMs), updating a floodplain ordinance to include floodplain setbacks or freeboard, or correcting issues identified in a Corrective Action Plan. | **30** | |
| Creating tools or applications to identify, aggregate, or display information on flood risk or creating a crowd-sourced mapping platform that gathers data points about real-time flooding. This could include a locally or regionally based web-based mapping product that allows local residents to better understand their flood risk. | **15** | |
| Conducting hydrologic and hydraulic studies of floodplains. Applicants who create new maps must apply for a Letter of Map Revision or a Physical Map Revision through the Federal Emergency Management Agency (FEMA). | **35** | 35 |
| Studies and Data Collection of Statewide and Regional Significance. Funding of studies of statewide and regional significance and proposals will be considered for the following types of studies: | | |
| ☐ Updating precipitation data and IDF information (rain intensity, duration, frequency estimates) including such data at a sub-state or regional scale on a periodic basis. | **45** | |
| ☐ Regional relative sea level rise projections for use in determining future impacts. | **45** | |
| ☐ Vulnerability analysis either statewide or regionally to state transportation, water supply, water treatment, impounding structures, or other significant and vital infrastructure from flooding. | **45** | |
| ☐ Flash flood studies and modeling in riverine regions of the state. | **45** | |
| ☐ Statewide or regional stream gauge monitoring to include expansion of existing gauge networks. | **45** | |

| | | |
|---|---|---|
| ☐ New or updated delineations of areas of recurrent flooding, stormwater flooding, and storm surge vulnerability in coastal areas that include projections for future conditions based on sea level rise, more intense rainfall events, or other relevant flood risk factors. | **45** | |
| ☐ Regional flood studies in riverine communities that may include watershed-scale evaluation, updated estimates of rainfall intensity, or other information. | **50** | |
| ☐ Regional hydrologic and hydraulic studies of floodplains. | **45** | |
| ☐ Studies of potential land use strategies that could be implemented by a local government to reduce or mitigate damage from coastal or riverine flooding. | **40** | |
| ☐ Other proposals that will significantly improve protection from flooding on a statewide or regional basis | **35** | |
| **7. Is the study area socially vulnerable? (Based on ADAPT VA's Social Vulnerability Index Score.)** | | |
| Very High Social Vulnerability (More than 1.5) | **15** | |
| High Social Vulnerability (1.0 to 1.5) | **12** | |
| Moderate Social Vulnerability (0.0 to 1.0) | **8** | |
| Low Social Vulnerability (-1.0 to 0.0) | **0** | 0 |
| Very Low Social Vulnerability (Less than -1.0) | **0** | |
| **8. Is the proposed study part of an effort to join or remedy the community's probation or suspension from the NFIP?** | | |
| Yes | **10** | |
| No | **0** | 0 |
| **9. Is the proposed study in a low-income geographic area as defined in this manual?** | | |
| Yes | **10** | |
| No | **0** | 0 |
| **10. Projects eligible for funding may also reduce nutrient and sediment pollution to local waters and the Chesapeake Bay and assist the Commonwealth in achieving local and/or Chesapeake Bay TMDLs. Does the proposed project include implementation of one or more best management practices with a nitrogen, phosphorus, or sediment reduction efficiency established by the Virginia Department of Environmental Quality or the Chesapeake Bay Program Partnership in support of the Chesapeake Bay TMDL Phase III Watershed Implementation Plan?** | | |
| Yes | **5** | |
| No | **0** | 0 |
| **Total Points** | | 35 |

# Appendix D: Checklist All Categories

Virginia Department of Conservation and Recreation

Community Flood Preparedness Fund Grant Program

| Scope of Work Narrative | |
|---|---|
| **Supporting Documentation** | **Included** |
| Detailed map of the project area(s) (Projects/Studies) | ✓ Yes □ No □ N/A |
| FIRMette of the project area(s) (Projects/Studies) | ✓ Yes □ No □ N/A |
| Historic flood damage data and/or images (Projects/Studies) | ✓ Yes □ No □ N/A |
| A link to or a copy of the current floodplain ordinance | ✓ Yes □ No □ N/A |
| Non-Fund financed maintenance and management plan for project extending a minimum of 5 years from project close | □ Yes □ No ✓ N/A |
| A link to or a copy of the current hazard mitigation plan | ✓ Yes □ No □ N/A |
| A link to or a copy of the current comprehensive plan | ✓ Yes □ No □ N/A |
| Social vulnerability index score(s) for the project area from ADAPT VA's Virginia Vulnerability Viewer | ✓ Yes □ No □ N/A |
| If applicant is not a town, city, or county, letters of support from affected communities | □ Yes □ No ✓ N/A |
| Completed Scoring Criteria Sheet in Appendix B, C, or D | ✓ Yes □ No □ N/A |
| **Budget Narrative** | |
| **Supporting Documentation** | **Included** |
| Authorization to request funding from the Fund from governing body or chief executive of the local government | ✓ Yes □ No □ N/A |
| Signed pledge agreement from each contributing organization | □ Yes □ No ✓ N/A |

# Scope of Work Narrative – Studies

All applications for proposed studies the applicant should include the following:

1. The specific type of study proposed including whether the study is new or updates a prior study.

**Hydraulic and hydrologic study of the Southern Chesapeake – 5 Watershed/floodplain with historic and predicted floods for the assessment of flood risk and the development of strategies to prevent or mitigate damages from coastal and riverine flooding.**

**This is a new study. The City of Chesapeake has been systematically studying the major watersheds throughout the locality. The Southern Chesapeake – 5 Watershed has not yet had a study conducted. Recent (April 9, 2021) flooding of the Northwest River Water Treatment Plant (NRWTP) in this watershed has prompted the City to request funding for this specific watershed at this time.**

2. The relationship of the study to the local government's needs for flood prevention and protection, equity, community improvement, identification of nature-based solutions or other priorities contained in this manual.

**The City of Chesapeake has been systematically studying the major watersheds throughout the locality. April 9, 2021 flooding of the NRWTP in this watershed has prompted the City to request funding for this specific watershed at this time. The water treatment plant is critical infrastructure and identification and implementation of the recommended improvements that result from this study will improve resiliency of that critical infrastructure as well as the rest of the watershed.**

**The Southern Chesapeake – 5 Watershed is in the southern, more rural and less developed section of the City. Previously, drainage areas with more formal infrastructure and more ongoing development have taken precedent due to recent development pressures. However, the southern parts of the City are not without flooding issues and have vast swaths of land in Special Flood Hazard Areas that are also deserving of study and protection.**

**See *Attachment 1a* GKY Scope of Work – Southern Chesapeake-5 Master Drainage Plan dated May 28, 2021 Section 1. General (pages 1-3) for additional details.**

3. The qualifications of the individuals or organizations charged with conducting the study or the elements of any request for proposal that define those qualifications.

**The City of Chesapeake plans to use GKY, a consultant with a current Annual Civil Engineering Services Contract, to perform the work for this study. Please refer to *Attachment 2*, the proposal submitted by GKY in response to the RFP for the contract to review the firm's qualifications.**

4. The expected use of the study results in the context of the local resilience plan or, in the case of regional plans, how the study improves any regional approach.

**It is intended that the recommended projects identified as a result of the study shall be added to the City's Resilience Plan (yet to be developed) as appropriate.**

**See *Attachment 1a* GKY Scope of Work – Southern Chesapeake-5 Master Drainage Plan dated May 28, 2021 Section 3.5 Task 5 Evaluation of Projects (page 5) for additional details.**

5. If applicable, how the study may improve Virginia's flood protection and prevention abilities in a statewide context. **N/A**

**Supporting Documentation**

- Detailed Map of the project area(s)

  **See *Attachment 1a & b* GKY Scope(s) of Work for project area maps. *Attachment 1b* is the SOW for Data Processing and Surveying, an integral part of the study.**

- FIRMette of the project area(s)

  **FIRMette for the location of critical infrastructure Northwest River Water Treatment Plan and map showing the FIRM panels for the entire project area are provided at *Attachment 3*. A list of all FIRM panels that comprise the study area can be found on Appendix A: Application Form.**

- Historic flood damage and/or images

  **Provided as *Attachment 4*.**

- A link to a copy of the current floodplain ordinance

  ADOPTED+Floodplain+Ordinance--7-16-2013.pdf (cityofchesapeake.net)

  https://www.cityofchesapeake.net/Assets/documents/departments/planning/floodplain-ordinance/ADOPTED+Floodplain+Ordinance--7-16-2013.pdf

- A link to or a copy of the current hazard mitigation plan

  Hampton Roads Hazard Mitigation Plan | Emergency Management | Departments | Departments | Emergency Management | Departments | Departments | Hampton Roads Planning District Commission (hrpdcva.gov)

  https://www.hrpdcva.gov/departments/emergency-management/hampton-roads-hazard-mitigation-plan/

- A link to or a copy of the current comprehensive plan

  Comprehensive Plan 2035 (cityofchesapeake.net)

  https://www.cityofchesapeake.net/government/city-departments/departments/Planning-Department/moving-forward-2035.htm

- Social vulnerability index score(s) for the project area

  **The score for the area is LOW. See *Attachment 5* for map of the project area & score.**

- Completed Scoring Criteria Sheet

  **The Completed Appendix C: Scoring Criteria for Studies follows the Appendix A: Application Form.**

## Budget Narrative- Required for All Grant Categories

Each application must include a detailed Budget Narrative explaining all proposed expenditures. A budget narrative is applicable to requests from any category of grants in this manual. The following items must be included in the Budget Narrative:

● *Estimated total project cost*: **$182,808.88.**

**This amount represents consultant firm GKY fees as provided in *Attachments 1a & b*.**

● *Amount of funds requested from the Fund*: **$91,404.44**

**This is the total amount of any grant assistance sought from the Fund. 100% of this is to be provided through a contract with GKY.**

● *Amount of cash funds available*: **$91,404.44**

**The source of these funds is Project Number: 10-150 Project Title: Stormwater Mapping & Master Drainage Plan III in the City Capital Improvement Plan.**

**See *Attachment 6* for a letter indicating the availability of and ability to obtain funding for the local match including a description of the fund allowable expenditures and funding plan as well as a financial statement indicating sufficient funds to cover the match requirement for this grant application.**

● *Authorization to request for funding: Local governments seeking funding shall also attach signed documentation authorizing the request for funding.* (**Supporting Documentation**.)

**See *Attachment 6* for a letter authorizing a request for funding through the program.**

## SCOPE OF WORK

# Southern Chesapeake-5 Master Drainage Plan

## City of Chesapeake, Virginia

*May 28, 2021*

### 1. GENERAL

GKY & Associates, Inc. (GKY) will assist the City of Chesapeake, Virginia (CITY) with preparation of a Master Drainage Plan (MDP) for the Southern Chesapeake-5 Watershed (SC-5)—covering the orange-banded area in Figure 1. The total area is approximately 30,613 acres.

MDPs and Storm Water Management Models (SWMM models) have been prepared previously for upstream watersheds SC-1, SC-2&3, and SC-4 but not for SC-5. Much of Southern Chesapeake is covered with open land, farm tracts, and woodlands. Recent flood events have occurred, and the CITY wants to address specific flooding concerns in an MDP for SC-5.

According to Weather Underground gage data, a localized storm event on April 9, 2021 dumped 6.2 inches of rain on and near the Northwest River Water Treatment Plant (NRWTP), shown in Figures 1 and 2. During the most intense portion of this storm, 4.35 inches of rain fell in 60 minutes and flooded the NRWTP. Based on NOAA Atlas 14 precipitation frequency data, this storm had an average recurrence interval exceeding 200 years. The CITY is prioritizing efforts to identify improvements that can be made to reduce the magnitude and frequency of future flooding.

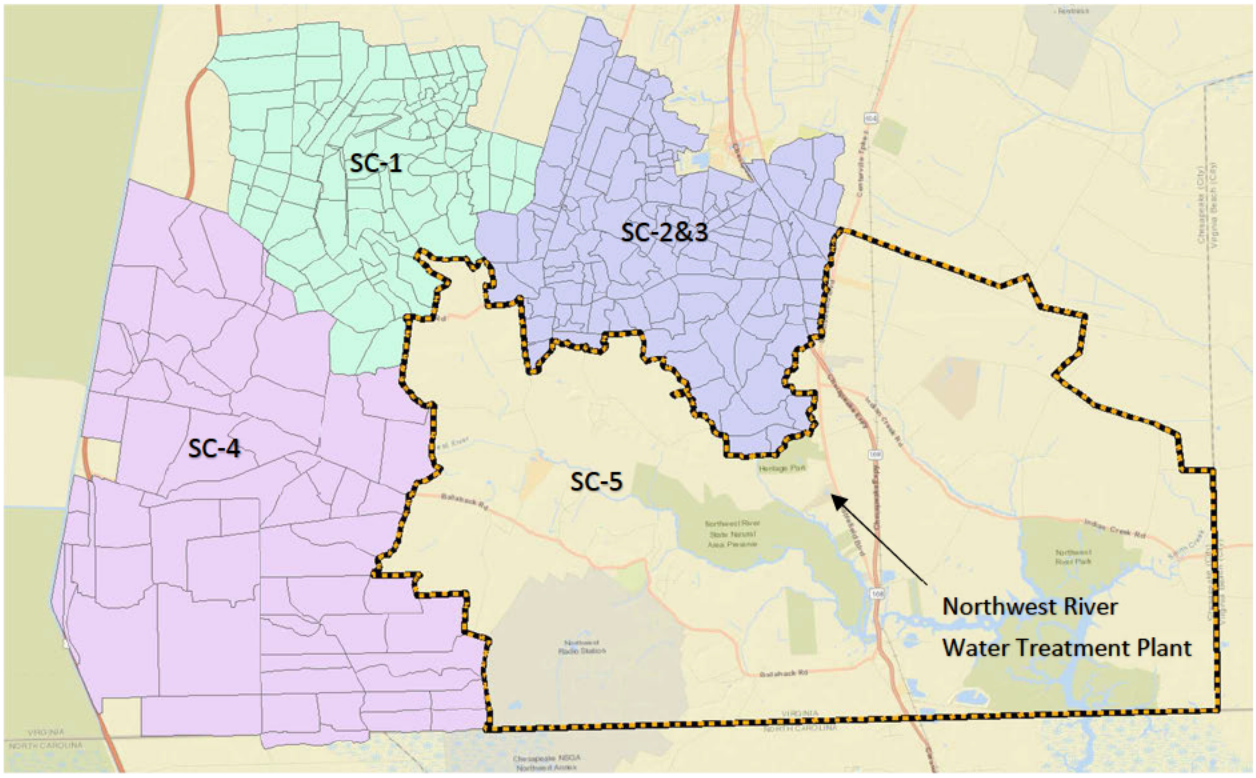



**Figure 1. SC-5 Watershed Boundary and Study Area (orange banding)**

This Scope of Work provides engineering services to build enhanced computer models of the SC-5 watershed, and to identify specific projects that could be implemented to reduce flooding—typically in the form of Capital Improvement Projects.


**Figure 2. Northwest River Water Treatment Plant (NRWTP)**

Because the watershed topography is relatively flat and the existing drainage system is frequently blocked with sediment and woodland debris, flooding results largely from inadequate overland flow relief. When runoff backs up and spills out of the drainage ditches and culverts it has nowhere to go—so flood depths increase until floodwaters eventually recede.

Traditional 1D SWMM models are not well suited for identifying overland flow paths. 1D models require 'guestimations' about how floodwaters will behave when they spill out onto the ground surface. Consequently, 1D studies can result in recommendations to build larger underground pipes and culverts when less expensive solutions could be employed if the overland flows were better understood. 1D SWMM models have been around since the early 1970's, when computational processing power was much more limited than it is today. With modern, multi-core, high-speed processors, advanced 2D modeling is feasible for this type of project.

GKY has had good success using combined 1D and 2D SWMM models to develop flood reduction projects for watersheds like those in Southern Chesapeake. The 2D component utilizes detailed terrain data that allows modelers to sharply visualize where and when water collects, ponds, and flows on the ground surface. The 1D component computes accurate flows in the pipes and culverts *without having to assume what happens when the flow capacity is exceeded*. The 1D component also relieves artificial ponding areas that would otherwise appear if the underground drainage system were ignored.

Combined 1D and 2D SWMM modeling involves more work than traditional 1D modeling, but the benefits are well worth the extra effort—particularly given the substantial costs required to construct flood reduction projects. For example, if we try to increase drainage system capacity—by installing larger culverts and pipes—to reduce flood depths and keep future flows contained underground, we can end up spending a lot more money than if we use the overland flow routes (along roads and overland flow paths away from buildings) to carry a sizeable portion of the load.

For this assignment, GKY will work with the CITY to determine the capacity of the current drainage and stormwater management system (i.e., the pipes, culverts, ditches, and storage basins). An existing condition model will be built with conditions as they

existed on April 9, 2021, and that model will be 'calibrated' to match anecdotal flood depth information to be provided by the City. The calibration process is described below.

After reviewing the calibrated model with the CITY, GKY will develop a set of existing condition, combined 1D and 2D SWMM models using NOAA Type C, 24-hour design hyetographs and hydraulic boundary conditions stipulated by the CITY. The models will use upstream flows from the SC-2, SC-2&3, and SC-4 watersheds—which will have to be run with the new NOAA Type C hyetographs. GKY will not modify the SC-2, SC-2&3, and SC-4 models to have 2D components, but will use these models to produce runon flows for SC-5.

The existing condition modeling will pinpoint bottlenecks and problem areas. GKY will then use the results of combined 1D and 2D SWMM modeling to identify potential capacity improvements that can reduce the magnitude and frequency of future flooding. We will discuss potential improvement projects with CITY engineers and incorporate final, approved projects into deliverables that clearly identify what can be done and how much it will cost to reduce future flooding.

The identification of flood reduction measures for the NRWTP is a high priority. GKY will expedite preliminary identification of flood reduction improvements specifically for the NRWTP—ahead of submission of the SC-5 MDP deliverables.

Surveying and data processing work is not included in this Scope of Work—it is budgeted and scoped under a related, separate, time-and-materials task order. Both task orders will need to be approved for the work to proceed.

The project manager for the CITY will be Crystal Bloom, PE, LEED GA (cbloom@cityofchesapeake.net), 757.382.7881. John Paine, PE, PH, CFM (jpaine@gky.com, 757.346.4422) will be the project manager for GKY.

## 2. CITY-FURNISHED DOCUMENTS AND INFORMATION

The CITY will provide the following documents and information to GKY:

2.1. Copies of pertinent existing stormwater studies, models, rainfall records, and documents;
2.2. The latest versions of the CITY's SC-1, SC-2&3, and SC-4 SWMM models reflecting 2021 existing conditions;
2.3. Maps or sketches of flood-prone areas and problematic structures in the watershed;
2.4. GIS and surveying data in ESRI-compatible formats for the subject watershed and surrounding areas;
2.5. Future land cover guidance (imperviousness) and applicable engineering studies or plans for areas expected to be developed or redeveloped;
2.6. Hydraulic boundary conditions—or preferences for boundary conditions—and design rainfall depths to be used in the modeling; and
2.7. Mailings to residents or other suitable and appropriate notifications regarding field activities, if and where applicable.

## 3. BASIC SERVICES

This Scope of Work provides Basic Services to analyze flooding in the SC-5 Watershed, to construct computer models of design storm events, and to identify specific projects that could be implemented to reduce the frequency, severity, and duration of flooding.

### 3.1 Task 1: Project Management, Coordination, Meetings, Quality Control

This task includes administrative time associated with invoicing, progress reporting, communications (email and phone calls), coordination, and all internal project planning and setup. GKY will manage the project workflow, coordinating with the CITY, to ensure that the work proceeds in an efficient and cost-effective manner.

GKY will respond promptly to phone and e-mail inquiries; maintain appropriate records of project correspondence and meetings; and provide e-mail updates on project status that highlight milestones reached, schedule targets, and comments and concerns.

GKY will attend ad-hoc meetings as directed by the CITY, and as budgeted under this Task 1. Specific meetings are also budgeted as noted in the tasks below. Meeting budgets do not overlap.

Quality assurance and quality control reviews of deliverable documents by GKY senior engineers are budgeted under this task.

### 3.2 Task 2: Existing Condition Model

Mining data from scans of old plan sets and other sources is the single most expensive and unpredictable portion of the modeling process. Modelers must spend considerable time and effort to sift through and piece together the available data, identify information gaps, request field surveying, wait for the surveying to be completed, then import and process the data to create an existing condition model. There is no reliable way to estimate how much effort will be required. This work typically happens over multiple rounds of requests between GKY and CITY staff. For the SC-5 MDP project, data collection and processing—and surveying—will be completed under a separate, concurrent task order on a time-and-materials basis.

This Scope of Work assumes that the data collection, surveying, field investigation, and data processing work will occur entirely under that separate task order, and the construction of an existing condition model will begin when all the required pipe, culvert, structure, impoundment, and outfall data is in usable GIS files.

PCSWMM has become the modeling platform of choice for most Hampton Roads localities. GKY will use the latest version of the PCSWMM software (https://www.pcswmm.com) to prepare the models for this assignment. This software is widely used and respected and is ideally suited for this assignment. The output is compatible with the public domain EPA SWMM model, which can be readily downloaded and used by CITY engineers without paying any fees. However, the licensed PCSWMM software provides considerable engineering analysis tools and capabilities that are not available in the public domain EPA version.

GKY will begin by running the SC-1, SC-2&3, and SC-4 1D SWMM models provided by the CITY with April 9, 2021 rainfall data to obtain upstream inflow hydrographs for the SC-5 model. Those models will not be converted to 2D SWMM or adjusted in any other way, nor will results be analyzed or summarized. Three sets of upstream hydrographs will be produced to use in the SC-5 existing condition model.

We will process the CITY's most recent Digital Elevation Model (DEM) data into a 3D terrain for modeling purposes. This terrain will be refined, within the budget provided and using supplemental data provided by the CITY, to incorporate significant grading changes that have occurred since the DEM data was flown.

GKY will then create a combined 1D and 2D PCSWMM model reflecting the watershed condition as it existed on April 9, 2021. This work involves preparing GIS coverages of Manning overland roughness, imperviousness, subcatchment delineation, pour points, and soil texture. It is not necessary to digitize or estimate ponding areas because those will be reflected in the terrain data and computed directly by PCSWMM. Pipe and structure data from the associated data reduction and surveying task will be put into PCSWMM format, incorporating the upstream inflow hydrographs from the April 9 storm runs noted above. We will covert drainage ditches in the model to small pilot channels for the purposes of plotting linear hydraulic grade lines through the watershed. The ditch geometry will be reflected in the 3D terrain, so it is important not to double-count conveyance and storage.

GKY may need to make casual field visits—for example, to check structure depths or pipe or culvert configurations. If field visits are needed, GKY will coordinate with the CITY to ensure that resident notifications are made properly and that potential concerns are addressed.

When the model is ready, GKY will begin calibration runs, described below.

### 3.3 Task 3: Model 'Calibration'

Flow meter and staff gage records are not available for the April 9, 2021, storm, so a strict calibration is not possible. However, the CITY has anecdotal information about the flooding at the NRWTP, and good rainfall records are available from Weather Underground.

GKY will use anecdotal flooding information provided by the CITY to check the apparent validity of the April 9, 2021, existing condition model. This validity check involves noting whether the modeling results seem to match anecdotal data generally. If they do not, GKY will adjust the model parameters and input data. The calibration process requires trial-and-error modeling to arrive at a good balance between observed and predicted flooding. We have had very good results calibrating similar models to anecdotal information—largely because the detailed terrain produces such an accurate model of overland flow results and flooding.

GKY will meet with the CITY to review the calibrated existing condition model for the April 9, 2021 event. At this meeting, GKY and the CITY will discuss potential flood reduction project ideas.

When the calibrated SC-5 model is complete, GKY will make terrain and other modifications, described below, to prepare the 2021 existing and future condition models using design storm events.

### 3.4 Task 4: Combined 1D and 2D SWMM Design Storm Models

The CITY will provide guidance for the design rainfall depths and boundary conditions to be used. 2-, 10-, 50-, 100-, 500-, and 1,000-year, 24-hour, NOAA Type C hyetographs will be used for both existing and future condition design storm models.

GKY will use the calibrated existing condition model to prepare six existing condition and six future condition design storm models for the SC-5 watershed, resulting in 12 total design storm models of the SC-5 Watershed. The SC-1, SC-2&3, and SC-4 1D SWMM models will be run using updated design rainfall data for each of these events, producing 18 sets of upstream inflow hydrographs for SC-5. The upstream models will not be otherwise modified or evaluated.

For the future condition models, GKY will work with the CITY to identify potential improvement projects that the CITY could construct to reduce future flooding magnitude and frequency. This work involves trial-and-error modeling to develop a feasible future condition scenario. All potential flood relief projects will be included in a single future condition scenario; individual models for various combinations of improvement projects will not be created.

Once identified, GKY will meet with the CITY to review potential project ideas. After the CITY approves the projects as potentially feasible and worthy of further consideration, GKY will prepare the six final future condition models. The improvement projects could require terrain modifications—for example to provide better overland flow relief—as budgeted herein. GKY will arrive at a single future condition modeling configuration, including improvement projects, and run the design storms with the improvement projects in place.

### 3.5 Task 5: Evaluation of Projects

The identification of flood reduction measures at the NRWTP is a high priority. GKY will review the site data and anecdotal flood information from the April 9, 2021, storm and develop potential concepts for improvement projects. These concepts will be considered using readily available terrain and site infrastructure data to be provided by the CITY. Before future condition modeling is ready, GKY will submit a technical memorandum to the CITY describing the potential improvements. Exact dimensions, such as crest elevations for flood protection dikes or new culvert diameters will not be available, but the conceptual descriptions will be useful for beginning further design investigation work (to be completed outside this Scope of Work). When the future condition models are ready, these dimensions will be clearly identified. GKY will review the technical memorandum with the CITY and make changes in response to consolidated review comments. The CITY's comments will also be incorporated into the future condition models produced for this MDP.

Following the calibrated model review meeting, GKY will work to finalize the future condition models incorporating the approved potential flood reduction projects. This work involves considerable trial-and-error modeling to set critical dimensions and establish the configuration for each project.

GKY will review the future project results with the CITY at a meeting called for this purpose. After getting the CITY's input regarding suitability and likely feasibility, GKY will revise and finalize the future condition modeling and produce the final deliverables.

GKY will prepare cost opinion estimates for the approved future projects. These cost opinion estimates will be made without the benefit of design plans, geotechnical investigations, permitting evaluations, utility test holes, or other detailed information, but will be based on GKY's current estimates for likely site conditions, engineering and permitting costs, and unit prices for construction bid items.

### 3.6 Task 6: Production of Deliverables

The use of electronic deliverables provides immediately transferrable documents, increases the efficiency of project archiving, eliminates paper waste, allows for efficient electronic searching of text within all documents, and reduces the cost of the project. All deliverables will be submitted in digital file formats (e.g., Adobe Acrobat *.pdf, ESRI *.shp, PCSWMM *.pcz, PowerPoint *.ppt, etc.). The PDF documents can be served on the CITY's website.

GKY will prepare a report and modeling documentation in Adobe portable document file (PDF) format. The report will contain updated watershed maps in GIS format that depict the layout and construction of the models and peak flood depths. The documentation will include a narrative describing the modeling effort, existing and future conditions, a description of the computer files and scenarios, and descriptions of the potential flood reduction improvement projects. GKY will include cost estimate opinions for the potential improvement projects that the CITY deemed worthy of inclusion in the future condition models (during Task 5).

GKY will also produce PowerPoint presentations, as appropriate, for the review meetings described above. As the modeling results become available, these PowerPoints will include 2D video animations of flood depths and flows.

GKY will submit the report as a draft, then respond to consolidated comments from the CITY and submit the final report and other deliverables.

## 4. OPTIONAL SERVICES

No Optional Services are anticipated under this agreement.

## 5. DELIVERABLES

GKY will deliver to the CITY:

5.1 PowerPoint files for technical meetings with the CITY, as described in Section 3 above;

5.2 A technical memorandum identifying potential flood improvement measures that could be constructed at the NRWTP, as described in Section 3.5 above;

5.3 A *Southern Chesapeake-5 Master Drainage Plan* report, as described in Section 3.6 above;

5.4 Thirty-four (34) PCSWMM computer models (i.e., *.pcz files) of the calibrated, existing, and future conditions described in Section 3 above. 21 of the 34 will be 1D SWMM files of the upstream (SC-1, SC-2&3, and SC-4) watersheds, and 13 will be of the calibrated, existing, and future conditions, combined 1D and 2D SWMM models of the SC-5 watershed.

5.5 Digital engineering files (e.g., GIS shapefiles, spreadsheets, and cost opinion estimates) produced or collected as part of the engineering work for this project.

GKY will provide secure download links for all draft and final electronic deliverables.

## 6. COMPENSATION

### 6.1 Cost Basis Assumptions

The following assumptions have been used to develop this Scope of Work and Fee Estimate.

6.1.1 This Scope of Work does not include the following:

a) Water quality calculations or permitting services;
b) Payment of fees;
c) Field investigations (other than casual field visits);
d) Surveying;
e) FEMA processes such as Conditional Letter of Map Revision (CLOMR) or Letter of Map Revision (LOMR) application work;
f) Design work or preparation of design plans or detail sketches; or
g) Other services and deliverables not specifically described in Sections 3 and 5 above.

6.1.2 The CITY will obtain any necessary property access permissions and will appropriately notify residents of field activities—either with mailings, social media postings, or advertising—if and where needed. GKY may need to make casual site visits to obtain structure depth or configuration information, but significant fieldwork is not included in this Scope of Work.

6.1.3 The project schedule (and costs to the CITY and GKY) could be adversely impacted by delays or difficulties in executing the work, particularly where third parties are involved. The CITY and GKY will scale this work—if needed and to the extent practical and possible—to fit within the approved Lump Sum Fee. Neither GKY nor the CITY wishes to exceed the total fee budgeted for this Scope of Work.

6.1.4 The related task order for data processing and surveying must be approved concurrently with this task order.

**6.2 Total Fee**

GKY will perform the Basic Services and produce the corresponding deliverables described above for a Lump Sum Fee of **$ 99,714.60 (ninety-nine-thousand-seven-hundred-fourteen dollars and sixty cents)**. A detailed Fee Estimate accompanies this Scope of Work.

GKY will submit monthly invoices based on percentage-of-completion, as supported by GKY's cost accounting system.

**7. SCHEDULE**

This Scope of Work can be completed within **8 (eight) months after receipt of an executed Purchase Order**. The technical memorandum describing potential flood reduction improvements to the Northwest River Water Treatment Plant will be produced within **four (4) months after receipt of an executed Purchase Order**

The CITY and GKY will strive to avoid any delays in the execution of this work. This schedule estimate does not include allowances for delays that are beyond the control of GKY, such as delays in receiving review comments, arranging meetings, or receiving other required data. Schedule progress will be continuously monitored and reported to the CITY as part of the coordination work for this project (Task 1).

**8. SIGNED OFFER**

This fee proposal is valid through 28 May 2022.

Offered By:

_____ 28 May 2021

Stuart M. Stein, PE, D.WRE Date
President, GKY & Associates, Inc.

## SCOPE OF WORK

# Southern Chesapeake-5 Data Processing and Surveying

## City of Chesapeake, Virginia

*May 28, 2021*

### 1. GENERAL

GKY & Associates, Inc. (GKY) will assist the City of Chesapeake, Virginia (CITY) with preparation of a Master Drainage Plan (MDP) for the Southern Chesapeake-5 Watershed (SC-5)—covering the orange-banded area in Figure 1. The total area is approximately 30,613 acres. GKY is submitting a separate Scope of Work and Fee Estimate to produce the SC-5 MDP deliverables on a Lump Sum basis. This related Scope of Work provides for data processing and surveying to support that effort on a Time-and-Materials basis.

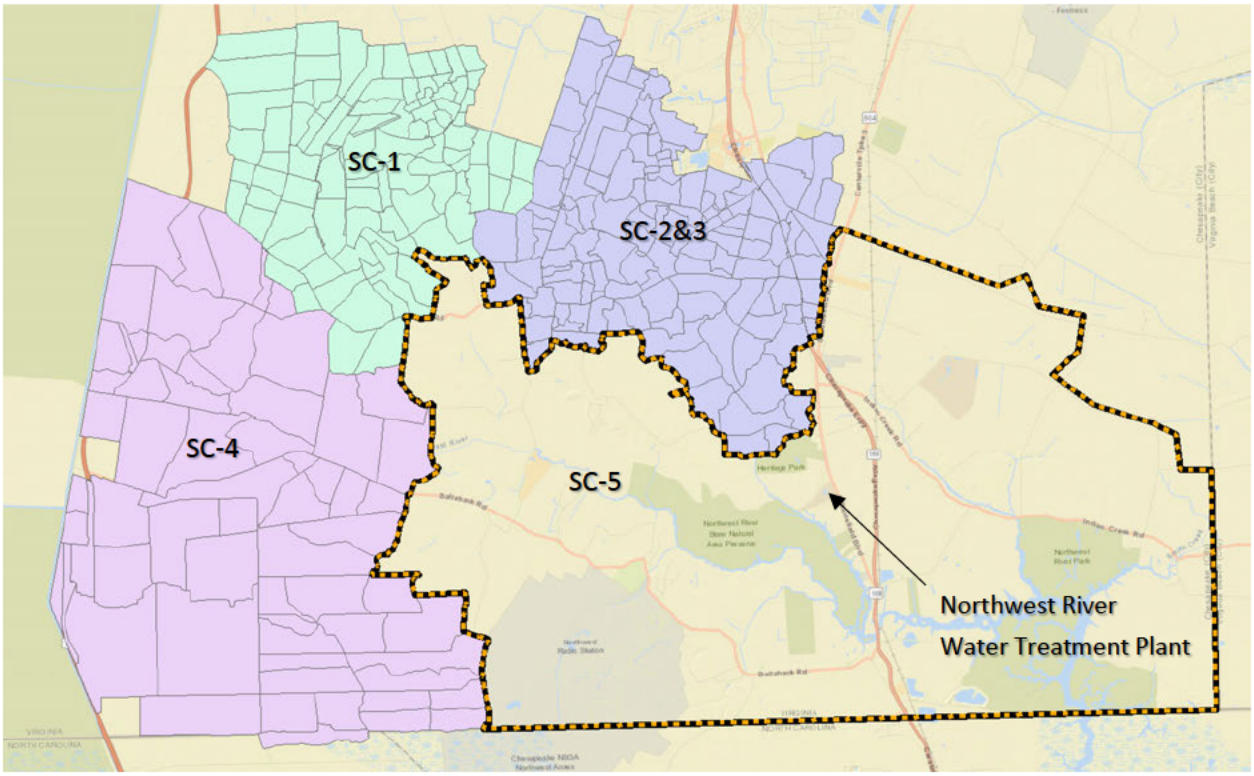



**Figure 1. SC-5 Watershed Boundary and Study Area (orange banding)**

Mining data from scans of old plan sets and other sources is the single most expensive and unpredictable portion of the MDP process. Modelers must spend considerable time and effort to sift through and piece together the available data, identify information gaps, request field surveying, wait for the surveying to be completed, then import and process the data to create an existing condition model. There is no reliable way to estimate how much effort will be required. This work typically happens over multiple rounds of requests between GKY and CITY staff. For the SC-5 MDP project, data processing and surveying will be separated from the MDP task order and completed under this concurrent task order on a Time-and-Materials basis.

GKY's subconsultant teaming partner, ATCS, PLC (ATCS) will perform the surveying work as described below.

The project manager for the CITY will be Crystal Bloom, PE, LEED GA (cbloom@cityofchesapeake.net), 757.382.7881. John Paine, PE, PH, CFM (jpaine@gky.com, 757.346.4422) will be the project manager for GKY.

## 2. CITY-FURNISHED DOCUMENTS AND INFORMATION

The CITY will provide the following documents and information to GKY:

2.1. Copies of pertinent existing surveys, and stormwater inventory and benchmark data;
2.2. Scanned copies of pertinent plan sets and surveys with the vertical datum clearly identified for each plan set;
2.3. GIS and surveying data in ESRI-compatible formats for the subject watershed and surrounding areas;
2.4. Future plans and land cover guidance (imperviousness) and applicable engineering studies or plans for areas expected to be developed or redeveloped;
2.6. Mailings to residents or other suitable and appropriate notifications regarding field activities, if and where applicable.

## 3. BASIC SERVICES

This Scope of Work provides Basic Services to process plan and stormwater infrastructure data in support of related Storm Water Management Model (SWMM) engineering and to collect surveying data in support of that modeling. The objective of this data processing and surveying task order is to produce a clean set of GIS files representing the existing, 2021 condition of the pipes, culverts, drainage structures, impoundments, and outfalls of the SC-5 Watershed. These GIS files will be used as the starting point for preparation of combined 1D and 2D modeling under a separate and related task order.

### 3.1 Task 1: Project Management, Coordination, Meetings, Quality Control

This task includes administrative time associated with invoicing, progress reporting, communications (email and phone calls), coordination, and all internal project planning and setup. GKY will manage the project workflow, coordinating with the CITY, to ensure that the work proceeds in an efficient and cost-effective manner.

GKY will respond promptly to phone and e-mail inquiries; maintain appropriate records of project correspondence and meetings; and provide e-mail updates on project status that highlight milestones reached, schedule targets, and comments and concerns.

GKY will attend ad-hoc meetings as directed by the CITY, and as budgeted under this Task 1.

Quality assurance and quality control reviews of deliverable documents by GKY senior engineers are budgeted under this task.

### 3.2 Task 2: Data Processing

The CITY will provide scanned plan sets and surveys of drainage and stormwater management infrastructure, as described in Section 2 above. GKY will catalog the scanned sheets and process this data to create GIS files depicting the SC-5 drainage system. This work typically involves multiple rounds of requests for scanned data as GKY engineers and technicians build the GIS files and identify gaps and items needing clarification, all of which is labor intensive. Selected plan sheets will be georeferenced in the GIS to create a raw, underlying map of portions of the drainage system.

As the scanned plan sets are processed and data gaps become apparent, GKY will prepare a list of survey requests for review by the CITY. The CITY and GKY will then prioritize the list of surveying requests and will work with ATCS to obtain as much of the requested surveying data as possible, keeping within the allocated budget for this task order. The process of creating a list of surveying priorities often leads to the discovery of additional scanned plan sets, which then must be processed. When the CITY has determined that no further information is available, GKY will give ATCS notice to proceed for the surveying, starting with the highest priority items, and continuing until approximately 85 percent of the budget is spent.

15% of the surveying budget will be held in reserve until GKY and the CITY decide upon the list of flood improvement projects for the SC-5 MDP. If needed, ATCS will be directed to collect surveying data to support modeling of the flood improvement projects. GKY will process this last 15% of the surveying data in the GIS project file and supporting shapefiles for this task order.

If the surveying can be completed without using the entire budget, the CITY will not be charged for the unused portion of the budget. Likewise, if this data processing task can be completed without using the entire allocated budget, the CITY will not be charged for the used portion.

If surveying work is required such that residents must be notified, GKY will process the survey request to determine the mailing addresses for those notifications. Given the large and remote nature of the surveying, the CITY may prefer mailing letters and using media resources to make the notifications, rather than having ATCS make preliminary visits to the sites to hang door cards

or stuff mailboxes. GKY will deliver an electronic mailing list, and the CITY will print and mail the notification letters on CITY letterhead, or use other, appropriate media resources to make the notifications.

This data processing task includes GKY receiving and tracking field sketches, photographs, and survey information from ATCS and turning the data into GIS files that can be used for Storm Water Management Model (SWMM) construction.

### 3.3 Task 3: Surveying

GKY and the CITY will identify and prioritize field-surveying data needed to support the modeling effort, including invert, ground elevation, culvert, pipe, or channel configuration information. GKY will work with ATCS to develop a survey request that identifies the desired locations and specific data needed and fits within the specified budget, as described above. The CITY will review this list and approve it before ATCS commences surveying activities. (In its review, the CITY may recall plans or documents it has on hand that could make parts of the survey request unnecessary.) Upon CITY approval of the prioritized list, ATCS will perform the surveying work.

Surveying on private property is neither anticipated nor included in this scope of work. If the CITY directs surveying data to be collected on private property, GKY will coordinate with the CITY to send the appropriate resident notification letter(s), with processing costs reimbursed on a Time-and-Materials basis.

This project will be referenced horizontally to the Virginia State Plane Coordinate System, South Zone, NAD83/1993 (HARN) and the North American Vertical Datum of 1988 (NAVD88), and to the CITY's benchmark system (where possible and appropriate).

To maximize the amount of surveying that can be performed for the available budget, ATCS will complete this work economically—by preparing simple, clear sketches that document the results of the survey at each requested location. CAD drawings or fancy sketches are not required, provided the documentation clearly conveys the requested information, the time and date of the survey, members of the survey party, and the benchmark(s) used for the survey. ATCS will take a few photographs at each surveyed site and include them with their deliverables to GKY.

Given the size of the SC-5 Watershed (approximately 30,613 acres), it is likely that the surveying will be considerably spread out. Running benchmarks and surveying controls to remote locations can quickly consume the available budget. ATCS will make determinations about the most efficient way to collect the data, using traditional surveying methods or satellite-based technology. If satellite-based technology is used, ATCS will make only one visit per location to obtain the vertical and horizontal data (multiple measurements on separate days are not budgeted). Vertical accuracy may be less precise than 0.3 feet, depending on satellite coverage and environmental conditions at the time of the survey.

The initial round of surveying will be scaled to 85% of the surveying budget. 15% of the surveying budget will be reserved for surveying to take place after potential improvement projects have been identified in the separate SC-5 MDP task order. GKY will work with the CITY and ATCS to identify surveying that may be needed to develop the proposed improvement projects without having to guess critical information. This later round of surveying will take place two months or so after the initial (85%) round of surveying.

Traffic control is included, as provided in the task budget. If any structure is filled with debris or water, or if the structure cannot be opened by ATCS at the time of the survey, GKY will contact the CITY for guidance. Such structures could be cleaned by Public Works crews for a follow-up survey, or the CITY may decide to estimate the data. ATCS will not perform confined space entry or enter structures.

All surveying work will be completed under the responsible charge of a land surveyor licensed in the Commonwealth of Virginia.

## 4. OPTIONAL SERVICES

No Optional Services are anticipated under this agreement.

## 5. DELIVERABLES

GKY will deliver to the CITY:

5.1 A catalog of scanned plan set files received from the CITY and processed by GKY;
5.2 A prioritized list of surveying requests;
5.3 An electronic mailing list for resident notifications, if required;

5.4 Copies of field sketches, photographs, and data prepared and collected by ATCS; and
5.4 A GIS project (ESRI *.mxd) file with supporting shapefiles depicting the 2021 condition of the SC-5 drainage and stormwater management infrastructure.

The use of electronic deliverables provides immediately transferrable documents, increases the efficiency of project archiving, eliminates paper waste, allows for efficient electronic searching of text within all documents, and reduces the cost of the project. All deliverables will be submitted in digital file formats (e.g., Adobe Acrobat *.pdf, ESRI *.shp, Microsoft Word *.docx, etc.). GKY will provide secure download links for all electronic deliverables.

## 6. COMPENSATION

### 6.1 Cost Basis Assumptions

The following assumptions have been used to develop this Scope of Work and Fee Estimate.

6.1.1 This Scope of Work does not include:
a) Property information, deed, or easement research;
b) Verification of CITY benchmark data;
c) Cleaning or surveying structures that cannot be accessed due to maintenance issues (such as excessive sediment buildup, fallen trees, debris piles, or a vehicle parked over the structure); or
d) Other services and deliverables not specifically described in Sections 3 and 5 above.

6.1.2 The CITY will obtain any necessary property access permissions and will appropriately notify residents of field activities—either with mailings, social media postings, or advertising—if and where needed.

6.1.3 The project schedule (and costs to the CITY and GKY) could be adversely impacted by delays or difficulties in executing the work, particularly where third parties are involved. The CITY and GKY will scale this work—if needed and to the extent practical and possible—to fit within the approved task order budget. Neither GKY nor the CITY wishes to exceed the total fee budgeted for this Scope of Work.

6.1.4 This task order must be approved concurrently with the separate, related task order for preparation and delivery of the SC-5 MDP.

### 6.2 Total Fee

GKY will perform the Basic Services and produce the corresponding deliverables described above on a Time-and-Materials basis. Charges will be based on approved contract rates. The accompanying Fee Estimate budget totals **$ 83,094.28 (eighty-three-thousand-ninety-four dollars and twenty-eight cents)**, but this estimate is only an indication of the potential scale of the data processing and surveying work. The CITY will only be billed for actual hours spent and approved expenses. No additional hours or expenses will be charged to this task order. If additional work is required, it will be negotiated under a separate task order. GKY, ATCS, and the CITY will work to stay within budget and avoid the need for additional fee.

GKY will submit monthly invoices based on approved contract rates, as supported by GKY's cost accounting system.

## 7. SCHEDULE

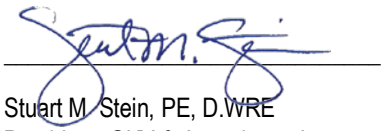
This Scope of Work can be completed within **8 (eight) months after receipt of an executed Purchase Order** (which is the duration of the related SC-5 MDP task order). GKY and ATCS anticipate completing the surveying work within the first five (5) months.

The CITY and GKY will strive to avoid any delays in the execution of this work. This schedule estimate does not include allowances for delays that are beyond the control of GKY, such as delays in receiving review comments, arranging meetings, or receiving other required data. Schedule progress will be continuously monitored and reported to the CITY as part of the coordination work for this project (Task 1).

## 8. SIGNED OFFER

This fee proposal is valid through 28 May 2022.

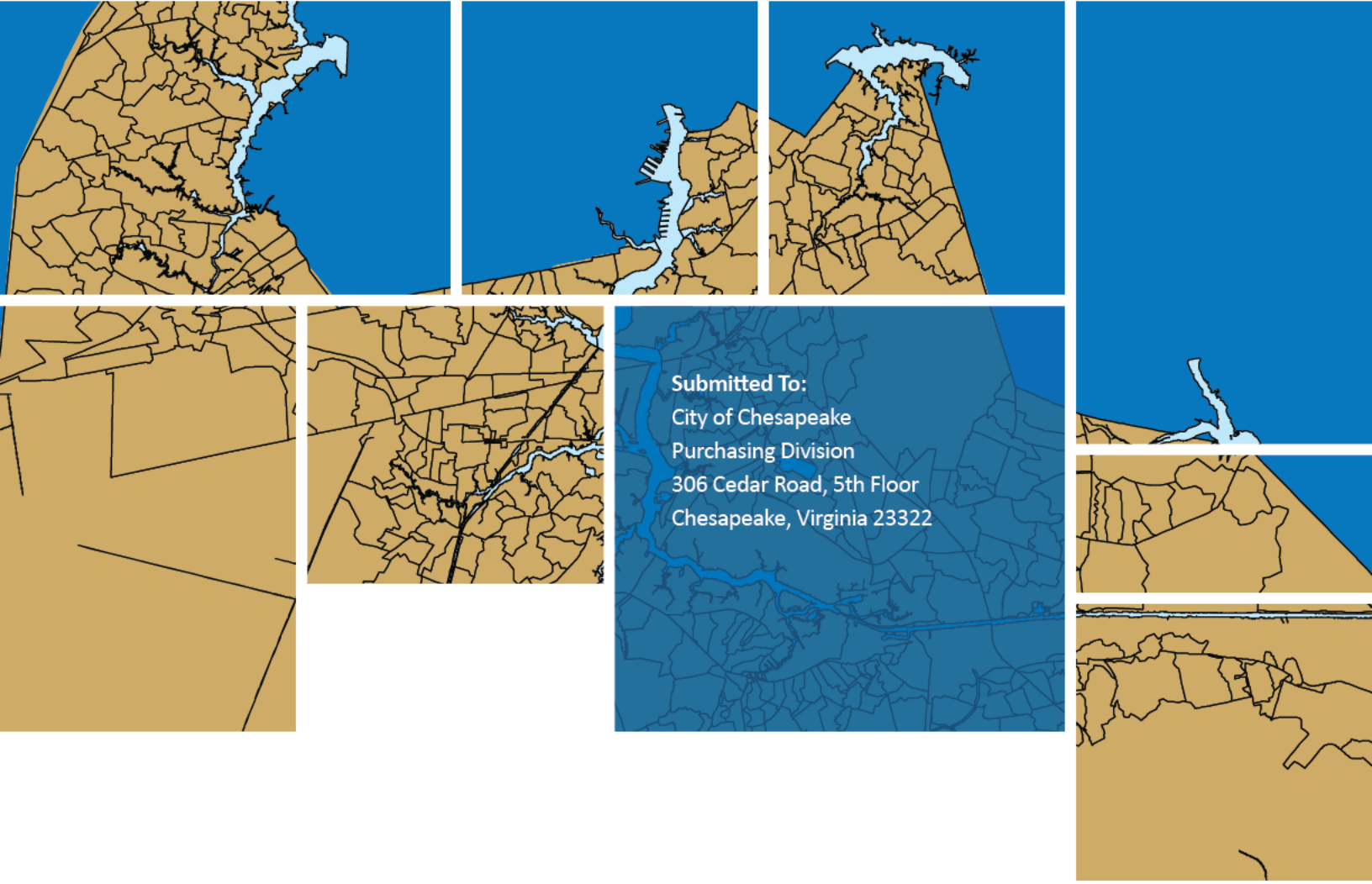
Offered By:



28 May 2021

Stuart M. Stein, PE, D.WRE
President, GKY & Associates, Inc.

Date




GKY &Associates,inc.

# City of Chesapeake
# Annual Civil Engineering Services Contract for Small Projects

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Proposal in Response to RFP #18010
Commodity Code 925-17

Copy – September 21, 2017

# 1. Transmittal Letter

September 19, 2017

Ms. Susan Kenney-Lambert
City of Chesapeake
Purchasing Division
306 Cedar Road, 5th Floor
Chesapeake, VA 23322

Re: RFP No. 18010
ANNUAL CIVIL ENGINEERING SERVICES CONTRACT FOR SMALL PROJECTS

Dear Ms. Kenney-Lambert and members of the Selection Committee:

On behalf of **GKY & Associates, Inc.** (GKY), thank you for this opportunity to present our proposal to provide the City of Chesapeake with engineering services on an annual services contract basis. GKY has been providing high-quality engineering and environmental services to public sector clients for over 42 years. We are among Virginia's most trusted consulting firms, having completed high-profile assignments for the US Department of Transportation, US Army Corps of Engineers, US Environmental Protection Agency, and many of Virginia's largest and smallest municipalities.

GKY is SWaM certified (Virginia SBSD Certification No. 6875) and our staff includes professional engineers, hydrologists, planners, regulatory specialists, scientists, GIS analysts, field technicians, and support personnel. In addition to professional certifications in engineering, hydrology, and planning, our technical personnel have specialty certifications in floodplain management, nutrient management planning, erosion and sediment control, energy and environmental design (LEED), stormwater management, and water resources engineering.

Our team includes four outstanding, local, SWaM-certified firms: **ATCS, PLC** (for transportation engineering, roadways, traffic studies, and signal design), **Engineering & Testing Services, Inc.** (for geotechnical and materials engineering), **Pace Collaborative, P.C.** (for electrical and mechanical engineering, lighting design, and building information modeling), and **Site Improvement Associates, Inc.** (for surveying, utilities, site design, and landscape plans). GKY is currently working on other contracts with all four firms and fully appreciates their capabilities and expertise. Together, the GKY team can deliver all the services described in your RFP—and we can do so efficiently and at very reasonable rates. Our pledge is to be responsive and deliver high-quality products, while being the type of consultant that is easy to work with and easy to manage.

While this proposal highlights our qualifications and experience, ultimately, we are most interested in demonstrating our commitment to the City through responsive service that produces project deliverables of which we can all be proud. This commitment specifically includes respecting budget and schedule constraints and working hard to serve as advocates for the City. Thank you for giving us this opportunity to be considered for this contract.

Sincerely yours,

Stuart M. Stein, PE, D.WRE
President



(P) 757.346.5900 WWW.GKY.COM
107 HERMAN MELVILLE AVENUE, NEWPORT NEWS, VA 23606
WATER RESOURCES & ENVIRONMENTAL SOLUTIONS

# 2. Table of Contents

# 2. Table of Contents

*Please note that page numbers are matched to the PDF file. The cover is page 1, Tab 1 is page 2, the transmittal letter is page 3, and so on.*

# 3. Understanding of Scope of Work

# 3. Understanding of Scope of Work

*In response to RFP Section VI C 3. Understanding of Scope of Work*

## Chesapeake Challenges

In recent years, the City of Chesapeake has experienced more population growth, percentage-wise, than any other Hampton Roads locality. This growth creates pressure on the City's Public Works Department, which must review and approve development plans, design and implement construction projects, and provide related engineering services. Public Works also must upgrade roadways and critical infrastructure to meet increased demands for service. The City's Capital Improvement Plan for 2017 to 2021 identifies $400 Million of resource requirements for projects, many of which will be shifted further into the future to balance available funding. Chesapeake is continually designing and constructing neighborhood drainage, outfall, BMP, flood control, roadway, intersection, bridge, street repair, school, trail, park, building, parking, and site improvement projects.

As this rapid growth was occurring, the City (and all Virginia municipalities) came under increased environmental regulatory scrutiny, particularly in the form of new stormwater management regulations at the state and federal levels. National Pollutant Discharge Elimination System (NPDES) and Municipal Separate Storm Sewer System (MS4) permit requirements are now fully integrated with the Chesapeake Bay and other Total Maximum Daily Load (TMDL) pollutant reduction requirements, and the combined weight of these programs has landed squarely on local governments.

Chesapeake has a very competent Public Works staff and chooses to contract with local consulting firms to help satisfy the continually increasing demand for projects and services. The City maintains annual services contracts with large teams of consultants who can handle large, multi-year, multi-discipline projects. However, it also uses smaller firms when it is appropriate to do so—to take advantage of specialty services that can be delivered nimbly and economically by talented principals and professionals working in small businesses.

## Chesapeake Values

From previous work experience with the City of Chesapeake, we appreciate that Chesapeake looks for certain tangible qualities in its consultants:

- **Responsiveness** – Deliver same-day service, always. Return phone calls and emails promptly, follow-up and resolve outstanding issues. Be helpful. Meet schedules. Honor commitments, large and small. Recognize that problems only get worse with time if left unattended.
- **Quality** – Consultants should fully execute their internal Quality Control programs and not rely on the City to find problems during reviews. Consistently deliver high-quality products.
- **Cost Control** – Estimate fees carefully and accurately. Meet budgets. Continuously monitor local bid tabs. Be extremely diligent in preparing and checking cost estimates. Avoid change orders at all costs.
- **Regulatory Knowledge** – Stay on top of regulations and developments with the regulatory community. Know how to work through nuances in regulatory requirements without putting the City at risk.
- **Perspective** – Know what's important and what's not, and don't waste time or funding. Find the most efficient way to produce the appropriate deliverables.
- **Listening and Communication Skills** – Consultants do not have all the answers and City staff has a great deal of experience and knowledge to contribute. Never talk past the client. Properly record minutes and notes and communicate effectively.
- **Professionalism** – Never compromise integrity. Exercise good judgment based on experience. Let the City know what is going on with each project. Respect work completed by others.
- **Scope Input** – Provide options when developing scopes of work, be flexible and willing to go the extra mile.
- **Energy** – Keep things moving. Be enthusiastic and proactive. Be a strong advocate for the City.
- **Local Presence** – Be involved in and committed to the local community. Be active in regional (e.g., HRPDC Regional Environmental Committee), state (e.g., VLWA, VFMA, DEQ TACs), and professional (e.g., VAMSA, ASCE, APWA) organizations and meetings. Network with local resources.
- **Prioritize Chesapeake as a Client** - Demonstrate that opportunities to work for Chesapeake are appreciated, and prove it every day.

Chesapeake values its consultants, wants them to succeed, and treats them as part of the Chesapeake team. Without such positive support, meeting the above standards would be more than difficult. GKY will continually strive to meet these standards.

## Chesapeake Small Projects

The City has used this contract previously and has clearly described the breadth of services that might be required in Attachment C of the RFP. Likewise, the basic services are spelled out for typical projects from the study and preliminary design phase through final design, bidding, and construction. We have carefully chosen professionals to assign to this contract, based on their capabilities and experience, such that all anticipated services can be delivered by our team.

Recognizing that the City can use its Large Projects annual services contracts to complete any project, there must be compelling reasons to assign work under this Small Projects contract. We believe that local small firms with which we do

*(Cont.) In response to RFP Section VI C 3. Understanding of Scope of Work.*

business every day have substantial specialized experience and can successfully and efficiently deliver results to the City under this contract.

*In response to RFP Section VI E. If more than one firm will participate in the contract, state the type of arrangement between the firms, the names and addresses of all firms, description of the work that each firm will perform, and the percentage of work to be performed by each. Indicate office locations at which the work will be performed.*

## GKY Team Approach

By design, GKY is a small, efficient firm built around competent professionals who remain actively engaged in their project assignments. We do not have glad-handers and pitchmen who show up for the interview but are not involved when there is real work to be done. What you see is what you get. Our task and project managers are completely involved in moving projects forward—on a daily basis.

The key to our project approach is to put a fully qualified, technically proficient project manager in charge of each task order, and have that person own the work—from the initial request to prepare a scope and fee estimate, through the final delivery, and ultimately to respond to inquiries by the City after the job has been formally closed. We also expect the same commitment from our subconsultants.

For this contract, we have matched up the services noted in the RFP with SWaM-certified firms that specialize in each of the required disciplines. **The GKY team will be led by John Paine, PE, PH, CFM, who has managed many projects for the City of Chesapeake under past annual services contracts.** John understands the workflow within Public Works and enjoys the professional friendships he has developed over the years with City staff. He will be the single point of contact for all task orders and will manage our overall program for the City.

**GKY and Associates, Inc.**
107 Herman Melville Avenue
Newport News, VA 23606

**GKY will serve as the prime consultant and will provide program management, stormwater, drainage, MS4 operations and permitting, hydrology & hydraulics services.**

GKY has extensive experience with annual services contracts. For the past 42 years, on-call and annual services agreements have been the delivery system most favored by our local, state, and federal clients. In Virginia, we currently hold prime on-call municipal contracts with Fairfax County, Falls Church, Fredericksburg, Loudoun County, Newport News, Roanoke County, and Stafford County. We have an active, on-call prime contract with the U.S. Army Corps of Engineers. We also have annual services and project contracts as a specialty subconsultant for Alexandria, Hampton (four contracts), Isle of Wight County, Newport News, Virginia Beach (two contracts), VDOT, New York State Thruway Authority, and the Federal Highway Administration.

GKY's staff includes professional engineers, hydrologists, planners, regulatory specialists, scientists, GIS analysts, field technicians, and support personnel. In addition to professional certifications in engineering, hydrology, and planning, our technical personnel have specialty certifications in floodplain management, nutrient management planning, erosion and sediment control, energy and environmental design (LEED), stormwater management, and water resources engineering.

Our work routinely involves preparing design plans, studies and reports, computer models, and regulatory support documents for water resources projects and programs. We regularly develop construction plans and specifications for drainage and stormwater management systems, MS4 Program Plans, TMDL Action Plans, watershed plans, FEMA documents, dredging plans, dam safety documents, bridge scour studies and regulatory reports. GKY also provides a wide range of field services, including BMP inspections, illicit discharge identification and sampling, regulatory audits, bathymetric surveying, and inventory mapping. We are proficient in GIS, CAD, and a wide variety of water resources modeling programs.

GKY considers every contract to be an endorsement of a professional relationship. Our objective is always to be a high-value, low-maintenance consultant that gets things done efficiently and delivers results without burdening our clients. In short, we want to be problem solvers, not part of the problem.

**ATCS, PLC**
690 Town Center Drive, Suite 201
Newport News, VA 23606

**ATCS will provide transportation, roadways, traffic, and signalization services. ATCS is a SWaM-certified firm and is the largest member of our team. They can provide additional capacity for surveying, permitting, utilities adjustment, and construction support as needed.**

Founded in 1994, ATCS has grown from a land development company to a multi-disciplinary consulting firm providing transportation and traffic engineering and planning, civil site and utility engineering, water resources and stormwater engineering, construction and program management and administration, construction inspection services, surveying, environmental services, and emergency management services with more than 200 personnel across three states. They have five offices in Virginia, one in Washington, D.C., two in Maryland, and one in North Carolina to support the City's needs on this contract. ATCS' Newport News office will be the primary office working on this contract.

ATCS has served public-sector clients throughout Virginia and the Mid-Atlantic Region on task-order-type contracts similar in scope to the City's Small Projects contract. They have provided these services to municipalities throughout the state, including Newport

*(Cont.) In response to RFP Section VI E. If more than one firm will participate in the contract, state the type of arrangement between the firms, the names and addresses of all firms, description of the work that each firm will perform, and the percentage of work to be performed by each. Indicate office locations at which the work will be performed.*

News, Alexandria, Arlington County, Loudoun County, Fairfax County, Leesburg, Prince William County, Chesterfield County, Purcellville, and Herndon. Additionally, they have provided similar services to various Virginia Department of Transportation Districts and entities, including Salem, Fredericksburg, Northern Virginia, and Culpeper.

**Engineering & Testing Services, Inc.**
5226 Indian River Road, Suite 103
Virginia Beach, VA 23464

**ETS will provide geotechnical and materials engineering services.**

ETS is a consulting geotechnical and construction materials testing firm certified as a woman-owned, disadvantaged business enterprise. ETS provides high-quality subsurface exploration, geotechnical engineering, construction materials testing and inspection services for public agencies and private clients throughout the Hampton Roads area.

ETS operates as a full-service professional geotechnical and materials testing engineering firm with a fully equipped concrete/soils/steel/materials testing laboratory on our premises, which is accredited by AASHTO. Geotechnical testing capabilities include aggregates, asphalt materials, masonry, grout, brick and block, concrete foundations, steel, and fireproofing. All of their technicians are ACI and/or VDOT certified to conduct soils and concrete testing. The ETS staff has been a key geotechnical member of design teams for hundreds of diverse projects, as well as providing testing and inspection services during construction.

**Pace Collaborative, P.C.**
1277 Perimeter Parkway
Virginia Beach, VA 23454

**Pace will provide electrical and mechanical engineering, lighting design, and building information modeling (BIM) services.**

PACE Collaborative is one of the largest mechanical and electrical engineering firms in the Mid-Atlantic region, currently in their 32nd year of business. They offer Mechanical Engineering, Electrical Engineering, Fire Protection Engineering, Plumbing Design, and Commissioning Services.

PACE is a SWaM-certified small business whose engineers have completed numerous projects throughout the Commonwealth of Virginia and are intimately familiar with all State and Local codes, laws, permit requirements, construction materials, and general practices. PACE is a regional leader in BIM technology. The PACE REVIT team has access to 50 active REVIT licenses. They are dedicated to the research and development of the technology tools that help visualize and collaborate design information more effectively. PACE engineers have produced over 7000 projects while enjoying a repeat clientele of 96 percent.

PACE is familiar with the many aspects of engineering related to the design of streets and roadways. Specifically, the electrical design of these projects includes power distribution, both overhead and underground as well as associated controls and calculations. PACE has recent design experience in the installation of high-pressure sodium, metal halide, and LED street lighting sources utilizing precast concrete, aluminum, steel, fiberglass, and wood poles. PACE engineers have worked hand-in-hand with local utility companies and VDOT on many roadway, utility and streetscape projects while keeping all services intact.

PACE has provided mechanical and electrical engineering services for numerous projects in support of water and sewer utility systems for municipalities. These projects include stormwater, potable water, and wastewater, including new design as well as repairs and upgrading of existing pump stations and treatment facilities. Their designs include power and controls for pumps, monitoring systems, on-site emergency generation, extension of site utilities, tie-ins to SCADA systems, lighting, variable frequency drives and heating, air conditioning and ventilation systems.

**Site Improvement Associates, Inc.**
800 Juniper Crescent, Suite A
Chesapeake, VA 23320

**SIA will provide surveying, utilities, site design, and landscape plan services.**

SIA is a SWaM-certified engineering and construction firm that has been providing engineering services in the Hampton Roads area for over 23 years. Services offered include civil engineering, land surveying, and site construction. Their main office is located in the Greenbrier area of Chesapeake, with a shop facility in Portsmouth. SIA has a staff of 20 employees with various levels of professional, technical, administrative, and field expertise.

SIA provides detailed, cost-effective design services ranging from feasibility studies, permitting, and construction plans to construction management and expertise with local and state codes and regulations. Some projects involve infrastructure for new sites; others include neighborhood roadways that need rehabilitation or an upgrade of the existing infrastructure. SIA's principals have more than 30 years of experience working on projects in Hampton Roads. They also provide construction management and inspection services for a wide range of roadway, drainage, stormwater management, pump station, and waterfront projects.

*(Cont.) In response to RFP Section VI E. If more than one firm will participate in the contract, state the type of arrangement between the firms, the names and addresses of all firms, description of the work that each firm will perform, and the percentage of work to be performed by each. Indicate office locations at which the work will be performed.*

## SWaM Firms

**The GKY Team consists entirely of SWaM-certified, local firms that routinely perform the services described in the RFP.** We know the local landscape and understand what Chesapeake needs from its consultants on this contract.

## Personnel Locations (Offices)

Our team organization chart in Section 5 of this proposal lists our key personnel, their office locations, and the lead offices and areas of specialization for each firm.

## Percentage of Work

Because this contact will be for unspecified, annual services, the percentage of work cannot be reliably estimated for each firm. However, we have selected a group of firms that offer complementary services to satisfy all of the services specified in the RFP. The amount of work assigned to each firm will depend upon the types of assignments awarded by the City. GKY's commitment to these firms is that they will have the primary responsibility for the following types of work.

| | |
|---|---|
| **GKY** | Prime consultant and will provide program management, stormwater, drainage, MS4 operations and permitting, hydrology & hydraulics services |
| **ATCS** | Transportation, roadways, traffic, and signalization services, plus additional capacity for surveying, permitting, utilities adjustment, and construction support as needed |
| **ETS** | Geotechnical and materials engineering services |
| **Pace** | Electrical and mechanical engineering, lighting design, and building information modeling (BIM) services. |
| **SIA** | Surveying, utilities, site design, and landscape plan services |

GKY will administer the contract and subconsultant work orders, but will not duplicate charges or services. GKY will ensure that ISO-9001-compliant quality control is achieved for each deliverable—incorporating independent technical peer review that follows a prescribed and auditable documentation process from the work product originator, to the reviewer, back to the work product originator, and final sign-off by the reviewer and project manager. Our QA/QC Officer, Brett Martin, PE, will monitor the QA/QC processes and will review all final deliverables for compliance with these proceedures.

# 4. Response to RFP Items in Section VII, Parts A - G

Chesapeake VIRGINIA

# REQUEST FOR PROPOSALS (RFP)
# PROFESSIONAL SERVICES

ISSUE DATE: August 20, 2017 RFP No. 18010

TITLE: ANNUAL CIVIL ENGINEERING SERVICES CONTRACT FOR SMALL PROJECTS

COMMODITY CODE: 925-17

ISSUED BY:
City of Chesapeake
Purchasing Division
306 Cedar Road, 5th Floor
Chesapeake, Virginia 23322

USING DEPARTMENT:
City of Chesapeake
Chesapeake Public Works /Engineering Division
306 Cedar Road, 5th Floor
Chesapeake, Virginia 23322

**PERIOD OF CONTRACT: ONE (1) YEAR FROM THE DATE OF EXECUTION WITH OPTION OF FOUR (4) ADDITIONAL ONE-YEAR TERMS. THE CONTRACT SHALL RENEW AUTOMATICALLY, UNLESS THE CITY GIVES WRITTEN NOTICE, SIXTY (60) DAYS IN ADVANCE OF THE EXPIRATION FOR EACH OF THE RENEWAL TERMS.**

**The City of Chesapeake, Virginia will receive sealed proposals for the above named project until 5:00 PM local time on September 21, 2017 at the office of the Procurement Administrator in the Purchasing Department, 5th Floor, City Hall Building, 306 Cedar Road, Chesapeake, Virginia, 23322. Any Bids received after the specified time and date will not be considered.** See Section VI and VII for specific instructions for the completion of proposals.

Inquiries For Information Should Be Directed To: Susan Kenney-Lambert, CPPB, **via email only** at: [redacted] All questions must be submitted via e-mail **before** 5:00 pm, **August 30, 2017**. **Bid Documents may be examined at the offices of Purchasing Division, located on the 5th Floor, City Hall Building, 306 Cedar Road. Electronic copies of bid documents in PDF format are available for download on the Onvia Demandstar web site at www.demandstar.com** or eVA's website at **https://eva.virginia.gov/.**

**Please refer to City of Chesapeake website at http://www.cityofchesapeake.net/government/City-Departments/Departments/Purchasing-and-Procurement/solicitations.htm for more information.**

**It shall be the responsibility of the prospective bidder to monitor the City's website for published addenda and to have all addenda signed by an authorized representative of the company. All fully executed addenda must be returned to the City along with the signed bid. The City will NOT accept faxed addenda.**

**IF PROPOSALS ARE MAILED, SEND DIRECTLY TO THE PURCHASING DIVISION AT THE ADDRESS SHOWN ABOVE. IF HAND-DELIVERED, DELIVER TO: City Hall, Purchasing Division, 306 Cedar Road, 5th Floor, Chesapeake, VA.**

In Compliance With This Request for Proposal And To All The Conditions Imposed Therein and Hereby Incorporated By Reference, The Undersigned Offers, And Agrees To Furnish Services requested in the solicitation.

*THIS SECTION IS TO BE COMPLETED BY OFFEROR'S AUTHORIZED REPRESENTATIVE.*

NAME AND ADDRESS OF FIRM:

GKY & Associates, Inc.

4229 Lafayette Center Drive

Suite 1850

Chantilly, VA Zip Code: 20151

FEI/FINT NO: 54-1023421

E-mail: [redacted]

Date: September 19, 2017

By: [signature] (Sign in Ink)

Name: Stuart M. Stein (Please Print)

Title: President

Phone [redacted] Fax 703-870-7039

Website: www.gky.com

# CITY OF CHESAPEAKE

## INVITATION FOR BID

## ADDENDUM NO. 1

ISSUE DATE: September 11, 2017 RFP 18010

TITLE: Annual Civil Engineering Services Contract for Small Projects

ISSUED BY: City of Chesapeake
Purchasing
306 Cedar Road 5th Floor
Chesapeake, Virginia 23322

DEPARTMENT: Public Works

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**Questions Submitted:**

1. Where in the proposal should the signed RFP and addenda be inserted, and which pages of the RFP and addenda must be included (1st page of each or all pages)?

   **Answer Section 4.**

2. Where in the proposal should the CONSULTANT/SUBCONTRACTOR LICENSE REQUIREMENT (pg. 47 of the RFP) numbers be presented?

   **Answer Section 4.**

3. May the detailed resumes of key personnel be placed in an appendix, or will they count against the 30-page limit?

   **Answer Section 6.**

4. Are the required forms (i.e., Attachments A, B, D, E, F, and the State SCC Registration form) to be submitted for the prime consultant and each subconsultant or just for the prime consultant.

   **Answer Prime Only.**

5. May the required forms (i.e., Attachments A, B, D, E, F, and the State SCC Registration form) be placed in an appendix, or will they count against the 30-page limit?

   **Answer Required Forms are not counted against page limit.**

6. Are we to include subconsultant litigation forms, and where should this/these form(s) be included in the proposal? (They were not mentioned in Item VI.C.)

   **Answer No.**

7. We have concerns about specific contract terms in Attachment G. How should they be noted (in the aggregate with a general statement or otherwise), and where should the concerns be noted in the proposal? Our specific concerns include an elevated standard of care (“best possible advice and consultation”) and the indemnification of volunteers.

   **Answer Note this in your proposal.**

**CHANGES**

**CHANGE FROM:**

**Page 41. APPENDIX A. SECTION I. REQUIRED GENERAL TERMS AND CONDITIONS PROFESSIONAL SERVICES**

A. **R. INSURANCE:** By signing and submitting a proposal under this solicitation, the offeror certifies that if awarded the contract, it will have the following insurance coverage at the time the contract is awarded. For construction contracts, if any subcontractors are involved, the subcontractor will have workers' compensation insurance in accordance with §§ 2.2-4332 and 65.2-800 et seq. of the *Code of Virginia*. The offeror further certifies that it and any subcontractors will maintain these insurance coverage during the entire term of the contract and that all insurance coverage will be provided by insurance companies authorized to sell insurance in Virginia by the Virginia State Corporation Commission. The City must be named as an additional insured on the Acord insurance certificate reflecting Commercial General Liability and any other required insurance coverages.

Coverages afforded under the required policies listed below shall not be cancelled by Consultant or allowed to lapse or expire. However, in the event that any insurance coverage required by this contract is canceled by the insurance company or lapses due to no fault of the Consultant, Consultant shall (i) provide the City with not less than thirty (30) calendar days prior written notice that said insurance policy has lapsed or has been canceled due to no fault of Consultant and (ii) restore said insurance policy with the same insurance company or obtain a replacement insurance policy that satisfies the insurance obligations required in this contract within thirty (30) calendar days from the date of any notice to Consultant that its insurance policy has been canceled or has lapsed.

MINIMUM INSURANCE COVERAGES AND LIMITS REQUIRED FOR MOST CONTRACTS:

1. Workers' Compensation - Statutory requirements and benefits. Coverage is compulsory for employers of three or more employees, to include the employer. Consultants who fail to notify the City of increases in the number of employees that change their workers' compensation requirements under the Code of Virginia during the course of the contract shall be in noncompliance with the contract.

2. Employer's Liability $100,000 each accident, $100,000 each disease & $500,000 disease policy limit.

3. Commercial General Liability - $2,000,000 per occurrence and $2,000,000 in the aggregate. Commercial General Liability is to include bodily injury and property damage, personal injury and advertising injury, products and completed operations coverage. The City of Chesapeake must be named as an additional insured and so endorsed on the policy.

4. Automobile Liability - $1,000,000 combined single limit. (Required only if a motor vehicle not owned by the City is to be used in the contract. Consultant must assure that the required coverage is maintained by the Consultant (or third party owner of such motor vehicle.)

5. **Specific Profession/Service Limits:**

| | |
|---|---|
| Accounting | $1,000,000 per occurrence, $3,000,000 aggregate |
| Architecture | $2,000,000 per occurrence, $6,000,000 aggregate |
| Asbestos Design, Inspection or Abatement Contractors | $1,000,000 per occurrence, $3,000,000 aggregate |
| Health Care Practitioner (to include Dentists, Licensed Dental Hygienists, Optometrists, Registered or Licensed Practical Nurses, Pharmacists, Physicians, Podiatrists, Chiropractors, Physical Therapists, Physical Therapist Assistants, Clinical Psychologists, Clinical Social Workers, Professional Counselors, Hospitals, or Health Maintenance Organizations.) | $1,725,000 per occurrence, $3,000,000 aggregate (Limits increase each July 1 through fiscal year 2031, as follows: July 1, 2013 - $2,100,000, July 1, 2014 - $2,150,000. This complies with *Code of Virginia* § 8.01-581.15. |
| Insurance/Risk Management | $1,000,000 per occurrence, $3,000,000 aggregate |
| Landscape/Architecture | $1,000,000 per occurrence, $1,000,000 aggregate |
| Legal | $1,000,000 per occurrence, $5,000,000 aggregate |
| ~~Professional Engineer~~ | ~~$2,000,000 per occurrence, $3,000,000 aggregate~~ |
| Surveying | $1,000,000 per occurrence, $1,000,000 aggregate |

~~6. Excess Liability, , including Employer's Liability, Automobile Liability, and Commercial General Liability $5,000,000 aggregate~~

**CHANGE TO:**

**Page 41. APPENDIX A. SECTION I. REQUIRED GENERAL TERMS AND CONDITIONS PROFESSIONAL SERVICES.**

B. **R. INSURANCE:** By signing and submitting a proposal under this solicitation, the offeror certifies that if awarded the contract, it will have the following insurance coverage at the time the contract is awarded. For construction contracts, if any subcontractors are involved, the subcontractor will have workers' compensation insurance in accordance with §§ 2.2-4332 and 65.2-800 et seq. of the *Code of Virginia*. The offeror further certifies that it and any subcontractors will maintain these insurance coverage during the entire term of the contract and that all insurance coverage will be provided by insurance companies authorized to sell insurance in Virginia by the Virginia State Corporation Commission. The City must be named as an additional insured on the Acord insurance certificate reflecting Commercial General Liability and any other required insurance coverages.
Coverages afforded under the required policies listed below shall not be cancelled by Consultant or allowed to lapse or expire. However, in the event that any insurance coverage required by this contract is canceled by the insurance company or lapses due to no fault of the Consultant, Consultant shall (i) provide the City with not less than thirty (30) calendar days prior written notice that said insurance policy has lapsed or has been canceled due to no fault of Consultant and (ii) restore said insurance policy with the same insurance company or obtain a replacement insurance policy that satisfies the insurance obligations required in this contract within thirty (30) calendar days from the date of any notice to Consultant that its insurance policy has been canceled or has lapsed.

MINIMUM INSURANCE COVERAGES AND LIMITS REQUIRED FOR MOST CONTRACTS:

2. Workers' Compensation - Statutory requirements and benefits. Coverage is compulsory for employers of three or more employees, to include the employer. Consultants who fail to notify the City of increases in the number of employees that change their workers' compensation requirements under the Code of Virginia during the course of the contract shall be in noncompliance with the contract.

7. Employer's Liability $100,000 each accident, $100,000 each disease & $500,000 disease policy limit.

8. Commercial General Liability - $2,000,000 per occurrence and $2,000,000 in the aggregate. Commercial General Liability is to include bodily injury and property damage, personal injury and advertising injury, products and completed operations coverage. The City of Chesapeake must be named as an additional insured and so endorsed on the policy.

9. Automobile Liability - $1,000,000 combined single limit. (Required only if a motor vehicle not owned by the City is to be used in the contract. Consultant must assure that the required coverage is maintained by the Consultant (or third party owner of such motor vehicle.)

10. **Specific Profession/Service Limits:**

| | |
|---|---|
| Accounting | $1,000,000 per occurrence, $3,000,000 aggregate |
| Architecture | $2,000,000 per occurrence, $6,000,000 aggregate |
| Asbestos Design, Inspection or Abatement Contractors | $1,000,000 per occurrence, $3,000,000 aggregate |
| Health Care Practitioner (to include Dentists, Licensed Dental Hygienists, Optometrists, Registered or Licensed Practical Nurses, Pharmacists, Physicians, Podiatrists, Chiropractors, Physical Therapists, Physical Therapist Assistants, Clinical Psychologists, Clinical Social Workers, Professional Counselors, Hospitals, or Health Maintenance Organizations.) | $1,725,000 per occurrence, $3,000,000 aggregate (Limits increase each July 1 through fiscal year 2031, as follows: July 1, 2013 - $2,100,000, July 1, 2014 - $2,150,000. This complies with *Code of Virginia* § 8.01-581.15. |
| Insurance/Risk Management | $1,000,000 per occurrence, $3,000,000 aggregate |
| Landscape/Architecture | $1,000,000 per occurrence, $1,000,000 aggregate |
| Legal | $1,000,000 per occurrence, $5,000,000 aggregate |
| **Professional Engineer** | **$1,000,000 per occurrence, $2,000,000 aggregate** |
| Surveying | $1,000,000 per occurrence, $1,000,000 aggregate |

**11. Excess Liability, , including Employer's Liability, Automobile Liability, and Commercial General Liability - $1,000,000 aggregate**

ALL OTHER TERMS, CONDITIONS, AND SPECIFICATIONS SHALL REMAIN UNCHANGED.

ALL INQUIRIES FOR INFORMATION SHOULD BE DIRECTED TO SUSAN KENNEY-LAMBERT, CPPB PHONE: ([redacted],
FAX: (757) 382-6900, Email: [redacted]

**NOTE: ALL FULLY EXECUTED ADDENDA MUST BE RETURNED TO THE CITY ALONG WITH THE SIGNED BID. THE ADDENDA MUST BE SIGNED BY AN AUTHORIZED REPRESENTATIVE OF THE COMPANY.**

NAME AND ADDRESS OF FIRM:

GKY & Associates, Inc.
4229 Lafayette Center Drive
Suite 1850
Chantilly, VA Zip Code: 20151

Date: September 19, 2017
By: [signature] (Signature In Ink)
Name: Stuart M. Stein, PE, D.WRE (Please Print)
Title: President

**END OF ADDENDUM NO. 1**

VIRGINIA STATE CORPORATION COMMISSION (SCC)
REGISTRATION INFORMATION FORM

AUTHORIZATION TO CONDUCT BUSINESS IN THE COMMONWEALTH: A contractor organized as a stock or non-stock corporation, limited liability company, business trust, or limited partnership or registered as a registered limited liability partnership shall be authorized to transact business in the Commonwealth as a domestic or foreign business entity if so required by Title 13.1 or Title 50 of the Code of Virginia or as otherwise required by law. Any business entity described above that enters into a contract with a public body pursuant to the Virginia Public Procurement Act shall not allow its existence to lapse or its certificate of authority or registration to transact business in the Commonwealth, if so required under Title 13.1 or Title 50, to be revoked or cancelled at any time during the term of the contract. A public body may void any contract with a business entity if the business entity fails to remain in compliance with the provisions of this section.

Pursuant to Code of Virginia,§2.2-4311.2 subsection B, a bidder or offeror organized or authorized to transact business in the Commonwealth pursuant to Title 13.1 or Title 50 is required to include in its bid or proposal the identification number issued to it by the State Corporation Commission (SCC). Any bidder or offeror that is not required to be authorized to transact business in the Commonwealth as a foreign business entity under Title 13.1 or Title 50 or as otherwise required by law must indicate by selecting one of the following reasons why the bidder or offeror is not required to be so authorized:

☒is a corporation or other business entity with the following SCC identification number:
01677269
OR-
• is not a corporation, limited liability company, limited partnership, registered limited liability partnership, or business trust -
OR-
☐is an out-of-state business entity that does not regularly and continuously maintain as part of its ordinary and customary business any employees, agents, offices, facilities, or inventories in Virginia (not counting any employees or agents in Virginia who merely solicit orders that require acceptance outside Virginia before they become contracts, and not counting any incidental presence of the bidder in Virginia that is needed in order to assemble, maintain, and repair goods in accordance with the contracts by which such goods were sold and shipped into Virginia from bidder's out-of-state location) -
OR-
• is an out-of-state business entity that is including with this bid an opinion of legal counsel which accurately and completely discloses the undersigned bidder's current contacts with Virginia and describes why those contacts do not constitute the transaction of business in Virginia within the meaning of § 13.1-757 or other similar provisions in Titles 13.1 or 50 of the Code of Virginia.
OR-
☐If the business entity has not completed any of the foregoing options but currently have pending before the SCC an application for authority to transact business in the Commonwealth of Virginia and wish to be considered for a waiver to allow you to submit the SCC identification number after the due date for bids (The City of Chesapeake reserves the right to determine in its sole discretion whether to allow such waiver).

# 4. Response to RFP Items in Section VII, Parts A thru G

## PROJECT APPROACH

*In response to RFP Section VII B. In five (5) page(s) or less, discuss the firm's approach for this project.*

### Single Point of Contact & Communications

As with all of our on-call and annual services contracts, GKY will assign a program manager who will serve as the single point of contact for all communications with the City. Our program manager will be responsible for maintaining prompt and effective communications with City project managers and ensuring that the GKY Team remains on track to produce responsive, high-quality, cost-effective deliverables on time and within budget.

**John Paine, PE, PH, CFM** has managed many assignments for the Chesapeake Department of Public Works under two annual services contracts, and also managed several projects for Chesapeake that were delivered using Corps of Engineers Section 22 funding. He enjoys strong working relationships with City staff, and is involved and vested in the community. Mr. Paine will coordinate all contract activities between the City and GKY, also serving as a hands-on project manager for specific assignments.

Clear, effective communication at frequent and appropriate intervals is vital for smooth workflow and a successful project outcome. As one Chief of Planning at the Corps of Engineers used to admonish, "A little bit of information communicated frequently is much better than long periods of silence followed by a big dump at the end" (Mark Mansfield, Chief of Planning, Norfolk District USACE, Ret.).

### Workflow Management

When the City has a new work order need, Mr. Paine will assess the services and resources required under the proposed work order and match the City's needs with available team expertise and resources.

Within our fields of expertise, the GKY Team typically has more than one option for assigning a task or project manager. Usually, the project manager is chosen based on directly applicable expertise and experience, although there are times when the City's budget and schedule constraints drive the team selection—for example when someone billing at a lower rate can fully satisfy the requirements.

After gaining the City's concurrence, the project will be assigned to a GKY Team project manager who will meet with the City's project manager, and subsequently, prepare a scope and fee estimate. The assigned project manager will shepherd the project from start to finish. GKY Team senior management will take an active role in making sure the project manager has the resources to meet the City's requirements (including approvals to start work before the purchase order is received) and will ensure that regular communication will flow efficiently between the City and the GKY Team.

### Involved Project & Task Managers

By design, firms on the GKY Team are small, efficient consultancies built around competent professionals who remain actively engaged in their project assignments. Our task and project managers are completely involved in moving projects forward—on a daily basis.

The key to our project approach is to put a fully qualified, technically proficient project manager in charge of each work order, and have that person own the work—from the initial request to prepare a scope and fee estimate, through the final delivery and ultimately to respond to inquiries by the City after the job has been formally closed.

### Controlling Costs and Schedules

We are committed to a disciplined approach to controlling project design and other service costs through realistic cost estimating, competitive procurement of materials and services, and conscientious monitoring of subconsultant performance. Reliable cost estimating is crucial to successful project implementation, and GKY appreciates the need to get it right. For many reasons, municipal engineers in Hampton Roads are currently frustrated at the high number of projects that have been delayed or redesigned because the engineer's cost estimate was too low. We proactively monitor bid tabs—continually—and make every effort to produce reliable cost estimates.

GKY's cost accounting system will be used for this contract, and it conforms to government contract cost principles and cost accounting standards. We recently completed an independent audit of our financial and cost control system using standards that meet VDOT requirements.

Our staff holds production meetings every Monday to review every project in the office. Project budgets are updated in real time, and project personnel review the milestones reached during the previous week, the current schedule targets, and any comments or concerns that should be relayed to the client. Applicable information on Chesapeake projects can then be communicated to City project managers and support staff through automated emails, reports, and project progress briefings, as appropriate. We have found this process facilitates regular, proactive, communication that keeps managers informed and allows them to respond quickly to project needs.

### Quality Assurance & Quality Control

GKY is committed to excellence in everything we do and has institutionalized a strong QA/QC program built over 42 years in

business. We continuously evaluate our QA/QC procedures and make adjustments when needed. Our most recent enhancement

*(Cont.) In response to RFP Section VII B. In five (5) page(s) or less, discuss the firm's approach for this project.*

involved implementing an Independent Quality Review (IQR) form to clarify and document the entire QA/QC process. The IQR form is straightforward, self-explanatory, facilitates direct communication between the responsible parties, and captures the essential findings of the review process.

Our approach to QA/QC is simple and straightforward. **No document or deliverable goes out the door without competent peer review.** This absolute rule applies to project deliverables, proposals, letters, and generally anything that has the potential to be viewed or challenged by our clients, colleagues, or competitors. We make a simple distinction between Quality Assurance and Quality Control. Quality Assurance refers to processes that occur throughout the lifespan of a piece of work that help make the work better. Quality Control is an end-of-line safety net that is intended to catch mistakes and substandard work internally—before work products are released. Good Quality Assurance practices minimize the effort required for Quality Control (and the amount of time it takes to fix things and bring work products up to our standards).

### Production Ethic and Responsibility

Simply stated, **we strive to produce documents and deliverables that reflect very favorably on our company, our clients, and our coworkers.** We recognize that typos, sloppy or ineffective writing, weak or bland graphics, inconsistent production standards, and careless editing could damage our reputation just as much as computational or material errors. Mediocre work is not good enough. Our QA practices are designed to facilitate the efficient production of documents and deliverables that are identifiable as GKY products and meet our high standards. Our QC procedures are intended to prevent work that falls short of our production ethic from being released—and to identify specific actions that will bring them up to par. Everyone who works at GKY is responsible for maintaining our production ethic. Our entire staff is encouraged to speak up when things do not look right and offer to be part of the solution.

### Informal and Formal QA/QC

**GKY practices QA/QC on two levels: informal and formal. Both levels are equally important.** Formal QA/QC is appropriate for project deliverables produced under contract and other items where GKY will document the application of our production ethic. A formal QA/QC effort involves:

- Adequate planning on the part of the project manager to identify and provide for the QA/QC processes that will be followed;
- The project manager filling out an IQR form for the reviewer and work product originator to use in completing the review;
- The reviewer checking the material and documenting suggested edits, corrections, and improvements;
- Communication between the reviewer and the work product originator;
- Documentation that each of the reviewer's comments was addressed or otherwise resolved by the project manager;
- Mutual signoff by the reviewer and the project manager, which completes the review; and
- Proper filing of the IQR Form.

An informal QA/QC effort applies to everything else. GKY strongly encourages informal QA/QC as part of our culture. Informal QA/QC, good production practices, and effective communication form the backbone of our Quality Assurance practices. Examples of informal QA/QC include:

- Asking a coworker to review an email or letter before sending it out;
- Getting input from production team members before submitting a scope and fee proposal;
- Asking a coworker to suggest an approach to a production process;
- Checking the scope of work frequently to make sure contractual requirements are being addressed adequately;
- Asking a supervisor or other senior staff member to check a set of computations before those computations are used for any other purpose—this step is particularly important for work items that form the basis for subsequent work; and
- Asking a colleague for their opinion.

**Informal QA/QC is never an acceptable replacement for formal QA/QC.**

### Competent Peer Review

Our QA/QC practices depend on competent peer review. A "competent peer reviewer" is chosen by the project manager to complete the appropriate sections of our IQR form. This reviewer is someone who has the experience to evaluate the material being prepared and has consistently demonstrated the ability to produce documents and deliverables that meet our production ethic. The reviewer should not have been directly involved in the preparation of the document or deliverable.

### Client, Subconsultant, and Vendor QA/QC Requirements

Most clients have their unique QA/QC policies and procedures. GKY will meet those requirements, as identified in our contracts, but will do so in addition to following our QA/QC standards. Likewise, we require subconsultants and vendors to meet the same quality standards that we use.

### Commitment to GKY's QA/QC Policies and Procedures

Commitment, consistency, and simplicity are the keys to maintaining high QA/QC standards. GKY managers plan ahead to arrange for QA/QC reviews and make sure they are done on time and according to policy. Proper planning for peer review on a project deliverable begins with the writing of the scope of work, which specifically identifies a task for QA/QC. The biggest potential hurdle to effective formal QC is cramped scheduling. It is incumbent

*(Cont.) In response to RFP Section VII B. In five (5) page(s) or less, discuss the firm's approach for this project.*

upon the project manager to build adequate review time into the project schedule and to make sure everyone working on the project knows when the reviews will take place. Adequate time and budget must also be allowed for corrections and revisions. The best way to minimize the potential collapse that can occur during a QC review is to practice good QA. Effective project management involves keeping the project team informed and giving them enough information to keep their work on schedule. GKY is committed to preventing substandard work products from being released. **It is never acceptable to push deliverables out the door without competent peer review.** The most important motivation to commit fully to our QA/QC program is that these practices help us fulfill our production ethic. If we successfully uphold that ethic, our work products lead to growth opportunities for GKY and liability is significantly reduced for us, our clients, and our colleagues.

### Checklists and Standard Operating Procedures

GKY uses an IQR form to enhance the quality of our internal and external work products. The IQR form and our standard checklists and procedures have been honed over 42 years in business and are designed to satisfy client obligations efficiently while ensuring that our business practices comply with all applicable regulations and contract obligations.

*GKY has checklist documents and operating procedures addressing everything we do, from safety to sampling protocols, to QA/QC reviews, to opening, invoicing, and closing projects.*

## Invoicing

GKY's program manager is very familiar with the City's invoicing and accounts payable requirements, having successfully delivered many projects for the City. We appreciate the need to keep all project documentation, accounting, and invoicing in order and pride ourselves in not creating administrative headaches for City staff.

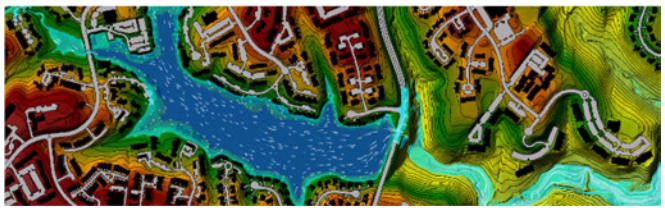
## TEAM QUALIFICATIONS

*In response to RFP Section VII C. In five (5) page(s) or less, please provide information on your qualifications to perform the required work (evaluation factors 1-4).*

**Due to page limitations, this section of our proposal presents GKY's qualifications. Qualifications for our team member subconsultants are presented in the Additional Information section of this proposal.**

GKY has a 42-year history of providing civil engineering services to municipal clients in Virginia. We currently have long-running annual services contracts providing stormwater and drainage design services to Fairfax County, Loudoun County, Falls Church, Fredericksburg, and Stafford County. Recently completed and ongoing stormwater assignments include work for the Cities of Alexandria, Hampton, and Newport News; Isle of Wight County; Roanoke County; the National Highway Institute; the US Army Corps of Engineers; and private or institutional clients in Virginia Beach, Fairfax, and Charlottesville. GKY has experienced engineers who routinely model watershed systems and design drainage and stormwater management controls for public works and CIP projects. GKY has recently been selected as a prime or specialty subconsultant to provide similar services for Hampton, Newport News, Virginia Beach, and VDOT.

GKY was founded as a water resources firm. Our corporate history includes administering the hydraulics laboratory for FHWA while publishing engineering and design documents that became industry standard references in the fields of highway drainage, hydraulics, and bridge scour. GKY routinely assists MS4 operators throughout the Commonwealth of Virginia in meeting regulatory requirements, providing policy, planning, engineering, field assistance, and training.



*GKY is widely recognized for our modeling and design capabilities, as demonstrated by this two-dimensional, unsteady state, finite element dam overtopping analysis.*

GKY has offices in Chantilly, Richmond, and Newport News.

## Client Feedback

*"GKY & Associates, Inc. has been one of the best contractors that we have ever worked with. Their work is very professional and is of high quality. They have always met their schedules. It has been a pleasure to work with them. They have been within cost on all of our projects. They do not hesitate to go beyond the norm to help you and to produce a good product. Mr. Stein has been a most excellent project manager and has advised us wisely. He is an excellent communicator and works well with all customers involved*

*(Cont.) In response to RFP Section VII C. In five (5) page(s) or less, please provide information on your qualifications to perform the required work (evaluation factors 1-4).*

*in the project. He maintains a high level of ethics and provides honest responses and advice. I have had many bad experiences with contractors in the past, but never any with GKY & Associates, Inc."* **US Army Corps of Engineers**

*"GKY has assisted the County with implementing the requirements of the County's National Pollution Discharge Elimination System (NPDES) Phase II Permit for Stormwater Discharge in…development and implementation of Standard Operating Procedures for detecting Illicit Discharges from the County's storm sewer system…GKY and Associates consistently provide high-quality services to the County in support of our Stormwater Management Program. Their highly knowledgeable staff has consistently provided prompt, courteous and efficient services to the County."* **Stafford County, VA**

*"[Fairfax County] would like to recognize and thank the GKY & Associates, Inc. project team for your participation and support in the recent EPA audit of our Municipal Separate Storm Sewer (MS4) Permit…All participating GKY managers, inspectors, engineers, and support staff represented the program well and the EPA audit team specifically acknowledged your firms' knowledge and thoroughness. Again, many thanks for your active participation and professional representation during our audit. Your enthusiastic acceptance of this special assignment is greatly appreciated!"* **Fairfax County, VA**

*"It has been a pleasure to work with GKY & Associates. The quality work and quality control measures have always been excellent. Each task order to your firm has always been completed within budget and on schedule. In most cases you have actually been ahead of schedule. These are achievements that very few firms can achieve."* **US Army Corps of Engineers**

*"On many occasions, [GKY] has gone more than the 'extra mile' to ensure that deliverables were completed correctly and on time. [An] example of this would be the extra effort in support of our…Accotink Creek TMDL process a few years ago."* **Fairfax County, VA**

*"Not only did GKY design a top notch training curriculum, their delivery of training has been exceptional…the level of expertise among the GKY staff is outstanding and their training delivery receives rave reviews."*

**National Highway Institute, Federal Highway Administration**

*"[GKY] has consistently demonstrated thorough knowledge of stormwater practices and industry trends; excellent client response and communication; and the ability to complete projects within budget and schedule."* **Fairfax County, VA**

*"In my 14 years working with GKY, they have always had an extremely competent financial staff member who promptly and accurately invoices. Because their invoice is always prompt and accurate, task order contract closeouts are easily processed."*

**Federal Highway Administration**

## Experience of the Firm

We offer the following project and contract summaries as evidence of our experience and capabilities. GKY can complete both small and large tasks efficiently. Some of these assignments have very small fees, and some larger, long-term contracts have exceeded several million dollars.

### Department of Public Works, Chesapeake, VA

GKY's program manager and Newport News office manager, John Paine, PE, PH, CFM has served as a project engineer, project manager, or contract manager working on local engineering projects over a 33-year career. He is familiar with the City's infrastructure, watersheds, flooding issues, MS4 stormwater management program, data systems, policies and preferences, and enjoys professional relationships with several of the City's engineering staff. He has managed two on-call, annual services contracts to provide engineering services for the City and has also managed federal delivery orders completed for the City using Corps of Engineers Section 22 funding. His specific project experience for the Chesapeake Department of Public Works includes:

- Milldam Creek Watershed
- St. Julian Creek Watershed
- Butts Station Road/Kemp Woods Outfall (NS-2) Watershed
- New Mill Creek 1, 2 Watershed
- Deep Creek Watershed
- Coopers Ditch Watershed
- Southern Chesapeake 2 and 3 Watershed
- Pocaty River Watershed
- Southern Chesapeake 1 Watershed
- South Norfolk Watershed
- Bells Mill Creek Watershed
- Southern Chesapeake 4 Watershed
- Oak Grove Watershed
- Indian River Creek 2 Watershed
- Lower Indian River Creek Watershed
- Horse Run Ditch East Watershed
- Oak Grove Outfall Design
- Loxley Gardens Outfall and Drainage Improvements
- Fentress Outfall
- Butts Station Road Outfall
- Yadkin Road Drainage Improvements and BMP Retrofit
- Sunray Outfall Improvements
- Ahoy Acres and Holly Cove Drainage Improvements
- Copeland Drive Area (study)
- South Norfolk Inventory Project
- Halifax Lane Stormwater Pump Station Feasibility Study
- Bells Mill Creek Calibration Study
- Chesapeake Bay TMDL Support

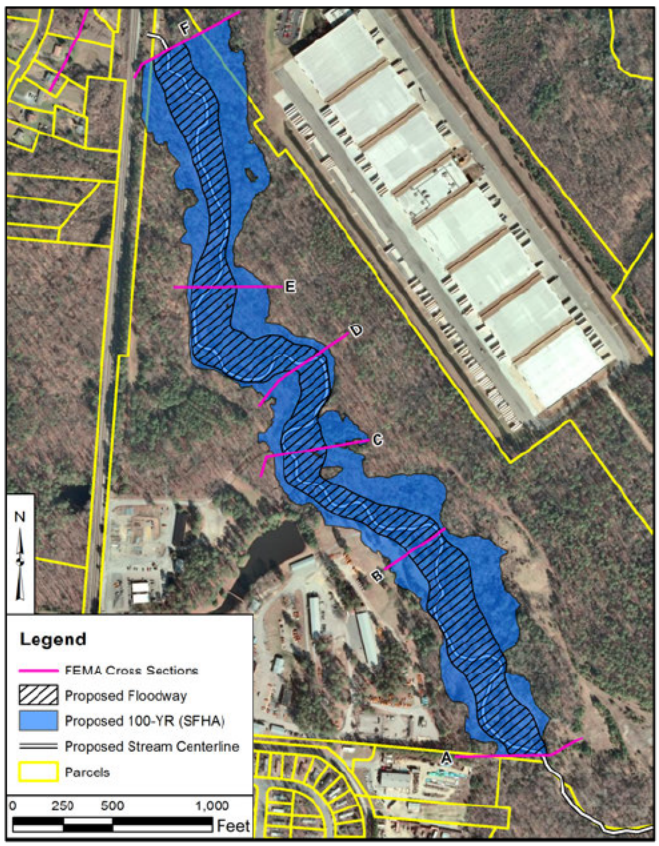
*(Cont.) In response to RFP Section VII C. In five (5) page(s) or less, please provide information on your qualifications to perform the required work (evaluation factors 1-4).*

## VPDES Permit Negotiation Support, Newport News, VA

GKY assisted the City of Newport News in preparation of MS4 individual permit reissuance negotiations with the Virginia Department of Environmental Quality. GKY reviewed and compared conditions in the City's draft MS4 permit against individual MS4 permits previously issued to Virginia Phase I MS4 permittees to identify significant differences in regulatory expectations. Also, GKY identified permit conditions that could represent potential compliance issues for the City, permit conditions that were thought to be included as a result of the federal Environmental Protection Agency initiatives, and opportunities for potential City negotiations.

## TMDL Implementation Services, VDOT, Statewide

GKY is currently performing design and modeling services as a subconsultant to RES/Angler under a VDOT statewide TMDL implementation contract. Specific projects have included preparing site design plans for a BMP facility retrofit in James City County and performing HEC-RAS modeling to map changes to a regulatory floodway resulting from a proposed stream restoration project in Chesterfield County.

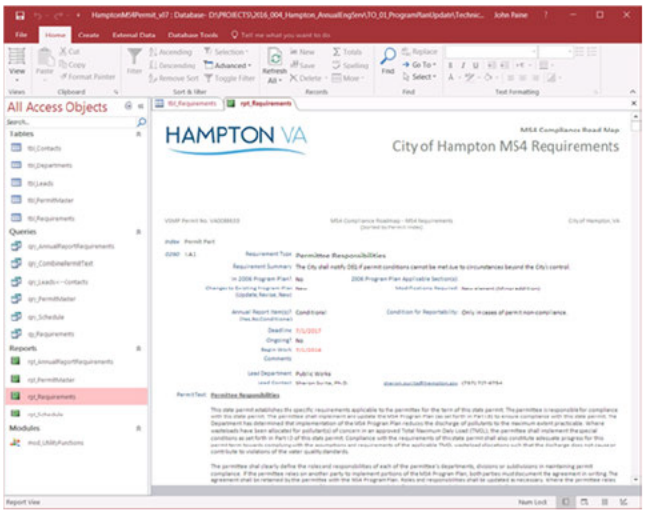



*GKY recently prepared 3D surface and HEC-RAS models to map a floodway for a proposed VDOT stream restoration project.*

## MS4 Program Plan Update & Chesapeake Bay TMDL Action Plan, Hampton, VA

GKY is currently assisting the City of Hampton with its MS4 Program Plan Update and Chesapeake Bay TMDL Action Plan—both major requirements under the City's VPDES MS4 Stormwater Permit. Under subcontract to AECOM, GKY developed a database system to support the preparation of the City's new MS4 Program Plan and will build upon experience working with the City on large-scale watershed studies that incorporate water quality and flood control BMPs and retrofits.

GKY assisted with project management and data coordination and helped develop a "Compliance Road Map" that served as a plan for the development and execution of Hampton's MS4 program over the life of their new permit (which should be reissued in 2021). GKY also prepared the Program Plan deliverables. For the Chesapeake Bay TMDL Action Plan, GKY will assist in the collection and processing of data, the identification of BMP retrofit opportunities, the production of the Action Plan, and QA/QC for this 15-month project.

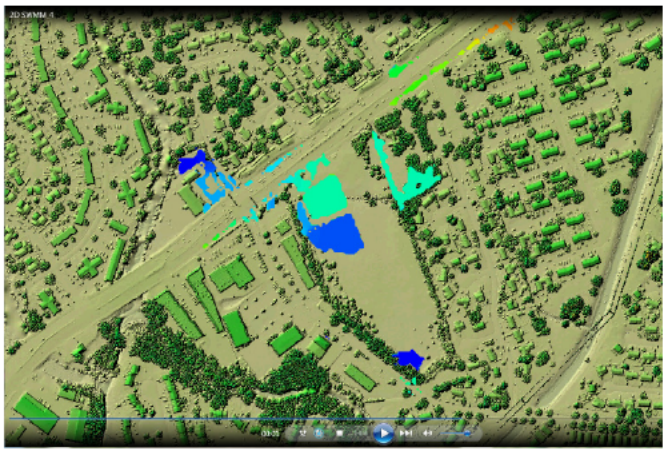



*GKY developed a new MS4 Program database for the City of Hampton to help match permit requirements to City operations.*

## Promenade 2D SWMM Analysis, Virginia Beach, VA

In response to a request from the City of Virginia Beach, GKY completed a detailed two-dimensional SWMM analysis to analyze the potential effects of a proposed commercial development on the Lynnhaven Parkway and London Bridge Creek drainage systems. GKY obtained and processed GIS and LiDAR data to create a three-dimensional surface model with existing and proposed grading and stormwater infrastructure. Due to extremely flat, low-lying topography in the watershed, the two-dimensional modeling approach was ideally suited for estimating flood depths—without making common-but-critical assumptions typically employed in one-dimensional SWMM studies. Modeling video animations depicted the locations and height of expected flooding for design storm conditions. GKY was able to fully utilize online data repositories and completed and documented the entire project in three weeks.

*(Cont.) In response to RFP Section VII C. In five (5) page(s) or less, please provide information on your qualifications to perform the required work (evaluation factors 1-4).*



*GKY was able to complete a complex 2D SWMM study in three weeks using online GIS and LiDAR data. The results included video animations of potential future flooding.*

## Stormwater Management Engineering & Planning Services, Stafford County, VA

| GKY Services Provided Under This Contract |
|---|
| Stormwater Management Policy and Procedure Development |
| Illicit Discharge Detection Elimination and MS4 Outfall Screening |
| TMDL Review and Participation in Public Comment |
| MS4 Program Assessment and Evaluation |
| EPA and State Audit Assistance |

For more than 20 years, GKY has been providing Stafford County with engineering and planning services in the areas of stormwater management, VPDES MS4 permitting, stormwater funding, and development plan review. Our work has included updating the County's Stormwater Design Manual, integrating the County's pollution prevention plan requirements with example structural and nonstructural BMPs, developing VSMP policies, public stormwater management facility inspection, and funding and staffing plans. We also updated the affiliated inspection forms, signage design requirements, and enforcement communications.

## Stormwater Management Contracts, Fairfax County, VA

| GKY Services Provided Under This Contract |
|---|
| State-Regulated Dam Inspections |
| Stormwater Management Facility and BMP Inventory Management, Assessment, Reporting, and Enforcement Support |
| Public Education and Outreach |
| MS4 Stormwater Permit Support |
| EPA Audit and Training Support |
| SWPPP Development |
| Stormwater Facility Retrofit Design |
| Client Site Staff Augmentation |

GKY has been providing a wide variety of stormwater management consulting services to the Fairfax County DPWES Maintenance and Stormwater Management Division (MSMD) over three contract cycles for the past ten years. During that time, GKY has helped Fairfax County define, develop, implement, and evaluate stormwater management facility-related programs designed to aid MS4 permit compliance and improve service. All task orders have been completed on schedule and within budget as scoped or amended.

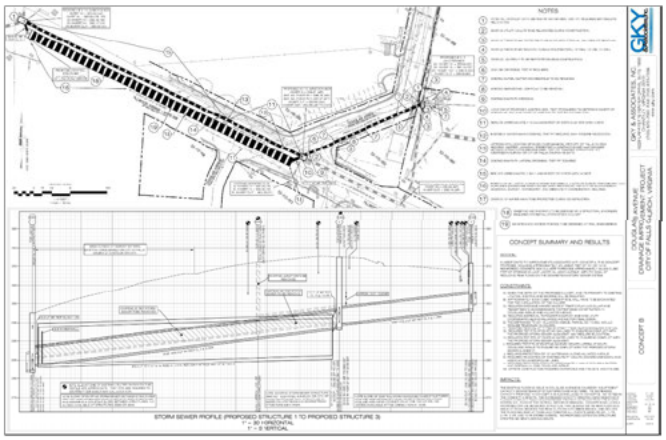
*GKY's work for Fairfax County includes design and construction administration for retrofit structures such as this sand filter and a nearby bioretention BMP at the Newington Solid Waste Facility.*

## Stormwater Engineering Services, Falls Church, VA

| GKY Services Provided Under This Contract |
|---|
| Public Education and Outreach Planning |
| High-Priority Municipal Facility SWPPP Development |
| IDDE Manual Update and Procedure Development |
| IDDE Dry Weather Field Screening |
| Stormwater Management Facility Inspection Manual |
| Stormwater Management and Drainage Analysis and Design |
| Pollution Prevention/Good Housekeeping Standard Operating Procedure and Training Program |
| Chesapeake Bay TMDL WIP Phase II VAST Submission Review, MS4 Program Plan Review and Update |
| MS4 Program Plan Compliance Review and Update |
| Stormwater Management Facility Inspection and Training |
| MS4 Permit-Mandated Evaluation (Self-Audit) |
| Enhanced Stormwater Management for Select Redevelopment |
| Storm Sewer System CIP Maintenance and Replacement Prioritization Tool Development |
| Hydraulic modeling of storm and sanitary sewer system to identify deficiencies and potential system improvements |

*(Cont.) In response to RFP Section VII C. In five (5) page(s) or less, please provide information on your qualifications to perform the required work (evaluation factors 1-4).*

For over seven years, GKY has assisted the City of Falls Church under task order contracts for stormwater management engineering services in support of the development and implementation of the City's comprehensive stormwater management program. GKY has been awarded 23 task orders to date for planning, engineering and design, construction, and regulatory compliance management services specific to the City's MS4 program. All task orders have been completed on schedule and within budget as scoped or amended.



*GKY routinely provides full-service engineering—including study, modeling, and design—for municipal clients such as the City of Falls Church.*

## Federal Highway Administration Environmental Training, Nationwide

Under task order contracts with NHI, the training arm of the Federal Highway Administration, GKY has been providing environmental training services to State DOTs across the United States since 2002. GKY's courses focus on Clean Water Act (stormwater) compliance for transportation projects in the areas of erosion and sediment control, stormwater runoff quality control (post-construction), and stormwater pollution prevention. These courses have been delivered over 120 times in 31 states and territories across the nation. Two of our instructors have been recognized by NHI as "Instructors of Excellence."

## Lake Cotting Dredging, Prince William County, VA

GKY & Associates, Inc. was contracted by the Fairfax Rod & Gun Club (FR&GC) to provide all phases of engineering support services for the dredging of Lake Cotting, a 5-acre lake located on the FR&GC property. GKY's services included a sediment push-pole survey to determine the original lake bottom, a planning bathymetric survey, dredging plans, disposal plans, environmental permitting, a Before-Dredge bathymetric survey, construction administration and onsite observation during dredging, an After-Dredge bathymetric survey, and a final as-built survey of the disposal site.

*GKY can perform all engineering services required for lake dredging design and permitting, including bathymetric surveys.*

## Professional Engineering Services for Stream Assessment and Recommended BMPs, Roanoke County, VA

GKY provided services to Roanoke County for stormwater retrofit evaluations for TMDL compliance and TMDL action plan development. The establishment of MS4 wasteload allocations in TMDLs has heightened the need for prioritization of MS4 Programs to stretch their limited resources. For Roanoke County, these wasteloads were included in TMDLs involving sediment, bacteria, and PCBs. Roanoke County chose GKY to provide recommendations on the most feasible and cost-effective means to improve water quality and comply with TMDL requirements. To identify potential sources of sediment and bacteria, GKY first developed a methodology for conducting stream corridor and floodplain assessments using the County's GIS system and available aerial imagery. We assessed 135 stream miles and associated riparian corridors and floodplains for potential sources of bacteria and sediment. GKY also performed stormwater management retrofit evaluations for TMDL compliance and prepared a PCB TMDL Action Plan for the Roanoke River.

## Stormwater Engineering Services, Loudoun County, VA

| GKY Services Provided Under This Contract |
|---|
| Drainage Design |
| Dry Weather Field Screening |
| Pollution Prevention and Good Housekeeping |
| MS4 Outfall Inventory |
| IDDE Screening and Investigations |
| Wasteload Allocation |
| TMDL Action Plan Development and Implementation |
| Stormwater Management Facility Assessments |
| BMP Inspector Training |
| MS4 Program Plan Development |
| MS4 Annual Report Development |

*(Cont.) In response to RFP Section VII C. In five (5) page(s) or less, please provide information on your qualifications to perform the required work (evaluation factors 1-4).*

GKY has been working with Loudoun County under task order contracts for stormwater engineering services for over 30 years. The contracts have supported the development and implementation of the County's comprehensive stormwater management program, including planning, engineering and design, and regulatory compliance management tasks for the County's MS4 program. GKY has been awarded 55 task orders in the last four years.

### Water Resources Engineering Indefinite Quantity Indefinite Delivery Contract, Huntington District, US Army Corps of Engineers

GKY provides broad water resources engineering assistance to the USACE Huntington District and other USACE districts within the Ohio River Division. Tasks have included hydrology and hydraulics, floodplain management, and water supply planning and engineering. GKY is currently updating previous hydraulic modeling to complete a LOMR for Island Creek and submitting the LOMR to FEMA on behalf of the USACE Huntington District. In previous tasks, GKY developed a 50-year water demand projection for a city and county which is currently served by six separate water utilities. GKY then developed a plan of action to meet the demand projections, including water treatment plant upgrades, pipeline and dam improvements, and enhanced institutional agreements.

## ABILITY TO RESPOND QUICKLY

*In response to RFP Section VII D. In two (2) page(s) or less, provide information that will indicate your firm's ability to respond quickly to task assignments, be able to handle multiple tasks concurrently and be able to complete task on accelerated schedules (evaluation factor 5).*

GKY's primary goal on every contract for which we are selected is to provide responsive service to meet client needs in an efficient and cost-effective manner. 42 years of consulting experience has convinced us that meeting this goal leads to strong client relationships and is essential for our firm's continued success. GKY has a proven track-record of providing quick turn-around consulting services to both government and private-sector clients. We are keenly aware that timely delivery of our services is essential to the success of our client's projects.

Our Project Approach writeup in Section 3 of this proposal describes how we scope, staff, produce, execute, and check our task order assignments. GKY has developed a straightforward and timely system of business rules that allow our staff to complete high-quality work efficiently.

The GKY Team is composed of five local consulting firms, each with an outstanding reputation and long record of success in delivering similar projects for Hampton Roads localities. We have all worked on projects together and have a great appreciation for each other's capabilities. As a team, we offer the City of Chesapeake total staff resources of more than 350 professionals and support personnel, and we do so without the encumbrances found in larger organizations. We can make decisions quickly, without having to chase higher-up approvals or wade through organizational red tape.

**Having 350 people available to serve the City of Chesapeake ensures that we will be able to leverage our combined technical disciplines, resources and corporate experience to meet the demands of the Small Projects contract, even at very active delivery rates.** Our Organization Chart in Section 5 of this proposal lists 30 key personnel who can respond quickly to service Chesapeake—all of whom have overlapping and redundant skillsets to some degree.

GKY holds production meetings every Monday morning attended by all employees, and staffing meetings every Friday morning attended by project managers and senior management. We continually monitor staffing needs and balance our workloads through careful planning and communication. We also monitor our backlog and sales pipeline on a weekly basis and make sure that we are proactive in meeting staffing levels well into the future.

Our project managers regularly communicate with our clients one-on-one to ensure we are meeting their needs and staying on top of projects. We have found this proactive process enhances our ability to serve clients, particularly under annual services contracts.

We understand that several task orders may be issued such that delivery schedules overlap. GKY is accustomed to managing parallel schedules, and we have sufficient staff and resources to undertake the execution of concurrent tasks without adversely impacting schedule commitments. When we commit to a schedule, we view that commitment as a promise and work diligently to meet our obligations.

As an example, under GKY's current contract with Fairfax County's Maintenance & Stormwater Management Division, we have had 95 task orders over the past four years, with as many as 15 open concurrently. Many of these task orders have been labor-intensive, such as supplying field personnel to perform more than 10,000 BMP inspections.

Our work for Fairfax County produced the following client feedback.

> *"[GKY] has consistently demonstrated thorough knowledge of stormwater practices and industry trends; excellent client response and communication; and the ability to complete projects within budget and schedule."*

Likewise, GKY has successfully completed IDIQ contracts for the U.S. Army Corps of Engineers involving 23 delivery orders and a total budget of over $1,000,000. Through these contracts, GKY developed a strong reputation for meeting schedule and budget constraints.

*(Cont.) In response to RFP Section VII D. In two (2) page(s) or less, provide information that will indicate your firm's ability to respond quickly to task assignments, be able to handle multiple tasks concurrently and be able to complete task on accelerated schedules (evaluation factor 5).*

Our work for the Corps produced the following client feedback.

> *"GKY & Associates, Inc. has been one of the best contractors that we have ever worked with. Their work is very professional and is of high quality. They have always met their schedules. It has been a pleasure to work with them. They have been within cost on all of our projects."*

With regards to budget control, GKY is fully aware that a key to our success with our client's projects is vigilance over project budgets. As such, GKY utilizes DCAA-compliant Deltek financial management software as the hub of a management information system that allows for tight cost control on a project and task basis. Using this system, GKY employees record project labor and expenses daily, which allows our project managers to monitor project budgets closely in real time. Project financial status is carefully reviewed by our project managers and senior management on a weekly basis. We are aware of potential bottlenecks, and encourage all employees to be proactive in identifying and solving problems.

In addition to internal processes for maintaining project coordination and managing project status, GKY utilizes web technology to coordinate with our teaming partners. We have been complimented by VDOT on our efficient use of GoToMeeting web calls, and can transmit and track very large digital files using ShareFile system tools—without the encumbrances of ftp and other proprietary file sharing systems.

# ADDITIONAL INFORMATION

*In response to RFP Section VII E. In addition to the page restrictions listed above, a maximum of 18 additional pages may be included in the proposal. All pages are to be 8 1/2" X 11" and printed on one side with single-spaced type no smaller than 10 font size.*

## Affiliates

**GKY & Associates, Inc.** has no affiliates or subsidiaries.

**ATCS, PLC** has the following affiliates, all of which are subsidiaries (Tax FEIN, State ID Number):

- ATCS, PLC (54-1718076, VA S0048720)
- ATCS PLC, LLC (45-2598818, NY 4109241)
- ATCS Services, LLC (54-1850718, VA S0199271)
- ATCS International, LLC (27-2334319, VA S3228808)
- ATCS Design, LLC (46-2044164, VA S4400539)
- ATCS Capital Infrastructure, PLLC (82-0919647, L00005633277 DC)

**Engineering & Testing Services, Inc.** has no affiliates or subsidiaries.

**Pace Collaborative, P.C.** has no affiliates or subsidiaries.

**Site Improvement Associates, Inc.** has no affiliates or subsidiaries.

## Contract Terms

GKY has reviewed the sample contract terms and insurance requirements provided in the RFP (Attachment G) and Addendum 1. GKY appreciates the good faith shown by the City in lowering the insurance levels to help our subconsultants. We are generally in agreement with the contract terms but do have a few items that we would like to clarify during contract negotiations—such as an elevated standard of care ("best possible advice and consultation") and the indemnification of volunteers.

## Features That Differentiate GKY's Services from Competitors

- First, we are a small, personally accessible firm. There are no layers of management that must approve everything that goes on. We are horizontal and efficient, and our structure and management style have been built to facilitate responsiveness.
- Within our fields of expertise, GKY employs some of the most respected professionals in Virginia. Our capabilities are fully reflected in the write-ups of similar projects and contracts and our resumes in this proposal.
- Our company is owned by two practicing engineers who are involved daily in the fulfillment of task orders for clients. We are first and foremost engineers and professionals. GKY is not run by 'suits.'

*(Cont.) In response to RFP Section VII E. In addition to the page restrictions listed above, a maximum of 18 additional pages may be included in the proposal. All pages are to be 8 1/2" X 11" and printed on one side with single-spaced type no smaller than 10 font size.*

- GKY is a stable company, and we have created a long list of satisfied clients since 1975. Samples of our client feedback are provided above.
- Our corporate culture can best be described as a family of professionals who like each other and enjoy working together. This culture has helped us avoid the disruptive staff turnover experienced by our competitors.
- Our proposed program manager has more than 33 years of experience working for Hampton Roads localities. He is very familiar with Chesapeake's infrastructure and enjoys working for City project managers. He knows how to keep project management challenges from becoming problems, and has a track record of successful project delivery.
- We are respectful of the workloads carried by City staff, and the challenges they face. GKY project managers will ensure that clear communication is ongoing, and that phone calls and requests are answered promptly—without adding to the administrative burden of City staff.
- Our production ethic states that we strive to produce documents and deliverables that reflect very favorably on our company, our clients, and our coworkers. **The key word is *'very.'***
- Quality matters. We check our work—while it is being produced *and* before it goes out the door.
- GKY has expanded into the Richmond and Newport News markets over the past four years. We are highly motivated to demonstrate our capabilities to the City and to become a trusted, go-to consultant. We pledge to do our absolute best to add Chesapeake to our list of highly satisfied clients.

## Subconsultant Qualifications

Descriptions of our subconsultant teaming partners are presented in Section 3 of this proposal, under the "GKY Team Approach" heading. The following pages demonstrate their qualifications to serve Chesapeake under this Small Projects contract. GKY is teamed with all these outstanding firms on similar task orders or contracts elsewhere in Hampton Roads and is very pleased to include them for the Chesapeake Small Projects pursuit.

ATCS® **ATCS, PLC** will provide transportation, roadways, traffic, and signalization services. ATCS is a SWaM-certified firm, and is the largest member of our team. They can provide additional capacity for surveying, permitting, utilities adjustment, and construction support as needed.

**Patrick Henry Drive Extension, City of Newport News, VA**

ATCS is providing engineering design and supporting services for the preparation of construction documents for the Patrick Henry Drive extension project in the City of Newport News. The project is a Virginia Department of Transportation state aide revenue sharing project through the Locally Administered Projects program. ATCS is providing roadway design drainage design, private utility coordination, water and sanitary sewer improvements, traffic signal improvements, round-about design, environmental support, survey, construction document preparation, and public involvement assistance. The project design is based on a previous concept design performed by others that ATCS and our design team of GKY and PACE will be redesigning and taking to final design and construction.

*ATCS, GKY, and PACE are currently designing the Patrick Henry Drive roadway extension project for the City of Newport News through VDOT's Locally Administered Projects program.*

The project is an approximately 2800 linear foot long urban roadway that will extend Patrick Henry Drive from the intersection of Turnberry Boulevard to McManus Boulevard at the Newport News-Williamsburg Airport. The intersection at Turnberry Boulevard will be fully signalized with pedestrian features and tied into the City's fiber optic system. The intersection at McManus Boulevard will be a single lane round-about capable of maneuvering a WB-67 design vehicle. The roadway will have a curb-to-curb typical section to match the existing section heading north, with a sidewalk and LED roadway lighting.

Additionally, the project will include the construction of a new 10-inch sanitary sewer main to collect sewer discharges from future planned development in the area; as well as a new 12-inch water distribution main. The project is grandfathered under the requirements of Part IIC of the Virginia Soil and Water Conservation Board's Stormwater Management Program Permit regulations set out in 4VAC50-6048. An existing regional stormwater BMP will provide the water quality and quantity treatment for the alignment. However, the project will include construction of a new stormwater drainage system to tie to the existing regional stormwater BMP. The project will require close coordination with significant future

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development being planned on the surrounding properties; including implementation of the actions defined in the Traffic Impact Studies, coordination of utilities, pedestrian and vehicle access, and close coordination of construction schedules and phasing.

**Loudoun County On-call Roadway Transportation Design Services, Loudoun County, VA**

This ATCS contract involves the delivery of professional engineering services for various primary, urban, and secondary road projects throughout the County under a four-year limited-services agreement. Projects involve all stages of development, from preliminary and final engineering design to engineering support during construction. Design elements for these projects include field/ utility surveys, roadway widening and new alignment, turn lane additions and modifications, intersection improvements, roundabout design and analysis, bike lanes & pedestrian facilities, traffic data collection, traffic signal design and modifications, TMP, retaining walls, storm drainage design/SWM, utility design and coordination, erosion and sediment control, and environmental services/permitting.

Example tasks orders under this contract have included:

- *Sterling Boulevard (Rt. 846) Widening and Extension* - The Sterling Boulevard Widening and Extension includes right-of-way acquisition, civil engineering design, and construction support services for Sterling Boulevard from the intersection of Pacific Boulevard and extends westward approximately 3,800 feet and creates a new intersection at Moran Road. This project is a four-lane urban major connector with a divided median, associated turn lanes, trails, bike lanes, and follows the criteria outlined in VDOT's Locally Administered Projects (LAP) Manual. This Revenue Sharing project was recommended by the Countywide Transportation Plan (CTP) as an essential road connection to provide connectivity to the Loudoun Gateway Metro Station at Route 606.
- *Braddock Road/Summerall/Supreme Intersection Improvements* - ATCS provided the civil engineering and construction support services for an intersection improvement at Braddock Road (Route 620) and Supreme Drive (Route 1257)/Summerall Drive (Route 1258) which completed the existing half section of Braddock Road at this location. ATCS prepared roadway improvement plans with some minor geometric improvements to improve the roadway section to four lanes with appropriate turn lanes at several intersections. Major considerations in roadway design included meeting standards and providing updated designs considering the revised stormwater management guidelines and updated traffic warrants. ATCS prepared sidewalks with crossing ramps that meet ADA and VDOT standards for the entire length of the street improvements.

**Engineering Design Services for Federally Funded Projects, Prince William County, VA**

This ATCS contract involves the delivery of engineering design and other services for federally funded highway, intersection, pedestrian/bicycle facilities, and interchanges under an on-call contract throughout Prince William County. Task orders executed for the County under this contract to date include:

- *Route 234 Multi-Use Trail Extension Design* - The purpose of the project involves the completion of a 4,300-foot-long section of the multi-use trail along southbound Route 234, from 240 feet south of Exeter Drive to Country Club Drive. This proposed trail would connect from an existing trail at the north side of the First Mount Zion Baptist Church to the Brittany Community at Exeter Drive. The trail will traverse the Prince William Forest Park, which fronts Route 234.
- *Potomac Avenue Vegetation Plan* - The purpose of this project is to provide plant reestablishment for Potomac Avenue Improvements. This project begins at the intersection of Broadway Street and Potomac Avenue and extends eastward approximately 820 feet to the intersection with River Road. This project is funded using Federal and county funds. Because Federal funds make up a portion of the funding allocation, this project is required to follow the criteria set forth in VDOT's Locally Administered Projects (LAP).
- *U.S. Route 29/Route 15 Bypass Traffic and Location Study* - This project involves the study of a potential limited access, four-lane bypass of the section of U.S. 29/U.S. 15 that runs through the Buckland Historic area. The ATCS team is interacting with a diverse group of stakeholders to address their concerns that relate to historic sites and conservation easements, as well as properties and environmental issues.
- *Innovation Sidewalk/Trail improvement Projects: (Scoping Phase)* - The purpose of this project is to provide engineering design services to complete through construction, three sections of pedestrian sidewalk and multi-use trail as follows: Discovery Blvd – 5' Sidewalk; Innovation Drive – 8'-10' Asphalt Trail; University Blvd – 5' Sidewalk.

**Nursery Avenue Roadway Improvements, Phase II, Town of Purcellville, VA**

This ATCS project for the Town of Purcellville involved developing construction documents for approximately 1,240 linear feet of Nursery Avenue Road improvements. Nursery Road is one of the oldest roads within the Town and provides access to many residences and businesses. The road is a direct corridor to many

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major public venues such as Town Hall, Fireman's Field, Bush Tabernacle, Emerick Elementary School, and the Loudoun Valley Community Center. Preliminary design concepts addressed basic geometric and safety issues and resolved some long-standing problems regarding utility encroachments and parking. Citizen input during design public hearings raised the issues of water ponding and drainage due to previous roadway improvements.

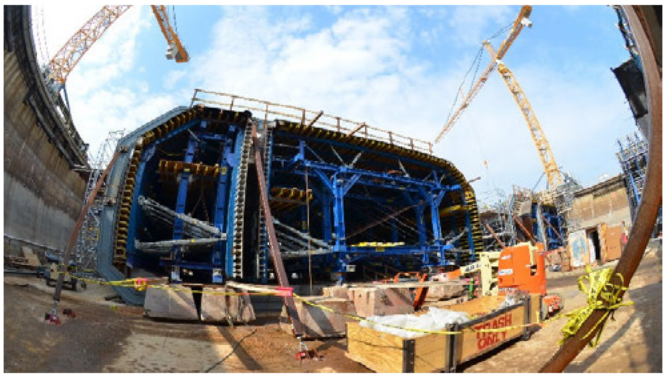
Elements of the project design and solutions included:

- Drainage Systems - A closed drainage system was designed to convert the existing open section roadside ditches to curb and gutter. To comply with the current VSMP regulations for SWM, the project's planned land disturbance area was evaluated for meeting the VSMP runoff reduction method. Standard VDOT and DEQ approved stormwater best management practice facilities were employed at the logical low point along the street and at the end of the baseball field. Solutions included an extended and enhanced detention basin, yard inlets, and inlets on the back side of roadway inlets.
- Roadway Improvements – ATCS prepared roadway improvement plans with minor geometric improvements that do not impact any adjacent historical property. All Town urban street designs met VDOT design standards with some considerations for design exceptions requested by the Town. VDOT procedures were followed with profiles, typical sections, and cross sections. The project also included a waterline replacement.
- Pedestrian and Bicycle Facilities – Pedestrian sidewalks with crossing ramps that met ADA and VDOT standards for the entire length of the street improvements were implemented in the design and construction documents.

**Engineering & Testing Services, Inc.** will provide geotechnical and materials engineering services.

**Downtown/Midtown Tunnel/MLK Expressway, Norfolk & Portsmouth, VA**

This ETS project was for the design of a new tunnel, rehabilitating the existing Midtown and Downtown tunnels, and the construction of approaches and roadways. ETS services at this project were to provide quality control during construction. ETS erected two fully-equipped soils and concrete onsite laboratories to service this project. The testing laboratories were outfitted with the latest testing equipment to conduct the required tests. The staff operated in a network environment with high-speed processors, color printers,



*ETS provided quality control services for the rehabilitation of the Midtown and Downtown tunnels.*

large screen monitors, file backup and archiving, electronic mail, and Internet access.

ETS inspectors conducted daily and nightly tasks including inspection of erosion and sediment control measures as well as the relocation of utility lines, performing density tests, maintaining pile driving records and the progression of the dredging operations, concrete sampling and testing, and maintenance of traffic inspections. ETS laboratory managers performed all laboratory soils, concrete, grout and chloride ion penetration tests. Laboratory manager responsibilities included the submittal of all soils, concrete strength and permeability tests to the quality control manager.

**Fox Run Bridges, Virginia Beach, VA**

*ETS provided geotechnical engineering and construction support for new infrastructure, including two bridges over Fox Run in Virginia Beach.*

Proposed improvements along the existing Kempsville Road crossing at Fox Run consisted of the demolition and replacement of the existing concrete culvert and the construction of a new vehicular bridge crossing, wingwall construction, retaining walls and other ancillary structures. This project also included the design and construction of a new pedestrian bridge spanning a narrower portion of Fox Run Canal that allows access to the newly constructed rotunda and waterfall features maintained by the City of Virginia Beach. Both the Fox Run vehicular bridge and pedestrian bridge are supported by deep foundation systems, installed without interruption to the existing high traffic flows along Kempsville Road.

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To facilitate construction operations and to maintain positive drainage of subsurface water conditions; steel sheet piles, concrete piles, diversion channels, dewatering systems, deep excavations, and cast-in-place concrete placement were required during the construction activities at the project site. ETS provided Geotechnical Engineering recommendations for Phased Sheet Pile design and installation, and the installation of Square Pre-stressed Pre-cast Concrete (SPPC) piles. Services included implementation of a Test Pile Program; determination of pile capacities and depths of embedment; Dynamic Pile Testing using Pile Driving Analyzer (PDA) equipment; establishing Pile Driving criteria during construction; and continuous on-site monitoring during the installation of the pile driving operations in tidal environments. ETS also conducted Pre-Construction surveys of existing buildings and historic landmarks and provided vibration monitoring services using portable seismograph equipment during construction to document the magnitude and frequency of vibratory energy generated during pile driving operations and to document the potential and extent of vibratory damage to the surrounding structures.

**Pace Collaborative, P.C.** will provide electrical and mechanical engineering, lighting design, and building information modeling (BIM) services.

**Water Tank and Pumping Station for Portsmouth Area Expansion, City of Chesapeake, VA**

PACE Collaborative provided mechanical and electrical engineering services including field investigation and demolition plans for a new water pumping station and associated storage tanks. The design included a pumping system, electrical service and power distribution, coordination with the electrical utility company, interior and exterior lighting systems, general purpose power, heating, ventilation and air conditioning systems, and interior potable water and sanitary plumbing systems for the pump station building.

**Dominion Boulevard Improvements, City of Chesapeake, VA**

PACE Collaborative provided electrical engineering services for five miles of roadway lighting including grade-separated intersections, electrical service design, branch circuiting, lighting controls and photometric calculations.

**Route 168 Toll Plaza, Phases I & II, City of Chesapeake, VA**

PACE Collaborative provided mechanical and electrical engineering services for the toll plaza including roadway lighting, electrical service design, branch circuiting, lighting controls, photometric calculations, cabling and raceways for lane control, traffic control gates, variable message signal wiring and annual assessments, inspections, and reports.

**Annual Service Contract, Emergency Generators and Quick Connects for Pump Stations, City of Virginia Beach, VA**

PACE Collaborative is currently providing electrical engineering services for design and construction documents for installing permanent generators and emergency generator "quick connects" for existing pump stations under an annual services contract with the City of Virginia Beach Department of Public Utilities. This contract includes task orders for the installation of generators, automatic transfer switches, and electrical connectors (quick connects) for over 200 of the City's sanitary pump stations. PACE has also assisted the City of Virginia Beach Public Utilities in updating their standard construction specifications as well as assisting several civil engineering firms in completing PER's (Preliminary Engineering Reports) for several pump stations across the City.

## Site Improvement Associates, Inc.

**Site Improvement Associates, Inc.** will provide surveying, utilities, site design, and landscape plan services.

**City Park Fishing Pier, City of Portsmouth, VA**

SIA prepared engineering design services for the Portsmouth City Park Fishing Pier which provides recreational amenities to the community. During the planning process, the SIA team worked closely with City staff to ensure that the project met the requirements of the Virginia Port Authority (VPA) Grant and reviewed investigative findings to propose the best location to serve the City and community. SIA prepared construction plans including demolition, new fishing pier construction, erosion and sediment control measures, an engineering cost estimate and specifications. SIA assisted with the preparation of the Joint Permit Application (JPA) for Virginia Marine Resources Commission (VMRC) for approval of the new fishing pier.

*SIA designed a new fishing pier for the City of Portsmouth and assisted with VMRC permitting.*

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**Low Element Challenge Course, Old Dominion University, Norfolk, VA**

SIA designed the ODU Low Element Challenge Course for Old Dominion University in Norfolk, Virginia. During the preliminary planning phase of the project, our team worked with the University's project manager and recreational sports personnel to determine the specific program requirements and provided two schematic conceptual options for creating a 10 to 15 station low element group challenge course. Final construction plans include detailed equipment requirements such as hardware, material, wood treatment, and signage specifications in addition to layout, grading and drainage design, lighting plans, and landscape details.

*The ODU Low Element Challenge Course provides a safe, team-oriented recreation facility requiring minimal staff assistance to operate.*

**Landstown Centre, City of Virginia Beach, VA**

The Landstown Centre project (formerly known as Southgate Commons) started as a private office/retail/industrial project creating five large parcels for private development that morphed into a public/private partnership that included a new public roadway creating improved access to existing large public facilities including the Virginia Beach Field House, Virginia Beach Sportsplex, Princess Anne Recreation Complex, and the Virginia Beach Amphitheater.

A new regional stormwater management pond was also designed to handle additional stormwater runoff from the new office/retail/industrial park as well as 36 acres of city-owned property anticipated for development as a complimentary office park. The new stormwater management pond was interconnected with existing ponds serving as a regional stormwater management system in the area. Landstown Centre was also coordinated with the Princess Anne Road extension project, a city-managed Virginia Department of Transportation (VDOT) project, including intersection design and a new turn lane into Landstown Centre.

**Camden Plantation, Camden County, NC**

Camden Plantation is a 600-acre, multiphase Planned Development consisting of an 18-hole golf course, 1,772 new residential units, 61 existing residential units, and a 160,000-square-foot retail/commercial/office space.

SIA worked with the North Carolina Department of Transportation (NCDOT) for plan approvals. Route 17 is a major collector road and required a Control of Access Permit from NCDOT and the design of a restricted crossing U-turn intersection.

Construction plans include the design of erosion and sediment control, which is master planned to reroute the existing internal ditches to the various golf course lakes. This design includes storm structures for future phases to tie into the stormwater conveyance system. The project also includes a system of 20 interconnected lakes to treat stormwater quantity and quality for the entire 600-acre development. The SIA team prepared and analyzed the existing drainage and proposed drainage and interconnected lakes using SWMM modeling. The stormwater lakes include the designs of sediment forebays, vegetated shelves, and an outfall weir. Detailed coordination with Camden County, South Mill Water Authority, NCDOT, NC DEQ, and the Army Corps of Engineers was instrumental in the success of this project.

**Centerbrooke Lane Shopping Center, Suffolk, VA**

Centerbrooke Lane Shopping Center is a four-acre development that includes two retail shopping buildings totaling 33,440 square feet of building space, associated parking facilities, and site utilities. The site was previously mastered planned for stormwater management. However, SIA prepared the relevant calculations to verify the proposed improvements were within the regional BMP original design parameters. The construction plans included erosion and sediment control design and calculations, onsite utility design, onsite storm sewer pipe design, and fire flow calculations. Distinct design considerations were also given to the requirements for the Special Corridor Overlay District particularly concerning landscape buffers and screening requirements. Throughout the planning and design phases, SIA worked closely with the client and the city to ensure that a quality product was delivered while satisfying all city conditions.

**Woodbridge Development, Virginia Beach, VA**

Site Improvement Associates, Inc. provided the developer of this single family residential subdivision with land surveying, land planning, and civil engineering services for this large development within the City of Virginia Beach. The phased project included nearly 700 lots developed in five separate phases over a seven-year period.

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*SIA provided comprehensive design services for the 700-lot Woodbridge Development in Virginia Beach, over a seven-year period.*

The work included land surveying, land planning, and a wide variety of civil engineering design services including plans for erosion and sedimentation control, gravity sanitary sewer main and service laterals, sewage pumping stations and force mains, potable water mains and service lines, general development wide grading, individual lot grading, commercial and residential neighborhood streets, connectors to major arterial streets, overall project drainage, interconnected stormwater management lakes, and compliance with environmental regulations including the Chesapeake Bay Preservation Area (CBPA) Ordinance and VSMP requirements.

Work also included preliminary subdivision plat preparation and submittal for city review and approval. Final plats for each project phase were developed, submitted for review, approved, and recorded. SIA established and installed the requisite property line and right-of-way line markers in the field.

## Certification Regarding Debarment Forms

*In response to RFP Section VII F. Please indicate, by executing and returning the attached Certification Regarding Debarment forms, if your firm, subconsultant, subcontractor, or any person associated therewith in the capacity of owner, partner, director, officer or any position involving the administration of federal or state funds:*

*1. Is currently under suspension, debarment, voluntary exclusion or determination of ineligibility by any federal agency.*
*2. Has been suspended, debarred, voluntarily excluded or determined ineligible by any federal agency within the past three years.*
*3. Has a proposed debarment pending; or has been indicted, convicted, or had a civil judgment rendered against it or them by a court of competent jurisdiction in any matter involving fraud or official misconduct within the past three years.*

Please see Section 8 of this proposal for completed debarment forms. None of the firms on the GKY Team have ever been debarred.

## Capability to Provide Non-Professional Services

*In response to RFP Section VII G. If the Consultant or subconsultant does not have the in-house capability to provide non-professional services, each with an estimated cost of $5,000 or greater, such as diving services, soil drilling, sampling services or laboratory testing, these services must be subcontracted in accordance with state or local procurement procedures (depending on the source of funds for the particular task order and/or project) once a contract is executed, with no DBE or SWaM credit in the selection of the most qualified firm or team. Clearly indicate these services in the proposal.*

GKY anticipates that all, or nearly all, of the required services performed under this contract can be performed completely in-house by the GKY Team—which is composed entirely of SWaM-certified firms. Routine, non-professional services include surveying (surveying is not considered a professional service for federal procurement), material sampling and testing, subsurface exploration, permitting, and even site contracting. If something out of the ordinary does come up—such as pipeline cleaning, specialized drilling or diving, or subsurface utility exploration—GKY will comply with all applicable local, state, and federal procurement procedures to obtain the required services, as stipulated in the RFP. We have established relationships with DBE and SWaM companies and can include these vendors when soliciting the required bids and pricing for non-professional services, recognizing that DBE and SWaM credit is not allowed.

## References

*In response to RFP Page 46, Item 7. Offerors shall provide a list of at least three references where similar services have been provided. Each reference shall include the name of the organization, the complete mailing address, the name of the contact person and telephone number.*

1. Fairfax County Department of Public Works and Environmental Services, Maintenance and Stormwater Management Division
   12000 Government Center Parkway
   Fairfax, VA 22035
   **Karlee Copeland**
   703-877-2859

2. City of Falls Church, Department of Public Works
   300 Park Avenue, Suite 100 West
   Falls Church, VA 22046
   **Jason Widstrom, PE**
   703-248-5026

3. Loudoun County, Department of General Services
   801 Sycolin Road, SE, Suite 300
   PO Box 7100
   Leesburg, VA 20175
   **Steve Plante, PE**
   571-258-3227

## Consultant/Subcontractor License Requirement

*In response to RFP Page 47, Item 11. By my signature on this solicitation, I certify that this firm/individual and subcontractor is properly licensed for providing the services specified.*

| | |
|---|---|
| Contractor Name:<br>License # 01677269 | **GKY & Associates, Inc.**<br>Type Corporation |
| Subcontractor Name:<br>License # S0048720 | **ATCS, PLC**<br>Type Limited Liability Company |
| Subcontractor Name:<br>License # F1160391 | **Engineering & Testing Services, Inc.**<br>Type Foreign Corporation |
| Subcontractor Name:<br>License # 02883429 | **Pace Collaborative, P.C.**<br>Type Corporation |
| Subcontractor Name:<br>License # 04758058 | **Site Improvement Associates, Inc.**<br>Type Corporation |

## Summary Of Responses To Selection Criteria

*In response to RFP Section X.B. Evaluation of Proposals and Shortlisted Firms*

### 1. Firm Qualifications and Experience (25%)

GKY has been delivering high-quality civil engineering services to satisfied municipal, state, and federal clients for 42 years. Our example projects, references, and key personnel resumes attest to our qualifications and experience. Likewise, we have included project write-ups and detailed resumes for our subconsultants, who give us tremendous local talent and depth to take on any assignment that is likely to be assigned under this contract. We have stacked our team with local specialists who have outstanding reputations as hands-on, competent, results-oriented, go-to consultants.

### 2. Qualifications of Key Personnel (25%)

GKY is pleased to offer 30 highly qualified key personnel on our team, many of whom are well known to City staff and within the Hampton Roads community. GKY and ATCS have expanded into the Hampton Roads market in recent years, building their local offices on principals who have made their careers here in Tidewater. Both firms are extremely motivated to add the City of Chesapeake as a satisfied client. ETS, Pace, and SIA have been practicing locally since their inception, and all have extremely talented staff.

### 3. Record of the Firm (15%)

GKY and our teaming partners have consistently delivered successful projects to clients like Chesapeake who must have their work done right. Meeting deadlines and staying with budget are crucial to our success, but we also appreciate the need to be genuinely helpful. We check *everything*, from the scope and fee proposal through the final invoice, and communicate clearly and appropriately with our clients. Our biggest compliments come from clients who say they enjoyed working with us, as we have heard from repeat clients such as Alexandria, Hampton, Fairfax County, Falls Church, Fredericksburg, Loudoun County, Stafford County, VDOT, the Corps of Engineers, and the National Highway Institute.

### 4. Quality of Work (15%)

Longevity in business and a track record of repeat clients are two good indicators of the quality of work our team can provide. As shown on our Firm Data Sheet in Section 7 of this proposal, the firms on our team have been in business as consultants for 15 to 42 years. All firms have repeat business rates well over 90 percent from satisfied clients. Our key personnel are active in professional organizations with our colleagues in Virginia and Hampton Roads, among whom we enjoy strong reputations.

*(Cont.) In response to RFP Section X.B. Evaluation of Proposals and Shortlisted Firms*

### 5. Use of Resources (10%)

We have carefully evaluated the requirements stipulated in the RFP and assembled a team of 350 skilled professionals and support personnel who would like—very much—to work on this contract. Not only do we have sufficient resources, but our skillsets and experience match up very well with the services described in the RFP. Our key personnel are available to work on this contract and look forward to the opportunity to do so. We have checked, and do not foresee any reason these professionals could not fulfill their commitments to this contract.

### 6. Compliance with RFP (10%)

GKY has complied with all requirements stipulated in the RFP and Addendum 1, as best we can interpret them. We have also tried to give brief, direct, and verifiable responses. If there are any clarifications or additional information the City requires we will be pleased to provide them promptly.

# 5. Team Organization Chart

Chesapeake VIRGINIA

GKY & Associates, Inc.

| Program Principal | Program Manager | QA/QC Officer |
|---|---|---|
| Stuart Stein, PE, DWRE (2) | John Paine, PE, PH, CFM (1) | Brett Martin, PE (2) |

**GKY & Associates, Inc.**

*Program Management, Stormwater, Drainage, MS4 Operations and Permitting, Hydrology & Hydraulics*

| | |
|---|---|
| Design Engineer | Brice Kutch, PE, LEED BD+C (2) |
| Design Engineer | Christina Arllen, PE, LEED AP (2) |
| Engineer, Modeler | Suzanne Angelo, PE (2) |
| Engineer, Modeler | Andrew Sarcinello, EIT (2) |
| Regulatory Specialist | Douglas Fritz, CPESC (3) |
| Water Res. Planner | Douglas Moseley, AICP, CFM (3) |
| MS4 Specialist | Maxwell Kuker (2) |
| GIS Specialist | Jason George, CFM (2) |
| Field Services | Robert Miller, SWMI, E&SC (2) |
| Field Services | Susanna Orndorff, CNMP, SWMI (2) |

**Site Improvement Associates, Inc.**

*Surveying, Utilities, Site Design, Landscape Plans*

| | |
|---|---|
| Principal Engineer | Claude Lym, PE (10) |
| Design Engineer | Coleen Sisk, PE, ENV SP (10) |
| Permit Specialist | Rick Scarper (10) |
| Surveyor | Robert Sawyer, PE, LS (10) |
| Utilities Engineer | Issam "Sam" Baraki, PE (10) |
| Site Designer | Jenna Sollner, PE (10) |
| Landscape Design | Kevin Sullivan, VCN (10) |

**ATCS**

*Transportation, Roadways, Traffic, Signalization*

| | |
|---|---|
| Lead Roadway Engineer | Kevin Siegel, PE (4) |
| Lead Traffic Engineer | Warren Hughes, PE (5) |
| Traffic Engineer | Nick Karsko, PE (5) |
| Roadway Engineer | Thomas Fleming, PE (5) |
| Transportation Engineer | Young Kim, PE (5) |

**ETS**

*Geotechnical and Materials Engineering*

| | |
|---|---|
| Principal Engineer | Charlie Nabhan, PE (7) |
| Field Operations | George Hicks, III (7) |
| Geotechnical Engineer | Raju Acharya, PhD, PE (7) |

**Pace Collaborative** Mechanical Electrical Engineers

*Electrical, Lighting, Photometric, Mechanical Building Information Modeling (BIM)*

| | |
|---|---|
| Principal Electrical Engr. | James Bedois, PE, LEED AP (8) |
| Mechanical Engineer | Brian Wall, PE, LEED AP (8) |

| | Office Location Key | |
|---|---|---|
| | Lead Office For This Contract | Supporting Offices |
| GKY | Newport News (1) | Chantilly (2), Richmond (3) |
| ATCS | Newport News (4) | Herndon (5), Richmond (6) |
| ETS | Virginia Beach (7) | |
| PACE | Virginia Beach (8) | Richmond (9) |
| SIA | Chesapeake (10) | |

GKY &Associates,inc.

# 6. Resumes of Key Personnel

# JOHN N. PAINE, PE, PH, CFM

## Program Manager – GKY & Associates, Inc.

**Education:** ME/Civil Engineering/Old Dominion University/1986
BBA/Business Administration/College of William & Mary/1980

**Registration:** Professional Engineer: Virginia, Georgia, Maryland, North Carolina, South Carolina
Professional Hydrologist: American Institute of Hydrology (AIH)
Certified Floodplain Manager: Association of State Floodplain Managers (ASFPM)

**Years of Experience:** 33

John Paine has 33 years of experience in stormwater management, modeling, drainage design, NPDES and VPDES permitting, stormwater master planning, Chesapeake Bay Watershed modeling, hydrology, hydraulics, GIS, floodplain modeling, and environmental permitting. His experience includes creating web-based systems for Virginia MS4 municipalities to manage permit data and fulfilling reporting requirements for both stormwater permit and sanitary sewer consent order compliance. He has managed hundreds of on-call stormwater management assignments for public sector clients. Mr. Paine has published many technical papers and reports, including conference presentations, funded research foundation studies, an engineering journal article, and contributions to three McGraw-Hill textbooks: *Handbook of Hydraulics* (7th Ed.), *Stormwater Collection Systems Design Handbook*, and *Urban Stormwater Management Tools*.

Annual Services Contracts for Civil Engineering, Chesapeake, VA – Mr. Paine served as a project manager for two consecutive on-call contracts. Assignments ranged from stormwater master drainage plans covering more than 150 square miles, to outfall designs (some involving RR crossings), and BMP retrofits for water quality purposes. Several tasks were completed using funding from USACE along with local funding. Preparation of a Phase II Watershed Implementation Plan required by the Chesapeake Bay TMDL was completed using the "BMP Evaluation and Siting Tool" (BEST), which resulted in identification of a $35M compliance program. Unique experience with the Chesapeake Bay Watershed Model (CBWM) provided a solid background that was useful in proposing significant corrections for deficiencies/errors in TMDL modeling data used by EPA.

IDIQ Contracts for Professional Services, US Army Corps of Engineers, Norfolk District – Mr. Paine served as a Delivery Order manager for multiple stormwater-related assignments under repeat IDIQ contracts using the Section 22 funding program. Tasks included providing Chesapeake Bay TMDL Support Services (development of a Phase II Watershed Implementation Plan); multiple watershed master plans for Chesapeake, Charlottesville, and Newport News; water balances and ecosystem and habitat restoration for the Dismal Swamp; stormwater master drainage plan development for the Cities of Charlottesville and Chesapeake; creation of an environmental database to track outfalls and BMPS for Charlottesville; and a study with laboratory analysis of 480 agronomic samples to support a petition to regulatory authorities to use Phragmites harvesting for Chesapeake Bay TMDL pollutant removal credit.

Annual Services Contracts for Stormwater, Newport News, VA – Mr. Paine has served as a program manager for five on-call contracts. Services provided include: drainage design and outfall improvement projects, SWMM modeling assignments, FEMA flood insurance studies, roadway drainage and BMP designs, watershed and stormwater management studies, public involvement processes, culvert and drainage inventory surveying, expert witness services, Joint Permit Applications, preparation of a Phase II Watershed Implementation Plan, compiling BMP inventory data to satisfy DEQ grant requirements, geotechnical analyses, and the design of a multi-level regional water quality and flood control BMP.

Annual Services Contracts, City of Hampton, VA – Mr. Paine has served as a program and project manager for three on-call contracts. Projects involved hydrologic, hydraulic, waterway, and stormwater management studies and designs. Many of these assignments involved SWMM modeling for flood control improvements and the identification of water quality and BMP retrofits.

Annual Services Contracts, City of Virginia Beach, VA – Mr. Paine has served as a project manager or task order manager for a wide variety of assignments over five contract periods. Assignments included: updating SWMM models (for specific watersheds and for the entire city), conducting field studies and preparing petitions to regulatory agencies in support of the City's efforts to use innovative BMPs to meet Chesapeake Bay TMDL discharge requirements, evaluating the effects of different boundary conditions in the Stumpy Lake Watershed on the Lynnhaven XI roadway improvement project, reviewing scour computations of the Lesner Bridge, SWMM modeling of proposed roadway improvements for South Rosemont Road, sizing culverts for an extension of Nimmo Parkway, developing the Stormwater Information Program (SWIP) website, and developing a GIS-based tool to assist the City's efforts to report BMP inspections within impaired waters for MS4 permit compliance.

# STUART M. STEIN, PE, D.WRE

## Program Principal – GKY & Associates, Inc.

Education: MS/Civil Engineering/Catholic University/1991
BS/Civil Engineering/Johns Hopkins University/1984

Registration: Professional Engineer – Virginia, West Virginia, Ohio, New York, and Florida

Years of Experience: 33

Stuart Stein is President of GKY. He has extensive water resources modeling experience, having modeled hydrodynamics and water quality in waterbodies throughout the United States (including Puget Sound, San Francisco Bay, Pearl Harbor, the Potomac River, the Mississippi River, the St. Johns River, and many others) and served as Principal Investigator at the FHWA Hydraulics Research Laboratory, developing and applying 1-, 2-, and 3-dimensional hydrodynamic, hydraulic, and sediment transport models.

His professional experience encompasses a broad array of water resources programming for municipal, state, and federal clients across the U.S. He has managed several projects assisting municipal clients with NPDES MS4 program development and implementation, including infrastructure design and stormwater program financing. He has direct experience in providing both stormwater expert testimony assistance and assistance with U.S. EPA audits of MS4 programs. In addition, Mr. Stein has a national reputation in stormwater management and hydrology and hydraulics. He has authored national publications on SWM and BMPs, urban TMDLs, and other water resources topics and teaches a one-day stormwater BMP class every year at StormCon.

Stormwater Engineering Services, Loudoun County, VA – Principal-in-Charge. Mr. Stein currently serves as Principal-in-Charge on GKY's Loudoun County Stormwater Management Engineering Services contract and has been working with Loudoun County on its stormwater management program for over 20 years. Over the years, he has managed or served in a lead technical role on a number of task assignments designed to support the County's stormwater management program, specifically: overseeing numerous stormwater infrastructure design tasks including dam retrofits, drainage designs, BMP designs, and storm sewer designs; hydraulic modeling using xpswmm; developing SWPPPs for several County industrial facilities; developing the County's initial IDD protocols and assisting in training County staff; and developing the County's initial stormwater BMP inspection protocols and leading inspections of hundreds of County SWM and BMP facilities. Additionally, Mr. Stein assisted in the development of action plans for two TMDLs.

Stormwater Engineering Services, City of Falls Church, VA – Project Manager. Mr. Stein currently serves as GKY's Project Manager for the City of Falls Church Stormwater Management Engineering Services contract. He has managed or served in a lead technical role on a number of task assignments designed to support the City's stormwater management program, specifically: development of SOPs for several City activities (e.g., landscaping, vehicle washing, vehicle refueling, etc.) to prevent stormwater pollution; development and implementation of IDDE procedures; development and implementation of SWM and BMP facility inspection procedures; development of a SWPPP and training program for two high priority municipal facilities; sanitary sewer modeling and design to reduce overflows; updates to the MS4 program plan; and other permitting assistance. He has overseen the design of several drainage improvements in the City, including detailed hydraulic modeling (xpswmm) of sewer networks and design of retrofits involving pipe replacement, additional pipes, and storage retrofits to alleviate flooding.

Stormwater Engineering Services, Fairfax County, VA – Principal-in-Charge. Mr. Stein is the Principal-in-Charge for the County's Stormwater Maintenance Assessment project, which directly supports the infrastructure maintenance component of Fairfax County's Phase I MS4 permit. Mr. Stein has been actively involved in this program over the past ten years, providing leadership on the following tasks: County staff training on MS4 regulatory requirements and County SWM and BMP inspection protocols; design of stormwater management and stormwater BMP retrofits for previously developed, untreated sites, including low impact design; developing protocols for inspection of County and privately owned stormwater infrastructure; quality control of stormwater infrastructure inspection procedures; on-site assistance during EPA's audit of Fairfax County's MS4 program; and expert testimony on behalf of Fairfax County at a Virginia Occupational Safety and Health hearing.

# BRETT L. MARTIN, PE

## QA/QC Officer – GKY & Associates, Inc.

Education: BS/Civil Engineering/Pennsylvania State University/1994

Registration: Professional Engineer: Virginia

Years of Experience: 23

Brett Martin's expertise is in the areas of watershed modeling, hydrology, hydraulics, stormwater management design, dam safety permitting, floodplain studies, infrastructure design, and computer programming. He has extensive experience with stormwater studies and designs using xpswmm. He is proficient with the Virginia Impounding Structure Regulations and FEMA's National Flood Insurance Program. Mr. Martin has established working relationships and rapport with Federal and State regulators, with whom he interacts informally to clarify the intent and definition of the regulations on behalf of clients without compromising client objectives.

He provides hands-on oversight for GKY's design services, and provides effective supervision and control of final civil engineering products. He has two decades of experience working with municipal and federal clients on modeling and design projects, including: Loudoun County, Fairfax County, Stafford County, City of Winchester, City of Falls Church, City of Fredericksburg, FEMA, USACE, the Federal Highway Administration, and the National Highway Institute. Mr. Martin also leads GKY's dam safety and dredging services for local municipal and private clients.

City of Fredericksburg Stormwater Management Study, VA – Lead modeler to simulate hydrology and hydraulics for the storm sewer system within Kenmore Watershed. Mr. Martin applied xpswmm to simulate the system response (hydraulic gradeline, magnitude and duration of flooding) to various rainfall events under current conditions. He also modeled the benefits of various system improvements to mitigate the flooding.

City of Falls Church Stormwater Study, VA – Lead modeler for the Tripps Run stormwater study funded by the Baltimore District Corps of Engineers under their Section 22 Program. Mr. Martin reviewed existing data, including City maps, aerial photographs, and previous studies, and developed a detailed xpswmm model of the Tripps Run watershed, most of which is piped through the heart of the City of Falls Church and experiences localized flooding. The xpswmm model includes almost 400 structures and simulates the dynamic system response to design events.

Stormwater Analysis and Design Engineering Services, Loudoun County, VA – Quality Control Officer for several stormwater analysis and design projects for Loudoun County. Projects included detailed hydrologic and hydraulic modeling, storm sewer modeling and analysis using xpswmm, dam spillway analysis, AutoCAD plan development, and ArcGIS mapping services. Specific projects include Sterling Park Dam Spillway hydraulic assessment, Dickenson Avenue storm sewer modeling and design, Discovery Oaks storm sewer analysis and modeling, Thomas Avenue Bridge hydraulic analysis, Waxpool Village Storm Drain Alteration, and Lenah Run Drainage Improvement analysis and design.

Drainage Improvement Design, City of Falls Church, VA – Mr. Martin was the Project Manager for the analysis and design of several drainage improvements in the City of Falls Church. The projects involve detailed hydraulic modeling of storm sewer networks using xpswmm to support retrofit designs for replacement and upgrades to the existing storm sewer system as well as new SWM facilities. Mr. Martin also participated in meetings with the City Manager to discuss City-wide stormwater infrastructure deficiencies and strategize on potential alternatives.

Federal Highway Administration Junction Loss Research – Researched methodologies for determining hydraulic losses of flow through pipe junctions and access holes for the Federal Highway Administration Hydraulics Laboratory. Methodologies from HEC-22, the Federal Highway Administration HYDRA V5.0, and the Federal Highway Administration HYDRA V6.1 were researched to determine the applicability of each methodology.

Federal Highway Administration Culvert Research – Performed hydraulic studies of culverts at the Federal Highway Administration Hydraulics Laboratory using physical modeling techniques. The data collected during physical modeling was used to develop inlet control and outlet control culvert design coefficients, based on HDS-5 design equations, of multiple culvert shapes and inlet configurations. He wrote a FHWA report on computational methods for hydraulic analysis of culverts.

# BRICE R. KUTCH, PE, LEED BD+C

## Design Engineer – GKY & Associates, Inc.

Education: MS/Civil Engineering/Virginia Polytechnic and State University/2009
BS/Civil Engineering/Virginia Polytechnic and State University/2003

Registration: Professional Engineer: Virginia, Maryland, Washington D.C. Years of Experience: 13

Brice Kutch is a Senior Design Engineer for GKY. He has over a decade of extensive design and management experience for projects that have included the following stormwater related elements: detention basins, retrofits of detention basins, replacement/relocation of existing storm sewer infrastructure, bioretention facilities, tree box filters, vegetated swales, constructed wetlands, infiltration trenches, underground detention structures, permeable pavers, stream channel improvements, reforestation areas, and amended soils. His background also includes land development projects in the Northern Virginia region. For all stormwater and land development projects, he was responsible for preparing the civil construction documents, including all required details and computations, as well as processing the plans through jurisdictional approval. Mr. Kutch has also provided construction administration services, including onsite construction observations and oversight for stream restoration and other stormwater retrofit projects.

Annual Services Contracts, Fairfax County, VA Stormwater Planning Division, VA – Program and Project Manager for Fairfax County's Stormwater Planning Division's Watershed Improvement Program for over 30 projects including the design of LID, SWM facility retrofits, and stream restoration projects. Mr. Kutch was responsible for project scoping, design, and construction monitoring of over a dozen extended detention dry pond retrofit projects, including micro-pools, constructed wetlands, native landscaping, and riser control structure replacement. He managed the design of permeable pavement parking lots, bioretention facilities, and numerous other stormwater projects. In addition to the design responsibilities, Mr. Kutch was also responsible for making site visits to document construction activities, monitoring progress, ensuring projects were being built per the design plans, and coordinating with the general contractor to resolve any issues encountered during construction.

Newington Solid Waste Vehicle Facility Low Impact Development Design, Newington, VA – Serves as the Task Manager and Senior Designer for engineering design related projects for the Fairfax County MSMD. Mr. Kutch recently completed a conceptual plan and final design plans for a retrofit project at the Newington Solid Waste facility in Fairfax County. The conceptual plan identified a menu list of potential BMP retrofits, as well as their constraints, preliminary water quality benefits, and preliminary construction cost estimates. Then, in coordination with County staff, the menu list was reduced to only a few BMP facilities, which were selected for additional sizing/design, and a more refined construction cost estimate. He completed the final engineering design plans for a Level 1 bioretention facility, a Level 1 underground sand filter, and hydrocarbon storm drain inlet filter inserts. The design plans included all construction details and specifications, E&SC plans, traffic control plans, water quality computations utilizing the Virginia Runoff Reduction Method spreadsheet, and the pertinent hydrologic and hydraulic engineering computations. He provided construction administration services for this project during the construction phase, which was completed in summer 2015.

Annual Services Contracts, City of Falls Church, VA – Managing the design of several drainage improvements in the City of Falls Church. Mr. Kutch coordinated collection of survey and utility information and performed detailed hydraulic modeling of storm sewer networks utilizing xpswmm. He designed several retrofits, including storm sewer pipe replacement of undersized and damaged pipes, additions to the pipe network, and storage retrofits to alleviate frequent localized flooding in this highly urbanized area.

Pipken Stream Bank Restoration, Loudoun County, VA – Mr. Kutch supervised the design of one mile of stream improvements, which included J-hook and cross vane imbricated rock structures, root wad installation, proposed grading to create bank full benches, and riparian reforestation. The plan included hydrologic analyses of the approximately 8,800-acre drainage area to determine the 1, 2, 10, and 100-year peak flow rates to aid in the proposed stream bank design.

# CHRISTINA M. ARLLEN, PE, LEED AP

## Design Engineer – GKY & Associates, Inc.

**Education:** BS/Civil Engineering/University of Virginia/2008

**Registration:** Professional Engineer: Virginia
Stormwater Management Inspector: Virginia
Designated Plans Examiner: Fairfax County, VA
LEED Accredited Professional

**Years of Experience:** 8

Christina Arllen has eight years of experience in civil engineering in Virginia, serving as a project manager and design engineer for a variety of public, commercial, and residential improvement projects in both the private and public sectors. Her design experience encompasses stormwater management and best management practices including traditional and low impact development, storm drain system modeling, water supply system modeling, site and road design, utility design, topography and grading, erosion and sediment control design, and construction administration support.

Enhanced SWM for Select Redevelopment, City of Falls Church, VA – Ms. Arllen served as a Design Engineer for this task under the Annual Services Contracts for the City of Falls Church. xpswmm models were prepared in order to evaluate existing system adequacy and potential system improvements. Two drainage areas, totaling approximately 135 acres, with existing storm networks and localized flooding, were modeled. She created scenarios for targeted runoff depth reductions for various design storms and analyzed the results for the areas of existing localized flooding. Results and analysis were provided to the City for its consideration when developing stormwater management standards for redevelopment in these drainage areas.

Fairfax Rod & Gun Club Dredging Support Services, Prince William County, VA – Ms. Arllen served as Design Engineer for the dredging support services provided for this privately-owned club. Phased plans included erosion and sediment control, lead reclamation, preparation of the disposal site, lake dredging, and disposal of the dredged sediment. During construction, she processed plan and permit updates through Prince William County for field changes requiring County approval, and provided construction administration and on-site observation services to the client. This project also required bathymetric surveys for Planning, Before Dredge, and After Dredge scenarios. She modeled the lake bottom TIN surface based on each bathymetric survey and provided volumetric analyses for the sediment removal.

Fairfax County Stormwater Management Facility Maintenance Assessment, Fairfax County, VA – Ms. Arllen serves as design engineer for stormwater assessment under the annual services contract. Tasks include development of retrofit designs to improve drainage functionality and increase water quality, as well as preparation of cost estimates for stormwater solutions. She designed retrofit solutions for three (3) sites in the county to address existing drainage problems. The solutions include design of a new swale and trench drain conveyance system, grass channel, forebay for debris collection, and trench drains with underground gravel storage. Ms. Arllen also prepared recommendations and budget-level cost estimates for facility-specific alternatives to prevent potential polluted stormwater runoff from each of three (3) Fairfax County Maintenance Facilities. These alternatives were developed to address recommendations and best management practices (BMPs) identified by GKY in HP-SWPPPs for the County to comply with their new MS4 permit. Alternatives were provided for aggregate containment, equipment washing facilities, and drainage improvements. Multiple options were included to accommodate cost, maintenance requirements, and effectiveness of implementation.

Professional Engineering Services for Stream Assessment and Recommended BMPs, Roanoke County, VA – Ms. Arllen serves as design engineer under this annual services contract. GKY evaluated ten (10) sites in the County and prepared conceptual BMP retrofit plans to improve sediment removal. She evaluated the BMP retrofit plans for sediment removal rates, and provided design and construction cost estimates for each facility.

# SUZANNE L. ANGELO, PE

## Engineer, Modeler – GKY & Associates, Inc.

Education: MS/Environmental Engineering/Virginia Polytechnic and State University/2006
BS/Civil Engineering/Virginia Polytechnic and State University/2003

Registration: Professional Engineer: Virginia Years of Experience: 12

Suzanne Angelo works as an environmental engineer with GKY and Associates, Inc. She has 10 years of work experience in the areas of water resources, hydrology, hydraulics, and water quality, working on computer modeling and data analysis. She is proficient in several software packages, including EPA-SWMM, HEC-HMS, STELLA, ArcGIS (including arcpy and ModelBuilder), ArcPad, AutoCAD Land Development Desktop, Microsoft Access, Visual Basic for Applications, and Python.

Fairfax County Watershed Program Support Services, Fairfax County, VA – As part of a countywide watershed planning effort, Ms. Angelo created EPA SWMM models for evaluating runoff quantities from four watersheds within Fairfax County, taking into account stormwater BMPs present in each sub-watershed. The models included simulated reservoirs to predict the combined impact of the stormwater and BMP facilities found in each sub-watershed. Extensive GIS work was required to prepare the necessary watershed data, including land use data and updated watershed boundaries, in addition to the model work in EPA SWMM.

Falls Church Sanitary Sewer Model Update, City of Falls Church, VA – Updating the previous sanitary sewer model for the City of Falls Church to incorporate the most recent sewer survey data. Innovyze H2OMap was used for this modelling work. Ms. Angelo compared previous model data to known survey data in GIS and spreadsheets, updating the model data to use the most reasonable compilation of all available data. Several scenarios for sewer upgrades are planned, and the next step will be to use the model to compare the impacts of each upgrade scenario on potential sewer overflows.

Big Sandy River Reservoir Operations, Huntington District Corps of Engineers – Ms. Angelo developed a STELLA model for the Huntington District Corps of Engineers which simulates water supply, flood control, and other allocated and potential uses for this five-reservoir system. The model has a graphical user interface which allows the Corps to evaluate alternative operations and communicate results to various stakeholders. The model includes a dynamically linked Excel file that computes storage allocations and automatically generates report graphics. The model automates the calculation of storage allocation for a user-specified demand.

Optimization of Muskingum River Basin Operations, Huntington District Corps of Engineers – Ms. Angelo assisted in the development and results analysis of a STELLA model for the Huntington District Corps of Engineers which simulates water supply, flood control, and other allocated and potential uses for this 16 reservoir system. The model has a graphical user interface which allows the Corps to evaluate alternative operations and communicate results to various stakeholders. The model includes a dynamically linked Excel file that computes storage allocations for a user-defined water supply demand and automatically generates report graphics.

Fairfax County SWM Facilities Maintenance Assessment, Fairfax County, VA – For several years Ms. Angelo has guided GKY's stormwater and BMP facility inspection work for Fairfax County, ensuring that pre-assessment research materials are complete and accurate, tracking which inspections have been completed and what their results were, accurately communicating those results to the owners of the county's privately-maintained facilities, and dealing with follow-up communication to and from the owners. Over time, she has developed a number of applications to make this work more efficient, automating repetitive processes wherever feasible. She has adapted the current paper inspection procedure to be done electronically using handheld field computers, and updated the County's inspection forms to account for current and future facility design changes. She has also compiled materials for annual inspection training sessions and for written standard operating procedures for both the pre-inspection and inspection phases of this work.

# ANDREW P. SARCINELLO, EIT

## Engineer, Modeler – GKY & Associates, Inc.

Education: BS/Civil Engineering/Pennsylvania State University/2014

Registration: Engineer in Training, Pennsylvania Years of Experience: 3

Andrew Sarcinello has two years of engineering experience for projects involving hydrologic and hydraulic modeling, SWM and BMP facility design, inspection of SWM and BMP facilities, development of dam operations and maintenance certificates, and inundation zone mapping. He has BMP and SWM facility design experience with gravel infiltration trenches, bioretention facilities, dry ponds, permeable pavement, grass channels, and dry swales. He has also performed field inspections of all types of BMP and SWM facilities within Fairfax and Loudoun Counties in support of their respective stormwater maintenance programs. Mr. Sarcinello developed operations and maintenance certificates for state-regulated dams owned by Fairfax County, and has performed hydrologic and hydraulic modeling studies for privately-owned dams in Virginia that are regulated under Virginia DCR dam safety regulations. Through these studies, he has gained experience with industry-standard modeling software, and has used GIS to perform inundation zone mapping to support the development of emergency action plans as part of the dam recertification process.

Huntington U.S. Army Corps of Engineers Water Resources Engineering, U.S. Army Corps of Engineers, Huntington District, Huntington, WV – Mr. Sarcinello performed hydraulic modeling and inundation mapping to study the reduction in flooding potential as a result of a USACE stream channelization project along 3,600 linear feet of Island Creek within the town of Logan, West Virginia. The study was conducted in support of a FEMA floodplain map revision (LOMR) and required the use of HEC-RAS, HEC-GeoRAS, and ESRI ArcMap.

John Rucker Lake VA DCR Recertification and Dam Alteration Plans, Charlottesville Land Development Group, Ruckersville, VA – As a design engineer, Mr. Sarcinello performed a hydrologic and hydraulic study and inundation mapping to support the recertification of a state-regulated dam in Greene County, Virginia. As part of the hazard class determination, he performed an incremental damage assessment to evaluate the impact of a dam failure on downstream roadways and houses. Mr. Sarcinello developed an Emergency Action Plan in addition to an Operations and Maintenance Plan as part of the recertification package. Additionally, Mr. Sarcinello designed a riser structure to replace the existing structure as part of the dam alteration plans. The study and riser design required the use of HEC-HMS, HEC-RAS, HEC-GeoRAS, ESRI ArcMap, and Bentley PondPack.

Design of SWM and BMP Facilities for Maintenance and Stormwater Management Division, Fairfax County Maintenance and Stormwater Management Division, Fairfax County, VA – Mr. Sarcinello served as a design engineer for the construction plans of multiple SWM and BMP facilities located on Fairfax County property, including plans for a grass channel design and a gravel infiltration trench replacement and enhancement project. The grass channel was designed to alleviate ponding water issues at a fire and rescue station, and BMP Clearinghouse design specifications were followed. The gravel infiltration trench replacement and enhancement plans consisted of replacing and modifying an existing, non-functional facility along a private roadway to reduce flooding of adjacent townhomes. Mr. Sarcinello designed concrete V-ditches across the roadway to direct more runoff into the trench, which was previously not being captured before reaching the private residences. The redesign also provided for easier maintenance and sediment removal.

Stormwater Management Facility Maintenance Assessment and Ancillary Services, Fairfax County Maintenance and Stormwater Management Division, Fairfax County, VA – Mr. Sarcinello is currently serving as a VA DEQ Certified Stormwater Inspector for Fairfax County's Maintenance and Stormwater Management Division. Facility types commonly inspected include dry and wet ponds, underground detention chambers, sand filters, bioretention facilities, rooftop detention facilities, gravel infiltration trenches, and manufactured (proprietary) BMPs. Mr. Sarcinello created inspection reports noting ongoing maintenance issues or differences between conditions observed at the facility and the conditions shown on the approved facility design plans. The inspection reports assist the County in managing an inventory consisting of over 9,000 SWM and BMP facilities.

# J. DOUGLAS FRITZ, CPESC

## Regulatory Specialist – GKY & Associates, Inc.

Education: MS/Biology (Fisheries/Aquatic Resources)/Tennessee Technological University/1993
BS/Biology (Environmental)/Millersville University of Pennsylvania/1990

Registration: Certified Professional in Erosion and Sediment Control
DEQ Combined Administrator - Erosion and Sediment Control
DEQ Stormwater Inspector

Years of Experience: 23

J. Douglas Fritz provides senior technical assistance regarding MS4 compliance to GKY's municipal stormwater clients. Prior to joining GKY, he spent nine years as the Commonwealth of Virginia's Stormwater Permits Manager. In this capacity, Mr. Fritz served as the State's technical expert on various regulatory advisory panels including those for the development of the Commonwealth's post-development stormwater requirements; the Virginia General Permit for Discharges of Stormwater from Small MS4s; and the Virginia General Permit for Stormwater Discharges from Construction Activities. As part of these responsibilities, Mr. Fritz also played a key role in development of the Commonwealth's MS4 Chesapeake Bay TMDL compliance requirements.

Professional Consulting Services, City of Newport News, VA – Project Manager. Mr. Fritz led GKY's efforts in assisting the City of Newport News litigation and other consulting services regarding the renewal of the City's individual MS4 permit. These efforts included comparative review of the draft MS4 permit against the progressive generations of MS4 Phase I permits issued by DEQ. GKY also provided the City an evaluation of potential MS4 permit conditions that could be problematic for the City to attain compliance, concentrating especially on those proposed permit conditions influenced by the Environmental Protection Agency.

Professional Stormwater Engineering Services, City of Fredericksburg, VA – Project Manager. Mr. Fritz led GKY's efforts in assisting the City of Fredericksburg with development of its DEQ-approved Chesapeake Bay TMDL Action Plan. He and GKY staff developed the 'means and methods' necessary for the City to meet its required Chesapeake Bay pollutant reductions. Additionally, the Action Plan included a methodology for tracking and documenting Action Plan implementation of the identified 'means and methods' so as to document MS4 General Permit compliance. He also developed an educational presentation for City staff to provide to elected officials and the general public.

GKY also assisted the City with a May 2015 DEQ MS4 audit by preparing for the audit, providing on-site consulting services during the audit, and assisting with the City's follow-up response.

Engineering Services for the Loudoun County Stormwater Management Program, Loudoun County, VA – Senior Water Resources Planner. Mr. Fritz led GKY's technical assistance efforts in the development of Loudoun County's DEQ-approved Chesapeake Bay TMDL Action Plan. Using DEQ's 15-2005 Guidance, Mr. Fritz and GKY staff developed the 'means and methods' necessary for the County to meet the required Chesapeake Bay pollutant reductions.

Mr. Fritz also led GKY's efforts in assisting the County in development of a comprehensive TMDL Action Plan designed to address multiple POCs identified in three TMDLs in two watersheds. The comprehensive TMDL Action Plan included estimates of current POC discharges as a point of comparison with the individual TMDL estimated discharges. The comprehensive TMDL Action Plan also included mechanisms to determine the effectiveness of the County's programs in meeting schedules and future milestones.

Professional Stormwater Engineering Services, Stafford County, VA – Project Manager. Mr. Fritz is GKY's Project Manager for its Professional Stormwater Engineering Services contract with Stafford County. As Project Manager, Mr. Fritz has managed the successful completion of task orders designed to ensure Stafford County compliance with the MS4 General Permit including development of an IDD procedures manual and an updated stormwater management design manual. In addition, Mr. Fritz led a GKY MS4 Compliance Evaluation. This evaluation provided identification of required updates to the County's MS4 Program Plan in order to maintain compliance with the reissued MS4 General Permit. As part of this evaluation, GKY developed a compliance schedule for the City in which permit conditions and their associated compliance deadlines were identified.

# DOUGLAS H. MOSELEY III, AICP, CFM

## Water Resources Planner – GKY & Associates, Inc.

Education: MP/Urban & Environmental Planning/University of Virginia/1996
BA/American Government/University of Virginia/1993

Registration: Certified Planner, American Institute of Certified Planners (AICP) Years of Experience: 18
Certified Floodplain Manager, Association of State Floodplain Managers (CFM)
Certified Instructor, Water Quality Management, National Highway Institute
Stormwater Management Inspector (Provisional), Virginia DEQ

Douglas Moseley has over 18 years of professional experience, encompassing a broad array of water resources programming for municipal, state, and federal clients across the U.S. Mr. Moseley specializes in water resources program development and implementation for both water quality and quantity concerns. He has managed numerous projects assisting municipal clients with MS4 program development and implementation, including TMDL planning. Mr. Moseley also provides clients experience with public meeting and advisory committee facilitation, water resource ordinance development, and holistic watershed management planning services. Additionally, Mr. Moseley provides expertise assisting municipal, state, and federal clients with floodplain management and flood mitigation plan and program development, including NFIP compliance.

Stormwater Management Facilities Maintenance Assessment and Ancillary Services, Fairfax County, VA – Project Manager responsible for over 100 task orders delivered over multiple contract award cycles over a 10-year period. Task order project work to support the County's MS4 Phase I permit compliance has included assessment and reporting for publicly and privately maintained SWM/BMP facilities; facility research and documentation acquisition; on-site engineering support services at a staff and senior level; SOP development for identification of regulated stormwater outfalls; regulated MS4 outfall delineation; design of stormwater management and stormwater BMP retrofits for previously developed, untreated sites, including LID design; dam safety program assistance, including PE-stamped dam inspections for publicly owned/maintained regulated dams; and additional MS4 permit interpretation and assistance, including recognition of high-priority municipal facilities for stormwater pollution prevention planning needs; development of SWPPPs and the associated staff training modules; and training program development and delivery for County and consulting team SWM/BMP inspectors. Mr. Moseley is currently serving as the technical lead for two County facility conversion programs.

Stormwater Engineering Services, Loudoun County, VA – Project Manager working with Loudoun County on its stormwater management program, without interruption, since 2002. He has managed or served in a lead technical role on over 60 assignments supporting the County's stormwater management program, including MS4 Program Plan development and refinement, including BMP creation, documentation, and scheduling; development and updates to the County's IDD protocols; SWM and BMP facility inspection, including bond release inspections; illicit discharge land use evaluations, source reconnaissance, dry weather field screening; and stormwater BMP inspector training. Most recently, GKY developed Loudoun's TMDL Action Plans for the Chesapeake Bay as well as local waters, with the County's Chesapeake Bay TMDL Action Plan recently approved by Virginia DEQ.

MS4 Permit Compliance and Implementation, City of Falls Church, VA – Project Manager for the development of the City's interim MS4 Permit Strategy and Registration Statement between permit cycles. Mr. Moseley reviewed the City's MS4 Program and annual reports filed with DCR; prepared a detailed compliance gap analysis of the City's MS4 Program in relation to the MS4 permit requirements; documented proposed revisions to the City's MS4 Program including recommendations for new/revised BMPs, measurable goals, milestones, timelines, and schedules for BMP implementation; and facilitated strategy development sessions with City staff to discuss MS4 Program goals, direction, and funding options. Mr. Moseley also managed SWM and BMP facility inspection training for City E&SC inspection staff and a task to update the City's storm sewer data layers to prioritize system maintenance moving forward.

# MAXWELL KUKER

## MS4 Specialist – GKY & Associates, Inc.

Education: BS/Environmental Studies/Randolph-Macon College/1997

Registration: N/A Years of Experience: 20

Maxwell Kuker is a Water Resources Project Manager for GKY. He has over 18 years of environmental consulting experience in the application and enforcement of the CWA and NPDES regulations. Mr. Kuker has a background in the development and oversight of federal, state, and local environmental regulatory programs, with particular emphasis in the NPDES program. Mr. Kuker has specialized in managing a variety of NPDES-related projects primarily related to stormwater and wastewater. He has conducted numerous evaluations of Phase I and Phase II MS4 programs throughout the U.S. in support of the U.S. EPA, including five MS4 programs in the Commonwealth of Virginia. Mr. Kuker has also participated in the development of MS4 training program materials, and served as project manager and lead instructor for training workshops to educate private sector, federal, and state inspectors on proper construction, industrial, and MS4 audit and inspection topics and protocols.

Stormwater Engineering Services, Loudoun County, VA – Deputy Project Manager. Mr. Kuker currently serves as the Deputy Project Manager under GKY's Loudoun County Stormwater Management Engineering Services contract. He has managed or served in a lead technical role on a number of task assignments designed to support the County's stormwater management program, specifically: tracking and review of MS4 permit regulations; development of strategies to address permit requirements, including the development of TMDL Action Plans; development of stormwater management program best management practices (including erosion and sediment control during municipal activities); updates to the County's IDDE protocol; piloting of a new, electronic data capture process for SWM/BMP facility inspection services; IDDE land use evaluations, source reconnaissance, and dry weather field screening; and annual report and MS4 Program Plan updates.

U.S. Environmental Protection Agency (EPA) MS4 Inspections, Nationwide – Lead MS4 Inspector. Under contract to the EPA Office of Enforcement (OECA) and EPA Regions 2, 3, 4, 5, 7 and 9, Mr. Kuker served as lead inspector for numerous evaluations of Phase I and Phase II MS4 programs throughout the United States. The program evaluations included an evaluation and programmatic review of the MS4s to determine compliance through program and management staff interviews, record reviews, and in-field verification of how selected elements (e.g., erosion and sediment control, post-construction BMPs, illicit discharges, and municipal facilities) of the program were being implemented. Mr. Kuker conducted 22 Phase I MS4 and 16 Phase II MS4 Inspections in five EPA Regions. He was routinely shadowed by EPA headquarters and regional stormwater compliance staff and maintains positive relationships with many of those EPA staff.

U.S. EPA MS4 Inspector Training, Nationwide – Project Manager and Lead Instructor. In support of EPA's Municipal Infrastructure National Enforcement Initiative and under contract to U.S. EPA's Office of Compliance, Mr. Kuker served as project manager and lead instructor for a multi-day training webinar and a multi-day live training to educate federal and state inspectors on proper MS4 audit and inspection protocols and techniques. Mr. Kuker's responsibilities included overseeing and participating in the updating of existing MS4 training materials, the coordination of multiple presenters from EPA Headquarters, multiple EPA regions and company staff. In addition, Mr. Kuker led several of the technical training presentations.

MS4 Audit Support, City of Fredericksburg, VA – MS4 Consultant. Mr. Kuker supported the City of Fredericksburg during a DEQ audit of its MS4 Program. Mr. Kuker assisted the City with audit planning support to educate City staff on potential audit topics, how to respond to DEQ questions, and conducted pre-audit site visits to identify potential issues at the audited sites. Mr. Kuker also participated in the audit to assist in answering DEQ questions and documenting audit activities. He was responsible for preparing a summary of the audit activities.

SWPPP Development and Training, Multiple Jurisdictions, VA – SWPPP Developer. Under contract to several Virginia municipalities, he developed SWPPPs and training programs for numerous facilities regulated under VPDES General Permit for discharges of stormwater associated with industrial activities and high priority municipal facilities regulated under the Phase I and II MS4 Permits. To complete the development of site specific SWPPPs, Mr. Kuker was responsible for conducting site visits to interview staff, documenting existing conditions and BMPs, and recommending new or upgraded BMPs to reduce or eliminate the discharge of pollutants.

# JASON W. GEORGE, CFM

## GIS Specialist – GKY & Associates, Inc.

Education: BS/Geoenvironmental Studies/Shippensburg University of Pennsylvania/2008

Registration: ASFPM Certified Floodplain Manager (#US-10-05048)
VA DEQ Certified Dual E&S and SWM Inspector (#DIN0157)

Years of Experience: 8

Jason George is a geographer and field services team lead for GKY specializing in GIS database management, GIS desktop analysis, and conducting field inspections of stormwater management and best management practice facilities. He has assisted in the implementation of GPS units (Trimble Yuma tablets), utilizing ArcPad, that allow data to be accurately and efficiently collected in the field. His professional experience includes: GIS mapping assistance to Federal and Municipal clients, including FEMA as part of their flood map modification efforts; the Cities of Falls Church and Winchester; and the Counties of Loudoun, Fairfax, and Stafford.

Stormwater Management Facility Maintenance Assessment, Fairfax County, VA – Mr. George provides GIS desktop analysis services to Loudoun County to assist in the implementation of the Loudoun County IDDE Procedure. Utilizing the County's existing GIS data, he has delineated drainage areas for more than 2,000 MS4 outfalls and 600 SWM facilities. In addition, Mr. George has conducted a land use evaluation of parcels within each outfall's drainage area to identify the outfalls that may be more susceptible to illicit discharges. He manages GKY's source reconnaissance and dry weather screening assessments. He routinely performs bond release and maintenance inspections of SWM facilities, develops inspection reports, and performs quality assurance of inspection reports. He also assists in the annual delivery of a SWM facility inspector training program for Loudoun County staff on the basic protocols of SWM facility inspections.

Stormwater General Engineering Services, City of Falls Church, VA – Mr. George leads GKY's field preparation efforts for the City's IDDE dry weather screening activities for the City. His contributions include the creation of digital forms used to collect outfall data during dry weather screening assessment, providing GIS desktop analysis, assistance with the City's MS4 Outfall Verification program, and identifying stormwater outfalls.

Stormwater Engineering Services, Loudoun County, VA – Mr. George provides GIS desktop analysis services to Loudoun County to assist in the implementation of the Loudoun County IDDE Procedure. Utilizing the County's existing GIS data, he has delineated drainage areas for more than 2,000 MS4 outfalls and 600 SWM facilities. In addition, Mr. George has conducted a land use evaluation of parcels within each outfall's drainage area to identify the outfalls that may be more susceptible to illicit discharges. He manages GKY's source reconnaissance and dry weather screening assessments. As part of dry weather screening assessments, Mr. George is responsible for associated water quality testing and documentation of findings. He routinely performs bond release and maintenance inspections of SWM facilities, develops inspection reports, and performs quality assurance of inspection reports. He also assists in the annual delivery of a SWM facility inspector training program for Loudoun County staff on the basic protocols of SWM facility inspections.

Professional Engineering Services for Stream Assessment and Recommended BMPs, Roanoke County, VA – Mr. George assisted the County in addressing TMDLs for impaired waterbodies to which the County MS4 discharges and for which the County has been allocated a wasteload. He coordinated with County GIS staff to setup access to County GIS and then developed a protocol to digitally assess impaired waterbodies, concentrating on sediment and bacteria. Mr. George also trained staff to digitally assess 135 miles of impaired streams throughout the County.

Stormwater Management Engineering & Planning Services, Stafford County, VA – Mr. George assisted in efforts to update the County's IDDE procedure. Updates included revisions to outfall selection prioritization, and updating and expanding existing standard operating procedures for dry weather screening activities. He also leads GKY's field preparation efforts for the County's dry weather screening activities. Mr. George was responsible for water quality testing and documenting screening activity findings. Mr. George assisted in efforts to update the County's IDDE program.

# ROBERT B. MILLER, II, SWMI, E&SC

## Field Services – GKY & Associates, Inc.

**Education:** BS/Wildlife and Fisheries Management/West Virginia University/2014

**Registration:** VADEQ Stormwater Management Inspector #SWIN0340 **Years of Experience:** 2.5

Robert Miller is an Environmental Scientist and Field Services Team Leader for GKY. Mr. Miller specializes in conducting field services including IDDE and the inspections of SWM and BMP facilities, and other stormwater infrastructure assessments. Mr. Miller has assisted in the writing of SWPPPs for facilities regulated under the General VPDES Permit for Discharges of Stormwater Associated with Industrial Activities and for high priority municipal facilities with a high potential for discharging pollutants regulated under Fairfax County's Phase I MS4 Permit. Mr. Miller has aided in developing field protocols for the assessment of municipal separate storm sewer system (MS4) outfalls for Loudoun County for potential illicit discharges to the system, including dry weather field screening and Source Reconnaissance. Mr. Miller has also assisted in the SWM and BMP facility inspector training program for that covered the basic protocols of SWM and BMP facility purpose, functionality, and inspection procedures. Mr. Miller also assists with bathymetric surveys, including planning surveys, pre-dredge surveys, and post-dredge surveys. This also entails running software including eChart, hypack, etc. Mr. Miller also offers experience with ArcGIS, Excel, and Microsoft Access.

SWM and BMP Facility Inspection Services, Loudoun County, VA– Mr. Miller provides SWM and BMP facility inspection and reporting services to support Loudoun County's compliance with its MS4 Program Plan. Mr. Miller has routinely performed inspections of SWM and BMP facilities, developed inspection reports, and performed quality assurance/quality control of inspection reports. SWM and BMP facility types inspected include wet ponds, dry ponds, bio-retention facilities, infiltration facilities, underground detention facilities, sand filters, vegetated swales, and constructed wetlands. He also conducts bond release inspections of SWM and BMP facilities on newer development projects in the County.

Outfall Assessment and IDDE Procedure, Loudoun County, VA – Mr. Miller delineated drainage areas for MS4 outfalls and conducted a land use evaluation on the drainage areas to show which outfalls may be more susceptible to illicit discharges. The result of the analysis led to the creation of lists of sites that warrant source reconnaissance and dry weather screening based upon risk of illicit discharge. Mr. Miller has also performed source reconnaissance and dry weather screening assessments. Mr. Miller was responsible for associated water quality testing and documenting findings through photo evidence.

SWPPP Development, Fairfax County, VA – Mr. Miller assisted in the development of SWPPPs for facilities regulated under the General VPDES Permit for Discharges of Stormwater Associated with Industrial Activities and for high priority municipal facilities with a high potential for discharging pollutants regulated under Fairfax County's Phase I MS4 Permit. To complete the development of site specific SWPPPs, Mr. Miller assisted in conducting site visits to interview staff, document existing conditions and BMPs, and recommend BMPs to reduce or eliminate the discharge of pollutants. Mr. Miller was then responsible for creating site visit reports.

SWM and BMP Inspections, Fairfax County, VA – Mr. Miller provides private and public SWM and BMP facility inspection and reporting services to support Fairfax County's compliance with its Phase I MS4 Permit. The inspections are conducted for the County's MSMD to assess facility functionality and efficiency. Mr. Miller also assists in the creation of reports that were submitted to the County. He also supports in the effort for the follow-up process and enforcement of private inspections for the county.

Professional Stormwater Engineering Services, City of Fredericksburg, VA – Mr. Miller is responsible for the accurate and efficient collection, analysis, and organization of field data during the IDDE task. This includes the detection of illicit discharges from high priority outfalls, the collection of water samples of dry weather flows, and the field analysis of water samples.

Bathymetric Surveys, Multiple Locations, VA/MD – Mr. Miller is responsible for conducting planning, pre-dredge and post-dredge bathymetric surveys. This entails the accurate collection of sonar depths to compile the total amount of sediment/debris that need to be removed from the waterbody. Mr. Miller then helps with raw data finalization so dredging operations may begin to restore the waterbody to the original functional depth.

- Pre-dredge bathymetric survey at Fairfax Rod and Gun Club, Manassas, Virginia
- Post-dredge bathymetric survey at Fairfax Rod and Gun Club, Manassas, Virginia
- Planning bathymetric survey at Lake Churchill, Germantown, Maryland
- Pre-dredge bathymetric survey at Aquia Harbour, Stafford, Virginia
- Planning bathymetric survey at Fairfax Station HOA Pond, Fairfax Station, Virginia

# SUSANNA G. ORNDORFF, CNMP, SWMI

## Field Services – GKY & Associates, Inc.

**Education:** BS/Environmental Science/Virginia Polytechnic and State University/2011
MS/Soil & Water Science/University of Florida/2013

**Registration:** DCR Certified Nutrient Management Planner (#0803)
DEQ Stormwater Management Inspector (#0293)

**Years of Experience:** 3.5

Susanna Orndorff is an Environmental Scientist and Field Services Team Leader for GKY. Ms. Orndorff is a DEQ Stormwater Management Inspector and specializes in conducting field services including IDDE and the inspections of SWM and BMP facilities. Ms. Orndorff has a background in nutrient management and is a certified nutrient management planner in the turf and landscape category. Ms. Orndorff has assisted in the writing of SWPPPs for facilities regulated under the General VPDES Permit for Discharges of Stormwater Associated with Industrial Activities and for high priority municipal facilities with a high potential for discharging pollutants regulated under Fairfax County's Phase I MS4 Permit. Ms. Orndorff has aided in the creation of training material for municipalities that include illicit discharge protocols, good housekeeping practices, and parks and ground maintenance guidelines. Ms. Orndorff has also assisted in the SWM and BMP facility inspector training program that covered the basic protocols of SWM and BMP facility purpose, functionality, and inspection procedures. Ms. Orndorff also offers experience with ArcGIS, SPSS and SAS statistical software, and Microsoft Access.

Stormwater Engineering Services, Fairfax County, VA – Ms. Orndorff provides private and public SWM and BMP facility inspection and reporting services to support Fairfax County's compliance with the County's Phase I MS4 Permit. Ms. Orndorff's contributions include the pre-inspection components which include mapping of the facilities using ArcGIS and plan, easement, and bond research. Ms. Orndorff also is responsible for leading field inspection teams, which involve an in-depth visual inspection to determine the efficiency and performance of each facility, and assists in the creation and review of subsequent inspection reports. Ms. Orndorff has also served as a trainer for stormwater inspection services provided to County staff and County consultants.

Stormwater Management Engineering & Planning Services, Stafford County, VA – Ms. Orndorff aided in the creation of an inspection and maintenance SOP for all county-owned or operated post-construction SWM/BMP facilities. This included inspection, maintenance, follow-up, documentation and record-keeping, and safety protocols. To complete the development of this task, Ms. Orndorff assisted in a thorough investigation of the County's MS4 Program Plan and conducted site visits to interview staff and document existing procedures. Ms. Orndorff is also responsible for the accurate and efficient collection, analysis, and organization of field data during the Illicit Discharge Detection and Elimination task.

Professional Engineering Services for Stream Assessment and Recommended BMPS, Roanoke County, VA – Ms. Orndorff assisted in a county-wide stream assessment to support Roanoke County in addressing TDMLs for impaired waterbodies. She performed a desktop analysis of 135 stream miles using ArcGIS to identify potential sources of erosion, sediment, bacteria, and other pollutants. Ms. Orndorff also assisted in stream reconnaissance and field verification of selected sites with severe erosion. These sites were evaluated for their potential restoration opportunities to receive TMDL credit using the Unified Stream Methodology for use in Virginia. Ms. Orndorff has also assisted with the creation of a TMDL Action Plan for PCBs.

Stormwater Management & Engineering Services, City of Fredericksburg, VA – Ms. Orndorff is responsible for the accurate and efficient collection, analysis, and organization of field data during the Illicit Discharge Detection and Elimination task. This includes the detection of illicit discharges from high priority outfalls, the collection of water samples of dry weather flows, and the field analysis of water samples. Ms. Orndorff also assisted the County with a desktop analysis of all possible MS4 outfalls. She delineated drainages areas and performed a field verification of all city-owned outfalls to help the County maintain an accurate outfall inventory.

SWPPP Development, Fairfax County, VA – Ms. Orndorff assisted in the development of SWPPPs for facilities regulated under the General VPDES Permit for Discharges of Stormwater Associated with Industrial Activities and for high priority municipal facilities with a high potential for discharging pollutants regulated under the County's Phase I MS4 Permit. To complete the development of site specific SWPPPs, Ms. Orndorff assisted in conducting site visits to interview staff, document existing conditions and BMPs, and recommend BMPs to reduce or eliminate the discharge of pollutants. Ms. Orndorff was responsible for creating site maps showing site specific locations of potential source control points, stormwater infrastructure, and site surface drainage direction.

# KEVIN SIEGEL, PE
## Lead Roadway Engineer – ATCS, PLC

**Education:** MS/Civil Engineering
BS/Civil Engineering

**Registration:** Professional Engineer: Virginia **Years of Experience:** 15

Mr. Siegel has 15 years of consulting engineering and project management experience in a variety of civil and transportation infrastructure project throughout the Hampton Roads region. His experience includes roadway and trail design, utility design and coordination, streetscaping, bridge inspections, stormwater management, site investigations and studies, construction document preparation, and construction phase services. He has worked on numerous on-call contracts, including for the City of Newport News, Isle of Wight County, James City County, the United State Air Force Headquarters Air Combat Command, and the Jefferson Lab National Accelerator Facility.

Patrick Henry Road Extension, City of Newport News, VA – This project involved the early planning and design phase of a 2400LF extension of Patrick Henry Boulevard to connect from Turnberry Boulevard to the Williamsburg-Newport News International Airport at McManus Drive. The scope included environmental studies, topographic survey, cost estimating, grant application, and engineering design. Mr. Siegel served as the Project Manager on this contract to assist the City in applying for a USEDA Grant, as well as the preparation of the construction documents and a regional stormwater pond study.

Campbell Road Reconstruction, City of Newport News, VA – This project included roadway and infrastructure rehabilitation and improvements to Campbell Road from Bland Boulevard north to Route 60 (approximately 2,800LF). The Campbell Road Reconstruction project was a VDOT Locally Administered Project with State-Aide Revenue Sharing funds. Mr. Siegel served as the Project Manager responsible for overall site investigations, design, and coordination with the City and stakeholders through the 30% design phase.

Virginia Capital Trail (New Market Heights Phase and Varina Phase), Henrico and Charles City Counties, VA – Mr. Siegel was responsible for overall design management and deliverables, as well as coordination with VDOT and the Design-Build Contractor, for the design and construction of these two phases (19 miles) of the VA Capital Trail in Henrico County and Charles City County. Services included professional design and civil engineering, structural engineering, hydraulics and scour analysis, signal design, maintenance of traffic, environmental coordination and permitting, construction administration services, and CSX coordination.

Jefferson Avenue Streetscaping Design and Utility Upgrades Phases I & II, City of Newport News, VA – Mr. Siegel served as Project Manager, providing overall project coordination between the design team, subconsultants, stakeholders, and private utility owners and performing field investigations and civil engineering design. As part of the City of Newport News' effort to revitalize the Southeast Community, Mr. Siegel managed the professional engineering and consulting services for the revitalization of a 24-block corridor on Jefferson Avenue, between 12th and 36th Streets under two separate contracts.

Oyster Point Transportation Public Opportunity Fund (TPOF) Intersection Improvements, City of Newport News, VA – The scope of work included assisting the City of Newport News in preparing the application and supporting documentation for a TPOF grant from the Commonwealth of Virginia. Upon award of the grant from the state, Mr. Siegel oversaw the development of the construction documents for the City of Newport News to execute the intersection and signal improvements selected from the TPOF grant Application. Mr. Siegel served as the Project Manager and Lead Designer for the intersection improvements.

Canon Boulevard Multi-Use Sidewalk, Phases I, II and III, City of Newport News, VA – Mr. Siegel served as the Project Manager responsible for overall project and contract management for the design of this multi-disciplinary project. These projects for the City of Newport News, a continuation of the Oyster Point TPOF Grant, involved the design and preparation of construction drawings for 1.2 miles of multi-use sidewalks through the City Center district of Newport News under three separate tasks. All paths were designed to meet VDOT shared use path guidelines.

# WARREN HUGHES, PE
## Lead Traffic Engineer – ATCS, PLC

**Education:** MS/Civil Engineering
BS/Civil Engineering

**Registration:** Professional Engineer: Virginia

**Years of Experience:** 38

Mr. Hughes has 38 years of diversified experience in transportation planning and traffic engineering, including traffic signal design, traffic signal operations, signal timing optimization, highway safety evaluation, and crash analysis. Mr. Hughes has extensive experience in highway and intersection improvement projects, multimodal corridor studies, highway/interchange/intersection design projects, long range transportation planning studies, sub-area planning studies, highway safety research, traffic signal operations, traffic signal/sign/marking design projects, traffic operational analysis studies, transit studies, freeway and corridor traffic management, and traffic simulation analysis.

Loudoun County, Traffic Engineering On-Call Assistance Contract, Loudoun County, VA – Mr. Hughes oversaw this contract, which consisted of several task orders, including a traffic calming study of Augusta Drive, traffic signal warrant and safety studies for selected intersections near schools in the county, traffic signal modification designs at selected intersections, and studies of pedestrian crossings and paths.

Town of Herndon, On-call Transportation Engineering Contract, Herndon, VA – Mr. Hughes was responsible for the quality and delivery of professional services provided on all task orders, which included the development and implementation of improved coordinated traffic signal timings, intersection and pedestrian crossing design development, and the development of pedestrian signal controls, among others.

Town of Herndon, Traffic Analysis of Alternative Plans for the Downtown Area, Herndon, VA – As a Project Manager, Mr. Hughes was responsible for overseeing the conduct of a traffic analysis of three (3) development scenarios for the downtown core, and assessed the traffic and parking impacts associated with each. Short-term and long-term recommendations were developed. Mr. Hughes presented the results and recommendations to the Town Planning Commission and the Town Council.

VDOT I-66 General Engineering Consultant Contract, Northern Virginia District – Mr. Hughes has lead the analysis of alternative technical concepts for alternative interchanges, alternative access schemes to/from the managed lanes, alternative maintenance of traffic plans, and other alternatives. He has conducted additional traffic, travel time, speed, density and safety assessments in response to requests from VDOT.

VDOT, Statewide Traffic Engineering on-call Contract, VA Statewide – Mr. Hughes was responsible for providing investigative services for this multi-year contract. Mr. Hughes directed, managed, and oversaw a range of task order projects ranging from development of a new state-wide traffic engineering policies to the conduct of road safety audits.

Fairfax County DOT, Soapstone Connector Feasibility Study, Fairfax County, VA – As the Project Manager, Mr. Hughes is responsible for managing the feasibility study of constructing a multimodal connector from Sunrise Valley Drive across the Dulles Toll Road to Sunset Hills Road on a new alignment.

VDOT, Route 50 Traffic Operations Improvement Project, Fairfax and Loudoun Counties, VA – As the Project Manager on this task order project conducted under the VDOT NoVA District on-call contract, Mr. Hughes was responsible for the development and implementation of a new traffic operational scheme that featured lead-lag left turn signal phasing on a 13-mile long corridor of U.S. Route 50 from approximately I-66 to U.S. Route 15.

# NICK KARSKO, PE
## Traffic Engineer – ATCS, PLC

**Education:** BS/Civil Engineering

**Registration:** Professional Engineer: Virginia **Years of Experience:** 11

Mr. Karsko has eleven years of experience in traffic engineering, traffic operations, and safety. He has expertise in traffic signal design, traffic signal operations, signal timing optimization, highway safety evaluation, and crash analysis. Mr. Karsko has experience with intersection improvement projects, conceptual highway/interchange/intersection projects, traffic signal operations, traffic signal/sign/marking design projects, traffic operational analysis studies, and traffic simulation analysis. Mr. Karsko has worked on a wide variety of challenging transportation projects for VDOT, MDSHA, the Metropolitan Washington Airports Authority, and numerous counties, cities, and towns throughout the Commonwealth of Virginia.

Sterling Boulevard Widening and Extension, Loudoun County, VA – As a Traffic Engineer, Mr. Karsko provided traffic operations services and intersection analysis. He analyzed turn lanes and bike lanes for the project which extends westward from the intersection of Pacific Boulevard approximately 3,800 feet and creates a new intersection with Moran Road. The project was designed in accordance with the latest edition of the Countywide Transportation Plan (CTP).

Lafayette Boulevard Traffic Study, City of Fredericksburg, VA – As a Senior Traffic Engineer, Mr. Karsko was responsible for providing engineering oversight into data collection efforts consisting of intersection turning movement counts, travel time runs, and field observations of traffic operations during the AM and PM peak periods. Additionally, he provided engineering oversight into the analysis of existing traffic operations and safety analysis of eight study intersections within the study area. He was responsible for the development of an initial set of intersection and roadway improvements for presentation to FAMPO, the City of Fredericksburg, and VDOT for their consideration in the selection of the final three alternatives to be analyzed in further detail for traffic operations and impacts to right of way and historic properties. He also served as the primary author of the draft and final technical reports which documented the findings of the analysis and final recommendations for roadway, intersection, and bicycle/pedestrian improvements along Lafayette Boulevard.

MDSHA US 29/Stewart Lane Project Impact Report Update, Montgomery County, MD – Mr. Karsko served as a Traffic Engineer responsible for the traffic operations analysis, development of innovative alternatives, and preparation of report documentation for a proposed project to construct dual southbound left turn lanes on US 29 at Stewart Lane, as well as develop and evaluate alternate intersection configurations within the project area.

VDOT SWRO Traffic Engineering On-Call – Mr. Karsko served as a Traffic Engineer responsible for the review of highway speed studies, completion of roadway safety and guardrail evaluation projects, and the completion and review of intersection safety studies throughout Southwestern Virginia.

# THOMAS FLEMING, PE
## Roadway Engineer – ATCS, PLC

**Education:** BS/Civil Engineering

**Registration:** Professional Engineer: Virginia **Years of Experience:** 40

Mr. Fleming has 40 years of engineering design and plan development experience on many types of successful transportation projects. He has in-depth knowledge of project development from planning, budgeting, scheduling, staffing, and plan production to 100% PS&E, permits and complete construction phase services. Mr. Fleming identifies key project issues such as early stage utilities and TMP construction incentives for developing innovative solutions that enhance the project while reducing overall project costs.

Sterling Boulevard Widening and Extension, Loudoun County, VA – Mr. Fleming serves as the Project Manager for a four-lane urban major connector with divided median, associated roundabout design, turn lanes and bike lanes, from the intersection of Pacific Boulevard that extends and creates a new intersection with Moran Road, designed in accordance with the latest edition of the Countywide Transportation Plan (CTP).

Chain Bridge Road & Idylwood Road Bicycle/Pedestrian Improvement, Fairfax, VA – Mr. Fleming served as the Project Manager for this project that provided connectivity between existing bike and pedestrian facilities, as well as facilities that were constructed as part of the I-495 Express Lanes project.

Nursery Road Drainage and Roadway Improvements Project, Town of Purcellville, VA – As Project Manager, Mr. Fleming provided project supervision of all disciplines for the project, which included 1,240LF of Nursery Avenue Road improvements. It also included survey, pavement replacement, open section to closed section drainage with curb and gutter and sidewalk on one side, SWM, water line replacement, complete construction plans, public involvement and bid documents.

Lorton Road Widening and Improvements, Fairfax County, VA – The Lorton Road Improvements project involves 2.65 miles of improvements from an existing two-lane rural roadway to an urban minor arterial roadway. As Project Manager and Senior Design Engineer, Mr. Fleming is responsible for managing the design services during the construction phase of this project.

VDOT, I-66 Corridor Improvements Project, Fairfax County, VA – The Virginia Office of Transportation Public Private Partnerships (OTP3) and FHWA are developing transportation improvements in the I-66 corridor to advance through a Tier 2 Environmental Assessment. Mr. Fleming is responsible for managing the design development of the multiple build alternatives that includes typical sections, interchanges configurations, new access ramps, park and ride layout and cross-over modifications, roll plans and cost estimates.

# YOUNG KIM, PE
## Transportation Engineer – ATCS, PLC

**Education:** MS/Civil & Infrastructure Engineering
BS/Civil Engineering

**Registration:** Professional Engineer: Virginia **Years of Experience:** 10

Mr. Kim is a skilled and experienced transportation design engineer who is especially knowledgeable with the standards, specifications and practices of VDOT and municipal clients. His roadway improvement projects span from preliminary concepts to final construction documents. He plans for project elements such as horizontal and vertical alignments, super elevation computations, drainage, stormwater management, utilities, maintenance of traffic, pavement markings, erosion and sediment control, and constructability.

Sterling Boulevard Extension, Loudoun County, VA – Mr. Kim serves as a Senior Roadway Engineer for a four-lane urban major connector with divided median, associated round about design, turn lanes and bike lanes, from the intersection of Pacific Boulevard and extends westward approximately 3,800 feet and creates a new intersection with Moran Road, designed in accordance with the latest edition of the Countywide Transportation Plan (CTP). He is responsible for developing horizontal and vertical alignments, typical sections, preliminary plans, profiles and cross sections. Sterling Boulevard Extension serves as an east / west connector between Loudoun County Parkway and Route 28 south of Waxpool Road and north of the Greenway Road.

Brooke Road (Route 608) Widening and Reconstruction, Stafford County, VA – Mr. Kim served as a Senior Transportation Engineer responsible for design of the reconstruction of Brooke Road for a distance of approximately 1.8 miles to upgrade with current VDOT standards. The project includes widening the roadway; providing graded shoulders; safety considerations such as guardrail, signing, and pavement marking; and improving sight distance on the approaches to the Potomac Creek Bridge. The project is a locally administered project with VDOT oversight following the Locally Administered Project Manual.

Route 1 Improvements, Fairfax County, VA – Mr. Kim served as a Transportation Engineer for this $62 million design-build project to provide traffic relief for the ongoing BRAC consolidation occurring in the vicinity of Fort Belvoir. The improvements, for a distance of 3.68 miles, generally widen Route 1 from four to six lanes, improve intersection operations and capacity with new traffic signals and turn lanes, reserve a 32 foot wide median for future transit, and provide parallel pedestrian and bicycle facilities. Specific efforts involve roadway design, drainage, phasing/traffic control, signing, stormwater management, erosion/sediment control, and utilities.

Chain Bridge Road & Idylwood Road Bicycle/Pedestrian Improvement, Fairfax, VA – Mr. Kim served as a Design Engineer responsible for the detailed geometric design parameters for the Bicycle/Pedestrian Improvement, Phase II design project. The purpose of this project is to provide connectivity between existing bike and pedestrian facilities and facilities that were constructed as part of the Beltway HOT lanes project. The project includes converting an open roadway section to be a closed section by applying base widening and curb and gutter and adding new sidewalks along Idylwood Road west and east of the Beltway. It also includes adding additional width to the roadway section and lacing a shared use path (SUP) along the north and south sides of Chain Bridge Road through the tight, congested I-495 Beltway Interchange.

# CHARLIE NABHAN, PE

## Principal Engineer – Engineering & Technical Services, Inc.

**Education:** BS, Civil Engineering

**Registration:** Professional Engineer: Virginia, North Carolina, Delaware
Associate Member of ASCE

**Years of Experience:** 28

Mr. Nabhan's experience includes both the technical and managerial aspects of geotechnical engineering from building facilities to pavement and utility structures. The technical aspects include geotechnical and material testing engineering for commercial, government and transportation projects. His experience entails design and analysis of shallow and deep foundation systems for various size buildings, bridges, roadways and earth retaining structures. In addition, Mr. Nabhan's design background includes slope stability analysis; evaluation of liquefaction potential; slide repair and earthwork design using geotextile fabric and geogrid material; Roller Compacted Concrete Pavement (RCC), cement treated aggregate (CTA) materials, soil-cement studies, and pavement design recommendations using AASHTO methods. Mr. Nabhan is proficient in using software programs such as L Pile plus 5.0, All pile, GRL Weap 2005, CAPWAP, STABL Version 3.0 Computer, gINT V8i, Blastware, and Geosystems. His quality control experience includes field and laboratory testing of soil and concrete; subgrade and foundation soil inspection; slab profiling, and monitoring of test pile installation and load testing including PDA.

City of Virginia Beach, Department of Utilities, Materials Testing Annual Services, Virginia Beach, Virginia: Project manager for the City of Virginia Beach under this contract (2007-Present) responsible for preparation of scope of work, assigning laboratory tests, pavement design recommendations, and preparation of reports. Mr. Nabhan's responsibility included attending project meetings, conducting roadway inspections, evaluate test results and submit technician's reports.

# GEORGE HICKS, III

## Field Operations – Engineering & Technical Services, Inc.

**Education:** Advanced studies diploma Denbigh High School
Computer-Aided Drafting Design ITT Technical Institution

**Registration:** Engineering in Training
Associate Member of ASCE

**Years of Experience:** 16

Mr. Hicks has over sixteen years of experience as an engineering technician and Senior Construction Inspector in the Hampton Roads area. His experience includes bolt torque inspection, pre-cast concrete/auger-cast pile monitoring, concrete sampling and testing, grout and mortar sampling and testing, proofroll/roller pattern determination, footing inspections, reinforcing steel inspections, CBR/soil sampling, and field density testing.

**West Neck Road Widening, Virginia Beach, Virginia, Virginia:** This project consisted of widening approximately 2,000 linear feet of West Neck Road from two lanes to four lanes to accommodate the traffic generated from the new 70 million dollar Kellam High School. During the design phase of this project, Mr. Hicks monitored the drilling operation and bulk soil sample collection for conformance to VDOT requirements. Mr. Hicks supervised all laboratory tests for development of the roadway pavement design. During the construction phase of this project, Mr. Hicks inspected the subgrade soils and provided recommendations for removal of unsuitable materials and replacement with select fill materials, supervised engineering technicians and directed them to conduct density tests on approved materials, review submittals of materials to be used as subbase and base materials, and established the implementation of roller pattern and control strip density program during asphalt placement. Mr. Hicks ensured that the proper aggregate base and asphalt materials thicknesses were installed per the project specifications and in accordance with VDOT requirements.

# RAJU ACHARYA, PhD, PE

## Geotechnical Engineer – Engineering & Technical Services, Inc.

**Education:** Ph.D., Civil Engineering

**Registration:** Engineering in Training
Associate Member of ASCE

**Years of Experience:** 3

Mr. Acharya will be the Geotechnical Engineer for projects to be assigned under this contract. Mr. Acharya offers over 3 years of experience in the construction and engineering industry. He will be responsible for conducting advanced laboratory tests such as Triaxial, Direct shear, RCC and soil cement design, and consolidation tests, soils classifications, assigning laboratory classification tests, conducting slope stability analyses, designing retaining walls, designing rigid and flexible pavement sections based on AASHTO pavement design methods and VDOT methods, designing piles, and preparing the Geotechnical Report for each project. He is proficient in the use of AutoCAD, FLAC3D, Plaxis, gINTV8, LPile, Gstabl, Geosystem, ReSSA, PDA, DRIVEN, SHAKE, Slope/W, Sigma/W, MSEW, and SAS.

**Hickory Manor Subdivision, Chesapeake, Virginia:** Mr. Acharya reviewed the CBR test data, soil borings as well as the laboratory tests and groundwater levels, assisted in determining the design CBR values for pavement design based on the soils conditions, review traffic data including average daily traffic, percentage of trucks traffic, developed pavement section using the VDOT method. Mr. Acharya also analyzed the SPT data from the boring logs to provide the foundation recommendations for construction of residential dwellings.

# JAMES S. BEDOIS, PE, LEED AP

## Principal Electrical Engineer – PACE Collaborative, P.C.

**Education:** BS/Industrial & Systems Engineering/Virginia Polytechnic Institute & State University/1995

**Registration:** Professional Engineer: Virginia, North Carolina **Years of Experience:** 21

Mr. Bedois has 21 years of experience as an electrical design engineer and project manager. He is responsible for the firm's preparation of drawings, specifications, estimates and calculations for various electrical and related systems. He has extensive knowledge of variable frequency motor drives, electronic grounding systems, emergency power generation, tie-ins to SCADA systems, overhead & underground power distribution and site lighting. As an electrical design engineer at PACE Collaborative, he has completed numerous projects in support of civil engineering for various municipalities throughout Virginia.

### Relevant experience includes:

- Water Tank and Pumping Station for Portsmouth Area Expansion, City of Chesapeake
- Dominion Boulevard Improvements, City of Chesapeake, Virginia
- Violet Street Water Pumping Station Emergency Power Modifications, City of Chesapeake, Virginia.

# BRIAN K. WALL, PE, LEED AP

## Mechanical Engineer – PACE Collaborative, P.C.

**Education:** BS/Mechanical Engineering/Old Dominion University/1993

**Registration:** Professional Engineer: Virginia, North Carolina **Years of Experience:** 24

Mr. Wall has a wide range of experience in the design of mechanical, plumbing, and fire protection systems for commercial, industrial, municipal, state, and federal government facilities. He has been project manager on the majority of our projects where specialized services have been required. He is responsible for quality control on designs, drawings, specifications, contract documents, cost estimates, recommendations and coordinating construction. Mr. Wall is dedicated to providing leading-edge mechanical and plumbing engineering services to every project.

### Relevant experience includes:

- Water Tank and Pumping Station for Portsmouth Area Expansion, City of Chesapeake
- Route 168 Toll Plaza, Phase I & II, and Annual Assessments, Inspections & Reports, City of Chesapeake

# CLAUDE LYM, PE

## Principal Engineer – Site Improvement Associates, Inc.

Education: BS/Civil Engineering/1984

Registration: Professional Engineer: Virginia, Pennsylvania, Connecticut, New Jersey, North Carolina

Years of Experience: 33

Claude has an extensive range of experience in the general civil engineering field including roadway design, stormwater management systems, drainage watershed analysis, water and sanitary sewer systems, pavement repairs, master planning, and site development plans. Claude attends public hearings, and provides feasibility analysis for all type of land development projects. His involvement will include the preparation of the proposed work with all aspect of the planning, design, cost estimates, and construction management. Claude will assist at each level of the project, when needed, and provide his expertise in the design as well as his familiarity with the codes associated with the site design and construction industry.

# COLEEN SISK, PE, ENV SP

## Design Engineer – Site Improvement Associates, Inc.

**Education:** BS/Civil Engineering/1998
MEB, Master of Energy Business/2015

**Registration:** Professional Engineer: Virginia
Certified Energy Manager: 2013
Envision Sustainability Professional: 2014

**Years of Experience:** 20

Coleen is a professional engineer and an Envision sustainability professional with over 20 years of experience with land development, stormwater systems, and utility designs. Prior to joining Site Improvement Associates, Inc., Coleen served as the Interceptor Systems Manager for Hampton Roads Sanitation District (HRSD) and was heavily involved in the construction and operation of sanitary sewer force mains. She reviewed construction documents for projects with particular emphasis on operation and maintenance from the end user perspective. Her efforts include analyzing pump stations and pressure reducing stations for optimal performance, preparing and coordinating system diversions, and responding to and coordinating repair efforts for system failures. With respect to land development projects, Coleen is experienced in site grading, layouts, erosion and sediment control designs and regulations, stormwater pollution prevention plans (SWPPP), sequence of construction, and cost estimates.

# RICK SCARPER

## Permit Specialist – Site Improvement Associates, Inc.

Education: BS/Land Use Planning & Design/1980

Registration: N/A Years of Experience: 43

Rick is a knowledgeable planner and environmental agent with over 40 years of experience in the land use profession. Before joining Site Improvement Associates, Inc. he was employed with the City of Virginia Beach and served as the Administrator for the Chesapeake Bay Preservation Area and Wetlands and Coastal Primary Sand Dune Programs. Through his time with the City he gained detailed understanding of various environmental aspects of civil engineering and land use projects such as dredging, shoreline restorations, and wetlands site designs while working closely with City personnel, Board and Council members, Virginia Marine Resources Commission (VMRC), and the Army Corps of Engineers.

# ROBERT "BOB" SAWYER, PE, LS

## Surveyor – Site Improvement Associates, Inc.

Education: BS/Civil Engineering/1998

Registration: Professional Engineer: Virginia
Land Surveyor: Virginia

Years of Experience: 19

Bob has over 19 years of involvement with the design of civil engineering site development projects including roadways design, stormwater analysis and design, utility improvements and relocations, as well as, regulatory permitting. He is also a licensed land surveyor with experience with topographic surveys, horizontal and vertical control surveys, development plats, and construction stakeouts. Recent topographic surveys provided under the direction of Bob are Centerbrooke Lane Shopping Center in Suffolk; Pine Road topographic survey in Portsmouth; topographic and boundary survey for Herberts Lane Self-Storage in Chesapeake; and subdivision plat and lot stakeouts for Estates at Grassfield in Chesapeake.

# ISSAM "SAM" BARAKI, PE

## Utiliiesy Engineer – Site Improvement Associates, Inc.

Education: Master of Engineering Management/1989
BS/Civil Engineering/1984

Registration: Professional Engineer: Virginia

Years of Experience: 33

Sam brings 30 plus years of civil engineering design and construction knowledge to the team. Sam is well versed in the analysis and design of water systems, sanitary sewer gravity systems, force mains, vertical and horizontal offsets, and pump stations. Combining his construction and design experiences, Sam is able to prepare and review designs to ensure the City receives the best value design, as well as, provide quality control reviews at each submittal phase.

# JENNA SOLLNER, PE

## Site Designer – Site Improvement Associates, Inc.

**Education:** MS/Civil Engineering/2012
BS/Civil Engineering/2011

**Registration:** Professional Engineer: Virginia **Years of Experience:** 4

Jenna is a land development engineer with over four years of experience. She provides site designs for shopping centers, self-storage facilities, single-family residential lots, subdivisions, and various commercial properties such as banks, churches, fitness centers, etc. Under limited supervision, she prepares demolition plans, erosion and sediment control plans, layout and grading designs, pavement designs, utility calculations, and cost estimates. Additionally, she is familiar with local and state regulations, more specifically with the Virginia Runoff Reduction Method and Virginia code 9VAC25-870-66 Water Quantity for compliance with channel and flood protection. In this role she has designed traditional piped conveyance systems, grass channels, infiltration trenches and basins, underground treatment, detention ponds, and rooftop disconnections utilizing soil amendments.

# 7. Firm Data Sheet

# ATTACHMENT D

## FIRM DATA SHEET

Funding: S (S=State F=Federal) Project No.: RFP No. 18010

Division:

EOI Due Date: September 21, 2017

The prime consultant is responsible for submitting the information requested below on all firms on the project team, both prime and all subconsultants. All firms are to be reported on one combined sheet unless the number of firms requires the use of an additional sheet. Failure to submit all of the required data will result in the proposal being considered.

| Firm's Name, Address and DBE and/or SWAM Certification Number | Firm's DBE or SWaM Status * | Firm's Age | Firm's Annual Gross Receipts |
|---|---|---|---|
| GKY & Associates, Inc.<br>107 Herman Melville Avenue<br>SWaM # 006875 (DMBE Certified) | YS (Small) | 42 Years | $2,200,000 |
| ATCS, PLC<br>690 Town Center Drive, Suite 201<br>Newport News, VA 23606<br>SWaM # 652919 (SBE) | YS (Small) | 23 Years | $33,000,000 |
| Engineering & Testing Services, Inc.<br>5226 Indian River Road, Suite 103<br>Virginia Beach, VA 23464<br>SWaM # 650066 | YS (Small, Woman-Owned | 15 Years | $1,600,000 |
| PACE Collaborative, P.C.<br>1277 Perimeter Parkway<br>Virginia Beach, VA 23454<br>SWaM # 009134 | YS (Small) | 32 Years | $11,906,000 |
| Site Improvement Associates, Inc.<br>800 Juniper Crescent, Suite A<br>Chesapeake, VA 23320<br>SWaM # 672685 | YS (Small) | 23 Years | $3,000,000 - $4,000,000 |
| | | | |

YD = DBE Firm Certified by DMBE

N = DBE or SWaM Firm Not Certified by DMBE

NA = Firm Not Claiming DBE or SWaM Status.

YS = SWaM Firm Certified by DMBE. Indicate whether small, woman-owned, or small business.

# 8. Certification Regarding Debarment Forms

# ATTACHMENT E

**CERTIFICATION REGARDING DEBARMENT**
PRIMARY COVERED TRANSACTIONS
(To be completed by a Prime Consultant)

Project: RFP No. 18010 Annual Civil Engineering Services Contract for Small Projects

1. The prospective primary participant certifies to the best of its knowledge and belief, that it and its principals:

   a. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal, State, or local department or agency.

   b. Have not within a three-year period preceding this proposal

   c. been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; and have not been convicted of any violations of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification, or destruction of records, making false statements, or receiving stolen property;

   d. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph 1) b) of this certification; and

   e. Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

2. Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

The undersigned makes the foregoing statements to be filed with the proposal submitted on behalf of the offeror for contracts to be let by the City of Chesapeake.

| | September 19, 2017 | President |
|---|---|---|
| Signature | Date | Title |

GKY & Associates, Inc.
Name of Firm

08OCT08-SGP-VII-15-12.18

## ATTACHMENT F

**CERTIFICATION REGARDING DEBARMENT**
LOWER TIER COVERED TRANSACTIONS
(To be completed by a Sub-consultant)

Project: RFP No. 18000 City of Chesapeake - Annual Civil Engineering Services Contract For Small Projects

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal, State, or local department or agency:

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

The undersigned makes the foregoing statements to be filed with the proposal submitted on behalf of the offeror for contracts to be let by the City of Chesapeake.

Signature Date CFO and General Counsel
Title

ATCS, PLC
Name of Firm

## ATTACHMENT F

**CERTIFICATION REGARDING DEBARMENT**
LOWER TIER COVERED TRANSACTIONS
(To be completed by a Sub-consultant)

Project: RFP No. 18010 Annual Civil Engineering Services Contract for Small Projects

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal, State, or local department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

The undersigned makes the foregoing statements to be filed with the proposal submitted on behalf of the offeror for contracts to be let by the City of Chesapeake.

_____ President
Signature Title

September 6, 2017
Date

Engineering & Testing Services, Inc.
_____
Name of Firm

## ATTACHMENT F

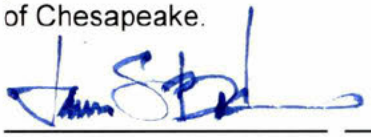
**CERTIFICATION REGARDING DEBARMENT**
LOWER TIER COVERED TRANSACTIONS
(To be completed by a Sub-consultant)

Project: **Annual Civil Engineering Services Contract for Small Projects**

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal, State, or local department or agency:

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

The undersigned makes the foregoing statements to be filed with the proposal submitted on behalf of the offeror for contracts to be let by the City of Chesapeake.



Signature

**August 29, 2017 / President**
Date Title

**PACE Collaborative, P.C.**
Name of Firm

## ATTACHMENT F

**CERTIFICATION REGARDING DEBARMENT**
LOWER TIER COVERED TRANSACTIONS
(To be completed by a Sub-consultant)

Project: RFP #18010 Annual Civil Engineering Services Contract for Small Projects

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal, State, or local department or agency:

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

The undersigned makes the foregoing statements to be filed with the proposal submitted on behalf of the offeror for contracts to be let by the City of Chesapeake.

| Signature | Date | Title |
|---|---|---|
| | 9/6/17 | President |

Site Improvement Associates, Inc.
Name of Firm

# 9. Certification of Compliance with Immigration Laws and Regulations

# ATTACHMENT A

## CERTIFICATION OF COMPLIANCE WITH IMMIGRATION LAWS AND REGULATIONS

Section 54-72.2 of the Chesapeake City Code requires that any person or entity doing business with the City of Chesapeake, including its boards and commissions, shall include a sworn certification by the contractor or vendor of compliance with all federal immigration laws and regulations. These laws include the Federal Immigration Reform and Control Act, which makes it unlawful for a person or other entity to hire, recruit or refer for a fee for employment in the United States, an alien knowing the alien is unauthorized, and Section 40.1-11.1 of the Code of Virginia, which makes it unlawful for any employer to knowingly employ an alien who cannot provide documents indicating that he or she is legally eligible for employment in the United States. The state law, in particular, places an affirmative duty on employers to ensure that aliens have proof of eligibility for employment.

Accordingly this certification shall be completed and attached to all contracts and agreements for goods and services made by the City of Chesapeake or any of its boards and commissions. Failure to attach a completed certification shall render the contract or agreement void. A copy of the fully executed certification may be attached if an original certification is on file with Procurement for the current fiscal year.

***Type or print legibly when completing this form.***

1. Legal Name of Contractor or Vendor:
   (Note: This is your name as reported to the IRS. This should match your Social Security card or Federal ID number.)
   GKY & Associates, Inc.

2. Type of Business Entity:

   A. Sole proprietorship (Provide full name and address of owner):

   B. Limited Partnership (Provide full name and address of all partners):

   C. General Partnership (Provide full name and address of all partners):

   D. Limited Liability Company (Provide full name and address of all managing members):

   E. Corporation (Provide full name and address of all officers):

   Stuart M. Stein, President
   907 Lullaby Lane, SE
   Vienna, VA 22180

   Brett L. Martin, Vice President & Corporate Secretary
   12442 Oliver Cromwell Drive
   Herndon, VA 20171

3. Doing Business As:
If Applicable (Note: This is the name that appears on your invoices but is not used as your reporting name.)

4. Name and Position of Person Completing this Certificate:

Stuart M. Stein, President

5. Physical Business Address:

4229 Lafayette Center Drive, Suite 1850
Chantilly, VA 20151

6. Primary Correspondence Address (If different from physical address):

7. Number of Employees:

18

8. Are all Employees Who Work in the United States Eligible for Employment in the United States?

Yes___X___

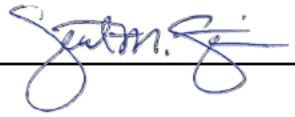
No_____

Under penalties of perjury, I declare on behalf of the contractor/vendor listed above that to the best of my knowledge and based upon reasonable inquiry, each and every one of the contractor's/vendor's employees who work in the United States are eligible for employment in the United States as required by the Federal Immigration Reform and Control Act of 1986 and Section 40.1-11.1 of the Code of Virginia. I further declare on behalf of the contractor/vendor that it shall use due care and diligence to ensure that all employees hired in the future who will work in the United States will be eligible for employment in the United States. I affirm that the information provided herein is true, correct, and complete.

Sworn this 19th day of September, 2017 on behalf of Stuart M. Stein as evidenced by the following signature and seal:

Name of Contractor/Vendor: GKY & Associates, Inc.

Printed Name of Signatory: Stuart M. Stein, PE, D.WRE

Signature: 

Date: September 19, 2017

STATE OF Virginia:

CITY / COUNTY OF Fairfax, to-wit:

The foregoing instrument was acknowledged before me this 19th day of September, 2017, by Stuart M. Stein. He/She is personally known to me or has produced Virginia State Driver's License as identification.

Notary Public

Registration No.: 152826

My commission expires: August 31, 2021


**Submitted By:**
GKY & Associates, Inc.
107 Herman Melville Avenue
Newport News, VA 23606.

757.346.5900

GKY.com

# National Flood Hazard Layer FIRMette

FEMA

76°12'44"W 36°35'37"N


76°12'7"W 36°35'8"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

*Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020*

## Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

**SPECIAL FLOOD HAZARD AREAS**
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

**OTHER AREAS OF FLOOD HAZARD**
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

**OTHER AREAS**
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

**GENERAL STRUCTURES**
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

**OTHER FEATURES**
- 20.2 / 17.5 Cross Sections with 1% Annual Chance / Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

**MAP PANELS**
- Digital Data Available
- No Digital Data Available
- Unmapped

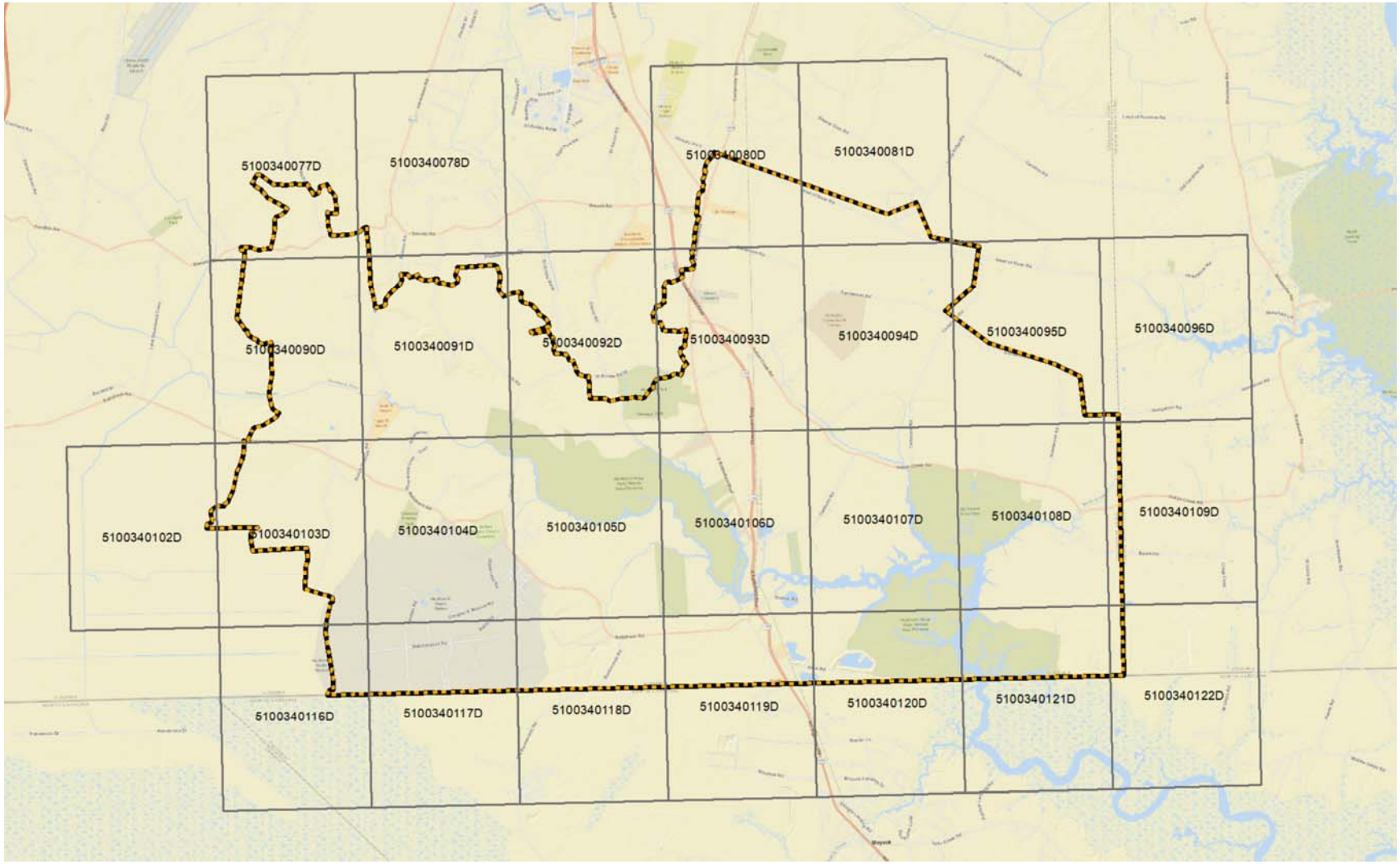
N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 8/17/2021 at 4:33 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.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# Fw: flood event summary

Earl Sorey <[redacted]>
Fri 4/30/2021 5:07 PM
**To:** Sam Sawan <[redacted]>; Crystal V. Bloom <[redacted]>

1 attachment (17 MB)
Northwest River Water Treatment Plant Flooding Incident Photographs.pptx;

---

**From:** Christopher M. Price [redacted]>
**Sent:** Friday, April 30, 2021 5:01 PM
**To:** Rick W. West [redacted]>; John de Triquet <[redacted]>; johndetriquet [redacted]>; Stephen Best, Sr <[redacted]>; Don J. Carey <[redacted]t>; Matt Hamel <[redacted]>; Robert C. Ike <[redacted]>; Debbie Ritter <[redacted]>; Debbie Ritter <[redacted]>; Susan R. Vitale <[redacted]>; Ella Ward <[redacted]t>
**Cc:** Carsheena Montgomery <[redacted]>; Sandy M. Madison [redacted]; Robert N. Geis <[redacted]>; David Jurgens <[redacted]>; Earl Sorey <[redacted]>
**Subject:** flood event summary

Mayor West, Vice Mayor de Triquet, and Members of City Council –

On Friday April 9th, severe thunderstorms with incredibly intense rain struck southern Chesapeake, causing significant flooding at the Northwest River Water Treatment Plant (WTP). The storm started with rain and golf-ball sized hail, and progressed to rain of an intensity the WTP had never experienced. The rain overtopped Battlefield Blvd. by at least six inches, causing Public Works to close the road (we suspended tolls on the expressway to facilitate traffic flow through the area). The rain also overwhelmed the areas storm drainage system, causing water levels to be higher than the WTP had ever experienced. The water level was deep enough to fill a stairwell to the basement of the filter building, creating enough hydrostatic pressure that it burst through the industrial strength steel door (bending and breaking the 3/8" bolts anchoring the steel frame into the concrete) and flooding the basement room to more than 12 feet deep above floor level. The flooding in the filter building pushed out through the building, flooding the area between the administration/laboratory building and the sedimentation basins.

The water also started seeping through walls and around doors in the administration/laboratory building, accumulating several inches throughout the administration and laboratory areas. Staff that was on site opened exterior doors on the southern portion of the building, allowing the water to free-flow through the building, preventing the water from getting any deeper inside the building and minimizing damage. For perspective, this flooding was reportedly worse that what we had with Hurricane Matthew, which caused some water to get into the basement of the filter building (but our sump pumps were able to keep up) and minor water infiltration in the admin building.

Public Utilities brought a large pumping truck on site and began dewatering the basement area of the filter building and was able to get the plant back online with partial operating status the next day. I toured the damage to the facility (see attached pictures) and am extremely proud of what the team did to continue providing services to our community under such intense circumstances.

**It is important to note that, due to our system flexibility and the excellent operations team, there was never an impact on our customers. Water supply and pressure remained normal system-wide throughout this event.**

While we are still early in the process, we estimate the damage to be approximately $1M, most of which will be covered by insurance (although our responsibility will still be in the several hundred thousand dollar range). We have begun moisture mitigation with contractors and have had the insurance adjustor at the site as well In addition, I have authorized an emergency procurement request to begin the necessary repairs.

Although flooding of this nature has not occurred in the 40 year history of the WTP, we are assessing methods to prevent any future similar occurrences This will be a broad approach that will include storm drainage systems improvements, additional physical protections installed, submersion-proof systems in basement areas, and other mitigation and prevention measures taken Where possible, we will attempt to use FEMA hazard mitigation grants to do this work, but we do not want to delay progress if we are too late for the current year funding cycle. We will also update our emergency response plan to be prepared for flash flooding type events This event presents a learning opportunity that will allow prevention of future damages from similar flash floods and make our systems more resilient

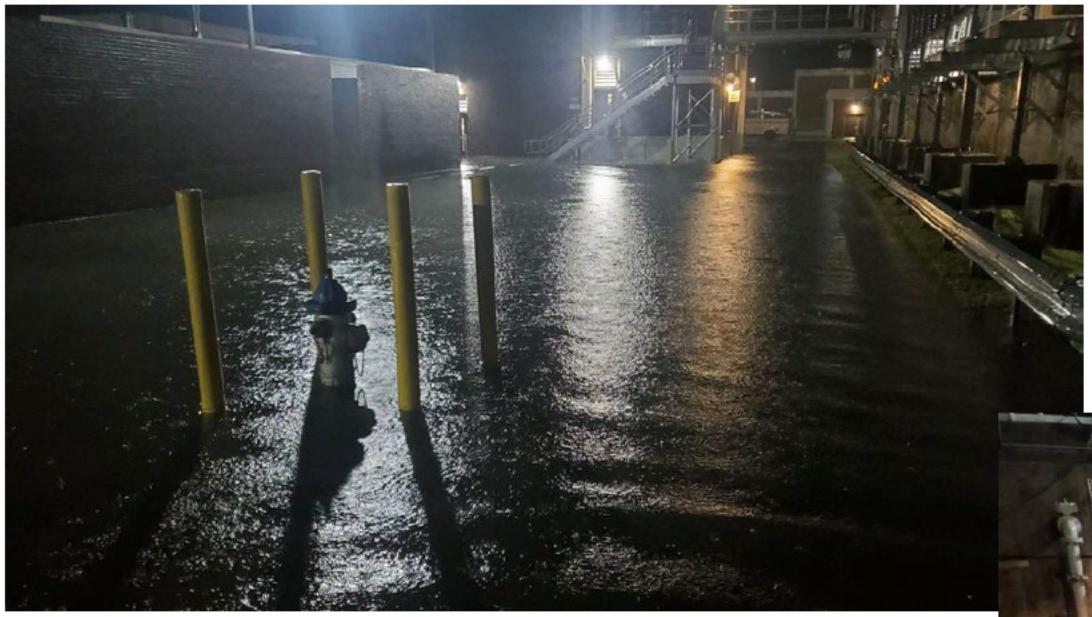
Please contact me if you have any questions or if you would like any additional information Thanks and have a great weekend!

Chris

Christopher M. Price, City Manager
City of Chesapeake
06 Cedar Road
Chesapeake, VA 23322
(757) 82 6988
[redacted]

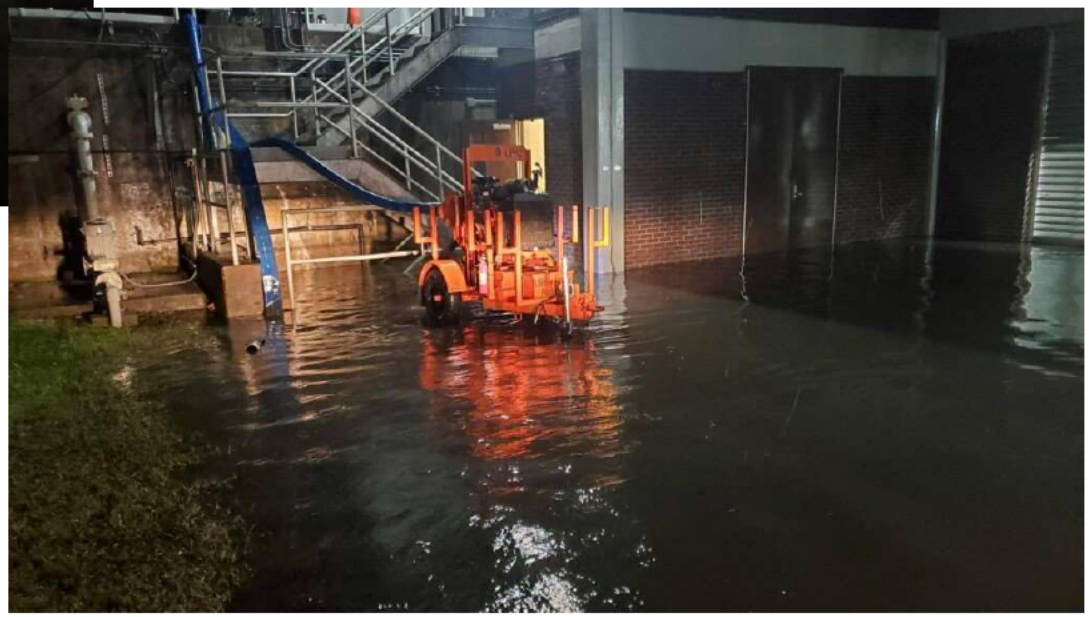
# Northwest River Water Treatment Plant Flooding Incident Photographs

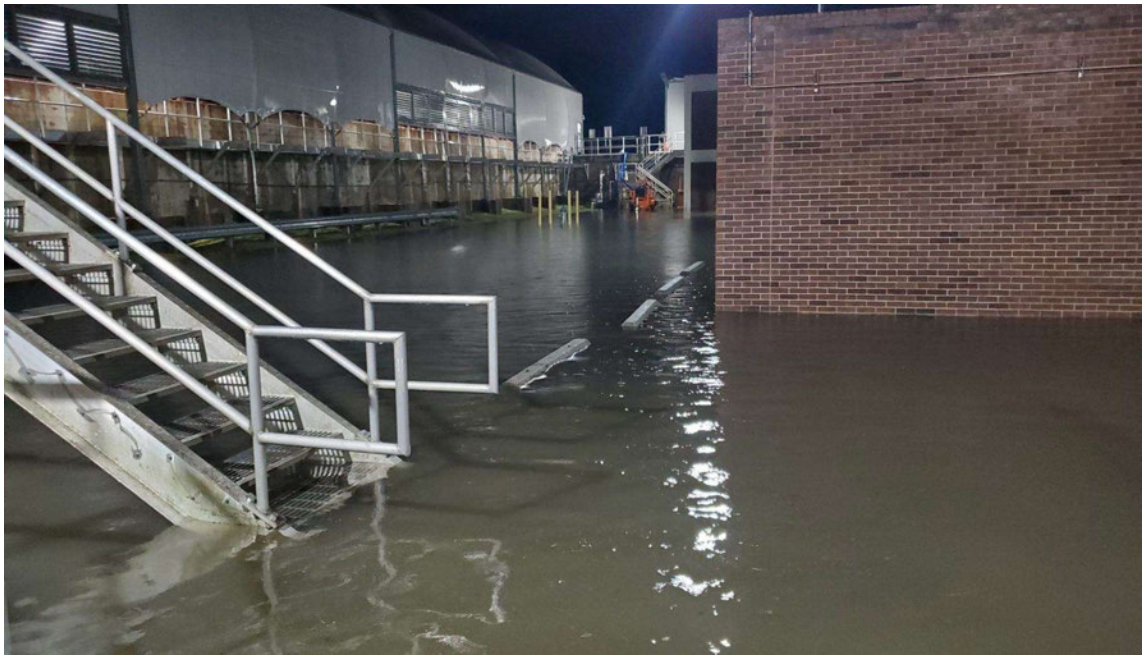
9 – 12 April, 2021



Area Between Admin/Lab Building and Sedimentation Basins

Southwest Corner of Filter Building





Area between Admin/Lab Building and Sedimentation Basins

Basement Door on Northwest Corner of Filter Building

Filter Building Basement – Note Electronic Components


Filter Building Basement Ceiling

Washed Out Road Section to Sludge Fields

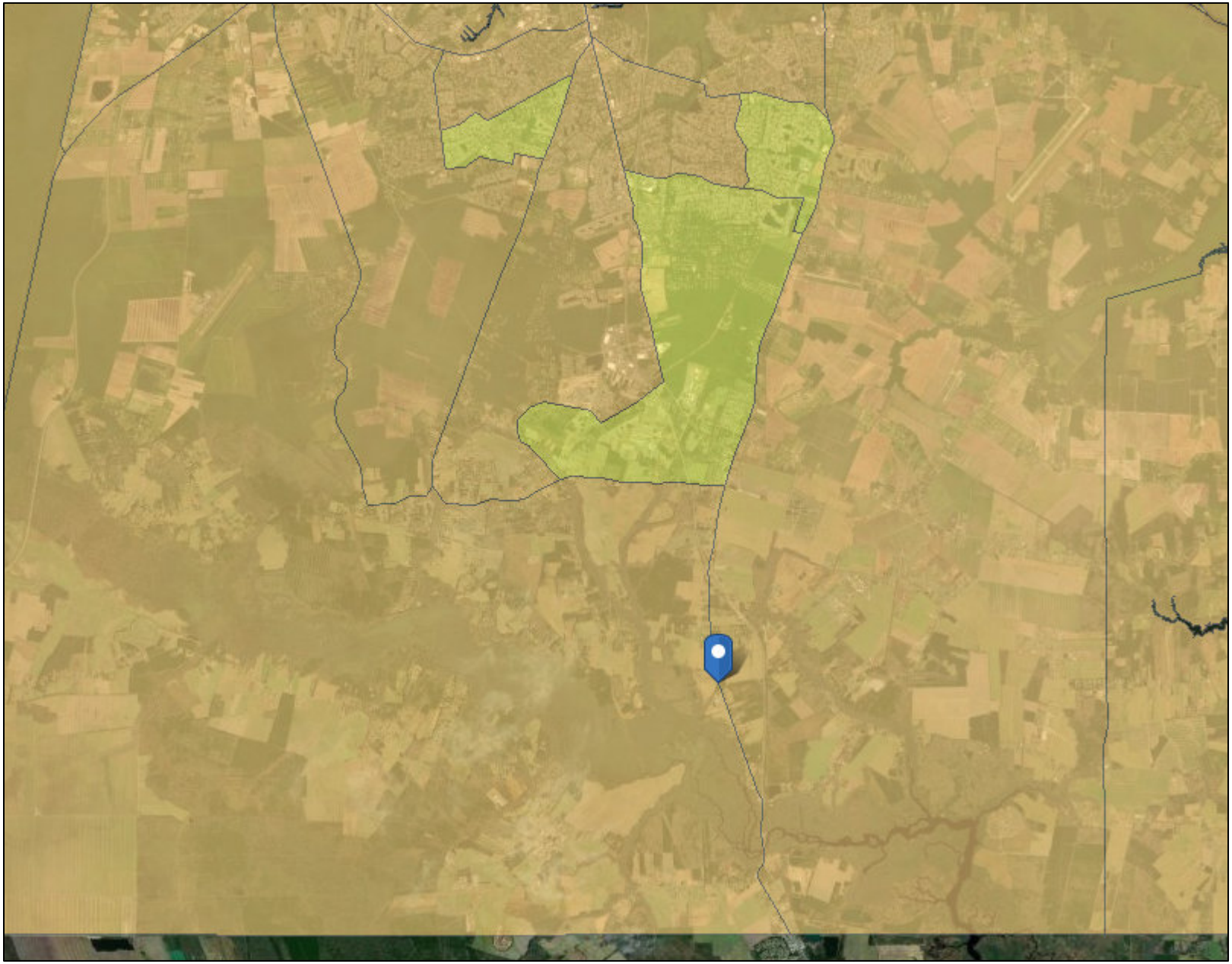
Downstream View of Washed Out Road Section

Washed Out Fence Beside Road

# Southern Chesapeake

**Social Vulnerability Index Score**

- Very Low Social Vulnerability
- Low Social Vulnerability
- Moderate Social Vulnerability
- High Social Vulnerability
- Very High Social Vulnerability
- Not inlcuded in the analysis



August 17, 2021

1:144,448

0 0.75 1.5 3 mi

0 1.25 2.5 5 km

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Created from the Virginia Vulnerability Viewer

Center for Coastal Resources Management
Virginia Institute of Marine Science

ADAPT VA

Chesapeake VIRGINIA

City of Chesapeake

Department of Public Works
P.O. Box 15225
Chesapeake, Virginia 23328
(757) 382-6101
(757) 382-6310 FAX

# MEMORANDUM

**TO:** Sam Sawan, P.E., Deputy Director of Public Works

**FROM:** Crystal Bloom, P.E., Project Manager

**DATE:** September 1, 2021

**SUBJECT:** **AUTHORIZATION TO REQUEST FUNDING THROUGH COMMUNITY FLOOD PREPAREDNESS FUND (CFPF) GRANT PROGRAM FOR SOUTHERN CHESAPEAKE-5 WATERSHED STUDY**

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The City of Chesapeake requests funding through the Community Flood Preparedness Fund (CFPF) grant program to conduct a study for the Southern Chesapeake-5 Watershed in accordance with the grant program requirements as provided in the 2021 Grant Manual for the Virginia Community Flood Preparedness Fund.

The City has already dedicated funding for this specific type of project in the Capital Improvement Budget (CIB) that will be used to provide the local match for this project, see Project #10-150 Stormwater Mapping & Master Drainage Plan III. The CIB Project Summary page and documentation to verify the availability of adequate funding to cover the local match amount are provided for your records.

The total project cost is $182,808.88. The amount of funding requested through the CFPF is 50% of the project cost or $91,404.44. The remaining cost of $91,404.44 will be a local match funded through Project #10-150 Stormwater Mapping & Master Drainage Plan III.

Should you have any questions or need additional information, please contact me at extension 6393.

Sam Sawan

Sam Sawan, P.E., Deputy Director of Public Works
(Approval of Request)

9/1/21

Date

CVB

Attachments

PUBLIC WORKS
FIRST RESPONDER

# 10-150: Stormwater Mapping & Master Drainage Plan III

| | | | |
|---|---|---|---|
| Department: | **Storm Water Capital Projects** | | |
| Project Type: | Study | Comprehensive Plan Goal Area: | Stormwater Management |
| Year identified: | 2011 | Planning Area: | Citywide |
| Start Date: | 7/1/2012 | Project Status: | Proposed |
| Est. Completion Date: | 7/30/2023 | | |

**Description:**

This project will continue the updating of the Stormwater Inventory Mapping and Master Drainage Plan.

**Justification:**

The updating of the Stormwater Inventory Mapping and Master Drainage Plan is essential in providing quick, accurate information to City staff, consultants, and the general public. This will provide inventory mapping to support emergency responses and GASB 34 accounting.

**Comments:**

On May 28, 2019, City Council transferred $48,876 from this project to CIP 70-230 "Crestwood Watershed Master Drainage Plan" to provide the local match for a grant award.

**Project Forecast:**

| Year | Total Expense | Total Revenue | Difference |
|---|---|---|---|
| 2022 | | | 0 |
| 2023 | 100,000 | 100,000 | 0 |
| | **100,000** | **100,000** | **0** |

**Project Details 2022:**

| | Prior Years | 2022 | 2023 - 26 | Future Years | Total Amount |
|---|---|---|---|---|---|
| **Revenue** | | | | | |
| Cash - Stormwater | 601,124 | | 100,000 | | **701,124** |
| **Total Revenue** | **601,124** | | **100,000** | | **701,124** |
| **Expense** | | | | | |
| Design & Engineering | 601,124 | | 100,000 | | **701,124** |
| **Total Expense** | **601,124** | | **100,000** | | **701,124** |

# My Expenses by Proj

## 1101500900 SW MAPPNG&MASTER DRNG PLAN III

2021-08-21

| Activity | Total Appropriation | Pre-Enc | Enc | Exp | Remaining | % Spent |
|---|---|---|---|---|---|---|
| 0360000000600 | - | - | - | 23,202.00 | (23,202.00) | 100.00% |
| 0360000000601 | - | - | - | 13,452.00 | (13,452.00) | 100.00% |
| 0360000000620 | - | - | - | 9,594.00 | (9,594.00) | 100.00% |
| 0360000000630 | - | - | - | 28,331.00 | (28,331.00) | 100.00% |
| ENG/DESIGN | 601,124.00 | - | 34,748.55 | 348,354.68 | 218,020.77 | 63.73% |
| **Total Expenditures** | **$ 601,124.00** | **$ -** | **$ 34,748.55** | **$ 422,933.68** | **$ 143,441.77** | **76.14%** |

*Note: All amounts reflect transactions currently budget checked against commitment control definitions.

Commonwealth of Virginia

**CFPF, rr <cfpf@dcr.virginia.gov>**

# CFPF Application-2: Study; Hydrologic & Hydraulic Study; CITY OF CHESAPEAKE

2 me age

**Deva K. Borah** <[redacted]> Thu, Sep 2, 2021 at 5:51 PM
To: "cfpf@dcr.virginia.gov" <cfpf@dcr.virginia.gov>
Cc Sam Sawan [redacted], "Cry tal V Bloom" [redacted], Liz Schee ele [redacted]

Dear DCR CFPF Program Manager,

Attached plea e find the CFPF Application 2 from the City of Che apeake reque ting fund to conduct a **Hydrologic and Hydraulic Study** under Grant Category "**Study**."

We look forward to hearing from you.

Sincerely,

Deva

**Deva K. Borah, Ph.D., P.E., F.ASCE**

Senior Engineer

City of Chesapeake – Department of Public Works

306 Cedar Road,, Chesapeake, Virginia 23322

Main: (757) 382-6101; Direct: (757) 382-6472

[redacted]

www.cityofchesapeake.net

**CID510034 Che apeakeCity CFPF 2 pdf**
18046K

**CFPF, rr** <cfpf@dcr.virginia.gov> Fri, Sep 3, 2021 at 8:09 AM
To: "Deva K. Borah" <[redacted]>

received
[Quoted text hidden]