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Approved 5/7/75
Revised 3/18/08

GOVERNMENT OF
THE VIRGIN ISLANDS OF THE UNITED STATES

Request for Proposal – Negotiation
Professional Services

To: ……. Date: September 23, 2020

……..... RFP No. 063-T-2020 (P)

Pursuant to 31 V.I.C. 239 **(a) (4)** and Rules and Regulations thereunder issued, the Government of the Virgin Islands, herein after referred to as GVI, Department of Property and Procurement will receive proposals for the work described below. Proposals will be received no later than ***Thursday, October 22, 2020 @ 4:30 PM o'clock p.m.*** Atlantic Standard Time.

DESCRIPTION OF WORK: ***Qualified Surveyors /Professional Engineers for the National Height Modernization System Surveys Using Global Positioning Systems***

SCOPE OF SERVICES: See attached

NEGOTIATED PROCEDURES:

The Commissioner of the Department of Property and Procurement will appoint a Selection Committee to assist in the evaluation and selection of the Contractor. Accordingly, proposals shall be reviewed and rated on the selection criteria outlined in the "**Factors For Discussions**". After reviewing and rating the proposals the Committee will select for discussions from the firm/s or person/s **deemed to be the most highly qualified to provide the services herein required.** Discussions will be conducted with the firm or person so selected. The Committee may select to conduct discussions and/or oral presentations from the firm/s or person/s, not less than two (2) deemed to be the most highly qualified.

FACTORS FOR DISCUSSIONS

Selection criteria will include **(i)** Professional qualification, registration and general reputation of principals of the firm or person; **(ii)** the extent to which the firm or person specializes in or has provided services of a type and scope similar to the hereunder; **(iii)** familiarity with the location (s) in which services will be performed; **(iv)** project approach and capability of meeting schedules; and **(v)** quality of performance on other similar projects.

NEGOTIATION:

The Selection Committee shall recommend to the Commissioner **the highest qualified firm or person with whom a contract shall be negotiated as a result of the Committee's scores from the written proposals or discussions-oral presentations.** The Commissioner, with the assistance of the Selection Committee, shall attempt to negotiate a contract with such firm or person.

Should the Commissioner be unable to negotiate a satisfactory contract with the firm considered to be the most qualified, at a price he determines to be fair and reasonable to the Government, negotiations with that firm will be formally terminated. Negotiations will then commence with the second most qualified, the third most qualified or additional firms, in order of preference, and shall continue until an agreement is reached.

Anthony D. Thomas
Commissioner
Property and Procurement

INSTRUCTION TO PROPOSERS

A. NOTICE

RFP-063-T-2020 (P) - ***Qualified Surveyors /Professional Engineers for the National Height Modernization System Surveys Using Global Positioning Systems***

Information provided in the scope of work is to be used only for purposes of preparing a proposal. It is further expected that each bidder will read the scope of work thoroughly, for failure to meet certain specified conditions may invalidate the proposal.

The Government of the Virgin Islands, herein after referred to as GVI, reserves the right to reject any or all proposals or any portion thereof and to accept the proposal deemed most advantageous to GVI. Price shall not be the sole criterion of awarding this project. Scope and quality of work proposed and the ability of the bidder to complete this type of project shall also be considered.

Applicants are requested to submit proposals on the basis of the scope of work. Alternative proposals recommending new features and technology other than that requested in the scope of work will receive consideration providing such new features and/or technology is clearly explained. Any exceptions to the requirements requested herein must be clearly noted in writing and be included as part of the proposal.

The information contained herein is believed to be accurate but is not to be considered in any way as a warranty. Request for additional information clarifying the Scope of Work should be directed in writing to **Assistant Commissioner of Procurement, Lisa M. Alejandro** at **lisa.alejandro@dpp.vi.gov**.

B. STATEMENT OF PURPOSE

To assist the Government of the Virgin Islands in meeting the requirement for the following services: **RFP-063-T-2020 (P) -** The purpose of this Request for Proposal (RFP) is to seek qualified Surveyors/Professional Engineers with the knowledge, experience, expertise, and relevant hardware to provide National Height Modernization System (NHMS) surveys utilizing Global Positioning System (GPS) methods throughout the Territory according to national standards. Specifically, the NHMS control surveys will be supporting the FEMA Floodplain Mapping Program (FMP) and will improve the GPS information for monumentation.

C. PROPOSE SCOPE OF WORK

See Attached

D. TIMETABLE

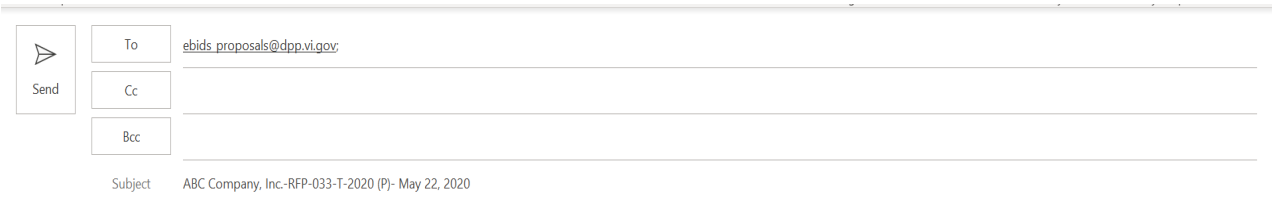
Last Day for Written Clarification is Wednesday, October 7, 2020 @ 1:00 PM

E. SUBMISSION OF PROPOSAL

All interested parties shall submit ***one* (1)** electronic copy of proposals, which are to be delivered to the Department of Property and Procurement no later than ***Thursday, October 22, 2020 @ 4:30* Atlantic** Standard Time.

Electronic submissions which must include the Company's Name – Solicitation Number – Due Date in the Subject Line of the email. For Example, ABC Company, Inc. – RFP No. 001 – T-2020(P) – March 16, 2020.

The First Page of each electronic submission must also include Company's Name – Solicitation Number and Due Date. The second page of each electronic submission must only contain the following words in red font: "CONFIDENTIAL BID SUBMISSION"



All electronic submissions must be received at ebids_proposals@dpp.vi.gov no later than the date and time listed in each advertisement. There will be no exceptions.

F. WITHDRAWALS OF PROPOSAL

A proposal may be withdrawn at any time prior to the time specified as the closing time for acceptance of proposals. However, no proposal shall be withdrawn or canceled for a period of thirty (30) days after said closing time for acceptance of proposals nor shall the successful provider withdraw, cancel or modify the proposal, except at the request of GVI after having been notified that said proposal has been accepted by GVI.

G. INTERPRETATION OF SPECIFICATIONS

If any person contemplating submitting a proposal requires clarification of any part of the scope of work, he/she may submit to the GVI a written request for an interpretation thereof to the **Assistant Commissioner of Procurement, Lisa M. Alejandro**. GVI will not respond to questions received after the above established date. The person submitting the request will be responsible for its prompt delivery. Any interpretation of the scope of work will be made in writing to all prospective providers. Oral explanations will not be binding.

H. CONSIDERATION OF PROPOSAL

The Commissioner of Property and Procurement shall represent and act for GVI in all matters pertaining to the scope of work and contract in conjunction therewith. **This RFP does not commit GVI to the award of a contract, nor pay of any cost incurred in the preparation and submission of proposals in anticipation of a contract. GVI reserves the right to reject any or all proposals and to disregard any informality and/or irregularity in the proposal when, in its opinion, the best interest of GVI will be served by such action.** Proposals failing to provide some of the items in the scope of work shall not be rejected per se but any deviations from the scope must be clearly noted.

I. ACCEPTANCE OF PROPOSALS

GVI will notify in writing acceptance of one of the proposals. Failure to provide any supplementary documentation to comply with the respondent's proposal may be grounds for disqualification.

J. CONTENTS OF PROPOSAL

The following is a list of information to be included in the written proposal. The documents listed under this section are required for submission of a proposal in response to this RFP and failure to comply with any requirement as outlined may disqualify the respondent.

1. Organization:

    a. Introductory letter about the applicant:

        i. Name, address, email and telephone numbers.
        ii. Type of service for which individual/firm is qualified.

b. Provide a list of staff available for the project (Local & Off-Territory)
c. Current Business License or state register for the services being advertised. All bidders bidding as a Joint Venture must be licensed as a Joint Venture in the US Virgin Islands
d. Current trade name registration certification; if applicable
e. Certificate of Good Standing dated July 1, 2019 or later
f. Articles of Incorporation (For Corporations) or Articles of Organization for (LLC's) or qualification (Limited Partnerships), if applicable.

2. Sub-Contractors:
   a. Provide listing of Sub-Contractors that shall be retained for this project including phone numbers.
   b. Provide what percentage of work will be sub-contracted.

3. Project Experience:

   a. Provide a list of projects performed within the last three (3) years. Include a brief description of the work performed and cost of each project.

   b. Provide a list of projects currently being performed. Include a brief description of the project and percentage completed.

4. Project Approach:
   a. The respondent applying to this solicitation will describe how you will approach this project and availability to perform the services requested.

5. References Letters: 3 letters minimum related to the projected being solicited. To obtain maximum allotted points, each letter must:
   a. Include information about past performance on similar project from authorized representative;
   b. Include a working telephone number; and email address to be contacted; and
   c. Notarized.

6. Proof of Sams.Gov registration

7. **Cost Proposal is a rating factor for evaluation and should be submitted in the body of the proposal.**

K. CONFLICT OF INTEREST

A proposer filing a proposal hereby certifies that no officer, agent or employee of GVI has a pecuniary interest in this proposal or has participated in contract negotiations on behalf of GVI; that the proposal is made in good faith without fraud, collusion, or connection of any kind with any other Bidder for the same request for proposals; the Bidder is competing solely in its own behalf without connection with, or obligation to, any undisclosed person or firm.

L. ACCEPTANCE OF CONTRACT TEMPLATE AND OTHER TERMS AND CONDITIONS

By submitting a proposal in response to this RFP, the respondent agrees to accept the boilerplate terms and conditions of the Government's standard Professional Services Contract, a copy of which is attached to this RFP, if the respondent is selected for award.

M. MANDATORY LIST OF REQUIRED SUPPROTING DOCUMENTS TO CONTRACT WITH GOVERNMENT OF THE VIRGIN ISLANDS

1. See Attached.

THE DOCUMENTS IN THE ATTACHMENT WILL BE REQUIRED FOR APPROVAL OF THE CONTRACT WITH THE SUCCESSFUL RESPONDENT.

List of Required Docs.09.17.2018.pdf

OFFICE OF THE LIEUTENANT GOVERNOR
GEOSPATIAL INFORMATION SYSTEMS DIVISION

REQUEST FOR PROPOSAL

National Height Modernization System Surveys

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I. GENERAL INFORMATION

A. **PURPOSE / OVERVIEW TO INCLUDE TIMELINE AND PERSONNEL OVERSIGHT**

1. **Reason For RFP:** The purpose of this Request for Proposal (RFP) is to seek qualified Surveyors/Professional Engineers with the knowledge, experience, expertise, and relevant hardware to provide National Height Modernization System (NHMS) surveys utilizing Global Positioning System (GPS) methods throughout the Territory according to national standards. Specifically, the NHMS control surveys will be supporting the FEMA Floodplain Mapping Program (FMP) and will improve the GPS information for monumentation.

2. **Categories of Services:** This RFP is requesting the proposals for the services of Surveyors/Professional Engineers, one for each island district. Respondents may elect to limit their proposals to a single service or submit for multiple islands.

3. **Timeline of Project**

Total Timeline **24 months**

4. **Timeline of Deliverables**

Monument Placement Plan Phase **2 Months**
Capture, Update, & Place new monuments **18 Months**
Implement Long Term Framework **4 Months**
Contractors will be required to successfully fulfill NOAA OPUS project manager program training. Office of LT. Governor staff completed NOAA OPUS project manager program training. in June 2019.

5. **Office of The Lieutenant Governor Personnel Oversight**

Project Manager - L. Christopher George, Administrator GIS Division
Oversight - Monica Williams-Carbon, Chief Of Staff Office of Lt. Governor
Budget Oversight - Claudette Farrington, Director of Management & Budget

B. **BACKGROUND**

Geospatial Information Systems Division - Office of the Lieutenant Governor

The Lieutenant Governor heads the management systems of land in the United States Virgin Islands including Cadastral and the Geospatial Information Systems Division (**GISD**). The Cadastral of Territory of the United States Virgin Islands is divided into two (2) Cadasters – the St. Thomas-St. John Cadaster and the St. Croix Cadaster. The Cadastral houses the Territory's boundary and geodetic information and is managed by the Public Surveyor. There is relatively no difference between the two Cadasters except for physical location. Through various GPS/GNSS/GIS enabled technologies, the GIS Division creates, implements, manipulates, and publishes USVI geographic data including Cadastral data into useful digital format. The GIS Division also administers an Intra-Government GIS Platform, which is the warehouse for all critical USVI GIS Data.

The FEMA Hazard Mitigation Grant Program (HMGP) presents a critical opportunity to reduce the risk to individuals and property from natural hazards, while simultaneously reducing reliance on Federal disaster funds. HMGP is authorized by Section 404 of the Stafford Act, 42 U.S.C. 5170c. The key purpose of HMGP is to ensure that the opportunity to take critical mitigation measures to reduce the risk of loss of life and property from future disasters is not lost during the reconstruction process following a disaster. HMGP funding is available, when authorized under a Presidential major disaster declaration, in the areas of the Territory requested by the Governor. In the advent of the 2017 Hurricanes Irma & Maria, the Office of Lieutenant Governor's Benchmark Control Network Project was designated for approval for the HMGP (HMGP Project # 4340-0006).

C. **ADMINISTRATIVE STRUCTURE**

L. Christopher George is the Administrator of the **GISD** and is the designated **Project Manager** for the BENCHMARK NETWORK CONTROL PROJECT. The official physical and mailing address to be used for any correspondence or delivery of paper reports for the **GISD** is as follows:

GIS Division – Office of the Lieutenant Governor
5049 Kongens Gade #18
St. Thomas, US Virgin Islands 00802

D. **USVI GEODETIC NETWORK BACKGROUND AND REQUIREMENTS**

I. **HISTORY**

Since the 1600's the Virgin Islands has been geographically identified in one specificity or another. During the years 1918 to 1922, following the acquisition of the Virgin Islands from the Danish government, the United States Department of Interior through the U.S. Coast and Geodetic Survey in conjunction with the U.S. Navy, sanctioned a complete detailed topographic survey for the Virgin Islands on a scale of 1: 10,000. A triangulation scheme was extended from points already established on Culebra, Vieques, and Savana Islands to cover St. Thomas, St. John and St. Croix, and by arrangement with the Crown representative, to the nearest British Virgin Islands, for future determination of the international boundary. Geodetic monuments were placed

memorializing major topological and infrastructure features of the Territory. The Department of Interior then compiled data, both historic and newly created geodetic data, into the Geographic Dictionary of the U.S. Virgin Islands. The Geographic Dictionary and NOAA's National Geodetic Survey (NGS) recognized monuments are the basis for the modern spatial reference system of the U.S. Virgin Islands. However, only around 500 geodetic monuments, both passive and active, have been placed in the Territory.

II. **PROGRAM ADMINISTRATION**

The National Geodetic Survey (NGS) is an office of NOAA's National Ocean Service. Its core function is to maintain the National Spatial Reference System (NSRS), "a consistent coordinate system that defines latitude, longitude, height, scale, gravity, and orientation throughout the United States."[1] NGS is responsible for defining the NSRS and its relationship with the International Terrestrial Reference Frame (ITRF). The NSRS enables precise and accessible knowledge of where things are located in the United States and its territories.

Throughout the progress and process of Land Management in the Territory of the Virgin Islands under United States ownership, the acknowledgement, utilization, and expansion of the NOAA/NGS recognized monuments has been mostly ignored. In turn, this has prevented the Territory from being included in the National Spatial Reference System (NSRS). Also due to this fact; in general, boundaries/monuments have independent systems of calculations and minimal correlating information to the boundaries/monuments to which they are adjacent. This issue creates problems in parcel and estate boundaries, hazard mitigation practices, proper flood zone calculations, navigation, and overall understanding of the Territory's geodetics. In response, the **GISD** initiated the US VIRGIN ISLANDS BENCHMARK CONTROL NETWORK PROJECT. In 2022, the NGS will modernize the National Spatial Reference System and replace both the horizontal (NAD83) and vertical (NAVD88, VID09) datums with regional Terrestrial Reference Frames. For the U.S. Virgin Islands it will be the Caribbean Terrestrial Reference Frame (CATRF2022). This modernized three-dimensional and time-dependent national spatial framework will optimally leverage the ever-increasing capabilities of modern technologies, data, and modeling – notably the Global Navigation Satellite System (GNSS), gravity data, and geopotential/tectonic modeling – while better accommodating Earth's dynamic nature. The future NSRS will feature unprecedented accuracy and repeatability, and users will experience many efficiencies of access. The efforts of the US VIRGIN ISLANDS BENCHMARK CONTROL NETWORK PROJECT will ensure the U.S. Virgin Islands is positioned to accommodate the 2022 transitions.

II. SCOPE OF WORK

The purpose of this **Request for Proposal is specifically for Phase 1** which will be to place 90 new monuments (30 in St. Croix, 30 in St. John, 30 in St. Thomas) on the Territory's Historical & Important Landmarks. The new monuments will be placed in developed or urban areas. Specifically, the NHMS control surveys will be supporting both the FEMA Floodplain Mapping Program and the National Spatial Reference System. Based on the Department of Property & Procurement and FEMA compensation standards, the GISD intends to award Fixed Rate Professional Services Contracts based on the cost to set new monuments which include:

- A flat rate for each monument (including placement, reporting, OPUS upload & verification)
- Cost of materials used: concrete, stakes, ribbon, etc (Monuments provided by GISD)
- Inter-island travel
- Travel for off-island Contractors

To accomplish the expansion of National Height Modernization System (NHMS) surveys in the Virgin Islands the GISD intends to contract private surveying firms (henceforth referred to as the "Contractor") for the purpose of performing NHMS surveys utilizing Global Positioning System (GPS) methods in three phases.

Phase 1 – Territory Historical & Important Landmarks (90 new monuments)
Phase 2 – Residential areas
Phase 3 – Underdeveloped lands

The work will consist of performing the steps required by the **GISD** and the National Geodetic Survey (NGS) as detailed in the National Oceanic and Atmospheric Administration (NOAA) Technical Memorandum NOS NGS-58 entitled, "Guidelines for Establishing GPS-Derived Ellipsoid Heights (Standards: 2 cm and 5 cm) Version 4.3", which herein will be referred to as "NGS-58 (2 cm)", and can be downloaded from the following URL: http://www.ngs.noaa.gov/PUBS_LIB/NGS-58.html.

This work will include but is not restricted to the following: reconnaissance, setting of new marks, and NGS-58 (2 cm) control surveys. The process will normally involve the recovery of existing control, reconnaissance for new monuments, setting new monuments, GPS observations to NGS-58 (2 cm) guidelines, processing of GPS data, and performing a preliminary adjustment. Typical end products may include the following:

a) Written project report of survey
b) NGS B, G, and D files
c) Other survey documents
d) Successful submission to NOAA's OPUS program

The GISD will acquire approval for monument placement from relevant agencies or property owners prior to placement.

The Contractor conducting the NHMS surveys will provide accuracy with GPS derived heights by following a modification of the NGS scope of work (SOW) for NHMS surveys outlined below:

1. **GENERAL**

Additional GPS derived heights are required to improve the NSRS network of known elevations across the United States.

2. **DELIVERABLES**

Requirements include survey monument placement, related notes and descriptions, digital photography of marks, visibility diagrams, successful upload to OPUS and related reports.

3. **RECONNAISSANCE REQUIREMENTS**

The Contractor will coordinate with **GISD** for placement of new marks, write survey mark notes and mark descriptions to NGS specifications, obtain digital photography of marks, and produce a GPS visibility diagram for each mark placed.

4. REPORTING REQUIREMENTS

- Regular weekly status reports will be made via email. The final report will include a placement report, digital notes and description files, digital photographs, visibility charts, OPUS approved position file of new marks, and other requirements as listed in this SOW document.
- The private surveyor performing the work and who is responsible for the work must be a Registered Land Surveyor (RLS) and Licensed to practice in the United States Virgin Islands. The firm performing the work must be registered with the Office of the Lieutenant Governor, Division of Corporations and Trademarks and hold a current license approved by V.I. Board of Architects, Engineers and Land Surveyors. It will be the responsibility of the prime firm to verify the registration of any corporate subsidiary prior to submitting a Letter of Qualifications (LOQ). The firm must have the financial ability to undertake the work and assume the liability. The selected firm(s) will be required to furnish proof of sufficient Professional Liability Insurance coverage as determined by Department of Property & Procurement. The firm(s) must have an adequate accounting system to identify costs chargeable to the project. The scope of work for these contracts are NHMS control survey specific, and thus subcontracting of this phase of work will not be allowed.
- The Contractor will need to complete NOAA's Online Positioning User Service (OPUS) Projects Manager Training. OPUS provides free access to high-accuracy National Spatial Reference System (NSRS) coordinates. OPUS uses software which computes coordinates using the NOAA CORS Network (NCN). OPUS is a popular NGS tool which helps survey-grade GPS users tie their local surveys to the National Spatial Reference System (https://www.ngs.noaa.gov/OPUS-Projects/OpusProjects.shtml). By leveraging the processing software used to manage the Continuously Operating Reference Station (CORS) network, OPUS improves raw GPS results to within a few centimeters of accuracy.
- All monuments placed will be submitted to the NSRS through OPUS Projects and improve the overall NSRS data quality for the Territory. This will additionally prepare the USVI for the NSRS modernization in 2022. Monument recoveries and shared solutions provide NGS and other users of the NSRS with insight into the health of the passive control network and updated information for project planning.

Types of Work

Types of surveying work will include, but are not restricted to the following:

- Placement of new geodetic control monuments. Recovering and replacing existing NGS/USGS markers, as well as setting new Reference Markers.
    - Setting monuments in selected areas according to prescribed guidelines
    - Paint arrow on highway to aid in future recovery of geodetic monument. Contractor should use their professional judgment to determine if an arrow should be painted on the street or highway. Paint should be highway marking quality or better. See Appendix A for painted arrow specifications.
    - Prepare a visibility diagram for each placed mark. See Appendix B for a visibility diagram template.
    - Obtain photographs of each geodetic monument. See Appendix C for the NGS "Requirements for Digital Photographs of Survey Control" document.

- Submittal of project report.
    - In the narrative report, document each survey task in a complete, accurate, concise, and clear manner.
    - Use the appropriate work product to document specific survey tasks

- NGS D file.
    - Produce the D file using WinDesc, which can be downloaded from the following URL http://www.ngs.noaa.gov/PC_PROD/PARTNERS/WinDesc/WinDesc_4.02.ZIP

- Weekly project status reports.
    - Emailed to GISD every Monday following the commencement of the project
    - Subject heading format: "HM weekly report from (Firmname) for the week of MM/DD/YY" (i.e. HM weekly report from XYZ Surveyors, Inc. for the week of 08/27/18)
    - Brief summary of the project's status and the week's activities

- Reporting GPS Observations with OPUS Share

Reporting your GPS Observations is very easy. It is very important that you recorded the proper attributes including antennae model, pole height (generally fixed height 2m) and all the other metadata for the observation needed to submit to OPUS.

- start with a 4+ hour GPS data file, mark description, and two photos.
- visit http://geodesy.noaa.gov/OPUS/
- enter the required data file name, antenna type, height, email
- click the [Options] button
- at the bottom you will see a selection box that says "No, don't share"
- change it to say "Yes, share"
- hit the [Upload to Static] button.
- On the subsequent page, there will be two buttons: Click [mark is NEW to NGS]
- Within 20 minutes or so, you will receive two automated emails:
- OPUS solution first.

- If successful, then OPUS invitation to review and approve your shared solution else a sharing failure message.

Complete, accurate, concise, and clear documentation will be required for all types of work. **GISD** may perform some of the research for the various NHMS control projects and furnish this information to the corresponding Contractor.

Standards

All surveying and mapping work will comply with the following standards:

• Applicable Virgin Island Code standards

• FGDC Geospatial Positioning Accuracy Standards https://www.fgdc.gov/standards/projects/accuracy

• GPS vertical surveys will comply with the 2-cm requirement of NGS-58 (2 cm). Specifically, vertical positions will meet or exceed 2-centimeter (0.020 meters) accuracy standards and specifications at the 95% confidence level.

• Traditional vertical surveys using electronic or optical levels will meet or exceed Third (3rd) Order specifications and conform with the Federal Geodetic Control Subcommittee (FGCS) "Interim FGCS Specifications and Procedures to Incorporate Electronic Digital/Bar-Code Leveling Systems" report, which herein shall be referred to as "FGCSVERT", and can be downloaded from the following URL: http://www.ngs.noaa.gov/FGCS/tech_pub/Fgcsvert.v41.specs.pdf

• Horizontal Component: All horizontal surveys will be tied to the NAD1983 StatePlane for Puerto Rico & Virgin Islands FIPS:5200, WKID: 102761

• Vertical Component: All vertical surveys will be tied to the Virgin Islands Vertical Datum of 2009 (VIVD09).

Landowner Notification and Consent to Access Land

The GISD will obtain permission (verbal or written) to perform mark placement from all landowners of record, lessees, and other parties within each NHMS project area. Therefore, prior to entering upon private, corporate, or government owned land, the GISD is responsible for having secured both:

• All rights of entry

• Access

GISD will provide landowner a notification form letter and an authorization form requiring execution by the landowner to grant access to the land to the Contractor.

Line Clearing

If mark placement necessitates line clearing to obtain a line of sight, the Contractor is responsible for any damage and must maintain the natural environment of the project area by keeping the line clearing to an absolute minimum. In addition, the Contractor must obtain written permission from the landowner to cut vegetation according to the following protocol:

- Written permission from the landowner is required to cut or damage any planted or cultivated crop, fruit, or ornamental tree or plant, regardless of size and any underbrush or seedling-sized tree with a > 2 inch Diameter at Breast Height (DBH).
- Written permission from the landowner is not required to cut any underbrush or seedling-sized tree with a < 2 inch DBH.

Regardless of a cut tree's trunk diameter, the remaining stump must not project more than one (1) foot above the ground.

Environmental or Regulatory Constraints
The Contractor will comply with all applicable Federal (including OSHA) and USVI laws, rules, and regulations regarding environmental, safety, and other regulatory constraints. All survey work will be performed in a manner consistent with the natural environment of the area. It is the Territory's intent to have this work completed without permanently harming or drastically altering the natural conditions that existed prior to the survey in the project area.

Schedule
The Contractor will furnish **GISD** with a written schedule of work that include assignments at least five (5) business days prior to beginning any project. The Contractor will furnish weekly progress reports via email.

Field Work, Supervision, and Field Notes
The Territory requires that the Contractor have immediately available to perform under this SOW a minimum of one (1), full (1-3 person), field survey crew. Each crew will be equipped, as required for each daily task, with fully operational and calibrated GPS equipment, search and recovery tools, safety Personal Protective Equipment (PPE), and all related and necessary surveying field equipment and supplies. All field work/surveys will be under the direct, supervision of a land surveyor holding a valid United States Virgin Islands Professional Land Surveyor (PLS) license. To warrant an inclement weather extension for abnormal loss of workdays, the Contractor shall provide GISD with a project log documenting the weather conditions that necessitated the work stoppage.

Milestones
Part I: Meeting with GISD to determine project extents
Part II: Placement of marks designated by Historic Preservation Office
Part III: Update descriptions, produce GPS visibility charts, and obtain photos of all placed marks
Part IV: Description and processing. Preliminary adjustment.
Part V: Report of mark placement and other required surveying and mapping documents/files.
Part VI: Successful Upload and Integration of marks in NOAA's OPUS Program.

Monitoring and Evaluation of Work
The GISD Project Manager responsibilities shall include ensuring that the work being performed is complete, accurate, and consistent with the terms and conditions of the proposal and contract. As necessary, the GISD Project Manager will:

- Schedule and attend progress meetings
- Monitor discussions and conditions leading to contract modifications
- Visit the project and/or the firm's offices on a frequency that is commensurate with the magnitude, complexity, and type of work
- Assure that costs billed are consistent with the acceptability and progress of the firm's work

The GISD Project Manager shall prepare written interim and/or final performance evaluation reports that will be sent to the Contractor for comment upon project completion and after appropriate milestones. These reports should include, but not be limited to, an evaluation of:

- Work quality
- OPUS Project Status

- Adherence to the work schedule
- Conformance with established policy

The Contractor has the option to respectfully contest any point in the evaluation report by submitting a written explanatory report to the GISD Project Manager. Please be aware that the GISD Project Manager has final judgment authority and shall attach each submitted explanatory report to the final evaluation report.

Deliverables

As specified and requested by GISD for each work assignment, the Contractor will furnish GISD all the following deliverables (in archival hard copy and/or digital media formats):

1. Mark Placement project report.
2. Appendixes:
    - Appendix A: Painted Arrow Specifications
    - Appendix B: Visibility Diagram Template
    - Appendix C: Requirements for Digital Photographs of Survey Control
    - Appendix D: Acronyms
3. NOAA OPUS Mark Verification

Payments, Payment Schedule, and Travel Costs

The method of compensation will be a negotiated total cost for each work assignment per this agreement based on compensation standards of Department of Property & Procurement & FEMA.

GISD will not grant final approval on any project until:

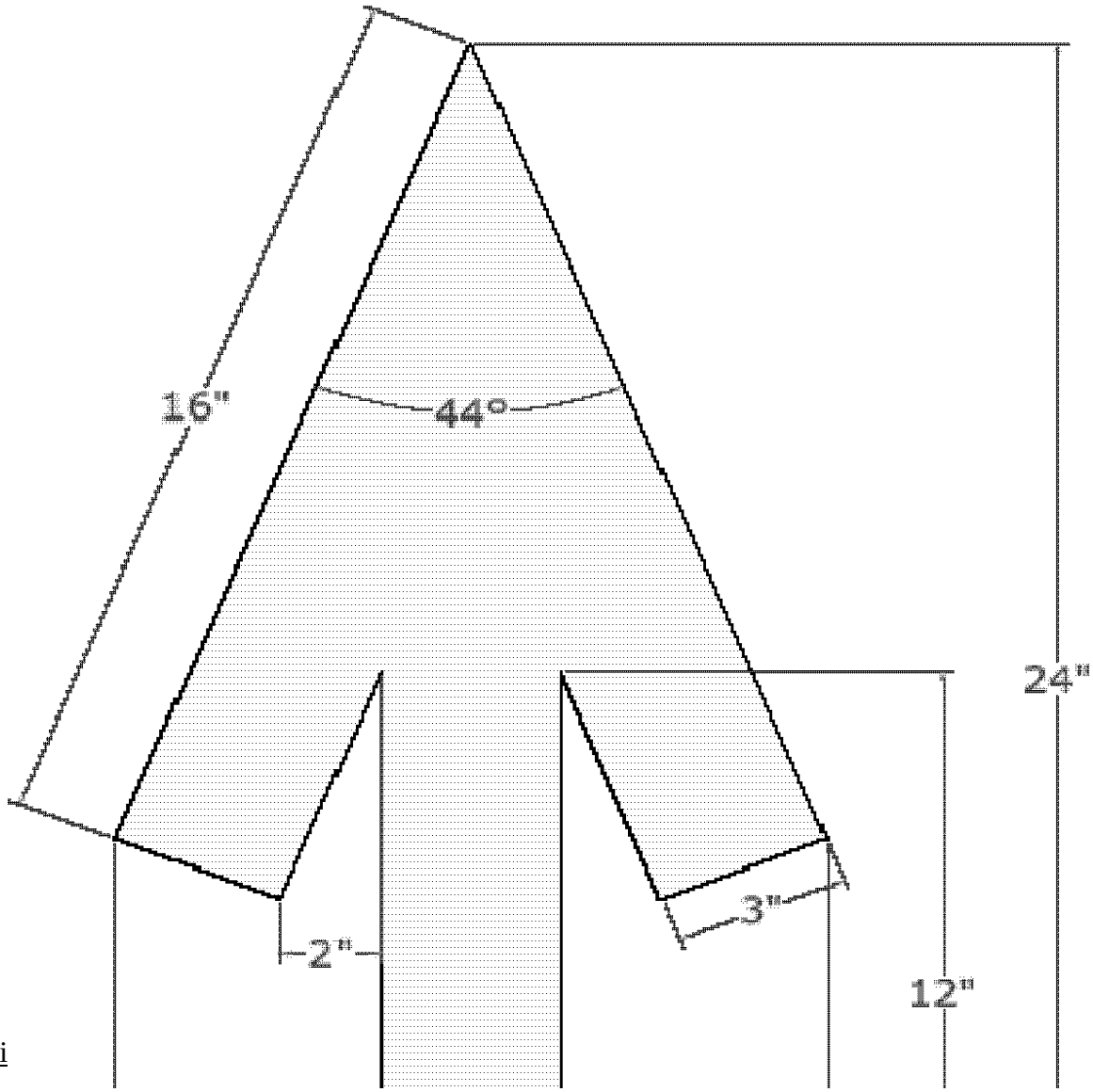
- All specified work is completed by the Contractor and then inspected and accepted by GISD per GISD technical standards and specifications.
- All specified survey and mapping products have been uploaded, reviewed, and accepted by OPUS Projects per NOAA/OPUS technical standards and specifications.
- All specified survey and mapping products are delivered by the contractor and then reviewed and accepted by GISD per GISD technical standards and specifications.
- Travel costs shall not exceed the current inter-Territory travel and per diem rates for Government employees without the prior written approval of the GISD. Travel within the job project area will be included in the per task cost.

GISD, at its option and upon receipt of written invoice for any phase of a work assignment, may make partial payments to the Contractor, but only for completed work and/or submitted work products that have been inspected and accepted by GISD.

APPENDIXES

APPENDIX A

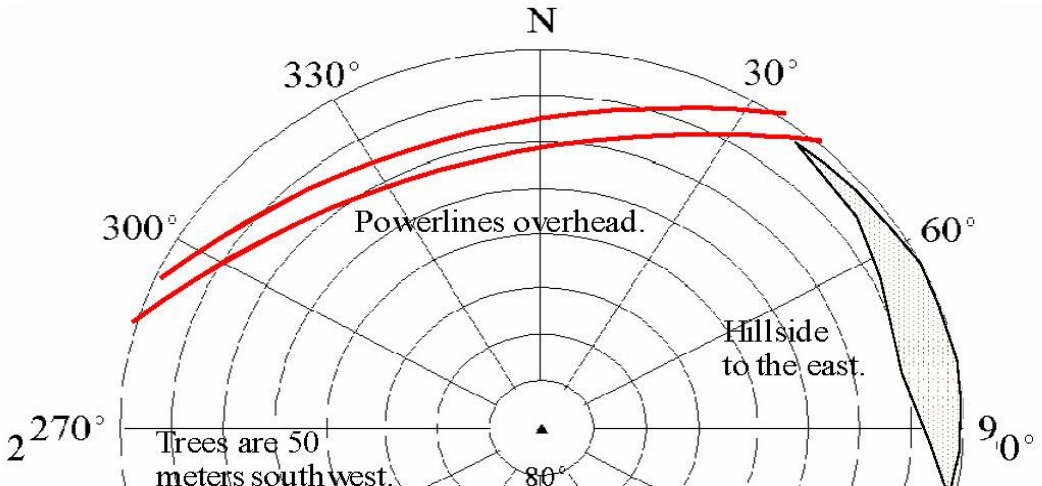
Painted Arrow Specifications



Visibili

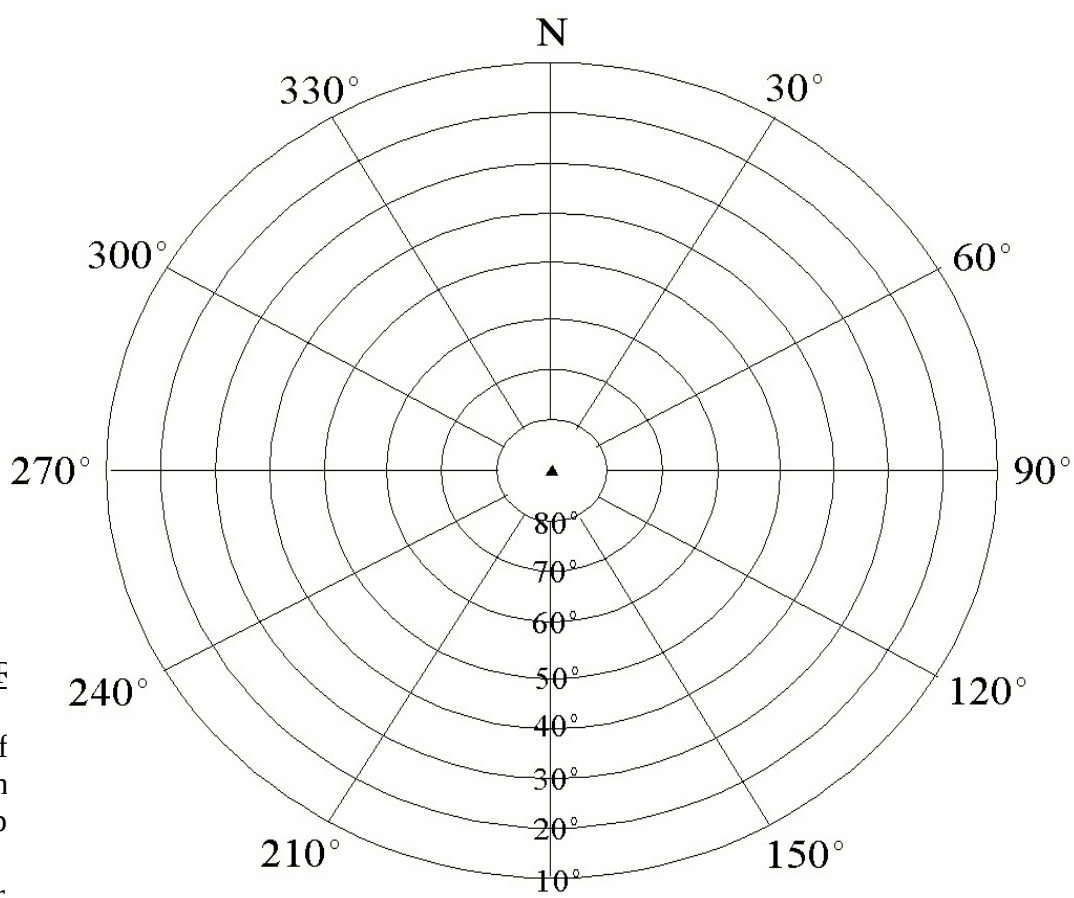
--> Click here to clear the sample data <--

NATIONAL GEODETIC SURVEY VISIBILITY OBSTRUCTION DIAGRAM



SAMPLE

NATIONAL GEODETIC SURVEY VISIBILITY OBSTRUCTION DIAGRAM



INSTF

Identif from
station ential
multip

4-char _____

PID: _____ Location:_____

County: _____ Reconnaissance By: _____

Height above mark, meters: _____ Agency/Company: _____

Phone: (_____) _____ Date:_____

Check if no obstructions above 10 degrees _____

FORM CAN BE PROVIDED BY GISD OR DOWNLOADED HERE: https://www.ngs.noaa.gov/RSD/forms/visibility.pdf

APPENDIX C

Requirements for Digital Photographs of Survey Control

I. PURPOSE - This document describes digital photographic standards for images of survey marks that will be stored in the National Geodetic Survey (NGS) database and for other reconnaissance photographs. Since many of these images will be in the NGS database and available to the public, the subject matter (survey equipment, personnel, background, etc.) must be in good taste and professional in nature.

Digital photographs are useful for station (mark) reconnaissance, mark recovery, mark stability assessment, quality control, and as an aid during data processing and data verification. Some projects may require digital photographs during several stages of the project. Generally three photographs per station will be stored in the NGS database, which will make them accessible to future users. The table below summarizes the required photographs. Detailed descriptions of the photographs follow.

II. SURVEY MARK PHOTOGRAPHS - Take all photographs during daylight hours.

II A. NUMBER OF PHOTOGRAPHS - At least three digital photographs are required for each mark placed during the current project. This means marks for which a written, NGS format, digital description note was prepared. The three photographs are described as numbers: (1) extreme close-up, (2) eye-level (5-6 feet distant), and (3) horizontal view (approx. 10-30 feet distant). All three photographs require a digital caption and the correct file name. Photographs 2 and 3 require a **small, temporary sign** in the photograph.

REQUIRED PHOTOGRAPHS
All Marks Placed
1. Close-up (Taken Vertically)
2. Eye level (Taken Vertically)
3. Horizontal view(s), mark in foreground

Take sufficient photographs to describe the stamping, appearance, condition, and location of the mark and points of potential interest including visibility obstructions, roads, runways, taxiways, or other dangers, any special set-up requirements, etc. Alter the orientation of the photographs as necessary to include this information in as few photographs as possible (For example, for a tall obstruction, rotate the camera 90 degrees so that the long axis of the image is vertical). Capture the tops of nearby obstructions, if possible. An “acceptable photograph” is defined as an image that meets the requirements of this document, is of good visual quality, and that no changes have taken place that a new photograph would help clarify.

II B. CAPTION - The photographer shall write a caption for each photograph. The caption should contain the following comma-separated information:

- Station designation (name)

- Photo number with cardinal direction (N, NE, E, SE, etc) that the camera is pointing,

only photo #3 has a direction

- Station type (i.e. PACS, SACS, FBN, CBN), otherwise leave blank

- Date photo was taken (ddMMMyyyy).

SAMPLE CAPTION FOR NEW MARK
JONES, 2, 8JAN2001

Note, the cardinal direction should not be included on photographs 1 and 2 since they were taken vertically.

The caption may be digitally captured on the image at the time of exposure or may be inserted later, off-line. Record at least the date on-line, if possible. If caption information is added later, take careful notes at the time of exposure to help ensure that the correct caption is added. **Note, the caption shall not obstruct any pertinent aspects of the station or surroundings.** To ensure that the letters of the caption are visible, use software to "erase" a rectangular area for the caption's lettering; see samples below.

II C. DESCRIPTION OF PHOTOGRAPHS:
1. CLOSE-UP - For survey marks, the first photograph (photo no.1) will be a close-up, taken vertically. It will be oriented downward to show the survey mark from directly above with the disk or logo cap nearly filling the image. Brush any dirt or debris off the mark to show the disk. If it has a logo cap, the logo cap should be open. The intent of this photograph is to clearly show the condition of the mark and all stamping on the mark or logo cap so that it is clearly legible. Use extra care to ensure that the stamping is clear. Suggestions: set the camera to its highest quality and resolution modes; **rub a yellow crayon across the stamping to highlight the letters;** set the camera to "macro" mode, if available; consider the minimum focusing distance of the camera (take test photographs to determine the minimum focusing distance and consult the camera owner's manual) ; and, if a flash is used, hold the camera above and off to the side so that the flash does not create a bright spot in the middle of the disk's image. Note, medium quality and resolution camera modes may be used for photographs other than the close-ups. If additional photographs are required, number these close-ups as 1A,
1B...

2. EYE-LEVEL - For survey marks, this photograph (photo no.2) will be oriented vertically downward from eye level to show the monument from

directly above and cover an area about 1 meter in diameter. Brush any dirt or debris off the mark to show the disk and the setting, If it is a concrete monument, clear off debris to the edge of the monument. If it has a logo cap, the logo cap should be open. **Include a small, temporary sign in this photograph with the station designation (name) printed so it is clearly visible in the photograph.** The intent of this photograph is to show the general condition of the mark and the immediate surrounding area. If additional photographs are required, number these eye-level photos as 2A, 2B...

3. HORIZONTAL VIEW(S) - For survey marks, take at least one additional, daylight photograph oriented near horizontal, and show the mark, with tripod and antenna (if possible), in the foreground, and its identifying surroundings and any significant obstructions or possible sources of multi-path in the background. Show the top of nearby obstructions, if possible. Consider rotating the camera 90 degrees to use the long axis of the image to capture an entire obstruction. **Place a temporary sign in this photograph with the station designation (name) and the direction the camera is pointing, both printed so they are clearly visible in the photograph.** If additional photographs are taken, ideally move around the mark to locations which are 90 degrees apart (preferably cardinal directions). Name these photographs number 3XX, where the "XX" is the cardinal direction the camera is pointing, for example, 3N or 3NE

II D. FILE NAMES - See Section IV D.

III. A. PROPOSED LOCATIONS FOR MARKS - Take two photographs of each proposed permanent mark location. These may be one photo number 2 and one number 3, or two number 3 (3A and 3B), depending on which combination better shows the proposed mark location. Include a tripod, stake, sign, or other device showing the proposed mark location.

III. B. NAVIGATION AIDS (NAVAIDS) - Take photo(s) (type #3) of all NAVAIDS surveyed. Show the survey tripod in place to indicate the exact point surveyed, or if positioned remotely, add arrows and labels to the photograph indicating the horizontal and/or vertical point(s) surveyed.

III. C. DEPTH OF HOLE PHOTOGRAPHS - Take at least one photograph showing the hole dug or drilled for a concrete or rod mark. Place a measuring device (e.g., tape measure or level rod) in the hole, clearly showing the depth of the hole.

III.D. PHOTOGRAMMETRIC CONTROL POINTS (Paneled and photo identified) - Take two number 3 type photographs of all photogrammetric control points clearly showing the point. These photos will be used later as an aid in identifying the point on the aerial photographs. Show the mark in the foreground and the nearest identifiable feature in the background. The two photographs should be taken from two different directions, ideally 90 degrees apart (such as from the East and the South).

III.E. OTHER REQUIRED PHOTOGRAPHS - as may be required by other instructions.

IV. GENERAL:

IV A. IMAGE SIZE - Each image should be about 800 by 1000 pixels when submitted.

IV B. 2. FILE SIZE - Maximum file size for each image is 500 KB, typical file size should be about 50 - 100KB.

IV C. IMAGE FORMAT - Store the digital photographs in JPEG format, approximately 50% reduction.

IV D. PHOTOGRAPH FILE NAME - Use the following file naming convention: the station designator, dash, the PID, dash, the photo number (1, 1A, 2, 3N, or 3NE, etc.), dash, date, dot, jpg. For new marks, there is no PID. Use a maximum of 30 alpha-numeric characters to the left of the dot. Sample File Names for new stations: *SMITH-3-date.jpg*

V. STORAGE MEDIUM - Submit all digital photos together on their own medium (CD), **not on the same medium with other types of data**. For airport work, submit all photos for a given airport in a subdirectory named for that airport.

APPENDIX D

Acronyms:

FEMA - Federal Emergency Management Agency

HMGP – Hazard Mitigation Grant Program

FBN - Federal Base Network

CORS - Continuously Operating Reference Station (Global Positioning System receiver)

CBN - Cooperative Base Network

RM - Reference Mark

NOAA - National Oceanic and Atmospheric Administration

NGS - National Geodetic Survey

OPUS - Online Positioning User Service

FGDC - Federal Geographic Data Committee

NSRS - National Spatial Reference System