

APPENDIX A

- 1. SPECIFICATIONS FOR DIGITAL DATA:** Any maps, drawings, figures, sketches, geospatial data, spreadsheets, or text files prepared for this contract shall be provided in both hard copy and digital form unless otherwise specified in the statement of objectives. The hard copy deliverables are defined in another section of this SOO. The Cooperator shall comply with Department of Defense (DoD) Controlled Unclassified Information (CUI) requirements per DoD Instruction 5200.48, "Controlled Unclassified Information."

The Cooperator shall comply with standards specified in The *GEOFidelis* Data Management Guide, Quality Management Plan, and Metadata Guide.

The *GEOFidelis* Program Office will provide Data Layer Specifications (DLS) and Data Reviewer Batch Jobs (RBJs) to the Cooperator for each layer being collected. Data shall be collected and delivered in accordance with the DLSs. The Cooperator shall assess and report on each of the mandatory quality metrics described in the DLSs and provide a summary spreadsheet of the RBJ quality assessment output.

- 2. COORDINATION:** The Cooperator shall recommend a plan of action and milestones (POAM) for completing each activity identified in the Cooperative Agreement.

The Cooperator shall perform the kickoff meeting before any work occurs. The Government and Cooperator shall jointly develop a schedule, after Cooperative Agreement award, to accomplish all other required tasks and deliverables. The schedule and POAMs shall be integrated into one document.

The Cooperator shall conduct one (1) project kick-off meeting and one (1) close out meeting at the following location: virtually. The kick-off and close out meeting shall be illustrated with a Microsoft PowerPoint (or similar) slide presentation. The primary objectives of the meetings will be to introduce the key stakeholders for each task; to review the Project Management Plan, Work Plan, Work Schedule, and Delivery Schedule; and understand the interaction points required of the government throughout the project. The Cooperator shall provide a printed sign-in sheet to create a record of the attendees for the kick-off and close out meetings. It is anticipated that this meeting will be for one (1) working day for each meeting.

This task also includes preparation of pre-meeting materials (Project Management Plan, Work Plan, Work Schedule, and Delivery Schedule), post-meeting minutes within five (5) days of the meetings, and completion of any follow-up action items.

The preferred method of transmission of data is via Secure File Transfer Protocol (SFTP) using DoD SAFE (<https://safe.apps.mil>).

A. Text, Spreadsheet, and Database Files: All final reports shall be delivered in the current version of Microsoft Office being used by the USMC and Adobe Portable

Document Format (PDF). Spreadsheet files shall be provided in Microsoft Excel. Databases shall be provided in Microsoft Access format, unless specified otherwise, as approved by the Government. **Prior to database development, the Cooperator shall provide the Government with a Technical Approach Document** for approval, which describes the Cooperator's technical approach to designing and developing the database. All text, spreadsheet, and database files shall be delivered via SFTP - DoD SAFE (<https://safe.apps.mil>) or external storage device.

B. Maps, Drawings, and Sketches (Digital Geospatial Data):

1. Geospatial Data Software Format: *Geographic data **must** be provided in a form that does **not** require translation, preprocessing, or post processing before being loaded to the GEOFidelis Authoritative Data Store (ADS) in Spatial Database Engine (SDE) format. The Cooperator shall validate any deviation from this specification in writing with the Government (MCICOM Installation Geospatial Information & Services (IGI&S) Program Manager via the Project Manager). Digital geographic maps and the related data sets shall be delivered in the following software format:*

a. GIS: *The Cooperator shall deliver the GIS data produced under this SOO in an Esri file geodatabase matching the software version that the USMC IGI&S program is currently using at the time of performance and compliant with the current USMC adaptation of Spatial Data Standard for Facilities, Infrastructure, and Environment (SDSFIE). GIS data must also conform to USMC IGI&S minimum data quality/metadata specifications.*

-AND / OR-

b. CADD: *The Government may approve the use of AutoCAD when it is determined that the format will not compromise the spatial accuracy or structure of the delivered data and that the data will easily integrate with the enterprise GIS system. All CADD data shall be provided in the current USMC version of AutoCAD and shall be in the same projection and use the same coordinate system, datum, and units as stated below in the paragraph titled Geospatial Data Projection. Drawing files shall be full files, uncompressed, unzipped, and georeferenced.*

-AND / OR-

c. LiDAR: *LiDAR deliverables will be provided in .las format or other LiDAR compliant formats as approved by the GEOFidelis Program Office.*

(NOTE: The Government GEOFidelis program uses GIS software produced by the Environmental Systems Research Institute (ESRI) of Redlands, California and AutoCAD software produced by Autodesk, Inc.)

3. GEOSPATIAL DATA STRUCTURE:

A. GIS Data Sets - When developing/delivering geospatial data, the Cooperator shall adhere to consistent with the most current version of the GEO*Fidelis* Data Model and in accordance with the Data Layer Specifications for applicable layers. If the GEO*Fidelis* Data Model does not adequately address subject data sets, the Cooperator shall consult with the GEO*Fidelis* Program Office for direction and approval of proposed data structures. The Government may approve such modifications if they comply with the GEO*Fidelis* -SDSFIE adaptation process. Copies of the GEO*Fidelis* Data Model may be obtained from the GEO*Fidelis* Portal or the GEO*Fidelis* Program Office via the Project Manager.

When delivering updates to existing feature classes, the Cooperator shall obtain a copy of the subject data in a personal geodatabase to use as a template and associated Data Layer Specifications for all subsequent data collection processes. If further modifications to structure are required as a result of this Scope, the Cooperator will consult with the GEO*Fidelis* Program Office for direction and approval for proposed data structures. The Government may approve such modifications if they comply with the GEO*Fidelis*-SDSFIE adaptation process.

- AND / OR-

B. CAD Drawings/Data - The Cooperator shall develop all CADD data in conformance with the latest version of the following standards and policies:

*U.S. National CAD Standards (NCS)
CAD/BIM Technology Center's AEC CADD Standards
(<https://cadbim.usace.army.mil/>)
NAVFACINST 4250.1, Electronic Bid Solicitation*

4. GEOSPATIAL DATA PROJECTION: Geographic data (regardless of format) shall be provided in the proper *projection* per focus area as approved by the GEO*Fidelis* Program Office. This requirement applies to all CADD drawings including as-designed and as-built project plans as well as GIS data layer deliverables. Each data set shall have a projection file based on format. Map or drawing scales will be determined by the GEO*Fidelis* Program Office. Mapping accuracy for the agreed scales will conform to the American Society for Photogrammetry and Remote Sensing (ASPRS) "Positional Accuracy Standards for Digital Geospatial Data" and "Geospatial Positional Accuracy Standards". Copies of these standards can be obtained on the Internet at <https://www.asprs.org> and/or at <https://www.fgdc.gov> or by contacting:

*American Society for Photogrammetry and Remote Sensing
5410 Grosvenor Lane, Suite 210
Bethesda, MD 20814-2160*

5. GEOSPATIAL DATA COLLECTION:

A. Mapping grade Global Positioning System (GPS) data collection (sub-foot (approximately 30 Centimeters), sub-meter and sub-5 meter) shall be performed when specified in the statement of objectives and shall be completed in accordance with state and local guidelines and standards. Default horizontal accuracy for mapping grade GPS data collection efforts shall meet a sub-meter threshold unless otherwise specified to be survey grade or sub-foot or sub-5 meter in the statement of objectives. Only approved statewide base stations shall be used for mapping grade GPS data collection. Spatial accuracy requirements are as follows:

Sub foot (approximately 30 Centimeters): 95% of all points are within ± 30 Centimeters

-OR-

Sub meter: 95% of points are within ± 1 Meter

-OR-

Sub 5 meter: 95% of points are within ± 5 Meter

- AND / -OR-

B. Survey grade GPS data collection shall be performed when specified in the statement of objectives. As survey processes are highly regulated by federal, state, and/or local technical and licensing requirements, they are in general beyond the scope of this document. However, survey grade GPS data collection shall at a minimum use the Geoid2003 CONUS epoch (or a more current epoch if available at the time of this project) and spatial accuracy requirements for survey grade are 95% of GPS points are within + 1 centimeter. Every effort shall be made to capture feature locations without using offsets unless obstructions are present. Any offsets used shall be annotated in the "user flag" field.

NOTE: None of the GPS collection information is to be included in the table structure of the delivery, unless it is specifically part of the SDSFIE feature format.

6. MEDIA FOR GEOSPATIAL DATA DELIVERABLES: Geographic data shall be delivered via SFTP -DoD SAFE (<https://safe.apps.mil/>) or other digital media such as external hard drives if approved by the government. This media shall contain only the value-added data sets as designated in the Task sections of the statement of objectives. Do not include the Cooperator's working files or originating installation data sets that may have been used by the Cooperator to develop the deliverables. "READ ME" files may be included on the geographic data media if such files provide explanation of the delivered data sets; however, these "READ ME" files should not be delivered in lieu of standard metadata.

7. GEOGRAPHIC DATA DOCUMENTATION (METADATA): For each digital file delivered containing geographic information (regardless of format), **the Cooperator shall provide**

documentation consistent with the Federal Geographic Data Committee (FGDC) Content Standards for Digital Geospatial Metadata (CSDGM). Copies of the FGDC metadata standard can be obtained on the Internet at <http://www.fgdc.gov> or by contacting:

*FGDC Secretariat
c/o U.S. Geological Survey
590 National Center
Reston, Virginia 22092
(703) 648-5514*

The documentation, at minimum, shall include the following:

- The name, description, abstract, and purpose of the data set/data layer
- The source of the data and any related data quality information such as accuracy and time period of content
- Descriptions of the receiver and other equipment used during collection and processing, base stations used for differential corrections, software used for performing differential corrections, estimated horizontal and vertical accuracies obtained, and conversion routines used to translate the data into final geographic data delivery format.
- Type of data layer (point, line, polygon, etc.)
- Field names of all attribute data and a description of each field name
- Definition of all codes used in the data fields
- Ranges of numeric fields and the meaning of these numeric ranges
- The creation date of the map layer and the name of the person who created it
- A point of contact should be provided to answer technical questions

GIS metadata shall be delivered in XML format. Regardless of the tools used for metadata creation, the Cooperator will ensure that the delivered data uses the SDSFIE-M Metadata Style for ArcGIS, available to download from <http://www.sdsfie.mil/Standards#Metadata>. Metadata must include all required SDSFIE-M 2.0 elements.

NOTE: The metadata should be formatted from the GEOFidelis Data Model database perspective, not the Cooperator project perspective. Therefore, such items as "Point of Contact" should be the installation POC currently associated with the data and NOT the Cooperator's Project Manager. The Cooperator should use language and format consistent with existing installation metadata.

- 8. GEOGRAPHIC DATA REVIEW:** The digital geographic maps, related data, and text documents shall be included for review in the draft and final contract submittals. The data will be analyzed for discrepancies in subject content, correct format in accordance with these specifications, and compatibility with the existing GIS system. The Cooperator shall incorporate review comments to data and text prior to approval of the final submittal. For each review of digital geospatial data deliverables, the Cooperator shall provide a technical consultant to meet on-site at the installation with the IGIS&S Manager and functional area

subject matter experts to visually review the data deliverables unless otherwise approved by the government. All final GIS Data deliverables will be compliant with SDSFIE - V, -M, and -Q standards.

- 9. OWNERSHIP:** All digital files, final hard-copy products, source data acquired for this project, and related materials, including that furnished by the Government, shall become the property of the Government and will not be issued, distributed, or published by the Cooperator.

GIS data provided by the Government IGI&S shall require a signed non-disclosure letter from the requester and all entities, including sub-Cooperators, who will require access to the data. The Government will provide access only to information required for fulfillment of the contract.

10. Contact Information:

For project inquiries, please contact the CATR and BR. For geospatial questions contact:

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