

SECTION 01 78 30.00 22

ENVIRONMENTAL GIS DATA DELIVERABLES SPECIFICATIONS

011/22

PART 1 GENERAL

1.1 OBJECTIVE

The primary objective of this section is to provide detailed specifications for collection and delivery of geospatial data commonly referred to as Geographic Information System (GIS) data. Additionally, this section provides guidance to ensure that all GIS data delivered is compatible and will add value to the NAVFAC Midlant GeoReadiness Center (GRC) Installation Geospatial Information and Services (IGI&S) Geodatabase. The NAVFAC Midlant GRC is the single, authoritative source and distribution point for all geospatial facility data within the region. The GRC houses the most current geospatial information for the entire Region and provides access to the comprehensive data set and analysis tools to Regional and DOD decision makers/managers, sponsored contractors, and other sponsored individuals via a secure Government Internet site.

Failure to comply with the specifications outlined in this document will result in non-acceptance of data deliverables.

1.1.1 Point of contact for NAVFAC MIDLANT EV GIS Coordinator

The Point of Contact (POC) for assistance in preparation of Environmental GIS deliverables is:

Midlant Environmental GIS Coordinator
9742 Maryland Avenue
Bldg Z140
Naval Station Norfolk
Norfolk, VA 23511
(757) 341-0493 (Main Number)

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for Contractor Quality Control approval. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES 01 33 00.05 20 CONSTRUCTION SUBMITTAL PROCEDURES:

SD-11 Closeout Submittals

GIS Data Deliverables; G

1.3 GOVERNMENT GEOSPATIAL DATA, SCHEMA, AND DOMAINS

Geo-spatial data is based on the Spatial Data Standards for Facilities, Infrastructure and Environment (SDSFIE) Navy Data Model (NDM). Because there are recurring business driven modifications and or adaptations within the SDSFIE schema, provide all spatial and non-spatial data in the most current version utilized by the GRC at the time of delivery.

1.3.1 Data Request Package Requirements

Request the existing GIS Data, Schema and Data Collection Guidance (DCG), via the Government sponsor utilizing the NAVFAC MIDLANT Data Release Form.

a. The GIS Data Request should be submitted prior to the start of data collection efforts and again 4 weeks prior to data delivery to ensure that GIS data has been created and will be delivered utilizes the most up to date SDSFIE schema.

1.3.1.1 Instruction for submitting a Geospatial DRP to the Contracting Officer Representative (COR)

a. Each COR will provide NAVFAC MIDLANT Data Release forms upon request from the Contractor. Complete the request and include all information as instructed on the data release form.

b. Request only GIS data, schema and domains for feature classes that are relevant to the Contract and within the boundary of project area and provide justifications as necessary.

c. Attach the Scope of Work, which is defined by this GIS DATA DELIVERABLES section for each GIS Data Request submittal.

d. Return the NAVFAC MIDLANT Data Release Form to the COR for sponsorship and submittal to the EV GIS Coordinator as instructed with required attachments and justifications for submittal.

e. Incomplete forms may delay receipt of the requested GIS data.

f. GIS data deliverables do not supplement or replace as-built drawings.

1.3.2 Data Collection and Utility Locates

a. Utilize the most up to date SDSFIE Schema when delivering GIS Data.

b. Data shall be collected in the appropriate manner and stored in the proper feature class as defined in the NAVFAC Data Collection Guide (DCG).

c. Verify the current DCG release version with the Government. The current DCG will be provided by the EV GIS Coordinator.

d. Prior to GPS efforts all underground utilities are to be located utilizing a utility locating service in order to obtain and verify accurate feature locations.

- e. Actual conditions in the field always supersede drawings. Locate and field verify all features to ensure location is correctly recorded.
- f. Data will be created to represent the real world, for example, water, sewer, and transportations systems will be connected. All segments will be created from source to sink in the direction of flow.
- g. Research may be required to collect data. Verification of existing data [which is located must be coordinated with the COR.
- h. Non-Utility data, may be collected utilizing Sub-Foot or better GPS data collection methods.
- i. Utility data, will be collected utilizing Survey Grade GPS data collection methods.

1.3.3 Attribute Data Requirements

- a. Populate all attributes in accordance with the guidelines published in the NAVFAC Data Collection Guide (DCG). Obtain attributes via Contract specifications, plans and record drawings.
- b. Verify the current DCG release version with the Government.
- c. Capture, attribute, and deliver Demolished / Removed Real Property data in the Demolished feature classes which include BuildingDemolished (Area) and StructureDemolished (Area).
- d. Capture, attribute, and deliver Demolished / Removed UTILITY data by creating a new feature class which will consists of adding DEMO to the feature's naming convention for each feature, such as, but not limited to the following examples; DEMO.wHydrant (point), DEMO.swDrainageBasin,(polygon), and DEMO.wLine (polyline)
 - 1. Properly deliver demolished features with the current attributes associated with the feature and additionally updating the new Contract number, date of demolition, and optional status.
- e. Spatial and non-spatial data may be copied from existing data, with the exception of specific attributes. Potable water wells are an exception to this rule and shall remain in the feature class and attributed as Removed or AIP.
- f. Locate and update Abandoned In Place (AIP) utility lines in the current feature data set and be attributed as AIP as required.

1.3.4 GIS Topology Rules for Geospatial Data

All data must be created using GIS topology rules for polygons, points and lines, such as, but not limited to the following examples:

- a. Create utility and transportation systems from source to sink.
- b. Draw all utilities in the direction of flow with no breaks in polyline except for fittings, manholes and other features nodes within the feature Dataset.
- c. Create all utility or infrastructure system data, which is, but is not limited to, transportation system and electrical, water, thermal distribution, and wastewater collection, etc., using GIS spatial connectivity rules which specify that vertex, edge and endpoints be snapped to features within the system.
- d. Close all polygons without slivers and be topologically correct.
- e. All polylines must be topologically correct, and should be connected to avoid undershoots, overshoots and dangles. Cross polylines only if they share a point in common, at least one of which is not an endpoint.

1.3.5 Global Positioning System (GPS) Data Collection

Utilize field survey GPS data collected by means of non-recreational GPS equipment

- a. Do not use bench marks that are not included in the Navy Geodetic Survey Base Station Network GPS data collection.
- b. Mission planning is essential. Utilize the best Position Dilution of Precision (PDOP) values for data accuracy.
- c. Conduct mission planning for GPS collection when positional dilution of precision (PDOP) value is 4 or less.
- d. Spatial accuracy requirements
 1. Survey and Sub-Foot GPS grade data collection requirements are as follows:
 - i. Sub-Foot requirements:
 - 1) All points must be within plus or minus 12 inches
 - 2) 95 percent accuracy rate for all points.
 - ii. Survey Grade requirements:

- 1) All points must be within plus or minus 1 centimeter
 - 2) 98 percent accuracy rate for all points
- e. Capture feature locations without using Offsets. Note all Offsets in the Final Report for each feature.
1. Resubmittal of data will be required if PDOP planning was not observed per this specification.

1.3.6 Coordinate System Requirements

Collect data in the following Spatial Reference / Coordinate System for each feature based on the area of interest:

1. Transverse Mercator (UTM) Zone 16N, 17N, 18N or 19N
 - a. World Geodetic System 1984 (WGS84) horizontal datum
 - b. North American Vertical Datum 1988 (NAVD88) vertical datum.
2. Domain precision of 1000 which will result in a database accuracy of 1/1000 m

1.3.7 Formats and Version Guidelines

Present all data deliverables in the following formats and/or versions.

1. GIS data will be provided in an ESRI geodatabase matching the current ArcGIS version of the GRC repository. Verify the current version with the COR before any submittals.
2. Microsoft Windows 10 operating system, unless otherwise approved by the Government.
3. Deliver all reports and maps as a hard copy and in a searchable Adobe Portable Document Format (PDF).

1.3.8 GIS Deliverable Submittal Requirements

Submit all GIS Submittals for analysis by Government GIS personnel prior to final approval. Failure to comply with the specifications outlined in this document will result in non-acceptance of GIS data deliverables.

1. Prior to any spatial and non-spatial development, provide the Government with a technical approach document, in PDF format, for review and approval. Describe in detail the Contractor's technical approach for developing GIS data to include utility locating, collecting, and attributing all GIS data.
2. Provide a GIS deliverable at the end of each phase and at each Beneficial Occupancy Date (BOD) when contracted efforts, studies or construction are delivered in phases.

3. To ensure specifications compliance and quality a preliminary GIS deliverable shall be provided for review when 25 percent of the data has been collected and updated according to this specification.
4. Deliver digital geographic maps, GPS collection files and related data. All working text and documents and personal geodatabase will be included for review in the draft and final delivery of data in PDF format.
5. Do not deliver blank unused schema or feature class data with no attributes. Deliver only data pertinent to the Contract that adds value to the Geodatabase per this section.
6. Do not include existing data in the GIS deliverable.
7. Provide spatial and non-spatial GIS data in a format that does not require translation or pre/post processing.
8. Perform quality assurance for all data and related materials required in this section prior to submitting product to the Government.
9. Analyze for discrepancies in subject content, correct format in accordance with this Section, and compatibility with the existing SDSFIE Schema as well as all other specifications included in this section.

1.3.9 GIS Deliverable Package Requirements

Provide all reports in pdf format. Submit each GIS deliverable must containing the following information and be in the most up to date SDSFIE format utilized by the GRC at the time of delivery.

1. Digital and Paper Maps.
 - a. Submit all maps of GIS DATA DELIVERABLES in ANSI C size.
 - b. Include a project title, Contract number, scale, legend, standard symbology, attributes, i.e., building numbers, road names, etc., for each map.
 - c. Label all utilities with direction of flow and segment line size.
 - d. Provide paper copy and pdf copies of Maps for project.
 - e. Provide a copy of all red-line construction drawings in pdf format.
 - f. Communication data will be provided on a separate map.

2. Provide all spatial and non-spatial data for review and acceptance.
3. Provide a report of specific procedures, list GPS equipment, software and versions that were utilized for the GPS data collection and creation of geospatial data.
4. Submit all GPS data files collected in the field.
5. Provide details on any offsets to include justification as to why offsets were utilized and which features and or points offsets were used.
6. Provide the source that was utilized for required attributes, such as redlines drawings and or field notes.
7. Provide a coversheet that specifies the COR, Contract number, Contract title, point of contact for GIS related questions.
8. Submit all geospatial data, reports, spreadsheet, database files, reports, and maps on a Digital Versatile Disc (DVD) platform.
9. Failure to comply will result in non-compliance and rejection of data.

1.3.10 Ownership

All digital files, hardcopy products, GPS raw data, source data acquired for this project, and related materials, including that furnished by the Government, will become the property of the Government and will not be issued, posted, distributed, or published by the Contractor. Deliver all documentation in the final delivery. Note: No endorsement of software or hardware is implied.

Navy GIS data shall not be used for any purpose except for those specified in the contract.

All contract Navy GIS data must be removed from contractor computer systems upon completion of the contract.

1.4 ATTRIBUTE DATA COLLECTION AND GPS REQUIREMENTS FOR REAL PROPERTY AND OTHER MISCELLANEOUS FEATURES THAT ARE NOT CONSIDERED A UTILITY

For Attributes and Data Collection for specific Navy installation, please consult the EV GIS Coordinator, for a checklist and copy of the most recent Data Collection Guide.

1.4.1 Non-Compliance

Failure to follow the specification outlined in this document will result in non-acceptance of data deliverable.

Note: Geospatial data delivery does not replace record drawing requirements.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

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