DEPARTMENT OF PLANNING & ZONING

GIS Requirements Checklist

Development Review
150 Main Street, 3rd Floor, Prince Frederick, MD 20678
Phone: 410-535-2348 | 410-535-1600, ext. 2356
MD Relay: 800-735-2258 | Fax: 410-414-3092
For pre-portal projects, email **ALL** Completed GIS Forms & Data Files: to GISsupport@co.cal.md.us **AND**
for Site Plan Submittals: cc DevRev@calvertcountymd.gov
for Recording Package Submittals: cc Plats@calvertcountymd.gov

In ACAD Civil 3D there are distinct layers for different variations of a project. The naming conventions used below are for GIS.

When submitting FINAL plans for Site Development projects or Recording Packages for Subdivisions and Administrative Plats, please confirm that you have provided the required GIS data per the Calvert County Government's Official Digital Data Submission Requirements Document issued by Calvert County Technical Services - GIS staff by marking the required layers in the "Applicant" column. If there is a layer listed as required that does not exist on the recording documents, please indicate with "N/A." There is no intent to have you create unnecessary layers; however please include all layers you have on your project.

Project Type (check all that apply)

☐ Final Site Plan ☐ Final Redline Site Plan ☐ Final Revision Site Plan
☐ Subdivision Recording Package ☐ Administrative Plat Recording Package
☐ Other: _____

Primary Project Information

Project Name: _____ Project Number: _____

Property Address: _____

Tax Map: _____ Grid: _____ Parcel: _____ Lot Number: _____

Owner's Name: _____ Email: _____

	Layer Name	Feature Type	Layer Description	Appl	n/a	GIS
1	ABTL1	Polyline	Abandoned Parcel Track Lines	☐	☐	☐
2	APD	Polygon	Agricultural Preservation District	☐	☐	☐
3	CONSERV1	Polygon	Conservation Areas	☐	☐	☐
4	EAS	Polyline	Access, ROW, Storm Drainage Area, Utility Easements	☐	☐	☐
5	GAS	Polyline	Gas Lines	☐	☐	☐
6	FRA	Polygon	Forest Retention Area/Afforestation Area	☐	☐	☐
7	NTWB1	Polygon	Non-Tidal Wetlands/Buffer	☐	☐	☐
8	OSPR1	Polygon	Open Space & Recreation Area	☐	☐	☐
9	PARCEL1	Polyline	Parcel/Lot Boundaries	☐	☐	☐
10	RGTD1	Polyline	Right to Discharge	☐	☐	☐
11	SHORE	Polyline	Shoreline/Shoreline Buffer	☐	☐	☐
12	STREAM	Polyline	Streams/Streams Buffer	☐	☐	☐
13	SUBDIV1	Polyline	Subdivision Boundaries	☐	☐	☐
14	CMTRY	Polygon	Cemetery/Graveyard	☐	☐	☐
15	C-POINTS		A minimum of four GPS Control Points that are tied to the Maryland Coordinate System shall be shown along with the coordinates.	☐	☐	☐
16a				☐	☐	☐
16b				☐	☐	☐
16c				☐	☐	☐

GIS Requirements Checklist

Project Name: _____ Project Number: _____

Project Address: _____

Agent Responsible for Submission

Company/Firm: _____

Name: _____

Email: _____

Mailing Address: _____

City: _____ State: _____ Zip: _____

Primary Phone: _____ Secondary Phone: _____

Signature: _____ Date: _____

CALVERT COUNTY GOVERNMENT'S OFFICIAL DIGITAL DATA SUBMISSION REQUIREMENTS DOCUMENT

Calvert County has adopted Geographic Information Systems (GIS) technologies to store, manage, and maintain spatially related geographic data. The land development, engineering, and surveying communities have also embraced digital technologies in their respective professions and because development plans are commonly created using computer aided drafting (also known as AutoCAD), it is the goal of Calvert County Government in using such advanced techniques to expedite the design and plan review processes within the County. Therefore, standards must be implemented to allow CAD data to be integrated into the County GIS while preserving the referential and positional accuracy of the original measurements. In doing so, Calvert County is requiring digital data submissions of plans. The purpose of digital plan submittals is to obtain digital vector line work. Surveyors and engineers are required to submit an extract of their computer-aided drafting (CAD) drawing file along with hardcopy prints. By implementing this requirement, Calvert County can enhance leveraging the use of digital mapping to facilitate the efficiency of a more accurate GIS database.

The mission of the Calvert County GIS is to continue with a foundation of geographic information to support decision making. The resulting foundation of fundamental geographic data elements will be a representation of features that comprise our community and is not intended to convey legal boundaries of any kind. Furthermore, Calvert County Government does not intend to use any potential sensitive information to the surveyor such as the surveyor's seal, signature blocks, or any text or symbols and logos. It is only the layers created as part of the survey and then added to a completed plat for recording that will be required. These will be submitted as a separate CAD drawing file once the proper steps are taken to separate the required layers to incorporate into Calvert County's GIS database. Please refer to Appendix A of this document for a list of layers that could be included in an original plan submission, and if so, would be required.

As the GIS program has developed and the foundation data has been established, the County will be able to offer base layers to the development and engineering communities. The County understands that these GIS layers cannot be used for construction. The multiple layers of data may, nevertheless, provide potential users with valuable information for planning and property valuation. See below for key components as well as a detailed summary of CAD digital data requirements for submission of plans.

Key components of this policy:

- **The paper copy of a plan to be recorded will continue to be the official document**
- **The plan's paper copy (i.e. the official document) must be accompanied by a CAD digital data drawing as part of the submittal process.**
- **A paper copy of the plan must have at least 4 GPS control survey points (surveyed in MD. State Plane Coordinates, North American Datum 83ft.) which must also be added to the official document.**

The general CAD standards required is as follows. These data submission standards are intended to improve the process of reviewing plans and help maintain a digital database of geographic information for the County:

- The digital CAD format required, for the information represented in the official document, must be in the following format: dxf or .dwg. The drawing file must be in model space, not paper space. It is also required that the file be rotated to true north before submission (Appendix C).

- The file name for the submittal should correspond exactly to the subdivision or project name as represented on the permit application. The file name should contain the drawing's submittal or revision date (in MMDDYYYY format) as part of the name. Please, no spaces in the name, only underscores shall represent a space.

- All digital data will require a metadata file (Appendix D). This file shall be an ACSII (.txt) or .DOCX format with the name "Metadata.txt" or "Metadata.docx". This document provides the County with information regarding the digital submittal.

- Layer names must be clearly identifiable as to what the layer is representing (Appendix A). If applicable, a conversion chart that corresponds to the appropriate layer name must be specified in the metadata file (Appendix D).

To expedite the conversion of CAD data into the County GIS, the following requirements shall also be met:

- The standard transfer of digital data will only be accepted electronically either by email or by ftp upload to the intended parties in Calvert County Government through a link that we can provide to the submitter. A metadata file (Appendix D) shall be included with all electronically submitted files. Strictly in the case of an emergency only, will an alternate media source such as a CD-ROM or DVD be acceptable. In the case of having to submit digital files by disc, the file shall be labeled with the title of the drawing (drawing file name), type of drawing (road plan, commercial site plan, subdivision plan) project contact information (i.e. name, affiliation, phone number), and a submittal and file creation date. All files stored on such media will still need to be approved by Calvert County Government.

- Coordinate reference system must be in Maryland State Plane based on NAD83 HARN (North American Datum, 1983), units for horizontal control. Vertical control will reference North American Vertical Datum of 1988 (NAVD88). All units of measure shall be United States Survey Feet:

Projected Coordinate System: NAD_1983_StatePlane_Maryland_FIPS_1900_Feet
Projection: Lambert_Conformal_Conic
False_Easting: 1312333.33333333
False_Northing: 0.00000000
Central_Meridian: -77.00000000
Standard_Parallel_1: 38.30000000
Standard_Parallel_2: 39.45000000
Latitude_Of_Origin: 37.66666667
Linear Unit: Foot_US
Geographic Coordinate System: GCS_North_American_1983
Datum: D_North_American_1983
Prime Meridian: Greenwich
Angular Unit: Degree

In addition, each plan or plat drawing shall contain four Maryland State Plane Coordinate Plane control points as tick references and shall be annotated with the actual x, y coordinate in United States Survey Feet to the nearest foot (Appendix B).

- Digital files must be submitted in AutoCAD 2004 or newer file formats. These shall be in .dwg (drawing file) or .dxf (drawing exchange format) only. Absolutely, no static images will be accepted as a digital data submission. These include .pdf, .tiff, .jpg, .png or any of the type. The only version of digital data will be that of vector line work as part of the original plan drawing that is also submitted (Appendix C). These would include everything listed in Appendix A, although any text can be removed from the original drawing as it's not necessary for our purposes. Any alteration of the file must first be saved as a separate .dwg or .dxf before submitted for review.

- Closure is critical in converting CAD elements to GIS features. Digital line work must be topologically clean without slivers, dangles, undershoots or inappropriate breaks. All polygon features (i.e. parcel boundaries) drawn as polylines should connect properly and "snapped" closed without gaps. Curvilinear data, such as cul-de-sacs for example, for these features will consist of 2D polylines or splines. Contours lines are to be continuous and not broken for labeling.

- CAD systems that use a numbering system for layers instead of names shall also include a conversion chart explaining the layer number corresponding to the appropriate layer name must be specified in the metadata file (Appendix D).

- The file shall include all layers and graphic elements that are a part of the official document to be included as part of the digital data file.

- Line/Polyline features that are modeling polygons (i.e. boundaries) will be snapped closed at nodes or endpoints.

- If you are submitting a project in phases, data between phases should match.

- Only feature elements are to be included on individual layers. If necessary, annotation for each layer shall be placed in annotation layers as specified in Appendix A. The information presented in Appendix A is intended as required layers to support the importation of features into the GIS systems. Required layers only need to be part of the digital submission if they are included in original plan for review.

Finally, in conclusion to this section, all digital data will be reviewed for the following criteria:

- Correct and complete layers
- Topologically clean features
- Verification that the digital data and the official document are consistent
- Correct spatial location in Maryland Plane North American Datum (NAD) 83ft. coordinate system
- All required documentation

If Calvert County's GIS staff and the Development Review team in the Planning & Zoning Department determines that the CAD data submission fails to meet these standards, the party making the submittal shall be notified of such determination in writing. The submitting party shall have thirty (30) days from the date of such notification and take on the responsibility to correct any errors and delivering the new correct digital file for approval. The failure to provide the corrected digital file and not adhering to the data submissions requirements will result in the permit being held. As a result, Calvert County staff shall have thirty (30) days from the date of such submission to review and confirm that the corrected submission is adequate. Otherwise, by default, the submission shall be deemed acceptable.

Appendixes:

Appendix A
AutoCAD Digital File (.dwg, .dxf) specifications (proposed naming convention) of required layers. Note: Required layers only need to be included in digital submittal if they are part of original plan surveyed to be reviewed:

Layer Number	Layer Name	Feature Type	Layer Description
1	ABTL1	Polyline	Abandoned Parcel Track Lines
2	APD	Polygon	Agricultural Preservation District
3	CONSERV1	Polygon	Conservation Areas
4	EAS	Polyline	Access, ROW, Storm Water Drainage Area, Utility Easements
5	GAS	Polyline	Gas Lines
6	FRA	Polygon	Forest Retention Area/Afforestation Area
7	NTWB1	Polygon	Non-Tidal Wetlands/Buffer
8	OSPR1	Polygon	Open Space & Recreation Area
9	PARCEL1	Polyline	Parcel/lot boundaries
10	RGTD1	Polyline	Right to Discharge
11	SHORE	Polyline	Shoreline/Shoreline Buffer
12	STRM	Polyline	Streams/Streams Buffer
13	SUBDIV1	Polyline	Subdivision boundaries
14	CMTRY	Polygon	Cemetery/Graveyard

Four GPS Survey Points

1. N = 1431765.03, E = 384639.84
2. N = 1431729.67, E = 384445.45
3. E = 1432836.90, N = 383371.33
4. E = 1433016.94, N = 383731.58

Appendix B

Copy of Original Plan Document to be Recorded:

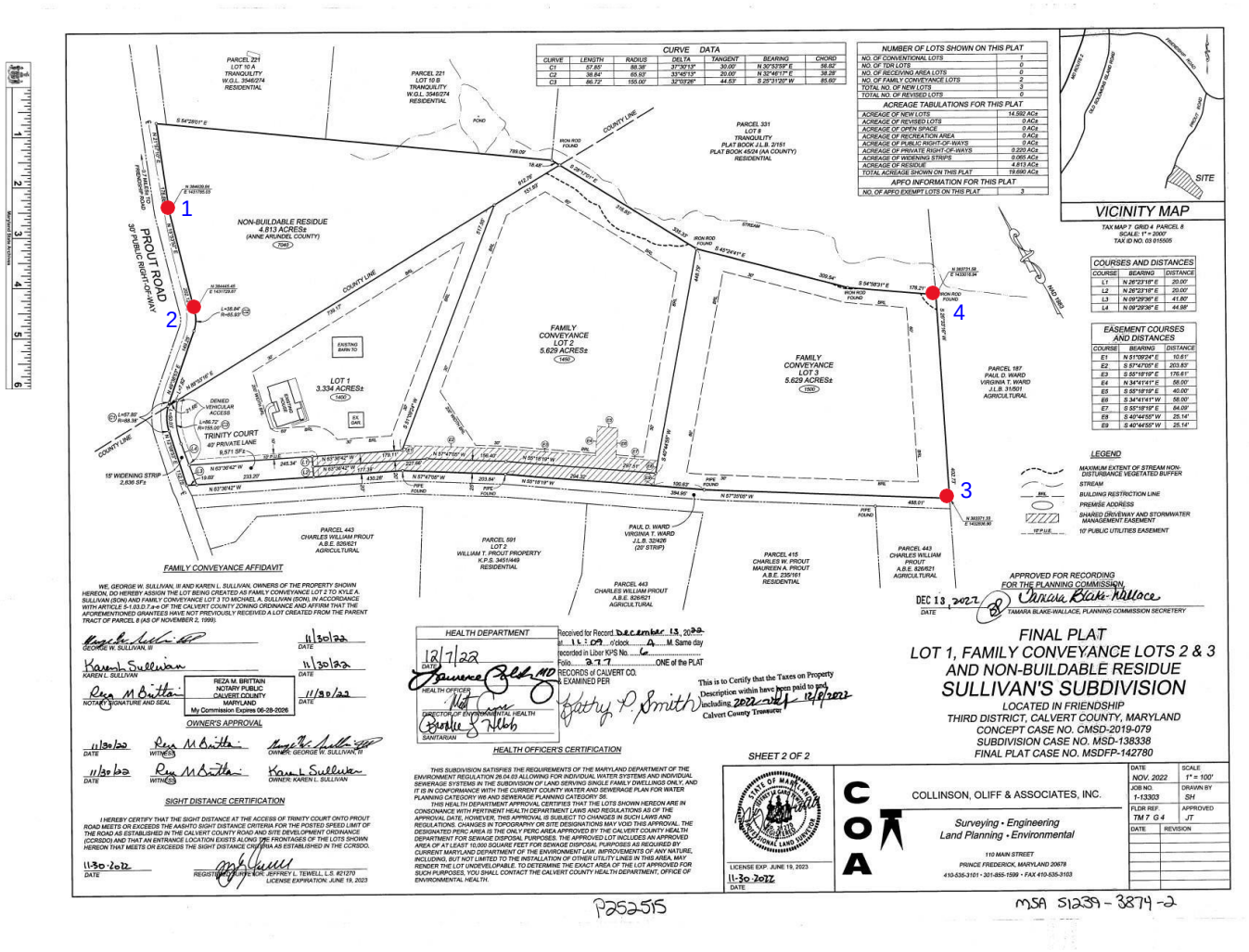

Figure 1. This is an illustration of a typical subdivision plan sheet for submittal that Calvert County Government is requiring in addition to a CAD digital data drawing as part of the submittal process. A paper copy such as this shall be identical to the existing site plan sheet except for any text since only the vector line work is of the most interest. The red marks indicate the four Maryland State Plane Coordinate Plane control points as tick references required for each plan or plat drawing. These shall be annotated with the actual x, y coordinates in United States Survey Feet to the nearest foot.

Appendix C

Example of Vector Line Work:

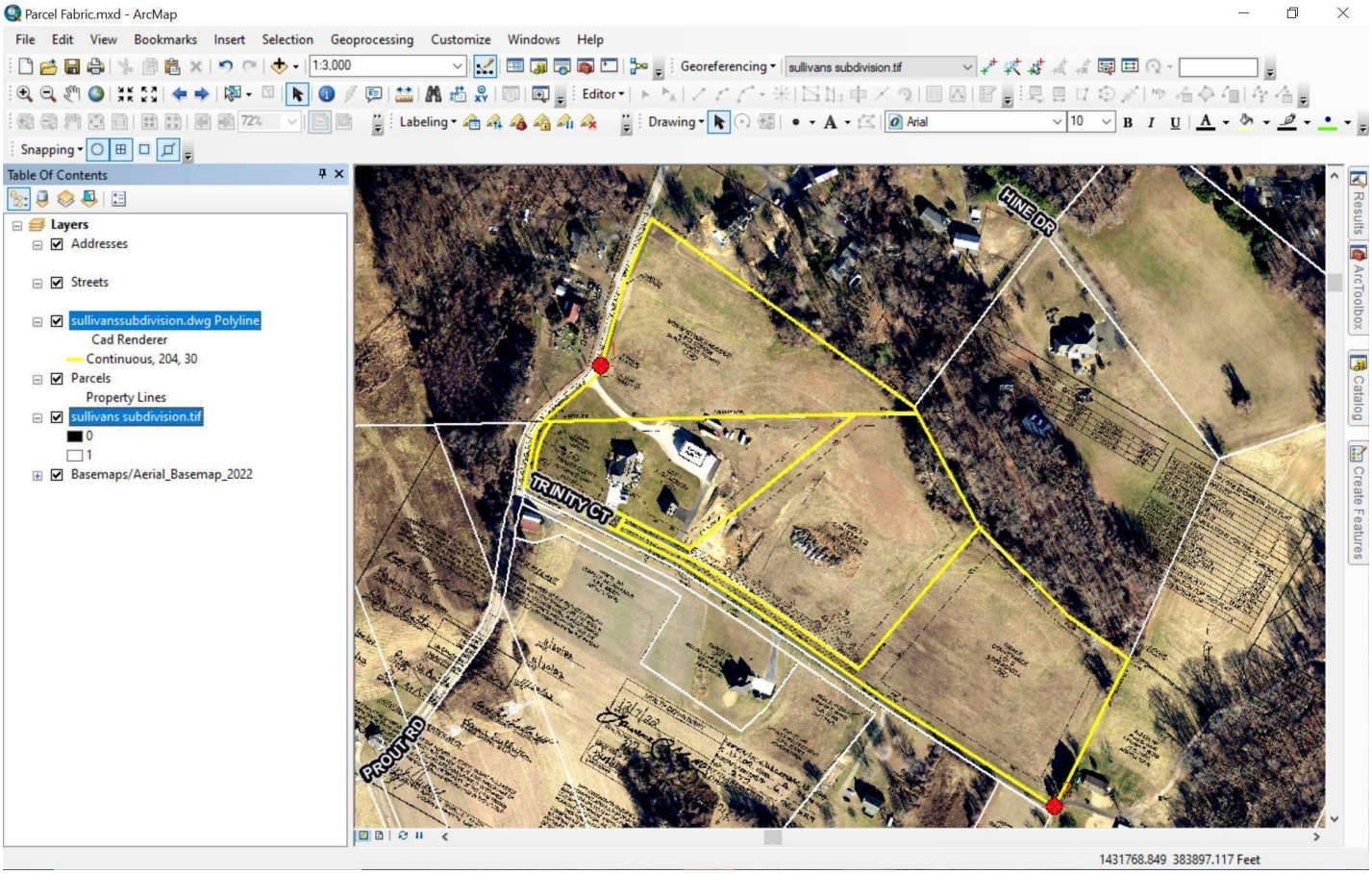

Figure 2. This is an illustration of an existing GIS project and it shows 2 things. First, the yellow lines represent vector line work that was submitted as CAD digital data file (.dwg) Under where it says "Layers" in the image, the CAD file was submitted as "sullivanssubdivision.dwg" and added into the GIS project. As preferred, the yellow lines are simply the parcel lines that were separated from the original CAD drawing plan, rotated to true north, and saved as a new CAD drawing and submitted to Calvert County as a digital data file. Also, what's shown in the above image, is a scanned copy of the original plan which is to accompany the digital data file. The image was added in to the GIS project. Then using 2 of the 4 x,y MD. State Plane NAD83ft. coordinates (shown as red dots), the plan was georeferenced and rotated to true north. This would allow the GIS team to digitize the parcel lines with more accuracy. To summarize, Calvert County Government is requiring that a paper copy be submitted as the official document. Also, the official document must be accompanied by a CAD digital data drawing as part of the submittal process.

Appendix D
Metadata File :

Project and Contact Information
Project Name:
Permit Number (e.g. B19-1234):
Submittal File Name:
Submittal Date:
Parent Parcel Number:
Submitted Company Name:
Submitted Contact Name:
Submitted Phone Number:
Surveyor/CAD/GIS provider information if different than Company name:

1. **Plan Georeferencing Control Points**

Projected Coordinate System:
Four Georeferenced GPS Control Points (x, y coordinates):

Northing	Easting

Appendix E
Calvert County Government Contact Information:

CONTACT INFORMATION: CALVERT COUNTY GOVERNMENT TECHNOLOGY SERVICES/GIS TEAM

Primary Contacts: Ray Alvey; GIS Technician
Email: harry.alvey@calvertcountymd.gov
Phone: 410-535-1600 x2376

Calvin Strozier; GIS Analyst
Email: joseph.strozier@calvertcountymd.gov
Phone: 410-535-1600 x2756

Secondary Contacts: Lionell Sewell**;** GIS Supervisor
Email: lionell.sewell@calvertcountymd.gov
Phone: 410-535-1600 x2611

Danny Bauer; GIS Analyst
Email: frederick.bauer@calvertcountymd.gov
Phone: 410-535-1600 x2797