Electronic Files Supplied by the Design Bureau

Overview

This section provides details of the origin and organization of the files generated during the design process, either from within or outside of the Design Bureau. All files listed that the designer has available must be included in the submission of electronic files, unless specifically noted otherwise.

The following topics are included:

- Project Documentation—Project Data Summary
- Naming Convention for MicroStation Files
- MicroStation Files Generated by the Design Bureau
    - Design Bureau MicroStation Working File and Model Descriptions
    - Design Bureau MicroStation Cross Section File and Model Descriptions
- Other Files Generated by the Design Bureau
    - Design Bureau Other File Descriptions
    - Files Generated using Geopak
    - Files Generated using Geopak Corridor Modeler
- MicroStation Files Generated by Other Offices
    - Other Office Working File and Model Descriptions
- Additional Files Generated for Final Turn-In of Electronic Files
    - Geopak Produced LandXML Files
    - Additional Supplemental Files
- List of Required Files for Final Turn-In of Electronic Files

For information concerning procedures for the Turn-In of Electronic Files Supplied by the Design Bureau, refer to Section 1H-1.

Project Documentation—Project Data Summary   Top of Document

The original spreadsheet file called "**Project Documentation Shell – V8.xls**" is to be copied and completed for all projects.

- Copy from the Plan Turn-In Documentation Section within the Shell Letters Listing available on the Design Bureau website to the **W:\Projects***ProjectDirectory***\Design***SPREDSHT***** folder.
- Rename to **ProjectDocumentation_***CCRRRPPP***.xls,** where *CCRRRPPP* is to be replaced with the two-digit **C**ounty number, three-digit **R**oute number, and three-digit project number "**P**aren" number.

The contents of this spreadsheet file summarize general data specific to the project, alignment data, ditch grade data, and plotting data and should contain any relevant comments that would be of value to anyone involved with the design aspect of the project. The information in this file should be kept current.

Naming Convention for MicroStation Files   Top of Document

Geopak Element and File naming conventions are discussed in detail in Section 20D-2. For sheet files, this naming convention is followed by the sheet series designation, such as A, B, C, D, etc. If multiple files exist for a single series, the sheet letter is then followed by the first sheet number that file contains. For example, the first sheet in the file *77163062B10.sht* is *B.10*. MicroStation file extensions and model names are described in detail in this document. Additional information can be obtained in Section 1F-1 (Plan Organization) and Section 20A-1 (Starting a new MicroStation Project). The design file extension

often indicates the group that created the file. For example, the "**.dsn**" extension indicates the file was created by the Road Design group, "**.row**" for the Right-of-Way group, etc. Only files with the extension "**.sht**" are intended for sheet printing.

MicroStation Files Generated by the Design Bureau   Top of Document

The **CopySeed (V8) Program** is used to create the following possible MicroStation file types:

1. Title Sheet *(A01.sht)*
2. Legend Sheet (*LGD.sht*)
3. Typical Sheet *(B01.sht)*
4. Tabulation Sheet (*C01.sht*)
5. Bench/Reference Sheet (*G01.sht*)
6. Design Detail Sheet (*U01.sht*)
7. Cross Section Sheet (*W, X, Y, or Z01.sht*)
   Note: *.sht* files are not to be included in the submission of electronic files. Refer to 1F-1 for content of the *.sht* files listed above.
8. Cross Section Working File 140' Wide Scale (*.dsn*) see below for details
9. Cross Section Working File 280' Wide Scale (*.dsn*) see below for details
10. Cross Section Working File 560' Wide Scale (*.dsn*) see below for details
11. Cross Section Working File 1400' Wide Scale (*.dsn*) see below for details
12. Cross Section Working File 2800' Wide Scale (*.dsn*) see below for details
13. Highway Design File (*.dsn*) see below for details
14. Geometric Design File (*.geo*) see below for details
15. Public Hearing File (*.pub*) see below for details
16. Photogrammetry North File (*.pho*) see below for details
17. Photogrammetry South File (*.pho*) see below for details
18. Photogrammetry DTM North File (*.dtm*) see below for details
19. Photogrammetry DTM South File (*.dtm*) see below for details
20. Field Collected Survey Information (*.sur*) see below for details
21. Aerial Images North of I-80 File (*.dgn*) (not included in electronic file submission)
22. Aerial Images South of I-80 File (*.dgn*) (not included in electronic file submission)
23. Soils Design File (*.sol*) see below for details
24. Landscaping File (*.rsd*) (not included in electronic file submission)
25. 3D Blank File (*.3D*) see below for details
26. Corridor Modeler 2D Linework (*.cml*) see below for details
27. Geopak Sheeting Layout Files (.dgn) Refer to Section 21B-2. (not included in electronic file submission)
28. Mass Diagram Design File (*.mas*) see below for details

> The Plan, Profile, and Plan/Profile type sheet files usually are not created using the **CopySeed** program. For additional details pertaining to the creation of Plan and Profile sheets, refer to Section 21B-4. "H" sheets are included in this category as well, but are produced by the Office of Right-of-Way.

Design Bureau MicroStation Working File and Model Descriptions

Top of Document

MicroStation Model Naming

For details and instructions on the creation and naming of models, refer to Section 21A-40. Model names are created using the following convention, *Prefix_Scale_Roadway Name*. For example, the model name corresponding to *Ramp A* of a *US 30 interchange* could be *RMP_0100_US30A;* the model corresponding to *Stage 1* of *IA 9* could be *STG_0050_Stage1;* and the model corresponding to the *side road 12th Street* could be *SR_0020_12thStreet.*

> If the model name (below) is designated by an asterisk (*), it indicates that there may be multiple models of that type within a file. Also note that for brevity, plan and/or profile sheets are referred to as 'plan sheets' in this section.

".dsn" File

The **.dsn** file is created by a "Roadway Design" section and it contains most (if not all) of the Roadway Design work associated with the horizontal and vertical alignments. Nearly all "Plan" and "Profile" sheet files and other "special" or "detail" sheet files associated with alignment information are created from the design information in the ".**dsn**" file.

Model Options:

1. **County Project Number** – Contains County, Project Number, and Designer Information. This model is referenced to all sheet files.
2. **DET*** – Contains all information for one detour.
3. **DRN** – Contains all drainage information.
4. **INTG*** – Contains all scale relevant geometric information for one intersection.
5. **INTJ*** – Contains all jointing information for one intersection.
6. **INTS*** – Contains all staking information for one intersection.
7. **Road_Design_Linework** – Contains all non-scale related line work and elements, excluding items specifically noted in other models. All sheet border shapes used to define the limits of the plan and profile information are to be included in the alignment and scale specific models and not to be in the **Road_Design_Linework** model.
8. **PLT** – Contains references of all models used for scroll plotting.
9. **Project Overview** – Contains references of all models in the file to show an overview of the entire project (contains no active elements).
10. **ML** – Contains scaled plan and profile annotation and elements for mainline plan sheets.
11. **RMP*** – Contains scaled plan and profile annotation and elements for one ramp.
12. **SR*** – Contains annotation and scale related information for one side road.
13. **STG*** – Contains annotation and scale related information for one specific design stage (the **DRN** Model is to be referenced and clipped as appropriate in the **STG** Models).
14. **Sidewalk** – Contains all sidewalk information.

".geo" File

The **.geo** file is created by the Geometrics Design section and, much like the .dsn file, it will contain most (if not all) of the Roadway Geometric Design work associated with the horizontal and vertical alignments of interchanges. Nearly all "Plan" and "Profile" sheet files and other "special" or "detail" sheet files associated with interchange alignment information are created from the design information in the ".**geo**" file.

> **Note:** The **.dsn** file may contain information typically found in the **.geo** file if the Geometrics Design section was not involved in the interchange design.
>
> **Note:** The **County Project Number** model in the ".**dsn**" file is to be referenced to the "geo" plan sheet files.

Model Options:

1. **INCH*** – Contains all information for one interchange.
2. **INTG*** – Contains all geometric information for one interchange.
3. **INTJ*** – Contains all jointing information for one interchange.
4. **INTS*** – Contains all staking information for one interchange.
5. **Road_Design_Linework –** Contains all non-scale related line work and elements, excluding items specifically noted in other models. All sheet border shapes, used to define the limits of the plan and profile information, are to be included in the "alignment and scale specific" model, not in the **Road_Design_Linework** model.
6. **PLT** – Contain*s references of all* models to be used for scroll plotting.
7. **Project Overview** – Contains references of all models in the file, to show an overview of the entire project. (Contains no active elements.)
8. **RMP*** – Contains scaled plan and profile annotation and for one ramp.
9. **SR*** – Contains annotation and scale related information for one side road.

".pub" File

The **.pub** file is created by the Roadway Design section and contains all work done to create the display for public hearings. This file should not be included with turn-in files for contract letting;

however, a *.pdf* of the file may be provided. The *.pdf* should be named such that it indicates the paper size used for printing. For example, *PubCCRRRPPP_24x109.pdf.*

".pho" File

The **.pho** file is created by the Photogrammetry section and contains all existing topography and text for photogrammetrically collected information. Refer to Section 20B-51 for additional information on folder structure, file structure, and the discussion of the interaction of the *.pho* and *.sur* files.

> **Note:** In some staged projects, the **.pho** file may be altered during a later stage to show some of the proposed elements from an earlier state as existing features in the later stage. The altered elements will be shown in a dark gray color, while the original "as collected features" will continue to display in green.

Model Options:

1. **Contours** – Contains existing ground contours produced by a combination of field survey and photogrammetry**.**
2. **Project Overview** – Contains a reference of each of the 100 scale models in the file, to show an overview of the entire project (contains no active elements).
3. **TOPO_0100/_0050/_0020** – Contains all existing topography information. There will be one TOPO model for each scale (Examples: *TOPO_0100, TOPO_0050, TOPO_0020*).
4. **TXT_0100** – Contains all existing survey text. There will be one **TXT** model at 100 scale. When the **TXT** model information is required at other scales, the referenced **TXT_0100** information is to be copied to the appropriate design model using the "**Copy, Rotate, & Scale**" tool (see Section 21A-22 for details on this tool).

".sur" File

The **.sur** file is created by the Preliminary Survey section and contains all existing topography and text for ground collected information. Refer to Section 20B-51 for additional information on folder structure, file structure, and discussion of the interaction of the *.pho* and *.sur* files.

> **Note:** In some staged projects, the **.sur** file may need to be copied to the Design folder and modified by the roadway designer to show some of the proposed elements from an earlier state as existing features in the later stage. The altered elements will be shown in a dark gray color, while the original "as collected features" will continue to display in green.

Model Options:

1. **Field_Contours** – Contains existing ground contours produced from field survey shots. This model is used only when there is no **.pho** file.
2. **Field_Drainage_Areas** – Contains drainage areas for small structures that do not have drainage structure "design numbers".
3. **Field_DTM** – Contains the graphics used to create the 3D digital terrain model, as well as spot elevation shots of the existing conditions. The tin triangles will only be drawn into this model when there is no **.pho** file.
4. **Field_G_Sheets** – Contains horizontal and vertical control plan sheets, project index, and field surveyed items legend, as well as an initial project utility legend and utility survey information.
5. **Field_Project_Control** – Contains the graphics and text for project control points.
6. **Field_Project_Overview** – Contains a reference attachment of each model listed above to show an overview of the entire project (contains no active elements).
7. **Field_TOPO_0100/_0050/_0020** – Contains all existing topography information. There will be one "**TOPO…**" model for each scale (Examples: *TOPO_0100, TOPO_0050, TOPO_0020*).
8. **Field_TXT_0100** – Contains all existing field collected survey text. There will be only one **TXT** model at 100 scale. When the **TXT** information is required at other scales, the referenced **Field_TXT_0100** information is to be copied to the appropriate design model using the "**Copy, Rotate, & Scale**" tool (see Section 21A-22 for details on this tool).

".dtm" Files

The **.dtm** file is a 3-D file that contains existing graphical elements used to create a surface terrain model. The content of a **.dtm** file generally coincides with the **.pho** file.

> These files are not used with Corridor Modeler.

".sol" Files

The **.sol** file is created by the Soils Design section and contains all soils work.

Model Options:

1. **BOR*** – Contains all information for one borrow.
2. **County Project Number** – Contains County, Project Number, and Designer Information. This model is referenced to all Soils sheet files.
3. **DET*** – Contains annotation and scale related information for one detour.
4. **Project Overview** – Contains references of all models to show an overview of the entire project (contains no active elements).
5. **ML** – Contains annotation and scale-related information for mainline.
6. **RMP*** – Contains annotation and scale-related information for one ramp.
7. **SR*** – Contains annotation and scale-related information for one side road.
8. **STB** – Contains all soils "stabilities" information.

".3D" Files

The **.3D** files are created by a Roadway Design section and contain three-dimensional linework, both longitudinal and transverse, in a MicroStation format.

Each project will generate up to five different types of **.3D** files. One **.3D** file is to be produced for each of the following alignment types: Mainline, Side Roads, Ramps, and Entrances. If the project includes staging, **.3D** files should be made for each alignment type and stage. For example, there may be a file for *ML065_Stage1.3d* and another file for *ML065_Stage2.3d*. A **.3D** file with all stages and alignments referenced to it should also be included.

".cml" Files

The **.cml** files are created by a Roadway Design section and contain linework used specifically with Corridor Modeler.

".mas" Files

The **.mas** file is created by a Roadway Design section and will contain the earthwork mass diagram for the project. The information contained in this file is generated from an Excel T Sheets file.

Design Bureau MicroStation Cross Section File and Model Descriptions

"XS_*ChainName*.dsn" and "XS_ *BorrowNumber*.dsn" Files

The **XS_*ChainName*.dsn** file is created by a Roadway Design section and contains all the working cross sections for a specific alignment and stage. The **XS_*BorrowNumber*.dsn** file is created by the Soils Design section and contains all the working cross sections for a specific borrow. Refer to Section 1F-23a for additional information on cross section spacing and key locations.

Model Options:

1. **"XS_***ChainName_Scale_Descriptor***"**
2. "**XS_***BorrowNumber_Scale_Descriptor***"**
   Contains all working cross section information for each scale and stage (Example: *XS_ML030_0280_Stage1*). These cross sections can be navigated with Geopak cross section navigation tools and should contain all the cross sections that are shown in the plan sheets for the designated alignment and stage or borrow.

Other Files Generated by the Design Bureau

The **CopySeed (V8) Program** is used to also create the following possible file types:

29. Corridor Modeler Template Library Closed Components (*.itl) see below for details
30. Geopak Earthwork Rural Asymmetric Run 1 (*.inp) see below for details
31. Geopak Earthwork Rural Asymmetric Run 2 (*.inp) see below for details
32. Geopak Earthwork Rural Parallel Run 1 (*.inp) see below for details
33. Geopak Earthwork Rural Parallel Run 2 (*.inp) see below for details
34. Geopak Earthwork Urban Parallel Run 1 (*.inp) see below for details
35. Geopak Earthwork Urban Parallel Run 2 (*.inp) see below for details
36. Geopak Earthwork Parallel to Asymmetric (*.inp) see below for details
37. Geopak Earthwork Granular Blanket (*.inp) see below for details
38. Geopak Earthwork Miscellaneous (*.inp) see below for details
39. Geopak Earthwork Moisture & Density (*.inp) see below for details
40. Geopak Earthwork Plowing & Shaping (*.inp) see below for details
41. Geopak Earthwork Top of Subgrade Rural Asymmetric Run 1 (*.inp) see below for details
42. Geopak Earthwork Top of Subgrade Rural Asymmetric Run 2 (*.inp) see below for details
43. Geopak Earthwork Top of Subgrade Rural Parallel Run 1 (*.inp) see below for details
44. Geopak Earthwork Top of Subgrade Rural Parallel Run 2 (*.inp) see below for details
45. Geopak Earthwork CM Closed Shapes Subgrade Run 1 (*.inp) see below for details
46. Geopak Earthwork CM Closed Shapes Subgrade Run 2 (*.inp) see below for details
47. Geopak Earthwork CM Closed Shapes Earthwork Run 1 (*.inp) see below for details
48. Geopak Earthwork CM Closed Shapes Earthwork Run 2 (*.inp) see below for details
49. Excel C Sheets (*.xlsm) see below for details
50. Excel G Sheets (*.xlsm) see below for details
51. Excel J Sheets (*.xlsm) see below for details
52. Excel M Sheets (*.xlsm) see below for details
53. Excel S Sheets (*.xlsm) see below for details
54. Excel T Sheets (*.xlsm) see below for details
55. Bridge Approach Calc Files (*.xlsx) see below for details

The following possible file type is created by the Soils Design section:

56. Soils Van Dyke (*.pdf) see below for details
57. Excel CS Sheets (*.xlsm) see below for details

The file types in the following list are also created by the Design Bureau using Geopak:

58. Design Geopak GPK Files (job*.gpk) see below for details
59. Survey Geopak GPK Files(jobSAP No.gpk) see below for details
60. Geopak Cross Section Development Input Files (*.prj) see below for details
61. Geopak Drainage Files (*.gdf) see below for details
62. Geopak Site Files (*.gsf) see below for details

The Design Bureau also creates the following file and folder types using Geopak Corridor Modeler:

63. rddbs Folder see below for details
64. Geometry Project File (*.alg) see below for details
65. Roadway Design Files (*.ird) see below for details
66. Roadway Design Preference File (*.rdp) see below for details
67. Preferences File (*.ddb) see below for details

Design Bureau - Other File Descriptions

".itl" Files

The **.itl** file is created by a Roadway Design section and contains project specific roadway templates. Template Library Files can be accessed through Geopak Corridor Modeler.

".inp" Earthwork Files

The **.inp** file is created by a Roadway Design section and contains the input functions used to generate earthwork quantities. Earthwork **.inp** files can be processed through "Geopak Cross Sections: Run Cross Sections". Running the **.inp** file produces results in a **.log** file and a **.txt** file.

".xlsm" Excel Tabulation Files

The Roadway Design sections produce seven types of tabulation files in the **.xlsm** format, including Excel Tabulation Files for the "C", "CS", "G', "J", "M", "S", and "T" sheet series. The **.xlsm** files are spreadsheet files that are used to produce a majority of the tabulations in the plan sheets and contain data entry and tabulation worksheets. The data entry sheets contain calculations that are used for project quantities. The data entry sheets may contain more information than used by the tabulations in the plan sheets.   Refer to Section 20J-61 for more information on tabulation files. These files are also used to print the tabulated portions of the specified sheet series. The naming convention for these files is the same as for the MicroStation **.sht** files, as discussed earlier.

Excel C Sheet **.xlsm** files are created by a Roadway Design section and contain quantity tabulations.

Excel CS Sheet **.xlsm** files are created by the Soils Design section and contain earthwork quantity tabulations.

Excel G Sheet **.xlsm** files are created by a Roadway Design section and contain tabulations for horizontal and vertical control information.

Excel J Sheet **.xlsm** files are created by a Roadway Design section and contain tabulations for traffic control and staging information.

Excel M Sheet **.xlsm** files are created by a Roadway Design section and contain tabulations for intake and utility access, as well as storm sewer pipe.

Excel S Sheet **.xlsm** files are created by a Roadway Design section and contain tabulations for sidewalk.

Excel T Sheet **.xlsm** files are created by a Roadway Design section and contain earthwork calculations and balance information.

".xlsx" Excel Calculation Files

*The "***Bridge Approach Calc Files.xlsx***"* files are created by a Roadway Design section and contain calculations for bridge approach, paved shoulder, and longitudinal grooving quantities.

".pdf" Soils VanDyke Files

The Soils VanDyke **.pdf** files are created by the Soils Design section and contain a lab report of soils boring information. This file may contain information outside the limits of the project.

".kmz" Project Overview File

The Project Overview **.kmz** file contains the line work from MicroStation exported to a Google Earth shape file **kmz** format. Refer to Section 21M-XX.

Files Generated using Geopak   Top of Document

"job*parennumber*.gpk" - Geopak GPK Files

The **job***parennumber***.gpk** file contains all the design alignments, curves, spirals, and points for a project in Geopak format. For information on the alignment naming convention, refer to Section 20D-2. **NOTE:** This file should not contain any information outside the project limits.

"job*Sap No*.gpk" - Geopak GPK Files

The **job***Sap No***.gpk** file contains all the existing alignments, curves, spirals, and points for a project in Geopak format. **NOTE:** This file may contain information outside the project limits. This file is produced by the Preliminary Survey section.

Geopak Cross Section Development Input Files

> **Note:** *CCRRRPPP.inp* files are used to produce Geopak criteria-based cross sections. If Geopak criteria was used to produce the cross sections, there should be an input file for each alignment and stage. Any information input into the Proposed Cross Sections dialog within Project Manager is stored in the **.prj** file. Input files are embedded into the **.prj** file.
>
> **Note:** This process has been replaced by using Geopak Corridor Modeler.

".gdf" Geopak Drainage Files

The **.gdf** file contains the Geopak drainage design for the project and is to be used in conjunction with the other configuration files required for drainage such as the cell library and drainage library.

".gsf" Geopak Site Files

The **.gsf** file is a Geopak Site project file and is used in conjunction with a MicroStation file that contains graphics for the site. The Geopak Site program is typically used for irregular grading, such as borrows and ponds.

Files Generated using Geopak Corridor Modeler   Top of Document

Corridor Modeler is a highly interactive 3-D modeling tool used by designers to create 3-D models for proposed roadways. For additional Corridor Modeler information, refer to Section 21B-200.

"rddbs" Folder

The **rddbs** *folder* contains support files that are used by "Roadway Designer", which is a Geopak application within Corridor Modeler.

".alg" Files

The **.alg** file is created when a designer stores alignments and plan-view graphical elements in Corridor Modeler. The **.alg** files are stored in the *rddbs folder*.

".ird" Files

The **.ird** file contains data the designer inputs into Roadway Designer.

".rdp" Files

The **.rdp** file contains preference settings defined by the designer in Roadway Designer.

".ddb" Files

The **.ddb** files are Corridor Modeler preference files.

MicroStation Files Generated by Other Offices   Top of Document

The following file types are created by other offices and may be referenced to Design files. Refer to Section 20B-41 for assistance locating these files in the project folder structure.

1. Archeological Survey File (*.arc*) see below for details
2. District Right-of-Way File (*.dis*) see below for details
3. Mitigation File (*.mit*) see below for details
4. Right-of-Way Design File (*.row*) see below for details
5. Bridge Structures Files (*.str*) see below for details
6. Traffic and Safety File (*.tas*) see below for details
7. Wetlands File (*.wet*) see below for details

### Other Office Working File and Model Descriptions   Top of Document

".arc" Files

The **.arc** file is created by the Cultural Resources section within the Office of Location and Environment (OLE) and contains archeological locations. This file is usually generated from a GIS program and converted into a MicroStation format. The shapes in this file should be copied into the **.dsn** Roadway Design file and labeled as indicated in the project documentation.

Model Options:

1. **Default** – Contains archeological locations.

> The "**.arc**" file should not be included with turn-in files for contract letting because its presence may encourage the excavation of archeological areas in search of artifacts.

".dis" Files

The **.dis** file is created by the District Right-of-Way land surveyor. It generally contains both existing right-of-way and District-designed proposed right-of-way information.

Model Options:

1. **T1** – Contains plan view linework and "plus & distance callouts" of the existing ROW, section lines with labels, existing alignments with callouts, and notes about how some of the lines were developed. This model may also contain copies of the proposed alignments and District-designed proposed right-of-way information.
2. **par##*** – There may be various models with parcel number plot-plans that are used by the Office of Right-of-Way. The information in these models should not be needed by Roadway designers.

".mit" Files

The **.mit** file is created by the Water Resources section within the Office of Location and Environment. It contains the proposed environmental mitigation design.

Model Options:

1. **Aerial** - Contains aerial imagery for the project area.
2. **Alignments** – Contains alignments concerning the mitigation design.
3. **Contours** – Contains proposed and existing contours.
4. **GPS_Survey** – Contains GPS survey information.
5. **Mitigation** – Contains a project overview of the mitigation design.
6. **Site Line Work** – Contains Geopak Site elements.
7. **Structures** – Contains information concerning structures.

> The Aerial model is not to be included with the electronic file submittal because the DOT may not own the rights to share the aerial images that were used.

".row" Files

The **.row** file is created by an Office of Right-of-Way Design Section and contains all right-of-way design work. **NOTE:** The **.row** file contains multiple models for various options of resolution and measurement units. Only the models that match the resolution and measurement units for the project will contain design information. All other models will be empty.

Model Options:

1. **English P and S Seedfile (blank)** – Contains 10,000 Resolution plot-plans and summaries for the project.
2. **English ROW File (720 - Layout)** – Contains a 720 Resolution model produced by the Right-of-Way Design section with plan-view graphics and callouts for the proposed right-of-way, as well as parcel numbers and current ownership information.
3. **English ROW File (Layout)** – Contains a 10,000 Resolution model produced by the Right-of-Way Design section with plan-view graphics and callouts for the proposed right-of-way, as well as parcel numbers and current ownership information.
4. **Metric P and S - (2000 – Seedfile) (blank)** – Contains 2,000 Resolution plot-plans and summaries for the project.
5. **Metric P and S Seedfile (blank)** – Contains 10,000 Resolution plot-plans and summaries for the project.

6. **Metric ROW File (Layout)** – Contains a 10,000 Resolution model produced by the Right-of-Way Design section with plan-view graphics and callouts for the proposed right-of-way, as well as parcel numbers and current ownership information.

".str" Files

The **.str** file is created by the Office of Bridges & Structures, Preliminary Design section. The **.str** file contains the "type, size and location" (T, S, & L) information for all structures within the project.

Model Options:

1. **Structures** – This model contains the layout of all the structures in the project.
2. **"TSL_***County_Design Number*****"** – Contains all "T, S, & L" information for one drainage structure (Design Number). The *TSL_CC_DDDD* model will be renamed with the appropriate county (CC) and design number (DDDD) for the structure. If any Design Number requires multiple *TSL* sheets, a sequential number (*_01*) will be added to the end of the model name. The TSL model contains a sheet border reference used to define the limits of the plan sheet area.

".tas" Files

The **.tas** file is created by the Traffic section of the Office of Traffic & Safety, and contains all signing, signal, and lighting work.

Model Options:

1. **Existing Signing** – Contains existing signing information.
2. **Proposed Signing** – Contains proposed signing information.
3. **Proposed (***Intersection Name***) Signals*** – Contains proposed signal information.
4. **Existing Lighting** – Contains existing lighting information.
5. **Proposed Lighting** – Contains proposed lighting information.
6. **Aerial** – Contains aerial imagery for the project area.

> The Aerial model is not to be included with the electronic file submittal because the DOT may not own the rights to share the aerial images that were used.

".wet" Files

The **.wet** file is created by the Water Resources section of the "Office of Location and Environment" (OLE) and contains existing wetland locations.

Model Options:

1. **Default** – Contains existing wetland locations.

Additional Files Generated for Final Turn-In of Electronic Files

".dxf" Files (The .dxf file is an AutoCad format file.)

> **Note:** AutoCad files are similar to MicroStation V7 files in that they contain only the one single file container rather than multiple models.

The intent of the **.dxf** file is to provide our customers with a file in a generic format.   The **.dxf** file contains all the longitudinal and transverse break lines for a single alignment, such as for one ramp. This **.dxf** file is a converted MicroStation file. Leveling in this file should be descriptive so that it is easy to determine what the lines represent. The **.dxf** file is only necessary for the final plan turn-in on Machine Guidance projects.

Geopak Produced LandXML Files

"hv_dsn_*parennumber*.xml" files

The "**hv_dsn_*parennumber*.xml**" file contains all the horizontal and vertical design alignments for an entire project, in LandXML format. This includes alignments and profiles for intersection and/or interchange returns and ramp tapers. For information on Geopak Element, File, and alignment naming conventions, refer to Section 20D-2. For the details on producing these LandXML files, refer to Section 20H-10.

"prop_surf_*description_parennumber*.xml" files

The "**prop_surf_*description_parennumber*.xml**" is a LandXML format file and contains the digital terrain model (DTM) for the entire project for the surface named in the "description" portion of the file name. Examples of the description are "Subgrade, Pavement Top, Borrows, etc." For the details on producing these LandXML files, refer to Section 20H-10.

"exisitng_surface_*parennumber*.xml" files

The "**exisitng_surface_*parennumber*.xml**" file contains the digital terrain model of the existing ground surface in LandXML format. For the details on producing these LandXML files, refer to Section 20H-10.

"control_points_*parennumber*.xml" file

The "**control_points_*parennumber*.xml**" file contains all the horizontal and vertical control points for a project in LandXML format. **NOTE:** This file may contain information outside the limits of the project. This file is produced by the Preliminary Survey section.

Additional Supplemental Files

Other files that are not addressed in this document may also be provided for the Final Turn-In of Electronic Files, if considered beneficial. If additional files are provided, the designer must complete the "Supplementary Electronic File Description Shell" to further clarify the application of the extra files. This is available in Plan Turn-In Documentation Section within the Shell Letters Listing on the Design Bureau website.
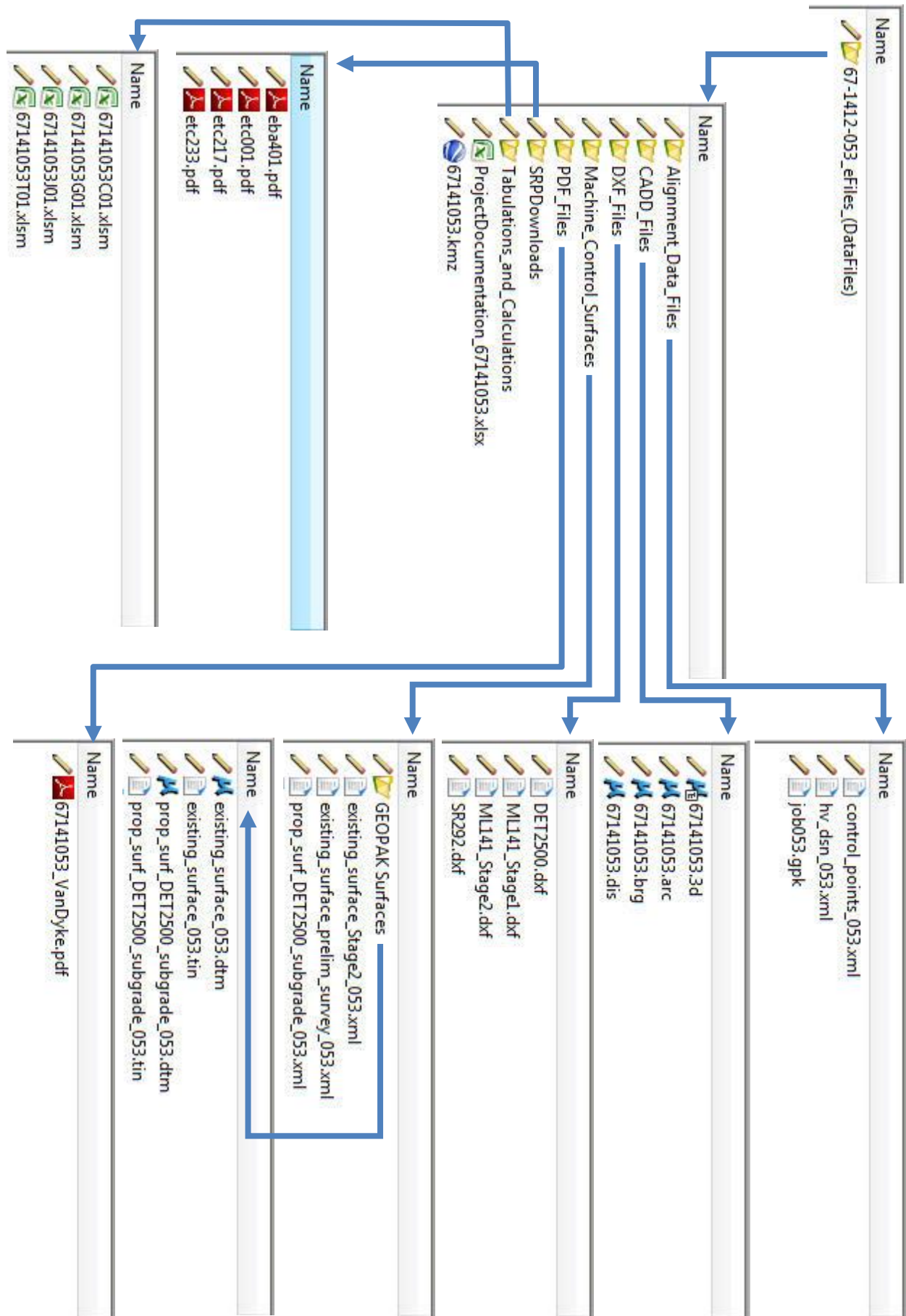
Files Required for Final Turn-In of Electronic Files

If the files listed below are available, they shall be submitted to the Office of Contracts for Final Turn-in.

- Project Documentation file shall always be included.
- Alignment Data Files shall be included if there is any geometry.
  - XML file for all alignments when alignments have been developed for the project
  - XML file for Survey control points
  - Native GEOPAK ".gpk" file for all alignments when alignments have been developed for the project
- Microstation CADD files
  - All MicroStation Files containing plan views and/or profiles that are available shall be included (".dsn". & ".geo")
  - All Microstation files from other offices referenced to the ".dsn" file shall be included.
  - All Microstation Cross sections Files for all alignments provided shall be included.

> **Note:** Any file noted as a Microstation file that does not have the *.**dgn** file extension is a Microstation DGN file that has had its extension changed to differentiate between the office that created the file.

- Machine Control Surfaces, shall be provided for all projects developed for automated machine control guidance.
  - XML files of automated machine guidance surfaces
  - Native GEOPAK format Surfaces (**.tin & .dtm**) should be placed in a subfolder separate from the .**xml** files.
- DXF CADD Files, shall be provided for all projects developed for automated machine control guidance. Should correlate to automated machine control surfaces being provided.
  - Autodesk "**.dxf**" files containing three dimensional break lines
- PDF Files
  - VanDyke reports
- Tabulations & Calculations, all tabulation files that have been created for a project shall be included (C, CS, G, J, M, and S).

Refer to the diagram on the next page for folder & subfolder structure of eFiles submittal for final contracts turn-in. Refer to Section 1H-01 on naming convention for the eFiles root directory.

Name

67-1412-053_eFiles_(DataFiles)

Name

Alignment_Data_Files
CADD_Files
DXF_Files
Machine_Control_Surfaces
PDF_Files
SRPDownloads
Tabulations_and_Calculations
ProjectDocumentation_67141053.xlsx
67141053.kmz

Name

67141053C01.xlsm
67141053G01.xlsm
67141053J01.xlsm
67141053T01.xlsm

Name

eba401.pdf
etc001.pdf
etc217.pdf
etc233.pdf

Name

67141053_VanDyke.pdf

Name

prop_surf_DET2500_subgrade_053.tin
prop_surf_DET2500_subgrade_053.dtm
existing_surface_053.tin
existing_surface_053.dtm

Name

GEOPAK Surfaces
existing_surface_Stage2_053.xml
existing_surface_prelim_survey_053.xml
prop_surf_DET2500_subgrade_053.xml

Name

DET2500.dxf
ML141_Stage1.dxf
ML141_Stage2.dxf
SR292.dxf

Name

67141053.3d
67141053.arc
67141053.brg
67141053.dis

Name

control_points_053.xml
hv_dsn_053.xml
job053.gpk

Chronology of Changes to Design Manual Section:

020B-071 Electronic Files Supplied by the Office of Design

6/25/2019   Revised

Updated hyperlinks.
Updated header logo and text.

5/15/2014   Revised

Changed list of required files for turn-in to reflect current practice. Added diagram of folder structure of eFiles for turn-in.

5/8/2013   Revised

Changed hyperlink path of 'Shell Letters Listing' under Project Documentation—Project Data Summary and Additional Supplemental Files to point to new location on website. Added CS Sheet information under Other Files generated by the Office of Design, ".xlsm" Excel Tabulation Files, and Minimum Files Acceptable for Final Turn-In of Electronic Files. Updated Bridge Approach Calc Files extension from .xls to .xlsx. Changed links from 1E-2 to 1F-1.

12/30/2011   Revised

Updated link to cross section spacing Section 1F-23a. Added model for sidewalk design to Highway Design File. Added closed earthwork runs and Excel S Sheet to 'Other Files generated by the Office of Design'. Added minimum requirements for electronic file submissions. Deleted all reference to Earthwork.xls file and Dirt Sheet (T01.sht)--Replaced by Excel T Sheets.

3/23/2011   NEW

New Section