Electronic Exchange of CADD Data

I. General

This document is the Maine Department of Transportation (MaineDOT) specification for required electronic (computer) data as it relates to engineering design project deliverables. Consultants wishing to perform professional engineering services for MaineDOT are required to deliver electronic data as specified in this document. This specification also requires organizations to accept and utilize pertinent electronic input data as provided by MaineDOT.

MaineDOT currently uses OpenRoads Designer (ORD), as well as InRoads and MicroStation V8i SELECT Series, as design and drafting software, all products of Bentley Systems, Inc. Graphical data shall be provided in DGN format. Design data shall be submitted in a format that can be imported directly into ORD or InRoads without translation, and with no loss of accuracy. Consultants must use the version of ORD and the current MaineDOT Workspace that is listed on the MaineDOT CADD Support website and SharePoint site to create electronic deliverables for projects designed in ORD.

II. Electronic Deliverables to MaineDOT

All CADD files submitted to MaineDOT shall be organized in accordance with the Department's CADD Standards which are provided at the MaineDOT CADD Support website and SharePoint site. *No translation of graphical or roadway design information by MaineDOT personnel shall be required*.

All .DGN files must meet MaineDOT conventions for Working Units, Global Origin, Level Structure and Naming, File Names, File Content and Referencing, Line Styles, Line Weights, Fonts, Cells, and Color Tables. Design data shall be provided in ORD files (.DGN, .ITL) or in InRoads files (.DTM, .RWK, .ALG, .ITL, .IRD, .XIN), and/or LandXML format. MaineDOT's naming convention must be used for all design data files, with any project-specific exceptions approved by the Department prior to submission and noted in accompanying documentation.

The Consultant is solely responsible for any translation and verification required to convert non-DGN files to the current MaineDOT design file format, and design files to the MaineDOT ORD or InRoads format, or LandXML.

For ORD project file submittals, the Consultant must also transmit the WorkSet .DGNWS that was used and that was either originally provided or was created from a Department-provided template, to MaineDOT via e-mail. If .DGNSI files were also used, those must be uploaded to the appropriate folder on the Department's SharePoint site for project data. MaineDOT's WorkSet naming convention and folder structure must also be used for the duration of the project.

MaineDOT will reject any CADD files submitted that do not conform to all the requirements above, and the consultant will be required to bring the files into conformance and re-submit at their own expense.

It is recommended that the Consultant install the Department's CADD configuration as an alternative to their own. All ORD, InRoads and MicroStation resources including seed files, cell libraries, line styles, fonts, macros, color table, settings files, menus, etc. are available from the MaineDOT CADD Support website and SharePoint site, along with instructions for

setting up MaineDOT's configuration on an existing CADD software installation. Provisions are available to easily switch between other configurations and the MaineDOT configuration.

The schedule of preliminary design electronic file submissions will be determined on a project-by-project basis, depending on scope of work. InRoads and MicroStation files at this stage of design may be submitted via the MaineDOT FTP site (mainedot.files.com) contained in a .ZIP file or written to portable data storage devices as individual files. However, ORD project files must be submitted directly to the Department's SharePoint site for project files, as individual files and within discipline-specific folders, unless otherwise approved by MaineDOT.

A Project Journal File shall accompany all InRoads and MicroStation files submitted to MaineDOT that are written to a portable data storage device. This document shall contain the Town Name, State Work Identification Number (WIN), date submitted, and a list of the files being transmitted with a brief description of each file and/changes, including any approved exceptions to MaineDOT's naming convention, if applicable.

For ORD projects, a MaineDOT-supplied CADD File Change Log will be filled out and uploaded to discipline-specific folders on the Department's SharePoint site for project data by the Consultant when files are initially uploaded to the site. This document shall contain the Town Name, State Work Identification Number (WIN), date submitted, and a list of the files being transmitted with a brief description of each file and/changes, including any approved exceptions to MaineDOT's naming convention, if applicable. Once uploaded to the discipline-specific folder, this log will then be updated by the Consultant when uploads occur. The Consultant shall also communicate via e-mail to the entire project team each time that files are uploaded to the Department's SharePoint site.

Upon MaineDOT approval and acceptance of the final signed and stamped plans, the Consultant shall provide MaineDOT with the final electronic versions of all CADD files, roadway design files, and associated resource files on either a portable data storage device for InRoads and MicroStation files, and for ORD files - on the Department's SharePoint site for project data. The Consultant will be required to provide copies of final plan sheets in Portable Document Format (PDF) at MaineDOT's discretion. The PDF files will serve as the electronic, read-only record plans for the project, and must match all aspects of the final hard copy signed and stamped plans. *These electronic delivery items **DO NOT** replace any **hard copy** delivery items.*

Portable data storage devices used to transmit electronic files to MaineDOT shall, at a minimum, be labeled with the Town Name, State Work Identification Number (WIN), and date. If more than one device is required to transmit the files, the label shall also include the device number and total devices of the set transmitted, (ex: Drive 1 of 2).

III. MaineDOT Furnished Services and Information

MaineDOT will provide copies of the latest files used to configure, customize, and utilize ORD or MicroStation and InRoads in our own project development process to the Consultant through the MaineDOT CADD Support website and SharePoint site. In addition, MaineDOT will provide the WorkSet files and templates for ORD projects.

MaineDOT will provide access to CADD Support personnel for information and answers to questions on MaineDOT CADD standards, ORD, MicroStation and InRoads setup, configuration, customization, and documentation. Contact information is available on the MaineDOT CADD Support website and SharePoint site.

The MaineDOT Survey Section will determine the horizontal and vertical datum to be used for each project. Files exchanged between MaineDOT and the Consultant will reflect these datums.

For ORD projects, MaineDOT will provide a single 3D file containing existing topographic and terrain model data in the form of a .DGN file, as well as standard reference files to be used. The Consultant shall also receive communication from MaineDOT when reference files have been modified, so that they may upload the modified files from the Department's SharePoint site for project data.

For InRoads projects, MaineDOT will provide separate .DGN files for existing topographic information, text, contours, and an InRoads digital terrain model (.DTM) of existing surfaces.

Consultants using ORD or InRoads software can request the original MaineDOT ORD or InRoads Survey model.

A variety of standard reports created during the processing of survey data for input in ORD or InRoads are also available to the Consultant from MaineDOT. *It is the responsibility of the Consultant to translate this data into other formats required for use in their design software.*