Appendix D
Exporting AGTEK Data
Overview of Exportable File Types

AGTEK data can be exported in many different formats and this two-page overview can be used to identify an export format compatible with the intended use of the exported data. *[AGTEK's old video at **www.agtek.com/video.html?id=199** provides an overview of exportable machine control files with the now-discontinued exporting menu organization (in AGTEK 3D and pre-v1.20 releases of AGTEK 4D). The recent webinar video at **www.agtek.com/video.html?id=528** includes a comprehensive overview of current machine control export options: for managing exported line work colors (@ 15:15 min), Leica (@ 22:50 min), Trimble (@ 31:50 min), Topcon (@ 36:05 min) and stringless curb alignments (@ 45:45 min).]*

DWG / DXF (CAD) Files This format is best when AGTEK data is to be used in a CAD system such as AutoCAD, MicroStation, Terramodel, etc. (page 281). DWG/DXF files can also be used to export elevation contours to Autodesk Revit BIM (page 282) and a 3D surface to SketchUp (page 284). Finally, DWG/DXF files can be used to export data for use with third-party survey and grade control systems, including Leica (page 291), Topcon (page 292) and Trimble (page 295).

AGT (Coordinate Text) Files This **PNEZ** format is a good choice when exporting data to be used with AGTEK software, including subsets of Data Lines, entire surfaces, Stake Lists for field stakeout, Benchmark control points, or Job Files for AGTEK's legacy Graphic Grade and Graphic Survey programs (page 288).

CSV (Coordinate Text) Files The **PNEZ** format option for these comma-delimited files is similar to that of the AGT file, but is a better choice when transferring data to third-party survey applications (see **Stake List Points** on page 278, and the examples/videos on pages 290, 291 and 294). The **XYZ** format CSV option can be used to export contours and sloping data lines as 3D points compatible with Autodesk Revit BIM (page 283). The **File > Export > Ground Control Points** (Gradework 4D only) menu includes options to export job file Benchmarks to a CSV file as ground control points for use in 3D Robotics (**PNEZ** format), DroneDeploy (**PNEZ** format), PhotoModeler (**Lat**/**Lon**/**Elev** format), Pix4D (**PENZ** format) or Agisoft (**P**/**Lat**/**Lon**/**Elev** format).

iCON (Leica) Files This specially-formatted DXF file is used with Leica grade control systems (page 291).

LN3 / TN3 / TP3 (Topcon) Files Export separate LN3 (2D plan-view line work) and TN3 (3D TIN surface) files or (*Gradework 4D v1.08.0+* only) a single TP3 file (combined line work and TIN surface) for use with Topcon machine control systems (page 292). *[Note: The new Topcon **TP3** file export option is covered in AGTEK's video at **www.agtek.com/video.html?id=528** (advance video to 36:05 min for the TP3 export topic).]*

TTM (Trimble) Files These TIN surface files can be used with Trimble grade control systems (page 295).

XML Files (AGTEK 4D only) These LandXML text files may contain site surface data (pages 291, 293, 296), highway alignment and cross-section data (page 294) or alignments for stringless curb machines (page 297). XML files can be used to transfer data to CAD, grade control and other third-party applications.

KMZ (Google Earth) Files (AGTEK 4D) These files are primarily used to upload geo-referenced AGTEK cut/fill maps/quantities/plan images to Google Earth (page 285) but they can also be used to transfer data to AGTEK's SmartPlan, SmartDirt and SmartGrade mobile apps as an alternative to the ADF option (next page). *[AGTEK 3D Notes: A less robust KMZ export function was included in the retired GradeModel 3D and PDF-Enabled SiteModel 3D products but the export steps closely match the AGTEK 4D steps on page 285. No KMZ export function was included with the other retired AGTEK 3D products and these users would have to print a cut-fill map to PDF, convert the PDF to JPG then upload and overlay the resulting JPG image in Google Earth.]*

Appendix D
Exporting AGTEK Data
Overview of Exportable File Types (Cont.)

LAS / TIF (Down-Sampled) Files (Gradework 4D) Gradework 4D can import a raw (full-size) LAS/XYZ point cloud file and a full-resolution orthomosaic GeoTIFF file (files resulting from a UAV photogrammetric survey). Gradework 4D provides down-sampling options when importing the point cloud file (see video below) and the orthomosaic GeoTIFF is automatically converted to a lower-resolution background TIF. After the point cloud data is imported, down-sampled and transferred to a surface *Data Lines* layer, it can be exported by selecting **File > Export > Export Lidar/Drone (*.las,*.xyz)** from the menu. The lower-resolution background TIF is not exported but it can be found in the temporary image cache folder (the cache folder path is typically ***C:\Users\ AGTEK_User_Name\AppData\Local\AGTEK***). Although Earthwork 4D can import the down-sampled files, it's actually easier to just open the Gradework ESW file that contains the already down-sampled data. Point cloud down-sampling and transfer steps are documented in videos at ***www.agtek.com/gw4dvideos.html*** (select the *Processing Drone Data* topic).

ADF (AGTEK) Mobile Files (AGTEK 4D) These files can be used to export geo-referenced AGTEK data and high-resolution plan sheet images for AGTEK's SmartPlan, SmartDirt and SmartGrade mobile products. The following AGTEK training videos include examples of prepping, exporting and managing ADF files for AGTEK's Smart mobile apps:
www.agtek.com/video.html?id=19 (SmartPlan geo-referencing for ADF/KMZ export),
www.agtek.com/video.html?id=22 (export ADF with plan sheets only),
www.agtek.com/video.html?id=290 (SmartDirt geo-referencing for ADF/KMZ export),
www.agtek.com/video.html?id=292 (SmartGrade ADF export) and
www.agtek.com/video.html?id=291 (AGTEK Access web-based file manager).

ESW (AGTEK) Files Native AGTEK 3D ESW files are used by AGTEK's retired Graphic Grade 3D and SiteModel GPS field products *[Note: Effective with Earthwork 4D v1.24.3 and Gradework 4D v1.06.3, AGTEK 4D no longer includes a **EW3D Compatible** Save As/Export file function, which produced ESW files compatible with the old AGTEK 3D products (see pages 30, 32)]*. A PlanPilot ESW file can be exported from Earthwork 3D by selecting **File > PlanPilot Export** from Earthwork 3D's main menu *[Note: Effective with Earthwork 4D v1.20 and Gradework 4D v1.02, AGTEK 4D no longer includes the Plan Pilot export function for AGTEK's retired PlanPilot, GradePilot and Grade Super mobile products (the old video at **www.agtek.com/video.html?id=186** documents these discontinued export functions).]* AGTEK's retired Graphic Grade Machine Control product used a special *Aligned ESW* file that was exported from AGTEK's old Machine Control Setup program (see the Graphic Grade Machine Control user manual).

ESZ (AGTEK) Files ZIP export format for AGTEK ESW data file (select **File > Save As** from menu and select ***AGTEK EarthWork Zip Files (*.esz)*** for *Save as type*). AGTEK 4D (but not AGTEK 3D) offers the additional option of attaching background images to the exported ESZ file (AGTEK 4D users can select **No Images**, **Current Image**, **Used Images**, or **All Images** from a *PDF/Image Attachment* dialog). AGTEK 3D/4D earthwork programs directly read and write these ESZ files.

Other Files Various other files can be exported from AGTEK for documentation purposes, including the volume report (**TXT**/**XLS**/**XLSX** files), *Print Page* objects/layout (**EMF**, **AIP** and **PDF** files), and VRML 3D surfaces (**WRL** files). See the *Day 1 Seminar Handbook* (pages 223-226 and 279-281) for instructions on producing these files.