About the speakers

Jowenn S. Lua

• Over 15 years industry experience in design and construction
• B.S. Civil Engineering degree from De La Salle University
• MBA degree from Ateneo De Manila University
• Member Autodesk Gunslinger / Infrastructure Inside the Factory
About the speakers

Andrew Milford

- Over 25 years design experience in the Civil Infrastructure industry
- AutoCAD Civil 3D Certified Professional
- Develop processes through scripts, AutoLISP, .NET API (C# and VB) and Python
Learning Objectives

• Learn how to capitalize on Country Kit automation tools to assist in detailed modeling and drawing production
• Learn how to create efficient workflows when building Civil 3D models to include owner asset data
• Learn how to effectively use Property Sets to manage asset tagging
• Learn how to use automation (.NET and VBScript) to develop and assign asset tags based on model data
What to Expect?

Section Label Tools

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Barrier Tools
What to Expect?

Manage and Automate Asset Tagging
Where to get the ANZ Country Kit?

You can download the ANZ country kit in the Autodesk Knowledge Network:

[https://knowledge.autodesk.com/support/civil-3d/troubleshooting/caas/downloads/content/civil-3d-country-kits-for-australia-new-zealand.html](https://knowledge.autodesk.com/support/civil-3d/troubleshooting/caas/downloads/content/civil-3d-country-kits-for-australia-new-zealand.html)
Where to find the ANZ Tools?

Toolbox > Australia and New Zealand Reports Manager > ANZ Tools

- Access via Toolbox
- Access via command: NETLOAD
  - C:\ProgramData\Autodesk\C3D 2019\enu\Data\ToolBox\ANZ

File Version

- 1.0.0.0
- 0.1.4.0
- 0.1.0.0
- 1.1.0.0
- 1.0.0.0
- 1.4.2.0
- 1.0.0.0
Export For Construction ANZ

Toolbox > Australia and New Zealand Reports Manager > ANZ Tools

- Concept evolve from UKIE Country Kit
  - Corridor feature lines only
Toolbox > Australia and New Zealand Reports Manager > ANZ Tools

- Concept evolve from UKIE Country Kit
  - Corridor feature lines only
- Export For Construction ANZ
  - Corridor feature lines
  - Site feature lines
  - To AutoCAD (as a 2D & 3D drawing)
Section View Labels

Toolbox > Australia and New Zealand Reports Manager > ANZ Tools

- Annotate user-defined point codes within data bands, allowing for staggering of overlapping text labels.
XS from surface vs XS from corridor vs Section View Labels

- No feature code in section band
- Design surface (S1) via weeding (S1)
- Existing surface (S2) via weeding (S1)
- Offset via weeding (S1)
- Can auto stagger controlled via weeding

- Feature code via code set style
- Design data via code set style
- Existing surface (S2) via weeding (S1)
- Offset data via code set style
- Can’t auto stagger as marker anchor point attached via Section View Bottom

- Feature code via code set style
- Design data via code set style
- Existing data via code set style & ‘EG’ surface
- Offset data via code set style
- Auto stagger all via code set style (via API)
Section View Labels – User Guide (Code Label)

This will display point code Back_Kerb, Channel, Crown and Daylight.
Section View Labels – User Guide (Code Overwrite)
Section View Labels – User Guide (Surface Name)

Existing ground surface name should contain the following:

- EX
- EG
- GROU
- TERR
- NGL
- TX
- SURV
Section View Labels – User Guide (Data Band Name)

Feature Lines / Codes
- FEAT
- LABEL
- CODE

Offset
- OFF
- DIST

Design Levels
- DESI
- PROP

Existing Levels
- EXIS
- NATU

Subgrade / Datum
- SUB
- STRAT
- DATUM
Section View Labels – User Guide (Band Text Style)

Assign the text style you want to use here e.g. **Standard**
Section View Labels – User Guide (Band Text Height)

1. Open the Section Data Band Style window.
2. Select the Labels and Ticks tab.
3. Click on the Labels tab to edit the text height.
4. Assign the text height you want to use here.

Assign the text height you want to use here.
Barriers

Toolbox > Australia and New Zealand Reports Manager > ANZ Tools

- Create 3D ANZ Style barriers from Civil 3D Alignments
- Find and drape to surface that have surface name “Barrier”
- User defined block with name “Post” or “Term” will be detected
Bars – Blocks to use

Get sample 3D blocks from the ANZ Template:

Folder Path:
%LocalAppData%\Autodesk\C3D 2019\enu\Template

File Name:
_AutoCAD Civil 3D 2019 ANZ Design_RMS.dwt
Barriers – Sample Output

Terminal uses 3D Block

All Posts uses 3D Block
Toolbox > Australia and New Zealand Reports Manager > ANZ Tools

- Convert a 3D Genio Import to a 2D flattened drawing
- This is in conjunction with using the following:
  - `%LocalAppData%\Autodesk\C3D 2019\enu\Template\_AutoCAD Civil 3D 2019 ANZ Survey_RMS.dwt`
  - `C:\ProgramData\Autodesk\C3D 2019\enu\Data\Import Export Extension for GENIO\Genio Import Survey RMS No Layer Prefix.tbl`
  - `C:\ProgramData\Autodesk\C3D 2019\enu\Data\ToolBox\ANZ\Settings\genio_import_app_settings_2D.txt`
Genio 2D – Additional Tool Needed

- Download from: https://manage.autodesk.com
Template to use:
- \%LocalAppData\%Autodesk\C3D 2019\ENU\Template\AutoCAD 3D 2019 ANZ Survey RMS.dwt

Genio Mapping Table (Genio to Civil 3D)
- C:\ProgramData\Autodesk\C3D 2019\ENU\Data\Import Export Extension for GENIO\Genio Import Survey RMS No Layer Prefix.tbl

Genio 2D Mapping File (Civil 3D CoGo pt to blocks)
- C:\ProgramData\Autodesk\C3D 2019\ENU\Data\ToolBox\ANZ\Settings\genio_import_app_settings_2D.txt
Genio 2D – Sample Output
Export Feature Lines XYZ

Toolbox > Australia and New Zealand Reports Manager > ANZ Tools

- Export multiple feature lines into a single CSV file
- Output feature line name, chainage, easting (X), northing (Y) and elevation (Z)
Adjust the datum of multiple Profile Views
Copy Profile view data band settings across to multiple Profile Views
Building Civil 3D models to include owner asset data
Civil 3D Assemblies

Naming conventions

S8-P8-P8 + P8-P8-S8

Baseline

Subassembly separator

Pavement with 8 layers
Civil 3D Subassemblies – Shape Codes

<Family>-<Lane Type>-<Pavement Type>-<Layer No.>
Property Sets to Manage Asset Tagging
Extract Corridor Solids

These generic AutoCAD entities can then be used for analysis and visualization or with other applications that are unable to directly interact with the Autodesk Civil 3D corridor model.
Insert into Current vs Add to Existing vs Add to New

- Dynamic Link (automatic update)
- Overwrites existing solids
- Shape CodeName populated
- Classification Codes populated
- Assembly Codes & Side populated

- Dynamic Link (manual process)
- Overwrites existing solids - duplicated
- Shape CodeName populated
- Classification Codes populated
- Assembly Codes & Side populated

- Dynamic Link (manual process)
- Overwrites existing solids
- Shape CodeName populated
- Classification Codes populated
- Assembly Codes & Side populated
Extract Corridor Solids

Default Property Sets

- Corridor Model Information
- Corridor Shape Information
- User-Defined
Custom Property Set Definitions

Client Requirements

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<tr>
<th>DISCIPLINE</th>
<th>DESCRIPTION</th>
<th>FAMILY</th>
<th>PROJECT</th>
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Custom Property Set Definitions

Client Requirements

- Pavement Layers
- Pavement Marking
- Kerb & Gutter
- Signage
- Lighting
- + many more
The 5 Stages of Property Sets

- Manual
- Automatic
- Formula
- Formula + COM API
- .NET API Automation
Property Sets - Manual

Features

• Lists
• Formatting
Style Manager | Simple vs Detailed
Property Sets - Automatic

Features
- Colour
- Layer
- Location (XYZ)
- Rotation
- Volume
- Handle
Property Sets - Formula

Features

• VBScript
• Complex Attributes

RESULT = "--"
On Error Resume Next

<Code goes here>

'Return the results
RESULT = <Output>
.NET and VBScript to develop and assign asset tags based on model data
Property Sets – Formula + COM API

Features

• VBScript
• Complex Attributes
• Work with Civil 3D Object Data

```
Set oApp = GetObject(, "AutoCAD.Application")
Set oCivilApp = oApp.GetInterfaceObject("AeccXUiLand.AeccApplication.13.0")
Set obj = oCivilApp.ActiveDocument.HandleToObject("[Handle]"
```

![Image of Formula Property Definition and Civil 3D interface]
Property Sets – .Net API Automation

Features

- Automatic assigning of Property Sets
- .Net API
- Extended Data
  - Lat-Long
  - Chainage-Offset