6 Sessions: In Depth Carlson Hydrology

A Virtual Classroom exploring Carlson Hydrology workflows for rainfall and runoff analysis, storm collection design, detention modeling and utility coordination.

In Depth Carlson Hydrology with Travis Maxwell connects rainfall and runoff methods with practical stormwater design in Carlson software. Day 1 covers rainfall data, Rational and SCS methods, storm sewer settings, inlet capture, gutter spread and pipe sizing with hydraulic grade lines. Day 2 uses HydroNet for detention and stage-storage, pond grading, outlet structures, underground chamber tables and utility profiles and crossing checks.

Key Topics:

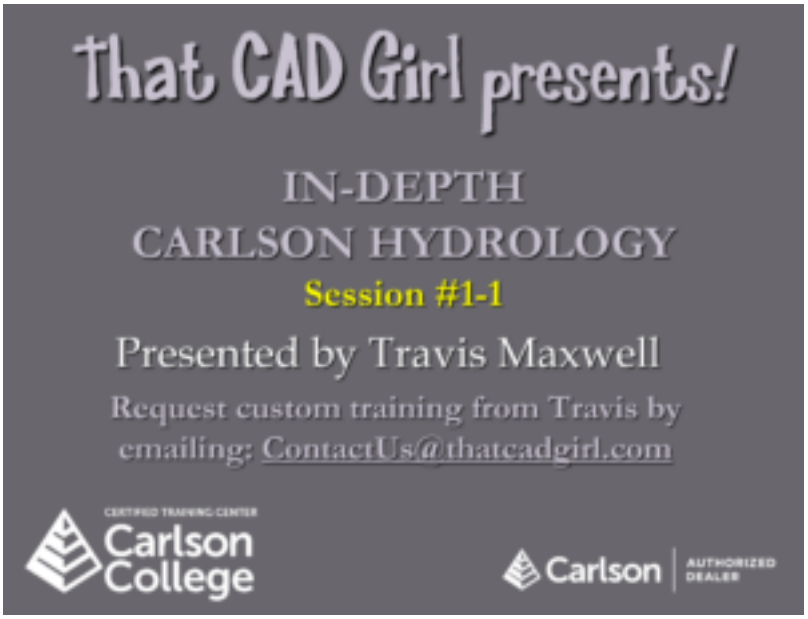
- Carlson rainfall data setup, Rational Method and SCS runoff methods and time of concentration
- Carlson GIS and terrain preparation, watershed delineation, flow tracking and StreamStats comparisons
- Carlson watershed layers, soil groups, curve numbers and runoff coefficients
- Carlson storm network settings, inlet libraries, structure placement and surface-based elevations
- Carlson inlet capture, bypass flow, gutter spread and hydraulic grade line evaluation

- Carlson network plan drafting, profile editing, labels and drainage reports
- Carlson HydroNet hydrographs, detention routing and predevelopment and postdevelopment flow comparisons
- Carlson bench pond and bioswale grading, stage-storage data and outlet structure design
- Carlson underground chamber modeling with custom storage tables and external design data
- Carlson utility networks, coordinated plan and profile labels, pipe crossings and collision checks

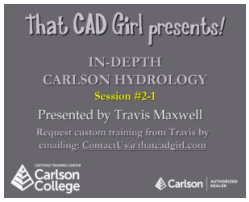
Descriptions, transcripts and other details of this recording ha ve been AI-generated and may contain errors.

These sessions were presented by Travis Maxwell.

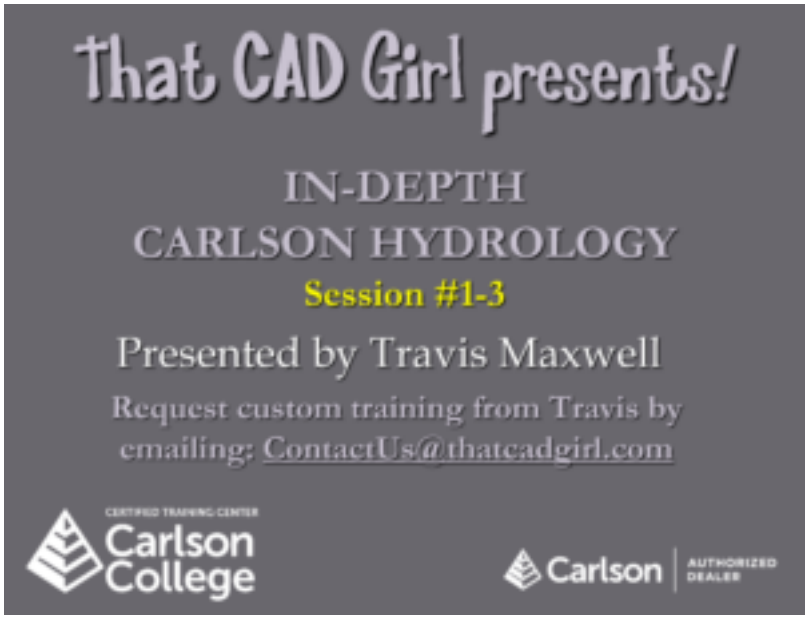
Travis Maxwell covers rainfall data, Rational and SCS runoff methods and watershed fundamentals.Travis Maxwell sets up storm sewer standards, rainfall IDF data and hydraulic grade checks.Travis Maxwell lays out storm networks, inlet connections and drainage analysis in



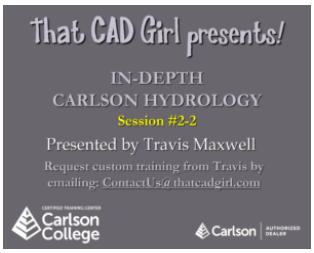
Carlson Hydrology.Travis Maxwell introduces HydroNet, GIS base maps and detention design



preparation.

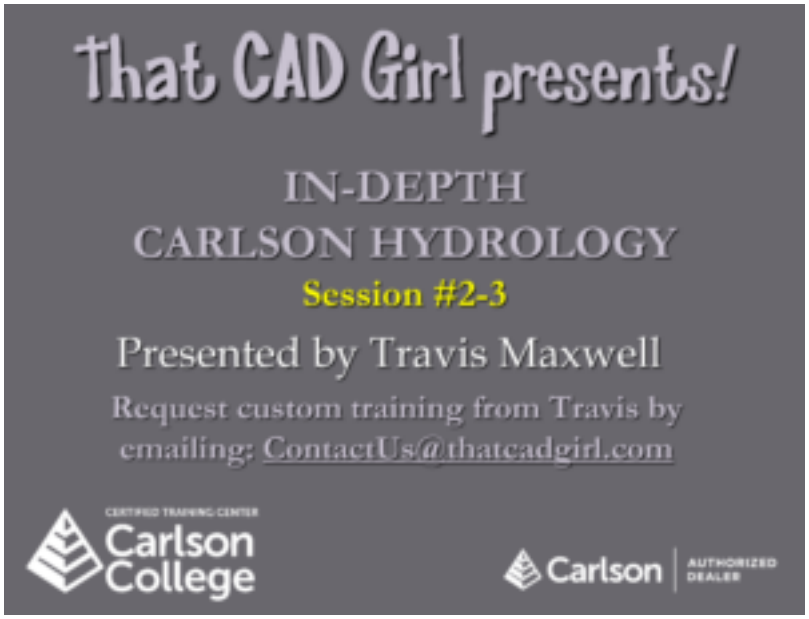


Travis Maxwell builds HydroNet subcatchments, pond grading and outlet



controls.

Travis Maxwell models underground chambers, refines LiDAR drainage and drafts utility profiles.



In Depth Carlson Hydrology Session #2-3

A Virtual Classroom Using Carlson Hydrology – Learn to detention chambers

This Carlson Software virtual class with Travis Maxwell explores detention chambers, lidar refinement and utility profiles as part of an in-depth hydrology training series. The session demonstrates underground stormwater chamber stage-storage, HydroNet storage-file transfer and routing and LiDAR-to-grid drainage delineation, showing how civil designers can set up, evaluate and troubleshoot drainage models in practical workflows.

Key Topics:

- underground stormwater chamber stage-storage
- HydroNet storage-file transfer and routing
- LiDAR-to-grid drainage delineation
- water and utility profile drafting
- pipe crossings and model troubleshooting

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This session was presented by Travis Maxwell on 03/23/2022.

In Depth Carlson Hydrology Session #2-2

A Virtual Classroom Using Carlson Hydrology – Learn to hydronet subcatchments

This Carlson Software virtual class with Travis Maxwell explores hydronet subcatchments, pond grading and outlet controls as part of an in-depth hydrology training series. The session demonstrates HydroNet Explorer subcatchment setup, existing and proposed TIN/grid surfaces and detention and water-quality volume estimates, showing how civil designers can set up, evaluate and troubleshoot drainage models in practical workflows.

Key Topics:

- HydroNet Explorer subcatchment setup
- existing and proposed TIN/grid surfaces
- detention and water-quality volume estimates
- pitched pond grading and stage-storage
- riser/orifice and spillway routing

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This session was presented by Travis Maxwell on 03/23/2022.

In Depth Carlson Hydrology Session #2-1

A Virtual Classroom Using Carlson Hydrology – Learn HydroNet Detention and Stage-Storage Setup

This Carlson Software virtual class with Travis Maxwell explores hydronet, gis base maps and detention design preparation as part of an in-depth hydrology training series. The session demonstrates QGIS base-map and shapefile integration, HydroNet compared with HydroCAD and detention design and stage-storage concepts, showing how civil designers can set up, evaluate and troubleshoot drainage models in practical workflows.

Key Topics:

- QGIS base-map and shapefile integration
- HydroNet compared with HydroCAD
- detention design and stage-storage concepts
- storm-network HGL profiles
- soil data and watershed inputs

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This session was presented by Travis Maxwell on 03/23/2022.

In Depth Carlson Hydrology Session #1-3

A Virtual Classroom Using Carlson Hydrology – Learn to storm network layout

This Carlson Software virtual class with Travis Maxwell explores storm network layout, inlet connections and drainage analysis as part of an in-depth hydrology training series. The session demonstrates storm drain alignment and inlet orientation, surface and road centerline referencing and network pipe connectivity, showing how civil designers can set up, evaluate and troubleshoot drainage models in practical workflows.

Key Topics:

- storm drain alignment and inlet orientation
- surface and road centerline referencing
- network pipe connectivity
- hydraulic grade line troubleshooting
- watershed and soil layer inputs

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This session was presented by Travis Maxwell on 03/16/2022.

In Depth Carlson Hydrology Session #1-2

A Virtual Classroom Using Carlson Hydrology – Learn to storm sewer settings

This Carlson Software virtual class with Travis Maxwell explores storm sewer settings, rainfall data and hydraulic grade lines as part of an in-depth hydrology training series. The session demonstrates storm sewer standards and drawing settings, rainfall IDF and coordinate-system setup and hydraulic and energy grade line evaluation, showing how civil designers can set up, evaluate and troubleshoot drainage models in practical workflows.

Key Topics:

- storm sewer standards and drawing settings
- rainfall IDF and coordinate-system setup
- hydraulic and energy grade line evaluation
- inlet spread and network connections
- design-drawing and deliverable organization

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This session was presented by Travis Maxwell on 03/16/2022.

In Depth Carlson Hydrology Session #1-1

A Virtual Classroom Using Carlson Hydrology – Learn Rainfall, Runoff and Watershed Basics

This Carlson Software virtual class with Travis Maxwell explores rainfall, runoff methods and watershed fundamentals as part of an in-depth hydrology training series. The session demonstrates rainfall depth and intensity sources, Rational and SCS runoff methods and time of concentration and curve numbers, showing how civil designers can set up, evaluate and troubleshoot drainage models in practical workflows.

Key Topics:

- rainfall depth and intensity sources
- Rational and SCS runoff methods
- time of concentration and curve numbers
- catch-basin interception calculations
- terrain and LiDAR watershed delineation

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This session was presented by Travis Maxwell on 03/16/2022.

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22 Sessions: 2022 Virtual Workshop

A Virtual Workshop series featuring Carlson Software training in CAD fundamentals, survey workflows, field data collection, hydrology and point cloud processing

The 2022 Virtual Workshops start with CAD fundamentals in IntelliCAD and AutoCAD and an introduction to Carlson, then move into survey, civil and hydrology workflows. Scott Griffin and Carlson staff present a software showcase and round tables on field software, desktop tools and Precision 3D hydrology. Doug Aaberg leads Field-to-Finish, Mark Long covers civil design and later sessions include user case studies on wet ponds, pervious pavers, fire flow, live field design and tips from Travis Maxwell, Finch & Associates and Bill Dennis.

Key Topics:

- Carlson and IntelliCAD setup, command shortcuts, object snaps and precise drafting
- Carlson CAD standards for layers, blocks, dimension styles, templates and custom linetypes
- Carlson survey points, deed entry and correlation, annotation and legal descriptions
- Carlson Field-to-Finish, TIN surfaces, contours and GIS imagery
- Carlson layouts, viewports, legends, title blocks, sheet

sets and PDF plotting
- Carlson 2023 drawing cleanup, CADnet PDF and BIM tools, retaining walls and subdivision layouts
- Carlson SurvPC field least squares, BIM stakeout, map overlays and Cloud data exchange
- Carlson BRx7 GNSS, hybrid robotic surveying and drone hardware demonstrations
- Carlson Hydrology and Precision 3D Hydro pond routing, storm networks and parametric inlets
- Carlson Point Cloud LAS imports, ortho imagery, bare earth extraction and automated feature extraction

Sessions In This Series:

- 1-1: Introduction to CAD, presented by Jennifer DiBona
- 1-2: Introduction to CAD, presented by Jennifer DiBona
- 1-3: Introduction to CAD, presented by Jennifer DiBona
- 2-1: Introduction to Carlson, presented by Jennifer DiBona
- 2-2: Introduction to Carlson, presented by Jennifer DiBona
- 2-3: Introduction to Carlson, presented by Jennifer DiBona
- 3-1: Carlson Software Showcase: Overview of Carlson, presented by Scott Griffin
- 3-2: Carlson Software Showcase: Field Software Round Table, panelists: Sarah Winter, John Gerber, Dough Aaberg & Butch Herter
- 3-3: No Recording
- 3-4: Carlson Software Showcase: Desktop Software Round Table, panelists: Leonid Entov, Lon Watson, Mark Long, Scott Griffin & Doug Aaberg
- 3-5: Carlson Software Showcase: Hydrology & P3D Round Table, panelists: Bruce Carlson, Shan Lu & Mark Long
- 3-6: Carlson Software Showcase: Hydrology & P3D Round Table, panelists: Bruce Carlson, Shan Lu & Mark Long
- 3-7: No Recording
- 4-1: Field to Finish from Start to Finish, presented by

Doug Aaberg

- 4-2: Field to Finish from Start to Finish, presented by Doug Aaberg
- 4-3: Field to Finish from Start to Finish, presented by Doug Aaberg
- 5-1: Civil Design in Carlson Software, presented by Mark Long
- 5-2: Civil Design in Carlson Software, presented by Mark Long
- 5-3: Civil Design in Carlson Software, presented by Mark Long
- 6-1: User Case Study: Wet Pond Design for Multi-Family Development, presented by Travis Maxwell
- 6-2: User Case Study: Pervious Paver Parking Lot Design, presented by Finch & Associates
- 6-3: User Case Study: Fire Flow Analysis Case Study, presented by Travis Maxwell
- 6-4: User Case Study: Live Field Design, presented by Bill Dennis of Civil Design Team LLC
- 6-5: Tips & Tricks in Carlson Software, presented by Travis Maxwell

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*These sessions were presented by Jennifer DiBona and Carlson staff*Jennifer DiBona opens with CAD fundamentals, the IntelliCAD

interface and drafting precision.Jennifer DiBona covers layers, properties, blocks, dimension styles and drawing templates.Jennifer DiBona explains linetypes, linetype scales and paper space layouts and viewports.







Jennifer DiBona introduces Carlson 2023 setup, configuration, project folders and annotation standards.Jennifer DiBona covers annotation settings, templates, CRD points and deed tools.Jennifer DiBona ties together Field-to-Finish, surfaces, GIS imagery, legends and





plotting.Scott Griffin showcases Carlson 2023, including drawing cleanup, Field-to-Finish, CADnet and B tools.Carlson staff discuss SurvPC 7 updates, field least squares, BIM stakeout and map overlays.





Carlson staff answer desktop software questions on the 2023 release, CUI customization and civil tools.Bruce Carlson, Shan Lu and Mark Long discuss hydrology workflows and Precision Hydro.Bruce Carlson continues the hydrology and Precision 3D discussion with storm



sewer and inlet design.Doug Aaberg starts Field-to-Finish from code tables and special codes through automated linework.



Doug Aaberg continues Field-to-Finish with special codes, templates, finishes Field-to-Finish with symbol rotation, pipes, trees and automated labeling.Mark Long begins civil design with LotNet subdivision layout and RoadNet setup.Mark Long continues RoadNet with templates, intersections, super elevation and cul-de-



symbols and layer setup.Doug Aaberg







sacs.Mark Long designs sanitary and storm networks and merges surfaces in Carlson Civil and Hydrology.Travis Maxwell presents a wet pond design case study for a multi-family site in HydroNet.

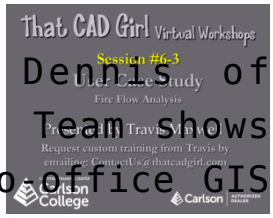






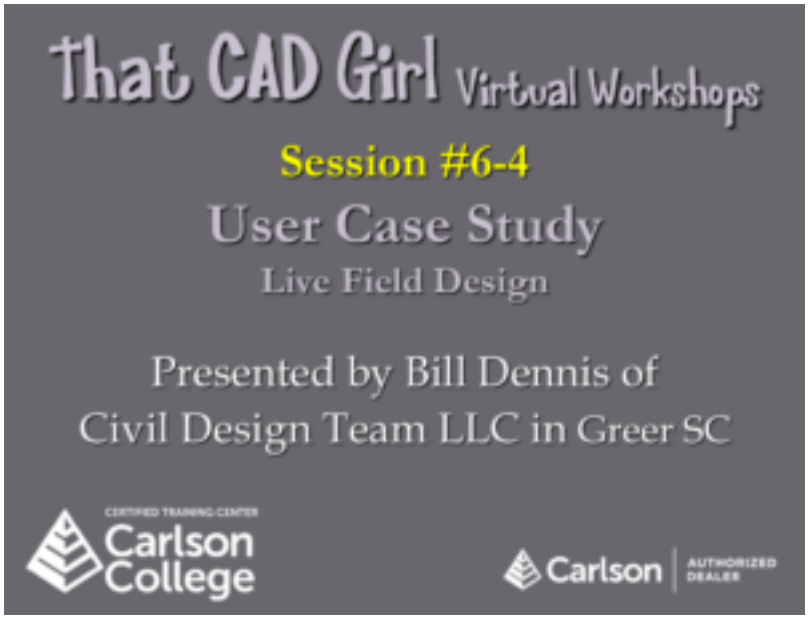
Finch & Associates present a pervious paver parking lot stormwater case study in HydroNet.Travis Maxwell presents a fire flow analysis case study with Carlson pressure pipe tools.Bill Dennis of Civil Design Team shows live field-to-office GIS and CAD design





techniques.Travis Maxwell shares project-data tips using tables, custom fields, sheet sets and LiDAR.





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3 Sessions: Customizing Carlson to Increase Productivity

A Virtual Classroom demonstrating how to customize Carlson to increase productivity with reusable tools, consistent CAD standards and coordinated drawing templates

Customizing Carlson to Increase Productivity with Travis Maxwell shows how menus, tool palettes, macros and templates support a consistent drawing workflow. Sessions cover interface and

workspace setup, reusable layers, linetypes, blocks and notes and project properties and fields. The follow-up adds sheet sets, CAD scripts, Lisp routines and Excel links that reduce repetitive drawing setup.

Key Topics:

- Carlson workspace setup, custom menus, toolbars, shortcut keys and command macros
- Carlson tool palette creation, properties, import and export and shared source drawings
- Carlson standard notes, multileaders and reusable blocks generated with spreadsheet commands
- Carlson CAD standards for layers, custom linetypes, text styles and font consistency
- Carlson drawing templates, title blocks, custom properties and fields for project information
- Carlson model space and paper space workflows, annotation scales and viewport settings
- Carlson sheet sets for coordinating layouts, sheet numbers and titles across CAD files
- Carlson legends with field labels and viewport layer and color overrides
- Carlson CAD script recording and Lisp routines for repeated setup tasks
- Carlson tables linked with Excel and spreadsheet-generated scripts for drawing updates

Descriptions, transcripts and other details of these recordings have been AI-generated and may contain errors.

*These sessions were presented by Travis Maxwell.*Travis Maxwell customizes the Carlson interface, workspaces, tool palettes and

macros.Travis Maxwell standardizes tool palettes, blocks, layers, scripts and CAD templates.



A follow-up on sheet sets, Lisp and scripts, legends and title block automation.





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3 Sessions: Beyond the Basics – Advanced Layout

A Virtual Classroom exploring advanced layout and grading techniques with Carlson software to coordinate subdivision design, road and lot grading and earthwork balancing

Beyond the Basics with Travis Maxwell covers advanced subdivision layout and grading using Carlson LotNet, RoadNet and SiteNet together. Sessions show how to lay out lots, elevate building pads and lot lines, connect driveways and refine road templates, intersections and cul-de-sacs. The follow-up focuses on SiteNet surface updates, earthwork balancing and grading swales, berms and pads.

Key Topics:

- Carlson sheet sets, custom fields and drawing organization across multiple CAD files
- Carlson LotNet boundaries, rights of way, automated subdivision and manual lot adjustments
- Carlson building placement, setbacks, driveway connections and lot layout updates
- Carlson RoadNet grading rules for lot lines, building pads and transitions to existing ground
- Carlson road profiles, template point consistency, intersections and cul-de-sacs
- Carlson road widening, template transitions and connections to existing roads
- Carlson SiteNet layer assignments, surface checks and contour updates after design changes
- Carlson earthwork balancing, road profile adjustments,

materials and subgrade quantities
- Carlson 3D polyline tools for driveway grading, swales, berms and pad grading
- Carlson SiteNet project boundaries and areas of interest for reviewing phased earthwork

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*These sessions were presented by Travis Maxwell.*Travis Maxwell introduces LotNet, RoadNet and SiteNet for subdivision layout, grading and sheet sets.Travis Maxwell coordinates entrances, templates, driveways and earthwork balancing across the N
tools.A follow-up on SiteNet pad grading, dynamic contours and earthwork balancing techniques.



