

Layout Photography

Seeking the Look of the Prototype

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Diamond Rails Forever
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Types of Model Railroad Photography

- Bird's eye or Google Earth shots.
- People and model trains (includes Op Sessions).
- Layout visits - "Legacy Pictures."
- Closeups of individual models or techniques.
- Replicate look of prototype scenes.

Today's Agenda

- Examine prototype photos, discuss how to emulate them with model subjects.
 - Composition issues.
 - Vertical perspective.
 - Depth of field.
- Role of smartphone cameras.
- Techniques and Software for Focus Stacking
 - iPhone vs. DSLR comparison
 - Software comparisons.
- Sample photos with critiques.

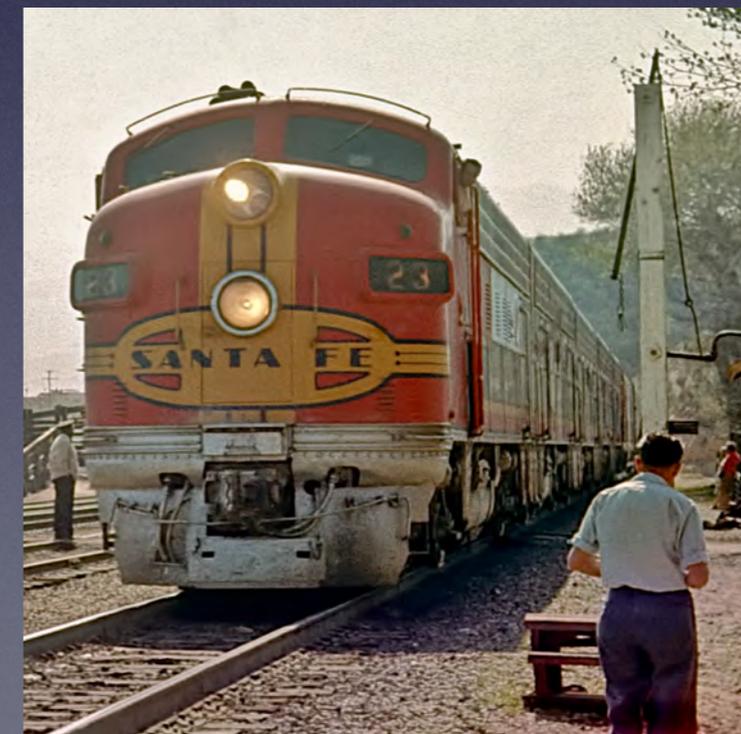
Train As Part of Scenery



Ted Benson



Down on the Ground



Tracks Share the Image





Compositional Elements to Replicate

- Low Vertical Angle of View
- Wide Perspective
- Tracks Involved in Composition
- Depth of Field

Cameras

- **Fixed Lens**

- **Point and shoot, compact.**



- **Smartphone**

- **Bridge/Superzoom**



- **Interchangable Lens**

- **Mirrorless**



- **DSLR**



Smartphone Cameras

- Lens low to “ground.”
- Small, fits within scenes.
- Close focusing.
- Amazing miniaturization.
- Shallow depth of field due to fixed wide aperture.
- Control of focus point and focal length imprecise;
- Limited manual controls (e.g. exposure mode).
- Files lower quality.

DSLRs and Similar Interchangeable Lens Cameras

- Precise manual focusing
- Aperture is adjustable for greater depth of field.
- Can shoot raw, more color depth, higher resolution.
- Large, relatively bulky.
- Higher “off the ground.”
- Does not focus as close.

Height of Lens Center Determines Vertical Perspective

Approximate Height (scale feet) From Layout
Surface to Lens Center

	<u>O</u>	<u>S</u>	<u>HO</u>	<u>N</u>
DSLR	6.3	8.4	11.4	21.0
iPhone Wide Angle	2.2	2.4	3.3	6.1
iPhone on Stand	3.3	3.9	5.5	9.8

Focus Stacking Nuts and Bolts

- Macro and Landscape
- Layout Shots Closer to Macro but Different
 - Preserve focus over a deep area
 - Selective focus not a key technique
- Basic “Workflow”
 - Select scene.
 - Compose to emphasize main subject and select any (optional) framing components. Leave **space around edges** for artifact cropping.
 - Choose number and location of focus points. Important to **overlap** focus fields. Smartphones require more.
 - Set camera for desired focal length and (if possible) aperture.
 - Using tripod or tripod equivalent and remote shutter release take shots at each focus point.
 - Apply focus stacking software, crop as necessary.

Definitions etc.

Lens focal lengths are expressed in equivalents to a 35 mm film camera.

All editing work, including focus stacking, is done with Photoshop unless otherwise specified.

All final images are in TIFF format.

“Landscape” type model shots shot with DSLR



f/36, 135mm



f/32, 62mm



f/36, 180mm



f/32, 72mm



Camera Comparison

iPhone XR vs Nikon D750 with zoom

Same scene shot at lowest elevation from ground at two focal lengths:

- iPhone XR - 26mm, 39mm
- Nikon D750 - 28mm, 50mm

Each set at fixed aperture:

- iPhone XR - f/1.8
- Nikon D750 - f/22

Number of focus points:

- iPhone XR - 6
- Nikon D750 - 4

Setup for Demonstration/Comparison Shots





iPhone XR
26mm

ISO 160-250
1/60 sec

iPhone XR 26mm Processed by Photoshop



iPhone XR 26mm cropped



iPhone XR 39mm



ISO 200-250, 1/50-1/60 sec.

iPhone XR 39mm cropped





26mm



39mm

D750 at 28mm



28mm full
frame



28mm half
frame

D750 28mm cropped



ISO 200 f/22 3 sec.

D750 50mm



D750 50mm cropped





28mm



50mm

iPhone XR vs Nikon D750



Focus Stacking Software

Photoshop (and Photoshop Elements)
with Bridge or Lightroom

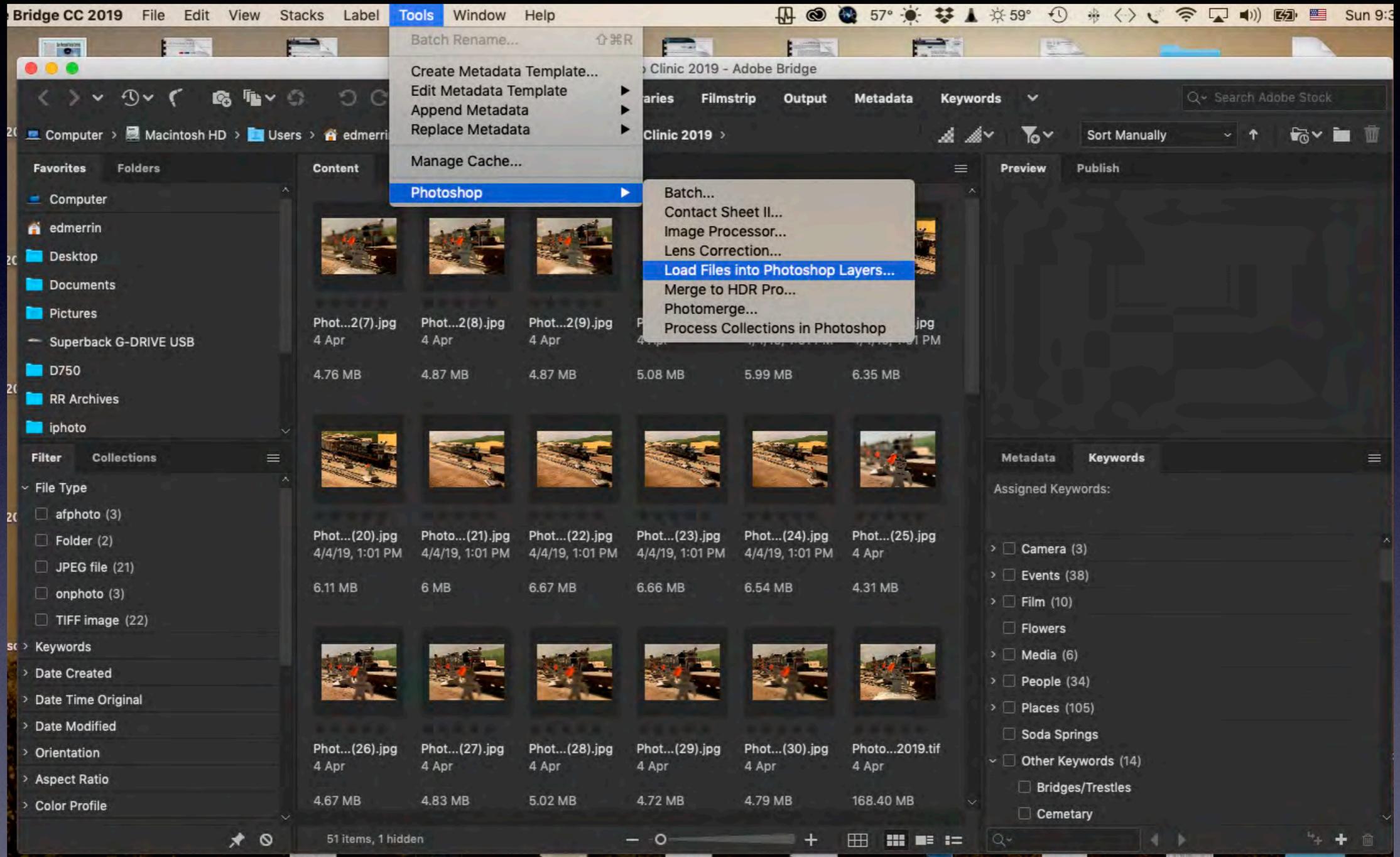
Helicon Focus

ON1 Photo Raw 2019

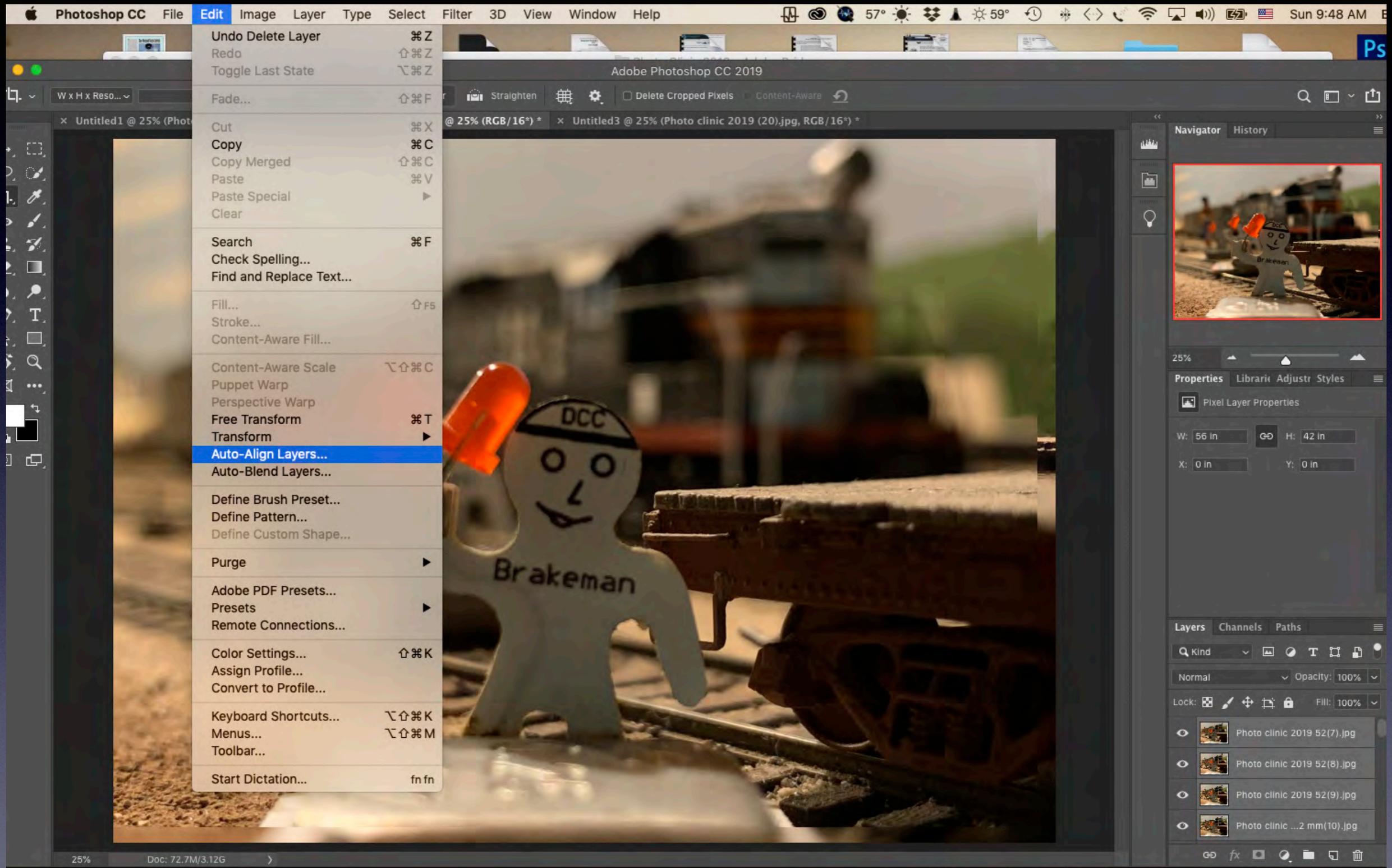
Affinity Photo

Zerene

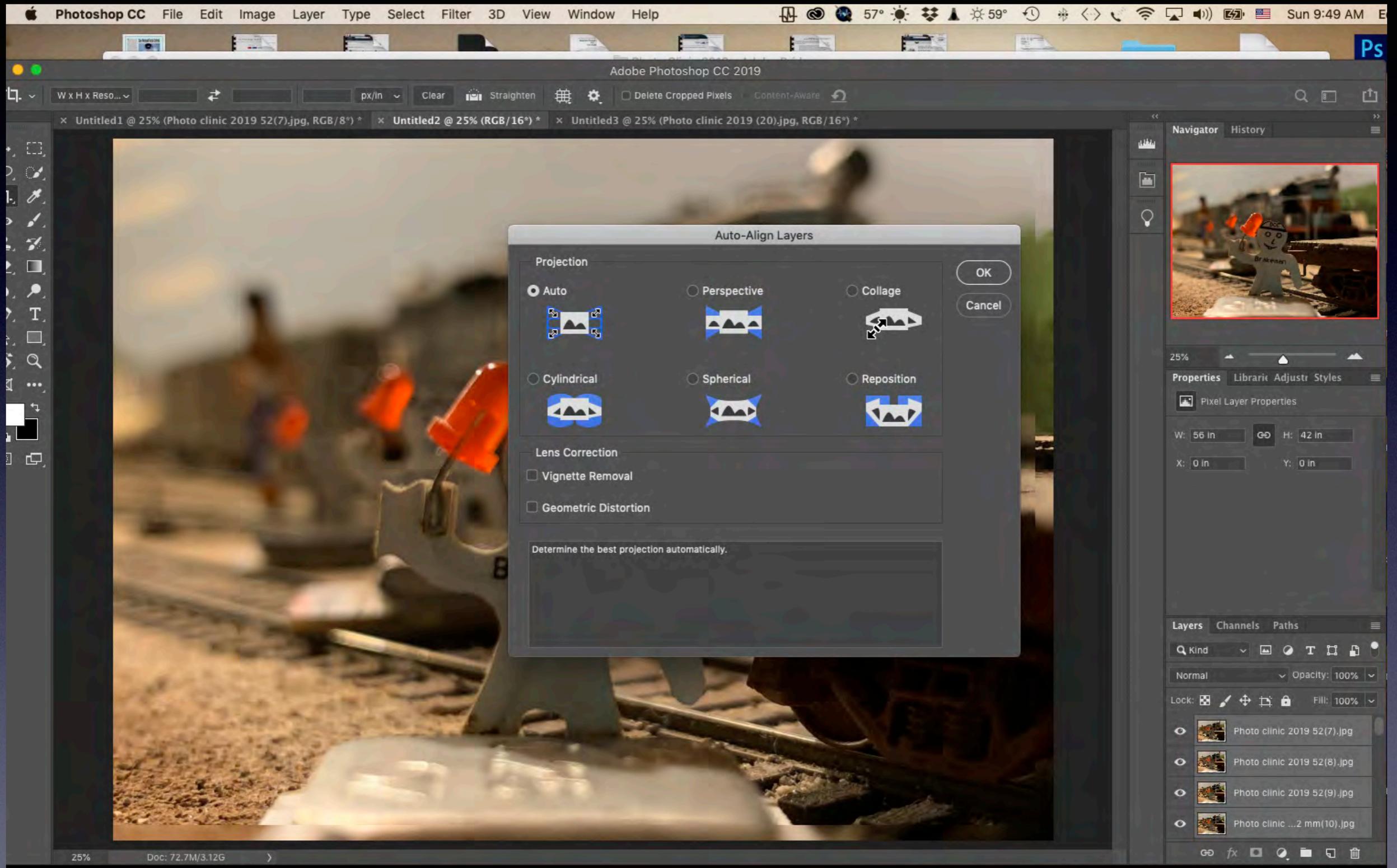
Bridge/Photoshop 1



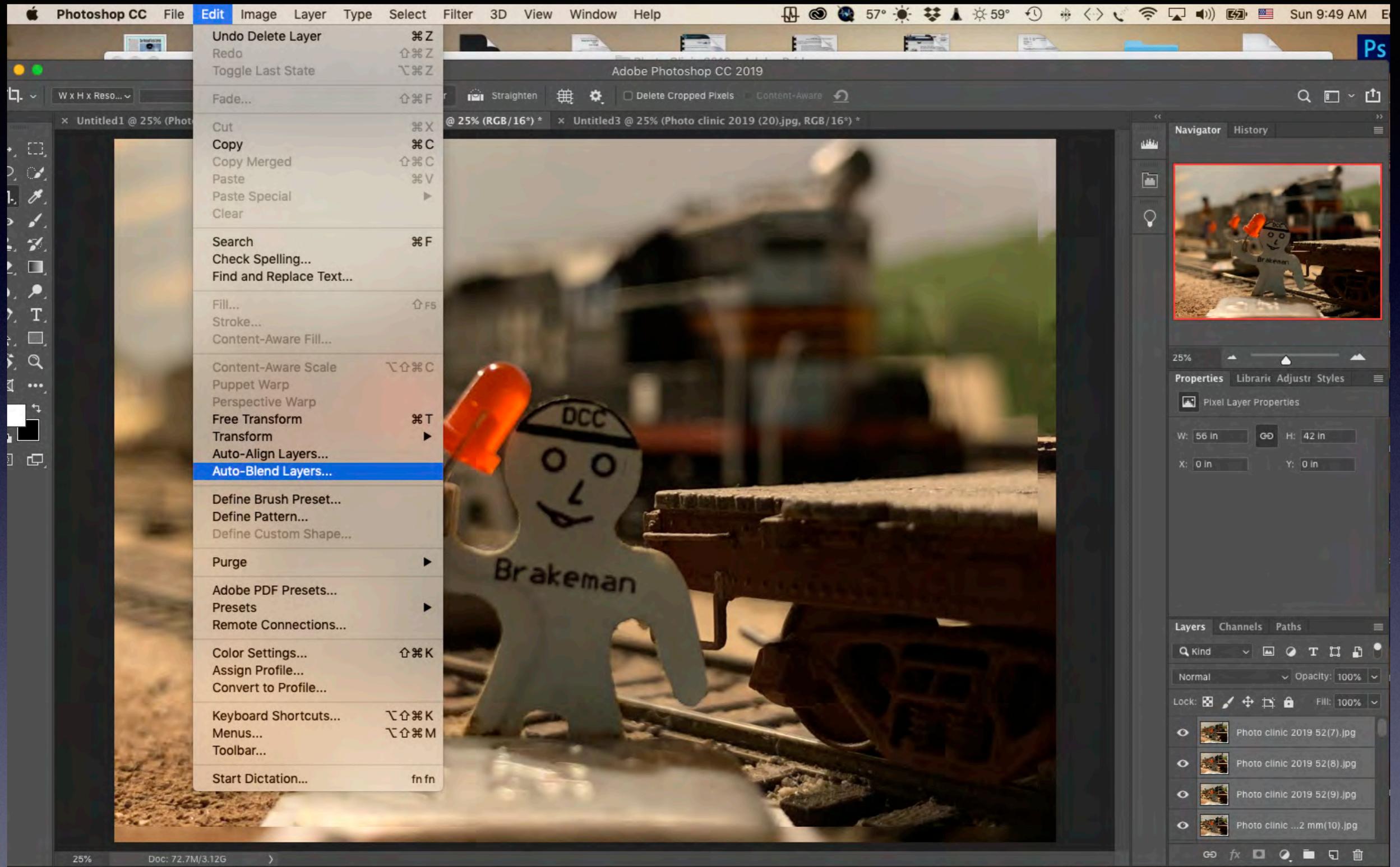
Bridge/Photoshop 2



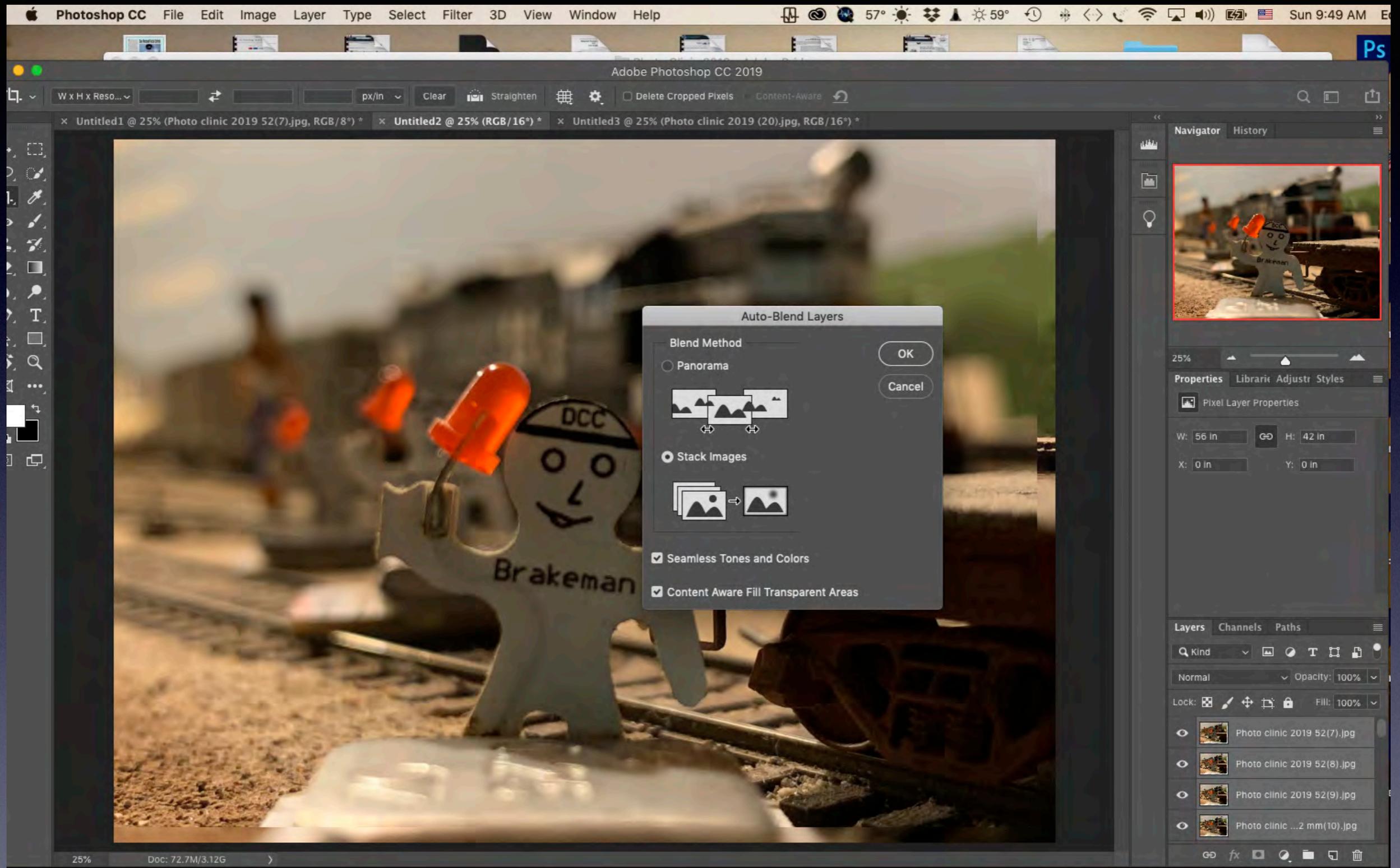
Bridge/Photoshop 3



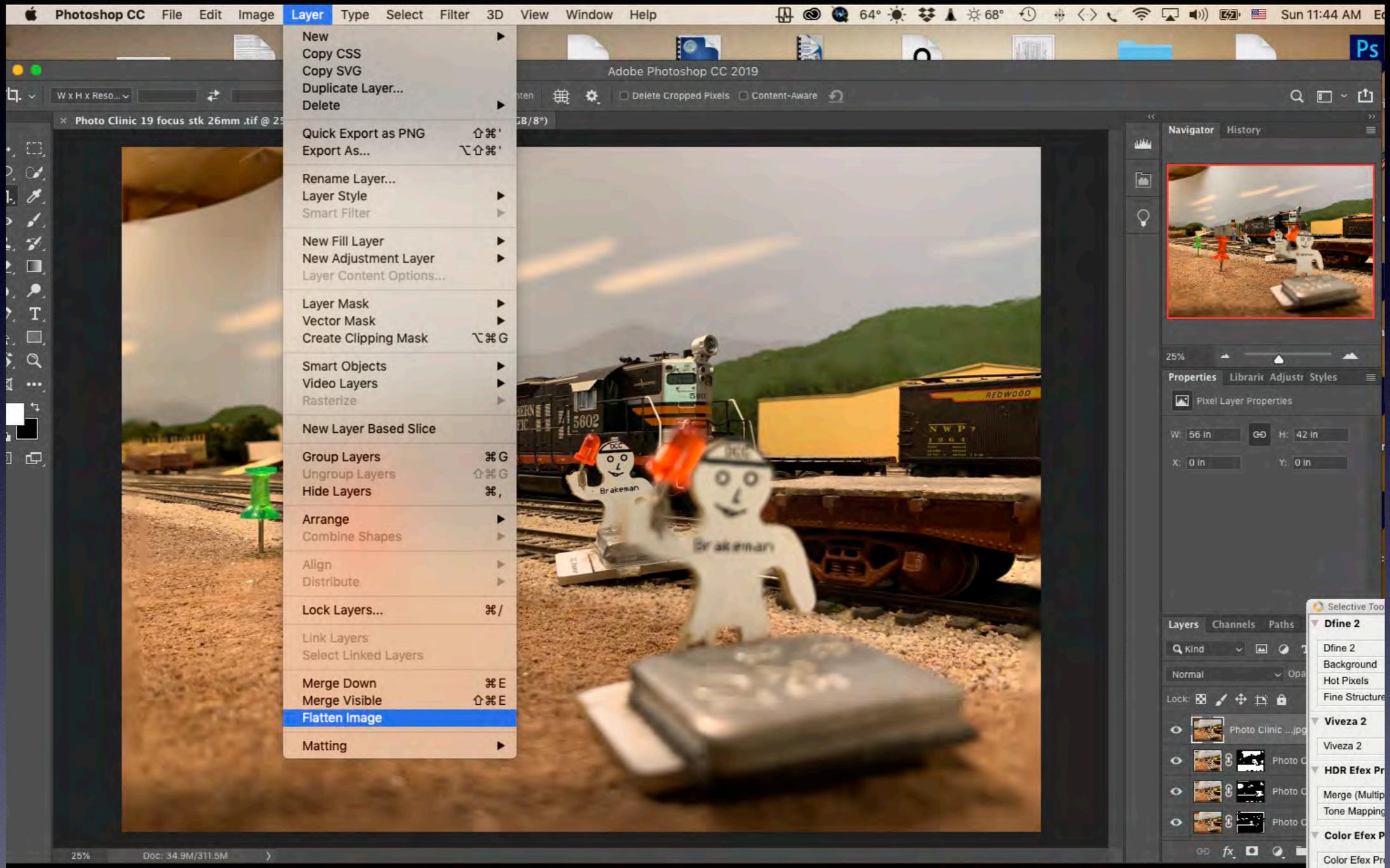
Bridge/Photoshop 4



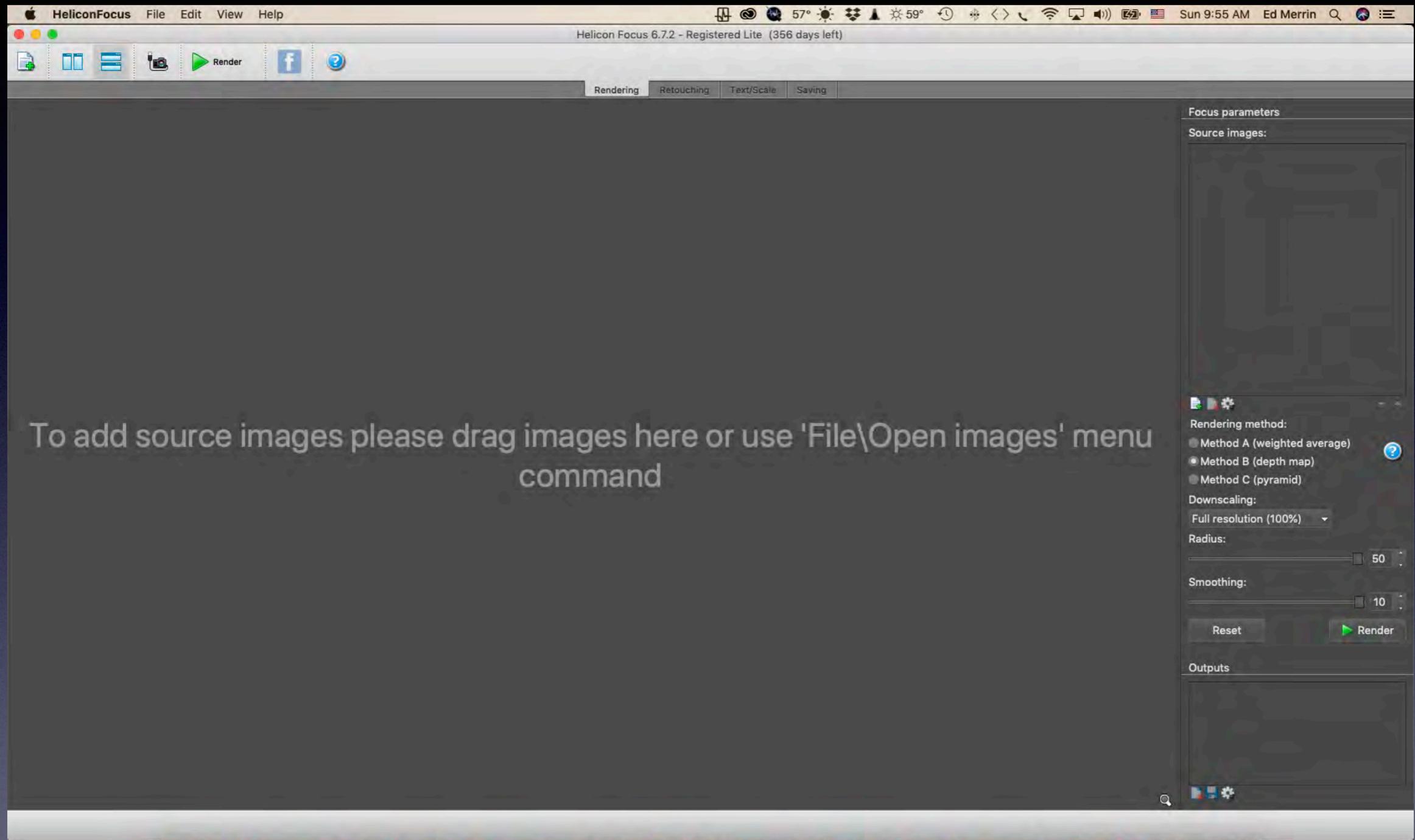
Bridge/Photoshop 6



Bridge/Photoshop 7



Helicon Focus



ON1 Raw 2019 1

The screenshot displays the ON1 Photo RAW 2019 application window. The top menu bar includes 'File', 'Edit', 'Album', 'Photo', 'Settings', 'Mobile', 'View', 'Window', and 'Help'. The status bar at the top right shows system information: 'Sun 10:00 AM', 'Ed Merrin', and system icons for network, volume, and battery.

The main interface is divided into several sections:

- Left Sidebar:** Contains a 'Folders' panel with a tree view of the file system. The 'Pictures' folder is expanded to show 'Photo Clinic 2019', which contains subfolders for '26mm', '39mm', and 'untitled folder'.
- Grid:** A central grid of photo thumbnails. The top row shows four selected images with labels: 'Photo clin... 52(7).jpg', 'Photo clin... 52(8).jpg', 'Photo clin... 52(9).jpg', and 'Photo cli...m(10).jpg'. Below these are two larger thumbnails labeled '26mm' and '39mm'. A 'photo cli...m ON1.tif' file is also visible in the grid.
- Right Panel:** Contains metadata and editing options.
 - Info:** Displays camera and file details: 'Apple iPhone XR', '4 mm (iPhone XR back camera 4.25mm f/1.8)', 'Apr 4, 2019 • 12:54:44 PM', 'JPG', 'ISO 320', '1/60', 'f/1.8', 'EV 0', 'File Name Photo clinic 2019 52(7).jpg', 'Color Space', 'Dimensions 4032x3024 @ 72 ppi', and 'File Size 4.8 mb'.
 - Metadata:** Includes fields for 'Preset' (None), 'Author', and 'Description'. There is an 'Add Keyword' section with a list of keywords.
 - Keyword List:** A scrollable list of keywords including '5062 - plus-x', 'clouds', 'depot', 'disneyland', 'ed', 'elizabeth', 'graduation', 'heritage house', 'honeywell pentax h1', 'judy', 'locomotive', 'london', 'los angeles', 'marian', 'north coast', 'nwp santa rosa', 'oahu', and 'panatomic x'.
- Bottom Bar:** Features a 'RAW Previews' section with a 'Fast' dropdown and a 'Reset All' button.

ON1 Raw 2019 2

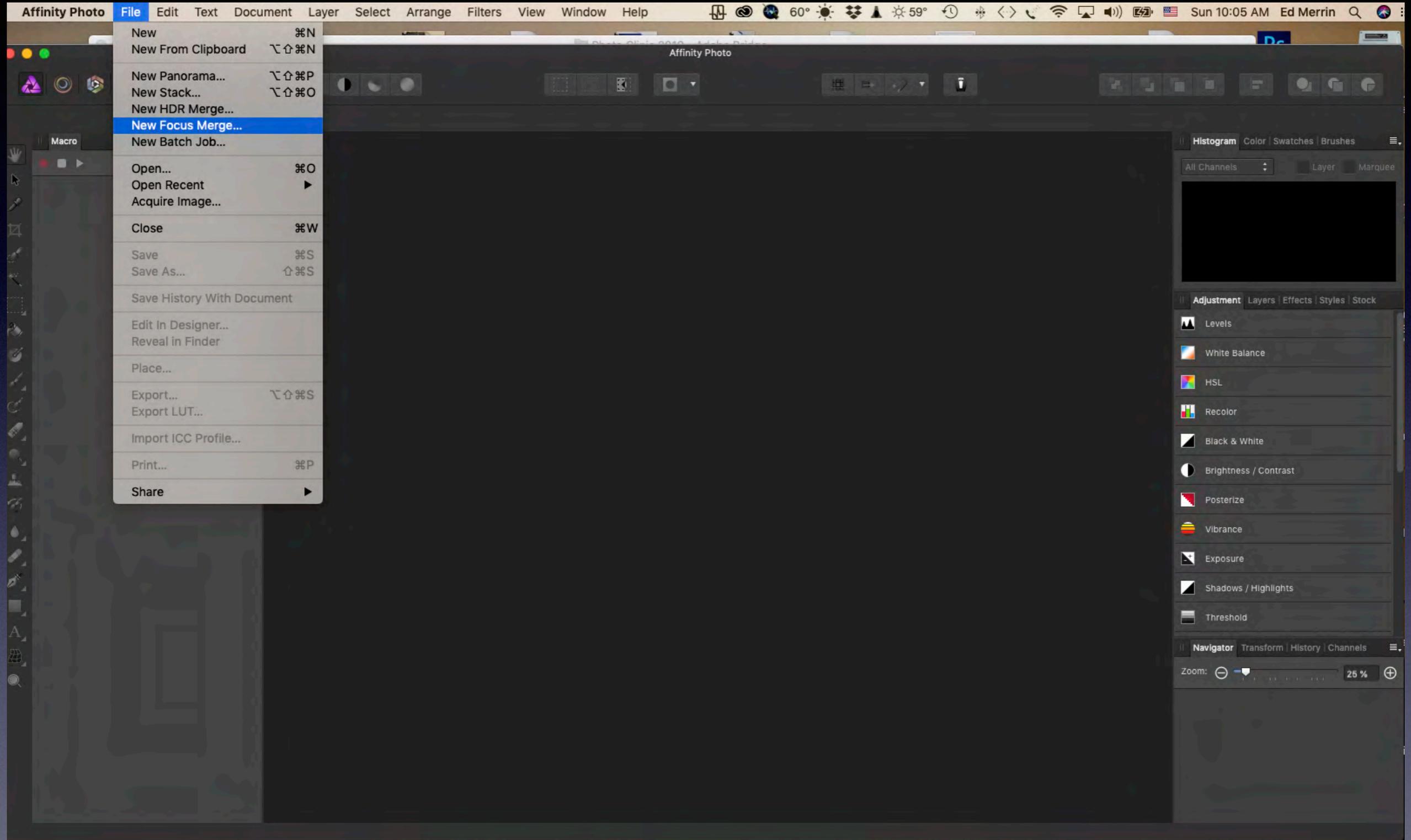
The screenshot displays the ON1 Photo RAW 2019 application window. The main interface is in a dark theme. At the top, the menu bar includes 'File', 'Edit', 'Album', 'Photo', 'Settings', 'Mobile', 'View', 'Window', and 'Help'. The status bar at the bottom shows 'RAW Previews: Fast' and a 'Reset All' button.

The central workspace shows a grid of photo thumbnails. A 'Focus Stacking' dialog box is open, centered over a selected photo of a train. The dialog box has a title bar with standard macOS window controls. It features a large preview window showing the selected photo with a depth-of-field effect. Below the preview, there are four radio buttons for 'Align Photos', 'Layered Results', 'Open in', and 'Develop'. A 'Depth of Field' slider is set to 'Max', and a 'Despeckle' slider is visible. The dialog also shows '3 of 4 Photos' and 'Cancel' and 'Save' buttons.

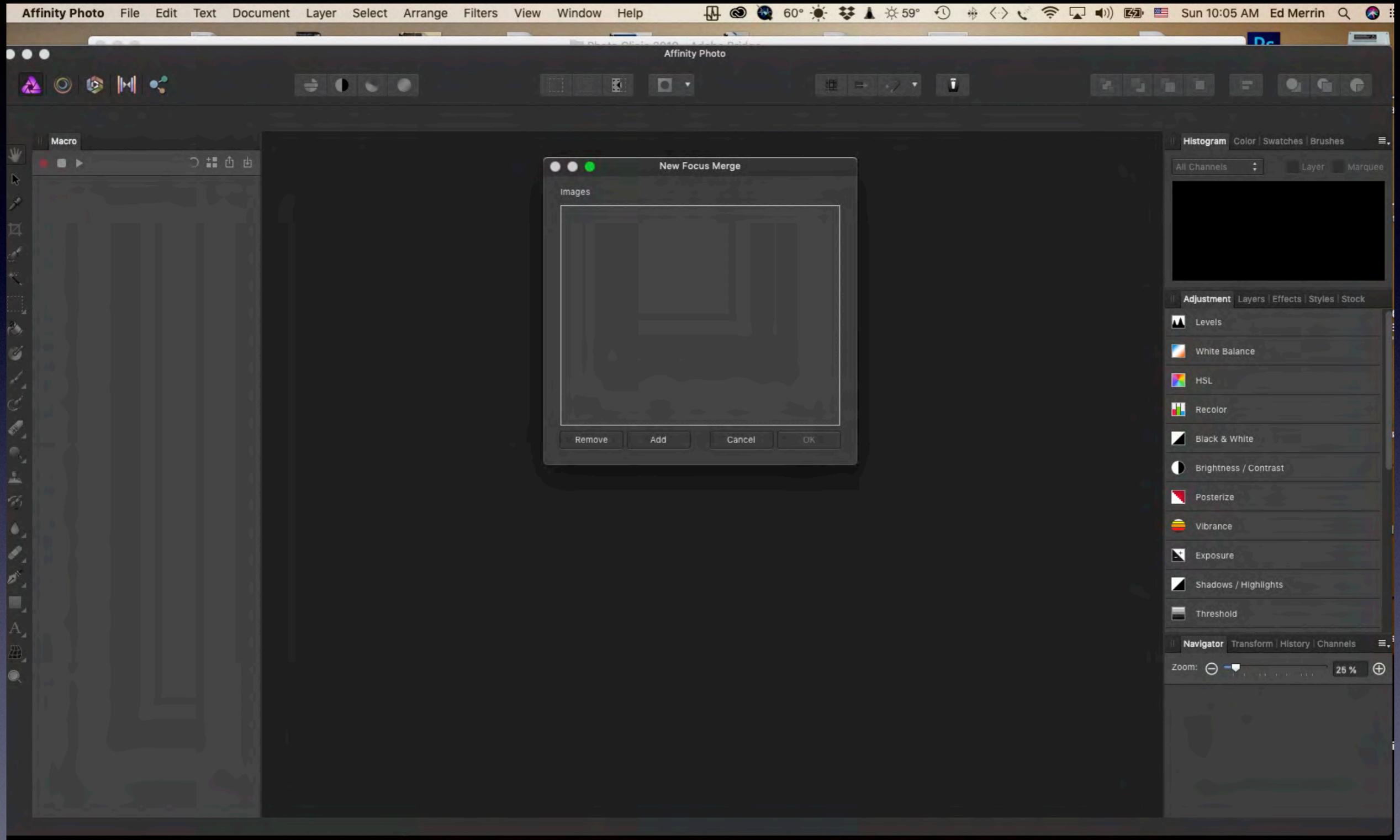
Below the dialog box, a row of four photo thumbnails is visible, each with a caption: 'Photo clinic 2019 52(7).jpg', 'Photo clinic 2019 52(8).jpg', 'Photo clinic 2019 52(9).jpg', and 'Photo clinic...2 mm(10).jpg'. The first three have checkmarks above them, indicating they are part of the stack.

The left sidebar shows a 'Folders' panel with a tree view of the file system, including 'Macintosh HD', 'Users', and 'edemerrin'. The right sidebar contains an 'Info' panel with metadata for the selected photo, including 'Apple iPhone XR', '4 mm (iPhone XR back camera 4.25mm f/1.8)', '1/60', 'f/1.8', 'EV 0', and 'Photo clinic 2019 52(7).jpg'. Below the info panel is a 'Layers' panel with a 'Pano' button and an 'HDR' button. The bottom right corner has a 'Share' button and an 'Export' button.

Affinity Photo



Affinity Photo



iPhone XR 39mm (uncropped)

Photoshop

ON1



Helicon Focus

Affinity

DSLR 50mm (uncropped)

Photoshop



ON1



Helicon Focus



Affinity

Alternate Images (uncropped) from Affinity Photo

50mm f16



50mm DX f22



Size of Output File

Photoshop	300-800 MB
ON1 RAW	93 MB
Helicon Focus	35 MB
Affinity Photo	16 MB
Photoshop after flattening	13 MB

Artifacts



Trade Off: Image Quality

	<u>Format</u>	<u>Approx Size</u>	<u>Color Depth</u>	<u>Resolution (ppi)</u>
Nikon D80	RAW			
	TIFF	58 MB	16	300
Nikon D750	RAW			
	TIFF	70 MB	16	300
iPhone XR	HEIF	?	10	?
	JPEG	2-5 MB	8	72
	TIFF	37 MB	8	72



26mm



43mm



39mm



38mm



47mm



45mm