WebODM Contouring Test – Scenic Mountain Drive, Weaverville, NC. Elevations in meters.

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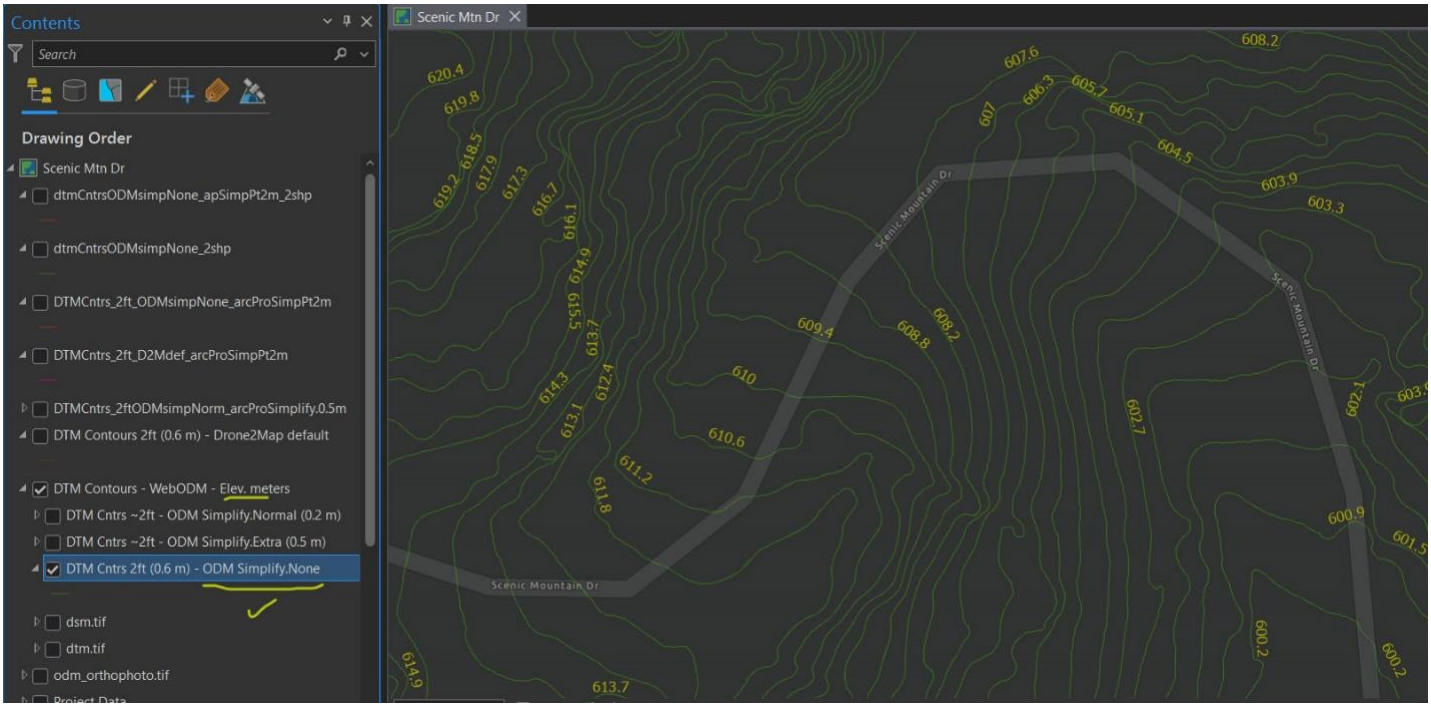
--How do contours of a DTM made with WebODM compare to those from Drone2Map?

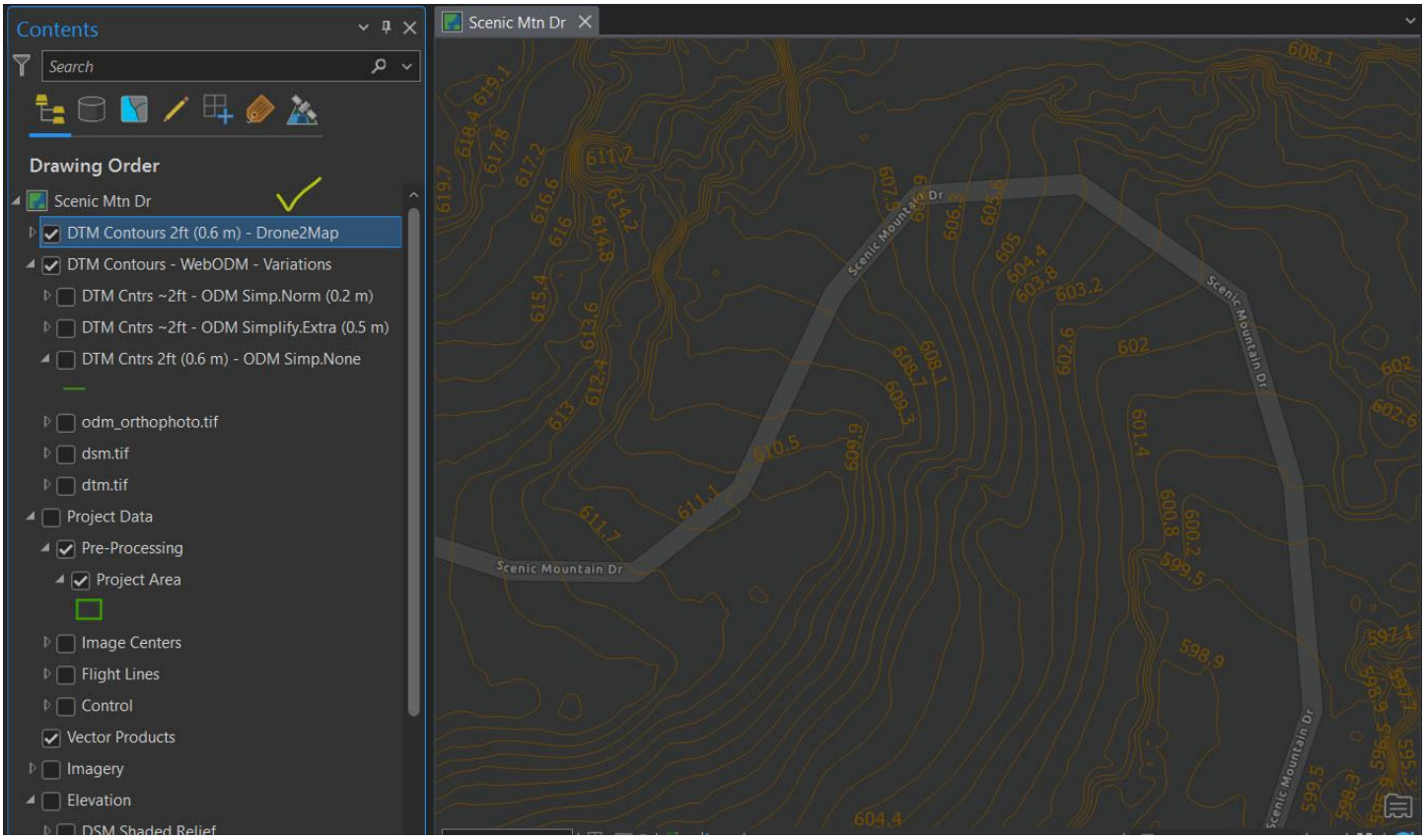
--What impact on contour line quality does Simplification have in WebODM versus ArcPro?

Screens a to m.

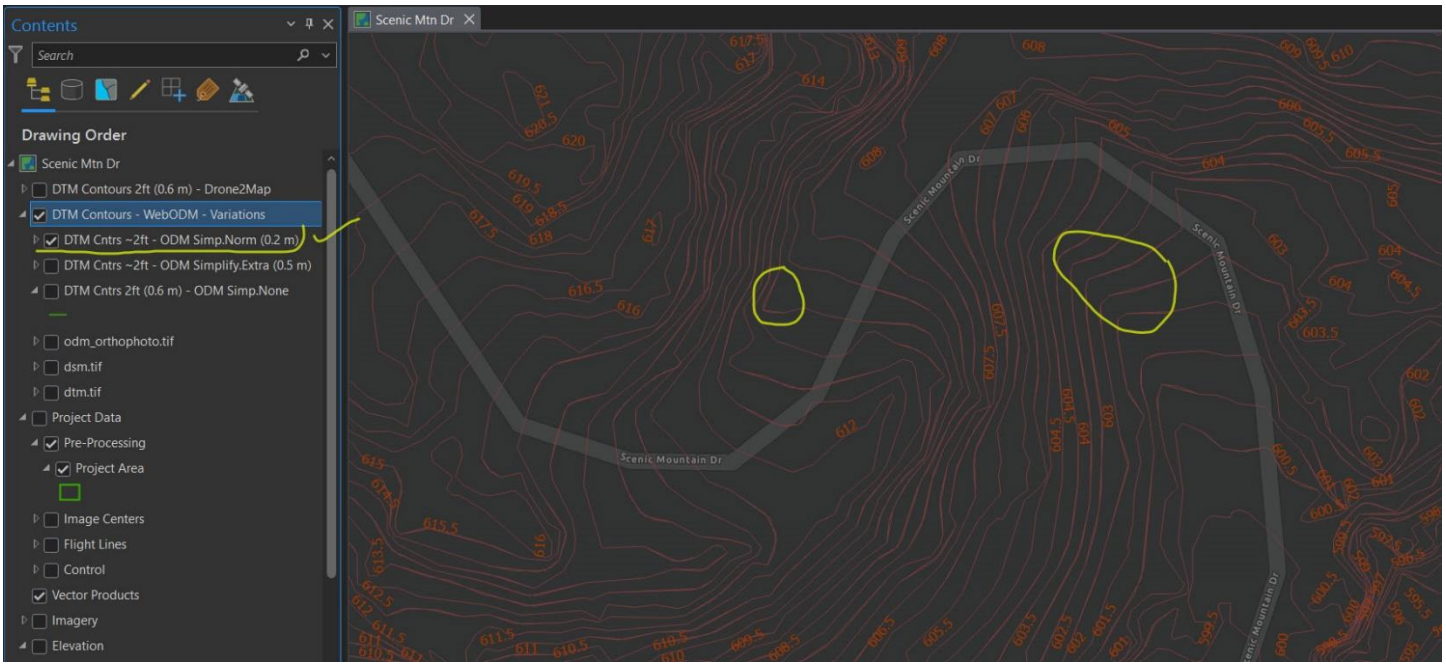
a) Scenic Mtn. Dr. detail; WebODM DTM contours, 2-ft (0.61 m) interval, Simplify: None (Do Not Simplify)



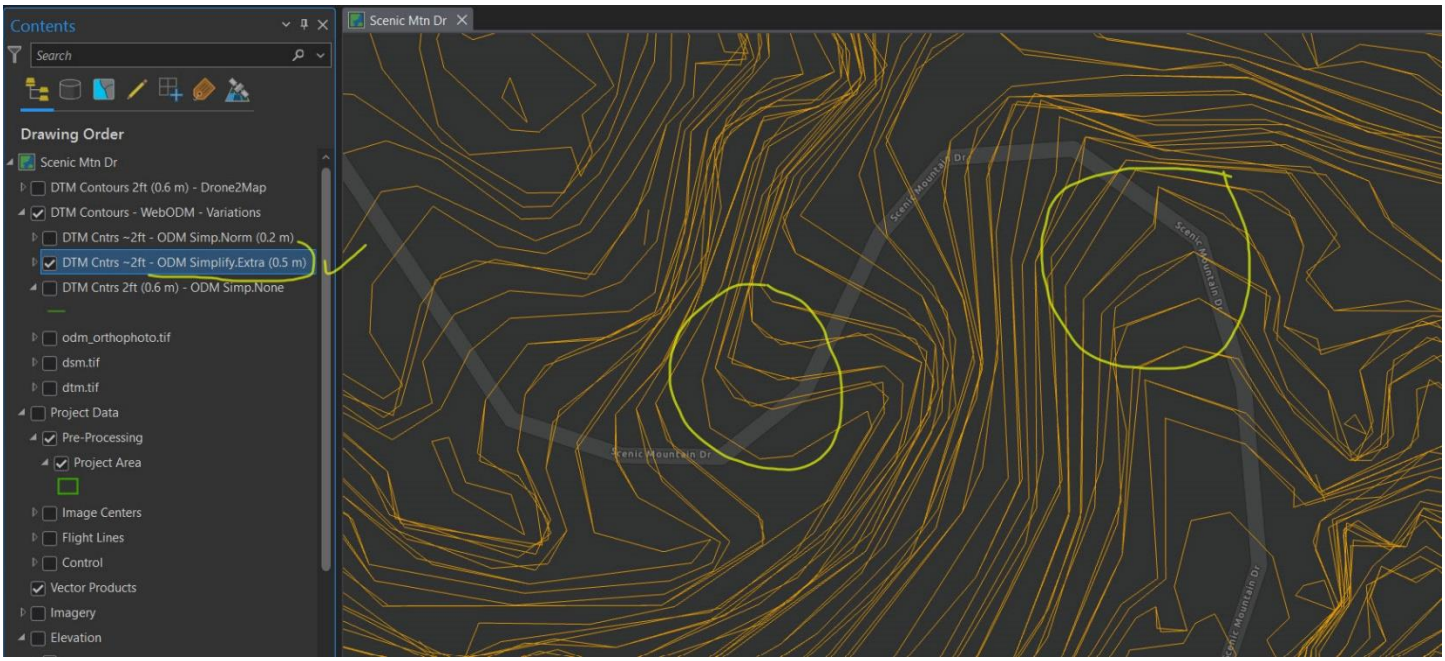
b) Compare Drone2Map DTM contours, 2-ft interval; default (no simplify)



c) DTM contours, ODM, Simplify: Normal (0.2 m); error: duplicate vertices and contour lines.

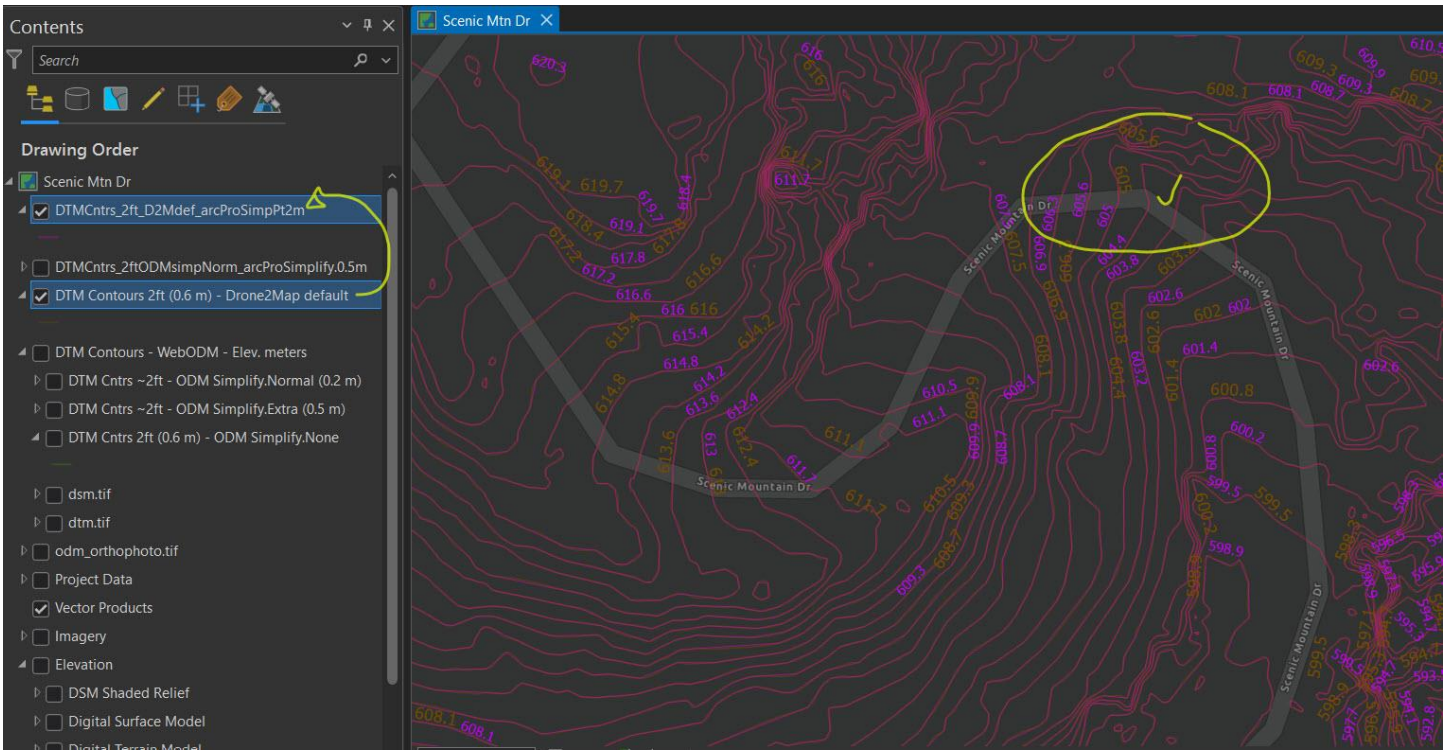


d) Same as C with Simplify: Moderate (0.5 m); same duplicate vertices; linework error worsens.

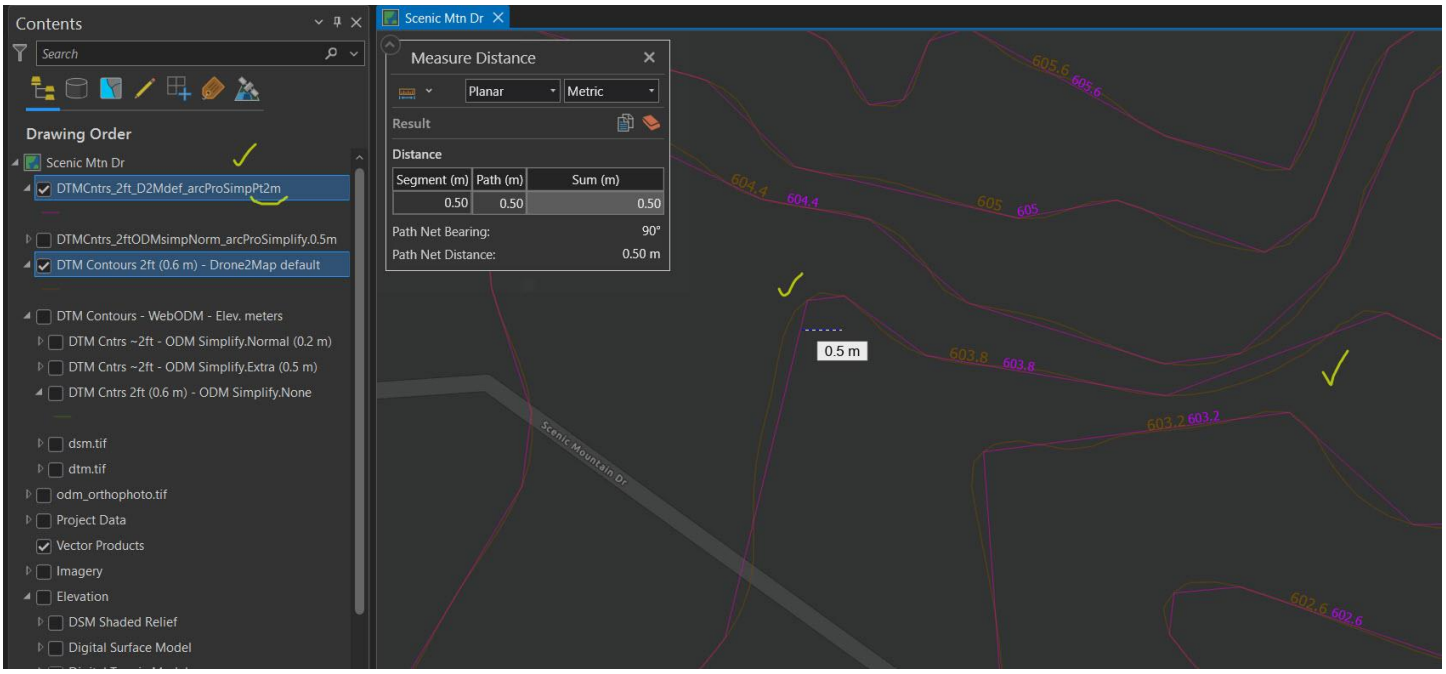


e) Running ArcPro Simplify with 0.5 m tolerance only made ODM linework error worse.

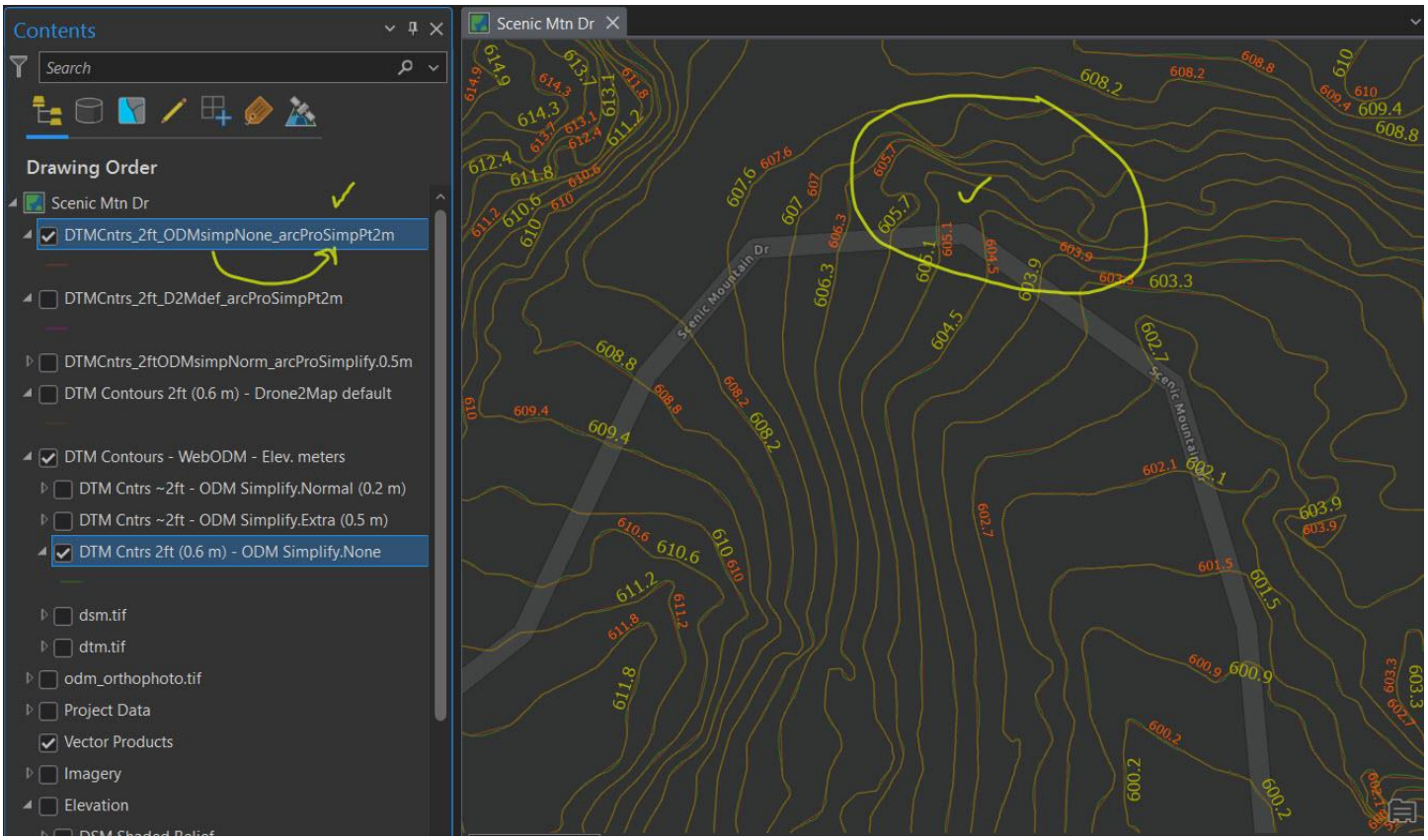
f) Running ArcPro Simplify (tol. 0.2 m) on the Drone2Map default contours made satisfactory results.



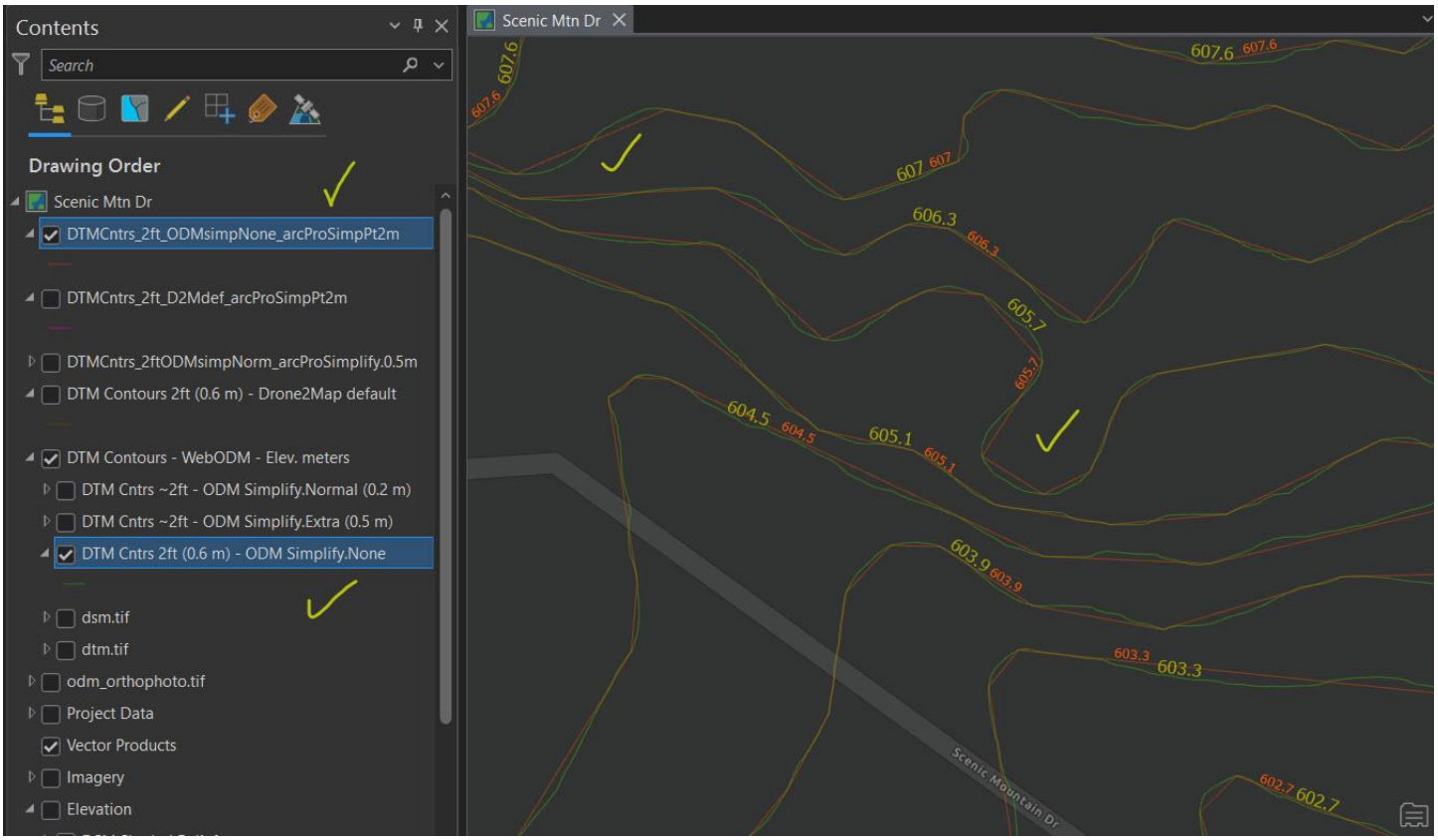
g) Detail of F; ArcPro Simplify keeps vertices GE 0.2 m apart and deletes vertices LT 0.2 m apart.



h) Another example of ArcPro Simplify on ODM non-Simplified contours; challenge area—close contour spacing.

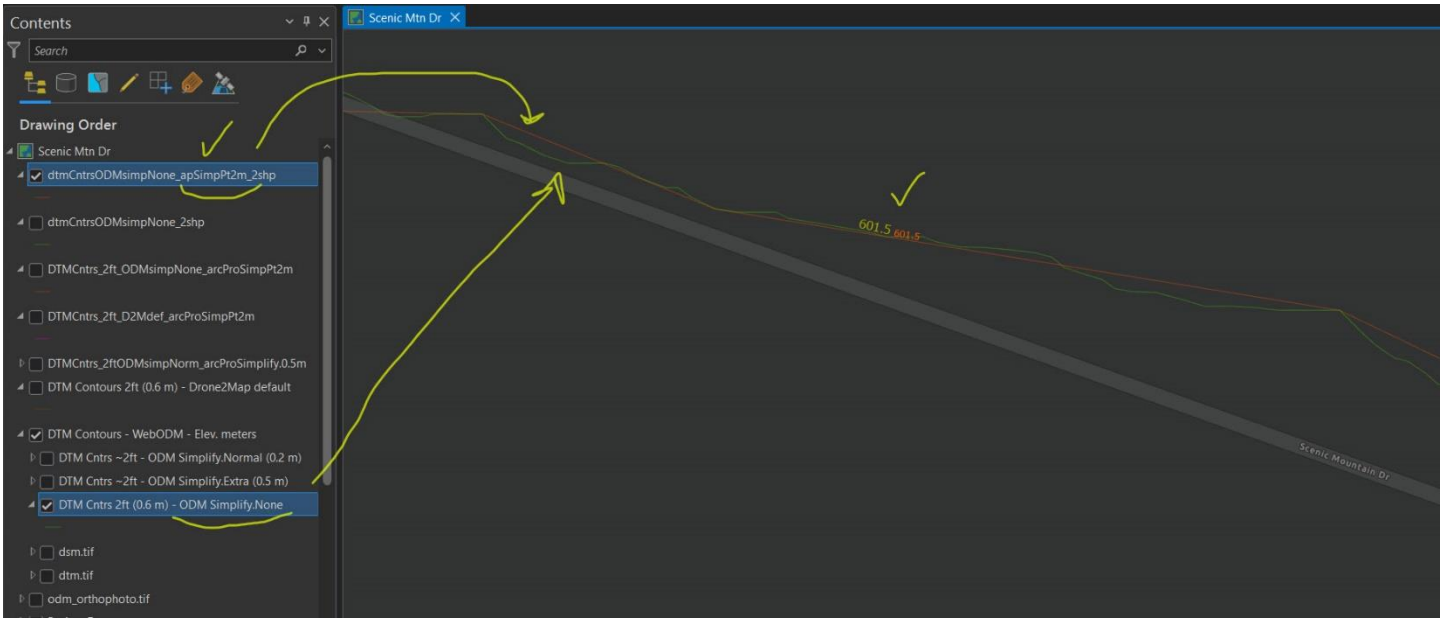


i) Detail of H; ArcPro-simplified contours ok; no duplicates; no stray vertices



k) Another test area—flat section of roadway; note 'excess' vertices to be 'simplified'.

m) Detail of K; excess vertices ‘simplified’; essential ground elevation preserved with minimum data loss.



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Conclusions

- When evaluated without contour simplification, WebODM contouring quality is equivalent to that of Drone2Map for conformation and elevation values.
- WebODM contouring gives best results with the Simplify option set to ‘Do Not Simplify’ (None).
- WebODM contourin with Simplify set to 0.2 or 0.5 m tolerance produces duplicate contour lines and vertices.
- Running the ArcPro Simplify command on the WebODM outputs (at 0.2 or 0.5 m tolerance) only worsens line quality. Duplicate lines are not removed.
- Running the ArcPro Simplify (with 0.2 m tolerance) on the WebODM unSimplified output produces satisfactory linework, as it does with Drone2Map default output.
- ArcPro contour simplification to 0.2 m tolerance of either the WebODM or Drone2Map ‘unSimplified’ output (2-ft, 0.6m contour interval) produced over 10x data reduction without degrading line quality / elevation information (a 19K shapefile reduced to 1.3K); of possible significance with large complex terrains.
- Modeling elevation is not an exact science.
- Every topographic site / extent / contour interval combination requires tuning for the best resolution and 2D legibility.

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