# ORD 3D Model Checklist

In the ***Verified*** column, select either **Yes**, **No**, or **N/A** for the verification status of each documentation/task.

The [TDOT File Naming Convention Standards](https://www.tn.gov/content/dam/tn/tdot/roadway-design/documents/tdot-ord-workspace/requirements/TDOT%20ORD%20File%20Naming%20Convention%20Standards.pdf) document should be referenced for required files and organization for the model review submittal. Make sure any working files are removed as references prior to submittal.

| Category  *Subcategory* | | Documentation/Task | Verified | |
| --- | --- | --- | --- | --- |
| General | |  |  | |
| *Project Notebook* | | Submitted in conjunction with the design files. | Choose an item. | |
| *Feature Definitions* | | All point and components have the correct feature definition applied. | Choose an item. | |
| *Station Consistency* | | Stations are consistent for each alignment and profile. Stations can be read in container file when cutting cross-sections. | Choose an item. | |
| *Templates* | | No template gaps for design elements (i.e., missing driveways). Templates are being correctly applied per the design criteria within the project notebook. | Choose an item. | |
| *Easements / ROW Display* | | Model clearly displays existing and proposed easements / ROW extents. | Choose an item. | |
| *Surface Model Consistency\** | | No grading “spikes” in surface model (i.e., triangulation errors to incorrect feature points). Surfaces are created from correct features (i.e., the proposed terrain matches the 3D model). | Choose an item. | |
| *Existing Ground* | | Corridor boundaries tie into existing ground surface model file. | Choose an item. | |
| *Active Profile* | | Confirm the correct profile is set to active for each alignment (based on project notebook) and that it ties into the adjacent features. |  | |
| *Elements within Construction Limits* | | All modeled elements are within project construction limits and not exceeding beyond the permitted limitations. | Choose an item. | |
| *Civil Cells (if applicable)* | | Civil cells are integrated into the model and accurately depict the design. | Choose an item. | |
| \*Includes existing terrain outside of the corridor boundary (tie-downs), proposed terrain, excavation, topsoil, corridor) | | | | |
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| Horizontal Alignment | |  |  | |
| *Alignment Data* | | Model data is consistent with the design criteria within the project notebook. | Choose an item. | |
| *Minimum Radius* | | Curve radii meets the design criteria within the project notebook. | Choose an item. | |
| *Kinks in Alignment* | | Alignment has no kinks and has a consistent continuity. Complex elements do not double back. | Choose an item. | |
| *Overlapping in Alignment* | | Overlapping curves | Choose an item. | |
| *Minimum Curve Length* | | Curve lengths meet the design criteria within the project notebook. | Choose an item. | |
| *Maximum Compound Curve Ratio* | | Maximum compound ratios meet the design criteria within the project notebook. | Choose an item. | |
| *Minimum Tangent Between Curves* | | Tangents between curves meet minimum agency standard. | Choose an item. | |
| *Spiral Curves* | | Spiral curves meet the design criteria within the project notebook. | Choose an item. | |
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| Superelevation (SE) | |  |  | |
| *Rates and Transitions* | | Rates and transitions in the superelevation file meet the design criteria within the project notebook and are input correctly into the superelevation section of the model. | Choose an item. | |
| *Rates and Model* | | The SE is applied correctly to the active corridor and associated lanes/shoulders. | Choose an item. | |
| *Diagrams* | | SE diagrams displayed correctly and match the model and plan sheets. | Choose an item. | |
| *Rollover Transitions* | | Rollover transitions meet the design criteria for shoulders within the project notebook. | Choose an item. | |
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| Vertical Alignment | |  |  | |
| *Vertical Grade* | | Meets minimum and maximum design criteria within the project notebook. | Choose an item. | |
| *Minimum Tangent Between Curves* | | Tangents between curves meet minimum agency standard. | Choose an item. | |
| *Kinks in Alignment* | | Alignment has no kinks and has a consistent continuity. Complex elements do not double back. | Choose an item. | |
| *Minimum Curve Length* | | Curve lengths meet minimum design criteria within the project notebook. | Choose an item. | |
| *Curve K-value* | | K-values meet minimum design criteria within the project notebook. | Choose an item. | |
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| Cross-Sectional Elements | |  |  | |
| *Earthwork Layer Depths* | | Modeled layers of earthwork reflect depths of surveyed soil layers (i.e., topsoil depth, select backfill soil layers, etc.). | Choose an item. | |
| *Pavement Thickness / Aggregate Depths* | | Pavement thickness and aggregate depths meet the design criteria within the project notebook. Templates are consistent with design. | Choose an item. | |
| *Component Widths* | | Pavement lane widths for corridor and shoulders meet the design criteria within the project notebook and typical sections. | Choose an item. | |
| *Lane Cross-Slopes and Rollovers* | | Cross slopes and rollover criteria meet the design criteria within the project notebook. | Choose an item. | |
| *Sideslopes* | | Foreslopes and backslopes within the model meet the design criteria within the project notebook. | Choose an item. | |
| *Gore Cross-Slope* | | Gore area cross-slope and rollover criteria meet the design criteria within the project notebook. Corridors match in modeled transition area. | Choose an item. | |
| *Backslope (Top) to ROW* | | The top of backslope to proposed ROW is displayed in model. | Choose an item. | |
| *Pavement Flat Spots* | | There are no flat spots within the corridor (potential risk of ponding). Profiles, SE transitions and grading coincide to have positive drainage. | Choose an item. | |
| *Transitions* | | Transition cross-sectional element elevations from corridor-to-corridor and/or template to template match. | Choose an item. | |
| *Ancillary Roadway Features* | | Intersections, driveway aprons, sidewalks, median crossovers, and bike paths have adequate slopes. The intersection between each main road and ancillary feature transition is smooth and aligned in model. | Choose an item. | |
| *Guardrail / Barriers / End Terminals / Guardrail Pards* | | Guardrail / barriers / end terminals / guardrail pads meet the design criteria within the project notebook. | Choose an item. | |
| *Underdrain Locations* | | Model shows pipe underdrains below surface at aggregate. | Choose an item. | |
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| Curb & Gutter | |  |  | |
| *Dimensions* | | Width of the curb and gutter system meets the design criteria within the project notebook and report. | Choose an item. | |
| *Transition* | | Foreslope, backslope and longitudinal slope meet minimum design criteria within the project notebook and report. | Choose an item. | |
| *Curb Types* | | Correct curb type modeled, curb slopes towards storm structures (i.e., catch basin). | Choose an item. | |
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| Utilities | |  |  | |
| *Conduit Locations* | | Existing and proposed underground utilities are modeled so that underground conflicts can be identified. | Choose an item. | |
| *Consistency* | | Utility depths meet the design criteria within the project notebook and the model does not extrude from below the surface. | Choose an item. | |
| *SUE Model* | | Existing underground utility locations are shown. | Choose an item. | |
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| Pipes & Structures | |  |  | |
| *Rim Alignment* | | Rims are aligned with surface model. | Choose an item. | |
| *Structure Components* | | Drainage structures have the correct components shown. Endwalls (if present) are accurately modeled. | Choose an item. | |
| *Connection Points* | | Pipe connections to structures are located correctly. Slope direction is correct. | Choose an item. | |
| *Pipe Continuity* | | Pipe’s end at the outer edge of the structure is in line instead of extending past the structure’s wall. | Choose an item. | |
| *Pipe Types and Sizes* | | Pipe type and size meet the design criteria within the project notebook and drainage report. | Choose an item. | |
| *Pipe Slopes* | | Pipe slope percentage meets minimum design criteria within the project notebook. | Choose an item. | |
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| Culverts | |  |  | |
| *Dimensions* | | Culvert depth and widths are in coordination with load calculations, per the design criteria within the project notebook. Design meets hydraulic size requirements from drainage report. | Choose an item. | |
| *Embedment Depth* | | Buried depth incorporated based on perennial stream type. | Choose an item. | |
| *Top of Culvert* | | Top of culverts are below the pavement surface. No elements overlap the pavement. Minimum cover requirements are met. | Choose an item. | |
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| Ditches | |  |  | |
| *Dimensions* | | Open channel flow ditch area meets the design criteria within the project notebook and drainage design calculations. | Choose an item. | |
| *Ditch Material* | | Utilized proposed erosion control measures and material types. | Choose an item. | |
| *Slope* | | Foreslope, backslope and longitudinal slope meet minimum design criteria within the project notebook and report. | Choose an item. | |
| *Location* | | Ditches are provided in areas where standing water is likely to occur. | Choose an item. | |
| *Special Ditches* | | Special ditches are displayed and profiled. They should target the correct profile and tie into adjacent grading. | Choose an item. | |
| *Side Slope Transitions* | | Slope transition over traversable distance meet Roadside Design Guide standards. | Choose an item. | |
| *Sideslopes* | | Foreslopes and backslopes meet the design criteria within the project notebook. | Choose an item. | |
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| Retaining Walls *(Permanent and Temporary)* | |  |  | |
| *Dimensions* | | Depth and widths of retaining wall(s) meets the design criteria within the project notebook. | Choose an item. | |
| *Top of Wall with Surface Transition* | | Length along the top of retaining wall is accurate, per tie-ins and quantities. | Choose an item. | |
| *Earthwork* | | Appropriate material defined for wall type(s). | Choose an item. | |
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| Noise Abatement Walls | |  |  | |
| *Dimensions* | | Depth and widths of noise abatement wall(s) meets the design criteria within the project notebook. | Choose an item. | |
| *Height* | | Height of noise abatement wall(s) meets the design criteria within the project notebook and is coordinated with surface model. | Choose an item. | |
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| Bridges (ORD) | |  |  | |
| *Geometry* | | Stations and profile grade line (PGL) elevations of approach bents, abutments, and piers align. Span lengths, bridge widths, skew angles, and radius of curvature matches the bridge plans. | Choose an item. | |
| *Vertical and Horizontal Clearance Under Bridges* | Horizontal and vertical curve data match the alignment calculations and associated data. | | | **Choose an item.** |
| *Approach Slab Extents* | Approach slab extents and depths match the bridge plans. The slabs are vertically aligned with top of pavement surface model. | | | **Choose an item.** |
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| Bridges (OBM) |  | | |  |
| *Abutment Geometry* | Abutment cap beam dimensions match the bridge plans. Cap beams are supported by piles. Backwall dimensions align (if applicable). | | | **Choose an item.** |
| *Pile Definitions* | Pile type, depths, embedment’s, orientation, batter, and spacing match the bridge plans. Existing piles are shown in the model. No conflicts shown between existing and new piles. | | | **Choose an item.** |
| *Drilled Shaft Definitions* | Drilled shaft diameter and top of drilled elevation match the bridge plans. Drilled shaft reinforcement size, spacing, hooks, conflicts, and connections align with column / footing. | | | **Choose an item.** |
| *Foundation Geometry* | Foundation size and depths match the bridge plans. Bottom of foundation is below frost depth specified in structure design manual. Reinforcement size spacing and any conflicts with piles / drilled shafts is documented. | | | **Choose an item.** |
| *Pier Geometry* | Pier geometry, type, dimensions match the bridge plans. No overlapping modeled elements. | | | **Choose an item.** |
| *Parapet Dimensions* | Parapet dimensions match the bridge plans. | | | **Choose an item.** |
| *Deck Geometry* | Top of deck at PGL is at the same elevation as the profile grade line. Deck cross slope, width and thickness matches the bridge plans. | | | **Choose an item.** |
| *Girder Definition* | Girder’s material (steel, concrete), shape (I-girder, box-girder, etc.) spacings, and overhang dimensions match the bridge plans. Spot check flange and web dimension to ensure conformance with the bridge plans. Girders are connected to slab through haunch and sit on top of bearings. | | | **Choose an item.** |
| *Diaphragms / Cross-Frames* | Material, type, and size match the bridge plans. Spot check spacing of diaphragms to ensure conformance with the bridge plans. | | | **Choose an item.** |
| *Bearings* | Bearings are modeled to the width and length specified in the bridge plans. Spot check the bearing height and pedestal elevation. | | | **Choose an item.** |

### Additional Information

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