|  |  |
| --- | --- |
| **County:** |  |
| **Federal Project No.:** |  |
| **P.E. No.:** |  |
| **PIN:** |  |
| **Description:** |  |
| **Site Review Completion Date:** |  |
| **Submitted by Designer: (TDOT or Consultant)**  **Date:** |  |
| **ALL ITEMS HAVE BEEN REVIEWED AND DETERMINED TO BE READY FOR FIELD REVIEW BY:** | |
| **Name of TDOT Supervisor/Manager:**  **Date:** |  |
| **Comments**:  Design Exceptions, Design Waivers, Work Zone Deviation?  Note: If components of the plans were designed based off the AASHTO 2018 Green Book that would normally require a Design Exception if designed based off the AASHTO 2011 Green Book, it shall be noted on this sheet.  If the posted speed is different than the design speed, note it here. This is important to include so that the standard drawings, particularly for multimodal designs, can be checked accordingly. | |

The checklist is written to clearly define features and text that shall be shown on Line and Grade Package sheets to ensure there is consistency throughout the state. Information can be found in the CADDV8 document. **If any of the items are not applicable to your project, then do NOT include and mark N/A. If there are questions, contact your Design Manager.**

For further explanation of defined features, see [CADDV8.pdf](https://www.tdot.tn.gov/PublicDocuments/%5CDesignDivision%5Cassistant_engineer_design%5Cdesign%5Cv8%5CCADDV8.pdf).

To aid Designers in the creation of the Title Sheet and to ensure the correct features are shown, a sheet level filter has been provided in OpenRoads Designer (ORD). The Designer shall not turn on levels for features at the request of others.

Information for each sheet shall be filled in correctly in the upper right corner including TYPE (L&G), CURRENT YEAR, FEDERAL PROJECT NUMBER, STATE PROJECT NUMBER (S), and SHEET NUMBER. TDOT 360 PROJECT ONLINE shall be checked for possible changes to project numbers prior to the Line and Grade Package Submittal.

**Sheet scales** for all sheets is set by the seed file used to create that sheet.

* English General Notes, Index and Standard Drawings, and other similar sheets yield an active scale of 1” = 1’.

Some 2nd sheets like Typical Section sheets are not drawn to scale but shall still use an approved sheet border.

**NEPA Requirements**

**The following is the minimum amount of information that NEPA staff required in the Line and Grade Package to initiate the NEPA document. Having this information allows staff to accurately predict the level of NEPA document and timeframe for completion.**

* ROW Acquisition Table needs to be populated to be consistent with the ROW linework in the plans.
* If the easements are currently unknown, go ahead and build that area into the proposed ROW. This will work out better than not accounting for the easements until the Functional Stage.
* If a detour is required for construction, is the detour route is a major traffic disruption?
* Clearly show loss of access if a tract is suspected to lose access either temporarily or permanently because of construction.
* Avoid, if feasible, having proposed ROW lines go through a structure (building, etc.).

**LINE AND GRADE INDEX OF SHEETS**

TITLE SHEET 1

TYPICAL SECTIONS……………………………………………………………………… 2B, 2B1, 2B2

RIGHT-OF-WAY ACQUISITION TABLE(S) and PROPERTY MAP(S) 3A - 3B

PRESENT LAYOUT(S) 4 – 10

RIGHT-OF-WAY DETAILS………………………………………………………………………. 4A - 10A

PROPOSED LAYOUT(S)………………………………………………………………………… 4B - 10B

PROPOSED PROFILE(S) 4C -10C

RAMP PROFILE(S) 11 - 12

SIDE ROADS PROFILE(S) 13 - 14

DRAINAGE MAP(S) 19 - 20

ROADWAY CROSS SECTIONS 23 - 83

SIDE ROAD CROSS SECTIONS 84 - 94

***SHEET 1 SERIES***

**1. TITLE SHEET**

**An ORD title sheet template is provided in both a seed file and a sheet file. All items listed below are in a data field or in a box with levels that can be turned on or off as needed.**

|  |  |  |
| --- | --- | --- |
| **YES** | **N/A** |  |
|  |  | Add Phase Stamp (Line and Grade Plans) |
|  |  | Begin/End project limits labeled with preliminary project numbers for federal and state project(s). Project limits must contain the word “PRELIMINARY” or “PRELIM” and be labeled with station and North/East coordinates (4 decimal places). Use begin/end stations for construction limits. |
|  |  | Bridge I.D. (s) identified above or below state map |
|  |  | Chapter 86 toggled, Yes or No |
|  |  | County or Counties shaded in on the state map |
|  |  | Coverage of each present layout sheet on map with Line and Grade Plans sheet number identified. |
|  |  | Design traffic data table filled in/updated to current year and projected volumes from Concept Report |
|  |  | Geoid note, check with regional survey for correct Geoid date/version. |
|  |  | Identification block in lower left-hand corner completed with PE-N project number and label (NEPA) and PIN for project, fill in TDOT Project Manager, Designer, and Checked by data fields. For consultant projects, fill in TDOT Project Manager, Designed by Consultant Firm, Designer, and Checked By data fields |
|  |  | Location map showing route to be improved, local roads, streams, railroads with railroad entity name shown, and towns |
|  |  | Map Scale |
|  |  | No Exclusions block or Exclusions block with station ranges identified. |
|  |  | North arrow |
|  |  | Project Description filled in under County/Counties. Description shall match Project Online including interstate, state route, or local road name and project limits with log mile(s). Type of work shall be “LINE AND GRADE” and additional type of work identified (i.e. grade, drain, bridge, pave, sign, lighting, construction, etc.). Identify State Route and US Route numbers. |
|  |  | Roadway length (truncate to three (3) decimals - no rounding). |
|  |  | Road closure note for traffic control. |
|  |  | Sheet title block in upper right corner filled in with current year, sheet number “1”, Federal Project Number, and State Preliminary Project Number |
|  |  | Signatures of Commissioner and Chief Engineer in signature block |
|  |  | Survey date/update (mm/dd/yy format) |

***SHEET 2 SERIES***

**QUANTITIES**

**All quantities shall be approved TDOT items, descriptions, and units as listed in the Items.dat file. See Chapter 1 of the Roadway Design Guidelines for additional information. Other Divisions are responsible for creating their own estimated quantities sheet and including it in their plan set.**

***2.*** **ESTIMATED ROADWAY QUANTITIES (Labeled Info Only on sheets)**

**(2-1, 2-2 if needed)**

**Note to Designer: The quantities shown on the sheet shall be discussed to ensure that all aspects of the plans are discussed during the** **Plan-in-Hand phase, specifically traffic control and construction phasing. The designer and manager shall refer to the Estimate Section in the Design Guidelines for information on obtaining information from other Divisions to ensure this draft sheet is completed as much as possible. The Excel file used to make the sheet(s) shall be revised and used for submittal when requesting funding for R.O.W. Acquisition or Utilities Only.**

|  |  |  |
| --- | --- | --- |
| **YES** | **N/A** |  |
|  |  | Check for removal item numbers (examples: pipes, GR, signs) |
|  |  | Estimated Roadway Quantities Block with Item Number, Description, Unit and Quantity filled in from most recently updated Excel file |
|  |  | Footnotes (add for clarity such as placement, payment, or when used in multiple locations, etc., add to define when substitutions are acceptable, and add to identify maintenance schedules or cycles, etc.) Check against footnotes on other sheets in the “2” Series that contain tabulation blocks and other sheets in the plans, ESPC, Traffic Control, etc. |
|  |  | Footnote “All Erosion Prevention and Sediment Control Quantities are to be used as directed by the Engineer. See Subsection 209.07 of the Standard Specifications for Maintenance Replacement” |
|  |  | Footnotes as specified in Roadway Design Guidelines for certain items |
|  |  | Footnotes shall use numbers and be shown in numerical order. Letters from the alphabet shall not be used. If possible, when a footnote applies to several items such as erosion control, a bracket symbol can be used to show that one number applies to the entire group |
|  |  | Item No’s. Listed in numerical order |
|  |  | Multiple quantity columns for 2 or more counties/project numbers |

**2B TYPICAL SECTIONS**

**(2B1-2B2, if needed)**

**The following checks apply to tangent and superelevated sections for the mainline and all side roads. Each typical section shall reference appropriate Standard Drawings and be defined by name and station limits for tangent or superelevated sections. Names and station ranges shall match names and curve data shown in present layout and cross section sheets.**

|  |  |  |
| --- | --- | --- |
| **YES** | **N/A** |  |
|  |  | Curb and Gutter details and transition details |
|  |  | Finished Grade labeled on all typical sections |
|  |  | Haul road and/or any temporary road typical sections with type and depth of material identified |
|  |  | Mainline and side roads typical sections: label cross-slopes and widths for applicable elements (travel lanes, turn lanes, shoulders, bike paths, shared use paths, sidewalks, and benches); label subgrade slope according to appropriate standard drawing; label side slope for cut and fill slopes with variable slopes labeled as “Varies (list station range)-See Cross Sections” and with final stabilization application defined (seed, sod) |
|  |  | Median Barrier shown on typical sections |
|  |  | Proposed R.O.W. labeled on each typical section for mainline and side roads (label exact proposed width in feet. For varying proposed rural R.O.W. widths, label “R.O.W. Varies - Minimum R.O.W. Width *XXX.XX’* ” |
|  |  | Show guardrail location on typical sections and label “as required” |
|  |  | Superelevation roll-over note |
|  |  | Transitions for lane and/or shoulder tapers/transitions clearly defined on typical section or in table format including station limits, offsets from centerline, and width. Shall coincide with tapers/transitions labeled on proposed layout sheets |
|  |  | Typical Sections clearly identified by name and station limits |

***SHEET 3 SERIES***

**3A-3B. RIGHT-OF-WAY ACQUISITION TABLE(S) AND PROPERTY MAP(S)**

**Property map(s) and R.O.W. acquisition table shall be shown for all projects that contain an acquisition table and property map in the survey file. Exclusions would be resurfacing, ramp queue, or other similar projects.**

1. **R.O.W. Acquisition Table**

|  |  |  |
| --- | --- | --- |
| **YES** | **N/A** |  |
|  |  | Acquisition table for all surveyed tracts complete with areas to be acquired, areas remaining, and easements to be acquired. The entire R.O.W. for tracts not affected shall be lined through and checked against the Property Map Sheet and Present Layout Sheet for consistency |
|  |  | Acquisition table shall be shown on sheets prior to property maps. The Disturbed Area table shall be shown under the acquisition table on this sheet |
|  |  | Disturbed Area table shall be shown under acquisition table; however, if there is not sufficient room, the table can be shown on the R.O.W. Notes, Utility Notes, and Utility Owners sheet. The Disturbed Area table includes the Area Between Slope Lines, Area Outside Slope lines (10’ min width), Total Disturbed Area, and Total Project Area calculations shown in Acres |
|  |  | Footnote as needed. Example footnote: Easement is needed for EPSC measures |

1. **Property Map**

|  |  |  |
| --- | --- | --- |
| **YES** | **N/A** |  |
|  |  | Begin/End project limits labeled with preliminary project numbers for federal and state project(s). Project limits must contain the word “PRELIMINARY” or “PRELIM” and be labeled with station and North/East coordinates (4 decimal places). |
|  |  | Boundary lines shall be shown for all properties. If boundary will not fit on sheet, a closed tract detail showing the reduced size boundary shape shall be shown and labeled Not to Scale (N.T.S.) |
|  |  | Coordinate Notation (datum adjustment note above sheet title) |
|  |  | Existing control-access fence shown with areas labeled to be removed |
|  |  | Existing easement linework and patterning shown and labeled according to type. A legend may be included showing the different hatchings and their respective easement types. |
|  |  | Existing natural features shown and labeled |
|  |  | Existing railroad centerline shall be shown with dimensions of the overall width of the railroad corridor and both widths from the centerline of rail to each field side R.O.W. boundary. When the railroad property is not consistent, the maximum and minimum distance from the right of way line to the closest centerline of rail shall be shown |
|  |  | Existing survey R.O.W. linework and text without labeling stations/offsets and bearings/distances. Include “Present ROW” label. |
|  |  | Existing survey tract numbers only (no names). For tracts not affected, the number shall be lined through and checked against the Acquisition Table and Present Layout Sheet for consistency |
|  |  | Intersections of mainlines with side roads, haul road, and/or construction run-around flagged and labeled with both road names, stations at intersection, and North/East coordinates |
|  |  | Intersections of the centerline of railroad and the centerline of the Route/Interstate that includes the DOT crossing number and the railroad milepost along with the corresponding station of the Route/Interstate. If the Railroad information is needed, please contact the State Railroad Coordinator at [HQRailroadCoordinator@tn.gov](mailto:HQRailroadCoordinator@tn.gov). |
|  |  | Match lines with station and sheet number filled in, and sheet title block with station ranges and scale. Scale of this sheet may not match scales of layout sheets resulting in station ranges not matching |
|  |  | North arrow |
|  |  | Proposed control access fence linework and text. Label tie-ins to existing proposed control access fence |
|  |  | Proposed easement linework and patterning shown and labeled. A legend should be included showing the different hatchings and their respective easement types. |
|  |  | Proposed roadway centerline linework and labeled |
|  |  | Proposed R.O.W. linework **without** stations/offsets and bearings/distances labeled. Include “Prop. ROW” label. |
|  |  |  |

***PLAN AND PROFILE SHEET SERIES***

**Note to Designer: Limit of Preliminary stations shall be checked on all sheets for consistency. Verify that limits match typical section and layout sheets. For clarity purposes in checklist, sheets will be numbered through 10 for the mainline plan and profile series)**

**4-10. PRESENT LAYOUT(S)**

**Note to Designer: Sheet Level Filter for all Present Layout sheets shall be set to *Sheets-Present Layout no R.O.W. PL Text*- for the design files and all referenced files.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **YES** | | **N/A** | |  | |
|  | |  | | Begin/End project limits labeled with preliminary project numbers for federal and state project(s). Project limits must contain the word “PRELIMINARY” or “PRELIM” and be labeled with station and North/East coordinates (4 decimal places). | |
|  | |  | | Bridge I.D. (s) identified and labeled (can be added to survey bridge information) | |
|  |  | | Coordinate Notation (datum adjustment note above sheet title) | |
|  |  | | Existing buildings and text | |
|  |  | | Existing concrete channels located in environmental features shall be shown and labeled including lengths | |
|  |  | | Existing drainage (bridges, culverts, pipes, storm sewer) with text (including structure size, type, and length) and natural features, this shall include structures on environmental features (caves, creeks, rivers, streams, seeps, sinkholes, wetlands) | |
|  |  | | Existing easement linework (**no** text) | |
|  |  | | Existing pavement marking with text | |
|  |  | | Existing railroad centerline shall be shown with dimensions of the overall width of the railroad corridor and both widths from the centerline of rail to each field side right of way boundary. When the railroad property is not consistent, the maximum and minimum distance from the right of way line to the closest centerline of rail shall be shown | |
|  |  | | Existing roads edge of pavements, medians, shoulders, etc., linework and widths labeled | |
|  |  | | Existing roadside barriers shown and labeled (impact attenuators, cable barrier, guardrail, noise walls, retaining walls, etc.) | |
|  |  | | Existing signs and devices with text | |
|  |  | | Existing survey grid points with state plane coordinate text | |
|  |  | | Existing survey control point table showing coordinates or location diagrams for all GPS points, Benchmarks, and Horizontal Control Points | |
|  |  | | Existing survey political boundaries linework and text | |
|  |  | | Existing survey property lines | |
|  |  | | Existing survey property markers with text | |
|  |  | | Existing survey property owners with tract numbers. For tracts not affected, the name and number shall be lined through | |
|  |  | | Existing survey R.O.W. linework **without** labeling stations/offsets and bearings/distances | |
|  |  | | Existing survey R.O.W. markers with text | |
|  |  | | Existing underground and overhead utilities and text (cable, electric, fiber optic, gas, lighting, sanitary sewer, storm sewer, telephone, and water) | |
|  |  | | Intersections of mainlines with side roads, haul road, and/or construction run-around flagged and labeled with both road names, stations at intersection, and North/East coordinates | |
|  |  | | Intersections of the centerline with railroad and the centerline of the Route/Interstate that includes the DOT crossing number and the railroad milepost along with the corresponding station of the Route/Interstate. If the Railroad information is needed, please contact the State Railroad Coordinator at [HQRailroadCoordinator@tn.gov](mailto:HQRailroadCoordinator@tn.gov). | |
|  |  | | Match lines with station and sheet number filled in, and sheet title block with station range and scale for each sheet correctly filled in to coincide with ranges shown on R.O.W. Detail sheet and Proposed Layout sheet | |
|  |  | | North arrow | |
|  |  | | Proposed roads centerlines (mainline, side roads, haul roads, construction run-arounds and text). Label road name, full station ticks every 500’, half station ticks every 100’, bearings, and curve data | |
|  |  | | Proposed R.O.W. linework (including controlled access fence) **without** stations/offsets and bearings/distances labeled. Include “Prop. ROW” label. | |
|  |  | | Proposed slope lines and text (cut or fill) | |
|  | |  | |  | |

**4A-10A. RIGHT-OF-WAY DETAILS**

**Note to Designer: Sheet Level Filter for all R.O.W. Detail sheets shall be set to *Sheets- R.O.W. Details*- for the design sheet file and all referenced files.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **YES** | | **N/A** | |  | |
|  | |  | | Begin/End project limits labeled with preliminary project numbers for federal and state project(s). Project limits must contain the word “PRELIMINARY” or “PRELIM” and be labeled with station and North/East coordinates (4 decimal places). | |
|  |  | | Coordinate Notation (datum adjustment note above sheet title) | |
|  |  | | Existing easement linework and patterning shown and labeled according to type. A legend may be included showing the different hatchings and their respective easement types. | |
|  |  | | Existing railroad centerline shall be shown with dimensions of the overall width of the railroad corridor and both widths from the centerline of rail to each field side Right-of-Way boundary. When the railroad property is not consistent, the maximum and minimum distance from the right of way line to the closest centerline of rail shall be shown | |
|  |  | | Existing survey control point table showing coordinates or location diagrams for all GPS points, Benchmarks, and Horizontal Control Points | |
|  |  | | Existing survey grid points with state plane coordinate text | |
|  |  | | Existing survey property lines with bearings/distances labeled | |
|  |  | | Existing survey property markers with text | |
|  |  | | Existing survey property owners with tract numbers. For tracts not affected, the name and number shall be lined through | |
|  |  | | Existing survey R.O.W. linework with stations/offsets and bearings/distances labeled | |
|  |  | | Existing survey R.O.W. markers with text | |
|  |  | | Intersections of mainlines with side roads, haul road, and/or construction run-around flagged and labeled with both road names, stations at intersection, and North/East coordinates | |
|  |  | | Intersections of the centerline with railroad and the centerline of the Route/Interstate that includes the DOT crossing number and the railroad milepost along with the corresponding station of the Route/Interstate. If the Railroad information is needed, please contact the State Railroad Coordinator at [HQRailroadCoordinator@tn.gov](mailto:HQRailroadCoordinator@tn.gov). | |
|  |  | | Match lines with station and sheet number filled in, and sheet title block with station range and scale for each sheet correctly filled in to coincide with ranges shown on Present and Proposed Layout sheets | |
|  |  | | North arrow | |
|  |  | | Proposed easement linework and patterning shown and labeled. A legend should be included showing the different hatchings and their respective easement types. | |
|  |  | | Proposed loss of access or impaired access shown with patterning and notes if needed | |
|  |  | | Proposed roads centerlines (mainline, side roads, haul roads, construction run-arounds and text). Label road name, full station ticks every 500’, half station ticks every 100’, and bearings **(no curve data)** | |
|  |  | | Proposed R.O.W. linework **without** stations/offsets and bearings/distances labeled. Include “Prop. ROW” label. | |
|  |  | | Proposed slope lines and text (cut or fill) | |
|  | |  | |  | |

**4B-10B. PROPOSED LAYOUT(S)**

**Note to Designer: Sheet Level Filter for all Proposed Layout sheets shall be set to *Sheets- Proposed Layout*- for the design sheet file and all referenced files.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **YES** | | **N/A** | |  | |
|  | |  | | Begin/End project limits labeled with preliminary project numbers for federal and state project(s). Project limits must contain the word “PRELIMINARY” or “PRELIM” and be labeled with station and North/East coordinates (4 decimal places). | |
|  |  | | Coordinate Notation (datum adjustment note above sheet title) | |
|  | |  | | Existing contours. If the sheet is too cluttered, then separate existing contour sheets may be created. | |
|  |  | | Intersections of the centerline with railroad and the centerline of the Route/Interstate that includes the DOT crossing number and the railroad milepost along with the corresponding station of the Route/Interstate. If the Railroad information is needed, please contact the State Railroad Coordinator at [HQRailroadCoordinator@tn.gov](mailto:HQRailroadCoordinator@tn.gov). | |
|  |  | | Intersections of mainlines with side roads, haul road, and/or construction run-around flagged and labeled with both road names, stations at intersection, and North/East coordinates. (This shall also be done on all intersecting roads and at railroad intersections) | |
|  |  | | Match lines with station and sheet number filled in, and sheet title block with station range and scale for each sheet correctly filled in to coincide with ranges shown on R.O.W. Detail sheet and Present Layout sheet | |
|  |  | | North arrow | |
|  |  | | Proposed edge of pavement and shoulder lines shown. All transition lengths and widths for proposed edge of pavements and shoulders shall be labeled by station and offset for beginning and ending stations | |
|  |  | | Proposed guardrail with type of anchors and/or tie-in stations/offsets labeled. Standard Drawing S-PL-1 shall be used to find length of need in concurrence with cutting cross sections at 5’ increments to study proposed guardrail location. | |
|  |  | | Proposed limit of construction for side roads | |
|  |  | | Proposed roads centerlines (mainline, side roads, haul roads, construction run-arounds and text). Label road name, full station ticks every 500’, half station ticks every 100’, and bearings **(no curve data)** | |
|  |  | | Proposed sidewalk linework | |
|  |  | | Sheet title block with station range and scale for each sheet correctly filled in to coincide with ranges shown on R.O.W. Detail sheet and Present Layout sheet | |
|  |  | | Traffic diagrams (provided by Strategic Transportation Investment Division) | |
|  | |  | |  | |

**\*Some existing elements may need to be shown to provide clarity on the plans. These elements will have to be copied from the survey file and changed to the appropriate proposed level to display in the sheets.**

**4C-10C. PROPOSED PROFILE(S)**

**Note to Designer: For all profile sheet checks (N through Q), the Sheet Level Filter shall be set to *Sheets- Profiles*- for the design sheet file and all referenced files.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **YES** | | **N/A** | |  | |
|  | |  | | Begin/End project limits labeled with preliminary project numbers for federal and state project(s). Project limits must contain the word “PRELIMINARY” or “PRELIM” and be labeled with station and North/East coordinates (4 decimal places). | |
|  |  | | Bridge I.D. (s) identified and labeled (can be added to survey bridge information) | |
|  |  | | Existing bridges, pipes, culverts, and storm sewers with hydraulic data and/or text provided in Survey file | |
|  |  | | Existing overhead utilities with text | |
|  |  | | Existing survey control points (GPS points, Benchmarks) and text | |
|  |  | | Existing top of ground for mainline and railroad labeled “Existing Ground” | |
|  |  | | Existing underground utilities including type and size | |
|  |  | | Grid shown with stations along the bottom and elevations along the side | |
|  |  | | Intersections of mainlines with side roads, haul road, and/or construction run-around flagged and labeled with both road names, stations at intersection, and North/East coordinates. | |
|  |  | | Intersections of the centerline with railroad and the centerline of the Route/Interstate that includes the DOT crossing number and the railroad milepost along with the corresponding station of the Route/Interstate. If the Railroad information is needed, please contact the State Railroad Coordinator at [HQRailroadCoordinator@tn.gov](mailto:HQRailroadCoordinator@tn.gov). | |
|  |  | | Proposed vertical alignment and curve text labeled including K Values (no speeds listed), stations and elevations for PI, PC, and PT, and grades with areas of proposed graphical grade labeled with station and elevation every 50’ or as needed. When a tangent grade covers two layout sheets, the grade shall be copied and shown on both sheets | |
|  |  | | Sheet title block with and horizontal and vertical scale and station range for each sheet correctly filled in to coincide with ranges shown on Present Layout, R.O.W. Detail, and Present Layout sheets | |
|  | |  | |  | |

**Note to Designer: The numbering on the following sheets will depend on the number of plan and profile sheets needed for the mainline. For clarity purposes in checklist, the sheets will continue the sequence and coincide with the Line and Grade Index Word document.**

**11-12. RAMP PROFILE**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **YES** | | **N/A** | |  | |
|  | |  | | Begin/End project limits labeled with preliminary project numbers for federal and state project(s). Project limits must contain the word “PRELIMINARY” or “PRELIM” and be labeled with station and North/East coordinates (4 decimal places). | |
|  |  | | Bridge I.D. (s) identified and labeled (can be added to survey bridge information) | |
|  |  | | Existing bridges, pipes, culverts, and storm sewers with hydraulic data and/or text provided in Survey file | |
|  |  | | Existing drainage structures shown with hydraulic data | |
|  |  | | Existing overhead utilities with type, station, and elevation labeled | |
|  |  | | Existing survey control points (GPS points, Benchmarks) and text | |
|  |  | | Existing top of ground labeled “Existing Ground” on each sheet | |
|  |  | | Existing underground utilities including type and size | |
|  |  | | Grid shown with stations along the bottom and elevations along the side | |
|  |  | | Intersections with mainline with side roads, haul road, and/or construction run-around flagged and labeled with both road names, stations at intersection, and elevations | |
|  |  | | Intersections of the centerline of railroad and the centerline of the Route/Interstate that includes the DOT crossing number and the railroad milepost along with the corresponding station of the Route/Interstate. If the Railroad information is needed, please contact the State Railroad Coordinator at [HQRailroadCoordinator@tn.gov](mailto:HQRailroadCoordinator@tn.gov). | |
|  |  | | Profiles shall be shown in order as shown in plans. Reference Present Layout sheet number in plans where side road is located. | |
|  |  | | Proposed finished grade linework and text | |
|  |  | | Proposed limit of construction labeled with station and elevation | |
|  |  | | Proposed vertical alignment and curve text labeled including K Values (no speeds listed), stations and elevations for PI, PC, and PT, and grades with areas of proposed graphical grade labeled with station and elevation every 50’ or as needed. When a tangent grade covers two layout sheets, the grade shall be copied and shown on both sheets | |
|  |  | | Sheet title block correctly filled in and horizontal and vertical scales added | |

**13-14. SIDE ROAD PROFILE(S)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **YES** | | **N/A** | |  | |
|  | |  | | Bridge I.D. (s) identified and labeled (can be added to survey bridge information) | |
|  |  | | Existing drainage structures shown with hydraulic data | |
|  |  | | Existing bridges, pipes, culverts, and storm sewers with hydraulic data and/or text provided in Survey file | |
|  |  | | Existing overhead utilities with type, station, and elevation labeled | |
|  |  | | Existing survey control points (GPS points, Benchmarks) and text | |
|  |  | | Existing top of ground labeled “Existing Ground” on each sheet | |
|  |  | | Existing underground utilities including type and size | |
|  |  | | Grid shown with stations along the bottom and elevations along the side | |
|  |  | | Intersections of mainline with side roads, haul road, and/or construction run-around flagged and labeled with both road names, stations at intersection, and elevations | |
|  |  | | Intersections of the centerline with railroad and the centerline of the Route/Interstate that includes the DOT crossing number and the railroad milepost along with the corresponding station of the Route/Interstate. If the Railroad information is needed, please contact the State Railroad Coordinator at [HQRailroadCoordinator@tn.gov](mailto:HQRailroadCoordinator@tn.gov). | |
|  |  | | Profiles shall be shown in order as shown in plans. Reference Proposed Layout sheet number in plans where side road is located | |
|  |  | | Proposed finished grade linework and text | |
|  |  | | Proposed limit of construction labeled with station and elevation | |
|  |  | | Proposed vertical alignment and curve text labeled including K Values (no speeds listed), stations and elevations for PI, PC, and PT, and grades with areas of proposed graphical grade labeled with station and elevation every 50’ or as needed. When a tangent grade covers two layout sheets, the grade shall be copied and shown on both sheets | |
|  |  | | Sheet title block correctly filled in and horizontal and vertical scales added | |
|  | |  | |  | |

**19-20. DRAINAGE MAP(S)**

**Note to Designer: Sheet Level Filter for all Drainage Map sheets shall be set to *Sheets*- *Drainage Map*- for the design sheet file and all referenced files.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **YES** | | **N/A** | |  |
|  | |  | | Bridge I.D. (s) identified and labeled (can be added to survey bridge information) |
|  |  | | Coordinate Notation (datum adjustment note above sheet title) | | |
|  |  | | Drainage flow arrows from existing TIN file | | |
|  |  | | Existing contours | | |
|  |  | | Existing drainage areas and shapes | | |
|  |  | | Existing drainage structures including drainage cell (Drainage Data for Drainage Map cell or Excel file) with all text complete (Station, structure, skew, drainage area, discharge, terrain, velocity, etc.) | | |
|  |  | | Existing natural features such as streams or WWC labeled | | |
|  |  | | Existing roads edge of pavement | | |
|  |  | | Inset of total drainage area labeled “not to scale” (necessary only when drainage area boundaries are outside of sheet coverage) | | |
|  |  | | Match lines with station and sheet number filled in, and sheet title block with station range and scale for each sheet correctly filled in | | |
|  |  | | North arrow | | |
|  |  | | Proposed roads centerlines (mainline, side roads, haul roads, construction run-arounds and text). Label road name, full station ticks every 500’, half station ticks every 100’, bearings **(no curve data)** | | |
|  | |  | |  |

***CROSS SECTION SHEET SERIES***

**23-83. ROADWAY (MAINLINE) CROSS SECTIONS**

**Note to Designer: Designer shall follow exercises in ORD Roadway Design I Manual to cut cross sections and make sheets. If exercises are followed correctly, each cross-section sheet will show:**

* **Cross Section**
  + Existing Ground Line
  + Proposed Template
  + Pavement subgrade layer
  + Text for the Finished Grade
  + Cross Slopes
  + Side Slopes
  + Right and Left offsets/elevations for Subgrade Limits
  + Point where Proposed Template meets Existing Ground
  + Station
* **Right Corner of Sheet**
  + Begin and End Station limits of all Cross Sections on sheet
  + Horizontal and Vertical Scale
  + Name of Roadway

**The roadway shall match the name shown on the typical section and all plan sheets. All text will be shown in the correct location and on the correct level. The text for the XSCELL shall not be shown on the cross section sheets.**

**Cross sections cut at 50’ increments are shown in the plans. However, when designing drainage or analyzing the need for guardrail or retaining walls, it is recommended that cross sections are cut at 5’ increments. The slopes from the 5’ increments can be compared to those projected from the 50’ cross section run to ensure sufficient R.O.W. is acquired.**

|  |  |  |
| --- | --- | --- |
| **YES** | **N/A** |  |
|  |  | Check slope lines in plans after cross sections run. If there are areas where the slope line makes a significant change for only a short segment, look at the cross sections to see if a steeper slope can be used that is acceptable by Geotechnical Engineering Section. This shall also be checked in areas that will require only a small amount of R.O.W.to see if a change can avoid small amounts of R.O.W. acquisition. |
|  |  | Cross sections shall be cut at 50’ increments. If the proposed horizontal and/or vertical alignment changes start or end at an increment other than 50’, a cross section at that station shall be shown. (Example: Proposed horizontal and/or vertical alignment changes start at Sta. 100+30.00 and end at 105+62.00. A cross section shall be cut for each of these stations). Slope lines shall be projected into the present layout sheets |
|  |  | Cross sections shall be cut at a 50’ increment station before and after the station where proposed horizontal and/or vertical alignment changes begin and end. (Example: Proposed horizontal and/or vertical alignment changes start at Sta. 100+35.00 and end at 105+62.00. For accurate end area volumes, a cross section shall be cut at 100+00.00 and 106+00.00. There will not be any proposed elements shown on these cross sections) |
|  |  | Cross sections shall be cut at the beginning and end of a superelevated section and include a cross section at the PC, PT, fully superelevated, reverse crown, and zero percent cross slope stations. The Designer shall check proposed drainage to ensure zero percent cross slope area is draining properly |
|  |  | Existing R.O.W. lines shall be projected onto the sheets (For Rural Typicals only) |
|  |  | Finished grade, cross slopes, side slopes, station and offset at the tie-in point with existing ground properly labeled |
|  |  | Guardrail shown to match limits on proposed layout sheets including limits for guardrail earth pad |
|  |  | Intersecting roads shall be shown at the edge of pavement and labeled |
|  |  | Median barrier shown |
|  |  | Road names on each sheet shall match names shown on Present Layout Sheets |
|  |  |  |
|  |  |  |

**84-94. SIDE ROAD CROSS SECTIONS**

|  |  |  |
| --- | --- | --- |
| **YES** | **N/A** |  |
|  |  | Check slope lines in plans after cross sections run. If there are areas where the slope line makes a significant change for only a short segment, look at the cross sections to see if a steeper slope can be used that is acceptable by Geotechnical Engineering Section. This shall also be checked in areas that will require only a small amount of R.O.W.to see if a change can avoid small amounts of R.O.W. acquisition. |
|  |  | Cross sections shall be cut at 50’ increments. If the proposed changes start or end at an increment other than 50’, a cross section at that station shall be shown. (Example: Proposed horizontal and/or vertical alignment changes start at Sta. 100+30.00 and end at 105+62.00. A cross section shall be cut for each of these stations). Slope lines shall be projected into the proposed layout sheets |
|  |  | Cross sections shall be cut at a 50’ increment station before and after the station where proposed horizontal and/or vertical alignment changes begin and end. (Example: Proposed horizontal and/or vertical alignment changes start at Sta. 100+35.00 and end at 105+62.00. For accurate end area volumes, a cross section shall be cut at 100+00.00 and 106+00.00. There will not be any proposed elements shown on these cross sections) |
|  |  | Cross sections shall be cut at the beginning and end of a superelevated section and include a cross section at the PC, PT, fully superelevated, reverse crown, and zero percent cross slope stations. The Designer shall check proposed drainage to ensure zero percent cross slope area is draining properly |
|  |  | Existing R.O.W. lines shall be projected onto the sheets (For Rural Typicals only) |
|  |  | Finished grade, cross slopes, side slopes, station and offset at the tie-in point with existing ground properly labeled |
|  |  | Guardrail shown to match limits on proposed layout sheets including limits for guardrail earth pad |
|  |  | Intersecting roads shall be shown at the edge of pavement and labeled |
|  |  | Median Barrier shown |
|  |  | Road names on each sheet shall match names shown on Present Layout sheets |
|  |  |  |

**FINAL PREPARATION OF THE LINE AND GRADE PACKAGE**

Check TDOT 360 – Project Search for any changes to the project number on all plan sheets.

FileNet – Files defined in Chapter 1 of the Roadway Design Guidelines shall be placed on FileNet

* Plan set *nnnnnn-nn-LineandGradePlans.*pdf
* Zip file *nnnnnn-nn-LineandGradePlans*.zip

*Note to Designer: Generally,* ***Interchange/Intersection*** *details are shown within the station range of the mainline in the plans. However, if additional sheets are needed because of the complexity of the interchange, intersection, or it is a roundabout, the same checks used for R.O.W. Details, Present Layout, Proposed Layout, and Profiles shall be used. The proposed contour sheets for these sections shall also be addressed to ensure that the grades between the interchange/intersection and mainline tie together with no ponding in the radius returns etc.*