

# 2007 Delaware County Engineer Standards Manual Revisions

1. Plans Development (Art. II) - Both Subdivision and Capital Improvement Projects (public funded) addressed, based on road classifications.
2. Preliminary Engineering Plan (Art. III)
  - a. DESC requirements addressed.
  - b. Submittal requirement revisions.
  - c. Review time shortened from 28 to 21 days, variances must be addressed during preliminary phase.
  - d. Preliminary plans, composite utilities and grading plan to be submitted with preliminary plat.
  - e. Delaware County Traffic Impact Standards (TIS) to be utilized
  - f. Plan and details to include pavement thickness, all access easements, location of sanitary and storm sewers and waterlines, proposed flood routing, and proposed street connections.
3. Final Engineering Plan (Art. III & IV)
  - a. Submittal requirement revisions.
  - b. Storm water computation sheets and storm water maintenance agreements required (for sites with offsite drainage).
  - c. Submission of required approved environmental documents prior to approval of final plan.
  - d. Titlesheet requirements revised.
  - e. Common Access Drives, Commercial, Industrial, and Multi-family developments addressed.
  - f. Referenced standard drawings (Delaware County, and/or ODOT) based on road classifications.
  - g. For major and minor arterials, major and minor rural collector roads, ODOT design standards (e.g. L&D Manual, CMS, etc.) shall apply.
  - h. Standard General Notes added to appendix, General Notes section added for non-standard situations, and required General

Notes plan sheets added along with table of estimated quantities.

- i. Final Engineer's Estimate revised, unit bid prices on County Engineer's website updated.
- j. Intersection and cul-de-sac details addressed.
- k. Location by station and offset or GPS coordinates addressed
- l. Cross section requirements for open ditch and curb and gutter streets updated.
- m. Details for culverts larger than 36" addressed. Precast wingwalls and headwalls addressed.
- n. Master Grading Plan content has been addressed.
- o. Post-development calculations and required storage calculations clarified. Medium and high density residential, commercial and industrial requirements addressed. Emergency overflow for 100 year storm added.
- p. Required sheets to include storm water management facility plan, sediment control plan, and maintenance of traffic plans (road widening only).
- q. Road widening, shoulder and ditch improvements addressed with plan sheets to comply with ODOT L & D Manual.
  - i. Typical section and pavement widths to be approved by the County Engineer. Adequacy of existing drainage structures addressed.
  - ii. Requirements for work within the R/W.
  - iii. Pavement reinforcement at existing/proposed interfaces addressed. Subgrade stabilization addressed.
  - iv. Video documentation of existing conditions.
  - v. No road widening work between December 1<sup>st</sup> and April 1<sup>st</sup>. Work requirements on existing roads addressed.
- r. Traffic control, signing, pavement markings, street names and highway lighting updated.
- s. Review procedures for Common Access Drives, commercial, industrial, and multi-family plans addressed.

#### 4. Provisions and Guarantee required by Owner (Art. V)

- a. Owner's Project Agreement added (formerly Subdivider's Agreement).

- b. Construction Performance Fees updated and address private developments, road widenings, storm water management systems, and subdivisions.
- c. Types and details of Guarantees addressed.
- d. Maintenance of improvements during construction updated.
- e. No maintenance guarantees shall expire during December 1 through May 31<sup>st</sup>.
- f. Prefinal and Final inspections requirements clarified.

## 5. Street and Bridges (Art. VI)

- a. Arterial streets design per ODOT Standards. Collector and local street designs also addressed. Pavement width requirements for curbed and non-curbed streets addressed.
- b. Locate waterlines on outside of loop for Loop Streets.
- c. Permanent T-turnarounds and Parkways/Boulevards addressed.
- d. Traffic counts for design shall comply with the County Traffic Impact Standards.
- e. Townships may enact standards for obstructions in the R/W.
- f. Vertical alignment requirements clarified.
- g. Parking limitations on boulevards addressed.
- h. Other items addressed including guardrail, shoulders, side and ditch slopes, sidewalks, bike paths, pedestrian crossings and handicap ramps. Requirements for underdrain, curb, and fire hydrant locations discussed.
- i. Locations of storm structures including spacing and locations at intersections clarified.
- j. Sight distance requirements at intersections with an arterial or existing county/township road addressed.
- k. Temporary turnarounds clarified.
- l. Bridges, culverts over 6' span and special structures clarified, minimum loading requirements addressed.
- m. Special street name signs require written township trustee approval. Design street signs and bases in subdivision entrances within county or state R/W per FHWA and ODOT standards.
- n. Pavement marking requirements and speed limit and school sign requirements addressed.

## 6. Pavement Design (Art. VII)

- a. Subgrade reinforcing requirements based on evaluation of soil testing.
- b. All local commercial and industrial, minor rural collector, major collector and major and minor arterial streets shall be designed based on an approved traffic study and the County Engineer shall approve the percentage of trucks used for these streets.
- c. Schools or embedded commercial or industrial will need to account for the increased traffic loadings.
- d. Item 448 now addressed. Any project paved after October 15 shall not include the surface course layer (404 or 448) as part of the strength computations and the surface course shall not be placed until the following construction season.

#### 7. Work in Road Right-of-Way or Easements (Art. VIII)

- a. Permit required for work within the public right-of-way including installation of driveways, drive culverts, ditch reconstruction plans, utility work, or road closures.
- b. Driveway approach construction clarified, installation on non-curbed roads with 35mph or less addressed. Material compositions within the R/W addressed. Flare and radius requirements addressed for residential, commercial, shared, and CAD drives.
- c. Drainage, erosion and sediment control requirements addressed for CAD drives.
- d. Driveway pipes sized for 10 yr storm for local streets and 25 yr storm for collector and arterial streets and shall be a minimum of 12 inches.
- e. New lots or access points on existing streets require a permit to be approved including the pipe design.
- f. Road Closure section added. Road closing permits addressed.
- g. Permits for utility work and excavation requirements within the R/W.

#### 8. Drainage (Art. IX)

- a. Adequate outlet clarified.
- b. Easements requirements revised.

- c. Storm sewer rights and maintenance in easements addressed.
- d. Detention/Retention ponds design criteria clarified.
- e. Existing watershed boundaries and drainage maps requirements for pre and post development to be submitted.
- f. No alteration/changes of approved flood routing paths shall be made without approval of the County Engineer. Flood routes shall be provided for all storm sewers and culverts.
- g. Rear lot flood routing paths added.
- h. Cross sections and profiles of all flood routes clarified. Flood route calculation/capacity methods addressed.
- i. Culvert design procedure shall be per ODOT L & D Manual, Volume 2.
- j. Box and 3-sided slab top and arched shaped structures shall be used in lieu of multiple cell pipe culverts.
- k. For minor rural collectors, major collectors, and minor and major arterial streets, use ODOT L & D Manual for design storm frequencies and design flow calculations.
- l. Pipe cover and minimum pipe size addressed. Requirements for pipes greater than 36", and 3 and 4 sided box structures addressed. Headwater elevations addressed.
- m. Storm Sewer material section revised and mandrel requirements clarified.
- n. Storm sewer distance from adjacent property line addressed. Pipe locations on rectangular and square structures addressed. Maximum pipe size at inlets addressed.
- o. For rear lot drainage, 10 yr HGL height requirements.
- p. For all minor rural collectors, major collectors, and major and minor arterial streets, see ODOT L & D Manual for hydraulic gradient, design flows, and curb inlet spread of water requirements.
- q. Maximum length of pipe between structures and inlet spacing addressed.
- r. Maintenance easement requirements clarified.
- s. Design year and 100 year channel velocity calculations, channel protection addressed.
- t. Subsurface drainage tiles addressed.
- u. Density calculation for the entire subdivision/project not allowed to determine allowable release rate.
- v. Detention basin design requirements clarified.
- w. Use of retention/detention basins for water quality added.

- x. Proof surveys for storm water facilities clarified.
- y. Seeding and mulching addressed.
- z. Downstream Flood Routing addressed where an existing subdivision exists downstream.

9. Surveying Standards (Art. X)

- a. Submit copy of final plat a minimum of 4 weeks prior to planned Regional Planning Commission approval.
- b. Subdivision definition revised.
- c. All property transfers per Delaware County Transfer Standards (See Appendix) and these standards.
- d. Submittal format of paper and electronic documents revised.
- e. Master benchmarks for each section, phase or part revised.
- f. Variance for master benchmark for CAD if no road extension or widening in future added.

10. Construction Requirements (Art. XI)

- a. Preconstruction process including submission checklist.
- b. Preconstruction conference requirements.
- c. Building Permit Release for Bonded and No Bond Subdivisions.
  - i. No paving after October 31<sup>st</sup>.
  - ii. Owner responsibilities.
- d. Storm sewer and storm water facilities requirements.
- e. Flood route construction, erosion and sediment controls.
- f. Construction punchout procedures, ditch maintenance.
- g. Final subdivision acceptance.

11. New Article added addressing Storm water Quality (Art. XII)