

**Delaware County Engineer's Office (DCEO)
Commercial Final Engineering Plan
Review Checklist**

Project Name: _____

Submittal Items included with Plans– All references included in this checklist (such as Art. IV, Section 401, etc.), refer to the Delaware County Engineer's Design, Construction and Surveying Standards Manual, current edition, including the Supplemental Specifications to the Standards.

- Yes No N/A Proper number of plan sets (4 sets of full size and 1 set of half size plans), traffic study (if applicable), storm water management report provided
- Yes No N/A Completed commercial final engineering plan review checklist provided
- Yes No N/A CD of final plans and storm water management report provided
- Yes No N/A Proper fees, including fee submission checklist been submitted? See http://www.co.delaware.oh.us/engineer/Review/Plan_Review_fee_schedule_cover_page.pdf for copy of fee submission checklist.

- Yes No N/A Traffic Impact Study (TIS) prepared (only applies to applicable commercial developments –see Supplemental Specifications for TIS requirements)
- Yes No N/A Existing Topographic Survey - Incorporated into the Plan Sheet(s)
- Yes No N/A Drainage and/or R/W Conveyance Instruments, Metes and Bounds Descriptions, and associated Exhibits provided (If applicable – typically for any off-site easements – easements must state their purpose, such as “for highway purposes” or “for drainage purposes”).

- Yes No N/A Storm Water Management Report with all the various calculations and predevelopment and post-development tributary maps (See Article IV, Section 403 E, Art. IX and the Supplemental Specifications)
- Yes No N/A For proposed improvements to existing County/Township Road including roadway, shoulder and ditch improvements, additional plan sheets and a cost estimate are required (see separate Road Widening Checklist in the Supplemental Specifications)

- Yes No N/A Evidence of review and approval from the local fire department provided with the plans (Approval letter, comments, etc.)
- Yes No N/A Engineer's Estimate based on Delaware County Engineer's Unit Bid Prices (Article 403 A - for publicly inspected items only– See Art. IX and the Supplemental Specifications for guidance regarding how to format the estimate.)

- Yes No N/A Copies of approved environmental documents, Army Corps of Engineers permits, ODNR permits and other permits submitted before final plan approval (Article 401 A)
- Yes No N/A OEPA Storm water NOI submitted before final plans approval
- Yes No N/A If final plan resubmittal, written response included that addresses previous comments and identifies additions/deletions made to plans since previous submittal (Article 401 A)

- Yes No N/A Construction surety addressed for publicly inspected items (See Article IV, Section 404)

Yes No N/A Final engineering plan approval will not be granted until the requirements of Article IV, Section 404 and the Supplemental Specifications have been met (See Procedure of Approval).

Note: The County shall contact the plans submitter if the above items have not been submitted with the plans. Failure to submit the items may result in delay or halting of the review process.

Title Sheet - A sample title sheet layout is available from DCEO. Please contact this office for a copy.

- Yes No N/A Name of Project
- Yes No N/A Location by Range, Township, Quarter-Township, Farm Lot (U.S.M. Lands), and/or Virginia Military Survey Name and Number
- Yes No N/A North Arrow
- Yes No N/A A clearly legible location map showing the location of the project with respect to the nearest road intersection
- Yes No N/A Written and graphical (bar) scale
- Yes No N/A Name, address, and telephone number of the Design Engineer preparing the plan
- Yes No N/A Signature Line for the County Engineer
- Yes No N/A Signature Line for the County Sanitary Engineer (if applicable). Approval of the County Sanitary Engineer is required before the final engineering plans are approved.
- Yes No N/A Signature Line for Del-Co Water (if applicable)
- Note: DO NOT PROVIDE SIGNATURE LINES FOR THE COUNTY COMMISSIONERS ON THE TITLE SHEET
- Yes No N/A Applicable Delaware County Standard Drawings referenced by Drawing Number. City of Columbus and/or ODOT standard drawings may be referenced on a project-by-project basis.
- Yes No N/A Index of Sheets
- Yes No N/A Index Map (Showing lot layout)
- Yes No N/A Benchmark list (referenced to USGS datum), Elevations, Designations and Locations
- Yes No N/A Applicable Delaware County Supplemental Specifications referenced by number. City of Columbus and/or ODOT supplemental specifications may be referenced on a project-by-project basis.
- Yes No N/A Owner/Developer's Name, Address, Telephone and Fax Numbers
- Yes No N/A Utility Owner(s) Name, Addresses and Telephone and Fax Numbers
- Yes No N/A Applicable specifications statement per Article IV, Section 402 H provided. (Typically the City of Columbus CMS would be used. Check with DCEO for further guidance.)
- Yes No N/A County Engineer Disclaimer Paragraph: "The Delaware County Engineer's signature on this plan signifies only concurrence with the general purpose and location of the proposed improvements with respect to improvements within the right-of-way, storm water management, erosion and sediment control. All technical details remain the responsibility of the Professional Engineer who prepared and certified these plans."
- Yes No N/A Consultant's Certification Paragraph: "This is to certify that good engineering practices have been utilized in the design of this project and that all of the minimum standards as delineated in the Delaware County Design, Construction and Surveying Standards Manual have been met, including those standards greater than minimum where, in my opinion, they are needed to protect the safety

of the public. Any variances to the above standards are consistent with sound engineering practices and are not detrimental to the public safety and convenience. These variances have been listed herein and have been approved by the Delaware County Engineer.”

- Yes No N/A
- Yes No N/A
- Yes No N/A
- Yes No N/A

Stamp and Signature of the Design Engineer licensed in the State of Ohio
Site Data including Total Area and Total Impervious Area
Change Order (revisions) table
Variance Table with Approval Dates Shown

General

- Yes No N/A
- Yes No N/A
- Yes No N/A
- Yes No N/A
- Yes No N/A
- Yes No N/A
- Yes No N/A
- Yes No N/A
- Yes No N/A
- Yes No N/A
- Yes No N/A
- Yes No N/A
- Yes No N/A
- Yes No N/A
- Yes No N/A

Intersection Sight Distance (ISD) Diagram showing adequate intersection sight distance for the proposed entrance drives(s) per the current ODOT Location and Design (L&D) Manual. (Do not use stopping sight distance tables).

Have all trees and obstructions within the R/W and sight distance triangle been shown (and designated to be removed) on the ISD diagram?

For proposed improvements to existing County/Township Road including roadway, shoulder and ditch improvements, additional plan sheets and a cost estimate are required (see separate Road Widening Checklist in the Supplemental Specifications).

Reference provided to DCEO Standard Drawing DCED-R2130 for all road widening, shoulder and ditch improvements

Show the Clear Zone Setback line for projects located on County and Township Roads according to the ODOT L&D Manual, current editions. Provide additional utility easements if needed.

Have drainage easements for road widening and/or a ditch setback been addressed?

Are existing utilities shown in area of road widening and/or a ditch setback? Have the utilities been called out to be relocated? Have easements been provided for utility relocation or future needs?

All required easements for R/W, drainage and/or sight distance shall be recorded prior to final engineering plan approval, unless a final plat is required for the site. Copies of the recorded easements shall be submitted to the County Engineer for approval.

Preliminary Plan submitted and approved (only applies to larger commercial developments – Check with County Engineer if preliminary plan is required.)

For sites with public roads and/or private roads built to public standards, please refer to and complete the Final Engineering and Construction Plan Review Checklist. A copy of the Final Engineering and Construction Plan Review Checklist must be included with the submittal. Please contact DCEO for guidance regarding when it is required to complete the Final Engineering and Construction Plan Review Checklist.

General Summary/Table of Estimated Quantities provided?

Have the proposed storm sewer inverts, project pavements, project grading, etc. align (horizontally & vertically) with adjacent existing storm sewers, pavements, and grading? Have differences between 1929 Datum and 1988 Datum been addressed if adjacent projects or sewers were based on a different Datum?

General Notes (See Supplemental Specifications for notes – A copy of these notes can be obtained from our office.)

Do the plans contain the standard note about proof surveys being required to confirm elevations, slopes, etc. of storm structures, detention/retention ponds, etc. comply with the approved final engineering and construction plan?

- Yes No N/A Health Department approval provided (If any onsite treatment is shown)? A copy of their approval letter is required before the plans can be approved by DCEO.
- Yes No N/A General DESC permit must be approved before final plans can be approved.
- Yes No N/A As-built plans are required for all commercial sites per Article IV, Section 404 and Article X.

Site Improvement Plan

- Yes No N/A Show and Label any FEMA designated Floodway and 100-year Flood Plain
- Yes No N/A Floodway Note provided?
- Yes No N/A Note any required vehicular access restrictions to public streets. Verify with the approved plat. All driveway access points for the site shall comply with the access management plan for the site and be approved by the County Engineer.
- Yes No N/A Have plans and plat for all adjoining projects/sites been reviewed to insure the proposed project is compatible, especially drive locations and safety of turning movements entering/exiting the site and adjacent sites?
- Yes No N/A Are nearby existing adjacent and opposing driveways shown?
- Yes No N/A Information provided for adjacent properties and those across the street. It is difficult to approve proposed driveway locations without actual locations of driveways adjacent to and opposite the proposed driveway(s).
- Yes No N/A Label Adjacent Property Names, Lot Numbers and Road Names
- Yes No N/A Show the Sight Distance Triangle for all proposed driveway(s). Are sight distance easements required? If so, the easements must be recorded prior to final engineering plan approval.
- Yes No N/A Show and Label all Existing and Proposed R/W, Easements (including type), and No-Build Zones
- Yes No N/A If high voltage power lines on site, has the power company had the chance to review the final plans?
- Yes No N/A Are any above ground utility structures placed within the drainage areas or installed in a manner that interferes with surface or subsurface drainage (Not permitted)?
- Yes No N/A Show and Label Centerline, Edge of Pavement (or Back of Curb), and R/W of all adjacent streets.
- Yes No N/A Label Size, Location, and Type of all Proposed Sidewalks and/or Multi-use paths including all handicap ramps to be built on site or within the Public R/W. Within R/W, sidewalk located 6' from face of curb as per the regulations?
- Yes No N/A Show and Label all Proposed and/or Existing Ingress/Egress, or Cross Access Easements
- Yes No N/A Label the Entrance Drives and Drive Widths. Drive widths provided comply with Township Fire Department requirements (generally 20' minimum width)?
- Yes No N/A Minimum Driveway Radius (35') provided. A larger radius may be required by DCEO per current County Standard Standards. See Delaware County Standard Drawings (Supplemental Specifications) for further information.
- Yes No N/A For drives that enter onto a curb and gutter street, are the details for the drive compatible with the street gutter pan and curb? Curb on the drive shall align with the curb on the street. No snag points are permitted. See DECO Standard Drawings (Supplemental Specifications) for further information.
- Yes No N/A Drive profile per Art. VIII, Section 802 A?
- Yes No N/A Township Issues Addressed (Building setbacks, parking, etc.)
- Yes No N/A North Arrow and Scale

- Yes No N/A Typical Pavement Section (within R/W) - See Table 801
- Yes No N/A Station and offset or GPS coordinates of all publicly maintained structures (Article IV, Section 403 B)

Master Grading Plan

- Yes No N/A Has a Master Grading Plan been provided that complies with Art. IV, Section 403 C?
- Yes No N/A Proper scale used for Master Grading Plan? Check the remaining items in Art. IV, Section 403 C for complete compliance.
- Yes No N/A One-foot contour lines of the development area. Use of County Auditor’s website (DALIS) is acceptable for existing topography.
- Yes No N/A Existing Contours (dashed) shown?
- Yes No N/A Proposed Elevations (solid) including Contours and Spot Grades
- Yes No N/A Storm Sewer Top of Casting & Invert Elevations
- Yes No N/A North Arrow and Scale
- Yes No N/A Major Flood Routing (Designated with Unique Arrows defined on legend). Arrows used must be a different symbol than flow routing arrows.
- Yes No N/A Does the major flood routing for the proposed site affect any property downstream (e.g., existing subdivision, commercial sites, homes, etc.)? If so, the final engineering plans shall meet the requirements of Art. IV, IX, and the Supplemental Specifications.
- Yes No N/A Is the 100-year flood routing (including water surface elevations) shown and is it adequate?
- Yes No N/A Elevation of finished floors above 100-year flood (minimum of 1’ above 100-year flood)?
- Yes No N/A Proposed Pad and Finished Floor Elevations provided?
- Yes No N/A Finished floor elevation >1’ above pavement, unless ADA requirements dictate otherwise.
- Yes No N/A Utility pedestals shall be located outside the 100-year flood elevation along major flood routes.
- Yes No N/A Proposed grading or spot elevations called out by each building location? Drains away from each building?
- Yes No N/A Show and Label any FEMA designated Floodway and 100-year Flood Plain.
- Yes No N/A Floodway Note provided?
- Yes No N/A Proposed Landscape Mounding Contours
- Yes No N/A Label Adjacent Property Names, Lot Numbers and Road Names
- Yes No N/A Existing and proposed utilities shown? (Surface and subsurface)
- Yes No N/A Size, Slope, Length, and Type of Proposed and Existing Culverts [may be done with profiles]
- Yes No N/A Size, Type, Length, and Slope of Existing and Proposed Storm Sewers [may be done with profiles]
- Yes No N/A Storm Sewer and/or Culvert Profiles shown, including material type, size and slope - (must meet County Standards if publicly maintained – provide on separate plan sheet than the Master Grading Plan). Please refer to/complete the Final Engineering and Construction Plan Review Checklist for storm sewer and culvert checklist items for all items that are publicly maintained.
- Yes No N/A Verify that all materials used for storm sewers that will be publicly maintained meets current County Standards, including the Supplemental Specifications.
- Yes No N/A Drainage and Backfilling Details - Must comply with County Standards, including the Supplemental Specifications, for all publicly maintained portions of system. Granular backfill must be provided under public and future public roads.

- Yes No N/A Adequate cover provided for the pipe material chosen? See Supplemental Specifications for current requirements.
- Yes No N/A Station and offset or GPS coordinates of all publicly maintained structures (Article IV, Section 403 B)
- Yes No N/A Storm sewers aligned perpendicular with streets (not underneath or parallel to curb and gutter) within public R/W?
- Yes No N/A Proper design year storm used for Drive Pipes (10-year)? Have drive pipes been sized for all drives and shown on the plans? County standards used to compute design year flow (See Art. IX)?
- Yes No N/A Proper drive pipe length provided per Article VIII, Section 802 H?
- Yes No N/A Ditch Direction of Flow and Slope shown?
- Yes No N/A Trees or Landscape Features in R/W? (Not acceptable)
- Yes No N/A Trees or Landscape Features located on or near stormwater management facilities that are publicly maintained? (Not acceptable)
- Yes No N/A Overflow elevation
- Yes No N/A Correct Design Year Storm used for basin sizing (release 100-year post at 2-year pre)?
- Yes No N/A Ponding Limits and Elevation
- Yes No N/A Ponding Tabulations (required and provided)
- Yes No N/A Orifice Plate Details (Not permitted on half-height headwalls)
- Yes No N/A Do pond, sidewalk, or other embankment locations create any safety issues for vehicles or pedestrians?
- Yes No N/A Driveway Slope(s) comply with County Standards and Supplemental Specifications (Art. VIII Section 802 and DCEO Standard Drawing)?
- Yes No N/A Headwall Specifications or DCEO Standard Drawing referenced?
- Yes No N/A Ditch Direction of Flow and Slope shown?
- Yes No N/A Cross-sections of Ditches in R/W or within publicly maintained area (at 50-foot spacings)
- Yes No N/A Spot elevations (minimum of 2, 3 preferred) for area of the proposed driveway radius/curb/edge of pavement
- Yes No N/A Existing Utilities, Storm Sewers, Culverts, etc. – dashed
- Yes No N/A Proposed Utilities, Storm Sewers, Culverts, etc. – solid
- Yes No N/A Key Notes (Legend) identifying all items
- Yes No N/A Are leach fields, mound systems or other approved on-site sanitary shown on the plans for the lots and existing adjacent lots? Storm water routed anywhere near existing or proposed leach fields or mound systems, potentially creating problems for owners or adjacent owners?

Erosion & Sediment Control Plan

- Yes No N/A Inlet Protection Locations
- Yes No N/A Silt Fence Locations
- Yes No N/A Check Dam Locations
- Yes No N/A Erosion Control Standards Details
- Yes No N/A General Notes (See Supplemental Specifications for Notes)
- Yes No N/A Sequence of Construction (See Supplemental Specifications for Notes)
- Yes No N/A Construction Entrance Location
- Yes No N/A Construction Entrance Detail
- Yes No N/A Major Flood Routing (Designated with Arrows defined on legend)
- Yes No N/A Ditch depth calculations provided in storm report?
- Yes No N/A Has ditch protection been called out on the plans based on shear stress calculated per ODOT L & D Manual, current edition (Sections 1102.3 and 1102.4 - 670,

660, 659 protection, RCP)?

Existing Topographic Survey – To be included on applicable plan sheets

- Yes No N/A Show all Existing Features including Structures, Trees, Metes & Bounds, Topography, and Utilities
- Yes No N/A Note which Existing Structures are to be Removed
- Yes No N/A Benchmark used, referenced to NAV Datum 1929 or 1988
- Yes No N/A Legend/Abbreviations
- Yes No N/A Additional Surveying Notes (if applicable)

Storm water Management Report Requirements and Calculations

- Yes No N/A Bound (3-ring) report and CD (PDF Format) of Storm water Management Report submitted?
- Yes No N/A Signature and Stamp of Ohio Registered Professional Engineer
- Yes No N/A Plan with tributary areas defined and tributary acreages labeled including offsite tributaries (Article IV, Section 401 A and the Supplemental Specifications).
- Yes No N/A Pre-Development and Post- Development Maps provided and comply with Art. IV Section 403 E, Art. IX and the Supplemental Specifications?
- Yes No N/A Calculations agree with Plan?
- Yes No N/A Written Explanation/Summary/Narrative provided
- Yes No N/A Storm water Management Facility Plan separate from Master Grading Plan (Art. IV, Section 403 D)? Does Storm water Management Facility Plan comply with Art. IV Section 403 D and the Supplemental Specifications?
- Yes No N/A Summary Table
- Yes No N/A Water quantity addressed and complies with Art. IX and Supplemental Specifications?
- Yes No N/A Water quality addressed and complies with Art. XII and Supplemental Specifications?
- Yes No N/A Calculations agree with Plan?
- Yes No N/A Routing Calculations
- Yes No N/A Inflow Hydrographs
- Yes No N/A Outflow Hydrographs
- Yes No N/A Storm Sewer Design Calculations including 10-yr HGL line
- Yes No N/A Calculations and frequencies provided according to Art. IX, Supplemental Specifications (See Table 901), and Article IV, Section 403 D and E. Peak runoff from post-development 100-yr 24-hr storm less than pre-development 2-yr 24-hr storm.
- Yes No N/A Calculations of the pre-development peak flows from the delineated drainage areas for the 1, 2, 5, 10, 25, 50, and 100-year frequency, 24 hour storms. List the peak flows on the map.
- Yes No N/A Calculations of the post-development peak flows from the delineated drainage areas for the 1, 2, 5, 10, 25, 50, and 100-year frequency, 24 hour storms. List the peak flows on the map.
- Yes No N/A Drainage maintenance requirements shall be addressed for any storm water running through the site. Contact the Delaware Soil and Water Conservation District (SWCD). (See Art. IV, Section 401 A)
- Yes No N/A Exhibit C showing all storm water management items that will be publicly maintained must be included as part of the final engineering plans. The plans cannot be approved without Exhibit C. A copy of a sample Exhibit C can be obtained from DCEO.
- Yes No N/A If Drainage Maintenance is required, then a cost estimate and signed Drainage

- Yes No N/A Maintenance Petition is required (See Art. IV, Section 404 and the Supplemental Specifications)
- Yes No N/A Ditch flowline elevation. Foreslope and backslope rates shown (e.g. 4:1, 3:1)? See Article IV, Section 403 B
- Yes No N/A Proper Method used for Storage (Not Rational Method)
- Yes No N/A Is the overall storm water management for the site acceptable? Does it adversely impact property owners downstream?
- Yes No N/A If future lots or parcels will need to provide separate detention, has a storm water master plan been provided that covers future lot/parcel requirements and what report assumptions were used?
- Yes No N/A Is an adequate outlet provided?
- Yes No N/A Identification of the existing drainage outlet(s) for the site including size, material type, and condition of any storm sewer, culvert, etc. shall be shown. This information shall be based on an onsite investigation and observations of the outlet(s), (e.g., videotape, photographs, etc.).
- Yes No N/A An analysis of the capacity of the drainage outlet(s) for the site and a determination of the adequacy of the outlet(s) under the predevelopment conditions.

Suggested Items, But Not Required

- Yes No N/A Label and Dimension Handicap Parking Spaces (must meet all applicable requirements of ADAAG)
- Yes No N/A Stop Sign(s) are suggested at all Entrance Points at Commercial Drives (neither OMUTCD or Ohio Revised Code address this but it is common practice for Owners to provide).
- Yes No N/A If site is a public school, have signage and pavement markings been addressed for school zones?
- Yes No N/A Parking Requirements (spaces provided)
- Yes No N/A Show and Label all Types of Curbs, additional Signs, Site Lights, Trash Enclosures, Fire Hydrants, and any Striping
- Yes No N/A Standard Detail and/or Cross-Sections for all Types of Curbs, Sidewalks, Walk Expansion/Contract Joint, Delivery Ramps (if applicable), Handicap Signs & Symbols, Drains, Fire Hydrants
- Yes No N/A Spot grades for all handicap spaces (max. grade in any direction is 2.0%)

Permits

- Yes No N/A Permit Fees paid? Plans must be forwarded to DCEO Permit Department for required permits (i.e. Driveway, etc.). See Art. IV, Section 404.
- Yes No N/A Has a DESC permit been obtained? (Required)

Plat (Refer to Checklist for Plats in Supplemental Specifications)

For County Engineer Use only

- Yes No N/A On public school sites, please notify Design Department and Operations Department that proposed school will be going in.
- Yes No N/A Schedule meeting with design engineer, SWCD and Storm Water Department to review comments prior to sending formal review letter.
- Yes No N/A Notify Permit Department for Fees and Initial Title Sheet Mylar before signing
- Yes No N/A Have Storm Water Department DESC permit approval and initial Title Sheet

- Yes No N/A Mylar before signing.
- Yes No N/A SWCD must initial Title Sheet Mylar before signing. Drainage Maintenance Petition and Fees must be paid before final plans can be approved.
- Yes No N/A Email a copy of the comments to the Twp Zoning Inspector.
- Yes No N/A Notify SWCD to coordinate with Permit Department regarding construction inspection
- Yes No N/A Provide a set of plans to Liberty Township Fire Department (LTFD) for their review. Do not approve plan until LTFD has provided an approval letter.
- Yes No N/A Copy City of Powell (Permit Department) for all correspondence (review letters, etc.) in Liberty Township
- Yes No N/A Have County Sanitary Engineer review plans (courtesy review). This will insure that sampling pits go in where required, and they know to inspect them.

Comments:

Comment Disclaimer:

The County Engineer Reserves The Right To Make Any Additional Comments At Any Time Up To The Actual Approval Of This Project. See the Delaware County Standards for other items not addressed on this list.

Approved Disapproved

Reviewed by: _____

Date: _____

Write letter to: _____