

Sustainable Development and Construction Engineering

Drainage Design Manual Frequently Asked Questions (FAQ)

Scope and Applicability

- Q [Is the new Drainage Design Manual approved for use on City of Dallas projects?](#)
- Q [Does the 2019 Drainage Design Manual apply to private development projects?](#)
- Q [When does the updated drainage design manual and its criteria apply to my development project?](#)
- Q [If the preliminary plat and infrastructure construction plans for a property I am developing were approved prior to the effective date of the current manual, but my development project will not commence until after the effective date, the project may proceed even though it was designed using old criteria, correct?](#)

Drainage Integration

- Q [Is water quality improvement required in project design?](#)
- Q [How are sustainable drainage measures integrated in the design process?](#)

Pre-Development

- Q [Is a pre-development meeting required for my project?](#)
- Q [What information is needed for the discussion?](#)
- Q [What software do you allow for design of private development project drainage facilities?](#)

Hydrology

- Q [In the old manual the limit for using the Rational method for computing design runoff rates and volumes was a contributing drainage area of 130 acres. Is it the same for the updated manual?](#)
- Q [Is offsite drainage area included in calculating the contributing drainage area?](#)
- Q [How far downstream must you go for the downstream analysis \(the "10% rule"\)?](#)
- Q [When using the Rational Method, the manual says existing land shall be used for determining existing conditions. Should existing land use "C" value be based on actual impervious area?](#)
- Q [Do you have to calculate Tc for each individual drainage area, even if it is going to be less than 10 minutes?](#)
- Q [Are composite c-values allowed for Shared Access Developments?](#)
- Q [Is an existing conditions drainage area map required to be included in my plan set?](#)

Detention / Retention

- Q [When is detention required?](#)
- Q [What design storm is used for detention design?](#)
- Q [The updated manual states access to underground detention facilities shall not exceed 50 feet. If our underground system is 400 feet long, do we have to provide 9 access locations?](#)
- Q [Is an O&M manual required for a private detention facility?](#)
- Q [If detention is required due to an inadequate outfall how do you fairly calculate the impact the proposed development will have on the outfall when: a\) The site is a grass field that has never been developed and is currently zoned commercial?](#)
- Q [If detention is required due to an inadequate outfall how do you fairly calculate the impact the proposed development will have on the outfall when: b\) The site is a grass field that was developed prior to its demolition and is currently zoned commercial?](#)

Roadway Design

- Q [Streets can be used for stormwater conveyance. Can this storage volume be used to offset volume in new pipes?](#)
- Q [The minimum lateral pipe diameter requirement is 21". Are we allowed to tie into an existing 18" lateral or into the back of inlet to outfall an 18" pipe, or are we required to upgrade the existing 18" pipe within the ROW to 21"?](#)
- Q [What is definition of single outfall as it relates the requirement for detention?](#)



Bridge Hydraulics



Erosion and Sediment Control

Q Does the updated manual require the use of sedimentation basins?



Easements

Q Slope easements shall be provided along all natural and constructed channels where the depth from top of bank to flowline is greater than 5 feet. Is a slope easement in accordance with section 9.3.4 SLOPE EASEMENT required in addition the natural channel setback (reference section 7.2 NATURAL CHANNEL SETBACK)?

Q The updated manual states no retaining walls are allowed within or adjacent to a drainage easement. What is the minimum clearance outside of the easement a wall can be constructed?



Submittal Requirements

Q Is a drainage design report required for my project?

Q Is there a format we must follow when submitting a drainage design report?

Q Section 10.4 details construction plan phase submittals and other plan requirements. Do the phase submittals apply to private development projects?

Q Section 10.4 states all plans shall be drawn on 22" X 34" mylar. Does this apply to private development projects?

Q Is an O&M manual required for a private detention facility?

Drainage Design Manual FAQ

Scope and Applicability

Q Is the new Drainage Design Manual approved for use on City of Dallas projects?

A *Yes. The City of Dallas updated the street design manual, drainage design manual, and created the street process manual in 2019. The manuals and associated changes to City Code were approved and adopted by City Council on September 11, 2019.*

Q Does the 2019 Drainage Design Manual apply to private development projects?

A *Yes. The 2019 Drainage Design Manual is for use by all City of Dallas departments, consultants employed by the City, and engineers providing services on private development projects in the City.*

Q When does the updated drainage design manual and its criteria apply to my development project?

A *The design criteria in effect on the date the City Plan Commission approves the preliminary plat must be used for design. (Reference Dallas City Code Section 51A-8.601 GENERAL STANDARDS). The effective date for use of the 2019 updated manual is October 1, 2019. Development projects with preliminary plats approved on or after October 1, 2019 must use the updated manual.*

Q If the preliminary plat and infrastructure construction plans for a property I am developing were approved prior to the effective date of the current manual, but my development project will not commence until after the effective date, the project may proceed even though it was designed using old criteria, correct?

A *Maybe. If the infrastructure construction was included in a city-approved private development contract within two years of the preliminary plat approval date, then the project may commence. If the infrastructure construction was NOT included in a city-approved private development contract within two years, then it MUST be redesigned using the most current criteria. (Reference Dallas City Code Section 51A-8.601 GENERAL STANDARDS)*

 [BACK](#)

Drainage Design Manual FAQ



Drainage Integration

Q Is water quality improvement required in project design?

A *No. The City of Dallas encourages that water quality be considered for any design both during and after construction. Construction plans must consider erosion control and have procedures in place to prevent stormwater pollution.*

Q How are sustainable drainage measures integrated in the design process?

A *Figure 1.1 [Drainage Design Process](#) represents the steps in the design process that should be followed for each project. The City of Dallas encourages a holistic approach to design including considering sustainable drainage measures in to improve water quality, mitigate urban drainage impacts, and reduce detention requirements.*

[BACK](#)

Drainage Design Manual FAQ

Pre-Development

Q Is a pre-development meeting required for my project?

A *A pre-development meeting is typically required and is encouraged for all projects. One could also be requested by staff.*

Q What information is needed for the discussion?

A *At a minimum, the following should be prepared for the meeting: Topographic work map, conceptual layout, flood studies or models, FEMA flood maps (if applicable), Upstream drainage area delineation, Upstream and downstream conditions, and capacity.*

Q What software do you allow for design of private development project drainage facilities?

A *The list of approved software as of September 2019: ArcGIS, AutoCAD – HydraFlow, CivilStorm, Culvert Master, EPA Stormwater Calculator, EPA-SWMM, Flow Master, HEC-HMS, HEC-RAS, HY-8, HydroCAD, Infoworks, Microstation - GeoPak Drainage, PondPack, STORMCAD, XPSWMM, XPSTORM*

 [BACK](#)

Drainage Design Manual FAQ

Hydrology

Q In the old manual the limit for using the Rational method for computing design runoff rates and volumes was a contributing drainage area of 130 acres. Is it the same for the updated manual?

A *No, the limit is 100 acres.*

Q Is offsite drainage area included in calculating the contributing drainage area?

A *The 100-acre drainage area threshold used to determine the design method for hydrologic analysis refers to the entire drainage area, including any storm drainage systems, that contributes to the project outfall of the property being developed. It may or may not include drainage area from off-site of the property being developed.*

Q How far downstream must you go for the downstream analysis (the “10% rule”)?

A *The Drainage Design Manual section 2.3.2 Downstream Analysis defines the “10% rule”. An example is provided in section 2.2.2.1 Drainage Area Delineation, which states “The area of consideration shall be to the point where the drainage area controlled by the detention or storage facility comprises 10% of the total drainage area. For example, if the structural control drains 10 acres, the area of consideration ends at the point where the total drainage area is 100 acres or greater”.*

Q When using the Rational Method, the manual says existing land shall be used for determining existing conditions. Should existing land use “C” value be based on actual impervious area?

A *No. Existing land use is the current zoning or designated zoning by a PD. You should not use actual impervious area unless instructed by staff.*

Q Do you have to calculate Tc for each individual drainage area, even if it is going to be less than 10 minutes?

A *Yes.*

Q Are composite c-values allowed for Shared Access Developments?

A *Yes, a composite value based on pervious and impervious cover must be calculated (see Drainage Design manual section 2.2.1.1 Runoff “C” Value).*

Q Is an existing conditions drainage area map (DAM) required to be included in my plan set?

A *An existing conditions DAM is only necessary if your project requires analysis of the capacity of an existing inadequate outfall.*

 [BACK](#)

Drainage Design Manual FAQ

Detention / Retention

Q When is detention required?

A *For all projects, detention is required when there is an increase in peak flow or velocity from pre to post development conditions. Also, the Plat Regulations include 4 instances when detention is required for a development project (reference section 51A-8.611 (c) (1) (A-D) of the Plat Regulations). The 4 instances are:*

- a. *The property to be platted is in or drains through the escarpment zone or a geologically similar area*
- b. *The development of the platted area results in an increase to the existing rate of runoff due to a rezoning of the platted area that allows higher density. Detention will not be required if:
 - i. *the rezoned area is in the redeveloped area and there is no increase in impermeable surface*
 - ii. *the change in zoning results in less than a 20 percent increase in the runoff, and the area rezoned is less than 3 acres, or an adequate outfall exists to handle the developed discharge; or*
 - iii. *the rezoned area is less than one acre in size and adds less than 5,000 square feet of additional impervious surface relative to existing conditions**
- c. *The proposed development does not have adequate outfall to carry the one-percent annual chance storm event without damaging property downstream, or the owner of downstream property refuses to provide the needed easements to the city. Detention will not be required under this subparagraph if the owner funds and constructs the storm drainage system to provide a one-percent annual chance storm event runoff carrying capacity*
- d. *The property to be platted contributes to the storm drainage of a neighboring municipality having detention requirements, provided there are written agreements with the neighboring municipalities*

Q What design storm is used for detention design?

A *The 1%, 2%, 10%, and 50% annual chance design storms are to be used for detention design (reference section 2.1).*

Q The updated manual states access to underground detention facilities shall not exceed 50 feet. If our underground system is 400 feet long, do we have to provide 9 access locations?

A *The access discussed in the Drainage Design Manual section 6.4 refers to maintenance access. Maintenance access related to underground detention does not specifically imply manhole access. Exceptions or special cases should be discussed in pre-project or pre-development meetings.*

Q Is an O&M manual required for a private detention facility?

A *Yes. An O&M Plan shall be provided for all pump stations and detention facilities that will not be City owned and operated. An O&M Plan template with minimum maintenance standards is included in Appendix A.6. O&M Plans must also include the requirements listed in the Drainage Design Manual section 11.2. Other requirements: O&M Plans MUST be filed at with the Courthouse with the plat or deed records. A note indicating maintenance responsibility must be included on the plat.*

Q If detention is required due to an inadequate outfall how do you fairly calculate the impact the proposed development will have on the outfall when: a) The site is a grass field that has never been developed and is currently zoned commercial?

A *Use a runoff coefficient "C" value from the Drainage Design Manual table 2.3 that best represents the imperviousness of the grass field or calculate a "C" value as directed by staff for existing conditions, and use a runoff coefficient "C" value 0.9 for commercial zoning from table 2.3.*

- Q If detention is required due to an inadequate outfall how do you fairly calculate the impact the proposed development will have on the outfall when: b) The site is a grass field that was developed prior to its demolition and is currently zoned commercial?
- A *Use a runoff coefficient "C" value from the Drainage Design Manual table 2.3 that best represents the imperviousness of the previous development or calculate a "C" value as directed by staff for existing conditions, and use a runoff coefficient "C" value 0.9 for commercial zoning from table 2.3.*

 [BACK](#)

Drainage Design Manual FAQ

Roadway Design

- Q Streets can be used for stormwater conveyance. Can this storage volume be used to offset volume in new pipes?
- A *Yes, a street can be used to convey drainage in accordance with the guidelines and requirements of the manual. The designer may use the street in combination with the pipe system to handle the road drainage. Ultimately, all fully developed drainage runoff must be accounted for and conveyed in the system to the project outfall.*
- Q The minimum lateral pipe diameter requirement is 21". Are we allowed to tie into an existing 18" lateral or into the back of inlet to outfall an 18" pipe, or are we required to upgrade the existing 18" pipe within the ROW to 21"?
- A *Refer to section 3.6.2 for guidelines for designing storm drainage pipe systems. There may be exceptions which should be discussed with the City project manager/plan reviewer. These should be considered on a case-by-case basis. In some cases, it may be desirable to modify part of an existing system to provide better drainage overall. NOTE: Laterals shall not outfall into downstream inlets unless approved by the Director (see section 3.6.3 Lateral Design).*
- Q What is definition of single outfall as it relates the requirement for detention?
- A *A roadway outfall will be considered the same as the project outfall which is typically a storm drainage pipe discharging to an open channel, creek, or river. As implied in section 2.3.1 there may be more than one outfall from the roadway project site. Each of these would be considered separately.*

 [BACK](#)

Drainage Design Manual FAQ

 Bridge Hydraulics

 [BACK](#)

Drainage Design Manual FAQ



Erosion and Sediment Control

Q Does the updated manual require the use of sedimentation basins?

A *In general, they are not required. Sedimentation basins can be used as a temporary measure on a construction site or as a permanent water quality measure.*

[BACK](#)

Drainage Design Manual FAQ

Easements

Q Slope easements shall be provided along all natural and constructed channels where the depth from top of bank to flowline is greater than 5 feet. Is a slope easement in accordance with section 9.3.4 SLOPE EASEMENT required in addition the natural channel setback (reference section 7.2 NATURAL CHANNEL SETBACK)?

A *Yes.*

Q The updated manual states no retaining walls are allowed within or adjacent to a drainage easement. What is the minimum clearance outside of the easement a wall can be constructed?

A *There is no minimum clearance outside of the easement. This applies to instances where retaining walls are being used to specifically reduce the size of a required drainage easement.*

 [BACK](#)

Drainage Design Manual FAQ

Submittal Requirements

Q Is a drainage design report required for my project?

A *Yes.*

Q Is there a format we must follow when submitting a drainage design report?

A *Yes, you must use the Sustainable Development and Construction Drainage Design Report template unless otherwise directed by staff.*

Q Section 10.4 details construction plan phase submittals and other plan requirements. Do the phase submittals apply to private development projects?

A *No. Plan submittal phases will not change for private development*

Q Section 10.4 states all plans shall be drawn on 22" X 34" mylar. Does this apply to private development projects?

A *No. Mylar sheets are not required for private development plan submittals. 24" X 36" should be used for private development projects for printing full-size sheets*

Q Is an O&M manual required for a private detention facility?

A *Yes. An O&M Plan shall be submitted for all pump stations and detention facilities that will not be City owned and operated. An O&M Plan template with minimum maintenance standards is included in Appendix A.6. O&M Plans must also include the requirements listed in the Drainage Design Manual section 11.2. Other requirements: O&M Plans MUST be filed at with the Courthouse with the plat or deed records. A note indicating maintenance responsibility must be included on the plat.*

 [BACK](#)