

Civil Engineering Plans Checklist

The following items must be submitted for the application to be considered complete.

Required for All Projects:	
<input type="checkbox"/>	Project Narrative: Written proposal for the project including all proposed and existing utilities
<input type="checkbox"/>	All plan sheets shall be 24" x 36" with a plan view scale not smaller than 1" = 100' with exception to the drainage area map which may be a scale not smaller than 1" = 400'
<input type="checkbox"/>	All plan sheets shall be sealed by the engineer of record including registration number
<input type="checkbox"/>	All documents are required to be PDF files.
<input type="checkbox"/>	Construction plans sets greater than one (1) sheet shall contain a cover sheet showing the name of the project, the engineer of record including address and phone number, the name of the developer or owner including address and phone number.
Required for Transportation Related Improvements:	
<input type="checkbox"/>	Label the area of the lot in square feet and acres including width and depth; subdivision name, block, and lot; deed record
<input type="checkbox"/>	Provide overall paving plan sheet for the entire development as a separate CEP plan sheet.
<input type="checkbox"/>	Plan and profile of all streets at 1" = 40 or larger horizontal and 1" = 4' vertical or larger scale. Each profile view shall line up directly under the corresponding plan view
<input type="checkbox"/>	Display elevation spacing on all profile views every 100 feet, every 25 feet along the vertical curve, changes in centerline slope, and the back of the curb on both sides of the street.
<input type="checkbox"/>	Display percent grades on all profile views
<input type="checkbox"/>	Label edge of pavement
<input type="checkbox"/>	Display connections to existing street network.
<input type="checkbox"/>	Display horizontal and vertical curve data
<input type="checkbox"/>	Display all existing and proposed guardrails and barricades
<input type="checkbox"/>	Include pavement marking and signage plans
<input type="checkbox"/>	Include temporary traffic control plans that are designed in accordance with the Texas Manual of Uniform Traffic Control Devices
<input type="checkbox"/>	Display street centerline at proposed street curvature points, with horizontal curve data.
<input type="checkbox"/>	Provide a geotechnical report supporting the proposed pavement cross-section.
Required for Utility Related Improvements:	
<input type="checkbox"/>	Display casing and conduit for future utility crossings with boring detail provided on sheet. Include boring detail.
<input type="checkbox"/>	Display all existing utility and drainage features on plans views. Adjacent utilities and drainage crossings shall be shown for reference in the profile view
<input type="checkbox"/>	Display all manholes, junction boxes, valve boxes, inlets, and other surface features in plan view

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Required for Drainage Area Map:	
<input type="checkbox"/>	Use 1" = 100' scale for on-site, and 1" = 200' for off-site. Scale may be reduced to 1" = 200' onsite and 1" = 400' for larger watersheds
<input type="checkbox"/>	Display existing and proposed storm drains and inlets with different line type designations. Describe in legend or label existing improvements
<input type="checkbox"/>	Label sub-areas for alley, street, and off-site areas. Display flow arrows within each sub-area
<input type="checkbox"/>	Label design points of flow concentration for cumulative areas on Drainage Plan and list the design point on the Drainage Calculations Table
<input type="checkbox"/>	Include peak runoff rate at all inlets, dead-end streets, and alleys. Include adjacent acreage flows crossing the property.
<input type="checkbox"/>	Label peak discharges accumulated in the storm sewer system at each analysis point
<input type="checkbox"/>	Include runoff calculations for all areas showing acreage, runoff coefficient, and inlet time. (Q = CIA Table or FORM A). List the "C Value Adjustment factors used in the calculations
<input type="checkbox"/>	Label all crests, sags, street, and alley intersections with flow arrows
<input type="checkbox"/>	Provide open channel calculation table and formula used, provide Manning's "N" values
<input type="checkbox"/>	Label limits of 100-year fully developed flood plain and floodway. List Flood Insurance Rate Map (FIRM) panel reference number and date, and/or Letter of Map Revision (LOMR) Case Number and effective date
<input type="checkbox"/>	Label the 100-year flood elevations from FIRM
<input type="checkbox"/>	Include how the flood plain limits were transferred from FIRM panel, (i.e. either by scaling distances or by interpretation of elevations onto the site topography)
<input type="checkbox"/>	Provide inlet capacity formulas and inlet design computation table
Required for Storm Sewers (if needed):	
<input type="checkbox"/>	Display stationed plan and profile of all storm sewers (1" = 40' or larger horizontal and 1" = 4' or larger vertical scales)
<input type="checkbox"/>	Specify diameter, size, slope, and type of material for all pipes
<input type="checkbox"/>	Include culvert-design calculations and tail water condition
<input type="checkbox"/>	Include a detail for all headwalls and flumes at storm sewer outfalls
<input type="checkbox"/>	List the riprap rock size, specifications, and underlying blanket thickness. Including riprap: hydraulic data, sizing calculations, and dimensions
<input type="checkbox"/>	Provide calculations and construction details for energy dissipaters
<input type="checkbox"/>	Provide compaction, testing specifications, and frequency where fill is proposed for open cut trenches in creeks or outfall ditches
<input type="checkbox"/>	Display easements for downstream properties

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Required for Storm Sewer Plan and Profile:	
<input type="checkbox"/>	Display property lines, lot lines, and easements with dimensions along storm sewers
<input type="checkbox"/>	Provide separate plan and profile of storm sewers
<input type="checkbox"/>	Label pipe sizes, curb inlets, manholes, junction boxes, etc. in plan and profile
<input type="checkbox"/>	List hydraulics on each segment of pipe profile to include: Q_{100} , C = Manning full flow capacity; S , V , $V^2/2g$. Plot and label HGL elevations and friction slope whenever full flow in the pipe system is anticipated
<input type="checkbox"/>	Display curve data for all storm sewer system
<input type="checkbox"/>	Show all existing utilities in plan view
<input type="checkbox"/>	Display sanitary sewer profiles for lines 12 inches in diameter or greater
<input type="checkbox"/>	Display existing and proposed ground line on all street, alley, and storm sewer profiles
<input type="checkbox"/>	Show future streets, grades, drainage system layout, and connection points
<input type="checkbox"/>	Display flow line invert elevations of storm sewers on profile view at 100-foot stations, pipe slope (percent grade), manhole and junction box connections
<input type="checkbox"/>	Display dimensioned details of all non-standard junction boxes, headwalls, storm sewers, flumes, and manholes
<input type="checkbox"/>	Label water surface elevation at storm drain outfall in profile
<input type="checkbox"/>	Display "daylight" drainage outfall flowline points of connection to existing grade
<input type="checkbox"/>	Display minimum finished floor elevations at sags in pavement
<input type="checkbox"/>	Provide cross sections for design water surface, road, railroad, and ditches with profiles and hydraulic computations

Required for Barrow Ditch Design:	
<input type="checkbox"/>	Show barrow ditches in all plan and profile sheets for new roadways with the 100-year HGL in the profile for each ditch (profiles shall be split left and right ditch, top and bottom), the existing grade at the center of each ditch, the proposed pavement centerline, proposed ditch flow-line, roadway centerline stationing, and elevation information at 100' station intervals.
<input type="checkbox"/>	Provide a driveway culvert table indicating culvert sizing for each proposed lot.

Required for Laterals, Inlets at Intakes (if needed):	
<input type="checkbox"/>	Display laterals on trunk profile with stations
<input type="checkbox"/>	Include lateral profiles if longer than 25 feet and when crossing utilities
<input type="checkbox"/>	Include the hydraulic grade line and calculations for laterals and inlets on profile
<input type="checkbox"/>	Display runoff and direction of flow concentrating at all inlets and direction of flow
<input type="checkbox"/>	Show runoff for all stub outs, pipes and intakes
<input type="checkbox"/>	Display size of inlet, lateral size, top-of-curb elevations, station, and inlet designation number

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Required for Detention or Retention Pond:	
<input type="checkbox"/>	Include drainage area map and show all computations for runoff affecting the detention basin
<input type="checkbox"/>	Display existing and proposed contours for the detention basin and for structural measures
<input type="checkbox"/>	Include embankment section for water storage impoundment and compaction specifications with profile of the controlling outflow structure
<input type="checkbox"/>	Include structural details and calculations for detention items
<input type="checkbox"/>	Include detention basin volume calculations for the 2, 5, 10, 25, 50, and 100 year storm events
<input type="checkbox"/>	Include detention elevation versus storage curve
<input type="checkbox"/>	Include hydraulic calculations for outflow structure
<input type="checkbox"/>	Include elevation versus discharge curve for outflow structure
<input type="checkbox"/>	Include routings or modified rational determination of storage requirements, demonstrating that critical duration is used
<input type="checkbox"/>	Provide tables with the calculations for each storm event for all proposed detention and retention ponds
<input type="checkbox"/>	Display fencing if proposed around detention area
Required for Bridges:	
<input type="checkbox"/>	Display geotechnical soil boring information on plans
<input type="checkbox"/>	Display upstream and downstream stream channel sections
<input type="checkbox"/>	Display hydraulic calculations on all channel sections
<input type="checkbox"/>	Display structural details and calculations with dead load deflection diagram
<input type="checkbox"/>	Display skew angle, vertical and horizontal centerline alignment
<input type="checkbox"/>	Include bridge scour analysis
<input type="checkbox"/>	Display the location of all environmentally sensitive areas (ESAs)
<input type="checkbox"/>	Include vertical bench mark description
Required for Grading Plan:	
<input type="checkbox"/>	Include grading plan that shows proposed contours and spot elevations that address lot to lot drainage. Delineate the proposed limits of land disturbing activities
<input type="checkbox"/>	Include cross section of typical swale, berm, channel, etc. as a component of grading plan
<input type="checkbox"/>	Where reclamation of the 100-year floodplain is involved, provide a note on grading plan that states: Upon completion of public improvements, submission of all documents necessary to obtain a Letter of Map Revision (LOMR) from FEMA shall be submitted to Denton County. The LOMR will then be reviewed and sent to FEMA prior to acceptance of the subdivision. The LOMR is necessary to remove any lot within the floodplain from the Flood Insurance Rate Map. All changes or additional data, as requested by FEMA upon its review of the LOMR, are the responsibility of the owner and/or developer

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Required for Channels:	
<input type="checkbox"/>	Include typical section for channel improvements with additional typical section where the channel changes its dimensions or configuration
<input type="checkbox"/>	Include plan and profile showing existing contours and proposed centerline, top-of-bank, flow line elevations, stationing and 100-year water surface elevation
<input type="checkbox"/>	Include hydraulic calculations for all channel sections
<input type="checkbox"/>	Provide structural details for channel typical sections that display lining treatment such as: seeding, sodding, concrete, gabions, paving material, etc.
Required for Erosion Control Plan:	
<input type="checkbox"/>	Display the limits of clearing, grubbing and land disturbing areas.
<input type="checkbox"/>	Display the limits of existing critical area boundaries and related setbacks, such as floodplains and waterways, septic tanks and drain fields, other underground tanks, water wells and corresponding wellhead protection areas
<input type="checkbox"/>	Display locations and details of temporary erosion / sediment control devices and best management practices (BMPs) for all phases of development
<input type="checkbox"/>	Display natural drainage features for both existing and proposed conditions
<input type="checkbox"/>	Display locations of construction exit(s), stockpiles and concrete washout
<input type="checkbox"/>	Display permanent stabilization detail
<input type="checkbox"/>	Display location and details of temporary sediment basin(s), required if disturbed drainage area is 10 acres or greater. Provide sediment basin drainage calculations, de-watering times, basin dimensions, and an outlet/dewatering structure compliant with iSWM Technical Manual Standards
<input type="checkbox"/>	Include General erosion control notes per the Stormwater Design Criteria Manual