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CARROLL COUNTY DEPARTMENT OF PUBLIC WORKS  
BUREAU OF ENGINEERING – ENGINEERING REVIEW DIVISION

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**PRELIMINARY PLAN CHECKLIST – ROADS AND STORM DRAINS**

Project Name: \_\_\_\_\_ County File No.: \_\_\_\_\_

Checked by: \_\_\_\_\_ For: \_\_\_\_\_ Date: \_\_\_\_\_  
Print name Firm or agency

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**PART I ROADS**

**A. General**

- Fronting road or primary access road: name, paving and right of way width, posted speed, and functional classification
- Other roads intersecting tract boundary
- Existing pavement type and width, curbs, poles, fences, buildings, driveways, trees, walks, etc, shown with correct symbol and labeled
- Existing utility poles/ pedestals/ cabinets (with numbers), gas mains, water and sewer mains, electric, television or other underground cables
- Type, size and invert elevations of cross-culverts and storm drains,
- Show and label end walls, end sections and other end treatment on drainage culverts
- Ditches, streams and tributaries (with names or numbers if available)
- Existing features carried 30' beyond centerline of existing road on opposite side from proposed development and either 200' minimum beyond frontage limits of site OR as necessary to show entire sight distance requirement, whichever is greater.
- Trip generation data. Indicate estimated number of morning and evening Peak Hour Trips (PHT), and Average Daily Trips (ADT)
- Traffic Impact Study requirements checked, study provided if required

**B. Typical Sections**

- For each proposed road and improvements to existing roads
- Show and label subgrade drains (open section roads only)
- Do not show dimensions for paving course thickness, add the following note:  
***Paving course thicknesses shall be designed in accordance with the Design Guide for Flexible Pavement of the Carroll County Department of Public Works***
- When pedestrian facilities are required by Planning Office or Bureau of Development Review, facilities must be shown with type and width labeled
- Design speed indicated
- PGL (Profile Grade Line) labeled

**B. Plan View**

- Lot and road layout, scale 1"=100' or larger
- Approved road names
- Right of way lines for new roads and areas of dedication, width indicated
- Right of way truncations at road intersections

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- Each road and driveway assigned independent stationing (0+00 not repeated)
- Existing road stationing shown and continued
- Intersection spacing and sight distance meet or exceed minimum requirements
- Paving edge lines shown, single lines if open section, double lines if closed section
  
- Centerline shown, 100' stations indicated by ticks and labeled, 50' stations indicated by ticks
- Grass shoulder width shown and labeled.
- "SWM Wide Shoulder Technique" labeled where used
- Radius of horizontal curves shown
- Storm drains, ditches, swales shown with proper symbol and labeled
  
- Subgrade drain outfalls
- Improvements to existing county roads with limits of work shown and labeled
- Temporary traffic control plan
- Traffic impact mitigation measures shown
- Sight distance at each road or driveway intersection with existing county road
  
- Sight distance, show and label work necessary to achieve minimum requirements
- Permanent cul-de-sacs shown and labeled with centerpoint station and radius given
- Temporary and perpetual easements shown and labeled
- Guard rails / barricades shown and identified
- Temporary cul-de-sacs / turnarounds (with easements) shown and labeled
  
- Sidewalks, ramps, cross-walks and other pedestrian facilities shown and labeled
- Road(s) which will be extended into adjacent properties constructed to tract boundary. Future extension into adjacent property shown and labeled "Future Extension By Others"

C Profiles

- Profile scale shall be either 1"= 100'H/ 10'V or 1"=50'H/ 5'V
- Show 1" background grid, label stations and elevations
- Profile of existing road throughout frontage of site, extend 200' minimum beyond site boundaries, or as necessary to include entire required sight distance, whichever is greater
- Profile of each proposed road, name indicated
- Profile of each proposed Use-In-Common driveway, name indicated
  
- Profiles of existing roads being extended into proposed development
- Profiles oriented left-to-right or right-to-left similar to plan view
- Existing ground line or paving grade shown and labeled, date of survey given
- Existing elevations: shown at 100 foot stations (min.), left side of station line
- Existing or preference road shown for 30' minimum on opposite side of intersecting road.

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- [ ] Profile Grade Line (PGL) indicated in percentage, to 2 decimal places (hundredths)
- [ ] PGL: in conformance to landing grade criteria / both roads
- [ ] PGL: in conformance to minimum and maximum gradient restrictions
- [ ] PGL: Road(s) which will be extended into adjacent properties, show PGL 400' (minimum) beyond tract boundary, or farther if required by DPW
- [ ] PGL: elevations shown at 100 foot (min.) stations on tangent grades, 50 feet (min.) stations in vertical curves, right side of station line
- [ ] PGL: PVI shown with grades indicated
- [ ] PGL: Intersecting roads, U.I.C. driveways, tract boundaries, cul-de-sacs, temporary turnarounds shown, labeled, elevation given
- [ ] PGL: tie-in to existing grade at limits of work shown to scale
  
- [ ] Vertical Curves (VC) meet sight distance and minimum length requirements
- [ ] VC: properly drawn
- [ ] VC: control points shown, labeled, elevation given
- [ ] VC: crest / sump station and elevation shown
- [ ] VC: Data Block shown: VC Length, PVI station, PVI elevation, k values (design & min.)
- [ ] VC: asymmetrical vertical curves and spline curves must be pre-approved by DPW

#### D Cross-Sections

Cross-sections are not generally required as part of preliminary plan information, but shall be provided on a case-by-case basis as requested by DPW. If requested, information shown shall be as required for final plans, refer to “Final Plan” checklist

## **PART II STORM DRAINS**

### A. Plan View

Storm drainage facilities shall generally be shown with roads on the overall Preliminary Plan. When a Grading Plan is required to be provided as part of preliminary plans, drainage facilities shall also be shown on the Grading Plan in addition to being shown on the Preliminary Plan.

- [ ] Show and label all existing structural drainage facilities (type, size, invert elevations), swales, ditches, creeks, and streams. Show flow arrows, all drainage facilities
- [ ] Show and label proposed inlets, manholes, connecting pipes, cross-culverts, end sections, end walls, swales, and ditches. Show flow arrows, all drainage facilities
- [ ] Permanent diversions shown with proper symbol and labeled
- [ ] Proposed storm drain pipes (indicated 24”D) with flow arrows. Note: use of any pipe shape other than circular requires written request to DPW. Request will be reviewed and either approved or denied by DPW
- [ ] Proposed drainage facilities labeled as follows: Inlets: I-1, I-2 etc, manholes: M-1, M-2 etc, structural end walls: E-1, E-2 etc, prefabricated end sections: ES-1, ES-2 etc  
Use ½” diameter circle for all labeling

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- Inlets placed on upgrade side of all intersections (closed section roads only)
- Flow arrows shown on all drainage facilities, existing and proposed
- Outfall protection at all storm drain discharge points
- Post development 25 year headwater elevation and configuration
- Permanent drainage easement for post development 25 year headwater elevation
- Proper horizontal and vertical clearance from other utilities, existing and proposed
- Provision for drainage at limits of construction

**B. Profiles**

Profiles of closed storm drain systems (except cross-culverts) are generally not required at preliminary plan stage. The Department of Public Works reserves the right to require profiles on a case by case basis as it determines necessary.

Profiles shall be provided for all cross-culverts. Cross-culverts are typically single or double barrel conduits which convey surface runoff from one side of a road or driveway to the other. Cross-culverts also include conduits which convey flow in a roadside ditch beneath an intersecting road or driveway. Other than end walls or end sections, cross-culverts generally do not involve structures.

- Scale: 1"=50' H, 1"= 5' V. Use standard profile bracket, label elevations 5' intervals
- Existing grade line shown from 25 year water elevation (high side) to natural swale or ditch (low side) but not less than 100' in each direction from intake/ discharge points
- Existing grade properly labeled : Existing grade (if no natural swale), Existing indicating existing swale, ditch, stream
- Finished grade in accordance with proposed typical section
  
- Label road name and centerline station
- Show and label proposed culvert(s). Show size, type, invert elevations, slope, Q 25 (in cfs), actual velocity (in fps), outfall stabilization
- Show and label post development 25 year water elevation
- Show and label proposed outfall channel if not discharging directly into an existing ditch

**C. Drainage Area Map**

Drainage area map shall not be used for purposes other than depicting drainage areas for design of storm drains

- Minimum scale 1" = 100', contour interval 2'
- Soil types, soil groups (A, B, C and D designations), based on SCS Soil Survey maps.
- Existing topography with contours, 2' intervals
- Existing physical features such as woods, fields, meadows, paving, etc shown and identified
- Lot arrangement with numbers
- Proposed roads shown with names and centerline stations
- Entire drainage area shown to scale
- Hundred (100) year flood plain, stream buffers, wetlands and buffers
- Drainage area to each facility identified by letter in 1/2" hexagon
- Runoff tabulations chart, including structure number, drainage area designation, C, i, A, Q