Prince George's County
Department of Permitting, Inspections
and Enforcement
SITE/ROAD PLAN REVIEW DIVISION
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Design Review Checklist
Street Grade Establishment Plan

This Checklist is a guide for the consultant in the preparation and for the County's review of the Street Grade Establishment Plan. Questions regarding items contained herein should be referred to the DPIE Site Road Plan Review Division for clarification. Included for reference are the applicable page numbers or sections in the PGDPW&T Specifications & Standards for Roadways and Bridges, County Code, AASHTO Policy on Geometric Design of Highways and Streets, and other design criteria, regulations and guidance.

NOTE: PLANS SUBMITTED WITHOUT A COMPLETED CHECKLIST WILL BE RETURNED WITHOUT REVIEW

Site/Project Name: _____ Date: _____

Consultant: _____ Applicant: _____

Phone Number: _____ Phone Number: _____

Email Address: _____ Email Address: _____

Street Grade Case No:_____ Street Grade Establishment File _____

Consultant: Please complete the checklist below by indicating the following:
C or ✓ = Complete or checked; X = Not Applicable; O = Outstanding, need to address
Please place the appropriate symbol in the CONSULT column.

Item #	Design Checklist Item	Reference	CONSULT	DPIE
A	**STREET GRADE ESTABLISHMENT PLAN GENERAL DESIGN CONSIDERATIONS:**			
A-1	Review intersections and cul-de-sac bulbs very carefully to ensure positive drainage. Label flow arrows with % slope. Most importantly, label the % slope at the intersections in the direction the water actually will flow around the warped fillets. Reflect the actual flow line (which should be at least 1.5% for an urban section and 2.0% for a rural section roadway). Also label slopes at the bulbous ends of the cul-de-sacs. This information is required whether you include a cul-de-sac profile and fillet profile or not. It is preferable to eliminate potential " bird baths" in design, rather than removing pavement and curb in the construction phase			

Item #	Design Checklist Item	Reference	CONSULT	DPIE
A-2	Maximum 4% landing grades at intersections provided			
A-3	Provide site distance analysis for proposed entrance(s). This can be superimposed on a Street Grade Plan for review purposes only; however, compliance with the relevant AASHTO criteria is necessary			
A-4	Ensure Street Grade Plans comply with minimum K value accordance with Table I-2 in Standards and Specifications Roadways and Bridges. (See table at end of checklist)	DPW&T Std & Specs.		
B	**GENERAL INFORMATION**			
B-1	Preliminary Plan – compare for compliance			
B-2	Record Plat – compare for compliance			
B-3	Street Grade Establishment Plan			
C	**PLAN VIEW INFORMATION**			
C-1	Title Block Subdivision Name (from Record Plat) Street Name (large and bold) Stationing Election District Date			
C-2	Engineer's Certificate (signed, sealed and dated) shall contain a note stating "I hereby certify that": The information shown herein has been compiled from field surveys conducted by (name source of survey and date). There is no existing paving, water or sewer in this right-of-way (R/W), unless as shown herein. No portion of this R/W lies within, connects with or crosses an existing State road.	32.182		
C-3	Add the following note to each sheet: "SUBJECT TO SUBDIVISION PLAT BEING RECORDED AS SHOWN AND ACQUISITION OF ANY NECESSARY SLOPE EASEMENTS AND RIGHT-OF-WAY"			
C-4	Show North arrow and horizontal and vertical datum. Use NAD (North American Datum) 1983 for horizontal datum and NGVD (National Geodetic Vertical Datum) 1929 for vertical datum			
C-5	3 grid tics with coordinates with horizontal and vertical set in an "L" pattern			
C-6	R/W centerline shown			
C-7	R/W lines shown	MNCPPC		
C-8	R/W widths shown	32.182		
C-9	Ditch lines (when applicable) shown			
C-10	Centerline stationing shown			
C-11	Intersection stationing and R/W width of intersecting street and DPW&T File number as approved by M-NCPPC shown			
C-12	Street Names shown			
C-13	Lot Lines shown			
C-14	Lot and Block numbers shown			
C-15	Existing R/W, easements, paving, utilities shown			
C-16	Adjacent property names or subdivision references, plat book and page, liber and folio shown			

Item #	Design Checklist Item	Reference	CONSULT	DPIE
C-17	Show match line with stationing (as necessary)			
C-18	Label horizontal curves and fillets			
C-19	Label PC, PT For cul-de-sac in plan view with appropriate stationing to relate to cul-de-sac profile			
C-20	Provide curve table with the following information: Start and end stationing of curve Change in direction of two tangents, or I or Delta Tangent value (T) Radius value (R) Length of Arc (L) Chord Length (LC)			
C-21	Street name in lower right corner of sheet			
C-22	Transition from 60-foot (R/W) to 50-foot R/W should occur through an intersection where possible			
C-23	Label high and low points (with flow arrows)			
C-24	Label street slope % on street with flow arrows so that every percent grade is represented in plain view			
C-25	Reflect correct Minimum Turning Radius (50' for urban arterial, 45' for urban collectors of all types, 50' for urban commercial and industrial, 37' for urban primary and urban secondary, 50' for rural arterial, rural and/or scenic and historic collectors of all types, 43' for rural primaries, and 44' for rural secondary) on plans			
C-26	Provide cul-de-sac profiles that show the following minimum information: Approach grades & TC's match street grade at PC & PT; Cul-de-sac profile number matches plan view; Highpoint or low point TC's provided; Smooth curve throughout; Datum elevation provided; Street name provided; Property line intersection stationing with related TC or flow line elevation; PC, PT and PRC stationing with related TC or flow line elevation; High-point, low-point or mid-point station with related TC or flow line elevation; and Percent slope specified on profile line			
C-27	Design consultant may elect to provide the following alternate to cul-de-sac profiles, using the following method: In plan view, provide elevation at fillet point, along with station and offset; and In plan view, provide high or low point, along with the station and offset;			
C-27	In plan view, provide a minimum of 4 elevation points along cul-de-sac bulb (in addition to the fillet points) with station and offset information; and In plan view, provide flow arrows WITH PERCENTAGES SPECIFIED along flow line			

Item #	Design Checklist Item	Reference	CONSULT	DPIE
C-28	Provide fillet profiles that show the following minimum information: Approach grades and TC's match street grade at PC and PT; Fillet profile number matches plan view; Datum elevation provided; Start and end stationing with related TC or flow line elevation; High point, low point or midpoint station with related TC or flow line elevation; Percent slope specified on profile line; Smooth curve throughout; and Street name provided at PC and PT			
C-29	Design consultant may elect to provide the following alternate to fillet profiles, using the following method: In plan view, provide elevation at fillet point, along with station and offset; In plan view, provide elevation of mid-point along fillet or high or low point, along with station and offset; In plan view, provide spot elevation at centerline intersection; and In plan view, provide flow arrows WITH SLOPE PERCENTAGES SPECIFIED along flow line			
C-30	Label flow arrows with Percentage Slope. MOST IMPORTANTLY, label the percentage slope at the intersections in the direction the water actually will flow around the warped fillets. The idea is to calculate the flattest slope at each quadrant of the intersection and reflect that on the plan			
C-31	Grade of the street parallel to the flow shall not be less than 2% at intersections to allow for pavement irregularities and to have the actual flow line grade not less than 1% when allowance has been made for the lowering of the gutter lip at the spill-out area of the return			
C-32	Show limits of 100-year flood plain			
C-33	For significant impacts to existing water and sewer facilities (i.e., street grade over any existing public water and/or sewer), provide WSSC approval (eg.. Utilities within R/W)			
C-34	SHA approval necessary when connecting to a State road. Coordinate with SHA district engineer at 301-513-7499			
C-35	Where applicable, provide approval by City of Bowie, PEPCO, BGE, SMECO and/or M-NCPPC			
D	**PROFILE VIEW INFORMATION**			
D-1	Existing topography (centerline, left & right property line, extended left & right spots to 25' outside of the R/W) extend topography 300' past end of approval limit, 200' for cul-de sacs (from center)			

Item #	Design Checklist Item	Reference	CONSULT	DPIE
D-2	Legend			
D-3	Scale (Elevations labeled on vertical axis and stationing on horizontal axis.horizontal & vertical)			
D-4	Elevations labeled on vertical axis and stationing on horizontal axis.			
D-5	Proposed centerline grades (bold line) or top of curb where applicable			
D-6	100′ stationing and 25′ tics			
D-7	Elevations every 25′ for vertical curves			
D-8	Elevations every 50′ for tangent sections			
D-9	Elevations every 50′ for tangent sections			
D-10	PVT stations labeled with elevations			
D-11	PVI stations labeled with elevations and POC elevations			
D-12	PVRC stations and elevations			
D-13	When possible, PVC and PVT stations should fall on 25′ tics and vertical curve lengths should be multiple of 50′			
D-14	Grade break stations labeled with elevation. NOTE: Maximum algebraic difference allowed is 6%. No grade breaks allowed beyond roadway intersections			
D-15	Flowline stations labeled with elevations			
D-16	High point and low point elevations and stations			
D-17	Intersecting elevations and stations			
D-18	Boundary line elevations and stations			
D-19	Tangent grade lines with slope percentage specified			
D-20	All streets maximum of 10% slope and no less than 1% anywhere and 2% minimum for rural-section roadways			
D-21	Maximum 4% slope out of intersection (i.e. landing grade). When intersection flowlines are less than 1.5%, a 2% slope out of the intersection is required			
D-22	Crowning the cul-de-sac in the bulbous area is not required if it can be shown that positive drainage will occur across this area; this is usually appropriate on severe slopes into a cul-de-sac and applicable on downgrade scenarios only			
D-23	It is recommended that Cul-de-sacs not have a vertical curve beyond fillet point at entrance to cul-de-sac's bulbous end			
D-24	Cul-de-sacs shall not have a vertical grade in excess of 6% beyond fillet point at entrance to cul-de-sac's bulbous end			
D-25	Vertical curve lengths and "e" value			
D-26	Existing utilities shown in plan and profile			

Item #	Design Checklist Item	Reference	CONSULT	DPIE
D-27	No tangents less than 50′ allowed between vertical curves for industrial classification and higher classification roadways; recommended for primary roadways			
D-28	For landing pad, provide 100′ tangent to gutter line of intersecting street if on downhill slope to the intersection (Note: There is some flexibility in this rule if it can be shown that no portion of vertical curve exceeds the landing grade maximum within this 100′)			
D-29	For landing pad, provide 50′ of tangent length to gutter line of intersecting street of on uphill slope to the intersection (Note: There is some flexibility in this rule if it can be shown that no portion of vertical curve exceeds the landing grade maximum within this 50″)			
D-30	CLEARLY LABEL REQUESTED LIMITS OF APPROVAL Provide station limits and refer to revision number and date			
D-31	Clearly label previously approved limits and show the date			
D-32	Label design speed limit			
D-33	Show K-factor and do not exceed minimum K-value for sight distance			
D-34	For drainage purposes, at the high and low points it is recommended that the K-value not exceed 50% of the minimum required K-value for flat (i.e. less than 2%) roadways. It is recommended that the K-value not exceed twice the minimum K-value for all other roadways for high or low points			

TABLE I-2: DESIGN CRITERIA

Adapted from AASHTO, *A Policy on Geometric Design of Highways and Streets 2011*
Sources: Prince George's County Department of Public Works and Transportation and American Association of State Highway and Transportation Officials (AASHTO)

Road Classification	Design Speed (MPH)	Min. C/L Radius (ft.)	Max C/L Grade (%)	Min. C/L Grade (%)	Min Stopping Sight Distance (ft.)	Min. "K" *Value* Sag	Min. "K" Value Crest	Min. Inter-section Sight Distance (ft.)**	Min. Turning Radius (ft.)	R/W (ft.)
Urban Arterial Road	50	1200	6	1	425	100	90	555	50	120/130
Urban Major Collector Road	40	700	8	1	305	70	50	445	45	100
Urban 4-Lane Collector Road	40	700	8	1	305	70	50	445	45	80
Urban 5-Lane Collector Road	40	700	8	1	305	70	50	445	45	80/90
Urban Commercial and Industrial Road	35	500	10	1	250	50	30	390	50	70
Urban Primary Residential Road	35	500	10	1	250	50	30	390	37	60/70
Urban Secondary Residential Road	30	300	10	1	200	40	20	335	37	50
Rural 4-Lane Arterial Road*	50	1200	6	2	425	100	90	555	50	130
Rural 2-Lane Collector Road*	40	700	8	2	305	70	50	445	50	80
Rural Primary Residential Road*	35	500	10	2	250	50	30	390	45	60
Rural Secondary Residential Road*	30	300	10	2	200	40	20	335	45	60
Rural Private Residential Road*	30	300	10	2	200	40	30	335	40	50
Scenic and Historic-Rural 4-Lane Collector Road	40	700	8	2	305	70	50	445	50	120

Note: Posted speed limits on County-maintained roads may be equal to or less than design speed (MPH). * Also applicable to Scenic and Historic roads
Note: **This column represents sight distance requirements for two-lane undivided roadways. Refer to AASHTO to calculate sight distance for roadways with other characteristics.

Rate of vertical curvature: K = L/A
L = Length of vertical curve
A = Algebraic difference in grades (%)
Minimum 100' vertical curve