



PRINCE WILLIAM
COUNTY

Proposed Changes to Design and Construction Standards Manual Section 700

September 2019

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Environmental Services**

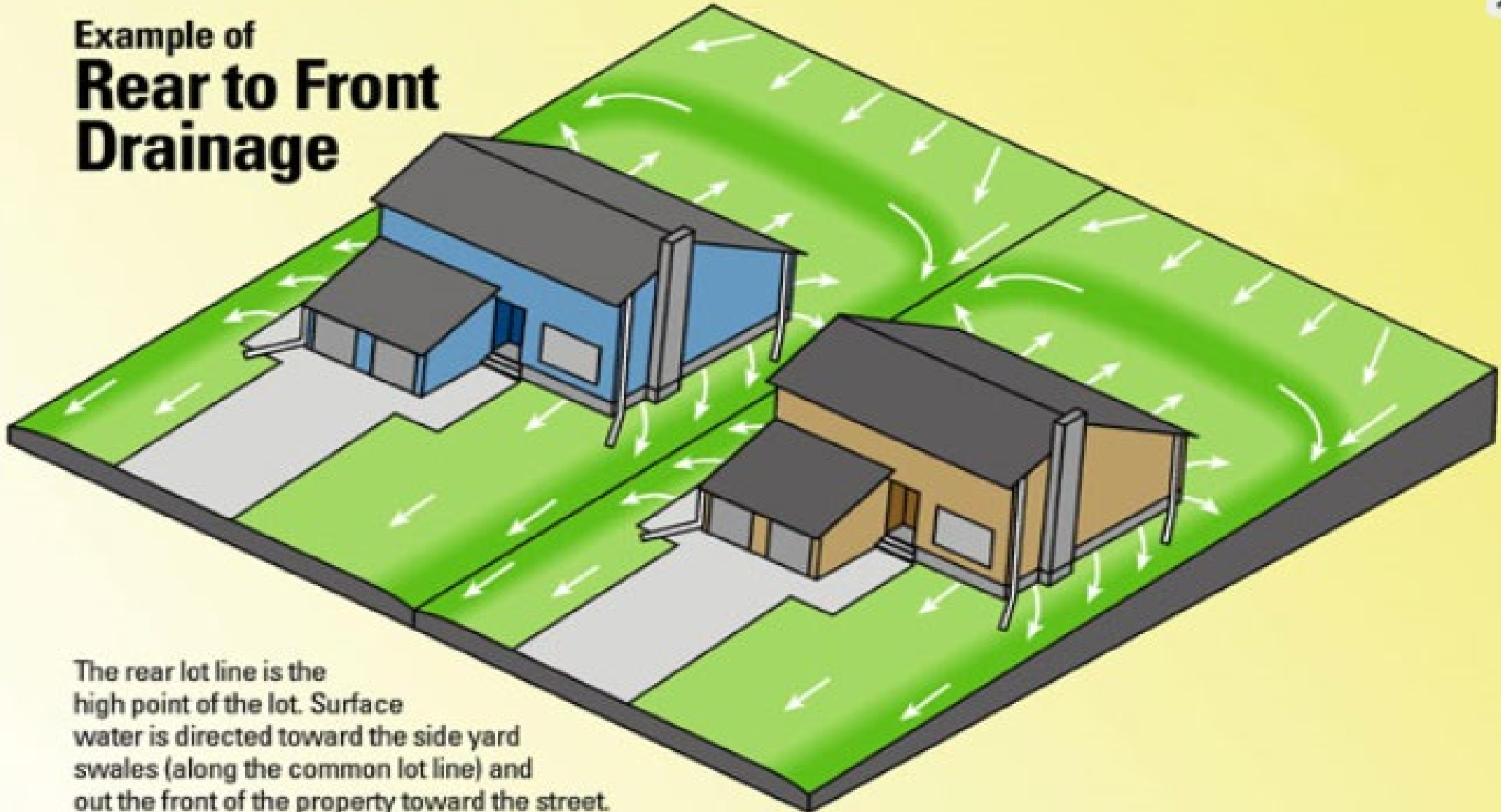
Problems encountered by staff through resident complaints:

- 1) Runoff from large drainage areas flowing through single family lots
- 2) Swales (less defined ditches) located too close to homes and home openings (window wells/basement areaways) causing yard and basement flooding
- 3) Inadequate overland relief points to safely and adequately pass stormwater flows

- 5) Approved lot grading plans adversely altered because of builder changes to finished floor/footing elevation as well as other deviations from approved plans
- 6) Swales provided with less than 2 percent slope or nearly flat longitudinal slopes (water does not flow)
- 7) Inadequate positive drainage away from the foundation and nearby home openings

Drainage Issues/Concerns

Example of Rear to Front Drainage



The rear lot line is the high point of the lot. Surface water is directed toward the side yard swales (along the common lot line) and out the front of the property toward the street.

Drainage Issues/Concerns

Example of **Split Drainage** to rear yard swale

The highest elevation is set near the approximate midpoint on the property. Surface drainage on property is drained to the street and back to the rear lot line to a collection point such as a catch basin.



Drainage Issues/Concerns



Example of a swale

These issues have resulted in staff proposing minor modifications to the DCSM in response to BOCS initiated amendments to Section 700 on June 25, 2019, as well as many meetings held with industry...

- Restricting maximum overland flow to 2 cfs (cubic feet per second) within residential lot sizes ½ ac. or less
- Establishing a minimum setback for a swale from a dwelling to be located at least 15 feet from rear of dwelling and 10 feet from side of dwelling

- For overland relief, staff has proposed a minimum twelve (12) inch vertical separation between the overland relief point and the lowest opening in a dwelling, such as landings at the top of basement areaways (walkup basements), door sills (thresholds) of an entry door into the walkout basements, exterior window sills located above grade, and top of window wells
- A completed and signed “Builders Lot Grading Inspection Readiness Checklist” provided to the County’s inspector prior to issuance of a Certificate of Occupancy

Drainage Issues/Concerns



Lack of defined swale directly behind house – note proximity to walk up basement entry

Drainage Issues/Concerns



Lack of defined swale

Drainage Issues/Concerns



Lack of defined swale causing yard flooding

Drainage Issues/Concerns



Patio about 15 feet from house

Drainage Issues/Concerns



| 13 |

Deck about 18 to 20 feet from house

Drainage Issues/Concerns



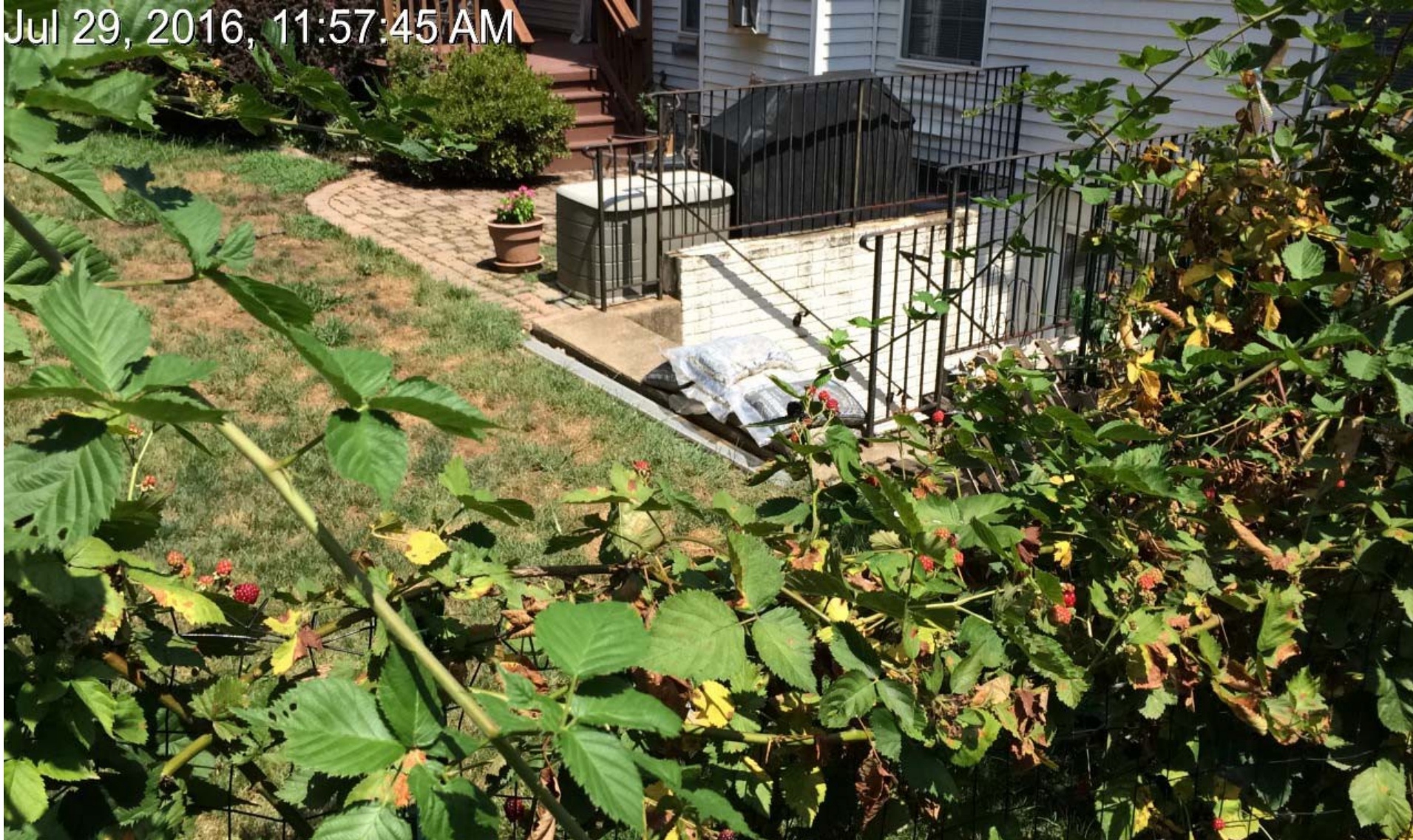
Water directed toward entryway due to lack of defined swale

Drainage Issues/Concerns

<u>Required lot size</u>	<u>Location of centerline of the swale from the structure in feet</u>			
	<u>Proposed</u>		<u>Staff Recommendation</u>	
	Rear	Side	Rear	Side
1/2 ac. or less	12*	10*	15*	10*
More than 1/2 ac. but less than 1 ac.	12*	10*	30*	15*
1 ac. or more	12*	10*	30*	20*
	*Centerline of the swale located at the property line if the property line is less than the required distance			

Drainage Issues/Concerns

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| 16 |

Flooding in basement at basement entrance – note sand bags

Drainage Issues/Concerns

Lack of overland relief – basement flooded



Lack of overland relief led to basement flood

Drainage Issues/Concerns



Flooded rear yard, A/C units, basement

Drainage Issues/Concerns



| 19 |

Drop inlet handling large flows close to basement entrance

Drainage Issues/Concerns



Flooded basement

- Builders Lot Grading Inspection Readiness Checklist



Builders checklist

Drainage Issues/Concerns

- If for some reason can not meet these requirements, individual lot waivers are always an option
- Recommend approval of staff recommended setbacks
- Questions or concerns?