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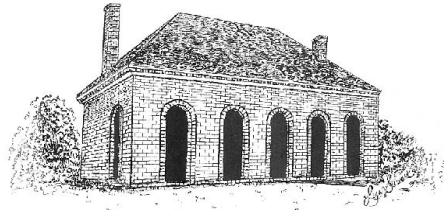
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DEPARTMENT OF PUBLIC WORKS

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TODD E. KILDUFF
DEPUTY COUNTY ADMINISTRATOR

April 20, 2022

Bowman Consulting
ATTN: Jonathan Jackson, P.E.
3951 Westerre Parkway
Suite 150
Richmond, Virginia 23233

RE: *Caldwell Park North – Section 1*
Public Works Construction Plan Review Comments – Review #5
Erosion and Sediment Control #5592
CON2020-00012
PWLDR2020-00020

NOTE: NO LAND DISTURBANCE MAY BEGIN UNTIL YOU HAVE OBTAINED A LAND DISTURBANCE PERMIT FROM THE DEPARTMENT OF PUBLIC WORKS.

Dear Mr. Jackson,

The Department of Public Works has reviewed the above captioned construction plan submission and would like to offer the following comments; Please note, these comments have been submitted based on the requirements of the following Virginia State Laws and Hanover County Codes: Title 62.1, Chapter 3.1, Article 2.3 - Stormwater Management Act, Virginia Stormwater Management Program (VSMP) Regulations (9VAC25-870), Chapter 10, Article I, Erosion and Sediment Control, Code of Hanover; Chapter 10, Article II, Chesapeake Bay Preservation, Code of Hanover; Chapter 12, Floodplain and Drainage Control, Code Of Hanover; and the Hanover County Drainage Design Handbook (February 12, 2014):

General

1. The ESC inspection fee is based on the amount of land disturbance associated with this plan (33.14 acres). Please note that the Erosion and Sediment Control (ESC) fee for this project must be paid prior to issuance of the land disturbance permit. This fee has been calculated to be \$25,993.68. This fee is based on the current fee rate of \$5,712 minimum base fee, plus \$612 per acre. Any change in the proposed acreage of land disturbance will affect the aforementioned fee. There is no action necessary to satisfy this comment prior to plan approval.
2. An Erosion & Sediment Control (ESC) and Virginia Pollutant Discharge Elimination System (VPDES) Bond will be required prior to issuance of the land disturbance permit. The bond amount is determined based on the amount of ESC measures and the stormwater BMP construction costs required for the project. The bond may be in the form of cash, irrevocable letter of credit, or surety and must be on the County format. The bond will be held by this department until the site work is complete and there is a minimum 85% established healthy vegetation over all non-hardened or denuded surfaces. There is no action necessary to satisfy this comment prior to plan approval. Please be aware an amendment was recently passed by the Hanover County Board of Supervisors for Ordinance No 19-05.10-9 pertaining to Erosion and Sediment Control Bonds. This amendment requires a cash bond or letter of credit for the first 20,000 dollars. The remaining amount required can be cash, letter of credit or surety. There is no action necessary to satisfy this comment prior to plan approval.

3. A General VPDES Permit Registration Statement was provided, but it is incomplete. Hanover is the authority for issuance of these permits. Please note that inaccurate information on this form will hold up your VPDES permit. In particular, DEQ checks that the "Operator" information on this form is a legal entity registered to do business in Virginia. A separate payment will have to be made to Virginia DEQ at the time of permit certification by the County. This VPDES Permit must be issued prior to issuance of the Land Disturbance Permit, but there is no action necessary to satisfy this comment prior to plan approval.
4. The County's standard Maintenance Agreement will need to be recorded for the proposed Stormwater BMP. Please coordinate obtaining the Owner's signature on the previously provided Agreement. Once the Owner has signed, please return the original to this office for signature and recordation. Upon recordation, the deed book and page number will need to be included on the construction plans prior to approval.
5. Provide a signed Chesapeake Bay Preservation Act (CBPA) Water Quality Impact Assessment (WQIA) certification. Please read this document carefully and print, sign and date all applicable signature blocks, and return the original to this office. This certification is often completed incorrectly, so please be careful.
6. A Stormwater Pollution Prevention Plan (SWPPP) will need to be maintained on site to accommodate this site's VPDES Permit during construction. A SWPPP template is available upon request. There is no action necessary to satisfy this comment prior to plan approval as it is for informational purposes only.

Sheet 1

7. The Engineers Certification Statement provided at the bottom right of this sheet must be signed prior to plan approval.

Sheet 16

8. The Erosion & Sediment Control Legend provided on the right side of this sheet is covering up a portion of the site. Relocate/adjust this legend so that all portions of the site are visible.

Sheet 17

9. It appears Super Silt Fence and land disturbance are proposed within the existing intermittent stream channel located west of Lots 21-25. Revise as necessary to remove these impacts and ESC measures from this stream channel unless these impacts are permitted. Clearly demonstrate this stream channel drainage is located outside the project area. This comments also applies to Sheet 27.

Sheet 20

10. The proposed Wet Storage elevation within Sediment Trap #2 is 181.0, but the proposed elevation at the outfall appears to be around elevation 182. Revise as necessary to ensure the Wet Storage elevation is equal to or greater than the elevation at the outfall. This comment also applies to Sediment Trap #3.

Sheet 21

11. It appears Diversions are proposed surrounding the proposed soil stockpile. Provide the design information associated with these Diversions to ensure they are properly sized. It's currently not clear what purpose these Diversions will serve.

Sheet 31

12. It appears proposed land disturbance activities extend offsite onto GPIN 8707-62-4673. Either revise as necessary to eliminate this offsite land disturbance activity or provide documentation clearly demonstrating this property owner has consented to this activity.
13. Ensure the proposed drainage divides provided are delineated accurately along the grade breaks and are drawn perpendicular to the contours. It appears some of the drainage divides provided are incorrect. This comment applies to all plan sheets where drainage areas are delineated.

Sheet 32

14. Provide a matchline along the eastern limits of the viewport provided on this sheet.

Sheet 60

15. The proposed invert out of Storm Structure 71 is 153.53, but per the proposed contours provided it appears the proposed grade at this outfall is around elevation 155.5. Revise as necessary to clearly demonstrate positive drainage is provided out of the storm sewer system.

Sheet 61

16. Proposed Alley "B" is encroaching into the RPA (5,572 sf) west of Lots 16 & 17. Please be aware per Section 10-40 (Development Criteria for Resource Protection Areas) of the Hanover County Code this is not a permitted encroachment. Revise as necessary to remove all unpermitted impacts to the RPA from this construction plan.

Sheet 64

17. Per the Structure Schedule provided on Sheet 77 the proposed rim elevation of Storm Structure 63 is 188.48, but in plan view it appears the proposed roadside ditch at this structure is in the vicinity of elevation 186.9. Revise as necessary to ensure the rim of this structure is adequately sumped to provide positive drainage from the roadside ditch.

Sheet 65

18. Provide all proposed contours associated with the grading within the Route 301 median, and ensure the grading provided is consistent with the cross-section plan sheets at the back of the plan set. A note on this sheet specifies a 4' wide V-Ditch is proposed within the median, but this ditch does not appear to be included in the cross-section plan sheets at the back of the plan set. Also, it's not clear what the median ditch cross-section looks like from Sta. 10+00 thru 12+50.
19. It appears the existing concrete ditches draining to the existing 24" RCP culvert at New Ashcake Road Sta. 22+00 are located outside the VDOT R/W. Please ensure the proposed VDOT R/W is adequately sized to encompass the entirety of all VDOT drainage infrastructure.
20. It appears a swale is being created at the base of the proposed fill slope at the northeastern corner of the property, and this swale is receiving runoff from Route 301. Provide computations demonstrating this swale is properly designed, and adjust the VDOT R/W as necessary to accommodate this drainage infrastructure.
21. A note is provided at the top right of this sheet calling for the Contractor to install EC-2 lining on each side of the existing median ditch for 1,200 LF. Please clarify why this work is being performed and if any grading/land disturbance is proposed within this ditch.
22. Provide some proposed spot shot elevations within the fill area between the proposed 193 & 194 contours draining to the southwest demonstrating a minimum 1% slope is provided.
23. It appears portions of the existing concrete ditch from New Ashcake Road Sta. 21+00 thru 21+50 RT are being removed with the installation of Sediment Trap #3. Clarify if this concrete ditch will be reconstructed once this Sediment Trap is removed. In addition, clarify if the existing driveway culvert at Sta. 21+60 RT will remain.

Sheet 66

24. Revise the limits of the proposed public drainage easement and BMP maintenance area to include the entirety of proposed BMP "B". This should include the footprint created by the 182 contour, the entirety of the embankment, and the outfall barrel.

Sheet 74

25. Ensure HGLs are provided at all Storm Sewer structures, and ensure what's shown on the profiles is consistent with the computations provided on Sheet 103. In addition, the HGLs should not be lower than the structures themselves.

Sheet 80

26. Demonstrate the Outlet Protection at Storm Structure 90's outfall is designed with no slope along its length. The invert elevation of the downstream end of the stone (121ish) shall be equal to the invert of the pipe.
27. Please provide the 10-year flow velocity within the outfall barrel of this BMP. Per the VDOT Drainage Manual Section 9.4.8.7, slopes that incur uniform flow velocities in excess of 10 feet per second should be avoided because of the potential for abrasion. This comment also applies to BMP "B".

Sheet 84

28. It appears an emergency spillway is proposed at the northeastern corner of this BMP, but the proposed contours at this location are confusing. Clarify if this is an emergency spillway, provide an associated construction detail, and clean up these contours as necessary.
29. It appears swales are being created along either side of the base of the proposed fill slope associated with BMP "B's" embankment. Provide computations demonstrating these swales are properly designed and are non-erosive.
30. Ensure the alignment of the proposed outfall barrel is aligned and centered with the downstream channel. It appears this pipe should be rotated clockwise to better align with the existing downstream channel. In addition, it appears the existing elevation at the downstream end of the outlet protection is around elevation 158. The invert out of the pipe should be equal to this downstream elevation and there should be no slope along the length of the outlet protection.

Sheet 86

31. It appears Water Quality requirements are being met by purchasing credits. Please be aware these credits will need to be acquired in a manner that is consistent with Section 62.1-44.15:35 of the Code of Virginia. The credits will need to come from a DEQ non-point source approved vendor and shall be generated in the same or adjacent eight-digit hydrologic unit code of the same tributary. At a minimum, a letter of availability from the credit vendor will need to be provided on the plan prior to plan approval. This letter will need to document the number of phosphorus nutrient credits to be acquired and the associated ratio of nitrogen nutrient credits. A bill of sale will need to be provided before a land disturbance permit can be issued.
32. The Impervious Area Ledger provided lists 4.82 acres of impervious routed to BMP "A" with this plan, but the VRRM BMP summary lists 5.04 acres of impervious routed to this BMP. In addition, the VRRM Site Land Cover Summary lists 7.47 acres of proposed impervious area, but the Cover Sheet lists 6.69 acres of proposed impervious area. Revise as necessary for consistency.

Sheet 89

33. It appears the post-developed 10-year peak discharge rate at Outfall Point B should be less than the pre-developed rate given the majority of drainage will be routed through proposed BMP "B's" 4" orifice, but the table provided on this sheet indicates this post-developed peak discharge rate will increase. Either clearly demonstrate the post-developed 10-year peak discharge rate at this analysis point doesn't exceed the pre-developed rate, or provide an analysis of the existing drainage system demonstrating there's adequate capacity to the 1% point.

If you should have any questions concerning the detailed comments made during the review of your plans, please give me a call at 365-7188. When resubmitting plans, please include a copy of these comments with a note stating how/where each comment was addressed.

Sincerely,



Scott Kramer, P.E.
Civil Engineer III
Department of Public Works

CC: Caldwell Park Partners, LLC, Larry Shaia, 9400 Charter Crossing Drive - Suite 8, Mechanicsville, VA 23116
Megan Dalzell, Planning Department