CHATHAM COUNTY
NORTH CAROLINA

WATERSHED PROTECTION DEPARTMENT

P.O. Box 548
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Soil Erosion and Sedimentation Control

LETTER OF DISAPPROVAL

January 16, 2022

The Tuscan Group, Inc.
661 Cedar Grove Road
Pittsboro, NC, 27312

RE:	Project Name:	Chestnut Creek Subdivision
	Project Number:	WP-21-613
	Submitted by:	Samir W. Bahho, PE
	Date Received:	12/17/2021
	Plan Type:	Disapproved

The erosion and sedimentation control plan submitted for the subject property has been reviewed and is disapproved for the reasons listed on the attached sheet.

Please submit a new erosion and sedimentation control plan for approval addressing those items outlined on the enclosed form. Under the authority of Section 164.10(H) of the Chatham County Sedimentation and Erosion Control Ordinance, this office has 30 days from the date of receipt to approve or disapprove your plan. However, if you wish to contest the disapproval of this plan, you must request an administrative hearing within 60 days of your receipt of this Letter of Disapproval. This request must be in the form of a written petition, conforming to Chapter 150B of the North Carolina General Statutes, and filed with the Chatham County Board of Commissioners. A copy of the petition must be served on this Department as follows:

Chatham County Watershed Protection Department
P.O. Box 548
80 East Street
Pittsboro, North Carolina 27312-0130

Pending approval of an erosion and sedimentation control plan or a decision on an appeal, commencement of any land-disturbing activity associated with this project shall constitute a violation of the Chatham County Sedimentation and Erosion Control Ordinance. Please feel free to contact this office at your convenience if you have any questions or if we can provide any assistance in resolving the matter.

Sincerely,

Justin Hasenfus, CPESC
Watershed Specialist

Reasons for Disapproval

1. Provide Riparian Buffer Authorization from Chatham County Watershed Protection Department (CCWPD) for all proposed impacts to riparian buffer zones or provide documentation from CCWPD that the project is exempt from obtaining these approvals. ***Section 164.05(B)***
2. Notes on indicate "This page is not a part of NCDOT subdivision plan and driveway permit review". A Subdivision Plan Approval from NCDOT was provided. Clarify what areas of the project are approved by the Subdivision Plan Approval from NCDOT and provide any remaining NCDOT required approvals. ***Section 164.12(C)***
3. Clarify what proposed impacts are covered under the US Army Corps of Engineers Nationwide Permit 58 and where on the plans they are located. ***Section 164.08, Section 164.12 (C)***
4. Provide 401 Water Quality Certification from NCDEQ Division of Water Resources for any proposed surface water impacts or provide documentation from NCDEQ DWR that the project is exempt from obtaining these approvals. ***Section 164.08, Section 164.12 (C)***
5. Provide scale on vicinity map (1"=2000'). ***Section 164.06, Section 164.10(F)***
6. Provide existing conditions sheet that is separate from proposed site plan. All existing culverts must be labeled on the existing conditions sheet and must be labeled as existing on all other plan sheets. ***Section 164.10(F)***
7. Specify total acres of property on plans. ***Section 164.10(F)***
8. Disturbed acreage shown on plans (5.12 acres), calculations (5.52), and application (6 acres) do not match. Revise to be consistent. ***Section 164.10(F)***
9. Provide legend on erosion control sheets. ***Section 164.10(F)***
10. Provide existing and proposed contours on all erosion control sheets and add them to legend to differentiate between them. Numerical elevations shall be provided for all contours. ***Section 164.10(F)***
11. Include limits of disturbance (LOD) in legend and indicate on all erosion control sheets. ***Section 164.10(F)***
12. The LOD must be consistent throughout (it is shown as red on 6.1, and then again in brown). Choose one color/line type that is clearly distinguishable from all other lines on the plans. Please change line coloring on plans so LOD and drainage area lines are not the same color. ***Section 164.10(F)***
13. Include drainage area line type on legend. ***Section 164.10(F)***
14. On 6.1, at Pond #1, there appears to be LOD (approximately a rectangle shape) inside existing LOD. Please revise/clarify. ***Section 164.10(F)***
15. Use one color for leaders (arrows pointing to items on plans). ***Section 164.10(F)***
16. Clarify on plans what red arrows north of Pond #2 on 6.1 are or remove if not needed. ***Section 164.10(F)***
17. Use a different symbol for silt fence. It is difficult to determine at discharge points. ***Section 164.10(F)***
18. All proposed soil disturbances must be located inside LOD and be provided appropriate erosion control measures. Notes are shown along Jones Ferry Road indicating clearing that is not located inside LOD and sediment basin discharge pipes/culvert pipes and associated dissipator pads appear to be outside LOD at some areas. ***Section 164.05(J), Section 164.10(F)***
19. Provide 100-year floodplain limits and elevations or confirm there are none on site. ***Section 164.10(F)***
20. Change line type used for riparian buffer zones. It is too similar to other line types used. Add riparian buffer zone line type to legend. ***Section 164.10(F)***
21. Provide phased erosion control plans (Phase 1 and Phase 2). Phase 1 would include initial clearing and grading, and installation of initial erosion control measures (construction entrance, perimeter control measures, temporary diversion ditches, sediment basins, pipes necessary for initial erosion control measure installation). Phase 2 would include the remaining work to final site conditions (Phase 1 erosion control measures that would remain during Phase 2, permanent ditches, sediment basin that remains throughout Phase 2 construction, road construction, etc.). ***Section 164.10(F)***
22. Refer to basins only as "Skimmer Sediment Basin" on erosion control sheets. Use the terms Pond or other stormwater control measures naming convention only on stormwater and site plan sheets. It is confusing having both on the erosion control sheets. ***Section 164.10(F)***

23. Provide a separate overall stormwater sheet that shows the site plan with all permanent stormwater control measures on it. ***Section 164.05(F), Section 164.10(F)***
24. Show any on-site or off-site borrow/waste areas and associated erosion & sedimentation control measures or confirm that site is proposed to be earthwork balance. ***Section 164.07, Section 164.10(F)***
25. Show stage/soil stockpile/storage locations on the plans along with erosion & sedimentation control measures. Soil stockpiles must be located 50 feet from storm inlets, ditches, basins, and surface waters, unless it can be shown that no reasonable alternative exists. ***Section 164.10(F)***
26. Revise drainage areas for sediment basins to include only the drainage that the basins are subject to. For example, Pipe #2 on 6.1 appears to receive drainage from a temporary diversion ditch that is routed ultimately to a stream and not the sediment basin. Provide separate drainage area maps for Phase 1 and Phase 2 sediment skimmer basins. ***Section 164.10(F), Section 164.16***

Review and revise letter

27. Provide separate drainage area maps for temporary diversion ditches (Phase 1) and permanent ditches (Phase 2). Any runoff to temporary diversion ditches where drainage area is greater than 1 acre must be treated by a surface dewatering device (sediment basin). ***Section 164.10(F), Section 164.16***
28. Label all temporary diversion ditches (i.e. TDD#1, TDD#2, etc.) and permanent diversion ditches (PDD#1, PDD#2, etc.) on applicable erosion control, stormwater, and site plan sheets. ***Section 164.10(F)***
29. Label stabilization liner for all temporary and permanent diversion ditches directly on the erosion control plan sheets (i.e. NAG C350). ***Section 164.10(F)***
30. Use same symbol/line type for temporary diversion ditches on 6.4 that was used on 6.2 and 6.3. ***Section 164.10(F)***
31. Insufficient detail is provided for the skimmer basins to ensure it meets state and county design requirements. Baffles are not shown in the plan view, nor are elevations provided for the weir outlet or the pond bottom. There is a note indicating the pond bottom is 491 for skimmer basin 1, but it is unclear if it this is referring to the temporary pond or permanent dry retention pond, or both. Provide all contours/elevations, weir and pond bottom elevations, baffles, forebays, skimmer/riser, inlet protections and outlet protections, emergency spillways, and all other information regarding basins depicted in Plan View on applicable erosion control and stormwater sheets. ***Section 164.10(F)***
32. Provide rip rap pad under skimmers of sediment basins in Plan View on erosion control sheets. ***Section 164.10(F)***
33. Design baffles used in sediment basins per Chatham County Ordinance §164.16(a)(7): All temporary devices "used to trap or settle sediment will utilize one row of baffles per ten feet of basin/trap design length. Under no circumstance shall any basin or trap use less than three baffles. Baffles must be constructed of porous material (no silt fence) and arranged so that all runoff entering the device passes through all baffles prior to dewatering". ***Section 164.16***
34. Provide sizes, dimensions, lining requirements and calculations for all proposed outlet protections on 6.2-6.4. Label size, dimensions, and lining requirements on all erosion control and stormwater plan sheets; provide calculations separately. ***Section 164.10(F), Section 164.16***
35. Show footprint and information from #32 for rip rap ditch stabilization at end of Chestnut Creek Way. ***Section 164.10(F), Section 164.16***
36. No calculations were provided for slope drain sizing to support selection of size 15" pipe. Per the State Erosion and Sediment Control Planning and Design Manual, if individual calculations are not used, then Table 6.32a of the manual should be used to size the pipes. Based on this table, a single 15" pipe can only be used for a drainage area of 0.75 acres, however the drainage area leading into the skimmer basin 1 is listed as 3.84 acres. Review slope drain sizing to comply with Erosion and Sediment Control Planning and Design Manual and revise as necessary. Provide calculations for slope drain sizing. ***Section 164.10(F), Section 164.16***
37. Clarify on erosion control plans sheets where runoff along eastern side of Walnut Branch Rd is going. There is a slope drain shown at northern side of Sediment Basin #2, but no runoff routed there. ***Section 164.10(F), Section 164.11***
38. Provide inlet and outlet protections at 15" HDPE pipe routing runoff from ditches to Sediment Basin #2. ***164.10(F), Section 164.11***

39. Sediment basin calculations: ***Section 164.16***
    a) Design sediment basins to Chatham County standard:
        i. 25-year storm event.
        ii. Provide required and provided surface area. Provide Q25 = 0.5 (C) x I25 x disturbed acreage and Q25 x 435 calculations for required Surface Area.
        iii. Provide required and provided volume storage. Provide 3600 ft3/acre x disturbed area calculation for required volume storage.
    b) Provide length to width ratios for sediment basins to verify they are between the required 2:1 to 6:1 ratio.
    c) Relocate text blocks containing sediment basin design information from erosion control sheets to separate sheets. They are blocking the view of wetlands, streams, and riparian buffer zones.
40. The source of contour data is not provided. If using NCDOT LIDAR contour data, which is based on NC Floodplain Mapping Program LIDAR data, please be advised that the NC Board of Engineers and Land Surveyors has issued a written advisory that "the contour data derived from the floodplain mapping LIDAR elevation data should not be used for final design due to the age and accuracy of the product and should only be used for the intended use for flood study." The statement can be found in the April 2012 edition of "The North Carolina Bulletin" [http://www.ncbels.org/newsletters/Spring%202012.pdf]. While it is ultimately the responsibility of the engineer of record to ensure the accuracy of elevation data used in final design, we are including this comment to make you aware of the position of the board in the use of this data as it has led to design elevation errors in the past.

    Please add the source of contour data and add a note that acknowledges that soil erosion and sedimentation control features will be located to meet the intent of the design in the event that the elevations found in the field are different than those from the LIDAR GIS data. Drainage features put in place that do not function as intended due to GIS error are the responsibility of the design engineer. The outlets and skimmer trap/basins elevations must be adjusted to fit field conditions to function as intended and meet the Chatham County Code of Ordinances. ***Section 164.10(F)***
41. There are no shear stress calculations for temporary or permanent roadside ditches, which is used to determine liner material. The Chatham County Code of Ordinances §164.16(A)(8) provides that "All temporary and permanent swales or ditches will be designed to convey runoff from the two- and ten-year, 24-hour storms in a stable manner. Calculations must be provided to document velocity and flow rate of a vegetated and bare soil condition".

    While it appears the majority of the ditches will have a liner that can withstand expected velocities and shear stress of both the 2- and 10-year events, many of the steeper ditches appear to have shear stresses at the 10-year event that exceeds allowable shear stress for the temporary liner. However, it is difficult to tell without calculations comparing the allowable shear stress of the temporary liner to the shear stress produced by the 10-year event.

    Provide shear stress calculations for the 2-year and 10-year storm, and select temporary liners that will withstand the 10-year storm event based on Table 8.05g of the State Erosion and Sediment Control Planning and Design Manual. ***Section 164.16***

42. Provide ditch profiles. ***Section 164.10(F)***
43. Label all 3:1 slopes and provide proper stabilization liner. ***Section 164.05(C)***
44. Call out any rock outcrops where applicable, or confirm they do not appear on site. ***Section 164.10(F)***
45. Provide erosion control measures at Sediment Skimmer Basin #1 and #2 areas. ***Section 164.10(F)***
46. Locate silt fence outlets past the outlet protection pads of all culvert and sediment basin discharge pipes and label them "double-wide silt fence outlets". ***Section 164.10(F)***
47. At all culverts and sediment basin discharge pipes – instead of silt fence around head of pipe, locate silt fence past outlet protection pads and silt fence outlets per #46 above. ***Section 164.10(F)***

48. Locate silt fence outlets at low spots at ends of cul-de-sacs. ***Section 164.10(F)***
49. Locate silt fence outlets so no more than ¼ acre of drainage per 100 linear foot of silt fence is achieved along site perimeter. ***Section 164.10(F), Section 164.16***
50. Add tree protection fence along site perimeter where silt fence is not. ***Section 164.10(F)***
51. Locate concrete washout on Phase 2 erosion control sheet. Washouts are required to be located 50 feet from storm inlets, ditches, basins, and surface waters, unless it can be shown that no reasonable alternative exists. ***Section 164.10(F)***
52. Locate silt bag location on Phase 2 erosion control plan sheet. ***Section 164.10(F)***
53. Locate utilities on erosion control plan and include utility plan or confirm no utility work is proposed. ***Section 164.10(F)***
54. Construction Sequence: ***Section 164.10(F)***
    a) Add a step for holding a preconstruction meeting and obtaining all required permits prior to start of construction at beginning of construction sequence.
    b) 1d – add installation of temporary diversion ditches.
    c) Construction sequence refers to Catch Basins (CB) that are not shown on plan.
    d) Installation of permanent diversion ditches must be specifically mentioned.
    e) #15 should be before #14.
    f) Move "Install silt fence outlets" from #4 to #3.
    g) Add a step after #3 to "Contact Chatham County Watershed Protection Department for site inspection before proceeding to next step".
    h) After this step, sediment basin and ditch installations should occur; followed by a step to "Contact Chatham County Watershed Protection Department for site inspection before proceeding to next step". Only clearing and grading associated with these initial erosion control measure installations can occur.
    i) Add a step that specifically explains the conversion process of sediment basins to permanent stormwater control measures. Explanation must also include mention of sediment bag requirement. ***Section 164.05(F)***
    j) #17 - Add step before that states "Contact Chatham County Watershed Protection Department for site stabilization inspection before prior to removing remaining temporary erosion control measures".
    k) Last step is to "Contact Chatham County Watershed Protection Department for final site inspection to closeout Land-Disturbing Permit."
55. Provide standard details for check dam, tree protection fence, matting on slopes, skimmer detail, and second standard skimmer basin detail from Chatham County website*. ***Section 164.10(F)***

*Standard details:
https://www.chathamcountync.gov/government/departments-programs-i-z/watershed-protection/erosion-control/standard-details