CIVIL AND STRUCTURAL ENGINEERING SERVICES, PLLC
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May 30, 2022

Watershed Protection Department
P.O Box548
Pittsboro, NC 27312

Attached are the construction plans , drainage calculation and other supporting documents for Chestnut Creek Subdivision revised to address Watershed Protection Department comments as listed per Stormwater Letter of disapproval of January 16, 2022.
This letter addresses comments in same sequence as listed on the letter of disapproval and as follows:

1. Provide Riparian Buffer Authorization from Chatham County Watershed .....
   Response: Attached are plans for all proposed impact to riparian buffer zones for your approval. Also, attached copies of the email correspondence from the Corps and State as requested. Refer to sheet 13 for creek crossing #1 and sheet 14 for creek crossing #2. Septic lines creek crossings were limited to any two crossing with wetland crossing avoided. All other septic lines were designed with longer routes to avoid creek and wetland impact.
2. Notes on indicate "This page is not a part of NCDOT subdivision plan.....
   Response: Sheet 6 (Sheet 7 this submittal) of subdivision plans shows Walnut Branch Rd. The road is an existing private road from its beginning station 0+00 to ending station beyond the limits of the subdivision. The County as a part of the subdivision review approved Walnut Branch to remain private road. Sheet 7 provides design improvement of the road to Chatham private road Standards and Specifications. The State Driveway Permit for Walnut Branch Road already exists and valid. The note "This Page is not a part of NCDOT Subdivision plan" was added at the request of NCDOT during the review process because the road is private, it is not a part of NCDOT review and will not be added to the State Road System Maintenance. 14 sheets provided this submittal to address Walnut Branch Road designed to Chatham County Private Roads Standards and to addressing stormwater and erosion and sedimentation control. One copy of the approved NCDOT Plans are attached for Chatham County Planning Department Files.
3. Clarify what proposed impacts are covered under the US Army Corps of Engineers.....
   Response: Attached is a copy of emails chain received from the US Army Corps of Engineers (Drew Blake, Chatham County Stormwater Department was copied) stating that "the above referenced project appears to be authorized under Nationwide Permit (NWP)58 and does not require notification to the Corps". The design of septic lines routes

through creeks were carefully selected and limited to two crossings. See attached plans showing routes and design of crossings . See sheet 13 and sheet 14

4. Provide 401 Water Quality Certification from NCDEQ Division of Water Resources.....
Response: Attached is a copy of the email received from NCDENR Division of Water Resources responding to the application submitted on 8/24/201 (**Subject:** Project Notification for ID 20211274 Ver. 1 for COURTESY COPY Chestnut Creek Subdivision. The North Carolina Division of Water Resources has received application or request that you submitted on 8/24/2021 for COURTESY COPY Chestnut Creek Subdivision. The ID number for that project is 20211274, Version 1.)

5. Provide scale on vicinity map (1":2000') .....
Response: Scaled vicinity map to 1":2000' was provided. See cover sheet and sheet 1 (cover sheet) and sheet 4

6 provide existing conditions sheet that is separate from proposed site plan.....
Response: Sheet 2 of the of the attached plans is showing existing conditions

7. Specify total acres on plans.....
Response: The total area of property is posted on the cover sheet under Subdivision notes/Property information. A box with total property area was added to the cover sheet. Individual lots sizes, BUA% areas are listed in a table on the cover sheet

8. Disturbed acreage shown on plans(5.12 acres) Calculations(5.52).....
Response: Disturbed area was recalculated with all septic line easements that are disturbed as part of road construction are included in the disturbed area. The total disturbed area is (6.4) acres. The rounding to the whole number makes it 7acres. See sheet 4. Disturbed area was delineated and borders marked with red color. Legend line in red for disturbed area and green line for drainage area were added on sheet 4

9. Provide Legend on Erosion control Sheets.....
Response: Legend was provided on sheets 4, 5, 6 and 7 in addition to the other sheets.

10. Provide Existing and proposed contours on all erosion control sheets and add .....
Response: Existing and proposed contours and legends were added to sheets. 5, 6. sheet 7 is an existing road with the existing grade to remain. The change includes only shaping road side ditches and installing 18" RPC cross pipe.

11. Include Limits of Disturbance LOD in legend and indicate on all erosion control sheets.....
Response: Limits of Disturbance were added to the legend and lines included on E&SC Plans

12. The LOD must be consistent.....
Response: LOD made consistent with same color(Red color on sheet 4). LOD and Drainage area colors (Green color on sheet 4) were changed to show different colors

13. Include drainage area line type in the legend
Response: Drainage area line was added to the legend

14. On 6.1, at Pond #1 there appears to be LOD (approximately a rectangle shape).....
Response: LOD at Pond # 1 was corrected.

15. Use one color to leader arrows pointing to items on the plans
Response: One color was used

16. Clarify on plans what red arrows north of Pond #2 or remove if not needed
Response: Red arrows were not needed and removed.
17. Use a different symbol for silt fence.....Dissipater
Response: Silt Fence symbol line was made thicker and X bolder especially at discharge areas
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 .....
Response: The shaded area on Jones Ferry Road is marked not a part of the Subdivision work and not to be disturbed. The shading was only to do trimming of trees and shrubs to meet 55 MPH speed. As a part of the Chestnut Creek Subdivision Driveway Permit, NCDOT reduced the speed limits to 45 MPH that made the shaded area on the north side of Jones Ferry outside the sight distance area and not to be disturbed. All other areas to be disturbed were included inside the LOD area. See plans
19. Provide 100-year floodplain limits and elevations or confirm there are none on site. **Section**
Response: There is no floodplain on site for this parcel Per flood map 3710974600 K dated 11/17/2017. A note indicating no floodplain is posted on cover sheet and sheet 4
20. Change line type used for riparian buffer zones. It is too similar to other line.....
Response: Riparian buffers were marked in different places on sheets 2, 3 and 4 and added to the Legend. Buffers are also shown on other E&SC sheets
21. Provide phased erosion control plans (Phase 1 and Phase 2). Phase 1 would include initial clearing and grading, and .....
Response: phases of erosion control construction sequences were provided to include phase 1, phase 2 and phase 3. The phasing plan description is posted on the cover sheets and sheets sheet 10. The construction phasing define in step by step construction staging
22. Refer to basins only as "Skimmer Sediment Basin" on erosion control sheets.....
Response: The name was changed to "Skimmer Sediment Basin" on Erosion Control Plans 5, 6 and 7. A sheet 10 was added to the plan to show detailed design of skimmer basins with all design data listed.
23. Provide a separate overall stormwater sheet that shows the site plan with all permanent stormwater control
Response: Sheet 3 was added to show stormwater water permanent stormwater control device on site plan
24. Show any on-site or off-site borrow/waste areas and associated erosion & sediment.....
Response: There is no on-site or off-site borrow proposed for the project. The site is proposed to be earthwork balance

25. Show stage/soil stockpile/storage locations on the plans along with erosion & .....
Response: Soil stockpile/storage location was shown on the plan sheet 4 and sheet 5 show top soil storage from Chestnut Creek Way and Meandering Way Court. Due to minimal grading operation and maintaining the existing grade on Walnut Branch Rd., any generated top soil shall be spread over the area of the road easement inside the

designated disturbed area.

26. Revise drainage areas for sediment basins to include only the drainage that .....
Response: Drainage areas were revised and adjusted. Pipe #2 was removed from drainage area to the sediment basin. Drainage area and disturbed area on sheet 4 were revised provides. Drainage calculations were adjusted to reflect revised drainage and disturbed area

27. Provide separate drainage area maps for temporary diversion ditches (Phase 1) and ....
Response: Separate drainage area maps were provided. Drainage area maps are included with the documents package. 9 temporary ditches were identified. All drainage area of temporary and permanent road ditches are less than one acre. The same temporary ditches are to be shaped and made into permanent road side ditches. Ditch drainage is calculated and shown with road name, left or right side location and station from to location. All ditch sections with lining are posted on the plans. Ditch drainage calculations with discharge, longitudinal slope as well as velocities were calculated. See plans and calculations

28. Label all temporary diversion ditches (i.e. TDD#1, TDD#2, etc.) and permanent diversion ditches (PDD#1, PDD#2, etc.) .....
Response: Temporary ditches were labeled TDD # and Permanent Ditches were labeled PDD. See plans.

29. Label stabilization liner for all temporary and permanent diversion ditches directly ....
Response: A note was added on the erosion control plans that all permanent ditches shall be lined with jute matting. Ditch drainage area, shape, discharge, side slopes and lining are shown on the plans. Ditches area were calculated in sections, discharge and velocities were determined. All ditch velocities are within the non erosive range. however, ditches in steep area or outlet ditches are to be lined with rip rap. See plans and drainage Calculations

30. Use same symbol/line type for temporary diversion ditches on 6.4 that was used .....
Response: The same ditch line as on sheets 6.2 (Now sheet 5) and 6.3(Now sheet 6) was added on sheet 6.4 (Now sheet 7)

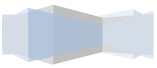
31. Insufficient detail is provided for the skimmer basins to ensure it meets state and .....
Response: Additional sheet was added to the plans to show plan view, elevations, surface area, bottom area, weir and baffles as well as other information as requested. See sheet 10

32. Provide rip rap pad under skimmers of sediment basins in Plan View on erosion control .....
Response: Rip Rap was provided under skimmer sediment basins. See plan sheet 10

33. Design baffles used in sediment basins per Chatham County Ordinance....
Response: Baffles were provided in accordance to Chatham County Erosion Control Ordinances Section 164.16. See sheet 10

34. Provide sizes, dimensions, lining requirements and calculations for all proposed outlet .....
Response: Lining were shown at the outlets of pipe #1, Pipe #2 and Pipe #3 . outlet velocity for the pipes are minimal and not erosive. Refer to drainage calculation package

35. Show footprint and information from #32 for rip rap ditch stabilization at end of.....



Response: Rip rap footprint for the ditch stabilization at end of Chestnut Creek Way were added

36. No calculations were provided for slope drain sizing to support selection of size 15" pipe.....
Response: Slope drains capacity for Pond 1 and Pond 2 were calculated and slope drains changed to 24" dia. See drainage calculation package

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 #2runoff ....
Response: The forebay and slope drain pipe are placed north of Pond #2 is to catch and collect drainage from the north-east side of Walnut Branch Road.

38. Provide inlet and outlet protections at 15" HDPE pipe routing runoff from .....
Response: Inlet and outlet protection to the 15" pipe were provided. The pipe was increased in size to 18"

39. Sediment basin calculations: **Section 164.16.....**
Response: Skimmer sediment basins 1 and 2 were revised to use

a)

- 25-y peak storm event
- Minimum surface area: Q25x0.5xdisturbed acres
- Volume 3600x disturbed acres

b) 2:1 length to width area and 3:1 side slope

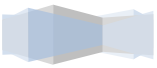
c) Text was relocated. Details were drafted on a separate sheet. See sheet 10

40. The source of contour data is not provided. If using NCDOT LIDAR contour data.....
Response: The source of contour and location of creeks, wetland area, existing drainage structures and other drainage features are based on actual field survey. The rest of contour lines were from the NCDOT LIDAR. All proposed stormwater drainage structures were designed based on the field survey. A note was added on the Stormwater and E&SC plans "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 from the elevations shown on the plans. 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 Chatham County Code of Ordinances"

41. There are no shear stress calculations for temporary or permanent roadside ditches
Response: Q-10 and Q-2 of all side ditches and flow velocity were calculated. All shear stresses are within the non-erosive for graced ditches. However, It is proposed that all ditches maintain minimum side slope of 3:1 or greater and be lined with jute matting or rip rap over filter fabric as indicated on the plans

42. Provide ditch profiles. **Section 164.10(F).....**
Response: Ditch profiles were provided. See plans

43. Label all 3:1 slopes and provide proper stabilization liner. **Section 164.05(C)**



Response: Minimum side ditches is 3:1. All slope sides are lined with jute matting or rip rap as shown on plans

44. Call out any rock outcrops where applicable, or confirm they do not appear on site.....
Response: Rock outcrops do not appear on site.

45. Provide erosion control measures at Sediment Skimmer Basin #1 and #2 areas.....
Response: Erosion control measures at skimmer sediment basins # 1 and #2 were added

46. Locate silt fence outlets past the outlet protection pads of all culvert and sediment basin ....
Response: silt fence outlets were located as requested and labeled double outlet.

47. At all culverts and sediment basin discharge pipes – instead of silt fence around .....
Response: location of silt fence and silt fence outlet were changed as requested

48. Locate silt fence outlets at low spots at ends of cul-de-sacs. **Section 164.10(F).....**
Response: Silt fence outlets were located at ends of cul-de-sacs as requested.

49. Locate silt fence outlets so no more than ¼ acre of drainage per 100 linear foot of .....
Response: Silt fence outlets were added to the project as requested

50. Add tree protection fence along site perimeter where silt fence is not. **.....**
Response: Tree protection fence was added where there is no silt fence

51. Locate concrete washout on Phase 2 erosion control sheet. Washouts are required .....
Response: Concrete washout was placed close to stockpile on sheet 6.2

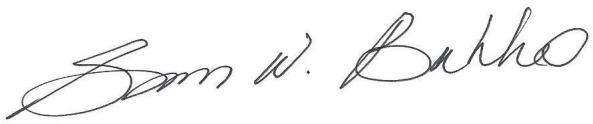
52. Locate silt bag location on Phase 2 erosion control plan sheet. **.....**
Response: Silt bag were located close to skimmer sediment basins 1 and 2

53. Locate utilities on erosion control plan and include utility plan or confirm.....
Response: There is no utilities on this project

54. Construction Sequence: **Section 164.10(F).....**
Response: Construction Sequence waschanged to address comments from a to k

55. Provide standard details for check dam, tree protection fence, matting on slopes, ...
Response: Details were added as requested. See sheet 10 of plans.

The site plan and the responses letter will meet your satisfaction. If more information is needed please call me or email me. My Telephone # is 919-621-0628**. My email address is ba.casespllc@gmail.com**



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