

To: Dan Fisk, Paramounte Engineering
From: Brian Chambers, Senior Planner; 910.342.2782
CC: File;
Date: 2/16/2021
Re: Wilmington Three Phase A TRC Rev 1

The following is a list of comments for review from planning regarding the project. Please provide your corrections as listed below. A staff summary of comments:

Staff	Department	Notes
Brian Chambers	Planning, Plan Review	Comments below
Rich Christensen	Engineering	Comments attached
Chris Walker	Fire	Comments attached
Mitesh Baxi	Traffic Engineering	Comments attached
Bill McDow	Transportation	Comments attached
Anna Reh-Gingerich	Stormwater	Comments attached

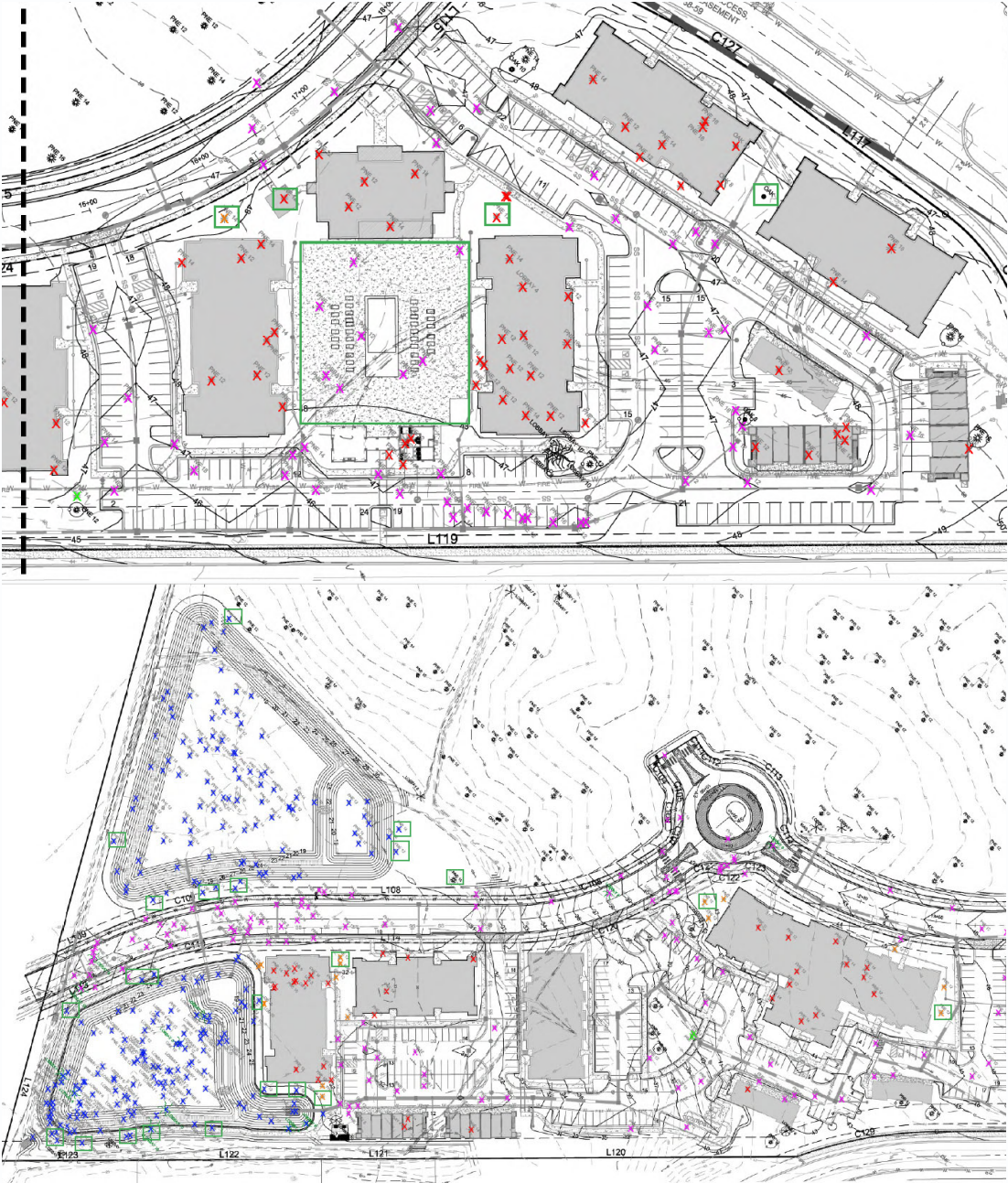
Planning Review

Brian Chambers, brian.chambers@wilmingtonnc.gov, 910.342.2782

Comments:

- This project cannot be approved until after the pending preliminary plan is approved by the Subdivision Review Board.
- Remove construction stamps, plans will be approved digitally.
- Include proposed front setbacks along new interior streets.
- Show compliance with cohesive development standards to allow for reduced setbacks along new interior streets.
 - Show site distance triangles to ensure compliance with Se. 18-556.
- Provide total number of units in site data table.
- Density exceeds maximum allowed in MF-M District. If you intend to calculate density across a larger area, that area needs to be shown and the calculation provided.
- Provide pedestrian connections out to George Anderson Drive.
- Identify number of off-street and on-street parking spaces provided.
- Show compliance with bicycle parking requirements. Show number of spaces required and proposed and their locations on the plan.
- Tree credits may only be used for trees that are not otherwise required to be protected. Please identify non-protected trees that will be saved for credits.
- The pool area would not be considered an essential site improvement. Protected trees in this area must be retained or mitigated.

- Show tree protection fencing around critical root zone for trees being retained. CRZ is 1 foot radius for every 1 inch DBH.
- What is small building next to club house? Can it be relocated to avoid protected tree?
- See highlighted areas below (green boxes). These areas correspond to notes and/or identify trees that need justification for removal.



- Building wall areas over two hundred (200) square feet and facing the public right-of way require a minimum of one (1) large maturing tree per thirty (30) feet of linear wall or one (1) small maturing tree per twenty (20) feet of linear wall.
- Can anything be added (benches, landscaping, pet stations, etc) around the pond to make it more of an amenity? Not just the walking trail.
- Street trees are required along both sides of the new streets.
- 18-foot streetyard multiplier is not a limit it is an area calculation, not necessary to show on plan sheets as a line.
- Parking lot area square-footage does not match on site plan (172,532) and landscape plan (172,480).
- Identify trees to be planted as being a minimum 2-inch caliper instead of the range (2 to 2.5).
- Show compactor screening detail. If it is in the plan set please point it out as I could not find it.

Engineering has reviewed the plans for the Wilmington Three Phase A project submitted January 13, 2021 for TRC review and have the following comments:

Stormwater Management Permit Application Form

1. Submit Form SWP 2.3
2. III. Contact Information: #2 and #2a: These sections were not fully completed.
3. IV. Project Information: #9: Revise the Buildings/Lots square footage from 14,346 to 144,346.
4. VII. Property Owner Authorization: Complete this section.

Stormwater and Erosion Control Narrative

5. Verify that the individual forebays are sized appropriately for their separate drainage areas.
6. Pond Routing: Why is it that the pre-development drainage area (31.19 acres) is significantly less than the post-development drainage area (40.491 acres)? I would prefer that the drainage areas equal one another. Update the Drainage Area Maps accordingly.
7. Summary for Subcatchment 7s: Post 2: Where is the 3,000 square feet of impervious that is bypassing treatment? Provide a brief explanation as to why it is not able to be captured and treated.
8. HGL Calculations: Check the inverts for MH-101. The downstream invert is 21.46' from CB-102 to MH-101 and the upstream invert in MH-101 to FES-100 is 21.89'.
9. HGL Calculations: 50-year Storm: There appears to be several structures in the public r/w that experience significant surcharge. Provide gutter flow spread calculations, with an intensity of 4 in/hr, for all structures in the public r/w to ensure that the allowable gutter flow spread is not exceeded. Structures internal to the site must be evaluated to ensure that emergency vehicle access will not be impacted during the larger storms.
10. Figure-3 Storm Structure DA Map: Storm drain inlet drainage area boundaries must be delineated per the Engineering Plan Review Checklist.

Supplement

11. General MDC from 02H .1050: #8: Answer 'yes' as the pond has emergency spillways.

Design Documents

12. C-1.4/1.5:
 - a. The Key Map appears to be referencing the Site Plan sheets.
 - b. Does the different colors of the X's marking trees for removal have any meaning? Please look into saving as many trees as possible. There appear to be a few trees around Pond #1A and #1B, some around Buildings 8 and 9, etc. that may be able to be saved.
13. C-2.1: Make sure the two inlets in the Breezewood Drive on-street parking stalls are located such that they won't be a hazard for anyone entering or exiting their vehicle.
14. C-2.1/2.2/2.3: Connect the SD system within the Dusty Miller Lane r/w to the system within the Breezewood Drive r/w, keeping public water from being routed through private property. Since the city will maintain this system, keeping it within the public r/w as much as possible will be required as this will minimize the amount of pipe the city will need to maintain and will also minimize impacts to the project site should the pipes need maintenance.
15. C-2.2/2.3: There are roof drain cleanouts in sidewalk around Building 4 and 7. This could cause some safety issues (tripping hazard) for pedestrians if there is uneven settlement around the cleanouts. Relocate the cleanouts outside of the sidewalk where feasible.
16. C-2.2/2.3/2.4: Portions of the multi-use path along George Anderson Drive are outside the public r/w. Place that portion in a public pedestrian access easement.
17. C-4.0:

- a. FES-500 to FES-502 is to remain private. This crossing will require a minor encroachment agreement and it will need to be approved before CO or plat approval. Required for the agreement will be an exhibit showing the encroachment, an application, and a \$200 fee. It is desired that the exhibit shows the post-construction encroachment.
 - b. The system that includes the equalizer pipe can stay as is as long as it is agreed upon that the equalizer pipe and structure MH-401 will not be the responsibility of the city. The city will maintain the small system upstream of MH-401. The other option is to disconnect SD pipe system CB-404 to MH-401 from the equalizer pipe such that it drains into the forebay independent of the equalizer pipe. The city will maintain this small system. Any portion of that smaller system that exits the public r/w will need to be placed in a public drainage easement. The width of the easement will be determined by the equation found in the Technical Standards Manual. The equalizer pipe will also require an encroachment agreement. One \$200 fee will cover both encroachments along this section of Breezewood Drive.
 - c. Place that portion of pipe MH-101/FES 100 that lies outside of the public r/w in a public drainage easement. The width of the easement will be determined by the equation found in the Technical Standards Manual.
 - d. Grade in the emergency spillways for 1A & 1B. The labels are there, but not the actual spillways.
 - e. The pond outlet structure pipe needs to have a flared end section added to it.
 - f. Show and label the required 10' maintenance access and 5' landscape zone. The two cannot overlap.
18. C-4.1:
- a. The RD-5 labels on the northeast side of Building 5 are not consistent with the storm schedule.
 - b. There appear to be erroneous structure labels below Buildings 4 and 5 in the 300's, specifically 302 and 306. Labels for MH-300 and CB-301 could be moved closer to their structures.
19. C-6.0: There is a detail for a concrete flume. Where on the site is it located?
20. C-6.04: SD 1-07 Standard Pipe Trench Detail needs to be the latest pdf version downloaded from the city website. Need to see the titleblock. All city details used in the plan set need to follow this.
21. Landscape Plans:
- a. A few trees along Breezewood Drive and Dusty Miller Lane are either too close to stormdrain pipes or are shown over top of pipe. Please relocate or shift away from piping. Trees must be 10 feet away from inlets and 15 feet away from street lighting.
 - b. Check that trees planted adjacent to on-street parking do not interfere with vehicle doors opening.
 - c. Trees in landscape islands appear to be planted over SD piping. Shift trees as much as possible to avoid this conflict.

Please call or email if there are any questions. Thank you.

Project Name: **Wilmington Three Phase A**

Formal TRC Date: Feb 18, 2021

Reviewer Name: Chris Walker

Reviewer Department/Division: FIRE

Please address the following comments:

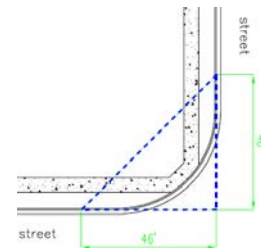
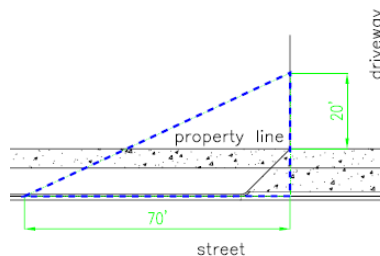
- Please call out all FDC locations on buildings so distances can be measured from hydrant locations.
- The type of Building Construction according to the International Building Code must be present on the plans. (Preferably the site data table) The 5 types of construction classifications are: Type I, **Type II**, **Type III**, **Type IV**, & **Type V**. (REFER TO TABLE 601 in the IBC)

BASE INFORMATION:

- Coordinate with Engineering division for any variance to the technical standards.
- Show and label the nearest existing streetlight on public ROW section of Breezewood Dr.
- Provide a signage and pavement marking plan showing all proposed traffic control signs, street name signs, and related pavement markings locations and types for the proposed ROWs.
<https://www.wilmingtonnc.gov/home/showdocument?id=3940>

TECHNICAL STANDARDS – ACCESS:

1. Dimension driveway widths and tapers. [Sec.18-530 CofW LDC] [7-9 CofW Tech Stds]
2. Please coordinate with Engineering to determine whether the proposed ramps shown at the southern corner of Chippenham Dr and Dusty Miller Ln requires to be directional or standard flare type curb ramps.
3. Show and apply the City's 20'x70' sight distance triangle at each driveway and the City's 46'x46' sight distance triangle at each street corner intersection abutting this development on the site plan and landscaping plan. [Sec.18-529(c) (3) CofW LDC] [Sec. 18-812 CofW LDC]. Add a note indicating that all proposed vegetation within sight triangles shall not interfere with clear visual sight lines from 30"-10'. [Sec.18-556 CofW LDC]



TECHNICAL STANDARDS – PARKING:

4. Please dimension the width of the on-street parking space. The recommended minimum and standard on-street parking space width is twenty-three feet (23 ft.), measured parallel with the edge of roadway. [Chapter VII (D) page 7-16 of CofWTSSM].
5. Provide a turning movement analysis of largest vehicle accessing parking facilities.
6. Please show location of accessible parking signs.
7. Note the required and proposed number of handicapped spaces in the development data. [Sec. 18-529(b)(2) CofW LDC]

ROUNDBABOUT:

8. Plan shows sectional view of the roundabout. Please provide all the dimensions for designing elements on site/landscape plans (plan view) including but not limited to inscribed diameter, central island diameter, width for truck apron, lane width, splitter island and refuge island details.
9. Entry, Circulating and exit speed-radius relationships.
10. Inscribed diameter and truck apron shall be consistent with design vehicle (Provide auto turn analysis for fire and trash truck).
11. Recommendation: You may provide a table on a site plan showing design criteria for the sight distances, inscribed circle diameter, central island diameter, design vehicle type, design speed limit and other relevant details.

12. Signage and pavement markings plan. You may include the roundabout within Signage and pavement markings plan for the overall subdivision.
13. Provide all the applicable sight distances like a stopping sight distance on approach, stopping sight distance on circulatory roadway (across the island), intersection, and to crosswalk on exit. References: FHWA, AASHTO roundabout design guidelines.

STREET LIGHTING [[City of Wilmington Street Lighting Policy](#)]:

1. The standard streetlight shall be a DEP designated LED equivalent fixture installed within the recommended range of mounting heights for the specific fixture. The standard streetlight shall be installed on a wooden pole in areas served from overhead facilities and on a fiberglass pole in areas served from underground facilities.
2. Since City's street lighting policy does not specify the acceptable streetlighting level for the roundabout, please contact Duke Energy and provide the photometric analysis of the streetlights required for the proposed roundabout. Also refer AASHTO for the roundabout lighting standards.
3. We will develop and provide a layout for the Standard street lighting for this subdivision ROWs once photometric analysis for roundabout is received.
4. Any installations above the criteria of Standard street lighting, will be considered as non-standard and must conform to the City's non-standard street lighting procedure as per the policy.
5. All the streetlights shall be installed within the public ROW.

GENERAL NOTES TO ADD TO THE PLAN:

- A. Street trees must be located a minimum of 15 feet from streetlights. [[CofW SD 15-17](#)]
- B. It shall be the responsibility of the subdivider to erect official street name signs at all intersections associated with the subdivision in accordance with the Technical Standards and Specifications Manual. The subdivider may acquire and erect official street name signs or may choose to contract with the city to install the street signs and the subdivider shall pay the cost of such installation. Contact Traffic Engineering at 341-7888 to discuss installation of traffic and street name signs. Proposed street names must be approved prior to installation of street name signs.
- C. Contact 811 prior to contacting City of Wilmington, Traffic Engineering regarding the utilities in ROW.
- D. Contact Traffic Engineering at (910) 341-7888 to discuss street lighting options.

Subject to further comments once we receive the requested details on the plans. Please let me know if you have any question.

Project Name: **WILMINGTON THREE PHASE A**

TRC Date: **02.18.2021**

Reviewer Name: **BILL McDow**

Reviewer Department/Division: **PDT/Transportation Planning**

TECHNICAL STANDARDS:

1. This project was part of the Barclay West Phase 5 TIA. The project will be required to install any improvements required by the TIA. Please contact Kayla Grubb, EI at (910) 772-4170, Kayla.grubb@wilmingtonnc.gov to discuss any questions regarding the TIA review process. Please ensure the TIA improvements are shown on the site plan.
2. The site plans do not label the 5' sidewalk along Chippenham Drive. Please revise.
3. Please clarify the dimensions for the splitter islands at the Roundabout.
4. Please clarify the crosswalks and pedestrian refuge area for the Roundabout.
5. The site plans show a note for a "Bike Barn, however, the building appears to be missing from the plans. Please revise.
6. Please update the site data table to show required and proposed bicycle per LDC Sec 528. [City of Wilmington Land Development Code, Sec. 528]
7. The proposed On-street parking cross section, (with 7.5' parking), shows a 12' travel lane and 17' travel lane. Please revise the cross section or provide signage to control parking within the 17' travel lane.
8. The plan appears to propose parking spaces that are less than the minimum dimensions for on-street parking. A variance may be requested. [Chapter VII, Table 6, page 7-19, CofW Tech Stds]
9. Portions of the parking lot do not have the minimum R25' radius for landscape islands and drive aisle routes along a Travelway, (i.e. Emergency vehicle access routes). Please provide an auto turns for Fire, Rescue and Trash Truck Vehicles to verify that these vehicles can safely access each building and garage shown on the site plans. Chapter VII, Detail SD 15-13 CofWTSSM]
10. Portions of the proposed development do not appear to be in compliance with the 500'/800' rule pertaining to the maximum length of a private drive/parking lot. [Chapter VII , C (4), pg 7-15 to 7-16 CofWTSSM] A variance may be requested.
11. Provide a detail for the proposed 10' Multi-Use Path along George Anderson Drive.
12. The proposed handicap ramps for Building #6 appear to exceed the minimum slope per ADA Guidelines. Please verify the slope, cross slope and dimensions for ADA Ramps.
13. Building 7 and other buildings have stairs along certain sidewalk approaches. Please consider providing ADA access route signage from the public sidewalk on Breezewood Drive to the site.
14. Building 8 appears to show compact 8' typical parking spaces, please verify whether compact or standard spaces are used at this building. If compact spaces are used, please mark them with Compact Parking signs.

[Please let me know if you have any questions regarding the comments.](#)

Project: Wilmington Three Phase A
TRC Meeting Date: 2/18/21
Reviewer: Anna Reh-Gingerich
Department: Stormwater Services

To Whom It May Concern:

The Wilmington Three Phase A project drains to Barnards Creek. Any additional stormwater capture on-site would help reduce the amount of stormwater runoff and pollution that could enter Barnards Creek and, eventually, the Cape Fear River.

My comments:

1. Although allowed by ordinance, the proposed wet ponds are not recommended for approval. With recent incidents of anatoxin-A and other bacteria associated with blue-green algae in wet ponds, as well as recent and on-going research by NC State University, UNC-Wilmington and NCDEMLR concerning the efficacy and overall public health and safety and water quality performance of wet ponds, we recommend alternative stormwater control measures, depending on the soils and ground water conditions. These could include bio-retention, constructed stormwater wetlands, and infiltration practices, using the NCDEMLR Stormwater MDC Design Manual.
 - If the wet ponds move forward, consider incorporating floating wetland islands to provide more nutrient removal. We are encouraging more practices to reduce the potential for toxic algal blooms, which pose a public health and safety risk. They fall under Design Variant 1 in the NCDEQ Stormwater Design Manual (page 15): <https://files.nc.gov/ncdeq/Energy%20Mineral%20and%20Land%20Resources/Stormwater/BMP%20Manual/C-3%20%20Wet%20Pond%2004-17-17.pdf>.
2. Incorporate pervious materials into parking stalls, such as pervious cement, pervious asphalt, or pervious pavers to reduce the amount of stormwater runoff being generated. Even a few parking stalls can make a big difference, especially in the areas with good drainage.
3. Incorporate more tree save into the site plan. Many citizens have voiced concerns over tree loss and the Mayor has promoted an initiative to promote tree retention and planting within City limits to improve the overall tree canopy. Trees are helpful for erosion control, stormwater management, and reduced energy costs.
4. Thank you for incorporating native plants! I would like to encourage you to incorporate more:
 - Green Leaf Japanese Maple, Crape Myrtle, and Allee Elm are all species not native to North Carolina even though they enjoy the conditions here. Consider native trees such as serviceberry, persimmon, loblolly bay, American hophornbeam, redbuds, dogwoods, Carolina cherry laurel, red maple (acer rubrum), or cherrybark oak (Quercus pagoda) to name a few. More are available in this booklet, as well as more native shrub options: <https://ncwildflower.org/handouts/Coastal-Landscaping-Guide-Book.pdf>
 - A variety of native sedges would work well for ground cover:

http://hoffmannursery.com/assets/files/files/Hoffman_Nursery_Green_Infrastructure_Chart.pdf

- The North Carolina Extension Gardener toolbox is also a great resource for researching the native ranges of plants and finding suitable native alternatives:
<https://plants.ces.ncsu.edu/>

Thank you for the opportunity to review! Please do not hesitate to reach out to me if you have any other questions or would like to explore other ways to improve infiltration on-site.

Thank you,

Anna Reh-Gingerich

Interim Watershed Coordinator - Heal Our Waterways Program

City of Wilmington Stormwater Services

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