

To: Shane Lippard, Right Angle Engineering
From: Brian Chambers, Senior Planner; 910.342.2782
CC: File;
Date: 12/20/2021
Re: The Block on Front 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

Planning Review

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

Comments:

- Identify number of residential units and commercial square-footage per building in site data table.
- Maximum number of parking spaces permitted is 64 (16 units X 2.5 = 40, 4800 sq ft / 200 = 24). The TRC may allow for a parking increase up to 25% above the maximum if excess parking meets standards of the code (Sec 18-528).
- Tree protection fencing is required at a rate of one-foot per diameter inch around the protected trees.
- Show compliance with UMX lighting standards (location, height, directional light fixtures).
- Identify number and location of required bicycle parking (UMX).
- Surface parking lots visible from the public right-of-way shall be screened by permanent walls, shrubbery or hedges at least three (3) feet in height. If hedges or shrubbery are used, they shall be at three (3) feet in height at the time of planting and shall be maintained at three (3) to five (5) feet in height at all times.
- Pervious pavement materials, vegetated bio-infiltration parking lot islands, or infiltration systems shall be used to minimize pollutant run-off from surface parking areas to the extent that soil permeability, depth to groundwater, or site constraints allow.
- Do not use Red or Sugar maples in landscaping plan.
- Provide waiver request, including justification, for proposed sidewalk widths. 12-foot (S. Front) and 8-foot (Wright/Mears) sidewalks are required.
- Identify building entrance locations on site plan. All building must have entrance directly to public sidewalk along right-of-way facing facades.

- Parking exceeds maximum allowed, reduce number/size of central parking area so that the Oak Trees near the end of parking lot can be retained.
- Tree credits can only be counted for trees that are not otherwise required to be retained (any protected tree is required to be retained).
- Provide dumpster screening detail.

Engineering has reviewed the plans for The Block on Front project submitted November 17, 2021 for TRC review and have the following comments:

Stormwater Management Permit Application Form

1. II. Permit Information: #1: Why is 'Other' checked? This project is only a High Density project.
2. III. Contact Information: #1a: Please provide an email address for the applicant.
3. IV. Project Information:
 - a. #5, #6 & #7: The application lists the amount of onsite existing impervious to be removed and the amount to remain, but the demolition plan (C1) appears to indicate that all onsite existing impervious will be removed. Which is correct? The application or the Demolition sheet?
 - b. #8: It would appear that the pervious pavement is to receive pervious credit. The entry should be 13,880/0 to illustrate that pervious credit is being requested.
 - c. #12: List all newly constructed impervious that is to be constructed within the public right-of-way (sidewalk, driveway aprons, etc.) in this section.
 - d. #13:
 - i. Cumulative total of the impervious pavement equals 18,430sf (3,400+4,325+2,840+7,865), which is greater than the 14,900sf listed in the table under #8. Adding the curb and gutter square footage of 3,524sf to the 14,900sf of impervious pavement equals 18,424sf. Still a slight discrepancy.
 - ii. Because the pervious pavement is receiving credit, the PC is considered an permitted SCM and should have the drainage areas added to this table. DA-1 has two PC areas that can be considered one SCM. DA-2 and DA-3 will each have one PC SCM. DA-4 has 6 areas of PC, which can be considered as 1 SCM.
 - iii. The cumulative total of the pervious pavement (2,358+1,800+1,600+8,400=14,158sf) exceeds the amount listed in the impervious surface table under #8 (13,880sf). Please verify. Also, since the pervious pavement is receiving credit add a zero (0) to the right of the forward slash. Example 2,358/0.
 - iv. The cumulative total of the impervious sidewalk (730+612+460+380=2,182sf) exceeds the amount listed in the impervious surface table under #8 (2,175sf). Please verify.

Design Narrative

4. When an existing development is redeveloped, either in whole or in part, increased stormwater controls (water quality and water quantity) shall only be required for the amount of impervious surface being created that exceeds the amount of impervious surface that existed before the redevelopment. It isn't clear if you are only treating the impervious surface that exceeds what is existing or treating all impervious regardless of what is currently on site. Add a section to the narrative and calculations that addresses this so it is clear.
5. 1. General Information:
 - i. c. Site acreage is 1.84 acres (80,213sf).
 - ii. d. Site disturbance of 1.5 acres isn't consistent with the plans.
 - iii. h: Pre-1988 Built-upon area is not used for determining impervious credit. The City will only grant credit for any impervious that currently exists on site.
 - iv. i: Since the project is to be phased, please submit a Phasing Plan.
6. 2. Stormwater Information:
 - a. a: The water classification for the Cape Fear River is SC.

- b. g: Verify that there is no offsite runoff from the other lots within the block. City topo and the existing conditions don't appear to rule it out. See images that follow. If there is offsite runoff, it must be addressed per city code.



7. 3. Site Description:
- The infiltration rate of 21.4 in/hr is being used. How was that rate determined? The two borings in the soils report have two different rates, neither of which is 21.4. Please clarify.
 - The last paragraph appears to be from a different project...states 8 new single family houses, etc.
8. 5. Erosion Control Considerations: 2. Land Grading references an existing pond.
9. 6. Construction Schedule: #5 and #6 references a pond site and basin.
10. Impervious Area Totals: This page appears to have discrepancies when compared to the SW Application.
11. The Block on Front DA #1-#4:
- The Basin Parameters are not consistent with the SW Application.

- b. The basins only need to meet the 1.5" water quality design volume. 1-yr Pre-Post is not a determining factor for the required storage volume. Obviously, the systems are oversized to meet pre-post requirements for the 2, 10 and 25-year. Just want to make it clear that the 1-yr pre/post is not a requirement.
 - c. Would recommend using 1/2 the infiltration rate for drawdown calculations and routing analysis.
12. Runoff and Pipe Calculations: Provide 10-year and 50-year HGL calculations for the outlet structures to the existing storm tie in. Provide a tailwater elevation at the tie in location.
 13. TBoF Pervious Concrete Volume: The provided calculation does not appear to be correct. There are 10 permeable pavement areas within 4 R-Tank drainage areas on this site. Provide calculations for the pervious concrete per the Stormwater Design Manual. All MDCs must be met for each PC area in order to receive pervious credit.
 14. Hydraflow Hydrographs: The routing analysis provided is insufficient to determine if the routing analysis is set up properly to meet City pre/post requirements. Please revise submittal to include entire routing analysis, not just the results.

Supplement

15. Add the pervious concrete SCMs to the Supplement.
16. Remove the pervious concrete square footages from the BUA numbers in each of the four drainage areas.
17. It appears that all existing impervious is to be removed. Drainage areas 2 and 3 show existing impervious to remain. Please clarify.
18. What pretreatment is being utilized for the R-Tank systems?
19. Hydrogeologic Evaluation is required since the depth to SHWT from the lowest point of the infiltration system is less than 2 feet.
20. Enter Factor of Safety number (2).
21. *For Basins Only* need not be completed.
22. *For Trenches Only* need be completed.
23. Design Volumes may need to be updated due to review comments.
24. Time to draw down is not consistent with calculations.

Design Plans

25. C1 (Ex. Conditions, Site Inventory & Demolition):Site Data Table:
 - a. Pervious Concrete Parking: Add note that states PC is getting 100% pervious credit.
 - b. Lot Coverage/Prop. BUA: The pervious concrete (13,880) can be subtracted from the BUA (51,223). Revise the lot coverage percentage.
 - c. Disturbed Area: Verify acreage is correct.
26. C2 (Site Plan):
 - a. Verify if the site is an appropriate location for permeable pavement, see Permeable Pavement MDC 3: Siting in the Stormwater Design Manual. Permeable Pavement must meet every MDC for Permeable Pavement to receive pervious credit. Please submit all required documentation, calculations, etc.
 - b. Provide the location of the required observation wells for the PC.
 - c. Verify that new public sidewalk widths meet standards for UMX. Check with Planning.
 - d. Revise 1' concrete header note near Building 4. Parking areas are 'pervious' concrete not 'impervious'.
 - e. Update Site Data Table to match table on C1.
27. C3 (EC, Grading & Stormwater Plan):
 - a. Spot grades are required on both sides of new public sidewalk at appropriate intervals to demonstrate compliance with longitudinal and cross slopes.

- b. Based on the delineated drainage areas, how will the impervious in the main drive aisle get into System 4? Or is the drive aisle impervious to be treated by the PC? Please provide additional spot grades on the site to support the drainage area delineations.
 - c. The drainage areas for each infiltration trench are not readily noticeable. Create a separate drainage area map that accentuates the areas for not only the R-Tank systems but the drainage areas for the pervious concrete as well. Label and quantify each drainage area.
 - d. Provide an inlet drainage area map.
 - e. The driveway entrances should not allow runoff from the site to flow into the public r/w. Verify that all onsite runoff will remain on site as much as is feasibly possible.
 - f. The spill on the four outlet structures is 21.00'. Is that the weir elevation in the box? The detail and calculations have the weir set at 20.75'.
28. C4 (Utility Plan):
- a. Refer to the City's Street Cut Policy for utility installation within the public r/w.
 - b. Cleanouts, valves, etc. are not allowed to be installed within the footprint of the proposed public sidewalk.
29. D1 (Details):
- a. All city standard details must be the most recent version downloaded from the city's website. City standard details must have the city titleblock.
 - b. Pervious Concrete Section:
 - i. Geotextiles are not recommended under the aggregate base in an infiltration design because they can accumulate fines and inhibit infiltration.
 - ii. Verify the depth of stone required for each area of PC. The calculations do not clearly demonstrate the depth of stone required, but the detail states 7 inches.
 - iii. The note referencing the stormwater design manual needs updating.
 - iv. Consider adding steps to the construction sequence for the installation and protection of the pervious concrete. See the Construction section of the Permeable Pavement Section in the Manual.
30. D2 (Details): All city standard details must be the most recent version downloaded from the city's website. City standard details must have the city titleblock.
31. D3 (Site Details):
- a. Infiltration Gallery Detail:
 - i. The detail only shows 1 foot of separation from the SHWT. This is not allowable without a hydrogeologic evaluation. Revise design to meet 2 feet of separation or submit a hydrogeologic evaluation per Infiltration MDC 2: Separation from the SHWT. If one foot of separation is allowed by the evaluation, refer to the Class V Stormwater Drainage Well Requirements section for possible reporting to DWR's Stormwater Injection Program.
 - ii. The detail shows a scenario where a single layer of R-tanks is used. R-tank System 4 calls for a double stack. Provide a section detail with revised elevations. Provide an outlet structure detail that addresses the elevations required for system 4 as well.
 - b. Infiltration Gallery Layout does not appear to be sufficient to construct four different galleries. Please provide layout dimensions for all four galleries.
32. D5 (Water and Sewer Details): Remove the CFPUA details from the plan set. The city does not sign off on CFPUA details.

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

Project Name: **The Block on Front**

Formal TRC Date: DEC 22, 2021

Reviewer Name: Chris Walker

Reviewer Department/Division: Fire

Please address the following comments:

- The FDC locations must be within 150' of a fire hydrant as the truck drives. The current proposed locations of the FDC's on buildings 2 & 4 look to be outside of this code requirement.
- FDC's must be located on the front (Street side or Parking lot side) unless otherwise approved. Buildings 2 & 4 need more discussion on those locations.

Please add the following FIRE & LIFE SAFETY notes:

- Any new proposed hydrants must be brought into service prior to combustibles being delivered to the jobsite.

BASE INFORMATION:

- Locate and callout the existing streetlight at the corner of S Front St and Wright St abutting this development.
- There is an existing curb cut for a ramp at the corner of Meares St and S Front St aligned towards S Front St. Verify the details and show if it is proposed to be abandoned.

TECHNICAL STANDARDS:

1. Dimension driveway flares. [[Sec.18-530 CofW LDC](#)]
2. Sight distance for the street intersection is 46'x46'. Please revise the callout accordingly.

SIGHT DISTANCE TRIANGLE FOR ANY STREET INTERSECTIONS WITH THOROUGHFARES

This section of S Front St is a major thoroughfare [[Chap VII \(C\) \(2\) \(a\) of CofW Tech Stds](#)]. In accordance with the City Code, sight distances along thoroughfares must be calculated in compliance with the AASHTO requirements. [[Chap VII \(C\) \(1\) of CofW Tech Stds](#)] [[Sec.18-556 CofW LDC](#)]. Show AASHTO departure sight distance for street corner of S front St with Wright St and Meares St abutting this development.

TECHNICAL STANDARDS – PARKING:

3. The backing stub is to be 10' deep by 15' wide. Please dimension. [[Chapter VII, Detail SD 15-12 CofWTSSM](#)]
4. Twenty-four feet (24') is the minimum drive aisle width behind perpendicular parking. Please dimension. Off-street parking aisle parallel to S Front St is subject to variance. [[Chapter VII Table 6 of CofWTSSM](#)]

TECHNICAL STANDARDS – ADA:

5. Show the typical handicap sign detail on the plan as per ADA and City standards. [[Detail No.: TE7-01 & TE7-02](#)] [[CofW Sign Specification and Installation Guide](#)]
6. Please show location of accessible ramp(s) and parking signs. Curb ramps must not protrude into access aisles.

GENERAL NOTES TO ADD TO THE PLAN:

- A. Any required installation or relocation of traffic signs/pavement markings is the responsibility of the project developer. Please coordinate with City Traffic Signs and pavement markings Manager/Supervisor prior to installation/relocation of any traffic signs or markings in public ROW.
- B. Contact 811 prior to contacting City of Wilmington, Traffic Engineering regarding the utilities in ROW.

Please let me know if you have any questions or if I can be of further assistance.

Project Name: **THE BLOCK AT FRONT**

TRC Date: **12.22.2021**

Reviewer Name: **BILL McDow**

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

TECHNICAL STANDARDS:

1. The site has proposed a mixed-use development with 4 buildings, (64 Apartment units and 4800 SF, First Floor Commercial/ Retail/office).
2. The project is located within the TIP area for U-5734 Front Street Widening Project and the Rail Re-alignment Project. The future changes to the Front Street ROW and CSX Railway Alignment may result in conflict with Buildings 1-3. Please consult with David Leonard, PE, Division 3 Project Director, NCDOT and/ or Aubrey Parsley, PE, Director for Railway Realignment, for more information.
3. The proposed TIP U-5734, Front Street Widening project, shows a future median across the frontage of this property. Any driveway connections to Front Street may be affected by the median.

Please let me know if you have any questions regarding the comments.