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MEMORANDUM

To: *Chairman and Members of the
West Orange Planning Board*

From: *John J. Hess, PE, PP, CME
Planning Board Engineer*

Date: *June 26, 2024*

Re: *Application No. PB 24-01
West Essex Highlands, LLC
Preliminary & Final Site Plan - Review #1
Warner Road
Block 179, Lot 32
Our File: VWRP0179.01*

CC: *Geniece Gary-Adams – Zoning Official
Zayibeth Carballo, PE, PLS, PP, CME, CFM, CFS – Township Engineer
Diana McGovern, Esq. – Planning Board Attorney
George Wheatle Williams, PP – Planning Board Planner
West Essex Highlands, LLC - Applicant
Bryan D. Plocker, Esq. – Applicant's Attorney
Paul W. Anderson, PE – Applicant's Engineer
Laurance D. Appel, RA – Applicant's Architect
Walter Lublanecki, PE – Applicant's Traffic Engineer
John McDonough, LA, PP – Applicant's Planner
Jeffrey S. Grunn – Applicant's Surveyor*

Our office has received for review the following documents which were submitted in support of the above referenced application for Preliminary and Final Site Plan approval:

- A set of Preliminary & Final Site Plan drawings (66 sheets) prepared by Paul W. Anderson, PE with Anderson Consulting Services of Boonton, New Jersey and bearing a latest revision date of May 6, 2024.
- A print of a Topographic Survey of Tax Lot 32, Block 179 (1 sheet) prepared by Jeffrey S. Grunn, PLS with Lakeland Surveying of Rockaway, New Jersey dated September 6, 2023.
- A set of architectural plans (24 sheets) prepared by Laurance D. Appel, RA with Appel Design Group Architects of Florham Park, New Jersey and bearing a latest revision date of May 13, 2024.
- An executed copy of a Settlement of Litigation Agreement between West Essex Highlands, Inc., the Township of West Orange and the West Essex Highlands Condominium Association, Inc. and bearing a latest signature date of April 23, 2020.



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- A Drainage Report prepared by Paul W. Anderson, PE and bearing a latest revision date of October 30, 2023.
- A completed Application Form dated December 21, 2023.
- A Written Proposal for Application for Preliminary and Final Major Site Plan Approval.
- A Disclosure of Ownership.
- A List of Contiguous or Adjacent Properties Owned by Applicant.
- A completed Site Plan/Subdivision Checklist.
- A completed Sustainability Checklist Form.
- A Verification of Taxes & Sewer Charges Paid from the Office of the Tax Collector dated December 28, 2023 which states that the taxes on Lot 32, Block 179 are paid until the 4th Quarter of 2023.
- A List of Owners within 200 Feet of Block 179, Lot 32 from the Office of the West Orange Tax Assessor dated December 12, 2023.
- A List of Owners within 200 Feet of Block 179, Lot 32 from the Office of the Essex Fells Tax Assessor dated December 12, 2023.
- A List of Owners within 200 Feet of Block 179, Lot 32 from the Office of the Verona Tax Assessor dated December 6, 2023.
- Copies of the following prior Planning Board Resolutions for the property in question:
 - Resolution of Approval for Planning Board Case No. PB-04-23 dated February 2, 2005.
 - Resolution of Approval for Planning Board Case No. PB-04-23 dated May 5, 2005.
 - Resolution of Approval for Planning Board Case No. PB-04-34 dated May 5, 2005.
 - Resolution of Denial for Planning Board Case No. PB-04-24 dated April 5, 2006.

We have reviewed the submitted information in support of this application and offer the following comments:

A. PROJECT DESCRIPTION

The property in question is an irregularly shaped tract which fronts on the northerly ends of Warner Road, Kuzik Drive and Bayowski Road. It also abuts the municipal boundary with the Borough of Essex Fells to the north and west, the municipal boundary with the Township of Verona to the north and the West Essex Highlands Condominium development to the south. The property in question is located in the IH-1 Inclusionary Housing District and has an area of 5,245,870 sf or approximately 120.429 acres. The property is currently vacant and wooded and is traversed by several stream corridors. Development of the property is subject to the terms and conditions in a



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Settlement of Litigation Agreement between West Essex Highlands, LLC, the Township of West Orange and the West Essex Condominium Association, Inc.

The Applicant is seeking Preliminary & Final Site Plan approval to construct a residential development containing 496 residential apartments, 100 of which will be set aside for low and moderate income families. The Applicant proposes to construct four (4) apartment buildings, a clubhouse, a maintenance building, a dog kennel and a dog park. The residential apartments will be located within 4 separate buildings. In addition, on-site parking is proposed for 1,076 vehicles including 31 handicap accessible spaces. The proposed parking spaces include 744 under building parking spaces and 332 surface parking spaces. In addition, 5% of the parking spaces will be designed for electric vehicle charging. We note that an additional 55 parking spaces, including 2 handicap accessible parking spaces, are proposed at the clubhouse and an additional 18 parking spaces are proposed at the dog park.

The 396 market rate apartments will consist of 68 one-bedroom units, 101 one-bedroom plus den units, 25 two-bedroom units, 120 two-bedroom plus den units, 66 three-bedroom units and 16 three-bedroom plus den units. The 100 affordable units will consist of 12 one-bedroom units, 64 two-bedroom units and 24 three-bedroom units. Buildings D1& D2 will include roof top amenities including private terraces and a public sky lounge. In addition, a leasing office is proposed in the clubhouse. Also, two superintendent apartments are proposed in the maintenance building. The superintendent apartments will each be 2 bedroom units.

Access will be provided to the site via extensions of Warner Road and Kuzik Drive. In addition, an emergency access drive is proposed to Howell Drive. The site will be serviced by extensions of the existing sanitary sewer and water systems. Also, a stormwater management system consisting of 8 small scale infiltration basins with mechanical pretreatment devices are proposed to mitigate the increase in stormwater runoff from the site.

As part of the Stipulation of Litigation Agreement, the Applicant is required to install a traffic signal at the intersection of Oval Road and Eagle Rock Avenue. We note that the installation of this traffic signal is not part of the application that is presently before the Planning Board.

C. WAIVERS AND/OR EXCEPTIONS FROM THE RESIDENTIAL SITE IMPROVEMENT STANDARDS (RSIS)

This application is subject to the requirements of the Residential Site Improvement Standards (RSIS) adopted as NJAC 5:21-1, et seq.

1. The Applicant has not requested any waivers from the RSIS.
2. The Applicant has requested a *de minimis* exception from the requirement to provide access to the property from Kuzik Drive.

D. DESIGN COMMENTS

1. Based on our review, we find that the following items from the Township's Site Plan Checklist must be addressed:



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- a) Item #23 – *List of required regulatory approvals or permits.*
 - b) Item #46 – *Solid waste management plan.*
 - c) As required by NJAC 13:40-7.2(a)1, a signed and copy of a survey of the property being developed must be submitted to the Board with the site plan application.
2. The Applicant has requested the following waivers:
- a) Item #13 – *Metes and bounds description showing dimension, bearings, curve data, length of tangents, radii, arcs, chords and central angles for all centerlines and right-of-way, and centerline curves on streets.*
 - b) Item #22 – *Development stages or staging plans.*
 - c) Item #42 – *Proposed street names.*
 - d) Item #47 – *Site identification signs, traffic control signs, and directional signs.*
 - e) Item #48 – *Sight triangles.*
3. As required by the RSIS, each residential street shall be classified and designed to meet the standards for one of the street types defined in Table 4.2. Therefore, the Applicant must submit a report which classifies each street and demonstrates that the streets have been designed in conformance with the RSIS requirements.
4. The Applicant should clarify if the proposed parking will be assigned. If assigned parking is proposed, then the plans must be revised to identify the assigned parking spaces and the visitor spaces. In addition, the RSIS stipulates that the required parking includes provisions for guest parking at the rate of 0.5 spaces per dwelling unit. The guest parking must either be provided for on street or in common parking areas.
5. It shows on the architectural plans that many of the under building parking spaces will be tandem. The Applicant should provide testimony to the Board to demonstrate that the tandem spaces will be assigned to the same unit as stipulated in §25-19.e.4 of the Ordinance.
6. The plans show that access is proposed to the site from Warner Road and Kuzik Drive. However, the Applicant has requested a de minimis exception from the RSIS to not provide access to the property from Kuzik Drive. The RSIS stipulates that a street with a single means of ingress and egress is limited to a maximum average daily traffic of 250 vehicles. The average daily traffic for a 496 unit mid-rise apartment project will be approximately 2,728 trips which requires a second means of ingress and egress.

As stipulated in the RSIS, an application for an exception shall be filed in writing with the Planning Board and shall include:

- a) A statement of the requirements of the standards from which an exception is sought;



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- b) A statement of the manner by which strict compliance with said provisions would result in practical difficulties; and
- c) A statement of the nature and extent of such practical difficulties.

Within 30 days of granting a de minimis exception request, the Planning Board shall send a copy of the document(s) constituting the de minimis exception resolution and/or document to the New Jersey Department of Community Affairs, Division of codes and Standards, 101 South Broad Street, PO Box 802, Trenton, NJ 08625-0802. Such notice shall be clearly marked "Site Improvement Exception".

If the de minimis exception is granted by the Planning Board, then it is our recommendation that the connection to Kuzik Drive be maintained as an emergency access.

7. The site plan drawings should be revised to note that the proposed streets will be private.
8. The Applicant should address the Board regarding how the storage and collection of trash and recyclables will be handled at the site.
9. The Applicant should address the Board regarding their plans to install a guard house as indicated in item #24 in Exhibit D of the Settlement of Litigation Agreement. If a guard house is proposed, then the location must be shown on the site plan drawings and the appropriate details must be added to the plans.
10. The Applicant should submit turning movement plans to the Board to demonstrate that adequate maneuvering room is provided for emergency vehicles, school buses, trash trucks, delivery vehicles and moving vans.
11. The Applicant should address the Board regarding their plans to provide sanitary sewer service to the site. Sheet SP-18 shows that 2 pumping stations are proposed with the force mains for each running to Bakely Terrace. However, no information has been provided regarding the design of the pumping stations, the capacity of each pumping station, the size of the proposed force mains and the ultimate points of discharge. In addition, the Applicant must demonstrate that adequate downstream capacity is available to service the project.
12. The Applicant should address the Board regarding their plans to provide potable water to the site. The Applicant must demonstrate that the water system will be looped so that supply may be brought to the consumer from more than one direction. In addition, the system must be designed to provide the required fire demand plus the maximum daily residential demand as stipulated in §5:21-5.2 of the RSIS. The system must also be designed to maintain a minimum pressure of 20 psi at street level under all flow conditions.
13. The Applicant should address the Board regarding the status of the required outside agency approvals for this project.



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14. The proposed buildings must be labeled on each sheet of the site plan drawings.
15. The dimensions of the proposed buildings must be shown on the site plan drawings.
16. The proposed street names should be shown on each sheet of the site plan drawings.
17. The site plan drawings should be revised to identify the handicap accessible parking spaces that will be van accessible.
18. The site plan drawings should be revised to provide details of the improvements that are proposed at the clubhouse and the dog park.
19. The site plan drawings must be revised to identify the locations of the proposed electric vehicle parking spaces.
20. The site plan drawings must be revised to callout the type of curbing that is proposed. We note that sheet SP-64 includes details for Concrete Vertical Curb and Belgian Block Curb.
21. The site plan drawings should be revised to dimension the proposed setback between the face of curb and the proposed sidewalk along all of the proposed streets.
22. The site plan drawings should be revised to show the radii of all proposed curves along each side of the proposed streets and parking areas.
23. The site plan drawings should be revised to provide stationing and dimensions along all streets and parking areas to properly define the geometry of the proposed work.
24. The site plan drawings show that several of the proposed parking areas will have an uninterrupted row of parking spaces which exceed 20 spaces. As stipulated in §25-12.1.o of the Ordinance, the maximum permitted length of a single row of parking spaces shall be 20 spaces, at which point a landscape area with a minimum width of 8 ft shall be provided. Therefore, the plans must be revised accordingly.
25. North arrows should be added to the Zoning Map and the Street Map on sheet SP-1 of the Site Plan drawings.
26. Map Reference #4 on sheet SP-1 states that the freshwater wetlands/boundary line was verified by the NJDEP under File No. 1423-07-0001.1, FWWW190001. Therefore, a copy of the NJDEP approval must be submitted to the Planning Board.
27. It shows on the Zoning Schedule on sheet SP-3 that 1,035 parking spaces are proposed. We note that the Overall Development Summary on sheet SP-3 shows that 1,076 parking spaces are proposed for the apartment units. In addition, the plans show that 55 parking spaces are proposed at the clubhouse and 18 parking spaces are proposed at the dog park. Therefore, a total of 1,149 parking spaces are proposed. This discrepancy must be resolved.



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28. It shows on the Building Type 1 table on sheet SP-3 that 21 3-bedroom units are proposed in Building A.2 whereas it shows on the Unit Matrix on sheet C-01 of the architectural plans that 20 3-bedroom units are proposed in Building A-2. This discrepancy must be resolved.
29. Section 25-19.e.11 of the Ordinance stipulates that a minimum buffer width of 100 ft shall be provided around the entire tract boundary. It shows on sheet SP-4 that a buffer of 106.3 ft is proposed from the northerly property line to building D.1. However, by scale the parking spaces on the cul-de-sac adjacent to Building D.1 appear to be less than 100 ft from the northerly property line. Therefore, the plans should be revised to dimension the setback from the parking spaces to the northerly property line.
30. Sheet SP-4 must be revised to label the proposed boardwalk.
31. Sheet SP-5 shows that the sidewalk on the westerly side of the parking lot between buildings B and C will be 9.5 ft wide measured on an angle. The width of the sidewalk should be measured perpendicular to the sides of the sidewalk.
32. Sheet SP-5 shows a one-way driveway exiting Building C with no depressed curb or driveway apron which is unacceptable. We note that the architectural plans show that this driveway will be an emergency exit from building.
33. Sheet SP-6 must be revised to clarify the improvements that are proposed at the Warner Road wetlands crossing.
34. Sheet SP-6 should be revised to provide a handicap parking space near the dog park and maintenance building.
35. Sheet SP-6 shows a depressed curb, driveway apron and curbed area on the easterly side of the cul-de-sac adjacent to Building A.2. The purpose of the area must be clarified.
36. Sheets SP-6 & SP-7 must be revised to label the kennel and the maintenance building.
37. Sheet SP-7 should be revised to label the basins that are proposed on the southerly side of the dog park.
38. Sheet SP-8 should be revised to identify the structures that are proposed on each side of the pool.
39. Sheet SP-9 shows a concrete pad adjacent to the driveway at the southerly end of Building D.2. The purpose of this concrete pad must be clarified.
40. Sheet SP-9 includes a callout for a 4 ft wide sidewalk along the southerly side of the road adjacent to the pump station. However, no sidewalk is shown on the plan. This discrepancy must be resolved.
41. Sheets SP-8 and SP-9 must be revised to show the improvements that are proposed where the street crosses the wetlands.



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42. Sheet SP-9 shows that head on parking is proposed immediately adjacent to a 4.3 ft sidewalk. The plan should be revised to show that the sidewalk will be 6 ft wide to account for overhang of the vehicles parking in these spaces.
43. Sheet SP-9 should be revised to provide sidewalk along the front of the 6 parking spaces at the southerly end of Building D.2.
44. Sheet SP-10 shows that head on parking is proposed immediately adjacent to a 4 ft sidewalk. The plan should be revised to show that the sidewalk will be 6 ft wide in this area to account for overhang of the vehicles parking in these spaces.
45. Sheet SP-10 shows that a boardwalk is proposed by the 11 parking spaces on the westerly side of Building D1.1. The Applicant should clarify how the boardwalk will be accessed as it crosses 2 retaining walls.
46. Sheets SP-11 and SP-12 must be revised to correct the overlapping text within the Building C footprint.
47. Additional details must be provided on the grading plans to demonstrate that all of the proposed handicap accessible parking spaces will have a maximum slope of 2% in accordance with the ADA Standards for accessible design.
48. The grading plans must be revised to provide spot elevations at the corners of each building and in front of the doors to each building.
49. It shows on sheet SP-13 that Buildings A.1 and A.2 will have a garage finish floor elevation of 577 whereas a 570 contour is shown at each entrance to the building. The discrepancy must be addressed.
50. It shows on sheets SP-13 and SP-14 that the dog kennel building has a finish floor elevation of 558.5 whereas the ground elevation in front of the entrance door is approximately 557.5. In addition, the ground elevation at the door on the westerly side of the building is approximately 556.5. The grading must be adjusted to provide proper access to the building.
51. It shows on sheets SP-13 and SP-14 that the maintenance building will have a finish floor elevation of 558.5 whereas the ground elevation in front of the entrance door will be approximately 557.5. The grading must be adjusted to provide proper access to the building.
52. Sheet SP-64 includes details for a Do Not Enter sign and a No Outlet sign. The site plan drawings should be revised to show the locations where each type of sign is proposed.
53. Sheet SP-64 includes an Asphalt Milling/Resurfacing detail. The site plan drawings should be revised to identify the locations where milling and resurfacing is proposed.
54. The Asphalt Milling/Resurfacing detail on sheet SP-64 must be revised to delete the reference to the Morris Plains standard details and specifications.



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55. The plans should be revised to include details of the following improvements that are proposed:

- a) Keep Right Around Circle sign.
- b) Electric Vehicle parking space sign.
- c) Pump stations.
- d) Emergency access drive to Howell Drive.
- e) Emergency access drive gate.
- f) Retaining walls.
- g) Drainage inlets
- h) Drainage headwalls.
- i) Porous HDPE pipe installation detail.
- j) Inflow level spreaders.
- k) Storm manhole.
- l) Sanitary sewer manhole.
- m) Sanitary force main.

E. DRAINAGE COMMENTS

1. The proposed development will result in the disturbance of more than one acre. As a result, it is classified as a Major Development and is subject to the stormwater management requirements set forth in Section 25-29.4 of the Ordinance.
2. In accordance with Section 25-29.4.h, whenever the stormwater management design includes one or more BMPs that will infiltrate stormwater into subsoil, the design engineer shall assess the hydraulic impact on the groundwater table and design the site so as to avoid adverse hydraulic impacts. A groundwater mounding analysis for all BMPs designed to infiltrate into the subsoil shall be provided.
3. In accordance with Section 25-29.4.j, manufactured treatment devices may be used to meet the requirements of this subchapter, provided the pollutant removal rates verified by the New Jersey Corporation for Advanced Technology and certified by NJDEP. The Applicant should provide copies of the NJDEP certification to confirm the proposed MTD's will meet the green infrastructure requirements.
4. In accordance with Section 25-29.5.a.4, in computing stormwater runoff from all design storms, the design engineer shall consider the relative stormwater runoff rates and/or volumes of pervious and impervious surfaces separately to accurately compute the rates and volume stormwater runoff from the site. The SWM report should be revised to comply with same.
5. In accordance with Chapter 5 of the New Jersey Stormwater Best Management Practices (BMP) Manual, a minimum or default value may not be used for time of concentration. We note that a minimum Tc of 10 min is used for several hydrographs. Time of concentration for pre- and post-development conditions must be calculated and used in the stormwater analysis. The SWM report shall be revised to comply with same.



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6. Based on the construction detail for the pervious pavement system, it appears that an underdrain system is proposed. In accordance with Chapter 9.6 (Pervious Paving Systems) of the BMP Manual, pervious pavement systems with an underdrain may not be used to meet the groundwater recharge requirements. The Applicant should confirm the type of pervious pavement system being proposed and revise the SWM report and associated construction detail to reflect compliance with the BMP Manual.
7. In accordance with Chapter 9.6 of the BMP Manual, the maximum contributory drainage area for a pervious paving system is three times the area of the proposed pervious pavement. It appears that contributory drainage area will exceed the maximum permitted for the proposed system. Design modifications are required. In addition, we note that the site plan depicts pervious pavement within open lawn areas; same should be revised.
8. The stormwater management design indicates that large-scale infiltration basin #1 will collect discharge from nearby Manufactured Treatment Devices (MTDs) (i.e., Filterra) during larger storm events. Pursuant to Township and State stormwater management requirements, the large-scale infiltration basin may only be used to satisfy the standards for stormwater runoff quantity, and would require a waiver/variance from NJAC 7:8-5.3 for groundwater recharge and stormwater runoff quality. Design modifications appear to be required for compliance with the applicable stormwater management regulations.
9. It appears that soil testing, including soil profile pits and/or soil borings, have been performed throughout the site. However, copies have not been provided to the Board. The Applicant should provide a copy of the soil report to our office for review to verify the proposed stormwater management system will function as designed.
10. Site specific details for the proposed small-scale infiltration basins and any other BMP should be provided detailing all specifications (i.e., embankment and spillway elevations, sand bottom layer thickness / elevations, filter fabric, etc.). Same should comply with all requirements outlined in the NJDEP BMP Manual.
11. It does not appear that a stormwater analysis using the water quality design (WQDS), which uses a rainfall intensity of 1.25 inches over 2 hours, has been included in the stormwater report. The report should be revised to include same.
12. The Stormwater Management Report should be revised to include a Low Impact Development Checklist.
13. The Stormwater Management Report should be revised to include a completed Hydrologic Modeling Database - Data Entry Short Form.
14. Storm sewer pipe size calculations should be provided for review to confirm proposed pipe sizes will be adequately sized for proposed flows. Calculations should be provided using, at a minimum, the 25-year design storm. In addition, a storm inlet drainage area map should be included in the stormwater report.



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15. The front end of the report should be revised to adjust text outside the header of the report. In addition, the language in the report should be revised to be consistent with the proposed conditions. We note several areas where the report references the incorrect number of basins as well as the incorrect type of BMP being proposed (i.e., infiltration basin vs. pervious pavement).
16. The tables at the front end of the SWM report which outline pre- and post-development peak runoffs should be revised to be consistent with the stormwater analysis.
17. The Pre-Development Drainage Area Map should be revised to remove all proposed improvements and should only reflect current existing conditions.
18. Each subdrainage area shall be clearly delineated on the drainage area map. In addition, the total area, CN, Tc, for each subdrainage area should be included on the map. Hydrograph names should be consistent with the drainage areas indicated on the revised DA maps.
19. Full size drainage area maps at an enlarged scale should be provided for review.
20. The Tc paths for all subdrainage areas should be clearly indicated on the drainage area maps.
21. Verify drainage areas indicated in the SWM report for all subdrainage areas as same are inconsistent with drainage area maps. Check and revise as necessary.
22. We note that the Point of Analysis (POA) in the Pre- and Post-Development Drainage Area maps are inconsistent; the POA's should be the same to verify consistency in the analysis. The stormwater analysis should be revised as necessary.
23. Provide callouts for all Filterra systems depicted on the site plan. Verify that the dimensions included on same are consistent with the dimensions in the SWM report.
24. Revise names of proposed BMPs for consistency with the site plan and SWM report. We note that BMPs are identified as detention basins whereas small-scale infiltration basins and/or pervious pavement systems are proposed. Check and revise as necessary.
25. Verify drainage area for hydrograph 'Basin 1 Undetained' as same is inconsistent with the DA map.
26. Verify invert elevation of 8" orifice for Basin 1 in the site plan as same is inconsistent with SWM report.
27. Verify drainage area for hydrograph 'All basin's 2 undetained' as same is inconsistent with the DA map.
28. Verify drainage area for hydrograph 'Basin 2-1' as same is inconsistent with the DA map.
29. Verify drainage area for hydrograph 'Basin 2-2' as same is inconsistent with the DA map.



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30. Verify slope of sheet flow indicated in hydrograph 'Basin 2-2' as same is inconsistent with the DA map.
31. Verify length and slope of shallow concentrated flow indicated in hydrograph 'Basin 2-3' as same is inconsistent with the DA map.
32. Verify 10-year peak elevation for Basin 2-5 in the site plan.
33. Verify length and slope of pipe channel flow indicated in hydrograph 'Basin 2-6' as same is inconsistent with the DA map.
34. Verify drainage area for hydrograph 'Basin 3 undetained' as same is inconsistent with the DA map.
35. Verify drainage area for hydrograph 'Basin 4 porous pvmt' as same is inconsistent with the DA map.
36. Verify 24" x 4" orifice in the pond summary for 'Porous pavement system 4' as same is not depicted on the site plan and/or detail.
37. Verify drainage area for hydrograph 'overland 5-A' as same is inconsistent with the DA map.
38. Verify invert elevations and water surface elevations indicated on SP-25 as same is inconsistent with the SWM report.
39. Outlet Control Structure details should be revised to indicate 'top of grate elevation' in lieu of '100-year overflow elevation' for consistency.
40. Sheet SP-14 should be revised to depict the lowest level of Basin 1 (540.5).
41. Verify OCS 2-1 information on Sheet SP-21 as same is inconsistent with the detail.
42. Verify all information indicated on profiles on sheets SP-60, SP-61, and SP-62 are consistent with the SWM report. Check and revise as necessary.
43. At least one (1) inspection port, with a removable cap, must be provided with its location denoted in the maintenance plan. The inspection port must be placed at least three (3) feet from any edge. Additionally, each inspection port must be flush with the surface of the surface layer and the depth of runoff for the WQDS must be marked on each structure and its level included in the design report and maintenance plan. The size of the inspection port must be large enough to allow for maintenance activities.
44. Site specific details for the emergency spillways should be provided for review.
45. To the maximum extent feasible, areas atop the proposed retaining walls should be graded to direct surface runoff parallel to the top of the wall. Our office does not recommend grading these areas to allow runoff to cascade over the wall or along the back of the wall.



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46. It appears that a 15" HDPE pipe is proposed to traverse beneath Building D.1. Our office has concerns with possible maintenance and access issues relative to this pipe. We recommend that design modifications be made and/or Applicant provide testimony addressing same.
47. The SWM report indicates that roof runoff will be directed to the proposed basins; however, no roof leader collections have been shown on the plans. Specifications and points of connection for roof leader collection system should be indicated.
48. Rip rap sizing calculations should be provided to verify the dimensions indicated in the construction detail on SP-25.
49. As stipulated in Section 25-29.10(b)(1) of the Ordinance, the design engineer shall prepare a maintenance plan for the stormwater management measures incorporated into the design of a major development. It further stipulates in Section 25-29.10(b)(4) of the Ordinance that the maintenance plan and any future revisions shall be recorded upon the deed of record for each property on which the maintenance described in the maintenance plan must be undertaken. Prior to recording, the form of the deed must be approved by the Board Attorney and our office.

F. LANDSCAPING COMMENTS

1. The Applicant has proposed deer exclusion fencing for existing wooded areas to remain. Details of the proposed fence, method of installation, maintenance responsibilities and notes should be provided for further review.
2. Revise the street tree layout to create uniformity within the site by providing the same species of trees on both sides of the roadways within substantial groupings.
3. Review and revise match lines, as they create difficulties for review (and later construction), such as labels to corresponding graphics are not on the same sheet. Also, the overall landscape plan should indicate the match line locations.
4. Our office recommends that street trees be provided on the lawn side of sidewalks, where feasible, to reduce future hardscape conflicts as well as to provide greater soil volume for a healthier tree.
5. Revise the 'Plant List', sheet 29 of 66, as indicated below:
 - a. Both BP (Paper Birch) and AS (Sugar Maple) are a northern tree species and with a warming climate, these species are not recommended.
 - b. RP (Black Locust) is an invasive species, is not commercially available, nor recommended. The Applicant has included the 25 RP within the tree credits as native trees.



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- c. Indicate single or multi-stem trees for proposed ornamental trees, to prevent any confusion. Single stem trees should be indicated by caliper and multi-stem trees by height.
 - d. Provide oak species, a keystone species of our ecosystem.
 - e. PA (American Plum) is not recommended as it is highly susceptible to black knot fungus.
 - f. Correct the common name for AM (Black Chokeberry).
 - g. Specifically indicate a minimum planting height/spread for proposed shrubs. Currently, only container sizes are listed, but many of these species will not be available at these sizes.
 - h. Provide cultivar selections for proposed trees and shrubs, to prevent confusion during construction.
 - i. Ensure shrub and perennial plantings located within parking islands do not exceed 30" at maturity to ensure visibility.
- 6. Revise the plans to provide a four-season landscape screen around proposed trash enclosures. Currently, the Applicant has provided deciduous shrubs.
 - 7. Revise the plans to shift shrub landscape beds to be a minimum of three (3) feet from edge of curb, to reduce damage from vehicles, snow clearing operations and road salt spray.
 - 8. Review and revise proposed plant material locations, to ensure planting beds are not in conflict with proposed hardscaping. It appears shrubs are proposed across the parking garage entrance at proposed Building C, shrubs are within entrance walkway at proposed Building B, etc.
 - 9. Revise the plans to provide shade trees within the parking lot island and the traffic circle island located in the parking area between proposed Building C and the Clubhouse. Also, shade trees should be provided in lieu of proposed CF (Flowering Dogwood) at the north end of the parking lot between proposed Buildings B and C. Sufficient space is available to support a shade tree, rather than an ornamental tree as proposed.
 - 10. Revise the plans to provide additional native trees to revegetate open areas by the proposed basins.
 - 11. Revise the plans to shift landscape materials outside of the dog park fence, to reduce damage. Also, benches and/or play equipment should be considered for this space.
 - 12. It appears labels are missing for landscaping in the vicinity of proposed Building D.2. Provide shade and ornamental trees for this area.



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13. The Applicant has proposed foundation landscaping for most of the proposed buildings; however, these do not consider the solar orientation of the planting beds. This should be revised to ensure a successful landscape. Also, provide foundation landscaping for the proposed buildings near the dog park and for screening the pump station.
14. Revise the plans to label proposed road names, buildings, basins, exterior utilities, etc., on the landscape sheets.
15. The Applicant has indicated Ernst Seed Mix #137 by the basins; however, there are two (2) distinct hatch lines at the basin. Revise the plans to clarify the difference. Also, provide mix specifications and maintenance notes.
16. The applicant proposes a dog park, pool, and two tennis courts, boardwalk, and a club house with a gym. Testimony should be provided that this recreation is sufficient for a development of this size (approx. 500 units). It appears that no child-specific amenities are proposed. Construction details should be provided.
17. Revise the plans to graphically depict and specifically label the proposed and existing woodline. Tree protection fencing should be depicted on the plans, to prevent confusion during construction.
18. Revise the plans to provide mulch bed lines on the plans, to prevent confusion during construction.
19. Revise the plans to indicate proposed disposition for all open areas, such as lawn, mulch, stone, sod, etc.
20. Revise the plans to provide general planting notes and planting details, to include, but not limited to, handling, quality, watering responsibilities, etc. Our office recommends that the tree planting details provide rigid, plastic open mesh trunk guards to prevent irreparable damage from buck rub, burlap around root ball to be removed and the root flare to be at final grade.
21. Revise the plans to provide a minimum clearance of fifteen (15) between proposed trees and light fixtures.
22. It appears that wetland education signs are proposed as details are provided on sheet 28 of 66. Revise the plans to indicate proposed mounting method as well as their specific locations on site, to prevent confusion during construction.

G. LIGHTING COMMENTS

1. In accordance with IES (Illuminating Engineering Society) standards, parking lots shall have a minimum of 0.50 footcandles and residential streets should be an average of 0.40-0.45 footcandles. Revise the plans to provide a data summary chart, indicating maximum, minimum, and average footcandles, for further review.



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2. Revise the plans to provide a luminaire schedule, to include, but not limited to, quantities, ordering information for both fixtures and poles, color temperature, etc. Also, provide manufacturer's catalog cuts, for further review.
3. Revise the plans to provide isolux patterns on the plans and provide isolux pattern details, with a scale and graph.
4. Revise the plans to indicate proposed timers and hours of operation. Also, indicate proposed color and finish for all fixtures and poles.
5. Revise the plans to provide a light pole footing detail, to indicate dimensions, rebars, concrete strength, etc.
6. It does not appear light fixtures are proposed within the Clubhouse amenities area. The Applicant should indicate the expected operating hours to determine if lighting should be provided.

The Applicant is hereby advised that any revised plans or other documents submitted to the Board should be accompanied by a cover letter which addresses each of the comments in this review letter and details any other changes that have been made to the plans as these may not be readily apparent.