

September 29, 2020
Job # 117 Camelot at Ernston Road
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Mr. Jay Cornell, P.E.
Borough Engineer's Office
3141 Bordentown Avenue
Parlin, New Jersey

**RE: Borough of Sayreville
Camelot at Ernston Road LLC Site Plan
Block 347.01, Lot 3.01; Block 366, Lot 1
CME File No. PSAP 0366.01**

Dear Mr. Cornell,

Attached please find the following documents;

- Preliminary and Final Major Site Plan Set, consisting of 27 sheets, dated September 12, 2019, revised September 17, 2020
- Drainage Report prepared for Camelot at Ernston Road, dated September 12, 2019, revised September 17, 2020
- Letter from Kaplan Companies; RE: R-Land 70, LLC, dated September 29, 2020
- Sewer and Water Report, dated September 12, 2019, last revised September 17, 2020
- A Letter from Langan Engineering, dated September 30, 2020, written by Karl A. Pehnke, P.E.
- Truck Turning Exhibits performed by Langan Engineering, dated September 30, 2020
- A request for service letter from JCP&L dated February 4, 2019
- A gas service request from PSE&G dated March 13, 2019
- Will serve letter from MCUA dated February 15, 2019

The referenced documents are being submitted in response to the report received from the Borough Engineer's Office, dated November 19, 2019 (utilizing the numbering system within each report):

Technical Engineering Review

A. Site Grading and General Comments

1. The applicant will obtain all applicable governmental approvals required for the project and will provide copies as a condition of approval.
- 2-4. Please refer to the attached letter dated from Langan Engineering, dated September 30, 2020.
5. Centerline station has been added to Drive Aisle "D".
6. A Roadway profile has been created for Drive Aisle "D" and is located on sheet 17. The shown centerline follows site plan grading, that is taking place in this area, which generally flows away from buildings to the East.
7. Service request letters are attached from Middlesex County Utilities Authority, JCP&L and PSE&G. The applicant will provide any additional letters from other utility companies as a condition of approval.
8. The site plan has been updated to indicate all required building setback lines.
9. The landscape plan has been revised to comply with the required buffer areas and evergreen tree plantings. Additional plant/tree species have been indicated between buildings/parking areas and Main Street and between buildings/parking areas and Lot 2.05 in Block 347.01. The additional plants are intended to create the 10 ft. wide minimum landscape buffer. Furthermore, the plant schedule has been revised to indicate that all proposed evergreen trees will have a minimum installed height of 6'.
10. The location of the proposed refuse enclosure for Building #6 has been revised to comply with the perimeter building setback (20 ft.) set forth in the AH-2 zone district design standards
11. The location of the proposed refuse enclosure between Buildings # 1 and 2 has been adjusted to be more centrally located between the sides of the buildings.
12. The proposed off-street parking spaces located directly west of Building #6 have been relocated to satisfy the minimum distance to off-street parking spaces from buildings (15 ft.) set forth in the AH-2 zone district design standards.
13. Typical length and width dimensions have been added to the proposed driveways in front of Building #6.
14. Additional width dimensions for all sidewalks have been added throughout the site plan

15. This item regarding RSIS and sidewalks, please refer to the attached letter dated from Langan Engineering, dated September 30, 2020..
16. Additional spot elevations have been added to all ADA ramps on site.
17. The applicant will provide an environmental professional to discuss their findings of the Preliminary Assessment Report with the board.
18. The quantity of parking surface parking spaces indicated in the parking table on plan sheet #1 is consistent with the quantity of spaces indicated on the site plans. There are now 186 total proposed surface parking spaces and that has been indicated on sheet #1 and the site plan
19. The total quantity and locations of car charging stations has been indicated on the site plans. The two (2) proposed car charging stations can be found adjacent to one another in the rear of Building #5
20. The Clubhouse timing will be discussed with the Planning Board.
21. Elevation information for outlet control structures and inverts at headwalls have been added to the grading plan sheets.
22. The grading plan has been revised to show a minimum of 2% slope at all grass areas.
23. The grading plan has been revised to show a minimum of 0.5% slope at all paved areas.
24. The grading plan has been revised to properly show contours and spot elevations on site.

B. Sanitary Sewer System

1. A NJDEP Treatment works approval will be obtained as a condition of approval.
2. The proposed sanitary sewer main connects to an existing sanitary sewer main in Main Street which has a 10" ductile iron pipe at a slope of 1.54%. This pipe carries a capacity of 1,906,502 gpd. Our proposed average daily flow is 34,800 gpd. It is our opinion that the additional sanitary flow is considered negligible compared to the capacity of the receiving 10" sanitary main.
3. The provided Sanitary Sewer and Water Report has been revised to correctly show (54) one-bedroom apartments. The subsequent calculations have been adjusted.
4. The plans have been revised to include pertinent information regarding all proposed sanitary laterals and cleanouts. A typical description of pipe diameter, material, & slope is indicated. Also, a note has been added to the Utility Plans (Sheets 10 & 11) & to the 'Sanitary Sewer Lateral & Cleanout' detail (Sheet 24), that states, "All proposed sanitary sewer laterals and cleanouts shall be constructed with 4" P.V.C. @ 2.0%"..

5. Using Manning's equation, an 8" PVC pipe using an "n" value of 0.011 at a slope of 5% will give a velocity of 9.17 ft./sec. Therefore, the velocity will be below the maximum allowed flow velocity of 10ft./sec.

C. Water Distribution System

1. Per ISO Guide for Determination of Needed Fire Flow, edition 06-2014, NFF formula note #2 the NFF for residential occupancies (such as apartment buildings) protected by an automatic fire sprinkler system installed in accordance with NFPA-13R is the demand at the base of the riser (BOR). BOR demand was estimated by C&M Sprinkler Design, Inc. (see attached), based on the current site plan and flow test, to be 330 gpm at 75 psi with an NFF at 20 psi of 638 gpm. Peak hour flows from RSIS Table 5.2 for the total of 142 units was estimated to be 312 gpm. And a flow test performed by Target Fire Protection and witnessed by Sayreville Fire Marshal Kevin Krushinski on 10/31/19 showed a flow of 1500 gpm at 98 static psi and 92 residual psi. The above is indicative that simultaneous Peak Hour and required fire demand flows can be met as required by §5:21-5.2(c). Furthermore, given the unusually high available street pressure and the relatively small difference between static and residual pressures at a flow rate higher than the combined peak hour domestic and required fire demand the onsite mains should maintain the minimum 20 psi pressure at street level under all flow conditions as required by §5:21-5.3(i)3. The Sewer and Water Report has been updated to provide this analysis.
2. The provided Sanitary Sewer and Water Report has been revised to correctly show (54) one-bedroom apartments. The subsequent calculations have been adjusted
3. The previously shown dead-end water main servicing Buildings 1-4 has been revised to loop back in with the proposed on-site water main lines by way of Drive Aisle "A".
4. Additional water values have been added to all tee intersections where the water main is greater than 8".
5. A label has been added indicating the size and material for domestic water and fire for Building #5.
6. An isolation valve has been added to the existing 12" water main, between the two proposed wet taps to satisfy RSIS requirements for a looping water system.

D. Storm Sewer System

1. A low impact development checklist has been attached to the referenced drainage report.
2. The existing and proposed drainage areas have been amended include offsite areas and tributaries which impact the total volumes of water on site.

3. Regarding runoff coefficients, an existing runoff coefficient of 46 was utilized. For existing site conditions, we would note.
- a. All wetland soils, by definition, are considered poorly drained soils. All wetlands on site have been verified and approved by the NJDEP as part of the Freshwater Wetlands Letter of Interpretation: Line Verification, File No. 1219-18-0001.1. A copy of the approval has been attached to this submission. The soil conditions in the wetlands area are reflective of that which is described as Group D type soils, i.e. poorly drained, taken from the USDA soil description.
 - b. Per the web soil survey, a majority of the soils found within the wetlands area consist of AtsA – Atsion sand. The following is a description of this soil type, which is classified as a poorly drained soil and is listed as a hydric soil as described below:

Middlesex County, New Jersey

AtsA—Atsion sand, 0 to 2 percent slopes, Northern Coastal Plain

Properties and qualities

 - Slope: 0 to 2 percent
 - Depth to restrictive feature: More than 80 inches
 - Drainage class: Poorly drained
 - Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (0.71 to 19.98 in/hr)
 - Depth to water table: About 0 to 12 inches
 - Frequency of flooding: None
 - Frequency of ponding: None
 - Maximum salinity: Nonsaline (0.0 to 1.0 mmhos/cm)
 - Available water capacity: Low (about 3.6 inches)

Interpretive groups

 - Land capability classification (irrigated): None specified
 - Land capability classification (nonirrigated): 5w
 - Hydrologic Soil Group: A/D
 - Hydric soil rating: Yes
 - c. Under these existing conditions, the runoff coefficients have been calculated as follows; Verified wetlands (34.3% of the site) are considered to be “D” soil type, and under “Good” wooded conditions carries a CN of 77. The remainder of the site (65.7% of the site) is considered to be “A” soil type, and under “Good” wooded conditions carries a CN of 30. This results in the following calculation, $(0.343 * 77) + (0.657 * 30) = 46.121 // 46$. Our CN number for the existing drainage area is 46.
 - d. RSIS Section 5:21-7.2. Stormwater Calculations: Runoff Estimation Techniques indicates, “A runoff coefficient or a groundwater recharge land cover for an existing condition may be used on all or a portion of a site if the design engineer verifies that the hydrologic condition has existed on the site or portion of the site for at least five years without interruption immediately prior to the time of application

- e. In this regard, please find attached correspondence from Kaplan Companies dated September 29, 2020, indicating that the soil conditions at the site have existed at the site since at least 1990, for the time they have been the owner. As such, the existing soils, hydraulic conditions & recharge characteristics as utilized have been such for at least the last 30 years.
 - f. The existing conditions at the site, as utilized in our calculations, are accurate and appropriate
- 4. The time of concentration for DA#1 Impervious has been adjusted to show a minimum time of 6 minutes.
 - 5. The time of concentration for DA#3 Impervious has been adjusted to show a minimum time of 6 minutes.
 - 6. NJDEP GP permitting for wetlands will be obtained as a part of a condition of approval.
 - 7. The previously proposed infiltration basins have been revised to provide for Wet Ponds. The design followed the guidelines set forth in the New Jersey Stormwater Best Management Practices Manual, chapter 9.11 for Wet Ponds.
- 8-12. These comments no longer apply as a result of utilizing wet ponds.
- 13. The outfall pipe size and slope at the Outlet Control Structure #21 has been revised.
 - 14. The outfall pipe size and slope at the Outlet Control Structure #56 has been revised.
 - 15. Each newly proposed Wet Pond has been designed within the criteria of a Class IV dam. A certificate will be issued upon review and acceptance of the wet ponds.
 - 16. Each Wet Pond will be required to be pumped completely dry for routine maintenance. Due to the infrequency involved in this activity, as per the maintenance portion of the NJDEP BMP manual, a removeable sump pump will be used only when required.
 - 17. The wet ponds have been designed to provide for the required water quantity reductions specified by the NJDEP. Storm frequencies of 2-year, 10-year and 100-year were evaluated and are shown to be met for the 10-year and 100-year. The 2-year has been reduced to the maximum extent hydraulically possible utilizing a 2.5" diameter minimum orifice as required by the NJDEP.
 - 18. The grading and utility plans now indicate maximum water elevations for the water quality storm, 2-year, 10-year, 100-year and emergency spillway storm events.
 - 19. Anti-seep collars have been added to the drainage design for the outlet pipes leaving each Wet Pond.

20. At locations along the railroad, ponding currently occurs. The existing ponding cannot be drained without proposing significant grading on the adjacent property. However, our design does reduce the total amount of area which is to be impounded.
21. The top elevation of the basin area has been adjusted to include the required 5% increase in height. A “designed elevation” and “construction elevation” has been added to the details.
22. Each wet pond has been redesigned to provide a minimum 10’ top berm width.
23. The grading and utility plans have been revised to indicate the extent of the cutoff walls. Details have been added specific to each Wet Ponds wall.
- 24-28. These comments no longer apply as a result of utilizing wet ponds.
29. A note has been added to the outlet control structures regarding the grate design.
30. The trash rack detail has been revised to indicate site specific information.
31. This comment no longer applies as a result of utilizing wet ponds.
32. The utility plans have been revised to show pipe diameter and slope for all roof leaders. All roof drains will flow to “roof drain recharge systems”. Additional information can be found in the drainage report.
33. The proposed infiltration basins and now wet ponds. In order to properly handle the required Groundwater Recharge calculations, proposed recharge trenches are now proposed which intake all roof drainage. An analysis of these systems are provided as part of the attached drainage report.
34. A note has been added to the plans to provide structural calculations for all oversized drainage structures.
35. A construction detail for the anti-seep collars have been added to the plans.
36. A detail has been added to the plans indicating the construction of a clay core. The grading and utility plans have been revised to show the limit of the core.
37. Specifications for the fill material for embankments has been added to the detail sheet.
38. The construction detail for both Outlet Control Structures have been amended on the plans and corresponding information in the provided drainage report.
39. A concrete cradle detail has been provided on the details sheet.
40. A concrete support block detail has been provided on the details sheet.

41. The construction detail of the proposed emergency spillway for each wet pond has been amended.
42. An operations and maintenance manual will be provided as a condition of approval.

E. Soil Erosion and Sediment Control

1. Notes 3 & 4 of the Soil Erosion and Sediment Control Notes have been revised to delete "District" and replace the same with "Borough of Sayreville".
2. The sequence of construction has been revised to include the installation of silt fence.
3. The sequence of construction has been revised to include the installation of inlet filters and conduit outlet protection.
4. The sequence of construction has been revised to include the construction of Wet Ponds, not infiltration basins.
5. The stabilized construction entrance detail has been revised. The soil erosion and sediment control plan has been revised to include a paved transition area and additional dimensions have been added.
6. The stabilized constriction entrance detail has been revised to include the length of apron, width of apron, median stone diameter and the thickness of stone blankets.
7. Conduit Outlet Protection calculations for headwalls #10, #20, #44, and #55 have been revised. Our revised tailwater calculations for the aforementioned headwalls use the equation shown below:
$$\text{Tailwater} = (2\text{-yr Storm Max. Water Elevation}) - (\text{Invert of the Pipe})$$
8. Conduit Outlet Protection calculations for headwalls #22 and #57 have been revised. The tailwater for the two headwalls is now calculated using: $\text{Tailwater} = 0.02 * Do$.
9. The outlet area has been designed in accordance with applicable conduit outlet protection specifications, particularly when discharging to an undefined waterway.
10. The stability of the emergency spillway is included in the attached drainage report.
11. The methods and materials provided for sod bed preparation on sheet 21 have been revised.
12. Section 4 for the standard for topsoiling as shown on sheet 21 has been revised.
13. Testing locations for soil de-compaction testing have been added to the soil erosion and sediment control plan.

14. The temporary vegetative stabilization seeding rates, dates and depths have been revised.
15. A note has been added to the Acid Soil Conditions and Mitigation Procedures stating, the project is located within the Raritan Formation.
16. The standard for permanent vegetative cover for soil stabilization has been revised to show the optimal seeding dates for this development.
17. An acid soils management stockpile has been added to the soil erosion and sediment control plans.
18. A Hydrologic Modeling Database Entry Form will be provided as a condition of approval, upon review of the basin design.

F. Landscaping and Lighting

1. The lighting plan has been revised to provide a minimum of one-foot candle lighting intensity along all sidewalks.
2. Lighting for the pool area will be provided to the satisfaction of the board.
3. House side shields have been provided to reduce excessive glare onto neighboring properties.
4. The planting schedule has been revised to indicate that all proposed shade trees shall have a minimum caliper of three (3") inches.
5. The planting schedule has been revised to indicate that proposed ornamental trees shall have a minimum caliper of three (3") inches.
6. The proposed site improvements have minimal impact to the existing vegetation along the majority of the property's frontage, which also contain wetlands. Where applicable, street trees have been provided, the plans indicate 7 street trees along the vicinity of Main Street, near Building 6.
7. The quantities of landscape plantings have been revised to address all inconsistent quantities between the plant schedule and the landscape plan.
8. Planting symbols have been revised to indicate plants of the same species with the same symbol.
9. Parking Shade tree calculations have been added to the landscape sheet.

G. Roadway Improvements and Miscellaneous

1. Circulation plans have been attached as part of this submission.
2. The standard detail for roadway pavement have been revised to provide for a 4.5" thick hot mix asphalt base course.
3. The HMA base course on the roadway pavement detail has been revised to indicate 19M64.
4. The driveway detail has been revised to show a 1-1/2" curb reveal.
5. The post and rail fencing detail has been revised to indicate concrete footings.
6. Please refer to the attached letter dated from Langan Engineering, dated September 30, 2020.
7. The centerline plans have been revised to take into account the gutter along the perpendicular main road. The centerline (also top of curb) line has been extended with a dashed line to assist later with curb stake-out. Approximate curb return elevations are on the grading plan.
8. The requested Borough of Sayreville construction details have been revised or added to the plans.
9. The looping water main detail has revised to utilize the restraint method.
10. The type "J" eco curb piece has been revised to indicate a type "N" eco curb piece.
11. The sidewalk detail, masonry trash enclosure and typical trench drain detail have been amended to indicate 4500 psi concrete.
12. A broom finish has been specified for the concrete sidewalk detail.
13. The post and rail fence detail has been revised to provide concrete footings for each post.

H. Traffic

1. Please refer to the attached letter dated from Langan Engineering, dated September 30, 2020.
2. Please refer to the attached letter dated from Langan Engineering, dated September 30, 2020.

If you should have any questions regarding the above, or require additional information, please do not hesitate to contact our office.

Very truly yours,
ABBINGTON ENGINEERING, LLC
William T. Wentzien, PE, PP, CME
President

Cc: Mr. Jason Kaplan
Mr. Bret Kaplan
Mr. Paul Kausch
Planning Board Secretary
John Leoncavallo – Board Planner
Karl Pehnke