



CROSS ENGINEERING & ASSOCIATES, INC.

February 11, 2021

Mr. Jim Hogue
Village of Long Grove
3110 Old McHenry Road
Long Grove, IL 60047

Re: **PHILIP ESTATES SUBDIVISION
LONG GROVE, IL
(CEAI Project # 1291)**

Dear Mr. Hogue:

On behalf of our client, Philip Estates, LLC, we are submitting the following documents for your continued review of the project submittal:

1. Preliminary Engineering Plans by Cross Engineering & Associates, Inc, last revised February 11, 2021.
2. Preliminary Plat of Philip Estates Subdivision by Edward J. Molloy & Associates, Inc., last revised February 9, 2021.
3. Preliminary Autoturn Fire truck Exhibit by Cross Engineering & Associates, Inc. dated February 11, 2021.
4. Preliminary Landscape Plan, Existing Tree Survey and Preservation Plan and Tree Inventory by Allen L. Kracower & Associates Inc., last revised November 10, 2020.
5. Wetland Delineation Report by Midwest Ecological, last revised November 6, 2020.
6. Preliminary Stormwater Management Summary by Cross Engineering & Associates, Inc. including SWMM Modeling, last revised February 11, 2021.
7. Lift Station Design Memo by RHMGE Engineers, Inc. dated April 9, 2018.
8. Water supply review letter by RHMGE Engineers, Inc. dated October 30, 2017.
9. Letter from the Glenstone Homeowners Association dated July 27, 2020.

The plans and reports have been revised in response to the review comments in a letter from Gewalt Hamilton Associates, Inc dated July 23, 2020. Below are the review comments followed by our responses:

GENERAL COMMENTS

1. The watermain and sanitary sewer connections flow into the systems in the Glenstone Subdivision. The applicant states that easements are negotiated and approved with Glenstone. The applicant shall provide these documents for the Village files.

Response: A copy of a letter from the Glenstone HOA President is included in this resubmittal.

2. The sanitary sewer, both the new and the existing in Glenstone Subdivision, is under the jurisdiction of the Lake County Public Works Department. The applicant shall advise if there has been a pre-application / conceptual meeting with their office. The Village shall

be copied on any correspondence with the Lake County Public Works Department and invited to any meetings.

Response: *We have had preliminary discussions with Lake County Public Works back in January 2018. See attached email from Chuck DeGrave dated January 30, 2018. We will contact the county again prior to proceeding with final engineering plans.*

3. A truck turn exhibit should be included in the next submittal, which shows the largest fire truck maneuvering through the site

Response: *An Autoturn exhibit demonstrating the fire truck maneuvering through the site is included in this resubmittal.*

4. Please see the attached Wetland Review by the Village's wetland consultant, Christopher B. Burke Engineering Ltd., dated July 14, 2020.

Response: *See responses to the CBBEL letter.*

5. The exhibit showing the proposed conservancy easements needs to be updated for this subdivision and should show the topographic wetness index on it. This exhibit will be used to evaluate the location of the easements.

Response: *The topographic wetness index from the Lake County GIS website is shown on Sheet 6 of the engineering plans.*

6. A preliminary long-term stormwater maintenance plan should be submitted with the next submittal.

Response: *Based on a follow-up telephone call with the Village Engineer we will provide the maintenance plan that complies with the guidance provided by the Lake County Watershed Development Ordinance during final engineering.*

7. Our review did not include a review of the Preliminary Landscape Plan.

Response: *Noted.*

Preliminary Plat of Subdivision Comments

8. Please add a location map. Item 6-3-2-B-9.

Response: *There is a Vicinity Map (Location Map) on Page 2.*

9. The surveyor needs to show the existing wetland buffer areas and make notes as to the restrictions as shown on Canterbury Park Subdivision noted above.

Response: *The wetland buffer areas and the wetland areas have been added to Page 1 and the "Wetland and Wetland Buffer Restrictive Covenant by Plat" has been added to Page 2.*

10. The width of the private roads needs to be labeled.

Response: *The width of the private roadway easement has been labeled in multiple locations.*

11. If utilities are to be allowed within the private roads, then a note needs to be added that matches what is stated in the provisions.

Response: Yes, utilities will be allowed within the private roads. Public Utility Easements have been added to Outlot C.

12. The "PUBLIC UTILITY EASEMENT PROVISIONS" do not state the location of the easements. There is a "PUBLIC UTILITY EASEMENT" shown as "HEREBY GRANTED" along the front of all lots plus the side lot line between 13/14. Please add the words to the provisions that will designate the location of these easements.

Response: The Public Utility Easement Provisions have been revised to call out the areas dashed or dotted on the plat and labeled Public Utility Easements.

13. "DRAINAGE AND DETENTION EASEMENT PROVISIONS" are on this plat; however, there are no notes on any lot showing "DRAINAGE AND/OR DETENTION EASEMENTS" being granted. The provisions only show exclusions. Please add the words that will designate the location of these easements.

Response: Notes have been added to Outlots D, F and G indicating there is a "Drainage and Detention Easement" over them. Provisions have been revised to indicate the use and requirements related to the easement.

14. A note is found on the plat (both sheets) "THIS DRAWING HAS BEEN PREPARED FOR PRO-FORMA PURPOSES ONLY AND IS BASED STRICTLY ON OUR CALCULATION OF THE BOUNDARY SHOWN ON THE FINAL PLAT OF SUBDIVISION OF CANTERBURY PARK PUD, RECORDED DECEMBER 22, 2009 AS DOCUMENT 6553804." The final plat will need to show record and measured dimensions of the exterior boundary and all monuments used to establish said boundary.

Response: Noted. The final plat will be based on an up-to-date ground survey and the note will be removed.

15. All easement granted on Canterbury Park Subdivision noted above need to be abrogated. Also, all utility companies need to sign off that they have no facilities with the existing easements and will allow them to be abrogated. This can be done on the final plat of subdivision.

Response: There are no facilities within the existing onsite easements. As stated, the utility companies can sign-off at the time of the final plat.

16. When the Final Subdivision Plat is prepared please add all certificate that are required by Village Code Section 6-5-B.

Response: The village required certificates will be updated with the final subdivision plat.

Preliminary Traffic Impact Study Comments

17. KLOA followed the ITE guidelines and their analysis is reasonable for trips generated, trip distribution, traffic assignments, capacity analyses.

Response: Noted.

18. The proposed traffic does not meet the Illinois DOT Bureau of Design and Environment thresholds for separate left and right turn lanes on Cuba Road.

Response: Noted.

19. The sight distance seems reasonable at the site access.

Response: Noted.

20. The maintenance of the emergency access drive should be specifically documented in the site documents. Common issues are overgrown vegetation, lost lock keys to gate, rusted gate locks, etc.

Response: Noted.

Preliminary Engineering Comments

21. The source and date of the topography should be confirmed and noted on the plans. An onsite topographic survey will be needed for this development and should be completed for preliminary engineering approval.

Response: The source and date of the topography has been noted on the Cover Sheet. This is a ground topographic survey, however, due to the age of the survey a new ground topographic survey will be completed for use during final engineering.

22. The proposed path cross section and width need to be added to the engineering plans. We recommend that all paths have a minimum width of 6-feet.

Response: The path cross-section detail has been added to Sheet 3 of the engineering plans. We believe that a 4-foot wide with clear 12-inch wide shoulder adjacent to each side is adequate for this type of walking path and respectfully request to keep the path at 4 feet wide as proposed.

23. The roadways should be a minimum of 22-feet wide to match other rural cross section roads in the Village. In addition, the roadway stone aggregate base thickness should be increased to 11.”.

Response: The roadway widths have been revised to 22 feet and the stone aggregate has been revised to 11 inches.

24. Please add a cross section of the emergency access drive

Response: An emergency access cross section detail has been added to Sheet 3 of the engineering plans.

25. Please add the cross section of the proposed public sidewalk.

Response: A public sidewalk cross section detail has been added to Sheet 3 of the engineering plans.

26. The proposed ditches are “v” shaped and need to be revised to include a 2-foot wide flat bottom. In addition, please label the sideslopes with a maximum slope of 4:1. The detail needs to be revised to reflect these revisions.

Response: The roadway typical section detail has been revised to show the 2-foot wide flat bottom and a maximum slope of 4:1.

27. The maximum allowable slopes are 4:1. Please label the slopes on Lots 5-7 and adjust as needed.

Response: *The slopes on Lots 5-7 have been labeled "4:1 Max."*

28. The preliminary storm sewer sizes need to be shown on the plans.

Response: *The preliminary storm sewer sizes have been shown on the plans.*

29. A lift station is proposed that will be sized for future development. Exhibits and flow calculations for the future service area need to be provided.

Response: *A memorandum with flow calculations and exhibits prepared by RHMG Engineering Inc. is included in this resubmittal. Please note that the calculations are based on a proposed lot count of 25 for Philip Estates. The pump calculations are still valid for the proposed 19-lot subdivision.*

30. The applicant shall provide a water system model to confirm the proposed size (6") and pressures are adequate.

Response: *A memorandum with project water demand prepared by RHMG Engineering Inc. is included in this resubmittal. Please note that the calculation are based on a proposed lot count of 25 for Philip Estates, therefore the existing water supply can still supply sufficient water to the Philip Estates subdivision. Flow tests will be performed during final engineering to verify the pressure at the connection point. Based on general discussions we anticipate a pressure of approximately 40 psi which will be adequate to provide potable water to Philip Estates.*

31. We recommend the watermain be looped within the subdivision to improve overall flow and water quality.

Response: *Given the site layout it is not practical and cost prohibitive to loop the watermain within the Philip Estates subdivision. The additional connections to the existing water system will improve water quality at the dead-end connection point in the Glenstone subdivision.*

32. The existing aerial utilities along Cuba Road should be shown on the plans. Do they conflict with the proposed path?

Response: *The existing aerial utilities will be surveyed when the updated ground topography is done for final engineering. They will be added to the final engineering plans. We do not believe the existing aerial utilities will conflict with the proposed path, and if there is a conflict, we believe there is sufficient room to make adjustments to avoid the utility poles.*

Preliminary Stormwater Management Comments

33. The current Lake County Watershed Development Ordinance (WDO), which has been adopted by the Village, and proposed amendments (including Bulletin 75 Rainfall Data Table) should be utilized for design.

Response: *As discussed with the Village Engineer, we are able to utilize the Bulletin 70 Rainfall Data due to the initial project submittal being made prior to the adoption of the amendments and updated rainfall data. It should be noted that we have run the hydrologic model using the updated Bulletin 75 Rainfall Data to verify the basins have the capacity for the higher rainfall events.*

34. The proposed detention sizing is based on Appendix K, which is no longer applicable since Bulletin 75 Rainfall data is required for detention sizing. Since the proposed detention basins are interconnected and discharging to a Zone AE floodplain / floodway, it is recommended an updated stormwater model be developed at this stage to account for basin interconnection and tailwater (such as PondPack or XPSWMM), which will impact the footprint and depth of the proposed basins.

Response: *As discussed with the Village Engineer, we are able to utilize the Bulletin 70 Rainfall Data due to the initial project submittal being made prior to the adoption of the amendments and updated rainfall data therefore Appendix K is still applicable to this project.*

35. All offsite roadway improvements must be accounted for in the detention volume calculations and new impervious directed to the proposed basins

Response: *There are no offsite roadway improvements being constructed as part of this development.*

36. The proposed HWL of Detention Basin 3 is higher than the inverts of the adjacent culverts, which will result in ponding in the ditches. It is not recommended that the detention basin HWL encroach into the ditches. Any surcharged standing water must be contained in a stormwater easement and the surrounding area meet freeboard requirements.

Response: *There revised calculations have lowered the basin HWL and revised the ditch drainage to eliminate ponding in the ditches.*

37. The following comments pertain to existing depressions and BFE's:
- a. The source of all BFE's must be identified in the report and source material provided.
 - b. A BFE, reflective of the updated Bulletin 75 data, must be reviewed and approved by SMC for the existing depression by Stormwater Basin 1.
 - c. BFE's with <20 acres tributary must be established and can be reviewed and approved by the Village, including the depression by Stormwater Basin 3.
 - d. Existing depressional storage volume shall be maintained per Section 501.05. In addition;
 - i. If they have volumes greater than 0.75 ac-ft, they will need to be compensated for based on floodplain requirements.
 - ii. Portions of the existing depressions for Stormwater Basins 1 and 3 may be located outside of the development boundaries. Per Section 704.03 of the WDO, Hydraulically equivalent compensatory storage requirements for development activity in a non-riverine Regulatory Floodplain, that is located partially on-site, with more than 10% of the BFE surface area located on-site, shall be at least equal to 1.2 times the volume of Regulatory Floodplain storage lost or displaced. Such compensation areas shall be designed to access the required volume..

Response: *a. The existing BFE of 736.2 within the west depressional area is taken from the Atwell Hicks report for Canterbury Park, last revised November 6, 2007, that was approved by Lake County SMC. Based on an online meeting with Lake County SMC staff on November 17, 2020 it was discussed that the existing approved BFE of 736.2 would be accepted as the regulatory BFE for the site if it can be shown that*

for the proposed conditions using the new Bulletin 75 Rainfall Data, the high water elevation is no higher than the previously approved BFE. Modeling provided to the County indicates that the calculated BFE is at 736.20. We are awaiting review and confirmation of the model from LCSMC.

b. See response to comment 37.a above.

c. The tributary area is greater than 20 acres.

d. The floodplain compensatory volume of 0.60 acre-feet has been accounted for within the expanded stormwater management area. Detailed compensatory volume calculations will be provided at final engineering.

38. Please enhance the narrative to describe the existing drainage patterns of the site, including how the depressions and wetlands outlet, how drain tiles impact the drainage patterns of the site, the receiving downstream areas, proposed overland flow route paths, etc. All concentrated stormwater discharges must be conveyed into a maintainable outlet with adequate downstream stormwater capacity and will not result in increased flood and drainage hazard. (502.03).

Response: The narrative has been enhanced to provide additional explanation of the existing drainage patterns.

39. On the Existing Conditions and Proposed Conditions Exhibits provided in the stormwater report, identifying labels should be created for the tributary areas.

Response: The onsite tributary area labels have been added.

40. Please submit cross-section views for the stormwater management system showing existing and proposed conditions including principal dimensions of the work, existing and proposed elevations, proposed slopes, normal water and calculated base flood elevations, vegetation type, and overland flow depth and path. Please indicate on the engineering drawings if the detention basins are to be wetland bottom, dry, or wet.

Response: Basin cross sections showing basin details have been added to Sheet 4 of the engineering plans. Basins in Outlot D and G will be dry bottom basins and the basin in Outlot F will be a wetland bottom basin. Overflow weir elevations are shown on Sheet 4. Additional basin design details will be added at final engineering.

41. Detention Basin 1 has a proposed HWL that encroaches onto the adjacent property. All stormwater management facilities must be located onsite and within a dedicated stormwater management easement.

Response: Per my discussion with the Village Engineer the proposed detention volume required for the subdivision is provided at an elevation below which the water would back up over the property to the west. The storage volume above the detention requirement is the flood plain storage, and it should be noted that the existing floodplain storage extends into the adjacent property. The condition is being kept in the proposed condition.

42. A path is proposed to be constructed along the western side of Basin 1. All paths should be located above outside of the basin HWL's.

Response: With the path having to run along the west property line and due to the pond HWL it's not possible to raise the path above the HWL without causing significant fill

within the floodplain. In addition culverts would need to be provided to provide flow path for offsite flows. We have raised the path as high as it can practically be placed across the detention basin area. Any inundation would be at the higher events. The Homeowner's Association will be responsible to maintain the path.

43. The proposed adjacent grades of homes near detention basins must meet the flood protection elevation requirements outlined in Section 507.02.

Response: We have indicated the lowest opening for the homes adjacent to Basin 1 to be 738.5 which is 2.3 feet above the approved BFE of 736.2.

44. Per 506.01.C, the following comments pertain to drain tiles:
- a. There are multiple drain tile lines draining directly into the proposed detention basins. These lines should be intercepted and diverted around the basins with pipes of equivalent size. (506.01.C.4)
 - b. Observation structures, or similar maintenance and inspection access structures, shall be installed within the development at suitable points of ingress or egress. (506.01.C.2)
 - c. The applicant shall notify adjoining downstream property owners in writing of any proposed stormwater facility outlet location and design. The development design shall utilize, where practical and approved by the Enforcement Officer, outflow locations that have an existing tile leaving the development site. A subsurface connection to the tile shall be constructed as a low flow outlet. A surface outlet shall be designed for the development site outflows based on the assumption the downstream tile will cease to function. (506.01.C.3)
 - d. Recorded deed or plat restrictions shall be provided for all existing and replaced drain tiles within the ownership parcel which are part of the stormwater management system. (506.01.C.7).

Response: a. The underdrains are an integral part of the drainage system and are effectively draining the low depressional area. We are proposing to maintain the drain tile system to function as it currently does. It would not function if the draitiles were to be routed around the basin. The existing draitile pipes will be protected during construction, and replaced if they are damaged.

b. We have indicated some additional structures to provide maintenance access to the draitile and to be able to observe it operation and flow.

c. I observed the existing draitile discharge location along the east property line. The draitile discharges into a surface outflow into a defined ditch.

d. Noted. This shall be done at final engineering.

45. Per Section 508, onstream detention with a detention volume safety factor shall be provided for the offsite flow tributary to the proposed basins, and the allowable release rate should consider both compensatory storage and the DVSF. The detention volume safety factor and overflow weir sizing must account for tributary areas from existing drain tiles directed to the proposed basins.

Response: DVSF has been provided for within the stormwater basin. See Page 5 of the revised Preliminary Stormwater Management Summary. The DSVF is calculated to be 1.0538.

46. While calculations were not provided for overland flow routes, the design engineer should consider ditch capacity and overland flow paths between the proposed lots for the 100-year event during preliminary engineering as it will impact grading and foundation elevations. Freeboard requirements must be met per Section 506.03.

Response: Detailed ditch calculations will be done at final engineering to ensure they are adequately sized to handle the 100-year storm event.

Comments to be considered during final engineering:

47. Documents outlined in Sections 400 and 401 will be required as part of the final engineering submittal.

Response: Noted.

48. Calculations and sizes for the storm sewer system was not provided in this submittal, therefore the design of the system could not be evaluated. The storm sewer shall meet the requirements outlined in Section 506.01 of the WDO.

Response: Noted.

49. RVR and Water Quality requirements will be required per Sections 503 and 504.

Response: Noted.

50. Per Section 507.01, the top of the impounding detention structure shall be a minimum of one (1) foot above the design high water level within the emergency overflow structure based on the critical duration base flow. The 1-foot freeboard of the is to be measured from the top of the water flowing through the weir.

Response: Noted.

51. As part of the final, post-construction acceptance, all existing drain tiles that remain will need to be cleaned and televised.

Response: Noted.

Following are the responses to the wetland review comments in the review letter by Christopher B. Burke Engineering Ltd. Dated July 14, 2020:

Wetland and Buffer Review # 1

Based on our review the of the provided documentation the following are outstanding.

§1000.02 Wetland Delineation Report

We completed a review of the provided Midwest Ecological Wetland Delineation Report, dated May 20, 2017. The provided wetland delineation report is more than 3-years old and consequently must be updated. The wetland boundaries should be reflagged, and the delineated wetland boundaries confirmed, and the updated boundaries surveyed and added to the engineering plans.

Response: The wetland report has been updated. See attached report dated November 6, 2020.

The provided document is also incomplete. In the southwest quadrant of the site is a potential wetland area that was identified as non-wetland. The wetland delineation exhibit indicates data points taken within the suspect area, but the data forms were not provided. A review of several aerial photos was

completed. Nearly every photo indicates wetland signatures in the area in question. Additionally, the suspect area is mapped as containing hydric soil and field tile.

Response: *The requested information is provided in the updated wetland report. Based on a field visit between the Village's wetland consultant and our wetland consultant, it was agreed that the only wetland on the property is located at the southeast corner of the property.*

We strongly recommend that prior to the wetland boundaries being surveyed, that a field meeting be set up to allow me to evaluate to confirm the delineated wetlands, including the area in question mentioned above. The area in question is proposed to be converted into an onsite detention pond, and confirmation of the wetland boundaries will be critical to the development.

Response: *A field meeting occurred with the Village's wetland consultant and our wetland consultant to evaluate the onsite conditions. It was agreed that the only wetland on the property is located at the southeast corner of the property.*

Following the wetland boundary confirmation. The applicant is recommended to obtain a Corps of Engineers Jurisdictional Determination to determine if the Corps will regulate the onsite wetland(s).

Once the regulatory status of the onsite wetland(s) is known, the applicant is recommended to submit a Wetland and Buffer Submittal, prepared in accordance with the Lake County Watershed Development Ordinance addressing proposed wetland and buffer impacts and specific Ordinance requirements.

Response: *There are no proposed impacts to the existing onsite wetland. Work within the wetland buffer will conform to the WDO, and will be provided during final engineering.*

Following are the responses to the Preliminary Landscape/Existing Tree Survey and Preservation Plan Review by Urban Forest Management dated July 27, 2020:

Wetland and Buffer Review # 1

1. I will have to review the existing trees in the field to verify the data shown in the Existing Tree Survey.

Response: *Noted. Please note that we have cleared a significant portion of buckthorn across the property and have performed a new Tree Survey.*

2. The species of the proposed plantings are in general conformance with recommended acceptable species within the Village of Long Grove.

Response: *Noted.*

3. I would recommend the final Landscape plan include a detail that shows there will be a minimum of 6"-8" of topsoil within 2' of the outside edge of all root ball holes within the mass graded areas, such as the right of way. The top third of the root ball should be free of the metal basket, twine, rope and burlap after installation. Trees should be planted so that the top 2" of the root ball is above existing grade.

Response: *Noted. This will be shown at final engineering and final landscaping design.*

4. I would also recommend a Landscape Maintenance Specification to maintain the spirit and intent of the approved Landscape Plan. A schedule showing when the tree, shrub, prairie and wetland plantings will be installed, watered, pruned, mulched and otherwise maintained, to reach establishment, should also be included. All proposed plantings should be required to be replaced if in poor condition or dead, by whomever will maintain the common areas.

Response: Noted. A Landscape Maintenance Plan will be provided at final engineering time.

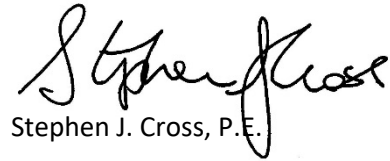
5. I will have to review the final grading and utility plans to determine which existing trees may require mitigation due to construction impacts.

Response: Noted.

We trust that this submittal has addressed the provided comments, and look forward to presenting our project at the March 2nd 2021 PCZBA meeting. If you need additional information at this time, please do not hesitate to contact me.

Sincerely,

CROSS ENGINEERING & ASSOCIATES, INC.



Stephen J. Cross, P.E.

cc. David Shaw – Horwitch Goldstone & Shaw LLC, via email
Dan McMillan, Philip Estates LLC, via email