

September 30, 2022

Mr. Russ Kraly  
Village of Riverwoods  
300 Portwine Rd.  
Riverwoods, IL. 60015



CONSULTING ENGINEERS

625 Forest Edge Drive, Vernon Hills, IL 60061

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[www.gha-engineers.com](http://www.gha-engineers.com)

Re: Federal Life Lexington Home Development  
Preliminary Site Development

Via email: [rkraly@riverwoods.gov](mailto:rkraly@riverwoods.gov)

Dear Russ:

Our office is in receipt of the following documents for review regarding the above residence:

- Boundary & Topographic Survey, prepared by Haeger Engineering, dated November 22, 2021.
- Preliminary Plat of Riverwoods Reserve, prepared by Haeger Engineering, dated September 1, 2022.
- Preliminary Site Lighting Exhibit, prepared by Haeger Engineering, dated September 8, 2022.
- Preliminary Site Plan, prepared by Haeger Engineering, dated December 3, 2021.
- Phase 1 Engineering Plans, prepared by Haeger Engineering, dated March 18, 2022.
- Phase 2 Engineering Plans, prepared by Haeger Engineering, dated December 6, 2021.
- Existing Stormwater Report prepared by Haeger Engineering, dated February 23, 2022.
- CBBEL Memo – FedLife Basin along Deerfield Road, dated August 30, 2022.
- Traffic Impact Study, prepared by KLOA, dated September 12, 2022.

The following comments shall be addressed prior to further approval:

**Photometric Review:**

Note: The site is approximately located at the Northeast corner of Milwaukee Ave and Deerfield Rd.

Note: There is no photometric exhibit, Lighting details, or electrical plan included in this submittal.

Note: Current zoning map shows the parcel as 'O & R1' (Office and Research).

***Comment:***

1. Photometrics will be required prior to final approval.
2. Lighting shop drawings will be required prior to final approval.
3. Complete electrical plans will be required prior to final approval.

***Summary:***

There are no issues with the preliminary site lighting plan. The comments above should be addressed prior to final approval. The designer shall refer to the Village code for specific lighting guidelines.

### **Preliminary Site Plan Review:**

1. The preliminary site plan shows an access to Deerfield Road adjacent to the eastern property line. Please provide preliminary correspondence with Lake County Department of Transportation regarding the approval of having a secondary access.
2. Final approval from LCDOT will be required prior to final permit approval.
3. Provide a walkway/sidewalk along the eastern side of the connecting road.
4. We would recommend that the primary access drive show the proposed pavement markings for turn lanes specifically with dimensions between Deerfield Road and the primary access to the proposed residential buildings.
5. The Site plan should illustrate the future RIRO access at the eastern end.
6. The site plan should address the required parking by the Village in addition to what is provided.

### **Stormwater Review:**

1. Provide the proposed stormwater report that incorporates the required detention and compensatory storage volumes as well as addressing RVR/water quality requirements. The report shall incorporate the required detention and compensatory storage volumes from the Deerfield Road project. Please also differentiate the storage volumes required for the Village Phase II access road and the rest of the site. All the pertinent stormwater data (storage volumes, high water level, release rates) should be shown in a summary table.
2. Based on the FEMA FIRM map, the Des Plaines River floodplain within the project site is a result of backwater conditions from the north end of the site. Thus, the 10-year FE and the BFE of the whole project site and the Deerfield ROW should have the same flood elevations as the northern portion of the site. The 10-year FE and BFE for the FedLife and Deerfield Road projects shall use the higher elevations of 642.35 and 645.30, respectively. Compensatory storage calculations shall be updated accordingly.
3. Per the email correspondence from Haeger Engineering on July 25, 2022, Haeger was planning to conduct an additional field investigation and submit further documentation and findings in regard to invert elevations along the outfall sewer and the outlet control structure, including the 6" bypass pipe/opening. Attached is the Field Investigation Exhibit that was included with the correspondence. It appears there have been no updates to this on the survey in the plans. Another open item regarding this matter includes addressing elevation discrepancies as noted by CBBEL's email on March 17, 2022. The Village cannot concur a NWL of 638 and the existing conditions HWL until after the field work is completed and the modeling is updated.
4. In general, the Village is in agreement with the drainage areas and methodology of the existing conditions modeling for the 100-year storm. The modeling will need to be updated to reflect

findings from the additional field investigation. The Village also requires to run the 2-year storm for the existing and proposed conditions.

5. The existing conditions model uses a 3'x3' box culvert crossing Deerfield Road. However, the existing conditions plan shows 4'x4' box culvert at the upstream end and 48"x60" CMP at the downstream end. Please clarify the discrepancies.
6. Three existing models were run with different tailwater conditions: free outfall, 10-year flood elevation, and outlet pipe flowing full. Using the 10-year FE as the tailwater for both the existing and proposed conditions is acceptable to the Village.
7. Based on the existing conditions model using the 10-year FE as the tailwater, the 100-year HWL is 644.50. The lowest finished floor elevation at the adjacent Colonial Court is approximately 645.0. The project shall ensure that the proposed HWL will not exceed the existing HWL and be lowered if practicable.
8. Demonstrate no adverse impacts to Colonial Court and the residential homes to the north for the proposed overflow conditions. In the existing conditions, the overland flow route is conveyed through the parking lot. In the proposed conditions, the overland flow route is narrower and pushed further north adjacent to the north property line. Capacity calculations for the north overland flow route to the Des Plaines River will need to be provided. The overflow HWLs must be contained within the FedLife property. The north overland flow route design shall include cross-sections depicting the flow depth calculated.
9. The proposed inlets at the entrance drive have rims of 644.1, which is more than a foot below the BFE of 645.3. We advise raising the road to minimize the depth of ponding water.
10. Based on the Lake County Wetland Inventory, a wetland is shown northwest of the existing parking lot. Wetlands on site will need to be verified and delineated. The jurisdiction of the wetlands will also need to be determined.

We hope you find these comments helpful in your assessment of the proposed development. A revised existing stormwater report, proposed stormwater report, and updated plans should be completed, and a point-by-point disposition of the above comments provided.

### **Traffic Study Review**

We offer the following comments for your consideration. As Deerfield Road is Lake County Division of Transportation (LCDOT) jurisdiction, our comments should only be considered advisory and based on our own recent experience. Ultimately, LCDOT will have to approve any access to and improvements for the proposed access locations along Deerfield Road.

### **Traffic Study**

1. The TIS prepared by KLOA is generally in conformance with the guidelines published by the Institute of Transportation Engineers (ITE).

2. As documented in the TIS, Deerfield Road is under the jurisdiction of LCDOT.
3. KLOA and the petitioner should provide copies of all correspondence with LCDOT. We would strongly encourage the Village not to issue a final approval until LCDOT concurs with the access locations and operation on Deerfield Road.
4. It has been our experience that LCDOT will not typically allow two full movement access drives for a development of this nature or even the additional RIRO access as discussed in the TIS. This should be clarified with LCDOT by the petitioner as soon as possible.
5. We generally concur with the description of the surrounding land uses and traffic control.
6. LCDOT requires that current 24-hour traffic volumes be included in a TIS. The KLOA document does not address or include the current or projected 24-hour traffic volumes along Deerfield Road.
7. Generally, LCDOT requires a specific growth rate to be applied to traffic data collected for a particular project. However, in this case, we concur with KLOA's approach to utilize the Design Volumes included in the IDS for the regional improvements to the US 45/IL 21 at Deerfield Road intersection.
8. The Preliminary Site Plan shows future access to Colonial Court which has been discussed by the Village and various property owners for several years. We feel that the TIS should be expanded to provide an analysis of the impacts of this connection. The TIS indicates this was not done due to the unknown timeframe. We suggest that a design year be selected and analyzed and when the formal proposal comes forward to connect, if necessary, the study can be revisited.
9. We believe that LCDOT would also want to see the potential impacts of the additional Colonial Court traffic on the proposed access drive to Deerfield Road analyzed at this time.
10. We generally concur with the Trip Generations as tabulated in the KLOA TIS. We would anticipate that LCDOT will require a Saturday midday analyses for the development given the overall makeup of the area and the potential connection to Colonial Court.
11. While the KLOA TIS correctly estimates the ITE trip generation data for Federal Life's former building, it is our understanding that it has been many years since the building was fully occupied. This comparison might be slightly misleading.
12. GHA generally concurs with the descriptions of levels of service (LOS) in the TIS.
13. GHA generally concurs with the summary of intersection operations and LOS results.
14. LCDOT generally requires a sight distance analysis for access points. We suggest that sight distance for both Deerfield Road access points be analyzed in accordance with the LCDOT standards for the proposed site access.



15. LCDOT generally requires that all TIS are signed and sealed by a P.E., the KLOA TIS is not signed.

We hope you find these comments helpful in your assessment of the proposed development. A revised TIS and updated site plan should be completed, and a point-by-point disposition of the above comments provided.

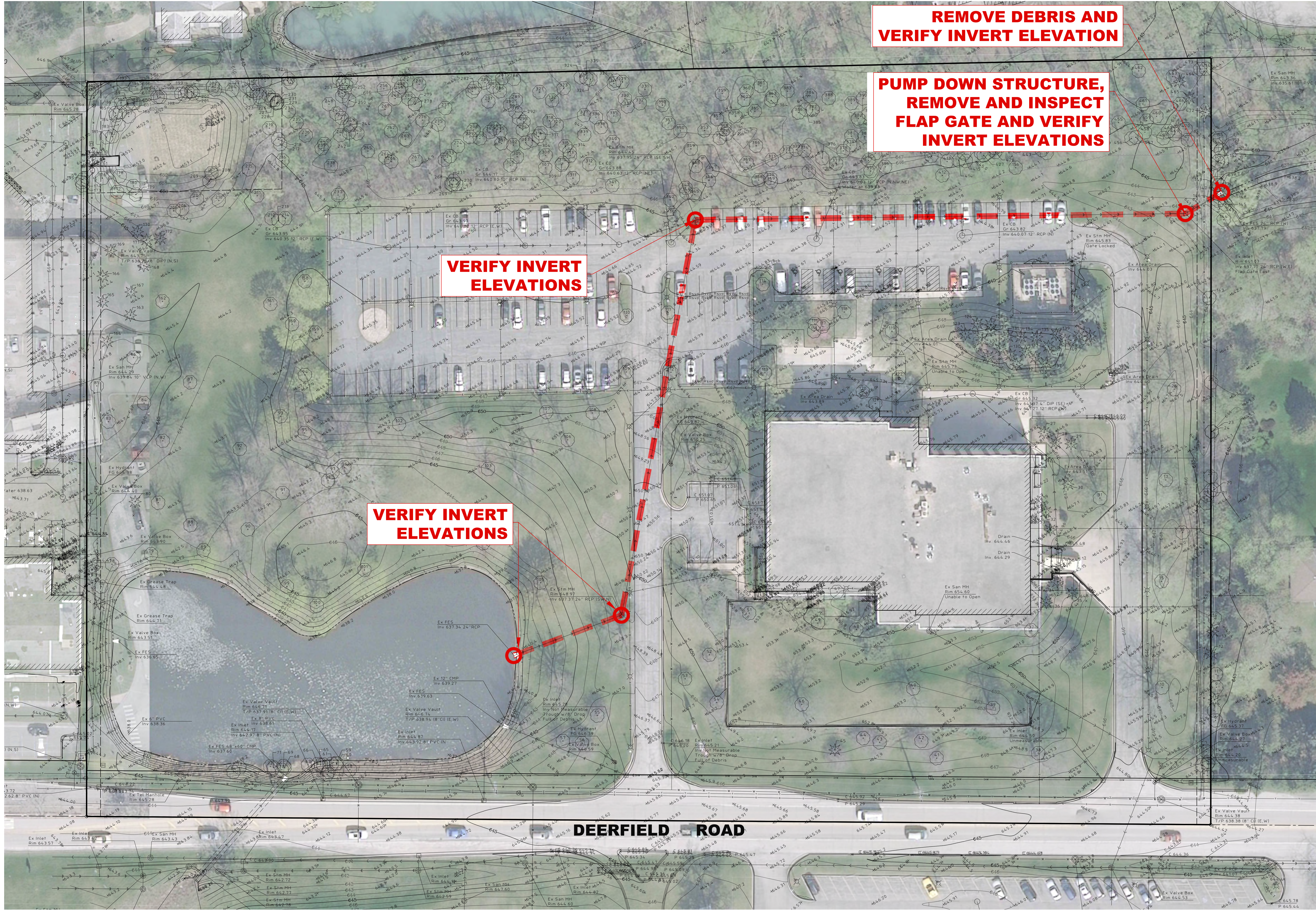
If you have any questions, please call me at 847.478.9700 or email [csmith@gha-engineers.com](mailto:csmith@gha-engineers.com).

Sincerely,  
Gewalt Hamilton Associates, Inc.

A handwritten signature in black ink, appearing to read "Carissa Smith". The signature is written in a cursive, flowing style.

Carissa A. Smith, P.E.  
Village Engineer





**REMOVE DEBRIS AND  
VERIFY INVERT ELEVATION**

**PUMP DOWN STRUCTURE,  
REMOVE AND INSPECT  
FLAP GATE AND VERIFY  
INVERT ELEVATIONS**

**VERIFY INVERT  
ELEVATIONS**

**VERIFY INVERT  
ELEVATIONS**

**DEERFIELD ROAD**



**NORTH**

Scale: 1" = 30'

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**FIELD INVESTIGATION EXHIBIT**  
**LEXINGTON RIVERWOODS**  
**3750 DEERFIELD ROAD**  
RIVERWOODS, ILLINOIS

Project Manager: T A S  
Engineer: P A C  
Date: 07/25/2022  
Project No. 20-147  
Sheet 1