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ENGINEERING REPORT (Revision 1)  
40 ACRE TRACT LOCATED VIC. 60TH NW AND INDIAN HILLS ROAD  
OWNER: WILLY DELONG  
RE. FLOOD PLAIN PERMIT APPLICATION

### Introduction

This report is in regard to the proposed development of a sports complex (soccer field) on the east 20 acres of the subject tract and the construction a residence and barn on the west (or north-west) tract. The east portion of the tract fronts on 60<sup>th</sup> Avenue NW and a driveway is proposed to be constructed to provide access to the proposed soccer field, club house, etc.

The west 20 acres of the tract fronts on Indian Hills Road and the owner intends to construct a driveway on Indian Hills Road to serve the residence, barn and the farming operation, which will be continued.

As shown by the attached plans, the total tract is 40 acres at present. The owner plans to seek approval to divide the property into two 20 acre tracts at a future time. He has been advised by City staff members that it would be appropriate to seek approval of the necessary floodplain permits prior to commencing the property division process.

The 40 acre tract is currently zoned agricultural and it is located in the area known as the 10-mile flat area. The majority of the area of this tract is located in the designated floodplain but not in any designated floodway. A part of the tract located immediately west of 60<sup>th</sup> NW Avenue is slightly above the BFE, and adjacent area where a club house building is proposed is in the fringe area of the floodplain, where the BFE is slightly higher than the existing ground. A barn is proposed on the west end of this 20 acre area, where the flood water depth will be greater. All building structures will be constructed on elevated areas. It will be necessary to place fill to construct a pad in order to place the finished floor at an elevation a minimum of two feet above the BFE. Elevation requirements and volume of filled pad areas are summarized in a later section of this report.

The soccer field development will include four standard playing fields and one minor league field. These fields are located in an area where the BFE ranges from zero to 2.4 feet above the existing ground level in the field areas. The proposal is specifically made with the condition that no fill dirt will be placed in the area of the playing fields (nor in any other area, except as set out herein for building pads, etc.). Instead, approval is requested to perform grading to smooth the playing field. Soil will not be moved from one playing field to another and a playing field will not be leveled. The intent is to level the fields by using a tool such as a tractor and box blade to cut the high spots (bumps and mole hills) and to fill the adjacent low spots. Unless this area is smoothed, the playing field will be difficult to run on and may contribute to accidents involving falls with the possibility of injuries.

### Drainage Improvements

Leveling the fields will also contribute to drainage and drying of the field after periods of rainfall. In addition, certain drainage improvements are proposed. An earthen drainage ditch is proposed along the north line of the property to facilitate drainage to Ten Mile Flat Creek, which exists near the west edge

of the DeLeon property. Also, an earthen drainage ditch is proposed along the south edge of this property to also promote drainage to the Creek. Shallow swale, not deeper than 0.5 feet are proposed between the soccer fields to promote drainage to the ditches. Soil excavated during the construction of the swales and ditches will either be used as fill material for building pads or removed from the site. This soil will not be placed in the floodplain on this property. Material transported off this property for disposal must be taken to a disposal site acceptable to the City's Floodplain Manager.

### Utilities

Commercial utilities such as electrical service and natural gas will be required. These will be provided by the utility companies and will be either overhead or underground as is standard practice. Any utilities provided by the owner or his contractors must be placed to comply with floodplain requirements, which requires all electrical items and the heat and air systems be located above the BFE.

### Fire Protection Water

The owner is aware that City codes might require fire protection systems for the proposed club house. Accordingly, a water storage tank or approximately 10,000 gallons and one connected fire hydrant is included in this application. The owner does not intend to provide this item unless it is required by codes. Due to the high expense of this item, the owner is hopeful that this item is not required, but it is included, just in case.

### Lighting and lawn irrigation systems

The proposal includes constructing lighting on and around the playing fields to permit activities during the night time. These lighting facilities will be either overhead or underground, except for the poles. These items will have a negligible impact on the floodplain. Sprinkler systems will be placed underground and will be installed by trenching and back-filling existing ground, and this impact will be negligible also.

### Driveways

Driveways will be constructed to provide vehicular connections to both 60<sup>th</sup> NW Avenue and Indian Hills Road. These driveways will be constructed according to the City's specifications and pursuant to appropriate permits. Any fill material needed to be placed in the floodplain for this work will be obtained from one of the designated borrow areas. Any material removed from the floodplain during this work will be either used as fill for building pads or removed from the site.

### Parking Lots

Parking lots appropriate to provide the required parking for the club house, etc. will be provided. The parking lots will be constructed by removing soil before placing the concrete paving so that the top of the concrete paving will be no higher than the original ground. Constructed in this way will prevent the paving from having a significant impact on the floodplain. Soil removed during parking lot construction will be transported from the site for disposal.

### Club house—fill and elevation requirements

Existing ground elevation: 1145.0'  
BFE: 1144.8' (existing ground is 0.2' above BFE)  
Minimum FF: 1146.8'  
Fill depth: 1.8'  
Fill depth within the floodplain: 0.0'  
Area of club house: 40' x 75' = 3000 sf  
Area of pad: 90 x 125 = 11,250 sf  
Volume of pad: 750 cubic yards  
Source of fill material: From borrow area

### Maintenance barn—fill and elevation requirements

Existing ground elevation: 1143.5'  
BFE: 1144.8' (existing ground is 1.3' below BFE)  
Minimum FF: 1146.8'  
Fill depth: 3.3'  
Fill depth within the floodplain: 1.3'  
Area of barn: 50' x 80' = 4000 sf  
Area of pad: 100 x 130 = 13,000 sf  
Volume of pad: 1589 cubic yards (volume of total pad)  
Volume of pad below BFE = 626 cubic yards (volume placed in floodplain below BFE)  
Source of fill material: From borrow area

### Residence on west tract —fill and elevation requirements

Existing ground elevation: 1144.5'  
BFE: 1145.5'  
Minimum FF: 1147.5'  
Total fill depth: 3.0'  
Fill depth within the floodplain: 1.0'  
Area of house: 50' x 80' = 4000 sf  
Area of pad: 100 x 130 = 13,000 sf  
Volume of pad: 1445 cubic yards  
Source of fill material: From borrow area

### Shop building on west tract —fill and elevation requirements

Existing ground elevation: 1144.5'  
BFE: 1145.5'  
Minimum FF: 1147.5'  
Fill depth: 3.0'  
Fill depth within the floodplain: 1.0'  
Area of building: 50' x 80' = 4000 sf  
Area of pad: 100 x 130 = 13,000 sf  
Volume of pad: 1445 cubic yards  
Source of fill material: From borrow area

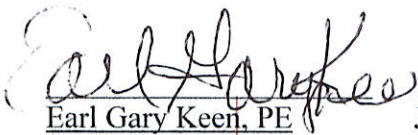
Fire protection water storage tank —fill and elevation requirements

Existing ground elevation: 1145.0'  
BFE: 1144.8' (existing ground is 0.20' above BFE)  
Minimum FF (pad elevation): 1146.8'  
Total fill depth: 1.8'  
Fill depth below BFE: none  
Area of pad for water tank: 40' x 40' = 1,600 sf  
Volume of pad: 60 cubic yards  
Source of fill material: From borrow area

As shown by comparing the total fill depth to the fill depths within the floodplain for the building pads, only a fraction of the fill being placed is actually in the floodplain.

A number of exhibits are attached herein to show additional details regarding this application, as is the engineer's certification statement.

Many thanks to the Staff and Committee Members for taking the time to review this complex application.

  
Earl Gary Keen, PE

July 09, 2024

