

## 0.0 Environmental

### 0.1 Wetlands/ Ponds

Evergreen Consultants completed a wetland and pond delineation for the project earlier this year to determine the location and boundary of wetlands and ponds onsite. The site design avoids regulated wetland to the maximum extent practical and keep buildings out of the City of Pewaukee's (city) required 25' building setback. Included with the submittal is a plan showing the wetlands that were delineated. Wetland and pond exemptions for artificial and non-federal wetland and any necessary wetland fill permits will be submitted to Wisconsin Department of Natural Resources (WDNR) and the US Army Corps of Engineers (USACE) for approval prior to the start of construction. The ponds within the multi-family area of the site are expected to be exempted from WDNR and USACE requirements since the ponds are artificial water bodies excavated between 1970- 1990.

### 0.2 Floodplain

The FEMA floodplain map for the site indicates that no regulated floodplain exists on the property. The proposed property has a Zone X flood hazard. The navigable waterway and wetlands located toward the southwest corner of the property will be parceled off into an outlet to protect the area.

## 1.0 Utility Design

### 1.1 Sanitary Sewer

Excel reviewed the Lake Country Commons Sanitary Sewer Capacity Analysis and Impacts Review Report completed by Strand in 2019 to confirm compliance with system requirements and operational standards. Comprehensive research was done to determine if the allowable loads for the 165-acre Willow Run Development would be comparable to the Meadowbrook Village Condominium Project rates as part of Table 3 (Flow Projections for Additional Expected Future Development in the Strand report) coupled with the Total High Flow Projections listed in Table 6 of the Strand report which can be seen summarized in Table 1 below. Table 2 breaks down the expected flows for each of the Willow Run developments. The Willow Run development includes the multi-family site, the single-family for lease site, and the single-family for sale subdivision.

Table 1: Allowable Sanitary Flow from Lake Country Commons Sanitary Sewer Capacity Analysis

SOURCE	UNITS	POPULATION	UNIT FLOW RATE (GPD)	PROJECTED FLOW (GPD)	PROJECTED FLOW (GPM)
MEADOWBROOK VILLAGE CONDOMINIUM PROJECT	119	313	80	25,000	17.4
TABLE 6 HIGH FLOW PROJECTIONS OF LCC	Varies	Varies	Varies	59,400	41.0
<b>ALLOWABLE TOTAL</b>	N/A	N/A	N/A	<b>84,400</b>	<b>58.4</b>

Table 2: Willow Run Expected Sanitary Flow

SOURCE	POPULATION / UNIT	UNITS	POPULATION	UNIT FLOW RATE (GPD)	PROJECTED FLOW (GPD)	PROJECTED FLOW (GPM)
MULTI-FAMILY – JUNIOR AND 1 BEDROOM	1.5	140	210	80	16,800	11.67
MULTI-FAMILY – 2 AND 3 BEDROOM	2.63	143	376	80	30,080	20.89
SINGLE FAMILY FOR LEASE	2.63	42	111	80	8,880	6.17
SINGLE FAMILY FOR SALE	2.63	129	339	80	27,120	18.83
<b>PROPOSED TOTAL</b>					<b>82,880</b>	<b>57.56</b>

Based on the analysis conducted by Strand the downstream sewer system and components can sustain the demands from the Future Meadowbrook and High Flows of Lake Country Commons, a planned development where the Willow Run development now encompasses. The total allowable flow provided in Table 1 is greater than the expected total flow in Table 2. Therefore, the existing system is suitable for the proposed development.

The city requires 9’ of cover over all public sanitary if the sanitary serves buildings without basements and 11’ of cover if the public sanitary serves buildings with basements. The single-family for lease houses are designed without basements so the proposed sanitary along the single-family for lease will be designed to have 9’ minimum cover. The single-family for sale houses are expected to have basements so the sanitary along the single-family for sale subdivisions will be designed to have 11’ of cover. Due to grades being lower in the area of the proposed multi-family complex a private lift station is proposed. The lift station will eliminate the need to raise grade for the multi-family site beyond what is otherwise required to get

adequate cover over the sanitary sewer. The private forcemain will pump into the proposed public sanitary sewer.

### 1.2 Water Distribution Service

The integration of looped water mains throughout the development is essential to maintain adequate water pressure and volume, meeting safety and operational standards. These mains are strategically located within public rights-of-way to ensure accessibility for routine maintenance and emergency services.

It is a City of Pewaukee requirement that there to be two points of connection to the existing water main system. The proposed two locations will match the roadway access points, which are at Golf Road to the south and Milkweed Lane to the northwest. Watermain will also be looped through the single family for lease sites to provide water for each house.

Only one tap into the public main will be used for the multi-family development but the private water main will be looped within the multi-family complex.

### 1.3 Storm Sewer

Storm sewer and inlets will be installed along the proposed road to convey stormwater to the various proposed and existing wet ponds. Inlets along the proposed road will be spaced at 300' maximum. All storm sewer will be designed using the City of Pewaukee technical standards.

### 1.4 Stormwater Management

The multi-family area of the project will consist of a 32.29 ac parcel at the north end of the site. The multi-family complex will include 13 two story garden style buildings, 12 garages, a club house with an outdoor pool, off street parking, and driveways throughout the site. Stormwater management practices will be installed along the north and south sides of the site to treat stormwater and reduce the peak flows. Stormwater management practices will include a wet pond along the south property line, a wet pond in the northeast corner of the site, a wet pond toward the northwest corner of the site and a wet pond in the southwest corner of the site. The wet pond in the southwest corner of the site is proposed to be shared with the single family for lease site. An easement will be provided around the southwest pond to allow both sites to drain into the pond. All wet ponds onsite will be designed to meet the city and WDNR requirements. The proposed wet ponds will discharge to the wetlands on the north, east, and west sides of the site.

Single-family houses that will be leased will be constructed in the northwest corner of the site. The single-family houses will consist of 21 one-story houses and 21 two-story houses. Eight (8) of the houses will have direct access onto the proposed public street. The remaining houses will have access to the public right-of-way using private drives. The single-family houses north of the public road will drain to the wet pond that will be shared with the multi-family complex and the existing wet pond on the west side of the property. The existing wet pond will be expanded to accommodate the additional flow from the added impervious area. The single-family houses

on the south side of the public ROW will drain to the south into an existing wet pond. The wet pond will be analyzed during final design to determine if modification to the wet pond will be required due to comply with city and WDNR requirements.

A future phase of the project will be the construction of additional public streets for single-family lots for sale. Stormwater for the additional roads and houses will be constructed when the future roads are constructed. Wet ponds are currently planned along the east property line, in the middle of the subdivision south of the multi-family complex, and west of the subdivision west of the main road. It is also expected that the existing pond on the west side of the property would be utilized for stormwater management. The single-family for sale development will be designed to meet city and WDNR requirements.

### 1.5 Site Lighting

A photometric plan (PXP) is included with the submittal to show the lighting level through the multi-family site. See sheet C3.1 of the plan set for the PXP plan. The single-family for lease houses will not include any pole lighting. Each house will have a porch light near the front entry to the house.

## 2.0 Roadway Design

A new public road will be constructed for the project. The road will connect to Milkweed Lane and Golf Road. The proposed road will have 11.5' wide drive lanes with 30" mountable curb and gutter on each side. The ROW for the road will be 60' wide. The proposed road will be crowned with a 2% cross slope toward the curb and gutter. The road will be designed using the City of Pewaukee technical standards. The road ROW for the south end of the road is proposed to be 15' west of the east property line to protect a portion of wetland. Shifting the south end of the road to the west will require less wetlands to be filled.