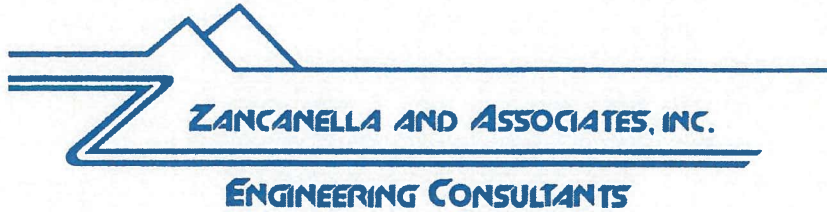


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April 9, 2018

Mr. Jim Hancock  
Town of Gypsum  
P.O. Box 130  
Gypsum, CO 81637

**RE: River Dance RV Park Preliminary PUD – Engineering**

Dear Mr. Hancock:

Zancanella and Associates has been requested to provide discussion regarding the overall engineering of the River Dance RV project.

**Wastewater Collection and Treatment**

The River Dance RV Park will have its own individual wastewater treatment facilities. The plant will be reviewed and approved by the CDPHE prior to any construction. The plant will then be operated under CDPHE guidelines for monthly reporting and testing requirements. This also includes routine sanitary inspections by the CDPHE. The plant will be an Orenco AdvanTex System and will be constructed in three phases. Each phase will have its own 10,000 GPD AdvanTex system. Each system will include a primary treatment stage that includes a tank for solid separation, initial BOD treatment and surge storage. Following the primary tank will be the Pre-Anoxic Treatment tank. This tank is used in conjunction with the primary tank and helps to balance and lower concentrations by blending effluent treated with the AX filtrate. This tank also provides for an environment for denitrifying a portion of the nitrified filtrate. Pre-Aeration follows which reduces the organic waste strength prior to secondary treatment. Each 10,000 gallon system will flow to a consolidated dosing tank for final UV treatment and return to the river. The normal outfall will be directly to the Eagle River by a gravity line. In times where there is a water call on the Eagle River, the effluent will be pumped back to the river above the surface water intake for the water system. The plant will be designed to meet the Preliminary Effluent Limits already established by the CDHE for the plant. Both existing ISDS systems will be abandoned prior to any connection to the first phase. The approximately half of the treatment plant is located within the current 100 year flood plain. A small retaining wall will be constructed around 3 sides of the plant area. The site will require a maximum of 3 feet of fill at the southwest corner.

The majority of the treatment plant will be below grade. Only the lids of the rectangular AdvanTex units will be visible. Risers for air handling will also be visible. A small,

approximately 15' x 20' building will be required for the UV treatment and controls. This building will be constructed in similar materials to the bath houses and central buildings. The collection system will be designed and constructed according to the Town of Gypsum Design Manual and Specifications. Each RV pad is planned to have its own sanitary sewer connection. The collection system will be constructed in phases in conjunction with the wastewater treatment plant. The east end of the park will be constructed first. Most of the existing pads will be maintained. The existing sewer lines will be connected to the system. A new dumping station will also be connected. All of the lines will be gravity lines to a central lift station at the wastewater treatment plant. Up to one hundred RV spaces will be constructed for the initial phase. The limitations will be based upon the flows measured at the treatment plant. Once the first phase plant has reached its capacity the second phase will be constructed. The second phase will include updating all existing RV pads. The second stage area will be in the central core area of the park. The final phase is the area to the far west of the property.

### **Water System**

River dance currently operates a public water system (PWSID 0219675) under CDPHE supervision. The current system provides treated domestic water at a rate of 30 gallons per minute. The park has submitted an augmentation plan for a 100 gallon per minute system to the state water engineer. The water system will be constructed in phases along with the sanitary sewer system. Each pad will have its own individual water connection. For each phase a 10,000 gallon storage tank will be constructed. Pressure sustaining pumps will be connected to the tanks to provide a minimum of 100 gallons per minute for the domestic consumption for each phase. Each tank will have a dry sump suction line for fire protection. Additional fire protection will be provided with a dry sump connection to the river. The water distribution system will be constructed to Town of Gypsum standards.

### **CDOT Access**

We are currently working with CDOT on the requirements for access to the boat ramp area and emergency access to the eastern end of the park. A traffic study will be required for the park expansion and new boat ramp. Based on discussions with Dan Roussin of CDOT, the primary issue will be does the expanded park require upgraded infrastructure for the existing park entrance and the determination of the exact infrastructure required for the boat ramp entrance.

### **Drainage**

The site will be sloped generally to the Eagle River and will limit any concentrated flow. Storm Runoff will be conveyed via sheet flow across the site to a landscaped buffer between the pad sites and the Eagle River. This will provide for infiltration and Water Quality Capture Volume prior to entering the delineated wetland area. The wetland area will provide addition WQCV prior to entering the Eagle River. These features will handle most of the site storm water. Additional small water quality and settlement ponds will be interspersed throughout the development as need per final Construction Documents. There is an existing drainage easement on the property for offsite drainage from CDOT property. This drainage will be maintained through the site.

**Dust Control**

Water will be applied to the active internal driveways as required by weather, traffic and drive conditions. Water trucks will be dispatched and drives watered if excessive dusting is encountered. Some weather conditions during the summer months, such as low humidity and high winds, require a higher water frequency.

**General**

The internal driveways will be constructed to RV park standards for width and turning radii. The park will also meet the requirements of the Gypsum Fire Department for turning. A soils report will be obtained to design the correct depth for the support of RV's and fire vehicles. Each pad will have electrical, water and sewer hook-ups. There may be a few pads with only water and electrical. Holy Cross has provided a Can and Will Serve letter for all the electrical requirements for the park. Each building will have a soils report to determine the foundation requirements.

If you have any questions, please contact our office at (970) 945-5700.

Very truly yours

**Zancanella & Associates, Inc.**



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Ben Elmore, P.E.