

AT A GLANCE

Applicant:
Johson County Wastewater

Case Number:
#BZA23-01

Location:
6700 Foxridge Drive

Project Name:
Turkey Creek Pump Station
PEFTF Improvements

Property ID:
KF251205-1027

Project Summary:

JCW currently operates and maintains the Turkey Creek Pump Station and is planning improvements to this property as part of the Turkey Creek Pump Station PEFTF Improvements project. The property currently is located within the 500-year floodplain and the City's floodplain management code requires a variance in order for JCW to make improvements within the 500-year floodplain.

Current Zoning:
M-1

Proposed Zoning:
M-1

Current Land Use:
Public - Wastewater Treatment Facility

Proposed Land Use:
SAA

Staff Contact: Celia Duran

N/A Public Hearing Required

Legal Notice Date:
March 14, 2023



BACKGROUND AND PROPERTY INFORMATION

Johnson County Wastewater's (JCW) Turkey Creek Pump Station is located at 6700 Foxridge Drive in Mission, Kansas. It was constructed in 1965 and has been upgraded multiple times. Flows received at this site are pumped to the Nelson Complex at 4800 Nall Ave., while excessive wet weather flows are treated at the Turkey Creek Pump Station.

The existing facility includes a dry weather pump station, a wet weather pump station, a peak extraneous flow treatment facility, meter vaults, an electrical building, and an access road. Figure 1 depicts an existing site aerial and street view of the facility.

The pump station was originally constructed outside the 100-year floodplain limits of elevation 853.5 with finished floors elevated one foot above the 100-year floodplain in accordance with Kansas Department of Health and Environment's (KDHE) Minimum Standards of Design for Water Pollution Control Facilities. The pump station is located within the 500-year floodplain elevation (856.2 elevation) and the flood waters extend across the property to Foxridge Drive.

PROJECT PROPOSAL

JCW is currently designing a dechlorination system for wet weather flows as part of necessary infrastructure improvements under a Consent Order approved by KDHE. The improvements include an 11-foot high enclosure (10 feet X 14 feet) to house a proposed chemical feed system, including a pump room and sodium bisulfite tank, and modifications to the existing wet weather outfall system consisting of an effluent box expansion. Figure 2 shows the improvements with proposed elevations, including the 100-year floodplain elevation.

The proposed sodium bisulfite tank, equipment enclosure, and effluent box expansion will be located within the 500-year elevation next to existing facilities, but outside and one foot above the 100-year floodplain limits. Critical equipment, such as the chemical metering pumps and electrical outlets and panels, will be elevated to a minimum of 1 foot above the 500-year elevation. Figure 3 shows the proposed improvements in relation to the 500-year floodplain. A section through the proposed facilities is shown in Figure 4.

PLAN REVIEW AND ANALYSIS

Municipal Code

Chapter 460, Floodplain Management, Article 4, Section 460.140.G Critical Facilities defines wastewater treatment facilities as a “critical facility” and requires critical facilities to be elevated at least one foot above the 500-year flood elevation. JCW is requesting a variance from this requirement due to the following: the existing site was not originally designed to the 500-year flood elevation, the collection system and the corresponding treatment facilities are not designed to convey flows at these flood conditions, and it would be very costly to raise the site and infrastructure.

Based on historic stream gauge and rainfall gauge data from the Stormwatch station in Mission, there has not been a 100-year event nor a 500-year event in over 45 years. The last rain event that was between a 100-year and 500-year event was in September 1977, although in August 2016 and 2017 there were rain events that were above the 50-year storm.

Per Chapter 460, Floodplain Management, the Board of Zoning Appeals shall hear and decide requests for variances from the floodplain management requirements and variance criteria is set forth in Sections 460.230 and 460.240. The variance criteria are listed below, as well as responses by staff and the applicant to satisfy variance conditions. Per Section 460.240, variances shall only be issued upon showing of good and sufficient cause, determination that failure to grant the variance would result in exceptional hardship to the applicant, and determination that the granting of a variance will not result in increased flood heights, additional threats to public safety, extraordinary public expense, create nuisances, cause fraud on or victimization of the public, or conflict with existing local laws or ordinances.

Section 460.230 Variance Criteria:

1) The variance requested will not result in danger to life and property due to flood damage. While the improvements are protected to above the 100-year flood elevation, the site is not accessible during the 500-year event and JCW staff would not enter the site during this condition. There has not been a 500-year storm event in over 45 years so there is minimal risk of danger to life and property due to flood damage from a 500-year event. Regarding property protection, the proposed sodium bisulfite tank is above the 500-year elevation. The pump enclosure is below the 500-year elevation; however, critical equipment inside that enclosure, such as the chemical metering pumps and electrical outlets and panels, will be elevated to a minimum of 1 foot above the 500-year floodplain elevation.

It is Staff's opinion that this criteria has been satisfied.

2) The variance requested will not result in danger that materials may be swept onto other lands to the injury of others.

The proposed sodium bisulfate tank is above the 500-year elevation and while the pump enclosure is below

the 500-year elevation, it is anchored to its concrete base. Floating forces are mitigated by incorporating a relief valve into the prefabricated structure wall to equalize water levels inside and outside the structure in the event of flooding above the enclosure floor elevation.

It is Staff's opinion that this criteria has been satisfied.

3) The variance requested considers susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owner.

JCW and their insurer, FM Global, are aware of the potential effects of flooding on this facility and these improvements. JCW has operated this facility since 1965 and has procedures in place to manage the potential effects of flooding, such as not accessing the facility during a large storm event. There has not been a 500-year storm event in over 45 years so there is minimal risk associated with susceptibility of the facility and its contents to flood damage and the effect of such damage on the owner from a 500-year event.

It is Staff's opinion that this criteria has been satisfied.

4) The variance requested considers importance of the services provided by the proposed facility to the community.

The pump station was not originally designed for the 500-year flood event and this facility would be underwater at these conditions. There has not been a 500-year storm event in over 45 years. These services are important to the community and JCW has procedures in place for this facility during a 500-year storm event to prevent access to the facility by staff and the public. JCW's main objective after this type of storm is to return this station to service as quickly as possible after the storm subsides.

It is Staff's opinion that this criteria has been satisfied.

5) The variance requested considers necessity to the facility of a waterfront location, where applicable. This is an existing site developed in the 1960's. Unfortunately, most wastewater infrastructure is typically located near waterways and at low elevations due to the natural gravity flow in collection systems. The improvements are integral to existing processes and structures on the site, necessitating the proposed location.

It is Staff's opinion that this criteria has been satisfied.

6) The variance requested considers availability of alternative locations, not subject to flood damage, for the proposed use.

As shown in Figure 3, the floodwater extends across the property under the 500-year flood condition. There has not been a 500-year storm event in over 45 years and it is not cost effective or feasible to move this facility to an alternate location.

PLANNING COMMISSION ACTION

7) The variance requested considers compatibility of the proposed use with existing and anticipated development.

The improvements are integral additions to the existing processes used on the site.

It is Staff's opinion that this criteria has been satisfied.

8) The Variance requested considers relationship of the proposed use to the Comprehensive Plan and floodplain management program for that area.

Use of property owned by JCW will remain as currently zoned.

It is Staff's opinion that this criteria has been satisfied.

9) The variance requested considers safety of access to the property in times of flood for ordinary and emergency vehicles.

The site is not accessible during the 500-year flood event. Staff would not enter during that condition.

It is Staff's opinion that this criteria has been satisfied.

10) The Variance requested will not result in negative impact from expected heights, velocity, duration, rate of rise and sediment transport of the floodwaters, if applicable, expected at the site.

New structures and fill will be outside of the 100-year floodplain boundary. As discussed above, the proposed sodium bisulfate tank is above the 500-year elevation and while the pump enclosure is below the 500-year elevation, it is anchored to its concrete base. Floating forces are mitigated by incorporating a relief valve into the prefabricated structure wall to equalize water levels inside and outside the structure in the event of flooding above the enclosure floor elevation.

It is Staff's opinion that this criteria has been satisfied.

11) The Variance requested considers costs of providing governmental services during and after flood conditions, including maintenance and repair of public utilities and facilities such as sewer, gas, electrical and water systems, streets and bridges.

JCW is aware of the potential effects of flooding on its facility and these improvements, as well as the operation and maintenance costs associated with providing these services at this location.

It is Staff's opinion that this criteria has been satisfied.



RECOMMENDATION

The variance criteria listed above has been satisfactorily addressed; therefore, Staff recommends that the Board of Zoning Appeals vote to approve the Floodplain Management criteria for the Turkey Creek Pump Station PEFTF Improvements project as is.

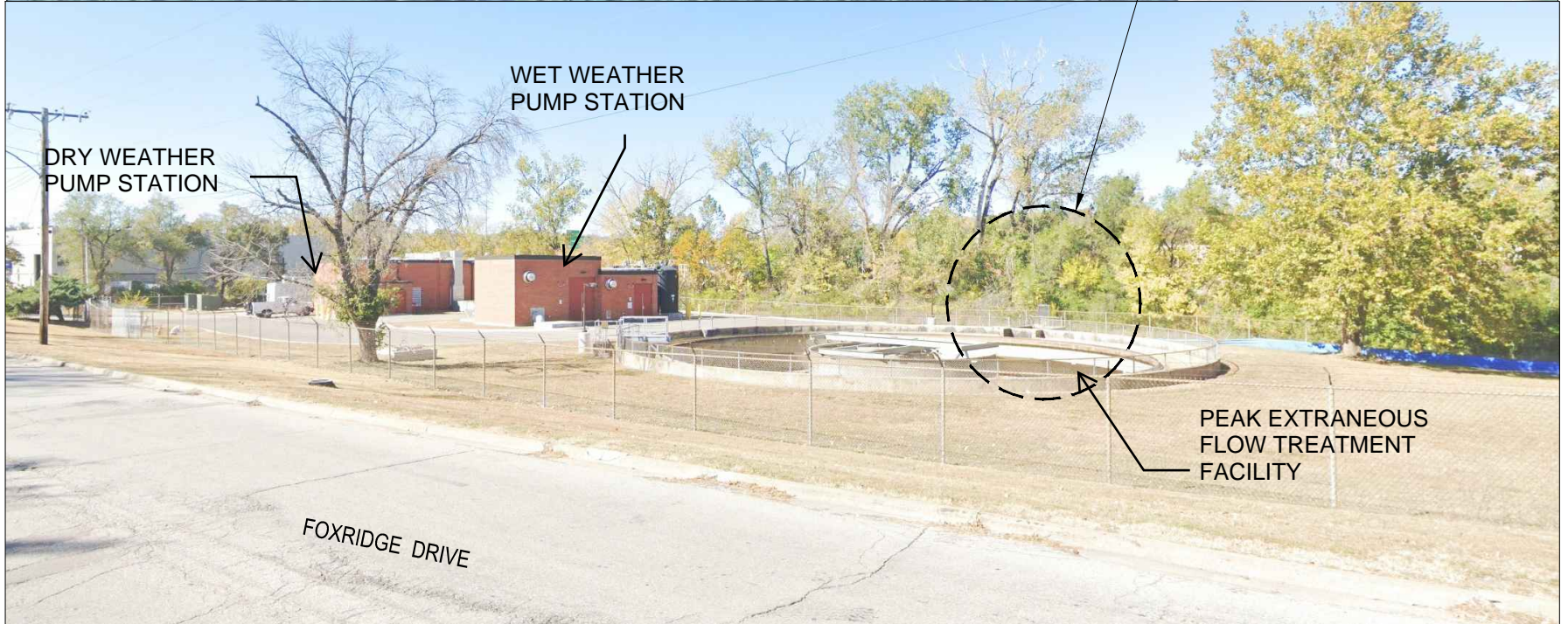
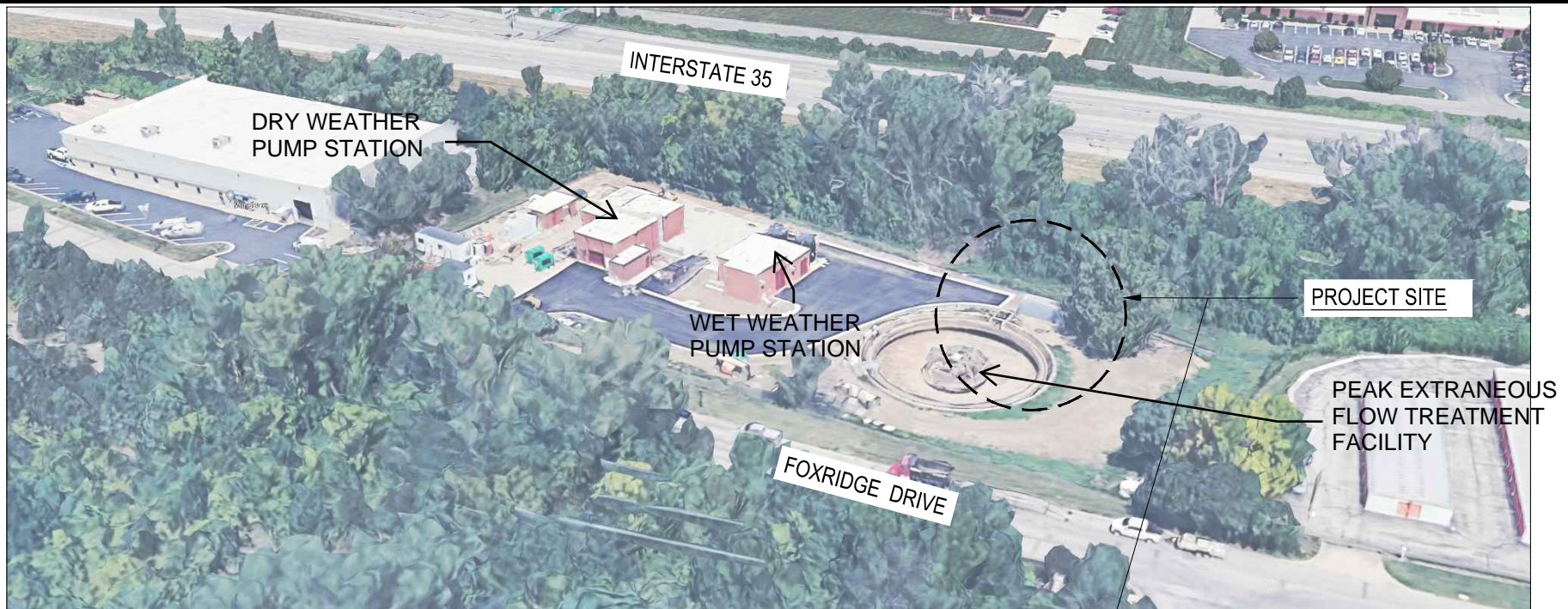


FIGURE 1 - EXISTING SITE AERIAL AND STREET VIEW

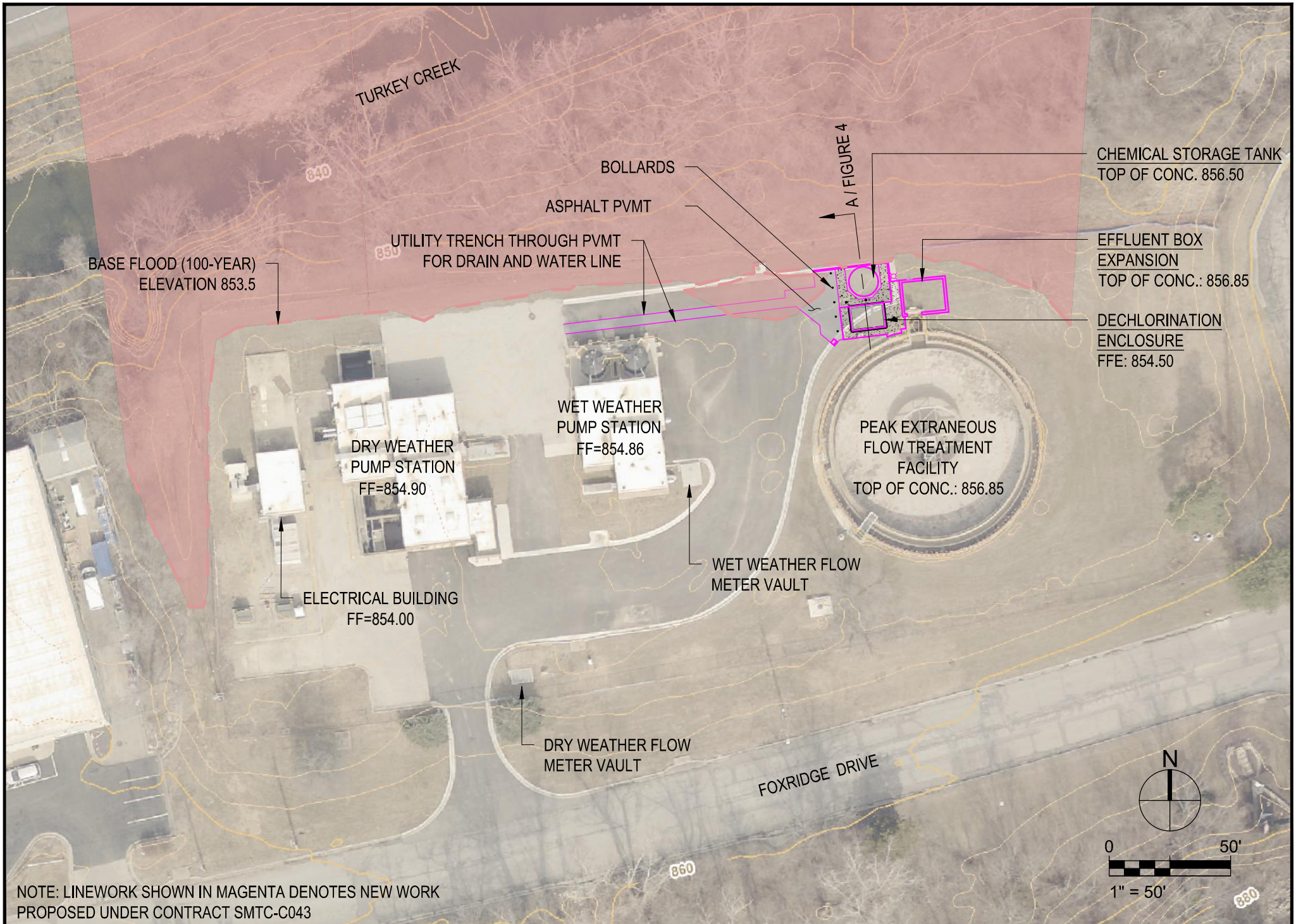


FIGURE 2 - 100 YEAR FLOODPLAIN

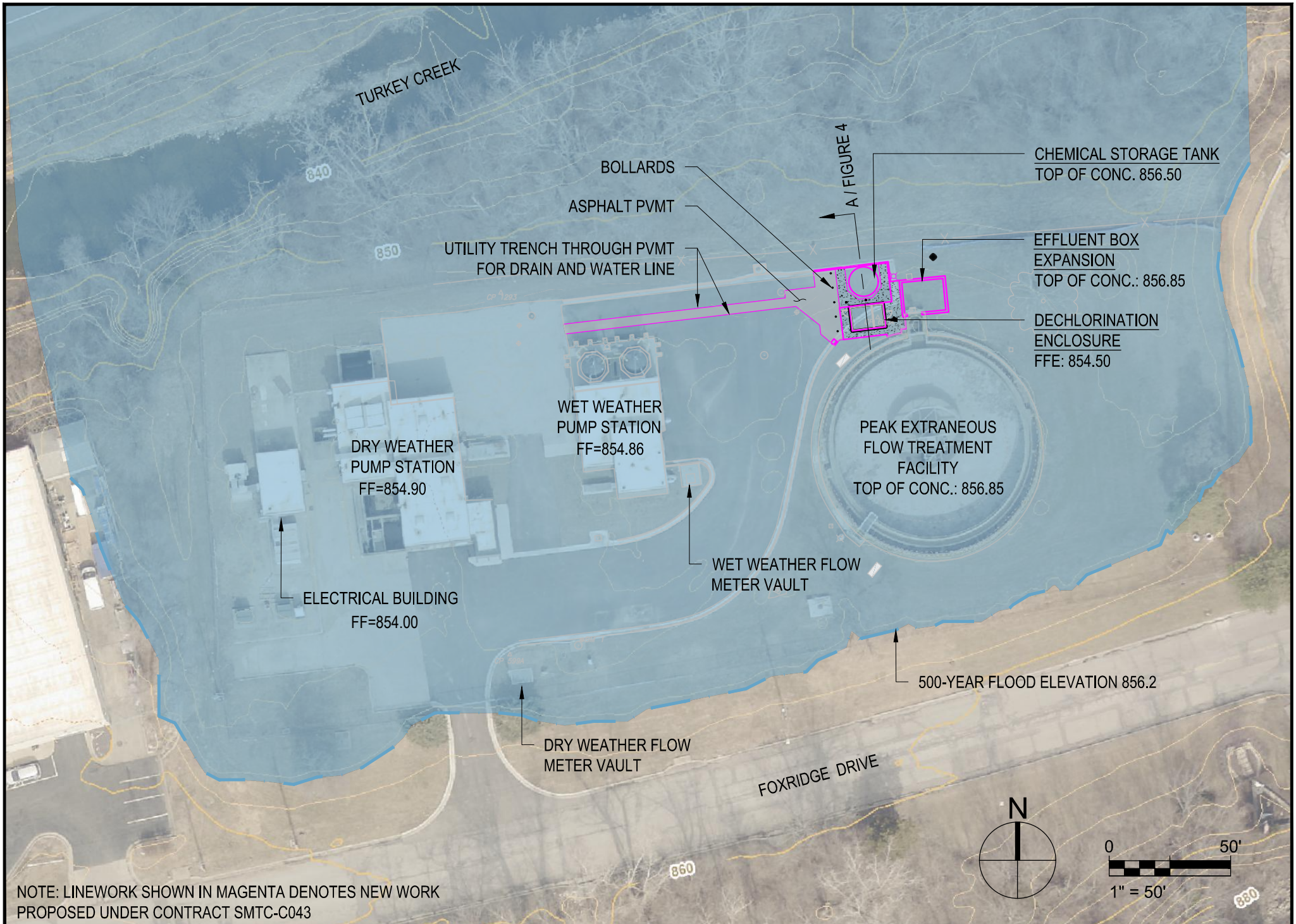
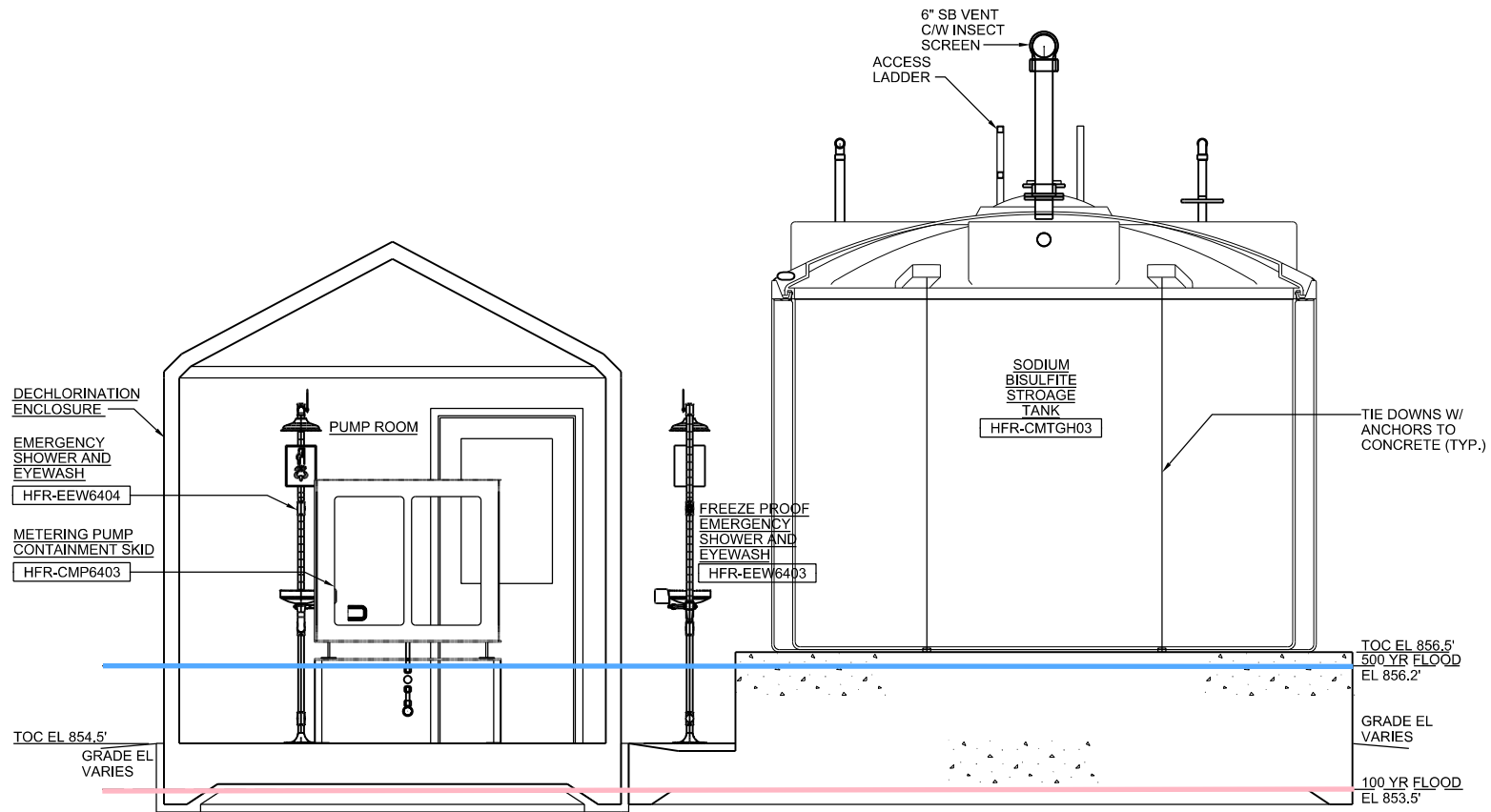


FIGURE 3 - 500 YEAR FLOODPLAIN

NOTE:
ELECTRICAL RECEPTACLS
AND EQUIPMENT WILL BE
LOCATED ABOVE THE 500 YR
FLOOD ELEVATION.



A SECTION
1" = 4'

FIGURE 4 - SECTION THROUGH PROPOSED FACILITIES