

FEMA ZONE A BFE DETERMINATION SUMMARY

OVERVIEW

To better meets the needs of future residents of Waterford Woods, a site modification is being sought to provide a Clubhouse and recreational pool amenity. The work is proposed on 394 Willetts Avenue Extension. A portion of the subject site lies within a mapped FEMA Zone A of Fenger Brook.

Zone A identifies an approximately studied special flood hazard area (SFHA) for which no base flood elevations (BFE) have been provided. Determination of the 100-year BFE was required to ensure no adverse impact from the proposed site modification. The following summary outlines the proposed project, regulated area, and methods used to determine the BFE in accordance with “Managing Floodplain Development in Approximate Zone A Areas, A Guide for Obtaining and Developing Base (100-Year Flood Elevations), July 1995” (FEMA 265).

PROJECT OVERVIEW

Approvals were granted in 2021 to Waterford Woods, LLC to construct a residential multi-family development on two (2) parcels of land located at 384 & 394 Willetts Avenue Ext. The development consists of the construction of three (3) apartment buildings with amenities including a dog park, grill and gathering area, and areas for passive and active recreation.

To better meet the needs of future residents of Waterford Woods, a modification to the development is being sought to provide a Clubhouse and recreational pool amenity on 394 Willets Avenue Ext. Main access will be provided via extension of the approved driveway. The site modifications will include:

- Clearing and grubbing.
- Clubhouse to serve the future residents with indoor fitness, lounge, game, and office areas.
- Exterior pool and lounge patio adjacent to the Clubhouse
- Extension of the 24’ wide main access drive including a looped connection to improve vehicular circulation and emergency access at the rear of the development.
- Outdoor recreation areas including a dog park and community spaces.
- 8 new paved parking spaces in front of the Clubhouse, including 1 handicapped accessible.
- Concrete pedestrian sidewalks connecting the Clubhouse building to the adjacent parking area.
- Drainage improvements including a stormwater collection network, grass-lined treatment swales, and detention ponds;
- Extension of private water, sewer, electric, gas and telecom mains;
- Landscaping including a mixture of street trees, shrubs, foundation plantings and planting beds
- Building and street lighting;
- Erosion and sedimentation control measures.

FEMA ZONE A MAPPING

FEMA Zone A of Fenger Brook is mapped on a portion of 394 Willetts Avenue. In general, the limits of the SFHA align with the wetlands and parallel existing contours. However, a portion is perpendicular to existing contours and passes over an elevated peninsula at the southwest corner. A snapshot of the FIRM is provided below.



Review of the FIRM and other available data suggest the flood mapping on site may not accurately reflect currently flooding conditions. Therefore, determination of BFE was needed to determine limits of the floodplain.

BFE DETERMINATION

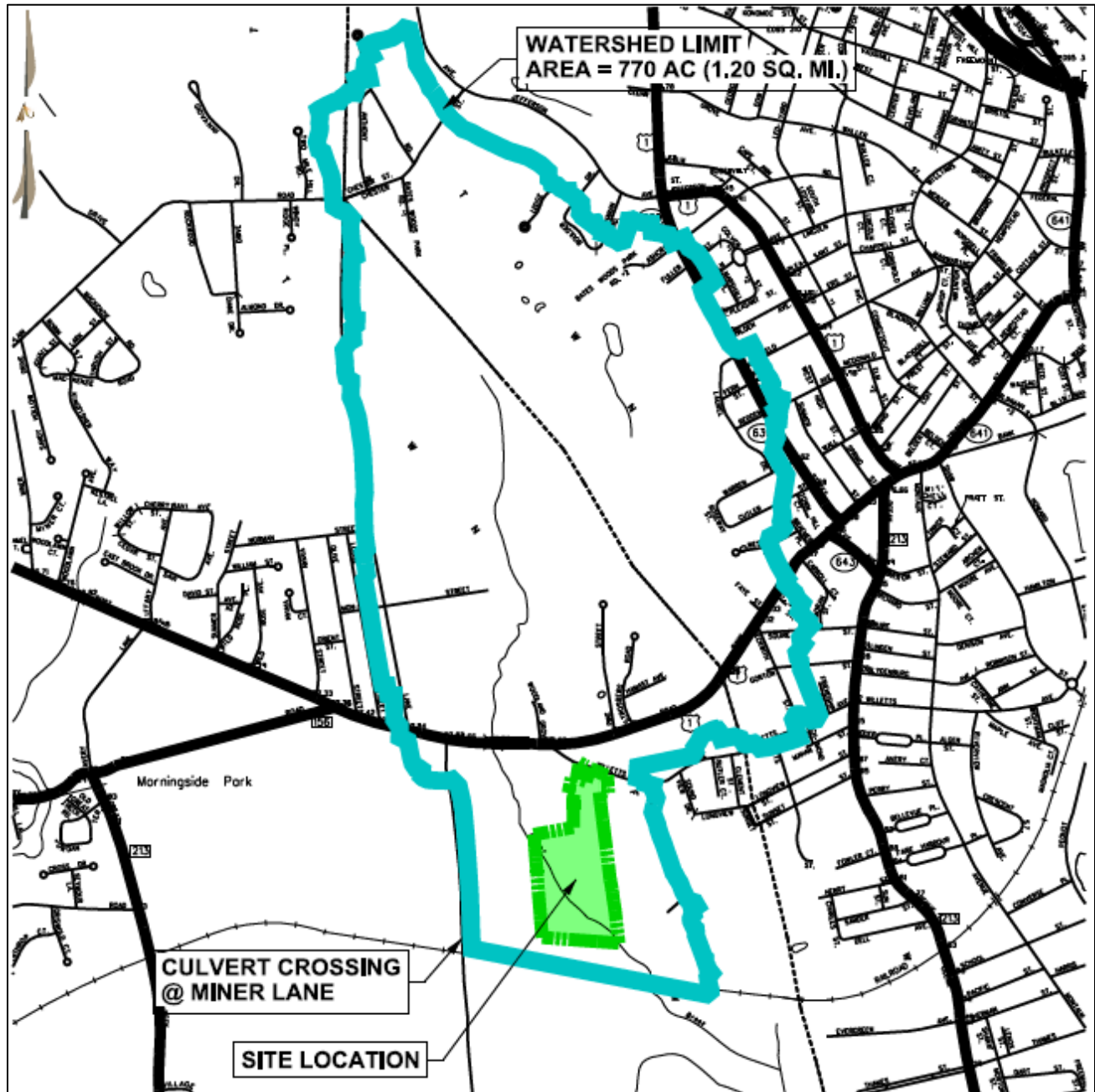
METHODOLOGY

In accordance with FEMA 265, the FEMA Library and the Town of Waterford were contacted to determine if technical or administrative data used in the original delineation was available. The FEMA request determined that no data is available. No response from the Town was received.

Using Simplified Methods, a Contour Interpolation was considered. Based on a review of watershed studies completed in the region, current topography, and field investigation, it was apparent that Fenger Brook and its watershed was bounded by the railroad, and Fenger Brook traveled west under a culvert in Miner Lane, and not south under the railroad. Therefore, Detailed Methods would be needed to determine BFE of Fenger Brook at the subject site.

HYDROLOGY

The watershed contributing to the outlet at Miner Lane was determined to be 1.2 mi² as measured using current topography and available mapping.

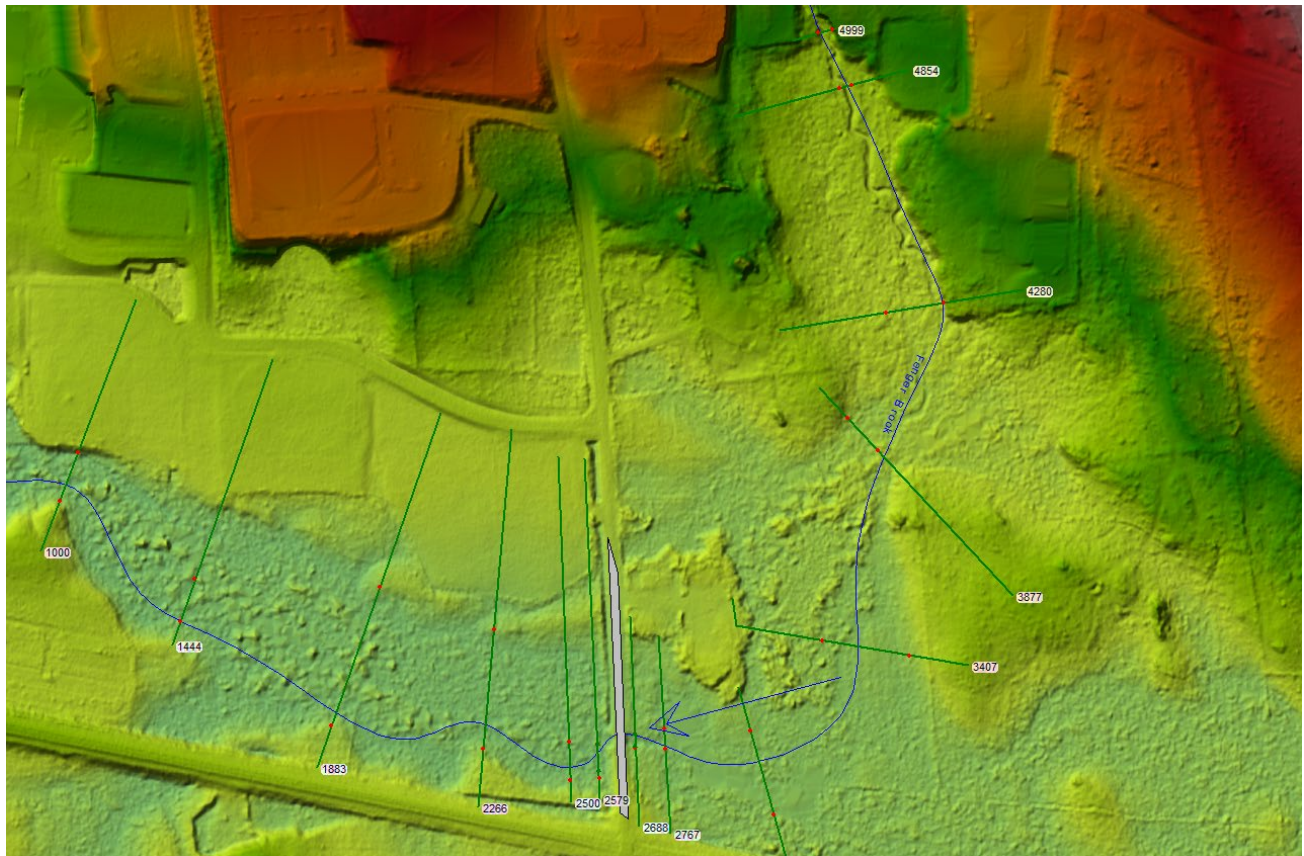


Peak flows for Fenger Brook were determined using StreamStats, which models regression equations developed by USGS, in cooperation with CTDOT. The equations were updated recently, as presented in SIR 2020-5054, based on flood frequency estimates for stream gages in Connecticut and adjacent States using annual peak flow data through water year 2015. The equations are applicable for basins in Connecticut with drainage areas between 0.69 to 325 mi that are not affected by flood control

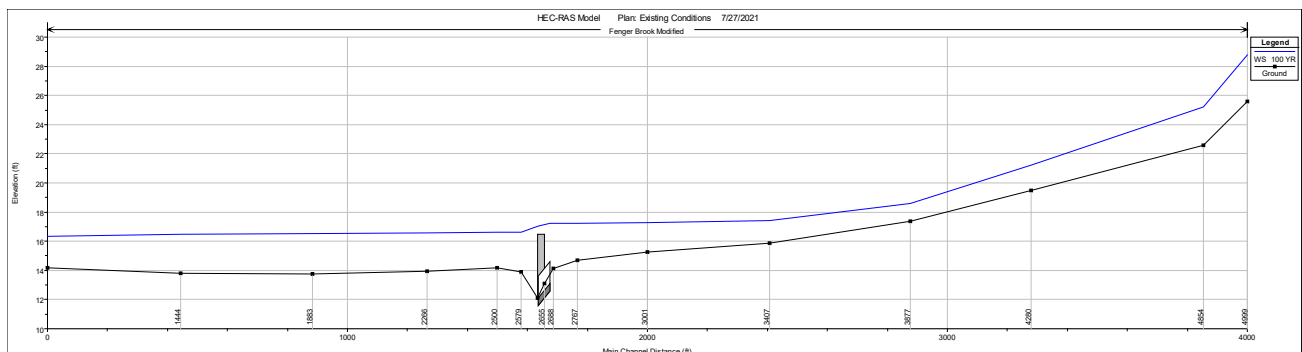
regulation or flow diversion. The subject watershed falls within the method's limitations. The 100-year peak flow discharge was determined to be 228 CFS.

HYDRAULICS

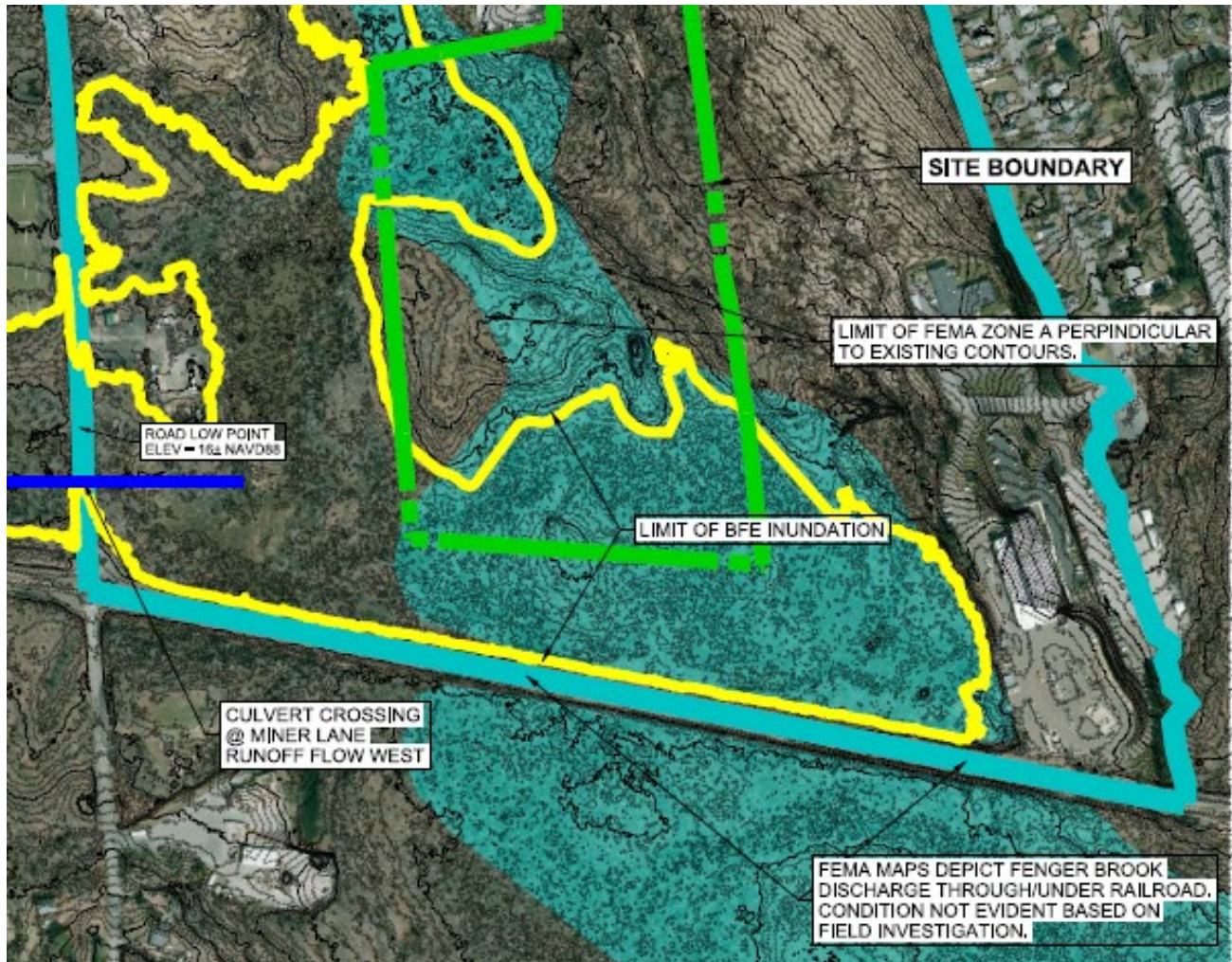
The hydraulic analysis of Fenger Brook and flows to Miner Lane was performed using the Hydrologic Engineering Center's River Analysis System (HEC-RAS) version 5.0.7 in accordance with the CTDEEP Hydraulic Guidance Document and FEMA 265. Geometric data used in the analysis is a combination of current field survey and LiDAR topography. The hydraulic model included sections downstream of Miner Lane and extended through the subject site to the north. An overview of the hydraulic section alignment on the local digital elevation model is provided below.



The 100-year water surface profile for the reach is as follows:



The analysis determined Fenger Brook in the vicinity of the site has a BFE of 20 at the northern limit of the site and 18 at the southern limit (NAVD88). The original FEMA Zone A (teal fill) as compared to the limit of BFE inundation (yellow outline) is provided below.



CONCLUSION

As depicted above, Detailed Methods in accordance with FEMA 265 were used to determine a BFE. No work is proposed within the determined BFE and the project will not adversely impact the regulated floodplain. The enclosed Site Plans depict work related to the determined BFE.