

ITEM: This Floodplain Permit Application is for a bank stabilization project in the Lower Imhoff Creek channel.

BACKGROUND:

APPLICANT: City of Norman Public Works Department

CONTRACTOR: Cimmaron

ENGINEER: WSB and WSP

A Storm Water Master Plan (SWMP) was developed for the City of Norman by PBS&J and accepted by City Council in November 2009. The identified problem in the SWMP for Imhoff Creek is "4,200 lineal feet (LF) of severe bank erosion along both banks beginning at the upstream face of Highway 9 to approximately 2,000 LF upstream of Imhoff Road. The erosion along the banks has caused property fences and trees to fall into the creek." The SWMP recommends design and installation of stream bank stabilization techniques along stream segments of Imhoff Creek.

As Imhoff Creek adjusted to changing upstream conditions, down cutting and widening of the creek resulted in extreme bank and bed erosion, which are characteristic in this portion of Imhoff Creek. Development along the length of the stream has increased the runoff in the creek leading to trees and fences falling into the creek, loss of property and threats to infrastructure, including the Imhoff Road Bridge. In July of 2021, a critical failure of this bridge due to increased erosion problems, led to this road being closed until April of 2022 to complete emergency repairs, with a resulting cost of just under \$2 million dollars.

Since the repair of the Imhoff Road Bridge in 2021, this channel has continued to erode. A study conducted by WSB showed that 6 inches or more of creek bank is being removed per year on each side. Evidence of this extreme erosion has been well documented. The City applied for and received grant funding through the Hazard Mitigation Grant Program (HMGP) for a bank stabilization project and a contract for construction has been awarded and approved by City Council. Work is ready to begin September 8, 2025.

This project involves the installation of reinforced soil slope walls on the east bank, rock toe revetment on the west bank and two cross vanes in the channel. As stated in the no-rise certification, the purpose of the project is to restore some of the east bank that has been lost to erosion, protect additional vulnerable areas of the west bank, and to reduce the flow velocities that have increased due to the steep channel flow line caused by erosion downstream of Imhoff Road.

Site located in Lake Thunderbird Watershed? yes ☐ no ☒

STAFF ANALYSIS:

The project is located in the Imhoff Creek floodplain (Zone AE). Base flood elevation varies from approximately 1110' upstream to 1104' downstream.

Applicable Ordinance Sections:

36-533 (e)(2)(a).....

(e)(2)(e).....

(f)(3)(8).....

Subject Area:

Fill restrictions in the floodplain

Compensatory storage

No rise considerations

(e)(2)(a) and (e)(2)(e) Fill Restrictions in the Floodplain and Compensatory Storage – The use of fill is restricted in the floodplain unless compensatory storage is provided.

The Erosion Analysis report submitted by Wood Engineering in 2022 estimates an average annual erosion rate of about 1300 cubic yards for current conditions for this

section of Imhoff Creek. This project proposes to replace approximately 3500 cubic yards as part of the bank stabilization.

(f)(3)(8) No Rise Considerations – For proposed development within any flood hazard area (except for those designated as regulatory floodways), certification that a rise of no more than 0.05 feet will occur in the BFE on any adjacent property as a result of the proposed work must be provided.

The engineer has certified that the project will not cause a rise in the BFE which meets this ordinance requirement.

RECOMMENDATION: Staff recommends that Floodplain Permit Application #730 be approved.

ACTION TAKEN: _____