



**US Army Corps
of Engineers** ®
Los Angeles District



AGUA FRIA RIVER 5 LEVEE SYSTEM

**MARICOPA COUNTY, ARIZONA
NLD SYSTEM ID # 3805020001**

**PERIODIC INSPECTION REPORT NO. 1
GENERALIZED EXECUTIVE SUMMARY**

**FINAL SYSTEM RATING: MINIMALLY ACCEPTABLE
FINAL RATING DATE: SEPTEMBER 24, 2015**

PERIODIC INSPECTION REPORT PREPARED BY
U.S. ARMY CORPS OF ENGINEERS, KANSAS CITY DISTRICT
FOR THE U.S. ARMY CORPS OF ENGINEERS, LOS ANGELES DISTRICT

SUBMITTED: SEPTEMBER 2015
INSPECTED: MARCH 16, 2015

EXECUTIVE SUMMARY

This Executive Summary provides an introduction to the periodic inspection, an overview of the Agua Fria River 5 (AFR5) Levee System, a summary of the major findings of the periodic inspection, and the overall system rating for the AFR5 Levee System.

1.1 Scope and Purpose of Periodic Inspections

The purpose of this levee system periodic inspection is to identify deficiencies that pose hazards to human life or property. The inspection is intended to identify the issues in order to facilitate future studies and associated repairs, as appropriate.

This assessment of the general condition of the levee system is based on available data and visual inspections. Detailed investigation and analysis involving hydrologic design, topographic mapping, subsurface investigations, testing, and detailed computational evaluations is beyond the scope of this levee system inspection.

1.2 System Summary

The AFR5 System is located in the city of Avondale, in Maricopa County, Arizona, a suburb on the west side of Phoenix. Portions of the leveed area also extend into unincorporated Maricopa County.

According to the National Levee Database (NLD), this levee system is referred to as the AFR5 levee system with a total length of approximately 1.79 miles. This levee system runs along the right (west) bank (looking downstream) of the Agua Fria River, beginning at W. Buckeye Road (Station 105+79.30) and ending approximately 3,730 feet downstream of E Lower Buckeye Road at Station 11+38.86 (see Figure 1). W. Buckeye Road is also known as County Route 85 (CR 85) or Maricopa County 85 (MC 85). The AFR5 Levee System is a compacted earthen levee embankment adjacent to the Agua Fria River. The seasonal river has a natural (earthen) bottom, trapezoidal channel. The riverside levee slopes (which also serve as channel slopes) are protected by an 8-foot thick soil cement revetment. Segments of the landside levee slope are also protected where erosion was anticipated. An interior drainage diversion channel that is also protected by soil cement runs parallel to the landside toe of the levee from Levee Stations 39+00 to 54+11.50 and carries interior drainage towards the downstream end of the project. At Levee Station 11+60 along the landside diversion channel, three 6-foot by 10-foot concrete box culverts provide drainage through the Lower Buckeye Road embankment that crosses the diversion channel and the levee. AFR5 includes one road crossing and five utility crossings. There are no side drainage structures that penetrate the levee, no relief wells, floodwalls, or pump stations as part of this levee system.

The AFR5 System was federally authorized under The Phoenix, Arizona and Vicinity (including New River) Project, also known as the New River and Phoenix Streams Flood Control Project. This project was authorized by the Flood Control Act of 1965 (Public Law 89-298, 98th Congress). The AFR5 system was federally constructed between 1987 and 1990. Operation and maintenance responsibilities were transferred to the Flood Control District of Maricopa County (FCDMC) after construction.

1.3 Summary of Levee Safety Issues

The periodic inspection of the AFR6 Levee System was conducted on March 16, 2015 by USACE Kansas City District (NWK) and representatives of the Flood Control District of Maricopa County (FCDMC) were present. An engineer from the USACE SPL Dam and Levee Safety Section acted as the Site Safety and Health Officer.

Each item on the levee system inspection checklists observed during the site inspection was rated Unacceptable (U), Minimally Acceptable (M), Acceptable (A) or Not Applicable (NA) following criteria incorporated in the Levee Inspection System. During inspection of the levee system, deficiencies were noted for which remedial actions are required. The following main deficiencies of the project features were noted during the periodic inspection:

Levee Embankment:

- Non-Compliant Vegetation Growth: Shrubs of various sizes are found on the landside levee slope throughout the system, hindering access and inspection. In addition, an irrigation system, including hose (exposed at the ground surface in spots) and control boxes, is installed on the landside levee slope and crest. While the shrubs and the irrigation system are shown on the as-built Record Drawings, they are not compliant with current vegetation standards. The noncompliant vegetation and the irrigation system should be removed, with all excavation voids backfilled with suitable compacted fill. As an alternative, FCDMC may apply for a vegetation variance from the USACE SPL in accordance with Section 1-2 of ETL 1110-2-583.
- Erosion/Bank Caving: Numerous areas of minor runoff erosion and a few areas of more significant erosion were observed on the landside soil slope. The majority of the erosion areas were one to two feet wide, approximately one foot deep, and ran from the crest to the toe on the landside levee slope. These areas do not currently threaten the levee integrity but should be repaired to prevent additional damage during future runoff events. Erosion areas should be backfilled with compacted fill materials similar to the in-place soils.

1.4 Overall Rating

The Levee Safety Outbrief Meeting was held on June 23, 2015 at the USACE SPL headquarters, with USACE NWK and representatives of the FCDMC participating by webinar. An engineering determination has concluded that the observed deficiencies would not prevent the system from performing as intended during the next significant runoff event. Therefore, the Levee Safety Officer, Los Angeles District, has determined the overall system rating is “Minimally Acceptable.”

A “Minimally Acceptable” system rating is defined as “one or more items are rated Minimally Acceptable or one or more items are rated Unacceptable and an engineering determination concludes that the Unacceptable items would not prevent the segment/system from performing as intended during the next significant runoff event.”

The local sponsor will be notified of the overall rating of the levee system by letter with instructions to correct the Unacceptable rated items as soon as possible, and to correct the Minimally Acceptable rated items within two years so that they do not deteriorate further and become Unacceptable.

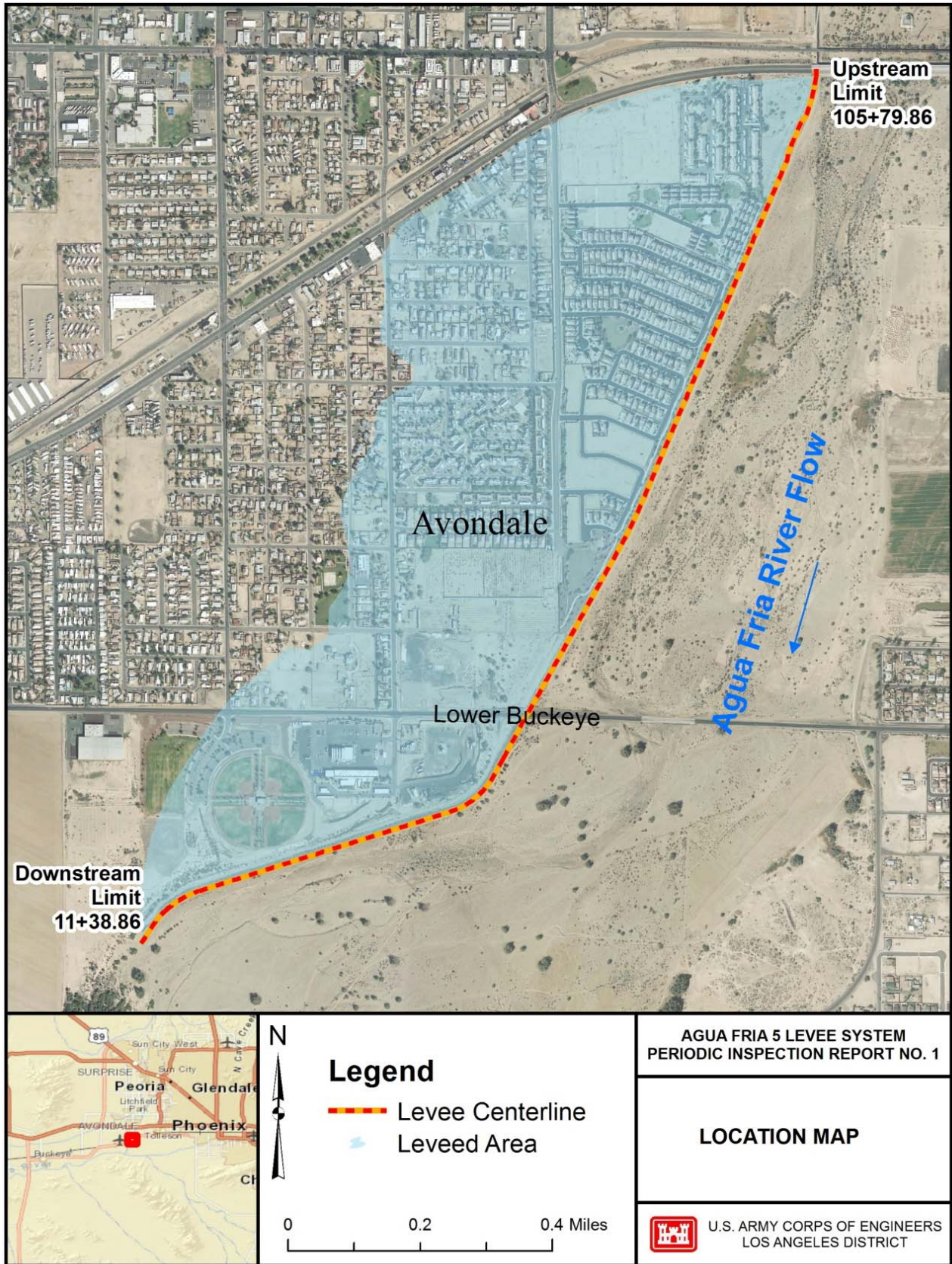


Figure 1