US Army Corps of Engineers
Los Angeles District

SAN GABRIEL RIVER/COYOTE CREEK 1 LEVEE SYSTEM

LOS ANGELES COUNTY, CALIFORNIA
NLD SYSTEM ID # 3805010018

PERIODIC INSPECTION REPORT NO 1
GENERALIZED EXECUTIVE SUMMARY

FINAL SYSTEM RATING: MINIMALLY ACCEPTABLE
FINAL RATING DATE: JUNE 25, 2015

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

SUBMITTED: NOVEMBER 2014
INSPECTED: MARCH 6-8, 2012

EXECUTIVE SUMMARY

This Executive Summary provides an introduction to the San Gabriel River/Coyote Creek 1 (SGR/CC1) Periodic Inspection Report No. 1, an overview of the system, a summary of the major findings of the periodic inspection, and the overall rating for the system.

1.1 Scope and Purpose of Periodic Inspection

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 SGR/CC1 Levee System is located in the Cities of Los Alamitos, Seal Beach, and Long Beach, along the Los Angeles County and Orange County boundary, California. The total length of the system is about 27,249 feet (5.16 miles). Figure 1 below shows the extent of the SGR/CC1 Levee System.

The SGR/CC1 Levee System is divided into two levee segments, the Coyote Creek (CC) segment and the San Gabriel River (SGR) segment. The CC levee segment runs along the left bank (looking downstream) of Coyote Creek, beginning at the San Gabriel River Freeway (Interstate [I] 605) at Station CC97+44 and extending down to the beginning of the San Gabriel River confluence zone at Station CC53+60 (Station 232+15), for a length of about 4,384 feet (0.83 miles). The SGR segment continues along the left bank along the San Gabriel River from the beginning of the confluence zone to the Pacific Ocean at Station 3+50, for a length of approximately 22,865 feet (4.33 miles).

The CC segment and the upper approximately 1,800 feet (0.34 miles) of the SGR segment consist of a reinforced-concrete-lined trapezoidal shaped channel. The remaining downstream portion of the SGR segment is a natural (earthen) bottom, trapezoidal channel with stone-revetted side slopes. The SGR/CC1 Levee System includes side drainage structures, bridge crossings, a confluence structure, pump stations, and a jetty.

The SGR/CC1 Levee System was federally authorized under the general comprehensive plan for flood risk management (approved 18 August 1941 by an act of Congress, Public Law 228) and subsequently constructed by the United States Army Corps of Engineers (USACE) between 1961 and 1964. Operation and maintenance responsibilities were transferred to Los Angeles County Department of Public Works (County) between 1963 and 1965.

LACDPW submitted documentation for certification of their levees within FEMA’s

Provisionally Accredited Levees (PAL) program, on 15 October 2009 and are awaiting FEMA's

accreditation. This 2009 report includes the SGR/CC1 Levee System.

1.3 Summary of Major Deficiencies Found

The levee system was inspected on 6 through 8 March 2012. During the periodic inspection of the system, several deficiencies were noted for which remedial actions are required. The table below lists the major deficiencies that were noted during the periodic inspection of the project features and subsequent repairs performed by the County. The inspection of the pump stations, ratings, and recommendations will be included as a separate Addendum to this report.

Deficiency Reported During Inspection	**Repair/Update (if applicable)**
CC segment and the concrete-lined portion of the SGR segment	
The subdrain outlets are clogged and no longer function properly. There are no available maintenance records which indicate that the subdrainage system has been regularly cleaned.	Subdrains have been inspected by video camera and have been flow tested to confirm the drains are operating properly. The subdrains were vacuumed and jetted out, where needed.
SGR segment	
Levee encroachments observed include a fence that prevents inspection of the landside slope and retaining wall, homeowner's backyards extending up the landside slope, and a diversion structure that was not abandoned in accordance with as-built plans.	The County is researching the encroachments and is developing a plan to remove or permit them.
Erosion caused by local surface runoff up to 3 feet deep on the landside slope, voids near the riverside top of slope up to 5 feet deep and 2 feet in diameter, and river flow causing caving of the slope downstream of the confluence structure were observed.	The County has repaired some of the major erosion and the voids near the riverside top of slope noted during the inspection (including the erosion downstream of the confluence structure). The County has created work orders to repair the other major erosion reported.
Inlet and outlet side-drainage structures are filled with sediment, boulders/cobbles (displaced rip-rap), and debris, which are obstructing the flap gates and preventing inspection of portions of the concrete structure, flap gate, and/or pipe. Some flap gates are heavily corroded; in two locations the flap gates are missing.	The County has removed obstructions from some of the outlet structures. Work orders have been created for the remaining obstructions with an estimated completion date of mid-2013. Replacement flap gates have been ordered. However, there are ongoing discussions with the Los Cerritos Wetland Authority and Coastal Commission regarding the missing flap gates and adjacent wetlands.

<table>
<tr><th>Deficiency Reported During Inspection</th><th>Repair/Update (if applicable)</th></tr>
<tr><td>There are no detailed plans or operation and maintenance records for the Haynes Steam Plant outlet structures. One of the gates appears to have been dismantled.</td><td>The County obtained maintenance records for two of the Haynes Steam Plant side-drainage structures from the Los Angeles Department of Water and Power (LADWP). The County is in the process of obtaining information for the decommissioned structure.</td></tr>
<tr><td colspan="2">Downstream end of confluence structure protection deficiencies include:</td></tr>
<tr><td>▪ Active seepage through the sheet pile wall and the concrete pile cap between the Coyote Creek and San Gabriel River low-flow channels was observed.</td><td rowspan="5">On 31 December 2012, the County completed the repair of the confluence structure. According to the San Gabriel River – Invert Channel Repair (2012) Post-Construction Report, “the repair consisted of replacing the damaged section in kind, including repairing the subdrain system and replacing the damaged invert concrete slab; installing a new sheet pile and cap next to the damaged sheet pile wall; and placing new riprap to replace damaged and/or displaced riprap section; and repairing the scouring of the end protection between the concrete-lined channel and earthen-bottom channel.”</td></tr>
<tr><td>▪ Two rectangular cuts have been made in the sheet pile wall allowing water to flow in and out from under the invert concrete slab during high and low tides, respectfully. This indicates that the subdrainage system, sheet pile wall, and overlying concrete pile cap are not functioning as designed.</td></tr>
<tr><td>▪ About 5 inches of settlement of the invert concrete slab relative to the subdrain manhole was observed.</td></tr>
<tr><td>▪ A hole in the concrete at the toe of the riverside slope near a joint at the downstream end of the confluence structure was observed.</td></tr>
<tr><td>▪ Up to 4 feet of scour in the dumped-stone apron area was observed.</td></tr>
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1.4 Overall Rating

The Levee Safety Out-Brief Meeting was held on 25 July 2012. Subsequent to the out-brief, the County repaired several of the major deficiencies observed during the periodic inspection. As a result, an engineering determination has concluded that the remaining observed deficiencies would not prevent the system from performing as intended during the next flood event.

Therefore, the Levee Safety Officer, Los Angeles District, has determined the overall system rating to be “Minimally Acceptable (M).”

A “Minimally Acceptable” system rating is defined as: “One or more items are rated as Minimally Acceptable or one or more items are rated as Unacceptable and an engineering determination concludes that the Unacceptable items would not prevent the segment/ system from performing as intended during the next flood 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, not to exceed two years, and to correct the “Minimally Acceptable” rated items so that they do not deteriorate further and become “Unacceptable.”

Figure 1. San Gabriel River – Coyote Creek 1 Levee System