

# **Scappoose Drainage Improvement Company**

## Flood Emergency Response Plan

Revised July 2023

IMPORTANT QUICK REFERENCE INFORMATION CONCERNING THE SCAPPOOSE DRAINAGE IMPROVEMENT COMPANY (SDIC)

**PROJECT NAME:** SCAPPOOSE DRAINAGE FLOOD DAMAGE REDUCTION SYSTEM

**IDENTIFICATION NUMBER/CWIS NUMBER:** 500430002 & 5005000005

**RIVERS:** MULTNOMAH CHANNEL

**PROJECT LOCATION:** COLUMBIA COUNTY, OREGON

**PUBLIC SPONSOR:** SCAPPOOSE DRAINAGE IMPROVEMENT COMPANY

**ARMY CORPS OF ENGINEERS DISTRICT OFFICE LOCATION:** PORTLAND DISTRICT

**EMERGENCY POINT OF CONTACT FOR THE ARMY CORPS OF ENGINEERS:**  
Emergency Operation Center-503-808-4402

**COLUMBIA COUNTY EMERGENCY OPERATIONS CENTER:** 503-988-6700

**STATE EMERGENCY OPERATIONS CENTER:** 1-800-452-0311 or 503-378-6377

**SDIC EMERGENCY CONTACTS:** Chase Christensen (503) 396-6799

**PGE EMERGENCY CONTACTS:** 503-736-5662

**COLUMBIA RIVER PUD CONTACTS:** 503-397-1844

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### **Notes:**

Included in this manual are references to as-built engineered plans developed by USACE. These plans are identified with a "CLW" heading. A list of these plans is in Part I Section V of the SDIC Operations and Maintenance Manual. These plans are kept on file at the SDIC office.

Locations along the levees are referenced by Station numbers, an example would be "Sta: 245+28" or "245+28". Stations are mark of distance along the levee crown in feet, Sta:245+28 would be 24,528 feet from beginning. The perimeter levee begins with 0+00 at the southern end and increases until reaching the northern end. The Sublevee begins with 0+00 at the northern end and increases moving south, the Sublevee is also denoted with an "L" as in "Sta: L25+00" or "L25+00".

## **1. Introduction**

The Scappoose Drainage Improvement Company's (SDIC) Flood Damage Reduction System (FDRS) consist of ten miles of perimeter of levee, three dewatering pumping stations, one seepage control sub levee system and a multi mile network of conveyance channels. The levees provide flood control for over 5,700 acres of land including farm, residential, industrial, and commercial; the most significant is the eastern portion of the City of Scappoose, Oregon. The levees divert Multnomah Channel and Willamette River flood waters away from properties within the SDIC boundaries. The Columbia River also has a direct effect on the waters of the lower Willamette River and Multnomah Channel. The SDIC's internal water conveyance systems moves precipitation, runoff and seepage to a system of pumping stations, which remove the water from the interior to the Multnomah Channel.

## **2. Purpose**

The purpose of this Flood Emergency Response Plan (FERP) is to establish protocols and responsibilities for the SDIC, partners, and volunteers as first responders in the event of a Multnomah Channel, or Willamette River high water threat or flood emergency to the FDRS.

The FERP will accomplish this through:

- Define the roles of different agencies involved
- Public Notification
- River Phase system and Identifying known trouble spots
- Flood-monitoring and flood-fighting techniques

## **3. Goals**

During high water events, the main goals are to:

- Maintain the integrity of the levees.
- Sandbag overflows.
- Keep interior conveyance systems operating.
- Manage and monitor the relief of hydrostatic pressure against the levee.
- Manage interior water surface levels with the use of the pumping stations.
- Keep the community within the FDRS informed.

## **4. Levee System Design**

The SDIC levees are constructed of river alluvium, or silty sand dredged from the base of the river, as well as material borrowed from within the original floodplain. These silty, sandy levees are designed to seep and drain to balance the pressure of the river on the levees. Some level of seepage should be expected during high water as a result. Some stretches of the system have toe drains that collect water seeping through and under the levee helping to control seepage and uplift pressure, which may otherwise cause sand boils and hydraulic excavation of foundation materials. Toe drain laterals release the water into a conveyance ditch near the levee toe. Relief wells are also used to relieve uplift pressures. There are five groups of toe drains and relief wells in the SDIC.

## **5. Situation Overview**

The primary threat to the SDIC is a flood event. A flood is overflow of inland or tidal waters or unusual and rapid accumulation or runoff of surface waters from any source. Facilities, like the flood damage reduction system of the SDIC, were constructed to reduce the risk of these types of events. The main modes of failure for a levee system are breaching before overtopping, overtopping without breaching, overtopping with a breach, or system malfunction (see Appendix E for more information on levee failure). Interim risk reduction measures will be made to reduce the risk of system failure. Consequences

of flooding include loss of human life, damage to property, destruction of crops, loss of livestock, disruption of business operations, hazardous material releases, and deterioration of health conditions owing to waterborne diseases. SDIC must work closely with Columbia and Multnomah County, the City of Scappoose, United States Army Corp of Engineers (USACE), and the Port of Columbia County during a flood event.

## **6. Authority**

To obtain State of Oregon assistance during a flood fight, it is necessary for a local municipality, tribe, or county to first declare an emergency. This can be done in advance of a flood based on issued forecasts or other information. If federal assistance is needed, such as from the USACE, the State and locals must declare that they have committed or anticipate committing all of their resources. The State requests this assistance from USACE under Public Law 84-99. USACE District commanders will issue a Declaration of Emergency in order to implement their flood response operations authorities. SDIC is served directly by the Columbia County Emergency Operations Center (EOC). Requests for assistance and resources as well as damage assessments are routed to the County EOC which in turn serves as a coordination point for federal, state, regional and local assistance. Once the State has activated their emergency response, the President of the United States can issue a Presidential Disaster Declaration upon request from the State Governor. A Presidential declaration is usually based on the level of damage and triggers FEMA's involvement in disaster recovery.

## **7. SDIC First Response**

In the event of a flood emergency the SDIC General Manager will contact 911 and notify the Scappoose Police Department, Columbia County Sheriff's Office, Scappoose Fire Department and the City of Scappoose. The District Manager will then attempt to contact all affected parties by phone or vehicle. The District Manager will maintain lines of communication with the National Weather Service (NWS) and/or the county's Emergency Management Offices of impending flooding. The District Manager will assign individuals to monitor the levee as possible during the period of flooding and to inspect the levee immediately after the flood waters have receded. The monitoring team will notify the District Manager of any conditions that may cause the levee to fail or to be over-topped. An SDIC representative will make a field assessment of the problem area and determine the appropriate actions to be taken. The SDIC will activate required emergency response activities by providing information to local police, sheriff, fire department and the City of Scappoose officials. Should the SDIC District Manager be absent or unable to perform these duties, the Board President along with any available board members will assume his duties.

## **8. Scappoose Drainage Improvement Company Personnel**

Board President: Robert Hostetler

Board Member: Gary Wheeler

Board Member: Amanda Hoyt

Board Member: Megan Augeri

Board Member: Karen Kessi

District Manager: Chase Christensen

Field Operation Tech: JR Shadley

## **9. Notification and Public Dissemination**

Emergency notifications to the public in the event of flooding or high-water threat (e.g. evacuation notice) will be coordinated through the Multnomah County Office of Emergency Management (OEM) and the Columbia County Office of Emergency Management. SDIC will contact the 24/7 County Emergency Management Duty Officer to request assistance with notifications. The OEM uses the Community Emergency Notification System (CENS) to contact residents in the affected area via phone and email (residents are encouraged to register their mobile phones and emails at [www.publicalerts.org](http://www.publicalerts.org)).

OEM and SDIC will coordinate with the Columbia County Sheriff's Office and Scappoose Fire Department if in-person notification is necessary.

## **10. Organizations and Responsibilities**

High-water situations in the SDIC not only affects this area, but all the communities surrounding local waterways. Therefore, in a best-case scenario this will be a multi-agency response.

### *Scappoose Drainage Improvement Company*

Sole responsibility of the integrity of the levee lies with the SDIC. Furthermore, any financial impacts due to a high-water event will be the sole responsibility of SDIC. In some cases, local, state, and federal funds may be available to offset the financial burden of SDIC. Direction and control of any flood-fight or other high-water emergency in the District is the responsibility of SDIC. Working in conjunction with other agencies, SDIC will be responsible for coordinating the effort of all the agencies and volunteers in a cohesive and efficient manner.

### *Scappoose Fire Department*

The Scappoose Fire Department will continue with their normal responsibilities during any high-water event including responding to medical emergencies, fires, and search and rescue. SDIC will look to SIFD volunteers to step in leadership roles in a high-water event as their time allows. The volunteers have a unique ability to step into a leadership role because of their continuing training and their experience in emergency situations. Additionally, it will be the responsibility of SIFD, in cooperation with SDIC and other agencies, to make the recommendation for residents to evacuate and secure their valuables.

### *Columbia County Emergency Management*

The Emergency Management team of Columbia County will act as the liaison between SDIC and Columbia County resources. Columbia County will also activate any official request to Oregon Emergency Management for state and federal resources.

### *Multnomah County Emergency Management*

The Emergency Management team of Multnomah County will act as the liaison between SDIC and Multnomah County resources. Multnomah County will also activate any official request to Oregon Emergency Management for state or federal resources.

### *Multnomah County and Columbia County Sheriff Departments*

As resources are available, both Sheriff Departments will assist SIFD and any community association in public notification and dissemination. The Sheriff Departments may also help with other duties like traffic control on water-saturated levees.

## 11. River Levels and Weather Service Resources Links

The Vancouver Gauge on the Columbia River helps determine the flood categories issued by the National Weather Service. SDIC will use this data to make flood emergency related decisions. as well as the NWS operated St. Helens Gauge on the Columbia River.

Vancouver Gauge-

<https://water.weather.gov/ahps2/hydrograph.php?wfo=pqr&gage=vapw1&view=1,1,1,1,1,1,1,1&toggles=10,7,8,2,9,15,6>

St Helens Gauge-

<https://water.weather.gov/ahps2/hydrograph.php?wfo=pqr&gage=shno3&view=1,1,1,1,1,1,1,1&toggles=10,7,8,2,9,15,6>

Weather Forecast-

<https://forecast.weather.gov/MapClick.php?lat=45.75494000000003&lon=-122.87617499999999#.YLZ07IWSmUk>

Northwest River Forecast Center-

<https://www.nwrfc.noaa.gov/rfc/>

## 12. Flood Emergency Triggers and Actions

SDIC will respond to high water in the Multnomah Channel and Willamette River when triggered by particular events, or when deemed necessary as the situation requires. The flood emergency triggers will typically be river elevation. Flood emergency response and actions by river elevation are listed below in phases.

## 13. Emergency Response by Phase

All phase actions are based on the NOAA Columbia River, Vancouver, WA Gauge:

<https://water.weather.gov/ahps2/hydrograph.php?wfo=pqr&gage=vapw1&view=1,1,1,1,1,1,1,1&toggles=10,7,8,2,9,15,6>

### Phases:

**15 feet:** SDIC manager notifies board members and other personnel of current conditions and weather/river forecasts. Toe Drains and Relief Wells are monitored. Areas behind the Sublevee are monitored for excess seepage; Sublevee sluice gates to be closed if needed.

**16 feet:** SDIC continues to monitor levels and reviews emergency procedures. Other key personnel notified. Emergency supplies gathered and inventoried. Toe Drains and Relief Wells are monitored. Areas behind the Sublevee are monitored for excess seepage; Sublevee sluice gates to be closed if needed. South Tides gates to be monitored for operation, if needed, Jackson Creek Diversion boards to be removed to divert Jackson Creek into the Santosh Slough.

**17 feet:** SDIC continues to monitor levels and reviews emergency procedures. Toe Drains and Relief Wells are monitored. Sublevee sluice gates to be closed. Jackson Creek Diversion boards to be removed to divert Jackson Creek into the Santosh Slough.

**18 feet:** SDIC notifies USACE, Columbia County, Multnomah County, Scappoose Fire District, and State emergency officials of current conditions. Regular updates to agencies and personnel as needed.

Initial public notice made to residents and community. First ask for community volunteers, and an up-to-date list created. Regular updates posted on SDIC web page. SDIC continues to monitor levels and reviews emergency procedures. Toe Drains and Relief Wells are monitored.

**20 feet:** Residents notified daily of current conditions via web page and email. Daily levee inspections begin. Agencies updated twice a day or more as needed. Local resources placed on standby for supplies. Meet with volunteers for training. Updates to community continue daily or more as needed. Multnomah County Emergency Management or Columbia County Emergency Management along with Oregon Emergency Management may request assistance from the Oregon National Guard.

**24 feet:** SDIC personnel on 24-hour watch. Incident Command Post set up. Trouble spots monitored four times daily by volunteers. Initial load of sand delivered, and sand bagging begins. Agency representatives gather for plan of action and forecasted trends. Updates to community continue daily or more as needed.

**26 feet:** SDIC personnel and volunteers continue 24-hour watch. Additional Army National Guard troops requested as needed. Sand bagging along trouble spots. Residents, businesses, and the media updated daily and as conditions change. The perimeter levee has reached its minimum design freeboard.

**28 feet and above:** SDIC personnel and volunteers continue 24 hour watch. Additional Army National Guard troops requested as needed. Sand bagging along trouble spots and low areas of the levee. Local residents, businesses, and the media updated daily and as conditions change. The potential for evacuation will be considered at this stage. Levee may overtop at locations.

#### **14. Known Trouble Locations**

(Left blank-to be added as later needed)

#### **15. Equipment and Material Inventory and Availability**

Sandbags: Over 1000 sandbags are centrally located at the Evans Pumping Station. Additional sand bags can be obtained from Columbia County or purchased online. SDIC will arrange for sand to be delivered. Sand and quarry stone are available from Scappoose Sand & Gravel and Cal Portland's Santosh Plant. Equipment borrowed from local volunteers, City, County, or other agencies may be used to transport filled sandbags to areas needed.

#### **16. Surface Water Removal- specific areas of need, toe drains, culverts, low areas**

##### *Toe Drains and Relief Wells:*

Toe drains are specifically designed to remove foundation under-seepage from the toe and to relieve hydrostatic pressure passing through the levee foundation. A list of the toe drain and relief well systems is attached as Appendix C. During flood events it is important to ensure that all toe drain and relief well laterals are open to prevent buildup of any hydrostatic back-pressure on the system.

##### *Culverts:*

Several culverts should be checked in high-water situations to ensure adequate interior drainage. These include the culverts located within the Santosh and Evans Sloughs along with the culverts located within the North and Cherry Orchard ditch system.



## **17. Flood-Fight Organization**

Sectors: The levee system can be divided into sectors for the purpose of flood-fighting to ease accountability and leadership roles. The levee sectors are as follows:

- Sector A: Sta: 0+00 to 100+00
- Sector B: Sta: 100+00 to 200+00
- Sector C: Sta: 200+00 to 300+00
- Sector D: Sta: 300+00 to 400+00
- Sector E: Sta: 400+00 to 505+00
- Sector E: Sub Levee

Incident Command System: In any flood fight the SDIC will utilize the ICS system. This system is commonly utilized in emergency incidents and focuses primarily on delegating leadership in a structured environment. In any incident, leaders will be identified in several roles including operations, safety, and public information.

## **18. Evacuation Plan**

SDIC will coordinate with the Columbia County Office of Emergency Management and Columbia County Sheriff's Offices to share information regarding safety considerations that could require evacuation in all or a portion of the District. The Columbia County Sheriff's Office will activate its Scappoose Evacuation Plan if citizens need to be evacuated (attached as Appendix A).

## **19. Emergency Contacts**

### **Portland District, Army Corps of Engineers**

Emergency Management  
CENWP-EOC@usace.army.mil  
Emergency Operations Center: 503-808-4402

### **Scappoose Fire Department**

503-543-5026

### **City of Scappoose**

503-543-7146

### **Scappoose Public Works**

503-543-8404

### **Scappoose Police**

503-543-3114  
503-397-1521 dispatch

### **Columbia County**

USE AS FIRST CONTACT TO COUNTY:

*Emergency Management*  
CCEM Duty Officer: 503-988-6700  
Emergency Management Director:

### **Columbia River PUD**

503-397-1844

### **Columbia County Marine Patrol**

503-366-4616

**Columbia County Sheriffs Office**

503-366-4611

503-397-1521 dispatch

**Multnomah County Sheriff's Office**

24/7 Records Number can connect with all MCSO units:

503-261-2810 or 503-823-1907 or 503-255-3600

*Cmdr Monte Reiser*

O: 503-988-0352/[monte.reiser@mcsso.us](mailto:monte.reiser@mcsso.us)

**Multnomah County Sheriff River Patrol**

*Captain Travis Gullberg* Cell: 503-793-8886 [travis.gullberg@mcsso.us](mailto:travis.gullberg@mcsso.us)

O: 503-988-6788 / non-emergency #: 503-823-3333

**Oregon State Police**

503-397-3131 dispatch

**Scappoose Bureau of Emergency Communications**

911 or supervisor:

**State of Oregon**

Emergency Management

1-800-452-0311 or 503-378-6377

**Oregon Department of Transportation**

Portland Traffic Management Operations Center 503-227-5002 / 800 MHz channel K3 "COMET" & K4 "ODOT 2B"

**NOAA – National Weather Service River Forecast Center**

*Andy Bryant*, Service Hydrologist

[andy.bryant@noaa.gov](mailto:andy.bryant@noaa.gov)

24-hour: 503-326-2356

General: 503-326-3720

**US Coast Guard**

Watch Stander (24/7): 503-240-9365

800 MHz Radio: VHF Marine Ban Channel 16

**Red Cross**

Main Desk: 503-284-1234

Preparedness Office: 503-528-5716

**Columbia PUD**

503-397-1844

## **20. Resources:**

### **Morse Brothers Angel Quarry**

503-286-4201

### **Scappoose Sand and Gravel-*Quarry stone***

503-543-8821

33485 E Crown Zellerbach Rd

### **Cal-Portland -*Sand and gravel supplies, heavy equipment***

503-543-7116

34885 N Honeyman Rd.

Robert Hostettler 971-271-4380

## **Appendix A: Evacuation Plan**

A SDIC evacuation will be facilitated by the Columbia County Sheriff's Office.  
Sheriff's Office/ 911 Center  
503-366-3933

[CCSO Evacuation Plan-to be added](#)

## **Appendix B: SDIC Sector Maps**

CLW-93-4-1

CLW-93-23/1

CLW-93-25-1 to 93-25-12 Main levee

CLW-93-23/3 Sublevee

## Appendix C: Toe Drains and Relief Wells

### System A

CLW-93-5/8 and CLW-93-5/4

Sta:299+70 to 305+65

8" tile drain, 2' sections, non-reinforced concrete bell and spigot pipe with partially open joints.

Connected to following 10" tile drain at downstream end and a 6" transverse drain at upstream end.

Station-293+56 to 299+70

10"tile drain, 2' sections, non-reinforced concrete bell and spigot pipe with partially open joints.

This segment has four 6" traversed drains feeding into it and drains to a 12" steel culvert that daylights to an open ditch at Sta:299+40

### System B

CLW-93-5/8 and CLW-93-5/4

Sta: 321+00 to 323+50

8" tile drain, 2' sections, non-reinforced concrete bell and spigot pipe with partially open joints.

Drains to Cherry Orchards Pumping Station.

Sta:234+30 to 325+50

8" tile drain, 2' sections, non-reinforced concrete bell and spigot pipe with partially open joints.

Drains to Cherry Orchards Pumping Station.

### System C

CLW-93-11

Sta: 494+50 to 499+00

6" concrete bell and spigot pipe with open joints just below the levee crown paralleling the road.

Approximately 60' of 8" concrete B&S pipe with cemented joints running transverse down the embankment from end of the toe drain, under the road and day lighting at the levee toe at Sta: 494+50.

### Relief Wells

CLW-93-13

Sta: 110+98

Two-12" Armco perforated vertical steel pipe with 12" Corrugated Metal lateral drainpipe.

Located on the Bernett property, in the parking area immediately in front of the barn on the west side of Dike Rd.

Wells are approximately 50' apart.

CLW-93-23/12 & 93-23/14

Sta:279+00-Evans Pumping Station

Six-10" Vertical steel perforated pipes with 8" Steel lateral drains

Relief Wells are in a circular configuration around the pump station, the top of the vertical pipes is visible, except for #2 & #3 are under the gravel parking area.

Lateral drains daylight into the Evans Slough immediately west of pump station, except for RW-#3 daylights into Evans Pump #3 sump.

# Appendix D: Emergency Levee Inspection Report Sheet

LEVEE INSPECTIONS  
For use during emergency events

Inspector: \_\_\_\_\_

Date and Time: \_\_\_\_\_

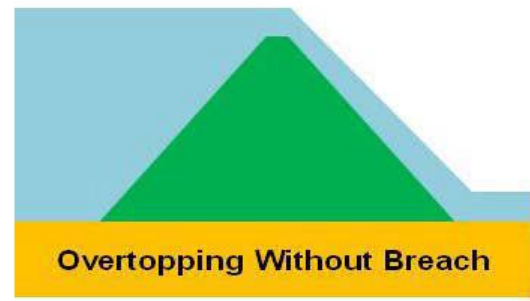
Levee Patrol Area: \_\_\_\_\_

Vancouver Gage Reading  
(in gage datum): \_\_\_\_\_

Item	What to look for	Observations / Areas of Concern / Notes
<i>GENERAL</i>		
Water distance from levee crest estimate	0-2 feet? 2-5'? 5-10'? 10-15'?	
Access roads/ramps	Usable and safe?	
Debris dams	Any debris catching in the river blocking flow?	
<i>LEVEES</i>		
Saturated areas / Sand boils	Any present on landside?	
Slides / sloughs	Any present?	
Wave wash / erosion	Any present?	
Low areas in crest	Any present?	
Relief wells	Flowing vs. not flowing	
Flap/Sluice Gates	Closed properly?	
Temporary floodwalls?	Closed properly?	
Toe Drains	Water flowing? Gushing or trickling? Clear or has sediment? Are drains nearby doing similar things?	
Saturated areas/ sand boils		
Settlement (movement)	Any observed?	
Bank caving	Any observed?	
Landward toe wet/soft areas, seeps, and or sink holes	Any observed?	

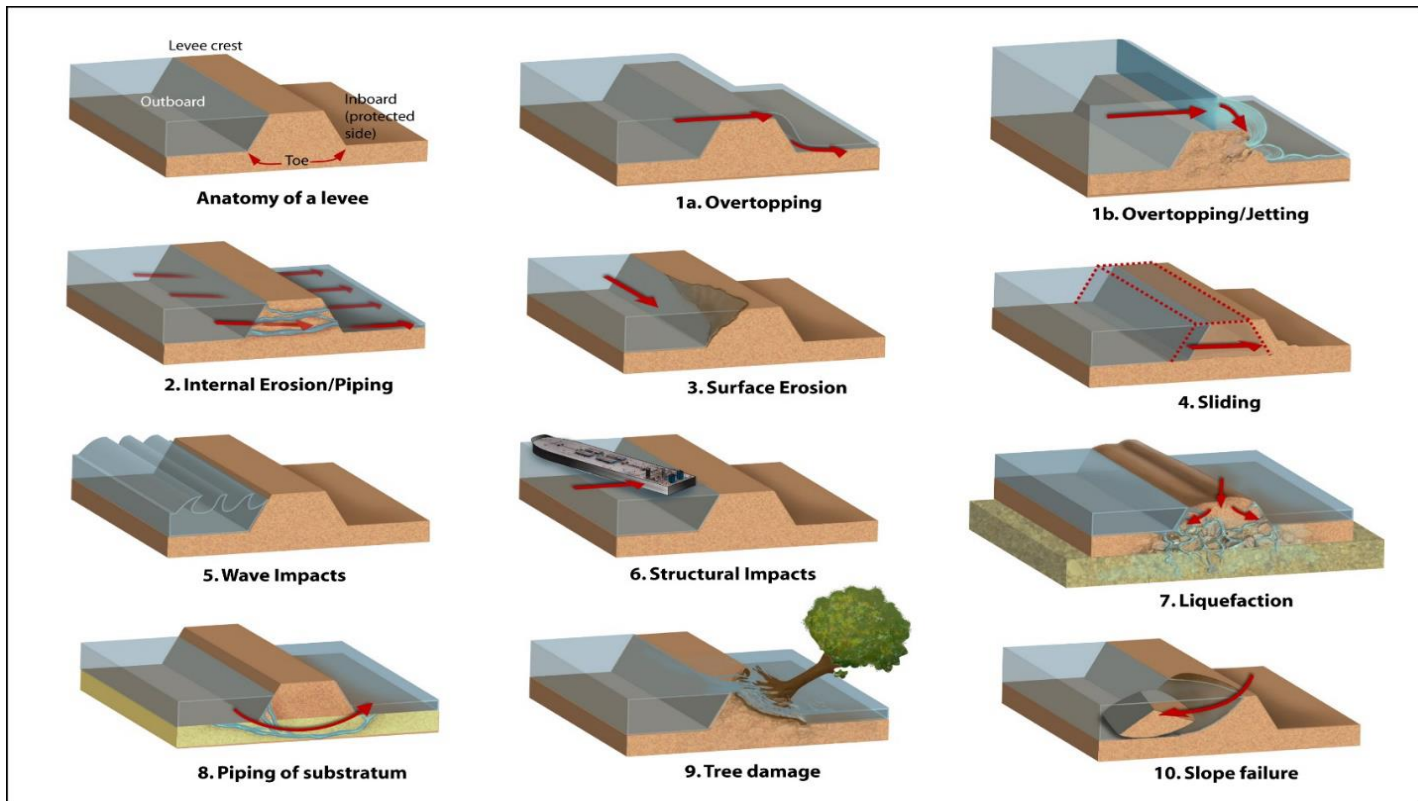
## Appendix E: Levee Modes of Failure

There are many ways to think of modes of levee failure. The four graphics below simply depict levee failure possibilities, though they may be caused by various issues. All four failure modes should be considered in determining interim risk reduction measures.



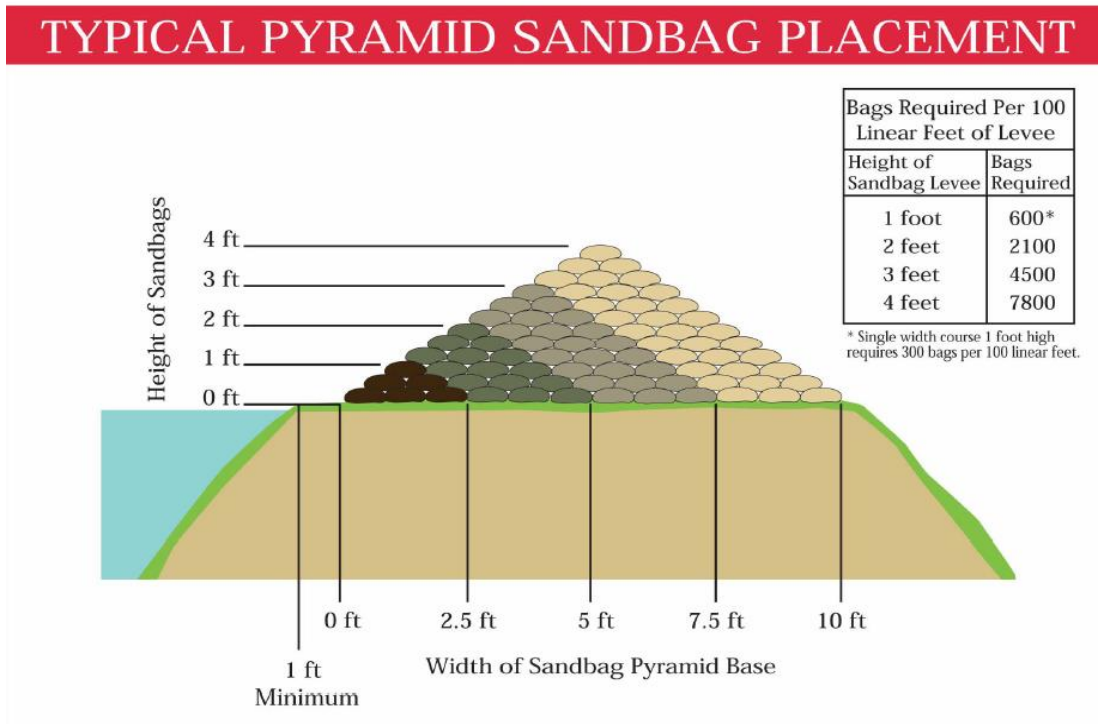


The chart below shows failure modes and impacts that impact levee integrity



## Appendix F: Sand Bag Placement

Sandbags can be used to close an opening in the levee, raise the height of a levee, or to protect areas with no levee. When placing sandbags on a levee, they should begin one (1) foot from the riverward edge of the levee crown and placed in a stable pyramid structure. The base of the pyramid should be approximately three times the height.



A **sandboil** is when a flow of muddy water appears near the base of the levee (the toe of the levee). Muddy water indicates that there is internal erosion within the levee itself. Constructing a ring of sandbags around the sandboil is common practice to mitigate the damage a sandboil can cause. The sandbag ring creates a pool of water around the boil that counter balances the upward pressure of the seepage flow (this is the pressure that causes the sandboil). The sandbag ring should be built to a height such that the water runs clear (no longer muddy).

# RINGING SAND BOILS

- Minimum 2 ft. radius from center of boil to edge of ring dike.
- Tie into levee if boil is near toe of levee
- Build half-moon shaped ring dike if boil is on levee slope.

