# Evergreen Estates
# Neighborhood Flood Response Plan

January 2024

**Prepared by:**
**Department of Water Resources**

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# Chapter 1 - Introduction

The Evergreen Estates Flood Response Plan (Plan) assists residents by:

- Making residents aware of the risks associated with flooding in the Evergreen Estates Subdivision
- Helping residents get reliable information regarding a flood threat
- Getting residents involved in flood fighting activities

This Plan assists the Sacramento County Department of Water Resources (Water Resources) by:

- Making residents aware of the flood risk
- Getting residents involved in the flood fight
- Pre-positioning of flood fight materials, such as sand, sandbags and flood barriers

This Plan is organized into the following chapters that provides an understanding of the flood threat and what actions to take in the event of a flood.

Chapter 2 – Awareness and Notification
Chapter 3 – Resources and Contacts
Chapter 4 – Flood Preparedness
Chapter 5 – Flood Response

Each chapter should be reviewed to understand the flood risk and how to respond. It is important to know your role and what to do in a flood fight.

This Evergreen Estate Neighborhood and Flood Response Plan can be downloaded from the webpage at this address: https://waterresources.saccounty.gov/stormready/pages/evergreenestates.aspx.

# Chapter 2 - Flood Awareness and Notification

This chapter includes information for residents to be aware of a potential flood threat to the Evergreen Estates Subdivision.

## 2.1 Arcade Creek Floodwall and Levee

The floodwall and levee system along Arcade Creek protects Evergreen Estates during large flood events. The floodwall starts upstream at Pasadena Ave and extends to the west end of Evergreen Estates where it transitions to an earthen levee until tying into high ground at the intersection of Winding Way and Auburn Blvd (Figure 1). The top of the floodwall along the creek is 1.5' to 2.0' higher than the 100-year water surface elevation. The top of the levee is 2.0' to 2.5' higher than the 100-year water surface elevation. Figures 2 and 3 show the elevation at the top of floodwall and levee compared to the 100-year water surface elevations.

A significant problem with the floodwall/ levee system is that at higher water surface elevations, floodwaters begin to outflank the end of the floodwall near the intersection of Pasadena Ave and Winding Way. This outflanking could result in the subdivision filling up like bathtub and flooding homes up to six feet deep. Modeling predicts that during the 100-year event a peak flow of 240 cubic feet per second (CFS) outflanks the end of the floodwall along Pasadena Avenue and fills the area on the dry side of the floodwall and levee with about 130 acre-feet of floodwater resulting in significant structure flooding. In this scenario, some of the floodwater entering Evergreen Estates would rejoin the creek by overtopping the embankment at the end of the levee at the intersection of Winding Way. In the event of a successful flood fight at Pasadena Avenue and Winding Way, 100-year flood flows could overtop the embankment at the end of the levee at Winding Way and Auburn Blvd but would only fill the Evergreen Estates area by about 28 acre-feet of floodwater which would result in mostly street flooding.

## 2.2 Pump Stations and Flap Gates

There are two pump stations that drain the area behind the floodwall and levee system. The D-03 Evergreen Estates Pump Station is located at the west end of Dartmouth Drive, and the D-12 Winding Way Pump Station is located on the west side of the Winding Creek apartment complex about 500 east of the intersection of Winding Way and Auburn Blvd (See Figure 4). Arcade creek. Both pump stations have a 30" by-pass pipe to allow internal runoff to gravity drain when Arcade creek Stream levels are low. When creek levels are high, a flap gate at the

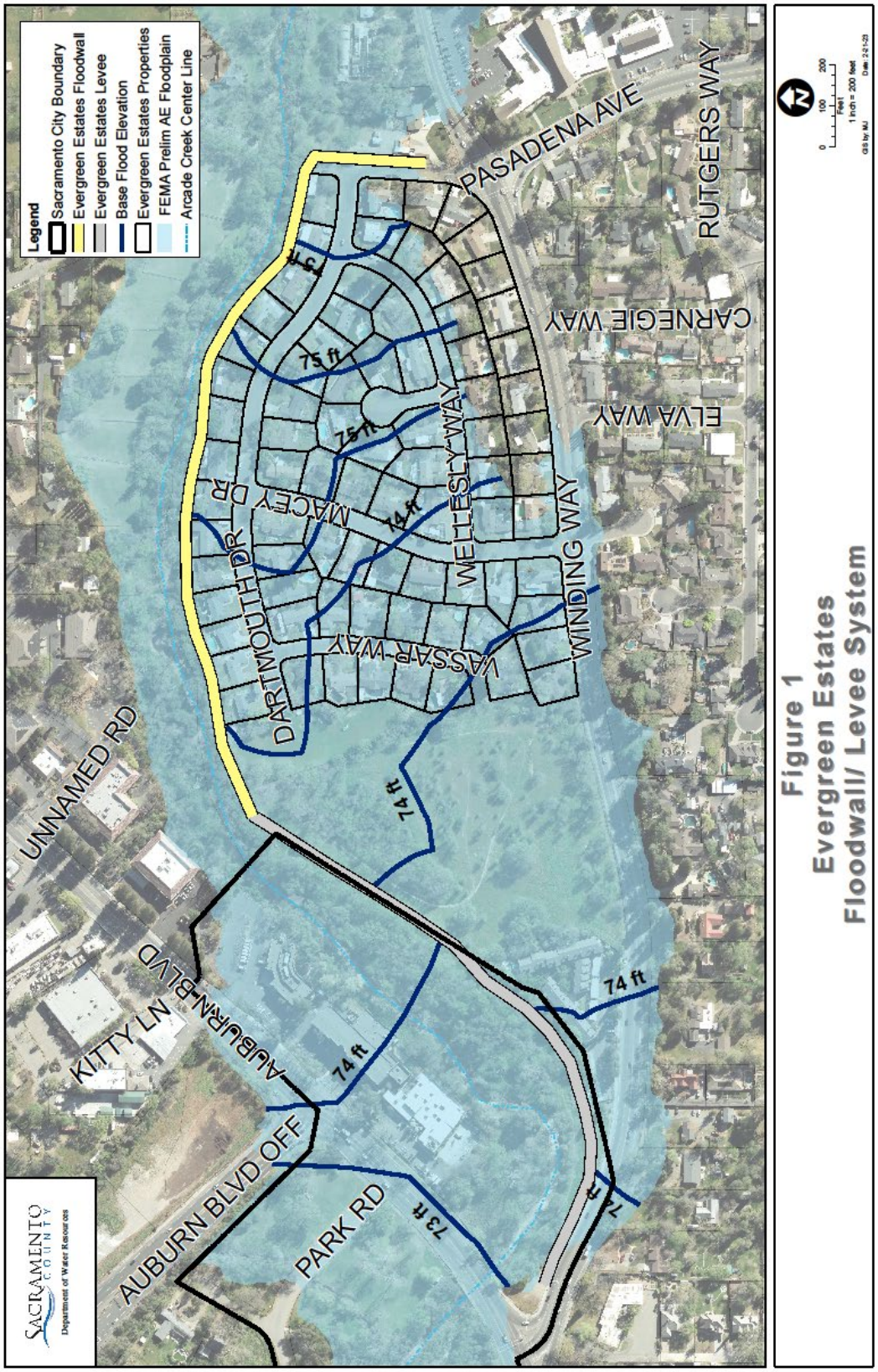



*Figure 1 - Evergreen Estates Floodwall and Levee System*

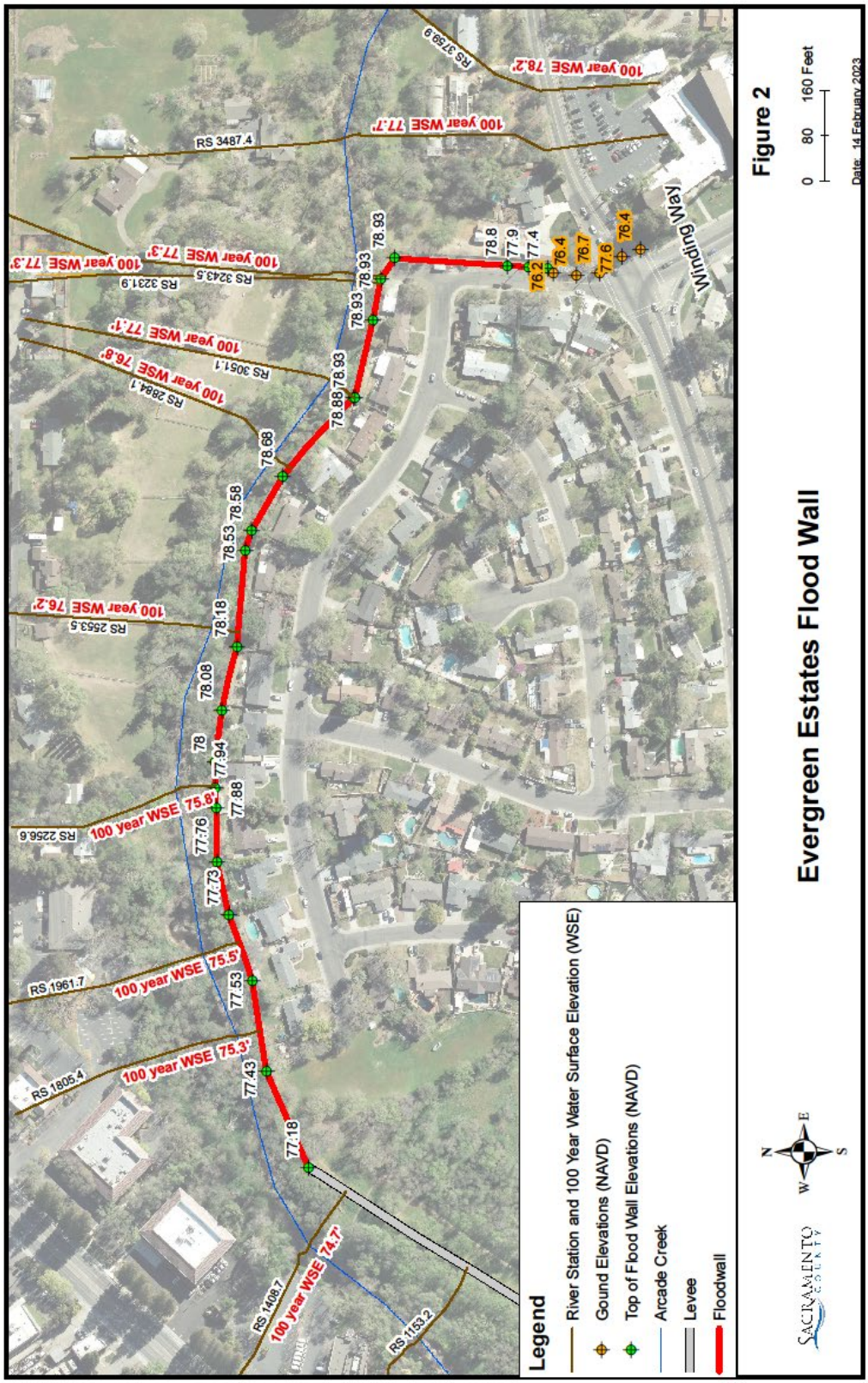



*Figure 2 - Evergreen Estates Floodwall*

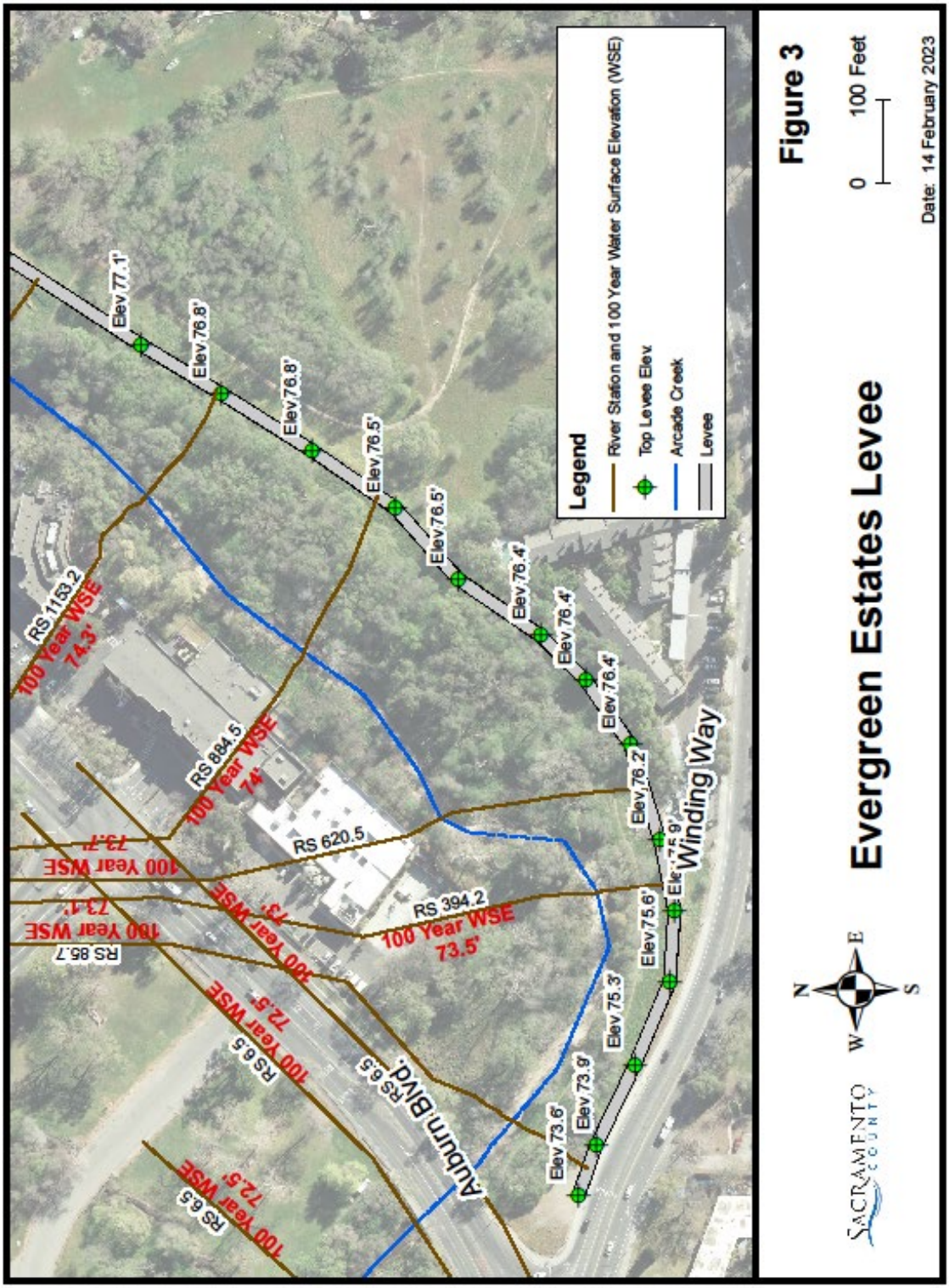



*Figure 3 - Evergreen Estates Levee*

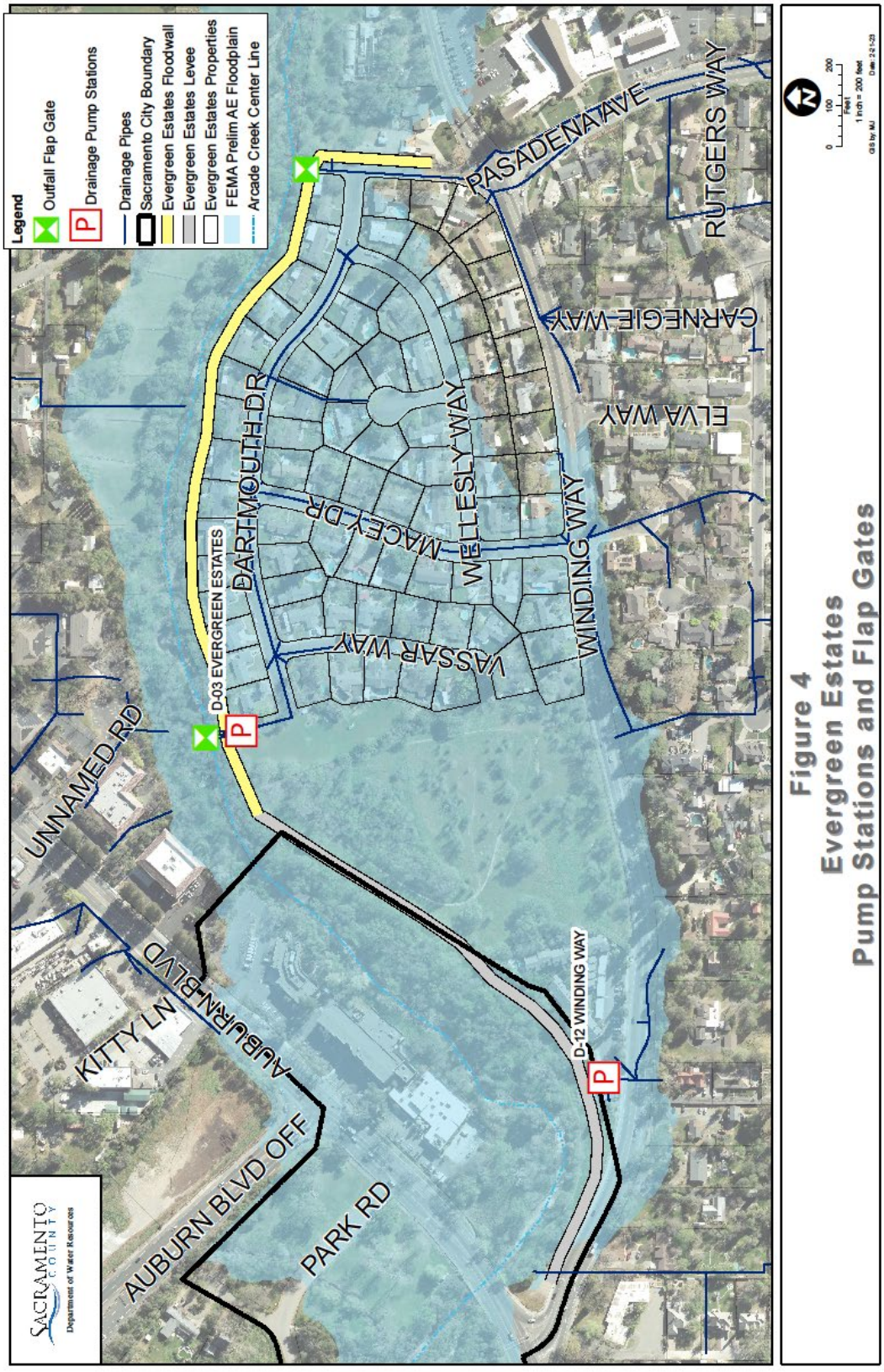



*Figure 4 - Evergreen Estates Pump Stations and Flap Gates*

end of the gravity bypass pipes stop creek water from backing up, and the pump station turns on. There are also flap gates at the ends of the pump outfall pipes. These flap gates should be inspected periodically and after major storm events to make sure the flap gate is not buried with silt or jammed open with debris.

D-03 Evergreen Estate Pump Station is comprised of two pumps each operated by a 7.5 horsepower (HP) electric motors, with each pump having a capacity of 2,030 gallons per minute (GPM) or 4.5 cubic feet per second (CFS), for a pump station total of 4,060 GPM/ 9 CFS. D-03 does not have a back-up generator onsite, but the diesel-electric generator located at the D-12 Winding Way Pump Station is wired into the electrical system feeding the D-03 pump station. The D-12 generator is large enough to simultaneously run the pumps and control systems at both D-12 and D-03.

D-12 Winding Way Pump Station is comprised of three pumps each operated by 15 HP electric motors, with each pump having a capacity of 3,000 GPM or 6.7 cubic feet per second (CFS), for a pump station total of 9,000 GPM/ 20.1 CFS. The pump station has a 166 HP diesel back-up generator that automatically starts in the event of a power outage. The generator is designed and sized to operate all three pumps simultaneously. The generator has an onsite 200-gallon diesel fuel tank that is sufficient to power the generator for 24-hours.

There is a 27” drainpipe along Pasadena Avenue that gravity outfalls to Arcade Creek. A flap gate prevents high flows in creek from backing up into the dry side of the levee. As with the outfalls and flap gates at the pump stations, this flap gate needs to be inspected periodically and after major storm events to make sure the flap gate is not buried with silt or jammed open with debris.

## D-03 Evergreen Estates pump station

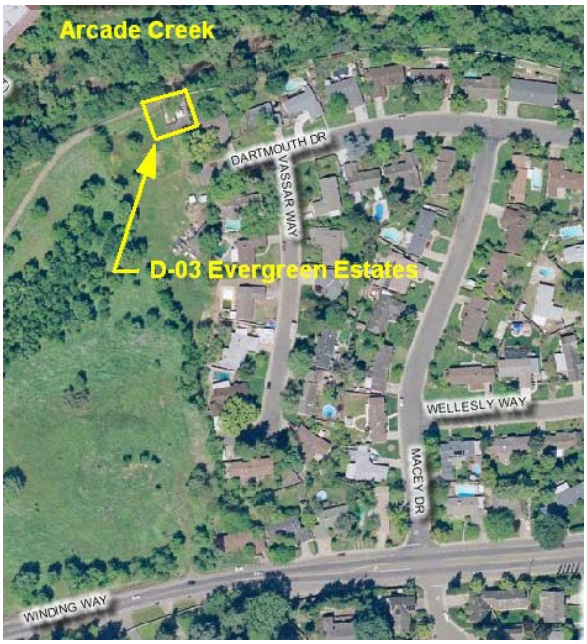



*Figure 5 - D-03 Evergreen Estates Pump Station – Site Location*

*Figure 6 - D-03 Evergreen Estates Pump House*

# D-12 Winding Way Pump Station

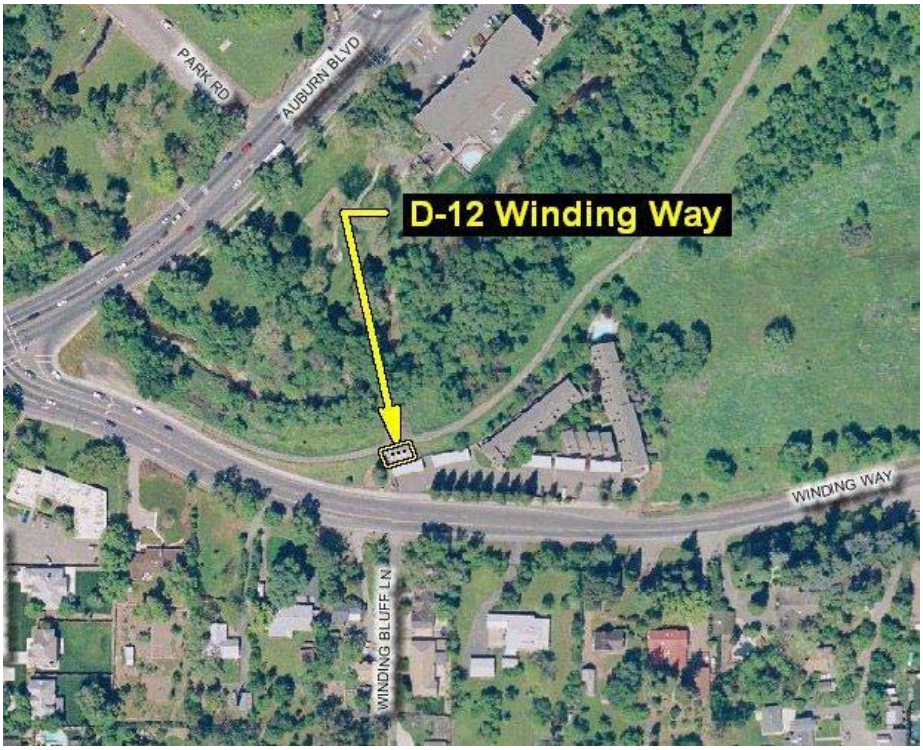



*Figure 7 - D-12 Winding Way Pump Station – Site Location*

*Figure 8 - D12 Winding Way Pump Station*

## 2.3 Flood Insurance Rate Maps

The Evergreen Estates subdivision is currently mapped in Zone X on the FEMA Flood Insurance Rate Maps (FIRMs). Zone X is a moderate flood hazard area and flood insurance is generally not required for those with a mortgage. However, FEMA has issued revised preliminary FIRMs for Arcade Creek based on an updated hydraulic model and hydrology. These maps will become effective on February 22, 2024, and will show most of the lots in Evergreen Estates within the Special Flood Hazard Area Zone AE floodplain. Properties in the Zone AE floodplain are generally required to carry flood insurance if they have a mortgage. FEMA is mapping Evergreen Estates because the levee and floodwall do not meet FEMA standards and are assumed to fail during a flood event. Flooding also occurs in Evergreen Estates due to flows in Arcade Creek outflanking the floodwall at the end of Pasadena Avenue.

## 2.4 ALERT Stream Gage System

The Sacramento County Department of Water Resources operates an "ALERT" (Automated Local Evaluation in Real Time) monitoring system that provides real time stage and rainfall information during storm events. Real time stream gage Information can be found at the Sacramento County ALERT System website located here: https://sacflood.org/. A stream gage located at the Pasadena Avenue pedestrian bridge is critical for warning those living in Evergreen Estates of the threat of flooding. Residents should closely monitor the Pasadena Ave Pedestrian Bridge gage during large events. It is best to access creek levels at the Pasadena Bridge through the Dashboards link near the top of the ALERT page and then select the Evergreen Estates Neighborhood link (Figure 9). Scroll past the map to select the stream water surface elevation graph for the Pasadena Avenue Pedestrian Crossing. A note at the top of this page on Figure 10 warns that when the gage reaches an elevation of approximately 76.82' flood water begins to outflank the floodwall. When this occurs, residents should have already started to flood fight to stop flows from outflanking the floodwall by placing a flood barrier system at the end of the floodwall. Cars should also be moved out of the neighborhood as the streets are the lowest points in the area and will flood the deepest.

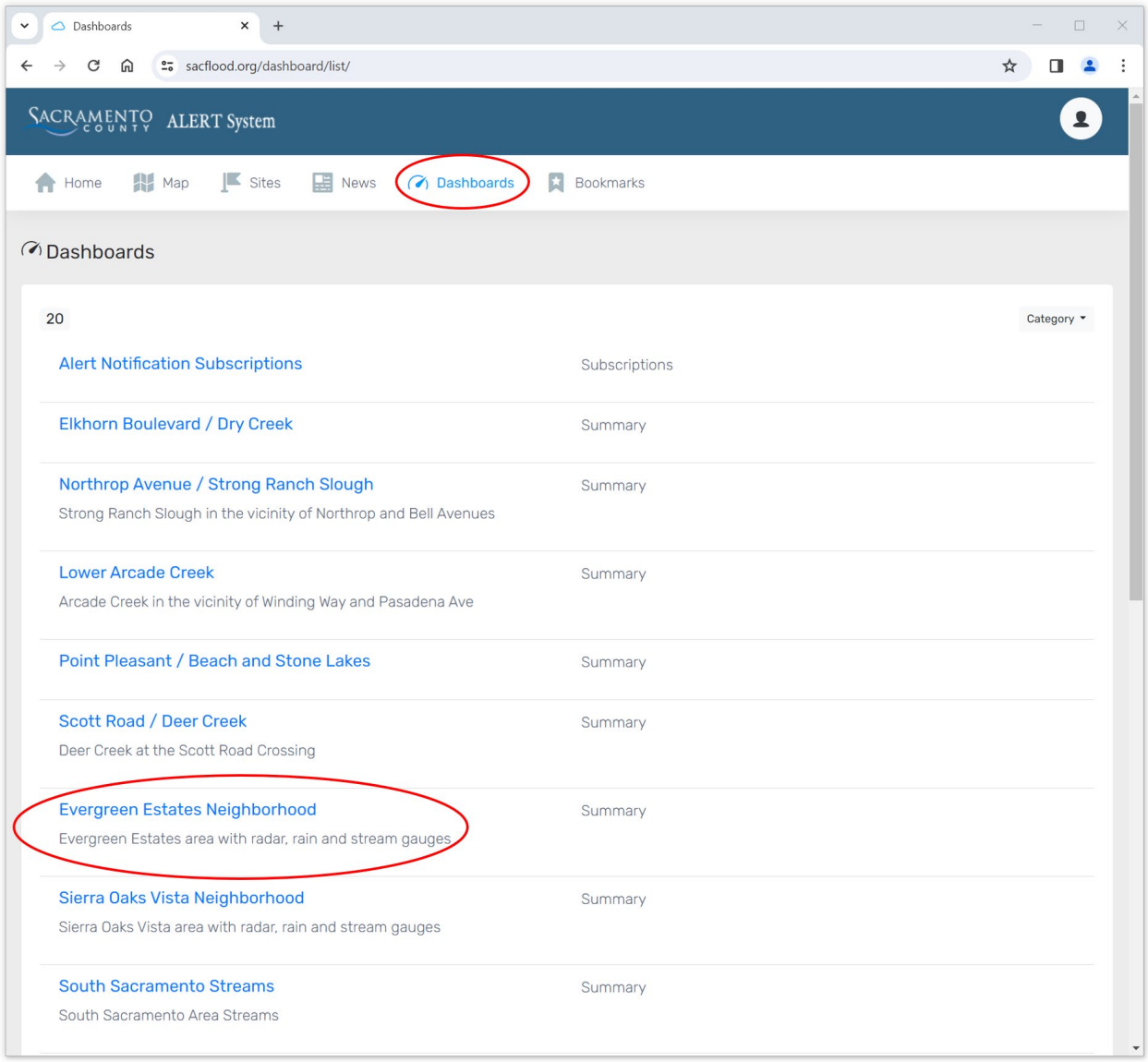



*Figure 9 - ALERT Dashboard*

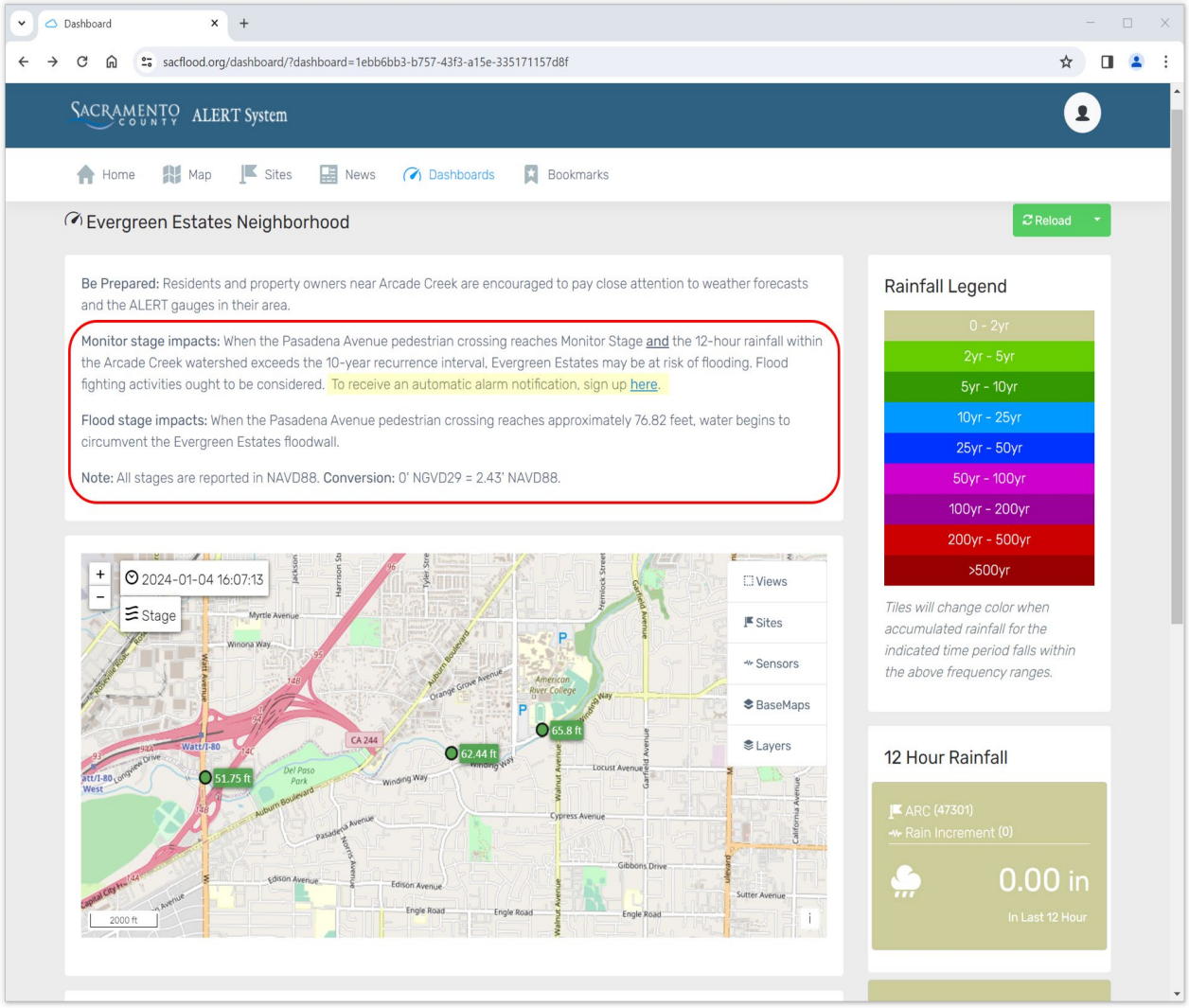



*Figure 10 - Evergreen Estates Neighborhood Dashboard*

Arcade Creek can rise rapidly, giving very little time to organize and execute a flood fight. Residents should begin to closely watch the Pasadena gage when it nears and exceeds monitoring stage. A decision by the residents to stage a flood fight should be based on the potential for flows to outflank the floodwall and not be initiated too late. A recent high rainfall event took place on October 24, 2021 when the water surface at the Pasadena gage came within about 5 inches from outflanking the floodwall (see Figure 11). The time between when the water surface elevation exceeded monitoring stage and reached its peak stage is about 5 hours. This gives an indication of the period of time that may be available to install a flood barrier.


*Figure 11 - Pasadena Gage*

Water Resources will monitor and evaluate the stream gages along Arcade Creek during large flood events and will send an automatic email and/or text message to residents when the flood level at the Pasadena gage exceeds monitoring stage and the accumulated rainfall at nearby rain gages exceeds 12-hour, 10-year amounts. The combination of flood levels above monitor stage and accumulated rainfall suggests that creek flow may ultimately outflank the flood wall and that a flood fight should be initiated. Regardless of whether events trigger a notification by Water Resources, residents of Evergreen Estates should always monitor creek levels during large events and be prepared to protect their properties from flooding. To register for automatic email and/or text notifications please go to the Evergreen Estates Neighborhood webpage shown in Figure 10 and select “here” to navigate to the Alert Notifications Subscriptions page. Once on the Alert Notifications Subscriptions webpage, scroll down to Evergreen Estates Warning and select Subscribe to provide your contact information.

# Chapter 3 – Resources and Contacts

## 3.1 Flood Fight Materials

Sandbag container supplies:

| Supplies | Quantity |
|---|---|
| 26" WATER GATE FLOOD BARRIER | 6 |
| 39" WATER GATE FLOOD BARRIER | 2 |
| CRATES WITH FILLED SANDBAGS | 3 |
| SANDBAGS (unfilled - 1000 per bundle) | 20,000 |
| WIRED-MESH EMPTY SANDBAG CONTAINER | 1 |
| ROUND POINT SHOVELS | 6 |
| SQUARE POINT SHOVELS | 2 |
| GARBAGE CAN | 1 |
| GARBAGE CAN LINERS | 10 |
| PLASTIC CHAIRS | 1 |
| TIN SNIP | 1 |
| BROOM | 1 |
| FLASHLIGHT & SPARE BATTERIES (confirm all work) | 3 |
| LEATHER GLOVES | 2 |
| RAIN COATS (1-XL, 1-L) | 4 |
| WD-40 | 1 |
| BARRICADES | 4 |
| REGULAR CONES | 2 |
| SANDBAG FILLING CONES | 8 |
| SANDBAG FILLING TABLES (w/1-long leg, 1-short leg) | 2 |
| HAND TRUCK | 1 |

## 3.2 County Contacts

If there is a life-threatening emergency, please call 9-1-1.
To submit a non-emergency service request, please contact 3-1-1 for the County mainline.

At other times, the following DWR staff may be able to assist:
Kevin Siu (Floodplain Management) at (916) 874-2983 or siuk@saccounty.gov
Rod Goss (Drainage Maintenance Engineering) at (916) 875-6331 or gossr@saccounty.gov

# Chapter 4 – Flood Preparedness

Under the current program, flood fight materials are brought and stationed at the Pasadena Avenue at Dartmouth Drive intersection before November 1st each year.

Prior to the delivery of flood fight materials, each of the items are addressed by County staff:

- The treatment of pest infestations that may have occurred since the previous storm season. This includes, but is not limited to, the removal of wasp nests which are common within the latch area of the container's doors.
- Verify the condition of filled sandbags in the container. Dispose of old pre-filled bags in which the sand is too hard to properly stack/seal for sandbagging purposes. The sand may be re-used.
- Dispose of bags that are old and have lost the proper strength to avoid breaking during sandbagging operations.
- Verify the inventory and condition of all items in the sandbag container. Replace all items that need replacing and re-stock items as necessary.
- Arrange the items in the container so that all the items are accessible, including those items stored in the rear of the container.

# Chapter 5 – Flood Response

## 5.1 Flood Barrier

During a significant storm event, residents should begin mobilizing and installing a flood barrier at the end of the flood wall on Pasadena Avenue per the plan shown in Figure 12.

A sandbag berm should first be constructed 72' north of the end of the flood wall. This sandbag berm should be installed perpendicular to the flood wall and serves to connect the floodwall to the 39"-high MegaSecur Water-Gate flood barrier.

Unroll the two 39"-high x 50'-long water-gate rolls. Position their alignment as shown in Appendix 1. Then connect the two water-gate sections together via the hook and fastener system shown below. For extra security, sandbags should be placed at joints between Water-Gate sections and on uneven areas.

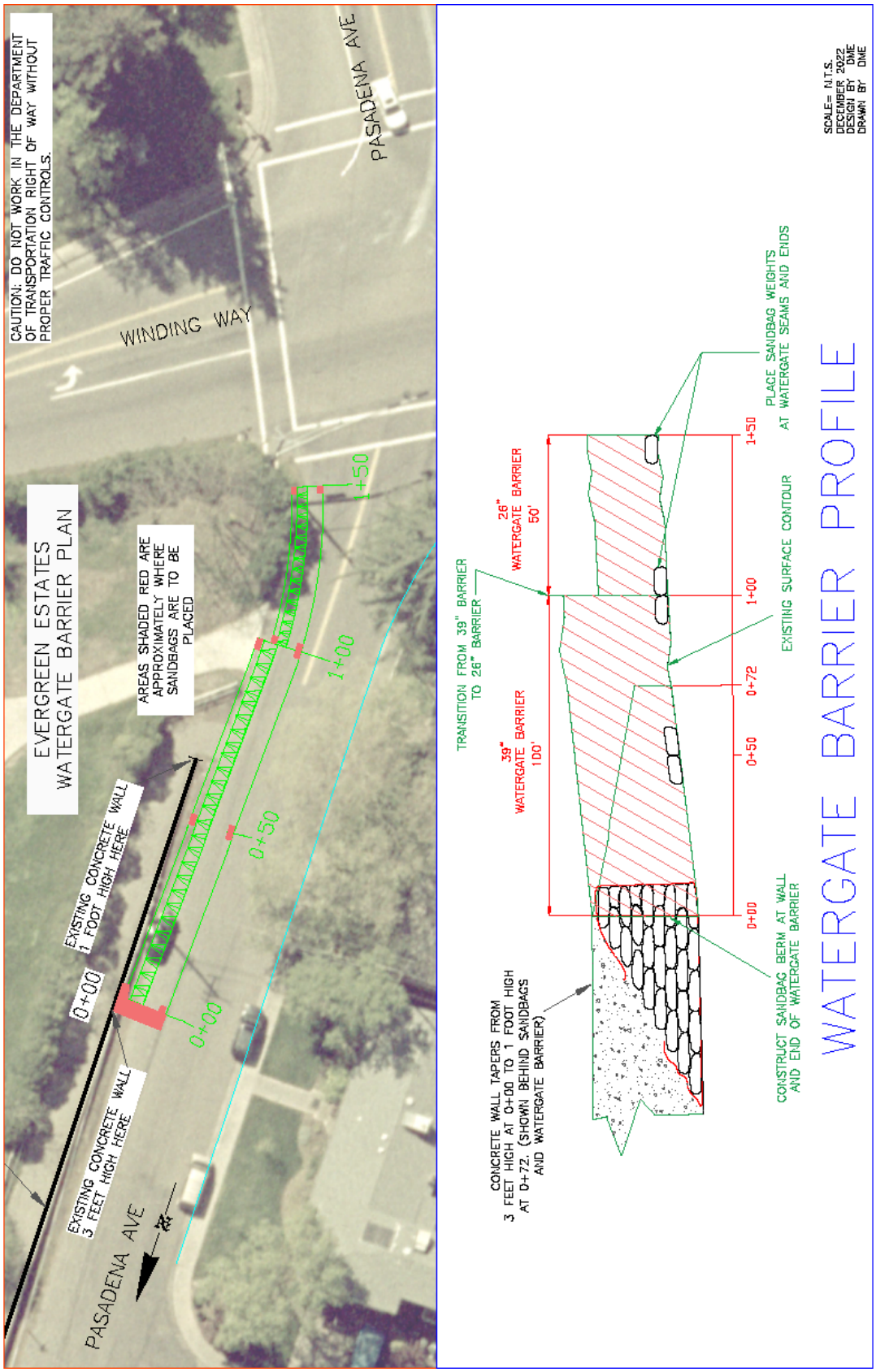
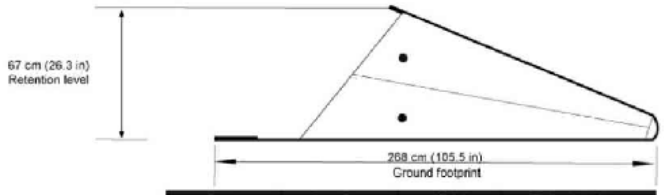
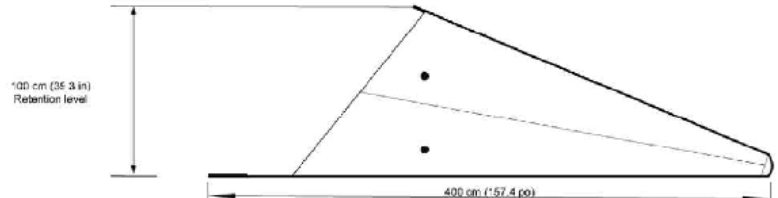



*Figure 12 - Water-Gate Flood Barrier Plan*

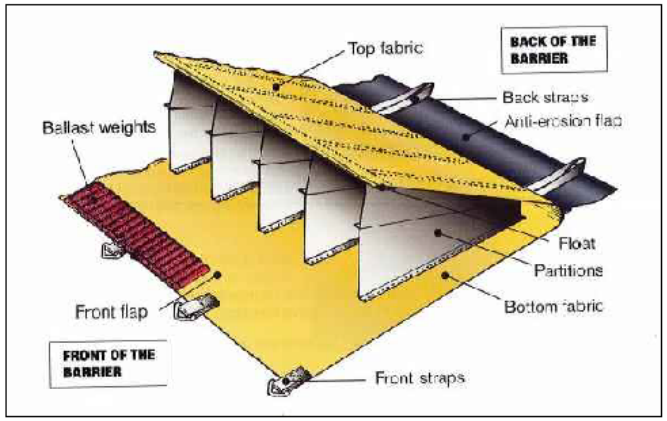
# EVERGREEN ESTATES
# WATERGATE BARRIER PLAN




| Item | Length | Weight | Packaging size<br>Width x Length x Height |
|---|---|---|---|
| WL-2630 | 9.1 m (29.5 ft) | 39 kg (85.9 lbs) | 44 cm x 102 cm x 31 cm<br>17.3 in x 40.1 in x 12.2 in |
| WL-2650 | 15.2 m (49.2 ft) | 63 kg (138.8 lbs) | 54 cm x 106 cm x 34 cm<br>21.2 in x 41.7 in x 13.3 in |




| Item | Length | Weight | Packaging size<br>Width x Length x Height |
|---|---|---|---|
| WL-3930 | 9.1 m (29.5 ft) | 77 kg (166.7 lbs) | 56 cm x 116 cm x 41 cm<br>22 in x 45.6 in x 16.1 in |
| WL-3950 | 15.2 m (49.2 ft) | 127 kg (279.9 lbs) | 89 cm x 178 cm x 51 cm<br>27.1 in x 45.5 in x 20 in |




SCALE– N.T.S.
DECEMBER 2022

*Figure 12 - Water-Gate Flood Barrier Plan (continued)*

This 100’ of additional flood control, should provide the community with increased protection. In the event that more flood control is required, Water Resources staff should be contacted to help coordinate the closure of Pasadena Avenue so that an additional 250’ of water-gate barriers can be installed.

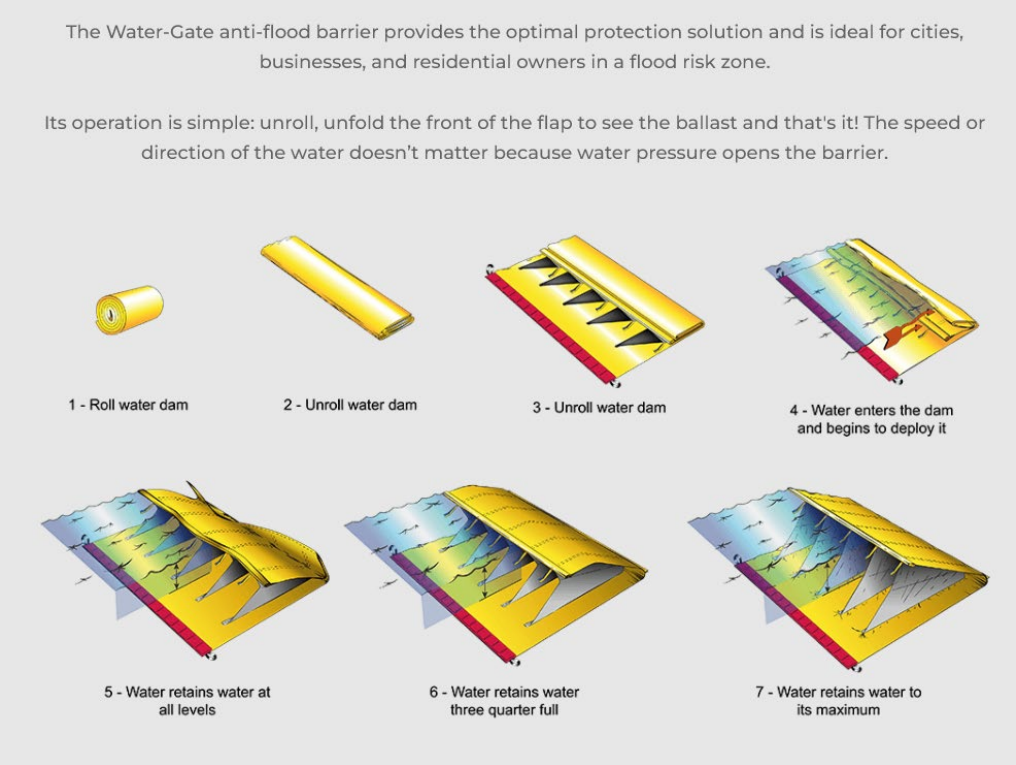


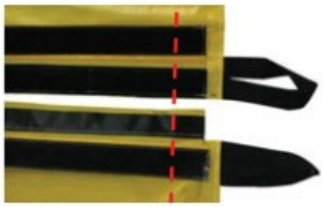

*Figure 13 - Installation and Operation*

## CONNECTING WATER-GATES TOGETHER

**BOTH WATER-GATES MUST BE COMPLETELY UNFOLDED AT THE ATTACHMENT JOINTS.**
**All Water-Gates, regardless of size, can be connected together, except for the smallest 6in/15cm model, which can only be connected to barriers of the same size.**

- A straight surface is required, especially under the joint where the two Water-Gates will be attached.
- Do not connect Water-Gates together in moving water. If the temperature is below freezing, the water in the velvet strips and hooks may freeze, making it impossible to connect Water-Gates together.
- It is recommended to have 2 people for this process, as one velcros the units together, the other is pulling on the ends to create tension for a smooth application.

**1.** Completely unroll & unfold the 2 units to join. Lay the ends next to each other.



**2.** Make sure the back sides of the Water-Gates are even and the hook & loop fastening strips are fully unfolded & exposed.

**3.** Unfold the fabrics exposing the hook & loop fasteners. Insert one into the other. Be sure to smooth out without any folds or gaps.

**4.** Close up the hook and loop fasteners by laying them one on top of the other from the back.

**5.** Keep closing up the hook and loop fasteners by starting in the back and working to the front.

**6.** Repeat process with each layer, always working from back to front.

**7.** Close up the hook and loop fasteners by laying them one on top of the other, the same as you did for the bottom joint.

Use the same method to tie together two Water-Gates of different sizes. Follow standard instructions, the front edge will just be longer. Place a weight at these changes to prevent water infiltration.

*Figure 14 - Installation and Operation (continued)*

## 5.2 Flood Recovery

After flood fighting is complete, the Water-Gate should be washed and dried before returning to the sandbag container.

**MAINTENANCE**

It is strongly recommended to wash and dry the Water-Gate after each use, before storing it. This allows you to check for any damages that may have occurred during use. Cleaning the product with a pressure washer or strong water hose is strongly recommended.

**Caution:** Storing away a Water-Gate unit that has not been cleaned & left with debris, leaves & moisture will cause damage to the fabric & reduce its useful life, as well as leave an unpleasant odor.

*Place objects to raise Water-Gate to dry out, prior to storage*

*Figure 15 - Water-Gate Recovery*

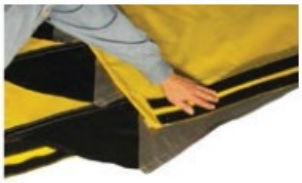
## FOLDING UP THE WATER-GATE FOR STORAGE

It is very important to fold each Water-Gate with flaps laying flat to ensure a long shelf life.

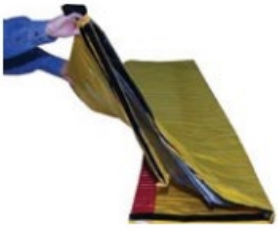
**Folding the Water-Gate (model WL-1430 illustrated)**

**1** - After cleaning and drying the Water-Gate, stretch it out on a large flat surface.

**2** - Make sure all inner flaps are facing the same direction & flat. A stick or pole may be used to help flatten.



**3** - Before folding the Water-Gate, keep all the joints open to make it easier to tie a second Water-Gate to it, if need be.



**4** - Start folding from the back so that the ballast weights will be positioned in the middle and under the Water-Gate. Use the folds already appearing on the fabric as a reference.

**5** - Depending on the model - the unit may need to be flipped over. If the instruction label is visible, flip the unit & roll from the opposite side of the label. If the label is not visible- lift up 1 end to find the label & then roll from the opposite end.

**6** - Once rolled, the velcro straps will wrap around the unit & the label will be visible.

***Please note that the folding pattern and number of folds differ for each size of barrier***

WL-06 and WL-14 Model
1 fold only

WL-20 and WL-26 Model
2 folds

WL-39 Model
3 folds

*Figure 16 - Water-Gate Recovery (continued)*

This sandbag container will remain on-site until May 1st. After which, it will be moved off-site and to the Sacramento County Corp Yard.