



# Technical Customer Advisory Committee

## AGENDA

### *Members*

Melissa Armijo	Dave Hill
Andrew Bernard	Amy Miller
Janie Chermak	Ege Richardson
Amy Ewing	Scott Verhines
Mike Hightower	

Thursday, November 2, 2017	4:00 PM	ABCGC – 7th Floor Conference Room 7096
1. Call to Order		4:00-4:05
2. Approval of Agenda		4:00-4:05
3. Approval of September 7, 2017 Action Summary		4:00-4:05
4. Discussion of 2017 Water Authority Activities		4:05-4:15
5. Presentation on Habitat Restoration Projects		4:15-5:25
6. Public Comment		5:25-5:30
7. Adjournment		5:30

NOTICE TO PERSONS WITH DISABILITIES: If you have a disability and require special assistance to participate in this meeting, please contact the Water Utility Authority Office, Suite 5012, Albuquerque/Bernalillo County Government Center, phone 289-3100, as soon as possible prior to the meeting date.



# Technical Customer Advisory Committee

## ACTION SUMMARY

September 7, 2017

Members Present:

Melissa Armijo  
Andrew Bernard  
Amy Ewing  
Mike Hightower  
Dave Hill  
Amy Miller  
Ege Richardson

Members Excused:

Janie Chermak  
Scott Verhines

Water Authority Staff Present:

Frank Roth, Senior Policy Manager  
Katherine Yuhas, Water Resources Manager  
Carlos Bustos, Water Conservation Manager  
Angelique Maldonado, Water Use  
Compliance Manager  
Rick Shean, Water Quality Hydrologist  
Kate Mendoza, Water Resources Specialist

Others Present:

Jeff Kennedy, USGS  
Andre Ritchie, USGS  
Meghan Bell, USGS  
Andrew Robertson, USGS

**Item 1 – Call to Order - Note presence of quorum**

The meeting was called to order at 4:05 pm by Chair Dave Hill.

**Item 2 – Approval of Agenda**

Mike Hightower made a motion to approve the agenda. Amy Ewing seconded the motion. The motion passed on a 7-0 vote.

For: 7      Armijo, Bernard, Ewing, Hightower, Hill, Miller, Richardson  
Against: 0  
Excused: 2      Chermak, Verhines

**Item 3 – Approval of June 1, 2017 Action Summary**

Amy Ewing made a motion to approve the action summary. Melissa Armijo seconded the motion. The motion passed on a 7-0 vote.

For: 7      Armijo, Bernard, Ewing, Hightower, Hill, Miller, Richardson  
Against: 0  
Excused: 2      Chermak, Verhines

**Item 4 – USGS Studies on Gravity and Water Storage Presentation**

Jeff Kennedy provided an overview of the 30-station gravity network used to monitor aquifer-storage changes in the Albuquerque basin. The network of 30 stations will monitor the aquifer to improve the simulation capability of groundwater models. This program measures small changes in the Earth's gravitation field through repeat microgravity. A Scientific Investigations Report is planned to be completed by the end of 2018.

**Item 5 – Water System Loss Presentation**

Angelique Maldonado provided an overview of the Water Authority's water loss program. She reviewed the components of the Water Audit program that is used to determine the utility's non-revenue water. She also reviewed many performance indicators that showed how the utility has improved in reducing both real and apparent water loss.

Related to the presentation, committee members asked for an update of the 2017 Customer Conversation meetings. Frank Roth provided a status report. Committee members acknowledged how well the meetings were organized, the benefits of the customer outreach program, and the discussion on the topic of levels of service.

**Item 6 – Public Comment**

Elaine Hebard provided comments to the committee.

**Item 7 – Adjournment**

The meeting concluded at 5:40 pm.

Rio Grande Silvery  
Minnow June  
2016



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Egg monitoring  
May 2016

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In addition to egg and fish monitoring at restoration sites and at the diversion works, ABCWUA provides funding at \$160,000 a year for the City of Albuquerque Aquatic Conservation Facility.

These funds assist with the augmentation and propagation activity for the Rio Grande Silvery Minnow every year.

The habitat restoration sites also provide habitat for the willow flycatcher, yellow billed cuckoo and other riparian species.





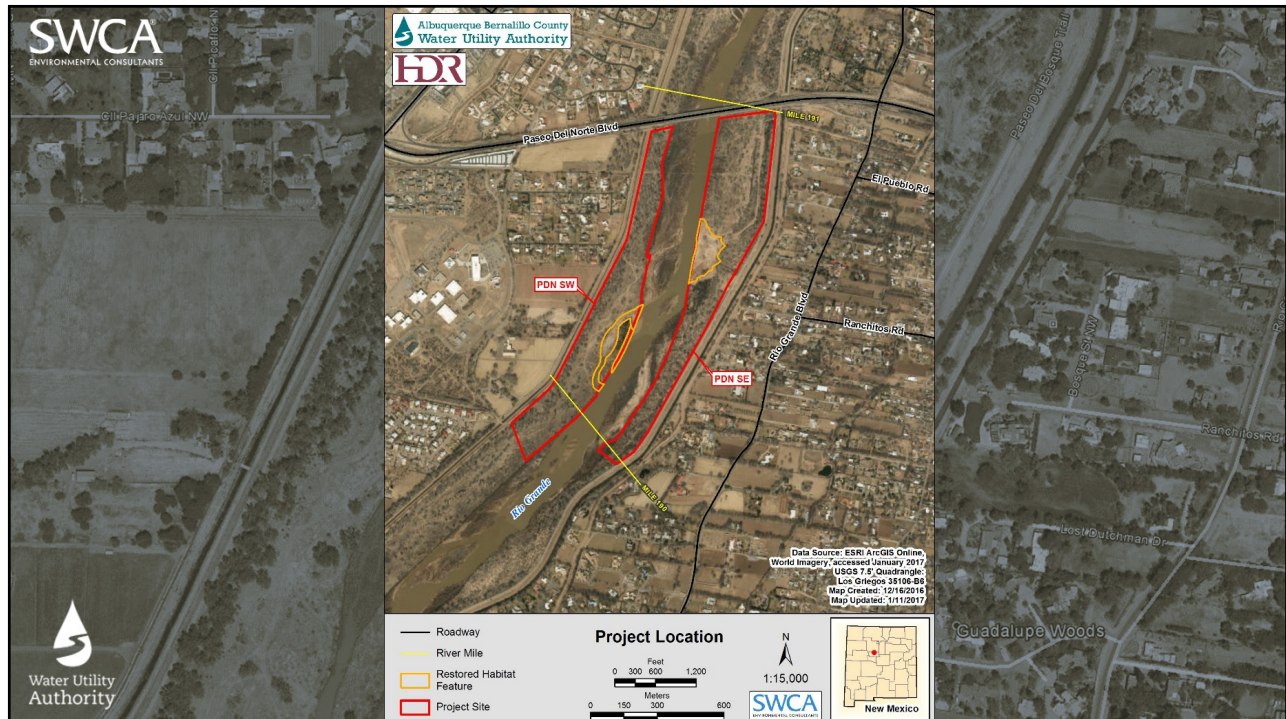
# Using Drone Photography to Monitor Geomorphic and Vegetative Changes in Riparian Habitat Restoration Sites

Brian Bader, Jesse Shuck, and William Whitehead

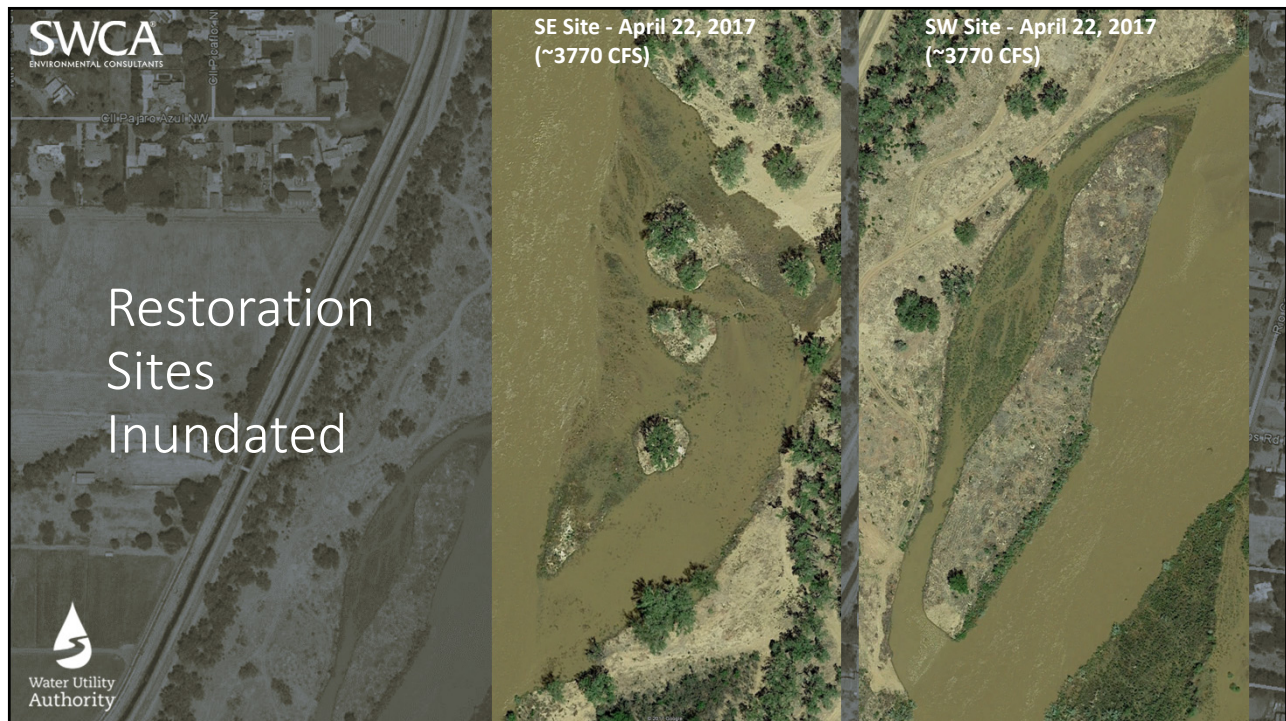
SWCA Environmental Consultants

Presentation Given to the Technical Customer Advisory Committee

November 2, 2017









## Goals of Project: 2016 to 2018

- Establish a baseline of elevations for the as-built project
- Monitor geomorphic changes at least bi-annually
- Incorporate other datasets and new technologies in data collection
  - Drone Aerial Photography
  - Vegetation
  - Wildlife and Fisheries

## 2016 Geomorphic Monitoring

- SWCA Environmental Consultants (SWCA) completed a topographic survey in November 2016 at the Paseo del Norte (PDN) Southeast (SE) and Southwest (SW) habitat restoration sites to monitor geomorphic changes after 1 year (SE site) and 2 years (SW site) following construction.





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## 2017 Geomorphic Monitoring

- Complete high quality aerial photography work to track geomorphic changes in the restoration sites between 2016 and 2017.



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## Methods 2016 → 2017





## FAA Regulations

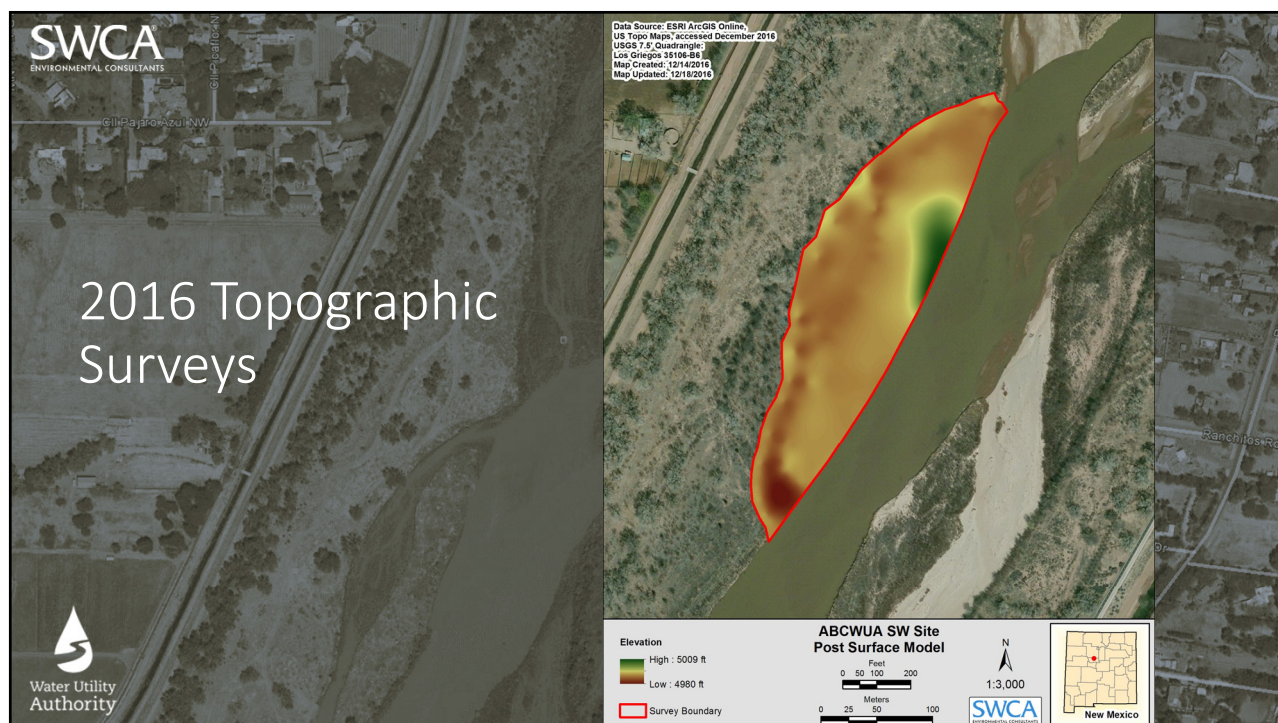
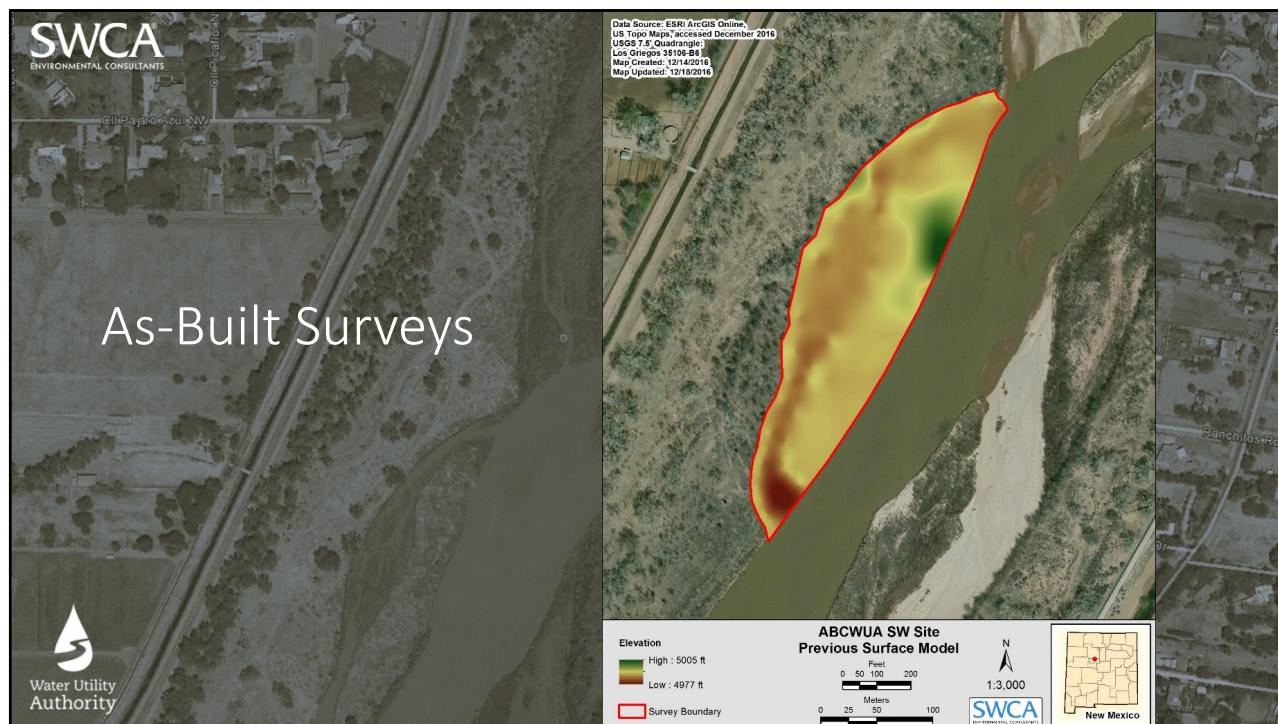
- Part 107 FAA Licenses are required for flying Unmanned Aerial Vehicles for commercial purposes
- Local airports and helipads within 5 miles require notification
- Flying over general public is not allowed

## Flight Planning

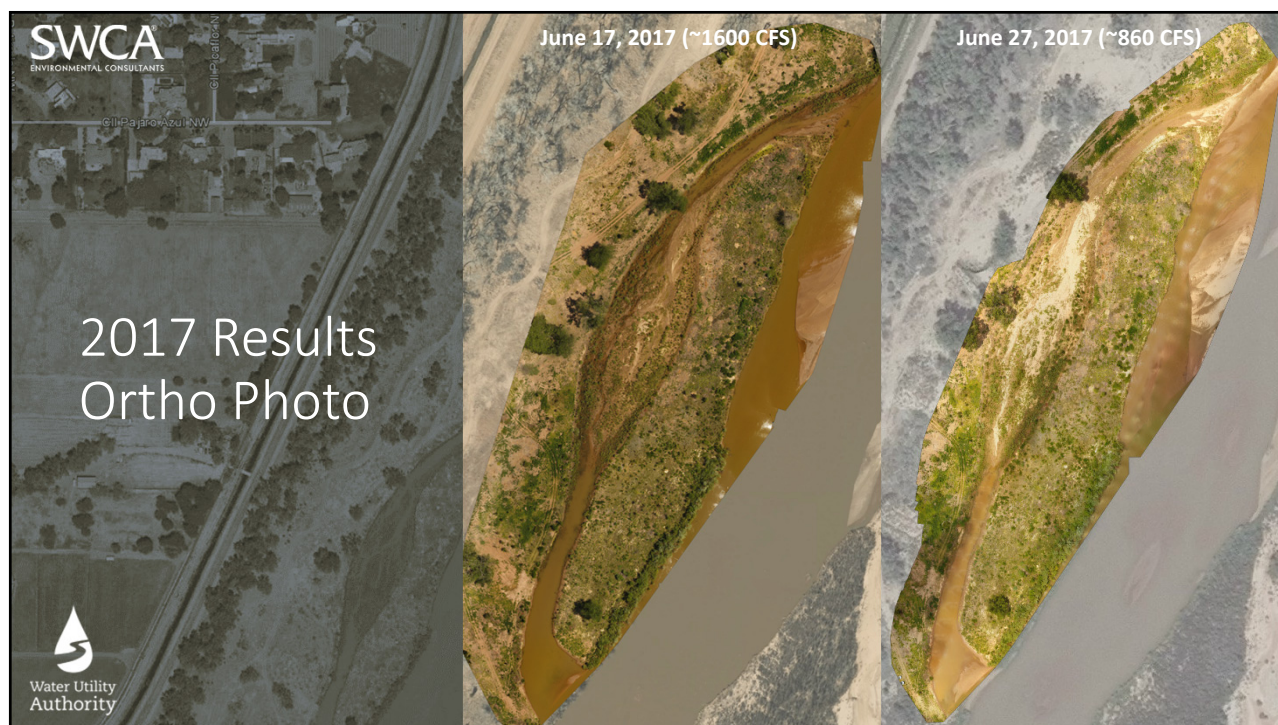
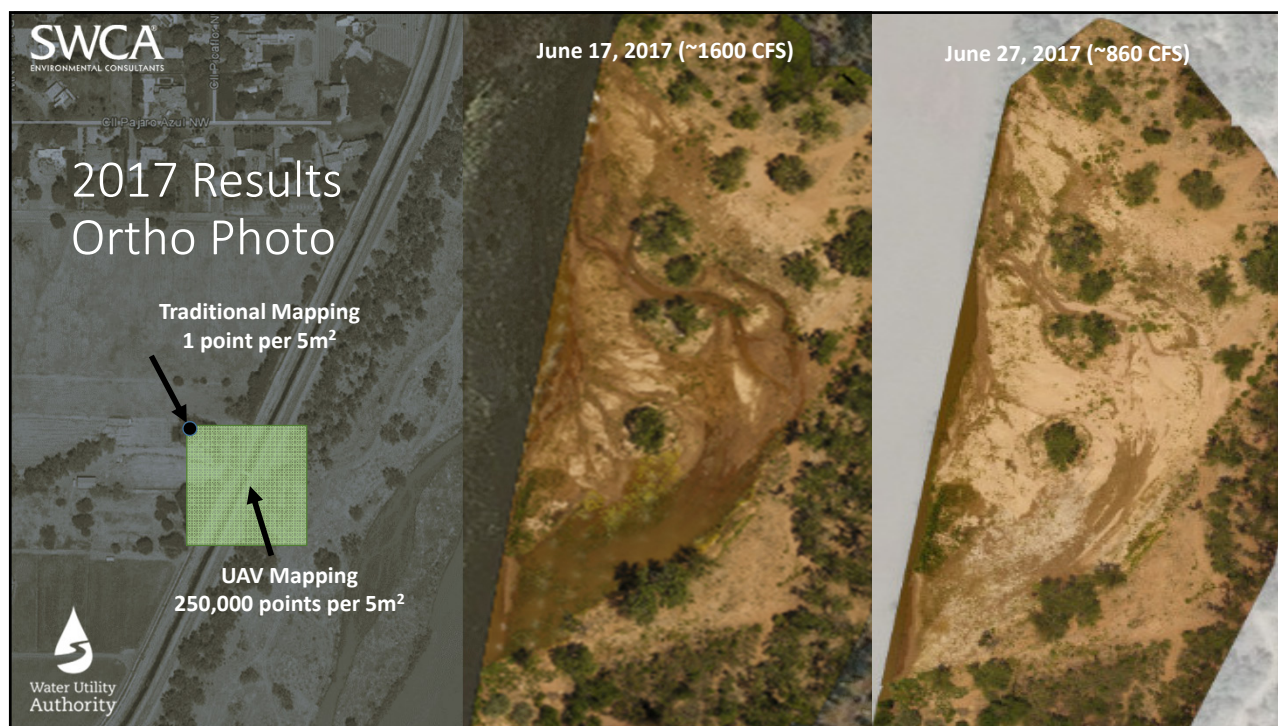
- Drone Deploy was used for planning and setting up side and front overlap of photos
- Drone Deploy also flies the drone after takeoff and returns after flight is complete or batteries are too low.
- Pilot is responsible for avoiding any manned aircraft or wildlife.
- All photos are stored on a SD card which is then uploaded to Pix 4d for processing.







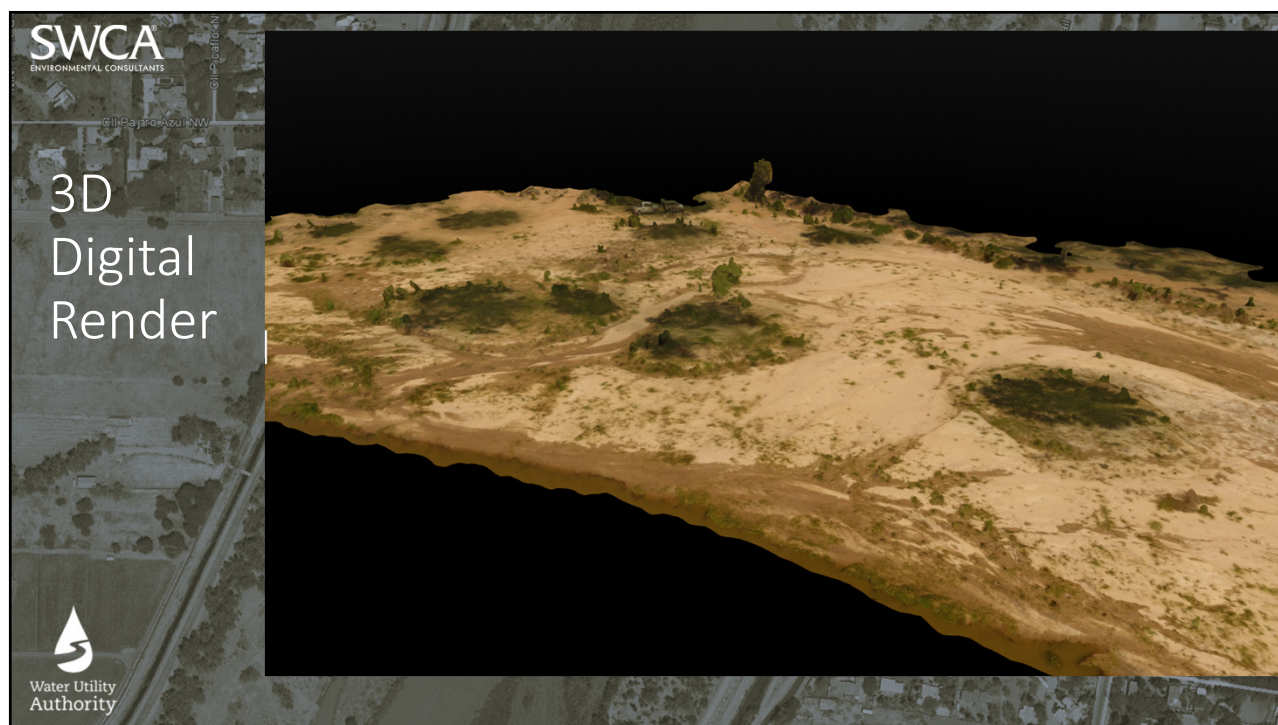
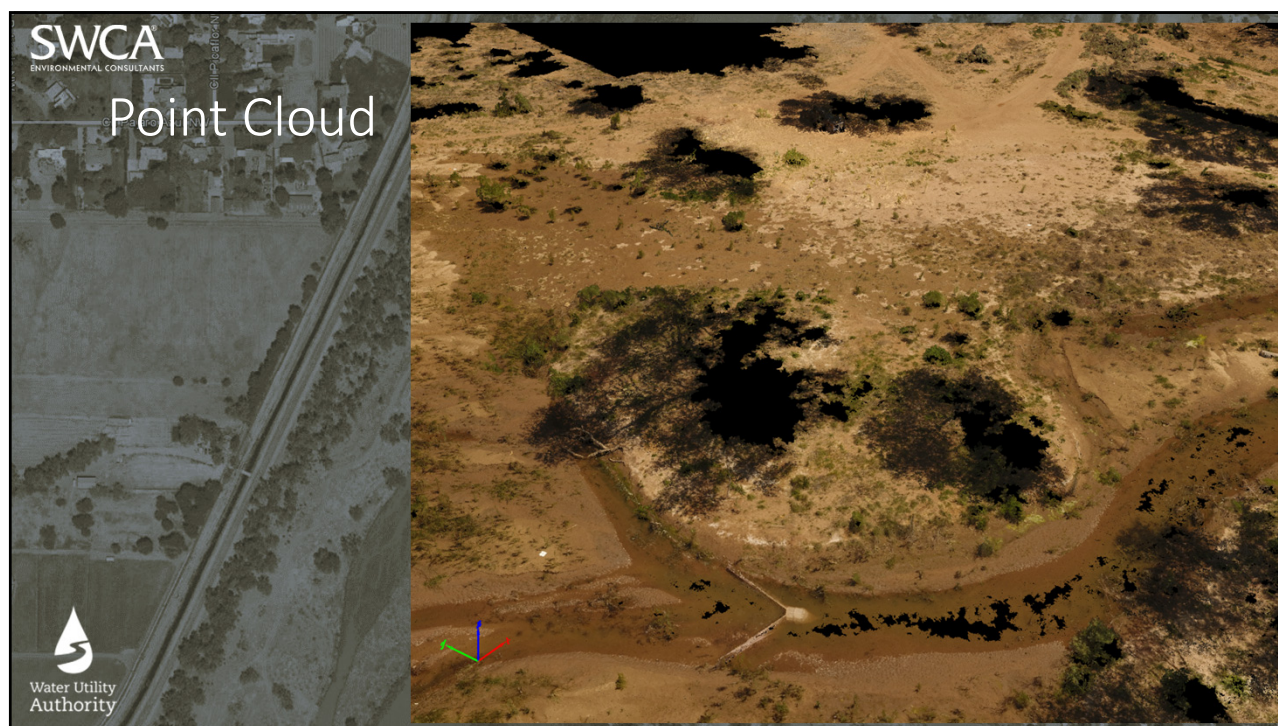




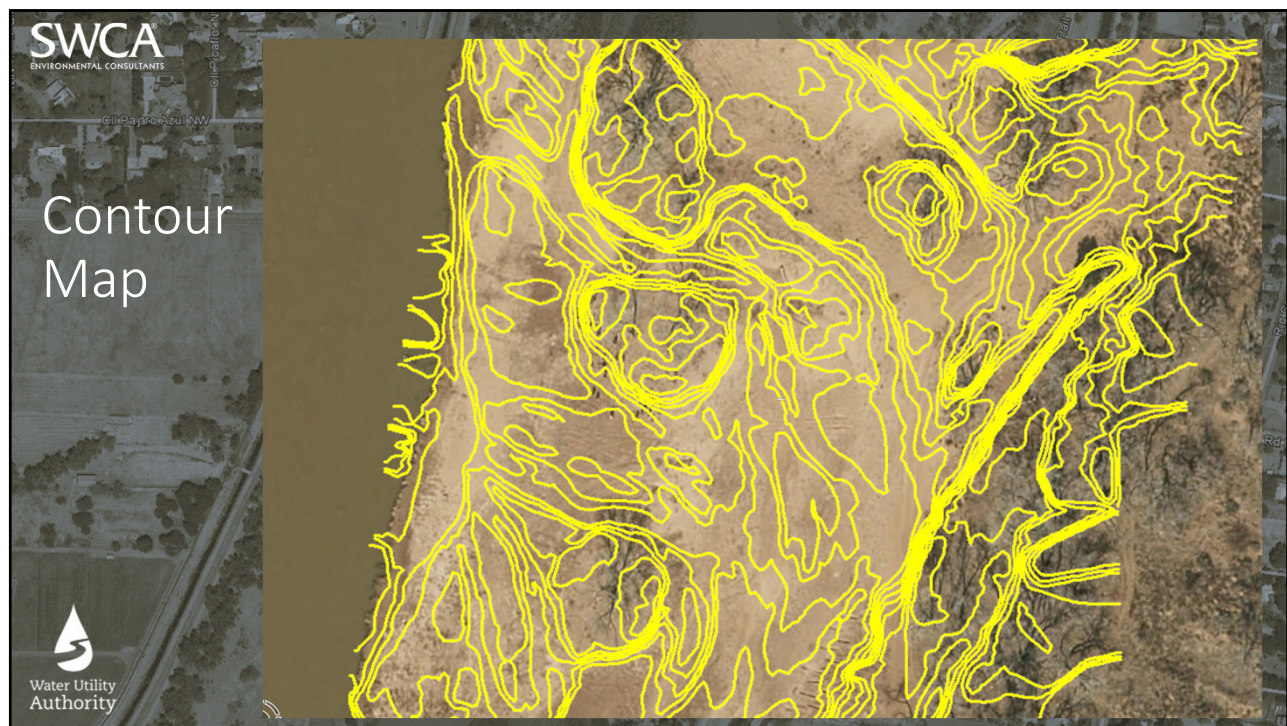












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## Tasks for 2017

- Flyover at low flow - Ortho and DEM (below 400 CFS at Alameda Bridge)
- Create difference models between as built, 2016, and 2017 (Ortho photo and DEM)
- Monitor vegetation coverage between as built, 2016, and 2017 Ortho photos

Water Utility Authority



## Future Work

- Expand area of Drone coverage to a larger area above and below treatment sites, possibly other areas
- Normalized Difference Vegetation Index (NDVI) modeling of treatment areas
- Create NDVI signatures of target species (invasives and natives) to fine tune models
- Produce better maps of treatment areas using new drone technology

