



MEETING MINUTES

May 9, 2023

In-Person Meeting

Attendees:

| Name | Company | Email Address |
|------------------|---|--------------------------------------|
| Bob Allen | Trident Environmental and Engineering, Inc. | ballen@Tridenteng.com |
| Sasha Mestetsky | CCCSD | smestets@centralsan.org |
| Nancy McWilliams | Solano Irrigation District | nmcwilliams@sidwater.org |
| Nohemi Sanchez | Central Contra Costa Sanitary Dist. | nsanchez@centralsan.org |
| Ashley Stalf | Ashley Stalf | ashley.stalf@ebmud.com |
| Adam Brown | Hazen and Sawyer | abrown@hazenandsawyer.com |
| Kevin Kai | Brown and Caldwell | kkai@brwncald.com |
| Greg St John | Central San | gstjohn@centralsan.org |
| Celia Kitchell | Delta Diablo | celiak@deltadiablo.org |
| Andrea B. | ACWD | andrea.bautista@acwd.com |
| Garrick Horvath | CVSan | garrick@cvsan.org |
| Rachel Mixon | Mott MacDonald | rachel.mixon@mottmac.com |
| Dustin La Vallee | EBMUD | dustin.lavallee@ebmud.com |
| Dorothy Bechler | Central Contra Costa Sanitary District | dbechler@centralsan.org |
| Mike Garcia | Thompson Pipe Group | michael.garcia@thompsonpipegroup.com |
| Ben Wright | Black & Veatch | wrightb@bv.com |
| Vincent Marano | CPM Pipelines | vince@cpmpipelines.com |
| Mark Guadagni | Delta Diablo | markg@deltadiablo.org |
| Bao Nguyen | Solano Irrigation District | bnguyen@sidwater.org |
| James Kohne | Woodard and Curran | jkohne@woodardcurran.com |
| Gerardo Santana | Solano Irrigation District | gsantana@sidwater.com |
| Jennifer Tang | EBMUD | Jennifer.tang@ebmud.com |
| Diego Soto Lopez | CCCSD | dsotolopez@centralsan.org |
| H. Harrington | Mark Thomas | hharrington@markthomas.com |
| Carina Gonzalez | Brown and Caldwell | cgonzalez@brwncald.com |
| Kyle Gourley | Carollo | kgourley@carollo.com |
| Travis Bohan | Mark Thomas | tbohan@markthomas.com |

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Announcements and General Business:

Nancy McWilliams opened the meeting and conducted the group's business.

1. Nancy mentioned that we still have openings for monthly presentations in Oct, Dec, and Jan
2. Nancy summarized the upcoming conference dates:
 - a. AWWA ACE 23 – Toronto, Canada – June 11-14
 - b. ASCE UESI Pipeline Conference, San Antonio, TX – Aug 12-15
 - c. WEFTEC, Chicago, Sept 30 – Oct 4

Nancy shared about 1-day CWEA Collaborative (Alternative) Delivery seminar, May 24, 8am-3:30pm at Brown and Caldwell's building in Walnut Creek.

Adam Brown provided a recap of the April meeting minutes.

Alexandra Watson was absent, so Nancy provided the financial summary report. The current total in the organization account as of April 30, 2023 was \$88,889.39.

Project Discussions:

1. Diego with Central San asked the group regarding recent bid pricing. Their recent project (Pleasant Hill Phase 2) had a large jump in open-cut bid item pricing from their last open-cut job. The Engineer's Estimate was \$4.7M while the low bid came in at \$5.9M with the biggest outlier being the open-cut line item (originally estimated at \$400/LF based on previous local projects; increased to \$580/LF on this recent bid). The bid item involves installing 8" PVC at depths of approximately 10-12 feet deep, with some areas as deep as 20' deep. The length of pipe installed with the project of all combined methods is 8,700 LF with the majority being open-cut.
2. Diego also mentioned if folks are doing anything specific to protect manholes (both new and existing) from root intrusion. Nancy offered ideas, but the group did not offer many suggestions.
3. One question was posed re: Inspecting outfall piping
 - a. Central San surveys/inspects their outfall every 5 to 7 years
 - b. Monitoring of the outfall is a regulatory requirement
 - c. Central San builds a fixed monument on top of the pipe and then return to check them periodically
 - d. James Kohne shared his experience with Novato Sanitary District outfall
 - i. A lot of pre-planning was required for shutdown and dewatering
 - ii. Used divers for portions under water; far too expensive to use divers for the entire pipeline
 1. Divers would've been 4x as expensive as CCTV
 - iii. James researched laser/sonar/MSI technology, but chose not to use it.

Presentation:

“Survey Applications for Pipeline Projects,” Presenter: Travis Bohan, Mark Thomas

Overview:

Surveyors provide a variety of services for linear projects including base mapping and right of way services. This presentation discussed some of the different applications and service options in support of the design on linear projects. The project examples provided highlight these services.

Highlights from the presentation include (see PUG website for copy of powerpoint slides with images, diagrams, and detailed context):

1. Gave an overview of Mark Thomas
2. Gave an overview of what a surveyor does
 - a. Base mapping
 - b. Topo
 - c. “Dips” (gravity utility inverts)
 - d. Right of Way
 - e. Utility as-built requests and locating
 - f. Monument preservations
 - g. ROW acquisition
 - h. Construction services
3. Project lifecycle duties
 - a. Project needs
 - i. Engineer’s request
 - ii. Limits of survey
 - b. Survey Research/Planning
 - c. Survey/Data Collection
 - d. Survey Deliverable
 - i. CAD, PDF, Reports
4. Aerial Mapping Info
 - a. Benefits:
 - i. Very efficient
 - ii. Decent horizontal accuracy
 - iii. Ortho photos
 - b. Constraints:
 - i. Vertical accuracy is only ok
 - ii. Sun angle restrictions
 - c. Best Use
 - i. Large linear projects
 - d. Cost = \$
 - e. Surveyors set fly crosses/control points
5. Aerial LiDAR
 - a. Benefits
 - i. Can penetrate tree canopies better than traditional aerial survey

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- ii. Some efficiencies to be gained (slightly better accuracy)
 - iii. Better accuracy
 - iv. Can also get ortho photos
 - b. Constraints
 - i. Height dependent
 - c. Best Use
 - i. Need more vertical detail
 - ii. Linear projects w/ canopy
 - iii. Canals
 - d. Cost = \$\$\$
 - e. Flights are closer to the ground than traditional flights (hundreds of feet versus 3,600 feet or so)
- 6. "Boots on the Ground"
 - a. Benefits
 - i. Excellent accuracy
 - b. Constraints
 - i. Traffic/safety
 - c. Best Use
 - i. Supplement other methods
 - ii. Utility information
 - iii. Improvements to other facilities
 - d. Cost = \$\$\$\$
- 7. Static LiDAR/terrestrial scanning/laser scanning
 - a. Point clouds generated from conventional "boots on the ground"
- 8. Mobile Terrestrial Laser Scanning
 - a. Benefits
 - i. Good accuracy
 - ii. Keeps crews safe
 - iii. Very detailed; lots of data
 - b. Constraints
 - i. Dense urban environments
 - c. Best Use
 - i. Linear projects over roadways
 - ii. Large project that needs design level data
 - iii. Can be good "in-between" option
 - d. Cost = \$\$
- 9. Drones
 - a. Benefits
 - i. Small projects
 - ii. Scheduling
 - b. Constraints
 - i. Very limited range (1000 ft)
 - ii. Airspace

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- iii. Flying over people
 - c. Best Use
 - i. Bare dirt
 - ii. “green field” projects
 - iii. Slope stability
 - d. Cost = \$
- 10. Utility Locating/Detecting – SUE Standards
 - a. Provided an overview of the process and quality levels
- 11. Monument Preservation
 - a. Provided an overview of state law and requirements surrounding the preservation of survey monuments.
 - b. Recommends filing corner records at the design level, but many designers/owners will leave it to the contractor during construction
 - c. Provide snapshots/examples of corner records
- 12. Right of Way
 - a. Discussed elements related to establishing right-of-way, easements, and acquisitions
 - b. Provided an overview of the acquisition process including requirements and deliverables
- 13. Construction Services
 - a. Mark Thomas doesn’t provide staking services
 - b. Monitoring
 - i. Recording/monitoring elevations/locations during construction
 - ii. Has started to perform “automated monitoring”
 - iii. HDD projects (entry/exit points, direction/offsets)

Thank you to Travis Bohan for a great presentation and contribution to PUG’s May monthly meeting. Please review the slides on the PUG website for more information.

Raffle:

A raffle was held at the end of the meeting. Diego Soto Lopez from Central San won a white PUG hat and Dorothy Bechler from Central San won a charger.

Next Meeting:

The next general meeting is scheduled for Tuesday, June 13, 2023 and will include a presentation by Mike Bussio with Armorock titled “Corrosion-Proof Polymer Concrete Structures: Changing Perceptions of Sustainability Across California & Beyond.”

The June meeting will be held in-person at Brown and Caldwell’s offices located at 201 North Civic Drive, Suite 300, Walnut Creek, CA 94596.

Please call Adam Brown at 831-521-9623 or email pugnorcal@gmail.com for additional information on this month’s meeting minutes.