MEETING MINUTES
October 12, 2021
Virtual Meeting

Attendees:

Name of Attendee(s)	Company / Agency	Email Address
Adam Brown	West Yost	abrown@westyost.com
Alexandra Watson	HydroScience Engineers	awatson@hydroscience.com
Angela Andrews	West County Wastewater	aandrews@wcwd.org
Bob Allen	Trident Environmental and Engineering, Inc.	ballen@Tridenteng.com
Bryan Perkins	Contra Costa Water District	bperkins@ccwater.com
Casey Smith	SAK Construction, LLC	csmith@sakcon.com
Celia Kitchell	Delta Diablo	celiak@deltadiablo.org
Dustin Rainey	Jacobs	dustin.rainey@jacobs.com
Gerardo Santana	Solano Irrigation District	gsantana@sidwater.org
Gean Na	American Concrete Pipe Association of California	gna@concretepipe.org
Gus Cicala	EBMUD	gus.cicala@ebmud.com
Jacob Monroe	ADS	jacob.monroe@adspipe.com
Jason Junkert	Jacobs	Jason.Junkert@Jacobs.com
James Kohne	woodardcurran.com	jkohne@woodardcurran.com
Jimmy Dang	Oro Loma Sanitary District	jdang@oroloma.org
Ken Deibert	West County Wastewater	kdeibert@wcwd.org
Kris Decker	Oro Loma Sanitary District	kdecker@oroloma.org
Mike Garcia	Forterra	mike.garcia@forterrabp.com
Mike Scholz	JCM Industries, Inc	mscholz@jcmind.com
Nancy McWilliams	Solano Irrigation District	nmcwilliams@sidwater.org
Rowena Patenaude	NAPCO	rpatenaude@napcopipe.com
Ruby Vicencio	Mt. View Sanitary District	rvicencio@mvsd.org
Uriel Romero	Solano Irrigation District	uromero@sidwater.org

Announcements:

- ***PUG***
  - ***PUG Annual Sharing Technology Seminar February 17, 2022, Live***
    Please Submit your abstract by October 29 at 5 pm.
  - ***PUG Membership Renewal***
    Please renew your membership.

- ***Future Presentations for Monthly Meetings***
  For future meetings, PUG is open to presentations for future topics. We are booked through December.

- ***NASTT***
  - ***October 13-14, 2021 - Virtual***
    New Installation Methods Good Practices Course
  - ***November 8-10, 2021 - LIVE***
    No-Dig - *North Vancouver, BC*
    NASTT 2022 April 10 to 14, 2022 – *Minneapolis, Minnesota Live*
- ***WEFTEC 2021***
  - *October 16-20 Conference - LIVE - McCormick Place, Chicago and On-line*
  - *October 18-20 Exhibition*
  - *November 16-18 WEFTEC Online.*
  - *WEFTEC 2022 October 8-12 New Orleans*
- ***UESI Pipelines 2022 Conference***
  - *July 31-August 3 – Live Indianapolis, Indiana*
- ***PVC Pipe Association Open House*** *Webinar*
  - *November 3-4 $199/one day and $349/two days and Free for PUG members (Contact Adam or Nancy for code)*

General:

September 2021 Meeting Minutes: An overview of the September meeting minutes was presented.

Financial Update: The current total in the organization account as of September 30 is $83,064.75 (Dustin La Vallee)

Project Discussions:

Forterra (Mike Garcia):
Caltrans Project Replacing all the culverts under Highway 50 that were burned due to the Caldor fire

- Replacement From mile marker 48 to 63.
- RCP range in size from 12 to 30 inch
- Some have approximately 30 feet in depth
- 25 to 30 culverts to be replaced
- Forterra is providing the CMP

SID (Nancy McWilliams):
SID had two bid openings

- **Twin 54" CMP culvert to be slip line with 48" HDPE bids range from $212K to 421K (original engineer estimate was low from year 2006).**
- **2800 feet, diameters range from 18" to 48" HDPE installation.**
  - **District purchased pipe; fittings greater than 12" in advance.**

- **Prepurchase materials in advance since it takes approximately 10 weeks to acquire the HDPE.**
- **Engineer estimate $950K, bids range from $907 to $1.3M.**
- **Construction time window is limited.**
- **HDPE pipe price volatile.**

Presentation: "UESI Pipelines 2021 Conference - Recap, Bob Allen, Nancy McWilliams, Brogan Quist, Smart Cover System.

Highlights from the presentation include:

- This presentation will provide a review of various presentations and workshops attended during the Virtual ASCE-UESI 2021 Conference.

Overview

- Conference August 3-6, 2021 - Canada
- 586 people attended the virtual Conference
- No Exhibitors

Recap Agenda:

Nancy McWilliams

- Quality management and plan checking
- Emergency Repair
- Making Connections to Concrete Pressure Pipe by Andrew Romer

Adam Brown

- Manhole Inspection and Rehabilitation Workshop
- Close Fit Liner Workshop
- CIPP Design Reconciliation
- How Pipe Bursting Brings More Bang for Your Water Rehab Buck
- Cured-In-Place Lining for Water Mains
- AWWA Manual 23

Bob Allen

- City of Hurst Replaces a Critical Sewer Interceptor using Minimally Invasive Pipe Bursting Technology
- Pipe Bursting for Water Line Replacement: A Case Study

Recap /Highlights Nancy McWilliams
Virtual, August 4-6, 2021

"<u>Quality management and Design Review</u>" Gary Savanyu -Trinity River Authority, TX. Presenters: G. Beieler and James Chae, Jacobs, WA.

- Two Separate presentations
- Quality Management

- Discussed Interactions between Agency and designer
- Suggestions for quality management, plan review and post construction follow-up.

Quality Management:
Meet upfront to discuss owner needs and wants:
- Appropriateness for the location and surrounding area, time, economics, constructability durability, future maintenance

Implement a quality management program
- Standardization and continuous improvement.
- Accept comments from reviewers as sharing the knowledge.
- Engage Staff for the duration of the project.
- Each phase should have its own quality management design, owner, construction.
- Checklist.

Quality Management Team
- Design Review
    - Get a fresh set of eyes QA/QC
- Make the most of review comments
    - Make comments appropriate to submittal stage
    - Differentiate between critical comments, incorrect information, and editorial comments

Plan Review Considerations
- Is the project constructable?
- Are the materials readily available?
- Is there a way to save costs?
- Impact to the community
- Be specific with comments

Follow up with a Post Construction Review (good idea not very common)

- Did the contractor provide an adequate staffing?
- Where adequate easements/workspace available for the contractor to construct the project?
- Were there change orders and how can we eliminate them in the future?
- Was the designer responsive to change request and shop drawings?
- Feed this information back into quality management program

"*Essential Infrastructure Emergency Repair of the West Fork Interceptor*" Tom Davies and Steven e. Metzler M.ASCE Trinity River Authority, TX

- 102" sewer carrying over 150 MGD wastewater
- West Fork Trinity River at flood stage 12' vs 2' cause by 8" to 10" of rain on the previous week.
- The plant was taking 500 MGD more than normal unknown source
- Mussel Survey Crew found the break

- They believe additional overburden from highway construction contribute to the damage pipe

Emergency Response
TRWA has on-call contractors and move them from the current work to assist with repair.

Emergency response team: Contractor, engineering, and consultant

Secured the bank and stopped overflow
Live Flow repair failed so a bypass was installed.

- Bypass consisted of 5-20" pipes 3,000 ft each.
- 5 weeks to set up
- Ran for 3 days to complete the repair

Lessons Learned

- Live Flow repair was dangerous and should not have been attempted.
- Bypass Challenges: Towels, bedsheets, basketball.
- Bypass System: Designed with 50% redundancy, one large hole for intake.
- Spread out the pumps with large intake.
- Ultimate solution new pipe designed to run on other side of highway.

"Making Connections to Concrete Pressure Pipe" by Andrew Romer, AECOM, and Richard Mueller ACPPA.

- Discussed consideration for making connections to concrete pipe including:
- Direct connections for relocations or extensions
- Inserting tees, valves or line stops

Planning state:

- Identify exact type of pipe
- Obtain original design drawings
- Show limit of removal on plans

Thrust Restriant

- New Tee needs thrust restraint or tie-back.
- New valve or line-stop verify that thrust can be dissipated in soil-pipe friction or install collar.

Adam Brown Conference Recap:

"**Manhole Inspection and Rehabilitation Workshop**"

Overview of the need to inspect manhole I&I, flow restriction, access

Different inspection levels:
MACP Level 1

- Surface inspection

- No person or equipment entry

MACP Level 2

- Involves person or equipment entry
- Side wall scanning
- Overview of manhole components
- Overview of manhole mapping using GPS

Inspections:

- Overview of NAASCO MACP inspection form (Level 1 vs 2)
- Manual of Practice (MOP) 92: safety, inspection, quantification of I&I, rehab methods, rehab cos-effectiveness, and construction inspection.
- Photos (contextual including landmarks, cover on or off, internal, pipes, and defects

Level 2 inspection

Pole cameras
Confined space entry
Sidewall scanning

Different Modes of degradation

- Structural, corrosive, I&I/Maintenance

Inspections Best Practices

- Understand your assets
- Determine Level 1 and 2 inspections to owner protocols and budget
- Use standardized MACP codes for all inspections

Products

- Centrifugal Casting/ Trowel/ Spray-applied
- Cure-In-Place Systems: requires precise measurements and product is manufacture specifically to the measurements of each manhole.
- Poured-In Place Systems: uses form (can be plastic, steel, & fiberglass), high strength concrete flows into annular space
- Fiberglass Inserts

Test for PH to select for the appropriate product

- No corrosion just I&I issues use cementitious
- PH below neutral use cementitious with chemical resistance
- PH below 3 needs geopolymer

Any wall parts missing

- Poured-in place when missing wall portion
- Need foundation reinstated when base structure is gone
- 90% of structures can be rehabbed without bypassing using flow thru plugs
- NASSCO ITCP MH CET Program recc

Design
New Ch 7 with updated MOP 92

Coating vs liner

- Coating: liquid, strength is from in-plane forces
- Liner: can resist out-of-plane forces, acts like a shell

Cementitious Liner

- Polymer Coating and liner materials Min thickness .1" for new construction and 0.125" min for existing structures

Polymer types:

epoxy, polyurethane, polyurea.

Epoxy:

40-200 mils, ranges from structural to flexible, doesn't shrink

Polymer Inspection:

- Contractor should provide a work statement prior to application
- 98% of all failures due to poor installation and surface prep
- Take good records during installations
- Make sure to use qualified inspectors
- Suggested for inspectors to performed manned entry
- Spark testing required.

"***Design of Close-Fit-Liner Workshop***" by David Kozman-Hammerhead Trenchless, Ed Kampbell-Rehabilitation Resource Solution, Jadranka Simicevic, JPS Consulting

Summary

WRc/ ASTM hydrostatic buckling formula is too conservative.

- The new theory should include the influence of gap, ovality, and longitudinal imperfections on restrained hydrostatic buckling pressure pipe and must be capable of accounting for the host pipe system imperfections affecting buckling resistance.
- Summarized inspection tech
    - Deflection
    - Dead/live loads
    - Reinforced rigid vs non-reinforced rigid vs flexible pipe design
    - Soil stiffens
    - Groundwater pressure

Liner material / system alternatives

- CIPP
- Close-fitting thermoplastic liners

Check the new MOP 145 seems les conservative and looks at not-circular pipe too.
A calculator will be released in November by ASCE

"***CIPP Design Reconciliation***" by Asam Baun - Morrison Hershfield and Christopher Macey – AECOM

Summary

- When the CIPP looks good but tested values are low (flesural modulus, flexural strength, thickness.
- Purpose of reconciliation is to recognize the natural variability of material.
- Need to compare specs vs performance.
- Liner behavior is governed by the shape of liner, not the host pipe (verify liner dimensions through review of pre- and post-installations requirements.

Key points

- Set clear expectations
- Easier to catch design issues before the liner is in the ground
- Material properties need to be achievable
- Design calculations should be complete with long-term and short term

"***How Pipe Bursting Brings More Bang for Your Water Rehab Buck***" Patrick Laidlaw – Underground Solutions Inc., Aegion Corp and George Mallakis, TT Technologies

Summary

- Case studies of water agencies that implemented pipe busting as their main method of annual pipe replacement and success.
- Cost concerns have limited growth of water main pipe bursting but not necessarily true.

  Cost Myths
  - Need temporary bypass drives up costs (TRUTH)
  - Frequent pits due to services/ fittings/valves won't save $ vs open cut (TRUTH)
  - Misconception that only HDPE pipe can be used (TRUTH)
    Restrained joint PVC and FPVC pipe are available

Agencies are training the personal and restoring in-house engineering and provide a new skill to personnel.

"**Cured-In-Place Lining for Water Mains**" by Yafei Hu – City of Regina, Regina, SK, Canada

Summary

- City relined 21 km of water mains since 2020 and evaluated their performance
- Investigated 12 leaks which were in the relined pipes
- Various highlights of projects (check slides)
- Leaks occurred primarily due to service pullouts possible lack of resin around service connection or service pull-outs can expose liner due to lack of adhesion

Thank you to Bob Allen, Adam Brown and Nancy McWilliams Quist for a great presentation and contribution to PUG monthly meeting.

Next Meeting:

The next meeting is scheduled for Tuesday, November 9, 2021. **"Peachtree Trunk Sewer Rehabilitation Using Spiral Wound Line**", Jacquie Jaques and Chris Lind.