King County
Department of Natural Resources and Parks
Wastewater Treatment Division

SOUTH MAGNOLIA CSO CONTROL PROJECT

COMMUNITY WORKSHOP SUMMARY - Conveyance
October 20, 2012, 10:00am – 11:30am.
Discovery Park Environmental Learning Center

Overview and Purpose

King County's South Magnolia CSO Control Project team held a public meeting at the Discovery Park Environmental Learning Center on Saturday, October 20th to provide updated information about the Horizontal Directional Drill (HDD) pipe installation method that the team described to the community in January 12, 2012. This session is intended as a follow-up to the January technical information session that provided information about geotechnical investigations to establish a preferred pipeline alignment and Horizontal Directional Drilling (HDD) as a pipeline installation method.

Shahrzad Namini, Project Manager, opened the meeting, welcomed community members and thanked them for their continued participation. She described the two sessions of this community meeting and introduced team members. King County will continue to be actively involved with the community throughout the project. Another public meeting will be held in January, 2013.

King County is will deliver project design to the Washington State Department of Ecology at the end of December 2012 to meet a required regulatory milestone. The project will be implemented using two construction contracts: one the new gravity sewer pipeline and diversion structure on 32nd Avenue West, and another for the storage facility component.

Presentation

Monica Van der Vieren, Community Services lead, welcomed attendees and outlined the morning session agenda:

- Project status and updates
- Latest geotechnical information
- New information about additional trenchless installation method
  - Purpose for including
  - Contracting methodology
  - Description of method
  - Implementation on 32nd Ave W
- Working with the community
- Next steps

Summary of Conveyance Overview

Jeff Lykken, Project Manager for the Tetra Tech design team, provided an overview of what has changed since the January 2012 meeting. Jeff informed the group that the project will seek two separate contractors for each aspect of the project, conveyance and the storage facility, because the

qualifications for each element are both specific and distinct. Since January, design refinements have resulted in new information about construction locations and activities. Another option, Direct Pipe®, has recently been added as a bidding option. As an emerging technology, Direct Pipe® has been successful in Europe, but is just recently being implemented in the U.S. Adding a second installation method will expand the pool of potential contractors, helping King County meet the project schedule. A limited number of contractors in the United States are qualified to bid on the HDD pipe installation that was first selected for this project. When King County puts the job out to bid, contractors will bid on their method of choice.

Mike Kucker, geotechnical engineer for Shannon & Wilson, provided an update on the geotechnical investigations and historical data supporting the design process. Currently, four additional borings are needed to complete the geotechnical investigations for the two alignments. All are expected to be completed in November 2012.

A cross section of soils along the alignment show the following layers during geotechnical investigations:

1. A surface mantle of glacial till
2. Glacial advance outwash deposits of hardpan of outwash and overridden silts and sand with some water
3. Glaciolacustrine deposits of overridden hard clay closer to Smith Cove
4. Landslide deposits and outwash sands located including debris and tidal deposits located near the park
5. Beach and estuarine deposits

Summary of pipeline installation methods

Kim Staheli, principal engineer for Staheli Trenchless, explained options for installation using the HDD method and described the Direct Pipe ® method.

The three stages of HDD include: the pilot bore, which establishes the alignment, the reaming process, which widens the hole; and the pullback process, which pulls fused pipe sections through the bore. The team has identified a range of potential construction locations:

- Drilling from Smith Cove Athletic Field or from 32nd Avenue West followed by pullback from the Port of Seattle
    - A large drill rig and soils processing at the drilling location
    - Pipe assembly into long sections would be carried out at the Port of Seattle's Terminal 91, with pullback and final fusion completed from the Port
    - A large drill rig would be located on 32nd Avenue West during the pipe pullback
    - King County has already begun discussions about this work with Port of Seattle Cruise and Operations staff. Work would be confined outside of the May-October cruise season under this option
- Drilling from Smith Cove Athletic Field followed by pullback from 32nd Avenue West.
    - Pipe assembly could occur on 32nd Avenue West while maintaining residential access, or offsite, with transport in from the water by barge
    - This option, which does not have seasonal constraints, does not preclude drilling and soils processing on 32nd

Direct Pipe® is a similar process to HDD but utilizes a new technology developed by Herrenkneckt, a German manufacturer.

- The key innovation for this installation method is the Pipe Thruster, which is connected to the installed pipe and a micro-tunnel boring machine (MTBM)
    - The Pipe Thruster pushes the pipe and MTBM forward supporting the bore hole throughout the tunneling process
    - Pipe sections are welded either as they are inserted, or in longer segments prior to insertion if the laydown area allows
- The Direct Pipe® process would be tunneled from a trench in Smith Cove Athletic Field to the area of the existing diversion structure on 32nd Avenue West, farther south than the proposed terminus for the HDD installation
- The launch shaft f larger than for HDD, but the retrieval shaft is smaller

Summary of Questions and Discussion

Will both methods of pipe installation work in clay soils?
The majority of the alignment is in clay, which is advantageous to both methods. As excavation occurs and pipelines are installed, clay provides stability and the excavated holes remain firm and open. In contrast, softer soils often require added stabilization techniques.

Will any of the Direct Pipe® alignment cross private property?
The Direct Pipe® alignment, like the HDD alignment will cross under the Admiral's House property, Seattle Parks property and the right-of-way (ROW).

Will 32nd Avenue West look the same when project is completed?
After conveyance construction using either method, the right-of-way and Seattle Parks property would be restored. A temporary roadway used for HDD installation to maintain residential access would be removed following construction, and vegetation would be restored to areas affected by construction. A cabinet housing electrical equipment and access to the diversion structure would be installed in the right-of-way. A small pullout outside of the existing pavement limits on 32nd would be installed for a maintenance vehicle to access the diversion structure. A small number of trees may need to be removed from the project area. King County's ROW agent will meet with Seattle Parks and Seattle Department of Transportation's (SDOT) arborist to discuss possible tree removal and landscape restoration requirements.

There is a history of landslides in this area. Is the construction area subject to landslide risk?
There are a number of slides on record since 1968. The community experienced a large slide in 1969, others during the 1980s, and a slide in the 1990s that took out a portion of the Magnolia Bridge. All areas involved in these slides are now buttressed and considered stabilized.
The pipeline will be installed far below historic landslide deposits along Magnolia Bluff.
Currently, instrumentation and slope indicators are monitoring soils along the alignment every three to four months. Monitoring periods will increase during construction.
Are the monitors automated?
No. Staff must physically go out and check the slope indicators.

Can ground monitoring continue after project completion to ensure everything remains stable? Can the instruments be automated at that time?
Typically, wells and other ground monitoring instrumentation are abandoned a short period following project construction. Shahrzad said King County could consider monitoring for 12 months following completion of the project. The project team will discuss this suggestion and report back to the community.

Are you aware that the Admiral's House is for sale or ownership is being transferred?
Since 2010, King County's right-of-way agent has been working closely with the previous property owner (Department of Defense) and the new property manager to discuss easements and activities associated with the South Magnolia CSO Control Project.

Trenchless Technology Methods
Can you compare schedules for the two installation methods?
Both technologies install pipe efficiently but HDD requires less time overall for installation because the drilling can be performed concurrent with pipe assembly. After drilling and pipe assembly, the actual pull back takes usually less than a day, but can extend to a couple of days. HDD operations are expected to take up to 10 months to complete. Direct Pipe® installation is expected to take about two to four months longer than HDD because it requires excavation at the same time pipe is being assembled.

Could a barge be located close enough to 32nd Avenue West to transfer pipe to shore?
Are water depths adequate if it were barged close to Smith Cove?
The depths would need to be determined but are probably sufficient. If the HDD contractor elected to assemble pipeline sections offsite and tow them in, he would likely employ pipe hangers, a standard practice to transferring pipe. Elevating the pipe may be allowed but dragging pipe through the tidelands would not be permitted. The contractor would have to acquire appropriate permits and provide notifications to the U.S. Coast Guard prior to this work.

Is there a risk of the pipe getting stuck? How would the contractor address this?
There is always a risk of the pipe getting stuck but it is very low here because soils in the vicinity of the alignment are optimal for use of either of the two methods. In addition, there is a great deal of experience working with these soils. In the unlikely event the pipe gets stuck, the contractor would first make efforts to disengage the pipe. If not successful, it is likely the pipe would then be cut and pulled back to the launching pit using appropriate tools.

What are noise impacts from both technologies?
The impacts are similar because both use generators, soil and separation plants and mud pumps. Noise is expected to be significant during a number of operations and will need to be managed for either installation option. Both methods will include pipe deliveries and trucking of spoils from the site. King County is conducting noise studies to determine what steps need to be taken to minimize disturbance and carefully manage potential noise impacts.

Is the separation plant similar in size for both options?
Yes, both technologies are expected to require an 8x20-foot footprint for a soils processing plant, similar to the separation plant used for the Ballard Siphon http://www.kingcounty.gov/environment/wtd/Construction/Seattle/BallardSiphon.aspx .

How many truck trips will be required for both of these options? Prefer to have the truck traffic in the park and not on 32nd Avenue West.
The design team is still determining estimations for truck hauling and will have this available at next meeting in early 2013. Truck traffic will be quite lower for an HDD pilot bore, but higher during the reaming and pull back phases that are likely to be staged on 32nd Avenue West. Direct Pipe® truck hauling from Smith Cove Park will likely be more consistent throughout construction, and we will also have more information soon.

How do you limit corrosion in the Direct Pipe® steel pipes?
The thickness of steel pipe used allows for some corrosion while maintaining the required strength. The steel pipes can also be lined and coated. The need for linings and coatings are currently being evaluated by the project team.

What are the differences in the sizes of the pipes between the two options?
The HDD pipe size is 36" inches diameter. The Direct Pipe ® pipe size is 48 inches diameter.

What is the turning radius for truck hauling? Will trucks be able to turn around on 32nd Ave West? Can backup alarms be disabled if they can't turn around on the street?
Our design team will be calculating turn radius for typical truck models hauling different sizes of pipe and equipment. Backup alarms cannot be disabled, but in some instances, different types of warning signals can be used if needed.

What will the work hours be for this project?
It is expected that work hours will be standard hours designated by the City of Seattle. An exception would be the HDD pipe pullback, which will require continuous work that may last from 12 hours up to 2 days. If pipe pullback occurs from 32nd Avenue West, King County will make necessary accommodations for residents during this work.

Will there be any changes to the beach park at the foot of 32nd Avenue West?
No changes are planned for the Seattle Department of Transportation street end at 32nd Avenue West as part of this project. There may be improvements required for the SDOT street-end, but the beach will not change. King County will share any additional information at the January 2013 meeting.

Design Team Attendees

King County

Shahrzad Namini, P.E., Project Manager
Monica Van der Vieren, Community Services Lead
Hillary Schafer, Community Services
Terry L. Smith, Real Property Agent

Tetra Tech, Inc.

Jeffrey Lykken, Project Manager
Mike Kucker, Geotechnical Engineer, Shannon & Wilson
Kim Staheli, Principal Engineer, Staheli Trenchless
Leslie Rankin, Community Services Consultant, Rankin Consulting
Martha Tuttle, Community Services Consultant, Tuttle Consulting

City of Seattle Parks Department

Donald Harris

Alternative Formats Available 206-684-1280 / 711 (TTY Relay)