





Lake Pumping and Upstream and Downstream Bladder Removal GMP

1. The bladder removal and lake pumping cost model is based on the Final –For Permit Approval drawings for the Downstream Bladder Removal dated January 2015.
2. This cost model is based on a lake pumping start on February 9, 2016 through March 8, 2016 and a bladder removal start on March 28, 2016.
3. This cost model assumes lake pumping as outline in the estimate and attached quote from Watermovers. This price only includes monitoring of the pumping system twice daily, seven (7) days per week throughout the pumping duration (1 MO). Pricing includes additional 1800’ of 18” HDPE discharge piping into SRP concrete channel.
4. This pricing does not include costs for SRP channel protection or vegetation removal.
5. This costs model assumes control building piping demolition as shown in the attached drawings. This will be the minimum piping necessary to grout the 8” air supply and 2” return lines.
6. Pricing includes the following allowances:
  - Crane Standby Allowance of \$28,610 for standby costs based on the date when the crane is complete with contractual work. ✓
  - Electrical/ Control Building Allowance of \$30,000 for costs associated with lockout/ tag out, MOV removals, pedestrian bridge lighting removals, control room electrical gear removals and leak detection. ✓
  - Channel Repair Allowance of \$5,000 for emergency repairs to the SRP channel as needed. ✓
  - Collector channel and access ramp cleanup allowance of \$10,000. ✓
  - Grouting allowance for upstream dam piping of \$20,368. ✓
  - Grouting allowance for downstream dam piping of \$20,368. ✓
7. This cost model assumes that grouting the 8” supply, 4” pressure sensing and 8” level sensing piping only. The 2” condensate lines will be capped only. Price also includes slurry for the level sensing vaults.
8. This costs model assumes one (1) 8’ wide temporary bridge, which will meet ADA requirements for the north multiuse path (pipe crossing). This temporary bridge will not be traffic rated. PCL will cover the two (2) ea, 18” diameter HDPE piping with soil to maintain pedestrian access north of the 202 freeway. An additional dirt access ramp will be installed south of the 202L freeway for FCD vehicle access.
9. This cost model assumes that no equipment can travel over the gates per Steel Fab’s recommendations.
10. This cost model includes costs for cleaning of the collector channel. The entire collect collector needed to be cleaned since it contained large amounts of organic material, which would create compaction issues. Since it was most cost effective to do this cleaning while we were locating the peizometers, PCL performed the work while they were in the area.
11. Costs for purchasing and placing sandbags across the dam foundation during the bladder removal are included in this estimate. This is the most cost effective solution to prevent water from entering the work area and creating an electrical hazard and allows for the upstream side of the dam to collect water for gate wet testing.
12. This cost model does not include any costs for permitting.



CONSTRUCTION LEADERS

City of Tempe

Lake Pumping and Upstream and Downstream Bladder Removal GMP

---

13. The cost model excludes all costs associated with the materials testing and inspections.
14. This cost model does not include costs for the remediation of hazardous waste materials.
15. This cost model assumes that adequate electrical service will be available at the control building for construction and electrical consumption costs will be paid by the City of Tempe at no cost to the project.
16. This cost model assumes that construction water will be available at no cost to the contractor.
17. This cost model assumes that night and weekend work is acceptable throughout the course of the project.
18. This cost model is based on a 6 day, 60 hour work week. PCL will commit additional overtime as necessary to complete the downstream bladder removal within the two (2) week removal window.
19. Pricing assumes that this work will be a change order to the existing contract, which will be executed by December 20, 2015 in order to plan and procure materials necessary to complete the work in a timely manner. Please be advised that PCL will need to be reimbursed for all flow related events that create rework or delays to the schedule. The cost model does not include costs for managing storm flows.
20. Price model assumes no demolished materials will be salvaged. No costs for trucking, loading and offloading of materials have been included in this estimate.
21. In the event that the pumping duration is cut short due to weather or other reasons, PCL will negotiate a credit from Water Movers for reduced pump rental time. In addition, PCL will credit for fuel not used at an approximate rate of 7gals/ hour per pump.

A handwritten signature in black ink, consisting of a stylized, cursive 'P' followed by a series of loops and a final flourish.

# Tempe Town Lake Dam Replacement

## Temporary Pumping work Plan

- **Purpose:** The purpose of this work plan is to outline the work associated with the temporary pumping required to pump water from the Town Lake to the existing SRP canal located north of the 202 freeway.
- **Overview:** The City of Tempe (COT) has proposed to reallocate water from the Town Lake for removal of the upstream and downstream rubber dam bladders. Please see attachment "A" for the estimated schedule. During the pumping process, the flows will be tracked utilizing two (2) flow meters, which will be attached to the discharge piping. The gallons pumped into the SRP canal will be credited for re-filling the lake once the rubber bladder decommissioning is complete.
- **Work Plan:** The following outlines the specific work required for the temporary pumping operation.
  - Please refer to attachment "B". Water Movers will install the pumps and fuel storage tanks directly west of the exiting boat ramp located on the north bank of the Town Lake approximately 500' west of the Tempe Marina. The fuel tanks and pumps will sit directly on spill containment pads.
  - 6' tall fencing will be installed around the pumps and fuel storage tanks. Gates will be installed for fueling access.
  - Four (4) 12" HDPE suction pipes and two (2) 18" HDPE discharge will be installed from the lake to the discharge point located on the SRP canal. The discharge pipes will be poly wrapped as attached from the pumps to the discharge point Attachment "C".
  - Temporary vehicular and pedestrian ramps will be installed at the multiuse path to facilitate pedestrian and vehicular traffic throughout the duration of the pumping operation Attachment "E". In addition, dirt fill will be installed over the HDPE piping north of the 202 freeway to maintain pedestrian access to this trail.
  - Once the pumping operation is complete, all materials will be removed and the site will be restored to its original condition.
- **Monitoring:** Water Movers, PCL and SRP will all have the responsibility to monitor this system throughout the pumping duration as outlined below:
  - Water Movers will checkout the system twice daily, seven days a week throughout the pumping duration. They will provide emergency repairs to the piping and pump system as needed.
  - PCL will check the fuel levels, monitor the system and take flow meter readings at least one daily, six days a week throughout the pumping duration.
  - SRP will monitor the system and canal continuously throughout the entire pumping duration. They will also take flow meter readings daily.



- **Emergency Contacts:** The following personnel will be emergency contacts throughout the pumping duration:
  - Tom Bussell- PCL Construction Superintendent- [tsbussell@pcl.com](mailto:tsbussell@pcl.com) 602-402-2707
  - Eric Popple- PCL Construction Asst. Superintendent- [epopple@pcl.com](mailto:epopple@pcl.com) 602-680-9765
  - Adam Gordon- PCL Construction Project Manager- [ajgordon@pcl.com](mailto:ajgordon@pcl.com) 602-717-7231
  - Tim Weber- Gannet Fleming Construction Manager- [tweber@gfnet.com](mailto:tweber@gfnet.com) 412-418-3747
  - Chris Kabala- City of Tempe Senior Civil Engineer- [chris\\_kabala@tempe.gov](mailto:chris_kabala@tempe.gov) 480-204-5278
  - Greg Valdez- Water Movers Sales- [gvaldez@watermovers.com](mailto:gvaldez@watermovers.com) 602-725-8528
  - Jim Duncan- SRP- [jim.duncan@srpnet.com](mailto:jim.duncan@srpnet.com) 602-499-6566

### **Upstream and Downstream Bladder Removal Work Plan**

- **Purpose:** The purpose of this work plan is specific to the abandonment of the four (4) each 8" fill vent pipes, four (4) each 2" pressure sensing pipes, four (4) each 2" condensation drain lines and one (1) each 8" lake level lines.
- **Overview:** As a part of the upstream and downstream rubber bladder decommissioning, existing fill vent, pressure sensing and lake level pipes will need to be abandoned to meet Arizona Department of Water Resources and Flood Control District permit guidelines. The existing 2" condensation drain lines will be capped only since they do not penetrate the levees.
- **Work Plan:** The following outlines the specific work required to abandon the lines from the control building to the bladders on the upstream and downstream dam:
  - Water is reallocated to the SRP canal. Remaining water, if any, is released through the downstream dam.
  - Bladders are removed in their entirety.
  - Please see attachment "F" and "G". Piping as shown is removed in this area to facilitate the grouting operation. A line pump will pump grout through the 8" supply and 2" return lines from this location.
  - Please refer to the attached Tempe Town Lake Downstream Dam Facilities drawings, sheet D-03. All lines will be capped as shown with a 304 stainless steel cover. On the 8" fill and 2" pressure sensing lines, the cover plates with NTP threaded ball valves will be added for air removal during the grouting process. This will also be used to confirm that grout has traveled to the end of the pipe. The 2" condensate drain line will be capped only.
  - The 8" lake level line will be capped at the north levee and a ball valve will be added to facilitate air removal during grouting.
  - Grout will be pumped from the control building to fill the above referenced lines. The ball valves will be open during the initial phase until it is confirmed that all of the air is released. The ball valves will be removed after the grout has made its initial set.

