

**Washington Township Municipal Authority
Business Meeting Minutes
September 21, 2021**

Chairman D. McCarney called the meeting to order at 7:15 PM. The meeting was held in the Public Meeting Room. In the WTMA Public Meeting Room were Board members D. McCarney, D. Parks, A. Geesaman, S. McCleaf and D. McLaughlin. Manager S. McFarland P. Boggs, GHD, were also present.

Business from the Floor

Noting there was no Business from the Floor, the Chairman moved on to the Agenda.

Agenda

The Agenda was approved as presented on an A. Geesaman, D. McLaughlin motion (5-0).

Minutes of September 7, 2021

The Board reviewed and approved the Minutes of the September 7, 2021 meeting as presented on an S. McCleaf, A. Geesaman motion (4-0). D. McCarney abstained as he was not present at the last meeting.

Engineer's Report

P. Boggs, GHD, presented the Engineer's Report. He explained that much of the report would be covered in the following presentation regarding the proposed upgrades to the Brookdale / Pine hill upgrades.

P. Boggs explained that GHD was beginning to investigate and gather information for the Water Tapping fee review. The Manager explained the initial review of the Water tapping fees has begun and is underway. GHD will be communicating with the WTMA to get any additional information. The Manager noted that he had been contacted by N. Adams, GHD, requesting information, and the Authority is in the beginning stages of getting the requested data to GHD for review. The Manager briefly explained the process GHD will go through to evaluate the Fees, and the Board inquired about the availability of some of the records regarding upgrades made over the years, and items and facilities that have been taken 'off-line' and the Manager expanded on some of those.

P. Boggs also noted that GHD will eventually be in touch with the WTMA's Solicitor to clarify some issues and get additional information for the evaluation.

P. Boggs noted that the as-builts are the last item for the Wastewater Treatment plant project and that would be closed out soon. The Manager also discussed some issues with receiving 'as-builts' from other contractors and developers, but explained that he and the staff are addressing those concerns moving forward. He cited a recent experience in which a water line was installed

within the planned easement, but too close to one of the edges, restricting what the landowner thought they could do with the property. The Manager explained that he and some of the staff have a meeting scheduled with the Township to express the WTMA's issues and that he hopes to 'tweak' the process so each party can get what they need once things are dedicated to them. The Board discussed alternatives, and the Manager reported that he was working on finding a solution that works for all parties. P. Boggs also mentioned that GHD would begin working on the renewal of WTMA's NPDES permit.

The Engineer's Report was accepted on an S. McCleaf, A. Geesaman motion (5-0)

GHD Water Study Report / Recommendations

P. Boggs presented GHD's Initial Design Report (copy attached to these Minutes). He reviewed GHD's findings to date, and answered questions from the Board. The Report covered the location of the new pumping station, electrical needs and costs for the project.

The Board reviewed the Report with P. Boggs and the Manager, various aspects of the proposed project and agreed it was the plan they had all given their consensus to. The Manager reported that he had shared the Executive Summary and the general project with the Township Supervisors at their meeting the prior day and it had been well received. The Board, the Manager and P. Boggs spent quite some time reviewing details of the proposal, including the water line placement and pumps at the new pump station, as well as power needs and proximity to three phase power, and authorized GHD to continue moving forward.

The Board accepted the interim report, but no official action was required.

August 2021 Water Report

The Manager presented the August 2021 Water Report. He reported that:

- Water produced for the month was 24,466,000 gallons for the month.
- He noted there were 2 leaks discovered and repaired during the month, and briefly reviewed where they were and some of the specific circumstances surrounding them. He explained both leaks were discovered in system PRV's, and at least one of them is to be replaced when materials are available.
- Estimated water loss from known leaks discovered during the month was 1,250,000 gallons.
- He reported that estimated loss from flushing, fire service and the Authority's blow-off was approximately 1,550,000 gallons.
- He noted there were six new water connections for the month. He noted that there have been 41 to date for the year, compared to a total of 20 for all of last year.

The Manger highlighted several of the items under Additional Maintenance, include leak detection, train of the newest staff member lab sampling and other routine maintenance items.

He commented on the Auto-flushing device in Blue Ridge Summit, noting it had been serviced and seems to be addressing the issues that were previously raised by the property owners.

The August 2021 Water Report was accepted on an S. McCleaf, A. Geesaman motion (5-0).

August 2021 Wastewater Report

Thee Manager presented, and the Board reviewed, the August 2021 Wastewater report. He reported that:

- Minimum flow for the month was 590 gallons per day.
- Average flow for the month was 660,000 gallons per day.
- Maximum flow for the month was 880,000 gallons per day.
- The Manager noted that rainfall at the WWTP plant for the month was 4.09 inches.
- There were 8 new connections for the month, bringing the total to 73 so far for 2021, compared to 61 connections for all of 2020.
- Total Hydraulic EDU's connected to the system to date are 6,114 and available hydraulic EDUs remaining for planning purposes are 1,983.
- For planning purposes, the Wastewater Treatment Plant is at 76% of its maximum capacity. He again stressed that was for planning only, because DEP compares the average monthly flow against the plant's permitted hydraulic capacity, which is 1.85 M gallons per day.
- He noted that the Biosolids inventory is only at 39%. He explained that they will begin hauling once the summer crops are taken off of the fields. He noted that J. Shorn will work with J. Martin to determine which fields and when to land apply.

The Manager called the board's attention to an item under Maintenance, explaining that Quincy Township had hauled sludge to the Wastewater Treatment Plant. He also commented on the continued use of the Jet-Vac in hydro-excavation for both Water and Wastewater.

The August 2021 Wastewater Report was approved on an S. McCleaf, A. Geesaman motion (5-0).

August 2021 Business Report

The Manager presented the August 2021 Business Report. The following items were reviewed:

- Statement of Revenues and Expenses

- Bank Balances / Capital Expenditures
- Disbursement Summaries
- Tap Fee Detail Report
- Business Updates

The Manager reviewed the Report and commented on a few of the Update items, noting that the annual commercial Tap Fee review is underway, and noted some of the staffing changes. He noted that J. Schorn continues to recover and T. Frantz started and is doing very well. He also commented on A. Zeigler's great job filling in for J. Schorn while he has been out.

The Business Report for August 2021 was accepted on an S. McCleaf, D. McLaughlin motion (5-0).

Ratification of the Bills

The Board reviewed the Ratification for August 2021 and had no questions about any specific expenses. The Board approved the Ratification of the Bills for the months of August 2021 as presented, on an, A Geesaman S. McCleaf motion (5-0).

Miscellaneous

The Manager presented a request the Board with the Authority magazine, and called their attention to two articles for them to read when they had time.

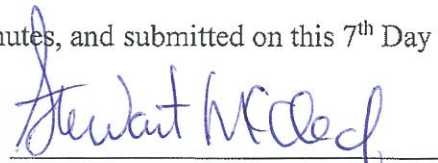
The Board adjourned to an Executive session to discuss personnel issues at 7:55 PM on an S. McCleaf.

The Board returned to Regular session at 7:55 and adjourned at 7:56 on an S. McCleaf, D. McLaughlin motion (5-0).

Adjourn

Having no other business, the Board adjourned at 7:56 on and S. McCleaf, D. McLaughlin motion (5-0).

Sean McFarland, Manager, respectfully prepared these Minutes, and submitted on this 7th Day of September, 2021.


S. McCleaf, Secretary/Treasurer



Pine Hill Booster Station and Transmission Mains

Initial Design Report

WTMA

September 20, 2021

→ The Power of Commitment

Executive Summary

Project Background

The Washington Township Municipal Authority's (WTMA's) water system consists of a patchwork of several systems that have been acquired by the Authority. Two of the major service areas are the Pine Hill / Green Ridge Tanks service area and the Tall Tank service area. Tall Tank receives water from a pump station located at the Green Ridge Tank, which receives water from the Brookdale Water Treatment Plant. The Green Ridge Tank is relatively small (66,000 gallons) and has limited operational flexibility. Several incidents have highlighted that the limited size of the Green Ridge Tank makes the Tall Tank service area vulnerable to disruptions in service during fire flow and other high demand events.

The Pine Hill Tank is located at the same elevation as the Green Ridge Tank and is relatively large (1,273,000 gallons). The additional storage within the Pine Hill Tank provides fire flow capacity for the Pine Hill / Green Ridge service area and for the Hoover Springs service area, which is located down gradient from Pine Hill / Green Ridge. To address the current vulnerabilities at Tall Tank, the pump station from Green Ridge Tank will be eliminated and a new pump station built at the Pine Hill Tank. A new transmission main will be installed from the new Pine Hill Tank Booster Pump Station to the Tall Tank distribution system.

To provide capacity for greater flows to be pumped from the Brookdale Treatment Plant to the Pine Hill Tank, a new 12-inch transmission main is proposed as a second part of this project.

Preliminary Design

The new booster pump station at the Green Ridge Tank will need to replicate the existing pumping capacity at the Green Ridge Tank. There will be two primary pumps with the capacity to pump at a rate of 200 gpm each at a total dynamic head of 380 feet. The pump station building will be a CMU block structure on a concrete foundation. Ventilation and heating will be provided. The building will likely be 20' by 20'. Space will be provided for future monitoring and controls required when sampling for chlorine contact is moved from the Brookdale Plant to the Pine Hill Tank. The booster pump station will require the installation of electrical controls and likely 3-phase power service.

The new transmission main between the Brookdale Plant and the Pine Hill Tank will be used for chlorine contact time, once the Hess 2 is ultimately brought online. The 12-inch main will also protect customers located in the vicinity of the Brookdale Plant from excessive water pressure once the Hess 2 well is ultimately brought online.

Overall Project Benefits

The new Pine Hill Tank Booster Pump Station and associated transmission mains will allow WTMA to immediately serve their existing customers with more reliable water during fires and other high demand events. The projects will allow WTMA to utilize the Pine Hill Tank as the central hub of their system and will provide a more efficient distribution system that can support a growing community.

Anticipated Project Costs

| Item | Base Cost |
|-------------------------------------|--------------------|
| Brookdale Transmission Main | \$2,200,000 |
| Pine Hill Tank Booster Pump Station | \$1,700,000 |
| Green Ridge Tank Closure | \$100,000 |
| <hr/> | |
| Subtotal | \$4,000,000 |
| 15% Contingency | \$600,000 |
| Engineering and Permitting | \$300,000 |
| Total | \$4,900,000 |

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1. Introduction

1.1 Purpose of this report

This intention of this report is to present a preliminary design of the Pine Hill Tank Booster Pump Station, develop the general alignments of the proposed transmission mains, and develop a cost estimate for the project.

1.2 Project Background

The Washington Township Municipal Authority's (WTMA's) water system consists of a patchwork of several systems that have been acquired by the Authority. The four main service areas consist of: (1) Tower Road Tanks, (2) Tall Tank, (3) Green Ridge and Pine Hill Tanks, and (4) Hoover Springs. Appendix A shows the general location of the services areas and Appendix B shows a schematic of how the service areas interact with each other.

Several recent incidents have highlighted vulnerabilities to the Tall Tank supply chain. Tall Tank receives water from a pump station located at the Green Ridge Tank, which receives water from the Brookdale Water Treatment Plant (Brookdale Plant). The Green Ridge Tank is relatively small (66,000 gallons) and does not provide any buffer during a high demand event such as during a fire or a water main break.

The Pine Hill Tank is located at the same elevation as the Green Ridge Tank and has much greater storage (1,273,000 gallons). To address the current vulnerabilities at Tall Tank, the pump station from Green Ridge Tank will be eliminated and a new pump station built at the Pine Hill Tank. A new transmission main will be installed from the new Pine Hill Tank Booster Pump Station to the Tall Tank distribution system.

A secondary issue is the limited ability to provide additional water to Pine Hill Tank. The Brookdale plant has three water sources: Hess 1, Brookdale, and Hess 2. Hess 1 is routinely used by WTMA and provides around 200 gpm of flow. The Brookdale well is currently being re-permitted and can provide another 200 gpm of flow. The Brookdale plant has filtering, pumping, and chlorine contact capacity to process the Hess 1 and the Brookdale wells concurrently and at full capacity. The Brookdale plant and the Pine Hill Tank distribution system, however, does not have capacity to process or convey the flows from the Hess 2 well, which can produce an estimated 1,000 gpm of flow.

Future growth within the WTMA service area is anticipated to be concentrated within the Hoover Springs service area. This area contains the Washington Township Boulevard corridor, which has several subdivisions in various stages of planning. The Hoover Springs service area is served by water from Hoover Springs and from water from the Pine Hill Tank that has gone through pressure reducing valves (PRVs). Build out of the Hoover Springs service area will require Hess 2 to be brought online to supply the additional demand that is placed on the Pine Hill Tank.

Adding a dedicated 12-inch transmission main from the Brookdale Plant to the Pine Hill Tank will provide adequate chlorine contact time for combined flows from the Hess 1, Brookdale, and the Hess 2 wells all being pumped and treated concurrently (1,400 gpm). The dedicated transmission main would also protect customers located in the vicinity of the Brookdale Plant from experiencing excessive water pressure that would result if the existing network of 8-inch water mains received the flows.

2. Preliminary Design

2.1 Pine Hill Tank Booster Pump Station

The Pine Hill Tank Booster Pump Station will replace the existing pump station located at the Green Ridge Tank. The existing Green Ridge Tank pump station will be taken out of service. The pumping requirements at the new Pine Hill Tank Booster Pump Station will be those needed to replicate the existing pumping capacity at the Green Ridge Tank.

Other improvements that will be required at the new booster pump station will be the installation of electrical controls and likely 3-phase power service, installation of a backup generator, and space for future water quality testing facilities. The requirement of 3-phase power service is likely, but will need to be further evaluated.

2.1.1 Pump Selections

Appendix C is a printout of the preliminary design of the pump station pumps. There will be two primary pumps with the capacity to pump at a rate of 200 gpm each at a total dynamic head of 380 feet.

2.1.2 Building Location and Construction

Appendix D is a sketch plan of the Pine Hill Tank site. The location of the new building can be seen to the east side of the tank. The building will be a CMU block structure on a concrete foundation. Ventilation and heating will be provided. The building will likely be 400 square feet. Space will be provided for future monitoring and controls required when sampling for chlorine contact is moved from the Brookdale Plant to the Pine Hill Tank.

2.1.3 Communication Systems

WTMA utilizes Mission Communications to provide SCADA monitoring. Currently, the Pine Hill Tank is equipped with SCADA monitoring. The monitoring and communication system will be relocated to be in the new building and will use WTMA's existing communication network.

2.1.4 Electrical Service

Most of the required electrical load will be associated with the two pumps at the booster pump station. Other estimated load requirements can be found below in Table 2.1. Based on the anticipated loads, it is likely that three-phase power will be required at the site. Since only single-phase power currently exists at the Pine Hill Tank, new services will be required from the electric company

Table 2.1 Pine Hill Tank Electrical Load Requirements

| Equipment | Load |
|--|---------|
| Booster Pump 1 | 50A, 3P |
| Booster Pump 2 | 50A, 3P |
| Lighting Panel (includes lights, exhaust fan, receptacles, chlorine analyzer, pump control panel, SCADA, etc.) | 50A, 3P |
| Heater | 20A, 3P |
| Spare | 20A, 3P |

2.2 Booster Pump Station Discharge Piping

A new transmission main will need to be installed between the new booster pump station and the existing Tall Tank distribution network, located at the entrance of the Pine Hill Recreation Area along Mentzer Gap Road. Based on the pump sizes of the booster pump station, the new 3,600 linear foot transmission main should be 8" diameter. The piping will require an easement from the Township through the Pine Hill Recreational Area.

3. Brookdale WTP to Pine Hill Tank Transmission Mains

Appendix D presents the proposed transmission main alignments, which were approved by the WTMA Board. The new transmission main from the Brookdale WTP will be 12-inches and will extend to the Pine Hill Tank without any connections. This configuration will allow the transmission main to be included in the chlorine contact time calculation for the water being treated at the Brookdale WTP.

After leaving the Brookdale WTP property, the new transmission main will utilize existing easements along Brookdale Drive. The transmission main will leave the ROW of Brookdale Drive and will cross at least two private properties, as it travels to the east towards Old Forge Road. WTMA will need to obtain additional easements from these property owners. The remainder of the transmission main alignment will be in either existing rights-of-way or existing easements.

4. Cost Estimate

Table 4.1 Project Cost Estimate

| Item | Quantity | Unit Cost | Base Cost |
|--|----------|------------|--------------------|
| Brookdale Transmission Main | | | |
| 12" Pipe Along Gravel Road (Brookdale Driveway and Pine Hill Access) | 2,750 LF | \$200 / LF | \$550,000 |
| 12" Pipe Along Township Road | 1,000 LF | \$300 / LF | \$300,000 |
| 12" Pipe Along Undeveloped Area (Miller Property and Orchard) | 5,000 LF | \$175 / LF | \$875,000 |
| 12" Pipe Along State Road | 1,350 LF | \$350 / LF | \$475,000 |
| | | | \$2,200,000 |
| Pine Hill Tank Booster Pump Station | | | |
| New Pump Station Building, Pumps, Controls, and Facilities | 1 LS | \$500,000 | \$500,000 |
| Pump Station Electrical Service (Preliminary) | 1 LS | \$300,000 | \$300,000 |
| 8" Pipe Along Gravel Path | 2,500 LF | \$200 / LF | \$500,000 |
| 8" Pipe Along Park Access Road | 2,000 LF | \$200 / LF | \$400,000 |
| | | | \$1,700,000 |
| Green Ridge Tank Closure | | | |

Table 4.1 Project Cost Estimate

| Item | Quantity | Unit Cost | Base Cost |
|---|----------|--------------|------------------|
| Prepare Tank for Closure, Modify Tank Connections with System and Reconfigure Existing PRVs | 1 | \$100,000 LS | \$100,000 |

Subtotal 4,000,000

15% contingency \$600,000

Engineering & Permitting \$300,000

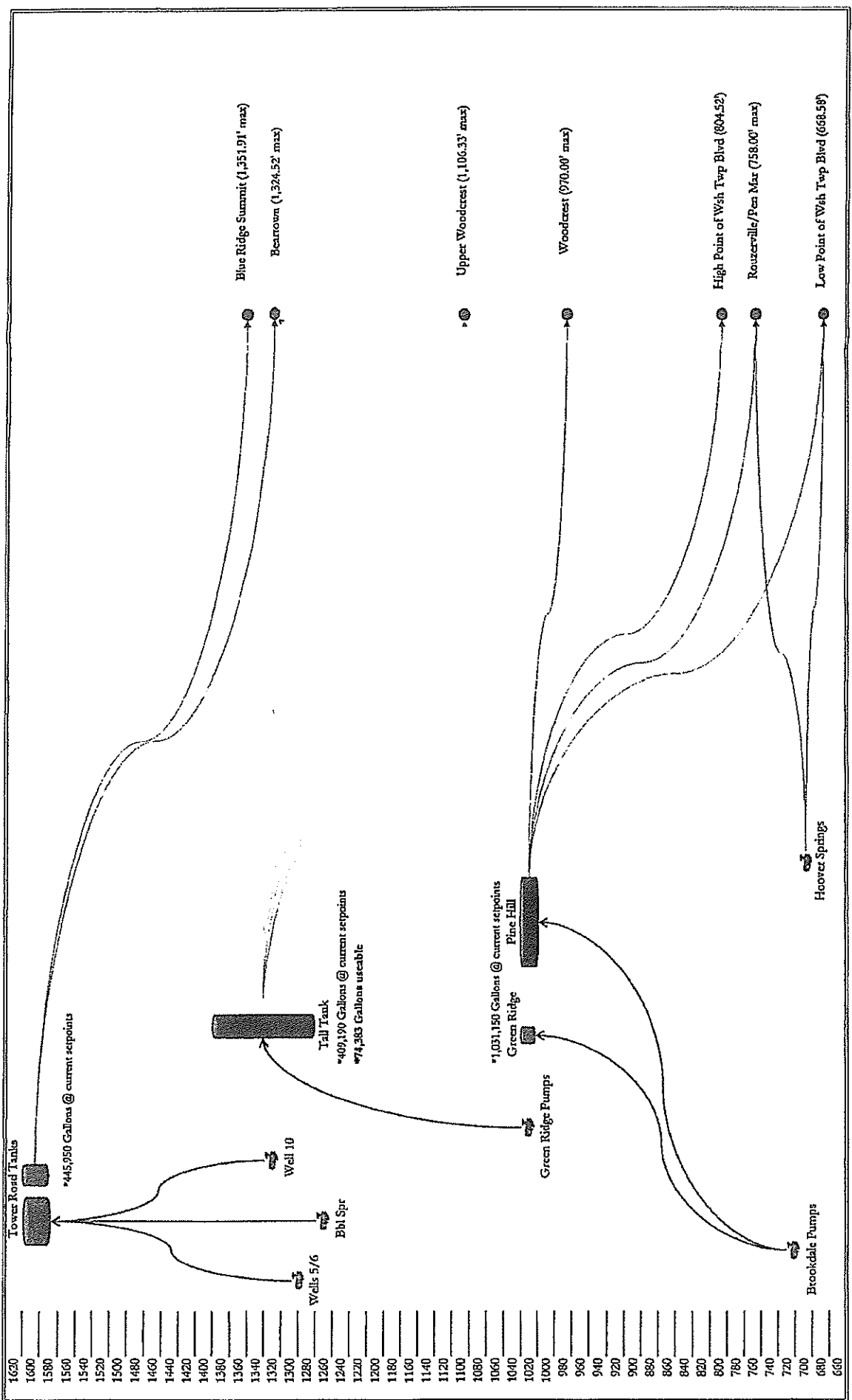
Total \$4,900,000

Appendix A

WTMA Service Areas Map

Appendix B

WTMA Tanks and Service Areas Schematic



Appendix C

Booster Pump Calculations

Pine Hill Tank BPS
WT31A

See design report for pump station capacity

| | | |
|--------------------------|------|-----|
| Pump design capacity | 200 | gpm |
| | 0.29 | mgd |
| No. of pumps | 2 | |
| Ground elevation | | |
| Existing Tank Vault | 1030 | ft |
| Tall Tank Overflow | 1399 | ft |
| Static head differential | 569 | ft |

base of Pine Hill is 1018, and maximum elevation is 12'

Section #1 - Pump Skid Intake and Discharge Pipes

| | |
|-------------|-------|
| "C" Value | 140 |
| Dia. (in.) | 4.000 |
| Length (ft) | 20 |
| Sum "K" | 3.00 |

| Flow (gpm) | Flow (mgd) | Velocity (fps) | Velocity (ft) | Loss (ft/1000 ft) | Minor HL (ft) | Major HL (ft) | Total Loss (ft) |
|------------|------------|----------------|---------------|-------------------|---------------|---------------|-----------------|
| 1 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | 0.01 | 0.13 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 |
| 10 | 0.01 | 0.26 | 0.00 | 0.09 | 0.00 | 0.00 | 0.00 |
| 15 | 0.02 | 0.38 | 0.00 | 0.20 | 0.01 | 0.00 | 0.01 |
| 20 | 0.03 | 0.51 | 0.00 | 0.33 | 0.01 | 0.01 | 0.02 |
| 50 | 0.07 | 1.28 | 0.03 | 1.82 | 0.08 | 0.04 | 0.11 |
| 100 | 0.14 | 2.55 | 0.10 | 6.56 | 0.30 | 0.13 | 0.43 |
| 150 | 0.22 | 3.83 | 0.23 | 13.90 | 0.68 | 0.28 | 0.96 |
| 200 | 0.29 | 5.11 | 0.40 | 23.69 | 1.21 | 0.47 | 1.69 |
| 250 | 0.36 | 6.38 | 0.63 | 35.81 | 1.90 | 0.72 | 2.61 |
| 300 | 0.43 | 7.66 | 0.91 | 50.19 | 2.73 | 1.00 | 3.74 |
| 350 | 0.50 | 8.93 | 1.24 | 66.77 | 3.72 | 1.34 | 5.05 |
| 400 | 0.58 | 10.21 | 1.62 | 85.50 | 4.86 | 1.71 | 6.57 |

Section #2 - Piping from Pine Hill to Tall Tank

| | |
|-------------|-------|
| "C" Value | 140 |
| Dia. (in.) | 8.000 |
| Length (ft) | 11000 |
| Sum "K" | 11.0 |

| Flow (gpm) | Flow (mgd) | Velocity (fps) | Velocity (ft) | Loss (ft/1000 ft) | Minor HL (ft) | Major HL (ft) | Total Loss (ft) |
|------------|------------|----------------|---------------|-------------------|---------------|---------------|-----------------|
| 1 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | 0.01 | 0.03 | 0.00 | 0.00 | 0.00 | 0.01 | 0.01 |
| 10 | 0.01 | 0.06 | 0.00 | 0.00 | 0.00 | 0.03 | 0.04 |
| 15 | 0.02 | 0.10 | 0.00 | 0.01 | 0.00 | 0.07 | 0.08 |
| 20 | 0.03 | 0.13 | 0.00 | 0.01 | 0.00 | 0.13 | 0.13 |
| 50 | 0.07 | 0.32 | 0.00 | 0.06 | 0.02 | 0.68 | 0.70 |
| 100 | 0.14 | 0.64 | 0.01 | 0.22 | 0.07 | 2.47 | 2.54 |
| 150 | 0.22 | 0.96 | 0.01 | 0.48 | 0.16 | 5.23 | 5.39 |
| 200 | 0.29 | 1.28 | 0.03 | 0.81 | 0.28 | 8.91 | 9.19 |
| 250 | 0.36 | 1.60 | 0.04 | 1.22 | 0.43 | 13.47 | 13.90 |
| 300 | 0.43 | 1.91 | 0.06 | 1.72 | 0.63 | 18.87 | 19.50 |
| 350 | 0.50 | 2.23 | 0.08 | 2.28 | 0.85 | 25.11 | 25.96 |
| | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

| TOTAL | (one pump) | Section #1 - Pump Skid Intake and Discharge (headloss) | Section #2 - Piping from Pine Hill to Tall Tank (headloss) | Force Mains to Murbate | Static Head (max) | TDH (max) |
|-------|------------|--|--|------------------------|-------------------|-----------|
| 1 | 0.00 | 0.00 | 0.00 | 0.00 | 369.00 | 369.00 |
| 5 | 0.01 | 0.00 | 0.01 | 0.00 | 369.00 | 369.01 |
| 10 | 0.01 | 0.00 | 0.04 | 0.00 | 369.00 | 369.04 |
| 15 | 0.02 | 0.01 | 0.08 | 0.00 | 369.00 | 369.09 |
| 20 | 0.03 | 0.02 | 0.13 | 0.00 | 369.00 | 369.15 |
| 50 | 0.07 | 0.11 | 0.70 | 0.00 | 369.00 | 369.81 |
| 100 | 0.14 | 0.43 | 2.54 | 0.00 | 369.00 | 371.97 |
| 150 | 0.22 | 0.96 | 5.39 | 0.00 | 369.00 | 375.35 |
| 200 | 0.29 | 1.69 | 9.19 | 0.00 | 369.00 | 379.87 |
| 250 | 0.36 | 2.61 | 13.90 | 0.00 | 369.00 | 385.51 |
| 300 | 0.43 | 3.74 | 19.50 | 0.00 | 369.00 | 392.24 |
| 350 | 0.50 | 5.05 | 25.96 | 0.00 | 369.00 | 400.02 |

Pump selection, Q=200 gpm, TDH = 380 ft

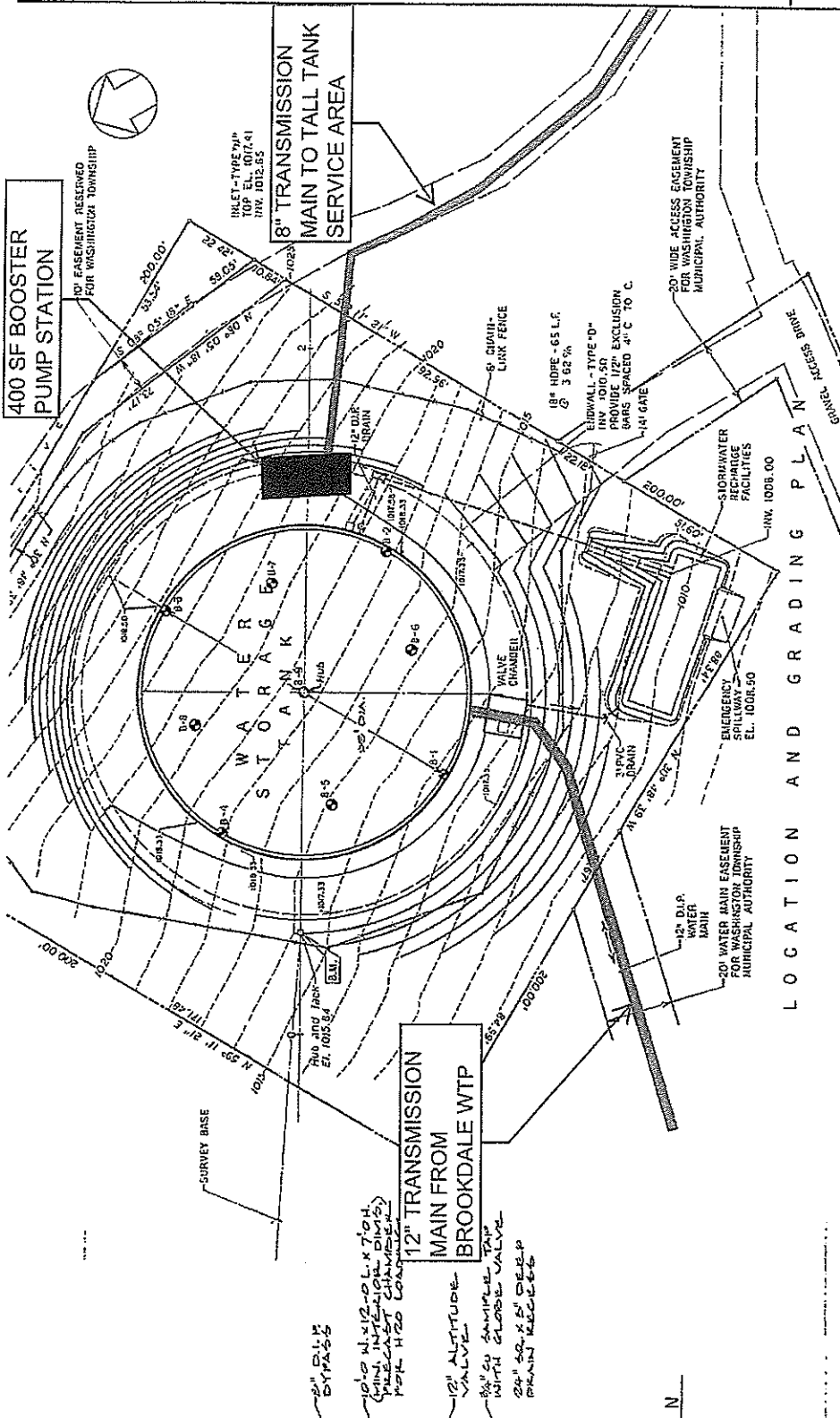
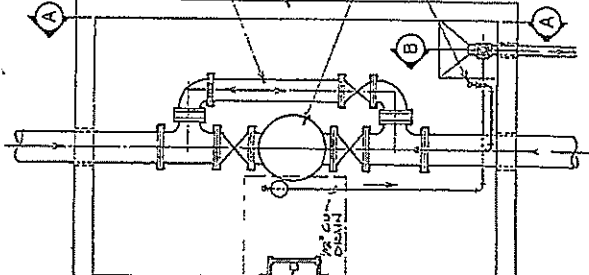
Pump horsepower

| | | |
|------|------|---------|
| Flow | 200 | |
| TDH | 380 | |
| Eff | 0.75 | assumed |
| HP | 26 | |

Appendix D

Pine Hill Tank Booster Pump Station Schematic

E.C.T.I.O.N. (A)



O W E R P L A N

L O C A T I O N A N D G R A D I N G P L A N



DATE: _____

GLACE ASSOCIATES, INC.
CONSULTING ENGINEERS

3705 TRINDLE ROAD, CAMP HILL, PA 17011

717-731-1579 FAX-717-731-1348 EMAIL - dbingham@glace.com

WASHINGTON TOWNSHIP MUNICIPAL AUTHORITY
FRANKLIN COUNTY, PENNSYLVANIA

CONSTRUCTION OF PINE HILL WATER STORAGE TANK

PLANS, SECTIONS AND NOTES

AS CONSTRUCTED MAY 2008

| | |
|--------------------|---------|
| PROJECT NO. | 451002 |
| AS NOTED FILE CODE | 4520412 |
| SHEET NO. | 2 |

Appendix E

Transmission Main Alignments Overview

WTMA Pine Hill Tank and Transmission Mains Project

