PUBLIC UTILITIES COMMISSION

Bethel Municipal Center, 1 School Street
Bethel, Connecticut 06801 Telephone: (203) 794-8501

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TOWN OF BETHEL
TOWN CLERK

SPECIAL MEETING

Monday, September 22, 2014
4:00 p.m.
C.J. Hurgin Municipal Center – Meeting Room "A"

Present: First Selectman Knickerbocker and Paul Szatkowski, Commissioners Michael Gribbin and Peter Valenti. Also in attendance were Town Attorney, Martin Lawlor; Highway Supervisor and Acting Public Works Director Robert Dibble, Utility Supervisor, Kelly Curtis and Wright-Pierce; Senior Project Manager, Mariusz Jedrychowski, PE.

Absent: Selectman Richard Straiton and Comptroller Robert Kozlowski

Call to Order: First Selectmen Knickerbocker called the Special Meeting to order at 4:00p.m. and led the Pledge of Allegiance.

Public Input: None

Correspondence: None

Meeting Minutes: ***Meeting Minutes from Regular Meeting September 8, 2014: Selectman Szatkowski made a motion, which was seconded by Commissioner Gribbin to approve the minutes as presented. Vote, All in Favor, Motion Approved.***

New Business: None

Old Business:

- **PUC Capital Project Status Summary:** Mr. Jedrychowski of Wright-Pierce delivered as well as distributed (see attached) a status report on the projects managed by his engineering firm. Discussion took place regarding:
  - Eureka Water Storage Tank Update
  - South Street Pump Station; Building to be on site at the end of October
  - Hoyts Hill Pump Station Demolition
  - Water Main replacement on Highland /Andrews and Cindy Lane
  - Demolition of Hickok Tank; obtain quotes for hazardous survey of inner/ outer of Tank Structure.
  - Demolition of Gray Pump Station Building on Reservoir Road across and Martino Lane; obtain quotes for hazardous plumbing material as well as the storage.
  - Underwater Solutions – Chestnut Ridge, Eureka Lake and Hoyt's hill Underwater Inspection Reports. See attached.

- East Swamp Aquifer Level A Mapping; Approved by the DEEP, Town needs to incorporate the aquifer protection boundary into zoning map and provide to State by December 2014. HRP working on hydraulic modeling for pumping rates.

- **South Street Pump Station:** Previously discussed.

Financial Report:

- **Vehicle Replacement Update:** Mr. Curtis informed the Commission he received notification regarding the status of replacement vehicle; delivery of vehicle should be the middle of October.

  Mr. Curtis posed to the Commission the consideration of purchasing a vehicle from Fleet Maintenance Department for the use of the Water Department. Discussion took place, Mr. Curtis to obtain Blue Book Cost value of Vehicle and return to Commission.

- **Water and Sewer Capacity and Allocations:** Commissioner Gribbin inquired about the 1) Sewer Allocation status; whether the Tighe and Bond study is being used or is it the Sewer Allocation which was adopted in 2012 and Secondly, the new Zones which were defined in the study. The Commission communicated the differences between the Sewer Allocation regarding the gallon used per bedroom vs. per person. Also, whether there's adequate water for emergency. Commissioner Valenti indicated that the Sewer Allocation should be based on a per person usage not per bedroom use. Mr. Jedrychowksi indicated the State uses a per person gallons usage in their studies. First Selectman Knickerbocker informed the Commission that Mr. Jedrychowski will be working on the I & I study as well as what is included in the CIP already. Selectman Szatkowski inquired on two items 1) whether the New Pump Station on Plumtrees has the capacity to handle additional developments 2) storm drain capacity. Further discussion to take place.
- **Invoice:**

Regular Meeting September 2014

Item #	Vendor	Inv. Date	Amount	Description	Account
1	Desell Construction,LC	9/9/1902	$12,225.00	manhole frames &covers	Sewer
2	Xenelis Construction	7/31/2014	$11,875.00	Application 1	South St. Pump Station
3	Wright Pierce	8/8/2014	$2,700.00	Water Main Improvement	
4	Wright Pierce	8/8/2014	$4,545.00	Water Storage Tank	Water Storage Tank
5	Wright Pierce	8/8/2014	$2,326.00	Engineering	South St. PS
6	Butterworth & Scheck	8/18/2014	$11,750.00	Highland & Andrews	Water
7	Butterworth & Scheck	8/13/2014	$4,900.00	Andrews @ rt 302	Water
8	Butterworth & Scheck	8/18/2014	$889.00	additional material cost	Water
9	Underwater Solutions	8/19/2014	$13,590.00	Hoyts Hill &Chestnut cleaning	Water
10	Torrco	7/14/2014	$617.70		water
11	G&L Water works supply corp	7/30/2014	$4,875.72	Dodgingtown	Water
12	Town of Brookfield	7/16/2014	$1,138.10	Police	Water
13	Schulz	7/17/2014	$5,300.00	wells	water
14	Town of Brookfield	7/9/2014	$668.19	police	water

15	Woodcock & Assoc.	8/25/2014	$5,388.75	Professional Services	Eureka Water Storage Tank
16	Martin J. Lawlor	9/2/2014	$413.88	professional services	Sewer Project
17	Martin J. Lawlor	9/2/2014	$198.88	professional services	Sewer
18	Martin J. Lawlor	9/2/2014	$1,316.88	professional services	water
19	Martin J. Lawlor	9/2/2014	$158.75	professional services	Transfer Station
20	Martin J. Lawlor	8/1/2014	$465.48	professional services	Sewer Project
21	Martin J. Lawlor	8/1/2014	$626.19	professional services	Sewer
22	Martin J. Lawlor	8/1/2014	$820.23	professional services	water
23	Martin J. Lawlor	8/1/2014	$711.58	professional services	Transfer Station
24	gl Water Works Supply	7/30/2014	$4,977.85	Rt.302 & Tayor Rd.	Water
25	Wright Pierce	9/4/2014	$16,317.00	Storage Tank Design	Water Storage Tank
	TOTAL		**$108,795.18**		

Commissioner Gribbin made a motion, which was seconded by Commissioner Valenti to approve the invoices as presented in the amount of $108,795.18. Discussion took place.

Engineering / Utility Consultant Report:

- **Supervisor's Report:** Discussed previously, no additional news.

Adjourn ***As there was no further business on the agenda Commissioner Gribbin made a motion, which was seconded by Selectman Szatkowski to adjourn the meeting at 4:55 p.m. Vote: All in Favor, Motion Unanimously Approved.***

Respectfully submitted,

Tracy Rogalski, Recording Secretary

WRIGHT-PIERCE
Engineering a Better Environment

MEMORANDUM

TO:	Town of Bethel Public Utilities Commission	DATE:	September 22, 2014
FROM:	Mariusz Jedrychowski, PE, Senior Project Manager	PROJECT NO.:	13035A
SUBJECT:	PUC Projects – Summary Report		

1. **Eureka Lake Water Tank.**
   - Final settlement hearing scheduled for tomorrow in Hartford.
   - Wright-Pierce will finalize the plans and specifications after the court hearing on 9-23-14.
   - DPH/DECD (Manufacturers Grant) Funding – submitted Town's Financial Reports and Town resolution authorizing the First Selectman to sign loan application. Revised Bond Resolution still needed for the new project cost of $2.3M. DPH requested a meeting to coordinate funding efforts. Wright-Pierce and Phyllis Kansky ti attend the meeting in Hartford.
   - Bidding Fall/Winter 2014.
   - Construction to start in 2015.
2. **Hoyt's Hill Water Booster Station.**
   - Design Fall/Winter 2014 – awaiting signed contract from the Town.
   - Bidding and construction next year in the spring of 2015.
3. **Highland/Andrews and Cindy Lane Water Main Replacement:**
   - Design began and in progress.
   - Obtained Yankee Gas utility plans.
   - Creating base drawings and verifying location of existing utilities.
4. **South Street Water Booster Station Construction:**
   - Yankee Gas ready to begin (new gas line to be located 28-30 feet away from the existing Fire House to accommodate future expansion).
   - Proposed pump station building was marked out. The proposed location of the generator is 27 feet away from the rear property line (within the 27 foot setback) and the edge of the building is 37 feet away from the rear property line. Moving the generator and the building would require variance from P&Z.
5. **Demolition of Hickok Tank and "gray" pump station building:**
   - Obtaining price quotes for the work related to hazardous survey of the "gray" pump station building.
6. **Underwater Solutions – Chestnut Ridge, Eureka Lake and Hoyt's Hill Underwater Inspection Reports.**
   - Reports were provided PUC on Friday.
   - Executive summary attached.

7. **East Swamp Aquifer Level A Mapping.**
    - Approved by the DEEP.
    - Bethel P&Z needs to incorporate the aquifer protection boundary into the Town's zoning map and provide an updated map to the State by December 2014.
    - HRP is conducting hydraulic modeling to determine available pumping rates from the wells. Waiting for results.

WRIGHT-PIERCE
Engineering a Better Environment

MEMORANDUM

TO:	Public Utilities Commission	DATE:	September 18, 2014
FROM:	Mariusz D. Jedrychowski, PE Udayarka Karra	PROJECT NO.:	T10385
SUBJECT:	Inspection and Cleaning Summary of Clearwells and Storage Tank for Town of Bethel		

The following is an update on the Inspection and Cleaning Summary of Clearwells and Storage Tank for Town of Bethel by Underwater Solutions Inc.

1. Eureka 40,000-Gallon 2-Celled (#1 & #2) Underground Concrete Clearwells

Executive Summary

On Aug 08, 2014, Underwater Solutions Inc. inspected the Eureka 40,000 Gallon 2- Celled (#1 & #2) underground concrete clearwells and determined them to currently remain mostly sound and free of obvious leakage.

Key Points:

a) The interior concrete floor, wall and overhead surfaces within each cell currently remain to be sound and free of cracks, spalls or other obvious fatigue of the concrete.

b) All piping and pump columns within each cell remain securely installed and free of obstructions. The protective coating applied to each pump column has failed resulting in exposure of underlying steel surfaces. At present, no obvious fatigue (pitting) of these steel pump columns was evident.

c) The protective coating applied to the floor and overhead surfaces of both cells (#1 and #2) continues to have good adhesion value, and is providing good protection for the concrete.

d) The protective coating on Cell #2 walls remains mostly in good condition. Although, the coating has cracked and lifted in isolated areas at various elevations of the wall.

e) The three steel hanger brackets that suspend the overflow pipe from the overhead of Cell#1 are deteriorating, as the protective coating applied to these surfaces has failed. As such, the overflow pipe is at present still in place.

f) It was recommended that these brackets be replaced to provide a good proper support for the overflow piping.

g) It was recommended for the next scheduled de-watering or prior to its next inspection (5 years) that each pump column and the wall surface of Cell#2 are recoated coated with an A.N.S.I./N.S.F.61 approved coating for use in structures containing potable water to prevent fatigue and protect the surfaces of pipe columns and walls.

h) All precipitate was vacuumed from the floor of each clearwell post inspection.

2. Chestnut Ridge 2-Celled (North & South) Underground Concrete Clearwells

Executive Summary

On Aug 19, 2014, Underwater Solutions Inc. inspected the Chestnut Ridge 2-Celled (North & South) underground concrete clearwells and determined them to currently remain mostly sound and free of obvious leakage.

Key Points:

i) The overflow pipe was found without a screen installed, and could result in access gain to pipe interior. It was recommended that a screen be installed to prevent access.

j) All the interior concrete floor, wall, baffle wall, overhead and support columns within the south cell and most of the north cell currently remain sound and free of cracks, spalls or other obvious fatigue of the concrete.

k) One area of concrete spall was found within the westernmost wall of north cell, during a previous inspection completed by Underwater Solutions Inc. on October 25, 2011. It remains consistent and without change since the previous inspection. An additional surface crack was observed within the northernmost wall of the north cell, and is currently free of obvious spall or leakage.

l) The two tight surface cracks observed within the baffle walls were free of voids or spalling of the concrete, while all remaining baffle wall surfaces appeared sound at present.

m) It was recommended that the area of spall within the westernmost wall of the north cell, the crack within the northernmost wall of the north cell and the two cracks found within the baffle wall be monitored through future scheduled inspections, to avoid additional concrete fatigue. This could result in exposure of the underlying reinforcement steel and potentially failure (leakage).

n) All piping within each cell remained securely installed and free of obstructions. All piping within each cell was found uncoated, and although corrosion exists throughout all surfaces of these metal pipes, no obvious fatigue or deterioration of these pipes surfaces was evident at the time this inspection was completed.

o) It was recommended that should these clearwells be de-watered that all piping be coated with an A.N.S.I./N.S.F.61 approved coating for use in structures containing potable water to prevent fatigue or deterioration of the pipes surfaces.

p) All precipitate was vacuumed from the floor of each clearwell post inspection.

3. Hoyts Hill 150,000-Gallon Underground Concrete Water Storage Tank

Executive Summary

On Aug 19, 2014, Underwater Solutions Inc. inspected the Hoyts Hill 150,000-gallon concrete potable water storage tank them and determined it to be currently sound and free of obvious leakage.

Key Points:

a) Screens installed at the end of the vent pipe and at the end of the overflow pipe remain secure, and prevented access to the interior of the tank.

b) All interior concrete floor, wall, support column and overhead surfaces currently appear sound and free of cracks, spalls or other obvious fatigue of the concrete.

c) The piping within this tank remains securely installed and free of obstructions at this time.

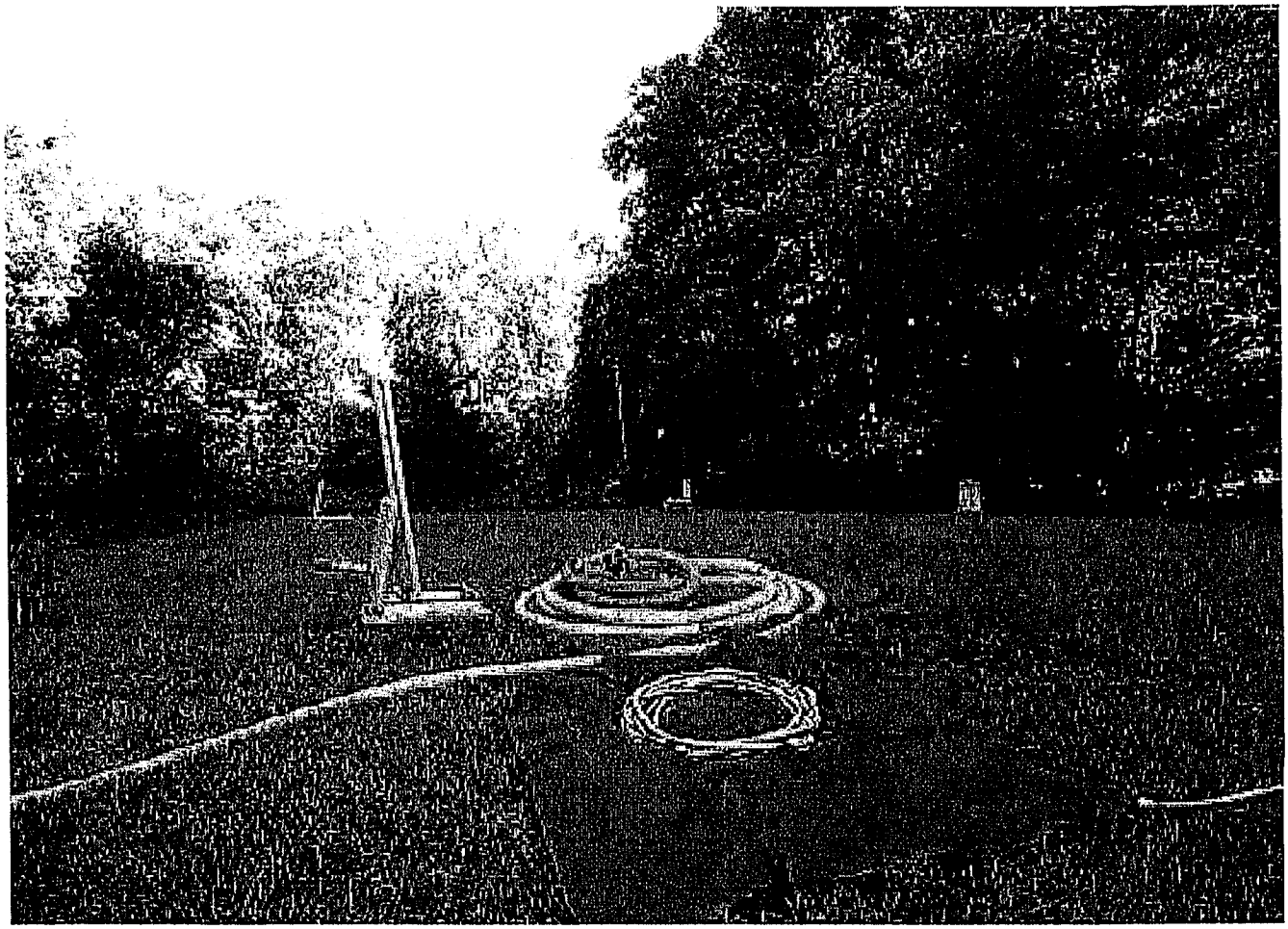
d) All precipitate was vacuumed from the tank floor post inspection.

UNDERWATER SOLUTIONS INC.

INSPECTION AND CLEANING OF THE CHESTNUT RIDGE 2-CELLED (NORTH & SOUTH) UNDERGROUND CONCRETE CLEARWELLS

TOWN OF BETHEL PUBLIC UTILITIES DEPARTMENT BETHEL, CONNECTICUT

AUGUST 19, 2014



INSPECTION AND CLEANING OF THE CHESTNUT RIDGE 2-CELLED (NORTH & SOUTH) UNDERGROUND CONCRETE CLEARWELLS

TOWN OF BETHEL PUBLIC UTILITIES DEPARTMENT BETHEL, CONNECTICUT

AUGUST 19, 2014

SCOPE:

On August 19, 2014 Underwater Solutions Inc. Inspected the Chestnut Ridge 2-Celled (North and South) underground concrete clearwells to provide information regarding the overall condition and integrity of each clearwell cell and removed the sediment accumulation from the floor of each clearwell cell.

EXTERIOR INSPECTION (NORTH & SOUTH CELLS):

This entire structure is buried below-grade, therefore only the overflow, vents and hatches were visible for inspection.

Overflow

The overflow consists of one 8" inside diameter pipe extending out of the ground and located 50' west of the clearwells. This pipe extends outward from the ground 3" and terminates at ground level.

This overflow pipe was free of obvious obstructions, yet was found without a securing screen at this time.

Vents

Two, 2" inside diameter vents (one per cell) extend up 12" from the north-easternmost and south-westernmost hatch covers through a series of elbows, turning each vent downward and terminating 9" above each hatch cover.

Each vent has a screen installed at its end, preventing access to the interiors of these clearwell cells.

Hatches

Four, 24" by 24" hatches (Two per cell) provide access to the interior of each of the clearwells.

These hatches remain in good working condition and are secured with locks, preventing unwanted access to the interior of each clearwell.

INTERIOR INSPECTION (SOUTH CELL):

The entire interior of the south cell was inspected to include sediment accumulations, floor, piping, walls, baffle wall, overhead, support columns, overflow, and aesthetic water quality.

Sediment Accumulations

A uniform layer of accumulated precipitate was found on all floor surfaces, averaging 1/16" in depth.

After completing this inspection, all precipitate was removed (vacuumed) from the floor.

Floor

After removing the accumulated precipitate, the concrete floor was inspected and found appearing sound and free of cracks, spalls or settlement at this time.

Mild staining exists throughout all surfaces due to the accumulation of precipitate.

Piping

Four pipes were inspected within the southernmost cell of this clearwell.

The first pipe inspected penetrates the westernmost wall at floor level, having an 8" inside diameter. This pipe extends 4" through a (T) with the side and top ends of the "T" being open, free of obvious obstructions and with flow leaving this clearwell at the time of this inspection.

The second pipe inspected penetrates the westernmost wall 3" above the floor, having an 8" inside diameter and extends into the clearwell 8" and terminates. This pipe was free of obvious obstructions and with flow entering the clearwell at the time of this inspection.

The third pipe inspected penetrates the westernmost wall 5" below the overhead, having a 4" inside diameter and extends into the clearwell 26" and terminates. This pipe was free of obvious obstructions and without flow at the time of this inspection.

The fourth pipe inspected penetrates the southernmost wall, located 4" below the overhead. This pipe has a 4" inside diameter and extends into the clearwell 32" and terminates. This pipe is located directly above the overflow and was free of obvious obstructions and without flow at the time of this inspection.

All piping within this clearwell cell was found un-coated and with moderate corrosion on all surfaces, yet no obvious fatigue or deterioration of these metal pipes was evident at the time this inspection was completed.

Walls

The interior walls were inspected beginning at the floor and by moving up and down all walls throughout this cell.

These formed in-place concrete walls were found remaining sound and free of cracks, spalls or other obvious fatigue of the concrete at this time.

Mild to moderate staining exists throughout all elevations of the walls within the southernmost cell, extending from approximately 12" below overflow down to the floor.

Baffle Wall

One formed in place concrete baffle wall was inspected within this clearwell.

This 6" wide baffle wall extends from the southernmost wall to within 7' of the dividing wall between each clearwell (northernmost wall). This wall extends upward from floor and terminates at the overhead.

All surfaces of this baffle wall were found remaining sound and free of obvious concrete fatigue, while similar staining as was found on all interior walls exists throughout these surfaces.

Overhead

The entire overhead within the south cell of this clearwell was inspected from the water surface.

This formed in-place concrete overhead was found remaining sound and free of obvious fatigue of the concrete at this time.

Support Columns

Four, 12" by 12" concrete support columns extend up from the floor to a 12" wide by 12" tall concrete overhead support beam.

All columns and the support beams were found remaining sound and free of obvious concrete fatigue at this time.

Overflow

The overflow consists of a 8" inside diameter pipe cast within a 28" by 28" formed concrete box that extends from approximately 12" below the junction of where the roof and walls meet, down to where it terminates in the floor.

This overflow box associated pipe within this box, were free of obvious obstructions at the time this inspection was completed. The screen installed over the top of this box remains in place at this time.

Aesthetic Water Quality

The aesthetic water quality was found to be good throughout this cell of the clearwell, allowing unlimited visibility for this inspection.

INTERIOR INSPECTION (NORTH CELL):

The entire interior of the north cell was inspected to include sediment accumulations, floor, piping, walls, baffle wall, overhead, support columns, overflow, and aesthetic water quality.

Sediment Accumulations

A uniform layer of accumulated precipitate was found on all floor surfaces, averaging 1/16" in depth.

After completing the inspection, all precipitate was removed (vacuumed) from the floor.

Floor

After removing the accumulated precipitate, the concrete floor was inspected and found appearing sound and free of cracks, spalls or settlement at this time.

Mild staining exists throughout all surfaces due to the accumulation of precipitate.

Piping

Three pipes were inspected within the northernmost cell of this clearwell.

The first pipe inspected penetrates the westernmost wall 5" above the floor having an 8" inside diameter and extends 17" and terminates. This pipe was free of obvious obstructions and without flow at the time of this inspection.

The second pipe inspected penetrates the wall of a 13" by 13" by 10" deep sump in the south-westernmost corner of this cell, having an 8" inside diameter and is flush within the sump wall. This pipe was free of obvious obstructions and without flow at the time of this inspection.

The third pipe inspected penetrates the easternmost wall 30" above the floor, having an 8" inside diameter and is flush with the wall. This pipe was free of obvious obstructions and with flow entering the clearwell at the time of this inspection.

All piping within this clearwell cell was found uncoated and with moderate corrosion on all surfaces, yet no obvious fatigue or deterioration of these metal pipes was evident at the time this inspection was completed.

Walls

The interior walls were inspected beginning at the floor and by moving up and down all surfaces throughout this cell.

These formed in-place concrete walls were found mostly sound, while the 12" long b y 6" wide and 2" deep area of spall, located within the westernmost wall 3" above the floor remains consistent and without change and free of obvious leakage since the previous inspection completed by Underwater Solutions Inc. on October 25, 2011.

All surrounding and underlying concrete within this area of spall remains sound at this time.

A crack was observed within the center of the northernmost wall, extending from approximately 12" below the junction of where the roof and walls meet down and terminating approximately 6" above the floor. This crack was free of spalling or obvious leakage at the time of this inspection.

Mild to moderate staining exists throughout all elevations of the clearwell walls within the northernmost cell, extending from approximately 12" below overflow down to the floor.

Baffle Wall

One formed in-place concrete baffle wall was inspected within this clearwell.

This 6" wide baffle wall extends from the northernmost wall to within 7' of the dividing wall between each clearwell (southernmost wall). This baffle wall extends upward from floor and terminates at the overhead.

This baffle wall remains mostly sound, yet two surface cracks were observed within the baffle wall where it terminates at the overhead. Each crack is approximately 12" in length and is free of voids or spall at this time, while all remaining baffle wall surfaces remain sound and free of obvious fatigue of the concrete.

Similar staining as was found on all interior walls exists throughout these baffle wall surfaces.

Overhead

The entire overhead within the northernmost cell was inspected from the water surface.

This formed in-place concrete overhead was found remaining sound and free of obvious fatigue or failures of the concrete at this time.

Support Columns

Four, 12" by 12" concrete support columns extend up from the floor to 12" wide by 12" tall concrete overhead support beams.

Each column and the support beam was found remaining sound and free of obvious concrete fatigue at this time.

Overflow

The overflow consists of a 8" inside diameter pipe cast within a 28" by 28" formed concrete box that extends from approximately 12" below the junction of where the roof and walls meet, down to where it terminates at the floor.

This overflow box and associated pipe within this box were free of obvious obstructions at the time this inspection was completed. The screen installed over the top of this box remains in place at this time.

Aesthetic Water Quality

The aesthetic water quality was found to be good throughout this cell, allowing unlimited visibility for this inspection.

CONCLUSION:

It is the opinion of Underwater Solutions Inc. that this two-celled underground concrete clearwell remains mostly sound and free of obvious leakage at this time.

The screens installed on each of the two vents prevent access to the interior of each cell of the clearwell.

The overflow pipe was free of obvious obstructions, yet was found without a screen installed, therefore access to the interior of this pipe can be gained.

It is our recommendation that a screen be installed over the end of this pipe to prevent access to its interior.

All interior concrete floor, wall, baffle wall, overhead and support columns within the southernmost cell remain sound and free of cracks, spalls or other obvious fatigue of the concrete at the time this inspection was completed.

All interior concrete floor, overhead and support columns within the northernmost cell remain sound and free of obvious concrete fatigue. The interior walls of this cell are mostly sound, while one area of concrete spall found within the westernmost wall during a previous inspection and remains consistent and without change since the previous inspection completed by Underwater Solutions Inc. on October 25, 2011.

The surface crack observed within the northernmost wall of the northernmost cell was free of obvious spall or leakage at the time this inspection was completed.

The two tight surface cracks observed within the baffle wall are free of voids or spalling of the concrete, while all remaining baffle wall surface appear sound at this time.

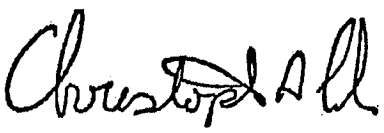
It is our recommendation that the area of spall within the westernmost wall of the north cell, the crack within the northernmost wall of the north cell and the two cracks found within the baffle wall be monitored through future scheduled inspections, to ensure further concrete fatigue does not occur, which could result in exposure of the underlying re-inforcement steel and potentially failure (leakage).

After completing this inspection, all precipitate was vacuumed from the floor of each clearwell.

All piping within each cell remains securely installed and free of obstructions. All piping within each cell was found uncoated, and although corrosion exists throughout all surfaces of these metal pipes, no obvious fatigue or deterioration of these pipes surfaces was evident at the time this inspection was completed.

We recommend that should these clearwells be de-watered that all piping be coated with an A.N.S.I./N.S.F.61 approved coating for use in structures containing potable water to prevent fatigue or deterioration of these pipes surfaces.

As always, we recommend re-inspection and cleaning of all water storage facilities in accordance with state and federal mandates, A.W.W.A. standards, and be completed by an experienced and authorized inspection corporation.



UNDERWATER SOLUTIONS INC.

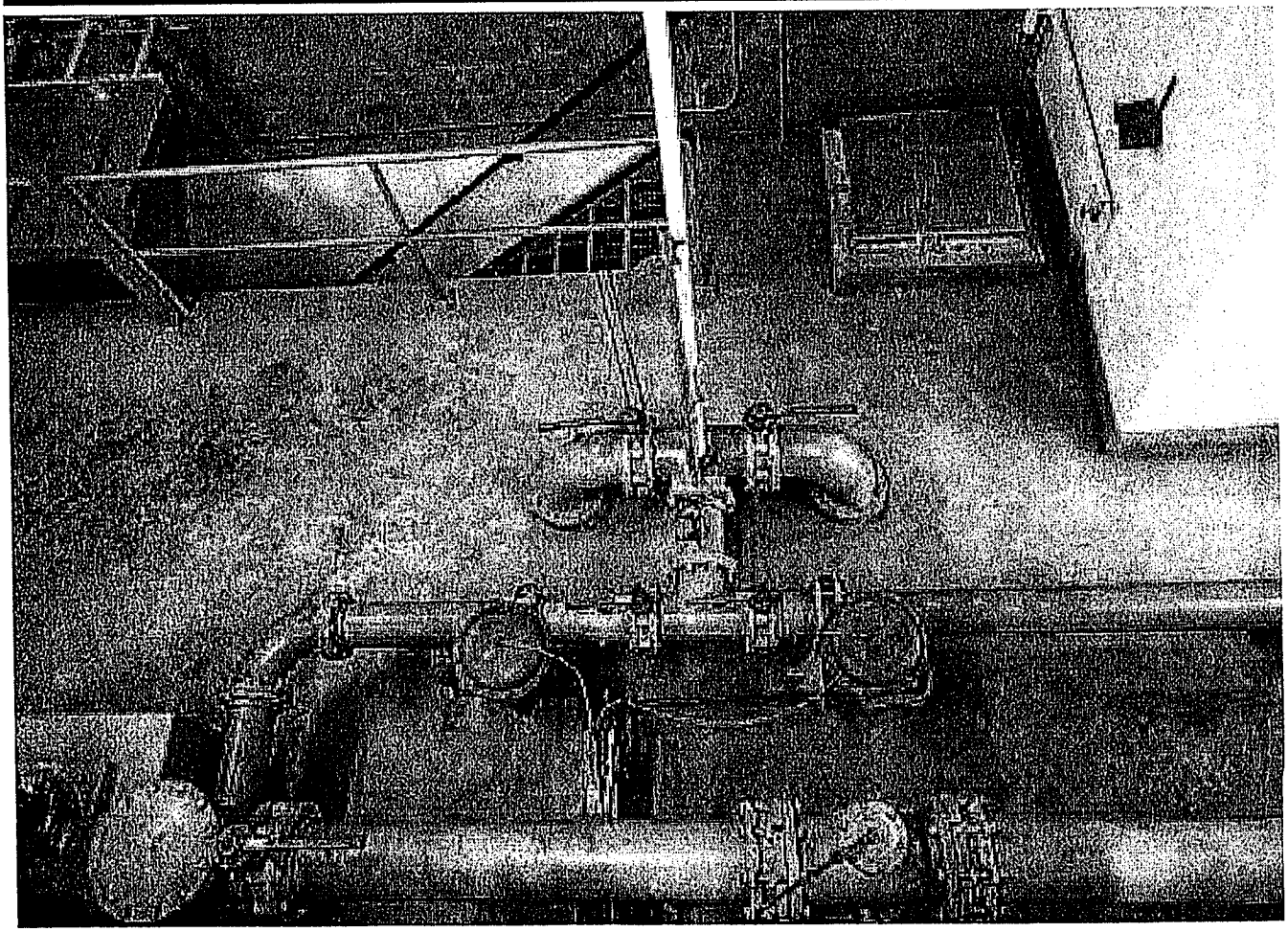
This report, the conclusions, recommendations and comments prepared by Underwater Solutions Inc. are based upon spot examination from readily accessible parts of the tank. Should latent defects or conditions which vary significantly from those described in the report be discovered at a later date, these should be brought to the attention of a qualified individual at that time. These comments and recommendations should be viewed as information to be used by the Owner in determining the proper course of action and not to replace a complete set of specifications. All repairs should be done in accordance with A.W.W.A. Standards.

UNDERWATER SOLUTIONS INC.

INSPECTION AND CLEANING OF THE EUREKA 40,000-GALLON 2-CELLED (#1 & #2) UNDERGROUND CONCRETE CLEARWELLS

TOWN OF BETHAL PUBLIC UTILITIES DEPARTMENT
BETHAL, CONNECTICUT

AUGUST 8, 2014



INSPECTION AND CLEANING OF THE EUREKA 40,000-GALLON 2-CELLED (#1 & #2) UNDERGROUND CONCRETE CLEARWELLS

TOWN OF BETHEL PUBLIC UTILITIES DEPARTMENT BETHEL, CONNECTICUT

AUGUST 8, 2014

SCOPE:

On August 8, 2014 Underwater Solutions Inc. Inspected the Eureka 40,000 gallon 2-Celled (#1 and #2) underground concrete clearwells to provide information regarding the overall condition and integrity and removed the sediment accumulation found on the floor of each clearwell.

EXTERIOR INSPECTION (CELLS #1 AND #2):

Only the overflow and hatches are visible and were inspected as the entire tank is buried underground. This entire structure is buried below-grade, therefore only the overflow and hatches were visible for inspection.

Overflow

The overflow consists of a 12" inside diameter pipe that exits a concrete wall, located approximately 40' from the clearwell.

This pipe extends out approximately 6" out from a 54" wide by 41" tall by 12" concrete wall and terminates 15" above a concrete splash pad. A flap-valve is installed at the end of this pipe, preventing access to the interior of the clearwells.

Hatches

Two, 24" by 24" hatches (one per cell) provide good access to the interior of each clearwell.

These hatches remain in good working condition, and are located within a secure building, preventing unwanted access.

INTERIOR INSPECTION (Cell #1):

The entire interior of Cell # 1 was inspected to include sediment accumulations, floor, piping, vertical pump column, walls, overhead, overflow, and aesthetic water quality.

Sediment Accumulations

A uniform layer of accumulated precipitate was found on all floor surfaces, having depths no greater than 1/16" deep.

After completing this inspection, all precipitate was removed (vacuumed) from the floor.

Floor

After removing the accumulated precipitate, the concrete floor was inspected and found appearing sound and free of cracks, spalls or settlement at this time.

The protective coating applied to these concrete surfaces remains having good adhesion value, providing good protection for the concrete. Mild staining exists throughout the floor due to the accumulation of precipitate.

Piping

Three pipes were inspected within this cell of the clearwell.

The first pipe inspected penetrates the northernmost wall 8" above the floor, having an 8" inside diameter. This pipe extends across the clearwell to within 6" of the southernmost wall where a 90° elbow directs this pipe upwards 3" and terminates. Several concrete blocks varying in size support this pipe above the floor.

The second pipe inspected penetrates down from the overhead 16" in from the easternmost wall, having an 8" inside diameter. This pipe extends down through a 90° elbow 7" above the floor, turning its direction horizontally and continues to a second 90° elbow 4' from the southernmost wall and terminates. This pipe is supported above the floor with two steel pedestals.

The third pipe inspected penetrates through the easternmost wall of the clearwell 36" below the junction of where the roof and walls meet, having a 12" inside diameter and extends into the clearwell 12" and terminates.

These pipes were free of obvious obstructions and without flow at the time of this inspection.

Vertical Pump Column

One 8" outside diameter vertical pump column extends down from the overhead in the center of the clearwell. This pump column extends down and terminates 20" above the floor of a 48" by 48" by 24" deep sump within the floor.

The protective coating applied to these steel surfaces was found having poor adhesion value, causing blistering of the coating and resulting in exposure of the underlying steel throughout approximately 15% of the length of this pump column.

Walls

The interior walls were inspected beginning at the floor and by moving up and down all walls throughout this clearwell cell.

These concrete surfaces were found appearing sound and free of cracks, spalls or other obvious fatigue of the concrete, while rust staining exists as a result of construction hardware left flush in the walls.

The protective coating applied to these walls remains having mostly good adhesion value, yet isolated areas of cracked and peeling coating were observed throughout less than 5% of all elevations of these walls.

Mild staining exists throughout all elevations of the walls within this cell, extending from 3' below the junction of where the roof and walls meet down to the floor.

Overhead

The entire overhead was inspected from the water surface.

These formed in place concrete surfaces were found appearing sound and free of obvious fatigue of the concrete, while rust staining exists throughout the overhead as a result of construction hardware left flush in the walls.

The protective coating applied to these surfaces remains having good adhesion value, providing good protection for the concrete.

Overflow

The overflow consists of a 12" inside diameter pipe that penetrates the westernmost wall 36" below the junction of where the roof and walls meet. This pipe extends into the clearwell 15' to a (T) then extends upward 6" and terminates.

The 12" inside diameter pipe continues through the (T) approximately 3' where it terminates with a cap installed at its end.

This overflow pipe is secured in place with three bolted brackets that are suspended from the overhead.

The protective coating applied to each of the three steel brackets has failed, causing exposure of the underlying steel and resulting in deterioration of these brackets.

This overflow pipe was free of obvious obstructions at the time this inspection was completed.

Aesthetic Water Quality

The aesthetic water quality was found to be good throughout this entire cell, allowing unlimited visibility for this inspection.

INTERIOR INSPECTION (Cell #2):

The entire interior of Cell #2 was inspected to include sediment accumulations, floor, piping, vertical pump column, walls, overhead, and aesthetic water quality.

Sediment Accumulations

A uniform layer of accumulated precipitate was found on all floor surfaces, having depths no greater than 1/16" deep.

After completing this inspection, all precipitate was removed (vacuumed) from the floor.

Floor

After removing the accumulated precipitate, the concrete floor was inspected and found appearing sound and free of cracks, spalls or settlement at this time.

The protective coating applied to these concrete surfaces remains having good adhesion value, preventing good protection for the concrete. Mild staining exists throughout the floor due to the accumulation of precipitate.

Piping

Four pipes were inspected within this cell of the clearwell.

The first pipe inspected penetrates the westernmost wall 36" below the junction of where the roof and walls meet, having a 12" inside diameter and extends into the clearwell 27" and terminates.

The second pipe inspected penetrates the northernmost wall 6" above the floor having an 8" inside diameter and extends into the clearwell 6" through a 90° elbow, directing the pipe upward 5' and terminates.

The third pipe inspected is a 1" inside diameter PVC pipe that extends down from the overhead through a 3" inside diameter penetration in the south-easternmost corner of the clearwell and continues down and terminates at floor level.

The fourth pipe inspected penetrates the overhead 20" in from the westernmost wall with an 8" inside diameter. This pipe extends down to within 6" of the floor through a 90° elbow, turning it's direction across the floor and extending 20' towards the southernmost wall to a series of elbows. After turning in and an upward direction, this pipe extends horizontally 10' towards the easternmost wall and terminates 28" above the floor and is supported with three steel pedestals.

These pipes were free of obvious obstructions and without flow at the time of this inspection.

Vertical Pump Column

One 8" outside diameter vertical pump column extends down from the overhead in the center of the clearwell. This pump column extends down and terminates 20" above the floor of a 48" by 48" by 24" deep sump within the floor.

The protective coating applied to these steel surfaces was found having poor adhesion value causing blistering and peeling of the coating, resulting in exposure of the underlying steel throughout approximately 25% of the length of this pump column.

Walls

The interior walls were inspected beginning at the floor and by moving up and down all walls throughout this clearwell cell.

These concrete surfaces were found appearing sound and free of cracks, spalls or other obvious fatigue of the concrete, while rust staining exists as a result of construction hardware left flush in the walls exists.

The protective coating applied to these walls remains having mostly good adhesion value, yet isolated areas of cracking and lifting coating were observed throughout less than 5% of all elevations of these walls.

Mild staining exists throughout all elevations of the walls within this cell, extending from 3' below the junction of where the roof and walls meet down to the floor.

Overhead

The entire overhead was inspected from the water surface.

These formed in place concrete surfaces were found appearing sound and free of obvious fatigue of the concrete at this time, while rust staining exists throughout the overhead as a result of construction hardware left flush in the walls.

The protective coating applied to these surfaces remains having good adhesion value, providing good protection for the concrete.

Aesthetic Water Quality

The aesthetic water quality was found to be good throughout this entire cell, allowing unlimited visibility for this inspection.

CONCLUSION:

It is the opinion of Underwater Solutions Inc. that this two-celled underground concrete clearwell remains mostly sound and free of obvious leakage at this time.

The interior concrete floor, wall and overhead surfaces of each cell remain sound and free of cracks, spalls or other obvious concrete fatigue at this time. Mild rust staining exists as a result of construction hardware left flush in the wall and overhead surfaces.

All piping and pump columns within each cell remain securely installed and free of obvious obstructions. The protective coating applied to each pump column has failed, resulting in exposure of their underlying steel surfaces. No obvious fatigue (pitting) of these steel pump columns was evident, rather mild surface corrosion exists at this time.

The protective coating applied to the floor and overhead surfaces of each cell remains having good adhesion value at this time. The protective coating applied to the walls of Cell #1 has good adhesion providing good protection for the concrete. The protective coating applied to the walls of Cell #2 also has mostly good adhesion value, yet the coating is cracking and lifting throughout isolated areas throughout all elevations of these wall surfaces.

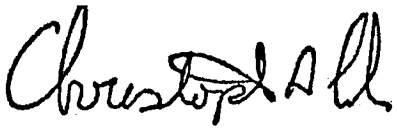
The three steel hanger brackets that suspend the overflow pipe from the overhead of Cell #1 are deteriorating as the protective coating applied to these surfaces has failed, yet the overflow pipe remains in place at this time.

It is our recommendation that these brackets be replaced to provide good proper support for this overflow piping.

We recommend that during the next scheduled de-watering of this structure or prior to its next scheduled inspection (5 years) that each pump column and the wall surfaces of Cell #2 be re-coated with an A.N.S.I./N.S.F.61 approved coating for use in structures containing potable water to halt corrosion, prevent fatigue and to protect the surfaces of these steel pump columns and concrete walls.

After completing this inspection, the floors of each cell were vacuumed removing the accumulated precipitate.

As always, we recommend re-inspection and cleaning of all water storage facilities in accordance with state and federal mandates, A.W.W.A. standards, and be completed by an experienced and authorized inspection corporation.



UNDERWATER SOLUTIONS INC.
Christopher A. Cole, Project Manager

This report, the conclusions, recommendations and comments prepared by Underwater Solutions Inc. are based upon spot examination from readily accessible parts of the tank. Should latent defects or conditions which vary significantly from those described in the report be discovered at a later date, these should be brought to the attention of a qualified individual at that time. These comments and recommendations should be viewed as information to be used by the Owner in determining the proper course of action and not to replace a complete set of specifications. All repairs should be done in accordance with A.W.W.A. Standards.