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Public Service Commission

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

THE APPLICATION OF THE LAKE VILLAGE WATER ASSOCIATION, INC., OF BOYLE AND MERCER COUNTIES, KENTUCKY FOR A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY TO CONSTRUCT AND FINANCE A PROJECT, FUNDED BY USDA, RURAL DEVELOPMENT PURSUANT TO THE PROVISIONS OF KRS 278.023 AND KRS 278.020	)	**Case No. 2016-00153**

APPLICATION

This Application of the Lake Village Water Association, Inc., (the "Applicant") of Boyle and Mercer Counties, Kentucky, respectfully shows:

1. That the Applicant is a non-profit water association of Boyle and Mercer Counties, Kentucky, created and existing under and by virtue of Chapter 273 of the Kentucky Revised Statutes. Applicant's Articles of Incorporation were filed with the Secretary of State of Kentucky on May 2, 1968, and remains in good standing in the Commonwealth of Kentucky.

2. That the contact information of the Applicant is:

   Lake Village Water Association, Inc.
   Mr. Mike D. Sanford, MPA
   Executive Director
   P.O. Box 303
   Burgin, Kentucky 40310
   Telephone: (859) 748-5642
   Facsimile: (859) 748-9114
   Email: mike@lakevillagewater.org

3. That the Applicant, pursuant to the provisions of KRS 278.020 and KRS 278.023, seeks (i) a Certificate of Public Convenience and Necessity, permitting the Applicant to construct a waterworks construction project, consisting of extensions, additions, and improvements (the "Project") to the existing waterworks system of the Applicant; and (ii) approval of the proposed plan of financing of said project.

4. That the proposed construction project consists of (i) the rehabilitation of the existing 600,000 gallon elevated water storage tank located on the Northpoint Training Center property located in Boyle County, Kentucky and (ii) the installation of approximately 1,590 LF of 12" water main and appurtenances.

5. That the Applicant, pursuant to 807 KAR 5:066 4(4) is required to maintain a minimum storage capacity equal to the average daily consumption of the system. The average daily consumption of the system is approximately 635,000 gallons per day. The current storage capacity is 548,000 gallons. The addition of the 600,000 gallon elevated storage tank will increase the storage capacity of the system to 1,148,000 gallons.

6. That the Applicant proposes to finance the construction of the Project using a loan from USDA, Rural Development in the amount of $656,000, to be amortized over a 40 year period, at an interest rate of 3.5%, along with other requirements set forth in the Letter of Conditions dated June 23, 2015.

7. That the Applicant does not contemplate having the Project constructed with any deviation from minimum construction standards of this Public Service Commission.

8. That the Applicant files herewith the following Exhibits in support of this Application:

    A. Rural Development Letter of Conditions **(Exhibit A)**
    B. Letter of Concurrence in Contract Award **(Exhibit B)**
    C. Copy of the Preliminary Engineering Report **(Exhibit C)**
    D. Copy of the Final Engineering Report **(Exhibit D)**
    E. Deed-600,000 gallon elevated tank, Division of Real Properties **(Exhibit E)**
    F. Certified statement from Association President **(Exhibit F)**
    G. Revised Tariff Sheet pertaining to rates and charges **(Exhibit G)**
    H. Copy of Public Notice for Rate Adjustment **(Exhibit H)**
    I. KDOW Approval Letter **(Exhibit I)**
    J. Project Plans & Specifications **(Exhibit J)**

9. That the foregoing constitutes the documents necessary to obtain the approval of the Commission in accordance with Sections 278.020 and 278.023 of the Kentucky Revised Statutes.

WHEREFORE, the Applicant, the Lake Village Water Association, Inc., asks that the Public Service Commission of the Commonwealth of Kentucky grant to the Applicant the following:

a. A Certificate of Public Convenience and Necessity permitting the Applicant to construct a waterworks project consisting of extensions, additions, and improvements to the existing water works system of the Applicant.

b. An Order approving the financing arrangements made by the Applicant, viz., a loan from USDA, Rural Development in the amount of $656,000, amortized over 40 years, at an interest rate of 3.5%.

c. An Order approving the proposed rates and charges, as set forth in the Rural Development Letter of Conditions (Exhibit A) and presented in the Revised Tariff Sheet pertaining to rates and charges (Exhibit G).

Lake Village Water Association, Inc.

By: _____
Mr. Danny Noel
President

By: _____
Ms. Lynne Pierce Dean
Attorney at Law
P.O. Box 901
Danville, Kentucky 40423-0901
(859) 319-3721
Email: clynnepierce@yahoo.com

June 23, 2015

Mr. Danny Noel, Chairman
Lake Village Water Association, Inc.
P. O. Box 303
Burgin, Kentucky 40310

Dear Mr. Noel:

This letter establishes conditions which must be understood and agreed to by you before further consideration may be given to the application. The loan will be administered on behalf of the Rural Utilities Service (RUS) by the State and Area office staff of USDA Rural Development. Any changes in project cost, source of funds, scope of services or any other significant changes in the project or applicant must be reported to and approved by USDA Rural Development, by written amendment to this letter. Any changes not approved by Rural Development shall be cause for discontinuing processing of the application. It should also be understood that Rural Development is under no obligation to provide additional funds to meet an overrun in construction costs.

This letter is not to be considered as loan approval or as a representation as to the availability of funds. The docket may be completed on the basis of a RUS loan not to exceed $656,000. No applicant contribution will be required.

If Rural Development makes the loan, the interest rate will be the lower of the rate in effect at the time of loan approval or the rate in effect at the time of loan closing, unless the applicant otherwise chooses. The loan will be considered approved on the date a signed copy of Form RD 1940-1, "Request for Obligation of Funds," is mailed to you.

Please complete and return the attached Form RD 1942-46, "Letter of Intent to Meet Conditions," if you desire that further consideration be given to your application.

The "Letter of Intent to Meet Conditions" must be executed within three weeks from the date of this letter or it becomes invalid unless a time extension is granted by Rural Development.

If the conditions set forth in this letter are not met within 240 days from the date hereof, Rural Development reserves the right to discontinue the processing of the application.

In signing Form RD 1942-46, "Letter of Intent to Meet Conditions," you are agreeing to complete the following as expeditiously as possible:

1. Number of Users and Their Contribution:

   There shall be 2,105 water users, all of which are existing users. The Area Director will review and authenticate the number of users prior to advertising for construction bids.

2. Repayment Period:

The loan will be scheduled for repayment over a period not to exceed 40 years from the date of the Promissory Note. Principal payment will not be deferred for a period in excess of one year from the date of the Promissory Note. The Association may be required to adopt a supplemental payment agreement providing for monthly payments of principal and interest so long as the Promissory Note is held or insured by RUS. Monthly payments will be approximate amortized installments.

3. Recommended Repayment Method:

Payments on this loan shall be made using the Preauthorized Debit (PAD) payment method. This procedure eliminates the need for paper checks and ensures timely receipt of RD loan payments. To initiate PAD payments, Form RD 3550-28, "Authorization Agreement for Preauthorized Payments," should be signed by the Association to authorize the electronic withdrawal of funds from your designated bank account on the exact installment payment due date. The Area Director will furnish the necessary forms and further guidance on the PAD procedure.

4. Reserve Accounts:

Reserves must be properly budgeted to maintain the financial viability of any operation. Reserves are important to fund unanticipated emergency maintenance, pay for repairs, and assist with debt service should the need arise.

The Association will be required to deposit $260,per month into a "Funded Debt Reserve Account" until the account reaches $31,200. The deposits are to be resumed any time the account falls below the $31,200.

The required monthly deposits to the Reserve Account and required Reserve Account levels are in addition to the requirements of the Association's prior loan resolutions.

The monthly deposits to the Reserve Account are required to commence with the first month of the first full fiscal year after the facility becomes operational.

The Association also needs to fund an account for short-lived assets by depositing a sum of $2,821 monthly to the account. The funds in the short-lived asset account may be used by the Association as needed to replace or add short-lived assets in the Association's water system.

5. Security Requirements:

The loan will be secured by a real estate mortgage, a financing statement, and a pledge of gross water revenue, in the Loan Resolution and Financing Statement.

6. Land Rights and Real Property:

The Association will be required to furnish satisfactory title, easements, etc., necessary to install, maintain and operate the facility to serve the intended users. The pipelines will be on private rights-of-way where feasible. Easements and options are to be secured prior to advertising for construction bids.

7. Organization:

The Association will be legally organized under applicable KRS, which will permit them to perform this service, borrow, or repay money.

The Association must maintain a current registration of their Dun and Bradstreet Data Universal Numbering System (DUNS) number in SAM.gov (System for Award Management) in order to receive federal loan and/or grant financial assistance. This registration must be updated/renewed at least annually.

8. Business Operations:

The Association will be required to operate the system under a well-established set of resolutions, rules and regulations. A budget must be established annually and adopted by the Association after review by Rural Development. At no later than loan pre-closing, the Association will be required to furnish a prior approved management plan to include, as a minimum, provisions for management, maintenance, meter reading, miscellaneous services, billing, collecting, delayed payment penalties, disconnect/reconnect fees, bookkeeping, making and delivering required reports and audits.

9. Accounts, Records and Audits:

The Association will be required to maintain adequate records and accounts and submit annual budgets and year-end reports (annual audits)*/statistical and financial reports, quarterly and annually, in accordance with subsection 1780.47 of RUS Instruction 1780.

10. Insurance and Bonding:

The following insurance and bonding will be required:

A. Adequate Liability and Property Damage Insurance including vehicular coverage, if applicable, must be obtained and maintained by the Association. The Association should obtain amounts of coverage as recommended by its attorney, consulting engineer and/or insurance provider.

B. Worker's Compensation - The Association will carry worker's compensation insurance for employees in accordance with applicable state laws.

C. Fidelity Bond - The Association will provide Fidelity Bond Coverage for all persons who have access to funds. Coverage may be provided either for all individual positions or persons, or through "blanket" coverage providing protection for all appropriate employees and/or officials. The amount of coverage required for all RUS loans is $164,000.

D. Real Property Insurance - The Association will obtain and maintain adequate fire and extended coverage on all structures including major items of equipment or machinery located in the structures. The amounts of coverage should be based on recommendations obtained by the Association from its attorney, consulting engineer and/or insurance provider. Subsurface lift stations do not have to be covered except for the value of electrical and pumping equipment therein.

E. Flood Insurance - The Association will obtain and maintain adequate coverage on any facilities located in special flood and mudslide prone areas.

11. Planning and Performing Development:

A. The engineer should not be authorized to commence work on final plans and specifications until a determination has been made that the project can be planned and constructed within the estimated cost shown in paragraph "20" of this letter. The engineer may then proceed to develop final plans and specifications to be completed no later than 210 days from this date, and prepare bid documents. The Area Director is prepared to furnish the necessary guide to follow so as to keep the project plans and documents within our guidelines and requirements. The project should not be advertised for construction bids until all easements and enforceable options have been obtained, and total funds are committed or available for the project.

B. The following documents will be submitted to Rural Development for review and must be concurred in by Rural Development prior to advertisement for construction bids:

1. Final plans, specifications and bid documents.
2. Applicant's letter on efforts to encourage small business and minority - owned business participation.
3. Legal Service Agreements.
4. Engineering Agreements.

Revision in these documents will be subject to Rural Development concurrence. Any agreements, contracts, etc. not reviewed and approved by Rural Development will not be eligible for payment from project funds or revenues from facilities financed by this Agency.

12. Civil Rights & Equal Opportunity:

You should be aware of and will be required to comply with other federal statute requirements including but not limited to:

A. Section 504 of the Rehabilitation Act of 1973:

Under Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), no handicapped individual in the United States shall, solely by reason of their handicap, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Rural Development financial assistance.

B. Civil Rights Act of 1964:

All borrowers are subject to, and facilities must be operated in accordance with, Title VI of the Civil Rights Act of 1964 (42 U.S.C. 2000d et seq.) and Subpart E of Part 1901 of this Title, particularly as it relates to conducting and reporting of compliance reviews. Instruments of conveyance for loans and/or grants subject to the Act must contain the covenant required by paragraph 1901.202(e) of this Title.

C. The Americans with Disabilities Act (ADA) of 1990:

This Act (42 U.S.C. 12101 et seq.) prohibits discrimination on the basis of disability in employment, state and local government services, public transportation, public accommodations, facilities, and telecommunications. Title II of the Act applies to facilities operated by state and local public entities that provide services, programs, and activities. Title III of the Act applies to facilities owned, leased, or operated by private entities that accommodate the public.

D. Age Discrimination Act of 1975:

This Act (42 U.S.C. 6101 et seq.) provides that no person in the United States shall, on the basis of age, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance.

Rural Development financial programs must be extended without regard to race, color, religion, sex, national origin, marital status, age, or physical or mental handicap.

13. Closing Instructions:

The Office of General Counsel, our Regional Attorney, will be required to write closing instructions in connection with this loan. Conditions listed therein must be met by the Association.

14. Compliance with Special Laws and Regulations:

The Association will be required to conform to any and all state and local laws and regulations affecting this type project.

15. System Operator:

The Association is reminded that the system operator must have an Operator's Certificate issued by the State.

16. Prior to Pre-Closing the Loan, the Association Will Be Required to Adopt:

A. Form RD 1942-8, "Resolution of Members or Stockholders."

B. Form RUS Bulletin 1780-28, "Loan Resolution Security Agreement."

C. Form RD 400-1, "Equal Opportunity Agreement."

D. Form RD 400-4, "Assurance Agreement."

E. Form AD-1047, "Certification Regarding Debarment, Suspension, and Other Responsibility Matters - Primary Covered Transaction."

F. Form RD 1910-11, "Applicant Certification Federal Collection Policies for Consumer or Commercial Debts."

G. RD Instruction 1940-Q, Exhibit A-1, "Certification for Contracts, Grants and Loans."

H. RUS Bulletin 1780-22, "Eligibility Certification."

17. Refinancing and Graduation Requirements:

The Association is reminded that if at any time it shall appear to the Government that the Association is able to refinance the amount of the RUS indebtedness then outstanding, in whole or in part, by obtaining a loan from commercial sources at reasonable rates and terms, upon the request of the Government, the Association will apply for and accept such loan in sufficient amount to repay the Government.

18. Commercial Interim Financing:

The Association will be required to use commercial interim financing for the project during construction for the RUS loan portion of the financing, if available at reasonable rates and terms.

Before the loan is closed, the Association will be required to provide Rural Development with statements from the contractor, engineer and attorneys that they have been paid to date in accordance with their contract or other agreements and, in the case of the contractor, that he has paid his suppliers and sub-contractors.

19. Disbursement of Project Funds:

A construction account for the purpose of disbursement of project funds (RUS) will be established by the Association prior to start of construction. The position of officials entrusted with the receipt and disbursement of RUS project funds will be covered by a "Fidelity Bond," with USDA Rural Development as Co-Obligee, in the amount of construction funds on hand at any one time during the construction phase.

For each "construction account" as established, if the amount of RUS loan and grant funds plus any applicant contributions or funds from other sources to be deposited into the account are expected to exceed $250,000 at any time, the financial institution will secure the amount in excess of $250,000 by pledging collateral with the Federal Reserve Bank in an amount not less than the excess in accordance with 7 CFR, 1902.7(a).
During construction, the Association shall disburse project funds in a manner consistent with subsection 1780.76 (e) of RUS Instruction 1780. Form RD 1924-18, "Partial Payment Estimate," or similar form approved by Rural Development, shall be used for the purpose of documenting periodic construction estimates, and shall be submitted to Rural Development for review and acceptance. Prior to disbursement of funds by the Association, the Board of Directors shall review and approve each payment estimate. All bills and vouchers must be approved by Rural Development prior to payment by the Association.

Form RD 440-11, "Estimate of Funds Needed for 30-Day Period Commencing _____," will be prepared by the Association and submitted to Rural Development in order that a periodic advance of federal cash may be requested.

Borrowers receiving federal loan and/or grant funds by EFT will have funds directly deposited to a specified account at a financial institution with funds being available to the recipient on the date of payment. The borrower should complete Form SF-3881, "Electronic Funds Transfer Payment Enrollment Form," for each account where funds will be electronically

received. The completed form(s) must be received by Rural Development at least thirty (30) days prior to the first advance of funds.

Monthly audits of the Association's construction account records shall be made by Rural Development.

20. Cost of Facility:

Breakdown of Costs:

Development		$ 536,000
Legal and Administrative		5,000
Engineering		54,000
Interest		7,000
Contingencies		54,000
	TOTAL	$ 656,000

Financing:

RUS Loan		$ 656,000
	TOTAL	$ 656,000

21. Use of Remaining Project Funds:

After providing for all authorized costs, any remaining project funds will be refunded.

22. Proposed Operating Budget:

You will be required to submit to Rural Development a copy of your proposed annual operating budget that supports the proposed loan repayment prior to this agency giving you written authorization to proceed with the bidding phase. The operating budget should be based on a typical year cash flow, subject to completion of this project in the first full year of operation. Form RD 442-7, Operating Budget, or similar form may be utilized for this purpose.

23. Rates and Charges:

Rates and charges for facilities and services rendered by the Association must be at least adequate to meet cost of maintaining, repairing and operating the water system and meeting required principal and interest payments and the required deposits to debt service and/or depreciation reserve.

Water rates will be at least:

First	2,000	gallons @ $	26.40 - Minimum Bill.
Next	18,000	gallons @ $	10.25 - per 1,000 gallons.
All Over	20,000	gallons @ $	8.27 - per 1,000 gallons.

Wholesale rates will be in accordance with proposed and existing rate agreements.

24. Water Purchase Contract:

The Association will submit a Water Purchase Contract for approval by Rural Development before advertising for construction bids. If the contract is not on Form RD 442-30, "Water Purchase Contract," the contract will require approval by our Regional Attorney. The contract must meet the requirements of subsection 1780.62 of RUS Instruction 1780.

25. Compliance with the Bioterrorism Act:

Prior to pre-closing, the Association will provide a certification they have completed a Vulnerability Assessment (VA) and prepared an emergency response plan (ERP) as required by the Safe Drinking Water Act (SDWA).

26. Floodplain Construction:

The Association will be required to pass and adopt a Resolution or amend its By-Laws whereby the Association will deny any water service to any future customer wishing to build on or develop property located within a designated floodplain. If a customer or developer requests service for construction in a designated floodplain, the customer or developer must provide evidence and a justification for approval by the Association and Rural Development officials that there are no other alternatives to construction or development within the designated floodplain. The community must be a participant in the National Flood Insurance Program (NFIP) and the customer or developer must obtain the required permits prior to the tap on restrictions being waived.

27. Mitigation Measures:

A. The project shall be in compliance with all requirements noted in the Governor's Office for Local Development letter dated February 19, 2015, from Ms. Lee Nalley.

B. The line design and construction shall be accomplished in a way that will leave flood plains and farmland without effect after construction is complete. The Army Corps of Engineers Nationwide Permit No. 12 applies to all floodplain and wetland utility line construction.

C. Any excavation by Contractor that uncovers a historical or archaeological artifact shall be immediately reported to Owner and a representative of Agency. Construction shall be temporarily halted pending the notification process and further directions issued by Agency after consultation with the State Historic Preservation Officer (SHPO).

D. The design and construction shall be in compliance with all local, state and federal environmental statutes, regulations and executive orders applicable to the project.

E. Best Management Practices shall be incorporated into the project design, construction, and maintenance.

28. Legal Opinion on Easement:

Prior to authorization for bidding, the local attorney must issue a legal opinion addressing the Lake Village Water Association's authority to perpetually access, maintain, and operate the water tank identified in Deed Book 449, Page 97, located in the Boyle County Clerk's office.

29. Final Approval Conditions:

Final approval of this assistance will depend on your willingness, with the assistance of all your co-workers, to meet the conditions of this letter in an orderly and systematic manner. Then too, final approval will depend on funds being available.

If you desire to proceed with your application, the Area Director will allot a reasonable portion of time to provide guidance in application processing.

Sincerely,

THOMAS G. FERN
State Director

Enclosures

cc: Area Director - Shelbyville, Kentucky
Bluegrass ADD - Lexington, Kentucky
Lynn Coleman - Danville, Kentucky
Strand & Associates - Lexington, Kentucky
PSC - ATTN: Jeff Derouen - Frankfort, Kentucky

USDA
United States Department of Agriculture

Rural Development

Kentucky State Office

771 Corporate Drive,
Suite 200
Lexington, KY
40503

Voice 859.224.7300
Fax 859.224.7425
TTY 859.224.7422

March 28, 2016

SUBJECT: Lake Village Water Association
Northpoint Training Center Water Improvements
Contract Award Concurrence

TO: Area Office
Shelbyville, Kentucky

Based on the bids received and the recommendation of the consulting engineer, Rural Development concurs in the award of subject contract to the low bidder, C and S Quality Services, in the amount of $452,540.

If you have any questions, please contact Julie Anderson, State Engineer, at (859) 224-7348.

THOMAS G. FERN
State Director
Rural Development

cc: Strand Associates
Lexington, Kentucky

STRAND ASSOCIATES®

Strand Associates, Inc.®
1525 Bull Lea Road, Suite 100
Lexington, KY 40511
(P) 859-225-8500
(F) 859-225-8501

March 14, 2016

Mr. Mike Sanford
Lake Village Water Association
801 Pleasant Hill Drive
P.O. Box 303
Burgin, KY 40310

Re: Northpoint Training Center Line Extension and Tank Renovation
Contract No. 1-2016
Lake Village Water Association

Dear Mike:

Bids for the above-referenced project were opened on March 10, 2016. One bid was received with the resulting bid tabulation enclosed. The low bid of $452,540 was less than ENGINEER's opinion of probable construction cost.

C&S Quality Services, LLC of Lawrenceburg, Kentucky, was the apparent low bidder at $452,540. The bid included a bid bond for 5 percent and Addendum Nos. 1 and 2 were acknowledged.

Strand Associates, Inc.® has not had previous experience with C&S Quality Services, LLC. Therefore, we are not able to comment in regard to their performance on other projects.

We suggest that you consider evaluating C&S Quality Services, LLC's financial status prior to award and other information submitted to you as required by Article 19.05 found in the Instructions to Bidders of the Contract Documents.

Sincerely,

STRAND ASSOCIATES, INC.®

Elizabeth Dienst

Elizabeth A. Dienst, P.E.

Enclosure

BID DATE: MARCH 10, 2016
BID TIME: 11:00 A.M.

STRAND ASSOCIATES, INC.
1525 Bull Lea Road, Suite 100
Lexington, KY 40511

NORTHPOINT TRAINING CENTER LINE EXTENSION AND TANK RENOVATION

CONTRACT 1-2016

2360.169

LAKE VILLAGE WATER ASSOCIATION

BIDDER AND ADDRESS	Bid Bond or Guarantee	Addenda Acknowledged	Computed Total Bid
C&S Quality Services, LLC 1042 Forest Hill Lawrenceburg, KY 40342	5%	1 and 2	$ 452,540.00

Reviewed by: E. Elizabeth Diemst

BID DATE: MARCH 10, 2016
BID TIME: 11:00 A.M.

STRAND ASSOCIATES, INC.
1525 Bull Lea Road, Suite 100
Lexington, KY 40511

NORTHPOINT TRAINING CENTER LINE EXTENSION AND TANK RENOVATION

CONTRACT 1-2016

LAKE VILLAGE WATER ASSOCIATION

2360.169

BID TABULATION BREAKDOWN

				C&S Quality Services, LLC 1042 Forest Hill Lawrenceburg, KY 40342	
No.	Description	Quantity	Unit	Unit Price	Total Price
1.	Connect Into Existing 8-IN Water Line With 8-IN Tapping Sleeve and Valve	1	LS	$ 4,480.00	$ 4,480.00
2.	Work Required at Existing Northpoint Water Service Meter and Vault (Detail 3-2)	1	LS	$ 2,020.00	$ 2,020.00
3.	Plug and Abandon 6-IN Water Main Using Restrained Plug	1	LS	$ 1,120.00	$ 1,120.00
4.	Furnish and Install 12-IN PVC SDR-21 Water Main INCL All Excavation, Bedding, Backfill, Appurtenances, and Restoration	1550	LF	$ 33.50	$ 51,925.00
5.	Furnish and Install Motor-Operated Valve	1	EA	$ 22,960.00	$ 22,960.00
6.	12-IN Gate Valve and Box	1	EA	$ 3,360.00	$ 3,360.00
7.	Connection to Existing Water Tank	1	LS	$ 3,475.00	$ 3,475.00
8.	12-FT X 6-FT Precast Concrete Vault at STA 25+30 INCL All Piping and Valves. Meter Provided By Owner.	1	EA	$ 16,250.00	$ 16,250.00
9.	8-FT X 6-FT Precast Concrete Vault at STA 25+45 INCL All Piping and Gate Valves. Double Check Valve Assembly by Owner.	1	EA	$ 10,650.00	$ 10,650.00
10.	Connect to Existing 6-IN Water Main W/6-IN Tapping Sleeve and Valve	1	LS	$ 7,300.00	$ 7,300.00
11.	Plug and Abandon Pipe Using 6-IN Hydra-Stop	1	LS	$ 7,300.00	$ 7,300.00
12.	Furnish and Install Telemetry System Per Specification Section 16940	1	LS	$ 33,600.00	$ 33,600.00
13.	Furnish and Install Electrical Service Pole	1	LS	$ 5,600.00	$ 5,600.00
14.	Tank Modifications	1	LS	$ 7,000.00	$ 7,000.00
15.	Tank Painting	1	LS	$ 274,000.00	$ 274,000.00
16.	Cash Allowances for Electrical Service Section 16420	1	LS	$ 1,500.00	$ 1,500.00
ENGINEER'S COMPUTED TOTAL ITEMS NO. 1 THROUGH 17					$ 452,540.00
CONTRACTOR'S COMPUTED TOTAL ITEMS NO. 1 THROUGH 17					$ 452,540.00

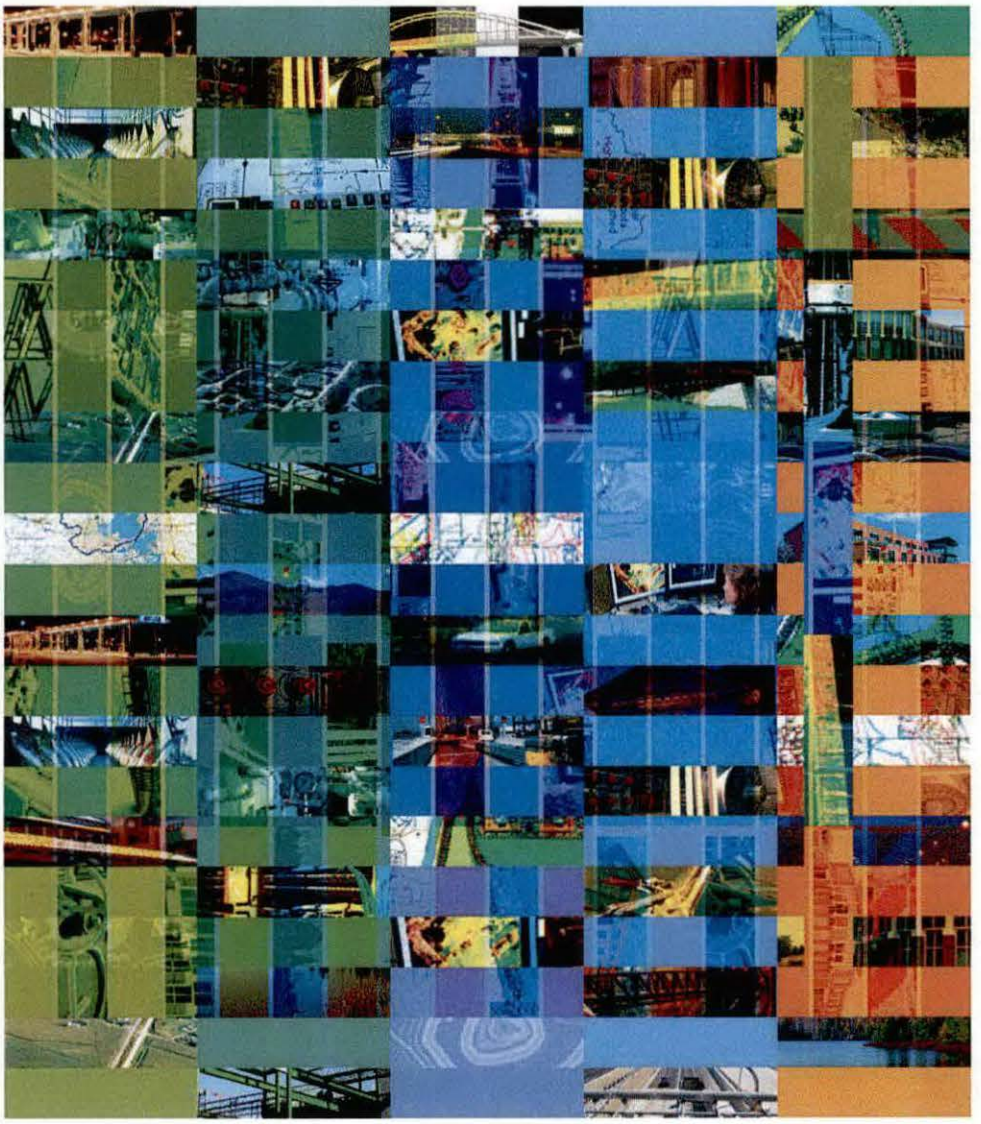
Reviewed by

Professional

Engineering

Services

Preliminary Engineering Report



Report

Lake Village Water Association, KY

February 2013

STRAND ASSOCIATES®

STRAND
ASSOCIATES®

Strand Associates, Inc.®
1525 Bull Lea Road, Suite 100
Lexington, KY 40511
(P) 859-225-8500
(F) 859-225-8501

February 28, 2013

Mr. Danny Noel
Lake Village Water Association
P.O.Box 303
801 Pleasant Hill Drive
Burgin, KY 40310

Re: Preliminary Engineering Report

Dear Danny,

Enclosed are five copies of the Preliminary Engineering Report identified in the Task Order 13-01 approved at January's board meeting.

Please call with any questions.

Sincerely,

STRAND ASSOCIATES, INC.®

Darrell A. Edwards, P.E.

Enclosure: Report

Report for

Lake Village Water Association, Kentucky

Preliminary Engineering Report

2/20/13

Prepared by:

STRAND ASSOCIATES, INC.®
1525 Bull Lea Road, Suite 100
Lexington, KY 40511
www.strand.com

February 2013

STRAND ASSOCIATES®

TABLE OF CONTENTS

SECTION 1
INTRODUCTION AND PURPOSE

1.01 PURPOSE OF REPORT

The Northpoint Training Center (NTC), located in northern Boyle County, is operated by the Kentucky Department of Corrections (DOC). Potable water is provided to this facility by an on-site water treatment plant (WTP) and water distribution system that is operated by DOC. Lake Village Water Association (LVWA) provides a secondary source of water service to the NTC. Water can be purchased from LVWA through a metered connection to supplement potable water produced on-site.

The DOC desires to cease operation of the on-site WTP and rely entirely on LVWA to provide water service to NTC. As part of this change, DOC suggested transferring ownership and operation responsibilities of the existing 600,000-gallon elevated storage tank to LVWA.

This report identifies the issues, costs, possible benefits, and approaches to accepting ownership and operation of the tank. This report presents design criteria, additional infrastructure requirements, impact to LVWA system operation, and financial data associated with the change in tank ownership.

1.02 GENERAL BACKGROUND DATA

Strand Associates, Inc.® (Strand) assisted LVWA in developing the infrastructure that currently serves customers in the Northpoint area. The Contract 13 project, completed in 2008, included water main replacement with an upsized 8-inch water main along Hughley Lane. This project improved service to the NTC water meter as acknowledged by the DOC.

The NTC is the only wholesale customer of LVWA and the only customer that has an alternate source of potable water. NTC is also the only customer that requires its water system to provide fire protection. The water tank has been beneficial in the past during events where fire flow demand has occurred as well as the occasional weekend when the WTP was closed and the tank reserve supplied the NTC.

NTC has also experienced the benefits of the redundant water supply with the service from LVWA. When NTC terminates the use of the WTP, LVWA will be the sole source of potable water. In preliminary meetings with DOC, the tank was identified as possible water infrastructure that would be beneficial to NTC in a time of possible disruption of service from a LVWA line break. The tank would also be a benefit for fire suppression.

The DOC is ceasing WTP operation because of increasingly stringent regulatory requirements and associated costs. The DOC has offered the 600,000-gallon elevated water tank to LVWA for use in its distribution system.

NTC's projected maximum daily demand is 300,000 gallons per day. Currently, NTC usage represents approximately 14 percent of the water sold by LVWA. When NTC terminates use of the WTP for potable water supply, it can potentially represent 40 percent of the water sold by LVWA bringing the total monthly LVWA demand of its entire system to approximately 23 million gallons (mil gal) per month.

1.03 EXISTING SYSTEM

LVWA was formed in the late 1960s to provide water service to rural Mercer and Boyle County residents and businesses. LVWA presently purchases all its water from the cities of Danville and Harrodsburg. Danville's raw water supply is drawn from Herrington Lake, and its treatment plant has a capacity of 10 million gallons per day (mgd). Harrodsburg's raw water supply is drawn from the Kentucky River, and its treatment plant has a capacity of 4 mgd. Both cities presently have ample unused water treatment capacity to accommodate the improvements to the LVWA system. The possible improvements identified in this report anticipate enhancement of the LVWA water distribution system in the Northpoint area with a potential for a significant change in water demand.

As of January 2013, LVWA serves approximately 2,108 active customers with 236 additional connections available for reactivation. The average monthly water usage in 2011, as stated in the 2011 Financial Audit report, was 14.2 mil gal, or 473,300 gallons per day. This includes water loss from pipe leaks, main breaks, and maintenance activities related to flushing lines. The difference between gallons purchased and that sold to customers amounts to approximately 6 percent of the volume purchased.

LVWA has the following tanks in its distribution system that provide a total storage of 548,000 gallons:

Ison Road	251,000 gallons
Montgomery	250,000 gallons
Stringtown	47,000 gallons

LVWA has faced many challenges since its inception to become one of the better rural water suppliers in the Commonwealth of Kentucky. The LVWA system is operated by a staff of experienced and motivated individuals, while the members of the Board of Directors are diligent in its resolve to provide the highest quality water service at a fair rate to all its customers. LVWA system is regulated by the Kentucky Department of Environmental Protection and Public Service Commission and is subject to meeting state and federal regulations. This project will improve service in the Northpoint area and will provide additional system storage capacity in LVWA's system.

1.04 DEFINITIONS

AWWA	American Water Works Association
DOC	Department of Corrections
KDOW	Kentucky Division of Water
mgd	millon gallons per day
mil gal	million gallons
NFPA	National Fire Protection Association
NTC	Northpoint Training Center
OSHA	Occupational Safety and Health Administration
WTP	water treatment plant

SECTION 2
EXISTING NORTHPOINT TANK CONDITION AND OPERATION

2.01 NORTHPOINT TANK CURRENT OPERATION

The Northpoint tank is currently connected downstream of the LVWA water service meter. No water from Northpoint, or its tank, is allowed to reenter the LVWA water system. A check valve is located just past the service meter, preventing backflow through the LVWA meter to mix with LVWA water.

The Northpoint tank filling and draining are managed to provide adequate "turnover" to meet Kentucky water quality standards. Turnover relates to the movement of water in the tank or oscillating the water elevation in the tank to provide sufficient mixing and maintaining water quality. Northpoint accomplished tank turnover by filling the tank then cycling to tank draining by suspending water production at the WTP. Field test and computer model analysis indicate that the supply sources from Danville service connections will take several days to fill the tank while meeting the daily demands of NTC and approximately 36 hours before starting the refill cycle. The conclusion from the field test and the computer analysis indicates the water supply to the tank will need to be enhanced by the aid of a booster pump for a shorter filling cycle to meet water quality standards.

2.02 NORTHPOINT TANK CONDITION

DOC provided LVWA a tank inspection report prepared by Preferred Tank & Tower from Henderson, Kentucky, dated July 26, 2012. The inspection report presented photographic details of maintenance and structural issues with reference to American Water Works Association (AWWA), Occupational Safety and Health Administration (OSHA), National Fire Protection Agency (NFPA), and the Department of Homeland Security codes and standards. The report also included recommended repairs and improvements. DOC personnel stated there are no violations issued or pending action with the Kentucky Division of Water (KDOW) relative to the tank. The inspection report is included in the Appendix.

SECTION 3
NORTHPOINT TANK AND SYSTEM IMPROVEMENTS

3.01 REQUIRED TANK IMPROVEMENTS

Tanks within the existing LVWA distribution system provide 548,000 gallons of storage, which is adequate for the current average demand of 473,000 gallons per day. When the NTC WTP is taken out of service, the LVWA daily demand can potentially increase to 773,000 gallons per day. The existing tank must remain in service or a new tank must be constructed in the NTC area to provide adequate storage as well as provide fire protection service at the NTC.

The Northpoint tank is operational and is able to continue in service indefinitely given adequate maintenance and rehabilitation. However, the tank has experienced deterioration of protective coating systems and other components that is typical as elevated steel storage tanks age. DOC provided LVWA a tank inspection report prepared by Preferred Tank & Tower from Henderson, Kentucky, dated July 26, 2012. The inspection report presented photographic details of maintenance and structural issues with reference to AWWA, OSHA, NFPA, and Department of Homeland Security codes and standards. The report also included recommended repairs and improvements. Some of these recommended improvements can be completed in the future. However, some repairs should be completed as soon as possible.

For continued tank operation, the improvements recommended by the inspection report should be completed. The cost to complete these recommended maintenance improvements is approximately $545,000 This compares with the cost of $950,000 to construct a new tank of similar size and height.

3.02 REQUIRED SYSTEM IMPROVEMENTS

The Northpoint tank is currently connected downstream of the LVWA water service meter. To incorporate the Northpoint water tank into LVWA's water supply system, the backflow system and the water service meter will need to be relocated beyond the water tank within the Northpoint property.

The LVWA water system will need to be modified to provide adequate flow to fill the tank in a timely manner and encourage water turnover. Field testing and computer model analysis indicate that without water system improvements, the supply sources from Danville meters will take several days to fill the tank while meeting the daily demands of Northpoint and the other customers in the same section of LVWA system. The tank drain time from full stage will take approximately 36 hours before starting the refill cycle.

Field testing and the computer analysis indicate the LVWA water supply to the tank will need to be enhanced by the addition of a booster pump for a shorter filling cycle to meet water quality standards. This booster pump will require construction of a new pump station and some piping improvements for the shift service to the elevated tank. The booster pump station is recommended to be located at the Danville meter on KY 33. Other improvements include the addition of an altitude value, modification to the interior riser, installation of a cathodic protecturn system, and the addition of telemetry to synchronize the operation of the booster station.

3.03 EASEMENT AND PROPERTY CONSIDERATIONS

Ownership of the water tank and existing water mains to the tank will need to be granted to LVWA. Easements for the tank site and water mains would also be required. DOC would retain ownership and operation of water mains downstream of the new service meter location.

3.04 REGULATORY REQUIREMENTS

KDOW will need to process change in ownership information once the tank has been dedicated to LVWA. KDOW will also be involved in permitting improvements that will be needed to effectively use the tank in LVWA system.

Currently, the state regulations do not require any form of routine inspection of the water tanks used in public water supply. KDOW requires water quality monitoring of LVWA's distribution system.

SECTION 4
PROJECT OPINION OF PROBABLE COSTS AND RECOMMENDATIONS

4.01 PROJECT OPINION OF PROBABLE COSTS AND RECOMMENDATIONS

To incorporate the tank efficiently into the LVWA water distribution system there will be some upfront construction cost for required infrastructure improvements and interior tank maintenance and improvements. These improvements include the installation of a new booster pump station, relocation of the NTC service meter and backflow prevention system, additional valves and mixing system, and interior tank maintenance. Other improvements and maintenance-type activities related directly to the tank exterior can be performed over a longer time frame. Table 4.01-1 represents the opinion of probable project cost, including both the upfront construction and tank improvements and maintenance costs.

Line Item No.	Item Description	Cost
1	Probable Construction Cost with 20% Contingency	$ 1,009,200.00
2	Engineer Design Fees	$ 85,000.00
3	Legal Fees/Easements	$ 5,000.00
4	Construction Administration/RPR	$ 74,000.00
	PROJECT TOTAL	$ 1,173,200.00

Table 4.01-1 Northpoint Tank Opinion Of Probable Project Costs

Approximately 65 percent of the probable construction cost can be scheduled at a later date once the tank is fully functional in the LVWA system. The lag in construction of the tank-related improvements may make it possible for LVWA to accept the tank and associated water quality responsibilities with only minimal or no debt service. The timing of the tank improvements likewise will dictate the type of loan assistance appropriate to accomplish the project in its entirety.

Considering the value of the infrastructure offered, the probable construction costs of the improvements, the benefits to fire protection to Northpoint, and the flexibility of phasing the construction of the improvements, it would be our recommendation to accept the tank from DOC. Details and conditions of the transfer of ownership will need to be negotiated with DOC to address its concerns for property security and LVWA needs of access to perform maintenance.

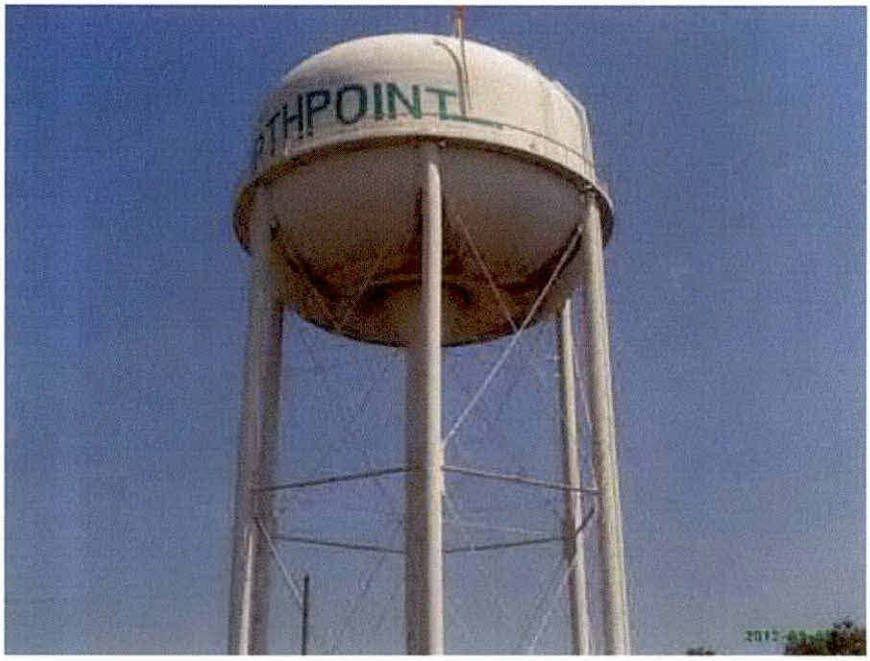
APPENDIX
TANK INSPECTION REPORT

PMD

PREFERRED TANK & TOWER

Maintenance Division, Inc.

NEW AND PREOWNED TANKS • TANKS RAISED, LOWERED AND MOVED
PAINT • REPAIR • DISMANTLE • INSPECT



600,000 GALLON ELEVATED WATER TANK

MR. TONY WADDELL

DEPARTMENT OF CORRECTIONS

BURGIN, KY

502-564-2094

TMO51240975

7/26/2012

2202 Hwy 41 N.-Unit E Box 123
Henderson, KY 42420

PH:270-826-4000
FX:270-826-7955
www.pmdtower.com

PHOTO SHOWS FOUNDATION

THE STRUCTURAL INTEGRITY OF THE ANCHOR BOLTS SHOULD BE MAINTAINED TO WITHSTAND 100 MPH WINDS BLOWING FROM ANY DIRECTION AS REQUIRED BY THE AWWA. WE RECOMMEND TO CLEAN AROUND THE ANCHOR BOLTS AND WELD AROUND THE CIRCUMFERENCE OF THE BOLT-TO-NUT AND NUT-TO-BASE CONNECTION TO REINFORCE.

WE RECOMMEND RE-GROUTING TANK LEGS IN ACCORDANCE WITH AWWA D100-11, SECTION 12.6.1 & NFPA- 22 2008, SECTION 12.5.

PHOTO SHOWS FOUNDATION

WE RECOMMEND TO HAND TOOL CLEAN FOUNDATION, REPAIR SPALLING/CRACKING AREAS AND APPLY ONE COAT OF SEALER TO EXPOSED AREAS.

TANK IS NOT PROPERLY GROUNDED. WE RECOMMEND TO FURNISH AND INSTALL TANK GROUNDING PER NFPA-780, SECTION 4.8.

WE RECOMMEND TO FURNISH AND INSTALL A 2" DIAMETER FROST PROOF AND LOCKABLE DRAIN VALVE TO AS CLOSE TO THE BOTTOM OF THE TANK AS POSSIBLE. WE ARE MAKING THIS RECOMMENDATION AS MOST TANK OWNER'S DO NOT HAVE THE MEANS IN PLACE TO EFFECTIVELY DRAIN THEIR TANKS. MANY OF OUR CUSTOMERS MUST FOLLOW WATER DRAINAGE REQUIREMENTS THAT COMPLY WITH THEIR FACILITIES STORM WATER PLAN WHICH REQUIRES THE WATER TO BE DIRECTED INTO A STORM DRAIN. THE DRAIN VALVE ALLOWS THE HOOKUP OF A DRAIN LINE SO THE WATER MAY BE DIRECTIONALIZED.

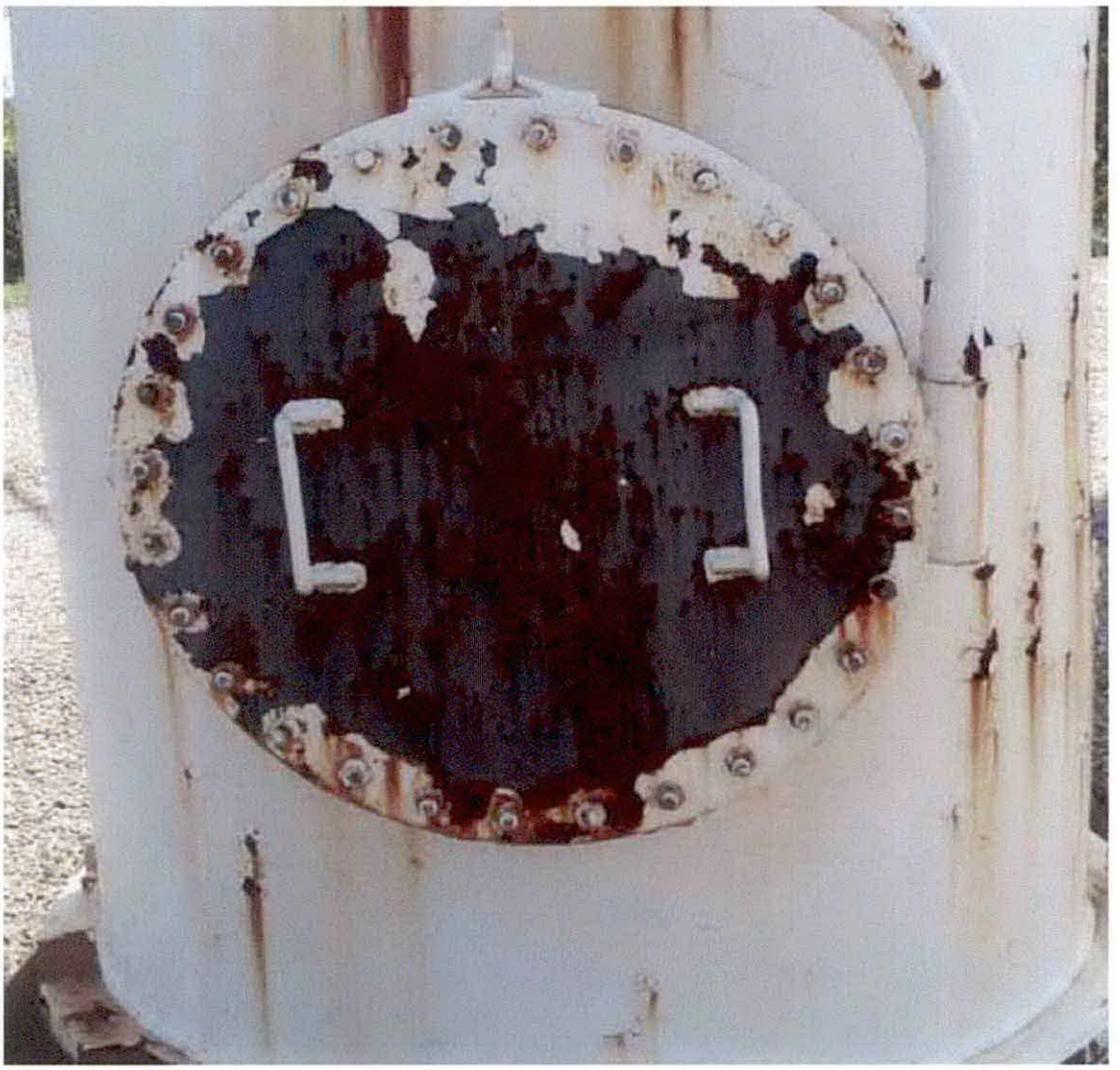


PHOTO SHOWS MANWAY

WE RECOMMEND TO FURNISH AND INSTALL CONFINED SPACE, FALL PROTECTION EQUIPMENT REQUIRED, AND HOMELAND SECURITY SIGNS ON THE TANK IN ACCORDANCE WITH OSHA 1910.146 (C) (2), 1926.502 (D), US CODE TITLE 42, SECTION 300i-1 OF THE DEPARTMENT OF HOMELAND SECURITY CODES.

WE RECOMMEND TO FURNISH AND INSTALL GALVANIZED BOLTS.

PHOTO SHOWS OVERFLOW

WE RECOMMEND TO FURNISH AND INSTALL SCREENED FLAPPER VALVE ON EXISTING OVERFLOW IN ACCORDANCE WITH AWWA D100-11, SECTION 7.3. NFPA 22 2008, SECTION 14.5.

PHOTO SHOWS UPWARD VIEW OF LADDER

WE RECOMMEND TO REPLACE THE EXISTING EXTERIOR LADDER WITH OSHA APPROVED LADDER AND SAFETY CLIMB DEVICE IN ACCORDANCE WITH OSHA 29 CFR 1910.27.

PHOTO SHOWS WINDAGE RODS AND STRUTS

THE WINDAGE RODS ARE DESIGNED TO RESIST AND STABILIZE THE TANK STRUCTURE AGAINST WIND AND SEISMIC LOADS COMBINED WITH DEAD AND LIVE LOADS. THE RODS SHOULD WITHSTAND 100 MPH WINDS BLOWING FROM ANY DIRECTION. IF THE BRACING REMAINS LOOSE, A SUDDEN COLLAPSE COULD OCCUR. WE RECOMMEND TO ADJUST THE WINDAGE RODS AND RISER STAY RODS TO WITHSTAND 100 MPH WINDS BLOWING FROM ANY DIRECTION, AS REQUIRED BY AWWA D100-11, SECTION 3.1.4. THIS SHOULD BE DONE ON AN EMERGENCY BASIS.

WE RECOMMEND RE-ENFORCING THE STRUT ENDS BY WELDING AFTER ADJUSTING WINDAGE AND STAY RODS.

PHOTO SHOWS RISER TO BOWL CONNECTION AND RISER STAY RODS

WE RECOMMEND TO ADJUST THE RISER RODS TO WITHSTAND 100 MPH WINDS BLOWING FROM ANY DIRECTION, AS REQUIRED BY AWWA.

PHOTO SHOWS EXTERIOR COATING

WE RECOMMEND TO POWER WASH ALL EXTERIOR SURFACES, HAND TOOL CLEAN RUSTED AND ABRADED AREAS, SPOT PRIME, AND APPLY ONE COMPLETE FINISH COAT OF ENAMEL.

WE FURTHER RECOMMEND THAT THE UNDERSIDE OF BOWL BE COATED WITH A M-1 ADDITIVE MIXED WITH PAINT TO SLOW MOLD GROWTH.

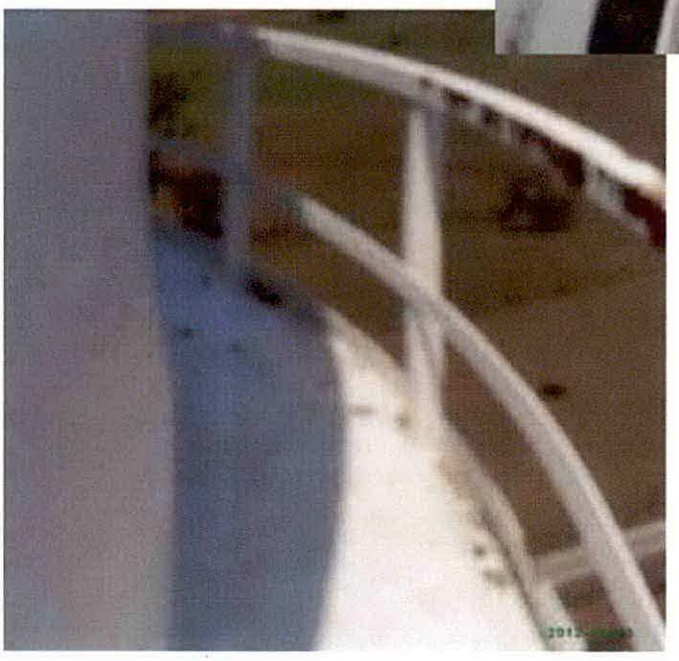


PHOTO SHOWS CATWALK AND HANDRAILS

WE RECOMMEND DRILLING ADDITIONAL WEEP HOLES IN THE CATWALK AS NECESSARY TO PREVENT THE PONDING OF WATER.

WE RECOMMEND TO RAISE EXISTING HANDRAILS TO THE REQUIRED 42" HEIGHT IN ACCORDANCE WITH OSHA 1910.23, AWWA D100-11, SECTION 3.1.7, AND NFPA 22 200 8.7.9.

PHOTO SHOWS POST HEAD CONNECTION

WE RECOMMEND TO RE-WELD POST HEAD CONNECTIONS ABOVE THE CATWALK.

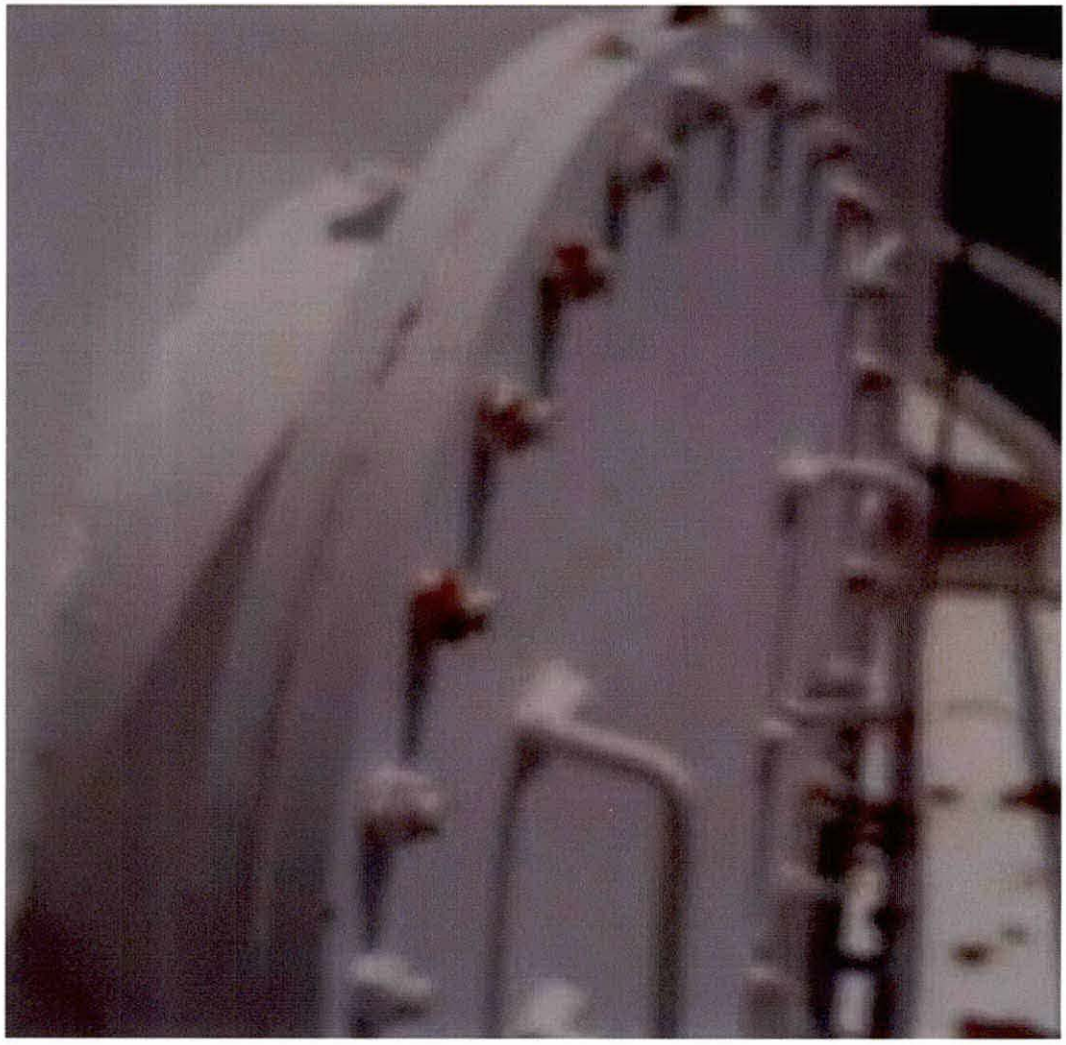


PHOTO SHOWS SHELL MANWAY

WE RECOMMEND TO FURNISH AND INSTALL GALVANIZED BOLTS.

WE RECOMMEND TO FURNISH AND INSTALL DAVIT ARMS ON EXISTING MANWAYS IN ACCORDANCE WITH OSHA 1910.36, AWWA D100-11 7.4.4 AND NFPA 22 2008 14.6.2.1.

WE RECOMMEND TO FURNISH AND INSTALL CONFINED SPACE, FALL PROTECTION EQUIPMENT REQUIRED, AND HOMELAND SECURITY SIGNS ON THE TANK IN ACCORDANCE WITH OSHA 1910.146 (C) (2), 1926.502 (D), US CODE TITLE 42, SECTION 300i-1 OF THE DEPARTMENT OF HOMELAND SECURITY CODES.

PHOTO SHOWS LIQUID LEVEL INDICATOR

WE RECOMMEND TO CLEAN AND LUBRICATE ALL MOVING PARTS OF THE EXISTING LIQUID LEVEL INDICATOR IN ACCORDANCE WITH NFPA 22 2008, SECTION 14.1.8.

PHOTO SHOWS ROOF LADDER

WE RECOMMEND TO REPLACE THE EXISTING EXTERIOR LADDERS WITH OSHA APPROVED LADDER AND SAFETY CLIMB DEVICES IN ACCORDANCE WITH OSHA 29 CFR 1910.27.

PHOTO SHOWS OVERVIEW OF ROOF

TANK IS NOT EQUIPPED WITH AN OSHA APPROVED HANDRAIL SYSTEM. WE RECOMMEND TO FURNISH AND INSTALL 42" HANDRAILS AROUND THE CIRCUMFERENCE OF THE TANK ROOF WITH A SWING GATE ACROSS THE OPENING IN ACCORDANCE WITH OSHA 1910.23, AWWA D100-11, SECTION 3.1.7, AND NFPA 22 2008 8.7.9.

PHOTO SHOWS ROOF VENT

PHOTO SHOWS ROOF HATCH

WE RECOMMEND TO REPLACE THE EXISTING NON-COMPLIANT ROOF HATCH WITH A 24" X 24" SQUARE HATCH IN ACCORDANCE WITH AWWA D100-11 SECTION 5.4.3.1 AND NFPA 22 2008, SECTION 5.7.3.1 CODE.

PHOTO SHOWS VIEW OF OPEN HATCH

TANK ROOF IS NOT EQUIPPED WITH A SECONDARY OSHA APPROVED ROOF HATCH. WE RECOMMEND TO FURNISH AND INSTALL A SECONDARY 24" SQUARE ROOF HATCH 180 DEGREES FROM THE PRIMARY ROOF HATCH IN CONJUCTION WITH A SECONDARY INTERIOR LADDER INCLUDING A SAFETY CLIMB DEVICE IN ACCORDANCE WITH AWWA D100-11, SECTION 5.4.3.1 AND NFPA 22 2008, SECTION 5.7.3.

PHOTO SHOWS INTERIOR OF TANK ROOF

WE RECOMMEND TO FURNISH AND INSTALL AN INTERIOR LADDER WITH SAFETY CLIMB DEVICE FOR THE PROVIDED ROOF HATCH IN ACCORDANCE WITH OSHA 29 CFR 1910.27.

PHOTO SHOWS INTERIOR OF TANK SHELL

WE RECOMMEND TO SPOT SANDBLAST ALL RUSTED AND ABRADED AREAS TO A SSPC #10 (NEAR WHITE BLAST) BRUSH BLAST ALL REMAINING AREAS, STRIPE COAT ALL SEAMS AND WELDS, AND APPLY EPOXY SYSTEM 8-10 MILS DRY FILM THICKNESS.

PHOTO SHOWS LIQUID LEVEL INDICATOR FLOAT

WE RECOMMEND TO CLEAN AND LUBRICATE ALL MOVING PARTS OF THE EXISTING LIQUID LEVEL INDICATOR IN ACCORDANCE WITH NFPA 22 2008, SECTION 14.1.8.

PHOTO SHOWS SHELL MANWAY AND INTERIOR LADDER

WE RECOMMEND TO FURNISH AND INSTALL A PASSIVE CATHODIC PROTECTION SYSTEM.

WE RECOMMEND TO REPLACE THE EXISTING EXTERIOR LADDER WITH OSHA APPROVED LADDER AND SAFETY CLIMB DEVICE IN ACCORDANCE WITH OSHA 29 CFR 1910.27.

PHOTO SHOWS RISER OPENING

WE RECOMMEND TO FURNISH AND INSTALL A SAFETY GRILL IN THE TOP OF THE RISER. IT IS INTENDED TO PREVENT A PERSON FROM FALLING DOWN THE RISER AND SHALL BE PROVIDED WITH A HINGED DOOR THAT IS AT LEAST 18"X18" IN SIZE ACCORDANCE WITH AWWA D100-11 SECTION 5.1.1.

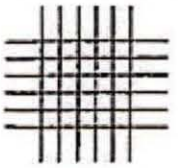
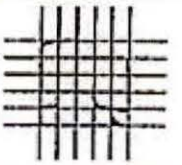
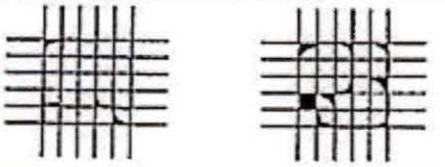
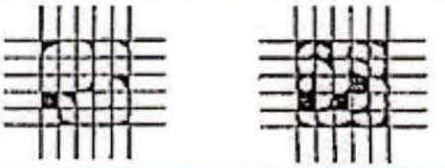
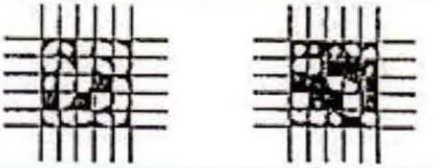
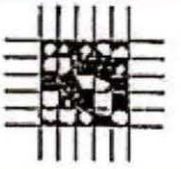
WE RECOMMEND TO FURNISH AND INSTALL AN OSHA APPROVED HANDRAIL SYSTEM AROUND RISER OPENING.

Holiday Test: FAIL

Vacuum Box Test: N/A

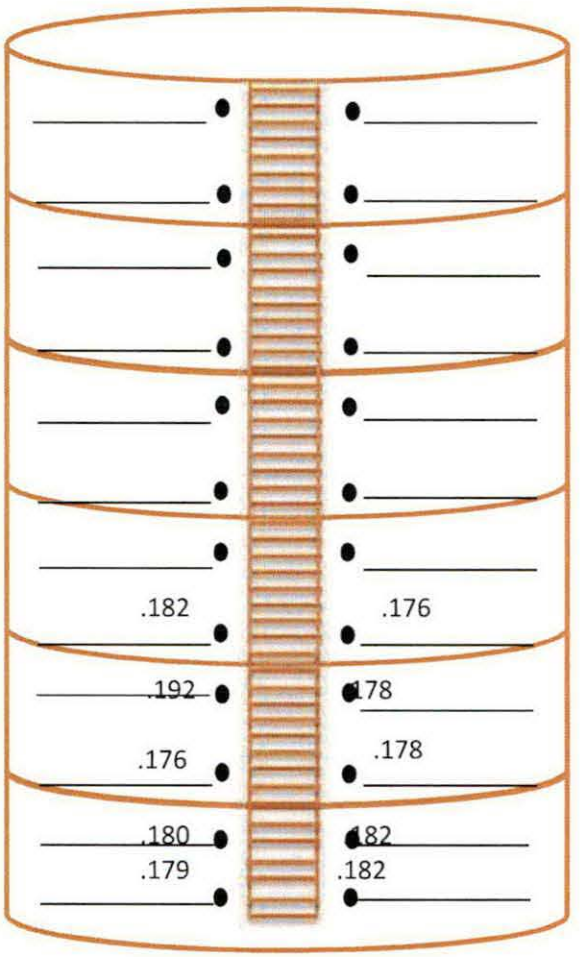
Mil Test: 5-7 EXT 8-10 INT

Adhesion (Cross Hatch) Test: 1B

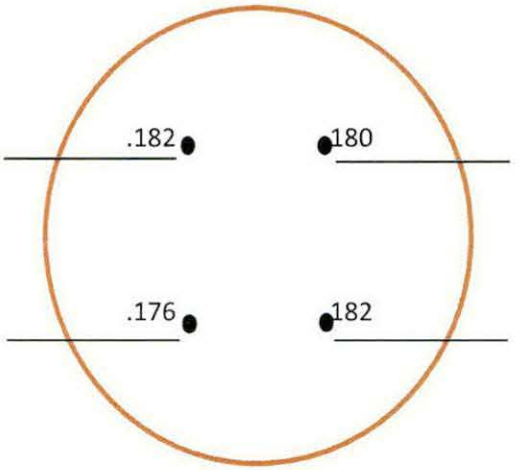
Classification	% of Area Removed	Surface of Cross-cut Area From Which Flaking has Occured for 6 Parrallel Cuts & Adhesion range by %
5B	0% None	
4B	Less than 5%	
3B	5 - 15%	
2B	15 - 35%	
1B	35 - 65%	
0B	Greater than 65%	

NFPA TESTS

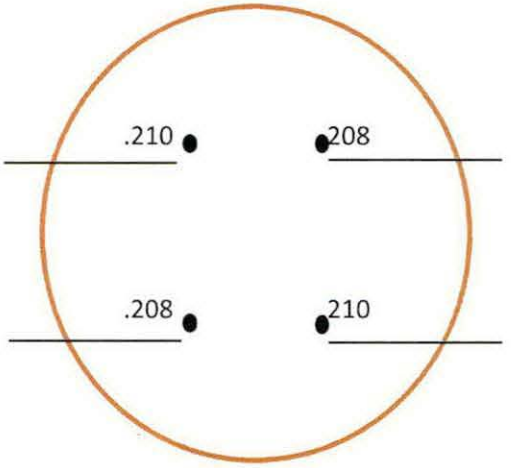
UT Testing



Roof



Floor



JT readings from areas of ponding on roof: _____

NOTE: Each ring must be tested twice on each side of the ladder to ensure accuracy. If there are more rings than what is in the diagram, add the numbers respectively.

Engineer's Estimate of Probable Construction Cost

NORTHPOINT TANK UTILIZATION

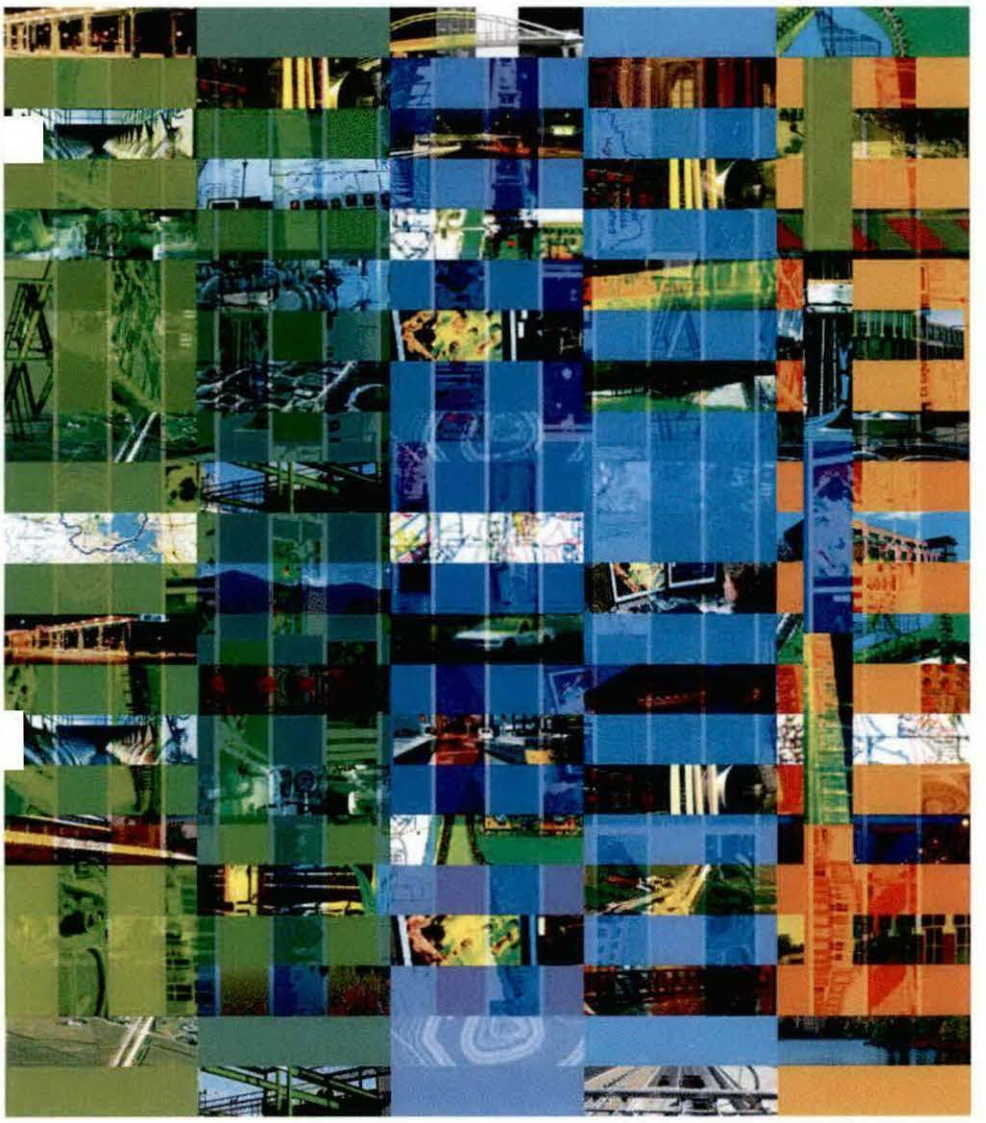
No.	Item Description	Engineers Estimate Of Quantity	Unit	Unit Price	Total
1.	8-IN PVC, CL 200-SDR 21 water main CIP INCLUDING appurtenances (tees, fittings, reducers, air release valves, etc.), trench, unclassified excavation, backfill, disconnect of abandon system, final grading, seed and mulch of disturbed area, testing and disinfection and tying in existing water main connections and customer service connections, including additional service line for connection.	1,550	LF	$ 20.00	$ 31,000.00
2.	Installation of recommended structural improvements.	1	LS	$ 85,000.00	$ 85,000.00
3.	Interior sandblasting, sediment removal and epoxy coat tank interior.	1	LS	$ 60,000.00	$ 60,000.00
4.	Exterior sandblast and application of 3 coat enamel system with containment during work.	1	LS	$ 400,000.00	$ 400,000.00
5.	550 GPM Booster Pump Station TDH, Furnishing, Trenching, Laying and Backfilling. Includes all appurtenances.	1	LS	$ 145,000.00	$ 145,000.00
6.	Install internal valves and piping for tank turn over.	1	LS	$ 15,000.00	$ 15,000.00
7.	Install cathodic protection system.	1	LS	$ 12,000.00	$ 12,000.00
8.	Install altitude valve, CIP using existing vault at tank.	1	LS	$ 10,000.00	$ 10,000.00
9.	Install New Master Meter Vault and Relocate Existing Service Meter for Northpoint Service to the New Vault.	1	LS	$ 25,000.00	$ 25,000.00
10.	Install New Backflow Vault and Relocate Existing Northpoint Detector Check Valve to the New Vault.	1	LS	$ 20,000.00	$ 20,000.00
11.	Installation of Telemetry System for Tank, Booster Pump Station.	1	LS	$ 30,000.00	$ 30,000.00
12.	Demolition of old meter and backflow vaults and abandonment of old system.	1	LS	$ 8,000.00	$ 8,000.00
		SUBTOTAL		**$**	**841,000.00**
		20% Contingency		*$*	*168,200.00*
	ESTIMATE OF PROBABLE CONSTRUCTION COST FOR NORTHPOINT TANK UTILIZATION			**$**	**1,009,200.00**

Professional

Engineering

Services

Final Engineering Report



Report

Lake Village Water

Association, KY

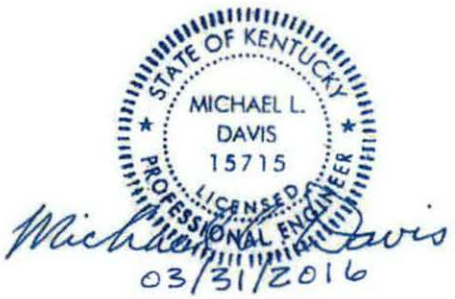
March 2016

STRAND ASSOCIATES

Report for

Lake Village Water Association, Kentucky

Final Engineering Report



Prepared by:

STRAND ASSOCIATES, INC.®
1525 Bull Lea Road, Suite 100
Lexington, KY 40511
www.strand.com

March 2016

STRAND ASSOCIATES®

TABLE OF CONTENTS

SECTION 1
INTRODUCTION AND PURPOSE

1.01 PURPOSE OF REPORT

The Northpoint Training Center (NTC), located in northern Boyle County, is operated by the Kentucky Department of Corrections (DOC). Potable water was formerly provided to this facility by an on-site water treatment plant (WTP) and water distribution system that was operated by DOC. Lake Village Water Association (LVWA) provided a secondary source of water service to the NTC. Water could be purchased from LVWA through a metered connection to supplement potable water produced on-site.

The DOC has now ceased operation of the on-site WTP and relies entirely on LVWA to provide water service to NTC. As part of this change, DOC has transferred ownership and operation responsibilities of the existing 600,000-gallon elevated storage tank to LVWA.

This report identifies the issues, costs, possible benefits, and approaches to accepting ownership and operation of the tank. This report presents design criteria, additional infrastructure requirements, impact to LVWA system operation, and financial data associated with the change in tank ownership.

1.02 GENERAL BACKGROUND DATA

Strand Associates, Inc.® (Strand) assisted LVWA in developing the infrastructure that currently serves customers in the Northpoint area. The Contract 13 project, completed in 2008, included water main replacement with an upsized 8-inch water main along Hughley Lane. This project improved service to the NTC water meter as acknowledged by the DOC.

The NTC is the only wholesale customer of LVWA. NTC is also the only customer that requires its water system to provide fire protection. The water tank has been beneficial in the past during events where fire flow demand has occurred as well as the occasional weekend when the WTP was closed and the tank reserve supplied the NTC.

In preliminary meetings with DOC, the tank was identified as possible water infrastructure that would be beneficial to NTC in a time of possible disruption of service from a LVWA line break. The tank would also be a benefit for fire suppression.

The DOC ceased WTP operation because of increasingly stringent regulatory requirements and associated costs. The DOC has given the 600,000-gallon elevated water tank to LVWA for use in its distribution system.

Before NTC ceased operation of its water treatment system, NTC's usage represented approximately 14 percent of the water sold by LVWA. Now that NTC has terminated use of the WTP for potable water supply, 37.6 percent of the water sold by LVWA goes to NTC. This brings the total average monthly LVWA demand of its entire system to approximately 15 million gallons (mil gal) per month.

1.03 EXISTING SYSTEM

LVWA was formed in the late 1960s to provide water service to rural Mercer and Boyle County residents and businesses. LVWA presently purchases all its water from the cities of Danville and Harrodsburg. Danville's raw water supply is drawn from Herrington Lake, and its treatment plant has a capacity of 10 million gallons per day (mgd). Harrodsburg's raw water supply is drawn from the Kentucky River, and its treatment plant has a capacity of 6 mgd. Both cities presently have ample unused water treatment capacity to accommodate the improvements to the LVWA system. The possible improvements identified in this report anticipate enhancement of the LVWA water distribution system in the Northpoint area with a potential for a significant change in water demand.

As of January 2013, LVWA serves approximately 2,108 active customers with 236 additional connections available for reactivation. The average monthly water usage in 2011, as stated in the 2011 Financial Audit report, was 14.2 mil gal, or 473,300 gallons per day. This includes water loss from pipe leaks, main breaks, and maintenance activities related to flushing lines. The difference between gallons purchased and that sold to customers amounts to approximately 6 percent of the volume purchased.

LVWA has the following tanks in its distribution system that provide a total storage of 548,000 gallons:

Ison Road	251,000 gallons
Montgomery	250,000 gallons
Stringtown	47,000 gallons

LVWA has faced many challenges since its inception to become one of the better rural water suppliers in the Commonwealth of Kentucky. The LVWA system is operated by a staff of experienced and motivated individuals, while the members of the Board of Directors are diligent in its resolve to provide the highest quality water service at a fair rate to all its customers. LVWA system is regulated by the Kentucky Department of Environmental Protection and Public Service Commission and is subject to meeting state and federal regulations. This project will improve service in the Northpoint area and will provide additional system storage capacity in LVWA's system.

1.04 DEFINITIONS

AWWA	American Water Works Association
DOC	Department of Corrections
KDOW	Kentucky Division of Water
mgd	millon gallons per day
mil gal	million gallons
NFPA	National Fire Protection Association
NTC	Northpoint Training Center
OSHA	Occupational Safety and Health Administration
WTP	water treatment plant

SECTION 2
EXISTING NORTHPOINT TANK CONDITION AND OPERATION

2.01 NORTHPOINT TANK CURRENT OPERATION

The Northpoint tank is currently connected downstream of the LVWA water service meter. No water from Northpoint, or its tank, is allowed to reenter the LVWA water system. A check valve is located just past the service meter, preventing backflow through the LVWA meter to mix with LVWA water.

The Northpoint tank filling and draining are managed to provide adequate "turnover" to meet Kentucky water quality standards. Turnover relates to the movement of water in the tank or oscillating the water elevation in the tank to provide sufficient mixing and maintaining water quality. Northpoint accomplished tank turnover by filling the tank then cycling to tank draining by suspending water production at the WTP. Field test and computer model analysis indicate that the supply sources from Danville service connections will be adequate for turnover in the tank to meet water quality standards.

2.02 NORTHPOINT TANK CONDITION

DOC provided LVWA a tank inspection report prepared by Preferred Tank & Tower from Henderson, Kentucky, dated July 26, 2012. The inspection report presented photographic details of maintenance and structural issues with reference to American Water Works Association (AWWA), Occupational Safety and Health Administration (OSHA), National Fire Protection Agency (NFPA), and the Department of Homeland Security codes and standards. The report also included recommended repairs and improvements. DOC personnel stated there are no violations issued or pending action with the Kentucky Division of Water (KDOW) relative to the tank. The inspection report is included in the Appendix.

Before LVWA assumed ownership of the new tank, it had Caldwell Tanks perform an inspection on the tank and that report is also included in the Appendix. Actual project recommendations were taken from the Caldwell Tank report.

SECTION 3
NORTHPOINT TANK AND SYSTEM IMPROVEMENTS

3.01 REQUIRED TANK IMPROVEMENTS

Tanks within the existing LVWA distribution system provide 548,000 gallons of storage, which is adequate for the current average demand of 473,000 gallons per day. When the NTC WTP was taken out of service, the LVWA daily demand increased to 635,000 gallons per day. The existing tank must remain in service or a new tank must be constructed in the NTC area to provide adequate storage as well as provide fire protection service at the NTC.

Though currently out of service, the Northpoint tank can be placed back in service indefinitely given adequate maintenance and rehabilitation. However, the tank has experienced deterioration of protective coating systems and other components that is typical as elevated steel storage tanks age. DOC provided LVWA a tank inspection report prepared by Preferred Tank & Tower from Henderson, Kentucky, dated July 26, 2012. The inspection report presented photographic details of maintenance and structural issues with reference to AWWA, OSHA, NFPA, and Department of Homeland Security codes and standards. The report also included recommended repairs and improvements.

LVWA also had a tank inspection performed by Caldwell Tanks. The improvements recommended in this report are the suggested improvements to be made to the tank before being put back into service in LVWA's system. These repairs are estimated at $225,000, which is significantly less than an estimated cost of $950,000 to construct a new tank of similar size and height.

3.02 REQUIRED SYSTEM IMPROVEMENTS

The Northpoint tank is currently connected downstream of the LVWA water service meter. To incorporate the Northpoint water tank into LVWA's water supply system, the backflow system and the water service meter will need to be relocated beyond the water tank within the Northpoint property.

The LVWA water line to the tank will need to be upsized to a 12-inch line to provide adequate flow to fill the tank. Field testing and computer model analysis indicate that no booster pump will be needed to fill the tank. Other improvements to the tank include the addition of an altitude value, modification to the interior riser, installation of a cathodic protection system, and the addition of telemetry.

3.03 EASEMENT AND PROPERTY CONSIDERATIONS

Ownership of the water tank and existing water mains to the tank has been granted to LVWA. Easements for the tank site and water mains have also been acquired. DOC retains ownership and operation of water mains downstream of the new service meter location.

3.04 REGULATORY REQUIREMENTS

KDOW was involved in approving the improvements that will be needed to effectively use the tank in LVWA system.

Currently, the state regulations do not require any form of routine inspection of the water tanks used in public water supply. KDOW requires water quality monitoring of LVWA's distribution system.

SECTION 4
PROJECT COSTS

4.01 PROJECT COSTS

To incorporate the tank efficiently into the LVWA water distribution system there will be some upfront construction cost for required infrastructure improvements and interior tank maintenance and improvements. These improvements include the relocation of the NTC service meter and backflow prevention system, additional valves and mixing system, exterior tank painting, and interior tank maintenance. Table 4.01-1 represents the project cost as bid and the engineering fees as contracted.

Line Item No.	Item Description	Cost	
1	As Bid Construction Cost	$	452,540.00
2	Engineer Design Fees	$	33,000.00
3	Legal Fees/Easements	$	5,000.00
4	Construction Administration	$	21,000.00
5	Contingency	$	144,960.00
	PROJECT TOTAL	$	656,500.00

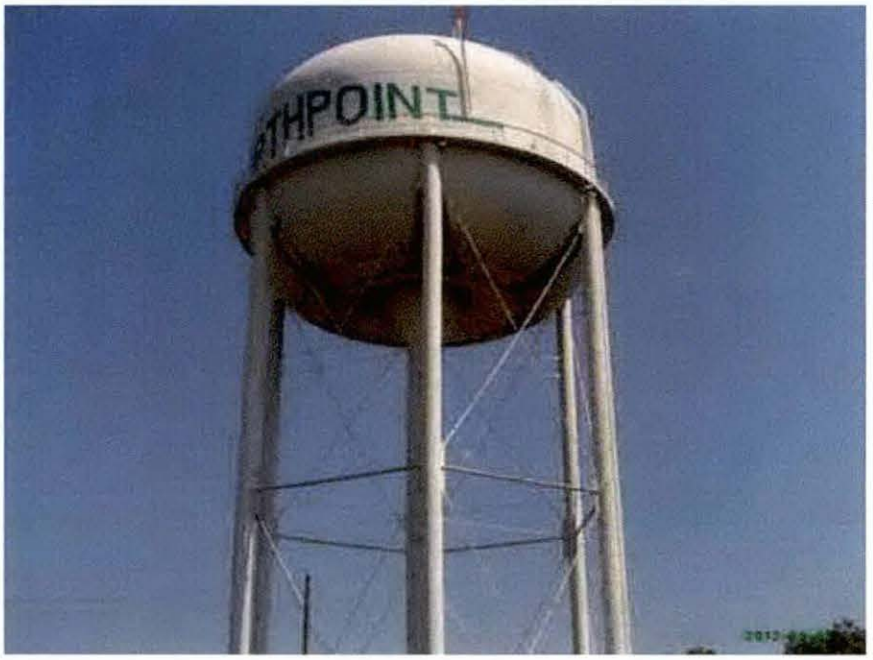
Table 4.01-1 Northpoint Tank Project Costs

APPENDIX
TANK INSPECTION REPORT

PREFERRED TANK & TOWER

Maintenance Division, Inc.

NEW AND PREOWNED TANKS • TANKS RAISED, LOWERED AND MOVED
PAINT • REPAIR • DISMANTLE • INSPECT



600,000 GALLON ELEVATED WATER TANK

MR. TONY WADDELL

DEPARTMENT OF CORRECTIONS

BURGIN, KY

502-564-2094

TMO51240975

7/26/2012

2202 Hwy 41 N.-Unit E Box 123
Henderson, KY 42420

PH:270-826-4000
FX:270-826-7955
www.pmdtower.com

PHOTO SHOWS FOUNDATION

THE STRUCTURAL INTEGRITY OF THE ANCHOR BOLTS SHOULD BE MAINTAINED TO WITHSTAND 100 MPH WINDS BLOWING FROM ANY DIRECTION AS REQUIRED BY THE AWWA. WE RECOMMEND TO CLEAN AROUND THE ANCHOR BOLTS AND WELD AROUND THE CIRCUMFERENCE OF THE BOLT-TO-NUT AND NUT-TO-BASE CONNECTION TO REINFORCE.

WE RECOMMEND RE-GROUTING TANK LEGS IN ACCORDANCE WITH AWWA D100-11, SECTION 12.6.1 & NFPA- 22 2008, SECTION 12.5.

PHOTO SHOWS FOUNDATION

WE RECOMMEND TO HAND TOOL CLEAN FOUNDATION, REPAIR SPALLING/CRACKING AREAS AND APPLY ONE COAT OF SEALER TO EXPOSED AREAS.

TANK IS NOT PROPERLY GROUNDED. WE RECOMMEND TO FURNISH AND INSTALL TANK GROUNDING PER NFPA-780, SECTION 4.8.

WE RECOMMEND TO FURNISH AND INSTALL A 2" DIAMETER FROST PROOF AND LOCKABLE DRAIN VALVE TO AS CLOSE TO THE BOTTOM OF THE TANK AS POSSIBLE. WE ARE MAKING THIS RECOMMENDATION AS MOST TANK OWNER'S DO NOT HAVE THE MEANS IN PLACE TO EFFECTIVELY DRAIN THEIR TANKS. MANY OF OUR CUSTOMERS MUST FOLLOW WATER DRAINAGE REQUIREMENTS THAT COMPLY WITH THEIR FACILITIES STORM WATER PLAN WHICH REQUIRES THE WATER TO BE DIRECTED INTO A STORM DRAIN. THE DRAIN VALVE ALLOWS THE HOOKUP OF A DRAIN LINE SO THE WATER MAY BE DIRECTIONALIZED.

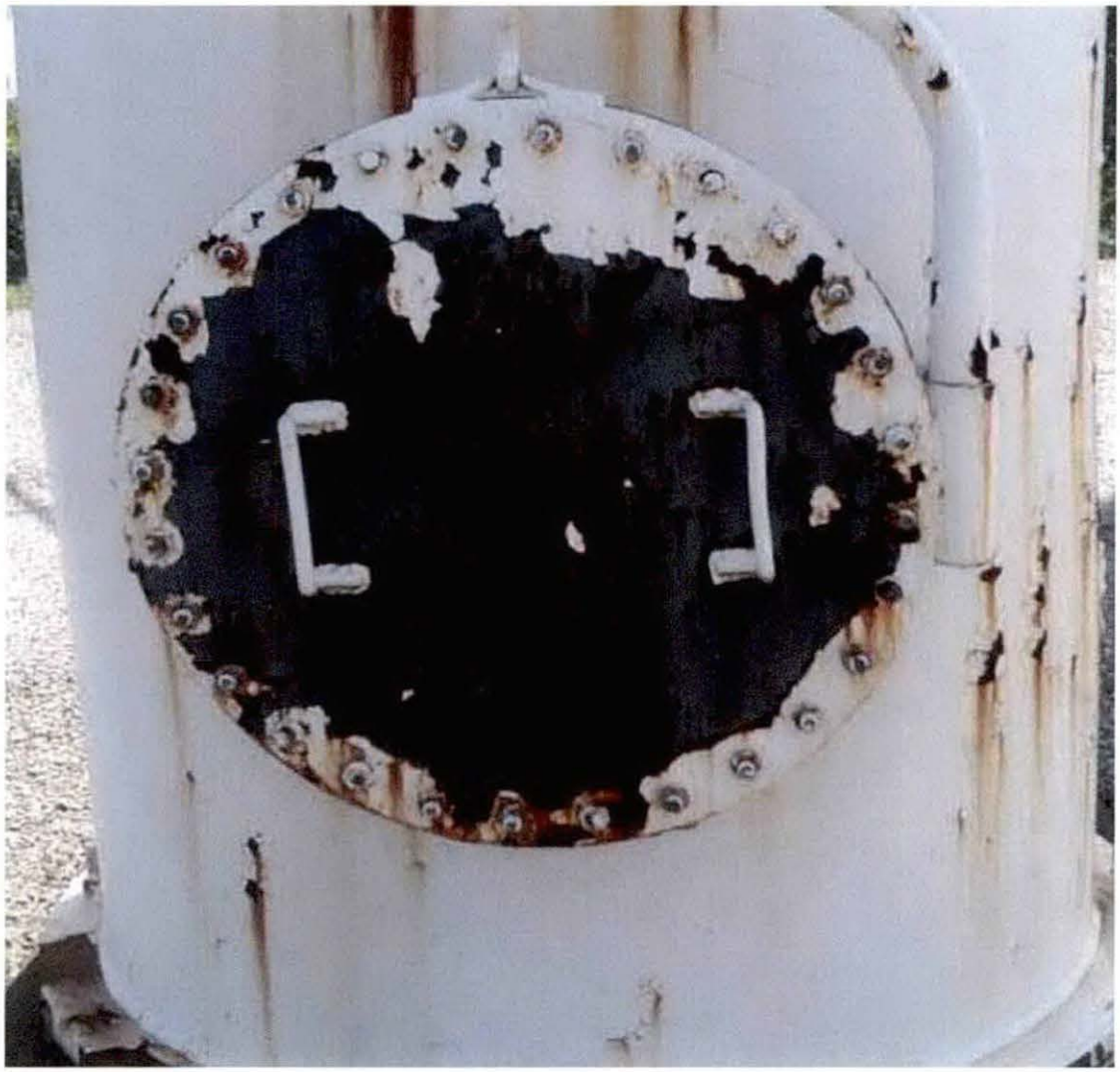


PHOTO SHOWS MANWAY

WE RECOMMEND TO FURNISH AND INSTALL CONFINED SPACE, FALL PROTECTION EQUIPMENT REQUIRED, AND HOMELAND SECURITY SIGNS ON THE TANK IN ACCORDANCE WITH OSHA 1910.146 (C) (2), 1926.502 (D), US CODE TITLE 42, SECTION 300i-1 OF THE DEPARTMENT OF HOMELAND SECURITY CODES.

WE RECOMMEND TO FURNISH AND INSTALL GALVANIZED BOLTS.

PHOTO SHOWS OVERFLOW

WE RECOMMEND TO FURNISH AND INSTALL SCREENED FLAPPER VALVE ON EXISTING OVERFLOW IN ACCORDANCE WITH AWWA D100-11, SECTION 7.3. NFPA 22 2008, SECTION 14.5.

PHOTO SHOWS UPWARD VIEW OF LADDER

WE RECOMMEND TO REPLACE THE EXISTING EXTERIOR LADDER WITH OSHA APPROVED LADDER AND SAFETY CLIMB DEVICE IN ACCORDANCE WITH OSHA 29 CFR 1910.27.

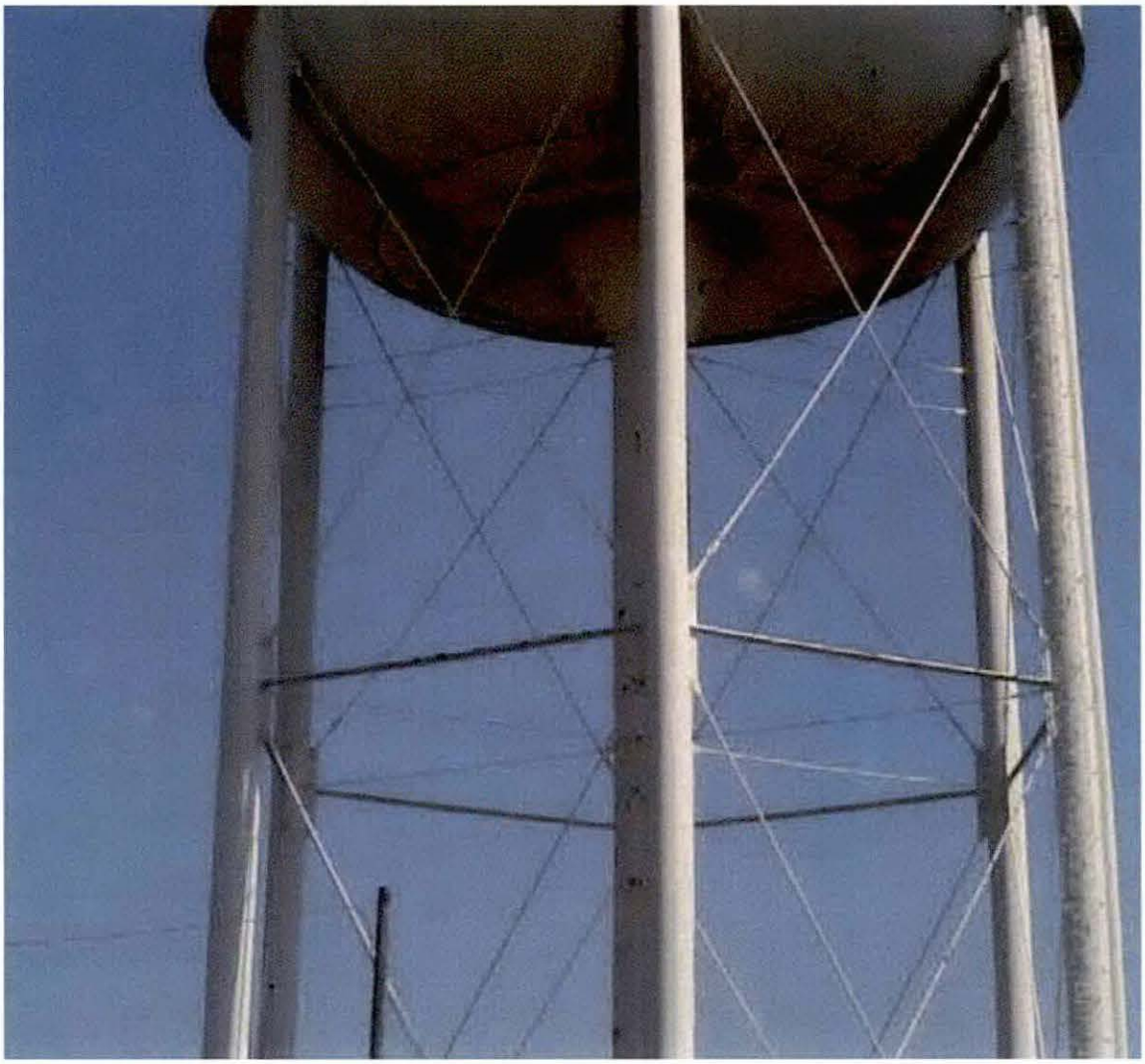


PHOTO SHOWS WINDAGE RODS AND STRUTS

THE WINDAGE RODS ARE DESIGNED TO RESIST AND STABILIZE THE TANK STRUCTURE AGAINST WIND AND SEISMIC LOADS COMBINED WITH DEAD AND LIVE LOADS. THE RODS SHOULD WITHSTAND 100 MPH WINDS BLOWING FROM ANY DIRECTION. IF THE BRACING REMAINS LOOSE, A SUDDEN COLLAPSE COULD OCCUR. WE RECOMMEND TO ADJUST THE WINDAGE RODS AND RISER STAY RODS TO WITHSTAND 100 MPH WINDS BLOWING FROM ANY DIRECTION, AS REQUIRED BY AWWA D100-11, SECTION 3.1.4. THIS SHOULD BE DONE ON AN EMERGENCY BASIS.

WE RECOMMEND RE-ENFORCING THE STRUT ENDS BY WELDING AFTER ADJUSTING WINDAGE AND STAY RODS.

PHOTO SHOWS RISER TO BOWL CONNECTION AND RISER STAY RODS

WE RECOMMEND TO ADJUST THE RISER RODS TO WITHSTAND 100 MPH WINDS BLOWING FROM ANY DIRECTION, AS REQUIRED BY AWWA.

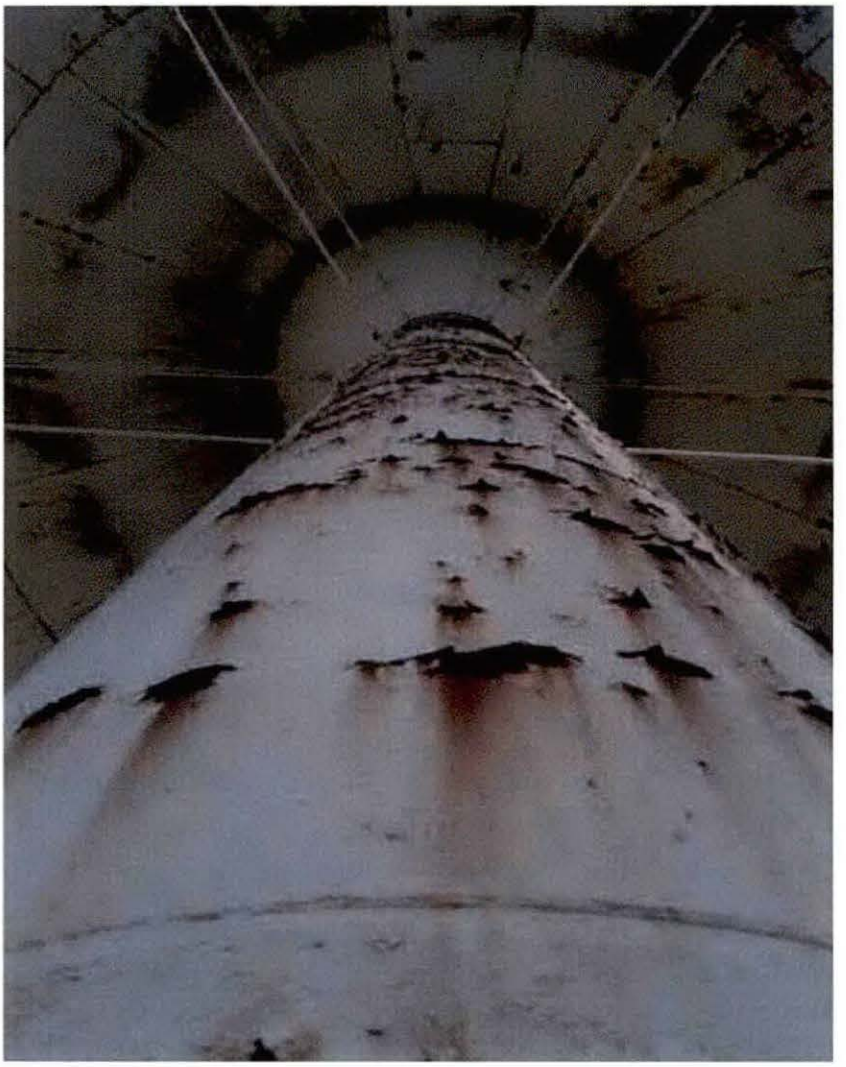


PHOTO SHOWS EXTERIOR COATING

WE RECOMMEND TO POWER WASH ALL EXTERIOR SURFACES, HAND TOOL CLEAN RUSTED AND ABRADED AREAS, SPOT PRIME, AND APPLY ONE COMPLETE FINISH COAT OF ENAMEL.

WE FURTHER RECOMMEND THAT THE UNDERSIDE OF BOWL BE COATED WITH A M-1 ADDITIVE MIXED WITH PAINT TO SLOW MOLD GROWTH.

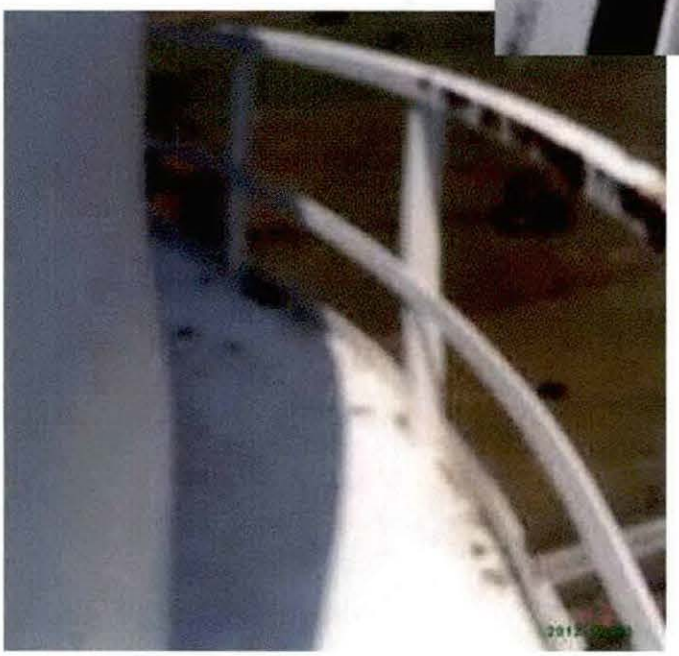


PHOTO SHOWS CATWALK AND HANDRAILS

WE RECOMMEND DRILLING ADDITIONAL WEEP HOLES IN THE CATWALK AS NECESSARY TO PREVENT THE PONDING OF WATER.

WE RECOMMEND TO RAISE EXISTING HANDRAILS TO THE REQUIRED 42" HEIGHT IN ACCORDANCE WITH OSHA 1910.23, AWWA D100-11, SECTION 3.1.7, AND NFPA 22 200 8.7.9.

PHOTO SHOWS POST HEAD CONNECTION

WE RECOMMEND TO RE-WELD POST HEAD CONNECTIONS ABOVE THE CATWALK.

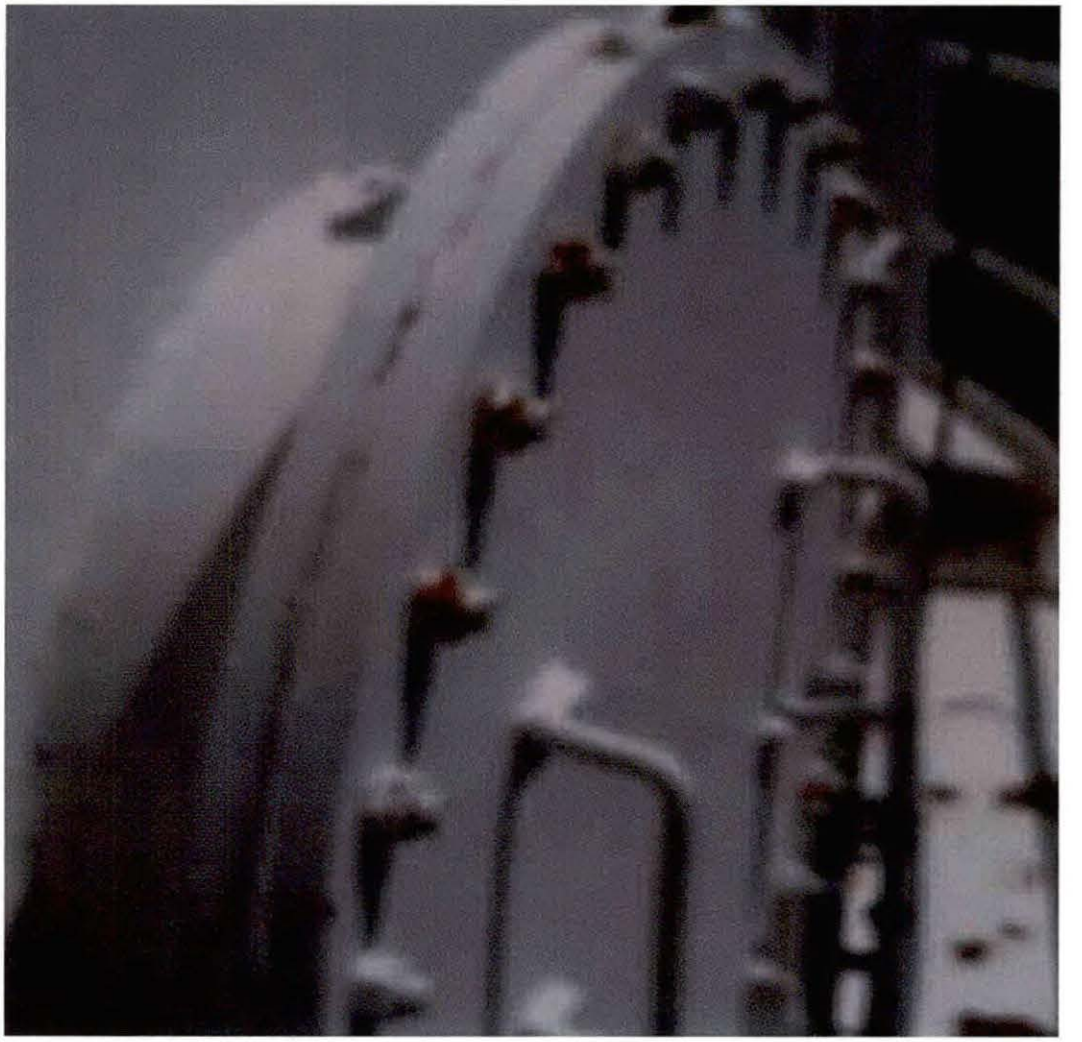


PHOTO SHOWS SHELL MANWAY

WE RECOMMEND TO FURNISH AND INSTALL GALVANIZED BOLTS.

WE RECOMMEND TO FURNISH AND INSTALL DAVIT ARMS ON EXISTING MANWAYS IN ACCORDANCE WITH OSHA 1910.36, AWWA D100-11 7.4.4 AND NFPA 22 2008 14.6.2.1.

WE RECOMMEND TO FURNISH AND INSTALL CONFINED SPACE, FALL PROTECTION EQUIPMENT REQUIRED, AND HOMELAND SECURITY SIGNS ON THE TANK IN ACCORDANCE WITH OSHA 1910.146 (C) (2), 1926.502 (D), US CODE TITLE 42, SECTION 300i-1 OF THE DEPARTMENT OF HOMELAND SECURITY CODES.

PHOTO SHOWS LIQUID LEVEL INDICATOR

WE RECOMMEND TO CLEAN AND LUBRICATE ALL MOVING PARTS OF THE EXISTING LIQUID LEVEL INDICATOR IN ACCORDANCE WITH NFPA 22 2008, SECTION 14.1.8.

PHOTO SHOWS ROOF LADDER

WE RECOMMEND TO REPLACE THE EXISTING EXTERIOR LADDERS WITH OSHA APPROVED LADDER AND SAFETY CLIMB DEVICES IN ACCORDANCE WITH OSHA 29 CFR 1910.27.

PHOTO SHOWS OVERVIEW OF ROOF

TANK IS NOT EQUIPPED WITH AN OSHA APPROVED HANDRAIL SYSTEM. WE RECOMMEND TO FURNISH AND INSTALL 42" HANDRAILS AROUND THE CIRCUMFERENCE OF THE TANK ROOF WITH A SWING GATE ACROSS THE OPENING IN ACCORDANCE WITH OSHA 1910.23, AWWA D100-11, SECTION 3.1.7, AND NFPA 22 2008 8.7.9.

PHOTO SHOWS ROOF VENT

PHOTO SHOWS ROOF HATCH

WE RECOMMEND TO REPLACE THE EXISTING NON-COMPLIANT ROOF HATCH WITH A 24" X 24" SQUARE HATCH IN ACCORDANCE WITH AWWA D100-11 SECTION 5.4.3.1 AND NFPA 22 2008, SECTION 5.7.3.1 CODE.

PREFERRED TANK & TOWER, INC.
STORAGE TANKS & COMMUNICATION TOWERS
Maintenance Division, Inc.

PHOTO SHOWS VIEW OF OPEN HATCH

TANK ROOF IS NOT EQUIPPED WITH A SECONDARY OSHA APPROVED ROOF HATCH. WE RECOMMEND TO FURNISH AND INSTALL A SECONDARY 24" SQUARE ROOF HATCH 180 DEGREES FROM THE PRIMARY ROOF HATCH IN CONJUCTION WITH A SECONDARY INTERIOR LADDER INCLUDING A SAFETY CLIMB DEVICE IN ACCORDANCE WITH AWWA D100-11, SECTION 5.4.3.1 AND NFPA 22 2008, SECTION 5.7.3.

PHOTO SHOWS INTERIOR OF TANK ROOF

WE RECOMMEND TO FURNISH AND INSTALL AN INTERIOR LADDER WITH SAFETY CLIMB DEVICE FOR THE PROVIDED ROOF HATCH IN ACCORDANCE WITH OSHA 29 CFR 1910.27.

PHOTO SHOWS INTERIOR OF TANK SHELL

WE RECOMMEND TO SPOT SANDBLAST ALL RUSTED AND ABRADED AREAS TO A SSPC #10 (NEAR WHITE BLAST) BRUSH BLAST ALL REMAINING AREAS, STRIPE COAT ALL SEAMS AND WELDS, AND APPLY EPOXY SYSTEM 8-10 MILS DRY FILM THICKNESS.

PHOTO SHOWS LIQUID LEVEL INDICATOR FLOAT

WE RECOMMEND TO CLEAN AND LUBRICATE ALL MOVING PARTS OF THE EXISTING LIQUID LEVEL INDICATOR IN ACCORDANCE WITH NFPA 22 2008, SECTION 14.1.8.

PHOTO SHOWS SHELL MANWAY AND INTERIOR LADDER

WE RECOMMEND TO FURNISH AND INSTALL A PASSIVE CATHODIC PROTECTION SYSTEM.

WE RECOMMEND TO REPLACE THE EXISTING EXTERIOR LADDER WITH OSHA APPROVED LADDER AND SAFETY CLIMB DEVICE IN ACCORDANCE WITH OSHA 29 CFR 1910.27.

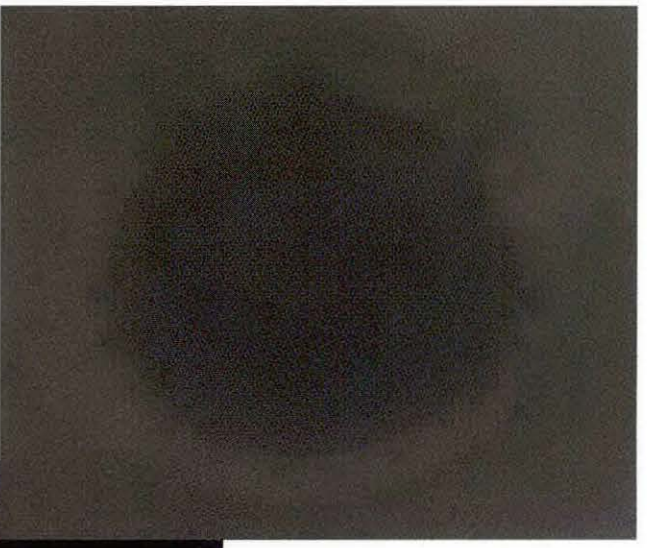


PHOTO SHOWS RISER OPENING

WE RECOMMEND TO FURNISH AND INSTALL A SAFETY GRILL IN THE TOP OF THE RISER. IT IS INTENDED TO PREVENT A PERSON FROM FALLING DOWN THE RISER AND SHALL BE PROVIDED WITH A HINGED DOOR THAT IS AT LEAST 18"X18" IN SIZE ACCORDANCE WITH AWWA D100-11 SECTION 5.1.1.

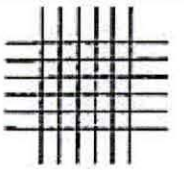
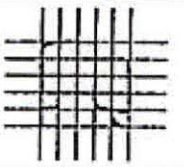
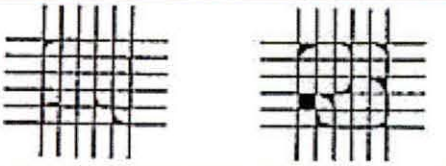
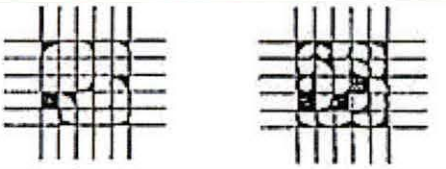
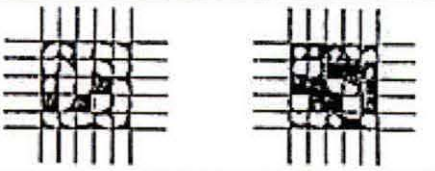
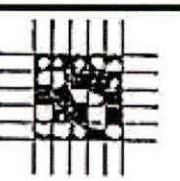
WE RECOMMEND TO FURNISH AND INSTALL AN OSHA APPROVED HANDRAIL SYSTEM AROUND RISER OPENING.

Holiday Test: **FAIL**

Vacuum Box Test: **N/A**

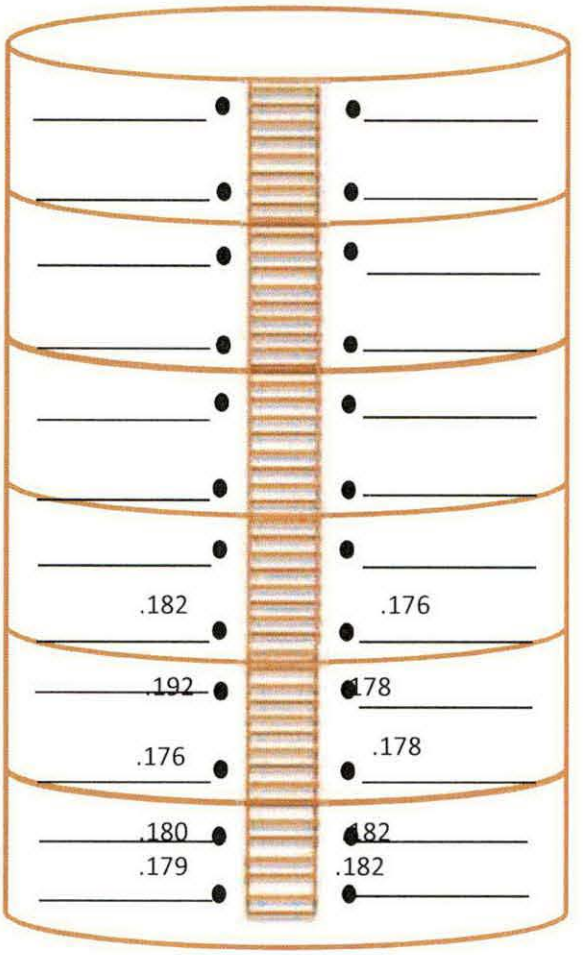
Mil Test: **5-7 EXT 8-10 INT**

Adhesion (Cross Hatch) Test: **1B**

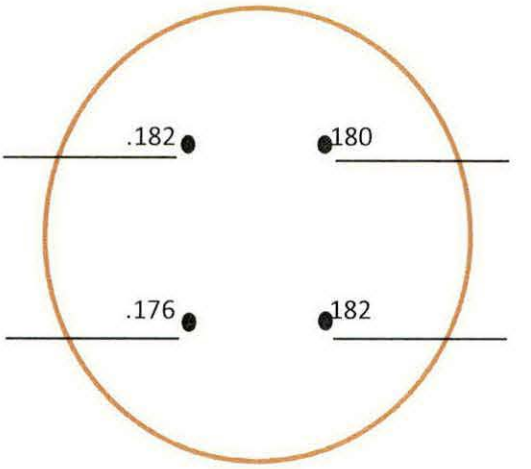
Classification	% of Area Removed	Surface of Cross-cut Area From Which Flaking has Occured for 6 Parrallel Cuts & Adhesion range by %
5B	0% None	
4B	Less than 5%	
3B	5 - 15%	
2B	15 - 35%	
1B	35 - 65%	
0B	Greater than 65%	

NFPA TESTS

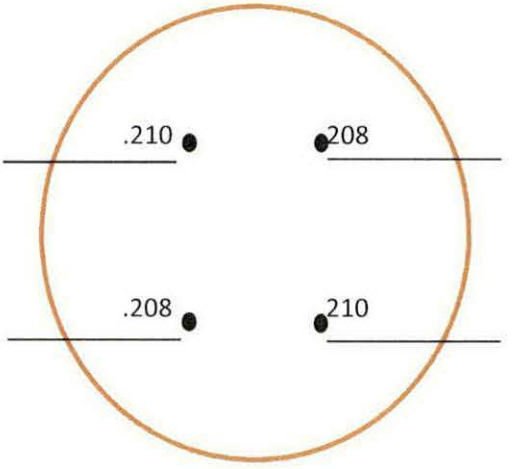
UT Testing



Roof



Floor

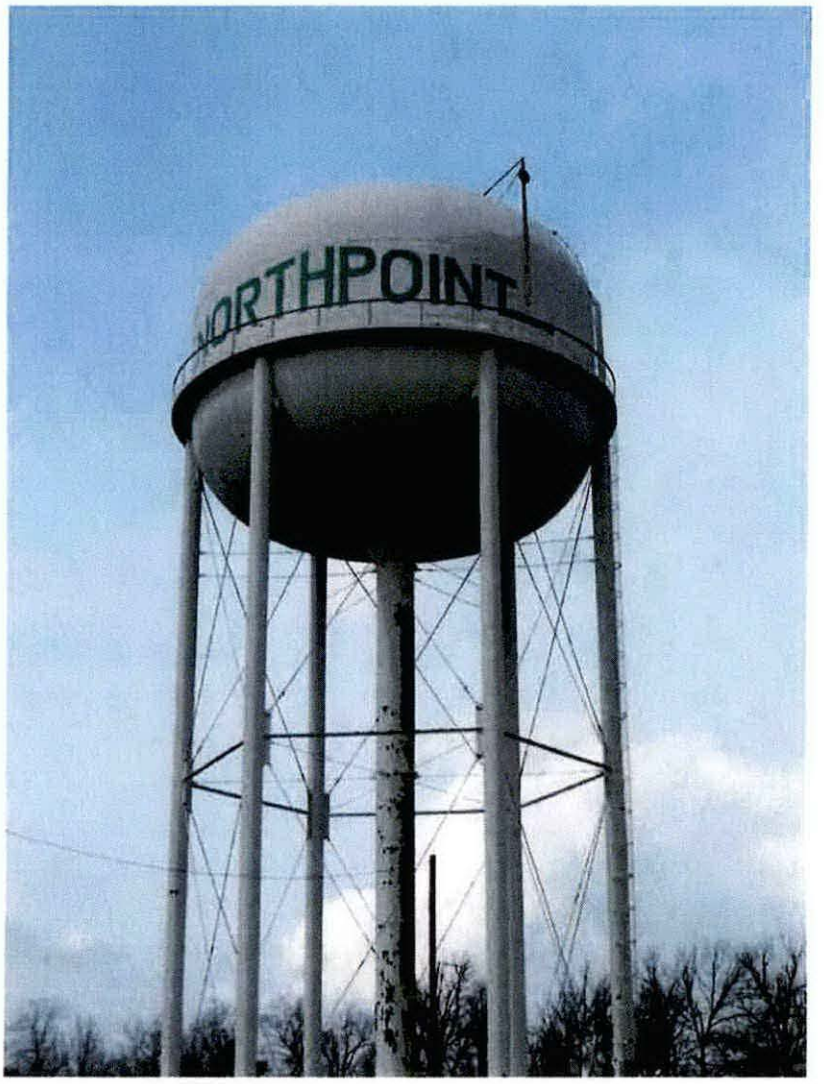


JT readings from areas of ponding on roof: _____

NOTE: Each ring must be tested twice on each side of the ladder to ensure accuracy. If there are more rings than what is in the diagram, add the numbers respectively.

CALDWELL
Since 1887

CLEAN & INSPECT REPORT
LAKE VILLAGE WATER ASSOCIATION, INC
NORTHPOINT PRISON TANK
BURGIN, KENTUCKY
CTI #: WC-8176



600,000 GALLON MULTI-LEG ELEVATED TANK

4000 Tower Road, Louisville, KY 40219 / P. O. Box 35770, Louisville, KY 40232 / (502) 964-3361 / (502) 966-8732 FAX
57 East Broad Street, Newnan, GA 30263 / P. O. Box 608, Newnan, GA 30264 / (770) 253-3232 / (770) 251-9253 FAX

SCOPE OF INSPECTION:

Caldwell Tanks, Inc. performed a TAP-ON Visual Inspection and a washout of the tank interior. The tank was disinfected at the conclusion of all operations in accordance to AWWA Standard C652-02. The inspection included observations of visible areas of the foundation, the tank, appurtenances, and the exterior coating system and visible areas of the interior coating systems.

Photographs to document the inspection are included in Appendix A of this report.

AWWA Manual M42 Steel Water Storage Tanks, AWWA Standard D100-11 Welded Steel Tanks for Water Storage, and AWWA Standard D102-11 Coating Steel Water Storage Tanks were utilized as reference criteria for the inspection and this report.

TANK INFORMATION		
Tank Name:	Lake Village - Northpoint Prison	
GPS Coordinates:	*Latitude:*	37.713140°
	Longitude:	-84.747510°
Tank Style:	Multi-Leg Elevated	
Year Built:	1999	
Capacity (Gallons):	600,000	
Height to High Water Level:	120'- 0"	
Constructor Name:	Caldwell Tanks	
Constructor Job Number:	E-4571	
Date of Inspection:	3/28/2014	

INSPECTION PARTICIPANTS

Willis Barnett	Caldwell Tanks Inc.	502-974-5596
Todd Ransdell	Caldwell Tanks Inc.	858-265-0423

INSPECTION OBSERVATIONS:

Foundation & Tank:

The exposed areas of the tank foundation were in good condition.

The grout was in good condition.

The tank structure was in good condition.

Appurtenances:

All safety equipment including but not limited to: harnesses, lanyards, safety device slides and any other equipment used for personal fall arrest when accessing the tank should be stored in a clean, dry, and cool environment and be inspected regularly per the manufacturer's specifications.

Tank ladders meet current AWWA/OSHA requirements and were in good condition with exception noted in recommendations.

Ladder safety devices were present but not operating properly.

Tank manholes meet current AWWA requirements and were operating properly.

The tank vent was in place and in good condition.

Tank vent screen was in position and performing its intended function, however it had experienced some environmental degradation.

The tank overflow system was in good condition and operating properly.

The overflow screen was in position and performing its intended function.

Water Container:

The tank was empty at the time of the inspection.

The tank bottom was visible with minimal sediment accumulation at the time of the inspection.

Coating Systems:

Exterior:

The exterior coating system had failed.

The dry film thickness of the exterior coating varied from 6.1 to 10.2 mils.

Interior:

The interior wet coating system was generally in fair to poor condition and has reached the end of its anticipated life cycle.

The dry film thickness of the interior wet coating varied from 13.9 to 21.8 mils.

WORK PERFORMED:

The tank was washed out, disinfected and inspected.

RECOMMENDED ACTION ITEMS:

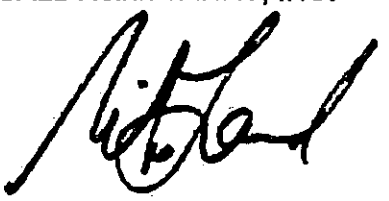
Tank Structure:
None at the time of the inspection.
Tank Foundation:
None at time of the inspection.
Tank Egress:
Exterior ladder safety devices were deficient and should be replaced.
Interior ladder safety devices were deficient and should be replaced.
The interior entry ladder needs a modification made to the rung height at the section where it was welded together.
A riser safety grate should be installed on the riser opening.
Piping & Operation:
Tank drain discharge should have a fine mesh screen installed.
The roof vent screen is deficient and a composite vent screen set should be installed to prevent staining of the roof if a corrosive environment is continually expected.
Coatings:
Exterior coating is severely deteriorated and providing little corrosion protection and should be blasted per SSPC-SP6 and a new AWWA D102 OCS-6 system installed.
Interior wet coating is deteriorating and should be blasted per SSPC-SP10 and a new NSF Standard 61 listed coating system installed at the time that the exterior coating system is replaced.
Security:
Tank site should have a fence installed to prevent unauthorized access or vandalism to the tank.
Communication & Electrical:
None at the time of the inspection.

ROUTINE MAINTENANCE:
The tank should be routinely cleaned and inspected to extend the lifespan of the tank and structure.

Tank Asset Preservation (TAP):
A TAP-ON Maintenance Program will provide you with the most efficient cost effective means of maintaining your tank's operation and appearance. Caldwell offers this Program to tank owners to assist them with preserving this highly visible and valuable asset through scheduled inspections and clean-outs, repairs, emergency services, and proactive coating systems overcoats or replacements.

CLOSING:
In the event that the findings of another party should differ significantly from those stated in this report, please contact the writer.

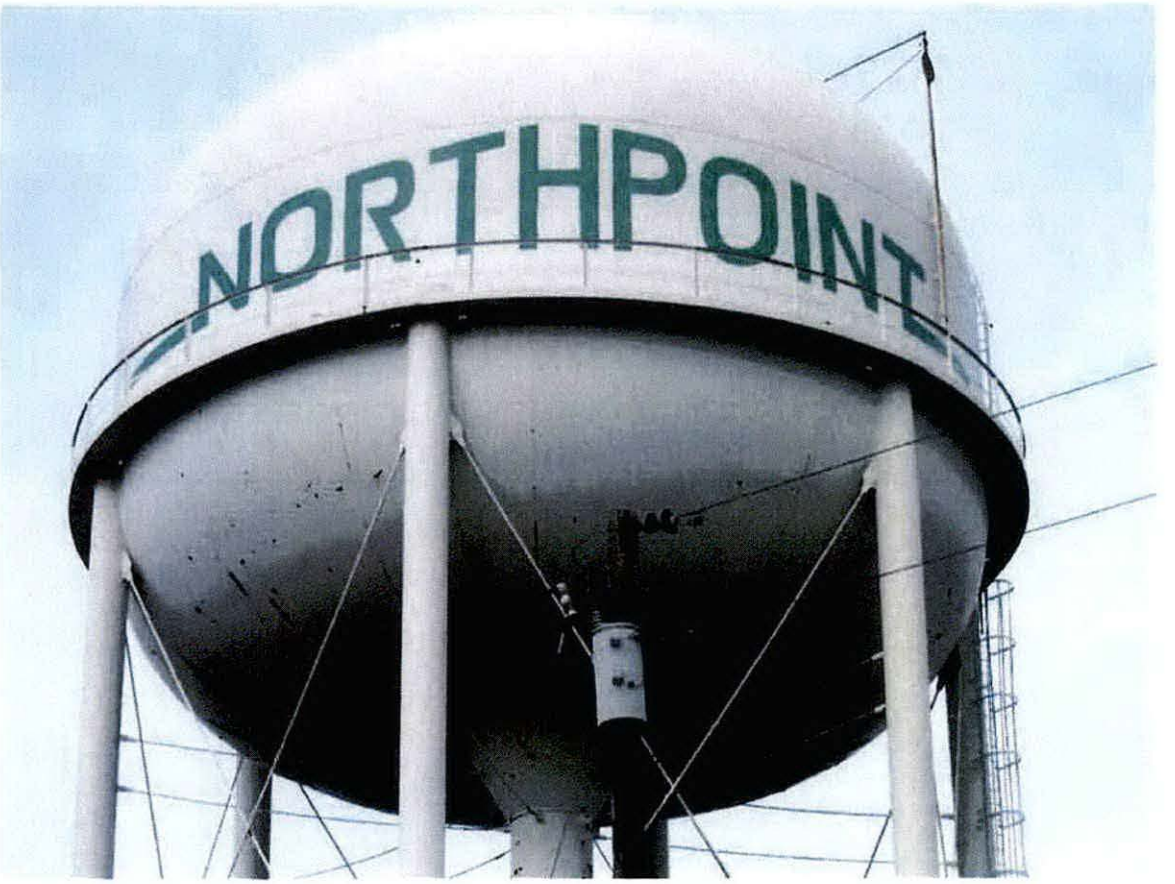
Sincerely,
CALDWELL TANKS, INC.



Mike Land
Caldwell Tanks Technical Services
NACE International #26121
SSPC - #1111122424

CALDWELL
Since 1887

APPENDIX A
CLEAN & INSPECT REPORT
LAKE VILLAGE WATER ASSOCIATION, INC
NORTHPOINT PRISON TANK
BURGIN, KENTUCKY
CTI #: WC-8176

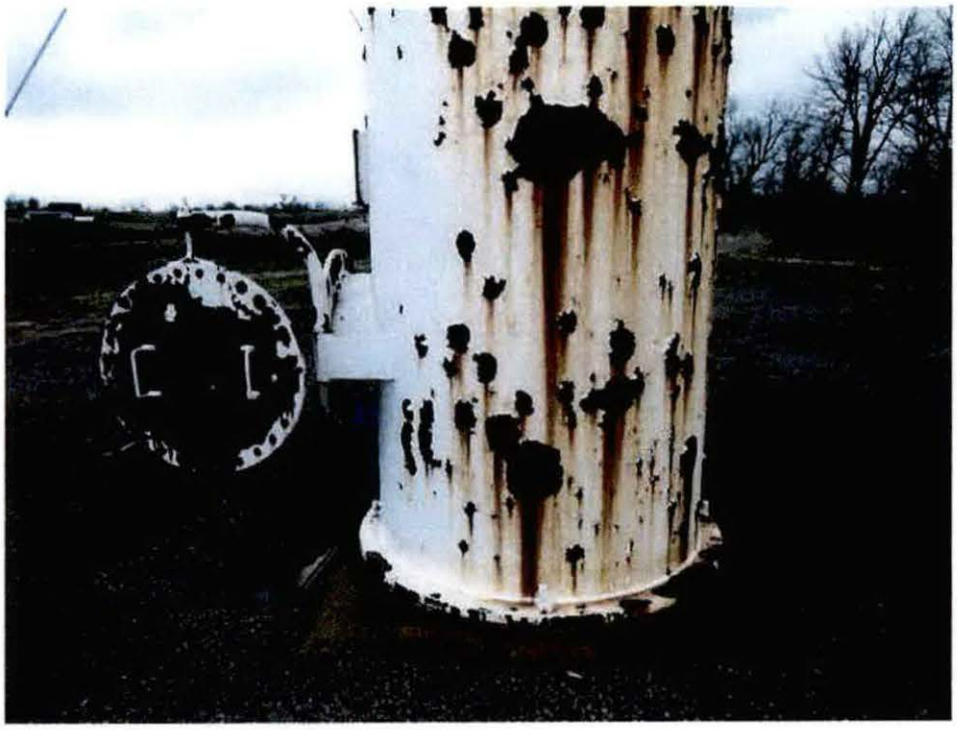


Tank & Tank Logo

4000 Tower Road, Louisville, KY 40219 / P. O. Box 35770. Louisville, KY 40232 / (502) 964-3361 / (502) 966-8732 FAX
57 East Broad Street, Newnan, GA 30263 / P O Box 608, Newnan, GA 30264 / (770) 253-3232 / (770) 251-9253 FAX

Nameplate

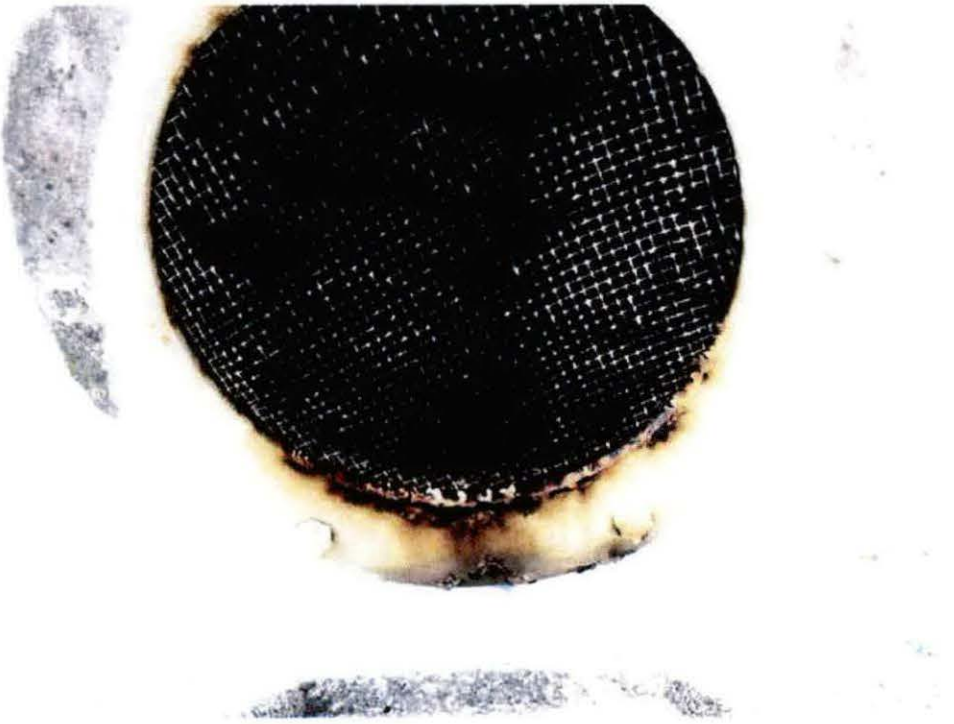
Riser, Foundation, Anchor Bolts & Riser Manhole – Removed for Wash-Out



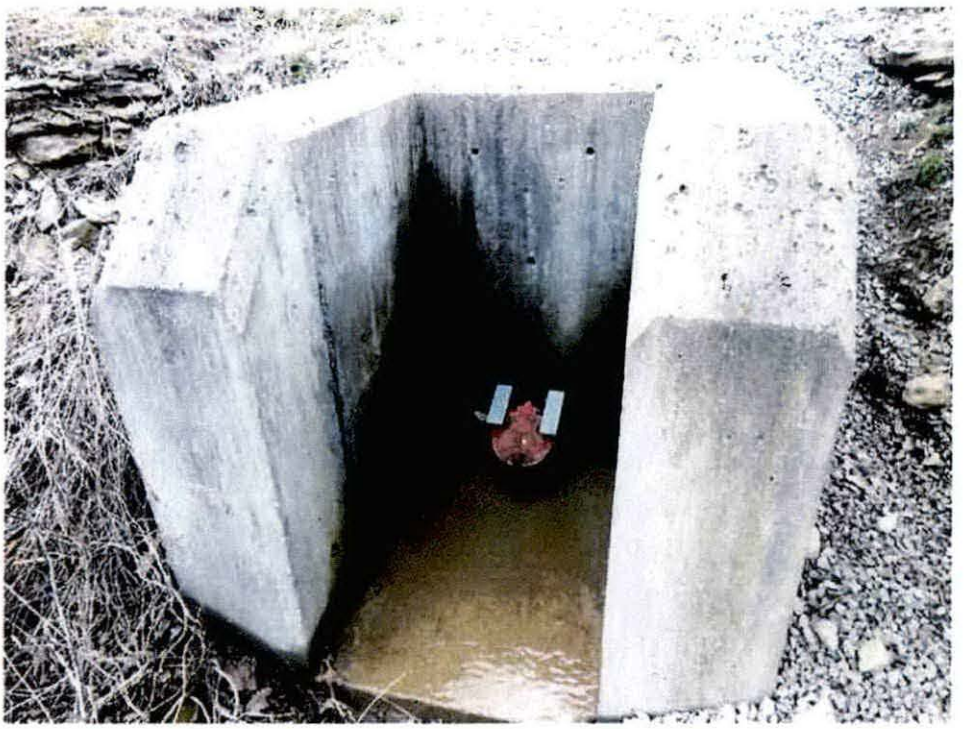
Riser – Coating Failure

Column, Foundation & Brace Rod Connections

Overflow Discharge & Undersized Splash Pad

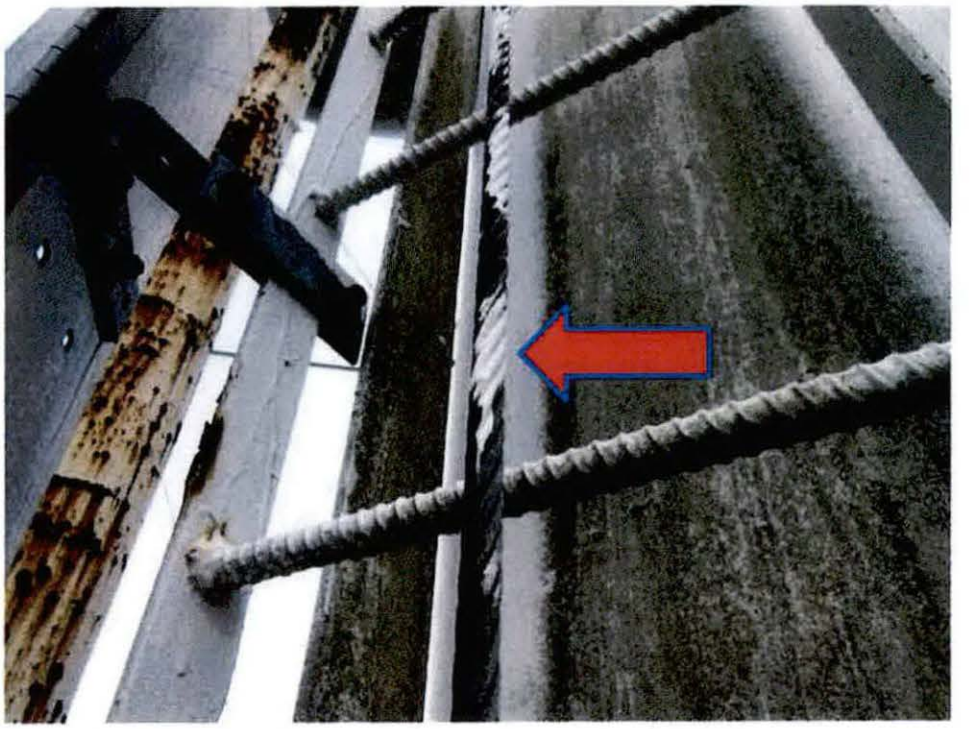


Overflow Discharge Screen

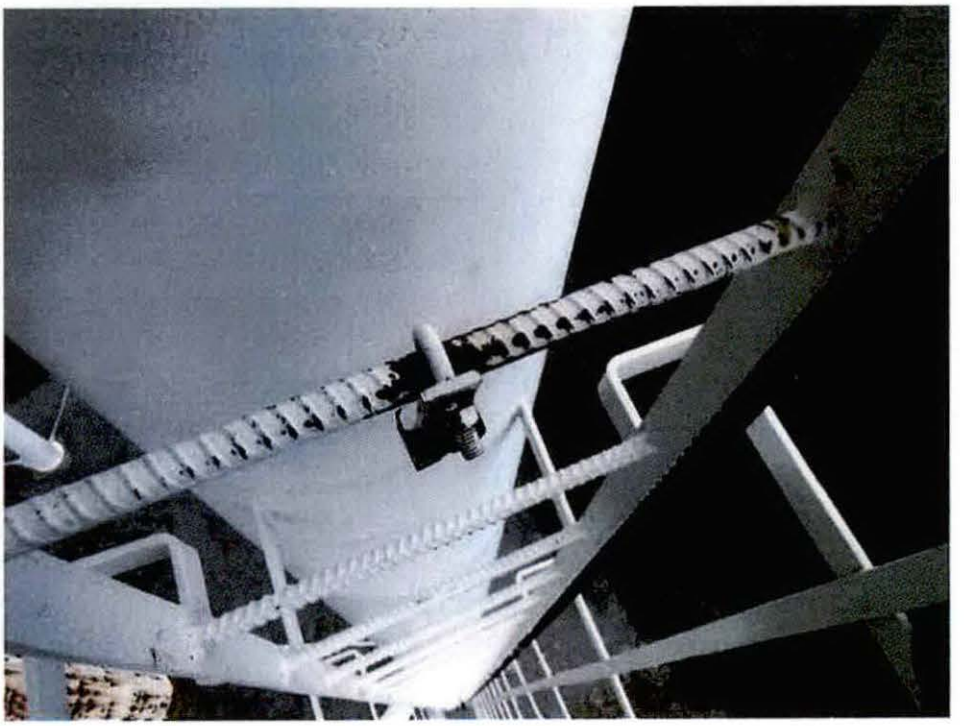


Tank Drain Discharge

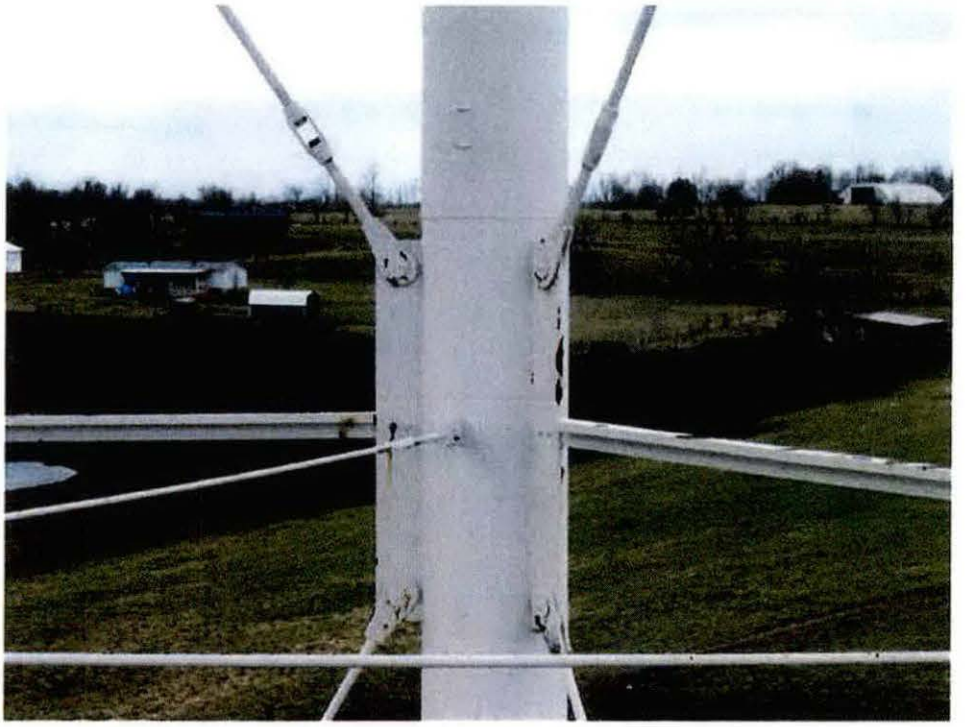
Tower Ladder, Safety Device, Ladder Cage & Vandal Guard



Tower Ladder & Deficient Safety Device – Painted

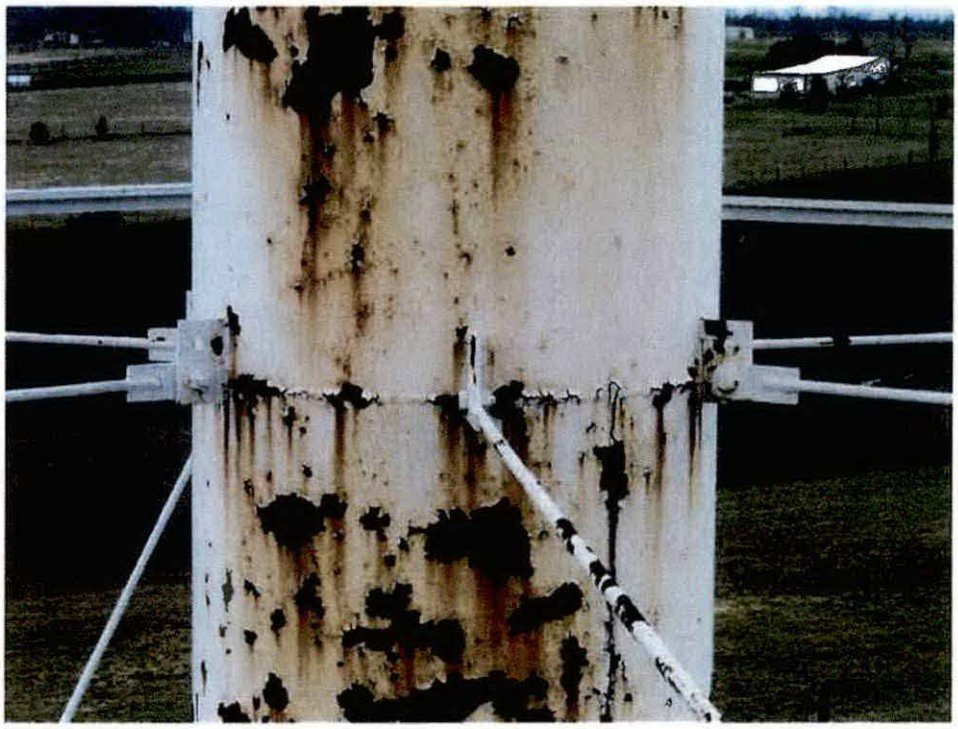


Deficient Safety Device Stand-Off



Column, Horizontal Struts, Riser Rod & Brace Rod Connections

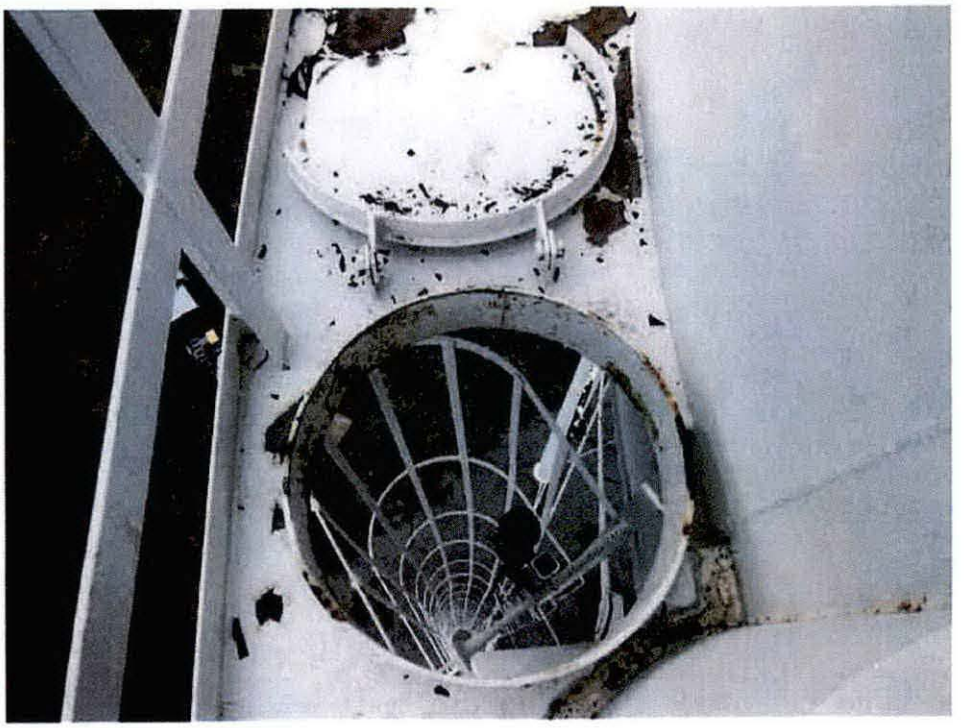
Horizontal Strut – Coating Failure



Riser, Riser Rods & Coating Failure

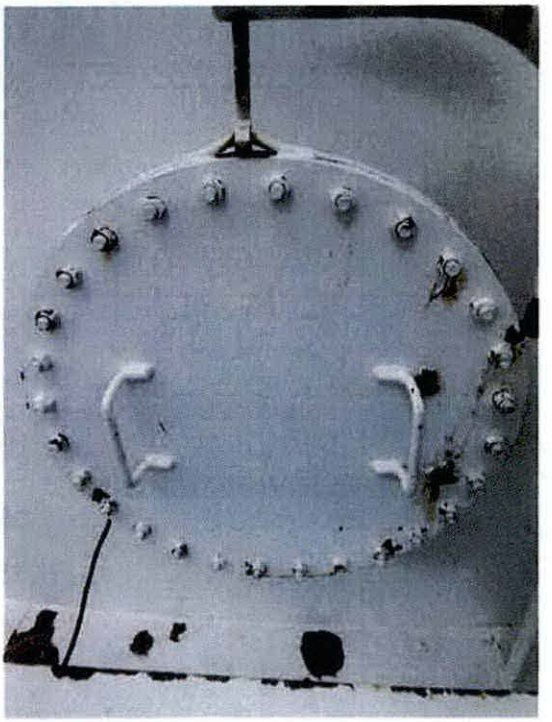
Riser, Riser Cone, Riser Rods, Tank Bowl & Coating Failure

Bottom of Balcony

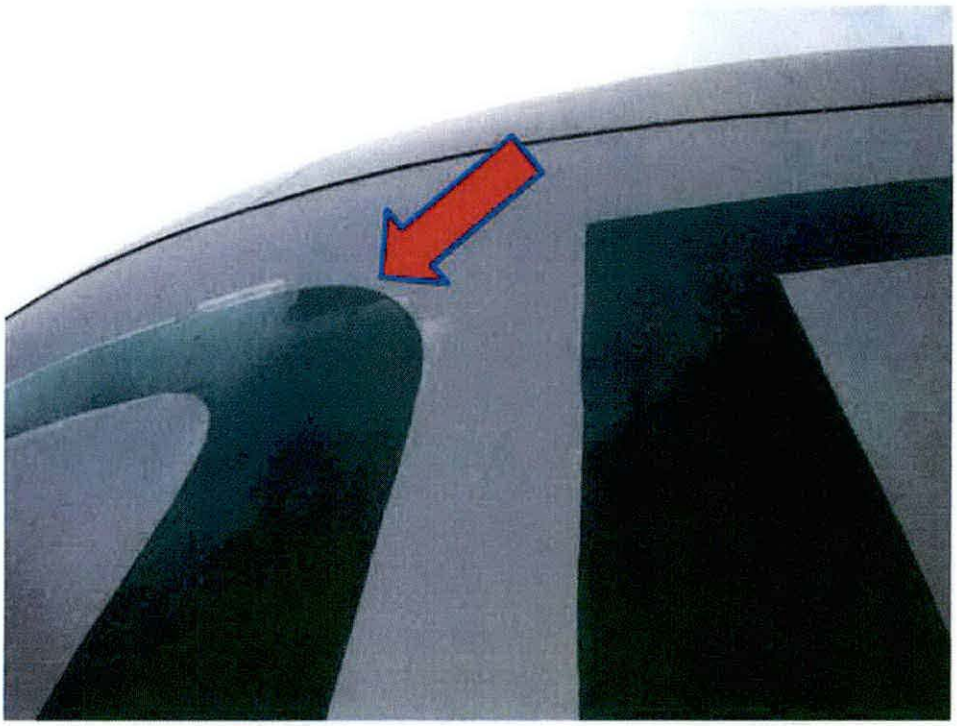


Balcony Entry, Manhole & Hatch

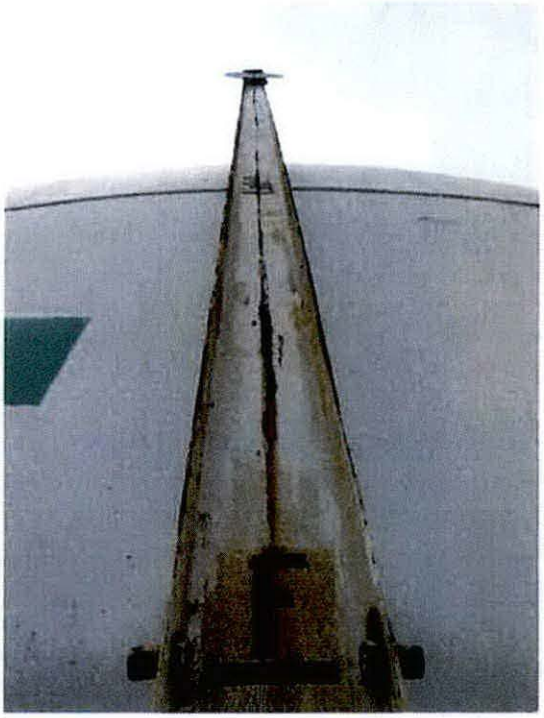
Tank Shell, Balcony, Handrail & Coating Failures



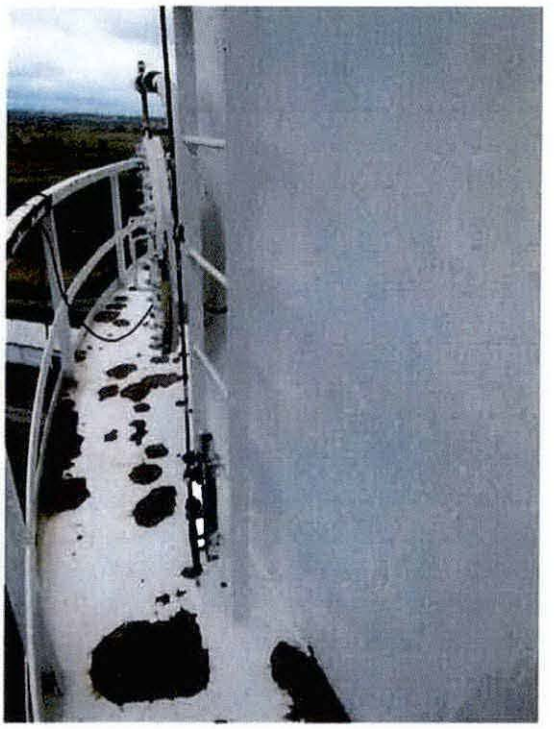
Shell Manhole with Davit Arm



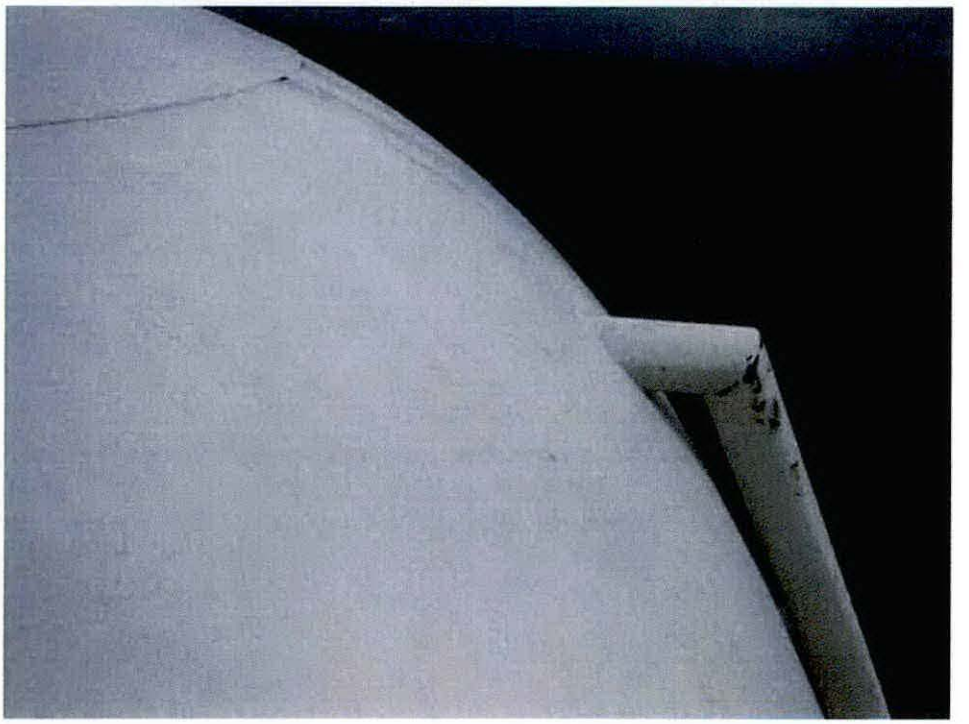
Tank Shell, Logo & Logo Clear Coat



Water Level Indicator



Shell/Roof Ladder & Deficient Safety Device – Painted

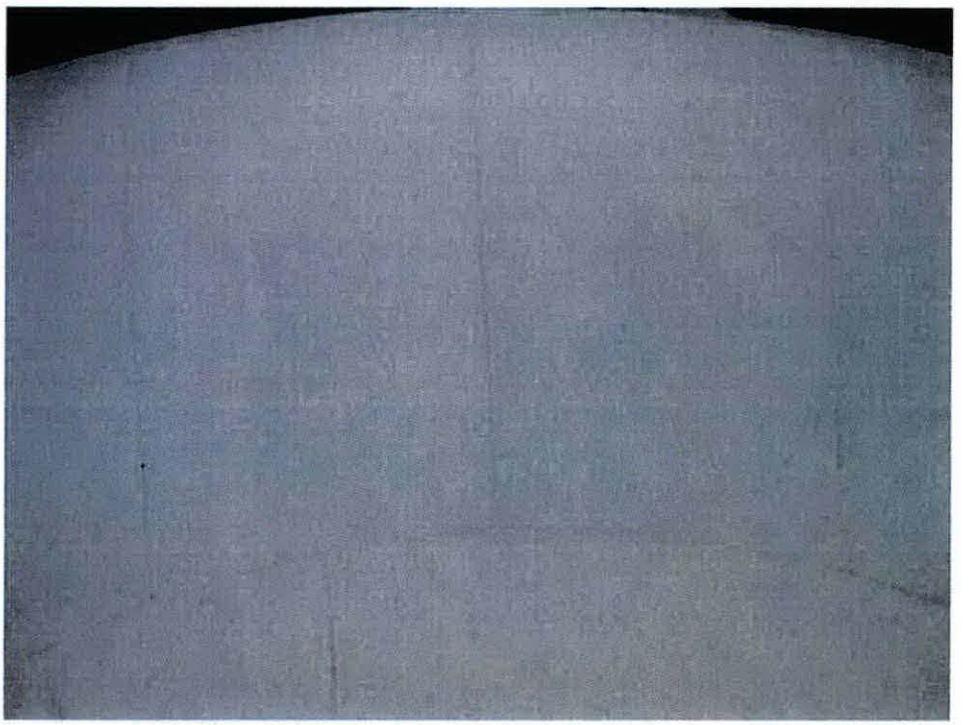


Tank Roof Knuckle & Overflow Pipe

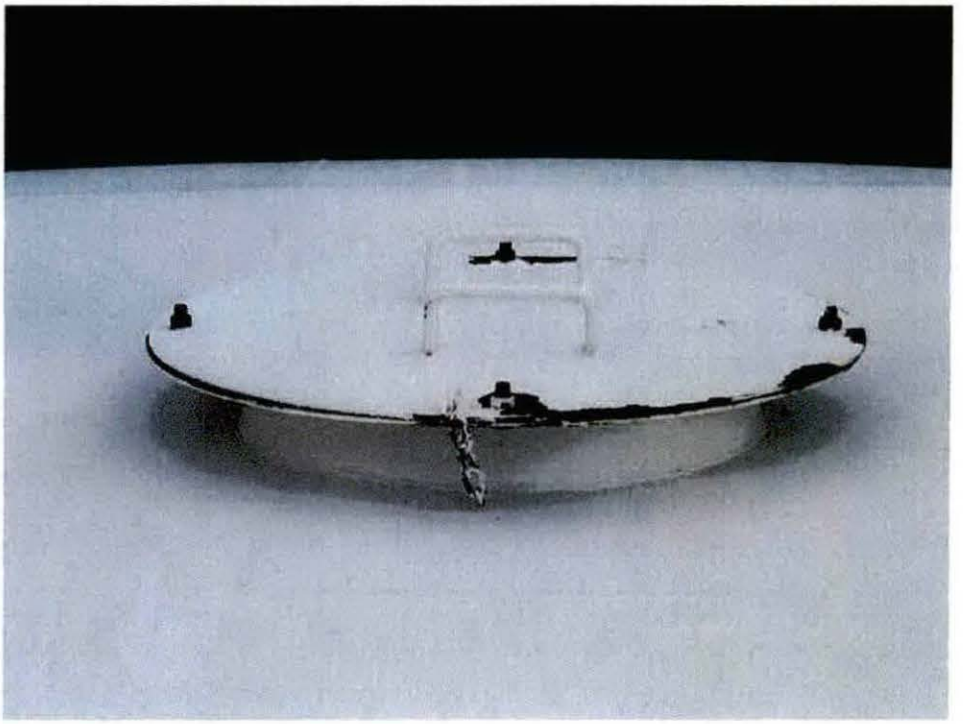
Tank Roof, Shell/Roof Ladder & Deficient Safety Device – Painted

Roof Vent

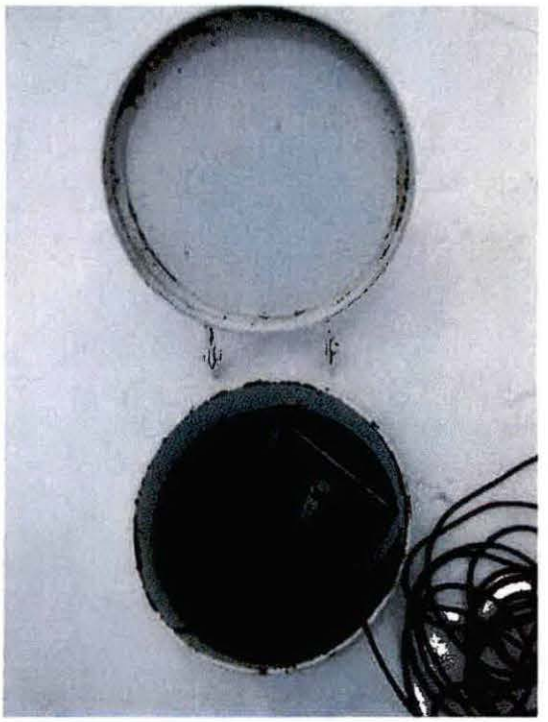
Roof Vent Screen



Exterior Roof Seams

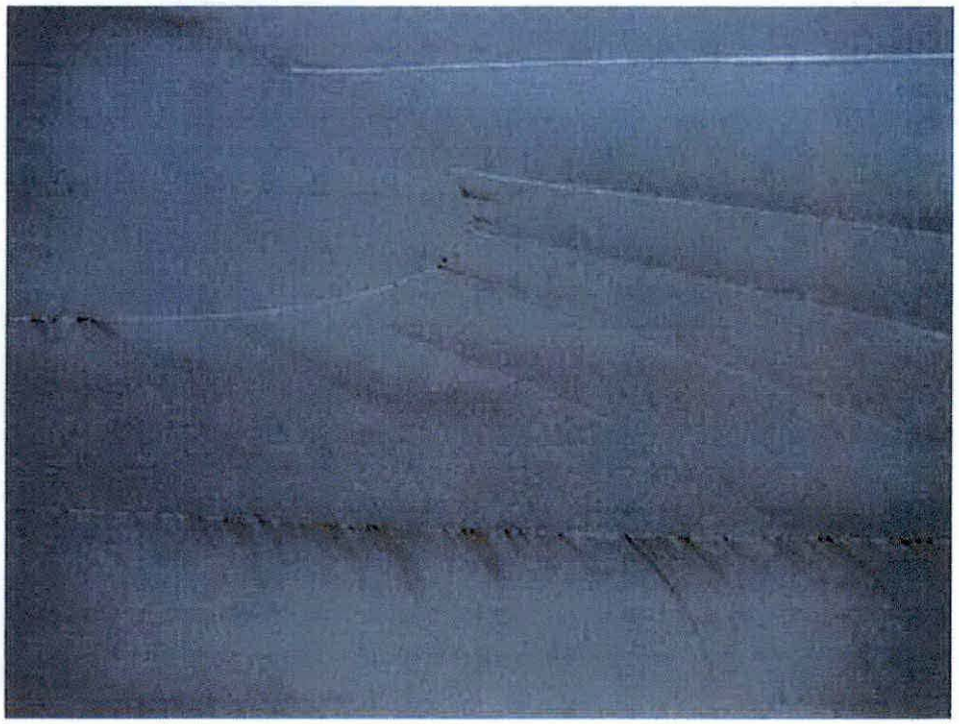


Flanged Roof Manhole

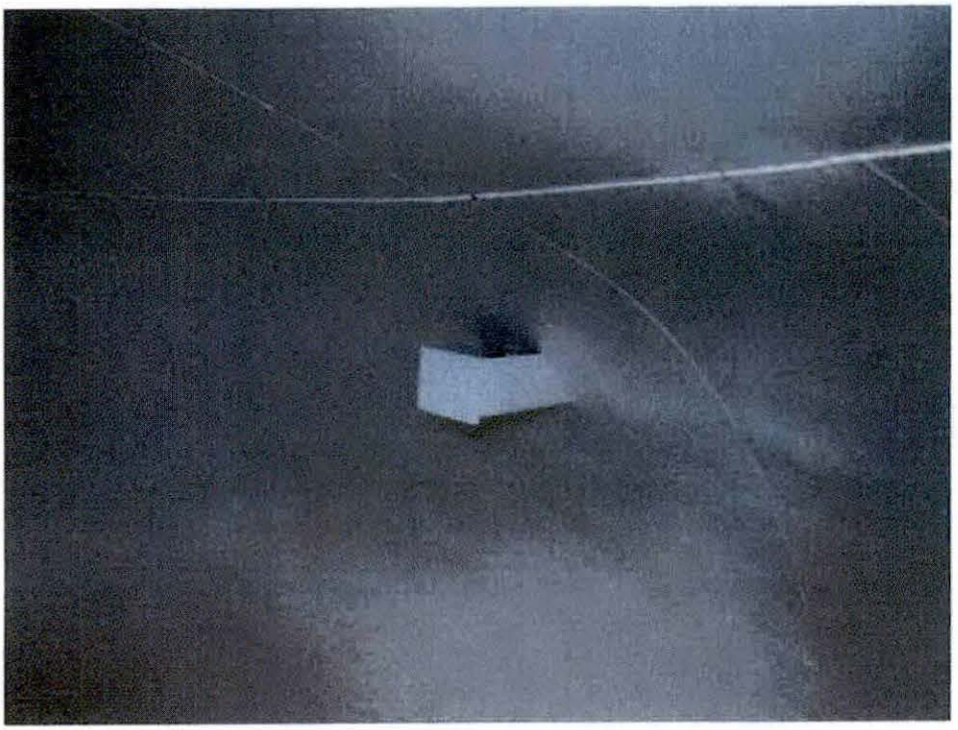


Hinged Roof Manhole, Interior Ladder & Safety Device

Interior Roof, Roof Vent Opening & Flanged Roof Manhole Neck

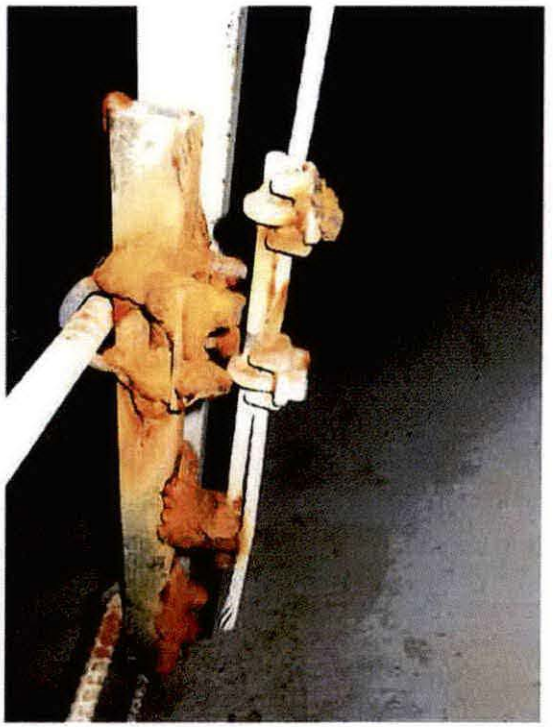


Interior Roof Seams



Overflow Weir Box

Interior Shell – Minor Water Staining



Deficient Interior Safety Device

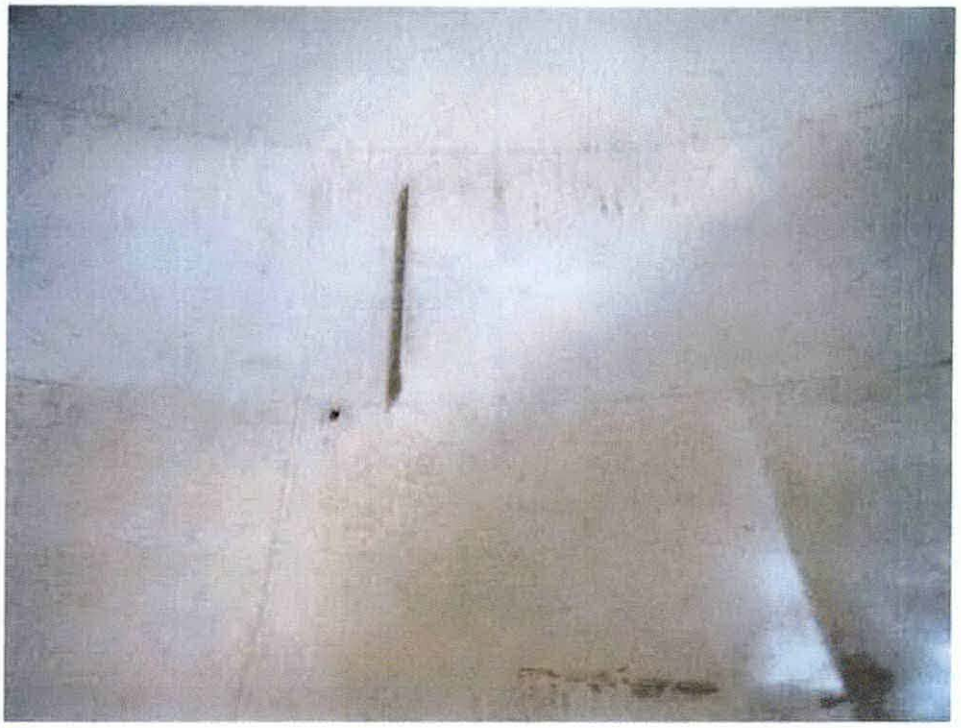
Interior Bottom before Cleaning

Interior Bottom after Cleaning

Tank Bottom Coating Delamination

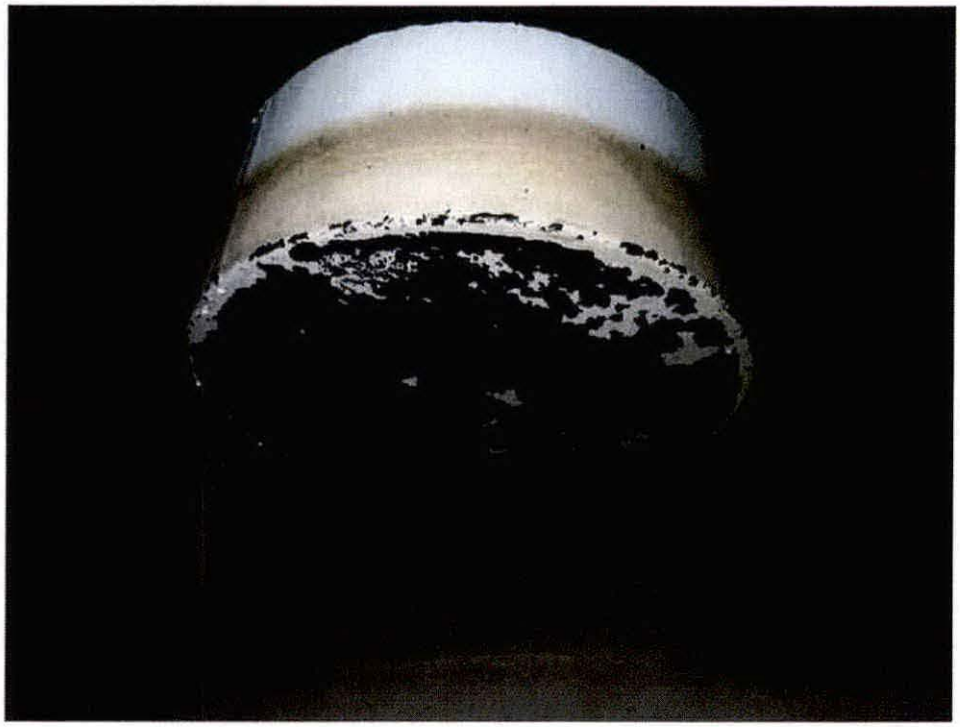
Interior Coating Deficiencies – Blisters

Interior Coating Deficiencies – Blisters & Rusting

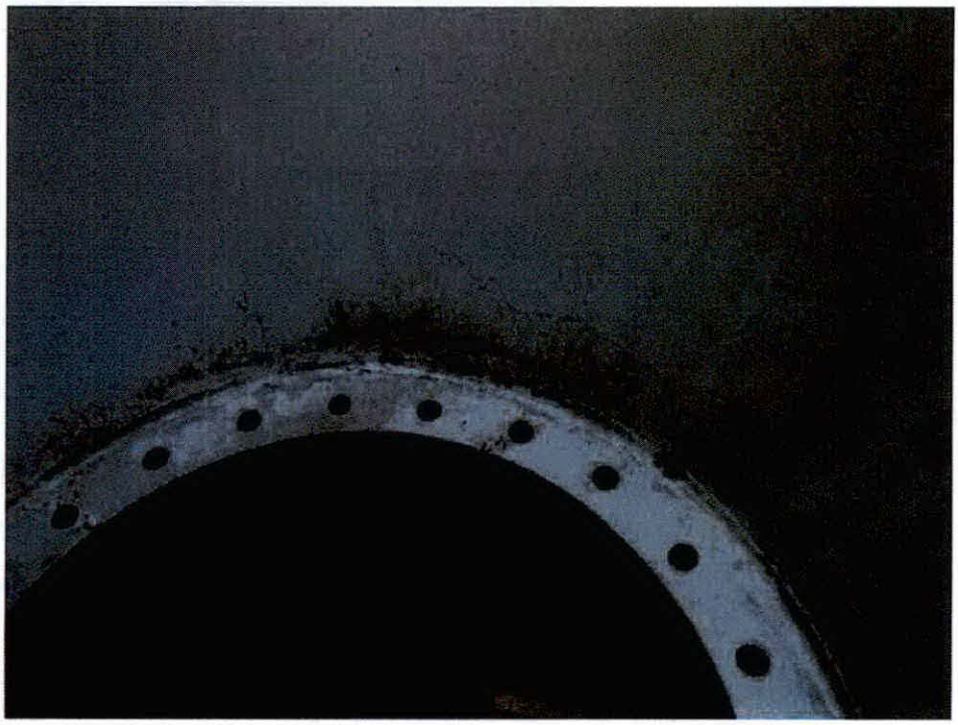


Interior Shell

Interior Shell Ladder, Safety Device & Flanged Shell Manhole



Water Level Indicator Float



Interior Riser Cone – Coating Deficiencies

Interior Riser, Riser Ladder, Safety Device & Coating Deficiencies

Interior Riser Bottom, Inlet Diffuser & Coating Deficiencies

DEED

THIS DEED, made and entered into on this the 13th day of November, 2013, by and between the **COMMONWEALTH OF KENTUCKY**, acting by and through Lori H. Flanery, Secretary of the Finance and Administration Cabinet, as provided by Chapters 45A and 56 of the Kentucky Revised Statutes, Room 383 Capitol Annex, Frankfort, Kentucky 40601, hereinafter referred to as "the Grantor," or "the Commonwealth", and **LAKE VILLAGE WATER ASSOCIATION**, a non-profit association, with a mailing address and "in care of" address of 801 Pleasant Hill Drive, P.O. Box 303, Burgin, Kentucky 40310, hereinafter referred to as the "Grantee."

WITNESSETH:

That for and in consideration of the public benefit to be derived by the Grantee and the citizens of the Commonwealth (but no monetary consideration), and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Grantor does hereby grant, transfer and convey to the Grantee, its successors and assigns, in fee simple with a Covenant of General Warranty an easement, in perpetuity, for the purpose of erecting, maintaining and operating a water line and also all of the Grantor's right, title and interest in a water tower located on the Grantor's property, the easement and water tower conveyed herein being more particularly described as follows:

A twenty foot wide water line easement being more particularly described in the attached Plat, which is incorporated herein by reference and designated as Exhibit "A"; said easement being deeded only for the purpose of erecting and maintaining an underground water line for the benefit of the Grantee and the public at large. The easement granted herein begins at Hughley Lane and runs in a southerly direction to a point near the existing water tower on the property owned by the Grantor.

As a part of this conveyance, the Grantor grants, transfers and conveys to the Grantee all of its right, title and interest in the water tower located on the Grantor's property as indicated on the Plat designated as Exhibit A. The conveyance of the water tower is subject to the terms and conditions set forth herein.

The foregoing easement conveyed herein being a part of the same property as that conveyed the Commonwealth of Kentucky, by Sam A. Mason, et. al., by Deed dated April 7, 1937, which is recorded in Deed Book 65, Page 58.

All references herein are to the records of the Boyle County Clerk.

THE EASEMENT AND PROPERTY conveyed herein are expressly subject to the following

terms and conditions:

1. Grantee acknowledges that this conveyance is subject to any other easements or restrictions as to the use of said property, whether recorded or unrecorded, which may have been previously granted by the Commonwealth or its predecessors in interest.

2. Grantee also agrees that it will repair, replace, or otherwise be liable to the Commonwealth for any and all damages that may be caused directly or indirectly by or resulting from the exercise of the Grantee's rights granted hereunder. Grantee shall not be responsible for damages that may be caused by the Commonwealth or its agents. For purposes of this paragraph, damages shall be defined as all reasonable attorney fees incurred by the Grantor as a result of the exercise of the Grantee's rights granted hereunder.

3. As a condition hereof, the Grantee shall restore the surface of the ground, as nearly as practicable, to the same condition as it was prior to the Grantee's construction, extension, installation, inspection, repair, maintenance, removal, replacement, reconstruction and/or enlargement of its facilities. The restoration of the surface shall include, but shall not be limited to, the reseeding and/or resodding of any unpaved portion thereof disturbed in the course of the aforementioned activity.

4. Grantee also agrees to repair or replace any pavement or blacktop surface removed or damaged during the construction, extension, installation, inspection, repair, maintenance, removal, replacement, reconstruction and/or enlargement of its facilities. Furthermore, the Grantee shall also repair or replace any pavement or blacktop surface which has settled within two (2) years of the construction, repair, reconstruction, extension, removal and/or enlargement of the Grantee's facilities, provided said settlement has resulted from the aforementioned activity.

5. Upon receiving the prior written approval of the Department of Corrections, the Grantee shall be permitted to cut, trim, and control the growth of trees, shrubbery, or vegetation by machinery or by manual procedures within the easement area. Chemical removal is prohibited.

6. Grantee further agrees that if the Commonwealth has authorized others to locate

utility lines within the limits of the above-described easement that Grantee shall not disturb these lines and shall indemnify the grantee(s) of such rights against any damage to their utility lines within the area of said easement, which is the result of the Grantee's exercise of the rights granted herein.

7. The rights hereby granted shall be deemed non-exclusive to the Grantee and the Commonwealth reserves the right, at its option and for its convenience, to grant to others similar rights of easement and right-of-way within the limits of the above-described easement; provided, however, that the Commonwealth agrees to forebear granting any such rights within the limits of said easement that in the judgment of the Director of the Division of Engineering and Contract Administration, Finance and Administration Cabinet, will be for a use detrimental to or will adversely affect the use thereof by the Grantee; and as a condition of any such grant of easement will require that the grantee thereof agree to indemnify the Grantee hereof against any damage to its facilities located within the easement.

8. The Commonwealth, its successors and assigns, shall have the right to use the land within the limits of this easement in any manner not inconsistent with the rights herein described.

9. The Commonwealth agrees that it will forebear constructing any building or other permanent improvement over or across the right-of-way of the above-described easement, but reserves to itself the right to construct within the limits of said easement fences and temporary structures over, along or across the right-of-way of said easement, as long as the erection of said fences or other temporary structures does not substantially interfere with the Grantee's rights granted hereunder, or violate any applicable codes, statutes or regulations.

10. This easement shall remain in effect for as long as the Grantee, its successors and assigns use this easement for the purposes granted, but if the Grantee's use thereof shall be discontinued for a period of two (2) consecutive calendar years, such lack of use shall be deemed an abandonment of this easement by the Grantee and all rights hereunder granted shall cease and this easement shall terminate.

11. As consideration for the conveyance of the water tower described herein to the Grantee, the Grantee hereby covenants and agrees to spend an estimated $1,173,200.00 to update the water tower and estimated 1,650 feet of existing waterline and also to supply drinking water to the Northpoint Training Center, in perpetuity, at the rates for such service set by the Public Service Commission. Such water service shall include sufficient water capacity for Northpoint Training Center to meet its needs even in the event of a fire emergency.

12. The conveyance herein is for the water tower only. The Commonwealth does not convey any of the underlying land on which the water tower sits.

13. The parties hereby agree that in the event the Grantee fails to satisfy the terms and conditions set forth herein then title to the water tower shall revert to the Commonwealth.

IN TESTIMONY WHEREOF, witness the signature of Lori H. Flanery, Secretary of the Finance and Administration Cabinet, Commonwealth of Kentucky, affixed hereto for and on behalf of said Commonwealth as authorized and provided by Chapters 45A and 56 of the Kentucky Revised Statutes, as of this 12th day of ~~October~~ November, 2013.

COMMONWEALTH OF KENTUCKY

By: Lori H. Flanery
Lori H. Flanery, Secretary
Finance and Administration Cabinet

COMMONWEALTH OF KENTUCKY)
)
COUNTY OF FRANKLIN)

The foregoing Deed and Deed of Easement was acknowledged before me by Lori H. Flanery, Secretary of the Finance and Administration Cabinet, Commonwealth of Kentucky, this 12 day of ~~August~~ November, 2013.

NOTARY PUBLIC
489433

My Commission expires: 5·16·2017.

Examined:

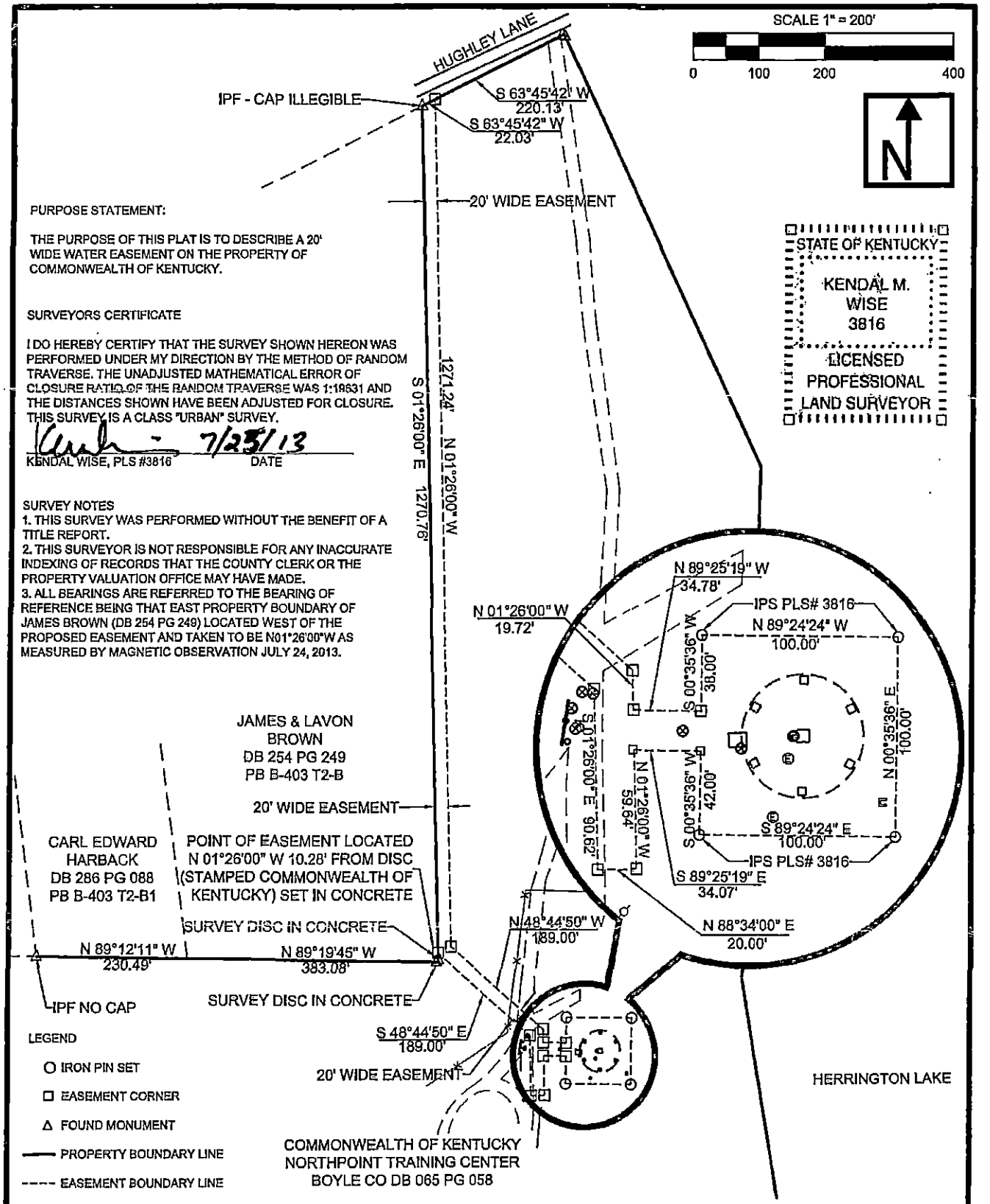
Counsel to the Governor

THE SUBJECT EASEMENT IS APPROVED:

STEVEN L. BESHEAR, GOVERNOR
COMMONWEALTH OF KENTUCKY

This Instrument Prepared By:

Patrick W. McGee, Attorney
Finance and Administration Cabinet
Office of General Counsel
Room 392, Capitol Annex Building
702 Capitol Avenue
Frankfort, Kentucky 40601
(502) 564-6660



DATE: 7/25/13
SCALE: 1"=200'
DRAWN BY: CFB
CHECKED BY: KMW
JOB NO: 170006

WATER EASEMENT PLAT
LAKE VILLAGE WATER ASSOCIATION
NORTHPOINT TRAINING CENTER
HARRODSBURG, MERCER CO, KENTUCKY

VANTAGE Engineering PLC
2038 Danville Road,
Harrodsburg, Kentucky 40330
phone: 859-734-0560
fax: 859-734-0561
website: www.vantageky.com

EXHIBIT A

RESOLUTION OF THE BOARD OF DIRECTORS OF LAKE VILLAGE WATER ASSOCIATION, INC.

The members of the Board of Directors of Lake Village Water Association, Inc., a Kentucky Non-Profit Corporation ("LVWA"), as evidenced by the signature of its President below, acting by unanimous consent pursuant to an oral motion made at its monthly meeting held Tuesday, December 10, 2013, do hereby resolve as follows:

> RESOLVED that LVWA formally accept the deed from the Commonwealth of Kentucky to Lake Village Water Association dated the 12th day of November, 2013, and of record in Deed Book _____, page _____, in the Boyle County Clerk's office. Said deed grants a water tower and water line easement more particularly described and laid out in the survey of Kendal M. Wise, Water Easement Plat, Northpoint Training Center, dated July 25, 2013, and attached as Exhibit A to the aforementioned deed.

IN TESTIMONY WHEREOF, witness the signature of the Danny Noel, President of the Board of Directors of LVWA, effective as of the 10th day of December, 2013.

Danny Noel

DANNY NOEL, PRESIDENT
BOARD OF DIRECTORS,
LAKE VILLAGE WATER ASSOCIATION, INC.

DOCUMENT NO: 9549573
RECORDED ON:January 13, 2014 01:59:00PM
COUNTY CLERK: TRILLE L. BOTTOM
COUNTY: BOYLE
BOOK: D499 PAGE: 197 - 203 EASE

Signed:

Lake Village Water Association, Inc.

801 Pleasant Hill Drive
P.O. Box 303
Burgin, Kentucky 40310
(859) 748-5642

April 11, 2016

Kentucky Public Service Commission
211 Sower Blvd.
P.O. Box 615
Frankfort, Kentucky 40602-0615

Re: Lake Village Water Association, Inc.
Northpoint Training Facility
Water Main Extension & Tank Rehabilitation Project

To Whom It May Concern,

The Lake Village Water Association Board of Directors does hereby certify the following:

(1) The proposed plans and specifications for the Project have been designed to meet minimum construction and operating requirements set out in 807 KAR 5:066, Section 4 (3) and (4); Section 5(1); Sections 6 and 7; Section 8(1) through (3); Section 9(1) and Section 10;

(2) All other state approvals or permits have been obtained;

(3) The proposed water rates shall produce the total revenue requirements recommended in the engineering reports for the project are sufficient to cover the debt obligation for the proposed project as set forth in the Rural Development Letter of Conditions, dated June 23, 2015 (Exhibit A).

(4) The anticipated construction start date is July 1, 2016 and the anticipated completion date is October 1, 2016.

Sincerely,

Danny Noel
President

FOR Boyle & Mercer Counties, KY

PSC KY NO. 1

6th Revised SHEET NO. 4

Lake Village Water Association, Inc.
(NAME OF UTILITY)

CANCELLING PSC KY NO. 1

5th Revised SHEET NO. 4

A. Monthly Water Rates

5/8 x 3/4 Inch Meter

First	2,000 gallons	$26.40	Minimum Bill
Next	18,000 gallons	$10.25	per 1,000 gallons
Over	20,000 gallons	$8.27	per 1,000 gallons

Wholesale Water Rate

North Point Training Center	$3.90	per 1,000 gallons

DATE OF ISSUE 4/11/2016
MONTH / DATE / YEAR

DATE EFFECTIVE 5/15/2016
MONTH / DATE / YEAR

ISSUED BY Mike D. Sanford
SIGNATURE OF OFFICER

TITLE Executive Director

BY AUTHORITY OF ORDER OF THE PUBLIC SERVICE COMMISSION IN CASE NO. _____ DATED _____

Public Notice

Lake Village Water Association Customers

Effective May 15, 2016, the water rates for all Lake Village Water Association customers will be increased by $0.70 per 1,000 gallons of water used. The rate adjustment is necessary as a result of the construction and implementation of the Northpoint Training Center 600,000 Gallon Elevated Storage Tank Project. The rate adjustment was approved by the Lake Village Water Association Board of Directors on _____, as well as the Kentucky Public Service Commission on _____. For further information, please contact the Lake Village Water Association office at (859) 748-5642.

STEVEN L. BESHEAR
GOVERNOR

LEONARD K. PETERS
SECRETARY

ENERGY AND ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF WATER
200 FAIR OAKS LANE, 4TH FLOOR
FRANKFORT, KENTUCKY 40601
www.kentucky.gov

September 9, 2014

Mr. Mike D Sanford
Lake Village Water Association
801 Pleasant Hill Dr
Burgin, KY 40310

RE: Lake Village Water Association
AI # 34028, APE20140001
PWSID # 0840587-14-001
North Point Training Center Line Extension
and Storage Tank
Mercer County, KY

Dear Mr. Sanford:

We have reviewed the plans and specifications for the above referenced project. The plans include the construction of approximately 1,590 feet of 12-inch water line and rehabilitation of the existing 600,000 gallons Water Tank at Northpoint Training Center, including cleaning, painting and safety equipment. This is to advise that plans and specifications for the above referenced project are APPROVED with respect to sanitary features of design, as of this date with the requirements contained in the attached construction permit and also following stipulation for repainting/renovation.

1. Paints shall meet NSF standard 61.
2. Paints shall be properly applied and cured.
3. Paints shall not transfer any substance to water which will be toxic or cause tastes or odors (following curing).
4. Following completion of work on the tank and before being placed into service, the tank shall be thoroughly disinfected.
5. Disposal of heavily chlorinated water from the tanks disinfection process shall be in accordance with Kentucky EPPC Division of Water requirements.
6. Two or more successive sets of bacteriological samples, taken at 24-hour intervals, shall be taken and reported (using the most expedient method) to the Division of Water following disinfection.
7. Samples shall indicate microbiologically satisfactory water prior to placing the tank back into operation.

8. When this project is completed, the owner shall submit a written certification to Division of Water that the above referenced painting and modification has been completed in accordance with the approved specifications. Such certification shall be signed by licensed professional engineer

This approval has been issued under the provision of KRS Chapter 224 and regulation promulgated pursuant thereto. Issuance of this approval does not relieve the applicant from the responsibly of obtaining any other approval, permits or licenses required by this Cabinet and other state, federal and local agencies. Furthermore, this permit does not address the authority of the permittee to provide service.

Unless renovation, rehabilitation and painting commence within two years from the date of this approval letter, the approval shall expire. If this approval expires, the original plans and specifications have to be resubmitted for a new comprehensive review.

If you have any questions concerning this project, please contact Mr. Mohammed Mohiuddin at 502-564-3410 extension 4827.

Sincerely,

Mark Rasche

Mark Rasche, P.E.
Supervisor, Engineering Section
Water Infrastructure Branch
Division of Water

MR: MM
Enclosures
C: Strand Associates, Inc.
Mercer County Health Department
Division of Plumbing (by e-mail only)

PORT0000000012 (Waterline Extension) 1,590 feet of 12-inch Waterline:

Narrative Requirements:

Condition No.	Condition
T-1	Construction of this project shall not result in the water system's inability to supply consistent water service in compliance with 401 KAR 8:010 through 8:600. [401 KAR 8:100 Section 5]
T-2	The public water system shall not implement a change to the approved plans without the prior written approval of the cabinet. [401 KAR 8:100 Section 4(3)]
T-3	A proposed change to the approved plans affecting sanitary features of design shall be submitted to the cabinet for approval in accordance with Section 2 of this administrative regulation. [401 KAR 8:100 Section 4(2)]
T-4	During construction, a set of approved plans and specifications shall be available at the job site. Construction shall be performed in accordance with the approved plans and specifications. [401 KAR 8:100 Section 3(1)]
T-5	Unless construction begins within two (2) years from the date of approval of the final plans and specifications, the approval shall expire. [401 KAR 8:100 Section 3(3)]
T-6	Upon completion of construction, a professional engineer shall certify in writing that the project has been completed in accordance with the approved plans and specifications. [401 KAR 8:100 Section 4(1)]
T-7	The system shall be designed to maintain a minimum pressure of 20 psi at ground level at all points in the distribution system under all conditions of flow. [Recommended Standards for Water Works 8.2.1, Drinking Water General Design Criteria IV.1.a]
T-8	Water lines should be hydraulically capable of a flow velocity of 2.5 ft/s while maintaining a pressure of at least 20 psi. [Drinking Water General Design Criteria IV.1.b]
T-9	The normal working pressure in the distribution system at the service connection shall not be less than 30 psi under peak demand flow conditions. Peak demand is defined as the maximum customer water usage rate, expressed in gallons per minute (gpm), in the pressure zone of interest during a 24 hour (diurnal) time period. [Drinking Water General Design Criteria IV.1.d]
T-10	When static pressure exceeds 150 psi, pressure reducing devices shall be provided on mains or as part of the meter setting on individual service lines in the distribution system. [Drinking Water General Design Criteria IV.1.c]

PORT0000000012 (continued):

Narrative Requirements:

Condition No.	Condition
T-11	The minimum size of water main in the distribution system where fire protection is not to be provided should be a minimum of three (3) inch diameter. Any departure from minimum requirements shall be justified by hydraulic analysis and future water use, and can be considered only in special circumstances. [Recommended Standards for Water Works 8.2.2, Drinking Water General Design Criteria IV.2.b]
T-12	Water mains not designed to carry fire-flows shall not have fire hydrants connected to them. [Recommended Standards for Water Works 8.4.1.b]
T-13	Flushing devices should be sized to provide flows which will give a velocity of at least 2.5 feet per second in the water main being flushed. [Recommended Standards for Water Works 8.2.4.b, Recommended Standards for Water Works 8.4.1.b]
T-14	No flushing device shall be directly connected to any sewer. [Recommended Standards for Water Works 8.2.4.b, Recommended Standards for Water Works 8.4.1.b]
T-15	Pipe shall be constructed to a depth providing a minimum cover of 30 inches to top of pipe. [Drinking Water General Design Criteria IV.3.a]
T-16	Water mains shall be covered with sufficient earth or other insulation to prevent freezing. [Recommended Standards for Water Works 8.7]
T-17	A continuous and uniform bedding shall be provided in the trench for all buried pipe. Backfill material shall be tamped in layers around the pipe and to a sufficient height above the pipe to adequately support and protect the pipe. Stones found in the trench shall be removed for a depth of at least six inches below the bottom of the pipe. [Recommended Standards for Water Works 8.7]
T-18	Water line installation shall incorporate the provisions of the AWWA standards and/or manufacturer's recommended installation procedures. [Recommended Standards for Water Works 8.7]
T-19	All materials used for the rehabilitation of water mains shall meet ANSI/NSF standards. [Recommended Standards for Water Works 8.1]
T-20	Packing and jointing materials used in the joints of pipe shall meet the standards of AWWA and the reviewing authority. [Recommended Standards for Water Works 8.1]
T-21	All tees, bends, plugs and hydrants shall be provided with reaction blocking, tie rods or joints designed to prevent movement. [Recommended Standards for Water Works 8.7]

PORT0000000012 (continued):

Narrative Requirements:

Condition No.	Condition
T-22	All materials including pipe, fittings, valves and fire hydrants shall conform to the latest standards issued by the ASTM, AWWA and ANSI/NSF, where such standards exist, and be acceptable to the Division of Water. [Recommended Standards for Water Works 8.1]
T-23	Water mains which have been used previously for conveying potable water may be reused provided they meet the above standards and have been restored practically to their original condition. [Recommended Standards for Water Works 8.1]
T-24	Manufacturer approved transition joints shall be used between dissimilar piping materials. [Recommended Standards for Water Works 8.1]
T-25	Pipes and pipe fittings containing more than 8% lead shall not be used. All products shall comply with ANSI/NSF standards. [Recommended Standards for Water Works 8.1]
T-26	The minimum size of water main which provides for fire protection and serving fire hydrants shall be six?inch diameter. [Recommended Standards for Water Works 8.2, Drinking Water General Design Criteria IV.2.a]
T-27	Gaskets containing lead shall not be used. Repairs to lead?joint pipe shall be made using alternative methods. [Recommended Standards for Water Works 8.1]
T-28	Pipe materials shall be selected to protect against both internal and external pipe corrosion. [Recommended Standards for Water Works 8.1]
T-29	Dead end mains shall be equipped with a means to provide adequate flushing. [Recommended Standards for Water Works 8.2]
T-30	The hydrant lead shall be a minimum of six inches in diameter. Auxiliary valves shall be installed on all hydrant leads. [Recommended Standards for Water Works 8.4.3]
T-31	A sufficient number of valves shall be provided on water mains to minimize inconvenience and sanitary hazards during repairs. [Recommended Standards for Water Works 8.3]
T-32	Wherever possible, chambers, pits or manholes containing valves, blow?offs, meters, or other such appurtenances to a distribution system, shall not be located in areas subject to flooding or in areas of high groundwater. Such chambers or pits should drain to the ground surface, or to absorption pits underground. The chambers, pits and manholes shall not connect directly to any storm drain or sanitary sewer. Blow?offs shall not connect directly to any storm drain or sanitary sewer. [Recommended Standards for Water Works 8.6]

PORT0000000012 (continued):

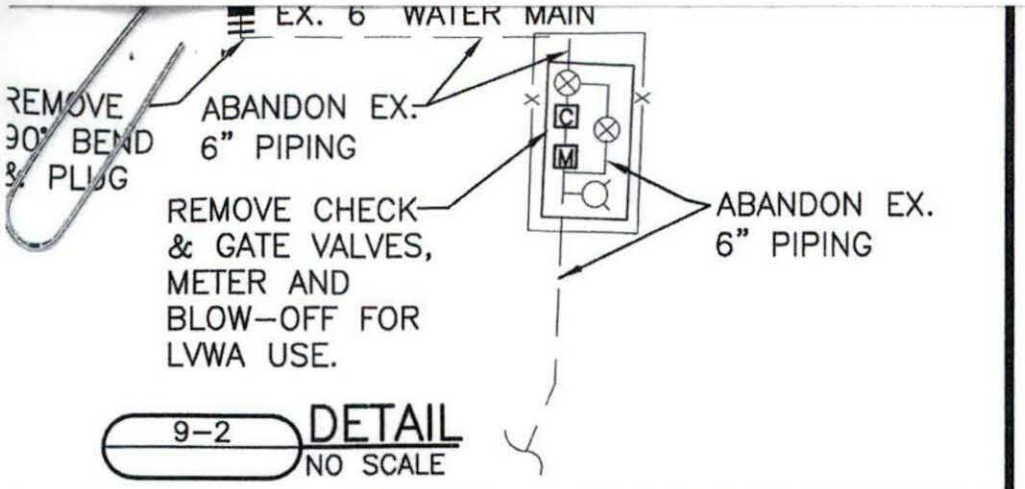
Narrative Requirements:

Condition No.	Condition
T-33	At high points in water mains where air can accumulate provisions shall be made to remove the air by means of air relief valves. [Recommended Standards for Water Works 8.5.1]
T-34	Automatic air relief valves shall not be used in situations where flooding of the manhole or chamber may occur. [Recommended Standards for Water Works 8.5.1]
T-35	The open end of an air relief pipe from automatic valves shall be extended to at least one foot above grade and provided with a screened, downward?facing elbow. [Recommended Standards for Water Works 8.5.2.c]
T-36	Discharge piping from air relief valves shall not connect directly to any storm drain, storm sewer, or sanitary sewer. [Recommended Standards for Water Works 8.5.2.d]
T-37	Water pipe shall be constructed with a lateral separation of 10 feet or more from any gravity sanitary or combined sewer measured edge to edge where practical. If not practical a variance may be requested to allow the water pipe to be installed closer to the gravity sanitary or combined sewer provided the water pipe is laid in a separate trench or undisturbed shelf located on one side of the sewer with the bottom of the pipe at least 18 inches above the top of the gravity sanitary or combined sewer pipe. [Drinking Water General Design Criteria IV.3.b]
T-38	Water lines crossing sanitary, combined or storm sewers shall be laid to provide a minimum vertical distance of 18 inches between the outside of the water main and the outside of the sanitary, combined or storm sewer with preference to the water main located above the sanitary, combined or storm sewer. [Drinking Water General Design Criteria IV.3.c]
T-39	At crossings, one full length of water pipe shall be located so both joints will be as far from the sewer as possible. [Recommended Standards for Water Works 8.8.3.b]
T-40	There shall be no connection between the distribution system and any pipes, pumps, hydrants, or tanks whereby unsafe water or other contaminating materials may be discharged or drawn into the system. [Recommended Standards for Water Works 8.10.1]
T-41	Water utilities shall have a cross connection program conforming to 401 KAR 8. [Recommended Standards for Water Works 8.10.1]
T-42	Installed pipe shall be pressure tested and leakage tested in accordance with the appropriate AWWA Standards. [Recommended Standards for Water Works 8.7.6]

PORT0000000012 (continued):

Narrative Requirements:

Condition No.	Condition
T-43	New, cleaned and repaired water mains shall be disinfected in accordance with AWWA Standard C651. The specifications shall include detailed procedures for the adequate flushing, disinfection, and microbiological testing of all water mains. In an emergency or unusual situation, the disinfection procedure shall be discussed with the Division of Water. [Recommended Standards for Water Works 8.7.7]
T-44	A minimum cover of five feet shall be provided over pipe crossing underwater. [Recommended Standards for Water Works 8.9.2]
T-45	Valves shall be provided at both ends of water crossings so that the section can be isolated for testing or repair; the valves shall be easily accessible, and not subject to flooding for pipes crossing underwater. [Recommended Standards for Water Works 8.9.2.b]
T-46	Permanent taps or other provisions to allow insertion of a small meter to determine leakage and obtain water samples on each side of the valve closest to the supply source for pipes crossing. [Recommended Standards for Water Works 8.9.2.c]



9-2 DETAIL NO SCALE

APPROVED

IN ACCORDANCE WITH LETTER OF APPROVAL

DIVISION OF WATER

DEPARTMENT FOR ENVIRONMENTAL PROTECTION

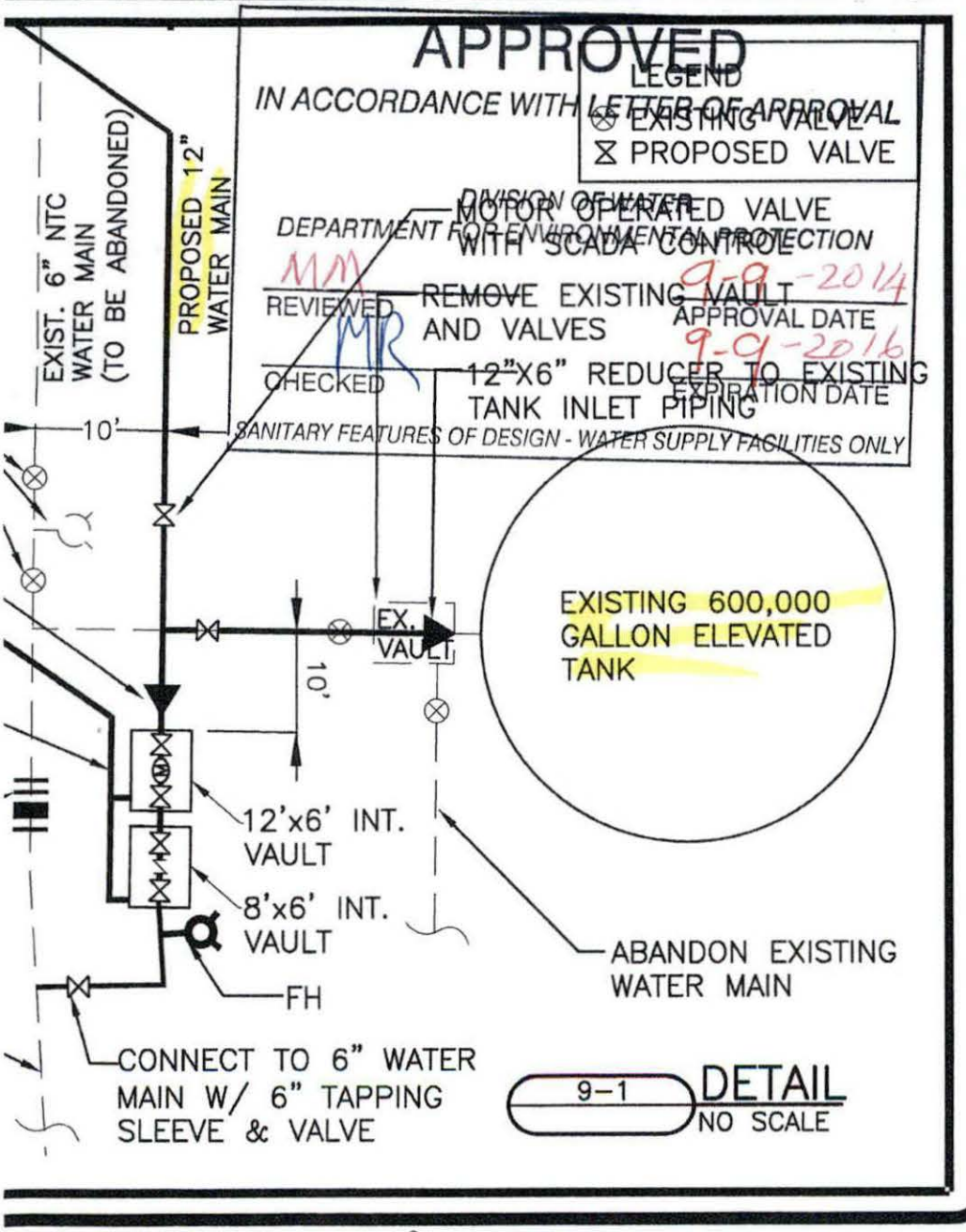
MM REVIEWED

MR CHECKED

9-9-2014 APPROVAL DATE

9-9-2016 EXPIRATION DATE

SANITARY FEATURES OF DESIGN - WATER SUPPLY FACILITIES ONLY



9-1 DETAIL NO SCALE

NORTHPOINT TRAINING CENTER LINE

ADAMS LANE, BELLOWS MILL ROAD CONNECTION, US 127, AN

WATER MAIN IMPROVEMENTS FOR LAKE VILLAGE WATE

MERCER COUNTY, KENTUCKY

STRAND ASSOCIATES, INC.® ENGINEERS

SHEET

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JOB NO. 2-360-168

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