

CITY OF WEST CHICAGO

WHERE HISTORY & PROGRESS MEET

INFRASTRUCTURE COMMITTEE

Thursday, March 4, 2021
7:00 P.M. – Committee Room A

During the COVID-19 Pandemic, those wishing to attend public meetings of the Infrastructure Committee are welcome to do so at City Hall. You may attend in person and listen to the audio of the meeting, or via teleconference from home or another location on the Zoom app. Downloading Zoom from zoom.us will provide the audio link to the meeting. Anyone wishing to provide comment on a topic or an agenda item may address the Infrastructure Committee by 4:00 p.m. the day of the meeting. You may do so by either an online form on the City's website, email to publicworks@westchicago.org, or voicemail message at (630) 293-2255. Your comment to the Infrastructure Committee will be read during the Public Participation portion of the agenda.

Meeting ID: 881 9603 3686

Password: 626111

AGENDA

1. Call to Order, Roll Call, and Establishment of a Quorum
2. Approval of Minutes
 - A. Infrastructure Committee of February 4, 2021
3. Public Participation / Presentations
4. Items for Consent
 - A. Resolution No. 21-R-0012 – Contract Award – Starnet Technologies for Services Related to the Lift Station #1 Control Building Repair Project
 - B. Resolution No. 21-R-0013 – Contract Award – Hillside Addition and Roosevelt Highlands Subdivision Rehabilitation Project
 - C. Resolution No. 21-R-0014 – Contract Award – KLM Engineering, Inc. – Professional Engineering Services Related to the 2021 Booster Station #4 Ground Storage Tank Rehabilitation Project
 - D. Resolution No. 21-R-0015 – Contract Award – Emerald Tree Care, LLC for the 2021 Emerald Ash Borer Insecticidal Treatment Program
 - E. Resolution No. 21-R-0016 – Contract Award – Layne Christensen Company for Professional Services Related to the 2021 Well Station No. 10 Rehabilitation Project
 - F. Resolution No. 21-R-0019 - Contract Award – Crystal Maintenance Services Corporation for 2021 Janitorial Services for Municipal Buildings
5. Items for Discussion

6. Unfinished Business
7. New Business
8. Reports from Staff
9. Adjournment

CITY OF WEST CHICAGO

WHERE HISTORY & PROGRESS MEET

Draft

MINUTES

INFRASTRUCTURE COMMITTEE

February 4, 2021 7:00 P.M.

1. **Call to Order, Roll Call, and Establishment of a Quorum.** Chairman Beifuss called the meeting to order at 7:00 P.M. Roll call found Aldermen James Beifuss present in-person, and Aldermen Heather Brown, Sandra Dimas, Alton Hallett, Joe Morano, and Jeanne Short present via Zoom teleconference. Alderman Matt Garling was absent.

Staff present in-person included Director of Public Works Robert Flatter. Administrative Assistant Ashley Heidorn was present via Zoom teleconference. Mayor Pineda has determined that in-person meetings are not practical and prudent.

2. **Approval of Minutes**

A. **Infrastructure Committee Minutes of December 3, 2020.** Alderman Brown made a motion, seconded by Alderman Dimas to approve the Meeting Minutes of December 3, 2020.

Roll call was taken. Voting Yea: Aldermen Beifuss, Brown, Dimas, Hallett, and Short. Voting Nay: 0. Abstaining: Alderman Morano.

3. **Public Participation / Presentations.** None.

4. **Items for Consent.** Alderman Beifuss requested discussion on Consent Item H. Alderman Dimas made a motion, seconded by Alderman Brown to approve:

- A. Purchase of Three 2021 Ford Utility AWD Police Interceptor Vehicles – Haggerty Ford, West Chicago, Illinois
- B. Purchase of One 2021 John Deere 544 P-Tier 4WD Wheel Loader with High Lift Plus Z-Bar and Appurtenances from West Side Tractor Sales of Lisle, Illinois
- C. Ordinance No. 21-O-0005 - Amending Chapter 17-TRAFFIC, Article XVII.- Schedules of Designated Streets, Division 8.-Truck Routes, Section 17-201.- Designated; Compliance Required, and Section 17-202.- Class II Truck Routes Designated, of the Code of Ordinances
- D. Ordinance No. 21-O-0006– Authorizing the Disposal of Surplus Equipment, Stock Inventory, and/or Personal Property Owned By the City Of West Chicago

- E. Resolution No. 21-R-0006 – Engineering Resource Associates, Inc. - Professional Engineering Services Agreement to Provide Environmental Assessment and Hydraulic Modeling Services Related to the 2024 Town Road Reconstruction Project
- F. Resolution No. 21-R-0007 - Steve Piper and Sons, Inc. – Contract Award for the 2021 Tree Removal Program
- G. Resolution No. 21-R-0008 – A Resolution for Maintenance of Streets and Highways by the City of West Chicago Relating to Fiscal Year 2021 MFT Estimate of Maintenance Costs

Roll call found the vote unanimous for approval. Voting Yea: Aldermen Beifuss, Brown, Dimas, Hallett, Morano, and Short. Voting Nay: 0.

5. Items for Discussion.

4.H. Resolution No. 20-R-0009 – Contract Award – JACOBS for Professional Services Related to the Rehabilitation of the Secondary Clarifiers at the West Chicago/Winfield.

Alderman Beifuss requested a summary of the Item. Mr. Flatter explained that the Regional Wastewater Treatment Plant (WWTP) is now owned by the West Chicago/Winfield Wastewater Authority (WCWWA). Since the City of West Chicago had always owned, operated, and maintained the plant, the City continues to do all the contracting and operations associated with the WWTP on behalf of the WCWWA. One of the final major treatment processes is secondary settlement/clarification. This process involves flowing treated wastewater through four secondary clarifier tanks to allow any residual organic waste to slowly settle from the liquid waste stream. The secondary clarifier tanks and internal mechanical components are approximately 35 years old, and the internal mechanical components have outperformed their useful life of typically 15-20 years. JACOBS is the WCWWA's contractual plant operator and utilizing them for the design-build project would save the City, at a minimum, \$75,000.00 in engineering design, bid, and construction oversight services. This rehabilitation would provide another 15-20 years out of the current tanks. Mr. Flatter noted that the work would be paid for by the WCWWA, and they would subsequently bill the municipalities based on the percentage of flow to the plant; the Village of Winfield has also expressed their full support of the rehabilitation. **Alderman Brown made a motion, seconded by Alderman Hallett to approve.**

Roll call found the vote unanimous for approval. Voting Yea: Aldermen Beifuss, Brown, Dimas, Hallett, Morano, and Short. Voting Nay: 0.

6. Unfinished Business. None.

7. New Business. None.

8. Reports from Staff. Alderman Beifuss requested an update on the status of snow plowing operations and materials. Mr. Flatter noted that the City has seen about 25 inches of

snowfall so far this season, nine of which fell during last week's snowstorm. The new salt storage shed started with roughly 3,500 tons of salt, and there is about 1,000 tons remaining. The smaller shed at the Street Division also has about 800 tons available. Staff have not been ordering salt until it is needed, and there is enough remaining to last another five-to-six snow events. Salt will be replenished as available funds allow and as required by the amount committed to purchasing for the season. The plow trucks have also been functioning well so far.

9. Adjournment. At 7:21 P.M., Alderman Dimas made a motion to adjourn, seconded by Alderman Hallett. Roll call found the vote unanimous for approval.

Respectfully submitted,

Ashley Heidorn
Administrative Assistant of Public Works

CITY OF WEST CHICAGO

INFRASTRUCTURE COMMITTEE AGENDA ITEM SUMMARY

ITEM TITLE:

Resolution No. 21-R-0012 - Contract Award – Starnet Technologies for Services Related to the Lift Station #1 Control Building Repair Project

AGENDA ITEM NUMBER:4.A**COMMITTEE AGENDA DATE:** March 4, 2021**COUNCIL AGENDA DATE:** March 15, 2021**STAFF REVIEW:** Robert E. Flatter, P.E., Director of Public Works**SIGNATURE****APPROVED BY CITY ADMINISTRATOR:** Michael L. Guttman**SIGNATURE****ITEM SUMMARY:**

On December 25, 2020, a motorist drove his vehicle into the control building for Lift Station #1, located adjacent to the Aspen Ridge Apartments parking lot (1450 South Neltnor Boulevard (IL Route 59)), causing significant damage, including shifting the building from its foundation (see attached pictures). A police report was filed and the responsible party is identified.

The City has completed the insurance claim process with the Intergovernmental Risk Management Agency (IRMA) and funds for repairs have been authorized. The control building at Lift Station #1 was originally constructed and installed by Starnet Technologies (Starnet) of Franksville, Wisconsin, and is modular in its construction (i.e., building components can be removed and replaced). As Starnet is most familiar with the building fabrication, City staff obtained a proposal from Starnet to complete repairs. Starnet's proposal, based on visible damages, is estimated at \$25,472.40. However, additional costs are anticipated once the exterior and interior panels are removed, the building is shifted back into place, and a structural inspection is completed.

Therefore, City staff is seeking authorization to waive the competitive bidding process and award a contract to Starnet Technologies for needed repairs to the control building for Lift Station #1 for an amount not to exceed \$30,000.00. IRMA will reimburse the City for all associated repair costs. City staff anticipates that repairs will be completed by June 2021.

ACTIONS PROPOSED:

Waive the competitive bidding process and approve Resolution No. 21-R-0012 authorizing the Mayor to execute a Contract with Starnet Technologies of Franksville, Wisconsin, for an amount not to exceed \$30,000.00, for services related to the Lift Station #1 Control Building Repair Project.

COMMITTEE RECOMMENDATION:

RESOLUTION NO. 21-R-0012

**A RESOLUTION AUTHORIZING THE MAYOR TO EXECUTE
A CONTRACT AGREEMENT WITH STARNET TECHNOLOGIES
FOR PROFESSIONAL SERVICES RELATED TO THE
LIFT STATION NO. 1 CONTROL BUILDING REPAIR PROJECT**

BE IT RESOLVED by the City Council of the City of West Chicago, in regular session assembled, that the Mayor is hereby authorized to execute a Contract Agreement for Professional Services related to the Lift Station No. 1 Control Building Repair Project, between the City of West Chicago and Starnet Technologies, for an amount not to exceed \$30,000.00, in substantially the form attached hereto and incorporated herein as Exhibit "A".

APPROVED this 15th day of March 2021.

AYES: _____

NAYES: _____

ABSTAIN: _____

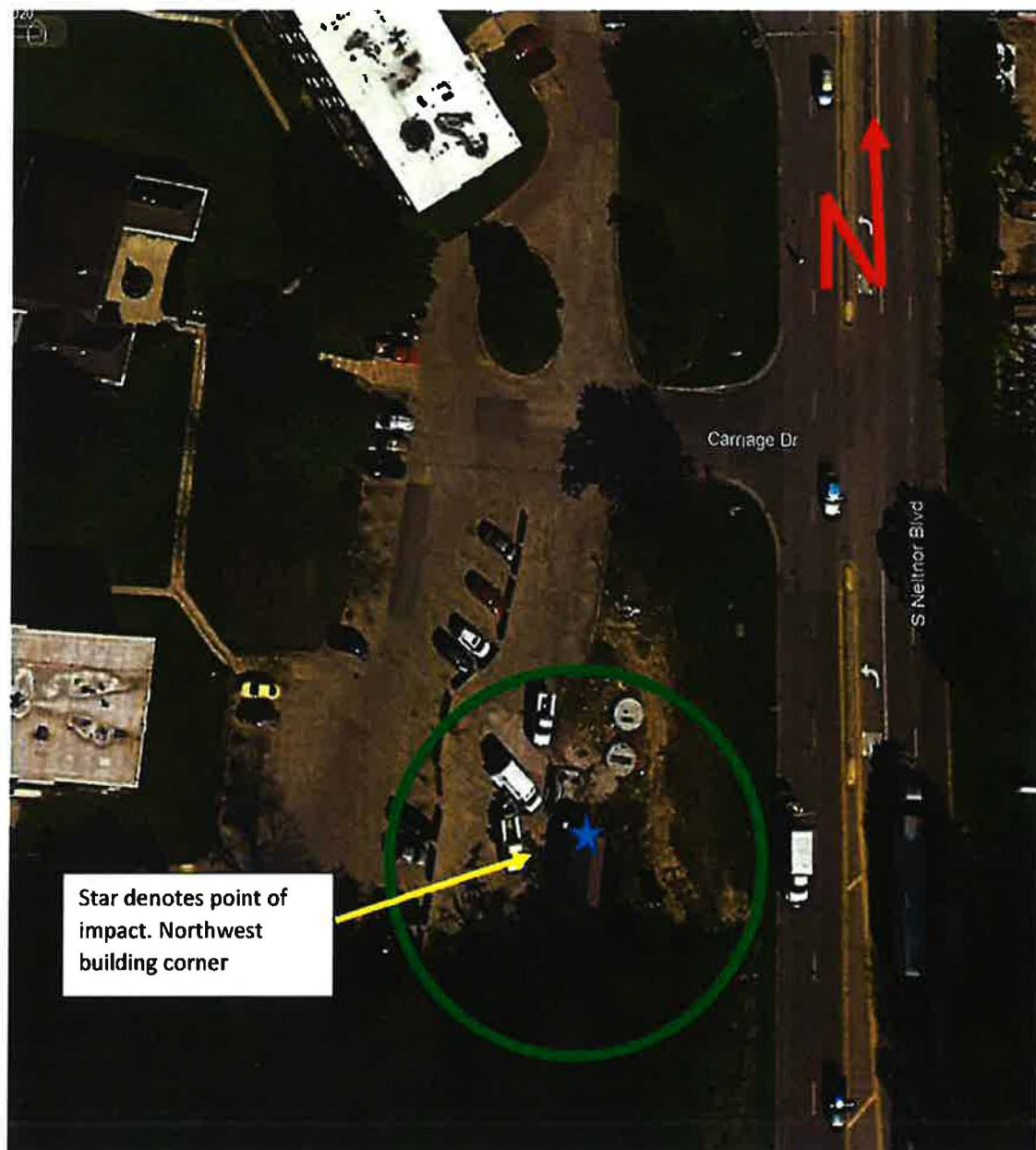
ABSENT: _____

Mayor Ruben Pineda

ATTEST:

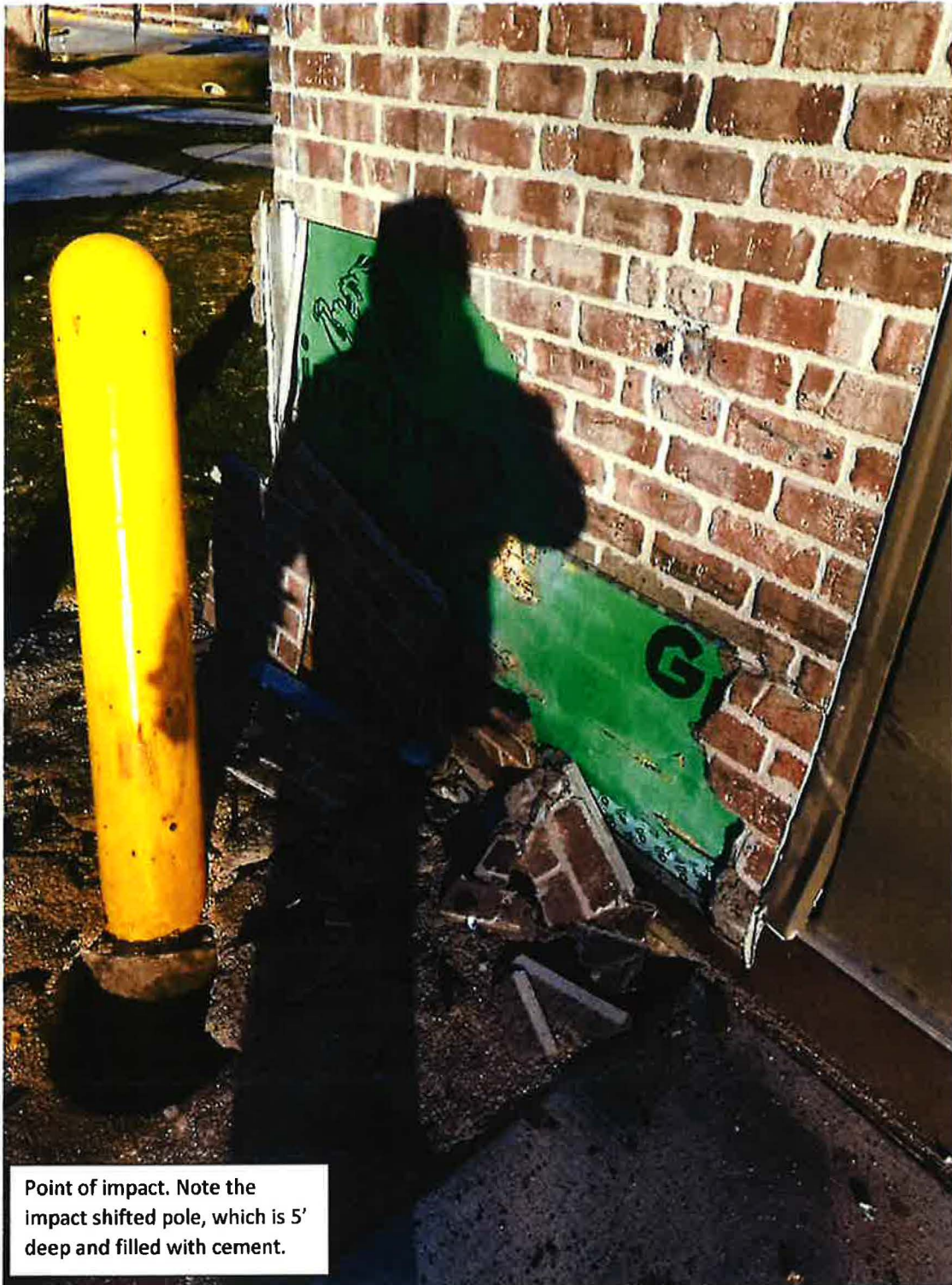
City Clerk Nancy M. Smith

12/25/2020 1450 S Neltor Boulevard Lift Station #1 Accident Building Damage Photos



12/25/2020 1450 S Neltnor Boulevard Lift Station #1 Accident Building Damage Photos





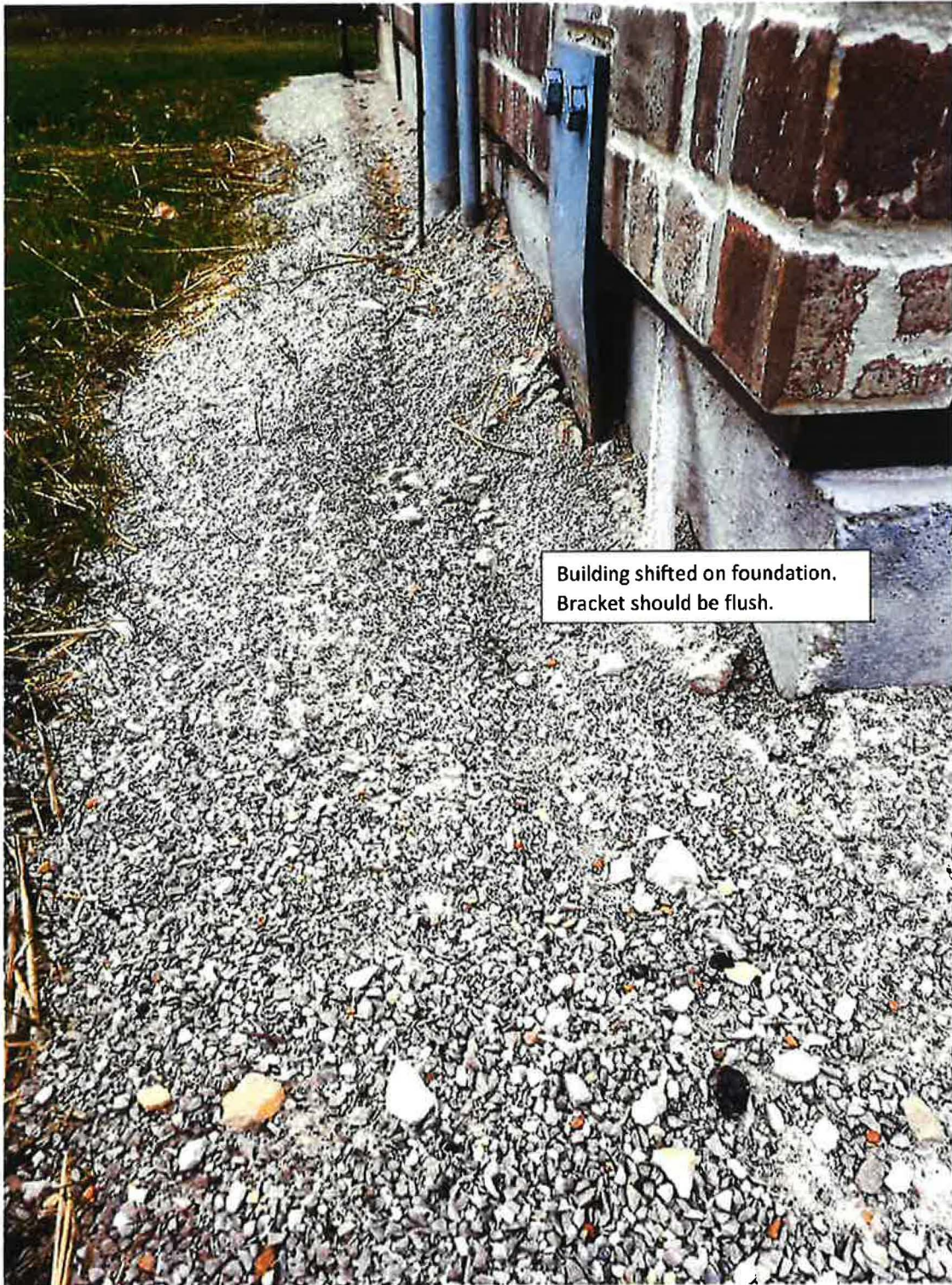
Point of impact. Note the impact shifted pole, which is 5' deep and filled with cement.

12/25/2020 1450 S Neltnor Boulevard Lift Station #1 Accident Building Damage Photos



Point of impact. Building shifted on foundation.
Damaged siding

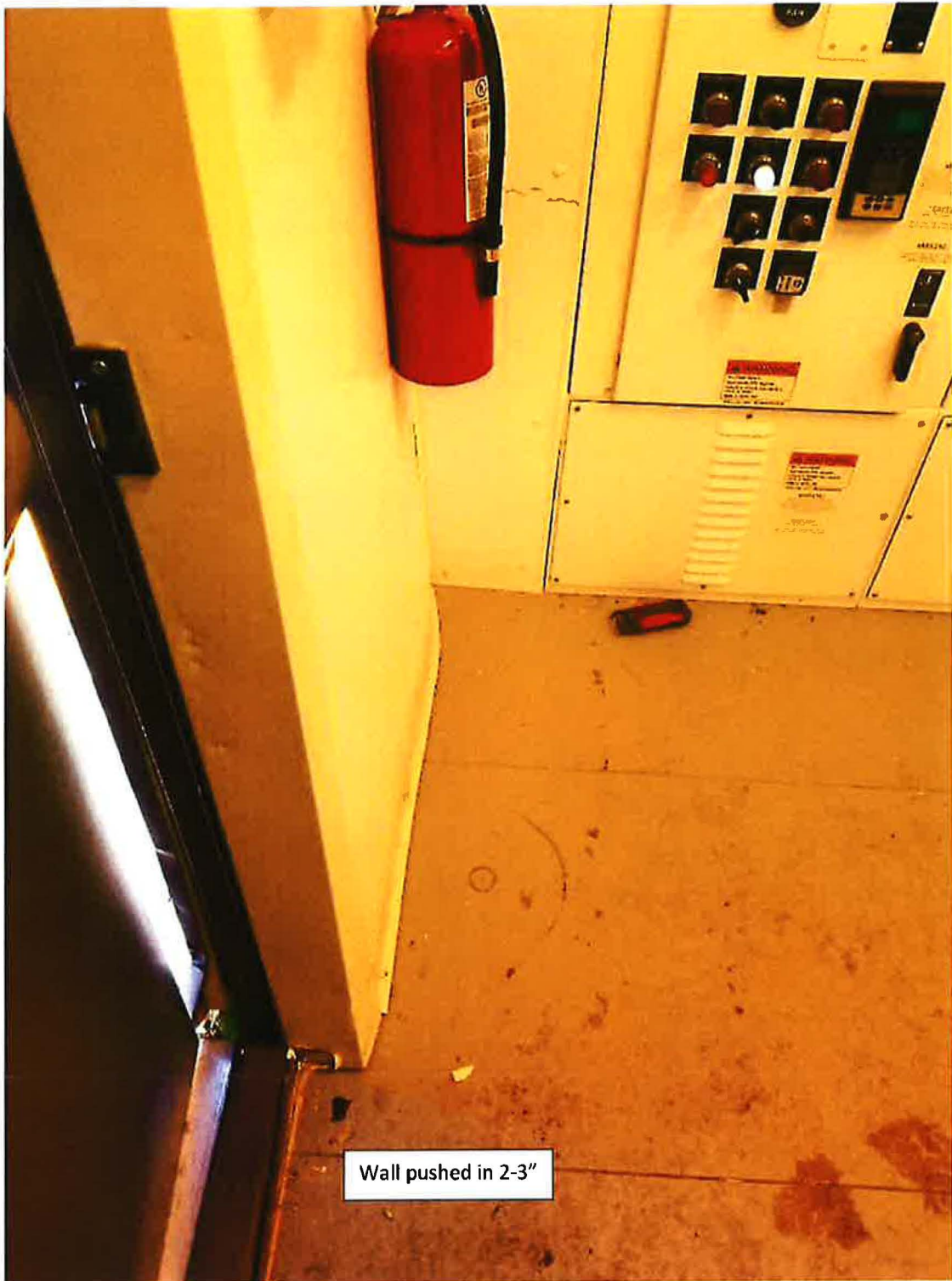
12/25/2020 1450 S Neltnor Boulevard Lift Station #1 Accident Building Damage Photos

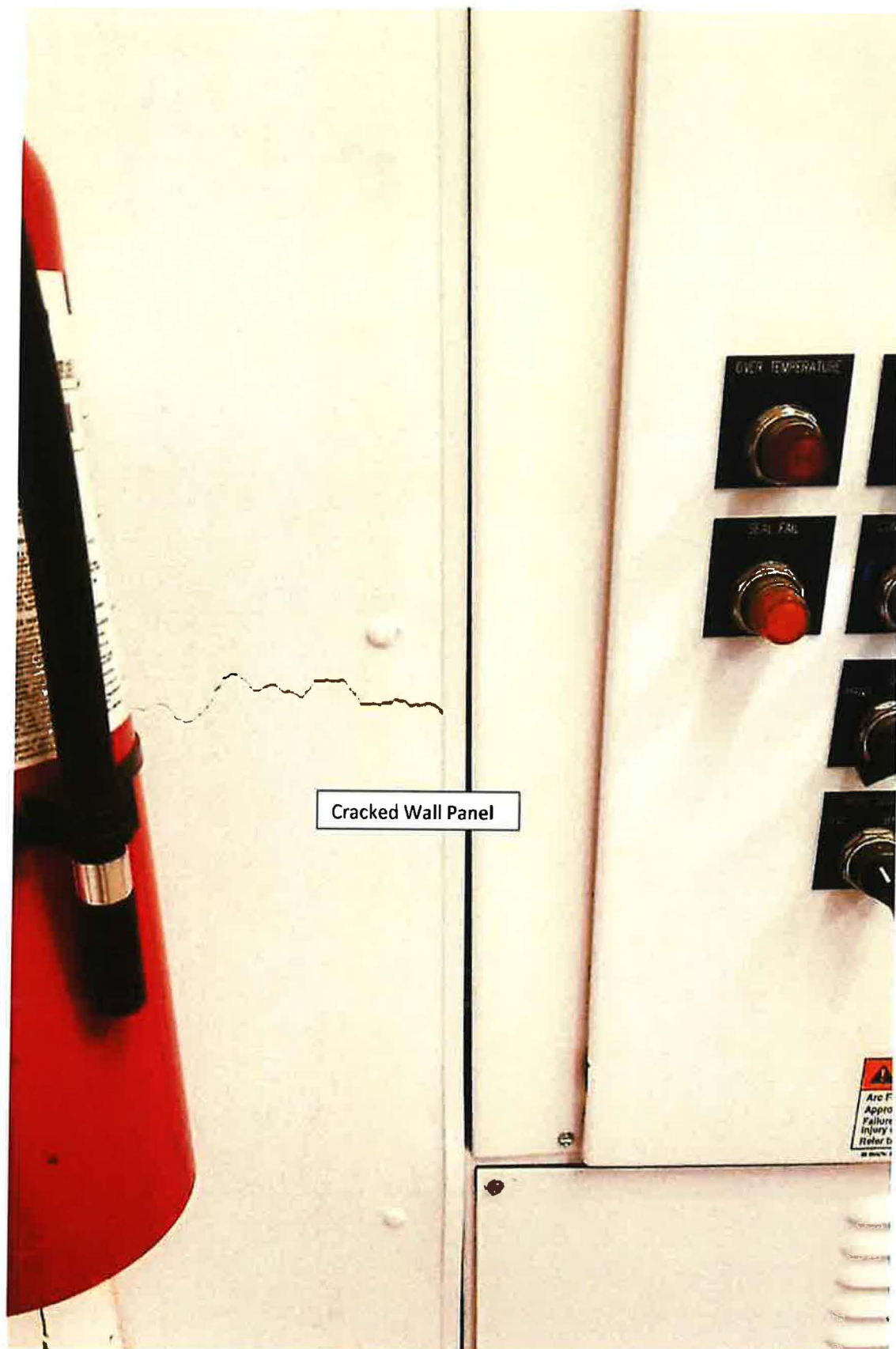


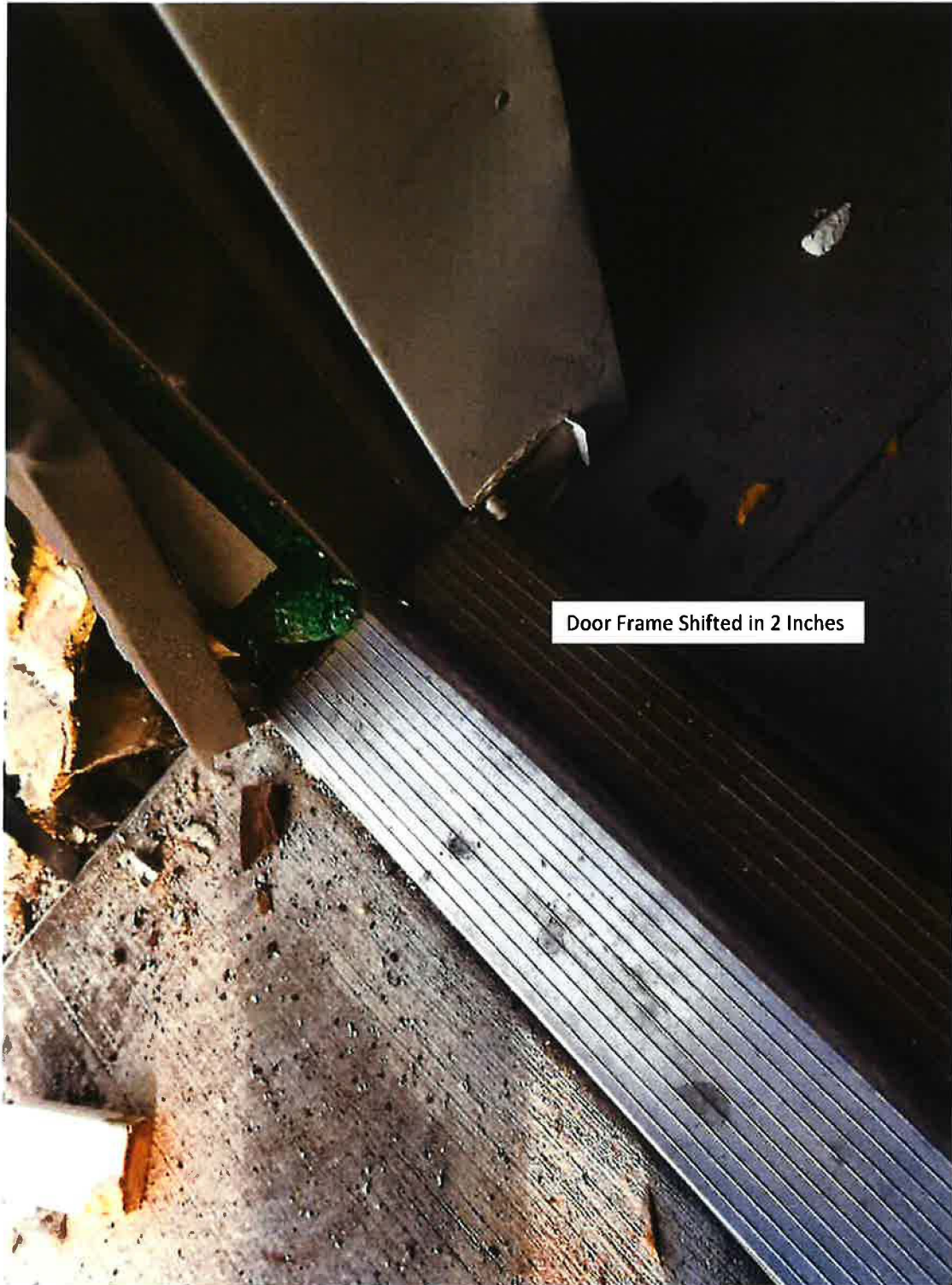
Building shifted on foundation.
Bracket should be flush.



12/25/2020 1450 S Neltnor Boulevard Lift Station #1 Accident Building Damage Photos







Door Frame Shifted in 2 Inches

CITY OF WEST CHICAGO

INFRASTRUCTURE COMMITTEE AGENDA ITEM SUMMARY

ITEM TITLE:

Resolution No. 21-R-0013 - Contract Award – Hillside Addition and Roosevelt Highlands Subdivision Rehabilitation Project

AGENDA ITEM NUMBER:

4.B

COMMITTEE AGENDA DATE: March 4, 2021

COUNCIL AGENDA DATE: March 15, 2021

STAFF REVIEW: Robert E. Flatter, P.E., Director of Public Works

SIGNATURE

APPROVED BY CITY ADMINISTRATOR: Michael L. Guttman

SIGNATURE

ITEM SUMMARY:

The Hillside Addition and Roosevelt Highlands Subdivision Rehabilitation Project, as prepared by the City's engineering consultant Thomas Engineering Group (TEG), consists of roadway resurfacing of Elizabeth Street, Gates Street, and Oak Street from Dayton Avenue to Forest Avenue; Augusta Avenue and Glen Avenue from Bishop Street to Neltor Boulevard (IL Route 59); Dale Avenue from Oak Street to Neltor Boulevard; and Dayton Avenue from its dead-end located just east of Bishop Street to Oak Street (approximately 2.17 miles of streets). The project's work generally consists of pavement milling, hot-mix asphalt (HMA) resurfacing, full-depth HMA pavement patching, intermittent concrete sidewalk, curb ramps, and combination concrete curb and gutter removal and replacement, utility structure adjustments, installation of area reflective and strip reflective crack control treatment, parkway restoration, Thermoplastic pavement markings, and all incidental and collateral work necessary to complete the project as shown on the project plans and detailed in the project specifications.

The request for bids was advertised in the Daily Herald on January 29, 2021, and bids were opened on February 23, 2021. There were ten known plan holders, and the City received seven bids with A. Lamp Concrete Contractors, Inc. of Schaumburg, Illinois, submitting the lowest responsible bid of \$853,237.14. The second lowest bid was submitted by Schroeder Asphalt Services, Inc. of Huntley, Illinois, for \$862,942.19. The engineer's estimate of probable cost was \$910,945.48 (see attached bid tabulation sheet for additional clarification).

A. Lamp Concrete Contractors, Inc. (A. Lamp) has satisfactorily performed similar work for the City, as the general contractor, for the 2014 Alta Vista Gardens Roadway Rehabilitation Project, the 2018 Sherman Street Area Resurfacing Project, and the 2018 Roadway and Water Main Rehabilitation Project (Pomeroy, Stimmel, Weyrauch, Lester, and Hazel). TEG also called several of A. Lamp's references and all were satisfied with A. Lamp's performances. A. Lamp is registered by the Illinois Department of Transportation as a prequalified contractor.

It is staff's recommendation that a contract be awarded to A. Lamp Concrete Contractors, Inc. of Schaumburg, Illinois, for the Hillside Addition and Roosevelt Highlands Subdivision Rehabilitation Project, for a contract amount not to exceed \$853,237.14.

The cost of this project will be paid using Capital Projects Fund (08-34-53-4807) where \$912,400.00 has been budgeted for this project in 2021.

ACTIONS PROPOSED:

Approve Resolution No. 21-R-0013 authorizing the Mayor to execute a Contract with the lowest responsible bidder, A. Lamp Concrete Contractors, Inc. of Schaumburg, Illinois, in an amount not to exceed \$853,237.14, for the Hillside Addition and Roosevelt Highlands Subdivision Rehabilitation Project.

RESOLUTION NO. 21-R-0013

**A RESOLUTION AUTHORIZING THE MAYOR TO EXECUTE
A CONTRACT AGREEMENT WITH A. LAMP CONCRETE CONTRACTORS,
INC. FOR SERVICES RELATED TO THE HILLSIDE ADDITION AND
ROOSEVELT HIGHLANDS SUBDIVISION REHABILITATION PROJECT**

BE IT RESOLVED by the City Council of the City of West Chicago, in regular session assembled, that the Mayor is hereby authorized to execute a Contract Agreement for Services related to the Hillside Addition and Roosevelt Highlands Subdivision Rehabilitation Project, between the City of West Chicago and A. Lamp Concrete Contractors, Inc., for an amount not to exceed \$853,237.14, in substantially the form attached hereto and incorporated herein as Exhibit "A".

APPROVED this 15th day of March, 2021.

AYES: _____

NAYES: _____

ABSTAIN: _____

ABSENT: _____

Mayor Ruben Pineda

ATTEST:

City Clerk Nancy M. Smith

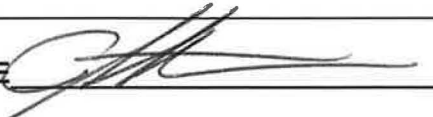
CITY OF WEST CHICAGO / DUPAGE COUNTY, CDBG CD20-01 HILLSIDE ADDITION AND ROOSEVELT HIGHLANDS SUBDIVISION REHABILITATION PROJECT Bid Opening: February 23, 2021 @ 10:00 A.M.				Engineer's Estimate		A. Lamp Concrete Contractors, Inc. 1900 Wright Boulevard Schaumburge, IL 60193		Schroeder Asphalt Services, Inc. P.O. Box 831 Huntley, IL 60142		Brothers Asphalt Paving, Inc. 315 S. Stewart Avenue Addison, IL 60101		Plote Construction Inc. 1100 Brandt Drive Hoffman Estates, IL 60192		J. A. Johnson Paving Co. 1025 E. Addison Court Arlington Heights, IL 60005		Chicagoland Paving Contractors, Inc. 225 Telser Road Lake Zurich, IL 60047		Builders Paving, LLC 4413 Roosevelt Road, Suite 108 Hillside, IL 60162	
ITEM NO.	DESCRIPTION	UNIT	ESTIMATED QUANTITY	EST. UNIT PRICE	TOTAL	BID UNIT PRICE	BID TOTAL	BID UNIT PRICE	BID TOTAL	BID UNIT PRICE	BID TOTAL	BID UNIT PRICE	BID TOTAL	BID UNIT PRICE	BID TOTAL	BID UNIT PRICE	BID TOTAL	BID UNIT PRICE	BID TOTAL
1	TREE ROOT PRUNING	EACH	30	\$85.00	\$2,550.00	\$50.00	\$1,500.00	\$123.00	\$3,690.00	\$30.90	\$927.00	\$1.25	\$37.50	\$50.00	\$1,500.00	\$110.00	\$3,300.00	\$1.25	\$37.50
2	EARTH EXCAVATION	CU YD	58	\$30.00	\$1,740.00	\$36.00	\$2,088.00	\$30.00	\$1,740.00	\$61.80	\$3,584.40	\$55.00	\$3,190.00	\$30.00	\$1,740.00	\$35.00	\$2,030.00	\$60.00	\$3,480.00
3	REMOVAL AND DISPOSAL OF UNSUITABLE MATERIAL	CU YD	100	\$23.10	\$2,310.00	\$15.00	\$1,500.00	\$20.00	\$2,000.00	\$50.00	\$5,000.00	\$15.00	\$1,500.00	\$30.00	\$3,000.00	\$20.00	\$2,000.00	\$54.00	\$5,400.00
4	POROUS GRANULAR EMBANKMENT, SUBGRADE	CU YD	100	\$17.00	\$1,700.00	\$15.00	\$1,500.00	\$20.00	\$2,000.00	\$50.00	\$5,000.00	\$15.00	\$1,500.00	\$30.00	\$3,000.00	\$22.50	\$2,250.00	\$62.00	\$6,200.00
5	EXPLORATION TRENCH, SPECIAL	FOOT	20	\$19.25	\$385.00	\$1.00	\$20.00	\$100.00	\$2,000.00	\$103.00	\$2,060.00	\$86.00	\$1,720.00	\$80.00	\$1,600.00	\$105.00	\$2,100.00	\$86.00	\$1,720.00
6	SODDING, SALT TOLERANT	SQ YD	600	\$8.00	\$4,800.00	\$13.25	\$7,950.00	\$7.00	\$4,200.00	\$15.97	\$9,582.00	\$15.25	\$9,150.00	\$15.00	\$9,000.00	\$11.00	\$6,600.00	\$15.25	\$9,150.00
7	TOPSOIL FURNISH AND PLACE, 4"	SQ YD	600	\$5.95	\$3,570.00	\$5.25	\$3,150.00	\$10.50	\$6,300.00	\$7.98	\$4,788.00	\$4.50	\$2,700.00	\$4.00	\$2,400.00	\$6.00	\$3,600.00	\$4.50	\$2,700.00
8	HOT-MIX ASPHALT SURFACE REMOVAL, 2"	SQ YD	33,808	\$1.80	\$60,854.40	\$1.50	\$50,712.00	\$1.65	\$55,783.20	\$1.60	\$54,092.80	\$2.30	\$77,758.40	\$2.50	\$84,520.00	\$1.70	\$57,473.60	\$2.70	\$91,281.60
9	AGGREGATE SURFACE COURSE, TYPE B	TON	50	\$17.85	\$892.50	\$25.00	\$1,250.00	\$20.00	\$1,000.00	\$35.00	\$1,750.00	\$20.00	\$1,000.00	\$10.00	\$500.00	\$25.00	\$1,250.00	\$30.00	\$1,500.00
10	BITUMINOUS MATERIALS (TACK COAT)	POUNDS	15,214	\$0.20	\$3,042.80	\$0.01	\$152.14	\$0.01	\$152.14	\$0.10	\$1,521.40	\$0.01	\$152.14	\$0.01	\$152.14	\$0.01	\$152.14	\$0.01	\$152.14
11	MIXTURE FOR CRACKS, JOINTS, AND FLANGEWAYS	TON	17	\$350.00	\$5,950.00	\$150.00	\$2,550.00	\$100.00	\$1,700.00	\$150.00	\$2,550.00	\$150.00	\$2,550.00	\$350.00	\$5,950.00	\$150.00	\$2,550.00	\$625.00	\$10,625.00
12	HOT-MIX ASPHALT LEVELING BINDER (MACHINE METHOD) N50, (3/4")	TON	1,420	\$83.00	\$117,860.00	\$69.00	\$97,980.00	\$71.50	\$101,530.00	\$67.00	\$95,140.00	\$72.00	\$102,240.00	\$70.00	\$99,400.00	\$85.00	\$120,700.00	\$82.85	\$117,647.00
13	HOT-MIX ASPHALT SURFACE REMOVAL - BUTT JOINT	SQ YD	135	\$7.97	\$1,075.95	\$10.00	\$1,350.00	\$5.00	\$675.00	\$3.00	\$405.00	\$0.01	\$1.35	\$2.50	\$337.50	\$10.00	\$1,350.00	\$22.50	\$3,037.50
14	HOT-MIX ASPHALT SURFACE COURSE, MIX "D", N50 (1.5")	TON	2,840	\$78.00	\$221,520.00	\$69.00	\$195,960.00	\$71.50	\$203,060.00	\$70.00	\$198,800.00	\$69.00	\$195,960.00	\$70.00	\$198,800.00	\$80.00	\$227,200.00	\$75.00	\$213,000.00
15	CLASS D PATCHES, TYPE I, 8 INCH	SQ YD	80	\$65.00	\$5,200.00	\$68.00	\$5,440.00	\$62.00	\$4,960.00	\$50.00	\$4,000.00	\$30.00	\$2,400.00	\$15.00	\$1,200.00	\$45.00	\$3,600.00	\$70.00	\$5,600.00
16	CLASS D PATCHES, TYPE II, 8 INCH	SQ YD	120	\$60.00	\$7,200.00	\$68.00	\$8,160.00	\$60.00	\$7,200.00	\$50.00	\$6,000.00	\$28.00	\$3,360.00	\$15.00	\$1,800.00	\$45.00	\$5,400.00	\$70.00	\$8,400.00
17	CLASS D PATCHES, TYPE III, 8 INCH	SQ YD	150	\$55.00	\$8,250.00	\$65.00	\$9,750.00	\$57.00	\$8,550.00	\$50.00	\$7,500.00	\$26.00	\$3,900.00	\$15.00	\$2,250.00	\$45.00	\$6,750.00	\$70.00	\$10,500.00
18	CLASS D PATCHES, TYPE IV, 8 INCH	SQ YD	220	\$50.00	\$11,000.00	\$53.00	\$11,660.00	\$57.00	\$12,540.00	\$50.00	\$11,000.00	\$26.00	\$5,720.00	\$15.00	\$3,300.00	\$45.00	\$9,900.00	\$70.00	\$15,400.00
19	AREA REFLECTIVE CRACK CONTROL TREATMENT, SYSTEM A	SQ YD	33,808	\$1.20	\$40,569.60	\$1.75	\$59,164.00	\$1.60	\$54,092.80	\$1.65	\$55,783.20	\$1.65	\$55,783.20	\$1.60	\$54,092.80	\$1.75	\$59,164.00	\$1.85	\$62,544.80
20	STRIP REFLECTIVE CRACK CONTROL TREATMENT SYSTEM B, 24 INCH	SQ YD	350	\$18.24	\$6,384.00	\$2.50	\$875.00	\$2.75	\$962.50	\$2.73	\$955.50	\$12.00	\$4,200.00	\$2.25	\$787.50	\$13.45	\$4,707.50	\$2.75	\$962.50
21	DOMESTIC WATER SERVICE BOXES TO BE ADJUSTED	EACH	2	\$196.00	\$392.00	\$300.00	\$600.00	\$250.00	\$500.00	\$257.50	\$515.00	\$276.00	\$552.00	\$250.00	\$500.00	\$265.00	\$530.00	\$276.00	\$552.00
22	TRENCH BACKFILL, SPECIAL	CU YD	50	\$28.79	\$1,439.50	\$35.00	\$1,750.00	\$35.00	\$1,750.00	\$36.05	\$1,802.50	\$30.00	\$1,500.00	\$40.00	\$2,000.00	\$36.75	\$1,837.50	\$30.00	\$1,500.00
23	STORM SEWER, CLASS A, TYPE 4, 12" OR LESS	FOOT	12	\$70.79	\$849.48	\$105.00	\$1,260.00	\$100.00	\$1,200.00	\$103.00	\$1,236.00	\$115.00	\$1,380.00	\$1,300.00	\$15,600.00	\$105.00	\$1,260.00	\$115.00	\$1,380.00
24	STORM SEWER REMOVAL [UP TO 12" DIAMETER]	FOOT	12	\$10.00	\$120.00	\$10.00	\$120.00	\$20.00	\$240.00	\$20.60	\$247.20	\$11.00	\$132.00	\$20.00	\$240.00	\$21.00	\$252.00	\$11.00	\$132.00
25	CATCH BASIN, TYPE A, 4' DIA., TYPE 11 FRAME AND GRATE	EACH	1	\$3,230.50	\$3,230.50	\$3,500.00	\$3,500.00	\$2,750.00	\$2,750.00	\$2,832.50	\$2,832.50	\$4,476.00	\$4,476.00	\$3,800.00	\$3,800.00	\$2,900.00	\$2,900.00	\$4,476.00	\$4,476.00
26	CATCH BASIN, TYPE C, 2' DIA., TYPE 11 FRAME AND GRATE	EACH	1	\$2,047.50	\$2,047.50	\$2,500.00	\$2,500.00	\$1,850.00	\$1,850.00	\$1,905.50	\$1,905.50	\$2,881.00	\$2,881.00	\$1,750.00	\$1,750.00	\$1,950.00	\$1,950.00	\$2,881.00	\$2,881.00
27	CATCH BASIN, TYPE D, 3' DIA., TYPE 11 FRAME AND GRATE	EACH	1	\$2,427.25	\$2,427.25	\$3,000.00	\$3,000.00	\$2,000.00	\$2,000.00	\$2,060.00	\$2,060.00	\$3,404.00	\$3,404.00	\$3,100.00	\$3,100.00	\$2,100.00	\$2,100.00	\$3,404.00	\$3,404.00
28	INLETS, TYPE A, TYPE 11 AND 11V FRAME AND GRATE	EACH	1	\$1,370.25	\$1,370.25	\$2,000.00	\$2,000.00	\$1,700.00	\$1,700.00	\$1,751.00	\$1,751.00	\$2,247.00	\$2,247.00	\$1,250.00	\$1,250.00	\$1,785.00	\$1,785.00	\$2,247.00	\$2,247.00
29	REMOVING EXISTING MANHOLES	EACH	2	\$300.00	\$600.00	\$400.00	\$800.00	\$500.00	\$1,000.00	\$515.00	\$1,030.00	\$467.00	\$934.00	\$400.00	\$800.00	\$525.00	\$1,050.00	\$467.00	\$934.00
30	STR ADJ WITH NEW TYPE 1 FRAME, CLOSED LID	EACH	8	\$800.00	\$6,400.00	\$750.00	\$6,000.00	\$750.00	\$6,000.00	\$772.50	\$6,180.00	\$912.00	\$7,296.00	\$780.00	\$6,240.00	\$790.00	\$6,320.00	\$912.00	\$7,296.00
31	EXISTING FRAMES AND GRATES TO BE ADJUSTED	EACH	17	\$450.00	\$7,650.00	\$430.00	\$7,310.00	\$400.00	\$6,800.00	\$412.00	\$7,004.00	\$580.00	\$9,860.00	\$350.00	\$5,950.00	\$420.00	\$7,140.00	\$580.00	\$9,860.00
32	STR ADJ WITH NEW TYPE 24 FRAME AND GRATE, SPECIAL	EACH	4	\$1,000.00	\$4,000.00	\$850.00	\$3,400.00	\$800.00	\$3,200.00	\$824.00	\$3,296.00	\$981.00	\$3,924.00	\$850.00	\$3,400.00	\$840.00	\$3,360.00	\$981.00	\$3,924.00
33	MORTAR REPAIR, STRUCTURE AND FRAME	EACH	36	\$200.00	\$7,200.00	\$500.00	\$18,000.00	\$300.00	\$10,800.00	\$309.00	\$11,124.00	\$290.00	\$10,440.00	\$225.00	\$8,100.00	\$315.00	\$11,340.00	\$290.00	\$10,440.00
34	FIELD-POURED MANHOLE BENCHING, SPECIAL	EACH	5	\$250.00	\$1,250.00	\$1,500.00	\$7,500.00	\$400.00	\$2,000.00	\$412.00	\$2,060.00	\$422.00	\$2,110.00	\$1,100.00	\$5,500.00	\$420.00	\$2,100.00	\$422.00	\$2,110.00
35	STRUCTURES TO BE RECONSTRUCTED	EACH	4	\$800.00	\$3,200.00	\$1,800.00	\$7,200.00	\$500.00	\$2,000.00	\$515.00	\$2,060.00	\$2,425.00	\$9,700.00	\$1,100.00	\$4,400.00	\$525.00	\$2,100.00	\$2,425.00	\$9,700.00
36	MANHOLE LID ADJUSTING RINGS (SPECIAL)	EACH	12	\$449.75	\$5,397.00	\$200.00	\$2,400.00	\$400.00	\$4,800.00	\$412.00	\$4,944.00	\$682.00	\$8,184.00	\$150.00	\$1,800.00	\$420.00	\$5,040.00	\$682.00	\$8,184.00
37	SANITARY MANHOLES TO BE ADJUSTED W/ NEW TYPE 1 F&CL	EACH	10	\$1,000.00	\$10,000.00	\$1,000.00	\$10,000.00	\$900.00	\$9,000.00	\$927.00	\$9,270.00	\$1,784.00	\$17,840.00	\$1,050.00	\$10,500.00	\$945.00	\$9,450.00	\$1,784.00	\$17,840.00
38	COMB PCC CURB AND GUTTER REM. & REPL., TYPE B-6.12	FOOT	2,505	\$35.00	\$87,675.00	\$29.00	\$72,645.00	\$36.75	\$92,058.75	\$30.90	\$77,404.50	\$29.00	\$72,645.00	\$29.00	\$72,645.00	\$34.50	\$86,422.50	\$33.25	\$83,291.25
39	CONCRETE CURB, TYPE B (SPECIAL)	FOOT	100	\$29.05	\$2,905.00	\$34.00	\$3,400.00	\$39.40	\$3,940.00	\$51.50	\$5,150.00	\$30.00	\$3,000.00	\$20.00	\$2,000.00	\$36.25	\$3,625.00	\$53.50	\$5,350.00
40	CRACK AND JOINT REPAIR FOR CONCRETE CURB AND GUTTER	EACH	425	\$77.00	\$32,725.00	\$20.00	\$8,500.00	\$75.00	\$31,875.00	\$30.90	\$13,132.50	\$25.00	\$10,625.00	\$38.00	\$16,150.00	\$15.55	\$6,608.75	\$30.00	\$12,750.00
41	TACTILE/ DETECTABLE WARNING SURFACE	SQ FT	496	\$27.65	\$13,714.40	\$25.00	\$12,400.00	\$32.00	\$15,872.00	\$32.96	\$16,348.16	\$28.00	\$13,888.00	\$30.00	\$14,880.00	\$31.00	\$15,376.00	\$32.00	\$15,872.00
42	PORTLAND CEMENT CONCRETE SIDEWALK 5 TO 6 INCH, SPECIAL	SQ FT	17,446	\$7.50	\$130,845.00	\$6.00	\$104,676.00	\$6.00	\$104,676.00	\$7.00	\$122,122.00	\$6.00	\$104,676.00	\$5.90	\$102,931.40	\$7.80	\$136,078.80	\$7.10	\$123,866.60
43	AGGREGATE BASE COURSE, TYPE B, 4-INCH	SQ YD	250	\$10.00	\$2,500.00	\$6.00	\$1,500.00	\$6.50	\$1,625.00	\$6.18	\$1,545.00	\$18.00	\$4,500.00	\$7.00	\$1,750.00	\$4.50	\$1,125.00	\$6.00	\$1,500.00
44	SIDEWALK REMOVAL	SQ FT	16,080	\$1.70	\$27,336.00	\$1.00	\$16,080.00	\$1.30	\$20,904.00	\$1.33	\$21,386.40	\$1.50	\$24,120.00	\$1.50	\$24,120.00	\$1.00	\$16,080.00	\$1.30	\$20,904.00
45	CONCRETE REMOVAL (SPECIAL)	SQ YD	120	\$17.15	\$2,058.00	\$10.00	\$1,200.00	\$10.00	\$1,200.00	\$20.60	\$2,472.00	\$15.00	\$1,800.00	\$16.00	\$1,920.00	\$12.50	\$1,500.00	\$20.00	\$2,400.00
46	PORTLAND CEMENT CONCRETE DRIVEWAY PAVEMENT, 6 INCH	SQ YD	120	\$63.00	\$7,560.00	\$70.00	\$8,400.00	\$60.00	\$7,200.00	\$77.25	\$9,270.00	\$63.00	\$7,560.00	\$54.00	\$6,480.00	\$83.00	\$9,960.00	\$75.25	\$9,030.00
47	HOT-MIX ASPHALT DRIVEWAY PAVEMENT REMOVAL	SQ YD	260	\$12.95	\$3,367.00	\$8.25	\$2,145.00	\$11.00	\$2,860.00	\$5.00	\$1,300.00	\$14.00	\$3,640.00	\$28.49	\$7,407.40	\$15.00	\$3,900.00	\$13.50	\$3,510.00
48	HOT-MIX ASPHALT DRIVEWAY PAVEMENT, 3"	SQ YD	260	\$45.85	\$11,921.00	\$23.00	\$5,980.00	\$20.00	\$5,200.00	\$22.00	\$5,720.00	\$38.00	\$9,880.00	\$15.00	\$3,900.00	\$55.00	\$14,300.00	\$33.75	\$8,775.00
49	TRAFFIC CONTROL AND PROTECTION, (SPECIAL)	L SUM	1	\$10,000.00	\$10,000.00	\$64,000.00	\$64,000.00	\$33,250.00	\$33,250.00	\$40,170.72	\$40,170.72	\$38,800.00	\$38,800.00	\$50,000.00	\$50,000.00	\$62,000.00	\$62,000.00	\$15,129.51	\$15,129.51
50	CONSTRUCTION LAYOUT	L SUM	1	\$500.00	\$500.00	\$7,000.00	\$7,000.00	\$5,500.00	\$5,500.00	\$7,719.85	\$7,719.85	\$7,495.00	\$7,495.00	\$10,000.00	\$10,000.00	\$5,000.00	\$5,000.00	\$8,500.00	\$8,500.00
51	TEMPORARY INFORMATION SIGN	L SUM	1	\$2,975.35	\$2,975.35	\$500.00													

CITY OF WEST CHICAGO

INFRASTRUCTURE COMMITTEE AGENDA ITEM SUMMARY

ITEM TITLE:

Resolution No. 21-R-0014 - Contract Award – KLM Engineering, Inc. – Professional Engineering Services Related to the 2021 Booster Station #4 Ground Storage Tank Rehabilitation Project

AGENDA ITEM NUMBER: 4.C.**COMMITTEE AGENDA DATE:** March 4, 2021**COUNCIL AGENDA DATE:** March 15, 2021**STAFF REVIEW:** Robert E. Flatter, P.E., Director of Public Works**SIGNATURE** **APPROVED BY CITY ADMINISTRATOR:** Michael L. Guttman**SIGNATURE** _____**ITEM SUMMARY:**

Within the Fiscal Year 2021 Water Fund budget, \$800,000.00 has been budgeted for the rehabilitation of the 500,000 gallon ground storage tank associated with Booster Station #4, located at 320 E. Forest Avenue (southwest corner of Bishop Street and Forest Avenue). Booster Station #4 and the associated ground storage tank, is one of two Booster Stations and ground storage tanks used to increase available water in the distribution system during peak demand periods. This is accomplished by the operation of pumps within the Booster Station to draw water from the ground storage tank and discharging said water into the distribution system. As more water is needed, the overall pressure drops in the distribution system. When pressure drops below a desired level, a signal is received at the station calling for pumps to run and "boost" the system pressure.

Improvements were last completed at Booster Station #4 in 2019, which included replacement of pumps, piping and electrical gear directly associated with the Booster Station's operations. In 2019, the City also hired KLM Engineering, Inc. (KLM) of Woodbury, Minnesota, to clean sediment from within the Booster Station #4 ground storage tank, evaluate the condition of said tank, and draft an inspection report.

This ground storage tank was originally constructed in 1959. KLM's inspection report (attached) identified that after more than 61 years of service life, significant rehabilitation of this structure is required. Required improvements include, but are not limited to, the following:

- Replacement of the tank's roof. The current roof is in unrepairable condition.
- Sandblast and repaint of the tank's exterior.
- Removal of obsolete equipment from within the interior of the tank (i.e., Cathodic Protection System, ladder safety climb device, wood plank baffle wall, etc.).
- Sandblast and repainting of the tank's interior.
- Installation of a mixing system inside the tank to improve water quality (replacement for obsolete wood plank baffle wall).
- Installation of OSHA approved safety features.

Estimate cost of required improvements range between \$625,000.00 and \$735,000.00. Competitive bids will be sought for construction once engineering design plans, specifications, and bid documents are finalized.

Being most familiar with the condition of the storage tank and repairs needed, City staff asked KLM for a

CITY OF WEST CHICAGO

proposal to provide professional engineering services related to the 2021 Booster Station #4 Ground Storage Tank Rehabilitation Project. Services will include, but not be limited to, development of design plans, development of project specifications, development of bid documents, providing assistance during the bidding process, and construction oversight services. KLM submitted a cost proposal of \$58,122.00.

Therefore, it is staff's recommendation that a contract be awarded to KLM Engineering, Inc. of Woodbury, Minnesota, for professional engineering services related to the 2021 Booster Station #4 Ground Storage Tank Rehabilitation Project, for an amount not to exceed \$58,122.00.

ACTIONS PROPOSED:

Approve Resolution No. 21-R-0014 authorizing the Mayor to execute a Contract with KLM Engineering, Inc. of Woodbury, Minnesota, for professional engineering services related to the 2021 Booster Station #4 Ground Storage Tank Rehabilitation Project, for an amount not to exceed \$58,122.00.

COMMITTEE RECOMMENDATION:

RESOLUTION NO. 21-R-0014

**A RESOLUTION AUTHORIZING THE MAYOR TO EXECUTE
A CONTRACT AGREEMENT WITH KLM ENGINEERING, INC.
FOR PROFESSIONAL ENGINEERING SERVICES RELATED TO THE
2021 BOOSTER STATION #4 GROUND STORAGE TANK
REHABILITATION PROJECT**

BE IT RESOLVED by the City Council of the City of West Chicago, in regular session assembled, that the Mayor is hereby authorized to execute a Contract Agreement for Professional Engineering Services related to the 2021 Booster Station #4 Ground Storage Tank Rehabilitation Project, between the City of West Chicago and KLM Engineering, Inc., for an amount not to exceed \$58,122.00, in substantially the form attached hereto and incorporated herein as Exhibit "A".

APPROVED this 15th day of March 2021.

AYES: _____

NAYES: _____

ABSTAIN: _____

ABSENT: _____

Mayor Ruben Pineda

ATTEST:

City Clerk Nancy M. Smith

CITY OF WEST CHICAGO, ILLINOIS



May 2019

500,000 Gallon Capacity
Booster Number 4 Reservoir



Ground Storage Reservoir Inspection Report

KLM Project
MN3924

1976 Wooddale Drive, Suite 4 | Woodbury, MN 55125
(651) 773-5111 | Fax (651) 773-5222

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APPENDIX A: Photographs

APPENDIX B: Drawings

APPENDIX C: Surface Preparation Requirement

APPENDIX D: Inspection and Evaluation Methods

APPENDIX E: Paint Chip Lead and Chromium Test Results

1.0|PROJECT INFORMATION

KLM Project No.: MN3924 **Customer P. O. Number:** N/A
Customer: City of West Chicago, IL **Phone:** 630-293-2255
Street/City/State/Zip: 1400 Hawthorne Lane west Chicago, IL 60185
Customer Contact: Rocky Horvath, Water Utility Supervisor
Tank Owner: City of West Chicago, IL **Phone:** 630-768-8875 (cell)
Tank Owner Contact: Rocky Horvath, Water Utility Supervisor
Owner's Tank Designation: Booster Number 4 Reservoir
Tank Description: Ground Storage Reservoir
Tank Street Location: East Forest Avenue & Bishop Street, West Chicago, IL 60185
Purpose of Inspection: Dry tank examination and interior & exterior coating evaluation
Date of Inspection: May 15, 2019
Inspected By: Devin Severson, NACE #78234 & Tim Lindsay
Type of Inspection: KLM Standard Dry Tank Inspection Procedures
Manufacturer: Graver **Construction Date:** 1959
Serial No.: 51414 **Design Code:** AWWA D100-55
Capacity: 500,000 Gallons
Type of Construction: Welded
Number and Size of Columns or Pilasters: None
Tank Diameter: 52-feet
Height: Overall 45-feet
Height to: HWL 30-feet LWL Grade
Type of Access to Tank Interior: Shell manway(s) and exterior ladder to roof manway
Tank Construction Drawings: None Available
Previous Inspection Records: Liquid Engineering Reports

EXISTING COATING INFORMATION

	<u>Interior Wet</u>	<u>Exterior</u>
Date Last Coated	Circa 1993	Circa 1993
Full or Spot Repair	Full	Full
Coating Contractor	Unknown	Unknown
Surface Preparation	Unknown	Unknown
Paint System	Epoxy	Epoxy/Urethane
Paint Manufacturer	Unknown	Unknown
Lab Lead Test Paint Chips	Taken	Taken

CITY OF WEST CHICAGO, ILLINOIS

500,000 GALLON CAPACITY
BOOSTER NUMBER 4 RESERVOIR

2.0|EXECUTIVE SUMMARY

2.1|Structural Examination Summary

Based on the inspection data, it appears that extensive miscellaneous structural modifications and repairs are required. These modifications and repairs serve to bring the tank into compliance with OSHA regulations, AWWA standards, as well as allow for better coating bonding, allow for safer access in and on the tank, and, in some cases, removing unnecessary items.

The roof of the Booster No. 4 reservoir is in unreparable condition. Although, it does not appear that the roof is caving in at the time of the evaluation, there is evidence of the interior of the roof plate edges deteriorating with severe corrosion. The evaluation was performed in May with good weather conditions, winter weather conditions and snow loads are unpredictable which may create considerable deflections. If left unattended the roof will continue to deteriorate depositing corrosion into water and when through corrosion occurs, contaminants can enter into the water and be in violation of AWWA and health department standards.

Currently corrosion has not visually appeared to affect the structural integrity of the roof. Although, corrosion has begun to migrate from the plate edges into base metal. If the corrosion is allowed to progress, it will diminish the structural strength of the roof. KLM does not have a history of the roof condition; therefore, a reasonable life prediction cannot be made at this time if no action is taken.

The critical time for the walls is when the reservoir is partially full, then the roof provides lateral support of the walls under wind and unbalanced snow loads and keeps the walls (shell) round. If there is loss of the structural strength of the roof, the walls are subject to collapse.

The existing roof is not effectively repairable, replacing the entire roof and structure with a new steel roof (coated) is estimated at \$300,000 at current costs. As an option, the City of West Chicago may entertain replacing the steel roof with an aluminum geodesic domed roof for approximately \$375,000. An aluminum geodesic domed roof would require minimal maintenance over the life expectancy of the reservoir whereas reconditioning the interior and exterior of a steel roof can cost around \$100,000 every 25+- years. See photos 2 through 8.

A new roof shall include one (1) pressure pallet vent, three (3) ventilation manways and a pipe style, OSHA compliant handrail to encompass the center finial vent and access manway.

2.2|Coating Evaluation Summary

2.2.1|Lead and Chromium Content Analysis

The total lead and chromium content of the interior and exterior coatings was analyzed. The results in Appendix E show a 0.0029 to 0.022 percent lead content for the interior wet coating and a 0.077 to 0.24 percent lead content for the exterior coating. Current State regulations classify neither the interior nor exterior coatings as lead-based paints. Chromium levels in the test samples indicate levels from Below Recording Limits (<RL) to 0.0029 percent chromium. These chromium levels are not high enough to be a concern in the waste streams generated during reconditioning.



2.2.2|Interior Wet Coating

The reservoir was originally constructed by Graver Tank and MFG Company in 1959. Verbal City records indicate the interior wet area was last fully coated in or around 1993 by an unknown contractor.

The interior wet coating is in poor condition above the High-Water Line (HWL) with approximately 50 percent visible coating failures including severe corrosion at each lap plate seam. The roof has structurally deteriorated beyond the point of repair. Due to deterioration, condition and non-compliance with AWWA and State Health Codes the roof should be replaced with an aluminum geodesic dome style roof within the next 12 months to ensure continued use of the reservoir as designed. The coating below the HWL is in poor overall condition with approximately 50 percent visible coating failures consisting of widespread rust nodules and solvent entrapment blisters. Due to condition the coating below the HWL is not repairable and should be replaced in its entirety at the same time as installation of the geodesic dome roof within 12 months. See photos in Appendix A.

2.2.3|Exterior Coating

The exterior coating is in poor overall condition with more than 50 percent visible coating failures throughout the structure. Failures consist of rust nodules caused by deterioration of the topcoat exposing the underlying epoxy to UV conditions. Due to age and condition the exterior is not a candidate for spot repair or over-coating and should be replaced in its entirety at the same time as the interior coating within the next 12 months. This includes the piping in the valve pit. See photos in Appendix A.

2.3|Repair and Reconditioning Cost Estimate

The costs for structural repairs, including the installation of a geodesic domed roof, replacing the interior and exterior coatings on the floor and shell (including the containment) are estimated between \$700,000 and \$735,000.

The costs for structural repairs, including the installation of a steel roof, replacing the interior and exterior coatings on the floor and shell (including the containment) are estimated between \$625,000 and \$660,000.

These estimates are based on current pricing. For up-to-date competitive bids the project should be bid 9 to 12 months before the scheduled starting date. The cost estimates do not include costs for engineering or inspection services.

An experienced tank-coating contractor with proper crew and equipment should be able to complete the project in 10 weeks. At the time of reconditioning, the tower will need to be drained and remain off-line during interior structural modifications, abrasive blasting and painting. However, most of the exterior structural modifications can be performed prior to draining, with the tank in-service.

2.4|Remaining Tank Life

Based on the inspection data, if the recommended structural repairs and coating replacement are completed within the next 12 months, the tank will be satisfactory for continued service provided that it is inspected regularly.

The tank and coating should first be inspected within the warranty period and every three (3) to five (5) years thereafter. A new interior and exterior coating, if applied and maintained properly, should last 15 to 20 years.

3.0|RECOMMENDATIONS

The photographs referred to in this section are in Appendix A. All drawings are found in Appendix B. The surface preparation requirements for all repairs as well as the requirements for welding are described in Appendix C. The exterior and interior paint chip lead tests are in Appendix E.

Based on an evaluation of the inspection data, the following are our recommendations:

3.1|Interior Structural

- 3.1.1** Remove the inspection platform and fill pipe de-fuser platform under the center of the roof. See photos 2, 7, and 9 through 11.
- 3.1.2** Remove the fill pipe down to a point approximately three (3) feet above floor level. Install a brace connecting the pipe to the floor at the 90-degree connection of the pipe. See photos 10 through 12.
- a. Diffuser inlets are typically installed to "aerate" water supply during the fill process to oxygenate water and allow iron to separate and settle to the floor. With a treatment plant, diffusers are normally not required. The existing supports for the platform are corroded beyond repair. Due to reoccurring maintenance costs, cost of replacing the support system and the fact that aeration only occurs while the reservoir is filling, repairing the existing fill pipe system and inspection platform is not recommended.
- 3.1.3** Remove the wood plank baffle wall and all connection points. Grind smooth all attachment points to the wall and floor per Appendix C. Typically baffle walls are installed to direct even distribution of sediment. It is not required with proper mixing systems and scheduled cleanout inspections. See photos 12 through 15.
- 3.1.4** Remove the Cathodic Protection System in its entirety including the housing around the shell penetration and wall clips. Repair the resulting hole in the shell per AWWA D100-11. See photos 23, 26 and 37.
- 3.1.5** Remove the ladder safety climb device. Install an anchor point and Self Retracting Lifeline (SRL) on the underside of the roof adjacent to the access manway for safe egress into the reservoir. See photos 17 and 18 and KLM Drawing No. 26.
- 3.1.6** Remove approximately 4-inches off the top of the overflow weir box to comply with AWWA D100-11 and State Health Codes. See photo 8.
- 3.1.7** Remove all erection brackets scab marks and weld spatter below the HWL by air arc gouging, cutting torch, or grinding. Repair the tank surface by welding and grinding outlined in Appendix C. See photos 20 through 22. This work will require approximately 75 man-hours.
- 3.1.8** Replace the top ten (10) feet of ladder and ladder stand-off brackets at the top of the shell. See photo 17.
- 3.1.9** Install a 12-inch tall removable silt stop to the top of the outlet pipe with welded flat bar tabs to keep it in place. Install two bars on top of the new silt stop. The silt stop will help keep sediment from entering the water stream and the bars will hinder the entry of miscellaneous material and provide a safety measure. See photo 25.
- 3.1.10** Install a Grid-Bee GS-12 Submersible Mixer (or equivalent) in the reservoir to provide mixing capabilities that reduce the likelihood and magnitude of ice formation in cold weather and prevent stratification in warm weather, improving water quality and reducing the necessity of chemical additives such as chlorine. Refer to KLM Drawing 58. The costs of a GridBee GS-12 installed is approximately \$18,000. The cost for a GridBee GS-9 mixer is included in the cost estimates in Section 2.3. As an option, install Tideflex (or equivalent) fill pipe system. The cost to install a Tideflex system is approximately \$38,000.

3.2|Interior Wet Coating

3.2.1 The interior wet coating is in poor condition above the High-Water Line (HWL) with approximately 50 percent visible coating failures including severe corrosion at each lap plate seam. The roof has structurally deteriorated beyond the point of repair. Due to deterioration, condition and non-compliance with AWWA and State Health Codes the roof should be replaced with an aluminum geodesic dome style roof within the next 12 months to ensure continued use of the reservoir as designed. The coating below the HWL is in poor overall condition with approximately 50 percent visible coating failures consisting of widespread rust nodules and solvent entrapment blisters. Due to condition the coating below the HWL is not repairable and should be replaced in its entirety at the same time as installation of the geodesic dome roof within 12 months. See photos 2 through 26.

3.2.2 After structural repairs are completed, all the reservoir surfaces should be abrasive blasted to an SSPC-SP-10 Near White Metal Blast and coated with a light-colored zinc/polyamide epoxy system (similar to the Tnemec Series 91-H20 Hydro-Zinc/Series N140 Pota-Pox Plus Epoxy coatings).

3.3|Cathodic Protection System (C.P.)

3.3.1 The submerged style Cathodic Protection System is recommended to be removed in its entirety per Item 3.1.5 above. Current coating conditions suggests that the Cathodic Protection System is not working correctly.

3.3.2 A cathodic protection system is not required if the coating is applied and maintained properly.

3.4|Exterior Structural

3.4.1 Relocate the exterior shell ladder approximately three (3) feet either side of its existing location. The ladder is currently aligned with the roof access manway creating unsafe access into the wet area. This item may not be required if the manway on the new geodesic dome roof is located See photos 31 and 32.

3.4.2 Replace the two (2) shell manway gaskets. See photos 34 and 36.

3.4.3 Replace missing Flexcell under the base plate of the reservoir. Epoxy caulk around the entire perimeter of the seam between the concrete and base plate using Sika-Flex 1-A or approved equal. See photos 36 through 39.

3.4.4 Remove the name plate for purposed of blasting and painting the shell on the back side of the plate. Reinstall the name plate after coating application. See photo 35.

3.4.5 Replace the flat track safety climb device on the shell ladder with an OSHA compliant cable style safety climb device. See photo 32 and KLM Drawing No. 24

3.4.6 Install a splash pad under the overflow discharge to allow for drainage away from the base of the reservoir per AWWA D100-11 requirements. See photos 38 and 39.

3.4.7 Install a sump pump including electrical connections required for proper operation in the valve pit. The discharge shall be routed through the roof of the valve pit and directed away from the base of the reservoir. See photos 41 and 42.

3.5|Exterior Coating

3.5.1 The exterior coating is in poor overall condition with more than 50 percent visible coating failures throughout the structure. Failures consist of rust nodules caused by deterioration of the topcoat exposing the underlying epoxy to UV conditions. Due to age and condition the exterior is not a candidate for spot repair or over-coating and should be replaced in its entirety at the same time as the interior coating within the next 12 months. This includes the piping in the valve pit. See photos 27 through 41.

3.5.2 After structural repairs are completed, all the reservoir surfaces should be abrasive blasted to an SSPC-SP-6 Commercial Blast Clean and coated with a zinc/epoxy/urethane/fluoropolymer system (similar to the Tnemec Series 91-H20 Hydro-Zinc/Series N140 Pota-Pox Plus Epoxy/Series 73 Endurashield/Series 701 Hydroflon coatings).

3.6|Site and Environmental Considerations

3.6.1 The reservoir is located inside a 75-foot by 225-foot chain link fenced area with close proximity to the fence on the east side adjacent to a sidewalk and Bishop Street. West Chicago City Guidelines will need to be followed for closing the adjacent sidewalk.

3.6.2 In conformance with Illinois State Regulations, an analysis has been performed to determine the methods of pollution control required for this storage structure during reconditioning. To maintain air quality and to prevent the drift of dust and fugitive emissions, full containment will be required, including impervious ground cover, a top cover or bonnet and negative air dust collection.

3.7|Telecommunications Considerations

6.7.1 The reservoir has no telecommunications equipment, either antennas or other associated equipment. Antennas generally have the effect of dramatically increasing the cost of reconditioning water storage reservoirs. If the owner is considering allowing antennas to be installed on the tower/reservoir, lease agreements should be written to ensure the antenna owners are responsible for increase maintenance costs due to their presence. Installations should be reviewed to ensure that they do not interfere with normal use or maintenance of the tower, present safety hazards, or violate state or federal regulations.

4.0|REPAIR AND RECONDITIONING OVERVIEW

KLM recommends repairs be completed within the next 12 months. An experienced tank-coating contractor with the proper crew and equipment should be able to complete the project in ten (10) weeks.

KLM ENGINEERING, INC.

Report prepared by:



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Vice President/COO
NACE Certified Coatings Inspector No. 1686
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Report reviewed and certified by:



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P:\2019\2019 Evaluations And Photos\West Chicago, IL MN3924 Forest Avenue GSR\Support Docs\West Chicago, IL MN3924 Report Final Revised.Docx



APPENDIX A

PHOTOGRAPHS



Photo No. 1
Overall view of reservoir



Photo No. 2
Overall roof condition, note center fill de-fuser and inspection platform



Photo No. 3
Roof condition



Photo No. 4
Roof condition



Photo No. 5
Severe corrosion on roof plates



Photo No. 6
Severe corrosion on roof plates



Photo No. 7
Severe corrosion on inspection platform brace and dollar plate



Photo No. 8
Overflow weir box and roof/shell condition



Photo No. 9
Fill pipe and de-fuser plate

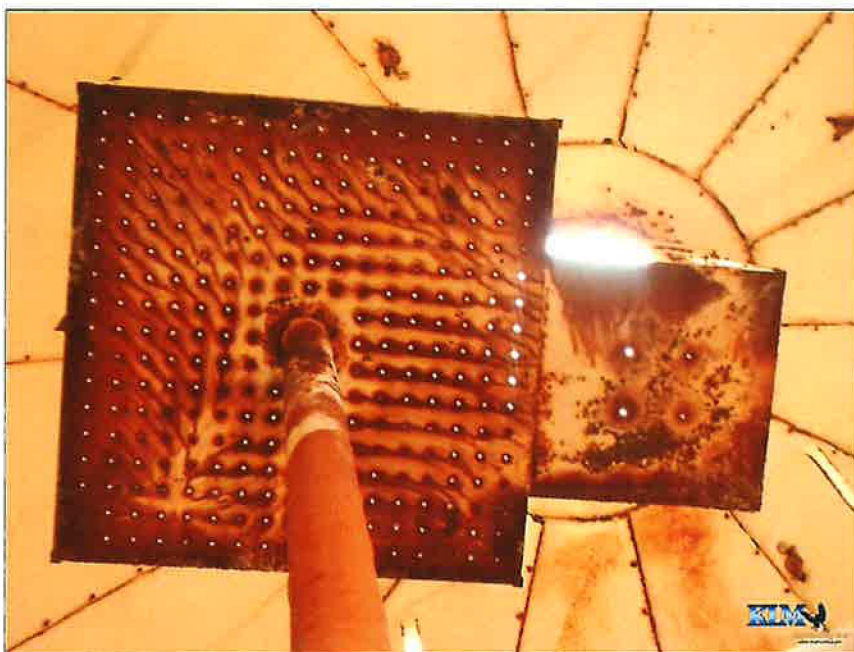


Photo No. 10
Underside of fill pipe and de-fuser plate adjacent to inspection platform



Photo No. 11
Fill pipe and baffle wall



Photo No. 12
Fill pipe and baffle wall



Photo No. 13
Wood plank baffle wall



Photo No. 14
Baffle wall connection to reservoir shell



Photo No. 15
Baffle wall connection to roof



Photo No. 16
Roof to shell connection and conditions



Photo No. 17
Ladder condition at top of shell



Photo No. 18
Overall condition of shell



Photo No. 19
Shell condition, note C.P. system



Photo No. 20
Shell coating condition, note blisters and erection scab marks



Photo No. 21
Erection scab marks and blistered coating on shell



Photo No. 22
Erection scab marks and blistered coating on shell



Photo No. 23
C.P. penetration on shell and floor conditions



Photo No. 24
Floor conditions and inlet pipe



Photo No. 25
Floor conditions, note sump pit and shell manway

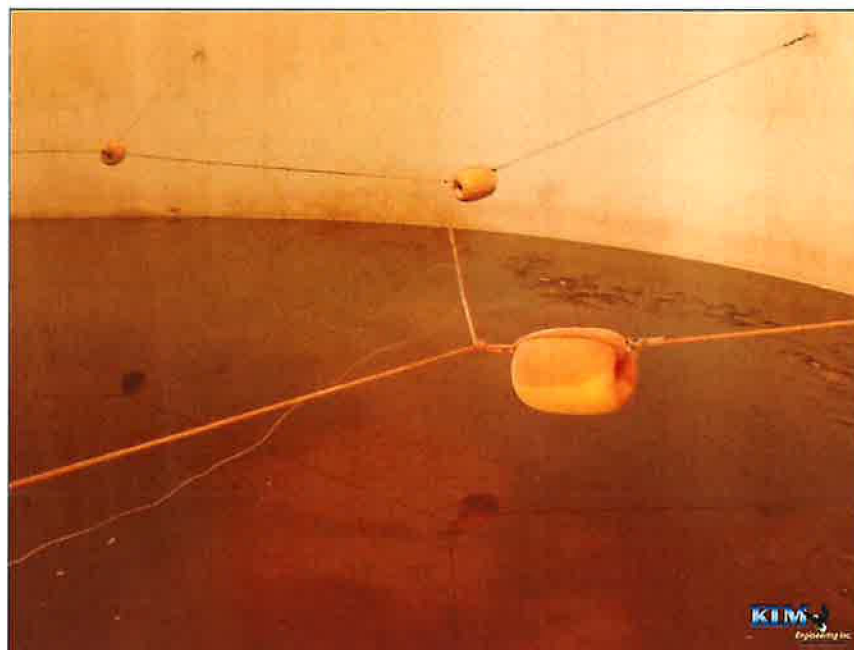


Photo No. 26
C.P. system and floor conditions



Photo No. 27
Non-compliant finial vent and roof conditions



Photo No. 28
Overall roof conditions



Photo No. 29
Roof conditions

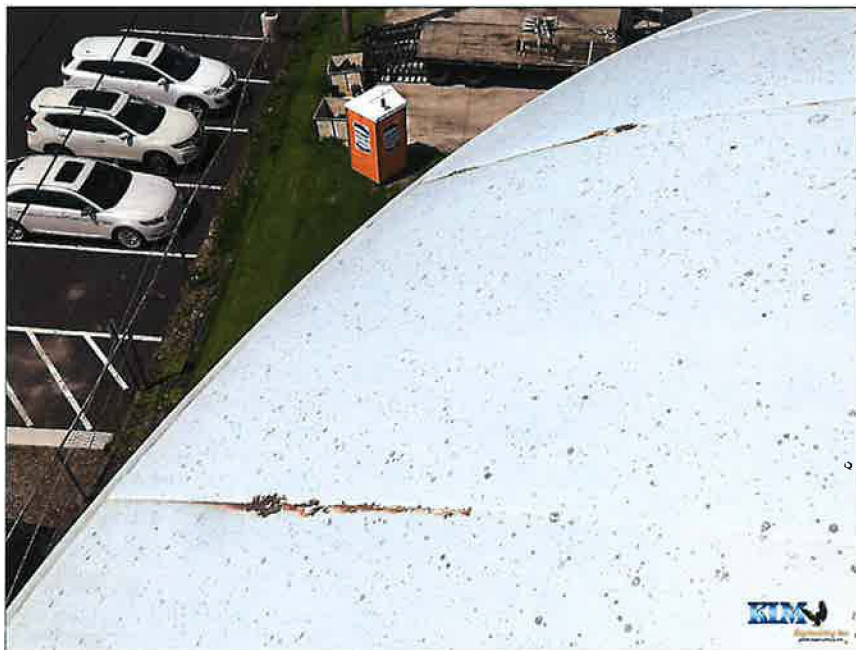


Photo No. 30
Roof conditions



Photo No. 31
Note shell ladder location in reference to roof access manway



Photo No. 32
Shell ladder and coating conditions



Photo No. 33
Shell coating condition



Photo No. 34
Shell manway



Photo No. 35
Name plate



Photo No. 36
Shell manway and foundation conditions



Photo No. 37
C.P. rectifier and shell conditions



Photo No. 38
Overflow discharge



Photo No. 39
Overflow discharge, note missing flex cell at chime base



Photo No. 40
Shell coating condition



Photo No. 41
Valve pit roof and access manway



Photo No. 42
Valve pit and piping conditions

APPENDIX B

DRAWINGS



KLM ENGINEERING, INC.

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Suite 4
Woodbury, MN 55125
(651) 773-5111
Fax (651) 773-5222



KLM PROJECT NO.

KLM DRAWING NO. 24

SUBJECT LADDER SAFETY CLIMB DEVICE – CABLE STYLE

DRAWN BY

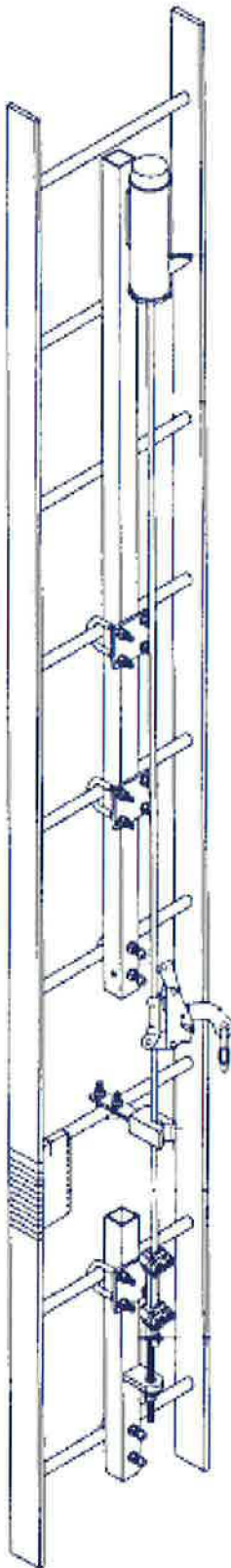
DATE JANUARY 2018

CHECKED BY

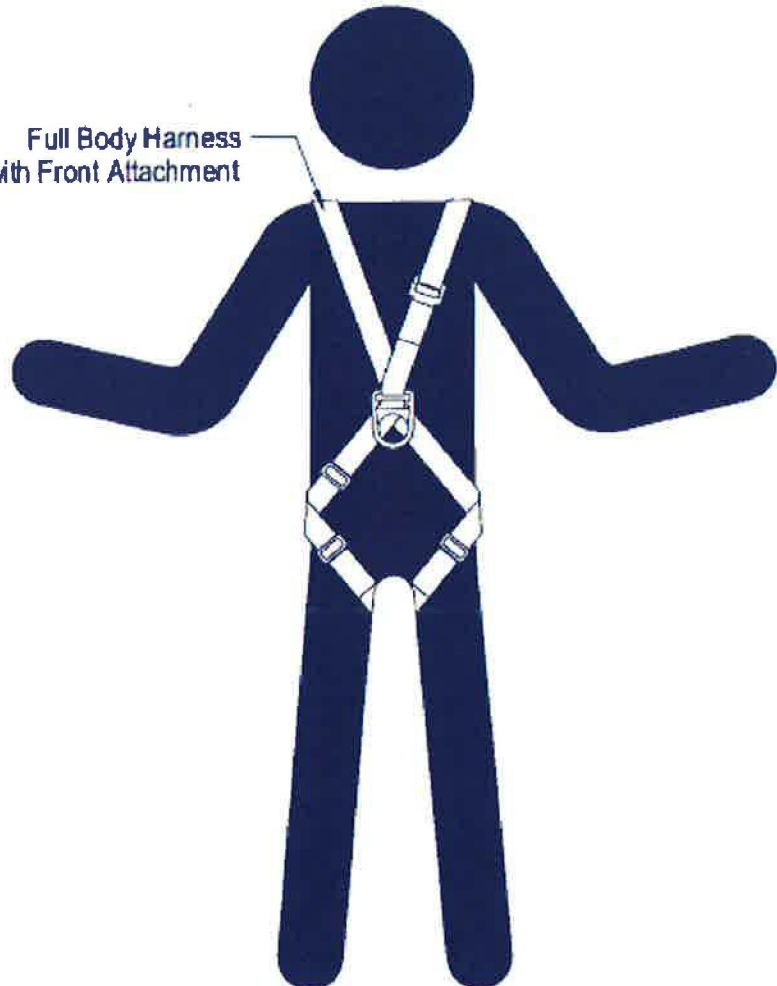
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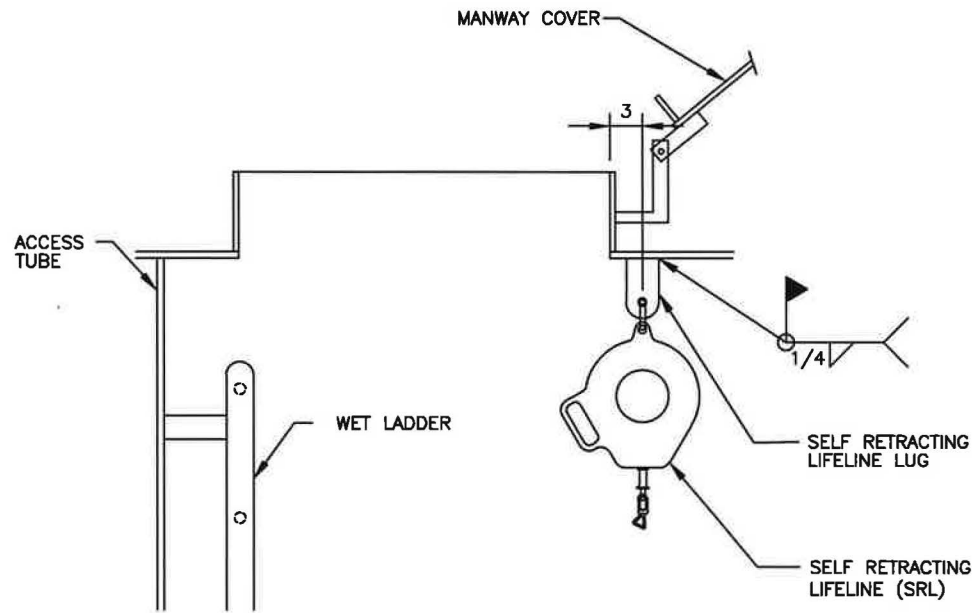
NOTES:

1. CONTRACTOR SHALL PROVIDE AND INSTALL A CABLE STYLE SAFETY CLIMB DEVICE PER THE SPECIFICATION
2. SYSTEM SHALL BE EQUIVALENT TO THE DBI/SALA LAD-SAF(R) FLEXIBLE CABLE SYSTEM
3. CONTRACTOR SHALL PROVIDE TWO (2) HARNESES AND LAD-SAF(R) SLEEVES WITH SAFLOK CARABINER (OR EQUIVALENT)
4. CONTRACTOR SHALL PROVIDE DOUBLE LANYARDS WITH EACH HARNESS PROVIDED



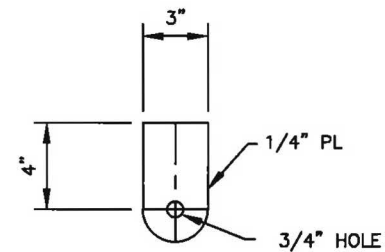
Full Body Harness
with Front Attachment





1
SECTIONAL ELEVATION

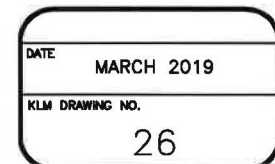
- NOTES:**
1. ALL WELDING SHALL BE PER AWS D1.1 LATEST EDITION.
 2. ALL WELDING SHOWN IS TO BE DONE BY CONTRACTOR.
 3. INSTALL PRIOR TO RECOATING.
 4. FIELD VERIFY LOCATION.
 5. SELF RETRACTING LIFELINE (SRL) SHALL BE SALA SEALED BLOCK HEAVY DUTY OR EQUAL.

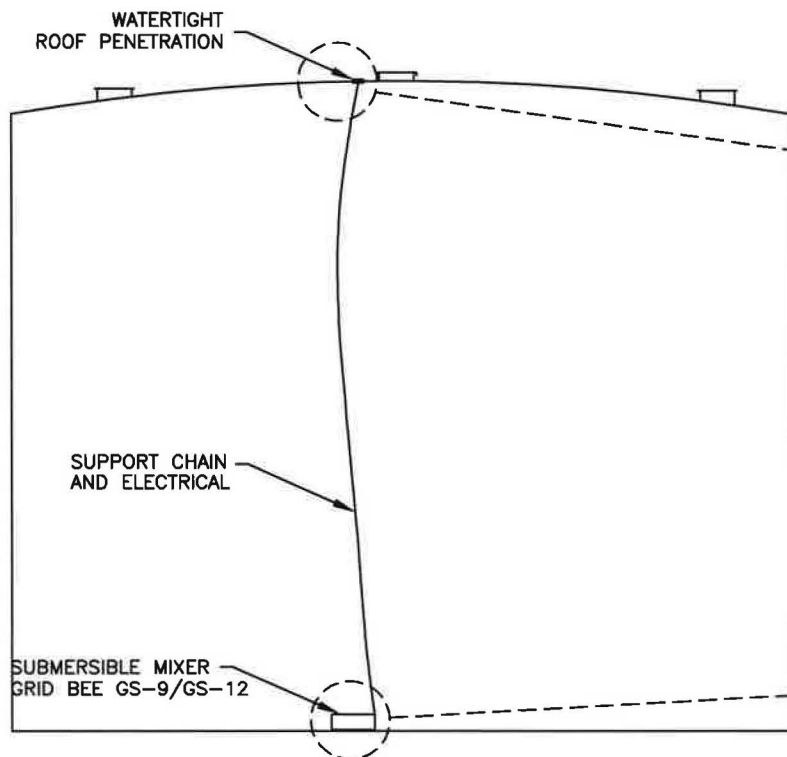


2
LUG DETAIL

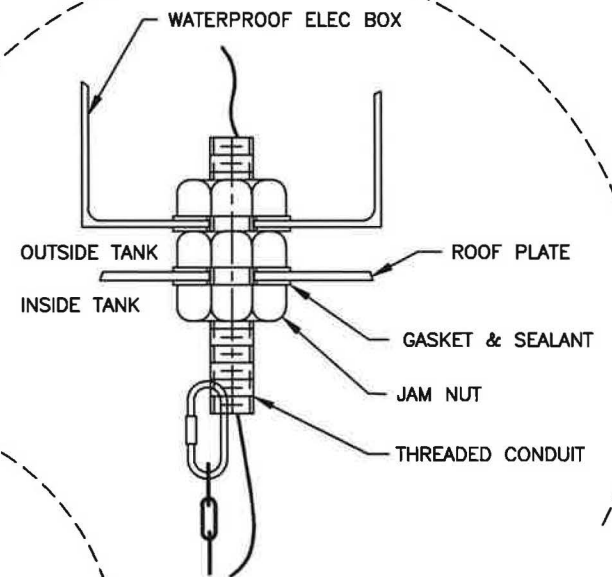


SELF RETRACTING LIFELINE
AND LUG



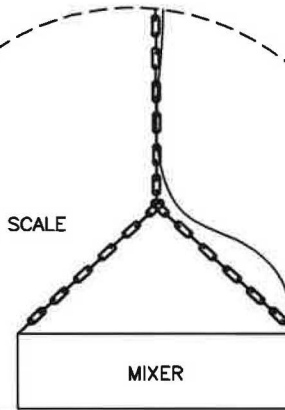


SECTION VIEW



DETAIL VIEW

NOT TO SCALE



DETAIL VIEW

INSTALLER NOTES:

1. INSTALL MIXER IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
2. INSTALL IN ACCORDANCE WITH STATE ELECTRICAL CODES AND STATE REGULATIONS.
3. INSTALLER PROVIDE ALL WIRING, CONDUIT, DEVICES, BREAKERS, AND SWITCHES.
4. WATERTIGHT PENETRATION IN ROOF AT THE DIRECTION OF THE ENGINEER.
5. COORDINATE WITH ENGINEER FOR DESIGN OF PERMANENT SUPPORT BRACKETS, IF REQUIRED.



GridBee MIXER INSTALLATION GROUND STORAGE RESERVOIR

DATE JANUARY 2018

KLM DRAWING NO.

58

APPENDIX C

SURFACE PREPARATION REQUIREMENTS



NACE SP0178-2007
(formerly RP0178-2003)
Item No. 21022

Standard Practice

Design, Fabrication, and Surface Finish Practices for Tanks and Vessels to Be Lined for Immersion Service

This NACE International standard represents a consensus of those individual members who have reviewed this document, its scope, and provisions. Its acceptance does not in any respect preclude anyone, whether he or she has adopted the standard or not, from manufacturing, marketing, purchasing, or using products, processes, or procedures not in conformance with this standard. Nothing contained in this NACE International standard is to be construed as granting any right, by implication or otherwise, to manufacture, sell, or use in connection with any method, apparatus, or product covered by Letters Patent, or as indemnifying or protecting anyone against liability for infringement of Letters Patent. This standard represents minimum requirements and should in no way be interpreted as a restriction on the use of better procedures or materials. Neither is this standard intended to apply in all cases relating to the subject. Unpredictable circumstances may negate the usefulness of this standard in specific instances. NACE International assumes no responsibility for the interpretation or use of this standard by other parties and accepts responsibility for only those official NACE International interpretations issued by NACE International in accordance with its governing procedures and policies which preclude the issuance of interpretations by individual volunteers.

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Reaffirmed March 1991
Revised 1989
Approved 1978
NACE International
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Houston, Texas 77084-4906
+1 281/228-6200
ISBN 1-57590-167-6
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Foreword

When specifying tanks and vessels that are to be internally lined to control corrosion and prevent product contamination, special design, fabrication, and surface finishing practices must be considered to obtain the desired performance of these linings for immersion service. As the corrosiveness of the product increases, the design and fabrication of the tank or vessel becomes more critical relative to the performance of the lining.

This standard presents standard practices for the design, fabrication, and surface finish of metal tanks and vessels that are to be lined for corrosion resistance and to prevent product contamination. The standard explains how the standard practices govern the quality of lining applications. Appendix A contains illustrations depicting both good and bad practices for tanks and vessels to be lined, and Appendix B contains a list of recommended responsibilities to ensure that an acceptable lining application is achieved. Appendix C contains written and graphic descriptions of five degrees of surface preparation of welds in tanks and vessels that may be specified prior to lining.⁽¹⁾

This standard is intended for use or reference by end users, lining specifiers, lining applicators, lining manufacturers, and contracting authorities involved in the surface preparation or lining installation in tanks and vessels intended for chemical immersion service.

This standard practice was originally prepared in 1978 by NACE International Task Group (TG) T-6A-29, a component of Unit Committee T-6A on Coating and Lining Materials for Immersion Service, in collaboration with Unit Committee T-6H on Application and Use of Coatings for Atmospheric Service. The standard was revised in 1989 by TG T-6G-27, a component of Unit Committee T-6G on Surface Preparation for Protective Coatings, and was reaffirmed in 1991 and 1995. It was reaffirmed in 2003 by Specific Technology Group (STG) 04 on Coatings and Linings, Protective: Surface Preparation. The standard was revised in 2007 by TG 295 on Lining, Tanks and Vessels for Immersion Service: Fabrication Details, Surface Finish Requirements, and Proper Design Considerations—Review of NACE Standard RP0178-2003. This TG is administered by STG 04. It is also sponsored by STG 02 on Coatings and Linings, Protective: Atmospheric; STG 03 on Coatings and Linings, Protective: Immersion and Buried Service; and STG 43 on Transportation, Land. This standard is issued by NACE International under the auspices of STG 04.

⁽¹⁾ The visual comparator mentioned in Appendix C is a molded plastic replica that illustrates various degrees of surface finishing for welds prior to coating or lining. Full-seam welds, skip welds, butt welds, lap welds, and others are depicted. For more information contact the NACE FirstService Department, 1440 South Creek Drive, Houston, TX 77084-4906.

NACE International gratefully acknowledges the contributions of the following companies in the preparation of the welding samples and the fabrication of the die from which the plastic replicas have been molded:

Ausimont USA, Inc.,⁽²⁾ Thorofare, NJ
CenterPoint Energy,⁽³⁾ Houston, TX
S.G. Pinney & Associates, Inc.,⁽⁴⁾ Port St. Lucie, FL
The Sherwin-Williams Company,⁽⁵⁾ Cleveland, OH

NACE also gratefully acknowledges the assistance of KTA-Tator Inc.,⁽⁶⁾ Pittsburgh, PA, in developing the weld pattern that was used to mold the plastic replica of weld samples.

In NACE standards, the terms *shall*, *must*, *should*, and *may* are used in accordance with the definitions of these terms in the *NACE Publications Style Manual*, 4th ed., Paragraph 7.4.1.9. *Shall* and *must* are used to state mandatory requirements. *Should* is used to state something considered good and is recommended but is not mandatory. *May* is used to state something considered optional.

(2) Ausimont USA, Inc., 10 Leonards Lane, Thorofare, NJ 08086.

(3) CenterPoint Energy, P.O. Box 1325, Houston, TX 77251-1325.

(4) S.G. Pinney & Associates, Inc., Corporate Office, 1326 S.W. Billmore St., Port St. Lucie, FL 34983.

(5) The Sherwin-Williams Company, 101 Prospect Avenue N.W., Cleveland, OH 44115.

(6) KTA-Tator, Inc., 115 Technology Drive, Pittsburgh, PA 15275.

NACE International Standard Practice

Design, Fabrication, and Surface Finish Practices for Tanks and Vessels to Be Lined for Immersion Service

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Section 1: General

1.1 This standard presents standard practices for the design, fabrication, and surface finish of tanks and vessels to be lined for immersion service. Tanks and vessels may be lined for corrosion control or to prevent product contamination.

1.1.1 Appendix A (mandatory) contains illustrations depicting both good and bad practices for tanks and vessels to be lined for immersion service.

1.1.2 Appendix B (nonmandatory) contains a list of recommended responsibilities of the purchaser (user), designer, fabricator, lining applicator, and inspector to ensure that an acceptable lining application is achieved.

1.1.3 Appendix C (nonmandatory) contains written and graphic descriptions of five degrees of surface preparation of welds in tanks and vessels that may be specified prior to lining. The written descriptions of the five degrees of surface preparation of welds in Appendix C take precedence over the graphics and the companion visual comparator. The graphics are only

pictorial representations of welds and grinding finishes and are not intended to be representative of the integrity of the welds. The "weld condition prior to finishing" is not a typical weld; it is only intended to illustrate defects in welds that must be corrected prior to lining.

1.2 Good welding practices and welding codes govern the integrity of the tank and vessel welds; this standard only addresses surface preparation of the welds for the purpose of lining the tank or vessel for immersion service.

1.3 Other design and construction codes or standards may be used to complement the details given here. When applicable, the requirements of such other codes or standards shall be considered. A partial list of such codes and standards can be found in the Bibliography.

1.4 These standard practices may be used in the design, fabrication, and surface finish of tanks and vessels for services other than Immersion, such as dry bulk storage of solid materials.

Section 2: Definitions

Lining: A coating or layer of sheet material adhered to or in intimate contact with the interior surface of a container used to protect the container against corrosion by its contents and/or to protect the contents of the container from contamination by the container material. For the purposes of this standard, *lining* refers to a surface barrier, usually a thin film less than 500 μm (20 mil) thick applied as either a lining or a coating. In common usage, the terms *coating* and *lining* are interchangeable, but in this standard, only the term *lining* is used. The requirements contained herein may or may not apply to heavier, thick-film linings, sheet linings, trowel-applied and pumped-into-place finishes, plasma,

flame-sprayed linings, fiber-reinforced plastic linings, or similar lining materials.

Surface Finish: The degree of smoothness of a surface produced by the removal of sharp edges and the appropriate surface preparation of welds and other rough areas. The term *surface finish* is also used to characterize the degree of smoothness that is necessary to attain a surface to which the lining can be applied satisfactorily in accordance with the lining specification.

Section 3: Design Practices

3.1 Accessibility

3.1.1 All surfaces of the tank or vessel interior shall be readily accessible for surface preparation and lining application (see Figures A1 through A10, Appendix A).

3.1.2 The manway diameter for working entrance and safety reasons during the lining application shall be as large as practical for the tank or vessel being lined.

3.1.2.1 If possible, at least one manway shall be located near ground (working) level, except in

tanks or vessels designed to be buried below grade.

3.1.3 Additional manways and openings should be provided as needed to facilitate ventilation. These must meet safety requirements.

3.2 Joints

3.2.1 Continuous butt-welded joints shall be used whenever possible (see Figure A5, Appendix A).

3.2.2 Rivets shall not be used.

3.2.3 The use of internal bolted connections should be avoided to the fullest extent possible.

3.2.4 Continuous lap-welded joints may be used but are not preferred. For sheet lining material, this type of construction may not be acceptable.

3.3 Connections

3.3.1 All connections to the tank or vessel shall be flanged.

3.3.2 Threaded connections should not be used in tanks and vessels operating in corrosive environments (see Figure A4, Appendix A). However, if threaded connections cannot be avoided in corrosive environments, these parts shall be fabricated of corrosion-resistant materials, or constructed as shown in Figure A10, Appendix A.

3.3.2.1 CAUTION: Dissimilar metal (galvanic) corrosion occurs when, for example, an alloy is used to replace the steel bottom of a tank, or in a similar circumstance when alloy appurtenances must be part of the construction of a vessel. If a lining is then applied to the steel and part of the alloy (usually 150 to 610 mm [5.9 to 24 in.]), any discontinuity in the lining exposes a small anode surface. Once corrosion starts, it progresses rapidly because of the large exposed alloy cathodic area to the much smaller anodic area. Without the lining, galvanic corrosion causes the steel to corrode at the weld area, but at a much slower rate. The recommended practice is to apply the lining to all of the alloy as well as the steel, thereby eliminating the possible occurrence of a large-cathode-to-small-anode surface.

3.3.3 Nozzle connections to be lined shall be as short as possible and be a minimum of 50 mm (2 in.) in diameter (see Figure A4, Appendix A). Connections less than 50 mm (2 in.) in diameter shall be suitably attached through a reducing flange (see Figure A10, Appendix A). When trowel-applied thick-film linings are required, additional nozzle inside diameter shall be allowed for lining thickness.

3.4 Appurtenances Inside the Tank or Vessel

3.4.1 The standard practices in Sections 3, 4, and 5 shall apply to any item to be installed inside a tank or vessel that is to be lined. Such appurtenances include, but are not limited to, agitators, anti-swirl baffles, outlet connections, gauging devices, vortex breakers, and internal piping.

3.4.2 If appurtenances inside the tank or vessel, including nuts and bolts, cannot be lined, they shall be made of corrosion-resistant materials. (CAUTION: See Paragraph 3.3.2.1.)

3.4.3 If bolted connections are necessary and cannot be made of corrosion-resistant materials, the mating surfaces shall be lined before assembly. Gaskets shall be used on mating surfaces and the sealing surfaces of nuts and bolts to protect the lining.

3.4.4 Dissimilar metals shall be electrically isolated from the steel tank or vessel surface whenever possible. Where dissimilar metals are used, selection shall be such that the galvanic effect is minimized. Other corrosion mitigation methods may be required (see Figure A8, Appendix A).

3.4.5 Heating elements shall be offset from the tank or vessel surface to provide access for surface preparation, application, inspection, and cleaning. Elements shall be positioned so as not to damage the lining system.

3.5 Structural Reinforcement Members

3.5.1 Structural support members should be installed on the exterior of the tank or vessel. However, if such members are installed internally, they shall be fabricated of simple shapes such as smooth, round bars or pipe for ease of applying the lining material.

3.5.2 The use of internal flanged connections, stiffening rings, reinforcement pads, angles, channels, I-beams, and other complex shapes should be avoided. If they must be installed internally, these members shall be fully welded and welds and sharp edges ground to a radius of at least 3.2 mm (0.13 in.) or as agreed between the tank or vessel fabricator, tank or vessel owner, and lining applicator (see Figures A1 and A6, Appendix A).

3.6 Heat Sinks

3.6.1 Heated, forced curing of lining systems is often preferred if not specifically required. During tank or vessel design and fabrication, especially with field-erected units, consideration must be given to avoiding or minimizing heat sink areas. Such areas might include opposite saddles or support lugs, flat bottoms on foundations, and stiffening rings.

3.6.2 These situations may be addressed either by tank or vessel design or by construction or insulation of the foundation or supports. Another possible solution is the use of temporary constructions, such as false floors or temporary shelters, to achieve uniform heating and curing.

Section 4: Fabrication Practices

4.1 All design practices in Section 3 shall apply to all fabrication.

4.2 All welding shall be continuous. Intermittent or spot welding shall not be allowed.

4.3 Fillets and corners must be accessible for grinding.

4.4 Field tanks fabricated for use with high-heat-cured linings (e.g., unmodified phenol formaldehyde thermosetting linings) should have bottoms suitably insulated and installed on properly drained foundations to facilitate proper cure of the lining on the floor of the tank. Because the sand-filled earthen foundation, concrete pad, or other similar foundation is a poor insulator, some means must be considered prior to the application of the lining either to override the heat sink or to distribute the heat uniformly. This may be accomplished in several ways:

(a) with the use of properly sized heaters;

(b) by placing the tank on a concrete pad topped with a 100-mm (4-in.) layer of vermiculite concrete;

(c) by insulating with a high-compressive-strength structural grade insulation between the tank bottom and foundation;

(d) by installing an internal temporary false bottom approximately 1.5 m (5.0 ft) above the floor of the tank prior to the final high-temperature bake; or

(e) by other suitable means that practically and effectively ensure a properly cured lining on the tank floor.

Section 5: Surface Finish Practices

5.1 Sharp edges shall be ground to a smooth radius of at least 3.2 mm (0.13 in.) or as agreed between the tank or vessel fabricator, tank or vessel owner, and lining applicator.

5.2 Tank and vessel internal surfaces to be lined shall not be marred by gouges, handling marks, deep scratches, metal stamp marks, slivered steel, or other surface flaws. Flaws shall be repaired by welding or grinding, as appropriate.

5.2.1 Limits on surface flaw depth and geometry shall be set by agreement between the tank or vessel fabricator, tank or vessel owner, and lining applicator.

5.2.2 All restorative welding shall be performed according to applicable tank or vessel design codes, approved job-specific procedures, or both.

5.3 All rough welds shall be ground to remove sharp edges and other such irregularities (see Figure A2, Appendix A). Chipping may be used to remove sharp edges if followed by grinding. See Appendix C for written and graphic descriptions of five degrees of surface finishing of welds that may be specified preparatory to the lining of tanks and vessels.

5.3.1 The amount of grinding performed shall be judicious and performed only to the extent necessary to

prepare the weld surface and surrounding metal surfaces in accordance with the specification. Over-grinding, which would result in decreasing the wall thickness or the integrity of the weld beyond the limitations imposed by good welding practices, applicable welding codes, or tank or vessel ratings, shall be avoided.

5.4 Automatic machine welds may be acceptable as dictated by the specifications for film continuity.

5.5 All weld spatter and arc strikes must be removed. Chipping may be used if followed by grinding or the use of an abrasive disc.

5.6 If an anti-spatter material is applied adjacent to the weld area prior to welding, the anti-spatter material shall be one that is readily removable. Anti-spatter materials shall be removed prior to abrasive blasting.

5.7 When checking weld continuity, the tank or vessel fabricator shall avoid the use of oils, lubricants, or other foreign materials that would leave a contaminating residue not easily removed by abrasive blasting.

5.8 Surfaces shall be cleaned and decontaminated as required by the governing lining application specification(s).

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API⁽⁷⁾ Standard 650 (latest revision). "Welded Steel Tanks for Oil Storage." Washington, D.C.: American Petroleum Institute (API).

API RP 652 (latest revision). "Lining of Aboveground Petroleum Storage Tank Bottoms." Washington, D.C.: API.

ASME⁽⁸⁾ Boiler and Pressure Vessel Code (latest revision). New York, NY: ASME.

Directive 97/23/EC (latest revision). "Pressure Equipment Directive (PED)." Brussels, Belgium: European Commission.⁽⁹⁾

NACE Standard SP0294 (latest revision). "Design, Fabrication, and Inspection of Storage Tank Systems for Concentrated Fresh and Process Sulfuric Acid and Oleum at Ambient Temperatures." Houston, TX: NACE.

⁽⁷⁾ American Petroleum Institute (API), 1220 L Street, NW, Washington, D.C. 20005-4070.

⁽⁸⁾ ASME International (ASME), Three Park Avenue, New York, NY 10016-5990.

⁽⁹⁾ European Commission (EC), Rue de la Loi 200, B-1049 Brussels, Belgium.

APPENDIX A:
Illustrations of Design, Fabrication, and Surface Finish Practices for Metal Tanks and Vessels to Be Lined for Immersion Service

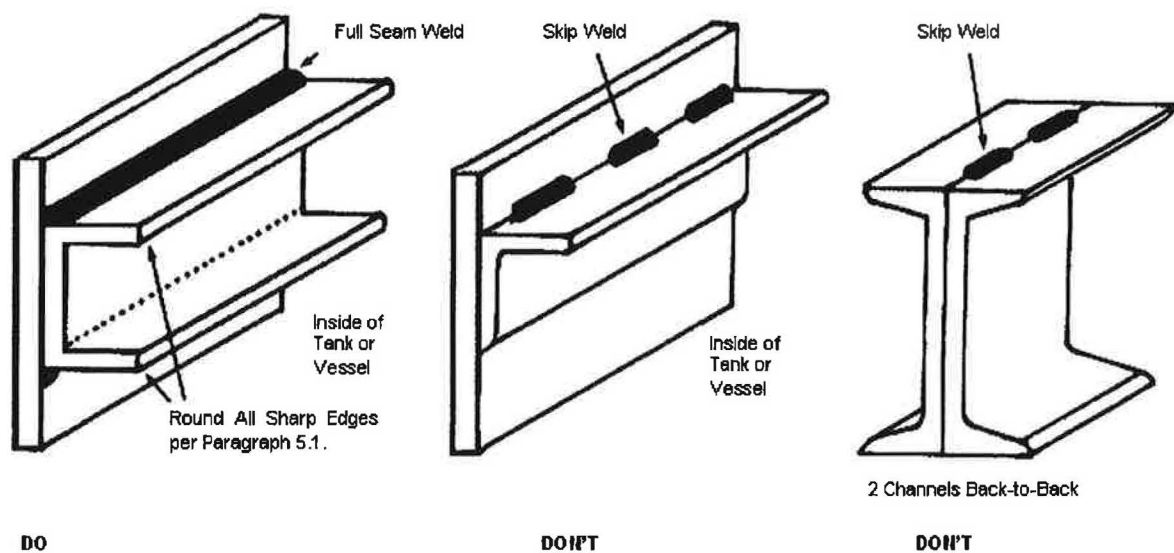


FIGURE A1

All construction involving pockets or crevices that do not drain or that cannot be properly abrasive blasted and lined shall be avoided.

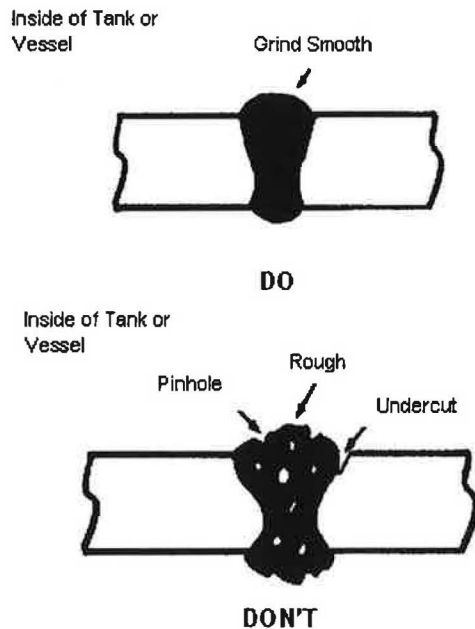


FIGURE A2

All joints shall be continuous full-penetration porosity-free welds. In tanks and vessels that require a 100% holiday-free lining, all welds must be smooth with no holes, high spots, lumps, or pockets. Grinding is required to eliminate sharp edges and high spots. Weld metal shall be used to fill in undercut or pits.

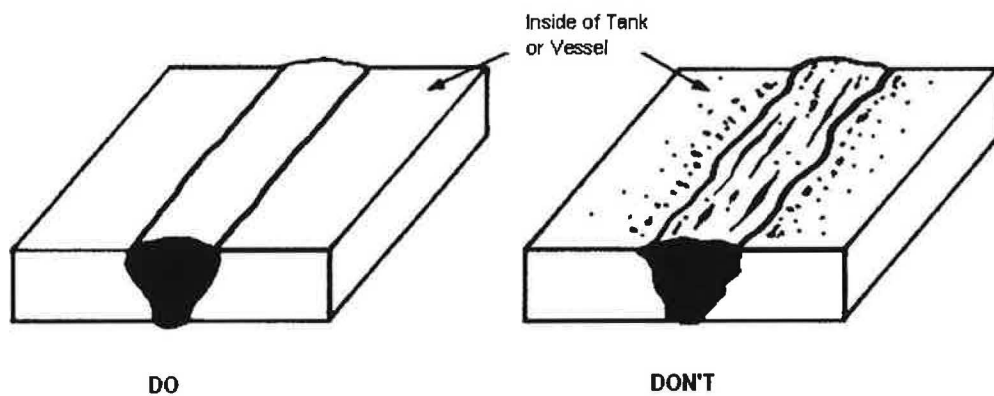
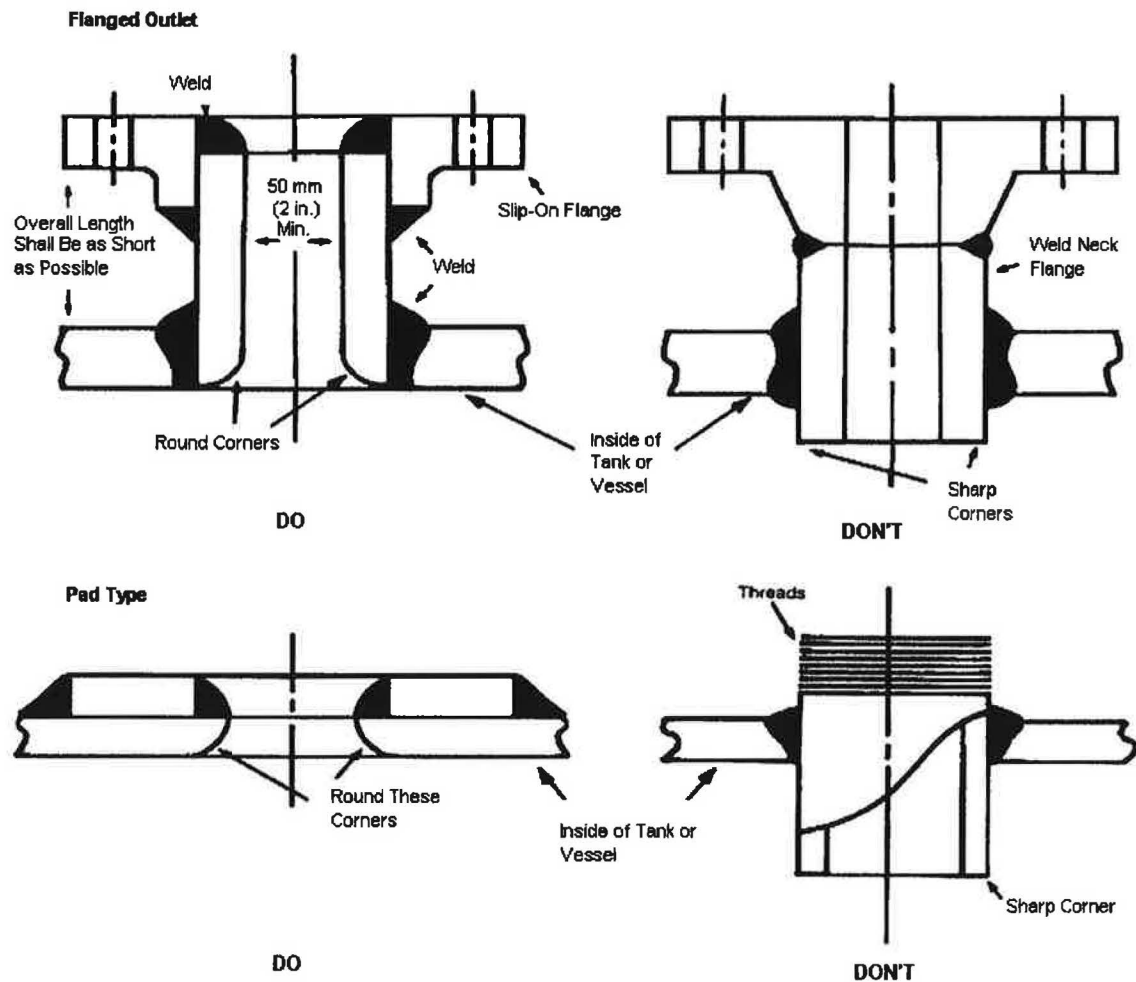


FIGURE A3

All weld spatter shall be removed.

**FIGURE A4**

The outlets shall be flanged or pad-type rather than threaded. Within pressure limitations, slip-on flanges are preferred because the inside surface of the attaching weld is readily available for rounding edges and grinding. If operating pressure dictates the use of weld neck flanges, the inside surface of the attaching weld is in the throat of the nozzle, making repair of surface irregularities by grinding rather difficult.

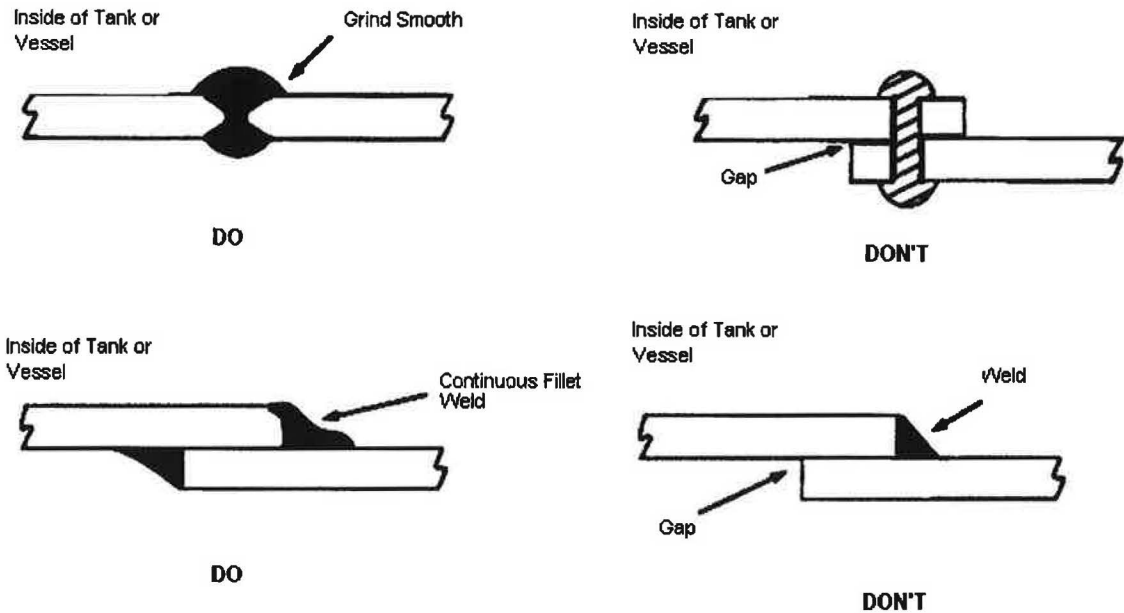


FIGURE A5

Butt welding shall be used whenever possible rather than lap welding or riveted construction.

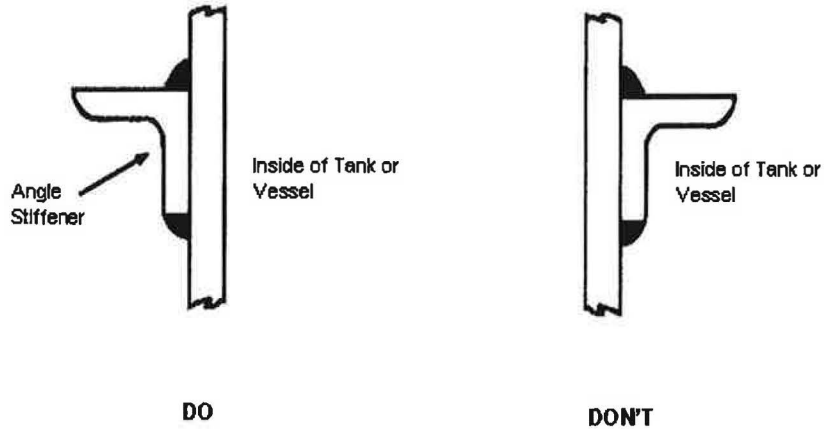
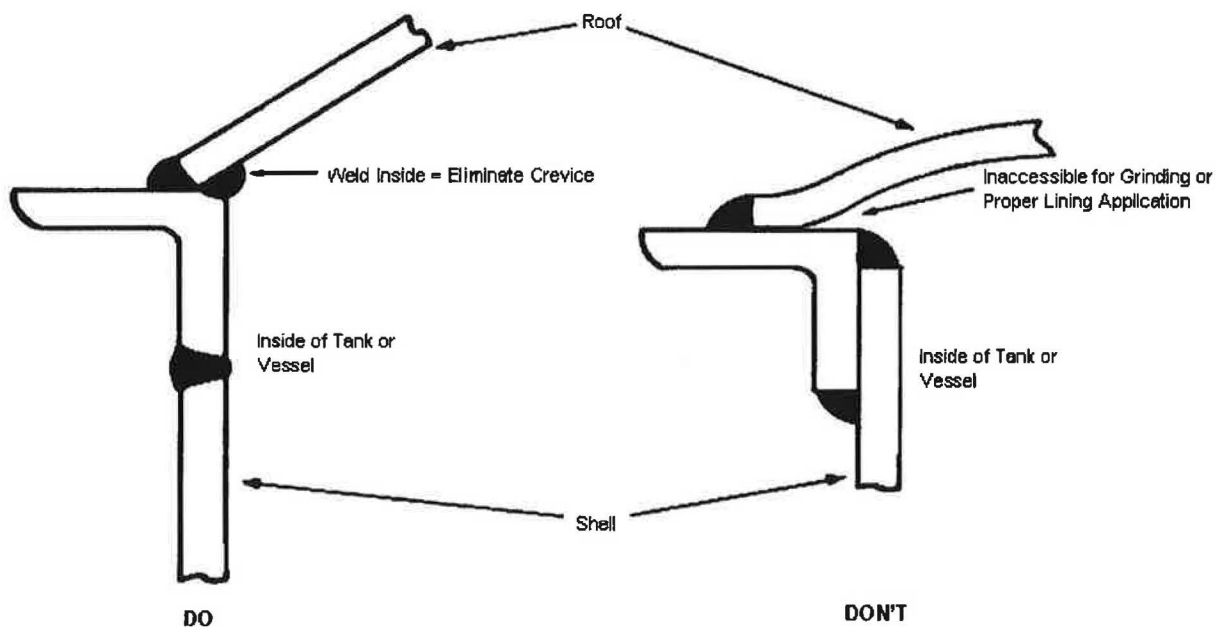
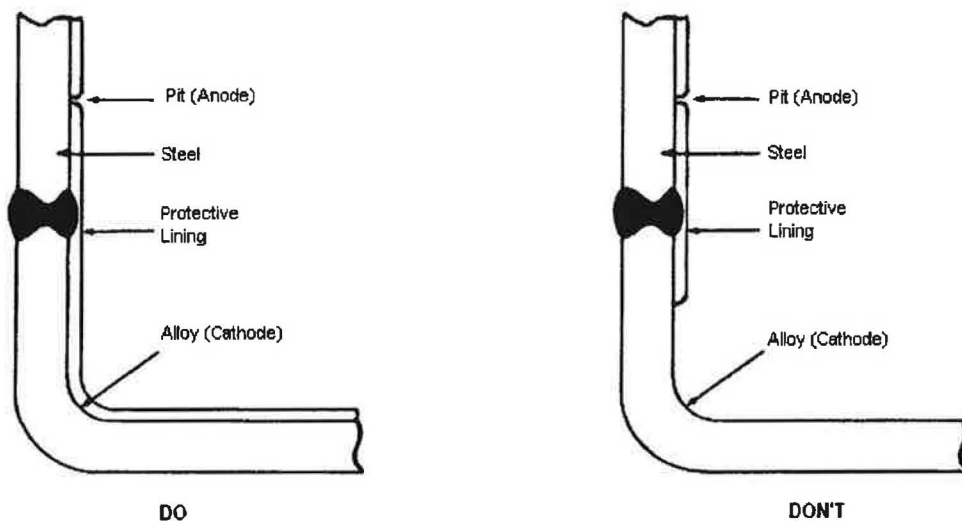


FIGURE A6

Stiffening members should be on the outside of the tank or vessel.

**FIGURE A7**

Roof-to-Shell Joint. Eliminate crevice and lap weld at roof-to-shell joint in a tank or nonpressure vessel.

**FIGURE A8**

Dissimilar metal (galvanic) corrosion occurs when, for example, an alloy is used to replace the steel bottom of a tank, or, in a similar circumstance, when alloy appurtenances must be a part of the construction of a vessel. If a lining is then applied to the steel and part of the alloy (usually 150 to 610 mm [5.9 to 24 in.]), any discontinuity in the lining exposes a small anode surface. Once corrosion starts, it progresses rapidly because of the large exposed alloy cathodic area to the much smaller anodic area. Without the lining, galvanic corrosion causes the steel to corrode at the weld area, but at a much slower rate. The recommended practice is to apply lining to all of the alloy as well as the steel, thereby eliminating the possible occurrence of a large-cathode-to-small-anode surface.

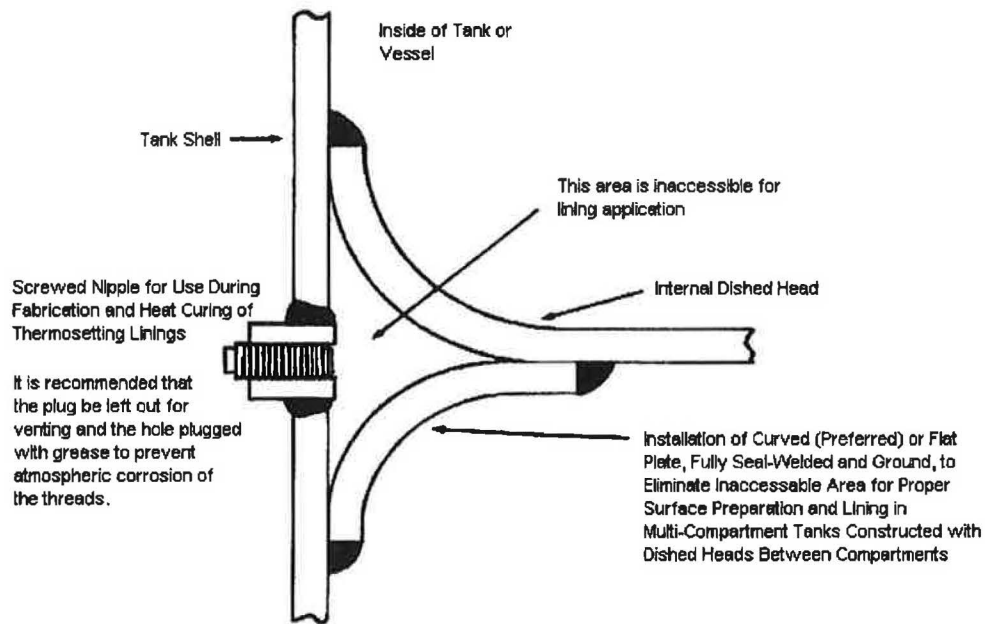


FIGURE A9

A technique (detail of fabrication) to allow for good continuity of lining application for inaccessible areas such as those in multicompartments tanks or vessels.

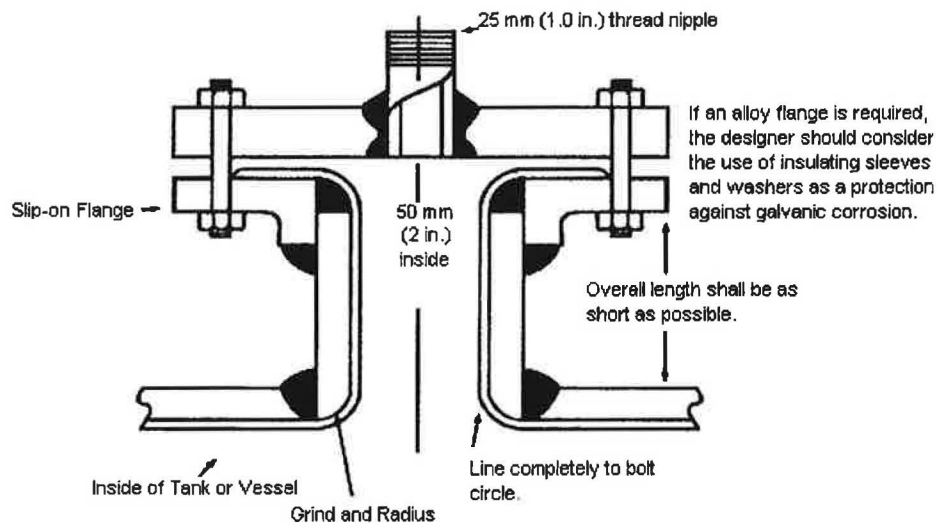


FIGURE A10

Minimum 50-mm (2-in.) diameter nozzle required for most thin-film linings. Thicker-film linings may require a larger-diameter nozzle. This diagram also illustrates fabrication practice where a threaded connection is required in a tank or vessel that requires a holiday-free lining.

APPENDIX B: Recommended Responsibilities

This appendix is a list of recommended responsibilities that should be assigned to the purchaser, designer, fabricator, lining applicator, and inspector in order to obtain a properly designed and fabricated tank or vessel for interior lining.

B1.1 Joint Responsibilities

B1.1.1 The purchaser, designer, fabricator, lining applicator, and inspector(s) should review and agree to the requirements involved before contractual agreements are made.

B1.1.2 The purchaser, in agreement with the fabricator and lining applicator, should assign responsibility for inspection of fabrication, surface finish, and lining application, and such responsibility should be defined in all contracts.

B1.2 Responsibilities of the Purchaser (Owner or User)

B1.2.1 The purchaser should be responsible for specifying and/or approving the detail requirements for design, fabrication, and surface finish to all parties concerned.

B1.2.1.1 The detailed requirements should be fully described in writing and include drawings of the tank or vessel to be fabricated and lined and service requirements.

B1.2.1.2 The purchaser should advise the designer, fabricator, lining applicator, and all inspectors of the detailed requirements, including time schedules, inspection, and acceptable requirements, in writing.

B1.3 Responsibilities of the Designer

B1.3.1 The designer should be responsible for including the required fabrication and surface details on all sketches and drawings related to the tank or vessel.

B1.4 Responsibilities of the Fabricator

B1.4.1 The fabricator should be responsible for adhering to the fabrication and surface finish details shown on the working drawings and described in the tank or vessel specifications.

B1.4.2 Responsibility for an inspection of the blast or any additional welding, grinding, or surface finishing that may be revealed by the surface preparation for lining, plus any subsequent reblasting, should be defined in the lining contract.

B1.4.3 The fabricator, when checking the quality of the weld, should use only those materials that can be readily and thoroughly removed by the fabricator after completion of the inspection procedure.

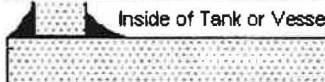
B1.5 Responsibilities of the Lining Applicator

B1.5.1 Responsibility for additional welding, grinding, or surface finishing that may be revealed by the surface preparation for lining, plus any subsequent reblasting, should be defined in the lining contract.

B1.6 Responsibilities of the Inspector(s)

B1.6.1 A qualified inspector whose qualifications and affiliation are acceptable to all parties should be responsible for the verification of fulfillment of design, fabrication, and surface finish requirements.

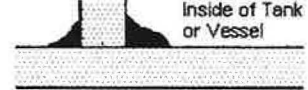
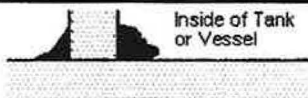
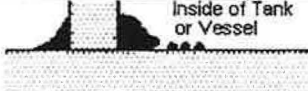
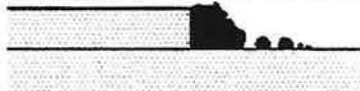
Appendix C—Written and Graphic Descriptions of Various Degrees of Surface Finishing of Welds That May Be Specified in Preparation for Lining of Tanks and Vessels^(A)

NACE Weld Preparation Designation	Type of Grinding	Butt Weld	Fillet Welded Tee Joint	Lap Weld
A	Ground flush and smooth; free of all defects. ^(B)	Weld spatter is removed and all surface imperfections are repaired as necessary. The weld is ground flush with the plate surface.	Not Applicable	Not Applicable
			Not Applicable	Not Applicable
B	Ground flush	Minor imperfections such as porosity and undercutting exist. The weld is ground flush with the plate surface.	Not Applicable	Not Applicable
			Not Applicable	Not Applicable
C	Ground smooth; free of all defects. ^(B)	Weld spatter is removed and all surface imperfections are repaired as necessary. The weld is ground smooth and blended into the plate surfaces.	Weld spatter is removed and all surface imperfections are repaired as necessary. The weld is ground smooth and blended into the plate surfaces.	Fillet weld between the two plates. Weld spatter is removed and all surface imperfections are repaired as necessary. The weld is ground smooth and blended into the plate surfaces.
			 Inside of Tank or Vessel	

^(A) The written descriptions of the various degrees of surface preparation of welds in the appendices of this standard take precedence over the graphics and the companion visual comparator. The graphics are only pictorial representations of welds and grinding finishes and are not intended to be representative of the integrity of the welds. The "weld condition prior to finishing" is not a typical weld; it is only intended to illustrate defects in welds that must be corrected prior to lining. Good welding practices and welding codes govern the integrity of the tank and vessel welds; this standard only addresses surface preparation of the welds for the purpose of lining the tank or vessel for immersion service.

The visual comparator mentioned in Appendix C is a molded plastic replica that illustrates various degrees of surface finishing for welds prior to coating or lining. Full-seam welds, skip welds, butt welds, lap welds, and others are depicted. For more information, contact the NACE International FirstService Department, 1440 South Creek Dr., Houston, Texas 77084-4906 (telephone +1 281/228-6200).

Appendix C (Continued)⁽¹⁾

NACE Weld Preparation Design	Type of Grinding	Butt Weld	Fillet Welded Tee Joint	Lap Weld
D	Ground smooth and blended. ⁽²⁾	Minor imperfections such as porosity and undercutting exist. Weld spatter is removed; welds are then ground smooth and blended into the plate surfaces.	Minor imperfections such as porosity and undercutting exist. Weld spatter is removed; welds are then ground smooth and blended into the plate surfaces.	Minor imperfections such as porosity and undercutting exist. Weld spatter is removed; welds are then ground smooth and blended into the plate surfaces.
				
E	Minimal	Sharp projections on the weld bead, slag, and weld spatter are removed.	Sharp projections on the weld bead, slag, and weld spatter are removed.	Sharp projections on the weld bead, slag, and weld spatter are removed.
				
Weld Condition Prior to Finishing				

⁽¹⁾ The written descriptions of the various degrees of surface preparation of welds in the appendix of this standard take precedence over the graphics and the companion visual comparator. The graphics are only pictorial representations of the welds and grinding finishes and are not intended to be representative of the integrity of the welds. The "as is" original weld is not a typical weld; it is only intended to illustrate defects in welds that must be corrected prior to coating and lining. Good welding practices and welding codes govern the integrity of the weld; this standard only addresses surface preparation of the welds for the purpose of coating and lining for immersion service.

⁽²⁾ Abrasive blasting in preparation for coating may reveal additional porosity and undercutting. Some applicators request the fabrication to blast the welds to reveal these imperfections prior to requesting inspection of the grinding by the lining applicator. Responsibility for repair of imperfections so revealed should be resolved in the pre-job conference.

The visual comparator mentioned in Appendix C is a molded plastic replica that illustrates various degrees of surface finishing for welds prior to coating or lining. Full-seam welds, skip welds, butt welds, lap welds, and others are depicted. For more information, contact the NACE International FirstService Department, 1440 South Creek Dr., Houston, Texas 77084-4906 (telephone +1 281/228-6200).

SP0178-2007

ISBN 1-57590-167-6
NACE International

APPENDIX D

INSPECTION & EVALUATION METHODS

1.0|INSPECTION AND EVALUATION METHODS

Some or all of the following procedures were performed as applicable.

1.1|Methods

1.1.1 The inspection of the base metal and coatings on interior and exterior surfaces included only areas accessible without scaffolding or special rigging. Where possible, the base metal and coating on the interior wet surfaces were examined from either a rubber raft while the tank was being drained, by a Remote Operated Vehicle (ROV) with the tower in service, or with both.

1.1.2 Tank plate thickness was measured at random locations on the liquid holding shell. The overall structural condition of the tank was visually examined.

1.1.3 No structural analysis was done to determine if the tank design complies with the AWWA D100-11 Standard for "Welded Carbon Steel Tanks for Water Storage." However, any observed non-conformance to the AWWA D100-11 standard is noted in this report.

1.1.4 Although compliance with OSHA regulations was not a part of this inspection, any unsafe conditions or violations of current OSHA regulation that were observed are noted in this report.

1.2|Examination and Evaluation Techniques

Some or all of the following procedures were performed as applicable.

1.2.1|Site

The tank site was evaluated for proper drainage conditions affecting access and lead paint abatement during reconditioning.

Also, the following site dimensions were obtained: distance to fence(s), power lines, owner buildings, public property, private property/buildings, school/playgrounds, public parks, and other property.

1.2.2|Foundations

The tank concrete foundation(s) were/was visually examined for cracks, spalling, conditions of grout, indications of distress/settlement, and elevation above grade.

1.2.3|Tank Plate Thickness

Plate thickness measurements were taken using ultrasonic methods (UTM). The readings were taken using a digital readout Nova D-100 Ultrasonic Thickness Gage that has a dual element probe (transducer). The probe's transmitter element sends a short ultrasonic pulse to the material. The pulse, reflected as an echo from the opposite side of the plate

returns to the probe's receiver element. The round-trip time is directly related to the material's thickness.

1.2.4|Coating Thickness

Interior and exterior coatings, where accessible, were tested in accordance with Steel Structures Painting Council SSPC-PA2-82 "Measurement of Dry Film Thickness with Magnetic Gages" using PosiTector-6000-F1 Type 2 magnet flux gages with a fixed probe.

1.2.5|Coating Adhesion

Adhesion testing of the coating to the steel was performed by ASTM D-3359: Shear Adhesion Test, Measuring Adhesion by Tape Test. In addition, subjective coating adhesion evaluation was performed using a penknife.

1.2.6|Coating Cure

The cure of the interior wet coating was evaluated by ASTM D-5402-93 Standard Practice for Assessing the Solvent Resistance of Organic Coatings Using Solvent Rubs and/or with the manufacturer's recommended field method/industry standard procedures.

1.2.7|Coating Serviceability

The estimated remaining coating life or serviceability evaluation was performed using a wide variety of inspection instruments such as dry film thickness gauge, pen knife, Tooke gauge, adhesion tester(s), 30x microscope and serviceability evaluation experience (minimum experience 10 years).

The instrument inspection was combined with a close visual inspection of all the interior coating's accessible areas. This was done to detect any holidays (misses), skips, runs, sags, surface containments, overspray, dry spray, poor coating cohesion, inter-coat delamination, loss of adhesion to the substrate, adverse conditions of the steel underneath the coating, or any other defects affecting the intended service.

1.2.8|Coating Lead and Chromium Content Analysis

Samples may have been taken of the various types of coatings present on the interior and exterior surfaces. Corrosion Control Consultants and Labs of Kentwood, Michigan tests these coatings in conformance with ASTM D-3335 Standard Test Methods for Concentrations of Lead and Chromium in Paint.

APPENDIX E

PAINT CHIP LEAD TEST RESULTS

ANALYTICAL LABORATORY REPORT

Thursday, May 23, 2019

Page 1 of 3

CUSTOMER: KLM Engineering, Inc.
1976 Wooddale Drive
Woodbury, MN 55125

DATE RECEIVED: Wednesday, May 22, 2019
PO/PROJECT #: MN3924
SUBMITTAL #: 2019-05-22-001

LAB NUMBER: AC79750

Sampled By: Devin Severson
Job Location: West Chicago, IL
Sample Identification: 1: Exterior Shell

Date Sampled: May 13, 2019
Sample Description: Paint Chips

Preparation Method: EPA 3050B-P-M (Acid Digestion for Paints)
Analysis Method: EPA 6010C-M (ICP-AES Method for Determination of Metals)
Date Analyzed: Wednesday, May 22, 2019

ELEMENT	RESULT (by dry weight)	REPORTING LIMIT (RL)
Cadmium	< RL	0.00075 %
Chromium	0.0020 %	0.0013 %
Lead	0.24 %	0.0025 %

LAB NUMBER: AC79751

Sampled By: Devin Severson
Job Location: West Chicago, IL
Sample Identification: 2: Interior Wet Plates

Date Sampled: May 13, 2019
Sample Description: Paint Chips

Preparation Method: EPA 3050B-P-M (Acid Digestion for Paints)
Analysis Method: EPA 6010C-M (ICP-AES Method for Determination of Metals)
Date Analyzed: Wednesday, May 22, 2019

ELEMENT	RESULT (by dry weight)	REPORTING LIMIT (RL)
Cadmium	< RL	0.00075 %
Chromium	< RL	0.0013 %
Lead	0.022 %	0.0025 %

LAB NUMBER: AC79752

Sampled By: Devin Severson
Job Location: West Chicago, IL
Sample Identification: 3: Exterior Roof

Date Sampled: May 13, 2019
Sample Description: Paint Chips

Preparation Method: EPA 3050B-P-M (Acid Digestion for Paints)
Analysis Method: EPA 6010C-M (ICP-AES Method for Determination of Metals)
Date Analyzed: Wednesday, May 22, 2019

ELEMENT	RESULT (by dry weight)	REPORTING LIMIT (RL)
Cadmium	< RL	0.00075 %
Chromium	0.0023 %	0.0013 %
Lead	0.077 %	0.0025 %

GPI Laboratories, Inc. has obtained accreditation under the programs detailed on the final page of the laboratory report. The accreditations pertain only to the testing performed for the elements, and in accordance with the test methods, listed in the scope of accreditation table. Testing which is performed by GPI Laboratories, Inc. according to other test methods, or for elements which are not included in the table fall outside of the current scope of laboratory accreditation.

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ANALYTICAL LABORATORY REPORT

Thursday, May 23, 2019

Page 2 of 3

CUSTOMER: KLM Engineering, Inc.
1976 Wooddale Drive
Woodbury, MN 55125

DATE RECEIVED: Wednesday, May 22, 2019
PO/PROJECT #: MN3924
SUBMITTAL #: 2019-05-22-001

LAB NUMBER: AC79753**Sampled By:** Devin Severson**Job Location:** West Chicago, IL**Sample Identification:** 4: Interior Wet Top Shell Weld Seam**Date Sampled:** May 13, 2019**Sample Description:** Paint Chips**Preparation Method:** EPA 3050B-P-M (Acid Digestion for Paints)**Analysis Method:** EPA 6010C-M (ICP-AES Method for Determination of Metals)**Date Analyzed:** Wednesday, May 22, 2019

ELEMENT	RESULT (by dry weight)	REPORTING LIMIT (RL)
Cadmium	< RL	0.00075 %
Chromium	0.0029 %	0.0013 %
Lead	< RL	0.0025 %

GPI Laboratories, Inc. has obtained accreditation under the programs detailed on the final page of the laboratory report. The accreditations pertain only to the testing performed for the elements, and in accordance with the test methods, listed in the scope of accreditation table. Testing which is performed by GPI Laboratories, Inc. according to other test methods, or for elements which are not included in the table fall outside of the current scope of laboratory accreditation.

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ANALYTICAL LABORATORY REPORT

Thursday, May 23, 2019

Page 3 of 3

CUSTOMER: KLM Engineering, Inc.
1976 Wooddale Drive
Woodbury, MN 55125

DATE RECEIVED: Wednesday, May 22, 2019
PO/PROJECT #: MN3924
SUBMITTAL #: 2019-05-22-001

Unless otherwise noted, the condition of each sample was acceptable upon receipt, all laboratory quality control requirements were met, and sample results have not been adjusted based on field blank or other analytical blank results. Individual sample results relate only to the sample as received by the laboratory.

Tests Reviewed By: Katie Root, QA/QC Manager

Root
Date: 2019.05.23
16:40:12 -04'00'

Reporting Limit (RL): The lowest concentration of analyte in a sample that can be reported with a defined, reproducible level of certainty. This value is based on the lowest standard used for instrument calibration and must be at least twice the MDL.

GPI Laboratories, Inc. has obtained accreditation under the following programs:

- National Lead Laboratory Accreditation Program (NLLAP)**
AIHA-LAP: Environmental Lead Laboratory Accreditation Program (ELLAP), Laboratory ID#101030 (www.aihaaccreditedlabs.org)
A2LA: American Association for Laboratory Accreditation (Certificate 5033.01) (www.a2la.org)
- OH:** Ohio Department of Health Lead Poisoning Prevention Program, Approval #E10013 (www.odh.ohio.gov)
- AIHA-LAP:** Industrial Hygiene Laboratory Accreditation Program (IHLAP), Laboratory ID#101030 (www.aihaaccreditedlabs.org)
- National Environmental Laboratory Accreditation Program (NELAP)**
NY: State of New York Department of Health, Laboratory ID#11609 (Serial # 59716-59720) (518-485-5570)
LA: State of Louisiana Department of Environmental Quality, Laboratory ID#180321 (Certificate 05036) (www.deq.louisiana.gov)
OK: Oklahoma Department of Environmental Quality, Laboratory ID#9993 (Certificate 2018-062) (www.deq.state.ok.us)

Testing which is performed by GPI Laboratories, Inc. according to test methods, or for elements which are not included in the table below fall outside of the current scope of laboratory accreditation. Customers are encouraged to verify the current accreditation status with the individual accreditation programs by calling or visiting the appropriate website for the applicable program.

SCOPE OF ACCREDITATION

Air and Emissions

Element/Test	Method	Accreditation(s)
Suspended Particulates: PM10 / TSP	40 CFR 50 Appendix J / 40 CFR 50 Appendix B	NY, LA
Lead in Airborne Dust	40 CFR 50 Appendix G	A2LA, ELLAP, IHLAP, LA
Lead in Airborne Dust	NIOSH 7300	A2LA, ELLAP, OH, NY, LA
Metals in Airborne Dust	NIOSH 7300	A2LA, IHLAP

Solid Chemical Materials

Element/Test	Method	Accreditation(s)
TCLP	EPA 1311 (Sample Preparation Method)	NY, LA, OK
Lead in Soil	EPA 3050B/ EPA 6010C	A2LA, ELLAP, OH, NY, LA, OK
Lead in Paint	EPA 3050B/ EPA 6010C	A2LA, ELLAP, OH, NY, LA
Lead in Paint	ASTM D 3335-85A/ EPA 6010C	NY
Lead in Dust Wipes	EPA 3050B/ EPA 6010C	A2LA, ELLAP, OH, NY, LA
Ignitability	EPA 1010A	NY
pH	EPA 9045D	NY

Non-Potable Water / Analysis by ICP

Element/Test	Method	Accreditation(s)
Arsenic	EPA 6010C/ EPA 200.7 Rev 4.4	NY, LA, OK
Barium	EPA 6010C/ EPA 200.7 Rev 4.4	NY, LA, OK
Cadmium	EPA 6010C/ EPA 200.7 Rev 4.4	NY, LA, OK
Chromium	EPA 6010C/ EPA 200.7 Rev 4.4	NY, LA, OK
Copper	EPA 6010C/ EPA 200.7 Rev 4.4	NY, LA, OK
Lead	EPA 6010C/ EPA 200.7 Rev 4.4	NY, LA, OK
Mercury	EPA 245.1 Rev.3/ EPA 7470A	NY, LA, OK
Nickel	EPA 6010C/ EPA 200.7 Rev 4.4	NY, LA, OK
Selenium	EPA 6010C/ EPA 200.7 Rev 4.4	NY, LA, OK
Silver	EPA 6010C/ EPA 200.7 Rev 4.4	NY, LA, OK
Zinc	EPA 6010C/ EPA 200.7 Rev 4.4	NY, LA, OK
Cobalt	---	---
Manganese	---	---
Acid Digestion	EPA 3010A	NY, LA

Solid Chemical Materials

Method	Accreditation(s)
EPA 6010C	NY, LA, OK
EPA 6010C	NY, LA, OK
EPA 6010C	NY, LA, OK
EPA 6010C	NY, LA, OK
EPA 6010C	NY, LA, OK
EPA 6010C	NY, LA, OK
EPA 7471B	NY, LA, OK
EPA 6010C	NY, LA, OK
EPA 6010C	NY, LA, OK
EPA 6010C	NY, LA, OK
EPA 6010C	NY, LA, OK
EPA 6010C	NY, LA, OK
EPA 6010C	NY, LA, OK
EPA 3050B	NY, LA

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GPI

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1/18/17 Form #: 53-12

CITY OF WEST CHICAGO

INFRASTRUCTURE COMMITTEE AGENDA ITEM SUMMARY

ITEM TITLE:

Resolution No. 21-R-0015 – Contract Award – Emerald Tree Care, LLC for the 2021 Emerald Ash Borer Insecticidal Treatment Program

AGENDA ITEM NUMBER: 4.D.**COMMITTEE AGENDA DATE:** March 4, 2021**COUNCIL AGENDA DATE:** March 15, 2021**STAFF REVIEW:** Robert E. Flatter, P.E., Director of Public Works**SIGNATURE** **APPROVED BY CITY ADMINISTRATOR:** Michael L. Guttman**SIGNATURE** _____**ITEM SUMMARY:**

Emerald Tree Care, LLC has provided annual Emerald Ash Borer (EAB) treatment services related to the application of insecticidal treatments, in the form of trunk injections and Basil System Soil Injections, to manage the spread and negative impact of the EAB since 2011. There are currently approximately 1,242 City-owned Ash trees that would require treatment in 2021.

In April 2017, Council approved Resolution No. 17-R-0017 authorizing the Mayor to execute Contract Amendment No. 1 to the initial Agreement with Emerald Tree Care LLC, for the Annual Emerald Ash Borer Insecticidal Treatment Program for the purpose of using a new product, Boxer (a.k.a. Emamectin Benzoate) which was released in 2015. This new product was administered with the same Wedgle (non-drilling) trunk injection method, but the trunk treatment lasts for two years. This increased the trunk injection cost by \$0.30 per inch diameter for 2017 and 2019, but saved approximately \$101,800.00 over a four-year period, eliminating the need for trunk injections in 2018 and 2020.

Wayne White of Emerald Tree Care has provided the City a letter with his recommendation for continuing a monitor and treatment program for the City's Ash trees. In said letter Mr. White recommends the continued use of Boxer for trunk injections every other year and annual soil injections using "Imidicloprid". Emerald Tree Care has also provided a proposal for trunk injections and soil treatment during Fiscal Year 2021, in the amount of \$82,325.00, at the same unit prices as the previous contract(s). Please see attached for additional information.

To date there have been approximately 593 Ash trees lost since EAB treatment began in 2011, or about 32% of the original treatment set. Many of these trees were lost due to storm related damage or other reasons; however the majority were removed due to failing health caused by early damage from the EAB.

Staff recommends continuing trunk injections and soil treatment in Fiscal Year 2021, along with continued monitoring of the City's Ash trees and conducting a full evaluation of all remaining Ash trees prior to fall. Once this evaluation is complete results of the survey will be presented to Committee to assess the benefits of continuing application of insecticidal treatments for the EAB.

There are adequate funds available in the Capital Projects Fund for the 2021 EAB Insecticidal Treatment Program.

ACTIONS PROPOSED:

Approve Resolution No. 21-R-0015 authorizing the Mayor to execute a Contract with Emerald Tree Card, LLC of Roselle, Illinois, for the 2021 Emerald Ash Borer Insecticidal Treatment Program, to complete trunk injections with "Boxer" at the unit price of \$3.20 per inch diameter and soil treatment with "Imidicloprid" at the unit price of \$1.25 per inch diameter.

RESOLUTION NO. 21-R-0015

**A RESOLUTION AUTHORIZING THE MAYOR TO EXECUTE
CONTRACT AGREEMENT WITH EMERALD TREE CARE, LLC FOR
SERVICES ASSOCIATED WITH THE 2021 EMERALD ASH BORER
INSECTICIDAL TREATMENT PROGRAM**

BE IT RESOLVED by the City Council of the City of West Chicago, in regular session assembled, that the Mayor is hereby authorized to execute Contract Agreement related to the 2021 Emerald Ash Borer Insecticidal Treatment Program, between the City of West Chicago and Emerald Tree Care, LLC, thus authorizing the use of Boxer (a.k.a. Enamectin Benzoate) for trunk injections at the unit price of \$3.20 per inch diameter and the use of Imidicloprid for soil treatments at the unit price of \$1.25 per inch diameter, in substantially the form attached hereto and incorporated herein as Exhibit "A".

APPROVED this 15th day of March, 2021.

AYES: _____

NAYES: _____

ABSTAIN: _____

ABSENT: _____

Mayor

ATTEST:

City Clerk



60 Monaco Dr | Roselle, IL 60172
Office: 630-480-4090 | www.emeraldtreecarellc.com

February 20, 2021

City of West Chicago
Attn: Dept. of Public Works
475 Main Street
West Chicago, IL 60185

To Mr. Robert Flatter,

It is imperative that the City's Ash population continue to be treated for Emerald Ash Borer control. It is important to protect the preservation effort the City has put forth thus far in maintaining these trees.

The treatment program should be viewed as a success, with nearly 70% of the original Ash population inventoried in 2010 still standing today. The 1,242 Ash in the current treatment inventory had a total of 9,950 diameter inches in 2010. These same trees have grown to a robust 17,778 total diameter inches. There are many benefits of these municipal trees, including reducing air pollution, conserving water, reducing soil erosion, and providing ample shade for residents.

This year, the recommended treatments on the Ash include a two-part program. The first is the soil drench of fertilizer, bio-root stimulant, and insecticide (a.i. imidacloprid) that is applied in the Spring. The second is the trunk injection with insecticide (a.i. emamectin benzoate) that is applied in early Summer. The trunk injection chemical – brand name 'Boxer' – is labeled for up to two-year control and is recommended for application every-other-year. The Ash trees are due for injections this year.

Sincerely,

Wayne A. White
Board Certified Master Arborist
Emerald Tree Care LLC



Celebrating Over 15 Years of Quality Tree Care!

Contact Information:
Office: 630-480-4090
emeraldtreecarellc@gmail.com
www.emeraldtreecarellc.com



City of West Chicago
Attn: Dept. of Public Works
475 Main Street
West Chicago, IL 60185

Customer Contact:
630-293-2255 W
rflatter@westchicago.org

2021 Tree Care Quote

Quote No: 2021-0239

Issued: 2/20/2021

Qty	Tree Care Description	Cst/Unit	Total
	Your 2021 Tree Care Quote is below.		
18,500	total diameter inches of Ash to be SOIL treated with Imidacloprid for the control of the Emerald Ash Borer. This soil application includes balanced fertilizers, micronutrients, and organic bio-stimulants to support plant functions, promote root growth, and improve overall plant health.	1.25	23,125.00
18,500	Trunk injections were last performed in 2019, and therefore are due this year. total diameter inches of Ash to be TRUNK injected (non-drill) with Boxer (a.i. emamectin benzoate) for the control of the Emerald Ash Borer and native Clearwing Borers. Provides 'up to two year' control.	3.20	59,200.00
Total:			\$82,325.00

Thank you for choosing the Emerald Tree Care team as your preferred tree care provider!
CHECK PAYMENT PREFERRED | CREDIT CARDS ALSO ACCEPTED

Customer Signature

By signing above, I authorize Emerald Tree Care, LLC
to proceed with the work described for the 2021 season.

Wayne A White

Wayne A. White

ISA Board Certified Master Arborist, MI-0793B
ISA Tree Risk Assessment Qualified



CITY OF WEST CHICAGO

INFRASTRUCTURE COMMITTEE AGENDA ITEM SUMMARY

ITEM TITLE:

Resolution No. 21-R-0016 – Contract Award – Layne Christensen Company for Professional Services Related to the 2021 Well Station No. 10 Rehabilitation Project

AGENDA ITEM NUMBER: 4.E.**COMMITTEE AGENDA DATE:** March 4, 2021**COUNCIL AGENDA DATE:** March 15, 2021**STAFF REVIEW:** Rocky Horvath, Utility Superintendent**SIGNATURE** RH 3-2-21**APPROVED BY CITY ADMINISTRATOR:** Michael L. Guttman**SIGNATURE** _____**ITEM SUMMARY:**

Well Station No. 10, located at 2290 Smith Road, is one of five City-owned deep wells with a Byron Jackson well pump and motor assembly extending to approximately 1,423 feet below ground and rated to pump 1,025 gallons per minute. The well was originally constructed in 1997 and was serviced in 2006 and 2011. Prior to that 2006 service event, the column pipe suffered a structural failure and the well assembly had to be retrieved from the bottom of the well. The service at that time included wear ring replacement in the pump bowl assembly and a refurbishment of the motor at the Byron Jackson repair facility. The well was returned to service in January of 2006. In February 2011, this well failed during a routine run event and would not restart. Technicians were called in to further investigate and subsequent testing revealed that a ground fault condition existed at the motor; the well assembly was pulled by Layne Christensen Company in May 2011 and shipped to the Byron Jackson repair facility for inspection. Analysis by Byron Jackson technicians revealed that the motor had failed completely and needed extensive rebuilding or replacement. Since the cost to repair the motor was significantly higher than the cost of a factory refurbished motor of identical specifications; Layne Christensen Company was authorized to replace the motor. The well assembly was restored to service in October 2011.

In June 2019, staff noticed that the production/pumping rate from the Well was decreasing. As of January 2021 the well remains operational; however, it is only pumping 667 gallons per minute. This 35% reduction in rated flow indicates the well assembly is due for inspection and service. Due to its history servicing the well and original equipment installation, staff solicited a proposal from Layne Christensen Company to pull, inspect, and rehabilitate the well assembly. Layne's proposal includes a complete rebuild and rehabilitation of the existing well equipment, including a television survey of the well casing. This proposal also contains estimated provisions for new column pipe, cleaning and re-coating of the existing column pipe. The estimated total for these services is \$181,992.00. One additional item addressed in this proposal is replacement of the well motor, if needed. The existing motor has a mercury seal system which needs to be inspected before reinstallation. If inspection determines the unit cannot be reused a new motor has been quoted at \$115,772.00; for a total worst case scenario project cost of \$297,764.00. At this time staff does not foresee a need to replace the motor. Following service, the well assembly will be re-installed, tested, and returned to service.

City staff recommends the rehabilitation of the well assembly before the start of peak summer water system demand. To accomplish this, staff recommends that City Council authorize the Mayor to execute a contract with Layne Christensen Company, for an amount not to exceed \$297,764.00, for services necessary to remove, inspect, repair, re-install, test and place the well assembly at Well Station No. 10 back into operation.

CITY OF WEST CHICAGO

There is \$250,000 budgeted in the Water Fund (06-34-47-4420) for pump station repairs; which is adequate to rehabilitate Well Station No. 10, provided the motor does not be replaced. Should the motor need to be replaced, other non-critical scheduled projects will be moved to Fiscal Year 2022 to free up additional funds in Fiscal Year 2021.

ACTIONS PROPOSED:

Approve Resolution No. 21-R-0016 authorizing the Mayor to execute a contract with Layne Christensen Company, for an amount not to exceed \$297,764.00, for professional services related to the 2021 Well Station No. 10 Rehabilitation Project.

COMMITTEE RECOMMENDATION:

RESOLUTION NO. 21-R-0016

**A RESOLUTION AUTHORIZING THE MAYOR TO EXECUTE A
CONTRACT AGREEMENT WITH LAYNE CHRISTENSEN COMPANY
FOR PROFESSIONAL SERVICES RELATED TO THE
2021 WELL STATION NO. 10 REHABILITATION PROJECT**

BE IT RESOLVED by the City Council of the City of West Chicago, in regular session assembled, that the Mayor is hereby authorized to execute a Contract Agreement for Professional Services related to the 2021 Well Station No. 10 Rehabilitation Project, between the City of West Chicago and Layne Christensen Company, for an amount not to exceed \$297,764.00, in substantially the form attached hereto and incorporated herein as Exhibit "A".

APPROVED this 15th day of March, 2021.

AYES: _____

NAYES: _____

ABSTAIN: _____

ABSENT: _____

Mayor

ATTEST:

City Clerk



February 17, 2021

City of West Chicago
475 Main Street
West Chicago, IL 60185

Attn: Rocky Horvath, Water Superintendent

Re: Well No. 10 – 300HP Byron Jackson Type H Submersible pump repair

Rocky,

Per your request, we are sending this letter to estimate the costs for the pulling, repairs, and reinstallation of the 300HP Byron Jackson submersible pump in Well No. 10. The pulling would be done to determine the reason for the 30% decrease in the well production, that you noticed last Spring.

Layne has repaired the Well 10 pump twice in the past, since it was installed in 1997. In 2006, there was a complete pipe separation that involved significant repairs, including fishing a portion of the pump from the bottom of the well. In 2011, the motor failed, which required a major repair. The original all-bronze bowl was rebuilt also, plus eleven (11) pieces of pipe needed rethreading.

Due to the nature of the situation, an exact cost cannot be determined until the pump has been pulled and inspected. However, for budgetary purposes, we have developed the list below, which includes all items that we believe will be required, as well as some items that may be needed on this 300HP, Type H 2300 volt Byron Jackson submersible deep sandstone well pump.

- Mobilization to the site, pull the pump, briefly inspect on-site and measure the total depth and static water level.
- Disassemble, inspect & possibly rebuilding of the Byron Jackson bronze bowl assembly.
- Mobilize 10" column pipe to our yard; sandblasting for inspection; and remobilize back to site.
- Possible 10" T&C pipe repairs and re-epoxy coating, inside and out.
- Service the Byron Jackson motor – change oil, epoxy coat exterior, check the seal float, etc.

WATER RESOURCES

- New materials contingencies.
- Reinstallation of the pump, including a test of the well and pump.

Please note that the 300HP Byron Jackson Type H mercury motor seal should be balanced, and the motor dewatered in accordance with our exclusive procedure. This will allow the motor to be put in the proper shipping position with the mercury seal secured and will minimize the potential for water entering the motor windings, which would result in damage to the motor.

Only Layne can provide a Byron Jackson factory authorized serviceman to complete this procedure properly. As a result of the new July 1, 2012 IEPA guidelines, we no longer conduct the seal servicing or motor dewatering over the well. To our knowledge Layne is the only contractor in the country that is currently utilizing a sealed motor service containment module that is transported to the project site to meet the new IEPA regulations. Our work will include COMPLETE adherence to these regulations.

Pump repairs of this nature are normally performed on a time & material basis, per the rates, terms, & conditions as outlined on the attached Work Order Form. We would typically use a Large Pump Service rig, along with a Large Truck Crane, with combinations of 2-, 3-, & 4-man crews.

The listing of the items for our T&M estimate is broken down as follows:

• Mobilization, pulling, and brief inspection on the site with pump service crew	\$32,500.00
• Hydro crane and crew to load and haul bowl, cable, motor, etc. to yard	\$1,700.00
• Disassemble, clean, & inspect all bronze bowl assembly	\$1,750.00
• Sandblast 10" pipe for inspection	\$3,500.00
• Complete servicing of 300HP Type H Byron Jackson motor, by Byron Jackson certified technician	\$5,500.00
• Hypot check of cable, lump sum	\$1,300.00
• Television survey of well, lump sum	\$1,750.00

• Rebuild 14 Stage – 13MQ/12MQL Byron Jackson all bronze fitted bowl assembly, <i>if required</i> .	\$14,500.00
• Miscellaneous materials, such as, sodium hypochlorite, HTH tablets, stainless steel banding and buckles, etc.	\$950.00
• Mobilization of bowl, cable, and motor to site and unload	\$1,700.00
• Pump service crew for reinstallation of pump, testing, and demobilization	\$30,500.00
• Power tong usage, per 8-hour shift – est. 6 at \$460.00	\$2,760.00
• Byron Jackson flat cable assembly	\$6,530.00
• 10" T&C replacement pipe contingency, 250 ft. @ \$72.00/ft.	\$18,000.00
• New No. 2, 2.4kV jacketed power cable, 875 ft. @ \$24.00/ft = \$21,000.00 – assume reusable	\$0.00
• 2 – 10" surge control valves @ \$1,689.00 ea.	\$3,378.00
• 15 – 10" API Pipe couplings @ \$258.00 ea.	\$3,870.00
• Cutting & rethreading of an estimated 25 non-coupling pipe ends.	\$6,500.00
• Mobilization of pipe, to & from our Aurora yard, est. 14 hrs. @ \$636.00 per hour	\$8,904.00
• Sandblasting & epoxy coating of the 10" pipe, inside & out – 850' @ \$34/ft.	\$28,900.00
• Miscellaneous Repairs Contingency	\$7,500.00
TOTAL ESTIMATED COST	\$181,992.00

We assume the pump can be pulled in a normal fashion without the need for any fishing for its removal from the well.

Since the motor is currently operating satisfactorily, the above pricing schedule is based upon the 300HP motor being *reusable* and completely serviceable, utilizing our unique, multi-step Byron Jackson Type H motor servicing procedure.

If there are issues with the motor, requiring it be sent back to Flowserve/Byron Jackson for teardown & inspection, then a Byron Jackson 300HP factory exchange motor may be required. If so, the NET price to the City would be \$115,772.00, which includes the \$11,150.00 credit for the City's motor, plus estimated shipping costs of \$2,200.00. The estimated time frame for the factory exchange motor would be at least 12 weeks, after the City's Motor is inspected.

Once the pump has been removed, cleaned, & inspected, *Layne would provide an updated repair cost estimate BEFORE proceeding with any repairs.* Of course, if we encounter something needed that is out of the ordinary, we will include that in the updated estimate. This has been standard practice on the many repairs performed for the City in the past.

We have not included a contingency for sand bailing, which in the past, does not look to have been needed.

The time to execute this work, of course, depends upon what work is actually done. But if the motor is reusable and we are able to completely service it in our Aurora Service Center as part of this repair, we would estimate the following time frames:

- Mobilize, pull & inspect. – 1+ weeks
- Repairs – 4 to 6 weeks
- Reinstallation and testing – 1-1/2 weeks.

Our current rig schedule would allow us to start this work in 1 to 1-1/2 weeks.

Layne appreciates the opportunity to help the City with its water resource needs. If you have any questions, please do not hesitate to contact us.

Yours Very Truly,

Layne Christensen Company

Thomas P. Healy

Thomas P. Healy, P.E.
Sr. Project Manager

CC: Mike McDonald, Account Manager

CITY OF WEST CHICAGO

INFRASTRUCTURE COMMITTEE AGENDA ITEM SUMMARY

ITEM TITLE:

Resolution No. 21-R-0019 - Contract Award – Crystal Maintenance Services Corporation for 2021 Janitorial Services for Municipal Buildings

AGENDA ITEM NUMBER:

4.F.

COMMITTEE AGENDA DATE: March 4, 2021

COUNCIL AGENDA DATE: March 15, 2021

STAFF REVIEW: Robert E. Flatter, P.E., Director of Public Works

SIGNATURE



APPROVED BY CITY ADMINISTRATOR: Michael L. Guttman

SIGNATURE

ITEM SUMMARY:

On Monday, November 16, 2020, the City Council of West Chicago, in regular session assembled, by Resolution No. 20-R-0066, authorized the Mayor to execute a Contract Agreement with ATALIAN US Midwest, LLC (ATALIAN) for professional services related to the 2021 Janitorial Services for Municipal Buildings, for an amount not to exceed \$67,181.00 for fiscal year 2021. Under contract with the City of West Chicago, ATALIAN has the responsibility to provide adequate personnel for janitorial services of eight (8) City owned facilities. Services to be provided, along with dates and times, are clearly identified within the bid documents, which are incorporated into the Contract Agreement. ATALIAN commenced with services on January 3, 2021; however, on January 11, 2021, ATALIAN began having difficulty retaining staff and fulfilling its contractual obligations. On February 21, 2021, ATALIAN notified City staff that it was without any personnel to provide janitorial services for any City facility. As a result, on February 22, 2021, the City terminated ATALIAN's Contract Agreement.

To ensure that City facilities continue to be properly cleaned, especially during the COVID-19 pandemic, City staff turned to Crystal Maintenance Service Corporation (Crystal Maintenance) of Mount Prospect, Illinois, for interim cleaning services under the City Administrator's spending authority. Crystal Maintenance provided contractual janitorial service for the City during Fiscal Years 2019 and 2020, and those staff members who were previously vetted by the City's Police Department were available to step in and provide immediate services. Although staff was satisfied with services provided by Crystal Maintenance in 2019 and 2020, it submitted the fourth lowest bid for the 2021 Janitorial Services for Municipal Buildings; bid amount of \$69,653.00 (see attached bid tabulation for additional clarification).

As you can see from the attached bid tabulation, nominal savings could be realized from hiring the second or third lowest bidder for the 2021 Janitorial Services for Municipal Buildings. However, as was demonstrated by ATALIAN, there is no performance guarantees and risks are increased with hiring unknown contractors. In addition, it will take 2-3 weeks after contract award for the Police Department to complete employee background checks; further delaying necessary janitorial services.

Therefore, it is staff's recommendation that City Council waive the competitive bidding process and award a contract to Crystal Maintenance Services Corporation of Mount Prospect, Illinois, for professional janitorial services during the remainder of Fiscal Year 2021 of eight City-owned and maintained facilities, in an amount not to exceed \$69,653.00.

The City will pursue any and all remedies under the ATALIAN's Agreement, surety obligations, and the law to recover any and all costs incurred by the City due to ATALIAN's failure to perform under its Agreement.

CITY OF WEST CHICAGO

ACTIONS PROPOSED:

Waive the complete bidding process and approve Resolution No. 21-R-0019 authorizing the Mayor to execute a one-year contract with Crystal Maintenance Services Corporation of Mount Prospect, Illinois, for professional janitorial services during the remainder of Fiscal Year 2021 of eight City-owned and maintained facilities, in an amount not to exceed \$69,653.00.

COMMITTEE RECOMMENDATION:

RESOLUTION NO. 21-R-0019

**A RESOLUTION AUTHORIZING THE MAYOR TO EXECUTE
A CONTRACT AGREEMENT WITH CRYSTAL MAINTENANCE
SERVICES CORPORATION FOR 2021 JANITORIAL SERVICES
FOR MUNICIPAL BUILDINGS**

BE IT RESOLVED by the City Council of the City of West Chicago, in regular session assembled, that the Mayor is hereby authorized to execute a Contract Agreement for professional janitorial services of eight City owned and maintained facilities during Fiscal Year 2021, between the City of West Chicago and Crystal Maintenance Services Corporation, for an amount not to exceed \$69,653.00, in substantially the form attached hereto and incorporated herein as Exhibit "A".

APPROVED this 15th day of March, 2021.

AYES: _____

NAYES: _____

ABSTAIN: _____

ABSENT: _____

Mayor Ruben Pineda

ATTEST:

City Clerk Nancy M. Smith

City of West Chicago Tabulation of Bids 2021 Janitorial Services for Municipal Buildings			ATALIAN US Midwest, LLC 4401 Ridgewood Avenue St. Louis, MO 63116		Best Quality Cleaning 10015 Pacific Avenue Franklin Park, IL 60131		Your Clean Team 2200 S. Main Street, Suite 209 Lombard, IL 60148		Eco Clean Maintenance, Inc. 515 W. Wrightwood Avenue Elmhurst, IL 60126		Cyrrstal Maintenance Plus, Corp. 1699 Wall Street, Suite 112 Mt. Prospect, IL 60056	
			5% Bid Bond		Cashier's Check		Cashier's Check		5% Bid Bond		Cashier's Check	
Date: October 14, 2020 11:00 A.M. Opened by: Robert Flatter Recorded by: Ashley Heidorn												
ITEMS	Units	Quantity	Unit Price	Total	Unit Price	Total	Unit Price	Total	Unit Price	Total	Unit Price	Total
1 Police Station	Year	1	\$19,824.00	\$19,824.00	\$18,576.00	\$18,576.00	\$23,512.00	\$23,512.00	\$22,132.00	\$22,132.00	\$21,310.00	\$21,310.00
2 City Hall	Year	1	\$19,620.00	\$19,620.00	\$17,220.00	\$17,220.00	\$16,398.00	\$16,398.00	\$14,100.00	\$14,100.00	\$13,200.00	\$13,200.00
3 Water Treatment Plant	Year	1	\$19,224.00	\$19,224.00	\$10,416.00	\$10,416.00	\$24,570.00	\$24,570.00	\$23,208.00	\$23,208.00	\$21,870.00	\$21,870.00
4 City Museum	Year	1	\$4,236.00	\$4,236.00	\$5,700.00	\$5,700.00	\$3,035.00	\$3,035.00	\$1,656.00	\$1,656.00	\$2,420.00	\$2,420.00
5 Street Division	Year	1	\$1,428.00	\$1,428.00	\$4,500.00	\$4,500.00	\$3,582.00	\$3,582.00	\$2,472.00	\$2,472.00	\$4,080.00	\$4,080.00
6 Metra Train Station	Year	1	\$1,980.00	\$1,980.00	\$6,360.00	\$6,360.00	\$5,000.00	\$5,000.00	\$3,046.00	\$3,046.00	\$3,380.00	\$3,380.00
7 Fleet Maintenance Garage	Year	1	\$435.00	\$435.00	\$3,000.00	\$3,000.00	\$2,015.00	\$2,015.00	\$808.00	\$808.00	\$1,775.00	\$1,775.00
8 Facilities Management	Year	1	\$434.00	\$434.00	\$3,000.00	\$3,000.00	\$1,960.00	\$1,960.00	\$808.00	\$808.00	\$1,600.00	\$1,600.00
Total As Read				\$67,181.00		\$68,772.00		\$80,072.00		\$68,230.00		\$69,635.00
Total As Corrected				\$67,181.00		\$68,772.00		\$80,072.00		\$68,230.00		\$69,635.00