



City of Muscatine

CITY COUNCIL

Thursday, September 7, 2023

Brad Bark, Mayor

Dennis Froelich, 1st Ward

Jeff Osborne, 2nd Ward

Peggy Gordon, 3rd Ward

Nadine Brockert, 4th Ward

John Jindrich, 5th Ward

Angie Lewis, At Large

DeWayne Hopkins, At Large

Carol Webb, City Administrator

Cinda Hilger, Admin. Professional

Brent Hinders, City Attorney

City Council meetings are held at 6:00 p.m. on the 1st and 3rd Thursday of each month. In-depth sessions are held at 6:00 p.m. on the 2nd Thursday of each month. All meetings are available for review on the City of Muscatine YouTube page.

The public is welcome to attend virtually using the information below.

Please join my meeting from your computer, tablet or smartphone.

<https://us06web.zoom.us/j/82551691259?pwd=NERydEJOandvWWNXbDM3UkZxZmE4QT09>

September 7, 2023, 6:00 PM

AGENDA

1. CALL TO ORDER
2. INVOCATION
3. ROLL CALL

4. **PLEDGE OF ALLEGIANCE**

5. **FROM THE MAYOR**

- A. Swearing in of Officer Zachary Mullen

6. **APPROVAL OF AGENDA AS PRESENTED AND/OR AS AMENDED**

7. **COMMUNICATIONS - CITIZENS**

8. **COUNCILMEMBER FOLLOW UP TO CITIZEN COMMUNICATION**

9. **CONSENT AGENDA * (ITEMS 10-14)**

The following items are considered to be routine by the City Council and will be enacted by one motion. There will be no separate discussion of these items unless a Council Member so requests, in which event the item will be removed from the Consent Agenda and considered separately.

10. *** REVIEW AND POTENTIAL VOTE TO APPROVE MINUTES**

- A. August 17, 2023 City Council Regular Meeting Minutes
- B. August 30, 2023 City Council Special Meeting Minutes

11. *** PETITIONS AND COMMUNICATIONS**

- A. Request for Use of City Property from Chris Anderson with Pearl City Media for the Annual Jingle & Mingle to be held on December 1, 2023
- B. Request on first and second reading on a new Class "B" Retail Alcohol License for Love's Travel Stop #882, 2417 Grandview Avenue – Love's Travel Stops & Country Stores, Inc. (pending inspections)
- C. Request for renewal of a Special Class "B" Retail Native Wine License for Flowers on the Avenue, 1138 East 9th Street – Flowers on the Avenue (pending inspections)
- D. Request on first reading on a new Class "C" Retail Alcohol License for Tacos Jaliscience JEGL, 1608 Grandview Avenue – Tacos Jaliscience JEGL, LLC (pending inspections and insurance)
- E. Request for renewal of a Class "C" Retail Alcohol License for American Legion Club, 110 So. Houser Street – Edward H Bitzer Post No. 27 of the American Legion (pending inspections and insurance)

- F. Request to Approve the Use of City Property from Jefferson PTO/Jefferson Elementary for Back to school Event.

12. * COMMUNICATION – RECEIVE AND FILE

- A. Board of Water, Electric and Communication Meeting Minutes - July 25, 2023
- B. Muscatine County Board of Supervisors Meeting Minutes - August 14, 2023

13. * PURCHASE ORDERS

- A. Request to Approve the Issuance of a Purchase Order to Feld Fire, in the Amount of \$19,640.00, for 2 Sets of Paratech Maxforce Lift Bag Kits.
- B. Request to Approve the Issuance of a Purchase Order to Sulzco, LLC., in the amount of \$16,950.00, for the Pedestrian Bridge Railing Installation at the Pollinator Park.
- C. Request to Approve the Issuance of a Purchase Order to Zimmer & Francescon, in the amount of \$7,722.00, for the Purchase of Two Replacement Check Valve Bodies for the Progress Park Lift Station.
- D. Request to Approve the Issuance of a Purchase Order to Hinckley Medical, in the amount of \$ 17,500.00, for five ambulance cot scales.

14. * APPROVAL OF BILLS

It is recommended bills totaling \$3,260,224.25, be approved and that the City Council authorize the Mayor and City Clerk to issue warrants for the same. It should be noted that this listing is subject to the approval of any related agenda item(s).

- A. Bills for Approval - September 7, 2023

15. PUBLIC HEARING

- A. Public Hearing to Declare Certain Real Estate Owned by the City (891 W. 8th Street and Adjacent Parcel) as surplus and Authorizing the sale of Property by Sealed Bid Process.
- B. Public Hearing on the Plans and Specifications, Cost Estimate and Form of Contract for the UV Replacement Project at the Water Resource and Recovery Facility.
- C. Public Hearing on the Amendments to the *Section 8 Housing Choice Voucher Administrative Plan*

16. BOARDS AND COMMISSIONS

17. FROM THE CITY ADMINISTRATOR

- A. A Resolution Declaring Certain Described Real Estate Owned By the City (Vacant Parcel Adjacent to 891 W. 8th Street) as Surplus and Authorizing the Sale of Said Certain Real Estate by Sealed Bid Process. - Public Hearing A
- B. A Resolution Approving An Easement for the West Hill Sewer Separation Project For Parcel "X", adjacent to 891 W 8th St
- C. A Resolution Declaring Certain Described Real Estate Owned By the City (891 W 8th Street) as Surplus and Authorizing the Sale of Said Certain Real Estate by Sealed Bid Process. - Public Hearing A
- D. A Resolution Approving An Easement For The West Hill Sewer Separation For Parcel "W", Also Known As 891 W 8th St
- E. Resolution Approving the Plans, Specifications, Form of Contract, Cost Estimates and Setting a Bid Opening for the UV Replacement Project. - Public Hearing B
- F. Request to Approve an Amendment to the *Section 8 Housing Choice Voucher Administrative Plan*. - Public Hearing C
- G. Third and Final Reading of an Ordinance Amending Nuisance Regulations Contained Within City Code Title 9, Chapter 3.
- H. Third and Final Reading of an Ordinance Amending Title 10, Chapter 20, Section 4 of City Code - Home Occupations
- I. Second Reading of an Ordinance Amending Title 3, Chapter 2 of City Code - Use of City Right of Way
- J. Second Reading of an Ordinance Amending Title 11, Chapter 4 of City Code - Inspections
- K. Second Reading of an Ordinance Amending the Airport District Zoning Ordinance Contained within Title 10, Chapter 19 of the City Code
- L. A Resolution Authorizing the Execution of a Special Warranty Deed to Said Described Real Estate located at 619 Hope Ave (Parcel No. 0826454008)
- M. Resolution Awarding a Contract for the Vehicle Wash Bay to Bill Bruce Builders, Inc. in the Amount of \$1,295,000
- N. Resolution Setting a Public Hearing on September 14, 2023 at 6:00 pm on the Plans, Specifications, Cost Estimation and Form of Contract for the Downtown Revitalization Project.
- O. Resolution Amending Nuisance Abatement Administrative Fee in Schedule of Permit And Licensing Requirements in Appendix D of City Code
- P. Request to enter into a contract in the amount of \$5785.00 with Yohan Umana for artistic work related to the public art installation, "Muscatine - World's Largest Watermelon Slice", to be installed on the Muscatine Riverfront adjacent to Millennium Plaza.

- Q. Request to Approve the Issuance of a Purchase Order in the Amount of \$50,827.00 to Ed Morse Muscatine for the Purchase of a 3/4 Ton Pickup Truck for the Water & Resource Recovery Facility Maintenance Department.
- R. Request to Approve the Issuance of a Purchase Order to Ed Morse Muscatine in the Amount of \$64,047.00 for the Purchase of a 3/4 ton Pickup Truck with Service Body for the Biosolids Department at the Water & Resource Recovery Facility.
- S. Request to Approve the Issuance of a Purchase Order to Feld Fire, in the Amount of \$279,772.00, for the Purchase of an Ambulance with a Powerload system.
- T. Request to Approve the Issuance of a Purchase Order to Titan Machinery, in the amount of \$131,945.00, for the purchase of a 4x4 Rubber Tire Backhoe Loader.
- U. Request to Approve the Issuance of a Purchase Order in the Amount of \$78,775.00 to Bushman Excavating for Pavement Crushing.
- V. Request to Approve a Purchase Agreement between the City of Muscatine and Muscatine County (Buyers) and J&S Deahr Farms, LLC (Seller) in the amount of \$420,000 for the Purchase of Real Estate described in Exhibit A (Parcel ID 0334300007) for the use of a Law Enforcement Shooting Range & Training Facility.
- W. Review and Discussion of Proposed Amendment #2 to the Development Agreement with R. L. Fridley Theatres, Inc. and Fridley Properties, LLC

18. MAYOR AND COUNCIL REPORTS

19. ADJOURNMENT



City of Muscatine

CITY COUNCIL MINUTES

Thursday, August 17, 2023

1. **CALL TO ORDER**

Mayor Bark called the City Council meeting for August 17, 2023 to order at 06:00 PM.

2. **INVOCATION - John Hessling**

3. **ROLL CALL**

Councilmembers Present: Nadine Brockert, John Jindrich, Jeff Osborne, Peggy Gordon, Angie Lewis, Dennis Froelich, DeWayne Hopkins. Councilmembers Absent:none. Mayor Dr. Brad Bark, City Administrator Carol Webb and Administrative Secretary Cinda Hilger were also present.

4. **PLEDGE OF ALLEGIANCE**

5. **FROM THE MAYOR**

- A. Recognition of the Muscatine High School Girls Softball Team
- B. Request to approve an employment agreement between the City of Muscatine and Carol Webb for the position of City Administrator
Councilmember DeWayne Hopkins, seconded by Councilmember Peggy Gordon moved to Approve the Request.
Vote: Ayes - 7, Nays - 0, Motion Passed.

6. **APPROVAL OF AGENDA AS PRESENTED AND/OR AS AMENDED**

Councilmember Peggy Gordon, seconded by Councilmember Angie Lewis moved to Approve the Agenda .
Vote: Ayes - 7, Nays - 0, Motion Passed.

7. **COMMUNICATIONS - CITIZENS**

8. **COUNCILMEMBER FOLLOW UP TO CITIZEN COMMUNICATION**

9. CONSENT AGENDA * (ITEMS 10-14)

Councilmember Nadine Brockert, seconded by Councilmember John Jindrich, moved to approve the Consent Agenda including Items 10-14. Ayes - 7 , Nays - 0, Motion Passed.

10. * REVIEW AND POTENTIAL VOTE TO APPROVE MINUTES

- A. City of Muscatine Regular City Council Meeting - August 3, 2023
- B. City of Muscatine, Special City Council Meeting - August 10, 2023

11. * PETITIONS AND COMMUNICATIONS

- A. Request for renewal of a Class "E" Retail Alcohol License for Fast Avenue One Stop, 2111 Park Avenue – Gurung LLC (pending inspections)
- B. Request for renewal of a Class "E" Retail Alcohol License for Express Mart, 4804 U.S. 61 – RP Brothers LLC (pending inspections)
- C. Request on first and second reading on a new Special Class "C" Retail Alcohol License and 5-day Outdoor Service Permit (09/12/2023 – 09/16/2023) for Food Truck Fight, Harbor Drive – BRB Live, LLC (pending inspections and insurance)
- D. Request on first and second reading on a new Special Class "C" Retail Alcohol License and 5-day Outdoor Service Permit (08/22/2023 – 08/26/2023) for Keep Muscatine Beautiful, Almost Friday Fest, Harbor Drive – Community Foundation of Greater Muscatine (pending inspections and insurance)
- E. Request for renewal of a Class "C" Retail Alcohol License for Overlook Ballroom, 101 West Mississippi Drive – Bridgeside Pub LLC (pending inspections and insurance)
- F. Request on first and second reading on a new Special Class "C" Retail Alcohol License and 5-day Outdoor Service Permit (09/27/2023 – 10/01/2023) for Keep Muscatine Beautiful (Almost Friday Fest Event), Harbor Drive – Community Foundation of Greater Muscatine (pending inspections and insurance)
- G. Request for Use of City Property from Troy Philpott with Stinky's House of Horrors for the Annual Haunted House/Food Drive to be held on October 28th, 2023

12. * COMMUNICATION – RECEIVE AND FILE

- A. Muscatine County Board of Supervisors Meeting Minutes - July 31, 2023
- B. Muscatine County Board of Supervisors Meeting Minutes, August 7, 2023

13. * PURCHASE ORDERS

- A. Request to Approve the Issuance of a Purchase Order to Beck Electric Actuators in the Amount of \$12,872.00 for the Purchase of Two Beck Actuators for the Water and Resource Recovery Facility.

14. * APPROVAL OF BILLS

- A. Request to approve bills totaling \$2,505,671.53, and authorizing the Mayor and City Clerk to issue warrants for the same. It should be noted that this listing is subject to the approval of any related agenda item(s).

15. PUBLIC HEARING

- A. Public Hearing to Discuss Proposed Changes to Title 3, Chapter 2 of City Code, Regarding Right of Way Inspections and Permit Processes.
There were no written or oral comments regarding this public hearing.
Councilmember Peggy Gordon, seconded by Councilmember Dennis Froelich, moved for the public hearing to be closed. Vote: Ayes - 7, Nays - None, Motion Passed.

- B. Public Hearing to Discuss Proposed Changes to Title 11 of City Code Regarding Chapter 4 - Inspections
There were no written or oral comments regarding this public hearing.
Councilmember Angie Lewis, seconded by Councilmember Jeff Osborne, moved for the public hearing to be closed. Vote: Ayes - 0, Nays - None, Motion .

- C. Public Hearing on Proposed Development Agreement with Kent Pet Group, Inc. For the Construction of a New Production Facility
There were no written or oral comments regarding this public hearing.
Councilmember Dennis Froelich, seconded by Councilmember Angie Lewis, moved for the public hearing to be closed. Vote: Ayes - 0, Nays - None, Motion Passed.

- D. Public Hearing on Declaration of 619 Hope Avenue as Surplus and Authorizing the Sale by Sealed Bid Process
There were no written or oral comments regarding this public hearing.
Councilmember Peggy Gordon, seconded by Councilmember Jeff Osborne, moved for the public hearing to be closed. Vote: Ayes - 7, Nays - None, Motion Passed.

- E. Public Hearing on Proposed Revisions to the Airport District Zoning Ordinance

There were no written or oral comments regarding this public hearing.
Councilmember Dennis Froelich, seconded by Councilmember John Jindrich, moved for the public hearing to be closed. Vote: Ayes - 7, Nays - None, Motion Passed.

16. BOARDS AND COMMISSIONS

17. FROM THE CITY ADMINISTRATOR

- A. First Reading of an Ordinance Amending Title 3, Chapter 2 of City Code - Use of City Right of Way - Public Hearing A
Councilmember Peggy Gordon, Seconded by Councilmember Jeff Osborne, moved to Approve the first reading of the ordinance.
Vote: Ayes - 7, Nays - 0, Motion Passed.
- B. First Reading of an Ordinance Amending Title 11, Chapter 4 of City Code - Inspections - Public Hearing B
Councilmember John Jindrich, seconded by Councilmember Angie Lewis, moved to approve the first reading of the ordinance.
Vote: Ayes - 7, Nays - 0, Motion Passed.
- C. Resolution Approving Development Agreement with Kent Pet Group, Inc., Authorizing Annual Appropriation Tax Increment Payments and Pledging Certain Tax Increment Revenues to the Payment of the Agreement - Public Hearing C
Councilmember Dennis Froelich, seconded by Councilmember Angie Lewis moved to Adopt the Resolution.
Vote: Ayes - 7, Nays - 0, Motion Passed.
- D. A Resolution Declaring City Owned Real Estate (619 Hope Ave) as Surplus and Authorizing the Sale of Said Certain Real Estate by Sealed Bid Process - Public Hearing D
Councilmember Angie Lewis, seconded by Councilmember Dennis Froelich moved to Adopt the Resolution.
Vote: Ayes - 7, Nays - 0, Motion Passed.
- E. First Reading of an Ordinance Amending the Airport District Zoning Ordinance Contained within Title 10, Chapter 19 of the City Code - Public Hearing E
Councilmember Peggy Gordon, Seconded by Councilmember Jeff Osborne, moved to Approve approve the first reading of the ordinance.
Vote: Ayes - 7, Nays - 0, Motion Passed.
- F. A Resolution Setting a Public Hearing to Declare Certain Real Estate Owned by the City (891 W 8th Street and adjacent parcel) as Surplus and Authorizing the Sale of Said Certain Real Estate by Sealed Bid Process
Councilmember Peggy Gordon, seconded by Councilmember Angie Lewis moved to Adopt the Resolution.
Vote: Ayes - 7, Nays - 0, Motion Passed.
- G. Second Reading of an Ordinance Amending Nuisance Regulations Contained Within City Code Title 9, Chapter 3
Councilmember Angie Lewis, Seconded by Councilmember Peggy Gordon,

moved to Approve the second reading of the Ordinance.

Vote: Ayes - 7, Nays - 0, Motion Passed.

- H. Second Reading of an Ordinance Amending Title 10, Chapter 20, Section 4 of City Code - Home Occupations
Councilmember Peggy Gordon, seconded by Councilmember Angie Lewis, moved to approve the second reading of the ordinance.
Vote: Ayes - 7, Nays - 0, Motion Passed.
- I. Resolution Authorizing Special Assessments for Unpaid Abatement Service Fees and Rental Housing Fees to Private Properties
Councilmember John Jindrich, seconded by Councilmember Angie Lewis moved to Adopt the Resolution.
Vote: Ayes - 7, Nays - 0, Motion Passed.
- J. Resolution Setting a Public Hearing to Approve Plans, Specifications, Cost Estimation and Form of Contract for the UV Replacement Project at the Water and Resource Recovery Facility.
Councilmember Peggy Gordon, seconded by Councilmember Angie Lewis moved to Adopt the Resolution.
Vote: Ayes - 7, Nays - 0, Motion Passed.
- K. Request to Issue a Purchase Order to Taylor Ridge Paving & Construction, LLC for Asphalt Milling and Paving on 67th Ave West in the Amount of \$44,500.00
Councilmember Nadine Brockert, seconded by Councilmember Angie Lewis moved to Approve the Request.
Vote: Ayes - 7, Nays - 0, Motion Passed.
- L. Request for Authorization to Reissue a Purchase Order to Hoglund Bus Company for the New Low Floor Bus due to an increase in price of \$3,672.00, totaling \$198,278.00 and deleting original Purchase Order.
Councilmember Peggy Gordon, seconded by Councilmember John Jindrich moved to Approve the Request.
Vote: Ayes - 7, Nays - 0, Motion Passed.
- M. Request to Approve Entering into an Agreement with the Iowa DOT, for Acceptance of the Public Transit Infrastructure Grant (PTIG) in the Amount of \$400,000.00
Councilmember Angie Lewis, seconded by Councilmember Jeff Osborne moved to Approve the Request.
Vote: Ayes - 7, Nays - 0, Motion Passed.
- N. Request to Approve the Issuance of a Purchase Order to Trojan Technologies in the Amount of \$415,330.00 for the Purchase of a Replacement UV System for the Water and Resource Recovery Facility
Councilmember Peggy Gordon, seconded by Councilmember Angie Lewis moved to Approve the Request.
Vote: Ayes - 7, Nays - 0, Motion Passed.

- O. Request to Approve Change Order Number 3 for Fulliam Avenue Reconstruction Phase 1 to Heuer Construction in the Amount of \$17,098.
Councilmember DeWayne Hopkins, seconded by Councilmember Nadine Brockert moved to Approve the Request.
Councilmembers had questions regarding if there would be any more change orders for this project that were addressed by Kevin Coon. Mr. Coon stated this should be the last one as they finish up the project.
Vote: Ayes - 7, Nays - 0, Motion Passed.
- P. Request to Approve a Professional Services Agreement with Impact 7G for \$7,370 to Complete Asbestos Testing Related to Implementation of the Downtown Revitalization Project
Councilmember Peggy Gordon, seconded by Councilmember Nadine Brockert moved to Approve the Request.
Vote: Ayes - 7, Nays - 0, Motion Passed.

18. MAYOR AND COUNCIL REPORTS

Councilmember Lewis asked citizens to be aware of school children as school starts back up this week.
Councilmember Brockert gave a shutout to the Muscatine EMT's for helping her neighbor
Councilmember JIndrich shared information regarding the ribbon cutting at TanTara Company
Councilmember Osborn shared a few of the upcoming events for the City of Muscatine.

19. ADJOURNMENT

Councilmember None moved the meeting be adjourned at 06:30 PM.



City of Muscatine

CITY COUNCIL MINUTES

Wednesday, August 30, 2023

1. **CALL TO ORDER**

Mayor Bark called the City Council meeting for August 30, 2023 to order at 05:00 PM.

2. **ROLL CALL**

Councilmembers Present: John Jindrich, Jeff Osborne, Peggy Gordon, Angie Lewis, DeWayne Hopkins. Councilmembers Absent: Nadine Brockert, Dennis Froelich. Mayor Dr. Brad Bark, City Administrator Carol Webb and Administrative Secretary Cinda Hilger were also present.

3. **PLEDGE OF ALLEGIANCE**

4. **CONSIDERATION OF ITEMS IDENTIFIED IN THE CALL OF SPECIAL MEETING**

Councilmember Peggy Gordon, seconded by Councilmember DeWayne Hopkins moved to To enter Closed Session.

Vote: Ayes - 5, Nays - 0, Motion Passed.

Councilmembers Brockert and Froelich joined the closed session meeting virtually.

City Council had discussion regarding a matter in litigation or where litigation is imminent and where its disclosure would be likely to prejudice or disadvantage the position of the governmental body in that litigation, and in accordance with Iowa Code Section 622.10 to discuss attorney/client privileged and attorney work product matters with legal counsel.

Councilmember Peggy Gordon, seconded by Councilmember DeWayne Hopkins moved to exit Closed Session.

Vote: Ayes 7, Nays -0, Motion Passed

5. **ADJOURNMENT**

Councilmember DeWayne Hopkins moved the meeting be adjourned at 06:01 PM.

License # _____
Wallet # _____
Sticker # _____
Receipt # _____
Issued _____
Expires _____

CITY OF MUSCATINE

APPLICATION FOR USE OF ANY STREET, SIDEWALK, ROADWAY, ALLEY, PARK, PUBLIC WAY, PROPERTY OR FACILITY

1. Name and address of applicant and sponsoring organization, if any:

Pearl City Media/Discover Muscatine

Address: 215 E 2nd St., Muscatine, IA 52761

Telephone Number: (563)299-7387

E-mail Address: chris@pearlcitymedia.com

2. Type of event that is planned:

Annual community event featuring entertainment, holiday refreshments and decorations throughout the downtown community, promoting Muscatine throughout south east Iowa.

3. Proposed location:

Primary location of event: 2nd St from Pine to Mulberry plus each side street down to, but not including the alleyway area. Pine Street Parking lot. See included map

4. Date(s)/Time(s):

Friday, December 1, 2023
Start of setup (non-streets areas, sidewalks): 2 pm
Setup on side streets: 3 pm
Setup on 2nd St: 4 pm
Event: 5:00 pm - 8:30 pm (event); Start of setup: 2:00 pm throughout the area (not on streets)
Clean up: 8:30 - ? as needed

5. Expected length of use: 8 hours including setup and clean up; 2.5 actual event

6. Expected size of group: 3-5,000 based on previous MPD estimates

7. Names of any person or persons in charge of the proposed use at the specified location:

Chris Anderson

Address(es): 215 E 2nd St., Muscatine, IA 52761

Telephone Number(s): (563)299-7387

E-mail Address(es): chris@pearlcitymedia.com

8. Names and addresses of any persons to be featured as entertainers or speakers:

On city property - Tiny's Tunes - DJs

Inside venues - ex. MHS Band/Orchestra, Miss Louise, similar to previous years

9. List mechanical or electronic equipment to be used:

Holiday displays (lights), sound amplification/speakers, PA
MPW lit truck, broadcast equipment

10. Number and type of any motor vehicles or other forms of transportation to be used, including bicycles, boats, carriages and golf carts:

Golf carts by events staff

11. Number and types of animals to be used:

On city property: None

12. A description of any sound amplification to be used:

DJ equipment
High school bands/choirs

13. Proposed monitoring of the group and/or activity including the number of people who will direct traffic, set up, clean up and maintain order, if necessary:

Monitoring of the event:

- * minimum of two event volunteers at intersections plus 1 in the middle of the block
- * vendor agreements will include directives on assisting in maintaining order if needed
- * all will have access to event leadership for assistance if needed
- * as in the past we would appreciate the continued partnership with the Muscatine Police Department for assistance, advice and guidance

Setup

- * each vendor/event is responsible for their own setup/tear down and agreement will include specific directives regarding setup times, setup options, tear down, clean up, etc.
- * overall, PCM will provide overall direction, layout and resources and monitor vendors for compliance with directives
- * PCM team will provide overall clean-up

* Would it be possible to arrange for a city street sweeper after the event? I was told it's been made available after other events. It would be a tremendous help in addition to standard clean up.

14. All plans for the provision of security:

Pearl City Media will provide a volunteer team to coordinate with the Muscatine Police Department for security of the event. In addition to the minimum of two volunteers per block, the event will provide additional security based on recommendations/guidance of MPD.

Businesses that chose to be open during the event will be responsible for their own security or request assistance from the event that will be coordinated with event security and MPD (if needed).

15. Beer or wine consumption? Yes _____ No xx

16. Describe any items to be sold or distributed:

By the event: maps/flyers

Vendors: refreshments/small food items, small trinkets. All vendors/organizations wishing to sell/distribute will be referred to the City for appropriate permits. Vendors will be contractually bound for securing all trash/litter associated with their items.

17. Is water connection requested: Yes _____ No xx

18. Is electricity requested: Yes xx No _____

19. Have you provided a layout site plan for your proposed activity or event? Yes xx No _____

If yes, please attach.

If no, please explain:

Notes on attached plan:

- * Communication with downtown businesses with maps, information and ability for feedback with begin in August
- * Create a more defined central path vs previous years
- * Dump trailer/s will be available to assist in trash collection
- * Emergency access at the determination of MPD/MFD, but currently based on our understanding of their previous requests

20. Do you understand that you will be financially responsible for all site restoration needed to restore the site to pre-event status? Yes xx No _____

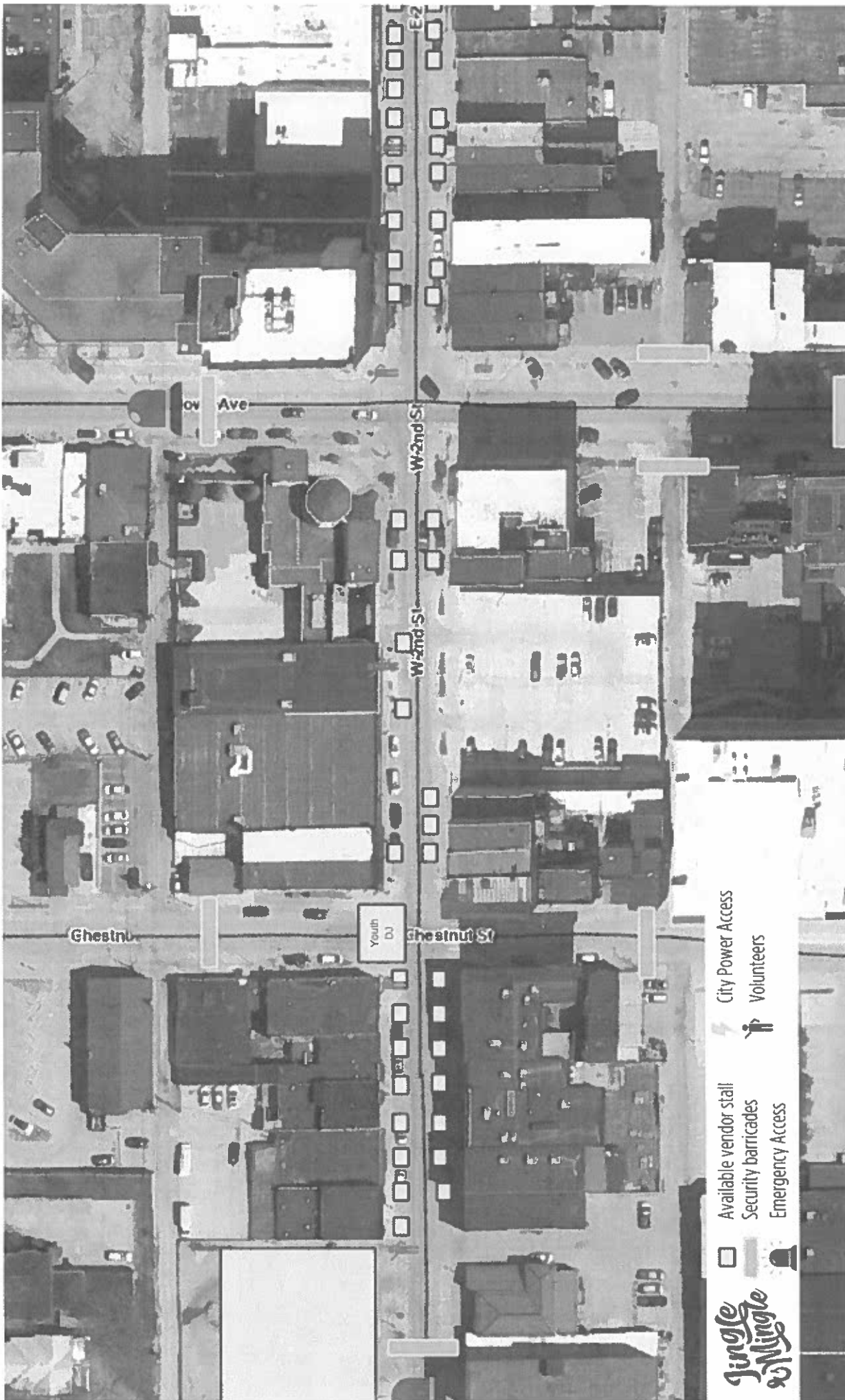
The applicant agrees to indemnify, defend and save harmless the City of Muscatine, together with its agents, officers and employees, from any and all claims, lawsuits, damages, losses and expenses, of whatever nature, which may result from or arise from the activity or event covered by the permit, including but not limited to the use of public ways, irrespective of whether said claims are frivolous or meritorious.



Authorized Representative

8/10/2023

Date







Jingle and Mingle 2022



51 Completed Responses

22 Partial Responses

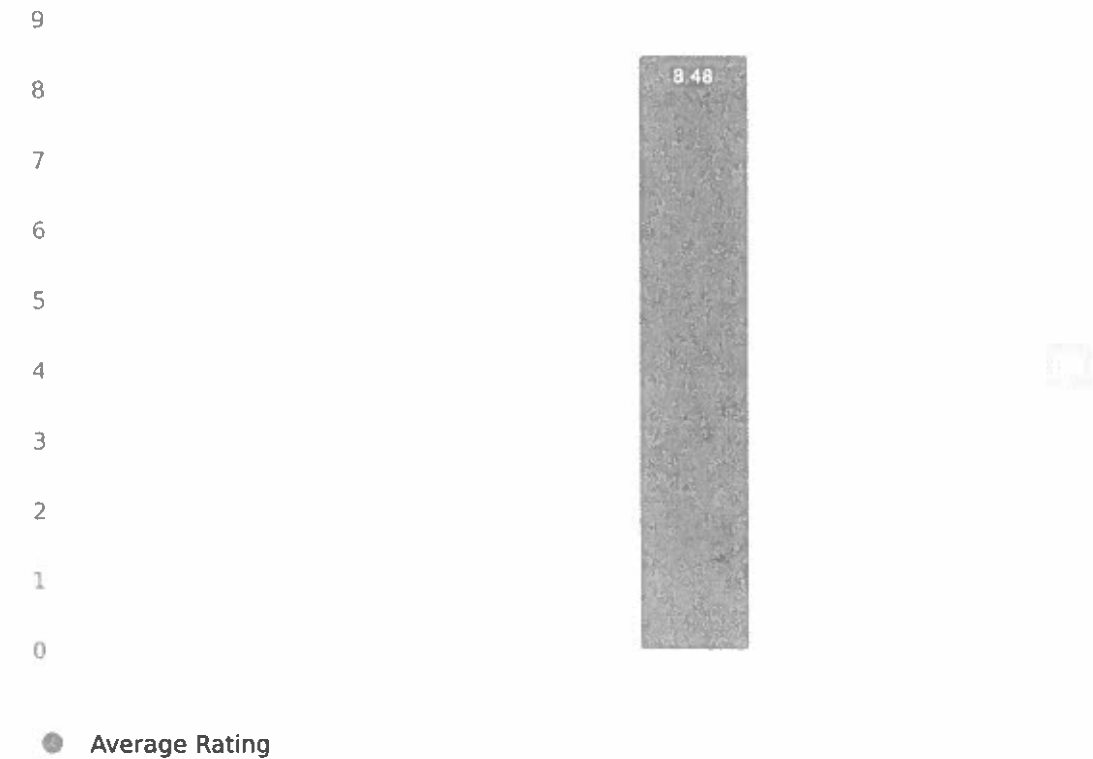


Overall Satisfaction

Q1

On a scale of 0 to 10, how likely are you to recommend going to Jingle and Mingle to a friend or family member?

Answered: 73 Skipped: 0



Rating	Response percent	Response count
0 (Not at all likely)	1.37%	1
1	0.00%	0
2	1.37%	1
3	1.37%	1
4	0.00%	0
5	6.85%	5
6	4.11%	3
7	8.22%	6
8	17.81%	13
9	6.85%	5
10 (Extremely Likely)	52.05%	38

Average rating: 8.48

Primary Reason

Q2

What was the primary reason for your score?

Answered: 52 Skipped: 21

1. Was great to see so many people.
2. It was a beautiful night, and was very festive. Muscatine needs things like this.
3. Weather, variety of displays, music, refreshments, stores open, police presence
4. Need big attraction on far west end of second st.
5. Families can have lots of wholesome fun in the spirit of the holiday!
6. It's a fun time to mingle with people you haven't seen for awhile and to see what new stores are downtown and what new stuff they carry.
7. It was fun
8. Just fun atmosphere. So many shops open and doing special things!
9. Had a wonderful time!
10. Lots of different things to keep people entertained
11. Seeing the community come together to celebrate the holidays.
12. It was pleasant, but mostly it just seemed like the stores were open late for shopping. If there were other activities, other than the music which could be seen and heard, then they were not easy to discover. Perhaps a map or list or signs or better marketing would help.
13. I appreciated all of the different businesses and organizations that provided musical entertainment. It was very energized this year.
14. Wide array of activities for adults and kids. Kids were loving the DJ on Chestnut...so much dancing and merriment going on there!
15. My stepdaughter getting proposed to.
16. Just looking at all the people there, the reindeers were awesome. I like to see the downtown area come alive with people and the stores open.
17. While I had a nice time, it was difficult with my grandmother in a wheelchair. There were vendors or displays set up at several intersections making it difficult to get from block to block as we needed a ramp and there were people blocking those. I also loved that there were a lot of vendors and that the Holliday Stroll is starting to have more things to do. With that though there needs to be more trash cans to accommodate for the large amount of trash. I would love to see more things along the streets other than just the shops being open. I loved seeing the plinko game however I had no idea what it was as it was not clearly marked, I only knew due to someone talking about it.
18. It's a good community event.
19. Lots of Activities and good for family.
20. Everything was excellent! Would like a few more options for dining available. We love our local options, but they tend to be crowded which makes it difficult for families with littles. Local food trucks would be great with heated outdoor seating!
21. Lots of people having fun. Just lots of people doesn't turn into purchases but happy people do!
22. Fantastic event! The reindeer were a big hit!
23. It's a way for the community to get together and find out about new shops they might not have known about.

24. To help out with the Community, and more exposure.. small town businesses stick together!
 25. Attending community events
 26. It was the best attended that I had ever seen. Everyone we talked to was in such a positive mood.
 27. Needs a up one side and down the other side kind of organization. Spent a lot of time just running into people.
 28. Lots to see amd the weather was beautiful
 29. It was great to see the community out together and having a good time.
 30. Muscatine needs more events like this for the community. It sheds positive light on us as more than a dirty river town
 31. More stuff needs to be open
 32. This was my first time attending ever, so being there as a business (especially as one that's not a DOWNTOWN business) was especially memorable! I can not begin to express the positive feedback that we got from people of all ages!!! I feel like this helped us be recognized and hopefully created a bit of buzz that we aren't your typical salon. You gave us the platform space, and we rocked that shit.
 33. So many fun activities & attractions. It was wonderful!
 34. Teenagers and protestors.
 35. Versatility for kids
 36. Friendly shops and people!
 37. The "protest for god" group. While I firmly believe they should be allowed to protest their language/demeanor was disgusting and hard to miss when passing by. It was sad and disheartening to see them take away from such a family friendly event. In the future I would hope they will be asked to move to a side street and not allowed to shout/spread hate in the middle of the event.
 38. Family friendly community event.
 39. Loved all the music features and the shops looked beautiful.
 40. It's the place to be!
 41. It was fun to see the community come together to provide a free family friendly event.
 42. So many characters and stations
 43. Good family fun
 44. It's a fun free event for all ages
 45. Good participation from the downtown merchants, a variety of activities and it's a neat way to launch the Christmas bridge light show
 46. It is a great community event, love seeing the businesses and community groups getting together and making the event fun and festive.
 47. Fun, bright event.
 48. Lack of supporting and involving ALL business!
 49. Visited with friends I rarely see.
 50. It was a great night
 51. Good for downtown Businesses and general community vibe
 52. It was wonderful to see the community come together to share the holiday spirit!
-

Improvement

Q3

What's the one or two things we could do to improve the experience at Jingle and Mingle?

Answered: 7 Skipped: 66

1. Need event on far west end of 2nd st
 2. More trash cans
 3. Improve communication so people know what is happening and where. Also parking.
 4. Trash cans and more outside activities.
 5. Better signage and organization for vendors
 6. Ask protesters (especially hateful ones) to move to a side road. It was a great event it's just hard to see that and explain to my young children who truly believe god loves everyone that loves him.
 7. Involved ALL businesses
-

Q4

What could we do to make you say "WOW"?

Answered: 8 Skipped: 65

1. Hay rack rides, food trucks
 2. Shops were just open with the same merch as the day before. Nothing new to see.
 3. A band or professional music
 4. The crowds and turn out. Also more free coco and hot dogs etc
 5. It would be nice to have it spread out more down toward the library.. it seemed like everything was all in one area and got extremely congested.
 6. Have the storefronts do a lighted Christmas display in their windows
 7. Not sure
 8. Remove conservative hecklers or have a group of loud carolers or musicians follow them around.
-

Q5

What did you enjoy most about Jingle and Mingle?

Answered: 46 Skipped: 27

1. probably watching people sing the Karaoke. I do wish there was more help with keeping trash picked up though.
2. It's always seeing people you know, and people enjoying themselves.
3. People Singing at dancing at the music events
4. Good turn out of people.
5. Holiday decorations
6. My students getting to Christmas carol at the Merrill!
7. Mingling with everyone
8. The weather!
9. The atmosphere
10. The shops being open later hours
11. Seeing everyone out and about enjoying themselves. Lots of laughs and good memories.
12. The weather was pleasant. The crowds of people seemed well behaved and having fun. It was a friendly, festive atmosphere.
13. I enjoyed the two DJ stages and the local band and choirs
14. You can't bottle the weather but it made it so enjoyable! Having businesses open and other pop ups on the street with free goodies. Thanks to Calvary for sharing the love. Again the DJ and karaoke stations/stages both provided great family entertainment
15. My stepdaughter getting proposed to.
16. Keep it up
17. The large amount of vendors and shops open.
18. Atmosphere
19. Displays, candy cane hunt
20. Variety of activities! Kept people engaged and lingering.
21. Just enjoyed watching the community come together and have a fun night!
22. The people. The community coming together!!
23. Plunko was fun! Music was good. Lots of people. Couldn't really see what was set up in tables, etc, maybe some lighting for them?
24. The people
25. Being with my family.
26. The people and lights
27. Seeing people enjoying themselves. Nobody was rude, it was simply everyone enjoying the holiday season.
28. Seeing so many families, the inclusion from the community, reindeer and tattoos
29. Seeing the community come out for a fairly unified family event. There was a diversity that I LOVED seeing! I loved that it was inclusive enough of ALL families to feel safe there as well. I also enjoyed that I didn't see the picket sign people so I didn't have to educate anyone.....smart move Chris lol
30. It is hard to pick just one thing. Loved the reindeer, hot chocolate, & all of the businesses involvement. My son LOVED the bubbles this year also!
31. The weather and connecting with people
32. Treats and live to love truck

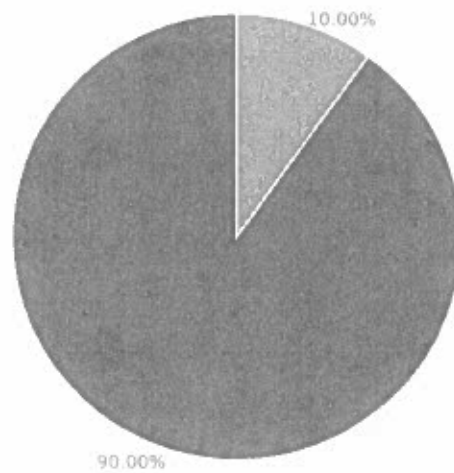
33. Nice weather & activities for kids.
 34. My children and the other kiddos joy seeing the live animals and characters.
 35. Seeing the walking characters , karaoke was hilarious and the Dj . More characters because that was a HIT
 36. Seeing friends
 37. We loved the reindeer and having all of the characters out and about to find!
 38. The Dj
 39. The overall atmosphere
 40. The music
 41. Watching the young teenagers get into the karaoke
 42. Festive downtown atmosphere
 43. Nothing
 44. The kids were having fun.
 45. Seemed to be well attended and advertised
 46. The number of businesses that were involved!
-

Contact

Q6

Would you like to be contacted about your response?

Answered: 50 Skipped: 23



☒ Yes

☐ No

Choices	Response percent	Response count
Yes	10.00%	5
No	90.00%	45

Q7

First Name, Last Name, Company, Phone, Email

Answered: 5 Skipped: 68

Field label	Response percent	Response count
First Name	100.00%	5 Responses
Last Name	100.00%	5 Responses
Company	80.00%	4 Responses
Phone	100.00%	5 Responses
Email	100.00%	5 Responses

First Name	Last Name	Company	Phone	Email
Dan	Freeman	Muscatine Republicans 209 w. 2nd	5635068828	drfreeman56@gmail.com
Sondra	Dugan		309-224-5892	sondrawheeler73@yahoo.com
Bojamin	Alimoski	Waffle & Pancake House	563-272-8534	Balimoski18@gmail.com
Terra	Allen	Hahahaha like you are surprised to see my name for these answers	5632996362	terrareue@yahoo.com
Brian	Littrel	Ruhl and Ruhl	5632606438	brianlittrel@ruhlhomes.com

EVENT: _____

TO BE COMPLETED BY CITY DEPARTMENTS:

I have reviewed the attached application with the following recommendations:

Recommend
Approval

Comments:

☒
YES

☐
NO

Richard Klimes
Parks & Recreation

8-16-23
Date

Approval subject to attendance at pre-event mtg.

☒
YES

☐
NO

Jodi Royal-Goodwin
Community Development

8/14/23
Date

☒
YES

☐
NO

Brian Stineman
Public Works

8/15/23
Date

☒
YES

☐
NO

Anthony Kies
Police Chief

08/16/23
Date

☒
YES

☐
NO

Jerry Ewers
Fire Chief

8/15/23
Date

FINAL APPROVAL:

☒
YES

☐
NO

Carol Webb
City Administrator

08/17/23
Date

Signature: Jodi Royal-Goodwin
Jodi Royal-Goodwin (Aug 14, 2023 17:05 CDT)
Email: jroyal-goodwin@muscatineiowa.gov

Signature: Jerry Ewers
Jerry Ewers (Aug 15, 2023 09:24 CDT)
Email: jewers@muscatineiowa.gov

Signature: Richard Klimes
Richard Klimes (Aug 16, 2023 16:51 CDT)
Email: rklimes@muscatineiowa.gov

Signature: Brian Stineman
Brian Stineman (Aug 15, 2023 08:11 CDT)
Email: bstineman@muscatineiowa.gov

Signature: A.R. Kies
A.R. Kies (Aug 16, 2023 09:39 CDT)
Email: akies@muscatineiowa.gov

Signature: Carol Webb
Carol Webb (Aug 17, 2023 08:49 CDT)
Email: cwebb@muscatineiowa.gov

License # _____
Wallet # _____
Sticker # _____
Receipt # _____
Issued _____
Expires _____

CITY OF MUSCATINE

**APPLICATION FOR USE OF ANY STREET, SIDEWALK, ROADWAY, ALLEY,
PARK, PUBLIC WAY, PROPERTY OR FACILITY**

1. Name and address of applicant and sponsoring organization, if any:

Jefferson PTO/ Jefferson Elementary

Address: 403 E 9th St, Muscatine, Ia 52761

Telephone Number: 563-263-8800 or 563-299-4724

E-mail Address: sspencer@midwestone.com /shartman520@gmail.com

2. Type of event that is planned:

Food, Family, Foam & Fun. Back to school event for school kids.

3. Proposed location:

In front of Jefferson Elementary, We would like to block off in front of the school between the entrance of the parking lot and the exit. Traffic can be diverted thru the parking lot. So that there is still the flow.

4. Date(s)/Time(s): 9/8/2023 5pm to 8:30pm

5. Expected length of use:

6. Expected size of group: 420

7. Names of any person or persons in charge of the proposed use at the specified location:

Stephanie Spencer -PTO Tresurer
Mackenzie Strouf -PTO Secretary
Seth Manly- PTO President
Kandy Steele- Jefferson Principle

Address(es): 403 E 9th St, Muscatine

Telephone Number(s): 563-263-8800 or Stephanie 563-299-4724

E-mail Address(es): shartman520@gmail.com

8. Names and addresses of any persons to be featured as entertainers or speakers:

Absolute Science

9. List mechanical or electronic equipment to be used:

Foam Machine and Sound equipment

10. Number and type of any motor vehicles or other forms of transportation to be used, including bicycles, boats, carriages and golf carts:

N/A

11. Number and types of animals to be used:

N/A

12. A description of any sound amplification to be used:

13. Proposed monitoring of the group and/or activity including the number of people who will direct traffic, set up, clean up and maintain order, if necessary:

Jefferson PTO and Staff

14. All plans for the provision of security:

Principle, Staff and Parents will be monitoring.

15. Beer or wine consumption? Yes _____ No X

16. Describe any items to be sold or distributed:

We will have small items for food, and muskie croc charms & keychains.

17. Is water connection requested: Yes _____ No X

18. Is electricity requested: Yes _____ No X

19. Have you provided a layout site plan for your proposed activity or event? Yes _____ No X

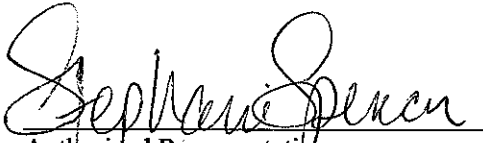
If yes, please attach.

If no, please explain:

The layout will be just be between the entrance and exit of the parking lot. And inside the school building.

20. Do you understand that you will be financially responsible for all site restoration needed to restore the site to pre-event status? Yes X No _____

The applicant agrees to indemnify, defend and save harmless the City of Muscatine, together with its agents, officers and employees, from any and all claims, lawsuits, damages, losses and expenses, of whatever nature, which may result from or arise from the activity or event covered by the permit, including but not limited to the use of public ways, irrespective of whether said claims are frivolous or meritorious.


Authorized Representative

9/6/23
Date

TO BE COMPLETED BY CITY DEPARTMENTS:

I have reviewed the attached application with the following recommendations:

Recommend
Approval

☐ YES ☐ NO

Parks & Recreation Date

Comments:

☐ YES ☐ NO

Community Development Date

☐ YES ☐ NO

Public Works Date

☐ YES ☐ NO

Police Chief Date

☐ YES ☐ NO

Fire Chief Date

FINAL APPROVAL:

☐ YES ☐ NO

City Administrator Date

**OFFICIAL PROCEEDINGS OF THE
BOARD OF WATER, ELECTRIC,
AND COMMUNICATIONS TRUSTEES
OF THE CITY OF MUSCATINE, IOWA
JULY 25, 2023 – 5:30 P.M.**

The Board of Trustees met in regular session at Muscatine Power and Water's Administration/Operations Building, 3205 Cedar Street, Muscatine, Iowa, on Tuesday, July 25, 2023 at 5:30 p.m.

Chairperson Keith Porter called the meeting to order. Members of the Board were present as follows: Trustees Susan Eversmeyer, Tracy McGinnis, Kevin Fields, and Steven Bradford.

Also present were Gage Huston, General Manager of Muscatine Power and Water; Kelly Miller, Board Secretary; Erika Cox, Brandy Olson, Mark Roberts, Ryan Streck, and Doug White of Muscatine Power and Water. Additional guests attending the meeting included Jacob Elliott, Linda Schmarje, and Charles Potter.

There were no public comments.

Trustee Fields moved, seconded by Trustee Bradford to approve the June 27, 2023, Public Hearings, and regular Board meeting minutes. All Trustees present voted aye. Motion carried.

The list of expenditures and transactions for June 2023 were presented. Mr. Huston reviewed the expenditures, and after additional discussion Trustee Eversmeyer moved, seconded by Trustee Fields, to ratify payment of \$7,462,308.30 for the Electric Utility, \$895,453.58 for the Water Utility, and \$1,622,454.33 for the Communications Utility, for a cumulative total of \$9,980,216.21. All Trustees present voted aye. Motion carried.

Mr. Huston introduced a recommendation for approval to Award the Contract for the 2023 AO Window Replacement Project. Bid documents were sent to 11 potential bidders and 7 plan houses. A pre-bid meeting was held on June 13, 2023, with three companies attending. One bid was received, opened publicly, and read aloud on June 27, 2023, at 3:00 p.m. MPW staff reached out to companies that expressed interest but did not submit a bid for feedback as to the reason. The responses indicated the work was either too far from their office or that their workload did not allow for a project of this size.

Bids were read based on total lump sum bids as follows:

Bidder Name	Total Lump Sum Bid
Carl A Nelson & Company	\$300,000

MPW requested Alternate #1 pricing for bidders to provide labor, tools, material, equipment, and supervision to complete removal and reinstallation of acoustical ceiling tiles, demolition of existing batt insulation, and installation of spray-in foam insulation, but staff has chosen not to pursue this option.

The cost of this project has risen since this PSF was created and pricing exceeded estimates. This award – along with other expected costs – will consume all the contingency in the PSF and exceed the budget by 4%. With no expected ease in costs for this type of work, Management and staff

recommend the award of contract be made to the low bidder, Carl A. Nelson & Company, Burlington, IA, for a total price of \$300,000.

RESOLUTION 23-25

WHEREAS, it appears in a written report from Muscatine Power and Water Management that the bid for the 2023 AO Window Replacement Project as submitted by Carl A Nelson Co, Inc., of Burlington, IA for a total price of \$300,000 was the best and lowest bid received; now therefore,

BE IT RESOLVED, by the Board of Water, Electric, and Communications Trustees of the City of Muscatine, Iowa, that the proposal from Carl A Nelson Co, Inc., of Burlington, IA for a total price of \$300,000 for the 2023 AO Window Replacement Project was hereby accepted and submitted; and,

BE IT FURTHER RESOLVED, that the General Manager and Secretary of the Board were hereby authorized, empowered, and directed to execute a contract in the sum approved by the Board of Water, Electric, and Communications Trustees.

Trustee McGinnis moved, seconded by Trustee Bradford, that said resolution be passed, approved, and adopted this 25th day of July 2023. On roll call Trustees Eversmeyer, McGinnis, Bradford, Fields, and Porter voted aye. Voting nay, none.

Mr. Huston next introduced an agenda item to approve a revised PSF for the Grandview Substation Replacement Design Project at a total cost of \$728,700 to fund the engineering services for the Grandview Substation rebuild/upgrade. These engineering services will provide specifications, plans and construction cost estimates. As described in the original Project Summary Form (PSF), the reason to rebuild the Grandview Substation is to accommodate the reliable interconnection of the planned Solar 1 power project and make much needed improvements to a substation. Trustee Eversmeyer moved, seconded by Trustee Fields, to approve the revised PSF for the Grandview Substation Replacement Design Project at a total cost of \$728,700. All Trustees present voted aye. Motion carried.

The next agenda item was to approve a revised PSF for the U9 AFFF (Aqueous Film Forming Foam) Chem/Equip Disposal and the Unit 9 AFFF Sprinkler Replacement Project. The original PSFs were approved with the 2023 Budget at an estimated combined cost of \$725,000. The original scope of the AFFF System Disposal Project was to dispose and destroy the AFFF chemical and equipment. The original scope of the AFFF New Sprinkler Install Project was for upsizing four existing wet pipe sprinkler systems to provide more flow capacity to meet FM Global recommendations. Quotes received on the new sprinkler system were less than expected, while the quotes on the equipment disposal portion of the work were greater than expected. Trustee McGinnis moved, seconded by Trustee Fields, to approve the revised PSF for the U9 AFFF Chem/Equip Disposal. All Trustees present voted aye. Motion carried. Trustee Bradford moved, seconded by Trustee McGinnis, to approve the Unit 9 AFFF Sprinkler Replacement Project. All Trustees present voted aye. Motion carried.

The next agenda item was to approve a revised PSF for the Unit 9 Boiler Chemical Clean Project. The original PSF was approved with the 2023 Budget at an estimated cost of \$493,000 based on

2022 vendor quotes. The Scope of the project was to have an experienced contractor chemically clean the boiler and haul away and properly dispose of the chemical cleaning waste. The boiler was last cleaned in 2009. Management recommended Board approval of the revised PSF. This project is scheduled to be completed during the October 2023 outage. Trustee Fields moved, seconded by Trustee Eversmeyer, to approve the revised PSF for the Unit 9 Boiler Chemical Clean Project. All Trustees present voted aye. Motion carried.

The next agenda item was a recommendation to set a public hearing date on MISO Attachment O Annual Meeting – Transmission Rate Update. Mr. Huston stated as a Transmission Owner (TO) within the MidContinent Independent System Operator (MISO) system, MPW must establish tariff rates for use of its transmission system by other market participants. The key component in establishing the formula rates is using MISO's Attachment O template. A step required by the Federal Energy Regulatory Commission (FERC) in this process is each TO must hold an annual public meeting regarding its transmission rate updates and submit an informational filing with FERC regarding its updated transmission rates. Management recommends the Board set a public hearing prior to its next regular Board Meeting on August 29, 2023 to receive any public comments regarding its annual transmission rate update (Attachment O). This public hearing will meet the requirement in MISO's revised formula rate protocols related to holding an annual public meeting. The following resolution was submitted:

RESOLUTION 23-26

WHEREAS, it is recommended that a public hearing be established for the review of MPW's annual Transmission Rate Update (Attachment O) to receive any public comments before submittal of this form to FERC; now therefore,

BE IT RESOLVED, by the Board of Water, Electric, and Communications Trustees of the City of Muscatine, Iowa that a public hearing be held on the 29th day of August 2023, at 5:28 p.m. in the Auditorium of Muscatine Power and Water's Administration/Operations Building located at 3205 Cedar Street, Muscatine, Iowa, and the notice of said hearing shall be published once in the Muscatine Journal, a newspaper of general circulation published daily in the City of Muscatine, Iowa, not less than four (4) nor more than twenty (20) days prior to said hearing, all as required by the Code of Iowa.

Trustee McGinnis moved, seconded by Trustee Bradford, that said resolution be passed, approved, and adopted this 25th day of July 2023. On roll call Trustees Eversmeyer, McGinnis, Bradford, Fields, and Porter voted aye. Voting nay, none. Resolution carried.

Mr. Huston stated at the June Board of Trustees meeting, the revised Board Policy Manual was presented in draft form for the Trustees input and comments. The manual has been finalized. It was recommended the Trustees approve the 2023 Board Policy Manual. Trustee Eversmeyer moved, seconded by Trustee McGinnis, the 2023 Board Policy Manual be approved. All Trustees present voted aye. Motion carried.

In the General Manager's report, Mr. Huston provided a recap to the Board about the June 16, 2023 Employee Recognition Lunch.

The June Financial Operating Statements and Balance Sheets were presented as previously submitted to all Board members. Mr. Huston reviewed the MPW dashboard, the Financial Results Summary for each Utility, and the Quarterly Investment Report.

There were no entries on the Competitive Quotes for Public Improvements Report.

Mr. Huston reviewed the Monthly Project Status Report and Variance Analysis report.

The 2023 2Q Strategic Plan Update and Key Performance Indicators for the Electric, Water, and Communications Utilities were reviewed.

The June Departmental Reports were presented as previously submitted to all Board members. Mr. Huston provided a high-level review.

No public comments were made.

Trustee Eversmeyer moved, seconded by Trustee McGinnis to receive and place on file the July 2023 Utility Reports. All Trustees present voted aye. Motion carried.

At 6:54 p.m. Chairperson Porter stated the Board would be going into Closed Session to Review the Electric Retail Service Agreement and Land Lease Agreement with BSLF, LLC. Trustee Eversmeyer moved, seconded by Trustee Bradford to enter closed session in accordance with Iowa Code Sections 21.5(1)(k) and 388.9 (protecting competitive information). On roll call, Trustees Eversmeyer, McGinnis, Bradford, Fields, and Porter, voted aye. Voting nay, none. Motion carried.

At 7:04 p.m. the meeting was reconvened to open session.

Mr. Huston asked the Board to authorize the General Manager, based on terms discussed in the closed session, to Enter into an Electric Retail Service Agreement and Land Lease Agreement upon satisfactory negotiations with BSLF, LLC. Trustee Fields moved, seconded by Trustee Bradford to authorize the General Manager to Execute an Electric Retail Service Agreement and Land Lease Agreement upon satisfactory negotiations with BSLF, LLC. All Trustees present voted aye. Motion carried.

At 7:07 p.m. Chairperson Porter stated the Board would be going into Closed Session to discuss the CHP (combined heat and power generating unit) and Steam Sales Investigation. Trustee Eversmeyer moved, seconded by Trustee McGinnis to enter closed session in accordance with Iowa Code 388.9 (protecting competitive information). On roll call, Trustees Eversmeyer, McGinnis, Bradford, Fields, and Porter, voted aye. Voting nay, none. Motion carried.

At 7:30 p.m. the meeting was reconvened to open session.

The meeting was adjourned at 7:31 p.m.

BOARD OF WATER, ELECTRIC, AND
COMMUNICATIONS TRUSTEES OF
THE CITY OF MUSCATINE, IOWA

A handwritten signature in cursive script, appearing to read "Kelly Miller".

Kelly Miller
Board Secretary

Muscatine County Board of Supervisors
Monday, August 14, 2023

The Muscatine County Board of Supervisors met in regular session at 9:00 A.M. with Chick, Kirchner, Mather, Sauer and Sorensen present. Chairperson Sauer presiding.

On a motion by Sorensen, second by Mather, the agenda was approved. Ayes: All.

Planning and Zoning Administrator Eric Furnas reviewed Resolution #08-14-23-01 Approval of the Combined Preliminary and Final Plat of Braun Subdivision stating Donna Braun, record owner, requests the approval of the combined preliminary/final plat of the proposed one lot agricultural subdivision, Braun Subdivision, located in Pike Township, in the NE ¼ of Section 18-T77N-R4W, 1828 Bancroft Avenue, containing approximately 38.75 acres, and is zoned A-1 Agricultural District. The Muscatine County Zoning Commission met on August 4, 2023 and approved the request as the lot and agricultural ground would meet the lot size, area, and frontage requirements of the A-1 Agricultural District.

On a motion by Sorensen, second by Kirchner, the Board approved Resolution #08-14-23-01 Approval of the Combined Preliminary and Final Plat of Braun Subdivision. Roll Call Vote: Ayes: All.

RESOLUTION #08-14-23-01
APPROVAL OF THE COMBINED PRELIMINARY AND FINAL PLAT OF
BRAUN SUBDIVISION

WHEREAS, there has been presented before the Board of Supervisors of Muscatine County, Iowa, a dedication and plat of the proposed subdivision “Braun Subdivision”; and

WHEREAS, said plat has heretofore been approved by the Zoning Commission of Muscatine County, Iowa; and

WHEREAS, said dedication and plat fully conform with all laws of the State of Iowa and all ordinances of Muscatine County, Iowa, applicable thereto; and

WHEREAS, the platting of said subdivision is conducive to orderly development within Muscatine County, Iowa, is not in conflict with any extensions of the established road systems of Muscatine County, Iowa, and is in harmony with the comprehensive plan of zoning now in effect within Muscatine County, Iowa.

WHEREAS, the subdivision of said real estate and the plat thereof were accepted and approved by the Muscatine County Board of Supervisors following a public meeting on August 14, 2023.

NOW, THEREFORE, be it resolved by the Board of Supervisors of Muscatine County, Iowa, as follows:

- Section 1. The said subdivision is hereby designated as “Braun Subdivision”, a subdivision in Muscatine County, Iowa, and that the descriptions of lots and parcels of land located therein shall be according to the number and designation thereof as set forth on said plat.
- Section 2. The Chairperson of the Board of Supervisors and the Auditor of Muscatine County, Iowa, are hereby authorized and directed to certify this Resolution in order that the same and all other matters material to said subdivision may be recorded in the Office of the Recorder of Muscatine County, Iowa.

PASSED and APPROVED this 14th day of August, 2023.

ATTEST:

/s/Tibe Vander Linden
Muscatine County Auditor

/s/Scott Sauer, Chairperson
Muscatine County Board of Supervisors

Planning and Zoning Administrator Eric Furnas reviewed Resolution #08-014-23-02 Approval of the Combined Preliminary and Final Plat of Replat of Lots 1 and 2 of Salvatore’s Subdivision and Parcel J stating Chapel of Praise Church of God, record owner, requests the approval of the combined preliminary/final re-plat of Lots 1 and 2 of the Salvatore’s Subdivision and Parcel “J”, located in Bloomington Township, in the SE ¼ of Section 22-T77N-R2W, 1963 North Tipton Road (parcel #08-22-401-008) and 1967 North Tipton Road (parcel #08-22-401-010), containing a combined 12.68 acres, and are zoned R-2 Residential District. The Muscatine County Zoning Commission met on August 4, 2023 and approved the request as the re-plat represents orderly development and established new property lines between Lot 1 and Lot 2 in a manner that is more beneficial to the owners of the two lots. Additionally, the re-plat essentially did away with Parcel J, which was a remnant, non-buildable parcel be absorbing it into Lots 1 and Lots 2.

On a motion by Sorensen, second by Chick, the Board approved Resolution #08-14-23-02 Approval of the Combined Preliminary and Final Plat of Replat of Lots 1 and 2 of Salvatore’s Subdivision and Parcel J. Roll Call Vote: Ayes: All.

RESOLUTION #08-14-23-02
APPROVAL OF THE COMBINED PRELIMINARY AND FINAL PLAT OF
REPLAT OF LOTS 1 AND 2 OF SALVATORE’S SUBDIVISION AND PARCEL J

WHEREAS, there has been presented before the Board of Supervisors of Muscatine County, Iowa, a dedication and plat of the proposed subdivision “Replat of Lots 1 and 2 of Salvatore’s Subdivision and Parcel J”; and

WHEREAS, said plat has heretofore been approved by the Zoning Commission of Muscatine County, Iowa; and

WHEREAS, said dedication and plat fully conform with all laws of the State of Iowa and all ordinances of Muscatine County, Iowa, applicable thereto; and

WHEREAS, the platting of said subdivision is conducive to orderly development within Muscatine County, Iowa, is not in conflict with any extensions of the established road systems of Muscatine County, Iowa, and is in harmony with the comprehensive plan of zoning now in effect within Muscatine County, Iowa.

WHEREAS, the subdivision of said real estate and the plat thereof were accepted and approved by the Muscatine County Board of Supervisors following a public meeting on August 14, 2023.

NOW, THEREFORE, be it resolved by the Board of Supervisors of Muscatine County, Iowa, as follows:

- Section 1. The said subdivision is hereby designated as “Replat of Lots 1 and 2 of Salvatore’s Subdivision and Parcel J”, a subdivision in Muscatine County, Iowa, and that the descriptions of lots and parcels of land located therein shall be according to the number and designation thereof as set forth on said plat.
- Section 2. The Chairperson of the Board of Supervisors and the Auditor of Muscatine County, Iowa, are hereby authorized and directed to certify this Resolution in order that the same and all other matters material to said subdivision may be recorded in the Office of the Recorder of Muscatine County, Iowa.

PASSED and APPROVED this 14th day of August, 2023.

ATTEST:

/s/Tibe Vander Linden
Muscatine County Auditor

/s/Scott Sauer, Chairperson
Muscatine County Board of Supervisors

On a motion by Sorensen, second by Kirchner, the Board approved the contract, bond, and certificate of insurance for L-(M23-2)—73-70, seal coat on various roads throughout the county. Roll Call Vote: Ayes: All.

On a motion by Sorensen, second by Chick, the Board approved the contract, bond and certificate of insurance for L-(MW-5)—73-70, a 100’-0 x 26’-4 continuous concrete slab bridge over Mosquito Creek on N. Isett Avenue. Roll Call Vote: Ayes: All.

On a motion by Sorensen, second by Mather, the Board approved the following utility permits: Eastern Iowa Light and Power REC, Wilton, Iowa – replace bad underground cable in the road and install new cable 11 feet from the road on 280th Street, Section 33, 34 and 35, T76N-03W; Alliant Energy, Cedar Rapids, Iowa – bury overhead facilities along 155th Street, east of Highway 70 for approximately 1.6 miles on the north side of 155th Street within four feet of the

right-of-way, Section 29 and 30, T78N-03W. Roll Call Vote: Ayes: All.

On a motion by Kirchner, second by Sorensen, the Board approved the minutes of the August 7, 2023 regular meeting. Ayes: All.

Correspondence.

Sauer received an email from a resident with concerns about excess vehicles and trailers in a neighbor's yard. The information was given to the Planning and Zoning department to address.

Kirchner received an email from a resident reporting water issues at the Y intersection of 155th Street and Eliason Avenue. The information was given to the County Engineer Bryan Horesowsky.

Committee & Meeting Reports:

Sauer attended an Emergency Food and Shelter Program (EFSO) meeting on August 10, 2023. The program elected to distribute approximately \$9,400 each to Muscatine Center for Social Action, Crossroads, Inc. and the Salvation Army of Muscatine County.

Chick attended a Greater Muscatine Chamber of Commerce & Industry meeting on August 8, 2023.

Kirchner attended a Lower Cedar Watershed Management Authority meeting on August 8, 2023.

Kirchner attended a West Liberty Economic Area Development (WELEAD) Board meeting on August 11, 2023.

Kirchner attended a West Liberty Economic Area Development (WELEAD) Quarterly meeting on August 11, 2023.

Treasurer Amy Zybarth stated property tax statements were mailed to property owners on August 10, 2023 and August 11, 2023. Zybarth stated the statements are due September 1, 2023 and delinquent on October 1, 2023 which allows property owners the month of September to pay their property taxes. Zybarth stated property owners tend to call the Treasurer's office to inquire about escrow taxes paid by their bank. Zybarth noted the second sentence of the highlighted line a statement appears to note "if your bank pays the taxes in escrow this tax statement is for information only".

The meeting was adjourned at 9:16 A.M.

ATTEST:

Cathy Ribbink
Elections/Real Estate Administrator

Scott Sauer, Chairperson
Board of Supervisors



City of Muscatine

ITEM NUMBER 2023-0426

AGENDA ITEM SUMMARY

DATE: 9/7/2023

STAFF

Joe Timmsen, Battalion Chief
Gerald Ewers, Fire Chief

SUBJECT

Request to Approve the Issuance of a Purchase Order to Feld Fire, in the Amount of \$19,640.00, for 2 Sets of Paratech Maxforce Lift Bag Kits.

EXECUTIVE SUMMARY

Request to Approve the Issuance of a Purchase Order to Feld Fire, in the amount of \$19,640.00, for 2 Sets of Paratech Maxforce Lift Bag Kits. Two high pressure air lifting bags were approved in the FY 2023/2024 capital outlay budget for fire operations. There is \$ 19,800.00 budgeted for this purchase.

STAFF RECOMMENDATION

City staff recommends approving the purchase order request to Feld Fire for two high pressure air lifting bags for the amount of \$ 19,640.00.

BACKGROUND/DISCUSSION

The purpose of this item is to allow lifting and movement of heavy objects to free trapped individuals from collapse, collisions, or entrapment. Example: a vehicle resting on top of somebody can be raised with these. High pressure bags only need a thin insertion space and can be stacked and used in tandem and will replace one 20 year old donated set of low pressure bags. This will allow us to have a set on both our front line fire engines at both fire stations. The high pressure bags takes up less room in our engine compartments and weighs less than the low pressure bags. High pressure bags will double our lifting capacity and give us a higher weight rating for lifting. Three quotes were received with Feld Fire being the lowest at \$ 19,640.00.

- Feld Fire \$ 19,640.00
- Curtis Tools \$ 20,519.80
- Conway Shields \$ 21,197.86

CITY FINANCIAL IMPACT

There is \$19,800.00 approved in the Fire Operations Capital Outlay Budget for the purchase of these two air lifting bags. This is \$ 160.00 under budget.

ATTACHMENTS



City of Muscatine

ITEM NUMBER 2023-0427

AGENDA ITEM SUMMARY

DATE: 9/7/2023

STAFF

Jon Koch, Water Pollution Control Plant Director

SUBJECT

Request to Approve the Issuance of a Purchase Order to Sulzco, LLC., in the amount of \$16,950.00, for the Pedestrian Bridge Railing Installation at the Pollinator Park.

EXECUTIVE SUMMARY

Request to approve the issuance of a purchase order to Sulzco, LLC., in the amount of \$16,950.00, for the installation of the bridge railing at the Pollinator Park. \$19,000.00 was budgeted for this project.

STAFF RECOMMENDATION

Staff recommends approval of this purchase to complete the installation.

BACKGROUND/DISCUSSION

The City installed a trail that runs from the Kent Stein entrance to the entrance to the Transfer Station when completing the bike trail along Houser St. They utilized an existing abandoned bridge that had no railing. For the safety of those using the bridge and for City liability, railings were fabricated and now need to be installed. There is concrete work to be done as well, so this was not able to be done in-house. Two quotes were received for this work with the low quote coming from Sulzco, LLC in the amount of \$16,950.00. The other quote came from Wolfe Contracting, Inc in the amount of \$18,896.00. \$19,000.00 was budgeted for this project.

CITY FINANCIAL IMPACT

There is \$19,000.00 budgeted for this project.

ATTACHMENTS

1. SulzCo Railing Install Quote.230629
2. Bridge MU5802_FOR CONSTRUCTION 20190529_KCT

Proposal



Phone: 563-272-8052

Fax:

Proposal: 2023022

Date: 6/29/2023

To:	Project:
Muscatine, City of Attn: Jon Koch 1459 Washington St. Muscatine, IA 52761	Re-Bid Pollinator Park Railing Muscatine, IA 52761

Salesperson		
Zack Sulzberger		

Scope of Work

1. Mobilize Railings to Site from Treatment plant.
2. Removal of Existing Spauled Concrete. Cut with diamond blade saw to sound concrete.
3. Repair of Concrete Wall Flumes, top portion. Dowels, Rebar, Forms, 4000psi concrete & Bonding agent included.
4. Drill 4" holes in planks for drainage.
5. Setting of Railing pieces in place.
6. Deck anchors attached through timber deck beams to railings.
7. Concrete anchors attached to railings.
8. Wire Fence Panels attached to railings.

Exclusions

Suppling of:

- Deck Anchors.
- Concrete Anchors.
- Deck & Base Plates.
- Bolts & Washers.
- Removal of Existing Railing Posts, Cables & the Raised Platform.

Proposal Total: 16,950.00

Acceptance	
Accepted by:	_____
Title:	_____
Date:	_____

Zack Sulzberger, President

6/29/2023

POLLINATOR PARK PEDESTRIAN BRIDGE

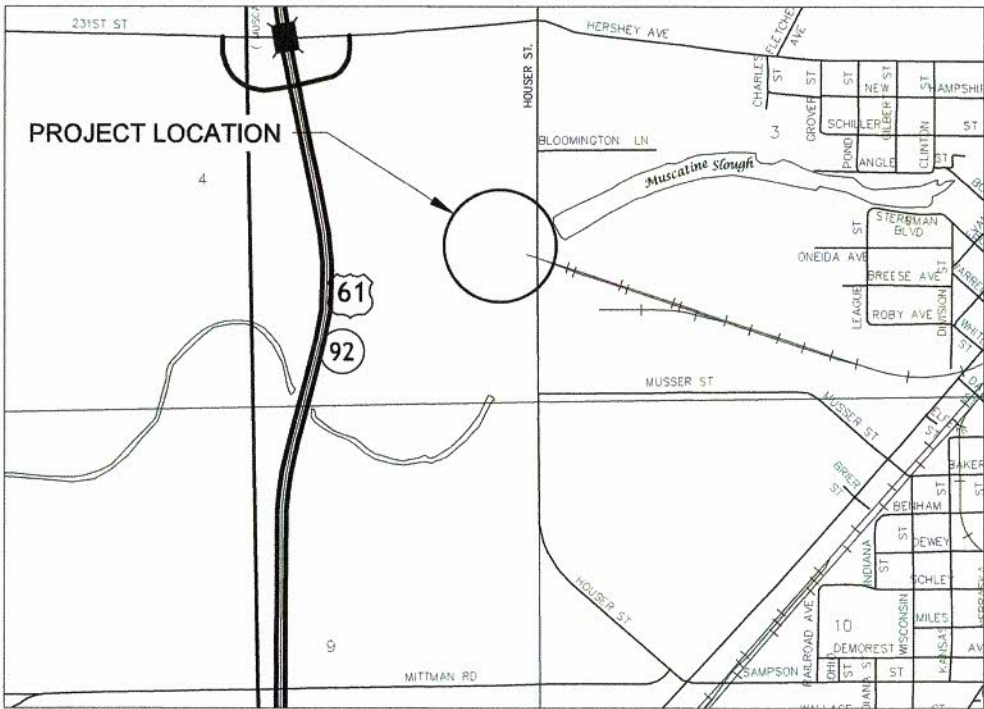
CITY OF MUSCATINE

MUSCATINE, IOWA

DRAWING INDEX

SHEET NUMBER	TITLE	REVISION NUMBER
G-001	COVER SHEET	0
C-101	PLAN AND ELEVATION VIEW	0
C-301	SECTION VIEWS	0
C-401	GUARD RAIL DETAILS	0
C-501	DETAILS AND NOTES	0

LOCATION MAP



I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

Kent C. Turner 5/29/19
Signature Date
Kent C. Turner My license renewal date is
License Number 11997 December 31, 2020

Sheets covered by this seal: ALL DRAWINGS



DATE	FOR CONSTRUCTION	DATE	APPR
5/29/19	0	5/29/19	KCT

DESIGNED BY:	DATE:	SOLICITATION NO.:
MUSCATINE WRRF	5/29/19	1202
1202 MUSCATINE WRRF	5/29/19	1202
MUSCATINE, IA 52761	5/29/19	1202
WATERSMITH ENGINEERING	5/29/19	1202
1029 HERSHEY AVE.	5/29/19	1202
MUSCATINE, IA 52761	5/29/19	1202

POLLINATOR PARK PEDESTRIAN BRIDGE
CITY OF MUSCATINE
MUSCATINE, IOWA
COVER SHEET

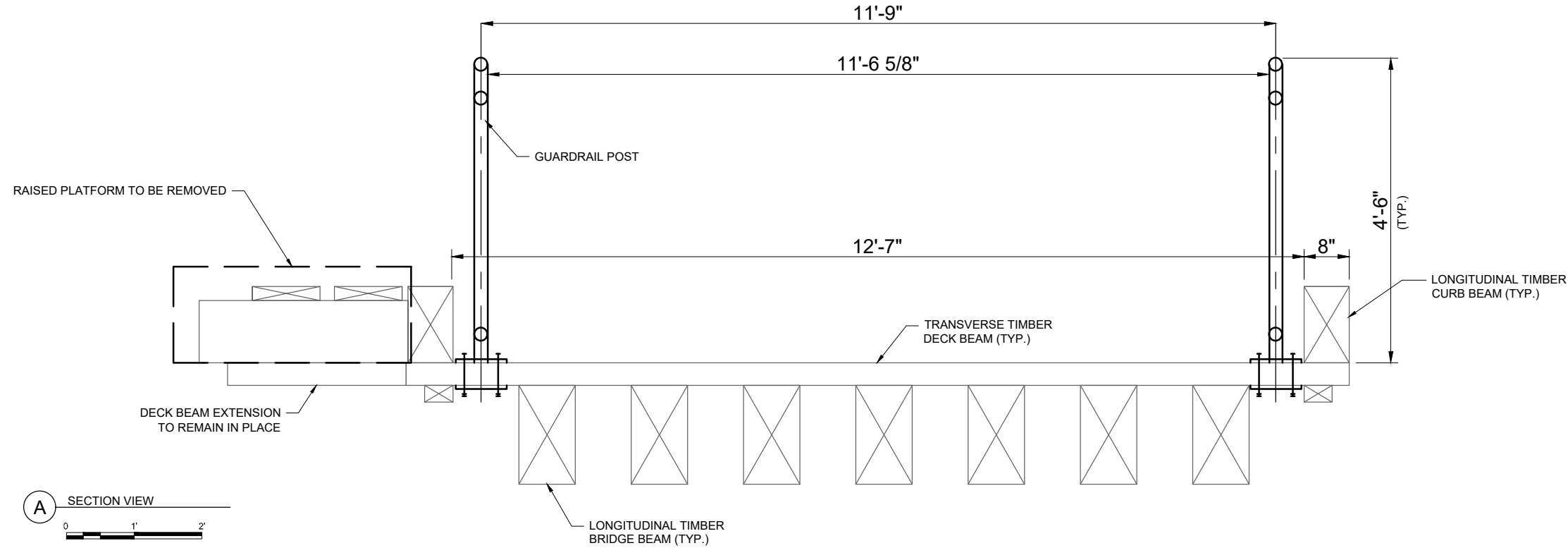
SHEET IDENTIFICATION
G-001

D

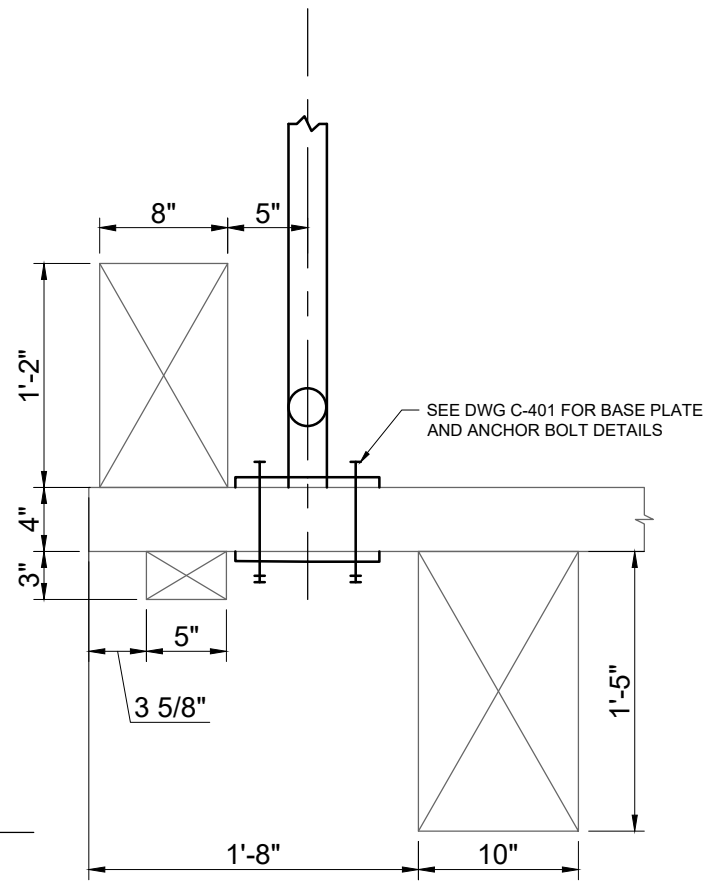
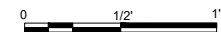
C

B

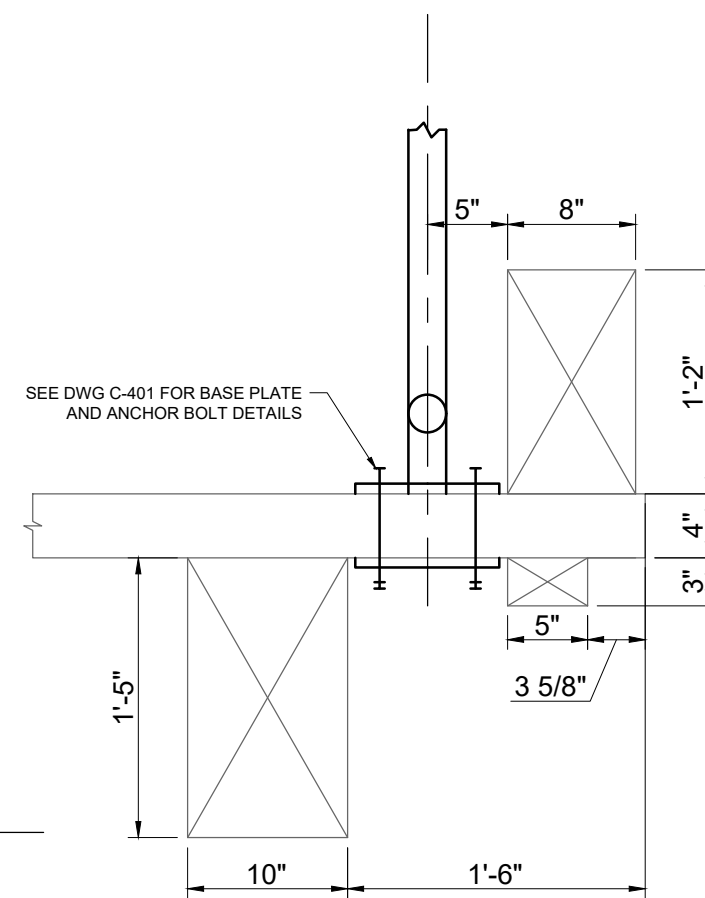
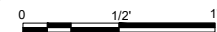
A



B SECTION SOUTH SIDE



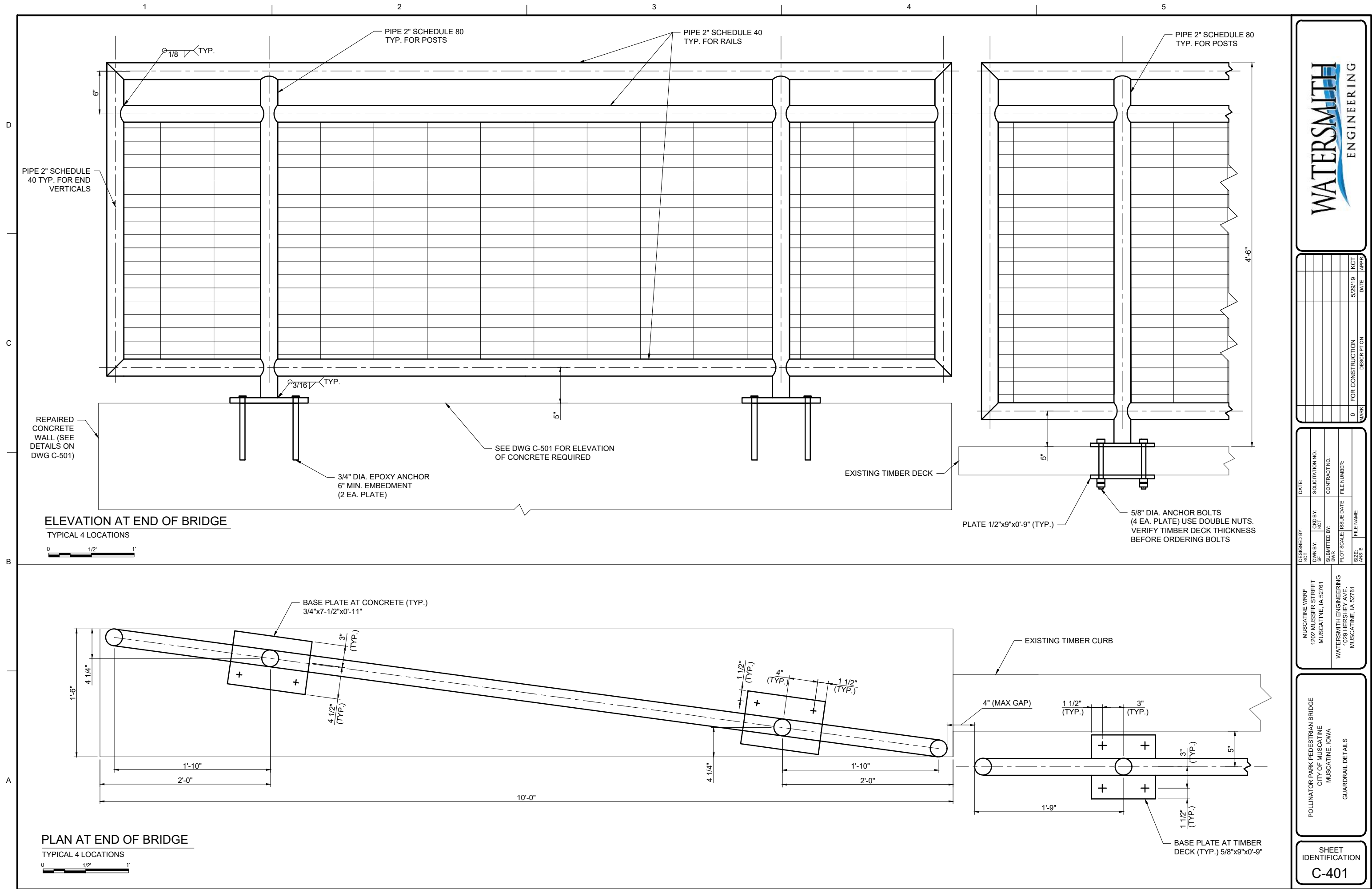
C SECTION NORTH SIDE



DESIGNED BY:	DATE:	FOR CONSTRUCTION	DATE	APPROVED
DRAWN BY:	SOLICITATION NO.:	0	5/29/19	
CHECKED BY:	CONTRACT NO.:			
SUBMITTED BY:	FILE NUMBER:			
PLOT SCALE:	ISSUE DATE:			
SIZE:	FILE NAME:			
ANSI B				

MUSCATINE WREF	DESIGNED BY:	DATE:
1202 MUSCATINE STREET	DRAWN BY:	SOLICITATION NO.:
MUSCATINE, IA 52761	CHECKED BY:	CONTRACT NO.:
	SUBMITTED BY:	FILE NUMBER:
	PLOT SCALE:	ISSUE DATE:
	SIZE:	FILE NAME:
	ANSI B	

POLLINATOR PARK PEDESTRIAN BRIDGE
CITY OF MUSCATINE
MUSCATINE, IOWA
SECTION VIEWS



MARK	FOR CONSTRUCTION	DESCRIPTION	DATE	KCT	APPD
0			5/29/19		

DESIGNED BY:	DATE:	SOLICITATION NO.:	CONTRACT NO.:
OWN BY:	CDD BY:	KCT:	SUBMITTED BY:
PLOT SCALE:	ISSUE DATE:	FILE NUMBER:	FILE NAME:
SIZE:	ANSIB		

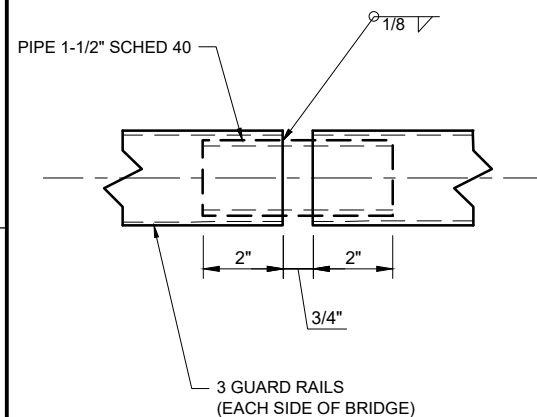
MUSCATINE WREF 1202 MUSSEY STREET MUSCATINE, IA 52761	WATERSMITH ENGINEERING 1029 HERSHEY AVE. MUSCATINE, IA 52761
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POLLINATOR PARK PEDESTRIAN BRIDGE CITY OF MUSCATINE MUSCATINE, IOWA	GUARDRAIL DETAILS
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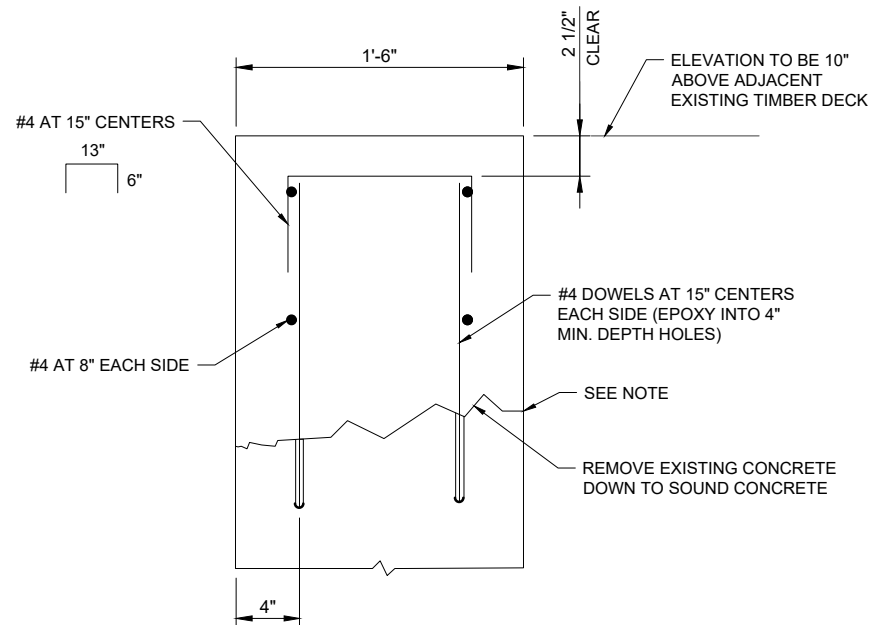
SHEET IDENTIFICATION C-401

D

C

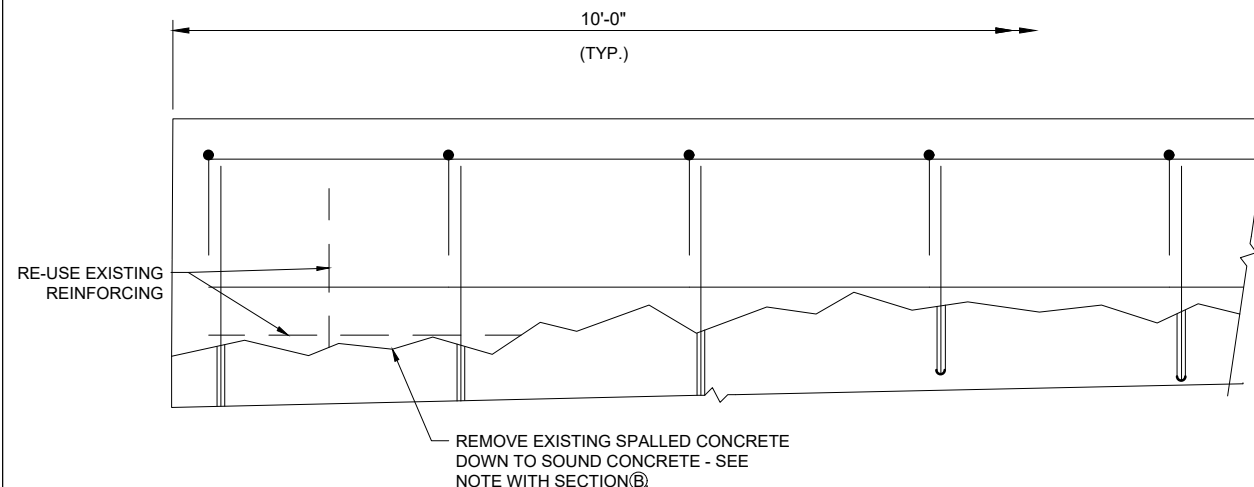


A RAIL EXPANSION JOINT DETAIL
NOT TO SCALE



B CONCRETE REPAIR DETAIL - SECTION
0 1/2' 1'

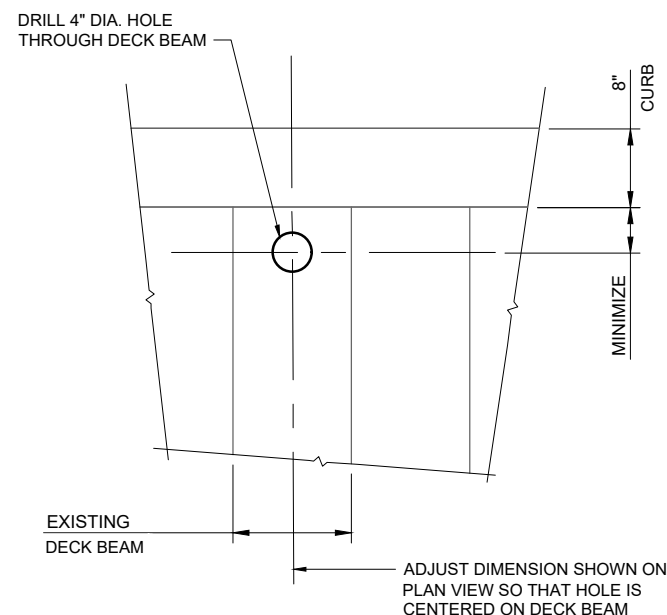
NOTE:
REMOVAL LINE ON INSIDE FACE OF
WALL TO BE STRAIGHT AND LEVEL.



C CONCRETE REPAIR DETAIL - ELEVATION
0 1/2' 1'

B

A



D DECK DRAIN DETAIL
NOT TO SCALE

NOTES:

1. ALL CONCRETE TO HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 4,000 PSI.
2. ALL CONCRETE TO HAVE AIR ENTRAINMENT OF 5% TO 6%. AIR-ENTRAINING ADMIXTURE SHALL CONFORM TO ASTM C260.
3. ALL REINFORCING STEEL TO BE DEFORMED BAR PER ASTM A615, GRADE 60.
4. BONDING AGENT SHALL BE PLACED ON EXISTING CONCRETE PRIOR TO PLACING NEW CONCRETE. BONDING AGENT SHALL BE SIKA ARMATEC IC, CEMENTITIOUS, ONE-COMPONENT, COATING MATERIAL; OR EQUIVALENT. INSTALL PER ALL MANUFACTURER'S REQUIREMENTS AND PROCEDURES.
5. ALL REINFORCING TO BE TIED AT INTERSECTIONS. WELDING OF REINFORCING IS NOT ALLOWED.
6. ALL STEEL PLATES SHALL BE ASTM A36 MATERIAL WITH MINIMUM YIELD STRENGTH OF 36 KSI.
7. ALL STEEL PIPES SHALL BE ASTM A53, TYPE E MATERIAL WITH MINIMUM YIELD STRENGTH OF 35 KSI.
8. ANCHOR BOLTS SHALL BE ASTM A307, GRADE A. NUTS SHALL BE ASTM A563 HEX TYPE. WASHERS SHALL BE ASTM F844. USE WASHERS UNDER ALL NUTS. BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED PER ASTM F2329.
9. EPOXY ANCHORS SHALL BE HILTI HIT HY 150 ADHESIVE ANCHOR SYSTEM WITH GALVANIZED THREADED ROD, HEX NUT, AND WASHER; OR EQUIVALENT. INSTALL PER ALL MANUFACTURER'S REQUIREMENTS AND PROCEDURES.
10. COATING FOR ALL POSTS, RAILS, AND ANCHOR PLATES TO BE TWO COATS OF SHERWIN WILLIAMS ALL-SURFACE LATEX ENAMEL OVER ONE COAT OF SHERWIN WILLIAMS ALL-SURFACE ENAMEL LATEX PRIMER. SURFACE PREPARATION AND COATING APPLICATION TO BE PER ALL MANUFACTURER'S REQUIREMENTS AND PROCEDURES. FINISH COATING COLOR TO BE SELECTED BY CITY OF MUSCATINE REPRESENTATIVE. OTHER COATING MANUFACTURERS MAY BE USED, IF EQUIVALENT. PRIMER AND FINISH COAT MATERIALS MUST BE COMPATIBLE.
11. WELDED WIRE FENCE MESH SHALL BE VINYL COATED PER ASTM A933. WIRE SHALL BE 6 GAGE WITH VERTICAL WIRES SPACED AT 6 INCH CENTERS AND HORIZONTAL WIRES SPACED AT 2 INCH CENTERS. ATTACHMENT OF FENCE TO POSTS AND RAILS SHALL BE PER STANDARD DETAILS OF FENCE MANUFACTURER. ATTACHMENT CLIPS AND HARDWARE SHALL BE GALVANIZED. FENCE SHALL BE MOUNTED ON INSIDE FACE OF POSTS AND RAILS WITH ENDS OF ATTACHMENT BOLTS POINTED AWAY FROM THE CENTERLINE OF THE BRIDGE. VINYL COATING SHALL BE BLACK IN COLOR. WELDED WIRE FENCE SHALL BE WIREWALL BASIC FENCING BY RIVERDALE MILLS CORPORATION, OR EQUIVALENT.

WATERSMITH
ENGINEERING

NO.	DESCRIPTION	DATE	APPROVED
0	FOR CONSTRUCTION	5/29/19	KCT

DESIGNED BY: ACT	DATE:	SOLICITATION NO.:
DRAWN BY: KCT	5/29/19	CONTRACT NO.:
SUBMITTED BY: BMR	5/29/19	FILE NUMBER:
PLOT SCALE:	FILE NAME:	
SIZE: ANSI B		

MUSCATINE WREF 1202 MUSSEY STREET MUSCATINE, IA 52761	WATERSMITH ENGINEERING 1029 HERSHEY AVE. MUSCATINE, IA 52761
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POLLINATOR PARK PEDESTRIAN BRIDGE
CITY OF MUSCATINE
MUSCATINE, IOWA
DETAILS AND NOTES

SHEET
IDENTIFICATION
C-501



City of Muscatine

ITEM NUMBER 2023-0428

AGENDA ITEM SUMMARY

DATE: 9/7/2023

STAFF

Jon Koch, Water Pollution Control Plant Director

SUBJECT

Request to Approve the Issuance of a Purchase Order to Zimmer & Francescon, in the amount of \$7,722.00, for the Purchase of Two Replacement Check Valve Bodies for the Progress Park Lift Station.

EXECUTIVE SUMMARY

Request to approve the issuance of a purchase order to Zimmer and Francescon, Inc. in the amount of \$7,722.00 for the purchase of two check valve replacement bodies for the Progress Park Lift Station. \$7,500.00 was budgeted for this purchase. The \$222.00 difference is being made up by the Miles Lift Station pump purchase, which was \$489.00 under budget. These are vendor specific parts and there are no other vendors to receive other quotes.

STAFF RECOMMENDATION

Staff recommends approving this purchase.

BACKGROUND/DISCUSSION

The check valves for both of the pumps at the Progress Park Lift Station are sticking and need to be replaced. The valve housings will not be replaced as they are still in tact. The bodies and parts inside the housing will be removed and replaced with new parts to bring them back to full functionality. \$7500.00 was budgeted to replace these valve bodies but costs for the parts have risen significantly. The Miles Lift Station pump purchase was \$489 under budget and will cover the overage of \$222.00 for this purchase.

CITY FINANCIAL IMPACT

\$7,500.00 was budgeted for this purchase with the difference being made up by the under budget Miles pump purchase.

ATTACHMENTS

1. Progress Park valve parts quote.230822



City of Muscatine

ITEM NUMBER 2023-0430

AGENDA ITEM SUMMARY

DATE: 9/7/2023

STAFF

Gary Ronzheimer, Battalion Chief
Gerald Ewers, Fire Chief

SUBJECT

Request to Approve the Issuance of a Purchase Order to Hinckley Medical, in the amount of \$ 17,500.00, for five ambulance cot scales.

EXECUTIVE SUMMARY

Request to issue a purchase order to Hinckley Medical for \$17,500.00 for five ambulance cot scales. Five Cot Scales were approved in the FY 2023/2024 capital outlay budget for ambulance operations. We have \$ 17,500.00 budgeted for this purchase.

STAFF RECOMMENDATION

City staff recommends approving the purchase order request to Hinckley Medical for five cot scales in the amount of \$ 17,500.00.

BACKGROUND/DISCUSSION

EMS personnel continually have to guess body weight in the field. This has been the standard practice for decades. In the past two years, Muscatine Fire Department has been working with Hinckley medical and their new EMS cot scale system. MFD was able to field test this and noticed significant differences in EMS medication dosing compared to dosages given in guessing weights. There is an elevated risk of overdosing or underdosing patients in the field and this will alleviate these concerns. This is especially important in our geriatric and pediatric patients where critical care medications being misdosed can have significant impacts. Hinckley medical is the only company that is producing these scales for Pre Hospital EMS use. They are manufactured in the United States and installed by the company here at Muscatine Fire Department. This is a sole source item so no other quotes are available for this purchase.

CITY FINANCIAL IMPACT

There is \$ 17,500.00 approved and allocated for five cot scales in the ambulance operations capital outlay budget for this purchase.

ATTACHMENTS

BILLS FOR APPROVAL SUMMARY
9.8.23

Computer Bill Lists

Regular Bills 8/4/23		\$	1,539,619.17
Payroll Vendor Checks 8/16/23			41,362.29
Payroll Vendor Checks 8/30/23			17,400.12
Payroll Vendor Checks 8/31/23			150.00
Payroll Vendor ACH Payments 8/16/23			95,400.34
Payroll Vendor ACH Payments 8/30/23			96,249.08
Special Checks 8/22/23			9,729.69
Special Checks 8/25/23			14,962.53
	Subtotal	\$	1,814,873.22

ACH Debit Memo Payments

Wellmark Insurance	Health/Dental Insurance Aug	\$	79,000.00
Wellmark Insurance	Health/Dental Insurance Aug		79,000.00
Wellmark Insurance	Health/Dental Insurance Sept		79,000.00
Treasurer State of Iowa	State Tax Withholding		29,839.32
Treasurer State of Iowa	State Tax Withholding		28,754.02
Payroll Account	Transfer		461,131.54
Payroll Account	Transfer		468,649.41
Internal Revenue Service	Federal Withholding		123,749.64
Internal Revenue Service	Federal Withholding		127,687.32
	Subtotal	\$	1,476,811.25

Voucher Program

Various Landlords	Actual Sept Rent	\$	(6,768.00)
		\$	(6,768.00)

Voids

Void Checks 8/22/23	Operating	\$	(7,629.69)
Void Checks 8/22/23	Elderly		(900.00)
Void Checks 8/22/23	Section 8		(1,200.00)
Void Checks 8/25/23	Operating		(14,962.53)
	Subtotal	\$	(24,692.22)

Total Expenditures	\$	3,260,224.25
---------------------------	-----------	---------------------

8/18/2023	PAYROLL CHECKS	AFA FLEX BILLING	5,049.50
8/18/2023	PAYROLL CHECKS	AFLAC	586.90
8/18/2023	PAYROLL CHECKS	ALLSTATE	27.04
8/18/2023	PAYROLL CHECKS	AMERICAN FIDELITY	3,100.27
8/18/2023	PAYROLL CHECKS	CITY OF MUSCATINE	30,795.30
8/18/2023	PAYROLL CHECKS	CLERK OF COURT	70.00
8/18/2023	PAYROLL CHECKS	STATE OF ILLINOIS	198.40
8/18/2023	PAYROLL CHECKS	UNITED WAY	77.00
8/18/2023	PAYROLL CHECKS	ATTN: REVENUE ADMIN	1,457.88
9/1/2023	PAYROLL CHECKS	AFA FLEX BILLING	5,049.50
9/1/2023	PAYROLL CHECKS	AFLAC	586.90
9/1/2023	PAYROLL CHECKS	ALLSTATE	27.04
9/1/2023	PAYROLL CHECKS	AMERICAN FIDELITY	2,960.03
9/1/2023	PAYROLL CHECKS	CITY OF MUSCATINE	8,053.06
9/1/2023	PAYROLL CHECKS	POLICE & FIRE INS	194.94
9/1/2023	PAYROLL CHECKS	POLK COUNTY SHERIFF	253.25
9/1/2023	PAYROLL CHECKS	STATE OF ILLINOIS	198.40
9/1/2023	PAYROLL CHECKS	UNITED WAY	77.00
9/1/2023	PAYROLL CHECKS	CLERK OF COURT	150.00
8/18/2023	ACH PAYROLL	MISSION SQUARE ICMA RETIRE	11,119.16
8/18/2023	ACH PAYROLL	MISSION SQUARE ICMA RC	1,364.53
8/18/2023	ACH PAYROLL	MUNICIPAL FIRE & POLICE RETIRE	77,741.65
8/18/2023	ACH PAYROLL	NATIONWIDE	5,175.00
9/1/2023	ACH PAYROLL	MISSION SQUARE ICMA RETIRE	11,544.16
9/1/2023	ACH PAYROLL	MISSION SQUARE ICMA RC	1,364.53
9/1/2023	ACH PAYROLL	MUNICIPAL FIRE & POLICE RETIRE	77,964.39
9/1/2023	ACH PAYROLL	NATIONWIDE	5,376.00
8/22/2023	SPECIAL CHECK	ON TARGET AMMUNITION	7,629.69
8/22/2023	SPECIAL CHECK	IOWA FINANCE AUTHORITY	900.00
8/22/2023	SPECIAL CHECK	IOWA FINANCE AUTHORITY	1,200.00
8/25/2023	SPECIAL CHECK	ENVISONWARE	14,962.53

Accounts Payable

Transactions by Account

User: SMeyer
 Printed: 09/05/2023 - 2:44PM
 Batch: 00007.08.2023



City of
MUSCATINE
 City Hall
 215 Sycamore St
 Muscatine, Iowa 52761
www.muscatineiowa.gov
 (563) 264-1550

Account Number	Vendor	Description	GL Date	Check No	Amount	PO No
1000-00-0000-23150	ILLINOIS DEPARTMENT OF REVEN PR Batch 00002.08.2023	State Income T	08/18/2023	0	83.54	
1000-00-0000-23150	ILLINOIS DEPARTMENT OF REVEN PR Batch 00001.08.2023	State Income T	08/04/2023	0	83.13	
	Vendor Subtotal:				166.67	
1000-00-0000-24400	ACCO UNLIMITED CORP	Probe	08/31/2023	0	426.00	
	Vendor Subtotal:				426.00	
1000-00-0000-24400	FREERS & SONS TREE SERVICE	Remove Ash - 129 Park Ave	08/31/2023	0	550.00	
	Vendor Subtotal:				550.00	
1000-00-0000-24400	SPRATT OIL SALES	Unleaded	08/31/2023	0	1,930.50	
	Vendor Subtotal:				1,930.50	
1000-00-0000-24400	STREICHER'S INC.	OC Projectile/CS Projectile	08/31/2023	0	4,253.42	
	Vendor Subtotal:				4,253.42	
1000-00-0000-24400	UNITED RENTALS (NORTH AMER)	Lift Repairs	08/31/2023	0	2,014.30	
	Vendor Subtotal:				2,014.30	
1000-00-0000-24400	SINCLAIR	Door Kit	08/31/2023	0	531.01	
	Vendor Subtotal:				531.01	

1000-00-0000-24400	GODDARD HEATING & COOLING	PSB Heater	08/31/2023	0	14,471.28
		Vendor Subtotal:			14,471.28
1000-00-0000-24400	HUB INTERNATIONAL	OPEB Actuarial Report	08/28/2023	0	5,075.00
		Vendor Subtotal:			5,075.00
1000-01-1121-61220	LAW OFFICES OF HOPKINS & HUBBARD	July Legal	08/28/2023	0	5,928.93
1000-01-1121-61220	LAW OFFICES OF HOPKINS & HUBBARD	July Legal	08/28/2023	0	225.00
1000-01-1121-61220	LAW OFFICES OF HOPKINS & HUBBARD	July Legal	08/28/2023	0	145.00
1000-01-1121-61220	LAW OFFICES OF HOPKINS & HUBBARD	July Legal	08/28/2023	0	395.00
1000-01-1121-61220	LAW OFFICES OF HOPKINS & HUBBARD	July Legal	08/28/2023	0	2,603.00
1000-01-1121-61220	LAW OFFICES OF HOPKINS & HUBBARD	July Legal	08/28/2023	0	2,407.50
1000-01-1121-61220	LAW OFFICES OF HOPKINS & HUBBARD	July Legal	08/28/2023	0	1,710.00
		Vendor Subtotal:			13,414.43
1000-01-1131-51100	QUILL CORPORATION	#AAG G470-00 - DayMinder Monthly Pl	08/31/2023	0	25.06 00025058
		Vendor Subtotal:			25.06
1000-01-1131-51100	OFFICE EXPRESS	#AAG 70-864-05 - Daily Planner 8 1/2 x	08/28/2023	0	21.77 00025074
		Vendor Subtotal:			21.77
1000-01-1131-51100	STOREY KENWORTHY / MATT PARSONS	#AAG PM12-28 - One Year Per Page 24	08/28/2023	0	10.50 00025061
1000-01-1131-51100	STOREY KENWORTHY / MATT PARSONS	#AAG 4-28 - One Month Per Page 20 x 3	08/28/2023	0	18.20 00025061
		Vendor Subtotal:			28.70
1000-01-1131-62310	XEROX CORPORATION	June Copies	06/30/2023	0	14.75
1000-01-1131-62310	XEROX CORPORATION	July Copies	08/31/2023	0	18.12
		Vendor Subtotal:			32.87
1000-01-1132-51100	OFFICE EXPRESS	#AAG PM1-28 One Month Per Page (HR	08/28/2023	0	7.18 00025074
		Vendor Subtotal:			7.18

1000-01-1132-51100	STOREY KENWORTHY / MATT PAR #AAG SK24-00 - 1 Month Per Page 22 x	08/28/2023	0	4.25 00025061
	Vendor Subtotal:			4.25
1000-01-1132-61220	LAW OFFICES OF HOPKINS & HUBBARD July Legal	08/28/2023	0	295.00
	Vendor Subtotal:			295.00
1000-01-1132-62310	XEROX CORPORATION June Copies	06/30/2023	0	4.21
1000-01-1132-62310	XEROX CORPORATION July Copies	08/31/2023	0	5.18
	Vendor Subtotal:			9.39
1000-05-1141-51100	QUILL CORPORATION #AAG G470-00 - DayMinder Monthly Pl	08/31/2023	0	12.53 00025058
	Vendor Subtotal:			12.53
1000-05-1141-51100	AMAZON.COM Pop Up Post-Its	08/28/2023	0	21.99
	Vendor Subtotal:			21.99
1000-05-1141-51100	STOREY KENWORTHY / MATT PAR #AAG PM12-28 - One Year Per Page 24	08/28/2023	0	10.50 00025061
	Vendor Subtotal:			10.50
1000-05-1141-63200	CEDAR STREET INVESTMENTS LLC September 2023	09/01/2023	0	300.00
	Vendor Subtotal:			300.00
1000-05-1141-65100	QUAD CITY TIMES & MUSC JOURN Minutes 8/10/23	08/28/2023	0	37.87
1000-05-1141-65100	QUAD CITY TIMES & MUSC JOURN Intent to Dispose City Property 619 Hope	08/31/2023	0	43.83
	Vendor Subtotal:			81.70
1000-05-1143-51100	QUILL CORPORATION #AAG PM3-28 - One Month Per Page 15	08/31/2023	0	13.96 00025058
1000-05-1143-51100	QUILL CORPORATION #AAG G470-00 - DayMinder Monthly Pl	08/31/2023	0	12.53 00025058
1000-05-1143-51100	QUILL CORPORATION #AAG G470-00 - DayMinder Monthly Pl	08/31/2023	0	12.53 00025058
1000-05-1143-51100	QUILL CORPORATION #AAG G470-00 - DayMinder Monthly Pl	08/31/2023	0	12.53 00025058

		Vendor Subtotal:			51.55
1000-05-1143-51100	STAPLES ADVANTAGE	Legal Size File Jackets 2"	08/28/2023	0	27.10 00025032
1000-05-1143-51100	STAPLES ADVANTAGE	0.9 Lead Refill	08/28/2023	0	0.77 00025032
		Vendor Subtotal:			27.87
1000-05-1143-51100	OFFICE EXPRESS	#AAG G400H-00 - Monthly Planner (Da	08/28/2023	0	14.88 00025074
		Vendor Subtotal:			14.88
1000-05-1143-62310	XEROX CORPORATION	July Copies	08/31/2023	0	46.58
1000-05-1143-62310	XEROX CORPORATION	July Copier	08/31/2023	0	118.55
1000-05-1143-62310	XEROX CORPORATION	July Copies	08/31/2023	0	51.64
1000-05-1143-62310	XEROX CORPORATION	June Copies	06/30/2023	0	37.94
		Vendor Subtotal:			254.71
1000-05-1145-63300	XEROX CORPORATION	July Copier	08/31/2023	0	166.47
1000-05-1145-63300	XEROX CORPORATION	June Copier	06/30/2023	0	166.47
		Vendor Subtotal:			332.94
1000-05-1145-69200	UNITED STATES POSTAL SERVICE	Postage for Machine	08/31/2023	0	6,000.00
		Vendor Subtotal:			6,000.00
1000-05-1146-52890	AMAZON.COM	Switch	08/31/2023	0	21.99
1000-05-1146-52890	AMAZON.COM	Adapter Cable	08/28/2023	0	8.99
1000-05-1146-52890	AMAZON.COM	Speakers	08/28/2023	0	8.67
1000-05-1146-52890	AMAZON.COM	Desktop Memory	08/28/2023	0	16.99
		Vendor Subtotal:			56.64
1000-05-1146-61340	WINSOR CONSULTING	ConnectWise	08/31/2023	0	693.00
		Vendor Subtotal:			693.00

1000-05-1146-65240	MUSCATINE POWER & WATER	July - August Machlink	08/28/2023	0	1,057.84
1000-05-1146-65240	MUSCATINE POWER & WATER	July Internet - PW	08/31/2023	0	387.00
		Vendor Subtotal:			1,444.84
1000-05-1146-65260	VERIZON WIRELESS	August Cell Phones	08/28/2023	0	40.01
		Vendor Subtotal:			40.01
1000-10-1221-51100	OFFICE EXPRESS	#AAG PM2-28 One Month Per Page 12 x	08/28/2023	0	9.58 00025074
1000-10-1221-51100	OFFICE EXPRESS	#AAG SD389-13 - Standard Diary Red, 6	08/28/2023	0	27.89 00025074
		Vendor Subtotal:			37.47
1000-10-1221-51100	STOREY KENWORTHY / MATT PAR	#AAG SK24-00 - 1 Month Per Page 22 x	08/28/2023	0	4.25 00025061
		Vendor Subtotal:			4.25
1000-10-1221-52885	ENVIRONMENTAL SERVICES, LLC	Temp Sanitation - National Night Out	08/28/2023	0	440.00
		Vendor Subtotal:			440.00
1000-10-1221-52885	MONTES JUMPERS	Bounce Houses for National Night Out	08/31/2023	0	740.00
		Vendor Subtotal:			740.00
1000-10-1221-52890	AVENUE SUBS	Food for Event	08/28/2023	0	157.50
		Vendor Subtotal:			157.50
1000-10-1221-52890	SYCAMORE PRINTING INC	Print Statement Posters for Community M	08/31/2023	0	194.98 00025156
		Vendor Subtotal:			194.98
1000-10-1221-61240	MUSCATINE COUNTY SHERIFF	Serve Notice	08/31/2023	0	9.00
		Vendor Subtotal:			9.00

1000-10-1221-61340	POINT & PAY	July CC Service Fee	08/31/2023	0	15.00
1000-10-1221-61340	POINT & PAY	July CC Fees	08/31/2023	0	107.16
Vendor Subtotal:					122.16
1000-10-1221-62310	XEROX CORPORATION	June Copies	06/30/2023	0	8.43
1000-10-1221-62310	XEROX CORPORATION	July Copies	08/31/2023	0	10.35
Vendor Subtotal:					18.78
1000-10-1221-62470	FREERS & SONS TREE SERVICE	1112 W 3rd St - Remove Nuisance Tree	08/31/2023	0	1,800.00 00025123
1000-10-1221-62470	FREERS & SONS TREE SERVICE	1119 Park Ave - Remove Nuisance Tree	08/31/2023	0	1,000.00 00024763
1000-10-1221-62470	FREERS & SONS TREE SERVICE	1119 Park Ave - Remove Nuisance Tree	08/31/2023	0	600.00 00025197
Vendor Subtotal:					3,400.00
1000-10-1221-62470	KELLOR & KELLOR LANDSCAPE	Nuisance Abatement - 1312 Oak St	08/31/2023	0	62.00
1000-10-1221-62470	KELLOR & KELLOR LANDSCAPE	Nuisance Abatement - 500 E 7th St	08/31/2023	0	117.60
1000-10-1221-62470	KELLOR & KELLOR LANDSCAPE	Nuisance Abatement - 110 Van Horne	08/31/2023	0	591.10
1000-10-1221-62470	KELLOR & KELLOR LANDSCAPE	Nuisance Abatement - 1711 Stewart Rd	08/31/2023	0	246.80
1000-10-1221-62470	KELLOR & KELLOR LANDSCAPE	Nuisance Abatement - 212 W 4th St	08/31/2023	0	58.80
1000-10-1221-62470	KELLOR & KELLOR LANDSCAPE	Nuisance Abatement - 710 Newell Ave	08/31/2023	0	143.90
1000-10-1221-62470	KELLOR & KELLOR LANDSCAPE	Nuisance Abatement - 1112 W 3rd St	08/31/2023	0	611.20
1000-10-1221-62470	KELLOR & KELLOR LANDSCAPE	Nuisance Abatement - 808 E 9th St	08/31/2023	0	143.90
1000-10-1221-62470	KELLOR & KELLOR LANDSCAPE	Nuisance Abatement - 912 E 9th St	08/31/2023	0	132.30
1000-10-1221-62470	KELLOR & KELLOR LANDSCAPE	Nuisance Abatement - 2014 Bryan Ave	08/31/2023	0	135.60
1000-10-1221-62470	KELLOR & KELLOR LANDSCAPE	Nuisance Abatement - 1119 Isett Ave	08/31/2023	0	91.40
1000-10-1221-62470	KELLOR & KELLOR LANDSCAPE	Nuisance Abatement - 316 W 11th St	08/31/2023	0	31.00
1000-10-1221-62470	KELLOR & KELLOR LANDSCAPE	Nuisance Abatement - 1416 Lincoln Blvc	08/31/2023	0	290.90
1000-10-1221-62470	KELLOR & KELLOR LANDSCAPE	Nuisance Abatement - 2003 Breese Ave	08/31/2023	0	60.40
1000-10-1221-62470	KELLOR & KELLOR LANDSCAPE	Nuisance Abatement - 1815 Schley Ave	08/31/2023	0	101.40
1000-10-1221-62470	KELLOR & KELLOR LANDSCAPE	Nuisance Abatement - 1114 Nebraska St	08/31/2023	0	60.40
1000-10-1221-62470	KELLOR & KELLOR LANDSCAPE	Nuisance Abatement - 1216 E 2nd St	08/31/2023	0	58.80
1000-10-1221-62470	KELLOR & KELLOR LANDSCAPE	Nuisance Abatement - 1503 Lucas St	08/31/2023	0	89.80
1000-10-1221-62470	KELLOR & KELLOR LANDSCAPE	Nuisance Abatement - 615 Mulberry Ave	08/31/2023	0	60.40
1000-10-1221-62470	KELLOR & KELLOR LANDSCAPE	Nuisance Abatement - 713 Mulberry Ave	08/31/2023	0	29.40
1000-10-1221-62470	KELLOR & KELLOR LANDSCAPE	Nuisance Abatement - 112 Roscoe Ave	08/31/2023	0	31.00
Vendor Subtotal:					3,148.10
1000-10-1221-65275	VERIZON	June GPS Charges	06/30/2023	0	69.80

			Vendor Subtotal:		69.80
1000-10-1221-69860	MUSCATINE COUNTY TREASURER Property Tax		08/28/2023	0	18.00
			Vendor Subtotal:		18.00
1000-15-1311-51100	QUILL CORPORATION	#AAG PM3-28 - One Month Per Page 15	08/31/2023	0	27.92 00025058
			Vendor Subtotal:		27.92
1000-15-1311-51100	OFFICE EXPRESS	#AAG PM2-28 One Month Per Page 12 x	08/28/2023	0	38.32 00025074
			Vendor Subtotal:		38.32
1000-15-1311-51100	STOREY KENWORTHY / MATT PAR #AAG SK24-00 - 1 Month Per Page 22 x		08/28/2023	0	29.75 00025061
1000-15-1311-51100	STOREY KENWORTHY / MATT PAR #AAG 4-28 - One Month Per Page 20 x 3		08/28/2023	0	18.20 00025061
			Vendor Subtotal:		47.95
1000-15-1311-52300	PANTHER UNIFORMS INC	New Issue - Muellen	08/31/2023	0	19.50
1000-15-1311-52300	PANTHER UNIFORMS INC	New Issue Vests - Nardini/Orbaker	08/31/2023	0	1,998.00
			Vendor Subtotal:		2,017.50
1000-15-1311-52890	MENARDS (MUSC)	Powerade/Water	08/31/2023	0	84.26
1000-15-1311-52890	MENARDS (MUSC)	Hook/Utility Knife/Pliers	08/31/2023	0	22.96
			Vendor Subtotal:		107.22
1000-15-1311-61340	WEST PUBLISHING CORPORATION Clear Web Plus		08/31/2023	0	469.97
			Vendor Subtotal:		469.97
1000-15-1311-61520	UNITY HEALTHCARE	Pre-Employment Physcial - N Nardini	08/28/2023	0	1,416.68
			Vendor Subtotal:		1,416.68

1000-15-1311-62310	XEROX CORPORATION	July Copies	08/31/2023	0	5.18
1000-15-1311-62310	XEROX CORPORATION	June Copies	06/30/2023	0	4.21
Vendor Subtotal:					9.39
1000-15-1311-62410	TEMP ASSOCIATES	Temp Employee Week Ending 7/23/23	08/31/2023	0	810.80
1000-15-1311-62410	TEMP ASSOCIATES	Temp Employee Week Ending 7/30/23	08/31/2023	0	810.80
1000-15-1311-62410	TEMP ASSOCIATES	Temp Employee Week Ending 8/6/23	08/31/2023	0	810.80
1000-15-1311-62410	TEMP ASSOCIATES	Temp Employee Week Ending 8/20/23	08/31/2023	0	324.32
Vendor Subtotal:					2,756.72
1000-15-1311-64120	TODD KOCH	Reimb Meals 8/15/23 - 8/16/23	08/31/2023	0	23.55
Vendor Subtotal:					23.55
1000-15-1311-64120	CASEY JENSEN	Reimb Meals 8/21/23 - 8/22/23	08/31/2023	0	70.56
Vendor Subtotal:					70.56
1000-15-1311-64120	NICOLE SINK	Reimb Meals 7/31/23 - 8/1/23	08/31/2023	0	36.46
1000-15-1311-64120	NICOLE SINK	Reimb Meals 8/21/23 - 8/22/23	08/31/2023	0	64.20
Vendor Subtotal:					100.66
1000-15-1311-64200	EASTERN IOWA COMMUNITY COLLEGE	CPR Training	08/31/2023	0	54.00
Vendor Subtotal:					54.00
1000-15-1311-64200	CALIBRE PRESS	Registration Jensen/Sink	08/31/2023	0	990.00
Vendor Subtotal:					990.00
1000-15-1311-64400	JUSTIN ORBAKER	2nd Half of Meal Stipend CRPD Academy	08/28/2023	0	480.00
Vendor Subtotal:					480.00
1000-15-1311-64400	NATHAN NARDINI	2nd Half Meal Stipend for CRPD Academy	08/28/2023	0	480.00

			Vendor Subtotal:		480.00
1000-15-1311-65210	MUSCATINE POWER & WATER	July Phones - PSB	08/31/2023	0	43.99
			Vendor Subtotal:		43.99
1000-15-1311-67140	A-1 QUALITY TIRE & CAR CARE	Tire Repair	08/31/2023	0	29.07
1000-15-1311-67140	A-1 QUALITY TIRE & CAR CARE	Tire Repair	08/31/2023	0	47.00
			Vendor Subtotal:		76.07
1000-15-1311-67320	ADVANCED BUSINESS SYSTEMS INC	Copier Maintenance	08/31/2023	0	63.91
			Vendor Subtotal:		63.91
1000-15-1312-61530	MUSCATINE VETERINARY HOSPITAL	Euthanasia	08/31/2023	0	317.58
			Vendor Subtotal:		317.58
1000-15-1312-61650	PETDATA, INC	Start-Up Fee for Animal Licensing Service	08/31/2023	0	1,000.00
			Vendor Subtotal:		1,000.00
1000-15-1312-68100	MUSCATINE HUMANE SOCIETY	September 2023 Subsidy	09/01/2023	0	7,500.00
			Vendor Subtotal:		7,500.00
1000-15-1316-61530	MUSCATINE VETERINARY HOSPITAL	Vet Services - Dexter	08/31/2023	0	144.50
1000-15-1316-61530	MUSCATINE VETERINARY HOSPITAL	Vet Services - Dino	08/31/2023	0	95.89
			Vendor Subtotal:		240.39
1000-15-1316-61530	MITCHELL GRIFFIN	Boarding Dino	08/31/2023	0	236.25
			Vendor Subtotal:		236.25
1000-15-1317-65260	VERIZON WIRELESS	July Phones - HIDTA	08/31/2023	0	168.19

1000-15-1317-65260	VERIZON WIRELESS	March Phones	06/30/2023	0	168.19
Vendor Subtotal:					336.38
1000-20-1321-51100	OFFICE EXPRESS	#AAG 70-864-05 - Daily Planner 8 1/2 x	08/28/2023	0	21.77 00025074
1000-20-1321-51100	OFFICE EXPRESS	#AAG G400H-00 - Monthly Planner (Jer	08/28/2023	0	14.88 00025074
1000-20-1321-51100	OFFICE EXPRESS	#HOD5226 - Daily Planner 8 1/2 x 11 (Fi	08/28/2023	0	14.98 00025074
Vendor Subtotal:					51.63
1000-20-1321-52300	BERLINS PRO SHOP	T-Shirts - Hendrix/Dewey	08/28/2023	0	82.20
Vendor Subtotal:					82.20
1000-20-1321-52300	PANTHER UNIFORMS INC	Embroider Logo	08/28/2023	0	16.00 00025204
1000-20-1321-52300	PANTHER UNIFORMS INC	Waist In/Out on Pant	08/28/2023	0	10.00 00025204
1000-20-1321-52300	PANTHER UNIFORMS INC	#3730 Job Shirt Navy L/R	08/28/2023	0	137.90 00025204
1000-20-1321-52300	PANTHER UNIFORMS INC	E2804R Pant Navy 38/65/35	08/28/2023	0	58.95 00025204
1000-20-1321-52300	PANTHER UNIFORMS INC	Embroider Names on Garment	08/28/2023	0	8.00 00025204
1000-20-1321-52300	PANTHER UNIFORMS INC	EMS Pant Navy 38x30 Tac Lite - Unifor	08/28/2023	0	139.98 00025204
1000-20-1321-52300	PANTHER UNIFORMS INC	Embroider Logo	08/28/2023	0	16.00 00025205
1000-20-1321-52300	PANTHER UNIFORMS INC	P824 LS Shirt Navy 16.5-35	08/28/2023	0	57.95 00025205
1000-20-1321-52300	PANTHER UNIFORMS INC	EMS Pant Navy 34x34 Tac Lite - Unifor	08/28/2023	0	139.98 00025205
1000-20-1321-52300	PANTHER UNIFORMS INC	#3730 Job Shirt Navy L/R	08/28/2023	0	137.90 00025205
1000-20-1321-52300	PANTHER UNIFORMS INC	E2804R Pant Navy 33/65/35	08/28/2023	0	58.95 00025205
1000-20-1321-52300	PANTHER UNIFORMS INC	Sew Emblem Shirt	08/28/2023	0	2.50 00025205
1000-20-1321-52300	PANTHER UNIFORMS INC	Embroider Names on Garment	08/28/2023	0	8.00 00025205
Vendor Subtotal:					792.11
1000-20-1321-52300	AMAZON.COM	Mourning Badge Stripe	08/28/2023	0	41.93
Vendor Subtotal:					41.93
1000-20-1321-52600	BEN BARRETT	Reimb Water	08/28/2023	0	7.49
Vendor Subtotal:					7.49
1000-20-1321-52750	MENARDS (MUSC)	LP Tank Exchange	08/28/2023	0	19.92

		Vendor Subtotal:			19.92
1000-20-1321-52830	MENARDS (MUSC)	Pliers/Flashlight/Hex Key Set	08/31/2023	0	47.96
		Vendor Subtotal:			47.96
1000-20-1321-52830	AMAZON.COM	Volt Tester	08/28/2023	0	49.97
		Vendor Subtotal:			49.97
1000-20-1321-52890	MENARDS (MUSC)	Tote	08/28/2023	0	28.77
		Vendor Subtotal:			28.77
1000-20-1321-52890	MY-LOR INC.	ID Tags	08/28/2023	0	130.58
		Vendor Subtotal:			130.58
1000-20-1321-52890	AMAZON.COM	Komery Video Camera Camcorder - UHI	08/28/2023	0	204.00 00025151
1000-20-1321-52890	AMAZON.COM	Duracell Procell AA - 144ct	08/28/2023	0	68.89 00025191
1000-20-1321-52890	AMAZON.COM	Energizer Industrial AAA - 144ct	08/28/2023	0	66.99 00025191
1000-20-1321-52890	AMAZON.COM	Duracell Procell 9V - 12ct	08/28/2023	0	25.99 00025191
1000-20-1321-52890	AMAZON.COM	Glue Sticks	08/28/2023	0	16.11
1000-20-1321-52890	AMAZON.COM	Return	08/28/2023	0	-204.00
1000-20-1321-52890	AMAZON.COM	Helmet Camera	08/28/2023	0	37.99
1000-20-1321-52890	AMAZON.COM	Phone Case	08/28/2023	0	35.04
1000-20-1321-52890	AMAZON.COM	Battery	08/28/2023	0	17.90
		Vendor Subtotal:			268.91
1000-20-1321-53220	ARNOLD MOTOR SUPPLY	Wipers	08/28/2023	0	23.98
		Vendor Subtotal:			23.98
1000-20-1321-53220	REEVES BATTERY SALES	Battery for Mule #350	08/28/2023	0	120.00 00025280
		Vendor Subtotal:			120.00

1000-20-1321-53220	RELIANT FIRE APPARATUS	#3386621 Door handle - cab interior - En	08/28/2023	0	276.21 00025152
1000-20-1321-53220	RELIANT FIRE APPARATUS	#3466015 Kit - Cable upgrade RR Cab D	08/28/2023	0	287.32 00025152
Vendor Subtotal:					563.53
1000-20-1321-61520	EQUIAN LLC	Medical Fee - M Fleming DOS 6/8/23	08/28/2023	0	2,475.24
1000-20-1321-61520	EQUIAN LLC	Medical Fee - M Fleming DOS 6/8/23	08/28/2023	0	1,086.13
1000-20-1321-61520	EQUIAN LLC	Medical Fee - M Fleming DOS 6/8/23	08/28/2023	0	208.25
1000-20-1321-61520	EQUIAN LLC	Medical Fee - M Fleming DOS 6/8/23	08/28/2023	0	597.55
1000-20-1321-61520	EQUIAN LLC	Medical Fee - M Fleming DOS 6/8/23	08/28/2023	0	16.53
1000-20-1321-61520	EQUIAN LLC	Medical Fee - M Fleming DOS 3/8/23	08/28/2023	0	45.34
Vendor Subtotal:					4,429.04
1000-20-1321-61520	ORA ORTHOPEDICS PC	Medical M Fleming DOS 3/8/23 Code: L	08/28/2023	0	1,027.65
1000-20-1321-61520	ORA ORTHOPEDICS PC	Medical M Fleming DOS 6/8/23 Code: L	08/31/2023	0	921.87
1000-20-1321-61520	ORA ORTHOPEDICS PC	Medical M Fleming DOS 6/8/23 Code: 2'	08/28/2023	0	704.50
1000-20-1321-61520	ORA ORTHOPEDICS PC	Medical M Fleming DOS 6/8/23 Code: L	08/28/2023	0	921.87
1000-20-1321-61520	ORA ORTHOPEDICS PC	Medical M Fleming DOS 6/8/23 Code: 2'	08/28/2023	0	1,298.00
Vendor Subtotal:					4,873.89
1000-20-1321-61520	UNITY HEALTHCARE	Medical J Wieland DOS 10/4/22	08/28/2023	0	253.30
1000-20-1321-61520	UNITY HEALTHCARE	Pre-Employment Physcial - C Christianse	08/31/2023	0	1,416.68
Vendor Subtotal:					1,669.98
1000-20-1321-61520	ANESTHESIA & ANALGESIA PC	Medical M Fleming DOS 6/8/23 Code: 0	08/31/2023	0	1,105.00
1000-20-1321-61520	ANESTHESIA & ANALGESIA PC	Medical M Fleming DOS 6/8/23 Code: 6'	08/31/2023	0	204.80
Vendor Subtotal:					1,309.80
1000-20-1321-61520	CROW VALLEY SURGERY CENTER	Medical M Fleming DOS 6/8/23 Code: 2'	08/31/2023	0	4,173.00
1000-20-1321-61520	CROW VALLEY SURGERY CENTER	Medical M Fleming DOS 6/8/23 Code: 2'	08/31/2023	0	937.25
1000-20-1321-61520	CROW VALLEY SURGERY CENTER	Medical M Fleming DOS 6/8/23 Code: 6'	08/31/2023	0	154.60
1000-20-1321-61520	CROW VALLEY SURGERY CENTER	Medical M Fleming DOS 6/8/23 Code: C	08/31/2023	0	3,602.57
1000-20-1321-61520	CROW VALLEY SURGERY CENTER	Medical M Fleming DOS 6/8/23 Code: 6'	08/31/2023	0	146.00
Vendor Subtotal:					9,013.42

1000-20-1321-61560	TMESYS LLC	Prescriptions - J Barnhart	08/28/2023	0	338.29
1000-20-1321-61560	TMESYS LLC	Prescriptions - J Barnhart	08/28/2023	0	71.78
1000-20-1321-61560	TMESYS LLC	Prescriptions - J Barnhart	08/28/2023	0	280.97
1000-20-1321-61560	TMESYS LLC	Prescriptions - J Barnhart	08/28/2023	0	34.99
1000-20-1321-61560	TMESYS LLC	Prescriptions - J Barnhart	08/28/2023	0	111.53
1000-20-1321-61560	TMESYS LLC	Prescriptions - J Barnhart	08/28/2023	0	9.07
1000-20-1321-61560	TMESYS LLC	Prescriptions - J Barnhart	08/28/2023	0	642.26
1000-20-1321-61560	TMESYS LLC	Prescriptions - J Barnhart	08/28/2023	0	642.26
1000-20-1321-61560	TMESYS LLC	Prescriptions - J Barnhart	08/31/2023	0	209.34
1000-20-1321-61560	TMESYS LLC	Prescriptions - J Barnhart	08/31/2023	0	49.89
1000-20-1321-61560	TMESYS LLC	Prescriptions - J Barnhart	08/31/2023	0	98.31
Vendor Subtotal:					2,488.69
1000-20-1321-62210	PHELPS THE UNIFORM SPECIALIST	Laundry - Fire	08/28/2023	0	28.97
Vendor Subtotal:					28.97
1000-20-1321-62310	XEROX CORPORATION	June Copies	06/30/2023	0	8.43
1000-20-1321-62310	XEROX CORPORATION	July Copies	08/31/2023	0	10.35
Vendor Subtotal:					18.78
1000-20-1321-65240	MUSCATINE POWER & WATER	July Phones - PSB	08/31/2023	0	39.98
Vendor Subtotal:					39.98
1000-20-1321-67130	CURRY'S RD TRUCK & TRAILER RE	Routine Service on Engine #313 - Change	08/31/2023	0	833.14 00025261
Vendor Subtotal:					833.14
1000-20-1321-67320	MIDWEST BREATHING AIR LLC	Repairs	08/28/2023	0	104.74
Vendor Subtotal:					104.74
1000-20-1321-69200	PACK-N-SHIP	Shipping	08/31/2023	0	12.48
Vendor Subtotal:					12.48
1000-25-1115-61550	ARMOR UP AMERICA	July EAP	08/31/2023	0	318.50

			Vendor Subtotal:		318.50
1000-25-1411-51100	STOREY KENWORTHY / MATT PAR #AAG PM12-28 - One Year Per Page 24		08/28/2023	0	10.50 00025061
			Vendor Subtotal:		10.50
1000-25-1411-52740	MENARDS (MUSC)	Oil	08/31/2023	0	13.95
			Vendor Subtotal:		13.95
1000-25-1411-52740	PHILLIPS BROS RENTALS INC	Lubricant	08/28/2023	0	31.98
			Vendor Subtotal:		31.98
1000-25-1411-52830	MENARDS (MUSC)	Wrench Set	08/31/2023	0	89.99
			Vendor Subtotal:		89.99
1000-25-1411-53220	MUSCATINE LAWN & POWER	Filter	08/31/2023	0	26.60 00025259
1000-25-1411-53220	MUSCATINE LAWN & POWER	607751 Kit	08/31/2023	0	151.46 00025259
1000-25-1411-53220	MUSCATINE LAWN & POWER	Pulley	08/31/2023	0	39.99
1000-25-1411-53220	MUSCATINE LAWN & POWER	Belt for Toro	08/31/2023	0	150.99 00025115
1000-25-1411-53220	MUSCATINE LAWN & POWER	Blades	08/31/2023	0	75.98
1000-25-1411-53220	MUSCATINE LAWN & POWER	Blades	08/31/2023	0	75.98
			Vendor Subtotal:		521.00
1000-25-1411-53220	SINCLAIR	Blades	08/28/2023	0	22.35
			Vendor Subtotal:		22.35
1000-25-1411-61660	LAJEK PEST CONTROL SOLUTIONS	Pest Control	08/28/2023	0	80.00
			Vendor Subtotal:		80.00
1000-25-1411-61660	IOWA MEMORIAL GRANITE COMP	May 2023 Admin Fee	06/30/2023	0	610.00

			Vendor Subtotal:		610.00
1000-25-1411-62210	PHELPS THE UNIFORM SPECIALIST Laundry - Greenwood		08/28/2023	0	12.60
			Vendor Subtotal:		12.60
1000-25-1411-65310	ALLIANT ENERGY	July Gas - Greenwood	08/28/2023	0	34.65
1000-25-1411-65310	ALLIANT ENERGY	July Gas - Greenwood	08/31/2023	0	42.98
			Vendor Subtotal:		77.63
1000-25-1421-51100	IOWAY-RECORD PRINTING CO INC Deer Hunt Cards		08/28/2023	0	35.00
			Vendor Subtotal:		35.00
1000-25-1421-51100	STOREY KENWORTHY / MATT PAR #AAG PM12-28 - One Year Per Page 24		08/28/2023	0	21.00 00025061
			Vendor Subtotal:		21.00
1000-25-1421-62310	XEROX CORPORATION	July Copies	08/31/2023	0	5.18
1000-25-1421-62310	XEROX CORPORATION	June Copies	06/30/2023	0	4.21
			Vendor Subtotal:		9.39
1000-25-1421-65210	MUSCATINE POWER & WATER	July Base PRI	08/28/2023	0	72.02
			Vendor Subtotal:		72.02
1000-25-1422-38620	VERONICA BERASTAIN	Refund	08/31/2023	0	100.00
			Vendor Subtotal:		100.00
1000-25-1422-38620	DESTINY WISHAM	Refund	08/31/2023	0	125.00
			Vendor Subtotal:		125.00
1000-25-1422-38620	KATHY MILLER	Refund	08/31/2023	0	125.00

		Vendor Subtotal:			125.00
1000-25-1423-51100	MARK A DIERCKS	Duplicate Keys	08/31/2023	0	8.00
1000-25-1423-51100	MARK A DIERCKS	Duplicate Keys	08/31/2023	0	16.00
		Vendor Subtotal:			24.00
1000-25-1423-51100	STOREY KENWORTHY / MATT PAR #AAG PM12-28 - One Year Per Page 24		08/28/2023	0	21.00 00025061
		Vendor Subtotal:			21.00
1000-25-1423-52250	VAN DIEST SUPPLY COMPANY	Gllons Aquaneat	08/31/2023	0	1,372.00 00024798
		Vendor Subtotal:			1,372.00
1000-25-1423-52300	PHELPS CUSTOM IMAGE WEAR	Uniforms - M Baker	08/31/2023	0	118.10
		Vendor Subtotal:			118.10
1000-25-1423-52400	MENARDS (MUSC)	Goop Cleaner/Plates	08/31/2023	0	26.47
		Vendor Subtotal:			26.47
1000-25-1423-52740	SMITH SALES & SERVICE	Oil	08/31/2023	0	86.00
		Vendor Subtotal:			86.00
1000-25-1423-52750	S.J. SMITH CO.	Acetylene	08/31/2023	0	115.41 00025062
		Vendor Subtotal:			115.41
1000-25-1423-52830	MENARDS (MUSC)	Torq Wrench	08/31/2023	0	21.99
		Vendor Subtotal:			21.99
1000-25-1423-52840	MENARDS (MUSC)	Distilled Water	08/31/2023	0	7.32

			Vendor Subtotal:		7.32
1000-25-1423-52860	IOWA PRISON INDUSTRIES	Signs	08/31/2023	0	37.00
			Vendor Subtotal:		37.00
1000-25-1423-52890	MENARDS (MUSC)	Barb	08/31/2023	0	4.65
1000-25-1423-52890	MENARDS (MUSC)	Gloves/Waste Basket	08/31/2023	0	84.89
			Vendor Subtotal:		89.54
1000-25-1423-53120	PEET BROS	Anemometer Kit	08/31/2023	0	128.50
			Vendor Subtotal:		128.50
1000-25-1423-53130	MENARDS (MUSC)	4x8 Sheet HDPE Plastic	08/31/2023	0	199.99 00025216
1000-25-1423-53130	MENARDS (MUSC)	Coupler/Cover/Nipple/Conduit	08/31/2023	0	40.43
			Vendor Subtotal:		240.42
1000-25-1423-53130	PLUMB SUPPLY COMPANY	Breaker	08/31/2023	0	37.13
1000-25-1423-53130	PLUMB SUPPLY COMPANY	Run Cap	08/31/2023	0	10.15
			Vendor Subtotal:		47.28
1000-25-1423-53220	ARNOLD MOTOR SUPPLY	Copper Plug	08/31/2023	0	9.64
			Vendor Subtotal:		9.64
1000-25-1423-53220	MILLS MARINE	Impeller/Gasket	08/28/2023	0	59.98
			Vendor Subtotal:		59.98
1000-25-1423-53220	MUSCATINE LAWN & POWER	Blades	08/31/2023	0	45.98
1000-25-1423-53220	MUSCATINE LAWN & POWER	140-1246 Toro 96"	08/31/2023	0	303.92 00025267
1000-25-1423-53220	MUSCATINE LAWN & POWER	602771 Hustler 60" Blades	08/31/2023	0	99.00 00025307
1000-25-1423-53220	MUSCATINE LAWN & POWER	602857 Hustler 72" Blades	08/31/2023	0	108.24 00025307

			Vendor Subtotal:		557.14
1000-25-1423-53220	NAPA OF MUSCATINE	Filter	08/31/2023	0	6.36
			Vendor Subtotal:		6.36
1000-25-1423-53220	PHILLIPS BROS RENTALS INC	Chains	08/28/2023	0	53.98
			Vendor Subtotal:		53.98
1000-25-1423-62210	PHELPS THE UNIFORM SPECIALIST	Laundry - Weed Park	08/31/2023	0	9.10
1000-25-1423-62210	PHELPS THE UNIFORM SPECIALIST	Laundry - Weed Park	08/28/2023	0	9.10
1000-25-1423-62210	PHELPS THE UNIFORM SPECIALIST	Laundry - Weed Park	08/31/2023	0	9.10
			Vendor Subtotal:		27.30
1000-25-1423-62250	LAJEK PEST CONTROL SOLUTIONS	Pest Control	08/28/2023	0	80.00
			Vendor Subtotal:		80.00
1000-25-1423-62260	PS3 Enterprises Inc.	Temp Sanitation	08/31/2023	0	95.00
			Vendor Subtotal:		95.00
1000-25-1423-62530	PHILLIPS BROS RENTALS INC	Chain	08/31/2023	0	50.00
			Vendor Subtotal:		50.00
1000-25-1423-65210	CENTURYLINK	August Phones - River Center	08/28/2023	0	62.87
1000-25-1423-65210	CENTURYLINK	August Phones - Marina	08/28/2023	0	63.00
			Vendor Subtotal:		125.87
1000-25-1423-65320	MUSCATINE POWER & WATER	July Electric - Musser	08/28/2023	0	35.94
1000-25-1423-65320	MUSCATINE POWER & WATER	July Electric - River Center	08/31/2023	0	169.88
1000-25-1423-65320	MUSCATINE POWER & WATER	July Electric - Maint Shed	08/31/2023	0	39.11
1000-25-1423-65320	MUSCATINE POWER & WATER	July Electric - Commission	08/28/2023	0	17.97
1000-25-1423-65320	MUSCATINE POWER & WATER	July Electric - Levee	08/31/2023	0	35.94

			Vendor Subtotal:		298.84
1000-25-1423-65410	MUSCATINE POWER & WATER	July Water - River Center	08/31/2023	0	28.68
1000-25-1423-65410	MUSCATINE POWER & WATER	July Water - Maint Shed	08/31/2023	0	8.90
			Vendor Subtotal:		37.58
1000-25-1423-67130	UNITED RENTALS (NORTH AMER)	1 Lift Repairs	08/31/2023	0	291.17
			Vendor Subtotal:		291.17
1000-25-1423-67200	GODDARD HEATING & COOLING	Diagnostic for AC in Maintenance Shop	08/31/2023	0	245.00 00025265
			Vendor Subtotal:		245.00
1000-25-1423-67320	TAILWATER MARINE	Boat Engine Diagnostics	08/31/2023	0	100.00 00025256
1000-25-1423-67320	TAILWATER MARINE	Boat Engine Repair	08/31/2023	0	150.00 00025291
			Vendor Subtotal:		250.00
1000-25-1424-51100	STOREY KENWORTHY / MATT PAR #AAG	PM12-28 - One Year Per Page 24	08/28/2023	0	10.50 00025061
			Vendor Subtotal:		10.50
1000-25-1424-52250	D & K PRODUCTS	Trin Pac 11.3% 1 Gallon	08/31/2023	0	184.80 00025047
			Vendor Subtotal:		184.80
1000-25-1424-52720	SPRATT OIL SALES	Regular Unleaded	08/31/2023	0	343.65 00025220
			Vendor Subtotal:		343.65
1000-25-1424-52730	SPRATT OIL SALES	Red-Dye Diesel	08/31/2023	0	720.00 00025220
1000-25-1424-52730	SPRATT OIL SALES	Red-Dye Diesel	08/31/2023	0	79.20
			Vendor Subtotal:		799.20

1000-25-1424-52830	MENARDS (MUSC)	Squeegee/Broom	08/31/2023	0	86.77
1000-25-1424-52830	MENARDS (MUSC)	Step Ladder	08/31/2023	0	79.97
Vendor Subtotal:					166.74
1000-25-1424-53120	MENARDS (MUSC)	Lampholder/Wire/Staples	08/31/2023	0	61.91
Vendor Subtotal:					61.91
1000-25-1424-53130	PLUMB SUPPLY COMPANY	Couplers	08/28/2023	0	18.36
Vendor Subtotal:					18.36
1000-25-1424-53140	MENARDS (MUSC)	5 Gallon Pails - Zinner Primer Seal Coat	08/28/2023	0	471.00 00025096
Vendor Subtotal:					471.00
1000-25-1424-53140	MENARDS (DAVENPORT)	5 Gallon Pals- Zinner Primer Seal Coat	08/31/2023	0	471.00 00025146
Vendor Subtotal:					471.00
1000-25-1424-53210	ARNOLD MOTOR SUPPLY	Filters	08/31/2023	0	94.25
1000-25-1424-53210	ARNOLD MOTOR SUPPLY	Filters	08/31/2023	0	46.74
Vendor Subtotal:					140.99
1000-25-1424-53210	MUSCATINE LAWN & POWER	5103671 Belt	08/31/2023	0	129.99 00025230
Vendor Subtotal:					129.99
1000-25-1424-53220	ARNOLD MOTOR SUPPLY	Fittings	08/28/2023	0	17.52
1000-25-1424-53220	ARNOLD MOTOR SUPPLY	Fittings	08/28/2023	0	7.55
1000-25-1424-53220	ARNOLD MOTOR SUPPLY	Return	08/28/2023	0	-12.17
Vendor Subtotal:					12.90
1000-25-1424-53220	MENARDS (MUSC)	Rosin Paper/Tubing/Hose Washers	08/31/2023	0	73.03
1000-25-1424-53220	MENARDS (MUSC)	Shipping	08/31/2023	0	7.70 00025030
1000-25-1424-53220	MENARDS (MUSC)	2614236-NP08 - Gear	08/31/2023	0	39.99 00025030

1000-25-1424-53220	MENARDS (MUSC)	2641236-NP13 - Wheels	08/31/2023	0	62.29 00025030
		Vendor Subtotal:			183.01
1000-25-1424-53220	MTI DISTRIBUTING INC	120-3366 Bearing	08/31/2023	0	101.20 00025140
1000-25-1424-53220	MTI DISTRIBUTING INC	108-4023 Shaft Carrier	08/31/2023	0	51.82 00025140
1000-25-1424-53220	MTI DISTRIBUTING INC	Shipping	08/31/2023	0	19.41 00025140
1000-25-1424-53220	MTI DISTRIBUTING INC	104-1093 Roller	08/31/2023	0	270.06 00025140
		Vendor Subtotal:			442.49
1000-25-1424-65210	CENTURYLINK	August Phones - Kent Stein	08/28/2023	0	71.24
1000-25-1424-65210	CENTURYLINK	August Phones - Kent Stein	08/28/2023	0	63.00
		Vendor Subtotal:			134.24
1000-25-1424-67140	A-1 QUALITY TIRE & CAR CARE	29x14x15 Tire	08/31/2023	0	353.50 00025185
		Vendor Subtotal:			353.50
1000-25-1426-53220	FASTENAL COMPANY	Hardware	08/28/2023	0	7.53
		Vendor Subtotal:			7.53
1000-25-1426-67140	A-1 QUALITY TIRE & CAR CARE	JD Tire Repair	08/31/2023	0	170.50 00025063
		Vendor Subtotal:			170.50
1000-25-1426-67150	SINCLAIR	Lock Kit	08/31/2023	0	84.41
1000-25-1426-67150	SINCLAIR	Chain Link P57925	08/31/2023	0	90.60 00025080
1000-25-1426-67150	SINCLAIR	Blade P57928	08/31/2023	0	218.60 00025080
		Vendor Subtotal:			393.61
1000-25-1427-51100	STOREY KENWORTHY / MATT PAR #AAG PM12-28 - One Year Per Page 24		08/28/2023	0	21.00 00025061
		Vendor Subtotal:			21.00
1000-25-1427-52100	D & K PRODUCTS	Fertilizier 24-4-12	08/31/2023	0	1,376.00 00025047

Vendor Subtotal:					1,376.00
1000-25-1427-52740	ARNOLD MOTOR SUPPLY	Oil	08/31/2023	0	15.98
1000-25-1427-52740	ARNOLD MOTOR SUPPLY	Gear Oil	08/28/2023	0	77.99
Vendor Subtotal:					93.97
1000-25-1427-52810	NEVCO SPORTS, LLC	Coax Ends	06/30/2023	0	88.31
Vendor Subtotal:					88.31
1000-25-1427-52890	ARNOLD MOTOR SUPPLY	Cut Off Wheel/Flap Disc	08/28/2023	0	54.88
Vendor Subtotal:					54.88
1000-25-1427-53130	SITEONE LANDSCAPE SUPPLY	Adjustable Rotor	08/28/2023	0	74.59
Vendor Subtotal:					74.59
1000-25-1427-53140	MENARDS (MUSC)	Drop Cloth/Blade/Hand Masker	08/31/2023	0	96.50
Vendor Subtotal:					96.50
1000-25-1427-53140	PIONEER ATHLETICS	5 gal - Bright Stripe Red	08/31/2023	0	1,295.25 00025048
1000-25-1427-53140	PIONEER ATHLETICS	5 gal - Bright Stripe Blue	08/31/2023	0	1,295.25 00025048
Vendor Subtotal:					2,590.50
1000-25-1427-53210	ARNOLD MOTOR SUPPLY	Filters	08/31/2023	0	64.92
1000-25-1427-53210	ARNOLD MOTOR SUPPLY	Filters	08/31/2023	0	14.99
1000-25-1427-53210	ARNOLD MOTOR SUPPLY	Filters	08/31/2023	0	10.33
1000-25-1427-53210	ARNOLD MOTOR SUPPLY	Filters	08/31/2023	0	46.74
Vendor Subtotal:					136.98
1000-25-1427-53210	MENARDS (MUSC)	Tablets/Filter	08/31/2023	0	10.98

			Vendor Subtotal:		10.98
1000-25-1427-53220	ARNOLD MOTOR SUPPLY	Fittings	08/31/2023	0	73.25
1000-25-1427-53220	ARNOLD MOTOR SUPPLY	Fittings	08/31/2023	0	14.17
1000-25-1427-53220	ARNOLD MOTOR SUPPLY	Return	08/31/2023	0	-23.34
1000-25-1427-53220	ARNOLD MOTOR SUPPLY	Battery - 12v High Perf	08/31/2023	0	134.38 00024952
			Vendor Subtotal:		198.46
1000-25-1427-53220	MENARDS (MUSC)	Battery/Union	08/31/2023	0	44.29
			Vendor Subtotal:		44.29
1000-25-1427-53220	MTI DISTRIBUTING INC	Right- Hand Axle End Assembly 106-114	08/31/2023	0	2,149.63 00025079
1000-25-1427-53220	MTI DISTRIBUTING INC	Right- Hand Axle End Assembly 106-114	08/31/2023	0	32.01
			Vendor Subtotal:		2,181.64
1000-25-1427-62210	PHELPS THE UNIFORM SPECIALIST	Laundry - Soccer	08/31/2023	0	22.94
1000-25-1427-62210	PHELPS THE UNIFORM SPECIALIST	Laundry - Soccer	08/28/2023	0	22.94
1000-25-1427-62210	PHELPS THE UNIFORM SPECIALIST	Laundry - Soccer	08/31/2023	0	22.94
			Vendor Subtotal:		68.82
1000-25-1427-65210	MUSCATINE POWER & WATER	July Phones - Soccer	08/28/2023	0	64.63
			Vendor Subtotal:		64.63
1000-25-1427-69860	MUSCATINE COUNTY TREASURER	Drainage Tax	08/28/2023	0	87.00
			Vendor Subtotal:		87.00
1000-25-1427-74200	MUSCATINE LAWN & POWER	Ferris Ride-on- Blower Model FB3000	08/31/2023	0	11,249.00 00025125
			Vendor Subtotal:		11,249.00
1000-25-1428-38620	EMILY ALLISON	Refund	08/31/2023	0	300.00

			Vendor Subtotal:		300.00
1000-25-1431-51100	STOREY KENWORTHY / MATT PAR #AAG PM12-28 - One Year Per Page 24		08/28/2023	0	10.50 00025061
			Vendor Subtotal:		10.50
1000-25-1431-62310	XEROX CORPORATION	July Copies	08/31/2023	0	5.18
1000-25-1431-62310	XEROX CORPORATION	June Copies	06/30/2023	0	4.21
			Vendor Subtotal:		9.39
1000-25-1432-36130	MEGAN RAY	Refund	08/31/2023	0	150.00
			Vendor Subtotal:		150.00
1000-25-1432-37220	FIRE FIGHTER'S ASSOC OF MUSC	Refund	08/31/2023	0	50.00
			Vendor Subtotal:		50.00
1000-25-1432-37220	RUSSELL SHELANGOSKI	Refund	08/31/2023	0	75.00
			Vendor Subtotal:		75.00
1000-25-1432-51100	STOREY KENWORTHY / MATT PAR #AAG PM12-28 - One Year Per Page 24		08/28/2023	0	10.50 00025061
			Vendor Subtotal:		10.50
1000-25-1432-52400	AMAZON.COM	Gloves	08/31/2023	0	24.13
			Vendor Subtotal:		24.13
1000-25-1432-53120	GRAINGER DEPT 802675066	Lens Cover with Clips	08/31/2023	0	105.77 00025138
			Vendor Subtotal:		105.77
1000-25-1432-53120	MENARDS (MUSC)	Nipple/Strap/Adapter	08/31/2023	0	29.02
1000-25-1432-53120	MENARDS (MUSC)	Ballast	08/28/2023	0	27.99

			Vendor Subtotal:		57.01
1000-25-1432-53130	MENARDS (MUSC)	Supplies	08/28/2023	0	13.32
			Vendor Subtotal:		13.32
1000-25-1432-62250	LAJEK PEST CONTROL SOLUTIONS	Pest Control	08/28/2023	0	50.00
			Vendor Subtotal:		50.00
1000-25-1432-67200	LAJEK PEST CONTROL SOLUTIONS	Pest Control	06/30/2023	0	50.00
			Vendor Subtotal:		50.00
1000-30-1511-51100	QUILL CORPORATION	#AAG G470-00 - DayMinder Monthly Pl	08/31/2023	0	100.24 00025058
			Vendor Subtotal:		100.24
1000-30-1511-51300	SOURCE NOW LLC	CF362A HP #508A Yellow Toner Cartric	08/31/2023	0	405.66 00025297
1000-30-1511-51300	SOURCE NOW LLC	CF363A HP #508A Magenta Toner Cartr	08/31/2023	0	202.83 00025297
1000-30-1511-51300	SOURCE NOW LLC	CF361A HP #508A Cyan Toner Cartridg	08/31/2023	0	202.83 00025297
			Vendor Subtotal:		811.32
1000-30-1511-61340	SCOTT COUNTY RIVERSHARE LIBR	Rivershare Membership	08/28/2023	0	19,204.00
			Vendor Subtotal:		19,204.00
1000-30-1511-62460	AMAZON.COM	Powered Clock	08/31/2023	0	71.91
1000-30-1511-62460	AMAZON.COM	Mixer Case	08/28/2023	0	59.99
1000-30-1511-62460	AMAZON.COM	Adult Book Club - How High We Go in t	08/31/2023	0	225.12
			Vendor Subtotal:		357.02
1000-30-1511-63300	XEROX CORPORATION	July Copier/Copies	08/31/2023	0	205.41
			Vendor Subtotal:		205.41

1000-30-1511-65210	MUSCATINE POWER & WATER	July Phones - Library	08/31/2023	0	205.53
		Vendor Subtotal:			205.53
1000-30-1511-65240	MUSCATINE POWER & WATER	July Machlink - Library	08/31/2023	0	570.00
		Vendor Subtotal:			570.00
1000-35-1521-51100	OFFICE EXPRESS	#AAG G400H-00 - Monthly Planner (Ly	08/28/2023	0	14.88 00025074
		Vendor Subtotal:			14.88
1000-40-1151-52300	PHELPS CUSTOM IMAGE WEAR	Uniforms - D Schrier	08/31/2023	0	75.30
		Vendor Subtotal:			75.30
1000-40-1151-52400	HOME DEPOT PRO INSTITUTIONAL	Cleaner/Spray Bottle	08/28/2023	0	269.76
1000-40-1151-52400	HOME DEPOT PRO INSTITUTIONAL	Supplies	08/31/2023	0	881.66 00024983
		Vendor Subtotal:			1,151.42
1000-40-1151-52400	MENARDS (MUSC)	CLR/Pine Cleaner	08/28/2023	0	89.61
1000-40-1151-52400	MENARDS (MUSC)	Pine Cleaner	08/28/2023	0	29.85
1000-40-1151-52400	MENARDS (MUSC)	Pine Cleaner/Dish Washer Soap	08/28/2023	0	38.42
1000-40-1151-52400	MENARDS (MUSC)	Windex	08/31/2023	0	23.98
		Vendor Subtotal:			181.86
1000-40-1151-52400	ALL FLAGS LLC	3' x 5' US Polyester Outdoor Flag	08/28/2023	0	996.59 00025158
1000-40-1151-52400	ALL FLAGS LLC	3' x 5' Iowa Nylon Outdoor Flag	08/28/2023	0	536.80 00025158
		Vendor Subtotal:			1,533.39
1000-40-1151-52830	MENARDS (MUSC)	Drill Bits	08/28/2023	0	32.46
		Vendor Subtotal:			32.46
1000-40-1151-52890	MENARDS (MUSC)	Caution Tape	08/28/2023	0	19.97

1000-40-1151-52890	MENARDS (MUSC)	Acid/Water Pad	08/31/2023	0	38.95
1000-40-1151-52890	MENARDS (MUSC)	Rod/Moth Balls	08/31/2023	0	27.65
Vendor Subtotal:					86.57
1000-40-1151-52890	AMAZON.COM	Employee Group Photo	08/31/2023	0	6.66
Vendor Subtotal:					6.66
1000-40-1151-53120	MENARDS (MUSC)	Flat Panel	08/28/2023	0	74.98
1000-40-1151-53120	MENARDS (MUSC)	Bulbs	08/31/2023	0	36.96
Vendor Subtotal:					111.94
1000-40-1151-53120	VAN METER INDUSTRIAL INC	Bulbs	08/31/2023	0	46.51
1000-40-1151-53120	VAN METER INDUSTRIAL INC	Bulbs	08/31/2023	0	51.01
1000-40-1151-53120	VAN METER INDUSTRIAL INC	Bulbs	08/31/2023	0	97.03
1000-40-1151-53120	VAN METER INDUSTRIAL INC	Fuses	08/28/2023	0	95.44
1000-40-1151-53120	VAN METER INDUSTRIAL INC	Fuses	08/31/2023	0	92.92
Vendor Subtotal:					382.91
1000-40-1151-53130	MENARDS (MUSC)	Faucet	08/28/2023	0	44.98
Vendor Subtotal:					44.98
1000-40-1151-53150	MENARDS (MUSC)	Filter	08/28/2023	0	39.96
Vendor Subtotal:					39.96
1000-40-1151-53150	SMITH FILTER CORPORATION	SEP 14202N 14x20x2 SEP Pleated Filter	08/31/2023	0	111.24 00025157
1000-40-1151-53150	SMITH FILTER CORPORATION	SEP 25251N 25x25x1 SEP Pleated Filter	08/31/2023	0	27.08 00025157
1000-40-1151-53150	SMITH FILTER CORPORATION	SEP 20202N 20x20x2 SEP Pleated Filter	08/31/2023	0	63.45 00025157
1000-40-1151-53150	SMITH FILTER CORPORATION	SEP 16202N 16x20x2 SEP Pleated Filter	08/31/2023	0	259.20 00025157
1000-40-1151-53150	SMITH FILTER CORPORATION	Freight	08/31/2023	0	74.23
Vendor Subtotal:					535.20
1000-40-1151-65210	MUSCATINE POWER & WATER	July Phones - City Hall	08/28/2023	0	22.39
1000-40-1151-65210	MUSCATINE POWER & WATER	July Phones - City Hall Fax	08/28/2023	0	22.39

1000-40-1151-65210	MUSCATINE POWER & WATER	July Phones - City Hall	08/28/2023	0	60.67
1000-40-1151-65210	MUSCATINE POWER & WATER	July Base PRI	08/28/2023	0	185.19
1000-40-1151-65210	MUSCATINE POWER & WATER	July Phones - PW	08/31/2023	0	43.59
Vendor Subtotal:					334.23
1000-40-1151-65310	ALLIANT ENERGY	July Gas - Art Center	08/28/2023	0	670.69
1000-40-1151-65310	ALLIANT ENERGY	July Gas - Lot 8 Garage	08/28/2023	0	36.39
1000-40-1151-65310	ALLIANT ENERGY	July Gas - Art Center	08/28/2023	0	39.05
1000-40-1151-65310	ALLIANT ENERGY	August Gas - S Fire	08/31/2023	0	66.43
1000-40-1151-65310	ALLIANT ENERGY	July Gas - PSB	08/28/2023	0	73.22
1000-40-1151-65310	ALLIANT ENERGY	July Gas - City Hall	08/28/2023	0	32.41
Vendor Subtotal:					918.19
1000-40-1151-67320	AMAZON.COM	BVK1200M2 APC Back-UPS 1200	08/31/2023	0	158.70 00025302
Vendor Subtotal:					158.70
1000-40-1151-67330	RAYNOR DOOR CO INC OF THE QU	Door Repair	08/28/2023	0	352.00
Vendor Subtotal:					352.00
1000-40-1611-52890	AMAZON.COM	Employee Group Photo	08/31/2023	0	6.66
Vendor Subtotal:					6.66
1000-40-1611-74200	SEILER GEOSPATIAL	GPS Rover Unit	08/31/2023	0	13,891.79 00025147
1000-40-1611-74200	SEILER GEOSPATIAL	GPS Rover Unit	08/31/2023	0	66.80
Vendor Subtotal:					13,958.59
1000-40-1621-52830	MENARDS (MUSC)	Breakers/Sockets	08/28/2023	0	87.00
1000-40-1621-52830	MENARDS (MUSC)	Saw Blade	08/28/2023	0	15.70
Vendor Subtotal:					102.70
1000-40-1621-52840	FASTENAL COMPANY	Yellow Caution Tape	08/28/2023	0	35.86

			Vendor Subtotal:		35.86
1000-40-1621-52840	MENARDS (MUSC)	Gloves	08/31/2023	0	53.92
			Vendor Subtotal:		53.92
1000-40-1621-52840	AMAZON.COM	Safety Glasses	08/28/2023	0	79.93
			Vendor Subtotal:		79.93
1000-40-1621-52890	MENARDS (MUSC)	Drywall Screws/Glue	08/28/2023	0	66.55
			Vendor Subtotal:		66.55
1000-40-1621-52890	AMAZON.COM	Employee Group Photo	08/31/2023	0	6.67
			Vendor Subtotal:		6.67
1000-40-1621-53140	MENARDS (MUSC)	Spray Paint/Chip Brush/Tray Liner	08/28/2023	0	31.67
1000-40-1621-53140	MENARDS (MUSC)	Parking Lot Paint	08/28/2023	0	9.99
1000-40-1621-53140	MENARDS (MUSC)	Elbow/Bushing/Nipple	08/28/2023	0	55.88
			Vendor Subtotal:		97.54
1000-40-1621-53310	RIVER STONE GROUP	Hot Mix	08/28/2023	0	1,060.62 00025087
1000-40-1621-53310	RIVER STONE GROUP	UPM Cold Mix	08/31/2023	0	1,957.20 00025164
1000-40-1621-53310	RIVER STONE GROUP	Hox Mix	08/31/2023	0	2,596.03
			Vendor Subtotal:		5,613.85
1000-40-1621-53320	NORTHERN FILTER MEDIA INC	Sandblast Sand	08/31/2023	0	290.00 00025322
			Vendor Subtotal:		290.00
1000-40-1621-53400	LOGAN CONTRACTORS SUPPLY IN	Detack for Crack Sealing 5 Gallon	08/31/2023	0	224.00 00025287
			Vendor Subtotal:		224.00

1000-40-1621-53400	QUICK SUPPLY CO	Pave Drain Blocks	08/31/2023	0	676.38 00025052
		Vendor Subtotal:			676.38
1000-40-1621-62260	PS3 Enterprises Inc.	Temp Sanitation	08/28/2023	0	95.00
		Vendor Subtotal:			95.00
1000-40-1621-65210	MUSCATINE POWER & WATER	July Base PRI	08/28/2023	0	72.02
		Vendor Subtotal:			72.02
1000-40-1621-65275	VERIZON	June GPS Charges	06/30/2023	0	34.90
1000-40-1621-65275	VERIZON	June GPS Charges	06/30/2023	0	191.95
		Vendor Subtotal:			226.85
1000-40-1621-65310	ALLIANT ENERGY	August Gas - Lake Park	08/31/2023	0	34.07
		Vendor Subtotal:			34.07
1000-40-1621-67400	CONCRETE POLYFIX	Raise Concrete Two Locations - Fareway	08/28/2023	0	12,302.78 00025073
		Vendor Subtotal:			12,302.78
1000-40-1621-69860	MUSCATINE COUNTY TREASURER	Drainage Tax	08/28/2023	0	25.00
		Vendor Subtotal:			25.00
1000-40-1623-52890	MENARDS (MUSC)	D Rings	08/28/2023	0	47.92
		Vendor Subtotal:			47.92
1000-40-1623-62320	SYCAMORE PRINTING INC	Charge for Shipping MPW Inserts to the t	08/31/2023	0	112.77 00025213
		Vendor Subtotal:			112.77

1000-40-1624-52890	FASTENAL COMPANY	Finish Screws/Lock Nuts	08/31/2023	0	55.85
1000-40-1624-52890	FASTENAL COMPANY	Hex Cap	08/31/2023	0	29.28
Vendor Subtotal:					85.13
1000-40-1624-52890	MENARDS (MUSC)	Wood Lath	08/28/2023	0	71.84
1000-40-1624-52890	MENARDS (MUSC)	Wasp Spray	08/28/2023	0	11.92
1000-40-1624-52890	MENARDS (MUSC)	Wasp Spray	08/28/2023	0	17.88
Vendor Subtotal:					101.64
1000-40-1624-52890	VAN METER INDUSTRIAL INC	Ballasts	08/28/2023	0	93.89
Vendor Subtotal:					93.89
1000-40-1624-73900	IOWA PRISON INDUSTRIES	Street Markers - Aluminum High Prisma	06/30/2023	0	272.40 00024725
1000-40-1624-73900	IOWA PRISON INDUSTRIES	Street Markers - Aluminum High Prisma	06/30/2023	0	218.00 00024725
1000-40-1624-73900	IOWA PRISON INDUSTRIES	Street Markers - Aluminum High Prisma	06/30/2023	0	856.80 00024725
1000-40-1624-73900	IOWA PRISON INDUSTRIES	Street Markers - Aluminum High Prisma	06/30/2023	0	102.00 00024725
1000-40-1624-73900	IOWA PRISON INDUSTRIES	Street Markers - Aluminum High Prisma	06/30/2023	0	54.80 00024725
1000-40-1624-73900	IOWA PRISON INDUSTRIES	Street Markers - Aluminum High Prisma	06/30/2023	0	71.40 00024725
1000-40-1624-73900	IOWA PRISON INDUSTRIES	Street Markers - Aluminum High Prisma	06/30/2023	0	85.40 00024725
1000-40-1624-73900	IOWA PRISON INDUSTRIES	Street Markers - Aluminum High Prisma	06/30/2023	0	272.80 00024725
1000-40-1624-73900	IOWA PRISON INDUSTRIES	Street Markers - Aluminum High Prisma	06/30/2023	0	1,611.60 00024725
1000-40-1624-73900	IOWA PRISON INDUSTRIES	Street Markers - Aluminum High Prisma	06/30/2023	0	408.00 00024725
1000-40-1624-73900	IOWA PRISON INDUSTRIES	Street Markers - Aluminum High Prisma	06/30/2023	0	238.40 00024725
1000-40-1624-73900	IOWA PRISON INDUSTRIES	Street Markers - Aluminum High Prisma	06/30/2023	0	68.20 00024725
1000-40-1624-73900	IOWA PRISON INDUSTRIES	Street Markers - Aluminum High Prisma	06/30/2023	0	298.10
Vendor Subtotal:					4,557.90
1000-40-1641-51100	QUILL CORPORATION	#AAG PM3-28 - One Month Per Page 15	08/31/2023	0	13.96 00025058
Vendor Subtotal:					13.96
1000-40-1641-65100	AMAZON.COM	Employee Group Photo	08/31/2023	0	6.66
Vendor Subtotal:					6.66
1000-40-1641-65210	MUSCATINE POWER & WATER	July Base PRI	08/28/2023	0	41.15

1000-40-1641-65210	MUSCATINE POWER & WATER	July Phones - PW	08/31/2023	0	22.47
		Vendor Subtotal:			63.62
		Subtotal for FUND: 1000			204,020.85
3981-30-3983-65240	MUSCATINE POWER & WATER	July Machlink - Library	08/31/2023	0	330.83
		Vendor Subtotal:			330.83
		Subtotal for FUND: 3981			330.83
4180-40-4180-73200	HEUER CONSTRUCTION	Fulliam Phase #1 Pay Ap #5	08/31/2023	0	342,082.84
		Vendor Subtotal:			342,082.84
		Subtotal for FUND: 4180			342,082.84
4195-40-4197-73200	HEUER CONSTRUCTION	Grandview Ave Pay App #45	08/31/2023	0	125,476.37
		Vendor Subtotal:			125,476.37
		Subtotal for FUND: 4195			125,476.37
4205-50-4205-61420	VEENSTRA & KIMM INC	UV Disinfection System Project	08/31/2023	0	42,009.21
		Vendor Subtotal:			42,009.21
		Subtotal for FUND: 4205			42,009.21
4276-40-4276-61110	PFM Financial Advisors LLC	Municipal Advisor Services SRF Loan	08/28/2023	0	10,000.00
		Vendor Subtotal:			10,000.00
4276-40-4276-61220	LAW OFFICES OF HOPKINS & HUBBARD	July Legal	08/28/2023	0	1,157.50

			Vendor Subtotal:		1,157.50
4276-40-4276-61430	STEVE DALBEY	Inspection Services 8/7/23 - 8/27/23	08/31/2023	0	2,310.91
			Vendor Subtotal:		2,310.91
4276-40-4276-61660	MARTIN & WHITACRE SURVEYORS	Surveying Services 891 W 8th St	08/28/2023	0	3,500.00
			Vendor Subtotal:		3,500.00
4276-40-4276-62240	KE FLATWORK INC	Tipping Fees	08/28/2023	0	225.00 00025071
			Vendor Subtotal:		225.00
4276-40-4276-65275	MUSCATINE POWER & WATER	July Internet - Juniper	08/31/2023	0	62.97
			Vendor Subtotal:		62.97
4276-40-4276-65310	ALLIANT ENERGY	July Gas - Juniper	08/28/2023	0	17.91
4276-40-4276-65310	ALLIANT ENERGY	July Gas - 891 W 8th St	08/31/2023	0	14.08
			Vendor Subtotal:		31.99
4276-40-4276-73100	HAGERTY EARTHWORKS	West Hill Phase 5B Pay App #36	08/31/2023	0	111,695.35
			Vendor Subtotal:		111,695.35
4276-40-4276-73100	KE FLATWORK INC	West Hill Phase 6A Pay App #4	08/31/2023	0	186,813.17
			Vendor Subtotal:		186,813.17
			Subtotal for FUND: 4276		315,796.89
4278-40-4278-61420	STRAND ASSOC INC	Redundant Froce Main - Phase II Design	08/28/2023	0	483.21
			Vendor Subtotal:		483.21

Subtotal for FUND: 4278					483.21
4484-01-4484-61660	PROS CONSULTING, INC	Amphitheatre Market Analysis	08/31/2023	0	19,900.00
Vendor Subtotal:					19,900.00
Subtotal for FUND: 4484					19,900.00
4554-10-4554-72200	JON BRAUNS	Demolish 1905 Hershey	08/31/2023	0	17,800.00
4554-10-4554-72200	JON BRAUNS	Demolish 1200 Iowa Ave	08/31/2023	0	19,850.00
Vendor Subtotal:					37,650.00
Subtotal for FUND: 4554					37,650.00
4638-15-4638-61220	LAW OFFICES OF HOPKINS & HUBBARD	July Legal	08/28/2023	0	574.50
Vendor Subtotal:					574.50
Subtotal for FUND: 4638					574.50
4658-40-4658-73700	DRJ GROUP, LLC	Purchase and Install Kitchen Hood	08/28/2023	0	40,250.15 00024984
Vendor Subtotal:					40,250.15
Subtotal for FUND: 4658					40,250.15
4842-00-4842-62370	SYCAMORE PRINTING INC	Public Engagement Yard Signs	08/31/2023	0	493.27 00025331
4842-00-4842-62370	SYCAMORE PRINTING INC	Housing Market Analysis Table Tents	08/31/2023	0	50.83
Vendor Subtotal:					544.10
4842-00-4847-68300	FINANCIAL PARTNERS, LLC	ARPA Facade Grant	08/31/2023	0	2,810.47
Vendor Subtotal:					2,810.47

Subtotal for FUND: 4842					3,354.57
4848-01-4848-73900	HOFFMANN INC	Watermelon Sculpture Fabrication - Final	08/31/2023	0	17,934.50
Vendor Subtotal:					17,934.50
4848-01-4848-73900	YOHAN UMANA	Watermelon Sculpture Painting	09/01/2023	0	2,892.00
Vendor Subtotal:					2,892.00
Subtotal for FUND: 4848					20,826.50
5211-40-5211-51100	STOREY KENWORTHY / MATT PAR #AAG G520-00 - DayMinder Weekly 8 x		08/28/2023	0	31.20 00025061
Vendor Subtotal:					31.20
5211-40-5211-52720	KENNETH EICHELBERGER	Reimb Fuel	08/31/2023	0	51.03
Vendor Subtotal:					51.03
5211-40-5211-65100	AMAZON.COM	Employee Group Photo	08/31/2023	0	39.99
Vendor Subtotal:					39.99
5211-40-5211-65210	MUSCATINE POWER & WATER	July Base PRI	08/28/2023	0	72.02
Vendor Subtotal:					72.02
Subtotal for FUND: 5211					194.24
5311-05-5311-51100	AMAZON.COM	Money Scoop	08/28/2023	0	11.99
Vendor Subtotal:					11.99
5311-05-5311-52890	POM INCORPORATED	#300-756 Battery Pack 6V AA Alkaline	08/31/2023	0	349.00 00025040

			Vendor Subtotal:		349.00
5311-05-5311-62310	XEROX CORPORATION	June Copies	06/30/2023	0	1.05
5311-05-5311-62310	XEROX CORPORATION	July Copies	08/31/2023	0	1.29
			Vendor Subtotal:		2.34
			Subtotal for FUND: 5311		363.33
5451-25-5451-51100	STOREY KENWORTHY / MATT PAR #HOD-180-HD - Executive Monthly 24		08/28/2023	0	14.60 00025061
			Vendor Subtotal:		14.60
5451-25-5451-52100	CENTRAL TURF AGRONOMY	Push-Hold	08/31/2023	0	400.00 00025182
			Vendor Subtotal:		400.00
5451-25-5451-52250	VAN DIEST SUPPLY COMPANY	Phosphite	08/31/2023	0	2,130.00 00025102
			Vendor Subtotal:		2,130.00
5451-25-5451-52720	SPRATT OIL SALES	Unleaded Gasoline	08/31/2023	0	2,430.00 00025229
5451-25-5451-52720	SPRATT OIL SALES	Unleaded Gasoline	08/31/2023	0	421.20
			Vendor Subtotal:		2,851.20
5451-25-5451-52730	SPRATT OIL SALES	Diesel Fuel	08/31/2023	0	1,246.00 00025229
5451-25-5451-52730	SPRATT OIL SALES	Diesel Fuel	08/31/2023	0	28.48
			Vendor Subtotal:		1,274.48
5451-25-5451-52890	MENARDS (MUSC)	Broom/Wipes/Drano/Scour Pad	08/31/2023	0	64.53
			Vendor Subtotal:		64.53
5451-25-5451-52890	PHILLIPS BROS RENTALS INC	Chain	08/31/2023	0	26.99

			Vendor Subtotal:		26.99
5451-25-5451-53220	PLETCHER ENTERPRISES INC	Steel	08/28/2023	0	73.23
			Vendor Subtotal:		73.23
5451-25-5451-53220	MENARDS (MUSC)	Shelf/Paint Thinner	08/31/2023	0	65.42
			Vendor Subtotal:		65.42
5451-25-5451-53220	MUSCATINE LAWN & POWER	Filter	08/31/2023	0	11.96
			Vendor Subtotal:		11.96
5451-25-5451-53220	VAN WALL EQUIPMENT INC.	Shipping	08/31/2023	0	34.04 00025114
5451-25-5451-53220	VAN WALL EQUIPMENT INC.	Buffers	08/31/2023	0	296.96 00025114
			Vendor Subtotal:		331.00
5451-25-5451-62210	PHELPS THE UNIFORM SPECIALIST	Laundry - Golf	08/28/2023	0	75.73
5451-25-5451-62210	PHELPS THE UNIFORM SPECIALIST	Laundry - Golf	08/28/2023	0	75.73
			Vendor Subtotal:		151.46
5451-25-5451-62250	LAJEK PEST CONTROL SOLUTIONS	Pest Control	08/31/2023	0	45.00
			Vendor Subtotal:		45.00
5451-25-5451-63300	YAMAHA MOTOR CORPORATION	September 2023	09/01/2023	0	4,085.73
			Vendor Subtotal:		4,085.73
5451-25-5451-65210	MUSCATINE POWER & WATER	July Phones - Muni Shed	08/28/2023	0	27.99
			Vendor Subtotal:		27.99
5451-25-5451-65240	MUSCATINE POWER & WATER	July - August Machlink	08/28/2023	0	61.99

			Vendor Subtotal:		61.99
5451-25-5451-65320	EASTERN IOWA LIGHT & POWER C	July Power - Golf	08/28/2023	0	994.51
5451-25-5451-65320	EASTERN IOWA LIGHT & POWER C	July Power - Golf	08/28/2023	0	707.30
			Vendor Subtotal:		1,701.81
5451-25-5452-51100	OFFICE EXPRESS	#AAG SD389-13 - Standard Diary Red 6	08/28/2023	0	27.89 00025074
			Vendor Subtotal:		27.89
5451-25-5452-52400	MENARDS (MUSC)	Mr. Clean/Iron Out	08/31/2023	0	23.28
			Vendor Subtotal:		23.28
5451-25-5452-52851	7G DISTRIBUTING LLC	Beer for Resale	08/31/2023	0	1,832.45
5451-25-5452-52851	7G DISTRIBUTING LLC	Beer for Resale	08/31/2023	0	1,163.70
5451-25-5452-52851	7G DISTRIBUTING LLC	Beer for Resale	08/31/2023	0	329.25
			Vendor Subtotal:		3,325.40
5451-25-5452-52851	IOWA BEVERAGE	Beer for Resale	08/31/2023	0	-30.00
5451-25-5452-52851	IOWA BEVERAGE	Beer for Resale	08/31/2023	0	241.50
5451-25-5452-52851	IOWA BEVERAGE	Beer for Resale	08/31/2023	0	559.45
5451-25-5452-52851	IOWA BEVERAGE	Beer for Resale	08/31/2023	0	251.05
			Vendor Subtotal:		1,022.00
5451-25-5452-52852	COCA-COLA BOTTLING COMPANY	Soda for Resale	08/31/2023	0	598.76
5451-25-5452-52852	COCA-COLA BOTTLING COMPANY	Soda for Resale	08/31/2023	0	497.53
5451-25-5452-52852	COCA-COLA BOTTLING COMPANY	Soda for Resale	08/31/2023	0	459.86
			Vendor Subtotal:		1,556.15
5451-25-5452-52852	PERFORMANCE FOOD SERVICE	Food for Resale	08/28/2023	0	710.57
5451-25-5452-52852	PERFORMANCE FOOD SERVICE	Food for Resale	08/28/2023	0	655.07
5451-25-5452-52852	PERFORMANCE FOOD SERVICE	Food for Resale	08/28/2023	0	51.12

Vendor Subtotal:					1,416.76
5451-25-5452-52853	CALLAWAY GOLF COMPANY	Shipping	08/31/2023	0	16.08 00025181
5451-25-5452-52853	CALLAWAY GOLF COMPANY	WeatherSpann Glove	08/31/2023	0	294.12 00025181
Vendor Subtotal:					310.20
5451-25-5452-52853	TAYLOR MADE GOLF COMPANY	11Ball Raw	08/31/2023	0	112.00
5451-25-5452-52853	TAYLOR MADE GOLF COMPANY	11Noodle 15 Packs	08/31/2023	0	495.39 00024918
Vendor Subtotal:					607.39
5451-25-5452-52853	TITLEIST	Shipping	08/31/2023	0	15.00 00024970
5451-25-5452-52853	TITLEIST	Titleist t200 7 Iron	08/31/2023	0	158.00 00024970
5451-25-5452-52853	TITLEIST	Titleist t200 7 Iron	08/31/2023	0	0.85
5451-25-5452-52853	TITLEIST	Pro V1 Dozen Balls	08/31/2023	0	498.00 00025180
5451-25-5452-52853	TITLEIST	Pro V1 Dozen Balls	08/31/2023	0	3.08
Vendor Subtotal:					674.93
5451-25-5452-65100	ICAN	Advertising	08/31/2023	0	120.00
Vendor Subtotal:					120.00
5451-25-5452-65240	MUSCATINE POWER & WATER	July - August Machlink	08/28/2023	0	61.99
Vendor Subtotal:					61.99
5451-25-5452-65510	MUSCATINE POWER & WATER	July - Golf	08/28/2023	0	200.01
Vendor Subtotal:					200.01
Subtotal for FUND: 5451					22,663.39
5461-25-5461-62260	PS3 Enterprises Inc.	Temp Sanitation	08/28/2023	0	95.00
Vendor Subtotal:					95.00

5461-25-5461-65320	MUSCATINE POWER & WATER	July Electric - River Center	08/31/2023	0	56.63
5461-25-5461-65320	MUSCATINE POWER & WATER	July Electric - Maint Shed	08/31/2023	0	117.34
		Vendor Subtotal:			173.97
5461-25-5461-65410	MUSCATINE POWER & WATER	July Water - Maint Shed	08/31/2023	0	26.69
5461-25-5461-65410	MUSCATINE POWER & WATER	July Water - River Center	08/31/2023	0	9.56
		Vendor Subtotal:			36.25
		Subtotal for FUND: 5461			305.22
5642-45-5642-52300	PHELPS CUSTOM IMAGE WEAR	Uniforms - S Berry	08/31/2023	0	248.92
		Vendor Subtotal:			248.92
5642-45-5642-52840	MENARDS (MUSC)	Cooler	08/28/2023	0	19.98
		Vendor Subtotal:			19.98
5642-45-5642-52890	ARNOLD MOTOR SUPPLY	Lubricant	08/28/2023	0	53.40
		Vendor Subtotal:			53.40
5642-45-5642-52890	MENARDS (MUSC)	Water/Powerade/Cooler/Ice	08/28/2023	0	93.76
		Vendor Subtotal:			93.76
5642-45-5642-61220	LAW OFFICES OF HOPKINS & HUBBARD	July Legal	08/28/2023	0	450.00
		Vendor Subtotal:			450.00
5642-45-5642-61310	MUSCATINE POWER & WATER	August Sanitation	08/28/2023	0	2,110.00
		Vendor Subtotal:			2,110.00
5642-45-5642-62245	REPUBLIC SERVICES #400	Short Paid July Invoice	08/31/2023	0	174.81

			Vendor Subtotal:		174.81
5642-45-5642-65240	MUSCATINE POWER & WATER	July - August Machlink	08/28/2023	0	61.99
			Vendor Subtotal:		61.99
5642-45-5642-65260	US CELLULAR	August Cell Phones	08/31/2023	0	67.11
			Vendor Subtotal:		67.11
5642-45-5642-65275	VERIZON	June GPS Charges	06/30/2023	0	139.60
			Vendor Subtotal:		139.60
5642-45-5642-65310	ALLIANT ENERGY	August Gas - Transfer	08/31/2023	0	52.61
			Vendor Subtotal:		52.61
5642-45-5642-69400	SWANA	Membership Dues	08/28/2023	0	245.00
			Vendor Subtotal:		245.00
5642-45-5643-52300	PHELPS CUSTOM IMAGE WEAR	Uniforms - E Last	08/31/2023	0	119.30
5642-45-5643-52300	PHELPS CUSTOM IMAGE WEAR	Uniforms - H Kemper	08/31/2023	0	249.14
			Vendor Subtotal:		368.44
5642-45-5643-52890	ARNOLD MOTOR SUPPLY	Hose Connector/Clamp/Filter	08/31/2023	0	19.13
			Vendor Subtotal:		19.13
5642-45-5643-62260	PS3 Enterprises Inc.	Temp Sanitation	08/28/2023	0	95.00
			Vendor Subtotal:		95.00
			Subtotal for FUND: 5642		4,199.75

5652-45-5652-52890	ARNOLD MOTOR SUPPLY	Lubricating Oil	08/28/2023	0	17.96
		Vendor Subtotal:			17.96
5652-45-5652-53340	HARSCO METALS AMERICAS	Slag for Landfill Road	08/31/2023	0	600.00 00025187
5652-45-5652-53340	HARSCO METALS AMERICAS	Slag for Landfill Road	08/31/2023	0	28.86
		Vendor Subtotal:			628.86
5652-45-5652-61420	SCS ENGINEERS	FY 23/24 On-Call Support	08/28/2023	0	5,040.09
5652-45-5652-61420	SCS ENGINEERS	FY 23/24 SCADA System Management	08/28/2023	0	416.67
		Vendor Subtotal:			5,456.76
5652-45-5652-62520	JON BRAUNS	Hauling Slag	08/31/2023	0	1,048.10
		Vendor Subtotal:			1,048.10
5652-45-5652-63300	PS3 Enterprises Inc.	Temp Sanitation	08/28/2023	0	95.00
		Vendor Subtotal:			95.00
5652-45-5652-67320	IOWA PUMP WORKS, INC	Rebuild 2 Leachate Pumps	08/31/2023	0	4,167.55 00025253
		Vendor Subtotal:			4,167.55
		Subtotal for FUND: 5652			11,414.23
5658-45-5658-51100	AMAZON.COM	Pouches	08/31/2023	0	22.97
		Vendor Subtotal:			22.97
5658-45-5658-51100	OFFICE EXPRESS	#AAG PM2-28 One Month Per Page 12	08/28/2023	0	9.58 00025074
		Vendor Subtotal:			9.58
5658-45-5658-51300	SYCAMORE PRINTING INC	Shipping	08/31/2023	0	266.42 00025133
5658-45-5658-51300	SYCAMORE PRINTING INC	Shipping	08/31/2023	0	12.58

5658-45-5658-51300	SYCAMORE PRINTING INC	Scale Tickets	08/31/2023	0	1,211.00 00025133
5658-45-5658-51300	SYCAMORE PRINTING INC	Scale Tickets	08/31/2023	0	121.04
		Vendor Subtotal:			1,611.04
5658-45-5658-52300	JOE BARNARD	Reimb Shoes - J Barnard	08/28/2023	0	106.95
		Vendor Subtotal:			106.95
5658-45-5658-52750	S.J. SMITH CO.	Propane Gas	08/31/2023	0	79.80
		Vendor Subtotal:			79.80
5658-45-5658-52840	VAN METER INDUSTRIAL INC	Safety Vest	08/31/2023	0	9.98
5658-45-5658-52840	VAN METER INDUSTRIAL INC	Safety Vests	08/31/2023	0	24.95
		Vendor Subtotal:			34.93
5658-45-5658-52890	ARNOLD MOTOR SUPPLY	Filter	08/31/2023	0	8.65
5658-45-5658-52890	ARNOLD MOTOR SUPPLY	Oil	08/28/2023	0	36.52
		Vendor Subtotal:			45.17
5658-45-5658-52890	FASTENAL COMPANY	Bolts/Washers	08/28/2023	0	12.04
		Vendor Subtotal:			12.04
5658-45-5658-52890	MENARDS (MUSC)	Brake Cleaner/Washer/Cable Ties	08/28/2023	0	24.70
5658-45-5658-52890	MENARDS (MUSC)	Powerade/Utility Knife	08/31/2023	0	50.76
		Vendor Subtotal:			75.46
5658-45-5658-52890	SINCLAIR	V-Belt	08/31/2023	0	47.73
		Vendor Subtotal:			47.73
5658-45-5658-52890	AMAZON.COM	Filters	08/31/2023	0	17.98
5658-45-5658-52890	AMAZON.COM	Stretch Wrap	08/28/2023	0	64.99
5658-45-5658-52890	AMAZON.COM	Door Protector	08/28/2023	0	17.97

5658-45-5658-52890	AMAZON.COM	Engine Muffler	08/31/2023	0	38.66
5658-45-5658-52890	AMAZON.COM	Microphone w/Connector	08/28/2023	0	94.80
Vendor Subtotal:					234.40
5658-45-5658-53110	AMAZON.COM	Gutter Downspout Guards	08/28/2023	0	37.98
Vendor Subtotal:					37.98
5658-45-5658-62210	PHELPS THE UNIFORM SPECIALIST	Laundry - Transfer	08/28/2023	0	11.51
5658-45-5658-62210	PHELPS THE UNIFORM SPECIALIST	Laundry - Transfer	08/28/2023	0	11.51
5658-45-5658-62210	PHELPS THE UNIFORM SPECIALIST	Laundry - Transfer	08/31/2023	0	11.51
Vendor Subtotal:					34.53
5658-45-5658-62250	LAJEK PEST CONTROL SOLUTIONS	Pest Control	08/28/2023	0	45.00
Vendor Subtotal:					45.00
5658-45-5658-62410	TEAM STAFFING SOLUTIONS INC	Temp Employee Week Ending 8/6/23	08/28/2023	0	182.70
5658-45-5658-62410	TEAM STAFFING SOLUTIONS INC	Temp Employee	08/28/2023	0	182.70
5658-45-5658-62410	TEAM STAFFING SOLUTIONS INC	Temp Employee Week Ending 8/20/23	08/31/2023	0	90.00
5658-45-5658-62410	TEAM STAFFING SOLUTIONS INC	Temp Employee Week Ending 8/27/23	08/31/2023	0	182.70
Vendor Subtotal:					638.10
5658-45-5658-65275	VERIZON	June GPS Charges	06/30/2023	0	34.90
Vendor Subtotal:					34.90
5658-45-5658-65310	ALLIANT ENERGY	August Gas - Transfer	08/31/2023	0	77.06
Vendor Subtotal:					77.06
5658-45-5658-67200	RAYNOR DOOR CO INC OF THE QU	Spring Replacement on Wash Bay Door	08/31/2023	0	1,457.50 00025339
Vendor Subtotal:					1,457.50
5658-45-5658-67320	WALZ SCALE	Repair Scale Indicator	08/28/2023	0	332.74 00025134

			Vendor Subtotal:		332.74
5658-45-5658-67330	MIDWEST ALARM SERVICES	Resolved Trouble on Alarm System Pane	08/31/2023	0	247.50 00025340
			Vendor Subtotal:		247.50
5658-45-5658-69850	IOWA DEPT OF AGRICULTURE & L	Permit	08/28/2023	0	84.00
			Vendor Subtotal:		84.00
5658-45-5658-69900	GORDON FLESCH COMPANY	Copier	08/28/2023	0	27.00
			Vendor Subtotal:		27.00
			Subtotal for FUND: 5658		5,296.38
5660-00-0000-24400	ZIMMER & FRANCESCON INC	Mechanical Seal for 57th St Pump	08/31/2023	0	1,037.00
			Vendor Subtotal:		1,037.00
5660-50-5661-51100	STOREY KENWORTHY / MATT PAR	#AAG SK24-00 - 1 Month Per Page 22 x	08/28/2023	0	17.00 00025061
			Vendor Subtotal:		17.00
5660-50-5661-61310	MUSCATINE POWER & WATER	August Sewer	08/28/2023	0	2,132.00
			Vendor Subtotal:		2,132.00
5660-50-5661-65240	MUSCATINE POWER & WATER	July - August Machlink	08/28/2023	0	61.99
			Vendor Subtotal:		61.99
5660-50-5662-52400	AMAZON.COM	De-Scaler	08/31/2023	0	28.49
			Vendor Subtotal:		28.49
5660-50-5662-52740	ARNOLD MOTOR SUPPLY	Oil	08/31/2023	0	53.88

			Vendor Subtotal:		53.88
5660-50-5662-52830	MOTION INDUSTRIES INC	Hex Keys	08/31/2023	0	41.08
			Vendor Subtotal:		41.08
5660-50-5662-52840	GRAINGER DEPT 802675066	Ear Plugs	08/31/2023	0	94.65
			Vendor Subtotal:		94.65
5660-50-5662-52840	PHELPS THE UNIFORM SPECIALIST	First Aid Supplies	08/31/2023	0	50.00
5660-50-5662-52840	PHELPS THE UNIFORM SPECIALIST	First Aid Supplies	08/28/2023	0	50.00
5660-50-5662-52840	PHELPS THE UNIFORM SPECIALIST	First Aid Supplies	08/31/2023	0	50.00
5660-50-5662-52840	PHELPS THE UNIFORM SPECIALIST	May First Aid Supplies	06/30/2023	0	50.00
			Vendor Subtotal:		200.00
5660-50-5662-52840	AMAZON.COM	LEL Sensor for Gas Monitor	08/31/2023	0	402.00 00025300
			Vendor Subtotal:		402.00
5660-50-5662-53120	MENARDS (MUSC)	Lights	08/28/2023	0	129.90
			Vendor Subtotal:		129.90
5660-50-5662-53130	GRAINGER DEPT 802675066	Toilet Seat	08/31/2023	0	48.30
			Vendor Subtotal:		48.30
5660-50-5662-53130	MENARDS (MUSC)	Garbage Disposal	08/28/2023	0	99.99
			Vendor Subtotal:		99.99
5660-50-5662-53130	PLUMB SUPPLY COMPANY	Bushing/Adapter/Ball Valve	08/31/2023	0	18.96
5660-50-5662-53130	PLUMB SUPPLY COMPANY	Bushing/Ball Valve	08/31/2023	0	27.10
5660-50-5662-53130	PLUMB SUPPLY COMPANY	Ball Valve	08/31/2023	0	254.13 00025301
5660-50-5662-53130	PLUMB SUPPLY COMPANY	Union	08/31/2023	0	58.32
5660-50-5662-53130	PLUMB SUPPLY COMPANY	Flange/Coupling	08/31/2023	0	54.36

5660-50-5662-53130	PLUMB SUPPLY COMPANY	Slip Cap	08/31/2023	0	4.67
		Vendor Subtotal:			417.54
5660-50-5662-53210	ARNOLD MOTOR SUPPLY	Filter	08/31/2023	0	7.35
5660-50-5662-53210	ARNOLD MOTOR SUPPLY	Filter	08/31/2023	0	10.85
		Vendor Subtotal:			18.20
5660-50-5662-53210	GRAINGER DEPT 802675066	Screws	08/31/2023	0	23.30
		Vendor Subtotal:			23.30
5660-50-5662-53210	S.J. SMITH CO.	Gauge	08/31/2023	0	12.76
		Vendor Subtotal:			12.76
5660-50-5662-53210	SINCLAIR	Mower Blades	08/31/2023	0	361.68 00025296
		Vendor Subtotal:			361.68
5660-50-5662-53220	ARNOLD MOTOR SUPPLY	Filter	08/31/2023	0	8.82
5660-50-5662-53220	ARNOLD MOTOR SUPPLY	Filter	08/31/2023	0	7.35
		Vendor Subtotal:			16.17
5660-50-5662-53220	MENARDS (MUSC)	Plate	08/28/2023	0	6.38
5660-50-5662-53220	MENARDS (MUSC)	Fan	08/28/2023	0	32.98
		Vendor Subtotal:			39.36
5660-50-5662-53220	AMAZON.COM	Welding Jacket/Welding Cap	08/31/2023	0	74.38
		Vendor Subtotal:			74.38
5660-50-5662-62210	PHELPS THE UNIFORM SPECIALIST	Laundry - WRRF Rugs	08/31/2023	0	257.29
5660-50-5662-62210	PHELPS THE UNIFORM SPECIALIST	Laundry - WRRF Rugs	08/28/2023	0	257.29

		Vendor Subtotal:			514.58
5660-50-5662-65210	MUSCATINE POWER & WATER	July Phones - Plant	08/31/2023	0	29.86
5660-50-5662-65210	MUSCATINE POWER & WATER	July Phones - WRRF	08/28/2023	0	20.99
		Vendor Subtotal:			50.85
5660-50-5662-65310	ALLIANT ENERGY	August Gas - Grit	08/31/2023	0	1,997.34
5660-50-5662-65310	ALLIANT ENERGY	August Gas - WRRF Plant	08/31/2023	0	659.04
		Vendor Subtotal:			2,656.38
5660-50-5662-65320	MUSCATINE POWER & WATER	July Electric - E Bank	08/28/2023	0	14,804.25
5660-50-5662-65320	MUSCATINE POWER & WATER	July Electric - W Bank	08/28/2023	0	17,004.99
		Vendor Subtotal:			31,809.24
5660-50-5662-65410	MUSCATINE POWER & WATER	July Water - Plant	08/31/2023	0	269.05
		Vendor Subtotal:			269.05
5660-50-5662-65510	MUSCATINE POWER & WATER	July Internet - WRRF	08/28/2023	0	62.97
		Vendor Subtotal:			62.97
5660-50-5662-67130	MELLEN & ASSOCIATES INC	Repair of Auma Actuators in Blower Bui	08/28/2023	0	2,500.00 00025050
5660-50-5662-67130	MELLEN & ASSOCIATES INC	Repair of Auma Actuators in Blower Bui	08/28/2023	0	386.00
		Vendor Subtotal:			2,886.00
5660-50-5663-52740	MOTION INDUSTRIES INC	Oil	08/31/2023	0	18.16
		Vendor Subtotal:			18.16
5660-50-5663-52830	ARNOLD MOTOR SUPPLY	Die Grinder	08/31/2023	0	88.49
		Vendor Subtotal:			88.49

5660-50-5663-52830	MENARDS (MUSC)	Tools	08/28/2023	0	32.55
		Vendor Subtotal:			32.55
5660-50-5663-52830	MOTION INDUSTRIES INC	Hex Keys	08/31/2023	0	41.07
		Vendor Subtotal:			41.07
5660-50-5663-52830	AMAZON.COM	Electrical Meter	08/31/2023	0	425.99 00025207
		Vendor Subtotal:			425.99
5660-50-5663-53120	VAN METER INDUSTRIAL INC	Plug/Connector	08/31/2023	0	45.82
		Vendor Subtotal:			45.82
5660-50-5663-53130	PLUMB SUPPLY COMPANY	Teflon Tape/Coupling	08/31/2023	0	14.31
5660-50-5663-53130	PLUMB SUPPLY COMPANY	Check Valve	08/31/2023	0	43.20
		Vendor Subtotal:			57.51
5660-50-5663-53210	MOTION INDUSTRIES INC	Bearings for Papoose Bar Screen	08/31/2023	0	178.40 00025206
5660-50-5663-53210	MOTION INDUSTRIES INC	Freight	08/31/2023	0	16.50
5660-50-5663-53210	MOTION INDUSTRIES INC	Locknut/Washer/Oil Seal	08/31/2023	0	23.70
5660-50-5663-53210	MOTION INDUSTRIES INC	Bearings/Seals for Spare 4" Fairbanks Mc	08/31/2023	0	318.28 00025278
5660-50-5663-53210	MOTION INDUSTRIES INC	Bearings/Seals for Spare 4" Fairbanks Mc	08/31/2023	0	6.94
		Vendor Subtotal:			543.82
5660-50-5663-53220	FASTENAL COMPANY	Hardware	08/31/2023	0	70.34
		Vendor Subtotal:			70.34
5660-50-5663-53220	VAN METER INDUSTRIAL INC	Fuses	08/31/2023	0	88.64
		Vendor Subtotal:			88.64
5660-50-5663-53220	DRACO MECHANICAL SUPPLY INC	Gasket	08/28/2023	0	91.20

Vendor Subtotal:					91.20
5660-50-5663-62530	MARK A DIERCKS	Install Lock	08/31/2023	0	30.00
Vendor Subtotal:					30.00
5660-50-5663-65310	ALLIANT ENERGY	July Gas - Redwood	08/28/2023	0	37.56
5660-50-5663-65310	ALLIANT ENERGY	August Gas - Progress	08/31/2023	0	39.05
5660-50-5663-65310	ALLIANT ENERGY	August Gas - Stewart	08/31/2023	0	57.47
5660-50-5663-65310	ALLIANT ENERGY	August Gas - Loves	08/31/2023	0	39.05
5660-50-5663-65310	ALLIANT ENERGY	August Gas - Schley	08/31/2023	0	37.83
5660-50-5663-65310	ALLIANT ENERGY	August Gas - Bond	08/31/2023	0	37.70
Vendor Subtotal:					248.66
5660-50-5663-65320	MUSCATINE POWER & WATER	July Electric - Hershey	08/28/2023	0	53.48
5660-50-5663-65320	MUSCATINE POWER & WATER	July Electric - Hershey B,U.	08/28/2023	0	26.78
5660-50-5663-65320	MUSCATINE POWER & WATER	July Electric - Bond	08/28/2023	0	29.73
5660-50-5663-65320	MUSCATINE POWER & WATER	July Electric - Miles	08/28/2023	0	208.26
5660-50-5663-65320	MUSCATINE POWER & WATER	July Electric - Progress	08/28/2023	0	221.31
5660-50-5663-65320	MUSCATINE POWER & WATER	July Electric - Schley	08/28/2023	0	134.89
5660-50-5663-65320	MUSCATINE POWER & WATER	July Water - Electric	08/28/2023	0	29.78
5660-50-5663-65320	MUSCATINE POWER & WATER	July Water - Stormwater	08/31/2023	0	130.18
5660-50-5663-65320	MUSCATINE POWER & WATER	July Electric - Canon	08/31/2023	0	164.65
Vendor Subtotal:					999.06
5660-50-5663-65410	MUSCATINE POWER & WATER	July Water - Hershey	08/28/2023	0	22.12
5660-50-5663-65410	MUSCATINE POWER & WATER	July Water - Bond	08/28/2023	0	26.32
5660-50-5663-65410	MUSCATINE POWER & WATER	July Water - Miles	08/28/2023	0	21.28
5660-50-5663-65410	MUSCATINE POWER & WATER	July Water - Progress	08/28/2023	0	26.37
5660-50-5663-65410	MUSCATINE POWER & WATER	July Water - Schley	08/28/2023	0	21.28
5660-50-5663-65410	MUSCATINE POWER & WATER	July Water - Canon	08/31/2023	0	42.54
Vendor Subtotal:					159.91
5660-50-5663-67320	VULCAN INDUSTRIES INC	Barscreen Parts for Papoose Lift Station	08/31/2023	0	1,166.00 00024937
5660-50-5663-67320	VULCAN INDUSTRIES INC	Freight	08/31/2023	0	80.00

Vendor Subtotal:					1,246.00
5660-50-5665-51100	OFFICE EXPRESS	#AAG PM1-28 One Month Per Page (WI	08/28/2023	0	14.36 00025074
Vendor Subtotal:					14.36
5660-50-5665-52210	GFS CHEMICALS INC.	Deionized Water	08/31/2023	0	381.38 00025283
5660-50-5665-52210	GFS CHEMICALS INC.	Deionized Water	08/31/2023	0	135.00
Vendor Subtotal:					516.38
5660-50-5665-52210	HACH COMPANY	Sulfide Reagent Set	08/31/2023	0	82.85 00024962
Vendor Subtotal:					82.85
5660-50-5665-52210	IDEXX DISTRIBUTION INC	Sodium Thiosulfate	08/31/2023	0	197.26 00024771
5660-50-5665-52210	IDEXX DISTRIBUTION INC	Colliert-18 200 Test Pack	08/31/2023	0	1,170.80 00024771
5660-50-5665-52210	IDEXX DISTRIBUTION INC	Freight	08/31/2023	0	23.31
Vendor Subtotal:					1,391.37
5660-50-5665-52210	MENARDS (MUSC)	Lab Water	08/31/2023	0	18.30
Vendor Subtotal:					18.30
5660-50-5665-52210	MIDLAND SCIENTIFIC INC	Sulfide Standard	08/31/2023	0	55.33
5660-50-5665-52210	MIDLAND SCIENTIFIC INC	500 mL Bottles	08/31/2023	0	155.07 00025284
5660-50-5665-52210	MIDLAND SCIENTIFIC INC	125 mL Bottles	08/31/2023	0	113.02 00025284
5660-50-5665-52210	MIDLAND SCIENTIFIC INC	Bulb Transfer Pipettes	08/31/2023	0	88.44 00025284
5660-50-5665-52210	MIDLAND SCIENTIFIC INC	Parafilm 50mmX 75M	08/31/2023	0	96.80 00025284
5660-50-5665-52210	MIDLAND SCIENTIFIC INC	Fuel Surcharge	08/31/2023	0	5.00
Vendor Subtotal:					513.66
5660-50-5665-52210	THERMO ELECTRON NORTH AMER	Duo Sample Handling Kit	08/31/2023	0	1,760.00 00025313
5660-50-5665-52210	THERMO ELECTRON NORTH AMER	Shipping	08/31/2023	0	20.00
Vendor Subtotal:					1,780.00

5660-50-5665-52300	PHELPS CUSTOM IMAGE WEAR	Uniforms - Z Anderson	08/31/2023	0	161.88
		Vendor Subtotal:			161.88
5660-50-5665-62510	MICROBAC LABORATORIES INC	Testing	08/28/2023	0	215.00
5660-50-5665-62510	MICROBAC LABORATORIES INC	Testing	08/31/2023	0	44.50
5660-50-5665-62510	MICROBAC LABORATORIES INC	Testing	08/31/2023	0	268.75 00025247
		Vendor Subtotal:			528.25
5660-50-5665-63500	PHELPS THE UNIFORM SPECIALIST	Laundry - WRRF Lab Coats	08/31/2023	0	27.16
5660-50-5665-63500	PHELPS THE UNIFORM SPECIALIST	Laundry - WRRF Lab Coats	08/28/2023	0	27.16
		Vendor Subtotal:			54.32
5660-50-5666-52840	MARK A DIERCKS	Locks for Dredge/Gates	08/31/2023	0	216.00 00025132
		Vendor Subtotal:			216.00
5660-50-5666-53220	GRAINGER DEPT 802675066	Rope - Dredge	08/28/2023	0	52.75
5660-50-5666-53220	GRAINGER DEPT 802675066	Tarp	08/31/2023	0	23.32
		Vendor Subtotal:			76.07
5660-50-5666-53220	MENARDS (MUSC)	Flap Disc/Blue Towels	08/31/2023	0	65.39
		Vendor Subtotal:			65.39
5660-50-5666-53220	MILLS MARINE	Propeller for John Boat	08/31/2023	0	241.15 00025243
		Vendor Subtotal:			241.15
5660-50-5666-53220	AMAZON.COM	Trimmer Heads	08/31/2023	0	82.81
5660-50-5666-53220	AMAZON.COM	Charger	08/31/2023	0	77.30
		Vendor Subtotal:			160.11
5660-50-5666-53220	AMERICAN RIGGERS SUPPLY	Rope	08/28/2023	0	902.26

		Vendor Subtotal:			902.26
5660-50-5668-53120	AMAZON.COM	Allen Bradley Cat# 193-1EFFD Overload	08/31/2023	0	215.72 00025209
		Vendor Subtotal:			215.72
5660-50-5668-53210	FASTENAL COMPANY	Hardware - for Harbor Dredge	08/31/2023	0	173.20 00025298
5660-50-5668-53210	FASTENAL COMPANY	Washer	08/31/2023	0	3.18
5660-50-5668-53210	FASTENAL COMPANY	Hardware	08/31/2023	0	68.08
5660-50-5668-53210	FASTENAL COMPANY	Jobbers	08/31/2023	0	63.18
5660-50-5668-53210	FASTENAL COMPANY	Hardware	08/31/2023	0	30.92
		Vendor Subtotal:			338.56
5660-50-5668-53220	ARNOLD MOTOR SUPPLY	Coolant Lines for JCB at Morc	08/31/2023	0	311.49 00025343
		Vendor Subtotal:			311.49
5660-50-5668-53220	GRAINGER DEPT 802675066	Buckets	08/31/2023	0	99.68
		Vendor Subtotal:			99.68
		Subtotal for FUND: 5660			55,433.76
5664-40-5664-52830	MENARDS (MUSC)	Drill Bit	08/31/2023	0	4.74
		Vendor Subtotal:			4.74
5664-40-5664-65100	AMAZON.COM	Employee Group Photo	08/31/2023	0	6.67
		Vendor Subtotal:			6.67
5664-40-5664-65240	IOWA ONE CALLS	June One Calls	06/30/2023	0	357.30
		Vendor Subtotal:			357.30
5664-40-5664-65275	VERIZON	June GPS Charges	06/30/2023	0	10.95

			Vendor Subtotal:		10.95
5664-50-5667-62530	PS3 Enterprises Inc.	Temp Sanitation	08/28/2023	0	165.00
			Vendor Subtotal:		165.00
			Subtotal for FUND: 5664		544.66
5711-10-5711-52710	CARVER AERO INC	Mower Fuel	08/31/2023	0	41.05
5711-10-5711-52710	CARVER AERO INC	Mower Fuel	08/31/2023	0	37.88
5711-10-5711-52710	CARVER AERO INC	Mower Fuel	08/31/2023	0	38.31
			Vendor Subtotal:		117.24
5711-10-5711-61650	CARVER AERO INC	September 2023	09/01/2023	0	3,875.00
			Vendor Subtotal:		3,875.00
5711-10-5711-62250	LAJEK PEST CONTROL SOLUTIONS	Pest Control	08/28/2023	0	90.00
			Vendor Subtotal:		90.00
5711-10-5711-65310	ALLIANT ENERGY	August Gas - Airport	08/31/2023	0	35.77
			Vendor Subtotal:		35.77
5711-10-5711-69860	MUSCATINE COUNTY TREASURER	Drainage Tax	08/28/2023	0	23.00
5711-10-5711-69860	MUSCATINE COUNTY TREASURER	Drainage Tax	08/28/2023	0	1,001.00
5711-10-5711-69860	MUSCATINE COUNTY TREASURER	Levee Tax	08/28/2023	0	21.00
5711-10-5711-69860	MUSCATINE COUNTY TREASURER	Property Tax	08/28/2023	0	806.00
5711-10-5711-69860	MUSCATINE COUNTY TREASURER	Property Tax	08/28/2023	0	132.00
5711-10-5711-69860	MUSCATINE COUNTY TREASURER	Levee Tax	08/28/2023	0	11.00
5711-10-5711-69860	MUSCATINE COUNTY TREASURER	Drainage Tax	08/28/2023	0	19.00
5711-10-5711-69860	MUSCATINE COUNTY TREASURER	Drainage Tax	08/28/2023	0	95.00
5711-10-5711-69860	MUSCATINE COUNTY TREASURER	Drainage Tax	08/28/2023	0	13.00
5711-10-5711-69860	MUSCATINE COUNTY TREASURER	Drainage Tax	08/28/2023	0	45.00
5711-10-5711-69860	MUSCATINE COUNTY TREASURER	Drainage Tax	08/28/2023	0	527.00
5711-10-5711-69860	MUSCATINE COUNTY TREASURER	Drainage Tax	08/28/2023	0	645.00

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5711-10-5711-69860	MUSCATINE COUNTY TREASURER Drainage Tax	08/28/2023	0	11.00
5711-10-5711-69860	MUSCATINE COUNTY TREASURER Drainage Tax	08/28/2023	0	11.00
5711-10-5711-69860	MUSCATINE COUNTY TREASURER Drainage Tax	08/28/2023	0	37.00
5711-10-5711-69860	MUSCATINE COUNTY TREASURER Levee Tax	08/28/2023	0	11.00
5711-10-5711-69860	MUSCATINE COUNTY TREASURER Property Tax	08/28/2023	0	62.00
5711-10-5711-69860	MUSCATINE COUNTY TREASURER Drainage Tax	08/28/2023	0	21.00
5711-10-5711-69860	MUSCATINE COUNTY TREASURER Levee Tax	08/28/2023	0	11.00
5711-10-5711-69860	MUSCATINE COUNTY TREASURER Drainage Tax	08/28/2023	0	167.00
5711-10-5711-69860	MUSCATINE COUNTY TREASURER Property Tax	08/28/2023	0	122.00
5711-10-5711-69860	MUSCATINE COUNTY TREASURER Drainage Tax	08/28/2023	0	27.00
5711-10-5711-69860	MUSCATINE COUNTY TREASURER Drainage Tax	08/28/2023	0	41.00
5711-10-5711-69860	MUSCATINE COUNTY TREASURER Property Tax	08/28/2023	0	332.00
5711-10-5711-69860	MUSCATINE COUNTY TREASURER Levee Tax	08/28/2023	0	11.00
5711-10-5711-69860	MUSCATINE COUNTY TREASURER Drainage Tax	08/28/2023	0	287.00
5711-10-5711-69860	MUSCATINE COUNTY TREASURER Drainage Tax	08/28/2023	0	25.00
5711-10-5711-69860	MUSCATINE COUNTY TREASURER Drainage Tax	08/28/2023	0	23.00
5711-10-5711-69860	MUSCATINE COUNTY TREASURER Drainage Tax	08/28/2023	0	583.00
5711-10-5711-69860	MUSCATINE COUNTY TREASURER Drainage Tax	08/28/2023	0	19.00
5711-10-5711-69860	MUSCATINE COUNTY TREASURER Drainage Tax	08/28/2023	0	11.00
	Vendor Subtotal:			16,479.00
	Subtotal for FUND: 5711			20,597.01
5811-00-0000-24400	BOUND TREE MEDICAL LLC Infusion Sets	08/28/2023	0	86.39
	Vendor Subtotal:			86.39
5811-20-5811-35150	IOWA MEDICAID ENTERPRISE (IME State GEMT	08/28/2023	0	39,242.09
	Vendor Subtotal:			39,242.09
5811-20-5811-52740	ARNOLD MOTOR SUPPLY Oil	08/28/2023	0	36.58
	Vendor Subtotal:			36.58
5811-20-5811-52840	BOUND TREE MEDICAL LLC #G2291 Cynch-Lok with Tamper Evider	08/28/2023	0	29.81 00025210
5811-20-5811-52840	BOUND TREE MEDICAL LLC #2021-14680 Curaplex Select Nasophary	08/28/2023	0	14.80 00025210
5811-20-5811-52840	BOUND TREE MEDICAL LLC #2744-70837 Shave Preparation Razor B	08/28/2023	0	49.00 00025210
5811-20-5811-52840	BOUND TREE MEDICAL LLC #2733-14605 Disposable Probe Covers F	08/28/2023	0	18.29 00025210
5811-20-5811-52840	BOUND TREE MEDICAL LLC #D4804 Bulb Tip Yankauer with Tubing	08/28/2023	0	33.54 00025210

5811-20-5811-52840	BOUND TREE MEDICAL LLC	#1712-15830	Curaplex IV Admin Set 15	08/28/2023	0	159.50 00025210
5811-20-5811-52840	BOUND TREE MEDICAL LLC	#670161-KIT	Curaplex Assure Prism Or	08/28/2023	0	143.98 00025210
5811-20-5811-52840	BOUND TREE MEDICAL LLC	#2212-11200	Curaplex Disposable Hydr	08/28/2023	0	18.55 00025210
5811-20-5811-52840	BOUND TREE MEDICAL LLC	#1714-31081	Curaplex IV Extension Set	08/28/2023	0	142.00 00025210
5811-20-5811-52840	BOUND TREE MEDICAL LLC	#3246-44110	TITAN II Black	08/28/2023	0	65.99 00025210
5811-20-5811-52840	BOUND TREE MEDICAL LLC	#2021-14675	Curaplex Select Nasophary	08/28/2023	0	14.80 00025210
5811-20-5811-52840	BOUND TREE MEDICAL LLC	#2522-00818	G3 Breather Pack Red	08/28/2023	0	561.98 00025210
5811-20-5811-52840	BOUND TREE MEDICAL LLC	#1612-84245	Curaplex CuraSlide XC Sa	08/28/2023	0	89.00 00025210
5811-20-5811-52840	BOUND TREE MEDICAL LLC	#1922-06260	Sterile Water for Irrigation	08/31/2023	0	144.99 00025333
Vendor Subtotal:						1,486.23
5811-20-5811-52840	S.J. SMITH CO.	Oxygen		08/28/2023	0	184.99
Vendor Subtotal:						184.99
5811-20-5811-52840	UNITYPOINT HEALTH	Ambulance Stock		08/28/2023	0	66.47
Vendor Subtotal:						66.47
5811-20-5811-53220	ARNOLD MOTOR SUPPLY	Spin-On		08/28/2023	0	35.91
5811-20-5811-53220	ARNOLD MOTOR SUPPLY	Filter		08/28/2023	0	38.88
Vendor Subtotal:						74.79
5811-20-5811-62220	STERICYCLE INC	September Medical Waste Hauling		09/01/2023	0	224.15
Vendor Subtotal:						224.15
5811-20-5811-64600	DARRELL JANSSEN	Reimb Books for Paramedic Class		08/31/2023	0	717.45
Vendor Subtotal:						717.45
5811-20-5811-65240	MUSCATINE POWER & WATER	July Internet - S Fire		08/28/2023	0	255.00
Vendor Subtotal:						255.00
5811-20-5811-67310	ADVANCED BUSINESS SYSTEMS INC	Copier		08/31/2023	0	37.66

Vendor Subtotal:					37.66
Subtotal for FUND: 5811					42,411.80
7625-40-7625-52400	GRAINGER DEPT 802675066	Fall Limiter for Shop	08/31/2023	0	270.25 00025227
7625-40-7625-52400	GRAINGER DEPT 802675066	Harnesses for the Shop	08/31/2023	0	327.27 00025231
Vendor Subtotal:					597.52
7625-40-7625-52730	BLICK & BLICK OIL INC	Diesel for Tank #3	08/31/2023	0	21,105.55 00025310
Vendor Subtotal:					21,105.55
7625-40-7625-52740	TITAN MACHINERY INC	Oil for 149	08/28/2023	0	171.00 00025276
Vendor Subtotal:					171.00
7625-40-7625-52830	AMAZON.COM	Jump Pack for the Shop	08/31/2023	0	344.89 00025250
7625-40-7625-52830	AMAZON.COM	Jump Pack for the Shop	08/31/2023	0	0.10
Vendor Subtotal:					344.99
7625-40-7625-52890	AMAZON.COM	Employee Group Photo	08/31/2023	0	6.67
Vendor Subtotal:					6.67
7625-40-7625-53210	ARNOLD MOTOR SUPPLY	Filters/Oil for Stock	08/31/2023	0	103.94 00025303
Vendor Subtotal:					103.94
7625-40-7625-53210	CERTIFIED LABORATORIES	Grease Tubes for Stock	08/31/2023	0	472.95 00025255
7625-40-7625-53210	CERTIFIED LABORATORIES	Fuel Surcharge	08/31/2023	0	9.95
Vendor Subtotal:					482.90
7625-40-7625-53210	NAPA OF MUSCATINE	Fuse	08/28/2023	0	3.45
7625-40-7625-53210	NAPA OF MUSCATINE	Brake Pads/Wipers for Stock	08/28/2023	0	312.93 00025241

7625-40-7625-53210	NAPA OF MUSCATINE	Rotor for Stock	08/28/2023	0	154.26 00025251
7625-40-7625-53210	NAPA OF MUSCATINE	Rotor	08/28/2023	0	154.26
Vendor Subtotal:					624.90
7625-40-7625-53210	CARQUEST OF MUSCATINE	Filters	08/28/2023	0	72.81
Vendor Subtotal:					72.81
7625-40-7625-53220	ALTORFER INC	Door Handle for #418	08/31/2023	0	127.18 00025186
7625-40-7625-53220	ALTORFER INC	Shipping	08/31/2023	0	14.64
Vendor Subtotal:					141.82
7625-40-7625-53220	ARNOLD MOTOR SUPPLY	Hose Fittings for Crane	08/28/2023	0	264.00 00025088
7625-40-7625-53220	ARNOLD MOTOR SUPPLY	Swivel	08/28/2023	0	264.00
7625-40-7625-53220	ARNOLD MOTOR SUPPLY	Swivel Return	08/28/2023	0	-264.00
7625-40-7625-53220	ARNOLD MOTOR SUPPLY	Relay	08/28/2023	0	13.98
7625-40-7625-53220	ARNOLD MOTOR SUPPLY	Air Filters for 414	08/31/2023	0	146.95 00025249
7625-40-7625-53220	ARNOLD MOTOR SUPPLY	Sealant	08/28/2023	0	54.99
7625-40-7625-53220	ARNOLD MOTOR SUPPLY	Hoses for 645	08/31/2023	0	194.94 00025324
7625-40-7625-53220	ARNOLD MOTOR SUPPLY	Blower Motors for 253	08/31/2023	0	300.50 00025346
7625-40-7625-53220	ARNOLD MOTOR SUPPLY	Hose Connector	08/31/2023	0	5.07
7625-40-7625-53220	ARNOLD MOTOR SUPPLY	Air Filter	08/31/2023	0	28.22
7625-40-7625-53220	ARNOLD MOTOR SUPPLY	Blade	08/31/2023	0	8.29
7625-40-7625-53220	ARNOLD MOTOR SUPPLY	Canister	08/31/2023	0	33.95
7625-40-7625-53220	ARNOLD MOTOR SUPPLY	Canister	08/31/2023	0	67.90
Vendor Subtotal:					1,118.79
7625-40-7625-53220	ELLIOTT EQUIPMENT COMPANY	Valves/Elbows/Gasket for 645	08/28/2023	0	2,145.54 00025091
7625-40-7625-53220	ELLIOTT EQUIPMENT COMPANY	Valves/Elbows/Gasket for 645	08/28/2023	0	70.86
7625-40-7625-53220	ELLIOTT EQUIPMENT COMPANY	Sensors/Rollers/Kit dor 440	08/28/2023	0	1,379.45 00025148
7625-40-7625-53220	ELLIOTT EQUIPMENT COMPANY	Sensors/Rollers/Kit dor 440	08/28/2023	0	36.93
7625-40-7625-53220	ELLIOTT EQUIPMENT COMPANY	Filters/Switch for 439	08/31/2023	0	386.72 00025254
7625-40-7625-53220	ELLIOTT EQUIPMENT COMPANY	Tube/Valve for 645	08/31/2023	0	319.84 00025282
Vendor Subtotal:					4,339.34
7625-40-7625-53220	FASTENAL COMPANY	Bolts	08/31/2023	0	6.35

			Vendor Subtotal:		6.35
7625-40-7625-53220	GRAINGER DEPT 802675066	1 1/4" Ball Valve for 645	08/28/2023	0	404.89 00025090
			Vendor Subtotal:		404.89
7625-40-7625-53220	LOGAN CONTRACTORS SUPPLY IN	Cap #87	08/31/2023	0	17.11
			Vendor Subtotal:		17.11
7625-40-7625-53220	MARTIN EQUIPMENT OF IA-IL INC	Parts #2	08/28/2023	0	1,910.00 00025222
7625-40-7625-53220	MARTIN EQUIPMENT OF IA-IL INC	Parts #2	08/28/2023	0	48.09
			Vendor Subtotal:		1,958.09
7625-40-7625-53220	MENARDS (MUSC)	Rings	08/28/2023	0	23.96
7625-40-7625-53220	MENARDS (MUSC)	Lath	08/28/2023	0	24.54
7625-40-7625-53220	MENARDS (MUSC)	Straps	08/28/2023	0	35.92
7625-40-7625-53220	MENARDS (MUSC)	Caulk	08/28/2023	0	26.97
			Vendor Subtotal:		111.39
7625-40-7625-53220	MOTION INDUSTRIES INC	Fittings	08/28/2023	0	32.58
			Vendor Subtotal:		32.58
7625-40-7625-53220	NAPA OF MUSCATINE	Washer Tank Cap	08/28/2023	0	12.56
7625-40-7625-53220	NAPA OF MUSCATINE	Tee Connector	08/31/2023	0	5.97
7625-40-7625-53220	NAPA OF MUSCATINE	Return	08/28/2023	0	-189.81
7625-40-7625-53220	NAPA OF MUSCATINE	Switch	08/28/2023	0	41.74
7625-40-7625-53220	NAPA OF MUSCATINE	Steering Stabilizer	08/28/2023	0	43.30
			Vendor Subtotal:		-86.24
7625-40-7625-53220	REEVES BATTERY SALES	Battery for 745	08/31/2023	0	140.00 00025316
7625-40-7625-53220	REEVES BATTERY SALES	Batteries for #251	08/28/2023	0	248.00 00025183
			Vendor Subtotal:		388.00

7625-40-7625-53220	THOMAS BUS SALES OF IOWA INC	Seat Belt #252	08/31/2023	0	69.20
		Vendor Subtotal:			69.20
7625-40-7625-53220	TITAN MACHINERY INC	Cutting Edge for RC2	08/31/2023	0	1,597.60 00025289
		Vendor Subtotal:			1,597.60
7625-40-7625-53220	SINCLAIR	Filters	08/31/2023	0	86.63
		Vendor Subtotal:			86.63
7625-40-7625-53220	AMAZON.COM	Coolant Cap	08/28/2023	0	15.84
		Vendor Subtotal:			15.84
7625-40-7625-53220	KUNAU IMPLEMENT CO	Shipping	08/31/2023	0	11.85 00024904
7625-40-7625-53220	KUNAU IMPLEMENT CO	Gearbox for Mower #417	08/31/2023	0	1,529.61 00024904
		Vendor Subtotal:			1,541.46
7625-40-7625-53220	CARQUEST OF MUSCATINE	MF Switch for 255	08/28/2023	0	132.05 00025260
7625-40-7625-53220	CARQUEST OF MUSCATINE	Hose Connector	08/31/2023	0	1.72
7625-40-7625-53220	CARQUEST OF MUSCATINE	Air Filter	08/31/2023	0	10.82
		Vendor Subtotal:			144.59
7625-40-7625-53220	EMAG MUSCATINE CBG LLC	Seats for 251 and 252	08/28/2023	0	1,250.00 00025177
7625-40-7625-53220	EMAG MUSCATINE CBG LLC	Module #752	08/31/2023	0	90.25
		Vendor Subtotal:			1,340.25
7625-40-7625-53220	SHUR CO	Freight	08/28/2023	0	148.83 00024871
7625-40-7625-53220	SHUR CO	Transfer Trailer Tarps	08/28/2023	0	1,462.00 00024871
		Vendor Subtotal:			1,610.83
7625-40-7625-62530	PIPECO, INC	Pump Water Out of Tank #2	08/31/2023	0	772.24

			Vendor Subtotal:		772.24
7625-40-7625-65275	VERIZON	June GPS Charges	06/30/2023	0	17.45
			Vendor Subtotal:		17.45
7625-40-7625-67130	DOUGLAS C REIST	Tow #752	08/28/2023	0	75.00
7625-40-7625-67130	DOUGLAS C REIST	Tow #251	08/31/2023	0	250.00
			Vendor Subtotal:		325.00
7625-40-7625-67130	TRUCK AND AUTO REPAIR	Monthly Inspection for RC13,14,15	08/28/2023	0	281.00 00025208
			Vendor Subtotal:		281.00
7625-40-7625-67130	TRUCK COUNTRY OF IOWA	Tow #434	08/28/2023	0	859.95
			Vendor Subtotal:		859.95
7625-40-7625-67130	EMAG MUSCATINE CBG LLC	Replace Actuator on 4 x 4 System 753	08/28/2023	0	793.54 00025212
			Vendor Subtotal:		793.54
7625-40-7625-67140	A-1 QUALITY TIRE & CAR CARE	Tire Repairs	08/28/2023	0	88.50
7625-40-7625-67140	A-1 QUALITY TIRE & CAR CARE	Repairs for RC14	08/28/2023	0	101.45 00025172
7625-40-7625-67140	A-1 QUALITY TIRE & CAR CARE	315/80R22.5 Steer for Stock	08/28/2023	0	810.00 00025167
7625-40-7625-67140	A-1 QUALITY TIRE & CAR CARE	4 Tires for 124	08/28/2023	0	640.00 00025129
7625-40-7625-67140	A-1 QUALITY TIRE & CAR CARE	4 Tires for 124	08/28/2023	0	26.00
7625-40-7625-67140	A-1 QUALITY TIRE & CAR CARE	Tire Repairs for RC14	08/28/2023	0	117.00 00025196
7625-40-7625-67140	A-1 QUALITY TIRE & CAR CARE	Repairs on 18	08/28/2023	0	279.90 00025198
7625-40-7625-67140	A-1 QUALITY TIRE & CAR CARE	Tire Repairs	08/28/2023	0	84.00
7625-40-7625-67140	A-1 QUALITY TIRE & CAR CARE	Mounting 4 Tires	08/31/2023	0	200.00 00025294
7625-40-7625-67140	A-1 QUALITY TIRE & CAR CARE	Repairs for #70	08/31/2023	0	102.50 00025293
7625-40-7625-67140	A-1 QUALITY TIRE & CAR CARE	Tire Repair	08/31/2023	0	88.50
7625-40-7625-67140	A-1 QUALITY TIRE & CAR CARE	Tire Repair	08/31/2023	0	72.45
			Vendor Subtotal:		2,610.30
7625-40-7625-67140	EASTERN IOWA TIRE INC	4 Tires for 645	08/28/2023	0	1,993.36 00025153

7625-40-7625-67140	EASTERN IOWA TIRE INC	11r22.5 DRIVE CAPS FOR STOCK	08/28/2023	0	943.80 00025242
7625-40-7625-67140	EASTERN IOWA TIRE INC	Tires for 645	08/31/2023	0	1,993.36 00025262
Vendor Subtotal:					4,930.52
Subtotal for FUND: 7625					48,938.80
7635-00-7635-51100	QUILL CORPORATION	Invisible Tape	08/28/2023	0	9.70 00025033
7635-00-7635-51100	QUILL CORPORATION	Medium Binder Clips	08/28/2023	0	5.40 00025033
7635-00-7635-51100	QUILL CORPORATION	Large Binder Clips	08/28/2023	0	4.10 00025033
7635-00-7635-51100	QUILL CORPORATION	VCG11BE BIC Atlantis Blue Medium Pe	08/28/2023	0	170.76 00025033
7635-00-7635-51100	QUILL CORPORATION	Cash Register 2 Ply 3 1/4 x 108 48 Pack	08/28/2023	0	121.36 00025033
7635-00-7635-51100	QUILL CORPORATION	Avery #11112 Clear 8 Tab Dividers	08/28/2023	0	8.40 00025033
7635-00-7635-51100	QUILL CORPORATION	#2 Pencils	08/28/2023	0	0.94 00025033
7635-00-7635-51100	QUILL CORPORATION	8 1/2 x 11 Legal Pads	08/28/2023	0	161.68 00025033
7635-00-7635-51100	QUILL CORPORATION	Standard Staples	08/28/2023	0	12.96 00025033
Vendor Subtotal:					495.30
7635-00-7635-51100	STAPLES ADVANTAGE	Packaging Tape - Duck HP260	08/28/2023	0	24.24 00025032
7635-00-7635-51100	STAPLES ADVANTAGE	Staples Brand Correction Tape	08/28/2023	0	184.68 00025032
7635-00-7635-51100	STAPLES ADVANTAGE	#33 Rubberbands - 28617-CC	08/28/2023	0	9.60 00025032
7635-00-7635-51100	STAPLES ADVANTAGE	Small Paper Clips Smooth	08/28/2023	0	6.26 00025032
7635-00-7635-51100	STAPLES ADVANTAGE	0.5 Lead Refill	08/28/2023	0	4.20 00025032
7635-00-7635-51100	STAPLES ADVANTAGE	Large Paperclips Smooth	08/28/2023	0	6.08 00025032
7635-00-7635-51100	STAPLES ADVANTAGE	3 x 3 Post-its 14 Pack	08/28/2023	0	223.36 00025032
7635-00-7635-51100	STAPLES ADVANTAGE	VCG11BK BIC Atlantis Black Medium I	08/28/2023	0	92.40 00025032
7635-00-7635-51100	STAPLES ADVANTAGE	Pilot Mechanical Pencil 0.5	08/28/2023	0	11.72 00025032
7635-00-7635-51100	STAPLES ADVANTAGE	Post-its 3 x 5 Yellow	08/28/2023	0	32.16 00025032
7635-00-7635-51100	STAPLES ADVANTAGE	Pilot Mechanical Pencil 0.7	08/28/2023	0	11.72 00025032
Vendor Subtotal:					606.42
Subtotal for FUND: 7635					1,101.72
7921-00-7921-46400	IMWCA	Work Comp Installment #3	09/01/2023	0	13,051.00
Vendor Subtotal:					13,051.00

Subtotal for FUND: 7921					13,051.00
7940-00-7940-52300	PHELPS CUSTOM IMAGE WEAR	Uniforms - T Meade	08/31/2023	0	46.24
Vendor Subtotal:					46.24
7940-00-7940-62310	XEROX CORPORATION	July Copies	08/31/2023	0	9.06
7940-00-7940-62310	XEROX CORPORATION	July Copies	08/31/2023	0	1.29
7940-00-7940-62310	XEROX CORPORATION	July Copies	08/31/2023	0	1.29
7940-00-7940-62310	XEROX CORPORATION	July Copies	08/31/2023	0	10.35
7940-00-7940-62310	XEROX CORPORATION	June Copies	08/31/2023	0	8.43
7940-00-7940-62310	XEROX CORPORATION	June Copies	08/31/2023	0	7.37
7940-00-7940-62310	XEROX CORPORATION	June Copies	08/31/2023	0	1.05
7940-00-7940-62310	XEROX CORPORATION	June Copies	08/31/2023	0	1.05
Vendor Subtotal:					39.89
7940-00-7940-65210	MUSCATINE POWER & WATER	July Base PRI	08/28/2023	0	72.02
Vendor Subtotal:					72.02
7940-00-7940-65240	MUSCATINE POWER & WATER	July - August Machlink	08/28/2023	0	123.98
Vendor Subtotal:					123.98
7940-00-7940-65275	VERIZON	June GPS	08/31/2023	0	34.90
Vendor Subtotal:					34.90
Subtotal for FUND: 7940					317.03
8370-00-8370-74400	HON COMPANY	18 Office Chairs	08/28/2023	0	8,444.77 00024800
Vendor Subtotal:					8,444.77
Subtotal for FUND: 8370					8,444.77

8450-05-8450-74250	AMAZON.COM	Bliksem 1TB 2.5" SSD	08/31/2023	0	203.64 00025354
8450-05-8450-74250	AMAZON.COM	2.5" USB External Drive Enclosure	08/31/2023	0	35.94 00025354
		Vendor Subtotal:			239.58
		Subtotal for FUND: 8450			239.58
8750-01-8750-68300	Riverview Hotel Development	Reinvestment District Proceeds April - Ju	06/30/2023	0	71,932.76
		Vendor Subtotal:			71,932.76
		Subtotal for FUND: 8750			71,932.76
9002-90-9020-41100	CITY OF MUSCATINE HOUSING RE'	Admin Full-Time Wages 8/18/23	08/31/2023	0	3,182.08
9002-90-9020-41100	CITY OF MUSCATINE HOUSING RE'	Admin Longevity 8/18/23	08/31/2023	0	4.23
9002-90-9020-41100	CITY OF MUSCATINE HOUSING RE'	Admin Full-Time Wages 8/31/23	08/31/2023	0	3,182.07
9002-90-9020-41100	CITY OF MUSCATINE HOUSING RE'	Admin Longevity 8/31/23	08/31/2023	0	4.23
		Vendor Subtotal:			6,372.61
9002-90-9020-41500	CITY OF MUSCATINE HOUSING RE'	September Auto Allowance	09/01/2023	0	37.50
		Vendor Subtotal:			37.50
9002-90-9020-41901	AMAZON.COM	Storage Clipboard	08/31/2023	0	22.30
		Vendor Subtotal:			22.30
9002-90-9020-41902	QUILL CORPORATION	HP 138A (W1380A) Black Toner	08/28/2023	0	108.78 00025020
		Vendor Subtotal:			108.78
9002-90-9020-41904	CITY OF MUSCATINE HOUSING RE'	Mobile Phone Allowance 8/18/23	08/31/2023	0	4.50
		Vendor Subtotal:			4.50
9002-90-9020-41910	TEMP ASSOCIATES	Temp Employee Week Ending 8/20/23	08/31/2023	0	874.37

		Vendor Subtotal:			874.37
9002-90-9020-41910	STEPHANIE BROPHY	August 2023 Stipend	08/31/2023	0	100.00
9002-90-9020-41910	STEPHANIE BROPHY	July 2023 Stipend	08/31/2023	0	100.00
		Vendor Subtotal:			200.00
9002-90-9020-43700	ALLIANT ENERGY	July Gas - Clark House	08/28/2023	0	488.49
		Vendor Subtotal:			488.49
9002-90-9020-44100	CITY OF MUSCATINE HOUSING RE'	Maint Full-Time Wages 8/18/23	08/31/2023	0	1,895.74
9002-90-9020-44100	CITY OF MUSCATINE HOUSING RE'	Maint Part-Time Wages 8/18/23	08/31/2023	0	1,448.44
9002-90-9020-44100	CITY OF MUSCATINE HOUSING RE'	Maint Longevity 8/18/23	08/31/2023	0	4.55
9002-90-9020-44100	CITY OF MUSCATINE HOUSING RE'	Maint Full-Time Wages 8/31/23	08/31/2023	0	1,895.74
9002-90-9020-44100	CITY OF MUSCATINE HOUSING RE'	Maint Part-Time Wages 8/31/23	08/31/2023	0	1,397.51
9002-90-9020-44100	CITY OF MUSCATINE HOUSING RE'	Maint Longevity 8/31/23	08/31/2023	0	4.55
		Vendor Subtotal:			6,646.53
9002-90-9020-44201	MENARDS (MUSC)	Squeegees	08/28/2023	0	65.97
		Vendor Subtotal:			65.97
9002-90-9020-44201	AMAZON.COM	Straw Brush	08/31/2023	0	13.80
9002-90-9020-44201	AMAZON.COM	Scour Pads	08/31/2023	0	34.99
9002-90-9020-44201	AMAZON.COM	Gloves/Floor Cleaner/Pumice	08/31/2023	0	66.22
		Vendor Subtotal:			115.01
9002-90-9020-44204	MARK A DIERCKS	CH Apartment Entry Door Lever Handles	08/31/2023	0	420.00 00024995
9002-90-9020-44204	MARK A DIERCKS	Decode Lock/Duplicate Keys	08/31/2023	0	40.00
		Vendor Subtotal:			460.00
9002-90-9020-44205	MENARDS (MUSC)	Toggle/Plate	08/28/2023	0	18.35
		Vendor Subtotal:			18.35

9002-90-9020-44206	HD SUPPLY FACILITIES MAINT	Fluidmaster/Chrome Handle	08/31/2023	0	71.93
9002-90-9020-44206	HD SUPPLY FACILITIES MAINT	Angle Stop	08/31/2023	0	55.49
Vendor Subtotal:					127.42
9002-90-9020-44206	PLUMB SUPPLY COMPANY	Tank Bolt Kit/Bowl Ring/Seat	08/31/2023	0	99.66
9002-90-9020-44206	PLUMB SUPPLY COMPANY	Seats	08/31/2023	0	65.05
9002-90-9020-44206	PLUMB SUPPLY COMPANY	Plumbers Putty	08/31/2023	0	12.64
Vendor Subtotal:					177.35
9002-90-9020-44206	AMAZON.COM	Touch Flush Valve	08/31/2023	0	67.26
9002-90-9020-44206	AMAZON.COM	Touch Flush Valve	08/31/2023	0	33.63
Vendor Subtotal:					100.89
9002-90-9020-44207	MENARDS (MUSC)	Taping Knife/Liner/Sponge/Brush	08/31/2023	0	95.98
Vendor Subtotal:					95.98
9002-90-9020-44207	SHERWIN WILLIAMS	Paint	08/31/2023	0	22.95
Vendor Subtotal:					22.95
9002-90-9020-44301	CITY OF MUSCATINE	September 2023 Refuse	09/01/2023	0	182.32
Vendor Subtotal:					182.32
9002-90-9020-44303	SPANN'S PEST CONTROL LLC	Pest Control 511	08/31/2023	0	50.00
9002-90-9020-44303	SPANN'S PEST CONTROL LLC	Pest Control 1105	08/31/2023	0	20.00
9002-90-9020-44303	SPANN'S PEST CONTROL LLC	DOS 8-10-23 CH 306 & 304 Bed Bug Fo	08/31/2023	0	200.00 00025057
9002-90-9020-44303	SPANN'S PEST CONTROL LLC	Pest Control 1103	08/31/2023	0	20.00
9002-90-9020-44303	SPANN'S PEST CONTROL LLC	DOS 8-17-23 CH 801 Initial Bed Bug	08/31/2023	0	392.00 00025189
9002-90-9020-44303	SPANN'S PEST CONTROL LLC	Pest Control 804	08/31/2023	0	20.00
9002-90-9020-44303	SPANN'S PEST CONTROL LLC	DOS 8-17-23 CH 509 and 305 Initial Bec	08/31/2023	0	806.00 00025189
9002-90-9020-44303	SPANN'S PEST CONTROL LLC	Bed Bug Clean out of 511 & 513 After M	08/31/2023	0	800.00 00025130
9002-90-9020-44303	SPANN'S PEST CONTROL LLC	Monthly Pest Control	08/31/2023	0	600.00
9002-90-9020-44303	SPANN'S PEST CONTROL LLC	Monthly Pest Control	08/31/2023	0	100.00
9002-90-9020-44303	SPANN'S PEST CONTROL LLC	DOS 8-17-23 CH 513 & 511	08/31/2023	0	200.00 00025189

9002-90-9020-44303	SPANN'S PEST CONTROL LLC	Pest Control 504	08/31/2023	0	20.00
9002-90-9020-44303	SPANN'S PEST CONTROL LLC	Pest Control 502	08/31/2023	0	20.00
Vendor Subtotal:					3,248.00
9002-90-9020-44311	KELLY HEATING COOLING & PLBG	Repair Sewer Machine	08/28/2023	0	180.00
Vendor Subtotal:					180.00
9002-90-9020-44315	TOWN & COUNTRY PAINTNG	CH 507 Paint Rehab Walls 2 Coats	08/31/2023	0	550.00 00025237
Vendor Subtotal:					550.00
9002-90-9020-44318	BURNS & SON'S DIRECT APPLIANC	CH 8th Floor Washer Repair Labor for : 1	08/31/2023	0	162.00 00025277
9002-90-9020-44318	BURNS & SON'S DIRECT APPLIANC	CH 8th Floor Washer Repair: Service Ca	08/31/2023	0	79.00 00025277
Vendor Subtotal:					241.00
9002-90-9020-45103	CITY OF MUSCATINE HOUSING RE'	Unemployment 8/18/23	08/31/2023	0	29.40
9002-90-9020-45103	CITY OF MUSCATINE HOUSING RE'	Unemployment 8/31/23	08/31/2023	0	28.93
Vendor Subtotal:					58.33
9002-90-9020-45401	CITY OF MUSCATINE HOUSING RE'	FICA 8/18/23	08/31/2023	0	464.20
9002-90-9020-45401	CITY OF MUSCATINE HOUSING RE'	FICA 8/31/23	08/31/2023	0	489.58
Vendor Subtotal:					953.78
9002-90-9020-45402	CITY OF MUSCATINE HOUSING RE'	IPERS 8/18/23	08/31/2023	0	616.90
9002-90-9020-45402	CITY OF MUSCATINE HOUSING RE'	IPERS 8/31/23	08/31/2023	0	612.08
Vendor Subtotal:					1,228.98
9002-90-9020-45403	CITY OF MUSCATINE HOUSING RE'	Health Insurance 8/18/23	08/31/2023	0	3,937.63
Vendor Subtotal:					3,937.63
9002-90-9020-45404	CITY OF MUSCATINE HOUSING RE'	Life Insurance 8/18/23	08/31/2023	0	20.49

		Vendor Subtotal:		20.49
9002-90-9020-45405	CITY OF MUSCATINE HOUSING RE' Dental Insurance 8/18/23	08/31/2023	0	67.69
		Vendor Subtotal:		67.69
9002-90-9020-45406	CITY OF MUSCATINE HOUSING RE' LTD Insurance 8/18/23	08/31/2023	0	26.17
9002-90-9020-45406	CITY OF MUSCATINE HOUSING RE' LTD BW Insurance 8/18/23	08/31/2023	0	3.19
		Vendor Subtotal:		29.36
9002-90-9020-75400	BURNS & SON'S DIRECT APPLIANC CH 7th Floor Washer Replacement Mode	08/28/2023	0	1,075.00 00024882
9002-90-9020-75400	BURNS & SON'S DIRECT APPLIANC CH 310 Refrigerator Replacement Model	08/31/2023	0	640.00 00025059
9002-90-9020-75400	BURNS & SON'S DIRECT APPLIANC CH 505 Refrigerator Replacement Model	08/31/2023	0	640.00 00025060
		Vendor Subtotal:		2,355.00
		Subtotal for FUND: 9002		28,991.58
9004-90-9040-41100	CITY OF MUSCATINE HOUSING RE' Admin Full-Time Wages 8/18/23	08/31/2023	0	947.99
9004-90-9040-41100	CITY OF MUSCATINE HOUSING RE' Admin Full-Time Wages 8/31/23	08/31/2023	0	948.00
		Vendor Subtotal:		1,895.99
9004-90-9040-41902	AMAZON.COM Toner	08/31/2023	0	30.99
		Vendor Subtotal:		30.99
9004-90-9040-43700	ALLIANT ENERGY July Gas - Hershey	08/28/2023	0	267.66
		Vendor Subtotal:		267.66
9004-90-9040-44100	CITY OF MUSCATINE HOUSING RE' Maint Full-Time Wages 8/18/23	08/31/2023	0	947.87
9004-90-9040-44100	CITY OF MUSCATINE HOUSING RE' Maint Part-Time Wages 8/18/23	08/31/2023	0	1,323.84
9004-90-9040-44100	CITY OF MUSCATINE HOUSING RE' Maint Longevity 8/18/23	08/31/2023	0	12.03
9004-90-9040-44100	CITY OF MUSCATINE HOUSING RE' Maint Full-Time Wages 8/31/23	08/31/2023	0	947.86
9004-90-9040-44100	CITY OF MUSCATINE HOUSING RE' Maint Part-Time Wages 8/31/23	08/31/2023	0	1,262.19
9004-90-9040-44100	CITY OF MUSCATINE HOUSING RE' Maint Longevity 8/31/23	08/31/2023	0	12.03

Vendor Subtotal:					4,505.82
9004-90-9040-44201	MENARDS (MUSC)	Pine Cleaner/Mop Head	08/28/2023	0	14.46
Vendor Subtotal:					14.46
9004-90-9040-44201	AMAZON.COM	Glade Refills	08/31/2023	0	42.82
Vendor Subtotal:					42.82
9004-90-9040-44203	MENARDS (MUSC)	Shovel/Tamper	08/28/2023	0	57.96
Vendor Subtotal:					57.96
9004-90-9040-44204	MENARDS (MUSC)	HM Retaining Wall: 4" x 3" Corrugated	08/31/2023	0	5.99 00025224
9004-90-9040-44204	MENARDS (MUSC)	HM Retaining Wall: 2-3/8 x 12 Tru-Silv	08/31/2023	0	59.80 00025224
9004-90-9040-44204	MENARDS (MUSC)	HM Retaining Wall: 4" x 10' Corrugated	08/31/2023	0	38.32 00025224
9004-90-9040-44204	MENARDS (MUSC)	HM Retaining Wall: 5-1/2 x 18 Silver M	08/31/2023	0	359.40 00025224
9004-90-9040-44204	MENARDS (MUSC)	HM Retaining Wall: Paver Base - 1/2 Cu	08/31/2023	0	127.60 00025224
Vendor Subtotal:					591.11
9004-90-9040-44205	MENARDS (MUSC)	Bulbs	08/28/2023	0	97.65
9004-90-9040-44205	MENARDS (MUSC)	Bulbs/BackWire	08/28/2023	0	59.41
Vendor Subtotal:					157.06
9004-90-9040-44206	PLUMB SUPPLY COMPANY	Flange/Floor Outlet/Tank Repair Kit	08/28/2023	0	89.42
Vendor Subtotal:					89.42
9004-90-9040-44210	MENARDS (MUSC)	Tank Sprayer	08/31/2023	0	29.68
Vendor Subtotal:					29.68
9004-90-9040-44301	CITY OF MUSCATINE	September 2023 Refuse	09/01/2023	0	98.20

			Vendor Subtotal:		98.20
9004-90-9040-44302	PHELPS CLEANING SERVICE INC	HM 114 Carpet Cleaning	08/31/2023	0	145.00 00025240
9004-90-9040-44302	PHELPS CLEANING SERVICE INC	Do-Oderize Carpets 114	08/31/2023	0	45.00
			Vendor Subtotal:		190.00
9004-90-9040-44303	SPANN'S PEST CONTROL LLC	Monthly Pest Control	08/31/2023	0	50.00
9004-90-9040-44303	SPANN'S PEST CONTROL LLC	Monthly Pest Control	08/31/2023	0	300.00
			Vendor Subtotal:		350.00
9004-90-9040-44307	STATE OF IOWA - ELEVATOR SAFE	Elevator Inspection	08/28/2023	0	175.00
			Vendor Subtotal:		175.00
9004-90-9040-45103	CITY OF MUSCATINE HOUSING RE'	Unemployment 8/18/23	08/31/2023	0	20.55
9004-90-9040-45103	CITY OF MUSCATINE HOUSING RE'	Unemployment 8/31/23	08/31/2023	0	19.97
			Vendor Subtotal:		40.52
9004-90-9040-45401	CITY OF MUSCATINE HOUSING RE'	FICA 8/18/23	08/31/2023	0	237.33
9004-90-9040-45401	CITY OF MUSCATINE HOUSING RE'	FICA 8/31/23	08/31/2023	0	235.45
			Vendor Subtotal:		472.78
9004-90-9040-45402	CITY OF MUSCATINE HOUSING RE'	IPERS 8/18/23	08/31/2023	0	305.08
9004-90-9040-45402	CITY OF MUSCATINE HOUSING RE'	IPERS 8/31/23	08/31/2023	0	299.25
			Vendor Subtotal:		604.33
9004-90-9040-45403	CITY OF MUSCATINE HOUSING RE'	Health Insurance 8/18/23	08/31/2023	0	656.28
			Vendor Subtotal:		656.28
9004-90-9040-45404	CITY OF MUSCATINE HOUSING RE'	Life Insurance 8/18/23	08/31/2023	0	7.03

			Vendor Subtotal:	7.03
9004-90-9040-45405	CITY OF MUSCATINE HOUSING RE'	Dental Insurance 8/18/23	08/31/2023	0 27.40
			Vendor Subtotal:	27.40
9004-90-9040-45406	CITY OF MUSCATINE HOUSING RE'	LTD Insurance 8/18/23	08/31/2023	0 9.46
9004-90-9040-45406	CITY OF MUSCATINE HOUSING RE'	LTD BW Insurance 8/18/23	08/31/2023	0 1.60
			Vendor Subtotal:	11.06
			Subtotal for FUND: 9004	10,315.57
9006-90-9060-31100	MUSCATINE POWER & WATER	August Utility Credit J Fisher 2708 C Blc	08/28/2023	0 52.00
9006-90-9060-31100	MUSCATINE POWER & WATER	August Utility Credit T Penland 2800 D I	08/28/2023	0 146.00
9006-90-9060-31100	MUSCATINE POWER & WATER	August Utility Credit A Huscko 2812 D I	08/28/2023	0 90.00
9006-90-9060-31100	MUSCATINE POWER & WATER	August Utility Credit B Swanson 2812 E	08/28/2023	0 79.00
9006-90-9060-31100	MUSCATINE POWER & WATER	August Utility Credit A Lonpea 2904 C E	08/28/2023	0 78.00
9006-90-9060-31100	MUSCATINE POWER & WATER	August Utility Credit I Sherrill 2908 C Bl	08/28/2023	0 75.00
			Vendor Subtotal:	520.00
9006-90-9060-41100	CITY OF MUSCATINE HOUSING RE'	Admin Full-Time Wages 8/18/23	08/31/2023	0 1,813.72
9006-90-9060-41100	CITY OF MUSCATINE HOUSING RE'	Admin Longevity 8/18/23	08/31/2023	0 2.60
9006-90-9060-41100	CITY OF MUSCATINE HOUSING RE'	Admin Full-Time Wages 8/31/23	08/31/2023	0 1,813.70
9006-90-9060-41100	CITY OF MUSCATINE HOUSING RE'	Admin Longevity 8/31/23	08/31/2023	0 2.60
			Vendor Subtotal:	3,632.62
9006-90-9060-41500	CITY OF MUSCATINE HOUSING RE'	September Auto Allowance	09/01/2023	0 25.00
			Vendor Subtotal:	25.00
9006-90-9060-41902	AMAZON.COM	Toner	08/31/2023	0 39.79
			Vendor Subtotal:	39.79
9006-90-9060-41904	CITY OF MUSCATINE HOUSING RE'	Phone Allowance 8/18/23	08/31/2023	0 3.00

Vendor Subtotal:					3.00
9006-90-9060-41904	MUSCATINE POWER & WATER	July Phones - Sunset Park	08/28/2023	0	49.29
Vendor Subtotal:					49.29
9006-90-9060-41910	TEMP ASSOCIATES	Temp Employee Week Ending 8/6/23	08/28/2023	0	862.05
Vendor Subtotal:					862.05
9006-90-9060-41914	MUSCATINE POWER & WATER	July Internet - Sunset Park	08/28/2023	0	82.97
Vendor Subtotal:					82.97
9006-90-9060-43100	MUSCATINE POWER & WATER	July Water - 2700 Apt E	08/28/2023	0	21.76
9006-90-9060-43100	MUSCATINE POWER & WATER	July Water - 2806 Apt F	08/28/2023	0	23.64
9006-90-9060-43100	MUSCATINE POWER & WATER	July Water - 2800 Apt C	08/28/2023	0	38.65
9006-90-9060-43100	MUSCATINE POWER & WATER	July Water - 2704 Apt B	08/28/2023	0	16.96
9006-90-9060-43100	MUSCATINE POWER & WATER	August Water - 2704 Apt A	08/31/2023	0	16.86
9006-90-9060-43100	MUSCATINE POWER & WATER	July Water - 2704 Apt A	08/28/2023	0	16.96
9006-90-9060-43100	MUSCATINE POWER & WATER	July Water - Sunset Park	08/28/2023	0	14.13
Vendor Subtotal:					148.96
9006-90-9060-43200	MUSCATINE POWER & WATER	July Electric - 2700 Apt E	08/28/2023	0	36.33
9006-90-9060-43200	MUSCATINE POWER & WATER	July Electric - Sunset Park	08/28/2023	0	49.25
9006-90-9060-43200	MUSCATINE POWER & WATER	July Electric - 2806 Apt F	08/28/2023	0	118.65
9006-90-9060-43200	MUSCATINE POWER & WATER	July Electric - 2800 Apt C	08/28/2023	0	24.53
9006-90-9060-43200	MUSCATINE POWER & WATER	July Sewer - 2704 Apt B	08/28/2023	0	42.72
9006-90-9060-43200	MUSCATINE POWER & WATER	August Electric - 2704 Apt A	08/31/2023	0	33.82
9006-90-9060-43200	MUSCATINE POWER & WATER	July Electric - 2704 Apt A	08/28/2023	0	37.16
9006-90-9060-43200	MUSCATINE POWER & WATER	July Electric - Sunset Park	08/28/2023	0	30.58
Vendor Subtotal:					373.04
9006-90-9060-43700	ALLIANT ENERGY	Gas - 2704 Apt A	08/28/2023	0	14.52
9006-90-9060-43700	ALLIANT ENERGY	August Gas - 2704 Apt A	08/31/2023	0	14.09
9006-90-9060-43700	ALLIANT ENERGY	July Gas - Office	08/31/2023	0	35.77
9006-90-9060-43700	ALLIANT ENERGY	August Gas - Sunset Garage	08/31/2023	0	39.05

9006-90-9060-43700	ALLIANT ENERGY	August Gas - 2708 Apt D	08/31/2023	0	15.30
9006-90-9060-43700	ALLIANT ENERGY	Gas - Sunset Apartments	08/28/2023	0	30.27
9006-90-9060-43700	ALLIANT ENERGY	August Gas - 2700 Apt E	08/31/2023	0	15.41
9006-90-9060-43700	ALLIANT ENERGY	August Gas - 2900 Apt E	08/31/2023	0	14.09
9006-90-9060-43700	ALLIANT ENERGY	Gas - 2800 Apt C	08/28/2023	0	14.09
9006-90-9060-43700	ALLIANT ENERGY	August Gas - 2800 Apt B	08/31/2023	0	6.16
9006-90-9060-43700	ALLIANT ENERGY	August Gas - 2800 Apt C	08/31/2023	0	16.61
Vendor Subtotal:					215.36
9006-90-9060-43900	MUSCATINE POWER & WATER	July Sewer - 2700 Apt E	08/28/2023	0	33.28
9006-90-9060-43900	MUSCATINE POWER & WATER	July Sewer - 2806 Apt F	08/28/2023	0	33.28
9006-90-9060-43900	MUSCATINE POWER & WATER	July Sewer - 2800 Apt C	08/28/2023	0	36.52
9006-90-9060-43900	MUSCATINE POWER & WATER	July Sewer - 2704 Apt B	08/28/2023	0	33.28
9006-90-9060-43900	MUSCATINE POWER & WATER	August Sewer - 2704 Apt A	08/31/2023	0	29.95
9006-90-9060-43900	MUSCATINE POWER & WATER	July Sewer - 2704 Apt A	08/28/2023	0	33.28
9006-90-9060-43900	MUSCATINE POWER & WATER	July Sewer - Sunset Park	08/28/2023	0	27.73
Vendor Subtotal:					227.32
9006-90-9060-44100	CITY OF MUSCATINE HOUSING RE'	Maint Full-Time Wages 8/18/23	08/31/2023	0	2,247.21
9006-90-9060-44100	CITY OF MUSCATINE HOUSING RE'	Maint Part-Time Wages 8/18/23	08/31/2023	0	82.74
9006-90-9060-44100	CITY OF MUSCATINE HOUSING RE'	Maint Longevity 8/18/23	08/31/2023	0	6.17
9006-90-9060-44100	CITY OF MUSCATINE HOUSING RE'	Maint Full-Time Wages 8/31/23	08/31/2023	0	2,247.23
9006-90-9060-44100	CITY OF MUSCATINE HOUSING RE'	Maint Part-Time Wages 8/31/23	08/31/2023	0	80.19
9006-90-9060-44100	CITY OF MUSCATINE HOUSING RE'	Maint Longevity 8/31/23	08/31/2023	0	6.17
Vendor Subtotal:					4,669.71
9006-90-9060-44201	MENARDS (MUSC)	Water/Lumber	08/31/2023	0	21.84
Vendor Subtotal:					21.84
9006-90-9060-44205	AMAZON.COM	Lighting	08/31/2023	0	39.98
Vendor Subtotal:					39.98
9006-90-9060-44206	HD SUPPLY FACILITIES MAINT	Fluidmaster	08/28/2023	0	44.99
9006-90-9060-44206	HD SUPPLY FACILITIES MAINT	Aerator	08/31/2023	0	75.50
9006-90-9060-44206	HD SUPPLY FACILITIES MAINT	Flapper	08/31/2023	0	43.72

			Vendor Subtotal:		164.21
9006-90-9060-44206	PLUMB SUPPLY COMPANY	Plumbers Putty/Strainer/Connector	08/28/2023	0	76.64
9006-90-9060-44206	PLUMB SUPPLY COMPANY	White Seat	08/28/2023	0	36.11
9006-90-9060-44206	PLUMB SUPPLY COMPANY	Cleanout w/Plug/Coupling	08/28/2023	0	19.98
			Vendor Subtotal:		132.73
9006-90-9060-44218	HD SUPPLY FACILITIES MAINT	Drip Bowls	08/31/2023	0	86.75
			Vendor Subtotal:		86.75
9006-90-9060-44301	CITY OF MUSCATINE	September 2023 Refuse	09/01/2023	0	320.00
			Vendor Subtotal:		320.00
9006-90-9060-44310	MICHAEL W SCHULTE	Screen Repair	08/28/2023	0	98.46
			Vendor Subtotal:		98.46
9006-90-9060-44311	KELLY HEATING COOLING & PLBG	Service Call Toilet Flange 2704 A	08/31/2023	0	144.10
9006-90-9060-44311	KELLY HEATING COOLING & PLBG	Service Call Shut Off Valve 2804 D	08/31/2023	0	99.33
9006-90-9060-44311	KELLY HEATING COOLING & PLBG	Service Call No Hot Water 2708 E	08/31/2023	0	85.00
9006-90-9060-44311	KELLY HEATING COOLING & PLBG	Repair Leak 2908 D	08/31/2023	0	253.96
9006-90-9060-44311	KELLY HEATING COOLING & PLBG	Service Call Toilet Flange 2704 A	08/31/2023	0	144.10
9006-90-9060-44311	KELLY HEATING COOLING & PLBG	Service Call 2900 B	08/28/2023	0	301.97
9006-90-9060-44311	KELLY HEATING COOLING & PLBG	Install Water Heater 2704 E	08/28/2023	0	576.08
			Vendor Subtotal:		1,604.54
9006-90-9060-44315	RIVERBEND MAINTENANCE LLC	SS 2708D Paint Rehab Walls (2 coats)	08/31/2023	0	900.00 00024887
			Vendor Subtotal:		900.00
9006-90-9060-45103	CITY OF MUSCATINE HOUSING RE'	Unemployment 8/18/23	08/31/2023	0	9.26
9006-90-9060-45103	CITY OF MUSCATINE HOUSING RE'	Unemployment 8/31/23	08/31/2023	0	9.27
			Vendor Subtotal:		18.53

9006-90-9060-45401	CITY OF MUSCATINE HOUSING RE' FICA 8/18/23	08/31/2023	0	293.71
9006-90-9060-45401	CITY OF MUSCATINE HOUSING RE' FICA 8/31/23	08/31/2023	0	306.74
	Vendor Subtotal:			600.45
9006-90-9060-45402	CITY OF MUSCATINE HOUSING RE' IPERS 8/18/23	08/31/2023	0	391.99
9006-90-9060-45402	CITY OF MUSCATINE HOUSING RE' IPERS 8/31/23	08/31/2023	0	391.77
	Vendor Subtotal:			783.76
9006-90-9060-45403	CITY OF MUSCATINE HOUSING RE' Health Insurance 8/18/23	08/31/2023	0	2,250.07
	Vendor Subtotal:			2,250.07
9006-90-9060-45404	CITY OF MUSCATINE HOUSING RE' Life Insurance 8/18/23	08/31/2023	0	13.14
	Vendor Subtotal:			13.14
9006-90-9060-45405	CITY OF MUSCATINE HOUSING RE' Dental Insurance 8/18/23	08/31/2023	0	54.78
	Vendor Subtotal:			54.78
9006-90-9060-45406	CITY OF MUSCATINE HOUSING RE' LTD Insurance 8/18/23	08/31/2023	0	14.34
9006-90-9060-45406	CITY OF MUSCATINE HOUSING RE' LTD BW Insurance 8/18/23	08/31/2023	0	11.17
	Vendor Subtotal:			25.51
	Subtotal for FUND: 9006			17,963.86
9007-90-9070-41100	CITY OF MUSCATINE HOUSING RE' Admin Full-Time Wages 8/18/23	08/31/2023	0	4,402.36
9007-90-9070-41100	CITY OF MUSCATINE HOUSING RE' Admin Longevity 8/18/23	08/31/2023	0	6.83
9007-90-9070-41100	CITY OF MUSCATINE HOUSING RE' Admin Full-Time Wages 8/31/23	08/31/2023	0	4,402.37
9007-90-9070-41100	CITY OF MUSCATINE HOUSING RE' Admin Longevity 8/31/23	08/31/2023	0	6.83
	Vendor Subtotal:			8,818.39
9007-90-9070-41500	CITY OF MUSCATINE HOUSING RE' September Auto Allowance	09/01/2023	0	12.50

		Vendor Subtotal:		12.50
9007-90-9070-41904	CITY OF MUSCATINE HOUSING RE' Phone Allowance 8/18/23	08/31/2023	0	1.50
		Vendor Subtotal:		1.50
9007-90-9070-41904	MUSCATINE POWER & WATER July Phones - Housing Fax	08/28/2023	0	22.39
		Vendor Subtotal:		22.39
9007-90-9070-45103	CITY OF MUSCATINE HOUSING RE' Unemployment 8/18/23	08/31/2023	0	25.65
9007-90-9070-45103	CITY OF MUSCATINE HOUSING RE' Unemployment 8/31/23	08/31/2023	0	25.65
		Vendor Subtotal:		51.30
9007-90-9070-45401	CITY OF MUSCATINE HOUSING RE' FICA 8/18/23	08/31/2023	0	302.62
9007-90-9070-45401	CITY OF MUSCATINE HOUSING RE' FICA 8/31/23	08/31/2023	0	323.66
		Vendor Subtotal:		626.28
9007-90-9070-45402	CITY OF MUSCATINE HOUSING RE' IPERS 8/18/23	08/31/2023	0	416.23
9007-90-9070-45402	CITY OF MUSCATINE HOUSING RE' IPERS 8/31/23	08/31/2023	0	416.22
		Vendor Subtotal:		832.45
9007-90-9070-45403	CITY OF MUSCATINE HOUSING RE' Health Insurance 8/18/23	08/31/2023	0	3,258.78
		Vendor Subtotal:		3,258.78
9007-90-9070-45404	CITY OF MUSCATINE HOUSING RE' Life Insurance 8/18/23	08/31/2023	0	16.97
		Vendor Subtotal:		16.97
9007-90-9070-45405	CITY OF MUSCATINE HOUSING RE' Dental Insurance 8/18/23	08/31/2023	0	66.08
		Vendor Subtotal:		66.08

9007-90-9070-45406	CITY OF MUSCATINE HOUSING RE' LTD Insurance 8/18/23	08/31/2023	0	25.44
	Vendor Subtotal:			25.44
9007-90-9070-47150	MUSCATINE HOUSING LTD PARTN New HAP C Sywassink Full August	08/31/2023	0	423.00
	Vendor Subtotal:			423.00
9007-90-9070-47150	MUSCATINE POWER & WATER Utility Credit A Hannah	08/28/2023	0	86.00
9007-90-9070-47150	MUSCATINE POWER & WATER Utility Reimb for July & August A Fonnc	08/31/2023	0	69.00
	Vendor Subtotal:			155.00
9007-90-9070-47150	KEMPEN REAL ESTATE LLC New HAP 14 of 31 Days August L Delga	08/28/2023	0	102.00
	Vendor Subtotal:			102.00
9007-90-9070-47150	ETHAN ANDERSON New HAP H Burns Full August	08/31/2023	0	456.00
	Vendor Subtotal:			456.00
9007-90-9070-47150	HARRISON LOFTS LLC New HAP C Castle Full July & August	08/31/2023	0	718.00
9007-90-9070-47150	HARRISON LOFTS LLC New HAP A Fonner Full August Pro-Rat	08/31/2023	0	942.00
	Vendor Subtotal:			1,660.00
9007-90-9071-41100	CITY OF MUSCATINE HOUSING RE' Admin Full-Time Wages 8/18/23	08/31/2023	0	1,818.80
9007-90-9071-41100	CITY OF MUSCATINE HOUSING RE' Admin Full-Time Wages 8/31/23	08/31/2023	0	1,818.80
	Vendor Subtotal:			3,637.60
9007-90-9071-45103	CITY OF MUSCATINE HOUSING RE' Unemployment 8/18/23	08/31/2023	0	16.36
9007-90-9071-45103	CITY OF MUSCATINE HOUSING RE' Unemployment 8/31/23	08/31/2023	0	16.37
	Vendor Subtotal:			32.73
9007-90-9071-45401	CITY OF MUSCATINE HOUSING RE' FICA 8/18/23	08/31/2023	0	126.43
9007-90-9071-45401	CITY OF MUSCATINE HOUSING RE' FICA 8/31/23	08/31/2023	0	136.12

	Vendor Subtotal:			262.55
9007-90-9071-45402	CITY OF MUSCATINE HOUSING RE'IPERS 8/18/23	08/31/2023	0	171.69
9007-90-9071-45402	CITY OF MUSCATINE HOUSING RE'IPERS 8/31/23	08/31/2023	0	171.70
	Vendor Subtotal:			343.39
9007-90-9071-45403	CITY OF MUSCATINE HOUSING RE'Health Insurance 8/18/23	08/31/2023	0	1,289.98
	Vendor Subtotal:			1,289.98
9007-90-9071-45404	CITY OF MUSCATINE HOUSING RE'Life Insurance 8/18/23	08/31/2023	0	6.00
	Vendor Subtotal:			6.00
9007-90-9071-45405	CITY OF MUSCATINE HOUSING RE'Dental Insurance 8/18/23	08/31/2023	0	32.23
	Vendor Subtotal:			32.23
9007-90-9071-45406	CITY OF MUSCATINE HOUSING RE'LTLD Insurance 8/18/23	08/31/2023	0	10.25
	Vendor Subtotal:			10.25
	Subtotal for FUND: 9007			22,142.81
	Report Total:			1,539,619.17

SPECIFICATIONS

FOR

REPLACEMENT UV DISINFECTION SYSTEM PROJECT

MUSCATINE, IOWA

**SPECIFICATIONS
FOR
REPLACEMENT UV DISINFECTION SYSTEM PROJECT
MUSCATINE, IOWA**

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.



Signed:

Date:

Emily K. Linebaugh

8/28/2023

Emily K. Linebaugh, P.E.

Iowa License No. 18986

My license renewal date is December 31, 2023

Detailed parts covered by this seal:

Divisions 0-15

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

Signed:

Date:

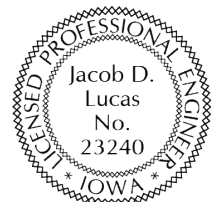
Jacob D. Lucas

8/28/2023

Jacob D. Lucas, P.E.

Iowa License No. 23240

My license renewal date is December 31, 2023



Detailed parts covered by this seal:

Divisions 16-17

Prepared by
VEENSTRA & KIMM, INC.
Coralville,
Iowa

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APPENDICES

APPENDIX A – OWNER-SUPPLIED UV DISINFECTION EQUIPMENT

END OF SECTION

NOTICE OF PUBLIC HEARING

NOTICE OF PUBLIC HEARING ON PLANS AND SPECIFICATIONS, PROPOSED FORM OF CONTRACT AND ESTIMATE OF COST FOR CONSTRUCTION OF THE UV DISINFECTION SYSTEM REPLACEMENT PROJECT FOR THE CITY OF MUSCATINE, IOWA.

At 6:00 P.M. on the 7th day of September, 2023, the City Council of said City will, in said Council Chambers, hold a hearing and said Council proposes to adopt plans, specifications, form of contract and estimate of cost and, at the time, date and place specified above, or at such time, date and place as then may be fixed, to act upon proposals and enter into a contract for the construction of the following improvements:

REPLACEMENT UV DISINFECTION SYSTEM PROJECT

Construct Replacement UV Disinfection System Project including all labor, materials, and equipment necessary for demolition; construct reinforced concrete structures; plumbing; heating; installation of owner-provided ultraviolet disinfection equipment; miscellaneous equipment; piping and appurtenances; piping specialties; electrical work including conduit, cables, wiring, motor controls, starters, switches, fixtures, and controls; and miscellaneous associated work, including cleanup.

At said hearing, the City Council will consider the plans, specifications, proposed form of contract, and estimated total cost for the project, the same now being on file in the office of the City Clerk, reference to which is made for a more detailed and complete description of the proposed improvements, and at said time and place the said Council will also receive and consider any objections to said plans, specifications, estimate of cost and form of contract made by any interested party.

This notice is given by order of the Council of the City of Muscatine, Iowa.

CITY OF MUSCATINE, IOWA

Brad Bark, Mayor

ATTEST:

Carol Webb, City Administrator

NOTICE TO BIDDERS

NOTICE OF TAKING BIDS FOR THE CONSTRUCTION OF REPLACEMENT UV DISINFECTION SYSTEM PROJECT FOR THE CITY OF MUSCATINE, IOWA

Sealed proposals will be received by the City Clerk of the City of Muscatine, Iowa, at City Hall, 215 Sycamore Street, Muscatine, Iowa 52761 until 2:00 p.m. on the 21st day of September, 2023, for the construction of the Replacement UV Disinfection System Project as described in the plans and specifications therefore, now on file in the office of the City Clerk. Proposals will be opened, and the amount of the bids announced by the City Clerk at the time and date specified above. Proposals will be acted upon by said City at the October 5th, 2023 City Council Meeting or at such later time and place as then may be fixed.

Work on the improvements shall commence within ten days of the issuance of a written Notice to Proceed. The Notice to Proceed will be issued upon approval of the contract by the Council and be completed as stated below.

The work will include but is not limited to the following improvements:

REPLACEMENT UV DISINFECTION SYSTEM PROJECT

Construct Replacement UV Disinfection System Project including all labor, materials, and equipment necessary for demolition; construct reinforced concrete structures; plumbing; heating; installation of owner-provided ultraviolet disinfection equipment; miscellaneous equipment; piping and appurtenances; piping specialties; electrical work including conduit, cables, wiring, motor controls, starters, switches, fixtures, and controls; and miscellaneous associated work, including cleanup.

All work and materials are to be in accordance with the proposed plans, specifications, form of contract and estimate of cost now on file in the office of the City Clerk of Muscatine, Iowa, and by this reference made a part thereof as though fully set out and incorporated herein.

Copies of said plans and specifications and form of contract are now on file in the office of the City Clerk. Copies may be obtained from VEENSTRA & KIMM, INC., 3000 Westown Parkway, West Des Moines, Iowa 50266 at no charge. Digital copies of bidding documents are available.

All proposals and bids in connection therewith shall be submitted to the City Clerk of said City on or before the time herein set for receiving bids. All proposals shall be made on official bidding blanks furnished by the City, and any alterations in the official form of proposal will entitle the Council, at its option, to reject the proposal involved from consideration. Each proposal shall be sealed and plainly identified.

Each proposal shall be made out on a blank form furnished by the municipality and must be accompanied by bid security in a sealed envelope by either (1) a certified or cashier's check drawn on a solvent Iowa chartered bank or a bank chartered under the laws of the United States, or a certified share draft drawn on a credit union in Iowa or chartered under the laws of the United States, in an amount equal to 5% of the bid, or (2) a bid bond executed by a corporation authorized to contract as a surety in the State of Iowa, in the penal sum of 5% of the bid.

The bid security should be made payable to THE CITY OF MUSCATINE, IOWA. The bid security must not contain any conditions either in the body or as an endorsement thereon. The bid security shall be forfeited to the City as liquidated damages in the event the successful bidder fails or refuses to enter into a contract within 10 days after the award of contract and post bond satisfactory to the City insuring the faithful fulfillment of the contract and the maintenance of said work, if required, pursuant to the provisions of this notice and other contract documents. Bidders shall use the bid bond form included in the specifications.

In accordance with the requirements of the Iowa Department of Labor all bidders must submit a fully completed Bidder Status Form. The Bidder Status Form must be included with and is considered an essential attachment to the Proposal. Any Proposal that does not include a fully completed Bidder Status Form may result in the Proposal being determined non-responsive and rejected.

By virtue of statutory authority, preference will be given to products and provisions grown and coal produced within the State of Iowa, and to Iowa domestic labor, to the extent lawfully required under Iowa Statutes; provided that the award of contract will be made to the lowest responsible bidder submitting the lowest responsive bid, which shall be determined without regard to state or local law whereby preference is given on factors other than the amount of the bid.

In accordance with Iowa statutes, a resident bidder shall be allowed a preference as against a nonresident bidder from a state or foreign country if that state or foreign country gives or requires any preference to bidders from that state or foreign country, including but not limited to any preference to bidders, the imposition of any type of labor force preference, or any other form of preferential treatment to bidders or laborers from that state or foreign country. The preference allowed shall be equal to the preference given or required by the state or foreign country in which the nonresident bidder is a resident. In the instance of a resident labor force preference, a nonresident bidder shall apply the same resident labor force preference to a public improvement in this state as would be required in the construction of a public improvement by the state or foreign country in which the nonresident bidder is a resident.

The City reserves the right to reject any and all bids, to waive informalities and technicalities and to enter into such contract as it shall deem for the best interest of the City.

The City reserves the right to defer acceptance of any proposal for a period not to exceed thirty (30) calendar days from the date of hearing.

The successful bidder will be required to furnish bonds in an amount equal to one hundred percent (100%) of the contract price, said bonds to be issued by responsible surety approved by the City Council and listed in the U.S. Treasury Department's most current list (Circular 570, as amended) and authorized to transact business in the State of Iowa and shall guarantee (1) the faithful performance of the contract and the terms and conditions therein contained, (2) the prompt payment to all persons, firms, subcontractors and corporations furnishing materials for or performing labor in the prosecution of the work, and (3) the maintenance of improvements in good repair for not less than two (2) years from the time of acceptance of the improvements by the City.

All Contractor(s) and subcontractor(s) are required to obtain tax exemption certificates from the City of Muscatine, Iowa for this project. These tax exemption certificates are only for use on this specific project as covered under the Contract.

The work under the contract shall commence within ten (10) days after date set forth in written Notice to Proceed and all work on the ultraviolet disinfection system shall be complete and operational by March 4, 2024; all other work shall be completed by May 31, 2024 subject to any extensions of time which may be granted by the City Council.

Interim liquidated damages in the amount of Five Hundred Dollars (\$500.00) per consecutive calendar day shall be assessed for each day that work shall remain uncompleted on the ultraviolet disinfection system after March 4, 2024, with due allowance for extensions of the contract period due to conditions beyond the control of the Contractor.

Liquidated damages in the amount of Five Hundred Dollars (\$500.00) per calendar day shall be assessed for each calendar day that work on the contract remains uncompleted after the end of the contract period, with due allowance for extensions of the contract period due to conditions beyond the control of the Contractor. Separate liquidated damage assessments may be made for each of the two completion dates.

Payment to the Contractor for said improvements will be from any one of the following sources at the sole discretion of the City Council: (1) cash to be derived from the proceeds of the issuance and sale of Sewer Revenue Bonds, which will be payable solely and only out of the future net revenues of the Municipal Sewer Utility, and/or from such other cash funds on hand of said Utility as may be lawfully used for said purpose; (2) cash derived from the proceeds of the issuance and sale of General Obligation Bonds of said City; (3) cash from such general funds of said City as may be legally used for such purpose; or (4) cash from public facilities set-aside fund.

At least ten (10) days before each progress payment falls due (but not more often than once a month), the Contractor will submit to the Engineer a partial payment estimate filled out and signed by the Contractor covering the work performed during the period covered by the partial payment estimate and supported by such data as the Engineer may reasonably require. If payment is requested on the basis of materials and equipment not incorporated in the work but delivered and suitably stored at or near the site, the partial payment estimate shall also be accompanied by such supporting data, satisfactory to the Owner, as will establish the Owner's title to the material and equipment. The Engineer will, within fifteen (15) days after receipt of each partial payment estimate, either indicate in writing his approval of payment and present the partial payment estimate to the Owner, or return the partial payment estimate to the Contractor indicating in writing his reasons for refusing to approve payment. In the latter case, the Contractor may make the necessary corrections and resubmit the partial payment estimate. The Owner will, within thirty (30) days of presentation to him of an approved partial payment estimate, pay the Contractor a progress payment on the basis of the approved partial payment estimate.

The Owner shall retain five (5) percent of the amount of each payment as provided in the Code of Iowa until final completion and acceptance of all work covered by the contract documents.

The request for payment may also include an allowance for the cost of such major materials and equipment which are suitably stored either at or near the site. Proof of purchase amount and verification of insurance for stored materials must be provided with any request for payment of stored materials.

Prior to substantial completion, the Owner, with the approval of the Engineer and with the concurrence of the Contractor, may use any completed or substantially completed portions of the work. Such use shall not constitute an acceptance of such portions of the work.

The Owner shall have the right to enter the premises for the purpose of doing work not covered by the contract documents. This provision shall not be construed as relieving the Contractor of the sole responsibility for the care and protection of the work, or the restoration of any damaged work except such as may be caused by agents or employees of the Owner.

Upon completion and acceptance of the work, the Engineer shall issue a certificate that the work has been accepted by him under the conditions of the contract documents. Final payment will be made in accordance with the provisions of the Code of Iowa.

The Contractor will indemnify and save the Owner or the Owner's agents harmless from all claims growing out of the lawful demands of subcontractors, laborers, workmen, mechanics, materialmen, and furnishers of machinery and parts thereof, equipment, tools, and all supplies, incurred in the furtherance of the performance of the work. The Contractor shall furnish satisfactory evidence that all obligations of the nature designated above have been paid, discharged, or waived. If the Contractor fails to do so the Owner may, after having notified the

Contractor, either pay unpaid bills or withhold from the Contractor's unpaid compensation a sum of money deemed reasonably sufficient to pay any and all such lawful claims until satisfactory evidence is furnished that all liabilities have been fully discharged whereupon payment to the Contractor shall be resumed, in accordance with the terms of the contract documents, but in no event shall the provisions of this sentence be construed to impose any obligations upon the Owner to either the Contractor, his Surety, or any third party. In paying any unpaid bills of the Contractor, any payment so made by the Owner shall be considered as a payment made under the contract documents by the Owner to the Contractor and the Owner shall not be liable to the Contractor for any such payments made in good faith.

Plans and specifications governing the construction of the proposed improvements have been prepared by VEENSTRA & KIMM, INC. of Coralville, Iowa, which plans and specifications and the proceedings of the City Council referring to and defining said improvements are hereby made a part of this notice and the proposed contract by reference, and the proposed contract shall be executed to comply therewith.

Posted upon order of the Council of the City of Muscatine, Iowa.

CITY OF MUSCATINE, IOWA

Brad Bark, Mayor

ATTEST:

Carol Webb, City Administrator

SECTION 00100

INSTRUCTIONS TO BIDDERS

REPLACEMENT UV DISINFECTION SYSTEM PROJECT MUSCATINE, IOWA

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PART 2 – PRODUCTS

NOT APPLICABLE

PART 3 – EXECUTION

NOT APPLICABLE

PART 1 – GENERAL

1.01 DEFINITION OF TERMS

- A. "Owner" and "City" shall mean the City of Muscatine, acting through the City Council or an authorized representative of the City Council.
- B. "Person" shall mean any individual, partnership, society, association, joint stock company, corporation, estate, receiver, trustee, assignee or referee, whether appointed by a court or otherwise, and any combination of individuals.
- C. "Bidder" shall mean any person who submits a Proposal to furnish the work described in the Contract Documents.
- D. "Contractor" shall mean the person with whom the Owner may enter into contract for the execution of the work specified.
- E. "Subcontractor" shall mean the person supplying materials, labor, equipment and appurtenances for the work, such person having contractual relations with the Contractor, but not with the Owner.

- F. "Engineer" shall mean Veenstra & Kimm, Inc. of Coralville, Iowa.
- G. "Standard Drawings" shall mean construction detail drawings bound with these specifications.
- H. "Work" shall mean the work to be done and the equipment, materials, supplies and be furnished under the contract, unless some other meaning is indicated by the context.
- I. "Station", "Sta." shall mean one hundred (100) linear feet measure.

1.02 CONTRACT DOCUMENTS

- A. Contract Documents, sometimes referred to as the "plans and specifications," shall mean and include the following parts as used herein:
 - 1. Notice of Public Hearing
 - 2. Notice to Bidders
 - 3. Instructions to Bidders
 - 4. Proposal
 - 5. Contract
 - 6. Bond
 - 7. General Conditions
 - 8. Special Conditions
 - 9. Plans List
 - 10. Detailed Specifications
 - 11. Plans listed in the specifications
 - 12. Numbered addenda issued to the foregoing.

1.03 EXAMINATION OF WORK

- A. Bidders shall familiarize themselves with the specifications and with all conditions which will affect construction. It will be assumed that bidders have made a personal examination of the job and the physical conditions affecting the work.

1.04 PREBID CONFERENCE

- A. A prebid conference will be held on September 12, 2023 at 1:30 p.m. at the Water & Resource Recovery Facility, 1202 Musser Street, Muscatine, IA 52761. Engineer will be present to answer questions and allow inspection of job site. It is recommended that all bidders attend. Failure to attend does not relieve bidder from responsibility of examining work or project site. See 1.03 EXAMINATION OF WORK.

1.05 QUALIFICATIONS OF BIDDERS

- A. Bidders shall be prepared to satisfy Owner as to integrity, experience, adequacy of equipment and personnel, and financial ability to perform work specified.
- B. If successful bidder is a non-Iowa corporation, they shall submit proof to Owner prior to execution of contract that they have been authorized by Secretary of State to do business in Iowa.

1.06 METHOD OF BIDDING

- A. Bidders shall submit lump sum bid for the work covered by the plans and specifications. Prices shall cover complete work and include all costs incidental thereto, unless indicated otherwise.
- B. Bids will be computed using quantities shown in proposal. Unit price quantities are approximate and only for comparison of bids. Engineer retains right to change location, quantities and combination of units as may be required during progress of construction. Compensation due Contractor will be computed on basis of final quantities of completed work.
 - 1. In the event of discrepancies between unit prices and unit price extensions listed in bidder's proposal, unit prices shall govern and unit price extensions and total bid shall be corrected, as necessary, for agreement with unit prices. The total price will be determined on the basis of corrected extensions of the unit prices.
 - 2. In the case of an obvious and serious clerical or entry error in the Proposal where the City is able to clearly determine the bidder's intent from the Proposal the City may waive irregularities that are in the best interest of the City as long as the integrity of the bidding process is not affected by waiving the clerical or entry irregularity.
- C. Bids will be evaluated on the basis of the work shown on the plans and specifications. Low bidder will be determined based on lowest responsible bidder submitting the lowest responsive bid as deemed in the best interest of the City for Base Bid only, or any combination of Base Bid and Alternate Bids.
- D. Unit prices for payment items included in the specifications, but not listed in the proposal, will be negotiated, if needed.

1.07 SUBMISSION OF BIDS

- A. Bidders shall submit the Proposal stamped "Official Bid". The Proposal stamped "Official Bid" is considered the original Proposal and shall be used for bidding. Submit in a sealed envelope. Envelope shall bear return address of the bidder and shall be addressed as follows:

To:

City Clerk
City Hall
215 Sycamore Street
Muscatine, IA 52761

Proposal for:

Replacement UV Disinfection System
Project

- B. Bids shall be signed by a legally authorized representative of the bidder.
- C. Bidders shall submit the specified bid security included with the proposal.
- D. Mark each envelope with "Sealed Bid. Do Not Open."
- E. Bidders shall submit with Proposal the following documents:
 - 1. Bidder Status Form.

1.08 BID SECURITY

- A. Each bid shall be accompanied by bid security in the form and amount set out in the Notice to Bidders.
- B. Bid security shall be enclosed in a sealed envelope with the bid, or in a separate sealed envelope.
- C. The bid security shall be forfeited and become the property of the Owner in case the bidder fails or refuses to enter into contract and to furnish bond within 10 calendar days after their proposal shall have been accepted.
- D. Bid security of the unsuccessful bidders will be returned as soon as the successful bidder is determined or within 30 days, whichever is sooner; bid security of successful bidder will be returned upon execution of contract and furnishing of bond.
- E. Use bid bond form included with specifications.

1.09 EVALUATION OF BIDS

- A. Award of contract will be made on the lowest, responsive, responsible bid that is in the best interest of the City of Muscatine.
- B. Award of contract will not consider the "Alternate" major equipment items or products.

- C. The City Council reserves the right to reject any and all bids, and to waive informalities or technicalities and to enter into such contract as it shall deem for the best interest of the City.

1.10 WITHDRAWAL OF BIDS

- A. A bidder may withdraw their bid at any time prior to scheduled closing time for receipt of bids, but no bid shall be withdrawn for a period of 30 calendar days thereafter.

1.11 EXECUTION OF CONTRACT

- A. The successful bidder shall enter into a written contract with the Owner, within 10 days after acceptance of their proposal on the forms included with these specifications, for the performance of the work awarded to him.
- B. The contract, when executed, shall be deemed to include the entire agreement between the parties hereto, and the Contractor shall not claim any modification thereof resulting from any representation or promise made at any time by any representative of the Owner or any other person.

1.12 CONTRACT TERMINATION

- A. Provisions of law, as contained in Chapter 573A of the Code of Iowa shall apply to and be a part of this contract. Chapter 573A provides for termination of contracts for construction of public improvements when construction or work thereon is stopped because of a national emergency. The provisions of Chapter 573A shall be binding upon all parties thereto, including subcontractors and sureties upon any bond given or filed in connection therewith.

1.13 TAXES

- A. The City will issue a sales tax exemption certificate for all materials purchased on the project. The City will issue the appropriate tax exemption certificates and authorization letters to the Contractor and all subcontractors completing work on the project. Tax exemption certificates are applicable only for the specific project for which the tax exemption certificate is issued.
- B. Contractor shall provide a listing to the City identifying all appropriate subcontractors qualified for use of the tax exemption certificate. Contractor and subcontractors may make copies of the certificate and provide, to each supplier providing construction material, a copy of the tax exemption certificate.

- C. Income tax:
 - 1. Successful bidder is subject to payment of Iowa income tax on income from this work in amounts prescribed by law.
 - 2. If successful bidder is a non-Iowa partnership, individual or association, they shall furnish evidence prior to execution of contract, that bond or securities have been posted with the Iowa Department of Revenue in the amount required by law.

1.14 PREFERENCE FOR LABOR AND MATERIALS

- A. Contractor shall observe the laws of the State of Iowa with regard to preference for labor and materials. So far as may be done under the law, Contractor shall give preference to local concerns in purchase of materials, insurance and bonds.
- B. The Iowa Reciprocal Preference Act (SF 2160) applies to the contract with respect to bidders who are not Iowa residents.
 - 1. In accordance with the requirements of the Iowa Department of Labor all bidders must submit a fully completed Bidder Status Form. The Bidder Status Form must be included with and is considered an essential attachment to the Proposal. Any Proposal that does not include a fully completed Bidder Status Form may result in the Proposal being determined non-responsive.

1.15 PAYMENT

- A. Payment will be made in cash as set forth in Notice to Bidders.
- B. Payments will be made on the basis of estimates prepared by Contractor and approved by Engineer, solely for the purpose of payment; approval by Engineer shall not be deemed approval of workmanship or material.

1.16 APPROVAL OF MATERIALS

- A. Approval of substitutions of any materials or equipment other than that specified shall be obtained in writing from the Engineer. Otherwise, it will be assumed Contractor will furnish materials or equipment specified.

1.17 PERIOD OF GUARANTEE AND BOND

- A. Contractor shall guarantee work for a period of two (2) years from the date of final acceptance of the work by the Owner as provided for in the Code of Iowa. Bond furnished by Contractor shall run for a like period. Bond furnished by Contractor shall remain in full force and effect until all bills are paid.

PART 2 – PRODUCTS

Not Applicable.

PART 3 – EXECUTION

Not Applicable.

END OF SECTION

PROPOSAL

**REPLACEMENT UV DISINFECTION SYSTEM PROJECT
MUSCATINE, IOWA**

Name of Bidder _____

Address of Bidder _____

To: City Council
City of Muscatine
215 Sycamore Street
Muscatine, Iowa 52761

The undersigned bidder submits herewith bid security amounting to five percent (5%) of the total amount of the bid which shall become the property of the City of Muscatine should the undersigned fail or refuse to execute a contract and to furnish bond as called for in the specifications within the time provided.

The undersigned bidder, having examined the Contract Documents, and having familiarized itself with the nature and location of the work to be done and the conditions under which the work will be performed, hereby proposes to provide the required labor, services, and materials and to perform the work described in the specifications, and addenda __, __, __, and __, within the time and for the sum or sums stated hereinafter on attached proposal schedule; which proposal schedule is hereby made a part of this proposal.

The undersigned bidder certifies that this proposal is made in good faith, without collusion or connection with any other person or persons bidding on the work.

The undersigned bidder states that this proposal is made in conformity with the specifications and agrees that in the event of any discrepancies or differences between any conditions of this proposal and the specifications prepared by VEENSTRA & KIMM, INC., that the provisions of the latter shall prevail.

Bidder _____

By _____

Title _____

PROPOSAL SCHEDULE

REPLACEMENT UV DISINFECTION SYSTEM PROJECT MUSCATINE, IOWA

1. Furnish all labor, materials, and equipment necessary for demolition; construct reinforced concrete structures; plumbing; heating; installation of owner-provided ultraviolet disinfection equipment; miscellaneous equipment; piping and appurtenances; piping specialties; electrical work including conduit, cables, wiring, motor controls, starters, switches, fixtures, and controls; and miscellaneous associated work, including cleanup, for the lump sum price of

_____ (\$_____)

2. The work under the contract shall commence within ten (10) days after date set forth in written Notice to Proceed. All work shall be completed as outlined in the Notice to Bidders.
3. Interim liquidated damages in the amount of Five Hundred Dollars (\$500.00) per consecutive calendar day shall be assessed for each day that work shall remain uncompleted on the ultraviolet disinfection system after March 4, 2024, with due allowance for extensions of the contract period due to conditions beyond the control of the Contractor.
4. Liquidated damages in the amount of Five Hundred Dollars (\$500.00) per calendar day will be assessed for each calendar day that work shall remain uncompleted after the end of the contract period as outlined in the Notice to Bidders with due allowance for extensions of the contract period due to conditions beyond the control of the Contractor. Separate liquidated damage assessments may be made for each of the two completion dates.
5. Required attachments:
 - A. Bidder Status Form.
 - B. Bid Bond.

To be completed by all bidders	Part A
---------------------------------------	---------------

Please answer "Yes" or "No" for each of the following:

☐ Yes ☐ No My company is authorized to transact business in Iowa.
(To help you determine if your company is authorized, please review the worksheet on the next page).

☐ Yes ☐ No My company has an office to transact business in Iowa.

☐ Yes ☐ No My company's office in Iowa is suitable for more than receiving mail, telephone calls, and e-mail.

☐ Yes ☐ No My company has been conducting business in Iowa for at least 3 years prior to the first request for bids on this project.

☐ Yes ☐ No My company is not a subsidiary of another business entity or my company is a subsidiary of another business entity that would qualify as a resident bidder in Iowa.

If you answered "Yes" for each question above, your company qualifies as a resident bidder. Please complete Parts B and D of this form.

If you answered "No" to one or more questions above, your company is a nonresident bidder. Please complete Parts C and D of this form.

My company has maintained offices in Iowa during the past 3 years at the following addresses:

Dates: _____ / _____ / _____ to _____ / _____ / _____ Address: _____
City, State, Zip: _____

Dates: _____ / _____ / _____ to _____ / _____ / _____ Address: _____
City, State, Zip: _____

Dates: _____ / _____ / _____ to _____ / _____ / _____ Address: _____
You may attach additional sheet(s) if needed. City, State, Zip: _____

1. Name of home state or foreign country reported to the Iowa Secretary of State:

2. Does your company's home state or foreign country offer preferences to bidders who are residents? ☐ Yes ☐ No
3. If you answered "Yes" to question 2, identify each preference offered by your company's home state or foreign country and the appropriate legal citation.

You may attach additional sheet(s) if needed.

Firm Name: _____

Signature: _____ Date: _____

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Worksheet: Authorization to Transact Business

This worksheet may be used to help complete Part A of the Resident Bidder Status form. If at least one of the following describes your business, you are authorized to transact business in Iowa.

- ☐ Yes ☐ No My business is currently registered as a contractor with the Iowa Division of Labor.
- ☐ Yes ☐ No My business is a sole proprietorship and I am an Iowa resident for Iowa income tax purposes.
- ☐ Yes ☐ No My business is a general partnership or joint venture. More than 50 percent of the general partners or joint venture parties are residents of Iowa for Iowa income tax purposes.
- ☐ Yes ☐ No My business is an active corporation with the Iowa Secretary of State and has paid all fees required by the Secretary of State, has filed its most recent biennial report, and has not filed articles of dissolution.
- ☐ Yes ☐ No My business is a corporation whose articles of incorporation are filed in a state other than Iowa, the corporation has received a certificate of authority from the Iowa secretary of state, has filed its most recent biennial report with the secretary of state, and has neither received a certificate of withdrawal from the secretary of state nor had its authority revoked.
- ☐ Yes ☐ No My business is a limited liability partnership which has filed a statement of qualification in this state and the statement has not been canceled.
- ☐ Yes ☐ No My business is a limited liability partnership which has filed a statement of qualification in a state other than Iowa, has filed a statement of foreign qualification in Iowa and a statement of cancellation has not been filed.
- ☐ Yes ☐ No My business is a limited partnership or limited liability limited partnership which has filed a certificate of limited partnership in this state, and has not filed a statement of termination.
- ☐ Yes ☐ No My business is a limited partnership or a limited liability limited partnership whose certificate of limited partnership is filed in a state other than Iowa, the limited partnership or limited liability limited partnership has received notification from the Iowa secretary of state that the application for certificate of authority has been approved and no notice of cancellation has been filed by the limited partnership or the limited liability limited partnership.
- ☐ Yes ☐ No My business is a limited liability company whose certificate of organization is filed in Iowa and has not filed a statement of termination.
- ☐ Yes ☐ No My business is a limited liability company whose certificate of organization is filed in a state other than Iowa, has received a certificate of authority to transact business in Iowa and the certificate has not been revoked or canceled.

SECTION 00410

BID BOND

KNOW ALL MEN BY THESE PRESENTS: That we, _____
_____, of, _____,
as Principal, and _____

of _____, as Surety, are held and firmly bound unto the City of Muscatine, Iowa, hereinafter defined as Obligee, in the penal sum of five percent (5%) of the total amount of the bid (\$ _____), for which payment said Principal and Surety bind themselves, their heirs, executors, administrators, successors, and assigns jointly and severally, firmly by these presents.

The condition of the above obligation is such that whereas the Principal has submitted to the City of Muscatine, Iowa a certain bid, in a sealed envelope, and hereby made a part hereof to enter into a contract in writing, for: Replacement UV Disinfection System Project.

NOW THEREFORE, if the said bid by said Principal be accepted, and the Principal shall enter into a contract with the Obligee in accordance with the terms of such bid, and give such bond as may be specified in the contract documents with good and sufficient surety for the faithful performance of such contract, for the prompt payment of labor and material furnished in the prosecution thereof, and for the maintenance of said improvements as may be required therein, then this obligation shall become null and void or in the event of the failure of the Principal to enter such contract and give such bond, the Principal shall pay to the Obligee the full amount of the bid bond, together with court costs, attorney's fees, and any other expense of recovery.

Signed and sealed this _____, day of _____ 2023.

Principal

By _____
Contractor's Signature

Surety

By _____
Attorney-in-Fact

SECTION 00510

CONTRACT

THIS AGREEMENT, made and entered into this _____ day of _____, 2023, by and between the City of Muscatine, Iowa, party of the first part, hereinafter referred to as the "Owner", and _____, party of the second part, hereinafter referred to as the "Contractor".

WITNESSETH: THAT WHEREAS, the Owner has heretofore caused to be prepared certain plans, specifications and proposal blanks, dated the _____ day of _____, 2023, for Replacement UV Disinfection System Project, under the terms and conditions therein fully stated and set forth, and,

WHEREAS, said plans, specifications and proposal blanks accurately and fully describe the terms and conditions upon which the Contractor is willing to perform the work specified:

NOW, THEREFORE, IT IS AGREED:

1. That the Owner hereby accepts the proposal of the Contractor for the work, as follows:

2. That this contract consists of the following component parts which are made a part of this agreement and contract as fully and absolutely as if they were set out in detail in this contract:
 - A. Contract Documents, including:
 1. Notice of Public Hearing
 2. Notice to Bidders
 3. Instructions to Bidders
 4. Proposal
 5. Bond
 6. General Conditions
 7. Special Conditions
 8. Plans List
 9. Detailed Specifications
 10. Plans listed in the specifications
 11. Numbered addenda issued to the foregoing.
 - B. This Instrument.
 - C. The above components are complementary and what is called for by one shall be as binding as if called for by all.
3. That payments are to be made to the Contractor in accordance with and subject to the provisions embodied in the documents made a part of this contract.
4. That this contract is executed in triplicate.

IN WITNESS WHEREOF, the parties hereto have hereunto set their hand and seals the date first written above.

CONTRACTOR:

CITY OF MUSCATINE, IOWA

By _____
Mayor

By _____

Title _____

ATTEST:

ATTEST:

City Clerk

Title _____

SECTION 00600

BOND

KNOW ALL MEN BY THESE PRESENTS: that _____
(Name of Contractor)

(Address of Contractor)

a _____ hereinafter called the PRINCIPAL,
(Corporation, Partnership or Individual)

and _____
(Name of Surety)

(Address of Surety)

hereinafter called the Surety, are held and firmly bound unto

City of Muscatine
(Name of Owner)

215 Sycamore Street, Muscatine, Iowa 52761
(Address of Owner)

hereinafter called the OWNER, in the sum of _____
_____ Dollars (\$_____),

in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, the PRINCIPAL entered into a certain contract with the OWNER, dated the ____ day of _____, 2023, a copy of which is hereto attached and made a part hereof for the construction of **REPLACEMENT UV DISINFECTION SYSTEM PROJECT** which Agreement includes a guarantee of all work against defective workmanship and materials for a period of two (2) years from the date of final acceptance of the work by the OWNER, a copy of which Agreement is by reference made a part hereof;

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that, if the PRINCIPAL shall faithfully perform the Contract on his part and shall fully indemnify and save harmless the OWNER from all costs and damage which he may suffer by reason of failure so to do and shall fully reimburse and repay the OWNER all outlay and expense which the OWNER may incur in making good any such default,

AND FURTHER, that if the PRINCIPAL shall pay all persons who have contracts directly with the PRINCIPAL for labor or materials, failing which such persons shall have a direct right of action against the PRINCIPAL and Surety under this Obligation, subject to the OWNER's priority,

Then this OBLIGATION shall be null and void, otherwise it shall remain in full force and effect.

PROVIDED, however, that no suit, action or proceeding by reason of any default whatever shall be brought on this Bond after three (3) years from the date of final acceptance of the work.

AND PROVIDED, that any alterations which may be made in the terms of the Contract, or in the work to be done under it, or the giving by the OWNER of any extension of time for the performance of the Contract, or any other forbearance on the part of either the OWNER or the PRINCIPAL to the other shall not in any way release the PRINCIPAL and the Surety, or either of them, their heirs, executors, administrators, successors or assigns from their liability hereunder, notice to the Surety of any such alteration, extension or forbearance being hereby waived.

AND FURTHER PROVIDED, the PRINCIPAL and Surety on this Bond hereby agree to pay all persons, firms, or corporations having contracts directly with the PRINCIPAL or with subcontractors all just claims due them for labor performed or material furnished, in the performance of the Contract on account of which this Bond is given, when the same are not satisfied out of the portion of the contract price which the OWNER shall retain until completion of the improvements, but the PRINCIPAL and Surety shall not be liable to said persons, firms, or corporations unless the claims of said claimants against said portions of the contract price shall have been established as provided by law.

THE SURETY ON THIS BOND shall be deemed and held, any contract to the contrary notwithstanding, to consent without notice:

- a. To the extension of time to the PRINCIPAL in which to perform the Contract.
- b. To changes in the plans, specifications, or Contract, when such changes do not involve an increase of more than twenty percent (20%) of the total contract price, and shall then be released only as to such excess increase.
- c. That no provision of this Bond or of any other contract shall be valid which limits to less than three (3) years from the date of final acceptance of the work the right to sue on this Bond for defects in workmanship or materials not discovered or known to the OWNER at the time such work was accepted.

IN WITNESS WHEREOF, this instrument is executed in 3 counterparts, each one of which shall be deemed an original, this ____ day of _____, 2023.

PRINCIPAL:

Contractor

Signature

Title

SURETY:

Surety Company

Signature Attorney-in-Fact

Name of Attorney-in-Fact

Company Name

Company Address

(Including Zip Code)

Company Telephone Number

NOTE: Date of BOND must not be prior to date of Contract.

If CONTRACTOR is Partnership, all partners should execute BOND.

IMPORTANT: Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State where the PROJECT is located.

SECTION 00700

GENERAL CONDITIONS

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- 1.02 SURETY BOND
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PART 2 – PRODUCTS

NOT APPLICABLE

PART 3 – EXECUTION

NOT APPLICABLE

PART 1 – GENERAL

1.01 CONTRACT DOCUMENTS

- A. All documents listed or identified as part of contract are each and all essential and component parts of agreement between Owner and Contractor.
- B. Contract Documents shall be signed in triplicate by Owner and Contractor.
- C. Contract Documents are complementary, and what is called for by anyone shall be as binding as if called for by all. The intention of documents is to include all labor and materials, equipment and transportation necessary for proper execution of work. It is not intended that materials or work not covered by or properly inferable from any

heading, branch, class or trade of the specifications shall be supplied unless distinctly noted. Materials or work described in words, which have a well-known technical or trade meaning, shall be held to refer to such recognized standards.

1.02 SURETY BOND

- A. Contractor shall furnish a good and sufficient surety bond in full amount of contract prior to signing contract. Surety bond shall guarantee faithful performance of all provisions of contract and payment of all bills and obligations arising from said contract. Should surety become irresponsible during time contract is in force, Owner may require additional and sufficient sureties. Contractor shall furnish said additional sureties to satisfaction of Owner within ten (10) days after written notice to do so. In default thereof, contract may be suspended as hereinafter provided.

1.03 CONTRACTOR'S RESPONSIBILITY

- A. Contractor shall assume full responsibility for safekeeping of all materials and equipment and for all unfinished work until final acceptance by Owner. Materials and equipment which are damaged or destroyed from any cause shall be replaced at Contractor's expense.
- B. Contractor shall indemnify and save harmless Owner against any liens filed for non-payment of Contractor's bills in connection with contract work. Contractor shall furnish Owner satisfactory evidence that all persons who have done work or furnished materials, equipment, or service of any type, under the contract have been fully paid prior to acceptance of work by Owner.
- C. Contractor shall erect and maintain such barriers and lights as will prevent accidents as a consequence of its work. It shall indemnify and save harmless the Owner and its agents from all suits brought against Contractor for any injuries received or sustained by any person or persons by or through Contractor, its servants, or agents, in construction of work, or by or in consequence of any acts or omissions or negligence in performing contract work.

1.04 SUBCONTRACTS

- A. Contractor shall not assign, sub-let or transfer the whole or any part of work herein specified without written consent of Owner. Assignment, sub-letting or transfer shall not relieve Contractor from its responsibilities set forth herein.
- B. Detailed specifications are separated into titled parts for convenience or reference and to facilitate letting of contracts and subcontracts. Such arrangement shall not obligate Engineer to establish limits on contracts between Contractors and subcontractors.

1.05 CONTRACTOR'S EMPLOYEES

- A. Contractor shall personally supervise its work or provide a capable superintendent satisfactory to Engineer. Superintendent shall be authorized to receive instructions from Engineer.
- B. Incompetent or incorrigible employees shall be dismissed by the Contractor or its representative when requested by Engineer. Such dismissed persons shall not be permitted to return to work without written consent of Engineer.
- C. Contractor shall give preference to local labor in execution of this contract, insofar as is practicable.

1.06 PERMITS AND REGULATIONS

- A. In execution of work specified herein, Contractor shall conform to regulations and ordinances of any governmental body which may apply in execution of specified work. Contractor shall obtain such permits and licenses as may be required for construction of work.

1.07 PATENTS

- A. All fees or royalties for patented inventions, equipment or arrangements used in construction or erection of work, or any part thereof, shall be included in contract price. Contractor shall protect and hold harmless Owner against any and all claims or litigation by reason of infringement of any patent rights on any materials, equipment of construction furnished by Contractor.

1.08 GUARANTEE

- A. Contractor shall guarantee all work against faulty workmanship and materials for the period specified after date of final acceptance of work by Owner unless otherwise set out in "SPECIAL CONDITIONS" or "INSTRUCTIONS TO BIDDERS." Contractor shall repair or replace any defective workmanship and materials in a manner acceptable to Owner, without expense to Owner, within ten (10) days after written notification by Owner of such defect. If said repairs or replacements are not made within ten (10) days, Owner may make said repairs or replacements and charge the cost to Contractor.
- B. Contractor shall provide Owner with a good and sufficient surety maintenance bond in the full amount of contract prior to signing contract. Maintenance bond shall run for the period specified from time of acceptance to protect Owner from faulty workmanship and materials as outlined in preceding paragraph.

1.09 SHOP DRAWINGS

- A. Contractor shall provide Engineer with drawings, data and information regarding materials or equipment specified, or as may be called for by Engineer, for its review, within a reasonable time after award of contract. After review, Engineer shall return to Contractor one copy within a reasonable time after receipt.
- B. Fabrication and shipment of materials or equipment prior to Engineer's review of drawings, data and information mentioned above shall be at Contractor's risk.

1.10 THE ENGINEER

- A. Engineer shall make general observation of work as agent of Owner. Engineer's general observation shall not be construed that it shall direct or control operations of Contractor.

1.11 PLANS AND SPECIFICATIONS

- A. Engineer shall provide Contractor with five sets of plans and specifications after execution of contract. If additional plans and specifications are required, Contractor shall compensate Engineer for costs of printing.
- B. Engineer shall provide Contractor with additional and supplemental plans as may be required to show details of construction after approval of manufacturers' drawings and data on materials and equipment.
- C. Engineer will provide Contractor with such revised plans and specifications as may be required to show any authorized changes or extra work.

1.12 INTERPRETATION OF PLANS AND SPECIFICATIONS

- A. Plans and specifications shall be interpreted by Engineer. Its decision shall be final and binding on all parties concerned.
- B. Contractor will not be allowed to take advantage of errors or omissions in plans and specifications. Engineer will provide full instructions when errors or omissions are discovered.

1.13 LINE AND GRADE

- A. Engineer shall provide stakes showing line and grade from benchmarks, base lines and other reference points. Contractor shall provide competent men and tools, stakes and

other materials as required to establish temporary or permanent reference marks in connection with the work. Contractor shall perform such detailed measurements and transfer elevations as required to properly lay out and construct work.

- B. Contractor shall carefully preserve all stakes and reference points against destruction and shall promptly notify Engineer of any stakes which have been disturbed. In case of willful or careless destruction, Contractor will be charged for expense and damage from such destruction.

1.14 DECISIONS BY ENGINEER

- A. Engineer shall make decisions, in writing, on claims between Contractor and Owner within a reasonable time after presentation. Such decisions shall be regarded as final except for appropriate legal recourse.

1.15 WORKMANSHIP AND MATERIALS

- A. All work done and all materials and equipment furnished by Contractor shall conform to plans and specifications. Competent labor and tradesmen shall be used on all work. Experienced manufacturers' representatives shall be used to supervise installation of equipment.
- B. In absence of detailed specifications in other sections, all materials shall conform to standards of American Society for Testing Materials.
- C. Wherever items of materials or equipment are specified by a manufacturer's name and type, or equal, it is the intent that materials or equipment of other manufacturers, equal in quality and performance, may be substituted. Such substitution may be made only with written authorization of Engineer.
- D. Wherever items of materials or equipment are specified by a manufacturer's name and type, or equal, and additional features of items are specifically required by specifications, additional features specified shall be provided whether or not they are normally included in standard manufacturer's items listed.
- E. Wherever items of materials or equipment are specified by a manufacturer's name and type, or equal, and specified items are or become obsolete and no longer available, Contractor shall provide acceptable equal items which are currently available at no change in contract price.
- F. When proposing "or equal" items or substitutions, Contractor shall furnish general arrangement drawings, full descriptive data, manufacturer's specifications and such performance data as required to satisfy Engineer that materials or equipment proposed

are equal to that specified. Burden of proof of equality shall be responsibility of Contractor.

- G. Whenever items of materials or equipment are specified by a manufacturer's name and type and "or equal" is not listed, Contractor shall provide specified equipment without substitution, unless prior approval of Engineer is obtained for any substitution.
- H. Contractor shall abide by Engineer's decision when proposed substitutes of material or equipment are deemed to be unacceptable and in such an event Contractor shall furnish items of equipment or materials specified.
- I. Engineer reserves right to consider such factors as overall project arrangement, overall project cost, and similar factors in determining whether proposed substitutions will be acceptable.

1.16 ON-SITE REVIEW OR OBSERVATION

- A. All materials used and all work done by Contractor shall be subject at all times to review, observation, tests and approval by Engineer. Contractor shall furnish samples of materials for observation and tests as requested by Engineer. Contractor shall furnish any information required concerning nature or source of any proposed materials or equipment.
- B. Construction, fabrication and manufacture of equipment or materials specified herein may be observed by Engineer at plant or factory.
- C. Materials, equipment or work which do not satisfactorily meet specifications may be condemned by Engineer by written notice to Contractor. Condemned materials, equipment or work shall be promptly removed and replaced.
- D. Defective materials, equipment or work may be rejected by Engineer at any time prior to final acceptance by Owner even though said defective items may have been previously overlooked.

1.17 RESIDENT ENGINEER AND/OR ENGINEER TECHNICIANS

- A. Resident engineer and/or engineer technicians may be appointed by Engineer or Owner to ensure that work is performed in accordance with plans and specifications.
- B. Resident engineer and/or engineer technicians shall have authority to notify Contractor in writing of work which is not being properly performed. Contractor shall be liable for any work determined by Engineer as not being properly performed.

- C. Resident engineer and/or engineer technicians shall have no authority to permit deviation from plans and specifications and Contractor shall be liable for any deviations made without written order from Engineer.

1.18 TESTS

- A. Tests shall be performed by Contractor upon materials and equipment specified, to determine if the materials and equipment meet requirements of specifications, conditions of operation and guarantees of Contractor.
- B. Equipment shall be subject to factory tests specified herein. Certified evidence of tests shall be furnished when requested by Engineer.
- C. Tests shall be made in accordance with standards of American Society of Mechanical Engineers, Institute of Electrical and Electronic Engineers, American Society for Testing Materials, and other recognized standards.

1.19 TIME

- A. Contractor shall commence work within time specified and shall complete work within time specified in contract.

1.20 DELAYS

- A. Delays caused by injunction or legal actions, damages by elements, or other causes beyond control of Contractor (of which Owner shall be sole judge) shall entitle Contractor to a reasonable extension of time within which to complete work.
- B. Application for extension of time shall be made to Owner by Contractor and shall state reasons for request for extension of time.
- C. No extension of time shall be valid unless made in writing by Owner.
- D. Normal weather conditions shall not form the basis of request for extension of time. Abnormal weather conditions shall form basis of request for extension of time only to the delay in excess of that resulting from normal weather conditions.

1.21 CHANGES

- A. Engineer shall have the right to make changes in location and quantities of work as may be deemed advisable with consent of Owner and without notice to sureties on Contractor's bond.

- B. No change shall be made under this paragraph which will increase or decrease total contract amount more than twenty percent (20%) of original contract price and no changes shall be made in plan of improvement that would necessitate additional or different construction processes and equipment.
- C. Amount due Contractor shall be adjusted for changes in following manner:
 - 1. Where unit prices have been bid, these unit prices shall be used to compute adjustment in compensation.
 - 2. Where no such unit prices have been bid, Engineer and Contractor shall negotiate a reasonable adjustment in Contractor's compensation. Limitations on compensation in 1.22.B. of "1.22 EXTRA WORK" shall apply to changes where compensation is negotiated.
 - 3. No changes shall be authorized unless they are shown on revised plans or in written instructions of Engineer.
 - 4. Authorized changes which require additional time to complete shall entitle Contractor to proportionate extension of time to completion which shall be determined by Engineer.

1.22 EXTRA WORK

- A. Required extra work not specified under this contract shall be done at an agreed price satisfactory to Contractor and Owner, or on basis of actual cost of work plus not more than ten percent (10%) for Contractor's overhead and profit. Actual cost shall include expense for equipment, materials, and labor and shall include no overhead items or profit. Where extra work is done by a subcontractor, with approval of Owner, there may be included in Contractor's actual cost, ten percent (10%) for subcontractor's profit.
- B. The term "extra work" as used herein shall not be construed to apply to changes described in "1.21 CHANGES".
- C. No compensation shall be allowed Contractor for extra work unless such work has been authorized in writing by Engineer and approved by Owner.
- D. Contractor shall submit a statement of costs to Engineer for approval when extra work is performed on an actual cost plus basis. After such a statement is approved, Engineer shall certify its correctness to Owner.
- E. No compensation shall be allowed contractor for office work related to generation of pricing and paperwork associated with processing of change orders. This is part of project management associated with Contract and additional compensation shall not be considered.

1.23 OWNERSHIP OF MATERIALS

- A. All materials and work covered by partial payments shall become sole property of Owner, but this provision shall not be construed as relieving Contractor from sole responsibility for all materials and work for which payments have been made, for restoration of damaged work, or as a waiver of rights of Owner to require fulfillment of all terms of contract.

1.24 OTHER CONTRACTS

- A. Owner reserves right to let other contracts in connection with this work. Contractor shall afford other contractors reasonable opportunity for introduction and storage of their materials and execution of their work, and shall properly connect and coordinate its work with theirs.
- B. When proper execution of Contractor's work depends upon work of another contractor, it shall inspect other work and report any defects to Engineer. Contractor's failure to inspect and report shall constitute an acceptance of other contractor's work except for defects which may develop in work after completion.
- C. To ensure proper execution of its subsequent work, Contractor shall measure work already in place and shall at once report to the Engineer any discrepancy between the executed work and drawings.

1.25 OWNER'S RIGHT TO DO WORK

- A. If Contractor neglects to prosecute work properly or fails to perform any provision of this contract, Owner, after three (3) days' written notice to Contractor, may, without prejudice to any other remedy it may have, make good such deficiencies and may deduct the cost thereof from the payment then or thereafter due the Contractor, provided, however, that Engineer shall approve both such action and amount charged to Contractor.

1.26 OWNER'S RIGHT TO TERMINATE CONTRACT

- A. Owner, upon certification of Engineer that there is sufficient cause to justify termination of contract, may, without prejudice to any other right or remedy, and after giving Contractor seven (7) days' notice may terminate employment of Contractor for any of following reasons:
 - 1. Contractor makes a general assignment for benefit of its creditors, or if adjudged a bankrupt.
 - 2. Receiver is appointed on account of Contractor's insolvency.

3. Contractor persistently or repeatedly fails or refuses, except when extension of time to complete is granted, to provide enough skilled workmen or proper materials.
4. Contractor fails to make prompt payment to subcontractors for material or labor.
5. Contractor persistently disregards laws and ordinances or instructions of Engineer.
6. Contractor violates a provision of contract.

- B. If Owner terminates employment of Contractor, it shall take possession of premises and all materials, tools and appliances thereon. It shall finish work by whatever method it may deem expedient. In such case Contractor shall not be entitled to receive any further payment until work is finished.
- C. If unpaid balance of contract price exceeds expense of finishing the work including compensation for additional managerial and administrative services, excess shall be paid to Contractor. If expense exceeds unpaid balance, Contractor shall pay difference to Owner. Expense incurred by Owner as herein provided, and damage incurred through Contractor's default, shall be certified by Engineer.

1.27 CONTRACTOR'S RIGHT TO STOP WORK OR TERMINATE CONTRACT

- A. If Engineer fails to issue any certificate for payment within fifteen (15) days after it is due, or if Owner fails to pay to Contractor within thirty (30) days of its maturity and presentation, any sum certified by Engineer, then Contractor may, upon seven (7) days simultaneous written notice to Owner and Engineer, stop work or terminate this contract. If Contractor elects to stop work by written notice, work shall be resumed promptly upon payment by Owner. If Contractor elects to terminate this contract by written notice it shall recover from Owner payment for all work executed to date of notice and any loss sustained upon any plant or materials plus a reasonable profit.

1.28 PAYMENTS WITHHELD

- A. Engineer may withhold or nullify the whole or a part of payment certificate, on account of subsequently discovered evidence, to such extent as may be necessary to protect Owner from loss on account of:
 1. Defective work not remedied.
 2. Claims filed or reasonable evidence indicating probable filing of claims.
 3. Failure of Contractor to make payments properly to subcontractors or for materials or labor.
 4. A reasonable doubt that contract can be completed for balance then unpaid.
 5. Damage to another contractor.
 6. Claims of Owner for liquidated damages.
- B. Payments shall be made for amounts withheld when above grounds are removed.

1.29 ACCEPTANCE AND FINAL PAYMENT

- A. When work has been satisfactorily completed, Engineer will certify Contractor's final estimate stating that work has been completed in accordance with terms and conditions thereof with qualifications, if any, as stated. Balance found to be due Contractor according to the terms of payment shall be paid by Owner as provided in contract, provided, however, that any state laws which designate manner of final payment shall be followed in lieu of manner of final payment outlined above. Prior to receipt of final payment, Contractor shall file with Owner a receipt in full from each manufacturer, subcontractor, and dealer for all equipment and materials used on the work and a complete release of all liens, including tax liens, which may have arisen from this contract and required statements from Contractor and all subcontractors of sales and use tax paid. In lieu thereof, Owner, at its option, may accept from Contractor a statement showing balance due on all accounts.
- B. Making and acceptance of final payment shall constitute a waiver of all claims by Owner, except those arising from unsettled liens, from faulty work or materials appearing after final payment or from requirements of the specifications, and of all claims by Contractor, except those previously made and still unsettled.

1.30 SUSPENSION OF WORK

- A. Owner may suspend the work, or any part thereof, at any time, by giving ten (10) days' written notice to Contractor. The work shall be resumed by Contractor within ten (10) days after date fixed in written notice from Owner to Contractor to do so.
- B. If work, or any part thereof, shall be suspended and if Owner does not give written notice to Contractor to resume work within one (1) year of date of suspension, Contractor may abandon suspended portion of work. Contractor will be entitled to estimates and payments for all work done on the portions so abandoned, if any.

1.31 CLEANING UP

- A. Contractor shall keep premises free from accumulations of waste material or rubbish caused by its employees or work. After completion of work it shall remove all its rubbish and all its tools, scaffolding and surplus materials from work site. It shall leave its work "broom clean" or its equivalent, unless more exactly specified. In case of dispute the Owner may remove rubbish and charge costs to Contractor as Engineer shall determine to be just.

1.32 HAZARDOUS MATERIALS

- A. The use of Asbestos Construction Building Materials (ACBM) is specifically prohibited. The Contractor, suppliers, and subcontractors shall warrant that all products used are asbestos free. In the event that a specified product contains asbestos, it shall be the responsibility of the Contractor to notify the Owner so that an appropriate substitution can be made in a timely manner so as not to delay the Project.
- B. The Contractor shall provide the Owner a certificate that warrants that no materials, products, items or equipment contains any asbestos upon completion of the work of this Contract. If asbestos is found to exist in any of the materials, products, items or equipment provided as part of this Contract, the Contractor shall be financially responsible for all costs resulting from removal in accordance with an Owner approved method and replacement of an asbestos free condition to finished drawings and specifications. The financial responsibility of the Contractor shall not terminate with the end of the surety maintenance bond period, but shall continue through the life of the facility.

1.33 IOWA HAZARDOUS CHEMICAL RISKS RIGHT-TO-KNOW LAW

- A. Owner's responsibility:
 - 1. Owner shall provide to the Contractor a list of known hazardous chemicals within the project site to which their employees may be exposed and suggestions for appropriate protective measures.
- B. Contractor's responsibility:
 - 1. Contractor shall inform his/her employees of the Iowa Hazardous Chemical Risks Right-to-Know Law.
 - 2. Contractor shall provide to the Owner a list of known hazardous chemicals that they anticipate will be used on site as well as all pertinent information relating to employee protection. Contractor's Material Safety Data Sheets (MSDS) shall be available to Owner upon request.

PART 2 – PRODUCTS

Not Applicable.

PART 3 – EXECUTION

Not Applicable.

END OF SECTION

SECTION 00810

SPECIAL CONDITIONS

REPLACEMENT UV DISINFECTION SYSTEM PROJECT MUSCATINE, IOWA

INDEX

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PART 2 – PRODUCTS

NOT APPLICABLE

PART 3 – EXECUTION

NOT APPLICABLE

PART 1 – GENERAL

1.01 INTENT

- A. To supplement the provisions of the General Conditions by outlining special conditions applicable to project.

1.02 INTERRUPTIONS TO SERVICE

- A. It is necessary that the Water & Resource Recovery Facility remain in continuous operation during construction except as noted on plans or specified hereinafter. Select order and methods of construction which will not interfere with plant operation. Interrupt service only with approval of Owner and Engineer.
- B. Existing utilities shall remain in substantially continuous operation during construction, including water, sewer, power and gas lines.
- C. Do work which will interrupt utility service only at times approved by Engineer; hold interruptions of service to minimum.

1.03 LOCATION

- A. Work is located at the Water & Resource Recovery Facility, 1202 Musser Street, Muscatine, Iowa.
- B. Transportation facilities:
 - 1. U.S. Highway 61.
 - 2. Iowa Highway 92.

1.04 CONSTRUCTION LIMITS

- A. Confine movements of equipment and personnel, storage of materials, and all other construction operations to construction limits shown or noted on plans.

1.05 ORDER OF CONSTRUCTION

- A. Provide Engineer with proposed schedule of construction showing dates of starting and completing various portions of work.
- B. Coordinate work with Owner and Engineer to assure orderly and expeditious progress of work.
- C. Contractor shall establish schedule of working hours for construction, subject to approval of Owner and Engineer.
- D. Schedule construction to minimize service interruptions and use of road barricades and detours; clean up each portion of work as it is completed.

1.06 SERVICE FACILITIES

- A. City will provide access to services, including electricity, water, and sanitary facilities at site. Contractor will provide compressed air to meet own requirements.

1.07 STORAGE OF MATERIALS AND EQUIPMENT

- A. Limited storage space for materials and equipment will be available at project site. Refer to site plan for potential storage areas. Contractor responsible to provide additional storage if provided space is not sufficient.
- B. Storage areas subject to approval of Owner and Engineer.
- C. Store materials and equipment in manner which will preserve their quality and fitness.

1.08 CONSTRUCTION FACILITIES BY CONTRACTOR

- A. Provide telephone, attended at all times during the working day; provide liaison between telephone and construction personnel for expeditious handling of messages.
- B. Provide Owner and Engineer with at least 2 telephone numbers at which responsible representatives of Contractor can be reached evenings weekends or holidays.
- C. Provide suitable storage buildings necessary for proper storage of materials and equipment.
- D. Location of all construction facilities, including project construction plant and yard, subject to approval by Engineer; remove all construction facilities upon completion of work.
- E. City will provide access to sanitary facilities for construction personnel for duration of work.
- F. Provide fence, barricades, and/or watchmen to prevent access of unauthorized persons to site where work is in progress.

1.09 INSURANCE BY CONTRACTOR

- A. Provide and maintain insurance throughout construction period in the following minimum amounts:
 - 1. Worker's compensation and occupational disease insurance in accordance with the laws of the State of Iowa covering all employees who perform any obligations assumed under the contract.
 - 2. Public liability and property damage liability insurance covering all operations under the contract; limits of bodily injury or death not less than \$2,000,000 per occurrence, \$2,000,000 aggregate for occurrence specific to this project.
 - 3. Automobile liability insurance on all self-propelled vehicles used in connection with the contract, whether owned, non-owned, or hired; public liability limits of not less than \$2,000,000 for each occurrence.
- B. Worker Compensation: Claims under Workers' Compensation and Employer's liability, disability benefit, and other similar employee benefit acts including claims for damages because of bodily injury, occupational sickness or disease or death of the Contractor's employee.
 - 1. Limits: Bodily Injury by accident \$500,000 each accident
Bodily Injury by disease \$500,000 each employee
Bodily Injury by disease \$500,000 policy limit
 - 2. Commercial General Liability Insurance Combined Single Limits shown below covering Bodily Injury, Property Damage and Personal Injury:

- a. Limits: General Aggregate Limit \$5,000,000
Products - Completed Operations
Aggregate Limit \$2,000,000
Personal and Advertising Injury Limit \$1,000,000
Each Occurrence Limit \$1,000,000
Fire Damage Limit \$50,000
Medical Damage Limit \$5,000
- b. Automobile liability insurance on all self-propelled vehicles used in connection with the contract, whether owned, non-owned, or hired; public liability limits of not less than \$1,000,000 combined single limit.
- c. Insurance must also include the following:
 - 1) Coverage for all premises and operations
 - 2) Personal and Advertising Injury
 - 3) Operations by independent contractors
 - 4) Contractual liability coverage
 - 5) Coverage for property damage underground or damaged by explosion or collapse (XCU)
 - 6) Coverage for all owned, non-owned and hired and leased vehicles if not included with the automobile liability section.
- C. Owner and Engineer shall be listed as additional insured under liability insurance policies. Owner reserves right to approve insurance company.
- D. To the extent that such insurance is in force and collectible and to the extent permitted by law, City and Contractor each hereby releases and waives all right of recovery against the other or anyone claiming through or under each of them by way of subrogation or otherwise. The foregoing release and waiver shall apply to damage to contractor's equipment, tools, and other personal property as well as automobiles.
- E. The company and the insured expressly agree and state that the purchase of this policy of insurance by the insured does not waive any of the defenses of governmental immunity available to the insured under Iowa Code Section 670.4 as it now exists and as it may be amended from time to time.
- F. The company and the insured further agree that this policy of Insurance shall cover only those claims not subject to the defense of governmental immunity under Iowa Code Section 670.4 as it now exists and as it may be amended from time to time.
- G. Owner shall have right at any time to require public liability insurance and property damage liability insurance greater than required in above paragraphs. Additional premiums payable solely as result of such additional insurance shall be added to bid price.

- H. Furnish certificates of insurance to Engineer made in favor of Owner showing compliance with foregoing requirements.
- I. All certificates of insurance shall state that ten (10) days written notice will be given to Owner before policy is canceled or changed.

1.10 EMPLOYMENT PRACTICES

- A. Contractors, or subcontractors, shall not employ any person whose physical or mental condition is such that their employment will endanger the health and safety of themselves or others employed on the project.

1.11 LINE AND GRADE

- A. Engineer will establish benchmark to permit starting construction work. Contractor responsible for detailed surveys and staking for locations, elevations, and grades of construction.
- B. Check all detailed surveys and stake-outs; assume full responsibility for accuracy and correctness thereof.
- C. Contractor shall provide, without extra compensations, all labor and necessary tools to make all test holes and exploration, at any time, for purpose of determining location of existing structures beneath ground surface which might conflict with work of Contractor.
- D. Contractor shall preserve all monuments, reference points, stakes and benchmarks set by Engineer. In case of destruction by Contractor's negligence or carelessness, Contractor will be charged with resulting expense of replacement and responsibility for any mistakes or loss of time caused thereby.
- E. These conditions supersede conflicting provisions of Section 00700 - General Conditions.

1.12 INSPECTION BY STATE AND FEDERAL PERSONNEL

- A. Provide full access and cooperation for inspection of work by representatives of participating state and federal agencies.

1.13 HISTORICAL/ARCHAEOLOGICAL FINDS

- A. If, during course of construction, evidence of deposits of historical or archaeological interest is found, cease operations affecting find and notify Owner who shall notify Iowa Department of Natural Resources and Director and Historic Preservation Officer, State Historical Department, 600 East Grand Avenue, Des Moines, Iowa 50319. Nor further

disturbance of deposits shall ensue until notification by Owner that work may proceed. Owner will issue notice to proceed only after state official has surveyed find and made determination to Department of Natural Resources and Owner. Compensation to Contractor, if any, for lost time or changes in construction to avoid find, determined in accordance with changed conditions or change order provisions of specifications.

1.14 AUDIT

- A. Regional Administrator, the Comptroller General of the United States, or any authorized representative shall have access to any books, documents, papers and records of Contractor which pertain to the project for purpose of making audit, examination, excerpts and transcriptions thereof.

PART 2 – PRODUCTS

Not Applicable.

PART 3 – EXECUTION

Not Applicable.

END OF SECTION

SECTION 00850

PLANS LIST

REPLACEMENT UV DISINFECTION SYSTEM PROJECT MUSCATINE, IOWA

Work shall conform with latest revisions of the following drawings and Standard Drawings which constitute the "plans" and are an integral part of the Contract Documents:

<u>SHEET NO.</u>	<u>DRAWING NO.</u>	<u>TITLE</u>
GENERAL		
1	01-G-1	INDEX & TITLE SHEET
2	01-G-2	LEGENDS
SITE PLANS		
3	02-C-1	OVERALL EXISTING SITE PLAN
ELECTRICAL SITE PLANS		
4	02-E-1	PARTIAL ELECTRICAL SITE PLAN
<u>STRUCTURE 50 – UV DISINFECTION BUILDING</u>		
REMOVALS		
5	50-R-1	GRADE PLAN - REMOVALS
6	50-R-2	SECTION A - REMOVALS
7	50-R-3	SECTION B - REMOVALS
8	50-R-4	SECTIONS C & D - REMOVALS
9	50-R-5	REMOVAL PHOTOS
10	50-R-6	REMOVAL PHOTOS
STRUCTURAL/PROCESS		
11	50-SP-1	GRADE PLAN EL. 550.00 - IMPROVEMENTS
12	50-SP-2	SECTION A - IMPROVEMENTS
13	50-SP-3	SECTIONS - IMPROVEMENTS
14	50-SP-4	SECTIONS - IMPROVEMENTS
ELECTRICAL		
15	50-E-1	ELECTRICAL PLAN
<u>99 – STANDARD DETAILS</u>		
STRUCTURAL		
16	99-S-1	DETAILS

ELECTRICAL

17	99-E-1	EXISTING ONE-LINE DIAGRAM
18	99-E-2	ONE-LINE DIAGRAM AND SCHEDULES
19	99-E-3	ELECTRICAL DETAILS

END OF SECTION

DETAILED SPECIFICATIONS

SECTION 01010

GENERAL PROVISIONS

INDEX

PART 1 – GENERAL

- 1.01 FORM
- 1.02 INTENT
- 1.03 INTERPRETATION
- 1.04 WORK INCLUDED
- 1.05 STARTING AND COMPLETION DATES
- 1.06 PLANS AND SPECIFICATIONS
- 1.07 STANDARDS AND CODES
- 1.08 MATERIALS TESTS
- 1.09 FIELD TESTS
- 1.10 DEFECTIVE EQUIPMENT
- 1.11 RESPONSIBILITY OF CONTRACTOR

- 1.12 BARRICADES AND LIGHTS
- 1.13 PRECONSTRUCTION CONFERENCE
- 1.14 FINAL REVIEW AND ACCEPTANCE
- 1.15 WINTER CONSTRUCTION
- 1.16 MONTHLY CONSTRUCTION
PROGRESS MEETINGS

PART 2 – PRODUCTS

NOT APPLICABLE

PART 3 – EXECUTION

NOT APPLICABLE

PART 1 – GENERAL

1.01 FORM

- A. Detailed specifications are in outline form and include incomplete sentences. Omission of words or phrases is intentional. Supply omitted words or phrases by inference.

1.02 INTENT

- A. To set forth requirements of performance, type of construction desired and standards of materials and construction.
- B. To require Contractor to furnish and install materials and perform all work and services described in Contract Documents, unless otherwise specifically indicated.
- C. To require Contractor to perform complete work in spite of omission of specific reference to any minor component part.
- D. To provide for new materials and equipment unless otherwise indicated.

1.03 INTERPRETATION

- A. Report any errors or ambiguities in specifications to Engineer as soon as detected; Engineer will answer questions regarding and interpret intended meaning of specifications; his interpretation shall be accepted as final.

1.04 WORK INCLUDED

- A. Furnish labor, materials and equipment to construct Replacement UV Disinfection System Project as set out in Notice to Bidders.

1.05 STARTING AND COMPLETION DATES

- A. Commence work within 10 calendar days after date set forth in written Notice to Proceed. Complete within time set forth in Notice to Bidders.
- B. Provide adequate personnel and equipment to perform work within time or before completion date set out in Notice to Bidders.
- C. Order all material and equipment immediately after award of contract. Notify Owner and Engineer of scheduled delivery dates for all materials and equipment. Promptly act to accomplish one of the following if Owner and Engineer, in consultation with Contractor, determine delivery dates to be unsatisfactory:
 - 1. Substitute alternate materials and equipment with approval of Owner and Engineer.
 - 2. Expedite delivery of materials and equipment.
- D. Extensions of contract period will be given consideration upon written request of Contractor. Request must include clear, concise reasons for requesting extension and provide data and relevant information to support reasons for extension.
 - 1. Owner expects work to be complete and ready for final acceptance within completion time prior to completion date specified.
 - 2. No extension of contract period will be granted for problems caused by deliveries of materials or equipment.
 - 3. The phrase "complete and ready for final acceptance" is interpreted to mean all items of construction, surface restoration and clean-up have been accomplished to the satisfaction of the Owner and Engineer prior to the completion date for the contract. So-called "punch list" items are included in this definition and must be completed prior to the completion date for the contract.

1.06 PLANS AND SPECIFICATIONS

- A. Engineer will furnish 5 sets of plans and specifications after award of contract. Contractor shall compensate Engineer for printing costs for additional copies required.

- B. Subcontractors and suppliers will be furnished copies of plans and specifications only at request of Contractor.
- C. Provide one set of plans and specifications for each foreman or superintendent in charge of each crew on job.

1.07 STANDARDS AND CODES

- A. Do work in accordance with best present day construction practices.
- B. Unless specifically noted to contrary, conform with and test in accordance with applicable sections of latest revisions of codes and standards of following:
 1. Air Moving and Conditioning Association (AMCA).
 2. American Association of State Highway and Transportation Officials (AASHTO).
 3. American Concrete Institute (ACI).
 4. American Gas Association (AGA).
 5. American Gear Manufacturers Association (AGMA).
 6. American Institute of Steel Construction (AISC).
 7. American National Standards Institute (ANSI).
 8. American Plywood Association (APA).
 9. American Society of Civil Engineers (ASCE).
 10. American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE).
 11. American Society of Mechanical Engineers (ASME).
 12. American Society for Testing and Materials (ASTM).
 13. American Standards Association (ASA).
 14. American Water Works Association (AWWA).
 15. American Welding Society (AWS).
 16. Anti-friction Bearing Manufacturers Association (AFBMA).
 17. Architectural Woodwork Quality Standards (AWI).
 18. California Redwood Association (CRA).
 19. Factory Mutual Corporation (FM).
 20. Federal Specifications (FS).
 21. Hoist Manufacturer's Institute (HMI).
 22. Hydraulic Institute (HI).
 23. Industrial Fasteners institute (IFI).
 24. Industrial Risk Insurers (IRI).
 25. Institute of Electrical and Electronic Engineers (IEEE).
 26. Insulated Power Cable Engineers Association (IPCEA).
 27. Internal Combustion Engine Institute (ICEI).
 28. Iowa Department of Transportation (IDOT); latest edition of standard specifications and addenda.
 29. Iowa Occupational Safety and Health Act of 1972 (Chapter 88, Code of Iowa 2023 (IOSHA).
 30. Manual of Accident Prevention in Construction by Associated General Contractors of America, Inc. (AGC).

31. Mining Enforcement and Safety Administration (MESA).
32. National Association of Architectural Metal Manufacturers (NAAMM).
33. National Electrical Manufacturers Association (NEMA).
34. National Electrical Safety Code (NESC).
35. National Fire Protection Association, Inc. (NFPA).
36. National Fire Protection Associations' National Electrical Code (NEC).
37. National Fluid Power Association (NFPA).
38. National Institute for Occupational Safety and Health (NIOSH).
39. National Lumber Manufacturers Association (NLMA).
40. National Safety Council (NSC).
41. National Woodwork Manufacturers Association (NWMA).
42. Occupational Safety and Health Act of 1970 (Public Law 91-596) (OSHA).
43. Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA).
44. Society of Automotive Engineers (SAE).
45. Steel Door Institute (SDI).
46. Steel Structures Painting Council (SSPC).
47. Underwriters' Laboratories, Inc. (UL).
48. West Coast Lumber Inspection Bureau (WCLB).
49. Western Wood Products Association (WWPA).
50. Standards and codes of the State of Iowa and applicable local standards and codes of the City of Muscatine.
51. Other standards and codes which may be applicable to acceptable standards of the industry for equipment, materials and installation under the contracts.

1.08 MATERIALS TESTS

- A. Includes all materials tests or tests specified hereinafter.
- B. Employ approved testing laboratory to show that construction materials comply with specifications.
- C. Provide samples of materials required for laboratory tests and pay cost of all tests including transportation charges on samples.
- D. Incorporate no materials in work until laboratory tests have been furnished which show materials comply with specifications.
- E. All materials subject to testing, inspection and rejection at the site by Engineer.
- F. Pay all costs of retesting when test results indicate non-compliance with contract requirements.
- G. Laboratory tests specified herein include the following:
 1. Aluminum-alloy: certify that properties conform to specifications.
 2. Galvanizing: certify that zinc coatings conform to specifications for all equipment.

3. Cement: bin sample for entire requirement, ASTM C150.
4. Concrete aggregates: one sample of each, ASTM C33.
5. Two concrete compression cylinders from trial batch for each proposed mix, ASTM C39; test one at 7 days, one at 28 days; test cylinders during construction as defined in Section 03300 - Cast-in-Place Concrete.
6. Reinforcing steel: certify that steel conforms to ASTM A615 for grade specified.
7. Ductile iron pipe: certify that pipe conforms to ANSI/AWWA C151/A21.51.
8. Polyvinylchloride pipe: certify that pipe conforms to ASTM D1785, ASTM D1248 and AWWA C900.
9. Other pipe: certify that pipe conforms to applicable specifications.

H. Concrete Components:

1. Test or verify in writing make up of concrete in each concrete truck load delivered and poured at site.
2. Verify gallons of water per sack of cement.
3. Verify sacks of cement per cubic yard of concrete.
4. Verify admixtures used per ASTM designations listed in Section 03300 – Cast-in-Place Concrete.
5. Test for inches of slump per ASTM C143 and C172.
6. Test for percent air content per ASTM C231 or C173 and C172.

I. Reinforcing steel: furnish original and 1 copy of certified test report by manufacturer.

J. Welded wire fabric: furnish original and 1 copy of certified test report by manufacturer.

K. Provide sampling and testing of excavated materials to determine moisture-density relations of soils and perform moisture and density tests during construction as specified hereinafter.

L. See Section 01300 - Submittals, for other requirements.

1.09 FIELD TESTS

- A. Notify Engineer when installation is considered complete, in operating condition and ready for testing.
- B. Test piping and valves as specified hereinafter.
- C. Test all fill materials for density and moisture content as directed by Engineer, tests conducted by independent testing laboratory; moisture-density tests required for granular fill, structure backfill and trench backfill.
- D. Moisture-density test locations and depths subject to approval of Engineer.

- E. If performance guarantees or requirements are not met during tests, make necessary corrections, repairs or replacements; demonstrate to Engineer that work meets performance guarantees or requirements.
- F. See Section 03300 - Cast-in-Place Concrete, for testing requirements for placement of concrete.
- G. Contractor responsible to pay all costs for all field tests including transportation charge on samples and providing concrete and soil samples. Field tests include soil moisture and density tests and concrete compression, air, temperature and slump tests.

1.10 DEFECTIVE EQUIPMENT

- A. Owner retains right to operate equipment until defects are corrected and guarantees satisfied.
- B. Owner reserves right to operate rejected equipment or other work until replaced, without cost for depreciation, use or wear.
- C. Remove equipment or other work from operation for examination, adjustment or change at times approved by Engineer.

1.11 RESPONSIBILITY OF CONTRACTOR

- A. Protection of his work.
- B. Protection of all property from injury or loss resulting from his operations.
- C. Replace or repair objects sustaining damage, injury or loss to satisfaction of Owner and Engineer.
- D. Without limiting GENERAL REQUIREMENTS of Contract Documents, protect fences, sidewalks, street, pavements, alleys, pipe, conduit, utilities, trees, shrubs and structures.
- E. Cooperate with Owner, Engineer and representative of utilities in locating underground utility lines and structures. Incorrect, inaccurate or inadequate information concerning location of utilities or structures shall not relieve Contractor of responsibility for damage thereto caused by his operations.
- F. Keep cleanup current with construction operations.
- G. Comply with all federal, State of Iowa and Muscatine County, Iowa, laws and ordinances.

- H. Provide and maintain sanitary facilities for construction personnel for duration of work; remove upon completion of work.
- I. Notify Engineer 48 hours prior to expected time for operations requiring construction observation services.
- J. Cooperate with independent testing firm; furnish samples of materials, design mix, equipment, tools, storage and assistance as requested.
- K. Electrical permit from the City of Muscatine is required. All fees for the permit to be paid by the Contractor. Contractor responsible for obtaining permit.

1.12 BARRICADES AND LIGHTS

- A. Erect and maintain barricades and lights and/or provide watchmen for protection and warning of pedestrians; all barricades, lights and/or watchmen at expense of Contractor.
- B. Location and arrangement: conform to ordinances and laws; meet approval of Owner and Engineer.
- C. Install snow fence as specified.

1.13 PRECONSTRUCTION CONFERENCE

- A. Soon after award of contract and prior to the start of construction, attend a preconstruction conference with representative of the Owner to define the requirements for contract administration and construction operation.
- B. Contact the Engineer who will determine the time, date and place of the conference.

1.14 FINAL REVIEW AND ACCEPTANCE

- A. Notify Engineer when installation is considered to be complete and ready for final review.
- B. Owner will accept work and make final payment to Contractor.
 - 1. When Engineer has certified that he has reviewed the work of Contractor and stated that the work is complete and in substantial conformance with specifications.
 - 2. When Contractor has filed with Owner and Engineer documents called for in specifications.
 - 3. When all governmental agencies involved have indicated, in writing, that work is complete and acceptable.

1.15 WINTER CONSTRUCTION

- A. Portions of the project will be constructed during winter months. Contractor responsible to provide all protection and special construction procedures necessary for winter work.
- B. Cost of winter construction is incidental to construction. No additional compensation will be paid for winter construction related cost.

1.16 MONTHLY CONSTRUCTION PROGRESS MEETINGS

- A. Attend monthly construction progress meetings. Provide construction schedule update at each meeting.

PART 2 – PRODUCTS

Not Applicable.

PART 3 – EXECUTION

Not Applicable.

END OF SECTION

SECTION 01040

SPECIAL CONSTRUCTION

INDEX

PART 1 – GENERAL

- 1.01 DESCRIPTION
- 1.02 COOPERATION WITH OTHERS
- 1.03 DEMOLITION AND REMOVAL
- 1.04 WATER & RESOURCE RECOVERY
FACILITY OPERATION
- 1.05 FACILITY CLEANING & HEATING

PART 2 – PRODUCTS

NOT APPLICABLE

PART 3 – EXECUTION

NOT APPLICABLE

PART 1 – GENERAL

1.01 DESCRIPTION

- A. Procedures outlined below are not intended to fully cover all special procedures or emergencies which may arise during construction but are offered as an aid to Contractor in planning work; Contractor will cooperate with Owner and Engineer to minimize inconvenience, construction delays and interruptions to continuous operation of existing wastewater treatment facility, sewer lines, and other existing utilities.
- B. Determine location of underground utilities and piping before starting work; locations of underground appurtenances shown are approximate and not guaranteed by Owner or Engineer.
- C. Remove and replace all signs which interfere with construction operations; replace damaged signs at no cost to Owner.
- D. Arrange with operating utilities for relocation or temporary removal of utilities in conflict with construction and for services needed during construction.
- E. Submit complete schedule after award of contract for planning, controlling and completing construction of project. Include list of promised delivery dates for major equipment items. Schedule project on basis of promised delivery dates for major equipment items.
 - 1. Contractor will be expected to provide adequate personnel and equipment to perform work within specified time of construction.
 - 2. If delays in delivery of major equipment become apparent, notify Owner and Engineer promptly; take action to accomplish one of the following:
 - a. Substitute alternate equipment with approval of Owner and Engineer.

- b. Expedite delivery of equipment.
- 3. Extensions of contract period will be given consideration upon written request of Contractor; request must include valid supporting data and bona fide reasons for requesting extension; inclement weather is not justification for extending contract period; Owner expects work to be complete and ready for final acceptance within completion time specified.

1.02 COOPERATION WITH OTHERS

- A. Cooperate with state and federal regulatory agencies in matters under their jurisdiction over construction operations.
- B. Cooperate with local governmental agencies; secure necessary building permits and arrange for inspections at proper times. Building permit may be required by City. Contractor responsible for obtaining permit and paying associated fees.
- C. Advise all utilities prior to excavating; arrange for field locates of utilities by utility representatives.

1.03 DEMOLITION AND REMOVAL

- A. Items of demolition and removal shown on plans or specified elsewhere are set out to assist Contractor in determining scope of work; items shown may not be complete; demolish or remove items shown on plans, described in specifications or as may be necessary for expediting work.
- B. Remove items in workmanlike manner; cut reinforcing steel flush with concrete; blasting not permitted without written approval from Owner and Engineer.
- C. Remove waste, rubble and debris from site; dispose of in accordance with all State and Federal regulations.

1.04 WATER & RESOURCE RECOVERY FACILITY OPERATION

- A. Prepare detailed construction procedure schedule after award of contract.
- B. Work with Owner and Engineer to establish workable construction schedule after award of contract.
- C. Treatment plant facilities must remain in continuous operation during construction except as required to make connections to new facilities. The existing treatment units must remain in service during the construction of the new treatment facilities.

- D. The construction sequence shown below is to aid the Contractor in planning the work. The sequence of events is a suggestion and is not intended to direct the Contractor's means, methods, and techniques or approach to completing the work. Other construction sequences could be acceptable. Also, the condition of the existing piping and valving may be such that it cannot be used as described below and additional temporary piping and pumping may be required. Temporary piping and pumping is incidental to construction. Phase construction as needed to keep the existing plant in service with minimal interruption.
1. Begin demolition work in UV Disinfection Building after November 15, 2023. During period from November 15 to March 1st, UV Disinfection System does not need to be operational. Owner will operate gates to bypass flows during construction period.
 2. Demolish existing UV Disinfection System and associated other items as shown on plans and described herein.
 3. Complete construction of improvements required for operation of new UV Disinfection System prior to interim completion date.
 4. Complete building work, grating, and other miscellaneous work that is not necessary for operation of UV Disinfection System. Complete cleanup of site disturbed by construction. This work does not need to be completed by interim completion date.
- E. Schedule required interruptions to plant utilities or facilities with Owner and Engineer.
- F. Provide Owner 1 week notice of any interruption of operation; coordinate with Public Works Director.
- G. Perform work continuously during critical connections and changeovers, and as required to prevent interruption of Owner's operations.
- H. Continuous operation of Owner's facilities is of critical importance. Schedule and conduct activities to enable existing facilities to operate continuously, unless otherwise specified.
- I. When necessary, plan, design, and provide various temporary services, utilities, connections, temporary piping, heating, access, and similar items to maintain continuous operation of Owner's facility.
- J. Do not close lines, open or close valves, or take other action which would affect the operation of existing systems, except as specifically required by the contract documents and after authorization by Owner and Engineer. Such authorization will be considered within 48 hours after receipt of Contractor's written request.

1.05 FACILITY CLEANING & HEATING

- A. Contractor responsible for draining and cleaning of existing UV disinfection channel in exterior and interior of building as needed for construction.
- B. Contractor responsible for providing supplemental heat and insulation to protect interior of UV Disinfection Building from freezing temperatures during construction. Building interior temperature should not drop below 50°F during construction.

PART 2 – PRODUCTS

Not Applicable.

PART 3 – EXECUTION

Not Applicable.

END OF SECTION

SECTION 01150

MEASUREMENT AND PAYMENT

INDEX

PART 1 – GENERAL

- 1.01 SCOPE
- 1.02 QUANTITY VARIATIONS
- 1.03 FAILURE TO SUBMIT MANUALS,
PARTS LISTS, SPARE PARTS AND
TOOLS
- 1.04 SCHEDULE OF VALUES

PART 2 – PRODUCTS

NOT APPLICABLE

PART 3 – EXECUTION

NOT APPLICABLE

PART 1 – GENERAL

1.01 SCOPE

- A. No separate payment will be made for work covered in the specifications except as set forth below. Include all other work in lump sum bid for constructing Replacement UV Disinfection System Project.
- B. If items, not included in lump sum bid for constructing Replacement UV Disinfection System Project are required during construction, contract price shall be adjusted on basis of unit price negotiated between Engineer and Contractor and approved by Owner.
- C. See GENERAL CONDITIONS for additional requirements.

1.02 QUANTITY VARIATIONS

- A. No separate payment will be made for changes in quantities of items included in lump sum bid for construction of Replacement UV Disinfection System Project except as set forth below.
- B. If quantities of items are changed from those upon which bid is based, contract price shall be adjusted on basis of unit price negotiated between Engineer and Contractor and approved by Owner. Soil quantities shall not be adjusted unless design contours are changed by Engineer.

1.03 FAILURE TO SUBMIT MANUALS, PARTS LISTS, SPARE PARTS AND TOOLS

- A. Failure to submit manuals, parts lists, spare parts and tools as defined in Section 01300 - Submittals within 40 days after return of shop drawings to Contractor will result in payment retention of \$2,000 for each equipment item up to an aggregate sum of \$50,000; retained payments will be relinquished after appropriate manuals, parts lists and tools are received and reviewed by Engineer.

1.04 SCHEDULE OF VALUES

- A. Submit to Engineer Schedule of Values allocated to various portions of work as required by General Conditions.
- B. Upon request of Engineer, support values with data which will substantiate their correctness.
- C. Schedule of Values shall be used only as basis for Contractor's application for progress payment.
- D. Type schedule on 8-1/2" x 11" white paper; Contractor's standard forms and automated printout will be considered for approval by Engineer upon Contractor's request. Identify schedule with:
 - 1. Title of project and location.
 - 2. Engineer.
 - 3. Name and address of Contractor.
 - 4. Contract designation.
 - 5. Date of submission.
- E. Schedule shall list installed value of component parts of work in sufficient detail to serve as basis for computing values for progress payments during construction.
- F. Follow table of contents of specifications as format for listing component items.
 - 1. Identify each line item with number and title of respective specification section.
- G. For each specification division, list subvalues of major materials, equipment or operation under division.
- H. Provide separate listing of items of General Requirements, such as bonds, insurance premiums, job mobilization, field supervision and layout, construction facilities and temporary controls, contingency allowance, construction schedule, O&M data, record drawings, and submittals.

1. Mobilization payable according to the following schedule:
 - a. Partial Payment
 - 1) For projects exceeding \$500,000, a partial payment of mobilization will be made after receipt of a signed contract. This partial payment will be either 10% of the contract price for this item or 1% of the original project sum, whichever is less.
 - 2) When 5% of the original project sum is earned, either 25% of the contract price for this item or 2.5% of the original project sum, whichever is less, will be paid.
 - 3) When 10% of the original project sum is earned, either 50% of the contract price for this item or 5% of the original project sum, whichever is less, will be paid.
 - 4) When 25% of the original project sum is earned, either 100% of the contract price for this item or 10% of the original project sum, whichever is less, will be paid.
 - b. Full Payment
 - 1) Upon completion of all work on the project required by the contract, full payment will be made for this contract item, including any amount not paid as a partial payment.
- I. For various portions of work:
 1. Each item shall include directly proportional amount of Contractor's overhead and profit.
 2. For items on which progress payments will be requested for stored materials, break down value into:
 - a. Cost of materials, delivered and unloaded, with taxes paid.
 - b. Total installed value including Contractor's overhead and profit.
- J. Sum of values listed in schedule shall equal total contract sum.

PART 2 – PRODUCTS

Not Applicable.

PART 3 – EXECUTION

Not Applicable.

END OF SECTION

SECTION 01300

SUBMITTALS

INDEX

PART 1 – GENERAL

- 1.01 INFORMATION FOR ENGINEER
- 1.02 SHOP DRAWINGS
- 1.03 SUBMITTAL REQUIREMENTS
- 1.04 INSTRUCTION MANUALS, PARTS
LISTS AND TOOLS

PART 2 – PRODUCTS

NOT APPLICABLE

PART 3 – EXECUTION

NOT APPLICABLE

PART 1 – GENERAL

1.01 INFORMATION FOR ENGINEER

- A. After award of contract submit following information and drawings for Engineer's review. Total number of reviewed copies required for distribution: 5 plus copies required by Contractor. Electronic copies and transmittals may be acceptable if approved by the Owner and Engineer.
 - 1. Certified materials tests as described in Section 01010 - General Provisions.
 - 2. Certified outline, general arrangement, assembly, installation, foundation arrangement and anchor bolt detail drawings for all major equipment listed in proposal and for other equipment where specified.
 - 3. Manufacturer's specifications and catalog data for all items of equipment including treatment equipment, electrical controls, heating and ventilating equipment, plumbing fixtures, valves, pipe, fittings, castings and appurtenances and other special items.
 - 4. Certified performance data and operating characteristics for pumps prior to delivery to job site from shop tests performed on pumps furnished in accordance with Hydraulic Institute.
 - 5. Shop drawings showing reinforcing steel details, structural steel and aluminum, beams, roof systems, steel joists, grating, supports prefabricated piping, doors and windows, and other items.
 - 6. Schematic diagrams of all control circuits.
 - 7. Detailed wiring diagrams.
 - 8. Such other information as Engineer may request and information as specified with equipment.
- B. Within 15 days after award of contract, provide construction schedule, showing dates of starting and completing various portions of work and dollar value of each portion of work.

- C. Within 30 days after initiation of construction, provide written schedules of estimated monthly payments for contractor and subcontractors; revise schedules whenever variations exceed 10%.
- D. Provide two copies of following information:
 - 1. Contract price breakdown of lump sum bid for use in preparation of periodic payment estimates.
 - 2. Purchase orders and subcontracts without prices.
 - 3. Shipping papers for all materials.
 - 4. All materials test reports.
 - 5. Concrete mix designs; submit 8 days before proposed mix is to be used.

1.02 SHOP DRAWINGS

- A. Intent of Engineer's review: to assist Contractor in interpreting plans and specifications.
- B. Contractor's responsibility: to check drawings prior to submission for coordination and conformance with contract; do not submit without checking.
- C. Equipment checking is only for general conformance with design concept of project and general compliance with information given in contract documents. Any action shown is subject to requirements of plans and specifications. Contractor is responsible for dimensions which must be confirmed and correlated at job site; fabrication processes and techniques of construction; coordination of work with that of all other trades; and satisfactory performance of work.
- D. Prior to submission of shop drawings and catalog data to Engineer: affix Contractor's stamp with signature of responsible person to show that material submitted has been checked and approved by Contractor. Shop drawings submitted without appropriate stamp and signature will be returned unreviewed.
- E. Do not install or otherwise incorporate any equipment on project until shop drawings, if required, have been reviewed and so designated by Engineer.
- F. Contractor's responsibility for errors and omissions in submittals is not relieved by Engineer's review of submittals.
- G. Whenever items of materials or equipment are specified by a manufacturer's name and type and "or equal" is not listed, Contractor shall provide specified equipment without substitution, unless prior approval of Engineer is obtained for any substitution.

- H. Contractor shall abide by Engineer's decision when proposed substitute of material or equipment are deemed to be unacceptable and in such an event Contractor shall furnish items of equipment or materials specified.
- I. Engineer reserves right to consider such factors as overall project arrangement, overall project cost, and similar factors in determining whether proposed substitutions will be acceptable.
- J. Upon engineer's determination that a drawing must be returned as "Revise and Resubmit" or "Rejected", Engineer's review of the shop drawing will cease and no additional marking will be made. Resubmittals will be reviewed as new drawing of equipment or materials. As such, Engineer may provide comments on items which were included with initial submittal even if those items did not change from initial submittal to resubmittal.
- K. Engineer's responsibility shall be to review one set of shop drawing submittals for each product. If the first submittal is incomplete or does not comply with the drawings and/or specifications, the Contractor shall be responsible to bear the cost to the Owner, for the Engineer to recheck and handle the additional shop drawing submittals.
- L. No guarantee of review time is made by Engineer. Review time is dependent on number and complexity of submittals received. When multiple drawings are submitted, provide priority for order of review to engineer. Failure of contractor to allow time to review of submittals by Engineer does not constitute basis for compensation due to delays.

1.03 SUBMITTAL REQUIREMENTS

- A. Binding - submittals 1/4" thickness or less may be securely stapled in the upper left hand corner. Submittals thicker than 1/4" shall be bound in commercial grade cardboard or plastic folders, wire or plastic binders, or 3-ring binders as appropriate. Individual papers bound with paper clips are not acceptable.
- B. Cover sheet - each submittal shall have a cover sheet providing the following information. The Contractor's transmittal letter is not an acceptable cover sheet.
 - 1. Project name.
 - 2. Supplier's name, address, and telephone number.
 - 3. Engineer's name and location.
 - 4. General Contractor's name and location.
 - 5. Specification section applicable to submittal contents.
 - 6. A 4" square blank space for Engineer's review stamp.
- C. Where more than one model is shown on a manufacturer's sheet, clearly indicate exactly which item and which data is relevant to the work.

- D. Where the manufacturer lists multiple part numbers or options on a single data sheet, the part number and options to be used shall be clearly set apart from other part numbers shown on that sheet.
- E. Failure to comply with the above shall be reason to resubmit shop drawing.

1.04 INSTRUCTION MANUALS, PARTS LISTS AND TOOLS

- A. Furnish four (4) complete sets of manufacturer's instructions for installation, operation and maintenance of equipment furnished; include assembly drawings and parts lists with exploded views of equipment parts and identification symbols or part numbers for all replaceable parts and assemblies, recommended spare parts list, lubricant guide, preventative maintenance and troubleshooting procedures; submit manuals to Engineer within 30 days after return of shop drawings by Engineer to Contractor; manuals subject to Engineer's review.
- B. O&M manuals shall be marked with arrows, underlining, or highlighting to indicate the actual equipment model numbers and specific part numbers installed on this project.
- C. Provide electronic copy of complete wiring diagrams and ladder logic including any equipment that was assembled or wired off site as approved by Owner and Engineer.
- D. Furnish special tools, jigs and fixtures necessary for installation, operation, lubrication, repair, preventative maintenance, or troubleshooting of equipment.

PART 2 – PRODUCTS

Not Applicable.

PART 3 – EXECUTION

Not Applicable.

END OF SECTION

SECTION 01310

CONSTRUCTION PROGRESS SCHEDULE

INDEX

PART 1 – GENERAL

- 1.01 DESCRIPTION
- 1.02 FORM OF SCHEDULE
- 1.03 CONTENT OF SCHEDULE
- 1.04 SCHEDULE REVISIONS
- 1.05 DELAYS AND RECOVERY
- 1.06 SUBMITTAL REQUIREMENTS

PART 2 – PRODUCTS

NOT APPLICABLE

PART 3 – EXECUTION

NOT APPLICABLE

PART 1 – GENERAL

1.01 DESCRIPTION

- A. Prepare and submit to Engineer for review, estimated construction progress schedule.
- B. No work shall be performed between 6:00 p.m. and 7:00 a.m., nor on Saturdays, Sundays or legal holidays without permission of Owner. However, emergency work may be performed without prior permission. Notify City as soon as possible for emergency work.
- C. Night work may be established by Contractor as regular procedure with permission of Owner. Such permission, however, may be revoked at any time by Owner if Contractor fails to maintain adequate equipment and supervision for proper prosecution and control of work at night.

1.02 FORM OF SCHEDULE

- A. Prepare schedule in form of horizontal bar chart.
 - 1. Provide separate horizontal bar for each trade, activity or operation.
 - 2. Horizontal time scale: identify first work day of each week.
 - 3. Scale and spacings to allow space for notations and future revisions.
- B. Format of listings: chronological order of start of each item of work.
- C. Identification of listings: by major specification section numbers.

1.03 CONTENT OF SCHEDULE

- A. Construction Progress Schedule:
 - 1. Show complete sequence of construction by activity.
 - 2. Coordinate progress schedule with submittal schedule.
 - 3. Show dates for beginning and completion of each major element of construction and installation dates for major items of equipment. Elements shall include, but not be limited to:
 - a. Material and equipment order, manufacturer, delivery, installation, and checkout, including allowance items.
 - b. Performance tests and supervisory services activity.
 - c. Piping, ductwork and wiring installation.
 - d. Concrete pour sequence.
 - e. Structural steel erection.
 - f. Electrical work activity.
 - g. Heating, ventilating and air conditioning work activity.
 - h. Plumbing work activity.
 - i. Subcontractor's items of work
 - j. Final cleanup.
 - k. Allowance for inclement weather.
 - l. Demolition
 - m. Miscellaneous concrete placement.
 - 4. Show projected percentages of completion for each item as of first day of each month.

1.04 SCHEDULE REVISIONS

- A. Revise construction progress schedule every 30 days to reflect changes in progress of work.
- B. Indicate progress of each activity at date of schedule revision.
- C. Show changes occurring since previous revised submittal.
 - 1. Major changes in scope.
 - 2. Activities modified since previous submittal.
 - 3. Revised projections of progress and completion.
 - 4. Other identifiable changes.
- D. Provide narrative report defining:
 - 1. Problem areas, anticipated delays, and impact on schedule.
 - 2. Corrective action recommended and its effect.
- E. Submit to Engineer.

1.05 DELAYS AND RECOVERY

- A. If, at any time during project, Contractor fails to complete activity by its latest scheduled completion date, Contractor shall, within 3 working days, submit to Engineer written statements as to how and when work force will be reorganized to return contract to current construction schedule.
- B. Whenever it becomes apparent from progress evaluation and updated schedule data that milestone completion dates or contract completion dates will not be met, Contractor shall take some or all of the following actions.
 - 1. Increase construction staffing in such quantities and crafts as shall substantially eliminate backlog of work.
 - 2. Increase number of working hours per shift, shifts per work day, work days per week, amount of construction equipment or combination of foregoing sufficient to substantially eliminate backlog of work.
 - 3. Reschedule work items to achieve concurrency of accomplishment.
- C. Addition of equipment or construction forces, increasing working hours or any other method, manner or procedure to return to current construction progress schedule not considered justification for amending contract documents or treated as acceleration.

1.06 SUBMITTAL REQUIREMENTS

- A. For initial submittal of construction schedule and subsequent revisions thereof, furnish 4 copies of schedule to Engineer.
- B. Failure to submit construction schedule on timely basis as previously noted shall be considered cause for withholding progress payments otherwise due under contract.

PART 2 – PRODUCTS

Not Applicable.

PART 3 – EXECUTION

Not Applicable.

END OF SECTION

SECTION 01410

TESTING LABORATORY SERVICES

INDEX

PART 1 – GENERAL

- 1.01 REQUIREMENTS INCLUDED
- 1.02 QUALIFICATION OF LABORATORY
- 1.03 LABORATORY DUTIES
- 1.04 LIMITATIONS OF AUTHORITY OF TESTING LABORATORY
- 1.05 CONTRACTOR RESPONSIBILITIES

PART 2 – PRODUCTS

NOT APPLICABLE

PART 3 – EXECUTION

NOT APPLICABLE

PART 1 – GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Employ and pay for services of testing laboratory approved by Owner to perform specified services and testing as described in specifications.
 - 1. Employment of laboratory shall, in no way, relieve Contractor's obligations to perform work of contract.
- B. Related requirements in other parts of Project Manual:
 - 1. Inspections and testing required by laws, ordinances, rules, regulations, orders or approvals of public authorities: Conditions of Contract.

1.02 QUALIFICATION OF LABORATORY

- A. Meet basic requirements of ASTM E329-77 - Standard Recommended Practice for Inspection and Testing Agencies for Concrete, Steel, and Bituminous Materials as Used in Construction.
- B. Authorized to operate in state in which project located.
- C. Testing equipment:
 - 1. Calibrated at reasonable intervals by devices of accuracy traceable to either:
 - a. National Bureau of Standards.
 - b. Accepted values of natural physical constants.

1.03 LABORATORY DUTIES

- A. Cooperate with Engineer and Contractor; provide qualified personnel to perform work after due notice to proceed.
- B. Perform specified inspections, secure samples, and test materials.
 - 1. Comply with specified standards.
 - 2. Ascertain compliance of materials with contract documents.
- C. Promptly notify Engineer and Contractor of observed irregularities or deficiencies of work, equipment or material.
- D. Promptly submit written report of each test and inspection; one copy each to Engineer, Owner, material supplier, and Contractor, and one copy to record documents file. Each report shall include:
 - 1. Date issued.
 - 2. Project title and number.
 - 3. Testing laboratory name, address, and telephone number.
 - 4. Name and signature of laboratory inspector.
 - 5. Date and time of sampling or inspection.
 - 6. Record of temperature and weather conditions if test performed in field.
 - 7. Date of test.
 - 8. Identification of product and specification section.
 - 9. Location of sample or test in project.
 - 10. Type of inspection or test.
 - 11. Results of tests and compliance with contract documents.
 - 12. Interpretation of test results, when requested by Engineer.
- E. Perform additional tests as required by Engineer or Contractor.

1.04 LIMITATIONS OF AUTHORITY OF TESTING LABORATORY

- A. Laboratory not authorized to:
 - 1. Release, revoke, alter or enlarge on requirements of contract documents.
 - 2. Approve or accept any portion of work.
 - 3. Perform duties of Contractor.

1.05 CONTRACTOR RESPONSIBILITIES

- A. Cooperate with laboratory personnel and provide access to work.
- B. Provide to laboratory preliminary design mix proposed to be used for concrete and other material mixes which require control by testing laboratory.

- C. Furnish copies of product test reports.
- D. Furnish incidental labor and facilities.
 - 1. Provide access to work to be tested.
 - 2. Obtain and handle samples at project site or source of product to be tested.
 - 3. Facilitate inspections and tests.
 - 4. Store and cure test samples.
- E. Notify laboratory and Engineer sufficiently in advance of operations to allow for laboratory assignment of personnel and scheduling of tests.
- F. Make arrangements with laboratory and pay for additional samples and tests required for Contractor's convenience.
- G. Employ and pay for services of testing laboratory to perform additional inspections, sampling, and testing required when initial tests indicate work does not comply with contract documents.

PART 2 – PRODUCTS

Not Applicable.

PART 3 – EXECUTION

Not Applicable.

END OF SECTION

SECTION 01500

TEMPORARY CONSTRUCTION FACILITIES AND UTILITIES

INDEX

PART 1 – GENERAL

- 1.01 DESCRIPTION
- 1.02 REQUIREMENTS OF REGULATORY AGENCIES

PART 2 – PRODUCTS

- 2.01 TEMPORARY ELECTRICITY AND LIGHTING
- 2.02 TEMPORARY HEAT
- 2.03 TEMPORARY TELEPHONE SERVICE
- 2.04 WATER FOR CONSTRUCTION AND TESTING

- 2.05 SANITARY FACILITIES
- 2.06 TEMPORARY FIRE PROTECTION
- 2.07 TEMPORARY SITE WORK
- 2.08 DAMAGE TO EXISTING PROPERTY
- 2.09 SECURITY
- 2.10 TEMPORARY PARKING
- 2.11 TEMPORARY FENCING
- 2.12 FIELD OFFICES AND BUILDINGS

PART 3 – EXECUTION

- 3.01 GENERAL
- 3.02 REMOVAL

PART 1 – GENERAL

- 1.01 DESCRIPTION

- A. Provide and maintain temporary facilities and utilities required for construction; remove on completion of work.

- 1.02 REQUIREMENTS OF REGULATORY AGENCIES

- A. National Fire Protection Association (NFPA):
 - 1. National Electric Code (NEC), NFPA No. 70, and Iowa amendments.
- B. Comply with federal, state, and local codes and regulations, and with utility company requirements.

PART 2 – PRODUCTS

- 2.01 TEMPORARY ELECTRICITY AND LIGHTING

- A. General:
 - 1. Permanent electrical system and building wiring is available at site for Contractor use. Contractor responsible for providing any additional or supplementary electricity and lighting if needs are beyond what is available or if system is disabled during construction operations. Contractor provide lighting sufficient to enable

Contractor to complete work and enable Engineer to check work as it is being performed. Illumination shall meet or exceed state code requirements.

B. Responsibilities:

1. Provide, maintain, and remove temporary electric service facilities as needed.
2. Facilities exposed to weather shall be weatherproof type and electrical equipment enclosure locked to prevent access by unauthorized personnel.
3. Patch affected surfaces and structures after temporary services removed.
4. Provide lamps, wiring, switches, sockets, and similar equipment required for temporary lighting and small power tools.

2.02 TEMPORARY HEAT

A. General:

1. Cold weather protection: Heating required during construction operations. Existing building heat may not be sufficient to warm building when UV channel is empty.
2. Temporary heat: supplemental heating may be needed until protection at doorways, windows, and other openings will provide reasonable heat retentions.
3. See requirements of specification for minimum temperature to be maintained for various trades and work. Except as otherwise called for, temperature in all parts of buildings shall be kept above 50°F. Maximum temperature in building shall be 75°F. during heating season.
4. Heat shall be warm air heat from oil or gas-fired portable unit heaters suitably vented to outside as required for protection of health and property.
5. Open salamander type heaters not permitted.

B. Responsibilities:

1. Provide temporary heat. Make arrangements and pay fuel costs, supervise, and maintain heating units.
2. Provide adequate heat to all parts of building.
3. Pay for repairing or replacing any part of building or materials damaged because of lack of heat.
4. Provide temporary throwaway filters if, at any time, permanent system used for temporary ventilation.

2.03 TEMPORARY TELEPHONE SERVICE

A. Provide telephone at which Contractor can be reached by Owner or Engineer at all times during the working day.

1. Provide Owner and Engineer with at least 2 telephone numbers where Contractor's representative can be reached on weekends, evenings, and holidays in the event of an emergency.

2.04 WATER FOR CONSTRUCTION AND TESTING

- A. Water is currently available at project site in reasonable quantities. Make arrangements to obtain suitable water, if necessary.
- B. Use treatment facility effluent for testing structures. Effluent provided at no charge. Contractor to provide pumping.

2.05 SANITARY FACILITIES

- A. Owner will provide access to sanitary toilet facilities conforming to state and local health and sanitation requirements for use by Contractor's employees.
- B. Maintain in sanitary condition and properly supply with toilet paper.

2.06 TEMPORARY FIRE PROTECTION

- A. Provide and maintain in working order, minimum of 1 fire extinguisher on each floor of each building, and such other fire protective equipment and devices as would be reasonably effective in extinguishing fires during early stages by personnel at project site.
- B. Comply with NFPA, federal, state, local and other applicable requirements.

2.07 TEMPORARY SITE WORK

- A. Provide and maintain temporary roadways necessary to carry out construction operations in clean, dust free, snow free, ice free, driveable condition.
- B. Provide and maintain temporary site drainage and stormwater controls.
- C. Exercise caution to minimize increase in suspended solids and turbidity in surface waters within and adjacent to construction area. Do not deposit spoils in surface waters. Control and minimize sediment runoff and excavation erosion to surface waters.

2.08 DAMAGE TO EXISTING PROPERTY

- A. Be responsible for replacing or repairing damage to existing buildings, sidewalks, roads, parking lot surfacing, and other existing assets.
- B. Contractor shall have option of having Owner contract for such work and have cost deducted from contract amount.

2.09 SECURITY

- A. Security not provided by Owner.
- B. Contractor shall be held responsible for loss or injury to persons or property where his work is involved and shall provide security and take precautionary measures to protect Contractor's and Owner's interests.

2.10 TEMPORARY PARKING

- A. Parking on construction site in designated areas may be provided as approved by Engineer and Owner.
- B. Make arrangements for additional parking area for employee's vehicles if required.
- C. Costs involved in obtaining this parking area shall be borne by Contractor.

2.11 TEMPORARY FENCING

- A. Provide temporary fencing sufficient to prevent trespass by Contractor's employees and suppliers onto private property and by public onto construction site.
- B. Materials shall be sufficiently durable to be effective for duration of construction period.

2.12 FIELD OFFICES AND BUILDINGS

- A. If required by Contractor, erect where designated by Engineer and maintain in good condition, temporary field office and tool storage building(s) for Contractor's use.
 - 1. Tool storage building(s) shall be of ample size to provide space for tools and equipment. Building(s) shall be neat and well-constructed, surfaced with plywood, drop siding, masonite or other similar material, well painted and void of advertisements.

PART 3 – EXECUTION

3.01 GENERAL

- A. Comply with applicable requirements specified herein.
- B. Maintain and operate systems to ensure continuous service.
- C. Modify and extend systems as work progress requires.

3.02 REMOVAL

- A. Completely remove temporary materials, equipment, signs, and structures when no longer required.
- B. In unfinished areas, clean and repair damage caused by temporary installations or use of temporary facilities, restore drainage, and evenly grade, seed or plant as necessary to provide appearance equal to or better than original.
- C. In finished areas, restore existing or permanent facilities used for temporary services to specified, or to original, condition.

END OF SECTION

SECTION 01600

MATERIAL AND EQUIPMENT

INDEX

PART 1 – GENERAL

1.01 DESCRIPTION

1.02 SUBSTITUTIONS

1.03 REUSE OF EXISTING MATERIAL

1.04 MANUFACTURER'S INSTRUCTIONS

1.05 TRANSPORTATION AND HANDLING

1.06 STORAGE, PROTECTION, AND
MAINTENANCE

1.07 INSTALLATION, INSTRUCTIONAL,
AND POST STARTUP SERVICES

1.08 SPECIAL TOOLS AND LUBRICATING
EQUIPMENT

1.09 LUBRICATION

1.10 GUARDS

PART 2 – PRODUCTS

NOT APPLICABLE

PART 3 – EXECUTION

NOT APPLICABLE

PART 1 – GENERAL

1.01 DESCRIPTION

A. Material and equipment incorporated into work:

1. Conform to applicable specifications and standards.
2. Comply with size, make, type, and quality specified or as specifically approved by shop drawings, Engineer, or other submittal.

B. Do not use material or equipment for any purpose other than for which it is designed or specified.

1.02 SUBSTITUTIONS

A. Substitutions:

1. Contractor's requests for changes in equipment and materials from those required by Contract Documents are considered "requests for substitutions" and subject to Contractor's representations and review provisions of Contract Documents when one of the following conditions are satisfied:
 - a. Where request directly related to "or equal" clause or other language of same effect in specifications.
 - b. Where required equipment or material cannot be provided within Contract Time, but not as result of Contractor's failure to pursue work promptly or coordinate various activities properly.

- c. Where required equipment or material cannot be provided in manner compatible with other materials of work, or cannot be properly coordinated therewith.
 - d. Where required equipment does not meet the provisions of the American Iron & Steel Requirements.
- 2. Contractor's options:
 - a. Compatibility of options: Where more than one choice available as options for Contractor's selection of equipment or material, select option compatible with other equipment and materials already selected.
 - b. Standards, codes and regulations: Where compliance with imposed standard, code or regulation required, select from among products which comply with requirements of those standards, codes, and regulations.
 - c. "Or Equal": For material or equipment specified by naming one or more equipment manufacturer and "or equal," Contractor shall submit request for substitution for any equipment or manufacturer not specifically named. Submit in accordance with GENERAL CONDITIONS, paragraph 1.15, and these General Requirements.
 - d. Two or more manufacturers: For equipment or material specified by naming several manufacturers, select any one of manufacturers named. Do not provide or offer to provide unnamed manufacturer or equipment.
 - e. Single manufacturer or material: For equipment or material specified by naming only one manufacturer or material, there is no option, unless provisions of Paragraph 1.d. cannot be met. In this case, notify Engineer immediately.

B. Conditions which are not substitutions:

- 1. Requirements for substitutions do not apply to Contractor options on materials and equipment provided in specifications.
- 2. Revisions to Contract Documents, where requested by Owner or Engineer, are "changes" not "substitutions."
- 3. Contractor's determination of and compliance with governing regulations and orders issued by governing authorities do not constitute substitutions or basis for change orders, except as provided for in Contract Documents.

1.03 REUSE OF EXISTING MATERIAL

- A. Except as specifically indicated or specified, do not use materials and equipment removed from existing structures in new work.
- B. For material and equipment specifically indicated or specified to be reused in work:
 - 1. Use special care in removal, handling, storage, and reinstallation to ensure proper function in completed work.
 - 2. Arrange and pay for transportation, storage, and handling of products which require off-site storage, restoration or renovation.

3. Off-site storage areas and buildings shall conform to requirements of this section.

1.04 MANUFACTURER'S INSTRUCTIONS

- A. Installation of equipment and materials shall comply with manufacturer's instructions. Obtain and distribute printed copies of such instructions to parties involved in installation, including 2 copies to Engineer.
 - 1. Maintain one set of complete instructions at job site during installation and until completion of work.
- B. Handle, install, connect, clean, condition, and adjust materials and equipment in accordance with manufacturer's written instructions and in conformity with specifications.
 - 1. Should job conditions or specified requirements conflict with manufacturer's instructions, consult Engineer for further instructions.
 - 2. Do not proceed with work without written instructions.

1.05 TRANSPORTATION AND HANDLING

- A. Arrange deliveries of materials and equipment in accordance with Construction Progress Schedule, coordinate to avoid conflict with work and conditions at site.
 - 1. Deliver materials and equipment in undamaged condition, in manufacturer's original containers or packaging, with identifying labels intact and legible.
 - 2. Protect bright machined surfaces, such as shafts and valve faces, with heavy coat of grease prior to shipment.
 - 3. Immediately upon delivery, inspect shipments to ensure compliance with Contract Documents and approved submittals, and products have been protected and are undamaged.
- B. Provide equipment and personnel to handle materials and equipment by methods recommended by manufacturer to prevent soiling or damage to materials or equipment, or packaging.

1.06 STORAGE, PROTECTION, AND MAINTENANCE

- A. On-site storage areas and buildings shall conform to requirements of Section 01500 - Temporary Construction Facilities and Utilities.
- B. Owner assumes no responsibility for materials and equipment stored in buildings or on site or at another location approved in writing. Contractor assumes full responsibility for damage due to storage of materials and equipment.

- C. Interior storage:
 - 1. Store materials and equipment in accordance with manufacturer's instructions, with seals and labels intact and legible.
 - 2. Store materials and equipment subject to damage by elements in weathertight enclosures.
 - 3. Maintain temperature and humidity within ranges required by manufacturer's instructions.
- D. Exterior storage:
 - 1. Store fabricated materials and equipment above ground, on blocking or skids, to prevent soiling or staining. Cover materials and equipment subject to deterioration with impervious sheet coverings, provide adequate ventilation to avoid condensation.
 - 2. Store loose granular materials in well-drained area on solid surfaces to prevent mixing with foreign matter.
 - 3. Materials such as pipe, reinforcing and structural steel, and equipment shall be stored on pallets or racks, off ground.
- E. Inspection and maintenance:
 - 1. Arrange storage in manner providing easy access for inspection, maintenance, and inventory.
 - 2. Make periodic inspections of stored materials and equipment to ensure materials and equipment maintained under specified conditions and free from damage or deterioration, and coverings in place and in condition to provide required protection.
 - 3. Perform maintenance on stored materials and equipment in accordance with manufacturer's written instructions and in presence of Owner or Engineer.
 - a. Notify Engineer 24 hours before performance of maintenance.
 - b. Submit report of completed maintenance and condition of coverings to Engineer with each Application for Payment.
 - c. Failure to perform maintenance, to notify Engineer of intent to perform maintenance or to submit maintenance report may result in rejection of material or equipment.
- F. Contractor shall assume responsibility for protection of completed construction and repair and restore damage to completed work equal to original condition.
- G. Wheeling of loads over floors, with or without plank protection, not permitted in anything except rubber-tired wheelbarrows, buggies, trucks, or dollies. This applies to finished floors and exposed concrete floors, as well as those covered with composition tile or other applied surfacing.
- H. Where structural concrete is also finished surface, avoid marking or damaging surface.

1.07 INSTALLATION, INSTRUCTIONAL, AND POST STARTUP SERVICES

A. General:

1. This article covers on-site services of supplier's or manufacturer's representatives provided by Contractor during construction, equipment startup, and training of Owner's personnel for equipment or plant operation as specifically required in specification section for equipment or system.
2. Include and pay costs for supplier's or manufacturer's services, including, but not limited to, those specified.

B. Installation services:

1. Where installation services called for in specifications, provide competent and experienced technical representatives of manufacturers of equipment and systems to resolve assembly or installation procedures attributable to, or associated with, equipment furnished.
2. After equipment installed, representatives shall perform initial equipment and system adjustment and calibration to conform to specifications and manufacturer's requirements and instructions.

C. Instructional services:

1. Where training called for in specifications, provide competent and experienced technical representative of supplier to provide detailed instructions to Owner's personnel for operation of equipment. Training services shall include pre-startup and equipment startup, classroom, and on-site equipment instruction, as stated in specifications.
2. Coordinate pre-startup training periods with Engineer and supplier's representative.
 - a. Notify Engineer at least 48 hours before training sessions are to begin so Engineer can make arrangements with Owner's operating personnel.
 - b. Reschedule canceled training sessions 48 hours in advance.
3. Similar types of equipment differing in model, size or manufacturer shall require equal service time as stated in Part 1 of specific specification section.
4. Complete pre-startup training 14 days prior to actual plant startup.
5. Operation and maintenance data shall constitute basis of instruction.
 - a. Review data contents with personnel in full detail to explain aspects of operations and maintenance.

D. Post startup services:

1. After equipment/system in operation for at least 6 months, but no longer than 11 months, each equipment manufacturer or authorized equipment representative shall make final inspection where so required in specifications. Final inspection will provide assistance to Owner's operating personnel in making adjustments or calibrations required to ensure equipment or system operating in conformance with design, manufacturer, and specifications.

1.08 SPECIAL TOOLS AND LUBRICATING EQUIPMENT

- A. Furnish, in accordance with manufacturer's recommendations, special tools required for checking, testing, parts replacement, and maintenance. Special tools are those specially designed or adapted for use on parts of equipment, and not customarily and routinely carried by maintenance mechanics.
- B. Deliver to Owner when unit placed into operation and after operating personnel have been properly instructed in operation, repair, and maintenance of equipment.
- C. Tools and lubricating equipment shall be of quality compatible to equipment manufacturer has furnished.

1.09 LUBRICATION

- A. Where lubrication required for proper operation of equipment, incorporate necessary and proper provisions in equipment in accordance with manufacturer's requirements. Where possible, lubrication shall be automated and positive.
- B. Where oil used, reservoir shall be of sufficient capacity to supply unit for 24-hour period.

1.10 GUARDS

- A. Provide necessary guards to meet federal, state, and local requirements. Construct guards of expanded metal where possible.

PART 2 – PRODUCTS

Not Applicable.

PART 3 – EXECUTION

Not Applicable.

END OF SECTION

SECTION 01720

PROJECT RECORD DOCUMENTS

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- 1.01 DESCRIPTION
- 1.02 MAINTENANCE OF DOCUMENTS
AND SAMPLES
- 1.03 RECORD DOCUMENTS
- 1.04 SUBMITTALS

PART 2 – PRODUCTS

NOT APPLICABLE

PART 3 – EXECUTION

NOT APPLICABLE

PART 1 – GENERAL

1.01 DESCRIPTION

- A. Maintain at site 1 record copy of:
 - 1. Drawings.
 - 2. Specifications.
 - 3. Addenda.
 - 4. Change orders and other modifications to Contract.
 - 5. Engineer field orders, written instructions, or clarifications.
 - 6. Approved submittals.
 - 7. Field test records.
 - 8. Construction photographs.
 - 9. All associated permits.
 - 10. Certificates of inspection and approvals.

1.02 MAINTENANCE OF DOCUMENTS AND SAMPLES

- A. Store documents and samples in Contractor's field office apart from documents for construction.
 - 1. Provide files and racks for storage of documents.
 - 2. Provide secure storage space for storage of samples.
- B. Maintain documents in clean, dry, legible condition and in good order. Do not use record documents for construction purposes.
- C. Make documents and samples available at all times for inspection by Engineer.
- D. Failure to properly maintain record documents may be reason to delay a portion (up to 5%) of progress payments until records comply with Contract Documents.

1.03 RECORD DOCUMENTS

- A. Maintain record set of Drawings and Specifications legibly changed to transfer approved modifications in completed work that differ from Contract Documents.
- B. Label each document "PROJECT RECORD" in neat, large printed letters.
- C. Record information concurrently with construction progress.
 - 1. Do not conceal any work until required information recorded.
 - 2. Record changes made by Written Agreement, Field Order, Change Order or Work Directive Change.
- D. Drawings:
 - 1. General:
 - a. Depths of various elements of foundation in relation to finish first floor datum.
 - b. Horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - c. Location of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of structure.
 - d. Field changes.
 - e. Details not on original drawings.
 - f. Location and identification of exposed interior piping.
 - 2. Electrical:
 - a. Horizontal and vertical locations and size of underground cable, conduit, and duct runs dimensioned from established building lines.
 - b. Plan locations and size of interior concealed and exposed feeders.
 - c. Size and location of access panels.
 - d. Departures from original drawings and electrical work revisions.

1.04 SUBMITTALS

- A. At Substantial Completion:
 - 1. Deliver 1 marked up set of drawings to Engineer for use in preparation of record drawings.
- B. Accompany submittals with transmittal letter in duplicate, containing:
 - 1. Date.
 - 2. Project title and number.
 - 3. Contractor's name and address.
 - 4. Title of record document.
 - 5. Signature of Contractor or authorized representative.

PART 2 – PRODUCTS

Not Applicable.

PART 3 – EXECUTION

Not Applicable.

END OF SECTION

SECTION 02050

DEMOLITION OF STRUCTURES

INDEX

PART 1 – GENERAL

- 1.01 DESCRIPTION
- 1.02 DEFINITIONS
- 1.03 JOB CONDITIONS

PART 2 – PRODUCTS

NOT APPLICABLE

PART 3 – EXECUTION

- 3.01 GENERAL
- 3.02 DEMOLITION OPERATIONS
- 3.03 REMOVAL OPERATIONS
- 3.04 ABANDONMENT OPERATIONS
- 3.05 DISPOSAL

PART 1 – GENERAL

1.01 DESCRIPTION

- A. This section includes, but is not limited to:
 - 1. Removal and salvage of electrical, and mechanical equipment.
 - 2. Rerouting utilities to remain.
 - 3. Shutting off, capping, and abandonment of utilities and underground piping.
 - 4. Demolition and removal of structures.
 - 5. Disposal of debris.

1.02 DEFINITIONS

- A. Demolition: remove existing structure down to point below finish grade as specified or noted.
- B. Removal: remove portions of existing structure or utility above and below grade as noted.
- C. Abandonment: remove existing utility from service. Fully disconnect from portions of utility remaining in service. Remove all portions of utility being abandoned from influence zones of structures or buried piping. Plug ends of buried piping being abandoned with concrete.
- D. Influence Zone: area bound by 1.5 horizontal to 2 vertical slope extending outward from one foot beyond outer edges of foundation, pavement, or piping.

1.03 JOB CONDITIONS

- A. Prior to demolition of structures, accomplish following:
 - 1. Owner release of such structure.
 - 2. Electrical and mechanical services rerouted or shut off outside area of demolition.
 - 3. Salvage equipment scheduled for reuse in new work or scheduled to be delivered to Owner's storage facility.
 - 4. Survey and record condition of existing facilities to remain in place that may be affected by demolition operations. After demolition operations are completed, survey conditions again and restore facilities to pre-demolition condition at no additional cost to Owner. Conduct surveys in presence of Engineer.
- B. Protection:
 - 1. Do not close or obstruct streets, walks, and other facilities occupied and used by Owner and public without prior written permission from Owner and other authorities having jurisdiction.
 - 2. Maintain structural stability of structures adjacent to or affected by work of this contract.
 - 3. Maintain in service and protect from damage existing facilities, utilities, and equipment indicated to remain or adjacent work areas.
- C. Utilities:
 - 1. Notify utilities prior to razing operations to permit them to disconnect, remove, and/or relocate any equipment serving existing facilities.
- D. Salvageable materials:
 - 1. Owner shall maintain all salvage rights on all existing equipment, material, and related appurtenances that may be removed or altered during construction.
 - 2. Salvaged material and equipment to be retained by Owner shall be delivered to Owner's storage facility.
 - 3. Equipment and materials not scheduled to be salvaged or reused in new work shall become property of Contractor and legally disposed of off-site.
 - 4. Materials to be reused:
 - a. Aluminum I-Bar Grating at Contractor's option.
 - 5. Material to be salvaged:
 - a. Ultrasonic Transmitter & Sensor.
 - b. Panels, Disconnects, and Breakers.
 - c. UV Disinfection System Equipment.
 - d. Grating, planking and decking.
 - 6. Equipment and materials not scheduled to be salvaged or reused in new work shall become property of Contractor and legally disposed of off-site.

- E. Schedule:
 - 1. Perform demolition and removal work so as not to interfere with Owner's operations.
 - 2. Coordinate demolition and removal work so new construction work installed before, during, and after work of this section may commence without undue delay.

PART 2 – PRODUCTS

Not Applicable.

PART 3 – EXECUTION

3.01 GENERAL

- A. Following is list of demolition work:
 - 1. Facilities to be demolished:
 - a. None.
 - 2. Facilities to be removed:
 - a. UV Disinfection System.
 - b. Concrete channel and other miscellaneous concrete shown.
 - c. Electrical equipment as shown on drawings.
 - d. Abandoned utilities and abandoned underground piping within influence zones of proposed underground piping.
 - e. Miscellaneous manholes, equipment, utilities, utility structures, underground piping, and other structures shown on drawings.
 - 3. Utility and underground piping to be abandoned:
 - a. As shown on drawings.
 - 4. Do not demolish, remove, or abandon existing wastewater treatment facilities or other structures until the new wastewater treatment facilities are constructed and operational except as noted in Section 01040 - Special Construction.

3.02 DEMOLITION OPERATIONS

- A. Remove existing structures 4' below finished grade including: superstructure, foundation, footings, utility drains, and other piping, as shown on drawings, or as required to permit new construction.
- B. Provide drainage of wastewater treatment facilities demolished, cutting openings in floors of structure remaining in place. Holes shall be 6" dia. minimum spaced at 20' centers maximum (minimum of 2 each structure). Notify Engineer prior to backfilling structure remaining. Fill with well graded sand compacted to 95% maximum density.

- C. Plug or cap utility drains and other piping in accordance with specified abandonment procedures.

3.03 REMOVAL OPERATIONS

- A. Remove existing concrete, steel and masonry to extent indicated on drawings. Provide smooth, straight joint or cut line. Make cuts parallel with walls and/or floors. Patch walls, floors, and ceilings with non-shrink grout. Cut in masonry units to provide finished appearance.
- B. Remove utilities and equipment to elevations and locations shown on drawings and plug and seal permanently with steel cap, concrete plug or other approved method in accordance with specified abandonment procedures.
- C. Provide temporary shoring and bracing to transfer loads of existing construction to remain from construction being removed.

3.04 ABANDONMENT OPERATIONS

- A. Abandon utilities and underground piping within limits noted.
- B. Abandon disconnected utilities and underground piping within influence zone of proposed underground piping and proposed structures.
- C. Provide compatible cap for pressurized type piping. Provide thrust blocks for caps unless piping has fully restrained joints.
- D. Provide concrete plugs for gravity type piping. Plug shall be Class B concrete in accordance with Section 03300 - Cast-in-Place Concrete. Plug shall be at least 2' thick.
- E. Where noted on plans, fill piping or manholes with flowable mortar.

3.05 DISPOSAL

- A. Legally dispose of sludge, debris, and other undesirable and unsalvageable material resulting from demolition operations off-site.
- B. Dispose of removed and broken concrete and other debris legally off-site.

END OF SECTION

SECTION 03100

CONCRETE FORMWORK

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PART 1 – GENERAL

1.01 DESCRIPTION

PART 2 – PRODUCTS

2.01 MATERIALS

2.02 DESIGN AND FABRICATION

PART 3 – EXECUTION

3.01 INSTALLATION

3.02 WORKMANSHIP

3.03 OBSERVATION AND MAINTENANCE

3.04 REMOVAL OF FORMS

3.05 REUSE OF FORMS

PART 1 – GENERAL

1.01 DESCRIPTION

- A. This section describes formwork for concrete specified under Section 03300 – Cast-in-Place Concrete.
- B. Where 'ACI 347' is referred to herein, reference is to 'ACI Standard Recommended Practice for Concrete Formwork' adopted by the American Concrete Institute.
- C. Related work specified elsewhere:
 - 1. Section 03200 - Concrete Reinforcement.
 - 2. Section 03300 - Cast-in-Place Concrete.
- D. Anchors and inserts are specified elsewhere.

PART 2 – PRODUCTS

2.01 MATERIALS

- A. General:
 - 1. Contact surfaces of forms for concrete exposed: wood, plywood, hardboard, metal, form liner or other material which will produce surface finishes specified under Section 03300 - Cast-in-Place Concrete without adverse effect on concrete.
 - 2. Plywood: comply with PS 1-74; use maximum sheet sizes to keep joints to minimum.
 - 3. Hardboard: comply with FS LLL-H-35, Type 1, Class 2, hard pressed fiberboard treated for formwork use.
 - 4. Metal forms: smooth surfaces free from irregularities, dents and sags.
 - 5. Where used, form release agent must not stain or cause imperfections on concrete surface.

- B. Chamfer strips: Polyvinylchloride, steel, good quality lumber carefully milled, free from protruding slivers and well-sealed, or other nonabsorbent material.
- C. Form Ties
 - 1. Form ties encased in concrete other than those specified in the following paragraphs shall be designed so that, after removal of the projecting part, no metal shall remain within 1-1/2" of the face of the concrete. The part of the tie to be removed shall be provided with a removable cone at least 1" diameter and 1-1/2" deep. Form ties in concrete exposed to view shall be the cone-washer type.
 - 2. Flat bar ties for panel forms shall have plastic or rubber inserts having a minimum depth of 1-1/2" and sufficient dimensions to permit proper patching of the tie hole.
 - 3. Ties for liquid containment structures shall have an integral waterstop that is tightly welded to the tie.
 - 4. Common wire shall not be used for form ties.
 - 5. Alternate form ties consisting of tapered through-bolts at least 1" in diameter at smallest end or through-bolts that utilize a removable tapered sleeve of the same minimum size may be used at the Contractor's option. Obtain Engineer's acceptance of system and spacing of ties prior to ordering or purchase of forming. Clean, fill and seal form tie hole with non-shrink cement grout. The Contractor shall be responsible for watertightness of the form ties and any repairs needed.

2.02 DESIGN AND FABRICATION

- A. Design, engineer and construct formwork to satisfy specified requirements and conditions shown on plans.
- B. For concrete exposed to chemical attack, comply with recommendations contained in Chapter 4 of Environmental Engineering Concrete Structures - ACI 350.
- C. Strength of forms, supports, and braces adequate to resist vertical and lateral loads; follow recommendations contained in Chapter 2 of ACI 347.
- D. Provide positive means for adjusting shores and struts (wedges and jacks) so settlement can be taken up during concrete placement operations.
- E. Allowable deflection of facing materials reflected in exposed concrete surfaces: not greater than 1/240 of span between structural members.
- F. On exposed surfaces, pattern of joints between facing panels and marks left by form ties must be rhythmic and symmetrical.

- G. Provide temporary openings near bottom of deep forms and other locations where necessary to facilitate observation and cleaning immediately prior to deposit of concrete.
- H. Form design must include provisions for easy removal.
- I. Provide 3/4" x 3/4" chamfers on external corners of columns, beams, slabs and walls which have two adjacent faces exposed.
- J. Do not use earth cuts as forms for vertical surfaces without specific approval from Engineer.

PART 3 – EXECUTION

3.01 INSTALLATION

- A. Solidly back joints between facing panels and perimeter edges of facing panels to maintain proper alignment.
- B. Forms must be sufficiently tight to prevent leakage of mortar; gasket, tape, caulk or seal otherwise.
- C. Cooperate with subcontractors in placement of anchors, bolts, inserts and other items embedded in concrete.
- D. Leave section of forms adjacent to construction joint in place until concrete is deposited on other side of joint; retighten forms on completed section before next section is placed and carefully seal joint to prevent grout or paste leakage.
- E. Securely brace shores and struts against lateral displacement.
- F. Preparation of form surfaces:
 - 1. Remove loose concrete dust and other fine material from contact surface.
 - 2. Prior to placement of concrete, saturate board forms with joints opened by shrinkage of wood with water until wood swells and closes joints.
 - 3. Seal plywood and other wood surfaces not subject to shrinkage against absorption of moisture from concrete (field or factory applied).
 - 4. Apply coating for preventing of bond with concrete prior to placement of reinforcing steel; do not allow excess coating material to stand in puddles in forms or come in contact with concrete surfaces against which fresh concrete will be placed.
 - 5. Where painting of finished concrete is required, coatings applied to contact surface of forms must be compatible with type of paint to be used.

6. Where as-cast finishes are required, do not use form coatings which will impart stain to concrete.

G. Prior to placement of reinforcing steel, request Engineer to inspect form surfaces; obtain permission from Engineer to start placement of reinforcing steel.

3.02 WORKMANSHIP

A. Form surfaces adjacent to concrete must conform to shape, line, and dimension shown with corners uniform, true and sharp, unless otherwise shown on plans.

B. Transition between curved and straight surfaces must be smooth, even and tangent; when such forms are in place request Engineer to inspect them before concrete is placed.

C. When forms are removed, concrete surfaces shall conform to size, shape and line shown on plans within tolerances listed under Chapter 3 of ACI 347.

3.03 OBSERVATION AND MAINTENANCE

A. Observe formwork continuously while concrete is being placed to ensure that there are no changes of elevation, plumbness or camber from as-designed conditions.

B. Stop placement if settlement is noted and adjust shores and struts to eliminate settlement.

C. If weakness in falsework is observed which will produce distortion or variation on concrete surfaces in excess of allowable tolerances, stop work and strengthen falsework; remove permanently damaged construction before proceeding with work.

3.04 REMOVAL OF FORMS

A. Remove in manner that will not mar, spall or otherwise damage the concrete or other work.

B. Formwork not supporting weight of concrete: Formwork at locations such as sides of beams, walls, columns, and similar parts of the work, may be removed after cumulatively curing concrete at not less than 50°F. for 24 hours after its placement, provided all of the following criteria are met:

1. Concrete has obtained strength required to not be damaged by form removal operations.
2. Concrete curing and protection operations will be maintained in accordance with the requirements for those materials.

3. Shores and other vertical supports have been arranged to permit removal of form facing material without loosening or disturbing shores and supports.
- C. Do not remove supporting forms and shoring for slabs, beams, channels, troughs, corbels, brackets, haunches, cantilevered or Y-shape elements, or other flexural members until concrete complies with all of the following criteria:
 1. No sooner than 14 days following concrete placement.
 2. Obtained a minimum compressive strength of 80% of the 28-day strength.
 3. Of sufficient strength required to support its own weight and superimposed loads.
- D. Remove the removable portion of form ties in a manner and at the period required to prevent damage to concrete.
- E. Accomplish removal without prying against face of concrete or jarring structure; use wooden wedges only.
- F. Remove supports in manner permitting concrete to assume load gradually and uniformly.
- G. Perform reshoring for purpose of early form removal in manner that will not require large areas of new construction to support own weight.
- H. When forms are removed before end of curing period, exposed concrete must be cured as specified under Section 03300 - Cast-in-Place Concrete.
- I. Do not drop forms on floor.
- J. Do not subject unsupported portions of structure to heavy construction or material loading.

3.05 REUSE OF FORMS

- A. Reuse forms for exposed concrete only when in near new condition.
- B. Do not reuse metal pans with bent flanges or dents until they have been straightened to near new condition.
- C. Thoroughly clean and recoat forms before reuse; recondition if necessary.
- D. Do not reuse forms if condition does not meet requirements set forth herein.

END OF SECTION

SECTION 03200

CONCRETE REINFORCEMENT

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- 1.01 DESCRIPTION
- 1.02 SUBMITTALS
- 1.03 MINIMUM REINFORCEMENT REQUIREMENTS

PART 2 – PRODUCTS

- 2.01 MATERIALS
- 2.02 FABRICATION

PART 3 – EXECUTION

- 3.01 PLACEMENT

PART 1 – GENERAL

1.01 DESCRIPTION

- A. This section describes reinforcing steel for concrete specified under Section 03300 - Cast-in-Place Concrete.
- B. Related work specified elsewhere:
 - 1. Section 03100 – Concrete Formwork.
 - 2. Section 03300 – Cast-in-Place Concrete.

1.02 SUBMITTALS

- A. Submit complete shop drawings showing all dimensions necessary for fabrication and placement of reinforcing steel and accessories, without reference to contract drawings; include elevations of wall reinforcing and location of construction joints.
- B. Do not start fabrication until receipt of reviewed drawings from Engineer.
- C. See Section 01300 - Submittals for additional requirements.

1.03 MINIMUM REINFORCEMENT REQUIREMENTS

- A. Bars:
 - 1. Reinforce footings as shown on drawings; where reinforcing is not shown include:
 - a. #4 at 8" each way bars for spread wall footings.
 - b. #5 at 8" each way bars top and bottom in trench footings up to 8" thick.
 - c. #6 at 10" each way bars top and bottom in trench footings 10" thick and over.
 - 2. Reinforce top of wall footing under door and other openings with two #4 bars, minimum; 4'-0" longer than opening.

3. Reinforce curbs as shown on drawings; where reinforcing is not shown, place one #4 bar top and bottom.
4. Reinforce walls as shown on drawings; where reinforcing is not shown, include:

<u>Wall Thickness</u>	<u>Horizontal Bars</u>	<u>Vertical Bars</u>	<u>Location</u>
6"	#4 @ 12"	#4 @ 12"	Center on Wall
8"	#4 @ 12"	#4 @ 12"	Center on Wall
10"	#4 @ 12"	#4 @ 12"	Each Face
12"	#5 @ 12"	#5 @ 12"	Each Face
16"	#5 @ 12"	#5 @ 12"	Each Face

5. At wall or floor openings, if reinforcing is not shown, include two #5 bars, each face, on all sides, 4'-0" longer than opening dimension.
6. Reinforce masonry load bearing and exterior concrete block walls as shown on drawings; where reinforcing is not shown, include #5 @ 24" vertical.

B. Mesh:

1. Reinforce slabs as shown on drawings; where reinforcing is not shown, include:
 - a. 6" x 6" W2.1.x W2.1 mesh for following:
 - 1) 4" slabs on grade.
 - 2) Toppings.
 - b. 6" x 6" W2.9 x W2.9 mesh for following:
 - 1) 6" or thicker slabs.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Bars:

1. ASTM A615, Grade 40 billet-steel with 40,000 psi minimum yield strength for #3 and smaller bars.
2. ASTM A615, Grade 60 billet-steel with 60,000 psi minimum yield strength for #4 and larger bars.

B. Prefabricated steel bar mats which meet specified bar requirements and spacings may be used in lieu of job placed individual bars.

C. Welded Wire Reinforcement, Mesh or Welded Wire Fabric: welded wire reinforcement; ASTM A1064.

D. Shear connectors: welded wire truss; ASTM A1064.

E. Spacers and chairs:

1. Type: as shown on plans.
2. Comply with ACI 315.

3. Chairs: corrosion resistant.

F. Tie wire: black annealed wire; 16 gauge, minimum.

G. Mechanical splices: threaded splice; Dayton Superior D-101, or equal.

2.02 FABRICATION

A. Carefully form bars to shapes and dimensions shown on plans; where not shown, comply with requirements of ACI 315.

B. Tolerances: comply with ACI 117, ACI 301 and ACI 315 unless otherwise shown on plans.

C. Bend all bars cold.

D. Make bends for stirrups and ties around pin having diameter not less than two times thickness of bar.

E. Bend bars around pin having diameter not less than six times minimum thickness of bar; eight times minimum thickness for bars larger than 1".

F. Hooks: conform to requirements of ACI 318.

G. Where column bars are offset or dowels used for column splices, provide 1/2" clearance between bars or dowels and vertical bars of next lift.

H. Tag bars with metal, linen or rope fiber tags filled in by machine or waterproof ink; do not use paper tags.

PART 3 – EXECUTION

3.01 PLACEMENT

A. Design must comply with ACI 318 and details must conform to ACI 315, unless otherwise shown on plans.

B. Reinforcement: free from dirt, loose, flaky rust and scale, oil, grease, ice, or other coating which could reduce or destroy bond.

C. Bars:

1. Accurately place and securely wire-tie bars in position before concrete is deposited; point wire-tie ends away from form.

2. Support bars rigidly on spacers and chairs:

- a. Number, location and size: comply with Chapter 5 of ACI 315 and CRSI RB4.1 unless otherwise shown; other methods of support will be permitted subject to Engineer's approval.
 - b. List number of supports for each span on schedule or mark on placing plan.
 - c. Chairs required for top layer of reinforcing in footings.
 - d. Use U or Z 1/4" reinforcing bar spacers between layers in walls at 5' oc each way.
 3. Lap splices and butt-welded splices in accordance with Chapter 7 ACI 350-06, Chapter 12 ACI 318-11 or (Chapter 25 of ACI 318-14). If a conflict exists between ACI codes, ACI 350-06 takes precedence.
 4. At walls without footing pads, rest bottom of reinforcing on concrete brick.
 5. Reinforcement spacing shown on plans is in inches.
- D. Minimum protection between face of steel and outer face of concrete must comply with following, unless otherwise shown on plans:
1. 3" for footings and other principal structural members where concrete is cast against ground.
 2. 2" for wall or other formed surfaces exposed to sewage, effluent, chemical attack, weather or in contact with ground; 1-1/2" if bars are #5 or smaller.
 3. 1-1/2" or 1-1/2 times maximum size of coarse aggregate for beams, girders and columns; dimension is to ties where used.
 4. 1" for floor joists where clear distance between joists is not over 30".
 5. 3/4" for slabs and walls not exposed to weather or directly to ground.
 6. Protection of reinforcement must at least equal to diameter of bars being covered, except 3/4" protection is sufficient for bars in slabs, regardless of bar size.
- E. Tolerances:
1. Height of bottom bars above bottom of form: 1/4"± from established dimension.
 2. Lengthwise:
 - a. Top or bottom bars: 2"± from plan dimension (extend same amount into each support).
 - b. Truss bars: 2"± from plan dimension (applies to ends of bars and bend points).
 3. Bar spacing in walls and solid slabs: do not exceed two times thickness of slab or all unless otherwise shown on plans.
 4. Lateral spacing in joists or beams where spacing is established: ±1/4".
 5. Clearance between face of steel and face of concrete: ±1/4".
 6. Height of top bars (top of bar to top of beam or slab): ±1/4" (if necessary to lower bars over 1/4", check with Engineer for increase in size or number of bars).
 7. Stirrup or tie spacing: ±2" for any one unit (end unit not more than 1" either way from position shown).

- F. Welded Wire Reinforcement (WWR):
1. End lap by one of following methods:
 - a. Overlap one full WWR (tip to tip of wires) and tie with wire and 1'-6" oc.
 - b. Overlap with end cross wire of one piece in contact with next-to-end wire of other piece; tie to keep fabric in place or prevent edge from curling up.
 2. Side lap by one of following methods:
 - a. Place selvage wire in middle of first WWR and wire tie at 5'-0" oc (stagger ties).
 - b. Place selvage wire in contact with next-to-edge longitudinal wire; tie to keep fabric in place or prevent edge from curling up.
 3. Place WWR 2-1/2" below top of slab on grade, unless otherwise shown on plans or specified.
 4. Accurately place and rigidly support WWR on metallic supports, built-in concrete blocks or other suitable means; prevent displacement by foot traffic runways and compaction tools.
 5. Positioning WWR in slab by lifting with hook from bottom of form through concrete not permitted.

END OF SECTION

SECTION 03300

CAST-IN-PLACE CONCRETE

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- 1.03 STORAGE OF CEMENT AND AGGREGATES
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- 3.09 FLATWORK FINISHING
- 3.10 EQUIPMENT BASES
- 3.11 SEALING EXTERIOR SLABS
- 3.12 SCHEDULE OF FINISHES

PART 1 – GENERAL

1.01 DESCRIPTION

- A. This section describes all cast-in-place concrete work shown on plans, including but not limited to:
 - 1. Foundations (footings and grade beams).
 - 2. Below grade walls.
 - 3. Tanks and similar structures.
 - 4. Columns.
 - 5. Interior walls at basement level.
 - 6. Interior slabs on grade.
 - 7. Bases for mechanical and electrical equipment.
 - 8. Concrete encasement.
 - 9. Grout for equipment leveling and where shown.
 - 10. Fill or fillet concrete for tanks and where shown.
- B. Related work specified elsewhere:
 - 1. Section 01010 – General Provisions.
 - 2. Section 03100 – Concrete Formwork.
 - 3. Section 03200 – Concrete Reinforcement.
 - 4. Section 07900 – Joint Sealers.

1.02 QUALITY CRITERIA

- A. Contractor must follow recommendations set forth in Chapter 4 of Environmental Engineering Concrete Structures - ACI 350 for concrete in contact with sewage or effluent or exposed to chemical attack.

1.03 STORAGE OF CEMENT AND AGGREGATES

- A. Store cement in weathertight structure with floor raised not less than 1' from ground.
- B. Do not use cement which has hardened or partially set; remove from site.
- C. Store fine and coarse aggregate separately in manner to prevent segregation of sizes and avoid inclusion of dirt and other foreign materials.
- D. Stockpile natural sand at least 24 hours before using.

1.04 DEPOSITING DURING COLD WEATHER

- A. Do not place concrete without protection if temperature of surrounding air is below 40°F. and falling or if it may be subjected to freezing temperature during curing period.
- B. From November 1st to May 1st, do not place concrete without protective materials readily available, on job site, in quantities sufficient to protect all concrete that has not cured for specified period. U.S. Weather Bureau predictions will be used as basis for requiring that protective measures be taken.
- C. Do not use frozen materials or materials containing ice in concrete.
- D. Do not place concrete over or in contact with frozen earth; forms, reinforcement and fillers must be free from frost.
- E. Protection of concrete required:
 - 1. If temperature is expected to drop into 32°F. to 35°F. range during period:
 - a. After curing membrane specified herein under PROTECTING AND CURING is installed, cover following with minimum 1" blanket insulation:
 - 1) Exposed surfaces of slabs on earth.
 - 2) Framed components (including beams and walls) formed with 1" thick wood.
 - 3) All metal formed items.
 - b. Protect insulation with polyethylene sheets, Sisalkraft, tarpaulins, or equal.

2. If temperature is below 35°F. when concrete is placed:
 - a. Placement temperature of concrete must be 60°F. plus or minus 10°F.; methods and equipment for heating mixing water and aggregates must be agreeable to Engineer.
 - b. Temperature of surrounding air must be maintained at minimum 50°F. during placement and for not less than 5 day thereafter; minimum 40°F. for next 2 days (3 days and 1 day respectively if high early strength cement is used).
 - c. When heating is discontinued, lower temperatures gradually; maximum 1°F. per hour for first 24 hours; 2°F. per hour thereafter until outside temperature is reached.
3. Any method of protection included in recommendations in Title 75-18 by ACI Committee 306 may be substituted for protection specified herein if temperature and moisture conditions recommended for type and service category of concrete being placed are maintained for recommended period of time; obtain permission of Engineer for substitute method before using.

F. Use of salts or chemicals for protection from freezing not permitted.

G. Remove and replace concrete damaged by freezing.

1.05 DEPOSITING DURING HOT WEATHER

- A. Contractor must follow recommendations set forth in Hot Weather Concreting (Title 74-33 by ACI Committee 305) to minimize detrimental effects of hot weather on concrete placed on project; whenever air temperature is expected to exceed 75°F. during placement operations, Contractor must consult with Engineer concerning practices to be followed.
- B. Temperature of concrete at time of deposit must be below 90°F.

PART 2 – PRODUCTS

2.01 MATERIALS

- A. Portland cement: ASTM C150, Type I or Type III. C_3A (Tricalcium aluminate) content must be less than 8% for concrete in direct contact with sewage or effluent or exposed to chemical attack.
- B. Portland pozzolan cement: ASTM C595, Type IP or IP-A; pozzolan content must not exceed 25% by weight.

- C. Fine aggregate:
 - 1. Meet requirements of ASTM C33, except where more rigid requirements are included herein.
 - 2. Gradation within requirements of ASTM C33, Par. 3; sieve analysis of aggregate must accompany mix design when submitted to Engineer for review.
 - 3. Natural sand:
 - a. Clean, hard, strong, durable, uncoated grains.
 - b. Coal and Lignite: 1.0% maximum.
 - c. Prove acceptability of aggregate by laboratory test conducted and certified by laboratory acceptable to Engineer on samples taken in accordance with ASTM C75.
- D. Coarse aggregate:
 - 1. Meet requirements of ASTM C33, except where more rigid requirements are included herein.
 - 2. Clean, hard, strong, durable uncoated pieces.
 - 3. Gradation within requirements of ASTM C33, Table II:
 - a. #467 or #57, 1-1/2" or 1" to No. 4, for footings and plain concrete.
 - b. #57, 1" to No. 4, for slabs on grade and reinforced walls.
 - c. #57 or #67, 1" or 3/4" to No. 4, for slabs, beams, girders, columns, fillet and fill concrete.
 - d. #7, 1/2" to No. 4, for fill over steel stair treads and landings.
 - 4. Limitation of deleterious substances:
 - a. Clay lumps and friable particles: maximum 1.0%.
 - b. Soft particles: maximum 2.0%.
 - c. Coal and Lignite: maximum 0.25%.
 - 5. Crushed limestone: meet IDOT specifications 4115.03 for abrasion and 4115.04 for Class 2 or 3 durability; not more than 1.0% of clay lumps and friable particles, 2.0% of soft particles and 0.25% of coal and lignite allowed; prove acceptability by submission of certified laboratory test report.
- E. Admixtures:
 - 1. Air-entraining agents: ASTM C260.
 - 2. Water reducing agents: ASTM C494, Type A.
 - 3. Retarding agents: ASTM C494, Type B.
 - 4. Accelerating agents: ASTM C494, Type C.
 - 5. Water reducing and retarding agents: ASTM C494, Type D.
 - 6. Water reducing and accelerating agents: ASTM C494, Type E.
 - 7. High range water reducing agents: ASTM C494, Type F.
 - 8. High range water reducing and retarding agents: ASTM C494, Type G.
 - 9. Fly ash, pozzolans and GGBFS: ASTM C618 and C494 or IDOT Section 4108. Fly ash to be Class C.
 - 10. Shrinkage reducing admixture: ASTM C157; W.R. Grace, or equal.

11. Synthetic fibers: high volume monofilament polypropylene/polyethylene blend; 1-1/2" to 2" length; 78 ksi fiber tensile strength; minimum 1,300 ksi modules of elasticity; ASTM C1116; dosage rate 3.5 lbs./CY of concrete.
- F. Water: clean and free from injurious amounts of oil, alkalies, acids, or organic matter.
 - G. Metal crack control joint: Heckmann No. 98, or equal.
 - H. Dowels:
 1. ASTM A15; 1'-6" long, smooth round steel rods: diameter as shown on drawings.
 2. Where preformed filler is required, completely coat one end with heavy grease and cover with expansion cap.
 - I. Preformed expansion or isolation joint filler:
 1. Self-expanding cork, ASTM D1752, Type III.
 2. 1/2" thick, unless otherwise shown on drawings.
 - J. Joint sealer:
 1. Thickol sealer: FS TT-S-00227E (two part) or FS TT-S-00230C (one part), Type I (self-leveling), Class B (resistant to 25% total movement), based on liquid polysulfide polymers.
 2. Pour-type urethane sealant: Sonneborn Sonolastic Paving Joint Sealant (two parts), or Sonomeric CT (one part), or equal.
 - K. Backing rod: round polyethylene rod; Dow Chemical Co., Ethafoam rod, or equal.
 - L. Waterstops:
 1. Polyvinylchloride with following characteristics when tested in accordance with ASTM test method listed:

Specific Gravity	1.32 plus or minus 0.05	ASTM D792
Hardness	76 plus or minus 3	ASTM D2240
Tensile Strength	2250 psi (minimum)	ASTM D638
Elongation	350% (minimum)	ASTM D638
Cold Brittleness	-35°F. or lower	ASTM D476
 2. Design: 6", ribbed with corrugations and center bulb, except where shown otherwise; Greenstreak Type 705, or equal.
 3. Expansive waterstop may be used for vertical construction joints and where shown on drawings; Greenstreak Hydrotite, or equal.
 - M. Liquid applied curing and sealing compounds:
 1. For interior surfaces, except where floor hardness is specified: West Concrete Floor Sealer (West Chemical Products, Inc.), Kure-N-Seal (Sonneborn-Contech), L & M Cure (L & M Construction Chemicals, Inc.), or equal; do not use Kure-N-Seal on floors that

will be subjected to petroleum drips and spills, such as motor vehicle traffic or parking.

- N. Liquid applied floor hardener; fluosilicate based material; Sonneborn Lapidolith, A.C. Horn Hornolith, L & M Fluohard, or equal.
- O. Abrasive aggregate:
 - 1. Silicon carbide or aluminum oxide.
 - 2. Any manufacturer's gradation which falls in range of 12 to 36 grit is acceptable.
- P. Grout: ASTM C1107 Class B or C; mix according to recommendations of manufacturer; strength: not less than that of adjacent concrete; L&M Crystex, Master Builders Masterflow 928, or equal.
- Q. Use Dur-O-Wall heavy duty trusses, or equal, for vertical trusses; use single truss full height and width according to wall thickness.
- R. Bond Breaker
 - 1. Bond breaker tape shall be an adhesive-backed glazed butyl or polyethylene tape which will satisfactorily adhere to the premolded joint filler or concrete surface as required. The tape shall be the same width as the joint unless otherwise noted.
 - 2. Except where tape is specifically called for on the drawings, bond breaker for concrete shall be either bond breaker tape or a non-staining type bond prevention coating such as Williams Tilt-up Compound by Williams Distributors Inc.; Silcoseal 2000F, by SCA Construction Supply Division, Superior Concrete Accessories or equal.
- S. Bonding Agent
 - 1. Epoxy bonding agent shall be a two-component, solvent-free, moisture insensitive, epoxy resin material conforming to ASTM C881 (1999), Type V. The bonding agent shall be Sikadur 32 Hi-Mod by Sika Corporation of Lyndhurst, NJ; Concreseive Liquid (LPL) by Master Builders of Cleveland, OH or equal.
 - 2. Latex bonding agent shall be a non-reemulsifiable acrylic-polymer latex conforming to ASTM C1059, Type II.

2.02 QUALITY AND DESIGN OF MIXES

- A. Design compressive strength:
 - 1. Pipe encasement, fill and fillet (Class B) concrete: 2,500 psi.
 - 2. All other (Class A) concrete: 4,000 psi.
 - 3. Maximum water to cement ratio 0.45 for concrete exposed to sewage, effluent or subject to chemical attack; maximum water to cement ratio 0.40 for concrete containing shrinkage reducing admixture and maximum water to cement ratio 0.45 for all other (Class A) 4,000 psi concrete.

B. Design of mix:

1. Overdesign mixes in accordance with plant coefficient of variation. Overdesign must assure less than 1 chance in 10 that test will fall below design compressive strength and that 99 chances out of 100 no test will fall below 90% of design compressive strength.
2. Complete design in advance of first placement; any existing mix design may be used if made or checked within previous six months by approved testing laboratory using aggregates from same source and same gradation as those used on this project.
3. Comply with ACI 211.1 Recommended Practice for Selecting Proportions for Normal Weight Concrete and recommendations set forth in Chapter 3 of Environmental Engineering Concrete Structures - ACI 350R for concrete in contact with sewage or effluent or exposed to chemical attack.
4. Slump:
 - a. Footings and substructure walls: 3" plus or minus 1".
 - b. Beams, columns, slabs and reinforced walls: 3" plus or minus 1".
 - c. Heavy mass construction: 2" plus or minus 1".
5. Submit mix design to Engineer for agreement before any concrete is placed; include design which contains fly ash or Pozzolan based admix and design which contains retarding type water reducing admix, with appropriate slump adjustments, if need is indicated.
6. Assign number to each mix design for future reference.

C. Admixtures:

1. Air entraining agent:
 - a. Add at mixer for all concrete.
 - b. Concrete must contain 5.0% plus or minus 1.0% air by volume if maximum aggregate size is 1-1/2"; 6.0% plus or minus 1.0% if maximum aggregate size is 3/4" or 1", 7.0% plus or minus 1% if concrete contains shrinkage reducing admixture.
2. Do not use calcium chloride or other salts as antifreeze or to accelerate set.
3. Cement dispersing agent or concrete densifiers (water reducing and high range water reducing agents):
 - a. Recommended to improve workability and control rate of hardening for controlling uniformity under varying temperature and weather conditions.
 - b. Add water reducing and retarding type to mix if air temperature is above 80°F. and freshly placed concrete will be exposed to sun and/or hot drying wind.
 - c. Fly ash or Pozzolan based admixture recommended for exposed interior finish concrete, including slabs on grade and floor fill.
 - d. Fly ash or pozzolan based admixture required when using high range water reducing agents.
 - e. Do not use melamine-based high range water reducing agents if concrete is exposed to freeze-thaw cycles.

- f. Do not use high range water reducing agents in beams, joists or elevated slabs.
- g. Use in accordance with manufacturer's recommendations.
- 4. Synthetic fibers may be used in addition to welded wire reinforcement where shown on plans.
- 5. Shrinkage reducing admixtures may be used at Contractor's option.

2.03 BATCHING AND MIXING

- A. Operations, equipment and location of facilities subject to approval of Engineer.
- B. Measuring of materials:
 - 1. By weight such that proportions can be accurately controlled and easily checked.
 - 2. Weigh ingredients separately.
 - 3. Weigh cement for each batch if fractional sacks or bulk cement is used.
 - 4. Water measurement to 1 pint plus or minus for total per batch.
- C. Mix one cubic yard batch for at least 1-1/2 minutes after all materials are in mixer; increase time by 15 seconds for each additional cubic yard or fraction thereof.
- D. Ready-mixed concrete: comply with ASTM C94.

2.04 QUALITY CONTROL

- A. Slump tests:
 - 1. Make test in accordance with ASTM C143 on sample taken in accordance with ASTM C172.
 - 2. Tests required:
 - a. First load each day.
 - b. Whenever other tests are being made.
 - c. After any change in mix.
 - d. When directed by Engineer.
- B. Temperature tests:
 - 1. Required whenever outside temperature is within 10°F. of limiting temperatures specified herein under DEPOSITING DURING HOT (or COLD) WEATHER.
 - 2. Make tests at same time slump tests are taken.
 - 3. Use armored thermometer accurate to plus or minus 2°F.
 - 4. Place thermometer in freshly discharged concrete and leave it in place until reading becomes stable.
- C. Air content tests:
 - 1. By pressure method (ASTM C231) or volumetric method (ASTM C173) on samples taken in accordance with ASTM (C172).

2. Test first load of air entrained concrete and spot check by additional test on each day that air entrained concrete is placed.

D. Compression tests:

1. Prepare cylinders in accordance with ASTM C31.
2. Set of 3 cylinders required for every run of 50 CY or fraction thereof.
3. Cure cylinders under laboratory conditions and test by procedure in ASTM C39.
4. Prepare additional cylinders and cure under job conditions if air temperature is likely to fall below 40°F.
5. Break cylinders at 7 and 28 days.
6. If over 1 in 10 tests of laboratory specimens fall below design compressive strength specified, check design of mix and make necessary corrections before additional concrete is placed.
7. When test specimens break below strength specified, Contractor may be required to test concrete affected by procedure in ASTM C42 (core tests) or load test portion of structure affected.
8. Remove concrete not in accordance with specifications and replace without cost to Owner.

E. Record results of all test immediately in Log of Tests which must be maintained at job site; log must contain following information:

1. Date and time test are made.
2. Test results, if immediately available.
3. Exact location where tested concrete was placed in structure.
4. Weather conditions, including air temperature at time tests were made.
5. Plant and number of mixer truck that delivered concrete.
6. Name of person who made test.
7. Mix design number.

PART 3 – EXECUTION

3.01 PREPARATIONS FOR PLACEMENT

- A. Verify with Engineer that reinforcing steel placement has been checked, and with subcontractors that wall pipes, anchor bolts, wall thimbles, pipe sleeves, drains, conduit and outlets have been placed in forms.
- B. Remove foreign materials (chips, blocks, sawdust, ice and water) from forms.
- C. Where placing against hardened concrete, clean contact surface thoroughly and remove all laitance, wet vertical surfaces and slush with neat cement grout just prior to placement of new concrete.

3.02 WATERSTOPS

A. PVC Waterstops

1. Install PVC waterstops for all joints where waterstops are indicated on the drawings, unless specifically noted otherwise. Waterstops shall be continuous around all corners and intersections so that a continuous seal is provided. Splices shall be made by welding.
2. PVC splices shall be made by welding in accordance with the manufacturer's recommendations, subject to acceptance of the Engineer. Only manufacturer's special approved tools shall be used for welding. The finished splices shall provide a cross-section that is dense and free of porosity.
3. Each piece of the waterstop shall be of maximum practicable length to provide a minimum number of splices.
4. To properly secure PVC waterstops in wall joints before concrete is placed, drill holes in waterstops approximately 1" from each edge or between the outermost ribs at each edge and center the waterstop in the joint. Tie both edges of the waterstop and fasten to reinforcing steel with black annealed steel tie wire as specified for tying reinforcing steel and secure in place so that the waterstop will be perpendicular to the joint and remain in the required position during concrete placement. The spacing of the waterstop ties shall match the spacing of the adjacent reinforcing, but need not be spaced closer than 12" on center.
5. Horizontal waterstops in slabs shall be clamped in position by the bulkhead (unless previously set in concrete).
6. Horizontal PVC waterstops in slabs shall have the edge of the waterstop lifted while placing concrete below the waterstop. Then the waterstop shall be manually forced against and into the placed concrete and covered with fresh concrete, to ensure adequate encasement of the waterstop in concrete.
7. Waterstops shall be installed so that half of the width will be embedded on each side of the joint. Care shall be exercised to ensure that the waterstop is completely embedded in void-free concrete.
8. Waterstops shall be terminated 3" below the exposed top of walls. Expansion joint waterstop center bulbs shall be plugged with foam rubber, 1" deep, at point of termination.

B. Expansive Waterstops

1. Install waterstops at joints where specifically noted on the drawings. Waterstops shall be continuous around all corners and intersections so that a continuous seal is provided.
2. Each piece of the waterstop shall be of maximum practicable length to provide a minimum number of connections or splices. Connections and splices shall conform to the manufacturer's recommendations and as specified herein.
3. Waterstops shall be terminated 3" below the exposed top of walls.

4. Prepare the joint surfaces, install primers or adhesives, and install expansive waterstops in accordance with the manufacturer' instructions.

3.03 PLACING CONCRETE

- A. Notify Engineer 1 day before each placement.
- B. Do not add water to concrete between mixing and placing operations without specific agreement of Engineer and continuous inspection acceptable to Engineer; under no circumstances may added water cause concrete to slump greater than that established in design mix; verify with slump tests; maintain uniform consistency.
- C. Conveying:
 1. Method must ensure uniform concrete at forms with minimum slump loss.
 2. Chutes must be steep enough to permit concrete of design consistency to flow to point of deposit or other means of conveying must be used.
- D. Fill forms completely in one operation.
- E. During placement operations, work concrete around reinforcement, embedded fixtures, and into corners of forms; thoroughly compact and exercise particular care to prevent surface voids and honeycomb on exposed surfaces.
- F. Placement in deep narrow forms other than column forms:
 1. Discharge into hopper feeding into drop chute if free fall will be more than 3'.
 2. Drop vertical; do not push or pull bottom of chute from vertical position to distribute concrete; move chute.
 3. For concrete exposed, the following applies:
 - a. Place in maximum 20" deep layers and consolidate each layer with preceding layer before starting placement of next layer.
 - b. Do not allow concrete to flow laterally for more than 3'; move chute or place sufficient number of chutes in forms to assure top of concrete is kept level.
 - c. If placement rate is faster than 2' per hour, reduce slump proportionally as each 1/4 of form depth is filled so slump of top 1/4 will not exceed 3".
 - d. If plasticized concrete is used, the maximum lift thickness may be increased to 7' and the maximum free fall of concrete shall not exceed 15'; subparagraphs "b." and "c." above do not apply.
- G. Place beams, girders, brackets, column caps and haunches integrally with floor system.
- H. Allow minimum 2 hours after deposit of columns or walls before depositing beams, girders or slabs supported thereon.

- I. Vibration of concrete:
 - 1. Use internal type vibrator; insert and withdraw slowly.
 - 2. Insert vibrator vertically to full depth of layer being placed, at regular intervals (18" to 30").
 - 3. Do not use vibrator to cause concrete to flow from one location to another.
 - 4. Avoid segregation in concrete due to over vibration.
 - 5. Do not allow vibrator to come in contact with formwork surfaces for exposed concrete.
- J. Stop placement only where directed, at point of no shear, and erect tight, plumb dams through forms.

3.04 JOINTS

- A. Key construction joints; where reinforcing is interrupted, dowel joints; size and number of dowels as shown on drawings.
- B. Place construction joints through framed slabs on center of span unless otherwise shown on drawings or approved by Engineer.
- C. Wall construction joints must form symmetrical pattern on exposed surfaces, unless otherwise shown on drawings
- D. Vertical construction joints are allowed at quarter points in walls; lap reinforcing steel as specified; install keyway and waterstop; submit location of proposed vertical construction joints prior to construction for Engineer's review.
- E. Hold top of expansion or isolation joint filler maximum 1/2" below surface for joint sealer at exposed joints.
- F. Control joints in slabs on grade:
 - 1. Saw cut joints to depth of 1/4 of slab thickness, unless otherwise specified; make cut not less than 8 hours or more than 24 hours after slab is placed.
 - 2. In lieu of saw cutting joint, Contractor may place metal crack control joint.
 - 3. Stop every other bar at joint.
- G. Dowels:
 - 1. For expansion joints.
 - 2. Install in center of slab or at third points as shown on drawings, parallel to surface and perpendicular to joint.
 - 3. Completely coat one end with heavy grease at joints where preformed filler is required; expansion cap required over greased end of dowel.

- H. Where applied floor coverings are scheduled, fill saw cut joints in interior slabs with dry mix of 1:9 cement and sand.
- I. Fill all other interior saw cut joints, expansion and isolation joints with Thickol joint sealer in accordance with manufacturer's directions; prime edges of joint if recommended by manufacturer.
- J. Waterstops:
 - 1. Required where shown on drawings and at joints subject to hydrostatic pressure.
 - 2. Heat splice joints in accordance with manufacturer's specifications.
 - 3. Install as detailed on drawings; wire to reinforcing.

3.05 FINISH ON FORMED SURFACES

- A. Uniform finish required on exposed concrete surfaces.
- B. Texture on formed surfaces must be indicative of form material used, except for following limitations and requirements:
 - 1. Small, isolated air bubbles will be allowed.
 - 2. Width and projection of form marks on exposed concrete must not be greater than 1/16", except no projections allowed on inside channel or conduit walls and slabs; grind off projections as required.
- C. Finish exposed top surface of formed members as closely as possible to finish on formed surfaces.
- D. Repair defective concrete and damaged areas as follows:
 - 1. Cut back to solid concrete all weak concrete around holes and at honeycomb.
 - 2. Thoroughly wet area to be repaired and brush coat with neat cement grout.
 - 3. Fill large voids with cement mortar composed of 1 part cement, 2 parts fine aggregate and water; place in compacted layers to finish flush with adjacent surfaces.
 - 4. On exposed concrete:
 - a. Remove excess grout, after it is partially set, by working with float and rubbing with burlap; leave no visible filler or grout.
 - b. Patched areas must match adjacent surface.
- E. Where form ties are used, fill cutback holes as specified above for repairing defective concrete.
- F. Smooth form finish all exposed concrete surfaces, completely remove fins.

G. Rough-Form Finish

1. No additional finishing is required.

H. Rubbed Finish

1. While the wall is still damp apply a thin coat of medium consistency neat cement slurry by means of bristle brushes to provide a bonding coat within all pits, air holes or blemishes in the parent concrete. Avoid coating large areas with the slurry at one time.
2. Before the slurry has dried or changed color, apply a dry (almost crumbly) grout proportioned by volume and consisting of 1 part cement to 1-1/2 parts of clean masonry sand having a fineness modulus of approximately 2.3 and complying with the gradation requirements of ASTM C33 for such a material. Grout shall be uniformly applied by means of damp pads of coarse burlap approximately 6" square used as a float. Scrub grout into the pits and air holes to provide a dense mortar in all imperfections.
3. Allow the mortar to partially harden for 1 or 2 hours depending upon the weather. If the air is hot and dry, keep the wall damp during this period using a fine, fog spray. When the grout has hardened sufficiently so it can be scraped from the surface with the edge of a steel trowel without damaging the grout in the small pits or holes, cut off all that can be removed with a trowel. (Note: Grout allowed to remain on the wall too long will harden and will be difficult to remove.)
4. Allow the surface to dry thoroughly and rub it vigorously with clean dry burlap to completely remove any dried grout. No visible film of grout shall remain after this rubbing. The entire cleaning operation for any area must be completed the day it is started. Do not leave grout on surfaces overnight. Allow sufficient time for grout to dry after it has been cutoff with the trowel so it can be wiped off clean with the burlap.
5. On the day following the repair of pits, air holes and blemishes, the walls shall again be wiped off clean with dry, used pieces of burlap containing old hardened mortar which will act as a mild abrasive. After this treatment, there shall be no built-up film remaining on the parent surface. If, however, such a film is present, a fine abrasive stone shall be used to remove all such material without breaking through the surface film of the original concrete. Such scrubbing shall be light and sufficient only to remove excess material without changing the texture of the concrete.
6. A thorough wash-down with stiff bristle brushes shall follow the final bagging or stoning operation. No extraneous materials shall remain on the surface of the wall. The wall shall be sprayed with a fine fog spray periodically to maintain a continually damp condition for at least 3 days after the application of the repair grout.

3.06 PROTECTING AND CURING

- A. Protect exposed surfaces from premature drying.

- B. Protect freshly placed concrete against wash by rain.
- C. Keep concrete continuously cured for 7 consecutive days after placement, including weekends and holidays (3 days if Type III Portland cement is used).
- D. Approved methods of curing:
 - 1. Wet cure using continuous sprinklers or submerging concrete; alternate cycles of wetting and drying not permitted; exercise special care when surrounding air is heated during cold weather operations.
 - 2. Cover with fabric mats and keep wet during curing period.
 - 3. Cover with waterproof paper which meets requirements of ASTM C171. Waterproof paper shall remain in place for duration of curing period.
 - 4. Cover with clear or white polyethylene sheets, 0.004" thick; lap edges minimum 4" and seal with tape. Polyethylene sheets shall remain in place for duration of curing period.
 - 5. Seal with liquid applied curing and sealing compound applied in accordance with manufacturer's directions; do not apply compound on construction joints.
 - 6. Do not use Methods 1, 2, and 5 in unheated areas during cold weather operations if exposed concrete is protected with blanket insulation.
- E. Vertical surfaces:
 - 1. Wood forms, kept wet, and metal forms provide satisfactory curing; cure exposed top surfaces as specified above.
 - 2. When forms are removed before end of curing period, exposed concrete must be cured by one of first three approved methods included under Item D.

3.07 INTERIOR SLABS ON GRADE

- A. Thickness as shown on drawings.
- B. Place over vapor barrier as specified in Section 07110; 6" minimum well graded and compacted granular leveling course under membrane.
- C. Isolation joint where shown on drawings and as specified herein under JOINTS.
- D. Unless otherwise shown, place exposed slab either:
 - 1. In strips, maximum 15' wide with control joints centered on columns and saw across strips, as specified herein, under JOINTS, at maximum 15' spacings on column centers.
 - 2. Place alternate panels checkerboard with control joints on column centers in each direction and maximum 15' oc.
- E. Finish as specified herein under FLATWORK FINISHING.

- F. Note requirements for drains and process equipment.

3.08 SURFACE COURSES

- A. Remove all debris and sweep cured slab base with heavy wire broom; dry brush to remove dust; wash and keep slab wet for 12 hours prior to placement of fill.
- B. Remove any excess water 15 to 30 min. prior to placement of surface course.
- C. Finish as specified herein under FLATWORK FINISHING.

3.09 FLATWORK FINISHING

- A. Screed and float.
- B. After floating, check surface with straight edge and eliminate high and low spots; interior slab must be level or flat within 1/4" in 10'; 3/8" in 20'; 3/4" in 40', and drain to floor drains; remove and replace any concrete slabs not meeting these requirements; replacement limits determined by extent of deficiencies and by structural considerations.
- C. Do not use dust coat and add no water.
- D. Trowel interior slabs, surface courses and concrete fillets not otherwise specified to smooth, polished surface:
 - 1. Delay troweling until concrete has hardened sufficiently to prevent excess fines from working to surface; avoid excessive troweling.
 - 2. After topping has set to ring trowel, trowel second time to produce burnished finish.
- E. Fine float finish structural slabs over which waterproofing will be placed; floors in rooms, with vehicular access, steps and platforms.
- F. Non-slip floor surfaces:
 - 1. Required for concrete fill of steel stairs and where shown on drawings.
 - 2. After concrete floor surfaces have been floated and troweled, but while still plastic, sprinkle abrasive aggregate evenly onto the surface and work it into the surface during finishing so that the grains are securely imbedded in the concrete at the surface. Application rate 25 to 40 lbs./100 SF as recommended by the manufacturer.
- G. Liquid floor hardener:
 - 1. Required for interior floors not scheduled to receive floor coverings and for concrete fill of steel stairs.

2. Do not use curing compounds for curing these slabs.
3. Apply in 3 coats to thoroughly cured floor over clean dry surface in accordance with manufacturer's directions.
4. Dilute with water, as recommended by manufacturer, for heavy duty dense floors.
5. Unless otherwise recommended on directions furnished with material, dilute fluosilicate based liquid applied hardener (parts by volume) as follows:

<u>Coat</u>	<u>Water</u>	<u>Hardener</u>
First	3	1
Second	2	1
Third	1	1

3.10 EQUIPMENT BASES

- A. Furnish bases for all mechanical and electrical equipment where shown on drawings or specified.
- B. Where required, anchor bolts and template to ensure proper location must be furnished by subcontractor concerned.
- C. Finish as specified herein under FLATWORK FINISHING.
- D. Grout under base of equipment; pack grout to completely fill voids.

3.11 SEALING EXTERIOR SLABS

- A. Required for exterior slabs placed between September 15 and May 1 which may be subjected to deicing agents.
- B. After specified curing, seal slabs as follows:
 1. First coat 1/2 boiled linseed oil and 1/2 mineral spirits applied at rate of approximately 450 SF per gallon.
 2. After first coat has dried, apply second coat of uncut boiled linseed oil at rate of approximately 540 SF per gallon.

3.12 SCHEDULE OF FINISHES

- A. Concrete shall be finished as specified either to remain as natural concrete to receive an additional applied finish or material under another section.
- B. Concrete for the following conditions shall be finished as noted on the drawings and as further specified herein:
 1. Concrete to receive dampproofing or waterproofing: Rough-form finish.

2. Concrete not exposed to view and not scheduled to receive an additional applied finish or material: Rough-form finish.
3. Exterior vertical concrete above grade exposed to view: Rubbed finish.
4. Interior vertical concrete exposed to view except in water containment areas: Rubbed finish.
5. Vertical concrete in water containment areas. Rough-form finish.
6. Interior and exterior underside of concrete exposed to view: Rubbed finish.
7. Interior or exterior horizontal concrete not requiring floor hardener or sealer: Floated finish.
8. Concrete for exterior walks, interior and exterior stairs: Broomed finish perpendicular to direction of traffic.
9. Concrete slabs on which process liquids flow or in contact with sludge: Steel trowel finish.

END OF SECTION

SECTION 05500

METAL FABRICATIONS

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- 1.02 SUBMITTALS

- 2.03 ANCHORS, BOLTS AND FASTENING DEVICES
- 2.04 SHOP PAINTING

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- 2.01 MATERIALS
- 2.02 FABRICATION

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- 3.01 INSTALLATION

PART 1 – GENERAL

1.01 DESCRIPTION

- A. This section describes fabricated metal items as specified hereinafter and miscellaneous metal shapes and plates not specified elsewhere, but shown on plans.
- B. Installation of anchorage accessories specified under following sections:
 - 1. Section 03100 - Concrete Formwork.
- C. Related work specified elsewhere:
 - 1. Section 03300 – Cast-in-Place Concrete.

1.02 SUBMITTALS

- A. Submit complete shop and erection drawings:
 - 1. Clearly show fabrication and installation tolerances.
 - 2. Prepare field connection details along lines indicated and/or specified.
 - 3. Design basis, if any.
 - 4. Clearly show all materials (including ASTM numbers), dimensions, details, anchorage inserts, fasteners, weights, painting or coatings and similar details.
- B. See Section 01300 - Submittals for additional requirements.

PART 2 – PRODUCTS

2.01 MATERIALS

- A. Mild steel: 0.15 - 0.25% carbon content, free from scale and accurate to size or gauge.
- B. Structural steel shapes, plates and bars: ASTM A36.

- C. Reinforcing steel rods: ASTM A615, Grade 40 or 60.
- D. Galvanizing: hot-dip, ASTM A385, ASTM A384, ASTM A153, ASTM A386, ASTM E376 and ASTM A123, minimum 4 mil thickness unless noted otherwise.
- E. Aluminum-alloy extruded bars, rods, shapes and tubes: ASTM B221, alloy 6061-T6 or 6063-T6.
- F. Aluminum-alloy shapes: ASTM B308, alloy 6061-T6 or 6063-T6.
- G. Aluminum-alloy sheet and plate: ASTM B209, alloy 6061-T6 or 6063-T6.
- H. Aluminum-alloy structural pipe and tube: ASTM B429, alloy 6061-T6 or 6063-T6.
- I. Aluminum-alloy seamless extruded tubing: ASTM B241, alloy 6061-T6 or 6063-T6.
- J. Cast aluminum fittings: ASTM B26, alloy 214.
- K. Forged aluminum fittings: ASTM B247, alloy 6061-T6 or 6063-T6.
- L. Cast aluminum treads with abrasive surface: Wooster Alumogrit Type 150, American Abrasive Alupalun Style CB-1, Stubbs CB15, or equal.
- M. Aluminum grating treads and landings: Borden Type IB with 1-1/4" abrasive nosings, or equal.
- N. Aluminum tread plate: ASTM B209; alloy 6061-T6 or 6063-T6.
- O. Stainless steel: ASTM A167, Type 302/304 or 316 with No. 4 satin finish; castings: ASTM A296; chain: ASTM A473; bolts: ASTM F593, 300 Series; nuts: ASTM F594, 300 Series.
- P. Coil inserts: Superior, or equal; electro-galvanized.
- Q. Expansion bolts: Hilti Kwik Bolt, or equal; Series 300 stainless steel where shown on drawings.
- R. Anchor bolts: Series 300 stainless steel, unless noted otherwise.
- S. Threaded rod: Series 300 stainless steel, unless noted otherwise.
- T. Aluminum Plank: ASTM B221; alloy 6061-T6 or 6063-T6; solid, unpunched surface with striated surface.

2.02 FABRICATION

A. General:

1. Weld joints and connections unless shown otherwise on drawings.
2. Welds must conform to requirements of AWS D1.0-69, Code for Welding in Building Construction.
3. Exposed welds neat and uniform; finishing or grinding of welds not required unless specified or necessary for proper clearance or fit with other items.

B. Mounting brackets and reinforcing angles:

1. Aluminum or stainless steel.
2. Anchorage as shown on drawings.

C. Frames for mechanical roof openings:

1. Aluminum or stainless steel.
2. All welded construction.

D. Aluminum platforms and walkways:

1. Conform to details shown on drawings and OSHA requirements.
2. Structural aluminum stringers, beams, columns, tubing, landing members, clips and support plates; stainless steel anchorage.
3. Assemble components with neat, tight joints; conceal field connection fastenings where possible.
4. Shop welded connections, unless otherwise shown.
5. Close exposed ends of stringers with closure welded in place.
6. Exposed mechanically secured joints: tight and neat in appearance; welded joints: completely closed and neat.
7. Aluminum gratings: joints and connections neat and uniform; mechanically fasten grating to supporting members: see paragraph E. Grating, for further requirements.
8. Aluminum tube handrails and railings: stainless steel or aluminum wall rail brackets with stainless steel anchorage at maximum 5' oc; return ends of wall rails to wall and terminate 1/4" free of wall; see paragraph F. Handrails, for further requirements.

E. Grating:

1. Prefabricated skid resistant walking surface (per OSHA), aluminum grating with aluminum edge support angles and other support angles to limit deflection; details shown on drawings.
2. For open grating: Ohio Gratings, I-Bar SGI Series; Barnett Bates, I-Bar; McNichols, Bar Grating Swage-Locked, I-Bar, or equal.
3. For solid grating: Ohio Gratings, Aluminum Plank; Barnett Bates, Aluminum Plank Grating; McNichols, Extruded Interlocking Plank, or equal.
4. Provide supports required to limit deflection to 0.25" with 100 psf live load; subject to field testing and rejection by Engineer. Not all supports are shown on drawings. Where single panel cannot span opening, submit aluminum or stainless steel

supports designed by manufacturer's Engineer licensed in State of Iowa. Cost of supports are incidental to grating.

5. Provide aluminum edge support angles for embedment in concrete required to set grating flush with top of concrete walls.
6. Edge banding or end plates at all edges and as required to stiffen irregular sections.
7. Provide openings shown; provide joints at center of openings where possible to permit removal of grating around items passing through.
8. Provide positive grating fasteners over each support using bolts, clips, plates and self-tapping screws as required; friction type fasteners not acceptable.
9. For solid grating: provide recessed drop handles (two per panel, one each end) for removal of panel. Finger hole not acceptable.
10. Panel size limited to no greater than 14 square feet per panel over open channels.

F. Handrails:

1. Prefabricated aluminum rails, posts, fittings, connectors, fascia brackets, wall brackets, toeboards, reinforcing bars, cover flanges; stainless steel concrete anchors, safety chains and miscellaneous items.
2. Reynorail II, Reynolds Metals Co.; Connectorail, Julius Blum and Co., Inc., or equal.
3. Finish: clear satin anodized finish on all exposed surfaces; 0.4 mil anodized for cast components, 0.7 mil anodized for extruded components; protect all pipe and fittings for shipping by packaging each piece in plastic film.
4. Construct two-pipe horizontal rails with upper pipe centered 42" and lower pipe 21" above floor, except as noted otherwise on drawings.
5. Handrail system designed to meet OSHA requirements.
6. Pipe rail and post outside diameter: 1.90"; minimum thickness Schedule 40.
7. Maximum post spacing: 5'-0", but not less than required for OSHA design.
8. Set posts as shown on drawings where indicated to provide maximum walking clearance.
9. Protect metals from electrolysis caused by contact between dissimilar metals.
10. Provide 1/4" x 4" aluminum plate toe plate required by OSHA; secure to handrail posts with aluminum or stainless steel fasteners.
11. Provide stainless steel safety chains with eyebolts and hooks where shown on drawings.

G. Pipe hangers and supports: aluminum or stainless steel unless noted otherwise; Elcen, or equal.

H. Stop and weir plates: aluminum or stainless steel with stainless steel fasteners.

I. Tread plate: as detailed on drawings.

2.03 ANCHORS, BOLTS AND FASTENING DEVICES

A. Anchor bolt material shall be ASTM A307 unless otherwise noted.

- B. Unless otherwise noted, bolts for the connection of carbon steel or iron shall be steel machine bolts; bolts for the connection of galvanized steel or iron shall be galvanized steel or stainless steel machine bolts; and bolts for the connection of aluminum or stainless steel shall be stainless steel machine bolts.
- C. Unless otherwise noted, expansion anchors shall be zinc plated carbon steel wedge type anchors complete with nuts and washers. Type 316 stainless steel wedge type anchors shall be used where they will be submerged or exposed to the weather or where stainless steel wedge type anchors are required. When the length or embedment of the bolt is not noted on the Drawings, provide length sufficient to place the wedge and expansion cone portion of the bolt at least 1-in behind the concrete reinforcing steel. Expansion anchors shall be Hilti, Kwik-Bolt II; Simpson Strong-Tie Wedge-All; Powers Power-Stud or equal.
- D. Compound masonry expansion anchors shall be lead expansion sleeve type anchors complete with nuts and washers. Anchors shall be precision die-cast zinc alloy with a minimum of two lead alloy expansion sleeves. When the length or embedment of the bolt is not noted on the Drawings, provide length sufficient to place the wedge and expansion sleeve portion of the bolt at least 1-in behind the concrete reinforcing steel. Expansion anchors shall be Star Expansion Industries, Star Slugin or equal.
- E. Adhesive anchors shall be a two-part dual cylinder chemical resin anchoring system. Cylinders shall contain premeasured amounts of resin, cement and a hardener. Adhesive epoxy anchors for bonding dowels and anchors in drilled holes shall be SIKADUR Anchor FIX-4, Hilti HIT HY 150 Max or approved equal. Approved equivalents shall meet the requirements of ASTM C-881.
- F. Adhesive anchors, for fastening to hollow concrete block or brick, shall be a three-part stud, screen and chemical dispenser anchoring system. Adhesive cartridges shall contain premeasured amounts of resin and hardener which are mixed and deposited in a screen tube by a dispenser. Stud assemblies shall consist of an all-thread anchor rod with nut and washer. Anchors shall be Hilti, HIT C-20 System or equal.
- G. Automatic end welded headed anchor studs shall be flux ended studs made from cold drawn steel, ASTM A108 Grades C-1010 through C-1020. Headed anchor studs shall be Nelson, H4L Headed Concrete Anchors or equal.
- H. Machine bolts and nuts shall conform to Federal Specification FF-B-575C. Bolts and nuts shall be hexagon type. Bolts, nuts, screws, washers and related appurtenances shall be Type 316 stainless steel.
- I. Toggle bolts shall be Hilti, Toggler Bolt or equal.

2.04 SHOP PAINTING

- A. Clean surface of steel items free of scale, rust or foreign matter and apply one shop prime coat to all steel items.

PART 3 – EXECUTION

3.01 INSTALLATION

- A. Assemble components, securely join together and attach assembly to structure; where not specifically shown, each stair attachment must adequately transfer its dead load and 100 psf live load to structure.
- B. Level stair treads and landings in both directions with tolerance of 1/8" in 10'.
- C. Set balusters of each stair run in same vertical plane; plumb within 1/8" of vertical.
- D. Set handrails parallel with top of strings, base or other rails within 1/8" in 10 running feet.
- E. Install anchorage inserts in concrete formwork as shown on drawings.
- F. Securely anchor all items plumb, square and level and in correct alignment with other work.
 - 1. Check for warp and all dimensions of weirs after installation; adjust or reinstall if required by Engineer.
- G. Coat aluminum surfaces in contact with concrete with bituminous paint.
- H. Weirs:
 - 1. Set weir plates level and to elevations shown on plans with carpenters 3' level and torpedo level; check and adjust as necessary before plant startup.
 - 2. Check for warp and all dimensions of weirs after installation; adjust or reinstall if required by Engineer.

END OF SECTION

SECTION 07900

JOINT SEALERS

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- 1.02 PRE-APPLICATION MEETING
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- 3.05 CLEANING AND REPAIRING
- 3.06 CORRECTION OF DEFICIENCIES
- 3.07 SCHEDULE

PART 1 – GENERAL

1.01 DESCRIPTION

- A. Work includes:
 - 1. Cleaning and preparation of joint surfaces.
 - 2. Sealants and backing materials.
 - 3. Sealant installation.
- B. Products specified to be furnished and installed elsewhere:
 - 1. Section 03300, joints in concrete slabs.
 - 2. Pertinent sections under which systems are specified: sealants integral with systems.
- C. Related work specified elsewhere.
 - 1. Section 03300 – Cast-In-Place Concrete.
 - 2. Division 15 - Mechanical.
 - 3. Division 16 - Electrical.

1.02 PRE-APPLICATION MEETING

- A. Before any sealants are installed, hold meeting at job site between Engineer's representative and Contractor or his representative in charge of caulking operation; representative of manufacturer of materials to be used should also be present.
- B. Using materials and equipment which will be employed on project, demonstrate methods which will be used to install each type of joint required on project.

1.03 REFERENCES

- A. ASTM C790 - Recommended Practices for Use of Latex Sealing Compounds.
- B. ASTM C804 - Recommended Practice for Use of Solvent-Release Type Sealants.
- C. ASTM C834 - Latex Sealing Compounds.
- D. ASTM C920 - Elastomeric Joint Sealants.
- E. ASTM C962 - Use of Elastomeric Joint Sealants.
- F. ASTM E814 - Fire Tests of Through-Penetration Fire Stops.
- G. FS TT-S-00230C - Sealing Compounds, Synthetic-Rubber Base, Single Component, Chemically Curing.
- H. SWI - Sealant & Waterproofers Institute: Guide Specifications.

1.04 ENVIRONMENTAL REQUIREMENTS

- A. Do not place sealant when air temperature is below 40°F. except under conditions acceptable to sealant manufacturer.

1.05 SUBMITTALS

- A. Submit Manufacturer's literature of the material to be used for approval. Submitted information shall include:
 - 1. Complete materials list of all items proposed to be furnished and installed under this section.
 - 2. Manufacturer's specifications and other data required to demonstrate compliance with the specified requirements.
 - 3. Manufacturer's recommended methods of installation.
 - 4. Standard color charts for each item as applicable.

- B. See Section 01300 - Submittals for additional requirements.

1.06 WARRANTY

- A. Provide two-year warranty.
- B. Warranty: include coverage of installed sealants and accessories which fail to achieve airtight and watertight seal, exhibit loss of cohesion or adhesion, do not properly cure, or stain adjoining surfaces.
- C. Warranty to run from date of completion of correction of deficiencies one year after substantial completion of the work.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to Project site in original unopened containers or bundles with labels informing about manufacturer, product name and designation, color, expiration period for use, pot life, curing time, and mixing instructions for multi component materials.
- B. Store and handle materials in compliance with manufacturers' recommendations to prevent their deterioration or damage due to moisture, high or low temperatures, contaminants, or other causes.

1.08 PROJECT CONDITIONS

- A. Environmental Conditions:
 - 1. Do not proceed with installation of joint sealers under the following conditions:
 - a. When ambient and substrate temperature conditions are outside the limits permitted by joint sealer manufacturers.
 - b. When joint substrates are wet due to rain, frost, condensation, or other causes.
- B. Joint Width Conditions:
 - 1. Do not proceed with installation of joint sealers where joint widths are less than allowed by joint sealer manufacturer for application indicated.
- C. Joint Substrate Conditions:
 - 1. Do not proceed with installation of joint sealers until contaminants capable of interfering with their adhesion are removed from joint substrates.

PART 2 – PRODUCTS

2.01 MATERIALS, GENERAL

- A. Compatibility:
 - 1. Provide joints sealers, joint fillers and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.
- B. Colors:
 - 1. Provide color of exposed joint sealers as selected by Engineer.

2.02 SEALANTS

- A. Type 2A: Urethane, Two-Part, Self-Leveling; ASTM C920, Type M, Grade P, Class 25; Pecora "Urexpan NR-200", Tremco "THC900", or Vulkem "255".
- B. Type 2B: Urethane, Two-Part, Non-Sag, ASTM C920, Type M, Grade NS, Class 25; Pecora "Dynatrol II", Tremco "Dymeric", or BASF "MasterSeal NP 2".
- C. Type 2C: Urethane, One-Part, Self-Leveling; ASTM C920, Type S, Grade P, Class 25; Pecora Urexpan NR-201", Vulkem "45", or Sika "1A SL".
- D. Type 2D: Urethane, One-Part, Non-Sag; ASTM C920, Type S, Grade=NS, Class 25; Pecora "Dynatrol I", Tremco "Dymonic", or Sika "1A".
- E. Type 3: Silicone, One-Part, Low Modulus; ASTM C920, Type S, Grade NS, Class 25; 40; Pecora "864", Dow Corning "790", or GE "Gesil N".
- F. Type 4: Acrylic Polymeric, One-Part; FS TT-S-00230C, Type II, Class B; non-sag; non-bleeding and non-staining; Tremco "Mono", Pecora "60+ Unicrylic", or PTI "767".
- G. Type 5: Acrylic Latex Polymer, One-Part; ASTM C834; non-sag, premium quality; Pecora "AC-20", Tremco "Acrylic latex", or Sonneborn "Sonolac".
- H. Type 6: Acoustical Sealant, One Part; acrylic latex polymer, non-sag, acoustically tested; Pecora "AC-20 Acoustical Sealant", Tremco "Acoustical Sealant", or USG "Acoustical Sealant".
- I. Type 9A: Preformed Tape: Butyl-polyisobutylene, similar and equal to Tremco 440.

- J. Type 9B: Precompressed polyester polyurethane foam sealant; similar and equal to Will-Seal Construction Foams, Troy, MI - Will-Seal 150G.
- K. Intumescent Fire Barrier Penetration Sealing System: ASTM E814 fire rated equal to fire rating of penetrated construction; UL listed; similar and equal to 3M Series 7900.
- L. Silicone RTV Foam Sealant: Two-part foamed-in-place silicone foam; ASTM E814 fire rated equal to fire rating of penetrated construction; UL listed; similar and equal to Dow Corning 3-6548.
- M. Sealant Colors: as selected by Engineer from manufacturer's standards.

2.03 PREPARATORY MATERIALS

- A. Primer: nonstaining type, recommended by sealant manufacturer to suit application.
- B. Joint cleaner: noncorrosive and nonstaining type, recommended by sealant manufacturer; compatible with joint forming materials.
- C. Backing rod: round, closed-cell, foam rod recommended by sealant manufacturer; diameter 30 to 50 percent larger than joint width to assure a friction fit.
- D. Fire barrier: similar and equal to Tremco/Manville Cerablanket-FS.
- E. Bond breaker: pressure sensitive tape recommended by sealant manufacturer to suit application.

2.04 JOINT SEALANT BACKING

- A. General:
 - 1. Provide sealant backings of material and type which are nonstaining; are compatible with joint substrates, sealants, primers and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
- B. Plastic Foam Joint Fillers:
 - 1. Preformed, compressible, resilient, non-waxing, non-extruding strips of flexible, non-gassing plastic foam of material indicated below; nonabsorbent to water and gas; and of size, shape and density to controls sealant depth and otherwise contribute to producing optimum sealant performance.
 - a. Either open-cell polyurethane foam or closed-cell polyethylene foam, unless otherwise indicated, subject to approval of sealant manufacturer.
 - 2. Backing material shall be of proper size and placed in all joints where practicable.

PART 3 – EXECUTION

3.01 INSPECTION

- A. Examine the areas and conditions under which work of this section will be performed.
- B. Correct conditions detrimental to the proper and timely completion of the work.
- C. Do not proceed until unsatisfactory conditions have been corrected.

3.02 PREPARATION

- A. All surfaces in contact with sealant shall be dry, sound, well-brushed, and wiped free from dust.
- B. Use solvent to remove oil and grease, wiping the surfaces with clean rags.
- C. Where surfaces have been treated and/or existing sealant remains, remove the surface treatment and/or existing sealant by wire brushing. Care shall be used when brushing existing surface so as to not damage surfaces which will not be concealed by sealant.
- D. Perform preparation in accordance with ASTM C962 recommendations.
- E. Protect elements surrounding the work of this section from damage or disfiguration.
- F. Remove all laitance and mortar from the joint cavity.
- G. Where backstop is required, insert the approved backup material in the joint cavity to the required depth.
- H. Use only the primer recommended by the sealant manufacturer and approved by the Engineer for the particular installation; apply the primer in strict accordance with the manufacturer's recommendations.
- I. Protect surfaces which will be exposed to view as required to prevent damage or discoloration of exposed surfaces.

3.03 INSTALLATION

- A. Comply with ASTM C804 for solvent release and ASTM C790 for latex base sealants.

- B. Install sealant in accordance with ASTM C962, SWI recommendations, and manufacturer's instructions.
- C. Measure joint dimensions and size materials to achieve required width/depth ratios.
- D. Install joint backing to achieve a neck dimension no greater than 1/3 of joint width; no thicker than 1/2" (12.7 mm) and no thinner than 1/8" (3 mm), unless otherwise recommended by manufacturer. For joints through fire rated construction, use fire barrier in lieu of joint backing at face of joint with greater fire exposure.
- E. Install bond breaker where joint backing not used.
- F. Vent completely sealed cavities back of sealant and joint backing with 1/4" (6 mm) ID plastic tubing 6' to 10' (1.8 to 3 m) oc horizontally at bottom and top of cavity and approximately 10' (3 m) oc in vertical joints; position tube to slope downward to outside, unless otherwise required to prevent entry of water into cavity space, with outer end no more than 1/8" (3 mm) beyond surface at sides of joint.
- G. Mix two-part sealants in accordance with manufacturer's directions.
- H. Apply sealant within recommended application temperature range. Consult manufacturer when sealant cannot be applied within this temperature range.
- I. Install sealant free of air pockets, foreign embedded matter, ridges, and sags.
- J. Tool joints neat and true using tooling solution recommended by sealant manufacturer; produce smooth concave surface.

3.04 FIELD QUALITY CONTROL

- A. Provide for replacing 3 LF of each type of joint after cuts have been made for field quality control verification.

3.05 CLEANING AND REPAIRING

- A. Clean adjacent surfaces free of sealant or soil resulting from this work as work progresses; leave finished work neat and clean.
- B. Repair or replace defaced or disfigured finishes caused by work of this section.

3.06 CORRECTION OF DEFICIENCIES

- A. One year after substantial completion of work, examine exterior sealant joints and prepare list of deficiencies to be corrected. Correct deficiencies in accordance with SWI recommendations and manufacturer's instructions.

3.07 SCHEDULE

- A. Schedule is list of principal locations only. Refer to drawing details for locations not specifically scheduled.
- B. Exterior:
 - 1. Perimeters of exterior openings where frames meet exterior facade of building: Type 2B, 2D, 3, or 4.
 - 2. Expansion and control joints in exterior surfaces of cast-in-place concrete walls: Type 2B, 2D, or 9B.
 - 3. Control and expansion joints in exterior surfaces of unit masonry walls: Type 2B, 2D, or 9B.
 - 4. Exterior joints in horizontal concrete wearing surfaces: 2A or 2C.
 - 5. Bedding for watertight surface application of metal items: Type 9A.
- C. Interior:
 - 1. Seal interior perimeters of exterior openings: Type 2B, 2D, or 3.
 - 2. Control and expansion joints in interior face of exterior cast-in-place concrete walls: Type 2B, 2D, or 3.
 - 3. Joints in underside of precast concrete beams or planks: Type 2B, 2D, or 9B.
 - 4. Control and expansion joints in interior face of exterior unit masonry walls: Type 2B, 2D, 3 or 9B.
 - 5. Interior control and expansion joints in floor surfaces: Type 2A, or 2C.
 - 6. Perimeters of interior frames, where detailed: Type 1B, 1D, 2B, 2D, or 3.
 - 7. Interior masonry vertical control joints (block-to-block, block-to-concrete, and intersecting masonry walls); Type 2B, 2D, 3, or 9B.
 - 8. Joints at tops of non-load bearing masonry walls at underside of concrete structure: Type 2B, 2D, 5, 6, or 9B.
 - 9. Perimeter of bath fixtures (sinks, water closets, basins, vanities): Type 2B, 2D, 3 or 5.
 - 10. Penetrations through Fire Rated Constructions: Intumescent Fire Barrier Penetration Sealing System. Silicone RTV Foam Sealant.

END OF SECTION

SECTION 11000

EQUIPMENT INSTALLATION

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- 1.02 RECEIVING, TRANSPORTING AND
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- 1.05 PROTECTION
- 1.06 CLEANING
- 1.07 LUBRICATION

- 1.08 ADJUSTMENTS
- 1.09 INITIAL OPERATION

PART 2 – PRODUCTS

NOT APPLICABLE

PART 3 – EXECUTION

NOT APPLICABLE

PART 1 – GENERAL

1.01 WORK INCLUDED

- A. Installation and erection of all equipment specified.
- B. Receiving, transporting, unloading, and storing of all equipment.
- C. Adjustments, lubrication, and initial operation.
- D. Foundations for all equipment.
- E. Anchor bolts, fasteners, and sleeves for all equipment.
- F. Specific requirements for equipment installation are included with individual equipment specification and manufacturer's drawings and instructions.

1.02 RECEIVING, TRANSPORTING AND STORING

- A. Receive all shipments of equipment at job site or local freight terminal.
- B. Transport as required and unload at job site.
- C. Store equipment in manner and location which will ensure complete fitness for operation; protect from rust, corrosion, weathering and vandalism.
- D. Pay all demurrage or storage charges.

1.03 ASSEMBLY AND ERECTION

- A. Completely assemble all equipment shipped knocked down; furnish minor items such as nuts, bolts, washers, pins and pipe fittings necessary for assembly and operation; use materials compatible with equipment.
- B. Erect and install ready for operation.
- C. Manufacturer of equipment to furnish stainless steel fasteners and supports unless specified otherwise.
- D. Contractor to supply stainless steel fasteners and supports not supplied with equipment.

1.04 SUPPORTS AND FOUNDATIONS

- A. Provide devices for supporting all equipment in accordance with recommendations of manufacturer and as shown on plans.
 - 1. Concrete pads for floor mounted equipment.
 - 2. Fabricated supports of steel sections, plates or rods for all hung equipment and bearing supports; prevent transmission of excessive forces to building structures or any piece of equipment or piping.
- B. Align and level all equipment; use shims as needed.
- C. Grout under all equipment on concrete foundations with non-shrink cement grout specified in Section 03300 - Cast-In-Place Concrete.
- D. Contractor of equipment to supply ASTM A167 Series 300 stainless steel anchor bolts, expansion anchors, nuts and washers and templates unless specified otherwise.

1.05 PROTECTION

- A. Structures:
 - 1. Use cribbing, shoring or planking to protect structures from damage due to construction operations.
 - 2. Repair any damage to structures or equipment after equipment is in place.
- B. Equipment:
 - 1. Protect against falling objects and construction operations which might damage equipment installed before construction is completed.

2. Provide pump and blower intakes with temporary hardware cloth screens or solid plugs; remove at direction of Engineer.
3. All equipment to receive shop paint before shipment.

1.06 CLEANING

- A. Clean equipment of all temporary protective coatings.
- B. Remove all oil, grease and dirt from external surfaces prior to painting.

1.07 LUBRICATION

- A. Lubricate all moving equipment parts in accordance with manufacturer's recommendations. Furnish lubricants as required.

1.08 ADJUSTMENTS

- A. Make any adjustments to equipment necessary to improve operation.
- B. Check equipment clearances and adjust in accordance with recommendations of manufacturers.
- C. Add or replace equipment packing, seals and similar items as required.

1.09 INITIAL OPERATION

- A. Supervise initial operation of all equipment.
- B. Maintain all equipment until acceptance by Owner.

PART 2 – PRODUCTS

Not Applicable.

PART 3 – EXECUTION

Not Applicable.

END OF SECTION

SECTION 11368

UV DISINFECTION EQUIPMENT

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PART 3 – EXECUTION

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3.02 MANUFACTURER'S SERVICES

PART 2 – PRODUCTS

NOT APPLICABLE

PART 1 – GENERAL

1.01 DESCRIPTION

- A. Furnish all labor and appurtenances required to install Owner-supplied UV Disinfection Equipment as shown on plans and specified hereinafter. The UV system shall be complete and operational with all control equipment and accessories as shown and specified herein. This system will be capable of disinfecting effluent to meet water quality standards.
- B. Related work specified elsewhere:
 - 1. Section 01300 – Submittals.
 - 2. Section 01600 – Material and Equipment.
 - 3. Section 05500 – Metal Fabrications.
 - 4. Section 11000 – Equipment Installation.
 - 5. Section 17100 – Process Control and Instrumentation Systems
- C. Refer to Appendix A – Owner-Supplied UV Disinfection Equipment for information on Owner-purchased UV Disinfection Equipment. Items excluded from Trojan's scope of supply must be provided by Contractor.
- D. Anticipated delivery date for UV Disinfection System to the site is the week of February 5th, 2024.

PART 2 – PRODUCTS

Not Applicable.

PART 3 – EXECUTION

3.01 INSTALLATION

- A. Install equipment in accordance with contract drawings, manufacturers' shop drawings, instructions, and installation checklist. Contractor Installation Checklist to be completed and returned at least two (2) weeks prior to date requested for commissioning. Photographs illustrating site readiness are required. The Contractor assumes all responsibility for the installation readiness of the UV system.
- B. All labor, materials, and test apparatus necessary for completing the installation shall be furnished by the Contractor at no additional cost to the Manufacturer.

3.02 MANUFACTURER'S SERVICES

- A. Startup and field testing, including all travel expenses: 1 Trip.
 - 1. Start-up and Field Services will only be scheduled upon written request. Contractor shall notify Trojan of schedule requirements at least ten (10) working days in advance. Upon arrival to commission the equipment, if the Trojan's Certified Service Technician determines the Contractor work is not complete and the start-up cannot be completed in the allotted time, a return visit will be scheduled at the Contractor's expense.
- B. Operator Training: 1 full day on-site. Contractor responsible to schedule the training during the commissioning time allocated. If trainees are not available, a return visit will be scheduled at the Contractor's expense.
- C. Warranty Service: As required during the warranty period.
- D. Trips and warranty service as detailed above are included in Owner-supplied equipment scope of supply. Contractor responsible to coordinate with Trojan and Owner to schedule trips. Contractor responsible for any costs associated with failure to coordinate startup and operator training.

END OF SECTION

SECTION 14300

HOISTS

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- 1.01 DESCRIPTION
- 1.02 BASIC REQUIREMENTS
- 1.03 SUBMITTALS

PART 2 – PRODUCTS

- 2.01 PORTABLE HOISTS

PART 3 – EXECUTION

- 3.01 INSTALLATION

PART 1 – GENERAL

1.01 DESCRIPTION

- A. This section describes the hoist equipment as shown on plans and specified hereinafter.
- B. Related work specified elsewhere:
 - 1. Section 05500 – Metal Fabrications.

1.02 BASIC REQUIREMENTS

- A. Meet all requirements of HMI, CMAA, ANSI, NEC, and OSHA for overhead hoists.
- B. Furnish materials, labor, and equipment necessary to complete all work specified in this section; I-beams are not to be supplied by hoist and trolley manufacturer.

1.03 SUBMITTALS

- A. Product data: including complete descriptive literature and manufacturer's installation instructions.
- B. Shop drawings: complete fabrication and erection drawings, including layout, dimensions, details, anchorage inserts, and erection information necessary to show compliance with specifications and recommended erection procedures.
- C. See Section 01300 - Submittals for additional requirements.

PART 2 – PRODUCTS

2.01 PORTABLE HOISTS

- A. Provide 1 portable davit crane suitable for mounting in pedestal mount.
- B. Manufacturer/Model:
 - 1. Thern, Inc. Commander 2000 Series, Model 5PT-20; quantity 1.
- C. Finish: Powder-coat.
- D. Winch: Provide crane with 4WP2-K electric winch with 6' pendant control; 115 VAC, 1 phase, 60 Hz; Thern option E2.
- E. Capacities: 2,000 lb.
- F. Cable for lifting bar rack; ¼" diameter 304 stainless steel wire rope; 28' length; provide with stainless steel swivel hook and swaged ball fitting.
- G. Provide 1 base for mounting as shown on plans; Thern Model 5BP20.

PART 3 – EXECUTION

3.01 INSTALLATION

- A. Install all equipment in accordance with manufacturer's recommendations and install as shown on drawings with end stops.
- B. Attach to concrete with stainless steel anchor bolts; size as recommended by hoist manufacturer.
- C. For additional requirements see Section 01600 - Materials and Equipment.

END OF SECTION

SECTION 15010

MECHANICAL GENERAL PROVISIONS

INDEX

PART 1 – GENERAL

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1.04	INTENT	1.17	OPERATION AND MAINTENANCE MANUALS
1.05	PROTECTION OF EQUIPMENT AND MATERIALS	1.18	OPERATING INSTRUCTIONS
1.06	VERIFICATION OF EXISTING UTILITIES PIPING AND EQUIPMENT AND EXAMINATION OF SITE	1.19	CODES AND STANDARDS
1.07	LAYING OUT OF THE WORK	1.20	MOTORS, STARTERS AND DISCONNECT SWITCHES
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1.12	TESTS	NOT APPLICABLE	
1.13	PERMITS		

PART 1 – GENERAL

1.01 DESCRIPTION

- A. Provide mechanical work, complete and operable, in accordance with the Contract Documents.
- B. Mechanical General Provisions requirements specifically applicable to Division 15 sections, in addition to Division 01 requirements.
- C. Wherever Mechanical General Provisions requirements conflict with any provisions of the General Requirements, Supplementary Conditions or Special Conditions, Mechanical General Provisions requirements shall take precedence.

1.02 PLANS

- A. The plans and specifications cover the extent and general arrangements of the various systems subject to the individual characteristics of the equipment with regard to size, arrangement, etc. The plans are diagrammatical and are not intended to include all of the details or dimensions. Where no figures or dimensions are noted, the plans shall be

accurately followed. Exceptions to or conflicts between the plans and specifications shall be brought to the Engineer's attention at least 7 days before bidding date.

1.03 LEAK DAMAGE

- A. The contractor shall be responsible for damage to the work of other contractors or to the building, or to its contents, people, etc., caused by leaks in any of the equipment or material installed by him through equipment or material failures or disconnected pipes or fittings, and shall make, at his own expense, all repairs or replacement required as a result of such damage.

1.04 INTENT

- A. It is the intention of these specifications and plans to call for finished work, tested and ready for use and operation by the Owner. Wherever the word "provide" is used, it shall mean "furnish and install complete and ready for use".

1.05 PROTECTION OF EQUIPMENT AND MATERIALS

- A. Provide protection against weather, rain, windstorms, frost, ice, heat, and other natural phenomenon so as to maintain all material and equipment free from injury or damage including physical damage of any nature. This shall include the erection of any temporary shelters to protect adequately any equipment stored on the site, and the covering of equipment in the completed building with protective coverings.

1.06 VERIFICATION OF EXISTING UTILITIES PIPING AND EQUIPMENT AND EXAMINATION OF SITE

- A. Verify the location of all existing utilities and coordinate with utility company personnel of requirements for properly connecting into their utilities; pay all associated fees.
- B. Verify the location of all piping and equipment and call to the attention of the Engineer any and all discrepancies which involve additional work before signing of the contract.
- C. After the contract is signed, any additional work required for the complete and working job shall be provided at no additional cost, unless specifically noted in the contract documents to the contrary.
- D. Locations, sizes, capacities, etc., of all piping shall be verified prior to doing any other work on piping systems which are to connect to new piping systems. Any work rendered unusable by failure to comply with this provision shall be replaced at no cost.
- E. Piping as mentioned in this division of the specifications shall be understood to include water, sewer and other piping systems necessary to the continued operation of any and

all new or existing systems and equipment, whether on a temporary or permanent basis as noted elsewhere in the contract documents.

- F. Prior to submitting proposals for this work, each contractor bidding shall first examine the site and all conditions thereon and/or therein. All proposals shall take into consideration all such conditions as may affect the work under this Contract.

1.07 LAYING OUT OF THE WORK

- A. Layout work on the premises and make proper provision for the other work. The exact location of each item shall be determined by reference to the general plans, by measurements at the building and in cooperation with other contractors. The Contractor shall be responsible for accurately locating all openings for ducts, pipes, etc., and access doors required.

1.08 COORDINATION

- A. Any interferences with other trades shall be corrected before the work proceeds. Coordinate location of plumbing and mechanical equipment with structural conditions.
- B. The mechanical and electrical portions of the work shall have precedence over one another in accordance with the following sequence:
 - 1. Soil and waste piping.
 - 2. Ductwork.
 - 3. Electrical bus duct and cable trays.
 - 4. Electrical wiring.

1.09 LUBRICATION

- A. All equipment requiring lubrication shall have a label or plate permanently attached to the equipment indicating type of lubrication required and recommended frequency of lubrication. All equipment shall be fully and properly lubricated at the time of final acceptance of the facility.

1.10 ACCESS

- A. Generally, all concealed valves, filters, thermostats, mixing valves, pumps and other items of equipment requiring maintenance and/or operation are located above accessible type ceilings. Should any concealed valves, pumps, etc., be inaccessibly located, furnish access doors with flush screwdriver operated lock. Doors shall be of the type suited to the construction into which they are to be installed.
- B. Provide access to filters such that filters can be serviced without interruption; provide suitable access doors or panels.

1.11 CUTTING AND PATCHING

- A. All cutting and patching required under this Division shall be done under this Division. Subcontract the performance of cutting and patching to tradesmen skilled in the trade required.

1.12 TESTS

- A. All systems shall be tested in the presence of the Engineer and local authorities having jurisdiction in a manner required by regulation. No work shall be covered before tests are made.
- B. Refer to individual sections for testing requirements.

1.13 PERMITS

- A. Obtain all required permits. Pay for all permits, certificates and licenses required to commence the work and arrange for inspections required by local authorities.

1.14 NOISE

- A. All mechanical equipment and devices shall operate without objectionable noise in the occupied portions of the building. HVAC components shall be installed not to exceed noise criterion of NC-35.

1.15 CLEANING AND ADJUSTING

- A. Upon completion of the entire system, it shall be thoroughly cleaned and treated as specified. Place the entire system in operation in the presence of the Engineer or his representative and instruct the operator in all details of operation before acceptance.
- B. Interior of all ductwork shall be cleaned of all construction dirt prior to placing fans in operation.

1.16 RECORD DRAWINGS

- A. See specification Section 01720 - Project Record Documents.

1.17 OPERATION AND MAINTENANCE MANUALS

- A. Furnish required number of complete sets of manufacturer's instructions for installation, operation and maintenance of all materials and equipment furnished.
- B. Completely identify each manual by showing at least the following information:
 - 1. Name, address and phone number of supplier.

2. Name, address and phone number of manufacturer.
3. Name of project as it appears on the title sheet of these specifications.

- C. Include all guarantees and warranties issued.
- D. Include a lubrication list showing type of lubricant and lubrication schedule for all equipment.
- E. Include a valve list showing valve tag number, service and location.

1.18 OPERATING INSTRUCTIONS

- A. Instruct the Owner's operating personnel in the proper operation of all equipment items and systems. At the beginning of the first cooling and heating season, start the equipment and operate until satisfactory operation and performance is achieved.

1.19 CODES AND STANDARDS

- A. Equipment, devices, apparatus, systems and installations shall be entirely suitable and safe for each intended application and be in full compliance with applicable standards, rules, regulations, codes, ordinances, etc., of municipal, county and state governments and local utilities, including Iowa State Building, Mechanical, Fire and Plumbing Codes. They shall also comply with OSHA and all applicable requirements of the following for the particular type of installation:
 1. Electrical Equipment and Wiring: National Electrical Code.
 2. Duct Installations and Fire Dampers: NFPA, SMACNA Manuals, Uniform Mechanical Code.
 3. Fans, Blowers and Other Air Moving Devices: AMCA, SMACNA Manual.

1.20 MOTORS, STARTERS AND DISCONNECT SWITCHES

- A. Equipment requiring electric motors, motor starters, disconnect switches, overload protection, short-circuit protection and other items of electrical controls shall be furnished complete with all such items except when the electrical plans specifically indicate that the required starters, disconnect switches and other control items are to be furnished under Electrical.
- B. Motors and other electrical devices shall be suitable for the electrical characteristics and type of service shown on the plans and shall comply with the requirements of the specification under Electrical.
- C. Provide the number of auxiliary contacts required in the motor starters for proper interlocks, etc.

- D. Motors which are 3 phase and 1 HP or larger (non-hermetic) shall be energy efficient type and shall meet the following NEMA nominal efficiencies as tested in accordance with IEEE Standard 112 TEST METHOD B.

1.21 COMPLETION REQUIREMENTS

- A. Before acceptance and final payment, provide:
 - 1. Accurate record drawings showing in red ink on blue line prints furnished for that purpose all changes from the original plans made during installation of the work. Drawings shall be filed with the Engineer when the work is complete.
 - 2. Balancing report.
 - 3. Operation and maintenance manuals.
 - 4. Operating instructions to the operating personnel.

PART 2 – PRODUCTS

Not Applicable.

PART 3 – EXECUTION

Not Applicable.

END OF SECTION

SECTION 15600

HEATING, VENTILATION AND AIR CONDITIONING

INDEX

PART 1 – GENERAL

- 1.01 DESCRIPTION
- 1.02 SUBMITTALS

PART 3 – EXECUTION

- 3.01 INSTALLATION

PART 2 – PRODUCTS

- 2.01 ELECTRIC UNIT HEATER

PART 1 – GENERAL

- 1.01 DESCRIPTION

- A. Furnish and install heating equipment as shown on plans and as specified herein.

- 1.02 SUBMITTALS

- A. Provide equipment dimensional drawings, fabrication details, completely coordinated wiring diagrams, functional description and properly identified catalog data on all equipment to prove complete compliance with plans and specifications.
- B. Provide complete installation, operation and maintenance instructions.

PART 2 – PRODUCTS

- 2.01 ELECTRIC UNIT HEATER

- A. Type: corrosion resistant, UL and FM listed electric unit heater with built-in controls.
- B. Manufacturer: Indeeco Triad, or equal.
- C. Model number, capacity and electrical: as scheduled on the drawings.
- D. Construction: Type 304 stainless steel cabinet and finned tubular heating elements; heavy gauge shroud; built-in over temperature protection; non-sparking aluminum fan; totally enclosed fan motor with built-in thermal overload protection; NEMA 4X control enclosure; integral line voltage terminal block.
- E. Accessories:
 - 1. Unit mounted thermostat and disconnect switch.
 - 2. Adjustable stainless steel louvered outlet grille.

3. Stainless steel universal mounting kit.

- F. Furnish complete installation instructions and wiring diagrams indicating both factory and field connections.

PART 3 – EXECUTION

3.01 INSTALLATION

- A. Remove existing unit heater and install new unit heater in its place.

END OF SECTION

SECTION 16050

ELECTRICAL REQUIREMENTS

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PART 1 – GENERAL

- 1.01 THE REQUIREMENT
- 1.02 REFERENCE STANDARDS
- 1.03 SIGNAGE AND MARKINGS
- 1.04 PERMITS AND INSPECTION
- 1.05 CONTRACTOR SUBMITTALS
- 1.06 AREA DESIGNATIONS
- 1.07 TESTS
- 1.08 CONSTRUCTION SEQUENCING

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- 2.01 GENERAL
- 2.02 MOUNTING HARDWARE
- 2.03 ELECTRICAL IDENTIFICATION

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- 3.01 GENERAL
- 3.02 CORE DRILLING
- 3.03 CONCRETE HOUSEKEEPING PADS
- 3.04 EQUIPMENT ANCHORING
- 3.05 EQUIPMENT IDENTIFICATION
- 3.06 CLEANING

PART 1 – GENERAL

1.01 THE REQUIREMENT

- A. The Contractor shall provide electrical work, complete and operable, in accordance with the Contract Documents.
- B. The provisions of this section apply to all sections in Division 16, except as indicated otherwise.
- C. The work of this section is required for operation of electrically-driven equipment provided under specifications in other divisions. The Contractor's attention is directed to the requirement for proper coordination of the work of this section with the work of equipment specifications and the work of instrumentation sections.
- D. Concrete, excavation, backfill, and steel reinforcement required for encasement, installation, or construction of the work of the various sections of Division 16 is included as a part of the work under the respective sections, including duct banks, manholes, handholes, equipment housekeeping pads, and light pole bases.

1.02 REFERENCE STANDARDS

- A. The work of this section and all sections in Division 16 shall comply with the following as applicable:
 - 1. NEC (NFPA 70) National Electrical Code

- 2. NETA International Electrical Testing Association
- 3. NEMA 250 Enclosure for Electrical Equipment (1000 Volts Maximum)

- B. Electrical equipment shall be listed by and shall bear the label of Underwriters' Laboratories, Inc. (UL) or an independent testing laboratory acceptable to the local code enforcement agency having jurisdiction.
- C. Installation of electrical equipment and materials shall comply with OSHA Safety and Health Standards (29 CFR 1910 and 29 CFR 1926, as applicable), state building standards, and applicable local codes and regulations.
- D. Where the requirements of the specifications conflict with UL, NEMA, NFPA, or other applicable standards, the more stringent requirements shall govern.

1.03 SIGNAGE AND MARKINGS

- A. Identification: Provide danger, caution, and warning signs and equipment identification markings in accordance with applicable federal and state OSHA and NEC requirements.
- B. Local Disconnect Switches:
 - 1. Each local disconnect switch for motors and equipment shall be legibly marked to indicate its purpose unless the purpose is indicated by the location and arrangement.
- C. Warning Signs:
 - 1. 600 volts nominal, or less: Entrances to rooms and other guarded locations that contain live parts shall be marked with conspicuous signs prohibiting unqualified persons to enter.
- D. Isolating Switches: Isolating switches not interlocked with an approved circuit interrupting device shall be provided with a sign warning against opening them under load.

1.04 PERMITS AND INSPECTION

- A. Permits shall be obtained and inspection fees shall be paid according to the General Conditions.
- B. The Contractor shall pay connection and turn-on service charges required by the utility companies.

1.05 CONTRACTOR SUBMITTALS

- A. Furnish submittals in accordance with Division 01.

- B. Shop Drawings: Include the following:
1. Complete material lists stating manufacturer and brand name of each item or class of material.
 2. Shop drawings for all grounding work not specifically indicated.
 3. Front, side, rear elevations, and top views with dimensional data.
 4. Location of conduit entrances and access plates.
 5. Component data.
 6. Connection diagrams, terminal numbers, internal wiring diagrams, conductor size, and cable numbers.
 7. Method of anchoring, weight.
 8. Types of materials and finish.
 9. Nameplates.
 10. Temperature limitations, as applicable.
 11. Voltage requirement, phase, and current, as applicable.
 12. Front and rear access requirements.
 13. Test reports.
 14. Grounding requirements.
 15. Catalog cuts or photocopies of applicable pages of bulletins or brochures for mass produced, non-custom manufactured material. Catalog data sheets shall be stamped to indicate the project name, applicable Section and paragraph, model number, and options. This information shall be marked in spaces designated for such data in the Engineer's stamp.
- C. Shop drawings shall be custom prepared. Drawings or data indicating "optional" or "as required" equipment are not acceptable. Options not proposed shall be crossed out or deleted from shop drawings.
- D. Owner's Manuals: Complete information in accordance with Division 01.
- E. Record Drawings: The Contractor shall show invert and top elevations and routing of all duct banks and concealed below-grade electrical installations. Record drawings shall be prepared, be available to the Engineer, and be submitted according to Division 01.

1.06 AREA DESIGNATIONS

- A. General
1. Raceway system enclosures shall comply with Section 16110 - Electrical Raceway Systems.
 2. Electric work specifically indicated in sections within any of the Specifications shall comply with those requirements.

AREA	NEMA ENCLOSURE CLASSIFICATION						Notes
	1	3R	4X	7	9	12	
Str. 30 - Blower Bldg. – Electrical Room	X						
Str. 50 – UV Bldg. – Process Room						X	Wet Location
Str. 50 – UV Bldg. – Exterior Channel		X	X				Wet Location
Plant Exterior		X	X				Wet Location

B. Material Requirements

1. NEMA 1, 3R, and 12 enclosures shall be steel coated with ANSI 61 grey paint unless noted otherwise on plans.
2. NEMA 4X: stainless steel unless specified otherwise.

1.07 TESTS

- A. The Contractor shall be responsible for factory and field tests required by specifications in Division 16 and by the Engineer or other authorities having jurisdiction. The Contractor shall furnish necessary testing equipment and pay costs of tests, including replacement parts and labor, due to damage resulting from damaged equipment or from testing and correction of faulty installation.
- B. Where test reports are indicated, proof of design test reports for mass-produced equipment shall be submitted with the shop drawings, and factory performance test reports for custom-manufactured equipment shall be submitted and be approved prior to shipment. Field test reports shall be submitted for review prior to Substantial Completion.
- C. Equipment or material that fails a test shall be removed and replaced.

1.08 CONSTRUCTION SEQUENCING

- A. Continuance of existing plant operation during construction is critical. Work shall be scheduled, subject to Owner's approval, to minimize any required shutdown time. The Contractor shall submit a written request, including sequence and duration of activities to be performed during any shutdown.
- B. Switching, safety tagging, etc., required for equipment shutdown and power outages shall be performed by the Contractor. In no case shall the Contractor begin any work without written authorization by the Engineer.
- C. The Contractor shall visit the Site before submitting a Bid to better acquaint itself with the work of this Contract. Lack of knowledge will not be accepted as a reason for granting extra compensation to perform the work.

PART 2 – PRODUCTS

2.01 GENERAL

- A. Equipment and materials shall be new, shall be listed by UL, and shall bear the UL label where UL requirements apply. Equipment and materials shall be the products of experienced and reputable manufacturers in the industry. Similar items in the work shall be products of the same manufacturer. Equipment and materials shall be of industrial grade standard of construction.
- B. Where a NEMA enclosure type is indicated in a non-hazardous location, the Contractor shall utilize that type of enclosure, despite the fact that certain modifications such as cutouts for control devices may negate the NEMA rating.
- C. On devices indicated to display dates, the year shall be displayed as 4 digits.

2.02 MOUNTING HARDWARE

- A. Miscellaneous Hardware:
 - 1. Nuts, bolts, and washers shall be stainless steel.
 - 2. Threaded rods for trapeze supports shall be continuous threaded, stainless steel, 3/8" dia. minimum.
 - 3. Strut for mounting of conduits and equipment shall be stainless steel. Where contact with concrete or dissimilar metals may cause galvanic corrosion, suitable non-metallic insulators shall be utilized to prevent such corrosion. Aluminum strut shall not be utilized for free standing support frames. Strut shall be as manufactured by Unistrut, B-Line, or equal.
 - 4. Anchors for attaching equipment to concrete walls, floors and ceilings shall be stainless steel expansion anchors, such as "Rawl-Bolt," "Rawl-Stud" or "Lok-Bolt" as manufactured by Rawl; similar by Star, or equal. Wood plugs shall not be permitted.
 - 5. Refer to Section 16070 – Hangers and Supports for additional details.

2.03 ELECTRICAL IDENTIFICATION

- A. Nameplates: Nameplates shall be fabricated from white-letter, black-face laminated plastic engraving stock, Formica type ES-1, or equal. Each shall be fastened securely, using fasteners of brass, cadmium plated steel, or stainless steel, screwed into inserts or tapped holes as required. Engraved characters shall be block style with no characters smaller than 1/8" top to bottom.
- B. Conductor and Equipment Identification: Conductor identification devices shall be either imprinted plastic-coated cloth marking devices such as manufactured by Brady, Thomas & Betts, or equal, or shall be heat-shrink plastic tubing, imprinted split-sleeve markers cemented in place, or equal.

PART 3 – EXECUTION

3.01 GENERAL

- A. Incidentals: The Contractor shall provide all materials and incidentals required for a complete and operable system, even if not required explicitly by the Specifications or the drawings. Typical incidentals are terminal lugs not furnished with vendor supplied equipment, compression connectors for cables, splices, junction and terminal boxes, and control wiring required by vendor furnished equipment to connect with other equipment indicated in the Contract Documents.
- B. Field Control of Location and Arrangement: The drawings diagrammatically indicate the desired location and arrangement of outlets, conduit runs, equipment, and other items. Exact locations shall be determined by the Contractor in the field based on the physical size and arrangement of equipment, finished elevations, and other obstructions. Locations on the drawings, however, shall be followed as closely as possible.
 - 1. Where "home runs" are shown, the Contractor shall route the conduits in accordance with the indicated installation requirements. Routings shall be exposed or encased as indicated, except that conduit in finished areas shall be concealed unless specifically indicated otherwise. Conduits encased in a slab shall be sized for conduit OD to not exceed one-third of the slab thickness and be laid out and spaced to not impede concrete flow.
 - 2. Conduit and equipment shall be installed in such a manner as to avoid all obstructions and to preserve head room and keep openings and passageways clear. Lighting fixtures, switches, convenience outlets, and similar items shall be located within finished rooms as indicated. Where the drawings do not indicate exact locations, such locations shall be determined by the Engineer. If equipment is installed without instruction and must be moved, it shall be moved without additional cost to the Owner. Lighting fixture locations shall be adjusted slightly to avoid obstructions and to minimize shadows.
 - 3. Wherever conduits and wiring for power circuits, lighting and receptacles are not indicated, it shall be the Contractor's responsibility to provide required conduits and wiring, based on the actual installed fixture layout and the circuit designations as indicated. Wiring shall be #12 AWG minimum, conduits shall be 3/4" minimum (exposed) and 1" minimum (encased). When circuits are combined in the same raceway, the Contractor shall derate conductor ampacities in accordance with NEC requirements.
- C. Workmanship: Materials and equipment shall be installed in strict accordance with printed recommendations of the manufacturer. Installation shall be accomplished by workers skilled in the work. Installation shall be coordinated in the field with other trades to avoid interferences.

- D. Protection of Equipment and Materials: The Contractor shall fully protect materials and equipment against damage from any cause. Materials and equipment, both in storage and during construction, shall be covered in such a manner that no finished surfaces will be damaged, marred, or splattered with water, foam, plaster, or paint. Moving parts shall be kept clean and dry. The Contractor shall replace or refinish damaged materials or equipment, including faceplates of panels and switchboard sections as part of the work.

3.02 CORE DRILLING

- A. The Contractor shall perform core drilling required for installation of raceways through concrete walls and floors. Locations of floor penetrations, as may be required, shall be based on field conditions. Verify all exact core drilling locations based on equipment actually furnished as well as exact field placement. To the extent possible, identify the existence and locations of encased raceways and other piping in existing walls and floors with the Owner prior to any core drilling activities. Damage to any encased conduits, wiring, and piping shall be repaired as part of the work.

3.03 CONCRETE HOUSEKEEPING PADS

- A. Concrete housekeeping pads shall be provided for indoor floor standing electrical equipment. Housekeeping pads for equipment, including future units, shall be 4" above surrounding finished floor or grade and 2" larger in both dimensions than the equipment, unless otherwise indicated.
- B. Concrete housekeeping curbs shall be provided for conduit stub-ups in indoor locations that are not concealed by equipment enclosures. Such curbing shall be 3" above finished floor or grade.

3.04 EQUIPMENT ANCHORING

- A. Floor supported, wall, or ceiling hung equipment and conductors shall be anchored in place by methods that will meet seismic requirements in the area where the project is located. Wall-mounted panels that weigh more than 500 lbs. or that are within 18" of the floor shall be provided with fabricated steel support pedestals. If the supported equipment is a panel or cabinet enclosed within removable side plates, it shall match supported equipment in physical appearance and dimensions. Transformers hung from 4" stud walls and weighing more than 300 lbs. shall have auxiliary floor supports.
- B. Leveling channels anchored to the concrete pad shall be provided for switchgear and pad-mounted transformer installations.
- C. Anchoring methods and leveling criteria in the printed recommendations of the equipment manufacturers are a part of the work of this Contract. Such

recommendations shall be submitted as shop drawings under Section 01300 - Submittals.

3.05 EQUIPMENT IDENTIFICATION

- A. Equipment and devices shall be identified as follows:
 - 1. Nameplates shall be provided for panel boards, control and instrumentation panels, starters, switches, and pushbutton stations. In addition to nameplates, control devices shall be equipped with standard collar-type legend plates.
 - 2. Control devices within enclosures shall be identified as indicated. Identification shall be similar to the subparagraph above.
 - 3. Toggle switches which control loads out of sight of switch and multi-switch locations of more than 2 switches shall have suitable inscribed finish plates.
 - 4. Equipment names and tag numbers, where indicated on the drawings, shall be utilized on nameplates.
 - 5. The Contractor shall furnish typewritten circuit directories for panel boards; circuit directory shall accurately reflect the outlets connected to each circuit.

3.06 CLEANING

- A. Before final acceptance, the electrical work shall be thoroughly cleaned. Exposed parts shall be thoroughly cleaned of cement, plaster, and other materials. Oil and grease spots shall be removed with a non-flammable cleaning solvent. Such surfaces shall be carefully wiped and cracks and corners scraped out. Touch-up paint shall be applied to scratches on panels and cabinets. Electrical cabinets or enclosures shall be vacuum-cleaned.

END OF SECTION

SECTION 16070

HANGERS AND SUPPORTS

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- 1.02 REFERENCES
- 1.03 REGULATORY REQUIREMENTS
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PART 2 – PRODUCTS

- 2.01 MATERIALS
- 2.02 MANUFACTURERS

PART 3 – EXECUTION

- 3.01 EXAMINATION
- 3.02 INSTALLATION

PART 1 – GENERAL

1.01 THE REQUIREMENT

- A. Conduit and equipment supports.
- B. Anchors and fasteners.

1.02 REFERENCES

- A. NECA - National Electrical Contractors Association.
- B. ANSI/NFPA 70 - National Electrical Code.

1.03 REGULATORY REQUIREMENTS

- A. Conform to requirements of ANSI/NFPA 70.
- B. Furnish products listed and classified by Underwriters Laboratories, Inc. as suitable for purpose specified and shown.

1.04 CONTRACTOR SUBMITTALS

- A. The Contractor shall submit shop drawings in accordance with Section 01300 - Submittals and Section 16050 - Electrical Requirements.

PART 2 – PRODUCTS

2.01 MATERIALS

- A. Materials and Finishes: Provide stainless steel hangers, supports and anchors to provide complete corrosion resistance.

- B. Provide materials, sizes, and types of anchors, fasteners and supports to carry the loads of equipment and conduit.
- C. Anchors and Fasteners:
 - 1. Concrete Structural Elements:
 - a. Use steel or malleable iron concrete inserts set in place prior to placing new concrete.
 - b. Use expansion anchors not less than 1/4" bolt size and not less than 1-1/8" embedment in existing concrete.
 - 1) Use power set fasteners not less than 1/4 inch diameter with depth of penetration not less than 3 inches in existing concrete.
 - 2) Use vibration and shock resistant anchors and fasteners for attaching to concrete ceilings.
 - a) Steel Structural Elements: Use beam clamps or spring steel clips.
 - b) Concrete Surfaces: Use self-drilling anchors or expansion anchors.
 - c) Hollow Masonry, Plaster and Gypsum Board Partitions: Use toggle bolts and hollow wall fasteners.
 - d) Solid Masonry Walls: Use expansion anchors.
 - e) Sheet Metal: Use sheet metal screws.
 - f) Wood Elements: Use wood screws.

2.02 MANUFACTURERS

- A. Superstrut, Unistrut, B-line, or equal.

PART 3 – EXECUTION

3.01 EXAMINATION

- A. Verify all channels, fasteners, anchors and miscellaneous equipment are suitable for the application.

3.02 INSTALLATION

- A. Install products in accordance with manufacturer's instructions.
- B. Provide anchors, fasteners, and supports in accordance with NECA "Standard of Installation".
- C. Do not fasten supports to pipes, ducts, mechanical equipment and conduit.
- D. Obtain permission from Engineer before using powder-actuated anchors.

- E. Obtain permission from Engineer before drilling or cutting structural members.

END OF SECTION

SECTION 16110

ELECTRICAL RACEWAY SYSTEMS

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3.01 GENERAL

3.02 CONDUIT

PART 1 – GENERAL

1.01 THE REQUIREMENT

- A. The Contractor shall provide electrical raceway systems, complete and in place, in accordance with the Contract Documents.

1.02 CONTRACTOR SUBMITTALS

- A. Furnish submittals in accordance with Section 01300 - Submittals, and Section 16050 - Electrical Requirements.
- B. Shop Drawings
 - 1. Complete catalog cuts of raceways, fittings, boxes, supports, and mounting hardware, marked where applicable to show proposed materials and finishes.
 - 2. Dimensioned layout drawings of cable tray routings, including elevations.

PART 2 – PRODUCTS

2.01 GENERAL

- A. Pull and junction boxes, fittings, and other indicated enclosures that are dedicated to the raceway system shall comply with this section.
- B. Electrical raceways and associated fittings shall be UL listed and approved for the intended installation.

2.02 CONDUIT

- A. Rigid Aluminum (RAL) Conduits

1. Rigid aluminum conduit shall be manufactured of 6063 alloy, temper T-1.
 2. Rigid aluminum conduit shall be manufactured in accordance with ANSI C80.5 - Rigid Aluminum Conduit, and UL-6 - Rigid Metal Electrical Conduit.
 3. Suitable for use in exterior and corrosive environment applications.
 4. Manufacturers, or equal.
 - a. V.A.W. of America
 - b. Alcoa
- B. Rigid Galvanized Steel (RGS) Conduit:
1. Rigid steel conduit shall be mild steel, hot-dip galvanized inside and out.
 2. Rigid steel conduit shall be manufactured in accordance with ANSI C80.1 - Rigid Steel Conduit, Zinc Coated, and UL-6.
 3. Suitable for use as exposed conduit in indoor applications.
 4. Manufacturers, or equal.
 - a. LTV Steel
 - b. Triangle
 - c. Wheatland Tube
- C. Rigid Non-Metallic Conduit:
1. Rigid non-metallic conduit shall be Schedule 40 pvc, sunlight resistant.
 2. Rigid non-metallic conduit shall be manufactured in accordance with NEMA TC-2 - Electrical Plastic Tubing and Conduit, and UL-651 - Standard for Rigid Non-Metallic Conduit.
 3. Suitable for use as underground direct bury conduit.
 4. Manufacturers, or equal.
 - a. Carlon
 - b. Condux
- D. Rigid PVC Coated Galvanized Steel (RPGS) Conduit:
1. The conduit, prior to pvc coating, shall meet the requirements for RGS conduit above.
 2. A pvc coating shall be bonded to the outer surface of the galvanized conduit. The bond between the coating and the conduit surface shall be greater than the tensile strength of the coating. The inside surfaces and threads of the conduit shall have a 2-mil urethane coating.
 3. pvc coating thickness shall be not less than 40 mils.
 4. pvc coated RGS shall be manufactured in accordance with the following standards:
 - a. UL-6
 - b. ANSI C80.1
 - c. Federal Specification WW-C-581E.
 - d. NEMA RN1 - pvc externally coated galvanized rigid steel conduit and intermediate metal conduit.
 5. Suitable for use as exposed conduit in corrosive environments and concrete encased raceways.

6. Manufacturers, or Equal
 - a. Robroy
 - b. Thomas & Betts

E. Liquidtight Flexible Conduit:

1. Liquidtight flexible conduit shall be constructed of a flexible aluminum or galvanized metal core with a sunlight resistant thermoplastic outer jacket.
2. Liquidtight flexible conduit shall be manufactured in accordance with UL-360 - Steel Conduits, Liquid-Tight Flexible.
3. Suitable for use at equipment connections and applications where vibration is expected.
4. Aluminum inner core shall be utilized when used when terminated to rigid aluminum raceways.
5. Manufacturers, or equal.
 - a. Anaconda, Sealtite
 - b. Electriflex, Liqueflex Type LA

F. Electrical Metallic Tubing (EMT) or Intermediate conduit (IMC) will not be accepted.

2.03 FITTINGS AND BOXES

A. General:

1. Cast and malleable iron fittings for use with metallic conduit shall be the threaded type with 5 full threads.
2. Fittings and boxes shall have neoprene gaskets and non-magnetic stainless steel screws. Covers shall be attached by means of holes tapped into the body of the fitting. Covers for fittings attached by means of clips or clamps will not be acceptable.
3. Boxes larger than standard cast or malleable types shall be 304 stainless steel, NEMA 4X.
4. In outdoor areas, conduit shall be terminated in raintight hubs as manufactured by Myers, O.Z. Gedney, Appleton, or equal. In other than outdoor areas, sealed locknuts and bushings shall be used.
5. Conduit, fittings, and boxes in hazardous locations shall be suitable for the Class and Division indicated.

B. Cast Aluminum Fittings and Boxes

1. Cast aluminum boxes and fittings shall have less than 0.40% copper content and shall be utilized with aluminum conduit.
2. Manufacturers, or equal.
 - a. O.Z. Gedney
 - b. Appleton
 - c. Crouse-Hinds

- C. Malleable Iron Fittings and Boxes:
 - 1. Fittings and boxes for use with galvanized steel conduit shall be of malleable iron or gray-iron alloy with zinc plating.
 - 2. Manufacturers, or equal.
 - a. O.Z. Gedney
 - b. Crouse-Hinds
 - c. Appleton
- D. PVC Fittings and Boxes:
 - 1. Fittings for use with rigid non-metallic conduit shall be pvc, solvent welded type.
 - 2. Boxes shall be pvc or fiberglass reinforced polyester (FRP).
 - 3. Manufacturers, or equal.
 - a. Carlon
 - b. Crouse-Hinds
 - c. Hoffman
 - 4. Provide welding solvent as required for installation of non-metallic conduit and fittings.
- E. PVC Coated Fittings and Boxes:
 - 1. Fittings for use with pvc coated RGS shall be pvc coated and shall be products of the same manufacturer as the conduit.
 - 2. Male and female threads and internal surfaces shall have a 2-mil urethane coating.
- F. Stainless Steel Boxes:
 - 1. Stainless steel boxes shall be used with pvc coated RGS conduit and where indicated.
 - 2. Stainless steel boxes shall be NEMA 4X, Type 304.
 - 3. Stainless steel shall be minimum 14-gauge thickness, with a brushed finish.
 - 4. Doors shall have full length stainless steel piano hinges. Non-hinged boxes are not acceptable.
 - 5. Manufacturers, or equal.
 - a. Hoffman
 - b. Rohn
 - c. Hammond

2.04 CONDUIT SCHEDULE

- A. Refer to Section 16050 for conduit system environmental ratings.

PART 3 – EXECUTION

3.01 GENERAL

- A. Wiring shall be run in raceway unless indicated otherwise.

- B. Raceways shall be installed between equipment as indicated. Raceway systems shall be electrically and mechanically complete before conductors are installed. Bends and offsets shall be smooth and symmetrical, and shall be accomplished with tools designed for this purpose. Factory elbows shall be utilized wherever possible.
- C. Where raceway routings are indicated on plan views, follow those routings to the extent possible; Conduits shall be concealed in walls unless indicated otherwise; do not conceal conduits inside concrete floors unless shown specifically on drawings or authorized by the Engineer.
- D. Where raceways are indicated but routing is not indicated, such as home runs, raceway routings shall be the Contractor's choice and in strict accordance with the NEC and customary installation practice. Raceway shall be encased, exposed, concealed, or under floor as indicated; conduits in finished areas (offices, hallways etc.) shall be concealed unless specifically indicated otherwise.
- E. Routings shall be adjusted to avoid obstructions. Coordinate between trades prior to installation of raceways. Lack of such coordination shall not be justification for extra compensation, and removal and re-installation to resolve conflicts shall be by the Contractor as part of the work.
- F. Exposed raceways shall be installed parallel or perpendicular to structural beams.
- G. Install expansion fittings with bonding jumpers wherever raceways cross building expansion joints.
- H. Exposed raceways shall be installed at least 1/2" from walls or ceilings except that at locations above finished grade where damp conditions do not prevail, exposed raceways shall be installed 1/4" minimum from the face of walls or ceilings by the use of clamp backs or struts.
- I. Wherever contact with concrete or dissimilar metals can produce galvanic corrosion of equipment, suitable insulating means shall be provided to prevent such corrosion.

3.02 CONDUIT

- A. Exposed indoor conduit shall be rigid galvanized steel except as follows, unless indicated otherwise:
 - 1. In corrosive locations, rigid aluminum conduit shall be utilized.
 - 2. Where galvanized conduit has to be cut, the galvanized coating shall be repaired per manufacturer's instructions.
 - 3. Exposed outdoor mounted conduit shall be rigid aluminum.

- B. Conduit concealed or encased in concrete, except for analog control conduit which shall be PVC coated RGS, shall be rigid Schedule 40 PVC; exterior buried conduit can be rigid Schedule 40 PVC or flexible non-metallic high density polyethylene (HDPE). Where conduit emerges from concrete encasement, a pvc coated RGS elbow shall be utilized for transition from the concrete. Conduit shall emerge from the concrete perpendicular to the surface whenever possible.
 - 1. Existing conduit raceways to be encased per floor modifications shall be coated with coal tar bituminous paint, 8.0-12.0 dry mils thickness.
- C. Exposed conduit shall be 3/4" minimum trade size. Encased conduit shall be 1" minimum trade size. Supports shall be installed at distances required by the NEC.
- D. Conduit shall not be encased in the bottom floor slab below grade.
- E. Concrete cover for conduit and fittings shall not be less than 1-1/2" for concrete exposed to earth or weather, or less than 3/4" for concrete not exposed to weather or in contact with the ground.
- F. Conduits passing through a slab, wall, or beam shall not impair significantly the strength of the construction.
- G. Conduits embedded within a slab, wall, or beam (other than those merely passing through) shall satisfy the following in accordance with NEC and ACI standards:
 - 1. Conduits with their fittings embedded within a column shall not displace more than 4% of the gross area of cross section.
 - 2. Conduits shall not be larger in outside dimension than one third the overall thickness of slab, wall, or beam in which embedded.
 - 3. Conduits shall not be spaced closer than 3 outside diameters on centers.
 - 4. Install embedded conduits in middle 1/3 of concrete slab.
- H. Conduit shall be placed so that cutting, bending, or displacing reinforcement from its proper location will not be required.
- I. Threads shall be coated with a conductive lubricant before assembly.
- J. Joints shall be tight, thoroughly grounded, secure, and free of obstructions in the pipe. Conduit shall be adequately reamed to prevent damage to the wires and cables inside. Strap wrenches and vises shall be used to install conduit to prevent wrench marks on conduit. Conduit with wrench marks shall be replaced.
- K. Wherever possible, conduit runs shall slope to drain at one or both ends of run. Wherever conduit enters substructures below grade, the conduit shall be sloped to drain water away from the structure. Extreme care shall be taken to avoid pockets or depressions in conduit.

- L. Installation of rigid steel conduit through a core-drilled hole in an exterior wall below grade shall utilize a sealing device as manufactured by Link Seal or equal.
- M. Conduit passing through walls or floors shall have plastic sleeves.
- N. Conduit, fittings, and boxes required in hazardous classified areas shall be suitably rated for the area and shall be provided in strict accordance with NEC requirements.
- O. Empty conduits shall be tagged at both ends to indicate the final destination. Where it is not possible to tag the conduit, destination shall be identified by a durable marking on an adjacent surface. A pull-cord shall also be installed in each empty conduit. This shall apply to conduits in floors, panels, manholes, equipment, etc.
- P. Where conduit emerges from direct burial, a rigid conduit elbow shall be utilized below grade for transition to rigid conduit. Conduit shall emerge from the ground perpendicular to the surface whenever possible.

END OF SECTION

SECTION 16120

WIRES AND CABLES

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- 3.03 SPLICES AND TERMINATIONS
- 3.04 CABLE IDENTIFICATION
- 3.05 TESTING

PART 1 – GENERAL

- 1.01 THE REQUIREMENT

- A. The Contractor shall provide wires and cable, complete and operable, in accordance with the Contract Documents.

- 1.02 CONTRACTOR SUBMITTALS

- A. The Contractor shall submit shop drawings in accordance with Section 01300 - Submittals and Section 16050 - Electrical Requirements.

PART 2 – PRODUCTS

- 2.01 GENERAL

- A. Conductors, include grounding conductors, shall be copper. Aluminum conductor wire and cable will not be permitted. Insulation shall bear UL label, the manufacturer's trademark, and identify the type, voltage, and conductor size. All conductors except flexible cords and cables, fixture wires, and conductors that form an integral part of equipment such as motors and controllers shall conform to the requirements of Article 310 of the National Electric Code, latest edition, for current carrying capacity. Flexible cords and cables shall conform to Article 400, and fixture wires shall conform to Article 402. Wiring shall have wire markers at each end.

2.02 POWER AND LIGHTING WIRE

- A. Wire rated for 600 volts in duct or conduit for all power and lighting circuits shall be Class B Type XHHW cross-linked polyethylene conforming to UL-44 - UL Standard for Thermoset-Insulated Wires and Cables. THHN/THWN for all wires smaller than or equal to No. 4 AWG; XHHW insulation for all wires larger than No. 4 AWG.
- B. Conductors for feeders as defined in Article 100 of the NEC shall be sized to prevent a voltage drop exceeding 3% at the farthest outlet of power, heating, and lighting loads, or combinations of such loads, and where the maximum total voltage drop on both feeders and branch circuits to the farthest connected load does not exceed 5%.
- C. Conductors for branch circuits as defined in Article 100 of the NEC, shall be sized to prevent voltage drop exceeding 3% at the farthest connected load or combinations of such loads and where the maximum total voltage drop on both feeders and branch circuits to the farthest connected load does not exceed 5%.
- D. Wiring for 600 volt class power and lighting shall be as manufactured by General Cable, Okonite, or Rome Cable.

2.03 CONTROL WIRE

- A. Control wire in duct or conduit shall be the same type as power and lighting wire indicated above.
- B. Control wiring shall be No.14 AWG.
- C. Control wires at panels and cabinets shall be machine tool grade type MTW, UL approved, rated for 90 C. at dry locations, and be as manufactured by American, Carol Cable, or equal.

2.04 INSTRUMENTATION CABLE

- A. Instrumentation cable shall be rated at 300 volts.
- B. Instrumentation cables shall be composed of two 18 gauge stranded tinned copper conductors, 0.19" thick polyethylene insulation, an aluminum polyester foil outer shield, a No. 20 AWG stranded tinned copper drain wire, and a pvc outer jacket with a thickness of 0.028".
- C. Manufacturer and model number: Belden 8760, or equal.

2.05 RS-485 CABLE

- A. The cables shall be multi-twisted pairs with a common overall shield cable designed for use as low capacitance computer cable for EIA RS-485 applications.
- B. Cable shall be a molded cable assembly with connector on one and capped cable on one end where required by equipment supplier.
- C. Conductors:
 - 1. 22 AWG, seven-strand.
 - 2. Tinned copper, insulated, twisted pairs.
 - 3. Cable Shield: Overall aluminum-polyester shield.
 - 4. 24 AWG stranded, tinned copper drain wire.
 - 5. Overall tinned copper braid shield, 90% coverage.
 - 6. Jacket: PVC.
 - 7. Insulation: 300V Polyolefin.
 - 8. Number of Pairs: 2, or as required by the application.
 - 9. Outside Diameter: 0.424 inches, maximum.
 - 10. Belden Color Code: Chart No. 5.
- D. Connectors:
 - 1. Type: Factory molded D-Subminiature (one end only where required).
 - 2. Positions (Number of Pins): Coordinate connector pin requirements with equipment supplier.
 - 3. Cable Pin-out: Coordinate requirements with equipment supplier.
 - 4. Gender: Coordinate requirements with equipment supplier.
 - 5. Retention System: Screw, horizontal slide lock or vertical slide lock; coordinate requirements with equipment supplier.
 - 6. Connector Style: Straight handled, right-angled or angled; coordinate requirements with equipment supplier.
- E. RS-485 cable shall be Belden Part No. 3106A, or equal, or as required by the application.

2.06 ETHERNET DATA CABLE

- A. Communication Cable
 - 1. Category 6 cable conforming to ANSI TIA/EIA-568-B.2-2001.
 - 2. Shielded with stranded conductors.
 - 3. 4 pair, 23 AWG; capable of transmitting data up to 1000 MBPS.
 - 4. Heavy duty oil and sunlight resistant PVC jacket with sequential markings at 2' interval; NEC rated and UL listed.
 - 5. Belden or equal.

2.07 CABLE TERMINATIONS

- A. Compression connectors shall be Burndy "Hi Lug", Thomas & Betts "Sta-Kon," or equal. Threaded connectors shall be split bolt type of high strength copper alloy. Pressure type, twist-on connectors will not be acceptable.
- B. Pre-insulated fork tongue lugs shall be Thomas & Betts, Burndy, or equal.
- C. General purpose insulating tape shall be Scotch No. 33, Plymouth "Slip-knot", or equal. High temperature tape shall be polyvinyl as manufactured by Plymouth, 3M, or equal.
- D. Labels for coding 600 volt wiring shall be computer printable or pre-printed, self-laminating, self-sticking, as manufactured by W.H. Brady, 3M, or equal.

PART 3 – EXECUTION

3.01 GENERAL

- A. The Contractor shall provide and terminate all conductors except where indicated.

3.02 INSTALLATION

- A. Conductors shall not be pulled into raceway until raceway has been cleared of moisture and debris.
- B. Pulling tensions on raceway cables shall be within the limits recommended by the cable manufacturer. Wire pulling lubricant, where needed, shall be UL approved.
- C. Instrumentation, telephone and RS-485 cables shall not be run in the same raceway with power and control wiring except where specifically indicated.
- D. Wire in panels, cabinets, and wire ways shall be neatly grouped using nylon tie straps, and shall be fanned out to terminals.

3.03 SPLICES AND TERMINATIONS

- A. General:
 - 1. Wire taps and splices shall be properly taped and insulated according to their respective classes.
 - 2. In general, there shall be no cable splices in underground manholes or pull boxes. If splices are necessary, the cables shall be brought aboveground and terminated in a NEMA 4X, stainless steel terminal or splice cabinet on a concrete pad. Splices in underground manholes and pull boxes may be made only with the approval of the Engineer.

3. Stranded conductors shall be terminated directly on equipment box lugs making sure that all conductor strands are confined within lug. Use forked-tongue lugs where equipment box lugs have not been provided.
4. Excess control and instrumentation wire shall be properly taped and terminated as spares.

B. Control Wire and Cable:

1. Control conductors shall be spliced or terminated only at the locations indicated and only on terminal strips or terminal lugs of vendor furnished equipment.
2. In junction boxes, motor control centers, and control panels, control wire and spare wire shall be terminated to terminal strips.

C. Instrumentation Wire and Cable:

1. Shielded instrumentation cables shall be grounded at one end only, preferably the receiving end on a 4-20 mA system.
2. Two- and three-conductor shielded cables installed in conduit runs which exceed available standard cable lengths may be spliced in pull boxes. Such cable runs shall have only one splice per conductor.

D. Power Wire and Cable:

1. All 120/208-volt, 120/240-volt, and 480/277-volt branch circuit conductors may be spliced in suitable fittings at locations determined by the Contractor.
2. Splices to motor leads in motor terminal boxes shall be wrapped with mastic material to form a mold and then shall be taped with a minimum of 2 layers of varnished cambric tape overtaped with a minimum of 2 layers of high temperature tape.

3.04 CABLE IDENTIFICATION

- A. General: Wires and cables shall be identified for proper control of circuits and equipment and to reduce maintenance effort. Identification shall appear within 3" of conductor terminals and at each pull or junction box.
- B. Identification Numbers: The Contractor shall assign to each control and instrumentation wire and cable a unique identification number. Numbers shall be assigned to all conductors having common terminals and shall be shown on "as built" drawings. "Control Conductor" shall be defined as any conductor used for alarm, annunciator, or signal purposes.
1. Multiconductor cable shall be assigned a number which shall be attached to the cable at intermediate pull boxes and at stub-up locations beneath free-standing equipment. It is expected that the cable number shall form a part of the individual wire number. Individual control conductors and instrumentation cable shall be identified at pull points as described above. The instrumentation cable numbers shall incorporate the loop numbers assigned in the Contract Documents.

2. All 120/208-volt conductors shall be color coded as follows: Phase A - black, Phase B - red, Phase C - blue, and Neutral - white.
3. All 120/240-volt system conductors shall be color coded as follows: Line 1 - Black, Line 2 - Red, and Neutral - White.
4. All 480/277- volt system conductors shall be color coded as follows: Phase A - Brown, Phase B - Orange, Phase C - Yellow, and Neutral - Gray.
5. Color coding tape shall be used where colored insulation is not available. Branch circuit switch shall be yellow. Insulated ground wire shall be green, and neutral shall be gray. Color coding and phasing shall be consistent throughout the Site, but bars at panelboards, switchboards, and motor control centers shall be connected Phase A-B-C, top to bottom, or left to right, facing connecting lugs.
6. General purpose AC control cables shall be red. General purpose DC control cables shall be blue.
7. Spare cable shall be terminated on terminal screws and shall be identified with a unique number as well as with destination.
8. Terminal strips shall be identified by computer printable, cloth, self-sticking marker strips attached under the terminal strip.

3.05 TESTING

- A. Cable Assembly and Testing: Cable assembly and testing shall comply with applicable requirements of ICEA Publication No. S-68-516 - Ethylene-Propylene-Rubber Insulated Wire and Cable for the Transmission and Distribution of Electrical Energy. Factory test results shall be submitted with the shop drawings. The following field tests shall be the minimum requirements:
 1. Power cable rated at 600 volts shall be tested for insulation resistance between phases and from each phase to a ground using a megohmmeter.
 2. Field testing shall be done after cables are installed in the raceways.
 3. Field tests shall be performed by a certified test organization acceptable to the cable manufacturer. Test results shall be submitted to the Engineer for review and acceptance.
 4. Cables failing the tests shall be replaced with a new cable or be repaired. Repair methods shall be as recommended by the cable manufacturer and shall be performed by persons certified by the industry.
- B. Continuity Test: Control and instrumentation cables shall be tested for continuity, polarity, undesirable ground, and origination. Such tests shall be performed after installation and prior to placing cables in service.

END OF SECTION

SECTION 16140

WIRING DEVICES

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PART 1 – GENERAL

1.01 THE REQUIREMENT

- A. The Contractor shall provide wiring devices, complete and operable, in accordance with the Contract Documents.
- B. The requirements of Section 16050 – Electrical Requirements apply to this section.

1.02 CONTRACTOR SUBMITTALS

- A. Furnish submittals in accordance with Section 01300 - Submittals.
- B. Shop Drawings:
 - 1. Complete catalog cuts of switches, receptacles, enclosures, covers, and appurtenances, marked to clearly identify proposed materials.
 - 2. Documentation showing that proposed materials comply with the requirements of NEC and U.L.
 - 3. Documentation of the manufacturer's qualifications.

PART 2 – PRODUCTS

2.01 GENERAL

- A. All devices shall carry the U.L. label.
- B. General purpose duplex receptacles and toggle switch handles shall be brown everywhere. Receptacles shall be specification grade and conform to NEMA WD-1, Federal Specifications W-C-596E and W-S-896E, respectively.

2.02 LIGHTING SWITCHES

- A. Local branch switches shall be toggle type, rated at 20 amperes, 120-277 vAC, and shall be General Electric Cat. No. GE-5951-1 for single pole, GE-5953-1 for 3-way and GE-5954-1 for 4-way, or similar types as manufactured by Hubbell, Leviton, or equal.
- B. Switches for hazardous locations shall be factory sealed, rated at 20 amp., 120-277 vAC, capable of controlling 100% tungsten filament, fluorescent and HID lamp loads and shall be as manufactured by Crouse-Hinds, Appleton, or Killark.

2.03 GENERAL PURPOSE RECEPTACLES

- A. Duplex receptacles rated 125 V, 20 amp. shall be polarized 3 wire type for use with 3 wire cord with grounded lead and 1 designated stud shall be permanently grounded to the conduit system (NEMA 5-20R). Duplex 120 V receptacles shall be G.E. 5362, Hubbell 5362, or equal. Single receptacles shall be G.E. 4102, Hubbell 4102, or equal.
- B. Ground-fault circuit interrupting receptacles (GFCI's) shall be installed at outdoor locations as required by the NEC. GFCI's shall be duplex, specification grade, tripping at 5 mA. Ratings shall be 125 V, 20 amperes, NEMA WD-1, Configuration 5-20R, capable of interrupting 5,000 amperes without damage. Feed-through type GFCI's serving standard receptacles will not be permitted. GFCI's shall be as manufactured by Hubbell, Bryant, Leviton, or equal.

2.04 ENCLOSURES AND COVERS

- A. Surface mounted switches and receptacles shall be in FS or FD type weatherproof conduit fittings.
- B. Switch and receptacle covers on surface mounted boxes shall be die cast copper-free aluminum.
- C. In finished areas, switch and receptacle boxes shall be provided with SUPER STAINLESS STEEL COVERS as manufactured by Harvey Hubbell, Arrow Hart, Bryant, or equal.
- D. In areas where cast boxes are used, switch and receptacle covers shall be Crouse-Hinds Catalogue No. DS185 and WLRD-1, or Adalet No. WSL and WRD, or equal.
- E. Receptacles in wet locations shall be with a hinged metallic cover/enclosure marked "Suitable for Wet Locations when in use" and "UL Listed." There shall be a gasket between the enclosure and the mounting surface and between the hinged cover and mounting plate/base. The cover shall be TayMac Specification Grade, or equal.

2.05 NAMEPLATES

- A. Provide nameplates or equivalent markings on switch enclosures to indicate ON and OFF positions of each switch. ON and OFF for 3-way or 4-way switches is not acceptable. Provide receptacles for special purposes with nameplates indicating their use. Conform to requirements of Section 16050.

PART 3 – EXECUTION

3.01 GENERAL

- A. Perform work in accordance with the National Electrical Code.

3.02 CONNECTION

- A. Rigidly attach wiring devices in accordance with National Electrical Code, and as indicated, avoiding interference with other equipment.
- B. Securely fasten nameplates using screws, bolts, or rivets centered under or on the device, unless otherwise indicated.
- C. Furnish and install dedicated cabling for each port present at wall jack locations noted in the plans.

3.03 GROUNDING

- A. Ground all devices, including switches and receptacles, in accordance with NEC, ART 250, and Section 16450 - Grounding.
- B. Ground switches and associated metal plates through switch mounting yoke, outlet box, and raceway system.
- C. Ground flush receptacles and their metal plates through positive ground connections to outlet box and grounding system. Maintain ground to each receptacle by spring-loaded grounding contact to mounting screw or by grounding jumper, each making positive connection to outlet box and grounding system at all times.

3.04 FIELD TESTING

- A. Provide checkout, field, and functional testing of wiring devices in accordance with Section 16050.
- B. Test each receptacle for polarity and ground integrity with a standard receptacle tester.

END OF SECTION

SECTION 16450

GROUNDING

INDEX

PART 1 – GENERAL

- 1.01 THE REQUIREMENT
- 1.02 CONTRACTOR SUBMITTALS

PART 2 – PRODUCTS

- 2.01 GENERAL
- 2.02 GROUNDING SYSTEM

PART 3 – EXECUTION

- 3.01 GROUNDING

PART 1 – GENERAL

1.01 THE REQUIREMENT

- A. The Contractor shall provide the electrical grounding system, complete and operable, in accordance with the Contract Documents.
- B. The requirements of Section 16050 - Electrical Requirements apply to this section.
- C. Single Manufacturer: Like products shall be the end product of one manufacturer in order to achieve standardization of appearance, operation, maintenance, spare parts and manufacturer's services.

1.02 CONTRACTOR SUBMITTALS

- A. Furnish submittals in accordance with Section 01300 - Submittals and Section 16050 - Electrical Requirements.
- B. Shop Drawings: Manufacturer's product information for connections, clamps, and grounding system components, showing compliance with the requirements of this section.

PART 2 – PRODUCTS

2.01 GENERAL

- A. Components of the grounding electrode system shall be manufactured in accordance with ANSI/UL 467 - Standard for Safety Grounding and Bonding Equipment, and shall conform to the applicable requirements of National Electrical Code Article 250 and local codes.

2.02 GROUNDING SYSTEM

- A. Ground Rods:
 - 1. Unless indicated otherwise, the ground rod shall be a minimum of 3/4" in diameter, 10' long, and have a uniform covering of electrolytic copper metallicity bonded to a rigid steel core. The copper to steel bond shall be corrosion resistant.
 - 2. Conform to ANSI/UL 467.
 - 3. Sectional type joined by threaded copper alloy couplings.
- B. Buried cable-to-cable and cable-to-ground rod connections shall be made using exothermic welds by Cadweld, Enrico Products, or equal.
- C. Exposed grounding connectors shall be of the compression type (connector to cable), made of high copper alloy, and be manufactured specifically for the particular grounding application. The connectors shall be Burndy, O.Z. Gedney, or equal.
- D. Grounding clamps shall be used to bond each separately derived system to the grounding electrode conductors.
- E. Equipment Grounding Circuit Conductors:
 - 1. These conductors shall be the same type and insulation as the load circuit conductors. The minimum size shall be as outlined in Table 250.122 of the National Electrical Code, unless indicated otherwise.
 - 2. Metallic conduit systems shall have equipment grounding wires as well as being equipment grounding conductors themselves.
- F. Manufacturers of grounding materials shall be Copperweld, Blackburn, Burndy, or equal.

PART 3 – EXECUTION

3.01 GROUNDING

- A. Provide a separate grounding conductor, securely grounded in each raceway independent of raceway material.
- B. Provide a separate grounding conductor for each motor and connect at motor box. Do not use bolts securing motor box to frame or cover for grounding connectors.
- C. Size as given on the conduit schedule and in accordance with the NEC-Article 250.
- D. Route conductors inside raceway.
- E. Provide a grounding type bushing for secondary feeder conduits which originate from the secondary section of each MCC section, switchboard, or panelboard.

- F. Individually bond these raceways to the ground bus in the secondary section.
- G. Provide a green insulated wire as grounding jumper from the ground screw to a box grounding screw and, for grounding type devices, to equipment grounding conductor.
- H. Provide a separate grounding conductor in each individual raceway for parallel feeders.
- I. Shield Grounding:
 - 1. Shielded instrumentation cable shall have its shield grounded at one end only unless shop drawings indicate the shield will be grounded at both ends.
 - 2. The grounding point shall be at the control panel or otherwise at the receiving end of the signal carried by the cable.
 - 3. Termination of shield drain wire shall be on its own terminal screw.
 - 4. Terminal screws shall be jumpered together using manufactured terminal block jumpers.
 - 5. Connection to the ground bus shall be via a green No. 12 conductor to the main ground bus for the panel.

END OF SECTION

SECTION 16470

PANELBOARDS AND TRANSFORMERS

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PART 1 – GENERAL

1.01 THE REQUIREMENT

1.02 CONTRACTOR SUBMITTALS

2.03 PANELBOARDS

2.04 CIRCUIT BREAKERS

2.05 SURGE PROTECTIVE DEVICE

PART 2 – PRODUCTS

2.01 GENERAL

2.02 TRANSFORMERS

PART 3 – EXECUTION

3.01 GENERAL

PART 1 – GENERAL

1.01 THE REQUIREMENT

- A. The Contractor shall provide panelboards, general purpose dry-type energy efficient transformers as shown and as an integral part of specified MCC, complete and operable, in accordance with the Contract Documents.
- B. Single Manufacturer: Like products shall be the end product of one manufacturer in order to achieve standardization of appearance, operation, maintenance, spare parts, and manufacturer's services.

1.02 CONTRACTOR SUBMITTALS

- A. General: Submittals shall be in accordance with Section 01300 - Submittals and Section 16050 - Electrical Work, General.
- B. Shop Drawings
 - 1. Transformers.
 - a. Dimension drawings.
 - b. Technical certification sheets.
 - c. Drawing of conduit entry/exit locations.
 - d. Transformer ratings, including:
 - 1) Voltage.
 - 2) Continuous current.
 - 3) Basic impulse level for equipment over 600 volts.
 - 4) Kva.
 - e. Descriptive bulletins.
 - f. Product sheets.
 - 2. Panelboards.

- a. Breaker layout drawings with dimensions and nameplate designations.
- b. Component list.
- c. Drawings of conduit entry/exit locations.
- d. Assembly ratings including:
 - 1) Short circuit rating.
 - 2) Voltage.
 - 3) Continuous current.
- e. Cable terminal sizes.
- f. Descriptive bulletins.
- g. Product sheets.
- h. Installation information.
- i. Seismic certification and equipment anchorage details.

PART 2 – PRODUCTS

2.01 GENERAL

A. Transformers

- 1. The transformers shall be dry-type, designed, manufactured, and tested in accordance with the latest applicable standards of ANSI and NEMA.
- 2. Transformers shall be UL-listed and bear the UL label.

B. Panelboards

- 1. Panelboards shall be dead front factory assembled. Panelboards shall comply with NEMA PB-1-Panelboards, as well as the provisions of UL 50 - Safety Enclosures for Electrical Equipment and UL 67 - Safety Panelboards. Panelboards used for service equipment shall be UL labeled for such use. Lighting panelboards shall be rated for 120/208-volt, 3-phase operation or 120/240-volt for single phase operation as indicated. Power panelboards shall be rated for 480 volts, 3-phase, 3-wire operation.
- 2. The manufacturer of the panelboard shall be the manufacturer of the major components within the assembly, including circuit breakers.

2.02 TRANSFORMERS

- #### A. Energy Efficiency: Standard dry-type transformers, 15 KVA and larger, must meet the energy efficiency requirements of NEMA TP-1. The product requirements are in the appliance regulations, Title 20, and the usage requirements are in Title 24. K-factor transformers are exempt from these requirements.

B. Ratings

- 1. KVA and voltage ratings shall be as indicated.
- 2. Transformers shall be designed for continuous operation at rated kVA, for 24 hours a day, 365 days a year operation, with normal life expectancy as defined in ANSI C57.96 - Guide for Loading Dry Type Distribution and Power Transformers.

3. Transformer sound levels shall not exceed the following ANSI and NEMA levels for self-cooled ratings:
 - a. Up to 9 kva: 40 db
 - b. 10 to 50 kva: 45 db
 - c. 51 to 150 kva: 50 db

C. Construction

1. Insulation Systems.

- a. Transformers shall be insulated as follows:
 - 1) 2 kva and below: 150°C. insulation system based upon 80°C. rise.
 - 2) 3 to 15 kva: 185°C. insulation system based upon 115°C. rise.
 - 3) 15 kva and above: 220°C. insulation system based upon 150°C. rise.
 - b. Required performance shall be obtained without exceeding the above indicated temperature rise in a 40°C. maximum ambient.
 - c. All insulation materials shall be flame-retardant and shall not support combustion as defined in ASTM D 635 - Test Method for Rate of Burning and/or Extent and Time of Burning of Self-Supporting Plastics in a Horizontal Position.
2. Transformer windings shall be copper, unless shown otherwise.
 3. Transformers shall have four 2-1/2% taps, two above and two below 480 volts.

D. Refer to schedule on drawings for standalone transformers.

2.03 PANELBOARDS

A. Ratings

1. Panelboards rated 240 VAC or less shall have short circuit ratings not less than 10,000 amp. RMS symmetrical.
2. Panelboards rated 480 VAC shall have short circuit ratings not less than 25,000 amp. RMS symmetrical.
3. Panelboards shall be labeled with a UL short circuit rating. Series ratings are not acceptable.

B. Construction

1. All lighting and power distribution panels shall have copper busbars.
2. Breakers shall be 1, 2, or 3 pole as indicated, with ampere trip ratings as required by the equipment. Breakers shall be quick-make and quick-break, inverse time trip characteristics, to trip free on overload or short circuit, and to indicate trip condition by the handle position.
3. The panels shall have hinged doors with combination catch and latch. The front panels shall be so arranged that when the plates are removed, the gutters, terminals and wiring will be exposed and accessible. The doors shall have inner doors within the plates to have only the breaker operating mechanism exposed when they are opened. Live conductors and terminals shall be concealed behind the plates.
4. All panelboards shall be rated for the intended voltage.

5. All circuit breakers shall be interchangeable and capable of being operated in any position as well as being removable from the front of the panelboard without disturbing adjacent units. No plug-in circuit breakers will be acceptable.
6. Lighting and power distribution panels which are not part of a motor control center shall be constructed in accordance with Section 16050. Panels shall have the necessary barriers, supports, and liberal wiring gutters. Trim screws shall be stainless steel. All panelboard parts of metal other than copper, aluminum, or stainless steel shall be cadmium plated.
7. Panelboards shall be UL listed except for special enclosures which are not available with UL listing.
8. Panelboards shall be suitable for use as service entrance as indicated or as otherwise required by the N.E.C.

C. Manufacturers:

1. Cutler Hammer
2. Square D
3. Allen Bradley

D. Panelboard schedules:

1. Refer to drawings for panel schedules.

2.04 CIRCUIT BREAKERS

- A. Circuit breakers having a frame size of 150 amp. or less shall be molded-case type with thermal magnetic non-interchangeable, trip-free, sealed trip units.
- B. Circuit breaker disconnect operators shall be capable of accommodating 3 padlocks for locking in the "open" position.

2.05 SURGE PROTECTIVE DEVICE

- A. Surge suppression system shall be furnished in accordance with NEMA LA 1, IEEE C62.41.1, and IEEE C62.41.2. Surge suppressor shall be rated for line voltage and shall provide a minimum of 80 kA per phase surge current protection.
- B. Provide protective device within panelboard as disconnecting means and short circuit protection per manufacturer's recommendation. Factory mount within panelboard utilizing UL-recognized mounting device.

PART 3 – EXECUTION

3.01 GENERAL

- A. All work of this section shall be installed as indicated in Section 16050.

- B. Construct exterior power transformer with wall-mount support bracket at location noted in the plans.

END OF SECTION

SECTION 16485

MISCELLANEOUS ELECTRICAL DEVICES

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PART 1 – GENERAL

- 1.01 THE REQUIREMENT
- 1.02 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS
- 1.03 CONTRACTOR SUBMITTALS

PART 2 – PRODUCTS

- 2.01 CONTROL ENCLOSURES AND JUNCTION BOXES
- 2.02 DISCONNECT SWITCHES

PART 3 – EXECUTION

- 3.01 INSTALLATION

PART 1 – GENERAL

1.01 THE REQUIREMENT

- A. The Contractor shall provide miscellaneous electrical equipment as indicated herein or in other sections of the Specifications.
- B. All the equipment listed herein may not have been used on this project; refer to plans for type of equipment, locations and other details.

1.02 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

- A. Miscellaneous electrical devices shall comply with the requirements of NEC, NEMA, and UL.

1.03 CONTRACTOR SUBMITTALS

- A. Furnish shop drawings in accordance with Section 01300 - Submittals and Section 16050 - Electrical Requirements.
 - 1. Ladder diagrams and written descriptions explaining ladder diagram operation and system operation for local control stations.
 - 2. Include catalog cuts of all equipment including enclosures, overcurrent devices, relays, pilot devices, terminations, and wire troughs, etc.

PART 2 – PRODUCTS

2.01 CONTROL ENCLOSURES AND JUNCTION BOXES

- A. Control Enclosures:

1. In finished rooms, enclosures shall be NEMA 12 steel enclosures painted with ANSI 61 exterior and white interior.
2. In all other non-hazardous areas and exterior mounted, enclosures shall be NEMA 4X stainless steel (prior to modifications) with brushed finish. Where possible, penetrations shall be made in such a manner to maintain the NEMA 4X rating. If this is not possible, the penetrations shall be made in such a manner to minimize entry of foreign materials into the enclosure.
3. Enclosures shall be freestanding, pedestal-mounted, or equipment skid-mounted, as indicated. Internal control components shall be mounted on a removable mounting pan. Mounting pan shall be finished white.
4. When required to maintain controlled temperature inside enclosure, outdoor mounted enclosures shall be provided with thermostatically-controlled heaters; insulate control panels when heaters are provided.
5. Provide screened weep holes for draining condensation.

2.02 DISCONNECT SWITCHES

- A. Low Voltage Disconnect Switches (less than 600V)
 1. Heavy duty, non-fusible, single throw; fused where shown.
 2. Horsepower rated.
 3. UL listed.
 4. Padlockable in "Off" position and door interlock.
 5. Enclosure per area classification in Section 16050.
 6. Voltage/phase requirements as shown on drawings.
 7. Auxiliary control contact as applicable and as indicated.
 8. As manufactured by G.E., Cutler-Hammer, or Square D.
 9. Refer to plans for sizes.

PART 3 – EXECUTION

3.01 INSTALLATION

- A. Install miscellaneous electrical devices specified herein in accordance with Section 16050 and in accordance with the manufacturer's recommendations. All equipment specified herein may not have been used on the project. Refer to drawings for equipment used on this project.
- B. Conduit, conductors, and terminations shall be installed in accordance with Section 16050.

END OF SECTION

SECTION 16500

LIGHTING

INDEX

PART 1 – GENERAL

- 1.01 REFERENCES
- 1.02 SUBMITTALS
- 1.03 REGULATORY REQUIREMENTS
- 1.04 DELIVERY, STORAGE, AND HANDLING

PART 2 – PRODUCTS

- 2.01 LUMINAIRES
- 2.02 LED DRIVERS

PART 3 – EXECUTION

- 3.01 INSTALLATION
- 3.02 FIELD QUALITY CONTROL
- 3.03 ADJUSTING
- 3.04 CLEANING
- 3.05 LIGHT FIXTURE SCHEDULE

PART 1 – GENERAL

1.01 REFERENCES

- A. All LED lighting products must be approved and listed on the Energy Star Qualified Commercial LED Lighting List For Lamps – (<http://www.energystar.gov/productfinder/product/certified-light-bulbs/results>). For Fixtures – (<http://www.energystar.gov/productfinder/product/certified-light-fixtures/results>).
- B. ANSI/NFPA 70 - National Electrical Code.
- C. ANSI/NFPA 101 - Life Safety Code.

1.02 SUBMITTALS

- A. Submit under provisions of Division 01.
- B. Product Data: Provide dimensions, ratings, and performance data.
- C. Manufacturer's Instructions: Indicate application conditions and limitations of use stipulated by product testing agency specified under Regulatory Requirements.
- D. Manufacturer's Instructions: Include instructions for storage, handling, protection, examination, preparation, and installation of product.

1.03 REGULATORY REQUIREMENTS

- A. Conform to requirements of ANSI/NFPA 70.
- B. Conform to requirements of NFPA 101.
- C. Furnish products listed and classified by Underwriters Laboratories, Inc. as suitable for purpose specified and shown.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, protect, and handle products to site under provisions of Section 01600.
- B. Accept products on site. Inspect for damage.
- C. Protect luminaires and accessories from finish damage by handling carefully.

PART 2 – PRODUCTS

2.01 LUMINAIRES

- A. Furnish products and associated support hardware as scheduled in the plans and required for a complete and operable LED lighting system.

2.02 LED DRIVERS

- A. Suitable for LED light fixture submitted.
- B. Suitable for dimming where shown on drawings.

PART 3 – EXECUTION

3.01 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Install surface mounted luminaires and emergency signs plumb and adjust to align with building lines and with each other. Secure to prohibit movement.
- C. Install wall mounted luminaires at height indicated on Drawings.
- D. Bond products and metal accessories to branch circuit equipment grounding conductor.

3.02 FIELD QUALITY CONTROL

- A. Operate each luminaire after installation and connection. Inspect for proper connection and operation.

3.03 ADJUSTING

- A. Aim and adjust luminaires.
- B. Replace failed fixtures with new prior to Substantial Completion.

3.04 CLEANING

- A. Clean electrical parts to remove conductive and deleterious materials.
- B. Remove dirt and debris from enclosure.
- C. Clean photometric control surfaces as recommended by manufacturer.
- D. Clean finishes and touch up damage.

3.05 LIGHT FIXTURE SCHEDULE

- A. As scheduled on the Drawings.

END OF SECTION

SECTION 17100

PROCESS CONTROL AND INSTRUMENTATION SYSTEMS

INDEX

PART 1 – GENERAL

- 1.01 THE REQUIREMENT
- 1.02 REFERENCES
- 1.03 GENERAL
- 1.04 CONTROLS INTEGRATOR
EXPERIENCE AND CAPABILITIES
- 1.05 SUBMITTALS
- 1.06 GUARANTEE
- 1.07 WARRANTY
- 1.08 TESTING

PART 2 – PRODUCTS

- 2.01 GENERAL
- 2.02 OPERATING CONDITIONS
- 2.03 SPECIAL TOOLS

PART 3 – EXECUTION

- 3.01 PROJECT MANAGEMENT
- 3.02 INSTALLATION
- 3.03 CALIBRATION
- 3.04 START-UP
- 3.05 ON-SITE SERVICES

PART 1 – GENERAL

1.01 THE REQUIREMENT

- A. This section describes process control and instrumentation systems.
- B. The Contractor shall provide all Process Control and Instrumentation Systems (PCIS) complete and operable, in accordance with the Contract Documents.
- C. The requirements of this section apply to all components of the PCIS unless indicated otherwise.
- D. Related work specified elsewhere:
 - 1. Division 16 - Electrical.
 - 2. Section 17200 - Instrumentation and Control Equipment.
 - 3. Section 17300 - Control Panels.
 - 4. Section 17400 – Control Descriptions.

1.02 REFERENCES

- A. National Fire Protection Association (NFPA):
 - 1. NFPA 70 - National Electrical Code (NEC), latest edition.
- B. National Electrical Manufacturers Association (NEMA):
 - 1. NEMA ICS-2 - Industrial Control Devices, Controllers, and Assemblies.
 - 2. NEMA 250 - Enclosures for Electrical Equipment.

- C. Underwriters Laboratories (UL):
 - 1. UL 508 - Industrial Control Equipment.

1.03 GENERAL

- A. The Contractor shall use a Controls Integrator (CI) and qualified electrical installers to furnish, install, and place into service process instrumentation, controls and appurtenant work as specified and shown.
- B. Contractor shall assign to the CI full responsibility for the functional operation of instrumentation and integrated controls systems. The Controls Integrator shall:
 - 1. Perform engineering required to select, to furnish, to supervise installation and connection, to calibrate, and to place into operation additional sensors, instruments, controls, accessories, and other equipment as specified.
 - 2. Be responsible for the integration of related systems and shall ensure compatibility of components through the coordination of all hardware, signal converters, communications software and accessories.
 - 3. Be under direct, written agreement with the Contractor and comply with specified requirements of these Documents.
 - 4. Not be the employee of nor be affiliated with manufacturers or manufacturers' representatives of major equipment such that a conflict of interest could adversely affect progress of the Work.
- C. Work specified in Division 17 includes furnishing, installing, start-up, testing and adjusting of all required equipment, including instruments, equipment, hardware, software, wiring, accessory equipment, and training to provide a completely operational process control and instrumentation system.
- D. It shall be the responsibility of the Contractor through the use of the CI to furnish a complete and fully operating system; The Contractor shall be responsible for all details which may be necessary to properly install, adjust and place in operation the complete installation; The Contractor shall assume full responsibility for additional costs which may result from unauthorized deviations from the Contract Documents.
- E. It shall be the responsibility of the CI to examine all new and existing equipment that is transmitting signals to, or receiving signals from, equipment specified in Division 17; The CI shall be responsible for providing signal converters, buffer amplifiers, and isolation devices to make signal levels, reference to ground, etc. compatible between devices specified in Division 17 and existing equipment.

1.04 CONTROLS INTEGRATOR EXPERIENCE AND CAPABILITIES

- A. The CI shall be normally engaged in assembly, installation, repair, and maintenance of process control and instrumentation systems and must have been supplying similar types/quantities of control systems in municipal water and wastewater treatment

industry for a minimum of 15 years; submit list of minimum 35 installations for which integrator has provided similar type/quantity of equipment, including name and telephone number of person responsible for operation and maintenance of each installation.

- B. The CI shall have qualified, trained service personnel on staff who are capable of programming, maintaining and adjusting the system; The CI shall be capable of offering an extended service contract after completion of the warranty period, including 24 hour, 7 day a week emergency services; service personnel must be available within 8 hours of verbal notice on all days of week.
- C. Submit:
 - 1. 100% supply/performance/payment bond.
 - 2. Certificate-showing evidence of \$1,000,000 insurance coverage for professional liability/ errors and omissions.
 - 3. Certificate-showing evidence of \$1,500,000 insurance coverage for comprehensive general liability (All Risk Insurance).
 - 4. Copy of liability insurance policy with same limits as comprehensive general liability policy to protect Owner and Engineer against any and all claims in liabilities for injury to or death of persons or damage to property caused whole or in part by any negligent acts or omissions of integrator arising from work on this project; name Owner and Engineer against as additional insured and maintain this policy in full force and effect for entire duration of this project.
- D. The CI shall have service and parts office within 200 miles of project site and shall be able to provide service within time period acceptable to the Owner or shall have the capability to provide service to project site remotely by modem; the local office shall have full-time service personnel and answer telephone calls in person; provide home telephone numbers of management personnel for use in case of emergencies.
- E. The Controls Integrator shall be the following company in full conformance with Specifications:
 - 1. Primex Controls; Contact: Shaun Girard, (763) 559-0568, shaungirard@sjeinc.com

1.05 SUBMITTALS

- A. Submit informational literature/data for following materials and equipment in accordance with general procedures set forth in Specifications:
 - 1. All equipment and components indicated on Drawings and specified in this section.
 - 2. Software packages including complete description of features and capabilities.
- B. Submit shop drawings for following materials and equipment in accordance with general procedures set forth in Specifications:

1. Panel drawings including system schematic drawings, terminal numbering, component schematic drawings, dimension drawings, layout drawing and nameplate schedule.
 2. Overall system diagram showing all components, converters, cables, and connectors.
 3. Programmable Logic Controller (PLC) programs in ladder format including verbal description of each rung's function; assign point numbers to all inputs and outputs, and show point numbering in PLC program.
 4. Proposed graphic displays; submit actual hardcopy of programmed graphic screens.
 5. The submittal shall address all hardware and software to be supplied. In addition, include:
 - a. Identification of the respective responsibilities of each party to the project. Including what is provided by the system manufacturer, what is to be subcontracted etc.
 - b. Description of the major user related features and operating characteristics of the proposed system.
 - c. Description of all master site hardware and software updates including examples of HMI and PC SCADA displays, control loops, reports, and how the operator will interface with the system to achieve each specified function.
 - d. Description and operation of all required configuration features of the I/O and local and remote control loop characteristics.
 - e. Description containing startup implementation plan, participant's responsibilities and a schedule of events.
 - f. All significant equipment to be supplied shall be listed followed by descriptive data sheets. The equipment list shall include each component name, manufacturer, model number, a description of the operation, quantity supplied, and any special setup and operation and maintenance characteristics.
 - g. Drawings of equipment to be supplied shall include as a minimum, overall dimension details for each unit including installation arrangements, door mounted operator devices and instruments. Wiring diagrams of all system components including field device connections shall be included and specific installation wiring responsibilities identified.
- C. Operations and Maintenance (O&M) Manuals: submit minimum of five (5) sets of operation and maintenance manuals containing:
1. A detailed written description of system hardware, software, and system operation shall be provided. The description of hardware and software shall identify pertinent references to sections of standard hardware and software manuals where operational procedures are detailed. Control loops shall be fully described in the O&M manual.
 2. Panel equipment, field devices and instruments, including "as-built" system schematics.
 3. Final copy of PLC program on 8-1/2" x 11" sheets in ladder format including verbal description of each rung's function.
 4. PLC program burned on DVD.

- 5. Point lists for all PLC inputs/outputs; identify point number (tag), point description, point type, range in engineering units (if analog point), PLC number, rack and slot number, and point address.

D. Final as-built drawings.

E. All submittals bound in 3-ring binders with labeled tabs separating sections.

1.06 GUARANTEE

- A. Contractor shall guarantee operation of system and that materials and workmanship of equipment be free from defects for period as defined in General Conditions of project manual providing equipment has been operated and maintained in accordance with manufacturer's recommendations.

1.07 WARRANTY

- A. Controls Integrator shall provide a comprehensive two (2) year parts and labor warranty for complete control system.

1.08 TESTING

- A. The controller and peripherals shall be tested as best possible at the factory as an integrated unit prior to shipment. The engineer shall be notified at least 2 weeks in advance of the system test. Include test results as an attachment to the equipment.
- B. Panel furnished under this section constructed in accordance with UL 508.
- C. Panel shop-inspected by UL or constructed in UL-recognized facility; completed panel shall bear serialized UL label indicating acceptance under Standard 508.

PART 2 – PRODUCTS

2.01 GENERAL

- A. Code and Regulatory Compliance: PCIS work shall conform to or exceed the applicable requirements of the National Electrical Code. Conflicts between the requirements of the Contract Documents and any codes or referenced standards or specifications shall be resolved accordingly.
- B. Current Technology: Meters, instruments, and other components shall be the most recent field-proven models marketed by their manufacturers at the time of submittal of the Shop Drawings unless otherwise required to match existing equipment.

- C. Hardware Commonality: Instruments which utilize a common measurement principle (for example, d/p cells, pressure transmitters, level transmitters that monitor hydrostatic head) shall be furnished by a single manufacturer. Panel mounted instruments shall have matching style and general appearance. Instruments performing similar functions shall be of the same type, model, or class, and shall be from a single manufacturer.
- D. Loop Isolators and Converters: Signal isolators shall be provided as required to ensure adjacent component impedance match where feedback paths may be generated, or to maintain loop integrity during the removal of a loop component. Dropping precision wirewound resistors shall be installed at all field side terminations in the control panels to ensure loop integrity. Signal conditioners and converters shall be provided where required to resolve any signal level incompatibilities or provide required functions.
- E. Environmental Suitability: Indoor and outdoor control panels and instrument enclosures shall be suitable for operation in the ambient conditions associated with the locations designated in the Contract Documents. Heating, cooling, and dehumidifying devices shall be provided in order to maintain all instrumentation devices 20% within the minimums and maximums of their rated environmental operating ranges. The Contractor shall provide power wiring for these devices. Enclosures suitable for the environment shall be furnished. All instrumentation in hazardous areas shall be suitable for use in the particular hazardous or classified location in which it is to be installed.
- F. Signal Levels: Analog measurements and control signals shall be as indicated herein, and unless otherwise indicated, shall vary in direct linear proportion to the measured variable. Electrical signals outside control panels shall be 4 to 20 ma. dc except as indicated. Signals within enclosures may be 1 to 5 volts dc. Electric signals shall be electrically or optically isolated from other signals. Pneumatic signals shall be 3 to 15 psig with 3 psig equal to 0% and 15 psig equal to 100%.
- G. Control Panel Power Supplies: Control panels shall be provided with redundant power supplies which are configured in a fault-tolerant manner to prevent interruption of service upon failure and interruption of service necessitated by the replacement of a power supply. Power supplies shall have an excess rated capacity of 40%. The failure of a power supply shall be annunciated at the control panel and repeated to the PLC.
- H. Alternative Equipment and Methods: Equipment or methods requiring redesign of any project details are not acceptable without prior written approval of the Engineer through the "or equal" process of Section 01600 - Material and Equipment. Any proposal for approval of alternative equipment or methods shall include evidence of improved performance, operational advantage, and maintenance enhancement over the equipment or method indicated, or shall include evidence that an indicated component is not available.

2.02 OPERATING CONDITIONS

- A. The PCIS shall be designed and constructed for satisfactory operation and long, low maintenance service under the following conditions:
 - 1. Environment: a water treatment plant facility.
 - 2. Temperature Range: 32 through 104°F.
 - 3. Thermal Shock: 1°F. per minute, max.
 - 4. Relative Humidity: 20 through 95%, non-condensing.

2.03 SPECIAL TOOLS

- A. The CI shall furnish a priced list of any and all special tools required to calibrate and maintain the instrumentation provided under the Contract Documents. After approval the CI shall furnish the requested tools on that list.
- B. Special tools shall be submitted before startup commences, suitably wrapped and identified.

PART 3 – EXECUTION

3.01 PROJECT MANAGEMENT

- A. Supplier shall provide engineering and administrative services necessary to fulfill requirements of Specifications.
- B. Supplier shall provide services of experienced project manager as overall coordinator during course of project.

3.02 INSTALLATION

- A. General:
 - 1. Instrumentation, including instrumentation furnished under other divisions, shall be installed under Division 17 and the manufacturers' instructions.
 - 2. Equipment Locations: The monitoring and control system configurations indicated are diagrammatic. The locations of equipment are approximate. The exact locations and routing of wiring and cables shall be governed by structural conditions and physical interferences and by the location of electrical terminations on equipment. Equipment shall be located and installed so that it will be readily accessible for operation and maintenance. Where job conditions require reasonable changes in approximated locations and arrangements, or when the Owner exercises the right to require changes in location of equipment which do not impact material quantities or cause material rework, the Contractor shall make such changes without additional cost to the Owner.

- B. Conduit, Cables, and Field Wiring:
1. Conduit shall be provided under Division 16 without delay to the work of Division 17.
 2. Process equipment control wiring, 4-20 mA signal circuits, signal wiring to field instruments, PLC input and output wiring and other field wiring and cables shall be provided under Division 16.
 3. Terminations and wire identification at PCIS equipment furnished under this or any other division shall be provided under Division 17.
- C. Ancillary Devices: The Contract Documents show all necessary conduit and instruments required to make a complete instrumentation system. The Contractor shall be responsible for providing any additional or different type connections as required by the instruments and specific installation requirements. Such changes shall not be a basis of claims for extra work or delay.
- D. Installation Criteria and Validation: Field-mounted components and assemblies shall be installed and connected according to the requirements below:
1. Installation personnel have been instructed on installation requirements of the Contract Documents.
 2. Technical assistance is available to installation personnel at least by telephone.
 3. Installation personnel have at least 1 copy of the approved Shop Drawings and data.
 4. Instrument process sensing lines shall be installed in conduit under Section 16050 - Electrical General Provisions. Individual tubes shall be run parallel and near the surfaces from which they are supported. Supports shall be used at intervals of not more than 3' of rigid tubing.
 5. Bends shall be formed to uniform radii with the proper tool without deforming or thinning the walls of the tubing. Plastic clips shall be used to hold individual plastic tubes parallel. Ends of tubing shall be square cut and cleaned before being inserted in the fittings. Bulkhead fittings shall be provided at panels requiring pipe or tubing entries.
 6. Differential pressure elements shall have 3 valve manifolds.
 7. Flexible cables and capillary tubing shall be installed in flexible conduits. The lengths shall be sufficient to withdraw the element for periodic maintenance.
 8. Power and signal wires shall be terminated with crimped type lugs.
 9. Connectors shall be, as a minimum, water tight.
 10. Wires shall be mounted clearly with an identification tag that is of a permanent and reusable nature.
 11. Wire and cable shall be arranged in a neat manner and securely supported in cable groups and connected from terminal to terminal without splices unless specifically approved by the Engineer. Wiring shall be protected from sharp edges and corners.
 12. Mounting stands and bracket materials and workmanship shall comply with requirements of the Contract Documents.
 13. Verify the correctness of each installation, including polarity of electric power and signal connections, and make sure process connections are free of leaks. The Contractor shall certify in writing that discrepancies have been corrected for each system checked out.

14. The Owner will not be responsible for any additional cost of rework attributable to actions of the Contractor or the Controls Integrator.

3.03 CALIBRATION

- A. General: Devices provided under Division 17 shall be calibrated according to the manufacturer's recommended procedures to verify operational readiness and ability to meet the indicated functional and tolerance requirements.
- B. Calibration Points: Each instrument shall be calibrated at 20, 40, 60, 80 and 100% of span using test instruments to simulate inputs. The test instruments shall have accuracies traceable to National Institute of Standards and Testing.
- C. Bench Calibration: Instruments that have been bench-calibrated shall be examined in the field to determine whether any of the calibrations are in need of adjustment. Such adjustments, if required, shall be made only after consultation with the Engineer.
- D. Field Calibration: Instruments which were not bench-calibrated shall be calibrated in the field to insure proper operation in accordance with the instrument data sheets.
- E. Analyzer Calibration: Each analyzer system shall be calibrated and tested as a workable system after installation. Testing procedures shall be directed by the manufacturers' technical representatives. Samples and sample gases shall be furnished by the manufacturers.
- F. Calibration Sheets: Each instrument calibration sheet shall provide the following information and a space for sign-off on individual items and on the completed unit:
 - 1. Project name.
 - 2. Tag number.
 - 3. Manufacturer.
 - 4. Model number.
 - 5. Serial number.
 - 6. Calibration range.
 - 7. Calibration data: Input, output, and error at 10%, 50%, and 90% of span.
 - 8. Switch setting, contact action, and deadband for discrete elements.
 - 9. Space for comments.
 - 10. Space for sign-off by Controls Integrator and date.
 - 11. Test equipment used and associated serial numbers.
- G. Calibration Tags: A calibration and testing tag shall be attached to each piece of equipment or system at a location determined by the Engineer. The Contractor shall have the Instrumentation Supplier sign the tag when calibration is complete. The Engineer will sign the tag when the calibration and testing has been accepted.

3.04 START-UP

- A. The Controls Integrator shall provide skilled programmer/instrumentation engineer or technician who shall complete troubleshooting and start-up to place entire system into satisfactory operation; engineer or technician shall make necessary inspection of completed installation, make necessary final field adjustments and make program revisions as required for start-up.
- B. Demonstrate proper operation of all system features and functions to Owner and Engineer.
- C. Coordinate start-up scheduling with Owner and Engineer.

3.05 ON-SITE SERVICES

- A. In addition to other services specified including start up, provide competent technician or programmer/instrumentation engineer to perform following services at times approved by Owner:
 - 1. Software revisions and training: Two 8 hour days on-site to train Owner's personnel on:
 - a. Operation and maintenance of all equipment furnished.
 - b. SCADA system operations.
 - c. PLC programming.

END OF SECTION

SECTION 17200

INSTRUMENTATION EQUIPMENT

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- 2.01 LEVEL DETECTION SWITCHES
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- 2.03 ROOM TEMPERATURE THERMOSTAT

PART 3 – EXECUTION

- 3.01 GENERAL
- 3.02 CALIBRATION, ADJUSTMENT AND TESTING

PART 1 - GENERAL

1.01 THE REQUIREMENT

- A. General: The Contractor shall provide instrument systems and switches, complete and operable in accordance with the Contract Documents.
- B. "Smart" transmitters shall be furnished when or wherever possible.
- C. The requirements of Section 17100 - Process Control and Instrumentation Systems apply to this section.

1.02 CONTRACTOR SUBMITTALS

- A. Furnish submittals in accordance with Section 17100.

PART 2 - PRODUCTS

2.01 LEVEL DETECTION SWITCHES

- A. Conductive Level Sensor
 - 1. Electrode level sensors shall be designed for point measurement of conductive liquids, sludges and pastes and shall be suitable for minimum or maximum level detection in tanks/channels.
 - 2. Level sensors shall be suitable for installation in vertical or horizontal orientation.
 - 3. Corrosion resistant probe constructed of stainless steel, of suitable length to fit the application.

- B. Provide level control relay of same manufacturer as probe to provide specified control signal interface with UV Disinfection system controls.
1. Manufacturer shall be Gems, or equal.

- C. The following level switches shall be provided:

Tag No.	Description	NEMA Rating
LSL 50-2	UV Building – UV Channel Low Level Sensor	NEMA 4X

*UV Channel level sensing equipment furnished by UV Disinfection equipment supplier.

2.02 FLOODING SWITCH

- A. Gems LS-270, or equal.
- B. 316 stainless steel body, Buna-N float.
- C. SPST switch.
- D. The following flood switches shall be provided:

Tag No.	Description	NEMA Rating
LSH 50-1	UV Building – UV Building Flood	NEMA 4X

2.03 ROOM TEMPERATURE THERMOSTAT

- A. Corrosion resistant wall mountable room thermostat.
- B. Manufacturer and model number: Chromalox WCRT-100, or equal.
- C. 40°F. to 100°F. temperature range; 25°F. differential.
- D. SPDT contact switch; 25 amps. at 120-240 VAC.
- E. The following thermostat shall be provided:

Tag No.	Description	NEMA Rating
TSL 50-1	UV Building – UV Building Low Temperature	NEMA 4X

PART 3 – EXECUTION

3.01 GENERAL

- A. Instruments shall be installed in accordance with manufacturer's installation instructions and in accordance with Section 17100.

3.02 CALIBRATION, ADJUSTMENT AND TESTING

- A. Devices requiring field calibration shall be calibrated in presence of Owner's representative and documented.

END OF SECTION

SECTION 17300

CONTROL PANELS

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- 3.04 INSPECTION AND APPROVAL
- 3.05 EXHIBITS

PART 1 - GENERAL

1.01 THE REQUIREMENT

- A. General: The Contractor shall provide a control panel, complete and operable, in accordance with the Contract Documents.
- B. The requirements of Section 17100 - Process Control and Instrumentation Systems apply to this Section.

1.02 CONTRACTOR SUBMITTALS

- A. General: Submittals shall be furnished in accordance with Section 01300 - Submittals.
- B. Control Panel Engineering Submittal: The Contractor shall submit a control panel engineering submittal (CPES) for the control panel. The CPES shall completely define and document the construction, finish, layout, power circuits, signal and safety grounding circuits, fuses, circuit breakers, signal circuits, internally mounted instrumentation, face plate mounted instrumentation components, internal panel arrangements, and external panel arrangements. All panel drawings shall, as a minimum, be "B" size with all data sheets and manufacturer specification sheets being "A" size. The submittal shall be in conformance with ISA-S20 - Standard Forms for Process Measurement and Control Instruments, Primary Elements and Control Valves, shall be submitted as a singular

complete bound volume or multi-volume package within 120 calendar days after Notice to Proceed, and shall have the following contents:

1. A complete index shall appear in the front of the bound volume. Panel tagging and nameplate nomenclature shall be consistent with the requirements of the Contract Documents.
 2. Scaled physical arrangement drawings drawn to scale which define and quantify the physical groupings comprising control panel sections, auxiliary panels, subpanels, and racks. Cutout locations with nameplate identifications shall be shown.
 3. Front of panel layout for the control panel.
 4. Schematic/elementary diagrams shall depict all control devices and circuits and their functions.
 5. Wiring/connection diagrams shall locate and identify electrical devices, terminals, and interconnecting wiring. These diagrams shall show interconnecting wiring by lines, designate terminal assignments, and show the physical location of all electrical and control devices.
 6. Interconnection diagrams shall locate and identify all external connections between the control panel/control panel devices and associated equipment. These diagrams shall show interconnecting wiring by lines, designate terminal assignments, and show the physical location of all panel ingress and egress points.
 7. A bill of material which enumerates all devices associated with the control panel.
 8. Submit informational literature/data for all components including but not limited to Control Panel internal devices, PLC hardware and software, etc.
 9. Programmable Logic Controller (PLC) programs in ladder format including notated description of each rung's function; assign point numbers to all inputs and outputs, and show point numbering in PLC program.
 10. Proposed graphic displays; submit actual hard copy of programmed graphic screens.
- C. Operations Manual: Provide operations and maintenance information for the following:
1. Panel equipment, field devices and instruments, including "as-built" system schematics.
 2. Final copy of PLC program on 8-1/2" x 11" sheets in ladder format including verbal description of each rung's function.
 3. USB flash drive containing final PLC program and final distributed control software program.
 4. Complete software documentation including programming information and operator's guides.
 5. Point lists for all PLC inputs/outputs; identify point number (tag), point description, point type, range in engineering units (if analog point), PLC number, rack and slot number, and point address.
- D. All submittals shall be bound in 3-ring binders with labeled tabs separating each section.

1.03 QUALITY ASSURANCE

- A. All materials, equipment and parts shall be new and unused of current manufacturer.
- B. Control panel supplier shall be responsible for providing all necessary accessories required for a complete and operable system.
- C. All control panels shall be constructed in accordance with UL 508A standards and shall bear the UL listing.

1.04 WARRANTY

- A. See Division 01 for additional requirements.

PART 2 – PRODUCTS

2.01 GENERAL

- A. Environmental Suitability: The control panel shall be suitable for operation in the ambient conditions associated with the location designated in the Contract Documents. Heating, cooling, and dehumidifying devices shall be provided as necessary in order to maintain all instrumentation devices 20% within the minimums and maximums of their rated environmental operating ranges. The Contractor shall provide all power wiring for these devices. Enclosures suitable for the environment shall be provided.
- B. The control panel controls shall be 120 VAC. Control conductors shall be provided in accordance with the indicated requirements.
- C. Each source of foreign voltage shall be isolated by providing disconnecting or pull-apart terminal blocks or a disconnect operable from the control panel front. Each control panel shall be provided with identified terminal strips for the connection of all external conductors. The Contractor shall provide sufficient terminal blocks to connect 25% additional conductors for future use.
- D. Control panel mounted devices shall be mounted a minimum of 3' above finished floor elevation.

2.02 CONTROL PANELS

- A. UV Disinfection Control Panel (50UV-CP01)
 - 1. Furnished by UV equipment supplier.
 - 2. The control panel shall be a wall-mounted, single door NEMA Type 4X enclosure.

3. Constructed of 12-gauge 304 stainless steel with continuously welded seams, ground smooth.
4. Provide lifting eyes on top of enclosure.
5. Provide panel with high-impact thermoplastic data pocket.
6. Panel shall have seamless foam-in-place, on-piece gasket to provide oil-tight and dust-tight seal against contaminants.
7. Three-point door latching system with pad-lockable handle and door stop kit.
8. Finish shall be brushed stainless steel, no other colors will be accepted.
9. Control panel enclosure shall be Hoffman, Saginaw or equal; sizes as required.
10. Provide interior LED lighting package with door activated switch.
11. Provide a 15 amp, 120 volt, service outlet circuit within the back-of-panel area. The circuit shall be provided with a 3 wire, 120 volt, 15 amp., duplex receptacle.
12. Furnish control panel with necessary control processor, fuses, circuit breakers, relays, terminals and other ancillary components required for a complete and operable control system.
13. Furnish control panel with necessary protocol converters, network switches, and other necessary equipment to facilitate Ethernet network communication with SCADA control system.

B. Mounting of Instruments

1. The panel vendor shall provide cutouts, and shall mount all instrument items indicated to be panel mounted.
2. The panel vendor shall also mount behind the panels other instrument accessory items as required for functionality as indicated.
3. Equipment mounted at the rear of panel shall be installed to allow for commissioning adjustments, servicing requirements, and cover removal.
4. Spare space shall be kept clear of wiring, etc., to give maximum space for future additions.

C. Panel Wiring

1. Wire type and sizes: Conductor shall be flexible stranded copper machine tool wire, UL listed Type MTW, and shall be rated 600 volts. Wires for power circuits within panel shall be No. 14 minimum and sized for the load. Wires for instrument signal circuits and alarm input circuits within panel shall be No. 16 AWG. All shielded cables, shall be No. 18 AWG minimum.
2. Wire Marking: Wire numbers shall be marked using white numbered wire markers made from plastic-coated cloth, Brady Type B 500 or equal, or shall be heat shrink plastic.
3. For case grounding, panels shall be provided with a 1/4" x 1" copper ground bus complete with solderless connector for one No. 4 AWG bare stranded copper cable. The copper cable shall be provided by the Contractor and be connected to a system ground loop.
4. Power Supply Wiring

- a. Unless otherwise indicated, instruments, and alarm systems shall operate on 120 volt, 60 Hz circuits.
 - b. Each potentiometer type instrument, electronic transducer, controller, or analyzer shall have an individual disconnect switch. Disconnect switches shall have metal or plastic tags indicating instrument tag numbers. Individual plug and cord set power supply connections may be used without switches when indicated in the material specification.
 - 5. Alarm Wiring: The panel vendor shall install and wire alarms including light cabinets, audible signal units, test and acknowledge switches, and remote logic units as indicated. Interconnecting wiring to panel mounted initiating devices shall also be wired by the panel vendor. The wiring from external initiating devices shall be provided by the Contractor. Where plug and cord sets are provided for component interconnection, the panel vendor shall harness and support the cables in neat and orderly fashion. Where separate wire is required, panel vendor shall install No. 16 AWG with THWN or THHN insulation between all components.
 - 6. Signal Wiring
 - a. Signal wire shall be twisted pair or triads. Cable shall be constructed of No. 16 AWG copper signal wires with THWN or THHN insulation.
 - b. Color code for instrument signal wiring shall be as follows:
 - Positive (+) – Black
 - Negative (-) – White
- D. Labor and Workmanship: Panels shall be fabricated and wired by fully qualified workmen who are properly trained, experienced, and supervised.

2.03 PROGRAMMABLE LOGIC CONTROLLER

- A. General:
- 1. Furnish and install programmable logic controller (PLC) including but not limited to power supply, microprocessor, input modules, output modules and other associated equipment as specified herein and as shown on drawings.
 - 2. PLC and all components shall be designed, manufactured and tested in accordance with latest applicable UL standards.
 - 3. The PLC, I/O modules, power supply modules, communication interface devices, and peripheral equipment shall be mounted inside the control panel. Incoming I/O wiring from the field to the control panel shall be terminated on terminal blocks in the lower portion of the enclosure. A nameplate shall be mounted on the outside of the door of the enclosure and be engraved with "CP/PLC".
 - 4. PLC to have following features:
 - a. Modular construction, allowing I/O modules to be individually added or removed.
 - b. Mounting equipment, racks, connecting cables, and other equipment included to provide functioning control system.
 - 5. Input/output modules to have following features:

- a. Inputs and outputs modular, with 4, 8 or 16 circuits per module; status LEDs for each point, powered from field voltage, installed in each module.
 - b. Field wiring to screw connectors attached to I/O mounting rack; removal and replacement of any I/O module without disturbing field wiring or any other I/O modules.
- B. Qualifications:
 1. Manufacturer: ISO 9000, 9001 or 9002 certified for equipment herein specified; produced similar electrical equipment for minimum period of 5 years.
 2. When requested by Engineer, provide acceptable list of installations of similar equipment to demonstrate compliance with qualifications.
- C. PLC
 1. Minimum of 12K words (16-bit) of internal RAM memory provided for storage of control program plus additional data storage for up to 4K words; full memory of CPU usable for program or data storage.
 2. Program functions include contacts, coils, timers, counters, math functions, proportional-integral-derivative (PID) control, shift registers, bit and word operations.
 3. Entire programmable controller system capable of operating in ambient temperatures of +32°F. to +140°F.; relative humidities of 5% to 95% non-condensing.
 4. CPU capable of being networked to other programmable controllers or host computer.
 5. Manufacturer, or equal: Allen-Bradley Compact Logix 5069 - L3 Series with Studio 5000 programming software unless shown otherwise on drawings.
 6. All software is to be licensed to the Owner.
- D. Input/output Units
 1. Analog Input/Output Characteristics: 4-20 milliamperes DC.
 2. Digital Input/Output Characteristics: 120 volts AC, LED isolated from main processor. Individual I/O shall be electrically isolated, 2-wire discrete, dry contact relay equivalent.
 3. Required Hardware:
 - a. Input/Output Rack, Processor, Communications Interface Module (programmer port), rack and module power supplies.
 - b. Each type of module shall have 20% spare capacity.
 4. Manufacturer, or equal: Allen-Bradley.
 5. Analog input module: Allen Bradley 1769-IF8, or equal.
 6. Analog output module: Allen Bradley 1769-OF8C, or equal.
 7. Digital input modules: Allen Bradley 1769-IA16, or equal.
 8. Digital output modules: Allen Bradley 1769-OW16, or equal.
- E. Power Supply
 1. Input Voltage: 120 volts, 60 Hz, 1.0 KVA UPS.

2. Memory Backup: E² PROM memory chip set programmed with final operational software.
3. Manufacturer, or equal: Allen-Bradley.

F. Operator Interface:

1. Operator interface to allow online data monitoring and modification.
2. Mount operator interface terminal on door of Control Panel; operator interface to be accessible without opening door of motor control center section.
3. Operator interface terminal:
 - a. Panel mount color display monitor with keypad operator input.
 - b. Interface to PLC.
 - c. 256K minimum application memory.
 - d. NEMA 4X case.
 - e. 120 VAC power supply.
 - f. Beijer, 12" size at UV SCC.
 - g. As a minimum the following graphical screens shall be provided:
 - 1) Equipment overview.
 - 2) Alarms; alarm screen to pop-up automatically when alarm condition occurs.
 - 3) UV Banks
 - 4) Other graphics screens as defined by Owner and/or Engineer.
 - 5) A hard copy of the proposed graphics screens shall be included in the shop drawing submittal.

2.04 CONTROL PANEL DEVICES

- A. Pushbuttons, selector switches, and LED pilot lights shall be the heavy-duty, oil-tight type, sized to 30 mm. Miniature style devices are not acceptable. Devices shall be as manufactured by G.E., Cutler-Hammer, or equal.
 1. Lens colors shall be green for "run," "open," or "on"; red for "stopped," "closed," or "off"; and amber for alarm.
 2. Pilot lights shall be low voltage, transformer, push-to-test type.
 3. Provide hazardous location type pilot devices in classified locations.
- B. Transient voltage suppressor: Edco HSP121BT1RU, Joslyn Model 1250-32, or equal. AC Power Isolator: provide power line noise suppressors to protect the electronic equipment. The units shall provide for common mode noise attenuation at a ratio of up to 20 million to 1 and normal-mode noise attenuation typically 1,000 to 1 (60db).
- C. LED control panel light with door-activated switch. Hoffman or equal.
- D. Control power circuit breaker: 15 amp., 120 VAC, single pole Cutler Hammer QC1015 or equal.

- E. Service receptacle: duplex; 15 amp., 125 volts; GFCI with indicator light/ Leviton Catalog No. 6598-I, or equal; install in Raco No. 670, or equal utility box.
- F. Condensation heaters: thermostatically controlled; one heater in each compartment of outdoor control panels; 120 volts, single phase; wattage as required to maintain set temperature; provide properly sized fuse on line side. Hoffman or equal.
- G. DC power supplies: 12 volts (1.7A), 15 volts (4.5A) and 24 volts (1.2A); Sola Silver Line Model SLS or equal; provide properly sized fuse on line side. Power supplies shall be sized to accommodate control panel loads plus 25% capacity reserved for future use.
- H. Digital indicator: solid state, 4-1/2 digit, ac powered, universal dc input, seven-segment, minimum 1/2" high LED readout; Red Lion Controls DP5D0000, or equal.
- I. Reset push button: heavy duty, watertight/oil tight flush head, red button; Allen Bradley 800T-A2D2 (normally closed) or equal.
- J. Provide properly sized time-delay fuses for wiring leaving enclosure to receive contact closure/open signals; Littlefuse FLM series, or equal.
- K. Terminals: barrier type, 9/16-inch spacing, nominal 2.5kV RMS rating.
- L. Indicating lights: nominal 1-inch diameter LED type with opaque colored lens; press-to-test feature; heavy duty oil tight as required.
- M. Control switches:
 - 1. Electronic circuits: Gold flashed contacts; initial resistance, 0.01 ohms; 0.5 amp. at 120 VAC, resistive; heavy duty, oil tight as required.
 - 2. Control circuits: Contact rating conforming to NEMA A-600 designation; heavy duty, oil tight as required.
 - 3. Control/timer relays:
 - a. All general-purpose control relays and time delays shall have dust covers and plug-in configuration, with screw terminal socket allowing exchange without disturbing the wiring.
 - 4. Coil: continuous operation at 120 VAC $\pm 10\%$ unless shown otherwise.
 - a. Contacts; 3 pole, double throw, minimum; 10 amp. (unless shown otherwise), 120VAC, resistive.
 - 5. 4 position selector switches: Allen Bradley 800T-N2KF4, or equal; provide supplemental contact block for emulating the switch on SCADA; refer to 16485 – Miscellaneous Electrical Devices for additional requirements on switches, relays and lights, etc.

- N. Intrinsically safe relays (ISR): as manufactured by STAHL or equal; include on all floats and level sensors located in hazardous areas.
- O. Ethernet Network Switch: Managed industrial 10/100 Base Ethernet network switches. Din-rail mountable with provisions for number of network connections as shown in the Plans. Network switch shall be capable of operating in true ring configuration; Red Lion, N-TRON or equal.
- P. Uninterruptible Power Supply: True online, double-conversion style. Input fuse or circuit breaker protection. Internal sealed, lead-acid battery; Eaton/Powerware, Liebert or equal.

2.05 DISTRIBUTED CONTROL SOFTWARE

- A. Fully tested and documented standard software package, commercially available, ready for configuration to fit specific project requirements.
- B. Controls Integrator shall modify existing SCADA control system to reflect new UV Disinfection equipment. New graphic screens shall replicate system supplier local display screen icons and process data.
- C. Fully configured by Contractor to satisfy requirements of functional descriptions in Section 17400 - Control Descriptions.
- D. Suppliers options as required to meet functional requirements of these specifications.
- E. Distributive Control Software Manufacturer: Wonderware by Invensys or equal by Rockwell. The software package shall consist of the SCADA software, HMI software, I/O interfacing software packages and Win-911 alarm notification software.
 - 1. The software shall be licensed to the Owner.
- F. Software Tags
 - 1. The software package shall handle all external data, internal data, and functions in "tag" format. Tags shall be a group of standardized software routines that can be set up by an operator to manipulate data.
 - 2. The program shall use the software tags throughout all software routines. It shall be possible for different routines to access the same tag.
 - 3. Allow operator to call any tag to the computer screen. The tag display shall indicate type of tag, point name, value or state, alarm conditions and other information depending on the tag type.
 - 4. Allow operator to write new tags, combine tags, and manipulate tags to develop new closed-loop functions, graphics and data-bases.
 - 5. As a minimum, the following tag types shall be provided:

- a. Analog Tag - include operator entries for high alarm point, low alarm point, rate-of-change alarm point, conversion to engineering units, scan frequency, filtering, and trending sample frequency.
 - b. Digital Tag - include operator entries for scan frequency, inverting digital value, and overriding digital value to 0 or 1 state.
 - c. Alarm Tag - include operator entries for editing alarm message on screen, enable/disable alarm, report return to normal status.
 - d. Calculation Tag - include operator entries to perform logical and mathematical functions on any analog or digital values input to the tag. Allow up to eight input variables. Perform addition, subtraction, multiplication, division, sine, cosine, square root, natural logarithm, logarithm, Boolean functions, scan frequency, and trending sample frequency.
6. Allow operator to call tag summaries to a computer screen and/or printer. Standard summaries shall include:
 - a. Tags in alarm
 - b. Tags in standby
 - c. Tags with disabled alarms
 - d. Tags off
 - e. All tags
 7. Contractor shall program the system and configure a tag for each PLC input and output point. Contractor shall enter tag values, alarm points, ranges, scan frequency, etc. so that all tags are available for use at the computers by the Owner when additional graphics and trends are built in the future.

G. Computer Graphics

1. Computers shall have color video graphic displays showing the plant process. Provide a menu for selection of the various graphics. Graphics shall have at least 64 colors.
2. Graphics shall show current analog values (in engineering units), digital values and equipment status. Graphics showing process equipment (e.g., pumps, blowers, valves, etc.) shall be interfaced with all related input/output points so that current status of the equipment is shown:
 - a. White - motor off or valve closed.
 - b. Green - motor on or valve open.
 - c. Red - alarm condition.
 - d. Flashing - valve in intermediate position.
 - e. Yellow - motor required.
3. Software shall contain "graphics builder" routine to allow the operator to create additional graphics. Graphics builder shall contain a menu of standard symbols, lines and shapes, and commands to facilitate building or modifying graphics. The graphics builder feature shall include a menu of common symbols (such as pumps, tanks, piping

- fittings, etc.) and shapes that can be selected using a mouse. Graphic builder shall include edit functions such as "copy", "move", "cut" and "paste" to facilitate making new screens and modifying existing screens.
4. Graphics shall be dynamic, capable of being linked with a software tag so that the graphic changes as analog or digital values change (e.g., a tank changes color as it is filled up).
 5. Contractor shall build the initial graphics for the project. Screen layout, menus, directories, graphic designs and color selections shall be submitted for review and shall be confirmed with the Engineer and Owner during construction.
 6. System Overview Graphic - Contractor shall build a graphic screen that is representative of the overall wastewater treatment facilities. The screen shall allow the operator to access other graphic screens by "clicking" the mouse on the appropriate building/structure. When an alarm occurs, the associated building/structure shall flash in red on the overview graphic.
 7. Individual Building / Process Graphics - Contractor shall build approximately 50 graphics showing all processes. The graphics shall be linked to all related PLC inputs/outputs to display equipment running status, alarm conditions, water levels (dynamic display), flow rates, etc.
 8. Control Graphics - Contractor shall build approximately 25 graphics for operator control of pumps, valves and equipment as specified. Each graphic shall allow operator to place equipment in "AUTO" mode and adjust setpoints and timing values as specified in the functional descriptions for each equipment item.
 9. Provide graphical links between process graphics and control graphics so operator may transition between related screens with a single mouse operation.
 10. In addition to the graphics specified previously and elsewhere in this Specification, Contractor shall build 6 graphics as determined by Owner/Engineer during construction.

H. Alarms

1. Computer shall have an alarm screen that shows new alarms, acknowledged alarms and daily alarm log.
2. Each alarm point shall identify the alarm location, a 20-character minimum alarm description, and time of occurrence.
3. Computer shall allow operator to acknowledge alarms and to print alarm summary on demand.
4. Print all alarm occurrences on the alarm printer, including date and time of occurrence and time of acknowledgment.
5. Alarms shall sound through the computer internal speakers and alarm horn in each Building.

6. Allow the operator to disable any alarm points via the computer (for equipment maintenance, etc.). This feature shall require a password to enable/disable alarms.
 7. New alarm conditions shall display as a single line at the bottom of the computer screens when the alarm summary is not displayed.
 8. Computer shall have a list of all alarms on a screen. Allow operator to enable or disable alarms.
 9. Analog Value Alarms:
 - a. Allow operator to assign "high" and "low" software setpoints to all analog inputs and outputs. If measured value exceeds the high setpoint or falls below the low setpoint, energize an associated alarm at the computer. All displays and software setpoints shall be in engineering units.
 - b. Analog value alarms shall function as described above for plant alarms.
 10. Equipment "Fail" Alarms
 - a. Where a PLC calls for an equipment item to operate, the PLC shall monitor the associated equipment "RUNNING" contacts.
 - b. If a RUNNING signal is not returned after five seconds (adjustable), then generate a descriptive alarm point.
 11. Communication Failure Alarms
 - a. Provide alarms to indicate loss of communication with each device on the network.
- I. Faceplate Displays
1. Computers shall have menu screens that allow operators to call any analog value or PID loop to the screen. The screen shall show the analog value or PID loop as a faceplate display with analog scale, numerical value, alarm limits, and other related information.
 2. Through mouse commands, allow operator to modify scale, alarm limits, setpoint (if PID), and to call related tags.
- J. Historical Data Collection
1. Scan all analog inputs and outputs each minute, and store data in a file. At the end of each hour, calculate maximum, minimum and average value for each point, and store the three values in a new file.
 2. Each day prompt the operator to select either to store the previous day's one-minute values on a memory stick, on the hard drive, or to delete the data from the computer.
 3. Retain the hourly minimums, maximums, totals, and averages for use in trending and reports. At the end of each month, allow the operator up to 15 days to select to either store the data on a memory stick, on the hard drive, or to delete the data from the computer.

4. The software shall allow the operator to establish different scan rates for each point, with up to six (6) selectable rates.
5. Supplier shall meet with Owner during software development to confirm the desired initial configuration, and to establish historical data protocol.

K. Trending

1. Provide historical trend screens to recall data that has been collected by the historical data base. Allow the operator to select from 1 to 8 points on each trend display. The data shall have the appearance of a vertical-scale strip chart recorder with resolution of 2% of span. Display values in engineering units.
2. Allow operator to access any time window within the last month (for hourly data) and within the last 24 hours (for one-minute data).
3. Allow operator to build real-time trend screens with up to 8 points per screen. Continuously update the screens as real-time data is collected.

L. Reports

1. Software shall be fully DDE-compliant to allow report generation using Microsoft Excel, latest revision (no substitutions).
2. Supplier shall build the following reports:
 - a. General Requirements for Reports - Report formats will be furnished to the Supplier during construction. Each report listed below shall have columnar format with the number of columns and rows as indicated. Provide footer rows with column total, average, minimum and maximum for each parameter as is applicable. Develop the report to automatically obtain and calculate each parameter where data is available via the process control system. Prompt the operator where manually-entered data is needed. Each parameter may consist of one of the following types of data:
 - 1) Manual - A value entered by the operator.
 - 2) Automatic - A value obtained from the process control system.
 - 3) Calculated - A formula is applied to the entered or monitored data.
 - 4) Combination - The parameter is determined through some combination of manual data, automatic data and/or calculations.
 - b. Provide the following individual reports:
 - 1) Monthly State Operating Reports
 - 2) Daily Operating Reports - 130 values by 24 hours (130 columns by 24 rows).
 - 3) Monthly Operating Report - 130 values by 31 days.
 - 4) Runtime / Flow Summary - Daily report showing accumulated daily runtime for each process equipment item, and totalized flow for each flowmeter input. Provide monthly report summary with monthly runtimes, monthly totalized

flows, and average daily flow computation. Perform totalization in the plant PLCs so data is not lost during computer failure.

M. Passwords

1. Software package shall have not less than 3 levels of password protection. Permit the operator to establish passwords and assign password level to all program features.
2. Initially set up passwords as follows:
 - a. No password - allow operator to "view" the plant process only.
 - b. Level 1 - allow operator to change setpoints, override outputs, disable alarms, and enter data on reports.
 - c. Level 2 - allow operator to change blocks, modify block arrangements and related functions.
 - d. Level 3 - allow operator to reconfigure system architecture.
3. Configure the system such that each user has a separate password assigned by the plant superintendent. A user shall be required to "log on" before making process changes. Record time of "log on", "log off", and operators name for each user.
4. Supplier shall meet with Owner during software development to confirm the desired initial configuration of passwords.

2.07 SPARE PARTS

- A. Provide 1 spare power supply for the Control Panel.
- B. Provide 1 spare memory cartridge containing control program.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Preparation for Shipment and Shipping
 1. Panels shall be crated for shipment using a heavy framework and skids. Panel sections shall be cushioned to protect the finish of the instruments and panel during shipment.
 2. Control panel testing and inspection shall be performed prior to shipping.
 3. Control panels shall be installed in accordance with Section 17100.

3.02 SIGNAL AND CONTROL WIRING

- A. Wiring Installation: Wires shall be run in plastic wireways except (1) field wiring, (2) wiring between mating blocks in adjacent sections, (3) wiring from components on a swing out panel to components on a part of the fixed structure, and (4) wiring to panel

mounted components. Wiring run from components on a swing out panel to other components on a fixed panel shall be made up in tied bundles. These bundles shall be tied with nylon wire ties and shall be secured to panels at both sides of the "hinge loop" so that conductors are not strained at the terminals.

- B. Wiring run to control devices on the panel front shall be tied together at short intervals with nylon wire ties and be secured to the inside face of the panel using adhesive mounts.
- C. Wiring to rear terminals on panel-mount instruments shall be in plastic wireways secured to horizontal brackets above or below the instruments in about the same plane as the rear of the instruments.
- D. Shop Drawings shall show conformance to the above wiring installation requirements.
- E. Wire Marking: Each signal, control, alarm, and indicating circuit conductor connected to a given electrical point shall be designated by a single unique number which shall be shown on Shop Drawings. These numbers shall be marked on conductors at every terminal.

3.03 PROGRAMMING SERVICES

- A. Program programmable logic controllers (PLCs) and operator interface terminal as required by functional descriptions.
- B. Provide additional programming during start-up, training, and call-back periods as specified.
- C. Control Integrator shall coordinate with process equipment manufacturer's supplied PLCs and their field service representative to set up network and coordinate all aspects of acquiring and transmitting various control functions from vendor furnished PLCs.

3.04 INSPECTION AND APPROVAL

- A. Panel fabricator shall conduct the following tests prior to shipment.
 - 1. Alarm circuits rung out to determine their operability.
 - 2. Electrical circuits checked for continuity and where applicable, operability.
 - 3. Any other test required to place the panel in an operating condition.

- B. It shall be the responsibility of the Contractor to furnish all necessary testing devices and sufficient manpower to perform the tests required by the Engineer.
- C. Field Testing: The control panel shall be tested again for functional operation in the field after the connection of external conductors and prior to equipment startup.

3.05 EXHIBITS

- A. I/O Point List

END OF SECTION

Section 17300
Exhibit A - I/O List

Item	Description	Function	I/O Type				Notes
			DI	DO	AI	AO	
DAF Building - LCP-5							
LSH 50-1	UV Building Flood Switch	Alarm	1				
TSL 50-1	UV Building Low Temp	Alarm	1				
UV System Control Panel (SCC)	System Alarm	Alarm	1				
UV System Control Panel (SCC)	System Run	Status	1				
UV System Control Panel (SCC)	Network Connection						Ethernet IP
Minimum Spare 10%			1	1	0	0	
		Total	DI	DO	AI	AO	
			5	1	0	0	

SECTION 17400

CONTROL DESCRIPTIONS

INDEX

PART 1 – GENERAL

1.01 DESCRIPTION

1.02 GENERAL REQUIREMENTS

1.03 OIT SCREENS

2.02 ULTRAVIOLET DISINFECTION SYSTEM

2.03 FLOODING SWITCH

2.04 TEMPERATURE SWITCH

PART 2 – FUNCTIONAL DESCRIPTIONS

2.01 INSTRUMENTATION SCHEDULE

PART 3 – EXECUTION

NOT APPLICABLE

PART 1 – GENERAL

1.01 DESCRIPTION

- A. This section describes how each portion of control system operates.
- B. The functional descriptions, in conjunction with the drawings and technical requirements for products as described in Section 17200 - Instrumentation Equipment and Section 17300 - Control Panels, define the minimum requirements for installation.
- C. All products used to meet the functional descriptions shall be those specified in Sections 17200 and 17300.
- D. Related work specified elsewhere:
 - 1. Division 16 - Electrical.
 - 2. Section 17100 - Process Control and Instrumentation System.
 - 3. Section 17200 - Instrumentation Equipment.
 - 4. Section 17300 - Control Panels.

1.02 GENERAL REQUIREMENTS

- A. Alarm/Event Logging Colors. The following is the color scheme for alarms and events that are displayed on the Panelview.
 - 1. Cyan: Operator entered event.
 - 2. Red: Active unacknowledged alarm.
 - 3. Yellow: Active acknowledged alarm.
 - 4. Blue: Unacknowledged alarm - returned to normal.
 - 5. White: Acknowledged alarm - returned to normal.

- B. Equipment Status and Data Information for MMI Displays. The following is the color scheme for dynamic changing status:
1. Gray: equipment which is not controlled and/or does not supply status information to the control system i.e. manual valves.
 2. Yellow: Equipment Off-line (lockout/tagout system).
 3. Blue: Equipment in the off state, valves closed i.e. process non-active state.
 4. Cyan: Equipment or subsystems in standby mode.
 5. Magenta: Equipment in the on state, valves open i.e. process active state.
 6. Green: analog process values, bar graphs, etc. which indicate operating within acceptable limits (not an alarm state).
 7. Red Flashing: Indication of an alarm that is not acknowledged.
 8. Red: Indication of an acknowledged alarm.
 9. Bordered Box: Indication of an analog process variable.
 10. Double Border Box: Indication of an analog process operator entered setpoint.
- C. Alarm/Event Logging. All alarms and events shall be logged to a tabular display on the display screen with date, time, tag name, description, status, value, and priority of alarms/events. The tabular display screen shall allow the Operator to acknowledge all alarms. Events shall include start/stop of equipment, open/close or position change of valves, operator initiated changes, setpoint changes, etc. Up to an Operator adjustable setpoint number of current events and alarms shall be displayed on the tabular screen with the older events and alarms beyond that setpoint number being stored in the historical database log.
- D. General Monitoring and Displaying of Discrete Input Signals. Discrete input signals which represent equipment status shall be displayed on the display screens.
- E. General Monitoring, Displaying, and Recording of Analog Input Signals. Process variable signals shall be displayed on the display screens. They shall be scaled in engineering units. All alarm limits are assigned to the associated process variable. Values shall be historically logged and trended as required.
- F. Process Status. All process alarms, equipment status, and process variable values shall be available at any of the computer software display screens. Failures of any PLC on the digital communications network shall also be alarmed.
- G. Equipment Run Times. The running time for all motorized equipment located in the plant and at all remote sites shall be totalized and displayed.
- H. Automatic Rollover. Provide automatic rollover back to zero for all run times, meter totalizations, etc. Provide reports with automatic calculation to account for the automatic rollover to zero.

- I. All computer display screens that allow an Operator to enter setpoints and to change software switches shall be password protected. An Operator must successfully log in with his password before any changeable setpoints are allowed.
- J. Provide an Operator adjustable time delay setpoint with all setpoints throughout the control system.
- K. Provide de-bounce timers or other programming logic throughout the system to prevent all alarms, setpoints, or controls repeat; and nuisance or otherwise unneeded alarms, starts, stops, etc.
- L. Provide scan rate time delays or other programming logic throughout the system to prevent all alarms, setpoints, or controls repeat; and nuisance or otherwise unneeded alarms, starts, stops, etc.
- M. Provide testing and logic to positively ensure that no lockout conditions can develop in anyway or in any form of operation, be it standard, non-standard, or emergency.
- N. Monitor communications status of all remote facilities and plant panels.
- O. Where alarms are called for provide High and High-High, Low and Low-Low, and others if specifically required.
- P. Provide software Hand/Off/Auto switches, Duty/Standby switches, Local/Off/Remote switches, On-line/Off-line switches, Open/Close switches, Open/Stop/Close switches, Open/Stop/Close/Auto switches, Manual/Auto switches, On/Off pushbuttons, etc. for each equipment item.
- Q. In the Off or Off-line position, provide a software pop-up "tag-out" box with descriptor lines for Operator entry of wording describing the reason for the device being out of service, for each item of equipment, instrumentation, etc. Provide a yellow tag on the equipment device on the applicable screens to visually indicate that it is off-line and tagged out, and cannot be operated through the control system as long as tagged out. The Off-Line switch and Tag-Out shall be used to isolate the particular device, but shall not affect the operation of the particular treatment process or plant as a whole.
- R. Change piping/valves/equipment/building color to indicate flowing or not, working or not, operational or not, running or not, opened or closed, etc.
- S. Screens shall be fully dynamic.
- T. Provide a Microsoft Word file of the written functional description for each process element as a pop-up embedded window on each SCADA screen.

1.03 OIT SCREENS

- A. The Controls Integrator shall develop graphical screens to dynamically depict the operation and status of the Treatment Plant functions, and tabular screen(s) to present system setpoints and summarize process values/quantities. The screens shall include but not be limited to:
 - 1. Operator authentication/authorization.
 - 2. UV System Overview screen.
 - 3. Process values/quantities.
 - 4. Alarm status/history.
- B. The Controls Integrator shall develop a preliminary set of screens for submission to the Owner/Engineer for review and comment prior to finalizing the screens.

PART 2 – FUNCTIONAL DESCRIPTIONS

2.01 INSTRUMENTATION SCHEDULE

- A. Refer to Section 17200 - Instrumentation and Control Equipment.
- B. Control descriptions included herein are generic in nature, but reflect design intent. Descriptions may not include all functions, status and alarms; these descriptions will be modified during submittal stage; Controls Integrator shall develop algorithms based on the input/output point schedule and control descriptions.

2.02 ULTRAVIOLET DISINFECTION SYSTEM

- A. Provide for monitoring of the ultraviolet disinfection system from DAF Building SCADA control panel (LCP-5). LCP-5 shall interface with the UV equipment control panel furnished by equipment supplier through existing fiber optic network.
- B. UV equipment control panel shall automatically control and monitor the UV lamp banks, wiper and lift modules. Equipment control panel shall monitor UVT sensor(s), and channel low level sensor. UV controls shall accept a flow signal from LCP-5.
- C. Transmit the following operating conditions and alarms via ethernet connection to the SCADA control panel (LCP-5).
 - 1. Module status (off/on)
 - 2. UV intensity.
 - 3. Flow rate signal (on/off).
 - 4. Communication status.
 - 5. Module temperature status.

6. Low UV intensity.
7. Low-low UV intensity.
8. Loss of flow signal.
9. High module temperature.
10. UV channel low level

2.03 FLOODING SWITCH

- A. Controls Integrator to furnish flooding switches where shown in the plans and listed in Section 17200.
- B. Annunciate when flooding switch detects water on the floor in the associated structures. Flood alarms shall be displayed on SCADA control system terminals.

2.04 TEMPERATURE SWITCH

- A. Controls Integrator to furnish thermostat where shown in the plans and listed in Section 17200.
- B. Annunciate when thermostat detects low temperature in the associated structures. Low Temperature alarms shall be displayed on SCADA control system terminals.

PART 3 – EXECUTION

Not Applicable.

END OF SECTION

APPENDIX A – OWNER-SUPPLIED UV DISINFECTION EQUIPMENT



4280 E. 14th St.
Des Moines, IA 50313
Office: 515-265-2222
Toll Free: 800-383-7867
Fax: 515-265-8079

201 4th Ave SW
New Prague, MN 56071
Office: 952-758-6600
Toll Free: 800-536-5394
Fax: 952-758-7778

TO: Selected Bidding Contractors
REF: Replacement Wastewater Treatment Plant
Muscatine, IA
DATE: August 14th, 2023

MC² & Electric Pump are pleased to submit this proposal for the following equipment:

Trojan UV Equipment Scope

Section 11368 – UV Disinfection Equipment

One (1) **TrojanUVSigna** with one (1) channels, (3) duty UV banks per channel. Each bank supplied with (1) intensity sensor, (1) ActiClean Chemical-Mechanical Wiping System & (1) automatic bank lifting mechanism. System also supplied with System Control Center, Power Distribution Centers, Hydraulic System Center, Water Level Controller (Fixed Weir), Low Water Level Sensor, Level Sensor Control Box, Spare Parts, Documentation, Freight, Startup, Training & Warranty as noted herein.

*******Please refer to complete TROJAN Scope of Supply on the following pages*******

Purchase Instructions:

- **Please direct purchase order as follows:**
 - Trojan Technologies Group ULC
 - 3020 Gore Rd
 - London, Ontario, Canada
 - N5V 4T7
 - (519) 457-3400
- **Please forward electronic PO to:**
 - Jackie Corlett, Trojan Technologies Regional Sales Manager
 - jcorlett@trojantechnologies.com

Note the following:

- Anchor bolts, Wiring, Painting, Piping, Conduit, Installation of equipment and anything that is not specifically mentioned in this proposal is the responsibility of others
- Estimated Ship Date: 24 weeks after approval of shop drawings.

Thank you for your consideration,

Marci Whitaker (515) 979-4648
cc: Kyle Zaegel (515) 265-2222

**SCOPE OF SUPPLY FOR MUSCATINE REPLACEMENT WASTEWATER TREATMENT PLANT
ULTRAVIOLET DISINFECTION EQUIPMENT – TROJANUVSIGNA™**

Prepared for: All Bidding General Contractors

Specification Section: 11368 – UV Disinfection Equipment

Addendum: None

Submitted by: Jackie Corlett

Trojan Quote: 240568

<u>Design Criteria:</u>	Peak Design Flow:	17 MGD (US)
	Average Flow:	5 MGD (US)
	UV Transmission:	65 % minimum
	Total Suspended Solids:	30 mg/L (30 day average, grab sample)
	Minimum Dose:	30 mJ/cm ² MS2 RED
	Discharge Limit:	126 <i>E.coli</i> per 100 ml, 30 Day Geometric Mean

We are pleased to submit the following scope of equipment based on the above criteria.

The purchaser is responsible for reading all information contained in this Supply Contract. Trojan will not be held accountable for the supply of equipment not specifically detailed in this document. Detailed installation instructions are provided with the shop drawings and are available earlier upon request. Changes to this Scope of Supply that affect selling price will be handled through a change order.

Please refer inquiries to Trojan Manufacturer's Representative:

Representative: Marci Whitaker
Electric Pump | Mc2
Phone: (515) 979-4648

This proposal has been respectfully submitted by,
Trojan Technologies

Jackie Corlett
Regional Sales Manager

GENERAL CONFIGURATION

The TrojanUVSigna equipment described in this Scope of Supply consists of one (1) channel with three (3) duty UV banks in each channel.

Unless otherwise indicated in this proposal all anchor bolts, conduit, conductors, local disconnects and transformers (if required) are the responsibility of the Installation Contractor and are not included in Trojan's Scope of Supply. Specific cable types listed below are for reference only. Selecting cables that are appropriate for the installation environmental conditions and in compliance with local code is the responsibility of the Installation Contractor.

Site to provide approved (engineered) anchor points for personnel to use as part of their fall restraint system around open channels. The anchor points must be positioned so that the preferred retractable lifeline of 8 ft is of sufficient length to access the work at the channel. Refer to local safety regulation.

UV BANKS

Trojan's Responsibility:

Each bank supplied will consist of TrojanUV Solo Lamps™, quartz sleeves, supporting structures, ActiClean™ chemical/mechanical cleaning system and an automatic bank lifting mechanism. UV lamps are powered from an individual electric feed from a lamp driver located in a Power Distribution Center (PDC).

Model and Make:	TrojanUVSigna™
Quantity:	Three (3) UV Banks per Channel Each bank will be supplied with 12 UV lamps and quartz sleeves, one (1) UV intensity sensor, one (1) ActiClean chemical-mechanical wiping system and one (1) automatic bank lifting mechanism
Rating:	Type 6P / IP68 (lamp sleeve assemblies)
Approximate Weight:	12 Lamp - 450 lbs

Installation Contractor's Responsibility:

The Installation Contractor shall install, align, secure, and seal (grout) each UV bank and lifting system in the channel per the instructions provided. The Installation Contractor shall provide solid grating downstream of the UV bank to block out UV light. Please refer to the supplied Trojan-supplied drawings for details.

SYSTEM CONTROL CENTER

Trojan's Responsibility:

A System Control Center (SCC) shall be supplied to monitor and control the UV disinfection System. Trojan will provide a PLC I/O and soft address map to aid the Installation Contractor with integration of the UV PLC and SCADA system. The UV SCC shall consist of the following:

Quantity Supplied:	One (1) SCC will be supplied
Location:	PLC Wall Mount
Controller Type:	CompactLogix
Operator Interface:	SCC HMI Beijer -12" (Outdoor 4X Rated)
Material / Rating:	304 Stainless Steel (Type 4X, IP 66)
Approximate Weight:	200 lbs

Installation Contractor's Responsibility:

The Installation Contractor to be responsible for mounting the SCC as indicated on the drawings. Unless otherwise indicated, the Installation Contractor to be responsible for the supply, installation and connection of the following at the SCC:

1. One (1) 110-240V, 50/60 Hz, 1 Phase, 2 Wire + GND, 1.8 kVA (maximum)
2. One (1) bond link to plant ground, in accordance with applicable codes and standards
3. One (1) Modbus communication link, Belden 3106A (or equivalent), to PDCs
4. One (1) Modbus communication link, Belden 3106A (or equivalent), to HSCs (daisy chained)
5. One (1) 4-20 mA analog shielded twisted pair from plant flow meter

POWER DISTRIBUTION CENTERS

Trojan's Responsibility:

The Power Distribution Center (PDC) distributes power to the UV lamps and shall consist of the following:

Quantity Supplied:	One (1) PDCs will be supplied
Method of Cooling:	Air-conditioning
Material / Rating:	304 Stainless Steel
Approximate Weight:	1,213 lbs – 48 lamp PDC (Single Wide)

Installation Contractor's Responsibility:

The Installation Contractor to be responsible for setting in place and bolting the PDC in location. The Installation Contractor to be responsible for the supply, installation and connection of the following at each PDC:

1. One (1) 480 / 277V, 50/60 Hz, 3 Phase, 4 Wire + GND, 40.2 kVA power feed with local disconnect to each of PDC
2. One (1) bond link to plant ground, in accordance with applicable codes and standards (to underside of panel)
3. One (1) bond link from each UV bank to the corresponding PDC in accordance with the applicable drawings, specifications, codes, and standards
4. One (1) bank-in-place sensor cable (by Trojan) from each UV bank to corresponding PDC
5. One (1) UV intensity sensor cable (by Trojan) from each UV bank to corresponding PDC
6. One (1) Modbus communication link, Belden 3106A (or equivalent), from the SCC
7. One (1) discrete, 2 conductor, cable from level sensor control box for low water level signal
8. Installation and termination of lamp cables from the UV banks to each PDC. (Qty: 12 per UV Bank – supplied by Trojan)

HYDRAULIC SYSTEM CENTER

Trojan's Responsibility:

The Hydraulic System Center (HSC) houses the ancillary equipment required to operate the quartz sleeve cleaning system and automatic bank lifting mechanism.

Quantity Supplied:	One (1) HSCs will be supplied
Materials / Rating:	304 Stainless Steel (Type 4X, IP 66)
Hydraulic Fluid:	Mineral Oil
Approximate Weight:	500 lbs

Installation Contractor's Responsibility:

The Installation Contractor shall be responsible for setting in place and bolting the HSC's as shown on the Trojan drawings. The HSC's must be located within 50 ft of the furthest PDC. The Installation Contractor shall be responsible for the supply, connection and installation of the following at each HSC:

1. One (1) 480V 60Hz, 3 Phase, 3 Wire + GND, 2.5 kVA power feed with local disconnect
2. One (1) bond link to plant ground, in accordance with applicable codes and standards
3. One (1) Modbus communication link, Belden 3106A (or equivalent), from the SCC
4. Cut and crimp hydraulic hoses (coordination with Parker Store) (hoses and connections supplied by Trojan)
5. Connection of the hydraulic hoses, total of four (4) per UV bank

WATER LEVEL CONTROLLER

Trojan's Responsibility

A level control device is required to maintain and control the effluent level in the channel, regardless of flow rate.

Quantity Supplied:	One (1) Fixed Weir
Material of Construction:	304 Stainless Steel

Installation Contractor's Responsibility:

The Installation Contractor to be responsible for setting in place, bolting, grouting and sealing each level control weir trough as per Trojan's and Engineer's drawings.

LOW WATER LEVEL SENSORS

Trojan's Responsibility:

A Low Water Level Sensor is required downstream of the UV System to generate a low water level signal that will shut down and protect the UV System if the water level in the channel drops too low.

Quantity Supplied:	One (1) of each water level sensor to be supplied per channel
Approximate Weight:	10 lbs (panel)

Installation Contractor's Responsibility:

The Installation Contractor to be responsible for setting in place and bolting the water level sensor panel to the effluent channel wall as per Trojan's and Engineer's drawings.

LEVEL SENSOR CONTROL BOX

Trojan's Responsibility:

Trojan will provide a wall mounted Level Sensor Control Box 24 x 14 x 6 in to provide power and relays for low level sensors.

Quantity Supplied:	One (1) Level Sensor Control Box per channel
Materials / Rating:	304 Stainless Steel (Type 4X)
Approximate Weight:	40 lbs

Installation Contractor's Responsibility:

The Installation Contractor to be responsible for mounting the Level Sensor Control Box as indicated on the drawings. The Installation Contractor shall also be responsible for supplying mounting hardware, watertight conduit and for the supply, installation and connection of the following at each Control Box:

1. One (1) 120 Volt, 1 phase, 2 wire + GND 72 VA power supply
2. One (1) discrete, 2 conductor cable from the Low Level Sensor to the level sensor control box
3. One (1) discrete, 2 conductor cable from the level sensor control box to each PDC

SPARE PARTS AND ADDITIONAL EQUIPMENT

Trojan's Responsibility:

The following equipment will be supplied with the UV system:

Description	Qty
1000W Solo Lamp	Four (4)
Solo Quartz Sleeve	Four (4)
Signa UV Sensor	One (1)
Acticlean WW 4 x 4L (Case)	One (1)
Operator's Kit	One (1)

DOCUMENTATION (SHOP DRAWINGS AND O&M MANUALS)

The following documentation will be supplied by Trojan per the following schedule:

- One (1) electronic copy of Trojan Shop Drawing Submittals 4 - 6 weeks after receipt of written purchase order (hardcopies available upon request)
- One (1) electronic copy of Trojan Standard O&M manuals at time of equipment delivery (hardcopies available upon request)

DELIVERY, START-UP AND TRAINING

Equipment shipped **24** weeks after approval of Shop Drawings.

Installation Contractor's Responsibility:

The Contractor is responsible for:

- Un loading of the components supplied by Trojan, storage of all components, if required in a clean dry environment
- Installing the equipment outlined in the scope of Supply in accordance with contract drawings, Trojan's shop drawings, instructions and installation checklist.
- Supplying all conduits and conductors and components per the sites state regulations and components indicated as supplied by others,
- Completing the Checklist and returned at least two (2) weeks prior to date requested for commissioning.

The following start-up services will be provided by Trojan-certified technicians:

- Installation assistance as required by phone or fax. Technical Assistance Center 1-866-388-0488 or tac@trojanuv.com
- Start-up and testing of the installed UV equipment.
 - If the Trojan's Certified Service Technician determines the Contractor work is not complete and the start-up cannot be completed in the allotted time a return visit will be scheduled at the Contractors expense.
- Classroom and/or jobsite training for operations staff
 - If trainees are not available a return visit will be scheduled at the Contractors expense.

WARRANTY

Trojan will warrant the equipment and parts for 24 months after start-up or 30 months after shipment, whichever comes first. Refer to attached Terms and Conditions for additional details.

- UV lamps shall be warranted for 15,000 hours prorated after 9,000 hours.
- Lamp drivers shall be warranted for 10 years, prorated after 1 year.

SELLING PRICE **USD**

Selling price does not include any duties or taxes that may be applicable.
Freight to site is included

PAYMENT TERMS

15% upon approval of Shop Drawings
80% upon delivery of equipment to job site
5% upon equipment acceptance or 60 days after delivery (whichever occurs first)

Net 30 Days

TERMS AND CONDITIONS – ATTACHED

Trojan appreciates the opportunity to submit this proposal. Our proposal is submitted subject to and based on Trojan's standard terms and conditions, which we have attached as part of our proposal. We believe these terms and conditions are customary in the trade and respectfully reserve the opportunity to negotiate, fair and reasonable contract terms acceptable to both parties, if Trojan is selected for this project.



Terms and Conditions of Sale

This document sets forth the Terms & Conditions of Sale for goods manufactured and/or supplied, and services provided, by the seller entity identified on the purchase order ("SELLER") and sold to the original purchaser thereof ("BUYER"). The term "SELLER" includes only SELLER, and none of its affiliates. Unless otherwise specifically stated in a previously-executed written purchase agreement signed by authorized representatives of SELLER and BUYER, these Terms & Conditions of Sale establish the rights, obligations and remedies of SELLER and BUYER which apply to this offer and any resulting order or contract for the sale of SELLER's goods and/or services ("Products").

1. APPLICABLE TERMS & CONDITIONS: These Terms & Conditions of Sale are contained directly and/or by reference in SELLER's proposal, offer, order acknowledgment, packing slip, and/or invoice documents. The first of the following acts constitutes an acceptance of SELLER's offer and not a counteroffer and creates a contract of sale ("Contract") in accordance with these Terms & Conditions of Sale: (i) BUYER's issuance of a purchase order document against SELLER's offer; (ii) acknowledgement of BUYER's order by SELLER; or (iii) commencement of any performance by SELLER pursuant to BUYER's order. Provisions contained in BUYER's purchase documents (including electronic commerce interfaces) that materially alter, add to, or subtract from the provisions of these Terms & Conditions of Sale are not a part of the Contract.

2. CANCELLATION AND RETURN: The whole or any part of this order may be cancelled only with the prior written consent of SELLER. If SELLER does consent to a cancellation, such consent will be given only upon payment of reasonable cancellation charges in an amount determined by SELLER. In addition, with respect to any Products returned on cancellation, BUYER will pay SELLER's cost of placing the returned Products in a saleable condition, sales expenses incurred by SELLER in connection with such returned Products, a reasonable restocking charge and freight costs incurred in connection with the original shipment and in connection with returning such Products to SELLER, all in such amounts as are advised to the BUYER by SELLER.

3. DELIVERY: Delivery will be accomplished EXW or CIP at the point of shipment (Incoterms 2020), unless otherwise expressly agreed between the parties. Legal title and risk of loss or damage pass to BUYER upon transfer to the first carrier, regardless of final destination and mode of transit. SELLER will use commercially reasonable efforts to deliver the Products ordered herein within SELLER's normal lead-time necessary for SELLER to deliver the Products sold hereunder. Products will be boxed or crated as determined appropriate by SELLER for protection against normal handling and there will be an extra charge to the BUYER for additional packaging required by the BUYER with respect to waterproofing or other added protection. BUYER has sole responsibility for off-loading, storage and handling of the Products at the site. Where Buyer is responsible for any delay in the delivery date or installation date, the earlier of the date of delivery or the date on which the Products are ready for shipment by SELLER may be treated as the delivery date for purposes of determining the time of payment of the purchase price. Moreover, BUYER will be responsible for reasonable storage and insurance expenses with respect to such Products. Should BUYER fail to effect pick-up of Product as previously agreed in a timely manner, SELLER may, at its discretion, assess reasonable storage charges to the account of BUYER.

4. INSPECTION: BUYER will promptly inspect and accept any Products delivered pursuant to this Contract after receipt of such Products. In the event the Products do not conform to any applicable specifications, BUYER will promptly notify SELLER of such nonconformance in writing. SELLER will have a reasonable opportunity to repair or replace the nonconforming Product at its option. BUYER will be deemed to have accepted any Products delivered hereunder and to have waived any such nonconformance for such Products unless a written notification pursuant to this paragraph is received by SELLER within thirty (30) days of delivery to BUYER destination on order.

5. PRICES & ORDER SIZES: Prices do not include any charges for services such as insurance; brokerage fees; sales, use, inventory, or excise taxes; import or export duties; special financing fees; value added tax, income, or royalty taxes imposed outside the U.S. or Canada; consular fees; special permits or licenses; or other charges imposed upon the production, sale, distribution, or delivery of Products. BUYER will either pay any and all such charges or provide SELLER with acceptable exemption certificates, which obligation survives performance under this Contract. Installation, maintenance and any other services which relate to the Products are not included unless specifically set forth in the quotation. SELLER reserves the right to establish minimum order sizes and will advise BUYER accordingly. Any orders below the minimum order size are subject to a fee as set out by SELLER. If SELLER's delivery of Products surpasses one (1) year in length, then at least on an annual basis, or if changes to the Products are requested or needed, the parties shall conduct good faith discussions regarding changes to the prices for the Products, to reflect SELLER's increased costs for which SELLER shall be entitled to additional fair and appropriate compensation.

6. PAYMENTS: All payments must be made in agreed-to currency, normally Canadian or U.S. Dollars. Unless other payment terms are expressly set forth in the purchase order or otherwise required by the Seller, invoices are due and payable NET 30 DAYS from date of the invoice, without regard to delays for inspection or transportation, with payments to be made by check to SELLER at the address listed in the purchase order or by bank transfer to the account obtainable from SELLER's Accounts Receivable Manager. In the event payments are not made or not made in a timely manner, SELLER may, in addition to all other remedies provided at law, either: (a) declare BUYER's performance in breach and terminate this Contract for default; (b) withhold future shipments until delinquent payments are made; (c) deliver future shipments on a cash-with-order or cash-in-advance basis even after the delinquency is cured; (d) charge interest on the outstanding balance at a rate of 1.5% per month or the maximum rate permitted by law, if lower, for each month or part thereof that there is an outstanding balance plus applicable storage charges and/or inventory carrying charges; (e) repossess the Products for which payment has not been made; (f) pursue other collection efforts and recover all associated costs including reasonable attorney's fees; or (g) combine any of the above rights and remedies as is practicable and permitted by law. BUYER is prohibited from setting off any and all monies owed under this Contract from any other sums, whether liquidated or not, that are or may be due to the BUYER, which arise out of a different transaction with SELLER or any of its affiliates. Should BUYER's financial condition become unsatisfactory to SELLER in its discretion, SELLER may require payment in advance or other security. If BUYER fails to meet these requirements, SELLER may treat such failure as reasonable grounds for repudiation of this Contract, in which case reasonable cancellation charges shall be due to SELLER. BUYER hereby grants SELLER a security interest in the Products, wherever located, and whether now existing or hereafter arising or acquired from time to time, and in all accessions thereto and replacements or modifications thereof, as well as all proceeds of the foregoing, to secure payment in full of all amounts to Seller, which payment releases the security interest but only if such payment could not be considered an avoidable transfer under applicable laws. The security interest granted hereby constitutes a purchase money security interest under the applicable Uniform Commercial Code or Personal Property Security Act or other applicable law, and SELLER is authorized to make whatever registration or notification or take such other action as SELLER deems necessary or desirable to perfect such security interest. BUYER's insolvency, bankruptcy, assignment for the benefit of creditors, or dissolution or termination of the existence of BUYER, constitutes a default under this Contract and affords SELLER all of the remedies of a secured creditor under applicable law, as well as the remedies stated above for late payment or non-payment.

7. LIMITED WARRANTY: Unless specifically provided otherwise in SELLER's quotation, SELLER provides the following Limited Warranty. SELLER warrants that Products sold hereunder will be free from defects in material and workmanship and will, when used in accordance with the manufacturer's operating and maintenance instructions, conform to any express written warranty pertaining to the specific goods purchased, which for Products is for a period of twelve (12) months from delivery. SELLER warrants that services furnished hereunder will be free from defects in workmanship for a period of ninety (90) days from the completion of the services. Products repaired or replaced are not covered by any warranty except to the extent repaired or replaced by SELLER, an authorized representative of SELLER, or under specific instructions by SELLER, in which cases, the Products will be covered under warranty up to the end of the warranty period applicable to the original Products. The above warranties do not include the cost of shipping and handling of returned items. Parts provided by SELLER in the performance of services may be new or refurbished parts functioning equivalent to new parts. Any non-functioning parts that are repaired by SELLER shall become the property of SELLER. No warranties are extended to consumable items such as, without limitation, light bulbs, and for normal wear and tear. All other guarantees, warranties, conditions and representations, either express or implied, whether arising under any statute, law, commercial usage or otherwise, including implied warranties of merchantability and fitness for a particular purpose, are hereby excluded. The sole remedy for Products not meeting this Limited Warranty is replacement, credit or refund of the purchase price, as determined by SELLER in its sole discretion. This remedy will not be deemed to have failed of its essential purpose so long as SELLER is willing to provide such replacement, credit or refund. To make a warranty claim, BUYER must notify SELLER in writing within 5 days of discovery of the defect in question. This notification must include a description of the problem, a copy of the applicable operator's log, a copy of BUYER's maintenance record and any analytical results detailing the problem. Any warranty hereunder or performance guarantees shall only be enforceable if (a) all equipment is properly installed, inspected regularly, and is in good working order, (b) all operations are consistent with SELLER recommendations, (c) operating conditions at the installation site have not materially changed and remain within anticipated specifications, and (d) no reasonably unforeseeable circumstances exist or arise.

8. INDEMNIFICATION: Indemnification applies to a party and to such party's successors-in-interest, assignees, affiliates, directors, officers, and employees ("Indemnified Parties"). SELLER is responsible for and will defend, indemnify and hold harmless the BUYER Indemnified Parties against all losses, claims, expenses or damages which may result from accident, injury, damage, or death due to SELLER's breach of the Limited Warranty. BUYER is responsible for and will defend, indemnify and hold harmless SELLER Indemnified Parties against all losses, claims, expenses, or damages which may result from accident, injury, damage, or death due to the negligence or misuse or misapplication of any Products or the breach of any provision of this Contract by the BUYER or any third party affiliated or in privity with BUYER.

9. PATENT PROTECTION: Subject to all limitations of liability provided herein, SELLER will, with respect to any Products of SELLER's design or manufacture, indemnify BUYER from any and all damages and costs as finally determined by a court of competent jurisdiction in any suit for infringement of any U.S. or Canadian patent (or European patent for Products that SELLER sells to BUYER for end use in a member state of the E.U. or the U.K.) that has issued as of the delivery date, solely by reason of the sale or normal use of any Products sold to BUYER hereunder and from reasonable expenses incurred by BUYER in defense of such suit if SELLER does not undertake the defense thereof, provided that BUYER promptly notifies SELLER of such suit and offers SELLER either (i) full and exclusive control of the defense of such suit when Products of SELLER only are involved, or (ii) the right to participate in the defense of such suit when products other than those of SELLER are also involved. SELLER's warranty as to use patents only applies to infringement arising solely out of the inherent operation of the Products according to their applications as envisioned by SELLER's specifications. In case the Products are in such suit held to constitute infringement and the use of the Products is enjoined, SELLER will, at its own expense and at its option, either procure for BUYER the right to continue using such Products or replace them with non-infringing products, or modify them so they become non-infringing, or remove the Products and refund the purchase price (prorated for depreciation) and the transportation costs thereof. The foregoing states the entire liability of SELLER for patent

infringement by the Products. Further, to the same extent as set forth in SELLER's above obligation to BUYER, BUYER agrees to defend, indemnify and hold harmless SELLER for patent infringement related to (x) any goods manufactured to the BUYER's design, (y) services provided in accordance with the BUYER's instructions, or (z) SELLER's Products when used in combination with any other devices, parts or software not provided by SELLER hereunder.

10. TRADEMARKS AND OTHER LABELS: BUYER agrees not to remove or alter any indicia of manufacturing origin or patent numbers contained on or within the Products, including without limitation the serial numbers or trademarks on nameplates or cast, molded or machined components.

11. SOFTWARE AND INTELLECTUAL PROPERTY: All licenses to SELLER's separately provided software products are subject to the separate software license agreement(s) accompanying the software media. In the absence of such express licenses and for all other software, SELLER grants BUYER only a personal, non-exclusive license to access and use the software provided by SELLER with Products purchased hereunder solely as necessary for BUYER to enjoy the benefit of the Products. A portion of the software may contain or consist of open source software, which BUYER may use under the terms and conditions of the specific license under which the open source software is distributed. BUYER agrees that it will be bound by all such license agreements. Title to software remains with the applicable licensor(s). All SELLER contributions to the Products, the results of the services, and any other work designed or provided by SELLER hereunder may contain or result in statutory and non-statutory Intellectual Property, including but not limited to patentable subject matter or trade secrets; and all such Intellectual Property remains the sole property of SELLER; and BUYER shall not disclose (except to the extent inherently necessary during any resale of Product sold hereunder), disassemble, decompile, or any results of the Services, or any Products, or otherwise attempt to learn the underlying processes, source code, structure, algorithms, or ideas.

12. PROPRIETARY INFORMATION AND PRIVACY: "Proprietary Information" means any information, technical data, or know-how in whatever form, whether documented, contained in machine readable or physical components, mask works or artwork, or otherwise, which SELLER considers proprietary, including but not limited to service and maintenance manuals. BUYER and its customers, employees, and agents will keep confidential all such Proprietary Information obtained directly or indirectly from SELLER and will not transfer or disclose it without SELLER's prior written consent, or use it for the manufacture, procurement, servicing, or calibration of Products or any similar products, or cause such products to be manufactured, serviced, or calibrated by or procured from any other source, or reproduce or otherwise appropriate it. All such Proprietary Information remains SELLER's property. No right or license is granted to BUYER or its customers, employees or agents, expressly or by implication, with respect to the Proprietary Information or any patent right or other proprietary right of SELLER, except for the limited use licenses implied by law. In respect of personal data supplied by BUYER to SELLER, BUYER warrants that is duly authorized to submit and disclose these data, including but not limited to obtaining data subjects' informed consent. SELLER will manage BUYER's information and personal data in accordance with its Privacy Policy, a copy of which is available to Buyer upon request. In respect of other data and information that SELLER may receive in connection with BUYER's use of the Products including without limitation data that are captured by the Products and transmitted to SELLER, BUYER hereby grants SELLER a non-exclusive, worldwide, royalty-free, perpetual, non-revocable license to use, compile, distribute, display, store, process, reproduce, or create derivative works of such data as needed for Product operation and maintenance, and to aggregate such data for use in an anonymous manner, solely to facilitate marketing, sales and R&D activities of SELLER and its affiliates.

13. SPECIAL TOOLS, DIES, JIGS, FIXTURES AND PATTERNS: Any tools, dies, jigs, fixtures, patterns and similar items which are included or required in connection with the manufacture and/or supply of the Products will remain the property of SELLER without credit to the BUYER. SELLER assumes the cost for maintenance and replacement of such items and shall have the right to discard and scrap any such item after it has been inactive for a minimum of one year, without credit to the BUYER.

14. CHANGES AND ADDITIONAL CHARGES: SELLER reserves the right to make design changes or improvements to any products of the same general class as Products being delivered hereunder without liability or obligation to incorporate such changes or improvements to Products ordered by BUYER unless agreed upon in writing before the Products' delivery date.

15. SITE ACCESS / PREPARATION / WORKER SAFETY / ENVIRONMENTAL COMPLIANCE: In connection with services provided by SELLER, BUYER agrees to permit prompt access to equipment. BUYER assumes full responsibility to back-up or otherwise protect its data against loss, damage or destruction before services are performed. BUYER is the operator and in full control of its premises, including those areas where SELLER employees or contractors are performing service, repair, and maintenance activities. BUYER will ensure that all necessary measures are taken for safety and security of working conditions, sites, and installations during the performance of any services. BUYER is the generator of any resulting wastes, including without limitation hazardous wastes. BUYER is solely responsible to arrange for the disposal of any wastes at its own expense. BUYER will, at its own expense, provide SELLER employees and contractors working on BUYER's premises with all information and training required under applicable safety compliance regulations and BUYER's policies. SELLER has no responsibility for the supervision or actions of BUYER's employees or contractors or for non-SELLER items (e.g., chemicals, equipment) and disclaims all liability and responsibility for any loss or damage that may be suffered as a result of such actions or items, or any other actions or items not under SELLER's control.

16. LIMITATIONS ON USE: BUYER will not use any Products for any purpose other than those identified in SELLER's catalogs and literature as intended uses. Unless SELLER has advised the BUYER in writing, in no event will BUYER use any Products in drugs, food additives, food, or cosmetics, or medical applications for humans or animals. In no event will BUYER use in any application any Product that requires FDA 510(k) clearance unless and only to the extent the Product has such clearance. BUYER will not sell, transfer, export, or re-export any SELLER Products or technology for use in activities which involve the design, development, production, use, or stockpiling of nuclear, chemical, or biological weapons or missiles, nor use SELLER Products or technology in any facility which engages in activities relating to such weapons. Unless the "ship-to" address is in California, U.S.A., the Products are not intended for sale in California and may lack markings required by California Proposition 65; accordingly, unless BUYER has ordered Products specifying a California ship-to address, BUYER will not sell or deliver any SELLER Products for use in California. Any warranty granted by SELLER is void if any goods covered by such warranty are used for any purpose not permitted hereunder.

17. EXPORT AND IMPORT LICENSES AND COMPLIANCE WITH LAWS: Unless otherwise expressly agreed, BUYER is responsible for obtaining any required export or import licenses necessary for Product delivery. BUYER will comply with all laws and regulations applicable to the installation or use of all Product, including applicable import and export control laws and regulations of the U.S., E.U., and any other country having proper jurisdiction, and will obtain all necessary export or import licenses in connection with any subsequent export, re-export, transfer, and use of all Product and technology delivered hereunder. BUYER will not sell, transfer, export, or re-export any SELLER Product or technology for use in activities which involve the design, development, production, use or stockpiling of nuclear, chemical, or biological weapons or missiles, nor use SELLER Product or technology in any facility which engages in activities relating to such weapons. BUYER will comply with all local, national, and other laws of all jurisdictions globally relating to anti-corruption, bribery, extortion, kickbacks, or similar matters which are applicable to BUYER's business activities in connection with this Contract, including but not limited to the U.S. Foreign Corrupt Practices Act of 1977, as amended (the "FCPA"). BUYER agrees that no payment of money or provision of anything of value will be offered, promised, paid, or transferred, directly or indirectly, by any person or entity, to any government official, government employee, or employee of any company owned in part by a government, political party, political party official, or candidate for any government office or political party office to induce such organizations or persons to use their authority or influence to obtain or retain an improper business advantage for BUYER or for SELLER, or which otherwise constitute or have the purpose or effect of public or commercial bribery, acceptance of or acquiescence in extortion, kickbacks, or other unlawful or improper means of

obtaining business or any improper advantage, with respect to any of BUYER's activities related to this Contract. SELLER asks BUYER to "Speak Up!" if aware of any violation of law, regulation, or our Code of Conduct ("CoC") in relation to this Contract. See www.danaherintegrity.com and www.danaher.com/how-we-work/integrity-and-compliance for a copy of the CoC and for access to our Helpline portal.

18. RELATIONSHIP OF PARTIES: BUYER is not an agent or representative of SELLER and will not present itself as such under any circumstances, unless and to the extent it has been formally screened by SELLER's compliance department and received a separate duly-authorized letter from SELLER setting forth the scope and limitations of such authorization.

19. FORCE MAJEURE: SELLER is excused from performance of its obligations under this Contract to the extent caused by acts or omissions that are beyond its control, including but not limited to Government embargoes, blockages, seizures or freezing of assets, delays, or refusals to grant an export or import license, or the suspension or revocation thereof, or any other acts of any Government; fires, floods, severe weather conditions, or any other acts of God; quarantines; epidemics and pandemics; labor strikes or lockouts; riots; strife; insurrections; civil disobedience or acts of criminals or terrorists; war; material shortages or delays in deliveries to SELLER by third parties. In the event of the existence of any force majeure circumstances, the period of time for delivery, payment terms, and payments under any letters of credit will be extended for a period of time equal to the period of delay. If the force majeure circumstances extend for six months, SELLER may, at its option, terminate this Contract without penalty and without being deemed in default or in breach thereof.

20. NON-ASSIGNMENT AND WAIVER: BUYER will not transfer or assign this Contract or any rights or interests hereunder without SELLER's prior written consent. Failure of either party to insist upon strict performance of any provision of this Contract, or to exercise any right or privilege contained herein, or the waiver of any breach of the terms or conditions of this Contract, will not be construed as thereafter waiving any such terms, conditions, rights, or privileges, and the same will continue and remain in force and effect as if no waiver had occurred.

21. FUNDS TRANSFERS: BUYER and SELLER both recognize that there is a risk of banking fraud when individuals impersonating a business demand payment under new mailing or banking transfer instructions. To avoid this risk, BUYER must verbally confirm any new or changed mailing or banking transfer instructions by calling SELLER and speaking with SELLER's Accounts Receivable Manager before transferring any monies using the new instructions. Both parties agree that they will not institute mailing or banking transfer instruction changes and require immediate payment under the new instructions, but will instead provide a ten (10) day grace period to verify any mailing or banking transfer instruction changes before any new or outstanding payments are due using the new instructions.

22. LIMITATION OF LIABILITY: None of SELLER, its successors-in-interest, assignees, affiliates, directors, officers, and employees will be liable to any BUYER Indemnified Parties under any circumstances for any special, treble, incidental, or consequential damages, including without limitation, damage to or loss of property other than for the Products purchased hereunder; damages incurred in installation, repair, or replacement; lost profits, revenue, or opportunity; loss of use; losses resulting from or related to downtime of the Products or inaccurate measurements or reporting; the cost of substitute products; or claims of any BUYER's Indemnified Parties' customers for such damages, howsoever caused, and whether based on warranty, contract, and/or tort (including negligence, strict liability or otherwise). The total liability of SELLER, its successors-in-interest, assignees, affiliates, directors, officers, and employees arising out of the performance or nonperformance hereunder, or SELLER's obligations in connection with the design, manufacture, sale, delivery, and/or use of Products, will in no circumstance exceed the amount actually paid to SELLER for Products delivered hereunder.

23. APPLICABLE LAW AND DISPUTE RESOLUTION: All issues relating to the construction, validity, interpretation, enforcement, and performance of this agreement and the rights and obligations of SELLER and the BUYER hereunder shall be governed by the laws of the Province of Ontario and the federal laws of Canada applicable therein. Any provisions of the International Sale of Goods Act or any convention on contracts for the international sale of goods shall not be applicable to this agreement. The parties submit to and consent to the non-exclusive jurisdiction of courts located in the Province of Ontario.

24. ENTIRE AGREEMENT, TERM & MODIFICATION: These Terms & Conditions of Sale constitute the entire agreement between the parties and supersede any prior agreements or representations, whether oral or written. Upon thirty (30) days prior written notice, SELLER may, in its sole discretion, elect to terminate any order for the sale of Products and provide a pro-rated refund for any pre-payment of undelivered Products. No change to or modification of these Terms & Conditions shall be binding upon SELLER unless in a written instrument specifically referencing that it is amending these Terms & Conditions of Sale and signed by an authorized representative of SELLER. SELLER rejects any additional or inconsistent Terms & Conditions of Sale offered by BUYER at any time, whether or not such terms or conditions materially alter the Terms & Conditions herein and irrespective of SELLER's acceptance of BUYER's order for the described goods and services.

Terms and Conditions Covering Sales of Configured-to-Order Projects and Systems

In addition to all terms and conditions above, the following sections apply to sales of Configured-to-Order Projects, Systems, and the like:

101. PAYMENT.

101.1 Payments will be made per the schedule of payment events set forth in Seller's Quotation; provided that if the Start-Up Date (as defined below) is less than 30 days after the Acceptance Date, 90% of the purchase price is due on or before the Start-Up Date.

101.2. In the event that achievement of a scheduled payment event is delayed or suspended due to the Buyer's convenience or other reasons for which the Buyer or its representatives is responsible, such payment event will be deemed to have occurred and Seller shall be entitled to invoice Buyer as if achievement of such payment event had been achieved. In such circumstances, Buyer must notify Seller in writing of the reasons for the delay and anticipated duration of the delay. Seller will mark the Products (or parts thereof) as the Buyer's property and shall store the Products (or parts thereof) in a segregated area until actual delivery.

102. DELIVERY

102.1 SELLER will request the BUYER to provide a firm date for delivery of the Products to the project site (the "Delivery Date") which SELLER will then use to establish the production schedule for the Products. The Delivery Date will then be binding on the BUYER except for any changes made in accordance with the provisions below.

102.2 The BUYER can request a rescheduling of the Delivery Date on one occasion only by notifying SELLER in writing not less than four weeks prior to the scheduled Delivery Date. The BUYER may request that the Delivery Date be extended by a period up to six weeks, without penalty, but may not request that the Delivery Date be moved forward. The BUYER may also request that the Delivery Date be extended beyond a six-week period but, SELLER may not agree to such extension, beyond the maximum six-week extension period

102.3 SELLER may, in its sole discretion, agree to change the Delivery Date on more than one occasion or if less than four weeks' prior notice is provided of a requested change, but is under no obligation to do so.

102.4 SELLER reserves the right to reschedule the Delivery Date to a date prior to or subsequent to the scheduled Delivery Date in order to accommodate its shipping, production or other requirements. This right to reschedule will be applicable unless otherwise agreed in writing by an authorized officer of SELLER. SELLER will provide the BUYER or its representative with a minimum of 24 hours' notice of any such rescheduling.

102.5 Where any change to the Delivery Date is made at BUYER's request, for all purposes with respect to the warranty and payment provided by SELLER in connection with the Products, the initial Delivery Date will be considered to be the Delivery Date regardless of any change later made to the Delivery Date.

103. ACCEPTANCE

103.1 During the period between the Delivery Date and the Start-up Date, the BUYER shall prepare the Products and the project site for installation and start-up and, unless otherwise agreed in writing by an authorized representative of SELLER, shall complete acceptance testing with respect to the Products. The Products shall be deemed to be accepted on the earliest to occur of the following dates (the "Acceptance Date"): (a) that date on which the Products can function in either manual or automatic operation and provide disinfection in accordance with criteria specified in the Quotation, or (b) 60 days after the Delivery Date.

103.2 All amounts which remain owing by the BUYER for the Products, including any amount which is specified to be payable on the Acceptance Date, will be paid by the BUYER to SELLER within 30 days after the Acceptance Date, unless otherwise agreed in writing by an authorized representative of SELLER.

103.3 Written notification must be given by the BUYER to SELLER within seven days after the Acceptance Date listing any outstanding deficiencies with respect to the Products and SELLER will use all reasonable efforts to correct such deficiencies promptly.

104. START-UP

104.1 SELLER will request a firm date for start-up of the Equipment (the "Start-Up Date"). Trojan will then schedule its technician to be on-site for the Start-up Date. The Start-up Date is binding except for any changes made in accordance with the provisions below.

104.2 On the Start-up Date, BUYER must have the Equipment and site ready as provided in the Installation Preparation Checklist contained in the Contractor Installation Package sent to BUYER and must have paid all amounts then due and payable to SELLER.

104.3 BUYER can request a rescheduling of the Start-up Date by notifying SELLER in writing not less than three weeks prior to the Start-up Date. BUYER may request that the Start-up Date be extended but may not request that the Start-up Date be moved forward. SELLER requires a minimum extension period of two weeks between the existing Start-up Date and the requested new Start-up Date in order to reschedule its technician.

104.4 SELLER may, in its sole discretion, agree to reschedule the Start-up Date where a BUYER requests less than a two-week extension but is under no obligation to do so. In the event that SELLER does agree to less than a two-week extension or that BUYER requests more than two changes to the Start-up Date, BUYER will be charged an administration fee in an amount determined by SELLER.

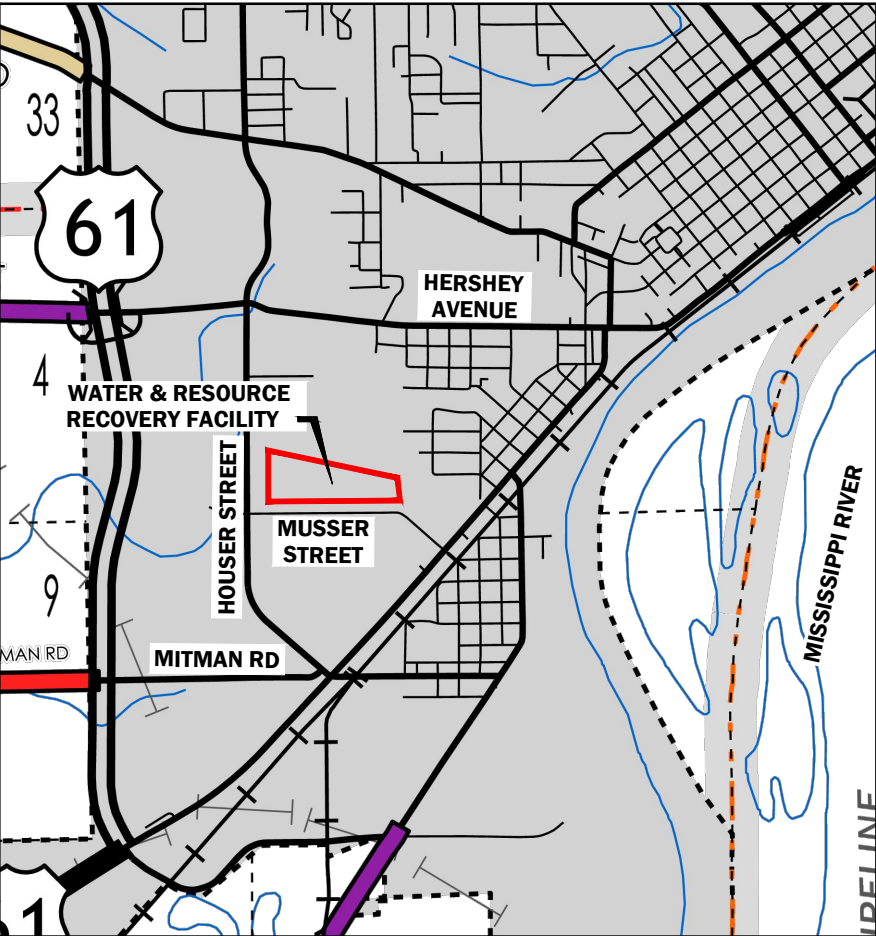
104.5 SELLER reserves the right to reschedule the Start-up Date to a date which is prior to or subsequent to the scheduled Start-up Date in order to accommodate its resource availability. This right to reschedule will be applicable unless otherwise agreed in writing by an authorized officer of SELLER. SELLER will provide BUYER or its representative with a minimum of 72 hours' notice of any such change to the Start-up Date.

104.6 In the event that SELLER'S technician arrives at the project site and finds that the Equipment or the project site is not ready for start-up as defined in the Contractor Installation Package, or any amounts then due and payable to SELLER remain unpaid, BUYER may either:

(a) provided all amounts then due and payable to SELLER have been paid, issue a purchase order for all costs involved in having SELLER correct the deficiencies, or

(b) have SELLER'S technician leave the site and then reschedule the Start-up Date to a date when all deficiencies will be corrected, and the Equipment will be ready for start-up as defined in the Contractor Installation Package. If BUYER selects this option, the cost of rescheduling will be not less than a minimum amount specified by SELLER, with the final cost being determined by SELLER based on its costs and expenses incurred in connection with the rescheduling.

PLANS FOR REPLACEMENT UV DISINFECTION SYSTEM PROJECT MUSCATINE, IOWA



VICINITY MAP
NO SCALE



DRAWING INDEX		
SHEET NO.	DWG. NO.	TITLE
GENERAL		
1	01-G-1	INDEX & TITLE SHEET
2	01-G-2	LEGENDS
SITE PLAN		
3	02-C-1	OVERALL EXISTING SITE PLAN
SITE PLAN		
4	02-E-1	PARTIAL ELECTRICAL SITE PLAN
STRUCTURE 50 - UV DISINFECTION BUILDING		
STRUCTURAL		
5	50-R-1	GRADE PLAN - REMOVALS
6	50-R-2	SECTION A - REMOVALS
7	50-R-3	SECTION B - REMOVALS
8	50-R-4	SECTION C & D - REMOVALS
9	50-R-5	REMOVAL PHOTOS
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11	50-SP-1	GRADE PLAN EL. 550.00 - IMPROVEMENTS
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ELECTRICAL		
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I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.

SIGNATURE: Emily K. Linebaugh
NAME: Emily K. Linebaugh, P.E.
DATE: 8/28/23

MY LICENSE RENEWAL DATE IS DECEMBER 31, 2023
PAGES COVERED BY THIS SEAL: 01-G-1 THRU 02-C-1, 50-R-1 THRU 50-SP-4, 99-S-1



I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.

SIGNATURE: Jacob Lucas
NAME: Jacob Lucas, P.E.
DATE: 8/28/23

MY LICENSE RENEWAL DATE IS DECEMBER 31, 2023
PAGES COVERED BY THIS SEAL: 02-E-1, 50-E-1, 99-E-1 THRU 99-E-3



DATE	REVISIONS	SCALE	AS NOTED
		DRAWN	JPB
		CHECKED	JPB
		APPROVED	EKL
		DATE	8/28/23
		ISSUED FOR	CONSTRUCTION



REPLACEMENT UV DISINFECTION SYSTEM PROJECT
CITY OF MUSCATINE, IOWA

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INDEX & TITLE SHEET

DWG. NO.
01-G-1
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PROJECT 20821

PLOTTED: Monday, August 28, 2023 2:47:41 PM

X-REFS: \\VK-FS\WDMSHARE\0200\0208-MUSCATINE\0208-0021_REPLACEMENT_UV_DISINFECTION_SYSTEM\CADD_PRODDRAWINGS\01\01-G
 FILE PATH:

ELECTRICAL LEGEND

	EXPOSED CONDUIT
	CONDUIT RUN UNDERGROUND OR IN CONCRETE
	BARE COPPER GROUND
	PENDANT MOUNTED FIXTURE
	WALL MOUNTED FIXTURE
	POLE MOUNTED FIXTURE
	"F1": FIXTURE TYPE "1-3": CIRCUIT NUMBER "1": CONTROLLING SWITCH "XP": EXPLOSION-PROOF CONSTRUCTION (WHERE INDICATED)
	FLUORESCENT LIGHTING FIXTURE
	EMERGENCY LIGHT FIXTURE (SAME NOTATIONS AS LIGHT FIXTURE)
	EXIT LIGHT (SAME NOTATIONS AS LIGHT FIXTURE)
	LIGHT SWITCH
	LIGHT SWITCH, 3 WAY
	120V DUPLEX RECEPTACLE, NEMA 5-20R
	120V DUPLEX RECEPTACLE, NEMA 5-20R, EXPLOSION-PROOF
	120V DUPLEX RECEPTACLE, NEMA 5-20R, WEATHER-PROOF
	SINGLE SPECIAL-PURPOSE RECEPTACLE, AMPERAGE AND VOLTAGE AS NOTED ON PLANS
	TELEPHONE OUTLET, M.H. +12" AFF
	DATA COMMUNICATION OUTLET, M.H. +12"
	SCADA ETHERNET PORT
	DISCONNECT SWITCH
	FUSED DISCONNECT SWITCH
	MOTOR
	PUSHBUTTON STATION, SEE SCHEMATICS FOR TYPE
	JUNCTION BOX OR FITTING
	THERMOSTAT
	HORN
	GROUND CONNECTION - EXOTHERMIC TYPE
	GROUND ROD 3/4" x 10' - 0" WITH GROUND WELL (UNLESS OTHERWISE NOTED)
	GROUND CONNECTION BOLTED TYPE
	CIRCUIT BREAKER
	- FRAME (AMPS)
	- TRIP (AMPS)
	MCP
	- CONTINUOUS AMPS
	- TRIP SETTING BASED ON MOTOR HORSEPOWER REDUCED VOLTAGE AUTO TRANSFORMER
	NEMA RATED MOTOR STARTER
	FVNR ----- FULL VOLTAGE NON-REVERSING
	FVR ----- FULL VOLTAGE REVERSING
	VARIABLE FREQUENCY DRIVE 1 INDICATES AMPERE RATING
	RVSS 1 INDICATES AMPERE RATING
	PACKAGED EQUIPMENT 1 INDICATES KW, KVA OR HP RATING AS INDICATED
	INDUCTION MOTOR 10HP NOTED
	TRANSFORMER WITH GROUNDED SECONDARY, KVA SIZE & VOLTAGE RATIO AS NOTED.
	SHIELDED ISOLATION TRANSFORMER, KVA SIZE & VOLTAGE RATIO AS NOTED
	POTENTIAL TRANSFORMER

STANDARD DETAIL DESIGNATION

ON DRAWING WHERE
 DETAIL IS TAKEN:

ON DRAWING WHERE
 DETAIL IS SHOWN:

SEE (206)

206

STANDARD DETAIL DESIGNATION

NOTES:

- STANDARD DETAILS ARE SHOWN ON DISCIPLINE DETAIL DRAWINGS AT THE END OF THE SET.

NOTE: THESE ARE STANDARD LEGENDS, ITEMS MAY OR MAY NOT APPEAR ON PLANS.

MECHANICAL LEGEND

	REMOVE PIPING OR EQUIPMENT
	SANITARY SEWER PIPING BELOW FLOOR OR GRADE
	ACID WASTE PIPING BELOW FLOOR OR GRADE
	SANITARY VENT
	STORM WATER PIPING ABOVE FLOOR OR GRADE
	SANITARY SEWER PIPING ABOVE FLOOR
	NON-POTABLE WATER PIPING
	DOMESTIC COLD WATER PIPING BELOW FLOOR OR GRADE
	DOMESTIC HOT WATER PIPING BELOW FLOOR OR GRADE
	DOMESTIC COLD WATER PIPING ABOVE FLOOR OR GRADE
	DOMESTIC HOT WATER PIPING ABOVE FLOOR OR GRADE
	DRAIN PIPING
	PITCH IN DIRECTION OF ARROW
	FLOW IN DIRECTION OF ARROW
	PIPING ELBOW DOWN
	PIPING ELBOW UP
	PIPING CAP
	CLEANOUT
	FLOOR DRAIN
	PRESSURE REGULATOR
	HOSE BIBB
	HOSE STATION
	WALL HYDRANT
	REDUCED PRESSURE BACKFLOW PREVENTER
	BALL VALVE
	BALL VALVE IN RISER
	GATE VALVE
	CHECK VALVE
	AUTOMATIC AIR VENT
	STRAINER
	UNION
	GAS, LOW PRESSURE
	GAS, MEDIUM PRESSURE
	GAS, HIGH PRESSURE
	GAS COCK
	GAS METER & PRESSURE REGULATOR ASSEMBLY
	COOLANT SUPPLY
	COOLANT RETURN
	FUEL OIL SUPPLY
	FUEL OIL RETURN
	FUEL OIL VENT
	PLUMBING FIXTURE
	THERMOSTAT
	HUMIDISTAT
	CONNECTION TO EXISTING
	SUPPLY AIR DUCT (SA)
	EXHAUST AIR DUCT (EA)
	OUTSIDE AIR DUCT (OA)
	PLAN NOTE NUMBER
	AIR CONDITIONING UNIT
	ABOVE FLOOR
	CONTROL CABINET
	CONTROL DAMPER
	CONDENSING UNIT
	CUBIC FEET PER MINUTE
	COLD WATER
	DEHUMIDIFIER
	DOMESTIC WATER HEATER
	DOWNSPOUT
	EXHAUST FAN
	ELECTRIC UNIT HEATER
	FLOOR DRAIN
	GAS UNIT HEATER
	HOSE BIBB
	HEAT RECOVERY UNIT
	HOT WATER
	HEATING, VENTILATION & AIR CONDITIONING
	INTAKE VENTILATOR
	MAKEUP AIR UNIT
	MANUAL VOLUME DAMPER
	OUTSIDE AIR LOUVER
	REMOTE CONTROL PANEL
	ROOF DRAIN
	SHOWER DRAIN
	SUPPLY FAN
	VENT
	VENT THRU ROOF

GENERAL LEGEND

	SURVEY LINE AND STATION INDICATOR
	CONCRETE SURFACE
	ASPHALT SURFACE
	GRANULAR SURFACE
	DIRT SURFACE
	SURFACE OR STRUCTURE REMOVAL
	BUILDING
	BRICK (SECTION)
	CONCRETE BLOCK (SECTION)
	CONCRETE
	SAND, CLASS B CONCRETE, OR MORTAR
	GRATING
	GLASS (SECTION)
	INSULATION
	EARTH OR BACKFILL
	GRAVEL OR ROCK
	ROUGH CARPENTRY (NOMINAL SIZE INDICATED)
	CONCRETE CORE DECK (ELEV.)
	BRICK (ELEV.)
	GLASS (ELEV.)
	STRUCTURAL SHAPE (LARGE SCALE)
	STRUCTURAL SHAPE (SMALL SCALE)
	EXISTING CONTOUR
	NEW CONTOUR
	CULVERT; SIZE AND TYPE
	POWER POLE
	HYDRANT
	POLE W/GUY ANCHOR
	UNDERGROUND TELEPHONE CABLE JUNCTION BOX
	EXISTING SANITARY SEWER AND MANHOLE
	NEW SANITARY SEWER AND MANHOLE
	EXISTING STORM SEWER AND INTAKE
	NEW STORM SEWER AND INTAKE
	EXISTING STORM SEWER AND MANHOLE
	NEW STORM SEWER AND MANHOLE
	EXISTING WATER MAIN AND SIZE
	NEW WATER MAIN AND SIZE
	EXISTING FORCE MAIN
	NEW FORCE MAIN
	PIPE REMOVAL
	ABANDON IN PLACE
	GAS MAIN AND SIZE
	UNDERGROUND TELEPHONE
	UNDERGROUND ELECTRICAL
	OVERHEAD POWER LINE
	SIGN

PROCESS PIPING LEGEND

	LARGE PIPE (4" & LARGER)
	SMALL PIPE (3" & SMALLER)
	FLANGED JOINT
	MECHANICAL JOINT
	FLEXIBLE JOINT W/CONTROL RODS
	CONCENTRIC REDUCER
	ECCENTRIC REDUCER
	METER
	KNIFE GATE VALVE
	CHECK VALVE
	BUTTERFLY VALVE
	BALL VALVE
	GATE VALVE
	SOLENOID VALVE
	PRESSURE RELIEF VALVE
	PRESSURE REGULATING VALVE
	PLUG VALVE
	SEAT PORT
	PLUG DRAIN VALVE
	PNEUMATIC OPERATOR
	ELECTRIC OPERATOR
	PRESSURE GAUGE
	THERMOMETER

FLOW STREAM IDENTIFICATION

A	AIR
BYP	BYPASS
D	DRAIN
DE	DECANT
FCE	FINAL CLARIFIER EFFLUENT
FCI	FINAL CLARIFIER INFLUENT
FE	FINAL EFFLUENT
GWD	GROUND WATER DRAIN
NPW	NON POTABLE WATER
OV	OVERFLOW
PE	PERMEATE
PTE	PROCESS TANK EFFLUENT
PTI	PROCESS TANK INFLUENT
RW	RAW WASTEWATER
RSL	RETUN SLUDGE
SA	SAMPLE
S	SANITARY
SC	SCUM
SL	SLUDGE
SS	STORM SEWER
WSL	WASTE SLUDGE
W	WATER

REPLACEMENT UV DISINFECTION SYSTEM PROJECT
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DATE	8/28/23
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DWG. NO.

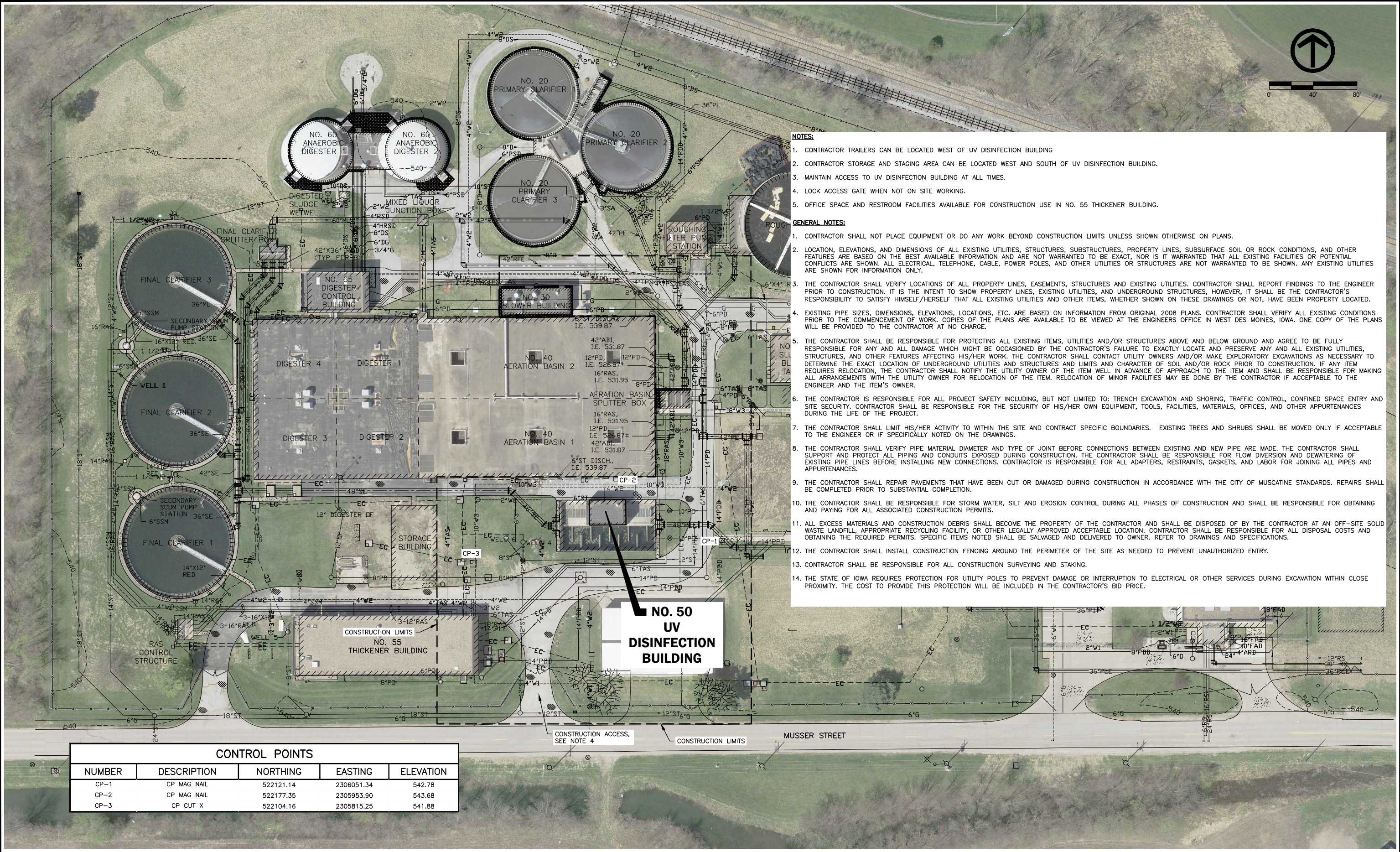
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PROJECT 20821

LEGENDS

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X-REFS: SITE & ARIAL
 FILE PATH: \\VK-FS\WDMSHARE\0200-MUSCATINE\0208-0021-REPLACEMENT UV DISINFECTION SYSTEM\CADD\PRODDRAWINGS\02-02-C



NOTES:

- CONTRACTOR TRAILERS CAN BE LOCATED WEST OF UV DISINFECTION BUILDING
- CONTRACTOR STORAGE AND STAGING AREA CAN BE LOCATED WEST AND SOUTH OF UV DISINFECTION BUILDING.
- MAINTAIN ACCESS TO UV DISINFECTION BUILDING AT ALL TIMES.
- LOCK ACCESS GATE WHEN NOT ON SITE WORKING.
- OFFICE SPACE AND RESTROOM FACILITIES AVAILABLE FOR CONSTRUCTION USE IN NO. 55 THICKENER BUILDING.

GENERAL NOTES:

- CONTRACTOR SHALL NOT PLACE EQUIPMENT OR DO ANY WORK BEYOND CONSTRUCTION LIMITS UNLESS SHOWN OTHERWISE ON PLANS.
- LOCATION, ELEVATIONS, AND DIMENSIONS OF ALL EXISTING UTILITIES, STRUCTURES, SUBSTRUCTURES, PROPERTY LINES, SUBSURFACE SOIL OR ROCK CONDITIONS, AND OTHER FEATURES ARE BASED ON THE BEST AVAILABLE INFORMATION AND ARE NOT WARRANTED TO BE EXACT, NOR IS IT WARRANTED THAT ALL EXISTING FACILITIES OR POTENTIAL CONFLICTS ARE SHOWN. ALL ELECTRICAL, TELEPHONE, CABLE, POWER POLES, AND OTHER UTILITIES OR STRUCTURES ARE NOT WARRANTED TO BE SHOWN. ANY EXISTING UTILITIES ARE SHOWN FOR INFORMATION ONLY.
- THE CONTRACTOR SHALL VERIFY LOCATIONS OF ALL PROPERTY LINES, EASEMENTS, STRUCTURES AND EXISTING UTILITIES. CONTRACTOR SHALL REPORT FINDINGS TO THE ENGINEER PRIOR TO CONSTRUCTION. IT IS THE INTENT TO SHOW PROPERTY LINES, EXISTING UTILITIES, AND UNDERGROUND STRUCTURES, HOWEVER, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO SATISFY HIMSELF/HERSELF THAT ALL EXISTING UTILITIES AND OTHER ITEMS, WHETHER SHOWN ON THESE DRAWINGS OR NOT, HAVE BEEN PROPERLY LOCATED.
- EXISTING PIPE SIZES, DIMENSIONS, ELEVATIONS, LOCATIONS, ETC. ARE BASED ON INFORMATION FROM ORIGINAL 2008 PLANS. CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS PRIOR TO THE COMMENCEMENT OF WORK. COPIES OF THE PLANS ARE AVAILABLE TO BE VIEWED AT THE ENGINEER'S OFFICE IN WEST DES MOINES, IOWA. ONE COPY OF THE PLANS WILL BE PROVIDED TO THE CONTRACTOR AT NO CHARGE.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING ITEMS, UTILITIES AND/OR STRUCTURES ABOVE AND BELOW GROUND AND AGREE TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGE WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL EXISTING UTILITIES, STRUCTURES, AND OTHER FEATURES AFFECTING HIS/HER WORK. THE CONTRACTOR SHALL CONTACT UTILITY OWNERS AND/OR MAKE EXPLORATORY EXCAVATIONS AS NECESSARY TO DETERMINE THE EXACT LOCATION OF UNDERGROUND UTILITIES AND STRUCTURES AND LIMITS AND CHARACTER OF SOIL AND/OR ROCK PRIOR TO CONSTRUCTION. IF ANY ITEM REQUIRES RELOCATION, THE CONTRACTOR SHALL NOTIFY THE UTILITY OWNER OF THE ITEM WELL IN ADVANCE OF APPROACH TO THE ITEM AND SHALL BE RESPONSIBLE FOR MAKING ALL ARRANGEMENTS WITH THE UTILITY OWNER FOR RELOCATION OF THE ITEM. RELOCATION OF MINOR FACILITIES MAY BE DONE BY THE CONTRACTOR IF ACCEPTABLE TO THE ENGINEER AND THE ITEM'S OWNER.
- THE CONTRACTOR IS RESPONSIBLE FOR ALL PROJECT SAFETY INCLUDING, BUT NOT LIMITED TO: TRENCH EXCAVATION AND SHORING, TRAFFIC CONTROL, CONFINED SPACE ENTRY AND SITE SECURITY. CONTRACTOR SHALL BE RESPONSIBLE FOR THE SECURITY OF HIS/HER OWN EQUIPMENT, TOOLS, FACILITIES, MATERIALS, OFFICES, AND OTHER APPURTENANCES DURING THE LIFE OF THE PROJECT.
- THE CONTRACTOR SHALL LIMIT HIS/HER ACTIVITY TO WITHIN THE SITE AND CONTRACT SPECIFIC BOUNDARIES. EXISTING TREES AND SHRUBS SHALL BE MOVED ONLY IF ACCEPTABLE TO THE ENGINEER OR IF SPECIFICALLY NOTED ON THE DRAWINGS.
- THE CONTRACTOR SHALL VERIFY PIPE MATERIAL DIAMETER AND TYPE OF JOINT BEFORE CONNECTIONS BETWEEN EXISTING AND NEW PIPE ARE MADE. THE CONTRACTOR SHALL SUPPORT AND PROTECT ALL PIPING AND CONDUITS EXPOSED DURING CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FLOW DIVERSION AND DEWATERING OF EXISTING PIPE LINES BEFORE INSTALLING NEW CONNECTIONS. CONTRACTOR IS RESPONSIBLE FOR ALL ADAPTERS, RESTRAINTS, GASKETS, AND LABOR FOR JOINING ALL PIPES AND APPURTENANCES.
- THE CONTRACTOR SHALL REPAIR PAVEMENTS THAT HAVE BEEN CUT OR DAMAGED DURING CONSTRUCTION IN ACCORDANCE WITH THE CITY OF MUSCATINE STANDARDS. REPAIRS SHALL BE COMPLETED PRIOR TO SUBSTANTIAL COMPLETION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR STORM WATER, SILT AND EROSION CONTROL DURING ALL PHASES OF CONSTRUCTION AND SHALL BE RESPONSIBLE FOR OBTAINING AND PAYING FOR ALL ASSOCIATED CONSTRUCTION PERMITS.
- ALL EXCESS MATERIALS AND CONSTRUCTION DEBRIS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF BY THE CONTRACTOR AT AN OFF-SITE SOLID WASTE LANDFILL, APPROPRIATE RECYCLING FACILITY, OR OTHER LEGALLY APPROVED ACCEPTABLE LOCATION. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DISPOSAL COSTS AND OBTAINING THE REQUIRED PERMITS. SPECIFIC ITEMS NOTED SHALL BE SALVAGED AND DELIVERED TO OWNER. REFER TO DRAWINGS AND SPECIFICATIONS.
- THE CONTRACTOR SHALL INSTALL CONSTRUCTION FENCING AROUND THE PERIMETER OF THE SITE AS NEEDED TO PREVENT UNAUTHORIZED ENTRY.
- CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION SURVEYING AND STAKING.
- THE STATE OF IOWA REQUIRES PROTECTION FOR UTILITY POLES TO PREVENT DAMAGE OR INTERRUPTION TO ELECTRICAL OR OTHER SERVICES DURING EXCAVATION WITHIN CLOSE PROXIMITY. THE COST TO PROVIDE THIS PROTECTION WILL BE INCLUDED IN THE CONTRACTOR'S BID PRICE.

CONTROL POINTS				
NUMBER	DESCRIPTION	NORTHING	EASTING	ELEVATION
CP-1	CP MAG NAIL	522121.14	2306051.34	542.78
CP-2	CP MAG NAIL	522177.35	2305953.90	543.68
CP-3	CP CUT X	522104.16	2305815.25	541.88

DATE	REVISIONS	SCALE	AS NOTED
		DRAWN	BSS
		CHECKED	FSA
		APPROVED	EKL
		DATE	8/28/23
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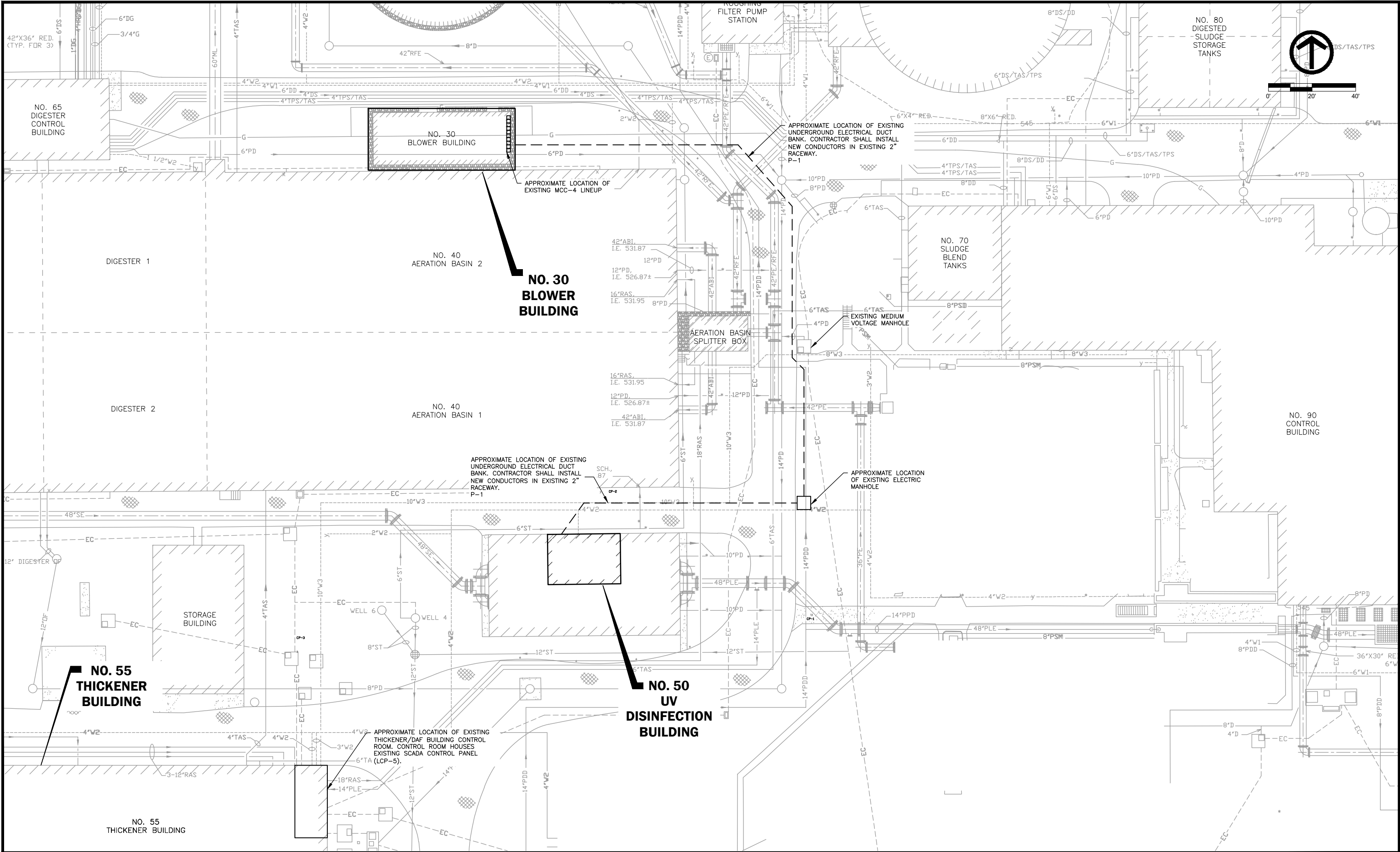


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OVERALL EXISTING SITE PLAN		DWG. NO.
		02-C-1
		3 OF 19
		PROJECT 20821

PLOTTED: Friday, August 25, 2023 3:04:22 PM

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DATE	REVISIONS	SCALE	AS NOTED
		DRAWN	JDL
		CHECKED	JDL
		APPROVED	EKL
		DATE	8/28/23
		ISSUED FOR	CONSTRUCTION



REPLACEMENT UV DISINFECTION SYSTEM PROJECT
CITY OF MUSCATINE, IOWA

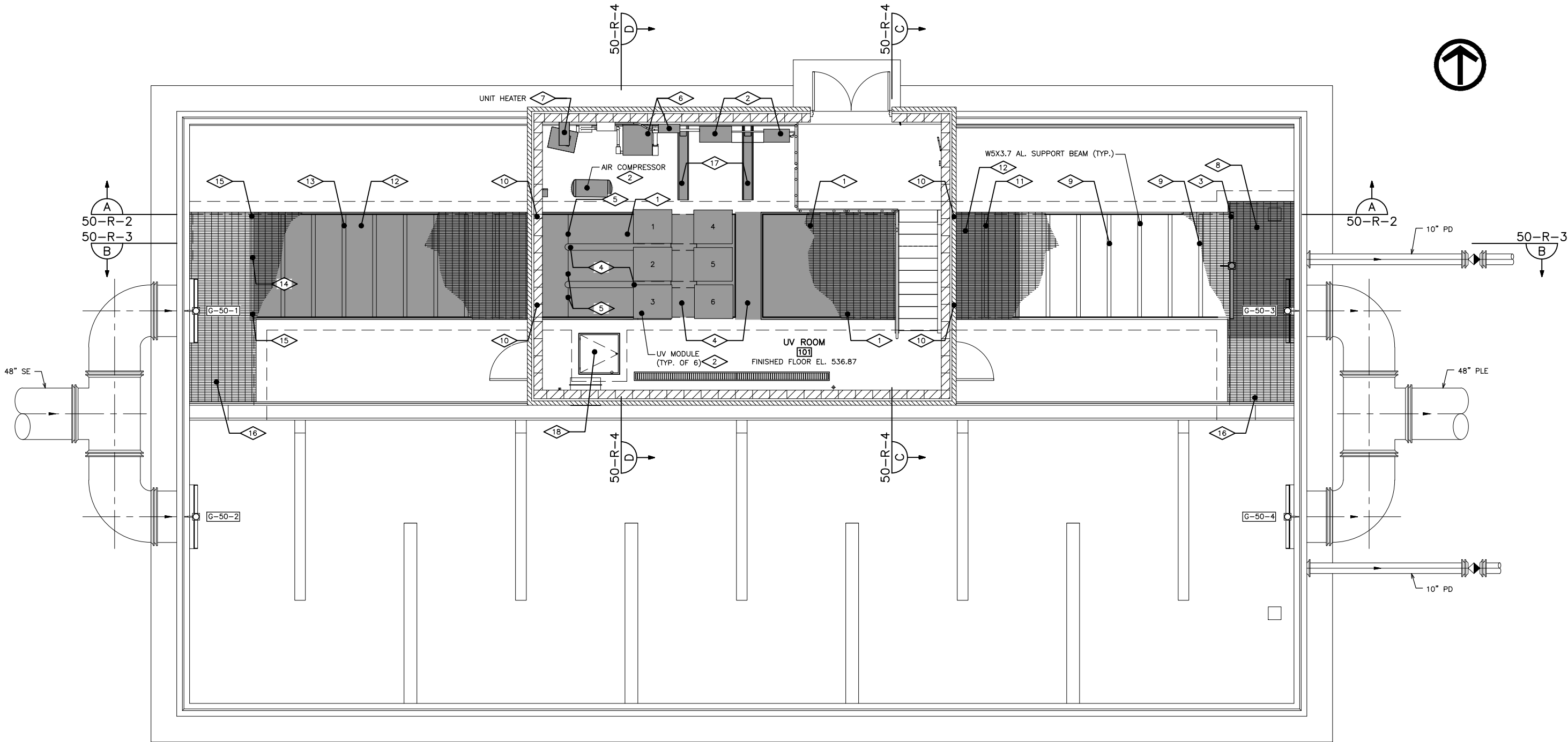
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PARTIAL ELECTRICAL SITE PLAN

DWG. NO.
02-E-1
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PROJECT 20821

PLOTTED: Monday, August 28, 2023 2:50:13 PM

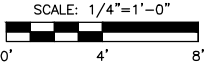
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 FILE PATH: \\VK-FS\WDM\SHARE\0200\0208-MUSCATINE\0208-0021_REPLACEMENT_UV_DISINFECTION_SYSTEM\CADD\PRODDRAWINGS\50\50-R



GRADE PLAN
 SCALE: 1/4"=1'-0"

REMOVAL NOTES:

- REMOVE & DELIVER TO CITY EXISTING DECKING OVER ENTIRE CHANNEL LENGTH INSIDE BUILDING. SEE PHOTO 6, DWG. NO. 50-R-5.
- REMOVE EXISTING UV DISINFECTION SYSTEM INCLUDING IN-CHANNEL MODULES, CONDUIT, WIRING, CONTROL CABINET, AIR COMPRESSOR & ASSOCIATED PIPING/TUBING. SEE PHOTO 6, DWG. NO. 50-R-5.
- REMOVE LEVEL CONTROL WEIR GATE & ASSOCIATED EQUIPMENT/CONDUIT. PROTECT CONCRETE NOT SHOWN FOR REMOVAL. SEE PHOTOS 1,2 & 3, DWG. NO. 50-R-5.
- REMOVE CONCRETE DIVIDING WALLS, SUSPENDED SLABS & BEAMS. CUT CONCRETE IN CLEAN, WORKMANLIKE MANNER, BURN BACK ANY CUT REINFORCEMENT THAT WILL BE EXPOSED TO VIEW 1" BELOW THE SURFACE & FILL HOLES WITH NON-SHRINK GROUT. PROTECT CONCRETE NOT SHOWN FOR REMOVAL FROM DAMAGE. SEE PHOTO 7, DWG. NO. 50-R-5.
- REMOVE BAR RACK SCREENS. SEE PHOTOS 8 & 9, DWG. NO. 50-R-5.
- RELOCATE LIGHTING, OUTLETS, CONDUIT & WIRE AS NEEDED TO ALLOW FOR INSTALLATION OF IMPROVEMENTS. COORDINATE REMOVAL WITH ENGINEER & OWNER PRIOR TO REMOVAL/RELOCATION. REMOVE TRANSFORMER & DISTRIBUTION PANEL. SEE DWG. NO. 50-E-1 FOR ADDITIONAL REMOVALS.
- REMOVE & DISPOSE OF UNIT HEATER & ASSOCIATED EQUIPMENT.
- REMOVE & REPLACE GRATING AS REQ'D. TO COVER OPENING CREATED BY GATE REMOVAL. EXISTING GRATING 1 1/2" I-BAR. FIELD VERIFY. ATTACH TO EXISTING I-BEAM SUPPORTS. MATCH EDGES OF GRATING REMAINING IN PLACE WITH BANDED EDGES. SEE PHOTOS 1, 2 & 3 DWG. NO. 50-R-5.
- REMOVE & REINSTALL GRATING & SUPPORTS AS REQ'D. FOR CONSTRUCTION ON THE EAST SIDE OF THE BUILDING.
- CUT & REMOVE 3/8" AL. GRATING SUPPORT PLATE MOUNTED TO UNDERSIDE OF WALL OPENING AT NEW CONC. WALLS & SLABS.
- CUT EXISTING W5X3.7 GRATING SUPPORT BEAM TO FIT NEW CHANNEL. CONNECT TO NEW WALL.
- CUT & BAND GRATING TO FIT DIMENSIONS OF NEW CHANNEL OR PROVIDE NEW AL. GRATING AT CONTRACTORS OPTION. SEE PHOTO 4, DWG. NO. 50-R-5. EXISTING GRATING 1" AL. I-BAR.
- REMOVE SUPPORT BEAMS & WALL CLIP ANGLES ON THE WEST SIDE OF THE BUILDING. CUT ANCHORS FLUSH WITH WALL.
- PROTECT GRATING SUPPORT CHANNEL.
- REMOVE GRATING SUPPORT ANGLE ATTACHED TO SUPPORT CHANNEL AT NEW CONC. WALLS & SLABS.
- PROTECT GRATING NOT SHOWN FOR REMOVAL.
- REMOVE & DELIVER TO CITY EXISTING TREAD PLATE. FILL TROUGHS WITH CONCRETE AS PART OF NEW FLOOR SLAB. SEE PHOTO 11, DWG. NO. 50-R-6.
- PROTECT STAINLESS STEEL CLEANING TANK. SEE PHOTOS 12 & 13, DWG. NO. 50-R-6.



DATE	REVISIONS	SCALE	AS NOTED
		DRAWN	JPB
		CHECKED	JPB
		APPROVED	EKL
		DATE	8/28/23
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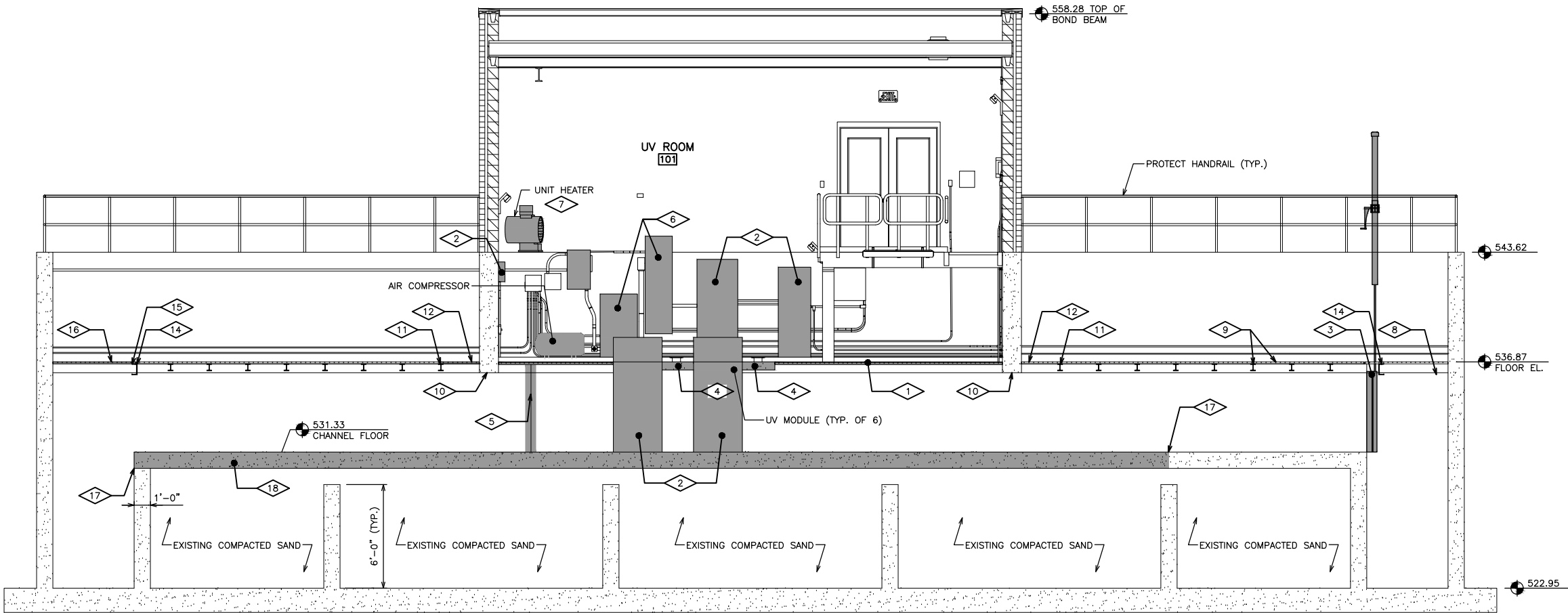


REPLACEMENT UV DISINFECTION SYSTEM PROJECT
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UV DISINFECTION BUILDING
 GRADE PLAN – REMOVALS

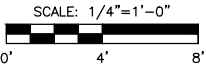
DWG. NO.
50-R-1
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PROJECT 20821



SECTION A
SCALE: 1/4"=1'-0"

REMOVAL NOTES:

1. REMOVE & DELIVER TO THE CITY EXISTING DECKING OVER ENTIRE CHANNEL LENGTH INSIDE BUILDING. SEE PHOTO 6, DWG. NO. 50-R-5.
2. REMOVE EXISTING UV DISINFECTION SYSTEM INCLUDING IN-CHANNEL MODULES, CONDUIT, WIRING, CONTROL CABINET, AIR COMPRESSOR & ASSOCIATED PIPING/TUBING. SEE PHOTO 6, DWG. NO. 50-R-5.
3. REMOVE LEVEL CONTROL WEIR GATE & ASSOCIATED EQUIPMENT/CONDUIT. PROTECT CONCRETE NOT SHOWN FOR REMOVAL. SEE PHOTOS 1, 2 & 3, DWG. NO. 50-R-5.
4. REMOVE CONCRETE DIVIDING WALLS, SUSPENDED FLOOR SLABS & BEAMS. CUT CONCRETE IN CLEAN, WORKMANLIKE MANNER, BURN BACK ANY CUT REINFORCEMENT THAT WILL BE EXPOSED TO VIEW 1" BELOW THE SURFACE & FILL HOLES WITH NON-SHRINK GROUT. PROTECT CONCRETE NOT SHOWN FOR REMOVAL FROM DAMAGE. SEE PHOTO 7, DWG. NO. 50-R-5.
5. REMOVE BAR RACK SCREENS. SEE PHOTOS 8 & 9, DWG. NO. 50-R-5.
6. RELOCATE LIGHTING, OUTLETS, CONDUIT & WIRE AS NEEDED TO ALLOW FOR INSTALLATION OF IMPROVEMENTS. COORDINATE REMOVAL WITH ENGINEER & OWNER PRIOR TO REMOVAL/RELOCATION. REMOVE TRANSFORMER & DISTRIBUTION PANEL. SEE DWG. NO. 50-E-1 FOR ADDITIONAL REMOVALS.
7. REMOVE & DISPOSE OF UNIT HEATER & ASSOCIATED EQUIPMENT.
8. REMOVE & REPLACE GRATING AS REQ'D. TO COVER OPENING CREATED BY GATE REMOVAL. EXISTING GRATING 1 1/2" I-BAR. FIELD VERIFY. ATTACH TO EXISTING I-BEAM SUPPORTS. MATCH EDGES OF GRATING REMAINING IN PLACE WITH BANDED EDGES. SEE PHOTOS 1, 2 & 3 DWG. NO. 50-R-5.
9. REMOVE & REINSTALL GRATING & SUPPORTS AS REQ'D. FOR CONSTRUCTION ON THE EAST SIDE OF THE BUILDING.
10. CUT & REMOVE 3/8" AL. GRATING SUPPORT PLATE & TUBING MOUNTED TO UNDERSIDE OF WALL OPENING AT NEW CONC. WALLS & SLABS.
11. CUT EXISTING W5X3.7 AL. GRATING SUPPORT BEAM TO FIT NEW CHANNEL. CONNECT TO NEW WALL.
12. CUT & BAND GRATING TO FIT DIMENSIONS OF NEW CHANNEL OR PROVIDE NEW AL. GRATING AT CONTRACTORS OPTION. SEE PHOTO 4, DWG. NO. 50-R-5. EXISTING GRATING 1" AL. I-BAR.
13. REMOVE SUPPORT BEAMS & WALL CLIP ANGLES ON THE WEST SIDE OF THE BUILDING. CUT ANCHORS FLUSH WITH WALL.
14. PROTECT GRATING SUPPORT CHANNEL.
15. REMOVE GRATING SUPPORT ANGLE ATTACHED TO SUPPORT CHANNEL AT NEW CONC. WALLS & SLABS.
16. PROTECT GRATING NOT SHOWN FOR REMOVAL.
17. SAW CUT FULL DEPTH.
18. REMOVE CHANNEL FLOOR TO WIDTH OF NEW CHANNEL.



DATE	REVISIONS	SCALE	AS NOTED
		DRAWN	JPB
		CHECKED	JPB
		APPROVED	EKL
		DATE	8/28/23
		ISSUED FOR CONSTRUCTION	



REPLACEMENT UV DISINFECTION SYSTEM PROJECT
CITY OF MUSCATINE, IOWA

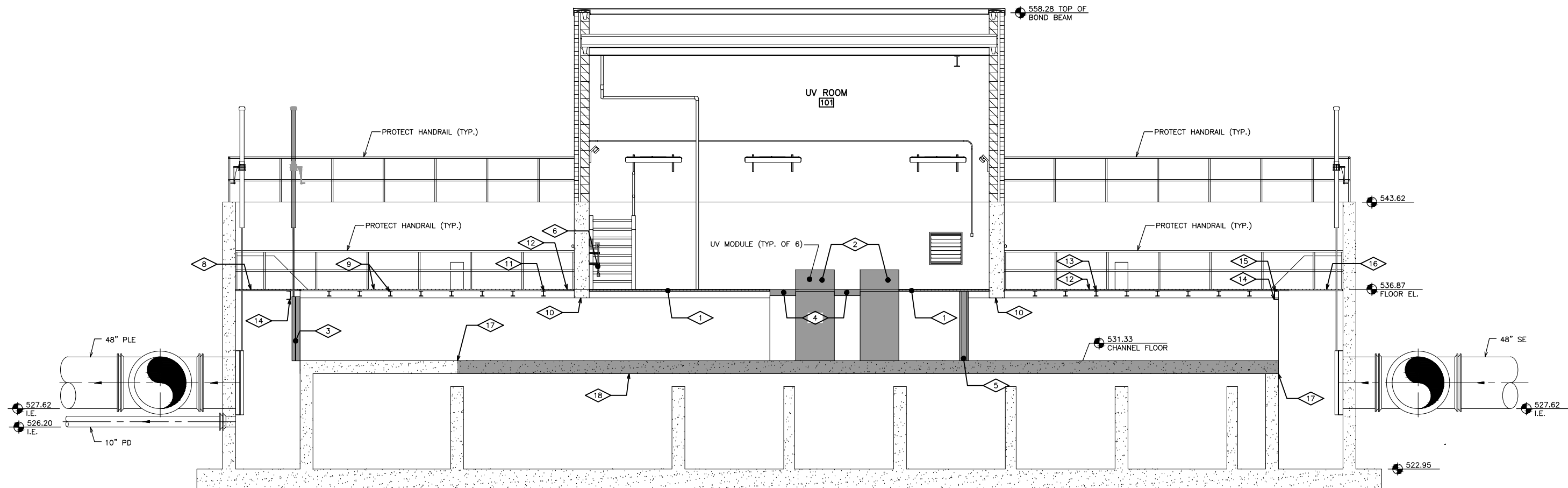
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UV DISINFECTION BUILDING
SECTION A – REMOVALS

DWG. NO.
50-R-2
6 OF 19
PROJECT 20821

X-REFS: Muscatine WRR Facility UV Replacement As-Built Plans 2023-6-06 & RUVPL000 & RUVPL100 & RUVSECT
FILE PATH: \\VK-FS\WDM\SHARE\0200\0208-MUSCATINE\0208-0021-REPLACEMENT UV DISINFECTION SYSTEM\CADD\PRODDRAWINGS\50\50-R

PLOTTED: Monday, August 28, 2023 2:50:35 PM



SECTION B
SCALE: 1/4"=1'-0"

REMOVAL NOTES:

1. REMOVE & DELIVER TO THE CITY EXISTING DECKING OVER ENTIRE CHANNEL LENGTH INSIDE BUILDING. SEE PHOTO 6, DWG. NO. 50-R-5.
2. REMOVE EXISTING UV DISINFECTION SYSTEM INCLUDING IN-CHANNEL MODULES, CONDUIT, WIRING, CONTROL CABINET, AIR COMPRESSOR & ASSOCIATED PIPING/TUBING. SEE PHOTO 6, DWG. NO. 50-R-5.
3. REMOVE LEVEL CONTROL WEIR GATE & ASSOCIATED EQUIPMENT/CONDUIT. PROTECT CONCRETE NOT SHOWN FOR REMOVAL. SEE PHOTOS 1, 2 & 3, DWG. NO. 50-R-5.
4. REMOVE CONCRETE DIVIDING WALLS, SUSPENDED FLOOR SLABS & BEAMS. CUT CONCRETE IN CLEAN, WORKMANLIKE MANNER, BURN BACK ANY CUT REINFORCEMENT THAT WILL BE EXPOSED TO VIEW 1" BELOW THE SURFACE & FILL HOLES WITH NON-SHRINK GROUT. PROTECT CONCRETE NOT SHOWN FOR REMOVAL FROM DAMAGE. SEE PHOTO 7, DWG. NO. 50-R-5.
5. REMOVE BAR RACK SCREENS. SEE PHOTOS 8 & 9, DWG. NO. 50-R-5.
6. REMOVE LEVEL SENSOR & ASSOCIATED EQUIPMENT & DELIVER TO THE CITY. SEE PHOTO 5, DWG. NO. 50-R-5.
7. SEE DWG. NO. 50-E-1 FOR ADDITIONAL REMOVALS..
8. REMOVE & REPLACE GRATING AS REQ'D. TO COVER OPENING CREATED BY GATE REMOVAL. EXISTING GRATING 1 1/2" I-BAR. FIELD VERIFY. ATTACH TO EXISTING I-BEAM SUPPORTS. MATCH EDGES OF GRATING REMAINING IN PLACE WITH BANDED EDGES. SEE PHOTOS 1, 2 & 3 DWG. NO. 50-R-5.
9. REMOVE & REINSTALL GRATING & SUPPORTS AS REQ'D. FOR CONSTRUCTION ON THE EAST SIDE OF THE BUILDING.
10. CUT & REMOVE 3/8" AL. GRATING SUPPORT PLATE & TUBING MOUNTED TO UNDERSIDE OF WALL OPENING AT NEW CONC. WALLS & SLABS.
11. CUT EXISTING W5X3.7 AL. GRATING SUPPORT BEAM TO FIT NEW CHANNEL. CONNECT TO NEW WALL.
12. CUT & BAND GRATING TO FIT DIMENSIONS OF NEW CHANNEL OR PROVIDE NEW AL. GRATING AT CONTRACTORS OPTION. SEE PHOTO 4, DWG. NO. 50-R-5. EXISTING GRATING 1" AL. I-BAR.
13. REMOVE SUPPORT BEAMS & WALL CLIP ANGLES ON THE WEST SIDE OF THE BUILDING. CUT ANCHORS FLUSH WITH WALL.
14. PROTECT GRATING SUPPORT CHANNEL.
15. REMOVE GRATING SUPPORT ANGLE ATTACHED TO SUPPORT CHANNEL AT NEW CONC. WALLS & SLABS.
16. PROTECT GRATING NOT SHOWN FOR REMOVAL.
17. SAW CUT FULL DEPTH.
18. REMOVE CHANNEL FLOOR TO WIDTH OF NEW CHANNEL.

SCALE: 1/4"=1'-0"

0' 4' 8'

DATE	REVISIONS	SCALE	AS NOTED
		DRAWN	JPB
		CHECKED	JPB
		APPROVED	EKL
		DATE	8/28/23
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REPLACEMENT UV DISINFECTION SYSTEM PROJECT
CITY OF MUSCATINE, IOWA

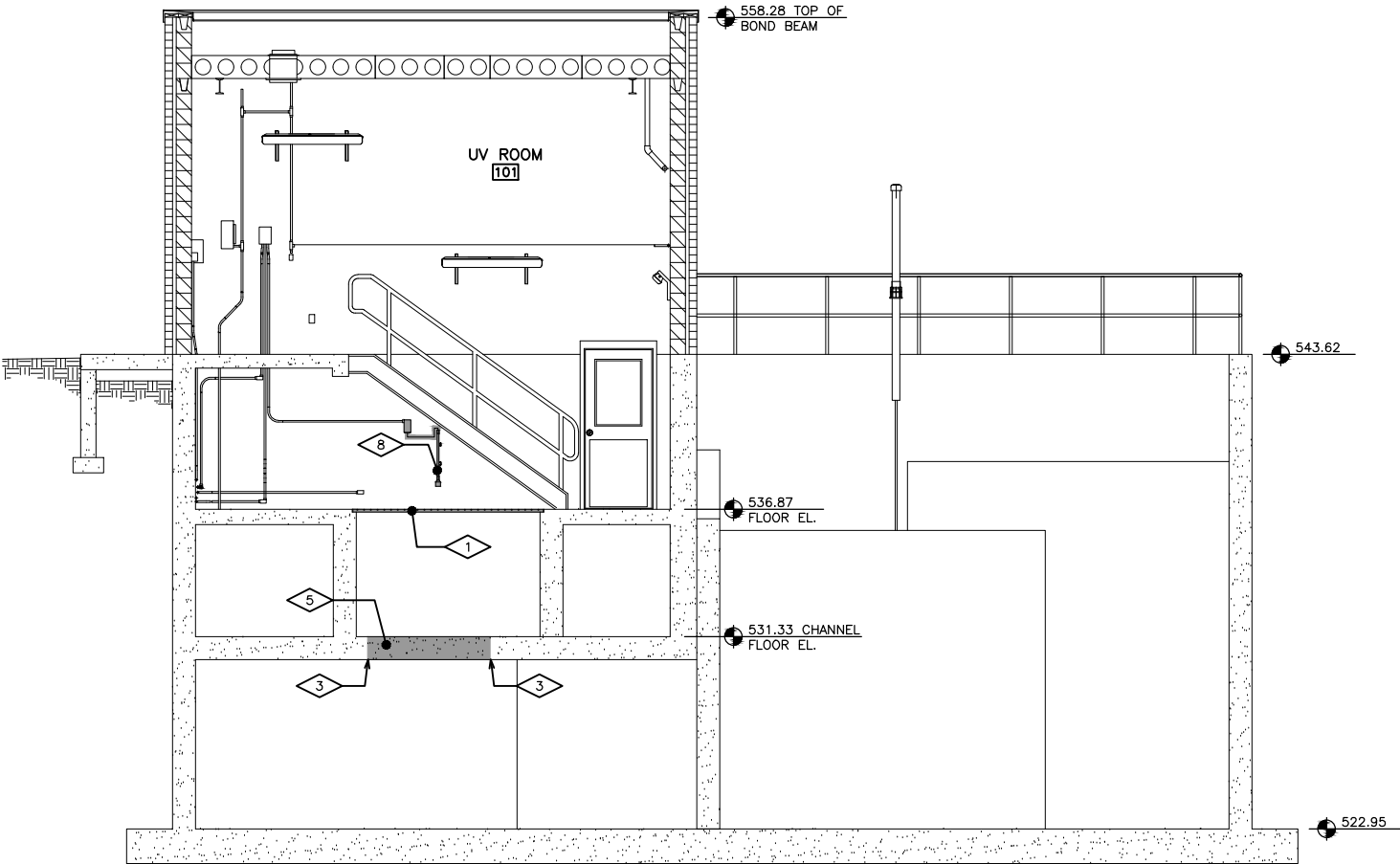
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UV DISINFECTION BUILDING
SECTION B – REMOVALS

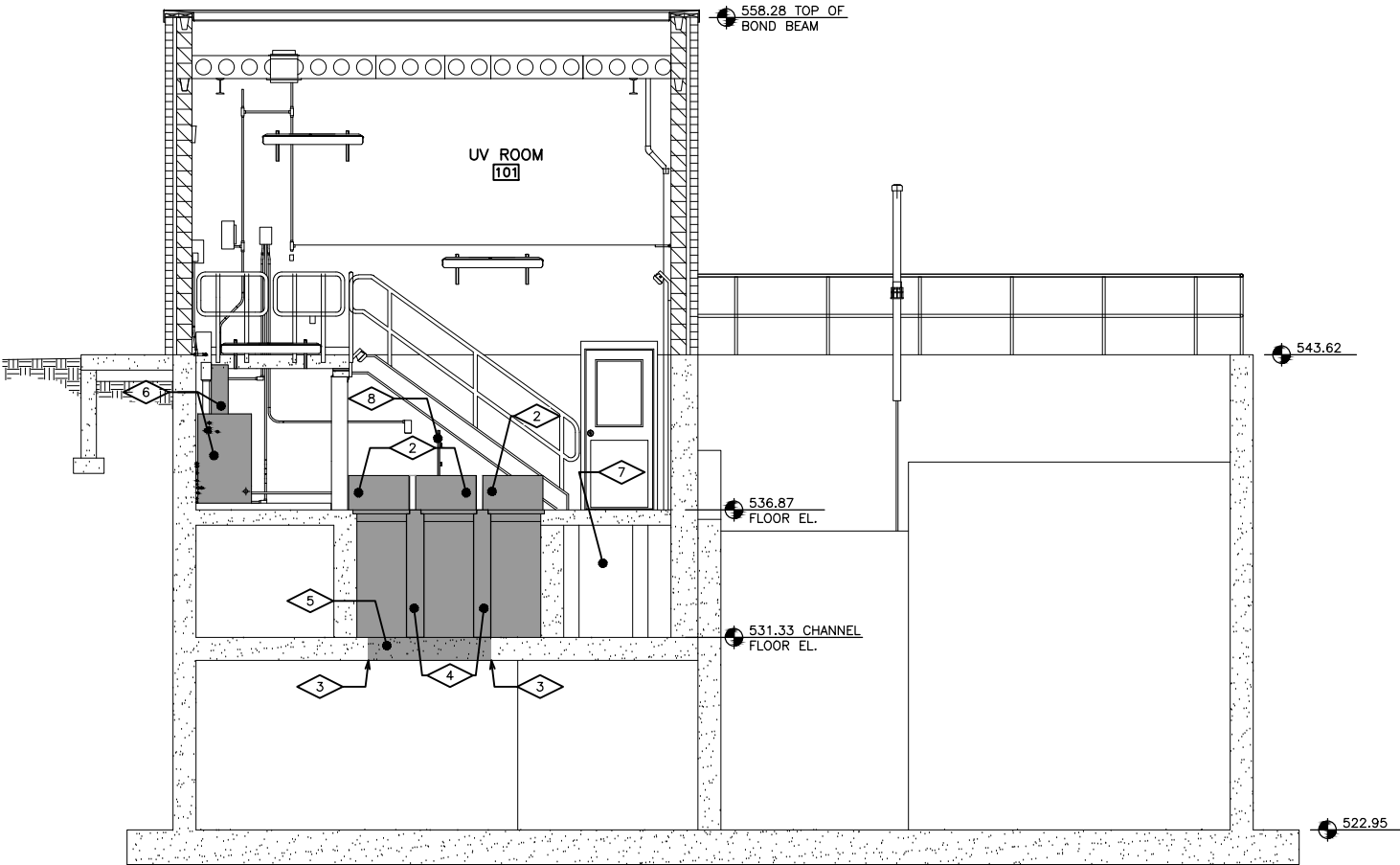
DWG. NO.
50-R-3
7 OF 19
PROJECT 20821

PLOTTED: Monday, August 28, 2023 2:50:49 PM

X-REFS: Muscatine WRR Facility UV Replacement As-Built Plans 2023-6-06 & RUVPL000 & RUVPL100 & RUVSECT
FILE PATH: \\VK-FS\WDM\SHARE\0200\0208-MUSCATINE\0208-0021-REPLACEMENT UV DISINFECTION SYSTEM\CADD\PRODDRAWINGS\50\50-R



SECTION C
SCALE: 1/4"=1'-0"

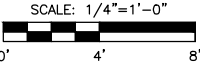


SECTION D
SCALE: 1/4"=1'-0"



REMOVAL NOTES:

1. REMOVE & DELIVER TO THE CITY EXISTING DECKING OVER ENTIRE CHANNEL LENGTH INSIDE BUILDING. SEE PHOTO 6, DWG. NO. 50-R-5.
2. REMOVE EXISTING UV DISINFECTION SYSTEM INCLUDING IN-CHANNEL MODULES, CONDUIT, WIRING, CONTROL CABINET, AIR COMPRESSOR & ASSOCIATED PIPING/TUBING. SEE PHOTO 6, DWG. NO. 50-R-5.
3. SAW CUT FULL DEPTH.
4. REMOVE CONCRETE DIVIDING WALLS, SUSPENDED FLOOR SLABS & BEAMS. CUT CONCRETE IN CLEAN, WORKMANLIKE MANNER, BURN BACK ANY CUT REINFORCEMENT 1" BELOW THE SURFACE & FILL HOLES WITH NON-SHRINK GROUT. PROTECT CONCRETE NOT SHOWN FOR REMOVAL FROM DAMAGE. SEE PHOTO 7, DWG. NO. 50-R-5.
5. REMOVE CHANNEL FLOOR TO WIDTH OF NEW CHANNEL.
6. RELOCATE LIGHTING, OUTLETS, CONDUIT & WIRE AS NEEDED TO ALLOW FOR INSTALLATION OF IMPROVEMENTS. COORDINATE REMOVAL WITH ENGINEER & OWNER PRIOR TO REMOVAL/RELOCATION. REMOVE TRANSFORMER & DISTRIBUTION PANEL. SEE DWG. NO. 50-E-1 FOR ADDITIONAL REMOVALS.
7. PROTECT STAINLESS STEEL CLEANING TANK. SEE PHOTOS 12 & 13, DWG. NO. 50-R-6.
8. REMOVE LEVEL SENSOR & ASSOCIATED EQUIPMENT & DELIVER TO THE CITY. SEE PHOTO 5, DWG. NO. 50-R-5.



DATE	REVISIONS	SCALE	AS NOTED
		DRAWN	JPB
		CHECKED	JPB
		APPROVED	EKL
		DATE	8/28/23
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UV DISINFECTION BUILDING
SECTIONS C & D- REMOVALS

DWG. NO.
50-R-4
8 OF 19
PROJECT 20821



PHOTO 1



PHOTO 2



PHOTO 3



PHOTO 4



PHOTO 5



PHOTO 6



PHOTO 7



PHOTO 8



PHOTO 9



PHOTO 10

DATE	REVISIONS	SCALE	AS NOTED
		DRAWN	JPB
		CHECKED	JPB
		APPROVED	EKL
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REMOVAL PHOTOS

DWG. NO.
50-R-5
9 OF 19
PROJECT 20821



PHOTO 11

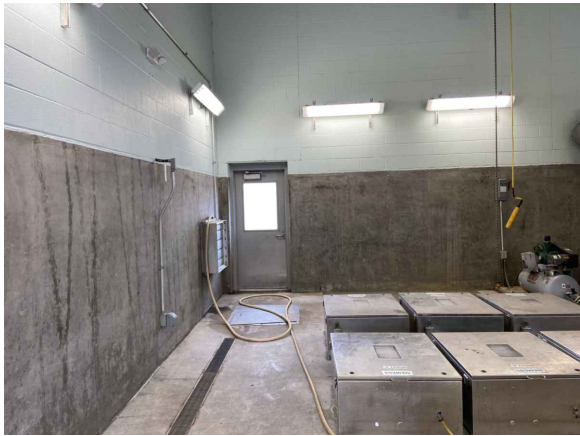


PHOTO 12



PHOTO 13



PHOTO 14



PHOTO 15

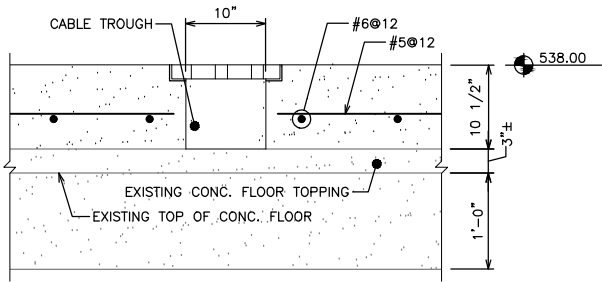
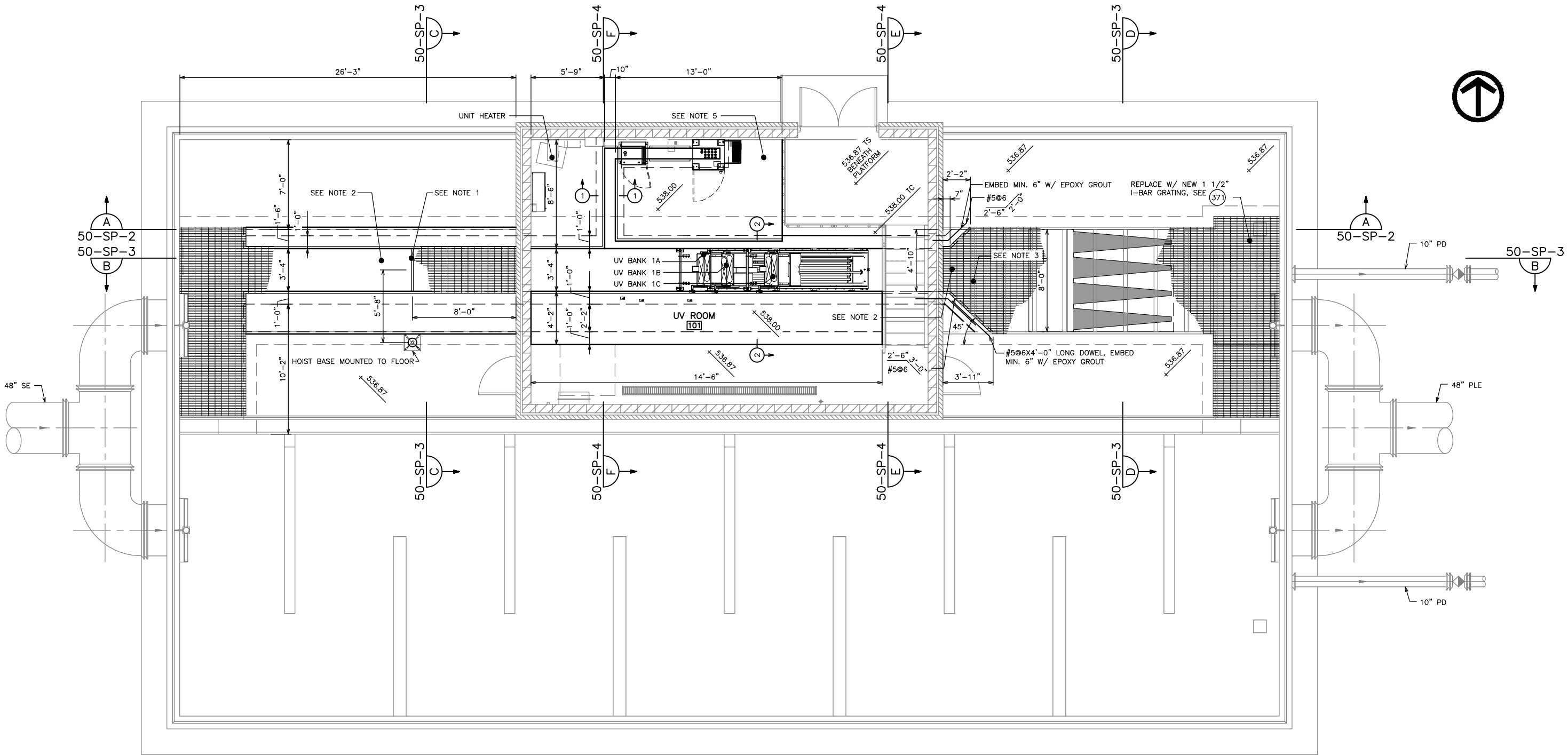
DATE	REVISIONS	SCALE	AS NOTED
		DRAWN	JPB
		CHECKED	JPB
		APPROVED	EKL
		DATE	8/28/23
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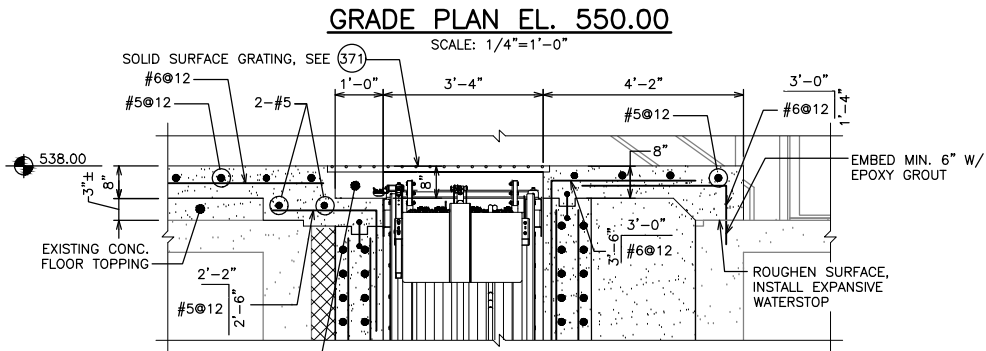
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REMOVAL PHOTOS

DWG. NO.
50-R-6
10 OF 19
PROJECT 20821



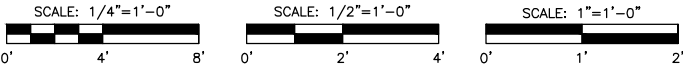
DETAIL 1
 SCALE: 1"=1'-0"



DETAIL 2
 SCALE: 1/2"=1'-0"

NOTES:

1. BAR RACK, SEE DETAIL DWG. NO. 50-SP-2.
2. REUSE EXISTING 1" I-BAR GRATING CUTTING & BANDING TO FIT NEW CHANNEL DIMENSIONS OR PROVIDE NEW GRATING AT CONTRACTORS OPTION SEE (371).
3. MODIFY EXISTING W5X3.7 AL. GRATING SUPPORT BEAM TO FIT NEW CHANNEL WIDTH. PROVIDE NEW CONNECTION TO NEW SOUTH CHANNEL WALL. SEE GRATING SUPPORT DETAIL, DWG. NO. 50-SP-2.
4. USE OPEN GRATING OVER CHANNEL OUTSIDE OF BUILDING. USE SOLID SURFACE GRATING OVER CHANNEL INSIDE OF BUILDING.
5. ROTATE WATER LINE TEE TO BE HORIZONTAL. REINSULATE PIPING. SEE PHOTO 15, DWG. NO. 50-R-6.



DATE	REVISIONS	SCALE	AS NOTED
		DRAWN	JPB
		CHECKED	JPB
		APPROVED	EKL
		DATE	8/28/23
		ISSUED FOR CONSTRUCTION	

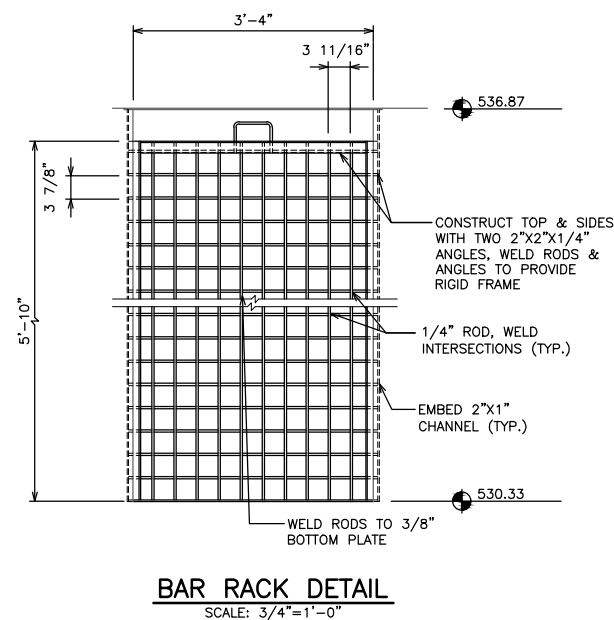


REPLACEMENT UV DISINFECTION SYSTEM PROJECT
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UV DISINFECTION BUILDING
 GRADE PLAN EL. 550.00 – IMPROVEMENTS

DWG. NO.
50-SP-1
11 OF 19
PROJECT 20821



SECTION A
SCALE: 1/4"=1'-0"

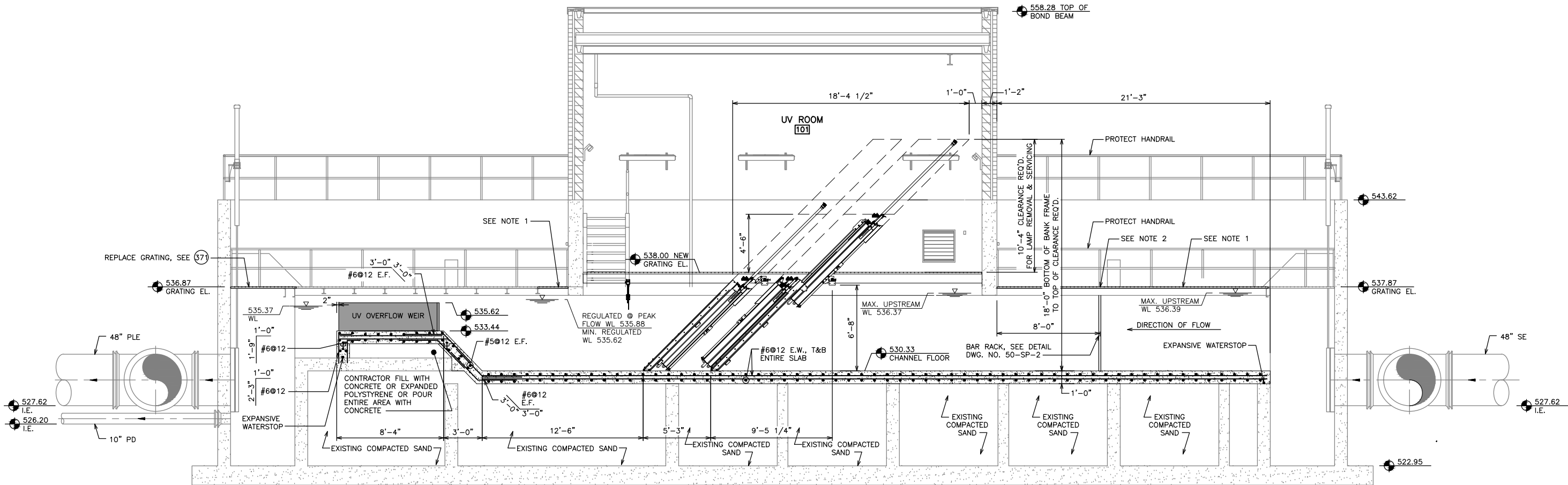


- SCALE: $1/4" = 1' - 0"$ SCALE: $1 \frac{1}{2}" = 1' - 0"$



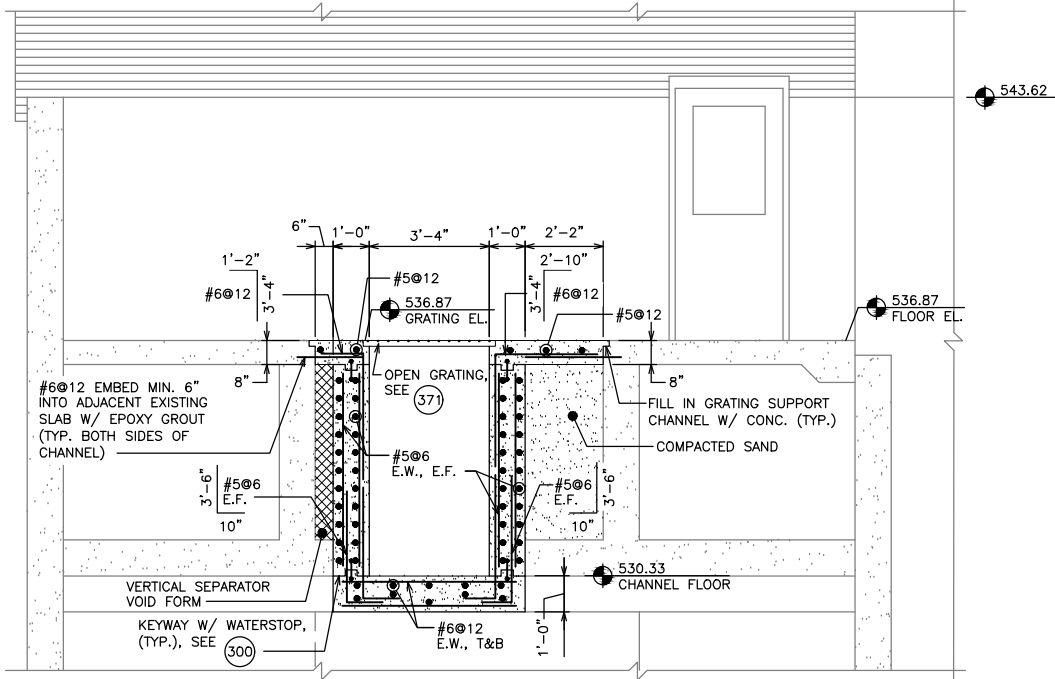
**VEENSTRA
& KIMM INC.**

DWG. NO.
50-SP-2
2 OF 19
ECT 20821

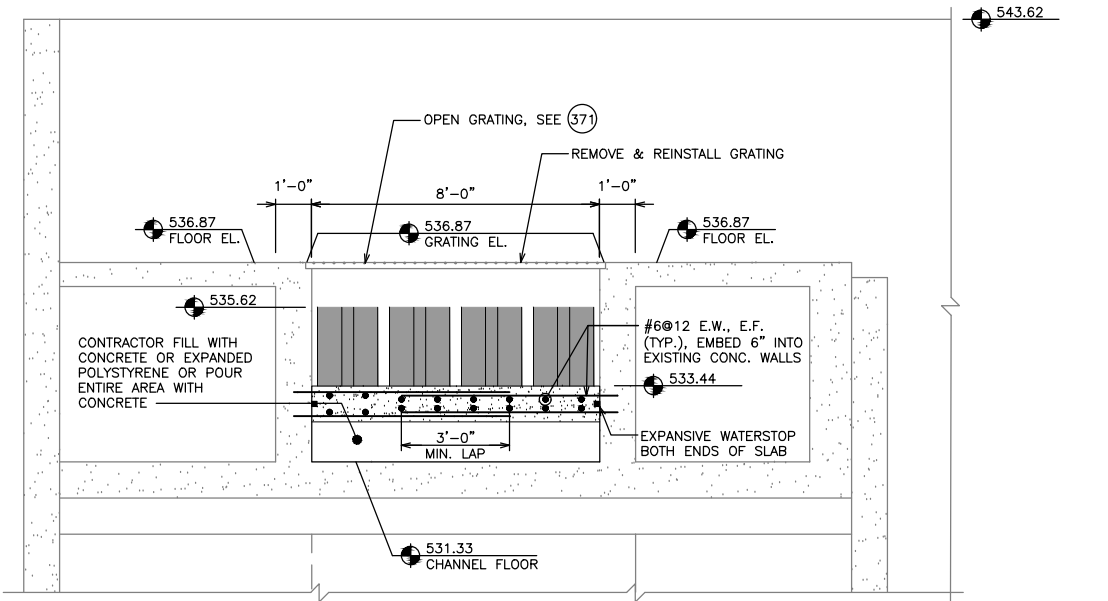


SECTION B
 SCALE: 1/4"=1'-0"

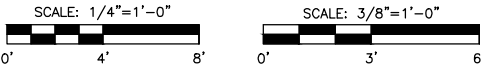
- NOTES:
1. REUSE EXISTING 1" I-BAR GRATING CUTTING & BANDING TO FIT NEW CHANNEL DIMENSIONS OR PROVIDE NEW GRATING AT CONTRACTORS OPTION SEE (371).
 2. PROVIDE REMOVABLE 1' SECTION OF GRATING OVER BAR RACK.



SECTION C
 SCALE: 3/8"=1'-0"



SECTION D
 SCALE: 3/8"=1'-0"



DATE	REVISIONS	SCALE	AS NOTED
		DRAWN	JPB
		CHECKED	JPB
		APPROVED	EKL
		DATE	8/28/23
		ISSUED FOR CONSTRUCTION	

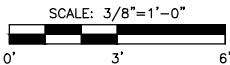
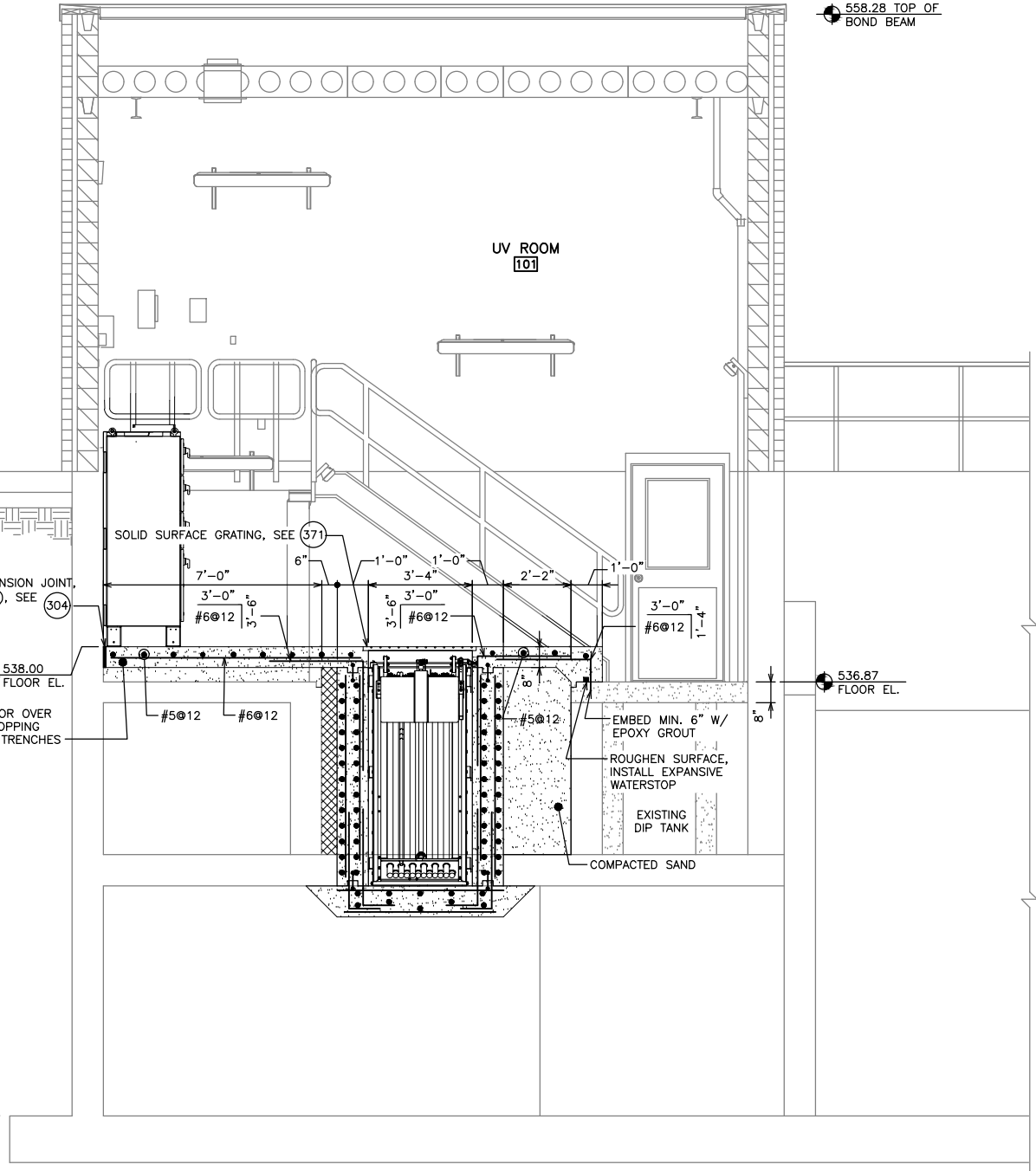
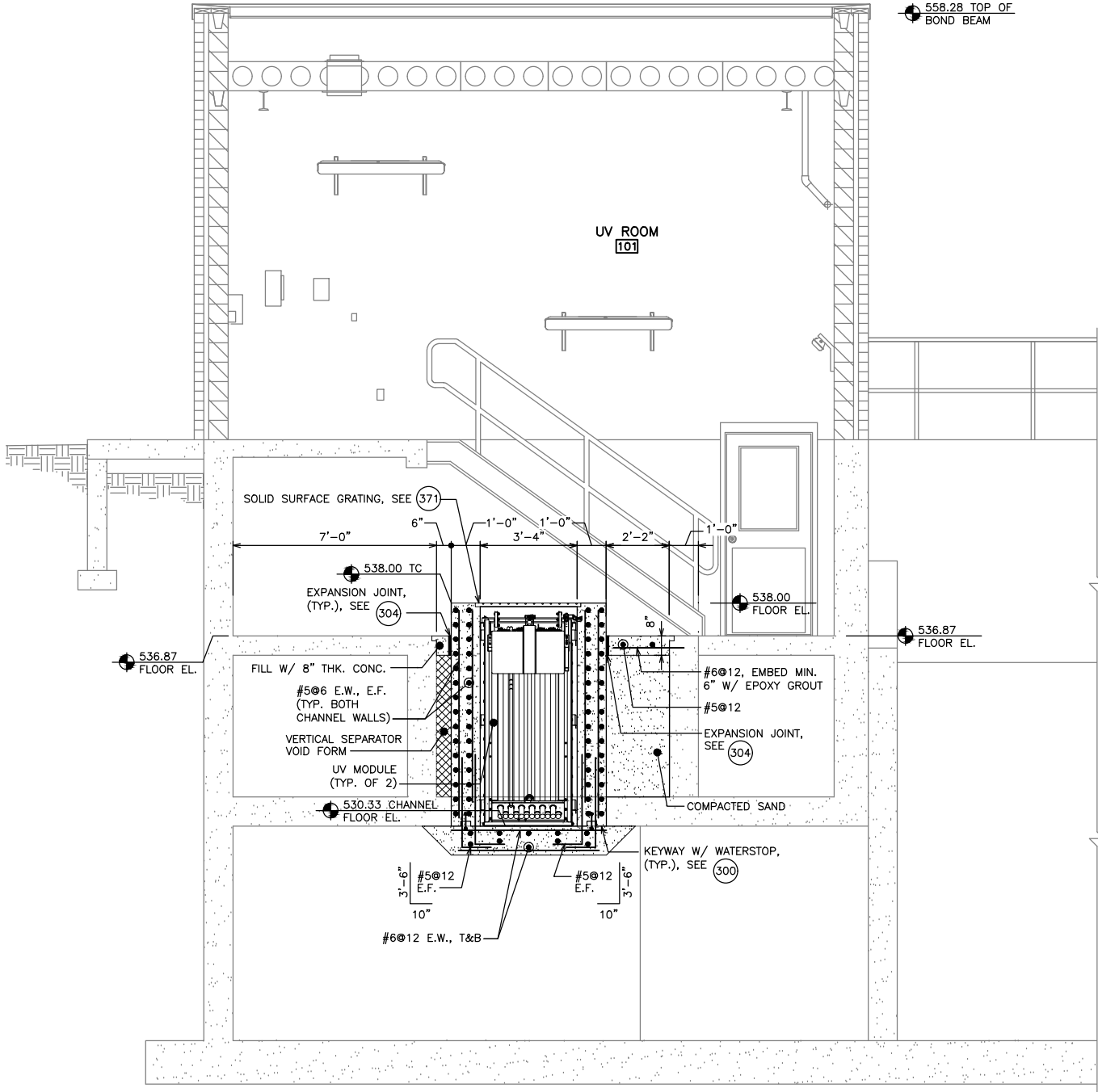


REPLACEMENT UV DISINFECTION SYSTEM PROJECT
 CITY OF MUSCATINE, IOWA

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UV DISINFECTION BUILDING
 SECTIONS – IMPROVEMENTS

DWG. NO.
50-SP-3
13 OF 19
PROJECT 20821



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		CHECKED	JPB
		APPROVED	EKL
		DATE	8/28/23
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REPLACEMENT UV DISINFECTION SYSTEM PROJECT
CITY OF MUSCATINE, IOWA

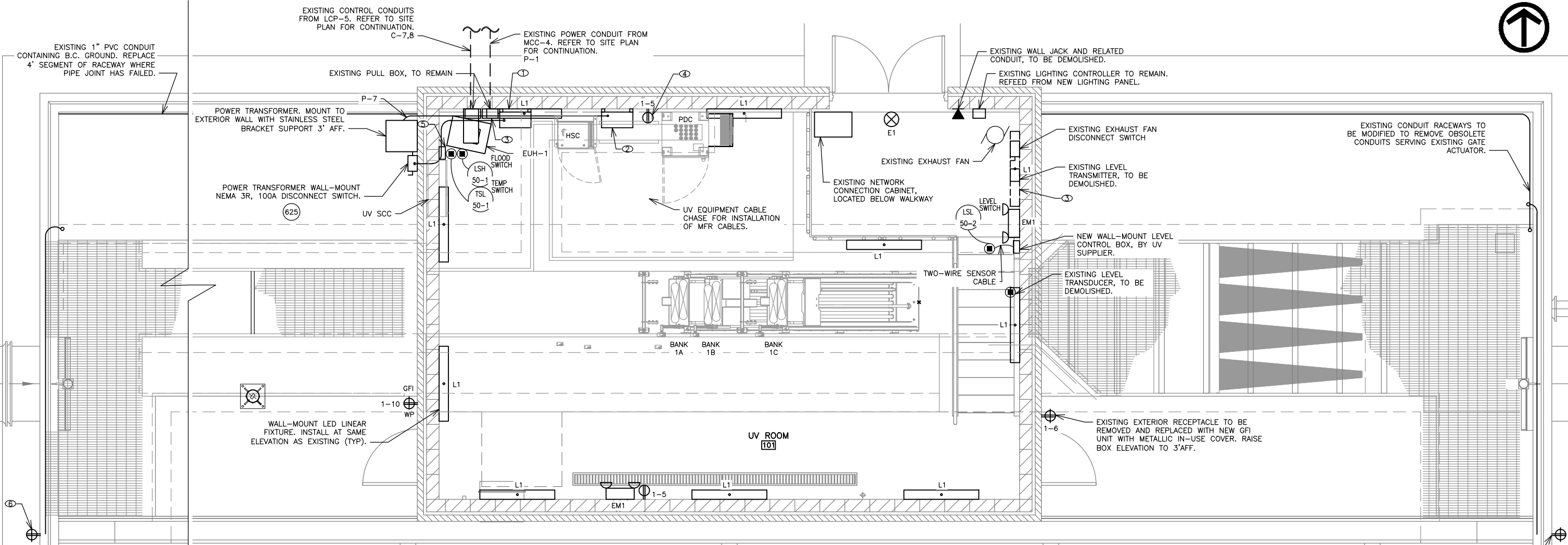
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UV DISINFECTION BUILDING
SECTIONS – IMPROVEMENTS

DWG. NO.
50-SP-4
14 OF 19
PROJECT 20821

PLOTTED: Monday, August 28, 2023 1:38:19 PM

X-REFS: Muscatine WRR Facility UV Replacement As-Built Plans 2023-6-06 & 50-SP
 FILE PATH: \\VK-FS\WDM\SHARE\0200\0208-MUSCATINE\0208-0021-REPLACEMENT UV DISINFECTION SYSTEM\CADD\PRODDRAWINGS\50\50-E



GENERAL NOTES:

- DO NOT SCALE DRAWINGS. IF DIMENSIONS ARE IN QUESTION THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING CLARIFICATION FROM THE ENGINEER PRIOR TO PROCEEDING WITH WORK.
- COORDINATE EXACT LOCATION OF EQUIPMENT AND FIXTURES WITH GENERAL CONTRACTOR, OWNER AND ENGINEER PRIOR TO ROUGH-IN. SOME ITEMS IN PLAN ARE SHOWN OUT OF PLANE FOR CLARITY, CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS.
- CONDUIT ROUTING IS DIAGRAMMATIC IN NATURE AND IS NOT INTENDED TO DICTATE EXACT ROUTING. CONTRACTOR IS TO DETERMINE BEST ROUTING BASED ON OTHER UTILITIES AND FIELD CONDITIONS.
- DRAWING DESIGNATIONS FOR LIGHTING PANEL LP-1 CIRCUITS ARE AS FOLLOWS, WITH X REPRESENTING THE CIRCUIT NUMBER: 1-X.
- CONCRETE EMBEDDED RACEWAYS SHALL BE SPACED NOT LESS THAN 3 PIPE DIAMETERS ON CENTER AND BE LOCATED IN MIDDLE 1/3 OF SLAB. CONTRACTOR SHALL SUBMIT CONDUIT ROUTING PLAN FOR ENGINEER REVIEW PRIOR TO INSTALLATION.
- REFER TO REMOVAL SHEETS FOR ELECTRICAL DEMOLITION REQUIREMENTS. WIRING DEVICES SHOWN ARE EXISTING UNLESS NOTED OTHERWISE.
- EXISTING ALUMINUM CONDUITS INTENDED FOR REUSE THAT FALL WITHIN NEW FLOOR SLAB EXTENSION SHALL BE COATED WITH ONE COAT OF BITUMINOUS PAINT FOR COMPLETE CORROSION RESISTANCE; COAT TO THICKNESS OF 8.0-12.0 DRY MILS THICKNESS.

PLAN NOTES:

- NEW WALL-MOUNT POWER PANEL, PP-1. CONTRACTOR SHALL EXTEND NEUTRAL CONDUCTOR FROM MCC-4 AND TERMINATE AT NEW ENCLOSURE.
- NEW WALL-MOUNT LIGHTING PANEL, LP-1. TRANSFER EXISTING LOADS NOTED TO NEW PANEL. REFER TO ELECTRICAL SCHEDULES FOR FURTHER REFERENCE.
- WALL-MOUNT LIGHT FIXTURE. MOUNT AT EXISTING ELECTRICAL BOX ELEVATION, CONSISTENT WITH EXISTING LIGHTING FIXTURES.
- NEW WALL-MOUNT RECEPTACLE. INSTALL AT 48" AFF. COORDINATE LOCATION WITH OWNER AND ENGINEER.
- WALL-MOUNT FLOOD SWITCH CONNECTION BOX. CONSTRUCT ACCORDING TO INSTALLATION DETAIL 605
- EXISTING HANDRAIL-MOUNTED RECEPTACLE TO BE RE-FED FROM NEW LIGHTING PANEL.

ELECTRIC UNIT HEATER SCHEDULE										
MARK	DESCRIPTION	MANUFACTURER / MODEL NO	HEATER				ELECTRICAL			
			KW	CFM	HP	RPM	AMPS (FLA)	MOPD	VOLTAGE/PH	NOTES
EUH-1	ELECTRIC UNIT HEATER	INDEECO / 234-U1IL-0130U	12.5	675	1/4	-	17	20	480V/3PH	1,2
NOTES:										
1. UNIT MOUNTED DISCONNECT SWITCH AND BUILT-IN THERMOSTAT.										
2. FURNISH W/ UNIVERSAL WALL/CEILING MOUNTING BRACKET. MOUNT UNIT WITH BOTTOM AT 7' AFF.										

ELECTRICAL PLAN

SCALE: 3/8"=1'-0"



EXISTING NORTH WALL VIEW

SCALE: NONE

DATE	REVISIONS	SCALE	AS NOTED
		DRAWN	JDL
		CHECKED	JDL
		APPROVED	EKL
		DATE	8/28/23
		ISSUED FOR CONSTRUCTION	

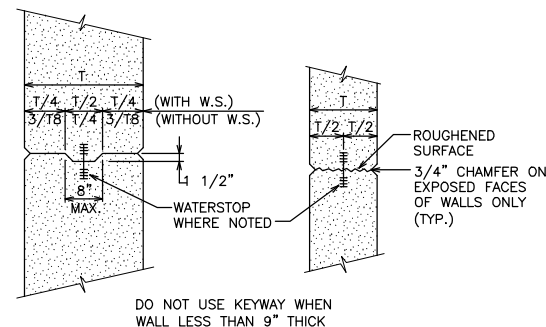


REPLACEMENT UV DISINFECTION SYSTEM PROJECT
 CITY OF MUSCATINE, IOWA

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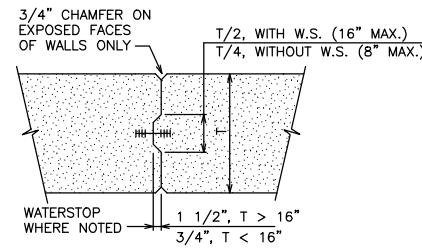
UV BUILDING
 ELECTRICAL PLAN

DWG. NO.
50-E-1
15 OF 19
PROJECT 20821

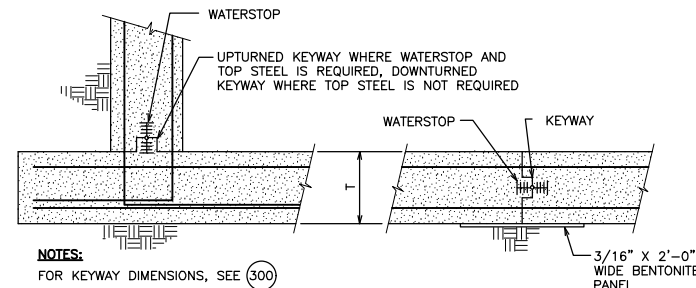


HORIZONTAL JOINT IN WALLS

NOTES:
REINFORCEMENT SHALL BE CONTINUOUS THROUGH JOINTS



VERTICAL JOINT IN WALLS

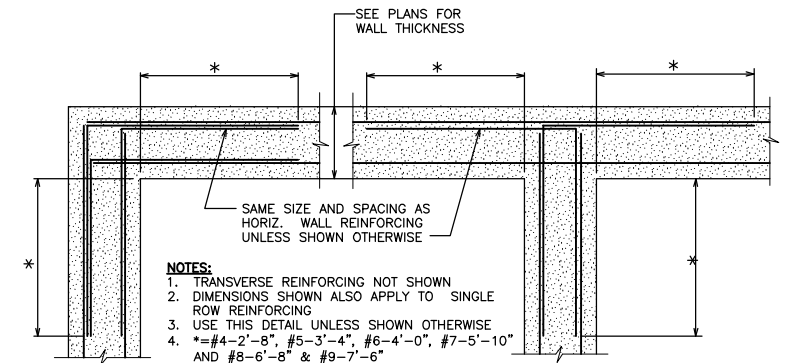


BASE OF WALL

WALL AND SLAB

SUBGRADE CONSTRUCTION JOINT DETAIL

NO SCALE

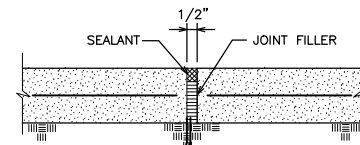


WALL CORNER

WALL INTERSECTION

REINFORCING DETAIL

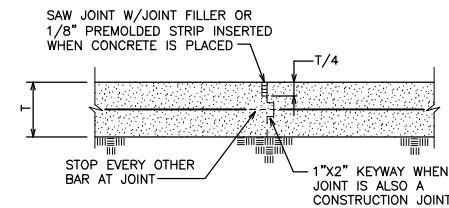
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NOTES:
ISOLATION AND EXPANSION JOINTS NOT ALLOWED IN BASE
SLAB OF PROCESS TANKS

ISOLATION OR EXPANSION JOINT (E.J.) IN SLAB ON GRADE

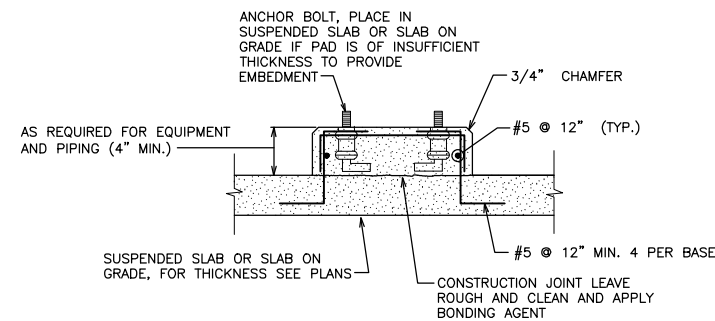
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NOTES:
CONTROL JOINTS NOT ALLOWED IN BASE SLAB OF
PROCESS TANKS

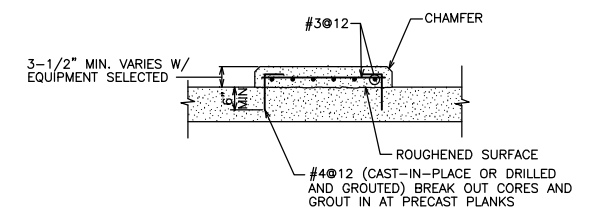
CONTROL JOINT (C.J.)
IN SLAB ON GRADE

NO SCALE



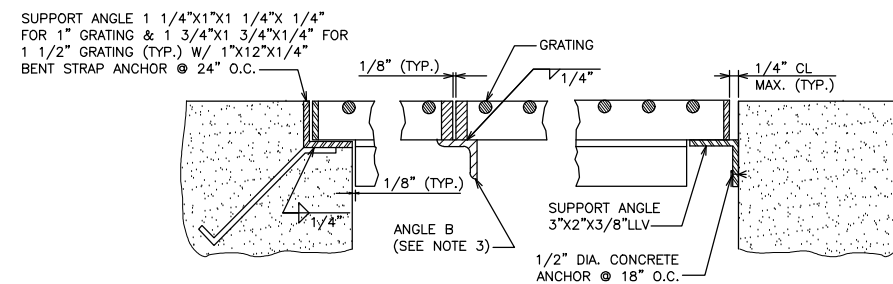
EQUIPMENT PAD DETAIL

NO SCALE



EQUIPMENT PAD DETAIL

NO SCALE



NOTES:

1. SUPPORT MATERIAL TO MATCH GRATING MATERIAL UNLESS OTHERWISE NOTED.
2. PROVIDE GRATING SUPPORTS ALL AROUND OPENING UNLESS OTHERWISE NOTED.
3. PROVIDE SUPPORT (TWO PER ALTERNATE PANEL) OR STIFFENER ANGLE B TO LIMIT DEFLECTION TO 1/4" AT 100 PSF LIVE LOAD. SPACE ANGLES SO THAT TOTAL WEIGHT OF EACH PANEL DOES NOT EXCEED 150 LBS.
4. PROVIDE EMBEDDED SUPPORT ANGLE WHENEVER POSSIBLE.

GRATING SUPPORT DETAIL

NO SCALE

DATE	REVISIONS	SCALE	AS NOTED
		DRAWN	JPB
		CHECKED	JPB
		APPROVED	EKL
		DATE	8/28/23
		ISSUED FOR	CONSTRUCTION

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MUSCATINE, IOWA

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DETAILS

WG. NO.

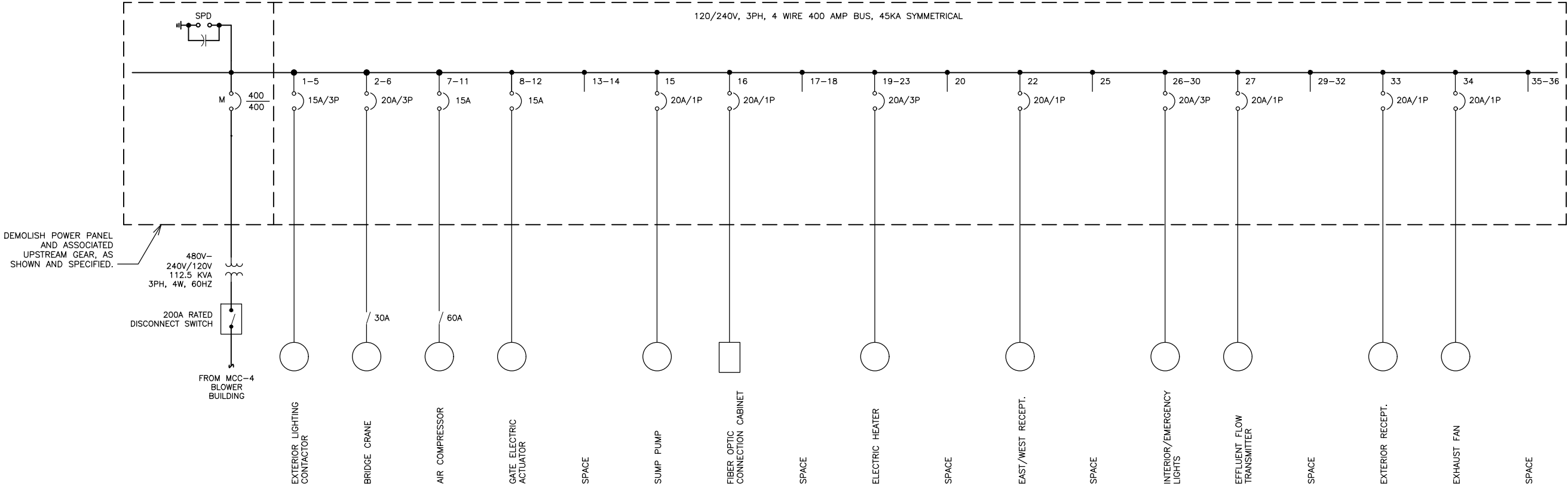
9-S-1

6 OF 19

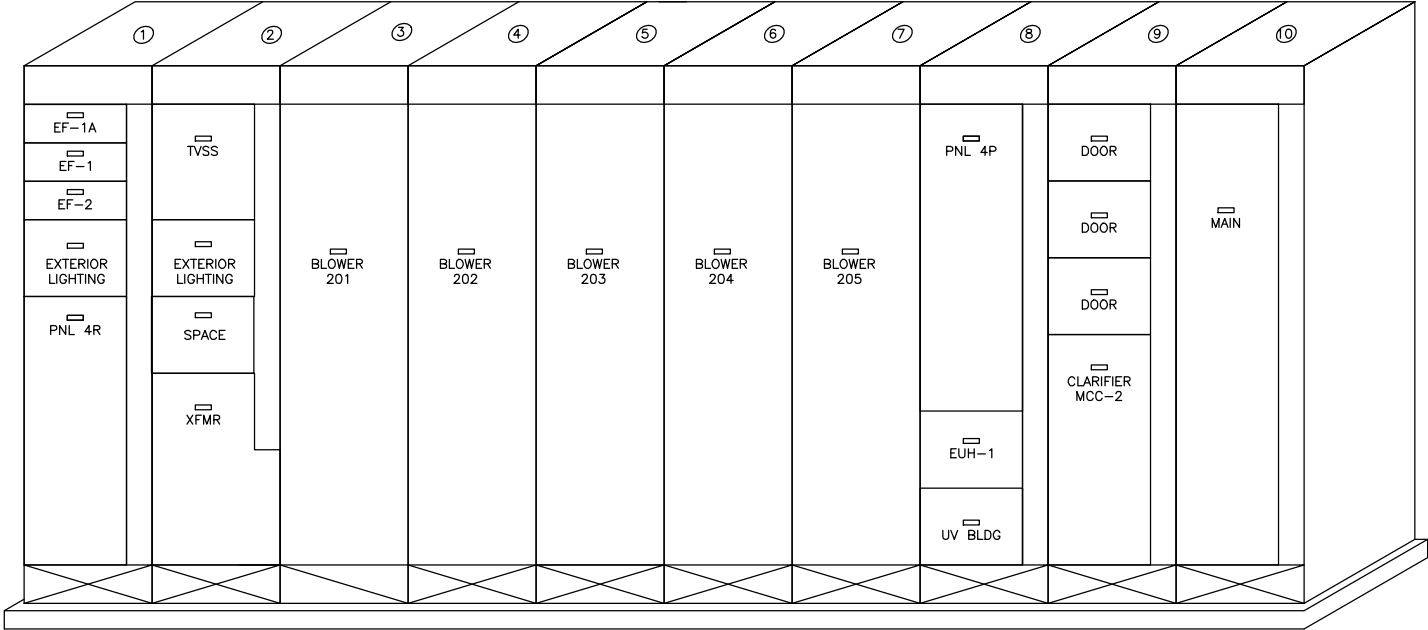
PROJECT 24 of 20821

PNL12R- UV DISINFECTION BUILDING (EXISTING)

120/240V, 3PH, 4 WIRE 400 AMP BUS, 45KA SYMMETRICAL



GENERAL NOTE:
1. EXISTING MCC LINEUP SHOWN FOR REFERENCE, CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS.



EXISTING BLOWER BUILDING, MCC-4 ELEVATION

DATE	REVISIONS	SCALE	AS NOTED
		DRAWN	JDL
		CHECKED	JDL
		APPROVED	EKL
		DATE	8/28/23
		ISSUED FOR CONSTRUCTION	



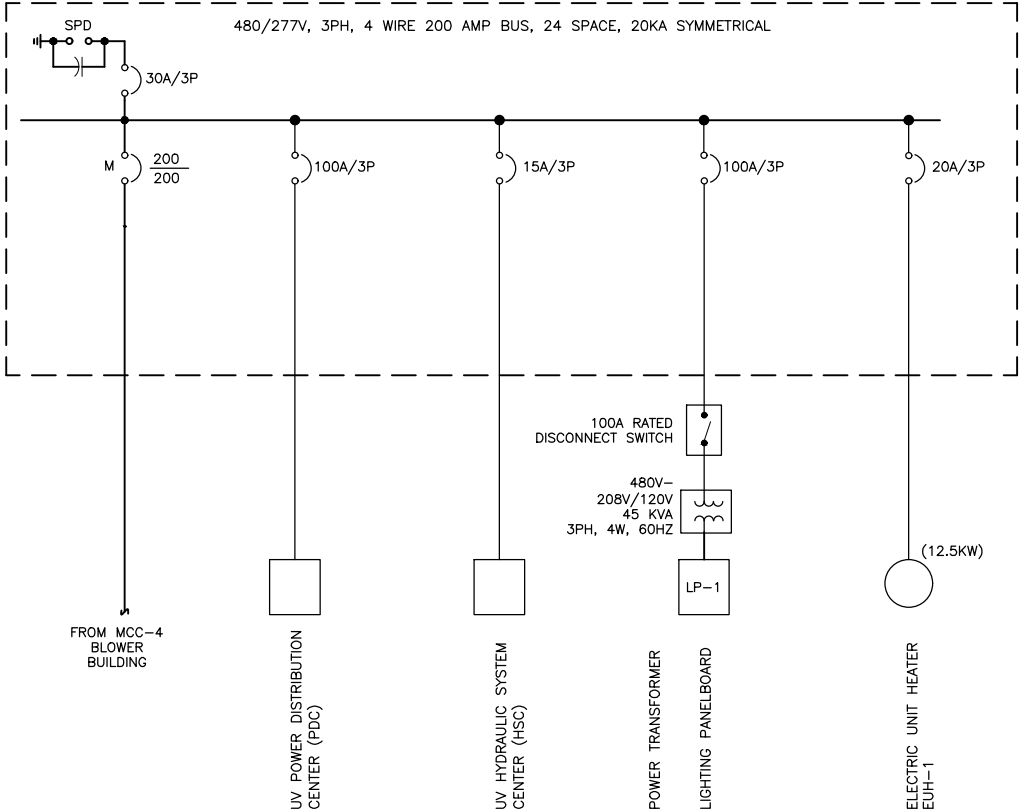
REPLACEMENT UV DISINFECTION SYSTEM PROJECT
CITY OF MUSCATINE, IOWA

2600 University Parkway - Suite 1 • Coralville, Iowa 52241
319-466-1000 • 319-466-1008(FAX) • 888-241-8001(WATS)

EXISTING ONE-LINE DIAGRAM

DWG. NO.
99-E-1
17 OF 19
PROJECT 20821

PP-1 – UV DISINFECTION BUILDING



NEW ELECTRICAL ONE-LINE DIAGRAM

SCALE: NONE

LP-1 - UV BUILDING

120/208 VOLTS, 3 PHASE, 4 WIRE
150 AMP MAIN

FEED:- 125A
MOUNTING SURFACE

LOAD	CKT	BREAKER	L1	L2	L3	BREAKER	CKT	LOAD
EXTERIOR LIGHTS	1	2P-20A				1P-20A	2	NETWORK CONNECTION CABINET
	3			15.0		1P-20A	4	UV CONTROL PANEL (SCC)
INTERIOR REC.	5	1P-20A				1P-20A	6	EXTERIOR REC.
INTERIOR LIGHTS	7	1P-20A	8.0	10.0		1P-20A	8	EXHAUST FAN / DAMPER
UV LEVEL CONTROL BOX	9	1P-20A		2.0	10.0	1P-20A	10	EXTERIOR HOIST
EMERGENCY/EXIT LIGHTS	11	1P-15A			2.0	1P-20A	12	SPARE
SPACE	13					1P-20A	14	SPARE
SPACE	15						16	SPACE
SPACE	17						18	SPACE
SPACE	19						20	SPACE
SPACE	21						22	SPACE
SPACE	23						24	SPACE
	25						26	
BRIDGE CRANE	27	3P-30A				3P-30A	28	SPD
	29						30	

RLA	8.0		2.0		2.0	
RLA		10.0		25.0		0.0
HIGH LEG MCA		22.5		33.8		2.5
HIGH LEG RLA		18.0		27.0		2.0

*TRANSFER LOADS FROM EXISTING
LIGHTING PANELBOARD

RLA 27.0 MCA 33.8

POWER WIRING SCHEDULE

CONDUIT		CONDUCTORS	FROM	TO	NOTES
NO	SIZE	POWER			
P-1	2"	(4) 3/0 W/ 1#6 G.	MCC-4	PP-1	1
P-2	1"	4#6 & 1# 8 G.	PP-1	UV PDC	1
P-3		MFR CABLE	UV PDC	UV BANK	1, 3
P-4	1"	3#12 & 1#12 G.	PP-1	UV HSC	1
P-5	3/4"	3#12 & 1#12 G.	PP-1	EUH-1	1
P-6	1-1/4"	3#4 & 1#8 G.	PP-1	DS / TRANSFORMER	1
P-7	2"	4#1/0 & 1#6 G.	TRANSFORMER	LP-1	1
P-8	3/4"	2#12 & 1#12 G.	LP-1	UV SCC	1
P-9	3/4"	2#12 & 1#12 G.	LP-1	UV LEVEL CONTROL BOX	1
P-10	3/4"	2#12 & 1#12 G.	LP-1	INTERIOR REC.	1, 2
P-11	3/4"	2#12 & 1#12 G.	LP-1	INTERIOR LIGHTS	1, 2
P-12	3/4"	2#12 & 1#12 G.	LP-1	NETWORK CONNECTION CABINET	1, 2
P-13	3/4"	2#12 & 1#12 G.	LP-1	EXTERIOR REC.	1, 2
P-14	3/4"	2#12 & 1#12 G.	LP-1	EXTERIOR LIGHTS	1, 2
P-15	3/4"	3#10 & 1#10 G.	LP-1	BRIDGE CRANE	1, 2
P-16	3/4"	2#12 & 1#12 G.	LP-1	EXHAUST FAN/DAMPER	1, 2
P-17	3/4"	2#12 & 1#12 G.	LP-1	EMERGENCY/EXIT LIGHTS	1, 2

1. ALL "P-" CONDUITS MAY NOT BE SHOWN ON DRAWINGS; ROUTE CONDUITS AND WIRING AS PER THIS SCHEDULE.
2. CONTRACTOR MAY UTILIZE EXISTING CONDUIT RACEWAY TO INSTALL SCHEDULED CONDUCTORS, WHERE POSSIBLE.
3. UV DISINFECTION CABLES SHALL BE ROUTED THROUGH DESIGNATED CABLE CHASE. INSTALL WITH #8AWG COPPER GROUNDING CONDUCTOR.

CONTROL WIRING SCHEDULE

CONDUIT		CONDUCTORS	FROM	TO	NOTES
NO	SIZE	CONTROL			
C-1	3/4"	ETHERNET CABLE	UV SCC	NETWORK CONNECTION CABINET	1
C-2	3/4"	SERIAL CABLE	UV SCC	UV HSC	1
C-3	3/4"	SERIAL CABLE	UV HSC	UV PDC	1
C-4		UV INTENSITY-MFR CABLE	UV PDC	UV BANKS	1, 2
C-5		BANK IN PLACE-MFR CABLE	UV PDC	UV BANKS	1, 2
C-6	3/4"	2#14	UV PDC	UV LEVEL CONTROL BOX	1
C-7	3/4"	2#14	LCP-5	TSL 50-1	1, 3
C-8	3/4"	2#14	LCP-5	LSH 50-1	1, 3

1. ALL "C-" CONDUITS MAY NOT BE SHOWN ON DRAWINGS; ROUTE CONDUITS AND WIRING AS PER THIS SCHEDULE.
2. UV DISINFECTION CABLES SHALL BE ROUTED THROUGH DESIGNATED CABLE CHASE. INSTALL WITH #8AWG COPPER GROUNDING CONDUCTOR.
3. UTILIZE SPARE CONTROL WIRING COILED WITHIN EXISTING WALL-MOUNT PULL BOX. LOCATE DEVICE TO ACCOMMODATE EX. WIRE LENGTH.

LIGHT FIXTURE SCHEDULE

PLAN ID	BASIS OF DESIGN	LAMP DATA	VOLTAGE	NOTES
L1	HOLOPHANE EMSL48 6000LM LPPFL WD MVOLT GZ10 40K OR EQUAL	48", 6,000 LUMEN, 37 WATT LED, LOW PROFILE POLYCARBONATE FROSTED LENS, DIMMABLE	120	1, 2
E1	HOLOPHANE DTL W 1 R EL SD OR EQUAL	LED EXIT SIGN, SINGLE FACE, RED	120	1, 2
EM1	HOLOPHANE DSL3 SP1100L UVOLT LTP SDRT OR EQUAL	LED EMERGENCY LIGHT, BATTERY BACKUP	120	1, 2

- NOTES:
1. WALL-MOUNT LIGHTING FIXTURES WHERE SHOWN IN THE PLANS.
 2. FURNISH WITH MOUNTING HARDWARE

REPLACEMENT UV DISINFECTION SYSTEM PROJECT
CITY OF MUSCATINE, IOWA

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319-466-1000 • 319-466-1008(FAX) • 888-241-8001(WATS)



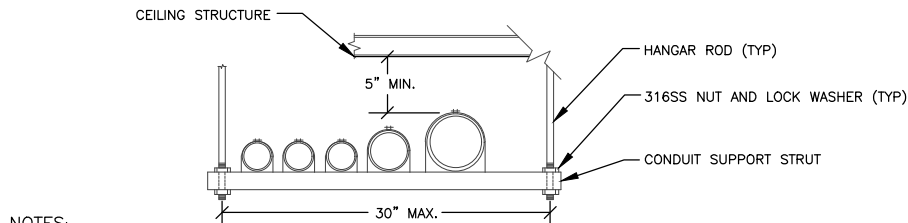
ONE-LINE DIAGRAM AND SCHEDULES

DWG. NO.

99-E-2

18 OF 19

PROJECT 20821

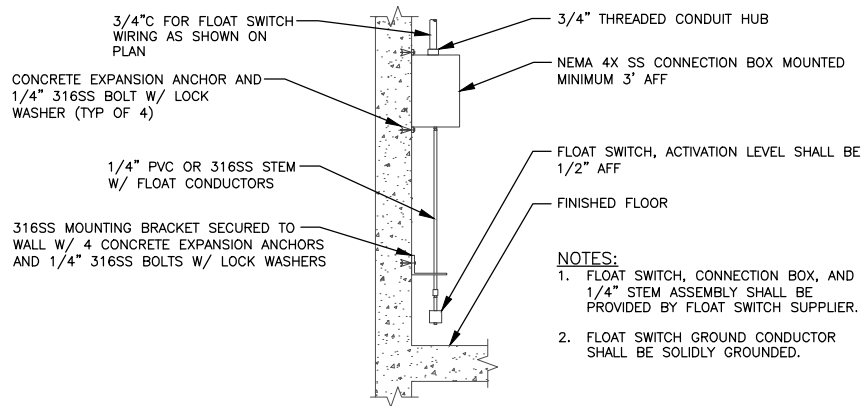


NOTES:

1. LENGTH OF CONDUIT SUPPORT STRUT VARIES WITH NUMBER OF CONDUITS TO BE SUPPORTED AND SPACING BETWEEN CONDUITS.
2. SIZE CONDUIT SUPPORT STRUT TO SUPPORT LOAD WITHOUT DEFLECTION. MINIMUM SIZE OF CONDUIT SUPPORT STRUT SHALL BE 1-1/2"x1-1/2".
3. HANGER ROD SHALL BE CONSTRUCTED OF STAINLESS STEEL, SIZE ROD TO SUPPORT LOAD, MINIMUM SIZE SHALL BE 3/8".
4. MANUFACTURER'S WRITTEN RECOMMENDATIONS SHALL DICTATE ALLOWABLE SPAN, NUMBER/SIZE OF HANGER RODS, AND ALLOWABLE LOADING.
5. USE CONCRETE INSERTS FOR SUPPORT OF HANGER RODS FROM CONCRETE CEILING, USE SWIVEL BEAM CLAMPS FOR STEEL BEAM APPLICATIONS.

CONDUIT RACKING SYSTEM (611)

NO SCALE

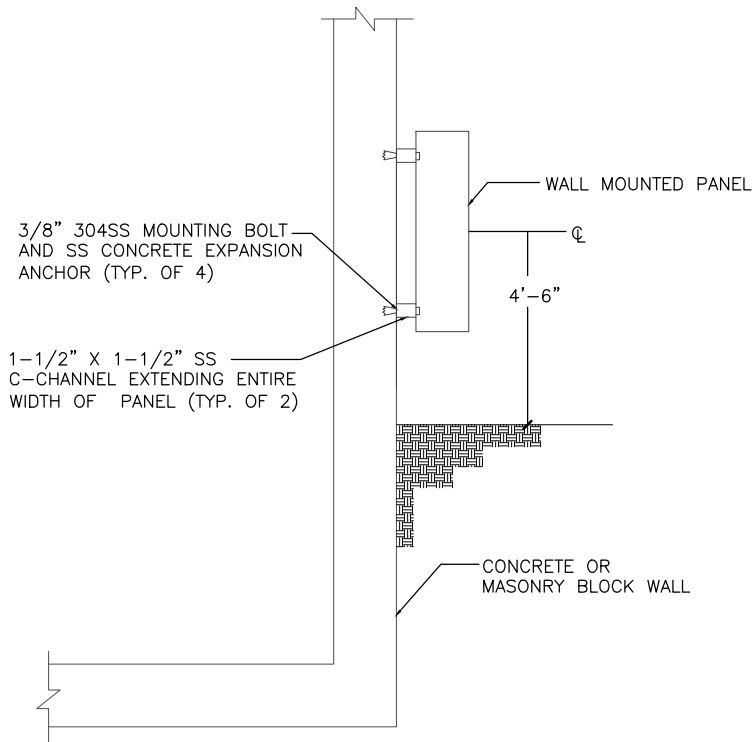


NOTES:

1. FLOAT SWITCH, CONNECTION BOX, AND 1/4" STEM ASSEMBLY SHALL BE PROVIDED BY FLOAT SWITCH SUPPLIER.
2. FLOAT SWITCH GROUND CONDUCTOR SHALL BE SOLIDLY GROUNDED.

FLOOD SWITCH INSTALLATION (605)

NO SCALE



WALL-MOUNTED ELECTRICAL PANEL INSTALLATION (625)

NO SCALE

DATE	REVISIONS	SCALE	AS NOTED
		DRAWN	JDL
		CHECKED	JDL
		APPROVED	EKL
		DATE	8/28/23
		ISSUED FOR	REVIEW



REPLACEMENT UV DISINFECTION SYSTEM PROJECT
CITY OF MUSCATINE, IOWA

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ELECTRICAL DETAILS

DWG. NO.
99-E-3
19 OF 19
PROJECT 20821

COST ESTIMATE - DETAILED BREAKDOWN
REPLACEMENT UV DISINFECTION SYSTEM PROJECT
MUSCATINE, IOWA

8/15/2023
Project No. 20821

SPEC SECTION	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	EXTENDED PRICE	SECTION TOTALS
DIVISION 1 - GENERAL REQUIREMENTS						
01010	SUMMARY OF WORK					
	Engineering & Layout, Site survey	1	LS	2,000	2,000	
	Job Supervision	6	MTH	7,000	42,000	
	Bond, Insurance, Permits (2%)	1	LS	25,000	25,000	
	Mobilization (4%)	1	LS	50,000	50,000	
				SECTION 01010 TOTAL		\$ 119,000
01040	SPECIAL CONSTRUCTION					
	Cleaning	1	LS	5,000	5,000	
				SECTION 01040 TOTAL		\$ 5,000
01410	TESTING LABORATORY SERVICES					
	Concrete Testing	12	EA	250	3,000	
				SECTION 01410 TOTAL		\$ 3,000
01500	TEMPORARY CONSTRUCTION FACILITIES & UTILITIES					
	Heat	6	MTH	500	3,000	
				SECTION 01500 TOTAL		\$ 3,000
				DIVISION 1 TOTAL		\$ 130,000
DIVISION 2 - SITEWORK						
02050	DEMOLITION					
	UV System (3 guys @ \$100/hr * 40 hr/wk)	1	wk	12,000	12,000	
	Concrete Removal/Sand (3 guys @ \$100/hr *	3	wk	12,000	36,000	
	Electrical Demolition (2 guys @ \$120/hr * 40 l	3	wk	9,600	28,800	
	Miscellaneous Equip/Haul Off	1	LS	20,000	20,000	
				SECTION 02050 TOTAL		\$ 96,800
				DIVISION 2 TOTAL		\$ 96,800
DIVISION 3 - CONCRETE						
03300	CAST-IN-PLACE CONCRETE					
	West Ext. Channel					
	Walls	13	CY	1,500	19,500	
	Base	5	CY	1,200	6,000	
	Topping	2	CY	1,000	2,000	
	Bldg Interior					
	Walls	18	CY	1,500	27,000	
	Base	7	CY	1,200	8,400	
	Topping	8	CY	1,000	8,000	

Short Walls	2	CY	1,500	3,000	
East Ext. Channel					
Walls	5	CY	1,500	7,500	
Base	2	CY	1,200	2,400	
Topping	1	CY	1,000	1,000	
Ramp	8	CY	1,200	9,600	
Equipment Pads	2	CY	1,000	2,000	
SECTION 03300 TOTAL					\$ 96,400
DIVISION 3 TOTAL					\$ 96,400

DIVISION 5 - METALS

05500	METAL FABRICATIONS				
	Open Grating	125	SF	100	12,500
	Solid Plank Grating	125	SF	150	18,750
	Aluminum Bar Screen	1	LS	2,000	2,000
SECTION 05500 TOTAL					\$ 33,250
DIVISION 5 TOTAL					\$ 33,250

DIVISION 7 - THERMAL AND MOISTURE PROTECTION

07900	JOINT SEALERS	1	LS	1000	1000
SECTION 07900 TOTAL				\$	1,000
DIVISION 7 TOTAL					\$ 1,000

DIVISION 11 - EQUIPMENT

11368	ULTRAVIOLET DISINFECTION EQUIPMENT SPECIFICATION				
	UV Disinfection Equipment	1	LS	420,000	420,000
	UV Equipment Installation (35% of Equip)	1	LS	150,000	150,000
SECTION 11368 TOTAL					\$ 570,000
DIVISION 11 TOTAL					\$ 570,000

DIVISION 13 - SPECIAL CONSTRUCTION

13570	INSIDE PROCESS PIPING				
	2" PVC Drain	10	LF	60	600
	2" Valve	1	EA	50	50
SECTION 13570 TOTAL					\$ 650
DIVISION 13 TOTAL					\$ 650

DIVISION 16 - ELECTRICAL

\$ 140,000
DIVISION 16 TOTAL \$ 160,000

DIVISION 17 - INSTRUMENTATION & CONTROLS

\$ 60,000
DIVISION 17 TOTAL \$ 60,000

FINAL COST ESTIMATE - SUMMARY

SUB-TOTAL \$ 1,148,100

CONTINGENCY (5%)	\$ 58,000
CONSTRUCTION TOTAL	\$ 1,206,100



City of Muscatine

ITEM NUMBER 2023-0432

AGENDA ITEM SUMMARY

DATE: 9/7/2023

STAFF

April Limburg, City Planner

SUBJECT

A Resolution Declaring Certain Described Real Estate Owned By the City (Vacant Parcel Adjacent to 891 W. 8th Street) as Surplus and Authorizing the Sale of Said Certain Real Estate by Sealed Bid Process. - Public Hearing A

EXECUTIVE SUMMARY

Presented for Council consideration is a Resolution to declare city-owned property as surplus, and to authorize the sale of this property by a closed bid auction. The City of Muscatine currently owns a vacant 0.24 acre parcel that is adjacent to 891 W. 8th St, parcel "X" for which there is no proposed public use. Prior to the sale of city-owned property, the City Council must determine the property serves no public purpose and authorize the declaration of the property as surplus. If the resolution is approved, the property will be sold by closed bid auction. Interested parties will have the opportunity to submit a sealed bid by September 19, 2023.

STAFF RECOMMENDATION

Staff recommends Council adopt the attached resolution to declare certain City-owned real estate as surplus.

BACKGROUND/DISCUSSION

The City of Muscatine has accumulated a number of parcels of land on which the continued public ownership of no longer serves a useful purpose. In order to return these parcels to a useful purpose, restore them to the tax roll, and to reduce maintenance costs associated with maintenance of these parcels, the City Council must declare such parcels surplus.

The City currently owns parcel X, which is adjacent to 891 W 8th St and shown on Exhibit A, for which there is no identified public use. The City acquired 891 W. 8th Street as part of the West Hill Sewer Separation Project. The project required the relocation of the existing home on the property to make way for a new sewer line.

After the relocation of the home, it became possible to accommodate two homes on the 0.74-acre site. The City split the parcel into two new parcels to take advantage of this opportunity:

- Parcel "W" (891 W 8th St): A 0.49-acre parcel that contains the relocated home.
- Parcel "X": A 0.24-acre adjoining parcel that is shovel ready for a new home.

Once declared as surplus, these parcels will be sold by a closed bid auction. The auction will be held on September 19, 2023. To participate in the auction, interested parties must submit a sealed bid by September 19, 2023. All bids will be opened and the highest bidder at the end of the auction will be declared the winner. The bidding process will start with the lowest bidder. Each bidder will have the opportunity to raise their bid in increments of \$1,000.00.

The minimum bid that would be accepted is \$26,000. That is the estimated fair market value of the parcel. The bidding will continue until there is no one willing to raise the bid any further. The highest bidder will be required to execute a purchase agreement with the City. The purchase agreement will list the sale price, the closing date, and any other conditions associated with the sale. A notice of the sealed bid auction and the sale procedure will be published upon approval of a resolution declaring the property surplus.

CITY FINANCIAL IMPACT

Selling the parcel would generate income for the city, reduce maintenance costs, and make the parcel subject to property tax.

ATTACHMENTS

1. Resolution declare surplus - Lot X adjacent lot to 891 W 8th
2. 8924 Plat RECORDED (2)
3. Closed Bid Auction Notification - W 8th lot
4. Bid procedures - W 8th Lot

RESOLUTION NO. 2023-0432

**Declaring Certain Described Real Estate Owned by the City as Surplus and
Authorizing the Sale of Said Certain Real Estate by Sealed Bid Process**

WHEREAS, a Resolution adopted by the City Council of Muscatine, Iowa, on September 7, 2023, does hereby deem the following real estate parcels as surplus;

A PART OF LOT “A”, OF GIESSE’S SUBDIVISION IN MUSCATINE, IOWA,
MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHEAST CORNER OF LOT “A”; THENCE SOUTH 53’25’45” WEST 105.87 FEET; THENCE NORTH 89’16’07” WEST 122.25 FEET; THENCE NORTH 02’19’06” EAST 64.19 FEET; THENCE SOUTH 89’16’07” EAST 204.69 FEET TO THE POINT OF BEGINNING, CONTAINING 0.24 ACRES, MORE OF LESS.

Lot “X” adjacent to the property located at 891 W 8th St

WHEREAS, the City Administrator is hereby authorized and directed to take the necessary steps to offer the above-described real estate for sale by closed bid process, to be followed by appropriate action of the City Council as provided by law, and;

WHEREAS, the Resolution provided for a public hearing on the proposed sale of real property, and such public hearing has been held; and

WHEREAS, in accordance with said notice, those interested in said proposed conveyance, both for and against, have been given an opportunity to be heard with respect thereto and have presented their views to the City Council of the City of Muscatine, Iowa at public hearing held on September 7, 2023; and

WHEREAS, the City Council of Muscatine, does hereby declare to be surplus and it to be in the best interest of the public to dispose of the described real estate, in Muscatine, Iowa,

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF MUSCATINE, IOWA, that the resolution declaring certain real estate owned by the City surplus and authorizing the sale of said certain real estate is hereby approved.

PASSED, APPROVED AND ADOPTED this 7th day of September, 2023.

**BY THE CITY COUNCIL OF THE
CITY OF MUSCATINE, IOWA**

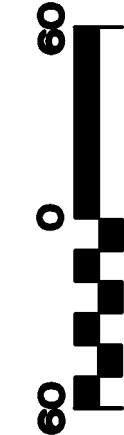
Brad Bark, Mayor

Attest:

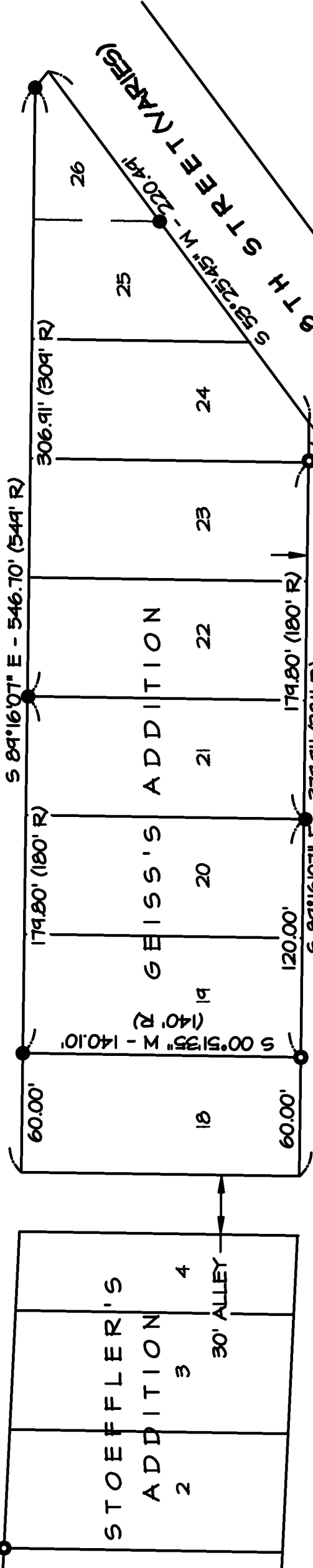
Carol Webb, City Clerk

Instr. Number: 2023-03669
Recorded: 8/18/2023 at 11:22:37.0 AM
County Recording Fee: \$12.00
Iowa E-Filing Fee: \$3.00
Combined Fee: \$15.00
Revenue Tax:
Sarah M Hearst - Recorder
Muscatine County, Iowa

BASIS OF BEARINGS
IOWA REGIONAL COORDINATE SYSTEM
ZONE 14

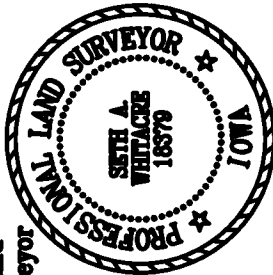


CLIMER STREET



I hereby certify that this land surveying document was prepared and the related survey work was performed by me or under my direct personal supervision and that I am a duly licensed Professional Land Surveyor under the laws of the State of Iowa.

Seth A. Whitacre
Seth A. Whitacre
Date 8/18/23 Reg. No. 18379
My license renewal date is December 31, 2024



Pages or sheets covered by this seal: 2

SURVEY COMPANY / RETURN TO:

Martin & Whitacre
Surveyors & Engineers, Inc.
1508 BIDWELL ROAD, MUSCATINE, IOWA 52761
INFO@MARTIN-WHITACRE.COM (563)263-7691

SURVEYOR: SETH A. WHITACRE

PROPRIETOR(S): CITY OF MUSCATINE

REQUESTOR: CITY OF MUSCATINE

LOCATION: LOT "A" IN GEISS'S SUBDIVISION
CITY OF MUSCATINE, MUSCATINE COUNTY, IOWA

SURVEY TYPE: PLAT OF SURVEY

FILE	BOOK	SCALE	DRN	CHK'D	DATE	JOB NO.
SCANNED	CITY #52	1"=60'	TJB	SAW	8/18/23	0424.23
REV.	0				0424 SURVEY.DWG	SHEET 1 OF 2

LEGEND

- SET 1/2" X 36" REBAR W/BUE CAP #103719
- ⊗ SET "X" IN CONCRETE
- FOUND 1/2" REBAR
- FOUND 3/4" IRON PIPE
- (R) R DENOTES RECORD DATA IF OTHER THAN ACTUAL FIELD MEASUREMENT

ADDITION

ORIGINAL LOT LINE

LUCAS STREET
ADDITION

EIGHTH STREET

STOEFFLER'S
ADDITION

GEISS'S
ADDITION

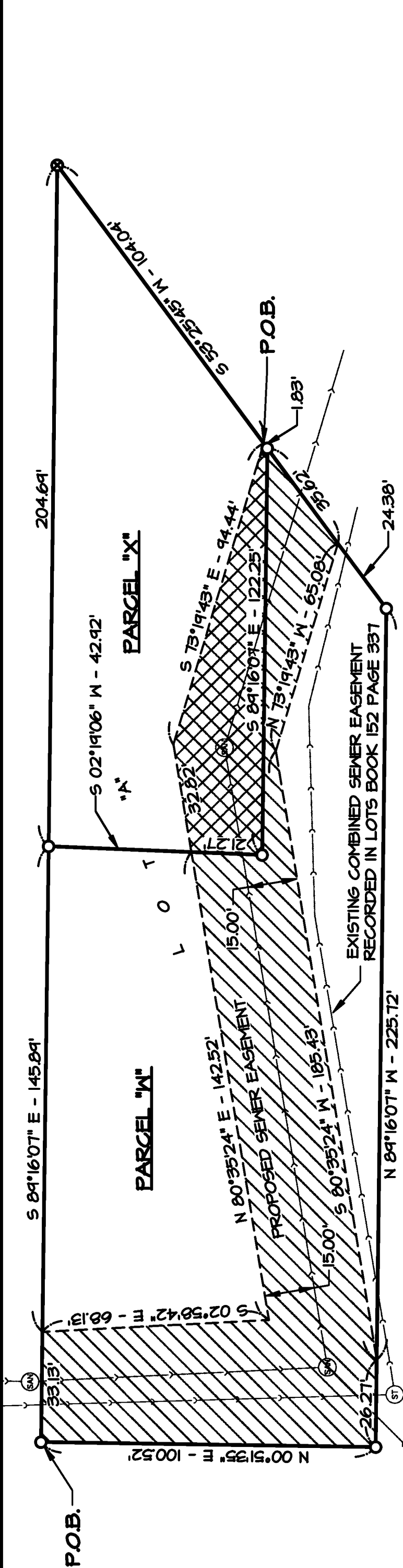
PARCEL "X"
0.24 ACRES

PARCEL "W"
0.49 ACRES

5

P.O.B.

P.O.B.



LAND DESCRIPTION - PARCEL "W"

A PART OF LOT "A", OF GIESE'S SUBDIVISION IN MUSCATINE, IOWA, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHWEST CORNER OF LOT "A"; THENCE SOUTH 89°16'07" EAST 179.02 FEET; THENCE SOUTH 02°19'06" WEST 64.19 FEET; THENCE SOUTH 89°16'07" EAST 122.25 FEET; THENCE SOUTH 53°25'45" WEST 60.00 FEET; THENCE NORTH 89°16'07" WEST 251.99 FEET; THENCE NORTH 00°51'35" EAST 100.52 FEET TO THE POINT OF BEGINNING, CONTAINING 0.49 ACRES, MORE OR LESS.

LAND DESCRIPTION - PARCEL "X"

A PART OF LOT "A", OF GIESE'S SUBDIVISION IN MUSCATINE, IOWA, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

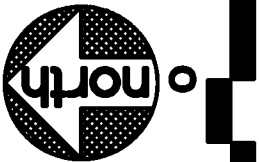
BEGINNING AT THE NORTHEAST CORNER OF LOT "A"; THENCE SOUTH 53°25'45" WEST 105.87 FEET; THENCE NORTH 89°16'07" WEST 122.25 FEET; THENCE NORTH 02°19'06" EAST 64.19 FEET; THENCE SOUTH 89°16'07" EAST 204.69 FEET TO THE POINT OF BEGINNING, CONTAINING 0.24 ACRES, MORE OR LESS.

PROPOSED SEWER EASEMENT ON PARCEL "W" -

AN EASEMENT ACROSS PARCEL "W", ALSO IN LOT "A" OF GIESE'S SUBDIVISION IN MUSCATINE, IOWA, MORE PARTICULARLY DESCRIBED AS FOLLOWS: BEGINNING AT THE NORTHWEST CORNER OF LOT "A"; THENCE SOUTH 89°16'07" EAST 33.13 FEET; THENCE SOUTH 02°58'42" EAST 68.13 FEET; THENCE NORTH 80°35'24" EAST 142.52 FEET; THENCE SOUTH 02°19'06" WEST 21.27 FEET; THENCE SOUTH 89°16'07" EAST 122.25 FEET; THENCE SOUTH 53°25'45" WEST 35.62 FEET; THENCE NORTH 73°19'43" WEST 65.08 FEET; THENCE SOUTH 80°35'24" WEST 185.43 FEET; THENCE NORTH 89°16'07" WEST 26.27 FEET; THENCE NORTH 00°51'35" EAST 100.52 FEET TO THE POINT OF BEGINNING, CONTAINING 0.21 ACRES, MORE OR LESS.

PROPOSED SEWER EASEMENT ON PARCEL "X" -

AN EASEMENT ACROSS PARCEL "X", ALSO BEING IN LOT "A" OF GIESE'S SUBDIVISION IN MUSCATINE, IOWA, MORE PARTICULARLY DESCRIBED AS FOLLOWS: COMMENCING AT THE NORTHEAST CORNER OF LOT "A"; THENCE SOUTH 53°25'45" WEST 104.04 FEET TO THE POINT OF BEGINNING; THENCE SOUTH 53°25'45" WEST 1.83 FEET; THENCE NORTH 89°16'07" WEST 122.25 FEET; THENCE NORTH 02°19'06" EAST 21.27 FEET; THENCE NORTH 80°35'24" EAST 32.82 FEET; THENCE SOUTH 73°19'43" EAST 94.44 FEET TO THE POINT OF BEGINNING, CONTAINING 0.05 ACRES, MORE OR LESS.



SURVEY COMPANY / RETURN TO:									
Martin & Whitacre Surveyors & Engineers, Inc. 1508 BIDWELL ROAD, MUSCATINE, IOWA 52761 INFO@MARTIN-WHITACRE.COM (563)263-7691									
SURVEYOR: SETH A. WHITACRE									
PROPRIETOR(S): CITY OF MUSCATINE									
REQUESTOR: CITY OF MUSCATINE									
LOCATION: LOT "A" IN GIESE'S SUBDIVISION CITY OF MUSCATINE, MUSCATINE COUNTY, IOWA									
SURVEY TYPE: PLAT OF SURVEY									
FILE	BOOK	SCALE	DRN	CHK'D	DATE	JOB NO.			
SCANNED	CITY #52	1"=30'	EAS	SAW	8/18/23	8424.23			
REV.	0			8424 SURVEY.DWG	SHEET	2 OF			

EXHIBIT A

NOTICE OF INTENT TO DISPOSE OF CITY PROPERTY
TO THE CITIZENS OF MUSCATINE, IOWA:

You are hereby notified that the City Council of Muscatine, Iowa, intends to sell all rights, title and interest of the city in and to the following described real property, also known as adjacent lot to the property located at 891 W 8th St in Muscatine, Iowa, to-wit:

A PART OF LOT “A”, OF GIESSE’S SUBDIVISION IN MUSCATINE, IOWA, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHEAST CORNER OF LOT “A”; THENCE SOUTH 53’25’45” WEST 105.87 FEET; THENCE NORTH 89’16’07” WEST 122.25 FEET; THENCE NORTH 02’19’06” EAST 64.19 FEET; THENCE SOUTH 89’16’07” EAST 204.69 FEET TO THE POINT OF BEGINNING, CONTAINING 0.24 ACRES, MORE OF LESS.

The sale will be conducted via a closed bid auction commencing at 10:00 A.M. on September 19, 2023 in the first-floor conference room in City Hall, 215 Sycamore Street, Muscatine, Iowa 52761. Copies of the sale procedures may be obtained in the Community Development Office, City Hall, and 215 Sycamore Street, Muscatine, Iowa 52761.

You are further notified that oral or written statements in support of, or in opposition to, this proposed sale may be made at the public hearing before city council to be held at 6:00 P.M. on October 5, 2023, in the Council Chambers in City Hall, 215 Sycamore Street, Muscatine, Iowa.

Carol Webb, City Clerk

**CITY OF MUSCATINE, IOWA
PUBLIC PROPERTY FOR SALE**

AUCTION DATE: September 19, 2023 10:00 A.M.
LOCATION: FIRST FLOOR CONFERENCE ROOM
CITY HALL – 215 SYCARMORE STREET
MUSCATINE, IA 52761

DESCRIPTION OF PROPERTY:

A PART OF LOT “A”, OF GIESSE’S SUBDIVISION IN MUSCATINE, IOWA, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHEAST CORNER OF LOT “A”; THENCE SOUTH 53’25’45” WEST 105.87 FEET; THENCE NORTH 89’16’07” WEST 122.25 FEET; THENCE NORTH 02’19’06” EAST 64.19 FEET; THENCE SOUTH 89’16’07” EAST 204.69 FEET TO THE POINT OF BEGINNING, CONTAINING 0.24 ACRES, MORE OF LESS.

SALE PROCEDURES:

Sealed Bids. On or before 9:59 a.m. on September 19, 2023, each bidder shall submit a written bid a sealed envelope containing a certified check or a cashier’s check in the amount of \$1,000 payable to the City of Muscatine, Iowa, and the name of the bidder identified on the outside of the envelope. The minimum acceptable for this property shall be \$26,000. The bidder shall also include a plan and schedule for the development of the property, including the intended use in much detail as is possible. The fair market value is \$26,000

Live Auction. Starting at 10:00 A.M. September 19, 2023, the bids will be opened. Each bidder will be given the opportunity to successively raise his/her/its bid in an amount which is higher than the current highest bid in increments of not less than \$1,000.00, starting with the lowest bidder. This procedure will continue until the highest bid is obtained. Failure to bid in any given round will not prevent re-entering the bidding process at a later time. Unsuccessful bidder’s checks will be returned when the auction has been completed.

Purchase Agreement. The highest bidder will be present to City Council for the consideration the approval of a Special Warranty Deed on or about October 5, 2023, and which shall list the sale price, provide a closing date, and include reference to the planned development of the property, including the intended use and timing which was submitted with the bid.

Possession and Title. Possession will be given at closing. Title will be transferred by Special Warranty Deed. A standard groundwater hazard statement will be provided at the time of closing.

The purposed purchase agreement and terms of sale are subject to City Council review and acceptance. **The City reserves the right to reject all bids and to reject the proposed purchase agreement.**

Inquires may be made to Andrew Fangman, Assistant Community Development Director (563-262-4141), or April Limburg, City Planner (563-262-4141), City Hall, 215 Sycamore Street, Muscatine, IA 52761.



City of Muscatine

ITEM NUMBER 2023-0438

AGENDA ITEM SUMMARY

DATE: 9/7/2023

STAFF

April Limburg, City Planner

SUBJECT

A Resolution Approving An Easement for the West Hill Sewer Separation Project For Parcel "X", adjacent to 891 W 8th St

EXECUTIVE SUMMARY

Presented for City Council's consideration is a resolution approving a sanitary sewer easement associated with the West Hill Sewer Separation Project for Parcel "X". This resolution would establish a sanitary sewer easement on a City-owned vacant parcel located adjacent to 891 W. 8th Street (Parcel "X").

STAFF RECOMMENDATION

Staff recommends Council adopt the attached resolution.

BACKGROUND/DISCUSSION

The City acquired a 0.74-acre parcel at 891 W. 8th Street as part of the West Hill Sewer Separation Project. The project required the relocation of the existing home on the property to make way for a new sewer main. The City is now in the process of disposing of this property as two separate parcels.

Before the parcels can be sold, an easement needs to be established to accommodate the newly installed sewer mains. This resolution will create a permanent easement on the vacant parcel adjoining 891 W. 8th Street (Parcel "X").

CITY FINANCIAL IMPACT

None.

ATTACHMENTS

1. Resolution Approving an Easement for the West Hill Sewer - 891 W 8th (lot) (1)
2. 8924 Plat RECORDED (2)
3. Lot X adjacent 891 W 8th Sewer Easement

RESOLUTION NO. 2023-0438

**APPROVING A PERMANENT SEWER EASEMENT FOR PARCEL ADJACENT
TO 891 W 8th ST (PARCEL “X”)**

WHEREAS, the City of Muscatine desires to sell the vacant parcel adjoining 891 W 8th St (Parcel “X”); and

WHEREAS, the West Hill Sewer Separation Project passes through this property; and

WHEREAS, the City of Muscatine desires to continue to use and maintain the West Hill Sewer Separation; and

WHEREAS, an easement for the purpose of accessing the area to reconstruct, maintain, operate, replace, repair, patrol or remove, whenever necessary, the City’s West Hill Sewer Separation Project and all appurtenant sewer facilities located at on said Parcel “X” has drafted as is attached hereto as Exhibit A.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF MUSCATINE, IOWA, that the easement attached as exhibit A is approved and will be signed by the Mayor and attested by the City Clerk.

PASSED, APPROVED AND ADOPTED this 7th day of September, 2023.

**BY THE CITY COUNCIL OF THE
CITY OF MUSCATINE, IOWA**

Dr. Brad Bark, Mayor

Attest:

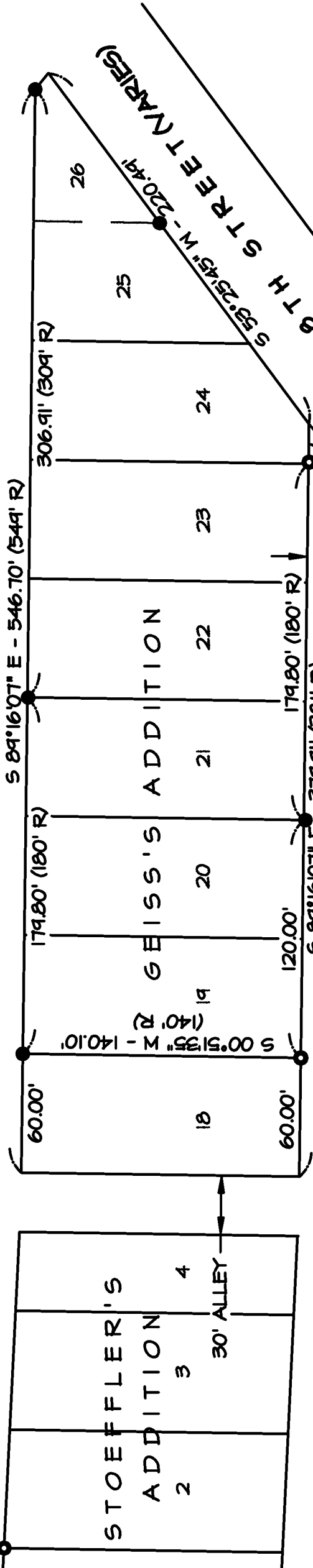
Carol Webb, City Clerk

Instr. Number: 2023-03669
Recorded: 8/18/2023 at 11:22:37.0 AM
County Recording Fee: \$12.00
Iowa E-Filing Fee: \$3.00
Combined Fee: \$15.00
Revenue Tax:
Sarah M Hearst - Recorder
Muscatine County, Iowa

BASIS OF BEARINGS
IOWA REGIONAL COORDINATE SYSTEM
ZONE 14



CLIMER STREET



I hereby certify that this land surveying document was prepared and the related survey work was performed by me or under my direct personal supervision and that I am a duly licensed Professional Land Surveyor under the laws of the State of Iowa.

Seth A. Whitacre

Seth A. Whitacre
Date 8/18/23 Reg. No. 18379
My license renewal date is December 31, 2024



Pages or sheets covered by this seal: 2

SURVEY COMPANY / RETURN TO:

Martin & Whitacre
Surveyors & Engineers, Inc.
1508 BIDWELL ROAD, MUSCATINE, IOWA 52761
INFO@MARTIN-WHITACRE.COM (563)263-7691

SURVEYOR: SETH A. WHITACRE

PROPRIETOR(S): CITY OF MUSCATINE

REQUESTOR: CITY OF MUSCATINE

LOCATION: LOT "A" IN GEISS'S SUBDIVISION
CITY OF MUSCATINE, MUSCATINE COUNTY, IOWA

SURVEY TYPE: PLAT OF SURVEY

FILE	BOOK	SCALE	DRN	CHK'D	DATE	JOB NO.
SCANNED	CITY #52	1"=60'	TJB	SAW	8/18/23	0424.23
REV.	0				0424 SURVEY.DWG	SHEET 1 OF 2

LEGEND

- SET 1/2" X 36" REBAR W/BUE CAP #103719
- ⊗ SET "X" IN CONCRETE
- FOUND 1/2" REBAR
- FOUND 3/4" IRON PIPE
- (R) R DENOTES RECORD DATA IF OTHER THAN ACTUAL FIELD MEASUREMENT

ADDITION

ORIGINAL LOT LINE

LUCAS STREET
ADDITION

23 24 25

P.O.B.

5

PARCEL "W"
0.49 ACRES

PARCEL "X"
0.24 ACRES

105.81'

20.11' (21" R)

P.O.B.

20' ALLEY

179.80' (180' R)

179.80' (180' R)

179.80' (180' R)

179.80' (180' R)

179.80' (180' R)

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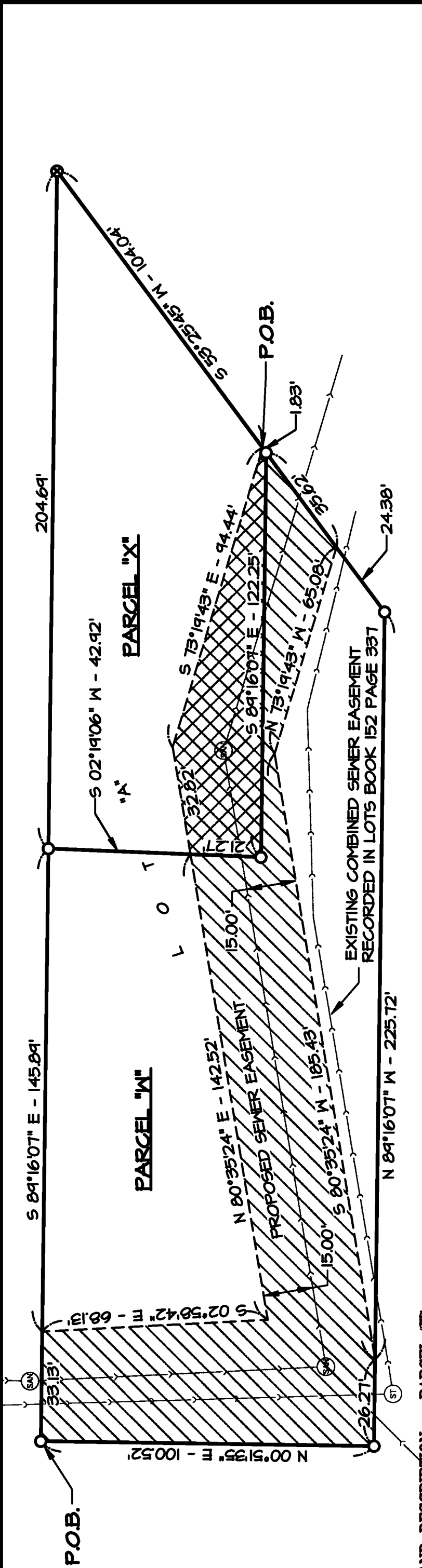
179.80' (180' R)

179.80' (180' R)

179.80' (180' R)

179.80' (180' R)

179.80' (180' R)



LAND DESCRIPTION - PARCEL "W"

A PART OF LOT "A", OF GIESE'S SUBDIVISION IN MUSCATINE, IOWA, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHWEST CORNER OF LOT "A"; THENCE SOUTH 89°16'07" EAST 179.02 FEET; THENCE SOUTH 02°19'06" WEST 64.19 FEET; THENCE SOUTH 89°16'07" EAST 122.25 FEET; THENCE SOUTH 53°25'45" WEST 60.00 FEET; THENCE NORTH 89°16'07" WEST 251.99 FEET; THENCE NORTH 00°51'35" EAST 100.52 FEET TO THE POINT OF BEGINNING, CONTAINING 0.49 ACRES, MORE OR LESS.

LAND DESCRIPTION - PARCEL "X"

A PART OF LOT "A", OF GIESE'S SUBDIVISION IN MUSCATINE, IOWA, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHEAST CORNER OF LOT "A"; THENCE SOUTH 53°25'45" WEST 105.87 FEET; THENCE NORTH 89°16'07" WEST 122.25 FEET; THENCE NORTH 02°19'06" EAST 64.19 FEET; THENCE SOUTH 89°16'07" EAST 204.69 FEET TO THE POINT OF BEGINNING, CONTAINING 0.24 ACRES, MORE OR LESS.

PROPOSED SEWER EASEMENT ON PARCEL "W" -

AN EASEMENT ACROSS PARCEL "W", ALSO IN LOT "A" OF GIESE'S SUBDIVISION IN MUSCATINE, IOWA, MORE PARTICULARLY DESCRIBED AS FOLLOWS: BEGINNING AT THE NORTHWEST CORNER OF LOT "A"; THENCE SOUTH 89°16'07" EAST 33.13 FEET; THENCE SOUTH 02°58'42" EAST 68.13 FEET; THENCE NORTH 80°35'24" EAST 142.52 FEET; THENCE SOUTH 02°19'06" WEST 21.27 FEET; THENCE SOUTH 89°16'07" EAST 122.25 FEET; THENCE SOUTH 53°25'45" WEST 35.62 FEET; THENCE NORTH 73°19'43" WEST 65.08 FEET; THENCE SOUTH 80°35'24" WEST 185.43 FEET; THENCE NORTH 89°16'07" WEST 26.27 FEET; THENCE NORTH 00°51'35" EAST 100.52 FEET TO THE POINT OF BEGINNING, CONTAINING 0.21 ACRES, MORE OR LESS.

PROPOSED SEWER EASEMENT ON PARCEL "X" -

AN EASEMENT ACROSS PARCEL "X", ALSO BEING IN LOT "A" OF GIESE'S SUBDIVISION IN MUSCATINE, IOWA, MORE PARTICULARLY DESCRIBED AS FOLLOWS: COMMENCING AT THE NORTHEAST CORNER OF LOT "A"; THENCE SOUTH 53°25'45" WEST 104.04 FEET TO THE POINT OF BEGINNING; THENCE SOUTH 53°25'45" WEST 1.83 FEET; THENCE NORTH 89°16'07" WEST 122.25 FEET; THENCE NORTH 02°19'06" EAST 21.27 FEET; THENCE NORTH 80°35'24" EAST 32.82 FEET; THENCE SOUTH 73°19'43" EAST 94.44 FEET TO THE POINT OF BEGINNING, CONTAINING 0.05 ACRES, MORE OR LESS.

SURVEY COMPANY / RETURN TO:									
Martin & Whitacre									
Surveyors & Engineers, Inc.									
1508 BIDWELL ROAD, MUSCATINE, IOWA 52761									
INFO@MARTIN-WHITACRE.COM (563)263-7691									
SURVEYOR: SETH A. WHITACRE									
PROPRIETOR(S): CITY OF MUSCATINE									
REQUESTOR: CITY OF MUSCATINE									
LOCATION: LOT "A" IN GIESE'S SUBDIVISION									
CITY OF MUSCATINE, MUSCATINE COUNTY, IOWA									
SURVEY TYPE: PLAT OF SURVEY									
FILE	BOOK	SCALE	DRN	CHK'D	DATE	JOB NO.			
SCANNED	CITY #52	1"=30'	EAS	SAW	8/18/23	8424.23			
REV.	0				8424 SURVEY.DWG	SHEET	2	OF	2

Prepared by: April Limburg, City Planner, City of Muscatine, IA, 215 Sycamore St., Muscatine, IA 52761 (563) 262-4141
Return to: April Limburg, City Planner, City of Muscatine, IA, 215 Sycamore St., Muscatine, IA 52761 (563) 262-4141

SEWER EASEMENT

The **CITY OF MUSCATINE, IOWA**, an Iowa municipal corporation, hereby reserves onto itself, its successors and assigns (the “City”) a permanent Sewer Easement (hereinafter the “Easement”) under, through and across real property as shown on the attached Exhibit A and legally described on the attached Exhibit B, located in the City of Muscatine, Iowa in the county of Muscatine, Iowa, hereinafter the “Easement Area.”

1. **Purpose of Easement.** This Easement shall be for the purpose of accessing the Easement Area to reconstruct, maintain, operate, replace, repair, patrol or remove, whenever necessary, the City’s West Hill Sewer Separate Project and all appurtenant sewer facilities located in the Easement Area. The City maintains the right to use the Easement Area for the future placement of underground utilities which serves a public purpose.
2. **Access Rights.** The City shall also have the specific rights of ingress and egress to the Easement Area for the reconstruction, maintenance, operation, replacement, repair, patrolling or removal, whenever necessary, of the underground sewer and appurtenant storm sewer facilities, consistent with the easement provided herein. The City shall also have the right to remove impediments to the Easement Area such as trees, asphalt and sidewalks. The City agrees to take all reasonable measures to minimize any disruption to the Easement Area or minimize loss of access to the Easement Area. The underground sewer and appurtenant sewer facilities shall at all times remain the property of the City.
3. **Maintenance of Easement; Restoration of Easement Area.** The City shall keep the underground sewer and appurtenant sewer facilities in the Easement Area in good repair and condition at all times. Upon completion of any reconstruction, maintenance, operation, replacement, repair, or removal of the underground sewer and any appurtenant sewer facilities in the Easement Area, the City shall restore the Easement Area in good and workmanlike manner to a condition comparable to its condition as it was prior to such activity. The terms of this Easement do not obligate the City to perform any work or make repairs to the Easement Area for impairments or other damages caused by other individuals or entities other than the City or its contractors.
4. **Warranty.** The City warrants it holds title to the Easement Area in fee simple and has good and lawful authority to grant the rights provided in this Easement.
5. **Easement Runs with the Land.** This Easement shall be perpetual, permanent and runs with the land and shall be binding on the City and on the City’s successors and assigns.

6. **Headings and Governing Law.** The headings included herein are for reference only and should not be used in construing any of the terms hereof. This Easement shall be construed and enforced in accordance with the laws of the State of Iowa.

CITY OF MUSCATINE, IOWA

Dr. Brad Bark, Mayor

Attest:

Carol Webb, City Administrator

STATE OF IOWA)
) SS
COUNTY OF MUSCATINE)

On this ____ day of _____, 20____, before me, the undersigned, a Notary Public in and for the State of Iowa, personally appeared Dr. Brad Bark and Carol Webb, to me known to be the Mayor and City Administrator, respectively, of the City of Muscatine Iowa, that this record was signed on behalf of the City, by authority of its City Council as contained in Resolution No. _____ approved on the ____ day of _____, 20____ by the City Council of the City of Muscatine, Iowa, and that the Mayor and City Administrator acknowledged the execution of the instrument to be their voluntary act and deed and the voluntary act and deed of the City, by it voluntarily executed.

NOTARY PUBLIC

Exhibit B

AN EASEMENT ACROSS PARCEL "X", ALSO BEING IN LOT "A" OF GIESSE'S SUBDIVISION IN MUSCATINE, IOWA, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHEAST CORNER OF LOT "A"; THENCE SOUTH 53°25'45" WEST 104.04 FEET TO THE POINT OF BEGINNING; THENCE SOUTH 53°25'45" WEST 1.83 FEET; THENCE NORTH 89°16'07" WEST 122.25 FEET; THENCE NORTH 02°19'06" EAST 21.27 FEET; THENCE NORTH 80°35'24" EAST 32.82 FEET; THENCE SOUTH 73°19'43" EAST 94.44 FEET TO THE POINT OF BEGINNING, CONTAINING 0.05 ACRES, MORE OR LESS.



City of Muscatine

ITEM NUMBER 2023-0433

AGENDA ITEM SUMMARY

DATE: 9/7/2023

STAFF

April Limburg, City Planner

SUBJECT

A Resolution Declaring Certain Described Real Estate Owned By the City (891 W 8th Street) as Surplus and Authorizing the Sale of Said Certain Real Estate by Sealed Bid Process. - Public Hearing A

EXECUTIVE SUMMARY

The City Council of Muscatine is considering a resolution to declare a 0.49-acre parcel of city-owned property as surplus and authorize its sale by closed bid auction. The property, located at 891 W. 8th St., Parcel "W", contains a single-family home and has no proposed public use. Prior to selling city-owned property, the City Council must determine that the property serves no public purpose and authorize its declaration as surplus. If the resolution is approved, the property will be sold by closed bid auction. Interested parties will have the opportunity to submit a sealed bid by September 19, 2023.

STAFF RECOMMENDATION

Staff recommends Council adopt the attached resolution to declare certain City-owned real estate as surplus.

BACKGROUND/DISCUSSION

The City of Muscatine has accumulated a number of parcels of land on which the continued public ownership of no longer serves a useful purpose. In order to return these parcels to a useful purpose, restore them to the tax roll, and to reduce maintenance costs associated with maintenance of these parcels, the City Council must declare such parcels surplus.

The City currently owns Parcel "W", 891 W. 8th St, shown on Exhibit A, for which there is no identified public use. The City acquired 891 W. 8th Street as part of the West Hill Sewer Separation Project. The project required the relocation of the existing home on the property to make way for a new sewer line.

After the relocation of the home, it became possible to accommodate two homes on the 0.74-acre site. The City split the parcel into two new parcels to take advantage of this opportunity:

- Parcel "W", (891 W 8th St): A 0.49-acre parcel that contains the relocated home.
- Parcel "X": A 0.24-acre adjoining parcel that is shovel ready for a new home.

Once declared as surplus, these parcels will be sold by a closed bid auction. The auction will be held on September 19, 2023. To participate in the auction, interested parties must submit a sealed bid by September 19, 2023.

Non-profits who intend to construct or rehabilitate housing for income-qualified buyers (80% AMI or less) will be given preference. All bids will be opened and the lowest non-profit bidder will be given the first opportunity to raise their bid. Each subsequent bid must be higher than the current highest bid by at least \$1,000. The bidding process will continue until there is no one willing to raise the bid any further. Bidders who do not bid in a given round may re-enter the bidding process at a later time. If there are no non-profit bidders the auction will be held for all other bidders.

The highest bidder will be required to execute a purchase agreement, subject to City Council approval, which will list the sale price, provide a closing date, and give any other conditions related to the sale. A notice of the sealed bid auction and the sale procedure will be published upon approval of a resolution declaring this property surplus.

CITY FINANCIAL IMPACT

Selling the parcel would generate income for the city, reduce maintenance costs, and make the parcel subject to property tax.

ATTACHMENTS

1. Resolution declare surplus - Lot W - 891 W 8th
2. 8924 Plat RECORDED (2)
3. Bid procedures - 891 W 8th St
4. Closed Bid Auction Notification - 891 W 8th

RESOLUTION NO. 2023-0433

**Declaring Certain Described Real Estate Owned By the City as Surplus and
Authorizing the Sale of Said Certain Real Estate by Sealed Bid Process**

WHEREAS, a Resolution adopted by the City Council of Muscatine, Iowa, on September 7, 2023, does hereby deem the following real estate parcels as surplus;

A PART OF LOT “A”, OF GIESSE’S SUBDIVISION IN MUSCATINE, IOWA,
MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHWEST CORNER OF LOT “A”; THENCE SOUTH 89’16’07” EAST 179.02 FEET; THENCE SOUTH 02’19’06” WEST 64.19 FEET; THENCE SOUTH 89’16’07” EAST 122.25 FEET; THENCE SOUTH 53’25’45” WEST 60.00 FEET; THENCE NORTH 89’16’07” WEST 251.99 FEET; THENCE NORTH 00’51’35” EAST 100.52 FEET TO THE POINT OF THE BEGINNING, CONTAINING 0.49 ACRES, MORE OR LESS.

Lot “W”, also known as 891 W 8th Street

WHEREAS, the City Administrator is hereby authorized and directed to take the necessary steps to offer the above described real estate for sale by closed bid auction, to be followed by appropriate action of the City Council as provided by law; and

WHEREAS, the Resolution provided for a public hearing on the proposed sale of real property, and such public hearing has been held; and

WHEREAS, in accordance with said notice, those interested in said proposed conveyance, both for and against, have been given an opportunity to be heard with respect thereto and have presented their views to the City Council of the City of Muscatine, Iowa at public hearing held on September 7, 2023; and

WHEREAS, the City Council of Muscatine, does hereby declare to be surplus and it to be in the best interest of the public to dispose of the described real estate, in Muscatine, Iowa,

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF MUSCATINE, IOWA, that the resolution declaring certain real estate owned by the City surplus and authorizing the sale of said certain real estate is hereby approved

PASSED, APPROVED AND ADOPTED this 7th day of September, 2023.

**BY THE CITY COUNCIL OF THE
CITY OF MUSCATINE, IOWA**

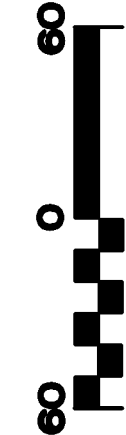
Brad Bark, Mayor

Attest:

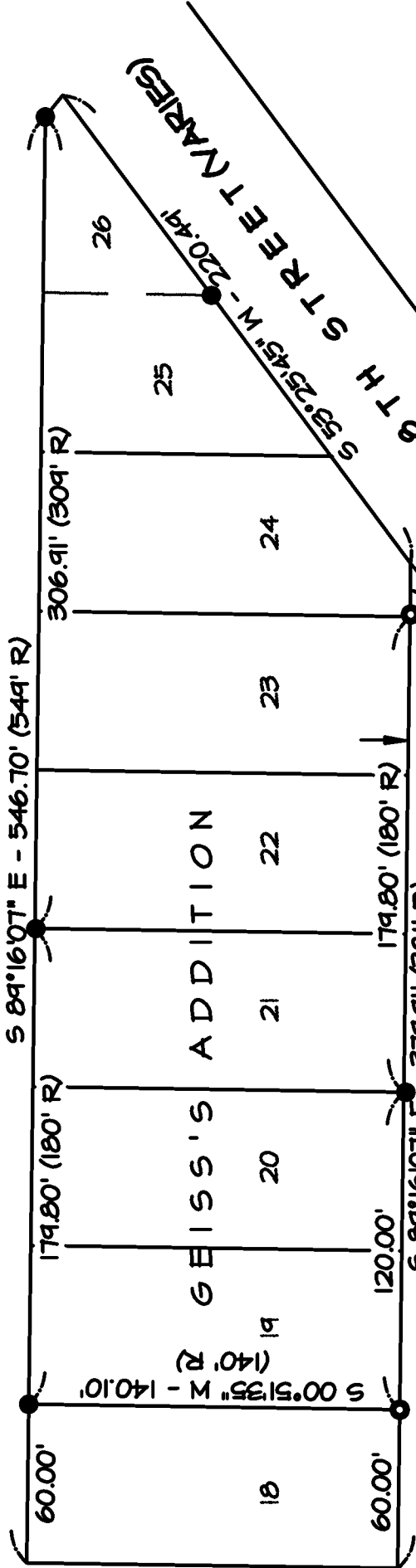
Carol Webb, City Clerk

Instr. Number: 2023-03669
Recorded: 8/18/2023 at 11:22:37.0 AM
County Recording Fee: \$12.00
Iowa E-Filing Fee: \$3.00
Combined Fee: \$15.00
Revenue Tax:
Sarah M Hearst - Recorder
Muscatine County, Iowa

BASIS OF BEARINGS
IOWA REGIONAL COORDINATE SYSTEM
ZONE 14



CLIMER STREET



I hereby certify that this land surveying document was prepared and the related survey work was performed by me or under my direct personal supervision and that I am a duly licensed Professional Land Surveyor under the laws of the State of Iowa.

Seth A. Whitacre

Seth A. Whitacre

Date 8/18/23 Reg. No. 18379

My license renewal date is December 31, 2024

Pages or sheets covered by this seal: 2



SURVEY COMPANY / RETURN TO:

Martin & Whitacre

Surveyors & Engineers, Inc.

1508 BIDWELL ROAD, MUSCATINE, IOWA 52761

INFO@MARTIN-WHITACRE.COM (563)263-7691

SURVEYOR: SETH A. WHITACRE

PROPRIETOR(S): CITY OF MUSCATINE

REQUESTOR: CITY OF MUSCATINE

LOCATION: LOT "A" IN GEISS'S SUBDIVISION

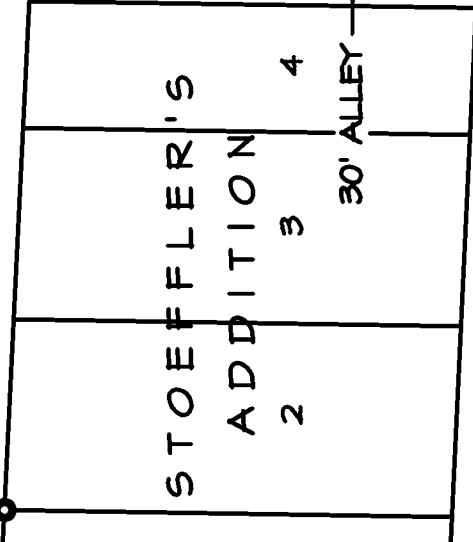
CITY OF MUSCATINE, MUSCATINE COUNTY, IOWA

SURVEY TYPE: PLAT OF SURVEY

FILE	BOOK	SCALE	DRN	CHK'D	DATE	JOB NO.
SCANNED	CITY #52	1"=60'	TJB	SAW	8/18/23	0424.23
REV.	0				0424 SURVEY.DWG	SHEET 1 OF 2

LEGEND

- SET 1/2" X 36" REBAR W/BUE CAP #103719
- ⊗ SET "X" IN CONCRETE
- FOUND 1/2" REBAR
- FOUND 3/4" IRON PIPE
- (R) R DENOTES RECORD DATA IF OTHER THAN ACTUAL FIELD MEASUREMENT



P.O.B.

5

100.52'

N 00°51'35"

179.02'

S 89°16'07" E

122.25'

S 89°16'07" E

204.69'

105.81'

S 53°25'45" W

20.11' (21" R)

P.O.B.

105.81'

S 53°25'45" W

20.11' (21" R)

P.O.B.

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A PART OF LOT "A", OF GIESSE'S SUBDIVISION IN MUSCATINE, IOWA, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BE BEGINNING AT THE NORTHWEST CORNER OF LOT "A"; THENCE SOUTH 89°16'07" EAST 179.02 FEET; THENCE SOUTH 02°19'06" WEST 64.19 FEET; THENCE SOUTH 89°16'07" EAST 122.25 FEET; THENCE SOUTH 53°25'45" WEST 60.00 FEET; THENCE NORTH 89°16'07" WEST 251.99 FEET; THENCE NORTH 00°51'35" EAST 100.52 FEET TO THE POINT OF BEGINNING, CONTAINING 0.49 ACRES, MORE OR LESS.

LAND DESCRIPTION - PARCEL "X"

A PART OF LOT "A", OF GIESSE'S SUBDIVISION IN MUSCATINE, IOWA, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHEAST CORNER OF LOT "A"; THENCE SOUTH 53°25'45" WEST 105.87 FEET; THENCE NORTH 89°16'07" WEST 122.25 FEET; THENCE NORTH 02°19'06" EAST 64.19 FEET; THENCE SOUTH 89°16'07" EAST 204.69 FEET TO THE POINT OF BEGINNING, CONTAINING 0.24 ACRES, MORE OR LESS.

PROPOSED SEWER EASEMENT ON PARCEL "W" -

W", ALSO IN LOT "A" OF GIESSE'S SUBDIVISION IN MUSCATINE, IOWA, MORE PARTICULARLY DESCRIBED AN EASEMENT ACROSS PARCEL "W", ALSO IN LOT "A" OF GIESSE'S SUBDIVISION IN MUSCATINE, IOWA, MORE PARTICULARLY DESCRIBED AS FOLLOWS: BEGINNING AT THE NORTHWEST CORNER OF LOT "A"; THENCE SOUTH 89°16'07" EAST 33.13 FEET; THENCE SOUTH 02°58'42" EAST 68.13 FEET; THENCE NORTH 80°35'24" EAST 142.52 FEET; THENCE SOUTH 02°19'06" WEST 21.27 FEET; THENCE SOUTH 89°16'07" EAST 122.25 FEET; THENCE SOUTH 53°25'45" WEST 35.62 FEET; THENCE NORTH 73°19'43" WEST 65.08 FEET; THENCE SOUTH 80°35'24" WEST 185.43 FEET; THENCE NORTH 89°16'07" WEST 26.27 FEET; THENCE NORTH 00°51'35" EAST 100.52 FEET TO THE POINT OF BEGINNING, CONTAINING 0.21 ACRES, MORE OR LESS.

PROPOSED SEWER EASEMENT ON PARCEL "X" -

AN EASEMENT ACROSS PARCEL "X", ALSO BEING IN LOT "A" OF GIESE'S SUBDIVISION IN MUSCATINE, IOWA, MORE PARTICULARLY DESCRIBED AS FOLLOWS: COMMENCING AT THE NORTHEAST CORNER OF LOT "A"; THENCE SOUTH 53°25'45" WEST 104.04 FEET TO THE POINT OF BEGINNING; THENCE SOUTH 53°25'45" WEST 1.83 FEET; THENCE NORTH 89°16'07" WEST 122.25 FEET; THENCE NORTH 02°19'06" EAST 21.27 FEET; THENCE NORTH 80°35'24" EAST 32.82 FEET; THENCE SOUTH 73°19'43" EAST 94.44 FEET TO THE POINT OF BEGINNING, CONTAINING 0.05 ACRES, MORE OR LESS.

SURVEY COMPANY / RETURN TO:

Martin & Whitacre

Surveyors & Engineers, Inc.

1508 BIDWELL ROAD, MUSCATINE, IOWA 52761

INFO@MARTIN-WHITACRE.COM
(563)263-7691

SURVEYOR: SETH A. WHITACRE

PROPRIETOR(S): CITY OF MUSCATINE

REQUESTOR: CITY OF MUSCATINE

LOCATION: LOT "A" IN GEISS'S SUBDIVISION

CITY OF MUSCATINE, MUSCATINE COUNTY, IOWA

SURVEY TYPE: PLAT OF SURVEY

FILE	BOOK	SCALE	DRN	CHK'D	DATE	JOB NO.
CANNED	CITY #52	1"=30'	EAS	SAW	8/10/23	8924.23
REV. 0						8924 SURVEY DWG
						SHEET 2 OF 2

**CITY OF MUSCAITNE, IOWA
PUBLIC PROPERTY FOR SALE**

AUCTION DATE: September 19, 2023 10:00 A.M.
LOCATION: FIRST FLOOR CONFERENCE ROOM
CITY HALL – 215 SYCARMORE STREET
MUSCATINE, IA 52761

DESCRIPTION OF PROPERTY:

**A PART OF LOT “A”, OF GIESSE’S SUBDIVISION IN MUSCATINE, IOWA, MORE PARTICULARY
DECRIBED AS FOLLOWS:**

**BEGINNING AT THE NORTHWEST CORNER OF LOT “A”; THENCE SOUTH 89’16’07” EAST 179.02
FEET; THENCE SOUTH 02’19’06” WEST 64.19 FEET; THENCE SOUTH 89’16’07” EAST 122.25
FEET; THENCE SOUTH 53’25’45” WEST 60.00 FEET; THENCE NORTH 89’16’07” WEST 251.99
FEET; THENCE NORTH 00’51’35” EAST 100.52 FEET TO THE POINT OF THE BEGINNING,
CONTAINING 0.49 ACRES, MORE OR LESS.**

SALE PROCEDURES:

Sealed Bids. On or before 9:59 a.m. on September 19, 2023, each bidder shall submit a written bid a sealed envelope containing a certified check or a cashier’s check in the amount of \$1,000 payable to the City of Muscatine, Iowa, and the name of the bidder identified on the outside of the envelope. No minimum bid price will be set. However, the parcel will sell to the highest bidder able to initiate rehabilitation of the residential dwelling within 240 days. Preference will be given to non-profits who intends to construct housing for income-qualified (80% AMI or less) buyers. The bidder shall also include a plan and schedule for the development of the property, including the intended use in much detail as is possible. The assessed market value is \$143,000.

Live Auction. Starting at 10:00 A.M. September 19, 2023, the bids will be opened. If there are no non-profit respondents each bidder will be given the opportunity to successively raise his/her/its bid in an amount which is higher than the current highest bid in increments of not less than \$1,000.00, starting with the lowest bidder. If there are non-profit respondents only these organizations will participate in the auction. This procedure will continue until the highest bid is obtained. Failure to bid in any given round will not prevent re-entering the bidding process at a later time. Unsuccessful bidder’s checks will be returned when the auction has been completed.

Purchase Agreement. The highest bidder will be present to City Council for the consideration the approval of a Special Warranty Deed on or about October 5, 2023, and which shall list the sale price, provide a closing date, and include reference to the planned development of the property, including the intended use and timing which was submitted with the bid.

Possession and Title. Possession will be given at closing. Title will be transferred by Special Warranty Deed. A standard groundwater hazard statement will be provided at the time of closing.

The purposed purchase agreement and terms of sale are subject to City Council review and acceptance. **The City reserves the right to reject all bids and to reject the proposed purchase agreement.**

Inquires may be made to Andrew Fangman, Assistant Community Development Director (563-262-4141), or April Limburg, City Planner (563-262-4141), City Hall, 215 Sycamore Street, Muscatine, IA 52761.

EXHIBIT A

NOTICE OF INTENT TO DISPOSE OF CITY PROPERTY
TO THE CITIZENS OF MUSCATINE, IOWA:

You are hereby notified that the City Council of Muscatine, Iowa, intends to sell all rights, title and interest of the city in and to the following described real property, also known as 819 W 8th St in Muscatine, Iowa, to-wit:

A PART OF LOT “A”, OF GIESSE’S SUBDIVISION IN MUSCATINE, IOWA, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHWEST CORNER OF LOT “A”; THENCE SOUTH 89’16’07” EAST 179.02 FEET; THENCE SOUTH 02’19’06” WEST 64.19 FEET; THENCE SOUTH 89’16’07” EAST 122.25 FEET; THENCE SOUTH 53’25’45” WEST 60.00 FEET; THENCE NORTH 89’16’07” WEST 251.99 FEET; THENCE NORTH 00’51’35” EAST 100.52 FEET TO THE POINT OF THE BEGINNING, CONTAINING 0.49 ACRES, MORE OR LESS.

The sale will be conducted via a closed bid auction commencing at 10:00 A.M. on September 19, 2023 in the first-floor conference room in City Hall, 215 Sycamore Street, Muscatine, Iowa 52761. Copies of the sale procedures may be obtained in the Community Development Office, City Hall, and 215 Sycamore Street, Muscatine, Iowa 52761.

You are further notified that oral or written statements in support of, or in opposition to, this proposed sale may be made at the public hearing before city council to be held at 6:00 P.M. on October 5, 2023, in the Council Chambers in City Hall, 215 Sycamore Street, Muscatine, Iowa.

Carol Webb, City Clerk



City of Muscatine

ITEM NUMBER 2023-0437

AGENDA ITEM SUMMARY

DATE: 9/7/2023

STAFF

April Limburg, City Planner

SUBJECT

A Resolution Approving An Easement For The West Hill Sewer Separation For Parcel "W", Also Known As 891 W 8th St

EXECUTIVE SUMMARY

Presented for City Council's consideration is a resolution approving a sanitary sewer easement associated with the West Hill Sewer Separation Project For Parcel "W", also known as 891 W 8th St. The proposed sanitary sewer easement is on a City-owned parcel located at 891 W. 8th Street (Parcel "W").

STAFF RECOMMENDATION

Staff recommends Council adopt the resolution.

BACKGROUND/DISCUSSION

The City acquired a 0.74-acre parcel at 891 W. 8th Street as part of the West Hill Sewer Separation Project. The project required the relocation of the existing home on the property to make way for a new sewer main. The City is now in the process of disposing of this property as two separate parcels.

Before the parcels can be sold, an easement needs to be established to accommodate the newly installed sewer mains. This resolution will create a permanent easement on 891 W. 8th Street (Parcel "W").

CITY FINANCIAL IMPACT

There is no financial impact of adopting the resolution.

ATTACHMENTS

1. Resolution Approving an Easement for the West Hill Sewer - 891 W 8th (1)
2. 8924 Plat RECORDED (2)
3. 891 W 8th Sewer Easement (1)

RESOLUTION NO. 2023-0437

**APPROVING A PERMANENT SEWER EASEMENT FOR 891 W 8TH ST –
PARCEL “W”**

WHEREAS, the City of Muscatine desires to sell property located on Parcel “W”, also known as 891 W 8th St; and

WHEREAS, the sewer main that is part of the West Hill Sewer Separation Project passes through this property; and

WHEREAS, the City of Muscatine desires to continue to use and maintain the West Hill Sewer Separation; and

WHEREAS, an easement for the purpose of accessing the area to reconstruct, maintain, operate, replace, repair, patrol or remove, whenever necessary, the City’s West Hill Sewer Separation Project and all appurtenant sewer facilities located on Parcel “W”, also known as 891 W 8th St as drafted as is attached hereto as Exhibit A.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF MUSCATINE, IOWA, that the easement attached as exhibit A is approved and will be signed by the Mayor and attested by the City Clerk.

PASSED, APPROVED AND ADOPTED this 7th day of September, 2023.

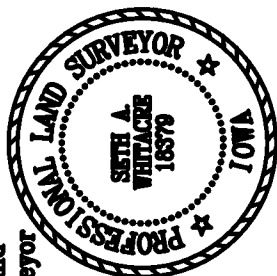
**BY THE CITY COUNCIL OF THE
CITY OF MUSCATINE, IOWA**

Dr. Brad Bark, Mayor

Attest:

Carol Webb, City Clerk

Instr. Number: 2023-03669
Recorded: 8/18/2023 at 11:22:37.0 AM
County Recording Fee: \$12.00
Iowa E-Filing Fee: \$3.00
Combined Fee: \$15.00
Revenue Tax:
Sarah M Hearst - Recorder
Muscatine County, Iowa



I hereby certify that this land surveying document was prepared and the related survey work was performed by me or under my direct personal supervision and that I am a duly licensed Professional Land Surveyor under the laws of the State of Iowa.

Seth A. Whitacre
Seth A. Whitacre
Date 8/10/23 Reg. No. 18379
My license renewal date is December 31, 2024

Pages or sheets covered by this seal: 2

SURVEY COMPANY / RETURN TO:

**Martin & Whitacre
Surveyors & Engineers**
1508 BIDWELL ROAD, MUSCATINI
INFO@MARTIN-WHITACRE.COM

SURVEYOR: SETH A. WHITACRE

PROPRIETOR(S): CITY OF MUSCATINE

REQUESTOR: CITY OF MUSCATINE

LOCATION: LOT "A" IN GEISS'S SUBDIVISION

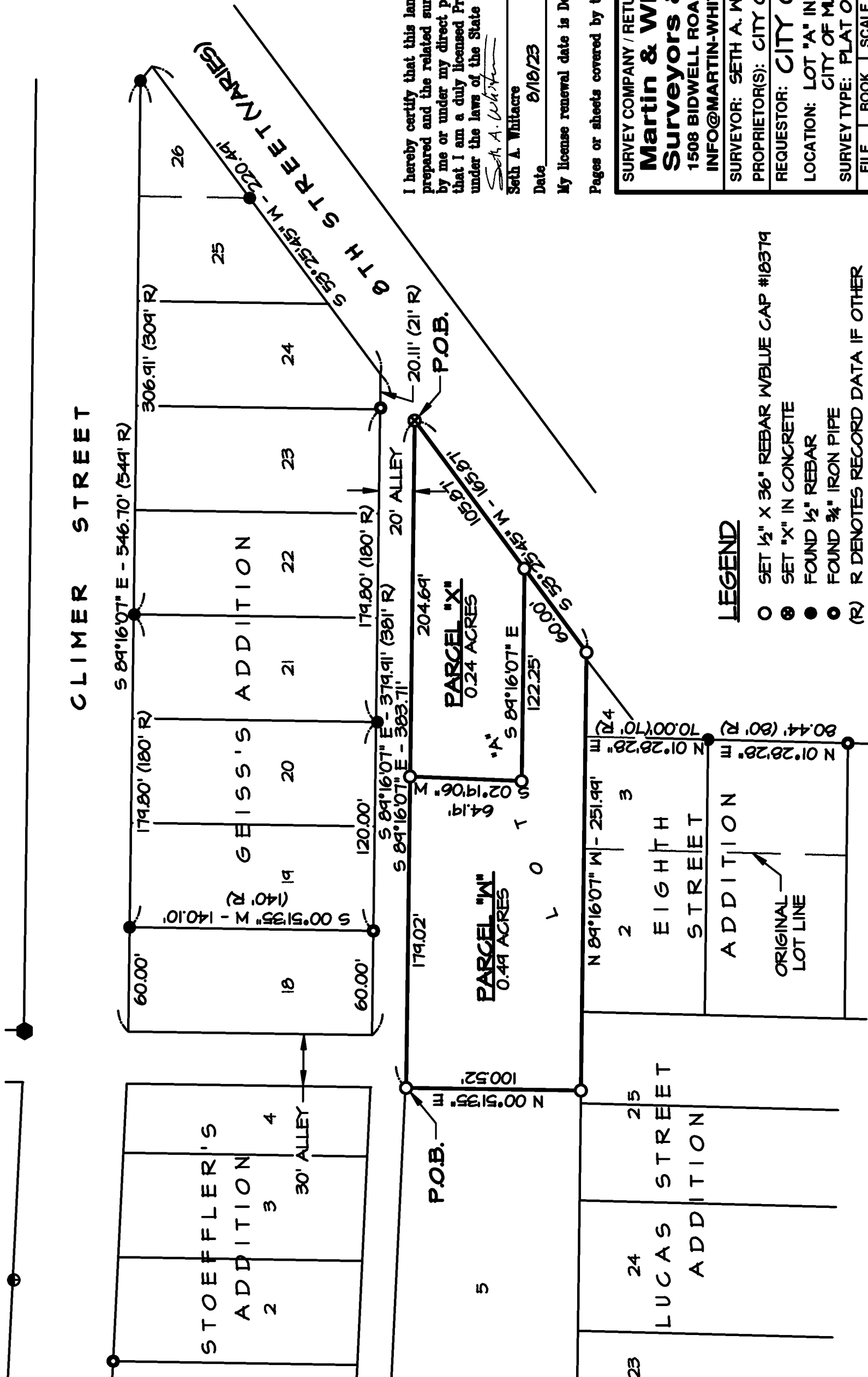
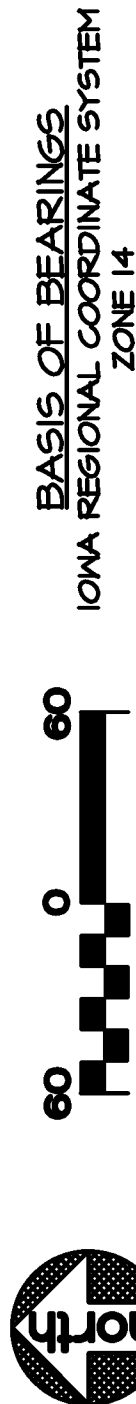
CITY OF MUSCATINE, MUSCATINE COUNTY, IOWA

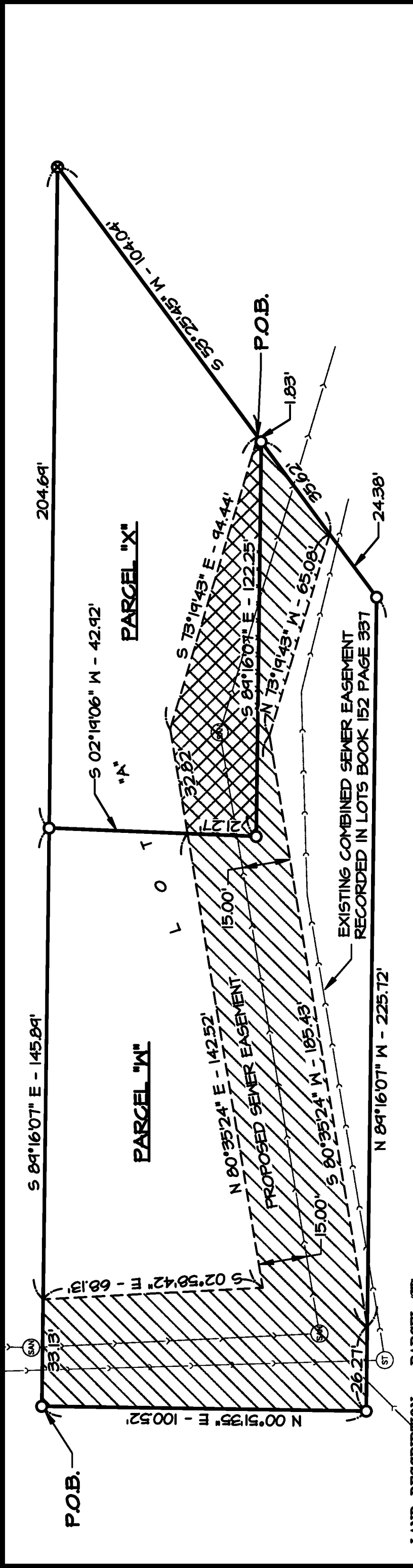
SURVEY TYPE: PLAT OF SURVEY

FILE	BOOK	SCALE	DRN	CHK'D	DATE	JOB NO.
CANNED CITY #52		1"=60'	TJB	SAW	8/18/23	8924.23
REV. 0			8924 SURVEY DWG		SHEET 1 OF 2	

LEGEND

- SET 1/2" X 36" REBAR W/BUE CAP #18379
 - ⊗ SET "X" IN CONCRETE
 - FOUND 1/2" REBAR
 - FOUND 3/4" IRON PIPE
- R) R DENOTES RECORD DATA IF OTHER THAN ACTUAL FIELD MEASUREMENT





LAND DESCRIPTION - PARCEL "W"

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PROPOSED SEWER EASEMENT ON PARCEL "W" -

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PROPOSED SEWER EASEMENT ON PARCEL "X" -

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SURVEY COMPANY / RETURN TO:

Martin & Whitacre
Surveyors & Engineers, Inc.
1508 BIDWELL ROAD, MUSCATINE, IOWA 52761
INFO@MARTIN-WHITACRE.COM (563)263-7691

SURVEYOR: SETH A. WHITACRE

PROPRIETOR(S): CITY OF MUSCATINE

REQUESTOR: CITY OF MUSCATINE

LOCATION: LOT "A" IN GIESE'S SUBDIVISION
CITY OF MUSCATINE, MUSCATINE COUNTY, IOWA
SURVEY TYPE: PLAT OF SURVEY

FILE	BOOK	SCALE	DRN	CHK'D	DATE	JOB NO.
SCANNED	CITY #52	1"=30'	EAS	SAW	8/18/23	8424.23
REV.	0				8424 SURVEY.DWG	SHEET 2 OF 2

Prepared by: April Limburg, City Planner, City of Muscatine, IA, 215 Sycamore St., Muscatine, IA 52761 (563) 262-4141
Return to: April Limburg, City Planner, City of Muscatine, IA, 215 Sycamore St., Muscatine, IA 52761 (563) 262-4141

SEWER EASEMENT

The **CITY OF MUSCATINE, IOWA**, an Iowa municipal corporation, hereby reserves onto itself, its successors and assigns (the “City”) a permanent Sewer Easement (hereinafter the “Easement”) under, through and across real property as shown on the attached Exhibit A and legally described on the attached Exhibit B, located in the City of Muscatine, Iowa in the county of Muscatine, Iowa, hereinafter the “Easement Area.”

1. **Purpose of Easement.** This Easement shall be for the purpose of accessing the Easement Area to reconstruct, maintain, operate, replace, repair, patrol or remove, whenever necessary, the City’s West Hill Sewer Separation Project and all appurtenant sewer facilities located in the Easement Area. The City maintains the right to use the Easement Area for the future placement of underground utilities which serves a public purpose.
2. **Access Rights.** The City shall also have the specific rights of ingress and egress to the Easement Area for the reconstruction, maintenance, operation, replacement, repair, patrolling or removal, whenever necessary, of the underground sewer and appurtenant storm sewer facilities, consistent with the easement provided herein. The City shall also have the right to remove impediments to the Easement Area such as trees, asphalt and sidewalks. The City agrees to take all reasonable measures to minimize any disruption to the Easement Area or minimize loss of access to the Easement Area. The underground sewer and appurtenant sewer facilities shall at all times remain the property of the City.
3. **Maintenance of Easement; Restoration of Easement Area.** The City shall keep the underground sewer and appurtenant sewer facilities in the Easement Area in good repair and condition at all times. Upon completion of any reconstruction, maintenance, operation, replacement, repair, or removal of the underground sewer and any appurtenant sewer facilities in the Easement Area, the City shall restore the Easement Area in good and workmanlike manner to a condition comparable to its condition as it was prior to such activity. The terms of this Easement do not obligate the City to perform any work or make repairs to the Easement Area for impairments or other damages caused by other individuals or entities other than the City or its contractors.
4. **Warranty.** The City warrants it holds title to the Easement Area in fee simple and has good and lawful authority to grant the rights provided in this Easement.
5. **Easement Runs with the Land.** This Easement shall be perpetual, permanent and runs with the land and shall be binding on the City and on the City’s successors and assigns.

6. **Headings and Governing Law.** The headings included herein are for reference only and should not be used in construing any of the terms hereof. This Easement shall be construed and enforced in accordance with the laws of the State of Iowa.

CITY OF MUSCATINE, IOWA

Dr. Brad Bark, Mayor

Attest:

Carol Webb, City Administrator

STATE OF IOWA)
) SS
COUNTY OF MUSCATINE)

On this ____ day of _____, 20____, before me, the undersigned, a Notary Public in and for the State of Iowa, personally appeared Dr. Brad Bark and Carol Webb, to me known to be the Mayor and City Administrator, respectively, of the City of Muscatine Iowa, that this record was signed on behalf of the City, by authority of its City Council as contained in Resolution No. _____ approved on the ____ day of _____, 20____ by the City Council of the City of Muscatine, Iowa, and that the Mayor and City Administrator acknowledged the execution of the instrument to be their voluntary act and deed and the voluntary act and deed of the City, by it voluntarily executed.

NOTARY PUBLIC

Exhibit B

AN EASEMENT ACROSS PARCEL "W", ALSO IN LOT "A" OF GIESSE'S SUBDIVISION IN MUSCATINE, IOWA, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHWEST CORNER OF LOT "A"; THENCE SOUTH 89°16'07" EAST 33.13 FEET; THENCE SOUTH 02°58'42" EAST 68.13 FEET; THENCE NORTH 80°35'24" EAST 142.52 FEET; THENCE SOUTH 02°19'06" WEST 21.27 FEET; THENCE SOUTH 89°16'07" EAST 122.25 FEET; THENCE SOUTH 53°25'45" WEST 35.62 FEET; THENCE NORTH 73°19'43" WEST 65.08 FEET; THENCE SOUTH 80°35'24" WEST 185.43 FEET; THENCE NORTH 89°16'07" WEST 26.27 FEET; THENCE NORTH 00°51'35" EAST 100.52 FEET TO THE POINT OF BEGINNING, CONTAINING 0.21 ACRES, MORE OR LESS.



City of Muscatine

ITEM NUMBER 2023-0434

AGENDA ITEM SUMMARY

DATE: 9/7/2023

STAFF

Jon Koch, Water Pollution Control Plant Director

SUBJECT

Resolution Approving the Plans, Specifications, Form of Contract, Cost Estimates and Setting a Bid Opening for the UV Replacement Project. - Public Hearing B

EXECUTIVE SUMMARY

A public hearing has been conducted and now is the time to approve the resolution for the approval of plans, specifications, form of contract, estimates and setting a bid opening for October 2nd, at 2pm in City Hall Council Chambers for the UV Replacement Project. Cost estimates for the project are \$1,200,000.00.

STAFF RECOMMENDATION

Staff recommends approval of the resolution to proceed with the project.

BACKGROUND/DISCUSSION

The City Council approved the UV Replacement Project in April of 2023. The current UV equipment is no longer reliable enough to ensure continuous disinfection of the plant effluent as required by the State.

CITY FINANCIAL IMPACT

There are funds in the Plant Replacement Reserve for this project. Cost estimates for the project are \$1,200,000.00.

ATTACHMENTS

1. Resolution Approving Plans and Specs UV.230907
2. Muscatine UV Cost Estimate_2023-08-15 to Koch
3. UV Replacement Final Spec Book.2320828
4. UV Plans Final.230828

RESOLUTION NO. 2023-0434

A RESOLUTION APPROVING THE PLANS, SPECIFICATIONS,
FORM OF CONTRACT, COST ESTIMATIONS AND ESTABLISHING
A BID OPENING DATE FOR THE UV REPLACEMENT PROJECT

WHEREAS, the City Council of the City of Muscatine, Iowa, has conducted a public hearing to receive comments related to the Plans, Specifications, Form of Contract and Cost Estimations for the UV Replacement Project; and

WHEREAS, following comments received during the public hearing, the City Council must now approve the final plans, specifications, form of contract and establish a bid opening date for the UV Replacement Project;

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF MUSCATINE, IOWA, that the plans, specifications and form of contract for the UV Replacement Project are approved, and

BE IT FURTHER RESOLVED, that a bid opening date is hereby established for October 2nd, 2023 at 2 pm at City Hall Council Chambers.

PASSED, APPROVED, AND ADOPTED this 7th Day of September, 2023

BY THE CITY COUNCIL
OF THE CITY OF
MUSCATINE, IOWA

Bradley Bark, Mayor

ATTEST:

Carol Webb, City Clerk

COST ESTIMATE - DETAILED BREAKDOWN
REPLACEMENT UV DISINFECTION SYSTEM PROJECT
MUSCATINE, IOWA

8/15/2023
Project No. 20821

SPEC SECTION	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	EXTENDED PRICE	SECTION TOTALS
DIVISION 1 - GENERAL REQUIREMENTS						
01010	SUMMARY OF WORK					
	Engineering & Layout, Site survey	1	LS	2,000	2,000	
	Job Supervision	6	MTH	7,000	42,000	
	Bond, Insurance, Permits (2%)	1	LS	25,000	25,000	
	Mobilization (4%)	1	LS	50,000	50,000	
				SECTION 01010 TOTAL		\$ 119,000
01040	SPECIAL CONSTRUCTION					
	Cleaning	1	LS	5,000	5,000	
				SECTION 01040 TOTAL		\$ 5,000
01410	TESTING LABORATORY SERVICES					
	Concrete Testing	12	EA	250	3,000	
				SECTION 01410 TOTAL		\$ 3,000
01500	TEMPORARY CONSTRUCTION FACILITIES & UTILITIES					
	Heat	6	MTH	500	3,000	
				SECTION 01500 TOTAL		\$ 3,000
				DIVISION 1 TOTAL		\$ 130,000
DIVISION 2 - SITEWORK						
02050	DEMOLITION					
	UV System (3 guys @ \$100/hr * 40 hr/wk)	1	wk	12,000	12,000	
	Concrete Removal/Sand (3 guys @ \$100/hr *	3	wk	12,000	36,000	
	Electrical Demolition (2 guys @ \$120/hr * 40 l	3	wk	9,600	28,800	
	Miscellaneous Equip/Haul Off	1	LS	20,000	20,000	
				SECTION 02050 TOTAL		\$ 96,800
				DIVISION 2 TOTAL		\$ 96,800
DIVISION 3 - CONCRETE						
03300	CAST-IN-PLACE CONCRETE					
	West Ext. Channel					
	Walls	13	CY	1,500	19,500	
	Base	5	CY	1,200	6,000	
	Topping	2	CY	1,000	2,000	
	Bldg Interior					
	Walls	18	CY	1,500	27,000	
	Base	7	CY	1,200	8,400	
	Topping	8	CY	1,000	8,000	

Short Walls	2	CY	1,500	3,000	
East Ext. Channel					
Walls	5	CY	1,500	7,500	
Base	2	CY	1,200	2,400	
Topping	1	CY	1,000	1,000	
Ramp	8	CY	1,200	9,600	
Equipment Pads	2	CY	1,000	2,000	
SECTION 03300 TOTAL					\$ 96,400
DIVISION 3 TOTAL					\$ 96,400

DIVISION 5 - METALS

05500	METAL FABRICATIONS				
	Open Grating	125	SF	100	12,500
	Solid Plank Grating	125	SF	150	18,750
	Aluminum Bar Screen	1	LS	2,000	2,000
SECTION 05500 TOTAL					\$ 33,250
DIVISION 5 TOTAL					\$ 33,250

DIVISION 7 - THERMAL AND MOISTURE PROTECTION

07900	JOINT SEALERS	1	LS	1000	1000
SECTION 07900 TOTAL				\$	1,000
DIVISION 7 TOTAL					\$ 1,000

DIVISION 11 - EQUIPMENT

11368	ULTRAVIOLET DISINFECTION EQUIPMENT SPECIFICATION				
	UV Disinfection Equipment	1	LS	420,000	420,000
	UV Equipment Installation (35% of Equip)	1	LS	150,000	150,000
SECTION 11368 TOTAL					\$ 570,000
DIVISION 11 TOTAL					\$ 570,000

DIVISION 13 - SPECIAL CONSTRUCTION

13570	INSIDE PROCESS PIPING				
	2" PVC Drain	10	LF	60	600
	2" Valve	1	EA	50	50
SECTION 13570 TOTAL					\$ 650
DIVISION 13 TOTAL					\$ 650

DIVISION 16 - ELECTRICAL

\$ 140,000
DIVISION 16 TOTAL \$ 160,000

DIVISION 17 - INSTRUMENTATION & CONTROLS

\$ 60,000
DIVISION 17 TOTAL \$ 60,000

FINAL COST ESTIMATE - SUMMARY

SUB-TOTAL \$ 1,148,100

CONTINGENCY (5%)	\$ 58,000
CONSTRUCTION TOTAL	\$ 1,206,100

SPECIFICATIONS

FOR

REPLACEMENT UV DISINFECTION SYSTEM PROJECT

MUSCATINE, IOWA

**SPECIFICATIONS
FOR
REPLACEMENT UV DISINFECTION SYSTEM PROJECT
MUSCATINE, IOWA**

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.



Signed:

Date:

Emily K. Linebaugh

8/28/2023

Emily K. Linebaugh, P.E.

Iowa License No. 18986

My license renewal date is December 31, 2023

Detailed parts covered by this seal:

Divisions 0-15

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

Signed:

Date:

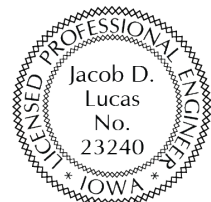
Jacob D. Lucas

8/28/2023

Jacob D. Lucas, P.E.

Iowa License No. 23240

My license renewal date is December 31, 2023



Detailed parts covered by this seal:

Divisions 16-17

Prepared by
VEENSTRA & KIMM, INC.
Coralville,
Iowa

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NOTICE OF PUBLIC HEARING

NOTICE OF PUBLIC HEARING ON PLANS AND SPECIFICATIONS, PROPOSED FORM OF CONTRACT AND ESTIMATE OF COST FOR CONSTRUCTION OF THE UV DISINFECTION SYSTEM REPLACEMENT PROJECT FOR THE CITY OF MUSCATINE, IOWA.

At 6:00 P.M. on the 7th day of September, 2023, the City Council of said City will, in said Council Chambers, hold a hearing and said Council proposes to adopt plans, specifications, form of contract and estimate of cost and, at the time, date and place specified above, or at such time, date and place as then may be fixed, to act upon proposals and enter into a contract for the construction of the following improvements:

REPLACEMENT UV DISINFECTION SYSTEM PROJECT

Construct Replacement UV Disinfection System Project including all labor, materials, and equipment necessary for demolition; construct reinforced concrete structures; plumbing; heating; installation of owner-provided ultraviolet disinfection equipment; miscellaneous equipment; piping and appurtenances; piping specialties; electrical work including conduit, cables, wiring, motor controls, starters, switches, fixtures, and controls; and miscellaneous associated work, including cleanup.

At said hearing, the City Council will consider the plans, specifications, proposed form of contract, and estimated total cost for the project, the same now being on file in the office of the City Clerk, reference to which is made for a more detailed and complete description of the proposed improvements, and at said time and place the said Council will also receive and consider any objections to said plans, specifications, estimate of cost and form of contract made by any interested party.

This notice is given by order of the Council of the City of Muscatine, Iowa.

CITY OF MUSCATINE, IOWA

Brad Bark, Mayor

ATTEST:

Carol Webb, City Administrator

NOTICE TO BIDDERS

NOTICE OF TAKING BIDS FOR THE CONSTRUCTION OF REPLACEMENT UV DISINFECTION SYSTEM PROJECT FOR THE CITY OF MUSCATINE, IOWA

Sealed proposals will be received by the City Clerk of the City of Muscatine, Iowa, at City Hall, 215 Sycamore Street, Muscatine, Iowa 52761 until 2:00 p.m. on the 21st day of September, 2023, for the construction of the Replacement UV Disinfection System Project as described in the plans and specifications therefore, now on file in the office of the City Clerk. Proposals will be opened, and the amount of the bids announced by the City Clerk at the time and date specified above. Proposals will be acted upon by said City at the October 5th, 2023 City Council Meeting or at such later time and place as then may be fixed.

Work on the improvements shall commence within ten days of the issuance of a written Notice to Proceed. The Notice to Proceed will be issued upon approval of the contract by the Council and be completed as stated below.

The work will include but is not limited to the following improvements:

REPLACEMENT UV DISINFECTION SYSTEM PROJECT

Construct Replacement UV Disinfection System Project including all labor, materials, and equipment necessary for demolition; construct reinforced concrete structures; plumbing; heating; installation of owner-provided ultraviolet disinfection equipment; miscellaneous equipment; piping and appurtenances; piping specialties; electrical work including conduit, cables, wiring, motor controls, starters, switches, fixtures, and controls; and miscellaneous associated work, including cleanup.

All work and materials are to be in accordance with the proposed plans, specifications, form of contract and estimate of cost now on file in the office of the City Clerk of Muscatine, Iowa, and by this reference made a part thereof as though fully set out and incorporated herein.

Copies of said plans and specifications and form of contract are now on file in the office of the City Clerk. Copies may be obtained from VEENSTRA & KIMM, INC., 3000 Westown Parkway, West Des Moines, Iowa 50266 at no charge. Digital copies of bidding documents are available.

All proposals and bids in connection therewith shall be submitted to the City Clerk of said City on or before the time herein set for receiving bids. All proposals shall be made on official bidding blanks furnished by the City, and any alterations in the official form of proposal will entitle the Council, at its option, to reject the proposal involved from consideration. Each proposal shall be sealed and plainly identified.

Each proposal shall be made out on a blank form furnished by the municipality and must be accompanied by bid security in a sealed envelope by either (1) a certified or cashier's check drawn on a solvent Iowa chartered bank or a bank chartered under the laws of the United States, or a certified share draft drawn on a credit union in Iowa or chartered under the laws of the United States, in an amount equal to 5% of the bid, or (2) a bid bond executed by a corporation authorized to contract as a surety in the State of Iowa, in the penal sum of 5% of the bid.

The bid security should be made payable to THE CITY OF MUSCATINE, IOWA. The bid security must not contain any conditions either in the body or as an endorsement thereon. The bid security shall be forfeited to the City as liquidated damages in the event the successful bidder fails or refuses to enter into a contract within 10 days after the award of contract and post bond satisfactory to the City insuring the faithful fulfillment of the contract and the maintenance of said work, if required, pursuant to the provisions of this notice and other contract documents. Bidders shall use the bid bond form included in the specifications.

In accordance with the requirements of the Iowa Department of Labor all bidders must submit a fully completed Bidder Status Form. The Bidder Status Form must be included with and is considered an essential attachment to the Proposal. Any Proposal that does not include a fully completed Bidder Status Form may result in the Proposal being determined non-responsive and rejected.

By virtue of statutory authority, preference will be given to products and provisions grown and coal produced within the State of Iowa, and to Iowa domestic labor, to the extent lawfully required under Iowa Statutes; provided that the award of contract will be made to the lowest responsible bidder submitting the lowest responsive bid, which shall be determined without regard to state or local law whereby preference is given on factors other than the amount of the bid.

In accordance with Iowa statutes, a resident bidder shall be allowed a preference as against a nonresident bidder from a state or foreign country if that state or foreign country gives or requires any preference to bidders from that state or foreign country, including but not limited to any preference to bidders, the imposition of any type of labor force preference, or any other form of preferential treatment to bidders or laborers from that state or foreign country. The preference allowed shall be equal to the preference given or required by the state or foreign country in which the nonresident bidder is a resident. In the instance of a resident labor force preference, a nonresident bidder shall apply the same resident labor force preference to a public improvement in this state as would be required in the construction of a public improvement by the state or foreign country in which the nonresident bidder is a resident.

The City reserves the right to reject any and all bids, to waive informalities and technicalities and to enter into such contract as it shall deem for the best interest of the City.

The City reserves the right to defer acceptance of any proposal for a period not to exceed thirty (30) calendar days from the date of hearing.

The successful bidder will be required to furnish bonds in an amount equal to one hundred percent (100%) of the contract price, said bonds to be issued by responsible surety approved by the City Council and listed in the U.S. Treasury Department's most current list (Circular 570, as amended) and authorized to transact business in the State of Iowa and shall guarantee (1) the faithful performance of the contract and the terms and conditions therein contained, (2) the prompt payment to all persons, firms, subcontractors and corporations furnishing materials for or performing labor in the prosecution of the work, and (3) the maintenance of improvements in good repair for not less than two (2) years from the time of acceptance of the improvements by the City.

All Contractor(s) and subcontractor(s) are required to obtain tax exemption certificates from the City of Muscatine, Iowa for this project. These tax exemption certificates are only for use on this specific project as covered under the Contract.

The work under the contract shall commence within ten (10) days after date set forth in written Notice to Proceed and all work on the ultraviolet disinfection system shall be complete and operational by March 4, 2024; all other work shall be completed by May 31, 2024 subject to any extensions of time which may be granted by the City Council.

Interim liquidated damages in the amount of Five Hundred Dollars (\$500.00) per consecutive calendar day shall be assessed for each day that work shall remain uncompleted on the ultraviolet disinfection system after March 4, 2024, with due allowance for extensions of the contract period due to conditions beyond the control of the Contractor.

Liquidated damages in the amount of Five Hundred Dollars (\$500.00) per calendar day shall be assessed for each calendar day that work on the contract remains uncompleted after the end of the contract period, with due allowance for extensions of the contract period due to conditions beyond the control of the Contractor. Separate liquidated damage assessments may be made for each of the two completion dates.

Payment to the Contractor for said improvements will be from any one of the following sources at the sole discretion of the City Council: (1) cash to be derived from the proceeds of the issuance and sale of Sewer Revenue Bonds, which will be payable solely and only out of the future net revenues of the Municipal Sewer Utility, and/or from such other cash funds on hand of said Utility as may be lawfully used for said purpose; (2) cash derived from the proceeds of the issuance and sale of General Obligation Bonds of said City; (3) cash from such general funds of said City as may be legally used for such purpose; or (4) cash from public facilities set-aside fund.

At least ten (10) days before each progress payment falls due (but not more often than once a month), the Contractor will submit to the Engineer a partial payment estimate filled out and signed by the Contractor covering the work performed during the period covered by the partial payment estimate and supported by such data as the Engineer may reasonably require. If payment is requested on the basis of materials and equipment not incorporated in the work but delivered and suitably stored at or near the site, the partial payment estimate shall also be accompanied by such supporting data, satisfactory to the Owner, as will establish the Owner's title to the material and equipment. The Engineer will, within fifteen (15) days after receipt of each partial payment estimate, either indicate in writing his approval of payment and present the partial payment estimate to the Owner, or return the partial payment estimate to the Contractor indicating in writing his reasons for refusing to approve payment. In the latter case, the Contractor may make the necessary corrections and resubmit the partial payment estimate. The Owner will, within thirty (30) days of presentation to him of an approved partial payment estimate, pay the Contractor a progress payment on the basis of the approved partial payment estimate.

The Owner shall retain five (5) percent of the amount of each payment as provided in the Code of Iowa until final completion and acceptance of all work covered by the contract documents.

The request for payment may also include an allowance for the cost of such major materials and equipment which are suitably stored either at or near the site. Proof of purchase amount and verification of insurance for stored materials must be provided with any request for payment of stored materials.

Prior to substantial completion, the Owner, with the approval of the Engineer and with the concurrence of the Contractor, may use any completed or substantially completed portions of the work. Such use shall not constitute an acceptance of such portions of the work.

The Owner shall have the right to enter the premises for the purpose of doing work not covered by the contract documents. This provision shall not be construed as relieving the Contractor of the sole responsibility for the care and protection of the work, or the restoration of any damaged work except such as may be caused by agents or employees of the Owner.

Upon completion and acceptance of the work, the Engineer shall issue a certificate that the work has been accepted by him under the conditions of the contract documents. Final payment will be made in accordance with the provisions of the Code of Iowa.

The Contractor will indemnify and save the Owner or the Owner's agents harmless from all claims growing out of the lawful demands of subcontractors, laborers, workmen, mechanics, materialmen, and furnishers of machinery and parts thereof, equipment, tools, and all supplies, incurred in the furtherance of the performance of the work. The Contractor shall furnish satisfactory evidence that all obligations of the nature designated above have been paid, discharged, or waived. If the Contractor fails to do so the Owner may, after having notified the

Contractor, either pay unpaid bills or withhold from the Contractor's unpaid compensation a sum of money deemed reasonably sufficient to pay any and all such lawful claims until satisfactory evidence is furnished that all liabilities have been fully discharged whereupon payment to the Contractor shall be resumed, in accordance with the terms of the contract documents, but in no event shall the provisions of this sentence be construed to impose any obligations upon the Owner to either the Contractor, his Surety, or any third party. In paying any unpaid bills of the Contractor, any payment so made by the Owner shall be considered as a payment made under the contract documents by the Owner to the Contractor and the Owner shall not be liable to the Contractor for any such payments made in good faith.

Plans and specifications governing the construction of the proposed improvements have been prepared by VEENSTRA & KIMM, INC. of Coralville, Iowa, which plans and specifications and the proceedings of the City Council referring to and defining said improvements are hereby made a part of this notice and the proposed contract by reference, and the proposed contract shall be executed to comply therewith.

Posted upon order of the Council of the City of Muscatine, Iowa.

CITY OF MUSCATINE, IOWA

Brad Bark, Mayor

ATTEST:

Carol Webb, City Administrator

SECTION 00100

INSTRUCTIONS TO BIDDERS

REPLACEMENT UV DISINFECTION SYSTEM PROJECT MUSCATINE, IOWA

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- 1.02 CONTRACT DOCUMENTS
- 1.03 EXAMINATION OF WORK
- 1.04 PREBID CONFERENCE
- 1.05 QUALIFICATIONS OF BIDDERS
- 1.06 METHOD OF BIDDING
- 1.07 SUBMISSION OF BIDS
- 1.08 BID SECURITY
- 1.09 EVALUATION OF BIDS
- 1.10 WITHDRAWAL OF BIDS
- 1.11 EXECUTION OF CONTRACT
- 1.12 CONTRACT TERMINATION

- 1.13 TAXES
- 1.14 PREFERENCE FOR LABOR AND MATERIALS
- 1.15 PAYMENT
- 1.16 APPROVAL OF MATERIALS
- 1.17 PERIOD OF GUARANTEE AND BOND

PART 2 – PRODUCTS

NOT APPLICABLE

PART 3 – EXECUTION

NOT APPLICABLE

PART 1 – GENERAL

1.01 DEFINITION OF TERMS

- A. "Owner" and "City" shall mean the City of Muscatine, acting through the City Council or an authorized representative of the City Council.
- B. "Person" shall mean any individual, partnership, society, association, joint stock company, corporation, estate, receiver, trustee, assignee or referee, whether appointed by a court or otherwise, and any combination of individuals.
- C. "Bidder" shall mean any person who submits a Proposal to furnish the work described in the Contract Documents.
- D. "Contractor" shall mean the person with whom the Owner may enter into contract for the execution of the work specified.
- E. "Subcontractor" shall mean the person supplying materials, labor, equipment and appurtenances for the work, such person having contractual relations with the Contractor, but not with the Owner.

- F. "Engineer" shall mean Veenstra & Kimm, Inc. of Coralville, Iowa.
- G. "Standard Drawings" shall mean construction detail drawings bound with these specifications.
- H. "Work" shall mean the work to be done and the equipment, materials, supplies and be furnished under the contract, unless some other meaning is indicated by the context.
- I. "Station", "Sta." shall mean one hundred (100) linear feet measure.

1.02 CONTRACT DOCUMENTS

- A. Contract Documents, sometimes referred to as the "plans and specifications," shall mean and include the following parts as used herein:
 - 1. Notice of Public Hearing
 - 2. Notice to Bidders
 - 3. Instructions to Bidders
 - 4. Proposal
 - 5. Contract
 - 6. Bond
 - 7. General Conditions
 - 8. Special Conditions
 - 9. Plans List
 - 10. Detailed Specifications
 - 11. Plans listed in the specifications
 - 12. Numbered addenda issued to the foregoing.

1.03 EXAMINATION OF WORK

- A. Bidders shall familiarize themselves with the specifications and with all conditions which will affect construction. It will be assumed that bidders have made a personal examination of the job and the physical conditions affecting the work.

1.04 PREBID CONFERENCE

- A. A prebid conference will be held on September 12, 2023 at 1:30 p.m. at the Water & Resource Recovery Facility, 1202 Musser Street, Muscatine, IA 52761. Engineer will be present to answer questions and allow inspection of job site. It is recommended that all bidders attend. Failure to attend does not relieve bidder from responsibility of examining work or project site. See 1.03 EXAMINATION OF WORK.

1.05 QUALIFICATIONS OF BIDDERS

- A. Bidders shall be prepared to satisfy Owner as to integrity, experience, adequacy of equipment and personnel, and financial ability to perform work specified.
- B. If successful bidder is a non-Iowa corporation, they shall submit proof to Owner prior to execution of contract that they have been authorized by Secretary of State to do business in Iowa.

1.06 METHOD OF BIDDING

- A. Bidders shall submit lump sum bid for the work covered by the plans and specifications. Prices shall cover complete work and include all costs incidental thereto, unless indicated otherwise.
- B. Bids will be computed using quantities shown in proposal. Unit price quantities are approximate and only for comparison of bids. Engineer retains right to change location, quantities and combination of units as may be required during progress of construction. Compensation due Contractor will be computed on basis of final quantities of completed work.
 - 1. In the event of discrepancies between unit prices and unit price extensions listed in bidder's proposal, unit prices shall govern and unit price extensions and total bid shall be corrected, as necessary, for agreement with unit prices. The total price will be determined on the basis of corrected extensions of the unit prices.
 - 2. In the case of an obvious and serious clerical or entry error in the Proposal where the City is able to clearly determine the bidder's intent from the Proposal the City may waive irregularities that are in the best interest of the City as long as the integrity of the bidding process is not affected by waiving the clerical or entry irregularity.
- C. Bids will be evaluated on the basis of the work shown on the plans and specifications. Low bidder will be determined based on lowest responsible bidder submitting the lowest responsive bid as deemed in the best interest of the City for Base Bid only, or any combination of Base Bid and Alternate Bids.
- D. Unit prices for payment items included in the specifications, but not listed in the proposal, will be negotiated, if needed.

1.07 SUBMISSION OF BIDS

- A. Bidders shall submit the Proposal stamped "Official Bid". The Proposal stamped "Official Bid" is considered the original Proposal and shall be used for bidding. Submit in a sealed envelope. Envelope shall bear return address of the bidder and shall be addressed as follows:

To:

City Clerk
City Hall
215 Sycamore Street
Muscatine, IA 52761

Proposal for:

Replacement UV Disinfection System
Project

- B. Bids shall be signed by a legally authorized representative of the bidder.
- C. Bidders shall submit the specified bid security included with the proposal.
- D. Mark each envelope with "Sealed Bid. Do Not Open."
- E. Bidders shall submit with Proposal the following documents:
 - 1. Bidder Status Form.

1.08 BID SECURITY

- A. Each bid shall be accompanied by bid security in the form and amount set out in the Notice to Bidders.
- B. Bid security shall be enclosed in a sealed envelope with the bid, or in a separate sealed envelope.
- C. The bid security shall be forfeited and become the property of the Owner in case the bidder fails or refuses to enter into contract and to furnish bond within 10 calendar days after their proposal shall have been accepted.
- D. Bid security of the unsuccessful bidders will be returned as soon as the successful bidder is determined or within 30 days, whichever is sooner; bid security of successful bidder will be returned upon execution of contract and furnishing of bond.
- E. Use bid bond form included with specifications.

1.09 EVALUATION OF BIDS

- A. Award of contract will be made on the lowest, responsive, responsible bid that is in the best interest of the City of Muscatine.
- B. Award of contract will not consider the "Alternate" major equipment items or products.

- C. The City Council reserves the right to reject any and all bids, and to waive informalities or technicalities and to enter into such contract as it shall deem for the best interest of the City.

1.10 WITHDRAWAL OF BIDS

- A. A bidder may withdraw their bid at any time prior to scheduled closing time for receipt of bids, but no bid shall be withdrawn for a period of 30 calendar days thereafter.

1.11 EXECUTION OF CONTRACT

- A. The successful bidder shall enter into a written contract with the Owner, within 10 days after acceptance of their proposal on the forms included with these specifications, for the performance of the work awarded to him.
- B. The contract, when executed, shall be deemed to include the entire agreement between the parties hereto, and the Contractor shall not claim any modification thereof resulting from any representation or promise made at any time by any representative of the Owner or any other person.

1.12 CONTRACT TERMINATION

- A. Provisions of law, as contained in Chapter 573A of the Code of Iowa shall apply to and be a part of this contract. Chapter 573A provides for termination of contracts for construction of public improvements when construction or work thereon is stopped because of a national emergency. The provisions of Chapter 573A shall be binding upon all parties thereto, including subcontractors and sureties upon any bond given or filed in connection therewith.

1.13 TAXES

- A. The City will issue a sales tax exemption certificate for all materials purchased on the project. The City will issue the appropriate tax exemption certificates and authorization letters to the Contractor and all subcontractors completing work on the project. Tax exemption certificates are applicable only for the specific project for which the tax exemption certificate is issued.
- B. Contractor shall provide a listing to the City identifying all appropriate subcontractors qualified for use of the tax exemption certificate. Contractor and subcontractors may make copies of the certificate and provide, to each supplier providing construction material, a copy of the tax exemption certificate.

- C. Income tax:
 - 1. Successful bidder is subject to payment of Iowa income tax on income from this work in amounts prescribed by law.
 - 2. If successful bidder is a non-Iowa partnership, individual or association, they shall furnish evidence prior to execution of contract, that bond or securities have been posted with the Iowa Department of Revenue in the amount required by law.

1.14 PREFERENCE FOR LABOR AND MATERIALS

- A. Contractor shall observe the laws of the State of Iowa with regard to preference for labor and materials. So far as may be done under the law, Contractor shall give preference to local concerns in purchase of materials, insurance and bonds.
- B. The Iowa Reciprocal Preference Act (SF 2160) applies to the contract with respect to bidders who are not Iowa residents.
 - 1. In accordance with the requirements of the Iowa Department of Labor all bidders must submit a fully completed Bidder Status Form. The Bidder Status Form must be included with and is considered an essential attachment to the Proposal. Any Proposal that does not include a fully completed Bidder Status Form may result in the Proposal being determined non-responsive.

1.15 PAYMENT

- A. Payment will be made in cash as set forth in Notice to Bidders.
- B. Payments will be made on the basis of estimates prepared by Contractor and approved by Engineer, solely for the purpose of payment; approval by Engineer shall not be deemed approval of workmanship or material.

1.16 APPROVAL OF MATERIALS

- A. Approval of substitutions of any materials or equipment other than that specified shall be obtained in writing from the Engineer. Otherwise, it will be assumed Contractor will furnish materials or equipment specified.

1.17 PERIOD OF GUARANTEE AND BOND

- A. Contractor shall guarantee work for a period of two (2) years from the date of final acceptance of the work by the Owner as provided for in the Code of Iowa. Bond furnished by Contractor shall run for a like period. Bond furnished by Contractor shall remain in full force and effect until all bills are paid.

PART 2 – PRODUCTS

Not Applicable.

PART 3 – EXECUTION

Not Applicable.

END OF SECTION

PROPOSAL

**REPLACEMENT UV DISINFECTION SYSTEM PROJECT
MUSCATINE, IOWA**

Name of Bidder _____

Address of Bidder _____

To: City Council
City of Muscatine
215 Sycamore Street
Muscatine, Iowa 52761

The undersigned bidder submits herewith bid security amounting to five percent (5%) of the total amount of the bid which shall become the property of the City of Muscatine should the undersigned fail or refuse to execute a contract and to furnish bond as called for in the specifications within the time provided.

The undersigned bidder, having examined the Contract Documents, and having familiarized itself with the nature and location of the work to be done and the conditions under which the work will be performed, hereby proposes to provide the required labor, services, and materials and to perform the work described in the specifications, and addenda __, __, __, and __, within the time and for the sum or sums stated hereinafter on attached proposal schedule; which proposal schedule is hereby made a part of this proposal.

The undersigned bidder certifies that this proposal is made in good faith, without collusion or connection with any other person or persons bidding on the work.

The undersigned bidder states that this proposal is made in conformity with the specifications and agrees that in the event of any discrepancies or differences between any conditions of this proposal and the specifications prepared by VEENSTRA & KIMM, INC., that the provisions of the latter shall prevail.

Bidder _____

By _____

Title _____

PROPOSAL SCHEDULE

REPLACEMENT UV DISINFECTION SYSTEM PROJECT MUSCATINE, IOWA

1. Furnish all labor, materials, and equipment necessary for demolition; construct reinforced concrete structures; plumbing; heating; installation of owner-provided ultraviolet disinfection equipment; miscellaneous equipment; piping and appurtenances; piping specialties; electrical work including conduit, cables, wiring, motor controls, starters, switches, fixtures, and controls; and miscellaneous associated work, including cleanup, for the lump sum price of

_____ (\$_____)

2. The work under the contract shall commence within ten (10) days after date set forth in written Notice to Proceed. All work shall be completed as outlined in the Notice to Bidders.
3. Interim liquidated damages in the amount of Five Hundred Dollars (\$500.00) per consecutive calendar day shall be assessed for each day that work shall remain uncompleted on the ultraviolet disinfection system after March 4, 2024, with due allowance for extensions of the contract period due to conditions beyond the control of the Contractor.
4. Liquidated damages in the amount of Five Hundred Dollars (\$500.00) per calendar day will be assessed for each calendar day that work shall remain uncompleted after the end of the contract period as outlined in the Notice to Bidders with due allowance for extensions of the contract period due to conditions beyond the control of the Contractor. Separate liquidated damage assessments may be made for each of the two completion dates.
5. Required attachments:
 - A. Bidder Status Form.
 - B. Bid Bond.

Bidder Status Form

To be completed by all bidders

Part A

Please answer "Yes" or "No" for each of the following:

☐ Yes ☐ No

My company is authorized to transact business in Iowa.
(To help you determine if your company is authorized, please review the worksheet on the next page).

☐ Yes ☐ No

My company has an office to transact business in Iowa.

☐ Yes ☐ No

My company's office in Iowa is suitable for more than receiving mail, telephone calls, and e-mail.

☐ Yes ☐ No

My company has been conducting business in Iowa for at least 3 years prior to the first request for bids on this project.

☐ Yes ☐ No

My company is not a subsidiary of another business entity or my company is a subsidiary of another business entity that would qualify as a resident bidder in Iowa.

If you answered "Yes" for each question above, your company qualifies as a resident bidder. Please complete Parts B and D of this form.

If you answered "No" to one or more questions above, your company is a nonresident bidder. Please complete Parts C and D of this form.

To be completed by resident bidders

Part B

My company has maintained offices in Iowa during the past 3 years at the following addresses:

Dates: _____ / _____ / _____ to _____ / _____ / _____

Address: _____

City, State, Zip: _____

Dates: _____ / _____ / _____ to _____ / _____ / _____

Address: _____

City, State, Zip: _____

Dates: _____ / _____ / _____ to _____ / _____ / _____

Address: _____

City, State, Zip: _____

You may attach additional sheet(s) if needed.

To be completed by non-resident bidders

Part C

1. Name of home state or foreign country reported to the Iowa Secretary of State:

2. Does your company's home state or foreign country offer preferences to bidders who are residents?

☐ Yes ☐ No

3. If you answered "Yes" to question 2, identify each preference offered by your company's home state or foreign country and the appropriate legal citation.

You may attach additional sheet(s) if needed.

To be completed by all bidders

Part D

I certify that the statements made on this document are true and complete to the best of my knowledge and I know that my failure to provide accurate and truthful information may be a reason to reject my bid.

Firm Name: _____

Signature: _____ Date: _____

You must submit the completed form to the governmental body requesting bids
per 875 Iowa Administrative Code Chapter 156.
This form has been approved by the Iowa Labor Commissioner.

Worksheet: Authorization to Transact Business

This worksheet may be used to help complete Part A of the Resident Bidder Status form. If at least one of the following describes your business, you are authorized to transact business in Iowa.

- ☐ Yes ☐ No My business is currently registered as a contractor with the Iowa Division of Labor.
- ☐ Yes ☐ No My business is a sole proprietorship and I am an Iowa resident for Iowa income tax purposes.
- ☐ Yes ☐ No My business is a general partnership or joint venture. More than 50 percent of the general partners or joint venture parties are residents of Iowa for Iowa income tax purposes.
- ☐ Yes ☐ No My business is an active corporation with the Iowa Secretary of State and has paid all fees required by the Secretary of State, has filed its most recent biennial report, and has not filed articles of dissolution.
- ☐ Yes ☐ No My business is a corporation whose articles of incorporation are filed in a state other than Iowa, the corporation has received a certificate of authority from the Iowa secretary of state, has filed its most recent biennial report with the secretary of state, and has neither received a certificate of withdrawal from the secretary of state nor had its authority revoked.
- ☐ Yes ☐ No My business is a limited liability partnership which has filed a statement of qualification in this state and the statement has not been canceled.
- ☐ Yes ☐ No My business is a limited liability partnership which has filed a statement of qualification in a state other than Iowa, has filed a statement of foreign qualification in Iowa and a statement of cancellation has not been filed.
- ☐ Yes ☐ No My business is a limited partnership or limited liability limited partnership which has filed a certificate of limited partnership in this state, and has not filed a statement of termination.
- ☐ Yes ☐ No My business is a limited partnership or a limited liability limited partnership whose certificate of limited partnership is filed in a state other than Iowa, the limited partnership or limited liability limited partnership has received notification from the Iowa secretary of state that the application for certificate of authority has been approved and no notice of cancellation has been filed by the limited partnership or the limited liability limited partnership.
- ☐ Yes ☐ No My business is a limited liability company whose certificate of organization is filed in Iowa and has not filed a statement of termination.
- ☐ Yes ☐ No My business is a limited liability company whose certificate of organization is filed in a state other than Iowa, has received a certificate of authority to transact business in Iowa and the certificate has not been revoked or canceled.

SECTION 00410

BID BOND

KNOW ALL MEN BY THESE PRESENTS: That we, _____
_____, of, _____,
as Principal, and _____

of _____, as Surety, are held and firmly bound unto the City of Muscatine, Iowa, hereinafter defined as Obligee, in the penal sum of five percent (5%) of the total amount of the bid (\$_____), for which payment said Principal and Surety bind themselves, their heirs, executors, administrators, successors, and assigns jointly and severally, firmly by these presents.

The condition of the above obligation is such that whereas the Principal has submitted to the City of Muscatine, Iowa a certain bid, in a sealed envelope, and hereby made a part hereof to enter into a contract in writing, for: Replacement UV Disinfection System Project.

NOW THEREFORE, if the said bid by said Principal be accepted, and the Principal shall enter into a contract with the Obligee in accordance with the terms of such bid, and give such bond as may be specified in the contract documents with good and sufficient surety for the faithful performance of such contract, for the prompt payment of labor and material furnished in the prosecution thereof, and for the maintenance of said improvements as may be required therein, then this obligation shall become null and void or in the event of the failure of the Principal to enter such contract and give such bond, the Principal shall pay to the Obligee the full amount of the bid bond, together with court costs, attorney's fees, and any other expense of recovery.

Signed and sealed this _____, day of _____ 2023.

Principal

By _____
Contractor's Signature

Surety

By _____
Attorney-in-Fact

SECTION 00510

CONTRACT

THIS AGREEMENT, made and entered into this _____ day of _____, 2023, by and between the City of Muscatine, Iowa, party of the first part, hereinafter referred to as the "Owner", and _____, party of the second part, hereinafter referred to as the "Contractor".

WITNESSETH: THAT WHEREAS, the Owner has heretofore caused to be prepared certain plans, specifications and proposal blanks, dated the _____ day of _____, 2023, for Replacement UV Disinfection System Project, under the terms and conditions therein fully stated and set forth, and,

WHEREAS, said plans, specifications and proposal blanks accurately and fully describe the terms and conditions upon which the Contractor is willing to perform the work specified:

NOW, THEREFORE, IT IS AGREED:

1. That the Owner hereby accepts the proposal of the Contractor for the work, as follows:

2. That this contract consists of the following component parts which are made a part of this agreement and contract as fully and absolutely as if they were set out in detail in this contract:
 - A. Contract Documents, including:
 1. Notice of Public Hearing
 2. Notice to Bidders
 3. Instructions to Bidders
 4. Proposal
 5. Bond
 6. General Conditions
 7. Special Conditions
 8. Plans List
 9. Detailed Specifications
 10. Plans listed in the specifications
 11. Numbered addenda issued to the foregoing.
 - B. This Instrument.
 - C. The above components are complementary and what is called for by one shall be as binding as if called for by all.
3. That payments are to be made to the Contractor in accordance with and subject to the provisions embodied in the documents made a part of this contract.
4. That this contract is executed in triplicate.

IN WITNESS WHEREOF, the parties hereto have hereunto set their hand and seals the date first written above.

CONTRACTOR:

CITY OF MUSCATINE, IOWA

By _____
Mayor

By _____

Title _____

ATTEST:

ATTEST:

City Clerk

Title _____

SECTION 00600

BOND

KNOW ALL MEN BY THESE PRESENTS: that _____
(Name of Contractor)

(Address of Contractor)

a _____ hereinafter called the PRINCIPAL,
(Corporation, Partnership or Individual)

and _____
(Name of Surety)

(Address of Surety)

hereinafter called the Surety, are held and firmly bound unto

City of Muscatine
(Name of Owner)

215 Sycamore Street, Muscatine, Iowa 52761
(Address of Owner)

hereinafter called the OWNER, in the sum of _____
_____ Dollars (\$_____),

in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, the PRINCIPAL entered into a certain contract with the OWNER, dated the ____ day of, _____, 2023, a copy of which is hereto attached and made a part hereof for the construction of **REPLACEMENT UV DISINFECTION SYSTEM PROJECT** which Agreement includes a guarantee of all work against defective workmanship and materials for a period of two (2) years from the date of final acceptance of the work by the OWNER, a copy of which Agreement is by reference made a part hereof;

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that, if the PRINCIPAL shall faithfully perform the Contract on his part and shall fully indemnify and save harmless the OWNER from all costs and damage which he may suffer by reason of failure so to do and shall fully reimburse and repay the OWNER all outlay and expense which the OWNER may incur in making good any such default,

AND FURTHER, that if the PRINCIPAL shall pay all persons who have contracts directly with the PRINCIPAL for labor or materials, failing which such persons shall have a direct right of action against the PRINCIPAL and Surety under this Obligation, subject to the OWNER's priority,

Then this OBLIGATION shall be null and void, otherwise it shall remain in full force and effect.

PROVIDED, however, that no suit, action or proceeding by reason of any default whatever shall be brought on this Bond after three (3) years from the date of final acceptance of the work.

AND PROVIDED, that any alterations which may be made in the terms of the Contract, or in the work to be done under it, or the giving by the OWNER of any extension of time for the performance of the Contract, or any other forbearance on the part of either the OWNER or the PRINCIPAL to the other shall not in any way release the PRINCIPAL and the Surety, or either of them, their heirs, executors, administrators, successors or assigns from their liability hereunder, notice to the Surety of any such alteration, extension or forbearance being hereby waived.

AND FURTHER PROVIDED, the PRINCIPAL and Surety on this Bond hereby agree to pay all persons, firms, or corporations having contracts directly with the PRINCIPAL or with subcontractors all just claims due them for labor performed or material furnished, in the performance of the Contract on account of which this Bond is given, when the same are not satisfied out of the portion of the contract price which the OWNER shall retain until completion of the improvements, but the PRINCIPAL and Surety shall not be liable to said persons, firms, or corporations unless the claims of said claimants against said portions of the contract price shall have been established as provided by law.

THE SURETY ON THIS BOND shall be deemed and held, any contract to the contrary notwithstanding, to consent without notice:

- a. To the extension of time to the PRINCIPAL in which to perform the Contract.
- b. To changes in the plans, specifications, or Contract, when such changes do not involve an increase of more than twenty percent (20%) of the total contract price, and shall then be released only as to such excess increase.
- c. That no provision of this Bond or of any other contract shall be valid which limits to less than three (3) years from the date of final acceptance of the work the right to sue on this Bond for defects in workmanship or materials not discovered or known to the OWNER at the time such work was accepted.

IN WITNESS WHEREOF, this instrument is executed in 3 counterparts, each one of which shall be deemed an original, this ____ day of _____, 2023.

PRINCIPAL:

Contractor

Signature

Title

SURETY:

Surety Company

Signature Attorney-in-Fact

Name of Attorney-in-Fact

NOTE: Date of BOND must not be prior to date of Contract.

If CONTRACTOR is Partnership, all partners should execute BOND.

IMPORTANT: Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State where the PROJECT is located.

Company Name

Company Address

(Including Zip Code)

Company Telephone Number

SECTION 00700

GENERAL CONDITIONS

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PART 2 – PRODUCTS

NOT APPLICABLE

PART 3 – EXECUTION

NOT APPLICABLE

PART 1 – GENERAL

1.01 CONTRACT DOCUMENTS

- A. All documents listed or identified as part of contract are each and all essential and component parts of agreement between Owner and Contractor.
- B. Contract Documents shall be signed in triplicate by Owner and Contractor.
- C. Contract Documents are complementary, and what is called for by anyone shall be as binding as if called for by all. The intention of documents is to include all labor and materials, equipment and transportation necessary for proper execution of work. It is not intended that materials or work not covered by or properly inferable from any

heading, branch, class or trade of the specifications shall be supplied unless distinctly noted. Materials or work described in words, which have a well-known technical or trade meaning, shall be held to refer to such recognized standards.

1.02 SURETY BOND

- A. Contractor shall furnish a good and sufficient surety bond in full amount of contract prior to signing contract. Surety bond shall guarantee faithful performance of all provisions of contract and payment of all bills and obligations arising from said contract. Should surety become irresponsible during time contract is in force, Owner may require additional and sufficient sureties. Contractor shall furnish said additional sureties to satisfaction of Owner within ten (10) days after written notice to do so. In default thereof, contract may be suspended as hereinafter provided.

1.03 CONTRACTOR'S RESPONSIBILITY

- A. Contractor shall assume full responsibility for safekeeping of all materials and equipment and for all unfinished work until final acceptance by Owner. Materials and equipment which are damaged or destroyed from any cause shall be replaced at Contractor's expense.
- B. Contractor shall indemnify and save harmless Owner against any liens filed for non-payment of Contractor's bills in connection with contract work. Contractor shall furnish Owner satisfactory evidence that all persons who have done work or furnished materials, equipment, or service of any type, under the contract have been fully paid prior to acceptance of work by Owner.
- C. Contractor shall erect and maintain such barriers and lights as will prevent accidents as a consequence of its work. It shall indemnify and save harmless the Owner and its agents from all suits brought against Contractor for any injuries received or sustained by any person or persons by or through Contractor, its servants, or agents, in construction of work, or by or in consequence of any acts or omissions or negligence in performing contract work.

1.04 SUBCONTRACTS

- A. Contractor shall not assign, sub-let or transfer the whole or any part of work herein specified without written consent of Owner. Assignment, sub-letting or transfer shall not relieve Contractor from its responsibilities set forth herein.
- B. Detailed specifications are separated into titled parts for convenience or reference and to facilitate letting of contracts and subcontracts. Such arrangement shall not obligate Engineer to establish limits on contracts between Contractors and subcontractors.

1.05 CONTRACTOR'S EMPLOYEES

- A. Contractor shall personally supervise its work or provide a capable superintendent satisfactory to Engineer. Superintendent shall be authorized to receive instructions from Engineer.
- B. Incompetent or incorrigible employees shall be dismissed by the Contractor or its representative when requested by Engineer. Such dismissed persons shall not be permitted to return to work without written consent of Engineer.
- C. Contractor shall give preference to local labor in execution of this contract, insofar as is practicable.

1.06 PERMITS AND REGULATIONS

- A. In execution of work specified herein, Contractor shall conform to regulations and ordinances of any governmental body which may apply in execution of specified work. Contractor shall obtain such permits and licenses as may be required for construction of work.

1.07 PATENTS

- A. All fees or royalties for patented inventions, equipment or arrangements used in construction or erection of work, or any part thereof, shall be included in contract price. Contractor shall protect and hold harmless Owner against any and all claims or litigation by reason of infringement of any patent rights on any materials, equipment of construction furnished by Contractor.

1.08 GUARANTEE

- A. Contractor shall guarantee all work against faulty workmanship and materials for the period specified after date of final acceptance of work by Owner unless otherwise set out in "SPECIAL CONDITIONS" or "INSTRUCTIONS TO BIDDERS." Contractor shall repair or replace any defective workmanship and materials in a manner acceptable to Owner, without expense to Owner, within ten (10) days after written notification by Owner of such defect. If said repairs or replacements are not made within ten (10) days, Owner may make said repairs or replacements and charge the cost to Contractor.
- B. Contractor shall provide Owner with a good and sufficient surety maintenance bond in the full amount of contract prior to signing contract. Maintenance bond shall run for the period specified from time of acceptance to protect Owner from faulty workmanship and materials as outlined in preceding paragraph.

1.09 SHOP DRAWINGS

- A. Contractor shall provide Engineer with drawings, data and information regarding materials or equipment specified, or as may be called for by Engineer, for its review, within a reasonable time after award of contract. After review, Engineer shall return to Contractor one copy within a reasonable time after receipt.
- B. Fabrication and shipment of materials or equipment prior to Engineer's review of drawings, data and information mentioned above shall be at Contractor's risk.

1.10 THE ENGINEER

- A. Engineer shall make general observation of work as agent of Owner. Engineer's general observation shall not be construed that it shall direct or control operations of Contractor.

1.11 PLANS AND SPECIFICATIONS

- A. Engineer shall provide Contractor with five sets of plans and specifications after execution of contract. If additional plans and specifications are required, Contractor shall compensate Engineer for costs of printing.
- B. Engineer shall provide Contractor with additional and supplemental plans as may be required to show details of construction after approval of manufacturers' drawings and data on materials and equipment.
- C. Engineer will provide Contractor with such revised plans and specifications as may be required to show any authorized changes or extra work.

1.12 INTERPRETATION OF PLANS AND SPECIFICATIONS

- A. Plans and specifications shall be interpreted by Engineer. Its decision shall be final and binding on all parties concerned.
- B. Contractor will not be allowed to take advantage of errors or omissions in plans and specifications. Engineer will provide full instructions when errors or omissions are discovered.

1.13 LINE AND GRADE

- A. Engineer shall provide stakes showing line and grade from benchmarks, base lines and other reference points. Contractor shall provide competent men and tools, stakes and

other materials as required to establish temporary or permanent reference marks in connection with the work. Contractor shall perform such detailed measurements and transfer elevations as required to properly lay out and construct work.

- B. Contractor shall carefully preserve all stakes and reference points against destruction and shall promptly notify Engineer of any stakes which have been disturbed. In case of willful or careless destruction, Contractor will be charged for expense and damage from such destruction.

1.14 DECISIONS BY ENGINEER

- A. Engineer shall make decisions, in writing, on claims between Contractor and Owner within a reasonable time after presentation. Such decisions shall be regarded as final except for appropriate legal recourse.

1.15 WORKMANSHIP AND MATERIALS

- A. All work done and all materials and equipment furnished by Contractor shall conform to plans and specifications. Competent labor and tradesmen shall be used on all work. Experienced manufacturers' representatives shall be used to supervise installation of equipment.
- B. In absence of detailed specifications in other sections, all materials shall conform to standards of American Society for Testing Materials.
- C. Wherever items of materials or equipment are specified by a manufacturer's name and type, or equal, it is the intent that materials or equipment of other manufacturers, equal in quality and performance, may be substituted. Such substitution may be made only with written authorization of Engineer.
- D. Wherever items of materials or equipment are specified by a manufacturer's name and type, or equal, and additional features of items are specifically required by specifications, additional features specified shall be provided whether or not they are normally included in standard manufacturer's items listed.
- E. Wherever items of materials or equipment are specified by a manufacturer's name and type, or equal, and specified items are or become obsolete and no longer available, Contractor shall provide acceptable equal items which are currently available at no change in contract price.
- F. When proposing "or equal" items or substitutions, Contractor shall furnish general arrangement drawings, full descriptive data, manufacturer's specifications and such performance data as required to satisfy Engineer that materials or equipment proposed

are equal to that specified. Burden of proof of equality shall be responsibility of Contractor.

- G. Whenever items of materials or equipment are specified by a manufacturer's name and type and "or equal" is not listed, Contractor shall provide specified equipment without substitution, unless prior approval of Engineer is obtained for any substitution.
- H. Contractor shall abide by Engineer's decision when proposed substitutes of material or equipment are deemed to be unacceptable and in such an event Contractor shall furnish items of equipment or materials specified.
- I. Engineer reserves right to consider such factors as overall project arrangement, overall project cost, and similar factors in determining whether proposed substitutions will be acceptable.

1.16 ON-SITE REVIEW OR OBSERVATION

- A. All materials used and all work done by Contractor shall be subject at all times to review, observation, tests and approval by Engineer. Contractor shall furnish samples of materials for observation and tests as requested by Engineer. Contractor shall furnish any information required concerning nature or source of any proposed materials or equipment.
- B. Construction, fabrication and manufacture of equipment or materials specified herein may be observed by Engineer at plant or factory.
- C. Materials, equipment or work which do not satisfactorily meet specifications may be condemned by Engineer by written notice to Contractor. Condemned materials, equipment or work shall be promptly removed and replaced.
- D. Defective materials, equipment or work may be rejected by Engineer at any time prior to final acceptance by Owner even though said defective items may have been previously overlooked.

1.17 RESIDENT ENGINEER AND/OR ENGINEER TECHNICIANS

- A. Resident engineer and/or engineer technicians may be appointed by Engineer or Owner to ensure that work is performed in accordance with plans and specifications.
- B. Resident engineer and/or engineer technicians shall have authority to notify Contractor in writing of work which is not being properly performed. Contractor shall be liable for any work determined by Engineer as not being properly performed.

- C. Resident engineer and/or engineer technicians shall have no authority to permit deviation from plans and specifications and Contractor shall be liable for any deviations made without written order from Engineer.

1.18 TESTS

- A. Tests shall be performed by Contractor upon materials and equipment specified, to determine if the materials and equipment meet requirements of specifications, conditions of operation and guarantees of Contractor.
- B. Equipment shall be subject to factory tests specified herein. Certified evidence of tests shall be furnished when requested by Engineer.
- C. Tests shall be made in accordance with standards of American Society of Mechanical Engineers, Institute of Electrical and Electronic Engineers, American Society for Testing Materials, and other recognized standards.

1.19 TIME

- A. Contractor shall commence work within time specified and shall complete work within time specified in contract.

1.20 DELAYS

- A. Delays caused by injunction or legal actions, damages by elements, or other causes beyond control of Contractor (of which Owner shall be sole judge) shall entitle Contractor to a reasonable extension of time within which to complete work.
- B. Application for extension of time shall be made to Owner by Contractor and shall state reasons for request for extension of time.
- C. No extension of time shall be valid unless made in writing by Owner.
- D. Normal weather conditions shall not form the basis of request for extension of time. Abnormal weather conditions shall form basis of request for extension of time only to the delay in excess of that resulting from normal weather conditions.

1.21 CHANGES

- A. Engineer shall have the right to make changes in location and quantities of work as may be deemed advisable with consent of Owner and without notice to sureties on Contractor's bond.

- B. No change shall be made under this paragraph which will increase or decrease total contract amount more than twenty percent (20%) of original contract price and no changes shall be made in plan of improvement that would necessitate additional or different construction processes and equipment.
- C. Amount due Contractor shall be adjusted for changes in following manner:
 - 1. Where unit prices have been bid, these unit prices shall be used to compute adjustment in compensation.
 - 2. Where no such unit prices have been bid, Engineer and Contractor shall negotiate a reasonable adjustment in Contractor's compensation. Limitations on compensation in 1.22.B. of "1.22 EXTRA WORK" shall apply to changes where compensation is negotiated.
 - 3. No changes shall be authorized unless they are shown on revised plans or in written instructions of Engineer.
 - 4. Authorized changes which require additional time to complete shall entitle Contractor to proportionate extension of time to completion which shall be determined by Engineer.

1.22 EXTRA WORK

- A. Required extra work not specified under this contract shall be done at an agreed price satisfactory to Contractor and Owner, or on basis of actual cost of work plus not more than ten percent (10%) for Contractor's overhead and profit. Actual cost shall include expense for equipment, materials, and labor and shall include no overhead items or profit. Where extra work is done by a subcontractor, with approval of Owner, there may be included in Contractor's actual cost, ten percent (10%) for subcontractor's profit.
- B. The term "extra work" as used herein shall not be construed to apply to changes described in "1.21 CHANGES".
- C. No compensation shall be allowed Contractor for extra work unless such work has been authorized in writing by Engineer and approved by Owner.
- D. Contractor shall submit a statement of costs to Engineer for approval when extra work is performed on an actual cost plus basis. After such a statement is approved, Engineer shall certify its correctness to Owner.
- E. No compensation shall be allowed contractor for office work related to generation of pricing and paperwork associated with processing of change orders. This is part of project management associated with Contract and additional compensation shall not be considered.

1.23 OWNERSHIP OF MATERIALS

- A. All materials and work covered by partial payments shall become sole property of Owner, but this provision shall not be construed as relieving Contractor from sole responsibility for all materials and work for which payments have been made, for restoration of damaged work, or as a waiver of rights of Owner to require fulfillment of all terms of contract.

1.24 OTHER CONTRACTS

- A. Owner reserves right to let other contracts in connection with this work. Contractor shall afford other contractors reasonable opportunity for introduction and storage of their materials and execution of their work, and shall properly connect and coordinate its work with theirs.
- B. When proper execution of Contractor's work depends upon work of another contractor, it shall inspect other work and report any defects to Engineer. Contractor's failure to inspect and report shall constitute an acceptance of other contractor's work except for defects which may develop in work after completion.
- C. To ensure proper execution of its subsequent work, Contractor shall measure work already in place and shall at once report to the Engineer any discrepancy between the executed work and drawings.

1.25 OWNER'S RIGHT TO DO WORK

- A. If Contractor neglects to prosecute work properly or fails to perform any provision of this contract, Owner, after three (3) days' written notice to Contractor, may, without prejudice to any other remedy it may have, make good such deficiencies and may deduct the cost thereof from the payment then or thereafter due the Contractor, provided, however, that Engineer shall approve both such action and amount charged to Contractor.

1.26 OWNER'S RIGHT TO TERMINATE CONTRACT

- A. Owner, upon certification of Engineer that there is sufficient cause to justify termination of contract, may, without prejudice to any other right or remedy, and after giving Contractor seven (7) days' notice may terminate employment of Contractor for any of following reasons:
 - 1. Contractor makes a general assignment for benefit of its creditors, or if adjudged a bankrupt.
 - 2. Receiver is appointed on account of Contractor's insolvency.

3. Contractor persistently or repeatedly fails or refuses, except when extension of time to complete is granted, to provide enough skilled workmen or proper materials.
4. Contractor fails to make prompt payment to subcontractors for material or labor.
5. Contractor persistently disregards laws and ordinances or instructions of Engineer.
6. Contractor violates a provision of contract.

- B. If Owner terminates employment of Contractor, it shall take possession of premises and all materials, tools and appliances thereon. It shall finish work by whatever method it may deem expedient. In such case Contractor shall not be entitled to receive any further payment until work is finished.
- C. If unpaid balance of contract price exceeds expense of finishing the work including compensation for additional managerial and administrative services, excess shall be paid to Contractor. If expense exceeds unpaid balance, Contractor shall pay difference to Owner. Expense incurred by Owner as herein provided, and damage incurred through Contractor's default, shall be certified by Engineer.

1.27 CONTRACTOR'S RIGHT TO STOP WORK OR TERMINATE CONTRACT

- A. If Engineer fails to issue any certificate for payment within fifteen (15) days after it is due, or if Owner fails to pay to Contractor within thirty (30) days of its maturity and presentation, any sum certified by Engineer, then Contractor may, upon seven (7) days simultaneous written notice to Owner and Engineer, stop work or terminate this contract. If Contractor elects to stop work by written notice, work shall be resumed promptly upon payment by Owner. If Contractor elects to terminate this contract by written notice it shall recover from Owner payment for all work executed to date of notice and any loss sustained upon any plant or materials plus a reasonable profit.

1.28 PAYMENTS WITHHELD

- A. Engineer may withhold or nullify the whole or a part of payment certificate, on account of subsequently discovered evidence, to such extent as may be necessary to protect Owner from loss on account of:
 1. Defective work not remedied.
 2. Claims filed or reasonable evidence indicating probable filing of claims.
 3. Failure of Contractor to make payments properly to subcontractors or for materials or labor.
 4. A reasonable doubt that contract can be completed for balance then unpaid.
 5. Damage to another contractor.
 6. Claims of Owner for liquidated damages.
- B. Payments shall be made for amounts withheld when above grounds are removed.

1.29 ACCEPTANCE AND FINAL PAYMENT

- A. When work has been satisfactorily completed, Engineer will certify Contractor's final estimate stating that work has been completed in accordance with terms and conditions thereof with qualifications, if any, as stated. Balance found to be due Contractor according to the terms of payment shall be paid by Owner as provided in contract, provided, however, that any state laws which designate manner of final payment shall be followed in lieu of manner of final payment outlined above. Prior to receipt of final payment, Contractor shall file with Owner a receipt in full from each manufacturer, subcontractor, and dealer for all equipment and materials used on the work and a complete release of all liens, including tax liens, which may have arisen from this contract and required statements from Contractor and all subcontractors of sales and use tax paid. In lieu thereof, Owner, at its option, may accept from Contractor a statement showing balance due on all accounts.
- B. Making and acceptance of final payment shall constitute a waiver of all claims by Owner, except those arising from unsettled liens, from faulty work or materials appearing after final payment or from requirements of the specifications, and of all claims by Contractor, except those previously made and still unsettled.

1.30 SUSPENSION OF WORK

- A. Owner may suspend the work, or any part thereof, at any time, by giving ten (10) days' written notice to Contractor. The work shall be resumed by Contractor within ten (10) days after date fixed in written notice from Owner to Contractor to do so.
- B. If work, or any part thereof, shall be suspended and if Owner does not give written notice to Contractor to resume work within one (1) year of date of suspension, Contractor may abandon suspended portion of work. Contractor will be entitled to estimates and payments for all work done on the portions so abandoned, if any.

1.31 CLEANING UP

- A. Contractor shall keep premises free from accumulations of waste material or rubbish caused by its employees or work. After completion of work it shall remove all its rubbish and all its tools, scaffolding and surplus materials from work site. It shall leave its work "broom clean" or its equivalent, unless more exactly specified. In case of dispute the Owner may remove rubbish and charge costs to Contractor as Engineer shall determine to be just.

1.32 HAZARDOUS MATERIALS

- A. The use of Asbestos Construction Building Materials (ACBM) is specifically prohibited. The Contractor, suppliers, and subcontractors shall warrant that all products used are asbestos free. In the event that a specified product contains asbestos, it shall be the responsibility of the Contractor to notify the Owner so that an appropriate substitution can be made in a timely manner so as not to delay the Project.
- B. The Contractor shall provide the Owner a certificate that warrants that no materials, products, items or equipment contains any asbestos upon completion of the work of this Contract. If asbestos is found to exist in any of the materials, products, items or equipment provided as part of this Contract, the Contractor shall be financially responsible for all costs resulting from removal in accordance with an Owner approved method and replacement of an asbestos free condition to finished drawings and specifications. The financial responsibility of the Contractor shall not terminate with the end of the surety maintenance bond period, but shall continue through the life of the facility.

1.33 IOWA HAZARDOUS CHEMICAL RISKS RIGHT-TO-KNOW LAW

- A. Owner's responsibility:
 - 1. Owner shall provide to the Contractor a list of known hazardous chemicals within the project site to which their employees may be exposed and suggestions for appropriate protective measures.
- B. Contractor's responsibility:
 - 1. Contractor shall inform his/her employees of the Iowa Hazardous Chemical Risks Right-to-Know Law.
 - 2. Contractor shall provide to the Owner a list of known hazardous chemicals that they anticipate will be used on site as well as all pertinent information relating to employee protection. Contractor's Material Safety Data Sheets (MSDS) shall be available to Owner upon request.

PART 2 – PRODUCTS

Not Applicable.

PART 3 – EXECUTION

Not Applicable.

END OF SECTION

SECTION 00810

SPECIAL CONDITIONS

REPLACEMENT UV DISINFECTION SYSTEM PROJECT MUSCATINE, IOWA

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- 1.14 AUDIT

PART 2 – PRODUCTS

NOT APPLICABLE

PART 3 – EXECUTION

NOT APPLICABLE

PART 1 – GENERAL

1.01 INTENT

- A. To supplement the provisions of the General Conditions by outlining special conditions applicable to project.

1.02 INTERRUPTIONS TO SERVICE

- A. It is necessary that the Water & Resource Recovery Facility remain in continuous operation during construction except as noted on plans or specified hereinafter. Select order and methods of construction which will not interfere with plant operation. Interrupt service only with approval of Owner and Engineer.
- B. Existing utilities shall remain in substantially continuous operation during construction, including water, sewer, power and gas lines.
- C. Do work which will interrupt utility service only at times approved by Engineer; hold interruptions of service to minimum.

1.03 LOCATION

- A. Work is located at the Water & Resource Recovery Facility, 1202 Musser Street, Muscatine, Iowa.
- B. Transportation facilities:
 - 1. U.S. Highway 61.
 - 2. Iowa Highway 92.

1.04 CONSTRUCTION LIMITS

- A. Confine movements of equipment and personnel, storage of materials, and all other construction operations to construction limits shown or noted on plans.

1.05 ORDER OF CONSTRUCTION

- A. Provide Engineer with proposed schedule of construction showing dates of starting and completing various portions of work.
- B. Coordinate work with Owner and Engineer to assure orderly and expeditious progress of work.
- C. Contractor shall establish schedule of working hours for construction, subject to approval of Owner and Engineer.
- D. Schedule construction to minimize service interruptions and use of road barricades and detours; clean up each portion of work as it is completed.

1.06 SERVICE FACILITIES

- A. City will provide access to services, including electricity, water, and sanitary facilities at site. Contractor will provide compressed air to meet own requirements.

1.07 STORAGE OF MATERIALS AND EQUIPMENT

- A. Limited storage space for materials and equipment will be available at project site. Refer to site plan for potential storage areas. Contractor responsible to provide additional storage if provided space is not sufficient.
- B. Storage areas subject to approval of Owner and Engineer.
- C. Store materials and equipment in manner which will preserve their quality and fitness.

1.08 CONSTRUCTION FACILITIES BY CONTRACTOR

- A. Provide telephone, attended at all times during the working day; provide liaison between telephone and construction personnel for expeditious handling of messages.
- B. Provide Owner and Engineer with at least 2 telephone numbers at which responsible representatives of Contractor can be reached evenings weekends or holidays.
- C. Provide suitable storage buildings necessary for proper storage of materials and equipment.
- D. Location of all construction facilities, including project construction plant and yard, subject to approval by Engineer; remove all construction facilities upon completion of work.
- E. City will provide access to sanitary facilities for construction personnel for duration of work.
- F. Provide fence, barricades, and/or watchmen to prevent access of unauthorized persons to site where work is in progress.

1.09 INSURANCE BY CONTRACTOR

- A. Provide and maintain insurance throughout construction period in the following minimum amounts:
 - 1. Worker's compensation and occupational disease insurance in accordance with the laws of the State of Iowa covering all employees who perform any obligations assumed under the contract.
 - 2. Public liability and property damage liability insurance covering all operations under the contract; limits of bodily injury or death not less than \$2,000,000 per occurrence, \$2,000,000 aggregate for occurrence specific to this project.
 - 3. Automobile liability insurance on all self-propelled vehicles used in connection with the contract, whether owned, non-owned, or hired; public liability limits of not less than \$2,000,000 for each occurrence.
- B. Worker Compensation: Claims under Workers' Compensation and Employer's liability, disability benefit, and other similar employee benefit acts including claims for damages because of bodily injury, occupational sickness or disease or death of the Contractor's employee.
 - 1. Limits: Bodily Injury by accident \$500,000 each accident
Bodily Injury by disease \$500,000 each employee
Bodily Injury by disease \$500,000 policy limit
 - 2. Commercial General Liability Insurance Combined Single Limits shown below covering Bodily Injury, Property Damage and Personal Injury:

- a. Limits: General Aggregate Limit \$5,000,000
 Products - Completed Operations
 Aggregate Limit \$2,000,000
 Personal and Advertising Injury Limit \$1,000,000
 Each Occurrence Limit \$1,000,000
 Fire Damage Limit \$50,000
 Medical Damage Limit \$5,000
- b. Automobile liability insurance on all self-propelled vehicles used in connection with the contract, whether owned, non-owned, or hired; public liability limits of not less than \$1,000,000 combined single limit.
- c. Insurance must also include the following:
 - 1) Coverage for all premises and operations
 - 2) Personal and Advertising Injury
 - 3) Operations by independent contractors
 - 4) Contractual liability coverage
 - 5) Coverage for property damage underground or damaged by explosion or collapse (XCU)
 - 6) Coverage for all owned, non-owned and hired and leased vehicles if not included with the automobile liability section.
- C. Owner and Engineer shall be listed as additional insured under liability insurance policies. Owner reserves right to approve insurance company.
- D. To the extent that such insurance is in force and collectible and to the extent permitted by law, City and Contractor each hereby releases and waives all right of recovery against the other or anyone claiming through or under each of them by way of subrogation or otherwise. The foregoing release and waiver shall apply to damage to contractor's equipment, tools, and other personal property as well as automobiles.
- E. The company and the insured expressly agree and state that the purchase of this policy of insurance by the insured does not waive any of the defenses of governmental immunity available to the insured under Iowa Code Section 670.4 as it now exists and as it may be amended from time to time.
- F. The company and the insured further agree that this policy of Insurance shall cover only those claims not subject to the defense of governmental immunity under Iowa Code Section 670.4 as it now exists and as it may be amended from time to time.
- G. Owner shall have right at any time to require public liability insurance and property damage liability insurance greater than required in above paragraphs. Additional premiums payable solely as result of such additional insurance shall be added to bid price.

- H. Furnish certificates of insurance to Engineer made in favor of Owner showing compliance with foregoing requirements.
- I. All certificates of insurance shall state that ten (10) days written notice will be given to Owner before policy is canceled or changed.

1.10 EMPLOYMENT PRACTICES

- A. Contractors, or subcontractors, shall not employ any person whose physical or mental condition is such that their employment will endanger the health and safety of themselves or others employed on the project.

1.11 LINE AND GRADE

- A. Engineer will establish benchmark to permit starting construction work. Contractor responsible for detailed surveys and staking for locations, elevations, and grades of construction.
- B. Check all detailed surveys and stake-outs; assume full responsibility for accuracy and correctness thereof.
- C. Contractor shall provide, without extra compensations, all labor and necessary tools to make all test holes and exploration, at any time, for purpose of determining location of existing structures beneath ground surface which might conflict with work of Contractor.
- D. Contractor shall preserve all monuments, reference points, stakes and benchmarks set by Engineer. In case of destruction by Contractor's negligence or carelessness, Contractor will be charged with resulting expense of replacement and responsibility for any mistakes or loss of time caused thereby.
- E. These conditions supersede conflicting provisions of Section 00700 - General Conditions.

1.12 INSPECTION BY STATE AND FEDERAL PERSONNEL

- A. Provide full access and cooperation for inspection of work by representatives of participating state and federal agencies.

1.13 HISTORICAL/ARCHAEOLOGICAL FINDS

- A. If, during course of construction, evidence of deposits of historical or archaeological interest is found, cease operations affecting find and notify Owner who shall notify Iowa Department of Natural Resources and Director and Historic Preservation Officer, State Historical Department, 600 East Grand Avenue, Des Moines, Iowa 50319. Nor further

disturbance of deposits shall ensue until notification by Owner that work may proceed. Owner will issue notice to proceed only after state official has surveyed find and made determination to Department of Natural Resources and Owner. Compensation to Contractor, if any, for lost time or changes in construction to avoid find, determined in accordance with changed conditions or change order provisions of specifications.

1.14 AUDIT

- A. Regional Administrator, the Comptroller General of the United States, or any authorized representative shall have access to any books, documents, papers and records of Contractor which pertain to the project for purpose of making audit, examination, excerpts and transcriptions thereof.

PART 2 – PRODUCTS

Not Applicable.

PART 3 – EXECUTION

Not Applicable.

END OF SECTION

SECTION 00850

PLANS LIST

REPLACEMENT UV DISINFECTION SYSTEM PROJECT MUSCATINE, IOWA

Work shall conform with latest revisions of the following drawings and Standard Drawings which constitute the "plans" and are an integral part of the Contract Documents:

<u>SHEET NO.</u>	<u>DRAWING NO.</u>	<u>TITLE</u>
GENERAL		
1	01-G-1	INDEX & TITLE SHEET
2	01-G-2	LEGENDS
SITE PLANS		
3	02-C-1	OVERALL EXISTING SITE PLAN
ELECTRICAL SITE PLANS		
4	02-E-1	PARTIAL ELECTRICAL SITE PLAN
<u>STRUCTURE 50 – UV DISINFECTION BUILDING</u>		
REMOVALS		
5	50-R-1	GRADE PLAN - REMOVALS
6	50-R-2	SECTION A - REMOVALS
7	50-R-3	SECTION B - REMOVALS
8	50-R-4	SECTIONS C & D - REMOVALS
9	50-R-5	REMOVAL PHOTOS
10	50-R-6	REMOVAL PHOTOS
STRUCTURAL/PROCESS		
11	50-SP-1	GRADE PLAN EL. 550.00 - IMPROVEMENTS
12	50-SP-2	SECTION A - IMPROVEMENTS
13	50-SP-3	SECTIONS - IMPROVEMENTS
14	50-SP-4	SECTIONS - IMPROVEMENTS
ELECTRICAL		
15	50-E-1	ELECTRICAL PLAN
<u>99 – STANDARD DETAILS</u>		
STRUCTURAL		
16	99-S-1	DETAILS

ELECTRICAL

17	99-E-1	EXISTING ONE-LINE DIAGRAM
18	99-E-2	ONE-LINE DIAGRAM AND SCHEDULES
19	99-E-3	ELECTRICAL DETAILS

END OF SECTION

DETAILED SPECIFICATIONS

SECTION 01010

GENERAL PROVISIONS

INDEX

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- 1.03 INTERPRETATION
- 1.04 WORK INCLUDED
- 1.05 STARTING AND COMPLETION DATES
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- 1.07 STANDARDS AND CODES
- 1.08 MATERIALS TESTS
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- 1.12 BARRICADES AND LIGHTS
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- 1.14 FINAL REVIEW AND ACCEPTANCE
- 1.15 WINTER CONSTRUCTION
- 1.16 MONTHLY CONSTRUCTION
PROGRESS MEETINGS

PART 2 – PRODUCTS

NOT APPLICABLE

PART 3 – EXECUTION

NOT APPLICABLE

PART 1 – GENERAL

1.01 FORM

- A. Detailed specifications are in outline form and include incomplete sentences. Omission of words or phrases is intentional. Supply omitted words or phrases by inference.

1.02 INTENT

- A. To set forth requirements of performance, type of construction desired and standards of materials and construction.
- B. To require Contractor to furnish and install materials and perform all work and services described in Contract Documents, unless otherwise specifically indicated.
- C. To require Contractor to perform complete work in spite of omission of specific reference to any minor component part.
- D. To provide for new materials and equipment unless otherwise indicated.

1.03 INTERPRETATION

- A. Report any errors or ambiguities in specifications to Engineer as soon as detected; Engineer will answer questions regarding and interpret intended meaning of specifications; his interpretation shall be accepted as final.

1.04 WORK INCLUDED

- A. Furnish labor, materials and equipment to construct Replacement UV Disinfection System Project as set out in Notice to Bidders.

1.05 STARTING AND COMPLETION DATES

- A. Commence work within 10 calendar days after date set forth in written Notice to Proceed. Complete within time set forth in Notice to Bidders.
- B. Provide adequate personnel and equipment to perform work within time or before completion date set out in Notice to Bidders.
- C. Order all material and equipment immediately after award of contract. Notify Owner and Engineer of scheduled delivery dates for all materials and equipment. Promptly act to accomplish one of the following if Owner and Engineer, in consultation with Contractor, determine delivery dates to be unsatisfactory:
 - 1. Substitute alternate materials and equipment with approval of Owner and Engineer.
 - 2. Expedite delivery of materials and equipment.
- D. Extensions of contract period will be given consideration upon written request of Contractor. Request must include clear, concise reasons for requesting extension and provide data and relevant information to support reasons for extension.
 - 1. Owner expects work to be complete and ready for final acceptance within completion time prior to completion date specified.
 - 2. No extension of contract period will be granted for problems caused by deliveries of materials or equipment.
 - 3. The phrase "complete and ready for final acceptance" is interpreted to mean all items of construction, surface restoration and clean-up have been accomplished to the satisfaction of the Owner and Engineer prior to the completion date for the contract. So-called "punch list" items are included in this definition and must be completed prior to the completion date for the contract.

1.06 PLANS AND SPECIFICATIONS

- A. Engineer will furnish 5 sets of plans and specifications after award of contract. Contractor shall compensate Engineer for printing costs for additional copies required.

- B. Subcontractors and suppliers will be furnished copies of plans and specifications only at request of Contractor.
- C. Provide one set of plans and specifications for each foreman or superintendent in charge of each crew on job.

1.07 STANDARDS AND CODES

- A. Do work in accordance with best present day construction practices.
- B. Unless specifically noted to contrary, conform with and test in accordance with applicable sections of latest revisions of codes and standards of following:
 1. Air Moving and Conditioning Association (AMCA).
 2. American Association of State Highway and Transportation Officials (AASHTO).
 3. American Concrete Institute (ACI).
 4. American Gas Association (AGA).
 5. American Gear Manufacturers Association (AGMA).
 6. American Institute of Steel Construction (AISC).
 7. American National Standards Institute (ANSI).
 8. American Plywood Association (APA).
 9. American Society of Civil Engineers (ASCE).
 10. American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE).
 11. American Society of Mechanical Engineers (ASME).
 12. American Society for Testing and Materials (ASTM).
 13. American Standards Association (ASA).
 14. American Water Works Association (AWWA).
 15. American Welding Society (AWS).
 16. Anti-friction Bearing Manufacturers Association (AFBMA).
 17. Architectural Woodwork Quality Standards (AWI).
 18. California Redwood Association (CRA).
 19. Factory Mutual Corporation (FM).
 20. Federal Specifications (FS).
 21. Hoist Manufacturer's Institute (HMI).
 22. Hydraulic Institute (HI).
 23. Industrial Fasteners institute (IFI).
 24. Industrial Risk Insurers (IRI).
 25. Institute of Electrical and Electronic Engineers (IEEE).
 26. Insulated Power Cable Engineers Association (IPCEA).
 27. Internal Combustion Engine Institute (ICEI).
 28. Iowa Department of Transportation (IDOT); latest edition of standard specifications and addenda.
 29. Iowa Occupational Safety and Health Act of 1972 (Chapter 88, Code of Iowa 2023 (IOSHA).
 30. Manual of Accident Prevention in Construction by Associated General Contractors of America, Inc. (AGC).

31. Mining Enforcement and Safety Administration (MESA).
32. National Association of Architectural Metal Manufacturers (NAAMM).
33. National Electrical Manufacturers Association (NEMA).
34. National Electrical Safety Code (NESC).
35. National Fire Protection Association, Inc. (NFPA).
36. National Fire Protection Associations' National Electrical Code (NEC).
37. National Fluid Power Association (NFPA).
38. National Institute for Occupational Safety and Health (NIOSH).
39. National Lumber Manufacturers Association (NLMA).
40. National Safety Council (NSC).
41. National Woodwork Manufacturers Association (NWMA).
42. Occupational Safety and Health Act of 1970 (Public Law 91-596) (OSHA).
43. Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA).
44. Society of Automotive Engineers (SAE).
45. Steel Door Institute (SDI).
46. Steel Structures Painting Council (SSPC).
47. Underwriters' Laboratories, Inc. (UL).
48. West Coast Lumber Inspection Bureau (WCLB).
49. Western Wood Products Association (WWPA).
50. Standards and codes of the State of Iowa and applicable local standards and codes of the City of Muscatine.
51. Other standards and codes which may be applicable to acceptable standards of the industry for equipment, materials and installation under the contracts.

1.08 MATERIALS TESTS

- A. Includes all materials tests or tests specified hereinafter.
- B. Employ approved testing laboratory to show that construction materials comply with specifications.
- C. Provide samples of materials required for laboratory tests and pay cost of all tests including transportation charges on samples.
- D. Incorporate no materials in work until laboratory tests have been furnished which show materials comply with specifications.
- E. All materials subject to testing, inspection and rejection at the site by Engineer.
- F. Pay all costs of retesting when test results indicate non-compliance with contract requirements.
- G. Laboratory tests specified herein include the following:
 1. Aluminum-alloy: certify that properties conform to specifications.
 2. Galvanizing: certify that zinc coatings conform to specifications for all equipment.

3. Cement: bin sample for entire requirement, ASTM C150.
4. Concrete aggregates: one sample of each, ASTM C33.
5. Two concrete compression cylinders from trial batch for each proposed mix, ASTM C39; test one at 7 days, one at 28 days; test cylinders during construction as defined in Section 03300 - Cast-in-Place Concrete.
6. Reinforcing steel: certify that steel conforms to ASTM A615 for grade specified.
7. Ductile iron pipe: certify that pipe conforms to ANSI/AWWA C151/A21.51.
8. Polyvinylchloride pipe: certify that pipe conforms to ASTM D1785, ASTM D1248 and AWWA C900.
9. Other pipe: certify that pipe conforms to applicable specifications.

H. Concrete Components:

1. Test or verify in writing make up of concrete in each concrete truck load delivered and poured at site.
2. Verify gallons of water per sack of cement.
3. Verify sacks of cement per cubic yard of concrete.
4. Verify admixtures used per ASTM designations listed in Section 03300 – Cast-in-Place Concrete.
5. Test for inches of slump per ASTM C143 and C172.
6. Test for percent air content per ASTM C231 or C173 and C172.

I. Reinforcing steel: furnish original and 1 copy of certified test report by manufacturer.

J. Welded wire fabric: furnish original and 1 copy of certified test report by manufacturer.

K. Provide sampling and testing of excavated materials to determine moisture-density relations of soils and perform moisture and density tests during construction as specified hereinafter.

L. See Section 01300 - Submittals, for other requirements.

1.09 FIELD TESTS

- A. Notify Engineer when installation is considered complete, in operating condition and ready for testing.
- B. Test piping and valves as specified hereinafter.
- C. Test all fill materials for density and moisture content as directed by Engineer, tests conducted by independent testing laboratory; moisture-density tests required for granular fill, structure backfill and trench backfill.
- D. Moisture-density test locations and depths subject to approval of Engineer.

- E. If performance guarantees or requirements are not met during tests, make necessary corrections, repairs or replacements; demonstrate to Engineer that work meets performance guarantees or requirements.
- F. See Section 03300 - Cast-in-Place Concrete, for testing requirements for placement of concrete.
- G. Contractor responsible to pay all costs for all field tests including transportation charge on samples and providing concrete and soil samples. Field tests include soil moisture and density tests and concrete compression, air, temperature and slump tests.

1.10 DEFECTIVE EQUIPMENT

- A. Owner retains right to operate equipment until defects are corrected and guarantees satisfied.
- B. Owner reserves right to operate rejected equipment or other work until replaced, without cost for depreciation, use or wear.
- C. Remove equipment or other work from operation for examination, adjustment or change at times approved by Engineer.

1.11 RESPONSIBILITY OF CONTRACTOR

- A. Protection of his work.
- B. Protection of all property from injury or loss resulting from his operations.
- C. Replace or repair objects sustaining damage, injury or loss to satisfaction of Owner and Engineer.
- D. Without limiting GENERAL REQUIREMENTS of Contract Documents, protect fences, sidewalks, street, pavements, alleys, pipe, conduit, utilities, trees, shrubs and structures.
- E. Cooperate with Owner, Engineer and representative of utilities in locating underground utility lines and structures. Incorrect, inaccurate or inadequate information concerning location of utilities or structures shall not relieve Contractor of responsibility for damage thereto caused by his operations.
- F. Keep cleanup current with construction operations.
- G. Comply with all federal, State of Iowa and Muscatine County, Iowa, laws and ordinances.

- H. Provide and maintain sanitary facilities for construction personnel for duration of work; remove upon completion of work.
- I. Notify Engineer 48 hours prior to expected time for operations requiring construction observation services.
- J. Cooperate with independent testing firm; furnish samples of materials, design mix, equipment, tools, storage and assistance as requested.
- K. Electrical permit from the City of Muscatine is required. All fees for the permit to be paid by the Contractor. Contractor responsible for obtaining permit.

1.12 BARRICADES AND LIGHTS

- A. Erect and maintain barricades and lights and/or provide watchmen for protection and warning of pedestrians; all barricades, lights and/or watchmen at expense of Contractor.
- B. Location and arrangement: conform to ordinances and laws; meet approval of Owner and Engineer.
- C. Install snow fence as specified.

1.13 PRECONSTRUCTION CONFERENCE

- A. Soon after award of contract and prior to the start of construction, attend a preconstruction conference with representative of the Owner to define the requirements for contract administration and construction operation.
- B. Contact the Engineer who will determine the time, date and place of the conference.

1.14 FINAL REVIEW AND ACCEPTANCE

- A. Notify Engineer when installation is considered to be complete and ready for final review.
- B. Owner will accept work and make final payment to Contractor.
 - 1. When Engineer has certified that he has reviewed the work of Contractor and stated that the work is complete and in substantial conformance with specifications.
 - 2. When Contractor has filed with Owner and Engineer documents called for in specifications.
 - 3. When all governmental agencies involved have indicated, in writing, that work is complete and acceptable.

1.15 WINTER CONSTRUCTION

- A. Portions of the project will be constructed during winter months. Contractor responsible to provide all protection and special construction procedures necessary for winter work.
- B. Cost of winter construction is incidental to construction. No additional compensation will be paid for winter construction related cost.

1.16 MONTHLY CONSTRUCTION PROGRESS MEETINGS

- A. Attend monthly construction progress meetings. Provide construction schedule update at each meeting.

PART 2 – PRODUCTS

Not Applicable.

PART 3 – EXECUTION

Not Applicable.

END OF SECTION

SECTION 01040

SPECIAL CONSTRUCTION

INDEX

PART 1 – GENERAL

- 1.01 DESCRIPTION
- 1.02 COOPERATION WITH OTHERS
- 1.03 DEMOLITION AND REMOVAL
- 1.04 WATER & RESOURCE RECOVERY
FACILITY OPERATION
- 1.05 FACILITY CLEANING & HEATING

PART 2 – PRODUCTS

NOT APPLICABLE

PART 3 – EXECUTION

NOT APPLICABLE

PART 1 – GENERAL

1.01 DESCRIPTION

- A. Procedures outlined below are not intended to fully cover all special procedures or emergencies which may arise during construction but are offered as an aid to Contractor in planning work; Contractor will cooperate with Owner and Engineer to minimize inconvenience, construction delays and interruptions to continuous operation of existing wastewater treatment facility, sewer lines, and other existing utilities.
- B. Determine location of underground utilities and piping before starting work; locations of underground appurtenances shown are approximate and not guaranteed by Owner or Engineer.
- C. Remove and replace all signs which interfere with construction operations; replace damaged signs at no cost to Owner.
- D. Arrange with operating utilities for relocation or temporary removal of utilities in conflict with construction and for services needed during construction.
- E. Submit complete schedule after award of contract for planning, controlling and completing construction of project. Include list of promised delivery dates for major equipment items. Schedule project on basis of promised delivery dates for major equipment items.
 - 1. Contractor will be expected to provide adequate personnel and equipment to perform work within specified time of construction.
 - 2. If delays in delivery of major equipment become apparent, notify Owner and Engineer promptly; take action to accomplish one of the following:
 - a. Substitute alternate equipment with approval of Owner and Engineer.

- b. Expedite delivery of equipment.
- 3. Extensions of contract period will be given consideration upon written request of Contractor; request must include valid supporting data and bona fide reasons for requesting extension; inclement weather is not justification for extending contract period; Owner expects work to be complete and ready for final acceptance within completion time specified.

1.02 COOPERATION WITH OTHERS

- A. Cooperate with state and federal regulatory agencies in matters under their jurisdiction over construction operations.
- B. Cooperate with local governmental agencies; secure necessary building permits and arrange for inspections at proper times. Building permit may be required by City. Contractor responsible for obtaining permit and paying associated fees.
- C. Advise all utilities prior to excavating; arrange for field locates of utilities by utility representatives.

1.03 DEMOLITION AND REMOVAL

- A. Items of demolition and removal shown on plans or specified elsewhere are set out to assist Contractor in determining scope of work; items shown may not be complete; demolish or remove items shown on plans, described in specifications or as may be necessary for expediting work.
- B. Remove items in workmanlike manner; cut reinforcing steel flush with concrete; blasting not permitted without written approval from Owner and Engineer.
- C. Remove waste, rubble and debris from site; dispose of in accordance with all State and Federal regulations.

1.04 WATER & RESOURCE RECOVERY FACILITY OPERATION

- A. Prepare detailed construction procedure schedule after award of contract.
- B. Work with Owner and Engineer to establish workable construction schedule after award of contract.
- C. Treatment plant facilities must remain in continuous operation during construction except as required to make connections to new facilities. The existing treatment units must remain in service during the construction of the new treatment facilities.

- D. The construction sequence shown below is to aid the Contractor in planning the work. The sequence of events is a suggestion and is not intended to direct the Contractor's means, methods, and techniques or approach to completing the work. Other construction sequences could be acceptable. Also, the condition of the existing piping and valving may be such that it cannot be used as described below and additional temporary piping and pumping may be required. Temporary piping and pumping is incidental to construction. Phase construction as needed to keep the existing plant in service with minimal interruption.
1. Begin demolition work in UV Disinfection Building after November 15, 2023. During period from November 15 to March 1st, UV Disinfection System does not need to be operational. Owner will operate gates to bypass flows during construction period.
 2. Demolish existing UV Disinfection System and associated other items as shown on plans and described herein.
 3. Complete construction of improvements required for operation of new UV Disinfection System prior to interim completion date.
 4. Complete building work, grating, and other miscellaneous work that is not necessary for operation of UV Disinfection System. Complete cleanup of site disturbed by construction. This work does not need to be completed by interim completion date.
- E. Schedule required interruptions to plant utilities or facilities with Owner and Engineer.
- F. Provide Owner 1 week notice of any interruption of operation; coordinate with Public Works Director.
- G. Perform work continuously during critical connections and changeovers, and as required to prevent interruption of Owner's operations.
- H. Continuous operation of Owner's facilities is of critical importance. Schedule and conduct activities to enable existing facilities to operate continuously, unless otherwise specified.
- I. When necessary, plan, design, and provide various temporary services, utilities, connections, temporary piping, heating, access, and similar items to maintain continuous operation of Owner's facility.
- J. Do not close lines, open or close valves, or take other action which would affect the operation of existing systems, except as specifically required by the contract documents and after authorization by Owner and Engineer. Such authorization will be considered within 48 hours after receipt of Contractor's written request.

1.05 FACILITY CLEANING & HEATING

- A. Contractor responsible for draining and cleaning of existing UV disinfection channel in exterior and interior of building as needed for construction.
- B. Contractor responsible for providing supplemental heat and insulation to protect interior of UV Disinfection Building from freezing temperatures during construction. Building interior temperature should not drop below 50°F during construction.

PART 2 – PRODUCTS

Not Applicable.

PART 3 – EXECUTION

Not Applicable.

END OF SECTION

SECTION 01150

MEASUREMENT AND PAYMENT

INDEX

PART 1 – GENERAL

- 1.01 SCOPE
- 1.02 QUANTITY VARIATIONS
- 1.03 FAILURE TO SUBMIT MANUALS,
PARTS LISTS, SPARE PARTS AND
TOOLS
- 1.04 SCHEDULE OF VALUES

PART 2 – PRODUCTS

NOT APPLICABLE

PART 3 – EXECUTION

NOT APPLICABLE

PART 1 – GENERAL

1.01 SCOPE

- A. No separate payment will be made for work covered in the specifications except as set forth below. Include all other work in lump sum bid for constructing Replacement UV Disinfection System Project.
- B. If items, not included in lump sum bid for constructing Replacement UV Disinfection System Project are required during construction, contract price shall be adjusted on basis of unit price negotiated between Engineer and Contractor and approved by Owner.
- C. See GENERAL CONDITIONS for additional requirements.

1.02 QUANTITY VARIATIONS

- A. No separate payment will be made for changes in quantities of items included in lump sum bid for construction of Replacement UV Disinfection System Project except as set forth below.
- B. If quantities of items are changed from those upon which bid is based, contract price shall be adjusted on basis of unit price negotiated between Engineer and Contractor and approved by Owner. Soil quantities shall not be adjusted unless design contours are changed by Engineer.

1.03 FAILURE TO SUBMIT MANUALS, PARTS LISTS, SPARE PARTS AND TOOLS

- A. Failure to submit manuals, parts lists, spare parts and tools as defined in Section 01300 - Submittals within 40 days after return of shop drawings to Contractor will result in payment retention of \$2,000 for each equipment item up to an aggregate sum of \$50,000; retained payments will be relinquished after appropriate manuals, parts lists and tools are received and reviewed by Engineer.

1.04 SCHEDULE OF VALUES

- A. Submit to Engineer Schedule of Values allocated to various portions of work as required by General Conditions.
- B. Upon request of Engineer, support values with data which will substantiate their correctness.
- C. Schedule of Values shall be used only as basis for Contractor's application for progress payment.
- D. Type schedule on 8-1/2" x 11" white paper; Contractor's standard forms and automated printout will be considered for approval by Engineer upon Contractor's request. Identify schedule with:
 - 1. Title of project and location.
 - 2. Engineer.
 - 3. Name and address of Contractor.
 - 4. Contract designation.
 - 5. Date of submission.
- E. Schedule shall list installed value of component parts of work in sufficient detail to serve as basis for computing values for progress payments during construction.
- F. Follow table of contents of specifications as format for listing component items.
 - 1. Identify each line item with number and title of respective specification section.
- G. For each specification division, list subvalues of major materials, equipment or operation under division.
- H. Provide separate listing of items of General Requirements, such as bonds, insurance premiums, job mobilization, field supervision and layout, construction facilities and temporary controls, contingency allowance, construction schedule, O&M data, record drawings, and submittals.

1. Mobilization payable according to the following schedule:
 - a. Partial Payment
 - 1) For projects exceeding \$500,000, a partial payment of mobilization will be made after receipt of a signed contract. This partial payment will be either 10% of the contract price for this item or 1% of the original project sum, whichever is less.
 - 2) When 5% of the original project sum is earned, either 25% of the contract price for this item or 2.5% of the original project sum, whichever is less, will be paid.
 - 3) When 10% of the original project sum is earned, either 50% of the contract price for this item or 5% of the original project sum, whichever is less, will be paid.
 - 4) When 25% of the original project sum is earned, either 100% of the contract price for this item or 10% of the original project sum, whichever is less, will be paid.
 - b. Full Payment
 - 1) Upon completion of all work on the project required by the contract, full payment will be made for this contract item, including any amount not paid as a partial payment.
- I. For various portions of work:
 1. Each item shall include directly proportional amount of Contractor's overhead and profit.
 2. For items on which progress payments will be requested for stored materials, break down value into:
 - a. Cost of materials, delivered and unloaded, with taxes paid.
 - b. Total installed value including Contractor's overhead and profit.
- J. Sum of values listed in schedule shall equal total contract sum.

PART 2 – PRODUCTS

Not Applicable.

PART 3 – EXECUTION

Not Applicable.

END OF SECTION

SECTION 01300

SUBMITTALS

INDEX

PART 1 – GENERAL

- 1.01 INFORMATION FOR ENGINEER
- 1.02 SHOP DRAWINGS
- 1.03 SUBMITTAL REQUIREMENTS
- 1.04 INSTRUCTION MANUALS, PARTS
LISTS AND TOOLS

PART 2 – PRODUCTS

NOT APPLICABLE

PART 3 – EXECUTION

NOT APPLICABLE

PART 1 – GENERAL

1.01 INFORMATION FOR ENGINEER

- A. After award of contract submit following information and drawings for Engineer's review. Total number of reviewed copies required for distribution: 5 plus copies required by Contractor. Electronic copies and transmittals may be acceptable if approved by the Owner and Engineer.
 - 1. Certified materials tests as described in Section 01010 - General Provisions.
 - 2. Certified outline, general arrangement, assembly, installation, foundation arrangement and anchor bolt detail drawings for all major equipment listed in proposal and for other equipment where specified.
 - 3. Manufacturer's specifications and catalog data for all items of equipment including treatment equipment, electrical controls, heating and ventilating equipment, plumbing fixtures, valves, pipe, fittings, castings and appurtenances and other special items.
 - 4. Certified performance data and operating characteristics for pumps prior to delivery to job site from shop tests performed on pumps furnished in accordance with Hydraulic Institute.
 - 5. Shop drawings showing reinforcing steel details, structural steel and aluminum, beams, roof systems, steel joists, grating, supports prefabricated piping, doors and windows, and other items.
 - 6. Schematic diagrams of all control circuits.
 - 7. Detailed wiring diagrams.
 - 8. Such other information as Engineer may request and information as specified with equipment.
- B. Within 15 days after award of contract, provide construction schedule, showing dates of starting and completing various portions of work and dollar value of each portion of work.

- C. Within 30 days after initiation of construction, provide written schedules of estimated monthly payments for contractor and subcontractors; revise schedules whenever variations exceed 10%.
- D. Provide two copies of following information:
 - 1. Contract price breakdown of lump sum bid for use in preparation of periodic payment estimates.
 - 2. Purchase orders and subcontracts without prices.
 - 3. Shipping papers for all materials.
 - 4. All materials test reports.
 - 5. Concrete mix designs; submit 8 days before proposed mix is to be used.

1.02 SHOP DRAWINGS

- A. Intent of Engineer's review: to assist Contractor in interpreting plans and specifications.
- B. Contractor's responsibility: to check drawings prior to submission for coordination and conformance with contract; do not submit without checking.
- C. Equipment checking is only for general conformance with design concept of project and general compliance with information given in contract documents. Any action shown is subject to requirements of plans and specifications. Contractor is responsible for dimensions which must be confirmed and correlated at job site; fabrication processes and techniques of construction; coordination of work with that of all other trades; and satisfactory performance of work.
- D. Prior to submission of shop drawings and catalog data to Engineer: affix Contractor's stamp with signature of responsible person to show that material submitted has been checked and approved by Contractor. Shop drawings submitted without appropriate stamp and signature will be returned unreviewed.
- E. Do not install or otherwise incorporate any equipment on project until shop drawings, if required, have been reviewed and so designated by Engineer.
- F. Contractor's responsibility for errors and omissions in submittals is not relieved by Engineer's review of submittals.
- G. Whenever items of materials or equipment are specified by a manufacturer's name and type and "or equal" is not listed, Contractor shall provide specified equipment without substitution, unless prior approval of Engineer is obtained for any substitution.

- H. Contractor shall abide by Engineer's decision when proposed substitute of material or equipment are deemed to be unacceptable and in such an event Contractor shall furnish items of equipment or materials specified.
- I. Engineer reserves right to consider such factors as overall project arrangement, overall project cost, and similar factors in determining whether proposed substitutions will be acceptable.
- J. Upon engineer's determination that a drawing must be returned as "Revise and Resubmit" or "Rejected", Engineer's review of the shop drawing will cease and no additional marking will be made. Resubmittals will be reviewed as new drawing of equipment or materials. As such, Engineer may provide comments on items which were included with initial submittal even if those items did not change from initial submittal to resubmittal.
- K. Engineer's responsibility shall be to review one set of shop drawing submittals for each product. If the first submittal is incomplete or does not comply with the drawings and/or specifications, the Contractor shall be responsible to bear the cost to the Owner, for the Engineer to recheck and handle the additional shop drawing submittals.
- L. No guarantee of review time is made by Engineer. Review time is dependent on number and complexity of submittals received. When multiple drawings are submitted, provide priority for order of review to engineer. Failure of contractor to allow time to review of submittals by Engineer does not constitute basis for compensation due to delays.

1.03 SUBMITTAL REQUIREMENTS

- A. Binding - submittals 1/4" thickness or less may be securely stapled in the upper left hand corner. Submittals thicker than 1/4" shall be bound in commercial grade cardboard or plastic folders, wire or plastic binders, or 3-ring binders as appropriate. Individual papers bound with paper clips are not acceptable.
- B. Cover sheet - each submittal shall have a cover sheet providing the following information. The Contractor's transmittal letter is not an acceptable cover sheet.
 - 1. Project name.
 - 2. Supplier's name, address, and telephone number.
 - 3. Engineer's name and location.
 - 4. General Contractor's name and location.
 - 5. Specification section applicable to submittal contents.
 - 6. A 4" square blank space for Engineer's review stamp.
- C. Where more than one model is shown on a manufacturer's sheet, clearly indicate exactly which item and which data is relevant to the work.

- D. Where the manufacturer lists multiple part numbers or options on a single data sheet, the part number and options to be used shall be clearly set apart from other part numbers shown on that sheet.
- E. Failure to comply with the above shall be reason to resubmit shop drawing.

1.04 INSTRUCTION MANUALS, PARTS LISTS AND TOOLS

- A. Furnish four (4) complete sets of manufacturer's instructions for installation, operation and maintenance of equipment furnished; include assembly drawings and parts lists with exploded views of equipment parts and identification symbols or part numbers for all replaceable parts and assemblies, recommended spare parts list, lubricant guide, preventative maintenance and troubleshooting procedures; submit manuals to Engineer within 30 days after return of shop drawings by Engineer to Contractor; manuals subject to Engineer's review.
- B. O&M manuals shall be marked with arrows, underlining, or highlighting to indicate the actual equipment model numbers and specific part numbers installed on this project.
- C. Provide electronic copy of complete wiring diagrams and ladder logic including any equipment that was assembled or wired off site as approved by Owner and Engineer.
- D. Furnish special tools, jigs and fixtures necessary for installation, operation, lubrication, repair, preventative maintenance, or troubleshooting of equipment.

PART 2 – PRODUCTS

Not Applicable.

PART 3 – EXECUTION

Not Applicable.

END OF SECTION

SECTION 01310

CONSTRUCTION PROGRESS SCHEDULE

INDEX

PART 1 – GENERAL

- 1.01 DESCRIPTION
- 1.02 FORM OF SCHEDULE
- 1.03 CONTENT OF SCHEDULE
- 1.04 SCHEDULE REVISIONS
- 1.05 DELAYS AND RECOVERY
- 1.06 SUBMITTAL REQUIREMENTS

PART 2 – PRODUCTS

NOT APPLICABLE

PART 3 – EXECUTION

NOT APPLICABLE

PART 1 – GENERAL

1.01 DESCRIPTION

- A. Prepare and submit to Engineer for review, estimated construction progress schedule.
- B. No work shall be performed between 6:00 p.m. and 7:00 a.m., nor on Saturdays, Sundays or legal holidays without permission of Owner. However, emergency work may be performed without prior permission. Notify City as soon as possible for emergency work.
- C. Night work may be established by Contractor as regular procedure with permission of Owner. Such permission, however, may be revoked at any time by Owner if Contractor fails to maintain adequate equipment and supervision for proper prosecution and control of work at night.

1.02 FORM OF SCHEDULE

- A. Prepare schedule in form of horizontal bar chart.
 - 1. Provide separate horizontal bar for each trade, activity or operation.
 - 2. Horizontal time scale: identify first work day of each week.
 - 3. Scale and spacings to allow space for notations and future revisions.
- B. Format of listings: chronological order of start of each item of work.
- C. Identification of listings: by major specification section numbers.

1.03 CONTENT OF SCHEDULE

- A. Construction Progress Schedule:
 - 1. Show complete sequence of construction by activity.
 - 2. Coordinate progress schedule with submittal schedule.
 - 3. Show dates for beginning and completion of each major element of construction and installation dates for major items of equipment. Elements shall include, but not be limited to:
 - a. Material and equipment order, manufacturer, delivery, installation, and checkout, including allowance items.
 - b. Performance tests and supervisory services activity.
 - c. Piping, ductwork and wiring installation.
 - d. Concrete pour sequence.
 - e. Structural steel erection.
 - f. Electrical work activity.
 - g. Heating, ventilating and air conditioning work activity.
 - h. Plumbing work activity.
 - i. Subcontractor's items of work
 - j. Final cleanup.
 - k. Allowance for inclement weather.
 - l. Demolition
 - m. Miscellaneous concrete placement.
 - 4. Show projected percentages of completion for each item as of first day of each month.

1.04 SCHEDULE REVISIONS

- A. Revise construction progress schedule every 30 days to reflect changes in progress of work.
- B. Indicate progress of each activity at date of schedule revision.
- C. Show changes occurring since previous revised submittal.
 - 1. Major changes in scope.
 - 2. Activities modified since previous submittal.
 - 3. Revised projections of progress and completion.
 - 4. Other identifiable changes.
- D. Provide narrative report defining:
 - 1. Problem areas, anticipated delays, and impact on schedule.
 - 2. Corrective action recommended and its effect.
- E. Submit to Engineer.

1.05 DELAYS AND RECOVERY

- A. If, at any time during project, Contractor fails to complete activity by its latest scheduled completion date, Contractor shall, within 3 working days, submit to Engineer written statements as to how and when work force will be reorganized to return contract to current construction schedule.
- B. Whenever it becomes apparent from progress evaluation and updated schedule data that milestone completion dates or contract completion dates will not be met, Contractor shall take some or all of the following actions.
 - 1. Increase construction staffing in such quantities and crafts as shall substantially eliminate backlog of work.
 - 2. Increase number of working hours per shift, shifts per work day, work days per week, amount of construction equipment or combination of foregoing sufficient to substantially eliminate backlog of work.
 - 3. Reschedule work items to achieve concurrency of accomplishment.
- C. Addition of equipment or construction forces, increasing working hours or any other method, manner or procedure to return to current construction progress schedule not considered justification for amending contract documents or treated as acceleration.

1.06 SUBMITTAL REQUIREMENTS

- A. For initial submittal of construction schedule and subsequent revisions thereof, furnish 4 copies of schedule to Engineer.
- B. Failure to submit construction schedule on timely basis as previously noted shall be considered cause for withholding progress payments otherwise due under contract.

PART 2 – PRODUCTS

Not Applicable.

PART 3 – EXECUTION

Not Applicable.

END OF SECTION

SECTION 01410

TESTING LABORATORY SERVICES

INDEX

PART 1 – GENERAL

- 1.01 REQUIREMENTS INCLUDED
- 1.02 QUALIFICATION OF LABORATORY
- 1.03 LABORATORY DUTIES
- 1.04 LIMITATIONS OF AUTHORITY OF TESTING LABORATORY
- 1.05 CONTRACTOR RESPONSIBILITIES

PART 2 – PRODUCTS

NOT APPLICABLE

PART 3 – EXECUTION

NOT APPLICABLE

PART 1 – GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Employ and pay for services of testing laboratory approved by Owner to perform specified services and testing as described in specifications.
 - 1. Employment of laboratory shall, in no way, relieve Contractor's obligations to perform work of contract.
- B. Related requirements in other parts of Project Manual:
 - 1. Inspections and testing required by laws, ordinances, rules, regulations, orders or approvals of public authorities: Conditions of Contract.

1.02 QUALIFICATION OF LABORATORY

- A. Meet basic requirements of ASTM E329-77 - Standard Recommended Practice for Inspection and Testing Agencies for Concrete, Steel, and Bituminous Materials as Used in Construction.
- B. Authorized to operate in state in which project located.
- C. Testing equipment:
 - 1. Calibrated at reasonable intervals by devices of accuracy traceable to either:
 - a. National Bureau of Standards.
 - b. Accepted values of natural physical constants.

1.03 LABORATORY DUTIES

- A. Cooperate with Engineer and Contractor; provide qualified personnel to perform work after due notice to proceed.
- B. Perform specified inspections, secure samples, and test materials.
 - 1. Comply with specified standards.
 - 2. Ascertain compliance of materials with contract documents.
- C. Promptly notify Engineer and Contractor of observed irregularities or deficiencies of work, equipment or material.
- D. Promptly submit written report of each test and inspection; one copy each to Engineer, Owner, material supplier, and Contractor, and one copy to record documents file. Each report shall include:
 - 1. Date issued.
 - 2. Project title and number.
 - 3. Testing laboratory name, address, and telephone number.
 - 4. Name and signature of laboratory inspector.
 - 5. Date and time of sampling or inspection.
 - 6. Record of temperature and weather conditions if test performed in field.
 - 7. Date of test.
 - 8. Identification of product and specification section.
 - 9. Location of sample or test in project.
 - 10. Type of inspection or test.
 - 11. Results of tests and compliance with contract documents.
 - 12. Interpretation of test results, when requested by Engineer.
- E. Perform additional tests as required by Engineer or Contractor.

1.04 LIMITATIONS OF AUTHORITY OF TESTING LABORATORY

- A. Laboratory not authorized to:
 - 1. Release, revoke, alter or enlarge on requirements of contract documents.
 - 2. Approve or accept any portion of work.
 - 3. Perform duties of Contractor.

1.05 CONTRACTOR RESPONSIBILITIES

- A. Cooperate with laboratory personnel and provide access to work.
- B. Provide to laboratory preliminary design mix proposed to be used for concrete and other material mixes which require control by testing laboratory.

- C. Furnish copies of product test reports.
- D. Furnish incidental labor and facilities.
 - 1. Provide access to work to be tested.
 - 2. Obtain and handle samples at project site or source of product to be tested.
 - 3. Facilitate inspections and tests.
 - 4. Store and cure test samples.
- E. Notify laboratory and Engineer sufficiently in advance of operations to allow for laboratory assignment of personnel and scheduling of tests.
- F. Make arrangements with laboratory and pay for additional samples and tests required for Contractor's convenience.
- G. Employ and pay for services of testing laboratory to perform additional inspections, sampling, and testing required when initial tests indicate work does not comply with contract documents.

PART 2 – PRODUCTS

Not Applicable.

PART 3 – EXECUTION

Not Applicable.

END OF SECTION

SECTION 01500

TEMPORARY CONSTRUCTION FACILITIES AND UTILITIES

INDEX

PART 1 – GENERAL

- 1.01 DESCRIPTION
- 1.02 REQUIREMENTS OF REGULATORY AGENCIES

PART 2 – PRODUCTS

- 2.01 TEMPORARY ELECTRICITY AND LIGHTING
- 2.02 TEMPORARY HEAT
- 2.03 TEMPORARY TELEPHONE SERVICE
- 2.04 WATER FOR CONSTRUCTION AND TESTING

- 2.05 SANITARY FACILITIES
- 2.06 TEMPORARY FIRE PROTECTION
- 2.07 TEMPORARY SITE WORK
- 2.08 DAMAGE TO EXISTING PROPERTY
- 2.09 SECURITY
- 2.10 TEMPORARY PARKING
- 2.11 TEMPORARY FENCING
- 2.12 FIELD OFFICES AND BUILDINGS

PART 3 – EXECUTION

- 3.01 GENERAL
- 3.02 REMOVAL

PART 1 – GENERAL

- 1.01 DESCRIPTION

- A. Provide and maintain temporary facilities and utilities required for construction; remove on completion of work.

- 1.02 REQUIREMENTS OF REGULATORY AGENCIES

- A. National Fire Protection Association (NFPA):
 - 1. National Electric Code (NEC), NFPA No. 70, and Iowa amendments.
- B. Comply with federal, state, and local codes and regulations, and with utility company requirements.

PART 2 – PRODUCTS

- 2.01 TEMPORARY ELECTRICITY AND LIGHTING

- A. General:
 - 1. Permanent electrical system and building wiring is available at site for Contractor use. Contractor responsible for providing any additional or supplementary electricity and lighting if needs are beyond what is available or if system is disabled during construction operations. Contractor provide lighting sufficient to enable

Contractor to complete work and enable Engineer to check work as it is being performed. Illumination shall meet or exceed state code requirements.

B. Responsibilities:

1. Provide, maintain, and remove temporary electric service facilities as needed.
2. Facilities exposed to weather shall be weatherproof type and electrical equipment enclosure locked to prevent access by unauthorized personnel.
3. Patch affected surfaces and structures after temporary services removed.
4. Provide lamps, wiring, switches, sockets, and similar equipment required for temporary lighting and small power tools.

2.02 TEMPORARY HEAT

A. General:

1. Cold weather protection: Heating required during construction operations. Existing building heat may not be sufficient to warm building when UV channel is empty.
2. Temporary heat: supplemental heating may be needed until protection at doorways, windows, and other openings will provide reasonable heat retentions.
3. See requirements of specification for minimum temperature to be maintained for various trades and work. Except as otherwise called for, temperature in all parts of buildings shall be kept above 50°F. Maximum temperature in building shall be 75°F. during heating season.
4. Heat shall be warm air heat from oil or gas-fired portable unit heaters suitably vented to outside as required for protection of health and property.
5. Open salamander type heaters not permitted.

B. Responsibilities:

1. Provide temporary heat. Make arrangements and pay fuel costs, supervise, and maintain heating units.
2. Provide adequate heat to all parts of building.
3. Pay for repairing or replacing any part of building or materials damaged because of lack of heat.
4. Provide temporary throwaway filters if, at any time, permanent system used for temporary ventilation.

2.03 TEMPORARY TELEPHONE SERVICE

A. Provide telephone at which Contractor can be reached by Owner or Engineer at all times during the working day.

1. Provide Owner and Engineer with at least 2 telephone numbers where Contractor's representative can be reached on weekends, evenings, and holidays in the event of an emergency.

2.04 WATER FOR CONSTRUCTION AND TESTING

- A. Water is currently available at project site in reasonable quantities. Make arrangements to obtain suitable water, if necessary.
- B. Use treatment facility effluent for testing structures. Effluent provided at no charge. Contractor to provide pumping.

2.05 SANITARY FACILITIES

- A. Owner will provide access to sanitary toilet facilities conforming to state and local health and sanitation requirements for use by Contractor's employees.
- B. Maintain in sanitary condition and properly supply with toilet paper.

2.06 TEMPORARY FIRE PROTECTION

- A. Provide and maintain in working order, minimum of 1 fire extinguisher on each floor of each building, and such other fire protective equipment and devices as would be reasonably effective in extinguishing fires during early stages by personnel at project site.
- B. Comply with NFPA, federal, state, local and other applicable requirements.

2.07 TEMPORARY SITE WORK

- A. Provide and maintain temporary roadways necessary to carry out construction operations in clean, dust free, snow free, ice free, driveable condition.
- B. Provide and maintain temporary site drainage and stormwater controls.
- C. Exercise caution to minimize increase in suspended solids and turbidity in surface waters within and adjacent to construction area. Do not deposit spoils in surface waters. Control and minimize sediment runoff and excavation erosion to surface waters.

2.08 DAMAGE TO EXISTING PROPERTY

- A. Be responsible for replacing or repairing damage to existing buildings, sidewalks, roads, parking lot surfacing, and other existing assets.
- B. Contractor shall have option of having Owner contract for such work and have cost deducted from contract amount.

2.09 SECURITY

- A. Security not provided by Owner.
- B. Contractor shall be held responsible for loss or injury to persons or property where his work is involved and shall provide security and take precautionary measures to protect Contractor's and Owner's interests.

2.10 TEMPORARY PARKING

- A. Parking on construction site in designated areas may be provided as approved by Engineer and Owner.
- B. Make arrangements for additional parking area for employee's vehicles if required.
- C. Costs involved in obtaining this parking area shall be borne by Contractor.

2.11 TEMPORARY FENCING

- A. Provide temporary fencing sufficient to prevent trespass by Contractor's employees and suppliers onto private property and by public onto construction site.
- B. Materials shall be sufficiently durable to be effective for duration of construction period.

2.12 FIELD OFFICES AND BUILDINGS

- A. If required by Contractor, erect where designated by Engineer and maintain in good condition, temporary field office and tool storage building(s) for Contractor's use.
 - 1. Tool storage building(s) shall be of ample size to provide space for tools and equipment. Building(s) shall be neat and well-constructed, surfaced with plywood, drop siding, masonite or other similar material, well painted and void of advertisements.

PART 3 – EXECUTION

3.01 GENERAL

- A. Comply with applicable requirements specified herein.
- B. Maintain and operate systems to ensure continuous service.
- C. Modify and extend systems as work progress requires.

3.02 REMOVAL

- A. Completely remove temporary materials, equipment, signs, and structures when no longer required.
- B. In unfinished areas, clean and repair damage caused by temporary installations or use of temporary facilities, restore drainage, and evenly grade, seed or plant as necessary to provide appearance equal to or better than original.
- C. In finished areas, restore existing or permanent facilities used for temporary services to specified, or to original, condition.

END OF SECTION

SECTION 01600

MATERIAL AND EQUIPMENT

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PART 1 – GENERAL

1.01 DESCRIPTION

1.02 SUBSTITUTIONS

1.03 REUSE OF EXISTING MATERIAL

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1.10 GUARDS

PART 2 – PRODUCTS

NOT APPLICABLE

PART 3 – EXECUTION

NOT APPLICABLE

PART 1 – GENERAL

1.01 DESCRIPTION

A. Material and equipment incorporated into work:

1. Conform to applicable specifications and standards.
2. Comply with size, make, type, and quality specified or as specifically approved by shop drawings, Engineer, or other submittal.

B. Do not use material or equipment for any purpose other than for which it is designed or specified.

1.02 SUBSTITUTIONS

A. Substitutions:

1. Contractor's requests for changes in equipment and materials from those required by Contract Documents are considered "requests for substitutions" and subject to Contractor's representations and review provisions of Contract Documents when one of the following conditions are satisfied:
 - a. Where request directly related to "or equal" clause or other language of same effect in specifications.
 - b. Where required equipment or material cannot be provided within Contract Time, but not as result of Contractor's failure to pursue work promptly or coordinate various activities properly.

- c. Where required equipment or material cannot be provided in manner compatible with other materials of work, or cannot be properly coordinated therewith.
 - d. Where required equipment does not meet the provisions of the American Iron & Steel Requirements.
- 2. Contractor's options:
 - a. Compatibility of options: Where more than one choice available as options for Contractor's selection of equipment or material, select option compatible with other equipment and materials already selected.
 - b. Standards, codes and regulations: Where compliance with imposed standard, code or regulation required, select from among products which comply with requirements of those standards, codes, and regulations.
 - c. "Or Equal": For material or equipment specified by naming one or more equipment manufacturer and "or equal," Contractor shall submit request for substitution for any equipment or manufacturer not specifically named. Submit in accordance with GENERAL CONDITIONS, paragraph 1.15, and these General Requirements.
 - d. Two or more manufacturers: For equipment or material specified by naming several manufacturers, select any one of manufacturers named. Do not provide or offer to provide unnamed manufacturer or equipment.
 - e. Single manufacturer or material: For equipment or material specified by naming only one manufacturer or material, there is no option, unless provisions of Paragraph 1.d. cannot be met. In this case, notify Engineer immediately.

B. Conditions which are not substitutions:

- 1. Requirements for substitutions do not apply to Contractor options on materials and equipment provided in specifications.
- 2. Revisions to Contract Documents, where requested by Owner or Engineer, are "changes" not "substitutions."
- 3. Contractor's determination of and compliance with governing regulations and orders issued by governing authorities do not constitute substitutions or basis for change orders, except as provided for in Contract Documents.

1.03 REUSE OF EXISTING MATERIAL

- A. Except as specifically indicated or specified, do not use materials and equipment removed from existing structures in new work.
- B. For material and equipment specifically indicated or specified to be reused in work:
 - 1. Use special care in removal, handling, storage, and reinstallation to ensure proper function in completed work.
 - 2. Arrange and pay for transportation, storage, and handling of products which require off-site storage, restoration or renovation.

3. Off-site storage areas and buildings shall conform to requirements of this section.

1.04 MANUFACTURER'S INSTRUCTIONS

- A. Installation of equipment and materials shall comply with manufacturer's instructions. Obtain and distribute printed copies of such instructions to parties involved in installation, including 2 copies to Engineer.
 - 1. Maintain one set of complete instructions at job site during installation and until completion of work.
- B. Handle, install, connect, clean, condition, and adjust materials and equipment in accordance with manufacturer's written instructions and in conformity with specifications.
 - 1. Should job conditions or specified requirements conflict with manufacturer's instructions, consult Engineer for further instructions.
 - 2. Do not proceed with work without written instructions.

1.05 TRANSPORTATION AND HANDLING

- A. Arrange deliveries of materials and equipment in accordance with Construction Progress Schedule, coordinate to avoid conflict with work and conditions at site.
 - 1. Deliver materials and equipment in undamaged condition, in manufacturer's original containers or packaging, with identifying labels intact and legible.
 - 2. Protect bright machined surfaces, such as shafts and valve faces, with heavy coat of grease prior to shipment.
 - 3. Immediately upon delivery, inspect shipments to ensure compliance with Contract Documents and approved submittals, and products have been protected and are undamaged.
- B. Provide equipment and personnel to handle materials and equipment by methods recommended by manufacturer to prevent soiling or damage to materials or equipment, or packaging.

1.06 STORAGE, PROTECTION, AND MAINTENANCE

- A. On-site storage areas and buildings shall conform to requirements of Section 01500 - Temporary Construction Facilities and Utilities.
- B. Owner assumes no responsibility for materials and equipment stored in buildings or on site or at another location approved in writing. Contractor assumes full responsibility for damage due to storage of materials and equipment.

- C. Interior storage:
 - 1. Store materials and equipment in accordance with manufacturer's instructions, with seals and labels intact and legible.
 - 2. Store materials and equipment subject to damage by elements in weathertight enclosures.
 - 3. Maintain temperature and humidity within ranges required by manufacturer's instructions.
- D. Exterior storage:
 - 1. Store fabricated materials and equipment above ground, on blocking or skids, to prevent soiling or staining. Cover materials and equipment subject to deterioration with impervious sheet coverings, provide adequate ventilation to avoid condensation.
 - 2. Store loose granular materials in well-drained area on solid surfaces to prevent mixing with foreign matter.
 - 3. Materials such as pipe, reinforcing and structural steel, and equipment shall be stored on pallets or racks, off ground.
- E. Inspection and maintenance:
 - 1. Arrange storage in manner providing easy access for inspection, maintenance, and inventory.
 - 2. Make periodic inspections of stored materials and equipment to ensure materials and equipment maintained under specified conditions and free from damage or deterioration, and coverings in place and in condition to provide required protection.
 - 3. Perform maintenance on stored materials and equipment in accordance with manufacturer's written instructions and in presence of Owner or Engineer.
 - a. Notify Engineer 24 hours before performance of maintenance.
 - b. Submit report of completed maintenance and condition of coverings to Engineer with each Application for Payment.
 - c. Failure to perform maintenance, to notify Engineer of intent to perform maintenance or to submit maintenance report may result in rejection of material or equipment.
- F. Contractor shall assume responsibility for protection of completed construction and repair and restore damage to completed work equal to original condition.
- G. Wheeling of loads over floors, with or without plank protection, not permitted in anything except rubber-tired wheelbarrows, buggies, trucks, or dollies. This applies to finished floors and exposed concrete floors, as well as those covered with composition tile or other applied surfacing.
- H. Where structural concrete is also finished surface, avoid marking or damaging surface.

1.07 INSTALLATION, INSTRUCTIONAL, AND POST STARTUP SERVICES

A. General:

1. This article covers on-site services of supplier's or manufacturer's representatives provided by Contractor during construction, equipment startup, and training of Owner's personnel for equipment or plant operation as specifically required in specification section for equipment or system.
2. Include and pay costs for supplier's or manufacturer's services, including, but not limited to, those specified.

B. Installation services:

1. Where installation services called for in specifications, provide competent and experienced technical representatives of manufacturers of equipment and systems to resolve assembly or installation procedures attributable to, or associated with, equipment furnished.
2. After equipment installed, representatives shall perform initial equipment and system adjustment and calibration to conform to specifications and manufacturer's requirements and instructions.

C. Instructional services:

1. Where training called for in specifications, provide competent and experienced technical representative of supplier to provide detailed instructions to Owner's personnel for operation of equipment. Training services shall include pre-startup and equipment startup, classroom, and on-site equipment instruction, as stated in specifications.
2. Coordinate pre-startup training periods with Engineer and supplier's representative.
 - a. Notify Engineer at least 48 hours before training sessions are to begin so Engineer can make arrangements with Owner's operating personnel.
 - b. Reschedule canceled training sessions 48 hours in advance.
3. Similar types of equipment differing in model, size or manufacturer shall require equal service time as stated in Part 1 of specific specification section.
4. Complete pre-startup training 14 days prior to actual plant startup.
5. Operation and maintenance data shall constitute basis of instruction.
 - a. Review data contents with personnel in full detail to explain aspects of operations and maintenance.

D. Post startup services:

1. After equipment/system in operation for at least 6 months, but no longer than 11 months, each equipment manufacturer or authorized equipment representative shall make final inspection where so required in specifications. Final inspection will provide assistance to Owner's operating personnel in making adjustments or calibrations required to ensure equipment or system operating in conformance with design, manufacturer, and specifications.

1.08 SPECIAL TOOLS AND LUBRICATING EQUIPMENT

- A. Furnish, in accordance with manufacturer's recommendations, special tools required for checking, testing, parts replacement, and maintenance. Special tools are those specially designed or adapted for use on parts of equipment, and not customarily and routinely carried by maintenance mechanics.
- B. Deliver to Owner when unit placed into operation and after operating personnel have been properly instructed in operation, repair, and maintenance of equipment.
- C. Tools and lubricating equipment shall be of quality compatible to equipment manufacturer has furnished.

1.09 LUBRICATION

- A. Where lubrication required for proper operation of equipment, incorporate necessary and proper provisions in equipment in accordance with manufacturer's requirements. Where possible, lubrication shall be automated and positive.
- B. Where oil used, reservoir shall be of sufficient capacity to supply unit for 24-hour period.

1.10 GUARDS

- A. Provide necessary guards to meet federal, state, and local requirements. Construct guards of expanded metal where possible.

PART 2 – PRODUCTS

Not Applicable.

PART 3 – EXECUTION

Not Applicable.

END OF SECTION

SECTION 01720

PROJECT RECORD DOCUMENTS

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- 1.02 MAINTENANCE OF DOCUMENTS
AND SAMPLES
- 1.03 RECORD DOCUMENTS
- 1.04 SUBMITTALS

PART 2 – PRODUCTS

NOT APPLICABLE

PART 3 – EXECUTION

NOT APPLICABLE

PART 1 – GENERAL

1.01 DESCRIPTION

- A. Maintain at site 1 record copy of:
 - 1. Drawings.
 - 2. Specifications.
 - 3. Addenda.
 - 4. Change orders and other modifications to Contract.
 - 5. Engineer field orders, written instructions, or clarifications.
 - 6. Approved submittals.
 - 7. Field test records.
 - 8. Construction photographs.
 - 9. All associated permits.
 - 10. Certificates of inspection and approvals.

1.02 MAINTENANCE OF DOCUMENTS AND SAMPLES

- A. Store documents and samples in Contractor's field office apart from documents for construction.
 - 1. Provide files and racks for storage of documents.
 - 2. Provide secure storage space for storage of samples.
- B. Maintain documents in clean, dry, legible condition and in good order. Do not use record documents for construction purposes.
- C. Make documents and samples available at all times for inspection by Engineer.
- D. Failure to properly maintain record documents may be reason to delay a portion (up to 5%) of progress payments until records comply with Contract Documents.

1.03 RECORD DOCUMENTS

- A. Maintain record set of Drawings and Specifications legibly changed to transfer approved modifications in completed work that differ from Contract Documents.
- B. Label each document "PROJECT RECORD" in neat, large printed letters.
- C. Record information concurrently with construction progress.
 - 1. Do not conceal any work until required information recorded.
 - 2. Record changes made by Written Agreement, Field Order, Change Order or Work Directive Change.
- D. Drawings:
 - 1. General:
 - a. Depths of various elements of foundation in relation to finish first floor datum.
 - b. Horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - c. Location of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of structure.
 - d. Field changes.
 - e. Details not on original drawings.
 - f. Location and identification of exposed interior piping.
 - 2. Electrical:
 - a. Horizontal and vertical locations and size of underground cable, conduit, and duct runs dimensioned from established building lines.
 - b. Plan locations and size of interior concealed and exposed feeders.
 - c. Size and location of access panels.
 - d. Departures from original drawings and electrical work revisions.

1.04 SUBMITTALS

- A. At Substantial Completion:
 - 1. Deliver 1 marked up set of drawings to Engineer for use in preparation of record drawings.
- B. Accompany submittals with transmittal letter in duplicate, containing:
 - 1. Date.
 - 2. Project title and number.
 - 3. Contractor's name and address.
 - 4. Title of record document.
 - 5. Signature of Contractor or authorized representative.

PART 2 – PRODUCTS

Not Applicable.

PART 3 – EXECUTION

Not Applicable.

END OF SECTION

SECTION 02050

DEMOLITION OF STRUCTURES

INDEX

PART 1 – GENERAL

- 1.01 DESCRIPTION
- 1.02 DEFINITIONS
- 1.03 JOB CONDITIONS

PART 2 – PRODUCTS

NOT APPLICABLE

PART 3 – EXECUTION

- 3.01 GENERAL
- 3.02 DEMOLITION OPERATIONS
- 3.03 REMOVAL OPERATIONS
- 3.04 ABANDONMENT OPERATIONS
- 3.05 DISPOSAL

PART 1 – GENERAL

1.01 DESCRIPTION

- A. This section includes, but is not limited to:
 - 1. Removal and salvage of electrical, and mechanical equipment.
 - 2. Rerouting utilities to remain.
 - 3. Shutting off, capping, and abandonment of utilities and underground piping.
 - 4. Demolition and removal of structures.
 - 5. Disposal of debris.

1.02 DEFINITIONS

- A. Demolition: remove existing structure down to point below finish grade as specified or noted.
- B. Removal: remove portions of existing structure or utility above and below grade as noted.
- C. Abandonment: remove existing utility from service. Fully disconnect from portions of utility remaining in service. Remove all portions of utility being abandoned from influence zones of structures or buried piping. Plug ends of buried piping being abandoned with concrete.
- D. Influence Zone: area bound by 1.5 horizontal to 2 vertical slope extending outward from one foot beyond outer edges of foundation, pavement, or piping.

1.03 JOB CONDITIONS

- A. Prior to demolition of structures, accomplish following:
 - 1. Owner release of such structure.
 - 2. Electrical and mechanical services rerouted or shut off outside area of demolition.
 - 3. Salvage equipment scheduled for reuse in new work or scheduled to be delivered to Owner's storage facility.
 - 4. Survey and record condition of existing facilities to remain in place that may be affected by demolition operations. After demolition operations are completed, survey conditions again and restore facilities to pre-demolition condition at no additional cost to Owner. Conduct surveys in presence of Engineer.
- B. Protection:
 - 1. Do not close or obstruct streets, walks, and other facilities occupied and used by Owner and public without prior written permission from Owner and other authorities having jurisdiction.
 - 2. Maintain structural stability of structures adjacent to or affected by work of this contract.
 - 3. Maintain in service and protect from damage existing facilities, utilities, and equipment indicated to remain or adjacent work areas.
- C. Utilities:
 - 1. Notify utilities prior to razing operations to permit them to disconnect, remove, and/or relocate any equipment serving existing facilities.
- D. Salvageable materials:
 - 1. Owner shall maintain all salvage rights on all existing equipment, material, and related appurtenances that may be removed or altered during construction.
 - 2. Salvaged material and equipment to be retained by Owner shall be delivered to Owner's storage facility.
 - 3. Equipment and materials not scheduled to be salvaged or reused in new work shall become property of Contractor and legally disposed of off-site.
 - 4. Materials to be reused:
 - a. Aluminum I-Bar Grating at Contractor's option.
 - 5. Material to be salvaged:
 - a. Ultrasonic Transmitter & Sensor.
 - b. Panels, Disconnects, and Breakers.
 - c. UV Disinfection System Equipment.
 - d. Grating, planking and decking.
 - 6. Equipment and materials not scheduled to be salvaged or reused in new work shall become property of Contractor and legally disposed of off-site.

- E. Schedule:
 - 1. Perform demolition and removal work so as not to interfere with Owner's operations.
 - 2. Coordinate demolition and removal work so new construction work installed before, during, and after work of this section may commence without undue delay.

PART 2 – PRODUCTS

Not Applicable.

PART 3 – EXECUTION

3.01 GENERAL

- A. Following is list of demolition work:
 - 1. Facilities to be demolished:
 - a. None.
 - 2. Facilities to be removed:
 - a. UV Disinfection System.
 - b. Concrete channel and other miscellaneous concrete shown.
 - c. Electrical equipment as shown on drawings.
 - d. Abandoned utilities and abandoned underground piping within influence zones of proposed underground piping.
 - e. Miscellaneous manholes, equipment, utilities, utility structures, underground piping, and other structures shown on drawings.
 - 3. Utility and underground piping to be abandoned:
 - a. As shown on drawings.
 - 4. Do not demolish, remove, or abandon existing wastewater treatment facilities or other structures until the new wastewater treatment facilities are constructed and operational except as noted in Section 01040 - Special Construction.

3.02 DEMOLITION OPERATIONS

- A. Remove existing structures 4' below finished grade including: superstructure, foundation, footings, utility drains, and other piping, as shown on drawings, or as required to permit new construction.
- B. Provide drainage of wastewater treatment facilities demolished, cutting openings in floors of structure remaining in place. Holes shall be 6" dia. minimum spaced at 20' centers maximum (minimum of 2 each structure). Notify Engineer prior to backfilling structure remaining. Fill with well graded sand compacted to 95% maximum density.

- C. Plug or cap utility drains and other piping in accordance with specified abandonment procedures.

3.03 REMOVAL OPERATIONS

- A. Remove existing concrete, steel and masonry to extent indicated on drawings. Provide smooth, straight joint or cut line. Make cuts parallel with walls and/or floors. Patch walls, floors, and ceilings with non-shrink grout. Cut in masonry units to provide finished appearance.
- B. Remove utilities and equipment to elevations and locations shown on drawings and plug and seal permanently with steel cap, concrete plug or other approved method in accordance with specified abandonment procedures.
- C. Provide temporary shoring and bracing to transfer loads of existing construction to remain from construction being removed.

3.04 ABANDONMENT OPERATIONS

- A. Abandon utilities and underground piping within limits noted.
- B. Abandon disconnected utilities and underground piping within influence zone of proposed underground piping and proposed structures.
- C. Provide compatible cap for pressurized type piping. Provide thrust blocks for caps unless piping has fully restrained joints.
- D. Provide concrete plugs for gravity type piping. Plug shall be Class B concrete in accordance with Section 03300 - Cast-in-Place Concrete. Plug shall be at least 2' thick.
- E. Where noted on plans, fill piping or manholes with flowable mortar.

3.05 DISPOSAL

- A. Legally dispose of sludge, debris, and other undesirable and unsalvageable material resulting from demolition operations off-site.
- B. Dispose of removed and broken concrete and other debris legally off-site.

END OF SECTION

SECTION 03100

CONCRETE FORMWORK

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PART 1 – GENERAL

1.01 DESCRIPTION

PART 2 – PRODUCTS

2.01 MATERIALS

2.02 DESIGN AND FABRICATION

PART 3 – EXECUTION

3.01 INSTALLATION

3.02 WORKMANSHIP

3.03 OBSERVATION AND MAINTENANCE

3.04 REMOVAL OF FORMS

3.05 REUSE OF FORMS

PART 1 – GENERAL

1.01 DESCRIPTION

- A. This section describes formwork for concrete specified under Section 03300 – Cast-in-Place Concrete.
- B. Where 'ACI 347' is referred to herein, reference is to 'ACI Standard Recommended Practice for Concrete Formwork' adopted by the American Concrete Institute.
- C. Related work specified elsewhere:
 - 1. Section 03200 - Concrete Reinforcement.
 - 2. Section 03300 - Cast-in-Place Concrete.
- D. Anchors and inserts are specified elsewhere.

PART 2 – PRODUCTS

2.01 MATERIALS

- A. General:
 - 1. Contact surfaces of forms for concrete exposed: wood, plywood, hardboard, metal, form liner or other material which will produce surface finishes specified under Section 03300 - Cast-in-Place Concrete without adverse effect on concrete.
 - 2. Plywood: comply with PS 1-74; use maximum sheet sizes to keep joints to minimum.
 - 3. Hardboard: comply with FS LLL-H-35, Type 1, Class 2, hard pressed fiberboard treated for formwork use.
 - 4. Metal forms: smooth surfaces free from irregularities, dents and sags.
 - 5. Where used, form release agent must not stain or cause imperfections on concrete surface.

- B. Chamfer strips: Polyvinylchloride, steel, good quality lumber carefully milled, free from protruding slivers and well-sealed, or other nonabsorbent material.
- C. Form Ties
 - 1. Form ties encased in concrete other than those specified in the following paragraphs shall be designed so that, after removal of the projecting part, no metal shall remain within 1-1/2" of the face of the concrete. The part of the tie to be removed shall be provided with a removable cone at least 1" diameter and 1-1/2" deep. Form ties in concrete exposed to view shall be the cone-washer type.
 - 2. Flat bar ties for panel forms shall have plastic or rubber inserts having a minimum depth of 1-1/2" and sufficient dimensions to permit proper patching of the tie hole.
 - 3. Ties for liquid containment structures shall have an integral waterstop that is tightly welded to the tie.
 - 4. Common wire shall not be used for form ties.
 - 5. Alternate form ties consisting of tapered through-bolts at least 1" in diameter at smallest end or through-bolts that utilize a removable tapered sleeve of the same minimum size may be used at the Contractor's option. Obtain Engineer's acceptance of system and spacing of ties prior to ordering or purchase of forming. Clean, fill and seal form tie hole with non-shrink cement grout. The Contractor shall be responsible for watertightness of the form ties and any repairs needed.

2.02 DESIGN AND FABRICATION

- A. Design, engineer and construct formwork to satisfy specified requirements and conditions shown on plans.
- B. For concrete exposed to chemical attack, comply with recommendations contained in Chapter 4 of Environmental Engineering Concrete Structures - ACI 350.
- C. Strength of forms, supports, and braces adequate to resist vertical and lateral loads; follow recommendations contained in Chapter 2 of ACI 347.
- D. Provide positive means for adjusting shores and struts (wedges and jacks) so settlement can be taken up during concrete placement operations.
- E. Allowable deflection of facing materials reflected in exposed concrete surfaces: not greater than 1/240 of span between structural members.
- F. On exposed surfaces, pattern of joints between facing panels and marks left by form ties must be rhythmic and symmetrical.

- G. Provide temporary openings near bottom of deep forms and other locations where necessary to facilitate observation and cleaning immediately prior to deposit of concrete.
- H. Form design must include provisions for easy removal.
- I. Provide 3/4" x 3/4" chamfers on external corners of columns, beams, slabs and walls which have two adjacent faces exposed.
- J. Do not use earth cuts as forms for vertical surfaces without specific approval from Engineer.

PART 3 – EXECUTION

3.01 INSTALLATION

- A. Solidly back joints between facing panels and perimeter edges of facing panels to maintain proper alignment.
- B. Forms must be sufficiently tight to prevent leakage of mortar; gasket, tape, caulk or seal otherwise.
- C. Cooperate with subcontractors in placement of anchors, bolts, inserts and other items embedded in concrete.
- D. Leave section of forms adjacent to construction joint in place until concrete is deposited on other side of joint; retighten forms on completed section before next section is placed and carefully seal joint to prevent grout or paste leakage.
- E. Securely brace shores and struts against lateral displacement.
- F. Preparation of form surfaces:
 - 1. Remove loose concrete dust and other fine material from contact surface.
 - 2. Prior to placement of concrete, saturate board forms with joints opened by shrinkage of wood with water until wood swells and closes joints.
 - 3. Seal plywood and other wood surfaces not subject to shrinkage against absorption of moisture from concrete (field or factory applied).
 - 4. Apply coating for preventing of bond with concrete prior to placement of reinforcing steel; do not allow excess coating material to stand in puddles in forms or come in contact with concrete surfaces against which fresh concrete will be placed.
 - 5. Where painting of finished concrete is required, coatings applied to contact surface of forms must be compatible with type of paint to be used.

6. Where as-cast finishes are required, do not use form coatings which will impart stain to concrete.

- G. Prior to placement of reinforcing steel, request Engineer to inspect form surfaces; obtain permission from Engineer to start placement of reinforcing steel.

3.02 WORKMANSHIP

- A. Form surfaces adjacent to concrete must conform to shape, line, and dimension shown with corners uniform, true and sharp, unless otherwise shown on plans.
- B. Transition between curved and straight surfaces must be smooth, even and tangent; when such forms are in place request Engineer to inspect them before concrete is placed.
- C. When forms are removed, concrete surfaces shall conform to size, shape and line shown on plans within tolerances listed under Chapter 3 of ACI 347.

3.03 OBSERVATION AND MAINTENANCE

- A. Observe formwork continuously while concrete is being placed to ensure that there are no changes of elevation, plumbness or camber from as-designed conditions.
- B. Stop placement if settlement is noted and adjust shores and struts to eliminate settlement.
- C. If weakness in falsework is observed which will produce distortion or variation on concrete surfaces in excess of allowable tolerances, stop work and strengthen falsework; remove permanently damaged construction before proceeding with work.

3.04 REMOVAL OF FORMS

- A. Remove in manner that will not mar, spall or otherwise damage the concrete or other work.
- B. Formwork not supporting weight of concrete: Formwork at locations such as sides of beams, walls, columns, and similar parts of the work, may be removed after cumulatively curing concrete at not less than 50°F. for 24 hours after its placement, provided all of the following criteria are met:
1. Concrete has obtained strength required to not be damaged by form removal operations.
 2. Concrete curing and protection operations will be maintained in accordance with the requirements for those materials.

3. Shores and other vertical supports have been arranged to permit removal of form facing material without loosening or disturbing shores and supports.
- C. Do not remove supporting forms and shoring for slabs, beams, channels, troughs, corbels, brackets, haunches, cantilevered or Y-shape elements, or other flexural members until concrete complies with all of the following criteria:
 1. No sooner than 14 days following concrete placement.
 2. Obtained a minimum compressive strength of 80% of the 28-day strength.
 3. Of sufficient strength required to support its own weight and superimposed loads.
- D. Remove the removable portion of form ties in a manner and at the period required to prevent damage to concrete.
- E. Accomplish removal without prying against face of concrete or jarring structure; use wooden wedges only.
- F. Remove supports in manner permitting concrete to assume load gradually and uniformly.
- G. Perform reshoring for purpose of early form removal in manner that will not require large areas of new construction to support own weight.
- H. When forms are removed before end of curing period, exposed concrete must be cured as specified under Section 03300 - Cast-in-Place Concrete.
- I. Do not drop forms on floor.
- J. Do not subject unsupported portions of structure to heavy construction or material loading.

3.05 REUSE OF FORMS

- A. Reuse forms for exposed concrete only when in near new condition.
- B. Do not reuse metal pans with bent flanges or dents until they have been straightened to near new condition.
- C. Thoroughly clean and recoat forms before reuse; recondition if necessary.
- D. Do not reuse forms if condition does not meet requirements set forth herein.

END OF SECTION

SECTION 03200

CONCRETE REINFORCEMENT

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- 1.02 SUBMITTALS
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PART 2 – PRODUCTS

- 2.01 MATERIALS
- 2.02 FABRICATION

PART 3 – EXECUTION

- 3.01 PLACEMENT

PART 1 – GENERAL

1.01 DESCRIPTION

- A. This section describes reinforcing steel for concrete specified under Section 03300 - Cast-in-Place Concrete.
- B. Related work specified elsewhere:
 - 1. Section 03100 – Concrete Formwork.
 - 2. Section 03300 – Cast-in-Place Concrete.

1.02 SUBMITTALS

- A. Submit complete shop drawings showing all dimensions necessary for fabrication and placement of reinforcing steel and accessories, without reference to contract drawings; include elevations of wall reinforcing and location of construction joints.
- B. Do not start fabrication until receipt of reviewed drawings from Engineer.
- C. See Section 01300 - Submittals for additional requirements.

1.03 MINIMUM REINFORCEMENT REQUIREMENTS

- A. Bars:
 - 1. Reinforce footings as shown on drawings; where reinforcing is not shown include:
 - a. #4 at 8" each way bars for spread wall footings.
 - b. #5 at 8" each way bars top and bottom in trench footings up to 8" thick.
 - c. #6 at 10" each way bars top and bottom in trench footings 10" thick and over.
 - 2. Reinforce top of wall footing under door and other openings with two #4 bars, minimum; 4'-0" longer than opening.

3. Reinforce curbs as shown on drawings; where reinforcing is not shown, place one #4 bar top and bottom.
4. Reinforce walls as shown on drawings; where reinforcing is not shown, include:

<u>Wall Thickness</u>	<u>Horizontal Bars</u>	<u>Vertical Bars</u>	<u>Location</u>
6"	#4 @ 12"	#4 @ 12"	Center on Wall
8"	#4 @ 12"	#4 @ 12"	Center on Wall
10"	#4 @ 12"	#4 @ 12"	Each Face
12"	#5 @ 12"	#5 @ 12"	Each Face
16"	#5 @ 12"	#5 @ 12"	Each Face

5. At wall or floor openings, if reinforcing is not shown, include two #5 bars, each face, on all sides, 4'-0" longer than opening dimension.
6. Reinforce masonry load bearing and exterior concrete block walls as shown on drawings; where reinforcing is not shown, include #5 @ 24" vertical.

B. Mesh:

1. Reinforce slabs as shown on drawings; where reinforcing is not shown, include:
 - a. 6" x 6" W2.1.x W2.1 mesh for following:
 - 1) 4" slabs on grade.
 - 2) Toppings.
 - b. 6" x 6" W2.9 x W2.9 mesh for following:
 - 1) 6" or thicker slabs.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Bars:

1. ASTM A615, Grade 40 billet-steel with 40,000 psi minimum yield strength for #3 and smaller bars.
2. ASTM A615, Grade 60 billet-steel with 60,000 psi minimum yield strength for #4 and larger bars.

B. Prefabricated steel bar mats which meet specified bar requirements and spacings may be used in lieu of job placed individual bars.

C. Welded Wire Reinforcement, Mesh or Welded Wire Fabric: welded wire reinforcement; ASTM A1064.

D. Shear connectors: welded wire truss; ASTM A1064.

E. Spacers and chairs:

1. Type: as shown on plans.
2. Comply with ACI 315.

3. Chairs: corrosion resistant.

F. Tie wire: black annealed wire; 16 gauge, minimum.

G. Mechanical splices: threaded splice; Dayton Superior D-101, or equal.

2.02 FABRICATION

A. Carefully form bars to shapes and dimensions shown on plans; where not shown, comply with requirements of ACI 315.

B. Tolerances: comply with ACI 117, ACI 301 and ACI 315 unless otherwise shown on plans.

C. Bend all bars cold.

D. Make bends for stirrups and ties around pin having diameter not less than two times thickness of bar.

E. Bend bars around pin having diameter not less than six times minimum thickness of bar; eight times minimum thickness for bars larger than 1".

F. Hooks: conform to requirements of ACI 318.

G. Where column bars are offset or dowels used for column splices, provide 1/2" clearance between bars or dowels and vertical bars of next lift.

H. Tag bars with metal, linen or rope fiber tags filled in by machine or waterproof ink; do not use paper tags.

PART 3 – EXECUTION

3.01 PLACEMENT

A. Design must comply with ACI 318 and details must conform to ACI 315, unless otherwise shown on plans.

B. Reinforcement: free from dirt, loose, flaky rust and scale, oil, grease, ice, or other coating which could reduce or destroy bond.

C. Bars:

1. Accurately place and securely wire-tie bars in position before concrete is deposited; point wire-tie ends away from form.

2. Support bars rigidly on spacers and chairs:

- a. Number, location and size: comply with Chapter 5 of ACI 315 and CRSI RB4.1 unless otherwise shown; other methods of support will be permitted subject to Engineer's approval.
 - b. List number of supports for each span on schedule or mark on placing plan.
 - c. Chairs required for top layer of reinforcing in footings.
 - d. Use U or Z 1/4" reinforcing bar spacers between layers in walls at 5' oc each way.
 3. Lap splices and butt-welded splices in accordance with Chapter 7 ACI 350-06, Chapter 12 ACI 318-11 or (Chapter 25 of ACI 318-14). If a conflict exists between ACI codes, ACI 350-06 takes precedence.
 4. At walls without footing pads, rest bottom of reinforcing on concrete brick.
 5. Reinforcement spacing shown on plans is in inches.
- D. Minimum protection between face of steel and outer face of concrete must comply with following, unless otherwise shown on plans:
1. 3" for footings and other principal structural members where concrete is cast against ground.
 2. 2" for wall or other formed surfaces exposed to sewage, effluent, chemical attack, weather or in contact with ground; 1-1/2" if bars are #5 or smaller.
 3. 1-1/2" or 1-1/2 times maximum size of coarse aggregate for beams, girders and columns; dimension is to ties where used.
 4. 1" for floor joists where clear distance between joists is not over 30".
 5. 3/4" for slabs and walls not exposed to weather or directly to ground.
 6. Protection of reinforcement must at least equal to diameter of bars being covered, except 3/4" protection is sufficient for bars in slabs, regardless of bar size.
- E. Tolerances:
1. Height of bottom bars above bottom of form: 1/4"± from established dimension.
 2. Lengthwise:
 - a. Top or bottom bars: 2"± from plan dimension (extend same amount into each support).
 - b. Truss bars: 2"± from plan dimension (applies to ends of bars and bend points).
 3. Bar spacing in walls and solid slabs: do not exceed two times thickness of slab or all unless otherwise shown on plans.
 4. Lateral spacing in joists or beams where spacing is established: ±1/4".
 5. Clearance between face of steel and face of concrete: ±1/4".
 6. Height of top bars (top of bar to top of beam or slab): ±1/4" (if necessary to lower bars over 1/4", check with Engineer for increase in size or number of bars).
 7. Stirrup or tie spacing: ±2" for any one unit (end unit not more than 1" either way from position shown).

- F. Welded Wire Reinforcement (WWR):
1. End lap by one of following methods:
 - a. Overlap one full WWR (tip to tip of wires) and tie with wire and 1'-6" oc.
 - b. Overlap with end cross wire of one piece in contact with next-to-end wire of other piece; tie to keep fabric in place or prevent edge from curling up.
 2. Side lap by one of following methods:
 - a. Place selvage wire in middle of first WWR and wire tie at 5'-0" oc (stagger ties).
 - b. Place selvage wire in contact with next-to-edge longitudinal wire; tie to keep fabric in place or prevent edge from curling up.
 3. Place WWR 2-1/2" below top of slab on grade, unless otherwise shown on plans or specified.
 4. Accurately place and rigidly support WWR on metallic supports, built-in concrete blocks or other suitable means; prevent displacement by foot traffic runways and compaction tools.
 5. Positioning WWR in slab by lifting with hook from bottom of form through concrete not permitted.

END OF SECTION

SECTION 03300

CAST-IN-PLACE CONCRETE

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- 3.10 EQUIPMENT BASES
- 3.11 SEALING EXTERIOR SLABS
- 3.12 SCHEDULE OF FINISHES

PART 1 – GENERAL

1.01 DESCRIPTION

- A. This section describes all cast-in-place concrete work shown on plans, including but not limited to:
 - 1. Foundations (footings and grade beams).
 - 2. Below grade walls.
 - 3. Tanks and similar structures.
 - 4. Columns.
 - 5. Interior walls at basement level.
 - 6. Interior slabs on grade.
 - 7. Bases for mechanical and electrical equipment.
 - 8. Concrete encasement.
 - 9. Grout for equipment leveling and where shown.
 - 10. Fill or fillet concrete for tanks and where shown.
- B. Related work specified elsewhere:
 - 1. Section 01010 – General Provisions.
 - 2. Section 03100 – Concrete Formwork.
 - 3. Section 03200 – Concrete Reinforcement.
 - 4. Section 07900 – Joint Sealers.

1.02 QUALITY CRITERIA

- A. Contractor must follow recommendations set forth in Chapter 4 of Environmental Engineering Concrete Structures - ACI 350 for concrete in contact with sewage or effluent or exposed to chemical attack.

1.03 STORAGE OF CEMENT AND AGGREGATES

- A. Store cement in weathertight structure with floor raised not less than 1' from ground.
- B. Do not use cement which has hardened or partially set; remove from site.
- C. Store fine and coarse aggregate separately in manner to prevent segregation of sizes and avoid inclusion of dirt and other foreign materials.
- D. Stockpile natural sand at least 24 hours before using.

1.04 DEPOSITING DURING COLD WEATHER

- A. Do not place concrete without protection if temperature of surrounding air is below 40°F. and falling or if it may be subjected to freezing temperature during curing period.
- B. From November 1st to May 1st, do not place concrete without protective materials readily available, on job site, in quantities sufficient to protect all concrete that has not cured for specified period. U.S. Weather Bureau predictions will be used as basis for requiring that protective measures be taken.
- C. Do not use frozen materials or materials containing ice in concrete.
- D. Do not place concrete over or in contact with frozen earth; forms, reinforcement and fillers must be free from frost.
- E. Protection of concrete required:
 - 1. If temperature is expected to drop into 32°F. to 35°F. range during period:
 - a. After curing membrane specified herein under PROTECTING AND CURING is installed, cover following with minimum 1" blanket insulation:
 - 1) Exposed surfaces of slabs on earth.
 - 2) Framed components (including beams and walls) formed with 1" thick wood.
 - 3) All metal formed items.
 - b. Protect insulation with polyethylene sheets, Sisalkraft, tarpaulins, or equal.

2. If temperature is below 35°F. when concrete is placed:
 - a. Placement temperature of concrete must be 60°F. plus or minus 10°F.; methods and equipment for heating mixing water and aggregates must be agreeable to Engineer.
 - b. Temperature of surrounding air must be maintained at minimum 50°F. during placement and for not less than 5 day thereafter; minimum 40°F. for next 2 days (3 days and 1 day respectively if high early strength cement is used).
 - c. When heating is discontinued, lower temperatures gradually; maximum 1°F. per hour for first 24 hours; 2°F. per hour thereafter until outside temperature is reached.
3. Any method of protection included in recommendations in Title 75-18 by ACI Committee 306 may be substituted for protection specified herein if temperature and moisture conditions recommended for type and service category of concrete being placed are maintained for recommended period of time; obtain permission of Engineer for substitute method before using.

F. Use of salts or chemicals for protection from freezing not permitted.

G. Remove and replace concrete damaged by freezing.

1.05 DEPOSITING DURING HOT WEATHER

- A. Contractor must follow recommendations set forth in Hot Weather Concreting (Title 74-33 by ACI Committee 305) to minimize detrimental effects of hot weather on concrete placed on project; whenever air temperature is expected to exceed 75°F. during placement operations, Contractor must consult with Engineer concerning practices to be followed.
- B. Temperature of concrete at time of deposit must be below 90°F.

PART 2 – PRODUCTS

2.01 MATERIALS

- A. Portland cement: ASTM C150, Type I or Type III. C_3A (Tricalcium aluminate) content must be less than 8% for concrete in direct contact with sewage or effluent or exposed to chemical attack.
- B. Portland pozzolan cement: ASTM C595, Type IP or IP-A; pozzolan content must not exceed 25% by weight.

- C. Fine aggregate:
 - 1. Meet requirements of ASTM C33, except where more rigid requirements are included herein.
 - 2. Gradation within requirements of ASTM C33, Par. 3; sieve analysis of aggregate must accompany mix design when submitted to Engineer for review.
 - 3. Natural sand:
 - a. Clean, hard, strong, durable, uncoated grains.
 - b. Coal and Lignite: 1.0% maximum.
 - c. Prove acceptability of aggregate by laboratory test conducted and certified by laboratory acceptable to Engineer on samples taken in accordance with ASTM C75.
- D. Coarse aggregate:
 - 1. Meet requirements of ASTM C33, except where more rigid requirements are included herein.
 - 2. Clean, hard, strong, durable uncoated pieces.
 - 3. Gradation within requirements of ASTM C33, Table II:
 - a. #467 or #57, 1-1/2" or 1" to No. 4, for footings and plain concrete.
 - b. #57, 1" to No. 4, for slabs on grade and reinforced walls.
 - c. #57 or #67, 1" or 3/4" to No. 4, for slabs, beams, girders, columns, fillet and fill concrete.
 - d. #7, 1/2" to No. 4, for fill over steel stair treads and landings.
 - 4. Limitation of deleterious substances:
 - a. Clay lumps and friable particles: maximum 1.0%.
 - b. Soft particles: maximum 2.0%.
 - c. Coal and Lignite: maximum 0.25%.
 - 5. Crushed limestone: meet IDOT specifications 4115.03 for abrasion and 4115.04 for Class 2 or 3 durability; not more than 1.0% of clay lumps and friable particles, 2.0% of soft particles and 0.25% of coal and lignite allowed; prove acceptability by submission of certified laboratory test report.
- E. Admixtures:
 - 1. Air-entraining agents: ASTM C260.
 - 2. Water reducing agents: ASTM C494, Type A.
 - 3. Retarding agents: ASTM C494, Type B.
 - 4. Accelerating agents: ASTM C494, Type C.
 - 5. Water reducing and retarding agents: ASTM C494, Type D.
 - 6. Water reducing and accelerating agents: ASTM C494, Type E.
 - 7. High range water reducing agents: ASTM C494, Type F.
 - 8. High range water reducing and retarding agents: ASTM C494, Type G.
 - 9. Fly ash, pozzolans and GGBFS: ASTM C618 and C494 or IDOT Section 4108. Fly ash to be Class C.
 - 10. Shrinkage reducing admixture: ASTM C157; W.R. Grace, or equal.

11. Synthetic fibers: high volume monofilament polypropylene/polyethylene blend; 1-1/2" to 2" length; 78 ksi fiber tensile strength; minimum 1,300 ksi modules of elasticity; ASTM C1116; dosage rate 3.5 lbs./CY of concrete.
- F. Water: clean and free from injurious amounts of oil, alkalies, acids, or organic matter.
 - G. Metal crack control joint: Heckmann No. 98, or equal.
 - H. Dowels:
 1. ASTM A15; 1'-6" long, smooth round steel rods: diameter as shown on drawings.
 2. Where preformed filler is required, completely coat one end with heavy grease and cover with expansion cap.
 - I. Preformed expansion or isolation joint filler:
 1. Self-expanding cork, ASTM D1752, Type III.
 2. 1/2" thick, unless otherwise shown on drawings.
 - J. Joint sealer:
 1. Thickol sealer: FS TT-S-00227E (two part) or FS TT-S-00230C (one part), Type I (self-leveling), Class B (resistant to 25% total movement), based on liquid polysulfide polymers.
 2. Pour-type urethane sealant: Sonneborn Sonolastic Paving Joint Sealant (two parts), or Sonomeric CT (one part), or equal.
 - K. Backing rod: round polyethylene rod; Dow Chemical Co., Ethafoam rod, or equal.
 - L. Waterstops:
 1. Polyvinylchloride with following characteristics when tested in accordance with ASTM test method listed:

Specific Gravity	1.32 plus or minus 0.05	ASTM D792
Hardness	76 plus or minus 3	ASTM D2240
Tensile Strength	2250 psi (minimum)	ASTM D638
Elongation	350% (minimum)	ASTM D638
Cold Brittleness	-35°F. or lower	ASTM D476
 2. Design: 6", ribbed with corrugations and center bulb, except where shown otherwise; Greenstreak Type 705, or equal.
 3. Expansive waterstop may be used for vertical construction joints and where shown on drawings; Greenstreak Hydrotite, or equal.
 - M. Liquid applied curing and sealing compounds:
 1. For interior surfaces, except where floor hardness is specified: West Concrete Floor Sealer (West Chemical Products, Inc.), Kure-N-Seal (Sonneborn-Contech), L & M Cure (L & M Construction Chemicals, Inc.), or equal; do not use Kure-N-Seal on floors that

will be subjected to petroleum drips and spills, such as motor vehicle traffic or parking.

- N. Liquid applied floor hardener; fluosilicate based material; Sonneborn Lapidolith, A.C. Horn Hornolith, L & M Fluohard, or equal.
- O. Abrasive aggregate:
 - 1. Silicon carbide or aluminum oxide.
 - 2. Any manufacturer's gradation which falls in range of 12 to 36 grit is acceptable.
- P. Grout: ASTM C1107 Class B or C; mix according to recommendations of manufacturer; strength: not less than that of adjacent concrete; L&M Crystex, Master Builders Masterflow 928, or equal.
- Q. Use Dur-O-Wall heavy duty trusses, or equal, for vertical trusses; use single truss full height and width according to wall thickness.
- R. Bond Breaker
 - 1. Bond breaker tape shall be an adhesive-backed glazed butyl or polyethylene tape which will satisfactorily adhere to the premolded joint filler or concrete surface as required. The tape shall be the same width as the joint unless otherwise noted.
 - 2. Except where tape is specifically called for on the drawings, bond breaker for concrete shall be either bond breaker tape or a non-staining type bond prevention coating such as Williams Tilt-up Compound by Williams Distributors Inc.; Silcoseal 2000F, by SCA Construction Supply Division, Superior Concrete Accessories or equal.
- S. Bonding Agent
 - 1. Epoxy bonding agent shall be a two-component, solvent-free, moisture insensitive, epoxy resin material conforming to ASTM C881 (1999), Type V. The bonding agent shall be Sikadur 32 Hi-Mod by Sika Corporation of Lyndhurst, NJ; Concreseive Liquid (LPL) by Master Builders of Cleveland, OH or equal.
 - 2. Latex bonding agent shall be a non-reemulsifiable acrylic-polymer latex conforming to ASTM C1059, Type II.

2.02 QUALITY AND DESIGN OF MIXES

- A. Design compressive strength:
 - 1. Pipe encasement, fill and fillet (Class B) concrete: 2,500 psi.
 - 2. All other (Class A) concrete: 4,000 psi.
 - 3. Maximum water to cement ratio 0.45 for concrete exposed to sewage, effluent or subject to chemical attack; maximum water to cement ratio 0.40 for concrete containing shrinkage reducing admixture and maximum water to cement ratio 0.45 for all other (Class A) 4,000 psi concrete.

B. Design of mix:

1. Overdesign mixes in accordance with plant coefficient of variation. Overdesign must assure less than 1 chance in 10 that test will fall below design compressive strength and that 99 chances out of 100 no test will fall below 90% of design compressive strength.
2. Complete design in advance of first placement; any existing mix design may be used if made or checked within previous six months by approved testing laboratory using aggregates from same source and same gradation as those used on this project.
3. Comply with ACI 211.1 Recommended Practice for Selecting Proportions for Normal Weight Concrete and recommendations set forth in Chapter 3 of Environmental Engineering Concrete Structures - ACI 350R for concrete in contact with sewage or effluent or exposed to chemical attack.
4. Slump:
 - a. Footings and substructure walls: 3" plus or minus 1".
 - b. Beams, columns, slabs and reinforced walls: 3" plus or minus 1".
 - c. Heavy mass construction: 2" plus or minus 1".
5. Submit mix design to Engineer for agreement before any concrete is placed; include design which contains fly ash or Pozzolan based admix and design which contains retarding type water reducing admix, with appropriate slump adjustments, if need is indicated.
6. Assign number to each mix design for future reference.

C. Admixtures:

1. Air entraining agent:
 - a. Add at mixer for all concrete.
 - b. Concrete must contain 5.0% plus or minus 1.0% air by volume if maximum aggregate size is 1-1/2"; 6.0% plus or minus 1.0% if maximum aggregate size is 3/4" or 1", 7.0% plus or minus 1% if concrete contains shrinkage reducing admixture.
2. Do not use calcium chloride or other salts as antifreeze or to accelerate set.
3. Cement dispersing agent or concrete densifiers (water reducing and high range water reducing agents):
 - a. Recommended to improve workability and control rate of hardening for controlling uniformity under varying temperature and weather conditions.
 - b. Add water reducing and retarding type to mix if air temperature is above 80°F. and freshly placed concrete will be exposed to sun and/or hot drying wind.
 - c. Fly ash or Pozzolan based admixture recommended for exposed interior finish concrete, including slabs on grade and floor fill.
 - d. Fly ash or pozzolan based admixture required when using high range water reducing agents.
 - e. Do not use melamine-based high range water reducing agents if concrete is exposed to freeze-thaw cycles.

- f. Do not use high range water reducing agents in beams, joists or elevated slabs.
- g. Use in accordance with manufacturer's recommendations.
- 4. Synthetic fibers may be used in addition to welded wire reinforcement where shown on plans.
- 5. Shrinkage reducing admixtures may be used at Contractor's option.

2.03 BATCHING AND MIXING

- A. Operations, equipment and location of facilities subject to approval of Engineer.
- B. Measuring of materials:
 - 1. By weight such that proportions can be accurately controlled and easily checked.
 - 2. Weigh ingredients separately.
 - 3. Weigh cement for each batch if fractional sacks or bulk cement is used.
 - 4. Water measurement to 1 pint plus or minus for total per batch.
- C. Mix one cubic yard batch for at least 1-1/2 minutes after all materials are in mixer; increase time by 15 seconds for each additional cubic yard or fraction thereof.
- D. Ready-mixed concrete: comply with ASTM C94.

2.04 QUALITY CONTROL

- A. Slump tests:
 - 1. Make test in accordance with ASTM C143 on sample taken in accordance with ASTM C172.
 - 2. Tests required:
 - a. First load each day.
 - b. Whenever other tests are being made.
 - c. After any change in mix.
 - d. When directed by Engineer.
- B. Temperature tests:
 - 1. Required whenever outside temperature is within 10°F. of limiting temperatures specified herein under DEPOSITING DURING HOT (or COLD) WEATHER.
 - 2. Make tests at same time slump tests are taken.
 - 3. Use armored thermometer accurate to plus or minus 2°F.
 - 4. Place thermometer in freshly discharged concrete and leave it in place until reading becomes stable.
- C. Air content tests:
 - 1. By pressure method (ASTM C231) or volumetric method (ASTM C173) on samples taken in accordance with ASTM (C172).

2. Test first load of air entrained concrete and spot check by additional test on each day that air entrained concrete is placed.

D. Compression tests:

1. Prepare cylinders in accordance with ASTM C31.
2. Set of 3 cylinders required for every run of 50 CY or fraction thereof.
3. Cure cylinders under laboratory conditions and test by procedure in ASTM C39.
4. Prepare additional cylinders and cure under job conditions if air temperature is likely to fall below 40°F.
5. Break cylinders at 7 and 28 days.
6. If over 1 in 10 tests of laboratory specimens fall below design compressive strength specified, check design of mix and make necessary corrections before additional concrete is placed.
7. When test specimens break below strength specified, Contractor may be required to test concrete affected by procedure in ASTM C42 (core tests) or load test portion of structure affected.
8. Remove concrete not in accordance with specifications and replace without cost to Owner.

E. Record results of all test immediately in Log of Tests which must be maintained at job site; log must contain following information:

1. Date and time test are made.
2. Test results, if immediately available.
3. Exact location where tested concrete was placed in structure.
4. Weather conditions, including air temperature at time tests were made.
5. Plant and number of mixer truck that delivered concrete.
6. Name of person who made test.
7. Mix design number.

PART 3 – EXECUTION

3.01 PREPARATIONS FOR PLACEMENT

- A. Verify with Engineer that reinforcing steel placement has been checked, and with subcontractors that wall pipes, anchor bolts, wall thimbles, pipe sleeves, drains, conduit and outlets have been placed in forms.
- B. Remove foreign materials (chips, blocks, sawdust, ice and water) from forms.
- C. Where placing against hardened concrete, clean contact surface thoroughly and remove all laitance, wet vertical surfaces and slush with neat cement grout just prior to placement of new concrete.

3.02 WATERSTOPS

A. PVC Waterstops

1. Install PVC waterstops for all joints where waterstops are indicated on the drawings, unless specifically noted otherwise. Waterstops shall be continuous around all corners and intersections so that a continuous seal is provided. Splices shall be made by welding.
2. PVC splices shall be made by welding in accordance with the manufacturer's recommendations, subject to acceptance of the Engineer. Only manufacturer's special approved tools shall be used for welding. The finished splices shall provide a cross-section that is dense and free of porosity.
3. Each piece of the waterstop shall be of maximum practicable length to provide a minimum number of splices.
4. To properly secure PVC waterstops in wall joints before concrete is placed, drill holes in waterstops approximately 1" from each edge or between the outermost ribs at each edge and center the waterstop in the joint. Tie both edges of the waterstop and fasten to reinforcing steel with black annealed steel tie wire as specified for tying reinforcing steel and secure in place so that the waterstop will be perpendicular to the joint and remain in the required position during concrete placement. The spacing of the waterstop ties shall match the spacing of the adjacent reinforcing, but need not be spaced closer than 12" on center.
5. Horizontal waterstops in slabs shall be clamped in position by the bulkhead (unless previously set in concrete).
6. Horizontal PVC waterstops in slabs shall have the edge of the waterstop lifted while placing concrete below the waterstop. Then the waterstop shall be manually forced against and into the placed concrete and covered with fresh concrete, to ensure adequate encasement of the waterstop in concrete.
7. Waterstops shall be installed so that half of the width will be embedded on each side of the joint. Care shall be exercised to ensure that the waterstop is completely embedded in void-free concrete.
8. Waterstops shall be terminated 3" below the exposed top of walls. Expansion joint waterstop center bulbs shall be plugged with foam rubber, 1" deep, at point of termination.

B. Expansive Waterstops

1. Install waterstops at joints where specifically noted on the drawings. Waterstops shall be continuous around all corners and intersections so that a continuous seal is provided.
2. Each piece of the waterstop shall be of maximum practicable length to provide a minimum number of connections or splices. Connections and splices shall conform to the manufacturer's recommendations and as specified herein.
3. Waterstops shall be terminated 3" below the exposed top of walls.

4. Prepare the joint surfaces, install primers or adhesives, and install expansive waterstops in accordance with the manufacturer' instructions.

3.03 PLACING CONCRETE

- A. Notify Engineer 1 day before each placement.
- B. Do not add water to concrete between mixing and placing operations without specific agreement of Engineer and continuous inspection acceptable to Engineer; under no circumstances may added water cause concrete to slump greater than that established in design mix; verify with slump tests; maintain uniform consistency.
- C. Conveying:
 1. Method must ensure uniform concrete at forms with minimum slump loss.
 2. Chutes must be steep enough to permit concrete of design consistency to flow to point of deposit or other means of conveying must be used.
- D. Fill forms completely in one operation.
- E. During placement operations, work concrete around reinforcement, embedded fixtures, and into corners of forms; thoroughly compact and exercise particular care to prevent surface voids and honeycomb on exposed surfaces.
- F. Placement in deep narrow forms other than column forms:
 1. Discharge into hopper feeding into drop chute if free fall will be more than 3'.
 2. Drop vertical; do not push or pull bottom of chute from vertical position to distribute concrete; move chute.
 3. For concrete exposed, the following applies:
 - a. Place in maximum 20" deep layers and consolidate each layer with preceding layer before starting placement of next layer.
 - b. Do not allow concrete to flow laterally for more than 3'; move chute or place sufficient number of chutes in forms to assure top of concrete is kept level.
 - c. If placement rate is faster than 2' per hour, reduce slump proportionally as each 1/4 of form depth is filled so slump of top 1/4 will not exceed 3".
 - d. If plasticized concrete is used, the maximum lift thickness may be increased to 7' and the maximum free fall of concrete shall not exceed 15'; subparagraphs "b." and "c." above do not apply.
- G. Place beams, girders, brackets, column caps and haunches integrally with floor system.
- H. Allow minimum 2 hours after deposit of columns or walls before depositing beams, girders or slabs supported thereon.

- I. Vibration of concrete:
 - 1. Use internal type vibrator; insert and withdraw slowly.
 - 2. Insert vibrator vertically to full depth of layer being placed, at regular intervals (18" to 30").
 - 3. Do not use vibrator to cause concrete to flow from one location to another.
 - 4. Avoid segregation in concrete due to over vibration.
 - 5. Do not allow vibrator to come in contact with formwork surfaces for exposed concrete.
- J. Stop placement only where directed, at point of no shear, and erect tight, plumb dams through forms.

3.04 JOINTS

- A. Key construction joints; where reinforcing is interrupted, dowel joints; size and number of dowels as shown on drawings.
- B. Place construction joints through framed slabs on center of span unless otherwise shown on drawings or approved by Engineer.
- C. Wall construction joints must form symmetrical pattern on exposed surfaces, unless otherwise shown on drawings
- D. Vertical construction joints are allowed at quarter points in walls; lap reinforcing steel as specified; install keyway and waterstop; submit location of proposed vertical construction joints prior to construction for Engineer's review.
- E. Hold top of expansion or isolation joint filler maximum 1/2" below surface for joint sealer at exposed joints.
- F. Control joints in slabs on grade:
 - 1. Saw cut joints to depth of 1/4 of slab thickness, unless otherwise specified; make cut not less than 8 hours or more than 24 hours after slab is placed.
 - 2. In lieu of saw cutting joint, Contractor may place metal crack control joint.
 - 3. Stop every other bar at joint.
- G. Dowels:
 - 1. For expansion joints.
 - 2. Install in center of slab or at third points as shown on drawings, parallel to surface and perpendicular to joint.
 - 3. Completely coat one end with heavy grease at joints where preformed filler is required; expansion cap required over greased end of dowel.

- H. Where applied floor coverings are scheduled, fill saw cut joints in interior slabs with dry mix of 1:9 cement and sand.
- I. Fill all other interior saw cut joints, expansion and isolation joints with Thickol joint sealer in accordance with manufacturer's directions; prime edges of joint if recommended by manufacturer.
- J. Waterstops:
 - 1. Required where shown on drawings and at joints subject to hydrostatic pressure.
 - 2. Heat splice joints in accordance with manufacturer's specifications.
 - 3. Install as detailed on drawings; wire to reinforcing.

3.05 FINISH ON FORMED SURFACES

- A. Uniform finish required on exposed concrete surfaces.
- B. Texture on formed surfaces must be indicative of form material used, except for following limitations and requirements:
 - 1. Small, isolated air bubbles will be allowed.
 - 2. Width and projection of form marks on exposed concrete must not be greater than 1/16", except no projections allowed on inside channel or conduit walls and slabs; grind off projections as required.
- C. Finish exposed top surface of formed members as closely as possible to finish on formed surfaces.
- D. Repair defective concrete and damaged areas as follows:
 - 1. Cut back to solid concrete all weak concrete around holes and at honeycomb.
 - 2. Thoroughly wet area to be repaired and brush coat with neat cement grout.
 - 3. Fill large voids with cement mortar composed of 1 part cement, 2 parts fine aggregate and water; place in compacted layers to finish flush with adjacent surfaces.
 - 4. On exposed concrete:
 - a. Remove excess grout, after it is partially set, by working with float and rubbing with burlap; leave no visible filler or grout.
 - b. Patched areas must match adjacent surface.
- E. Where form ties are used, fill cutback holes as specified above for repairing defective concrete.
- F. Smooth form finish all exposed concrete surfaces, completely remove fins.

G. Rough-Form Finish

1. No additional finishing is required.

H. Rubbed Finish

1. While the wall is still damp apply a thin coat of medium consistency neat cement slurry by means of bristle brushes to provide a bonding coat within all pits, air holes or blemishes in the parent concrete. Avoid coating large areas with the slurry at one time.
2. Before the slurry has dried or changed color, apply a dry (almost crumbly) grout proportioned by volume and consisting of 1 part cement to 1-1/2 parts of clean masonry sand having a fineness modulus of approximately 2.3 and complying with the gradation requirements of ASTM C33 for such a material. Grout shall be uniformly applied by means of damp pads of coarse burlap approximately 6" square used as a float. Scrub grout into the pits and air holes to provide a dense mortar in all imperfections.
3. Allow the mortar to partially harden for 1 or 2 hours depending upon the weather. If the air is hot and dry, keep the wall damp during this period using a fine, fog spray. When the grout has hardened sufficiently so it can be scraped from the surface with the edge of a steel trowel without damaging the grout in the small pits or holes, cut off all that can be removed with a trowel. (Note: Grout allowed to remain on the wall too long will harden and will be difficult to remove.)
4. Allow the surface to dry thoroughly and rub it vigorously with clean dry burlap to completely remove any dried grout. No visible film of grout shall remain after this rubbing. The entire cleaning operation for any area must be completed the day it is started. Do not leave grout on surfaces overnight. Allow sufficient time for grout to dry after it has been cutoff with the trowel so it can be wiped off clean with the burlap.
5. On the day following the repair of pits, air holes and blemishes, the walls shall again be wiped off clean with dry, used pieces of burlap containing old hardened mortar which will act as a mild abrasive. After this treatment, there shall be no built-up film remaining on the parent surface. If, however, such a film is present, a fine abrasive stone shall be used to remove all such material without breaking through the surface film of the original concrete. Such scrubbing shall be light and sufficient only to remove excess material without changing the texture of the concrete.
6. A thorough wash-down with stiff bristle brushes shall follow the final bagging or stoning operation. No extraneous materials shall remain on the surface of the wall. The wall shall be sprayed with a fine fog spray periodically to maintain a continually damp condition for at least 3 days after the application of the repair grout.

3.06 PROTECTING AND CURING

- A. Protect exposed surfaces from premature drying.

- B. Protect freshly placed concrete against wash by rain.
- C. Keep concrete continuously cured for 7 consecutive days after placement, including weekends and holidays (3 days if Type III Portland cement is used).
- D. Approved methods of curing:
 - 1. Wet cure using continuous sprinklers or submerging concrete; alternate cycles of wetting and drying not permitted; exercise special care when surrounding air is heated during cold weather operations.
 - 2. Cover with fabric mats and keep wet during curing period.
 - 3. Cover with waterproof paper which meets requirements of ASTM C171. Waterproof paper shall remain in place for duration of curing period.
 - 4. Cover with clear or white polyethylene sheets, 0.004" thick; lap edges minimum 4" and seal with tape. Polyethylene sheets shall remain in place for duration of curing period.
 - 5. Seal with liquid applied curing and sealing compound applied in accordance with manufacturer's directions; do not apply compound on construction joints.
 - 6. Do not use Methods 1, 2, and 5 in unheated areas during cold weather operations if exposed concrete is protected with blanket insulation.
- E. Vertical surfaces:
 - 1. Wood forms, kept wet, and metal forms provide satisfactory curing; cure exposed top surfaces as specified above.
 - 2. When forms are removed before end of curing period, exposed concrete must be cured by one of first three approved methods included under Item D.

3.07 INTERIOR SLABS ON GRADE

- A. Thickness as shown on drawings.
- B. Place over vapor barrier as specified in Section 07110; 6" minimum well graded and compacted granular leveling course under membrane.
- C. Isolation joint where shown on drawings and as specified herein under JOINTS.
- D. Unless otherwise shown, place exposed slab either:
 - 1. In strips, maximum 15' wide with control joints centered on columns and saw across strips, as specified herein, under JOINTS, at maximum 15' spacings on column centers.
 - 2. Place alternate panels checkerboard with control joints on column centers in each direction and maximum 15' oc.
- E. Finish as specified herein under FLATWORK FINISHING.

- F. Note requirements for drains and process equipment.

3.08 SURFACE COURSES

- A. Remove all debris and sweep cured slab base with heavy wire broom; dry brush to remove dust; wash and keep slab wet for 12 hours prior to placement of fill.
- B. Remove any excess water 15 to 30 min. prior to placement of surface course.
- C. Finish as specified herein under FLATWORK FINISHING.

3.09 FLATWORK FINISHING

- A. Screed and float.
- B. After floating, check surface with straight edge and eliminate high and low spots; interior slab must be level or flat within 1/4" in 10'; 3/8" in 20'; 3/4" in 40', and drain to floor drains; remove and replace any concrete slabs not meeting these requirements; replacement limits determined by extent of deficiencies and by structural considerations.
- C. Do not use dust coat and add no water.
- D. Trowel interior slabs, surface courses and concrete fillets not otherwise specified to smooth, polished surface:
 - 1. Delay troweling until concrete has hardened sufficiently to prevent excess fines from working to surface; avoid excessive troweling.
 - 2. After topping has set to ring trowel, trowel second time to produce burnished finish.
- E. Fine float finish structural slabs over which waterproofing will be placed; floors in rooms, with vehicular access, steps and platforms.
- F. Non-slip floor surfaces:
 - 1. Required for concrete fill of steel stairs and where shown on drawings.
 - 2. After concrete floor surfaces have been floated and troweled, but while still plastic, sprinkle abrasive aggregate evenly onto the surface and work it into the surface during finishing so that the grains are securely imbedded in the concrete at the surface. Application rate 25 to 40 lbs./100 SF as recommended by the manufacturer.
- G. Liquid floor hardener:
 - 1. Required for interior floors not scheduled to receive floor coverings and for concrete fill of steel stairs.

2. Do not use curing compounds for curing these slabs.
3. Apply in 3 coats to thoroughly cured floor over clean dry surface in accordance with manufacturer's directions.
4. Dilute with water, as recommended by manufacturer, for heavy duty dense floors.
5. Unless otherwise recommended on directions furnished with material, dilute fluosilicate based liquid applied hardener (parts by volume) as follows:

<u>Coat</u>	<u>Water</u>	<u>Hardener</u>
First	3	1
Second	2	1
Third	1	1

3.10 EQUIPMENT BASES

- A. Furnish bases for all mechanical and electrical equipment where shown on drawings or specified.
- B. Where required, anchor bolts and template to ensure proper location must be furnished by subcontractor concerned.
- C. Finish as specified herein under FLATWORK FINISHING.
- D. Grout under base of equipment; pack grout to completely fill voids.

3.11 SEALING EXTERIOR SLABS

- A. Required for exterior slabs placed between September 15 and May 1 which may be subjected to deicing agents.
- B. After specified curing, seal slabs as follows:
 1. First coat 1/2 boiled linseed oil and 1/2 mineral spirits applied at rate of approximately 450 SF per gallon.
 2. After first coat has dried, apply second coat of uncut boiled linseed oil at rate of approximately 540 SF per gallon.

3.12 SCHEDULE OF FINISHES

- A. Concrete shall be finished as specified either to remain as natural concrete to receive an additional applied finish or material under another section.
- B. Concrete for the following conditions shall be finished as noted on the drawings and as further specified herein:
 1. Concrete to receive dampproofing or waterproofing: Rough-form finish.

2. Concrete not exposed to view and not scheduled to receive an additional applied finish or material: Rough-form finish.
3. Exterior vertical concrete above grade exposed to view: Rubbed finish.
4. Interior vertical concrete exposed to view except in water containment areas: Rubbed finish.
5. Vertical concrete in water containment areas. Rough-form finish.
6. Interior and exterior underside of concrete exposed to view: Rubbed finish.
7. Interior or exterior horizontal concrete not requiring floor hardener or sealer: Floated finish.
8. Concrete for exterior walks, interior and exterior stairs: Broomed finish perpendicular to direction of traffic.
9. Concrete slabs on which process liquids flow or in contact with sludge: Steel trowel finish.

END OF SECTION

SECTION 05500

METAL FABRICATIONS

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- 2.04 SHOP PAINTING

PART 2 – PRODUCTS

- 2.01 MATERIALS
- 2.02 FABRICATION

PART 3 – EXECUTION

- 3.01 INSTALLATION

PART 1 – GENERAL

1.01 DESCRIPTION

- A. This section describes fabricated metal items as specified hereinafter and miscellaneous metal shapes and plates not specified elsewhere, but shown on plans.
- B. Installation of anchorage accessories specified under following sections:
 - 1. Section 03100 - Concrete Formwork.
- C. Related work specified elsewhere:
 - 1. Section 03300 – Cast-in-Place Concrete.

1.02 SUBMITTALS

- A. Submit complete shop and erection drawings:
 - 1. Clearly show fabrication and installation tolerances.
 - 2. Prepare field connection details along lines indicated and/or specified.
 - 3. Design basis, if any.
 - 4. Clearly show all materials (including ASTM numbers), dimensions, details, anchorage inserts, fasteners, weights, painting or coatings and similar details.
- B. See Section 01300 - Submittals for additional requirements.

PART 2 – PRODUCTS

2.01 MATERIALS

- A. Mild steel: 0.15 - 0.25% carbon content, free from scale and accurate to size or gauge.
- B. Structural steel shapes, plates and bars: ASTM A36.

- C. Reinforcing steel rods: ASTM A615, Grade 40 or 60.
- D. Galvanizing: hot-dip, ASTM A385, ASTM A384, ASTM A153, ASTM A386, ASTM E376 and ASTM A123, minimum 4 mil thickness unless noted otherwise.
- E. Aluminum-alloy extruded bars, rods, shapes and tubes: ASTM B221, alloy 6061-T6 or 6063-T6.
- F. Aluminum-alloy shapes: ASTM B308, alloy 6061-T6 or 6063-T6.
- G. Aluminum-alloy sheet and plate: ASTM B209, alloy 6061-T6 or 6063-T6.
- H. Aluminum-alloy structural pipe and tube: ASTM B429, alloy 6061-T6 or 6063-T6.
- I. Aluminum-alloy seamless extruded tubing: ASTM B241, alloy 6061-T6 or 6063-T6.
- J. Cast aluminum fittings: ASTM B26, alloy 214.
- K. Forged aluminum fittings: ASTM B247, alloy 6061-T6 or 6063-T6.
- L. Cast aluminum treads with abrasive surface: Wooster Alumogrit Type 150, American Abrasive Alomalun Style CB-1, Stubbs CB15, or equal.
- M. Aluminum grating treads and landings: Borden Type IB with 1-1/4" abrasive nosings, or equal.
- N. Aluminum tread plate: ASTM B209; alloy 6061-T6 or 6063-T6.
- O. Stainless steel: ASTM A167, Type 302/304 or 316 with No. 4 satin finish; castings: ASTM A296; chain: ASTM A473; bolts: ASTM F593, 300 Series; nuts: ASTM F594, 300 Series.
- P. Coil inserts: Superior, or equal; electro-galvanized.
- Q. Expansion bolts: Hilti Kwik Bolt, or equal; Series 300 stainless steel where shown on drawings.
- R. Anchor bolts: Series 300 stainless steel, unless noted otherwise.
- S. Threaded rod: Series 300 stainless steel, unless noted otherwise.
- T. Aluminum Plank: ASTM B221; alloy 6061-T6 or 6063-T6; solid, unpunched surface with striated surface.

2.02 FABRICATION

- A. General:
 - 1. Weld joints and connections unless shown otherwise on drawings.
 - 2. Welds must conform to requirements of AWS D1.0-69, Code for Welding in Building Construction.
 - 3. Exposed welds neat and uniform; finishing or grinding of welds not required unless specified or necessary for proper clearance or fit with other items.
- B. Mounting brackets and reinforcing angles:
 - 1. Aluminum or stainless steel.
 - 2. Anchorage as shown on drawings.
- C. Frames for mechanical roof openings:
 - 1. Aluminum or stainless steel.
 - 2. All welded construction.
- D. Aluminum platforms and walkways:
 - 1. Conform to details shown on drawings and OSHA requirements.
 - 2. Structural aluminum stringers, beams, columns, tubing, landing members, clips and support plates; stainless steel anchorage.
 - 3. Assemble components with neat, tight joints; conceal field connection fastenings where possible.
 - 4. Shop welded connections, unless otherwise shown.
 - 5. Close exposed ends of stringers with closure welded in place.
 - 6. Exposed mechanically secured joints: tight and neat in appearance; welded joints: completely closed and neat.
 - 7. Aluminum gratings: joints and connections neat and uniform; mechanically fasten grating to supporting members: see paragraph E. Grating, for further requirements.
 - 8. Aluminum tube handrails and railings: stainless steel or aluminum wall rail brackets with stainless steel anchorage at maximum 5' oc; return ends of wall rails to wall and terminate 1/4" free of wall; see paragraph F. Handrails, for further requirements.
- E. Grating:
 - 1. Prefabricated skid resistant walking surface (per OSHA), aluminum grating with aluminum edge support angles and other support angles to limit deflection; details shown on drawings.
 - 2. For open grating: Ohio Gratings, I-Bar SGI Series; Barnett Bates, I-Bar; McNichols, Bar Grating Swage-Locked, I-Bar, or equal.
 - 3. For solid grating: Ohio Gratings, Aluminum Plank; Barnett Bates, Aluminum Plank Grating; McNichols, Extruded Interlocking Plank, or equal.
 - 4. Provide supports required to limit deflection to 0.25" with 100 psf live load; subject to field testing and rejection by Engineer. Not all supports are shown on drawings. Where single panel cannot span opening, submit aluminum or stainless steel

supports designed by manufacturer's Engineer licensed in State of Iowa. Cost of supports are incidental to grating.

5. Provide aluminum edge support angles for embedment in concrete required to set grating flush with top of concrete walls.
6. Edge banding or end plates at all edges and as required to stiffen irregular sections.
7. Provide openings shown; provide joints at center of openings where possible to permit removal of grating around items passing through.
8. Provide positive grating fasteners over each support using bolts, clips, plates and self-tapping screws as required; friction type fasteners not acceptable.
9. For solid grating: provide recessed drop handles (two per panel, one each end) for removal of panel. Finger hole not acceptable.
10. Panel size limited to no greater than 14 square feet per panel over open channels.

F. Handrails:

1. Prefabricated aluminum rails, posts, fittings, connectors, fascia brackets, wall brackets, toeboards, reinforcing bars, cover flanges; stainless steel concrete anchors, safety chains and miscellaneous items.
2. Reynorail II, Reynolds Metals Co.; Connectorail, Julius Blum and Co., Inc., or equal.
3. Finish: clear satin anodized finish on all exposed surfaces; 0.4 mil anodized for cast components, 0.7 mil anodized for extruded components; protect all pipe and fittings for shipping by packaging each piece in plastic film.
4. Construct two-pipe horizontal rails with upper pipe centered 42" and lower pipe 21" above floor, except as noted otherwise on drawings.
5. Handrail system designed to meet OSHA requirements.
6. Pipe rail and post outside diameter: 1.90"; minimum thickness Schedule 40.
7. Maximum post spacing: 5'-0", but not less than required for OSHA design.
8. Set posts as shown on drawings where indicated to provide maximum walking clearance.
9. Protect metals from electrolysis caused by contact between dissimilar metals.
10. Provide 1/4" x 4" aluminum plate toe plate required by OSHA; secure to handrail posts with aluminum or stainless steel fasteners.
11. Provide stainless steel safety chains with eyebolts and hooks where shown on drawings.

G. Pipe hangers and supports: aluminum or stainless steel unless noted otherwise; Elcen, or equal.

H. Stop and weir plates: aluminum or stainless steel with stainless steel fasteners.

I. Tread plate: as detailed on drawings.

2.03 ANCHORS, BOLTS AND FASTENING DEVICES

A. Anchor bolt material shall be ASTM A307 unless otherwise noted.

- B. Unless otherwise noted, bolts for the connection of carbon steel or iron shall be steel machine bolts; bolts for the connection of galvanized steel or iron shall be galvanized steel or stainless steel machine bolts; and bolts for the connection of aluminum or stainless steel shall be stainless steel machine bolts.
- C. Unless otherwise noted, expansion anchors shall be zinc plated carbon steel wedge type anchors complete with nuts and washers. Type 316 stainless steel wedge type anchors shall be used where they will be submerged or exposed to the weather or where stainless steel wedge type anchors are required. When the length or embedment of the bolt is not noted on the Drawings, provide length sufficient to place the wedge and expansion cone portion of the bolt at least 1-in behind the concrete reinforcing steel. Expansion anchors shall be Hilti, Kwik-Bolt II; Simpson Strong-Tie Wedge-All; Powers Power-Stud or equal.
- D. Compound masonry expansion anchors shall be lead expansion sleeve type anchors complete with nuts and washers. Anchors shall be precision die-cast zinc alloy with a minimum of two lead alloy expansion sleeves. When the length or embedment of the bolt is not noted on the Drawings, provide length sufficient to place the wedge and expansion sleeve portion of the bolt at least 1-in behind the concrete reinforcing steel. Expansion anchors shall be Star Expansion Industries, Star Slugin or equal.
- E. Adhesive anchors shall be a two-part dual cylinder chemical resin anchoring system. Cylinders shall contain premeasured amounts of resin, cement and a hardener. Adhesive epoxy anchors for bonding dowels and anchors in drilled holes shall be SIKADUR Anchor FIX-4, Hilti HIT HY 150 Max or approved equal. Approved equivalents shall meet the requirements of ASTM C-881.
- F. Adhesive anchors, for fastening to hollow concrete block or brick, shall be a three-part stud, screen and chemical dispenser anchoring system. Adhesive cartridges shall contain premeasured amounts of resin and hardener which are mixed and deposited in a screen tube by a dispenser. Stud assemblies shall consist of an all-thread anchor rod with nut and washer. Anchors shall be Hilti, HIT C-20 System or equal.
- G. Automatic end welded headed anchor studs shall be flux ended studs made from cold drawn steel, ASTM A108 Grades C-1010 through C-1020. Headed anchor studs shall be Nelson, H4L Headed Concrete Anchors or equal.
- H. Machine bolts and nuts shall conform to Federal Specification FF-B-575C. Bolts and nuts shall be hexagon type. Bolts, nuts, screws, washers and related appurtenances shall be Type 316 stainless steel.
- I. Toggle bolts shall be Hilti, Toggler Bolt or equal.

2.04 SHOP PAINTING

- A. Clean surface of steel items free of scale, rust or foreign matter and apply one shop prime coat to all steel items.

PART 3 – EXECUTION

3.01 INSTALLATION

- A. Assemble components, securely join together and attach assembly to structure; where not specifically shown, each stair attachment must adequately transfer its dead load and 100 psf live load to structure.
- B. Level stair treads and landings in both directions with tolerance of 1/8" in 10'.
- C. Set balusters of each stair run in same vertical plane; plumb within 1/8" of vertical.
- D. Set handrails parallel with top of strings, base or other rails within 1/8" in 10 running feet.
- E. Install anchorage inserts in concrete formwork as shown on drawings.
- F. Securely anchor all items plumb, square and level and in correct alignment with other work.
 - 1. Check for warp and all dimensions of weirs after installation; adjust or reinstall if required by Engineer.
- G. Coat aluminum surfaces in contact with concrete with bituminous paint.
- H. Weirs:
 - 1. Set weir plates level and to elevations shown on plans with carpenters 3' level and torpedo level; check and adjust as necessary before plant startup.
 - 2. Check for warp and all dimensions of weirs after installation; adjust or reinstall if required by Engineer.

END OF SECTION

SECTION 07900

JOINT SEALERS

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PART 1 – GENERAL

1.01 DESCRIPTION

- A. Work includes:
 - 1. Cleaning and preparation of joint surfaces.
 - 2. Sealants and backing materials.
 - 3. Sealant installation.
- B. Products specified to be furnished and installed elsewhere:
 - 1. Section 03300, joints in concrete slabs.
 - 2. Pertinent sections under which systems are specified: sealants integral with systems.
- C. Related work specified elsewhere.
 - 1. Section 03300 – Cast-In-Place Concrete.
 - 2. Division 15 - Mechanical.
 - 3. Division 16 - Electrical.

1.02 PRE-APPLICATION MEETING

- A. Before any sealants are installed, hold meeting at job site between Engineer's representative and Contractor or his representative in charge of caulking operation; representative of manufacturer of materials to be used should also be present.
- B. Using materials and equipment which will be employed on project, demonstrate methods which will be used to install each type of joint required on project.

1.03 REFERENCES

- A. ASTM C790 - Recommended Practices for Use of Latex Sealing Compounds.
- B. ASTM C804 - Recommended Practice for Use of Solvent-Release Type Sealants.
- C. ASTM C834 - Latex Sealing Compounds.
- D. ASTM C920 - Elastomeric Joint Sealants.
- E. ASTM C962 - Use of Elastomeric Joint Sealants.
- F. ASTM E814 - Fire Tests of Through-Penetration Fire Stops.
- G. FS TT-S-00230C - Sealing Compounds, Synthetic-Rubber Base, Single Component, Chemically Curing.
- H. SWI - Sealant & Waterproofers Institute: Guide Specifications.

1.04 ENVIRONMENTAL REQUIREMENTS

- A. Do not place sealant when air temperature is below 40°F. except under conditions acceptable to sealant manufacturer.

1.05 SUBMITTALS

- A. Submit Manufacturer's literature of the material to be used for approval. Submitted information shall include:
 - 1. Complete materials list of all items proposed to be furnished and installed under this section.
 - 2. Manufacturer's specifications and other data required to demonstrate compliance with the specified requirements.
 - 3. Manufacturer's recommended methods of installation.
 - 4. Standard color charts for each item as applicable.

- B. See Section 01300 - Submittals for additional requirements.

1.06 WARRANTY

- A. Provide two-year warranty.
- B. Warranty: include coverage of installed sealants and accessories which fail to achieve airtight and watertight seal, exhibit loss of cohesion or adhesion, do not properly cure, or stain adjoining surfaces.
- C. Warranty to run from date of completion of correction of deficiencies one year after substantial completion of the work.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to Project site in original unopened containers or bundles with labels informing about manufacturer, product name and designation, color, expiration period for use, pot life, curing time, and mixing instructions for multi component materials.
- B. Store and handle materials in compliance with manufacturers' recommendations to prevent their deterioration or damage due to moisture, high or low temperatures, contaminants, or other causes.

1.08 PROJECT CONDITIONS

- A. Environmental Conditions:
 - 1. Do not proceed with installation of joint sealers under the following conditions:
 - a. When ambient and substrate temperature conditions are outside the limits permitted by joint sealer manufacturers.
 - b. When joint substrates are wet due to rain, frost, condensation, or other causes.
- B. Joint Width Conditions:
 - 1. Do not proceed with installation of joint sealers where joint widths are less than allowed by joint sealer manufacturer for application indicated.
- C. Joint Substrate Conditions:
 - 1. Do not proceed with installation of joint sealers until contaminants capable of interfering with their adhesion are removed from joint substrates.

PART 2 – PRODUCTS

2.01 MATERIALS, GENERAL

- A. Compatibility:
 - 1. Provide joints sealers, joint fillers and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.
- B. Colors:
 - 1. Provide color of exposed joint sealers as selected by Engineer.

2.02 SEALANTS

- A. Type 2A: Urethane, Two-Part, Self-Leveling; ASTM C920, Type M, Grade P, Class 25; Pecora "Urexpan NR-200", Tremco "THC900", or Vulkem "255".
- B. Type 2B: Urethane, Two-Part, Non-Sag, ASTM C920, Type M, Grade NS, Class 25; Pecora "Dynatrol II", Tremco "Dymeric", or BASF "MasterSeal NP 2".
- C. Type 2C: Urethane, One-Part, Self-Leveling; ASTM C920, Type S, Grade P, Class 25; Pecora Urexpan NR-201", Vulkem "45", or Sika "1A SL".
- D. Type 2D: Urethane, One-Part, Non-Sag; ASTM C920, Type S, Grade=NS, Class 25; Pecora "Dynatrol I", Tremco "Dymonic", or Sika "1A".
- E. Type 3: Silicone, One-Part, Low Modulus; ASTM C920, Type S, Grade NS, Class 25; 40; Pecora "864", Dow Corning "790", or GE "Gesil N".
- F. Type 4: Acrylic Polymeric, One-Part; FS TT-S-00230C, Type II, Class B; non-sag; non-bleeding and non-staining; Tremco "Mono", Pecora "60+ Unicrylic", or PTI "767".
- G. Type 5: Acrylic Latex Polymer, One-Part; ASTM C834; non-sag, premium quality; Pecora "AC-20", Tremco "Acrylic latex", or Sonneborn "Sonolac".
- H. Type 6: Acoustical Sealant, One Part; acrylic latex polymer, non-sag, acoustically tested; Pecora "AC-20 Acoustical Sealant", Tremco "Acoustical Sealant", or USG "Acoustical Sealant".
- I. Type 9A: Preformed Tape: Butyl-polyisobutylene, similar and equal to Tremco 440.

- J. Type 9B: Precompressed polyester polyurethane foam sealant; similar and equal to Will-Seal Construction Foams, Troy, MI - Will-Seal 150G.
- K. Intumescent Fire Barrier Penetration Sealing System: ASTM E814 fire rated equal to fire rating of penetrated construction; UL listed; similar and equal to 3M Series 7900.
- L. Silicone RTV Foam Sealant: Two-part foamed-in-place silicone foam; ASTM E814 fire rated equal to fire rating of penetrated construction; UL listed; similar and equal to Dow Corning 3-6548.
- M. Sealant Colors: as selected by Engineer from manufacturer's standards.

2.03 PREPARATORY MATERIALS

- A. Primer: nonstaining type, recommended by sealant manufacturer to suit application.
- B. Joint cleaner: noncorrosive and nonstaining type, recommended by sealant manufacturer; compatible with joint forming materials.
- C. Backing rod: round, closed-cell, foam rod recommended by sealant manufacturer; diameter 30 to 50 percent larger than joint width to assure a friction fit.
- D. Fire barrier: similar and equal to Tremco/Manville Cerablanket-FS.
- E. Bond breaker: pressure sensitive tape recommended by sealant manufacturer to suit application.

2.04 JOINT SEALANT BACKING

- A. General:
 - 1. Provide sealant backings of material and type which are nonstaining; are compatible with joint substrates, sealants, primers and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
- B. Plastic Foam Joint Fillers:
 - 1. Preformed, compressible, resilient, non-waxing, non-extruding strips of flexible, non-gassing plastic foam of material indicated below; nonabsorbent to water and gas; and of size, shape and density to controls sealant depth and otherwise contribute to producing optimum sealant performance.
 - a. Either open-cell polyurethane foam or closed-cell polyethylene foam, unless otherwise indicated, subject to approval of sealant manufacturer.
 - 2. Backing material shall be of proper size and placed in all joints where practicable.

PART 3 – EXECUTION

3.01 INSPECTION

- A. Examine the areas and conditions under which work of this section will be performed.
- B. Correct conditions detrimental to the proper and timely completion of the work.
- C. Do not proceed until unsatisfactory conditions have been corrected.

3.02 PREPARATION

- A. All surfaces in contact with sealant shall be dry, sound, well-brushed, and wiped free from dust.
- B. Use solvent to remove oil and grease, wiping the surfaces with clean rags.
- C. Where surfaces have been treated and/or existing sealant remains, remove the surface treatment and/or existing sealant by wire brushing. Care shall be used when brushing existing surface so as to not damage surfaces which will not be concealed by sealant.
- D. Perform preparation in accordance with ASTM C962 recommendations.
- E. Protect elements surrounding the work of this section from damage or disfiguration.
- F. Remove all laitance and mortar from the joint cavity.
- G. Where backstop is required, insert the approved backup material in the joint cavity to the required depth.
- H. Use only the primer recommended by the sealant manufacturer and approved by the Engineer for the particular installation; apply the primer in strict accordance with the manufacturer's recommendations.
- I. Protect surfaces which will be exposed to view as required to prevent damage or discoloration of exposed surfaces.

3.03 INSTALLATION

- A. Comply with ASTM C804 for solvent release and ASTM C790 for latex base sealants.

- B. Install sealant in accordance with ASTM C962, SWI recommendations, and manufacturer's instructions.
- C. Measure joint dimensions and size materials to achieve required width/depth ratios.
- D. Install joint backing to achieve a neck dimension no greater than 1/3 of joint width; no thicker than 1/2" (12.7 mm) and no thinner than 1/8" (3 mm), unless otherwise recommended by manufacturer. For joints through fire rated construction, use fire barrier in lieu of joint backing at face of joint with greater fire exposure.
- E. Install bond breaker where joint backing not used.
- F. Vent completely sealed cavities back of sealant and joint backing with 1/4" (6 mm) ID plastic tubing 6' to 10' (1.8 to 3 m) oc horizontally at bottom and top of cavity and approximately 10' (3 m) oc in vertical joints; position tube to slope downward to outside, unless otherwise required to prevent entry of water into cavity space, with outer end no more than 1/8" (3 mm) beyond surface at sides of joint.
- G. Mix two-part sealants in accordance with manufacturer's directions.
- H. Apply sealant within recommended application temperature range. Consult manufacturer when sealant cannot be applied within this temperature range.
- I. Install sealant free of air pockets, foreign embedded matter, ridges, and sags.
- J. Tool joints neat and true using tooling solution recommended by sealant manufacturer; produce smooth concave surface.

3.04 FIELD QUALITY CONTROL

- A. Provide for replacing 3 LF of each type of joint after cuts have been made for field quality control verification.

3.05 CLEANING AND REPAIRING

- A. Clean adjacent surfaces free of sealant or soil resulting from this work as work progresses; leave finished work neat and clean.
- B. Repair or replace defaced or disfigured finishes caused by work of this section.

3.06 CORRECTION OF DEFICIENCIES

- A. One year after substantial completion of work, examine exterior sealant joints and prepare list of deficiencies to be corrected. Correct deficiencies in accordance with SWI recommendations and manufacturer's instructions.

3.07 SCHEDULE

- A. Schedule is list of principal locations only. Refer to drawing details for locations not specifically scheduled.
- B. Exterior:
 - 1. Perimeters of exterior openings where frames meet exterior facade of building: Type 2B, 2D, 3, or 4.
 - 2. Expansion and control joints in exterior surfaces of cast-in-place concrete walls: Type 2B, 2D, or 9B.
 - 3. Control and expansion joints in exterior surfaces of unit masonry walls: Type 2B, 2D, or 9B.
 - 4. Exterior joints in horizontal concrete wearing surfaces: 2A or 2C.
 - 5. Bedding for watertight surface application of metal items: Type 9A.
- C. Interior:
 - 1. Seal interior perimeters of exterior openings: Type 2B, 2D, or 3.
 - 2. Control and expansion joints in interior face of exterior cast-in-place concrete walls: Type 2B, 2D, or 3.
 - 3. Joints in underside of precast concrete beams or planks: Type 2B, 2D, or 9B.
 - 4. Control and expansion joints in interior face of exterior unit masonry walls: Type 2B, 2D, 3 or 9B.
 - 5. Interior control and expansion joints in floor surfaces: Type 2A, or 2C.
 - 6. Perimeters of interior frames, where detailed: Type 1B, 1D, 2B, 2D, or 3.
 - 7. Interior masonry vertical control joints (block-to-block, block-to-concrete, and intersecting masonry walls); Type 2B, 2D, 3, or 9B.
 - 8. Joints at tops of non-load bearing masonry walls at underside of concrete structure: Type 2B, 2D, 5, 6, or 9B.
 - 9. Perimeter of bath fixtures (sinks, water closets, basins, vanities): Type 2B, 2D, 3 or 5.
 - 10. Penetrations through Fire Rated Constructions: Intumescent Fire Barrier Penetration Sealing System. Silicone RTV Foam Sealant.

END OF SECTION

SECTION 11000

EQUIPMENT INSTALLATION

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PART 1 – GENERAL

- 1.01 WORK INCLUDED
- 1.02 RECEIVING, TRANSPORTING AND
STORING
- 1.03 ASSEMBLY AND ERECTION
- 1.04 SUPPORTS AND FOUNDATIONS
- 1.05 PROTECTION
- 1.06 CLEANING
- 1.07 LUBRICATION

- 1.08 ADJUSTMENTS
- 1.09 INITIAL OPERATION

PART 2 – PRODUCTS

NOT APPLICABLE

PART 3 – EXECUTION

NOT APPLICABLE

PART 1 – GENERAL

1.01 WORK INCLUDED

- A. Installation and erection of all equipment specified.
- B. Receiving, transporting, unloading, and storing of all equipment.
- C. Adjustments, lubrication, and initial operation.
- D. Foundations for all equipment.
- E. Anchor bolts, fasteners, and sleeves for all equipment.
- F. Specific requirements for equipment installation are included with individual equipment specification and manufacturer's drawings and instructions.

1.02 RECEIVING, TRANSPORTING AND STORING

- A. Receive all shipments of equipment at job site or local freight terminal.
- B. Transport as required and unload at job site.
- C. Store equipment in manner and location which will ensure complete fitness for operation; protect from rust, corrosion, weathering and vandalism.
- D. Pay all demurrage or storage charges.

1.03 ASSEMBLY AND ERECTION

- A. Completely assemble all equipment shipped knocked down; furnish minor items such as nuts, bolts, washers, pins and pipe fittings necessary for assembly and operation; use materials compatible with equipment.
- B. Erect and install ready for operation.
- C. Manufacturer of equipment to furnish stainless steel fasteners and supports unless specified otherwise.
- D. Contractor to supply stainless steel fasteners and supports not supplied with equipment.

1.04 SUPPORTS AND FOUNDATIONS

- A. Provide devices for supporting all equipment in accordance with recommendations of manufacturer and as shown on plans.
 - 1. Concrete pads for floor mounted equipment.
 - 2. Fabricated supports of steel sections, plates or rods for all hung equipment and bearing supports; prevent transmission of excessive forces to building structures or any piece of equipment or piping.
- B. Align and level all equipment; use shims as needed.
- C. Grout under all equipment on concrete foundations with non-shrink cement grout specified in Section 03300 - Cast-In-Place Concrete.
- D. Contractor of equipment to supply ASTM A167 Series 300 stainless steel anchor bolts, expansion anchors, nuts and washers and templates unless specified otherwise.

1.05 PROTECTION

- A. Structures:
 - 1. Use cribbing, shoring or planking to protect structures from damage due to construction operations.
 - 2. Repair any damage to structures or equipment after equipment is in place.
- B. Equipment:
 - 1. Protect against falling objects and construction operations which might damage equipment installed before construction is completed.

2. Provide pump and blower intakes with temporary hardware cloth screens or solid plugs; remove at direction of Engineer.
3. All equipment to receive shop paint before shipment.

1.06 CLEANING

- A. Clean equipment of all temporary protective coatings.
- B. Remove all oil, grease and dirt from external surfaces prior to painting.

1.07 LUBRICATION

- A. Lubricate all moving equipment parts in accordance with manufacturer's recommendations. Furnish lubricants as required.

1.08 ADJUSTMENTS

- A. Make any adjustments to equipment necessary to improve operation.
- B. Check equipment clearances and adjust in accordance with recommendations of manufacturers.
- C. Add or replace equipment packing, seals and similar items as required.

1.09 INITIAL OPERATION

- A. Supervise initial operation of all equipment.
- B. Maintain all equipment until acceptance by Owner.

PART 2 – PRODUCTS

Not Applicable.

PART 3 – EXECUTION

Not Applicable.

END OF SECTION

SECTION 11368

UV DISINFECTION EQUIPMENT

INDEX

PART 1 – GENERAL

1.01 DESCRIPTION

PART 3 – EXECUTION

3.01 INSTALLATION

3.02 MANUFACTURER'S SERVICES

PART 2 – PRODUCTS

NOT APPLICABLE

PART 1 – GENERAL

1.01 DESCRIPTION

- A. Furnish all labor and appurtenances required to install Owner-supplied UV Disinfection Equipment as shown on plans and specified hereinafter. The UV system shall be complete and operational with all control equipment and accessories as shown and specified herein. This system will be capable of disinfecting effluent to meet water quality standards.
- B. Related work specified elsewhere:
 - 1. Section 01300 – Submittals.
 - 2. Section 01600 – Material and Equipment.
 - 3. Section 05500 – Metal Fabrications.
 - 4. Section 11000 – Equipment Installation.
 - 5. Section 17100 – Process Control and Instrumentation Systems
- C. Refer to Appendix A – Owner-Supplied UV Disinfection Equipment for information on Owner-purchased UV Disinfection Equipment. Items excluded from Trojan's scope of supply must be provided by Contractor.
- D. Anticipated delivery date for UV Disinfection System to the site is the week of February 5th, 2024.

PART 2 – PRODUCTS

Not Applicable.

PART 3 – EXECUTION

3.01 INSTALLATION

- A. Install equipment in accordance with contract drawings, manufacturers' shop drawings, instructions, and installation checklist. Contractor Installation Checklist to be completed and returned at least two (2) weeks prior to date requested for commissioning. Photographs illustrating site readiness are required. The Contractor assumes all responsibility for the installation readiness of the UV system.
- B. All labor, materials, and test apparatus necessary for completing the installation shall be furnished by the Contractor at no additional cost to the Manufacturer.

3.02 MANUFACTURER'S SERVICES

- A. Startup and field testing, including all travel expenses: 1 Trip.
 - 1. Start-up and Field Services will only be scheduled upon written request. Contractor shall notify Trojan of schedule requirements at least ten (10) working days in advance. Upon arrival to commission the equipment, if the Trojan's Certified Service Technician determines the Contractor work is not complete and the start-up cannot be completed in the allotted time, a return visit will be scheduled at the Contractor's expense.
- B. Operator Training: 1 full day on-site. Contractor responsible to schedule the training during the commissioning time allocated. If trainees are not available, a return visit will be scheduled at the Contractor's expense.
- C. Warranty Service: As required during the warranty period.
- D. Trips and warranty service as detailed above are included in Owner-supplied equipment scope of supply. Contractor responsible to coordinate with Trojan and Owner to schedule trips. Contractor responsible for any costs associated with failure to coordinate startup and operator training.

END OF SECTION

SECTION 14300

HOISTS

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PART 1 – GENERAL

- 1.01 DESCRIPTION
- 1.02 BASIC REQUIREMENTS
- 1.03 SUBMITTALS

PART 2 – PRODUCTS

- 2.01 PORTABLE HOISTS

PART 3 – EXECUTION

- 3.01 INSTALLATION

PART 1 – GENERAL

1.01 DESCRIPTION

- A. This section describes the hoist equipment as shown on plans and specified hereinafter.
- B. Related work specified elsewhere:
 - 1. Section 05500 – Metal Fabrications.

1.02 BASIC REQUIREMENTS

- A. Meet all requirements of HMI, CMAA, ANSI, NEC, and OSHA for overhead hoists.
- B. Furnish materials, labor, and equipment necessary to complete all work specified in this section; I-beams are not to be supplied by hoist and trolley manufacturer.

1.03 SUBMITTALS

- A. Product data: including complete descriptive literature and manufacturer's installation instructions.
- B. Shop drawings: complete fabrication and erection drawings, including layout, dimensions, details, anchorage inserts, and erection information necessary to show compliance with specifications and recommended erection procedures.
- C. See Section 01300 - Submittals for additional requirements.

PART 2 – PRODUCTS

2.01 PORTABLE HOISTS

- A. Provide 1 portable davit crane suitable for mounting in pedestal mount.
- B. Manufacturer/Model:
 - 1. Thern, Inc. Commander 2000 Series, Model 5PT-20; quantity 1.
- C. Finish: Powder-coat.
- D. Winch: Provide crane with 4WP2-K electric winch with 6' pendant control; 115 VAC, 1 phase, 60 Hz; Thern option E2.
- E. Capacities: 2,000 lb.
- F. Cable for lifting bar rack; ¼" diameter 304 stainless steel wire rope; 28' length; provide with stainless steel swivel hook and swaged ball fitting.
- G. Provide 1 base for mounting as shown on plans; Thern Model 5BP20.

PART 3 – EXECUTION

3.01 INSTALLATION

- A. Install all equipment in accordance with manufacturer's recommendations and install as shown on drawings with end stops.
- B. Attach to concrete with stainless steel anchor bolts; size as recommended by hoist manufacturer.
- C. For additional requirements see Section 01600 - Materials and Equipment.

END OF SECTION

SECTION 15010

MECHANICAL GENERAL PROVISIONS

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PART 1 – GENERAL

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1.02	PLANS	1.15	CLEANING AND ADJUSTING
1.03	LEAK DAMAGE	1.16	RECORD DRAWINGS
1.04	INTENT	1.17	OPERATION AND MAINTENANCE MANUALS
1.05	PROTECTION OF EQUIPMENT AND MATERIALS	1.18	OPERATING INSTRUCTIONS
1.06	VERIFICATION OF EXISTING UTILITIES PIPING AND EQUIPMENT AND EXAMINATION OF SITE	1.19	CODES AND STANDARDS
1.07	LAYING OUT OF THE WORK	1.20	MOTORS, STARTERS AND DISCONNECT SWITCHES
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1.10	ACCESS	NOT APPLICABLE	
1.11	CUTTING AND PATCHING	<u>PART 3 – EXECUTION</u>	
1.12	TESTS	NOT APPLICABLE	
1.13	PERMITS		

PART 1 – GENERAL

1.01 DESCRIPTION

- A. Provide mechanical work, complete and operable, in accordance with the Contract Documents.
- B. Mechanical General Provisions requirements specifically applicable to Division 15 sections, in addition to Division 01 requirements.
- C. Wherever Mechanical General Provisions requirements conflict with any provisions of the General Requirements, Supplementary Conditions or Special Conditions, Mechanical General Provisions requirements shall take precedence.

1.02 PLANS

- A. The plans and specifications cover the extent and general arrangements of the various systems subject to the individual characteristics of the equipment with regard to size, arrangement, etc. The plans are diagrammatical and are not intended to include all of the details or dimensions. Where no figures or dimensions are noted, the plans shall be

accurately followed. Exceptions to or conflicts between the plans and specifications shall be brought to the Engineer's attention at least 7 days before bidding date.

1.03 LEAK DAMAGE

- A. The contractor shall be responsible for damage to the work of other contractors or to the building, or to its contents, people, etc., caused by leaks in any of the equipment or material installed by him through equipment or material failures or disconnected pipes or fittings, and shall make, at his own expense, all repairs or replacement required as a result of such damage.

1.04 INTENT

- A. It is the intention of these specifications and plans to call for finished work, tested and ready for use and operation by the Owner. Wherever the word "provide" is used, it shall mean "furnish and install complete and ready for use".

1.05 PROTECTION OF EQUIPMENT AND MATERIALS

- A. Provide protection against weather, rain, windstorms, frost, ice, heat, and other natural phenomenon so as to maintain all material and equipment free from injury or damage including physical damage of any nature. This shall include the erection of any temporary shelters to protect adequately any equipment stored on the site, and the covering of equipment in the completed building with protective coverings.

1.06 VERIFICATION OF EXISTING UTILITIES PIPING AND EQUIPMENT AND EXAMINATION OF SITE

- A. Verify the location of all existing utilities and coordinate with utility company personnel of requirements for properly connecting into their utilities; pay all associated fees.
- B. Verify the location of all piping and equipment and call to the attention of the Engineer any and all discrepancies which involve additional work before signing of the contract.
- C. After the contract is signed, any additional work required for the complete and working job shall be provided at no additional cost, unless specifically noted in the contract documents to the contrary.
- D. Locations, sizes, capacities, etc., of all piping shall be verified prior to doing any other work on piping systems which are to connect to new piping systems. Any work rendered unusable by failure to comply with this provision shall be replaced at no cost.
- E. Piping as mentioned in this division of the specifications shall be understood to include water, sewer and other piping systems necessary to the continued operation of any and

all new or existing systems and equipment, whether on a temporary or permanent basis as noted elsewhere in the contract documents.

- F. Prior to submitting proposals for this work, each contractor bidding shall first examine the site and all conditions thereon and/or therein. All proposals shall take into consideration all such conditions as may affect the work under this Contract.

1.07 LAYING OUT OF THE WORK

- A. Layout work on the premises and make proper provision for the other work. The exact location of each item shall be determined by reference to the general plans, by measurements at the building and in cooperation with other contractors. The Contractor shall be responsible for accurately locating all openings for ducts, pipes, etc., and access doors required.

1.08 COORDINATION

- A. Any interferences with other trades shall be corrected before the work proceeds. Coordinate location of plumbing and mechanical equipment with structural conditions.
- B. The mechanical and electrical portions of the work shall have precedence over one another in accordance with the following sequence:
 - 1. Soil and waste piping.
 - 2. Ductwork.
 - 3. Electrical bus duct and cable trays.
 - 4. Electrical wiring.

1.09 LUBRICATION

- A. All equipment requiring lubrication shall have a label or plate permanently attached to the equipment indicating type of lubrication required and recommended frequency of lubrication. All equipment shall be fully and properly lubricated at the time of final acceptance of the facility.

1.10 ACCESS

- A. Generally, all concealed valves, filters, thermostats, mixing valves, pumps and other items of equipment requiring maintenance and/or operation are located above accessible type ceilings. Should any concealed valves, pumps, etc., be inaccessibly located, furnish access doors with flush screwdriver operated lock. Doors shall be of the type suited to the construction into which they are to be installed.
- B. Provide access to filters such that filters can be serviced without interruption; provide suitable access doors or panels.

1.11 CUTTING AND PATCHING

- A. All cutting and patching required under this Division shall be done under this Division. Subcontract the performance of cutting and patching to tradesmen skilled in the trade required.

1.12 TESTS

- A. All systems shall be tested in the presence of the Engineer and local authorities having jurisdiction in a manner required by regulation. No work shall be covered before tests are made.
- B. Refer to individual sections for testing requirements.

1.13 PERMITS

- A. Obtain all required permits. Pay for all permits, certificates and licenses required to commence the work and arrange for inspections required by local authorities.

1.14 NOISE

- A. All mechanical equipment and devices shall operate without objectionable noise in the occupied portions of the building. HVAC components shall be installed not to exceed noise criterion of NC-35.

1.15 CLEANING AND ADJUSTING

- A. Upon completion of the entire system, it shall be thoroughly cleaned and treated as specified. Place the entire system in operation in the presence of the Engineer or his representative and instruct the operator in all details of operation before acceptance.
- B. Interior of all ductwork shall be cleaned of all construction dirt prior to placing fans in operation.

1.16 RECORD DRAWINGS

- A. See specification Section 01720 - Project Record Documents.

1.17 OPERATION AND MAINTENANCE MANUALS

- A. Furnish required number of complete sets of manufacturer's instructions for installation, operation and maintenance of all materials and equipment furnished.
- B. Completely identify each manual by showing at least the following information:
 - 1. Name, address and phone number of supplier.

2. Name, address and phone number of manufacturer.
3. Name of project as it appears on the title sheet of these specifications.

- C. Include all guarantees and warranties issued.
- D. Include a lubrication list showing type of lubricant and lubrication schedule for all equipment.
- E. Include a valve list showing valve tag number, service and location.

1.18 OPERATING INSTRUCTIONS

- A. Instruct the Owner's operating personnel in the proper operation of all equipment items and systems. At the beginning of the first cooling and heating season, start the equipment and operate until satisfactory operation and performance is achieved.

1.19 CODES AND STANDARDS

- A. Equipment, devices, apparatus, systems and installations shall be entirely suitable and safe for each intended application and be in full compliance with applicable standards, rules, regulations, codes, ordinances, etc., of municipal, county and state governments and local utilities, including Iowa State Building, Mechanical, Fire and Plumbing Codes. They shall also comply with OSHA and all applicable requirements of the following for the particular type of installation:
 1. Electrical Equipment and Wiring: National Electrical Code.
 2. Duct Installations and Fire Dampers: NFPA, SMACNA Manuals, Uniform Mechanical Code.
 3. Fans, Blowers and Other Air Moving Devices: AMCA, SMACNA Manual.

1.20 MOTORS, STARTERS AND DISCONNECT SWITCHES

- A. Equipment requiring electric motors, motor starters, disconnect switches, overload protection, short-circuit protection and other items of electrical controls shall be furnished complete with all such items except when the electrical plans specifically indicate that the required starters, disconnect switches and other control items are to be furnished under Electrical.
- B. Motors and other electrical devices shall be suitable for the electrical characteristics and type of service shown on the plans and shall comply with the requirements of the specification under Electrical.
- C. Provide the number of auxiliary contacts required in the motor starters for proper interlocks, etc.

- D. Motors which are 3 phase and 1 HP or larger (non-hermetic) shall be energy efficient type and shall meet the following NEMA nominal efficiencies as tested in accordance with IEEE Standard 112 TEST METHOD B.

1.21 COMPLETION REQUIREMENTS

- A. Before acceptance and final payment, provide:
 - 1. Accurate record drawings showing in red ink on blueline prints furnished for that purpose all changes from the original plans made during installation of the work. Drawings shall be filed with the Engineer when the work is complete.
 - 2. Balancing report.
 - 3. Operation and maintenance manuals.
 - 4. Operating instructions to the operating personnel.

PART 2 – PRODUCTS

Not Applicable.

PART 3 – EXECUTION

Not Applicable.

END OF SECTION

SECTION 15600

HEATING, VENTILATION AND AIR CONDITIONING

INDEX

PART 1 – GENERAL

- 1.01 DESCRIPTION
- 1.02 SUBMITTALS

PART 3 – EXECUTION

- 3.01 INSTALLATION

PART 2 – PRODUCTS

- 2.01 ELECTRIC UNIT HEATER

PART 1 – GENERAL

- 1.01 DESCRIPTION

- A. Furnish and install heating equipment as shown on plans and as specified herein.

- 1.02 SUBMITTALS

- A. Provide equipment dimensional drawings, fabrication details, completely coordinated wiring diagrams, functional description and properly identified catalog data on all equipment to prove complete compliance with plans and specifications.
- B. Provide complete installation, operation and maintenance instructions.

PART 2 – PRODUCTS

- 2.01 ELECTRIC UNIT HEATER

- A. Type: corrosion resistant, UL and FM listed electric unit heater with built-in controls.
- B. Manufacturer: Indeeco Triad, or equal.
- C. Model number, capacity and electrical: as scheduled on the drawings.
- D. Construction: Type 304 stainless steel cabinet and finned tubular heating elements; heavy gauge shroud; built-in over temperature protection; non-sparking aluminum fan; totally enclosed fan motor with built-in thermal overload protection; NEMA 4X control enclosure; integral line voltage terminal block.
- E. Accessories:
 - 1. Unit mounted thermostat and disconnect switch.
 - 2. Adjustable stainless steel louvered outlet grille.

3. Stainless steel universal mounting kit.

- F. Furnish complete installation instructions and wiring diagrams indicating both factory and field connections.

PART 3 – EXECUTION

3.01 INSTALLATION

- A. Remove existing unit heater and install new unit heater in its place.

END OF SECTION

SECTION 16050

ELECTRICAL REQUIREMENTS

INDEX

PART 1 – GENERAL

- 1.01 THE REQUIREMENT
- 1.02 REFERENCE STANDARDS
- 1.03 SIGNAGE AND MARKINGS
- 1.04 PERMITS AND INSPECTION
- 1.05 CONTRACTOR SUBMITTALS
- 1.06 AREA DESIGNATIONS
- 1.07 TESTS
- 1.08 CONSTRUCTION SEQUENCING

PART 2 – PRODUCTS

- 2.01 GENERAL
- 2.02 MOUNTING HARDWARE
- 2.03 ELECTRICAL IDENTIFICATION

PART 3 – EXECUTION

- 3.01 GENERAL
- 3.02 CORE DRILLING
- 3.03 CONCRETE HOUSEKEEPING PADS
- 3.04 EQUIPMENT ANCHORING
- 3.05 EQUIPMENT IDENTIFICATION
- 3.06 CLEANING

PART 1 – GENERAL

1.01 THE REQUIREMENT

- A. The Contractor shall provide electrical work, complete and operable, in accordance with the Contract Documents.
- B. The provisions of this section apply to all sections in Division 16, except as indicated otherwise.
- C. The work of this section is required for operation of electrically-driven equipment provided under specifications in other divisions. The Contractor's attention is directed to the requirement for proper coordination of the work of this section with the work of equipment specifications and the work of instrumentation sections.
- D. Concrete, excavation, backfill, and steel reinforcement required for encasement, installation, or construction of the work of the various sections of Division 16 is included as a part of the work under the respective sections, including duct banks, manholes, handholes, equipment housekeeping pads, and light pole bases.

1.02 REFERENCE STANDARDS

- A. The work of this section and all sections in Division 16 shall comply with the following as applicable:
 - 1. NEC (NFPA 70) National Electrical Code

- 2. NETA International Electrical Testing Association
- 3. NEMA 250 Enclosure for Electrical Equipment (1000 Volts Maximum)

- B. Electrical equipment shall be listed by and shall bear the label of Underwriters' Laboratories, Inc. (UL) or an independent testing laboratory acceptable to the local code enforcement agency having jurisdiction.
- C. Installation of electrical equipment and materials shall comply with OSHA Safety and Health Standards (29 CFR 1910 and 29 CFR 1926, as applicable), state building standards, and applicable local codes and regulations.
- D. Where the requirements of the specifications conflict with UL, NEMA, NFPA, or other applicable standards, the more stringent requirements shall govern.

1.03 SIGNAGE AND MARKINGS

- A. Identification: Provide danger, caution, and warning signs and equipment identification markings in accordance with applicable federal and state OSHA and NEC requirements.
- B. Local Disconnect Switches:
 - 1. Each local disconnect switch for motors and equipment shall be legibly marked to indicate its purpose unless the purpose is indicated by the location and arrangement.
- C. Warning Signs:
 - 1. 600 volts nominal, or less: Entrances to rooms and other guarded locations that contain live parts shall be marked with conspicuous signs prohibiting unqualified persons to enter.
- D. Isolating Switches: Isolating switches not interlocked with an approved circuit interrupting device shall be provided with a sign warning against opening them under load.

1.04 PERMITS AND INSPECTION

- A. Permits shall be obtained and inspection fees shall be paid according to the General Conditions.
- B. The Contractor shall pay connection and turn-on service charges required by the utility companies.

1.05 CONTRACTOR SUBMITTALS

- A. Furnish submittals in accordance with Division 01.

- B. Shop Drawings: Include the following:
1. Complete material lists stating manufacturer and brand name of each item or class of material.
 2. Shop drawings for all grounding work not specifically indicated.
 3. Front, side, rear elevations, and top views with dimensional data.
 4. Location of conduit entrances and access plates.
 5. Component data.
 6. Connection diagrams, terminal numbers, internal wiring diagrams, conductor size, and cable numbers.
 7. Method of anchoring, weight.
 8. Types of materials and finish.
 9. Nameplates.
 10. Temperature limitations, as applicable.
 11. Voltage requirement, phase, and current, as applicable.
 12. Front and rear access requirements.
 13. Test reports.
 14. Grounding requirements.
 15. Catalog cuts or photocopies of applicable pages of bulletins or brochures for mass produced, non-custom manufactured material. Catalog data sheets shall be stamped to indicate the project name, applicable Section and paragraph, model number, and options. This information shall be marked in spaces designated for such data in the Engineer's stamp.
- C. Shop drawings shall be custom prepared. Drawings or data indicating "optional" or "as required" equipment are not acceptable. Options not proposed shall be crossed out or deleted from shop drawings.
- D. Owner's Manuals: Complete information in accordance with Division 01.
- E. Record Drawings: The Contractor shall show invert and top elevations and routing of all duct banks and concealed below-grade electrical installations. Record drawings shall be prepared, be available to the Engineer, and be submitted according to Division 01.

1.06 AREA DESIGNATIONS

- A. General
1. Raceway system enclosures shall comply with Section 16110 - Electrical Raceway Systems.
 2. Electric work specifically indicated in sections within any of the Specifications shall comply with those requirements.

AREA	NEMA ENCLOSURE CLASSIFICATION						Notes
	1	3R	4X	7	9	12	
Str. 30 - Blower Bldg. – Electrical Room	X						
Str. 50 – UV Bldg. – Process Room						X	Wet Location
Str. 50 – UV Bldg. – Exterior Channel		X	X				Wet Location
Plant Exterior		X	X				Wet Location

B. Material Requirements

1. NEMA 1, 3R, and 12 enclosures shall be steel coated with ANSI 61 grey paint unless noted otherwise on plans.
2. NEMA 4X: stainless steel unless specified otherwise.

1.07 TESTS

- A. The Contractor shall be responsible for factory and field tests required by specifications in Division 16 and by the Engineer or other authorities having jurisdiction. The Contractor shall furnish necessary testing equipment and pay costs of tests, including replacement parts and labor, due to damage resulting from damaged equipment or from testing and correction of faulty installation.
- B. Where test reports are indicated, proof of design test reports for mass-produced equipment shall be submitted with the shop drawings, and factory performance test reports for custom-manufactured equipment shall be submitted and be approved prior to shipment. Field test reports shall be submitted for review prior to Substantial Completion.
- C. Equipment or material that fails a test shall be removed and replaced.

1.08 CONSTRUCTION SEQUENCING

- A. Continuance of existing plant operation during construction is critical. Work shall be scheduled, subject to Owner's approval, to minimize any required shutdown time. The Contractor shall submit a written request, including sequence and duration of activities to be performed during any shutdown.
- B. Switching, safety tagging, etc., required for equipment shutdown and power outages shall be performed by the Contractor. In no case shall the Contractor begin any work without written authorization by the Engineer.
- C. The Contractor shall visit the Site before submitting a Bid to better acquaint itself with the work of this Contract. Lack of knowledge will not be accepted as a reason for granting extra compensation to perform the work.

PART 2 – PRODUCTS

2.01 GENERAL

- A. Equipment and materials shall be new, shall be listed by UL, and shall bear the UL label where UL requirements apply. Equipment and materials shall be the products of experienced and reputable manufacturers in the industry. Similar items in the work shall be products of the same manufacturer. Equipment and materials shall be of industrial grade standard of construction.
- B. Where a NEMA enclosure type is indicated in a non-hazardous location, the Contractor shall utilize that type of enclosure, despite the fact that certain modifications such as cutouts for control devices may negate the NEMA rating.
- C. On devices indicated to display dates, the year shall be displayed as 4 digits.

2.02 MOUNTING HARDWARE

- A. Miscellaneous Hardware:
 - 1. Nuts, bolts, and washers shall be stainless steel.
 - 2. Threaded rods for trapeze supports shall be continuous threaded, stainless steel, 3/8" dia. minimum.
 - 3. Strut for mounting of conduits and equipment shall be stainless steel. Where contact with concrete or dissimilar metals may cause galvanic corrosion, suitable non-metallic insulators shall be utilized to prevent such corrosion. Aluminum strut shall not be utilized for free standing support frames. Strut shall be as manufactured by Unistrut, B-Line, or equal.
 - 4. Anchors for attaching equipment to concrete walls, floors and ceilings shall be stainless steel expansion anchors, such as "Rawl-Bolt," "Rawl-Stud" or "Lok-Bolt" as manufactured by Rawl; similar by Star, or equal. Wood plugs shall not be permitted.
 - 5. Refer to Section 16070 – Hangers and Supports for additional details.

2.03 ELECTRICAL IDENTIFICATION

- A. Nameplates: Nameplates shall be fabricated from white-letter, black-face laminated plastic engraving stock, Formica type ES-1, or equal. Each shall be fastened securely, using fasteners of brass, cadmium plated steel, or stainless steel, screwed into inserts or tapped holes as required. Engraved characters shall be block style with no characters smaller than 1/8" top to bottom.
- B. Conductor and Equipment Identification: Conductor identification devices shall be either imprinted plastic-coated cloth marking devices such as manufactured by Brady, Thomas & Betts, or equal, or shall be heat-shrink plastic tubing, imprinted split-sleeve markers cemented in place, or equal.

PART 3 – EXECUTION

3.01 GENERAL

- A. Incidentals: The Contractor shall provide all materials and incidentals required for a complete and operable system, even if not required explicitly by the Specifications or the drawings. Typical incidentals are terminal lugs not furnished with vendor supplied equipment, compression connectors for cables, splices, junction and terminal boxes, and control wiring required by vendor furnished equipment to connect with other equipment indicated in the Contract Documents.
- B. Field Control of Location and Arrangement: The drawings diagrammatically indicate the desired location and arrangement of outlets, conduit runs, equipment, and other items. Exact locations shall be determined by the Contractor in the field based on the physical size and arrangement of equipment, finished elevations, and other obstructions. Locations on the drawings, however, shall be followed as closely as possible.
 - 1. Where "home runs" are shown, the Contractor shall route the conduits in accordance with the indicated installation requirements. Routings shall be exposed or encased as indicated, except that conduit in finished areas shall be concealed unless specifically indicated otherwise. Conduits encased in a slab shall be sized for conduit OD to not exceed one-third of the slab thickness and be laid out and spaced to not impede concrete flow.
 - 2. Conduit and equipment shall be installed in such a manner as to avoid all obstructions and to preserve head room and keep openings and passageways clear. Lighting fixtures, switches, convenience outlets, and similar items shall be located within finished rooms as indicated. Where the drawings do not indicate exact locations, such locations shall be determined by the Engineer. If equipment is installed without instruction and must be moved, it shall be moved without additional cost to the Owner. Lighting fixture locations shall be adjusted slightly to avoid obstructions and to minimize shadows.
 - 3. Wherever conduits and wiring for power circuits, lighting and receptacles are not indicated, it shall be the Contractor's responsibility to provide required conduits and wiring, based on the actual installed fixture layout and the circuit designations as indicated. Wiring shall be #12 AWG minimum, conduits shall be 3/4" minimum (exposed) and 1" minimum (encased). When circuits are combined in the same raceway, the Contractor shall derate conductor ampacities in accordance with NEC requirements.
- C. Workmanship: Materials and equipment shall be installed in strict accordance with printed recommendations of the manufacturer. Installation shall be accomplished by workers skilled in the work. Installation shall be coordinated in the field with other trades to avoid interferences.

- D. Protection of Equipment and Materials: The Contractor shall fully protect materials and equipment against damage from any cause. Materials and equipment, both in storage and during construction, shall be covered in such a manner that no finished surfaces will be damaged, marred, or splattered with water, foam, plaster, or paint. Moving parts shall be kept clean and dry. The Contractor shall replace or refinish damaged materials or equipment, including faceplates of panels and switchboard sections as part of the work.

3.02 CORE DRILLING

- A. The Contractor shall perform core drilling required for installation of raceways through concrete walls and floors. Locations of floor penetrations, as may be required, shall be based on field conditions. Verify all exact core drilling locations based on equipment actually furnished as well as exact field placement. To the extent possible, identify the existence and locations of encased raceways and other piping in existing walls and floors with the Owner prior to any core drilling activities. Damage to any encased conduits, wiring, and piping shall be repaired as part of the work.

3.03 CONCRETE HOUSEKEEPING PADS

- A. Concrete housekeeping pads shall be provided for indoor floor standing electrical equipment. Housekeeping pads for equipment, including future units, shall be 4" above surrounding finished floor or grade and 2" larger in both dimensions than the equipment, unless otherwise indicated.
- B. Concrete housekeeping curbs shall be provided for conduit stub-ups in indoor locations that are not concealed by equipment enclosures. Such curbing shall be 3" above finished floor or grade.

3.04 EQUIPMENT ANCHORING

- A. Floor supported, wall, or ceiling hung equipment and conductors shall be anchored in place by methods that will meet seismic requirements in the area where the project is located. Wall-mounted panels that weigh more than 500 lbs. or that are within 18" of the floor shall be provided with fabricated steel support pedestals. If the supported equipment is a panel or cabinet enclosed within removable side plates, it shall match supported equipment in physical appearance and dimensions. Transformers hung from 4" stud walls and weighing more than 300 lbs. shall have auxiliary floor supports.
- B. Leveling channels anchored to the concrete pad shall be provided for switchgear and pad-mounted transformer installations.
- C. Anchoring methods and leveling criteria in the printed recommendations of the equipment manufacturers are a part of the work of this Contract. Such

recommendations shall be submitted as shop drawings under Section 01300 - Submittals.

3.05 EQUIPMENT IDENTIFICATION

- A. Equipment and devices shall be identified as follows:
 - 1. Nameplates shall be provided for panel boards, control and instrumentation panels, starters, switches, and pushbutton stations. In addition to nameplates, control devices shall be equipped with standard collar-type legend plates.
 - 2. Control devices within enclosures shall be identified as indicated. Identification shall be similar to the subparagraph above.
 - 3. Toggle switches which control loads out of sight of switch and multi-switch locations of more than 2 switches shall have suitable inscribed finish plates.
 - 4. Equipment names and tag numbers, where indicated on the drawings, shall be utilized on nameplates.
 - 5. The Contractor shall furnish typewritten circuit directories for panel boards; circuit directory shall accurately reflect the outlets connected to each circuit.

3.06 CLEANING

- A. Before final acceptance, the electrical work shall be thoroughly cleaned. Exposed parts shall be thoroughly cleaned of cement, plaster, and other materials. Oil and grease spots shall be removed with a non-flammable cleaning solvent. Such surfaces shall be carefully wiped and cracks and corners scraped out. Touch-up paint shall be applied to scratches on panels and cabinets. Electrical cabinets or enclosures shall be vacuum-cleaned.

END OF SECTION

SECTION 16070

HANGERS AND SUPPORTS

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- 2.02 MANUFACTURERS

PART 3 – EXECUTION

- 3.01 EXAMINATION
- 3.02 INSTALLATION

PART 1 – GENERAL

1.01 THE REQUIREMENT

- A. Conduit and equipment supports.
- B. Anchors and fasteners.

1.02 REFERENCES

- A. NECA - National Electrical Contractors Association.
- B. ANSI/NFPA 70 - National Electrical Code.

1.03 REGULATORY REQUIREMENTS

- A. Conform to requirements of ANSI/NFPA 70.
- B. Furnish products listed and classified by Underwriters Laboratories, Inc. as suitable for purpose specified and shown.

1.04 CONTRACTOR SUBMITTALS

- A. The Contractor shall submit shop drawings in accordance with Section 01300 - Submittals and Section 16050 - Electrical Requirements.

PART 2 – PRODUCTS

2.01 MATERIALS

- A. Materials and Finishes: Provide stainless steel hangers, supports and anchors to provide complete corrosion resistance.

- B. Provide materials, sizes, and types of anchors, fasteners and supports to carry the loads of equipment and conduit.
- C. Anchors and Fasteners:
 - 1. Concrete Structural Elements:
 - a. Use steel or malleable iron concrete inserts set in place prior to placing new concrete.
 - b. Use expansion anchors not less than 1/4" bolt size and not less than 1-1/8" embedment in existing concrete.
 - 1) Use power set fasteners not less than 1/4 inch diameter with depth of penetration not less than 3 inches in existing concrete.
 - 2) Use vibration and shock resistant anchors and fasteners for attaching to concrete ceilings.
 - a) Steel Structural Elements: Use beam clamps or spring steel clips.
 - b) Concrete Surfaces: Use self-drilling anchors or expansion anchors.
 - c) Hollow Masonry, Plaster and Gypsum Board Partitions: Use toggle bolts and hollow wall fasteners.
 - d) Solid Masonry Walls: Use expansion anchors.
 - e) Sheet Metal: Use sheet metal screws.
 - f) Wood Elements: Use wood screws.

2.02 MANUFACTURERS

- A. Superstrut, Unistrut, B-line, or equal.

PART 3 – EXECUTION

3.01 EXAMINATION

- A. Verify all channels, fasteners, anchors and miscellaneous equipment are suitable for the application.

3.02 INSTALLATION

- A. Install products in accordance with manufacturer's instructions.
- B. Provide anchors, fasteners, and supports in accordance with NECA "Standard of Installation".
- C. Do not fasten supports to pipes, ducts, mechanical equipment and conduit.
- D. Obtain permission from Engineer before using powder-actuated anchors.

- E. Obtain permission from Engineer before drilling or cutting structural members.

END OF SECTION

SECTION 16110

ELECTRICAL RACEWAY SYSTEMS

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2.02 CONDUIT

PART 3 – EXECUTION

3.01 GENERAL

3.02 CONDUIT

PART 1 – GENERAL

1.01 THE REQUIREMENT

- A. The Contractor shall provide electrical raceway systems, complete and in place, in accordance with the Contract Documents.

1.02 CONTRACTOR SUBMITTALS

- A. Furnish submittals in accordance with Section 01300 - Submittals, and Section 16050 - Electrical Requirements.
- B. Shop Drawings
 - 1. Complete catalog cuts of raceways, fittings, boxes, supports, and mounting hardware, marked where applicable to show proposed materials and finishes.
 - 2. Dimensioned layout drawings of cable tray routings, including elevations.

PART 2 – PRODUCTS

2.01 GENERAL

- A. Pull and junction boxes, fittings, and other indicated enclosures that are dedicated to the raceway system shall comply with this section.
- B. Electrical raceways and associated fittings shall be UL listed and approved for the intended installation.

2.02 CONDUIT

- A. Rigid Aluminum (RAL) Conduits

1. Rigid aluminum conduit shall be manufactured of 6063 alloy, temper T-1.
 2. Rigid aluminum conduit shall be manufactured in accordance with ANSI C80.5 - Rigid Aluminum Conduit, and UL-6 - Rigid Metal Electrical Conduit.
 3. Suitable for use in exterior and corrosive environment applications.
 4. Manufacturers, or equal.
 - a. V.A.W. of America
 - b. Alcoa
- B. Rigid Galvanized Steel (RGS) Conduit:
1. Rigid steel conduit shall be mild steel, hot-dip galvanized inside and out.
 2. Rigid steel conduit shall be manufactured in accordance with ANSI C80.1 - Rigid Steel Conduit, Zinc Coated, and UL-6.
 3. Suitable for use as exposed conduit in indoor applications.
 4. Manufacturers, or equal.
 - a. LTV Steel
 - b. Triangle
 - c. Wheatland Tube
- C. Rigid Non-Metallic Conduit:
1. Rigid non-metallic conduit shall be Schedule 40 pvc, sunlight resistant.
 2. Rigid non-metallic conduit shall be manufactured in accordance with NEMA TC-2 - Electrical Plastic Tubing and Conduit, and UL-651 - Standard for Rigid Non-Metallic Conduit.
 3. Suitable for use as underground direct bury conduit.
 4. Manufacturers, or equal.
 - a. Carlon
 - b. Condux
- D. Rigid PVC Coated Galvanized Steel (RPGS) Conduit:
1. The conduit, prior to pvc coating, shall meet the requirements for RGS conduit above.
 2. A pvc coating shall be bonded to the outer surface of the galvanized conduit. The bond between the coating and the conduit surface shall be greater than the tensile strength of the coating. The inside surfaces and threads of the conduit shall have a 2-mil urethane coating.
 3. pvc coating thickness shall be not less than 40 mils.
 4. pvc coated RGS shall be manufactured in accordance with the following standards:
 - a. UL-6
 - b. ANSI C80.1
 - c. Federal Specification WW-C-581E.
 - d. NEMA RN1 - pvc externally coated galvanized rigid steel conduit and intermediate metal conduit.
 5. Suitable for use as exposed conduit in corrosive environments and concrete encased raceways.

6. Manufacturers, or Equal
 - a. Robroy
 - b. Thomas & Betts

E. Liquidtight Flexible Conduit:

1. Liquidtight flexible conduit shall be constructed of a flexible aluminum or galvanized metal core with a sunlight resistant thermoplastic outer jacket.
2. Liquidtight flexible conduit shall be manufactured in accordance with UL-360 - Steel Conduits, Liquid-Tight Flexible.
3. Suitable for use at equipment connections and applications where vibration is expected.
4. Aluminum inner core shall be utilized when used when terminated to rigid aluminum raceways.
5. Manufacturers, or equal.
 - a. Anaconda, Sealtite
 - b. Electriflex, Liqueflex Type LA

F. Electrical Metallic Tubing (EMT) or Intermediate conduit (IMC) will not be accepted.

2.03 FITTINGS AND BOXES

A. General:

1. Cast and malleable iron fittings for use with metallic conduit shall be the threaded type with 5 full threads.
2. Fittings and boxes shall have neoprene gaskets and non-magnetic stainless steel screws. Covers shall be attached by means of holes tapped into the body of the fitting. Covers for fittings attached by means of clips or clamps will not be acceptable.
3. Boxes larger than standard cast or malleable types shall be 304 stainless steel, NEMA 4X.
4. In outdoor areas, conduit shall be terminated in raintight hubs as manufactured by Myers, O.Z. Gedney, Appleton, or equal. In other than outdoor areas, sealed locknuts and bushings shall be used.
5. Conduit, fittings, and boxes in hazardous locations shall be suitable for the Class and Division indicated.

B. Cast Aluminum Fittings and Boxes

1. Cast aluminum boxes and fittings shall have less than 0.40% copper content and shall be utilized with aluminum conduit.
2. Manufacturers, or equal.
 - a. O.Z. Gedney
 - b. Appleton
 - c. Crouse-Hinds

- C. Malleable Iron Fittings and Boxes:
 - 1. Fittings and boxes for use with galvanized steel conduit shall be of malleable iron or gray-iron alloy with zinc plating.
 - 2. Manufacturers, or equal.
 - a. O.Z. Gedney
 - b. Crouse-Hinds
 - c. Appleton
- D. PVC Fittings and Boxes:
 - 1. Fittings for use with rigid non-metallic conduit shall be pvc, solvent welded type.
 - 2. Boxes shall be pvc or fiberglass reinforced polyester (FRP).
 - 3. Manufacturers, or equal.
 - a. Carlon
 - b. Crouse-Hinds
 - c. Hoffman
 - 4. Provide welding solvent as required for installation of non-metallic conduit and fittings.
- E. PVC Coated Fittings and Boxes:
 - 1. Fittings for use with pvc coated RGS shall be pvc coated and shall be products of the same manufacturer as the conduit.
 - 2. Male and female threads and internal surfaces shall have a 2-mil urethane coating.
- F. Stainless Steel Boxes:
 - 1. Stainless steel boxes shall be used with pvc coated RGS conduit and where indicated.
 - 2. Stainless steel boxes shall be NEMA 4X, Type 304.
 - 3. Stainless steel shall be minimum 14-gauge thickness, with a brushed finish.
 - 4. Doors shall have full length stainless steel piano hinges. Non-hinged boxes are not acceptable.
 - 5. Manufacturers, or equal.
 - a. Hoffman
 - b. Rohn
 - c. Hammond

2.04 CONDUIT SCHEDULE

- A. Refer to Section 16050 for conduit system environmental ratings.

PART 3 – EXECUTION

3.01 GENERAL

- A. Wiring shall be run in raceway unless indicated otherwise.

- B. Raceways shall be installed between equipment as indicated. Raceway systems shall be electrically and mechanically complete before conductors are installed. Bends and offsets shall be smooth and symmetrical, and shall be accomplished with tools designed for this purpose. Factory elbows shall be utilized wherever possible.
- C. Where raceway routings are indicated on plan views, follow those routings to the extent possible; Conduits shall be concealed in walls unless indicated otherwise; do not conceal conduits inside concrete floors unless shown specifically on drawings or authorized by the Engineer.
- D. Where raceways are indicated but routing is not indicated, such as home runs, raceway routings shall be the Contractor's choice and in strict accordance with the NEC and customary installation practice. Raceway shall be encased, exposed, concealed, or under floor as indicated; conduits in finished areas (offices, hallways etc.) shall be concealed unless specifically indicated otherwise.
- E. Routings shall be adjusted to avoid obstructions. Coordinate between trades prior to installation of raceways. Lack of such coordination shall not be justification for extra compensation, and removal and re-installation to resolve conflicts shall be by the Contractor as part of the work.
- F. Exposed raceways shall be installed parallel or perpendicular to structural beams.
- G. Install expansion fittings with bonding jumpers wherever raceways cross building expansion joints.
- H. Exposed raceways shall be installed at least 1/2" from walls or ceilings except that at locations above finished grade where damp conditions do not prevail, exposed raceways shall be installed 1/4" minimum from the face of walls or ceilings by the use of clamp backs or struts.
- I. Wherever contact with concrete or dissimilar metals can produce galvanic corrosion of equipment, suitable insulating means shall be provided to prevent such corrosion.

3.02 CONDUIT

- A. Exposed indoor conduit shall be rigid galvanized steel except as follows, unless indicated otherwise:
 - 1. In corrosive locations, rigid aluminum conduit shall be utilized.
 - 2. Where galvanized conduit has to be cut, the galvanized coating shall be repaired per manufacturer's instructions.
 - 3. Exposed outdoor mounted conduit shall be rigid aluminum.

- B. Conduit concealed or encased in concrete, except for analog control conduit which shall be PVC coated RGS, shall be rigid Schedule 40 PVC; exterior buried conduit can be rigid Schedule 40 PVC or flexible non-metallic high density polyethylene (HDPE). Where conduit emerges from concrete encasement, a pvc coated RGS elbow shall be utilized for transition from the concrete. Conduit shall emerge from the concrete perpendicular to the surface whenever possible.
 - 1. Existing conduit raceways to be encased per floor modifications shall be coated with coal tar bituminous paint, 8.0-12.0 dry mils thickness.
- C. Exposed conduit shall be 3/4" minimum trade size. Encased conduit shall be 1" minimum trade size. Supports shall be installed at distances required by the NEC.
- D. Conduit shall not be encased in the bottom floor slab below grade.
- E. Concrete cover for conduit and fittings shall not be less than 1-1/2" for concrete exposed to earth or weather, or less than 3/4" for concrete not exposed to weather or in contact with the ground.
- F. Conduits passing through a slab, wall, or beam shall not impair significantly the strength of the construction.
- G. Conduits embedded within a slab, wall, or beam (other than those merely passing through) shall satisfy the following in accordance with NEC and ACI standards:
 - 1. Conduits with their fittings embedded within a column shall not displace more than 4% of the gross area of cross section.
 - 2. Conduits shall not be larger in outside dimension than one third the overall thickness of slab, wall, or beam in which embedded.
 - 3. Conduits shall not be spaced closer than 3 outside diameters on centers.
 - 4. Install embedded conduits in middle 1/3 of concrete slab.
- H. Conduit shall be placed so that cutting, bending, or displacing reinforcement from its proper location will not be required.
- I. Threads shall be coated with a conductive lubricant before assembly.
- J. Joints shall be tight, thoroughly grounded, secure, and free of obstructions in the pipe. Conduit shall be adequately reamed to prevent damage to the wires and cables inside. Strap wrenches and vises shall be used to install conduit to prevent wrench marks on conduit. Conduit with wrench marks shall be replaced.
- K. Wherever possible, conduit runs shall slope to drain at one or both ends of run. Wherever conduit enters substructures below grade, the conduit shall be sloped to drain water away from the structure. Extreme care shall be taken to avoid pockets or depressions in conduit.

- L. Installation of rigid steel conduit through a core-drilled hole in an exterior wall below grade shall utilize a sealing device as manufactured by Link Seal or equal.
- M. Conduit passing through walls or floors shall have plastic sleeves.
- N. Conduit, fittings, and boxes required in hazardous classified areas shall be suitably rated for the area and shall be provided in strict accordance with NEC requirements.
- O. Empty conduits shall be tagged at both ends to indicate the final destination. Where it is not possible to tag the conduit, destination shall be identified by a durable marking on an adjacent surface. A pull-cord shall also be installed in each empty conduit. This shall apply to conduits in floors, panels, manholes, equipment, etc.
- P. Where conduit emerges from direct burial, a rigid conduit elbow shall be utilized below grade for transition to rigid conduit. Conduit shall emerge from the ground perpendicular to the surface whenever possible.

END OF SECTION

SECTION 16120

WIRES AND CABLES

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PART 1 – GENERAL

- 1.01 THE REQUIREMENT

- A. The Contractor shall provide wires and cable, complete and operable, in accordance with the Contract Documents.

- 1.02 CONTRACTOR SUBMITTALS

- A. The Contractor shall submit shop drawings in accordance with Section 01300 - Submittals and Section 16050 - Electrical Requirements.

PART 2 – PRODUCTS

- 2.01 GENERAL

- A. Conductors, include grounding conductors, shall be copper. Aluminum conductor wire and cable will not be permitted. Insulation shall bear UL label, the manufacturer's trademark, and identify the type, voltage, and conductor size. All conductors except flexible cords and cables, fixture wires, and conductors that form an integral part of equipment such as motors and controllers shall conform to the requirements of Article 310 of the National Electric Code, latest edition, for current carrying capacity. Flexible cords and cables shall conform to Article 400, and fixture wires shall conform to Article 402. Wiring shall have wire markers at each end.

2.02 POWER AND LIGHTING WIRE

- A. Wire rated for 600 volts in duct or conduit for all power and lighting circuits shall be Class B Type XHHW cross-linked polyethylene conforming to UL-44 - UL Standard for Thermoset-Insulated Wires and Cables. THHN/THWN for all wires smaller than or equal to No. 4 AWG; XHHW insulation for all wires larger than No. 4 AWG.
- B. Conductors for feeders as defined in Article 100 of the NEC shall be sized to prevent a voltage drop exceeding 3% at the farthest outlet of power, heating, and lighting loads, or combinations of such loads, and where the maximum total voltage drop on both feeders and branch circuits to the farthest connected load does not exceed 5%.
- C. Conductors for branch circuits as defined in Article 100 of the NEC, shall be sized to prevent voltage drop exceeding 3% at the farthest connected load or combinations of such loads and where the maximum total voltage drop on both feeders and branch circuits to the farthest connected load does not exceed 5%.
- D. Wiring for 600 volt class power and lighting shall be as manufactured by General Cable, Okonite, or Rome Cable.

2.03 CONTROL WIRE

- A. Control wire in duct or conduit shall be the same type as power and lighting wire indicated above.
- B. Control wiring shall be No.14 AWG.
- C. Control wires at panels and cabinets shall be machine tool grade type MTW, UL approved, rated for 90 C. at dry locations, and be as manufactured by American, Carol Cable, or equal.

2.04 INSTRUMENTATION CABLE

- A. Instrumentation cable shall be rated at 300 volts.
- B. Instrumentation cables shall be composed of two 18 gauge stranded tinned copper conductors, 0.19" thick polyethylene insulation, an aluminum polyester foil outer shield, a No. 20 AWG stranded tinned copper drain wire, and a pvc outer jacket with a thickness of 0.028".
- C. Manufacturer and model number: Belden 8760, or equal.

2.05 RS-485 CABLE

- A. The cables shall be multi-twisted pairs with a common overall shield cable designed for use as low capacitance computer cable for EIA RS-485 applications.
- B. Cable shall be a molded cable assembly with connector on one and capped cable on one end where required by equipment supplier.
- C. Conductors:
 - 1. 22 AWG, seven-strand.
 - 2. Tinned copper, insulated, twisted pairs.
 - 3. Cable Shield: Overall aluminum-polyester shield.
 - 4. 24 AWG stranded, tinned copper drain wire.
 - 5. Overall tinned copper braid shield, 90% coverage.
 - 6. Jacket: PVC.
 - 7. Insulation: 300V Polyolefin.
 - 8. Number of Pairs: 2, or as required by the application.
 - 9. Outside Diameter: 0.424 inches, maximum.
 - 10. Belden Color Code: Chart No. 5.
- D. Connectors:
 - 1. Type: Factory molded D-Subminiature (one end only where required).
 - 2. Positions (Number of Pins): Coordinate connector pin requirements with equipment supplier.
 - 3. Cable Pin-out: Coordinate requirements with equipment supplier.
 - 4. Gender: Coordinate requirements with equipment supplier.
 - 5. Retention System: Screw, horizontal slide lock or vertical slide lock; coordinate requirements with equipment supplier.
 - 6. Connector Style: Straight handled, right-angled or angled; coordinate requirements with equipment supplier.
- E. RS-485 cable shall be Belden Part No. 3106A, or equal, or as required by the application.

2.06 ETHERNET DATA CABLE

- A. Communication Cable
 - 1. Category 6 cable conforming to ANSI TIA/EIA-568-B.2-2001.
 - 2. Shielded with stranded conductors.
 - 3. 4 pair, 23 AWG; capable of transmitting data up to 1000 MBPS.
 - 4. Heavy duty oil and sunlight resistant PVC jacket with sequential markings at 2' interval; NEC rated and UL listed.
 - 5. Belden or equal.

2.07 CABLE TERMINATIONS

- A. Compression connectors shall be Burndy "Hi Lug", Thomas & Betts "Sta-Kon," or equal. Threaded connectors shall be split bolt type of high strength copper alloy. Pressure type, twist-on connectors will not be acceptable.
- B. Pre-insulated fork tongue lugs shall be Thomas & Betts, Burndy, or equal.
- C. General purpose insulating tape shall be Scotch No. 33, Plymouth "Slip-knot", or equal. High temperature tape shall be polyvinyl as manufactured by Plymouth, 3M, or equal.
- D. Labels for coding 600 volt wiring shall be computer printable or pre-printed, self-laminating, self-sticking, as manufactured by W.H. Brady, 3M, or equal.

PART 3 – EXECUTION

3.01 GENERAL

- A. The Contractor shall provide and terminate all conductors except where indicated.

3.02 INSTALLATION

- A. Conductors shall not be pulled into raceway until raceway has been cleared of moisture and debris.
- B. Pulling tensions on raceway cables shall be within the limits recommended by the cable manufacturer. Wire pulling lubricant, where needed, shall be UL approved.
- C. Instrumentation, telephone and RS-485 cables shall not be run in the same raceway with power and control wiring except where specifically indicated.
- D. Wire in panels, cabinets, and wire ways shall be neatly grouped using nylon tie straps, and shall be fanned out to terminals.

3.03 SPLICES AND TERMINATIONS

- A. General:
 - 1. Wire taps and splices shall be properly taped and insulated according to their respective classes.
 - 2. In general, there shall be no cable splices in underground manholes or pull boxes. If splices are necessary, the cables shall be brought aboveground and terminated in a NEMA 4X, stainless steel terminal or splice cabinet on a concrete pad. Splices in underground manholes and pull boxes may be made only with the approval of the Engineer.

3. Stranded conductors shall be terminated directly on equipment box lugs making sure that all conductor strands are confined within lug. Use forked-tongue lugs where equipment box lugs have not been provided.
4. Excess control and instrumentation wire shall be properly taped and terminated as spares.

B. Control Wire and Cable:

1. Control conductors shall be spliced or terminated only at the locations indicated and only on terminal strips or terminal lugs of vendor furnished equipment.
2. In junction boxes, motor control centers, and control panels, control wire and spare wire shall be terminated to terminal strips.

C. Instrumentation Wire and Cable:

1. Shielded instrumentation cables shall be grounded at one end only, preferably the receiving end on a 4-20 mA system.
2. Two- and three-conductor shielded cables installed in conduit runs which exceed available standard cable lengths may be spliced in pull boxes. Such cable runs shall have only one splice per conductor.

D. Power Wire and Cable:

1. All 120/208-volt, 120/240-volt, and 480/277-volt branch circuit conductors may be spliced in suitable fittings at locations determined by the Contractor.
2. Splices to motor leads in motor terminal boxes shall be wrapped with mastic material to form a mold and then shall be taped with a minimum of 2 layers of varnished cambric tape overtaped with a minimum of 2 layers of high temperature tape.

3.04 CABLE IDENTIFICATION

- A. General: Wires and cables shall be identified for proper control of circuits and equipment and to reduce maintenance effort. Identification shall appear within 3" of conductor terminals and at each pull or junction box.
- B. Identification Numbers: The Contractor shall assign to each control and instrumentation wire and cable a unique identification number. Numbers shall be assigned to all conductors having common terminals and shall be shown on "as built" drawings. "Control Conductor" shall be defined as any conductor used for alarm, annunciator, or signal purposes.
1. Multiconductor cable shall be assigned a number which shall be attached to the cable at intermediate pull boxes and at stub-up locations beneath free-standing equipment. It is expected that the cable number shall form a part of the individual wire number. Individual control conductors and instrumentation cable shall be identified at pull points as described above. The instrumentation cable numbers shall incorporate the loop numbers assigned in the Contract Documents.

2. All 120/208-volt conductors shall be color coded as follows: Phase A - black, Phase B - red, Phase C - blue, and Neutral - white.
3. All 120/240-volt system conductors shall be color coded as follows: Line 1 - Black, Line 2 - Red, and Neutral - White.
4. All 480/277- volt system conductors shall be color coded as follows: Phase A - Brown, Phase B - Orange, Phase C - Yellow, and Neutral - Gray.
5. Color coding tape shall be used where colored insulation is not available. Branch circuit switch shall be yellow. Insulated ground wire shall be green, and neutral shall be gray. Color coding and phasing shall be consistent throughout the Site, but bars at panelboards, switchboards, and motor control centers shall be connected Phase A-B-C, top to bottom, or left to right, facing connecting lugs.
6. General purpose AC control cables shall be red. General purpose DC control cables shall be blue.
7. Spare cable shall be terminated on terminal screws and shall be identified with a unique number as well as with destination.
8. Terminal strips shall be identified by computer printable, cloth, self-sticking marker strips attached under the terminal strip.

3.05 TESTING

- A. Cable Assembly and Testing: Cable assembly and testing shall comply with applicable requirements of ICEA Publication No. S-68-516 - Ethylene-Propylene-Rubber Insulated Wire and Cable for the Transmission and Distribution of Electrical Energy. Factory test results shall be submitted with the shop drawings. The following field tests shall be the minimum requirements:
 1. Power cable rated at 600 volts shall be tested for insulation resistance between phases and from each phase to a ground using a megohmmeter.
 2. Field testing shall be done after cables are installed in the raceways.
 3. Field tests shall be performed by a certified test organization acceptable to the cable manufacturer. Test results shall be submitted to the Engineer for review and acceptance.
 4. Cables failing the tests shall be replaced with a new cable or be repaired. Repair methods shall be as recommended by the cable manufacturer and shall be performed by persons certified by the industry.
- B. Continuity Test: Control and instrumentation cables shall be tested for continuity, polarity, undesirable ground, and origination. Such tests shall be performed after installation and prior to placing cables in service.

END OF SECTION

SECTION 16140

WIRING DEVICES

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3.01 GENERAL

3.02 CONNECTION

3.03 GROUNDING

3.04 FIELD TESTING

PART 1 – GENERAL

1.01 THE REQUIREMENT

- A. The Contractor shall provide wiring devices, complete and operable, in accordance with the Contract Documents.
- B. The requirements of Section 16050 – Electrical Requirements apply to this section.

1.02 CONTRACTOR SUBMITTALS

- A. Furnish submittals in accordance with Section 01300 - Submittals.
- B. Shop Drawings:
 - 1. Complete catalog cuts of switches, receptacles, enclosures, covers, and appurtenances, marked to clearly identify proposed materials.
 - 2. Documentation showing that proposed materials comply with the requirements of NEC and U.L.
 - 3. Documentation of the manufacturer's qualifications.

PART 2 – PRODUCTS

2.01 GENERAL

- A. All devices shall carry the U.L. label.
- B. General purpose duplex receptacles and toggle switch handles shall be brown everywhere. Receptacles shall be specification grade and conform to NEMA WD-1, Federal Specifications W-C-596E and W-S-896E, respectively.

2.02 LIGHTING SWITCHES

- A. Local branch switches shall be toggle type, rated at 20 amperes, 120-277 vAC, and shall be General Electric Cat. No. GE-5951-1 for single pole, GE-5953-1 for 3-way and GE-5954-1 for 4-way, or similar types as manufactured by Hubbell, Leviton, or equal.
- B. Switches for hazardous locations shall be factory sealed, rated at 20 amp., 120-277 vAC, capable of controlling 100% tungsten filament, fluorescent and HID lamp loads and shall be as manufactured by Crouse-Hinds, Appleton, or Killark.

2.03 GENERAL PURPOSE RECEPTACLES

- A. Duplex receptacles rated 125 V, 20 amp. shall be polarized 3 wire type for use with 3 wire cord with grounded lead and 1 designated stud shall be permanently grounded to the conduit system (NEMA 5-20R). Duplex 120 V receptacles shall be G.E. 5362, Hubbell 5362, or equal. Single receptacles shall be G.E. 4102, Hubbell 4102, or equal.
- B. Ground-fault circuit interrupting receptacles (GFCI's) shall be installed at outdoor locations as required by the NEC. GFCI's shall be duplex, specification grade, tripping at 5 mA. Ratings shall be 125 V, 20 amperes, NEMA WD-1, Configuration 5-20R, capable of interrupting 5,000 amperes without damage. Feed-through type GFCI's serving standard receptacles will not be permitted. GFCI's shall be as manufactured by Hubbell, Bryant, Leviton, or equal.

2.04 ENCLOSURES AND COVERS

- A. Surface mounted switches and receptacles shall be in FS or FD type weatherproof conduit fittings.
- B. Switch and receptacle covers on surface mounted boxes shall be die cast copper-free aluminum.
- C. In finished areas, switch and receptacle boxes shall be provided with SUPER STAINLESS STEEL COVERS as manufactured by Harvey Hubbell, Arrow Hart, Bryant, or equal.
- D. In areas where cast boxes are used, switch and receptacle covers shall be Crouse-Hinds Catalogue No. DS185 and WLRD-1, or Adalet No. WSL and WRD, or equal.
- E. Receptacles in wet locations shall be with a hinged metallic cover/enclosure marked "Suitable for Wet Locations when in use" and "UL Listed." There shall be a gasket between the enclosure and the mounting surface and between the hinged cover and mounting plate/base. The cover shall be TayMac Specification Grade, or equal.

2.05 NAMEPLATES

- A. Provide nameplates or equivalent markings on switch enclosures to indicate ON and OFF positions of each switch. ON and OFF for 3-way or 4-way switches is not acceptable. Provide receptacles for special purposes with nameplates indicating their use. Conform to requirements of Section 16050.

PART 3 – EXECUTION

3.01 GENERAL

- A. Perform work in accordance with the National Electrical Code.

3.02 CONNECTION

- A. Rigidly attach wiring devices in accordance with National Electrical Code, and as indicated, avoiding interference with other equipment.
- B. Securely fasten nameplates using screws, bolts, or rivets centered under or on the device, unless otherwise indicated.
- C. Furnish and install dedicated cabling for each port present at wall jack locations noted in the plans.

3.03 GROUNDING

- A. Ground all devices, including switches and receptacles, in accordance with NEC, ART 250, and Section 16450 - Grounding.
- B. Ground switches and associated metal plates through switch mounting yoke, outlet box, and raceway system.
- C. Ground flush receptacles and their metal plates through positive ground connections to outlet box and grounding system. Maintain ground to each receptacle by spring-loaded grounding contact to mounting screw or by grounding jumper, each making positive connection to outlet box and grounding system at all times.

3.04 FIELD TESTING

- A. Provide checkout, field, and functional testing of wiring devices in accordance with Section 16050.
- B. Test each receptacle for polarity and ground integrity with a standard receptacle tester.

END OF SECTION

SECTION 16450

GROUNDING

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- 1.02 CONTRACTOR SUBMITTALS

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- 2.01 GENERAL
- 2.02 GROUNDING SYSTEM

PART 3 – EXECUTION

- 3.01 GROUNDING

PART 1 – GENERAL

1.01 THE REQUIREMENT

- A. The Contractor shall provide the electrical grounding system, complete and operable, in accordance with the Contract Documents.
- B. The requirements of Section 16050 - Electrical Requirements apply to this section.
- C. Single Manufacturer: Like products shall be the end product of one manufacturer in order to achieve standardization of appearance, operation, maintenance, spare parts and manufacturer's services.

1.02 CONTRACTOR SUBMITTALS

- A. Furnish submittals in accordance with Section 01300 - Submittals and Section 16050 - Electrical Requirements.
- B. Shop Drawings: Manufacturer's product information for connections, clamps, and grounding system components, showing compliance with the requirements of this section.

PART 2 – PRODUCTS

2.01 GENERAL

- A. Components of the grounding electrode system shall be manufactured in accordance with ANSI/UL 467 - Standard for Safety Grounding and Bonding Equipment, and shall conform to the applicable requirements of National Electrical Code Article 250 and local codes.

2.02 GROUNDING SYSTEM

- A. Ground Rods:
 - 1. Unless indicated otherwise, the ground rod shall be a minimum of 3/4" in diameter, 10' long, and have a uniform covering of electrolytic copper metallicity bonded to a rigid steel core. The copper to steel bond shall be corrosion resistant.
 - 2. Conform to ANSI/UL 467.
 - 3. Sectional type joined by threaded copper alloy couplings.
- B. Buried cable-to-cable and cable-to-ground rod connections shall be made using exothermic welds by Cadweld, Enrico Products, or equal.
- C. Exposed grounding connectors shall be of the compression type (connector to cable), made of high copper alloy, and be manufactured specifically for the particular grounding application. The connectors shall be Burndy, O.Z. Gedney, or equal.
- D. Grounding clamps shall be used to bond each separately derived system to the grounding electrode conductors.
- E. Equipment Grounding Circuit Conductors:
 - 1. These conductors shall be the same type and insulation as the load circuit conductors. The minimum size shall be as outlined in Table 250.122 of the National Electrical Code, unless indicated otherwise.
 - 2. Metallic conduit systems shall have equipment grounding wires as well as being equipment grounding conductors themselves.
- F. Manufacturers of grounding materials shall be Copperweld, Blackburn, Burndy, or equal.

PART 3 – EXECUTION

3.01 GROUNDING

- A. Provide a separate grounding conductor, securely grounded in each raceway independent of raceway material.
- B. Provide a separate grounding conductor for each motor and connect at motor box. Do not use bolts securing motor box to frame or cover for grounding connectors.
- C. Size as given on the conduit schedule and in accordance with the NEC-Article 250.
- D. Route conductors inside raceway.
- E. Provide a grounding type bushing for secondary feeder conduits which originate from the secondary section of each MCC section, switchboard, or panelboard.

- F. Individually bond these raceways to the ground bus in the secondary section.
- G. Provide a green insulated wire as grounding jumper from the ground screw to a box grounding screw and, for grounding type devices, to equipment grounding conductor.
- H. Provide a separate grounding conductor in each individual raceway for parallel feeders.
- I. Shield Grounding:
 - 1. Shielded instrumentation cable shall have its shield grounded at one end only unless shop drawings indicate the shield will be grounded at both ends.
 - 2. The grounding point shall be at the control panel or otherwise at the receiving end of the signal carried by the cable.
 - 3. Termination of shield drain wire shall be on its own terminal screw.
 - 4. Terminal screws shall be jumpered together using manufactured terminal block jumpers.
 - 5. Connection to the ground bus shall be via a green No. 12 conductor to the main ground bus for the panel.

END OF SECTION

SECTION 16470

PANELBOARDS AND TRANSFORMERS

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PART 1 – GENERAL

1.01 THE REQUIREMENT

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2.02 TRANSFORMERS

PART 3 – EXECUTION

3.01 GENERAL

PART 1 – GENERAL

1.01 THE REQUIREMENT

- A. The Contractor shall provide panelboards, general purpose dry-type energy efficient transformers as shown and as an integral part of specified MCC, complete and operable, in accordance with the Contract Documents.
- B. Single Manufacturer: Like products shall be the end product of one manufacturer in order to achieve standardization of appearance, operation, maintenance, spare parts, and manufacturer's services.

1.02 CONTRACTOR SUBMITTALS

- A. General: Submittals shall be in accordance with Section 01300 - Submittals and Section 16050 - Electrical Work, General.
- B. Shop Drawings
 - 1. Transformers.
 - a. Dimension drawings.
 - b. Technical certification sheets.
 - c. Drawing of conduit entry/exit locations.
 - d. Transformer ratings, including:
 - 1) Voltage.
 - 2) Continuous current.
 - 3) Basic impulse level for equipment over 600 volts.
 - 4) Kva.
 - e. Descriptive bulletins.
 - f. Product sheets.
 - 2. Panelboards.

- a. Breaker layout drawings with dimensions and nameplate designations.
- b. Component list.
- c. Drawings of conduit entry/exit locations.
- d. Assembly ratings including:
 - 1) Short circuit rating.
 - 2) Voltage.
 - 3) Continuous current.
- e. Cable terminal sizes.
- f. Descriptive bulletins.
- g. Product sheets.
- h. Installation information.
- i. Seismic certification and equipment anchorage details.

PART 2 – PRODUCTS

2.01 GENERAL

A. Transformers

- 1. The transformers shall be dry-type, designed, manufactured, and tested in accordance with the latest applicable standards of ANSI and NEMA.
- 2. Transformers shall be UL-listed and bear the UL label.

B. Panelboards

- 1. Panelboards shall be dead front factory assembled. Panelboards shall comply with NEMA PB-1-Panelboards, as well as the provisions of UL 50 - Safety Enclosures for Electrical Equipment and UL 67 - Safety Panelboards. Panelboards used for service equipment shall be UL labeled for such use. Lighting panelboards shall be rated for 120/208-volt, 3-phase operation or 120/240-volt for single phase operation as indicated. Power panelboards shall be rated for 480 volts, 3-phase, 3-wire operation.
- 2. The manufacturer of the panelboard shall be the manufacturer of the major components within the assembly, including circuit breakers.

2.02 TRANSFORMERS

- #### A. Energy Efficiency: Standard dry-type transformers, 15 KVA and larger, must meet the energy efficiency requirements of NEMA TP-1. The product requirements are in the appliance regulations, Title 20, and the usage requirements are in Title 24. K-factor transformers are exempt from these requirements.

B. Ratings

- 1. KVA and voltage ratings shall be as indicated.
- 2. Transformers shall be designed for continuous operation at rated kVA, for 24 hours a day, 365 days a year operation, with normal life expectancy as defined in ANSI C57.96 - Guide for Loading Dry Type Distribution and Power Transformers.

3. Transformer sound levels shall not exceed the following ANSI and NEMA levels for self-cooled ratings:
 - a. Up to 9 kva: 40 db
 - b. 10 to 50 kva: 45 db
 - c. 51 to 150 kva: 50 db

C. Construction

1. Insulation Systems.

- a. Transformers shall be insulated as follows:
 - 1) 2 kva and below: 150°C. insulation system based upon 80°C. rise.
 - 2) 3 to 15 kva: 185°C. insulation system based upon 115°C. rise.
 - 3) 15 kva and above: 220°C. insulation system based upon 150°C. rise.
 - b. Required performance shall be obtained without exceeding the above indicated temperature rise in a 40°C. maximum ambient.
 - c. All insulation materials shall be flame-retardant and shall not support combustion as defined in ASTM D 635 - Test Method for Rate of Burning and/or Extent and Time of Burning of Self-Supporting Plastics in a Horizontal Position.
2. Transformer windings shall be copper, unless shown otherwise.
 3. Transformers shall have four 2-1/2% taps, two above and two below 480 volts.

D. Refer to schedule on drawings for standalone transformers.

2.03 PANELBOARDS

A. Ratings

1. Panelboards rated 240 VAC or less shall have short circuit ratings not less than 10,000 amp. RMS symmetrical.
2. Panelboards rated 480 VAC shall have short circuit ratings not less than 25,000 amp. RMS symmetrical.
3. Panelboards shall be labeled with a UL short circuit rating. Series ratings are not acceptable.

B. Construction

1. All lighting and power distribution panels shall have copper busbars.
2. Breakers shall be 1, 2, or 3 pole as indicated, with ampere trip ratings as required by the equipment. Breakers shall be quick-make and quick-break, inverse time trip characteristics, to trip free on overload or short circuit, and to indicate trip condition by the handle position.
3. The panels shall have hinged doors with combination catch and latch. The front panels shall be so arranged that when the plates are removed, the gutters, terminals and wiring will be exposed and accessible. The doors shall have inner doors within the plates to have only the breaker operating mechanism exposed when they are opened. Live conductors and terminals shall be concealed behind the plates.
4. All panelboards shall be rated for the intended voltage.

5. All circuit breakers shall be interchangeable and capable of being operated in any position as well as being removable from the front of the panelboard without disturbing adjacent units. No plug-in circuit breakers will be acceptable.
6. Lighting and power distribution panels which are not part of a motor control center shall be constructed in accordance with Section 16050. Panels shall have the necessary barriers, supports, and liberal wiring gutters. Trim screws shall be stainless steel. All panelboard parts of metal other than copper, aluminum, or stainless steel shall be cadmium plated.
7. Panelboards shall be UL listed except for special enclosures which are not available with UL listing.
8. Panelboards shall be suitable for use as service entrance as indicated or as otherwise required by the N.E.C.

C. Manufacturers:

1. Cutler Hammer
2. Square D
3. Allen Bradley

D. Panelboard schedules:

1. Refer to drawings for panel schedules.

2.04 CIRCUIT BREAKERS

- A. Circuit breakers having a frame size of 150 amp. or less shall be molded-case type with thermal magnetic non-interchangeable, trip-free, sealed trip units.
- B. Circuit breaker disconnect operators shall be capable of accommodating 3 padlocks for locking in the "open" position.

2.05 SURGE PROTECTIVE DEVICE

- A. Surge suppression system shall be furnished in accordance with NEMA LA 1, IEEE C62.41.1, and IEEE C62.41.2. Surge suppressor shall be rated for line voltage and shall provide a minimum of 80 kA per phase surge current protection.
- B. Provide protective device within panelboard as disconnecting means and short circuit protection per manufacturer's recommendation. Factory mount within panelboard utilizing UL-recognized mounting device.

PART 3 – EXECUTION

3.01 GENERAL

- A. All work of this section shall be installed as indicated in Section 16050.

- B. Construct exterior power transformer with wall-mount support bracket at location noted in the plans.

END OF SECTION

SECTION 16485

MISCELLANEOUS ELECTRICAL DEVICES

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PART 1 – GENERAL

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- 1.02 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS
- 1.03 CONTRACTOR SUBMITTALS

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- 2.01 CONTROL ENCLOSURES AND JUNCTION BOXES
- 2.02 DISCONNECT SWITCHES

PART 3 – EXECUTION

- 3.01 INSTALLATION

PART 1 – GENERAL

1.01 THE REQUIREMENT

- A. The Contractor shall provide miscellaneous electrical equipment as indicated herein or in other sections of the Specifications.
- B. All the equipment listed herein may not have been used on this project; refer to plans for type of equipment, locations and other details.

1.02 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

- A. Miscellaneous electrical devices shall comply with the requirements of NEC, NEMA, and UL.

1.03 CONTRACTOR SUBMITTALS

- A. Furnish shop drawings in accordance with Section 01300 - Submittals and Section 16050 - Electrical Requirements.
 - 1. Ladder diagrams and written descriptions explaining ladder diagram operation and system operation for local control stations.
 - 2. Include catalog cuts of all equipment including enclosures, overcurrent devices, relays, pilot devices, terminations, and wire troughs, etc.

PART 2 – PRODUCTS

2.01 CONTROL ENCLOSURES AND JUNCTION BOXES

- A. Control Enclosures:

1. In finished rooms, enclosures shall be NEMA 12 steel enclosures painted with ANSI 61 exterior and white interior.
2. In all other non-hazardous areas and exterior mounted, enclosures shall be NEMA 4X stainless steel (prior to modifications) with brushed finish. Where possible, penetrations shall be made in such a manner to maintain the NEMA 4X rating. If this is not possible, the penetrations shall be made in such a manner to minimize entry of foreign materials into the enclosure.
3. Enclosures shall be freestanding, pedestal-mounted, or equipment skid-mounted, as indicated. Internal control components shall be mounted on a removable mounting pan. Mounting pan shall be finished white.
4. When required to maintain controlled temperature inside enclosure, outdoor mounted enclosures shall be provided with thermostatically-controlled heaters; insulate control panels when heaters are provided.
5. Provide screened weep holes for draining condensation.

2.02 DISCONNECT SWITCHES

- A. Low Voltage Disconnect Switches (less than 600V)
 1. Heavy duty, non-fusible, single throw; fused where shown.
 2. Horsepower rated.
 3. UL listed.
 4. Padlockable in "Off" position and door interlock.
 5. Enclosure per area classification in Section 16050.
 6. Voltage/phase requirements as shown on drawings.
 7. Auxiliary control contact as applicable and as indicated.
 8. As manufactured by G.E., Cutler-Hammer, or Square D.
 9. Refer to plans for sizes.

PART 3 – EXECUTION

3.01 INSTALLATION

- A. Install miscellaneous electrical devices specified herein in accordance with Section 16050 and in accordance with the manufacturer's recommendations. All equipment specified herein may not have been used on the project. Refer to drawings for equipment used on this project.
- B. Conduit, conductors, and terminations shall be installed in accordance with Section 16050.

END OF SECTION

SECTION 16500

LIGHTING

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- 1.02 SUBMITTALS
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- 3.02 FIELD QUALITY CONTROL
- 3.03 ADJUSTING
- 3.04 CLEANING
- 3.05 LIGHT FIXTURE SCHEDULE

PART 1 – GENERAL

1.01 REFERENCES

- A. All LED lighting products must be approved and listed on the Energy Star Qualified Commercial LED Lighting List For Lamps – (<http://www.energystar.gov/productfinder/product/certified-light-bulbs/results>). For Fixtures – (<http://www.energystar.gov/productfinder/product/certified-light-fixtures/results>).
- B. ANSI/NFPA 70 - National Electrical Code.
- C. ANSI/NFPA 101 - Life Safety Code.

1.02 SUBMITTALS

- A. Submit under provisions of Division 01.
- B. Product Data: Provide dimensions, ratings, and performance data.
- C. Manufacturer's Instructions: Indicate application conditions and limitations of use stipulated by product testing agency specified under Regulatory Requirements.
- D. Manufacturer's Instructions: Include instructions for storage, handling, protection, examination, preparation, and installation of product.

1.03 REGULATORY REQUIREMENTS

- A. Conform to requirements of ANSI/NFPA 70.
- B. Conform to requirements of NFPA 101.
- C. Furnish products listed and classified by Underwriters Laboratories, Inc. as suitable for purpose specified and shown.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, protect, and handle products to site under provisions of Section 01600.
- B. Accept products on site. Inspect for damage.
- C. Protect luminaires and accessories from finish damage by handling carefully.

PART 2 – PRODUCTS

2.01 LUMINAIRES

- A. Furnish products and associated support hardware as scheduled in the plans and required for a complete and operable LED lighting system.

2.02 LED DRIVERS

- A. Suitable for LED light fixture submitted.
- B. Suitable for dimming where shown on drawings.

PART 3 – EXECUTION

3.01 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Install surface mounted luminaires and emergency signs plumb and adjust to align with building lines and with each other. Secure to prohibit movement.
- C. Install wall mounted luminaires at height indicated on Drawings.
- D. Bond products and metal accessories to branch circuit equipment grounding conductor.

3.02 FIELD QUALITY CONTROL

- A. Operate each luminaire after installation and connection. Inspect for proper connection and operation.

3.03 ADJUSTING

- A. Aim and adjust luminaires.
- B. Replace failed fixtures with new prior to Substantial Completion.

3.04 CLEANING

- A. Clean electrical parts to remove conductive and deleterious materials.
- B. Remove dirt and debris from enclosure.
- C. Clean photometric control surfaces as recommended by manufacturer.
- D. Clean finishes and touch up damage.

3.05 LIGHT FIXTURE SCHEDULE

- A. As scheduled on the Drawings.

END OF SECTION

SECTION 17100

PROCESS CONTROL AND INSTRUMENTATION SYSTEMS

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PART 1 – GENERAL

1.01 THE REQUIREMENT

- A. This section describes process control and instrumentation systems.
- B. The Contractor shall provide all Process Control and Instrumentation Systems (PCIS) complete and operable, in accordance with the Contract Documents.
- C. The requirements of this section apply to all components of the PCIS unless indicated otherwise.
- D. Related work specified elsewhere:
 - 1. Division 16 - Electrical.
 - 2. Section 17200 - Instrumentation and Control Equipment.
 - 3. Section 17300 - Control Panels.
 - 4. Section 17400 – Control Descriptions.

1.02 REFERENCES

- A. National Fire Protection Association (NFPA):
 - 1. NFPA 70 - National Electrical Code (NEC), latest edition.
- B. National Electrical Manufacturers Association (NEMA):
 - 1. NEMA ICS-2 - Industrial Control Devices, Controllers, and Assemblies.
 - 2. NEMA 250 - Enclosures for Electrical Equipment.

- C. Underwriters Laboratories (UL):
 - 1. UL 508 - Industrial Control Equipment.

1.03 GENERAL

- A. The Contractor shall use a Controls Integrator (CI) and qualified electrical installers to furnish, install, and place into service process instrumentation, controls and appurtenant work as specified and shown.
- B. Contractor shall assign to the CI full responsibility for the functional operation of instrumentation and integrated controls systems. The Controls Integrator shall:
 - 1. Perform engineering required to select, to furnish, to supervise installation and connection, to calibrate, and to place into operation additional sensors, instruments, controls, accessories, and other equipment as specified.
 - 2. Be responsible for the integration of related systems and shall ensure compatibility of components through the coordination of all hardware, signal converters, communications software and accessories.
 - 3. Be under direct, written agreement with the Contractor and comply with specified requirements of these Documents.
 - 4. Not be the employee of nor be affiliated with manufacturers or manufacturers' representatives of major equipment such that a conflict of interest could adversely affect progress of the Work.
- C. Work specified in Division 17 includes furnishing, installing, start-up, testing and adjusting of all required equipment, including instruments, equipment, hardware, software, wiring, accessory equipment, and training to provide a completely operational process control and instrumentation system.
- D. It shall be the responsibility of the Contractor through the use of the CI to furnish a complete and fully operating system; The Contractor shall be responsible for all details which may be necessary to properly install, adjust and place in operation the complete installation; The Contractor shall assume full responsibility for additional costs which may result from unauthorized deviations from the Contract Documents.
- E. It shall be the responsibility of the CI to examine all new and existing equipment that is transmitting signals to, or receiving signals from, equipment specified in Division 17; The CI shall be responsible for providing signal converters, buffer amplifiers, and isolation devices to make signal levels, reference to ground, etc. compatible between devices specified in Division 17 and existing equipment.

1.04 CONTROLS INTEGRATOR EXPERIENCE AND CAPABILITIES

- A. The CI shall be normally engaged in assembly, installation, repair, and maintenance of process control and instrumentation systems and must have been supplying similar types/quantities of control systems in municipal water and wastewater treatment

industry for a minimum of 15 years; submit list of minimum 35 installations for which integrator has provided similar type/quantity of equipment, including name and telephone number of person responsible for operation and maintenance of each installation.

- B. The CI shall have qualified, trained service personnel on staff who are capable of programming, maintaining and adjusting the system; The CI shall be capable of offering an extended service contract after completion of the warranty period, including 24 hour, 7 day a week emergency services; service personnel must be available within 8 hours of verbal notice on all days of week.
- C. Submit:
 - 1. 100% supply/performance/payment bond.
 - 2. Certificate-showing evidence of \$1,000,000 insurance coverage for professional liability/ errors and omissions.
 - 3. Certificate-showing evidence of \$1,500,000 insurance coverage for comprehensive general liability (All Risk Insurance).
 - 4. Copy of liability insurance policy with same limits as comprehensive general liability policy to protect Owner and Engineer against any and all claims in liabilities for injury to or death of persons or damage to property caused whole or in part by any negligent acts or omissions of integrator arising from work on this project; name Owner and Engineer against as additional insured and maintain this policy in full force and effect for entire duration of this project.
- D. The CI shall have service and parts office within 200 miles of project site and shall be able to provide service within time period acceptable to the Owner or shall have the capability to provide service to project site remotely by modem; the local office shall have full-time service personnel and answer telephone calls in person; provide home telephone numbers of management personnel for use in case of emergencies.
- E. The Controls Integrator shall be the following company in full conformance with Specifications:
 - 1. Primex Controls; Contact: Shaun Girard, (763) 559-0568, shaungirard@sjeinc.com

1.05 SUBMITTALS

- A. Submit informational literature/data for following materials and equipment in accordance with general procedures set forth in Specifications:
 - 1. All equipment and components indicated on Drawings and specified in this section.
 - 2. Software packages including complete description of features and capabilities.
- B. Submit shop drawings for following materials and equipment in accordance with general procedures set forth in Specifications:

1. Panel drawings including system schematic drawings, terminal numbering, component schematic drawings, dimension drawings, layout drawing and nameplate schedule.
 2. Overall system diagram showing all components, converters, cables, and connectors.
 3. Programmable Logic Controller (PLC) programs in ladder format including verbal description of each rung's function; assign point numbers to all inputs and outputs, and show point numbering in PLC program.
 4. Proposed graphic displays; submit actual hardcopy of programmed graphic screens.
 5. The submittal shall address all hardware and software to be supplied. In addition, include:
 - a. Identification of the respective responsibilities of each party to the project. Including what is provided by the system manufacturer, what is to be subcontracted etc.
 - b. Description of the major user related features and operating characteristics of the proposed system.
 - c. Description of all master site hardware and software updates including examples of HMI and PC SCADA displays, control loops, reports, and how the operator will interface with the system to achieve each specified function.
 - d. Description and operation of all required configuration features of the I/O and local and remote control loop characteristics.
 - e. Description containing startup implementation plan, participant's responsibilities and a schedule of events.
 - f. All significant equipment to be supplied shall be listed followed by descriptive data sheets. The equipment list shall include each component name, manufacturer, model number, a description of the operation, quantity supplied, and any special setup and operation and maintenance characteristics.
 - g. Drawings of equipment to be supplied shall include as a minimum, overall dimension details for each unit including installation arrangements, door mounted operator devices and instruments. Wiring diagrams of all system components including field device connections shall be included and specific installation wiring responsibilities identified.
- C. Operations and Maintenance (O&M) Manuals: submit minimum of five (5) sets of operation and maintenance manuals containing:
1. A detailed written description of system hardware, software, and system operation shall be provided. The description of hardware and software shall identify pertinent references to sections of standard hardware and software manuals where operational procedures are detailed. Control loops shall be fully described in the O&M manual.
 2. Panel equipment, field devices and instruments, including "as-built" system schematics.
 3. Final copy of PLC program on 8-1/2" x 11" sheets in ladder format including verbal description of each rung's function.
 4. PLC program burned on DVD.

5. Point lists for all PLC inputs/outputs; identify point number (tag), point description, point type, range in engineering units (if analog point), PLC number, rack and slot number, and point address.

D. Final as-built drawings.

E. All submittals bound in 3-ring binders with labeled tabs separating sections.

1.06 GUARANTEE

- A. Contractor shall guarantee operation of system and that materials and workmanship of equipment be free from defects for period as defined in General Conditions of project manual providing equipment has been operated and maintained in accordance with manufacturer's recommendations.

1.07 WARRANTY

- A. Controls Integrator shall provide a comprehensive two (2) year parts and labor warranty for complete control system.

1.08 TESTING

- A. The controller and peripherals shall be tested as best possible at the factory as an integrated unit prior to shipment. The engineer shall be notified at least 2 weeks in advance of the system test. Include test results as an attachment to the equipment.
- B. Panel furnished under this section constructed in accordance with UL 508.
- C. Panel shop-inspected by UL or constructed in UL-recognized facility; completed panel shall bear serialized UL label indicating acceptance under Standard 508.

PART 2 – PRODUCTS

2.01 GENERAL

- A. Code and Regulatory Compliance: PCIS work shall conform to or exceed the applicable requirements of the National Electrical Code. Conflicts between the requirements of the Contract Documents and any codes or referenced standards or specifications shall be resolved accordingly.
- B. Current Technology: Meters, instruments, and other components shall be the most recent field-proven models marketed by their manufacturers at the time of submittal of the Shop Drawings unless otherwise required to match existing equipment.

- C. Hardware Commonality: Instruments which utilize a common measurement principle (for example, d/p cells, pressure transmitters, level transmitters that monitor hydrostatic head) shall be furnished by a single manufacturer. Panel mounted instruments shall have matching style and general appearance. Instruments performing similar functions shall be of the same type, model, or class, and shall be from a single manufacturer.
- D. Loop Isolators and Converters: Signal isolators shall be provided as required to ensure adjacent component impedance match where feedback paths may be generated, or to maintain loop integrity during the removal of a loop component. Dropping precision wirewound resistors shall be installed at all field side terminations in the control panels to ensure loop integrity. Signal conditioners and converters shall be provided where required to resolve any signal level incompatibilities or provide required functions.
- E. Environmental Suitability: Indoor and outdoor control panels and instrument enclosures shall be suitable for operation in the ambient conditions associated with the locations designated in the Contract Documents. Heating, cooling, and dehumidifying devices shall be provided in order to maintain all instrumentation devices 20% within the minimums and maximums of their rated environmental operating ranges. The Contractor shall provide power wiring for these devices. Enclosures suitable for the environment shall be furnished. All instrumentation in hazardous areas shall be suitable for use in the particular hazardous or classified location in which it is to be installed.
- F. Signal Levels: Analog measurements and control signals shall be as indicated herein, and unless otherwise indicated, shall vary in direct linear proportion to the measured variable. Electrical signals outside control panels shall be 4 to 20 ma. dc except as indicated. Signals within enclosures may be 1 to 5 volts dc. Electric signals shall be electrically or optically isolated from other signals. Pneumatic signals shall be 3 to 15 psig with 3 psig equal to 0% and 15 psig equal to 100%.
- G. Control Panel Power Supplies: Control panels shall be provided with redundant power supplies which are configured in a fault-tolerant manner to prevent interruption of service upon failure and interruption of service necessitated by the replacement of a power supply. Power supplies shall have an excess rated capacity of 40%. The failure of a power supply shall be annunciated at the control panel and repeated to the PLC.
- H. Alternative Equipment and Methods: Equipment or methods requiring redesign of any project details are not acceptable without prior written approval of the Engineer through the "or equal" process of Section 01600 - Material and Equipment. Any proposal for approval of alternative equipment or methods shall include evidence of improved performance, operational advantage, and maintenance enhancement over the equipment or method indicated, or shall include evidence that an indicated component is not available.

2.02 OPERATING CONDITIONS

- A. The PCIS shall be designed and constructed for satisfactory operation and long, low maintenance service under the following conditions:
 - 1. Environment: a water treatment plant facility.
 - 2. Temperature Range: 32 through 104°F.
 - 3. Thermal Shock: 1°F. per minute, max.
 - 4. Relative Humidity: 20 through 95%, non-condensing.

2.03 SPECIAL TOOLS

- A. The CI shall furnish a priced list of any and all special tools required to calibrate and maintain the instrumentation provided under the Contract Documents. After approval the CI shall furnish the requested tools on that list.
- B. Special tools shall be submitted before startup commences, suitably wrapped and identified.

PART 3 – EXECUTION

3.01 PROJECT MANAGEMENT

- A. Supplier shall provide engineering and administrative services necessary to fulfill requirements of Specifications.
- B. Supplier shall provide services of experienced project manager as overall coordinator during course of project.

3.02 INSTALLATION

- A. General:
 - 1. Instrumentation, including instrumentation furnished under other divisions, shall be installed under Division 17 and the manufacturers' instructions.
 - 2. Equipment Locations: The monitoring and control system configurations indicated are diagrammatic. The locations of equipment are approximate. The exact locations and routing of wiring and cables shall be governed by structural conditions and physical interferences and by the location of electrical terminations on equipment. Equipment shall be located and installed so that it will be readily accessible for operation and maintenance. Where job conditions require reasonable changes in approximated locations and arrangements, or when the Owner exercises the right to require changes in location of equipment which do not impact material quantities or cause material rework, the Contractor shall make such changes without additional cost to the Owner.

- B. Conduit, Cables, and Field Wiring:
1. Conduit shall be provided under Division 16 without delay to the work of Division 17.
 2. Process equipment control wiring, 4-20 mA signal circuits, signal wiring to field instruments, PLC input and output wiring and other field wiring and cables shall be provided under Division 16.
 3. Terminations and wire identification at PCIS equipment furnished under this or any other division shall be provided under Division 17.
- C. Ancillary Devices: The Contract Documents show all necessary conduit and instruments required to make a complete instrumentation system. The Contractor shall be responsible for providing any additional or different type connections as required by the instruments and specific installation requirements. Such changes shall not be a basis of claims for extra work or delay.
- D. Installation Criteria and Validation: Field-mounted components and assemblies shall be installed and connected according to the requirements below:
1. Installation personnel have been instructed on installation requirements of the Contract Documents.
 2. Technical assistance is available to installation personnel at least by telephone.
 3. Installation personnel have at least 1 copy of the approved Shop Drawings and data.
 4. Instrument process sensing lines shall be installed in conduit under Section 16050 - Electrical General Provisions. Individual tubes shall be run parallel and near the surfaces from which they are supported. Supports shall be used at intervals of not more than 3' of rigid tubing.
 5. Bends shall be formed to uniform radii with the proper tool without deforming or thinning the walls of the tubing. Plastic clips shall be used to hold individual plastic tubes parallel. Ends of tubing shall be square cut and cleaned before being inserted in the fittings. Bulkhead fittings shall be provided at panels requiring pipe or tubing entries.
 6. Differential pressure elements shall have 3 valve manifolds.
 7. Flexible cables and capillary tubing shall be installed in flexible conduits. The lengths shall be sufficient to withdraw the element for periodic maintenance.
 8. Power and signal wires shall be terminated with crimped type lugs.
 9. Connectors shall be, as a minimum, water tight.
 10. Wires shall be mounted clearly with an identification tag that is of a permanent and reusable nature.
 11. Wire and cable shall be arranged in a neat manner and securely supported in cable groups and connected from terminal to terminal without splices unless specifically approved by the Engineer. Wiring shall be protected from sharp edges and corners.
 12. Mounting stands and bracket materials and workmanship shall comply with requirements of the Contract Documents.
 13. Verify the correctness of each installation, including polarity of electric power and signal connections, and make sure process connections are free of leaks. The Contractor shall certify in writing that discrepancies have been corrected for each system checked out.

14. The Owner will not be responsible for any additional cost of rework attributable to actions of the Contractor or the Controls Integrator.

3.03 CALIBRATION

- A. General: Devices provided under Division 17 shall be calibrated according to the manufacturer's recommended procedures to verify operational readiness and ability to meet the indicated functional and tolerance requirements.
- B. Calibration Points: Each instrument shall be calibrated at 20, 40, 60, 80 and 100% of span using test instruments to simulate inputs. The test instruments shall have accuracies traceable to National Institute of Standards and Testing.
- C. Bench Calibration: Instruments that have been bench-calibrated shall be examined in the field to determine whether any of the calibrations are in need of adjustment. Such adjustments, if required, shall be made only after consultation with the Engineer.
- D. Field Calibration: Instruments which were not bench-calibrated shall be calibrated in the field to insure proper operation in accordance with the instrument data sheets.
- E. Analyzer Calibration: Each analyzer system shall be calibrated and tested as a workable system after installation. Testing procedures shall be directed by the manufacturers' technical representatives. Samples and sample gases shall be furnished by the manufacturers.
- F. Calibration Sheets: Each instrument calibration sheet shall provide the following information and a space for sign-off on individual items and on the completed unit:
 - 1. Project name.
 - 2. Tag number.
 - 3. Manufacturer.
 - 4. Model number.
 - 5. Serial number.
 - 6. Calibration range.
 - 7. Calibration data: Input, output, and error at 10%, 50%, and 90% of span.
 - 8. Switch setting, contact action, and deadband for discrete elements.
 - 9. Space for comments.
 - 10. Space for sign-off by Controls Integrator and date.
 - 11. Test equipment used and associated serial numbers.
- G. Calibration Tags: A calibration and testing tag shall be attached to each piece of equipment or system at a location determined by the Engineer. The Contractor shall have the Instrumentation Supplier sign the tag when calibration is complete. The Engineer will sign the tag when the calibration and testing has been accepted.

3.04 START-UP

- A. The Controls Integrator shall provide skilled programmer/instrumentation engineer or technician who shall complete troubleshooting and start-up to place entire system into satisfactory operation; engineer or technician shall make necessary inspection of completed installation, make necessary final field adjustments and make program revisions as required for start-up.
- B. Demonstrate proper operation of all system features and functions to Owner and Engineer.
- C. Coordinate start-up scheduling with Owner and Engineer.

3.05 ON-SITE SERVICES

- A. In addition to other services specified including start up, provide competent technician or programmer/instrumentation engineer to perform following services at times approved by Owner:
 - 1. Software revisions and training: Two 8 hour days on-site to train Owner's personnel on:
 - a. Operation and maintenance of all equipment furnished.
 - b. SCADA system operations.
 - c. PLC programming.

END OF SECTION

SECTION 17200

INSTRUMENTATION EQUIPMENT

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- 2.03 ROOM TEMPERATURE THERMOSTAT

PART 3 – EXECUTION

- 3.01 GENERAL
- 3.02 CALIBRATION, ADJUSTMENT AND TESTING

PART 1 - GENERAL

1.01 THE REQUIREMENT

- A. General: The Contractor shall provide instrument systems and switches, complete and operable in accordance with the Contract Documents.
- B. "Smart" transmitters shall be furnished when or wherever possible.
- C. The requirements of Section 17100 - Process Control and Instrumentation Systems apply to this section.

1.02 CONTRACTOR SUBMITTALS

- A. Furnish submittals in accordance with Section 17100.

PART 2 - PRODUCTS

2.01 LEVEL DETECTION SWITCHES

- A. Conductive Level Sensor
 - 1. Electrode level sensors shall be designed for point measurement of conductive liquids, sludges and pastes and shall be suitable for minimum or maximum level detection in tanks/channels.
 - 2. Level sensors shall be suitable for installation in vertical or horizontal orientation.
 - 3. Corrosion resistant probe constructed of stainless steel, of suitable length to fit the application.

- B. Provide level control relay of same manufacturer as probe to provide specified control signal interface with UV Disinfection system controls.
1. Manufacturer shall be Gems, or equal.

- C. The following level switches shall be provided:

Tag No.	Description	NEMA Rating
LSL 50-2	UV Building – UV Channel Low Level Sensor	NEMA 4X

*UV Channel level sensing equipment furnished by UV Disinfection equipment supplier.

2.02 FLOODING SWITCH

- A. Gems LS-270, or equal.
- B. 316 stainless steel body, Buna-N float.
- C. SPST switch.
- D. The following flood switches shall be provided:

Tag No.	Description	NEMA Rating
LSH 50-1	UV Building – UV Building Flood	NEMA 4X

2.03 ROOM TEMPERATURE THERMOSTAT

- A. Corrosion resistant wall mountable room thermostat.
- B. Manufacturer and model number: Chromalox WCRT-100, or equal.
- C. 40°F. to 100°F. temperature range; 25°F. differential.
- D. SPDT contact switch; 25 amps. at 120-240 VAC.
- E. The following thermostat shall be provided:

Tag No.	Description	NEMA Rating
TSL 50-1	UV Building – UV Building Low Temperature	NEMA 4X

PART 3 – EXECUTION

3.01 GENERAL

- A. Instruments shall be installed in accordance with manufacturer's installation instructions and in accordance with Section 17100.

3.02 CALIBRATION, ADJUSTMENT AND TESTING

- A. Devices requiring field calibration shall be calibrated in presence of Owner's representative and documented.

END OF SECTION

SECTION 17300

CONTROL PANELS

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PART 1 - GENERAL

1.01 THE REQUIREMENT

- A. General: The Contractor shall provide a control panel, complete and operable, in accordance with the Contract Documents.
- B. The requirements of Section 17100 - Process Control and Instrumentation Systems apply to this Section.

1.02 CONTRACTOR SUBMITTALS

- A. General: Submittals shall be furnished in accordance with Section 01300 - Submittals.
- B. Control Panel Engineering Submittal: The Contractor shall submit a control panel engineering submittal (CPES) for the control panel. The CPES shall completely define and document the construction, finish, layout, power circuits, signal and safety grounding circuits, fuses, circuit breakers, signal circuits, internally mounted instrumentation, face plate mounted instrumentation components, internal panel arrangements, and external panel arrangements. All panel drawings shall, as a minimum, be "B" size with all data sheets and manufacturer specification sheets being "A" size. The submittal shall be in conformance with ISA-S20 - Standard Forms for Process Measurement and Control Instruments, Primary Elements and Control Valves, shall be submitted as a singular

complete bound volume or multi-volume package within 120 calendar days after Notice to Proceed, and shall have the following contents:

1. A complete index shall appear in the front of the bound volume. Panel tagging and nameplate nomenclature shall be consistent with the requirements of the Contract Documents.
 2. Scaled physical arrangement drawings drawn to scale which define and quantify the physical groupings comprising control panel sections, auxiliary panels, subpanels, and racks. Cutout locations with nameplate identifications shall be shown.
 3. Front of panel layout for the control panel.
 4. Schematic/elementary diagrams shall depict all control devices and circuits and their functions.
 5. Wiring/connection diagrams shall locate and identify electrical devices, terminals, and interconnecting wiring. These diagrams shall show interconnecting wiring by lines, designate terminal assignments, and show the physical location of all electrical and control devices.
 6. Interconnection diagrams shall locate and identify all external connections between the control panel/control panel devices and associated equipment. These diagrams shall show interconnecting wiring by lines, designate terminal assignments, and show the physical location of all panel ingress and egress points.
 7. A bill of material which enumerates all devices associated with the control panel.
 8. Submit informational literature/data for all components including but not limited to Control Panel internal devices, PLC hardware and software, etc.
 9. Programmable Logic Controller (PLC) programs in ladder format including notated description of each rung's function; assign point numbers to all inputs and outputs, and show point numbering in PLC program.
 10. Proposed graphic displays; submit actual hard copy of programmed graphic screens.
- C. Operations Manual: Provide operations and maintenance information for the following:
1. Panel equipment, field devices and instruments, including "as-built" system schematics.
 2. Final copy of PLC program on 8-1/2" x 11" sheets in ladder format including verbal description of each rung's function.
 3. USB flash drive containing final PLC program and final distributed control software program.
 4. Complete software documentation including programming information and operator's guides.
 5. Point lists for all PLC inputs/outputs; identify point number (tag), point description, point type, range in engineering units (if analog point), PLC number, rack and slot number, and point address.
- D. All submittals shall be bound in 3-ring binders with labeled tabs separating each section.

1.03 QUALITY ASSURANCE

- A. All materials, equipment and parts shall be new and unused of current manufacturer.
- B. Control panel supplier shall be responsible for providing all necessary accessories required for a complete and operable system.
- C. All control panels shall be constructed in accordance with UL 508A standards and shall bear the UL listing.

1.04 WARRANTY

- A. See Division 01 for additional requirements.

PART 2 – PRODUCTS

2.01 GENERAL

- A. Environmental Suitability: The control panel shall be suitable for operation in the ambient conditions associated with the location designated in the Contract Documents. Heating, cooling, and dehumidifying devices shall be provided as necessary in order to maintain all instrumentation devices 20% within the minimums and maximums of their rated environmental operating ranges. The Contractor shall provide all power wiring for these devices. Enclosures suitable for the environment shall be provided.
- B. The control panel controls shall be 120 VAC. Control conductors shall be provided in accordance with the indicated requirements.
- C. Each source of foreign voltage shall be isolated by providing disconnecting or pull-apart terminal blocks or a disconnect operable from the control panel front. Each control panel shall be provided with identified terminal strips for the connection of all external conductors. The Contractor shall provide sufficient terminal blocks to connect 25% additional conductors for future use.
- D. Control panel mounted devices shall be mounted a minimum of 3' above finished floor elevation.

2.02 CONTROL PANELS

- A. UV Disinfection Control Panel (50UV-CP01)
 - 1. Furnished by UV equipment supplier.
 - 2. The control panel shall be a wall-mounted, single door NEMA Type 4X enclosure.

3. Constructed of 12-gauge 304 stainless steel with continuously welded seams, ground smooth.
4. Provide lifting eyes on top of enclosure.
5. Provide panel with high-impact thermoplastic data pocket.
6. Panel shall have seamless foam-in-place, on-piece gasket to provide oil-tight and dust-tight seal against contaminants.
7. Three-point door latching system with pad-lockable handle and door stop kit.
8. Finish shall be brushed stainless steel, no other colors will be accepted.
9. Control panel enclosure shall be Hoffman, Saginaw or equal; sizes as required.
10. Provide interior LED lighting package with door activated switch.
11. Provide a 15 amp, 120 volt, service outlet circuit within the back-of-panel area. The circuit shall be provided with a 3 wire, 120 volt, 15 amp., duplex receptacle.
12. Furnish control panel with necessary control processor, fuses, circuit breakers, relays, terminals and other ancillary components required for a complete and operable control system.
13. Furnish control panel with necessary protocol converters, network switches, and other necessary equipment to facilitate Ethernet network communication with SCADA control system.

B. Mounting of Instruments

1. The panel vendor shall provide cutouts, and shall mount all instrument items indicated to be panel mounted.
2. The panel vendor shall also mount behind the panels other instrument accessory items as required for functionality as indicated.
3. Equipment mounted at the rear of panel shall be installed to allow for commissioning adjustments, servicing requirements, and cover removal.
4. Spare space shall be kept clear of wiring, etc., to give maximum space for future additions.

C. Panel Wiring

1. Wire type and sizes: Conductor shall be flexible stranded copper machine tool wire, UL listed Type MTW, and shall be rated 600 volts. Wires for power circuits within panel shall be No. 14 minimum and sized for the load. Wires for instrument signal circuits and alarm input circuits within panel shall be No. 16 AWG. All shielded cables, shall be No. 18 AWG minimum.
2. Wire Marking: Wire numbers shall be marked using white numbered wire markers made from plastic-coated cloth, Brady Type B 500 or equal, or shall be heat shrink plastic.
3. For case grounding, panels shall be provided with a 1/4" x 1" copper ground bus complete with solderless connector for one No. 4 AWG bare stranded copper cable. The copper cable shall be provided by the Contractor and be connected to a system ground loop.
4. Power Supply Wiring

- a. Unless otherwise indicated, instruments, and alarm systems shall operate on 120 volt, 60 Hz circuits.
 - b. Each potentiometer type instrument, electronic transducer, controller, or analyzer shall have an individual disconnect switch. Disconnect switches shall have metal or plastic tags indicating instrument tag numbers. Individual plug and cord set power supply connections may be used without switches when indicated in the material specification.
- 5. Alarm Wiring: The panel vendor shall install and wire alarms including light cabinets, audible signal units, test and acknowledge switches, and remote logic units as indicated. Interconnecting wiring to panel mounted initiating devices shall also be wired by the panel vendor. The wiring from external initiating devices shall be provided by the Contractor. Where plug and cord sets are provided for component interconnection, the panel vendor shall harness and support the cables in neat and orderly fashion. Where separate wire is required, panel vendor shall install No. 16 AWG with THWN or THHN insulation between all components.
- 6. Signal Wiring
 - a. Signal wire shall be twisted pair or triads. Cable shall be constructed of No. 16 AWG copper signal wires with THWN or THHN insulation.
 - b. Color code for instrument signal wiring shall be as follows:
 - Positive (+) – Black
 - Negative (-) – White
- D. Labor and Workmanship: Panels shall be fabricated and wired by fully qualified workmen who are properly trained, experienced, and supervised.

2.03 PROGRAMMABLE LOGIC CONTROLLER

- A. General:
 - 1. Furnish and install programmable logic controller (PLC) including but not limited to power supply, microprocessor, input modules, output modules and other associated equipment as specified herein and as shown on drawings.
 - 2. PLC and all components shall be designed, manufactured and tested in accordance with latest applicable UL standards.
 - 3. The PLC, I/O modules, power supply modules, communication interface devices, and peripheral equipment shall be mounted inside the control panel. Incoming I/O wiring from the field to the control panel shall be terminated on terminal blocks in the lower portion of the enclosure. A nameplate shall be mounted on the outside of the door of the enclosure and be engraved with "CP/PLC".
 - 4. PLC to have following features:
 - a. Modular construction, allowing I/O modules to be individually added or removed.
 - b. Mounting equipment, racks, connecting cables, and other equipment included to provide functioning control system.
 - 5. Input/output modules to have following features:

- a. Inputs and outputs modular, with 4, 8 or 16 circuits per module; status LEDs for each point, powered from field voltage, installed in each module.
 - b. Field wiring to screw connectors attached to I/O mounting rack; removal and replacement of any I/O module without disturbing field wiring or any other I/O modules.
- B. Qualifications:
 1. Manufacturer: ISO 9000, 9001 or 9002 certified for equipment herein specified; produced similar electrical equipment for minimum period of 5 years.
 2. When requested by Engineer, provide acceptable list of installations of similar equipment to demonstrate compliance with qualifications.
- C. PLC
 1. Minimum of 12K words (16-bit) of internal RAM memory provided for storage of control program plus additional data storage for up to 4K words; full memory of CPU usable for program or data storage.
 2. Program functions include contacts, coils, timers, counters, math functions, proportional-integral-derivative (PID) control, shift registers, bit and word operations.
 3. Entire programmable controller system capable of operating in ambient temperatures of +32°F. to +140°F.; relative humidities of 5% to 95% non-condensing.
 4. CPU capable of being networked to other programmable controllers or host computer.
 5. Manufacturer, or equal: Allen-Bradley Compact Logix 5069 - L3 Series with Studio 5000 programming software unless shown otherwise on drawings.
 6. All software is to be licensed to the Owner.
- D. Input/output Units
 1. Analog Input/Output Characteristics: 4-20 milliamperes DC.
 2. Digital Input/Output Characteristics: 120 volts AC, LED isolated from main processor. Individual I/O shall be electrically isolated, 2-wire discrete, dry contact relay equivalent.
 3. Required Hardware:
 - a. Input/Output Rack, Processor, Communications Interface Module (programmer port), rack and module power supplies.
 - b. Each type of module shall have 20% spare capacity.
 4. Manufacturer, or equal: Allen-Bradley.
 5. Analog input module: Allen Bradley 1769-IF8, or equal.
 6. Analog output module: Allen Bradley 1769-OF8C, or equal.
 7. Digital input modules: Allen Bradley 1769-IA16, or equal.
 8. Digital output modules: Allen Bradley 1769-OW16, or equal.
- E. Power Supply
 1. Input Voltage: 120 volts, 60 Hz, 1.0 KVA UPS.

2. Memory Backup: E² PROM memory chip set programmed with final operational software.
3. Manufacturer, or equal: Allen-Bradley.

F. Operator Interface:

1. Operator interface to allow online data monitoring and modification.
2. Mount operator interface terminal on door of Control Panel; operator interface to be accessible without opening door of motor control center section.
3. Operator interface terminal:
 - a. Panel mount color display monitor with keypad operator input.
 - b. Interface to PLC.
 - c. 256K minimum application memory.
 - d. NEMA 4X case.
 - e. 120 VAC power supply.
 - f. Beijer, 12" size at UV SCC.
 - g. As a minimum the following graphical screens shall be provided:
 - 1) Equipment overview.
 - 2) Alarms; alarm screen to pop-up automatically when alarm condition occurs.
 - 3) UV Banks
 - 4) Other graphics screens as defined by Owner and/or Engineer.
 - 5) A hard copy of the proposed graphics screens shall be included in the shop drawing submittal.

2.04 CONTROL PANEL DEVICES

- A. Pushbuttons, selector switches, and LED pilot lights shall be the heavy-duty, oil-tight type, sized to 30 mm. Miniature style devices are not acceptable. Devices shall be as manufactured by G.E., Cutler-Hammer, or equal.
 1. Lens colors shall be green for "run," "open," or "on"; red for "stopped," "closed," or "off"; and amber for alarm.
 2. Pilot lights shall be low voltage, transformer, push-to-test type.
 3. Provide hazardous location type pilot devices in classified locations.
- B. Transient voltage suppressor: Edco HSP121BT1RU, Joslyn Model 1250-32, or equal. AC Power Isolator: provide power line noise suppressors to protect the electronic equipment. The units shall provide for common mode noise attenuation at a ratio of up to 20 million to 1 and normal-mode noise attenuation typically 1,000 to 1 (60db).
- C. LED control panel light with door-activated switch. Hoffman or equal.
- D. Control power circuit breaker: 15 amp., 120 VAC, single pole Cutler Hammer QC1015 or equal.

- E. Service receptacle: duplex; 15 amp., 125 volts; GFCI with indicator light/ Leviton Catalog No. 6598-I, or equal; install in Racor No. 670, or equal utility box.
- F. Condensation heaters: thermostatically controlled; one heater in each compartment of outdoor control panels; 120 volts, single phase; wattage as required to maintain set temperature; provide properly sized fuse on line side. Hoffman or equal.
- G. DC power supplies: 12 volts (1.7A), 15 volts (4.5A) and 24 volts (1.2A); Sola Silver Line Model SLS or equal; provide properly sized fuse on line side. Power supplies shall be sized to accommodate control panel loads plus 25% capacity reserved for future use.
- H. Digital indicator: solid state, 4-1/2 digit, ac powered, universal dc input, seven-segment, minimum 1/2" high LED readout; Red Lion Controls DP5D0000, or equal.
- I. Reset push button: heavy duty, watertight/oil tight flush head, red button; Allen Bradley 800T-A2D2 (normally closed) or equal.
- J. Provide properly sized time-delay fuses for wiring leaving enclosure to receive contact closure/open signals; Littlefuse FLM series, or equal.
- K. Terminals: barrier type, 9/16-inch spacing, nominal 2.5kV RMS rating.
- L. Indicating lights: nominal 1-inch diameter LED type with opaque colored lens; press-to-test feature; heavy duty oil tight as required.
- M. Control switches:
 - 1. Electronic circuits: Gold flashed contacts; initial resistance, 0.01 ohms; 0.5 amp. at 120 VAC, resistive; heavy duty, oil tight as required.
 - 2. Control circuits: Contact rating conforming to NEMA A-600 designation; heavy duty, oil tight as required.
 - 3. Control/timer relays:
 - a. All general-purpose control relays and time delays shall have dust covers and plug-in configuration, with screw terminal socket allowing exchange without disturbing the wiring.
 - 4. Coil: continuous operation at 120 VAC $\pm 10\%$ unless shown otherwise.
 - a. Contacts; 3 pole, double throw, minimum; 10 amp. (unless shown otherwise), 120VAC, resistive.
 - 5. 4 position selector switches: Allen Bradley 800T-N2KF4, or equal; provide supplemental contact block for emulating the switch on SCADA; refer to 16485 – Miscellaneous Electrical Devices for additional requirements on switches, relays and lights, etc.

- N. Intrinsically safe relays (ISR): as manufactured by STAHL or equal; include on all floats and level sensors located in hazardous areas.
- O. Ethernet Network Switch: Managed industrial 10/100 Base Ethernet network switches. Din-rail mountable with provisions for number of network connections as shown in the Plans. Network switch shall be capable of operating in true ring configuration; Red Lion, N-TRON or equal.
- P. Uninterruptible Power Supply: True online, double-conversion style. Input fuse or circuit breaker protection. Internal sealed, lead-acid battery; Eaton/Powerware, Liebert or equal.

2.05 DISTRIBUTED CONTROL SOFTWARE

- A. Fully tested and documented standard software package, commercially available, ready for configuration to fit specific project requirements.
- B. Controls Integrator shall modify existing SCADA control system to reflect new UV Disinfection equipment. New graphic screens shall replicate system supplier local display screen icons and process data.
- C. Fully configured by Contractor to satisfy requirements of functional descriptions in Section 17400 - Control Descriptions.
- D. Suppliers options as required to meet functional requirements of these specifications.
- E. Distributive Control Software Manufacturer: Wonderware by Invensys or equal by Rockwell. The software package shall consist of the SCADA software, HMI software, I/O interfacing software packages and Win-911 alarm notification software.
 - 1. The software shall be licensed to the Owner.
- F. Software Tags
 - 1. The software package shall handle all external data, internal data, and functions in "tag" format. Tags shall be a group of standardized software routines that can be set up by an operator to manipulate data.
 - 2. The program shall use the software tags throughout all software routines. It shall be possible for different routines to access the same tag.
 - 3. Allow operator to call any tag to the computer screen. The tag display shall indicate type of tag, point name, value or state, alarm conditions and other information depending on the tag type.
 - 4. Allow operator to write new tags, combine tags, and manipulate tags to develop new closed-loop functions, graphics and data-bases.
 - 5. As a minimum, the following tag types shall be provided:

- a. Analog Tag - include operator entries for high alarm point, low alarm point, rate-of-change alarm point, conversion to engineering units, scan frequency, filtering, and trending sample frequency.
 - b. Digital Tag - include operator entries for scan frequency, inverting digital value, and overriding digital value to 0 or 1 state.
 - c. Alarm Tag - include operator entries for editing alarm message on screen, enable/disable alarm, report return to normal status.
 - d. Calculation Tag - include operator entries to perform logical and mathematical functions on any analog or digital values input to the tag. Allow up to eight input variables. Perform addition, subtraction, multiplication, division, sine, cosine, square root, natural logarithm, logarithm, Boolean functions, scan frequency, and trending sample frequency.
6. Allow operator to call tag summaries to a computer screen and/or printer. Standard summaries shall include:
 - a. Tags in alarm
 - b. Tags in standby
 - c. Tags with disabled alarms
 - d. Tags off
 - e. All tags
 7. Contractor shall program the system and configure a tag for each PLC input and output point. Contractor shall enter tag values, alarm points, ranges, scan frequency, etc. so that all tags are available for use at the computers by the Owner when additional graphics and trends are built in the future.

G. Computer Graphics

1. Computers shall have color video graphic displays showing the plant process. Provide a menu for selection of the various graphics. Graphics shall have at least 64 colors.
2. Graphics shall show current analog values (in engineering units), digital values and equipment status. Graphics showing process equipment (e.g., pumps, blowers, valves, etc.) shall be interfaced with all related input/output points so that current status of the equipment is shown:
 - a. White - motor off or valve closed.
 - b. Green - motor on or valve open.
 - c. Red - alarm condition.
 - d. Flashing - valve in intermediate position.
 - e. Yellow - motor required.
3. Software shall contain "graphics builder" routine to allow the operator to create additional graphics. Graphics builder shall contain a menu of standard symbols, lines and shapes, and commands to facilitate building or modifying graphics. The graphics builder feature shall include a menu of common symbols (such as pumps, tanks, piping

fittings, etc.) and shapes that can be selected using a mouse. Graphic builder shall include edit functions such as "copy", "move", "cut" and "paste" to facilitate making new screens and modifying existing screens.

4. Graphics shall be dynamic, capable of being linked with a software tag so that the graphic changes as analog or digital values change (e.g., a tank changes color as it is filled up).
5. Contractor shall build the initial graphics for the project. Screen layout, menus, directories, graphic designs and color selections shall be submitted for review and shall be confirmed with the Engineer and Owner during construction.
6. System Overview Graphic - Contractor shall build a graphic screen that is representative of the overall wastewater treatment facilities. The screen shall allow the operator to access other graphic screens by "clicking" the mouse on the appropriate building/structure. When an alarm occurs, the associated building/structure shall flash in red on the overview graphic.
7. Individual Building / Process Graphics - Contractor shall build approximately 50 graphics showing all processes. The graphics shall be linked to all related PLC inputs/outputs to display equipment running status, alarm conditions, water levels (dynamic display), flow rates, etc.
8. Control Graphics - Contractor shall build approximately 25 graphics for operator control of pumps, valves and equipment as specified. Each graphic shall allow operator to place equipment in "AUTO" mode and adjust setpoints and timing values as specified in the functional descriptions for each equipment item.
9. Provide graphical links between process graphics and control graphics so operator may transition between related screens with a single mouse operation.
10. In addition to the graphics specified previously and elsewhere in this Specification, Contractor shall build 6 graphics as determined by Owner/Engineer during construction.

H. Alarms

1. Computer shall have an alarm screen that shows new alarms, acknowledged alarms and daily alarm log.
2. Each alarm point shall identify the alarm location, a 20-character minimum alarm description, and time of occurrence.
3. Computer shall allow operator to acknowledge alarms and to print alarm summary on demand.
4. Print all alarm occurrences on the alarm printer, including date and time of occurrence and time of acknowledgment.
5. Alarms shall sound through the computer internal speakers and alarm horn in each Building.

6. Allow the operator to disable any alarm points via the computer (for equipment maintenance, etc.). This feature shall require a password to enable/disable alarms.
 7. New alarm conditions shall display as a single line at the bottom of the computer screens when the alarm summary is not displayed.
 8. Computer shall have a list of all alarms on a screen. Allow operator to enable or disable alarms.
 9. Analog Value Alarms:
 - a. Allow operator to assign "high" and "low" software setpoints to all analog inputs and outputs. If measured value exceeds the high setpoint or falls below the low setpoint, energize an associated alarm at the computer. All displays and software setpoints shall be in engineering units.
 - b. Analog value alarms shall function as described above for plant alarms.
 10. Equipment "Fail" Alarms
 - a. Where a PLC calls for an equipment item to operate, the PLC shall monitor the associated equipment "RUNNING" contacts.
 - b. If a RUNNING signal is not returned after five seconds (adjustable), then generate a descriptive alarm point.
 11. Communication Failure Alarms
 - a. Provide alarms to indicate loss of communication with each device on the network.
- I. Faceplate Displays
1. Computers shall have menu screens that allow operators to call any analog value or PID loop to the screen. The screen shall show the analog value or PID loop as a faceplate display with analog scale, numerical value, alarm limits, and other related information.
 2. Through mouse commands, allow operator to modify scale, alarm limits, setpoint (if PID), and to call related tags.
- J. Historical Data Collection
1. Scan all analog inputs and outputs each minute, and store data in a file. At the end of each hour, calculate maximum, minimum and average value for each point, and store the three values in a new file.
 2. Each day prompt the operator to select either to store the previous day's one-minute values on a memory stick, on the hard drive, or to delete the data from the computer.
 3. Retain the hourly minimums, maximums, totals, and averages for use in trending and reports. At the end of each month, allow the operator up to 15 days to select to either store the data on a memory stick, on the hard drive, or to delete the data from the computer.

4. The software shall allow the operator to establish different scan rates for each point, with up to six (6) selectable rates.
5. Supplier shall meet with Owner during software development to confirm the desired initial configuration, and to establish historical data protocol.

K. Trending

1. Provide historical trend screens to recall data that has been collected by the historical data base. Allow the operator to select from 1 to 8 points on each trend display. The data shall have the appearance of a vertical-scale strip chart recorder with resolution of 2% of span. Display values in engineering units.
2. Allow operator to access any time window within the last month (for hourly data) and within the last 24 hours (for one-minute data).
3. Allow operator to build real-time trend screens with up to 8 points per screen. Continuously update the screens as real-time data is collected.

L. Reports

1. Software shall be fully DDE-compliant to allow report generation using Microsoft Excel, latest revision (no substitutions).
2. Supplier shall build the following reports:
 - a. General Requirements for Reports - Report formats will be furnished to the Supplier during construction. Each report listed below shall have columnar format with the number of columns and rows as indicated. Provide footer rows with column total, average, minimum and maximum for each parameter as is applicable. Develop the report to automatically obtain and calculate each parameter where data is available via the process control system. Prompt the operator where manually-entered data is needed. Each parameter may consist of one of the following types of data:
 - 1) Manual - A value entered by the operator.
 - 2) Automatic - A value obtained from the process control system.
 - 3) Calculated - A formula is applied to the entered or monitored data.
 - 4) Combination - The parameter is determined through some combination of manual data, automatic data and/or calculations.
 - b. Provide the following individual reports:
 - 1) Monthly State Operating Reports
 - 2) Daily Operating Reports - 130 values by 24 hours (130 columns by 24 rows).
 - 3) Monthly Operating Report - 130 values by 31 days.
 - 4) Runtime / Flow Summary - Daily report showing accumulated daily runtime for each process equipment item, and totalized flow for each flowmeter input. Provide monthly report summary with monthly runtimes, monthly totalized

flows, and average daily flow computation. Perform totalization in the plant PLCs so data is not lost during computer failure.

M. Passwords

1. Software package shall have not less than 3 levels of password protection. Permit the operator to establish passwords and assign password level to all program features.
2. Initially set up passwords as follows:
 - a. No password - allow operator to "view" the plant process only.
 - b. Level 1 - allow operator to change setpoints, override outputs, disable alarms, and enter data on reports.
 - c. Level 2 - allow operator to change blocks, modify block arrangements and related functions.
 - d. Level 3 - allow operator to reconfigure system architecture.
3. Configure the system such that each user has a separate password assigned by the plant superintendent. A user shall be required to "log on" before making process changes. Record time of "log on", "log off", and operators name for each user.
4. Supplier shall meet with Owner during software development to confirm the desired initial configuration of passwords.

2.07 SPARE PARTS

- A. Provide 1 spare power supply for the Control Panel.
- B. Provide 1 spare memory cartridge containing control program.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Preparation for Shipment and Shipping
 1. Panels shall be crated for shipment using a heavy framework and skids. Panel sections shall be cushioned to protect the finish of the instruments and panel during shipment.
 2. Control panel testing and inspection shall be performed prior to shipping.
 3. Control panels shall be installed in accordance with Section 17100.

3.02 SIGNAL AND CONTROL WIRING

- A. Wiring Installation: Wires shall be run in plastic wireways except (1) field wiring, (2) wiring between mating blocks in adjacent sections, (3) wiring from components on a swing out panel to components on a part of the fixed structure, and (4) wiring to panel

mounted components. Wiring run from components on a swing out panel to other components on a fixed panel shall be made up in tied bundles. These bundles shall be tied with nylon wire ties and shall be secured to panels at both sides of the "hinge loop" so that conductors are not strained at the terminals.

- B. Wiring run to control devices on the panel front shall be tied together at short intervals with nylon wire ties and be secured to the inside face of the panel using adhesive mounts.
- C. Wiring to rear terminals on panel-mount instruments shall be in plastic wireways secured to horizontal brackets above or below the instruments in about the same plane as the rear of the instruments.
- D. Shop Drawings shall show conformance to the above wiring installation requirements.
- E. Wire Marking: Each signal, control, alarm, and indicating circuit conductor connected to a given electrical point shall be designated by a single unique number which shall be shown on Shop Drawings. These numbers shall be marked on conductors at every terminal.

3.03 PROGRAMMING SERVICES

- A. Program programmable logic controllers (PLCs) and operator interface terminal as required by functional descriptions.
- B. Provide additional programming during start-up, training, and call-back periods as specified.
- C. Control Integrator shall coordinate with process equipment manufacturer's supplied PLCs and their field service representative to set up network and coordinate all aspects of acquiring and transmitting various control functions from vendor furnished PLCs.

3.04 INSPECTION AND APPROVAL

- A. Panel fabricator shall conduct the following tests prior to shipment.
 - 1. Alarm circuits rung out to determine their operability.
 - 2. Electrical circuits checked for continuity and where applicable, operability.
 - 3. Any other test required to place the panel in an operating condition.

- B. It shall be the responsibility of the Contractor to furnish all necessary testing devices and sufficient manpower to perform the tests required by the Engineer.
- C. Field Testing: The control panel shall be tested again for functional operation in the field after the connection of external conductors and prior to equipment startup.

3.05 EXHIBITS

- A. I/O Point List

END OF SECTION

Section 17300
Exhibit A - I/O List

Item	Description	Function	I/O Type				Notes
			DI	DO	AI	AO	
DAF Building - LCP-5							
LSH 50-1	UV Building Flood Switch	Alarm	1				
TSL 50-1	UV Building Low Temp	Alarm	1				
UV System Control Panel (SCC)	System Alarm	Alarm	1				
UV System Control Panel (SCC)	System Run	Status	1				
UV System Control Panel (SCC)	Network Connection						Ethernet IP
Minimum Spare 10%			1	1	0	0	
		Total	DI	DO	AI	AO	
			5	1	0	0	

SECTION 17400

CONTROL DESCRIPTIONS

INDEX

PART 1 – GENERAL

1.01 DESCRIPTION

1.02 GENERAL REQUIREMENTS

1.03 OIT SCREENS

2.02 ULTRAVIOLET DISINFECTION SYSTEM

2.03 FLOODING SWITCH

2.04 TEMPERATURE SWITCH

PART 2 – FUNCTIONAL DESCRIPTIONS

2.01 INSTRUMENTATION SCHEDULE

PART 3 – EXECUTION

NOT APPLICABLE

PART 1 – GENERAL

1.01 DESCRIPTION

- A. This section describes how each portion of control system operates.
- B. The functional descriptions, in conjunction with the drawings and technical requirements for products as described in Section 17200 - Instrumentation Equipment and Section 17300 - Control Panels, define the minimum requirements for installation.
- C. All products used to meet the functional descriptions shall be those specified in Sections 17200 and 17300.
- D. Related work specified elsewhere:
 - 1. Division 16 - Electrical.
 - 2. Section 17100 - Process Control and Instrumentation System.
 - 3. Section 17200 - Instrumentation Equipment.
 - 4. Section 17300 - Control Panels.

1.02 GENERAL REQUIREMENTS

- A. Alarm/Event Logging Colors. The following is the color scheme for alarms and events that are displayed on the Panelview.
 - 1. Cyan: Operator entered event.
 - 2. Red: Active unacknowledged alarm.
 - 3. Yellow: Active acknowledged alarm.
 - 4. Blue: Unacknowledged alarm - returned to normal.
 - 5. White: Acknowledged alarm - returned to normal.

- B. Equipment Status and Data Information for MMI Displays. The following is the color scheme for dynamic changing status:
1. Gray: equipment which is not controlled and/or does not supply status information to the control system i.e. manual valves.
 2. Yellow: Equipment Off-line (lockout/tagout system).
 3. Blue: Equipment in the off state, valves closed i.e. process non-active state.
 4. Cyan: Equipment or subsystems in standby mode.
 5. Magenta: Equipment in the on state, valves open i.e. process active state.
 6. Green: analog process values, bar graphs, etc. which indicate operating within acceptable limits (not an alarm state).
 7. Red Flashing: Indication of an alarm that is not acknowledged.
 8. Red: Indication of an acknowledged alarm.
 9. Bordered Box: Indication of an analog process variable.
 10. Double Border Box: Indication of an analog process operator entered setpoint.
- C. Alarm/Event Logging. All alarms and events shall be logged to a tabular display on the display screen with date, time, tag name, description, status, value, and priority of alarms/events. The tabular display screen shall allow the Operator to acknowledge all alarms. Events shall include start/stop of equipment, open/close or position change of valves, operator initiated changes, setpoint changes, etc. Up to an Operator adjustable setpoint number of current events and alarms shall be displayed on the tabular screen with the older events and alarms beyond that setpoint number being stored in the historical database log.
- D. General Monitoring and Displaying of Discrete Input Signals. Discrete input signals which represent equipment status shall be displayed on the display screens.
- E. General Monitoring, Displaying, and Recording of Analog Input Signals. Process variable signals shall be displayed on the display screens. They shall be scaled in engineering units. All alarm limits are assigned to the associated process variable. Values shall be historically logged and trended as required.
- F. Process Status. All process alarms, equipment status, and process variable values shall be available at any of the computer software display screens. Failures of any PLC on the digital communications network shall also be alarmed.
- G. Equipment Run Times. The running time for all motorized equipment located in the plant and at all remote sites shall be totalized and displayed.
- H. Automatic Rollover. Provide automatic rollover back to zero for all run times, meter totalizations, etc. Provide reports with automatic calculation to account for the automatic rollover to zero.

- I. All computer display screens that allow an Operator to enter setpoints and to change software switches shall be password protected. An Operator must successfully log in with his password before any changeable setpoints are allowed.
- J. Provide an Operator adjustable time delay setpoint with all setpoints throughout the control system.
- K. Provide de-bounce timers or other programming logic throughout the system to prevent all alarms, setpoints, or controls repeat; and nuisance or otherwise unneeded alarms, starts, stops, etc.
- L. Provide scan rate time delays or other programming logic throughout the system to prevent all alarms, setpoints, or controls repeat; and nuisance or otherwise unneeded alarms, starts, stops, etc.
- M. Provide testing and logic to positively ensure that no lockout conditions can develop in anyway or in any form of operation, be it standard, non-standard, or emergency.
- N. Monitor communications status of all remote facilities and plant panels.
- O. Where alarms are called for provide High and High-High, Low and Low-Low, and others if specifically required.
- P. Provide software Hand/Off/Auto switches, Duty/Standby switches, Local/Off/Remote switches, On-line/Off-line switches, Open/Close switches, Open/Stop/Close switches, Open/Stop/Close/Auto switches, Manual/Auto switches, On/Off pushbuttons, etc. for each equipment item.
- Q. In the Off or Off-line position, provide a software pop-up "tag-out" box with descriptor lines for Operator entry of wording describing the reason for the device being out of service, for each item of equipment, instrumentation, etc. Provide a yellow tag on the equipment device on the applicable screens to visually indicate that it is off-line and tagged out, and cannot be operated through the control system as long as tagged out. The Off-Line switch and Tag-Out shall be used to isolate the particular device, but shall not affect the operation of the particular treatment process or plant as a whole.
- R. Change piping/valves/equipment/building color to indicate flowing or not, working or not, operational or not, running or not, opened or closed, etc.
- S. Screens shall be fully dynamic.
- T. Provide a Microsoft Word file of the written functional description for each process element as a pop-up embedded window on each SCADA screen.

1.03 OIT SCREENS

- A. The Controls Integrator shall develop graphical screens to dynamically depict the operation and status of the Treatment Plant functions, and tabular screen(s) to present system setpoints and summarize process values/quantities. The screens shall include but not be limited to:
 - 1. Operator authentication/authorization.
 - 2. UV System Overview screen.
 - 3. Process values/quantities.
 - 4. Alarm status/history.
- B. The Controls Integrator shall develop a preliminary set of screens for submission to the Owner/Engineer for review and comment prior to finalizing the screens.

PART 2 – FUNCTIONAL DESCRIPTIONS

2.01 INSTRUMENTATION SCHEDULE

- A. Refer to Section 17200 - Instrumentation and Control Equipment.
- B. Control descriptions included herein are generic in nature, but reflect design intent. Descriptions may not include all functions, status and alarms; these descriptions will be modified during submittal stage; Controls Integrator shall develop algorithms based on the input/output point schedule and control descriptions.

2.02 ULTRAVIOLET DISINFECTION SYSTEM

- A. Provide for monitoring of the ultraviolet disinfection system from DAF Building SCADA control panel (LCP-5). LCP-5 shall interface with the UV equipment control panel furnished by equipment supplier through existing fiber optic network.
- B. UV equipment control panel shall automatically control and monitor the UV lamp banks, wiper and lift modules. Equipment control panel shall monitor UVT sensor(s), and channel low level sensor. UV controls shall accept a flow signal from LCP-5.
- C. Transmit the following operating conditions and alarms via ethernet connection to the SCADA control panel (LCP-5).
 - 1. Module status (off/on)
 - 2. UV intensity.
 - 3. Flow rate signal (on/off).
 - 4. Communication status.
 - 5. Module temperature status.

6. Low UV intensity.
7. Low-low UV intensity.
8. Loss of flow signal.
9. High module temperature.
10. UV channel low level

2.03 FLOODING SWITCH

- A. Controls Integrator to furnish flooding switches where shown in the plans and listed in Section 17200.
- B. Annunciate when flooding switch detects water on the floor in the associated structures. Flood alarms shall be displayed on SCADA control system terminals.

2.04 TEMPERATURE SWITCH

- A. Controls Integrator to furnish thermostat where shown in the plans and listed in Section 17200.
- B. Annunciate when thermostat detects low temperature in the associated structures. Low Temperature alarms shall be displayed on SCADA control system terminals.

PART 3 – EXECUTION

Not Applicable.

END OF SECTION

APPENDIX A – OWNER-SUPPLIED UV DISINFECTION EQUIPMENT



4280 E. 14th St.
Des Moines, IA 50313
Office: 515-265-2222
Toll Free: 800-383-7867
Fax: 515-265-8079

201 4th Ave SW
New Prague, MN 56071
Office: 952-758-6600
Toll Free: 800-536-5394
Fax: 952-758-7778

TO: Selected Bidding Contractors
REF: Replacement Wastewater Treatment Plant
Muscatine, IA
DATE: August 14th, 2023

MC² & Electric Pump are pleased to submit this proposal for the following equipment:

Trojan UV Equipment Scope

Section 11368 – UV Disinfection Equipment

One (1) **TrojanUVSigna** with one (1) channels, (3) duty UV banks per channel. Each bank supplied with (1) intensity sensor, (1) ActiClean Chemical-Mechanical Wiping System & (1) automatic bank lifting mechanism. System also supplied with System Control Center, Power Distribution Centers, Hydraulic System Center, Water Level Controller (Fixed Weir), Low Water Level Sensor, Level Sensor Control Box, Spare Parts, Documentation, Freight, Startup, Training & Warranty as noted herein.

*******Please refer to complete TROJAN Scope of Supply on the following pages*******

Purchase Instructions:

- **Please direct purchase order as follows:**
 - Trojan Technologies Group ULC
 - 3020 Gore Rd
 - London, Ontario, Canada
 - N5V 4T7
 - (519) 457-3400
- **Please forward electronic PO to:**
 - Jackie Corlett, Trojan Technologies Regional Sales Manager
 - jcorlett@trojantechnologies.com

Note the following:

- Anchor bolts, Wiring, Painting, Piping, Conduit, Installation of equipment and anything that is not specifically mentioned in this proposal is the responsibility of others
- Estimated Ship Date: 24 weeks after approval of shop drawings.

Thank you for your consideration,

Marci Whitaker (515) 979-4648
cc: Kyle Zaegel (515) 265-2222

**SCOPE OF SUPPLY FOR MUSCATINE REPLACEMENT WASTEWATER TREATMENT PLANT
ULTRAVIOLET DISINFECTION EQUIPMENT – TROJANUVSIGNA™**

Prepared for: All Bidding General Contractors

Specification Section: 11368 – UV Disinfection Equipment

Addendum: None

Submitted by: Jackie Corlett

Trojan Quote: 240568

<u>Design Criteria:</u>	Peak Design Flow:	17 MGD (US)
	Average Flow:	5 MGD (US)
	UV Transmission:	65 % minimum
	Total Suspended Solids:	30 mg/L (30 day average, grab sample)
	Minimum Dose:	30 mJ/cm ² MS2 RED
	Discharge Limit:	126 <i>E.coli</i> per 100 ml, 30 Day Geometric Mean

We are pleased to submit the following scope of equipment based on the above criteria.

The purchaser is responsible for reading all information contained in this Supply Contract. Trojan will not be held accountable for the supply of equipment not specifically detailed in this document. Detailed installation instructions are provided with the shop drawings and are available earlier upon request. Changes to this Scope of Supply that affect selling price will be handled through a change order.

Please refer inquiries to Trojan Manufacturer's Representative:

Representative: Marci Whitaker
Electric Pump | Mc2
Phone: (515) 979-4648

This proposal has been respectfully submitted by,
Trojan Technologies

Jackie Corlett
Regional Sales Manager

GENERAL CONFIGURATION

The TrojanUVSigna equipment described in this Scope of Supply consists of one (1) channel with three (3) duty UV banks in each channel.

Unless otherwise indicated in this proposal all anchor bolts, conduit, conductors, local disconnects and transformers (if required) are the responsibility of the Installation Contractor and are not included in Trojan's Scope of Supply. Specific cable types listed below are for reference only. Selecting cables that are appropriate for the installation environmental conditions and in compliance with local code is the responsibility of the Installation Contractor.

Site to provide approved (engineered) anchor points for personnel to use as part of their fall restraint system around open channels. The anchor points must be positioned so that the preferred retractable lifeline of 8 ft is of sufficient length to access the work at the channel. Refer to local safety regulation.

UV BANKS

Trojan's Responsibility:

Each bank supplied will consist of TrojanUV Solo Lamps™, quartz sleeves, supporting structures, ActiClean™ chemical/mechanical cleaning system and an automatic bank lifting mechanism. UV lamps are powered from an individual electric feed from a lamp driver located in a Power Distribution Center (PDC).

Model and Make:	TrojanUVSigna™
Quantity:	Three (3) UV Banks per Channel Each bank will be supplied with 12 UV lamps and quartz sleeves, one (1) UV intensity sensor, one (1) ActiClean chemical-mechanical wiping system and one (1) automatic bank lifting mechanism
Rating:	Type 6P / IP68 (lamp sleeve assemblies)
Approximate Weight:	12 Lamp - 450 lbs

Installation Contractor's Responsibility:

The Installation Contractor shall install, align, secure, and seal (grout) each UV bank and lifting system in the channel per the instructions provided. The Installation Contractor shall provide solid grating downstream of the UV bank to block out UV light. Please refer to the supplied Trojan-supplied drawings for details.

SYSTEM CONTROL CENTER

Trojan's Responsibility:

A System Control Center (SCC) shall be supplied to monitor and control the UV disinfection System. Trojan will provide a PLC I/O and soft address map to aid the Installation Contractor with integration of the UV PLC and SCADA system. The UV SCC shall consist of the following:

Quantity Supplied:	One (1) SCC will be supplied
Location:	PLC Wall Mount
Controller Type:	CompactLogix
Operator Interface:	SCC HMI Beijer -12" (Outdoor 4X Rated)
Material / Rating:	304 Stainless Steel (Type 4X, IP 66)
Approximate Weight:	200 lbs

Installation Contractor's Responsibility:

The Installation Contractor to be responsible for mounting the SCC as indicated on the drawings. Unless otherwise indicated, the Installation Contractor to be responsible for the supply, installation and connection of the following at the SCC:

1. One (1) 110-240V, 50/60 Hz, 1 Phase, 2 Wire + GND, 1.8 kVA (maximum)
2. One (1) bond link to plant ground, in accordance with applicable codes and standards
3. One (1) Modbus communication link, Belden 3106A (or equivalent), to PDCs
4. One (1) Modbus communication link, Belden 3106A (or equivalent), to HSCs (daisy chained)
5. One (1) 4-20 mA analog shielded twisted pair from plant flow meter

POWER DISTRIBUTION CENTERS

Trojan's Responsibility:

The Power Distribution Center (PDC) distributes power to the UV lamps and shall consist of the following:

Quantity Supplied:	One (1) PDCs will be supplied
Method of Cooling:	Air-conditioning
Material / Rating:	304 Stainless Steel
Approximate Weight:	1,213 lbs – 48 lamp PDC (Single Wide)

Installation Contractor's Responsibility:

The Installation Contractor to be responsible for setting in place and bolting the PDC in location. The Installation Contractor to be responsible for the supply, installation and connection of the following at each PDC:

1. One (1) 480 / 277V, 50/60 Hz, 3 Phase, 4 Wire + GND, 40.2 kVA power feed with local disconnect to each of PDC
2. One (1) bond link to plant ground, in accordance with applicable codes and standards (to underside of panel)
3. One (1) bond link from each UV bank to the corresponding PDC in accordance with the applicable drawings, specifications, codes, and standards
4. One (1) bank-in-place sensor cable (by Trojan) from each UV bank to corresponding PDC
5. One (1) UV intensity sensor cable (by Trojan) from each UV bank to corresponding PDC
6. One (1) Modbus communication link, Belden 3106A (or equivalent), from the SCC
7. One (1) discrete, 2 conductor, cable from level sensor control box for low water level signal
8. Installation and termination of lamp cables from the UV banks to each PDC. (Qty: 12 per UV Bank – supplied by Trojan)

HYDRAULIC SYSTEM CENTER

Trojan's Responsibility:

The Hydraulic System Center (HSC) houses the ancillary equipment required to operate the quartz sleeve cleaning system and automatic bank lifting mechanism.

Quantity Supplied:	One (1) HSCs will be supplied
Materials / Rating:	304 Stainless Steel (Type 4X, IP 66)
Hydraulic Fluid:	Mineral Oil
Approximate Weight:	500 lbs

Installation Contractor's Responsibility:

The Installation Contractor shall be responsible for setting in place and bolting the HSC's as shown on the Trojan drawings. The HSC's must be located within 50 ft of the furthest PDC. The Installation Contractor shall be responsible for the supply, connection and installation of the following at each HSC:

1. One (1) 480V 60Hz, 3 Phase, 3 Wire + GND, 2.5 kVA power feed with local disconnect
2. One (1) bond link to plant ground, in accordance with applicable codes and standards
3. One (1) Modbus communication link, Belden 3106A (or equivalent), from the SCC
4. Cut and crimp hydraulic hoses (coordination with Parker Store) (hoses and connections supplied by Trojan)
5. Connection of the hydraulic hoses, total of four (4) per UV bank

WATER LEVEL CONTROLLER

Trojan's Responsibility

A level control device is required to maintain and control the effluent level in the channel, regardless of flow rate.

Quantity Supplied:	One (1) Fixed Weir
Material of Construction:	304 Stainless Steel

Installation Contractor's Responsibility:

The Installation Contractor to be responsible for setting in place, bolting, grouting and sealing each level control weir trough as per Trojan's and Engineer's drawings.

LOW WATER LEVEL SENSORS

Trojan's Responsibility:

A Low Water Level Sensor is required downstream of the UV System to generate a low water level signal that will shut down and protect the UV System if the water level in the channel drops too low.

Quantity Supplied:	One (1) of each water level sensor to be supplied per channel
Approximate Weight:	10 lbs (panel)

Installation Contractor's Responsibility:

The Installation Contractor to be responsible for setting in place and bolting the water level sensor panel to the effluent channel wall as per Trojan's and Engineer's drawings.

LEVEL SENSOR CONTROL BOX

Trojan's Responsibility:

Trojan will provide a wall mounted Level Sensor Control Box 24 x 14 x 6 in to provide power and relays for low level sensors.

Quantity Supplied:	One (1) Level Sensor Control Box per channel
Materials / Rating:	304 Stainless Steel (Type 4X)
Approximate Weight:	40 lbs

Installation Contractor's Responsibility:

The Installation Contractor to be responsible for mounting the Level Sensor Control Box as indicated on the drawings. The Installation Contractor shall also be responsible for supplying mounting hardware, watertight conduit and for the supply, installation and connection of the following at each Control Box:

1. One (1) 120 Volt, 1 phase, 2 wire + GND 72 VA power supply
2. One (1) discrete, 2 conductor cable from the Low Level Sensor to the level sensor control box
3. One (1) discrete, 2 conductor cable from the level sensor control box to each PDC

SPARE PARTS AND ADDITIONAL EQUIPMENT

Trojan's Responsibility:

The following equipment will be supplied with the UV system:

Description	Qty
1000W Solo Lamp	Four (4)
Solo Quartz Sleeve	Four (4)
Signa UV Sensor	One (1)
Acticlean WW 4 x 4L (Case)	One (1)
Operator's Kit	One (1)

DOCUMENTATION (SHOP DRAWINGS AND O&M MANUALS)

The following documentation will be supplied by Trojan per the following schedule:

- One (1) electronic copy of Trojan Shop Drawing Submittals 4 - 6 weeks after receipt of written purchase order (hardcopies available upon request)
- One (1) electronic copy of Trojan Standard O&M manuals at time of equipment delivery (hardcopies available upon request)

DELIVERY, START-UP AND TRAINING

Equipment shipped **24** weeks after approval of Shop Drawings.

Installation Contractor's Responsibility:

The Contractor is responsible for:

- Un loading of the components supplied by Trojan, storage of all components, if required in a clean dry environment
- Installing the equipment outlined in the scope of Supply in accordance with contract drawings, Trojan's shop drawings, instructions and installation checklist.
- Supplying all conduits and conductors and components per the sites state regulations and components indicated as supplied by others,
- Completing the Checklist and returned at least two (2) weeks prior to date requested for commissioning.

The following start-up services will be provided by Trojan-certified technicians:

- Installation assistance as required by phone or fax. Technical Assistance Center 1-866-388-0488 or tac@trojanuv.com
- Start-up and testing of the installed UV equipment.
 - If the Trojan's Certified Service Technician determines the Contractor work is not complete and the start-up cannot be completed in the allotted time a return visit will be scheduled at the Contractors expense.
- Classroom and/or jobsite training for operations staff
 - If trainees are not available a return visit will be scheduled at the Contractors expense.

WARRANTY

Trojan will warrant the equipment and parts for 24 months after start-up or 30 months after shipment, whichever comes first. Refer to attached Terms and Conditions for additional details.

- UV lamps shall be warranted for 15,000 hours prorated after 9,000 hours.
- Lamp drivers shall be warranted for 10 years, prorated after 1 year.

SELLING PRICE **USD**

Selling price does not include any duties or taxes that may be applicable.
Freight to site is included

PAYMENT TERMS

15% upon approval of Shop Drawings
80% upon delivery of equipment to job site
5% upon equipment acceptance or 60 days after delivery (whichever occurs first)

Net 30 Days

TERMS AND CONDITIONS – ATTACHED

Trojan appreciates the opportunity to submit this proposal. Our proposal is submitted subject to and based on Trojan's standard terms and conditions, which we have attached as part of our proposal. We believe these terms and conditions are customary in the trade and respectfully reserve the opportunity to negotiate, fair and reasonable contract terms acceptable to both parties, if Trojan is selected for this project.



Terms and Conditions of Sale

This document sets forth the Terms & Conditions of Sale for goods manufactured and/or supplied, and services provided, by the seller entity identified on the purchase order ("SELLER") and sold to the original purchaser thereof ("BUYER"). The term "SELLER" includes only SELLER, and none of its affiliates. Unless otherwise specifically stated in a previously-executed written purchase agreement signed by authorized representatives of SELLER and BUYER, these Terms & Conditions of Sale establish the rights, obligations and remedies of SELLER and BUYER which apply to this offer and any resulting order or contract for the sale of SELLER's goods and/or services ("Products").

1. APPLICABLE TERMS & CONDITIONS: These Terms & Conditions of Sale are contained directly and/or by reference in SELLER's proposal, offer, order acknowledgment, packing slip, and/or invoice documents. The first of the following acts constitutes an acceptance of SELLER's offer and not a counteroffer and creates a contract of sale ("Contract") in accordance with these Terms & Conditions of Sale: (i) BUYER's issuance of a purchase order document against SELLER's offer; (ii) acknowledgement of BUYER's order by SELLER; or (iii) commencement of any performance by SELLER pursuant to BUYER's order. Provisions contained in BUYER's purchase documents (including electronic commerce interfaces) that materially alter, add to, or subtract from the provisions of these Terms & Conditions of Sale are not a part of the Contract.

2. CANCELLATION AND RETURN: The whole or any part of this order may be cancelled only with the prior written consent of SELLER. If SELLER does consent to a cancellation, such consent will be given only upon payment of reasonable cancellation charges in an amount determined by SELLER. In addition, with respect to any Products returned on cancellation, BUYER will pay SELLER's cost of placing the returned Products in a saleable condition, sales expenses incurred by SELLER in connection with such returned Products, a reasonable restocking charge and freight costs incurred in connection with the original shipment and in connection with returning such Products to SELLER, all in such amounts as are advised to the BUYER by SELLER.

3. DELIVERY: Delivery will be accomplished EXW or CIP at the point of shipment (Incoterms 2020), unless otherwise expressly agreed between the parties. Legal title and risk of loss or damage pass to BUYER upon transfer to the first carrier, regardless of final destination and mode of transit. SELLER will use commercially reasonable efforts to deliver the Products ordered herein within SELLER's normal lead-time necessary for SELLER to deliver the Products sold hereunder. Products will be boxed or crated as determined appropriate by SELLER for protection against normal handling and there will be an extra charge to the BUYER for additional packaging required by the BUYER with respect to waterproofing or other added protection. BUYER has sole responsibility for off-loading, storage and handling of the Products at the site. Where Buyer is responsible for any delay in the delivery date or installation date, the earlier of the date of delivery or the date on which the Products are ready for shipment by SELLER may be treated as the delivery date for purposes of determining the time of payment of the purchase price. Moreover, BUYER will be responsible for reasonable storage and insurance expenses with respect to such Products. Should BUYER fail to effect pick-up of Product as previously agreed in a timely manner, SELLER may, at its discretion, assess reasonable storage charges to the account of BUYER.

4. INSPECTION: BUYER will promptly inspect and accept any Products delivered pursuant to this Contract after receipt of such Products. In the event the Products do not conform to any applicable specifications, BUYER will promptly notify SELLER of such nonconformance in writing. SELLER will have a reasonable opportunity to repair or replace the nonconforming Product at its option. BUYER will be deemed to have accepted any Products delivered hereunder and to have waived any such nonconformance for such Products unless a written notification pursuant to this paragraph is received by SELLER within thirty (30) days of delivery to BUYER destination on order.

5. PRICES & ORDER SIZES: Prices do not include any charges for services such as insurance; brokerage fees; sales, use, inventory, or excise taxes; import or export duties; special financing fees; value added tax, income, or royalty taxes imposed outside the U.S. or Canada; consular fees; special permits or licenses; or other charges imposed upon the production, sale, distribution, or delivery of Products. BUYER will either pay any and all such charges or provide SELLER with acceptable exemption certificates, which obligation survives performance under this Contract. Installation, maintenance and any other services which relate to the Products are not included unless specifically set forth in the quotation. SELLER reserves the right to establish minimum order sizes and will advise BUYER accordingly. Any orders below the minimum order size are subject to a fee as set out by SELLER. If SELLER's delivery of Products surpasses one (1) year in length, then at least on an annual basis, or if changes to the Products are requested or needed, the parties shall conduct good faith discussions regarding changes to the prices for the Products, to reflect SELLER's increased costs for which SELLER shall be entitled to additional fair and appropriate compensation.

6. PAYMENTS: All payments must be made in agreed-to currency, normally Canadian or U.S. Dollars. Unless other payment terms are expressly set forth in the purchase order or otherwise required by the Seller, invoices are due and payable NET 30 DAYS from date of the invoice, without regard to delays for inspection or transportation, with payments to be made by check to SELLER at the address listed in the purchase order or by bank transfer to the account obtainable from SELLER's Accounts Receivable Manager. In the event payments are not made or not made in a timely manner, SELLER may, in addition to all other remedies provided at law, either: (a) declare BUYER's performance in breach and terminate this Contract for default; (b) withhold future shipments until delinquent payments are made; (c) deliver future shipments on a cash-with-order or cash-in-advance basis even after the delinquency is cured; (d) charge interest on the outstanding balance at a rate of 1.5% per month or the maximum rate permitted by law, if lower, for each month or part thereof that there is an outstanding balance plus applicable storage charges and/or inventory carrying charges; (e) repossess the Products for which payment has not been made; (f) pursue other collection efforts and recover all associated costs including reasonable attorney's fees; or (g) combine any of the above rights and remedies as is practicable and permitted by law. BUYER is prohibited from setting off any and all monies owed under this Contract from any other sums, whether liquidated or not, that are or may be due to the BUYER, which arise out of a different transaction with SELLER or any of its affiliates. Should BUYER's financial condition become unsatisfactory to SELLER in its discretion, SELLER may require payment in advance or other security. If BUYER fails to meet these requirements, SELLER may treat such failure as reasonable grounds for repudiation of this Contract, in which case reasonable cancellation charges shall be due to SELLER. BUYER hereby grants SELLER a security interest in the Products, wherever located, and whether now existing or hereafter arising or acquired from time to time, and in all accessions thereto and replacements or modifications thereof, as well as all proceeds of the foregoing, to secure payment in full of all amounts to Seller, which payment releases the security interest but only if such payment could not be considered an avoidable transfer under applicable laws. The security interest granted hereby constitutes a purchase money security interest under the applicable Uniform Commercial Code or Personal Property Security Act or other applicable law, and SELLER is authorized to make whatever registration or notification or take such other action as SELLER deems necessary or desirable to perfect such security interest. BUYER's insolvency, bankruptcy, assignment for the benefit of creditors, or dissolution or termination of the existence of BUYER, constitutes a default under this Contract and affords SELLER all of the remedies of a secured creditor under applicable law, as well as the remedies stated above for late payment or non-payment.

7. LIMITED WARRANTY: Unless specifically provided otherwise in SELLER's quotation, SELLER provides the following Limited Warranty. SELLER warrants that Products sold hereunder will be free from defects in material and workmanship and will, when used in accordance with the manufacturer's operating and maintenance instructions, conform to any express written warranty pertaining to the specific goods purchased, which for Products is for a period of twelve (12) months from delivery. SELLER warrants that services furnished hereunder will be free from defects in workmanship for a period of ninety (90) days from the completion of the services. Products repaired or replaced are not covered by any warranty except to the extent repaired or replaced by SELLER, an authorized representative of SELLER, or under specific instructions by SELLER, in which cases, the Products will be covered under warranty up to the end of the warranty period applicable to the original Products. The above warranties do not include the cost of shipping and handling of returned items. Parts provided by SELLER in the performance of services may be new or refurbished parts functioning equivalent to new parts. Any non-functioning parts that are repaired by SELLER shall become the property of SELLER. No warranties are extended to consumable items such as, without limitation, light bulbs, and for normal wear and tear. All other guarantees, warranties, conditions and representations, either express or implied, whether arising under any statute, law, commercial usage or otherwise, including implied warranties of merchantability and fitness for a particular purpose, are hereby excluded. The sole remedy for Products not meeting this Limited Warranty is replacement, credit or refund of the purchase price, as determined by SELLER in its sole discretion. This remedy will not be deemed to have failed of its essential purpose so long as SELLER is willing to provide such replacement, credit or refund. To make a warranty claim, BUYER must notify SELLER in writing within 5 days of discovery of the defect in question. This notification must include a description of the problem, a copy of the applicable operator's log, a copy of BUYER's maintenance record and any analytical results detailing the problem. Any warranty hereunder or performance guarantees shall only be enforceable if (a) all equipment is properly installed, inspected regularly, and is in good working order, (b) all operations are consistent with SELLER recommendations, (c) operating conditions at the installation site have not materially changed and remain within anticipated specifications, and (d) no reasonably unforeseeable circumstances exist or arise.

8. INDEMNIFICATION: Indemnification applies to a party and to such party's successors-in-interest, assignees, affiliates, directors, officers, and employees ("Indemnified Parties"). SELLER is responsible for and will defend, indemnify and hold harmless the BUYER Indemnified Parties against all losses, claims, expenses or damages which may result from accident, injury, damage, or death due to SELLER's breach of the Limited Warranty. BUYER is responsible for and will defend, indemnify and hold harmless SELLER Indemnified Parties against all losses, claims, expenses, or damages which may result from accident, injury, damage, or death due to the negligence or misuse or misapplication of any Products or the breach of any provision of this Contract by the BUYER or any third party affiliated or in privity with BUYER.

9. PATENT PROTECTION: Subject to all limitations of liability provided herein, SELLER will, with respect to any Products of SELLER's design or manufacture, indemnify BUYER from any and all damages and costs as finally determined by a court of competent jurisdiction in any suit for infringement of any U.S. or Canadian patent (or European patent for Products that SELLER sells to BUYER for end use in a member state of the E.U. or the U.K.) that has issued as of the delivery date, solely by reason of the sale or normal use of any Products sold to BUYER hereunder and from reasonable expenses incurred by BUYER in defense of such suit if SELLER does not undertake the defense thereof, provided that BUYER promptly notifies SELLER of such suit and offers SELLER either (i) full and exclusive control of the defense of such suit when Products of SELLER only are involved, or (ii) the right to participate in the defense of such suit when products other than those of SELLER are also involved. SELLER's warranty as to use patents only applies to infringement arising solely out of the inherent operation of the Products according to their applications as envisioned by SELLER's specifications. In case the Products are in such suit held to constitute infringement and the use of the Products is enjoined, SELLER will, at its own expense and at its option, either procure for BUYER the right to continue using such Products or replace them with non-infringing products, or modify them so they become non-infringing, or remove the Products and refund the purchase price (prorated for depreciation) and the transportation costs thereof. The foregoing states the entire liability of SELLER for patent

infringement by the Products. Further, to the same extent as set forth in SELLER's above obligation to BUYER, BUYER agrees to defend, indemnify and hold harmless SELLER for patent infringement related to (x) any goods manufactured to the BUYER's design, (y) services provided in accordance with the BUYER's instructions, or (z) SELLER's Products when used in combination with any other devices, parts or software not provided by SELLER hereunder.

10. TRADEMARKS AND OTHER LABELS: BUYER agrees not to remove or alter any indicia of manufacturing origin or patent numbers contained on or within the Products, including without limitation the serial numbers or trademarks on nameplates or cast, molded or machined components.

11. SOFTWARE AND INTELLECTUAL PROPERTY: All licenses to SELLER's separately provided software products are subject to the separate software license agreement(s) accompanying the software media. In the absence of such express licenses and for all other software, SELLER grants BUYER only a personal, non-exclusive license to access and use the software provided by SELLER with Products purchased hereunder solely as necessary for BUYER to enjoy the benefit of the Products. A portion of the software may contain or consist of open source software, which BUYER may use under the terms and conditions of the specific license under which the open source software is distributed. BUYER agrees that it will be bound by all such license agreements. Title to software remains with the applicable licensor(s). All SELLER contributions to the Products, the results of the services, and any other work designed or provided by SELLER hereunder may contain or result in statutory and non-statutory Intellectual Property, including but not limited to patentable subject matter or trade secrets; and all such Intellectual Property remains the sole property of SELLER; and BUYER shall not disclose (except to the extent inherently necessary during any resale of Product sold hereunder), disassemble, decompile, or any results of the Services, or any Products, or otherwise attempt to learn the underlying processes, source code, structure, algorithms, or ideas.

12. PROPRIETARY INFORMATION AND PRIVACY: "Proprietary Information" means any information, technical data, or know-how in whatever form, whether documented, contained in machine readable or physical components, mask works or artwork, or otherwise, which SELLER considers proprietary, including but not limited to service and maintenance manuals. BUYER and its customers, employees, and agents will keep confidential all such Proprietary Information obtained directly or indirectly from SELLER and will not transfer or disclose it without SELLER's prior written consent, or use it for the manufacture, procurement, servicing, or calibration of Products or any similar products, or cause such products to be manufactured, serviced, or calibrated by or procured from any other source, or reproduce or otherwise appropriate it. All such Proprietary Information remains SELLER's property. No right or license is granted to BUYER or its customers, employees or agents, expressly or by implication, with respect to the Proprietary Information or any patent right or other proprietary right of SELLER, except for the limited use licenses implied by law. In respect of personal data supplied by BUYER to SELLER, BUYER warrants that is duly authorized to submit and disclose these data, including but not limited to obtaining data subjects' informed consent. SELLER will manage BUYER's information and personal data in accordance with its Privacy Policy, a copy of which is available to Buyer upon request. In respect of other data and information that SELLER may receive in connection with BUYER's use of the Products including without limitation data that are captured by the Products and transmitted to SELLER, BUYER hereby grants SELLER a non-exclusive, worldwide, royalty-free, perpetual, non-revocable license to use, compile, distribute, display, store, process, reproduce, or create derivative works of such data as needed for Product operation and maintenance, and to aggregate such data for use in an anonymous manner, solely to facilitate marketing, sales and R&D activities of SELLER and its affiliates.

13. SPECIAL TOOLS, DIES, JIGS, FIXTURES AND PATTERNS: Any tools, dies, jigs, fixtures, patterns and similar items which are included or required in connection with the manufacture and/or supply of the Products will remain the property of SELLER without credit to the BUYER. SELLER assumes the cost for maintenance and replacement of such items and shall have the right to discard and scrap any such item after it has been inactive for a minimum of one year, without credit to the BUYER.

14. CHANGES AND ADDITIONAL CHARGES: SELLER reserves the right to make design changes or improvements to any products of the same general class as Products being delivered hereunder without liability or obligation to incorporate such changes or improvements to Products ordered by BUYER unless agreed upon in writing before the Products' delivery date.

15. SITE ACCESS / PREPARATION / WORKER SAFETY / ENVIRONMENTAL COMPLIANCE: In connection with services provided by SELLER, BUYER agrees to permit prompt access to equipment. BUYER assumes full responsibility to back-up or otherwise protect its data against loss, damage or destruction before services are performed. BUYER is the operator and in full control of its premises, including those areas where SELLER employees or contractors are performing service, repair, and maintenance activities. BUYER will ensure that all necessary measures are taken for safety and security of working conditions, sites, and installations during the performance of any services. BUYER is the generator of any resulting wastes, including without limitation hazardous wastes. BUYER is solely responsible to arrange for the disposal of any wastes at its own expense. BUYER will, at its own expense, provide SELLER employees and contractors working on BUYER's premises with all information and training required under applicable safety compliance regulations and BUYER's policies. SELLER has no responsibility for the supervision or actions of BUYER's employees or contractors or for non-SELLER items (e.g., chemicals, equipment) and disclaims all liability and responsibility for any loss or damage that may be suffered as a result of such actions or items, or any other actions or items not under SELLER's control.

16. LIMITATIONS ON USE: BUYER will not use any Products for any purpose other than those identified in SELLER's catalogs and literature as intended uses. Unless SELLER has advised the BUYER in writing, in no event will BUYER use any Products in drugs, food additives, food, or cosmetics, or medical applications for humans or animals. In no event will BUYER use in any application any Product that requires FDA 510(k) clearance unless and only to the extent the Product has such clearance. BUYER will not sell, transfer, export, or re-export any SELLER Products or technology for use in activities which involve the design, development, production, use, or stockpiling of nuclear, chemical, or biological weapons or missiles, nor use SELLER Products or technology in any facility which engages in activities relating to such weapons. Unless the "ship-to" address is in California, U.S.A., the Products are not intended for sale in California and may lack markings required by California Proposition 65; accordingly, unless BUYER has ordered Products specifying a California ship-to address, BUYER will not sell or deliver any SELLER Products for use in California. Any warranty granted by SELLER is void if any goods covered by such warranty are used for any purpose not permitted hereunder.

17. EXPORT AND IMPORT LICENSES AND COMPLIANCE WITH LAWS: Unless otherwise expressly agreed, BUYER is responsible for obtaining any required export or import licenses necessary for Product delivery. BUYER will comply with all laws and regulations applicable to the installation or use of all Product, including applicable import and export control laws and regulations of the U.S., E.U., and any other country having proper jurisdiction, and will obtain all necessary export or import licenses in connection with any subsequent export, re-export, transfer, and use of all Product and technology delivered hereunder. BUYER will not sell, transfer, export, or re-export any SELLER Product or technology for use in activities which involve the design, development, production, use or stockpiling of nuclear, chemical, or biological weapons or missiles, nor use SELLER Product or technology in any facility which engages in activities relating to such weapons. BUYER will comply with all local, national, and other laws of all jurisdictions globally relating to anti-corruption, bribery, extortion, kickbacks, or similar matters which are applicable to BUYER's business activities in connection with this Contract, including but not limited to the U.S. Foreign Corrupt Practices Act of 1977, as amended (the "FCPA"). BUYER agrees that no payment of money or provision of anything of value will be offered, promised, paid, or transferred, directly or indirectly, by any person or entity, to any government official, government employee, or employee of any company owned in part by a government, political party, political party official, or candidate for any government office or political party office to induce such organizations or persons to use their authority or influence to obtain or retain an improper business advantage for BUYER or for SELLER, or which otherwise constitute or have the purpose or effect of public or commercial bribery, acceptance of or acquiescence in extortion, kickbacks, or other unlawful or improper means of

obtaining business or any improper advantage, with respect to any of BUYER's activities related to this Contract. SELLER asks BUYER to "Speak Up!" if aware of any violation of law, regulation, or our Code of Conduct ("CoC") in relation to this Contract. See www.danaherintegrity.com and www.danaher.com/how-we-work/integrity-and-compliance for a copy of the CoC and for access to our Helpline portal.

18. RELATIONSHIP OF PARTIES: BUYER is not an agent or representative of SELLER and will not present itself as such under any circumstances, unless and to the extent it has been formally screened by SELLER's compliance department and received a separate duly-authorized letter from SELLER setting forth the scope and limitations of such authorization.

19. FORCE MAJEURE: SELLER is excused from performance of its obligations under this Contract to the extent caused by acts or omissions that are beyond its control, including but not limited to Government embargoes, blockages, seizures or freezing of assets, delays, or refusals to grant an export or import license, or the suspension or revocation thereof, or any other acts of any Government; fires, floods, severe weather conditions, or any other acts of God; quarantines; epidemics and pandemics; labor strikes or lockouts; riots; strife; insurrections; civil disobedience or acts of criminals or terrorists; war; material shortages or delays in deliveries to SELLER by third parties. In the event of the existence of any force majeure circumstances, the period of time for delivery, payment terms, and payments under any letters of credit will be extended for a period of time equal to the period of delay. If the force majeure circumstances extend for six months, SELLER may, at its option, terminate this Contract without penalty and without being deemed in default or in breach thereof.

20. NON-ASSIGNMENT AND WAIVER: BUYER will not transfer or assign this Contract or any rights or interests hereunder without SELLER's prior written consent. Failure of either party to insist upon strict performance of any provision of this Contract, or to exercise any right or privilege contained herein, or the waiver of any breach of the terms or conditions of this Contract, will not be construed as thereafter waiving any such terms, conditions, rights, or privileges, and the same will continue and remain in force and effect as if no waiver had occurred.

21. FUNDS TRANSFERS: BUYER and SELLER both recognize that there is a risk of banking fraud when individuals impersonating a business demand payment under new mailing or banking transfer instructions. To avoid this risk, BUYER must verbally confirm any new or changed mailing or banking transfer instructions by calling SELLER and speaking with SELLER's Accounts Receivable Manager before transferring any monies using the new instructions. Both parties agree that they will not institute mailing or banking transfer instruction changes and require immediate payment under the new instructions, but will instead provide a ten (10) day grace period to verify any mailing or banking transfer instruction changes before any new or outstanding payments are due using the new instructions.

22. LIMITATION OF LIABILITY: None of SELLER, its successors-in-interest, assignees, affiliates, directors, officers, and employees will be liable to any BUYER Indemnified Parties under any circumstances for any special, treble, incidental, or consequential damages, including without limitation, damage to or loss of property other than for the Products purchased hereunder; damages incurred in installation, repair, or replacement; lost profits, revenue, or opportunity; loss of use; losses resulting from or related to downtime of the Products or inaccurate measurements or reporting; the cost of substitute products; or claims of any BUYER's Indemnified Parties' customers for such damages, howsoever caused, and whether based on warranty, contract, and/or tort (including negligence, strict liability or otherwise). The total liability of SELLER, its successors-in-interest, assignees, affiliates, directors, officers, and employees arising out of the performance or nonperformance hereunder, or SELLER's obligations in connection with the design, manufacture, sale, delivery, and/or use of Products, will in no circumstance exceed the amount actually paid to SELLER for Products delivered hereunder.

23. APPLICABLE LAW AND DISPUTE RESOLUTION: All issues relating to the construction, validity, interpretation, enforcement, and performance of this agreement and the rights and obligations of SELLER and the BUYER hereunder shall be governed by the laws of the Province of Ontario and the federal laws of Canada applicable therein. Any provisions of the International Sale of Goods Act or any convention on contracts for the international sale of goods shall not be applicable to this agreement. The parties submit to and consent to the non-exclusive jurisdiction of courts located in the Province of Ontario.

24. ENTIRE AGREEMENT, TERM & MODIFICATION: These Terms & Conditions of Sale constitute the entire agreement between the parties and supersede any prior agreements or representations, whether oral or written. Upon thirty (30) days prior written notice, SELLER may, in its sole discretion, elect to terminate any order for the sale of Products and provide a pro-rated refund for any pre-payment of undelivered Products. No change to or modification of these Terms & Conditions shall be binding upon SELLER unless in a written instrument specifically referencing that it is amending these Terms & Conditions of Sale and signed by an authorized representative of SELLER. SELLER rejects any additional or inconsistent Terms & Conditions of Sale offered by BUYER at any time, whether or not such terms or conditions materially alter the Terms & Conditions herein and irrespective of SELLER's acceptance of BUYER's order for the described goods and services.

Terms and Conditions Covering Sales of Configured-to-Order Projects and Systems

In addition to all terms and conditions above, the following sections apply to sales of Configured-to-Order Projects, Systems, and the like:

101. PAYMENT.

101.1 Payments will be made per the schedule of payment events set forth in Seller's Quotation; provided that if the Start-Up Date (as defined below) is less than 30 days after the Acceptance Date, 90% of the purchase price is due on or before the Start-Up Date.

101.2. In the event that achievement of a scheduled payment event is delayed or suspended due to the Buyer's convenience or other reasons for which the Buyer or its representatives is responsible, such payment event will be deemed to have occurred and Seller shall be entitled to invoice Buyer as if achievement of such payment event had been achieved. In such circumstances, Buyer must notify Seller in writing of the reasons for the delay and anticipated duration of the delay. Seller will mark the Products (or parts thereof) as the Buyer's property and shall store the Products (or parts thereof) in a segregated area until actual delivery.

102. DELIVERY

102.1 SELLER will request the BUYER to provide a firm date for delivery of the Products to the project site (the "Delivery Date") which SELLER will then use to establish the production schedule for the Products. The Delivery Date will then be binding on the BUYER except for any changes made in accordance with the provisions below.

102.2 The BUYER can request a rescheduling of the Delivery Date on one occasion only by notifying SELLER in writing not less than four weeks prior to the scheduled Delivery Date. The BUYER may request that the Delivery Date be extended by a period up to six weeks, without penalty, but may not request that the Delivery Date be moved forward. The BUYER may also request that the Delivery Date be extended beyond a six-week period but, SELLER may not agree to such extension, beyond the maximum six-week extension period

102.3 SELLER may, in its sole discretion, agree to change the Delivery Date on more than one occasion or if less than four weeks' prior notice is provided of a requested change, but is under no obligation to do so.

102.4 SELLER reserves the right to reschedule the Delivery Date to a date prior to or subsequent to the scheduled Delivery Date in order to accommodate its shipping, production or other requirements. This right to reschedule will be applicable unless otherwise agreed in writing by an authorized officer of SELLER. SELLER will provide the BUYER or its representative with a minimum of 24 hours' notice of any such rescheduling.

102.5 Where any change to the Delivery Date is made at BUYER's request, for all purposes with respect to the warranty and payment provided by SELLER in connection with the Products, the initial Delivery Date will be considered to be the Delivery Date regardless of any change later made to the Delivery Date.

103. ACCEPTANCE

103.1 During the period between the Delivery Date and the Start-up Date, the BUYER shall prepare the Products and the project site for installation and start-up and, unless otherwise agreed in writing by an authorized representative of SELLER, shall complete acceptance testing with respect to the Products. The Products shall be deemed to be accepted on the earliest to occur of the following dates (the "Acceptance Date"): (a) that date on which the Products can function in either manual or automatic operation and provide disinfection in accordance with criteria specified in the Quotation, or (b) 60 days after the Delivery Date.

103.2 All amounts which remain owing by the BUYER for the Products, including any amount which is specified to be payable on the Acceptance Date, will be paid by the BUYER to SELLER within 30 days after the Acceptance Date, unless otherwise agreed in writing by an authorized representative of SELLER.

103.3 Written notification must be given by the BUYER to SELLER within seven days after the Acceptance Date listing any outstanding deficiencies with respect to the Products and SELLER will use all reasonable efforts to correct such deficiencies promptly.

104. START-UP

104.1 SELLER will request a firm date for start-up of the Equipment (the "Start-Up Date"). Trojan will then schedule its technician to be on-site for the Start-up Date. The Start-up Date is binding except for any changes made in accordance with the provisions below.

104.2 On the Start-up Date, BUYER must have the Equipment and site ready as provided in the Installation Preparation Checklist contained in the Contractor Installation Package sent to BUYER and must have paid all amounts then due and payable to SELLER.

104.3 BUYER can request a rescheduling of the Start-up Date by notifying SELLER in writing not less than three weeks prior to the Start-up Date. BUYER may request that the Start-up Date be extended but may not request that the Start-up Date be moved forward. SELLER requires a minimum extension period of two weeks between the existing Start-up Date and the requested new Start-up Date in order to reschedule its technician.

104.4 SELLER may, in its sole discretion, agree to reschedule the Start-up Date where a BUYER requests less than a two-week extension but is under no obligation to do so. In the event that SELLER does agree to less than a two-week extension or that BUYER requests more than two changes to the Start-up Date, BUYER will be charged an administration fee in an amount determined by SELLER.

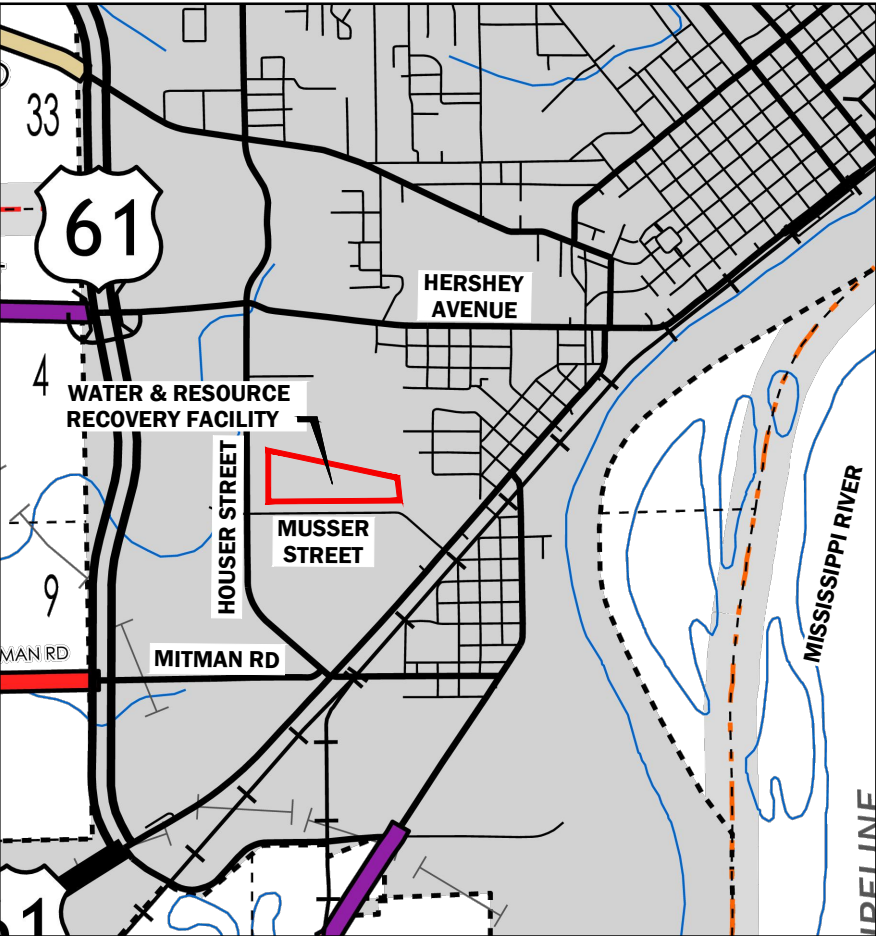
104.5 SELLER reserves the right to reschedule the Start-up Date to a date which is prior to or subsequent to the scheduled Start-up Date in order to accommodate its resource availability. This right to reschedule will be applicable unless otherwise agreed in writing by an authorized officer of SELLER. SELLER will provide BUYER or its representative with a minimum of 72 hours' notice of any such change to the Start-up Date.

104.6 In the event that SELLER'S technician arrives at the project site and finds that the Equipment or the project site is not ready for start-up as defined in the Contractor Installation Package, or any amounts then due and payable to SELLER remain unpaid, BUYER may either:

(a) provided all amounts then due and payable to SELLER have been paid, issue a purchase order for all costs involved in having SELLER correct the deficiencies, or

(b) have SELLER'S technician leave the site and then reschedule the Start-up Date to a date when all deficiencies will be corrected, and the Equipment will be ready for start-up as defined in the Contractor Installation Package. If BUYER selects this option, the cost of rescheduling will be not less than a minimum amount specified by SELLER, with the final cost being determined by SELLER based on its costs and expenses incurred in connection with the rescheduling.

PLANS FOR REPLACEMENT UV DISINFECTION SYSTEM PROJECT MUSCATINE, IOWA



VICINITY MAP
NO SCALE



DRAWING INDEX		
SHEET NO.	DWG. NO.	TITLE
GENERAL		
1	01-G-1	INDEX & TITLE SHEET
2	01-G-2	LEGENDS
SITE PLAN		
3	02-C-1	OVERALL EXISTING SITE PLAN
SITE PLAN		
4	02-E-1	PARTIAL ELECTRICAL SITE PLAN
STRUCTURE 50 - UV DISINFECTION BUILDING		
STRUCTURAL		
5	50-R-1	GRADE PLAN - REMOVALS
6	50-R-2	SECTION A - REMOVALS
7	50-R-3	SECTION B - REMOVALS
8	50-R-4	SECTION C & D - REMOVALS
9	50-R-5	REMOVAL PHOTOS
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STRUCTURAL / PROCESS		
11	50-SP-1	GRADE PLAN EL. 550.00 - IMPROVEMENTS
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14	50-SP-4	SECTIONS - IMPROVEMENTS
ELECTRICAL		
15	50-E-1	ELECTRICAL PLAN
STANDARD DETAILS		
STRUCTURAL		
16	99-S-1	DETAILS
ELECTRICAL		
17	99-E-1	EXISTING ONE-LINE DIAGRAM
18	99-E-2	ONE-LINE DIAGRAM & SCHEDULES
19	99-E-3	ELECTRICAL DETAILS



I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.

SIGNATURE: Emily K. Linebaugh
NAME: Emily K. Linebaugh, P.E.
DATE: 8/28/23

MY LICENSE RENEWAL DATE IS DECEMBER 31, 2023
PAGES COVERED BY THIS SEAL: 01-G-1 THRU 02-C-1, 50-R-1 THRU 50-SP-4, 99-S-1



I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.

SIGNATURE: Jacob Lucas
NAME: Jacob Lucas, P.E.
DATE: 8/28/23

MY LICENSE RENEWAL DATE IS DECEMBER 31, 2023
PAGES COVERED BY THIS SEAL: 02-E-1, 50-E-1, 99-E-1 THRU 99-E-3



DATE	REVISIONS	SCALE	AS NOTED
		DRAWN	JPB
		CHECKED	JPB
		APPROVED	EKL
		DATE	8/28/23
		ISSUED FOR	CONSTRUCTION



REPLACEMENT UV DISINFECTION SYSTEM PROJECT
CITY OF MUSCATINE, IOWA

2600 University Parkway - Suite 1 • Coralville, Iowa 52241
319-466-1000 • 319-466-1008(FAX) • 888-241-8001(WATS)

INDEX & TITLE SHEET

DWG. NO.
01-G-1
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PROJECT 20821

PLOTTED: Monday, August 28, 2023 2:47:41 PM

X-REFS: \\VK-FS\WDMSHARE\0200\0208-MUSCATINE\0208-0021_REPLACEMENT_UV_DISINFECTION_SYSTEM\CADD_PRODDRAWINGS\01\01-G
 FILE PATH:

ELECTRICAL LEGEND

	EXPOSED CONDUIT
	CONDUIT RUN UNDERGROUND OR IN CONCRETE
	BARE COPPER GROUND
	PENDANT MOUNTED FIXTURE
	WALL MOUNTED FIXTURE
	POLE MOUNTED FIXTURE
	"F1": FIXTURE TYPE "1-3": CIRCUIT NUMBER "1": CONTROLLING SWITCH "XP": EXPLOSION-PROOF CONSTRUCTION (WHERE INDICATED)
	FLUORESCENT LIGHTING FIXTURE
	EMERGENCY LIGHT FIXTURE (SAME NOTATIONS AS LIGHT FIXTURE)
	EXIT LIGHT (SAME NOTATIONS AS LIGHT FIXTURE)
	LIGHT SWITCH
	LIGHT SWITCH, 3 WAY
	120V DUPLEX RECEPTACLE, NEMA 5-20R
	120V DUPLEX RECEPTACLE, NEMA 5-20R, EXPLOSION-PROOF
	120V DUPLEX RECEPTACLE, NEMA 5-20R, WEATHER-PROOF
	SINGLE SPECIAL-PURPOSE RECEPTACLE, AMPERAGE AND VOLTAGE AS NOTED ON PLANS
	TELEPHONE OUTLET, M.H. +12" AFF
	DATA COMMUNICATION OUTLET, M.H. +12"
	SCADA ETHERNET PORT
	DISCONNECT SWITCH
	FUSED DISCONNECT SWITCH
	MOTOR
	PUSHBUTTON STATION, SEE SCHEMATICS FOR TYPE
	JUNCTION BOX OR FITTING
	THERMOSTAT
	HORN
	GROUND CONNECTION - EXOTHERMIC TYPE
	GROUND ROD 3/4" x 10' - 0" WITH GROUND WELL (UNLESS OTHERWISE NOTED)
	GROUND CONNECTION BOLTED TYPE
	CIRCUIT BREAKER
	- FRAME (AMPS)
	- TRIP (AMPS)
	MCP
	- CONTINUOUS AMPS
	- TRIP SETTING BASED ON MOTOR HORSEPOWER REDUCED VOLTAGE AUTO TRANSFORMER
	NEMA RATED MOTOR STARTER
	FVNR ----- FULL VOLTAGE NON-REVERSING
	FVR ----- FULL VOLTAGE REVERSING
	VARIABLE FREQUENCY DRIVE
	REDUCED VOLTAGE SOLID STATE STARTER
	PACKAGED EQUIPMENT
	INDUCTION MOTOR 10HP NOTED
	TRANSFORMER WITH GROUNDED SECONDARY, KVA SIZE & VOLTAGE RATIO AS NOTED.
	SHIELDED ISOLATION TRANSFORMER, KVA SIZE & VOLTAGE RATIO AS NOTED
	POTENTIAL TRANSFORMER

STANDARD DETAIL DESIGNATION

ON DRAWING WHERE
 DETAIL IS TAKEN:

ON DRAWING WHERE
 DETAIL IS SHOWN:

SEE (206)

(206)

STANDARD DETAIL DESIGNATION

NOTES:

- STANDARD DETAILS ARE SHOWN ON DISCIPLINE DETAIL DRAWINGS AT THE END OF THE SET.

NOTE: THESE ARE STANDARD LEGENDS, ITEMS MAY OR MAY NOT APPEAR ON PLANS.

MECHANICAL LEGEND

	REMOVE PIPING OR EQUIPMENT
	SANITARY SEWER PIPING BELOW FLOOR OR GRADE
	ACID WASTE PIPING BELOW FLOOR OR GRADE
	SANITARY VENT
	STORM WATER PIPING ABOVE FLOOR OR GRADE
	SANITARY SEWER PIPING ABOVE FLOOR
	NON-POTABLE WATER PIPING
	DOMESTIC COLD WATER PIPING BELOW FLOOR OR GRADE
	DOMESTIC HOT WATER PIPING BELOW FLOOR OR GRADE
	DOMESTIC COLD WATER PIPING ABOVE FLOOR OR GRADE
	DOMESTIC HOT WATER PIPING ABOVE FLOOR OR GRADE
	DRAIN PIPING
	PITCH IN DIRECTION OF ARROW
	FLOW IN DIRECTION OF ARROW
	PIPING ELBOW DOWN
	PIPING ELBOW UP
	PIPING CAP
	CLEANOUT
	FLOOR DRAIN
	PRESSURE REGULATOR
	HOSE BIBB
	HOSE STATION
	WALL HYDRANT
	REDUCED PRESSURE BACKFLOW PREVENTER
	BALL VALVE
	BALL VALVE IN RISER
	GATE VALVE
	CHECK VALVE
	AUTOMATIC AIR VENT
	STRAINER
	UNION
	GAS, LOW PRESSURE
	GAS, MEDIUM PRESSURE
	GAS, HIGH PRESSURE
	GAS COCK
	GAS METER & PRESSURE REGULATOR ASSEMBLY
	COOLANT SUPPLY
	COOLANT RETURN
	FUEL OIL SUPPLY
	FUEL OIL RETURN
	FUEL OIL VENT
	PLUMBING FIXTURE
	THERMOSTAT
	HUMIDISTAT
	CONNECTION TO EXISTING
	SUPPLY AIR DUCT (SA)
	EXHAUST AIR DUCT (EA)
	OUTSIDE AIR DUCT (OA)
	PLAN NOTE NUMBER
	AIR CONDITIONING UNIT
	ABOVE FLOOR
	CONTROL CABINET
	CONTROL DAMPER
	CONDENSING UNIT
	CUBIC FEET PER MINUTE
	COLD WATER
	DEHUMIDIFIER
	DOMESTIC WATER HEATER
	DOWNSPOUT
	EXHAUST FAN
	ELECTRIC UNIT HEATER
	FLOOR DRAIN
	GAS UNIT HEATER
	HOSE BIBB
	HEAT RECOVERY UNIT
	HOT WATER
	HEATING, VENTILATION & AIR CONDITIONING
	INTAKE VENTILATOR
	MAKEUP AIR UNIT
	MANUAL VOLUME DAMPER
	OUTSIDE AIR LOUVER
	REMOTE CONTROL PANEL
	ROOF DRAIN
	SHOWER DRAIN
	SUPPLY FAN
	VENT
	VENT THRU ROOF

GENERAL LEGEND

	SURVEY LINE AND STATION INDICATOR
	CONCRETE SURFACE
	ASPHALT SURFACE
	GRANULAR SURFACE
	DIRT SURFACE
	SURFACE OR STRUCTURE REMOVAL
	BUILDING
	BRICK (SECTION)
	CONCRETE BLOCK (SECTION)
	CONCRETE
	SAND, CLASS B CONCRETE, OR MORTAR
	GRATING
	GLASS (SECTION)
	INSULATION
	EARTH OR BACKFILL
	GRAVEL OR ROCK
	ROUGH CARPENTRY (NOMINAL SIZE INDICATED)
	CONCRETE CORE DECK (ELEV.)
	BRICK (ELEV.)
	GLASS (ELEV.)
	STRUCTURAL SHAPE (LARGE SCALE)
	STRUCTURAL SHAPE (SMALL SCALE)
	EXISTING CONTOUR
	NEW CONTOUR
	CULVERT; SIZE AND TYPE
	POWER POLE
	HYDRANT
	POLE W/GUY ANCHOR
	UNDERGROUND TELEPHONE CABLE JUNCTION BOX
	EXISTING SANITARY SEWER AND MANHOLE
	NEW SANITARY SEWER AND MANHOLE
	EXISTING STORM SEWER AND INTAKE
	NEW STORM SEWER AND INTAKE
	EXISTING STORM SEWER AND MANHOLE
	NEW STORM SEWER AND MANHOLE
	EXISTING WATER MAIN AND SIZE
	NEW WATER MAIN AND SIZE
	EXISTING FORCE MAIN
	NEW FORCE MAIN
	PIPE REMOVAL
	ABANDON IN PLACE
	GAS MAIN AND SIZE
	UNDERGROUND TELEPHONE
	UNDERGROUND ELECTRICAL
	OVERHEAD POWER LINE
	SIGN

PROCESS PIPING LEGEND

	LARGE PIPE (4" & LARGER)
	SMALL PIPE (3" & SMALLER)
	FLANGED JOINT
	MECHANICAL JOINT
	FLEXIBLE JOINT W/CONTROL RODS
	CONCENTRIC REDUCER
	ECCENTRIC REDUCER
	METER
	KNIFE GATE VALVE
	CHECK VALVE
	BUTTERFLY VALVE
	BALL VALVE
	GATE VALVE
	SOLENOID VALVE
	PRESSURE RELIEF VALVE
	PRESSURE REGULATING VALVE
	PLUG VALVE
	SEAT PORT
	PLUG DRAIN VALVE
	PNEUMATIC OPERATOR
	ELECTRIC OPERATOR
	PRESSURE GAUGE
	THERMOMETER

FLOW STREAM IDENTIFICATION

A	AIR
BYP	BYPASS
D	DRAIN
DE	DECANT
FCE	FINAL CLARIFIER EFFLUENT
FCI	FINAL CLARIFIER INFLUENT
FE	FINAL EFFLUENT
GWD	GROUND WATER DRAIN
NPW	NON POTABLE WATER
OV	OVERFLOW
PE	PERMEATE
PTE	PROCESS TANK EFFLUENT
PTI	PROCESS TANK INFLUENT
RW	RAW WASTEWATER
RSL	RETUN SLUDGE
SA	SAMPLE
S	SANITARY
SC	SCUM
SL	SLUDGE
SS	STORM SEWER
WSL	WASTE SLUDGE
W	WATER

REPLACEMENT UV DISINFECTION SYSTEM PROJECT
 CITY OF MUSCATINE, IOWA

2600 University Parkway - Suite 1 • Coralville, Iowa 52241
 319-466-1000 • 319-466-1008(FAX) • 888-241-8001(WATS)



DATE	AS NOTED
DRAWN	JPB
CHECKED	JPB
APPROVED	EKL
DATE	8/28/23
ISSUED FOR CONSTRUCTION	

DWG. NO.

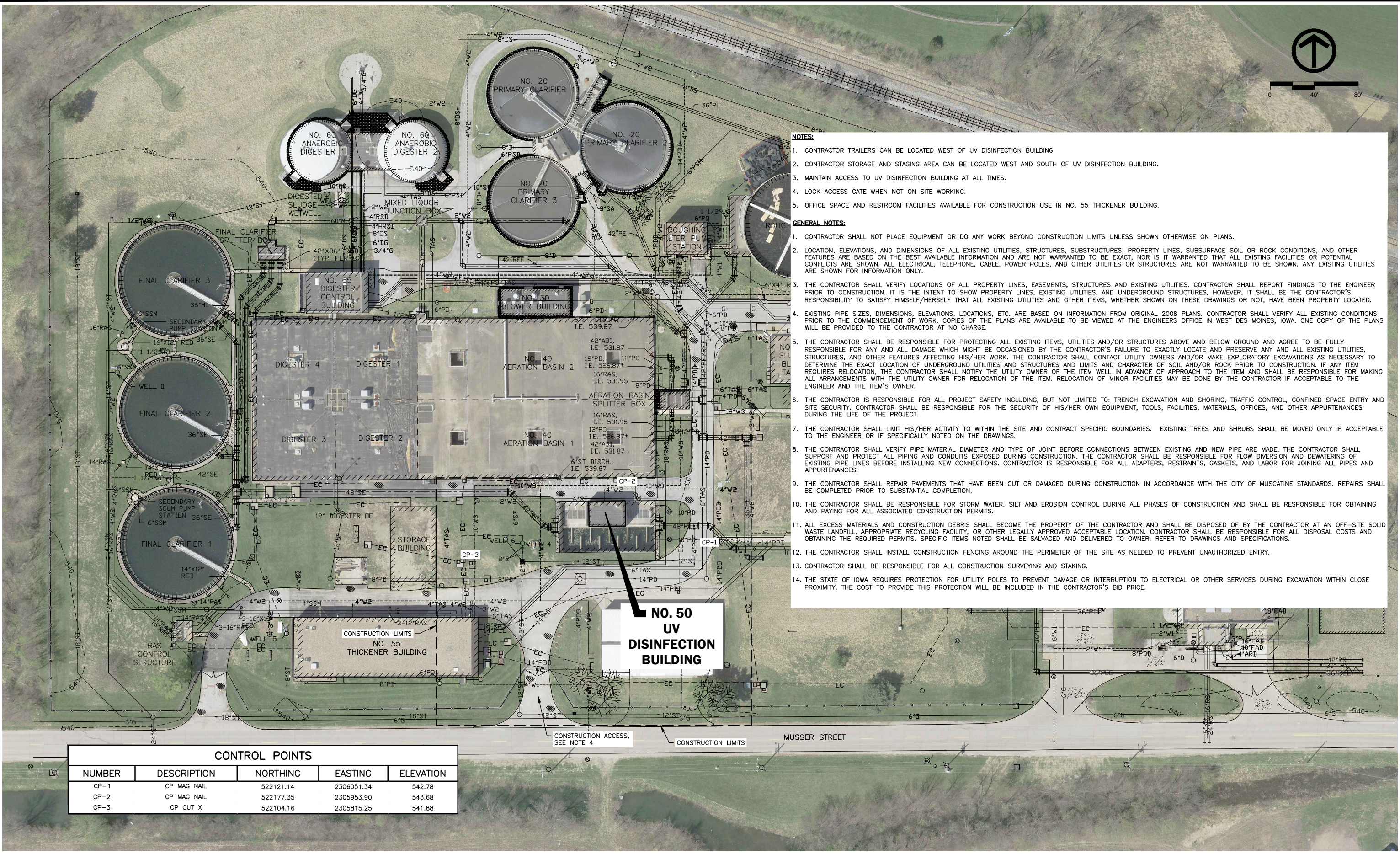
01-G-2
 2 OF 19

PROJECT 20821

LEGENDS

PLOTTED: Monday, August 28, 2023 2:10:47 PM

X-REFS: SITE & ARIAL
 FILE PATH: \\VK-FS\WDMSHARE\0200-MUSCATINE\0208-0021-REPLACEMENT UV DISINFECTION SYSTEM\CADD\PRODDRAWINGS\02-02-C



NOTES:

- CONTRACTOR TRAILERS CAN BE LOCATED WEST OF UV DISINFECTION BUILDING
- CONTRACTOR STORAGE AND STAGING AREA CAN BE LOCATED WEST AND SOUTH OF UV DISINFECTION BUILDING.
- MAINTAIN ACCESS TO UV DISINFECTION BUILDING AT ALL TIMES.
- LOCK ACCESS GATE WHEN NOT ON SITE WORKING.
- OFFICE SPACE AND RESTROOM FACILITIES AVAILABLE FOR CONSTRUCTION USE IN NO. 55 THICKENER BUILDING.

GENERAL NOTES:

- CONTRACTOR SHALL NOT PLACE EQUIPMENT OR DO ANY WORK BEYOND CONSTRUCTION LIMITS UNLESS SHOWN OTHERWISE ON PLANS.
- LOCATION, ELEVATIONS, AND DIMENSIONS OF ALL EXISTING UTILITIES, STRUCTURES, SUBSTRUCTURES, PROPERTY LINES, SUBSURFACE SOIL OR ROCK CONDITIONS, AND OTHER FEATURES ARE BASED ON THE BEST AVAILABLE INFORMATION AND ARE NOT WARRANTED TO BE EXACT, NOR IS IT WARRANTED THAT ALL EXISTING FACILITIES OR POTENTIAL CONFLICTS ARE SHOWN. ALL ELECTRICAL, TELEPHONE, CABLE, POWER POLES, AND OTHER UTILITIES OR STRUCTURES ARE NOT WARRANTED TO BE SHOWN. ANY EXISTING UTILITIES ARE SHOWN FOR INFORMATION ONLY.
- THE CONTRACTOR SHALL VERIFY LOCATIONS OF ALL PROPERTY LINES, EASEMENTS, STRUCTURES AND EXISTING UTILITIES. CONTRACTOR SHALL REPORT FINDINGS TO THE ENGINEER PRIOR TO CONSTRUCTION. IT IS THE INTENT TO SHOW PROPERTY LINES, EXISTING UTILITIES, AND UNDERGROUND STRUCTURES, HOWEVER, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO SATISFY HIMSELF/HERSELF THAT ALL EXISTING UTILITIES AND OTHER ITEMS, WHETHER SHOWN ON THESE DRAWINGS OR NOT, HAVE BEEN PROPERLY LOCATED.
- EXISTING PIPE SIZES, DIMENSIONS, ELEVATIONS, LOCATIONS, ETC. ARE BASED ON INFORMATION FROM ORIGINAL 2008 PLANS. CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS PRIOR TO THE COMMENCEMENT OF WORK. COPIES OF THE PLANS ARE AVAILABLE TO BE VIEWED AT THE ENGINEER'S OFFICE IN WEST DES MOINES, IOWA. ONE COPY OF THE PLANS WILL BE PROVIDED TO THE CONTRACTOR AT NO CHARGE.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING ITEMS, UTILITIES AND/OR STRUCTURES ABOVE AND BELOW GROUND AND AGREE TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGE WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL EXISTING UTILITIES, STRUCTURES, AND OTHER FEATURES AFFECTING HIS/HER WORK. THE CONTRACTOR SHALL CONTACT UTILITY OWNERS AND/OR MAKE EXPLORATORY EXCAVATIONS AS NECESSARY TO DETERMINE THE EXACT LOCATION OF UNDERGROUND UTILITIES AND STRUCTURES AND LIMITS AND CHARACTER OF SOIL AND/OR ROCK PRIOR TO CONSTRUCTION. IF ANY ITEM REQUIRES RELOCATION, THE CONTRACTOR SHALL NOTIFY THE UTILITY OWNER OF THE ITEM WELL IN ADVANCE OF APPROACH TO THE ITEM AND SHALL BE RESPONSIBLE FOR MAKING ALL ARRANGEMENTS WITH THE UTILITY OWNER FOR RELOCATION OF THE ITEM. RELOCATION OF MINOR FACILITIES MAY BE DONE BY THE CONTRACTOR IF ACCEPTABLE TO THE ENGINEER AND THE ITEM'S OWNER.
- THE CONTRACTOR IS RESPONSIBLE FOR ALL PROJECT SAFETY INCLUDING, BUT NOT LIMITED TO: TRENCH EXCAVATION AND SHORING, TRAFFIC CONTROL, CONFINED SPACE ENTRY AND SITE SECURITY. CONTRACTOR SHALL BE RESPONSIBLE FOR THE SECURITY OF HIS/HER OWN EQUIPMENT, TOOLS, FACILITIES, MATERIALS, OFFICES, AND OTHER APPURTENANCES DURING THE LIFE OF THE PROJECT.
- THE CONTRACTOR SHALL LIMIT HIS/HER ACTIVITY TO WITHIN THE SITE AND CONTRACT SPECIFIC BOUNDARIES. EXISTING TREES AND SHRUBS SHALL BE MOVED ONLY IF ACCEPTABLE TO THE ENGINEER OR IF SPECIFICALLY NOTED ON THE DRAWINGS.
- THE CONTRACTOR SHALL VERIFY PIPE MATERIAL DIAMETER AND TYPE OF JOINT BEFORE CONNECTIONS BETWEEN EXISTING AND NEW PIPE ARE MADE. THE CONTRACTOR SHALL SUPPORT AND PROTECT ALL PIPING AND CONDUITS EXPOSED DURING CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FLOW DIVERSION AND DEWATERING OF EXISTING PIPE LINES BEFORE INSTALLING NEW CONNECTIONS. CONTRACTOR IS RESPONSIBLE FOR ALL ADAPTERS, RESTRAINTS, GASKETS, AND LABOR FOR JOINING ALL PIPES AND APPURTENANCES.
- THE CONTRACTOR SHALL REPAIR PAVEMENTS THAT HAVE BEEN CUT OR DAMAGED DURING CONSTRUCTION IN ACCORDANCE WITH THE CITY OF MUSCATINE STANDARDS. REPAIRS SHALL BE COMPLETED PRIOR TO SUBSTANTIAL COMPLETION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR STORM WATER, SILT AND EROSION CONTROL DURING ALL PHASES OF CONSTRUCTION AND SHALL BE RESPONSIBLE FOR OBTAINING AND PAYING FOR ALL ASSOCIATED CONSTRUCTION PERMITS.
- ALL EXCESS MATERIALS AND CONSTRUCTION DEBRIS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF BY THE CONTRACTOR AT AN OFF-SITE SOLID WASTE LANDFILL, APPROPRIATE RECYCLING FACILITY, OR OTHER LEGALLY APPROVED ACCEPTABLE LOCATION. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DISPOSAL COSTS AND OBTAINING THE REQUIRED PERMITS. SPECIFIC ITEMS NOTED SHALL BE SALVAGED AND DELIVERED TO OWNER. REFER TO DRAWINGS AND SPECIFICATIONS.
- THE CONTRACTOR SHALL INSTALL CONSTRUCTION FENCING AROUND THE PERIMETER OF THE SITE AS NEEDED TO PREVENT UNAUTHORIZED ENTRY.
- CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION SURVEYING AND STAKING.
- THE STATE OF IOWA REQUIRES PROTECTION FOR UTILITY POLES TO PREVENT DAMAGE OR INTERRUPTION TO ELECTRICAL OR OTHER SERVICES DURING EXCAVATION WITHIN CLOSE PROXIMITY. THE COST TO PROVIDE THIS PROTECTION WILL BE INCLUDED IN THE CONTRACTOR'S BID PRICE.

CONTROL POINTS				
NUMBER	DESCRIPTION	NORTHING	EASTING	ELEVATION
CP-1	CP MAG NAIL	522121.14	2306051.34	542.78
CP-2	CP MAG NAIL	522177.35	2305953.90	543.68
CP-3	CP CUT X	522104.16	2305815.25	541.88

DATE	REVISIONS	SCALE	AS NOTED
		DRAWN	BSS
		CHECKED	FSA
		APPROVED	EKL
		DATE	8/28/23
		ISSUED FOR CONSTRUCTION	

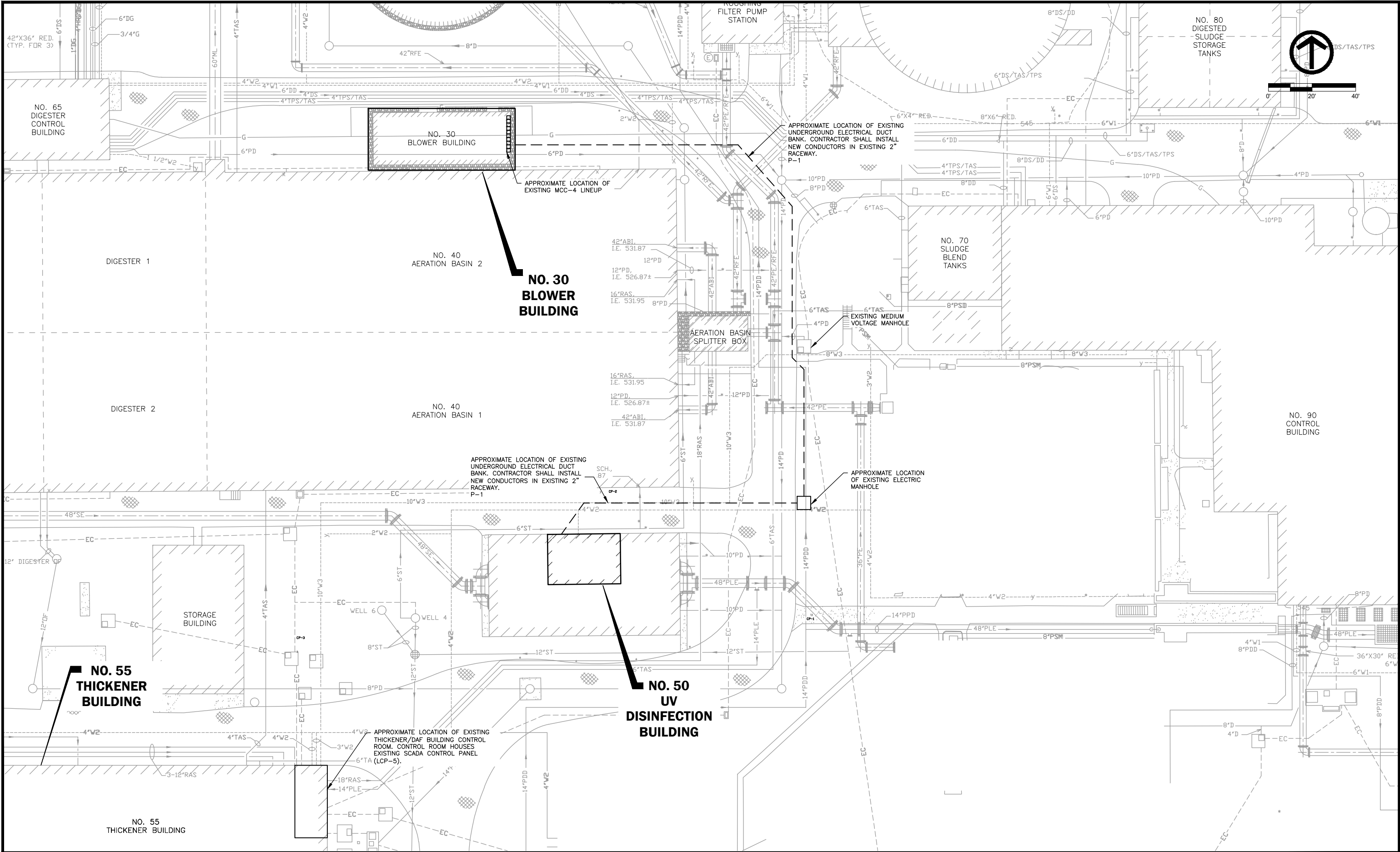


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DWG. NO.
 02-C-1
 3 OF 19
 PROJECT 20821
 OVERALL EXISTING SITE PLAN
 Page 745 of 912

PLOTTED: Friday, August 25, 2023 3:04:22 PM

X-REFS: SITE & ARIAL
FILE PATH: \\VK-FS\WDMSHARE\0200-MUSCATINE\0208-0021-REPLACEMENT UV DISINFECTION SYSTEM\CADD\PRODDRAWINGS\02\02-E



DATE	REVISIONS	SCALE	AS NOTED
		DRAWN	JDL
		CHECKED	JDL
		APPROVED	EKL
		DATE	8/28/23
		ISSUED FOR	CONSTRUCTION



REPLACEMENT UV DISINFECTION SYSTEM PROJECT
CITY OF MUSCATINE, IOWA

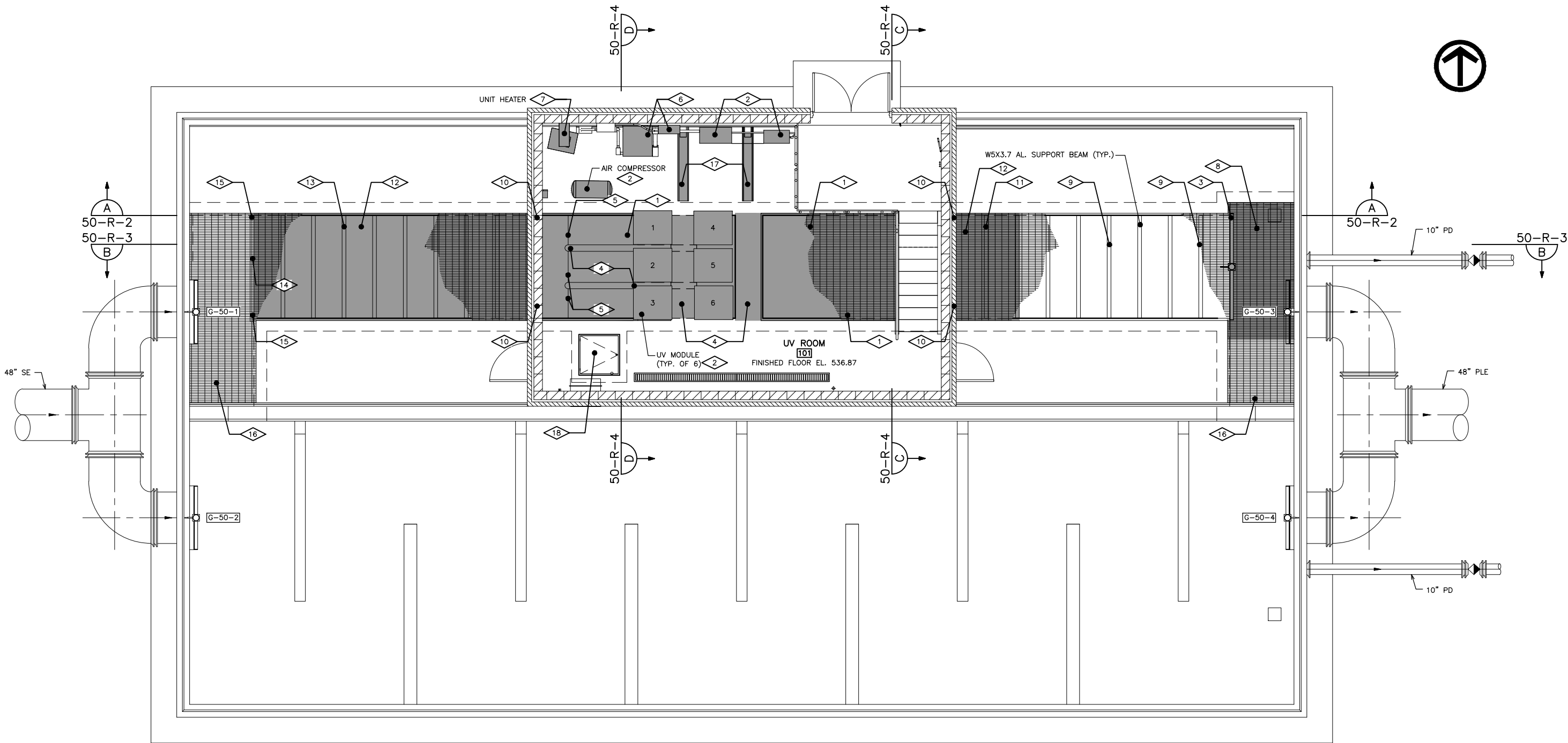
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PARTIAL ELECTRICAL SITE PLAN

DWG. NO.
02-E-1
4 OF 19
PROJECT 20821

PLOTTED: Monday, August 28, 2023 2:50:13 PM

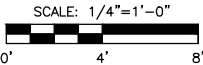
X-REFS: Muscatine WRR Facility UV Replacement As-Built Plans 2023-6-06 & RUVPL000 & RUVPL100 & RUVSECT
 FILE PATH: \\VK-FS\WDM\SHARE\0200\0208-MUSCATINE\0208-0021_REPLACEMENT_UV_DISINFECTION_SYSTEM\CADD\PRODDRAWINGS\50\50-R



GRADE PLAN
 SCALE: 1/4"=1'-0"

REMOVAL NOTES:

1. REMOVE & DELIVER TO CITY EXISTING DECKING OVER ENTIRE CHANNEL LENGTH INSIDE BUILDING. SEE PHOTO 6, DWG. NO. 50-R-5.
2. REMOVE EXISTING UV DISINFECTION SYSTEM INCLUDING IN-CHANNEL MODULES, CONDUIT, WIRING, CONTROL CABINET, AIR COMPRESSOR & ASSOCIATED PIPING/TUBING. SEE PHOTO 6, DWG. NO. 50-R-5.
3. REMOVE LEVEL CONTROL WEIR GATE & ASSOCIATED EQUIPMENT/CONDUIT. PROTECT CONCRETE NOT SHOWN FOR REMOVAL. SEE PHOTOS 1,2 & 3, DWG. NO. 50-R-5.
4. REMOVE CONCRETE DIVIDING WALLS, SUSPENDED SLABS & BEAMS. CUT CONCRETE IN CLEAN, WORKMANLIKE MANNER, BURN BACK ANY CUT REINFORCEMENT THAT WILL BE EXPOSED TO VIEW 1" BELOW THE SURFACE & FILL HOLES WITH NON-SHRINK GROUT. PROTECT CONCRETE NOT SHOWN FOR REMOVAL FROM DAMAGE. SEE PHOTO 7, DWG. NO. 50-R-5.
5. REMOVE BAR RACK SCREENS. SEE PHOTOS 8 & 9, DWG. NO. 50-R-5.
6. RELOCATE LIGHTING, OUTLETS, CONDUIT & WIRE AS NEEDED TO ALLOW FOR INSTALLATION OF IMPROVEMENTS. COORDINATE REMOVAL WITH ENGINEER & OWNER PRIOR TO REMOVAL/RELOCATION. REMOVE TRANSFORMER & DISTRIBUTION PANEL. SEE DWG. NO. 50-E-1 FOR ADDITIONAL REMOVALS.
7. REMOVE & DISPOSE OF UNIT HEATER & ASSOCIATED EQUIPMENT.
8. REMOVE & REPLACE GRATING AS REQ'D. TO COVER OPENING CREATED BY GATE REMOVAL. EXISTING GRATING 1 1/2" I-BAR. FIELD VERIFY. ATTACH TO EXISTING I-BEAM SUPPORTS. MATCH EDGES OF GRATING REMAINING IN PLACE WITH BANDED EDGES. SEE PHOTOS 1, 2 & 3 DWG. NO. 50-R-5.
9. REMOVE & REINSTALL GRATING & SUPPORTS AS REQ'D. FOR CONSTRUCTION ON THE EAST SIDE OF THE BUILDING.
10. CUT & REMOVE 3/8" AL. GRATING SUPPORT PLATE MOUNTED TO UNDERSIDE OF WALL OPENING AT NEW CONC. WALLS & SLABS.
11. CUT EXISTING W5X3.7 GRATING SUPPORT BEAM TO FIT NEW CHANNEL. CONNECT TO NEW WALL.
12. CUT & BAND GRATING TO FIT DIMENSIONS OF NEW CHANNEL OR PROVIDE NEW AL. GRATING AT CONTRACTORS OPTION. SEE PHOTO 4, DWG. NO. 50-R-5. EXISTING GRATING 1" AL. I-BAR.
13. REMOVE SUPPORT BEAMS & WALL CLIP ANGLES ON THE WEST SIDE OF THE BUILDING. CUT ANCHORS FLUSH WITH WALL.
14. PROTECT GRATING SUPPORT CHANNEL.
15. REMOVE GRATING SUPPORT ANGLE ATTACHED TO SUPPORT CHANNEL AT NEW CONC. WALLS & SLABS.
16. PROTECT GRATING NOT SHOWN FOR REMOVAL.
17. REMOVE & DELIVER TO CITY EXISTING TREAD PLATE. FILL TROUGHS WITH CONCRETE AS PART OF NEW FLOOR SLAB. SEE PHOTO 11, DWG. NO. 50-R-6.
18. PROTECT STAINLESS STEEL CLEANING TANK. SEE PHOTOS 12 & 13, DWG. NO. 50-R-6.



DATE	REVISIONS	SCALE	AS NOTED
		DRAWN	JPB
		CHECKED	JPB
		APPROVED	EKL
		DATE	8/28/23
		ISSUED FOR CONSTRUCTION	

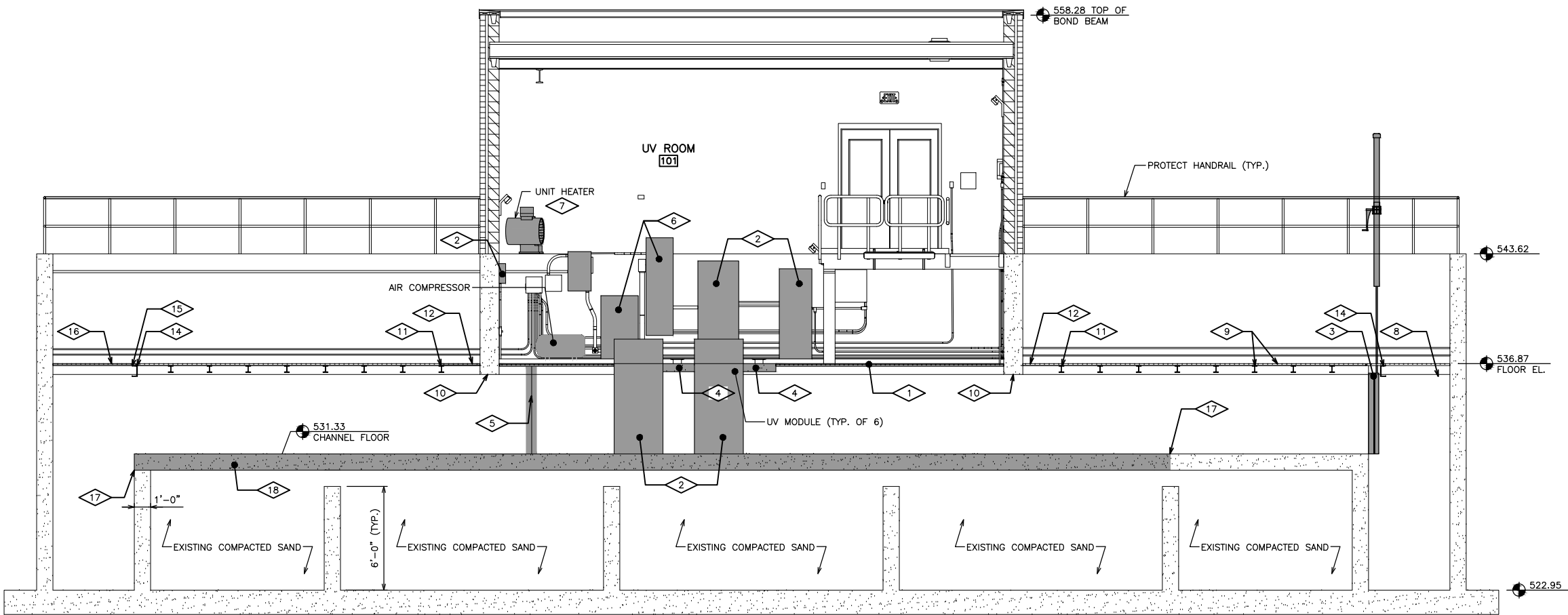


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UV DISINFECTION BUILDING
 GRADE PLAN – REMOVALS

DWG. NO.
50-R-1
5 OF 19
PROJECT 20821



SECTION A
SCALE: 1/4"=1'-0"

REMOVAL NOTES:

1. REMOVE & DELIVER TO THE CITY EXISTING DECKING OVER ENTIRE CHANNEL LENGTH INSIDE BUILDING. SEE PHOTO 6, DWG. NO. 50-R-5.
2. REMOVE EXISTING UV DISINFECTION SYSTEM INCLUDING IN-CHANNEL MODULES, CONDUIT, WIRING, CONTROL CABINET, AIR COMPRESSOR & ASSOCIATED PIPING/TUBING. SEE PHOTO 6, DWG. NO. 50-R-5.
3. REMOVE LEVEL CONTROL WEIR GATE & ASSOCIATED EQUIPMENT/CONDUIT. PROTECT CONCRETE NOT SHOWN FOR REMOVAL. SEE PHOTOS 1, 2 & 3, DWG. NO. 50-R-5.
4. REMOVE CONCRETE DIVIDING WALLS, SUSPENDED FLOOR SLABS & BEAMS. CUT CONCRETE IN CLEAN, WORKMANLIKE MANNER, BURN BACK ANY CUT REINFORCEMENT THAT WILL BE EXPOSED TO VIEW 1" BELOW THE SURFACE & FILL HOLES WITH NON-SHRINK GROUT. PROTECT CONCRETE NOT SHOWN FOR REMOVAL FROM DAMAGE. SEE PHOTO 7, DWG. NO. 50-R-5.
5. REMOVE BAR RACK SCREENS. SEE PHOTOS 8 & 9, DWG. NO. 50-R-5.
6. RELOCATE LIGHTING, OUTLETS, CONDUIT & WIRE AS NEEDED TO ALLOW FOR INSTALLATION OF IMPROVEMENTS. COORDINATE REMOVAL WITH ENGINEER & OWNER PRIOR TO REMOVAL/RELOCATION. REMOVE TRANSFORMER & DISTRIBUTION PANEL. SEE DWG. NO. 50-E-1 FOR ADDITIONAL REMOVALS.
7. REMOVE & DISPOSE OF UNIT HEATER & ASSOCIATED EQUIPMENT.
8. REMOVE & REPLACE GRATING AS REQ'D. TO COVER OPENING CREATED BY GATE REMOVAL. EXISTING GRATING 1 1/2" I-BAR. FIELD VERIFY. ATTACH TO EXISTING I-BEAM SUPPORTS. MATCH EDGES OF GRATING REMAINING IN PLACE WITH BANDED EDGES. SEE PHOTOS 1, 2 & 3 DWG. NO. 50-R-5.
9. REMOVE & REINSTALL GRATING & SUPPORTS AS REQ'D. FOR CONSTRUCTION ON THE EAST SIDE OF THE BUILDING.
10. CUT & REMOVE 3/8" AL. GRATING SUPPORT PLATE & TUBING MOUNTED TO UNDERSIDE OF WALL OPENING AT NEW CONC. WALLS & SLABS.
11. CUT EXISTING W5X3.7 AL. GRATING SUPPORT BEAM TO FIT NEW CHANNEL. CONNECT TO NEW WALL.
12. CUT & BAND GRATING TO FIT DIMENSIONS OF NEW CHANNEL OR PROVIDE NEW AL. GRATING AT CONTRACTORS OPTION. SEE PHOTO 4, DWG. NO. 50-R-5. EXISTING GRATING 1" AL. I-BAR.
13. REMOVE SUPPORT BEAMS & WALL CLIP ANGLES ON THE WEST SIDE OF THE BUILDING. CUT ANCHORS FLUSH WITH WALL.
14. PROTECT GRATING SUPPORT CHANNEL.
15. REMOVE GRATING SUPPORT ANGLE ATTACHED TO SUPPORT CHANNEL AT NEW CONC. WALLS & SLABS.
16. PROTECT GRATING NOT SHOWN FOR REMOVAL.
17. SAW CUT FULL DEPTH.
18. REMOVE CHANNEL FLOOR TO WIDTH OF NEW CHANNEL.

SCALE: 1/4"=1'-0"

DATE	REVISIONS	SCALE	AS NOTED
		DRAWN	JPB
		CHECKED	JPB
		APPROVED	EKL
		DATE	8/28/23
		ISSUED FOR CONSTRUCTION	



REPLACEMENT UV DISINFECTION SYSTEM PROJECT
CITY OF MUSCATINE, IOWA

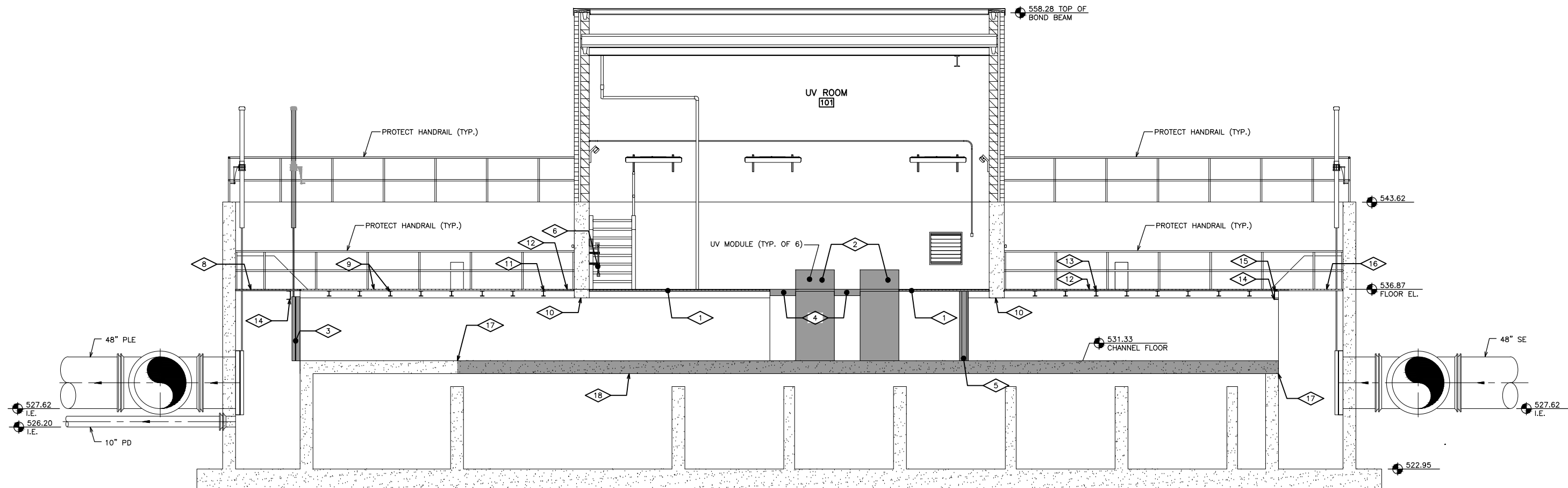
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UV DISINFECTION BUILDING
SECTION A - REMOVALS

DWG. NO.
50-R-2
6 OF 19
PROJECT 20821

X-REFS: Muscatine WRR Facility UV Replacement As-Built Plans 2023-6-06 & RUVPL000 & RUVPL100 & RUVSECT
FILE PATH: \\VK-FS\WDMSHARE\0200\0208-MUSCATINE\0208-0021-REPLACEMENT UV DISINFECTION SYSTEM\CADD\PRODDRAWINGS\50\50-R

PLOTTED: Monday, August 28, 2023 2:50:35 PM



SECTION B
SCALE: 1/4"=1'-0"

REMOVAL NOTES:

1. REMOVE & DELIVER TO THE CITY EXISTING DECKING OVER ENTIRE CHANNEL LENGTH INSIDE BUILDING. SEE PHOTO 6, DWG. NO. 50-R-5.
2. REMOVE EXISTING UV DISINFECTION SYSTEM INCLUDING IN-CHANNEL MODULES, CONDUIT, WIRING, CONTROL CABINET, AIR COMPRESSOR & ASSOCIATED PIPING/TUBING. SEE PHOTO 6, DWG. NO. 50-R-5.
3. REMOVE LEVEL CONTROL WEIR GATE & ASSOCIATED EQUIPMENT/CONDUIT. PROTECT CONCRETE NOT SHOWN FOR REMOVAL. SEE PHOTOS 1,2 & 3, DWG. NO. 50-R-5.
4. REMOVE CONCRETE DIVIDING WALLS, SUSPENDED FLOOR SLABS & BEAMS. CUT CONCRETE IN CLEAN, WORKMANLIKE MANNER, BURN BACK ANY CUT REINFORCEMENT THAT WILL BE EXPOSED TO VIEW 1" BELOW THE SURFACE & FILL HOLES WITH NON-SHRINK GROUT. PROTECT CONCRETE NOT SHOWN FOR REMOVAL FROM DAMAGE. SEE PHOTO 7, DWG. NO. 50-R-5.
5. REMOVE BAR RACK SCREENS. SEE PHOTOS 8 & 9, DWG. NO. 50-R-5.
6. REMOVE LEVEL SENSOR & ASSOCIATED EQUIPMENT & DELIVER TO THE CITY. SEE PHOTO 5, DWG. NO. 50-R-5.
7. SEE DWG. NO. 50-E-1 FOR ADDITIONAL REMOVALS..
8. REMOVE & REPLACE GRATING AS REQ'D. TO COVER OPENING CREATED BY GATE REMOVAL. EXISTING GRATING 1 1/2" I-BAR. FIELD VERIFY. ATTACH TO EXISTING I-BEAM SUPPORTS. MATCH EDGES OF GRATING REMAINING IN PLACE WITH BANDED EDGES. SEE PHOTOS 1, 2 & 3 DWG. NO. 50-R-5.
9. REMOVE & REINSTALL GRATING & SUPPORTS AS REQ'D. FOR CONSTRUCTION ON THE EAST SIDE OF THE BUILDING.
10. CUT & REMOVE 3/8" AL. GRATING SUPPORT PLATE & TUBING MOUNTED TO UNDERSIDE OF WALL OPENING AT NEW CONC. WALLS & SLABS.
11. CUT EXISTING W5X3.7 AL. GRATING SUPPORT BEAM TO FIT NEW CHANNEL. CONNECT TO NEW WALL.
12. CUT & BAND GRATING TO FIT DIMENSIONS OF NEW CHANNEL OR PROVIDE NEW AL. GRATING AT CONTRACTORS OPTION. SEE PHOTO 4, DWG. NO. 50-R-5. EXISTING GRATING 1" AL. I-BAR.
13. REMOVE SUPPORT BEAMS & WALL CLIP ANGLES ON THE WEST SIDE OF THE BUILDING. CUT ANCHORS FLUSH WITH WALL.
14. PROTECT GRATING SUPPORT CHANNEL.
15. REMOVE GRATING SUPPORT ANGLE ATTACHED TO SUPPORT CHANNEL AT NEW CONC. WALLS & SLABS.
16. PROTECT GRATING NOT SHOWN FOR REMOVAL.
17. SAW CUT FULL DEPTH.
18. REMOVE CHANNEL FLOOR TO WIDTH OF NEW CHANNEL.

SCALE: 1/4"=1'-0"
0' 4' 8'

DATE	REVISIONS	SCALE	AS NOTED
		DRAWN	JPB
		CHECKED	JPB
		APPROVED	EKL
		DATE	8/28/23
		ISSUED FOR CONSTRUCTION	



REPLACEMENT UV DISINFECTION SYSTEM PROJECT
CITY OF MUSCATINE, IOWA

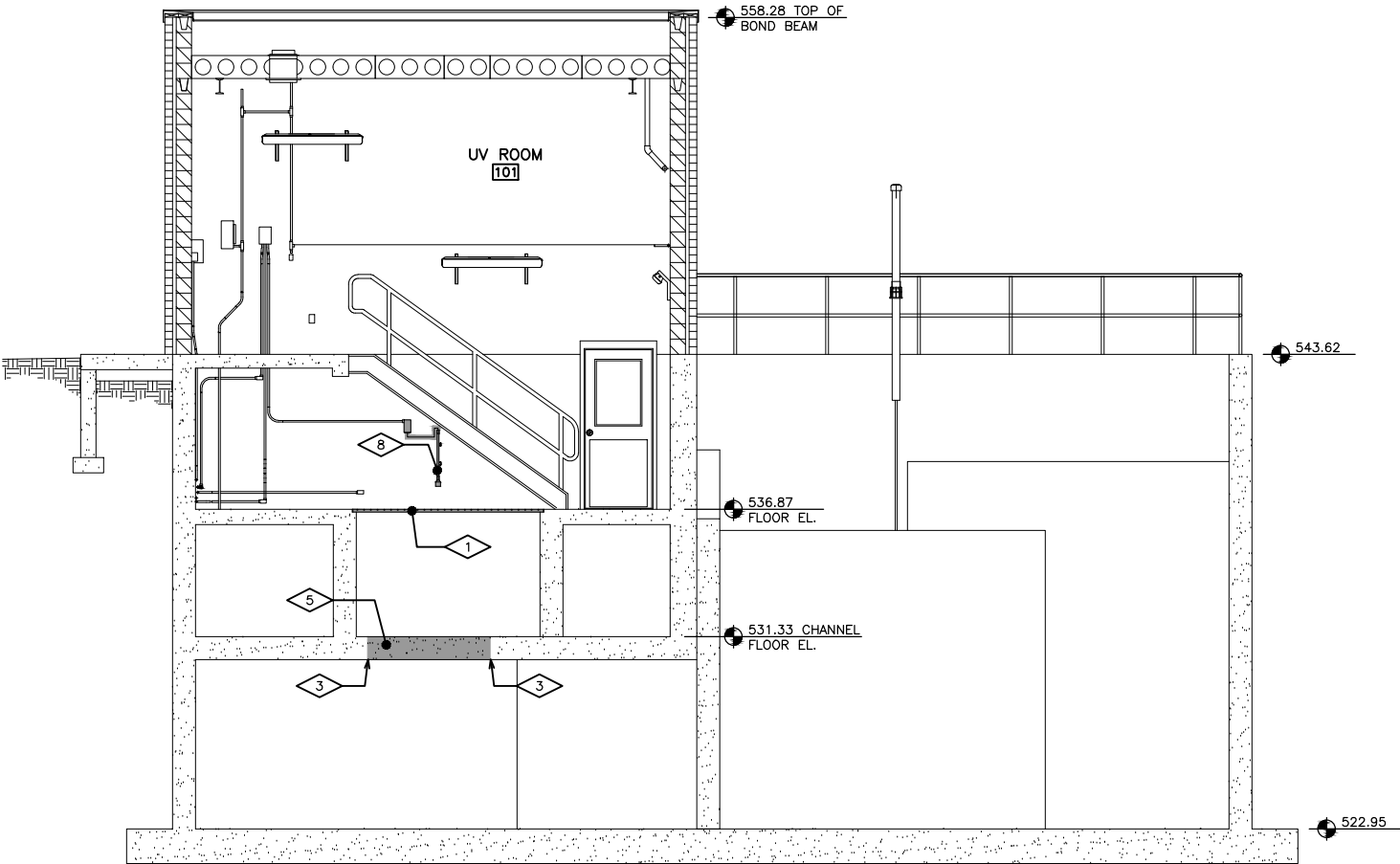
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UV DISINFECTION BUILDING
SECTION B – REMOVALS

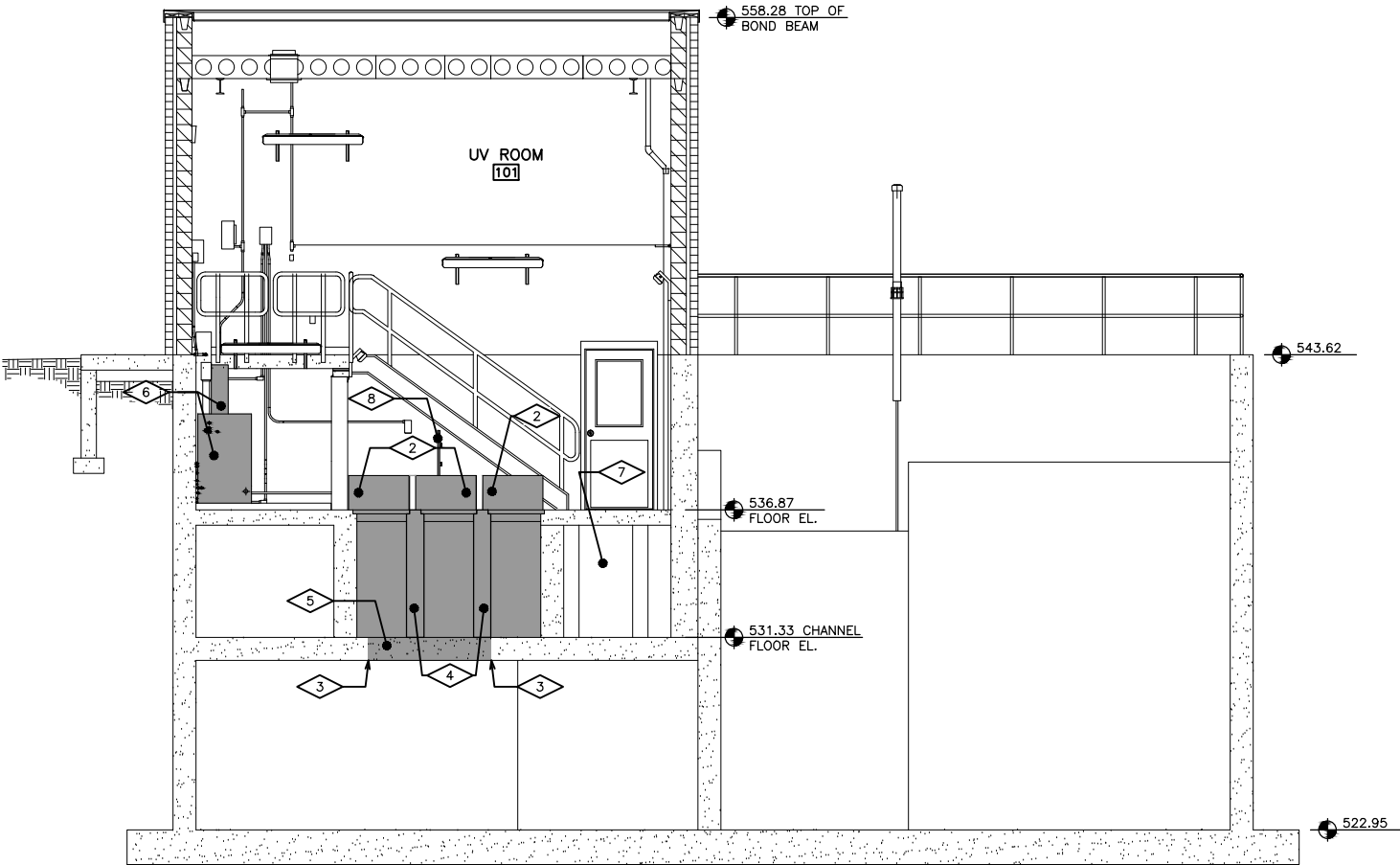
DWG. NO.
50-R-3
7 OF 19
PROJECT 20821

PLOTTED: Monday, August 28, 2023 2:50:49 PM

X-REFS: Muscatine WRR Facility UV Replacement As-Built Plans 2023-6-06 & RUVPL000 & RUVPL100 & RUVSECT
FILE PATH: \\VK-FS\WDMShare\0200\0208-MUSCATINE\0208-0021-REPLACEMENT UV DISINFECTION SYSTEM\CADD\PRODDRAWINGS\50\50-R



SECTION C
SCALE: 1/4"=1'-0"

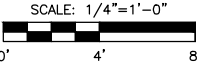


SECTION D
SCALE: 1/4"=1'-0"



REMOVAL NOTES:

1. REMOVE & DELIVER TO THE CITY EXISTING DECKING OVER ENTIRE CHANNEL LENGTH INSIDE BUILDING. SEE PHOTO 6, DWG. NO. 50-R-5.
2. REMOVE EXISTING UV DISINFECTION SYSTEM INCLUDING IN-CHANNEL MODULES, CONDUIT, WIRING, CONTROL CABINET, AIR COMPRESSOR & ASSOCIATED PIPING/TUBING. SEE PHOTO 6, DWG. NO. 50-R-5.
3. SAW CUT FULL DEPTH.
4. REMOVE CONCRETE DIVIDING WALLS, SUSPENDED FLOOR SLABS & BEAMS. CUT CONCRETE IN CLEAN, WORKMANLIKE MANNER, BURN BACK ANY CUT REINFORCEMENT 1" BELOW THE SURFACE & FILL HOLES WITH NON-SHRINK GROUT. PROTECT CONCRETE NOT SHOWN FOR REMOVAL FROM DAMAGE. SEE PHOTO 7, DWG. NO. 50-R-5.
5. REMOVE CHANNEL FLOOR TO WIDTH OF NEW CHANNEL.
6. RELOCATE LIGHTING, OUTLETS, CONDUIT & WIRE AS NEEDED TO ALLOW FOR INSTALLATION OF IMPROVEMENTS. COORDINATE REMOVAL WITH ENGINEER & OWNER PRIOR TO REMOVAL/RELOCATION. REMOVE TRANSFORMER & DISTRIBUTION PANEL. SEE DWG. NO. 50-E-1 FOR ADDITIONAL REMOVALS.
7. PROTECT STAINLESS STEEL CLEANING TANK. SEE PHOTOS 12 & 13, DWG. NO. 50-R-6.
8. REMOVE LEVEL SENSOR & ASSOCIATED EQUIPMENT & DELIVER TO THE CITY. SEE PHOTO 5, DWG. NO. 50-R-5.



DATE	REVISIONS	SCALE	AS NOTED
		DRAWN	JPB
		CHECKED	JPB
		APPROVED	EKL
		DATE	8/28/23
		ISSUED FOR	CONSTRUCTION



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UV DISINFECTION BUILDING
SECTIONS C & D- REMOVALS

DWG. NO.
50-R-4
8 OF 19
PROJECT 20821



PHOTO 1



PHOTO 2



PHOTO 3



PHOTO 4



PHOTO 5



PHOTO 6



PHOTO 7



PHOTO 8



PHOTO 9



PHOTO 10

DATE	REVISIONS	SCALE	AS NOTED
		DRAWN	JPB
		CHECKED	JPB
		APPROVED	EKL
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REMOVAL PHOTOS

DWG. NO.
50-R-5
9 OF 19
PROJECT 20821



PHOTO 11

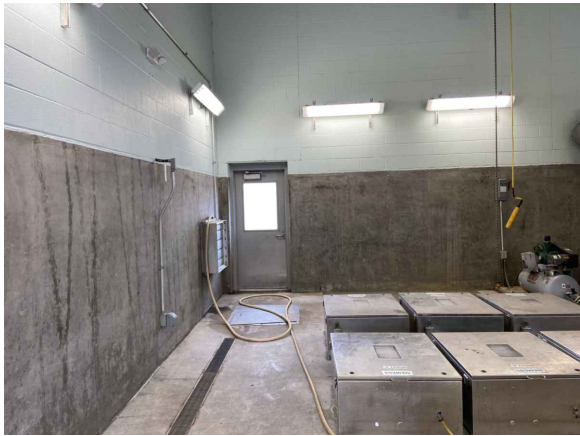


PHOTO 12



PHOTO 13



PHOTO 14



PHOTO 15

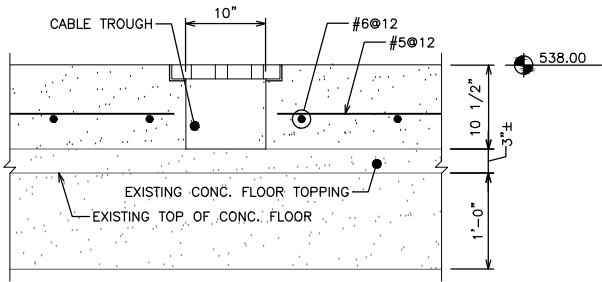
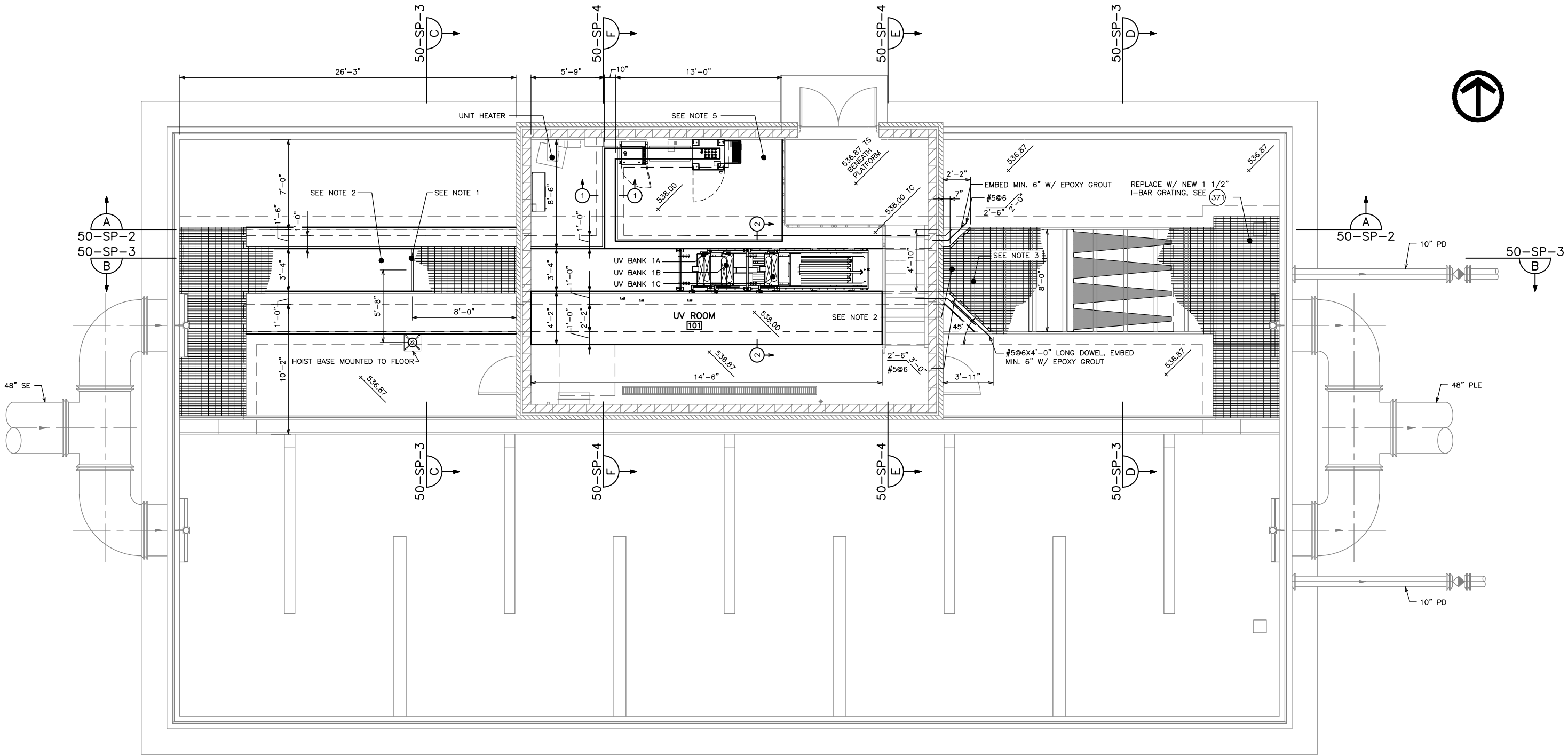
DATE	REVISIONS	SCALE	AS NOTED
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		CHECKED	JPB
		APPROVED	EKL
		DATE	8/28/23
		ISSUED FOR	CONSTRUCTION



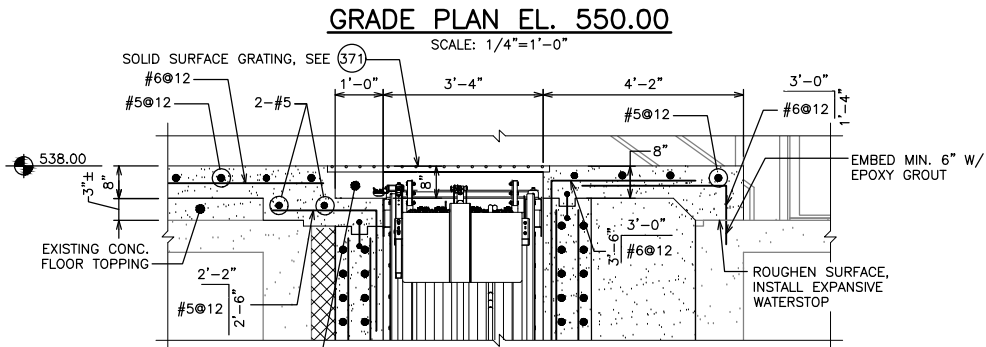
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REMOVAL PHOTOS

DWG. NO.
50-R-6
10 OF 19
PROJECT 20821



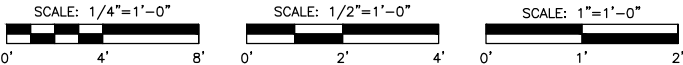
DETAIL 1
 SCALE: 1"=1'-0"



DETAIL 2
 SCALE: 1/2"=1'-0"

NOTES:

1. BAR RACK, SEE DETAIL DWG. NO. 50-SP-2.
2. REUSE EXISTING 1" I-BAR GRATING CUTTING & BANDING TO FIT NEW CHANNEL DIMENSIONS OR PROVIDE NEW GRATING AT CONTRACTORS OPTION SEE (371).
3. MODIFY EXISTING W5X3.7 AL. GRATING SUPPORT BEAM TO FIT NEW CHANNEL WIDTH. PROVIDE NEW CONNECTION TO NEW SOUTH CHANNEL WALL. SEE GRATING SUPPORT DETAIL, DWG. NO. 50-SP-2.
4. USE OPEN GRATING OVER CHANNEL OUTSIDE OF BUILDING. USE SOLID SURFACE GRATING OVER CHANNEL INSIDE OF BUILDING.
5. ROTATE WATER LINE TEE TO BE HORIZONTAL. REINSULATE PIPING. SEE PHOTO 15, DWG. NO. 50-R-6.



DATE	REVISIONS	SCALE	AS NOTED
		DRAWN	JPB
		CHECKED	JPB
		APPROVED	EKL
		DATE	8/28/23
		ISSUED FOR CONSTRUCTION	

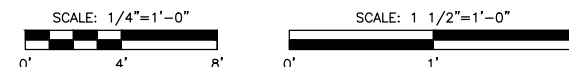
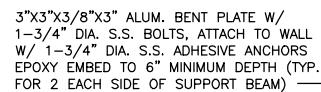
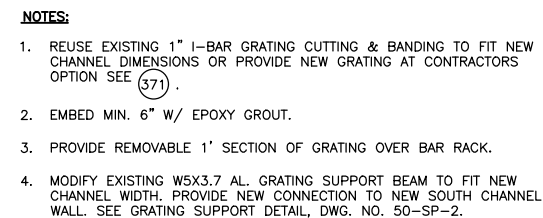


REPLACEMENT UV DISINFECTION SYSTEM PROJECT
 CITY OF MUSCATINE, IOWA

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UV DISINFECTION BUILDING
 GRADE PLAN EL. 550.00 – IMPROVEMENTS

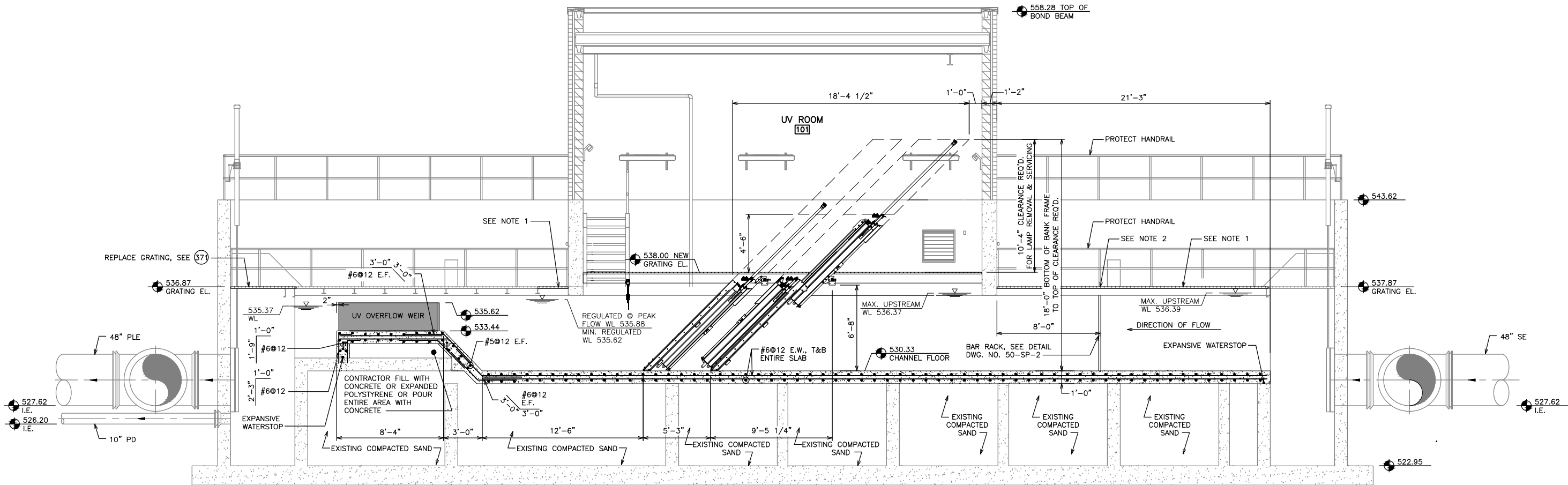
DWG. NO.
50-SP-1
11 OF 19
PROJECT 20821



**VEENSTRA
& KIMM INC.**

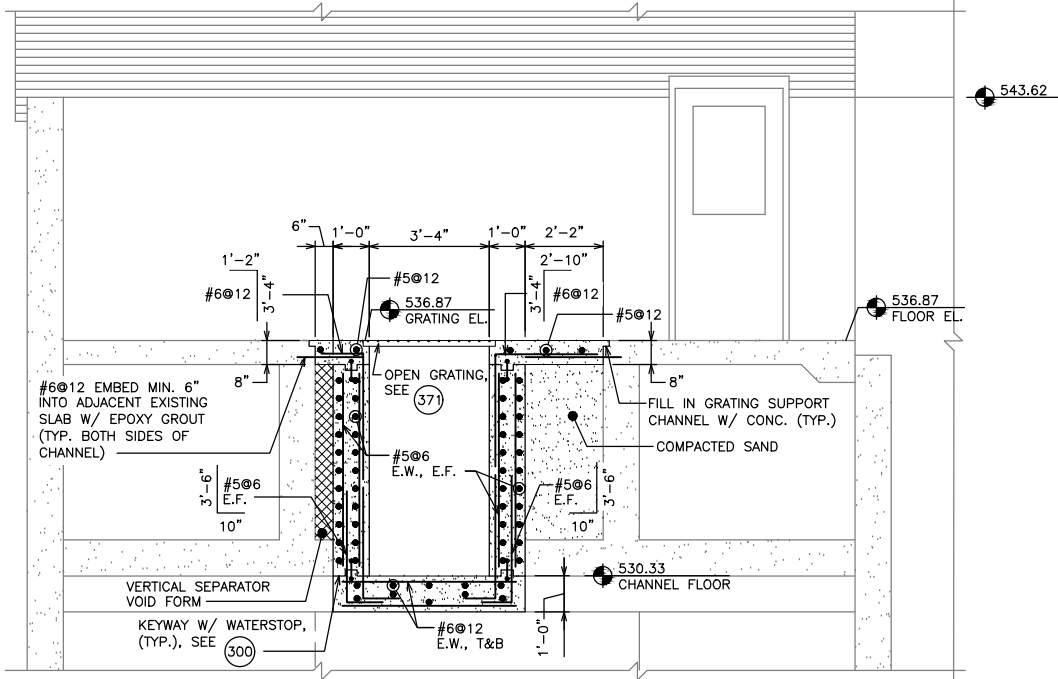
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DWG. NO.	
50-SP-2	
12	OF 19
PROJECT	20821

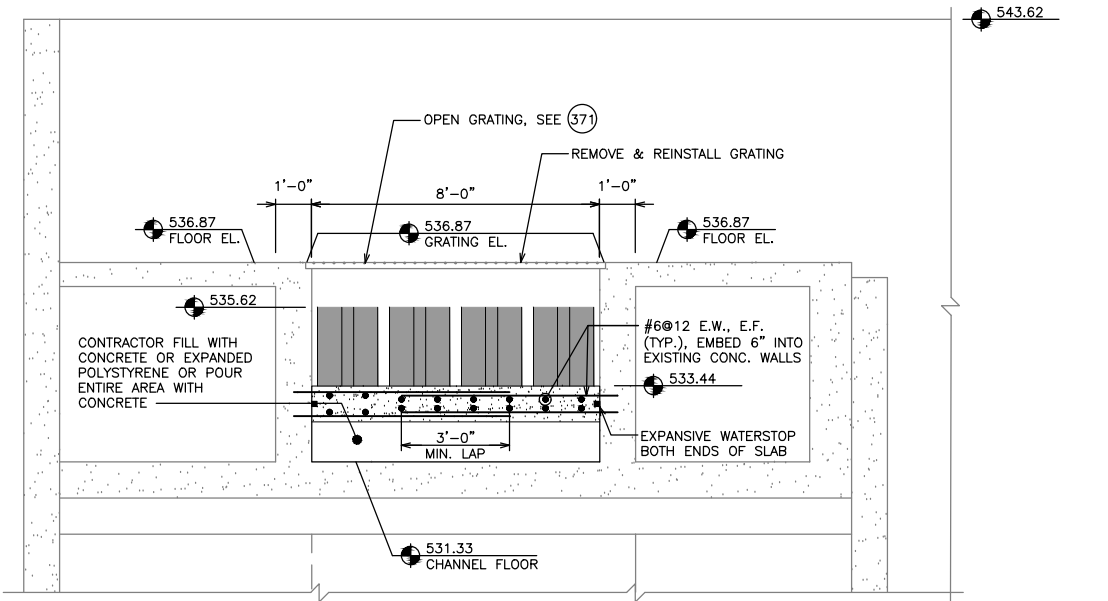


SECTION B
 SCALE: 1/4"=1'-0"

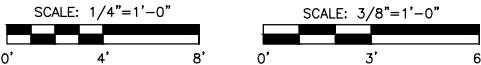
- NOTES:
1. REUSE EXISTING 1" I-BAR GRATING CUTTING & BANDING TO FIT NEW CHANNEL DIMENSIONS OR PROVIDE NEW GRATING AT CONTRACTORS OPTION SEE (371).
 2. PROVIDE REMOVABLE 1' SECTION OF GRATING OVER BAR RACK.



SECTION C
 SCALE: 3/8"=1'-0"



SECTION D
 SCALE: 3/8"=1'-0"



DATE	REVISIONS	SCALE	AS NOTED
		DRAWN	JPB
		CHECKED	JPB
		APPROVED	EKL
		DATE	8/28/23
		ISSUED FOR CONSTRUCTION	

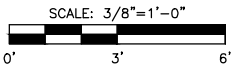
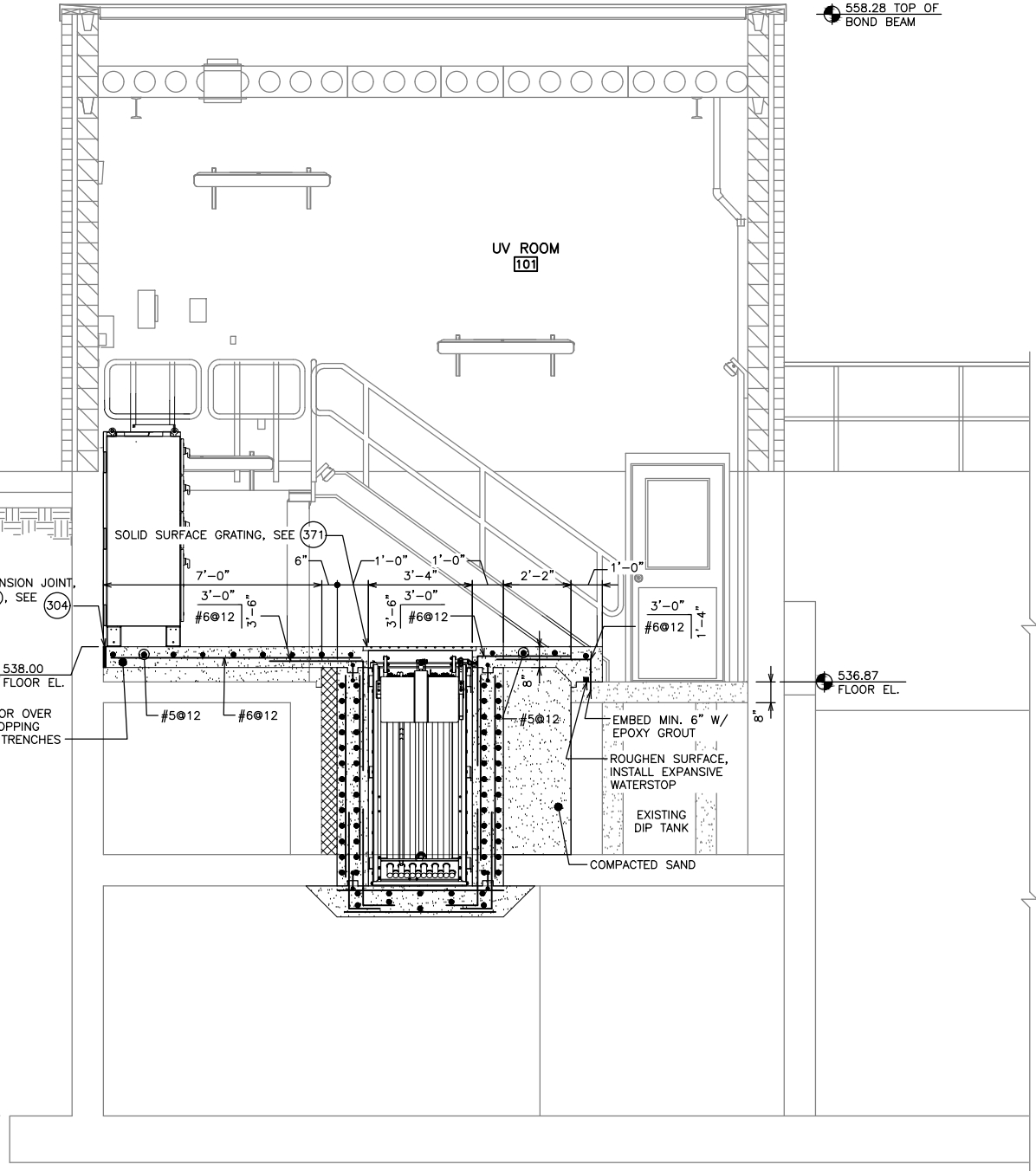
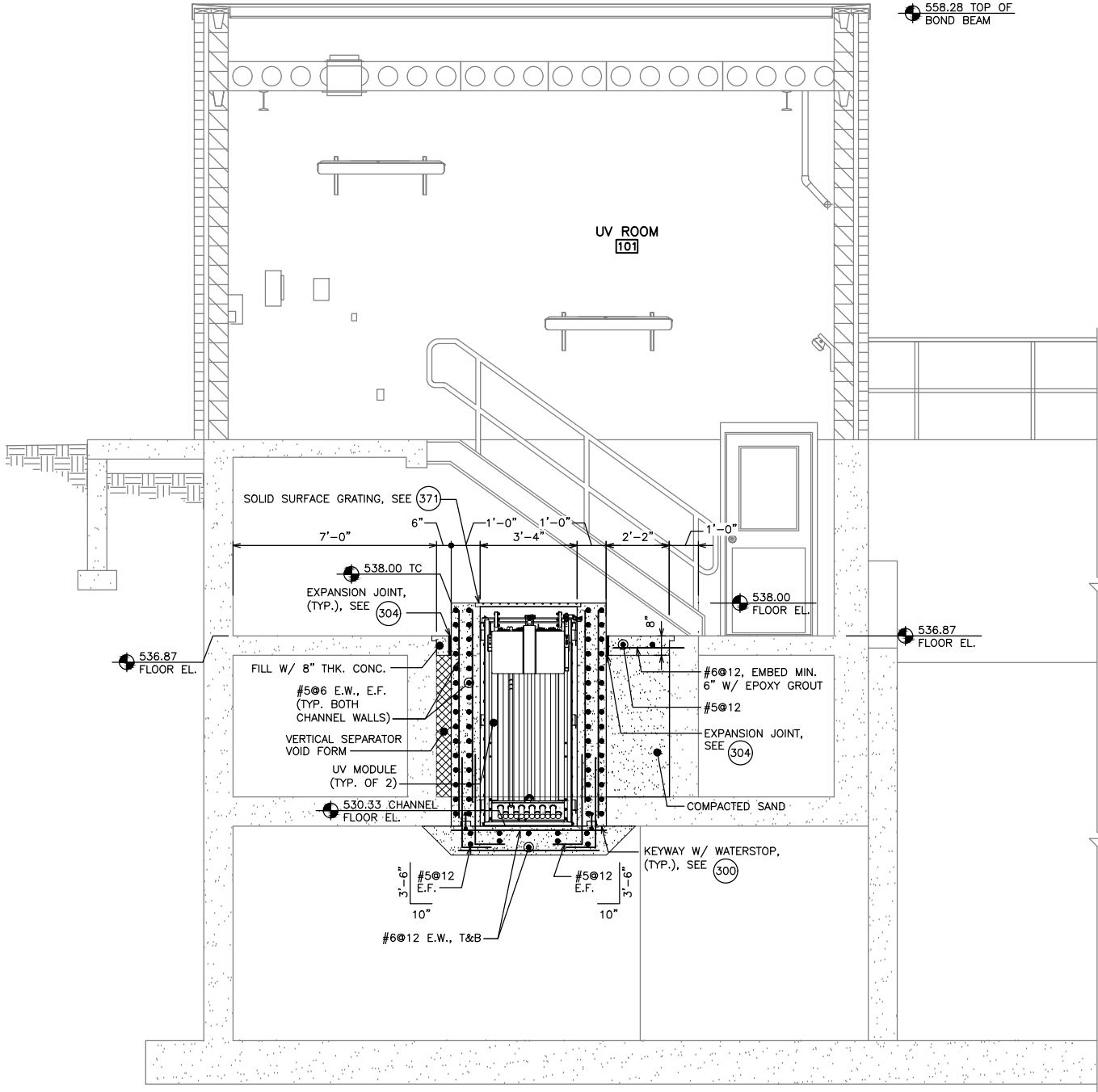


REPLACEMENT UV DISINFECTION SYSTEM PROJECT
 CITY OF MUSCATINE, IOWA

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UV DISINFECTION BUILDING
 SECTIONS – IMPROVEMENTS

DWG. NO.
50-SP-3
13 OF 19
PROJECT 20821



DATE	REVISIONS	SCALE	AS NOTED
		DRAWN	JPB
		CHECKED	JPB
		APPROVED	EKL
		DATE	8/28/23
		ISSUED FOR CONSTRUCTION	



REPLACEMENT UV DISINFECTION SYSTEM PROJECT
CITY OF MUSCATINE, IOWA

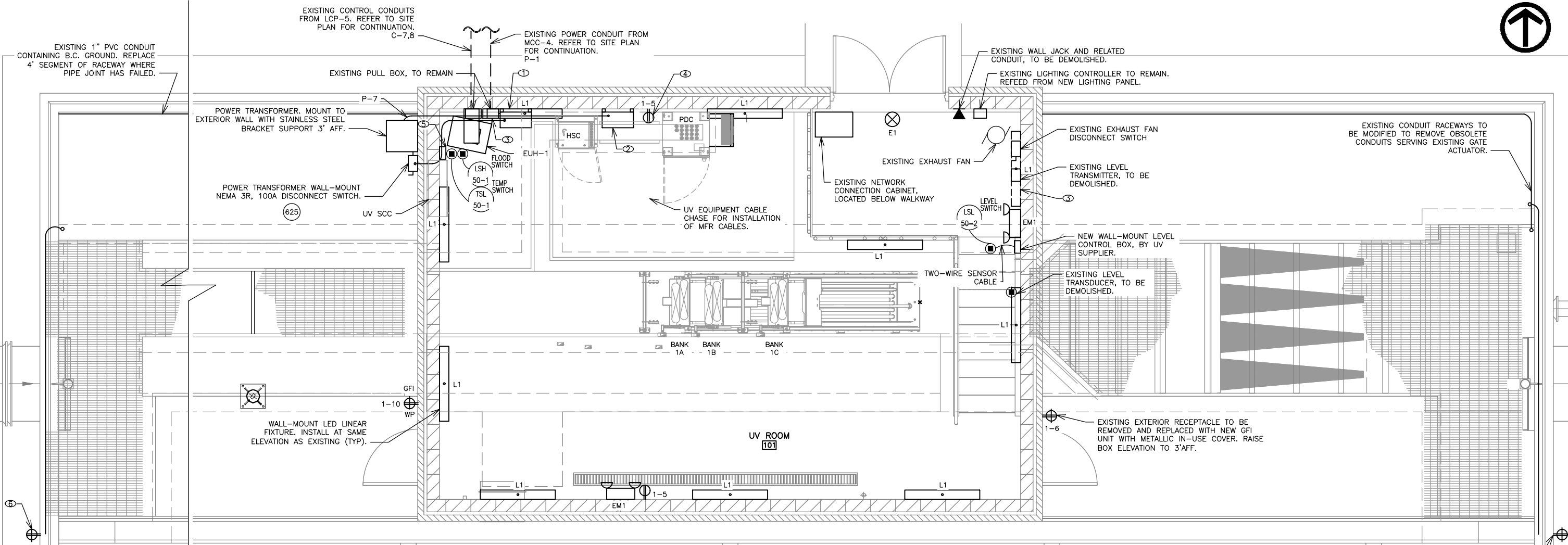
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UV DISINFECTION BUILDING
SECTIONS – IMPROVEMENTS

DWG. NO.
50-SP-4
14 OF 19
PROJECT 20821

PLOTTED: Monday, August 28, 2023 1:38:19 PM

X-REFS: Muscatine WRR Facility UV Replacement As-Built Plans 2023-6-06 & 50-SP
 FILE PATH: \\VK-FS\WDM\SHARE\0200\0208-MUSCATINE\0208-0021-REPLACEMENT UV DISINFECTION SYSTEM\CADD\PRODDRAWINGS\50\50-E



GENERAL NOTES:

- DO NOT SCALE DRAWINGS. IF DIMENSIONS ARE IN QUESTION THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING CLARIFICATION FROM THE ENGINEER PRIOR TO PROCEEDING WITH WORK.
- COORDINATE EXACT LOCATION OF EQUIPMENT AND FIXTURES WITH GENERAL CONTRACTOR, OWNER AND ENGINEER PRIOR TO ROUGH-IN. SOME ITEMS IN PLAN ARE SHOWN OUT OF PLANE FOR CLARITY, CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS.
- CONDUIT ROUTING IS DIAGRAMMATIC IN NATURE AND IS NOT INTENDED TO DICTATE EXACT ROUTING. CONTRACTOR IS TO DETERMINE BEST ROUTING BASED ON OTHER UTILITIES AND FIELD CONDITIONS.
- DRAWING DESIGNATIONS FOR LIGHTING PANEL LP-1 CIRCUITS ARE AS FOLLOWS, WITH X REPRESENTING THE CIRCUIT NUMBER: 1-X.
- CONCRETE EMBEDDED RACEWAYS SHALL BE SPACED NOT LESS THAN 3 PIPE DIAMETERS ON CENTER AND BE LOCATED IN MIDDLE 1/3 OF SLAB. CONTRACTOR SHALL SUBMIT CONDUIT ROUTING PLAN FOR ENGINEER REVIEW PRIOR TO INSTALLATION.
- REFER TO REMOVAL SHEETS FOR ELECTRICAL DEMOLITION REQUIREMENTS. WIRING DEVICES SHOWN ARE EXISTING UNLESS NOTED OTHERWISE.
- EXISTING ALUMINUM CONDUITS INTENDED FOR REUSE THAT FALL WITHIN NEW FLOOR SLAB EXTENSION SHALL BE COATED WITH ONE COAT OF BITUMINOUS PAINT FOR COMPLETE CORROSION RESISTANCE; COAT TO THICKNESS OF 8.0-12.0 DRY MILS THICKNESS.

PLAN NOTES:

- NEW WALL-MOUNT POWER PANEL, PP-1. CONTRACTOR SHALL EXTEND NEUTRAL CONDUCTOR FROM MCC-4 AND TERMINATE AT NEW ENCLOSURE.
- NEW WALL-MOUNT LIGHTING PANEL, LP-1. TRANSFER EXISTING LOADS NOTED TO NEW PANEL. REFER TO ELECTRICAL SCHEDULES FOR FURTHER REFERENCE.
- WALL-MOUNT LIGHT FIXTURE. MOUNT AT EXISTING ELECTRICAL BOX ELEVATION, CONSISTENT WITH EXISTING LIGHTING FIXTURES.
- NEW WALL-MOUNT RECEPTACLE. INSTALL AT 48" AFF. COORDINATE LOCATION WITH OWNER AND ENGINEER.
- WALL-MOUNT FLOOD SWITCH CONNECTION BOX. CONSTRUCT ACCORDING TO INSTALLATION DETAIL 605
- EXISTING HANDRAIL-MOUNTED RECEPTACLE TO BE RE-FED FROM NEW LIGHTING PANEL.

ELECTRIC UNIT HEATER SCHEDULE										
MARK	DESCRIPTION	MANUFACTURER / MODEL NO	HEATER				ELECTRICAL			
			KW	CFM	HP	RPM	AMPS (FLA)	MOPD	VOLTAGE/PH	NOTES
EUH-1	ELECTRIC UNIT HEATER	INDEECO / 234-U1IL-0130U	12.5	675	1/4	-	17	20	480V/3PH	1,2
NOTES:										
1. UNIT MOUNTED DISCONNECT SWITCH AND BUILT-IN THERMOSTAT.										
2. FURNISH W/ UNIVERSAL WALL/CEILING MOUNTING BRACKET. MOUNT UNIT WITH BOTTOM AT 7" AFF.										

ELECTRICAL PLAN

SCALE: 3/8"=1'-0"



EXISTING NORTH WALL VIEW

SCALE: NONE

DATE	REVISIONS	SCALE	AS NOTED
		DRAWN	JDL
		CHECKED	JDL
		APPROVED	EKL
		DATE	8/28/23
		ISSUED FOR CONSTRUCTION	

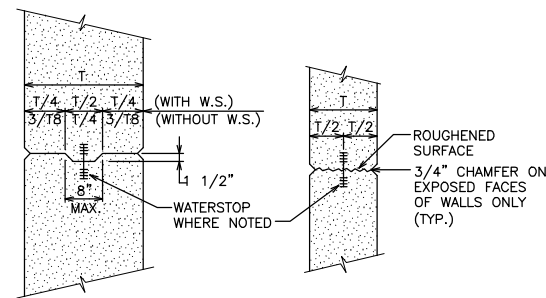


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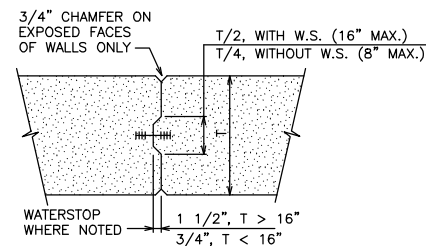
UV BUILDING
 ELECTRICAL PLAN

DWG. NO.
50-E-1
15 OF 19
PROJECT 20821

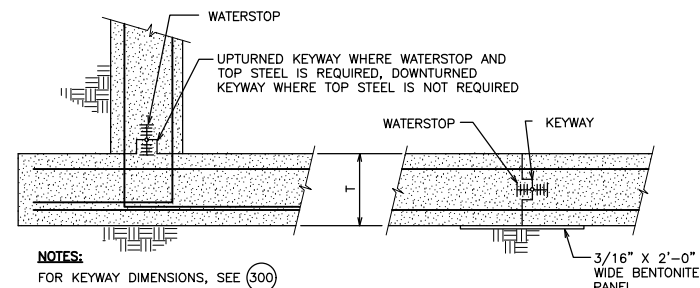


HORIZONTAL JOINT IN WALLS

NOTES:
REINFORCEMENT SHALL BE CONTINUOUS THROUGH JOINTS



VERTICAL JOINT IN WALLS

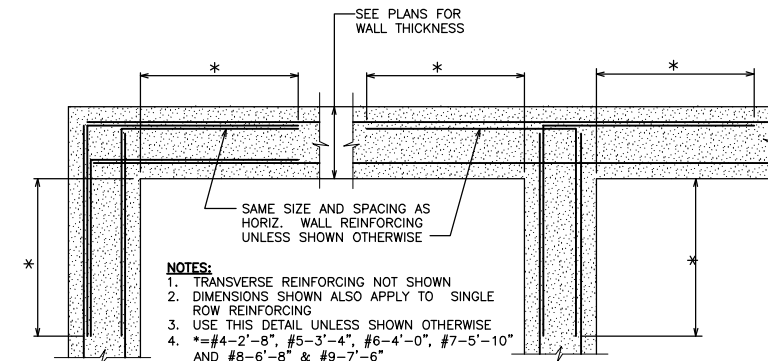


BASE OF WALL

WALL AND SLAB

SUBGRADE CONSTRUCTION JOINT DETAIL

NO SCALE

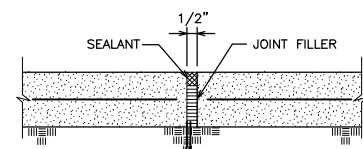


WALL CORNER

WALL INTERSECTION

REINFORCING DETAIL

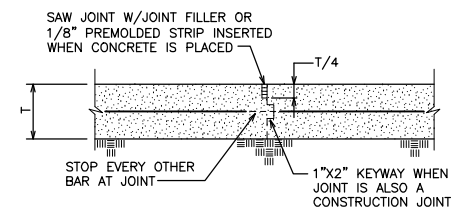
NO SCALE



NOTES:
ISOLATION AND EXPANSION JOINTS NOT ALLOWED IN BASE
SLAB OF PROCESS TANKS

ISOLATION OR EXPANSION JOINT (E.J.) IN SLAB ON GRADE

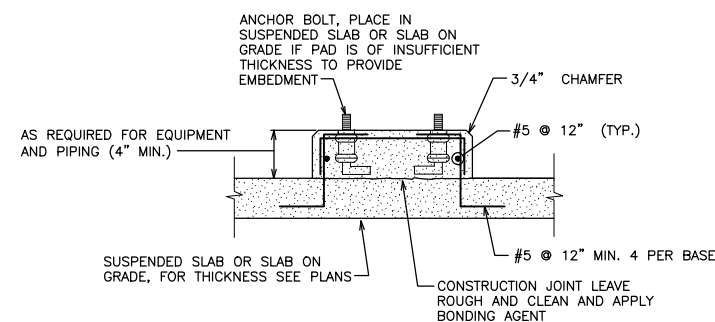
NO SCALE



NOTES:
CONTROL JOINTS NOT ALLOWED IN BASE SLAB OF
PROCESS TANKS

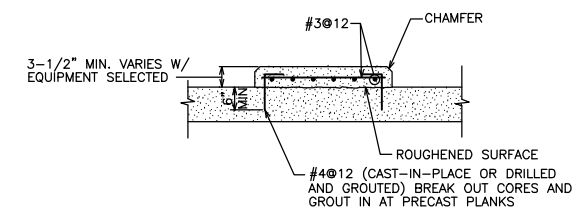
CONTROL JOINT (C.J.)
IN SLAB ON GRADE

NO SCALE



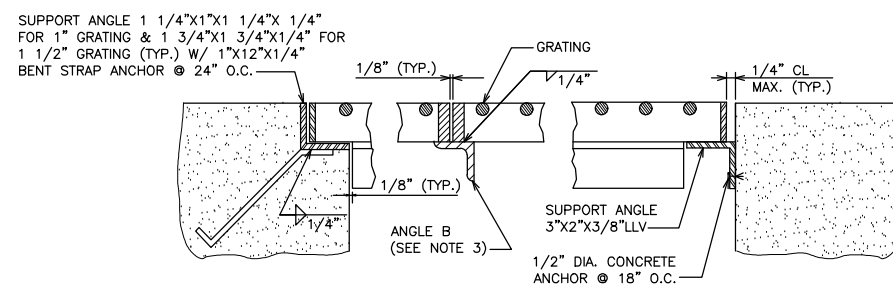
EQUIPMENT PAD DETAIL

NO SCALE



EQUIPMENT PAD DETAIL

NO SCALE



- NOTES:**
1. SUPPORT MATERIAL TO MATCH GRATING MATERIAL UNLESS OTHERWISE NOTED.
 2. PROVIDE GRATING SUPPORTS ALL AROUND OPENING UNLESS OTHERWISE NOTED.
 3. PROVIDE SUPPORT (TWO PER ALTERNATE PANEL) OR STIFFENER ANGLE B TO LIMIT DEFLECTION TO 1/4" AT 100 PSF LIVE LOAD. SPACE ANGLES SO THAT TOTAL WEIGHT OF EACH PANEL DOES NOT EXCEED 150 LBS.
 4. PROVIDE EMBEDDED SUPPORT ANGLE WHENEVER POSSIBLE.

GRATING SUPPORT DETAIL

NO SCALE

DATE	REVISIONS	SCALE	AS NOTED
		DRAWN	JPB
		CHECKED	JPB
		APPROVED	EKL
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		ISSUED FOR	CONSTRUCTION

REPLACEMENT UV DISINFECTION SYSTEM PROJECT
MUSCATINE, IOWA

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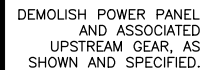
DETAILS

DWG. NO.

99-S-1

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PROJECT 20821
D 000759 of 912



FROM MCC-4
BLOWER
BUILDING

1. EXISTING MCC LINEUP SHOWN FOR REFERENCE, CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS.



**VEENSTRA
& KIMM INC.**

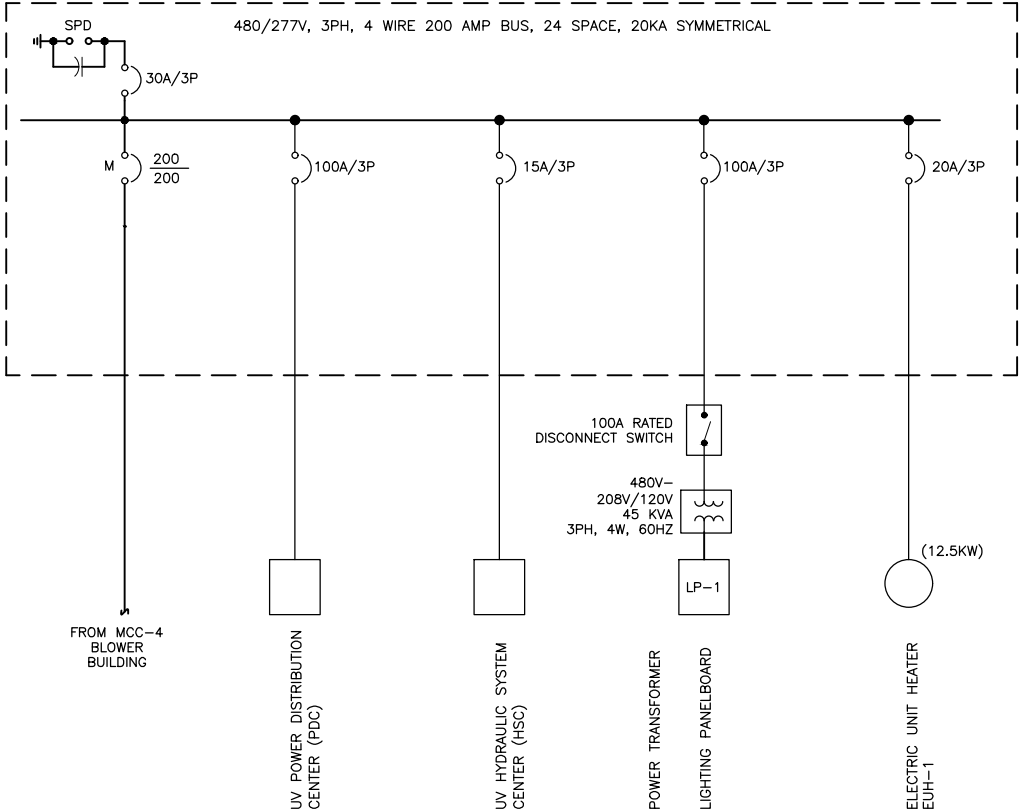
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DWG. NO.

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PROJECT	20821
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PP-1 – UV DISINFECTION BUILDING



NEW ELECTRICAL ONE-LINE DIAGRAM

SCALE: NONE

LP-1 - UV BUILDING

120/208 VOLTS, 3 PHASE, 4 WIRE
150 AMP MAIN

FEED:- 125A
MOUNTING SURFACE

LOAD	CKT	BREAKER	L1	L2	L3	BREAKER	CKT	LOAD
EXTERIOR LIGHTS	1	2P-20A				1P-20A	2	NETWORK CONNECTION CABINET
	3			15.0		1P-20A	4	UV CONTROL PANEL (SCC)
INTERIOR REC.	5	1P-20A				1P-20A	6	EXTERIOR REC.
INTERIOR LIGHTS	7	1P-20A	8.0	10.0		1P-20A	8	EXHAUST FAN / DAMPER
UV LEVEL CONTROL BOX	9	1P-20A		2.0	10.0	1P-20A	10	EXTERIOR HOIST
EMERGENCY/EXIT LIGHTS	11	1P-15A			2.0	1P-20A	12	SPARE
SPACE	13					1P-20A	14	SPARE
SPACE	15						16	SPACE
SPACE	17						18	SPACE
SPACE	19						20	SPACE
SPACE	21						22	SPACE
SPACE	23						24	SPACE
	25						26	
BRIDGE CRANE	27	3P-30A				3P-30A	28	SPD
	29						30	

RLA	8.0		2.0		2.0	
RLA		10.0		25.0		0.0
HIGH LEG MCA		22.5		33.8		2.5
HIGH LEG RLA		18.0		27.0		2.0
RLA	27.0	MCA	33.8			

*TRANSFER LOADS FROM EXISTING
LIGHTING PANELBOARD

POWER WIRING SCHEDULE

CONDUIT	CONDUCTORS	FROM	TO	NOTES
NO	SIZE	POWER		
P-1	2"	(4) 3/0 W/ 1#6 G.	MCC-4	PP-1
P-2	1"	4#6 & 1# 8 G.	PP-1	UV PDC
P-3		MFR CABLE	UV PDC	UV BANK
P-4	1"	3#12 & 1#12 G.	PP-1	UV HSC
P-5	3/4"	3#12 & 1#12 G.	PP-1	EUH-1
P-6	1-1/4"	3#4 & 1#8 G.	PP-1	DS / TRANSFORMER
P-7	2"	4#1/0 & 1#6 G.	TRANSFORMER	LP-1
P-8	3/4"	2#12 & 1#12 G.	LP-1	UV SCC
P-9	3/4"	2#12 & 1#12 G.	LP-1	UV LEVEL CONTROL BOX
P-10	3/4"	2#12 & 1#12 G.	LP-1	INTERIOR REC.
P-11	3/4"	2#12 & 1#12 G.	LP-1	INTERIOR LIGHTS
P-12	3/4"	2#12 & 1#12 G.	LP-1	NETWORK CONNECTION CABINET
P-13	3/4"	2#12 & 1#12 G.	LP-1	EXTERIOR REC.
P-14	3/4"	2#12 & 1#12 G.	LP-1	EXTERIOR LIGHTS
P-15	3/4"	3#10 & 1#10 G.	LP-1	BRIDGE CRANE
P-16	3/4"	2#12 & 1#12 G.	LP-1	EXHAUST FAN/DAMPER
P-17	3/4"	2#12 & 1#12 G.	LP-1	EMERGENCY/EXIT LIGHTS

1. ALL "P-" CONDUITS MAY NOT BE SHOWN ON DRAWINGS; ROUTE CONDUITS AND WIRING AS PER THIS SCHEDULE.
2. CONTRACTOR MAY UTILIZE EXISTING CONDUIT RACEWAY TO INSTALL SCHEDULED CONDUCTORS, WHERE POSSIBLE.
3. UV DISINFECTION CABLES SHALL BE ROUTED THROUGH DESIGNATED CABLE CHASE. INSTALL WITH #8AWG COPPER GROUNDING CONDUCTOR.

CONTROL WIRING SCHEDULE

CONDUIT	CONDUCTORS	FROM	TO	NOTES
NO	SIZE	CONTROL		
C-1	3/4"	ETHERNET CABLE	UV SCC	NETWORK CONNECTION CABINET
C-2	3/4"	SERIAL CABLE	UV SCC	UV HSC
C-3	3/4"	SERIAL CABLE	UV HSC	UV PDC
C-4		UV INTENSITY-MFR CABLE	UV PDC	UV BANKS
C-5		BANK IN PLACE-MFR CABLE	UV PDC	UV BANKS
C-6	3/4"	2#14	UV PDC	UV LEVEL CONTROL BOX
C-7	3/4"	2#14	LCP-5	TSL 50-1
C-8	3/4"	2#14	LCP-5	LSH 50-1

1. ALL "C-" CONDUITS MAY NOT BE SHOWN ON DRAWINGS; ROUTE CONDUITS AND WIRING AS PER THIS SCHEDULE.
2. UV DISINFECTION CABLES SHALL BE ROUTED THROUGH DESIGNATED CABLE CHASE. INSTALL WITH #8AWG COPPER GROUNDING CONDUCTOR.
3. UTILIZE SPARE CONTROL WIRING COILED WITHIN EXISTING WALL-MOUNT PULL BOX. LOCATE DEVICE TO ACCOMMODATE EX. WIRE LENGTH.

LIGHT FIXTURE SCHEDULE

PLAN ID	BASIS OF DESIGN	LAMP DATA	VOLTAGE	NOTES
L1	HOLOPHANE EMSL48 6000LM LPPFL WD MVOLT GZ10 40K OR EQUAL	48", 6,000 LUMEN, 37 WATT LED, LOW PROFILE POLYCARBONATE FROSTED LENS, DIMMABLE	120	1, 2
E1	HOLOPHANE DTL W 1 R EL SD OR EQUAL	LED EXIT SIGN, SINGLE FACE, RED	120	1, 2
EM1	HOLOPHANE DSL3 SP1100L UVOLT LTP SDRT OR EQUAL	LED EMERGENCY LIGHT, BATTERY BACKUP	120	1, 2

- NOTES:
1. WALL-MOUNT LIGHTING FIXTURES WHERE SHOWN IN THE PLANS.
2. FURNISH WITH MOUNTING HARDWARE

DATE	REVISIONS	SCALE	AS NOTED
		DRAWN	JDL
		CHECKED	JDL
		APPROVED	EKL
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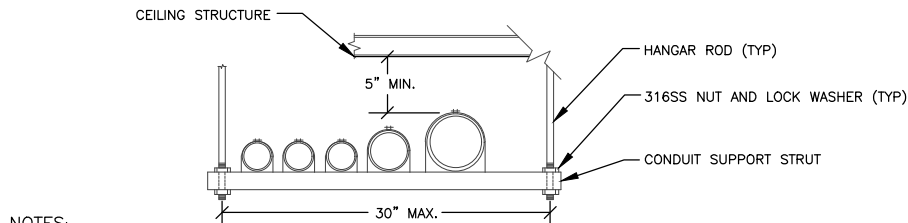


REPLACEMENT UV DISINFECTION SYSTEM PROJECT
CITY OF MUSCATINE, IOWA

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ONE-LINE DIAGRAM AND SCHEDULES

DWG. NO.
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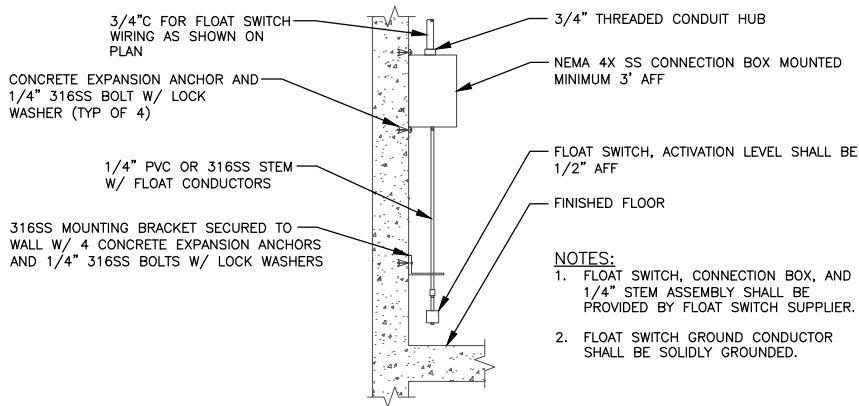


NOTES:

1. LENGTH OF CONDUIT SUPPORT STRUT VARIES WITH NUMBER OF CONDUITS TO BE SUPPORTED AND SPACING BETWEEN CONDUITS.
2. SIZE CONDUIT SUPPORT STRUT TO SUPPORT LOAD WITHOUT DEFLECTION. MINIMUM SIZE OF CONDUIT SUPPORT STRUT SHALL BE 1-1/2"x1-1/2".
3. HANGAR ROD SHALL BE CONSTRUCTED OF STAINLESS STEEL, SIZE ROD TO SUPPORT LOAD, MINIMUM SIZE SHALL BE 3/8".
4. MANUFACTURER'S WRITTEN RECOMMENDATIONS SHALL DICTATE ALLOWABLE SPAN, NUMBER/SIZE OF HANGER RODS, AND ALLOWABLE LOADING.
5. USE CONCRETE INSERTS FOR SUPPORT OF HANGAR RODS FROM CONCRETE CEILING, USE SWIVEL BEAM CLAMPS FOR STEEL BEAM APPLICATIONS.

CONDUIT RACKING SYSTEM (611)

NO SCALE

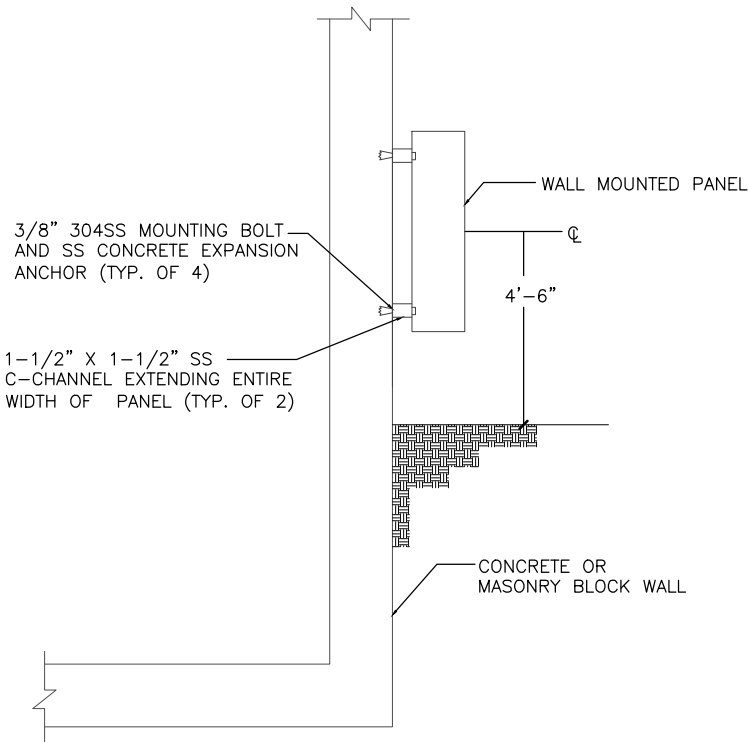


NOTES:

1. FLOAT SWITCH, CONNECTION BOX, AND 1/4" STEM ASSEMBLY SHALL BE PROVIDED BY FLOAT SWITCH SUPPLIER.
2. FLOAT SWITCH GROUND CONDUCTOR SHALL BE SOLIDLY GROUNDED.

FLOOD SWITCH INSTALLATION (605)

NO SCALE



WALL-MOUNTED ELECTRICAL PANEL INSTALLATION (625)

NO SCALE

DATE	REVISIONS	SCALE	AS NOTED
		DRAWN	JDL
		CHECKED	JDL
		APPROVED	EKL
		DATE	8/28/23
		ISSUED FOR	REVIEW



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ELECTRICAL DETAILS

DWG. NO.
99-E-3
19 OF 19
PROJECT 20821



City of Muscatine

ITEM NUMBER 2023-0435

AGENDA ITEM SUMMARY

DATE: 9/7/2023

STAFF

Melissa Rinnert, Housing Programs Supervisor
Jodi Royal-Goodwin, Community Development Director

SUBJECT

Request to Approve an Amendment to the *Section 8 Housing Choice Voucher Administrative Plan*. - Public Hearing C

EXECUTIVE SUMMARY

Presented for Council consideration is a request to approve changes to the Muscatine Municipal Housing Agency's Administrative Plan as required by the U.S. Department of Housing and Urban Development to utilize stabilization vouchers.

STAFF RECOMMENDATION

Staff recommends Council, acting as the Muscatine Municipal Housing Agency (MMHA) Board of Commissioners, approve the changes to the MMHA Administrative Plan.

BACKGROUND/DISCUSSION

MMHA received funding from the US Department of Housing and Urban Development in partnership with the Continuum of Care program for five *Stability Vouchers*. Under federal regulations, in order to be eligible for a stability voucher, a household must meet one of four eligibility criteria: 1) individuals and families who are currently experiencing homelessness; 2) individuals and families at risk of homelessness; 3) individuals and families fleeing or attempting to flee domestic violence, dating violence, stalking, sexual assault; or 4) veterans and families that include a veteran family that meet one of the preceding criteria.

Implementation of the stability vouchers requires amendments to the administrative policies to better serve the targeted population. Amendments include adjustments to processes for waiting lists, income verification, and targeting, leasing processes and payments, and background checks. Amendments to the Administrative Plan require City Council, acting as the Board of Commissioners of the MMHA, approval following a 45-day public comment period and a public hearing. The public hearing was held earlier in the meeting.

CITY FINANCIAL IMPACT

There is no financial impact to the general fund of this action.

ATTACHMENTS

1. MMHA Stability Voucher admin policy

Changes made to the Muscatine Municipal Housing Agency's Administrative Plan to facilitate use of five Stability Vouchers to the Housing Choice Voucher Program

19-VI. STABILITY VOUCHERS

19-VI.A. Program Overview – Stability Vouchers

Stability Vouchers (SVs) may assist households who are homeless, as defined in section 103(a) of the McKinney-Vento Homeless Assistance Act (42 U.S.C. 11302(a)), at-risk of homelessness, those fleeing or attempting to flee domestic violence dating violence, sexual assault, stalking, or human trafficking, and veterans and families that include a veteran family member that meet one of the proceeding criteria.

Eligibility

In order to be eligible for a Stability Voucher, a household must meet one of four eligibility criteria:

1. Individuals and families who are currently experiencing homelessness;
2. Individuals and families at risk of homelessness;
3. Individuals and families fleeing or attempting to flee domestic violence, dating violence, stalking, sexual assault; and
4. Veterans and families that include a veteran family that meet one of the preceding criteria (1-3).

In general, the verification that the family meets one of these four eligibility categories is conducted by the Continuum of Care (CoC), or another partnering agency that makes direct referrals to the PHA. The CoC, or other direct referral partner must provide supporting documentation to the PHA of the referring agency's verification that the family meets one of the four eligible categories for SV assistance.

Definitions

The following definitions always apply with respect to SV eligibility.

At Risk of Homelessness means the population defined by 24 CFR 578.3.

Continuum of Care (CoC) has the meaning provided in 24 CFR 578.3.

Centralized or Coordinated Entry (CE) Assessment System has the meaning provided in 24 CFR 578.3. 24 CFR 578.7(a)(8) details the responsibilities of the CoC to establish and operate this required system. These systems help communities in assessing the needs, vulnerability level, and program eligibility of people experiencing or imminently at risk of experiencing homelessness and linking them to available housing programs in the community using standardized access, assessment, prioritization, and referral processes. CE represents one of the opportunities for PHAs to collaborate with their local CoC.

Dating violence means violence committed by a person:

- a. Who is or has been in a social relationship of a romantic or intimate nature with the survivor; and
- b. Where the existence of such a relationship shall be determined based on a consideration of the following factors:
 - 1) the length of the relationship;
 - 2) the type of relationship; and
 - 3) the frequency of interaction between the persons involved in the relationship.

Domestic violence means the use or attempted use of physical abuse or sexual abuse, or a pattern of any other coercive behavior committed, enabled, or solicited to gain or maintain power and control over a survivor, including verbal, psychological, economic, or technological abuse that may or may not constitute criminal behavior, by a person who:

- a. is a current or former spouse or intimate partner of the survivor, or other person similarly situated to a spouse of the survivor;
- b. is cohabitating with or has cohabitated with the victim as a spouse or intimate partner;
- c. shares a child in common with the survivor;
- d. is an adult family member of, or paid or nonpaid caregiver in an ongoing relationship of trust with, a survivor aged 50 or older or an adult survivor with disabilities; or
- e. commits acts against a youth or adult survivor who is protected from those acts under the family or domestic violence laws of the jurisdiction.

Economic Abuse is the term ‘economic abuse’, in the context of domestic violence, dating violence, and abuse in later life, means behavior that is coercive, deceptive, or unreasonably controls or restrains a person’s ability to acquire, use, or maintain economic resources to which they are entitled, including using coercion, fraud, or manipulation to—

- a. restrict a person’s access to money, assets, credit, or financial information;
- b. unfairly use a person’s personal economic resources, including money, assets, and credit, for one’s own advantage; or
- c. exert undue influence over a person’s financial and economic behavior or decisions, including forcing default on joint or other financial obligations, exploiting powers of attorney, guardianship, or conservatorship, or failing or neglecting to act in the best interests of a person to whom one has a fiduciary duty.

Fleeing or attempting to flee domestic violence, dating violence, sexual assault, or stalking means any individual or family who is –

- a. experiencing trauma or a lack of safety related to, or fleeing or attempting to flee, domestic violence, dating violence, sexual assault, stalking, or other dangerous, traumatic, or life-threatening conditions related to the violence against the individual or a family member in the individual’s or family’s current housing situation, including where the health and safety of children are jeopardized;
- b. has no other safe residence; and
- c. lacks the resources to obtain other safe permanent housing.

Homeless means the population defined by 24 CFR 578.3.

HUD will consider an individual or family as homeless under paragraph 4 of the homeless definition under the following circumstances where an individual or family: (1) is experiencing trauma or a lack of safety related to, or fleeing or attempting to flee, domestic violence, dating violence, sexual assault, stalking, or other dangerous, traumatic, or life-threatening conditions related to the violence against the individual or a family member in the individual's or family's current housing situation, including where the health and safety of children are jeopardized; (2) has no other safe residence; and (3) lacks the resources to obtain other safe permanent housing.

Sexual assault means any nonconsensual sexual act proscribed by Federal, Tribal, or State law, including when the survivor lacks capacity to consent.

Stalking means engaging in a course of conduct directed at a specific person that would cause a reasonable person to:

- 1) Fear for the person's individual safety or the safety of others; or
- 2) Suffer substantial emotional distress.

Technological Abuse means an act or pattern of behavior that occurs within domestic violence, sexual assault, dating violence or stalking and is intended to harm, threaten, intimidate, control, stalk, harass, impersonate, exploit, extort, or monitor, except as otherwise permitted by law, another person, that occurs using any form of technology, including but not limited to: internet enabled devices, online spaces and platforms, computers, mobile devices, cameras and imaging programs, apps, location tracking devices, or communication technologies, or any other emerging technologies.

Veteran means a person who served in the active military, naval, or air service, and who was discharged or released therefrom under conditions other than dishonorable. (38 U.S.C. § 101(2); 38 C.F.R. § 3.1(d).

Regulations and Requirements

Unless expressly waived, all statutory and regulatory requirements and HUD directives regarding the HCV program are applicable to SVs, including the use of all HUD required contracts and other forms. The administrative policies adopted in the PHA's written administrative plan apply to SVs vouchers unless such local policy conflicts with the requirements of this notice, or the waivers and alternative requirements outlined.

Admissions process – Direct referrals from the CoC and other partnering organizations

Muscatine Municipal Housing Agency (MMHA) must accept referrals for SVs directly from the Coordinated Entry (CE) process. This will help ensure families are able to get assistance quickly and eliminate the administrative burden on PHAs regarding the determination as to whether the family meets the definition of a qualifying individual or family for SV assistance. Direct referrals for SVs are not added to the PHA's regular HCV waiting list.

In general, families are issued SVs as the result of either:

- (1) the direct referral process from the CoC CE process or other partnering organizations, or

- (2) a situation where the PHA makes an SV available in order to facilitate an emergency transfer for victims of domestic violence, dating violence, sexual assault, stalking, and human trafficking. PHAs are strongly encouraged to utilize SVs as a resource to facilitate emergency transfers for a survivor of domestic violence, dating violence, sexual assault, stalking, or human trafficking.

MMHA must also take direct referrals from outside the CoC CE process if:

- (1) the CE process does not have a sufficient number of eligible families to refer to fully lease the PHA's allocation of SVs, or
- (2) the CE process does not identify a sufficient number of families that may be eligible for SV assistance because they are fleeing, attempting to flee, domestic violence, dating violence, sexual assault, stalking, or human trafficking.

For certifying eligibility for individuals and families fleeing or attempting to flee domestic violence, dating violence, sexual assault, stalking, or human trafficking, CoCs may accept the survivors' self-definition of "fleeing or attempting to flee" for purposes of meeting eligibility for the SV as a person fleeing or attempting to flee domestic violence, dating violence, sexual assault, stalking, or human trafficking. Therefore, if an individual self-identifies as fleeing or attempting to flee domestic violence, that individual would be eligible for a SV. Additionally, the survivor of domestic violence, dating violence, sexual assault, stalking, or human trafficking can be a minor child.

Restrictions on PHA denial of assistance to an SV applicant

The HCV program regulations at 24 CFR § 982.552 and § 982.553 cover the grounds under which a PHA may deny an applicant admission to the program and in certain cases is required to do so. These grounds include the following:

- If any member of the family has been evicted from federally assisted housing in the last five years
- If a PHA has ever terminated assistance under the program for any member of the family
- If any member of the family has committed fraud, bribery, or any other corrupt or criminal act in connection with any Federal housing program
- If the family currently owes rent or other amounts to the PHA or to another PHA in connection with Section 8 or public housing assistance under the 1937 Act
- If the family has not reimbursed any PHA for amounts paid to an owner under a HAP contract for rent, damages to the unit, or other amounts owed by the family under the lease.
- If the family breached an agreement with the PHA to pay amounts owed to a PHA, or amounts paid to an owner by a PHA.
- If the family engaged in or threatened abusive or violent behavior toward PHA personnel.
- If the family has been engaged in criminal activity or alcohol abuse as described in CFR § 982.553.

HUD is waiving 24 CFR § 982.552 and § 982.553 in part and establishing an alternative requirement with respect to mandatory and permissive prohibitions of admissions for SV applicants. The SV alternative requirement is as follows:

Mandatory Prohibitions

(1) The PHA must apply the standards it established under 24 CFR § 982.553(a)(1)(ii)(C) that prohibit admission if any household member has ever been convicted of drug-related criminal activity for manufacture or production of methamphetamine on the premises of federally assisted housing to SV applicants.

(2) The PHA must apply the standards it established under 24 CFR § 982.553(a)(2)(i) that prohibit admission to the program if any member of the household is subject to a lifetime registration requirement under a State sex offender registration program to SV applicants.

Permissive Prohibitions

The PHA may prohibit admission of a family for the grounds stated below. The permissive prohibitions are:

1) If the PHA determines that any household member is currently engaged in, or has engaged in within the previous 12 months:

a) Violent criminal activity.

b) Other criminal activity which may threaten the health, safety, or right to peaceful enjoyment of the premises by other residents or persons residing in the immediate vicinity.

2) If any member of the family has committed fraud, bribery, or any other corrupt or criminal act in connection with any Federal housing program within the previous 12 months.

3) If the family engaged in or threatened abusive or violent behavior toward PHA personnel within the previous 12 months.

PHA Policy

The PHA will deny for the above permissive prohibitions, unless it can be attributed to conditions associated with experiencing homelessness or the domestic violence, dating violence, sexual assault, stalking, or human trafficking the person is fleeing.

Unlike regular HCV admissions, PHAs may not deny an SV applicant admission regardless of whether:

- Any member of the family has been evicted from federally assisted housing or the PHA has ever terminated assistance under the program for any member of the family.
- The family currently owes rent or other amounts to the PHA or to another PHA in connection with Section 8 or public housing assistance under the 1937 Act.
- The family has not reimbursed any PHA for amounts paid to an owner under a HAP
- contract for rent, damages to the unit, or other amounts owed by the family under the lease.
- The family breached an agreement with the PHA to pay amounts owed to a PHA, or amounts paid to an owner by a PHA.
- The family would otherwise be prohibited admission under alcohol abuse standards established by the PHA in accordance with 24 CFR §982.553(a)(3).

- The PHA determines that any household member is currently engaged in or has engaged in during a reasonable time before the admission, drug-related criminal activity.

Income verification at admission

MMHA will determine whether an applicant family's income exceeds the applicable income limit. Third-party generated documents must be dated within 60 days of the PHA's request. HUD has waived the third-party income verification requirements for SV applicants and the PHA can allow self-certification as the highest form of income verification at admission. Applicants must submit an affidavit attesting to reported income, assets, expenses, and other factors which would affect an income eligibility determination. If a household has recently (past 60 days) undergone income determination for another HUD assisted program, such as rapid re-housing, MMHA may accept use that income determination as verification.

Eligibility Determination: Social Security Number, Citizenship, and Eligible Immigration Status Verification

Stability voucher applicants must meet the Eligibility criteria as state in Chapter 3. Accepting self-certifications and delaying the receipt of documentation and/or third-party verification will allow PHAs to assist SV families more quickly and provide time for the family (with assistance from the CoC or other partnering agencies) to obtain the necessary documentation.

PHA policy

Documentation must be provided prior to receiving housing assistance. The PHA will work with the CoC agency to get verification that can be used to determine eligibility.



City of Muscatine

ITEM NUMBER 2023-0380

AGENDA ITEM SUMMARY

DATE: 9/7/2023

STAFF

Andrew Fangman, Assistant Community Development Director

SUBJECT

Third and Final Reading of an Ordinance Amending Nuisance Regulations Contained Within City Code Title 9, Chapter 3.

EXECUTIVE SUMMARY

Presented to City Council is the third and final reading of an ordinance to improve the nuisance abatement process by adding ten additional enumerated nuisances, aligning nuisance abatement administrative fees with the costs incurred by the City when abating a nuisance, and making other clarifications to nuisance regulations.

STAFF RECOMMENDATION

Adopt the ordinance.

BACKGROUND/DISCUSSION

Please note that the attached ordinance corrects an error in the ordinance that was heard on the first and second readings. The language necessary to make the desired change, which is highlighted in yellow below, was inadvertently omitted from Appendix D. This ordinance adds the language to Appendix D to ensure that the nuisance abatement administrative fee is properly listed.

SECTION 15. The text of Section 9-3-10 is amended to read as follows:

*If the City abates a nuisance under Section 9-3-9 of this Chapter, the City Clerk shall report the fact in writing to the Council, stating the cost and value of all tools, appliances, materials, labor, and assistance used, consumed, and performed by and for him or her, giving the several items thereof, **an administrative fee as set by resolution of City Council in Appendix D of City**, and the name of the person responsible for the commission of such nuisance and a description of the property, lot, or parcel of ground whereon such nuisance existed or from which the same came.*

Nuisances are defined by the City and State Code as “Whatever is injurious to health, indecent, or unreasonably offensive to the senses, or an obstruction to the free use of property, so as essentially to interfere unreasonably with the comfortable enjoyment of life or property, is a

nuisance, and a civil action by ordinary proceedings may be brought to enjoin and abate the nuisance and to recover damages sustained on account of the nuisance.” As this a very broad definition City Code enumerates twenty specific definitions of a nuisance. The following are enumerated nuisances: offensive smells, filth or noisome substance, impeding passage of navigable river, water pollution, blocking public and private ways, billboards, storing of flammable junk, air pollution, brush, Dutch Elm Disease or emerald ash borer damage, airport air space, houses of ill fame, stagnant water, junk or unregistered vehicles, junk, refuse, or garbage, containers, poison, dangerous or unsafe, building/structure, and semitrailers parking on residential parcels.

The proposed ordinance would add ten additional enumerated nuisances to the City Code. The conditions addressed by these proposed additions already qualify as nuisances under the current City Code, with enforcement and abatement activities reflecting this fact. However, it is staff's opinion that these particular conditions would be better addressed with direct and unambiguous code language. Currently, these conditions, which are all common occurrences, are addressed through interpretations of existing code language. The more specific code is as to what is required of property owners would make understanding, complying with, and enforcing nuisance regulations easier for property owners, community members, and city staff. To accomplish this, the proposed ordinance would add the following enumerated nuisances to be added to City Code. The text of which reflects Council directions given at the December in-depth meeting.

On July 20th, a public hearing on the proposed ordinance was held at the regular City Council meeting. There was no public comment received at this public hearing.

Stagnate Swimming Pools, Spas, Hot Tubs or Wading Pools

Swimming pools, spas, hot tubs or wading pools containing stagnant water. Stagnant water shall include without limitations water that is not properly aerated and/or chlorinated that may serve as a breeding area or habitat or otherwise attract mosquitoes or other insects.

Refuse and Recycling Containers

Empty containers on curb setouts shall be returned to the container storage area before 8:00 am the day following the day of collection. The container storage area shall be either within a building or to the rear or side of the residence. If this is not physically possible, containers shall be kept directly adjacent to a structure. If this is not possible, containers shall be stored in an inconspicuous place. The owner and tenant/occupant are jointly and severally responsible for compliance with this requirement.

Section 13-13-9 of City Code, which also states where and when refuse and recycling containers must be placed for pickup and how they are to otherwise be stored, will be amended to mirror this proposed language.

Bulk Items Intended for Curbside Bulk Pickup

Bulk items intended for pick up by the City through Curbside Bulk Pickup may not be placed at the curb more than 48 hours prior to the scheduled pick up, and must comply with all

regulations regarding the quantity of and type of items that are eligible for the Curbside Bulk Pickup Program. Items not meeting these criteria shall be classified as junk, refuse, or garbage.

Junk, Refuse, or Garbage on Trailers

Garbage, refuse, solid waste, junk, debris, or the like, is located on or in any vehicle, trailer or semi-trailer, in a manner that is visible.

Animal Waste

An accumulation of animal waste, bedding materials and food that would attract insects, rodents, or any other vermin and cause an odor that would adversely affect adjoining properties.

Sump Pump Discharge

Sump pump discharge that creates a public nuisance, such as ice build-up on a public street or sidewalk; or any other hazardous conditions of a public street or sidewalk.

Private Sewer Facilities

Private sewage treatment facilities, including private sewer laterals or appurtenances thereto, shall be maintained in a manner to prevent the surfacing of effluent or the emission of offensive odors. Temporary sanitary facilities shall be maintained in a clean, sanitary manner and not be offensive to any nearby residents.

Open Storage of Items not Intended for Outdoor Use

Open storage of non-weather resistant items which are not intended for outdoor usage, including, without limitation of enumeration: Upholstered or finished furniture intended for indoor usage, such as couches, beds, mattresses, desks, chairs, shelving, household furnishings or equipment including carpeting, electronics, appliances and other typical household items intended for indoor usage.

Tires or Vehicle Parts

The open storage on private property which is residentially zoned of tires or vehicle parts including but not limited to bumpers, engines, exhaust pipes, doors, fenders, hoods, mufflers, seats, windshields or windows, wheels, or any other structural, mechanical, or decorative vehicle parts.

Pallets

The open storage of pallets on private property which is residentially zoned.

Proposed Definition of Open Storage

The storage of items in outdoor areas or in partially enclosed sheds, lean-tos or other structures not totally enclosed by structural walls, roof and properly functioning doors; and where items are visible from a public street, sidewalk, alley or from abutting parcels.

Section 9-3-3(N)(1)(b) of the City Code currently limits the number of unregistered or junk

vehicles that can be parked on a parcel to one, even if they are covered by a properly fitting car cover. However, there is no limit on the number of registered or non-junk vehicles that can be parked on a parcel, so long as they are parked in accordance with all applicable provisions of the City Code. Since the visual impact of legally parked and covered unregistered or junk vehicles is the same, they should be regulated in the same manner in order to maintain consistency. This ordinance would remove the limit on the number of unregistered or junk vehicles that can be parked on a parcel if they are covered by a properly fitting car cover, and otherwise legally parked.

When the city abates a nuisance, the property owner is invoiced for the cost of the contractor to perform the abatement and a \$25 administrative fee. This administrative fee is intended to compensate the city for the staff time and resources used to abate the nuisance. The fee has been set at \$25 for many years, at least 11 years, and likely for much longer. While the amount of the fee has stayed flat, the City's costs have not.

At the December in-depth meeting, the City Council directed that the administrative fee for nuisance abatement by the city be increased from \$25 to \$75 for the first offense and \$150 for any subsequent offenses in the same calendar year. This change brings the fee more in line with the costs incurred by the City to abate a nuisance, and aligns the City of Muscatine with other Iowa communities' nuisance abatement administrative fees..

As authorized by state law, the City charges an administrative fee for all properties on which it abates a nuisance. Appendix D of the City Code contains a schedule of fees and fines, as set by a resolution of the City Council, for the portions of the city code that are administered by the community development department. Currently, a fee for nuisance abatement is not included in Appendix D. To maintain consistency, the administrative fee charged for nuisances abated by the city should be included in Appendix D. The proposed ordinance will make the necessary code changes to allow for the administrative fee charged for nuisances abated by the City to be included in Appendix D.

In conjunction with the final reading and approval of the proposed ordinance, staff will bring forward a resolution to amend Appendix D of the ordinance to set the administrative fee for nuisance abatement by the city at \$75 for the first offense and \$150 for any subsequent offenses in the same calendar year.

CITY FINANCIAL IMPACT

A follow-up resolution to increase the administrative fee for nuisance abatement by the city to \$75 for the first offense and \$150 for any subsequent offenses in the same calendar year will be presented to the city council for action at the September 7th city council meeting, in

conjunction with the final reading of the ordinance. The resolution is expected to have a positive financial impact on the city budget

ATTACHMENTS

1. Nussiance Reg Update Ordinance - Working Draft 8-31-23

ORDINANCE NO. 2023-0380

Ordinance Amending Nuisance Regulations Contained Within City Code

WHEREAS, Chapter 3 of Title 9 of the City Code regulates nuisances, which are defined as conditions that are injurious to health, indecent, or unreasonably offensive to the senses, or obstruct the free use of property, interfering unreasonably with the comfortable enjoyment of life or property;

WHEREAS, Certain property conditions, which constitute a nuisance, would be better addressed with direct and unambiguous code language. Currently, these conditions, which are all common occurrences, are addressed through interpretations of existing code language;

WHEREAS, The more specific code as to what is required of property owners would make understanding, complying with, and enforcing nuisance regulations easier for property owners, community members, and city staff;

WHEREAS, To accomplish this, city staff is recommending that the following enumerated nuisances be added to City Code: stagnate swimming pools, spas, hot tubs or wading pools; refuse and recycling containers; bulk item intended curbside bulk pickup; junk, refuse, or garbage on trailers; animal waste; sump pump discharge; private sewer facilities; open storage of items not intended for outdoor use; tires or vehicle parts; and pallets;

WHEREAS, Section 9-3-3(N)(1)(b) of City Code limits the number of unregistered vehicles which are covered by properly fitting car covers and which are parked in a location visible from beyond the parcel upon which they are located to one per parcel;

WHEREAS, An unregistered or junk vehicle and that is covered by a properly fitting car cover and that is legally parked on a privately owned parcel has no more of a visual impact of registered or nonjunk vehicles similarly parked. There is no limit to the number of registered or nonjunk vehicles that can be parked on a parcel, so long as they are parked in accordance with all applicable provisions of City Code. As the visual impact of legally parked and covered unregistered or junk vehicles is the same, they should be regulated in the same manner in order to maintain consistency;

WHEREAS, As authorized by State Code, an administrative fee is charged to all properties upon which City abates a nuisance;

WHEREAS, Appendix D of City Code contains a schedule of fee and fines, as set by a resolution City Council, for the portions of City Code that are administered by the Community Development Department. Currently the nuisance abatement is omitted from Appendix D; and

WHEREAS, In order to maintain consistency, the administrative fee charged for nuisances abated by the City should be included in Appendix D.

NOW, THEREFORE BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF MUSCATINE, IOWA:

SECTION 1. Subsection E of Section 2 of Chapter 3 of Title 9 of City Code is hereby renumbered as Subsection F of Section 2 of Chapter 3 of Title 9 of City Code; Subsection F of Section 2 of Chapter 3 of Title 9 of City Code is hereby renumbered as Subsection G of Section 2 of Chapter 3 of Title 9 of City Code; Subsection G of Section 2 of Chapter 3 of Title 9 of City Code is hereby renumbered as Subsection H of Section 2 of Chapter 3 of Title 9 of City Code; and Subsection H of Section 2 of Chapter 3 of Title 9 of City Code is hereby renumbered as Subsection I of Section 2 of Chapter 3 of Title 9 of City Code

SECTION 2. The following text is added as **Section 9-3-2(E)**:

E. “Open Storage” means the storage of items in outdoor areas or in partially enclosed sheds, lean-tos or other structures not totally enclosed by structural walls, roof and properly functioning doors; and which items are visible from a public street, sidewalk, alley or from abutting parcels.

SECTION 3. The following text is added as **Section 9-3-3(U)**:

U. Stagnate Swimming Pools, Spas, Hot Tubs or Wading Pools

Swimming pools, spas, hot tubs or wading pools containing stagnant water. Stagnant water shall mean without limitation water that is not properly aerated and/or chlorinated that may serve as a breeding area or habitat for or otherwise attract mosquitoes or other insects.

SECTION 4. The following text is added as **Section 9-3-3(V)**:

V. Refuse and Recycling Containers

- 1. Empty containers on curb setouts shall be returned to the container storage area before 8:00 am of day following the day of collection.**
- 2. The container storage area shall be either within a building or to the rear or side of the residence, if this is not physically possible, containers shall be kept directly adjacent to a structure, if this is not possible, containers shall be stored in an inconspicuous place.**
- 3. The owner and tenant/occupant are jointly and severally responsible for compliance with this requirement.**

SECTION 5. The text of **Section 13-3-9(A)** is amended to read as follows:

Refuse and recycling containers shall be placed for City collection pursuant to Subsections (B) and (C) at or before 5:00 o’clock A.M. on collection days, but in no case, earlier than 4:00 o’clock P.M. the day before collection. Empty containers on curb setouts shall be returned to the container storage area before 8:00 am of day following the day of collection. The container storage area shall be either within a building or to the rear or side of the

residence, if this is not physically possible, containers shall be kept directly adjacent to a structure, if this is not possible, containers shall be stored in an inconspicuous place. The owner and tenant/occupant are jointly and severally responsible for compliance with this Chapter.

SECTION 6. The following text is added as Section 9-3-3(W):

W. Bulk Item Intended Curbside Bulk Pickup

Bulk items intended for pick up by the City through Curbside Bulk Pickup may not be placed at the curb more than 48 hours prior to the scheduled pick up, and must comply must comply with all regulations regarding the quantity and type of items that are eligible for the Curbside Bulk Pickup Program. Items not meeting these criteria shall be classified as junk, refuse, or garbage.

SECTION 7. The following text is added as Section 9-3-3(X):

X. Junk, Refuse, or Garbage on Trailers

Garbage, refuse, solid waste, junk, debris, or the like that is located on any vehicle, trailer or semi-trailer, in a manner that is visible

SECTION 8. The following text is added as Section 9-3-3(Y):

Y. Animal Waste

An accumulation of animal waste, bedding materials and food that would attract insects, rodents, or any other vermin and cause an odor that would adversely affect adjoining properties.

SECTION 9. The following text is added as Section 9-3-3(Z):

Z. Sump Pump Discharge

Sump pump discharge creating a public nuisance, such as ice build-up on a public street or sidewalk, or any other hazardous conditions on a public street or sidewalk.

SECTION 10. The following text is added as Section 9-3-3(AA):

AA. Private Sewer Facilities

1. Private sewage treatment facilities, including private sewer laterals or appurtenance thereto, shall be maintained in a manner to prevent the surfacing of effluent or the emission of offensive odors.
2. Temporary sanitary facilities shall be maintained in a clean, sanitary manner and not be offensive to any nearby residents.

SECTION 11. The following text is added as **Section 9-3-3(BB)**:

BB. Open Storage of Items not Intended for Outdoor Use

Open storage of non-weather resistant items which are not intended for outdoor usage, including without limitation of enumeration: upholstered or finished furniture intended for indoor usage such as couches, beds, mattresses, desks, chairs, shelving, household furnishings or equipment including carpeting, electronics, appliances and other typical household items intended for indoor usage.

SECTION 12. The following text is added as **Section 9-3-3(CC)**:

CC. Tires or Vehicle Parts

The open storage on private property which is residentially zoned of tires or vehicle parts including but not limited to bumpers, engines, exhaust pipes, doors, fenders, hoods, mufflers, seats, windshields or windows, wheels, or any other structural, mechanical, or decorative vehicle parts.

SECTION 13. The following text is added as **Section 9-3-3(DD)**:

DD. Pallets

The open storage of pallets on private property which is residentially zoned.

SECTION 14. The text of **Section 9-3-3(N)(1)(b)** is amended to read as follows:

b. Outdoors in locations not within the public right of way in which a vehicle may be lawfully parked, provided that any such vehicle is fully covered with a commercial tarpaulin constructed especially for motor vehicles, sufficient in size to cover the entire vehicle. Such vehicle cover must be in good condition and must be replaced if it becomes torn, weather-beaten, or acquires any other defects. Makeshift covers do not satisfy the requirement of this subsection.

SECTION 15. The text of **Section 9-3-10** is amended to read as follows:

If the City abates a nuisance under Section 9-3-9 of this Chapter, the City Clerk shall report the fact in writing to the Council, stating the cost and value of all tools, appliances, materials, labor, and assistance used, consumed, and performed by and for him or her, giving the several items thereof, an administrative fee as set by resolution of City Council in Appendix D of City, and the name of the person responsible for the commission of such nuisance and a description of the property, lot, or parcel of ground whereon such nuisance existed or from which the same came.

SECTION 16. If any section, provision or part of this ordinance shall be adjudged invalid or unconstitutional, such adjudication shall not affect the validity of the ordinance as a whole or any section, provision or part thereof not adjudged invalid or unconstitutional.

SECTION 17. Any Ordinance or part thereof in conflict or inconsistent with the provisions of this Ordinance is repealed.

SECTION 18. This ordinance shall be in effect from and after the passage and approval and publication of this ordinance, as provided by law

PASSED, APPROVED AND ADOPTED this 7th day of September, 2023.

Attest

**By the City Council of the City of
Muscatine, Iowa**

Dr. Brad Bark, Mayor

Carol Webb
City Clerk

First Reading: 8-3-2023
Second Reading: 8-17-2023
Third Reading: 9-7-2023
Publication:



City of Muscatine

ITEM NUMBER 2023-0390

AGENDA ITEM SUMMARY

DATE: 9/7/2023

STAFF

Andrew Fangman, Assistant Community Development Director

SUBJECT

Third and Final Reading of an Ordinance Amending Title 10, Chapter 20, Section 4 of City Code - Home Occupations

EXECUTIVE SUMMARY

Presented for City Council's consideration is the third and final reading of an Ordinance Amending Title 10, Chapter 20, Section 4 of City Code - Home Occupations. Home occupations are regulated by Section 10-20-4 of the City Code, which was adopted in 2018. However, State legislation passed in June 2022 restricts how cities in Iowa can regulate home occupations. As a result, the City Attorney has identified a number of provisions in the City Code that are noncompliant with state law. This ordinance will remove the noncompliant section from the City Code.

STAFF RECOMMENDATION

On July 11, 2023, The Planning and Zoning Commission voted 6-1 to recommend approval of the attached ordinance. Staff concurs with this recommendation.

BACKGROUND/DISCUSSION

Home occupations are regulated by Section 4, Chapter 20 of Title 10 of City Code. "Home occupations" as defined by City Code are, "an occupation or business activity which results in a product or service and is conducted in whole or in part in a dwelling unit, and is subordinate to the residential use of the dwelling unit". The intent of these regulations is to allow for home-based business activities that are not otherwise permitted in residentially zoned districts, but which are clearly subordinate and compatible with the surrounding residential land uses and which will not negatively impact the character of the residential area.

Home occupations can be very beneficial to the community when governed by zoning regulations, which permit as broad of an array of home occupations as possible without negatively impacting the surrounding neighborhood. Home occupations are an important part of any local economy and a critical component of allowing the local economy to grow through the entrepreneurial activities of its residents. These regulations foster the establishment of

new businesses by eliminating the need for some small businesses to rent commercial space, a factor which could make all the difference to a new business. Allowing for work at home can save commuting and child care costs, and can give those who might be unable to work outside of the home, including single parents, the elderly and the disabled, an opportunity to earn a living. However, any benefits of home occupations must be balanced with neighbors' rights not to be disturbed by excessive noise, odors, traffic and other nuisances that are not characteristic of a residential area.

Existing home occupation regulations that are contained within Section 10-20-4 of City Code were adopted in 2018. This code change was a shift from a very restrictive approach towards regulating home occupations, to one that is based on performance-based standards. This approach keeps the burdens on home occupations as light as possible by focusing only on activities that may disrupt neighbors. Performance standards can prevent harm to neighbors by prohibiting excessive noise, odors, traffic and other nuisances that are unwelcome in residential neighborhoods. This approach also better protects neighbors and preserves the residential character of residentially zoned areas by creating very specific and easy to enforce regulations on potentially disruptive activities. Current regulations are divided into eight topical subsections which address the following:

Regulations that establish a home occupation as an accessory use only

A list of prohibited activities, equipment, and materials

Regulations, which as much as possible, prohibit any visible exterior evidence of home occupation

Regulations regarding vehicles, parking, and traffic

Regulations regarding on-site customers, clients, or patrons

Regulations regarding delivery or pick-up of items

Regulations regarding employees

Regulations regarding hours of operation

In June 2022, legislation restricting the manner in which cities in Iowa can regulate home occupations was approved. The intent of the legislation was similar to the City's 2018 change to home occupation regulations, to remove the regulatory burden from home occupations that are not impacting their neighbors. However, this state legislation went further than the City's code change, in removing regulations and restrictions on home occupancy. Full text of state code governing how cities can regulate home based businesses can be found at the following link: <https://www.legis.iowa.gov/docs/ico/chapter/414.33.pdf>

As a result, a number of provisions of the City's home occupation regulations are no longer compliant with state law, and are not enforceable. The following currently adopted provisions of the home occupation regulations contained within City Code have been identified by the City Attorney as noncompliant with state law.

The requirement that not more than 500 square feet or 25 percent of the dwelling unit floor area, whichever is greater, be used to conduct the home occupation. 10-20-4(B)(1)(b)

The prohibition of tattooing and body piercing as a home occupation. 10-20-4(B)(2)(j)

The prohibition of kenneling or other forms of boarding animals for compensation as a home occupation. 10-20-4(B)(2)(k)

The requirement that a home occupation be conducted entirely within the main dwelling. 10-20-4(B)(3)(a)

The rule that not more than two vehicles, externally identifiable as being associated with the home occupation, are allowed to be parked in a manner that is visible from off the property at any one time. 10-20-4(B)(4)(b)

The restriction on the number of customers that may visit a home occupation in a 24 hour period. Currently, the limit is 5 clients or customers in the dwelling unit or on the premises during any period of 60 consecutive minutes or more than 12 in any given 24-hour period. 10-20-4(B)(5)

A Restriction on delivery or pick-up of items. Currently the shipment and delivery of products, merchandise or supplies shall be limited to between 7:00 a.m. and 7:00 p.m. and shall regularly occur only in single rear axle straight trucks or smaller vehicles normally used to serve residential neighborhoods. 10-20-4(B)(6)

The prohibition of individuals, other than residents of the household, being employed in the home occupation at the home. 10-20-4(B)(7)

The restriction on hours of operation of a home occupation to between the hours of 7:00 PM and 7:00 AM unless said occupation is contained entirely within the principal building and will not require any on-street parking facilities. 10-20-4(B)(8)

To bring the City's home occupation regulations back into compliance with state law, an ordinance removing the regulatory provisions identified above will need to be adopted.

At the April 13, 2023 in-depth meeting, City Council was briefed on this matter. At this meeting, council asked for more information on the following.

Could a registration or licensing system for home-based businesses be set up?

State Code expressly prohibits this. Section 414.33(3) states "A city shall not prohibit a no-impact home-based business or otherwise require a person to apply, register, or obtain any permit, license, variance, or other type of prior approval from the city to operate a no-impact home-based business."

Can parking requirements be applied to home-based businesses?

Cities may adopt regulations that disallow the use of on-street parking for home-businesses. Currently Section 10-20-4(B)(4)(a) of City Code states, "The home occupation shall not generate excessive vehicular traffic or parking in the area of the principal structure. Parking shall be restricted to existing on-street and on-site parking associated with the principal structures." City Council retains the option of being able to amend City Code to prohibit the use of on-street parking for home-based businesses.

Do restrictions on how cities may regulate home-based businesses impact building and fire code requirements that may be triggered by the presence of a home based-business?

Section 414.33(5) of State Code states, "A city shall not require as a condition of operating a

home-based business that the property be rezoned for commercial use or that the business owner install or equip fire sprinklers in a single-family detached residential dwelling or any residential dwelling with not more than two dwelling units."

On July 6, 2023, a public hearing before the City Council was held, with no comments received. On July 11, 2023, The Planning and Zoning Commission voted 6-1 to recommend approval of the attached ordinance.

CITY FINANCIAL IMPACT

None.

ATTACHMENTS

1. Home Occupation Regulations(2023) Ordinance (1)

ORDINANCE NO. 2023-0390

**ORDINANCE AMENDING SECTION 4, CHAPTER 20 OF TITLE 10 OF CITY
CODE – HOME OCCUPATIONS**

WHEREAS, home occupations are regulated by Section 4, Chapter 20 of Title 10 of City Code. “Home occupations” as defined by City Code are, “an occupation or business activity which results in a product or service and is conducted in whole or in part in a dwelling unit, and is subordinate to the residential use of the dwelling unit”. The intent of these regulations is to allow for home-based business activities that are not otherwise permitted in residentially zoned districts, but which are clearly subordinate and compatible with the surrounding residential land uses and which will not negatively impact the character of the residential area;

WHEREAS, in June 2022, state legislation restricting the manner in which cities in Iowa can regulate home occupations was approved;

WHEREAS, a number of the currently adopted provisions of the home occupation regulations contained within City Code have been identified by the City Attorney as noncompliant with state law;

WHEREAS, in order to bring the City’s home occupation regulations back into compliance with state law, the proposed ordinance removing the regulatory provisions that are noncompliant with state law will need to be adopted;

WHEREAS, the Planning and Zoning Commission did on July 11, 2023, voted 6-1 to recommend approval of this ordinance; and

WHEREAS, a public hearing, July 6, 2023, was conducted by the City Council of Muscatine prior to the adoption this ordinance.

**NOW, THEREFORE BE IT ORDAINED BY THE CITY COUNCIL OF THE
CITY OF MUSCATINE, IOWA:**

SECTION 1. The currently adopted version of Section 10-20-4(B)(1)(b) of City Code is here by deleted from City Code.

SECTION 2. The currently adopted version of Section 10-20-4(B)(1)(c) of City Code is here by renumbered as Section 10-20-4(B)(1)(b)

SECTION 3. The currently adopted version of Section 10-20-4(B)(2)(j) of City Code is here by deleted from City Code.

SECTION 4. The currently adopted version of Section 10-20-4(B)(2)(k) of City Code is here by deleted from City Code.

SECTION 5. The currently adopted version of Section 10-20-4(B)(3)(a) of City Code is here by deleted from City Code.

SECTION 6. The currently adopted version of Sections 10-20-4(B)(3)(b through i) of City Code are hereby renumbered so that start with Section 10-2-4(B)(a) and proceed sequentially.

SECTION 7. The currently adopted version of Section 10-20-4(B)(4)(b) of City Code is here by deleted from City Code.

SECTION 8. The currently adopted version of Section 10-20-4(B)(4)(a) of City Code is here by renumbered as Section 10-20-4(B)(4)

SECTION 9. The currently adopted version of Section 10-20-4(B)(5) of City Code is here by deleted from City Code.

SECTION 10. The currently adopted version of Section 10-20-4(B)(6) of City Code is here by deleted from City Code.

SECTION 11. The currently adopted version of Section 10-20-4(B)(7) of City Code is here by deleted from City Code.

SECTION 12. The currently adopted version of Section 10-20-4(B)(8) of City Code is here by deleted from City Code.

SECTION 13. If any section, provision or part of this ordinance shall be adjudged invalid or unconstitutional, such adjudication shall not affect the validity of the ordinance as a whole or any section, provision or part thereof not adjudged invalid or unconstitutional.

SECTION 14. Any Ordinance or part thereof in conflict or inconsistent with the provisions of this Ordinance is repealed.

SECTION 15. This ordinance shall be in effect from and after the passage and approval and publication of this ordinance, as provided by law

PASSED, APPROVED AND ADOPTED this 7th day of September, 2023.

Attest

**By the City Council of the City of
Muscatine, Iowa**

Brad Bark, Mayor

Carol Webb
City Clerk

First Reading: 8/3/23
Second Reading:
Third Reading:
Publication:



City of Muscatine

ITEM NUMBER 2023-0403

AGENDA ITEM SUMMARY

DATE: 9/7/2023

STAFF

Brian Stineman, Public Works Director

SUBJECT

Second Reading of an Ordinance Amending Title 3, Chapter 2 of City Code - Use of City Right of Way

EXECUTIVE SUMMARY

Second Reading of an Ordinance Amending Title 3, Chapter 2 of City Code - Use of City Right of Way. Public Works staff presented City Council with proposed language to amend Title 3, Chapter 2 of City Code to replace Chapter 2 in its entirety with a new chapter. This proposal was discussed and approved at the July 2023 in-depth meeting.

STAFF RECOMMENDATION

Approve the 2nd reading of Ordinance

BACKGROUND/DISCUSSION

At the July 2023 in-depth council meeting, Public Works staff proposed replacing the existing Chapter 2 of Title 3 of the City Code with new language. This new language will reduce the number of permits needed to work in the right of way from three to two. It will also increase the fees for these permits to \$150 and \$50. The new language will also codify standards for sidewalk and pavement patches and require that SUDAS specifications be followed for work in the right of way.

CITY FINANCIAL IMPACT

The proposed code change should assist in reducing staff time in processing permits and will increase revenue from fees.

ATTACHMENTS

1. Ordinance Amending Chapter 2 of Title 3 Regarding Use of City Right of Way
2. Exhibit A Title 3, Chapter 2- Public Ways and Property
3. In-Depth Session Memo: Changes to City Code Titles 3 and 11 In-Depth Summary 07.13.23

ORDINANCE NO. 2023-0403

AN ORDINANCE REVISING TITLE 3, CHAPTER 2 -- USE OF CITY RIGHT OF WAY

WHEREAS, The City of Muscatine's current Use of City Right-of-Way regulations can be found in Chapter 2 of Title 3 of the City Code of Muscatine; and

WHEREAS, proposed changes to Chapter 2 of Title 3 of the City Code of Muscatine regarding Use of City Right-of-Way were discussed and reviewed by the City Council at the July 13, 2023, in-depth council meeting; and

WHEREAS, City Council directed City staff to prepare changes to portions of Chapter 2 of Title 3 of City Code related to Use of City Right-of-Way regulations; and

WHEREAS, a public hearing was conducted on August 17, 2023 by the City Council of Muscatine prior to the adoption of this ordinance.

NOW, THEREFORE BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF MUSCATINE, IOWA:

SECTION 1. The currently adopted versions of Chapter 2 of Title 3 of the City Code are hereby deleted and Exhibit A as attached hereby to is adopted in lieu thereof.

SECTION 2. If any section, provision or part of this ordinance shall be adjudged invalid or unconstitutional, such adjudication shall not affect the validity of the ordinance as a whole or any section, provision or part thereof not adjudged invalid or unconstitutional.

SECTION 3. Any ordinance or part thereof in conflict or inconsistent with the provisions of this ordinance is repealed.

SECTION 4. This ordinance shall be in effect from and after the passage and approval and publication of this ordinance, as provided by law

PASSED, APPROVED AND ADOPTED this ____ day of _____, 2023.

By the City Council of the City of Muscatine Iowa;

Attest

Brad Bark, Mayor

Carol Webb
City Clerk

First Reading: 8-17-2023
Second Reading: _____
Third Reading: _____
Publication: _____

Title 3 – Public Ways and Property

Chapter 2 – Construction in City Right of Way

SECTIONS:

- 3-2-1 Compliance
- 3-2-2 Permits Required
- 3-2-3 Permit Issuance
- 3-2-4 Period of Validity for Permits
- 3-2-5 Permits May be Examined
- 3-2-6 Save Harmless
- 3-2-7 Protect Adjoining Property
- 3-2-8 Completion by City
- 3-2-9 Responsibility for Costs
- 3-2-10 Emergency Work
- 3-2-11 Standards
- 3-2-12 Barricades, Fencing, and Lighting
- 3-2-13 Steel Tracks: Cleated Equipment
- 3-2-14 Excavation Material
- 3-2-15 Inspection
- 3-2-16 Pavement Failure after Repair
- 3-2-17 Penalty

3-2-1 Compliance

No person or entity shall perform any work within the public right of way except in accordance with the following provisions of this Chapter.

3-2-2 Permits Required

A. Service Installation Permit

This permit shall be required for all work within the City of Muscatine's Right of Way associated with installing or repairing a utility service for a subject property from the main to the building. This work may include, but not be limited to: excavation, sidewalk removal, pavement removal, trench bedding, pipe installation, trench backfill and compaction, topsoil placement, seeding, subgrade compaction, rock subbase placement and compaction, sidewalk placement, roadway placement and joint sealing.

B. Work In Right of Way Permit

This permit shall cover all work to be performed within the City of Muscatine's Right of Way that is not covered by the Service Installation Permit.

C. Any permit issued under the provisions of this Chapter shall be obtained by a contractor licensed by the State of Iowa and permitted by the City of Muscatine to perform the work described in the scope of work portion of the permit application.

1. A property owner may replace up to 3 panels of sidewalk adjacent to their own property per year without a bond or proof of insurance.
2. A property owner may only excavate in the city right-of-way for mailbox posts. Any other minor excavations in the city right-of-way must be approved by the City Engineer.

- D. City of Muscatine Public Works employees working in the course of employment for the City of Muscatine, or its contractors working under the direct supervision of the City, are exempt from the permit requirements set out in this Chapter.

3-2-3 Permit Issuance

A. Application Requirements

The application shall be on such form and include such detail as prescribed by the City Engineer.

B. Fee

The application fee shall be set by resolution of the City Council, and is listed in the Schedule of Permit and Licensing Requirements contained in Appendix B to this Code of Ordinances.

C. Bond Required

A bond shall be required guaranteeing the permittee's payment for any damage done to the City or to public property, and payment of all costs incurred by the City in the course of administration of this Section. Such shall be set by resolution of Council and is listed in the Schedule of Permit and Licensing Requirements contained in Appendix B to this Code of Ordinances. The bond shall be issued by a surety company authorized to issue such bonds in the State.

D. Insurance

Every applicant shall also file a certificate of insurance indicating that the applicant is carrying public liability insurance in effect for the duration of the permit covering the City as additional insured and applicant and all its agents and employees for the amounts set by resolution of Council and specified in the Schedule of Permit and Licensing Requirements contained in Appendix B to this Code of Ordinances

E. Pre-construction Conference

The City may require a pre-construction conference before the issuance of a permit. The conference may involve representatives of the Public Works Department, Police and Fire Departments, City Engineer, utility companies, and the contractor and/or their representative.

F. Street Closures

1. Requests to close all or part of any City Street must be made as part of this permit application.
2. Full street closures must obtain City Council approval.
3. Streets and alleys shall be opened in the manner which will cause the least inconvenience to the public and admit the uninterrupted passage of water along the gutter on the street.

G. Grounds for Issuance

1. Upon approval of the application, filing of bond and submission of an insurance certificate, and payment of any required fees, a permit shall be issued.
2. No person or entity shall have more than five open excavations at any time without written permission of the Right of Way Inspector.

3-2-4 Period of Validity for Permits

- A. Work shall begin within 7 days of obtaining the permit.
- B. Work shall be completed within 60 days of its commencement.
- C. If the work cannot be completed within the 60-day timeframe, the Contractor may request an extension at least seven days prior to the deadline.

3-2-5 Permits May be Examined

All permits and written authorizations issued by the City shall at all times be kept by an individual at the work site and shall be surrendered for examination upon the demand of any officer of the City.

3-2-6 Save Harmless

The applicant shall agree to hold and save harmless the City, its Agents, Officers, and Employees from any liability or responsibility for damage to any person or property injured by the performance of any excavation work performed by an applicant or by the negligence of the applicant, his employees, or agents in carrying out the excavation permitted under this Chapter.

3-2-7 Protect Adjoining Property

Any person working in the right of way shall at all times and at his own expense preserve and protect from damage or injury all adjoining property of any nature by providing proper foundations, sheeting, bracing, shoring, and drainage, as well as such other protective measures as may be required. The person making the excavation shall be responsible for all damages to public or private property resulting from or occasioned by the excavation.

3-2-8 Completion by City

Should any excavation in any street or alley be discontinued or left open and unfinished for a period of 24 hours after the approved completion date, or in the event work in the right of way is improperly done, the City has the right to finish or correct the work and charge any expenses therefor to the permit holder/property owner.

3-2-9 Responsibility for Costs

All costs and expenses incident to the work in right of way shall be borne by the property owner/permit holder. The property owner/permit holder shall indemnify the City from any loss or damage that may directly or indirectly be occasioned by such work.

3-2-10 Emergency Work

Emergency work is work necessary for the repair of such vital utilities as gas, water, sewer, and electricity, which by their nature necessitate immediate action.

- A. If the emergency occurs during normal office hours, eight o'clock (8:00) A.M. to five o'clock (5:00) P.M. weekdays, the agency doing the work shall first notify the City and obtain approval of said work. The applicant shall obtain the permit in person at the permit office before the close of the next work day.
- B. During normal working hours, emergency detour routes may be requested by telephoning the Department of Public Works.
- C. If the emergency occurs during other than normal working hours, the applicant shall call the Public Safety dispatcher and give the dispatcher the location and nature of

the emergency before starting the work. The applicant is then required to get said permit before noon of the next work day.

- D. On other than normal working hours, emergency street closing and detours shall be reported by notifying the dispatcher at the Public Safety Building.

3-2-11 Standards

All work in the City right of way shall conform to the most recent edition of the Iowa Statewide Urban Design and Specifications (SUDAS), as amended and published by the Institute for Transportation at Iowa State University and the following supplemental standards which take precedence over any chapters of SUDAS which may be in conflict therewith, or as directed by the City Engineer.

A. Sidewalks

1. Sidewalks equal to or less than 5 feet in width shall be minimum 4" Portland Cement Concrete (PCC) on 4" of Modified Subbase.
2. Sidewalks greater than 5 feet in width shall be minimum 6" Portland Cement Concrete (PCC) on 4" of Modified Subbase
3. Sidewalks through a driveway section shall be built in accordance with 3-2-11. B

B. Driveways

Driveways shall be 6" PCC on 6" of Modified Subbase.

C. Street Patches

1. Thickness of Patch

a. PCC Patches on PCC Streets

Shall either match the thickness of the existing pavement or be poured 8" thick, whichever is greater, on 6" of Modified Subbase.

b. PCC Patches on Hot Mix Asphalt (HMA) streets

Shall be 10" thick on a 6" Modified Subbase.

c. HMA Patches on HMA Streets

Shall either match the thickness of the existing pavement or be placed 6" thick, whichever is greater, on a 6" Modified Subbase.

2. Size of Patches

- a. The Right of Way Inspector shall determine all patch sizes after the service has been installed.
- b. However, patch sizes shall not be smaller than 6' x 6' and shall not create any remnant panel to be smaller than 6' x 6'.

- D. PCC, HMA, steel reinforcement, joint sealant and any other material necessary to patch sidewalks, driveways and roadways within the City's right of way shall conform to SUDAS Standard Specifications, Current Edition. See SUDAS Standard Specifications, Current Edition for detail drawings.

E. Backfill

1. All excavations shall be backfilled in accordance with Section 3010 of SUDAS.

2. Prior to any backfill, the Contractor shall contact the Right of Way Inspector for inspection of the utility service, if present, and documentation of its location.
- F. Contractor shall contact the Right of Way Inspector prior to placing any permanent surface (PCC or HMA) to allow for inspection of compacted subgrade, subbase and forms.
- G. **Areas Not Hard Surfaced**
Contractor shall place topsoil and seed all disturbed areas not to receive a hard surface within the right of way.
- H. Contractor shall restore all disturbed area to existing condition or better.

3-2-12 Barricades, Fencing, and Lighting

Adequate barricades, fencing and warning lights meeting standards specified by the City shall be so placed as to protect the public from hazard. Any costs incurred by the City in providing or maintaining adequate barricades, fencing or warning lights shall be paid to the City by the permit holder/property owner.

3-2-13 Steel Tracks: Cleated Equipment

Under no circumstances shall steel tracked or steel cleated equipment or machinery be permitted on any street, alley, sidewalk, or way unless authorized in writing by the City.

3-2-14 Excavation Material

The person making the excavation shall haul away all excess excavated material.

3-2-15 Inspection

All work shall be subject to City inspection.

3-2-16 Pavement Failure after Repair

If the repaired street surface cracks or subsides more than 1 inch across the excavation within 4 years of the surface replacements, the applicant shall remove the pavement, compact or replace the backfill as required and replace the pavement at no cost to the City.

3-2-17 Penalty

- A. Any person violating any provision of this Chapter, or failing or neglecting to comply with any requirement, shall be deemed guilty of a separate misdemeanor or civil penalty for each and every day during any part of which such violation or noncompliance occurs.
- B. Any person who violates any provision of this Chapter may further be refused any permits until he shall have complied with the provisions of this Chapter.
- C. Any incidence of violation of this Chapter shall be cause for the City to immediately revoke or suspend an excavation permit without prejudice to other action on the violation.

DATE: August 2, 2023

TO: Mayor Bark and City Councilmembers

FROM: Brian Stineman, Public Works Director

THRU: Carol Webb, City Administrator *CW*

RE: In-Depth Session Summary – 07.13.23, Policy RE: Proposed Changes to City Code Titles 3 and 11

Staff provided information on proposed changes to City Code Title 3, Chapter 2 regarding permits, inspections, and other requirements to work in the right of way, and a proposal to add a Chapter 4 to Title 11 of City Code regarding subdivision regulations to include inspections of public improvements.

The changes proposed in Title 3, Chapter 2 include reducing the number of permits required for work in the right of way from 3 permits to 2, modifying the permit fees, adding a requirement that a licensed engineer must obtain permits; however, a property owner may replace up to three panels of sidewalk and excavate for mailbox posts, and adopt standards for work in the right of way.

Councilmembers asked various questions including standards for the width of sidewalks, matching existing sidewalks, how utility locates would be covered, and if courtesy walks would be included in the proposed three sidewalk panels that owners could replace. Staff indicated that the standard width is 5 feet with a minimum of 4 feet, however staff will work with property owners to match existing sidewalks. Councilmember Osborne asked about the \$50 permit and the need for locates. Director Stineman indicated that City staff provides locating services and will know if locates have been conducted when the permit is issued. Councilmember Jindrich asked if replacement of courtesy walks counts as part of the three panels a homeowner can replace. Staff indicated they would get back to Council on that question. Council supported bringing the proposal forward for Council consideration.

The proposed addition of Chapter 4 to Title 11 of City Code regarding inspections of public improvements includes requirements to keep a daily construction log, documentation of inspections, filing as-built records, and requirements for privately developed and operated facilities. No questions were asked and Council supported bringing the proposal forward for Council consideration.

Next Steps

1. Provide an answer to the question regarding courtesy walks (see response below)
2. Bring action items to council at future meetings to update these city code sections.

Question Answer

Question from Council: Will courtesy walks be counted in the three panels that could be replaced by a property owner?

Answer from Staff: No, courtesy walks will be excluded from that number so that an owner could replace up to three panels as well as the courtesy walk if necessary.



City of Muscatine

ITEM NUMBER 2023-0404

AGENDA ITEM SUMMARY

DATE: 9/7/2023

STAFF

Brian Stineman, Public Works Director

SUBJECT

Second Reading of an Ordinance Amending Title 11, Chapter 4 of City Code - Inspections

EXECUTIVE SUMMARY

Second Reading of an Ordinance Amending Title 11, Chapter 4 of City Code - Inspections. Public Works staff presented City Council with proposed language to amend Title 11, Chapter 4 of the City Code to move Chapter 4 to Chapter 5 and add a new Chapter 4. This proposal was discussed and approved at the July 2023 in-depth meeting.

STAFF RECOMMENDATION

Approve first reading of Ordinance

BACKGROUND/DISCUSSION

At the July 13, 2023 in-depth council meeting, Public Works staff proposed moving Chapter 4 of Title 11 of City Code to Chapter 5 and including a new Chapter 4 regarding inspections of subdivisions. This proposed chapter details requirements for inspections of subdivisions within the City of Muscatine corporate limits.

CITY FINANCIAL IMPACT

N/A

ATTACHMENTS

1. Exhibit A Title 11, Chapter 4 - Inspections
2. Ordinance Amending Chapter 4 of Title 11 Regarding Inspections of Subdivisions (1)
3. Changes to City Code Titles 3 and 11 In-Depth Summary 07.13.23

Title 11 – Subdivision Regulations
Chapter 4 – Inspection

SECTIONS:

- 11-4-1 Inspections Required
- 11-4-2 Daily Inspection Log
- 11-4-3 Documentation of Inspections
- 11-4-4 Filing "As Built" Records
- 11-4-5 Privately Developed and Operated Facilities

11-4-1 Inspections Required. The Developer shall notify the City Engineer of both the start and completion of approved improvements. All public improvements proposed to be made as part of a development shall be inspected during the course of construction by the City Engineer or his representative. All fees and costs associated with review of plans and specifications and inspections shall be paid by the Developer. The fees and cost shall be set at the prevailing rate. If it is determined that improvements are being built in violation of City Standards the inspector will notify the City Engineer who may issue a stop work order.

11-4-2 Daily Inspection Log. The City Engineer, or his representative, shall maintain a daily log of construction activity related to the proposed improvements. Copies of the log entries shall be submitted to the City Engineer on a weekly basis during construction. The purpose of the log is to provide backup information for the developer's engineer and the City Engineer to recommend acceptance and approval of the improvements by the city council and to provide actual construction records of any problems that may develop. The daily log shall contain the following minimum information:

- A. Weather Conditions
- B. Site Conditions
- C. Contractor's working hours
- D. Inspector's hours on site
- E. An explanation of the actual work performed by the contractor that day
- F. Specific information about material tests taken
- G. Description of any problems

11-4-3 Documentation of Inspections. The City Engineer, or his representative, shall make and document the following inspections:

- A. Storm and Sanitary Sewer and Water Main Improvements:
 - 1. Inspect all materials and document pertinent items such as pipe manufacture, class, and size.
 - 2. Reject any defective material and ensure that it is not used on the job
 - 3. Observe the actual pipe laying operation to ensure that all joints are properly made, the pipes are true to line and grade, and the bedding and backfill are done according to the specifications.
 - 4. Document the depth and type of bedding, trench conditions, location of all service laterals, backfilling, and location of all utilities installed and encountered. Location measurements shall be of the accuracy and type required by the City Engineer.
 - 5. Observe and document all final acceptance testing required by the specifications
- B. Street Improvements:
 - 1. Perform and document subgrade, subbase, base and embankment compaction tests.
 - 2. Inspect the alignment and condition of the paving forms.
 - 3. Check and document subgrade depth checks

4. Check and document paving machine adjustments
 5. Furnish the asphalt or Portland Cement concrete mix design to the City Engineer for approval prior to commencing paving operations.
 6. Inspect all concrete pours.
 7. Perform and document an appropriate number of air content and slump measurements.
 8. Cast compression cylinders or beams and document the results of the tests.
 9. Inspect placement of all asphalts
 10. Perform and record asphalt compaction tests.
 11. Perform at least one asphalt extraction test and one sieve analysis from an asphalt sample taken on the job site.
- C. The City Engineer shall also inspect required improvements upon their completion. The City of Muscatine shall not accept any improvement until the City Engineer has certified that it complies with this chapter.

11-4-4 Filing "As Built" Records. The improvements will not be recommended for acceptance until the following are provided and approved by the City Engineer:

- A. Copies of daily inspection logs
- B. Copies of all material test results
- C. Detailed reproducible "as-built" plans of all public improvements
- D. Certification by the Developer's engineer that all construction was accomplished within reasonably close conformance to the plans and specifications, and that the "as-built" plans accurately reflect actual field conditions.
- E. A labor and material payment and maintenance bond posted prior to construction by the Developer's contractor for the installation of all public improvements, using forms provided by the City Engineer.
- F. Permanent easements or agreements granted to the City for all public improvements that are not constructed in dedicated right-of-way, using forms provided by the City Engineer
- G. Accurate triangular measurements for sewer and water laterals to permanent items, e.g., fire hydrants, or manholes. The sewer and water services shall be marked with a four inch by four inch (4" x 4") marking, that stands five feet (5') or six feet (6') tall including a curb notch. Laterals shall also be electronically located and coordinates submitted to the City Engineer for inclusion in MAGIC GIS.

11-4-5 Privately Developed and Operated Facilities. Where the subdivision is to contain sewers, sewage treatments plants, water supply systems, park areas, or other physical facilities which will not be maintained by the existing public agencies, provision should be made by trust agreement, which is a part of the deed restrictions and which is acceptable to the proper public agencies, for jurisdiction over the continuous maintenance, supervision, operation and reconstruction of such a facility by the lot owners in the subdivision.

ORDINANCE NO. 2023-0404

REVISING TITLE 11, CHAPTER 4 -- INSPECTIONS

WHEREAS, The City of Muscatine current subdivision regulations can be found in Title 11 of the City Code of Muscatine; and

WHEREAS, proposed changes to move the current Chapter 4 to Chapter 5 and create a new Chapter 4 of Title 11 of the City Code of Muscatine regarding Inspections have been discussed and reviewed by the City Council at the July 13, 2023, in-depth council meeting; and

WHEREAS, City Council directed City staff to prepare changes to portions of Chapter 4 of Title 11 of City Code related to subdivision inspections; and

WHEREAS, a public hearing was conducted on August 17, 2023 by the City Council of Muscatine prior to the adoption of this ordinance.

NOW, THEREFORE BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF MUSCATINE, IOWA:

SECTION 1. The currently adopted versions of Chapter 4 of Title 11 of the City Code are hereby deleted and moved to the new Chapter 5, and Exhibit A as attached hereby is adopted in lieu thereof.

SECTION 2. If any section, provision or part of this ordinance shall be adjudged invalid or unconstitutional, such adjudication shall not affect the validity of the ordinance as a whole or any section, provision or part thereof not adjudged invalid or unconstitutional.

SECTION 3. Any Ordinance or part thereof in conflict or inconsistent with the provisions of this Ordinance is repealed.

SECTION 4. This ordinance shall be in effect from and after the passage and approval and publication of this ordinance, as provided by law

PASSED, APPROVED AND ADOPTED this ____ day of _____, 2023.

By the City Council of the City of Muscatine Iowa;

Attest

Brad Bark, Mayor

Carol Webb
City Clerk

First Reading: 8-17-2023
Second Reading: _____
Third Reading: _____
Publication: _____

DATE: August 2, 2023

TO: Mayor Bark and City Councilmembers

FROM: Brian Stineman, Public Works Director

THRU: Carol Webb, City Administrator *CW*

RE: In-Depth Session Summary – 07.13.23, Policy RE: Proposed Changes to City Code Titles 3 and 11

Staff provided information on proposed changes to City Code Title 3, Chapter 2 regarding permits, inspections, and other requirements to work in the right of way, and a proposal to add a Chapter 4 to Title 11 of City Code regarding subdivision regulations to include inspections of public improvements.

The changes proposed in Title 3, Chapter 2 include reducing the number of permits required for work in the right of way from 3 permits to 2, modifying the permit fees, adding a requirement that a licensed engineer must obtain permits; however, a property owner may replace up to three panels of sidewalk and excavate for mailbox posts, and adopt standards for work in the right of way.

Councilmembers asked various questions including standards for the width of sidewalks, matching existing sidewalks, how utility locates would be covered, and if courtesy walks would be included in the proposed three sidewalk panels that owners could replace. Staff indicated that the standard width is 5 feet with a minimum of 4 feet, however staff will work with property owners to match existing sidewalks. Councilmember Osborne asked about the \$50 permit and the need for locates. Director Stineman indicated that City staff provides locating services and will know if locates have been conducted when the permit is issued. Councilmember Jindrich asked if replacement of courtesy walks counts as part of the three panels a homeowner can replace. Staff indicated they would get back to Council on that question. Council supported bringing the proposal forward for Council consideration.

The proposed addition of Chapter 4 to Title 11 of City Code regarding inspections of public improvements includes requirements to keep a daily construction log, documentation of inspections, filing as-built records, and requirements for privately developed and operated facilities. No questions were asked and Council supported bringing the proposal forward for Council consideration.

Next Steps

1. Provide an answer to the question regarding courtesy walks (see response below)
2. Bring action items to council at future meetings to update these city code sections.

Question Answer

Question from Council: Will courtesy walks be counted in the three panels that could be replaced by a property owner?

Answer from Staff: No, courtesy walks will be excluded from that number so that an owner could replace up to three panels as well as the courtesy walk if necessary.



City of Muscatine

ITEM NUMBER 2023-0419

AGENDA ITEM SUMMARY

DATE: 9/7/2023

STAFF

Jodi Royal-Goodwin, Community Development Director

SUBJECT

Second Reading of an Ordinance Amending the Airport District Zoning Ordinance Contained within Title 10, Chapter 19 of the City Code

EXECUTIVE SUMMARY

Presented for Council consideration is the second reading of an ordinance to amend the Airport District Zoning Ordinance to comply with state and federal requirements.

STAFF RECOMMENDATION

Staff recommends Council approve the second reading of this ordinance.

BACKGROUND/DISCUSSION

The Federal Aviation Administration and the Iowa Department of Transportation (IDOT) have revised the standards for governing activity within the airport hazard area. The IDOT made grants available to entities operating airports to implement these regulations and created adopted model codes to inform these processes. In November 2012 the City of Muscatine received a \$25,000 grant from the IDOT to update the Airport Land Use and Zoning Ordinance for the Muscatine Municipal Airport and the City contracted with Anderson-Bogart Engineers & Surveyors to develop an ordinance that is adapted for the Muscatine Municipal Airport specifics while complying with the regulations.

However, regulatory changes related to airport operations resulted in the zoning project being put on hold while an Airport Layout Plan (ALP) was developed. Upon completion of the ALP Anderson-Bogart completed much of the work to create the revised, compliant ordinances, and it was anticipated planning staff would subsequently finalize the ordinance and present it to the required bodies for approval. An ordinance must be created and adopted by all townships and counties affected by the proposed ordinance. In addition to the City of Muscatine, the ordinance must also be adopted by the City of Fruitland and the counties of Muscatine, Louisa and Rock Island. Unfortunately, demands on staff time have prevented this work from being completed.

Anderson-Bogert has been paid \$18,916 by the City for work completed, but the City is unable to draw grant funds until the project is finished. IDOT staff recently offered the City a grant extension until October 31, 2023, to complete the project. To ensure the project is completed in a timely manner, staff recommended the City amend the original contract for services with Anderson-Bogert. The proposed amendment for \$7,520 includes reviewing and updating the draft ordinance for presentation and responding to comments or concerns from affected entities. The revised contract total of \$29,926 exceeds the grant award, but additional funding is available from the bond proceeds related to airport projects. Contracting for services is the best method to insure project completion and the ability to be reimbursed for expenses to date.

The proposed regulations would replace what is current in Title 10 (Zoning), Chapter 19 of the City Code, which is the current airport zoning ordinance. Section 10-31-6(A) of the City Code requires that the Planning and Zoning Commission make a recommendation on any proposed amendment to Title 10. On August 8, the Commission voted to recommend approval of the new ordinance 4-0.

CITY FINANCIAL IMPACT

If the City fails to adopt a revised Airport Zoning Ordinance in compliance with current regulations we will not be reimbursed for expenses already incurred.

ATTACHMENTS

1. MUT Airport Land Use and Height Overlay Zoning Ordinance 8-3-23
2. Zoning Overlay Map
3. Ordinance 1st Reading Airport Code Update

Title 10 – Zoning

Chapter 19 – 2023 Muscatine, Iowa Airport Land Use and Height Overlay Zoning Ordinance

Sections

- 10-19-1 Introduction
- 10-19-2 Authority
- 10-19-3 Statement of Purpose and Findings
- 10-19-4 Short Title
- 10-19-5 Applicability
- 10-19-6 Definitions
- 10-19-7 Airport Zoning Requirements
- 10-19-8 Airport Land Use and Height Overlay Zoning Map
- 10-19-9 Airport Land Use and Height Overlay Zones
- 10-19-10 Ordinance Administration
- 10-19-11 Non-conforming Uses
- 10-19-12 Airport Land Use and Height Overlay Zoning Permits
- 10-19-13 Marking and Lighting of Airport Hazards
- 10-19-14 Height Limitations
- 10-19-15 Airport Board of Adjustment
- 10-19-16 Variances
- 10-19-17 Appeals
- 10-19-18 Judicial Review
- 10-19-19 Penalties
- 10-19-20 Conflicting Regulations
- 10-19-21 Severability
- 10-19-22 Effective Date
- Exhibit A Airport Land Use and Height Overlay Zoning Map

10-19-1 Introduction

This Ordinance shall regulate and restrict the height of structures, objects, and growth of natural vegetation, as well as regulate and restrict land uses; otherwise regulating the use of property, within the vicinity of the Muscatine Municipal Airport. Creation of appropriate zones and establishing the boundaries thereof, as well as providing for changes in the restrictions and boundaries of such zones, is vested in this Ordinance. The Muscatine Municipal Airport Land Use and Height Zoning Map, is incorporated into and made part of this Ordinance. The Ordinance also provides for the enforcement of the Ordinance, the establishment of an Airport

Board of Adjustment; and imposition of penalties related to the implementation of the Ordinance.

This ordinance is intended to supplement and be interpreted as an overlay of existing zoning regulations of the municipalities and counties in which the airport zoning boundaries cover. Those governmental jurisdictions affected by this ordinance are the City of Muscatine, Iowa, City of Fruitland, Iowa, Muscatine County, Iowa, Louisa County, Iowa, and Rock Island County, Illinois. The 2023 Muscatine, Iowa Airport Land Use and Height Overlay Zoning Ordinance is created by the City of Muscatine, with assistance from Anderson Bogert (of Cedar Rapids, Iowa).

10-19-2 Authority

Iowa Code Section 329.3, Airport Zoning, empowers local municipalities to regulate land uses and restrict building heights in the vicinity of airports, including dividing such area into zones, and within such zones, specifying the land uses permitted, and regulating and restricting, for the purpose of preventing airport hazards, the heights to which structures and trees may be erected or permitted to grow.

10-19-3 Statement of Purpose and Findings

The Muscatine Municipal Airport is acknowledged as an essential public facility to the State of Iowa and the local community.

The creation or establishment of an airport hazard is a public nuisance and poses a potential safety concern to the surrounding communities served by the Muscatine Municipal Airport.

No creation or establishment of a hazard shall occur that endangers public health, safety, welfare, or impacts an individual's quality of life, nor prevents the safe movement of aircraft using the Muscatine Municipal Airport.

For the protection of the public health, safety, and general welfare, and for the promotion of the most appropriate use of land, preventing the creation or establishment of airport hazards is a necessity.

The prevention of airport hazards shall be accomplished, to the extent legally possible, by proper exercise of the police power.

The prevention of new airport hazards; the elimination, removal, alteration, mitigation, or marking and lighting of existing airport hazards; and the acquisition of property or easements are all considered to be a public purpose for which the City of Muscatine, City of Fruitland, Muscatine County, Louisa County, and Rock Island County may raise and expend public funds; these actions shall be considered incidental to the operation of the Muscatine Municipal Airport.

The need to plan for compatible land use near airports is not a new concept. Compatible land use was recognized as early as 1952 in a document entitled *The Airport and Its Neighbors - The Report of the President's Airport Commission*. As stated in the *Iowa Airport Land Use Guidebook*, the incidence of incompatible land uses and impact on airport operations and development have escalated. As decisions to allow incompatible land uses near airports threaten the nation's aviation system, implementation of compatible land use controls have become an industry priority. Maintaining an obstruction-free airport and associated airspace is important for the Muscatine Municipal Airport. This includes the area that encompasses the airport, runway protection zones, approach areas, and general vicinity of the airport. While some of these areas are owned by the City, the bulk of the land beyond airport boundaries is privately owned and needs to be managed by the local municipalities and/or counties in which the airport jurisdiction falls. FAA criteria, such as grant assurances and design guidelines, along with aviation accident statistics, provide the foundation and the justification for airport compatible land use regulations.

Lastly, land use compatibility is critical to the Muscatine Municipal Airport, because certain grant assurances are required as part of a project application from airports that are eligible to request federal funds. Upon acceptance of grant money, these assurances are incorporated into and become part of the grant agreement. The airport sponsor is obligated to comply with specific assurances, which include the maintenance of compatible land use within the vicinity of the airport. Specifically, Grant Assurance 21 included in the September 1999 amendment to 49 USC 47107, requires all airports that accept federal money to take appropriate action against incompatible land uses in the immediate vicinity of the airport. Such actions include adopting zoning laws and zoning changes that will increase airport land use compatibility. This grant assurance obligates an airport sponsor to protect the federal investment through the maintenance of a safe operating environment. The development of compatible land uses near airports is supported through cooperative comprehensive planning that includes FAA standards. Land use compatibility is a requirement for eligibility to receive FAA grant money for airport improvements. Adjacent land uses that are not compatible with airports may result in the loss of federal or state funding for the adjacent airports.

10-19-4 Short Title

This Ordinance shall be known and may be cited as the 2023 Muscatine, Iowa Airport Land Use and Height Overlay Zoning Ordinance, and it is referred to as "the Ordinance" within the following sections.

10-19-5 Applicability

This ordinance encompasses a prescribed area around the Muscatine Municipal Airport; specific dimensions associated with the overlay zone boundary are shown in the Airport Land Use and Height Overlay Zoning Map, included as Exhibit A.

10-19-6 Definitions

- A. **Air Traffic.** (*FAA FAR Sec. 1.1*) Aircraft operating in the air or on an airport surface, exclusive of loading ramps and parking areas.
- B. **Airport.** (*FAA FAR Sec. 152.3*) Any areas of land or water that is used, or intended for use, for the landing and takeoff of aircraft. Any appurtenant areas that are used, or intended for use, for airport buildings, other airport facilities, or rights-of-way; and all airport buildings and facilities located on the areas specified in this definition. The Muscatine Municipal Airport is owned by the City of Muscatine, Iowa.
- C. **Airport Elevation.** (*FAA AC 150/5190-4A*) The highest point on an airport's usable landing area measured in feet from sea level.
- D. **Airport Hazard.** (*FAA FAR Sec. 152.3*) Any structure or object of natural growth located on or in the vicinity of a public airport, or any use of land near a public airport that obstruct the airspace required for the flight of aircraft landing or taking off at the airport; or is otherwise hazardous to aircraft landing or taking off at the airport.
- E. **Airport Land Use and Height Overlay Zoning Map.** The Airport Land Use and Height Overlay Zoning Map is compiled from the criteria in FAR Part 77, "Objects Affecting Navigable Airspace." It shows the area affected by the Airport Land Use and Height Overlay Zoning Ordinance, and includes the layout of runways, airport overlay zones A-E, airport overlay zone elevations, and area aerial imagery. Applicable height limitations are shown in detail.
- F. **Airport Land Use and Height Overlay Zoning Permit.** Airport land use and height overlay zoning permit allowing new development or allowing alteration or expansion of a nonconforming use in the vicinity of the airport.
- G. **Airport Overlay Zones.** A zone intended to place additional land use conditions on land impacted by the airport while retaining the existing underlying zone. The FAR Part 77 Surfaces and RPZs have been combined to create five airport overlay zones for this ordinance. The five specific zones, which are listed below, comprise a comprehensive area focused on maintaining compatible land use around the Muscatine Municipal Airport. Definitions for each individual zone can be found in Section 9.A. of this Ordinance.
 - 1. **Zone A (Runway Protection Zone)**

2. **Zone B (Approach Surface)**
 3. **Zone C (Transitional Surface)**
 4. **Zone D (Horizontal Surface)**
 5. **Zone E (Conical Surface)**
- H. **Airspace.** (*FAA Web site*) The space lying above the earth or above a certain area of land or water that is necessary to conduct aviation operations.
- I. **Approach Slopes.** (*FAR Part 77*) The ratios of horizontal to vertical distance indicating the degree of inclination of the Approach Surface. The various ratios include:
1. **20:1.** For all utility and visual runways extended from the primary surface a distance of 5,000 feet.
 2. **34:1.** For all non-precision instrument runways extended from the primary surface for a distance of 10,000 feet.
 3. **50:1/40:1.** For all precision instrument runways extending from the primary surface for a distance of 10,000 feet at an approach slope of 50:1 and an additional 40,000 feet beyond this at a 40:1 Approach Slope.
- J. **Approach Surface.** (*FAA AC 150/5190-4A*) A surface longitudinally centered on the extended runway centerline, extending outward and upward from the end of the primary surface and at the same slope as the approach zone height limitation slope set forth in this Ordinance. The perimeter of the approach surface coincides with the perimeter of the approach zone.
- K. **Commercial Uses.** Commercial uses means a use category including land uses or activities involving the production, processing, manufacturing, or sale of goods or services for financial gain, including uses that provide merchandise to the general public. Accessory uses may include offices, storage, food service, or other amenities primarily for the use of employees and parking.
- L. **Compatibility.** The degree to which land uses or types of development can coexist or integrate.
- M. **Easement.** (*FAA AC 5020-1*) The legal right of one party to use a portion of the total rights in real estate owned by another party. This may include the right of passage over, on, or below property; certain air rights above the property, including view rights; and the rights to any specified form of development or activity, as well as any other legal rights in the property that may be specified in the easement document.
- N. **Federal Aviation Administration (FAA).** (*FAA Web site*) A federal agency charged with regulating air commerce to promote its safety and development; encourage and develop civil aviation, air traffic control, air navigation; and promoting the development of a national system of airports.

- O. Federal Aviation Regulations (FAR).** *(FAA FAR)* Regulations established and administered by the FAA that govern civil aviation and aviation-related activities.
- 1. FAR Part 36.** *(FAA FAR Sec. 36.1)* Regulation establishing noise standards for the civil aviation fleet.
 - 2. FAR Part 91.** *(FAA FAR Sec. 91.1)* Regulation pertaining to air traffic and general operating rules, including operating noise limits.
 - 3. FAR Part 150.** *(FAA FAR Sec. 150.1)* Regulation pertaining to airport noise compatibility planning.
 - 4. FAR Part 161.** *(FAA FAR Sec. 161.1)* Regulation pertaining to notice and approval of airport noise and access restrictions.
 - 5. FAR Part 77.** *(FAA FAR Sec. 77.1)* Objects Affecting Navigable Airspace - Part 77 (a) establishes standards for determining obstructions in navigable airspace; (b) defines the requirements for notice to the FAA Administrator of certain proposed construction or alteration; (c) provides for aeronautical studies of obstructions to air navigation to determine their effect on the safe and efficient use of airspace; (d) provides for public hearings on the hazardous effect of proposed construction or alteration on air navigation; and (e) provides for establishing antenna farm areas.
- P. Height.** Height is utilized for the purpose of determining the height limits in all zones set forth in this Ordinance and shown on the Official Airport Land Use and Height Overlay Zoning Map (Exhibit A); height shall be measured as the highest point of a structure, tree, or other object of natural growth, measured from the mean sea level elevation unless otherwise specified.
- Q. Imaginary Surfaces.** *(FAA FAR Part 77.25)* Those areas established in relation to the airport and to each runway consistent with FAR Part 77 in which any object extending above these imaginary surfaces, by definition, is an obstruction.
- 1. Transitional surface.** The transitional surface extends outward and upward at right angles to the runway centerline and extend at a slope of seven feet horizontally for each one foot vertically (7:1) from the sides of the primary and approach surfaces. The transitional surfaces extend to the point at which they intercept the horizontal surface at a height of 150 feet above the established airport elevation.
 - 2. Horizontal surface.** The horizontal surface is a horizontal plane, typically elliptical in shape, located 150 feet above the established airport elevation and encompasses an area from the transitional surface to the conical surface. The perimeter is constructed by generating arcs from the center of each end of the primary surface and connecting the adjacent arcs by lines tangent to those arcs. The radius of each arc for all runway ends is 10,000 feet.

3. **Conical surface.** The conical surface extends upward and outward from the periphery of the horizontal surface at a slope of 20 feet horizontally for every one foot vertically (20:1) for a horizontal distance of 4,000 feet.
 4. **Approach surface.** The approach surface is longitudinally centered on the extended runway centerline and extends outward and upward from the end of the runway primary surface. The approach slope of a runway is a ratio of 20:1, 34:1, or 50:1, depending on the approach type. The length of the approach surface varies from 5,000 to 50,000 feet and also depends upon the approach type.
- R. **Incompatible Land Use.** (*FAA FAR Sec. 150.7*) The use of land which is normally incompatible with the aircraft and airport operations (such as, but not limited to, homes, schools, nursing homes, hospitals, and libraries).
- S. **Industrial, Wholesale Trade, and Storage Uses.** A use category including the following use types:
1. Industrial development or uses involved in the research, design, manufacturing, processing, fabrication, packaging, or assembly of goods. Natural, man-made, raw, secondary, or partially completed materials may be used. Products may be finished or semi-finished and are generally made for the wholesale market, for transfer to other plants, or to order for firms or customers. Goods are generally not displayed or sold on site, but if so, they are a subordinate part of sales (typically 10% or less of the total gross floor area). Relatively few customers come to the site.
 2. Industrial, manufacturing, wholesale trade, and warehouse/storage uses including uses that produce goods from raw or finished materials, uses that distribute goods in large quantities to primarily wholesale customers, or provide for storage or warehousing of goods, either in enclosed buildings or outdoors. Few customers, especially the general public, come to the site. Accessory activities may include sales, offices, parking, and storage.
- T. **Land Use Compatibility.** (*FAA Web site*) The coexistence of land uses surrounding the airport with airport-related activities.
- U. **Lighting and Marking of Hazards to Air Navigation.** Installation of appropriate lighting fixtures, painted markings or other devices to such objects or structures that constitute hazards to air navigation.
- V. **Mitigation.** (*FAA Web site*) The avoidance, minimization, reduction, elimination or compensation for adverse environmental effects of a proposed action.
- W. **Navigable Airspace.** The airspace above minimum altitude for safe flight, and includes the airspace needed to ensure safety in take-off and landing of aircraft.

- X. **Noise Exposure Contours.** (*FAA Web site*) Lines drawn around a noise source indicating constant energy levels of noise exposure. DNL is the measure used to describe community exposure to noise.
- Y. **Noise Impact.** A condition that exists when the noise levels that occur in an area exceed a level identified as appropriate for the activities in that area.
- Z. **Noise Sensitive Area.** (*FAA AC 91-36D*) Defined as an area where noise interferes with normal activities associated with the area's use. Examples of noise-sensitive areas include residential, educational, health, and religious structures and sites, and parks, recreational areas (including areas with wilderness characteristics), wildlife refuges, and cultural and historical sites where a quiet setting is a generally recognized feature or attribute.
- AA. **Non-Conforming Use.** (*FAA Web site*) Any pre-existing structure, tree, or use of land that is inconsistent with the provisions of the local land use or airport master plans.
- BB. **Non-Precision Instrument Runway.** (*FAA AC 150/5190-4A*) A runway having an existing instrument approach procedure utilizing air navigation facilities with only horizontal guidance, or area type navigation equipment, for which a straight-in non-precision instrument approach procedure has been approved or planned.
- CC. **Object.** (*FAA AC 150/5300-13*) Includes, but is not limited to above ground structures, navigational aids, people, equipment, vehicles, natural growth, terrain, and parked aircraft.
- DD. **Obstacle Free Zone (OFZ).** (*FAA 150/5300-13*) The OFZ is the airspace below 150 feet (45 m) above the established airport elevation and along the runway and extended runway centerline that is required to be clear of all objects, except for the frangible visual navigational aids that need to be located in the OFZ because of their function, in order to provide clearance protection for the aircraft landing or taking off from the runway, and for missed approaches.
- EE. **Obstruction.** (*FAA AC 150/5190-4A*) Any structure, growth, or other object, including a mobile object, which exceeds a limiting height, specific to its geographic location relative to the runway/airport.
- FF. **Overlay Zone.** (*FAA Web site*) A mapped zone that imposes a set of requirements, in addition to those of the underlying zoning district.
- GG. **Part 150 Study.** (*FAA Web site*) Part 150 is the abbreviated name for the airport noise compatibility planning process outlined in Part 150 of the Federal Aviation Regulation (FAR) that allows airport owners to voluntarily submit noise exposure maps and noise compatibility programs to the FAA for review and approval. See "Noise Compatibility Plan."
- HH. **Primary Surface.** (*FAA AC 150/5190-4A*) A surface longitudinally centered on a runway. When the runway has a specially prepared hard surface, the primary

surface extends 200 feet beyond each end of that runway; for military runways or when the runway has no specially prepared hard surface, or planned hard surface, the primary surface ends at each end of that runway. The width of the primary surface is set forth in FAR Part 77. The elevation of any point on the primary surface is the same as the elevation of the nearest point on the runway centerline.

- II. **Primary Runway.** (FAA AC 150/5325-4B General Definition) The runway used for the majority of airport operations. Large, high-activity airports may operate two or more parallel primary runways.
- JJ. **Public Assembly Use.** A structure or outdoor facility where concentrations of people gather for purposes such as deliberation, education, shopping, business, entertainment, amusement, sporting events, or similar activities, but excluding air shows. "Public assembly use" does not include places where people congregate for relatively short periods of time, such as parking lots and bus stops, or uses approved by the FAA in an adopted airport master plan.
- KK. **Residential and Accommodation Uses.** Mean a use category that includes the following use types:
 - 1. Residential uses that provide living accommodations, including sleeping, eating, cooking and sanitary facilities, to one or more persons, and where tenancies typically last longer than 30 days.
 - 2. Accommodation uses characterized by visitor-serving facilities that provide temporary lodging in guest rooms or guest units, for compensation, and with an average length of stay of less than 30 days. Accessory uses may include pools and other recreational facilities for the exclusive use of guests, limited storage, restaurants, bars, meeting facilities, and offices.
- LL. **Runway Protection Zone (RPZ).** (FAA AC 150/5300-13) An area off the runway end intended to provide a clear area that is free of above-ground obstructions and structures. RPZs are designed with the intent to protect people and property on the ground. They are located at the end of each runway and should ideally be controlled by the airport. Control is preferably exercised by acquisition of sufficient property interest to achieve and maintain an area that is clear of all incompatible land uses, objects, and activities.
- MM. **Structure.** Any object constructed or installed by humans, including, but without limitation, buildings, towers, smokestacks, and overhead transmission lines, including the poles or other structures supporting the same.
- NN. **Variance.** An authorization for the construction or maintenance of a building or structure, or for the establishment or maintenance of a use of land that is prohibited by a zoning ordinance. A lawful exception from specific zoning ordinance standards and regulations predicated on the practical difficulties and/or unnecessary hardships

on the petitioner being required to comply with the regulations and standards from which a variance is sought.

- OO. Visual Approach.** *(FAA Web site)* An approach to an airport conducted with visual reference to the terrain.
- PP. Visual Runway.** *(FAA AC 150/5300-13)* A runway without an existing or planned straight-in instrument approach procedure.
- QQ. Wetland.** Land on which water covers the soil or is present either at or near the surface of the soil or within the root zone, all year or for varying periods of time during the year, including during the growing season. *(FAA AC 150/5200-33A)* Wetlands provide a variety of functions and can be regulated by local, state, and Federal laws. Normally, wetlands are attractive to many types of wildlife, including many, which rank high on the list of hazardous wildlife species.
- RR. Wildlife Attractants.** Any human-made structure, land-use practice, or human-made or natural geographic feature that can attract or sustain hazardous wildlife within the landing or departure airspace or the airport's air operations area. These attractants include, but are not limited to, architectural features, landscaping, waste disposal sites, wastewater treatment facilities, agricultural or aquaculture activities, surface mining, or wetlands.
- SS. Wildlife Hazards.** Species of wildlife (birds, mammals, reptiles), including feral animals and uncontrolled domesticated animals, that are associated with aircraft strike problems, are capable of causing structural damage to airport facilities, or act as attractants to other wildlife that pose a strike hazard.

10-19-7 Airport Zoning Requirements

In accordance with Section 329.10, Iowa Code, there are three (3) principal airport zoning requirements supported by additional information contained within the following remaining sections of this ordinance. These basic zoning requirements state:

- A.** All airport zoning regulations adopted under this ordinance shall be reasonable and none shall impose any requirement or restriction that is not necessary to make effective the purposes of this ordinance.
- B.**
 - 1.** Airport zoning regulations under this ordinance, when adopted or amended, may require the removal, lowering, or other change or alteration of any structure or tree, or a change in use, not conforming to the regulations when adopted or amended.
 - 2.** Airport zoning regulations adopted under this ordinance may require a property owner to permit the City of Muscatine to install, operate, and maintain on the

property markers and lights as necessary to indicate to operators of aircraft the presence of the airport hazard, when adopted or amended.

- C. All such regulations may provide that a preexisting nonconforming structure, tree, or use, shall not be replaced, rebuilt, altered, allowed to grow higher, or replanted, so as to constitute a greater airport hazard than it was when the airport zoning regulations or amendments to the regulations were adopted.

The City of Muscatine will be responsible for the initial removal of trees, structures, or other natural or man-made obstructions that are not conforming to the regulations of this ordinance when adopted or amended. Any subsequent alterations or removal of any natural or man-made obstructions to the Muscatine Municipal Airport or its airspace will be responsibility of the property owner.

10-19-8 Airport Land Use and Height Overlay Zoning Map

The Airport Land Use & Height Overlay Zoning Districts established by this Ordinance are shown on the Muscatine Municipal Airport Land Use & Height Overlay Zoning Map, consisting of 2 sheets, prepared by Anderson Bogert, attached as Exhibit A to this Ordinance. Such Official Airport Land Use & Height Overlay Zoning Map, may be amended from time to time, and all notations, references, elevations, data, zone boundaries, and other information thereon, is hereby adopted as part of this Ordinance.

10-19-9 Airport Land Use and Height Overlay Zones

The Muscatine Municipal Airport's FAR Part 77 Surfaces and RPZs have been combined to create five airport land use and height overlay zones. These five zones are identified to help maintain compatible land uses around the Muscatine Municipal Airport. Land uses shall be evaluated against these zones, by the City, in order to determine compatibility.

A. Definition of Airport Overlay Zones

1. The five airport overlay zoning districts for the Muscatine Municipal Airport are prescribed within this Ordinance. Specific dimensions for the individual zones for each runway end are noted in the following tables and text.

In addition, the Airport Land Use and Height Overlay Zoning Map should be used by the City to help determine the specific area of impact to land use and building heights associated with each airport overlay zone.

- a. **Zone A – Runway Protection Zone (RPZ).** Zone A is intended to provide a clear area that is free of above-ground obstructions and structures. This zone is closest to the individual runway ends. The dimensional standards for this zone are the same as those described in the *Airport Design* AC (AC 150/5300-13B) and are shown in the following table.

Table 1: Zone A (RPZ) Dimensional Requirements

Runway Ends	Approach Visibility Minimums ¹ <u>1</u>	Dimensions			
		Length L feet	Inner Width W₁ feet	Outer Width W₂ feet	RPZ acres
Runway 24	1/2 mile	2,500	1,000	1,750	78.9
Runway 6	1 mile	1,700	500	1,010	29.5
Runway 12	Not < 1 mile	1,000	500	700	13.8
Runway 30	Not < 1 mile	1,000	500	700	13.8

¹ The RPZ dimensional standards are for the runway end with the specified approach visibility minimums. The departure RPZ dimensional standards are equal to or less than the approach RPZ dimensional standards.

Source: *FAA AC 150/5300-13B, Airport Design Standards*

- b. Zone B – Approach Surface.** Zone B is a critical airport overlay zoning surface that reflects the approach and departure areas for each runway at an airport. The size of Zone B is predicated upon the type of approach (visual, non-precision, or precision) that a specific runway has and the type/size of aircraft utilizing the runway. The following table illustrates the various sizes of Zone B based upon the specific runway criteria at the Muscatine Municipal Airport. A portion of Zone B is overlain by Zone A because the approach surface and RPZ overlap the entire length of the RPZ. Consequently, the length of Zone B begins at the inner edge of the RPZ.

Table 2: Airport Overlay Zones B-E Dimensional Standards

Item	Runway Dimensional Standards (Feet)			
	Runway 24	Runway 6	Runway 12	Runway 30
Primary surface width and Zone B inner width	1,000	1,000	500	500
Zone B end width	16,000	3,500	3,500	3,500
Zone B length	50,000	10,000	10,000	10,000
Zone C width	1,050	1,050	1,050	1,050
Zone D radius	10,000	10,000	10,000	10,000
Zone E width	4,000	4,000	4,000	4,000

- c. **Zone C – Transitional Surface.** Zone C includes those areas that are parallel to the runway pavement and extend 1,050' from the edge of the primary surface, paralleling the runway and extended runway centerline, until they reach the end of Zone A at a 90-degree angle. The specific dimensions for Zone C are based upon various options for the primary surface that is predicated upon the type of approach and critical aircraft.
- d. **Zone D – Horizontal Surface.** Zone D is typically elliptical in shape, but is dependent upon the runway types and the runway configurations at the airport.
- e. **Zone E – Conical Surface.** Zone E is the outermost zone of the airport overlay zoning areas and has the least number of land use restriction considerations. The zone begins at the edge of the horizontal surface and is 4,000 feet in width paralleling the horizontal surface. Height limitations for the surface range from 150 feet above the airport reference elevation at the inner edge to 350 feet at the outer edge.

B. Zone Compatibility

The following tables shall be utilized to assist in evaluating land use compatibility for various land use classifications.

- 1. Uses identified as **compatible (C)** in the tables shall not require additional review; however, consideration should always be given to the following five areas of concerns, when evaluating land uses in the vicinity of the airports:
 - a. Noise sensitive related issues
 - b. High concentrations of people

- c. Tall structures
 - d. Visual obstructions
 - e. Wildlife and bird attractants
2. Uses identified as **NOT compatible (NC)** in the tables shall be precluded from development within the specific zones.
 3. Uses found to require **additional review (AR)** in the tables shall be evaluated for general compatibility utilizing the *Compatible Land Use Planning Checklist* (Appendix J of the Iowa Airport Land Use Guidebook) and the five primary areas of concern noted above.

Nearly every type of land use can be considered both compatible and incompatible relative to airport operations, depending upon the particular aspects of the land use, including management of the land use, and exact location of the land use relative to the airport. For example, land uses typically considered to be compatible with airport operations include commercial, industrial, and agricultural activities. However, each of these may contain aspects considered incompatible, such as:

Some commercial uses may have dense concentrations of people.

Some industrial uses may generate smoke/steam that creates visual obstructions.

Some agricultural operations can create wildlife attractants in certain circumstances.

The City of Muscatine, the City of Fruitland, Muscatine County, Louisa County, and Rock Island County shall each independently assess and collaboratively assess the compatibility of the land uses in detail in the vicinity of the Muscatine Municipal Airport.

Table 3: Residential Land Use Versus Airport Overlay Zones

Muscatine Municipal Airport Zone Chart					
<i>C = Compatible</i>		<i>AR = Additional Review Required</i>		<i>NC = Not Compatible</i>	
Land Uses	Zone A	Zone B	Zone C	Zone D	Zone E
Residential Activities					
Single-Family Uses (1 dwelling per lot)					
<i>Detached Single Family Dwelling</i> (i.e. farm dwelling, detached single family house, manufactured/modular/mobile homes if converted to real property and taxed)	NC	AR	AR	AR	C
<i>Detached Zero Lot Line Dwelling</i> (i.e. condominium)	NC	AR	AR	AR	C
<i>Attached Single Family Dwelling</i> (i.e. townhouses)	NC	AR	AR	AR	C
Two Family Uses (i.e. two principal dwelling units within one building on the same parcel)	NC	AR	AR	AR	C
Multi-Family Uses (i.e. three or more principal dwelling units within a single building on the same parcel, apartments such as condominium, elder, assisted living, townhouse-style)					
<i>Low-Rise</i> (1-3 Levels)	NC	AR	AR	AR	C
<i>Mid-Rise</i> (4-12 Levels)	NC	AR	AR	AR	C
<i>High-Rise</i> (13+ Levels)	NC	AR	AR	AR	AR
Group Living Uses (i.e. assisted living, group care facilities, nursing and convalescent homes, independent group living)	NC	AR	AR	AR	C
Manufactured Housing Parks	NC	AR	AR	AR	C

Table 4: Commercial Land Use Versus Airport Overlay Zones

Muscatine Municipal Airport Zone Chart					
<i>C = Compatible</i>		<i>AR = Additional Review Required</i>		<i>NC = Not Compatible</i>	
Land Uses	Zone A	Zone B	Zone C	Zone D	Zone E
Commercial Activities					
Eating and Drinking Establishments (i.e. restaurants, cafes, coffee shops, fast food restaurants, bars, nightclubs, taverns, cocktail lounges)	NC	AR	AR	AR	C
Quick Vehicle Servicing Uses (i.e. full-serve and mini-serve gas station, unattended card key service stations, car washes)	NC	AR	AR	C	C
Office Uses (i.e. business, government, professional, medical, or financial)					
<i>General Office</i> (i.e. professional offices, financial businesses, government offices)	NC	AR	AR	AR	C
<i>Low-Rise</i> (1-3 Levels)	NC	AR	AR	AR	C
<i>Mid-Rise</i> (4-12 Levels)	NC	AR	AR	AR	C
<i>High-Rise</i> (13+ Levels)	NC	AR	AR	AR	AR
<i>Medical/Dental Office</i> (i.e. medical and dental clinics, chiropractic clinics, physical therapy clinics)	NC	AR	AR	AR	C
<i>Low-Rise</i> (1-3 Levels)	NC	AR	AR	AR	C
<i>Mid-Rise</i> (4-12 Levels)	NC	AR	AR	AR	C
<i>High-Rise</i> (13+ Levels)	NC	AR	AR	AR	AR

Table 4: Commercial Land Use Versus Airport Overlay Zones (Continued)

Muscatine Municipal Airport Zone Chart					
C = Compatible		AR = Additional Review Required		NC = Not Compatible	
Land Uses	Zone A	Zone B	Zone C	Zone D	Zone E
Commercial Activities (Continued)					
Retail Uses (i.e. sale, lease, or rent of new or used products)					
<i>Sales-Oriented</i> (i.e. appliances, convenience stores, bakeries, electronics, furniture, garden supplies, gas stations, groceries, hardware, malls, strip malls, videos)	NC	AR	AR	C	C
<i>Personal Service-Oriented</i> (i.e. retail service-banking establishments, laundromats/dry cleaning, quick printing services, beauty/tanning salons, funeral homes)	NC	AR	AR	AR	C
<i>Repair-Oriented</i> (i.e. consumer goods-electronics, office equipment, appliances)	NC	AR	AR	C	C
<i>Hospitality-Oriented</i> (hotels, motels, convention centers, meeting halls, event facilities)	NC	AR	AR	AR	C
<i>Low-Rise</i> (1-3 Levels)	NC	AR	AR	AR	C
<i>Mid-Rise</i> (4-12 Levels)	NC	AR	AR	AR	C
<i>High-Rise</i> (13+ Levels)	NC	AR	AR	AR	AR
<i>Outdoor Storage and Display-Oriented</i> (i.e. outdoor storage-lumber yards, vehicles sales, landscape material and nursery product sales, farm supply and equipment sales)	NC	AR	AR	C	C

Table 4: Commercial Land Use Versus Airport Overlay Zones (Continued)

Muscatine Municipal Airport Zone Chart					
<i>C = Compatible</i>		<i>AR = Additional Review Required</i>		<i>NC = Not Compatible</i>	
Land Uses	Zone A	Zone B	Zone C	Zone D	Zone E
Commercial Activities (Continued)					
Surface Passenger Services (i.e. passenger terminals for buses, rail services, local taxi and limousine services)	NC	AR	AR	C	C
Vehicle Repair Uses (i.e. vehicle repair or service shops, alignment shops, tire sales)	NC	AR	AR	C	C

Table 5: Industrial/Manufacturing Land Use Versus Airport Overlay Zones

Muscatine Municipal Airport Zone Chart					
<i>C = Compatible</i>		<i>AR = Additional Review Required</i>		<i>NC = Not Compatible</i>	
Land Uses	Zone A	Zone B	Zone C	Zone D	Zone E
Industrial/Manufacturing Activities					
Industrial Service Uses (i.e. machine shops, tool repair, towing and vehicle storage, building supply yards, heating/plumbing/electrical contractors, exterminators, janitorial services, fuel oil distributors, solid fuel yards)	NC	AR	AR	C	C
Manufacturing and Production Uses (i.e. manufacturing, processing, fabrication, packaging or assembly of goods)					
<i>Technical/Light Manufacturing</i> (i.e. electrical components, engineering, scientific and research, office, computer hardware/software, optical, pharmaceuticals, printing/photo facilities, publishing)	NC	AR	AR	AR	C
<i>General Manufacturing</i> (i.e. manufacturing, compounding, assembling or treatment of most articles, materials, or merchandise)	NC	AR	AR	C	C
<i>* Heavy Manufacturing</i> (i.e. concrete and asphalt plants, meat packing plants, wet corn milling, manufacturing of animal feed, paper/paperboard mills, ethanol plants)	NC	AR	AR	AR	AR

* Heavy Manufacturing typically has excessive smoke, dust, or hazardous waste.

Table 5: Industrial/Manufacturing Land Use Versus Airport Overlay Zones (Continued)

Muscatine Municipal Airport Zone Chart					
<i>C = Compatible</i>	<i>AR = Additional Review Required</i>			<i>NC = Not Compatible</i>	
Land Uses	Zone A	Zone B	Zone C	Zone D	Zone E
Industrial/Manufacturing Activities (Continued)					
Mining and Extraction Uses	NC	AR	AR	AR	AR
Salvage Operations (i.e. firms that collect, store, and dismantle damaged or discarded vehicles, machinery, appliances, and building material)	NC	AR	AR	C	C
Self-Service Storage Uses (i.e. mini-warehouses/storage facilities)	NC	AR	AR	C	C
Warehouse and Freight Uses (i.e. major wholesale distribution centers, general freight storage, railroad switching yards, bus/rail car storage lots, parcel service, grain terminals)	NC	AR	AR	C	C
Waste-Related Uses* (i.e. recycling centers, sanitary landfills, waste transfer stations, composting, energy recovery plants, sanitary and water treatment facilities, sanitary collection/pumping facilities, hazardous waste collection sites)	NC	AR	AR	AR	AR

* Waste-Related Uses can attract wildlife, which can be hazardous to aircraft.

Table 5: Industrial/Manufacturing Land Use Versus Airport Overlay Zones (Continued)

Muscatine Municipal Airport Zone Chart					
<i>C = Compatible</i>		<i>AR = Additional Review Required</i>		<i>NC = Not Compatible</i>	
Land Uses	Zone A	Zone B	Zone C	Zone D	Zone E
Industrial/Manufacturing Activities <i>(Continued)</i>					
Wholesale Sales Uses (i.e. sale, lease, or rental of products to retailers for industrial, institutional, or commercial business users)	NC	AR	AR	C	C

Table 6: Institutional Land Use Versus Airport Overlay Zones

Muscatine Municipal Airport Zone Chart					
<i>C = Compatible</i>	<i>AR = Additional Review Required</i>			<i>NC = Not Compatible</i>	
Land Uses	Zone A	Zone B	Zone C	Zone D	Zone E
Institutional Activities					
Basic Utility Uses (i.e. utility substation facilities, electrical substations, water and sewer lift stations, water towers)	NC	AR	AR	AR	AR
College and Universities (i.e. public or private colleges and universities, technical colleges, seminaries)	NC	AR	AR	AR	C
Community Service Uses (i.e. public, nonprofit, or charitable nature providing a local service to the people)					
<i>General Community Service</i> (i.e. libraries, museums, transit centers, park and ride facilities, senior/community/neighborhood centers, police and fire stations)	NC	AR	AR	AR	C
<i>Community Service-Shelter</i> (i.e. transient housing)	NC	AR	AR	AR	C
Daycare Uses (i.e. childcare centers, adult daycare, preschools, after school programs)	NC	AR	AR	AR	C
Detention Facilities (i.e. prisons, jails, probation centers, juvenile detention homes, halfway houses)	NC	AR	AR	C	C

Table 6: Institutional Land Use Versus Airport Overlay Zones (Continued)

Muscatine Municipal Airport Zone Chart					
<i>C = Compatible</i>	<i>AR = Additional Review Required</i>			<i>NC = Not Compatible</i>	
Land Uses	Zone A	Zone B	Zone C	Zone D	Zone E
Educational Facilities (i.e. public and private schools)					
<i>General Educational Facilities</i> (i.e. public and private elementary, middle, junior, and senior high schools including religious, boarding, military schools)	NC	AR	AR	AR	C
<i>Specialized Education Facilities</i> (i.e. specialized trade, business, or commercial courses, non-degree granting schools)	NC	AR	AR	AR	C
Hospitals (i.e. hospitals, medical centers)	NC	AR	AR	AR	C
Religious Assembly Uses (i.e. churches, temples, synagogues, mosques, Masonic, eagles, moose, or elk lodges)	NC	AR	AR	AR	C

Table 7: Infrastructure Land Use Versus Airport Overlay Zones

Muscatine Municipal Airport Zone Chart					
<i>C = Compatible</i>		<i>AR = Additional Review Required</i>		<i>NC = Not Compatible</i>	
Land Uses	Zone A	Zone B	Zone C	Zone D	Zone E
Infrastructure Activities					
Communication Transmission Facility Uses (i.e. broadcast, wireless, point to point, emergency towers and antennae)	NC	AR	AR	AR	AR
Parking Uses (i.e. ground lots, parking structures)	AR	C	C	C	C
Transportation Uses (i.e. highways, interstates, local and county roads)	AR	C	C	C	C
Utility Uses (i.e. solar power generation equipment, wind generators, wind farms)	NC	AR	AR	AR	AR

Table 7: Infrastructure Land Use Versus Airport Overlay Zones (Continued)

Muscatine Municipal Airport Zone Chart					
<i>C = Compatible</i>		<i>AR = Additional Review Required</i>		<i>NC = Not Compatible</i>	
Land Uses	Zone A	Zone B	Zone C	Zone D	Zone E
Infrastructure Activities					
Agricultural Uses (i.e. commercial cultivation of plants, livestock production)					
<i>Plant-related</i> (i.e. crop farming, vegetable, fruit, and tree, wholesale plant nurseries)	AR	AR	AR	C	C
<i>Animal-related</i> (i.e. livestock operations, dairy farms, horse farms)	AR	AR	AR	C	C
<i>Resident-related</i> (i.e. single-family home, mobile home if converted to real property and taxed)	NC	AR	AR	AR	C
<i>Facility-related</i> (i.e. fuel bulk storage/pumping facility, grain elevator, livestock/seed/grain sales)	NC	AR	AR	AR	C
Floodplains	AR	AR	AR	C	C
Water Bodies (i.e. open bodies containing water)					
<i>Man-made resources</i> (i.e. mining and extraction, water detention ponds, wetlands)	NC	AR	AR	AR	AR
<i>Naturally occurring</i> (i.e. lakes, ponds, prairie pot holes, rivers, streams, wetlands)	NC	AR	AR	C	C
Wildlife Preservation Areas (i.e. petting zoos, wildlife rehabilitation centers, zoos)	NC	AR	AR	AR	C

Table 8: Parks and Recreation Land Use Versus Airport Overlay Zones

Muscatine Municipal Airport Zone Chart					
<i>C = Compatible</i>	<i>AR = Additional Review Required</i>			<i>NC = Not Compatible</i>	
Land Uses	Zone A	Zone B	Zone C	Zone D	Zone E
Parks and Recreation Activities					
Commercial Recreational Uses (i.e. facilities used for physical exercise, recreation, or culture)					
<i>Outdoor</i> (i.e. campgrounds, tennis/swimming facilities, drive-in theaters, skating rinks, pavilions, amphitheaters)	NC	AR	AR	AR	C
<i>Indoor</i> (i.e. physical fitness centers, health clubs, bowling alleys, skating rinks, billiard halls, arcades, indoor theaters)	NC	AR	AR	C	C
<i>Golf</i> (i.e. golf driving ranges, outdoor miniature golf, 9+ hole courses)	NC	AR	AR	AR	C
Utility Uses (i.e. amusement/theme parks, fairgrounds, racetracks, sports arenas)	NC	AR	AR	AR	AR
Parks (i.e. aquatic, mini, private, sports, neighborhood, school, community)	NC	AR	AR	C	C
Casino	NC	AR	AR	AR	C

In Tables 3-8, if a specified use of land, building, or structure is proposed by an applicant and not identified on the land use compatibility charts, the Airport Zoning Administrator shall be responsible for determining the level of land use compatibility. If the applicant disagrees with the decision, they may appeal the decision as detailed in section 10-19-17 of this ordinance.

10-19-10 Ordinance Administration

This section identifies the entity who will administer and enforce the regulations prescribed in the Ordinance. This section will also define the powers given to the administrator to exercise his/her duties and procedures within the provision of the Ordinance.

It shall be the duty of the City of Muscatine, Iowa, Community Development Director, or designee, referred to herein as the "Airport Zoning Administrator", to administer the regulations prescribed herein. Applications for permits and variances shall be made to the Airport Zoning Administrator upon forms furnished by the Airport Zoning Administrator. Applications for action by the Airport Board of Adjustment shall be forthwith transmitted by the Airport Zoning Administrator, should an applicant request review. Permit applications shall be either granted or denied by the Airport Zoning Administrator, according to the regulations prescribed herein.

As stated in Section 329.13, Iowa Code, all airport zoning regulations adopted under this ordinance shall provide for the administration and enforcement of such regulations by an administrative agency. For purposes of the 2023 Muscatine, Iowa Airport Land Use and Height Overlay Zoning Ordinance, the administration will be enforced by the Muscatine Airport Zoning Administrator with consultation and cooperation from the City of Fruitland City Clerk, the Muscatine County Engineer, the Louisa County Engineer, and the Rock Island County Engineer. However, in no case, shall such administrative agency be or include any member of the Airport Board of Adjustment. The duties of any administrative agency designated pursuant to the Iowa Code or this ordinance shall not include any of the powers herein delegated to the Airport Board of Adjustment. The Muscatine Airport Zoning Administrator will be recognized as the official Airport Zoning Administrator, since the operation of the Muscatine Municipal Airport falls within the jurisdiction of the City of Muscatine. However, if needed, the City of Fruitland City Clerk, the Muscatine County Engineer, the Louisa County Engineer, and/or the Rock Island County Engineer may be called upon from time to time, to consult with and/or confer with the Airport Zoning Administrator about the airport zoning ordinance regulations.

10-19-11 Nonconforming Uses

The intent of this ordinance is to discourage their continuance, but to permit existing legal nonconforming buildings, structures, or natural resources to continue until they are removed, unless such nonconforming use is determined by the FAA to be a hazard within one of the airport zones and required to be altered or changed in accordance with FAA regulations. Furthermore, the intent of this ordinance is that nonconformities shall not be enlarged upon, expanded, or extended, nor be used to add other nonconforming structures prohibited elsewhere in the defined airport zones.

- A.** In accordance with Section 329.10, Iowa Code, and stated above in Section 10-19-7 of this ordinance, any preexisting nonconforming structure, tree, or land use, shall

not be replaced, rebuilt, altered, allowed to grow higher, or replanted, so as to constitute a greater airport hazard than it was when these airport zoning regulations or amendments to these regulations were adopted. With that stated, where a lawful building or structure exists prior to the effective date of adoption or amendment of this ordinance that could not be built under the terms of this airport ordinance by reason of restrictions on height or land use compatibility, such structure may be continued, so long as it remains otherwise lawful and in compliance with FAA regulations; subject to the following provisions:

1. No such nonconforming structure may be enlarged or altered in a way that increases its nonconformity. Such structure may be enlarged or altered in a way that does not increase its nonconformity.
 2. Should such nonconforming structure be destroyed by any means to an extent of more than seventy-five percent (75%) of its replacement cost, it shall be reconstructed only in conformity with the provisions of this airport ordinance.
 3. Should any nonconforming structure be moved within the boundaries of any of the five (5) airport zones for any reason or for any distance whatever, it shall thereafter conform to the regulations of this airport zoning ordinance.
 4. Discontinuance. In the event a nonconforming building, structure or use is discontinued for a period of one (1) year, its height and land use compatibility shall conform thereafter to the provisions of this airport zoning ordinance.
- B.** On any nonconforming building or structure, work may be done on ordinary repairs or replacement of non-bearing walls not exceeding seventy-five percent (75%) of the assessed value of the building, provided the cubic content of the building shall not be increased. Nothing in this ordinance shall be deemed to prevent the strengthening or restoring to a safe condition of any building or part thereof declared to be unsafe by an official charged with protecting the public safety upon orders of such official. A change of tenancy, ownership, or management of any existing nonconforming uses of land, buildings or structures shall be allowed under this ordinance.

10-19-12 Airport Land Use and Height Overlay Zoning Permits

- A.** The duty of the applicant shall include providing the Airport Zoning Administrator with sufficient information to evaluate the proposed action. This information shall include but not be limited to the following:
1. Contact information
 2. Structure information including: location based on State Plane Coordinates NAD 83, and vertical control based on the NAVD 88 control system; proposed finish floor elevation of structure; and height of structure.

3. Site information
 4. Drawing information
 5. Certification
 6. Identify current and potential compatibility concerns (from the following five areas of concern: noise sensitive related issues, high concentrations of people, tall structures, visual obstructions, and wildlife/bird attractants)
- B.** Buildings or other structures located within the Muscatine Municipal Airport land use and height overlay zoning area, which is defined herein, shall be reviewed in accordance with the allowable height and land use classifications accordingly. All proposed land uses, exclusive of communication uses (e.g. specifically cell towers, antennas, etc.), utility uses (e.g. specifically wind generators, wind farms) and waste related uses (e.g. specifically landfills), shall not be subject to any further review of the airport zoning ordinance, if such proposed building or structure is located within airport overlay Zones D and E and such building or structure meets the height requirements indicated on the Muscatine Airport Land Use and Height Overlay Zoning Map.

Furthermore, those proposed buildings or structures to be located within airport overlay zones A, B, and C of the Muscatine Municipal Airport land use and height overlay zoning area, which is defined herein, shall automatically be reviewed by the Airport Zoning Administrator, in accordance with both height and land use conformance. The Airport Zoning Administrator shall determine if such proposed building or structure meets the initial criteria for additional height and land use review or if the proposed use is exempted from additional review. If the affected jurisdiction determines an additional level of review is needed, the appropriate authority shall submit a copy of the permit under review to the Airport Zoning Administrator. Upon review by the Airport Zoning Administrator, comments and a recommendation on approval, approval with conditions or denial of such permit shall be returned to the originating jurisdiction, in which the proposed building or structure is located. The Airport Zoning Administrator shall approve the permit if after evaluation, the proposed project is found to be adequately compatible. Should the proposed project be found to be incompatible after review, the Airport Zoning Administrator shall recommend denial of the permit. Should the permit be denied, the applicant shall have the right to request an appeal, as prescribed in this ordinance. Any airport zoning review shall be null and void, if the purpose for which the permit is issued has not commenced within one (1) year from date of issuance. Should the activity commence after that time, a new airport zoning review shall be required.

10-19-13 Marking and Lighting of Airport Hazards

This section identifies lighting and marking requirements in the vicinity of the airport, in order to help provide for safe aircraft operations, as well as for the health, safety, and welfare of individuals on the ground.

- A.** Lighting and marking requirements will be determined through an FAA 7460-1 airspace analysis. The applicant shall provide Notice of the Proposed Construction or Alteration to the FAA, by filing form 7460-1 electronically via the OEAAA website.
- B.** The owner of any structure, object, natural vegetation, or terrain is hereby required to install, operate, and maintain such markers, lights, and other aids to navigation necessary to indicate to the aircraft operators, in the vicinity of an airport, the presence of an airport hazard. Hazard markers and lights shall be installed, operated, and maintained at the expense of the owner of such building, structure, or object requiring such lighting or marking within the findings of the 7460-1 airspace analysis.

10-19-14 Height Limitations

- A.** No structure, object, natural vegetation, or terrain shall be erected, altered, allowed to grow or be maintained within any airport zoning district established by this Ordinance to a height in excess of the applicable height limitations set forth in this Ordinance and the Airport Land Use and Height Overlay Zoning Map. The permitted height shall not exceed the difference between the grade elevation and the height limitation numbers illustrated on the "Official Airport Land Use and Height Overlay Zoning Map" within the various airport zones encompassed by this Ordinance. The Airport Land Use and Height Overlay Zoning Map is attached as Exhibit A and is located in the Office of the City Clerk (City of Muscatine), Fruitland City Hall, the Muscatine County Engineer's Office, the Louisa County Engineer's Office, and the Rock Island County Engineer's Office.
- B.** An FAA 7460-1 airspace review shall provide a portion of the information necessary to evaluate potential height impacts; however, it shall not be the sole source of review.

10-19-15 Airport Board of Adjustment

- A.** The Muscatine Airport Board of Adjustment shall consist of two (2) members from the City of Muscatine, one (1) from the City of Fruitland, and one (1) from Muscatine County, selected from sitting members of the respective entities Board of Adjustment and appointed by the governing body thereof, along with one (1) additional member to be selected by the Muscatine Airport Advisory Commission. The five (5) appointed members will select a chairperson amongst themselves.

Airport Board of Adjustment members may be removed for cause by the appointing authorities (either City of Muscatine, City of Fruitland, or Muscatine County) upon written charges and after a public hearing. Vacancies shall be filled for the unexpired term of any member whose office becomes vacant, in the same manner in which said member was selected. The terms of the board members shall be for five (5) years.

- B.** Any person, property owner, or taxpayer impacted by any decision of this ordinance, may appeal to the Airport Board of Adjustment. According to Section 329.12, Code of Iowa, the governing body of any municipality seeking to exercise powers under Chapter 329, shall by ordinance provide for the appointment of a Board of Adjustment, as provided in section 414.7 for a city, or as provided in section 335.10 for a county. The board of adjustment has the same powers and duties, and its procedure and appeals are subject to the same provisions as established in Code of Iowa sections 414.9 to 414.19 for a city, or sections 335.12 to 335.21 for a county. The concurring vote of a majority of the board shall be necessary to reverse any order, requirement, decision, or determination of any administrative official or to decide in favor of the applicant on any matter upon which it is required to pass under any regulations adopted pursuant to this chapter or to affect any variance therefrom.

10-19-16 Variances

In accordance with Section 239.11, Code of Iowa, any person desiring to erect, alter, or increase the height of any structure, object, or to permit the growth of any natural vegetation, or otherwise use his property in violation of airport zoning regulations adopted under this ordinance, may apply to the Airport Board of Adjustment for variance from such zoning regulations. Such variances shall be allowed where a literal application or enforcement of the regulations would result in practical difficulty or unnecessary hardship, and the relief granted would not be contrary to the public interest, but would do substantial justice and be in accordance with the spirit of the regulations and this chapter; provided, however, that any such variance may be allowed subject to any reasonable conditions that the Airport Board of Adjustment may deem necessary to effectuate the purposes of this Ordinance. No application for variance to the requirements of this Ordinance may be considered by the Airport Board of Adjustment, unless a copy of the application has been submitted to the Muscatine Municipal Airport Zoning Administrator for an opinion as to the aeronautical effects of the variance.

10-19-17 Appeals

Any person aggrieved, or any taxpayer affected, by any decision by the Airport Zoning Administrator made in the administration of this Chapter may appeal to the Airport Board of Adjustment by complying with the provisions of Section 10-31-2(B) of the City of Muscatine Zoning Ordinance.

10-19-18 Judicial Review

Any person or persons, or any board, taxpayer, department, board or bureau of the city aggrieved by any decision of the Airport Board of Adjustment may seek review of such decision of the Board by a Court of Record in the manner provided by the laws of the State of Iowa and particularly by Section 414.15, Code of Iowa.

10-19-19 Penalties

- A.** Unless provided elsewhere in this ordinance or in the city's Code of Ordinances, any person, firm, corporation, or agent who violates, disobeys, omits, neglects, or refuses to comply with, or resists the enforcement any of the provisions of this ordinance or any amendment thereof; or who shall build or alter any building in violation of this ordinance, with the exception of those provisions specifically provided under State law as a felony, an aggravated misdemeanor, a serious misdemeanor, or a simple misdemeanor under Chapters 687 through 747 of the Code of Iowa, shall be charged with a municipal infraction, which is punishable by civil penalty, as provided herein (Code of Iowa, Sec. 331.307[3]). Each day that a violation continues to exist constitutes a separate violation.
 - 1.** A municipal infraction for an airport zoning violation in Muscatine, Iowa is punishable under the following civil penalties: (Code of Iowa, Sec. 331.307[1])
 - a.** First offense – no less than \$250 and not to exceed \$750.00, not including court costs
 - b.** Second and repeat offenses – no less than \$250 and not to exceed \$1,000.00, not including court costs
- B.** The owner or tenant of any building, structure, premises or part thereof, and any architect, builder, contractor, agent or other person who commits, participates in, assists in, or maintains such violation, may each be found guilty of a separate offense and suffer the penalties herein provided. Nothing herein contained shall prevent the city from taking such other lawful action as is necessary to prevent or remedy any violation.
- C.** In case any building or structure is erected, constructed, reconstructed, altered, repaired, converted, or maintained, or any building, structure, or land is used in

violation of this ordinance, the City Attorney, in addition to other remedies, may institute any proper action or proceed in the name of the City of Muscatine to prevent such unlawful erection, construction, reconstruction, alteration, repair, conversion, maintenance, conduct, business, or use in or about said premises.

10-19-20 Conflicting Regulations

In accordance with Section 329.8, Code of Iowa, where there exists a conflict between any of the regulations or limitations prescribed in this Ordinance and any other regulations applicable to the same area, whether the conflict be with respect to height or structures, the use of land, or any other matter, the more stringent limitation or requirement shall govern and prevail.

10-19-21 Severability

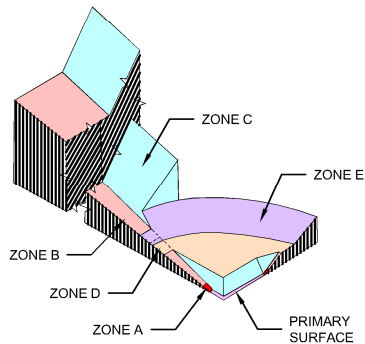
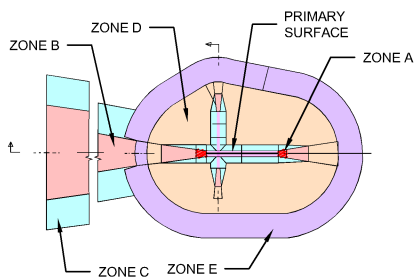
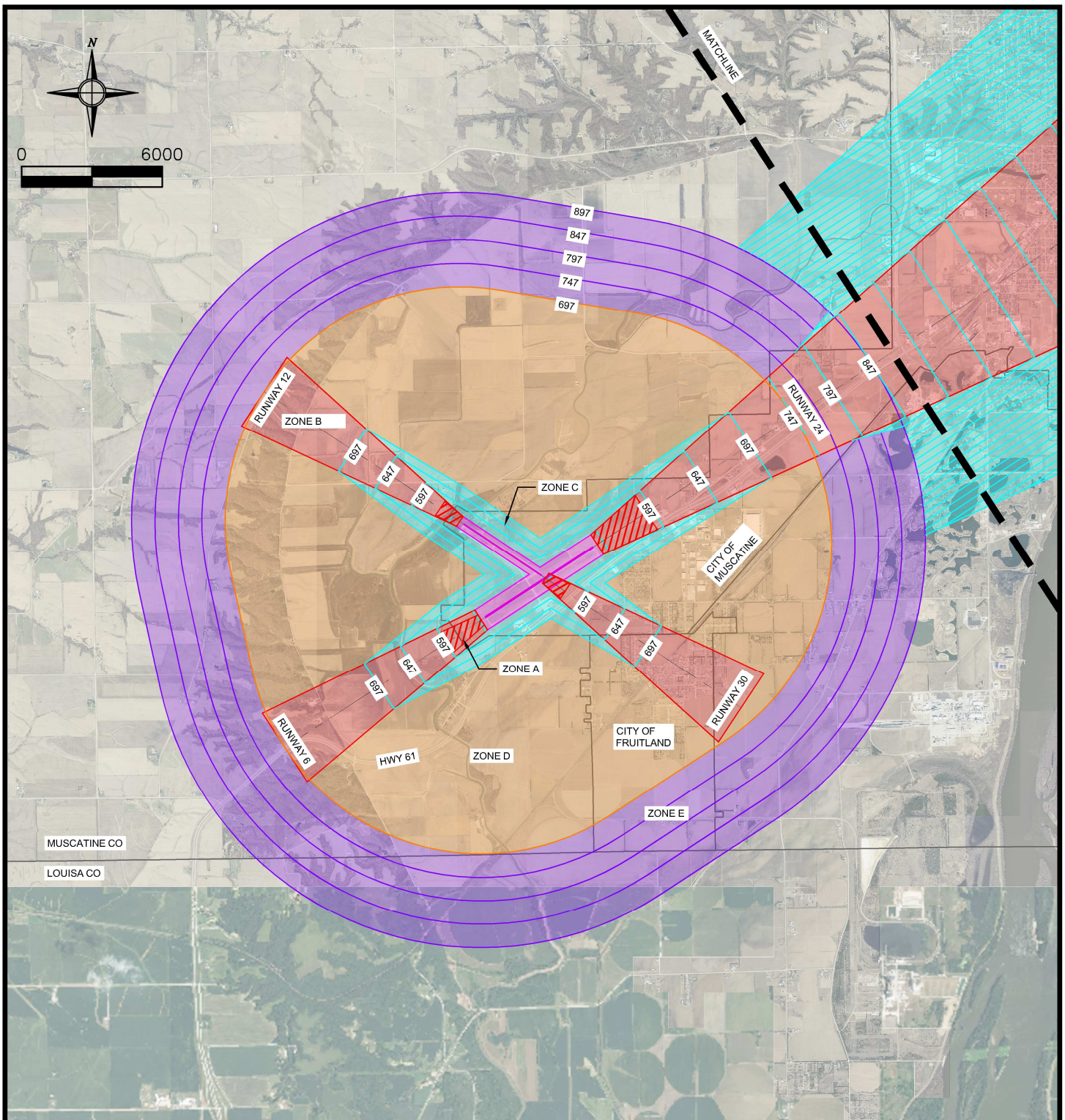
If any provision of this Ordinance or the application thereof to any person or circumstances is held invalid, such invalidity shall not affect other provisions or applications of the Ordinance, which can be given effect without the invalid provision or application, and to this end, the provisions of this Ordinance are declared to be severable.

10-19-22 Effective Date

This ordinance shall be in effect from and after its adoption by the governing body with publication and posting as required by law, as provided for in Chapter 380.6 and 380.7, Iowa Code. (Code of Iowa, Sec. 380.6[1]; Sec. 380.7[3]; and Sec. 362.3).

Exhibit A-Airport Land Use and Height Overlay Zoning Map

The exhibit provides the Official Airport Land Use and Height Overlay Zoning Map to be kept on file with the appropriate governmental entities. The map must be amended when changes occur within the jurisdictional map boundaries. The map shall be adopted concurrently with this Ordinance.



LEGEND:

- ZONE A - RUNWAY PROTECTION ZONE
- ZONE B - APPROACH SURFACE
- ZONE C - TRANSITIONAL SURFACE
- ZONE D - HORIZONTAL SURFACE
- ZONE E - CONICAL SURFACE
- PRIMARY SURFACE

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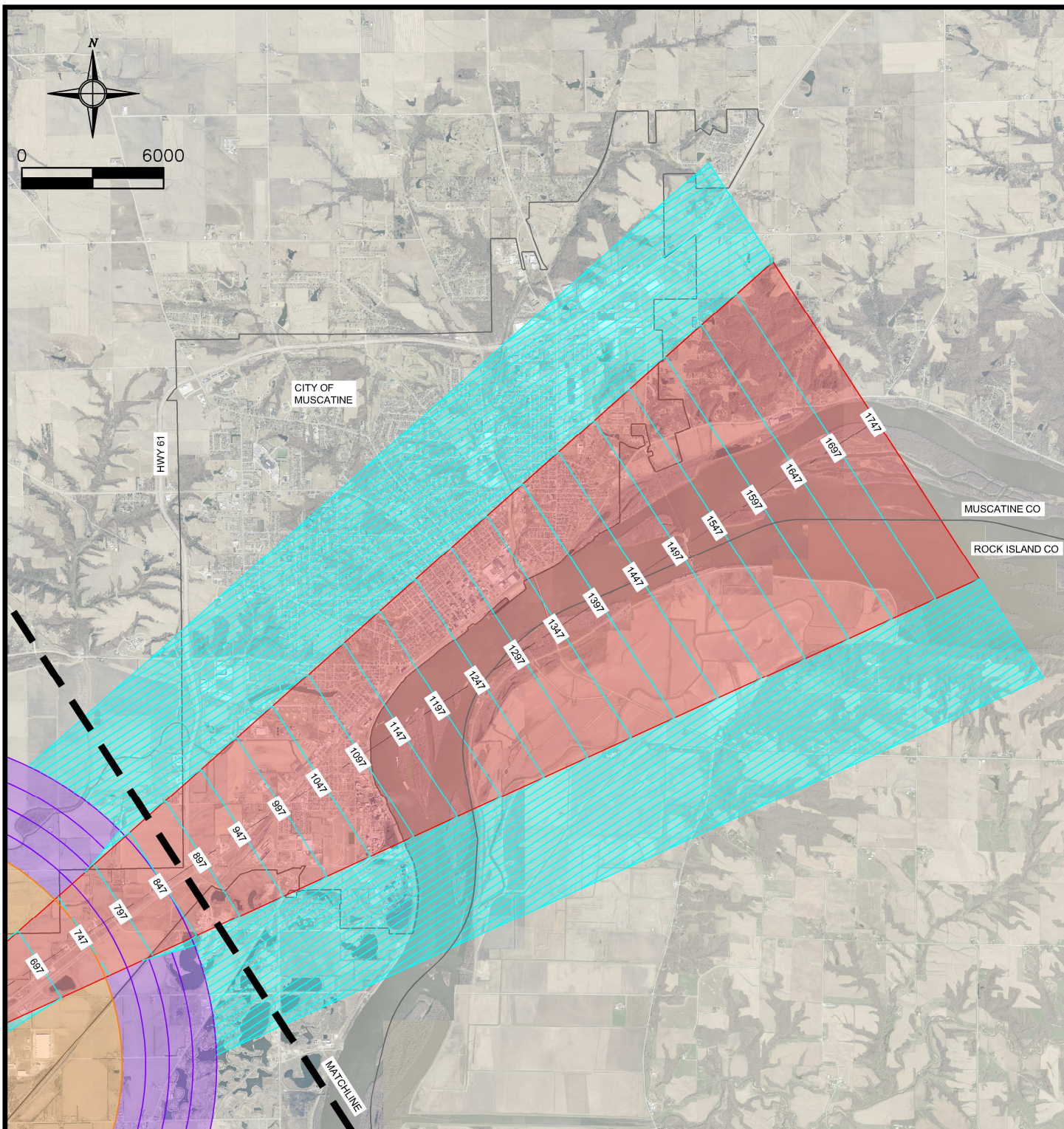
DRAWN BY: MJP
APPROVED BY: JCD
DATE: X-X-2023



MUSCATINE MUNICIPAL AIRPORT
MUSCATINE, IOWA

EXHIBIT A
AIRPORT LAND USE AND HEIGHT
OVERLAY ZONING MAP

SHEET NO.
1
OF
2



LEGEND:

- ZONE A - RUNWAY PROTECTION ZONE
- ZONE B - APPROACH SURFACE
- ZONE C - TRANSITIONAL SURFACE
- ZONE D - HORIZONTAL SURFACE
- ZONE E - CONICAL SURFACE
- PRIMARY SURFACE

DRAWN BY: MJP
APPROVED BY: JCD
DATE: X-X-2023



MUSCATINE MUNICIPAL AIRPORT
MUSCATINE, IOWA

EXHIBIT A
AIRPORT LAND USE AND HEIGHT
OVERLAY ZONING MAP

SHEET NO.
2
OF
2

ORDINANCE NO. 2023-0419

REVISING TITLE 10, CHAPTER 19 – A-P AIRPORT DISTRICT

WHEREAS, the City owns the Muscatine Municipal Airport; and

WHEREAS, City Code does not currently meet federal and state guidelines regarding activity within the airport hazard zone; and

WHEREAS, a revised Ordinance has been developed to address regulatory processes and development within the airport hazard zone of the Muscatine Municipal Airport; and

WHEREAS, the Planning and Zoning Commission did on August 8, 2023, voted to recommend approval of the revisions to the Airport District Ordinance; and

WHEREAS, a public hearing was conducted by the City Council of Muscatine August 17, 2023, prior to the adoption this ordinance.

NOW, THEREFORE, BE IT RESOLVED, by the City Council for the City of Muscatine that:

SECTION 1. Chapter 19 of Title Ten of the City Code is hereby deleted and Exhibit A as attached hereby to is adopted in lieu thereof.

SECTION 2. If any section, provision or part of this ordinance shall be adjudged invalid or unconstitutional, such adjudication shall not affect the validity of the ordinance as a whole or any section, provision or part thereof not adjudged invalid or unconstitutional.

SECTION 3. Any Ordinance or part thereof in conflict or inconsistent with the provisions of this Ordinance is repealed.

SECTION 4. This ordinance shall be in effect from and after the passage and approval and publication of this ordinance, as provided by law

PASSED, APPROVED AND ADOPTED this 17th day of August, 2023.

City Council of the City of Muscatine

Dr. Brad Bark
Mayor

Attest:

Carol Webb
City Clerk

First Reading: 8/17/23

Second Reading:

Third Reading:

Publication:



City of Muscatine

ITEM NUMBER 2023-0407

AGENDA ITEM SUMMARY

DATE: 9/7/2023

STAFF

April Limburg, City Planner

SUBJECT

A Resolution Authorizing the Execution of a Special Warranty Deed to Said Described Real Estate located at 619 Hope Ave (Parcel No. 0826454008)

EXECUTIVE SUMMARY

The City of Muscatine has accumulated a number of parcels of land no longer required for the discharge of public responsibilities. City Council has declared parcel 0826454008 (619 Hope Ave) as surplus and directed City staff to actively pursue their disposal. Muscatine County Area Habitat For Humanity, Inc has submitted an accepted bid to purchase the property for \$3,000.

STAFF RECOMMENDATION

Staff recommends approval

BACKGROUND/DISCUSSION

Parcel 0826454008 (619 Hope Ave) was declared as surplus by the City Council as part of an earlier agenda item. City staff held a live auction on August 31, 2023, regarding the sale of this parcel. There were two bids submitted. However, only one bid was responsive. The accepted bid was \$3,000, submitted by Muscatine County Area Habitat For Humanity, Inc. It is now necessary for the Council to pass a resolution approving the sale of this parcel to the winning bidder and executing the deed.

Muscatine County Area Habitat For Humanity, Inc. will build a home valued at approximately \$150,000 to be purchased by someone currently living in Muscatine County that is not able to obtain adequate housing through other conventional means. The house will be purchased by an income qualified family (80% AMI or less of the Muscatine County median family income) through a zero or low-interest loan.

CITY FINANCIAL IMPACT

In addition to the \$3,000 of proceeds generated by the sale of this parcel, the sale would reduce city maintenance costs. The property and improvements thereon will now be subject to property taxation, which will have a positive financial impact on the City.

ATTACHMENTS

1. Bid Purchase - Habitat
2. Resolution Approving Deed to Convey 619 Hope Ave to Habitat
3. Deed 619 Hope

Purchase Bid from Muscatine County Habitat for Humanity

Property

619 Hope Ave - Lot Eight (8) in Block Two (2) of Oakland Addition to the City of Muscatine, Iowa according to the Original Plat thereof; situated in Muscatine County, State of Iowa

Non-Profit Bidder/Buyer

Muscatine County Habitat for Humanity
100 W. 2nd Street
Muscatine, IA 52761
Contact: Don Lampe 563-299-2488

Bid: \$3,000 (certified check for \$1,000 enclosed payable to the City of Muscatine)

Habitat Planned Development Use &Timing:

Muscatine County Habitat for Humanity will build a home valued at approximately \$150,000 to be purchased by someone currently living in Muscatine County that is not able to obtain adequate housing through other conventional means. The house will be purchased by an income qualified family (80% AMI or less of the Muscatine County median family income) through a zero or low-interest loan.

September 2023 (after council approval) – execute purchase agreement/identify closing date

October 2023 – family selected to purchase house and participate in build

October 2023 –lot preparation for build

May 2024 – build begins

December 2024 - build complete & family presented keys to completed house

RESOLUTION NO. _____

A Resolution Authorizing the Execution of a Special Warranty Deed to Said Described Real Estate located at 619 Hope Ave (Parcel No. 0826454008)

WHEREAS, a Resolution was adopted by the City Council of Muscatine, Iowa, on September 7, 2023, concerning the proposed sale of all the City's rights, title, and interest in and to the real property described in the copy of the Deed "Exhibit A" to this Resolution and incorporated by reference; and

WHEREAS, due notice of said proposal to convey said real property convey to adjoining property owners was given as provided for by law, setting forth the time and place for hearing on said proposal; and

WHEREAS, the Resolution provided for a public hearing on the proposed sale of real property, and such public hearing has been held; and

WHEREAS, in accordance with said notice, those interested in said proposed conveyance, both for and against, have been given an opportunity to be heard with respect thereto and have presented their views to the City Council of the City of Muscatine, Iowa at public hearing held on August 17, 2023; and

WHEREAS, the City Council of Muscatine, does hereby declare to be surplus and it to be in the best interest of the public to dispose of the described real estate in Muscatine, Iowa,

WHEREAS, the City of Muscatine, Iowa on September 7, 2023 approved sale between the City of Muscatine and Muscatine County Area Habitat For Humanity, Inc. for \$3,000

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF MUSCATINE, IOWA, as follows:

1. The City of Muscatine, Iowa, will sell and convey its rights, title, and interest in and to the real property described in the copy of the deed attached to this Resolution marked "Exhibit A" to Muscatine County Area Habitat For Humanity, Inc.
2. The deed will be delivered upon receipt of \$3,000
3. The deed will be in the name of the City of Muscatine, Iowa; will be signed by the Mayor and attested by the City Clerk; and will be in substantially the same form as the copy of the deed attached as "Exhibit A" to this Resolution.
4. Any Resolution or part thereof in conflict or inconsistent with this Resolution is repealed.

PASSED, APPROVED AND ADOPTED this 7th day of September, 2023.

**BY THE CITY COUNCIL OF THE
CITY OF MUSCATINE, IOWA**

Dr. Brad Bark, Mayor

Attest:

Carol Webb, City Clerk

Prepared by: April Limburg, 215 Sycamore Street, Muscatine, IA 52761; 563.262.4141
Return and Tax Statement to: Muscatine County Area Habitat For Humanity, Inc. PO Box 49, Muscatine, IA 52761

SPECIAL WARRANTY DEED

The City of Muscatine, Iowa, a municipal corporation situated in Muscatine County, Iowa, for valuable consideration, transfers and conveys Muscatine County Area Habitat For Humanity, Inc. all its right, title, and interest in the following real property in Muscatine County, Iowa:

Lot Eight (8) in Block Two (2) of Oakland Addition to the City of Muscatine, Iowa according to the Original Plat thereof; situated in Muscatine County, State of Iowa.

Exempt from transfer tax per Iowa Code Section 428A.2(6).

The City covenants with the grantee, its successors and assigns, to warrant and defend the real property against the lawful claims of all persons claiming by, through, or under the City.

IN WITNESS WHEREOF, the City of Muscatine, Iowa, has caused this instrument to be executed in its corporate name by its Mayor and City Administrator and its seal to be affixed on September 7, 2023.

CITY OF MUSCATINE, IOWA

(CITY SEAL)

By: _____
Dr. Brad Bark
Mayor

ATTEST:

Carol Webb
City Clerk

STATE OF IOWA, MUSCATINE COUNTY, ss.

This instrument was acknowledged before me on _____, 2023, by Dr. Brad Bark and Carol Webb as Mayor and City Clerk, respectively, of the City of Muscatine, Iowa.

Cinda Hilger, Notary Public in and for the State of Iowa



City of Muscatine

ITEM NUMBER 2023-0436

AGENDA ITEM SUMMARY

DATE: 9/7/2023

STAFF

Kevin Coon, City Engineer
Amy Fortenbacher, Transit Supervisor
Brian Stineman, Public Works Director

SUBJECT

Resolution Awarding a Contract for the Vehicle Wash Bay to Bill Bruce Builders, Inc. in the Amount of \$1,295,000

EXECUTIVE SUMMARY

Presented for the City Council's consideration is a resolution to award the contract for the Vehicle Wash Bay in the amount of \$1,295,000.00 to Bill Bruce Builders, Inc. The bids for the project were opened on August 11, 2022 and four bids were received. Bill Bruce Builders, Inc. had the lowest bid with other bids ranging from \$1,443,116.00 to \$1,525,000.00.

STAFF RECOMMENDATION

It is the recommendation of the Public Works/Transit staff to approve the resolution to award the contract for the Vehicle Wash Bay to Bill Bruce Builders, Inc.

BACKGROUND/DISCUSSION

Availability of funding for the Vehicle Wash Bay began when MuscaBus received notice from the Iowa DOT that the 2021 operations funds could be moved to capital funds as MuscaBus is receiving CARES and CRSSA funds for operations. The Federal Transit Administration (FTA) approved the moving of the funds for the Wash Bay Facility on July 14, 2021 in the amount of \$422,559.00. The City Council approved the request to enter into a service agreement with Legat Architects for the design and preparation of the construction documents on September 16, 2021. IDOT issued a contract for the FTA grant on January 13, 2022 and the City Council approved entering into the contract on February 3, 2022. After the final designs were completed, a pre-bid meeting was held on July 28, 2022, and the bids were opened on August 11, 2022. The original project estimate was \$865,480.00. All the bids were \$400,000.00 over the estimate. When discussing the difference between the estimate and the actual bid with the IDOT, they recommended we apply for the Public Transit Infrastructure Grant (PTIG). The City Council approved the application for the PTIG on April 20, 2023. We were awarded

\$400,000.00 on August 8, 2023. The City Council approved entering into a contract with IDOT for the grant on August 17, 2023.

CITY FINANCIAL IMPACT

The FTA grant of \$422,559.00 and the PTIG of \$400,000.00 is a total of \$822,559.00 of grant funding to apply to the vehicle wash bay. The bid for the project is \$1,295,000.00. The City's portion is the difference between the bid and the grants equaling \$472,441.00, to be funded by the available Transit Funds.

ATTACHMENTS

1. 221185_BidTab 081122
2. Vehicle Wash Bay In-Depth Summary 07.13.23
3. Resolution Award Contract

Bid Tabulation

OWNERCity of Muscatine

PROJECT TITLENew Public Works Wash Bay

PROJECT NUMBER221185.00

DATE / TIME:08/11/22; 11:00 a.m.

	ADDM					BID FORMS										
BIDDER	NUMBER 1	NUMBER 2	NUMBER 3	NUMBER 4	NUMBER 5	BASE BID	ALTERNATES					DATE COMPLETE 7/29/23	ALLOWANCES	BID BOND	SUBST.	REMARKS
							ALTERNATE NUMBER 1 - Wash Bay Equipment Brush System	ALTERNATE NUMBER 2- Wash Bay Equipment Reverse Osmosis System	ALTERNATE NUMBER 3 - Wash Bay Equipment Spot Free Rinse Arch	ALTERNATE NUMBER 4- Slab radiant heat floor system	ALTERNATE NUMBER 5- Interior PVC Paneling- Wash Bay 100					
Bruce Builders	X	X	X	X	X	\$1,295,000.00	\$120,000.00	\$20,000.00	\$20,000.00	\$10,000.00	\$6,000.00	7/29/2023 *	X	X		* Completion date pending supply chain issues.
Heuer Construction						NO BID										
Hy-Brand Construction	X	X	X	X	X	\$1,443,116.00	\$38,914.00	\$28,254.00	\$17,963.00	\$27,298.00	\$8,262.00	7/28/2023	X	X		
Swanson Construction	X	X	X	X	X	\$1,525,000.00	\$46,000.00	\$29,000.00	\$18,000.00	\$30,000.00	(\$17,700.00)	-	X	X		
Todd Hacket Construction	X	X	X	X	X	\$1,460,000.00	\$77,000.00	\$48,000.00	\$26,400.00	\$29,000.00	\$29,000.00	7/29/2023	X	X		
Tricon Construction Group						NO BID										
Triple B Construction						NO BID										
ZWB General Construction						NO BID										
Wolfe Contracting, Inc						NO BID										

DATE: August 2, 2023

TO: Mayor Bark and City Councilmembers

FROM: Brian Stineman, Public Works Director

THRU: Carol Webb, City Administrator *CW*

RE: In-Depth Session Summary – 07.13.23, Policy RE: Vehicle Wash Bay

Staff provided information related to the proposed funding for a vehicle wash bay at Public Works. A history of the wash bay project was given along with a history of the funding process and options to cover the current budget shortfall.

Council generally supported the vehicle wash bay project. Councilmembers raised various concerns including price, useful life and warranties, measuring return on investment, the effectiveness of a brush system vs. brushless system, the potential for utilizing lower cost technologies, the ability to generate income to offset O&M costs, and timing for completion of the project. The Council supported bonding for the remainder of the cost. Councilmember Osborne had specific questions about changing the bid price of the lowest bid and whether doing so is a violation of bidding laws.

Next Steps

1. Email warranty information to City Council.
2. Talk to the attorney to determine any legal issues with changing the bid price without rebidding.
3. Seek opportunities to generate income with the new wash bay to offset operating costs.
4. Include brushless technology in the project.
5. Get costs for the FRP lining to potentially include in the project.
6. Send Council a memo answering the questions above.
7. Accept the \$400,000 IDOT grant at a future meeting.
8. Bring action items to City Council at future meetings to formally approve the construction of the wash bay project.

RESOLUTION NO. _____

**A RESOLUTION AWARDDING CONTRACT FOR THE
VEHICLE WASH BAY**

WHEREAS, the following bid is determined to be the lowest responsible bid for the Vehicle Wash Bay.

<u>NAME & ADDRESS CONTRACTOR</u>	<u>AMOUNT OF BID</u>
Bill Bruce Builders, Inc. 900 East Franklin Street Eldridge, IA 52748	\$1,295,000.00

WHEREAS, the Vehicle Wash Bay project is awarded to the above-named contractor for \$1,295,000.00, and the Mayor and City Clerk are authorized and directed to enter into a written contract with said contractor covering the furnishing of material for, and construction of the Vehicle Wash Bay, such contract not to be binding until approved by resolution of this Council.

NOW, THEREFORE, BE IT RESOLVED, by the City Council for the City of Muscatine, Iowa that the amount of the contractor's bond is fixed at \$65,000.00, which is five percent of the contract price.

PASSED, APPROVED, AND ADOPTED THIS 7th DAY OF September, 2023.

Brad Bark, Mayor

ATTEST:

Carol Webb, City Administrator



City of Muscatine

ITEM NUMBER 2023-0439

AGENDA ITEM SUMMARY

DATE: 9/7/2023

STAFF

Jodi Royal-Goodwin, Community Development Director

SUBJECT

Resolution Setting a Public Hearing on September 14, 2023 at 6:00 pm on the Plans, Specifications, Cost Estimation and Form of Contract for the Downtown Revitalization Project.

EXECUTIVE SUMMARY

Presented for Council consideration is a resolution to set a public hearing on the Plans, Specifications, Cost Estimation and Form of Contract for the Downtown Revitalization (Façade) Project.

STAFF RECOMMENDATION

Staff recommends Council adopt the resolution.

BACKGROUND/DISCUSSION

The attached resolution sets a public hearing on the plans, specifications, cost estimate and form of contract for the work to be completed on 11 buildings in the 200 block of East 2nd Street. The resolution sets the public hearing for 6:00 p.m. September 14.

Each year the IEDA allocates CDBG funds to the Downtown Revitalization (DTR) Program to assist communities to improve the attractiveness of their core business district. Communities are eligible for up to \$650,000 to improve buildings in the downtown core. This is primarily a façade program, which requires defining a target area that is blighted with at least 25% of the buildings being in a fair or poor condition.

Previously Council authorized \$100,000 annually in tax increment to support a local façade program. Funds first became available in FY21, but then covid started and the program was not implemented. During this delay staff became aware of the DTR program and it was determined the best use of the resources would be to leverage them to pursue a grant.

Staff sent letters to each downtown property owner to evaluate interest in a façade project. Based on responses staff mapped the potential properties to determine the areas with the

most contiguous interest and where a façade project would have the most impact and meet the DTR guidelines. Ultimately, the north side of the 200 block of East 2nd Street was selected. Simultaneously, a request for qualifications was sent to architectural firms to prepare the preliminary designs required to submit the grant. Martin Gardner Architecture was selected and a contract for services was entered in August 2021. Bi-State Regional Planning Commission was then contacted about preparing the application.

All property owners in the target block were invited to an orientation meeting in May 2022 which was followed up by individual meetings with the designated architect to discuss the goals and vision. It is typical after the IEDA and City funds for owners to contribute 30% of the project costs. Owners of all but two of the 17 properties on the block participated in this process and completed the preliminary design phase. Unfortunately, the cost estimates for the proposed work would require much higher levels of private investment and the proposed project splits the properties into 2 phases.

At the October 10, 2022 City Council meeting Council approved submitting an application by November 1, 2022, for a DTR grant, including committing \$250,000 in tax increment financing as match. This application included the properties between 207 and 229 East 2nd Street with a total estimated cost of \$1.1 million. In February we received notification that the City had been awarded a \$650,000 grant. To access these funds Council must accept the grant and authorize the Mayor to sign the grant contract and required acknowledgements. A grant agreement was accepted by Council at its March 16 meeting.

Subsequently, contracts with Martin Gardner Architecture and Bi-State Regional Commission were approved by Council for complete design services and project administration respectively. The architect has continued to work with property owners to finalize the scope of rehabilitation and cost estimates, while Bi-State staff has completed the required environmental review. A contract with Impact 7G Inc was approved by Council August 17 for the completion of required asbestos testing.

We are now ready to proceed with construction related activities, which includes the issuance of bid documents. However, prior to receiving bids a public hearing and approval of the plans of specifications by City Council must be completed.

CITY FINANCIAL IMPACT

There is no financial impact of this action to the general fund, all local funds that will be used for this project have been allocated through tax increment financing.

ATTACHMENTS

1. Resoultion Set Pub Hearing DTR Plans-Specs
2. Notice DTR Plans-Spec Public Hearing

RESOLUTION NO. 2023-0413

A RESOLUTION SETTING THE TIME AND PLACE OF A PUBLIC HEARING
ON THE PLANS, SPECIFICATIONS, FORM OF CONTRACT AND COST
ESTIMATIONS FOR THE
DOWNTOWN REVITALIZATION PROJECT

WHEREAS, the City Council of the City of Muscatine has entered into a Professional Services Agreement with for design services related to the Downtown Revitalization (Façade) Project; and

WHEREAS, the Plans, Specifications, Contract Documents and Cost Estimations have now been completed; and

WHEREAS, a public hearing must be conducted on said Plans, Specifications, Contract Documents and Cost Estimations prior to obtaining bids on the project.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF MUSCATINE, IOWA, that a public hearing be conducted by the City Council in City Hall Council Chambers at 6:00 p.m. on Thursday, September 14th, 2023, and

BE IT FURTHER RESOLVED, that the City Clerk shall give notice of said public hearing by publication of a notice in the Muscatine Journal not less than four (4) days prior to said public hearing date.

PASSED, APPROVED, AND ADOPTED this 7th DAY OF SEPTEMBER, 2023

BY THE CITY COUNCIL OF THE
CITY OF MUSCATINE, IOWA

Bradley Bark, Mayor

ATTEST:

Carol Webb, City Clerk

PUBLIC NOTICE

NOTICE OF TIME AND PLACE OF A PUBLIC HEARING ON THE PLANS, SPECIFICATIONS, FORM OF CONTRACT AND COST ESTIMATIONS FOR THE DOWNTOWN REVITALIZATION PROJECT

Public notice is hereby given that the City Council of Muscatine, Iowa will hold a public hearing on the plans, specifications, form of contract and estimated construction costs for the Downtown Revitalization (Façade) Project City Hall, Muscatine, Iowa, on September 7th, 2023 at 6:00 PM.

All interested persons are invited to attend and comment on the project at that time.

Carol Webb
City Administrator



City of Muscatine

ITEM NUMBER 2023-0440

AGENDA ITEM SUMMARY

DATE: 9/7/2023

STAFF

Andrew Fangman, Assistant Community Development Director

SUBJECT

Resolution Amending Nuisance Abatement Administrative Fee in Schedule of Permit And Licensing Requirements in Appendix D of City Code

EXECUTIVE SUMMARY

A resolution approving changes to the nuisance abatement administrative fee from \$25 to \$75 for the first abatement, and \$150 for any additional abatement done in the same calendar year.

STAFF RECOMMENDATION

Staff recommends approval.

BACKGROUND/DISCUSSION

When the City abates a nuisance, the property owner is responsible for the cost of the contractor and a \$25 administrative fee. The administrative fee compensates the City for the staff time and resources used to abate the nuisance. This fee was established in the early 2000s, and the amount has not changed since then. This amount no longer reflects the administrative costs incurred by the City in abating nuisances.

The following list shows the nuisance abatement administrative fees of other nearby and similar-sized Iowa communities:

- Newton – \$75 first offense, \$100 subsequent offenses
- Clive - \$67
- Burlington – \$100 first offense, \$200 subsequent offenses
- Ft. Dodge – \$50 Snow, \$75 grass and junk.
- Iowa City - \$100
- Cedar Rapids - \$100
- Cedar Falls- 10% of abatement costs
- Washington - \$50 for repeat and severe offenses

After discussion at the March in-depth City Council meeting, Council directed that this fee be set at \$75 for the first abatement, and \$150 for any additional abatement done in the same calendar year. This resolution makes such a change.s

CITY FINANCIAL IMPACT

Increasing the nuisance abatement administrative fee will ensure that a higher percentage of costs incurred abating nuisance are recovered.

ATTACHMENTS

1. Nuisance Fee Resolution

RESOLUTION NO. 2023-0440

**RESOLUTION AMENDING NUISANCE ABATEMENT ADMINISTRATIVE
FEE IN SCHEDULE OF PERMIT AND LICENSING REQUIREMENTS IN
APPENDIX D OF CITY CODE**

WHEREAS, City Code Section 9-3-10 states “If the City abates a nuisance under Section 9-3-9 of this Chapter, the City Clerk shall report the fact in writing to the Council, stating the cost and value of all tools, appliances, materials, labor, and assistance used, consumed, and performed by and for him or her, giving the several items thereof, an administrative fee as set by resolution of City Council in Appendix D of City, and the name of the person responsible for the commission of such nuisance and a description of the property, lot, or parcel of ground whereon such nuisance existed or from which the same came.”; and

WHEREAS, the nuisance abatement administrative fee has not been changed since the early 2000s and no longer reflective costs incurred by the City in the abatement of nuisances.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF MUSCATINE, IOWA, that a fee, authorized by City Code Section 9-3-10, for curb cuts in the Schedule of Permit and Licensing Requirements in Appendix D of City Code be set at \$75 for the first abatement, and \$150 any additional abatement performed in the same calendar year.

PASSED, APPROVED, AND ADOPTED this 7th day of September 2023.

CITY COUNCIL OF THE CITY OF
MUSCATINE, IOWA

Attest:

Dr. Brad Bark, Mayor

Carol Webb, City Clerk



City of Muscatine

ITEM NUMBER 2023-0442

AGENDA ITEM SUMMARY

DATE: 9/7/2023

STAFF

Carol Webb, City Administrator

SUBJECT

Request to enter into a contract in the amount of \$5785.00 with Yohan Umana for artistic work related to the public art installation, "Muscatine - World's Largest Watermelon Slice", to be installed on the Muscatine Riverfront adjacent to Millennium Plaza.

EXECUTIVE SUMMARY

During the May 11, 2023 City Council meeting, City Council voiced support for a public art installation, "Muscatine - World's Largest Watermelon Slice", to be located on the Muscatine Riverfront adjacent to Millennium Plaza. The City Council subsequently approved a purchase order and associated terms and conditions with Hoffman, Inc. to fabricate the Watermelon installation. A separate contract is being proposed with the artist, Yohan Umana, who will paint the installation.

STAFF RECOMMENDATION

Staff recommends approval.

BACKGROUND/DISCUSSION

Presented for City Council consideration is a proposed contract with Yohan Umana to conduct artistic work related to the public art installation "Muscatine - World's Largest Watermelon Slice". The art installation will be installed on the riverfront adjacent to Millennium Plaza. The contract value is \$5785.00 and will be paid solely by private donations. The installation and associated artwork is anticipated to be completed on or before October 31, 2023. The artistic work to be completed is included as an attachment.

CITY FINANCIAL IMPACT

None. The project is funded via private donations.

ATTACHMENTS

1. Watermelon Artist Contract Final Draft
2. Watermelon Art

CONTRACT between the
CITY OF MUSCATINE and YOHAN UMANA

I. **PARTIES.** The parties to this Contract are the City of Muscatine (City) whose address is 215 Sycamore Street, Muscatine, IA 52761 and Yohan Umana (Contractor) whose address is 1704 Devitt Ave, 52761.

II. **PURPOSE.** The purpose of this Contract is to set forth the terms and conditions by which the Contractor shall perform artistic work on a sculpture (Title: “World’s Largest Watermelon”) located at the southwest end of Riverside Park adjacent to Millennium Plaza in Muscatine, Iowa.

III. **TERM OF CONTRACT.** This contract is effective when all parties have executed it (Effective Date). The term of the contract is from the Effective Date through October 31, 2024. All services shall be completed during this term.

IV. **PAYMENT.**

- A. The City agrees to pay the Contractor for the services described in Section V below and as pictured in Attachment A, which is attached to and incorporated into this Contract by reference. Total Payment shall not exceed five-thousand, seven hundred eighty-five dollars and no cents (\$5785.00). Payment shall be made as follows: two-thousand eight hundred and ninety-two dollars and no cents (\$2892.00) upon execution of this Contract, and two-thousand eight hundred and ninety-two dollars and no cents (\$2892.00) upon completion and installation of the artwork. The Contractor shall submit sufficient detail to ensure payments may be made in conformance with this Contract.
- B. Should the contractor fail to perform in a manner consistent with the terms and conditions of this Contract, payment may be withheld until such time as Contractor performs its duties and responsibilities to the satisfaction of the City.
- C. Except as otherwise provided in this Contract, the Contractor shall pay all costs and expenses incurred by the Contractor or on its behalf in connection with the Contractor’s performance and compliance with all of the Contractor’s obligations under this Contract.

V. **RESPONSIBILITIES OF CONTRACTOR.**

- A. Perform artistic work as detailed in Attachment A to this Contract, or as otherwise agreed to by both parties.
- D. Coordinate any artistic work or associated activities with the City of Muscatine Public Works Director and the City of Muscatine Parks and Recreation Director.
- E. Pay all costs associated with fulfilling the Contractor’s responsibilities as outlined in this Contract, including but not limited to any necessary materials and equipment required for the completion of the artwork, unless otherwise agreed to by the City.

VI. **RESPONSIBILITIES OF THE CITY.**

- A. Pay Contract in accordance with Section IV above.

- B. Pay any additional costs incurred for special materials or equipment requested by the City and agreed upon in writing with the Contractor.
- C. Coordinate with the Contractor to provide and communicate any necessary information to facilitate compliance with the Contract.
- D. After installation and completion of the artwork, inspect for the final approval and acceptance of the Contractor's work within ten (10) business days.

VII. SPECIAL PROVISIONS.

- A. Acceptance of the advance payment described in Section IV of this Contract by the Contractor signifies the Contractor's acceptance of their obligation to complete said artistic work as specified herein. Should the Contractor fail to complete the artwork, it hereby accepts responsibility and the attaching liability to the City for repayment of advance funds.
- B. Pursuant to the Visual Artists Rights Act of 1990 ("VARA"), 17 U.S.C. § 106A, the Contractor shall retain the right to claim authorship of the work and prevent the use of the Contractor's name as the author of any work which the Contractor did not create.
- C. Pursuant to VARA, the Contractor agrees to grant the City a non-exclusive, limited, perpetual, irrevocable, worldwide, free of all charges, transferable license to use images of the artwork, as outlined in this Contract, for promotional and non-sales purposes.
- D. The City is granted the rights and responsibilities for the maintenance and repair of the finished work to the extent allowed by VARA.
- E. Pursuant to VARA, the Contractor shall retain copyright of the artwork as outlined in this contract.
- F. The Contractor shall transfer ownership of the finished work to the City upon receipt of final payment.
- G. The Contractor shall have the right to request reasonable alterations or changes to the artistic work.
- H. All work produced by the Contractor in the performance of this Contract shall be kept confidential by the Contractor unless written permission is granted by the City for its release. If the Contractor receives a request for information subject to this Contract, the Contractor shall notify the within five (5) days of such request and shall not release such information to a third party unless directed to do so by the City.

VIII. INSURANCE AND LIABILITY. The Contractor shall obtain and maintain appropriate general liability insurance with adequate coverage for any liability claims for bodily injury and property damage arising out of the work covered under this Contract.

IX. TERMINATION AND CANCELLATION. The City may terminate this Contract, without cause, upon ten (10) days written notice and shall be responsible for paying the Contractor for any work completed or supplies purchases prior to termination. Either party may terminate this Contract upon ten (10) days written notice if the other party fails to fulfill its obligations.

X. **GENERAL PROVISIONS.**

- A. **Choice of Law:** This Contract, and all terms and provisions of the Contract or its addendums, shall be construed in accordance with and controlled by the laws of the State of Iowa.
- B. **Force Majeure.** Neither party shall be liable for failure to perform under this Contract if such failure to perform arises out of causes beyond the control and without the fault or negligence of the nonperforming party. Such causes may include, but are not limited to, acts of God or the public enemy, fires, floods, epidemics, quarantine restrictions, freight embargoes, and unusually severe weather. This provision shall become effective only if the party failing to perform immediately notifies the other party of the extent and nature of the problem, limits delay in performance to that required by the event, and takes all reasonable steps to minimize delays.
- C. **Indemnification.** The Contractor shall release, indemnify, and hold harmless the State, the Agency, and their officers, agents, and employees from any and all claims, suits, liabilities, court awards, damages, costs, attorneys' fees, and expenses arising out of Contractor's failure to perform any of Contractor's duties and obligations hereunder or in connection with the negligent performance of Contractor's duties or obligations, including, but not limited to, any claims, suits, liabilities, court awards, damages, costs, attorneys' fees, and expenses arising out of Contractor's negligence or other tortious conduct.
- D. **Independent Contractor.** The Contractor shall function as an independent contractor for the purposes of this Contract and shall not be considered an employee of the City of Muscatine for any purpose. Consistent with the express terms of this
- E. **Modifications.** This Contract represents the entire agreement between the parties and supersedes any prior discussions or agreements, whether written or oral. Any modifications to this Contract must be made in writing and signed by both parties.

Contractor:

Yohan Umana

City:

City of Muscatine

Date:

Public Art Installation



joak



City of Muscatine

ITEM NUMBER 2023-0443

AGENDA ITEM SUMMARY

DATE: 9/7/2023

STAFF

Jon Koch, Water Pollution Control Plant Director

SUBJECT

Request to Approve the Issuance of a Purchase Order in the Amount of \$50,827.00 to Ed Morse Muscatine for the Purchase of a 3/4 Ton Pickup Truck for the Water & Resource Recovery Facility Maintenance Department.

EXECUTIVE SUMMARY

Request approval for the issuance of a purchase order to Ed Morse Muscatine in the amount of \$50,827.00 for the Water & Resource Recovery Facility Maintenance Department. \$45,000.00 was budgeted for this purchase. The budgeted snow blade for \$5,700.00 will not be purchased to make up the difference in cost.

STAFF RECOMMENDATION

Staff recommends approving this purchase.

BACKGROUND/DISCUSSION

Two trucks will be retired with this purchase. Truck #614 is a 1995 truck with 125,000 miles and is in need of transmission work as well as interior seat replacement. This truck has reliability issues and can no longer go outside the plant. Truck #616 is a 2004 truck with 164,000 miles and 9600 hours of operation. It is in need of transmission work and has reliability issues that keep it at the plant or up to the MORC. The new truck will also be used to plow snow instead of a much older truck that struggled in past winters to push the larger areas at the plant. Only one bid was received for this purchase. \$45,000.00 was budgeted for this purchase. The budgeted new snow blade for \$5,700.00 will be deferred to cover the cost overage.

CITY FINANCIAL IMPACT

Only 1 bid of \$50,827.00 was submitted for this. \$45,000.00 was budgeted for this purchase. The budgeted new snow blade for \$5,700.00 will be deferred to cover the cost overage.

ATTACHMENTS

1. Maintenance Morse Truck Quote.230811



CITY OF
MUSCATINE

2023-0020

**Ed Morse Muscatine
Supplier Response**

Event Information

Number: 2023-0020
Title: WPCP 3/4 ton 4 x 4 pickup truck double cab
Type: Sealed Bid - Vehicles and Equipment
Issue Date: 7/28/2023
Deadline: 8/11/2023 03:00 PM (CT)

Contact Information

Contact: Randy Moeller
Address: 1459 Washington Street
Muscatine, IA 52761-5040
Phone: (563) 2722565
Email: rmoeller@muscatineiowa.gov

Ed Morse Muscatine Information

Contact: James Henderson
Address: 501 W Bypass Hwy 61
Muscatine, IA 52761
Phone: (563) 263-5432
Email: hendersonj52761@gmail.com
Web Address: <https://www.edmorsechevroletbuickgmcmmuscatine.com/>

By submitting your response, you certify that you are authorized to represent and bind your company.

James Henderson
Signature

hendersonj52761@gmail.com
Email

Submitted at 8/9/2023 11:11:05 AM (CT)

Response Attachments

WPC Sierra 2500 pu.docx

WPC 24 Sierra 2500 PU

Bid Attributes

1	I have downloaded and read all the attached documents. ☒ yes
2	What is the estimated delivery date? In Stock 10 days
3	What is the expiration date for the submitted bid? 10 day

Bid Lines

1	Minimum WPCP truck specifications, see below. Latest model available 3/4 ton 4 x 4 extended, double, or quad cab design. Quantity: <u>1</u> UOM: <u>EA</u> Price: <u>\$50,827.00</u> Total: <u>\$50,827.00</u> Supplier Notes: in stock truck has 17" tires Dealer installed back up alarm. Roof Mounted 16 inch Putco Hornet LED Strobe Bar Lamp.
Item Attributes	
1. White Exterior color ☒ yes	
2. Extended, double, or quad cab design ☒ yes	
3. V-8 gasoline engine ☒ yes	

4. Automatic transmission
☒ yes
5. Shiftable/on the fly 4 wheel drive option with high and low range
☒ yes
6. Minimum GVW of 9500 lbs.
☒ yes
7. Minimum of 3400 pound payload capacity
☒ yes
8. Minimum of 12,400 pound towing capacity.
☒ yes
9. Power door locks and power windows.
☒ yes
10. Intermittent wipers
☒ yes
11. Tilt steering wheel with cruise control.
☒ yes
12. Rubber or vinyl floor covering
☒ yes
13. Air conditioning
☒ yes
14. Gauge package in the instrument cluster.
☒ yes
15. AM/FM radio system
☒ yes
16. 3.73 rear differential, limited slip or locking.
☒ yes
17. Trailer towing mirrors
☒ yes
18. 40/20/40 split front bench seat with folding arm rest
☒ yes
19. Daytime running lights should be standard.
☒ yes
20. Rear view back up camera should be installed on the truck
☒ yes
21. Heavy duty suspension with the snow plow package installed on the truck
☒ yes
22. Full cab length running boards should be installed on the truck
☒ yes

23. Trailer towing package with a standard 2 inch receiver should be installed on the truck

☒ yes

24. Exterior back up alarm should be installed on the truck

☒ yes

25. Minimum tire size of 18 inches

☐ yes

26. Full sized spare tire should be included with the truck

☒ yes

27. Factory trailer brake controller should be installed and operational on the truck

☒ yes

28. Truck should have an amber warning/strobe light installed on it.

☒ yes

Response Total: \$50,827.00



City of Muscatine

ITEM NUMBER 2023-0444

AGENDA ITEM SUMMARY

DATE: 9/7/2023

STAFF

Jon Koch, Water Pollution Control Plant Director

SUBJECT

Request to Approve the Issuance of a Purchase Order to Ed Morse Muscatine in the Amount of \$64,047.00 for the Purchase of a 3/4 ton Pickup Truck with Service Body for the Biosolids Department at the Water & Resource Recovery Facility.

EXECUTIVE SUMMARY

Request to approve the issuance of a purchase order to Ed Morse Muscatine in the amount of \$64,047.00 for the purchase of a 3/4 ton truck with service body. \$45,000.00 was budgeted for this purchase. Two budgeted capital items totaling \$21,000.00 will be deferred to cover the overage of this purchase.

STAFF RECOMMENDATION

Staff recommends approving this purchase.

BACKGROUND/DISCUSSION

The 2006 Chevy truck #607 currently used by the Biosolids Department is only large enough for two staff. Three to four staff are used daily during application season, requiring a second truck to transport staff to the application site. It is also a light duty ½ ton truck and, due to its age, is not capable of pulling trailers and carts as is required on a daily basis during application season. This truck gets stuck routinely in modestly wet fields and takes downtime and overtime to get it out. This costs time and money that is better spent doing application. Truck #607 was given to Biosolids from the WRRF Maintenance Department years ago and is not appropriate for the work being done. It has no service body so daily loading and unloading of tools and equipment is required. Truck #616 currently being used by the MORC staff is at end-of-life status and will be retired. It has trouble climbing hills and is in need of another transmission after getting a replacement in 2010. #607 will be given to the High Strength Waste Department for MORC. \$45,000.00 was budgeted for this purchase. Two quotes were received for this purchase with the low quote of \$64,047.00 coming from Ed Morse Muscatine. The competing quote came from Bonnell Industries for \$67,630.69. Discounts that were given in previous years are no longer available so costs of trucks have risen sharply. The budgeted purchase of a new hose

cart for \$12,500.00 and the purchase of 5" drag line hose for \$7,500.00 will be deferred to cover the cost overage.

CITY FINANCIAL IMPACT

\$45,000.00 was budgeted for this purchase. Two budgeted capital items totaling \$21,000.00 will be deferred to cover the overage.

ATTACHMENTS

1. Biosolids Morse Truck Quote.230811
2. Biosolids Bonnell Truck Quote.230811



CITY OF
MUSCATINE

2023-0021

Ed Morse Muscatine

Supplier Response

Event Information

Number: 2023-0021
Title: WPCP 3/4 4 x 4 truck with service body
Type: Sealed Bid - Vehicles and Equipment
Issue Date: 7/28/2023
Deadline: 8/11/2023 03:00 PM (CT)

Contact Information

Contact: Randy Moeller
Address: 1459 Washington Street
Muscatine, IA 52761-5040
Phone: (563) 2722565
Email: rmoeller@muscatineiowa.gov

Ed Morse Muscatine Information

Contact: James Henderson
Address: 501 W Bypass Hwy 61
Muscatine, IA 52761
Phone: (563) 263-5432
Email: hendersonj52761@gmail.com
Web Address: <https://www.edmorsechevroletbuickgmcmmuscatine.com/>

By submitting your response, you certify that you are authorized to represent and bind your company.

James Henderson

Signature

Submitted at 8/9/2023 11:55:20 AM (CT)

hendersonj52761@gmail.com

Email

Response Attachments

24 Sierra 2500 WPC.pdf

24 Sierra 2500 WPC

WPC Body Quote.pdf

WPC Body Quote

Bid Attributes

1 I have downloaded and read all the attached documents.

☒ yes

2 What is the estimated delivery date?

September Late

3 What is the expiration date for the submitted bid?

15 days

Bid Lines

1 New service body attached to the truck when delivered. Below are the minimum specification that we are requiring

Quantity: 1 UOM: EA Price: \$16,276.00 Total: \$16,276.00

Supplier Notes: LED Federal Signal Roof Mount Strobe Lamp. Body Company is currently scheduling for Mid September. Bodies subject to availability.

Item Attributes

1. Length, width, and compartment height

Length 99.25" Width 81.25 Compartment Height 40"

2. Made out of .09 aluminum material

☒ yes

3. floor material .08 aluminum material, double paneled, reinforced

.08m Aluminum double paneled door with reinforced hat section

4. 12 inch slam latch tailgate

Yes

5. Interior flush mounted light guard

Yes

6. Complete undercoating on the service body

☒ yes

7. Stainless steel continuous hinges with stainless steel pin

☒ yes

8. Epoxy primed with painted finish white or grey inside of the compartments

Gray inside compartments

9. Continuous automotive type door seals on the compartment doors

Yes

10. Stainless steel rotary style bolt on latches on the compartments

Yes

11. Surface mounted combination LED taillight/backup lights with built in amber strobe feature

Yes

12. Body should be painted white with acrylic enamel paint

Yes

13. all hardware and misc. items need to attach the body to the truck should be included in the bid.

Yes

14. Fuel fill kit should be installed on the truck

Yes

15. Original backup camera should be relocated to the rear of the service body and be operational

Yes

16. Spray on bed liner material should be applied to the floor of the service body and on top of the compartments.

Yes

17. Bumper that works with the service body should be installed on the truck and include a standard 2 inch receiver with trailer light receptacle

Yes

- 2 Minimum WPCP truck specifications, see below.
latest model available 3/4 ton 4 x 4 extended, double, or quad cab design.
Service body should be attached to the truck.

Quantity: 1 UOM: EA Price: \$47,771.00 Total: \$47,771.00

Supplier Notes: Dealer installed Back Up Alarm. In stock truck has 17" wheels and tires. Note item 23 is marked as yes because lonwave does not allow for no or blank to submit truck will be equipped with 17" wheels and tires.

Item Attributes

1. White in color
☒ yes
2. Extended, double, or quad cab design
☒ yes
3. V-8 gasoline engine
☒ yes
4. Automatic transmission
☒ yes
5. Shiftable/on the fly 4 wheel drive option with high and low range
☒ yes
6. Minimum GVW of 9500 pounds
☒ yes
7. Minimum of 3400 pound payload capacity
☒ yes
8. Minimum of 12,400 pound towing capacity.
☒ yes
9. Power door locks and power windows.
☒ yes
10. Intermittent windshield wipers
☒ yes
11. Tilt steering wheel with cruise control.
☒ yes
12. Rubber or vinyl floor covering
☒ yes
13. Air conditioning
☒ yes
14. Gauge package in the instrument cluster.
☒ yes
15. AM/FM radio system
☒ yes
16. 3.73 rear differential, limited slip or locking.
☒ yes

17. Trailer towing mirrors

☒ yes

18. 40/20/40 split front bench seat with folding arm rest

☒ yes

19. Daytime running lights should be standard.

☒ yes

20. Rear view back up camera should be installed on the truck service body

☒ yes

21. Full cab length running boards should be installed on the truck

☒ yes

22. Exterior back up alarm should be installed on the truck

☒ yes

23. Minimum tire size of 18 inches

☒ yes

24. Full sized spare tire should be included with the truck

☒ yes

25. Factory trailer brake controller should be installed and operational on the truck

☒ yes

26. Truck should have an amber warning/strobe light installed on it.

☒ yes

27. Heavy duty suspension with the snow plow package installed on the truck

☒ yes

Response Total: \$64,047.00

4/4
w/service Body

2024 SIERRA 2500 4WD DOUBLE CAB PRO
GAZ SUMMIT WHITE. /V8G
H1T JET BLACK
ORDER NO. CTBFS1/TRE STOCK NO.
VIN 1GT 59LE 74 RF205396

MODEL & FACTORY OPTIONS MSRP
TK20953 SIERRA 2500 4WD DOUBLE CA 49300.00
C7G GVWR, 10,500 LBS. (4763 KG) N/C
FE9 50-STATE EMISSIONS N/C
GT4 REAR AXLE - 3.73 RATIO N/C
JL1 TRAILER BRAKE CONTROLLER, 275.00
INTEGRATED
KI4 120 VOLT POWER OUTLET 225.00
IN INSTRUMENT PANEL
CARGO BED
L8T ENGINE: 6.6L V8, GASOLINE N/C
MKM TRANS: ALLISON 10-SPEED AUTO N/C
PCI CONVENIENCE PACKAGE 1135.00
* EZ LIFT POWER LOCK AND
RELEASE TAILGATE
* DEEP-TINTED GLASS
* LED CARGO BED LIGHTING
* REAR-WINDOW DEFOGGER
* CRUISE CONTROL
* TRAILERING MIRRORS, OUTSIDE
PYN 17" PAINTED STEEL WHEELS N/C
R6J CUSTOMER DIALOGUE NETWORK 0.00
UY2 TRAILERING WIRING PROVISIONS 35.00
U01 LED ROOF MARKER LAMPS 55.00
VYU SNOW PLOW PREP / CAMPER PACKAGE 300.00
* ALTERNATOR, 220 AMPS
* INCREASED FRONT GAWR
* SKID PLATES
* ROOF EMERGENCY LIGHT
PROVISIONS W/ PASS THROUGH

TOTAL MODEL & OPTIONS 51325.00
DESTINATION CHARGE 1895.00
LMA GROUP CONTRIBUTION

TOTAL 53220.00



QUOTE

Quote ID: Q16737

Rev: 0

Quote Date: 7/17/2023

Quote Valid Until: 7/24/2023

P.O. Box 3265
Des Moines, IA 50316

Phone: (515) 266-5189 Toll Free: (800) 373-2887 Fax: (515) 266-7878

Page 1 of 2

Customer: 70170

Muscatine, City Of
1459 Washington

Muscatine, IA 52761

Contact: Jim Allen

Phone: (563) 561-5106

Email: jallen@muscatineiowa.gov

Salesperson: Scott Odendahl

Make: GMC	Model: 2500	Year: 2024	Single/Dual: Single
Cab Type:	Wheelbase: 0	Cab-to-Axle: 56	VIN:

FURNISH AND INSTALL:**1 - KNAPHEIDE MODEL A698-2 SERVICE BODY****STANDARD SPECIFICATIONS**

LENGTH - 99.25"

COMPARTMENT HEIGHT - 40"

COMPARTMENT DEPTH - 16.25"

WIDTH - 81.25"

CONSTRUCTION - .09

ALUMINUM FLOOR WIDTH - 49"

.09 Aluminum body shell,
.08 Aluminum double paneled door with reinforcing hat section,
12" Slam latch tailgate,
Patented "Quick Mount" installation,
Exclusive return flange,
Interior flush mounted light guard,
Complete under coating,
Exclusive stainless steel continuous hinge with stainless steel pin,
Exclusive 12-step electrodeposition epoxy priming system for superior corrosion protection
Light gray finish painted interior,
Superior continuous (No Gap around striker), automotive bulb type neoprene door seals,
Stainless steel paddle activated, rotary style latches (bolt-on), with interior cover.
Surface mounted combination LED taillight/backup lights w/ built-in amber LED strobe feature
(NOTE: strobe requires additional optional hook up kit)

Body painted white using a single stage acrylic enamel system

NOTE: DUE TO VARIATIONS IN OEM PRODUCTS AND APPLICATION METHODS,
A PERFECT MATCH CANNOT BE GUARANTEED!**COMPARTMENTATION****COMPARTMENT**

FRONT VERTICAL

HORIZONTAL

REAR VERTICAL

STREET SIDE

2 - ADJ. DIVIDER SHELVES

OPEN

1 - ADJ. DIVIDER SHELF

CURB SIDE

2 - ADJ. DIVIDER SHELVES

1 - ADJ. DIVIDER SHELF

1 - ADJ. DIVIDER SHELF

OPTIONS INCLUDED IN THE PRICE:

- Installation Kit for Aluminum Service Body 2023 & Newer GM 2500HD/3500HD 56" CA With Factory
- GM 2023 & Newer 42"/56" 2500/3500HD 6-Circuit Wire Harness Adapter
- Fenderskirt Streetside with Front Fuel Fill Cutout, GM 36"-60" CA Body, Knap White
- Fenderskirt Streetside or Curbside, 36"-60" CA Body, Knap White
- 78" Wide KnapLined Galva-Grip Bumper w/Hitch Recess for Aluminum Service Body w 49" Wide Floor, GM 2500HD or 3500HD, 2020 & Newer
- GM Fuel Fill Kit
- Transfer Camera from tailgate to service body and certify to FMVSS
- Rhino line the load bed area and the compartment tops
- Relocate backup sensors
- Relocate 110V outlet in box to service body



QUOTE

Quote ID: Q16737

Rev: 0

Quote Date: 7/17/2023

Quote Valid Until: 7/24/2023

P.O. Box 3265
Des Moines, IA 50316

Phone: (515) 266-5189 Toll Free: (800) 373-2887 Fax: (515) 266-7878

Page 2 of 2

- Acari 3rd brake light mount with a 360 degree Federal signal mini light bar wired to a switch in the cab

NET PRICE FOB DES MOINES: \$16,276.00

Customer must fill out the information below before the order can be processed...

Accepted by:	
Date:	
P.O. Number:	

* Terms are Due Upon Receipt unless prior credit arrangements are made at the time of order.

* Please note if chassis is furnished, it is as a convenience and terms are Net Due on Receipt of Chassis.

* Sales Tax is not included unless otherwise noted.



CITY OF
MUSCATINE

2023-0020

BONNELL INDUSTRIES INC.

Supplier Response

Event Information

Number: 2023-0020
Title: WPCP 3/4 ton 4 x 4 pickup truck double cab
Type: Sealed Bid - Vehicles and Equipment
Issue Date: 7/28/2023
Deadline: 8/11/2023 03:00 PM (CT)

*Service
Body*

Contact Information

Contact: Randy Moeller
Address: 1459 Washington Street
Muscatine, IA 52761-5040
Phone: (563) 2722565
Email: rmoeller@muscatineiowa.gov

BONNELL INDUSTRIES INC. Information

Contact: Tessa Smice
Address: 1385 FRANKLIN GROVE RD
DIXON, IL 61021
Phone: (815) 284-3819
Fax: (815) 284-0026
Toll Free: (800) 581-9664
Email: t.smice@bonnell.com
Web Address: Bonnell.com

By submitting your response, you certify that you are authorized to represent and bind your company.

JASON SCHIER

Signature

Submitted at 8/11/2023 02:49:31 PM (CT)

JASON@BONNELL.COM

Email

Response Attachments

SO#170035.pdf

BID

Bid Attributes

1	I have downloaded and read all the attached documents. ☒ yes
2	What is the estimated delivery date? FEBURARY 2024
3	What is the expiration date for the submitted bid? 9-12-2023

Bid Lines

1	Minimum WPCP truck specifications, see below. Latest model available 3/4 ton 4 x 4 extended, double, or quad cab design. Quantity: <u>1</u> UOM: <u>EA</u> Price: <u>\$67,630.69</u> Total: <u>\$67,630.69</u>
Item Attributes	
1. White Exterior color ☒ yes	
2. Extended, double, or quad cab design ☒ yes	
3. V-8 gasoline engine ☒ yes	

4. Automatic transmission

☒ yes

5. Shiftable/on the fly 4 wheel drive option with high and low range

☒ yes

6. Minimum GVW of 9500 lbs.

☒ yes

7. Minimum of 3400 pound payload capacity

☒ yes

8. Minimum of 12,400 pound towing capacity.

☒ yes

9. Power door locks and power windows.

☒ yes

10. Intermittent wipers

☒ yes

11. Tilt steering wheel with cruise control.

☒ yes

12. Rubber or vinyl floor covering

☒ yes

13. Air conditioning

☒ yes

14. Gauge package in the instrument cluster.

☒ yes

15. AM/FM radio system

☒ yes

16. 3.73 rear differential, limited slip or locking.

☒ yes

17. Trailer towing mirrors

☒ yes

18. 40/20/40 split front bench seat with folding arm rest

☒ yes

19. Daytime running lights should be standard.

☒ yes

20. Rear view back up camera should be installed on the truck

☒ yes

21. Heavy duty suspension with the snow plow package installed on the truck

☒ yes

22. Full cab length running boards should be installed on the truck

☒ yes

23. Trailer towing package with a standard 2 inch receiver should be installed on the truck

☒ yes

24. Exterior back up alarm should be installed on the truck

☐ yes

25. Minimum tire size of 18 inches

☒ yes

26. Full sized spare tire should be included with the truck

☒ yes

27. Factory trailer brake controller should be installed and operational on the truck

☒ yes

28. Truck should have an amber warning/strobe light installed on it.

☒ yes

Response Total: \$67,630.69

2024 SIERRA 2500 4WD DOUBLE CAB PRO

GENERAL MOTORS LLC

GAZ SUMMIT WHITE

/V8G

H1T JET BLACK

ORDER NO. CSKG2K/TRE

STOCK NO.

VIN 1GT 59LE 74 RF193265

50D07265411*****7134*****

SMODEL & FACTORY OPTIONS

MSRP

TK20753 SIERRA 2500 4WD DOUBLE CA 49100.00

FE9 50-STATE EMISSIONS N/C

GT4 REAR AXLE - 3.73 RATIO N/C

JGC GVWR, 10,350 LBS. (4695 KG) N/C

JL1 TRAILER BRAKE CONTROLLER, 275.00

INTEGRATED

120 VOLT POWER OUTLET 225.00

IN INSTRUMENT PANEL

CARGO BED

L8T ENGINE: 6.6L V8, GASOLINE N/C

MKM TRANS: ALLISON 10-SPEED AUTO N/C

PCI CONVENIENCE PACKAGE 925.00

EZ LIFT POWER LOCK AND

RELEASE TAILGATE

DEEP-TINTED GLASS

LED CARGO BED LIGHTING

REAR-WINDOW DEFOGGER

CRUISE CONTROL

PQA 1SA PRO SAFETY PLUS PACKAGE 1305.00

REAR PARK ASSIST

LANE CHANGE ALERT WITH SIDE

BLIND ZONE ALERT

CROSS TRAFFIC ALERT

TRAILERING MIRRORS, HEATED

PYN 17" PAINTED STEEL WHEELS N/C

QXT ALL TERRAIN TIRES 200.00

R6J CUSTOMER DIALOGUE NETWORK 0.00

UY2 TRAILERING WIRING PROVISIONS 35.00

U01 LED ROOF MARKER LAMPS 55.00

U2K SIRIUSXM AUDIO WITH 100.00

SXM TRIAL SUBSCRIPTION

VYU SNOW PLOW PREP / CAMPER PACKAGE 300.00

ALTERNATOR, 220 AMPS

INCREASED FRONT GAWR

SKID PLATES

ROOF EMERGENCY LIGHT

PROVISIONS W/ PASS THROUGH

**

TOTAL MODEL & OPTIONS 52520.00

DESTINATION CHARGE 1895.00

CONTRIBUTION

TOTAL 54415.00



1385 Franklin Grove Rd
Dixon, IL 61021
815-284-3819 * 815-284-8815 Fax
800-851-9664
www.bonnell.com * info@bonnell.com

Quote

Quote Number: 0170035
Quote Date: 8/11/2023

Bill To: 0008933
CITY OF MUSCATINE
215 SYCAMORE
MUSCATINE, IA 52761

Ship To: 01
CITY OF MUSCATINE
1459 WASHINGTON
MUSCATINE, IA 52761

Phone: (563) 264-1550 Fax: (563) 264-0750 smeyer@muscatineia.gov

Phone:
Fax:

Confirm To: NANCY LUECK

Comment: SERVICE BODY UPFIT

Customer P.O.	Ship VIA	F.O.B.	Terms	Quote Expiration
			Net 30 Days	9/10/2023

Ordered	Unit	Item Number	Each Price	Extended Price
1.00	EACH	TRUCK EQUIPMENT APPLICATION 2024, CHEVROLET, C/K 2500, BOX REMOVAL/DELETE, DOUBLE CAB, SRW, 4X4, 6.6L GAS, 162.5 WB, 56 CA, 10500 GVWR PERFORM THE FOLLOWING UNDERCOAT THE BOTTOM OF SERVICE BODY AND IN WHEEL WELLS RHINO LINE THE ENTIRE CARGO AREA AND TOP OF TOOL PACKS INSTALL NEW SERVICE BODY WHICH INCLUDES THE FOLLOWING 34447029 78" WIDE KNAPLINED GALVA-GRIP BUMPER W/HITCH RECESS FOR ALUMINUM SERVICE BODY W 49" WIDE FLOOR, GM 2500HD OR 3500HD, 2020 & NEWER 35306387 INSTALLATION KIT FOR ALUMINUM SERVICE BODY 2020 - 2022 GM 2500HD/3500HD 56" CA WITHOUT FACTORY HITCH 34087632 GM 2020-2022 42"/56" CA 2500/3500HD OR 2020 & NEWER 60"/84" CA 3500HD 6-CIRCUIT WIRE HARNESS ADAPTER 20104660 FENDERSKIRT STREETSIDE OR CURBSIDE, 36"-60" CA BODY, KNAP WHITE X2 31402840 FUEL FILL KIT FOR 2011 & LATER GM 2500HD/3500HD 42"/56" CA - 1-1/4" GAS 26202622 ALUMINUM FUEL FILL CUP GM 21 DEGREE 12256319 HARNESS FOR REAR STROBES FOR USE WITH FACTORY SWITCH INSTALL REAR HITCH AND TRAILER PLUG INSTALL FACTORY REVERSE CAMERA IF AVAILABLE	2,000.00	2,000.00
1.00	EACH	TEST FUNCTIONS /CHASSIS NEW 2024, CHEVROLET, C/K 2500 AS SPECD, CUSTOMER IS RESPONSIBLE FOR TITLE AND LICENSE	49,358.26	49,358.26
1.00	HR	BUDGETARY NUMBER OF \$49,358.26 + TITLE AND LICENSE /LABOR-MFG UNDERCOAT LABOR	800.00	800.00



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Phone:
Fax:

Confirm To: NANCY LUECK

Comment: SERVICE BODY UPFIT

Customer P.O.	Ship VIA	F.O.B.	Terms	Quote Expiration
			Net 30 Days	9/10/2023

Ordered	Unit	Item Number	Each Price	Extended Price
4.00	GAL	NOX-RUST 1523 UNDERCOATING, DAUBERT NOX-RUST 1523, CORROSION PROTECTION, SOUND DEADENING AND MOISTURE SEALING PROPERTIES TO THE UNDERSIDE OF HIGHWAY VEHICLES AND TRAILERS.	47.87	191.48
1.00	EACH	*RHINO LINE RHINO LINE THE ENTIRE CARGO AREA AND TOP OF TOOL PACKS	1,250.00	1,250.00
1.00	HR	/LABOR-TE INSTALL LABOR	1,600.00	1,600.00
1.00	EACH	*SERVICE BODY A698-2 ALUMINUM STANDARD SERVICE BODY - ALUMINUM SERVICE BODIES 600-SERIES, 99.25" LENGTH, 40" HIGH, 14.5" DEEP COMPTS, 49" FLOOR, PAINTED WHITE, W/LIGHTS INSTALLED	11,990.00	11,990.00
1.00	EACH	NAP-26102533 RECEIVER HITCH PACKAGE	432.95	432.95
1.00	EACH	MAXIMUM TRAILER WEIGHT = 12,000 POUNDS MAXIMUM TONGUE WEIGHT = 2,400 POUNDS WAY-37676 TRAILER CONNECTOR, 7 WAY, RV, SOCKET END, TRUCK SIDE	8.00	8.00

SIGNING THIS QUOTE CONSTITUTES YOUR ACCEPTANCE AND AGREEMENT TO THE FOLLOWING:

- o DUE TO THE CLIMATE OF CURRENT MARKET CONDITIONS FINAL INVOICE PRICE MAY VARY FROM ORIGINAL QUOTE PRICE.
- o NO PRODUCT/SPEC. CHANGES MAY BE MADE AFTER THE DATE OF SIGNATURE. ANY CHANGES REQUESTED AFTER THE DATE OF SIGNATURE WILL BE QUOTED SEPARATELY AND, IF APPLICABLE, WILL BE COMPLETED ON A SEPARATELY SCHEDULED TIME FRAME.
- o 15% RESTOCKING FEE ON RETURNED ITEMS. NO RETURNS ON ELECTRICAL ITEMS
- o THIS QUOTE IS VALID FOR 30 DAYS. ALL QUOTES OVER 30 DAYS OLD ARE SUBJECT TO CHANGE AND REQUIRE A REQUOTE PRIOR TO ACCEPTANCE OF A PURCHASE ORDER.

Net Order:	67,630.69
Less Discount:	0.00
Freight:	0.00
Sales Tax:	0.00
Quote Total:	67,630.69

AUTHORIZED APPROVAL CONTACT NAME (PRINTED):

AUTHORIZED APPROVAL CONTACT (SIGNATURE):

APPROVAL DATE:

APPROVAL DATE:

0005 TOM MASSEY

KJH



City of Muscatine

ITEM NUMBER 2023-0445

AGENDA ITEM SUMMARY

DATE: 9/7/2023

STAFF

Gary Ronzheimer, Battalion Chief
Gerald Ewers, Fire Chief

SUBJECT

Request to Approve the Issuance of a Purchase Order to Feld Fire, in the Amount of \$279,772.00, for the Purchase of an Ambulance with a Powerload system.

EXECUTIVE SUMMARY

The City's 2023/2024 budget includes a funding amount of \$276,000 for a new ambulance with a powerload system to be funded from the 2024 bond issue.

The Fire Department utilized Ionwave (the new electronic bidding system) for the specifications and vendors to bid on the project. The City requested a bid price if the City pays for the ambulance when it is delivered and an alternate price if it was paid at the time the purchase order is issued.

Feld Fires' bid price for the new ambulance was \$279,772. The alternate bid if the City paid for the ambulance at the time of the order would be \$269,979.98, which would be a discount of \$9,792.02 (which would have made the purchase price under the budgeted amount of \$276,000).

The City, however, is currently earning 5% in interest on City funds. Paying for the ambulance when it is delivered, rather than accepting the pre-payment discount offered, will increase the bonding requirement. However, due to the current interest rates and the length of time needed to build the new ambulance, there appears to be a financial benefit for the City to pay for the ambulance after it is built, rather than take the pre-payment discount.

STAFF RECOMMENDATION

City staff recommends approving the purchase order request to Feld Fire for an ambulance and powerload system in the amount of \$279,772.

BACKGROUND/DISCUSSION

A new ambulance with a powerload system was requested and approved during budget discussions for the FY 2023/2024 budget, which is in line with our vehicle replacement schedule. This new ambulance will replace Squad 355, which is a 2016 Ford E450 with over 206,000 miles. Squad 355 is estimated to have over 275,000 miles when the new ambulance is delivered and Squad 355 is taken out of service.

In July, specifications were posted for a bid for a new ambulance with a powerload system for the Muscatine Fire Department utilizing the new Ionwave bidding system. When bid time closed on August 18th, the City received two bids. One bid from Feld Fire and one from Reliant Fire. The lowest responsible winning bid after reviewing was Feld Fire. Reliant Fire was unable to meet design specifications.

Feld Fire - \$279,772

Reliant Fire - \$301,610 (did not meet specifications)

The City's 2023/2024 budget included funding of \$276,000 for a new ambulance with a powerload system from the 2024 bond issue. The actual cost will be \$279,772. This is \$3,772 over budget.

Estimated delivery date of March 24th, 2025.

CITY FINANCIAL IMPACT

The approved budgeted amount for the ambulance is \$276,000. The PO request to purchase the ambulance is \$279,772. This is \$3,772 over the approved budget. The bonding amount will increase to \$280,000.

Paying for the ambulance when it is delivered, rather than accepting the pre-payment discount offered, will increase the bonding requirement. However, due to the current interest rates and the length of time needed to build the new ambulance, there appears to be a financial benefit for the City to pay for the ambulance after it is built, rather than take the pre-payment discount.

ATTACHMENTS

1. Ambulance Bid Tab_Council 08.29.23

Event Number	2023-0019	Organization	City of Muscatine
Event Title	Type III Ambulance	Workgroup	Purchasing
Event Description	The City of Muscatine is soliciting bids from qualified ambulance dealers for the purchase of a new, 2024/2025 Type III ambulance as described in the attached specification.		
Event Type	Vehicles and Equipment	Event Officer	Stephanie Olsen
Issue Date	7/21/2023 06:00:01 PM (CT)	Email	soien@muscatineiowa.gov
Close Date	8/18/2023 02:00:00 PM (CT)	Phone	(563) 263-9233
		Fax	

Responding Supplier	City	State	Response Submitted	Lines Responded	Response Total
Ed M. Feld Equipment Co., Inc. I	Carroll	IA	8/10/2023 04:51:15 PM (CT)	2	\$269,979.98
Reliant Fire Apparatus	Slinger	WI	8/18/2023 10:22:38 AM (CT)	1	\$301,610.00

Please note: Lines Responded and Response Total only includes responses to specification. No alternate response data is included.

Line 1	Type III Ambulance				
Supplier	QTY	UOM	Price	Extended	Supplier Notes
Ed M. Feld Equipment Co., Inc. I	1	EA	\$279,772.00	\$279,772.00	
Reliant Fire Apparatus	1	EA	\$301,610.00	\$301,610.00	Chassis cost is due at the time of chassis arrival to Frazer in the amount of \$51,500.00. The remaining balance is due at delivery.

Line 2	Prepayment discounts, if any (bond required). Please enter cash discount as a negative number.				
Supplier	QTY	UOM	Price	Extended	Supplier Notes
Ed M. Feld Equipment Co., Inc. I	1	EA	-\$9,792.02	-\$9,792.02	Please note this is for full prepayment. \$129,886 prepayment would be a Discount of -4896.01/per year earned interest\$71,343.25 prepayment would be a Discount of -2497.01/per year earned interest
Reliant Fire Apparatus	1	EA	No Bid		



City of Muscatine

ITEM NUMBER 2023-0446

AGENDA ITEM SUMMARY

DATE: 9/7/2023

STAFF

Brian Stineman, Public Works Director
Zack Etzel, Sewer Department Supervisor

SUBJECT

Request to Approve the Issuance of a Purchase Order to Titan Machinery, in the amount of \$131,945.00, for the purchase of a 4x4 Rubber Tire Backhoe Loader.

EXECUTIVE SUMMARY

Public Works Collection & Drainage Requests to Issue a Purchase Order to Titan Machinery in the Amount of \$131,945.00 for the Purchase of a 4x4 Rubber Tire Backhoe Loader.

STAFF RECOMMENDATION

Staff recommends Council approve the issuance of a purchase order to Titan Machinery of Davenport, Iowa in the amount of \$131,945.00.

BACKGROUND/DISCUSSION

The Collection & Drainage division evaluated multiple makes/models of backhoe loaders and has selected the Case 590SN from Titan Machinery to meet the needs of the city. We were able to utilize contract bid pricing to make this purchase. The Minnesota state bid was used in lieu of the Iowa state bid due to the fact that Minnesota state bids include specialized equipment. This state bid will be honored by our local dealer, Titan Machinery.

In order to make sure we did our due diligence while purchasing using this method, we also utilized Sourcewell to compare pricing. The cost for this unit using that bid would be \$143,034. Utilizing this bid process for this piece of equipment meets our bidding rules and allows us to purchase the best piece of equipment available at the best price.

By using this bidding method, we are able to secure this piece of equipment by December 2023.

CITY FINANCIAL IMPACT

The amount budgeted for this piece of equipment was \$135,000 and is available in the Collection & Drainage Budget. The purchase is under budget.

ATTACHMENTS

1. 1846-001

3136 West 76th Street
Davenport, IA 52806
Phone 800-397-0400

Date: 8/29/2023

Attention: Zack Etzel

Customer: City of Muscatine

Address: city hall finance dept

City, ST, Zip: Muscatine ,Iowa 52761

Phone: 563-260-7327

Quotation #:

Quotation Expires:

Sales Person: **Steve Howland**

Cell : 563-210-0646

E-mail: Steve.Howland@TitanMachinery.com

TRADE				
Yr.	Description	SERIAL NO.	VALUE	
1994	Case 590 turbo	JJG0207889	\$16,000.00	
TERMS & CONDITIONS		TOTAL TRADE ALLOWANCE:	\$16,000.00	
TERMS: net cash			TOTAL NET OF TRADE: \$115,945.00	
WARRANTY: standard factory				
FOB: Muscatine			Freight:	
EST. DELIVERY: 60-90 days		NET QUOTATION:	\$115,945.00	

Thank you for your business

Stacy J. Flannery

Steve Howland - Territory Manager

3136 West 76th Street
Davenport, IA 52806
Phone 800-397-0400

Quotation

Date: 8/29/2023

Quotation #:
Quotation Expires:

Sales Person: **Steve Howland**

Cell : 563-210-0646

E-mail: Steve.Howland@TitanMachinery.com

Attention: Zack Etzel
Customer: City of Muscatine
Address: city hall finance dept
City, ST, Zip: Muscatine ,Iowa 52761
Phone: 563-260-7327

Qty.	Description	Tag #	Serial Number	Price
1	new Case 590SN tractor loader backhoe equipped with:			
	4X4 cab with hear ac radio extendahoe Michelin tires			
	front and rear, aux hydraulics pilot controls flipover			
	stabilizer pads, 93" loader bucket, retro kit and 18"			
	backhoe bucket hydraulic thumb suspension cloth seat			
	and allstandard equipment	new	Sourcwell pricing	
			list price	\$230,616.00
			37% discount	-\$85,328.00
			add retro kit & 18" bkt	\$2,550.00
			delivery	\$250.00
			add Predelivery	\$1,200.00
	Additional Discount from Titan Machinery			-\$6,254.00
			TOTAL:	\$143,034.00

TRADE			
Yr.	Description	SERIAL NO.	VALUE
1994	Case 590 turbo	JJG0207889	\$16,000.00
TERMS & CONDITIONS		TOTAL TRADE ALLOWANCE:	\$16,000.00
TERMS:	net cash	TOTAL NET OF TRADE:	\$127,054.00
WARRANTY:	standard factory		
FOB:	Muscatine	Freight:	
EST. DELIVERY:	60-90 days	NET QUOTATION:	\$127,054.00

Thank you for your business

Sam J. Flannery

Steve Howland - Territory Manager



City of Muscatine

ITEM NUMBER 2023-0431

AGENDA ITEM SUMMARY

DATE: 9/7/2023

STAFF

Brian Stineman, Public Works Director
Tyson Wedekind, Roadway Maintenance Supervisor

SUBJECT

Request to Approve the Issuance of a Purchase Order in the Amount of \$78,775.00 to Bushman Excavating for Pavement Crushing.

EXECUTIVE SUMMARY

Presented for City Council's consideration is a request to issue a purchase order to Bushman Excavating in the amount of \$78,775 for the 2023 Pavement Crushing Contract. Funding for this service is available in the Roadway Maintenance Budget.

STAFF RECOMMENDATION

Staff recommends approval of the purchase order in the amount of \$78,775.

BACKGROUND/DISCUSSION

The Public Works Department crushes both concrete and asphalt pavement. The multiple uses for both products are, repair of rock shoulders, base material for both concrete repair, and asphalt repair and asphalt overlay. The material is also used for repair of the compost site, trail base, and other City Projects. The budgeted amount is \$75,000.

CITY FINANCIAL IMPACT

Funding is from the Road Use Tax Fund. This was approved during the 2023/2024 Budget Meetings under the Roadway Maintenance Budget.

ATTACHMENTS

1. 3725_001 (1)

							Bushman Excavating, Inc.		Boomerang Corp	
							Total Price	\$78,775.00	Total Price	\$81,495.00
Line #	Description	Mfgr	Mfgno	QTY	UOM	Estimated	Unit	Extended	Unit	Extended
1	Mobilization			1	LS		\$3,200.00	\$3,200.00	\$7,500.00	\$7,500.00
2	IDOT Modified Subbase (gradation 14)			11000	TON		\$6.85	\$75,350.00	\$6.70	\$73,700.00
3	Dump Truck & Operator Price Per Hour			1	HR		\$90.00	\$90.00	\$115.00	\$115.00
4	Loader & Operator Price Per Hour			1	HR		\$135.00	\$135.00	\$180.00	\$180.00



City of Muscatine

ITEM NUMBER 2023-0441

AGENDA ITEM SUMMARY

DATE: 9/7/2023

STAFF

Anthony Kies, Police Chief

SUBJECT

Request to Approve a Purchase Agreement between the City of Muscatine and Muscatine County (Buyers) and J&S Deahr Farms, LLC (Seller) in the amount of \$420,000 for the Purchase of Real Estate described in Exhibit A (Parcel ID 0334300007) for the use of a Law Enforcement Shooting Range & Training Facility.

EXECUTIVE SUMMARY

A purchase agreement has been negotiated between the City of Muscatine and Muscatine County (Buyers) and J&S Deahr Farms, LLC (Seller) related to the purchase of real estate Parcel 0334300007 consisting of approximately 20 acres for the purpose of constructing a Law Enforcement Shooting Range and Training Facility. The purchase price is \$21,000 per acre. The City of Muscatine and Muscatine County have agreed to partner to develop this project jointly and split all costs 50/50. The purchase agreement outlines certain conditions on the sale and articulates the responsibilities of all parties.

STAFF RECOMMENDATION

Staff recommends approval.

BACKGROUND/DISCUSSION

The City of Muscatine and the County of Muscatine have agreed to jointly build a Law Enforcement Training Facility and Range. Muscatine City and Muscatine County also agreed to have MSA conduct a search for parcels which would best fit the above facility and create a concept design of what the training facility would look like. Twenty (20) acres are needed to appropriately complete the Law Enforcement Training Center. After completion of the concept design, it was determined that there was only one landowner that would be willing to sell a portion of their property, J&S Deahers, LLC. The purchase price of \$21,000 per acre was negotiated, which is within the prior authorized amount.

This project will serve as a training facility for the Muscatine Police Department and Muscatine County Sheriffs Department. We have agreed to a partnership with Muscatine County to

develop this project jointly and split all costs at 50/50. This will allow our agencies to have a place to complete the following:

- Firearms Training & Qualifications
- MSORT Training
- Defensive Tactics Training
- ASP Training
- Chemical Munitions Training
- Conduct trainings in Muscatine County at minimal cost as a host agency

CITY FINANCIAL IMPACT

The costs for this project will be split 50/50 between the City of Muscatine and the County of Muscatine.

The City's portion of the project cost was included in the list of projects to be funded from the May 2024 bond issue that was discussed during the 2023/2024 budget meetings.

ATTACHMENTS

1. Range Real Estate Offer



OFFER TO BUY REAL ESTATE AND ACCEPTANCE (NONRESIDENTIAL)

FROM: City of Muscatine, Iowa & Muscatine County, Iowa (BUYERS)

TO: J & S Deahr Farms, LLC, (SELLER)

The undersigned BUYERS hereby offer to buy and the undersigned SELLER, by its acceptance and signature hereon, agrees to sell certain real property located and situated in Muscatine County, Iowa, and consisting of approximately a 20-acre parcel contained within the legal description of the real estate described on the attached **Exhibit A**, hereafter to be known as the “property”. As noted below, the property’s exact legal description is subject to completion of a survey and for purposes of this Offer and Acceptance, the Parties agree the real property is more particularly or specifically to be described, at a minimum, using the following general boundaries:

1. The east boundary will be the east fence line of the property;
2. The west boundary line will be 922’ west of the east fence line;
3. The south boundary line will be the current south property line;
4. The north boundary line will be 998’ north of the south property line;

together with any easements and appurtenant servient estates, but in any case, subject only to any easements of record for public roads or utilities and applicable zoning restrictions. The Parties hereto acknowledge that the BUYER’S intent to use the Property as a Law Enforcement Shooting Range & Training Facility or in any other manner as may otherwise be allowed by law. For purposes of this Agreement, the “effective date” shall be the date upon which the SELLER and both BUYERS have signed the Agreement.

The following terms and conditions, including all contingencies and/or limitations, shall govern the this offer to Purchase Real Estate and Acceptance:

1. PROPERTY SURVEY. The exact dimensions, boundary lines, area and legal description are to be confirmed by a formal survey, **paid for by BUYERS**, and performed by a registered land surveyor. The final plat of survey is subject to the approval and consent of both SELLER and BUYERS and will be filed for record by the BUYERS, if all other contingencies noted herein are met and the matter proceeds to final closing. If the survey done pursuant to this section shows an encroachment on the Property or if any improvements located on the Property encroach on lands of others, the encroachments shall be treated as a title defect.
2. PURCHASE PRICE. The Purchase Price shall be \$21,000.00 per acre (with the acreage to be determined by the property survey) and the method of payment shall be as follows: \$1,000.00 will be paid by the BUYERS within seven (7) days of the completion of all contingencies outlined herein and at that time will be deposited and held in trust by Stanley Lande & Hunter Law Firm as earnest money, to be delivered to the SELLER upon

performance of SELLER'S obligations and satisfaction of BUYERS' contingencies, if any; and the balance of the Purchase Price in cash at closing.

3. REAL ESTATE TAXES. SELLER shall pay any unpaid real estate taxes payable in prior years. BUYERS shall pay all subsequent real estate taxes. Unless otherwise provided in this Agreement, at closing, SELLER shall pay BUYERS, or BUYERS shall be given a credit for, taxes from the first day of July prior to the possession to November 20, 2023, or the date of possession, **whichever is later**, based upon the last known actual net real estate taxes payable according to public records. However, if such taxes are based upon a partial assessment of the present property improvements or a changed tax classification as of the date of possession, such proration shall be based on the current levy rate, assessed value, legislative tax rollbacks and real estate tax exemptions that will actually be applicable as shown by the assessor's records on the date of possession.
4. SPECIAL ASSESSMENTS.
 - A. The SELLER shall pay, at time of closing, all installments of special assessments which are a lien on the Property and, if not paid, would become delinquent during the calendar year this offer is accepted, and all prior installments thereof.
 - B. All charges for solid waste removal, sewage and maintenance that are attributable to SELLER'S possession, including those for which assessments arise after closing, shall be paid by SELLER.
 - C. Any preliminary or deficiency assessment which cannot be discharged by payment shall be paid by SELLER through an escrow account with sufficient funds to pay such liens when payable, with any unused funds returned to SELLER.
 - D. BUYERS shall pay all other special assessments or installments not payable by SELLER.
5. RISK OF LOSS AND INSURANCE. SELLER shall bear the risk of loss or damage to the Property prior to closing, whichever first occurs. SELLER agrees to maintain existing insurance and BUYERS may purchase additional insurance. In the event of substantial damage or destruction prior to closing, this Agreement shall be null and void; provided, however, BUYERS shall have the option to complete the closing and receive insurance proceeds regardless of the extent of damages. The property shall be deemed substantially damaged or destroyed if it cannot be restored to its present condition on or before the closing date.
6. POSSESSION AND CLOSING. If BUYERS timely perform all obligations, possession of the Property shall be delivered to BUYERS no earlier than closing and after the SELLER has completed harvesting of all crops existing on the property. For purposes of clarification, "crops" shall be defined as those crops growing on the property as of the date this Offer

and Acceptance is signed by both Parties and shall not be planted or placed thereon by the SELLER after that date. All such crops shall remain the property of the SELLER. Closing shall occur after the approval of marketable title by BUYERS counsel and the removal of all crops by the Seller. Given the number of contingencies contained herein, the growing crops and need for harvest and joint governmental entity purchase, the Parties agree that they will set a on a date mutually agreeable date for closing after the crops are removed by the SELLER. SELLER agrees to permit BUYERS to inspect the Property within twenty-four (24) hours prior to closing to assure that the premises are in the same condition as it is now, absent the existence of the crops. If possession is given on a day other than closing, the parties shall make a separate agreement with adjustments as of the date of possession. This transaction shall be considered closed upon the exchange and filing of the marketable title transfer documents and receipt of all funds, due at closing, from BUYERS under the Agreement.

7. FIXTURES. Included with the Property shall be all fixtures that integrally belong to, are specifically adapted to or are a part of the real estate, whether attached or detached, if any. Specifically included in the purchase of the property shall be the below ground tiling system, that currently exists on the property, and any and all fencing.
8. CONDITION OF PROPERTY. The property as of the date of this Agreement, including buildings, grounds, and all improvements, will be preserved by the SELLER in its present condition until possession, ordinary wear and tear excepted. SELLER makes no warranties, expressed or implied, as to the condition of the property. Notwithstanding, the BUYERS may, within thirty (30) days after the acceptance of this Agreement and at their sole expense, have the property inspected ("inspection period") by a person or persons of their choice to determine if there are any structural, mechanical, plumbing, electrical, environmental, or other deficiencies. Within ten (10) days of the completion of this inspection period, the BUYERS may notify in writing the SELLER of any deficiencies, if any. The SELLER shall immediately thereafter notify the BUYERS in writing of what steps, if any, the SELLER will take to correct any deficiencies before closing. The BUYERS shall then immediately in writing notify the SELLER that either: (1) such steps are acceptable, in which case this Agreement, as so modified, shall be binding upon all parties; or (2) that such steps are not acceptable, in which case this Agreement shall be null and void, and any earnest money shall be returned to BUYERS.
9. ABSTRACT AND TITLE. SELLER, at its expense, shall promptly obtain an abstract of title to the Property continued through the date of acceptance of this Agreement, and deliver it to BUYERS' attorney's for examination. It shall show marketable title in SELLER in conformity with this Agreement, Iowa law, and title standards of the Iowa State Bar Association. The SELLER shall make every reasonable effort to promptly perfect title, if any defect exists. If closing is delayed due to SELLER'S inability to provide marketable title, this Agreement shall continue in force and effect until either party rescinds the Agreement after giving ten (10) days written notice to the other party. The abstract shall

become the property of BUYERS when the Purchase Price is paid in full. SELLER shall pay the costs of any additional abstracting and title work due to any act or omission of SELLER, including transfers by or the death of SELLER or its assignees. Unless stricken, the abstract shall be obtained from an abstracter qualified by the Guaranty Division of the Iowa Housing Finance Authority.

10. ENVIRONMENTAL MATTERS.

- A. SELLER warrants to the best of its knowledge and belief that there are no abandoned wells, solid waste disposal sites, hazardous wastes or substances, or underground storage tanks located on the Property, the Property does not contain levels of radon gas, asbestos, or urea-formaldehyde foam insulation which require remediation under current governmental standards, and SELLER has done nothing to contaminate the Property with hazardous wastes or substances. SELLER warrants that the property is not subject to any local, state, or federal judicial or administrative action, investigation or order, as the case may be, regarding wells, solid waste disposal sites, hazardous wastes or substances, or underground storage tanks. SELLER shall also provide BUYERS with a properly executed GROUNDWATER HAZARD STATEMENT showing no wells, private burial sites, solid waste disposal sites, private sewage disposal system, hazardous waste and underground storage tanks on the Property unless disclosed herein as follows:
- B. BUYERS may at their expense, within thirty (30) -days after the date of acceptance, obtain a report from a qualified engineer or other person qualified to analyze the existence or nature of any hazardous materials, substances, conditions or wastes located on the Property. In the event any hazardous materials, substances, conditions or wastes are discovered on the Property, BUYERS' obligation hereunder shall be contingent upon the removal of such materials, substances, conditions or wastes or other resolution of the matter reasonably satisfactory to BUYERS. However, in the event SELLER is required to expend any sum in excess of \$2,500.00 to remove any hazardous materials, substances, conditions or wastes, SELLER shall have the option to cancel this transaction and refund to BUYERS all earnest money paid and declare this Agreement null and void. The expense of any inspection by the BUYERS shall be paid by BUYERS. The expense of any action necessary to remove or otherwise make safe any hazardous material, substances, conditions or waste shall be paid by SELLER, subject to SELLER'S right to cancel this transaction as provided above.
- C. See also Section 22 herein relating to private sewage disposal systems.

11. WARRANTY DEED. Upon payment of the Purchase Price, SELLER shall convey the Property to BUYERS by warranty deed, free and clear of all liens, restrictions, and encumbrances except as provided in this Agreement. General warranties of the title shall

extend to the time of delivery of the deed excepting liens and encumbrances suffered or permitted by BUYERS.

12. JOINT TENANCY IN PROCEEDS AND IN REAL ESTATE. If SELLER, immediately preceding acceptance of the offer, holds title to the Property in joint tenancy with full rights of survivorship, and the joint tenancy is not later destroyed by operation of law or by acts of the SELLER, then the proceeds of this sale, and any continuing or recaptured rights of SELLER in the Property, shall belong to SELLER as joint tenants with full rights of survivorship and not as tenants in common; and BUYERS in the event of death of any SELLER, agree to pay any balance of the price due SELLER under this contract to the surviving SELLER and to accept a deed from the surviving SELLER consistent with Paragraph 15.
13. JOINDER BY SELLER'S SPOUSE. SELLER'S spouse, if not a title holder immediately preceding acceptance, executes this Agreement only for the purpose of relinquishing all rights of dower, homestead and distributive share or in compliance with Section 561.13 of the Code of Iowa and agrees to execute the deed or real estate contract for this purpose.
14. STATEMENT AS TO LIENS. The Parties agree that neither the SELLER or the BUYER has or shall permit or cause any lien to be placed on the property.
15. USE OF PURCHASE PRICE. At time of settlement, funds of the Purchase Price may be used to pay taxes and other liens and to acquire outstanding interests, if any, of others.
16. APPROVAL OF COURT. If the Property is or becomes an asset of an estate, trust or conservatorship, and is or becomes contingent upon Court approval, the fiduciary shall promptly submit this Agreement for such approval. If this Agreement is not so approved by the Court, either party may declare this Agreement null and void, and all payments made hereunder shall be made to BUYERS.
17. REMEDIES OF THE PARTIES.
 - A. If BUYERS fail to timely perform this Agreement, SELLER may forfeit it as provided in the Iowa Code (Chapter 656), and all payments made shall be forfeited; or, at SELLER'S option, upon thirty (30) days written notice of intention to accelerate the payment of the entire balance because of BUYERS' default (during which thirty (30) days the default is not corrected), SELLER may declare the entire balance immediately due and payable. Thereafter this Agreement may be foreclosed in equity and the Court may appoint a receiver.
 - B. If SELLER fails to timely perform this Agreement, BUYERS exclusive remedy is the right to have all payments made returned to them, and to be reimbursed by SELLER for all costs reasonably expended by BUYERS in reliance on this Agreement, not to exceed \$1,500.00, without prior approval of SELLER

18. NOTICE. Any notice under this Agreement shall be in writing and be deemed served when it is delivered by personal delivery or mailed by certified mail, addressed to the parties at the addresses given below.
19. GENERAL PROVISIONS. In the performance of each part of this Agreement, time shall be of the essence. Failure to promptly assert rights herein shall not, however, be a waiver of such rights or a waiver of any existing or subsequent default. This Agreement shall apply to and bind the successors in interest of the parties. This Agreement shall survive the closing. This Agreement contains the entire agreement of the parties and shall not be amended except by a written instrument duly signed by SELLER and BUYERS. Paragraph headings are for convenience of reference and shall not limit or affect the meaning of this Agreement. Words and phrases herein shall be construed as in the singular or plural number, and as masculine, feminine, neutral or other gender according to the context.
20. NO REAL ESTATE AGENT OR BROKER. Neither party has used the service of a real estate agent or broker in connection with this transaction.
21. CERTIFICATION. BUYERS and SELLER each certify that they are not acting, directly or indirectly, for or on behalf of any person, group, entity or nation named by any Executive Order or the United States Treasury Department as a terrorist, "Specially Designated National and Blocked Person" or any other banned or blocked person, entity, nation or transaction pursuant to any law, order, rule or regulation that is enforced or administered by the Office of Foreign Assets Control; and are not engaged in this transaction, directly or indirectly on behalf of, any such person, group, entity or nation. Each party hereby agrees to defend, indemnify and hold harmless the other party from and against any and all claims, damages, losses, risks, liabilities and expenses (including attorney's fees and costs) arising from or related to my breach of the foregoing certification.
22. INSPECTION OF PRIVATE SEWAGE DISPOSAL SYSTEM. SELLER represents and warrants to BUYERS that the Property is not served by a private sewage disposal system, and there are no known private sewage disposal systems on the property. SELLER and BUYERS agree to the provision selected in the attached Addendum for Inspection of Private Sewage Disposal System (**Exhibit B**) and further that this transaction **IS** exempt from the time of transfer inspection requirements by reason that there is no existing private sewage disposal system.
23. CONTINGENCY PROVISIONS. The Parties hereto specifically agree to the following contingency provisions, which shall each operate individually and thereby separate and distinct from one another:

A. ZONING CONTINGENCY. As of August 8, 2023, the BUYERS, through the Chief of Police for the City of Muscatine and the Muscatine County Sheriff have previously submitted a request to the Muscatine County Zoning Administrator (see attached zoning request as **Exhibit C**) to have the Muscatine County ~~Board of Adjustment~~ review and approve the Joint City/County Law Enforcement Shooting Range its regularly scheduled meeting to be held on September 8, 2023 at approximately 10:45 a.m. As a contingency to this Agreement, the BUYERS must receive the approval of the Muscatine County Board of Adjustment, either at that hearing or as soon thereafter as is reasonably practical given the potential of public input and the meeting needing to be continued to complete the process. If zoning approval is not received, then either party may cancel this Agreement and the earnest money, if any, shall be returned to the BUYERS.

Zoning Commission

B. SUBDIVISION CONTINGENCY. If the survey of the Property would require approval as a subdivision under local or state law, then the approval of the subdivision, including payment of all associated costs, will be the responsibility of the BUYERS. If subdivision approval is required or is not received, then either party may cancel this Agreement and the earnest money, if any, shall be returned to the BUYERS.

C. WATER DRAINAGE RESTRICTION. BUYERS agree that any improvements or use of the Property, will not restrict the flow of water from the remaining portion of the property described in **Exhibit A** retained by the SELLER (approximately 30 acres) and serviced by a below grade tiling system and excluding surface water. The SELLER shall advise the BUYER in writing of the existence and location of any below grade tiling that would impact this Agreement, so that the BUYERS can determine the magnitude of the system and its impact on the proposed use by the BUYERS. If, within thirty (30) days of SELLER providing the existence and location of any below grade tiling, the BUYERS determine that the impact of the below grade tiling system is too great, they may terminate this Agreement. If the BUYERS proceed and thereafter damage the below grade tiling system during their improvement to the property for the shooting range or thereafter, they shall repair and replace the damaged portion at their sole cost and expense. If the tiling system needs repairs, maintenance or replacement, at a future date and for reasons unrelated to the BUYERS improvement to the property, the BUYERS property must be returned to its existing condition before the repair or replacement. If the BUYER(S) exercise the Option to Purchase Property or the Right of First Refusal contained herein for the remaining thirty (30) acres this contingency shall be deemed to no longer exist. Further, if either the SELLER or BUYERS determines that it is not economical or feasible repair, maintain or replace to the below grade

tile servicing the thirty (30) acres across the property, either may redirect the below grade tile using another route to the existing drainage ditch and/or road ditch as they may establish and negotiate. This provision will survive closing and is specifically enforceable by SELLER and/or BUYERS.

- D. COUNCIL & BOARD APPROVAL. The Parties hereto agree and acknowledge that this Agreement and any obligations or commitments contained herein impacting the BUYERS will need to be presented to, reviewed and approved by both the City of Muscatine City Council and the Muscatine County Board of Supervisors and then at public meetings as it required by Iowa law. Given the nature of the governmental review and approval process, including public comment and input and investigation, the Parties specifically agree that the approval of **both** governmental entities is required and acts as separate and distinct contingency. In other words, the approval of both bodies is required and one approval is a contingency to the other.
- E. OPTION TO PURCHASE. The BUYERS shall jointly and individually have an option to purchase the remaining portion of the property described in **Exhibit A** retained by the SELLER (containing approximately 30 acres) ("Option to Purchase"). The option price will be 110% of the current appraised value of the retained property at the time the option is exercised by one of both of the BUYERS. This Option to Purchase will expire five (5) years after the date of closing on the property. This Option to Purchase is to be drafted, approved after this Agreement is executed and before the closing date in a document mutually agreeable to SELLER and BUYERS (and their legal counsel). Said option shall be retained by the BUYERS attorney and used in the event this option it is exercised within the five (5) year period by either BUYER. In no event shall this Option to Purchase be recorded in the public records of Muscatine County, Iowa by BUYERS until the time it is exercised in accordance herewith. Recording of this Option to Purchase by BUYERS in any other manner will VOID this Option to Purchase.
- F. RIGHT OF FIRST REFUSAL. After the Option to Purchase has expired in Section 23 E above, the BUYERS individually or jointly shall retain and may exercise a right of first refusal to purchase the remaining portion of the property described in **Exhibit A** retained by the SELLER (approximately 30 acres) ("Right of First Refusal"). This Right of First Refusal shall be drafted in a form mutually agreeable to SELLER and BUYERS (and their legal counsel), shall not contain any other terms or conditions that are more restrictive or burdensome than is otherwise contained herein. Such Right of First refusal shall be executed by the parties when the SELLER presents a valid and binding Offer and Acceptance for the Purchase of the remaining 30 acres by another to the SELLER and the BUYERS or BUYER, within 30 days of presentation by SELLERS, elects to exercise this right. In no event shall this Right of First Refusal be recorded in the public records of Muscatine

County, Iowa by BUYERS until the time it is executed in accordance herewith. Recording of this Right of First Refusal by BUYERS in any other manner will VOID this Right of First Refusal.

G. ACCESS. The SELLER agrees to provide their consent to the BUYERS should it become necessary to request the Muscatine County Engineer approve a new access or widen the access on the southeast corner of the parcel to be purchased.

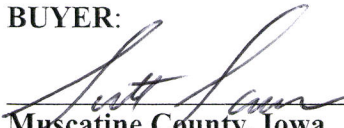
24. ACCEPTANCE. When accepted, this Agreement shall become a binding contract. If not accepted and delivered to BUYERS on or before August __, 2023, this Agreement shall be null and void and all payments made shall be returned immediately to BUYERS. If accepted by SELLER at a later date and acceptance is satisfied in writing, then this contract shall be valid and binding.

Dated: August 24, 2023

BUYER:

City of Muscatine, Iowa
Brad Bark - Mayor
215 Sycamore Street
Muscatine, Iowa 57261

BUYER:


Muscatine County, Iowa
Chairperson – Scott Sauer
414 E. Third Street
Muscatine, Iowa 52761

SELLER:

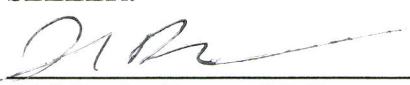

J&S Deahr Farms, LLC
Jared Deahr
1165 120th Street
West Liberty, Iowa 52776

EXHIBIT A

Legal Description

The East Half of the Southwest Quarter of Section 34, Township 78 North, Range 2 West of the 5th Principal Meridian, in Muscatine County, Iowa, except Parcel A per plat of survey recorded as Document No. 2012-06623 in the Muscatine County Recorder's office.

Subject to any easements, restrictions and covenants of record, if any.

Parcel ID: 0334300007

EXHIBIT B

**Addendum for Inspection of Private
Sewage Disposal System**

BUYERS and SELLER agree to the following initialed all sections below to comply with the time of transfer inspection of private sewage disposal systems:

- ☒ ____ There is no known private sewage disposal system on this Property (approximate 20 acres).
- ☒ ____ There is no known private sewage disposal system located on the remaining thirty (30) acres of property contained within or under either Section 22 D - Option to Purchase or Section 22E – Right of First Refusal.
- ☒ ____ There is no need for a private sewage Disposal System inspection or investigation by either Party.



City of Muscatine

ITEM NUMBER 2023-0447

AGENDA ITEM SUMMARY

DATE: 9/7/2023

STAFF

Nancy Lueck, Finance Director
Carol Webb, City Administrator

SUBJECT

Review and Discussion of Proposed Amendment #2 to the Development Agreement with R. L. Fridley Theatres, Inc. and Fridley Properties, LLC

EXECUTIVE SUMMARY

In June of 2012, the City entered into an agreement with R.L. Fridley Theaters, Inc. and Fridley Properties, LLC to develop a new multiplex theater facility in the City. The agreement provided for 15 years of incremental tax rebates on the theater parcel up to a maximum total of \$1,500,000. The original Fridley Development Agreement also provided for tax increment payments to Fridley Properties, LLC for the development of the six out lots adjacent to the facility. Per the original Agreement, the rebates for the out lots were each for ten years at 50% up to a total of \$1,500,000 in rebates for all of the out lots.

Sales of the out lots have not progressed as originally anticipated. Potential developers of the out lots, including the recently proposed multi-family housing development, are not eligible for direct tax increment financing assistance, since the incremental taxes are paid to Fridley's as the developer for this area. As a means to incentivize the development of the out lots, Fridley's and City staff are proposing the Fridley Development Agreement be amended as follows:

1. Increasing the TIF rebate percentage to 75% for the out lots (from the current 50%)
2. Fridley's will then enter into separate agreements with developers or potential developers to share the TIF rebates for the out lots
3. The maximum amount of the rebates on the out lots will not increase, but will remain at the maximum amount in the original agreement of \$1,500,000
4. This arrangement will still maintain fiscal year 2034/2035 as the final year of TIF rebate payments (20 year maximum in each TIF area per State law)

This proposed amendment will benefit both Fridley's and the City. The City will be addressing its goal for increasing available housing in the community as well as other economic development opportunities in this area.

STAFF RECOMMENDATION

Staff is recommending City Council give consensus approval to the proposed amendment to the development agreement with R. L. Fridley Theatres, Inc. and Fridley Properties, LLC. The formal consideration of the Resolution approving the Amendment to the Development Agreement will be considered at a future meeting.

BACKGROUND/DISCUSSION

In June of 2012, the City entered into an agreement with R.L. Fridley Theaters, Inc. and Fridley Properties, LLC to develop a new multiplex theater facility in the City. The agreement provided for 15 years of incremental tax rebates on the theater parcel up to a maximum total of \$1,500,000. In the first two years the rebate percentage was 95%, the next two 90%, then two years at 85%, two years at 80%, two years at 60%, one year at 55%, and the final four years at 50%. The final year for the rebates on the theater parcel will be in fiscal year 2029/2030.

The original Fridley Development Agreement also allowed for tax increment payments to Fridley Properties, LLC, for the development of the six out lots adjacent to the facility. Per the original Agreement, the rebates for the out lots were each for ten years at 50% up to a total of \$1,500,000 in rebates for all of the out lots. The first out lot developed was Out Lot #1 with the new Scooter's Coffee. The first rebate payment for Out Lot #1 will be in 2023/2024.

There is a maximum of 20 years of rebates for each tax increment area according to State law. The final year for rebates on the out lots will be in fiscal year 2034/2035.

Amendment #1 to the Development Agreement with Fridley's was approved March 18, 2021. This amendment temporarily suspended the minimum job requirements set forth in the original agreement and extended the timeline by one year (to 2034/2035) for the development of the out lots. These changes were requested due to the economic impacts of the COVID-19 pandemic on the theater industry.

In 2022 a Developer proposed to undertake construction of multi-family housing on Out Lot #5 (rather than the commercial development referenced in the original agreement) and requested confirmation from the City that the incremental property tax revenues to be derived from the new valuation of this development would be allowed to fund the Out Lot Payments. City Council authorized the issuance of a letter dated July 7, 2022, confirming that the multi-family development on this out lot would be approved for tax increment funding.

The rebates for both the theater property and the out lots are made to R. L. Fridley Theatres, Inc. and Fridley Properties, LLC according to the Agreement. This is appropriate since the costs for the infrastructure for this area were paid by Fridley's.

Sales of the out lots have not progressed as originally anticipated. Potential developers of the out lots, including the multi-family housing development, are not eligible for direct tax increment financing assistance, since the incremental taxes are paid to Fridley's as the developer for this area. As a means to incentivize the sale and development of the out lots, Fridley's and City staff are proposing the Fridley Development Agreement be amended as follows:

1. Increasing the TIF rebate percentage to 75% for the out lots (from the current 50%)
2. Fridley's will then enter into separate agreements with developers or potential developers to share the TIF rebates for the out lots
3. The maximum amount of the rebates on the out lots will not increase, but will remain at the maximum amount in the original agreement of \$1,500,000
4. This arrangement will still maintain fiscal year 2034/2035 as the final year of TIF rebate payments (20 year maximum in each TIF area per State law)

This proposed amendment will benefit both Fridley's and the City. The City will be addressing its goal for increasing available housing in the community as well as other economic development opportunities in this area.

CITY FINANCIAL IMPACT

Incentizing development in this area is expected to have a positive impact on the City. The maximum TIF rebate amount of \$1,500,000 will not change with this proposed amendment.

ATTACHMENTS
