City of Aurora, IL

MASTODON LAKE DREDGING - REBID

25-231R

RELEASE DATE: February 13, 2026

DEADLINE FOR QUESTIONS: February 25, 2026

RESPONSE DEADLINE: March 11, 2026, 11:00 am

Please refer to the project timeline in this document for all important deadlines.

RESPONSES MUST BE SUBMITTED ELECTRONICALLY TO:

https://procurement.opengov.com/portal/aurorail

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INSTRUCTIONS TO BIDDERS

1. SUMMARY

The City of Aurora, IL is seeking a qualified contractor for the dredging of Mastodon Lake. This project includes the of dredging of the accumulated sediment from 23-acre Mastodon Lake using hydraulic dredging methods, dewatering and hauling of dredged materials, installation of mechanical mixing and aeration devices, installation of culvert pipes, as well as other miscellaneous appurtenances all in accordance with the plans and specifications.

Note that this is the reissuance of a previously published bid request, with changes to the dewatering and final placement locations including:

- Site 6 is no longer a bid alternative but can be used at the contractor's discretion for dewatering only. While bidders can assume that this location will be available for dewatering, the City is currently finalizing negotiations for it's use with the school district and therefore reserves the right to eliminate this location altogether.
- Site 7 has been identified and must be used as the primary dewatering site. A pay item for leveling the site and preparing it for dewatering operations has been included. After successfully dewatering the materials, the contractor will shape the dry material in accordance with the plans.
- Site 8 has been added as an additional dewatering site to utilize at the contractor's discretion.

2. TIMELINE

Release Project Date:	February 13, 2026
Question Submission Deadline:	February 25, 2026, 11:00am
Response Submission Deadline:	March 11, 2026, 11:00am

3. ACCEPTANCE OF BID PROPOSALS

a. Bidders intending to respond to this opportunity must create a FREE account with OpenGov by signing up at https://procurement.opengov.com/signup. This step is necessary to establish a communication link with the City. The Bidder, not the City, is responsible for obtaining any addenda to the original specification. Addenda and other relevant information will be posted on the City's E Procurement System. Addenda notifications will be emailed to all persons on record as following this Bid. Failure of any bidder to receive any such addenda or interpretation shall not relieve such bidder from any obligation under their bid proposal as submitted. All addenda so issued shall become part of the contract documents. **Paper submissions will not be accepted.**

b. Bids may be received up to, but no later than the designated date and time as specified via the City's E Procurement System, OpenGov. The City's E Procurement System Clock is the official clock for the determination of all deadline dates and times. Without exception, responses will not be accepted after the submission deadline regardless of any technical difficulties such as poor internet connections. The City of Aurora strongly recommends completing your responses well ahead of time. All bids shall have provided

all requested information, and submitted all appropriate forms, certificates, affidavits and addendum acknowledgements in order to be considered responsive.

c. Bids must be submitted on the forms provided and all information and certifications called for must be furnished. Bids submitted in any other manner, or which fail to furnish all information or certificates required, may be summarily rejected. Bids may be modified or withdrawn prior to the time specified for the opening of bids through the City's E Procurement System. Bids shall be filled out legibly in ink or type-written with all erasures, strikeovers and corrections initialed in ink by the person signing the bid. The bid shall include the legal name of the bidder, the complete mailing address, and be signed in ink by a person or persons legally authorized to bind the bidder to a Bid. Name of person signing should be typed or printed below the signature.

d. The City of Aurora reserves the right at any time and for any reason to accept or reject any or all Bids or portion thereof, or accept an alternate bid. The City reserves the right to waive any immaterial defect in any bid, or technicality, informality or irregularity in the bids received, and to disregard all nonconforming or conditional bids or counter-proposals. Unless otherwise specified by the bidder or the City, the City reserves the right to hold the best bids for ninety (90) days from the opening date. Bidder agrees to accept a notice of award, if selected, based on the terms of this Bid Proposal in the event that a notification of award is received on or before expiration of the 90-day time period. The City reserves the right to cancel the Bid Proposal at any time, without liability for any loss, damage, cost or expense incurred or suffered by any Bidder as a result of that cancellation. Each Bidder is solely responsible for the risk and cost of preparing and submitting a Bid Proposal.

e. Although price is a consideration, qualifications and experience, capacity to handle the work, and response to the bid, will also be considered. No Bid Proposal will be considered unless the Bidder shall furnish evidence satisfactory to the City that they have the necessary facilities, abilities, experience, equipment, and financial and physical resources available to fulfill the conditions of the Bid and execute the Work should the Bid be awarded to them. Bid Proposal documents which are not responsive to the requirements herein may not be considered by the City for an award of the Bid.

The Bid will be awarded to the lowest responsive responsible Bidder. In determining the responsibility of any Bidder, the City may take into account other factors such as past records of its or other entities transactions with the Bidder, experience, ability to work cooperatively with the City and its staff, adequacy of equipment, ability to complete performance within necessary time limits, and other pertinent considerations such as, but not limited to, reliability, reputation, competency, skill, efficiency, facilities and resources.

The Bidder will be awarded in the City's best interests based on these and other legally-allowable considerations. The City and its representatives and agents may make any investigations deemed necessary to determine the ability of the Bidder to perform the Work. The Bidder shall furnish any information and data requested by the City for this purpose.

4. RECEIPT OF BID PROPOSALS

1. **Bids must be submitted electronically**, up to, but no later than the designated date and time as specified via the City's E Procurement System, OpenGov. It is the sole responsibility of the Bidder to see that their Bid Proposal is received in the proper time.

2. **Bids must be submitted electronically via the City's E Procurement System. There will be no exceptions!**

5. WITHDRAWAL OF BID PROPOSALS

Bids may be withdrawn prior to the deadline for submitting bid proposals through the City's E Procurement System, the responding bidder may "un-submit" their proposal in OpenGov. After withdrawing a previously submitted proposal, the responding bidder may submit another proposal at any time up to the deadline for submitting bid proposals prior to the opening.

Bidders are cautioned to verify their bids before submission. Negligence on the part of the bidder in preparing the bid confers no right for withdrawal or modification of the bid after it has been opened. Bidders may not withdraw their bid after the opening without the approval of the Director of Purchasing. Requests to withdraw a bid must be in writing and properly signed. No bid proposal will be opened or accepted, which is received after the time and date scheduled for the Bid Proposals to be received.

6. BID DEPOSIT

Each Bidder shall deposit with Bid a Bid guarantee consisting of a bank draft, Bid bond, cashier's check, or certified check drawn on a good and solvent National or State Bank and payable to the order of the City, in an amount not less than ten percent (10%) of the total amount of the Bid submitted, as a guaranty that in case the Bidder's Bid is accepted, the Bidder shall within one day after the date of such acceptance and notification thereof, deliver to the City a contract signed and executed by the Bidder, proper insurance certificates and a Performance and Payment Bond in one hundred percent (100%) of the contract sum furnished by a responsible bonding company acceptable to and written upon forms prepared or approved by the City as security for payment of labor and materials and for
the faithful performance of the contract and compliance with the provisions of law relating to the payment of prevailing rate of wages. **Bid Deposit MUST be uploaded electronically with submission through the City's E Procurement System, OpenGov.** Upon notification from the City, Bidder's must deliver ORIGINAL Bid Deposit within three (3) business days. All Bid deposits will be retained by the City until a Bid award is made, at which time the Bid deposit will be promptly returned to the unsuccessful Bidders. The Bid deposit of the successful Bidder will be retained until the equipment, goods or services have been received or completed and found to be in compliance with the specifications. Performance by the Bidder shall not be considered complete, until final inspection and acceptance by the City of the Bidder's Work. Final inspection shall occur within 30 days after the actual completion of the Work. Execution of the contract is contingent upon receipt of an acceptable Performance and Payment Bond and any required certificates of insurance. Upon failure to meet the requirements of this paragraph, the Bidder shall forfeit the amount deposited as liquidated damages and no mistakes or errors on the part of the Bidder shall excuse the Bidder or entitle him to a return of the aforementioned amount.

7. AWARD

It is the intent of the City to award the bid to the lowest responsive responsible bidder meeting specifications. Award will be based on the following factors, but not limited to (where applicable): (a) adherence to all conditions and requirements of the bid specifications; (b) price; (c) qualifications of the bidder, including past performance, financial responsibility, general reputation, experience, service capabilities, and facilities; (d)

delivery or completion date; (e) product appearance, workmanship, finish, taste, feel, overall quality, and results of product testing; (f) maintenance costs and warranty provisions; and (g) repurchase or residual value.

If the Bidder modifies limits, restricts or subjects his bid proposal to conditions that would change the requirements of the bid, this would be considered a conditional or qualified Bid Proposal and will not be accepted. The City reserves the right to delete any item listed in the bid.

8. PRICES

The price quoted for each item is the full purchase price, including delivery to destination and includes all transportation and handling charges, premiums on bonds, material or service costs and all other overhead charges of every kind and nature. Unless otherwise specified, prices shall remain firm for the duration of the purchase.

Unit prices shall not include any local, state or federal taxes. In case of mistake in extension of price, unit price shall govern.

9. DISCOUNTS

Prices quoted must be net after deducting all trade and quantity discounts. Where cash discounts for prompt payment are offered, the discount period shall begin with the date of receipt of a correct invoice or receipt or final acceptance of goods, whichever is later.

10. TAXES

The City of Aurora is exempt, by law, from paying State and City Retailer's Occupation Tax, State Service Occupation Tax, State Use Tax and Federal Excise Tax (per Illinois Revised Statutes, Chapter 120, Paragraph 44) upon City works and purchases. The City of Aurora's Sales Tax Exemption Number is E9996-0842-07.

11. INTERPRETATION OR CORRECTION OF BIDDING DOCUMENTS

Bidders shall promptly notify the City of any ambiguity, inconsistency of error which they may discover upon examination of the bidding documents. Interpretations, corrections and changes will be made by addendum. Each bidder shall ascertain prior to submitting a bid that all addenda have been received and acknowledged in the bid.

12. SIGNATURES

Bid Proposals must be signed by the Bidder with his/her usual signature. Bid Proposals by partnerships must be signed with the partnership name by all members of the partnership, or an authorized representative, followed by the signature and title of the person signing. Bid Proposals by corporations must be signed with the name of the corporation, followed by the signature and title of the person authorized to bind it in the matter.

When a corporation submits a Bid Proposal, its agent must present legal evidence that he has lawful authority to sign said Bid Proposal and that the corporation has a legal existence. In the event that any corporation organized and doing business under the laws of any foreign state is the successful Bidder, such corporation must present evidence before any Bid is executed that it is authorized to do business in the State of Illinois. Bidders by corporations must be executed in the corporate name by the President or a Vice President (or other corporate officer accompanied by evidence of authority to sign), and the signature must be attested by the Secretary or an Assistant Secretary, along with the corporate seal. The corporate address and state of incorporation must be

shown below the signature. Bid Proposals by partnerships must be executed in the partnership name and signed by a partner whose title must appear under the signature, and the official address of the partnership must be shown below the signature. Any corrections to entries made on the Bid Proposal forms shall be initialed by the person signing the Bid Proposal. When requested by the City, satisfactory evidence of the authority of any signature on behalf of the Bidder shall be furnished.

13. DEMONSTRATIONS

Bidders are required, if requested to do so, to affect a demonstration of the item(s) being Bid if the City feels it has insufficient knowledge of the item's operations or performance capability. Such demonstration must be at a site which is most convenient and agreeable to the effected City personnel.

14. REFERENCES

Sufficient references of all like public and/or private agencies must be submitted in the Vendor Submission section. Listing must include company name, contact person, telephone number and date purchased. All Bidders, as a condition of and prior to entry into a contract, agree that a complete background investigation of the principals of the Bidder and all employees who will work on the project may be made. Bidders agree to cooperate with the appropriate City of Aurora personnel to supply all information necessary to complete these investigations. The City of Aurora in its complete discretion may disqualify any Bidder, including low Bidder, and may void any contract previously entered into based on its background investigation.

15. ELIGIBILITY

By signing this bid, the bidder hereby certifies that they are not barred from bidding on this Bid as a result of a violation of Article 33E, Public Bids of the Illinois Criminal Code of 1961, as amended (Illinois Compiled Statutes, 720 ILCS 5/33E-1).

16. DATA

Complete and detailed brochures and vehicles, equipment, materials, goods, supplies and/or services to be furnished must be included with each Bid.

17. QUESTIONS

Bidders shall submit all inquiries, including requests for alternates or substitutions regarding this bid, up to, but **no later than the designated date and time as specified via the City's E Procurement System, OpenGov.** All answers to inquiries will be posted on the City's E Procurement System. Bidders may also click "Follow" on this bid to receive an email notification when answers are posted.

No questions will be accepted or answered verbally.

No questions will be accepted or answered after the cut-off date/time.

It is the responsibility of the interested bidder to ensure they have received addenda, if any issued.

18. Illinois Freedom of Information Act

Illinois Freedom of Information Act. The Contractor acknowledges the requirements of the Illinois Freedom of Information Act (FOIA) and agrees to comply with all requests made by the City of Aurora for public records (as that term is defined by Section 2(c) of FOIA in the undersigned's possession and to provide the

requested public records to the City of Aurora within two (2) business days of the request being made by the City of Aurora. The undersigned agrees to indemnify and hold harmless the City of Aurora from all claims, costs, penalty, losses and injuries (including but not limited to, attorney's fees, other professional fees, court costs and/or arbitration or other dispute resolution costs) arising out of or relating to its failure to provide the public records to the City of Aurora under this agreement.

GENERAL REQUIREMENTS

1. REQUIREMENTS OF BIDDER

The successful Bidder may be required to (a) enter into a fully signed contract in writing with the City of Aurora covering matters and things as are set forth in the Bid Proposal Package; and (b) carry insurance acceptable to the City covering public liability, property damage and workers compensation.

2. CITY'S AGENT

The Director of Purchasing, or delegate, shall represent and act for the City in all matters pertaining to the bid proposal and Bid in conjunction thereto.

3. BONDS AND INSURANCE

The Bidder will be required to furnish a Performance and Payment Bond in the amount of one hundred percent (100%) of the full contract price, Public Liability Insurance, and Workers Compensation Insurance; all of which shall be acceptable to the City of Aurora.

The Bidder awarded the project will need to provide performance and payment bonds for one year with a letter attached from the bond company certifying that the bond may be automatically renewed for the second year.

The term Payment Bond shall be understood to mean the bond executed by the Bidder and his surety guaranteeing the payment of all sums of money due for any labor, materials, apparatus, fixtures, or machinery furnished to such principal for the purpose of performing the contract work.

The term Performance Bond shall be understood to mean the bond, executed by the contractor and his surety, guaranteeing complete execution of the contract.

Proof of liability insurance coverage through a reputable, recognized carrier shall be provided at the time of acceptance and signing of the contract and shall remain current for the duration of the contract.

The City of Aurora, by showing and substantiating sufficient proof of incompetence, negligence, poor or substandard workmanship which would cause unwarranted damage or deterioration of either premises, contents or appendages, reserves the right to terminate said Contractor without recourse from the City by successful Contractor.

4. INVESTIGATION

It shall be the responsibility of the Bidders to make any and all investigations necessary to become thoroughly informed of what is required and specified in the bid. No plea of ignorance by the Bidders of conditions that exist or may hereafter exist as a result of failure or omission on the part of the Bidder to make the necessary examinations and investigations will be accepted as a basis for varying the requirements of the City of the compensation to the Bidder.

Each Bidder submitting a bid proposal is responsible for examining the complete Invitation to Bid Package and all Addenda, and is also responsible for informing itself of all conditions that might in any way affect the cost or the performance of any Work. Failure to do so will be at the sole risk of the Bidder, and no relief will be given for errors or omissions by the Bidder. If awarded the Bid, the Bidder will not be allowed any extra compensation by reason of any matter or thing concerning which such Bidder should have fully informed

himself, because of his failure to have so informed himself prior to submitting the bid proposal. The submission of a bid proposal shall be construed as conclusive evidence that the Bidder has made such examination as is required in this section and that the Bidder is conversant with local facilities and difficulties, the requirements of the Invitation to Bid documents, and of pertinent, local, state and federal laws and codes, prevailing local labor and material markets, and has made due allowance in its bid proposal for all contingencies.

5. BIDDER CAPABILITY

The City reserves the right to require of the Bidder proof of his/her capability to perform as required by the specifications. However, prequalification of the Bidder shall not be required. The City may, at its option, disqualify a Bidder and reject his bid proposal for cause. Reasons deemed sufficient for this action shall include, but not be limited to, the following:

Evidence of collusion among Bidders.

- Receipt of more than one bid proposal on any project from an individual, or from a corporation. This restriction does not apply to subcontractors.
- Default on any previous Bid.
- Unreasonable failure to complete a previous Bid within the specified time or for being in arrears on an existing Bid without reasonable cause for being in arrears.
- Inability to perform as revealed by an investigation of the Bidder's financial statement, experience and/or plant and equipment.
- **Any Bidder who owes the city money may be disqualified at the City's discretion.**

6. ALTERNATE PROPOSALS

The specifications are prepared to describe the goods and/or service which the City deemed to be in the best interest to meet its performance requirements. Bidders desiring to submit a Bid Proposal on items which deviate from the stated specifications, but which they believe to be equal, may do so by submitting all inquiries via the City's E Procurement System, OpenGov, but all specification deviations must be clearly stated. Bidders shall submit all inquiries, including requests for alternates or substitutions regarding this bid via the City's E Procurement System by the designated date and time. All answers to inquiries, including requests for alternates or substitutions, will be posted on the City's E Procurement System. Bidders may also click "Follow" on this bid to receive an email notification when answers are posted. It is the responsibility of the interested bidder to ensure they have received addendum, if any issued. The Purchasing Director reserves the right to rule upon specification deviation in a manner as best befits the needs of the City. The Purchasing Director will reject all deviations that amount to material nonconformity with the specifications of the Bid Proposal.

7. PAYMENT

Payment shall be made for services rendered. The City, after inspection and acceptance, and in consideration of the faithful performance by the Proposer, agrees to pay for the completion of the work embraced in this contract, payment shall be made in accordance with the Illinois Local Government Prompt Payment Act (50 ILCS 505/1, et. seq.) upon receipt of the invoice.

Time, in connection with any discount offered, will be computed from the date of delivery to the City or from the date a correct invoice is received by the City of Aurora Purchasing Division, if the latter date is later than the date of delivery.

Prices will be considered NET, if no payment discount is shown.

Invoices MUST contain the Purchase Order Number, as issued by the City.

The successful Bidder shall submit invoices via e-mail to:

PurchasingDL@aurora.il.us

or Mail to the following address:

City of Aurora

Attn: Purchasing Division

44 E. Downer Place

Aurora, IL 60507

The City of Aurora offers electronic funds transfer (EFT) payment to our vendors. EFT is fast, simple, safe and secure and is ***our preferred method of payment!***

8. DEFAULT

Time is of the essence of this bid and if delivery of acceptable items or rendering of services is not completed by the time promised, the City reserves the right, without liability, in addition to its other rights and remedies, to terminate the Bid by notice effective when received by Bidder, as to stated items not yet shipped or services not yet rendered. The City will procure articles or service from other sources and hold the Bidder responsible for any excess cost incurred as provided for in Article 2 of the Uniform Commercial Code.

9. INSPECTION

Materials or equipment purchased are subject to inspection and approval at the City's destination. The City reserves the right to reject and refuse acceptance of items which are not in accordance with the instructions, specifications, drawings or data of Bidder's warranty (express or implied). Rejected materials or equipment shall be removed by, or at the expense of, the Bidder promptly after rejection.

10. WARRANTY

Bidder warrants that all goods and services furnished hereunder will conform in all respects to the terms of the solicitation, including any drawings, specifications or standards incorporated herein, and that they will be free from latent and patent defects in materials, workmanship and title, and will be free from such defects in design. In addition, Bidder warrants that said goods and services are suitable for, and will perform in accordance with, the purposes for which they are purchased, fabricated, manufactured and designed or for such other purposes as are expressly specified in this solicitation.

11. CANCELLATION

The City reserves the right to cancel the whole or any part of the Bid if the Bidder fails to perform any of the provisions in the Bid or fails to make delivery within the time stated. The Bidder will not be liable to perform if situations arise by reason of strikes, acts of God or public enemy, acts of the City, fires or floods.

12. PERMITS AND LICENSES

The successful Bidder shall obtain, at its own expense, all permits and licenses which may be required to complete the contract.

13. PATENT

The successful Bidder agrees to indemnify, protect, defend, and save the City of Aurora and its officers and employees, harmless against any demand for payment for the use of any patented material process, article, or device that may enter into the manufacture, construction, presentation or form a part of the Work covered by the contract.

14. COMPLIANCE WITH LAWS AND REGULATIONS

The Bidder shall at all times observe and comply with all Federal, State, Municipal and other local laws, ordinances, regulations, and requirements which in any manner affect the conduct of the Work, and with all Federal, State and local laws and policies of non-discrimination, sexual harassment, prevailing wages and others applicable thereto; and all such orders or decrees as exist at the present and which may be enacted later, of bodies or tribunals having jurisdiction or authority over the Work, and no plea of misunderstanding or ignorance thereof will be considered. He shall indemnify and save harmless the City and all its officers, agents, employees and servants against any requirement, claim or liability arising from or based on the violation of any such law, ordinance, regulation, order or decree, whether by himself or his employees.

This Bid shall be governed by and construed according to the laws of the State of Illinois.

15. INSURANCE AND HOLD HARMLESS PROVISION

At the Bidder's expense, the Bidder shall secure and maintain in effect throughout the duration of this Bid, insurance of the following kinds and limits to cover all locations of the Bidder's operations. The Bidder shall furnish Certificates of Insurance to the City before starting or within ten (10) days after the execution of the Bid, whichever date is reached first. All insurance policies shall be written with insurance companies approved by the City of Aurora and licensed to do business in the State of Illinois and having a rating of not less than A IX, according to the latest edition of the A.M. Best Company; and shall include a provision preventing cancellation of the insurance policy unless thirty (30) days prior written notice is given to the City. This provision shall also be stated on each Certificate of Insurance as: "Should any of the above-described policies be canceled before the expiration date thereof, the issuing company will endeavor to mail 10 days written notice to the certificate holder named to the left". Upon requested, the awardee of this Bid will give the City a copy of the insurance policies. The policies must be delivered to the City within two weeks of the request. The limits of liability for the insurance required shall provide coverage for not less than the following amount, or greater where required by law:

(1) Worker's Compensation Insurance - Statutory amount.

(2) General Liability Insurance:

(a) $1,000,000 per occurrence and $2,000,000 general aggregate

(b) $500,000 per occurrence for Property Damage

(c) $1,000,000 per occurrence for Personal Injury

(3) Auto Liability Insurance:

(a) Bodily injury with limits not less than $1,000,000

(b) Property damage with limits not less than $500,000

(4) Umbrella excess liability of $1,000,000 per occurrence, $2,000,000 aggregate

The Bidder shall include the City as a primary, non-contributory additional named insured on both General and Auto Liability Insurance policies and indicate said status on any Certificates of Insurance provided to the City pursuant to this project. All insurance premiums shall be paid without cost to the City.

The Bidder agrees to indemnify and save harmless the City of Aurora, their agents and employees from and against all loss and expenses (including costs and attorneys' fees) by reason of liability imposed by law or claims made upon the City of Aurora for damages because of bodily injury, including death at any time resulting therefrom sustained by any person or persons or on account of damage to property, including loss of use thereof, arising out of or in consequence of the performance of this project work, whether such claims or injuries to persons or damage to property be due to the negligence of the Bidder or his Subcontractors. The Bidder shall assume total risk and shall be responsible for any and all damages or losses caused by or in any way resulting from the work and provide all insurance necessary to protect and save harmless the City of Aurora and its employees.

16. WORKERS COMPENSATION ACT

The Bidder further agrees to insure his employees and their beneficiaries and to the employees and the beneficiaries of any subcontractor employed from time to time by him on said Work, the necessary first-aid, medical, surgical, and hospital services and any compensation provided for in the Workers Compensation Act of the State of Illinois that is or may be in force in the State.

Such insurance shall be placed by said Bidder in a company or association (to be approved by the City and to be accepted by the Council thereof) authorized under the laws of the State of Illinois to insure the liability above specified.

Said Bidder hereby further agrees to indemnify, keep and save harmless said City from all action, proceedings, claims, judgments, awards, and costs, loss, damages, expenses, and attorney’s fees which may in any way come against said City by reason of any accidental injuries or death suffered by any of his employees or the employees of any subcontractor employed by him in and about the performance of the Work provided for in the Bid, and any and all liability resulting thereupon; and said Bidder, in case of any suit, action, or proceeding on account of any or all of the foregoing shall defend the same for and on behalf of said City and indemnify the City therefore, and pay the amount of any and all awards and final judgments and orders rendered and entered therein, together with all loss, costs, damages, attorney’s fees, and expenses incurred therein. Said Bidder shall be the sole employer of its employees and workers, and in no way shall the City be considered a joint employer of same under any circumstance.

17. PERSONNEL AND EQUIPMENT

The Bidder shall provide an adequate number of competently trained personnel with sufficient supervision to provide the services required, and the Bidder shall provide identification of its personnel if requested by the City.

Any Bidder's employee whose employment is reasonably detrimental or objectionable to the City shall be immediately transferred from the premises upon the City's request. The exercise of the option shall not be construed as placing the City in charge of the Work or making the City responsible for safety.

All on the road vehicles or equipment shall be identified by the Bidder's name for purpose of identification.

All tools or equipment required to carry out the operations within the scope of the contract shall be provided by the Bidder, and shall meet the standards of the Federal Occupational Safety and Health Act and State of Illinois safety codes as may be required by law. The City reserves the right to inspect the equipment that will be used prior to award of Bid.

18. LOCAL BIDDER PREFERENCE

If applicable,O20-029 approved April 28, 2020 defines "Local business" to mean a vendor or contractor who has a valid, verifiable physical business address located within the corporate boundaries of the City of Aurora at least twelve months prior to a bid or proposal opening date, from which the vendor, contractor or consultant operates or performs business on a daily basis, including manufacturing production or distribution. The business must disclose the percentage of workforce in the City of Aurora; be registered with the City of Aurora, if applicable; be subject to City of Aurora taxes (inclusive of sales taxes); be current with property tax payments and sales tax payments; not have any outside cited code violations; not have any outstanding debts to the City of Aurora; have adequately qualified and trained staff to service the bid of interest.

19. MINORITY PARTICIPATION

The City of Aurora encourages minority business firms to submit Bidders and encourages the successful Bid Bidder to utilize minority businesses as sub-contractors for supplies, equipment, services and construction.

20. PROSECUTION OF WORK

The Bidder shall begin the Work to be performed under the Bid as specified in the specifications after the execution and acceptance of the Bid, unless otherwise provided. The Work shall be conducted in such a manner and with sufficient materials, equipment and labor as is considered necessary to ensure its completion within the time specified in the Bid.

21. TIME

Bidder shall schedule its Work to meet the requirement of the City. Bidder shall perform the Work expeditiously in cooperation with the City's agents, employees, Bidders and subcontractors. Bidder shall make no claim against City and no claim shall be allowed for any damages which may arise out of any delay caused by City, its agents, employees, Bidder or subcontractors. Bidder's sole remedy for delay shall be an extension in the Bid time.

22. SPECIAL CONDITIONS

Wherever special conditions are written into the Special Conditions and Specifications which are in conflict with conditions stated in these Instructions to Bidders, the conditions stated in Special Conditions and Specifications shall take precedence.

23. REGULATORY COMPLIANCE

Bidder represents and warrants that the goods or services furnished hereunder (including all labels, packages and container for said good) comply with all applicable standards, rules and regulations in effect under the requirements of all Federal, State and local laws, rules and regulations as applicable, including the Occupational Safety and Health Act as amended, with respect to design, construction, manufacture or use for their intended purpose of said goods or services. Bidder shall furnish "Safety Data Sheet(s)" in compliance with the Illinois Toxic Substances Disclosure to Employees Act.

24. PROTECTION AND RESTORATION OF PROPERTY

It is understood that in the execution of the Work herein provided for there may be interference with and/or damage to trees, shrubbery, crops, fences, railroad tracks, overhead structures such as poles, wires, cables, underground structures such as sewers, gas mains, telephone conduits and cables, water mains, drains, service connections, wires, pipes, conduits, located along, adjacent to, and/or crossing the locations of the Work, and that it may be necessary to relocate or reconstruct certain of such structures, improvements, and installations and/or to make repairs to the same by reasons of doing the Work herein provided for, and it is therefore particularly and specifically agreed that the Bidder except as otherwise herein provided, shall do the Work necessary for such relocation, reconstruction, and repair and shall bear and pay all of the cost and expense of such relocation, reconstruction, and/or repair of, and all damage done to any and all such pipe line and other structures, improvements, and installations, including service connections, if any, to adjacent property, existing at the date of the execution of the contract and/or existing, during the period of the Work to be done under the contract, which may be interfered with, damaged, and/or necessarily relocated, reconstructed, or repaired in the performance of the Work herein provided for, including the restoration and resurfacing of unpaved portions of public streets and alleys, rights-of-way, easements, and private property damaged or disturbed by the Work, the same to be restored to as good condition as the same existed at the time of the commencement of any such Work or relocation.

It is further agreed that the owners of any structures, improvements, installations, referred to in the preceding paragraph shall have the right to do the Work or any part thereof necessary for the relocation, reconstruction, replacement, repair, and other Work required by reason of any interference with and/or damage to such structures, improvements, installations, due to the prosecution of the Work and upon completion of such Work by them done, said owners may render bills to the Bidder for the cost and expenses thereof which bills shall be paid by the Bidder without extra compensation therefore from the City, upon demand by said owners, or upon demand made by the City upon the Bidder for the payment thereof.

25. RESPONSIBLE BIDDER

Section 2-331(5) of the Aurora City Code requires that bidders for city contracts in excess of $25,000 must participate in active apprenticeship and training programs approved and registered with the United States Department of Labor’s Bureau of Apprenticeship and Training to be considered a responsible bidder. A bidder must affirm such participation in the Bidder’s Certification submitted with any bid. Furthermore, **the bidder must submit a copy of each applicable program registration certificate with his/her bid**.

26. SUBLETTING OR ASSIGNMENT OF WORK

If the Bidder sublets the whole or any part of the Work to be done under the contract, with or without the written consent of the City, he shall not, under any circumstances, be relieved of his liabilities and obligations. All transactions of the City shall be with the Bidder; subcontractors shall be recognized only in the capacity of employees or workmen and shall be subject to the same requirements as to character and competence. In case any party or parties, to whom any work under the contract shall have been sublet, shall disregard the directions of the City or his duly authorized representatives, or shall furnish any unsatisfactory Work or shall fail or refuse in any way to conform to any of the provisions or conditions of the contract, then in that case, upon the written order of the City, the Bidder shall require said party or parties in default to discontinue Work under the contract. Said Work shall be corrected or made good and shall be continued and completed by the said Bidder or by such other party or parties as are approved by the City, in the manner and subject to all of the requirements specified in the contract.

27. GUARANTEE AND MAINTENANCE OF WORK

The Bidder shall guarantee the Work to be free from defects of any nature for a period of one year from and after the final acceptance and payment for the Work by the City, and the Bidder shall maintain said Work and shall make all needed repairs and/or replacements during this one year period which in the judgment of the Council, may be necessary to insure the delivery of the Work to the City in first-class condition and in full conformity with the plans and specifications therefore, at the expiration of the guarantee period.

28. CONTRACT

The successful Bidder will be required to execute a contract in the form attached hereto (as may be modified and amended by the City) within five (5) days after notice of award and receipt of the contract from the City and sign and deliver to the City all required copies of the contract. Failure on the part of the Bidder to execute the contract within five (5) days and provide the required evidence of insurance at, or before the execution of the contract, will be considered just cause for the annulment of the award of the Bid.

CITY OF AURORA GENERAL SPECIFICATIONS

1. SECTION 1 - DEFINITION OF TERMS

1.1 ADVERTISEMENT
The word Advertisement shall mean and refer to the official notice as published in the City of Aurora, Illinois, electronic bidding platform inviting bids for the construction of this improvement.

1.2 A.S.T.M.
Wherever the letters A.S.T.M. are herein used, they shall be understood to mean the American Society of Testing Materials.

1.3 ATTORNEY
Wherever the word Attorney is used in these specifications or in the contract, it shall be understood to mean the Corporation Counsel of the City or designee.

1.4 BIDDER
Wherever the word Bidder is used, it shall be understood to mean the individual, firm, or corporation formally submitting a proposal for the work contemplated, or any portion thereof, acting directly or through an authorized representative.

1.5 BOARD
Wherever the word Board or a pronoun in the place of it occurs in these specifications, it shall be interpreted to mean the Board of Local Improvements of the City of Aurora, Illinois, and any of its authorized representatives provided, however, that such persons shall be understood to represent said Board to the extent of the special duties delegated to such representatives.

1.6 CITY CLERK
Wherever the term City Clerk is used herein, it shall be understood to mean the City Clerk of the City of Aurora, Illinois.

1.7 CITY COUNCIL OR COUNCIL
Wherever the term City Council, or Council, appears in these specifications it shall be taken to mean the City Council of the City of Aurora, Illinois.

1.8 CONTRACT
The term Contract shall be understood to mean the agreement covering the performance of the work covered by these general specifications, including the advertisement for bids, instructions to bidders, bid proposal, performance bond, these general specifications, supplemental specifications, special provisions, general and detailed Plans for the work, standard specifications referred to in the special provisions, all supplemental agreements entered into and all general provisions pertaining to the work or materials thereof, all of which are collectively referred to as the “Contract Documents”.

1.9 CONTRACTOR
Wherever the word Contractor occurs in these specifications, it shall be interpreted to mean the person or persons, firm, or corporation who submits a proposal and thereafter enters into the contract governed by these specifications as party or parties of the second part, and the agents, employees, workmen, heirs, executors, administrators, successors, or assignees thereof.

1.10 ENGINEER
Wherever the word Engineer is used in these specifications, it shall be interpreted to mean the City Engineer or his designee charged with directing and having charge of a portion of the project limited by the particular duties entrusted to him.

1.11 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES
The MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, latest edition, as adopted by the United States Department of Transportation Federal Highway Administration.

1.12 PAYMENT BOND
The term Payment Bond shall be understood to mean the bond executed by the Contractor and his surety guaranteeing the payment of all sums of money due for any labor, materials, apparatus, fixtures, or machinery furnished to such principal for the purpose of performing the contract work.

1.13 PERFORMANCE BOND
The term Performance Bond shall be understood to mean the bond, executed by the Contractor and his surety, guaranteeing complete execution of the contract.

1.14 PLANS
Wherever the word Plans is used in these specifications, it shall be understood to mean all drawings, sketches, and detailed Plans or reproductions thereof pertaining to the construction involved.

1.15 PROPOSAL
Wherever the word Proposal is used, it shall be taken to mean the written proposal of the bidder on the form furnished for the work contemplated.

1.16 PROPOSAL GUARANTY
The term Proposal Guaranty shall be understood to mean the security designated in the Advertisement for Bids or Notice to Contractors to be furnished by the bidder as a guaranty of good faith to enter into a contract for the work contemplated

1.17 SPECIFICATIONS
Wherever the word Specifications is used it shall be understood to include all directions and requirements contained herein or referred to hereby, together with all special provisions and written agreements made or to be made pertaining to the work involved. All articles referred to in these general specifications when not qualified otherwise than by numbers, shall be understood to be articles from these general specifications.

1.18 STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION
The STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, latest edition, prepared by the Illinois Department of Transportation and adopted by said Department.

1.19 STANDARD SPECIFICATIONS FOR SEWER AND WATER MAIN CONSTRUCTION
The STANDARD SPECIFICATIONS FOR SEWER AND WATER MAIN CONSTRUCTION, latest edition, as adopted by the Illinois Society of Professional Engineers.

1.20 STANDARD SPECIFICATIONS FOR TRAFFIC CONTROL ITEMS
The STANDARD TRAFFIC SIGNAL SPECIFICATIONS, latest edition, as adopted by the Illinois Department of Transportation.

1.21 STATE
Wherever the word State is used herein, it shall mean the State of Illinois.

1.22 SURETY

The word Surety shall be understood to mean the individuals who are, or the corporate body which is bound with and for the Contractor for the acceptable performance of the contract, and for his payment of all debts pertaining to the work.

1.23 WORK

Wherever the word "Work" is used, it shall mean the work including all materials, labor, tools, appliances, equipment, and appurtenance necessary and incidental thereto to perform and complete everything specified or implied in the Plans, specifications, and in the contract documents, in full compliance with all the terms and conditions thereof and in a good and workmanlike manner.

2. SECTION 2: AWARD AND EXECUTION OF CONTRACT

2.1 AWARD OF CONTRACT

The decision of the award of the contract will be made as may be decided upon by the Council after bids have been opened and tabulated. The Contract shall be governed by the laws of the State of Illinois. No contract shall provide for arbitration of the parties.

2.2 FAILURE TO EXECUTE CONTRACT

In the event that said bidder fails or refuses to execute said contract and furnish said bonds within the period of five (5) days after mailing notice of such award or within such additional number of days as the City may determine, then the sum deposited as a proposal guaranty by said bidder on the work so awarded may be retained by the City as liquidated damages and not a forfeiture. It is hereby agreed that said sum is a fair estimate of the amount of damages that the City will sustain in case said bidder fails to enter into the contract and furnish bonds as herein provided, said actual damages being uncertain in amount and difficult to determine in the event of such failure or refusal by the bidder.

2.3 VENUE FOR LEGAL ACTION

The venue for any legal action that may arise from this agreement shall be in Kane County, Illinois.

2.4 WAIVER OF TRIAL BY JURY

The Contractor agrees to waive trial by jury for itself and all of its contracts with sub-Contractors shall contain a provision waiving trial by jury in the event of any legal action which may arise from this agreement with the City of Aurora as a party litigant.

3. SECTION 3: SCOPE OF THE WORK

3.1 INTENT OF PLANS AND SPECIFICATIONS

The true intent of the Plans and these specifications is to provide for the erection and completion in every detail of the work described herein, and it is understood that the Contractor will furnish all labor, materials, equipment, tools, transportation, and necessary supplies, such as may reasonably be required to execute the contract in a satisfactory and workmanlike manner and in accordance with the Plans, specifications, and terms of the contract. Both parties must stipulate any deviation from these requirements in writing.

3.2 SPECIAL WORK

Should any construction conditions which are not covered by the Plans and these specifications be anticipated or encountered during construction, Supplemental Specifications for such work will be prepared by the Engineer and shall be considered a part of these specifications, the same as though contained fully herein.

3.3 INCREASED OR DECREASED QUANTITIES

The right is reserved, without impairing the contract, to make such increase or decrease in the quantities of the work as may be considered necessary to complete fully and satisfactorily the work included in the contract. The compensation to the Contractor for such changes shall be adjusted as provided herein.

3.4 ALTERATIONS IN PLANS AND SPECIFICATIONS

The City reserves the right to make such changes in the Plans and in the character of the work as may be necessary or desirable to ensure completion in the most satisfactory manner, provided such changes do not materially alter the original Plans and specifications. Such changes shall not be considered as waiving or invalidating any conditions or provisions of the contract.

3.5 EXTRA WORK

The City reserves the right, without impairing the contract, to order the performance of such work, of a class not contemplated in the proposal as may be considered necessary to complete fully and satisfactorily the work included in the contract. The Contractor shall do such extra work when ordered and authorized in writing by the Engineer, and the Contractor shall be compensated for such extra work on the basis and in the amount as provided herein.

3.6 EASEMENTS, PERMITS, AND REGULATIONS

The Contractor shall keep himself fully informed of all Federal, State, Municipal and local regulations, private contracts, grants, easements, and permits, in any manner affecting the work herein specified and provided for. He shall at all times observe and comply with and cause all his Subcontractors, agents, and employees to observe and comply with each and all of the same. The Contractor does hereby assume any and all liability under the same and shall protect and indemnify the City and its officers and employees against any and all claims or liabilities arising from or based on the violation of, or failure to comply with either or all of the same.

3.7 FINAL CLEANING UP

Upon completion and before final acceptance of the work, the Contractor shall, in addition to the detailed work of grading, restoring ground surfaces, repairing roadways and pavements, and all other work specifically provided for in these specifications, remove all falsework, excess or useless excavated materials, rejected materials, rubbish, temporary buildings, temporary foundations, replace or renew any fences damaged, and restore in an acceptable manner all property, both public and private, which may have been damaged during the prosecution of the work, and shall leave the site of the work in a neat and presentable condition satisfactory to the Engineer.

4. SECTION 4: CONTROL OF THE WORK

4.1 AUTHORITY OF THE ENGINEER

The Engineer shall decide any and all questions which may arise as to the quality and acceptability of materials furnished and work performed, and as to the manner of performance and rate of progress of the work, and shall decide all questions which may arise as to the interpretation of the Plans and specifications, and all questions as to the acceptable fulfillment of the terms of the contract.

4.2 PLANS AND WORKING DRAWINGS

General drawings, showing such details as are necessary to give a comprehensive idea of the construction contemplated, will be shown in the general Plans, but the Contractor shall submit to the Engineer for approval such additional detailed shop drawings or working drawings, together with a detailed structural analysis of all component parts, as may be required for the construction of any part of the work and prior to the approval of such Plans, any work done or material ordered shall be at the Contractor's risk.

The contract price shall include the cost of furnishing all working drawings and the Contractor will be allowed no extra compensation for such drawings.

4.3 DEVIATIONS FROM THE PLANS

No deviation from the general Plans or the approved working drawings will be permitted without the written order of the Engineer. No allowance shall be made for work done other than is shown on the Plans, profiles and drawings, and provided for in the specifications.

4.4 COORDINATION OF SPECIFICATIONS AND PLANS

In the event of any discrepancy between the Plans and figures written thereon, the figures are to be considered as correct. In the case of any discrepancy between the Plans and the specifications, the Engineer shall determine which are to govern. If there is a discrepancy between the general specifications and the supplemental specifications, the supplemental specifications are to govern.

The Contractor shall take no advantage of any apparent error or omission in the Plans or specifications, but the Engineer shall be permitted to make such corrections and interpretations as may be deemed necessary for the fulfillment of the intent of the Plans and specifications.

4.5 ORDER OF WORK

The order of sequence of the execution and/or conduct of the work shall be subject to the approval and/or direction of the Engineer, which approval and/or direction shall not in any way relieve the Contractor of any responsibility in connection with the prosecution to completion of the work under contract.

4.6 COOPERATION BY CONTRACTOR

The Contractor shall conduct his operation so as to interfere as little as possible with those of other Contractors, Subcontractors, the public, or adjoining property owners on or near the work site. The Contractor shall at all times during his absence from the work site have a competent superintendent or foreman capable of reading and thoroughly understanding the Plans and specifications, as his agent on the work, who shall receive instructions from the Engineer or his authorized representative. The superintendent or foreman shall have full authority to execute the order and/or directions of the Engineer without delay and to promptly supply such materials, tools, plant equipment, and labor as may be required. The superintendent or foreman shall have a copy of the Plans and specifications on the job at all time.

4.7 CONSTRUCTION STAKES

Reference lines and grade points for the location, alignment, and elevation of each structure will be determined and established by the Engineer, but the Contractor shall assume full responsibility for the alignment, elevations, and dimensions of each and all parts of the work with reference to the lines, points, and grades as established by the Engineer. For all structures, the Engineer shall furnish the Contractor with centerline and/or center points and such benchmarks or other points as are necessary to lay out the work correctly. The Contractor shall check all lines, points, and grades which may be given by the Engineer supplementary to the centerline, points, and control bench marks aforesaid, and shall be responsible for the accuracy of all measurements for grades and alignment of the work with reference to the centerline and/or points and bench marks established by the Engineer.

The Contractor shall exercise proper care in the preservation of alignment, grade, and reference stakes set for his use, or that of the Engineer. If such stakes are injured, lost, or removed by the Contractor's operations, they shall be reset at his expense.

4.8 INSPECTION

The Engineer or his representative shall be allowed access to all parts of the work at all times and shall be furnished such information and assistance by the Contractor as may be required to make a complete and detailed inspection thereof. Such inspection may include mill, plant, or shop inspection and any material furnished under these specifications is subject to such inspection.

5. SECTION 5: CONTROL OF MATERIALS

5.1 SPECIFICATIONS FOR MATERIALS

All materials used in this work shall conform in all respects to the specifications therefore as herein set forth. Where a specification for material to be used in this work is not specifically set forth in these specifications, such material shall

conform in all respects to the specifications as set forth in the A.S.T.M. Standards and/or Tentative Standards adopted and in effect on the date of receiving bids.

5.2 SUBSTITUTION OF MATERIALS AND EQUIPMENT

Wherever in these specifications or on the Plans for this work, materials or equipment are specified by trade names or catalog numbers of certain manufacturers, it is done for the purpose of establishing a standard of quality, durability, and/or efficiency, and not for any purpose of limiting competition. Wherever such definite reference is made in these specifications to any such material or equipment, is understood that any equivalent material or equipment may be provided, however, that the written approval and acceptance of the Engineer of such equivalent material or equipment must be obtained prior to its purchase and/or incorporation in any part of the work.

5.3 THE METHODS OF TESTING

All tests of materials or equipment used in the work shall be made in accordance with the methods described in these specifications or the method of test prescribed in any specification for material or equipment herein specifically referred to and designated to govern the quality of any material or equipment.

Where a method of test for any material or equipment is not specifically provided for, such material or equipment shall be tested in accordance with the methods prescribed and set forth in the A.S.T.M. Standards and Tentative Standards adopted and in effect on the date of receiving bids.

5.4 DEFECTIVE MATERIALS

All materials not conforming to the requirements of these specifications shall be considered as defective and all such materials, whether in place or not, shall be rejected and shall be removed immediately from the work by the Contractor at his expense unless otherwise permitted by the Engineer. No rejected materials, the defects of which have been subsequently corrected, shall be used until approval has been given. Upon failure on the part of the Contractor to immediately comply with any order of the Engineer relative to the provisions of this section, the Engineer shall have the authority to remove and replace such defective material and to deduct the cost of removal and replacement from any moneys due or which may become due to the Contractor.

6. SECTION 6: LEGAL RELATIONS AND RESPONSIBILITY TO THE PUBLIC

6.1 BARRICADES, LIGHTS, AND SIGNS

The Contractor shall at his own expense and without further or other order provide, erect, and maintain at all times during the progress or suspension of the work, suitable barricades, fences, signs, or other adequate protection, and shall provide, keep, and maintain such lights, danger signals, and watchmen as may be necessary or as may be ordered by the Engineer to ensure the safety of the public, as well as those engaged in connection with the work. All barricades and obstructions shall be protected at night by signal lights, which shall be suitably placed and which shall be kept burning from sunset to sunrise. Barricades shall be of substantial construction, and shall be painted in such a way as to increase their visibility at night.
The Contractor shall be held responsible for all damage to the work due to failure of barricades, signs, lights, and watchmen to protect it, and whenever evidence of such damage is found prior to acceptance, the Engineer may order such damaged portion immediately removed and replaced by the Contractor without cost to the City if, in his opinion, such action is justified. The Contractor's responsibility for the maintenance of barricades, signs, and lights shall not cease until the project shall have been accepted.

6.2 USE OF EXPLOSIVES

The use of explosives shall be prohibited.

6.3 PROTECTION AND RESTORATION OF PROPERTY

It is understood that in the execution of the work herein provided for there may be interference with and/or damage to trees, shrubbery, crops, fences, railroad tracks, overhead structures such as poles, wires, cables, underground structures such as sewers, gas mains, telephone conduits and cables, water mains, drains, service connections, wires, pipes, conduits, located along, adjacent to, and/or crossing the locations of the work, and that it may be necessary to relocate or reconstruct certain of such structures, improvements, and installations and/or to make repairs to the same by reasons of doing the work herein provided for, and it is therefore particularly and specifically agreed that the Contractor, except as otherwise herein provided, shall do the work necessary for such relocation, reconstruction, and repair and shall bear and pay all of the cost and expense of such relocation, reconstruction, and/or repair of, and all damage done to any and all such pipe line and other structures, improvements, and installations, including service connections, if any, to adjacent property, existing at the date of the execution of the contract and/or existing, during the period of the work to be done under the contract, which may be interfered with, damaged, and/or necessarily relocated, reconstructed, or repaired in the performance of the work herein provided for, including the restoration and resurfacing of unpaved portions of public streets and alleys, rights-of-way, easements, and private property damaged or disturbed by the work, the same to be restored to as good condition as the same existed at the time of the commencement of any such work or relocation.

It is further agreed that the owners of any structures, improvements, installations, referred to in the preceding paragraph shall have the right to do the work or any part thereof necessary for the relocation, reconstruction, replacement, repair, and other work required by reason of any interference with and/or damage to such structures, improvements, installations, due to the prosecution of the work and upon completion of such work by them done, said owners may render bills to the Contractor for the cost and expense thereof, which bills shall be paid by the Contractor, without extra compensation therefore from the City, upon demand by said owners, or upon demand made by the City upon the Contractor for the payment thereof.

6.4 RESPONSIBILITY FOR DAMAGE CLAIMS

The Contractor agrees to indemnify and save harmless the City of Aurora, their agents, and employees from and against all loss and expenses (including costs and attorneys' fees) by reason of liability imposed by law or claims made upon the City of Aurora for damages because of bodily injury, including death at any time resulting therefrom sustained by any person or persons or on account of damage to property, including loss of use thereof, arising out of or in consequence of the performance of this work, whether such claims or injuries to persons or damage to property be due to the negligence of the Contractor, his Subcontractors or the City of Aurora.

The Contractor shall assume total risk and shall be responsible for any and all damages or losses caused by or in any way resulting from the work and provide all insurance necessary to protect and save harmless the City of Aurora and its employees. Said insurance shall include contractual liability equal to the limits hereinafter set forth.

The Contractor agrees to purchase a policy of insurance, which shall include the City of Aurora as an additional insured or provide separate coverage for the City with an owner's protective policy. All Insurance provided by Contractor, extending to owner as additional insurance, shall be primary and insurance maintained by owner shall be excess and not contributing with Contractor's insurance. The minimum amounts of insurance shall be as follows, except that no restrictions on occurrence limits will be permitted:

Bodily Injury Liability	Property Damage Liability	
Each Occurrence	Each Occurrence	Aggregate
$3,500,000	$500,000	$7,000,000

The coverage and amounts above are minimum requirements and do not establish limits to the Contractor's liability. Other coverage and higher limits may be provided at the Contractor's option and expense.

Owner does not waive its subrogation rights against Contractor and/or any Subcontractor for damages due to losses to owner due to the fault or negligence of the Contractor and/or any Subcontractors during or as a result of the performance of the work.

All such insurance must include an endorsement whereby the insurer agrees to notify the City of Aurora at least thirty (30) days prior to non-renewal, reduction or cancellation. The Contractor shall cease operations on the project if the insurance is canceled or reduced below the required amount of coverage. All costs for insurance as specified herein will not be paid for separately, but shall be considered as incidental to the contract.

6.5 WORKERS COMPENSATION ACT

The Contractor further agrees to insure his employees and their beneficiaries and to provide the employees and the beneficiaries of any Subcontractor employed from time to time by him on said work, the necessary first-aid, medical, surgical, and hospital services and any compensation provided for in the Workers Compensation Act of the State of Illinois that is or may be in force in the State.

Such insurance shall be placed by said Contractor in a company or association (to be approved by the City and to be accepted by the Council thereof) authorized under the laws of the State of Illinois to insure the liability above specified.

Said Contractor hereby further agrees to indemnify, keep and save harmless said City from all action, proceedings, claims, judgments, awards, and costs, losses, damages, expenses, and attorney's fees which may in any way be brought against said City by reason of any accidental injuries or death suffered by any of his employees or the employees of any Subcontractor employed by him in and about the performance of the work provided for in the contract, and any and all liability resulting thereupon; and said Contractor, in case of any suit, action, or proceeding on account of any or all of the foregoing shall defend the same for and on behalf of said City and indemnify the City therefore and pay the amount of any and all awards and final judgments and/orders rendered and entered therein, together with all loss, costs, damages, attorney's fees, and expenses incurred therein. Said Contractor shall be the sole employer of its employees and workers, and in no way so shall the City be considered a joint employer of same under any circumstance.

7. SECTION 7: PROSECUTION AND PROGRESS OF WORK

7.1 SUBLETTING OR ASSIGNMENT OF WORK

If the Contractor sublets the whole or any part of the work to be done under the contract, with or without the written consent of the City, he shall not, under any circumstances, be relieved of his liabilities and obligations. All transactions of the Engineer shall be with the Contractor; Subcontractors shall be recognized only in the capacity of employees or workmen and shall be subject to the same requirements as to character and competence. In case any party or parties, to whom any work under the contract shall have been sublet, shall disregard the directions of the Engineer or his duly authorized representatives, or shall furnish any unsatisfactory work or shall fail or refuse in any way to conform to any of the provisions or conditions of the contract, then in that case, upon the written order of the Engineer, the Contractor shall require said party or parties in default to discontinue work under the contract. Said work shall be corrected or made good and shall be continued and completed by the said Contractor or by such other party or parties as are approved by the Engineer, in the manner and subject to all of the requirements specified in the contract.

7.2 PROSECUTION OF WORK

The Contractor shall begin the work to be performed under the contract no later than ten (10) days after the execution and acceptance of the contract, unless otherwise provided. The work shall be conducted in such a manner and with sufficient materials, equipment and labor as is considered necessary to ensure its completion within the time specified in the contract. The Contractor shall solely be fully responsible for complying with state and local prevailing wage requirements in accordance with its Bidders Certification, and for all wage rate and hour regulations and applications

7.3 PAYMENT

BASIS OF PAYMENT

Payment of the CONTRACTOR for performance of the CONTRACT shall be made by the OWNER and shall be based on the value of the installation resulting from the CONTRACTOR's operations.

The cost of all WORK incidental to the completion of the project in accordance with the Plans and Specifications, excepting authorized extra WORK, shall be included in the unit and lump sum prices stated in the CONTRACTOR's accepted Proposal. The amount obtained by the summation of the products of the quantities of WORK performed or the respective unit or lump sum prices for several items listed in the proposal shall be payment in full, except for payment for authorized extra WORK, for delivering the completed project to the OWNER in accordance with the Plans and Specifications.

SUBMISSION OF BID BREAKDOWN

Within 10 days after the execution of this CONTRACT, the CONTRACTOR must submit to the ENGINEER in duplicate an acceptable breakdown of the lump sums and unit prices bid for items of the CONTRACT, showing the various operations to be performed under the CONTRACT, and the value of each of such operations, the total of such items to equal the total price bid. The CONTRACTOR shall also submit such other information relating to the bid prices as may be required and shall revise the bid breakdown as directed. Thereafter, the breakdown may be used for checking the CONTRACTOR's applications for partial payments hereunder but shall not be binding upon the OWNER or the ENGINEER for any purpose whatsoever.

PARTIAL PAYMENTS

When not otherwise provided for under the Specifications for an item of WORK or a complete project, and if the rate of progress is satisfactory to the ENGINEER, partial payments will be made the CONTRACTOR by the OWNER during progress of construction. The amount of each partial payment shall be limited to ninety (90) percent (unless otherwise provided in the Instructions to Bidders) of the value of the WORK shown in the Engineer's periodic estimate to have been done and installed in place by the CONTRACTOR subsequent to the time of commencing WORK or of making the last preceding partial payment on account of WORK done. An amount greater than ninety (90) percent of the value of a largely completed project may be paid the CONTRACTOR at the option of the OWNER.

The CONTRACTOR's request for payment shall be in the form of an invoice, submitted to the OWNER through the ENGINEER, setting forth amounts due for WORK completed on payment items set forth in the CONTRACTOR's Proposal, and shall be accompanied by:

1. CONTRACTOR's Sworn Statement setting forth the Subcontractors and material suppliers, the amount requested for each of the Subcontractors or material suppliers, and the amount of the subcontract or material to be completed.
2. Subcontractor or material suppliers waivers of lien for amounts requested on previous payment requests.
3. CONTRACTOR's waivers of lien.

The CONTRACTOR's request will be reviewed by the ENGINEER and if the ENGINEER is in agreement with the value of WORK completed, as requested by the CONTRACTOR, and if the request is accompanied by the

CONTRACTOR's Sworn Statement, Subcontractor and material suppliers waiver of lien as stated above, and by the CONTRACTOR's waiver of lien, the ENGINEER will recommend payment to the OWNER.

Partial payment made to the CONTRACTOR by the OWNER for WORK performed shall in no way constitute an acknowledgement of the acceptance of the WORK nor in any way prejudice or affect the obligation of the CONTRACTOR, at his expense, to repair, correct, renew or replace any defects or imperfections in the construction of the WORK under CONTRACT and its appurtenances, nor any damage due or attributable to such defect, damage and the CONTRACTOR shall be liable to the OWNER for failure to correct the same as provided herein.

Payment in full or in part may be withheld for reasons which include but are not limited to: (1) the existence of defective work which is not remedied; (2) the existence of third party claims filed or reasonable evidence indicating probable filing of such claims; (3) the failure of the CONTRACTOR to make payments properly to Subcontractors or for labor, materials or equipment; (4) the existence of reasonable evidence that the WORK cannot be completed for the unpaid balance of the contract sum; (5) damage to the OWNER; (6) the existence of reasonable evidence that the WORK will not be completed within the CONTRACT time, and that the unpaid balance will not be adequate to cover actual or liquidated damages for the anticipated delay; or, (7) persistent failure to carry out the work in accordance with the contract documents. If within a reasonable time not to exceed 45 days CONTRACTOR has not remedied any condition for which payment in full has been withheld, then OWNER may make such payments as OWNER deems necessary to remedy such situation from said funds withheld and pay the balance to CONTRACTOR, or if, sums are still due to remedy the situation, CONTRACTOR will remit any balances due to OWNER within 10 days of notice of same.

ACCEPTANCE AND FINAL PAYMENT

Whenever the CONTRACT shall have been completely performed on the part of the CONTRACTOR, and all parts of the WORK have been approved by the ENGINEER and accepted by the OWNER, including the resolution of all matters of dispute, a final estimate showing the value of the WORK will be prepared by the ENGINEER as soon as the necessary measurements and computations can be made, all prior estimates upon which payments have been made being approximate only and subject to corrections in the final payments.

The CONTRACTOR shall submit a final payment request showing the total quantities completed for the entire project and all previous payouts. This payment request shall be accompanied by a sworn affidavit listing all Subcontractors and material suppliers and the total payments to each. Final Waivers of Lien from the Subcontractors and material suppliers as well as the CONTRACTOR shall also be furnished at this time.

A final payment including all amounts of money shown by the final estimate to be due the CONTRACTOR shall be made by the OWNER as soon as practicable after the final acceptance of the WORK, provided the CONTRACTOR has furnished the OWNER satisfactory evidence that all sums of money due for labor, materials, apparatus, fixtures or machinery furnished for the purpose of performing the Contract have been paid or that the person or persons to whom the same may respectively be due have consented to such final payment.

SPECIAL PROVISION FOR EMPLOYMENT PRACTICES

1. State of Illinois DEPARTMENT OF TRANSPORTATION SPECIAL PROVISION FOR EMPLOYMENT PRACTICES

In addition to all other labor requirements set forth in this proposal and in the Standard Specifications for Road and Bridge Construction, adopted by the Department of Transportation, during the performance of this contract, the Contractor for itself, its assignees, and successors in interest (hereinafter referred to as the "Contractor") agrees as follows:

I. SELECTION OF LABOR

The Contractor shall comply with all Illinois statutes pertaining to the selection of labor.

II. EQUAL EMPLOYMENT OPPORTUNITY

During the performance of this contract, the Contractor agrees as follows:

(1) That it will not discriminate against any employee or applicant for employment because of race, color, religion, sex, national origin, ancestry, age, marital status, physical or mental handicap or unfavorable discharge from military service, and further that it will examine all job, classifications to determine if minority persons or women are underutilized and will take appropriate affirmative action to rectify any such under-utilization.

(2) That, if it hires additional employees in order to perform this contract or any portion hereof, it will determine the availability of minorities and women in the area(s) from which it may reasonably recruit and it will hire for each job classification for which employees are hired in such a way that minorities and women are not underutilized.

(3) That, in all solicitations or advertisements for employees placed by it or on its behalf, it will state that all applicants will be afforded equal opportunity without discrimination because of race, color, religion, sex, national origin, ancestry, age, marital status, physical or mental handicap or unfavorable discharge from military service.

(4) That it will send to each labor organization or representative of other workers with which it has or is bound by a collective bargaining or other agreement or understanding, a notice advising such labor organization or representative of the Contractor's obligations under the Illinois Human Rights Act and the Department's Rules and Regulations. If any such labor organization or representative fails or refuses to cooperate with the Contractor in its efforts to comply with such Act and Rules and Regulations, the Contractor will promptly so notify the Illinois Department of Human Rights and the City of Aurora and will recruit employees from other sources when necessary to fulfill its obligations thereunder.

(5) That it will submit reports as required by the Department of Human Rights Rules and Regulations, furnish all relevant information as may from time to time be requested by the Department or the City of Aurora, and in all respects comply with the Illinois Human Rights Act and the Department's Rules and Regulations.

(6) That it will permit access to all relevant books, records, accounts and work sites by personnel of the City of Aurora and the Illinois Department of Human Rights for purposes of investigation to ascertain compliance with the Illinois Human Rights Act and the Department's Rules and Regulations.

(7) That it will include verbatim or by reference the provisions of this clause in every subcontract so that such provisions will be binding upon every such Subcontractor. In the same manner as with other provisions of this contract, the Contractor will be liable for compliance with applicable provisions of this clause by all its Subcontractors; and further it will promptly notify the City of Aurora and the Illinois Department of Human Rights in the event any Subcontractor fails or refuses to comply therewith. In addition, the Contractor will not utilize any Subcontractor declared by the Illinois Human Rights Commission to be ineligible for contracts or subcontracts with the State of Illinois or any of its political subdivisions or municipal corporations.

2. State of Illinois DEPARTMENT OF TRANSPORTATION Bureau of Local Roads & Streets SPECIAL PROVISION FOR WAGES OF EMPLOYEES ON PUBLIC WORKS

Effective: January 1, 1999
Revised: January 1, 2015

1. Prevailing Wages. All wages paid by the Contractor and each subcontractor shall be in compliance with The Prevailing Wage Act (820 ILCS 130), as amended, except where a prevailing wage violates a federal law, order, or ruling, the rate conforming to the federal law, order, or ruling shall govern. The Illinois Department of Labor publishes the prevailing wage rates on its website at www.state.il.us/agency/idol/rates/rates.htm. If the Illinois Department of Labor revises the prevailing wage rates, the revised prevailing wage rates on the Illinois Department of Labor's website shall apply to this contract and the Contractor will not be allowed additional compensation on account of said revisions. The Contractor shall review the wage rates applicable to the work of the contract at regular intervals in order to ensure the timely payment of current wage rates. The Contractor agrees that no additional notice is required. The Contractor shall be responsible to notify each subcontractor of the wage rates set forth in this contract and any revisions thereto.

2. Payroll Records. The Contractor and each subcontractor shall make and keep, for a period of not less than five years from the date of the last payment on a contract or subcontract, records of all laborers, mechanics, and other workers employed by them on the project; the records shall include each worker's employed by them on the project; the records shall include information required by 820 ILCS 130/5 for each worker. Upon seven business days' notice, the Contractor and each subcontractor shall make available for inspection and copying at a location within this State during reasonable hours, the payroll records to the public body in charge of the project, its officers and agents, the Director of Labor and his deputies and agents, and to federal, State, or local law enforcement agencies and prosecutors.

3. Submission of Payroll Records. The Contractor and each subcontractor shall ,no later than the 15th day of each calendar month, file a certified payroll for the immediately preceding month with the public body in charge of the project, except that the full social security number and home address shall not be included on weekly transmittals. Instead the payrolls shall include an identification number for each employee (e.g., the last four digits of the employee's social security number). The certified payroll shall consist of a complete copy of the payroll records except starting and ending times of work each day may be omitted

The certified payroll shall be accompanied by a statement signed by the Contractor or subcontractor or an officer, employee, or agent of the contractor or subcontractor which avers that: (i) he or she has examined the certified payroll records required to be submitted by the Act and such records are true and accurate; (ii) the hourly rate paid to each worker is not less than the general prevailing rate of hourly wages required; and (iii) the

Contractor or subcontractor is aware that filing a certified payroll that he or she knows to be false is a Class A misdemeanor.

4. Employees Interviews. The Contractor and each subcontractor shall permit his/her employees to be interviewed on the job, during working hours, by compliance investigators of the Department or the Department of Labor.

SCOPE OF WORK

1. Summary

The City of Aurora, IL is seeking a qualified contractor for the dredging of Mastodon Lake. This project includes the of dredging of the accumulated sediment from 23-acre Mastodon Lake using hydraulic dredging methods, dewatering and hauling of dredged materials, installation of mechanical mixing and aeration devices, installation of culvert pipes, as well as other miscellaneous appurtenances all in accordance with the plans and specifications.

Note that this is the reissuance of a previously published bid request, with changes to the dewatering and final placement locations including:

- Site 6 is no longer a bid alternative but can be used at the contractor's discretion for dewatering only. While bidders can assume that this location will be available for dewatering, the City is currently finalizing negotiations for it's use with the school district and therefore reserves the right to eliminate this location altogether.
- Site 7 has been identified and must be used as the primary dewatering site. A pay item for leveling the site and preparing it for dewatering operations has been included. After successfully dewatering the materials, the contractor will shape the dry material in accordance with the plans.
- Site 8 has been added as an additional dewatering site to utilize at the contractor's discretion.

Phillips Park is considered the jewel of the community. Mastodon Lake, which is in Phillips Park, provides stormwater detention and is used by boaters, anglers and bird watchers and admired by park visitors. However, the Lake has developed an issue with excessive aquatic vegetation which is reducing the aesthetic appeal and negatively impacting the water quality of the Lake.

The City is requesting that bidders provide a proposal for completing the work outlined in the plans, which includes the hydraulic dredging of 50,000 cubic yards of wet material and dewatering in up to eight locations (Sites 1-8) along the lake within City and privately owned property. Site 7 is the location of a permanent stockpile for the dried dewatered materials. In order to reduce the need for trucking of materials to the permanent stockpile location, the contractor must fully utilize Site 7 for dewatering to the maximum extent practicable prior to using any other dewatering location.

Since the City has also published a separate bid for Shoreline Stabilization, the awarded contractors may be required to work concurrently onsite.

2. SP A.1 – ALTERATIONS TO PROJECT BY ENGINEER

The Engineer reserves the right to alter the plans and details, extend or shorten the improvement, add such work as may be necessary, increase or decrease the quantities of work to be performed, and/or eliminate entire pay items all in accordance with Section 104 of the Standard Specifications, except that the Contractor shall not be entitled to additional compensation or lost profits in the event that quantities are reduced below the original contract quantities, or in the event pay items are deleted entirely.

3. SP A.2 – RESPONSIBILITY OF WORK

During the progress of the work the Contractor shall assume total risk and liability, and will be responsible for any and all damages to the work, or to persons, or to public or private property caused by, or in any way resulting from doing the work, including actions of Subcontractors or Material Suppliers.

4. SP A.3 – PUBLIC SAFETY AND CONVENIENCE

The Contractor shall maintain drives, entrances, and side roads along the proposed improvement to allow emergency and local vehicle access to all adjacent properties. This access should not allow the passage of non-local vehicular traffic, which should abide by the approved traffic control plan. Interference with traffic movements and inconvenience to abutting property owners and the public shall be kept to a minimum. The Contractor shall maintain at least one lane open to traffic at all times for emergency vehicles on all streets affected by the construction of these improvements. Adequate use of flaggers and other traffic control devices shall be used to permit such arrangements during working hours. The Contractor shall remove and reinstall all street signs in conflict with the proposed improvements. All signage required for the proper control of traffic (i.e.: stop signs, yield signs, etc.) must be maintained on a temporary basis until the permanent sign can be reinstalled. **If the project is located in a business district, then business open signs shall be posted and maintained during construction.**

The multi-use path around the lake must remain open during construction. If dewatering hoses are placed over the path, then a temporary ramp and signage must be provided by the contractor to allow for the safe passage of pedestrians. The contractor may also route dewatering hoses through temporary culverts.

This work shall not be paid for separately, but shall be considered incidental to TRAFFIC CONTROL AND PROTECTION (SPECIAL).

5. SP A.4 – COMPLETION DATE

The Contractor agrees to execute a contract and a contract bond satisfactory to and in the form prescribed by the City in the penal sum of the full amount of the contract, guaranteeing the faithful performance of the work in accordance with the terms of the contract within **fifteen (15)** days after notice of award of the contract.

The Contractor further agrees to begin work not later than **ten (10)** calendar days after the execution and approval of the contract and contract bond, unless otherwise provided, and to prosecute the work in such a manner and with sufficient materials, equipment, and labor as will ensure its completion within the time limit specified herein, it being understood and agreed that the completion within the time limit is an essential part of the contract.

The Contractor shall schedule their construction operations in such a manner so as to meet the following completion deadlines:

- **Mobilize and begin dredging no later than July 31, 2026.**
- **Obtain Substantial completion of the entire project completion date of September 1, 2027.**
- **Obtain Final completion of the entire project completion date of October 31, 2027, which includes the hauling of dewatered materials, restoration and installation of circulation devices.**

Substantially complete shall mean the completion of all work except for minor punch list items.

Final completion shall be obtained when all the work in all respects has been completed; including the punch

list work, landscaping and restoration has concluded.

Special attention is called to Article 108.10 of the Standard Specifications for Road and Bridge Construction and shall be strictly adhered to, in the event the Contractor fails to complete the project by the above-mentioned guidelines. Liquidated damages shall be assessed per **Working Day** for failure to meet the above deadlines.

The Contractor shall not discontinue progress towards the completion of the work until "Final Completion" has been obtained. This provision will be strictly enforced whether or not the abovementioned completion deadlines are being met. The Contractor shall be assessed liquidated damages for every working day that work is not being performed on the project.

Underground utilities shall not be installed between October 31st and April 1st the following year.

Deadline extensions shall not affect the underground utility shutdown dates. Underground work to be performed after October 31st shall be postponed until April 1st the following year. Restoration pertinent to utilities installed prior to October 31st shall be completed November 15th of the same year.

6. SP A.5 – PERFORMANCE GUARANTEE OF WORK

If after the approval of final payment for each class of work and prior to the expiration of 1 year after the date of approval of said final payment, or such longer period of time as may be prescribed by law or by terms of any applicable special guarantee required by the Contract Documents, any work is found to be defective, the Contractor shall promptly, without cost to the Owner and in accordance with written directions of the Owner, remove it from the site and replace it with non-defective work to the satisfaction of the Engineer.

Failure of the Contractor to complete or to remedy defective work within a reasonable time (not to exceed 30 days of notice to Contractor in any event) shall be deemed a default and the Owner may take steps as it deems necessary to complete or remedy said work and charge the cost thereof to the Contractor.

7. SP A.6 – WORK DAYS AND HOURS

The allowed hours of work are between 7:00 AM and 7:00 PM, Monday through Friday, and between 8:00 AM and 5:00 PM on Saturdays and Sundays. No work shall be done on Holidays. The City has the right, at no additional fee to the City, to impose up to 7 days where work cannot take place due to special events in Phillips Park. The dates of these events will be provided to the contractor prior to the start of construction.
Equipment shall not be started before 6:45 AM.

8. SP A.7 – INCIDENTAL WORK

All work required to install the improvements shown or called for on the plans and in the specifications, shall be incidental to the various bid items in the proposal even though a specific item is not shown, and no additional compensation shall be made to the Contractor, unless it is indicated that additional payment will be allowed or a unit price is provided for said work in the contract.

The dewatering site depicted in Dewatering Site #6 is separated from the lake by a section of high ground. The contractor must return the decant water to the lake. It is assumed that the contractor will be required to install temporary culvert(s) and perform temporary grading to allow for the decant water to drain back into the lake. The contractor may utilize mechanical pumping at their discretion. No

additional compensation will be provided to the contractor for measures required to return decant water to the lake.

9. SP A.8 – PRE-CONSTRUCTION MEETING

A pre-construction meeting shall be held prior to start of construction after execution of the contract documents. The Engineer shall establish the time and place of the pre-construction meeting. At this time, the Contractor shall be required to furnish and/or discuss the following:

- Written progress schedule/Completion Deadline.
- Names of Subcontractors and Material Suppliers.
- Names of Project Manager and/or Field Supervisor, including the name and phone number of a responsible individual who can be reached twenty-four (24) hours per day, seven (7) days per week.

- Notifications
    - Notify the Engineer 72 hours prior to the start of the project.
- General cleanup of the work site at the end of each day. The Contractor must have a water meter and hoses, or water truck on site prior to the start of excavation. Contractors and their sub-contractors will not be allowed to obtain water from private property.
- Granular trench backfill, method and equipment used for compaction.
- Protection of existing pavement and placement of cold patch. The Contractor must be prepared to place temporary pavement within the same day of removing the existing pavement.
- Driveway access
- Landscape restoration
- A J.U.L.I.E status for the project site, scheduled by the Contractor, prior to commencement of any work.
- An invitation to the pre-construction meeting must be sent to the Kane-DuPage Soil and Water Conservation District by the contractor a minimum of seven (7) days prior to the meeting.

Upon receipt of the notice of the award, the Contractor shall prepare a traffic control plan and project schedule setting forth the hours and days of operation for each task required by the contract. The project schedule shall be reviewed, and revised as required, and submitted with each payment request and/or request for extension of time.

10. SP A.9 – NOTIFICATION

The Contractor shall notify the Engineer a minimum of three (3) working days (72 hours) prior to starting the project, and a minimum of two (2) working days (48 hours) prior to starting each different type of work.

Parking

The Contractor shall supply and post “No Parking” signs on thirty-six inch (36”) high lath or mounted on barricades every fifty feet (50’), two feet (2’) from the back of curb or edge of pavement, at least two (2)

working days (48 hours) prior to work in the affected Phillips Park Parking Lot area (Dewatering Site #1). The Contractor shall contact the City of Aurora Police Department (630-256-5000) prior to placing "No Parking" signs. "No Parking" signs only need to be installed in areas of existing parking.

The supply and posting of "No Parking" signs and all other notifications to various local agencies, residents, or businesses shall not be paid for separately, but shall be considered incidental to the project.

Roadway

The Contractor shall notify the ENGINEER twenty-four (24) hours prior to the closure of any road so that the Aurora Police and Fire Departments, the appropriate School District, and the Pace Bus Service can be notified appropriately.

11. SP A.10 – CONTROL OF MATERIALS

All material used shall meet the requirements of the Illinois Department of Transportation, the Standard Specifications for Water and Sewer Main Construction in Illinois, the City of Aurora Standard Specifications for Improvements, and as outlined in these specifications.

All materials will be inspected, tested, and approved by the Engineer before incorporation into the work. The Contractor shall provide the City with letters of certification from each supplier when requested.

Any work in which untested and unacceptable materials are used without approval or written permission from the Engineer shall be performed at the Contractor's risk and may be considered as unacceptable and unauthorized and will not be paid for.

12. SP A.11 – BUSINESS ENTERPRISE PROGRAM (BEP) PARTICIPATION REQUIREMENTS

Purpose and Applicability

Under the applicability of the Illinois Department of Commerce and & Economic Opportunity (DCEO), an overall Business Enterprise Program (BEP) Goal of **28%** has been determined with **18%** of grant dollars going to minority-owned business enterprises (MBEs or WMBEs), and **10%** going to women-owned business enterprises (WBEs or WMBEs), or persons with disabilities-owned business enterprises (PBE). This goal is based on the availability of State-certified vendors to perform the anticipated direct subcontracting opportunities of the Utilization Plan (UP).

In accordance with the State of Illinois Business Enterprise Program (30 ILCS 575) and the City of Aurora's commitment to equitable contracting, this project shall include the above stated participation goal, comprised of the noted enterprises. These goals apply to the total dollar value of the contract and must be met through subcontracting with certified BEP vendors.

Certification Requirements

All subcontractors used to meet BEP goals must be certified by the Illinois Commission on Equity and Inclusion (CEI) under the BEP program and will count toward meeting the utilization goals for this grant. Certification must be valid at the time of bid submission and throughout the contract term.

Utilization Plan

Bidders must submit a BEP Utilization Plan with their bid, identifying:

- Certified BEP vendors to be used
- Scope and dollar value of work assigned to each
- Certification type (MBE or WBE)

Failure to submit a complete Utilization Plan may result in bid rejection.

Good Faith Efforts and Waiver Requests
If a bidder cannot meet the stated BEP goals, they must submit documentation of good faith efforts, including:

- Outreach to certified vendors
- Copies of communications and responses
- Justification for inability to meet goals

Waiver requests will be reviewed by the City of Aurora in consultation with CEI standards.

Compliance and Reporting
The awarded contractor shall:

- Maintain BEP compliance throughout the contract
- Submit quarterly participation reports detailing payments to BEP vendors
- Cooperate with audits or reviews by the City or CEI

Non-compliance may result in penalties, including contract termination or disqualification from future city contracts.

Indemnification and Insurance
Contractors must indemnify and hold harmless the City of Aurora from any claims arising from project performance. Insurance requirements include:

General Liability: $1,000,000 per occurrence / $2,000,000 aggregate
Auto Liability: $1,000,000 Bodily Injury / $500,000 Property Damage
Workers Compensation: Statutory limits
Umbrella/Excess Liability: $1,000,000 per occurrence / $2,000,000 aggregate

The City of Aurora must be listed as primary, non-contributory additional insured on General and Auto Liability policies.

13. SP A.12 – ILLINOIS WORKS APPRENTICESHIP PROGRAM REQUIREMENT

Purpose and Applicability
This project is subject to the Illinois Works Apprenticeship Initiative under 30 ILCS 559/20-20, which mandates that apprentices must perform at least 10% of the total labor hours in each prevailing wage classification for public works projects estimated to cost $500,000 or more and funded in whole or in part by appropriated capital funds.

Apprenticeship Participation Goal
Minimum Requirement: Apprentices shall perform 10% of the total labor hours actually worked or estimated in each prevailing wage classification, whichever is less.

Pre-apprenticeship Graduate Requirement: Of the 10% goal, at least 50% of the apprentice hours must be performed by graduates of one of the following programs:

- Illinois Works Pre-apprenticeship Program
- Climate Works Pre-apprenticeship Program
- IDOT Highway Construction Careers Training Program

Contractor Responsibilities
Documentation: Contractors must submit an Apprenticeship Utilization Plan with their bid, detailing:

- The number of apprentice hours planned per classification
- Identification of participating apprenticeship programs
- Certification of pre-apprenticeship graduates

Compliance Monitoring:

- Contractors must maintain records of apprentice hours worked.
- Reports must be submitted quarterly to the City of Aurora and/or the Illinois Department of Commerce and Economic Opportunity (DCEO).

Waiver Requests:

- Contractors may request a waiver or reduction of the apprenticeship goal.
- Waivers must be submitted in writing with justification and evidence of good faith efforts.
- The City of Aurora and DCEO reserve the right to deny waivers and may hold public hearings for review.

Enforcement and Penalties
Failure to meet the apprenticeship goal or to demonstrate good faith efforts may result in:

- Withholding of payments
- Contract termination
- Disqualification from future City of Aurora contracts

Definitions

Apprentice: An individual enrolled in a U.S. Department of Labor Registered Apprenticeship Program.
Pre-apprenticeship Graduate: An individual who has completed a recognized Illinois Works pre-apprenticeship program.
Prevailing Wage Classification: As defined by the Illinois Department of Labor for public works projects.

Additional details regarding this requirement can be found at https://dceo.illinois.gov/illinoisworks/apprenticeship.html. Any further questions regarding this policy should be directed to the Illinois Department of Commerce & Economic Opportunity.

14. SP S.1 – RESPONSIBILITY FOR CONSTRUCTION SAFETY, SHORING AND METHODS

The Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions for the safety of; and shall provide the necessary protection to prevent damage, injury or loss to:

(a) All employees on the work and other persons who may be affected thereby.

(b) All work and materials or equipment to be incorporated therein, whether in storage on or off the site.

(c) Other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction.

The Contractor shall be responsible for complying with all applicable laws, ordinances, rules, regulations, and orders of any public body having jurisdiction for the safety of persons or property or to protect them from damage, injury, or loss. The Contractor shall be responsible for erecting and maintaining, as required by the conditions and progress of the work, all necessary safeguards for its safety and protection, including tight sheeting or shoring of the trench. He shall notify owners of adjacent utilities when prosecution of the work may affect them. All damage, injury, or loss to any property referred to in paragraph (a) or (b) caused, directly or indirectly, in whole or in part, by any Contractor or Subcontractor or anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable, shall be remedied by the Contractor. The Contractor's duties and responsibilities for the safety and protection of all work shall continue until such time as all the work is completed and acceptable. Any damages shall be repaired in a timely manner. Any and all interruptions of essential utilities such as water, electricity, or gas shall be corrected that same day and before the foreman leaves the site. (See Guarantee & Maintenance of Work for time of acceptance.)

The Contractor shall be responsible for coordinating with utility companies regarding the bracing or relocating of utility poles, and the relocation of any underground facilities.

The Engineer shall not be responsible for determining the Contractor’s construction means or methods.

15. SP S.2 – LOCATION OF UTILITIES

The Bidder, before submitting a Bid, shall carefully examine the Proposal, Plans, Details, Specifications, and Special Provisions. The successful Bidder shall inspect in detail the site of the proposed work and be familiar with all the local conditions affecting the proposal and the detailed requirements of construction.

When existing structures, services, utilities, pipelines and improvements (both above and below ground) are shown on the plans, the locations shown are approximate only and are not guaranteed. Obstructions and improvements in addition to those shown on the plans may also be encountered in carrying out the work. The Contractor shall be responsible for carrying out all work under this contract without additional compensation for whatever condition is found above or below ground.

The Contractor shall notify all utility companies including the City of Aurora Electrical Department (630) 892-1415, Water and Sewer Department (630) 256-3710, local electric companies, local telephone and communications companies, local natural gas companies, and local cable TV companies, and appropriate school districts, a minimum of two (2) working days (forty-eight hours) prior to beginning any construction or preliminary borings. The Contractor shall have the responsibility to determine from the public utility companies and the City of Aurora Departments the locations of underground pipes, conduits, cables, or other surface or subsurface improvements adjoining or crossing the construction area.

The depth and alignment of the existing water mains and sewers are approximate and may vary in both alignment and depth between manholes and valves. The Contractor shall not be due any additional

compensation in the event that the alignment of the sewers and water mains vary from what is shown on the plans. The call outs shown on the plans for the existing water mains are approximate and not guaranteed.

The Contractor shall be responsible for coordinating with utility companies regarding the bracing or relocating of utility poles, and the relocation of any underground facilities.

16. SP H.1 – SOIL EROSION CONTROL

If the size of the project warrants a Storm Water Pollution Prevention Plan (SWPPP), then the Contractor and their Subcontractors shall sign the necessary certification forms and follow the requirements of the SWPPP. The Contractor shall coordinate with the Engineer on correcting any deficiencies identified during inspections or Incidents of Non-compliance, and shall notify the Engineer of any changes to the SWPPP's erosion control plans.

This work shall consist of the supply and installation of soil erosion and sedimentation control devices in accordance with Article 280 of the Standard Specification for Road and Bridge Construction, the City of Aurora's Standard Specifications for Improvements, the Kane-DuPage Soil and Water Conservation District, the Illinois Environmental Protection Agency – Division of Water Pollution Control's NPDES Permit No. ILR10, and with the details within the construction drawings.

Erosion and Sedimentation Control shall not be paid for separately, the supply and installation of erosion control products shall be paid for per with the following pay items: PERIMETER EROSION BARRIER, TURBIDITY CURTAIN, TEMPORARY DITCH CHECKS, MULCH, METHOD 2 and INLET AND PIPE PROTECTION. See associated specifications for each pay item for more information. All material used for erosion and sedimentation control shall be disposed of off-site along with all debris collected within the control devices. Disposal shall not be paid for separately and shall be considered incidental to the unit prices above.

17. SP H.2 – DUST CONTROL & DIRT ON PAVEMENT

The Contractor shall at all times be responsible for maintaining dust-free conditions. The Contractor shall clean the pavement of all dirt and debris **at the end of each day's operations**, and at other times as directed by the Engineer by means of high pressure washing or by mechanical sweeping. The Contractor shall provide for the control of dust as specified in Section 24 of the Standard Specifications for Water and Sewer Construction in Illinois, or by the uniform application of a dust control agent approved by the Engineer.

If City water is used for dust control, the Contractor must have a water meter and hoses on site prior to the start of any excavation.

If the Contractor does not meet the requirement of controlling dust and/or cleaning the pavement, within three (3) hours of notification by the Owner, the Owner shall make the necessary arrangements to control the dust and clean the pavement(s). The cost of such action will be deducted from any monies due or to become due to the Contractor. **Additionally, the City will deduct $500.00 per day from monies due, or to become due, for each day that the Contractor fails to comply with this special provision. In addition, the Contractor will pay any penalties resulting from any Illinois Environmental Protection Agency, NPDES for Construction violations issued to the Owner.** Such sum to be charged not as a penalty but as liquidated damages. The parties agreeing that actual damages to the City of Aurora would be uncertain and difficult to calculate and the amount of such liquidated damages is a reasonable estimate of the supervision costs likely to be incurred by the City of Aurora as a result of the Contractor's failure to control dust and clean the pavement(s) as required.

Dust control and pavement cleaning shall be considered incidental to the cost of the contract and will not be paid for separately.

18. SP G.1 – WATER FOR CONSTRUCTION PURPOSES

City water for construction purposes will be available to the Contractor at his cost according to the prevailing rates in effect at the time. Contractors and their sub-contractors will not be allowed to obtain water from private property. The Contractor shall secure a City water meter by presenting a deposit for $1,600.00 in the form of a certified check made out to The City of Aurora to the Water Billing Department on the First Floor of 44 E. Downer Place, Aurora, Illinois. The name of the Contractor and their Tax ID number will be required. The Contractor will take the resulting forms to the Water & Sewer Maintenance Division located at 649 S. River Street where the City water meter shall be provided. The Contractor and/or sub-contractor will be fined, according to ordinance, which will be deduced from moneys due, for each unauthorized use of City water regardless of the amount of water used or the reason for unauthorized use.

19. SP G.1 – SURFACE RESTORATION

The Contractor shall be responsible for performing any surface restoration required due to damages caused by storing material, machinery and/or equipment outside the work areas. The surface restoration shall be performed in accordance with the plans and specifications or as directed by the Engineer and shall be at the Contractor's expense. Restoration of dewatering sites shall be paid for under the various SEEDING and EROSION CONTROL BLANKET pay items.

20. SP S.1 - CONSTRUCTION LAYOUT

This work shall be performed in accordance with the IDOT Supplemental Specifications and Recurring Special Provisions (SSRSP) – Adopted January 1, 2020, and as directed by the Engineer. This work shall be performed per the Special Provision for Construction Layout Stakes outlined in the SSRSP.

This work shall be measured for payment in LUMP SUM.

This work shall be paid for at the contract unit price per LUMP SUM for CONSTRUCTION LAYOUT which price shall include all materials, labor and equipment to complete the items listed in the SSRSP for Construction Layout Stakes.

21. SP S.2 - MOBILIZATION

This work shall be performed in accordance with applicable portions of Section 671 of the Standard Specifications, and as directed by the Engineer. This work shall consist of preparatory work and operations necessary for the movement of personnel, equipment, supplies, and incidentals to the project site for the establishment of work areas and other facilities necessary for work on the project and for all other work or operations which must be performed or costs incurred when beginning work on the project. The project is anticipated to require up to two seasons to complete the hydraulic dredging and dewatering. The contractor will need to plan accordingly based on his or her company's anticipated schedule.

Intermittent re-mobilization to the site after potential temporary shutdowns while the geotextile tube are dewatering shall not be paid for separately and shall be considered incidental to the project. This pay item is intended to compensate the contractor one (1) time as a lump sum for any and all mobilizations including the

initial mobilizations to the site at the beginning of the project and/or when returning to the site after a winter shut down.

This work shall be measured for payment in LUMP SUM.

This work shall be paid for at the contract unit price per LUMP SUM for MOBILIZATION which price shall include all materials, labor and equipment to complete the items listed in the Standard Specifications.

22. SP S.3 - HYDRAULIC DREDGING & DEWATERING

This Section covers furnishing suitable dredging plant and performing all work required to remove the specified materials from within the prescribed work area limits as indicated, and placement of the dredge material within the prescribed material placement areas.

The Contractor shall submit documentation with his bid for at least two similar projects in which the geotextile tubes were used successfully.

The Contractor is responsible for making their own investigation of submerged, surface, and overhead structures in the work areas and other locations they find necessary to traverse. Attached to these specifications is information related to sediment sampling that was completed in December 2020. Four sediment samples were analyzed. The results of this analysis are available for the Contractor's review. The bathymetric data depicted in the plans is based on a 2018 bathymetric survey completed by a consultant to the City. The Contractor may field verify this information prior to bidding if they so choose.

The northeast corner of the lake has a pump intake that is used to irrigate the adjacent golf course. The exact location of the intake will be marked for the contractor. Other than the pump intake, the Engineer has no knowledge of cables, pipes, other artificial obstructions, or other material that would necessitate the use of additional equipment for economical removal. Contractors should however exercise due diligence in determining the existence of any obstructions requiring additional equipment within proposed work areas. Should obstructions exist the Contractor shall, before proceeding further with work affecting or affected by such conditions, immediately notify the Engineer which will promptly make an investigation.

The Contractor shall comply with conditions and requirements of all permits. During the life of the contract, provide and maintain environmental protective measures. Also, environmental protective measures required to correct conditions, such as oil spills or debris, that occur during the dredging operations, must be provided. Comply with Federal, State, and local regulations pertaining to water, air, and noise pollution.

The Contractor shall submit the following as a shop drawing for approval by the Engineer prior to the start of work:

- Dredging Operations Plan;
- Discharge Pump Specifications;
- Geotextile Tube Work Plan;
- Geotextile Tube Operation and Quality Control Plan;

<u>Dredging Operations Plan</u>

The Contractor shall submit a Dredging Operations Plan which provides details including, but not limited to copies of any and all permits, the dredging equipment description and specifications, the method and equipment

to be used for dredging position control indicating how vertical and horizontal position control will be maintained, summary of proposed dredging procedures and project completion schedule. The schedule should show the actual sequence in which the Contractor proposes to dredge and to grade the individual sites.

The Contractor will be responsible for determining the appropriate chemical flocculant and geotextile material to use for the site conditions. The Contractor shall complete bench testing with supernatant samples to demonstrate that a 15mg/L total suspended solids (TSS) effluent if obtainable with the chosen chemical flocculant and geotextile bag material. This information must be submitted to the Illinois Environmental Protection Agency (IEPA) prior to the start of operations. MSDS data for the proposed flocculants must be provided to the IEPA and the City prior to their use. The dosing rates of flocculants and/or coagulants must be minimized to the extent necessary to achieve solids removal and to meet the TSS effluent requirements.

The Contractor shall monitor the effluent from each dewatering location for TSS, ammonia-nitrogen (as N), pH and temperature. Samples shall be collected once per week and the results shall be submitted to the IEPA once per month by the 15th day of the month following sampling. The monitoring reports will be sent to:

Illinois Environmental Protection Agency
Bureau of Water
Permit Section
1021 North Grand Avenue East

Dewatering

The Contractor shall be responsible for all set up, including the installation of the geotextile tubes, drainage fabric, hoses, pipes, valves, barriers, manifold system and all other items necessary to perform the hydraulic dredging in conformance with the plans, specs and applicable regulations. The Contractor shall prepare the storage and dewatering area by constructing a two feet high berm around the perimeter of the area and a drainage swale lined with impervious geotextile fabric to confine and direct effluent to the designated outfall where it will ultimately flow back into the dredged body of water. Effluent water discharged from the geotextile tubes shall be clear and visibly free of turbidity based on field observations. The outfall location shall be protected from scour. Scour prevention may be in the form of riprap, or other non-erodible materials. The outfall's temporary scour prevention shall be incidental to this pay item. No additional compensation shall be paid for the temporary scour protection measure.

Sediment core samples are included in the contract bid package. The Contractor shall be responsible for providing the appropriate geo-textile tube and chemical flocculant to effectively remove the sediment from the lake.

Delivery of geotextile tubes shall be in accordance with ASTM D 4873. Each roll shall be packaged in an opaque, waterproof and protective plastic wrapping. Each geotextile tube shall be labeled with the manufacturer's name, dimensions (length, width, height and gross weight) and date manufactured. Geotextile tubes damaged during shipping shall be repaired or replaced at no additional cost.

The plans include an option to allow for dewatering of materials west of the lake in Dewatering Site 6. This area is separated from the lake by high ground and the decant water will not return to the lake via gravity without grading, piping or pumping being utilized. The contractor shall be responsible at their own expense for determining how to return the decant water to the lake. It is assumed that temporary culvert(s), temporary grading or pumping will be required. Upon completion of dewatering the identified dewatering sites, the

ground surface shall be restored to the condition that it was in prior to construction. The total volume of dredged material is 50,000 cubic yards cumulatively. This material may be fully dewatered within the locations identified in the plans giving preference to maximizing the use of Site 7 before using any other site identified in the plans. The City shall provide the approval to utilize dewatering sites other than Site 7 upon request of the contractor.

Geotextile Tubes

The following minimal properties and testing methods must be met or otherwise approved:

Geotextile tubes shall be resistant to deterioration by ultraviolet light, oxidation and heat exposure. The total length of the geotextile tube is restricted by the storage and dewatering area. The tubes shall be delivered with filling ports appropriately spaced at intervals along the crest of the tube. Each fill port shall consist of a geotextile sleeve with a circumference matching the diameter of the discharge pipe. If necessary, pressure relief valves shall be included on each geotextile tube. In addition, loops or straps shall be incorporated along the sides of the geotextile tubes to facilitate deployment and anchoring.

Property	**Test Method**	**Unit**	**Minimum Average Roll Value**
Wide width tensile strength	ASTM D 4595	lbs/in	400
Wide width tensile elongation	ASTM D 4595	percent	20
Factory seam strength	ASTM D 4884	lbs/in	400
Apparent Opening Size (AOS)	ASTM D 4751	U.S. Sieve #	40
Mass/Unit Area	ASTM D 5261	oz/sq. yd.	15-18 (typ.)
Water flow rate	ASTM D 4491	gpm/sq. ft.	20
UV resistance (@ 500 hours)	ASTM D 4355	percent	80
Puncture Strength	ASTM D 4833	lbs.	206

Geotextile Drainage Fabric

The non-woven drainage fabric shall be rot proof, mildew proof, insect resistant and have a high dimensional stability when wet, good soil filtration characteristics and a high resistance to tear propagation in all directions.

Polymers, Coagulants and Feed Pump System

Shall consist of a sufficient volume of polymer and coagulant with associated feed pump system to adequately floc and dewater primarily inorganic, fine-grained in-situ sediment from the body of water. The dosage rate shall be sufficient to achieve acceptable water clarity and dewatering efficiency. Polymers and coagulants must be environmentally acceptable. MSDS sheets for all chemical additives must be provide to the IEPA and City prior to their use.

Hoses, Manifold and Valves

The hoses, manifold and inflow control valves shall be designed to facilitate use with dredging equipment, discharge hoses and method of dredging. The option to fill one or multiple geotextile tubes simultaneously shall be included. Flange connections to fill ports must be secure. Manifold and Y-laterals can be rigid or flexible pipe and shall have slip ring or flange connections installed.

Geotextile Tube Work Plan

The Contractor shall submit a Work Plan which includes specific procedures with respect to the geotextile tubes and associated components. The plan shall include, but not be limited to written discussion and sketches describing the sequencing, geometry, orientation, equipment, installation, anchoring and filling procedures. The Engineer will review the plan and provide questions or comments to the Contractor for written or verbal responses until issues and questions are satisfactorily addressed.

Geotextile Tube Operation and Quality Control Plan

The Contractor shall submit an Operation and Quality Control Plan which includes details including, but not limited to inspection and repair or replacement of the geotextile tubes prior to installation for damage and imperfections, height control of the geotextile tubes during filling operations, opening and closing of the fill ports and repair of failed seams or ruptures in the geotextile tubes during and after filling operations.

This work shall be measured for payment in CUBIC YARD.

This work shall be paid for at the contract unit price per CUBIC YARD for HYDRAULIC DREDGING & DEWATERING. Unit price includes, but is not limited to, all machinery, booster pumps, labor and materials necessary to remove and dewater the sediment as well as the removal/disposal of all geotextile tubes and dewatering area materials upon completion of the hydraulic dredging and dewatering. A post-dredge bathymetric survey must be provided by the Contractor to confirm quantity and completion of work. The cost of the bathymetric survey is to be incidental to this pay item.

23. SP S.4 - MECHANICAL DREDGING

This work shall be performed in accordance with applicable portions of Section 202 and 203 of the Standard Specifications, and as directed by the Engineer. This work consists of removing and lake sediment my mechanical means. It is assumed that portions of the lake may be inaccessible to hydraulic dredging. In these locations the contractor may employ mechanical methods of removing the sediment.

Dredged material should be dewatered to the maximum extent practicable and hauled to offsite disposal locations identified by the Contractor. No machinery will be allowed to enter the Lake at any time. Mechanical

dredging must take place from the shoreline. No materials will be allowed to be permanently stockpiled within the Special Flood Hazard Area or wetlands.

This work shall be measured for payment in CUBIC YARD.

This work shall be paid for at the contract unit price per CUBIC YARD for MECHANICAL DREDGING which price shall include all of items listed above and in the Standard Specifications including but not limited to trucking, handling, testing, fees and permitting .

24. SP S.5 - EARTH EXCAVATION SPECIAL - HAULING

This work shall be performed in accordance with Section 202 of the Standard Specifications, and as directed by the Engineer. This work consists of removing and hauling dewatered dredged material from dewatering sites 1 – 6 to dewatering site 7.

Once the geotextile tubes have been sufficiently dewatered, excavate the soil material and haul it off-site. The Contractor will be responsible for the excavation of dewatered material from the geotextile tubes, loading the material into trucks, and transporting it to Dewatering site 7. This work must be completed without any machinery entering the waterway. The dewatered materials must be in condition that they can be handled, loaded and hauled without decant water and dredged materials spilling from trucks onto roadways. If the material is hauled to a non-city owned site, then the Contractor is responsible for determining any and all requirements of the receiving facility and the Contractor is responsible for all fees associated with dumping, testing, permitting or other associated charges with disposing of the materials.

No additional compensation will be provided for the handling, removal and disposal of any non-soil debris including concrete, concrete block, brick, stone, metal, plastic, wood material or other debris encountered during work. Any non-soil debris encountered during dredging or excavation shall be removed from the site and disposed of properly in accordance with State and Federal laws and regulations.

No materials will be allowed to be permanently stockpiled within the Special Flood Hazard Area or wetlands. A permanent stockpile location that can accommodate all dewatered material will be located at Site 7.

This work shall be measured for payment in CUBIC YARDS.

This work shall be paid for at the contract unit price per CUBIC YARD for EARTH EXCAVATION SPECIAL - HAULING which price shall include all of items listed above and in the Standard Specifications. It has been assumed that the wet sediment will reduce in volume by approximately 40% during dewatering. Payment will be measured based upon the volume of dry sediment.

25. SP S.6 - NON-SPECIAL WASTE DISPOSAL

This work shall be performed in accordance with Section 669 of the Standard Specifications and consists of the items identified in the Standard Specifications and the Special Provisions for Removal and Disposal of Regulated Substances dated January 12, 2024.

Once the geotextile tubes have been sufficiently dewatered, excavate the soil material and haul it off-site. The Contractor will be responsible for the excavation of dewatered material from the geotextile tubes, loading the material into trucks, testing, associated permitting, hauling the material and dumping at acceptable

facilities. This work must be completed without any machinery entering the waterway. The dewatered materials must be in condition that they can be handled, loaded and hauled without decant water and dredged materials spilling from trucks onto roadways. The Contractor is responsible for determining any and all requirements of the receiving facility and the Contractor is responsible for all fees associated with dumping, testing, permitting or other associated charges with disposing of the materials.

The contractor shall be responsible for completing testing to meet applicable State and Federal regulations as well as disposal site requirements. This pay item is only to be used with prior approval from the City.

This work shall be measured for payment in CUBIC YARD.

This work will be paid for at the contract unit price for CUBIC YARD for NON-SPECIAL WASTE DISPOSAL which price shall include all work as specified above.

26. SP S.7 – EARTHWORK – GRADING AND SHAPING

This work shall be performed in accordance with applicable portions of Section 203 and 211 of the Standard Specifications, and as directed by the Engineer. This work consists of grading and shaping of a proposed hill in Dewatering Site 7 as depicted in the plans. The hill shall be a permanent stockpile location for the dewatered dredged materials. The grading depicted in the plans can accommodate all of the anticipated dried materials. Prior to performing the earthwork, the contractor must strip the topsoil from the earthwork area and stockpile the material for respread after grading has been completed.

No additional compensation will be provided for the handling, removal and disposal of any non-soil debris including concrete, concrete block, brick, stone, metal, plastic, wood material or other debris encountered during work. Any non-soil debris encountered during earth excavation shall be removed from the site and disposed of properly in accordance with State and Federal laws and regulations.

This work shall be measured for payment in CUBIC YARDS based on the quantity of dewatered material that is graded and shaped on Dewatering Site 7. These calculations do not account for swelling or compaction. Depending on the means and methods of earthwork utilized by the contractor, approximately 10% shrinkage due to compaction may occur. The finished grade of the permanent stockpile areas may vary slightly from the plans depending on swelling or compaction. The contractor shall be responsible for accounting for the impacts of swelling or compaction as it relates to the volume of soil handled. Based on the grading plan it is anticipated that all of the dewatered material can be permanently placed as shown on the plans.

This work shall be paid for at the contract unit price per CUBIC YARD for EARTH EXCAVATION – GRADING AND SHAPING which price shall include all of items listed above and in the Standard Specifications for Earthwork as well as Topsoil Excavation and Placement.

27. SP S.8 – DEWATERING SITE PREPARATION

This work shall be performed in accordance with applicable portions of Section 202 and 211 of the Standard Specifications, and as directed by the Engineer. This work consists of stripping topsoil and temporary site grading necessary to prepare Dewatering Site 7 for hydraulic dredging dewatering. The existing sledding hill, paths and other items within this area may be demolished as part of the site preparation. The City will remove the existing pavilion and hydrant within the limits of Dewatering Site 7. **Only Dewatering Site 7 will be compensated for the grading necessary to prepare the grades to complete dewatering operations.** This location will be the future permanent stockpile of the dried materials. The final grading and shaping of the

dewatered materials will be paid for separately under the EARTHWORK – GRADING AND SHAPING pay item.

This work shall be measured for payment in LUMP SUM.

This work shall be paid for at the contract unit price per LUMP SUM for DEWATERING SITE PREPARATION which price shall include all of items listed above and in the Standard Specifications including but not limited to grading, erosion control measures, disposal fees, and other necessary items required to prepare the area for dewatering operations.

28. SP S.9 - PERIMETER EROSION BARRIER

This work shall be performed in accordance with applicable portions of Section 280 of the Standard Specifications, and as directed by the Engineer. The perimeter erosion barrier shall be inspected regularly and repaired if any deficiencies are noted. This work shall be performed within limits shown on the plans.

This work shall be measured for payment in FOOT.

This work shall be paid for at the contract unit price per FOOT for PERIMETER EROSION BARRIER which price shall include all of items, materials, labor and equipment listed in Section 280 of the Standard Specifications.

29. SP S.10 - TURBIDITY CURTAIN

This work shall be performed in accordance with applicable portions of Section 280 of the Standard Specifications, as modified herein, and as directed by the Engineer. The turbidity barrier shall be inspected regularly and repaired if any deficiencies are noted. This work shall be performed within limits shown on the plans.

Turbidity barrier shall be Type 1 DOT Turbidity Curtain (Silt Curtain) as depicted in the Illinois Urban Manual Details included in the plans.

This work shall be measured for payment in FOOT.

This work shall be paid for at the contract unit price per FOOT for TURBIDITY CURTAIN which price shall include all of items, materials, labor and equipment listed in Section 280 of the Standard Specifications and the above specification.

30. SP S.11 - TEMPORARY DITCH CHECKS

This work shall be performed in accordance with applicable portions of Section 280.04 of the Standard Specifications, and as directed by the Engineer. This work shall be performed in the locations shown on the plans and according to details shown on the plans.

The ditch checks shall be made of rolled excelsior or a commercial product similar to Siltworm erosion control products. The ditch checks shall be staked using wooden stakes at a maximum four (4)’ spacing.

This work shall be measured for payment in FOOT.

This work shall be paid for at the contract unit price per FOOT for TEMPORARY DITCH CHECK which price shall include all of items listed in the Standard Specifications.

31. SP S.12 - MULCH, METHOD 2

This work shall be performed in accordance with applicable portions of Section 251 of the Standard Specifications for Mulch, Method 2 and as directed by the Engineer. This work shall be performed during construction if a temporary erosion control measure is required by the Owner or Engineer. Upon application of straw mulch, the mulch must be crimped into the soil to ensure it remains in place and is not blown off the site. This pay item will be utilized only if directed by the Owner or Engineer. If temporary erosion control measures are required during construction then Mulch Method 2 shall be the primary method of stabilization.

This work shall be measured for payment in ACRES.

This work shall be paid for at the contract unit price per ACRE for MULCH, METHOD 2 which price shall include all of items, materials, labor and equipment listed in the applicable sections of the Standard Specifications.

32. SP S.13 – TEMPORARY EROSION CONTROL SEEDING

This work shall be performed in accordance with applicable portions of Section 280 of the Standard Specifications for Temporary Erosion Control Seeding and as directed by the Engineer. This work shall be performed during construction if a temporary erosion control measure is required by the Owner or Engineer. Seeding shall be applied at a uniform rate of 100 pounds per acre. Fertilizer nutrients will not be required. The temporary seed shall consist of Common Oats and Annual Ryegrass.

This work shall be measured for payment in POUNDS.

This work shall be paid for at the contract unit price per POUND for TEMPORARY EROSION CONTROL SEEDING which price shall include all of items, materials, labor and equipment listed in the applicable sections of the Standard Specifications.

33. SP S.14 - INLET AND PIPE PROTECTION

This work shall be performed in accordance with applicable portions of Section 280 of the Standard Specifications, and as directed by the Engineer.

The contractor shall provide all necessary equipment, machinery and labor to install the filter baskets prior to disturbing any soil and then removal and disposal upon final stabilization. Geotextile fabric under the inlet grate is not an acceptable form or inlet protection.

This work shall be measured for payment in EACH.

This work shall be paid for at the contract unit price per EACH for INLET AND PIPE PROTECTION which price shall include all of items listed in the Standard Specifications.

34. SP S.15 - TEMPORARY CHAIN LINK FENCE - SECURITY FENCE

This work shall consist of temporary fencing as shown on the project plans or directed by the Engineer. The temporary fence shall be chain link and a minimum of 6 ft (1.8 m) high with posts placed a maximum of 10 ft (3.0 m) apart. The temporary fence shall be removed in its entirety upon project completion, or as directed by the engineer. The intent of the security fence is to protect the dewatering locations from trespassing during the

hydraulic dredging and dewatering process. The dewatering locations may pose a danger to the public while in operation and while dewatering and therefore an exclusionary barrier is proposed.

The contractor shall maintain proper ingress/egress through the temporary fencing for the personal and equipment required for the project. Access points including gates or removable panels required for construction or inspection access shall be incidental to this pay item. All access points and gates shall be closed and secured at the end of each working day.

This work shall be measured for payment in FOOT.

This work shall be paid for at the contract unit price per FOOT for TEMPORARY CHAIN LINK FENCE - SECURITY FENCE, which price shall include all material and work as specified above, including but not limited to labor, equipment, gates, and all hardware required for the work.

35. SP S.16 - PIPE CULVERTS

This work shall be performed in accordance with applicable portions of Section 550 of the Standard Specifications, and as directed by the Engineer. This work shall be performed within limits shown on the plans. All storm sewers and culverts shall consist of reinforced concrete cylinder pipe (RCCP) as identified in the plans.

The proposed pipe culverts will be installed under an existing submerged causeway. The existing causeway is said to be constructed of concrete panels of unknown thickness and unknown reinforcement. The installation proposed pipe culverts will require the demolition and/or removal of a portion of this concrete causeway. The demolition and/or removal of a section of the causeway will be considered incidental to the installation of the pipe culverts. These culverts will be installed below the normal water level of the Lake.

This work shall be measured for payment in FOOT.

This work shall be paid for at the contract unit price per FOOT for PIPE CULVERTS, TYPE 1 RCCP 24" which price shall include all of items listed above and in the Standard Specifications.

36. SP S.17 - TREE TRUNK PROTECTION

This work shall be performed in accordance with applicable portions of Section 201 of the Standard Specifications, and as directed by the Engineer. This work shall be performed as necessary due to excavations or construction of dewatering sites near existing trees to remain. Tree protection is not identified on the plans and will only be used as directed by the Engineer or the City.

No tree removal will be allowed to facilitate dewatering.

This work will be measured for payment in units of EACH per TREE PROTECTION where EACH referred to each tree regardless of the DBH of the tree.

This item shall be at the contract unit price, per EACH, for TREE PROTECTION shall include all work, equipment, labor and materials to complete the item.

37. SP S.18 - STABILIZED CONSTRUCTION ENTRANCE

This work shall consist of the construction of a temporary stabilized construction entrance. The entrance shall be constructed of stone, timbers, or another non-erodible material as to minimize the amount of debris and

sediment tracked from the work area. The material used in the construction entrance must be approved by the Engineer prior to construction of the entrance. The construction entrance is not shown on the plans. The location of the temporary construction entrances are depicted on the plans but may be relocated at the contractors request. The location shall be coordinated with the contractor and the Engineer prior to installation. The location will depend upon the contractor's proposed access point.

The materials shall be removed and replaced when half full of sediment to ensure continuous functionality.

This work shall be measured for payment in EACH.

This work shall be paid for at the contract unit price per EACH for TEMPORARY CONSTRUCTION ENTRANCE which price shall include all materials, labor and machinery necessary to construct, maintain, remove and dispose of the temporary stabilized construction entrance.

38. SP S.19 - CONCRETE BLOCK MAT

This work shall consist of all labor, equipment, and materials necessary to install a concrete block revetment mat in the locations identified on the plans as the Canoe Launch and Causeway consisting of a vegetated concrete erosion control mat. The concrete block mats shall be placed as shown on plans or directed by the Engineer. Acceptable manufacturers include Flexamat, Contech Engineered Solutions (ArmorFlex, ArmorRoad or ArmorLoc), or other approved manufacturers.

The vegetated concrete erosion control mat shall be manufactured from individual concrete blocks that are tied together to form an erosion control mat. Each concrete block within the mat will be tapered and uniform. Block connection will occur wither with the use of a high strength biaxial geogrid to ensure that no longitudinal or lateral movement of blocks occur during lifting or installation or through block shape design to ensure uniform placement of each block. The block mat must be able to support vehicular loading and withstand extended durations of being submerged under water as well as freeze and thaw cycles expected at the shoreline of the lake.

The concrete blocks will meet a minimum compressive strength of 5,000 psi at 28 days as per ASTM standards. The concrete blocks will be spaced no further than 1.5 in. apart.

Upon delivery, blocks, rolls or mats should be inspected to ensure that all of the units are free of defects that may hinder either performance or installation of the vegetated concrete erosion control mat. Delivered rolls or mats with UV sensitive materials should not be left exposed for more than 30 days to ensure protection from UV light.

Missing concrete due to chipping or cracking shall not exceed 15% of the average concrete unit weight. If the threshold of 15% is surpassed the material may be rejected by the engineer. Repair, patch, or replacement of the affected area should be done per the manufacturer's recommendation.

The concrete block mat will resist erosion and scour due to hydraulic forces and will meet the requirements listed in Table 2 when tested with a backing material on a non-vegetated surface.

Table 2: Limiting shear stress testing, ASTM D 6460

Test	Tested value	Bed Slope	Limiting Value
ASTM 6460	Shear Stress	30%	24 lb./ft.^{2}
ASTM 6460	Velocity	20%	30 ft./sec

The work shall be performed according to the following:

1. Subgrade prep should follow the construction plans submitted either by the engineer or manufacturer. The subgrade should be smooth, firm, unyielding, and free from all debris including sticks, rocks, roots, and other protrusions that would inhibit intimate contact with the subgrade. No individual block should be raised more than ¾ in. above the immediately adjacent block to ensure proper hydraulic performance.

2. The concrete block mats should be installed according to the line and grade shown in the plans that have been provided by the engineer or the manufacturer.

3. Installation of adjacent mat seams perpendicular to the flow should be done with a shingle installation method. The downstream mat should be placed a minimum of 18 in. underneath the upstream adjoining mat and can be fastened together as per the engineer or manufacturer's recommendation.

4. A minimum toe trench of 18 in. should be dug for the leading edge of the concrete mat that is perpendicular to channelized flow. The leading edge and sides of the mat will be placed in the trenches and backfilled with a non-erodible soil or site-specific soil.

5. In addition to the duckbill anchors, anchoring can be achieved by using the lifting/anchoring loops that are embedded into the concrete blocks at the edges of each mat. Each loop can be used to adjust mats during installation as well as be used for attaching earth anchors to permanently hold the concrete mats in place.

This work shall be measured for payment in SQUARE YARDS.

This work will be paid for at the contract unit price per SQUARE YARDS for CONCRETE BLOCK MAT. The unit price shall include all equipment, materials and labor required to furnish, place and establish the vegetated concrete erosion control mat.

39. SP S.20 – SEEDING

This work shall consist of re-establishing turf grass areas, furnishing and placing 6" of pulverized topsoil, fine grading, fertilizer and sowing of "Aurora Mix" grass seed by hand raking. Stabilization shall be completed by installing loose straw mulch stabilized with hydraulic mulch (Mulch Method 3) at the locations designated by the Engineer in accordance with the applicable portions of Section 250 and 251 of the Standard Specifications for Road and Bridge Construction. Stabilization with hydraulic mulch shall be paid for under the pay items for Mulch, Method 3. Pulverized topsoil shall be furnished in placed as needed and as directed by the Engineer to provide a minimum of 6" of topsoil through the entire Seeding – Aurora Mix area.

Fertilizer nutrients shall be applied to the prepared areas at a 9:18:9 ratio at a rate of 200 pounds per acre.

Aurora Mix:
The City of Aurora grass seed mixture consists of:
24.93% ASAP Perennial Ryegrass
24.46% Caddieshack Perennial Ryegrass
24.33% Goalkeeper Perennial Ryegrass
12.37% Geronimo Kentucky Bluegrass

12.29% Kentucky Bluegrass (variety not stated)
1.34% Inert Matter, 0.28% Crop, 0.00% weed

This mixture shall be sown in such a manner as to produce a growth of grass similar in quality and appearance to the grass of adjoining areas. Grass seed mix shall be proportioned by weight and planted at a minimum rate of eight (8) pounds per thousand (1,000) square feet. Seeds furnished shall be first grade in quality, high in germination, and free from weeds. Seed shall not be sown in high wind, foul weather conditions, or when ground conditions are not proper in the opinion of the Engineer.

Within twenty-four (24) hours from the time seeding has been performed, the seeded area shall be stabilized with Method 3, as identified on the plans.

The Contractor shall notify the Engineer a minimum of 48 hours prior to performing any landscape restoration. The Contractor shall demonstrate to the Engineer seeding and fertilizer applications rates prior to performing this work. Documentation regarding seed mixtures and fertilizer concentrations shall be provided to the Engineer prior to performing this work. In the event that the Contractor fails to adhere to these requirements, the work shall not be eligible for payment.

This work shall not be considered complete until a mowable weed-free stand of grass is obtained.

The work specified herein shall be paid for by the contract unit price per ACRE

This work shall be paid for at the contract unit price per ACRE for – SEEDING *which price shall be payment in full for all labor, materials, and equipment necessary, including seed, fertilizer, pulverized top soil, loose straw mulch, and all other appurtenances required to perform this work in accordance with the plans, details, and specifications.*

Payment for this item shall not be made until the seed has germinated and a growth of 2" grass strand has been established.

40. SP S.21 - EROSION CONTROL BLANKET

This work shall be performed in accordance with applicable portions of Section 251 of the Standard Specifications, and as directed by the Engineer. Erosion control blanket type NAG S75-BN or approved equivalent shall be used in the locations shown on the plans and as directed by the Engineer.

This work shall be measured for payment in SQUARE YARDS.

This work shall be paid for at the contract unit price per SQUARE YARD for EROSION CONTROL BLANKET, S75-BN which price shall include all of items, materials, labor and equipment listed in Section 251 of the Standard Specifications.

41. SP S.22 – MULCH, METHOD 3

This work shall be performed in accordance with applicable portions of Section 251 of the Standard Specifications for Mulch, Method 3 and as directed by the Engineer. Mulch Method 3 or hydromulch shall be applied in all areas identified to be restored with turf grass.

This work shall be measured for payment in ACRES.

This work shall be paid for at the contract unit price per ACRE for MULCH, METHOD 3 which price shall include all of items, materials, labor and equipment listed in the applicable sections of the Standard Specifications

42. SP S.23 - AERATION FOUNTAIN (COMPLETE)

The plans identify multiple locations around Mastodon Lake where mechanical aeration is proposed. The Contractor will be responsible for furnishing and installing Power Control Centers (PCCs), electrical services where applicable and complete fountains to match the specifications below. Locations of electrical services have been identified in the plans and may be modified by the contractor. Electric service lines must be buried and installed by a licensed electrician.

Aerating Fountain

The aerator shall be a floating, surface spray aerator with a "fan" shaped spray pattern similar to an Otterbine Sunburst. The spray dimensions shall be as depicted in the table below. The primary pumping rate and the secondary circulation rate of the units shall be as depicted below:

Motor	HP	Spray Height (ft)	Spray Diameter (ft)	Pumping Rate (GPM)
3450 RPM @ 60HZ	3	10	30	775

Float: The float shall be made of seamless, one-piece high-density polyethylene plastic, filled with high density closed cell polyurethane foam. The float shall be capable of providing full floatation if the shell is punctured or cracked. The float shall have protective pockets for lights and handles molded into the bottom for easy handling. Metal floats or those with an internal void for additional ballast are not acceptable.

Impeller: The impeller shall be dynamically balanced and die cast from types 304 stainless steel. A type 304 stainless steel bolt and set-screw shall secure the impeller to the motor shaft. Flexible shaft couplings are not acceptable.

Motor: The motor shall be a 3 HP, 3 phase, oil-cooled, 60 Hz submersible motor operating at 3450 RPM or 50 Hz operates at 2875 RPM. The service factor shall be 1.15 except for 5HP 1Ph which shall be 1.00. The motor shall operate in a reservoir of the manufacturer's oil for continuous lubrication of bearings and for efficient transfer of heat through the motor housing wall. Top mounted motors and water-lubricated motors are not acceptable. The rotor shall be dynamically balanced. The winding (stator) wires shall be covered with class F rated insulation designed for complete immersion in oil. The motor shall be attached to a thermoplastic motor base plate. The motor shall be protected against oil and water leakage by a combination of rotary seals, stationary seals, and molded rubber "O" rings. Motor shall be serviceable.

Motor Housing: The external motor housing shall be a canister formed from deep drawn 316 stainless steel. The motor base plate shall be constructed of 420 Valox thermoplastic. A Valox boss will provide support and protection for the male electrical connector.

Fasteners: All fasteners are to be metric and type 304 or 316 stainless steel.

Electrical Connectors: The electrical connectors shall consist of a receptacle and a plug constructed of non-conductive polymers. The system shall create a vacuum seal when connected and have a threaded nut system as a backup. The plug shall have a keyway and be threaded into the motor base plate. The connector system shall be ETL and UL approved.

Underwater Power Cable: The power cables shall be type SOOW specifically designed for underwater use. The conductors shall be flexible, stranded bare copper 12, 10 or 8 gauge, triple insulated to resist moisture, cracking, and softening. The outer jacket of the cable shall be a black CPE material. All underwater connections shall be vulcanized. Power cable shall be able to be furnished in unspliced lengths up to one thousand feet (305m) if necessary.

Power Control Center: The electrical components shall be mounted in a NEMA 4X rated enclosure with an externally mounted disconnect switch, and a MANUAL - OFF - AUTO selector switch. The electrical system for all units (115, 208-230, 380-415 & 460V) shall include a non-reversing 600V rated Manual Motor Controller (MMC) with thermal overload and short circuit trip and 24hr timer. 115, 208-230 volt, single and three phase units shall include GFCI (Ground Fault Circuit Interrupter) protection. To operate the GFCI and control circuit on 208-230 volt systems a neutral must be present or an optional control transformer may be supplied. The electrical system shall include a lightning arrester, rated for a maximum of 60,000 amperes discharge.

Testing: The aerator system shall be tested and approved as a unit. Separate component testing not allowed. Unit must be tested by ETL, ETL-C, CE, UL or other accredited testing facilities. The unit must have independent performance testing provided by the an accredited testing facility.

Warranty: The warranty shall be five years and include the unit, PCC, installation, anchoring system, cables and all items included in this pay item. The contractor shall provide the owner with a copy of the written warranty and Owner's Manual.

This work shall be measured for payment in EACH.

This work shall be paid for at the contract unit price per EACH for AERATION FOUNTAIN (COMPLETE) which price shall include furnishing and installing a complete fountain including power supply, PCC, cables, complete fountain, labor, equipment and all associated items as described above.

43. SP S.24 - AERATION DIRECTIONAL MIXER (COMPLETE)

The plans identify two (2) locations around Mastodon Lake where directional mixing and is proposed. The directional mixers shall be Otterbine Triton Mixers or approved equal. The Contractor will be responsible for furnishing and installing Power Control Centers (PCCs), electrical services where applicable and complete directional mixers to match the specifications below. Locations of electrical services have been identified in the plans and may be modified by the contractor. Electric service lines must be buried and installed by a licensed electrician.

<u>Directional Mixer</u>
The mixer shall be submerged horizontal mixing aspirator. The pumping capacity of each aerator shall be sufficient to influence 1,470,000 cubic feet of water.

Float: The float shall be made of seamless, one-piece high-density polyethylene plastic, filled with high density closed cell polyurethane foam. The float shall be capable of providing full floatation if the shell is punctured or cracked. The float shall have protective pockets for lights and handles molded into the bottom for easy handling. Metal floats or those with an internal void for additional ballast are not acceptable.

Impeller: The impeller shall be dynamically balanced and die cast from types 304 stainless steel. A type 304 stainless steel bolt and set-screw shall secure the impeller to the motor shaft. Flexible shaft couplings are not acceptable.

Motor: The motor shall be as noted in the table above, 60/50 Hz submersible motor operating at 1725 RPM. 50 Hz motors shall operate at 1425 RPM. High speed motors (i.e. 2000+ RPM's) are not acceptable. The service factor shall be 1.15. The motor shall operate in a reservoir of the manufacturer's oil for continuous lubrication of bearings and for efficient transfer of heat through the motor housing wall. Top mounted motors and water-lubricated motors are not acceptable. The rotor shall be dynamically balanced. The winding (stator) wires shall be covered with class F rated insulation designed for complete immersion in oil. The motor shall be attached to a thermoplastic motor base plate. The motor shall be protected against oil and water leakage by a combination of rotary seals, stationary seals, and molded rubber "O" rings. Motor shall be serviceable.

Motor Housing: The external motor housing shall be a canister formed from deep drawn 316 stainless steel tube welded with a type 308 stainless steel weld. The frame shall minimize vibration of the unit and allow the angle of discharge to be changed from 20 degrees off horizontal either up or down.

Support Frame: The support frame for the aerator shall be constructed of a type 304 stainless steel tube welded with a type 308 type stainless steel weld. The frame shall minimize vibration of the unit and allow the angle of discharge to be changed from 20 degrees off horizontal either up or down.

Protective Impeller Cage: The protective cage shall be constructed of a type 304 stainless steel 1/4ft or .64 cm welded round-stock.

Mooring Cable Leads: The mooring or anchor cable leads shall be of 1/8 inch diameter by 4ft or 1 meter long, type 300 series stainless steel wire rope.

Fasteners: All fasteners are to be metric and type 304 or 316 stainless steel.

Electrical Connectors: The electrical connectors shall consist of a receptacle and a plug constructed of non-conductive polymers. The system shall create a vacuum seal when connected and have a threaded nut system as a backup. The plug shall have a keyway and be threaded into the motor base plate. The connector system shall be ETL, UL and CSA approved.

Underwater Power Cable: The power cables shall be type SOOW specifically designed for underwater use. The conductors shall be flexible, stranded bare copper 12, 10 or 8 gauge, triple insulated to resist moisture, cracking, and softening. The outer jacket of the cable shall be a black CPE material. All underwater connections shall be vulcanized. Power cable shall be able to be furnished in unspliced lengths up to one thousand feet if necessary.

Power Control Center: The electrical control components shall be mounted in a NEMA 3R or greater enclosure with an externally mounted disconnect switch and a HAND - OFF - AUTO selector switch. The electrical system for units operating on 115, 208-230 volt, single or three phase, shall include a circuit breaker and a GFCI (ground fault circuit interrupter). To operate the GFCI on 208-230 volt systems a grounded neutral must be present or an optional control transformer may be supplied. The electrical system for units operating on 380 50 Hz and 460 volt 60 Hz shall include fuses. Fuses, if used, shall be dual-element type, mounted in three pole fuse blocks, with spring reinforced clips. For all units the motor starter shall be a combination magnetic full-voltage non-reversing type, 600 volts maximum, with bimetallic, ambient compensated overload relays. The

electrical system shall include a three-pole lightning arrester, rated for a maximum of 60,000 amperes discharge. The system shall include a 24-hour timer.

Testing: The aerator system shall be tested and approved as a unit. Separate component testing not allowed. Unit must be tested by ETL, ETL-C, CE, UL or other accredited testing facilities.

Warranty: The warranty shall be three years and include the unit, PCC, installation, anchoring system, cables and all items included in this pay item. The contractor shall provide the owner with a copy of the written warranty and Owner's Manual.

This work shall be measured for payment in EACH.

This work shall be paid for at the contract unit price per EACH for AERATION DIRECTIONAL MIXER (COMPLETE) which price shall include furnishing and installing a complete fountain including power supply, PCC, cables, complete mixer, labor, equipment and all associated items as described above.

44. SP S.25 - TRAFFIC CONTROL AND PROTECTION

All roads shall be kept open to traffic. The Contractor should take particular note of the applicable portions of Article 107.14 of the Standard Specifications. All signs, except those referring to daily lane closures, shall be post mounted in accordance with Standard 701901 for all projects that exceed four-day duration. Construction signs referring to daytime lane closures during working hours shall be removed, covered or turned away from the view of the motorists during non-working hours.

The Contractor shall furnish, erect, maintain and remove all signs, barricades, flaggers and other traffic control devices as may be necessary for the purpose of regulating, warning or guiding traffic. Placement and maintenance of all traffic control devices shall be in accordance with the applicable parts of Section 701 of the Standard Specifications, the Illinois Manual on Uniform Traffic Control Devices for Streets and Highways and the Highway Standard contained herein.

The paved pedestrian path around Mastodon Lake will remain open to pedestrians during dredging operations to the maximum extent possible. During dewatering work, segments of the trail may be temporarily closed with barricades and signage while work is being performed. A temporary detour is encouraged to be marked by the contractor. The temporary closure shall be removed after work on the adjacent shoreline has been completed the pedestrian trail is safe to access by the public.

Special attention is called to Article 107.09 and Section 701 of the Standard Specifications and the following Highways Standards, Supplemental Specifications, Details, Quality Standard for Work Zone Traffic Control Devices, Recurring Special Provisions, and Special Provisions contained herein relating to traffic control. It should be noted that Type I or Type II barricades will be required adjacent to the pavement in areas where a drop off of 3'' or more occurs in accordance with Article 701.07.

Standards

701006, 701501, 701801, 701901 and BLR 18-5

Special Provisions

General Notes – Traffic Control and Protection
Maintenance of Roadways
Construction and Maintenance Signs (LR 702)

Traffic Control Deficiency Deduction (BDE 08273)
Work Zone Traffic Control (LRS#3)
Flaggers in Work Zones (LRS#4)

The Contractor shall submit to the Engineer a Traffic Control Plan for approval by the Engineer. The Contractor shall adhere to the approved Traffic Control Plan. The Contractor shall obtain written approval from the Engineer forty-eight (48) hours in advance of the implementation of any and all alterations or deviations from the Traffic Control Plan.

The Contractor shall be responsible for providing a proposed scheduling, phasing and traffic control plan. The City will review these plans and provide the contractor with any necessary modifications in writing. The Contractor will then be responsible for incorporating these changes into the proposed scheduling, phasing and traffic control plan.

All orange signs used shall be fluorescent orange in color. Deteriorated, damaged, or signs with non-original material on the front surface will not be allowed.

Prior to the start of work the Contractor shall have a sufficient number of barricades, signs, and flagmen at the jobsite for the scheduled work. If satisfactory traffic control as determined by the Engineer is not in place, the Engineer shall order the work to be halted. Traffic control devices shall not be removed without prior written notice and approval of the Engineer.

At the preconstruction meeting, the Contractor shall furnish the name and telephone number where he may be reached during non-working hours of the individual in his direct employ that is to be responsible for the installation and maintenance of the traffic control of this project. If the actual installation and maintenance are to be accomplished by a subcontractor, consent shall be requested of the Engineer at the time of the preconstruction meeting in accordance with Article 108.01 of the Standard Specifications. This shall not relieve the Contractor of the requirements to have a responsible individual in his direct employ supervise this work.

This work shall be measured for payment in LUMP SUM.

Traffic Control and Protection will be paid for at the contract unit price per LUMP SUM for TRAFFIC CONTROL AND PROTECTION (SPECIAL).

45. SP S.26 - SUPPLEMENTAL WATERING

This work shall be in accordance with Section 201 of the Standard Specifications, and as directed by the Engineer. This work shall consist of watering existing plant material to maintain health and vigor during and following construction activity or directed by the Engineer.

During the establishment period of the SEEDING – AURORA MIX, the vegetation will require a minimum of one (1) inch of water per week. If this is not provided through natural rainfall then the contractor shall supply water through irrigation. The Contractor shall provide all mechanical equipment, water and labor to provide irrigation. There are no water services within the project location to provide water.

This work shall be measured for payment in MONTH.

This work shall be paid for at the contract unit price per MONTH for SUPPLEMENTAL WATERING which price shall include all machinery, water, labor, equipment and all associated items as described above.

46. SP S.27 – TRENCH BACKFILL, PIPE BEDDING, AND COVER

All select granular material shall meet IDOT gradation specifications and shall be crushed concrete or crushed gravel. Material excavated as part of this project may be processed on site for re-use with approval from the Engineer at an agreed upon unit price.

Pipe Bedding
Pipe bedding shall consist of over-excavation of the trench bottom and refilling to proper grade in accordance with the trench backfill details included in the plans.

The cost of supplying and installing the aggregate bedding shall not be paid for separately, but shall be considered incidental to the project.

Haunching
Pipe Haunching shall consist of compacted aggregate for the full width of the trench to the spring line for the reinforced concrete pipe or ductile iron pipe and to one foot (1') above the top of the pipe for PVC pipe in accordance with the details included in these plans.

The cost of supplying and installing the aggregate haunching shall not be paid for separately, but shall be considered incidental to the cost of the pipe.

Trench Backfill
Trench backfill shall be placed in accordance with the Standard Specifications for Water and Sewer Main Construction in Illinois and the Trench Backfill Detail as shown on the plans.

Place Trench Backfill material to required elevations, for each area classification listed below:

Under grassed areas:
Satisfactory excavated or borrow material, approved by the Engineer.

Under pavements:
Select Trench Backfill of compacted CA-7 crushed gravel.

Place backfill materials evenly adjacent to structures or piping to required elevations. Take care to prevent wedging action of backfill against structures or displacement of piping by carrying material uniformly around structure of piping to approximately same elevation in each lift.

Surface depressions resulting from backfill subsidence caused by compaction shall be filled and re-compacted by tamping or rolling to the satisfaction of the Engineer.

Measurement and Payment
The cost of supplying and installing the aggregate bedding and haunching shall not be paid for separately, but shall be considered incidental to the contract.

The cost of supplying and installing the initial and final Select Granular Trench Backfill shall be paid for at the contract unit price per CUBIC YARD (CY) for TRENCH BACKFILL. Section 20 of the Standard Specifications for Water and Sewer Main Construction in Illinois shall be used to determine the quantity of Select Trench Backfill that will be eligible for payment. The depth used for the purposes of calculating the

quantity of trench backfill that is eligible for payment shall be from the top of the haunching to the bottom of the bituminous pavement patch.

47. SP S.28 - PAVEMENT PATCHING - CLASS D PATCHES, FULL DEPTH 4"

This work shall be performed in accordance with applicable portions of Section 442 of the Standard Specifications, and as directed by the Engineer. This work shall be performed as needed on roadways and paths adjacent to the project that may be damaged by construction. This pay item shall only be used at the direction of the City or the Engineer.

The patching shall consist of 2.5" of Hot Mix Asphalt Binder Course, IL-19.0, N50 and 1.5" Hot Mix Asphalt Mix D, IL-9.5, N50. In addition, all saw cut lines shall be filled in accordance with applicable portions of Section 451.

The road must remain open and driveways accessible at the end of each working day. Areas awaiting patching must be backfilled up to match adjacent grade and allow for access to private properties. If temporary backfill to match existing grade is required it shall be considered incidental to the cost of pavement patching.

This work shall be measured for payment in SQUARE YARDS.

This work shall be paid for at the contract unit price per SQUARE YARDS for PAVEMENT PATCHING – CLASS D PATCHES, FULL DEPTH 4" which price shall include all of items listed above and in the Standard Specifications.

48. SP S.29 – ELECTRICAL

SP S.27 – ELECTRICAL
The proposed aeration equipment requires that an additional electrical service be added at the south EAST end of the lake and modifications to the existing 400amp service at the north end of the lake be completed. This pay item is intended to cover all electrical items required to service the proposed Power Control Centers PCC and aeration equipment. This is including but not limited to low-voltage electrical power conductors and cables, grounding and bonding, hangers and supports, conduits, boxes, identification, low-voltage electrical service entrances, panelboards, handholes, equipment racks, wire, grounding equipment, underground conduits, and all other materials and labor required to provide power to the PCC's and aeration equipment.

See related electrical specifications for detailed information regarding:
- 260519 - Low-voltage electrical power conductors and cables
- 260526 - Grounding and bonding for electrical systems
- 260529 - Hangers and supports for electrical systems
- 260533.13 - Conduit for electrical systems
- 260533.16 – Boxes for electrical systems
- 260553 - Identification for electrical systems
- 262100 - Low-voltage electrical service entrance
- 262416 - Panelboards

This work will be measured for payment as LUMP SUM

This work shall be paid for at the contract unit price per LUMP SUM for ELECTRICAL which price shall include all material, machinery, labor, equipment and all associated items as described above.

<u>This work shall also be in accordance with the additional Specifications for Electrical Items document that is posted with this RFB.</u>

49. SP S.29 – AERATION FOUNTAIN LIGHTING

The Owner shall have the right to accept or deny the completion of this work.

Fountains located at sites 5, 6 and 7 as identified in the plans shall be outfitted with a low voltage (12 volt) LED lighting system consisting of 4 lights. The light housing shall be 304 stainless steel.

The light sources shall be ultra-bright ultra-compact 40 watt, 4-channel MCPCB RGBW (Red, Green, Blue, White) LED emitters with a high efficiency/high uniformity color mixing lens with TIR optics made of UL-rated optical grade PMMA. Lamps produce a 32 degree (flood) discharge with potential to exceed 70,000 hours under normal operation. The watertight seal shall incorporate a molded silicon "O" ring.

The quick disconnect shall consist of a male receptacle with a threaded nylon shell and a molded female cable connector with neoprene coupling nut. The male and female connectors shall be keyed to provide proper alignment when mated and provide an environmentally sealed electrical connection to exceed NEMA 6P/IEC IP68 ratings. The connector system shall be ETL, CE and UL approved.

The electrical system for RGBW LED light systems shall include GFCI (Ground Fault Circuit Interrupter) protection, 24hr timer, 3-channel selector switch for factory programmed sequences, and DC Power Supply rated to 240W and UL508 approved. The lighting control components shall be mounted in a NEMA 4X rated fiberglass enclosure.

The enclosure at the aerator shall be made of NEMA 4X fiberglass and be UL-50 listed for coastal and marine applications. Jumper cables from controller box to light housings to be protected by ultra-abrasion-resistant expandable 304 stainless steel sleeving.

The power cable shall be type SOOW specifically designed for underwater use. The conductors shall be flexible, stranded copper in 12 or 10 gauge, insulated to resist moisture, cracking, and softening. The outer jacket of the cable shall be a black CPE material.

The electrical system for LED light systems shall include GFCI (Ground Fault Circuit Interrupter) protection, 24hr timer, and DC Power Supply rated to 100W and UL508 approved.

The lighting system shall comply with UL standard UL1838.

The warranty shall be one year. The acceptable product shall be Otterbine Fountain Glo 40W model or approved equivalent.

This work shall be measured for payment in EACH

This work shall be paid for at the contract unit price per UNIT for AERATION FOUNTAIN LIGHTING which price shall include all material, machinery, labor, equipment and all associated items as described above.

50. SP S.30 – ITEMS ORDERED BY ENGINEER

This item is to provide for additional budget in the contract for additional scope of work that may be required but not specifically included in the contract plans and specifications and/or work that may be included in the contract plans and specifications but not covered by a contract pay item prior to the bidding process.

All furnished material shall conform to appropriate articles of the Standard Specifications, City ordinances, City details and specifications that are considered industry standards or standards set forth by a governing body (i.e. IDOT, City, etc.) for the furnishing, fabrication, installation or removal of the included items.

All work shall conform to appropriate articles of the Standard Specifications, City ordinances, City Details and specifications that are considered industry standards or standards set forth by a governing body (i.e. IDOT, City, etc.) for the furnishing, fabrication, installation or removal of the included items.

All materials resulting from this extra work shall be disposed of at the contractor's expense, outside the limits of the job, at locations acceptable to the Engineer and in accordance with Section 107.01 of the Standard Specifications, as amended by Public Act 90-761.

This item shall be measured for payment in the appropriate dimensions for the work performed

The Contractor will include in his/her bid a EACH of 200,000 units at $1.00 per unit for a total of $200,000.00 for miscellaneous additions to the project at the Engineer’s Discretion. Only additional work, as approved by the Engineer, will be eligible for payment. Additional work may consist of construction items that may be deemed necessary by the Engineer to add to the project and not otherwise identified as a bid item.

51. SP G.1 – PIPE AND PRE-CAST CONCRETE STRUCTURES MATERIAL TESTS

All pipe and pre-cast concrete structures shall be tested and inspected for compliance with the appropriate A.S.A., A.S.T.M., and Manufacturer's Specifications by a reputable Testing Company approved by the Engineer. Prior to delivering pipe and pre-cast concrete structures to the job site, all approved pipe and pre-cast concrete structures shall be marked by the testing company and two (2) copies of the satisfactory test reports shall be provided to the Engineer if requested. Any pipe or pre-cast concrete structure delivered to the site without proper markings or without test reports in the possession of the Engineer will be rejected for use.

52. SP G.2 – TREE TRIMMING

Tree trimming may be required to allow room for construction equipment to move and swing overhead. In the event tree trimming is needed, the homeowner where the tree is located shall be notified that their tree will require trimming and the date that the trimming is scheduled to occur. **Tree trimming required for construction shall not be paid for separately, but shall be considered incidental to contract.**

PRICING TABLE

BASE BID

Pay Item Code	Description	Quantity	Unit of Measure	Unit Cost	Total
Z0013798	CONSTRUCTION LAYOUT	1	LUMP SUM		
67100100	MOBILIZATION	1	LUMP SUM		
SPECIAL	HYDRAULIC DREDGING & DEWATERING (SITES 1-5)	50,000	CY		
SPECIAL	MECHANICAL DREDGING	1,000	CY		
X2020410	EARTH EXCAVATION SPECIAL - HAULING	10,000	CY		
20201200	NON-SPECIAL WASTE DISPOSAL	500	CY		
SPECIAL	EARTHWORK - GRADING AND SHAPING	30,000	CY		
SPECIAL	DEWATERING SITE PREPARATION	1	LUMP SUM		
28000400	PERIMETER EROSION BARRIER	9,863	FT		
X1200247	TURBIDITY CURTAIN	220	FT		
28000305	TEMPORARY DITCH CHECKS	200	FT		
25100115	MULCH, METHOD 2	1.17	ACRE		

Pay Item Code	Description	Quantity	Unit of Measure	Unit Cost	Total
2800250	TEMPORARY EROSION CONTROL SEEDING	117	POUND		
28000500	INLET AND PIPE PROTECTION	20	EACH		
X6640200	TEMPORARY CHAIN LINK FENCE - SECURITY FENCE	8,943	FT		
542A0229	PIPE CULVERTS, CLASS A, TYPE 1 RCP 24"	50	FT		
X0322671	TEMPORARY CONSTRUCTION ENTRANCE	7	EACH		
28500200	PRECAST BLOCK REVETMENT MAT	206	SY		
SPECIAL	SEEDING	6.35	ACRE		
SPECIAL	SEEDING - CLASS 4A	3.04	ACRE		
25100630	EROSION CONTROL BLANKET, S75	31,277	SY		
25100125	MULCH, METHOD 3	5.4	ACRE		
SPECIAL	AERATION FOUNTAIN (COMPLETE)	5	EACH		
SPECIAL	AERATION DIRECTIONAL MIXER (COMPLETE)	2	EACH		

Pay Item Code	Description	Quantity	Unit of Measure	Unit Cost	Total
X7010216	TRAFFIC CONTROL AND PROTECTION, (SPECIAL)	1	LUMP SUM		
20101700	SUPPLEMENTAL WATERING	3	MONTH		
20800150	TRENCH BACKFILL	20	CY		
44201683	CLASS D PATCHES, TYPE III, 4 INCH	334	SY		
SPECIAL	ELECTRICAL	1	LUMP SUM		
SPECIAL	AERATION FOUNTAIN LIGHTING	3	EACH		
TOTAL					

ITEMS ORDERED BY ENGINEER

Line Item	Description	Unit of Measure	Unit Cost
SPECIAL	ITEMS ORDERED BY ENGINEER	Lump Sum	$200,000.00

VENDOR SUBMISSIONS

1. Bid Deposit*
Bid Deposit MUST be uploaded electronically with submission through the City's E Procurement System, OpenGov. Upon notification from the City, Bidder's must deliver ORIGINAL Bid Deposit within three (3) business days.

*Response required

2. Contact Information*
Please download the below documents, complete, and upload.

- COA_Contact_Information.docx

*Response required

3. References*
Include Municipality, Address, Phone Number, Contact Person, Date of Project for each reference

*Response required

4. Sub-Contractor List*
Please provide the following information for each subcontractor. If you do not have subcontractors, please write "N/A"

Company:

Address:

City, State, Zip:

Phone Number:

Contact Person:

*Response required

5. Eligibility*
By signing this Proposal, the Proposer hereby certifies that they are not barred from bidding on this Proposal as a result of a violation of Article 33E, Public Bids of the Illinois Criminal Code of 1961, as amended (Illinois Compiled Statutes, 720 ILCS 5/33E-1).

☐ Please confirm

*Response required

6. Bidder's Tax Certification*
The Bidder's Executing Officer, being first duly sworn on oath, deposes and states that all statements made herein are made on behalf of the Bidder, that this despondent is authorized to make them and that the statements contained herein are true and correct.

Bidder deposes, states and certifies that Bidder is not barred from contracting with any unit of local government in the State of Illinois as result of a delinquency in payment of any tax administered by the Illinois Department of Revenue unless Bidder is contesting, in accordance with the procedures established by the appropriate statute, its liability for the tax or the amount of the tax, all as provided for in accordance with 65 ILCS 5/11-42.1-1.

☐ Please confirm

*Response required

7. Bidder's Certification*
I/We hereby certify that:

A. A complete set of bid papers, as intended, has been received, and that I/We will abide by the contents and/or information received and/or contained herein.

B. I/We have not entered into any collusion or other unethical practices with any person, firm, or employee of the City which would in any way be construed as unethical business practice.

C. I/We have adopted a written sexual harassment policy which is in accordance with the requirements of Federal, State and local laws, regulations and policies and further certify that I/We are also in compliance with all other equal employment requirements contained in Public Act 87-1257 (effective July 1, 1993) 775 ILCS 5/2-105 (A).

D. As applicable, I/We are in compliance with the most current “Prevailing Rate” of wages for laborers, mechanics and other workers as required by the State of Illinois Department of Labor.

E. I/We operate a drug free environment and drugs are not allowed in the workplace or satellite locations as well as City of Aurora sites in accordance with the Drug Free Workplace Act of January, 1992.

F. The Bidder is not barred from bidding on the Project, or entering into this contract as a result of a violation of either Section 33E-3 or 33E-4 of the Illinois Criminal Code, or any similar offense of “bid rigging” or “bid rotating” of any state or the United States.

G. As applicable, I/We will submit, for all contracts in excess of $25,000.00, a certificate indicating participation in apprenticeship and training programs approved and registered with the United States Department of Labor.

H. I/We will abide by all other Federal, State and local codes, rules, regulations, ordinances and statutes.

☐ Please confirm

*Response required

8. Apprenticeship or Training Program Certification*
Please download the below documents, complete, and upload.

- Aurora_Training_Program_Cer...

*Response required

9. Union/Apprenticeship Requested Documentation*
Please provide verification letter like sample attached.

- Apprenticeship_Program_Lett...

*Response required

10. Local Vendor Preference Application*
Please download the below documents, complete, and upload. If applicable.

- COA_2024_Local_Preference_V...

*Response required

11. Standard City of Aurora Contract*
Please download the below documents, complete, and upload.

- Sample_Standard_Contract_IT...

*Response required

12. Additional Information

SECTION 26 0500

BASIC ELECTRICAL MATERIALS AND METHODS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Basic Electrical Requirements specifically applicable to Division 26.

B. The general provisions of this Section apply to the other Division 26 sections.

C. The work shall include the furnishing of systems, equipment and materials specified in this Division and as called for on the Drawings, to include: supervision, operation, methods and labor for the fabrication, installation, startup and tests for the complete electrical installation.

D. Drawings for the Work are diagrammatic, intended to convey the scope of the Work and to indicate the general arrangement and locations of the Work. Because of the scale of the Drawings, certain basic items such as connectors, fittings, access panels, pullboxes, etc. are not necessarily shown. Where such items are required for proper installation of the Work, such items shall be included.

E. Equipment specifications may not deal individually with minute items required such as components, parts, controls and devices which may be required to produce the equipment performance specified or as required to meet the equipment warranties. Where such items are required, they shall be included by the supplier of the equipment, whether or not specifically called for.

F. Where noted on the Drawings or where called for in other sections of the Specifications the Contractor shall install equipment under this Contract and shall make required electrical connections. Contractor shall verify with the supplier of the equipment the requirements for the installation.

1.02 OWNER FURNISHED PRODUCTS

A. Products furnished to the site and paid for by Owner shall be as noted on Drawings.

1.03 CONTINUITY OF SERVICE

A. Coordinate Work to accommodate Owner's occupancy requirements during the construction period.

1.04 ACTIVE SERVICES

A. Existing active services: water, gas, sewer, electric, when encountered, shall be protected against damage. Do not prevent or disturb operation of active services which are to remain. If active services are encountered which require relocation, make request to authorities having jurisdiction for determination of procedures. Where existing services are to be abandoned, they shall be terminated in conformance with requirements of the Utility or Municipality having jurisdiction.

1.05 SUBMITTALS

A. Submittal data for electrical equipment shall consist of shop drawings and/or catalog cuts showing technical data necessary to evaluate the material or equipment, to include power requirements (wattage, voltage, amperage, power factor, etc.) dimensions, wiring diagrams, performance curves, ratings, (electrical, environmental, etc.), control sequences and other descriptive data necessary to describe fully the item proposed and its operating characteristics. Shop drawings shall be submitted for equipment and materials as directed in individual sections.

B. Proposed Products List: Include Products specified in all Sections.

C. Submit shop drawings and product data grouped to include complete submittals of related systems, products, and accessories in a single submittal.

D. Mark dimensions and values in units to match those specified.

E. The Engineer will review shop drawings to aid in interpreting the Contract Documents, and will in so doing assume that the shop drawings conform to all specified requirements set forth in the Contract Documents. The review of the shop drawing by the Engineer does not relieve the Contractor of the responsibility of complying with all elements of the Contract Documents.

1.06 REGULATORY REQUIREMENTS

A. Imposed Standards/Regulations:

1. General: Applicable provisions of the following codes and standards are hereby imposed on a general basis for the electrical work in addition to specific applications specified by individual work sections of the Specifications.

    a. Underwriters Laboratories (UL).

b. NFPA 70: National Electrical Code (NEC).

c. NFPA Standards and Pamphlets.

d. Local and State Electrical, Mechanical and Building Codes as they apply.

e. American Gas Association (AGA).

f. AWS Standards for Welding.

2. Every installation shall also comply with applicable Divisions and Sections of this Specification. If changes are required to attain compliance, the Contractor shall submit the proposed changes to the Engineer for review and approval. If approval for the change is obtained, revised submittal data shall be provided for review.

3. Installations must be safe in every respect, and must not create any condition which will be harmful to building occupants, operating personnel, installation personnel, testing personnel, construction workers, and general public. If Contractor believes that the installation will not be safe for all parties, the Contractor shall so report in writing to the Engineer, stating the issues and conditions and possible remedies, before any equipment is purchased or installed.

4. The manufacturer of each type of equipment, used by itself or as a part of any system, shall carefully check capacities, arrangements, and methods shown or specified (including space requirements, servicing requirements, ambient air temperatures, etc.) for installation of the equipment, and all connections to other system or to parts of same system to assure that when used, connected, interconnected, piped, wired, or controlled as specified, the equipment can be properly serviced. If the manufacturer has any reservations in this regard, the manufacturer shall state such reservations and any suggested changes to the Engineer as a part of the shop drawing submission.

5. Engineer will work out required changes and adjustments in Contract Prices where such adjustments are warranted. No adjustments in Contract Price will be allowed for additions required by applicable code, ordinance, statute, utility regulation, or labor regulation. It is the obligation of the Contractor to include such items in the original Bid. Changes in equipment shall be incorporated in shop drawings. If Contractor fails to call such reservations or suggestions to Engineer's attention, in writing, before any work is done or

equipment is purchased, it will be assumed that the Contractor accepts responsibility for providing a completely safe and completely coordinated installation. If at a later date changes become necessary to assure a completely safe and coordinated installation, they shall be made, as approved by Engineer, without increase in Contract Price.

B. Permits and Tests, Electrical Work: Unless otherwise noted in the detailed contractual description preceding these technical specifications, the Contractor shall secure all permits and pay all fees required in connection with this installation and shall be responsible for securing such inspections as are required by the authorities with jurisdiction over the site. Submit a record copy to the Owner and the Engineer of electrical work notices, permits, licenses, inspection or test reports, and similar items obtained in response to governing and imposed regulations and standards.

1.07 PROJECT CONDITIONS

A. Inspect site prior to bidding to be thoroughly familiar with existing conditions.

B. Install Work in locations shown on Drawings, unless prevented by Project conditions.

C. Prepare drawings showing proposed rearrangement of Work to meet Project conditions, including changes to Work specified in other Sections. Obtain permission of Engineer before proceeding.

D. All Contractors shall familiarize themselves with the site and with any conditions of the site and/or existing buildings which might present unusual aspects to the work involved. Contractor shall verify all aspects of electrical work, insofar as is possible, check routes of conduit indicated, verifying clearances and other obstacles which might influence the construction proposed. No extras can be allowed on work occasioned by the Contractor's failure to make this inspection.

1.08 SEQUENCING AND SCHEDULING

A. Install work to accommodate Owner's occupancy requirements during construction period and coordinate electrical schedule and operations with Owner.

B. Construct Work in sequence as applicable.

C. Completion of Electrical Work shall be coordinated with other trades and contractors to expedite completion of the Project.

D. The Contractor shall coordinate the placing of openings in the structures as required for the installation of the Electrical Work.

E. It will be the Contractor's responsibility to examine the Drawings and Specifications, to take measurements where required, to verify dimensions for correct placement of equipment and to progress the Contract as expeditiously as possible, so that the progress of the work is orderly.

F. The determination of quantities of material and equipment required shall be made by the Contractor from the Contract Documents. Schedules on the Drawings and in the Specifications are completed as an aid to the Contractor but where discrepancies arise, the greater number shall govern.

1.09 ALLOWANCES

A. Cash Allowance: Refer to other Sections and Plans for allowance sum applicable to Work (if any).

B. Allowance includes purchase, delivery and installation and is to be included as part of the Contract Price.

1.10 CONCRETE WORK

A. The Contractor shall coordinate size and location of concrete bases and pads for electrical equipment with the required trades and with the Utility.

B. The Contractor shall furnish equipment anchor bolts and shall be responsible for their proper installation and accurate location.

1.11 WIRING FOR ELECTRICAL EQUIPMENT

A. The Contractor will provide power services for motors and equipment furnished by the Mechanical Contractor to include safety disconnect switches and final connections.

B. The Contractor will be responsible for power wiring, internal wiring, alarm wiring, control wiring or interlock wiring of all equipment installed or modified under this Contract.

C. The Contractor shall review the Drawings and shall call to the attention of the Engineer, prior to bidding, omissions of electrical services required for this equipment.

1.12 PROTECTION

A. Special care shall be taken for the protection of equipment furnished by the Contractor. Equipment and material shall be completely protected from weather elements, painting, plaster, etc. until the Project is completed. Damage from rust, paint, scratches, etc. shall be repaired as required to restore equipment to original condition.

1.13 FINISHING

A. Prior to acceptance of the installation and final payment of the Contract, the Contractor shall perform the work outlined herein.

B. Perform cleaning and remove debris and dirt from panels, pull boxes, junction boxes, and other enclosures.

C. Operation and Maintenance Manuals: Prepare and submit Operation and Maintenance manuals as described in Division 26.

1.14 TEST AND DEMONSTRATIONS

A. Systems shall be tested and placed in proper working order prior to demonstrating systems to Owner.

B. Prior to acceptance of the electrical installation, the Contractor shall demonstrate to the Owner or designated representatives all essential features and functions of all systems installed, and shall instruct the Owner in the proper operation and maintenance of such systems.

C. Contractor shall furnish the necessary trained personnel to perform the demonstrations and instructions and shall arrange to have the manufacturer's representatives for the system present to assist with the demonstrations. The Owner and Contractor shall each sign a certification stating that the training has been performed and the Owner accepts same.

1.15 PAINTING AND IDENTIFICATION

A. Painting of electrical enclosures (switch/outlet boxes, cabinets and panelboards) shall be touch-up only of factory finish or finish specified elsewhere.

B. Conduit and raceway systems shall be unpainted unless specifically noted. If painting of conduit and raceway systems is required, coat with paint type and color to match background mounting surface.

C. Identify equipment, devices, panels and switches with engraved nameplates.

D. Provide typed panel schedules.

E. Provide plastic "Buried Electrical" warning tape in trench above all underground circuit runs. Place approximately 18 inches below finished grade.

1.16 PRODUCT QUALITY, PERFORMANCE, AND SUBSTITUTIONS

A. All materials shall be the standard product of a reputable manufacturer regularly engaged in the manufacture of the specific product, and where more than one unit is required of the item, all shall be of the same manufacturer.

B. Proposals as submitted shall be based on the products specifically named in the specifications.

C. If specific products of more than one manufacturer are specified, the choice of these shall be made optional with the Contractor.

D. All materials are subject to approval by the Engineer both before and after incorporation in the building.

E. Should suppliers of materials not specified wish to bid their material as a base bid equal, they shall secure the written approval of the Engineer that their product is acceptable as an equal to that specified at least ten (10) days in advance of the bid date to have their products covered in an Addendum prior to opening of bids.

F. The Engineer reserves the right to refuse approval on equipment which does not meet the specification. Any materials not conforming to the specification may be ordered removed any time during the course of construction, and the Contractor shall replace such items, when notified, at the Contractor's expense. The Engineer further reserves the right to reject equipment for which the availability of maintenance service and replacement parts is questionable.

G. All materials and equipment shall be new. Second-hand, used, or salvaged equipment will not be allowed unless specifically noted.

H. All elements of the construction shall be performed by workmen skilled in the particular craft involved, and regularly employed in that particular craft. All work shall be performed in a neat, workmanlike manner in keeping with the highest standards of the craft.

I. The Engineer reserves the right to determine space priority of the equipment in the event of interference between the piping and equipment of the various installations. Conflicts between the Drawings and Specifications, or between requirements set forth for the various trades shall be called to the attention of the

Engineer. If clarification is not asked for prior to the taking of bids, it will be assumed that none is required and that the Contractor has submitted the bid in conformance with Contract Documents as issued.

1.17 EXCAVATING, TRENCHING AND BACKFILLING

A. The Contractor shall do excavating necessary for underground electrical ducts, wiring, manholes, conduit, etc., and shall backfill such trenches and excavations after equipment has been installed and tested. Care shall be taken in excavating, that walls and footings and adjacent load bearing soils are not disturbed, except where lines must cross under a wall footing. Where a line must pass under footing, the crossing shall be made by the smallest possible trench to accommodate the pipe.

B. Excavation shall be kept free from water by pumping if necessary. No greater length of trench shall be left open, in advance of pipe and utility laying, than necessary.

C. Immediately after testing and/or inspection, the trench shall be carefully backfilled. Place backfill into trench so the impact on installed pipe is minimized.

1.18 COORDINATION

A. Where the Contract Documents state that equipment shall be "furnished", "installed", or "provided", it shall be understood to mean the Contractor shall furnish and install completely unless otherwise noted.

1.19 EXISTING SERVICE

A. If existing services are encountered in the Work, protect, brace, and support existing active sewers, gas, electric, or other services where required for the proper execution of the Work. If existing active services are encountered that require relocation, make request to proper authorities for determination of procedure. Do not prevent or disturb operation of active services that are to remain.

1.20 TEMPORARY SHUTDOWNS OR ABANDONED SERVICES

A. Where the Work makes temporary shutdowns or need to abandon unavoidable, Contractor shall consult with the Owner as to times and procedures for such shutdowns. Where existing services are to be abandoned, wiring shall be removed and conduit shall be properly capped in conformance with requirements of the Utility.

1.21 SITE

A. The site shall be kept orderly and clean at all times during the construction and the storing of materials shall be in accordance with the requirements of the Owner in areas designated for that purpose. At the conclusion of the construction, the site shall be cleaned thoroughly of all rubble, debris and unused materials and shall be left in good order. All tunnels, chases or closed off spaces shall be cleaned of all waste materials, wood frame members, etc. used in construction.

1.22 NOISE AND VIBRATION

A. Electrical equipment shall operate without objectionable noise or vibration as determined by the Engineer. If such objectionable noise or vibration should be produced and transmitted to occupied portions of the building by apparatus, conduit, ducts or other parts of the electrical work, the Contractor shall make necessary changes and additions, as approved by the Engineer.

1.23 EQUIPMENT INSTALLATION

A. Erect equipment in neat and workmanlike manner, align, level and adjust for satisfactory operation, install so that connecting and disconnecting parts can be made readily and so that all parts are easily accessible for inspection, operation and maintenance.

1.24 APPLICATIONS

A. Where applications are required for the procuring of utility service to the building, the Contractor shall see that such application is properly filed with the Utility and that all information required for such an application is presented to the extent and in the form required by the Utility Company.

1.25 RECORD UTILITIES DRAWINGS

A. Contractor shall prepare and submit to Engineer drawings showing the exact location of all installed underground electrical and conduit runs and any existing underground utilities encountered during installation. The drawings shall give accurate locations (referenced to visible above-grade objects) and dimensions of all such equipment for future use by the Owner. These drawings shall be submitted to the Engineer as soon as practicable after such runs have been installed.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION 26 0500

SECTION 260519

LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Single conductor building wire.

B. Wiring connectors.

C. Electrical tape.

D. Heat shrink tubing.

E. Wire pulling lubricant.

F. Cable ties.

1.02 RELATED REQUIREMENTS

A. Section 260526 - Grounding and Bonding for Electrical Systems: Additional requirements for grounding conductors and grounding connectors.

B. Section SP S.5, SP S.26 - Trenching: Excavating, bedding, and backfilling.

1.03 REFERENCE STANDARDS

A. ASTM B3 - Standard Specification for Soft or Annealed Copper Wire 2013 (Reapproved 2018).

B. ASTM B8 - Standard Specification for Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft 2011 (Reapproved 2017).

C. ASTM B33 - Standard Specification for Tin-Coated Soft or Annealed Copper Wire for Electrical Purposes 2010, with Editorial Revision (2020).

D. ASTM B787/B787M - Standard Specification for 19 Wire Combination Unilay-Stranded Copper Conductors for Subsequent Insulation 2004 (Reapproved 2020).

E. ASTM D3005 - Standard Specification for Low-Temperature Resistant Vinyl Chloride Plastic Pressure-Sensitive Electrical Insulating Tape 2017.

F. ASTM D4388 - Standard Specification for Nonmetallic Semi-Conducting and Electrically Insulating Rubber Tapes 2013.

G. NECA 1 - Standard for Good Workmanship in Electrical Construction 2015.

H. NEMA WC 70 - Power Cables Rated 2000 Volts or Less for the Distribution of Electrical Energy 2009.

I. NETA ATS - Acceptance Testing Specifications for Electrical Power Equipment and Systems 2017.

J. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

K. UL 44 - Thermoset-Insulated Wires and Cables Current Edition, Including All Revisions.

L. UL 83 - Thermoplastic-Insulated Wires and Cables Current Edition, Including All Revisions.

M. UL 486A-486B - Wire Connectors Current Edition, Including All Revisions.

N. UL 486C - Splicing Wire Connectors Current Edition, Including All Revisions.

O. UL 486D - Sealed Wire Connector Systems Current Edition, Including All Revisions.

P. UL 510 - Polyvinyl Chloride, Polyethylene, and Rubber Insulating Tape Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination:

1. Coordinate with electrical equipment installed under other sections to provide terminations suitable for use with the conductors to be installed.

2. Notify Engineer of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

1.05 SUBMITTALS

A. Product Data: Provide manufacturer's standard catalog pages and data sheets for conductors and cables, including detailed information on materials, construction, ratings, listings, and available sizes, configurations, and stranding.

B. Project Record Documents: Record actual installed circuiting arrangements. Record actual routing for underground circuits.

1.06 QUALITY ASSURANCE

A. Comply with requirements of NFPA 70.

B. Product Listing Organization Qualifications: An organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Receive, inspect, handle, and store conductors and cables in accordance with manufacturer's instructions.

1.08 FIELD CONDITIONS

A. Do not install or otherwise handle thermoplastic-insulated conductors at temperatures lower than 14 degrees F (-10 degrees C), unless otherwise permitted by manufacturer's instructions. When installation below this temperature is unavoidable, notify Engineer and obtain direction before proceeding with work.

PART 2 PRODUCTS

2.01 CONDUCTOR AND CABLE APPLICATIONS

A. Do not use conductors and cables for applications other than as permitted by NFPA 70 and product listing.

B. Provide single conductor building wire installed in suitable raceway unless otherwise indicated, permitted, or required.

2.02 CONDUCTOR AND CABLE GENERAL REQUIREMENTS

A. Provide products that comply with requirements of NFPA 70.

B. Provide products listed, classified, and labeled as suitable for the purpose intended.

C. Unless specifically indicated to be excluded, provide all required conduit, boxes, wiring, connectors, etc. as required for a complete operating system.

D. Comply with NEMA WC 70.

E. Thermoplastic-Insulated Conductors and Cables: Listed and labeled as complying with UL 83.

F. Thermoset-Insulated Conductors and Cables: Listed and labeled as complying with UL 44.

G. Conductors for Grounding and Bonding: Also comply with Section 260526.

H. Conductors and Cables Installed Where Exposed to Direct Rays of Sun: Listed and labeled as sunlight resistant.

I. Conductor Material:

1. Provide copper conductors only. Aluminum conductors are not acceptable for this project. Conductor sizes indicated are based on copper.

2. Copper Conductors: Soft drawn annealed, 98 percent conductivity, uncoated copper conductors complying with ASTM B3, ASTM B8, or ASTM B787/B787M unless otherwise indicated.

3. Tinned Copper Conductors: Comply with ASTM B33.

J. Conductor Color Coding:

1. Color code conductors as indicated unless otherwise required by the authority having jurisdiction. Maintain consistent color coding throughout project.

2. Color Coding Method: Integrally colored insulation.

3. Color Code:

a. 480Y/277 V, 3 Phase, 4 Wire System:

1) Phase A: Brown.

2) Phase B: Orange.

3) Phase C: Yellow.

4) Neutral/Grounded: Gray.

b. Equipment Ground, All Systems: Green.

203 SINGLE CONDUCTOR BUILDING WIRE

A. Manufacturers:

1. Copper Building Wire:
    a. Cerro Wire LLC: www.cerrowire.com/#sle.
    b. Encore Wire Corporation: www.encorewire.com/#sle.
    c. Southwire Company: www.southwire.com/#sle.
    d. Substitutions: Not permitted.

B. Description: Single conductor insulated wire.

C. Conductor Stranding:
    1. Feeders and Branch Circuits: Stranded.

D. Insulation Voltage Rating: 600 V.

E. Insulation:
    1. Copper Building Wire: Type XHHW-2.

204 WIRING CONNECTORS

A. Description: Wiring connectors appropriate for the application, suitable for use with the conductors to be connected, and listed as complying with UL 486A-486B or UL 486C as applicable.

B. Connectors for Grounding and Bonding: Comply with Section 260526.

C. Wiring Connectors for Splices and Taps:
    1. Copper Conductors Size 8 AWG and Smaller: Use twist-on insulated spring connectors.
    2. Copper Conductors Size 6 AWG and Larger: Use mechanical connectors or compression connectors.

D. Wiring Connectors for Terminations:
    1. Provide terminal lugs for connecting conductors to equipment furnished with terminations designed for terminal lugs.
    2. Provide compression adapters for connecting conductors to equipment furnished with mechanical lugs when only compression connectors are specified.

3. Stranded Conductors Size 10 AWG and Smaller: Use crimped terminals for connections to terminal screws.

E. Twist-on Insulated Spring Connectors: Rated 600 V, 221 degrees F (105 degrees C) for standard applications and 302 degrees F (150 degrees C) for high temperature applications; pre-filled with sealant and listed as complying with UL 486D for damp and wet locations.

1. Manufacturers:

a. 3M: www.3m.com/#sle.

b. Ideal Industries, Inc: www.idealindustries.com/#sle.

c. Substitutions: Not permitted.

F. Mechanical Connectors: Provide bolted type or set-screw type.

1. Manufacturers:

a. Burndy LLC: www.burndy.com/#sle.

b. Ilsco: www.ilsco.com/#sle.

c. Thomas & Betts Corporation: www.tnb.com/#sle.

d. Substitutions: Not permitted.

G. Compression Connectors: Provide circumferential type or hex type crimp configuration.

1. Manufacturers:

a. Burndy LLC: www.burndy.com/#sle.

b. Ilsco: www.ilsco.com/#sle.

c. Thomas & Betts Corporation: www.tnb.com/#sle.

d. Substitutions: Not permitted.

H. Crimped Terminals: Nylon-insulated, with insulation grip and terminal configuration suitable for connection to be made.

1. Manufacturers:

a. Burndy LLC: www.burndy.com/#sle.

b. Ilsco: www.ilsco.com/#sle.

c. Thomas & Betts Corporation: www.tnb.com/#sle.

d. Substitutions: Not permitted.

205 ACCESSORIES

A. Electrical Tape:

1. Manufacturers:

a. 3M: www.3m.com/#sle.

b. Plymouth Rubber Europa: www.plymouthrubber.com/#sle.

c. Substitutions: Not permitted.

2. Vinyl Color Coding Electrical Tape: Integrally colored to match color code indicated; listed as complying with UL 510; minimum thickness of 7 mil (0.18 mm); resistant to abrasion, corrosion, and sunlight; suitable for continuous temperature environment up to 221 degrees F (105 degrees C).

3. Vinyl Insulating Electrical Tape: Complying with ASTM D3005 and listed as complying with UL 510; minimum thickness of 7 mil (0.18 mm); resistant to abrasion, corrosion, and sunlight; conformable for application down to 0 degrees F (-18 degrees C) and suitable for continuous temperature environment up to 221 degrees F (105 degrees C).

4. Rubber Splicing Electrical Tape: Ethylene Propylene Rubber (EPR) tape, complying with ASTM D4388; minimum thickness of 30 mil (0.76 mm); suitable for continuous temperature environment up to 194 degrees F (90 degrees C) and short-term 266 degrees F (130 degrees C) overload service.

5. Electrical Filler Tape: Rubber-based insulating moldable putty, minimum thickness of 125 mil (3.2 mm); suitable for continuous temperature environment up to 176 degrees F (80 degrees C).

B. Heat Shrink Tubing: Heavy-wall, split-resistant, with factory-applied adhesive; rated 600 V; suitable for direct burial applications; listed as complying with UL 486D.

1. Manufacturers:

a. 3M: www.3m.com/#sle.

b. Burndy LLC: www.burndy.com/#sle.

c. Thomas & Betts Corporation: www.tnb.com/#sle.

d. Substitutions: Not permitted.

C. Wire Pulling Lubricant: Listed; suitable for use with the conductors or cables to be installed and suitable for use at the installation temperature.

1. Manufacturers:

a. 3M: www.3m.com/#sle.

b. American Polywater Corporation: www.polywater.com/#sle.

c. Ideal Industries, Inc: www.idealindustries.com/#sle.

d. Substitutions: Not permitted.

D. Cable Ties: Material and tensile strength rating suitable for application.

1. Manufacturers:

a. Burndy LLC: www.burndy.com/#sle.

b. Ideal Industries, Inc: www.idealindustries.com/#sle.

c. Substitutions: Not permitted.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that work likely to damage wire and cable has been completed.

B. Verify that raceways, boxes, and equipment enclosures are installed and are properly sized to accommodate conductors and cables in accordance with NFPA 70.

C. Verify that field measurements are as indicated.

D. Verify that conditions are satisfactory for installation prior to starting work.

3.02 PREPARATION

A. Clean raceways thoroughly to remove foreign materials before installing conductors and cables.

3.03 INSTALLATION

A. Circuiting Requirements:

1. When circuit destination is indicated without specific routing, determine exact routing required.
2. Arrange circuiting to minimize splices.

B. Install products in accordance with manufacturer's instructions.

C. Perform work in accordance with NECA 1 (general workmanship).

D. Installation in Raceway:

1. Tape ends of conductors and cables to prevent infiltration of moisture and other contaminants.
2. Pull all conductors and cables together into raceway at same time.
3. Do not damage conductors and cables or exceed manufacturer's recommended maximum pulling tension and sidewall pressure.
4. Use suitable wire pulling lubricant where necessary, except when lubricant is not recommended by the manufacturer.

E. Install conductors with a minimum of 12 inches (300 mm) of slack at each outlet.

F. Where conductors are installed in enclosures for future termination by others, provide a minimum of 5 feet (1.5 m) of slack.

G. Neatly train and bundle conductors inside boxes, wireways, panelboards and other equipment enclosures.

H. Group or otherwise identify neutral/grounded conductors with associated ungrounded conductors inside enclosures in accordance with NFPA 70.

I. Make wiring connections using specified wiring connectors.

1. Make splices and taps only in accessible boxes. Do not pull splices into raceways or make splices in conduit bodies or wiring gutters.
2. Remove appropriate amount of conductor insulation for making connections without cutting, nicking or damaging conductors.
3. Do not remove conductor strands to facilitate insertion into connector.
4. Clean contact surfaces on conductors and connectors to suitable remove corrosion, oxides, and other contaminates. Do not use wire brush on plated connector surfaces.

5. Mechanical Connectors: Secure connections according to manufacturer's recommended torque settings.

6. Compression Connectors: Secure connections using manufacturer's recommended tools and dies.

J. Insulate ends of spare conductors using vinyl insulating electrical tape.

K. Field-Applied Color Coding: Where vinyl color coding electrical tape is used in lieu of integrally colored insulation as permitted in Part 2 under "Color Coding", apply half overlapping turns of tape at each termination and at each location conductors are accessible.

L. Unless specifically indicated to be excluded, provide final connections to all equipment and devices, including those furnished by others, as required for a complete operating system.

3.04 FIELD QUALITY CONTROL

A. Perform inspections and tests listed in NETA ATS, Section 7.3.2. The insulation resistance test is required for all conductors. The resistance test for parallel conductors listed as optional is not required.

1. Disconnect surge protective devices (SPDs) prior to performing any high potential testing. Replace SPDs damaged by performing high potential testing with SPDs connected.

B. Correct deficiencies and replace damaged or defective conductors and cables.

END OF SECTION

SECTION 260526

GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Grounding and bonding requirements.

B. Conductors for grounding and bonding.

C. Connectors for grounding and bonding.

D. Ground rod electrodes.

1.02 RELATED REQUIREMENTS

A. Section 260519 - Low-Voltage Electrical Power Conductors and Cables: Additional requirements for conductors for grounding and bonding, including conductor color coding.

B. Section 260553 - Identification for Electrical Systems: Identification products and requirements.

1.03 REFERENCE STANDARDS

A. IEEE 81 - IEEE Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Grounding System 2012.

B. NECA 1 - Standard for Good Workmanship in Electrical Construction 2015.

C. NEMA GR 1 - Grounding Rod Electrodes and Grounding Rod Electrode Couplings 2017.

D. NETA ATS - Acceptance Testing Specifications for Electrical Power Equipment and Systems 2017.

E. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

F. UL 467 - Grounding and Bonding Equipment Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination:

1. Notify Engineer of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

B. Sequencing:

1. Do not install ground rod electrodes until final backfill and compaction is complete.

1.05 SUBMITTALS

A. Product Data: Provide manufacturer's standard catalog pages and data sheets for grounding and bonding system components.

B. Field quality control test reports.

C. Project Record Documents: Record actual locations of grounding electrode system components and connections.

1.06 QUALITY ASSURANCE

A. Comply with requirements of NFPA 70.

B. Product Listing Organization Qualifications: An organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Receive, inspect, handle, and store products in accordance with manufacturer's instructions.

PART 2 PRODUCTS

2.01 GROUNDING AND BONDING REQUIREMENTS

A. Do not use products for applications other than as permitted by NFPA 70 and product listing.

B. Unless specifically indicated to be excluded, provide all required components, conductors, connectors, conduit, boxes, fittings, supports, accessories, etc. as necessary for a complete grounding and bonding system.

C. Where conductor size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.

D. Grounding System Resistance:

1. Achieve specified grounding system resistance under normally dry conditions unless otherwise approved by Engineer. Precipitation within the previous 48 hours does not constitute normally dry conditions.

2. Grounding Electrode System: Not greater than 5 ohms to ground, when tested according to IEEE 81 using "fall-of-potential" method.

3. Between Grounding Electrode System and Major Electrical Equipment Frames, System Neutral, and Derived Neutral Points: Not greater than 0.5 ohms, when tested using "point-to-point" methods.

E. Grounding Electrode System:

1. Provide connection to required and supplemental grounding electrodes indicated to form grounding electrode system.

    a. Provide continuous grounding electrode conductors without splice or joint.

    b. Install grounding electrode conductors in raceway where exposed to physical damage. Bond grounding electrode conductor to metallic raceways at each end with bonding jumper.

2. Ground Rod Electrode(s):

    a. Provide three electrodes in an equilateral triangle configuration unless otherwise indicated or required.

    b. Space electrodes not less than 10 feet (3.0 m) from each other and any other ground electrode.

    c. Provide ground access well for first connected electrode.

3. Provide additional ground electrode(s) as required to achieve specified grounding electrode system resistance.

F. Service-Supplied System Grounding:

1. For each service disconnect, provide grounding electrode conductor to connect neutral (grounded) service conductor to grounding electrode system. Unless otherwise indicated, make connection at neutral (grounded) bus in service disconnect enclosure.

2. For each service disconnect, provide main bonding jumper to connect neutral (grounded) bus to equipment ground bus where not factory-installed. Do not make any other connections between neutral (grounded) conductors and ground on load side of service disconnect.

G. Bonding and Equipment Grounding:

1. Provide bonding for equipment grounding conductors, equipment ground busses, metallic equipment enclosures, metallic raceways and boxes, device grounding terminals, and other normally non-current-carrying conductive materials enclosing electrical conductors/equipment or likely to become energized as indicated and in accordance with NFPA 70.

2. Provide insulated equipment grounding conductor in each feeder and branch circuit raceway. Do not use raceways as sole equipment grounding conductor.

3. Where circuit conductor sizes are increased for voltage drop, increase size of equipment grounding conductor proportionally in accordance with NFPA 70.

4. Terminate branch circuit equipment grounding conductors on solidly bonded equipment ground bus only. Do not terminate on neutral (grounded) or isolated/insulated ground bus.

5. Provide bonding jumper across expansion or expansion/deflection fittings provided to accommodate conduit movement.

202 GROUNDING AND BONDING COMPONENTS

A. General Requirements:

1. Provide products listed, classified, and labeled as suitable for the purpose intended.

2. Provide products listed and labeled as complying with UL 467 where applicable.

B. Conductors for Grounding and Bonding, in Addition to Requirements of Section 260519:

1. Use insulated copper conductors unless otherwise indicated.

a. Exceptions:

1) Use bare copper conductors where installed underground in direct contact with earth.

2) Use bare copper conductors where directly encased in concrete (not in raceway).

C. Connectors for Grounding and Bonding:

1. Description: Connectors appropriate for the application and suitable for the conductors and items to be connected; listed and labeled as complying with UL 467.

2. Unless otherwise indicated, use exothermic welded connections for underground, concealed and other inaccessible connections.

a. Exceptions:

1) Use mechanical connectors for connections to electrodes at ground access wells.

3. Unless otherwise indicated, use mechanical connectors, compression connectors, or exothermic welded connections for accessible connections.

4. Manufacturers - Mechanical and Compression Connectors:

a. Advanced Lightning Technology (ALT): www.altfab.com/#sle.

b. Burndy LLC: www.burndy.com/#sle.

c. Harger Lightning & Grounding: www.harger.com/#sle.

d. Thomas & Betts Corporation: www.tnb.com/#sle.

e. Substitutions: Not permitted.

5. Manufacturers - Exothermic Welded Connections:

a. Cadweld, a brand of Erico International Corporation: www.erico.com/#sle.

b. thermOweld, subsidiary of Continental Industries; division of Burndy LLC: www.thermoweld.com/#sle.

c. Substitutions: Not permitted.

D. Ground Rod Electrodes:

1. Comply with NEMA GR 1.

2. Material: Copper-bonded (copper-clad) steel.
3. Size: 3/4 inch (19 mm) diameter by 10 feet (3.0 m) length, unless otherwise indicated.
4. Manufacturers:
    a. Advanced Lightning Technology (ALT): www.altfab.com/#sle.
    b. Erico International Corporation: www.erico.com/#sle.
    c. Galvan Industries, Inc: www.galvanelectrical.com/#sle.
    d. Harger Lightning & Grounding: www.harger.com/#sle.
    e. Substitutions: Not permitted.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that work likely to damage grounding and bonding system components has been completed.

B. Verify that field measurements are as indicated.

C. Verify that conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION

A. Install products in accordance with manufacturer's instructions.

B. Perform work in accordance with NECA 1 (general workmanship).

C. Ground Rod Electrodes: Unless otherwise indicated, install ground rod electrodes vertically. Where encountered rock prohibits vertical installation, install at 45 degree angle or bury horizontally in trench at least 30 inches (750 mm) deep in accordance with NFPA 70 or provide ground plates.

1. Outdoor Installations: Unless otherwise indicated, install with top of rod 6 inches (150 mm) below finished grade.

D. Make grounding and bonding connections using specified connectors.

1. Remove appropriate amount of conductor insulation for making connections without cutting, nicking or damaging conductors. Do not remove conductor strands to facilitate insertion into connector.

2. Remove nonconductive paint, enamel, or similar coating at threads, contact points, and contact surfaces.

3. Exothermic Welds: Make connections using molds and weld material suitable for the items to be connected in accordance with manufacturer's recommendations.

4. Mechanical Connectors: Secure connections according to manufacturer's recommended torque settings.

5. Compression Connectors: Secure connections using manufacturer's recommended tools and dies.

E. Identify grounding and bonding system components in accordance with Section 260553.

3.03 FIELD QUALITY CONTROL

A. Perform inspections and tests listed in NETA ATS, Section 7.13.

B. Perform ground electrode resistance tests under normally dry conditions. Precipitation within the previous 48 hours does not constitute normally dry conditions.

C. Investigate and correct deficiencies where measured ground resistances do not comply with specified requirements.

D. Submit detailed reports indicating inspection and testing results and corrective actions taken.

END OF SECTION

SECTION 260529

HANGERS AND SUPPORTS FOR

ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Support and attachment requirements and components for equipment, conduit, cable, boxes, and other electrical work.

1.02 RELATED REQUIREMENTS

A. Section 260533.13 - Conduit for Electrical Systems: Additional support and attachment requirements for conduits.

B. Section 260533.16 - Boxes for Electrical Systems: Additional support and attachment requirements for boxes.

1.03 REFERENCE STANDARDS

A. ASTM B633 - Standard Specification for Electrodeposited Coatings of Zinc on Iron and Steel 2019.

B. MFMA-4 - Metal Framing Standards Publication 2004.

C. NECA 1 - Standard for Good Workmanship in Electrical Construction 2015.

D. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination:

1. Coordinate sizes and arrangement of supports and bases with the actual equipment and components to be installed.

2. Coordinate compatibility of support and attachment components with mounting surfaces at the installed locations.

B. Sequencing:

1. Do not install products on or provide attachment to concrete surfaces until concrete has fully cured.

1.05 SUBMITTALS

A. See Section 26 0500 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide manufacturer's standard catalog pages and data sheets for channel (strut) framing systems, non-penetrating rooftop supports, and post-installed concrete and masonry anchors.

1.06 QUALITY ASSURANCE

A. Comply with NFPA 70.

B. Comply with applicable building code.

C. Product Listing Organization Qualifications: An organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Receive, inspect, handle, and store products in accordance with manufacturer's instructions.

PART 2 PRODUCTS

2.01 SUPPORT AND ATTACHMENT COMPONENTS

A. General Requirements:

1. Provide all required hangers, supports, anchors, fasteners, fittings, accessories, and hardware as necessary for the complete installation of electrical work.

2. Provide products listed, classified, and labeled as suitable for the purpose intended, where applicable.

3. Where support and attachment component types and sizes are not indicated, select in accordance with manufacturer's application criteria as required for the load to be supported with a minimum safety factor of 5. Include consideration for vibration, equipment operation, and shock loads where applicable.

4. Do not use products for applications other than as permitted by NFPA 70 and product listing.

5. Steel Components: Use corrosion resistant materials suitable for the environment where installed.

    a. Indoor Dry Locations: Use stainless steel unless otherwise indicated.

    b. Outdoor and Damp or Wet Indoor Locations: Use stainless steel unless otherwise indicated.

    c. Zinc-Plated Steel: Electroplated in accordance with ASTM B633.

B. Conduit and Cable Supports: Straps, clamps, etc. suitable for the conduit or cable to be supported.

1. Conduit Straps: One-hole or two-hole type; steel or malleable iron.
2. Conduit Clamps: Bolted type unless otherwise indicated.
3. Manufacturers:
    a. Cooper Crouse-Hinds, a division of Eaton Corporation: www.cooperindustries.com/#sle.
    b. Erico International Corporation: www.erico.com/#sle.
    c. O-Z/Gedney, a brand of Emerson Electric Co: www.emerson.com/#sle.
    d. Thomas & Betts Corporation: www.tnb.com/#sle.
    e. Substitutions: Not permitted.

C. Metal Channel (Strut) Framing Systems: Factory-fabricated continuous-slot metal channel (strut) and associated fittings, accessories, and hardware required for field-assembly of supports.

1. Comply with MFMA-4.
2. Channel Material:
    a. Indoor Dry Locations: Use stainless steel.
    b. Outdoor and Damp or Wet Indoor Locations: Use stainless steel.
3. Minimum Channel Thickness: Steel sheet, 12 gauge, 0.1046 inch (2.66 mm).
4. Minimum Channel Dimensions: 1-5/8 inch (41 mm) width by 13/16 inch (21 mm) height.
5. Manufacturers:
    a. Cooper B-Line, a division of Eaton Corporation: www.cooperindustries.com/#sle.
    b. Thomas & Betts Corporation: www.tnb.com/#sle.
    c. Unistrut, a brand of Atkore International Inc: www.unistrut.com/#sle.
    d. Substitutions: Not permitted.

e. Source Limitations: Furnish channels (struts) and associated fittings, accessories, and hardware produced by a single manufacturer.

D. Hanger Rods: Threaded zinc-plated steel unless otherwise indicated.

1. Minimum Size, Unless Otherwise Indicated or Required:

a. Equipment Supports: 1/2 inch (13 mm) diameter.

b. Single Conduit up to 1 inch (27 mm) trade size: 1/4 inch (6 mm) diameter.

c. Single Conduit larger than 1 inch (27 mm) trade size: 3/8 inch (10 mm) diameter.

d. Trapeze Support for Multiple Conduits: 3/8 inch (10 mm) diameter.

E. Anchors and Fasteners:

1. Unless otherwise indicated and where not otherwise restricted, use the anchor and fastener types indicated for the specified applications.

2. Concrete: Use expansion anchors.

3. Solid or Grout-Filled Masonry: Use expansion anchors or screw anchors.

4. Hollow Masonry: Use toggle bolts.

5. Hollow Stud Walls: Use toggle bolts.

6. Steel: Use beam clamps, machine bolts, or welded threaded studs.

7. Sheet Metal: Use sheet metal screws.

8. Wood: Use wood screws.

9. Manufacturers - Mechanical Anchors:

a. Hilti, Inc: www.us.hilti.com/#sle.

b. ITW Red Head, a division of Illinois Tool Works, Inc: www.itwredhead.com/#sle.

c. Simpson Strong-Tie Company Inc: www.strongtie.com/#sle.

d. Substitutions: Not permitted.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field measurements are as indicated.

B. Verify that mounting surfaces are ready to receive support and attachment components.

C. Verify that conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION

A. Install products in accordance with manufacturer's instructions.

B. Perform work in accordance with NECA 1 (general workmanship).

C. Provide independent support from building structure. Do not provide support from piping, ductwork, or other systems.

D. Do not penetrate or otherwise notch or cut structural members without approval of Structural Engineer.

E. Equipment Support and Attachment:

1. Use metal fabricated supports or supports assembled from metal channel (strut) to support equipment as required.

2. Use metal channel (strut) secured to studs to support equipment surface-mounted on hollow stud walls when wall strength is not sufficient to resist pull-out.

3. Use metal channel (strut) to support surface-mounted equipment in wet or damp locations to provide space between equipment and mounting surface.

4. Securely fasten floor-mounted equipment. Do not install equipment such that it relies on its own weight for support.

F. Conduit Support and Attachment: Also comply with Section 260533.13.

G. Box Support and Attachment: Also comply with Section 260533.16.

H. Secure fasteners according to manufacturer's recommended torque settings.

I. Remove temporary supports.

3.03 FIELD QUALITY CONTROL

A. Inspect support and attachment components for damage and defects.

B. Repair cuts and abrasions in galvanized finishes using zinc-rich paint recommended by manufacturer. Replace components that exhibit signs of corrosion.

C. Correct deficiencies and replace damaged or defective support and attachment components.

END OF SECTION

SECTION 260533.13 CONDUIT FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Galvanized steel rigid metal conduit (RMC).

B. PVC-coated galvanized steel rigid metal conduit (RMC).

C. Liquidtight flexible metal conduit (LFMC).

D. Rigid polyvinyl chloride (PVC) conduit.

E. Reinforced thermosetting resin conduit (RTRC).

F. Conduit fittings.

G. Accessories.

1.02 RELATED REQUIREMENTS

A. Section 260526 - Grounding and Bonding for Electrical Systems.

B. Section 260529 - Hangers and Supports for Electrical Systems.

C. Section 260553 - Identification for Electrical Systems: Identification products and requirements.

D. Section SP S.5, SP S.26 - Trenching: Excavating, bedding, and backfilling.

1.03 REFERENCE STANDARDS

A. ANSI C80.1 - American National Standard for Electrical Rigid Steel Conduit (ERSC) 2015.

B. NECA 1 - Standard for Good Workmanship in Electrical Construction 2015.

C. NECA 101 - Standard for Installing Steel Conduits (Rigid, IMC, EMT) 2013.

D. NECA 111 - Standard for Installing Nonmetallic Raceways (RNC, ENT, LFNC) 2017.

E. NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit, Electrical Metallic Tubing, and Cable 2014.

F. NEMA RN 1 - Polyvinyl-Chloride (PVC) Externally Coated Galvanized Rigid Steel Conduit and Intermediate Metal Conduit 2018.

G. NEMA TC 2 - Electrical Polyvinyl Chloride (PVC) Conduit 2020.

H. NEMA TC 3 - Polyvinyl Chloride (PVC) Fittings for Use with Rigid PVC Conduit and Tubing 2016.

I. NEMA TC 14 (SERIES) - Reinforced Thermosetting Resin Conduit and Fittings Series 2015.

J. NEMA TC 14.BG - Belowground Reinforced Thermosetting Resin Conduit (RTRC) and Fittings 2015.

K. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

L. UL 6 - Electrical Rigid Metal Conduit-Steel Current Edition, Including All Revisions.

M. UL 360 - Liquid-Tight Flexible Steel Conduit Current Edition, Including All Revisions.

N. UL 514B - Conduit, Tubing, and Cable Fittings Current Edition, Including All Revisions.

O. UL 651 - Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings Current Edition, Including All Revisions.

P. UL 2420 - Belowground Reinforced Thermosetting Resin Conduit (RTRC) and Fittings Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination:

1. Verify exact conduit termination locations required for boxes, enclosures, and equipment installed under other sections or by others.

2. Notify Enginer of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

B. Sequencing:

1. Do not begin installation of conductors and cables until installation of conduit is complete between outlet, junction and splicing points.

1.05 SUBMITTALS.

A. Product Data: Provide manufacturer's standard catalog pages and data sheets for conduits and fittings.

B. Project Record Documents: Record actual routing for conduits installed underground.

1.06 QUALITY ASSURANCE

A. Comply with requirements of NFPA 70.

B. Product Listing Organization Qualifications: An organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Receive, inspect, handle, and store conduit and fittings in accordance with manufacturer's instructions.

PART 2 PRODUCTS

2.01 CONDUIT APPLICATIONS

A. Do not use conduit and associated fittings for applications other than as permitted by NFPA 70 and product listing.

B. Unless otherwise indicated and where not otherwise restricted, use the conduit types indicated for the specified applications. Where more than one listed application applies, comply with the most restrictive requirements. Where conduit type for a particular application is not specified, use galvanized steel rigid metal conduit.

C. Underground:

1. Exterior, Direct-Buried: Use galvanized steel rigid metal conduit, rigid PVC conduit, or reinforced thermosetting resin conduit (RTRC).

2. Where steel conduit is installed in direct contact with earth where soil has a resistivity of less than 2000 ohm-centimeters or is characterized as severely corrosive based on soils report or local experience, use corrosion protection tape to provide supplementary corrosion protection or use PVC-coated galvanized steel rigid metal conduit.

3. Where steel conduit emerges from concrete into soil, use corrosion protection tape to provide supplementary corrosion protection for a minimum of 4 inches (100 mm) on either side of where conduit emerges or use PVC-coated galvanized steel rigid metal conduit.

D. Exposed, Exterior: Use galvanized steel rigid metal conduit, or PVC-coated galvanized steel rigid metal conduit.

E. Connections to Vibrating Equipment:

1. Damp, Wet, or Corrosive Locations: Use liquidtight flexible metal conduit.

2. Maximum Length: [3] feet unless otherwise indicated.

3. Vibrating equipment includes, but is not limited to:

a. Transformers.

b. Motors.

202 CONDUIT REQUIREMENTS

A. Provide all conduit, fittings, supports, and accessories required for a complete raceway system.

B. Provide products listed, classified, and labeled as suitable for the purpose intended.

C. Where conduit size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.

203 GALVANIZED STEEL RIGID METAL CONDUIT (RMC)

A. Manufacturers:

1. Allied Tube & Conduit, a division of Atkore International: www.alliedeg.com/#sle.

2. Nucor Tubular Products: www.nucortubular.com/#sle.

3. Western Tube, a division of Zekelman Industries: www.westerntube.com/#sle.

4. Substitutions: Not permitted.

B. Description: NFPA 70, Type RMC galvanized steel rigid metal conduit complying with ANSI C80.1 and listed and labeled as complying with UL 6.

C. Fittings:

1. Manufacturers:

a. Bridgeport Fittings Inc: www.bptfittings.com/#sle.

b. O-Z/Gedney, a brand of Emerson Electric Co: www.emerson.com/#sle.

c. Thomas & Betts Corporation: www.tnb.com/#sle.

d. Substitutions: Not permitted.

2. Non-Hazardous Locations: Use fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.

3. Material: Use steel or malleable iron.

4. Connectors and Couplings: Use threaded type fittings only. Threadless set screw and compression (gland) type fittings are not permitted. Kwik-Couple conduit and fittings are also not permitted.

204 PVC-COATED GALVANIZED STEEL RIGID METAL CONDUIT (RMC)

A. Manufacturers:

1. Robroy Industries: www.robroy.com/#sle.

B. Description: NFPA 70, Type RMC galvanized steel rigid metal conduit with external polyvinyl chloride (PVC) coating complying with NEMA RN 1 and listed and labeled as complying with UL 6.

C. Exterior Coating: Polyvinyl chloride (PVC), nominal thickness of 40 mil (1.02 mm).

D. PVC-Coated Fittings:

1. Manufacturer: Same as manufacturer of PVC-coated conduit to be installed.

2. Non-Hazardous Locations: Use fittings listed and labeled as complying with UL 514B.

3. Material: Use steel or malleable iron.

4. Exterior Coating: Polyvinyl chloride (PVC), minimum thickness of 40 mil (1.02 mm).

E. PVC-Coated Supports: Furnish with exterior coating of polyvinyl chloride (PVC), minimum thickness of 15 mil (0.38 mm).

205 LIQUIDTIGHT FLEXIBLE METAL CONDUIT (LFMC)

A. Manufacturers:

1. AFC Cable Systems, Inc: www.afcweb.com/#sle.
2. Electri-Flex Company: www.electriflex.com/#sle.
3. International Metal Hose: www.metalhose.com/#sle.
4. Substitutions: Not permitted.

B. Description: NFPA 70, Type LFMC polyvinyl chloride (PVC) jacketed steel flexible metal conduit listed and labeled as complying with UL 360.

C. Fittings:

1. Manufacturers:
   a. Bridgeport Fittings Inc: www.bptfittings.com/#sle.
   b. O-Z/Gedney, a brand of Emerson Electric Co: www.emerson.com/#sle.
   c. Thomas & Betts Corporation: www.tnb.com/#sle.
   d. Substitutions: Not permitted.
2. Description: Fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
3. Material: Use steel or malleable iron.

206 RIGID POLYVINYL CHLORIDE (PVC) CONDUIT

A. Manufacturers:

1. Cantex Inc: www.cantexinc.com/#sle.
2. Substitutions: Not permitted.

B. Description: NFPA 70, Type PVC rigid polyvinyl chloride conduit complying with NEMA TC 2 and listed and labeled as complying with UL 651; Schedule 80 unless otherwise indicated; rated for use with conductors rated 90 degrees C.

C. Fittings:

1. Manufacturer: Same as manufacturer of conduit to be connected.

2. Description: Fittings complying with NEMA TC 3 and listed and labeled as complying with UL 651; material to match conduit.

2.07 REINFORCED THERMOSETTING RESIN CONDUIT (RTRC)

A. Manufacturers:

1. Champion Fiberglass, Inc: www.championfiberglass.com.
2. FRE Composites: www.frecompositesinc.com
3. United Fiberglass of America, Inc: www.unitedfiberglass.com
4. Substitutions: Not permitted.

B. Applications:

1. Underground, Direct-Buried: Use belowground (BG), DB (direct burial) RTRC.

C. Description: NFPA 70, Type RTRC reinforced thermosetting resin conduit complying with NEMA TC 14 (SERIES).

1. Belowground (BG) RTRC: Comply with NEMA TC 14.BG and list and label as complying with UL 2420.

D. Supports: Per manufacturer's recommendations.

E. Fittings: Same type and manufacturer as conduit to be connected.

2.08 ACCESSORIES

A. Corrosion Protection Tape: PVC-based, minimum thickness of 20 mil (0.51 mm).

B. Conduit Joint Compound: Corrosion-resistant, electrically conductive; suitable for use with the conduit to be installed.

C. Solvent Cement for PVC Conduit and Fittings: As recommended by manufacturer of conduit and fittings to be installed.

D. Epoxy Adhesive for RTRC Conduit and Fittings: As recommended by manufacturer of conduit and fittings to be installed.

E. Pull Strings: Use nylon cord with average breaking strength of not less than 200 pound- force (890 N).

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field measurements are as indicated.

B. Verify that mounting surfaces are ready to receive conduits.

C. Verify that conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION

A. Install products in accordance with manufacturer's instructions.

B. Perform work in accordance with NECA 1 (general workmanship).

C. Install galvanized steel rigid metal conduit (RMC) in accordance with NECA 101.

D. Install PVC-coated galvanized steel rigid metal conduit (RMC) using only tools approved by the manufacturer.

E. Install rigid polyvinyl chloride (PVC) conduit in accordance with NECA 111.

F. Install liquidtight flexible metallic conduit (LFMC) in accordance with NECA 111. Maximum length shall not exceed 36" per run.

G. Conduit Routing:

1. Unless dimensioned, conduit routing indicated is diagrammatic.

2. Conduits in the following areas may be exposed, unless otherwise indicated:

    a. Electrical rooms.

    b. Mechanical equipment rooms.

3. Unless otherwise approved, do not route conduits exposed:

    a. Across floors.

    b. Across roofs.

    c. Across top of parapet walls.

    d. Across building exterior surfaces.

4. Conduits installed underground or embedded in concrete may be routed in the shortest possible manner unless otherwise indicated. Route all other conduits parallel or perpendicular to building structure and surfaces, following surface contours where practical.

5. Arrange conduit to maintain adequate headroom, clearances, and access.

6. Arrange conduit to provide no more than the equivalent of four 90 degree bends between pull points.
7. Arrange conduit to provide no more than 300 feet (91 m) between pull points.
8. Route conduits above water and drain piping where possible.
9. Maintain minimum clearance of 6 inches (150 mm) between conduits and piping for other systems.
10. Maintain minimum clearance of 12 inches (300 mm) between conduits and hot surfaces. This includes, but is not limited to:
    a. Heaters.
    b. Flues.
11. Group parallel conduits in the same area together on a common rack.

H. Conduit Support:

1. Secure and support conduits in accordance with NFPA 70 and Section 260529 using suitable supports and methods approved by the authority having jurisdiction.
2. Provide independent support from building structure. Do not provide support from piping, ductwork, or other systems.

I. Connections and Terminations:

1. Use approved zinc-rich paint or conduit joint compound on field-cut threads of galvanized steel conduits prior to making connections.
2. Where two threaded conduits must be joined and neither can be rotated, use three- piece couplings or split couplings. Do not use running threads.
3. Use suitable adapters where required to transition from one type of conduit to another.
4. Provide drip loops for liquidtight flexible conduit connections to prevent drainage of liquid into connectors.
5. Terminate threaded conduits in boxes and enclosures using threaded hubs or double lock nuts for dry locations and raintight hubs for wet locations.
6. Provide insulating bushings or insulated throats at all conduit terminations to protect conductors.

7. Secure joints and connections to provide maximum mechanical strength and electrical continuity.

J. Penetrations:

1. Do not penetrate or otherwise notch or cut structural members, including footings and grade beams, without approval of Structural Engineer.
2. Make penetrations perpendicular to surfaces unless otherwise indicated.
3. Provide sleeves for penetrations as indicated or as required to facilitate installation. Set sleeves flush with exposed surfaces unless otherwise indicated or required.
4. Conceal bends for conduit risers emerging above ground.
5. Seal interior of conduits entering the building from underground at first accessible point to prevent entry of moisture and gases.

K. Underground Installation:

1. Provide trenching and backfilling in accordance with Section SP S.5, and SP S.26.
2. Minimum Cover, Unless Otherwise Indicated or Required:
    a. Underground, Exterior: 24 inches (610 mm).
3. Provide underground warning tape in accordance with Section 260553 along entire conduit length.

L. Conduit Movement Provisions: Where conduits are subject to movement, provide expansion and expansion/deflection fittings to prevent damage to enclosed conductors or connected equipment. This includes, but is not limited to:

1. Where conduits cross structural joints intended for expansion, contraction, or deflection.
2. Where calculated in accordance with NFPA 70 for rigid polyvinyl chloride (PVC) conduit installed above ground to compensate for thermal expansion and contraction.
3. Where calculated in accordance with NFPA 70 for reinforced thermosetting resin conduit (RTRC) conduit installed above ground to compensate for thermal expansion and contraction.

4. Where conduits are subject to earth movement by settlement or frost.

M. Condensation Prevention: Where conduits cross barriers between areas of potential substantial temperature differential, provide sealing fitting or approved sealing compound at an accessible point near the penetration to prevent condensation. This includes, but is not limited to:

1. Where conduits pass from outdoors into conditioned interior spaces.

2. Where conduits pass from unconditioned interior spaces into conditioned interior spaces.

N. Provide grounding and bonding in accordance with Section 260526.

3.03 FIELD QUALITY CONTROL

A. Repair cuts and abrasions in galvanized finishes using zinc-rich paint recommended by manufacturer. Replace components that exhibit signs of corrosion.

B. Where coating of PVC-coated galvanized steel rigid metal conduit (RMC) contains cuts or abrasions, repair in accordance with manufacturer's instructions.

C. Correct deficiencies and replace damaged or defective conduits.

3.04 CLEANING

A. Clean interior of conduits to remove moisture and foreign matter.

3.05 PROTECTION

A. Immediately after installation of conduit, use suitable manufactured plugs to provide protection from entry of moisture and foreign material and do not remove until ready for installation of conductors.

END OF SECTION

SECTION 260533.16

BOXES FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Cabinets and enclosures, including junction and pull boxes larger than 100 cubic inches (1,650 cu cm).

B. Underground boxes/enclosures.

1.02 RELATED REQUIREMENTS

A. Section 260529 - Hangers and Supports for Electrical Systems.

B. Section 260533.13 - Conduit for Electrical Systems:

1.03 REFERENCE STANDARDS

A. NECA 1 - Standard for Good Workmanship in Electrical Construction 2015.

B. NECA 130 - Standard for Installing and Maintaining Wiring Devices 2010.

C. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum) 2020.

D. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

E. SCTE 77 - Specification for Underground Enclosure Integrity 2017.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination:

1. Coordinate the work with other trades to avoid placement of ductwork, piping, equipment, or other potential obstructions within the dedicated equipment spaces and working clearances for electrical equipment required by NFPA 70.

2. Coordinate arrangement of electrical equipment with the dimensions and clearance requirements of the actual equipment to be installed.

3. Coordinate minimum sizes of boxes with the actual installed arrangement of conductors, clamps, support fittings, and devices, calculated according to NFPA 70.

4. Coordinate minimum sizes of pull boxes with the actual installed arrangement of connected conduits, calculated according to NFPA 70.

5. Coordinate the work with other trades to preserve insulation integrity.

6. Notify Engineer of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

1.05 SUBMITTALS

A. Product Data: Provide manufacturer's standard catalog pages and data sheets for cabinets and enclosures and underground boxes/enclosures.

B. Project Record Documents: Record actual locations for underground boxes/enclosures.

1.06 QUALITY ASSURANCE

A. Comply with requirements of NFPA 70.

B. Product Listing Organization Qualifications: An organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Receive, inspect, handle, and store products in accordance with manufacturer's instructions.

PART 2 PRODUCTS

2.01 BOXES

A. General Requirements:

1. Do not use boxes and associated accessories for applications other than as permitted by NFPA 70 and product listing.

2. Provide all boxes, fittings, supports, and accessories required for a complete raceway system and to accommodate devices and equipment to be installed. Provide products listed, classified, and labeled as suitable for the purpose intended.

3. Where box size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.

4. Provide grounding terminals within boxes where equipment grounding conductors terminate.

B. Cabinets and Enclosures, Including Junction and Pull Boxes Larger Than 100 cubic inches (1,650 cu cm):

1. Comply with NEMA 250, and list and label as complying with UL 50 and UL 50E, or UL 508A.

2. NEMA 250 Environment Type, Unless Otherwise Indicated:

a. Indoor Clean, Dry Locations: Type 12, painted steel.

b. Outdoor Locations: Type 3R, painted steel.

3. Junction and Pull Boxes Larger Than 100 cubic inches (1,650 cu cm):

a. Provide screw-cover or hinged-cover enclosures unless otherwise indicated.

4. Cabinets and Hinged-Cover Enclosures, Other Than Junction and Pull Boxes:

5. Finish for Painted Steel Enclosures: Manufacturer's standard grey unless otherwise indicated.

6. Manufacturers:

a. Cooper B-Line, a division of Eaton Corporation: www.cooperindustries.com/#sle.

b. Hoffman, a brand of Pentair Technical Products: www.hoffmanonline.com/#sle.

c. Hubbell Incorporated; Wiegmann Products: www.hubbell-wiegmann.com/#sle.

d. Substitutions: Not permitted.

C. Underground Boxes/Enclosures:

1. Description: In-ground, open bottom boxes furnished with flush, non-skid covers with legend indicating type of service and stainless steel tamper resistant cover bolts.

2. Size: sized by Contractor.

3. Depth: As required to extend below frost line to prevent frost upheaval, but not less than 18 inches (457 mm).

4. Provide logo on cover to indicate type of service.

5. Applications:

a. Sidewalks and Landscaped Areas Subject Only to Occasional Nondeliberate Vehicular Traffic: Use polymer concrete enclosures, with minimum SCTE 77 Tier 22 load rating..

b. Do not use polymer concrete enclosures in areas subject to deliberate vehicular traffic.

6. Polymer Concrete Underground Boxes/Enclosures: Comply with SCTE 77.

a. Manufacturers:

1) Hubbell Incorporated; Quazite Products: www.hubbellpowersystems.com/#sle.

2) MacLean Highline: www.macleanhighline.com/#sle.

3) Oldcastle Precast, Inc: www.oldcastleprecast.com/#sle.

4) Substitutions: Not permitted.

b. Combination fiberglass/polymer concrete boxes/enclosures are acceptable.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field measurements are as indicated.

B. Verify that mounting surfaces are ready to receive boxes.

C. Verify that conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION

A. Install products in accordance with manufacturer's instructions.

B. Install boxes in accordance with NECA 1 (general workmanship) and, where applicable, NECA 130, including mounting heights specified in those standards where mounting heights are not indicated.

C. Arrange equipment to provide minimum clearances in accordance with manufacturer's instructions and NFPA 70.

D. Box Supports:

1. Secure and support boxes in accordance with NFPA 70 and Section 260529 using suitable supports and methods approved by the authority having jurisdiction.

2. Provide independent support from building structure except for cast metal boxes (other than boxes used for fixture support) supported by threaded conduit connections in accordance with NFPA 70. Do not provide support from piping, ductwork, or other systems.

E. Install boxes plumb and level.

F. Install boxes as required to preserve insulation integrity.

G. Underground Boxes/Enclosures:

1. Install enclosure on gravel base, minimum 18 inches (457 mm) deep.

2. Mount enclosures located in landscaped areas with top at 1 inch (25 mm) above finished grade.

3. Provide collar by box manufacturer minimum 10 inches wide by 12 inches deep (250 mm wide by 300 mm deep), around enclosures.

4. Install additional bracing inside enclosures in accordance with manufacturer's instructions to minimize box sidewall deflections during backfilling. Backfill with cover bolted in place.

H. Close unused box openings.

I. Provide grounding and bonding in accordance with Section 260526.

3.03 CLEANING

A. Clean interior of boxes to remove dirt, debris, plaster and other foreign material.

3.04 PROTECTION

A. Immediately after installation, protect boxes from entry of moisture and foreign material until ready for installation of conductors.

END OF SECTION

SECTION 260553

IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Electrical identification requirements.

B. Identification nameplates and labels.

C. Voltage markers.

D. Underground warning tape.

1.02 RELATED REQUIREMENTS

A. Section 260519 - Low-Voltage Electrical Power Conductors and Cables: Color coding for power conductors and cables 600 V and less; vinyl color coding electrical tape.

1.03 REFERENCE STANDARDS

A. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination:

1. Verify final designations for equipment, systems, and components to be identified prior to fabrication of identification products.

B. Sequencing:

1. Do not install identification products until final surface finishes and painting are complete.

1.05 SUBMITTALS

A. Product Data: Provide manufacturer's standard catalog pages and data sheets for each product.

1.06 QUALITY ASSURANCE

A. Comply with requirements of NFPA 70.

1.07 FIELD CONDITIONS

A. Do not install adhesive products when ambient temperature is lower than recommended by manufacturer.

PART 2 PRODUCTS

201 IDENTIFICATION REQUIREMENTS

A. Identification for Equipment:

1. Use identification nameplate to identify each piece of electrical distribution and control equipment and associated sections, compartments, and components.

    a. Panelboards:

        1) Identify ampere rating.

        2) Identify voltage and phase.

        3) Identify power source and circuit number. Include location when not within sight of equipment.

        4) Identify main overcurrent protective device. Use identification label for panelboards with a door. For power distribution panelboards without a door, use identification nameplate.

        5) Use typewritten circuit directory to identify load(s) served for panelboards with a door. Identify spares and spaces using pencil.

        6) For power panelboards without a door, use identification nameplate to identify load(s) served for each branch device. Do not identify spares and spaces.

2. Service Equipment:

    a. Use identification nameplate to identify each service disconnecting means.

3. Use voltage marker to identify highest voltage present for each piece of electrical equipment.

4. Arc Flash Hazard Warning Labels: Use warning labels to identify arc flash hazards for electrical equipment, such as switchboards, panelboards, industrial control panels, meter socket enclosures, and motor control centers that are likely to require examination, adjustment, servicing, or maintenance while energized.

    a. Minimum Size: 3.5 by 5 inches (89 mm by 127 mm).

    b. Legend: Include orange header that reads "WARNING", followed by the word message "Arc Flash and Shock Hazard; Appropriate PPE Required; Do not operate controls or open covers without appropriate personal protection equipment; Failure to comply may result in injury or death;

Refer to NFPA 70E for minimum PPE requirements" or approved equivalent.

c. Service Equipment: Include the following information in accordance with NFPA 70.

1) Nominal system voltage.

2) Date label applied.

B. Identification for Conductors and Cables:

1. Color Coding for Power Conductors 600 V and Less: Comply with Section 260519.

C. Identification for Raceways:

1. Use voltage markers to identify highest voltage present for accessible conduits at maximum intervals of 20 feet (6.1 m).

2. Use underground warning tape to identify underground raceways.

3. Use voltage markers to identify highest voltage present for wireways at maximum intervals of 20 feet (6.1 m).

202IDENTIFICATION NAMEPLATES AND LABELS

A. Identification Nameplates:

1. Manufacturers:

a. Brimar Industries, Inc: www.brimar.com/#sle.

b. Kolbi Pipe Marker Co: www.kolbipipemarkers.com/#sle.

c. Seton Identification Products: www.seton.com/#sle.

d. Substitutions: Not permitted.

2. Materials:

a. Indoor Clean, Dry Locations: Use plastic nameplates.

b. Outdoor Locations: Use plastic, stainless steel, or aluminum nameplates suitable for exterior use.

3. Plastic Nameplates: Two-layer or three-layer laminated acrylic or electrically non- conductive phenolic with beveled edges; minimum thickness of 1/16 inch (1.6 mm); engraved text.

a. Exception: Provide minimum thickness of 1/8 inch (3 mm) when any dimension is greater than 4 inches (100 mm).

4. Stainless Steel Nameplates: Minimum thickness of 1/32 inch (0.8 mm); engraved or laser-etched text.
5. Aluminum Nameplates: Anodized; minimum thickness of 1/32 inch (0.8 mm); engraved or laser-etched text.
6. Mounting Holes for Mechanical Fasteners: Two, centered on sides for sizes up to 1 inch (25 mm) high; Four, located at corners for larger sizes.

B. Identification Labels:

1. Manufacturers:
   a. Brady Corporation: www.bradyid.com/#sle.
   b. Brother International Corporation: www.brother-usa.com/#sle.
   c. Panduit Corp: www.panduit.com/#sle.
   d. Substitutions: Not permitted.
2. Materials: Use self-adhesive laminated plastic labels; UV, chemical, water, heat, and abrasion resistant.
3. Text: Use factory pre-printed or machine-printed text. Do not use handwritten text unless otherwise indicated.

C. Format for Equipment Identification:

1. Minimum Size: 1 inch (25 mm) by 2.5 inches (64 mm).
2. Legend:
   a. Equipment designation or other approved description.
3. Text: All capitalized unless otherwise indicated.
4. Minimum Text Height:
   a. Equipment Designation: 1/2 inch (13 mm).
5. Color:
   a. Normal Power System: White text on black background.

203VOLTAGE MARKERS

A. Manufacturers:

1. Brady Corporation: www.bradyid.com/#sle.
2. Brimar Industries, Inc: www.brimar.com/#sle.
3. Seton Identification Products: www.seton.com/#sle.

4. Substitutions: Not permitted.

B. Markers for Boxes and Equipment Enclosures: Use factory pre-printed self-adhesive vinyl or self-adhesive vinyl cloth type markers.

C. Minimum Size:

1. Markers for Equipment: 1 1/8 by 4 1/2 inches (29 by 110 mm).

2. Markers for Conduits: As recommended by manufacturer for conduit size to be identified.

D. Legend:

1. Markers for Voltage Identification: Highest voltage present.

E. Color: Black text on orange background unless otherwise indicated.

2.04 UNDERGROUND WARNING TAPE

A. Manufacturers:

1. Brady Corporation: www.bradyid.com/#sle.

2. Brimar Industries, Inc: www.brimar.com/#sle.

3. Seton Identification Products: www.seton.com/#sle.

4. Substitutions: Not permitted.

B. Materials: Use foil-backed detectable type polyethylene tape suitable for direct burial, unless otherwise indicated.

C. Foil-backed Detectable Type Tape: 3 inches (76 mm) wide, with minimum thickness of 5 mil (0.1 mm), unless otherwise required for proper detection.

D. Legend: Type of service, continuously repeated over full length of tape.

E. Color:

1. Tape for Buried Power Lines: Black text on red background.

PART 3 EXECUTION

3.01 PREPARATION

A. Clean surfaces to receive adhesive products according to manufacturer's instructions.

3.02 INSTALLATION

A. Install products in accordance with manufacturer's instructions.

B. Install identification products to be plainly visible for examination, adjustment, servicing, and maintenance. Unless otherwise indicated, locate products as follows:

1. Surface-Mounted Equipment: Enclosure front.
2. Free-Standing Equipment: Enclosure front; also enclosure rear for equipment with rear access.
3. Conductors and Cables: Legible from the point of access.

C. Install identification products centered, level, and parallel with lines of item being identified.

D. Secure nameplates to exterior surfaces of enclosures using stainless steel screws and to interior surfaces using self-adhesive backing or epoxy cement.

E. Install self-adhesive labels and markers to achieve maximum adhesion, with no bubbles or wrinkles and edges properly sealed.

F. Install underground warning tape above buried lines with one tape per trench at 12 inch(es) (305 mm) below finished grade.

G. Mark all handwritten text, where permitted, to be neat and legible.

3.03 FIELD QUALITY CONTROL

A. Replace self-adhesive labels and markers that exhibit bubbles, wrinkles, curling or other signs of improper adhesion.

END OF SECTION

SECTION 26 0573

POWER SYSTEM STUDIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Short-circuit study.

B. Arc flash and shock risk assessment.

1. Includes arc flash hazard warning labels.

C. Criteria for the selection and adjustment of equipment and associated protective devices not specified in this section, as determined by studies to be performed.

1.02 REFERENCE STANDARDS

A. ANSI Z535.4 - American National Standard for Product Safety Signs and Labels.

B. IEEE 141 - IEEE Recommended Practice for Electrical Power Distribution for Industrial Plants.

C. IEEE 242 - IEEE Recommended Practice for Protection and Coordination of Industrial and Commercial Power Systems.

D. IEEE 399 - IEEE Recommended Practice for Industrial and Commercial Power Systems Analysis.

E. IEEE 551 - IEEE Recommended Practice for Calculating Short-Circuit Currents in Industrial and Commercial Power Systems.

F. IEEE 1584 - IEEE Guide for Performing Arc-Flash Hazard Calculations.

G. NETA ATS - Standard For Acceptance Testing Specifications For Electrical Power Equipment And Systems.

H. NFPA 70 - National Electrical Code.

I. NFPA 70E - Standard for Electrical Safety in the Workplace.

1.03 ADMINISTRATIVE REQUIREMENTS

A. Coordination:

1. Coordinate the work to provide equipment and associated protective devices complying with criteria for selection and adjustment, as determined by studies to be performed.

2. Notify Engineer of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

B. Sequencing:

1. Submit study reports prior to or concurrent with product submittals.

2. Do not order equipment until matching study reports and product submittals have both been evaluated by Engineer.

1.04 SUBMITTALS

A. Study preparer's qualifications.

B. Field testing agency's qualifications.

C. Study reports, stamped or sealed and signed by study preparer.

D. Field quality control reports.

E. Certification that field adjustable protective devices have been set in accordance with requirements of studies.

F. Project Record Documents: Revise studies as required to reflect as-built conditions.

1. Include hard copies with operation and maintenance data submittals.

2. Include computer software files used to prepare studies with file name(s) cross-referenced to specific pieces of equipment and systems.

1.05 POWER SYSTEM STUDIES

A. Scope of Studies:

1. Perform analysis of new electrical distribution system.

2. Except where study descriptions below indicate exclusions, analyze system at each bus from primary protective devices of utility source down to each piece of equipment involved, including parts of system affecting calculations being performed (e.g. fault current contribution from motors).

3. Include in analysis alternate sources and operating modes (including known future configurations) to determine worst case conditions.

a. Known Operating Modes:

1) Utility as source.

B. General Study Requirements:

1. Comply with NFPA 70.

2. Perform studies utilizing computer software complying with specified requirements; manual calculations are not permitted.

C. Data Collection:

1. Compile information on project-specific characteristics of actual installed equipment, protective devices, feeders, etc. as necessary to develop single-line diagram of electrical distribution system and associated input data for use in system modeling.

    a. Utility Source Data: Include primary voltage, maximum and minimum three-phase and line-to-ground fault currents, impedance, X/R ratio, and primary protective device information.

        1) Obtain up-to-date information from Utility Company.

        2) Utility Company: ComEd Electric.

    b. Protective Devices:

        1) Circuit Breakers: Include manufacturer/model, type (e.g. thermal magnetic, electronic trip), frame size, trip rating, voltage rating, interrupting rating, available field-adjustable trip response settings, and features (e.g. zone selective interlocking).

    c. Protective Relays: Include manufacturer/model, type, settings, current/potential transformer ratio, and associated protective device.

    d. Conductors: Include feeder size, material (e.g. copper, aluminum), insulation type, voltage rating, number per phase, raceway type, and actual length.

D. Short-Circuit Study:

1. Comply with IEEE 551 and applicable portions of IEEE 141, IEEE 242, and IEEE 399.

2. For purposes of determining equipment short circuit current ratings, consider conditions that may result in maximum available fault current, including but not limited to:

    a. Maximum utility fault currents.

    b. Maximum motor contribution.

    c. Known operating modes (e.g. utility as source, generator as source, utility/generator in parallel, bus tie breaker open/close positions).

3. For each bus location, calculate the maximum available three-phase bolted symmetrical and asymmetrical fault currents. For grounded systems, also calculate the maximum available line-to-ground bolted fault currents.

E. Arc Flash and Shock Risk Assessment:

1. Comply with NFPA 70E.
2. Perform incident energy and arc flash boundary calculations in accordance with IEEE 1584 (as referenced in NFPA 70E Annex D), where applicable.
    a. Where reasonable, study preparer may assume a maximum clearing time of two seconds in accordance with IEEE 1584, provided that the conditions are such that a worker's egress from an arc flash event would not be inhibited.
    b. For single-phase systems, study preparer to perform calculations assuming three-phase system in accordance with IEEE 1584 using single phase bolted fault current, yielding conservative results.
3. For equipment with main devices mounted in separate compartmentalized sections, perform calculations on both the line and load side of the main device.
4. Analyze alternate scenarios considering conditions that may result in maximum incident energy, including but not limited to:
    a. Maximum and minimum utility fault currents.
    b. Maximum and minimum motor contribution.
    c. Known operating modes (e.g. utility as source, generator as source, utility/generator in parallel, bus tie breaker open/close positions).

F. Study Reports:

1. General Requirements:
    a. Identify date of study and study preparer.
    b. Identify study methodology and software product(s) used.
    c. Identify scope of studies, assumptions made, implications of possible alternate scenarios, and any exclusions from studies.
    d. Identify base used for per unit values.
    e. Include single-line diagram and associated input data used for studies; identify buses on single-line diagram as referenced in reports, and indicate bus voltage.
    f. Include conclusions and recommendations.
2. Short-Circuit Study:
    a. For each scenario, identify at each bus location:

1) Calculated maximum available symmetrical and asymmetrical fault currents (both three-phase and line-to-ground where applicable).

2) Fault point X/R ratio.

3) Associated equipment short circuit current ratings.

b. Identify locations where the available fault current exceeds the equipment short circuit current rating, along with recommendations.

3. Arc Flash and Shock Risk Assessment:

a. For the worst case for each scenario, identify at each bus location:

1) Calculated incident energy and associated working distance.

2) Calculated arc flash boundary.

3) Bolted fault current.

4) Arcing fault current.

5) Clearing time.

6) Arc gap distance.

b. For purposes of producing arc flash hazard warning labels, summarize the maximum incident energy and associated data reflecting the worst case condition of all scenarios at each bus location.

1.06 QUALITY ASSURANCE

A. Study Preparer Qualifications: Professional electrical engineer licensed in State where project is located and with minimum five years experience in preparation of studies of similar type and complexity using specified computer software.

1. Study preparer may be employed by manufacturer of electrical distribution equipment.

2. Study preparer may be employed by field testing agency.

B. Field Testing Agency Qualifications: Independent testing organization specializing in testing, analysis, and maintenance of electrical systems with minimum five years experience; NETA Accredited Company.

C. Computer Software for Study Preparation: Use the latest edition of commercially available software utilizing specified methodologies.

1. Products:

a. EasyPower LLC: www.easypower.com/#sle.

b. ETAP/Operation Technology, Inc: www.etap.com/#sle.

c. Power Analytics Corporation: www.poweranalytics.com/#sle.

d. SKM Systems Analysis, Inc: www.skm.com/#sle.

PART 2 PRODUCTS

2.01 ARC FLASH HAZARD WARNING LABELS

A. Provide warning labels complying with ANSI Z535.4 to identify arc flash hazards for each work location analyzed by the arc flash and shock risk assessment.

1. Materials: Comply with Section 26 0553.

2. Minimum Size: 4 by 6 inches.

3. Legend: Provide custom legend in accordance with NFPA 70E based on equipment-specific data as determined by arc flash and shock risk assessment.

a. Include orange header that reads "WARNING" unless otherwise indicated.

b. Include the text "Arc Flash and Shock Hazard; Appropriate PPE Required" or approved equivalent.

c. Include the following information:

1) Arc flash boundary.

2) Available incident energy and corresponding working distance.

3) Site-specific PPE (personnel protective equipment) requirements.

4) Nominal system voltage.

5) Limited approach boundary.

6) Restricted approach boundary.

7) Equipment identification.

8) Study preparer, report reference, and date calculations were performed.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install arc flash warning labels in accordance with Section 26 0553.

3.02 FIELD QUALITY CONTROL

A. See Section 01 4000 - Quality Requirements, for additional requirements.

B. Provide the services of field testing agency or equipment manufacturer's representative to perform inspection, testing, and adjusting.

C. Inspect and test in accordance with NETA ATS, except Section 4.

D. Adjust equipment and protective devices for compliance with studies and recommended settings.

E. Notify Engineer of any conflicts with or deviations from studies. Obtain direction before proceeding.

F. Submit detailed reports indicating inspection and testing results, and final adjusted settings.

END OF SECTION

SECTION 262100

LOW-VOLTAGE ELECTRICAL SERVICE ENTRANCE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Electrical service requirements.

1.02 RELATED REQUIREMENTS

A. Section 260519 - Low-Voltage Electrical Power Conductors and Cables.

B. Section 260526 - Grounding and Bonding for Electrical Systems.

C. Section 260529 - Hangers and Supports for Electrical Systems.

D. Section 260533.13 - Conduit for Electrical Systems.

E. Section 260553 - Identification for Electrical Systems: Identification products and requirements.

F. Section 262416 - Panelboards: Service entrance equipment.

G. Section SP S.5, SP S.26 - Trenching: Excavating, bedding, and backfilling.

1.03 DEFINITIONS

A. Service Point: The point of connection between the facilities of the serving utility and the premises wiring as defined in NFPA 70, and as designated by the Utility Company.

1.04 REFERENCE STANDARDS

A. IEEE C2 - National Electrical Safety Code 2017.

B. NECA 1 - Standard for Good Workmanship in Electrical Construction 2015.

C. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

1.05 ADMINISTRATIVE REQUIREMENTS

A. No later than two weeks following date of the Agreement, notify Utility Company of anticipated date of service.

B. Coordination:

1. Verify the following with Utility Company representative:

a. Utility Company requirements, including division of responsibility.

b. Exact location and details of utility point of connection.

c. Utility easement requirements.

d. Utility Company charges associated with providing service.

2. Coordinate the work with other trades to avoid placement of other utilities or obstructions within the spaces dedicated for electrical service and associated equipment.

3. Coordinate arrangement of service entrance equipment with the dimensions and clearance requirements of the actual equipment to be installed.

4. Notify Engineer of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

C. Arrange for Utility Company to provide permanent electrical service. Prepare and submit documentation required by Utility Company.

D. Utility Company charges associated with providing permanent service to be paid by Owner.

E. Preinstallation Meeting: Convene one week prior to commencing work of this section to review service requirements and details with Utility Company representative.

F. Scheduling:

1. Where work of this section involves interruption of existing electrical service, arrange service interruption with Owner.

2. Arrange for inspections necessary to obtain Utility Company approval of installation.

1.06 SUBMITTALS

A. Product Data: Provide manufacturer's standard catalog pages and data sheets for each product. Include ratings, configurations, standard wiring diagrams, outline and support point dimensions, finishes, weights, service condition requirements, and installed features.

1.07 QUALITY ASSURANCE

A. Comply with the following:

1. IEEE C2 (National Electrical Safety Code).

2. NFPA 70 (National Electrical Code).

3. The requirements of the Utility Company.

B. Products: Listed, classified, and labeled as suitable for the purpose intended.

C. Product Listing Organization Qualifications: An organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

1.08 DELIVERY, STORAGE, AND HANDLING

A. Receive, inspect, handle, and store products in accordance with manufacturer's instructions.

B. Store products indoors in a clean, dry space having a uniform temperature to prevent condensation (including outdoor rated products which are not weatherproof until completely and properly installed). Maintain factory wrapping or provide an additional heavy canvas or heavy plastic cover to protect units from dirt, water, construction debris, and traffic.

C. Handle products carefully to avoid damage to internal components, enclosure, and finish.

PART 2 PRODUCTS

2.01 ELECTRICAL SERVICE REQUIREMENTS

A. Provide new electrical service consisting of all required conduits, conductors, equipment, metering provisions, supports, accessories, etc. as necessary for connection between Utility Company point of supply and service entrance equipment.

B. Electrical Service Characteristics: As indicated on drawings.

C. Utility Company: ComEd.

D. Division of Responsibility:

1. Pad-Mounted Utility Transformers:

    a. Transformer Pads: Furnished and installed by Contractor per Utility requirements.

    b. Transformers: Furnished and installed by Utility Company.

    c. Transformer Grounding Provisions: Furnished and installed by Contractor per Utility Company requirements..

    d. Primary:

        1) Trenching and Backfilling: Provided by Contractor.

        2) Conduits: Furnished and installed by Contractor.

        3) Conductors: Furnished and installed by Utility Company.

    e. Secondary::

1) Trenching and Backfilling: Provided by Contractor.

2) Conduits: Furnished and installed by Contractor.

3) Conductors: Furnished and installed by Contractor (Service Point at transformer).

2. Terminations at Service Point: Provided by Utility Company.

3. Metering Provisions:

a. Meter Bases: Furnished and installed by Contractor per Utility Company requirements.

b. Meters: Furnished and installed by Utility Company.

c. Other metering equipment: Furnished and installed by Contractor per Utility Company requirements.

E. Products Furnished by Contractor: Comply with Utility Company requirements.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field measurements are as indicated.

B. Verify that ratings and configurations of service entrance equipment are consistent with the indicated requirements.

C. Verify that conditions are satisfactory for installation prior to starting work.

3.02 PREPARATION

A. Verify and mark locations of existing underground utilities.

3.03 INSTALLATION

A. Install products in accordance with manufacturer's instructions and Utility Company requirements.

B. Perform work in accordance with NECA 1 (general workmanship).

C. Arrange equipment to provide minimum clearances and required maintenance access.

D. Provide required trenching and backfilling in accordance with Section SP S.5 and SP S.26.

E. Provide required support and attachment components in accordance with Section 260529.

F. Provide grounding and bonding for service entrance equipment in accordance with Section 260526.

G. Identify service entrance equipment, including main service disconnect(s) in accordance with Section 260553.

3.04 PROTECTION

A. Protect installed equipment from subsequent construction operations.

END OF SECTION

SECTION 262416

PANELBOARDS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Lighting and appliance panelboards.

B. Overcurrent protective devices for panelboards.

1.02 RELATED REQUIREMENTS

A. Section 260526 - Grounding and Bonding for Electrical Systems.

B. Section 260529 - Hangers and Supports for Electrical Systems.

C. Section 260553 - Identification for Electrical Systems: Identification products and requirements.

1.03 REFERENCE STANDARDS

A. FS W-C-375 - Circuit Breakers, Molded Case; Branch Circuit and Service 2013e (Amended 2017).

B. NECA 1 - Standard for Good Workmanship in Electrical Construction 2015.

C. NECA 407 - Standard for Installing and Maintaining Panelboards 2015.

D. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum) 2020.

E. NEMA PB 1 - Panelboards 2011.

F. NEMA PB 1.1 - General Instructions for Proper Installation, Operation and Maintenance of Panelboards Rated 600 Volts or Less 2013.

G. NETA ATS - Acceptance Testing Specifications for Electrical Power Equipment and Systems 2017.

H. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

I. UL 50 - Enclosures for Electrical Equipment, Non-Environmental Considerations Current Edition, Including All Revisions.

J. UL 50E - Enclosures for Electrical Equipment, Environmental Considerations Current Edition, Including All Revisions.

K. UL 67 - Panelboards Current Edition, Including All Revisions.

L. UL 489 - Molded-Case Circuit Breakers, Molded-Case Switches and Circuit Breaker Enclosures Current Edition, Including All Revisions.

M. UL 869A - Reference Standard for Service Equipment Current Edition, Including All Revisions.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Coordination:

1. Coordinate the work with other trades to avoid placement of ductwork, piping, equipment, or other potential obstructions within the dedicated equipment spaces and working clearances for electrical equipment required by NFPA 70.

2. Coordinate arrangement of electrical equipment with the dimensions and clearance requirements of the actual equipment to be installed.

3. Verify with manufacturer that conductor terminations are suitable for use with the conductors to be installed.

4. Notify Engineer of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

1.05 SUBMITTALS

A. Product Data: Provide manufacturer's standard catalog pages and data sheets for panelboards, enclosures, overcurrent protective devices, and other installed components and accessories.

B. Shop Drawings: Indicate outline and support point dimensions, voltage, main bus ampacity, overcurrent protective device arrangement and sizes, short circuit current ratings, conduit entry locations, conductor terminal information, and installed features and accessories.

C. Include dimensioned plan and elevation views of panelboards and adjacent equipment with all required clearances indicated.

1.06 QUALITY ASSURANCE

A. Comply with requirements of NFPA 70.

B. Product Listing Organization Qualifications: An organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Receive, inspect, handle, and store panelboards in accordance with manufacturer's instructions and NECA 407.

B. Store in a clean, dry space. Maintain factory wrapping or provide an additional heavy canvas or heavy plastic cover to protect units from dirt, water, construction debris, and traffic.

C. Handle carefully in accordance with manufacturer's written instructions to avoid damage to panelboard internal components, enclosure, and finish.

1.08 FIELD CONDITIONS

A. Maintain ambient temperature within the following limits during and after installation of panelboards:

1. Panelboards Containing Circuit Breakers: Between 23 degrees F (-5 degrees C) and 104 degrees F (40 degrees C).

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. ABB/GE: www.geindustrial.com/#sle.

B. Eaton Corporation: www.eaton.com/#sle.

C. Schneider Electric; Square D Products: www.schneider-electric.us/#sle.

D. Substitutions: Not Permitted.

E. Source Limitations: Furnish panelboards and associated components produced by the same manufacturer as the other electrical distribution equipment used for this project and obtained from a single supplier.

2.02 PANELBOARDS - GENERAL REQUIREMENTS

A. Provide products listed, classified, and labeled as suitable for the purpose intended.

B. Unless otherwise indicated, provide products suitable for continuous operation under the following service conditions:

1. Altitude: Less than 6,600 feet (2,000 m).
2. Ambient Temperature:
    a. Panelboards Containing Circuit Breakers: Between 23 degrees F (-5 degrees C) and 104 degrees F (40 degrees C).

C. Short Circuit Current Rating:
1. Provide panelboards with listed short circuit current rating not less than the available fault current at the installed location as indicated on the drawings.

D. Panelboards Used for Service Entrance: Listed and labeled as suitable for use as service equipment according to UL 869A.

E. Mains: Configure for top or bottom incoming feed as indicated or as required for the installation.

F. Branch Overcurrent Protective Devices: Replaceable without disturbing adjacent devices.

G. Bussing: Sized in accordance with UL 67 temperature rise requirements.
1. Provide solidly bonded equipment ground bus in each panelboard, with a suitable lug for each feeder and branch circuit equipment grounding conductor.

H. Conductor Terminations: Suitable for use with the conductors to be installed.

I. Enclosures: Comply with NEMA 250, and list and label as complying with UL 50 and UL 50E.
1. Environment Type per NEMA 250: Unless otherwise indicated, as specified for the following installation locations:
    a. Outdoor Locations: Type 4X.
2. Boxes: Galvanized steel unless otherwise indicated.
    a. Provide wiring gutters sized to accommodate the conductors to be installed.
3. Fronts:
    a. Fronts for Surface-Mounted Enclosures: Same dimensions as boxes.
4. Lockable Doors: All locks keyed alike unless otherwise indicated.

J. Future Provisions: Prepare all unused spaces for future installation of devices including bussing, connectors, mounting hardware and all other required provisions.

K. Surge Protective Devices: Provide factory-installed, internally mounted surge protective devices, list and label panelboards as a complete assembly including surge protective device.

203 LIGHTING AND APPLIANCE PANELBOARDS

A. Description: Panelboards complying with NEMA PB 1, lighting and appliance branch circuit type, circuit breaker type, and listed and labeled as complying with UL 67; ratings, configurations and features as indicated on the drawings.

B. Conductor Terminations:

1. Main and Neutral Lug Material: Aluminum, suitable for terminating aluminum or copper conductors.

2. Main and Neutral Lug Type: Mechanical.

C. Bussing:

1. Phase and Neutral Bus Material: Aluminum.

2. Ground Bus Material: Aluminum.

D. Circuit Breakers:

1. Provide bolt-on type.

2. Provide thermal magnetic circuit breakers unless otherwise indicated.

E. Enclosures:

1. Provide surface-mounted enclosures unless otherwise indicated.

2. Fronts: Provide door-in-door trim with hinged cover for access to load terminals and wiring gutters, and separate lockable hinged door with concealed hinges for access to overcurrent protective device handles without exposing live parts.

3. Provide clear plastic circuit directory holder mounted on inside of door.

204 OVERCURRENT PROTECTIVE DEVICES

A. Molded Case Circuit Breakers:

1. Description: Quick-make, quick-break, over center toggle, trip-free, trip-indicating circuit breakers listed and labeled as complying with UL 489, and complying with FS W-C-375 where applicable; ratings, configurations, and features as indicated on the drawings.
2. Interrupting Capacity:
    a. Provide circuit breakers with interrupting capacity as required to provide the short circuit current rating indicated.
    b. Fully Rated Systems: Provide circuit breakers with interrupting capacity not less than the short circuit current rating indicated.
3. Conductor Terminations:
    a. Provide mechanical lugs unless otherwise indicated.
    b. Lug Material: Aluminum, suitable for terminating aluminum or copper conductors.
4. Thermal Magnetic Circuit Breakers: For each pole, furnish thermal inverse time tripping element for overload protection and magnetic instantaneous tripping element for short circuit protection.
5. Multi-Pole Circuit Breakers: Furnish with common trip for all poles.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field measurements are as indicated.

B. Verify that the ratings and configurations of the panelboards and associated components are consistent with the indicated requirements.

C. Verify that mounting surfaces are ready to receive panelboards.

D. Verify that conditions are satisfactory for installation prior to starting work.

3.02 INSTALLATION

A. Perform work in accordance with NECA 1 (general workmanship).

B. Install products in accordance with manufacturer's instructions.

C. Install panelboards in accordance with NECA 407 and NEMA PB 1.1.

D. Arrange equipment to provide minimum clearances in accordance with manufacturer's instructions and NFPA 70.

E. Provide required support and attachment in accordance with Section 260529.

F. Install panelboards plumb.

G. Mount panelboards such that the highest position of any operating handle for circuit breakers or switches does not exceed 79 inches (2000 mm) above the floor or working platform.

H. Provide grounding and bonding in accordance with Section 260526.

I. Install all field-installed branch devices, components, and accessories.

J. Provide filler plates to cover unused spaces in panelboards.

K. Identify panelboards in accordance with Section 260553.

3.03 FIELD QUALITY CONTROL

A. See Section 014000 - Quality Requirements, for additional requirements.

B. Molded Case Circuit Breakers: Perform inspections and tests listed in NETA ATS, Section 7.6.1.1 for all main circuit breakers. Tests listed as optional are not required.

C. Correct deficiencies and replace damaged or defective panelboards or associated components.

3.04 ADJUSTING

A. Adjust tightness of mechanical and electrical connections to manufacturer's recommended torque settings.

B. Adjust alignment of panelboard fronts.

3.05 CLEANING

A. Clean dirt and debris from panelboard enclosures and components according to manufacturer's instructions.

B. Repair scratched or marred exterior surfaces to match original factory finish.

END OF SECTION

Mastodon Lake
Aurora, IL

Supernatant Testing for Dredging
December 11, 2020

Prepared For: Logan Gilbertsen
HR Green
323 Alana Drive
New Lenox IL 60451

Prepared By: Sandy Kubillus
ILM
110 LeBaron St.
Waukegan, IL 60085
(847)244-6662

TRUSTED CARE OF LAND & WATER

Mastodon Lake

Sediment Supernatant Testing

On December 11, 2020, ILM staff visited Mastodon Lake to perform sediment sampling of the lake in preparation for applying for dredging permits. Four sites on the lake were sampled at points designed on the following map, as directed by the client. Sample sites were named by location ML E (east), ML SE (southeast), ML NW (northwest), and ML SW (southwest).

The samples were mixed based on the IEPA Material Analysis for Dredge and Fill Activities #2a (last page). Supernatants of the 4:1 lake water to sediment mixture were tested immediately upon mixing (0-hr), then after 4 hours, and then again at 24 hours. Testing included total solids, total suspended solids, total volatile solids, ammonia -N, lead, zinc, and phosphorus. Sediment samples were sifted through a #230 US sieve to determine the amount of fine material present.

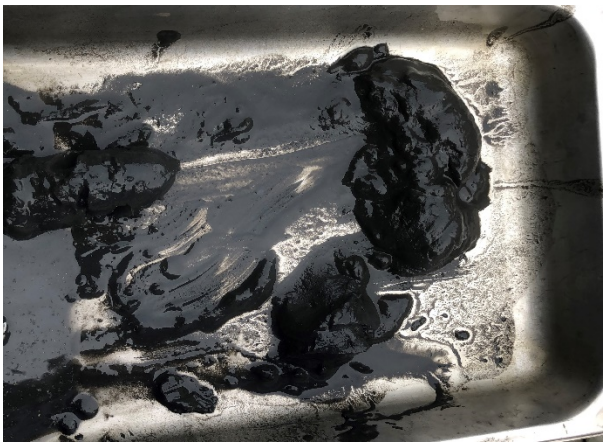

Photo 1: Sediment sample at site the east site (ML E).

Photo 2: Sediment sample at southeast site (ML SE).

Photo 3: Sediment at the southwest site (ML SW).

Photo 4: Sediment corer.

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ILM North: 110 Le Baron Street, Waukegan, IL 60085 (847) 244-6662

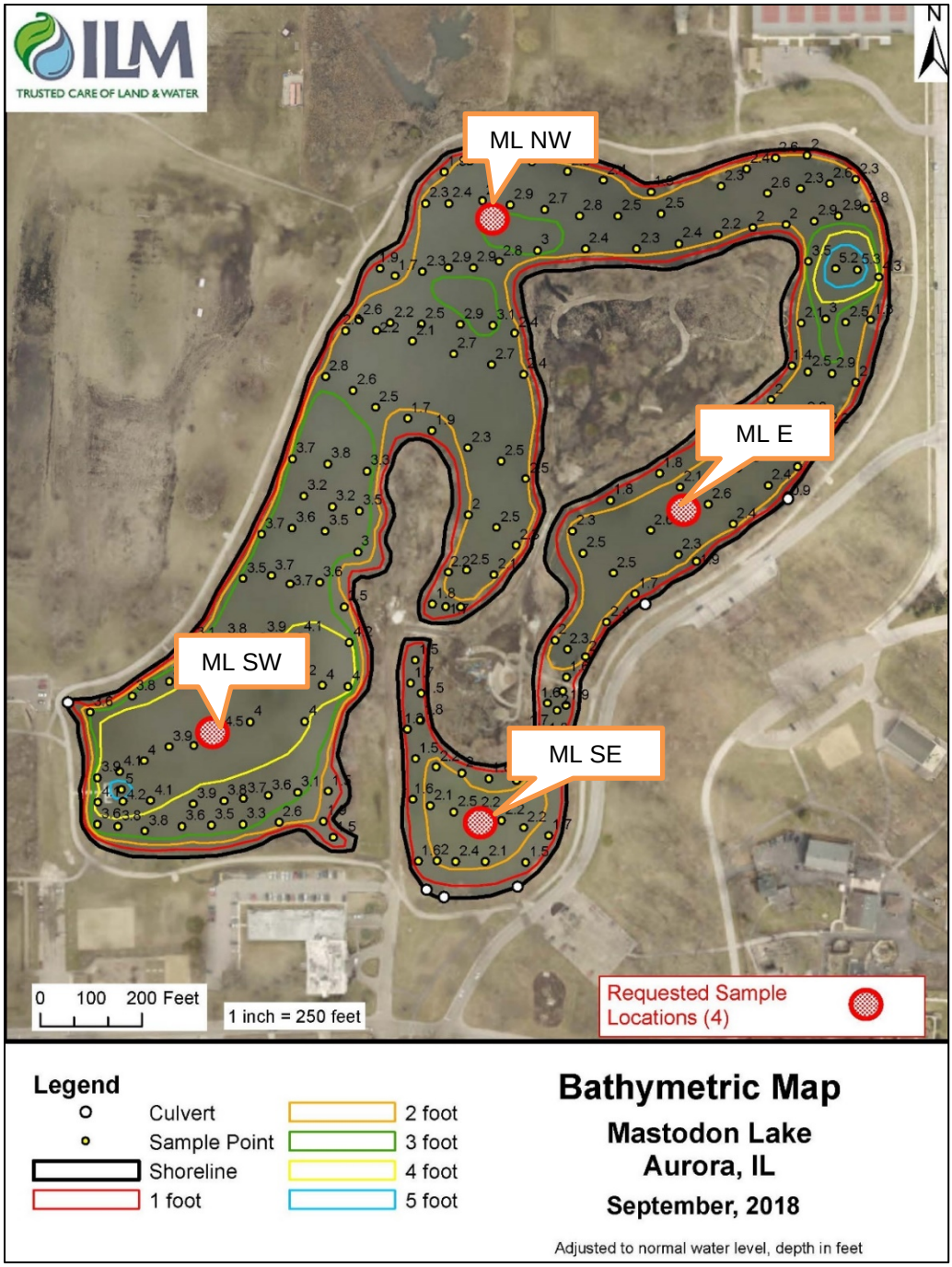

Figure 1: Sample site locations

Mastodon Lake Sediment Sample Locations		
Location	Latitude	Longitude
ML SW	41.737364	-88.299692
ML SE	41.736926	-88.297663
ML E	41.738636	-88.296155
ML NW	41.740233	-88.297541

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Sediment was collected using a core sampler, and when sample volume was inadequate, an Eckman Dredge sampling tool was then used to gather more sample volume. Samples were made into a composite for each sampling site.

Weather conditions were windy (NE 16 mph) which may have accounted for the turbid water samples. The lake had been frozen and had thawed the day prior to the site visit. The temperature was 40 degrees and cloudy.

Supernatant Sampling Results for Mastodon Lake (12/11/20)

	Lake Water	Site 1 SW	Site 2 NW	Site 3 E	Site 4 SE
% passing #260 sieve	NA	77	66	91	89
Total Solids (mg/L)	460				
0 Hr. Supernatant TS		34,000	33,000	46,000	36,000
4 Hr. Supernatant TS		650	530	590	690
24 Hr. Supernatant TS		550	490	620	550
Total Suspended Solids (mg/L)	110				
0 Hr. Supernatant TSS		20,000	6,800	19,000	19,000
4 Hr. Supernatant TSS		510	580	330	150
24 Hr. Supernatant TSS		140	180	110	120
Total Volatile Solids (mg/L)	270				
0 Hr. Supernatant TVS		7,700	9,900	8,100	4,700
4 Hr. Supernatant TVS		190	150	190	200
24 Hr. Supernatant TVS		210	170	170	210
Ammonia-N (mg/L)	0.96				
0 Hr. Supernatant Ammonia-N		8.4	3.8	8.4	2.0
4 Hr. Supernatant Ammonia-N		2.4	4.9	3.1	2.2
24 Hr. Supernatant Ammonia-N		2.1	4.1	3.3	1.3
Lead (mg/L)	< 0.010				
0 Hr. Supernatant Lead		4.1	1.8	6.3	2.9
4 Hr. Supernatant Lead		< 0.050	0.076	< 0.050	< 0.050
24 Hr. Supernatant Lead		< 0.050	< 0.050	< 0.050	< 0.050
Phosphorus (mg/L)	0.11				
0 Hr. Supernatant Phosphorus		26	17	27	29
4 Hr. Supernatant Phosphorus		0.41	0.57	0.30	< 0.25
24 Hr. Supernatant Phosphorus		0.29	< 0.25	< 0.25	< 0.25
Zinc (mg/L)	< 0.010				
0 Hr. Supernatant Zinc		6.9	5.4	9.0	7.9
4 Hr. Supernatant Zinc		0.088	0.16	0.075	< 0.050
24 Hr. Supernatant Zinc		0.058	< 0.050	< 0.050	< 0.050

info@ilmenvironments.com | ilmenvironments.com
ILM North: 110 Le Baron Street, Waukegan, IL 60085 (847) 244-6662

January 04, 2021

Sandy Kubillus
ILM
110 LeBaron Street
Waukegan, IL 60085

RE: ILM Dredging Projects 2020

Dear Sandy Kubillus:

Please find enclosed the **revised** analytical results for the **17** sample(s) the laboratory received on **12/11/20 1:40 pm** and logged in under work order **0122528**. All testing is performed according to our current TNI accreditations unless otherwise noted. This report cannot be reproduced, except in full, without the written permission of PDC Laboratories, Inc.

If you have any questions regarding your report, please contact your project manager. Quality and timely data is of the utmost importance to us.

PDC Laboratories, Inc. appreciates the opportunity to provide you with analytical expertise. We are always trying to improve our customer service and we welcome you to contact the Director of Client Services, Lisa Grant, with any feedback you have about your experience with our laboratory at 309-683-1764 or lgrant@pdclab.com.

Sincerely,

Kurt Stepping
Senior Project Manager
(309) 692-9688 x1719
kstepping@pdclab.com

SAMPLE RECEIPT CHECK LIST

Items not applicable will be marked as in compliance

Work Order 0122528

YES	Samples received within temperature compliance when applicable
YES	COC present upon sample receipt
YES	COC completed & legible
NO	Sampler name & signature present
YES	Unique sample IDs assigned
YES	Sample collection location recorded
YES	Date & time collected recorded on COC
YES	Relinquished by client signature on COC
YES	COC & labels match
YES	Sample labels are legible
YES	Appropriate bottle(s) received
YES	Sufficient sample volume received
YES	Sample containers recieved undamaged
NO	Zero headspace, <6 mm present in VOA vials
NO	Trip blank(s) received
YES	All non-field analyses received within holding times
NO	Short hold time analysis
YES	Current PDC COC submitted
NO	Case narrative provided

ANALYTICAL RESULTS

Sample: 0122528-01
Name: Sediment 1
Alias: ML SW 12-11-20

Sampled: 12/11/20 11:45
Received: 12/11/20 13:40
Matrix: Solid - Regular Sample

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
General Chemistry - PIA									
Particle Size	77	%		12/17/20 10:25	1	0.50	12/17/20 10:25	CRD	ASTM D1140*

Sample: 0122528-02
Name: Sediment 2
Alias: ML NW 12-11-20

Sampled: 12/11/20 11:15
Received: 12/11/20 13:40
Matrix: Solid - Regular Sample

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
General Chemistry - PIA									
Particle Size	66	%		12/17/20 10:25	1	0.50	12/17/20 10:25	CRD	ASTM D1140*

Sample: 0122528-03
Name: Sediment 3
Alias: ML E 12-11-20

Sampled: 12/11/20 10:30
Received: 12/11/20 13:40
Matrix: Solid - Regular Sample

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
General Chemistry - PIA									
Particle Size	91	%		12/17/20 10:25	1	0.50	12/17/20 10:25	CRD	ASTM D1140*

Sample: 0122528-04
Name: Sediment 4
Alias: ML SE 12-11-20

Sampled: 12/11/20 10:55
Received: 12/11/20 13:40
Matrix: Solid - Regular Sample

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
General Chemistry - PIA									
Particle Size	89	%		12/17/20 10:25	1	0.50	12/17/20 10:25	CRD	ASTM D1140*

ANALYTICAL RESULTS

Sample: 0122528-05
Name: Supernatant 1 0 HOURS
Alias: ML SW 12-11-20

Sampled: 12/18/20 11:00
Received: 12/11/20 13:40
Matrix: Waste Water - Regular Sample

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
General Chemistry - PIA									
Solids - total solids (TS)	34000	mg/L	X	12/28/20 09:02	1	34	12/28/20 09:41	BCR	*** DEFAULT SPECIFIC METHOD ***
Solids - total suspended solids (TSS)	20000	mg/L		12/22/20 16:06	1	100	12/22/20 16:27	BCR	SM 2540 D 1997
Solids - total volatile solids (TVS)	7700	mg/L	X	12/28/20 09:02	1	17	12/28/20 09:41	BCR	SM 2540E*
Nutrients - PIA									
Ammonia-N	8.4	mg/L		12/24/20 09:35	1	0.10	12/24/20 09:35	CRS1	EPA 350.1 REV2
Total Metals - PIA									
Lead	4.1	mg/L		12/21/20 14:21	20	1.0	12/29/20 15:24	TJJ	EPA 200.7 REV 4.4
Phosphorus	26	mg/L		12/21/20 14:21	20	5.0	12/29/20 15:24	TJJ	EPA 200.7 REV 4.4
Zinc	6.9	mg/L		12/21/20 14:21	20	1.0	12/29/20 15:24	TJJ	EPA 200.7 REV 4.4

Sample: 0122528-06
Name: Supernatant 1 4 HOURS
Alias: ML SW 12-11-20

Sampled: 12/16/20 13:55
Received: 12/11/20 13:40
Matrix: Waste Water - Regular Sample

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
General Chemistry - PIA									
Solids - total solids (TS)	650	mg/L	M	12/28/20 09:02	1	34	12/28/20 09:41	BCR	*** DEFAULT SPECIFIC METHOD ***
Solids - total suspended solids (TSS)	510	mg/L		12/21/20 08:35	1	33	12/21/20 10:52	BCR	SM 2540 D 1997
Solids - total volatile solids (TVS)	190	mg/L	M	12/28/20 09:02	1	17	12/28/20 09:41	BCR	SM 2540E*
Nutrients - PIA									
Ammonia-N	2.4	mg/L		12/24/20 09:36	1	0.10	12/24/20 09:36	CRS1	EPA 350.1 REV2
Total Metals - PIA									
Lead	< 0.050	mg/L		12/21/20 14:21	1	0.050	12/29/20 15:26	TJJ	EPA 200.7 REV 4.4
Phosphorus	0.41	mg/L		12/21/20 14:21	1	0.25	12/29/20 15:26	TJJ	EPA 200.7 REV 4.4
Zinc	0.088	mg/L		12/21/20 14:21	1	0.050	12/29/20 15:26	TJJ	EPA 200.7 REV 4.4

ANALYTICAL RESULTS

Sample: 0122528-07
Name: Supernatant 1 24 HOURS
Alias: ML SW 12-11-20

Sampled: 12/17/20 14:00
Received: 12/11/20 13:40
Matrix: Waste Water - Regular Sample

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
General Chemistry - PIA									
Solids - total solids (TS)	550	mg/L		12/28/20 09:02	1	34	12/28/20 09:41	BCR	*** DEFAULT SPECIFIC METHOD ***
Solids - total suspended solids (TSS)	140	mg/L		12/21/20 08:35	1	12	12/21/20 10:52	BCR	SM 2540 D 1997
Solids - total volatile solids (TVS)	210	mg/L		12/28/20 09:02	1	17	12/28/20 09:41	BCR	SM 2540E*
Nutrients - PIA									
Ammonia-N	2.1	mg/L		12/24/20 09:37	1	0.10	12/24/20 09:37	CRS1	EPA 350.1 REV2
Total Metals - PIA									
Lead	< 0.050	mg/L		12/21/20 14:21	1	0.050	12/29/20 15:29	TJJ	EPA 200.7 REV 4.4
Phosphorus	0.29	mg/L		12/21/20 14:21	1	0.25	12/29/20 15:29	TJJ	EPA 200.7 REV 4.4
Zinc	0.058	mg/L		12/21/20 14:21	1	0.050	12/29/20 15:29	TJJ	EPA 200.7 REV 4.4

Sample: 0122528-08
Name: Supernatant 2 0 HOURS
Alias: ML NW 12-11-20

Sampled: 12/18/20 11:00
Received: 12/11/20 13:40
Matrix: Waste Water - Regular Sample

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
General Chemistry - PIA									
Solids - total solids (TS)	33000	mg/L	X	12/28/20 09:02	1	34	12/28/20 09:41	BCR	*** DEFAULT SPECIFIC METHOD ***
Solids - total suspended solids (TSS)	6800	mg/L		12/21/20 08:35	1	50	12/21/20 10:52	BCR	SM 2540 D 1997
Solids - total volatile solids (TVS)	9900	mg/L	X	12/28/20 09:02	1	17	12/28/20 09:41	BCR	SM 2540E*
Nutrients - PIA									
Ammonia-N	3.8	mg/L		12/24/20 09:38	1	0.10	12/24/20 09:38	CRS1	EPA 350.1 REV2
Total Metals - PIA									
Lead	1.8	mg/L		12/21/20 14:21	20	1.0	12/29/20 15:31	TJJ	EPA 200.7 REV 4.4
Phosphorus	17	mg/L		12/21/20 14:21	20	5.0	12/29/20 15:31	TJJ	EPA 200.7 REV 4.4
Zinc	5.4	mg/L		12/21/20 14:21	20	1.0	12/29/20 15:31	TJJ	EPA 200.7 REV 4.4

ANALYTICAL RESULTS

Sample: 0122528-09
Name: Supernatant 2 4 HOURS
Alias: ML NW 12-11-20

Sampled: 12/16/20 13:55
Received: 12/11/20 13:40
Matrix: Waste Water - Regular Sample

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
General Chemistry - PIA									
Solids - total solids (TS)	530	mg/L		12/28/20 09:02	1	34	12/28/20 09:41	BCR	*** DEFAULT SPECIFIC METHOD ***
Solids - total suspended solids (TSS)	580	mg/L		12/21/20 08:35	1	20	12/21/20 10:52	BCR	SM 2540 D 1997
Solids - total volatile solids (TVS)	150	mg/L		12/28/20 09:02	1	17	12/28/20 09:41	BCR	SM 2540E*
Nutrients - PIA									
Ammonia-N	4.9	mg/L		12/24/20 09:39	1	0.10	12/24/20 09:39	CRS1	EPA 350.1 REV2
Total Metals - PIA									
Lead	0.076	mg/L		12/21/20 14:21	1	0.050	12/29/20 15:45	TJJ	EPA 200.7 REV 4.4
Phosphorus	0.57	mg/L		12/21/20 14:21	1	0.25	12/29/20 15:45	TJJ	EPA 200.7 REV 4.4
Zinc	0.16	mg/L		12/21/20 14:21	1	0.050	12/29/20 15:45	TJJ	EPA 200.7 REV 4.4

Sample: 0122528-10
Name: Supernatant 2 24 HOUR
Alias: ML NW 12-11-20

Sampled: 12/17/20 14:00
Received: 12/11/20 13:40
Matrix: Waste Water - Regular Sample

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
General Chemistry - PIA									
Solids - total solids (TS)	490	mg/L		12/28/20 09:02	1	34	12/28/20 09:41	BCR	*** DEFAULT SPECIFIC METHOD ***
Solids - total suspended solids (TSS)	180	mg/L		12/21/20 08:35	1	8.3	12/21/20 10:52	BCR	SM 2540 D 1997
Solids - total volatile solids (TVS)	170	mg/L		12/28/20 09:02	1	17	12/28/20 09:41	BCR	SM 2540E*
Nutrients - PIA									
Ammonia-N	4.1	mg/L		12/24/20 09:39	1	0.10	12/24/20 09:39	CRS1	EPA 350.1 REV2
Total Metals - PIA									
Lead	< 0.050	mg/L		12/21/20 14:21	1	0.050	12/29/20 15:47	TJJ	EPA 200.7 REV 4.4
Phosphorus	< 0.25	mg/L		12/21/20 14:21	1	0.25	12/29/20 15:47	TJJ	EPA 200.7 REV 4.4
Zinc	< 0.050	mg/L		12/21/20 14:21	1	0.050	12/29/20 15:47	TJJ	EPA 200.7 REV 4.4

ANALYTICAL RESULTS

Sample: 0122528-11
Name: Supernatant 3 0 HOURS
Alias: ML E 12-11-20

Sampled: 12/18/20 11:00
Received: 12/11/20 13:40
Matrix: Waste Water - Regular Sample

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
General Chemistry - PIA									
Solids - total solids (TS)	46000	mg/L	X	12/28/20 09:02	1	34	12/28/20 09:41	BCR	*** DEFAULT SPECIFIC METHOD ***
Solids - total suspended solids (TSS)	19000	mg/L		12/22/20 16:06	1	100	12/22/20 16:27	BCR	SM 2540 D 1997
Solids - total volatile solids (TVS)	8100	mg/L	X	12/28/20 09:02	1	17	12/28/20 09:41	BCR	SM 2540E*
Nutrients - PIA									
Ammonia-N	8.4	mg/L		12/24/20 09:40	1	0.10	12/24/20 09:40	CRS1	EPA 350.1 REV2
Total Metals - PIA									
Lead	6.3	mg/L		12/21/20 14:21	20	1.0	12/29/20 15:49	TJJ	EPA 200.7 REV 4.4
Phosphorus	27	mg/L		12/21/20 14:21	20	5.0	12/29/20 15:49	TJJ	EPA 200.7 REV 4.4
Zinc	9.0	mg/L		12/21/20 14:21	20	1.0	12/29/20 15:49	TJJ	EPA 200.7 REV 4.4

Sample: 0122528-12
Name: Supernatant 3 4 HOURS
Alias: ML E 12-11-20

Sampled: 12/16/20 13:55
Received: 12/11/20 13:40
Matrix: Waste Water - Regular Sample

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
General Chemistry - PIA									
Solids - total solids (TS)	590	mg/L		12/28/20 09:02	1	34	12/28/20 09:41	BCR	*** DEFAULT SPECIFIC METHOD ***
Solids - total suspended solids (TSS)	330	mg/L		12/21/20 08:40	1	11	12/21/20 11:43	BCR	SM 2540 D 1997
Solids - total volatile solids (TVS)	190	mg/L		12/28/20 09:02	1	17	12/28/20 09:41	BCR	SM 2540E*
Nutrients - PIA									
Ammonia-N	3.1	mg/L		12/24/20 09:41	1	0.10	12/24/20 09:41	CRS1	EPA 350.1 REV2
Total Metals - PIA									
Lead	< 0.050	mg/L		12/21/20 14:21	1	0.050	12/29/20 15:54	TJJ	EPA 200.7 REV 4.4
Phosphorus	0.30	mg/L		12/21/20 14:21	1	0.25	12/29/20 15:54	TJJ	EPA 200.7 REV 4.4
Zinc	0.075	mg/L		12/21/20 14:21	1	0.050	12/29/20 15:54	TJJ	EPA 200.7 REV 4.4

ANALYTICAL RESULTS

Sample: 0122528-13
Name: Supernatant 3 24 HOURS
Alias: ML E 12-11-20

Sampled: 12/17/20 14:00
Received: 12/11/20 13:40
Matrix: Waste Water - Regular Sample

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
General Chemistry - PIA									
Solids - total solids (TS)	620	mg/L		12/28/20 09:02	1	34	12/28/20 09:41	BCR	*** DEFAULT SPECIFIC METHOD ***
Solids - total suspended solids (TSS)	110	mg/L		12/21/20 08:40	1	5.6	12/21/20 11:43	BCR	SM 2540 D 1997
Solids - total volatile solids (TVS)	170	mg/L		12/28/20 09:02	1	17	12/28/20 09:41	BCR	SM 2540E*
Nutrients - PIA									
Ammonia-N	3.3	mg/L		12/24/20 09:45	1	0.10	12/24/20 09:45	CRS1	EPA 350.1 REV2
Total Metals - PIA									
Lead	< 0.050	mg/L		12/21/20 14:21	1	0.050	12/29/20 15:56	TJJ	EPA 200.7 REV 4.4
Phosphorus	< 0.25	mg/L		12/21/20 14:21	1	0.25	12/29/20 15:56	TJJ	EPA 200.7 REV 4.4
Zinc	< 0.050	mg/L		12/21/20 14:21	1	0.050	12/29/20 15:56	TJJ	EPA 200.7 REV 4.4

Sample: 0122528-14
Name: Supernatant 4 0 Hours
Alias: ML SE 12-11-20

Sampled: 12/18/20 11:00
Received: 12/11/20 13:40
Matrix: Waste Water - Regular Sample

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
General Chemistry - PIA									
Solids - total solids (TS)	36000	mg/L	X	12/28/20 09:02	1	34	12/28/20 09:41	BCR	*** DEFAULT SPECIFIC METHOD ***
Solids - total suspended solids (TSS)	19000	mg/L		12/22/20 16:06	1	100	12/22/20 16:27	BCR	SM 2540 D 1997
Solids - total volatile solids (TVS)	4700	mg/L	X	12/28/20 09:02	1	17	12/28/20 09:41	BCR	SM 2540E*
Nutrients - PIA									
Ammonia-N	2.0	mg/L		12/24/20 09:49	1	0.10	12/24/20 09:49	CRS1	EPA 350.1 REV2
Total Metals - PIA									
Lead	2.9	mg/L		12/21/20 14:21	20	1.0	12/29/20 15:58	TJJ	EPA 200.7 REV 4.4
Phosphorus	29	mg/L		12/21/20 14:21	20	5.0	12/29/20 15:58	TJJ	EPA 200.7 REV 4.4
Zinc	7.9	mg/L		12/21/20 14:21	20	1.0	12/29/20 15:58	TJJ	EPA 200.7 REV 4.4

ANALYTICAL RESULTS

Sample: 0122528-15
Name: Supernatant 4 4 Hours
Alias: ML SE 12-11-20

Sampled: 12/16/20 13:55
Received: 12/11/20 13:40
Matrix: Waste Water - Regular Sample

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
General Chemistry - PIA									
Solids - total solids (TS)	690	mg/L		12/28/20 09:02	1	34	12/28/20 09:41	BCR	*** DEFAULT SPECIFIC METHOD ***
Solids - total suspended solids (TSS)	150	mg/L		12/21/20 08:40	1	5.0	12/21/20 11:43	BCR	SM 2540 D 1997
Solids - total volatile solids (TVS)	200	mg/L		12/28/20 09:02	1	17	12/28/20 09:41	BCR	SM 2540E*
Nutrients - PIA									
Ammonia-N	2.2	mg/L		12/24/20 09:50	1	0.10	12/24/20 09:50	CRS1	EPA 350.1 REV2
Total Metals - PIA									
Lead	< 0.050	mg/L		12/21/20 14:21	1	0.050	12/29/20 16:01	TJJ	EPA 200.7 REV 4.4
Phosphorus	< 0.25	mg/L		12/21/20 14:21	1	0.25	12/29/20 16:01	TJJ	EPA 200.7 REV 4.4
Zinc	< 0.050	mg/L		12/21/20 14:21	1	0.050	12/29/20 16:01	TJJ	EPA 200.7 REV 4.4

Sample: 0122528-16
Name: Supernatant 4 24 Hours
Alias: ML SE 12-11-20

Sampled: 12/17/20 14:00
Received: 12/11/20 13:40
Matrix: Waste Water - Regular Sample

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
General Chemistry - PIA									
Solids - total solids (TS)	550	mg/L		12/28/20 09:02	1	34	12/28/20 09:41	BCR	*** DEFAULT SPECIFIC METHOD ***
Solids - total suspended solids (TSS)	120	mg/L		12/21/20 08:40	1	7.1	12/21/20 11:43	BCR	SM 2540 D 1997
Solids - total volatile solids (TVS)	210	mg/L		12/28/20 09:02	1	17	12/28/20 09:41	BCR	SM 2540E*
Nutrients - PIA									
Ammonia-N	1.3	mg/L		12/24/20 09:51	1	0.10	12/24/20 09:51	CRS1	EPA 350.1 REV2
Total Metals - PIA									
Lead	< 0.050	mg/L		12/21/20 14:21	1	0.050	12/29/20 16:03	TJJ	EPA 200.7 REV 4.4
Phosphorus	< 0.25	mg/L		12/21/20 14:21	1	0.25	12/29/20 16:03	TJJ	EPA 200.7 REV 4.4
Zinc	< 0.050	mg/L		12/21/20 14:21	1	0.050	12/29/20 16:03	TJJ	EPA 200.7 REV 4.4

ANALYTICAL RESULTS

Sample: 0122528-17
Name: Background Water
Matrix: Waste Water - Regular Sample

Sampled: 12/11/20 10:00
Received: 12/11/20 13:40

Parameter	Result	Unit	Qualifier	Prepared	Dilution	MRL	Analyzed	Analyst	Method
General Chemistry - PIA									
Solids - total solids (TS)	460	mg/L		12/16/20 09:29	1	17	12/16/20 09:45	BCR	*** DEFAULT SPECIFIC METHOD ***
Solids - total suspended solids (TSS)	110	mg/L		12/17/20 08:52	1	5.3	12/17/20 14:22	BCR	SM 2540 D 1997
Solids - total volatile solids (TVS)	270	mg/L		12/16/20 09:29	1	17	12/16/20 09:45	BCR	SM 2540E*
Nutrients - PIA									
Ammonia-N	0.96	mg/L		12/17/20 10:57	1	0.10	12/17/20 10:57	CRS1	EPA 350.1 REV2
Total Metals - PIA									
Lead	< 0.010	mg/L		12/17/20 11:14	1	0.010	12/23/20 14:34	TJJ	EPA 200.7 REV 4.4
Phosphorus	0.11	mg/L		12/17/20 11:14	1	0.050	12/23/20 14:34	TJJ	EPA 200.7 REV 4.4
Zinc	< 0.010	mg/L		12/17/20 11:14	1	0.010	12/23/20 14:34	TJJ	EPA 200.7 REV 4.4

NOTES

Specifications regarding method revisions and method modifications used for analysis are available upon request. Please contact your project manager.

* Not a TNI accredited analyte

Memos

Revised Report - corrected sample alias

Certifications

CHI - McHenry, IL - 4314-A W. Crystal Lake Road, McHenry, IL 60050
TNI Accreditation for Drinking Water and Wastewater Fields of Testing through IL EPA Accreditation No. 100279
Illinois Department of Public Health Bacterial Analysis in Drinking Water Approved Laboratory Registry No. 17556

PIA - Peoria, IL - 2231 W. Altorfer Drive, Peoria, IL 61615
TNI Accreditation for Drinking Water, Wastewater, Solid and Hazardous Material Fields of Testing through IL EPA Accreditation No. 100230
Illinois Department of Public Health Bacterial Analysis in Drinking Water Approved Laboratory Registry No. 17553
Drinking Water Certifications/Accreditations: Iowa (240); Kansas (E-10338); Missouri (870)
Wastewater Certifications/Accreditations: Arkansas (88-0677); Iowa (240); Kansas (E-10338)
Solid and Hazardous Material Certifications/Accreditations: Arkansas (88-0677); Iowa (240); Kansas (E-10338)

SPMO - Springfield, MO - 1805 W Sunset Street, Springfield, MO 65807
USEPA DMR-QA Program

STL - Hazelwood, MO - 944 Anglum Rd, Hazelwood, MO 63042
TNI Accreditation for Wastewater, Solid and Hazardous Material Fields of Testing through KS KDHE Certification No. E-10389
TNI Accreditation for Wastewater, Solid and Hazardous Material Fields of Testing through IL EPA Accreditation No. - 200080
Illinois Department of Public Health Bacterial Analysis in Drinking Water Approved Laboratory, Registry No. 171050
Missouri Department of Natural Resources - Certificate of Approval for Microbiological Laboratory Service - No. 1050

Qualifiers

M Analyte failed to meet the required acceptance criteria for duplicate analysis.
X Sample weigh back criteria not met due to high TSS level.

Gail J Schindler

Certified by: Gail Schindler For Kurt Stepping, Senior Project Manager

PDC LABORATORIES, INC.
WWW.PDCLAB.COM

REGULATORY PROGRAM (CIRCLE):	NPDES
MORBCA	RCRA
CCDD	TACO: RES OR IND/COMM

CHAIN OF CUSTODY RECORD

STATE WHERE SAMPLE COLLECTED__IL__

ALL HIGHLIGHTED AREAS MUST BE COMPLETED BY CLIENT (PLEASE PRINT)

(1) CLIENT	PROJECT NUMBER	PROJECT LOCATION	PURCHASE ORDER #
INTEGRATED LAKES MANAGEMENT		MASTADON LAKE	
ADDRESS 110 LEBARON STREET	**PHONE NUMBER** 847-244-6662 847-343-3484 (CELL)	**E-MAIL** SKUBILLUS@ILMENVIRONMENTS.COM	**DATE SHIPPED** 12/11/20
CITY WAUKEGAN **STATE** IL **ZIP** 60085	**SAMPLER (PLEASE PRINT)** SANDY KUBILLUS		**MATRIX TYPES:** WW- WASTEWATER; DW- DRINKING WATER; GW- GROUND WATER; WWSL- SLUDGE; NAS- NON AQUEOUS SOLID; LCHT-LEACHATE; OIL-OIL; SO-SOIL; SOL-SOLID
CONTACT PERSON SANDY KUBILLUS	**SAMPLER'S SIGNATURE**		

(3) **ANALYSIS REQUESTED**

(4) (FOR LAB USE ONLY)
LOGIN # 0122528 ~~D120283~~
LOGGED BY: CK 12/11/20
CLIENT:
PROJECT:
PROJ. MGR.:
CUSTODY SEAL #:

(2) SAMPLE DESCRIPTION (UNIQUE DESCRIPTION AS IT WILL APPEAR ON THE ANALYTICAL REPORT)	DATE COLLECTED	TIME COLLECTED	SAMPLE TYPE GRAB	SAMPLE TYPE COMP	MATRIX TYPE	BOTTLE COUNT	PRES CODE CLIENT PROVIDED	Ammonia N	Lead	Total solids (TS)	Total suspended solids (TSS)	Total volatile solids (TVS)	zinc	Total phosphorus	REMARKS
MLSW 12-11-20	12-11-20	11:45		X	SOL	3	6	X	X	X	X	X	X	X	Sample on supernatant at 0-hour +
ML NW 12-11-20	12-11-20	11:15		X	SOL	3	6	X	X	X	X	X	X	X	4-hours a+ 24-hours after passing
ML E 12-11-20	12-11-20	10:30		X	SOL	3	6	X	X	X	X	X	X	X	Through #230 sieve
ML SE 12-11-20	12-11-20	10:55		X	SOL	3	6								See Kurt Stepping in Peoria lab
ML LAKE 12-11-20	12-11-20	10:00	X		WW	4	2/3	X	X	X	X	X	X	X	
BACKGROUND WATER	12-11-20	10:00	X		WW	12	6								To be mixed with sediment 4:1

CHEMICAL PRESERVATION CODES:	1 – HCL	2 – H2SO4	3 – HNO3	4 – NAOH	5 – NA2S2O3	6 – UNPRESERVED	7 – OTHER

(5) TURNAROUND TIME REQUESTED (PLEASE CIRCLE) NORMAL RUSH
(RUSH TAT IS SUBJECT TO PDC LABS APPROVAL AND SURCHARGE)
RUSH RESULTS VIA (PLEASE CIRCLE) EMAIL PHONE
DATE RESULTS NEEDED NORMAL
EMAIL IF DIFFERENT FROM ABOVE: PHONE # IF DIFFERENT FROM ABOVE:

(6) *I understand that by initialing this box I give the lab permission to proceed with analysis, even though it may not meet all sample conformance requirements as defined in the receiving facility's Sample Acceptance Policy and the data will be qualified. Qualified data may NOT be acceptable to report to all regulatory authorities.*
PROCEED WITH ANALYSIS AND QUALIFY RESULTS: (INITIALS) _____

(7) RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
Sandy Kubillus	12-11-20	1:40	CK	12-11-20	13:40
RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME

(8) COMMENTS: (FOR LAB USE ONLY)

SAMPLE TEMPERATURE UPON RECEIPT 6.0 °C
CHILL PROCESS STARTED PRIOR TO RECEIPT (Y OR N)
SAMPLE(S) RECEIVED ON ICE (Y OR N)
SAMPLE ACCEPTANCE NONCONFORMANT REPORT IS NEEDED (Y OR N)
DATE AND TIME TAKEN FROM SAMPLE BOTTLE

PDC LABORATORIES, INC.
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REGULATORY PROGRAM (CIRCLE):	NPDES
MORBCA	RCRA
CCDD	TACO: RES OR IND/COMM

CHAIN OF CUSTODY RECORD

STATE WHERE SAMPLE COLLECTED__IL__

ALL HIGHLIGHTED AREAS MUST BE COMPLETED BY CLIENT (PLEASE PRINT)

CLIENT	PROJECT NUMBER	PROJECT LOCATION	PURCHASE ORDER #
INTEGRATED LAKES MANAGEMENT		MASTADON LAKE	
ADDRESS	**PHONE NUMBER**	**E-MAIL**	**DATE SHIPPED**
110 LEBARON STREET	847-244-6662	SKUBILLUS@ILMENVIRONMENTS.COM	12/2/20
CITY WAUKEGAN **STATE** IL **ZIP** 60085	**SAMPLER (PLEASE PRINT)** SANDY KUBILLUS		**MATRIX TYPES:** WW- WASTEWATER; DW- DRINKING WATER; GW- GROUND WATER; WWSL- SLUDGE; NAS- NON AQUEOUS SOLID; LCHT-LEACHATE; OIL-OIL; SO-SOIL; SOL-SOLID
CONTACT PERSON SANDY KUBILLUS	**SAMPLER'S SIGNATURE**		

(3) **ANALYSIS REQUESTED**

(4) (FOR LAB USE ONLY)
LOGIN # 0122528 ~~0120283~~ 6/11/21-20
LOGGED BY: BK
CLIENT:
PROJECT:
PROJ. MGR.:
CUSTODY SEAL #:

(2) SAMPLE DESCRIPTION (UNIQUE DESCRIPTION AS IT WILL APPEAR ON THE ANALYTICAL REPORT)	DATE COLLECTED	TIME COLLECTED	SAMPLE TYPE GRAB	SAMPLE TYPE COMP	MATRIX TYPE	BOTTLE COUNT	PRES CODE CLIENT PROVIDED	Particle size #230	Supernatant 0 hours 6/11/21-20	Supernatant 4 hours	Supernatant 24 hours				REMARKS
MLSW 12-11-20	12-11-20	1145		X	SOL	3	6	X	X	X	X				Sample supernatant at 0 hours
ML NW 12-11-20	12-11-20	1115		X	SOL	3	6	X	X	X	X				4-hours and 24-hours after passing
ML E 12-11-20	12-11-20	1030		X	SOL	3	6	X	X	X	X				Through #230 sieve for tests on page 1
ML SE 12-11-20	12-11-20	1055		X	SOL	3	6	X	X	X	X				See Kurt Stepping in Peoria lab

CHEMICAL PRESERVATION CODES:	1 – HCL	2 – H2SO4	3 – HNO3	4 – NAOH	5 – NA2S2O3	6 – UNPRESERVED	7 – OTHER

(5) **TURNAROUND TIME REQUESTED** (PLEASE CIRCLE) NORMAL RUSH
(RUSH TAT IS SUBJECT TO PDC LABS APPROVAL AND SURCHARGE)
RUSH RESULTS VIA (PLEASE CIRCLE) EMAIL PHONE
EMAIL IF DIFFERENT FROM ABOVE: PHONE # IF DIFFERENT FROM ABOVE:

DATE RESULTS NEEDED NORMAL

(6) *I understand that by initialing this box I give the lab permission to proceed with analysis, even though it may not meet all sample conformance requirements as defined in the receiving facility's Sample Acceptance Policy and the data will be qualified. Qualified data may NOT be acceptable to report to all regulatory authorities.*

PROCEED WITH ANALYSIS AND QUALIFY RESULTS: (INITIALS) _____

(7) RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
Sandy Kubillus	12/11/20	1:40	BK	12-11-20	13:40
RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME

(8) COMMENTS: (FOR LAB USE ONLY)

SAMPLE TEMPERATURE UPON RECEIPT 12.0 °C
CHILL PROCESS STARTED PRIOR TO RECEIPT Y OR N
SAMPLE(S) RECEIVED ON ICE Y OR N
SAMPLE ACCEPTANCE NONCONFORMANT REPORT IS NEEDED Y OR N
DATE AND TIME TAKEN FROM SAMPLE BOTTLE _____

Qualtrax ID #3210

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276

217/782-3362

[redacted]

MATERIAL ANALYSIS FOR DREDGE AND FILL ACTIVITIES
Section 401 Water Quality Certification

Generally, a particle size analysis (sand/fine split) is required for all projects or activities involving the movement of any material. This analysis is necessary for the issuance of a Section 401 Water Quality Certification in conjunction with the US Army Corps of Engineers Section 404 Dredge and Fill permit. Excluded from the following analysis are concrete, commercially graded sand and gravel, and other nondegradable, nontoxic, clean fill materials. Testing is not necessary for mechanically excavated material used for fill in upland areas, which is nonpollutional, placed away from public water supplies, and is prevented from returning to the waterway. For further clarification on these exclusions, contact the IEPA. IF YOUR PROPOSED PROJECT INVOLVES THE MOVEMENT OF MATERIAL INTO OR OUT OF A WATERWAY, YOU MUST PROVIDE THE FOLLOWING INFORMATION:

1. Provide the results of **PARTICLE SIZE ANALYSIS (SAND/FINE SPLIT).** The analysis will follow procedures detailed below for the separation of sand from fines, and results will be reported as the percentage by weight passing a 62-micron sieve (#230 US sieve). The physical characteristics of the material should be noted.

   a. Significant organic matter should be removed as follows: Add 5ml of 6% solution of hydrogen peroxide for each gram of dry sample which is in 40 ml water. Stir and cover. Large fragments may be skimmed off if they are free of sediment. If oxidation is slow or has slowed, the mixture is heated to 93°C and stirred. More hydrogen peroxide solution may be necessary to complete oxidation. After the reaction has completely stopped, wash with distilled water.

   b. The composited sediment is placed in the soil dispersion cup and diluted to 250-300 ml with distilled water. Mix for 5 minutes at 10,000 RPM.

   c. The sediment is then wet-sieved using distilled water and a #230 US sieve (62 micron mesh). Washing should be continued until no sediment passes the screen. Material is then oven-dried at 100°-105°C prior to weighing.

2. If the particle size analysis shows 20% or greater passage of material through a #230 US sieve (or 20% of the material has settling velocities of particles with diameters of 62 microns or less), chemical constituent testing of the sediment and receiving disposal waters will be required and must demonstrate that the sediment does not contain significant levels of toxic materials.

   a. **For hydraulically moved material,** a **SUPERNATANT TEST** for nonsettleable material from 2540 (f) of Standard Methods for Water and Wastewater Analysis (20th edition, 1998) is required. This analysis for a four-hour settling of 1:4 sediment to natural background water slurry (vol./vol.) is to be compared to the receiving waters. Provide laboratory analysis on the sediment/background water slurry and the receiving water for the following parameters: total suspended solids (TSS), total volatile solid (TVS), ammonia-nitrogen (as N), lead (total), and zinc. Additional parameters may be required based on documented sediment contamination. If supernatant test results exceed background TSS or the TSS standard of 35 Ill. Adm. Code, Subtitle C: Water Pollution, additional supernatant tests are required. These detailed tests should be conducted with the same settling time(s) as the proposed disposal facilities. Consideration should be given to background variability with differences in flow volume and flow rate, and subsequent project scheduling. Contact the Illinois EPA (Watershed Management Section at 217/782-3362) for further information concerning additional suspended phase testing.

   b. **For mechanically moved material** placed out of the water, an **ELUTRIATE TEST** using 2540(f) of Standard Methods is required for lead, zinc, and ammonia-nitrogen as N. Additional testing and/or additional parameters may be required.

   c. **For mechanically moved material** placed in a waterway, follow procedures in 2a.

[Revised: 10/2000] dredgfil.ms

[redacted]

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ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
WATER POLLUTION CONTROL PERMIT

LOG NUMBERS: 2021-66294
Bureau ID#: W0898000037
FINAL PLANS, SPECIFICATIONS, APPLICATION AND SUPPORTING DOCUMENTS
PREPARED BY: HR Green, Inc.

PERMIT NO.: 2021-EA-66294

DATE ISSUED: July 2, 2021

SUBJECT: MASTODON LAKE DREDGING

PERMITTEE TO CONSTRUCT, OWN AND OPERATE

City of Aurora
77 S. Broadway
Aurora, IL 60507

Permit is hereby granted to the above designated permittee(s) to construct and/or operate the water pollution control facilities referred to in the above heading, and described as follows:

The facility includes two (2) temporary sediment dewatering locations within Phillips Park in the SW 1/4 of Section 26, Township 38-West, Range 8-East, of the 3rd Principle Meridian in Kane County. Proposed hydraulic dredging will produce approximately 50,000 cubic yards of dredged material from Mastodon Lake. The hydraulicly dredged material will be pumped into geotextile bags at one of two temporary sediment dewatering and stockpiling locations, Site #1 (Parking Lot) and Site #2 (Peninsula). When sufficiently dried, the material will be taken to a stockpile location at a nearby golf course without discharge to waters of the State. Impermeable liners and strawbales or similar will be used to direct geotextile filtrate to a single outfall at each dewatering location. The applicant will utilize a flocculant in accordance with the application and Special Condition #3 of this permit to ensure the discharged effluent meets 15 mg/l of total suspended solids prior to discharge to Mastodon Lake.

This construction and operating permit expires on May 31, 2026.

This Permit is issued subject to the following Special Condition(s). If such Special Condition(s) require(s) additional or revised facilities, satisfactory engineering plan documents must be submitted to this Agency for review and approval for issuance of a Supplemental Permit.

SPECIAL CONDITION 1: The permittee shall monitor the effluent from each dewatering location (Site #1 and Site #2) for total suspended solids, ammonia-nitrogen (as N), pH, and temperature. Samples shall be collected once per week and results shall be submitted to the Agency once per month, by the 15th day of the month following sampling. The permittee shall send the monitoring reports to the below address:

Illinois Environmental Protection Agency
Bureau of Water
Permit Section
1021 North Grand Avenue East

THE STANDARD CONDITIONS OF ISSUANCE INDICATED ON THE REVERSE SIDE MUST BE COMPLIED WITH IN FULL. READ ALL CONDITIONS CAREFULLY.

DEL: DRG:2021-66294_State Permit_05Apr21.docx

cc: IEPA, DWPC, FOS, DesPlaines
Records
Binds
HR Green, Inc., Attn: Logan Gilbertsen, P.E., 323 Alana Dr., New Lenox, IL 60451

BUREAU OF WATER

Darin E. LeCrone, P.E.
Manager, Permit Section
Division of Water Pollution Control
Illinois Environmental Protection Agency

READ ALL CONDITIONS CAREFULLY:
STANDARD CONDITIONS

The Illinois Environmental Protection Act (Illinois Revised Statutes Chapter 111-12. Section 1039) grants the Environmental Protection Agency authority to impose conditions on permits which it issues.

1. Unless the construction for which this permit is issued has been completed, this permit will expire: (1) two years after the date of issuance for permits to construct sewers or wastewater sources or (2) three years after the date of issuance for permits to construct treatment works or pretreatment works.

2. The construction or development of facilities covered by this permit shall be done in compliance with applicable provisions of Federal laws and regulations, the Illinois Environmental Protection Act, and Rules and Regulations adopted by the Illinois Pollution Control Board.

3. There shall be no deviations from the approved plans and specifications unless a written request for modification of the project, along with plans and specifications as required, shall have been submitted to the Agency and a supplemental written permit issued.

4. The permittee shall allow any agent duly authorized by the Agency upon the presentations of credentials:

   a. to enter at reasonable times, the permittee's premises where actual or potential effluent, emission or noise sources are located or where any activity is to be conducted pursuant to this permit;

   b. To have access to and copy at reasonable times any records required to be kept under the terms and conditions of this permit;

   c. To inspect at reasonable times, including during any hours of operation of equipment constructed or operated under this permit, such equipment or monitoring methodology or equipment required to be kept, used, operated, calibrated, and maintained under this permit;

   d. To obtain and remove at reasonable times samples of any discharge or emission of pollutants;

   e. To enter at reasonable times and utilize any photographic, recording, testing, monitoring or other equipment for the purpose of preserving testing, monitoring, or recording any activity, discharge, or emission authorized by this permit.

5. The issuance of this permit:

   a. shall not be considered as in any manner affecting the title of the premises upon which the permitted facilities are to be located;

   b. does not release the permittee from any liability for damage to person or property caused by or resulting from the construction, maintenance, or operation of the proposed facilities;

   c. does not release the permittee from compliance with other applicable statutes and regulations of the United States, of the State of Illinois, or with applicable local laws, ordinances and regulations;

   d. does not take into consideration or attest to the structural stability of any units or parts of the project;

   e. in no manner implies or suggests that the Agency (or its officers, agents, or employees) assume any liability, directly or indirectly, for any loss due to damage, installation, maintenance, or operation of the proposed equipment or facility.

6. Unless a joint construction/operation permit has been issued, a permit for operating shall be obtained from the Agency before the facility or equipment covered by this permit is placed into operation.

7. These standard conditions shall prevail unless modified by special conditions.

8. The Agency may file a complaint with the Board for suspension or revocation of a permit:

   a. upon discovery that the permit application contained misrepresentation, misinformation or false statement or that all relevant facts were not disclosed; or

   b. upon finding that any standard or special condition have been violated; or

   c. upon any violation of the Environmental Protection Act or any Rules or Regulation effective thereunder as a result of the construction or development authorized by this permit.

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
WATER POLLUTION CONTROL PERMIT

LOG NUMBERS: 2021-66294
BUREAU ID#: W0898000037
FINAL PLANS, SPECIFICATIONS, APPLICATION AND SUPPORTING DOCUMENTS
PREPARED BY: HR Green, Inc.

PERMIT NO.: 2021-EA-66294

DATE ISSUED: July 2, 2021

SUBJECT: MASTODON LAKE DREDGING

Post Office Box 19276
Springfield, Illinois 62794-9276

SPECIAL CONDITION 2: The permittee shall operate the dredge and the disposal facilities such that the effluent does not exceed 15 mg/L total suspended solids, and otherwise complies with the water quality standards of 35 Il. Adm. Code, Subtitle C.

SPECIAL CONDITION 3: The use of flocculants and/or coagulants is authorized providing that dosing rates are minimized to the extent necessary to achieve solids removal and meet TSS or chemical-specific permit limits. The products must be applied in strict accordance with the manufacturer's recommended application rates with respect to solids content, which must be verified through TSS measurements of the water or jar/bench testing of the products using site-water. The permittee must keep records of the amount (kg) of product added and an estimated dosage rate (mg/L) at the time of product application. Application of a product at concentrations exceeding the manufacturer's recommendations is not authorized.

SPECIAL CONDITION 4: The permittee shall be responsible for obtaining an NPDES stormwater permit prior to initializing construction, including upland placement of dredged material, if the construction will result in the disturbance of 1 (one) or more acres of total land area.

READ ALL CONDITIONS CAREFULLY:
STANDARD CONDITIONS

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1. Unless the construction for which this permit is issued has been completed, this permit will expire: (1) two years after the date of issuance for permits to construct sewers or wastewater sources or (2) three years after the date of issuance for permits to construct treatment works or pretreatment works.

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4. The permittee shall allow any agent duly authorized by the Agency upon the presentations of credentials:

   a. to enter at reasonable times, the permittee's premises where actual or potential effluent, emission or noise sources are located or where any activity is to be conducted pursuant to this permit;

   b. To have access to and copy at reasonable times any records required to be kept under the terms and conditions of this permit;

   c. To inspect at reasonable times, including during any hours of operation of equipment constructed or operated under this permit, such equipment or monitoring methodology or equipment required to be kept, used, operated, calibrated, and maintained under this permit;

   d. To obtain and remove at reasonable times samples of any discharge or emission of pollutants;

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   c. does not release the permittee from compliance with other applicable statutes and regulations of the United States, of the State of Illinois, or with applicable local laws, ordinances and regulations;

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   c. upon any violation of the Environmental Protection Act or any Rules or Regulation effective thereunder as a result of the construction or development authorized by this permit.