

\$465,825.58

BID OF PROAXIS LLC

2024

PROPOSAL, CONTRACT, BOND AND SPECIFICATIONS

FOR

2024 PARKING GARAGE MAINTENANCE

CONTRACT NO. 9493

PROJECT NO. 8214556D

MUNIS NO. 8214556D

IN

MADISON, DANE COUNTY, WISCONSIN

AWARDED BY THE COMMON COUNCIL
MADISON, WISCONSIN ON APRIL 16, 2024

CITY ENGINEERING DIVISION
1600 EMIL STREET
MADISON, WISCONSIN 53713

<https://bidexpress.com/login>

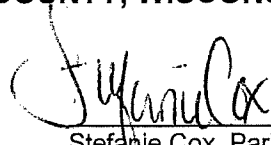
**2024 PARKING GARAGE MAINTENANCE
CONTRACT NO. 9493**

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This Proposal, and Agreement have
been prepared by:

**CITY ENGINEERING DIVISION
CITY OF MADISON
MADISON, DANE COUNTY, WISCONSIN**



Stefanie Cox, Parking Division Manager

WHP: hs

SECTION A: ADVERTISEMENT FOR BIDS AND INSTRUCTIONS TO BIDDERS

REQUEST FOR BID FOR PUBLIC WORKS CONSTRUCTION CITY OF MADISON, WISCONSIN

A BEST VALUE CONTRACTING MUNICIPALITY

PROJECT NAME:	2024 PARKING GARAGE MAINTENANCE
CONTRACT NO.:	9493
SBE GOAL	4%
BID BOND	5%
SBE PRE BID MEETING (2:00 P.M.)	2/29/2024
PREQUALIFICATION APPLICATION DUE (2:00 P.M.)	2/29/2024
BID SUBMISSION (2:00 P.M.)	3/7/2024
BID OPEN (2:30 P.M.)	3/7/2024
PUBLISHED IN WSJ	2/16/2024 & 2/23/2024

SBE PRE BID MEETING: Pre-Bid Meetings are being held virtually. Advance registration is required. Visit the SBE Meeting web page on Engineering's web site:

<https://www.cityofmadison.com/engineering/developers-contractors/contractors/how-to-bid-public-works-contracts/small-business>.

Questions regarding SBE Program requirements may be directed to Tracy Lomax, Affirmative Action Division. Tracy may be reached at (608) 267-8634, or by email, TLomax@cityofmadison.com.

PREQUALIFICATION APPLICATION: Forms are available on our website, www.cityofmadison.com/engineering/developers-contractors/contractors/how-to-get-prequalified. If not currently prequalified in the categories listed in Section A, an amendment to your Prequalification will need to be submitted prior to the same due date. Postmark is not applicable.

BIDS TO BE SUBMITTED: by hand to 1600 EMIL ST., MADISON, WI 53713 or online at www.bidexpress.com.

Bids may be submitted on line through Bid Express or in person at 1600 Emil St. The bids will be posted on line after the bid opening. If you have any questions, please call Alane Boutelle at (608) 267-1197, or John Fahrney at (608) 266-9091.

STANDARD SPECIFICATIONS

The City of Madison's Standard Specifications for Public Works Construction - 2024 Edition, as supplemented and amended from time to time, forms a part of these contract documents as if attached hereto.

These standard specifications are available on the City of Madison Public Works website, www.cityofmadison.com/engineering/developers-contractors/standard-specifications.

The Contractor shall review these Specifications prior to preparation of proposals for the work to be done under this contract, with specific attention to Article 102, "BIDDING REQUIREMENTS AND CONDITIONS" and Article 103, "AWARD AND EXECUTION OF THE CONTRACT." For the convenience of the bidder, below are highlights of three subsections of the specifications.

SECTION 102.1: PRE-QUALIFICATION OF BIDDERS

In accordance with Wisconsin State Statutes 66.0901 (2) and (3), all bidders must submit to the Board of Public Works proof of responsibility on forms furnished by the City. The City requires that all bidders be qualified on a biennial basis.

Bidders must present satisfactory evidence that they have been regularly engaged in the type of work specified herein and they are fully prepared with necessary capital, materials, machinery and supervisory personnel to conduct the work to be contracted for to the satisfaction of the City. All bidders must be pre-qualified by the Board of Public Works for the type of construction on which they are bidding prior to the opening of the bid.

In accordance with Section 39.02(9)(a)l. of the General Ordinances, all bidders shall submit in writing to the Affirmative Action Division Manager of the City of Madison, a Certificate of Compliance or an Affirmative Action Plan at the same time or prior to the submission of the proof of responsibility forms.

The bidder shall be disqualified if the bidder fails to or refuses to, prior to opening of the bid, submit a Certificate of compliance, Affirmative Action Plan or Affirmative Action Data Update, as applicable, as defined by Section 39.02 of the General Ordinances (entitled Affirmative Action) and as required by Section 102.11 of the Standard Specifications.

SECTION 102.4 PROPOSAL

No bid will be accepted that does not contain an adequate or reasonable price for each and every item named in the Schedule of Unit Prices.

A lump sum bid for the work in accordance with the plans and specifications is required. The lump sum bid must be the same as the total amounts bid for the various items and it shall be inserted in the space provided.

All papers bound with or attached to the proposal form are considered a part thereof and must not be detached or altered when the proposal is submitted. The plans, specifications and other documents designated in the proposal form will be considered a part of the proposal whether attached or not.

A proposal submitted by an individual shall be signed by the bidder or by a duly authorized agent. A proposal submitted by a partnership shall be signed by a member/partner or by a duly authorized agent thereof. A proposal submitted by a corporation shall be signed by an authorized officer or duly authorized registered agent of such corporation, and the proposal shall show the name of the State under the laws of which such corporation was chartered. The required signatures shall in all cases appear in the space provided thereof on the proposal.

Each proposal shall be placed, together with the proposal guaranty, in a sealed envelope, so marked as to indicate name of project, the contract number or option to which it applies, and the name and address of the Contractor or submitted electronically through Bid Express (www.bidexpress.com). Proposals will be accepted at the location, the time and the date designated in the advertisement. Proposals received after the time and date designated will be returned to the bidder unopened.

SECTION 102.5: BID DEPOSIT (PROPOSAL GUARANTY)

All bids, sealed or electronic, must be accompanied with a Bid Bond (City of Madison form) equal to at least 5% of the bid or a Certificate of Annual/Biennial Bid Bond or certified check, payable to the City Treasurer. Bid deposit of the successful bidders shall be returned within forty-eight (48) hours following execution of the contract and bond as required.

MINOR DISCREPANCIES

Bidder is responsible for submitting all forms necessary for the City to determine compliance with State and City bidding requirements. Notwithstanding any language to the contrary contained herein, the City may exercise its discretion to allow bidders to correct or supplement submissions after bid opening, if the minor discrepancy, bid irregularity or omission is insignificant and not one related to price, quality, quantity, time of completion or performance of the contract.

Bidders for this Contract(s) must be Pre-Qualified for at least one of the following type(s) of construction denoted by an

Building Demolition

- 101 Asbestos Removal
 120 House Mover

- 110 Building Demolition

Street, Utility and Site Construction

- 201 Asphalt Paving
 205 Blasting
 210 Boring/Pipe Jacking
 215 Concrete Paving
 220 Con. Sidewalk/Curb & Gutter/Misc. Flat Work
 221 Concrete Bases and Other Concrete Work
 222 Concrete Removal
 225 Dredging
 230 Fencing
 235 Fiber Optic Cable/Conduit Installation
 240 Grading and Earthwork
 241 Horizontal Saw Cutting of Sidewalk
 242 Hydro Excavating
 243 Infrared Seamless Patching
 245 Landscaping, Maintenance
 246 Ecological Restoration
 250 Landscaping, Site and Street
 251 Parking Ramp Maintenance
 252 Pavement Marking
 255 Pavement Sealcoating and Crack Sealing
 260 Petroleum Above/Below Ground Storage Tank Removal/Installation
 262 Playground Installer

- 265 Retaining Walls, Precast Modular Units
 270 Retaining Walls, Reinforced Concrete
 275 Sanitary, Storm Sewer and Water Main Construction
 276 Sawcutting
 280 Sewer Lateral Drain Cleaning/Internal TV Insp.
 285 Sewer Lining
 290 Sewer Pipe Bursting
 295 Soil Borings
 300 Soil Nailing
 305 Storm & Sanitary Sewer Laterals & Water Svc.
 310 Street Construction
 315 Street Lighting
 318 Tennis Court Resurfacing
 320 Traffic Signals
 325 Traffic Signing & Marking
 332 Tree pruning/removal
 333 Tree, pesticide treatment of
 335 Trucking
 340 Utility Transmission Lines including Natural Gas, Electrical & Communications
 399 Other_____

Bridge Construction

- 501 Bridge Construction and/or Repair

Building Construction

- 401 Floor Covering (including carpet, ceramic tile installation, rubber, VCT)
 402 Building Automation Systems
 403 Concrete
 404 Doors and Windows
 405 Electrical - Power, Lighting & Communications
 410 Elevator - Lifts
 412 Fire Suppression
 413 Furnishings - Furniture and Window Treatments
 415 General Building Construction, Equal or Less than \$250,000
 420 General Building Construction, \$250,000 to \$1,500,000
 425 General Building Construction, Over \$1,500,000
 428 Glass and/or Glazing
 429 Hazardous Material Removal
 430 Heating, Ventilating and Air Conditioning (HVAC)
 433 Insulation - Thermal
 435 Masonry/Tuck pointing

- 437 Metals
 440 Painting and Wallcovering
 445 Plumbing
 450 Pump Repair
 455 Pump Systems
 460 Roofing and Moisture Protection
 464 Tower Crane Operator
 461 Solar Photovoltaic/Hot Water Systems
 465 Soil/Groundwater Remediation
 466 Warning Sirens
 470 Water Supply Elevated Tanks
 475 Water Supply Wells
 480 Wood, Plastics & Composites - Structural & Architectural
 499 Other_____

State of Wisconsin Certifications

- 1 Class 5 Blaster - Blasting Operations and Activities 2500 feet and closer to inhabited buildings for quarries, open pits and road cuts.
 2 Class 6 Blaster - Blasting Operations and Activities 2500 feet and closer to inhabited buildings for trenches, site excavations, basements, underwater demolition, underground excavations, or structures 15 feet or less in height.
 3 Class 7 Blaster - Blasting Operations and Activities for structures greater than 15' in height, bridges, towers, and any of the objects or purposes listed as "Class 5 Blaster or Class 6 Blaster".
 4 Petroleum Above/Below Ground Storage Tank Removal and Installation (Attach copies of State Certifications.)
 5 Hazardous Material Removal (Contractor to be certified for asbestos and lead abatement per the Wisconsin Department of Health Services, Asbestos and Lead Section (A&LS).) See the following link for application: www.dhs.wisconsin.gov/Asbestos/Cert. State of Wisconsin Performance of Asbestos Abatement Certificate must be attached.
 6 Certification number as a Certified Arborist or Certified Tree Worker as administered by the International Society of Arboriculture
 7 Pesticide application (Certification for Commercial Applicator For Hire with the certification in the category of turf and landscape (3.0) and possess a current license issued by the DATCP)
 8 State of Wisconsin Master Plumbers License.

SECTION B: PROPOSAL

Please refer to the
Bid Express Website
at <https://bidexpress.com>
look up contract number
and go to
Section B: Proposal Page

You can access all City of Madison bid solicitations for FREE at www.bidexpress.com

Click on the "Register for Free" button and follow the instructions to register your company and yourself. You will be asked for a payment subscription preference, since you may wish to bid online someday. Simply choose the method to pay on a 'per bid' basis. This requires no payment until / unless you actually bid online. You can also choose the monthly subscription plan at this time. You will, however, be asked to provide payment information. Remember, you can change your preference at anytime. You will then be able to complete your free registration and have full access to the site. Your free access does not require completion of the 'Digital ID' process, so you will have instant access for viewing and downloading. To be prepared in case you ever do wish to bid online, you may wish to establish your digital ID also, since you cannot bid without a Digital ID.

If you have any problems with the free registration process, you can call the bidexpress help team, toll free at 1-888-352-2439 (option 1, option1).

SECTION C: SMALL BUSINESS ENTERPRISE

Instructions to Bidders City of Madison SBE Program Information

2 Small Business Enterprise (SBE) Program Information

2.1 Policy and Goal

The City of Madison reaffirms its policy of nondiscrimination in the conduct of City business by maintaining a procurement process which remains open to all who have the potential and ability to sell goods and services to the City. It is the policy of the City of Madison to allow Small Business Enterprises (SBE) maximum feasible opportunity to participate in City of Madison contracting. The bidder acknowledges that its bid has been submitted in accordance with the SBE program and is for the public's protection and welfare.

Please refer to the "ADVERTISEMENT FOR BIDS" for the goal for the utilization of SBEs on this project. SBEs may participate as subcontractors, vendors and/or suppliers, which provide a commercially useful function. The dollar value for SBE suppliers or 'materials only' vendors shall be discounted to 60% for purposes of meeting SBE goals.

A bidder which achieves or exceeds the SBE goal will be in compliance with the SBE requirements of this project. In the event that the bidder is unable to achieve the SBE goal, the bidder must demonstrate that a good faith effort to do so was made. Failure to either achieve the goal or demonstrate a good faith effort to do so will be grounds for the bidder being deemed a non-responsible contractor ineligible for award of this contract.

A bidder may count towards its attainment of the SBE goal only those expenditures to SBEs that perform a commercially useful function. For purposes of evaluating a bidder's responsiveness to the attainment of the SBE goal, the contract participation by an SBE is based on the percentage of the total base bid proposed by the Contractor. The total base bid price is inclusive of all addenda.

Work performed by an SBE firm in a particular transaction can be counted toward the goal only if it involves a commercially useful function. That is, in light of industry practices and other relevant considerations, does the SBE firm have a necessary and useful role in the transaction, of a kind for which there is a market outside the context of the SBE Program, or is the firm's role a superfluous step added in an attempt to obtain credit towards goals? If, in the judgment of the Affirmative Action Division, the SBE firm will not perform a commercially useful function in the transaction, no credit towards goals will be awarded.

The question of whether a firm is performing a commercially useful function is completely separate from the question of whether the firm is an eligible SBE. A firm is eligible if it meets the definitional criteria and ownership and control requirements, as set forth in the City of Madison's SBE Program.

If the City of Madison determines that the SBE firm is performing a commercially useful function, then the City of Madison must then decide what that function is. If the commercially useful function is that of an SBE vendor / supplier that regularly transacts business with the respective product, then the City of Madison will count 60% of the value of the product supplied toward SBE goals.

To be counted, the SBE vendor / supplier must be engaged in selling the product in question to the public. This is important in distinguishing an SBE vendor / supplier, which has a regular trade with a variety of customers, from a firm which performs supplier-like functions on an ad hoc basis or for only one or two contractors with whom it has a special relationship.

A supplier of bulk goods may qualify as an eligible SBE vendor / supplier if it either maintains an inventory or owns or operates distribution equipment. With respect to the distribution equipment; e.g., a fleet of trucks, the term "operates" is intended to cover a situation in which the supplier leases the equipment on a regular basis for its entire business. It is not intended to cover a situation in which the firm simply provides drivers for trucks owned or leased by another party; e.g., a prime contractor, or leases such a party's trucks on an ad hoc basis for a specific job.

If the commercially useful function being performed is not that of a qualified SBE vendor / supplier, but rather that of delivery of products, obtaining bonding or insurance, procurement of personnel, acting as a broker or manufacturer's representative in the procurement of supplies, facilities, or materials, etc., only the fees or commissions will apply towards the goal.

For example, a business that simply transfers title of a product from manufacturer to ultimate purchaser; e. g., a sales representative who re-invoices a steel product from the steel company to the Contractor, or a firm that puts a product into a container for delivery would not be considered a qualified SBE vendor / supplier. The Contractor would not receive credit based on a percentage of the cost of the product for working with such firms.

Concerning the use of services that help the Contractor obtain needed supplies, personnel, materials or equipment to perform a contract: only the fee received by the service provider will be counted toward the goal. For example, use of a SBE sales representative or distributor for a steel company, if performing a commercially useful function at all, would entitle the Contractor receiving the steel to count only the fee paid to the representative or distributor toward the goal. This provision would also govern fees for professional and other services obtained expressly and solely to perform work relating to a specific contract.

Concerning transportation or delivery services: if an SBE trucking company picks up a product from a manufacturer or a qualified vendor / supplier and delivers the product to the Contractor, the commercially useful function it is performing is not that of a supplier, but simply that of a transporter of goods. Unless the trucking company is itself the manufacturer or a qualified vendor / supplier in the product, credit cannot be given based on a percentage of the cost of the product. Rather, credit would be allowed for the cost of the transportation service.

The City is aware that the rule's language does not explicitly mention every kind of business that may contribute work on this project. In administering these programs, the City would, on a case-by-case basis, determine the appropriate counting formula to apply in a particular situation.

2.2 Contract Compliance

Questions concerning the SBE Program shall be directed to the Contract Compliance Officer of the City of Madison Department of Civil Rights, Affirmative Action Division, 210 Martin Luther King, Jr. Blvd., Room 523, Madison, WI 53703; telephone (608) 266-4910.

2.3 Certification of SBE by City of Madison

The Affirmative Action Division maintains a directory of SBEs which are currently certified as such by the City of Madison. Contact the Contract Compliance Officer as indicated in Section 2.2 to receive a copy of the SBE Directory or you may access the SBE Directory online at www.cityofmadison.com/civil-rights/contract-compliance/targeted-business-enterprise-programs/targeted-business-enterprise.

All contractors, subcontractors, vendors and suppliers seeking SBE status must complete and submit the **Targeted Business Certification Application** to the City of Madison Affirmative Action Division by the time and date established for receipt of bids. A copy of the Targeted Business Certification Application is available by contacting the Contract Compliance Officer at the address and telephone indicated in Section 2.2 or you may access the Targeted Business Certification Application online at www.cityofmadison.com/civil-rights/contract-compliance/targeted-business-enterprise-programs/targeted-business-enterprise. Submittal of the Targeted Business Certification Application by the time specified does not guarantee that the applicant will be certified as a SBE eligible to be utilized towards meeting the SBE goal for this project.

2.4 Small Business Enterprise Compliance Report

2.4.1 Good Faith Efforts

Bidders shall take all necessary affirmative steps to assure that SBEs are utilized when possible and that the established SBE goal for this project is achieved. A contractor who self performs a portion of the work, and is pre-qualified to perform that category of work, may subcontract that portion of the work, but shall not be required to do so. When a bidder is unable to achieve the established SBE goal, the bidder must demonstrate that a good faith effort to do so was made. Such a good faith effort should include the following:

- 2.4.1.1 Attendance at the pre-bid meeting.
- 2.4.1.2 Using the City of Madison's directory of certified SBEs to identify SBEs from which to solicit bids.
- 2.4.1.3 Assuring that SBEs are solicited whenever they are potential sources.
- 2.4.1.4 Referring prospective SBEs to the City of Madison Affirmative Action Division for certification.
- 2.4.1.5 Dividing total project requirements into smaller tasks and/or quantities, where economically feasible, to permit maximum feasible SBE participation.
- 2.4.1.6 Establishing delivery schedules, where requirements permit, which will encourage participation by SBEs.
- 2.4.1.7 Providing SBEs with specific information regarding the work to be performed.
- 2.4.1.8 Contacting SBEs in advance of the deadline to allow such businesses sufficient time to prepare a bid.
- 2.4.1.9 Utilizing the bid of a qualified and competent SBE when the bid of such a business is deemed reasonable (i.e. 5% above the lowest bidder), although not necessarily low.
- 2.4.1.10 Contacting SBEs which submit a bid, to inquire about the details of the bid and confirm that the scope of the work was interpreted as intended.
- 2.4.1.11 Completion of Cover Page (page C-6), Summary Sheet (page C-7) and SBE Contact Reports (pages C-8 and C9) if applicable.

2.4.2 Reporting SBE Utilization and Good Faith Efforts

The Small Business Enterprise Compliance Report is to be submitted by the bidder with the bid: This report is due by the specified bid closing time and date. Bids submitted without a completed SBE Compliance Report as outlined below may be deemed non-responsible and the bidder ineligible for award of this contract. Notwithstanding any language to the contrary contained herein, the City may exercise its discretion to allow bidders to correct or supplement submissions after bid opening, if the minor discrepancy, bid irregularity or omission is insignificant and not one related to price, quality, quantity, time of completion, performance of the contract, or percentage of SBE utilization.

2.4.2.1 If the Bidder meets or exceeds the goal established for SBE utilization, the Small Business Enterprise Compliance Report shall consist of the following:

2.4.2.1.1 **Cover Page**, Page C-6; and

2.4.2.1.2 **Summary Sheet**, C-7.

2.4.2.2 If the bidder does not meet the goal established for SBE utilization, the Small Business Enterprise Compliance Report shall consist of the following:

2.4.2.2.1 **Cover Page**, Page C-6;

2.4.2.2.2 **Summary Sheet**, C-7; and

2.4.2.2.3 **SBE Contact Report**, C-8 and C-9. (A separate Contact Report must be completed for each applicable SBE which is not utilized.)

2.5 Appeal Procedure

A bidder which does not achieve the established goal and is found non-responsible for failure to demonstrate a good faith effort to achieve such goal and subsequently denied eligibility for award of contract may appeal that decision to the Small Business Enterprises Appeals Committee. All appeals shall be made in writing, and shall be delivered to and received by the City Engineer no later than 4:30 PM on the third business day following the bidder's receipt of the written notification of ineligibility by the Affirmative Action Division Manager. Postmark not acceptable. The notice of appeal shall state the basis for the appeal of the decision of the Affirmative Action Division Manager. The Appeal shall take place in accordance with Madison General Ordinance 33.54.

2.6 SBE Requirements After Award of the Contract

The successful bidder shall identify SBE subcontractors, suppliers and vendors on the subcontractor list in accordance with the specifications. The Contractor shall submit a detailed explanation of any variances between the listing of SBE subcontractors, vendors and/or suppliers on the subcontractor list and the Contractor's SBE Compliance Report for SBE participation.

No change in SBE subcontractors, vendors and/or suppliers from those SBEs indicated in the SBE Compliance Report will be allowed without prior approval from the Engineer and the Affirmative Action Division. The contractor shall submit in writing to the City of Madison Affirmative Action Division a request to change any SBE citing specific reasons which necessitate such a change. The Affirmative Action Division will use a general test of reasonableness in approving or rejecting the contractor's request for change. If the request is approved, the Contractor will make every effort to utilize another SBE if available.

The City will monitor the project to ensure that the actual percentage commitment to SBE firms is carried out.

2.7 SBE Definition and Eligibility Guidelines

A Small Business Enterprise is a business concern awarded certification by the City of Madison. For the purposes of this program a Small Business Enterprise is defined as:

- A. An independent business operated under a single management. The business may not be a subsidiary of any other business and the stock or ownership may not be held by any individual or any business operating in the same or a similar field. In determining whether an entity qualifies as a SBE, the City shall consider all factors relevant to being an independent business including, but not limited to, the date the business was established, adequacy of its resources for the work in which it proposes to involve itself, the degree to which financial, equipment leasing and other relationships exist with other ineligible firms in the same or similar lines of work. SBE owner(s) shall enjoy the customary incidents of ownership and shall share in the risks and profits commensurate with their enjoyment interests, as demonstrated by an examination of the substance rather than form or arrangements that may be reflected in its ownership documents.
- B. A business that has averaged no more than \$4.0 million in annual gross receipts over the prior three year period and the principal owner(s) do not have a personal net worth in excess of \$1.32 million.

Firm and/or individuals that submit fraudulent documents/testimony may be barred from doing business with the City and/or forfeit existing contracts.

SBE certification is valid for one (1) year unless revoked.

SECTION D: SPECIAL PROVISIONS
2024 PARKING GARAGE MAINTENANCE
CONTRACT NO. 9493

It is the intent of these Special Provisions to set forth the final contractual intent as to the matter involved and shall prevail over the Standard Specifications and plans whenever in conflict therewith. In order that comparisons between the Special Provisions can be readily made, the numbering system for the Special Provisions is equivalent to that of the Specifications.

Whenever in these Specifications the term "Standard Specifications" appears, it shall be taken to refer to the City of Madison Standard Specifications for Public Works Construction and Supplements thereto.

SECTION 102.11: BEST VALUE CONTRACTING

This Contract shall be considered a Best Value Contract if the Contractor's bid is equal to or greater than \$75,500 for a single trade contract; or equal to or greater than \$369,500 for a multi-trade contract pursuant to MGO 33.07(7).

POINTS OF CONTACT

We ask all Contractors with questions and concerns regarding the bidding of these contract documents to do so by email so we may properly log, track and respond to all issues. Please reference specification section and/or plan view number relating to the question or concern. Reference contract name and contract number in the subject line of all emails.

The Project Manager for this contract is:

Bill Putnam
City of Madison Engineering Division
Email: wputnam@cityofmadison.com

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CONTRACT NO. 9493

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DRAWING LIST

CITY OF MADISON – 2024 PARKING GARAGE MAINTENANCE (26 SHEETS)

END OF SECTION

SECTION 01 00 00
GENERAL REQUIREMENTS

PART 1 - GENERAL

1.1 SECTION SUMMARY

- A. Section Includes:
1. Section Summary
 2. Work Covered by Contract Documents
 3. Contractor's Duties
 4. Contracts
 5. Time of Completion and Liquidated Damages
 6. Work Sequence
 7. Contractor Use of Public Rights-Of-Way
 8. Contractor Use of Premises
 9. Definitions
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 11. Project Meetings
 12. Job Site Administration
 13. Submittals
 14. Temporary Utilities
 15. Traffic/Dust/Debris
 16. Special Controls
 17. Parking
 18. Security
 19. Cleaning
 20. Project Closeout
 21. Record Drawings

1.2 WORK COVERED BY CONTRACT DOCUMENTS

- A. This work covers repairs at the Capitol Square North (CSN), State Street Capitol (SSCo), South Livingston Street (SLS), and Wilson Street Garage (WSG) parking ramps in Madison, Wisconsin. Work includes concrete repair of slabs, columns, beams, sealant replacement at slab cracks and joints, membrane repair and replacement, grit-blasting and painting of reinforcing and architectural steel and/or concrete, repair of architectural components (brick, façade connections, masonry, etc.), installation of new or replacement concrete connections/anchors, and welding of steel. Refer to specification section 01 22 00 for detailed work requirements.
- B. The repair work to be done is shown on the plans/details and described in these specifications.
- C. Ramp construction:
1. Capitol Square North (CSN): Post-tensioned cast-in-place concrete.
 2. State Street Capitol (SSCo):
 - a. Mild steel reinforced cast-in-place concrete (levels 1-3)
 - b. Post-tensioned cast-in-place concrete (levels 4-6)
 3. South Livingston Street (SLS): Post-tensioned cast-in-place concrete

4. Wilson Street (WSG): Mild steel-reinforced cast-in-place concrete

1.3 CONTRACTOR'S DUTIES

- A. Except as specifically noted, provide and pay for:
 1. Labor, materials, and equipment.
 2. Tools, construction equipment, and machinery.
 3. Water, heat, and utilities required for construction not part of the existing ramp system.
Other facilities and services necessary for proper execution and completion of work.
- B. Pay legally required sales, consumer and use taxes. Secure and pay for, as necessary for proper execution and completion of work and as applicable at time of receipt for bids:
 1. Permits
 2. Government fees
 3. Licenses
- C. Give required notices.
- D. Comply with codes, ordinances, rules, regulations, orders and other legal requirements of public authorities, which bear on performance of work.
- E. Contractor is responsible for complying with City Affirmative Action and Best Value Engineering requirements.
- F. Promptly submit written notice to Engineer of observed variance of Contract Documents from legal requirements. It is not Contractor's responsibility to make certain that drawings and specifications comply with codes and regulations.
- G. Appropriate modifications to Contract Documents will adjust necessary changes.
- H. Assume responsibility for work known to be contrary to such requirements, without notice.
- I. Enforce strict discipline and good order among employees. Do not employ on work, unfit persons or persons not skilled in assigned task.

1.4 CONTRACTS

- A. Construct work under a unit price contract with unit prices included to account for changes in the quantity of work from that estimated. Review proposal form for work to be completed as Lump Sum.

1.5 TIME OF COMPLETION AND LIQUIDATED DAMAGES

- A. Construction is anticipated to start on or before April 1, 2024, and to be completed by October 1, 2024
- B. The successful Contractor must agree to commence work on a date to be specified in a written Notice to Proceed and to fully complete by dates specified.

- C. Liquidated damages for failure to complete construction by given date shall be as stated in the third paragraph of Section 109.9 of the City of Madison Standard Specifications for Public Works Construction – most current year.
- D. Completion shall include all construction as outlined in the plans and specifications as well as removal of all materials, debris, barricades, and other construction related items from the site.
- E. Final project closeout shall be completed within 30 days of the construction completion date for all work addressed above. Final project closeout shall include, but not be limited to, submittal of warranties, lien waivers, wage rate compliance affidavits, documents of completed work, and proper pay applications
- F. Each day shall be defined as a twenty-four (24) hour period beginning at 12:01 a.m.

1.6 WORK SEQUENCE

- A. The Contractor will be allowed 140 parking stalls at State Street Capitol, Capitol Square North, South Livingston Street, and Wilson Street garages. This will include the top side of the deck being restored and the level below. The parking structure will be open during the weekends. Additional parking spaces may be made available upon request and will be reviewed on a case by case basis. The Contractor shall make as many spaces available as possible other than those designated for restoration.
- B. No parking or traffic will be allowed above areas being restored on the underside of the slab or below the areas being restored on the topside of the slab. This area will be included in the Contractor's work area. Contractor shall keep ramp attendant and cashier informed about the number of parking stalls out of service.
- C. Contractor shall conduct their work between the hours of 7:00 a.m. and 7:00 p.m. Monday through Friday unless written request for special circumstances is acceptable to the Owner. Contractor shall plan work and make request in writing at least seven days prior to deviation from normal.
- D. Concrete pours shall be scheduled between 9:00 a.m. and 2:30 p.m. to avoid conflicts with peak hour traffic. Contractor shall provide the Engineer and Owner with their schedule for concrete pours.
- E. Dust protection must be in place prior to beginning work; refer to Traffic/Dust/Debris section (1.15).
- F. Prior to the weekend, the Contractor shall clean the site adequately and secure equipment to prevent vandalism, personal injury, or theft.
- G. The Contractor will be asked to reduce the number and type of parking spaces out of service for Special Events dates. The City will provide the Contractor with a schedule of dates. These dates will include but not be limited to Art Fair on the Square, IronMan, Taste of Madison, Mad City Marathon, Maxwell Street Days, UW Football games, and Freakfest (Halloween).
- H. Prior to start of work, the Contractor shall survey the existing utilities within and around the structure. Existing utilities include electrical lighting and conduits, water piping including

sprinklers, and mechanical duct work. Existing utilities that are broken shall be brought to the attention of the Engineer. The Contractor at the Contractor's expense shall remove and/or protect in place existing utilities. Existing utilities damaged by the Contractor shall be replaced by the Contractor at the Contractor's expense.

- I. Prior to the start of work, the Contractor in the presence of the Engineer and Owner shall inspect the condition of the drains in areas affected by the Contractor's work to determine that they are clean and in proper working order. During and at the completion of the project, the drains shall be in similar condition and working order as observed in the initial inspection.

1.7 CONTRACTOR USE OF PUBLIC RIGHTS-OF-WAY

- A. The General Contractors proposed use of the site may require a Street Occupancy Permit.
- B. The General Contractor shall make application for a Street Occupancy Permit before proceeding with work in any public right-of-way. At the time of application for a Street Occupancy Certificate, the Contractor shall provide a drawing showing construction site fencing, construction entrances, proposed placement of equipment, and traffic routing.
- C. A copy of the Street Occupancy Permit shall be at the job site during working hours.
- D. Peak hour traffic flow in Madison occurs between the hours of 7:00 a.m. and 8:30 a.m. and between 3:30 p.m. and 5:30 p.m., Monday through Friday. During these hours work that will interfere with the flow of traffic shall not be permitted on or in the street governed by this permit.
- E. All signing or barricading shall be done in conformance with the Federal "Uniform Manual on Traffic Control Devices".
- F. All pavement markings removed, disturbed or damaged shall be restored or replaced, in kind, by the City at the expense of the City.
- G. For removal or replacement of traffic and parking signs, contact the City of Madison Traffic Engineering Field Operations, 1120 Sayle Street 266-4767, 8:00 a.m. - 4:00 p.m., 24 hours in advance of when you need the sign removed. This service is provided free of charge. If you remove the signs, you will be billed for reinstallation and any damage to the sign installation.
- H. NO MATERIALS shall be stored in the street or street right-of-way.
- I. A fence may be required around the occupancy area and the construction site depending on the Contractor's intended use. The occupancy area shall be considered part of the construction site. No stopping, standing or parking signs shall be installed, by the Contractor, on the fence surrounding the construction site.
- J. A clean, safe access route shall be provided to the parking ramp at all locations desired by the City of Madison, Parking Utility.
- K. "Sidewalk Closed Use Other Side" signs shall be installed at each end of the block when a portion of the block is closed to pedestrian traffic.

1.8 CONTRACTOR USE OF PREMISES

- A. Confine operations at the site to areas permitted by law, ordinance, permits, and contract documents.
- B. Do not unreasonably encumber site with materials and equipment.
- C. Do not load structure with weight that will endanger structure.
- D. Assume full responsibility for protection and safekeeping of products stored on the premises. Construction equipment, shoring, tools, etc., shall not be stored in areas of the Owner's continued use.
- E. Move any stored products which interfere with operations of Owner or other Contractor.
- F. There is no storage for materials outside of Contractor's work area.

1.9 DEFINITIONS

- A. CONTRACT DOCUMENTS - Contract documents for this project include but are not limited to:
 - 1. Specifications and Drawings for "City of Madison 2023 Parking Garage Maintenance".
 - 2. General Conditions, which are included in the Standard Specifications for Public Works Construction, most current year, of the City of Madison, Department of Public Works. The Standard Specifications described above are available online at <https://www.cityofmadison.com/business/pw/specs.cfm>
 - 3. Architectural and structural drawings for the original construction. Drawings are available for review at the City Department of Transportation office, Room 100, Madison Municipal Building, Madison, WI 53701.
- B. UNSOUND CONCRETE - Concrete which contains internal and/or surface cracking or loss of density, and which in the judgment of the Engineer is detrimental to the strength and serviceability of the structure. Unsound concrete is also associated with concrete surface spalling and crumbling, infiltration of moisture and salts, corrosion of reinforcement, rust staining, increased porosity, and reduced strength.
- C. DELAMINATION - Planar cracking of concrete usually initiated by bursting stresses due to expansion of corrosion by-products of embedded reinforcing.
- D. SOUND CONCRETE - Firm, dense, homogeneous concrete which contains in the judgment of the Engineer no significant detriments to its strength or serviceability.
- E. REMOVAL - Removal of unsound and sound concrete, epoxy patches and asphalt using chipping hammers or other means.
- F. SCARIFYING - The process of making numerous cuts into a concrete surface, which results in fracturing the cement paste and aggregate, exposing a new roughened surface free of contaminants.
- G. SLAB - Flat, horizontal or ramped layers of reinforced concrete which spans and is supported by columns, beams or walls.

- H. SUPPORT BARS - Reinforce bars used to support the main reinforcing bars and not shown on the original drawings as main reinforcing bars themselves.
- I. DRAWINGS - Graphical description of the work to be performed, designated.
- J. SPECIFICATIONS - Written description of the work to be performed, designated.

1.10 MEASUREMENT OF QUANTITIES

- A. Work to be performed on a unit price basis shall be measured according to the quantities described in the above work items. Payment will be made for work actually performed, based on quantities recorded by the Contractor and approved by the Engineer. Records described below shall be maintained using a Geographical Information System Database, referred to hereinafter as GIS, provided by the Engineer. Unless otherwise stated, the Engineer will verify the accuracy of the record by visual examination of the work performed and measuring the quantities with a measuring tape, wheel, or other appropriate device.
- B. The Contractor shall notify the Owner and the Engineer at once in writing of any unit price work that deviates materially from the prescribed basis for bidding and for which an adjustment in Unit Price is desired. The Contractor shall measure and quantify all such deviations, subject to the Engineer's verification, prior to any repair work which might make verification impossible. No adjustments in Unit Prices will be considered unless supporting field measurements are provided, and subject to the Owner's prior approval. Adjustments will only be considered if all repairs of a given type have been measured and all deviations, both plus and minus have been included in the determination of the average deviation from the Unit Price basis.
- C. When actual work requires 50 percent or greater change in quantity than those quantities indicated, Owner or Contractor may claim a Unit Price adjustment.
- D. Removal of top and underside of slab, beams, columns/walls, and joist stem concrete:
 - 1. The Contractor shall maintain a record of the location and quantity of concrete removed, identified by unit price item. This record shall be updated concurrently with repair progress. Quantities shall be recorded digitally via GIS.
- E. Placing replacement and supplemental reinforcing:
 - 1. The Contractor shall maintain a record of the location and quantity of reinforcement placed. This record shall show the quantity and size placed. Replacement and supplemental reinforcement shall be documented in the existing GIS Repair Identifier (Point, Line or Area) for which the repair is performed. This record shall be updated concurrently with repair progress. Quantities shall be recorded digitally via GIS.
- F. Installation of slab crack and joint sealant:
 - 1. The Contractor shall maintain a record of the location and quantity of cracks and joints sealed via GIS.
- G. Placement of Traffic Coatings:
 - 1. The Contractor shall maintain a record of the areas of traffic coating placement via GIS.

1.11 PROJECT MEETINGS

A. Pre-Bid Meeting:

1. Refer to Section A: Advertisement for Bids and Instructions to Bidders

B. Pre-Construction Meeting:

1. Soon after award of Contract and prior to the start of construction, each Prime Contractor shall attend a pre-construction conference with representatives of the Owner and Engineer.
2. The Contractor shall have at the meeting responsible representatives from subcontractors who are to perform the work.
3. The Contractor shall submit the following information at the Pre-Construction Meeting:
 - a. Construction Schedule
 - b. List of Sub-Contractors
 - c. Procedures for demolition
 - d. Procedures for dust control
 - e. Procedures for noise control
4. The Engineer shall provide instruction of procedures for the required usage of and documentation required within GIS.
5. The Construction Schedule submitted by the Contractor shall describe in detail when each portion of the work is to be accomplished and subcontractors shall participate in the discussion. The Engineer will serve to interpret the Contract Documents should such questions arise. A representative of the Owner may also be present to discuss work to be completed by others in conjunction with this project and the Owner's partial occupancy and use of the garage during construction.
6. Any other questions that the Contractor or subcontractors have about the work or its scheduling shall be raised at this meeting.
7. Requirements for contract administration and construction operations will be defined for participants.
8. Prepare in reproducible form approved by the Engineer and include:
 - a. Breakdown of work activities in categories approved by Engineer, segmented as necessary to allow close monitoring of progress of the work during construction.
 - b. Order of work necessary to meet Time for Completion.
 - c. Breakdown of the work of all Subcontractors scheduled in cooperation with the Contractor's work.
 - d. Signatures of all Contractors.
 - e. Space for the additional display of actual performance on the schedule.
9. After necessary revisions and approval by the Engineer, provide two prints of project construction schedule to the Engineer.
10. Time, date, and place of the meeting will be determined by the Engineer.

C. Progress Meetings:

1. Bi-weekly project meetings will be held virtually or on-site as required by the Engineer's representative and Owner's representative for the purpose of coordinating and expediting the Work progress.
2. Attendance at project meetings by all Prime Contractors, or their authorized representative, is mandatory.
3. Date and time of the meetings will be determined at the pre-construction meeting.
4. Contractors shall give verbal reports of progress on the project, discuss the work schedule for the coming period and present all conflicts, discrepancies, or other difficulties for resolution.

5. Upon request of the Engineer, the contractor shall update the schedule to reflect changes required by actual conditions and indicate actual work completed. Provide the Engineer with same number of copies as required for original submission.
6. Show changes occurring since previous submission of schedule such as:
 - a. Major changes in scope.
 - b. Activities modified since previous submission.
 - c. Revised projections of progress and completion.
 - d. Other identifiable changes.
7. Provide a narrative report as needed to define:
 - a. Problem areas, anticipated delays, and the impact on the schedule.
 - b. Corrective action recommended, and its effect.
 - c. The effect of changes in schedules of other Prime Contractors.
8. Where work is not performed according to the Construction Schedule, a short narrative should be written by the contractor describing the cause of delay and intended action to remedy the delay.
9. When the work performed is not meeting the construction schedule, the Engineer may request that the contractor increase the labor and equipment being furnished in order to meet the schedule. Should the contractor choose not to follow the engineer's request he shall provide a written submittal explaining how the schedule is to be met without an increase in labor and equipment.
10. Meeting minutes will be distributed within two (2) business days of the meeting by the Engineer and will serve as the meeting agenda for the next progress meeting.

1.12 JOB SITE ADMINISTRATION

- A. The Contractor shall always have at the site of the work, while work is in progress, a superintendent or foreman having authority both to receive orders from the Engineer and to act for the Contractor.
- B. The Engineer will have a representative on-site eight (8) hours per week on average during progress of the work.
- C. The Engineer's inspections and project coordination shall take place between regular business hours of 7 a.m. to 5 p.m. The Contractor will take all necessary steps to allow the Engineer to carry out the Engineer's duties without interference by noise, dust, or other construction activities.

1.13 SUBMITTALS

- A. General:
 1. Refer to General Conditions for basic requirements for all submittals.
 2. Refer to technical specifications for all submittals required.
- B. Submittal Requirements:
 1. Project information shall be first sent to the Engineer.
 2. Schedule submittals at least 14 days before the time that reviewed and approved submittals will be needed.
 3. Accompany submittals with transmittal letter containing the date, project title and number, Contractor's name and address, the quantity of items submitted, notifications of any deviations from Contract Documents, the Section of Work and other pertinent data.

- C. Schedules:
1. Refer to Project Meetings.
- D. Subcontractor and Materials List:
1. The Subcontractor and major suppliers list shall be submitted on or before the first pre-construction meeting.
 2. The Engineer will promptly review list and indicate in writing approval or disapproval of subcontractors and/or materials. Resubmit revised list, upon disapproval of any item, until such time as approval of all items has been obtained from the Engineer.
 3. Use of unspecified or unapproved materials and equipment will not be permitted.
- E. Schedule of Values:
1. Before the first Application for Payment, the Contractor shall submit to the Engineer a schedule of values of the various portions of the Work, including quantities if required by the Engineer, aggregating the total Contract Sum, divided to facilitate payments to Subcontractors.
 2. Prepare a schedule of values in such form and supported by such substantiating data as the Engineer may require. Each item in the schedule of values shall include its proper share of overhead and profit. This schedule, when approved by the Engineer, shall be used only as a basis for the Contractor's Applications for Payment.
- F. Material Safety Data Sheets:
1. Contractor shall submit Material Safety Data Sheets for all products (sealants, concrete, etc.) they intend to use on the project.
- G. Test Reports and Data:
1. Submit test reports and data where required by technical specifications. Results of testing, including concrete cylinder breaks, shall be submitted to the Contractor and the Engineer.
- H. Application for Payment:
1. For each progress payment (no more frequent than once a month) the Engineer shall supply a summary of completed repair items, by ramp, to the Contractor for the designated billing period as documented via GIS. A repair shall be considered complete when the Repair Identifier (Point, Line or Area) and "Quantity Installed" contained therein is approved by the Engineer. Work not complete at the time of the itemized Application for Payment submittal will not be included in that payment. Contractor shall use AIA Documents G702 and G703 Application and Certificate for Payment or similar.
- I. Record Drawings:
1. Usage of GIS by the Contractor for all repairs shall constitute a Record Drawing submission. Each Repair Identifier (Point, Line or Area) shall include, at a minimum, the quantity of repair completed, repair progress photos for repair types designated by the Engineer, and date of completion.
 2. At time of final acceptance and prior to final payment, all Repair Identifiers (Points, Lines or Areas) designated for repair shall be populated by the Contractor with the requisite information as stipulated by the Engineer.
- J. Guarantees, Warranties, and Certificates:
1. Submit all guarantees, warranties, and certificates to the Engineer prior to final payment.

1.14 TEMPORARY UTILITIES

- A. The Contractor shall arrange for, obtain and pay for all temporary utilities necessary to complete the work except as stated otherwise in these specifications.
- B. WATER: The Owner, during non-freezing conditions, will provide needed water for the Contractor's use. This shall consist of the existing water supply in the ramp. Water requirements beyond what is supplied in the garage shall be the responsibility of the Contractor and paid for by the Contractor. Water shall be used prudently. Connections are the responsibility of the Contractor.
 - 1. The Contractor shall not permit water to run uncontrolled off of their work site or be carried airborne off the site or onto vehicles and persons occupying part of the site. To prevent this, suitable enclosures shall be provided.
 - 2. The Contractor shall meet the DNR waste water regulations for construction site runoff requirements.
 - 3. The Contractor shall inspect all existing hose bibs for damage prior to use. Any damage to hose bibs after Contractor use shall be paid by the Contractor. Hose bibs shall be operated by owner-supplied devices, not by tools.
- C. ELECTRICAL AND LIGHTING: The Contractor shall provide all temporary electric power and connections necessary for the Contractor's work. The Contractor can use the existing 110/220 volt service in the ramp. The Owner will provide the existing lighting. Supplementary lighting, if necessary, shall be provided by the Contractor.
- D. DRAINS, SUMPS AND SEWERS: The Contractor shall not permit debris, or other deleterious contaminants to be washed down drains within the garage and be discharged into the City sewer system. The Contractor shall meet the DNR waste water regulations of 40 milligrams of solids per liter measured at the discharge from the sump pit. The Contractor shall provide filters, settling tanks or other methods necessary to meet these requirements.
- E. TELEPHONE: The Contractor shall provide temporary telephone service to the job site. This service shall consist of at least a cellular phone for the Contractor's purpose.
- F. TOILETS: The Contractor shall provide and maintain suitable, weather tight, sanitary toilet facilities for all workers during construction period. When toilet facilities are no longer required, promptly remove from site, disinfect, and clean or treat the area as required.
 - 1. The Contractor shall keep all toilet facilities clean and supplied with toilet tissue at all times. Maintain facilities in accordance with requirements of applicable building codes.
- G. PROJECT SIGN: No individual advertising signs, plaques or credits, temporary or permanent, will be permitted on the building or premises, except the name of each contractor on their office or material shed.
- H. EXPLOSIVES: Use of explosives, for any purpose, is prohibited.
- I. FIRST AID: The Contractor shall provide temporary first-aid facilities on the site.
- J. FIRE PROTECTION: The Contractor shall provide temporary fire protection as required by federal, state, and local laws and ordinances.

1.15 TRAFFIC/DUST/DEBRIS

- A. The Contractor shall provide personnel, signs, barricades, lights and warning devices to control the orderly flow of traffic, both inside and outside of the garage where needed, and prevent pedestrians and cars from entering areas of the Contractor's operations. The traffic devices shall meet the requirements of the U.S. Department of Transportation Manual on Uniform Traffic Control Devices.
- B. The Owner will continue to use the building during the renovation. The Contractor must schedule and arrange the work so as to maintain access to undisturbed parking areas. Short interruptions in traffic flow may be permitted but must be scheduled and written approval given by the Engineer seven (7) days prior to the planned interruption. During these interruptions, the Contractor shall provide personnel and signage to direct traffic within the structure.
- C. Traffic control signs may be necessary several bays removed from the actual work area to maintain an orderly flow of traffic. The Owner shall make the final determination as to the required limit of traffic control.
- D. The Contractor shall move these signs, barricades, lights and warning devices as necessary as the location of the work within the garage changes and previously worked-in areas are occupied by the Owner.
- E. Contractor will provide appropriate signage warning the public of the construction area and directing them to exits. They shall provide and maintain necessary walkway with appropriate protective railings and enclosures required to prevent bodily injury to the public and maintain normal public usage during course of construction.
- F. The General Contractor shall provide temporary barriers around areas of overhead removal to prevent damage or injury from flying debris associated with this work. Barriers shall consist of plywood screen walls or reinforced polyethylene extending from the top of floor to the underside of the floor above and supported by steel post shores or Ellis post shores.
- G. Where possible, hoses, electrical cords, etc. shall be located overhead. Whenever such items are located in traffic paths, plywood coverings with adequate signs shall be provided.
- H. General Contractor shall provide and maintain necessary safe passage through the areas being restored to prevent bodily injury to the public and to maintain normal public usage during course of construction. Engineer's approval required for all proposed temporary exit ways or walkways.
- I. The Contractor shall erect temporary enclosures around the area of work, including areas adjacent to stairwells, driving lanes, parapets, walkways, etc. The Contractor shall provide adequate protection to prevent damage or injury from flying debris associated with this work. Barriers shall consist of plywood screen walls or reinforced polyethylene extending from the top of floor to the underside of the floor above and supported by steel post shores or Ellis post shores.
- J. Dust protection is required around work area and shall be fastened tight to the floor and ceiling above. Flexible duct work or similar shall be used in addition to fans to vent work areas to the outside. Exhaust air shall be filtered, and filters maintained to prevent escaping dust. Dust protection must be in place prior to any concrete removal.

- K. The Contractor shall be responsible for maintaining any means of egress required by governing codes, for the continued use of the parking facility. Enclosures which limit the means of egress from the structure shall have provisions for emergency egress through the partitions.
- L. Dust filters shall be erected to limit dust being carried from the site. Contractor shall use crack router with vacuum attachment to eliminate dust from this process. Water shall be used during concrete removal, sawing, etc. to hold down dust.
- M. Removal areas need to be covered during times contractor is not present to prevent pedestrians from entering Contractor's area of work. Removal areas in public pathways shall be covered with steel plates.
- N. The Contractor shall maintain access to undisturbed parking areas throughout the concrete restoration and membrane placement.
- O. All Contractors shall comply with applicable OSHA regulations.
- P. All plastic sheeting shall be new or like new with no holes or rips that will allow the escape of dust. Plastic sheeting shall be replaced when it becomes torn.
- Q. All plastic sheeting shall conform to NFPA 701.
- R. Floor drains shall be protected from ingress of construction/demolition debris as a result of the Work prior to work being performed.

1.16 SPECIAL CONTROLS

- A. NOISE CONTROL: Contractor shall confine hours of work from 7:00 a.m. to 7:00 p.m. Monday through Friday except holidays. Noise levels shall be held to a minimum at all times considering the nature of the work and are subject to City ordinance.
 - 1. Contractor shall erect noise control around work areas for primary goal of minimizing construction work noise affecting the parking attendant's booth. Noise control shall consist of insulating blankets, batt insulation, or other similar means. Noise control shall be erected along edge of work area directly in line with attendant booths and shall return along the work area a distance sufficient in controlling the construction noise.
 - 2. The Contractor shall erect sound barriers around all equipment including air compressors that will sit outside the ramp.
- B. SPECIAL RESPONSIBILITIES: The Contractor shall be responsible for damages to vehicles in or near the garage, resulting from their operations. The Contractor shall settle claims within 30 days of receipt of claim.
- C. POLLUTION CONTROL: All internal combustion engines used in the Contractor's work and operating in a fixed location while running shall have their exhaust piped to the outside of the building and directed away from this building or any adjacent structures so as to prevent accumulation of fumes or carbon stains on the surfaces of the structure.
 - 1. Compressors may be located on the roof level of the ramp. Care shall be taken to prevent the exhaust from entering the attendant booth air intake ducts.
 - 2. Place plywood or other suitable material below compressors to protect the substrate from grease, oil, and other debris.

1.17 PARKING

- A. Parking of vehicles and equipment required for construction purposes shall be in the Contractor's designated work areas. No parking will be provided for employees of any Contractor on site. Any vehicle in the parking ramp not parked within the construction area, which are required for this project, will be charged for parking.
- B. All Contractors and their employees shall cooperate with the General Contractor and others in the parking of vehicles to avoid interference with normal construction activities.
- C. Do not obstruct existing service drives and parking areas outside the Contractor's work area with equipment, materials and/or vehicles. Keep accessible for Owner's use at all times.

1.18 SECURITY

- A. The Contractor shall provide for the security of materials and equipment stored at the site. Material and equipment shall not be stored in areas which the Owner continues to use. The Contractor may store equipment and materials in areas in which the Contractor is working; otherwise they shall be removed from the site.

1.19 CLEANING

A. General:

- 1. Each Contractor shall keep premises free of accumulation of surplus materials and debris resulting from their operations and the operations of Subcontractors.
 - a. Do not throw debris from ramp.
 - b. Remove all debris from premises.
 - c. No burning of debris on premises allowed.
 - d. Do not use Owner's dump containers.
- 2. At a minimum, remove debris dumpster weekly and additionally as required by the Engineer. Keep interior of ramp free at all times of unattended combustible debris.
- 3. Drive lanes, adjacent to work area, shall be cleaned daily to eliminate airborne dust.
- 4. Remove all tools, equipment, scaffolding and temporary facilities immediately when no longer required for execution of the work.
- 5. The Contractor shall "broom clean" all floors within and adjacent to work areas as construction progresses to eliminate dirt and trash accumulation and maintain proper project cleanliness. Stair towers and areas of pedestrian traffic flow shall be "broom-clean" daily. Unless work area is secured against entry by pedestrians, all rubble shall be removed from ramp surface and all open holes shall be covered with steel plates.

B. Safety Requirements:

- 1. Store volatile wastes in covered metal containers and remove from premises daily.
- 2. Prevent accumulation of wastes which create hazardous conditions.
- 3. Provide adequate ventilation during use of volatile or noxious substances.
- 4. Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws.
- 5. Do not burn or bury waste materials on the project site.
- 6. Do not dispose of volatile wastes such as mineral spirits, oil, or paint thinner in storm and sanitary drains.

- C. Materials:
 1. Use only cleaning materials recommended by manufacturer of surface to be cleaned.
 2. Use cleaning materials only on surfaces recommended by cleaning material manufacturer.
- D. Submittals:
 1. Submit plan for disposal of waste.
- E. Cleaning During Construction:
 1. Execute cleaning to ensure that building, grounds, and public properties are maintained free from accumulation of waste materials.
 2. Wet down dry materials to lay dust and prevent blowing dust.
 3. At daily intervals during progress of work, clean site and public properties, and dispose of waste materials. Prior to any removal, the Contractor shall submit their plan for confining, collecting, and disposal of waste material as a result of the Contractor's removal operations.
 4. Provide on-site dump container for collection of waste materials. Contractor shall coordinate with Owner for location of dumpster.
 5. Remove waste materials in a controlled manner with as few handlings as possible. Do not drop or throw materials from heights.
 6. Schedule cleaning operations so that dust and other contaminants resulting from the cleaning process will not fall on wet, newly painted surfaces or adjacent parked cars.
- F. Final Cleaning:
 1. Immediately prior to final inspection, the Contractor shall clean all surfaces to condition acceptable for immediate occupancy by the Owner and remove all foreign matter from all finished items.
 2. The Contractor shall leave all work clean in all respects, ready for use and occupancy by the Owner without additional work.
 3. Employ experienced workers, or professional cleaners, for final cleaning.
 4. In preparation of substantial completion or occupancy, conduct final inspection of sight exposed interior and exterior surfaces, and of concealed spaces.
 5. Repair, patch, and touch up marred surfaces to specified finish, to match adjacent surfaces.
 6. Water blast and broom clean to remove dust and debris from paved surfaces, walls, ceilings and stairs. Hand wash with rags, sponges or equivalent, all railings, pipes, windows, door frames, light fixtures, etc. and rinse, from within work areas and other areas affected by construction. If dust protection is not erected and maintained to prevent dust and debris from being tracked through the structure, the Contractor will be required to perform final cleaning procedures throughout the structure from the top level to the basement.
 7. Remove debris from drains and sumps and check that drains are again operable.

1.20 PROJECT CLOSEOUT

- A. Completion:
 1. All work shall be complete when written notice requesting final inspection is submitted to the Engineer.
- B. Guarantees, Bonds, and Affidavits:
 1. Required prior to final payment is made. Submit all required written documents including guarantees, bonds, and affidavits.
 2. Guarantees shall extend the full period of the required guarantee period after:

- a. Replacement of work found defective during guarantee period at any time after completion.
 - b. Repair of inoperative items or adjustments to proper working condition of items not operating properly at time of inspection at completion.
 - c. Completion of work not completed at time of completion.
3. Items of equipment or material bearing a guarantee of the manufacturer or supplier longer than that described in the City of Madison Standard Specifications for Public Works Construction – most current year, shall not serve to release the manufacturer or supplier from their obligation to repair or replace such items within the limits of their guarantee after expiration of guarantees required by these specifications.

1.21 RECORD DRAWINGS

- A. Required prior to final payment is made.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01 22 00

UNIT PRICES

PART 1 - GENERAL

1.1 PAYMENT

A. Work is to be paid for on Unit Price basis and bid on estimated quantities. These work items are to be installed and completed per specifications and as shown on drawings.

1.2 MEASUREMENT OF QUANTITIES

A. Refer to General Requirements for complete information.

Item	Type of Work	Unit Price
1	Concrete Topside Surface Spall Repair including removal of concrete to an estimated variable depth of 1" to 5" from top of slab, grit-blasting of the newly exposed concrete surface and reinforcing steel, attachment of sacrificial galvanic anodes, coating of exposed reinforcement, and placement "ready-mix" concrete fill (pre-packaged concrete at Contractor's option). Refer to detail B4/S501 and specification sections 03 01 07, 03 37 00 and 03 31 07. Payment is based on area of concrete placed at top surface of slab.	\$/SF
2	Concrete Overhead Surface Spall Repair including removal of concrete to an estimated variable depth of 1" to 3" the slab soffit, grit-blasting of newly exposed concrete surface and reinforcing steel, attachment of sacrificial galvanic anodes, coating of exposed reinforcement and placement pre-packaged concrete fill or shotcrete. Refer to detail C4/S501 and specification sections 03 01 07, 03 31 07, and 03 37 00. Payment is based on exposed area of concrete placed.	\$/SF
3	Concrete Vertical Surface Spall Repair including removal of concrete to an estimated variable depth of 1" to 4" from face of the vertical surface, grit-blasting of newly exposed concrete surface and reinforcing steel, attachment of sacrificial galvanic anodes, coating of exposed reinforcement, and placement pre-packaged concrete fill. Refer to detail A3/S501 and A4/S501 and specification sections 03 01 07, 03 37 00 and 03 31 07. Payment is based on exposed surface area of concrete placed.	\$/SF
4	Concrete Beam Spall Repair including removal of concrete to an estimated variable depth of 1" to 3" the slab soffit and estimated variable depth of 1" to 4" from face of the vertical surface, grit-blasting of newly exposed concrete surface and reinforcing steel, attachment of sacrificial galvanic anodes, coating of exposed reinforcement and placement pre-packaged concrete fill or shotcrete. Refer to detail B3/S501 and specification sections 03 01 07, 03 31 07, and 03 37 00. Payment is based on exposed area of concrete placed.	\$/SF

5	Full-System Membrane Installation or Replacement including surface preparation of existing membrane and exposed concrete surfaces at existing and new concrete patch areas. Work shall include surface preparation, primer, base coat, wear coat, and topcoat. Refer to specification section 07 18 00. Payment is based on area of membrane installed.	\$/SF
6	Concrete Slab Crack Repair: Rout and Seal including grinding crack and joint edges, installing backer rod or bond breaker tape, and installing sealant. Refer to detail B2/S501 and specification sections 07 90 07. Payment is based on length of sealant installed.	\$/LF
7	Concrete Slab Crack Repair: Rout with Slot and Seal (WSG) including grinding crack and joint edges to slot configuration, installing bond breaker tape, and sealant. Refer to detail A2/S501 and specification section 07 90 07. Payment is based on length of sealant installed.	\$/LF
8	CMU Crack/Mortar Joint Repair including removal, replacement, and tooling of masonry mortar joints. Refer to specification sections 04 01 01 and 04 05 14. Payment is based on linear footage of masonry joints repaired.	\$/LF
9	CMU Replacement including removal and replacement of concrete masonry units and associated mortar joints. Existing masonry unit to be reused where noted on plan. Refer to specification sections 04 01 01 and 04 05 14. Payment is based on square footage of masonry units replaced.	\$/SF
10	Silane Sealer Application (SSCo) including necessary surface preparation of concrete slabs and application of sealer at State Street Capitol. Water used in surface preparation may not be discharged to drains and shall be collected and properly disposed of offsite. Refer to specification section 07 19 00. Payment based on square footage of concrete surface sealed.	\$/SF
11	Remove and Replace Existing or Install New Sealant Joint including removal of existing sealant from cracks and joints, grinding crack and joint edges, and installing new sealant with backer rod as required. Joint width varies. Refer to specification 07 90 07. Payment is based on length of sealant installed.	\$/LF
12	Steel Barrier Repairs (CSN) including removal of existing steel post and channels, re-fabrication of steel post, Ground Penetrating Radar (GPR) scanning of post-tensioned slab, installation of anchor bolts, refastening of channels, and localized repair of membrane where concrete repair occurs. Refer to specification sections 03 01 07, 05 50 00, 07 18 00, and 09 97 13 and detail B1/S501. Payment is based on number of repaired connections	\$/Each
13	Refasten Existing Stair Treads/Cover Plates including removal of existing loose fasteners and installation of new stainless-steel fasteners. Payment is based on number of refastened stair treads or cover plates.	\$/Each

14	Install New Precast Wall/Panel Connection including fabrication and installation of stainless-steel plates and/or angles, installation of stainless-steel anchors, and location of existing cast-in-place and precast member reinforcement. Refer to specification section 05 50 00, plan notes, and details A1/S501 and C1/S501	\$/Each
15	Install of New Floor Drains (WSG) including Ground Penetrating Radar (GPR) scanning of existing slab, coring of slab, installation of floor drain, and all necessary piping for connection to existing sanitary system. Refer to specification sections 22 05 17, 22 05 29, 22 05 53, 22 07 19, 22 10 05, 22 10 06, 22 30 00. Payment is based on number of drains installed. Payment for localized re-sloping to be paid by Item 1 (\$/SF).	\$/Each

PART 2 - EXECUTION (Not Used)

END OF SECTION

PART 3 - PRODUCTS (Not Used)

PART 4 - END OF SECTION

PART 5 - QUANTITY SUMMARY

Description	Pay Item	Unit	SSCo	CSN	SLS	WSG	Total Estimated Quantity
Concrete Topside Surface Spall Repair	1	SF	50	125	0	95	270 SF
Concrete Overhead Surface Spall Repair	2	SF	100	15	0	0	115 SF
Concrete Vertical Surface Spall Repair	3	SF	35	115	0	0	150 SF
Concrete Beam Spall Repair	4	SF	10	10	0	0	20 SF
Full-System Membrane Installation or Replacement	5	SF	0	19500	0	1560	21060 SF
Concrete Slab Crack Repair, Rout and Seal	6	LF	0	250	0	0	250 LF
Concrete Slab Crack Repair, Rout with Slot and Seal (WSG)	7	LF	0	0	0	1500	1500 LF
CMU Crack/Mortar Joint Repair	8	LF	0	550	0	0	550 LF
CMU Replacement	9	SF	0	30	0	0	30 SF
Silane Sealer Application (SSCo)	10	SF	301500	0	0	0	301500 SF
Remove and Replace Existing or Install New Sealant Joint	11	LF	600	600	0	300	1500 LF
Steel Barrier Repairs (CSN)	12	EA	0	2	0	0	2 EA
Refasten Existing Stair Treads/Cover Plates	13	EA	10	10	0	0	20 EA
Install New Precast Wall/Panel Connection	14	EA	2	0	4	0	6 EA
Install New Floor Drains	15	EA	0	0	0	7	7 EA

2024 Parking Garage Maintenance

01 22 00- 4

Unit Prices

Contract No. 9493

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2022-5008.02

SECTION 03 01 07

CONCRETE RESTORATION FOR PARKING STRUCTURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Concrete surface repair.
2. Include materials, labor, services and incidentals necessary for completion of this Section of Work.
3. Include the removal of unsound concrete, examination of exposed reinforcing, grit-blasting of acceptable reinforcing, replacement of unacceptable reinforcing with new, and cleaning of the newly exposed underlying sound concrete prior to casting new fill concrete.
4. Grit-blasting of exposed reinforcing steel and concrete surfaces is not required with Hydro-demolition concrete removal option. Concrete and steel surfaces shall be thoroughly cleaned of all slurry and residue following removal, prior to application of rebar coating and bonding agent.
5. The removal work shall be carried out in a manner so as to create a minimum disturbance with the continued use of the parking structure.
6. Warning: Concrete slabs at Capitol Square North (CSN), South Livingston Street (SLS), and top three levels of State Street Capitol (SSCo) are reinforced with post-tensioned (P/T) cables. Contractor shall locate P/T tendons prior to removal of concrete. Contractor shall exercise extreme caution when chipping so as not to damage nor displace P/T tendons or anchorages. Any damage shall be repaired at Contractor's expense.

B. Related Sections:

1. Applicable provisions of Division 01 – General Requirements shall govern all work under this Section.
2. Section 03 31 07 – Structural Concrete for Parking Structures.
3. Section 03 37 00 – Embedded Galvanic Anodes.
4. Section 03 64 07 – Crack Injection Repairs for Parking Structures.
5. Section 07 19 07 – Water Repellents for Parking Structures.
6. Section 07 90 07 – Joint Protection for Parking Structures.
7. Section 07 95 07 – Traffic Joint Expansion Assemblies for Parking Structure.

1.2 MEASUREMENT AND PAYMENT

- A. Engineer shall locate and mark all areas of delamination to be repaired.
- B. Contractor to document size of repair, at least one photo of the concrete repair area prior to placement of repair material, and repair completion date, using an online database provided by Engineer.
- C. Engineer to approve extents of concrete removal prior to Contractor installing repair materials.

D. Online database shall be used as a record for payments.

E. Repair Surface:

1. Basis of Measurement: Reference the specific repair detail on the Drawing and Specification 01 22 00.
2. Basis of Payment: Includes surface preparation, forming if necessary, concrete repair, finishing, and curing.

F. For concrete spall repair quantities, reference Bid Form.

1.3 REFERENCES

A. ASTM International (ASTM):

1. ASTM A82 - Standard Specification for Steel Wire, Plain, for Concrete Reinforcement.
2. ASTM A615 - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement.
3. ASTM A996 - Standard Specification for Rail-Steel and Axle-Steel Deformed Bars for Concrete Reinforcement.
4. ASTM C33 - Standard Specification for Concrete Aggregates.
5. ASTM C109 - Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. Cube Specimens).
6. ASTM C150 - Standard Specification for Portland Cement.
7. ASTM C260 - Standard Specification for Air-Entraining Admixtures for Concrete.
8. ASTM C293 - Standard Test Method for Flexural Strength of Concrete (Using Simple Beam with Center-Point Loading).
9. ASTM C404 - Standard Specification for Aggregates for Masonry Grout.

B. American Welding Society (AWS):

1. AWS D1.4 - Structural Welding Code - Reinforcing Steel.

1.4 SUBMITTALS

A. Division 01 – General Requirements: Submittal procedures.

B. Product Data: Submit product standards, physical and chemical characteristics, technical specifications, limitations, maintenance instructions, and general recommendations regarding each material.

C. Manufacturer's Instructions: Submit manufacturer's instructions for preparation, mixing, placing, and curing.

1.5 CLOSEOUT SUBMITTALS

A. Division 01 – General Requirements: Closeout procedures.

B. Division 01 – General Requirements - Project Record Documents: Using an online database to record actual locations and quantities of structural repairs.

C. Division 01 – General Requirements - Operation and Maintenance Data: Procedures for submittals.

1.6 QUALITY ASSURANCE

- A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum five (5) years documented experience.
- B. Contractor: Company specializing in concrete repair with minimum five (5) years documented experience and approved by manufacturer.
- C. Source Limitations: For repair products, obtain each color, grade, finish, type, and variety of product from single source and from single manufacturer with resources to provide products of consistent quality in appearance and physical properties.
- D. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
 - 1. Finish areas designated by Engineer.
 - 2. Do not proceed with remaining work until workmanship is approved by Engineer.
 - 3. Refinish mock-up area as required to produce acceptable work.

1.7 PRE-INSTALLATION MEETINGS

- A. A pre-construction meeting is required with Contractor in order to coordinate work schedule and inspection required by Engineer.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Division 01 - General Requirements: Product storage and handling requirements.
- B. Comply with instructions for storage, shelf life limitations, and handling.

1.9 EXISTING CONDITIONS

- A. Conduct demolition to minimize interference with adjacent building areas. Maintain protected egress and access at all times.
- B. Provide, erect, and maintain temporary barriers and security devices.

PART 2 - PRODUCTS

2.1 HORIZONTAL REPAIR MORTAR

- A. Flowable structural-repair concrete with integral corrosion inhibitor.
 - 1. MasterEmaco S 466 CI by BASF (Sika)
 - 2. Sikacrete 421 CI by Sika
 - 3. Eucocrete Supreme by The Euclid Chemical Company
 - 4. Or approved equal.

2.2 OVERHEAD AND VERTICAL REPAIR MORTARS

- A. One-component, shrinkage-compensated, fiber-reinforced product that contains an integral corrosion inhibitor.
 - 1. MasterEmaco S 488 CI by BASF (Sika)
 - 2. SikaQuick VOH by Sika
 - 3. Duraltop Gel by The Euclid Chemical Company
 - 4. Or approved equal with corrosion inhibitor.

2.3 REBAR PRIMER AND BONDING AGENT

- A. Water-based epoxy-cementitious bonding agent and rebar coating.
 - 1. Sika Armatec 110 EpoCem or 1c by Sika
 - 2. Duralprep AC by The Euclid Chemical Company
 - 3. Or approved equal.

2.4 REINFORCEMENT MATERIALS

- A. Reinforcing Steel: ASTM A615, 60 ksi yield grade billet-steel deformed bars, epoxy coated finish.
- B. Stirrup Steel: ASTM A82, epoxy coated finish.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Division 01 - General Requirements: Administrative requirements for coordination and project conditions.
- B. Verify surfaces are ready to receive work.
- C. Beginning of installation means acceptance of existing surfaces.

3.2 PREPARATION

- A. Prior to removal, the Contractor shall submit the Contractor's plan for confining dust and water run-off, collecting and disposal of broken concrete, steel reinforcement and other waste material as a result of the Contractor's removal operations. This plan shall be submitted to the Engineer and the Owner prior to start of construction. Dumpster location shall be coordinated with the Engineer and the Owner. Stockpiling of removal debris within parking garage is not allowed unless authorized and coordinated with the Engineer.
- B. Shore the structure as required. Shoring design, supply, and installation is the responsibility of the Contractor.
- C. Contractor responsible for removing and reinstalling or protection in place of mechanical, electrical, and plumbing utilities including electrical lighting and conduits as required for repair work.

- D. At slab areas with a membrane, place plywood protection on the topside of slab for overhead concrete removal above to prevent damage to the membrane floor coating.
- E. Delaminated areas which require removal of unsound concrete will be identified and marked by the Engineer. The unsound concrete shall be removed by chipping to sound concrete. The marking by the Engineer in the field does not guarantee that unsound concrete is not present in areas beyond those marked. Additional concrete removal may be required after the Contractor's initial removal. The Engineer will review the removal areas prior to concrete replacement.
- F. Use hammers of 15 pounds or less for concrete removal, unless approved in advance by Engineer.
- G. Remove concrete in an area extending slightly beyond outer boundary of unsound concrete.
- H. Edges of removed area shall not be feathered, but shall be undercut sawed to a minimum depth of 3/4-inch for topside spall repairs.
- I. Edges of underside and vertical spalls shall be undercut sawed to a minimum depth of 1/2-inch when prepackaged patching material is used.
- J. During removals, care shall be exercised to avoid damaging exposed steel, breaking its bond to surrounding concrete, and/or cracking adjacent sound concrete.
- K. Pneumatic tools should not be placed in direct contact with reinforcing steel.
- L. Contractor shall be responsible for the labor and material costs to replace reinforcement or to provide supplemental reinforcement when excessive damage to existing reinforcement is caused by careless operation of Contractor's tools.
- M. Following the initial removal of concrete and visual location of P/T tendons (at CSN and SSCo) in area of patch, perimeter of removal area shall be saw cut to square the area of removal prior to placing new concrete.
- N. During the chipping process in deteriorated concrete areas, care shall be exercised to avoid cracking of the underlying sound concrete.
- O. During removal of the unsound concrete, if more than half of the reinforcing bar diameter is exposed or if the bar is not firmly bonded to the surrounding concrete, or if the bar is corroded, then the remaining concrete around the bar shall be removed. The clearance between the bar and the concrete shall be minimum of 3/4". Support bars for the main reinforcing steel shall not be exposed provided there is no corrosion on these bars.
- P. The newly exposed sound concrete shall be cleaned by blowing away loose material with a deep grit-blast, with chipping hammer removal option, followed by cleaning with a compressed air jet.
- Q. As a precautionary safety measure, the area directly below areas being repaired shall be closed until concrete demolition work is completed.

R. The Engineer shall be allowed 24 hours for the inspection of properly prepared concrete surfaces and reinforcement, before the scheduled concrete placement.

3.3 REINFORCEMENT CLEANING AND REPLACEMENT

- A. Exposed reinforcing shall be thoroughly cleaned by grit-blasting, to remove rust and unsound concrete with chipping hammer removal option.
- B. Bars that are damaged or that have lost more than 10 percent of their original area at any point along the length shall be considered unacceptable and shall be removed and replaced with an equivalent new bar of equal length at the Engineer's direction. No. 8 bars and smaller that have lost between 5 percent and 10 percent of their original area at any point can be blast cleaned and reused as long as a new full length #4 bar is used as supplemental steel next to the old cleaned bar at the Engineer's direction.
- C. Exposed or supplemental reinforcing bars shall be no closer than 3/4" measured radially from existing concrete. The elevation of exposed or supplemental reinforcing shall be maintained at the original height.
- D. Where portions of reinforcing bars are exposed, the Engineer will determine if the embedded portion of the bar is soundly bonded to the remaining concrete. If, in the Engineer's judgment, the bar is not soundly bonded, the Contractor shall remove concrete around and under the bar for a length as determined by the Engineer.
- E. Install additional reinforcing bars as detailed.
- F. Drill and epoxy in dowels as detailed.
- G. Cleaned reinforcing shall be coated with protective rebar primer prior to casting new concrete.
- H. Engineer shall be allowed inspection of properly placed patch.

3.4 APPLICATION - CEMENTITIOUS MORTAR

- A. Apply brush coating of slurry mix to damp concrete surfaces. Provide full surface coverage.
- B. Apply cementitious mortar by steel trowel to fill patch area in accordance with manufacturer's instructions.
- C. Damp cure cementitious mortar for two (2) days.

3.5 CLEAN-UP

- A. Remove demolished materials from site as work progresses. Upon completion of work, leave areas of work in clean condition.
- B. Debris shall not be flushed down the existing floor drains.

END OF SECTION

SECTION 03 37 00
EMBEDDED GALVANIC ANODES

PART 1 - GENERAL

1.1 SUMMARY

- A. This work under this section shall consist of providing all work, materials, labor, equipment and supervision necessary to complete the following required in these specifications and on the drawings.
- B. Provide embedded galvanic anodes in the horizontal walking surfaces of stairs and walkway of project. Anodes are to be placed at a maximum 24" on center, each way, into concrete spalls.
- C. This Section includes furnishing all labor, materials, equipment and service necessary to properly install Galvanic Anodes designed to mitigate corrosion of reinforcing steel in concrete.

1.2 RELATED SECTIONS

- A. Section 03 01 07 – Concrete Restoration for Parking Structures
- B. Section 03 37 13 – Shotcrete

1.3 SUBMITTALS

- A. Make submittals in accordance with requirements of Division 1 and as specified in this Section.
- B. Submit material samples of anode(s) and related materials at least 10 days in advance of installation.
- C. Product Data: Submit manufacturer's product data, including surface preparation and placement instructions. Contractor to provide material safety data sheets (MSDS/SDS) for materials used and stored on site.
- D. Comply with Division 01 – General Requirements: Submittal Procedures.

1.4 QUALITY ASSURANCE

- A. Manufacturer's Qualifications: Provide proof of documented quality assurance system. Manufacturing anodes for at least 5 years.
- B. Pre-placement Meeting: Convene a pre-placement meeting 5 days before start of placement of concrete repair mortar. Require attendance of parties directly affecting work of this section, including contractor, Engineer, and manufacturer's representative. Review surface preparation, placement, protection and coordination with other work.
- C. All galvanic anodes, galvanic anode accessory parts and materials, shall originate from a single manufacture.

- D. All repair mortars used in repairs containing galvanic anodes shall be approved by anode manufacturer.
- E. Repair mortars, concrete and bonding agents shall be Portland cement-based materials with volumetric resistivity below 15,000 ohm/cm, as measured after 28-day wet cure and in saturated condition. Contractor shall provide submittals confirming resistivity of repair materials prior to beginning work. Non-conductive repair materials such as epoxy, urethane, or magnesium phosphate shall not be permitted.
- F. If required, pack embedding mortar between the anode and the substrate concrete to create a conductive grout bridge ensuring no voids exist.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Delivery: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.
- B. Storage: Store materials in clean, dry area in accordance with manufacturer's instructions. Keep containers sealed until ready for use. Avoid extreme temperatures.
- C. Handling: Protect materials during handling and placement to prevent damage or contamination.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Galvanic Anodes:
 1. Description: Pre-manufactured concrete casing containing zinc, around a pair of galvanized steel tie wires designed to mitigate corrosion of reinforcing steel in concrete.
 2. The core of the anode shall consist of a minimum of 160 grams of electrolytic high grade zinc in compliance with ASTM B418 cast around a pair of steel tie wires and encased in a highly alkaline cementitious shell with a pH of 14. The anodes shall have one side that is less than 1.5-inches in height.
 3. Galvanic anode shall incorporate insulating barrier at interface of anode and reinforcing bar to prevent "dumping" of current into attachment bar there by extending coverage area and service life of galvanic anode.
 4. Manufacturers:
 - a. Galvashield XP4 - Vector Corrosion Technologies, (319) 364-5355
 - b. Sentinel Gold - Euclid Chemical Company, (800) 321-7628
 - c. Master Protect 8160CP - BASF Building Systems, (262) 277-4045
 - d. FerroGard 675 - Sika, (847) 767-2414
 - e. Substitutions: As approved by Engineer.
 - f. Basis for Design:
 - 1) Galvashield XP4 from Vector Corrosion Technologies.
- B. Repair Mortars Compatible with Galvanic Anodes
 1. Repair Mortar: Shall be prepackaged, cementitious repair mortar. Repair mortar shall be capable of achieving a minimum 3-day compressive strength of 3,000 psi and 5,000 psi at 28

days per ASTM C 109, as certified by manufacturer, Manufacturer to provide written certification of compatibility with galvanic anode corrosion protection system.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine surfaces to receive anode. Notify Engineer if surfaces are not acceptable. Do not begin placement until unacceptable conditions are corrected.

3.2 SURFACE PREPARATION

- A. Concrete removal and preparation of concrete surface for repair shall be conducted according to Section 03 01 29 - Restoration of Concrete.
 - 1. Remove all unsound concrete from around and behind steel reinforcement.
 - 2. Provide minimum $\frac{3}{4}$ " clearance between anode and substrate or $\frac{1}{4}$ " larger than top size aggregate of repair material, whichever is larger.
 - 3. Clean exposed reinforcing steel to remove all rust, mortar, etc. Provide bright metal surface that will provide sufficient electrical connection.
 - 4. Secure loose reinforcing steel by tying tightly to other bars with steel tie wire. Newly secured reinforcing steel shall be tested to ensure electrical continuity in accordance with the subsequent paragraph.
- B. Electrical continuity of rebar within repair area shall be confirmed with use of a high-impedance multimeter indicating a reading of 1.0mV or less.
- C. If necessary, establish the electrical continuity with uncoated steel tie wire.

3.3 PLACEMENT

- A. Place anodes as close as practical to edge of repair area (within 6") while providing sufficient clearance for anode to be completely surrounded by repair mix.
 - 1. Minimum 1.5" of repair mix cover shall be provided over galvanic anode unit.
 - 2. Where possible install Anode with top face parallel to concrete surface. Anode may be angled down in cases where concrete cover is very shallow.
 - 3. Install anodes after cleaning reinforcement but before any other treatment of the reinforcing.
- B. Install galvanic anodes to existing reinforcement along the perimeter of the repair at spacing as specified on the plans. In no case shall the distance between anodes exceed 24 inches.
- C. If the anode is to be tied onto a single bar, or if less than 1.5-inch of concrete cover is expected, place anode beneath the uncoated bar and secure to reinforcing steel.

3.4 PROTECTION

- A. Anodes shall be installed and covered as soon as possible after removal from their original sealed packaging. Any anodes removed from their original packaging must be protected from excessive moisture and/or contaminants until time of repair material placement.

B. Do not allow anodes to freeze.

END OF SECTION

SECTION 04 01 01

MAINTENANCE OF MASONRY

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Water cleaning of brick surfaces.
 - 2. Replacement of brick units.
 - 3. Repair of damaged masonry.

- B. Related Sections:
 - 1. Applicable provisions of Division 01 – General Requirements shall govern all work under this Section.
 - 2. Section 04 05 14 - Masonry Mortaring and Grouting.
 - 3. Section 07 19 01 - Clear Penetrating Sealers.
 - 4. Section 07 90 00 - Joint Protection for Parking Structures.

1.2 REFERENCES

- A. American Concrete Institute (ACI):
 - 1. ACI 530 - Building Code Requirements for Masonry Structures.
 - 2. ACI 530.1 - Specifications for Masonry Structures.

1.3 QUALITY ASSURANCE

- A. Perform Work in accordance with ACI 530 and ACI 530.1 requirements.

1.4 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum five (5) years experience.
- B. Installer: Company specializing in performing Work of this section with minimum five (5) years experience.

1.5 MOCKUP

- A. Division 01 – General Requirements: Mockup requirements.
- B. Clean a wall panel, 10 x 10 ft to determine extent of cleaning methods and cleaning products.
- C. Repeat, using same cleaning methods until acceptable.
- D. Locate where directed by Engineer.
- E. Acceptable panel will become standard for work of this section.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Division 01 – General Requirements: Product storage and handling requirements.
- B. Store mortar ingredients in manufacturer's packaging, or when delivered loose, with adequate weatherproof covering.

1.7 ENVIRONMENTAL REQUIREMENTS

- A. Cold Weather Requirements: In accordance with ACI 530.1 when ambient temperature or temperature of masonry units is less than 40 degrees F.
- B. Hot Weather Requirements: In accordance with ACI 530.1 when ambient temperature is greater than 100 degrees F or ambient temperature is greater than 90 degrees F with wind velocity greater than eight (8) mph.

PART 2 - PRODUCTS

2.1 COMPONENTS

- A. Cleaning Agent: Detergent type.
- B. Clay Brick: Owner has limited supply of salvaged brick for this work; may require cutting to match.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify surfaces to be cleaned are ready for work of this section.

3.2 PREPARATION

- A. Protect elements surrounding work of this section from damage or disfiguration.
- B. Immediately remove stains, efflorescence, or other excess resulting from work of this section.
- C. Construct barriers to close off occupied areas.

3.3 INSTALLATION

- A. Rebuilding:
 - 1. Cut out damaged and deteriorated masonry with care in manner to prevent damage to adjacent remaining materials.
 - 2. Support brick structure in advance of cutting out units to maintain stability of remaining materials.
 - 3. Cut away loose or unsound adjoining masonry stone and mortar as directed by Engineer to provide firm and solid bearing for new work.

4. Build in new masonry units following procedures for new work specified in Section 04 05 14 – Masonry Mortaring and Grouting.
 5. Mortar Mix: Colored and proportioned to match existing work.
 6. Install built in masonry work to match and align with existing, with joints and coursing true and level, faces plumb and in line. Build in openings, accessories and fittings.
- B. Repointing:
1. Cut out loose or disintegrated mortar in joints to minimum 1/2 inch depth or until sound mortar is reached.
 2. Utilize power tools only after test cuts determine no damage to masonry units results.
 3. Do not damage masonry units.
 4. When cutting is complete, remove dust and loose material by brushing.
 5. Premoisten joint and apply mortar specified in Section 04 05 14 – Masonry Mortaring and Grouting. Pack tightly in maximum 1/4 inch layers. Form smooth, compact concave joint to match existing.
 6. Moist cure for 72 hours.
- C. Cleaning Existing Masonry
1. High Pressure Cold Water: Cold water blast brick masonry surfaces at specified locations, providing uniform finish.

3.4 CLEANING

- A. Division 01 – General Requirements: Final cleaning.
- B. As work proceeds and on completion, remove excess mortar, smears, droppings.
- C. Clean surrounding surfaces.

END OF SECTION

SECTION 04 05 14
MASONRY MORTARING AND GROUTING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes mortar for masonry.
- B. Related Sections:
 - 1. Applicable provisions of Division 01 – General Requirements shall govern all work under this Section.
 - 2. Section 04 01 01 - Maintenance of Masonry: Bedding and pointing mortar for masonry restoration work.

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

- A. See bid form.

1.3 REFERENCES

- A. American Concrete Institute (ACI):
 - 1. ACI 530 - Building Code Requirements for Masonry Structures.
 - 2. ACI 530.1 - Specifications for Masonry Structures.
- B. ASTM International (ASTM):
 - 1. ASTM C5 - Standard Specification for Quicklime for Structural Purposes.
 - 2. ASTM C91 - Standard Specification for Masonry Cement.
 - 3. ASTM C144 - Standard Specification for Aggregate for Masonry Mortar.
 - 4. ASTM C150 - Standard Specification for Portland Cement.
 - 5. ASTM C270 - Standard Specification for Mortar for Unit Masonry.
 - 6. ASTM C387 - Standard Specification for Packaged, Dry, Combined Materials for Mortar and Concrete.
 - 7. ASTM C476 - Standard Specification for Grout for Masonry.

1.4 SUBMITTALS

- A. Division 01 – General Requirements: Submittal requirements.
- B. Samples: Submit two samples of mortar, illustrating mortar color and color range.
- C. Design Data: Submit design mix when Property specification of ASTM C270 is to be used, required environmental conditions, and admixture limitations.
- D. Test Reports:
 - 1. Submit reports on mortar indicating conformance of mortar to property requirements of ASTM C270.

E. Manufacturer's Installation Instructions: Submit manufacturer's installation instructions.

F. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

1.5 QUALITY ASSURANCE

A. Perform Work in accordance with ACI 530 and ACI 530.1.

1.6 ENVIRONMENTAL REQUIREMENTS

A. Division 01 – General Requirements.

B. Cold Weather Requirements: In accordance with ACI 530.1 when ambient temperature or temperature of masonry units is less than 40 degrees F.

C. Hot Weather Requirements: In accordance with ACI 530.1 when ambient temperature is greater than 100 degrees F or ambient temperature is greater than 90 degrees F with wind velocity greater than 8 mph.

PART 2 - PRODUCTS

2.1 COMPONENTS

A. Premix Mortar: ASTM C387/C387M, Type S, with color to match existing mortar.

B. Water: Clean and potable.

C. Mortar Color: Match existing.

D. Calcium chloride is not permitted.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Division 01 – General Requirements: Coordination and project conditions.

3.2 INSTALLATION

A. Install mortar.

3.3 FIELD QUALITY CONTROL

A. Division 01 – General Requirements: Field inspecting, testing, adjusting, and balancing.

B. Establishing Mortar Mix: In accordance with ASTM C270.

END OF SECTION

SECTION 05 50 00
METAL FABRICATIONS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes shop fabricated metal items as follows:
 - 1. Structural supports for miscellaneous attachments.
- B. Related Sections:
 - 1. Applicable provisions of Division 01 – General Requirements shall govern all work under this Section.

1.2 REFERENCES

- A. ASTM International (ASTM):
 - 1. ASTM A36 - Standard Specification for Carbon Structural Steel.
 - 2. ASTM A53 - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
 - 3. ASTM A123 - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
 - 4. ASTM A153 - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
 - 5. ASTM A240 - Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications.
 - 6. ASTM A269 - Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service
 - 7. ASTM A276 - Standard Specification for Stainless Steel Bars and Shapes.
 - 8. ASTM A653 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
 - 9. ASTM A992 - Standard Specification for Structural Steel Shapes.
- B. American Welding Society (AWS):
 - 1. AWS A2.4 - Standard Symbols for Welding, Brazing, and Nondestructive Examination.
 - 2. AWS D1.1 - Structural Welding Code - Steel.
 - 3. AWS D1.6 - Structural Welding Code - Stainless Steel.
- C. The Society for Protective Coatings (SSPC):
 - 1. SSPC - Steel Structures Painting Manual.
 - 2. SSPC SP 1 - Solvent Cleaning.
 - 3. SSPC SP 10 - Near-White Blast Cleaning.
 - 4. SSPC Paint 15 - Steel Joist Shop Paint.
 - 5. SSPC Paint 20 - Zinc-Rich Primers (Type I - Inorganic and Type II - Organic).

1.3 SUBMITTALS

- A. Division 01 – General Requirements: Submittal requirements.

- B. Shop Drawings: Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories. Include erection drawings, elevations, and details where applicable. Indicate welded connections using standard AWS A2.0 welding symbols. Indicate net weld lengths.
- C. Welders Certificates: Certify welders employed on the Work, verifying AWS qualification within previous 12 months.

1.4 SUSTAINABLE DESIGN SUBMITTALS

- A. Division 01 – General Requirements: Requirements for sustainable design submittals.

1.5 QUALITY ASSURANCE

- A. Finish joints in accordance with NOMMA Guideline 1.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Division 01 – General Requirements: Product storage and handling requirements.
- B. Accept metal fabrications on site in labeled shipments. Inspect for damage.
- C. Protect metal fabrications from damage by exposure to weather.

1.7 FIELD MEASUREMENTS

- A. Verify field measurements are as indicated on shop drawings.

PART 2 - PRODUCTS

2.1 MATERIALS - STEEL

- A. Structural W-Shapes: ASTM A992.
- B. Channels and Angles: ASTM A36.
- C. Steel Plate: ASTM A36.
- D. Hollow Structural Sections: ASTM A500, Grade B.
- E. Sheet Steel: ASTM A653, Grade 33 Structural Quality, galvanized with G90 coating class.
- F. Bolts: ASTM A325; Type 1.
 - 1. Finish: Hot dipped galvanized.
- G. Nuts: ASTM A563 heavy hex type.
 - 1. Finish: Hot dipped galvanized.
- H. Washers: ASTM F436; Type 1.
 - 1. Finish: Hot dipped galvanized.

- I. Welding Materials: AWS D1.1; type required for materials being welded.
- J. Touch-Up Primer for Galvanized Surfaces: SSPC Paint 20 Type I Inorganic.

2.2 MATERIALS - STAINLESS STEEL

- A. Bars and Shapes: ASTM A276; Type 302.
- B. Tubing: ASTM A269; Type 304.
- C. Plate, Sheet and Strip: ASTM A240 OR ASTM A666; Type 302.
- D. Bolts, Nuts, and Washers: ASTM A354.
- E. Welding Materials: AWS D1.6; type required for materials being welded.

2.3 BOLLARDS

- A. Bollards: Steel pipe, concrete filled, crowned cap, six (6) inches diameter, length as indicated on Drawings; galvanized.
- B. Concrete Fill: 3,000 psi as specified in Section 03 31 00 – Structural Concrete.
- C. Anchors: Concealed type as indicated on Drawings.

2.4 FABRICATION

- A. Fit and shop assemble items in largest practical sections, for delivery to site.
- B. Fabricate items with joints tightly fitted and secured.
- C. Exposed Welded Joints: NOMMA Guideline 1 Joint Finish.
- D. Exposed Mechanical Fastenings: Flush countersunk screws or bolts; unobtrusively located; consistent with design of component, except where specifically noted otherwise.
- E. Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.

2.5 FACTORY APPLIED FINISHES - STEEL

- A. Prepare surfaces to be primed in accordance with SSPC SP 2.
- B. Galvanizing: ASTM A123; hot dip galvanize after fabrication.
- C. Galvanizing for Fasteners, Connectors, and Anchors:
 - 1. Hot-Dipped Galvanizing: ASTM A153.
 - 2. Mechanical Galvanizing: ASTM B695; Class 50 minimum.

2.6 FACTORY APPLIED FINISHES - STAINLESS STEEL

- A. Satin Polished Finish: Number 4, satin directional polish parallel with long dimension of finished face.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Division 01 – General Requirements: Coordination and project conditions.
- B. Verify field conditions are acceptable and are ready to receive Work.

3.2 INSTALLATION

- A. Install items plumb and level, accurately fitted, free from distortion or defects.
- B. Make provisions for erection stresses. Install temporary bracing to maintain alignment, until permanent bracing and attachments are installed.
- C. Field weld components indicated on Drawings.
- D. Perform field welding in accordance with AWS D1.1.
- E. Obtain approval of Engineer prior to site cutting or making adjustments not scheduled.
- F. After erection, touch up welds, abrasions, and damaged finishes with prime paint or galvanizing repair paint to match shop finishes.

3.3 ERECTION TOLERANCES

- A. Division 01 – General Requirements: Tolerances.

3.4 FIELD QUALITY CONTROL

- A. Welding: Inspect welds in accordance with AWS D1.1.

END OF SECTION

SECTION 07 18 00
TRAFFIC COATINGS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes fluid applied membrane coating.
- B. Related Sections:
 - 1. Applicable provisions of Division 01 – General Requirements shall govern all work under this Section.
 - 2. Section 07 90 07 - Joint Protection for Parking Structures: Joint between traffic membrane and membrane termination.
 - 3. Section 07 95 07 – Traffic Joint Expansion Assemblies for Parking Structures.

1.2 REFERENCES

- A. ASTM International (ASTM):
 - 1. ASTM D412 - Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers-Tension.
 - 2. ASTM D903 - Standard Test Method for Peel or Stripping Strength of Adhesive Bonds.
 - 3. ASTM D1044 - Standard Test Method for Resistance of Transparent Plastics to Surface Abrasion.
 - 4. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
 - 5. ASTM E96 - Standard Test Methods for Water Vapor Transmission of Materials.

1.3 SUBMITTALS

- A. Division 01 – General Requirements: Submittal procedures.
- B. Product Data: Submit product characteristics, limitations, and identify dissolving solvents, fuels, and potential destructive compounds.
- C. Submit stepped sample of coating system applied to ¼" x 6" x 6" plywood or similar rigid base showing each component for each duty grade to be applied. Sample shall be noted with component mil thicknesses and aggregate size and manufacturer. Also submit sample of aggregate to be used.
- D. Manufacturer's Installation Instructions: Submit special environmental conditions required to install the Product and potential incompatibilities with adjacent materials.
- E. Applicator's License Certificate
 - 1. Submit copy of 'Certificate of License' issued to system applicator by traffic coating manufacturer.

1.4 CLOSEOUT SUBMITTALS

- A. Division 01 – General Requirements: Closeout procedures.
- B. Maintenance Manual
 - 1. Upon completion of work required by this Section, submit maintenance manual, identified with project name, location and date; type of coating system applied and surface to which system was applied, including sketches where necessary. Include recommendations for periodic inspections, care and maintenance and snow removal guideline. Identify common causes of damage with instructions for temporary patching until permanent repair can be made.
- C. Warranty
 - 1. Installer shall review surface condition of slab prior to the installation of traffic coating system. Written notice shall be provided to Engineer stating any condition which will impair performance of traffic coating system, including compatibility with existing traffic coating were present. Installation of traffic coating system shall constitute acceptance of surface by Installer.
 - 2. Completed installation shall be guaranteed jointly and severally on a single document, by traffic coating manufacturer and applicator, against defects of materials and workmanship for a period of 5 years. Warranty shall cover delamination of system from substrate and degradation of waterproofing ability.
 - 3. Installer and manufacturer shall provide labor and materials to repair deficiencies or defects which develop due to normal use.

1.5 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum five (5) years documented experience.
- B. Applicator: Company specializing in performing Work of this section with minimum five (5) years documented experience.

1.6 MOCKUP

- A. Division 01 – General Requirements: Requirements for mockup.
- B. Construct mockup panel, 10' feet long by 10' feet wide, including membrane system applied to representative substrate.
- C. Locate where directed by Engineer.
- D. Incorporate accepted mockup as part of Work.

1.7 PRE-INSTALLATION MEETINGS

- A. Division 01 – General Requirements: Pre-installation meeting.
- B. A pre-construction meeting is required with Contractor in order to coordinate work schedule and inspection required by Engineer. Stepped sample of coating system shall be reviewed and agreed

to for surface texture. Approved surface texture shall be used throughout. Areas deemed to vary from sample shall be recoated at no additional cost. These primarily are areas devoid of surface aggregates that present a slippery surface when wet.

- C. Convene minimum one (1) week prior to commencing work of this section.

1.8 APPLICATOR QUALIFICATIONS

- A. System applicator shall be licensed or trained to install selected traffic coating system and shall have experience in application of fluid applied deck coatings. Contractor or their subcontractor shall submit qualifications to A/E showing traffic coating applicator has experience in installing specified traffic coating. Traffic coating applicator shall have completed a minimum of 200,000 sq. ft. of traffic coating application. Qualifications shall consist of a minimum of five (5) projects completed within the past 5 years using traffic coating Contractor proposes to install for this Project. List shall include name of project, location, areas of product application, and contact person with phone number. Projects listed shall be a minimum of 10,000 sq. ft. per project listed.

1.9 DELIVERY, STORAGE, AND HANDLING

- A. Division 01 – General Requirements: Product storage and handling requirements.
- B. Maintain ambient storage temperature of 55 degrees F.

1.10 ENVIRONMENTAL REQUIREMENTS

- A. Division 01 – General Requirements: Environmental requirements.
- B. Do not install materials when temperature is below 50 degrees F or above 90 degrees F.
- C. Maintain this temperature range, 24 hours before, during and 72 hours after application.
- D. Restrict traffic from area where materials are being installed or are curing.
- E. Rain shall not be anticipated within 8 hours of application.
- F. Substrate surface temperatures shall be above 40 deg F and lower than 110 deg F. Proper notices shall be given prior to start of membrane application.
- G. Proper notices shall be given prior to start of membrane installation.
- H. Positive ventilation for interior applications is to be continuously supplied throughout application period and 8 hours after. Installer is responsible for fume control. Air intakes for buildings are to be protected against infiltration of fumes into ventilation systems.

1.11 WARRANTY

- A. Division 01 – General Requirements: Product warranties and product bonds.
- B. Furnish five (5) year manufacturer warranty coverage for delamination of system from substrate and degradation of waterproofing ability.

PART 2 - PRODUCTS

2.1 TRAFFIC MEMBRANE

- A. Components shall be products of selected traffic coating system or shall be certified as compatible with components produced by system manufacturer.
- B. Traffic coating system shall be a fully adhered, fluid applied, traffic bearing, elastomeric membrane system. System shall be capable of preventing infiltration of water, salts, gasoline and other fluids into concrete.
- C. Installer shall not change traffic coating system after selection of system has been made without approval of A/E.
- D. Installer shall verify slab surface condition prior to installation of system. Areas of heavy wear or slab irregularities shall be filled prior to traffic coating placement to assure a level, uniform surface. This shall be done according to membrane manufacturers recommendations.
- E. Areas identified having a topping system shall be manufacturer's heavy-duty system. These systems shall consist of a primer, base coat or membrane, wear coat and topcoat.
- F. Wear coats are to be saturated with aggregate.
- G. Material thicknesses are wet film thicknesses. Thickness listed for wear coat does not include aggregate.
- H. Approved traffic coating systems include systems described for Full System replacement. At placement for worn membrane the replacement will consist of wear coat and finish or top coat:
 - 1. Overture Center Ramp, State Street Campus - Lake and Frances, and State Street Capitol:
 - a. "MasterSeal Traffic 2500 - Heavy Duty Traffic System" by BASF. System shall consist of primer, base coat, intermediate coat, and finish coat. Total wet film thickness shall be 50 mils exclusive of aggregate. Thickness does not include primer. Color: Grey.
 - b. Requests for substitutions will be considered in accordance with the submittals of Section 0100 00 - General Requirements.
 - 2. Capitol Square North Ramp:
 - a. "MasterSeal Traffic 2500 - Heavy Duty Traffic System" by BASF. System shall consist of primer, base coat, intermediate coat, and finish coat. Total wet film thickness shall be 50 mils exclusive of aggregate. Thickness does not include primer. Color: Black.
 - b. Requests for substitutions will be considered in accordance with the submittals of Section 0100 00 - General Requirements.
- I. Where lapping onto existing traffic coating, new traffic coating shall be compatible and match existing. Contractor shall perform "pull off" bond test, or similar, to prove compatibility with existing.
- J. Color:
 - 1. Topcoat color varies and shall match existing.
- K. Installer shall furnish related materials required for crack repair, cant sealant, overbanding and flashing per system manufacturers' requirements to achieve a complete waterproof system.

PART 3 - EXECUTION

3.1 GENERAL

- A. Work shall be performed in accordance with manufacturer's specifications.

3.2 CONDITION OF SURFACES

- A. Before coating work is commenced, top surface of slab shall be shot-blasted to remove laitance concrete from existing, replaced, or new concrete slab. Areas of worn or heavily weathered membrane to receive a new wear coat shall also be shot-blasted prior to application. Surfaces shall be cleaned with oil free compressed air jet following shot-blasting. In areas designated for full membrane removal and replacement, existing membrane materials are to be removed completely to sound concrete with milling as required.
- B. Concrete slabs shall be prepared using a shot-blast machine followed by cleaning with a compressed air jet. Prepared concrete shall have a surface profile of CSP 3-4 (Concrete Surface Preparation 3-4 as established by International Concrete Repair Institute #310.2-1997). Surface appearance shall be verified and approved by Owner and Engineer prior to sealer application. Note: CSP 3-4 is the typical deck coating MFG. recommendation ICRI #310.2-1997 is the new designation.
- C. Areas inaccessible to shot-blast machine shall be grit-blasted to achieve CSP 1 surface profile.
- D. Additional cleaning to remove deposits, which hinder bond of traffic coating to concrete surface, shall be done by traffic coating applicator as part of application with no additional cost to Owner.
- E. Remove foreign projections on deck by grinding or other suitable methods.
- F. Honeycomb, voids, deteriorated, or unsound concrete shall be repaired to produce a sound, uniform surface in accordance with Engineer's recommendations and as shown on Drawings.
- G. Concrete surfaces shall be visibly dry and pass a 4-hour rubber mat test (no condensation) prior to application of coating system. Mat shall be black and taped to deck on edges.
- H. Verify curing methods used for concrete are compatible with surface requirements for coating system.
- I. Top surfaces of substrates other than concrete shall be treated as required by traffic coating manufacturer.
- J. Commencement of coating installation implies acceptance of top surface of substrate area only, as suitable to accept traffic coating. Responsibility for other aspects of substrate shall be responsibility of others.

3.3 PREPARATION

- A. Rout or sawcut cracks exceeding 1/16 inch in width and fill with sealant as detailed.

- B. Traffic coating system shall bridge cracks that open up in substrate up to 1/16 inch in width maximum. Acceptable width of caulked joints is per system manufacturers' specification.
- C. Fill expansion, control and construction joints to be overcoated by deck coating with sealant. Joints larger than 1 inch shall be reviewed with traffic coating system specification.
- D. Protect adjacent surfaces with drop cloths or masking tape as required.

3.4 FLASHINGS

- A. At projections through deck coatings where projections are structurally and rigidly connected to substrate, such as posts, vents, pipes, stanchions, railings, rigidly connected wall/slab intersections and similar connected items having limited movement, provide a bead of sealant. Tool sealant to form a cant and allow to cure before overcoating. Tooled sealant shall be overlain with a fluid applied integral membrane flashing.
- B. At locations of potential high movement such as wall/slab intersections which are not structurally and rigidly connected, provide sheet flashing or reinforce coating with uncoated, woven fiberglass cloth. Where sheet flashings are used, they shall be free or unbonded to substrate near meeting angle but shall be fully bonded away from meeting angle. Do not use precured sheet flashings over expansion joints in horizontal surfaces.

3.5 PRIMER

- A. Prime concrete, masonry and metal surfaces at manufacturers recommended rate. Concrete primer shall be compatible for use intended. Note traffic coating on horizontal surface shall be placed on concrete while vertical placement may be on concrete or brick.

3.6 DETAIL WORK

- A. Apply non flowing type coating over flashings (sheet flashings, sealant cants and rigid corners). Extend coating beyond flashing out onto adjacent deck surface and extend above top of flashing and terminate in a straight line. Use masking tape.
- B. Apply non-flowing type detail coats over cracks, construction joints, cant joints, patch perimeters, etc. Detail coats shall be included in deck coating cost.
- C. Allow detail work to cure prior to installation of coating system.

3.7 BASE COAT

- A. In areas identified by Project Drawings to receive full system membrane traffic coating, apply coating material at film thickness specified. Extend coating over fluid applied flashings and detail coatings.
- B. Allow to cure per by manufacturers requirements.
- C. Areas designated to receive membrane wear coat and top coat placement will not need base coat application.

3.8 WEAR COAT

- A. Apply wear coating material at thickness specified to horizontal areas indicated on Project Drawings to receive traffic coating. Vertical surface will not receive a wear coat.
- B. While coating is still fluid, uniformly broadcast aggregate over surface. Aggregate to be applied to saturation for wear coat.
- C. Allow to cure per manufacturers requirements.
- D. Remove excess aggregate from deck surface by manual sweeping or mechanical vacuum, followed by air blast.
- E. Wear coat will be applied at locations designated to receive full system membrane and wear coat and top coat placement.

3.9 TOP COAT

- A. Apply a top coat of material as recommended by manufacturer, to encapsulate top layer of aggregate. Application of top coat is not to eliminate non-slip surface texture of membrane system in place.
- B. Allow finished installation to cure per manufacturer before permitting traffic on surfaces.
- C. Top coat will be applied at locations designated to receive full system membrane and wear coat and top coat placement.

3.10 CLEANING

- A. Clean stains from adjacent surfaces per manufacturer's instructions.
- B. Note: When using solvents for cleanup, extinguish sources of ignition in the area and observe proper precautionary measures for handling materials.
- C. Remove foreign matter from finished coating surfaces.

3.11 MAINTENANCE

- A. Damaged surfaces may be cleaned and have liquid coating and grit applied to match surrounding surface. Where a regular maintenance and cleaning program is required, surfaces may be washed with commercial detergents or chlorinated solvents.

3.12 PROTECTION OF INSTALLED CONSTRUCTION

- A. Division 01 – General Requirements: Protecting installed construction.
- B. Do not permit traffic over unprotected surfaces.

END OF SECTION

SECTION 07 19 07
WATER REPELLENTS FOR PARKING STRUCTURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Water repellent coating applied to concrete surfaces.
- B. Related Sections:
 - 1. Applicable provisions of Division 01 shall govern all work under this Section.
 - 2. Section 03 31 07 - Structural Concrete for Parking Structures: Concrete surfaces.
 - 3. Section 07 90 07 - Joint Protection for Parking Structures.

1.2 REFERENCES

- A. ASTM International (ASTM):
 - 1. ASTM D1653 - Standard Test Method for Water Vapor Transmission of Organic Coating Films.
 - 2. ASTM G154 - Standard Practice for Operating Fluorescent Light Apparatus for UV Exposure of Nonmetallic Materials.

1.3 SYSTEM DESCRIPTION

- A. Applied Penetrant: Material to restrict moisture absorption in material being treated as recommended by manufacturer for specific substrate.

1.4 SUBMITTALS

- A. Division 01 – General Requirements: Submittal procedures.
- B. Product Data: Submit details of product description, tests performed, limitations to coating, and chemical properties including percentage of solids.
- C. Manufacturer's Installation Instructions: Submit special procedures and conditions requiring special attention, and cautionary procedures required during application.
- D. Manufacturer's Certificate: Certify products meet or exceed specified requirements.

1.5 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum five (5) years documented experience.
- B. Applicator: Company specializing in performing Work of this section with minimum five (5) years documented experience.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Division 01 – General Requirements: Product storage and handling requirements.
- B. Protect coating liquid from freezing.

1.7 ENVIRONMENTAL REQUIREMENTS

- A. Division 01 – General Requirements: Environmental requirements.
- B. Do not apply coating when surface temperature is lower than 50 degrees F or higher than 100 degrees F.
- C. Do not apply coating when wind velocity exceeds manufacturer recommendations.

1.8 WARRANTY

- A. Division 01 – General Requirements: Product warranties and product bonds.
- B. Furnish five (5) year manufacturer warranty for water repellents.

PART 2 - PRODUCTS

2.1 WATER REPELLENTS

- A. Manufacturers:
 - 1. Sika Corp., MasterProtect H400.
 - 2. Euclid Chemical Company, Baracade Silane 40
 - 3. Substitutions: In accordance with Division 01 – General Requirements.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Division 01 – General Requirements: Coordination and project conditions.
- B. Verify joint sealants are installed and cured.
- C. Verify surfaces to be coated are dry, clean, and free of efflorescence, oil, or other matter detrimental to application of coating.

3.2 PREPARATION

- A. Delay Work until concrete substrate is cured minimum of 30 days.
- B. Remove loose particles and foreign matter.
- C. Remove oil or foreign substance with chemical solvent which will not affect coating.

D. Pressure wash and rinse surfaces with water and let dry per manufacturers requirements.

3.3 APPLICATION

A. Apply at maximum rate of 200 sq.ft/gallon by airless spray.

B. Apply in one continuous, uniform coat.

C. Allow to soak in and broom out puddles.

3.4 PROTECTION OF INSTALLED CONSTRUCTION

A. Division 01 – General Requirements: Protecting installed construction.

B. Protect adjacent surfaces not scheduled to receive coating.

C. Protect landscaping, property, and vehicles.

D. When applied to unscheduled surfaces, remove immediately by methods as instructed by coating manufacturer.

END OF SECTION

SECTION 07 90 07
JOINT PROTECTION FOR PARKING STRUCTURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Sealants.
 - 2. Joint backing.
 - 3. Accessories.

- B. Related Sections:
 - 1. Applicable provisions of Division 01 – General Requirements shall govern all work under this Section.

1.2 REFERENCES

- A. ASTM International (ASTM):
 - 1. ASTM C834 - Standard Specification for Latex Sealants.
 - 2. ASTM C919 - Standard Practice for Use of Sealants in Acoustical Applications.
 - 3. ASTM C920 - Standard Specification for Elastomeric Joint Sealants.
 - 4. ASTM C1193 - Standard Guide for Use of Joint Sealants.
 - 5. ASTM D1056 - Standard Specification for Flexible Cellular Materials-Sponge or Expanded Rubber.
 - 6. ASTM D1667 - Standard Specification for Flexible Cellular Materials-Vinyl Chloride Polymers and Copolymers (Closed-Cell Foam).
 - 7. ASTM D2628 - Standard Specification for Preformed Polychloroprene Elastomeric Joint Seals for Concrete Pavements.

1.3 QUALITY ASSURANCE

- A. Applicator Qualifications:
 - 1. Contractor shall have a minimum of 3 years of experience in performing work similar to that shown in Drawings and Specifications.

- B. Warranty:
 - 1. The completed installation shall be guaranteed jointly and severally on a single document, by sealant manufacturer and installer agreeing to repair or replace sealants which fail to perform as airtight and watertight joints or fail in joint adhesion, cohesion, abrasion resistance, weather resistance, extrusion resistance, migration resistance, stain resistance or general durability or appear to deteriorate in other manner not clearly specified by submitted manufacturer's data as an inherent quality of material for exposure indicated.
 - 2. Warranty period shall be 5 years.

1.4 SUBMITTALS

- A. Division 01 – General Requirements: Submittal procedures.

- B. Products Data: Submit data indicating sealant chemical characteristics, performance criteria, substrate preparation, limitations, and color availability.
- C. Samples: Submit two samples, 1/4-inch x 2-inch in size illustrating sealant colors for selection.
- D. Manufacturer's Installation Instructions: Submit special procedures, surface preparation, and perimeter conditions requiring special attention.
- E. Warranty: Include coverage for installed sealants and accessories failing to achieve watertight seal, exhibit loss of adhesion or cohesion, and sealants which do not cure.

1.5 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum five (5) years documented experience.
- B. Applicator: Company specializing in performing Work of this section with minimum five (5) years documented experience and approved by manufacturer.

1.6 ENVIRONMENTAL REQUIREMENTS

- A. Division 01 – General Requirements.
- B. Maintain temperature and humidity recommended by sealant manufacturer during and after installation.

1.7 COORDINATION

- A. Division 01 – General Requirements: Coordination and project conditions.
- B. Coordinate Work with sections referencing this section.

PART 2 - PRODUCTS

2.1 JOINT SEALERS

- A. Manufacturers:
 - 1. Sika Corp., Sikaflex-2c, SL or NS.
 - 2. BASF, Sonolastic SL2 or NP2.
 - 3. Euclid Chemical, Eucolastic 1SL or 1NS.
 - 4. Substitutions: In accordance with Division 01 – General Requirements.
- B. Sealant color will be chosen at time of construction from manufacturer's standard color pallet.

2.2 ACCESSORIES

- A. Primer: Non-staining type, recommended by sealant manufacturer to suit application.
- B. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer;

compatible with joint forming materials.

- C. Joint Backing: Round rod compatible with sealant; ASTM D1667, closed cell PVC; oversized 30 to 50 percent larger than joint width.
- D. Bond Breaker: Pressure sensitive tape recommended by sealant manufacturer to suit application.

PART 3 - EXECUTION

3.1 PRE-INSTALLATION MEETING

- A. The installer, Engineer, sealant manufacturer's technical representative and other trades involved in coordination with sealant work shall meet with Contractor at Project Site to review procedures and time schedule proposed for installation of sealants and coordination with other work. Review each major sealant application required on the Project.

3.2 EXAMINATION

- A. Division 01 – General Requirements: Coordination and project conditions.
- B. Verify substrate surfaces and joint openings are ready to receive work.
- C. Verify joint backing and release tapes are compatible with sealant.

3.3 PREPARATION

- A. Removal of sealants by means of waterblasting is not permitted.
- B. Complete removal of existing sealant is required prior to installation of new sealants.
- C. Contractor shall saw and grind surface of cracks and joints. Edges of cracks or joints to be sealed shall be of sound substrate. Prior to installing sealant, surfaces shall be cleaned of foreign debris and edges ground. Joint edges shall be slightly rounded. Rout out random cracks to a nominal depth of 3/8" and a width of 1/4".
- D. Remove loose materials and foreign matter impairing adhesion of sealant.
- E. Clean and prime joints.
- F. Perform preparation in accordance with ASTM C1193.
- G. Protect elements surrounding Work of this section from damage or disfiguration.
- H. At location of weld plate or flange connectors, grit-blast exposed steel to near white metal condition and coat with zinc rich coating. Install bond breaker tape over horizontal steel surface prior to backer rod and sealant installation.

- I. Clean joint surfaces immediately before installation of sealant or caulking compound. Grind or grit-blast joint blackouts to remove dirt, coatings, existing sealant, moisture and other substances which interfere with bond of sealant or caulking compound.
- J. Installer must examine joint surfaces, backing and anchorage of units forming sealant rabbet and conditions under which sealant work is to be performed and notify Contractor in writing of conditions detrimental to proper and timely completion of work and performance of sealants. Do not proceed with sealant work until unsatisfactory conditions have been corrected in a manner acceptable to installer.

3.4 INSTALLATION

- A. Perform installation in accordance with ASTM C1193.
- B. Prime or seal joint surfaces wherever shown or recommended by the sealant manufacturer. Do not allow primer or sealant to spill or migrate onto adjoining surfaces.
- C. Measure joint dimensions and size joint backers to achieve width-to-depth ratio, neck dimension, and surface bond area as recommended by manufacturer.
- D. Install bond breaker where joint backing is not used.
- E. Install sealant free of air pockets, foreign embedded matter, ridges, and sags.
- F. Deposit sealant in uniform, continuous ribbons without gaps or air pockets, with complete "wetting" of joint bond surfaces equally on opposite sides. Except as otherwise indicated, fill sealant to a slightly concave surface slightly below adjoining surfaces. Where horizontal joints are between a horizontal surface and a vertical surface, fill joint to form a slight cove so joint will not trap moisture and dirt.
- G. Install sealant to depths as recommended by sealant manufacturer.
- H. Tool joints smooth with adjacent surfaces.

3.5 CLEANING

- A. Division 01 – General Requirements: Final cleaning.
- B. Clean adjacent soiled surfaces.

3.6 PROTECTION OF INSTALLED CONSTRUCTION

- A. Division 01 – General Requirements: Protecting installed construction.
- B. Protect sealants until cured.

END OF SECTION

SECTION 09 97 13
CLEANING AND REPAINTING STRUCTURAL STEEL

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
1. Clean and repaint existing structural steel surfaces including existing paint systems that have red lead primer.
 2. Remove existing paint from existing structural steel surfaces.
 3. Prepare existing steel surface for repainting, and paint cleaned structural steel surfaces.
- B. Related Sections
1. Applicable provisions of Division 01 – General Requirements shall govern all work under this section.

1.2 REFERENCES

- A. ASTM International (ASTM):
1. ASTM D4285 - Test Method for Indicating Oil or Water in Compressed Air.
 2. ASTM D4417 - Test Methods for Field Measurement of Surface Profile of Blast Cleaned Steel.
 3. ASTM E11: - Specification for Wire Cloth and Sieves For Testing Purposes.
- B. Federal Specification Unit (FS):
1. FS A-A-3054 - Paint, Heat Resisting (204 C).
 2. FS A-A-3120 - Paint: For Swimming Pools.
 3. FS QPL-TT-P-28-15 - Paint, Aluminum, Heat Resisting (1200 Deg. F).
 4. FS TT-C-555 - Coating, Textured (For Interior and Exterior Masonry Surfaces).
- C. Northeast Protective Coatings Committee (NEPCOAT):
1. Technology Guide Number 6 – Guide for Containing Surface Preparation Debris Generated During Paint Removal Operations
- D. SSPC: The Society for Protective Coatings (SSPC):
1. SSPC - Steel Structures Painting Manual.
 2. SSPC Paint 16 - Coal Tar Epoxy-Polyamide Black (or Dark Red) Paint.
 3. SSPC SP 2 - Hand Tool Cleaning.
 4. SSPC SP 3 - Power Tool Cleaning.
 5. SSPC SP 5 - White Metal Blast Cleaning.
 6. SSPC SP 6 - Commercial Blast Cleaning.
 7. SSPC SP 7 - Brush-Off Blast Cleaning.
 8. SSPC SP 10 - Near-White Blast Cleaning.
 9. SSPC SP 11 - Power Tool Cleaning to Bare Metal.

1.3 SUBMITTALS

- A. Source and gradation of blast abrasive.

1. Type and source of solvent if required.
- B. Manufacturer's information regarding specified coating materials, including:
 1. Required wet and dry film thickness.
 2. Project safety data.
 3. Thinning recommendations.
 4. Temperature requirements.
 5. Profile recommendations.
 6. Mixing and application procedures.
 7. Required equipment.

1.4 COATING APPLICATION REQUIREMENTS

- A. Have painter, blasting operator, or both consult with manufacturer's technical representative for answers to technical questions relating to application of specified coating materials.
- B. Obtain surface preparation approval from Engineer before applying paint.
- C. Use equipment capable of taking dry film thickness readings on all portions including nuts and bolts.

1.5 ENVIRONMENTAL REQUIREMENTS

- A. Follow manufacturer's recommendations if weather conditions require paint thinning.
- B. Apply paint only when the following weather conditions exist:
 1. Temperature of Air and Steel: Above 40 degrees F, but not so hot as to cause paint to blister.
 2. Relative Humidity:
 - a. Less than 85 percent or such that combination of temperature and humidity conditions inhibits surface condensation.
 - b. Apply a thin film of water to a small area to test humidity. Surface may be painted if film evaporates within 15 minutes.
 - c. Steel temperature a minimum of 5 degrees F above dew point.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Blasting Abrasive: Type and size as specified.
- B. Solvent: Type and source as required.
- C. Cold Galvanizing Compound: Premixed liquid organic zinc compound, ZRC Galvanizing Compound by ZRC Worldwide complying with the following:
 1. Metallic zinc content, 95 percent by weight in dry film.
 2. Solids content, 52 percent by volume.
 3. Application rate, 1.5 mils dry film thickness per coat.
 4. Number of coats required, 2.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Clean surfaces including bearing units of oil, grease, and dirt with clean petroleum solvents or steam cleaning prior to blasting operation. Refer to SSPC-SP10.
- B. Blast surfaces clean to near white with 0.5 to 2 mil profile.
- C. Discoloration, light shadows, or slight streaks caused by stains of rust is not allowed on more than 5 percent of surface area.
- D. Define acceptable surface preparation using SSPC-Vis 1.
- E. Use SSPC-SP-11 to clean areas such as backside of base plates, corners, etc., that cannot otherwise be cleaned.
- F. Meet soluble salts requirements of SSPC and coatings manufacturer.
- G. Coat surface within 8 hours from blasting.
- H. Do not coat surface if rust has started to form. Clean surface again before applying prime coat.
- I. Protection:
 - 1. Enclosure system must withstand extreme high winds.
 - 2. Protect portions of structure that will not be painted.
- J. Recover a minimum of 95 percent of debris from cleaning operation.
 - 1. Sample debris from cleaning operation. Submit samples to an independent accredited Materials Testing Lab for composition and disposal evaluation.
 - 2. Place reclaimed waste paint in EPA-USDOT approved containment. Store at project site.
 - 3. Submit paint composition and disposal evaluation results from independent materials testing lab. Disposition will be given to Contractor within 30 days. Dispose of waste paint as directed by Engineer. Submit disposal certificates for waste paint.

3.2 APPLICATION

- A. Field Inspection:
 - 1. Do not apply paint until Engineer approves prepared surface.
 - 2. Use rubber rollers or other approved protective devices on scaffold fastenings.
 - 3. Do not use metal rollers, clamps, and other types of fastenings that mar or damage freshly coated surfaces.
- B. Prime Coat:
 - 1. Maintain dry film thickness of prime coat between 2.5 and 6.0-mils. Refer to SSPC PA2.
 - 2. Apply two or more coats without producing runs, bubbles, or sags if required film thickness cannot be obtained by one coat.
 - 3. Blast clean any coat that produces "mud-cracking" or adds more than 7.0 mils to a soundly bonded coating or bare steel. Refer to SSPC-SP 10. Re-coat surface.

4. Thoroughly clean areas having deficient primer thickness with power washing equipment to remove dirt. Wire-brush, vacuum, and re-coat area.
- C. Intermediate Coat: Apply paint to produce a uniform, even coating that bonds to underlying surface. Refer to SSPC-PA 1.
 1. Use coating type and minimum dry film thickness specified.
 2. Produce a dry-film thickness of intermediate coat greater than 4 mils. Refer to SSPC PA2.
- D. Use wet and dry film thickness gauges for testing coating thickness during and after application.
- E. Painting Safety: Follow SSPC Paint Application Guide No. 3, "A Guide to Safety in Paint Application."

3.3 SUSPENSION OF WORK

- A. Engineer may suspend work for questionable performance of painter, blasting operator, or equipment.
- B. Suspension of work results from inadequate surface preparation, improper profile, runs, sags, overspray, thin film thickness, excessive film build-up, uneven coating, non-uniform color, improper curing, or any other defect in coating system.

END OF SECTION

SECTION 22 05 17
SLEEVES AND SLEEVE SEALS FOR PLUMBING PIPING

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Pipe sleeves.

1.2 RELATED REQUIREMENTS

- A. Section 07 84 00 - Firestopping.

1.3 REFERENCE STANDARDS

- A. ASTM C592 - Standard Specification for Mineral Fiber Blanket Insulation and Blanket-Type Pipe Insulation (Metal-Mesh Covered) (Industrial Type) 2022a.
- B. ASTM E814 - Standard Test Method for Fire Tests of Penetration Firestop Systems 2013a (Reapproved 2017).

1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.
- B. Installer Qualifications: Company specializing in performing work of the type specified this section.
 - 1. Minimum three years experience.
 - 2. Approved by manufacturer.
- C. Clean equipment, pipes, valves, and fittings of grease, metal cuttings, and sludge that may have accumulated from the installation and testing of the system.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and store sleeve and sleeve seals in shipping containers, with labeling in place.
- B. Provide temporary protective coating on cast iron and steel sleeves if shipped loose.

1.6 WARRANTY

- A. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.
- B. Correct defective Work within a five year period after Date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PIPE SLEEVES

- A. Manufacturers:
 1. Flexicraft Industries; Pipe Wall Sleeve.
 2. Substitutions: See Section 01 60 00 - Product Requirements.
- B. Vertical Piping:
 1. Sleeve Length: 1 inch above finished floor.
 2. Provide sealant for watertight joint.
- C. Plastic or Sheet Metal: Pipe passing through interior walls, partitions, and floors, unless steel or brass sleeves are specified below.
- D. Pipe Passing Through Below Grade Exterior Walls:
 1. Zinc coated or cast iron pipe.
 2. Provide watertight space with link rubber or modular seal between sleeve and pipe on both pipe ends.
- E. Pipe Passing Through Mechanical Rooms with Level Below:
 1. Galvanized steel pipe or black iron pipe with asphalt coating.
 2. Connect sleeve with floor plate except in mechanical rooms.
- F. Clearances:
 1. Provide allowance for insulated piping.
 2. Wall, Floor, Floor, Partitions, and Beam Flanges: 1 inch greater than external; pipe diameter.
 3. All Rated Openings: Caulked tight with fire stopping material complying with ASTM E814 in accordance with Section 07 84 00 to prevent the spread of fire, smoke, and gases.

2.2 MANUFACTURED SLEEVE-SEAL SYSTEMS

- A. Manufacturers:
 1. Advance Products & Systems, LLC; Innerlynx: www.apsonline.com/#sle.
 2. Flexicraft Industries; PipeSeal.
 3. Substitutions: See Section 01 60 00 - Product Requirements.
- B. Modular/Mechanical Seal:
 1. Synthetic rubber interlocking links continuously fill annular space between pipe and wall/casing opening.
 2. Provide watertight seal between pipe and wall/casing opening.
 3. Elastomer element size and material in accordance with manufacturer's recommendations.
 4. Glass reinforced plastic pressure end plates.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Ream pipe and tube ends. Remove burrs. Bevel plain end ferrous pipe.
- B. Remove scale and foreign material, from inside and outside, before assembly.

3.2 INSTALLATION

- A. Route piping in orderly manner, plumb and parallel to building structure. Maintain gradient.
- B. Install piping to conserve building space, to not interfere with use of space and other work.
- C. Install piping and pipe sleeves to allow for expansion and contraction without stressing pipe, joints, or connected equipment.
- D. Structural Considerations:
 - 1. Do not penetrate building structural members unless indicated.
- E. Provide sleeves when penetrating footings, floors, walls, and partitions. Seal pipe including sleeve penetrations to achieve fire resistance equivalent to fire separation required.
 - 1. Underground Piping: Caulk pipe sleeve watertight with lead and oakum or mechanically expandable chloroprene inserts with bitumen sealed metal components.
 - 2. Aboveground Piping:
 - a. Pack solid using mineral fiber complying with ASTM C592.
 - b. Fill space with an elastomer caulk to a depth of 0.50 inch where penetrations occur between conditioned and unconditioned spaces.
 - 3. All Rated Openings: Caulk tight with fire stopping material complying with ASTM E814 in accordance with Section 07 84 00 to prevent the spread of fire, smoke, and gases.
- F. Manufactured Sleeve-Seal Systems:
 - 1. Install manufactured sleeve-seal systems in sleeves located in grade slabs and exterior concrete walls at piping entrances into building.
 - 2. Provide sealing elements of the size, quantity, and type required for the piping and sleeve inner diameter or penetration diameter.
 - 3. Locate piping in center of sleeve or penetration.
 - 4. Install field assembled sleeve-seal system components in annular space between sleeve and piping.
 - 5. Tighten bolting for a water-tight seal.
 - 6. Install in accordance with manufacturer's recommendations.
- G. When installing more than one piping system material, ensure system components are compatible and joined to ensure the integrity of the system. Provide necessary joining fittings. Ensure flanges, union, and couplings for servicing are consistently provided.

3.3 CLEANING

- A. Upon completion of work, clean all parts of the installation.
- B. Clean equipment, pipes, valves, and fittings of grease, metal cuttings, and sludge that may have accumulated from the installation and testing of the system.

END OF SECTION 22 05 17

SECTION 22 05 29

HANGERS AND SUPPORTS FOR PLUMBING PIPING AND EQUIPMENT

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Beam clamps.

B. Pipe hangers.

1.2 RELATED REQUIREMENTS

A. Section 03 30 00 - Cast-in-Place Concrete: Concrete equipment pads.

B. Section 05 50 00 - Metal Fabrications.

1.3 REFERENCE STANDARDS

A. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products 2017.

B. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware 2023.

C. ASTM A181/A181M - Standard Specification for Carbon Steel Forgings, for General-Purpose Piping 2023.

D. ASTM A36/A36M - Standard Specification for Carbon Structural Steel 2019.

E. ASTM A47/A47M - Standard Specification for Ferritic Malleable Iron Castings 1999, with Editorial Revision (2022).

F. ASTM A283/A283M - Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates 2018.

G. ASTM A395/A395M - Standard Specification for Ferritic Ductile Iron Pressure-Retaining Castings for Use at Elevated Temperatures 1999 (Reapproved 2022).

H. ASTM B633 - Standard Specification for Electrodeposited Coatings of Zinc on Iron and Steel 2023.

I. FM (AG) - FM Approval Guide Current Edition.

J. MSS SP-58 - Pipe Hangers and Supports - Materials, Design, Manufacture, Selection, Application, and Installation 2018, with Amendment (2019).

K. UL (DIR) - Online Certifications Directory Current Edition.

1.4 ADMINISTRATIVE REQUIREMENTS

A. Coordination:

1. Coordinate sizes and arrangement of supports and bases with the actual equipment and components to be installed.
2. Coordinate the work with other trades to provide additional framing and materials required for installation.
3. Coordinate compatibility of support and attachment components with mounting surfaces at the installed locations.
4. Coordinate the arrangement of supports with ductwork, piping, equipment and other potential conflicts installed under other sections or by others.
5. Notify Architect of any conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

B. Sequencing:

1. Do not install products on or provide attachment to concrete surfaces until concrete has fully cured in accordance with Section 03 30 00.

1.5 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

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

C. Manufacturer's Instructions: Indicate application conditions and limitations of use stipulated by product testing agency. Include instructions for storage, handling, protection, examination, preparation, and installation of product.

1.6 QUALITY ASSURANCE

A. Comply with latest requirements of ANSI Code for building piping and applicable building code.

B. Maintain at the project site a copy of each referenced document that prescribes execution requirements.

1.7 DELIVERY, STORAGE, AND HANDLING

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

PART 2 - PRODUCTS

2.1 GENERAL REQUIREMENTS

A. Provide required hardware to hang or support piping, equipment, or fixtures with related accessories as necessary to complete installation of plumbing work.

- B. Provide hardware products listed, classified, and labeled as suitable for intended purpose.
- C. 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. Include consideration for vibration, equipment operation, and shock loads where applicable.
- D. Materials for Metal Fabricated Supports: Comply with Section 05 50 00.
 - 1. Zinc-Plated Steel: Electroplated in accordance with ASTM B633 unless stated otherwise.
 - 2. Galvanized Steel: Hot-dip galvanized in accordance with ASTM A123/A123M or ASTM A153/A153M unless stated otherwise.
- E. Corrosion Resistance: Use corrosion-resistant metal-based materials fully compatible with exposed piping materials and suitable for the environment where installed.

2.2 BEAM CLAMPS

- A. Manufacturers:
 - 1. Anvil, an ASC Engineered Solution.
 - 2. B-Line, a brand of Eaton Corporation.
 - 3. FNW.
 - 4. Unistrut, a brand of Atkore International, Inc.
 - 5. Piping Technology.
 - 6. Walraven.
 - 7. Substitutions: See Section 01 60 00 - Product Requirements.
 - 8. Source Limitations: Furnish hardware, fittings, and accessories from single manufacturer.
- B. MSS SP-58 types 19 through 23, 25 or 27 through 30 based on required load.
- C. C-Clamp: MSS SP-58 type 23, malleable iron with plain finish.
- D. Small or Junior Beam Clamp: MSS SP-58 type 19, malleable iron with plain finish. For inverted usage provide manufacturer listed size(s).
- E. Wide Mouth Beam Clamp: MSS SP-58 type 19, malleable iron with plain finish.
- F. Centerload Beam Clamp with Extension Piece: MSS SP-58 type 30, malleable iron with plain finish.
- G. FM (AG) and UL (DIR) Approved Beam Clamp: MSS SP-58 type 19, plain finish.
- H. Provide clamps with hardened steel cup-point set screws and lock-nuts for anchoring in place.
- I. Material: ASTM A395/A395M ductile iron, ASTM A36/A36M carbon steel, ASTM A47/A47M malleable iron, ASTM A181/A181M forged steel, or ASTM A283/A283M steel.

2.3 PIPE HANGERS

- A. Swivel Ring Hangers, Adjustable:
 - 1. Manufacturers:

- a. B-Line, a brand of Eaton Corporation; 3170NF.
 - b. Anvil, an ASC Engineered Solution; 69 or 70.
 - c. Substitutions: See Section 01 60 00 - Product Requirements.
 - d. Source Limitations: Furnish hardware, fittings, and accessories from single manufacturer.
2. Pipe Sizes: For use with pipes 1/2-inch through 2-inch.
 3. MSS SP-58 type 10, epoxy-painted, zinc-colored.
 4. Material: ASTM A36/A36M carbon steel.
 5. FM (AG) and UL (DIR) listed for specific pipe size runs and loads.
- B. Clevis Hangers, Adjustable:
1. Manufacturers:
 - a. B-Line, a brand of Eaton Corporation; B3100.
 - b. Anvil, an ASC Engineered Solution; 260.
 - c. Substitutions: See Section 01 60 00 - Product Requirements.
 - d. Source Limitations: Furnish hardware, fittings, and accessories from single manufacturer.
 2. Pipe Sizes: For use with pipe sizes 1/2-inch and larger.
 3. Copper Tube: MSS SP-58 type 1, epoxy-plated copper.
 4. Standard-Duty: MSS SP-58 type 1, zinc-colored, epoxy plated.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install products in accordance with manufacturer's instructions.
- B. Provide independent support from building structure. Do not provide support from piping, ductwork, conduit, or other systems.
- C. Unless specifically indicated or approved by Architect, do not provide support from suspended ceiling support system or ceiling grid.
- D. Unless specifically indicated or approved by Architect, do not provide support from roof deck.
- E. Do not penetrate or otherwise notch or cut structural members without approval of Structural Engineer.
- F. 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.
- G. Secure fasteners according to manufacturer's recommended torque settings.

H. Remove temporary supports.

END OF SECTION 22 05 29

SECTION 22 05 53
IDENTIFICATION FOR PLUMBING PIPING AND EQUIPMENT

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Nameplates.
- B. Tags.
- C. Pipe markers.

1.2 RELATED REQUIREMENTS

- A. Section 09 91 23 - Interior Painting: Identification painting.

1.3 REFERENCE STANDARDS

- A. ASME A13.1 - Scheme for the Identification of Piping Systems 2023.
- B. ASTM D709 - Standard Specification for Laminated Thermosetting Materials 2017.

1.4 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements for submittal procedures.
- B. Schedules:
 - 1. Submit plumbing component identification schedule listing equipment, piping, and valves.
 - 2. Detail proposed component identification data in terms of of wording, symbols, letter size, and color coding to be applied to corresponding product.
 - 3. Valve Data Format: Include id-number, location, function, and model number.
- C. Product Data: Provide manufacturers catalog literature for each product required.
- D. Samples: Submit two tags, labels, pipe markers, and size used on project.
- E. Manufacturer's Installation Instructions: Indicate special procedures, and installation.
- F. Project Record Documents: Record actual locations of tagged valves.

PART 2 - PRODUCTS

2.1 PLUMBING COMPONENT IDENTIFICATION GUIDELINE

- A. Nameplates:
 - 1. Water heaters and other heat transfer products.
 - 2. Pumps, Tanks, and other plumbing equipment products.

- B. Tags:
 - 1. Piping: 3/4 inch diameter and smaller.
 - 2. Manual operated and automated control valves.
- C. Pipe Markers: 3/4 inch diameter and higher.

2.2 NAMEPLATES

- A. Manufacturers:
 - 1. Brady Corporation.
 - 2. Brimar Industries, Inc.
 - 3. Craftmark Identification Systems.
 - 4. Kolbi Pipe Marker Co.
 - 5. Panduit.
 - 6. Seton Identification Products.
 - 7. Substitutions: See Section 01 60 00 - Product Requirements.
- B. Description: Laminated piece with up to three lines of text.
 - 1. Letter Color: Black.
 - 2. Letter Height: 1/4 inch.
 - 3. Background Color: White.
 - 4. Nameplate Material:
 - a. Flexible: Vinyl with adhesive backing per ASTM D709.
 - b. Metal: Brass with center-side holes for screw fastening.

2.3 TAGS

- A. Manufacturers:
 - 1. Advanced Graphic Engraving.
 - 2. Brady Corporation.
 - 3. Brimar Industries, Inc.
 - 4. Craftmark Pipe Markers.
 - 5. Kolbi Pipe Marker Co.
 - 6. Seton Identification Products.
 - 7. Substitutions: See Section 01 60 00 - Product Requirements.
- B. Flexible: Vinyl with engraved black letters on light contrasting background color with up to three lines of text. Minimum tag size 1-1/2 inch in diameter.
- C. Metal: Brass, 19 gauge 1-1/2 inch in diameter with smooth edges, stamped, smooth edges, and corrosion-resistant ball chain. Up to three lines of text.
- D. Valve Tag Chart: Typewritten 12-point letter size list of applied tags and location plastic laminated.
- E. Piping: 3/4 inch diameter and smaller. Include corrosion resistant chain. Identify service, flow direction, and pressure.

2.4 PIPE MARKERS

- A. Manufacturers:

1. Brady Corporation.
 2. Brimar Industries, Inc.
 3. Craftmark Pipe Markers.
 4. Kolbi Pipe Marker Co.
 5. Panduit.
 6. Seton Identification Products.
 7. Substitutions: See Section 01 60 00 - Product Requirements.
- B. Comply with ASME A13.1.
- C. Flexible Marker: Factory fabricated, semi-rigid, preformed to fit around pipe or pipe covering; minimum information indicating flow direction arrow and identification of fluid conveyed.
- D. Flexible Tape Marker: Flexible, vinyl film tape with pressure-sensitive adhesive backing and printed markings.
- E. Identification Scheme, ASME A13.1:
1. Primary: External Pipe Diameter, Uninsulated or Insulated.
 2. Secondary: Color scheme per fluid service.
 - a. Water; Potable, Cooling, Boiler Feed, and Other: White text on green background.
 3. Tertiary: Other Details.
 - a. Directional flow arrow.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Degrease and clean surfaces to receive identification products.

3.2 INSTALLATION

- A. Install flexible nameplates with corrosive-resistant mechanical fasteners, or adhesive. Apply with sufficient adhesive to ensure permanent adhesion and seal with clear lacquer.
- B. Install tags in clear view and align with axis of piping.
- C. Install plastic pipe markers in accordance with manufacturer's instructions.
- D. Install plastic tape pipe marker around pipe in accordance with manufacturer's instructions.
- E. Apply ASME A13.1 Pipe Marking Rules:
1. Place pipe marker adjacent to changes in direction.
 2. Place pipe marker adjacent each valve port and flange end.
 3. Place pipe marker at both sides of floor and wall penetrations.
 4. Place pipe marker every 25 to 50 feet interval of straight run.

END OF SECTION 22 05 53

SECTION 22 07 19
PLUMBING PIPING INSULATION

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Glass fiber insulation.
- B. Hydrous calcium silicate insulation.
- C. Jacketing and accessories.

1.2 RELATED REQUIREMENTS

- A. Section 07 84 00 - Firestopping.
- B. Section 09 91 23 - Interior Painting: Painting insulation jacket.
- C. Section 22 10 05 - Plumbing Piping: Placement of hangers and hanger inserts.

1.3 REFERENCE STANDARDS

- A. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar 2023.
- B. ASTM B209/B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate 2021a.
- C. ASTM C177 - Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus 2019, with Editorial Revision (2023).
- D. ASTM C195 - Standard Specification for Mineral Fiber Thermal Insulating Cement 2007 (Reapproved 2019).
- E. ASTM C449 - Standard Specification for Mineral Fiber Hydraulic-Setting Thermal Insulating and Finishing Cement 2007 (Reapproved 2019).
- F. ASTM C518 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus 2021.
- G. ASTM C533 - Standard Specification for Calcium Silicate Block and Pipe Thermal Insulation 2017 (Reapproved 2023).
- H. ASTM C547 - Standard Specification for Mineral Fiber Pipe Insulation 2022a.
- I. ASTM C795 - Standard Specification for Thermal Insulation for Use in Contact with Austenitic Stainless Steel 2008 (Reapproved 2023).

- J. ASTM C1423 - Standard Guide for Selecting Jacketing Materials for Thermal Insulation 2021.
- K. ASTM D93 - Standard Test Methods for Flash Point by Pensky-Martens Closed Cup Tester 2020.
- L. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials 2023c.
- M. ASTM E96/E96M - Standard Test Methods for Gravimetric Determination of Water Vapor Transmission Rate of Materials 2022a, with Editorial Revision (2023).
- N. MICA Manual - North American Commercial & Industrial Insulation Standards Manual 9th Edition.
- O. SAE AMS3779 - Tape, Adhesive, Pressure-Sensitive Thermal Radiation Resistant, Aluminum Coated Glass Cloth 2016b.
- P. UL 723 - Standard for Test for Surface Burning Characteristics of Building Materials Current Edition, Including All Revisions.

1.4 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements for submittal procedures.
- B. Product Data: Provide product description, thermal characteristics, list of materials and thickness for each service, and locations.
- C. Manufacturer's Instructions: Indicate installation procedures that ensure acceptable workmanship and installation standards will be achieved.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with not less than three years of documented experience.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Accept materials on site, labeled with manufacturer's identification, product density, and thickness.

1.7 FIELD CONDITIONS

- A. Maintain ambient conditions required by manufacturers of each product.
- B. Maintain temperature before, during, and after installation for minimum of 24 hours.

PART 2 - PRODUCTS

2.1 REGULATORY REQUIREMENTS

- A. Surface Burning Characteristics: Flame spread index/Smoke developed index of 25/50, maximum, when tested in accordance with ASTM E84 or UL 723.

2.2 GLASS FIBER INSULATION

- A. Manufacturers:
 - 1. Armstrong International.
 - 2. CertainTeed Corporation.
 - 3. Johns Manville Corporation.
 - 4. Knauf Insulation.
 - 5. Owens Corning Corporation.
 - 6. Substitutions: See Section 01 60 00 - Product Requirements.
- B. Insulation: ASTM C547 and ASTM C795; rigid molded, noncombustible, with wicking material to transport condensed water to the outside of the system for evaporation to the atmosphere.
 - 1. K Value: ASTM C177, 0.23 at 75 degrees F.
 - 2. Maximum Service Temperature: 450 degrees F.
 - 3. Maximum Moisture Absorption: 0.2 percent by volume.
- C. Insulation: ASTM C547 and ASTM C795; semi-rigid, noncombustible, end grain adhered to jacket.
 - 1. K Value: ASTM C177, 0.24 at 75 degrees F.
 - 2. Maximum Service Temperature: 650 degrees F.
 - 3. Maximum Moisture Absorption: 0.2 percent by volume.
- D. Vapor Barrier Jacket: White Kraft paper with glass fiber yarn, bonded to aluminized film; moisture vapor transmission when tested in accordance with ASTM E96/E96M of 0.02 perm.
- E. Tie Wire: 0.048 inch stainless steel with twisted ends on maximum 12 inch centers.
- F. Vapor Barrier Lap Adhesive: Compatible with insulation.
- G. Insulating Cement/Mastic: ASTM C195; hydraulic setting on mineral wool.
- H. Insulating Cement: ASTM C449.

2.3 HYDROUS CALCIUM SILICATE INSULATION

- A. Insulation: ASTM C533 and ASTM C795; rigid molded, asbestos free, gold color.
 - 1. K Value: 0.40 at 300 degrees F when tested in accordance with ASTM C177 or ASTM C518.
 - 2. Maximum Service Temperature: 1,200 degrees F.
 - 3. Density: 15 pcf.
- B. Tie Wire: 0.048 inch stainless steel with twisted ends on maximum 12 inch centers.
- C. Insulating Cement: ASTM C449.
- D. High Temperature Adhesive: Fire-retardant, sodium silicate based adhesive with fibers treated in compliance with ASTM D93.

2.4 JACKETING AND ACCESSORIES

- A. PVC Plastic Jacket:
 - 1. Jacket: One piece molded type fitting covers and sheet material, off-white color.
 - a. Minimum Service Temperature: 0 degrees F.
 - b. Maximum Service Temperature: 150 degrees F.
 - c. Moisture Vapor Permeability: 0.002 perm inch, maximum, when tested in accordance with ASTM E96/E96M.
 - d. Thickness: 20 mil, 0.020 inch.
 - e. Connections: Brush on welding adhesive.
 - 2. Covering Adhesive Mastic: Compatible with insulation.
- B. ABS Plastic Jacket:
 - 1. Jacket: One piece molded type fitting covers and sheet material, off-white color.
 - a. Minimum Service Temperature: Minus 40 degrees F.
 - b. Maximum Service Temperature: 180 degrees F.
 - c. Moisture Vapor Permeability: 0.012 perm inch, when tested in accordance with ASTM E96/E96M.
 - d. Thickness: 30 mil, 0.03 inch.
 - e. Connections: Brush on welding adhesive.
- C. Aluminum Jacket:
 - 1. Comply with ASTM B209/B209M, Temper H14, minimum thickness of 0.016 inch with factory-applied polyethylene and kraft paper moisture barrier on the inside surface.
 - 2. Thickness: 0.016 inch sheet.
- D. Stainless Steel Jacket: ASTM A666, Type 304 stainless steel.
 - 1. Thickness: 0.010 inch.
 - 2. Finish: Smooth.
 - 3. Metal Jacket Bands: 3/8 inch wide; 0.010 inch thick stainless steel.
- E. Reinforced Tape:
 - 1. FSK tape suitable for sealing seams between insulation, insulated pipe bends, and fittings resulting in a tight, smooth surface without wrinkles.
 - 2. Comply with UL 723 or ASTM E84.
 - 3. Moisture Vapor Permeability: 0.00 perm inch, when tested in accordance with ASTM E96/E96M.
 - 4. Finish: Match insulation.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that piping has been tested before applying insulation materials.
- B. Verify that surfaces are clean and dry, with foreign material removed.

3.2 INSTALLATION

- A. Install in accordance with current edition of MICA Manual and manufacturer's installation instructions.

- B. Exposed Piping: Locate insulation and cover seams in least visible locations.
- C. Insulated pipes conveying fluids below ambient temperature: Insulate entire system including fittings, valves, unions, flanges, strainers, flexible connections, pump-bodies, and expansion joints.
- D. Glass fiber insulated pipes conveying fluids below ambient temperature:
 - 1. Provide vapor barrier jackets, factory-applied or field-applied. Secure with self-sealing longitudinal laps and butt strips with pressure-sensitive adhesive. Secure with outward clinch expanding staples and vapor barrier mastic.
 - 2. Insulate fittings, joints, and valves with molded insulation of like material and thickness as adjacent pipe. Finish with glass cloth and vapor barrier adhesive or PVC fitting covers.
- E. For hot piping conveying fluids 140 degrees F or less, do not insulate flanges and unions at equipment, but bevel and seal ends of insulation.
- F. Glass fiber insulated pipes conveying fluids above ambient temperature:
 - 1. Provide standard jackets, with or without vapor barrier, factory-applied or field-applied. Secure with self-sealing longitudinal laps and butt strips with pressure-sensitive adhesive. Secure with outward clinch expanding staples.
 - 2. Insulate fittings, joints, and valves with insulation of like material and thickness as adjoining pipe. Finish with glass cloth and adhesive or PVC fitting covers.
- G. Inserts and Shields:
 - 1. Application: Piping 1-1/2 inches diameter or larger.
 - 2. Shields: Galvanized steel between pipe hangers or pipe hanger rolls and inserts.
 - 3. Insert Location: Between support shield and piping and under the finish jacket.
 - 4. Insert Configuration: Minimum 6 inches long, of same thickness and contour as adjoining insulation; may be factory fabricated.
 - 5. Insert Material: Hydrous calcium silicate insulation or other heavy density insulating material suitable for the planned temperature range.
- H. Continue insulation through walls, sleeves, pipe hangers, and other pipe penetrations. Finish at supports, protrusions, and interruptions. At fire separations, see Section 07 84 00.
- I. Pipe Exposed in Mechanical Equipment Rooms or Finished Spaces without Ceilings (less than 10 feet above finished floor): Finish with PVC jacket and fitting covers.

END OF SECTION 22 07 19

SECTION 22 10 05
PLUMBING PIPING

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Sanitary waste piping, above grade.

1.2 RELATED REQUIREMENTS

- A. Section 22 05 29 - Hangers and Supports for Plumbing Piping and Equipment.
- B. Section 22 07 19 - Plumbing Piping Insulation.

1.3 REFERENCE STANDARDS

- A. ASTM C564 - Standard Specification for Rubber Gaskets for Cast Iron Soil Pipe and Fittings 2020a.
- B. ASTM C1277 - Standard Specification for Shielded Couplings Joining Hubless Cast Iron Soil Pipe and Fittings 2020.
- C. ASTM D2564 - Standard Specification for Solvent Cements for Poly(Vinyl Chloride) (PVC) Plastic Piping Systems 2020.
- D. ASTM D2665 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Drain, Waste, and Vent Pipe and Fittings 2020.
- E. ASTM D2855 - Standard Practice for the Two-Step (Primer and Solvent Cement) Method of Joining Poly (Vinyl Chloride) (PVC) or Chlorinated Poly (Vinyl Chloride) (CPVC) Pipe and Piping Components with Tapered Sockets 2020.
- F. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials 2023c.
- G. CISPI 301 - Standard Specification for Hubless Cast Iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste, and Vent Piping Applications 2021.
- H. CISPI 310 - Specification for Coupling for Use in Connection with Hubless Cast Iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste, and Vent Piping Applications 2020.
- I. MSS SP-58 - Pipe Hangers and Supports - Materials, Design, Manufacture, Selection, Application, and Installation 2018, with Amendment (2019).
- J. UL 723 - Standard for Test for Surface Burning Characteristics of Building Materials Current Edition, Including All Revisions.

1.4 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

- B. Product Data: Provide data on pipe materials, pipe fittings, valves, and accessories. Provide manufacturers catalog information. Indicate valve data and ratings.
- C. Shop Drawings: For non-penetrating rooftop supports, submit detailed layout developed for this project, with design calculations for loadings and spacings.

1.5 QUALITY ASSURANCE

- A. Perform work in accordance with applicable codes.
- B. Valves: Manufacturer's name and pressure rating marked on valve body.
- C. Welding Materials and Procedures: Comply with ASME BPVC-IX and applicable state labor regulations.
- D. Welder Qualifications: Certified in accordance with ASME BPVC-IX.
- E. Identify pipe with marking including size, ASTM material classification, ASTM specification, potable water certification, water pressure rating.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Accept valves on site in shipping containers with labeling in place. Inspect for damage.
- B. Provide temporary protective coating on cast iron and steel valves.
- C. Provide temporary end caps and closures on piping and fittings. Maintain in place until installation.
- D. Protect piping systems from entry of foreign materials by temporary covers, completing sections of the work, and isolating parts of completed system.

1.7 FIELD CONDITIONS

- A. Do not install underground piping when bedding is wet or frozen.

PART 2 - PRODUCTS

2.1 GENERAL REQUIREMENTS

- A. Plenum-Installed Waste Piping: Flame-spread index equal or below 25 and smoke-spread index equal or below 50 according to ASTM E84 or UL 723 tests. Provide fire barrier wrap for all piping that does not meet this requirement in spaces used as return air plenums.

2.2 SANITARY WASTE PIPING, ABOVE GRADE

- A. Cast Iron Pipe: CISPI 301, hubless, service weight.
 - 1. Fittings: Cast iron.
 - 2. Joints: CISPI 310, neoprene gaskets and stainless steel clamp-and-shield assemblies.
- B. PVC Pipe: ASTM D2665.

1. Fittings: PVC.
2. Joints: Solvent welded, with ASTM D2564 solvent cement.

2.3 PIPE FLANGES, UNIONS, AND COUPLINGS

- A. Unions for Pipe Sizes 2 inch and Under:
 1. Ferrous Pipe: Class 150 malleable iron threaded unions.
- B. Flanges for Pipe Sizes Over 2 inch:
 1. Ferrous Pipe: Class 150 malleable iron threaded or forged steel slip-on flanges; preformed neoprene gaskets.
- C. No-Hub Couplings:
 1. Testing: In accordance with ASTM C1277 and CISPI 310.
 2. Gasket Material: Neoprene complying with ASTM C564.
 3. Band Material: Stainless steel.
 4. Eyelet Material: Stainless steel.
 5. Manufacturers:
 - a. MIFAB, Inc.
 - b. Tyler Pipe.
 - c. Substitutions: See Section 01 60 00 - Product Requirements.
- D. Dielectric Connections: Union with galvanized or plated steel threaded end, copper solder end, water impervious isolation barrier.

2.4 PIPE HANGERS AND SUPPORTS

- A. See Section 22 05 29 for additional requirements.
- B. Provide hangers and supports that comply with MSS SP-58.
 1. If type of hanger or support for a particular situation is not indicated, select appropriate type using MSS SP-58 recommendations.
 2. Overhead Supports: Individual steel rod hangers attached to structure or to trapeze hangers.
 3. Trapeze Hangers: Welded steel channel frames attached to structure.
 4. Vertical Pipe Support: Steel riser clamp.
- C. Plumbing Piping - Drain, Waste, and Vent:
 1. Hangers for Pipe Sizes 1/2 to 1-1/2 inch: Malleable iron, adjustable swivel, split ring.
 2. Hangers for Pipe Sizes 2 inch and Over: Carbon steel, adjustable, clevis.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Ream pipe and tube ends. Remove burrs. Bevel plain end ferrous pipe.
- B. Remove scale and dirt, on inside and outside, before assembly.
- C. Prepare piping connections to equipment with flanges or unions.

3.2 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Provide non-conducting dielectric connections wherever jointing dissimilar metals.
- C. Install piping to maintain headroom, conserve space, and not interfere with use of space.
- D. Group piping whenever practical at common elevations.
- E. Provide clearance in hangers and from structure and other equipment for installation of insulation and access to valves and fittings.
- F. PVC Pipe: Make solvent-welded joints in accordance with ASTM D2855.

3.3 APPLICATION

- A. Use grooved mechanical couplings and fasteners only in accessible locations.
- B. Install unions downstream of valves and at equipment or apparatus connections.
- C. Install brass male adapters each side of valves in copper piped system. Solder adapters to pipe.

3.4 TOLERANCES

- A. Drainage Piping: Establish invert elevations within 1/2 inch vertically of location indicated and slope to drain at minimum of 1/8 inch per foot slope.

3.5 FIELD TESTS AND INSPECTIONS

- A. Verify and inspect systems according to requirements by the Authority Having Jurisdiction. In the absence of specific test and inspection procedures proceed as indicated below.
- B. Test Results: Document and certify successful results, otherwise repair, document, and retest.

END OF SECTION 22 10 05

SECTION 22 10 06
PLUMBING PIPING SPECIALTIES

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Drains.
- B. Cleanouts.

1.2 RELATED REQUIREMENTS

- A. Section 22 10 05 - Plumbing Piping.

1.3 REFERENCE STANDARDS

- A. ASME A112.6.3 - Floor Drains 2022.

1.4 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide component sizes, rough-in requirements, service sizes, and finishes.
- C. Manufacturer's Instructions: Indicate Manufacturer's Installation Instructions: Indicate assembly and support requirements.
- D. Operation Data: Indicate frequency of treatment required for interceptors.
- E. Maintenance Data: Include installation instructions, spare parts lists, exploded assembly views.
- F. Project Record Documents: Record actual locations of equipment, cleanouts, backflow preventers, water hammer arrestors.
- G. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with not less than three years documented experience.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Accept specialties on site in original factory packaging. Inspect for damage.

PART 2 - PRODUCTS

2.1 GENERAL REQUIREMENTS

- A. Specialties in Potable Water Supply Systems: Provide products that comply with NSF 61 and NSF 372 for maximum lead content.

2.2 DRAINS

A. Floor Drains:

- 1. Manufacturers:
 - a. Jay R. Smith Manufacturing Company.
 - b. Josam Company.
 - c. MIFAB, Inc.
 - d. Watts Water Technologies.
 - e. Zurn Plumbing Products.
 - f. Substitutions: See Section 01 60 00 - Product Requirements.

B. Floor Drain (FD-1):

- 1. ASME A112.6.3; lacquered cast iron or stainless steel, two piece body with double drainage flange, weep holes, reversible clamping collar, and round, adjustable nickel-bronze strainer.

2.3 CLEANOUTS

A. Manufacturers:

- 1. Jay R. Smith Manufacturing Company: www.jayrsmith.com/#sle.
- 2. Josam Company: www.josam.com/#sle.
- 3. Watts Water Technologies.
- 4. Zurn Industries, LLC: www.zurn.com/#sle.
- 5. Substitutions: See Section 01 60 00 - Product Requirements.

B. Cleanouts at Interior Finished Floor Areas (FCO-1):

- 1. Lacquered cast iron body with anchor flange, reversible clamping collar, threaded top assembly, and round gasketed scored cover in service areas and round gasketed depressed cover to accept floor finish in finished floor areas.

C. Cleanouts at Interior Finished Wall Areas (WCO-1):

- 1. Line type with lacquered cast iron body and round epoxy coated gasketed cover, and round stainless steel access cover secured with machine screw.

2.4 FLOOR DRAIN TRAP SEALS

- A. Description: Push-fit EPDM or silicone fitting with a one-way membrane.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Extend cleanouts to finished floor or wall surface. Lubricate threaded cleanout plugs with mixture of graphite and linseed oil. Ensure clearance at cleanout for rodding of drainage system.

C. Install floor cleanouts at elevation to accommodate finished floor.

END OF SECTION 22 10 06

SECTION 22 30 00
PLUMBING EQUIPMENT

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Tankless electric water heaters.
- B. Diaphragm-type compression tanks.
- C. In-line circulator pumps.
- D. Sump pumps.
- E. Submersible sump pumps.

1.2 RELATED REQUIREMENTS

- A. Section 22 05 48 - Vibration and Seismic Controls for Plumbing Piping and Equipment.
- B. Section 26 05 83 - Wiring Connections: Electrical characteristics and wiring connections.

1.3 REFERENCE STANDARDS

- A. ASHRAE Std 90.1 I-P - Energy Standard for Buildings Except Low-Rise Residential Buildings Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.
- B. ASME BPVC-VIII-1 - Boiler and Pressure Vessel Code, Section VIII, Division 1: Rules for Construction of Pressure Vessels 2023.

1.4 ADMINISTRATIVE REQUIREMENTS

- A. Preinstallation Meeting: Conduct a preinstallation meeting one week prior to the start of the work of this section; require attendance by all affected installers.
- B. Sequencing: Ensure that utility connections are achieved in an orderly and expeditious manner.

1.5 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements for submittals procedures.
- B. Product Data:
 - 1. Provide dimension drawings of water heaters indicating components and connections to other equipment and piping.
 - 2. Indicate pump type, capacity, power requirements.
 - 3. Provide certified pump curves showing pump performance characteristics with pump and system operating point plotted. Include NPSH curve when applicable.
 - 4. Provide electrical characteristics and connection requirements.

- C. Project Record Documents: Record actual locations of components.
- D. Operation and Maintenance Data: Include operation, maintenance, and inspection data, replacement part numbers and availability, and service depot location and telephone number.
- E. Warranty Documentation: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.
- F. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
 - 1. See Section 01 60 00 - Product Requirements for additional provisions.
 - 2. Extra Pump Seals: One of each type and size.
 - 3. Extra Water Softener Salt: 50 pounds.

1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the type of products specified in this section, with minimum three years of documented experience.
- B. Certifications:
 - 1. Gas Water Heaters: AHRI Directory of Certified Product Performance.
 - 2. Products Requiring Electrical Connection: Listed and classified by Underwriters Laboratories Inc., as suitable for the purpose specified and indicated.
- C. Identification: Provide pumps with manufacturer's name, model number, and rating/capacity identified by permanently attached label.
- D. Performance: Ensure pumps operate at specified system fluid temperatures without vapor binding and cavitation, are non-overloading in parallel or individual operation, operate within 25 percent of midpoint of published maximum efficiency curve.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Provide temporary inlet and outlet caps. Maintain caps in place until installation.

1.8 WARRANTY

- A. See Section 01 78 00 - Closeout Submittals for additional warranty requirements.
- B. Provide five year manufacturer warranty for domestic water heaters.

PART 2 - PRODUCTS

2.1 WATER HEATERS

- A. Manufacturers:
 - 1. A.O. Smith Water Products Co: www.hotwater.com/#sle.
 - 2. Bock Water Heaters, Inc: www.bockwaterheaters.com/#sle.
 - 3. Rheem Manufacturing Company: www.rheem.com/#sle.
 - 4. Lochinvar, LLC; <https://www.lochinvar.com/products/water-heaters/>.
 - 5. Substitutions: See Section 01 60 00 - Product Requirements.

- B. Tankless Electric Water Heater:
 - 1. Minimum Efficiency Required: ASHRAE Std 90.1 I-P.
 - 2. Heater Type: Self-contained, wall-mounted unit capable of handling listed capacity, water-inlet strainer, removable thermally-insulated front panel, and threaded water pipe-end connections.
 - 3. Heater-Heat Exchanger: Stainless steel, thermally insulated and encased assembly in corrosion-resistant steel jacket; baked-on enamel finish.
 - 4. Safeties: Provide internal safeties for water flow, electrical load, and thermal load.
 - 5. Controls: Color touchscreen interface for internal controls; temperature range adjustable from 120 to 170 degrees F using flanged or screw-in nichrome elements. Wire double-element units so elements do not operate simultaneously.

2.2 DIAPHRAGM-TYPE COMPRESSION TANKS

- A. Manufacturers:
 - 1. Amtrol Inc: www.amtrol.com/#sle.
 - 2. Bell & Gossett, a brand of Xylem, Inc: www.bellgossett.com/#sle.
 - 3. Taco, Inc: www.taco-hvac.com/#sle.
 - 4. Substitutions: See Section 01 60 00 - Product Requirements.
- B. Construction: Welded steel, tested and stamped in accordance with ASME BPVC-VIII-1; supplied with National Board Form U-1, rated for working pressure of 125 psig, with flexible EPDM diaphragm sealed into tank, and steel legs or saddles.
- C. Accessories: Pressure gauge and air-charging fitting, tank drain; precharge to 12 psig.

2.3 IN-LINE CIRCULATOR PUMPS

- A. Manufacturers:
 - 1. Armstrong Fluid Technology: www.armstrongfluidtechnology.com/#sle.
 - 2. Bell & Gossett, a brand of Xylem, Inc: www.bellgossett.com/#sle.
 - 3. Substitutions: See Section 01 60 00 - Product Requirements.
- B. Casing: Bronze, rated for 125 psig working pressure, with stainless steel rotor assembly.
- C. Impeller: Bronze.
- D. Shaft: Alloy steel with integral thrust collar and two oil lubricated bronze sleeve bearings.
- E. Seal: Carbon rotating against a stationary ceramic seat.
- F. Drive: Flexible coupling.

2.4 SUMP PUMPS

- A. Manufacturers:
 - 1. Armstrong Fluid Technology; _____: www.armstrongfluidtechnology.com/#sle.
 - 2. Goulds Water Technology, a xylem brand; _____: www.goulds.com/#sle.
 - 3. Zoeller Company; _____: www.zoeller.com/#sle.
 - 4. Substitutions: See Section 01 60 00 - Product Requirements.
- B. Type: Vertical centrifugal, direct connected, simplex arrangement.

- C. Casing: Cast iron volute with radial clearance around impeller, inlet strainer, slide away couplings.
- D. Impeller: Cast iron; open non-clog, keyed to corrosion resistant alloy steel shaft.
- E. Support: Cast iron pedestal motor support on steel floor plate with gas tight gaskets.
- F. Bearings: Forced grease lubricated bronze sleeve spaced maximum 48 inches and grease lubricated ball thrust at floor plate.
- G. Drive: Flexible coupling to vertical, solid shaft ball bearing electric motor.
- H. Sump: Steel cover plate with steel curb frame for grouting into concrete sump with inspection opening and cover, and alarm fittings.
- I. Controls, Simplex: Float switch with float rod, stops, and corrosion-resistant float, and separate pressure switch high level alarm with transformer, alarm bell and stand-pipe.

2.5 ELEVATOR PIT PUMPS

- A. Manufacturers:
 1. Armstrong Fluid Technology: www.armstrongfluidtechnology.com/#sle.
 2. Goulds Water Technology, a xylem brand: www.goulds.com/#sle.
 3. Liberty Pumps.
 4. Zoeller Company: www.zoeller.com/#sle.
 5. Substitutions: See Section 01 60 00 - Product Requirements.
- B. Type: Hermetically sealed submersible pump with an oil smart pump switch with internal relay, stainless steel probes. Installation will prevent oil or hydrocarbons from being inadvertently pumped into the environment.
- C. Casing: Cast iron pump body and oil filled motor chamber.
- D. Impeller: Cast iron; open non-clog, stainless steel shaft.
- E. Bearings: Ball bearings.
- F. Sump: Concrete sump crock by Division 03 contractor.
- G. Accessories: Oil resistant 6 foot cord and plug with three-prong connector for connection to electric wiring system including grounding connector.
- H. Servicing: Slide-away coupling consisting of discharge elbow secure to sump floor, movable bracket, guide pipe system, lifting chain and chain hooks.
- I. Controls: Simplex control panel, high water level lights. Remote dry contacts for Building Automation System.

2.6 ELECTRICAL WORK

- A. Electrical characteristics to be as specified or indicated.

- B. Furnish motor starters complete with thermal overload protection and other appurtenances necessary for the motor control specified.
- C. Supply manual or automatic control and protective or signal devices required for the operation specified, and any control wiring required for controls and devices not shown.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install plumbing equipment in accordance with manufacturer's instructions, as required by code, and complying with conditions of certification, if any.
- B. Coordinate with plumbing piping and related fuel piping work to achieve operating system.
- C. Commercial Gas-Fired Water Heaters:
 - 1. Install water heaters on concrete bases.
 - 2. Connect equipment to water and drain piping using unions or flanges and isolation valves.
 - 3. Size temperature and relief valves in accordance with CSA ratings. Pipe temperature and pressure relief valves to floor drain.
 - 4. Adjust compression tank pre-charge to scheduled minimum operating pressure prior to connecting to system.
 - 5. Install gas shutoff valves on gas supplies to gas water heaters without shutoff valves.
 - 6. Install gas pressure regulators on gas supplies to gas water heaters without gas pressure regulators if gas pressure regulators are required to reduce gas pressure at burner.
 - 7. Install water heaters level and plumb, according to layout drawings, original design, and referenced standards. Maintain manufacturer's recommended clearances. Arrange units so controls and devices needing service are accessible.
 - 8. Install automatic gas valves on gas supplies to gas water heaters, if required for operation of safety control.
 - 9. Install combination temperature and pressure relief valves in top portion of storage tanks. Use relief valves with sensing elements that extend into tanks. Extend commercial-water-heater, relief-valve outlet, with drain piping same as domestic water piping in continuous downward pitch, and discharge by positive air gap onto closest floor drain.
 - 10. Install thermometer on outlet piping of water heaters.
- D. Domestic Water Storage Tanks:
 - 1. Provide steel pipe support, independent of building structural framing members.
 - 2. Clean and flush prior to delivery to site. Seal until pipe connections are made.
- E. Pumps:
 - 1. Ensure pumps operate at specified system fluid temperatures without vapor binding and cavitation, are non-overloading in parallel or individual operation, and operate within 25 percent of midpoint of published maximum efficiency curve.



Department of Transportation

Parking Division

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February 19, 2024

**NOTICE OF ADDENDUM
ADDENDUM 1
CONTRACT NO. 9493
2024 PARKING GARAGE MAINTENANCE**

Revise and amend the contract document(s) for the above project as stated in this addendum, otherwise, the original document shall remain in effect.

CHANGES TO CONTRACT:

1. Section D. ,Part 1, item 1.5 A. states "Construction is anticipated to start on or before April 1, 2024, and to be completed by October 1, 2024"

This should be revised to "Construction is anticipated to start on or before May 6, 2024, and to be completed by October 1, 2024"

Please acknowledge this addendum on page E1 of the contract documents and/or in Section E: Bidder's Acknowledgement on Bid Express.

Electronic version of these documents can be found on the Bid Express web site at:

<http://www.bidexpress.com>

If you are unable to download plan revisions associated with the addendum, please contact the Engineering office at 608-266-4751 receive the material by another route.

Sincerely,

Stefanie Cox, Parking Division Manager

WHP:hs



Department of Transportation

Parking Division

Stefanie Cox, Parking Division Manager

Madison Municipal Building, Suite 109

215 Martin Luther King, Jr. Blvd.

P.O. Box 2986

Madison, WI 53701-2986

Phone: (608) 266-4761 | Fax: (608) 267-1158

parking@cityofmadison.com

cityofmadison.com/parking

March 7, 2024

**NOTICE OF ADDENDUM
ADDENDUM 2
CONTRACT NO. 9493
2024 PARKING GARAGE MAINTENANCE**

Revise and amend the contract document(s) for the above project as stated in this addendum, otherwise, the original document shall remain in effect.

CHANGES TO CONTRACT:

1. Deadline states "03/07/2024 02:00PM CST"

This should be revised to "03/21/2024 02:00PM CST"

2. Section B, Proposal Page Item 2. states "Concrete Beam Spall Repair"

This should be revised to "Concrete Overhead Surface Spall Repair"

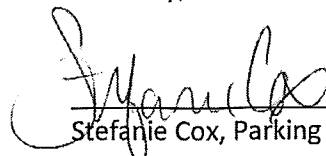
Please acknowledge this addendum on page E1 of the contract documents and/or in Section E: Bidder's Acknowledgement on Bid Express.

Electronic version of these documents can be found on the Bid Express web site at:

<http://www.bidexpress.com>

If you are unable to download plan revisions associated with the addendum, please contact the Engineering office at 608-266-4751 receive the material by another route.

Sincerely,



Stefanie Cox, Parking Division Manager

WHP:hs

SECTION A: ADVERTISEMENT FOR BIDS AND INSTRUCTIONS TO BIDDERS

REQUEST FOR BID FOR PUBLIC WORKS CONSTRUCTION CITY OF MADISON, WISCONSIN

A BEST VALUE CONTRACTING MUNICIPALITY

PROJECT NAME:	2024 PARKING GARAGE MAINTENANCE
CONTRACT NO.:	9493
SBE GOAL	4%
BID BOND	5%
SBE PRE BID MEETING (2:00 P.M.)	2/29/2024
PREQUALIFICATION APPLICATION DUE (2:00 P.M.)	3/14/2024
BID SUBMISSION (2:00 P.M.)	3/21/2024
BID OPEN (2:30 P.M.)	3/21/2024
PUBLISHED IN WSJ	2/16, 2/23, 2/29, 3/7, & 3/14/2024

SBE PRE BID MEETING: Pre-Bid Meetings are being held virtually. Advance registration is required. Visit the SBE Meeting web page on Engineering's web site:

<https://www.cityofmadison.com/engineering/developers-contractors/contractors/how-to-bid-public-works-contracts/small-business>.

Questions regarding SBE Program requirements may be directed to Tracy Lomax, Affirmative Action Division. Tracy may be reached at (608) 267-8634, or by email, TLomax@cityofmadison.com.

PREQUALIFICATION APPLICATION: Forms are available on our website, www.cityofmadison.com/engineering/developers-contractors/contractors/how-to-get-prequalified. If not currently prequalified in the categories listed in Section A, an amendment to your Prequalification will need to be submitted prior to the same due date. Postmark is not applicable.

BIDS TO BE SUBMITTED: by hand to 1600 EMIL ST., MADISON, WI 53713 or online at www.bidexpress.com.

Bids may be submitted on line through Bid Express or in person at 1600 Emil St. The bids will be posted on line after the bid opening. If you have any questions, please call Alane Boutelle at (608) 267-1197, or John Fahrney at (608) 266-9091.

STANDARD SPECIFICATIONS

The City of Madison's Standard Specifications for Public Works Construction - 2024 Edition, as supplemented and amended from time to time, forms a part of these contract documents as if attached hereto.

These standard specifications are available on the City of Madison Public Works website, www.cityofmadison.com/engineering/developers-contractors/standard-specifications.

The Contractor shall review these Specifications prior to preparation of proposals for the work to be done under this contract, with specific attention to Article 102, "BIDDING REQUIREMENTS AND CONDITIONS" and Article 103, "AWARD AND EXECUTION OF THE CONTRACT." For the convenience of the bidder, below are highlights of three subsections of the specifications.

SECTION 102.1: PRE-QUALIFICATION OF BIDDERS

In accordance with Wisconsin State Statutes 66.0901 (2) and (3), all bidders must submit to the Board of Public Works proof of responsibility on forms furnished by the City. The City requires that all bidders be qualified on a biennial basis.

SECTION E: BIDDERS ACKNOWLEDGEMENT

CONTRACT TITLE 2024 PARKING GARAGE MAINTENANCE

CONTRACT NO. 9493

Bidder must state a Unit Price and Total Bid for each item. The Total Bid for each item must be the product of quantity, by Unit Price. The Grand Total must be the sum of the Total Bids for the various items. In case of multiplication errors or addition errors, the Grand Total with corrected multiplication and/or addition shall determine the Grand Total bid for each contract. The Unit Price and Total Bid must be entered numerically in the spaces provided. All words and numbers shall be written in ink.

1. The undersigned having familiarized himself/herself with the Contract documents, including Advertisement for Bids, Instructions to Bidders, Form of Proposal, City of Madison Standard Specifications for Public Works Construction - 2024 Edition thereto, Form of Agreement, Form of Bond, and Addenda issued and attached to the plans and specifications on file in the office of the City Engineer, hereby proposes to provide and furnish all the labor, materials, tools, and expendable equipment necessary to perform and complete in a workmanlike manner the specified construction on this project for the City of Madison; all in accordance with the plans and specifications as prepared by the City Engineer, including Addenda to the Contract Nos. 1 through 1 issued thereto, at the prices for said work as contained in this proposal. (Electronic bids submittals shall acknowledge addendum under Section E and shall not acknowledge here)
2. If awarded the Contract, we will initiate action within seven (7) days after notification or in accordance with the date specified in the contract to begin work and will proceed with diligence to bring the project to full completion within the number of work days allowed in the Contract or by the calendar date stated in the Contract.
3. The undersigned Bidder or Contractor certifies that he/she is not a party to any contract, combination in form of trust or otherwise, or conspiracy in restraint of trade or commerce or any other violation of the anti-trust laws of the State of Wisconsin or of the United States, with respect to this bid or contract or otherwise.
4. I hereby certify that I have met the Bid Bond Requirements as specified in Section 102.5. *(IF BID BOND IS USED, IT SHALL BE SUBMITTED ON THE FORMS PROVIDED BY THE CITY. FAILURE TO DO SO MAY RESULT IN REJECTION OF THE BID).*
5. I hereby certify that all statements herein are made on behalf of ProAxis LLC _____ (name of corporation, partnership, or person submitting bid) a corporation organized and existing under the laws of the State of _____ Wisconsin _____ a partnership consisting of Kevin Marquardt and Rober Nicholas _____; an individual trading as ProAxis LLC _____; of the City of _____ Madison _____ State of _____ Wisconsin _____; that I have examined and carefully prepared this Proposal, from the plans and specifications and have checked the same in detail before submitting this Proposal; that I have fully authority to make such statements and submit this Proposal in (its, their) behalf; and that the said statements are true and correct.

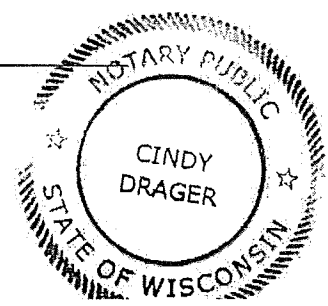
Kevin Marquardt
SIGNATURE

LLC Member
TITLE, IF ANY

Sworn and subscribed to before me this 7th day of March, 2024.

Cindy Drager
(Notary Public or other officer authorized to administer oaths)
My Commission Expires 9-14-2024

Bidders shall not add any conditions or qualifying statements to this Proposal.



Section E: Bidder's Acknowledgement

This section is a required document for the bid to be considered complete. There are two methods for completing the Bidder Acknowledgement Report. Method one: The report can be downloaded, completed, and uploaded to this site to be included with your electronic bid. Method two: The report can be downloaded from the site and submitted by hand to the City of Madison. Either method of submission requires that the Bidder Acknowledgement Report be received by the bid due date.

Please select the method of submission below. The form is in the section below to download and upload to the site or download and submit by hand.

Please check the box in the Upload section if submitting the report by hand.

Method of Submittal for Bidder Acknowledgement (click in box below to choose) *

I will download Bidder Acknowledgement Downloadable Document, complete, and upload online.

The bidder acknowledges receipt of the following addenda to the contract for the above designated project. Please check the appropriate box for each addendum reviewed. If no addenda have been issued, then no boxes are required to be checked.

Any addenda issues after 12:00 P.M. on the Tuesday proceeding the bid due date shall include a provision extending the bid due date.

Addendum Acknowledgement

Acknowledge each Addenda reviewed by checking the appropriate checkboxes below.

Addendum 1

*

Addendum 2

*

Addendum 3

Addendum 4

Addendum 5

Addendum 6

Section F: Best Value Contracting (BVC) Fillable Online Form

Best Value Contracting

1. The Contractor shall indicate the non-apprenticeable trades used on this contract.

N/A

2. Madison General Ordinance (M.G.O.), 33.07(7), does provide for some exemptions from the active apprentice requirement. Apprenticeable trades are those trades considered apprenticeable by the State of Wisconsin. Please check applicable box if you are seeking an exemption.

- Contractor has a total skilled workforce of four or less individuals in all apprenticeable trades combined.
- No available trade training program; The Contractor has been rejected by the only available trade training program, or there is no trade training program within 90 miles.
- Contractor is not using an apprentice due to having a journey worker on layoff status, provided the journey worker was employed by the contractor in the past six months.
- First time contractor on City of Madison Public Works contract requests a onetime exemption but intends to comply on all future contracts and is taking steps typical of a "good faith" effort.
- Contractor has been in business less than one year.
- Contractor doesn't have enough journeyman trade workers to qualify for a trade training program in that respective trade.
- An exemption is granted in accordance with a time period of a "Documented Depression" as defined by the State of Wisconsin.

3. The Contractor shall indicate on the following section which apprenticeable trades are to be used on this contract. Compliance with active apprenticeship, to the extent required by M.G.O. 33.07(7), shall be satisfied by documentation from an applicable trade training body; an apprenticeship contract with the Wisconsin Department of Workforce Development or a similar agency in another state; or the U.S Department of Labor. This documentation is required prior to the Contractor beginning work on the project site.

The Contractor has reviewed the list and shall not use any apprenticeable trades on this project.

LIST APPRENTICABLE TRADES (check all that apply to your work to be performed on this contract)

BRICKLAYER

CARPENTER

CEMENT MASON / CONCRETE FINISHER

CEMENT MASON (HEAVY HIGHWAY)

CONSTRUCTION CRAFT LABORER

DATA COMMUNICATION INSTALLER

ELECTRICIAN

ENVIRONMENTAL SYSTEMS TECHNICIAN / HVAC SERVICE TECH/HVAC INSTALL / SERVICE

GLAZIER

HEAVY EQUIPMENT OPERATOR / OPERATING ENGINEER

INSULATION WORKER (HEAT and FROST)

IRON WORKER

IRON WORKER (ASSEMBLER, METAL BLDGS)

PAINTER and DECORATOR

PLASTERER

PLUMBER

RESIDENTIAL ELECTRICIAN

ROOFER and WATER PROOFER

SHEET METAL WORKER

SPRINKLER FITTER

STEAMFITTER

STEAMFITTER (REFRIGERATION)

STEAMFITTER (SERVICE)

TAPER and FINISHER

TELECOMMUNICATIONS (VOICE, DATA and VIDEO) INSTALLER-TECHNICIAN

TILE SETTER

CONTRACT NO. 9493

Small Business Enterprise Compliance Report

This information may be submitted electronically through Bid Express or submitted with bid in sealed envelope.

Cover Sheet


Prime Bidder Information

Company:	ProAxis LLC
Address:	2738 Progress Rd. Madison Wi 53716
Telephone Number:	608-279-7699
Fax Number:	N/A
Contact Person/Title:	Kevin Marquardt / LLC Member

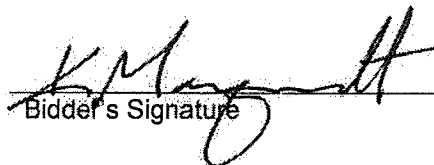
Prime Bidder Certification

Name:	Kevin Marquardt
Title:	LLC Member
Company:	ProAxis LLC

I certify that the information contained in this SBE Compliance Report is true and correct to the best of my knowledge and belief.



Witness' Signature



Bidder's Signature

3/7/2024

Date

CONTRACT NO. 9493

Small Business Enterprise Compliance Report

Summary Sheet

SBE Subcontractors Who Are NOT Suppliers

Name(s) of SBEs Utilized	Type of Work	% of Total Bid Amount
ProAxis LLC will be self performing all of the work		100 %
		%
		%
		%
		%
		%
		%
		%
		%
		%
		%
		%
		%
		%
		%
		%
Subtotal SBE who are NOT suppliers:		%

SBE Subcontractors Who Are Suppliers

Name(s) of SBEs Utilized	Type of Work	% of Total Bid Amount
		%
		%
		%
		%
		%
		%

Subtotal Contractors who are suppliers: _____ % x 0.6 = _____ % (discounted to 60%)

Total Percentage of SBE Utilization: 100 _____ %.

2024 PARKING GARAGE MAINTENANCE

CONTRACT NO. 9493

DATE: 3/21/24

ProAxis LLC

Item	Quantity	Price	Extension
Section B: Proposal Page			
1 - Concrete Topside Surface Spall Repair - SF	270.00	\$242.00	\$65,340.00
2 - Concrete Overhead Surface Spall Repair - SF	115.00	\$377.12	\$43,368.80
3 - Concrete Vertical Surface Spall Repair - SF	150.00	\$282.00	\$42,300.00
4 - Concrete Beam Spall Repair - SF	20.00	\$477.35	\$9,547.00
5 - Full-System Membrane Installation or Replacement - SF	21060.00	\$8.19	\$172,481.40
6 - Concrete Slab Crack Repair: Rout and Seal - LF	250.00	\$7.60	\$1,900.00
7 - Concrete Slab Crack Repair: Rout Slot and Seal (WSG) - LF	1500.00	\$10.32	\$15,480.00
8 - CMU Crack/Mortar Joint Repair - LF	550.00	\$21.76	\$11,968.00
9 - CMU Replacement - SF	30.00	\$80.37	\$2,411.10
10 - Silane Sealer Application (SSCo) - SF	301500.00	\$0.14	\$42,210.00
11 - Remove and Replace or Install New Sealant - LF	1500.00	\$12.77	\$19,155.00
12 - Steel Barrier Repairs (CSN) - EACH	2.00	\$1,440.80	\$2,881.60
13 - Refasten Existing Stair Treads/Cover Plates - EACH	20.00	\$48.21	\$964.20
14 - Install New Precast Wall/Panel Connection - EACH	6.00	\$590.48	\$3,542.88
15 - Install New Floor Drains - EACH	7.00	\$4,610.80	\$32,275.60
15 Items	Totals		\$465,825.58



Department of Public Works
Engineering Division
James M. Wolfe, P.E. City Engineer

City-County Building, Room 115
210 Martin Luther King, Jr. Boulevard
Madison, Wisconsin 53703
Phone: (608) 266-4751
Fax: (608) 264-9275
engineering@cityofmadison.com
www.cityofmadison.com/engineering

Deputy City Engineer
Bryan Cooper, AIA
Gregory T. Fries, P.E.
Chris J. Petykowski, P.E.
Deputy City Engineer
Kathleen M. Cryan
Principal Engineer 2
John S. Fahrney, P.E.
Janet Schmlidt, P.E.
Principal Engineer 1
Mark D. Moder, P.E.
Andrew J. Zwieg, P.E.
Financial Manager
Steven B. Danner-Rivers

BIENNIAL BID BOND

ProAxis LLC
(a corporation of the State of Wisconsin)
(individual), (partnership), (hereinafter referred to as the "Principal") and
West Bend Mutual Insurance Company

a corporation of the State of Wisconsin (hereinafter referred to as the "Surety") and licensed to do business in the State of Wisconsin, are held and firmly bound unto the City of Madison, Wisconsin (hereinafter referred to as the "City"), in the sum equal to the individual proposal guaranty amounts of the total bid or bids of the Principal herein accepted by the City, for the payment of which the Principal and the Surety hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors and assigns.

The condition of this obligation is that the Principal has submitted to the City certain bids for projects from the time period of February 1, 2024 through January 31, 2026.

If the Principal is awarded the contract(s) by the City and, within the time and manner required by law after the prescribed forms are presented for its signature, the Principal enters into (a) written contract(s) in accordance with the bid(s), and files with the City its bond(s) guaranteeing faithful performance and payment for all labor and materials, as required by law, or if the City rejects all bids for the work described, then this obligation shall be null and void; otherwise, it shall remain in full force and effect.

In the event the Principal shall fail to execute and deliver the contract(s) or the performance and payment bond(s), all within the time specified or any extension thereof, the Principal and Surety agree jointly and severally to pay to the City within ten (10) calendar days of written demand a total equal to the sum of the individual proposal guaranty amounts of the total bid(s) as liquidated damages.

The Surety, for value received, hereby agrees that the obligations of it and its bond shall be in no way impaired or affected by any extension of time within which the City may accept a bid, and the Surety does hereby waive notice of any such extension.

This bond may be terminated by the Surety upon giving thirty (30) days written notice to the City of its intent to terminate this bond and to be released and discharged therefrom, but such termination shall not operate to relieve or discharge the Surety from any liability already accrued or which shall accrue before the expiration of such thirty (30) day period.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, on the day and year set forth below.

PRINCIPAL

ProAxis LLC
COMPANY NAME AFFIX SEAL

December 20, 2023
DATE

By: [Signature] LLC Member
SIGNATURE AND TITLE

SURETY

West Bend Mutual Insurance Company
COMPANY NAME AFFIX SEAL

December 20, 2023
DATE

By: [Signature]
SIGNATURE AND TITLE Jenny L Hirth, Attorney-in-Fact

This certifies that I have been duly licensed as an agent for the Surety in Wisconsin under National Provider No. 6523593 for the year 2023 and appointed as attorney in fact with authority to execute this bid bond, which power of attorney has not been revoked.

December 20, 2023
DATE

[Signature]
AGENT SIGNATURE

740 Regent St, Ste 400
ADDRESS

Madison, WI 53715
CITY, STATE AND ZIP CODE

608-257-3795
TELEPHONE NUMBER

Note to Surety and Principal: Any bid submitted which this bond guarantees may be rejected if the Power of Attorney form showing that the Agent of Surety is currently authorized to execute bonds on behalf of Surety is not attached to this bond.



THE SILVER LINING®

Bond No. N/A

POWER OF ATTORNEY

Know all men by these Presents, That West Bend Mutual Insurance Company, a corporation having its principal office in the City of West Bend, Wisconsin does make, constitute and appoint:

Patrick A McKenna, Brooke L Parker, Judith A Walker, David Zenobi, Jay A Zahn, Kathryn A Weidner, Jenny L Hirth, Lynn E Potter

lawful Attorney(s)-in-fact, to make, execute, seal and deliver for and on its behalf as surety and as its act and deed any and all bonds, undertakings and contracts of suretyship, provided that no bond or undertaking or contract of suretyship executed under this authority shall exceed in amount the sum of: 10,000,000

This Power of Attorney is granted and is signed and sealed by facsimile under and by the authority of the following Resolution adopted by the Board of Directors of West Bend Mutual Insurance Company at a meeting duly called and held on the 21st day of December, 1999.

Appointment of Attorney-In-Fact. The president or any vice president, or any other officer of West Bend Mutual Insurance Company may appoint by written certificate Attorneys-In-Fact to act on behalf of the company in the execution of and attesting of bonds and undertakings and other written obligatory instruments of like nature. The signature of any officer authorized hereby and the corporate seal may be affixed by facsimile to any such power of attorney or to any certificate relating therefore and any such power of attorney or certificate bearing such facsimile signatures or facsimile seal shall be valid and binding upon the company, and any such power so executed and certified by facsimile signatures and facsimile seal shall be valid and binding upon the company in the future with respect to any bond or undertaking or other writing obligatory in nature to which it is attached. Any such appointment may be revoked, for cause, or without cause, by any said officer at any time.

In witness whereof, the West Bend Mutual Insurance Company has caused these presents to be signed by its president undersigned and its corporate seal to be hereto duly attested by its secretary this 17th day of August, 2021.

Attest Christopher C. Zwygart
Christopher C. Zwygart
Secretary



Kevin A. Steiner
Kevin A. Steiner
Chief Executive Officer/President

State of Wisconsin
County of Washington

On the 17th day of August, 2021, before me personally came Kevin A. Steiner, to me known being by duly sworn, did depose and say that he resides in the County of Washington, State of Wisconsin; that he is the President of West Bend Mutual Insurance Company, the corporation described in and which executed the above instrument; that he knows the seal of the said corporation; that the seal affixed to said instrument is such corporate seal; that it was so affixed by order of the board of directors of said corporation and that he signed his name thereto by like order.



Matthew E. Carlton
Matthew E. Carlton
Senior Corporate Attorney
Notary Public, Washington Co., WI
My Commission is Permanent

The undersigned, duly elected to the office stated below, now the incumbent in West Bend Mutual Insurance Company, a Wisconsin corporation authorized to make this certificate, Do Hereby Certify that the foregoing attached Power of Attorney remains in full force effect and has not been revoked and that the Resolution of the Board of Directors, set forth in the Power of Attorney is now in force.

Signed and sealed at West Bend, Wisconsin this 20th day of December, 2023



Heather A. Dunn
Heather Dunn
Vice President – Chief Financial Officer

Notice: Any questions concerning this Power of Attorney may be directed to the Bond Manager at West Bend Mutual Insurance Company.

Boutelle, Alane

From: Enders, Jason <JEnders@WBMI.com>
Sent: Tuesday, January 23, 2024 2:56 PM
To: Boutelle, Alane
Cc: Kathy Weidner; Pat McKenna; Jay Zahn; Jenny Hirth
Subject: RE: [External]FW: West Bend Mutual Insurance vs West Bend Insurance?

Caution: This email was sent from an external source. Avoid unknown links and attachments.

Hi Alane,

To answer your question below, yes they are the same. West Bend's policyholders (members) and domestic regulator (The Wisconsin Office of the Commissioner of Insurance) approved a mutual holding company conversion of "West Bend Mutual Insurance Company". Pursuant to the approved plan of conversion, our name changed to "West Bend Insurance Company" effective 1/1/2024. West Bend Insurance Company is the indirect wholly owned subsidiary of a newly created Wisconsin Insurance Holding Company, "West Bend Mutual Holding Company". We are currently in the process of formally amending our filed name with the various regulatory bodies. In the meantime, please consider a reference to "West Bend Mutual Insurance Company" to be the same as a reference to "West Bend Insurance Company".

If you have any questions or need anything additional on our end please let me know.

Thanks,

Jason Enders, AFSB, CPCU
AVP | Surety

West Bend Insurance Company
1900 South 18th Avenue
West Bend, WI 53095
Ph: 608-410-3505 | Fx: 877-674-2663
Email: jenders@wbmi.com

From: Boutelle, Alane <ABoutelle@cityofmadison.com>
Sent: Tuesday, January 23, 2024 11:46 AM
To: Jenny Hirth <jhirth@myhaus.com>
Subject: West Bend Mutual Insurance vs West Bend Insurance?

You don't often get email from aboutelle@cityofmadison.com. [Learn why this is important](#)

Hi Jenny,

I have a ProAxis LLC Biennial Bid Bond Application that says West Bend Mutual Insurance Company. I used to be able to search the National Association of Insurance Commissioners SBS site for West Bend Mutual Insurance Company and find it, but now all I find is West Bend Insurance Company. There are numerous similarities between them, such as SBS Company Number, NAIC company code, Legacy State ID, date of incorporation, addresses, and 2 phone numbers (there were 4). The organization type is different. It says Stock rather than Mutual.

Do you (or someone at Hausmann) have a contact there that could confirm they are the same somehow?

Seems like the bond application is valid, but would like to be sure.

Thanks,



Alane Boutelle
Department of Public Works
Engineering Division
1600 Emil Street
Madison, WI 53713
aboutelle@cityofmadison.com
(608) 267-1197

SECTION H: AGREEMENT

THIS AGREEMENT made this 1st day of May in the year Two Thousand and Twenty-Four between **PROAXIS LLC** hereinafter called the Contractor, and the City of Madison, a Wisconsin municipal corporation, hereinafter called the City.

WHEREAS, the Common Council of the City of Madison ("Council") under the provisions of a resolution adopted on **APRIL 16, 2024**, and by virtue of authority vested in the Council, has awarded to the Contractor the work of performing certain public construction.

NOW, THEREFORE, the Contractor and the City, for the consideration hereinafter named, agree as follows:

1. **Scope of Work.** The Contractor shall, perform the construction, execution and completion of the following listed complete work or improvement in full compliance with the Plans, Specifications, Standard Specifications, Supplemental Specifications, Special Provisions and Agreement; perform all items of work covered or stipulated in the Proposal; perform all altered or extra work; and shall furnish, unless otherwise provided in the contract, all materials, implements, machinery, equipment, tools, supplies, transportation, and labor necessary to the prosecution and completion of the work or improvements:

2024 PARKING GARAGE MAINTENANCE CONTRACT NO. 9493

2. **Completion Date/Contract Time.** Construction work must begin within seven (7) calendar days after the date appearing on mailed written notice to do so shall have been sent to the Contractor and shall be carried on at a rate so as to secure full completion SEE SPECIAL PROVISIONS, the rate of progress and the time of completion being essential conditions of this Agreement.
3. **Contract Price.** The City shall pay to the Contractor at the times, in the manner and on the conditions set forth in said specifications, the sum of **FOUR HUNDRED SIXTY-FIVE THOUSAND EIGHT HUNDRED TWENTY-FIVE AND 58/100 (\$465,825.58)** Dollars being the amount bid by such Contractor and which was awarded as provided by law.
4. **A. Non-Discrimination.** During the term of this Agreement, the Contractor agrees not to discriminate against any employee or applicant because of race, religion, marital status, age, color, sex, disability, national origin or ancestry, income level or source of income, arrest record or conviction record, less than honorable discharge, physical appearance, sexual orientation, gender identity, political beliefs, or student status. The Contractor further agrees not to discriminate against any subcontractor or person who offers to subcontract on this contract because of race, religion, color, age, disability, sex, sexual orientation, gender identity or national origin.
B. Affirmative Action. The Contractor agrees that within thirty (30) days after the effective date of this agreement, the Contractor will provide to the City Affirmative Action Division certain workforce utilization statistics, using a form to be furnished by the City.

If the contract is still in effect, or if the City enters into a new agreement with the Contractor, within one year after the date on which the form was required to be provided, the Contractor will provide updated workforce information using a second form, also to be furnished by the City. The second form will be submitted to the City Affirmative Action Division no later than one year after the date on which the first form was required to be provided.

The Contractor further agrees that, for at least twelve (12) months after the effective date of this contract, it will notify the City Affirmative Action Division of each of its job openings at facilities in Dane County for which applicants not already employees of the Contractor are to be considered. The notice will include a job description, classification, qualifications and application procedures

and deadlines, shall be provided to the City by the opening date of advertisement and with sufficient time for the City to notify candidates and make a timely referral. The Contractor agrees to interview and consider candidates referred by the Affirmative Action Division, or an organization designated by the Division, if the candidate meets the minimum qualification standards established by the Contractor, and if the referral is timely. A referral is timely if it is received by the Contractor on or before the date started in the notice.

Articles of Agreement

Article I

The Contractor shall take affirmative action in accordance with the provisions of this contract to insure that applicants are employed, and that employees are treated during employment without regard to race, religion, color, age, marital status, disability, sex, sexual orientation, gender identity or national origin and that the employer shall provide harassment free work environment for the realization of the potential of each employee. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination, rates of pay or other forms of compensation and selection for training including apprenticeship insofar as it is within the control of the Contractor. The Contractor agrees to post in conspicuous places available to employees and applicants notices to be provided by the City setting out the provisions of the nondiscrimination clauses in this contract.

Article II

The Contractor shall in all solicitations or advertisements for employees placed by or on behalf of the Contractors state that all qualified or qualifiable applicants will be employed without regard to race, religion, color, age, marital status, disability, sex, sexual orientation, gender identity or national origin.

Article III

The Contractor shall send to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding a notice to be provided by the City advising the labor union or worker's representative of the Contractor's equal employment opportunity and affirmative action commitments. Such notices shall be posted in conspicuous places available to employees and applicants for employment.

Article V

The Contractor agrees that it will comply with all provisions of the Affirmative Action Ordinance of the City of Madison, including the contract compliance requirements. The Contractor agrees to submit the model affirmative action plan for public works contractors in a form approved by the Affirmative Action Division Manager.

Article VI

The Contractor will maintain records as required by Section 39.02(9)(f) of the Madison General Ordinances and will provide the City Affirmative Action Division with access to such records and to persons who have relevant and necessary information, as provided in Section 39.02(9)(f). The City agrees to keep all such records confidential, except to the extent that public inspection is required by law.

Article VII

In the event of the Contractor's or subcontractor's failure to comply with the Equal Employment Opportunity and Affirmative Action Provisions of this contract or Section 39.03 and 39.02 of the Madison General Ordinances, it is agreed that the City at its option may do any or all of the following:

1. Cancel, terminate or suspend this Contract in whole or in part.
2. Declare the Contractor ineligible for further City contracts until the Affirmative Action requirements are met.
3. Recover on behalf of the City from the prime Contractor 0.5 percent of the contract award price for each week that such party fails or refuses to comply, in the nature of liquidated damages, but not to exceed a total of five percent (5%) of the contract price, or ten thousand dollars (\$10,000), whichever is less. Under public works contracts, if a subcontractor is in noncompliance, the City may recover liquidated damages from the prime Contractor in the manner described above. The preceding sentence shall not be construed to prohibit a prime Contractor from recovering the amount of such damage from the non-complying subcontractor.

Article VIII

The Contractor shall include the above provisions of this contract in every subcontract so that such provisions will be binding upon each subcontractor. The Contractor shall take such action with respect to any subcontractor as necessary to enforce such provisions, including sanctions provided for noncompliance.

Article IX

The Contractor shall allow the maximum feasible opportunity to small business enterprises to compete for any subcontracts entered into pursuant to this contract. (In federally funded contracts the terms "DBE, MBE and WBE" shall be substituted for the term "small business" in this Article.)

5. **Substance Abuse Prevention Program Required.** Prior to commencing work on the Contract, the Contractor, and any Subcontractor, shall have in place a written program for the prevention of substance abuse among its employees as required under Wis. Stat. Sec. 103.503.
6. **Contractor Hiring Practices.**

Ban the Box - Arrest and Criminal Background Checks. (Sec. 39.08, MGO)

This provision applies to all prime contractors on contracts entered into on or after January 1, 2016, and all subcontractors who are required to meet prequalification requirements under MGO 33.07(7)(l), MGO as of the first time they seek or renew pre-qualification status on or after January 1, 2016. The City will monitor compliance of subcontractors through the pre-qualification process.

- a. **Definitions.** For purposes of this section, "Arrest and Conviction Record" includes, but is not limited to, information indicating that a person has been questioned, apprehended, taken into custody or detention, held for investigation, arrested, charged with, indicted or tried for any felony, misdemeanor or other offense pursuant to any law enforcement or military authority.

"Conviction record" includes, but is not limited to, information indicating that a person has been convicted of a felony, misdemeanor or other offense, placed on probation, fined, imprisoned or paroled pursuant to any law enforcement or military authority.

"Background Check" means the process of checking an applicant's arrest and conviction record, through any means.

- b. **Requirements.** For the duration of this Contract, the Contractor shall:

1. Remove from all job application forms any questions, check boxes, or other inquiries regarding an applicant's arrest and conviction record, as defined herein.
2. Refrain from asking an applicant in any manner about their arrest or conviction record until after conditional offer of employment is made to the applicant in question.
3. Refrain from conducting a formal or informal background check or making any other inquiry using any privately or publicly available means of obtaining the arrest or conviction record of an applicant until after a conditional offer of employment is made to the applicant in question.
4. Make information about this ordinance available to applicants and existing employees, and post notices in prominent locations at the workplace with information about the ordinance and complaint procedure using language provided by the City.
5. Comply with all other provisions of Sec. 39.08, MGO.

c. Exemptions: This section shall not apply when:

1. Hiring for a position where certain convictions or violations are a bar to employment in that position under applicable law, or
2. Hiring a position for which information about criminal or arrest record, or a background check is required by law to be performed at a time or in a manner that would otherwise be prohibited by this ordinance, including a licensed trade or profession where the licensing authority explicitly authorizes or requires the inquiry in question.

To be exempt, Contractor has the burden of demonstrating that there is an applicable law or regulation that requires the hiring practice in question, if so, the contractor is exempt from all of the requirements of this ordinance for the position(s) in question.

7. **Choice of Law and Forum Selection.** This Contract shall be governed by and construed, interpreted and enforced in accordance with the laws of the State of Wisconsin. The parties agree, for any claim or suit or other dispute relating to this Contract that cannot be mutually resolved, the venue shall be a court of competent jurisdiction within the State of Wisconsin and the parties agree to submit themselves to the jurisdiction of said court, to the exclusion of any other judicial district that may have jurisdiction over such a dispute according to any law.
8. **Counterparts, Electronic Signature and Delivery.** This Contract may be signed in counterparts, each of which shall be taken together as a whole to comprise a single document. Signatures on this Contract may be exchanged between the parties by facsimile, electronic scanned copy (.pdf) or similar technology and shall be as valid as original; and this Contract may be converted into electronic format and signed or given effect with one or more electronic signature(s) if the electronic signature(s) meets all requirements of Wis. Stat. ch. 137 or other applicable Wisconsin or Federal law. Executed copies or counterparts of this Contract may be delivered by facsimile or email and upon receipt will be deemed original and binding upon the parties hereto, whether or not a hard copy is also delivered. Copies of this Contract, fully executed, shall be as valid as an original.

**2024 PARKING GARAGE MAINTENANCE
CONTRACT NO. 9493**

IN WITNESS WHEREOF, the Contractor has hereunto set his/her hand and seal and the City has caused this contract to be executed by its Mayor and City Clerk on the dates written below.

Countersigned:

PROAXIS LLC

Company Name

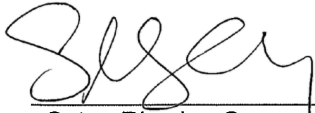
Cindy Drager 4-16-24
Witness Date

[Signature] 4/16/2024
President Date

Cindy Drager 4-16-24
Witness Date

[Signature] 4-16-2024
Secretary Date

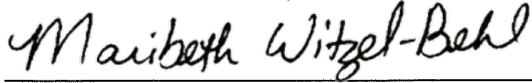
CITY OF MADISON



Satya Rhodes-Conway, Mayor

05/01/2024

Date



Maribeth Witzel-Behl, City Clerk

4/23/2024

Date

Provisions have been made to pay the liability that will accrue under this contract.



David P. Schmiedicke, Finance Director

5/1/2024

Date

Approved as to form:



Michael Haas, City Attorney

5/1/2024

Date

Execution of this Agreement by City was authorized by Resolution Enactment No. RES -24-00252, ID No. 82684, adopted by the Common Council of the City of Madison on April 18, 2024.

SECTION I: PAYMENT AND PERFORMANCE BOND

LET ALL KNOW BY THESE DOCUMENTS PRESENTED, that we **PROAXIS LLC** as principal, and West Bend Mutual Insurance Company Company of West Bend, Wisconsin as surety, are held and firmly bound unto the City of Madison, Wisconsin, in the sum of **FOUR HUNDRED SIXTY-FIVE THOUSAND EIGHT HUNDRED TWENTY-FIVE AND 58/100 (\$465,825.58)** Dollars, lawful money of the United States, for the payment of which sum to the City of Madison, we hereby bind ourselves and our respective executors and administrators firmly by these presents.

The condition of this Bond is such that if the above bounden shall on his/her part fully and faithfully perform all of the terms of the Contract entered into between him/herself and the City of Madison for the construction of:

**2024 PARKING GARAGE MAINTENANCE
CONTRACT NO. 9493**

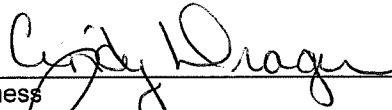
in Madison, Wisconsin, and shall pay all claims for labor performed and material furnished in the prosecution of said work, and save the City harmless from all claims for damages because of negligence in the prosecution of said work, and shall save harmless the said City from all claims for compensation (under Chapter 102, Wisconsin Statutes) of employees and employees of subcontractor, then this Bond is to be void, otherwise of full force, virtue and effect.


Signed and sealed this 17th day of April, 2024

Countersigned:

PROAXIS LLC

Company Name (Principal)


Witness

 Seal
President


Secretary

West Bend Mutual Insurance Company

Surety Seal

Salary Employee Commission

By 
Attorney-in-Fact Jenny L. Hirth

This certifies that I have been duly licensed as an agent for the above company in Wisconsin under National Producer Number 6523593 for the year 2024, and appointed as attorney-in-fact with authority to execute this payment and performance bond which power of attorney has not been revoked.

April 17, 2024
Date


Agent Signature Jenny L. Hirth

The foregoing Bond has been approved as to form:

5/1/2024

Date

Michael Haas

City Attorney



Bond No. 2573167

POWER OF ATTORNEY

Know all men by these Presents, that West Bend Insurance Company (formerly known as West Bend Mutual Insurance Company prior to 1/1/2024), a corporation having its principal office in the City of West Bend, Wisconsin does make, constitute and appoint:

Jenny L Hirth

lawful Attorney(s)-in-fact, to make, execute, seal and deliver for and on its behalf as surety and as its act and deed any and all bonds, undertakings and contracts of suretyship, provided that no bond or undertaking or contract of suretyship executed under this authority shall exceed in amount the sum of: Thirty Million Dollars (\$30,000,000)

This Power of Attorney is granted and is signed and sealed by facsimile under and by the authority of the following Resolution adopted by the Board of Directors of West Bend Insurance Company by unanimous consent resolution effective the 1st day of January 2024.

Appointment of Attorney-In-Fact. The president or any vice president, or any other officer of West Bend Insurance Company may appoint by written certificate Attorneys-In-Fact to act on behalf of the company in the execution of and attesting of bonds and undertakings and other written obligatory instruments of like nature. The signature of any officer authorized hereby and the corporate seal may be affixed by facsimile to any such power of attorney or to any certificate relating thereto and any such power of attorney or certificate bearing such facsimile signatures or facsimile seal shall be valid and binding upon the company, and any such power so executed and certified by facsimile signatures and facsimile seal shall be valid and binding upon the company in the future with respect to any bond or undertaking or other writing obligatory in nature to which it is attached. Any such appointment may be revoked, for cause, or without cause, by any said officer at any time.

Any reference to West Bend Mutual Insurance Company in any Bond and all continuations thereof shall be considered a reference to West Bend Insurance Company.

In witness whereof, West Bend Insurance Company has caused these presents to be signed by its president undersigned and its corporate seal to be hereto duly attested by its secretary this 1st day of January 2024.

Attest Christopher C. Zwygart
Christopher C. Zwygart
Secretary



Robert J. Jacques
Robert J. Jacques
President

State of Wisconsin
County of Washington

On the 1st day of January 2024, before me personally came Robert Jacques, to me known being by duly sworn, did depose and say that he is the President of West Bend Insurance Company, the corporation described in and which executed the above instrument; that he knows the seal of the said corporation; that the seal affixed to said instrument is such corporate seal; that it was so affixed by order of the board of directors of said corporation and that he signed his name thereto by like order.



Juli Benedum
Lead Corporate Attorney
Notary Public, Washington Co., WI
My Commission is Permanent

The undersigned, duly elected to the office stated below, now the incumbent in West Bend Insurance Company, a Wisconsin corporation authorized to make this certificate, Do Hereby Certify that the foregoing attached Power of Attorney remains in full force effect and has not been revoked and that the Resolution of the Board of Directors, set forth in the Power of Attorney is now in force.

Signed and sealed at West Bend, Wisconsin this 17th day of April, 2024.



Christopher C. Zwygart
Christopher C. Zwygart
Secretary