

**Town of Clarkstown
New City , New York
Highway Garage Expansion Project
Bid Number 21-2024**

**Addendum No. 3
August 28, 2024**

To: Prospective Bidders

From: Arcadis of New York, Inc.
201 Fuller Road, Suite 201
Albany, NY 12203

Owner: Town of Clarkstown – Department of Engineering and Facilities Management
10 Maple Ave
New City, NY 10935

Subject: Town of Clarkstown
Highway Garage Expansion Project
Bid No. 21-2024

This Addendum is part of the Bidding Documents and the Contract Documents and modifies the original Bidding Documents dated July 26, 2024, as indicated below. Acknowledge receipt of this Addendum in the space provided on the Bid Form. Failure to do so may subject the Bidder to disqualification for award of the associated Contract.

This Addendum consists of three pages and the attachments, if any, listed on the last page.

CHANGES TO PRIOR ADDENDA

1. None. See Addendums #1 and #2 for additional changes.

CHANGES TO INTRODUCTORY INFORMATION

1. Section 00 11 13, Advertisement for Bids, Revised Bid Date will be September 24, 2024 at 12 pm (noon).

CHANGES TO CONTRACTING REQUIREMENTS

1. None.

CHANGES TO SPECIFICATIONS

1. 22 00 05 – Plumbing, Delete existing specification and Add revised specification.

CHANGES TO DRAWINGS

1. Sheet C-02, Proposed Site Plan, Delete note “New Above Grade Enclosure”
2. Sheet C-07, Site Details 3, Delete detail 18/C-07 and associated notes.
3. Sheet P-02, Revised as attached
4. Sheet H-04, Detail 4/H-04, Revise to be installed in metal framed opening in the PEMB wall.
5. Sheet H-05, Revised schedule as attached.
6. Sheet FP-02, Fire Protection Plan, Revised as attached.
7. Sheet E-02, Electrical Site Plan, Delete circuits C-33 and C-35 and associated notes at Hotbox since deleted from scope.
8. Sheet E-05, Single Line Diagram and Panel Schedule, Delete breakers at circuit 33 and 35 will be left as spares.

SUBMITTED QUESTIONS

1. Drawing H-05 Lists "Greenheck" Ventilation Fans EF-01, EF-02, EF-03, EF-04 as Models AER-30-VG, according to the manufacturer rep these fans model number are not available with the performance given. Please review and provide correct model number with performances given.
Response – Refer to the revised mechanical schedule in changes to Drawings above. Fan performance has been corrected and the contractor should be able to obtain the specified fan.
2. Specification Section 22 00 05 Plumbing has several pieces of equipment called out in specifications such as, thermometers, pressure gauges, Backflow Preventers, Roof Drains, Wall Hydrants, Oil Interceptor, Heat Trace System. But none of these items are shown on plumbing drawings P-01, P-02, P-03, please confirm that Plumbing proposal should include what is called for or shown on drawings P-01, P-02, P-03 only.
Response – Specification 22 00 05 has been revised in changes to specifications above to eliminate the items that do not apply.
3. Civil Drawing C-02, C-07 shows a 6" incoming fire protection water line with an above ground heated enclosure and 6" Double Detector Check Assembly for incoming Fire Protection Line, when you refer to Fire Protection Drawing FP-02 and Architectural Drawing A-04, Detail 5/A-10 it shows a 8" Incoming Water Line and have the Double Check Assembly located inside the Building in Sprinkler BFP Closet Room 102. Please advise what is the correct information on line size and location of Double Check Assembly.
Response – Refer to revised Civil and Fire Protection Drawings in changes to Drawings above. Backflow Preventor will be maintained in the riser closet. The 6" fire service will be clarified at the fire protection drawings.
4. Structural drawing S-08 and Detail 5/drawing S-12 show a Polydrain PDX Precast Trench Drain PP12-12.502E.FG-F21G being provided and installed in Slab on Grade, when you Refer to Plumbing Drawing P-02 it shows this trench drain and calls for a 6" FD to be provided in trench drain. When you refer to specification 22 00 05-2.5 E, Floor Drain the specified floor drain is not available in 6" diameter, in addition the specified Trench drain should already be provided with a stub outlet either on side or

bottom. Please confirm that a FD should not be required to be installed on a Pre-cast Trench Drain and the trench drain will be provided Stub Outlet to connect to the 6" sanitary line shown.

Response – ADD Plumbing drawing P-02 will be revised (see Drawing changes above) to remove floor drain and call for a stub outlet instead to connect to the 6" sanitary line.

5. Is there an estimated project budget available for Bonding purposes?

Response – See Addendum #1.

6. Spec section 00 21 13 Instructions to Bidders, Article 8 - Bid Security - shows the amount of bond to be 100% of Bidders maximum Bid price - please advise if that is the correct amount?

Response – See Addendum #1.

7. There are no Fire Alarm devices shown on the plans, will that be by Others?

Response – See this Addendum #2 above.

8. Clarification needed on electrical please:

- *Trenching and backfill for underground work by electrical contractor?*
- *Concrete pole bases for exterior pole lighting supplied and installed by electrical contractor?*

Response – Assume electrical contractor is responsible for the excavation and backfill of any electrical trenching. Assume that exterior electrical poles shall be the responsibility of the electrical contractor.

ATTACHMENTS

1. Specification 22 00 05 – Plumbing
2. Sheet P-02, Plumbing Floor Plan
3. Sheet H-05, Mechanical Schedules
4. Sheet FP-02, Fire Protection Plan

END OF ADDENDUM NO. 3

SECTION 22 00 05

PLUMBING

PART 1 - GENERAL

1.1 DESCRIPTION

A. Scope:

1. Contractor shall provide all labor, materials, equipment and incidentals as shown, specified, and required to furnish and install potable water, sanitary drainage, storm drainage and gas piping systems complete and operational with accessories.

B. Coordination:

1. Review installation procedures under this and other Sections and coordinate the installation of items that must be installed with, or before, the plumbing Work.
2. Notify other contractors in advance of the installation of the plumbing Work to provide them with sufficient time for the installation of items included in their contracts that must be installed with, or before, the plumbing Work.

C. Related Sections:

1. Section 09 91 00, Painting.

1.2 REFERENCES

A. Standards referenced in this Section are listed below:

1. ANSI A21.1, Practice Manual, Computation Strength, Thickness.
2. ANSI A21.4, Cement-Mortar Lining/Cast and Ductile Iron Pipe and Fittings.
3. ANSI A21.10, Cast-Iron and Ductile Iron Fittings, 2 thru 48 in. Water.
4. ANSI A21.11, Rubber Gasket Joints Cast and Ductile Iron Pressure Pipe.
5. ANSI A21.51, Ductile-Iron Pipe Centrifugal Cast, in Metal Molds.
6. ANSI A112.19.2M, Vitreous China Plumbing Fixtures.
7. ANSI A117.1, Accessible and Usable Buildings and Facilities.
8. ANSI B16.9, Factory-Made Wrought Buttwelding Fittings.
9. ANSI B16.12, Cast-Iron Threaded Drainage Fittings.
10. ANSI B16.18, Cast Copper Alloy Solder Joint Pressure Fittings.
11. ANSI B16.22, Wrought Copper and Copper Alloy Solder Joint Pressure Fittings. (ASME B16.22).
12. ANSI B16.24, Cast Copper Alloy Pipe Flanges and Flanged Fittings, Class 150 and 300 lbs. (ASME B16.24).
13. ANSI B16.26, Cast Copper Alloy Fittings for Flared Copper Tubes.
14. ANSI B16.33, Manually Operated Metallic Gas Valves for Use in Gas Piping Systems Up to 125 PSI (Sizes NPS 1/2 through NPS 2). (ASME B16.33).
15. ANSI B16.39, Malleable Iron Threaded Pipe Unions.
16. ANSI B16.42, Ductile Iron Pipe Flanges and Flanged Fittings.
17. ANSI B40.1, Gages-Pressure Indicating Dial Type-Elastic Element.

18. ANSI B125.2, Black and Hot-Dipped Zinc-Coated Welded and Seamless Pipe, (ASTM A 120).
19. ANSI H23.1, Seamless Copper Water Tube, (ASTM B 88).
20. American Society of Sanitary Engineering (ASSE), ASSE 1013, Performance Requirements for Reduced Pressure Principle Backflow Preventers and Reduced Pressure Fire Protection Principle Backflow Preventers.
21. ASTM A 53/A 53M, Specification for Pipe, Steel, Black and Hot Dipped, Zinc-Coated, Welded and Seamless Pipe.
22. ASTM A 74, Specification for Cast-Iron Soil Pipe and Fittings.
23. ASTM A 106/A 106M, Specification for Seamless Carbon Steel Pipe for High-Temperature Service.
24. ASTM A 307, Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.
25. ASTM A 888, Specification for Hubless Cast-Iron Soil Pipe and Fittings for Sanitary and Storm Drain, Waste and Vent Piping Applications.
26. ASTM B 32, Specification for Solder Metal.
27. ASTM B 88, Specification for Seamless Copper Water Tube.
28. ASTM C 564, Specification for Rubber Gaskets for Cast-Iron Soil Pipe and Fittings.
29. ASTM D 1330, Specification for Rubber Sheet Gaskets.
30. AWWA C511, Reduced-Pressure Principle Backflow Prevention Assembly.
31. 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.
32. CISPI HSN, Specification for Neoprene Rubber Gaskets for Hub and Spigot Cast 300N Soil Pipe and Fittings.
33. FS O-F-506, Flux, Soldering: Paste and Liquid.
34. FS WW-H-171, Hangers and Supports, Pipe.
35. FS QQ-C-40, Calking Lead Wool and Lead Pig.
36. FS WW-P-541/1, Plumbing Fixtures (Water Closet).
37. FS WW-U-516, Unions, Brass or Bronze, Threaded Pipe Connections and Solder-Joint Tube Connections.
38. FS WW-U-531, Unions, Pipe, Steel or Malleable Iron; Threaded Connection.
39. Manufacturers Standardization Society (MSS), MSS SP 69, Pipe Hangers and Supports – Selection and Application.
40. NFPA 54, Nation Fuel Gas Code.

1.3 QUALITY ASSURANCE

- A. Installer's Qualifications:
 1. Engage installer regularly engaged in plumbing piping installation and with experience in the installation of the types of materials required; and who agrees to employ only tradesmen with specific skill and experience in this type of Work. Submit name and qualifications to Engineer.
 2. Engage installers for the entire plumbing piping systems with undivided responsibility for performance and other requirements.

- B. Regulatory Requirements: Comply with applicable provisions and recommendations of the following, except as otherwise shown or specified.
 - 1. National Electrical Code, (NEC).
 - 2. Local and State Building Codes and Ordinances.

- C. Component Supply and Compatibility:
 - 1. Obtain all equipment included in this Section regardless of the component manufacturer from a single plumbing manufacturer.
 - 2. The plumbing manufacturer to review and approve or to prepare all Shop Drawings and other submittals for all components furnished under this Section.
 - 3. All components shall be specifically constructed for the specified service conditions and shall be integrated into the overall assembly by the plumbing manufacturer.

1.4 SUBMITTALS

- A. Action Submittals: Submit the following:
 - 1. Shop Drawings:
 - a. 1/4-inch scale piping layouts, dimensioned to show length of piping runs, pipe sizes, support spacing and expansion provisions.
 - b. Details of installation, including piping supports.
 - c. Submit pipe schedule with laminate construction, sizes, thickness, vacuum pressure, weight per foot pressure, spans, joint type and flange data.
 - 2. Product Data:
 - a. Manufacturer's literature, illustrations, specifications and engineering data.
 - b. Flexible connections.
 - c. Additional technical data related to the specified material and equipment as requested by Engineer.
 - d. Gasket material.

- B. Informational Submittals: Submit the following:
 - 1. Qualifications Statements:
 - a. Installer's qualifications.

- C. Closeout Submittals: Submit the following:
 - 1. Record Documentation:
 - a. During progress of the Work keep an up-to-date set of the Drawings showing field and Shop Drawing modifications. Immediately upon completion of piping Work, submit CADD drawings showing the actual in place installation of all piping and equipment installed under this Section, at a scale satisfactory to the Owner. The drawings shall reflect all of the piping Work on plans and in sections, with all reference dimensions and elevations required for complete Record Drawings of the piping systems. Two paper prints shall also be furnished. The prints

and electronic copies of the CADD files shall be furnished no later than 30 days after completion of the Contract and prior to final payment.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Packing, Shipping, Handling and Unloading:
 - 1. Deliver materials to the Site to ensure uninterrupted progress of the Work. Deliver anchor bolts and anchorage devices, which are to be embedded in cast-in-place concrete, in ample time to prevent delay of the Work.

- B. Storage and Protection:
 - 1. Store materials to permit easy access for inspection and identification. Keep all material off the ground, using pallets, platforms, or other supports. Protect steel members and packaged materials from corrosion and deterioration.
 - 2. Store all equipment in covered storage off the ground and prevent condensation and in accordance with the manufacturer's recommendations for long-term storage.

- C. Acceptance at Site:
 - 1. All boxes, crates and packages shall be inspected by Contractor upon delivery to the Site. Contractor shall notify Engineer, in writing, if any loss or damage exists to equipment or components. Replace lost equipment or components and repair damage to new condition, in accordance with manufacturer's instructions

1.6 GENERAL REQUIREMENTS

- A. The Contract Documents show the general arrangement and extent of the Work to be completed. The exact location and arrangement of all parts shall be determined as the Work progresses. The exact location of all parts of the Work must be governed by the general building plans and the actual building conditions.

- B. The Drawings show an indication of the arrangement of equipment, ducts, valves, etc., and are as nearly correct as can be determined in advance of the actual construction of the Work. Piping, equipment, ducts, etc., found to interfere with the construction of the building, plumbing apparatus and piping, electrical wiring or other obstructions, etc., must be changed in location to clear such obstructions.

- C. The connections shown to the various units are intended as an indication only. The actual connections at the time of installation to be made and arranged to suit the requirements of each case, adequately provide for expansion and perfect circulation and minimize the amount of space required for the same.

- D. The Drawings show the general arrangement of all systems. Should local conditions necessitate rearrangement of one or more of the systems, Contractor, before proceeding with the Work, shall prepare and submit complete drawings showing all details of the proposed rearrangement for written approval by the Engineer.

- E. The Drawings do not show all offsets, fittings, accessories and details, which may be required. Contractor shall carefully examine all of the General Construction, Electrical, Mechanical, Structural and other Drawings and the respective Specifications for conditions which may affect the installation of the Work, and shall arrange the Work accordingly, furnishing all required items to meet such conditions which are not specified as work “by others”, to complete the systems to the true extent of the Contract Documents.

PART 2 - PRODUCTS

2.1 HOT AND COLD WATER PIPING

- A. Copper Water Tube:
1. Tube:
 - a. Reference: ANSI H23.1, ASTM B 88.
 - b. Type: K or L.
 - c. Temper: Hard-drawn or soft-annealed.
 2. Fittings:
 - a. Reference: ANSI B16.22.
 - b. Reference: ANSI B16.26.
 - c. Reference: ANSI B16.18.
 3. Joints:
 - a. Sweat:
 - 1) Solder Metal: ASTM B 32, Type 95-5TA.
 - 2) Flux: FS O-F-506, Type 1.
 - b. Flanged:
 - 1) Flanges: ANSI B16.24, 150 lb. class.
 - 2) Gaskets: Red rubber, ASTM D 1330, Grade 1, 1/8-inch thick.
 - 3) Nuts and Bolts: ASTM A 307.
 4. Unions:
 - a. Reference: FS WW-U-516.
 - b. Material: Bronze.
 - c. Rating: 250-pound W.O.G.
- B. Ductile Iron Pipe:
1. Pipe: Ductile Iron, ANSI A21.51.
 2. Fittings: Ductile Iron, ANSI A21.1.
 3. Joints:
 - a. Mechanical Joints:
 - 1) Glands, Bolts and Nuts: ANSI A21.11.
 - b. Flanged Joints:
 - 1) Reference: ANSI A21.10.
 4. Lining: Mortar lined, ANSI A21.4.
- C. Dielectric Couplings:

1. Manufacturers: Provide products of one of the following:
 - a. Watts Regulator Company.
 - b. EpcO Sales, Incorporated.
 - c. Or equal.
2. Type: Union or flange.
3. Ratings:
 - a. Unions: 250 psi, ANSI B16.39.
 - b. Flanges: 175 psi, ANSI B16.42 (Iron), ANSI B16.24 (Bronze).

2.2 STORM AND SANITARY PIPING

- A. Cast-Iron Soil Pipe and Fittings:
 1. Pipe and Fittings: ASTM A 74.
 2. Weight: Service-Weight.
 3. Joints:
 - a. Compression:
 - 1) Gasket: Neoprene Rubber, ASTM C 564, CISPI HSN.
 - 2) Lubricant: As recommended by pipe manufacturer.
 - b. Calked:
 - 1) Lead: FS QQ-C-40, Type I, Grade AA.
 - 2) Jute Packing: FS HH-P-117, Type I.
- B. Steel Pipe and Fittings:
 1. Pipe: ANSI B125.2.
 2. Weight: Schedule 40.
 3. Finish: Galvanized.
 4. Fittings: ANSI B16.12 recessed drainage pattern galvanized cast-iron, threaded to allow 1/8-inch or 1/4-inch per foot grade, as required.
- C. Hubless Cast-Iron:
 1. No-Hub Pipe and Fittings: ASTM A 888.
 2. Joints: CISPI 310.

2.3 NATURAL GAS PIPING

- A. Steel Pipe:
 1. Pipe:
 - a. Reference: Pipe sizes 2-inches to 24-inches, ASTM A 53/A 53M, Type S, Schedule 40, Grade B.
 - b. Reference: Pipe sizes less than 2-inches, ASTM A 106/A 106M, Schedule 40.
 - c. Weight: Schedule 40.
 - d. Finish: Black.
 - e. Piping 2-inches and larger shall conform to ASTM A 53/A 53M.
 - f. Piping 1-1/2-inches and smaller shall conform to ASTM A 106/A 106M.
 - g. End Connections:
 - 1) Schedule 40: Up to 1-1/2-inch size, may be threaded.

- 2) Schedule 40: Two-inch and larger shall be welded; weld end (API 1104, ASME Section IX Boiler and Pressure Vessel Code. Connections to regulators, valves, meters with flanged ends shall be flanged).
2. Fittings:
 - a. Threaded:
 - 1) Reference: ANSI B16.33, 150 lb.
 - 2) Material: Malleable iron.
 - 3) Finish: Black.
 - b. Welded:
 - 1) Reference ANSI B16.9.
 - 2) Material: Wrought steel.
 - 3) Finish: Black.
 3. Unions:
 - a. Threaded: Malleable iron, FS WW-U-531, Class 1, Type B.
 4. Joint Compound:
 - a. Materials: Resistant to the action of liquefied petroleum gas or natural gas.
 5. Insulating couplings, Dresser type, a steel body with gaskets and retainer cups.
- B. Buried Piping: Refer to local gas utility company requirements.
- C. Dielectric Couplings:
1. Manufacturers: Provide products of one of the following:
 - a. Watts Regulator Company.
 - b. Epco Sales, Incorporated.
 - c. Or equal.
 2. Type: Union or flange.
 3. Ratings:
 - a. Unions: 250 psi, ANSI B16.39.
 - b. Flanges: 175 psi, ANSI B16.42 (Iron), ANSI B16.24 (Bronze).

2.4 VALVES AND ACCESSORIES

- A. Bronze Body Globe Valves:
1. Products and Manufacturers: Provide one of the following:
 - a. Stockham Valves and Fittings, Fig. No. B-24.
 - b. Lunkenheimer Company, Fig. No. 126.
 - c. Or equal.
 2. Type: Composition disc, union bonnet.
 3. Materials: Brass and bronze.
 4. Rating: 150 lb. SWP.
 5. End Connections: Solder joint.
- B. Bronze Body Check Valves:
1. Products and Manufacturers: Provide one of the following:
 - a. Stockham Valves and Fittings, Fig. No. B-309.
 - b. Lunkenheimer Company, Fig. No. 2145.

- c. Or equal.
 - 2. Type: Swing, regrinding bronze disc, screw-in cap.
 - 3. Materials: Brass and bronze.
 - 4. Rating: 150 lb. SWP.
 - 5. End Connections: Solder joint.
- C. Bronze Body Ball Valves:
- 1. Products and Manufacturers: Provide one of the following:
 - a. Stockham Valves and Fittings, Fig. S-217 BR-R-T.
 - b. Lunkenheimer Company, Fig. 707-XLT.
 - c. Or equal.
 - 2. Type: Non-blowout stem, adjustable packing gland, quarter turn, full port ball valve.
 - 3. Materials:
 - a. Body: Cast bronze.
 - b. Ball: Chrome plated brass.
 - c. Packing and Seats: Teflon.
 - 4. Rating: 150 lb. SWP.
 - 5. End Connection: Screwed. Provide screwed to sweat adapters, where required.
- D. Lubricated Plug Valves:
- 1. Manufacturers: Provide products of one of the following:
 - a. Walworth Company.
 - b. Nordstrom Valves, Inc.
 - c. Or equal.
 - 2. Type: Short pattern, wrench operated.
 - 3. Pressure Rating: 175 lb. W.O.G- 350 lb. test.
 - 4. End Connections: Threaded (up to 2-1/2-inch); flanged (3-inch and larger).
 - 5. Construction: Cast-iron body and plug with steel trim.
 - 6. Sealant: Suitable for gas application.
 - 7. Wrench: To suit valve.
- E. Lubricated Stop Cocks (Up to 2-inches):
- 1. Manufacturers: Provide products of one of the following:
 - a. Eclipse Fuel Engineering Company.
 - b. A. Y. McDonald Manufacturing Company.
 - c. Or equal.
 - 2. Type: Flat head.
 - 3. Pressure Rating: 125 lb. W.O.G.
 - 4. End Connections: Threaded.
 - 5. Construction: Iron body, bronze plug.
- F. Natural Gas Pressure Regulator: In accordance with the requirements of the local utility company.
- G. Natural Gas Meter:
- 1. Manufacturer: In accordance with requirements of the local utility company.

2.5 EQUIPMENT

- A. Hose Bibbs, Pipe Drains:
1. Products and Manufacturers: Provide one of the following:
 - a. Woodford Manufacturing Company, Model 24C.
 - b. Nibco, Incorporated, Fig. No. 74VB.
 - c. Or equal.
 2. Valve:
 - a. Type: Indoor/non-freeze area boiler drain globe valve, chrome plated.
 - b. Materials: Bronze body, screwed bonnet, renewable composition disc.
 - c. End Connections: Hose thread outlet, male pipe thread or sweat inlet.
 - d. Rating: 125 lbs. W.O.G.
 3. Vacuum Breaker:
 - a. Type: Non-removable, atmospheric.
 - b. Materials: Brass body, stainless steel trim, silicone rubber diaphragm and disc.
 - c. End Connections: Hose thread inlet and outlet.
- B. Backflow Preventers: RPZ-BFP:
1. Products and Manufacturers: Provide one of the following:
 - a. Febco, Model 825.
 - b. Watts Regulator Company, Series 909.
 - c. Or equal.
 2. Type: Reduced pressure zone device with two independently acting check valves, together with an automatically operated pressure differential relief valve located between the two check valves.
 3. Materials:
 - a. Body: Bronze.
 - b. Valve Discs: Buna-N rubber.
 - c. Diaphragm: Silicone rubber or Buna-N rubber.
 - d. Springs: Stainless steel.
 - e. Screws: Stainless steel.
 4. Maximum Working Pressure: 150 psi.
 5. End Connections: Screwed.
 6. Accessories:
 - a. Air gap drain funnel with threaded outlet and vent elbow furnished by manufacturer minimum two pipe sizes larger than relief drain outlet.
 - b. Strainer with blowoff on inlet.
 - c. Ball valves on inlet and outlet.
 - d. Reduced pressure principle backflow preventer test kit for each unit furnished, provided in molded plastic carrying case with foam inserts.
 7. References: ASSE 1013, AWWA C511.
- C. Floor Drains:
1. Floor Drain and Shower Drain: (FD-1).
 - a. Products and Manufacturers: Provide one of the following:
 - 1) Jay R. Smith, Fig. 2010-BP.

- 2) Zurn Industries Fig. Z-415 with Y-strainer.
- 3) Or equal.
- b. Materials:
 - 1) Body: Enameled cast-iron.
 - 2) Collar: Cast-iron, reversible, threaded for strainer heads, enamel coated.
 - 3) Strainer Head: Square 8-inch by 8-inch nickel bronze grate with bronze body, heel proof grate, and vandal proof screws.
- c. Outlet Connection: Bottom outlet, calk or no-hub, as required.
- 2. Bar Grate:
 - a. Products and Manufacturers: Provide one of the following:
 - 1) Tyler Pipe, Series 547.
 - 2) Or equal.
 - b. Type: Grate to be used in soil pipe hub openings.
 - c. Body: Cast-iron with legs and grating on exposed face.

D. Cleanouts:

- 1. Cleanout Deck Plates (Finished Areas) FCO-1:
 - a. Products and Manufacturers: Provide one of the following:
 - 1) Jay R. Smith, Fig. 4040.
 - 2) Zurn Industries, Fig. No. Z-1400-3.
 - 3) Or equal.
 - b. Materials: Cast-iron body and adjustable nickel bronze top.
 - c. Outlet Connection: Standard spigot.
 - d. Accessories:
 - 1) Square nickel bronze top.
 - 2) Cast bronze taper thread plug.
- 2. Wall Cleanout Plate:
 - a. Products and Manufacturers: Provide one of the following:
 - 1) Jay R. Smith, Fig. 4402.
 - 2) Zurn Industries, Fig. No. Z-1440-1.
 - 3) Or equal.
 - b. Materials: Cast bronze taper thread plug.
 - c. Accessories:
 - 1) Stainless steel round shallow wall plate.
 - 2) Cast-iron calked ferrule.

E. Wall Hydrants:

- 1. Exposed Hose Connection, Non-Freeze Type:
 - a. Products and Manufacturers: Provide one of the following:
 - 1) Jay R. Smith, Fig. No. 5609-SE.
 - 2) Zurn Industries, Fig. No. Z-1310.
 - 3) Or equal.
 - b. Type: Anti-siphon non-freeze wall hydrant.
 - c. Materials:
 - 1) Casing: Bronze.
 - 2) Vacuum Breaker: Integral.

- 3) Threads: Standard 3/4-inch hose thread outlet.
 - 4) Wall Clamp: Adjustable with set screw.
 - 5) Key: Removable tee handle type.
 - d. Connection: 3/4-inch sweat end inlet and 3/4-inch hose thread outlet, universal type.
- F. Hangers and Supports:
- 1. Manufacturers: Provide products of one of the following:
 - a. ITT Grinnell Corporation.
 - b. B-LINE.
 - c. Or equal.
 - 2. Type: Clamps, hooks, rods, hangers used to support plumbing piping systems from the structure.
 - 3. Materials: Comply with the requirements of MSS SP 69, FS WW-H-171 latest edition, Underwriters' Laboratory listed and Factory Mutual approved.

2.7 INSULATION

- A. Fiberglass Insulation:
- 1. Products and Manufacturers: Provide one of the following:
 - a. Owens-Corning Fiberglass Corporation, Fiberglass 25ASJ/SSL.
 - b. Certain Teed Products Corporation, Certain Teed Snap-On ASJ-SSL.
 - c. Or equal.
 - 2. Type: Heavy-density sectional pipe insulation with vapor barrier with self-sealing lap.
 - 3. Fire Hazard Classification:
 - a. Flame Spread: 25.
 - b. Fuel Contributed: 50.
 - c. Smoke Developed: 50.
 - 4. Density: Three lbs. per cubic foot, minimum.
 - 5. Fittings: Molded fiberglass.
 - 6. Jointing Materials: Manufacturers recommended adhesives and tape.
 - 7. Valve Insulation: Miter cut nesting size covering segments of same thickness as pipeline, for insulation of valves.
- B. Calcium Silicate Insulation at Insulation Protection Shields:
- 1. Products and Manufacturers: Provide one of the following:
 - a. Owens-Corning Fiberglass Corporation, Kaylo 10.
 - b. Johns-Manville, Thermo 12.
 - c. Or equal.
 - 2. Type: Calcium silicate pipe insulation.
 - 3. Fire Hazard Classification:
 - a. Flame Spread: 0.
 - b. Smoke Developed: 0.
 - 4. Density: Fourteen lbs. per cubic foot.
 - 5. Compressive Strength: 140 psi.
 - 6. Cut insulation 1/2-inch longer than insulation shield it rests on.

- C. Handicapped Lavatory Trim Insulation:
 - 1. Products and Manufacturers: Provide one of the following:
 - a. Truebro, Inc., Model No. 102W with Accessory No. 105W.
 - b. Brocar Products, Inc., Kit 500R with Accessory 500 HS or 500 HSK, as required.
 - c. McGuire Manufacturing Company, Incorporated, Pro Wrap.
 - d. Or equal.
 - 2. Type: Flexible vinyl insulation for waste, traps, hot and cold water supplies.
 - 3. References:
 - a. ADA Article 4.19.4.
 - b. ANSI A117.1.

2.8 PAINTING

- A. Piping, equipment and accessories shall be painted in accordance with Section 09 91 00, Painting.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. General:
 - 1. Install all items as shown, specified, and as recommended by the manufacturer.
 - 2. Request instructions from Engineer, in writing, when there is a conflict between the manufacturer's recommendations and the Contract Documents.
 - 3. Present conflicts to Engineer, in writing, who will determine corrective measures to be taken.
 - 4. Do not modify structures to facilitate installation of piping, unless specifically approved by Engineer.
 - 5. Installation to conform to the requirements of all local and state codes.
 - 6. Properly plug or cap the open ends of all piping at the end of each day's Work or other stopping point through construction. Equipment shall be tightly covered and protected against dirt, water, and chemical or mechanical damage.

3.2 FIELD QUALITY CONTROL

- A. Field Tests:
 - 1. Fill all systems and fully test all equipment, valves, etc. in operation.
 - 2. Check for excessive vibration while all systems are operating.
 - 3. Installed systems and components will not be released to Owner unless all systems have been tested and approved by the Engineer.
- B. Inspection:
 - 1. Examine areas to receive equipment, piping, valves and accessories for:

- a. Defects that adversely affect execution and quality of the Work.
 - b. Deviations beyond allowable tolerances for equipment, piping, valves and accessories.
 - c. Start the Work only when conditions are satisfactory.
2. The Engineer reserves the right to reject or authorize replacement of equipment, piping, valves and accessories found to be defective, blistered, cracked or deviated from allowable tolerances as described above.

3.3 ADJUSTING AND CLEANING

- A. Adjusting:
 1. Adjust all controls for proper settings.
 2. While system is operable, balance all equipment, valves, dampers, etc. to achieve design conditions.
- B. Cleaning:
 1. Thoroughly clean all piping, fittings, valves, equipment and accessories prior to installation.
 2. Remove all dirt, rust, dust, etc. from piping and equipment in preparation for painting.
 3. Remove and dispose of all debris and waste from the Site resulting from installation.

3.4 MATERIAL SCHEDULES

- A. Piping:
 1. All potable water supply, hot and cold 2-1/2-inches and smaller, run within the interior of a building, shall be hard-drawn copper Type "L" with solder joints and connections.
 2. All potable water piping 2-1/2-inches and smaller run underground shall be soft-annealed copper Type "K" copper tubing.
 3. All underground water piping 3-inches and larger shall be cement-lined ductile iron pipe with mechanical joints.
 4. All exposed gravity sanitary waste and vent and storm drainage piping run within the interior of a building shall be no-hub cast-iron.
 5. All gravity sanitary waste and vent and storm drainage piping located in concrete slabs or underground to exterior limits as shown shall be cast-iron soil pipe.
 6. All exposed water piping and valves to plumbing fixtures shall be chrome-plated brass.
 7. All exposed gas piping within the interior of a building or run within a chase or shaft shall be Schedule 40 black steel. All gas piping at a pressure of one psig or higher within the building shall be welded. All gas piping 1-inch diameter and larger shall be welded.
 8. All valves for copper or brass piping shall be bronze bodied, unless otherwise specified.
 9. All valves for ductile iron piping shall be iron bodied, unless otherwise specified.

10. Use “wrought copper” fittings for copper tubing.
11. Use “butt welded” fittings for welded steel pipe connections.

+ + END OF SECTION + +

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VENTILATION FANS

MARK NO.	QUANTITY	LOCATION	SERVICE	MANUFACTURER	MODEL	INTERLOCK WITH MOTOR OPERATED DAMPER	EA (CFM)	ESP (INCHES WC)	MOTOR RPM	MOTOR (HP)	DRIVE	WEIGHT LBS.	V/PH/HZ	NOTES (SEE BELOW)
EF-01	1	EAST WALL	GARAGE BUILDING	GREENHECK	AER-30-03-0620-VG	MD-1, MD-2	8000	0.2	1225 RPM	3 HP	DIRECT	102	208/3/60	1, 2, 3, 4, 5, 6
EF-02	1	EAST WALL	GARAGE BUILDING	GREENHECK	AER-30-03-0620-VG	MD-3, MD-4	8000	0.2	1225 RPM	3 HP	DIRECT	102	208/3/60	1, 2, 3, 4, 5, 6
EF-03	1	EAST WALL	GARAGE BUILDING	GREENHECK	AER-30-03-0620-VG	MD-5, MD-6	8000	0.2	1225 RPM	3 HP	DIRECT	102	208/3/60	1, 2, 3, 4, 5, 6
EF-04	1	EAST WALL	GARAGE BUILDING	GREENHECK	AER-30-03-0620-VG	MD-7, MD-8	8000	0.2	1225 RPM	3 HP	DIRECT	102	208/3/60	1, 2, 3, 4, 5, 6

3

3

NOTES:

1. THE FANS SHALL BE SELECTED USING VARI-GREEN ECM MOTORS.
2. THE UNIT SHALL COME WITH FACTORY INSTALLED OSHA FAN GUARD.
3. PROVIDE GALVANIZED 45 deg. WEATHERHOOD, GRAVITY OPERATED BACKDRAFT DAMPER (WD-320-PB-32X32) AND BIRD SCREEN.
4. PROVIDE SPEED DIAL FOR BALANCING.
5. PROVIDE DISCONNECT SWITCH (NEMA-1).
6. PROVIDE WITH HOA STARTER; IN AUTO MODE, EACH FAN IS THERMOSTATICALLY CONTROLLED AND INTERLOCKED WITH IT'S RESPECTIVE WALL LOUVER(S)

GAS FIRED UNIT HEATER

MARK NO.	QUANTITY	LOCATION	SERVICE	AIRFLOW (CFM)	HEATING OUTPUT, MBH	TEMP. RISE °F	PIPE CONNECTION		ELECTRICAL CHARACTERISTICS		MANUFACTURER	MODEL	NOTES
							GAS (IN.)	VENT (IN.)	MOTOR (HP)	V/Ph/Hz			
UH-01 TO 06	6	GROUND FLOOR	GARAGE BUILDING	1160	61.5	48	1/2	3	1/3	115/1/60	MODINE	HD 75	1, 2, 3
UH-07	1	GROUND FLOOR	SPRINKLER VALVES CLOSET	505	30	44	1/2	3	1/15	115/1/60	MODINE	HD 30	1, 2, 3

NOTES:

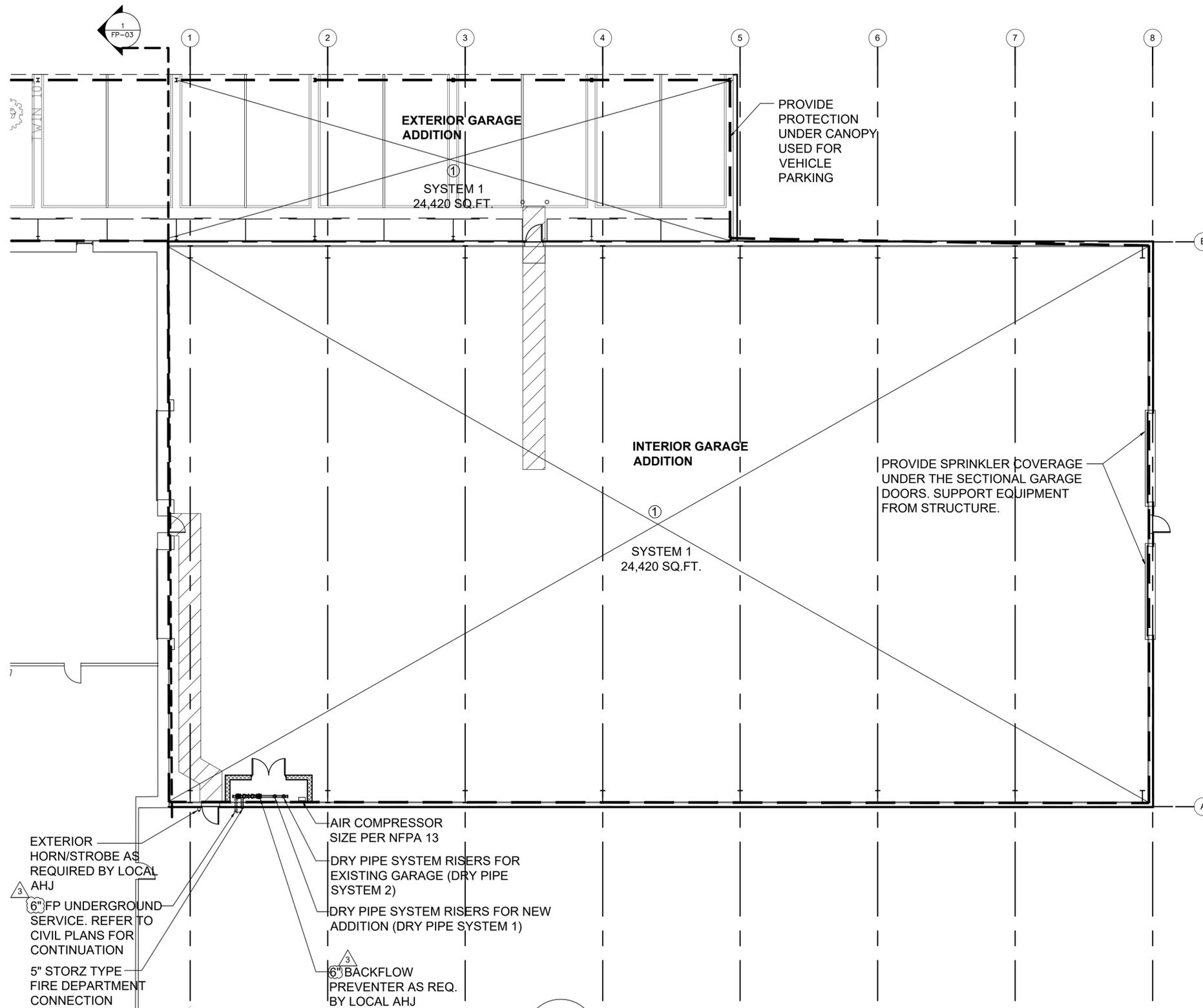
1. PROVIDE REMOTE THERMOSTAT AND WALL MOUNTING KIT.
2. ALL UNITS SHALL HAVE BUILT-IN CONTACTORS AND CONTROL CIRCUIT TRANSFORMERS (WHERE REQUIRED) TO PROVIDE SINGLE-SOURCE POWER CONNECTION.
3. FUSE BLOCKS AND FACTORY-SUPPLIED FUSES SHALL BE INSTALLED WITH 208 VOLTS OR 230-VOLT SINGLE OR 3-PHASE POWER SUPPLY.

THE PRE-ENGINEERED METAL BUILDING (PEMB) SYSTEM WILL BE PROVIDED BY OTHERS. ASSUMED REACTIONS, COLUMN BASE PLATES, BAY SPACING, ETC. MAY CHANGE BASED ON THE FINAL PEMB SYSTEM DESIGN. CHANGES IN THE SCOPE RESULTING FROM THE PEMB SYSTEM FINAL DESIGN WILL BE ADDRESSED AS A CONTRACT CHANGE WITH ADDITIONAL COSTS (IF APPLICABLE) ANTICIPATED TO BE PAID FOR USING THE CONTINGENCY ALLOWANCE.

WARNING: IT IS A VIOLATION OF THE NYS EDUCATION LAW ARTICLE 145 FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS ITEM IN ANY WAY.

SCALE(S) AS INDICATED THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING:	USE TO VERIFY FIGURE REPRODUCTION SCALE THIS DRAWING IS THE PROPERTY OF THE ARCADIS ENTITY IDENTIFIED IN THE TITLE BLOCK AND MAY NOT BE REPRODUCED OR ALTERED IN WHOLE OR IN PART WITHOUT THE EXPRESS WRITTEN PERMISSION OF SAME.	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="2">Professional Engineer's Name RAJAT BHAGAT</td> </tr> <tr> <td colspan="2">Professional Engineer's No. 107537</td> </tr> <tr> <td>State NY</td> <td>Date Signed 06-24-2024</td> </tr> <tr> <td>Designed by JH</td> <td>Checked by RB</td> </tr> </table>	Professional Engineer's Name RAJAT BHAGAT		Professional Engineer's No. 107537		State NY	Date Signed 06-24-2024	Designed by JH	Checked by RB	<p>ARCADIS OF NEW YORK, INC.</p>	CLARKSTOWN HIGHWAY GARAGE EXPANSION • CLARKSTOWN, NY <h2 style="margin: 0;">MECHANICAL SCHEDULES</h2>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>ARCADIS Project No. 30171703</td> <td rowspan="3" style="font-size: 2em; font-weight: bold; text-align: center; vertical-align: middle;">H-05</td> </tr> <tr> <td>Date AUGUST 2024</td> </tr> <tr> <td>201 FULLER ROAD SUITE 201 ALBANY, NY 12203</td> </tr> </table>	ARCADIS Project No. 30171703	H-05	Date AUGUST 2024	201 FULLER ROAD SUITE 201 ALBANY, NY 12203
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FIRE SPRINKLER DENSITY CRITERIA

- ① PROVIDE A DENSITY OF 0.20 GPM/1950 SQ.FT. BASED ON ORDINARY HAZARD GROUP 2 PER NFPA-13 2016 EDITION. CALCULATIONS AND PIPE SIZE SHALL BE BASED ON THE DENSITY/AREA CRITERIA. SPRINKLER HEADS SHALL BE 200 DEG F, MIN K5.6 BRASS UPRIGHT SPRINKLERS AT THE ROOF LEVEL, MAXIMUM AREA OF COVERAGE 130 SQ.FT. PER HEAD. MINIMUM SPACING BETWEEN HEADS SHALL BE 6 FT. AND MAXIMUM OF 15 FT. A COMBINED HOSE STREAM OF 250 GPM SHALL BE ADDED TO THE SYSTEM CALCULATIONS.

EXTERIOR HORN/STROBE AS REQUIRED BY LOCAL AHJ
 ③ 6" FP UNDERGROUND SERVICE. REFER TO CIVIL PLANS FOR CONTINUATION
 5" STORZ TYPE FIRE DEPARTMENT CONNECTION

AIR COMPRESSOR SIZE PER NFPA 13
 DRY PIPE SYSTEM RISERS FOR EXISTING GARAGE (DRY PIPE SYSTEM 2)
 DRY PIPE SYSTEM RISERS FOR NEW ADDITION (DRY PIPE SYSTEM 1)
 ③ 6" BACKFLOW PREVENTER AS REQ. BY LOCAL AHJ

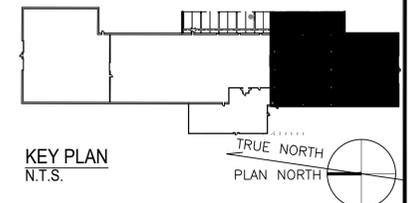
PROVIDE PROTECTION UNDER CANOPY USED FOR VEHICLE PARKING

PROVIDE SPRINKLER COVERAGE UNDER THE SECTIONAL GARAGE DOORS. SUPPORT EQUIPMENT FROM STRUCTURE.

1
FP-02

FIRE PROTECTION PLAN – NEW ADDITION

SCALE: 3/32" = 1'-0"



SCALE(S) AS INDICATED

THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING.

USE TO VERIFY FIGURE REPRODUCTION SCALE

No.	Date	Revisions	By	Ckd
3	8/28/24	ADDENDUM NO. 3	JS	JS

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Professional Engineer's Name
JAMES R. FOX

Professional Engineer's No.
081387

State
NY

Date Signed
06.24.2024

Project Mgr.
MFK

Designed by
JS

Drawn by
JS

Checked by
JP



CLARKSTOWN HIGHWAY GARAGE EXPANSION • CLARKSTOWN, NY

FIRE PROTECTION PLAN

ARCADIS Project No.
30171703

Date
MAY 2024

ARCADIS OF NEW YORK, INC.
855 ROUTE 146
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CLIFTON PARK, NY 12065

FP-02