CITY OF TULSA
PUBLIC WORKS
Engineering

DATE:
July 18, 2025

TO:
Plan Holders
Contractors

FROM:
Jenna Richardson
918-596-9637
jennarichardson@cityoftulsa.org

EMAIL TRANSMITTAL

ADDENDUM NO. 3

PROJECT NO. CP 24-20 TULSA ZOO RAINFOREST HVAC / ELECTRICAL UPGRADES

Number of pages: 15

All addenda to the contract documents should be denoted on the last page of the Proposal in the space provided.

Thank you,
Contract Administration

CITY OF TULSA

PUBLIC WORKS
Engineering

DATE:
July 18, 2025

ADDENDUM NO. 3
TO
PROJECT NO. CP 24-20 TULSA ZOO
RAINFOREST HVAC / ELECTRICAL UPGRADES

This Addendum No. 3 consisting of four (4) items, submitted by EDA + FKI Engineers, PC is hereby made a part of the Contract Documents to the same extent as though it were originally included therein and shall supersede anything contained in the Plans and Specifications with which it might conflict. **All addenda to the contract documents should be denoted on the last page of the Proposal in the space provided.**

This Addendum No. 3 consists of the following:

1. The attached documents list the detailed items that have been modified in Addendum No. 3. These documents shall be inclusive and apply to this project.

2. Delete the existing bid proposal form in its entirety and replace with the revised Bid Proposal located at: https://www.cityoftulsa.org/government/departments/public-works/engineering-services/construction-bids/. It is Bidder's responsibility to download the revised Bid Proposal.

3. **Bid Opening Date** changing from July 25, 2025, to **August 1, 2025**

All other provisions of the Plans and Specifications shall remain in full force and effect.

CITY OF TULSA

Paul D. Zachary, P.E.
Deputy Director

HAS/BB/JR/kt

EDA + FKI Engineers PC

10810 E. 45th St., Suite 201
Tulsa, Oklahoma 74146
p: 918.258.6890 | f: 918.515.4338

ADDENDUM

TO: Bhree Barrett, City of Tulsa

From : Cy Nowkhah, EDA+FKI Engineers PC

Project : CP 24-20 Tulsa Zoo - Rainforest HVAC / Electrical Upgrades

Date 07/18/2025

ADDENDUM NO. 3

The work described or attached herein shall supplement Plans and Specifications issued for bid June 13, 2025 and shall be considered to be part of the bid documents.

Description
This Addendum address revisions to owner furnished equipment as part of add alternate 2 and additional HVAC dampers.

ITEMS - Revisions

Reference sheet G001;

1. Revised bid item 028.

Reference sheet G002;

1. Revised add alternate 2 and renumbered bid items under alternate 3.

Reference sheet M101;

1. Revised key note 19 and added general note.

Reference sheet M601;

1. Revised mechanical schedule to include RTU-6 and RTU-7 as part of equipment furnished & installed by contractor.

End of Addendum

7/18/2025

ELECTRONIC BID PROPOSAL INSTRUCTIONS - EXCEL SPREADSHEET
TULSA ZOO - RAINFOREST HVAC/ELECTRICAL UPGRADES
PROJECT NO. CP 24-20

Please read the following instructions carefully.

1. After opening this file re-save it as your company's name.
2. Open the BID FORM Sheet from the tabs below.
3. Input the unit price of the appropriate pay item in the Data Input cells.
4. Review all data input and check calculations to ensure accuracy of Bid.
5. Print 1 hardcopy of the "PROPOSAL" tab, BID FORM and the "SIGNATURE PAGE" tab.
6. Complete and sign the "Signature Page" document.
7. Submit hardcopy and electronic disk with Contract Documents and Specifications for Bid opening date.

AGREEMENT FOR USING ELECTRONIC BID PROPOSAL

By and Between: **EDA + FKI ENGINEERS PC** (ENGINEER) and RECIPIENT. The enclosed electronic media is provided pursuant to your request and is for your limited use in connection with your submittal of Bid Proposal for **Project No. CP 24-20.** In no event shall the information be used for any other purpose or be released to third parties without the written consent of the ENGINEER. In the event of a discrepancy between the hard copy and this electronic media at delivery or in the future, the hard copy shall govern. ENGINEER hereby disclaims any and all liability for the consequences from use of the electronic media and makes no warranty or guarantee of accuracy. RECIPIENT shall assume full responsibility for the uses and consequences of the electronic media. It is agreed that ENGINEER has and retains ownership of the electronic media. ENGINEER does not warrant or guarantee that the electronic data is compatible with RECIPIENT'S computer hardware or software, and ENGINEER'S responsibility for the electronic media is limited to replacement of defective media for a period of thirty (30) days after delivery to RECIPIENT. By opening and using this FILE, You AGREE to these TERMS AND CONDITIONS.

PROPOSAL
TULSA ZOO - RAINFOREST HVAC/ELECTRICAL UPGRADES
PROJECT NO. CP 24-20

TO: HONORABLE MAYOR
CITY OF TULSA, OKLAHOMA

THE UNDERSIGNED BIDDER, having carefully examined the drawings, specifications, and other Contract Documents of the above project presently on file in the City Clerk, City of Tulsa Oklahoma:

CERTIFIES THAT he has inspected the site of the proposed work and has full knowledge of the extent and character of the work involved, construction difficulties that may be encountered, and materials necessary for construction, class and type of excavation, and all other factors affecting or which may be affected by the specified work; and

CERTIFIES THAT he has not entered into collusion with any other bidder or prospective bidder relative to the project and/or bid: and

HEREBY PROPOSES: to enter into a contract to provide all necessary labor, materials, equipment and tools to completely construct and finish all the work required by the Contract Documents hereto attached and other documents referred to therein: to complete said work within **270** calendar days after the work order is issued; and to accept in full payment therefore the amount set forth below for all work actually performed as computed by the Engineer as set forth in the Contract.

Basis of Award

IT SHOULD BE NOTED THAT THE LOWEST RESPONSIBLE BID SHALL BE DETERMINED BY THE TOTAL BASE BID PLUS ADDITIVE ALTERNATES NO. 1 thru 3 . THE ITEMS IN ADDITIVE ALTERNATES NO. 1 thru 3 MAY OR MAY NOT BE INCLUDED IN THE CONTRACT AWARD AT THE SOLE DISCRETION OF THE CITY OF TULSA. ANY PROPOSAL SUBMITTED WITH THE ADDITIVE ALTERNATES 1 thru 3 INCOMPLETE SHALL BE CONSIDERED NON-RESPONSIVE.

BID FORM
TULSA ZOO - RAINFOREST HVAC/ELECTRICAL UPGRADES
PROJECT NO: CP 24-20

BID ITEM	SPEC NO.	DESCRIPTION	UNIT	QTY	DATA INPUT UNIT PRICE	TOTAL EACH ITEM
BASE BID:						
001	SPEC 01 2100	General conditions.	LOT	1		$ -
002	SPEC 01 2100	Owner Allowance	ALLOW	170000	$ 1.00	$ 170,000.00
003		Site prep, tree removal, and prepare, level grade for equipment and equipment pad installation	LOT	1		$ -
004	SPEC 02 4119	Demolition and removal of existing Governair HVAC Package Housing Unit and (2) Cooling Towers from the site.	LOT	1		$ -
005	SPEC 02 4119	Removal of existing roof mounted exhaust fans (EF-1, EF-2,EF-3) Install new corrugated metal panel under exhaust fan EF-2. Provide a water tight seal around roof penetrations.	EA	3		$ -
006	SPEC 02 4119	Removal of existing inline exhaust fan (EF-4) and support structure.	EA	1		$ -
007	SPEC 02 4119	Removal of existing return ductwork from ground level up to return grille plenum transition. Install sheet metal to cap and seal underground branch duct connection. Removal of existing supply ductwork and fittings at Rm. 124. Demolition of existing supply ductwork (west exterior). Install cap and seal at specified return and supply ductwork, roof openings, and piping.	EA	3		$ -
008	SPEC 02 4119	Removal of existing HVAC equipment thermostats and associated wiring	EA	1		$ -
009	SPEC 02 4119	Demolition of existing service shed, electrical fixture and wiring.	EA	1		$ -
010	SPEC 23 1123	Reconnection of gas services to existing 175kw generator and cafe.	EA	2		$ -
011	SPEC 23 1123	New gas service manifold and distribution provisions for services to generators, HVAC package units, new connection to existing 175kw generator, service to cafe.	EA	1		$ -
012	SPEC 02 4119	Removal of existing 2" above grade natural gas piping back to gas riser manifold and capping existing service	EA	1		$ -
013	SPEC 23 0713, 23 3113,23 0529, 23 3300	Install interior supply duct. Provide R8 interior duct insulation on interior ductwork. Provide long rectangular radius elbows	LB	860		$ -
014	SPEC 23 0713, 23 3113	Install 3" Armaflex insulation and aluminum jacketing for all exterior supply & return ducts.	SF	7000		$ -
015	SPEC 23 0713, 23 3113, 23 3300	Install exterior supply & return duct, including all long rectangular radius elbows.	LB	8300		$ -
016	SPEC 23 1123	Natural Gas service upgrade including (ONG) ONEOK fees, boring, piping, unions, shut off valves, regulators, sediment traps and field connections.	EA	1		$ -
017	SPEC 23 1123	Natural gas piping to generators including unions, shut off valves, regulators, sediment traps and all terminations.	EA	3		$ -
018	SPEC 23 1123	Gas piping to package units, includes trench, backfill, piping, unions, shut off valves, regulators, sediment traps and terminations.	EA	10		$ -
019	SPEC 23 3113, 23 7413	Set package unit on pad & make required connections for natural gas, ductwork and controls.	EA	10		$ -
020		Condensate piping system for HVAC package units.	EA	10		$ -
021		Install new structurally reinforced concrete pad for HVAC Package Units.	CY	20		$ -
022	SPEC 23 0500, 23 0593, 23 0713	Connection of RTU 3 supply duct to existing duct @ supply air tunnel.	EA	1		$ -
023		Connection of RTU-5, RTU 5.1 and RTU-2 return air connection to existing central return.	EA	1		$ -
024	SPEC 23 0500, 23 0593, 23 3113, 23 3423, 23 0529	Install new exhaust fan on low roof (EF-1, EF-2). Install new Inline exhaust fan (EF-2) and support structure. Provide associated controls for both fans.	EA	2		$ -
025	SPEC 23 0529	Rectangular duct supports for exterior ductwork.	EA	60		$ -
026	SPEC 23 3713.13	Provide Insect Screening over return grille (R2) free area. Return grille serves RTU-1 & RTU-1.1.	EA	1		$ -
027	SPEC 23 3300	Protective Shield at RTU-1.1 primate accessible ductwork locations.	EA	2		$ -

028	SPEC 23 3300	Back draft gravity dampers &motorized modulating Dampers & wiring.	LOT	1		$ -
029	SPEC 01 2100	HVAC control system allowance, including LV wiring (exclude raceway)to each package unit, sensors, thermostats, interface modules and all associated hardware.	EA	10		$ -
030	SPEC 02 4119	Disconnect, remove and relocate existing generator set per owner direction, demo existing pad and patch existing pad location	EA	1		$ -
031	SPEC 02 4119	Disconnect and remove existing secondary conductors from existing PSO transformer, demo existing pad and patch existing pad location	EA	1		$ -
032	SPEC 02 4119	Demo. existing transfer switches and associated connections	EA	2		$ -
033	SPEC 02 4119	Demolition existing electrical service disconnects	EA	4		$ -
034		Install new site lights with pole base and wiring	EA	3		$ -
035	SPEC 26 3213	Generators (3-350KW natural gas units) installed on pad	EA	3		$ -
036	SPEC 26 2413	Service switchgear MSB	EA	1		$ -
037	SPEC 26 3623	Transfer switch, 800A, 480V, 3P, 4 W, free standing NEMA 3R	EA	2		$ -
038	SPEC 26 3623	Transfer switch, 100A, 480V, 3P, 4 W, free standing NEMA 3R	EA	1		$ -
039	SPEC 26 2413	Distribution panel "AMDP"	EA	1		$ -
040	SPEC 26 2413	Distribution panel "BMDP"	EA	1		$ -
041	SPEC 26 2413	Generator switchboard GDP	EA	1		$ -
042		Reinforced concrete generator pad	CY	50		$ -
043		Reinforced concrete switchgear pad	CY	6		$ -
044		Reinforced concrete transformer pad	CY	4		$ -
045	SPEC 26 3213	Remote wireless generator monitor	EA	1		$ -
046	SPEC 26 3213	Remote emergency stops @ generator	EA	3		$ -
047	SPEC 26 2416	Electrical panelboard L1C, installed	EA	1		$ -
048	SPEC 26 2416	Electrical Panelboard LS, installed	EA	1		$ -
049	SPEC 26 2200	Dry type 112.5kva transformer installed	EA	1		$ -
050	SPEC 26 4313	Surge Protective Device LS3 series and associated wiring,	EA	2		$ -
051	SPEC 26 4313	Surge Protective Device TG series and associated wiring,	EA	3		$ -
052	SPEC 26 0519, 26 0533, 26 0526	Feeder & termination for pad mounted 1000kva PSO furnished transformer to MSB, 1600A-4	LF	30		$ -
053	SPEC 26 0519, 26 0533, 26 0526	Feeder & termination for HVAC package unit RTU-1, 80A-3+G	LF	50		$ -
054	SPEC 26 0519, 26 0533, 26 0526	Feeder & Termination for HVAC package unit RTU-1.1, 80A-3+G	LF	80		$ -
055	SPEC 26 0519, 26 0533, 26 0526	Feeder & termination for HVAC package unit RTU-2, 80A-3+G	LF	160		$ -
056	SPEC 26 0519, 26 0533, 26 0526	Feeder & termination for HVAC package unit RTU-2.1, 80A-3+G	LF	120		$ -
057	SPEC 26 0519, 26 0533, 26 0526	Feeder & termination for HVAC package unit RTU-3, 110A-3+G	LF	80		$ -
058	SPEC 26 0519, 26 0533, 26 0526	Feeder & termination for HVAC package unit RTU-4, 100A-3+G	LF	100		$ -
059	SPEC 26 0519, 26 0533, 26 0526	Feeder & termination for HVAC package unit RTU-5, 110A-3+G	LF	250		$ -
060	SPEC 26 0519, 26 0533, 26 0526	Feeder & termination for HVAC package unit RTU-5.1, 110A-3+G	LF	200		$ -
061	SPEC 26 0519, 26 0533, 26 0526	Feeder & termination for HVAC package unit RTU-6, 70A-3+G	LF	150		$ -
062	SPEC 26 0519, 26 0533, 26 0526	Feeder & termination for HVAC package unit RTU-7, 30A-3+G	LF	225		$ -
063	SPEC 26 0533	3/4" PVC schedule 40 underground control conduit to RTU-1, RTU-1.1, RTU-2, RTU-2.1, RTU-3, RTU-4, RTU-5, RTU-5.1, RTU-6 and RTU-7.	LF	1500		$ -
064	SPEC 26 0519, 26 0533, 26 0526	Feeder from BMDP to Anteater building 200-4+G	LF	180		$ -
065	SPEC 26 0519, 26 0533, 26 0526	Feeder from ATS3 to panel LS 100-4+G	LF	40		$ -

066	SPEC 26 0519, 26 0533, 26 0526	Feeder from BMDP to 112.5 kva transformer 175A-3+G	LF	200		$ -
067	SPEC 26 0519, 26 0533, 26 0526	Feeder from 112.5KVA transformer to panel L1C 400A-4+G	LF	200		$ -
068	SPEC 26 0519, 26 0533, 26 0526	Feeder from BMDP to H1A 200A-4+G	LF	40		$ -
069	SPEC 26 0519, 26 0533, 26 0526	Feeder from BMDP to H1B 200A-4+G	LF	40		$ -
070	SPEC 26 0519, 26 0533, 26 0526	Feeder from BMDP to ATS1, 800A-4+G	LF	20		$ -
071	SPEC 26 0519, 26 0533, 26 0526	Feeder from AMDP to ATS2, 800A-4+G	LF	20		$ -
072	SPEC 26 0519, 26 0533, 26 0526	Feeder from GDP to ATS1, 800A-4+G	LF	20		$ -
073	SPEC 26 0519, 26 0533, 26 0526	Feeder from GDP to ATS2, 800A-4+G	LF	30		$ -
074	SPEC 26 0519, 26 0533, 26 0526	Feeder from GDP to ATS3, 100A-4+G	LF	40		$ -
075	SPEC 26 0519, 26 0533, 26 0526	Feeder from MSB to ATS1, 800A-4+G	LF	15		$ -
076	SPEC 26 0519, 26 0533, 26 0526	Feeder from MSB to ATS2, 800A-4+G	LF	25		$ -
077	SPEC 26 0519, 26 0533, 26 0526	Feeder from MSB to ATS3, 100A-4+G	LF	25		$ -
078	SPEC 26 0519, 26 0533, 26 0526	Feeder from ATS1 to BMDP, 800A-4+G	LF	200		$ -
079	SPEC 26 0519, 26 0533, 26 0526	Feeder from ATS2 to AMDP, 800A-4+G	LF	50		$ -
080	SPEC 26 0519, 26 0533, 26 0526	Feeder from ATS3 to Panel LS, 100A-4+G	LF	80		$ -
081	SPEC 26 0519, 26 0533, 26 0526	Feeder from Generator 1 to GDP, 800A-4+G	LF	60		$ -
082	SPEC 26 0519, 26 0533, 26 0526	Feeder from Generator 2 to GDP, 800A-4+G	LF	50		$ -
083	SPEC 26 0519, 26 0533, 26 0526	Feeder from Generator 3 to GDP, 800A-4+G	LF	40		$ -
084		EIFS Repair as needed	SF	10		$ -
085		Exterior KALWALL penetration and repair	SF	8		$ -
086	SPEC 26 0526	Electrical grounding system	LOT	1		$ -
087		3500 PSI concrete mix to close off existing supply and return openings to the underground HVAC tunnell.	CY	10		$ -

SUBTOTAL - BASE BID ITEMS (ITEMS 001 THROUGH 087)	$ 170,000.00

ADD ALTERNATE #1 - Electrical Primary Metering						
BID ITEM	SPEC NO.	DESCRIPTION	UNIT	QTY	DATA INPUT UNIT PRICE	TOTAL EACH ITEM
088	SPEC 26 1329	15kv pad mounted primary switch installed as per plans	EA	1		$ -
089	SPEC 26 1213	1000kva pad mounted oil filled transformer installed per plans and specifications	EA	1		$ -
090		Pad mounted primary metering cabinet per PSO specifications	EA	1		$ -
091		MV cabling from metering cab. to primary switch & primary switch to transformer, 3-#1 25kv, #2G AL., 4"C	LF	15		$ -
092		MV cable terminations	EA	6		$ -
093		Reinforced concrete pad for Primary switch	CY	4		$ -
094		Reinforced concrete pad for Primary metering cabinet	CY	4		$ -
095	SPEC 26 0533	6" PVC schedule 40, long radius elbow.	EA	4		$ -
096	SPEC 26 0533	6" under ground PVC schedule 40, 52" below grade from metering cabinet to PSO dip pole	LF	200		$ -
097	SPEC 26 0533	6" RGS long radius elbow	EA	2		$ -

SUBTOTAL - ADD ALTERNATE #1 (ITEMS 088 THROUGH 097)	$ -

ADD ALTERNATE #2 - Rainforest Contractor Furnished Package Units						
BID ITEM	SPEC NO.	DESCRIPTION	UNIT	QTY	DATA INPUT UNIT PRICE	TOTAL EACH ITEM
098	SPEC 23 7413	RTU- 1.1 (equipment cost only), 25 TON	EA	1		$ -
099	SPEC 23 7413	RTU- 2.1 (equipment cost only), 25 TON	EA	1		$ -
100	SPEC 23 7413	RTU-5.1 (equipment cost only), 40 TON	EA	1		$ -
101	SPEC 23 7413	RTU-6 (equipment cost only), 16 TON	EA	1		$ -
102	SPEC 23 7413	RTU-7 (equipment cost only), 11 TON	EA	1		$ -

SUBTOTAL - ADD ALTERNATE #2 (ITEMS 098 THROUGH 102)	$ -

ADD ALTERNATE #3 - Veterinary Clinic MEP upgrade						
BID ITEM	SPEC NO.	DESCRIPTION	UNIT	QTY	DATA INPUT UNIT PRICE	TOTAL EACH ITEM
103	SPEC 23 7413, 23 3113, 23 0593, 23 0713, 23 3713.13	Temporary heating/cooling allowance.	LOT	1		$ -
104	SPEC 02 4119	Demolition of existing cooling tower, cooling tower pumps, associated above-grade piping; remove all internal piping from existing condenser water pit and seal all existing openings.	LOT	1		$ -
105	SPEC 02 4119	Demolition of existing boiler, boiler circulation pump, and associated piping; demolition of existing supply fan and existing combustion air ductwork.	LOT	1		$ -
106	SPEC 02 4119	Demolition of existing heat pump loop pumps, hydronic specialties, heat exchanger, and associated piping; coordinate with water treatment service provider regarding removal of existing water treatment equipment.	LOT	1		$ -
107	SPEC 02 4119	Demo existing pad, fill existing condenser water pit using native soil/wet sand and prepare for new pad.	LOT	1		$ -
108		Install new reinforced concrete equipment pads, exterior and interior, and anchorage.	LOT	1		$ -
109	SPEC 23 2113, 23 2116, 23 2123, 23 5216, 23 0923.11, 23 0719, 23 0553	Installation of heat pump loop duplex packaged pumping system, associated piping and insulation, hydronic specialties, air and dirt separator, expansion tank; provide packaged pumping system's remote control panel to site for electrical contractor to install	LOT	1		$ -
110	SPEC 23 6514.16, 23 2113, 23 2116, 23 2123, 23 5216, 23 0923.11, 23 0719, 23 0553	Installation of closed-circuit fluid cooler, steelwork, associated piping including makeup water and drain piping, heat trace, and insulation with jacketing; provide fluid cooler control panel to site for electrical contractor to install	LOT	1		$ -

111	SPEC 23 5216, 23 2123, 23 2116, 23 2113, 23 0719, 23 0716, 23 0593, 23 0553, 23 0529	Installation of condensing boiler, associated circulation pump, hydronic piping and insulation, gas-piping connection, and separated combustion roof vent and air intake	LOT	1		$ -
112		Replace existing backflow preventers and PRV stations in existing mechanical room	LOT	1		$ -
113		Building automation system controls installation and integration allowance	LOT	1		$ -
114	SPEC 23 0593	Water treatment testing and equipment	LOT	1		$ -
115	SPEC 23 0593	Perform startup; test, adjust, and balance installed equipment	LOT	1		$ -
116	SPEC 26 0519, 26 0573, 26 2726	Wiring HPLP-1 pumps, 30A-3+G	LF	80		$ -
117	SPEC 26 0519, 26 0573, 26 2726	Wiring CCFCN-1 , 80A-3+G	LF	20		$ -
118	SPEC 26 0519, 26 0573, 26 2726	Wiring HWP-2, 20-2+G	LF	30		$ -
119	SPEC 26 2816	30A, 3P, NF, 3R, Installed @ Fluid cooler	EA	2		$ -
120	SPEC 26 0519, 26 0573, 26 2726	Wiring CCFCN-1 to basin heater 30A-3+G	LF	30		$ -
121	SPEC 26 0519, 26 0573, 26 2726	Wiring CCFCN-1 to spray fan, 20A-3+G	LF	40		$ -
122	SPEC 26 0519, 26 0573, 26 2726	Wiring CCFCN-1 to tower fan, 50A-3+G	LF	50		$ -
123	SPEC 26 0519, 26 0573, 26 2726	Install and wire new receptacle inside equipment room	EA	4		$ -
124	SPEC 26 2816	60A, 3P, NF, 3R Installed @ fluid cooler	EA	1		$ -
125	SPEC 26 2416	New circuit breakers added to existing panel	EA	10		$ -
126	SPEC 26 4313	Surge Protective Device LS3 series and associated wiring,	EA	1		$ -
127	SPEC 26 4313	Surge Protective Device TG series and associated wiring,	EA	1		$ -
128	SPEC 26 0519, 26 0533, 26 0526	Wiring to generator panel 60A-3+G	LF	300		$ -
129	SPEC 26 0519, 26 0573, 26 2726	Wiring to boiler	EA	1		$ -
130		150KW natural gas Generator and associated connections	EA	1		$ -

SUBTOTAL - ADD ALTERNATE #3 (ITEMS 103 THROUGH 130)	$ -

SUBTOTAL - ADD ALTERNATES #1 THROUGH #3 (ITEMS 088 THROUGH 130)	$ -

TOTAL BASE BID plus ALTERNATES #1 THROUGH #3	$ 170,000.00

BASE BID (ITEMS 001 thru 087)	$	170,000.00
ADD ALT #1 (ITEMS 088 thru 097)	$	-
ADD ALT #2 (ITEMS 098 thru 102)	$	-
ADD ALT #3 (ITEMS 103 thru 130)	$	-
TOTAL (BASE BID + ADD ALTERNATES 1 thru 3)	$	170,000.00

Enclosed is a ( ) Bidder's Surety Bond, ( ) Certified Check, ( ) Cashier's Check for

_____ Dollars ($_____)
Words Figures

which the City of Tulsa may retain or recover as liquidated damages in the event that the undersigned fails to enter into contract for the work covered by this proposal, provided the Contract is awarded to the undersigned within thirty (30) days, from the date fixed for opening of bids and the undersigned fails to execute said Contract and furnish the required bonds and other requirements as called for in these Contract Documents within thirty (30) days after award of Contract.

Dated at Tulsa, Oklahoma, this _____ day of _____, 20____.

Respectfully submitted,

_____
(Complete legal name of company)

_____
(State of Organization)

By: ATTEST:

_____ _____
Title: Title: Corporate Secretary
Printed Name: Printed Name:
(SEAL)

Address:_____
_____
_____
_____
_____

Telephone Number: _____ Fax Number: _____

By signing above the bidder acknowledges receipt of the following Addenda (give number and date of each):

_____
_____
_____

PAY ITEMS SCHEDULE

BID ITEM	SPEC NO.	DESCRIPTION	UNIT	QTY	PAY ITEM NOTES
BASE BID:					
001	SPEC 01 2100	General conditions.	LOT	1	8
002	SPEC 01 2100	Owner Allowance	ALLOW	1	7
003		Site prep, tree removal, and prepare, level grade for equipment and equipment pad installation	LOT	1	9,10,17
004	SPEC 02 4119	Demolition and removal of existing Governair HVAC Package Housing Unit and (2) Cooling Towers from the site.	LOT	1	8,11,18
005	SPEC 02 4119	Removal of existing roof mounted exhaust fans (EF-1, EF-2,EF-3) Install new corrugated metal panel under exhaust fan EF-2. Provide a water tight seal around roof penetrations.	EA	3	18
006	SPEC 02 4119	Removal of existing inline exhaust fan (EF-4) and support structure.	EA	1	18
007	SPEC 02 4119	Removal of existing return ductwork from ground level up to return grille plenum transition. Install sheet metal to cap and seal underground branch duct connection. Removal of existing supply ductwork and fittings at Rm. 124. Demolition of existing supply ductwork (west exterior). Install cap and seal at specified return and supply ductwork, roof openings, and piping.	EA	3	18
008	SPEC 02 4119	Removal of existing HVAC equipment thermostats and associated wiring	EA	1	18
009	SPEC 02 4119	Demolition of existing service shed, electrical fixture and wiring.	EA	1	18
010	SPEC 23 1123	Reconnection of gas services to existing 175kw generator and cafe.	EA	2	1,6,19
011	SPEC 23 1123	New gas service manifold and distribution provisions for services to generators, HVAC package units, new connection to existing 175kw generator, service to cafe.	EA	1	1,12,19
012	SPEC 02 4119	Removal of existing 2" above grade natural gas piping back to gas riser manifold and capping existing service	EA	1	18
013	SPEC 23 0713, 23 3113,23 0529, 23 3300	Install interior supply duct. Provide R8 interior duct insulation on interior ductwork. Provide long rectangular radius elbows	LB	860	13,20
014	SPEC 23 0713, 23 3113	Install 3" Armaflex insulation and aluminum jacketing for all exterior supply & return ducts.	SF	7000	20,21
015	SPEC 23 0713, 23 3113, 23 3300	Install exterior supply & return duct, including all long rectangular radius elbows.	LB	8300	13,14,20
016	SPEC 23 1123	Natural Gas service upgrade including (ONG) ONEOK fees, boring, piping, unions, shut off valves, regulators, sediment traps and field connections.	EA	1	19
017	SPEC 23 1123	Natural gas piping to generators including unions, shut off valves, regulators, sediment traps and all terminations.	EA	3	1,19
018	SPEC 23 1123	Gas piping to package units, includes trench, backfill, piping, unions, shut off valves, regulators, sediment traps and terminations.	EA	10	12,19
019	SPEC 23 3113, 23 7413	Set package unit on pad & make required connections for natural gas, ductwork, controls, condensate piping.	EA	10	12,19,20
020		Condensate piping system for HVAC package units.	EA	10	15,19
021		Install new structurally reinforced concrete pad for HVAC Package Units.	CY	20	4,10,20,21
022	SPEC 23 0500, 23 0593, 23 0713	Connection of RTU 3 supply duct to existing duct @ supply air tunnel.	EA	1	20,21
023		Connection of RTU-5, RTU 5.1 and RTU-2 return air connection to existing central return.	EA	1	20,21
024	SPEC 23 0500, 23 0593, 23 3113, 23 3423, 23 0529	Install new exhaust fan on low roof (EF-1, EF-2). Install new Inline exhaust fan (EF-2) and support structure. Provide associated controls for both fans.	EA	2	20
025	SPEC 23 0529	Rectangular duct supports for exterior ductwork.	EA	60	20
026	SPEC 23 3713.13	Provide Insect Screening over return grille (R2) free area. Return grille serves RTU-1 & RTU-1.1.	EA	1	20
027	SPEC 23 3300	Protective Shield at RTU-1.1 primate accessible ductwork locations.	EA	2	20
028	SPEC 23 3300	Back draft gravity dampers &motorized modulating Dampers & wiring.	LOT	1	20
029		HVAC control system allowance, including LV wiring (exclude raceway)to each package unit, sensors, thermostats, interface modules and all associated hardware.	EA	10	20,22,34
030	SPEC 02 4119	Disconnect, remove and relocate existing generator set per owner direction, demo existing pad and patch existing pad location	EA	1	29
031	SPEC 02 4119	Disconnect and remove existing secondary conductors from existing PSO transformer, demo existing pad and patch existing pad location	EA	1	29
032	SPEC 02 4119	Demo. existing transfer switches and associated connections	EA	2	29
033	SPEC 02 4119	Demolition existing electrical service disconnects	EA	4	29
034		Install new site lights with pole base and wiring	EA	3	38
035	SPEC 26 3213	Generators (3-350KW natural gas units) installed on pad	EA	3	39
036	SPEC 26 2413	Service switchgear MSB	EA	1	39
037	SPEC 26 3623	Transfer switch, 800A, 480V, 3P, 4 W, free standing NEMA 3R	EA	2	39
038	SPEC 26 3623	Transfer switch, 100A, 480V, 3P, 4 W, free standing NEMA 3R	EA	1	39
039	SPEC 26 2413	Distribution panel "AMDP"	EA	1	39
040	SPEC 26 2413	Distribution panel "BMDP"	EA	1	39
041	SPEC 26 2413	Generator switchboard GDP	EA	1	39
042		Reinforced concrete generator pad	CY	50	40
043		Reinforced concrete switchgear pad	CY	6	40
044		Reinforced concrete transformer pad	CY	4	40
045	SPEC 26 3213	Remote wireless generator monitor	EA	1	41
046	SPEC 26 3213	Remote emergency stops @ generator	EA	3	39
047	SPEC 26 2416	Electrical panelboard L1C, installed	EA	1	42
048	SPEC 26 2416	Electrical Panelboard LS, installed	EA	1	42
049	SPEC 26 2200	Dry type 112.5kva transformer installed	EA	1	43
050	SPEC 26 4313	Surge Protective Device LS3 series and associated wiring.	EA	2	44
051	SPEC 26 4313	Surge Protective Device TG series and associated wiring.	EA	3	44
052	SPEC 26 0519, 26 0533, 26 0526	Feeder & termination for pad mounted 1000kva PSO furnished transformer to MSB, 1600A-4	LF	30	45
053	SPEC 26 0519, 26 0533, 26 0526	Feeder & termination for HVAC package unit RTU-1, 80A-3+G	LF	50	45
054	SPEC 26 0519, 26 0533, 26 0526	Feeder & Termination for HVAC package unit RTU-1.1, 80A-3+G	LF	80	45
055	SPEC 26 0519, 26 0533, 26 0526	Feeder & termination for HVAC package unit RTU-2, 80A-3+G	LF	160	45
056	SPEC 26 0519, 26 0533, 26 0526	Feeder & termination for HVAC package unit RTU-2.1, 80A-3+G	LF	120	45
057	SPEC 26 0519, 26 0533, 26 0526	Feeder & termination for HVAC package unit RTU-3, 110A-3+G	LF	80	45
058	SPEC 26 0519, 26 0533, 26 0526	Feeder & termination for HVAC package unit RTU-4, 100A-3+G	LF	100	45
059	SPEC 26 0519, 26 0533, 26 0526	Feeder & termination for HVAC package unit RTU-5, 110A-3+G	LF	250	45
060	SPEC 26 0519, 26 0533, 26 0526	Feeder & termination for HVAC package unit RTU-5.1, 110A-3+G	LF	200	45
061	SPEC 26 0519, 26 0533, 26 0526	Feeder & termination for HVAC package unit RTU-6, 70A-3+G	LF	150	45
062	SPEC 26 0519, 26 0533, 26 0526	Feeder & termination for HVAC package unit RTU-7, 30A-3+G	LF	225	45
063	SPEC 26 0533	3/4" PVC schedule 40 underground control conduit to RTU-1, RTU-1.1, RTU-2, RTU-2.1, RTU-3, RTU-4, RTU-5, RTU-5.1, RTU-6 and RTU-7.	LF	1500	41
064	SPEC 26 0519, 26 0533, 26 0526	Feeder from BMDP to Anteater building 200-4+G	LF	180	41
065	SPEC 26 0519, 26 0533, 26 0526	Feeder from ATS3 to panel LS 100-4+G	LF	40	45
066	SPEC 26 0519, 26 0533, 26 0526	Feeder from BMDP to 112.5 kva transformer 175A-3+G	LF	200	45
067	SPEC 26 0519, 26 0533, 26 0526	Feeder from 112.5KVA transformer to panel L1C 400A-4+G	LF	200	45
068	SPEC 26 0519, 26 0533, 26 0526	Feeder from BMDP to H1A 200A-4+G	LF	40	45
069	SPEC 26 0519, 26 0533, 26 0526	Feeder from BMDP to H1B 200A-4+G	LF	40	45
070	SPEC 26 0519, 26 0533, 26 0526	Feeder from BMDP to ATS1, 800A-4+G	LF	20	45
071	SPEC 26 0519, 26 0533, 26 0526	Feeder from AMDP to ATS2, 800A-4+G	LF	20	45
072	SPEC 26 0519, 26 0533, 26 0526	Feeder from GDP to ATS1, 800A-4+G	LF	20	45
073	SPEC 26 0519, 26 0533, 26 0526	Feeder from GDP to ATS2, 800A-4+G	LF	30	45
074	SPEC 26 0519, 26 0533, 26 0526	Feeder from GDP to ATS3, 100A-4+G	LF	40	45
075	SPEC 26 0519, 26 0533, 26 0526	Feeder from MSB to ATS1, 800A-4+G	LF	15	45
076	SPEC 26 0519, 26 0533, 26 0526	Feeder from MSB to ATS2, 800A-4+G	LF	25	45
077	SPEC 26 0519, 26 0533, 26 0526	Feeder from MSB to ATS3, 100A-4+G	LF	25	45
078	SPEC 26 0519, 26 0533, 26 0526	Feeder from ATS1 to BMDP, 800A-4+G	LF	200	45
079	SPEC 26 0519, 26 0533, 26 0526	Feeder from ATS2 to AMDP, 800A-4+G	LF	50	45
080	SPEC 26 0519, 26 0533, 26 0526	Feeder from ATS3 to Panel LS, 100A-4+G	LF	80	45
081	SPEC 26 0519, 26 0533, 26 0526	Feeder from Generator 1 to GDP, 800A-4+G	LF	60	45
082	SPEC 26 0519, 26 0533, 26 0526	Feeder from Generator 2 to GDP, 800A-4+G	LF	50	45
083	SPEC 26 0519, 26 0533, 26 0526	Feeder from Generator 3 to GDP, 800A-4+G	LF	40	45
084		EIFS Repair as needed	SF	10	20
085		Exterior KALWALL penetration and repair	SF	8	20
086	SPEC 26 0526	Electrical grounding system	LOT	1	5
087		3500 PSI concrete mix to close off existing supply and return openings to the underground HVAC tunnel	CY	10	20

PAY ITEM ABBREVIATIONS LEGEND

ALLOW - ALLOWANCE
CY - CUBIC YARD
EA - EACH
LB - POUND
LF - LINEAR FEET
LOT - SET OF ARTICLES
SF - SQUARE FEET

3

7/18/2025 11:22:37 AM

RYAN N. GROGG 23690 LICENSED PROFESSIONAL ENGINEER OKLAHOMA
7-18-25

EDA+FKI ENGINEERS

EDA + FKI Engineers PC
Oklahoma C.A. 50
10810 E. 45th Street - Suite 201
Tulsa, OK 74146
p: 918.258.6690 | f: 918.515.4338

TULSA ZOO - RAINFOREST HVAC / ELECTRICAL UPGRADES
6421 E 36TH ST. NORTH, TULSA, OK 74115

PROJECT NO. CP 24-20

CITY OF TULSA
PARKS, CULTURE & RECREATION
CABS (City Architectural Building Services)

DRAWN			PROJ. MGR.		
DESIGNED			LEAD MGR.		
SURVEY			FIELD MGR.		

ISSUE BLOCK	BY	DATE
ADDENDUM 3		07-18-2025

Sheet Name: Pay Items

SHEET 7 OF 31

SHEET NO. G001

PAY ITEM NOTES

1. THE CONTRACTOR SHALL CONSTRUCT A FULLY COMPLETE AND OPERATIONAL SYSTEM IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS. ALL NECESSARY TOOLS, HARDWARE, EQUIPMENT, AND LABOR REQUIRED TO COMPLETE THIS PORTION OF THE PROJECT SHALL BE INCORPORATED INTO THE APPROPRIATE PAY ITEM.
2. THE CONTRACTOR SHALL BE PAID ACCORDING TO UNIT PRICING LISTED ON PAY ITEM.
3. NOT USED.
4. THE PAY ITEM SHALL INCLUDE THE COMPLETE CONCRETE PAD COST AS INDICATED ON PLANS AND DETAILS.
5. THIS PAY ITEM SHALL INCLUDE ALL LABOR AND MATERIALS NECESSARY FOR THE GROUND ELECTRODE SYSTEM, INCLUDING THE GROUND ROD, GROUND ELECTRODE WIRE, AND BONDING JUMPER.
6. THIS PAY ITEM SHALL INCLUDE THE COST OF GENERATOR COMMISSIONING AND START-UP PROCEDURE IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS.
7. AN ALLOWANCE HAS BEEN PROVIDED IN THE CONTRACT FOR UNFORESEEN CONDITIONS. THE ALLOWANCE SHALL BE USED FOR COST OF MATERIALS, LABOR INSTALLATION, OVERHEAD, AND PROFIT FOR ADDITIONAL WORK THAT IS NOT IDENTIFIED IN THE CONSTRUCTION DOCUMENTS, AND NOT INCLUDED IN THE BASE BID AND ADD ALTERNATES. ALLOWANCE USAGE SHALL BE GOVERNED BY THE SPECIAL SPECIFICATIONS SECTION 012100.
8. MOBILIZATION INCLUDES BUT IS NOT LIMITED TO DUMPSTERS AND PORTABLE TOILET FACILITIES, SITE MANAGEMENT, PROJECT MANAGEMENT, TEMPORARY SITE FACILITIES, WASTE CONTROL, SAFETY COMPLIANCE, PERMITS, SECURITY, FENCING, BOND, AND INSURANCE.
9. CONTRACTOR TO REPLACE ALL SOD REMOVED OR DAMAGED DURING CONSTRUCTION. THE CONTRACTOR SHALL DETERMINE THE TYPE OF EXISTING SOD AND REPLACE WITH THE SAME TYPE.
10. REFER TO PLANS FOR ALL PAD DETAILS AND REQUIREMENTS.
11. THE PAY ITEM SHALL INCLUDE THE DISCONNECTION OF EXISTING DUCTWORK, CONDENSATE, VENT PIPING, GAS PIPING, HYDRONIC PIPING AND ELECTRICAL SUPPLY. ALL EXISTING DUCTWORK AND GAS PIPING CONNECTIONS TO BE CAPPED OFF DURING DEMOLITION OF EXISTING.
12. THE CONTRACTOR SHALL CONSTRUCT A FULLY COMPLETE AND OPERATIONAL SYSTEM IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS. ALL NECESSARY TOOLS, HARDWARE, EQUIPMENT, AND LABOR REQUIRED SHALL BE INCORPORATED INTO THE APPROPRIATE PAY ITEM. THIS PAY ITEM SHALL INCLUDE ALL HVAC EQUIPMENT APPURTENANCES THAT ARE NOT IDENTIFIED BY INDIVIDUAL PAY ITEM.
13. REFER TO PLANS M101 FOR REQUIREMENTS.
14. THE CONTRACTOR SHALL CONSTRUCT A FULLY COMPLETE AND OPERATIONAL SYSTEM IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS. ALL NECESSARY TOOLS, HARDWARE, EQUIPMENT, AND LABOR REQUIRED TO COMPLETE THIS PORTION OF THE PROJECT SHALL BE INCORPORATED INTO THE APPROPRIATE PAY ITEM. THIS PAY ITEM SHALL INCLUDE ANY HVAC DUCTWORK SUPPORTS THAT ARE NOT IDENTIFIED BY INDIVIDUAL PAY ITEM.
15. THE CONTRACTOR SHALL CONSTRUCT A FULLY COMPLETE AND OPERATIONAL SYSTEM IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS. ALL NECESSARY TOOLS, HARDWARE, EQUIPMENT, AND LABOR REQUIRED TO COMPLETE THIS PORTION OF THE PROJECT SHALL BE INCORPORATED INTO THE APPROPRIATE PAY ITEM. THIS PAY ITEM SHALL INCLUDE PIPING SUPPORTS, CATCH BASINS, DRY WELLS THAT ARE NOT IDENTIFIED BY INDIVIDUAL PAY ITEM.
16. THE CONTRACTOR SHALL CONSTRUCT A FULLY COMPLETE AND OPERATIONAL SYSTEM IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS. ALL NECESSARY TOOLS, HARDWARE, EQUIPMENT, AND LABOR REQUIRED TO COMPLETE THIS PORTION OF THE PROJECT SHALL BE INCORPORATED INTO THE APPROPRIATE PAY ITEM. THIS PAY ITEM SHALL INCLUDE HYDRONIC PIPING SUPPORTS THAT ARE NOT IDENTIFIED BY INDIVIDUAL PAY ITEM.
17. REFER TO MEPS101 FOR FURTHER DIRECTION.
18. REFER TO MD101 FOR FURTHER DIRECTION.
19. REFER TO MP101 AND MEPS101 FOR FURTHER DIRECTION.
20. REFER TO M101 FOR FURTHER DIRECTION.
21. REFER TO M502 FOR FURTHER DIRECTION.
22. REFER TO M601 FOR FURTHER DIRECTION.
23. REFER TO MPD101, MPD401 & MPD501 FOR FURTHER DIRECTION.
24. REFER TO MP501 FOR FURTHER DIRECTION.
25. REFER TO MP401 & MP501 FOR FURTHER DIRECTION.
26. REFER TO MPD401, MP601, MP501 FOR FURTHER DIRECTION.
27. REFER TO MP401, MP501 MP502 FOR FURTHER DIRECTION.
28. REFER TO MPD401 FOR FURTHER DIRECTION.
29. REFER TO SHEET ED101 FOR REQUIRED SCOPE.
30. REFERENCE EP101 AND E501 FOR REQUIRED SCOPE.
31. PROVIDE REQUIRED RACEWAYS, WIRING, AND CONNECTIONS FROM EACH GENERATOR AUTOMATIC TRANSFER SWITCH TO RAINFOREST BUILDING FOR MONITORING PURPOSES. INTERFACE EQUIPMENT WITH EXISTING "NIAGRA" BAS SYSTEM. INCLUDE WIRING, TERMINATIONS, PROGRAMMING, CONTROL MODULES FOR COMPLETE SYSTEM OPERATION.
32. REFER TO SHEET E601 FOR PANELBOARD SCHEDULE.
33. REFER TO E501 FOR REQUIREMENTS.
34. DDC CONTROL SYSTEM SHALL BE EXTENSION OF THE EXISTING "NIAGRA" SYSTEM AND SHALL INCLUDE ALL WIRING AND ALL REQUIRED HARDWARE AND PROGRAMMING.

PAY ITEM NOTES

35. REFER TO ELECTRICAL PLANS E401.
36. REFER TO ELECTRICAL PLANS SHEET E501, DETAIL 2 FOR REFERENCE.
37. REFERENCE SHEET MPD401.
38. SITE LIGHTING SHALL INCLUDE CONCRETE POLE BASE, LIGHT POLE, LIGHT FIXTURE, AND ASSOCIATED WIRING AND CONTROLS.
39. REFER TO MEPS101, EP101, AND E501 FOR CONNECTION REQUIREMENT.
40. REFER TO E502 FOR EQUIPMENT PAD REQUIREMENTS. ALL CONCRETE SHALL BE 3500 PSI. ALL REINFORCING REBAR SHALL BE #5, EPOXY COATED.
41. REFER TO EP101 FOR CONNECTION REQUIREMENT.
42. REFER TO E601 FOR SCHEDULE.
43. REFER TO E501 AND E502 SHEETS.
44. REFER TO E501 SHEET.
45. REFER TO EP101 AND E501.
46. REFER TO ED102 SHEET.
47. REFER TO ED102, KEYNOTE 1.

CITY SURPLUS

1. THE CONTRACTOR IS RESPONSIBLE TO TRANSPORT EXISTING GENERATOR TO THE CITY SURPLUS. CONTRACTOR IS RESPONSIBLE TO COORDINATE WITH THE CITY CONCERNING REQUIRED PAPERWORK, FORMS, AND PROCEDURES. FORKLIFT IS AVAILABLE FOR OFFLOADING.

TULSA SURPLUS
1790 NEWBLOCK PARK DR.

ADD ALTERNATE #1 - Electrical Primary Metering

BID ITEM	SPEC NO.	DESCRIPTION	UNIT	QTY	PAY ITEM NOTES
088	SPEC 26 1329	15kv pad mounted primary switch installed as per plans	EA	1	36
089	SPEC 26 1213	1000kva pad mounted oil filled transformer installed per plans and specifications	EA	1	36
090		Pad mounted primary metering cabinet per PSO specifications	EA	1	4
091		MV cabling from metering cab. to primary switch & primary switch to transformer, 3-#1 25kv, #2G AL, 4"C	LF	15	36
092		MV cable terminations	EA	6	36
093		Reinforced concrete pad for Primary switch	CY	4	4
094		Reinforced concrete pad for Primary metering cabinet	CY	4	4
095	SPEC 26 0533	6" PVC schedule 40, long radius elbow.	EA	4	
096	SPEC 26 0533	6" under ground PVC schedule 40, 52" below grade from metering cabinet to PSO dip pole	LF	200	
097	SPEC 26 0533	6" RGS long radius elbow	EA	2	

ADD ALTERNATE #2 - Rainforest Contractor Furnished Package Units

BID ITEM	SPEC NO.	DESCRIPTION	UNIT	QTY	PAY ITEM NOTES
098	SPEC 23 7413	RTU- 1.1 (equipment cost only), 25 TON	EA	1	20
099	SPEC 23 7413	RTU- 2.1 (equipment cost only), 25 TON	EA	1	20
100	SPEC 23 7413	RTU-5.1 (Equipment cost only), 40 TON	EA	1	20
101	SPEC 23 7413	RTU-6 (Equipment cost only), 16 TON	EA	1	20
102	SPEC 23 7413	RTU-7 (Equipment cost only), 11 TON	EA	1	20

ADD ALTERNATE #3 - Veterinary Clinic MEP upgrade

BID ITEM	SPEC NO.	DESCRIPTION	UNIT	QTY	PAY ITEM NOTES
103	SPEC 23 7413, 23 3113, 23 0593, 23 0713, 23 3713.13	Temporary heating/cooling allowance.	LOT	1	12,14,23
104	SPEC 02 4119	Demolition of existing cooling tower, cooling tower pumps, associated above-grade piping; remove all internal piping from existing condenser water pit and seal all existing openings.	LOT	1	8,23
105	SPEC 02 4119	Demolition of existing boiler, boiler circulation pump, and associated piping; demolition of existing supply fan and existing combustion air ductwork.	LOT	1	8,23
106	SPEC 02 4119	Demolition of existing heat pump loop pumps, hydronic specialties, heat exchanger, and associated piping; coordinate with water treatment service provider regarding removal of existing water treatment equipment.	LOT	1	8,24
107	SPEC 02 4119	Demo existing pad, fill existing condenser water pit using native soil/wet sand and prepare for new pad.	LOT	1	25
108		Install new reinforced concrete equipment pads, exterior and interior, and anchorage.	LOT	1	25
109	SPEC 23 2113, 23 2116, 23 2123, 23 5216, 23 0923.11, 23 0719, 23 0553	Installation of heat pump loop duplex packaged pumping system, associated piping and insulation, hydronic specialties, air and dirt separator, expansion tank; provide packaged pumping system's remote control panel to site for electrical contractor to install	LOT	1	25
110	SPEC 23 6514.16, 23 2113, 23 2116, 23 2123, 23 5216, 23 0923.11, 23 0719, 23 0553	Installation of closed-circuit fluid cooler, steelwork, associated piping including makeup water and drain piping, heat trace, and insulation with jacketing; provide fluid cooler control panel to site for electrical contractor to install	LOT	1	25
111	SPEC 23 5216, 23 2123, 23 2116, 23 2113, 23 0719, 23 0716, 23 0593, 23 0553, 23 0529	Installation of condensing boiler, associated circulation pump, hydronic piping and insulation, gas-piping connection, and separated combustion roof vent and air intake	LOT	1	16,26
112		Replace existing backflow preventers and PRV stations in existing mechanical room	LOT	1	27
113		Building automation system controls installation and integration allowance	LOT	1	25
114	SPEC 23 0593	Water treatment testing and equipment	LOT	1	24
115	SPEC 23 0593	Perform startup; test, adjust, and balance installed equipment	LOT	1	
116	SPEC 26 0519, 26 0573, 26 2726	Wiring HPLP-1 pumps, 30A-3+G	LF	80	35
117	SPEC 26 0519, 26 0573, 26 2726	Wiring CCFCN-1 , 80A-3+G	LF	20	35
118	SPEC 26 0519, 26 0573, 26 2726	Wiring HWP-2, 20-2+G	LF	30	35
119	SPEC 26 2816	30A, 3P, NF, 3R, Installed @ Fluid cooler	EA	2	35
120	SPEC 26 0519, 26 0573, 26 2726	Wiring CCFCN-1 to basin heater 30A-3+G	LF	30	35
121	SPEC 26 0519, 26 0573, 26 2726	Wiring CCFCN-1 to spray fan, 20A-3+G	LF	40	35
122	SPEC 26 0519, 26 0573, 26 2726	Wiring CCFCN-1 to tower fan, 50A-3+G	LF	50	35
123	SPEC 26 0519, 26 0573, 26 2726	Install and wire new receptacle inside equipment room	EA	4	35
124	SPEC 26 2816	60A, 3P, NF, 3R Installed @ fluid cooler	EA	1	35
125	SPEC 26 2416	New circuit breakers added to existing panel	EA	10	35
126	SPEC 26 4313	Surge Protective Device LS3 series and associated wiring.	EA	1	
127	SPEC 26 4313	Surge Protective Device TG series and associated wiring.	EA	1	
128	SPEC 26 0519, 26 0533, 26 0526	Wiring to generator panel 60A-3+G	LF	300	36
129	SPEC 26 0519, 26 0533, 26 0526	Wiring to boiler	EA	1	35
130		150KW natural gas generator and associated connections	EA	1	47

PAY ITEM ABBREVIATIONS LEGEND

ALLOW - ALLOWANCE
CY - CUBIC YARD
EA - EACH
LB - POUND
LF - LINEAR FEET
LOT - SET OF ARTICLES
SF - SQUARE FEET

RYAN N. GROGG 23690 LICENSED PROFESSIONAL ENGINEER OKLAHOMA
7-18-25

EDA+FKI ENGINEERS
EDA + FKI Engineers PC
Oklahoma C.A. 50
10810 E. 45th Street - Suite 201
Tulsa, OK 74146
p: 918.258.6800 | f: 918.515.4338

TULSA ZOO - RAINFOREST
HVAC / ELECTRICAL
UPGRADES
6421 E 36TH ST. NORTH, TULSA, OK 74115

PROJECT NO. CP 24-20

CITY OF TULSA
PARKS, CULTURE & RECREATION
CABS (City Architectural Building Services)

DRAWN			PROJ. MGR.		07/07/25
DESIGNED			LEAD MGR.		
SURVEY			FIELD MGR.		

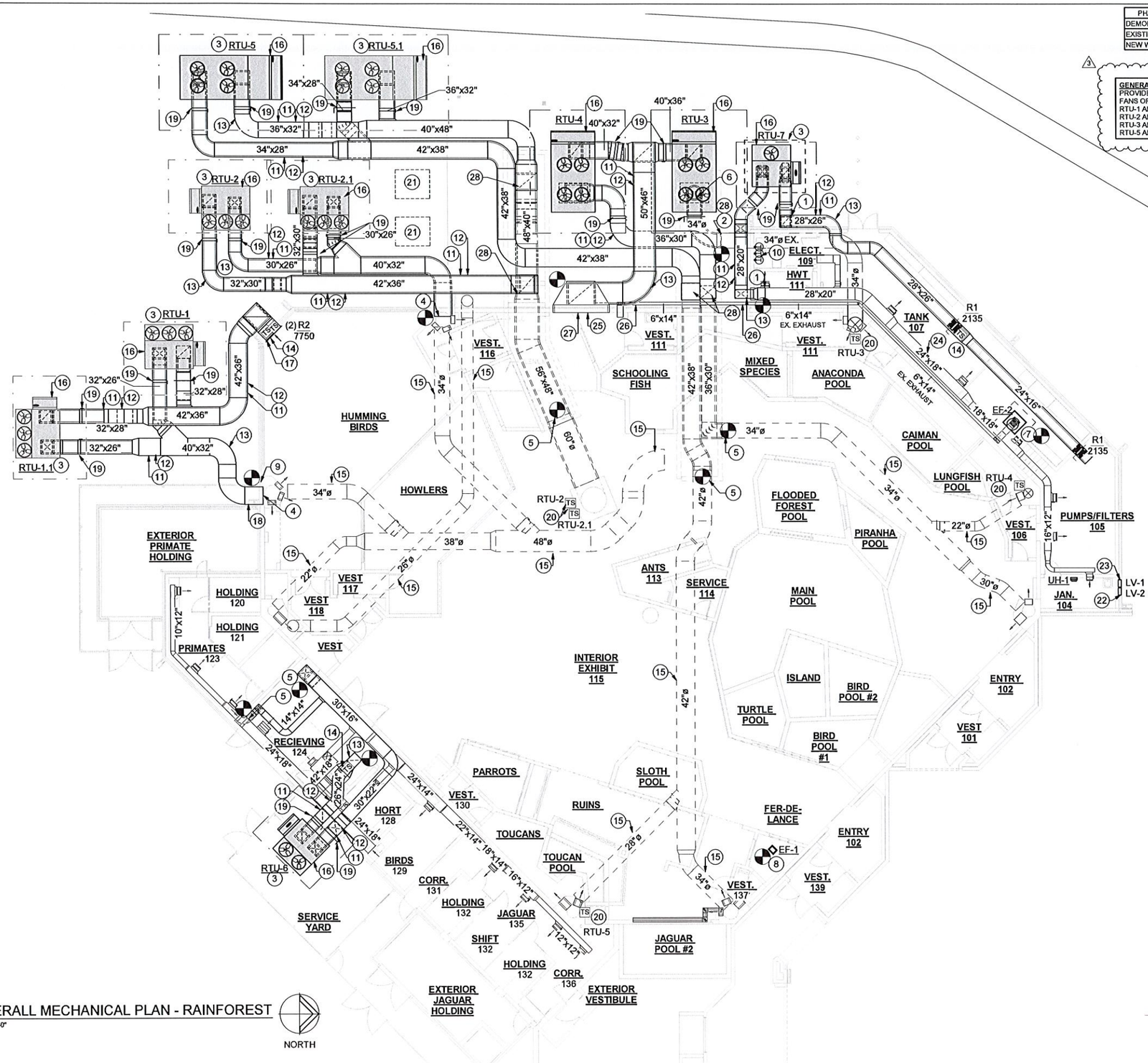
ISSUE BLOCK	BY	DATE
ADDENDUM 2		07-18-2025
ADDENDUM 3		07-18-2025

Sheet Name: Pay Items

SHEET 6 OF 31

SHEET NO. G002

7/18/2025 11:22:39 AM



1 OVERALL MECHANICAL PLAN - RAINFOREST
1" = 10'-0"

PHASING LEGEND	
DEMOLITION ABOVE GROUND	
EXISTING UNDERGROUND	
NEW WORK	

GENERAL NOTE:
PROVIDE CONTROLS TO TWIN THE SUPPLY FANS OF THE FOLLOWING UNITS:
RTU-1 AND RTU-1.1
RTU-2 AND RTU-2.1
RTU-3 AND RTU-4.
RTU-5 AND RTU-5.1.

KEYNOTES	
1	ROUTE SUPPLY DUCT UP TO 8' 0" AFF. PROVIDE OFFSETS AS NEEDED AND CONNECT INTO EXISTING SUPPLY DUCTWORK AT APPROXIMATELY 8' 0" AFF. PROVIDE R8 INTERIOR DUCT LINER ON ALL EXTERIOR DUCTWORK AND APPROVED WEATHERPROOF BARRIER.
2	ROUTE SUPPLY DUCT DOWN INTO UNDERGROUND DUCTWORK TUNNEL AND CONNECT INTO EXISTING 34" SUPPLY MAIN IN THIS LOCATION.
3	PROVIDE NEW STRUCTURALLY REINFORCED CONCRETE PAD FOR NEW RTU LOCATION.
4	ROUTE SUPPLY DUCTWORK THROUGH EXTERIOR EIFS WALL AND CONNECT INTO EXISTING DUCTWORK. PROVIDE CAP FOR EXISTING INTERIOR DUCTWORK TO ENSURE AIR FLOWS INTO INTERIOR SPACE AND NOT BACK INTO UNDERGROUND DUCTWORK SYSTEM. ENSURE A WATERTIGHT SEAL AROUND OPENING.
5	CONNECT INTO EXISTING SUPPLY DUCTWORK IN THIS LOCATION.
6	ROUTE RTU-3 34" SUPPLY DUCT DOWN THROUGH CURB INTO BELOW GRADE DUCT TUNNEL. MODIFY CURB TO ALLOW FOR DUCT PENETRATION AND PROVIDE AN AIR TIGHT SEAL AROUND THE PENETRATION.
7	INSTALL NEW EXHAUST FAN ON LOW ROOF AND CONNECT INTO EXISTING INTERIOR EXHAUST DUCTWORK.
8	PROVIDE NEW INLINE EXHAUST FAN (EF-1), SUSPEND FROM STRUCTURE WITH ALL THREAD ROD AND SPRING VIBRATION ISOLATORS. CONNECT INTO EXISTING EXHAUST DUCTWORK IN THIS LOCATION.
9	CONTRACTOR TO ROUTE DUCTWORK UP AND OVER EXISTING WOODEN FENCING. DUCTWORK ROUTING TO BE COORDINATED WITH ZOO FACILITIES STAFF PRIOR TO FINAL CONNECTION AT EXTERIOR WALL.
10	CONTRACTOR TO MOUNT AND STACK ALL RTU THERMOSTATS IN ELECTRICAL 109 ROOM. PROVIDE TEMPERATURE SENSORS AND ENSURE COMMUNICATION BETWEEN THE TWO DEVICES. CONTROLS CONDUIT TO BE INSTALLED INTO ELECTRICAL ROOM, REFER TO ELECTRICAL PLANS.
11	PROVIDE 3" ARMAFLEX INSULATION AND TWO PIECE WEATHPROOF JACKETING ON ALL EXTERIOR DUCTWORK. REFER TO DETAIL 2/M502.
12	PROVIDE RECTANGULAR DUCT SUPPORTS ON ALL EXTERIOR DUCTWORK. REFER TO DETAIL 4/M502.
13	PROVIDE LONG RECTANGULAR RADIUS ELBOWS ON ALL 45° AND 90° CHANGES IN DUCTRUNS. PROVIDE MITERED ELBOWS WITH TURNING VANES WHERE SPACE REQUIREMENTS ABSOLUTELY NECESSITATE. CONTRACTOR MUST DESIGN THE DUCTRUNS TO BE AT OR BELOW SCHEDULED TOTAL STATIC PRESSURE OF EACH UNIT. REFER TO GROUND MOUNTED GAS-FIRED PACKAGE UNIT SCHEDULE ON M501.
14	CONTRACTOR TO MOUNT TEMPERATURE SENSORS INSIDE RETURN DUCTWORK. REFER TO PLANS FOR PLACEMENT.
15	EXISTING ABANDONED UNDERGROUND DUCTWORK TO REMAIN IN PLACE.
16	ALL RTU'S SHALL BE PROVIDED WITH BACNET CARD AND INTERLOCKED WITH EXISTING NIAGARA BUILDING MANAGEMENT CONTROL SYSTEM.
17	ENSURE (R2) RETURN GRILLE IS MOUNTED FLUSH AGAINST WALL TO AVOID BIRDS RESTING ON DUCTWORK. PROVIDE INSECT SCREENING OVER (R2) FREE AREA.
18	PROVIDE PROTECTIVE SHIELD TO PREVENT PRIMATES FROM REACHING THROUGH CAGE AND DAMAGING DUCTWORK AND THEMSELVES.
19	PROVIDE 24V MODULATING, MOTORIZED DAMPER ON ALL SUPPLY AND RETURN MAIN DUCTS. WIRE BACK INTO BUILDING CONTROL SYSTEM. PROVIDE HORIZONTAL GRAVITY BACKDRAFT DAMPER EQUAL TO GREENHECK ALUMINUM EM-30 SERIES IN ALL SUPPLY AND RETURN MAIN DUCTS. PROVIDE ACCESS PANEL IN DUCTWORK TO ALLOW FIELD ADJUSTMENT OF GRAVITY DAMPER COUNTERWEIGHTS AS REQUIRED.
20	INSTALL TEMPERATURE SENSOR WITH PROTECTIVE COVER ON MIDDLE PORTION OF DUCTWORK STRUCTURE. CONTROL WIRING TO BE INSTALLED ON THE INTERIOR OF THE DUCTWORK STRUCTURE. FIELD VERIFY CONTROLS LOCATION PRIOR TO INSTALLATION.
21	EXISTING COOLING TOWER TO REMAIN UNTIL GOVERNAIRE UNIT IS REMOVED. REFER TO MECHANICAL EQUIPMENT SEQUENCE OF OPERATIONS.
22	PROVIDE NEW EXTERIOR MOUNTED INTAKE LOUVER AND MOTORIZED DAMPER ACTUATOR FOR EXISTING BOILER. CONTRACTOR TO MOUNT LOUVER ABOVE MOP SINK WALL GUARDS BELOW LV-1. REFER TO AIR TERMINAL SCHEDULE ON M602 FOR FURTHER DIRECTION.
23	PROVIDE NEW EXTERIOR MOUNTED INTAKE LOUVER AND MOTORIZED DAMPER ACTUATOR FOR EXISTING BOILER AND MOUNT IN PLACE OF EXISTING INLINE EXHAUST FAN WALL PENETRATION. CONTRACTOR TO REMOVE EXTERIOR WALL CINDER BLOCKS AROUND EXISTING WALL PENETRATION TO PROVIDE REQUIRED OPENING FOR NEW LOUVER. REFER TO AIR TERMINAL SCHEDULE ON M602 FOR FURTHER DIRECTION.
24	EXHAUST DUCTWORK TO REMAIN.
25	CONNECT NEW 50"X46" RETURN AIR DUCTWORK INTO EXISTING RETURN AIR GRILLE PLENUM. FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO BID.
26	PROVIDE EXTERIOR DUCTWORK INSULATION ON EXISTING EXHAUST DUCTWORK. REFER TO DETAIL 2/M502 FOR FURTHER DIRECTION.
27	PROVIDE EXTERIOR DUCTWORK INSULATION ON EXISTING RETURN DUCTWORK. REFER TO DETAIL 2/M502 FOR FURTHER DIRECTION.
28	PROVIDE 3500 PSI CONCRETE MIX AROUND BELOW GRADE DUCTWORK PENETRATION TO PROVIDE A WATERTIGHT SEAL AND ALSO PEST PREVENTION.

TULSA ZOO - RAINFOREST
HVAC / ELECTRICAL
UPGRADES
6421 E 36TH ST. NORTH, TULSA, OK 74115

PROJECT NO. CP 24-20

CITY OF TULSA
PARKS, CULTURE & RECREATION
CABS (City Architectural Building Services)

DRAWN			PROJ. MGR.	BBB	07/17/25
DESIGNED			LEAD MGR.		
SURVEY			FIELD MGR.		

ISSUE BLOCK	BY	DATE
ADDENDUM 3		07-18-2025

Sheet Name: Mechanical Plan - Rainforest

SHEET 10 OF 31

SHEET NO. M101

REGISTERED PROFESSIONAL ENGINEER
JUSTIN F. ROUSH
21528
OKLAHOMA
7-18-2025

EDA+FKI ENGINEERS
EDA + FKI Engineers PC
Oklahoma C.A. 50
10810 E. 45th Street - Suite 201
Tulsa, OK 74146
p: 918.258.6890 | f: 918.515.4338

7/18/2025 11:22:45 AM

GROUND MOUNTED GAS-FIRED PACKAGE UNIT SCHEDULE

MARK	MANUFACTURER	MODEL	NOMINAL TONS	CFM	OUTSIDE AIR CFM	TOTAL COOLING CAPACITY (MBH)	TOTAL SENSIBLE CAPACITY (MBH)	COOLING EDBT	COOLING EWBT	COOLING OUTDOOR AIR DBT	COOLING OUTDOOR AIR WBT	HEATING INPUT (MBH)	HEATING OUTPUT (MBH)	HEATING OUTDOOR AIR TEMP	ENTERING HEATING TEMP.	LEAVING HEATING TEMP	WEIGHT (LBS)	FAN QUANTITY	FAN RATED HP (EACH)	FAN BHP (EACH)	ESP(in W.C.)	MCA	MOCP	VOLTAGE	PHASE	NOTES
RTU-1	AAON.	RNA-025-C-A-3-GAA0B-CB1B0	25	6790	1220 CFM	282.7	174	82.1 °F	69.6 °F	101 °F	80 °F	270	218.7	0 °F	61.5 °F	91.6	2960	1	7.5	3.78	2.1	67 A	80 A	460	3	1,2,3,4,5,6,7,8,9,10,11,12,14,16,17,18,19,20,23,24,25
RTU-1.1	AAON.	RNA-025-C-A-3-GAA0B-CB1B0	25	6790	1220 CFM	282.7	174	82.1 °F	69.6 °F	101 °F	80 °F	270	218.7	0 °F	61.5 °F	91.6	2960	1	7.5	3.78	2.1	67 A	80 A	460	3	1,2,3,4,5,6,7,8,9,10,11,12,14,16,17,18,19,20,23,24,26
RTU-2	AAON.	RNA-025-C-A-3-GAA0B-CB1B0	25	7015	1265 CFM	284	176.2	82.1 °F	69.6 °F	101 °F	80 °F	270	218.7	0 °F	61.5 °F	90.6	2960	1	7.5	4.02	2.2	67 A	80 A	460	3	1,2,3,4,5,6,7,8,9,10,11,12,14,16,17,18,19,20,23,24,25
RTU-2.1	AAON.	RNA-025-C-A-3-GAA0B-CB1B0	25	7015	1265 CFM	284	176.2	82.1 °F	69.6 °F	101 °F	80 °F	270	218.7	0 °F	61.5 °F	90.6	2960	1	7.5	4.02	2.15	67 A	80 A	460	3	1,2,3,4,5,6,7,8,9,10,11,12,14,16,17,18,19,20,23,24,26
RTU-3	AAON.	RNA-040-D-A-3-GAB0B-CB2K0	40	11870	2135 CFM	509	324.3	83.7 °F	70.2 °F	101 °F	80 °F	600	480	0 °F	61.4 °F	99.2	5880	2	5	2.78	1.78	97 A	110 A	460	3	1,2,3,4,5,6,7,8,9,10,11,12,13,16,17,18,19,20,22,23,25
RTU-4	AAON.	RNA-040-D-A-3-GAB0A-CB2K0	40	10705	1930 CFM	497.5	310	83.4 °F	69.9 °F	101 °F	80 °F	600	480	0 °F	61.1 °F	103	5855	2	3	2.29	1.63	91 A	100 A	460	3	1,2,3,4,5,6,7,8,9,10,11,12,13,16,17,18,19,20,22,23,25
RTU-5	AAON.	RNA-040-D-A-3-GAB0A-CB2K0	40	9160	1650 CFM	457.1	299.9	82.1 °F	67.3 °F	101 °F	80 °F	600	480	0 °F	64.0 °F	113	6160	2	10	2.48	1.78	110 A	125 A	460	3	1,2,3,4,5,6,7,8,9,10,11,12,13,15,16,17,18,19,20,22,23,25
RTU-5.1	AAON.	RNA-040-D-A-3-GAB0A-CB2K0	40	9160	1650 CFM	457.1	299.9	82.1 °F	67.3 °F	101 °F	80 °F	600	480	0 °F	64.0 °F	113	6160	2	10	2.48	1.78	110 A	125 A	460	3	1,2,3,4,5,6,7,8,9,10,11,12,13,15,16,17,18,19,20,22,23,26
RTU-6	AAON	RNA-016-C-A-3-GAA0B-CB1B0	16	7965	1435 CFM	166.5	166.5	82.1 °F	65.8 °F	101 °F	80 °F	270	218.7	0 °F	61.5 °F	87.2	2730	1	15	8.91	4.71	59 A	80 A	460	3	1,2,3,4,5,6,7,8,9,10,11,12,14,16,17,18,19,20,21,23,26
RTU-7	AAON	RNA-011-B-A-3-GAA0B-CB1K0	11	4175	865 CFM	116.6	103.3	82.1 °F	65.8 °F	101 °F	80 °F	195	156	0 °F	61.5 °F	96.5	1735	1	3	1.71	1.56	25 A	30 A	460	3	1,2,3,4,5,6,7,8,9,10,11,12,14,16,17,18,19,20,21,23,26

3

NOTES:
1. PROVIDE STRUCTURALLY REINFORCED CONCRETE MECHANICAL EQUIPMENT PAD, IF NOT ALREADY EXISTING.
2. PROVIDE 4' 0" TALL INSULATED CURB.
3. PROVIDE HOT GAS REHEAT.
4. PROVIDE STAINLESS STEEL HEAT EXCHANGER.
5. PROVIDE LOW LEAK ECONOMIZER.
6. PROVIDE HAIL GUARDS.
7. PROVIDE RETURN AIR SMOKE DETECTOR MOUNTED IN RETURN MAIN DUCT.
8. PROVIDE UNFUSED DISCONNECT SWITCH.
9. PROVIDE UNPOWERED CONVENIENCE OUTLET.
10. PROVIDE BACNET CARD CAPABLE OF INTEGRATING INTO EXISTING NIAGARA BUILDING OPERATION SYSTEM.
11. PROVIDE 7-DAY PROGRAMMABLE THERMOSTAT. PROVIDE TEMPERATURE/HUMIDITY SENSORS AND MOUNT INSIDE RETURN AIR DUCT. REFER TO PLANS FOR FURTHER DIRECTIONS.
12. PROVIDE NATURAL GAS CONNECTION. REFER TO DETAIL 3/M502.
13. PROVIDE TRAPPED CONDENSATE DRAIN PIPING WITH OVERFLOW SWITCH. ROUTE CONDENSATE DRAIN PIPING TO EXISTING DRY WELL.
14. PROVIDE TRAPPED CONDENSATE DRAIN PIPING WITH OVERFLOW SWITCH. ROUTE CONDENSATE DRAIN PIPING TO DRY WELL, REFER TO DETAIL 1/M502 FOR FURTHER DIRECTION.
15. UNIT TO BE PROVIDED WITH 2 COMPRESSOR, 2 SUPPLY FANS, 6 CONDENSER FANS.
16. MODULATING GAS HEAT - TEMPERATURE CONTROL.
17. PROVIDE 2" PLEATED - MERV 8 UNIT FILTERS.
18. PROVIDE DOUBLE WALL R-13 FOAM INSULATAION CABINET.
19. PREMIUM AAON GRAY PAINT EXTERIOR PAINT. FUTURE PAINTING OF THE UNITS TO BE COORDINATED WITH FACILITIES STAFF.
20. BOTTOM SUPPLY AND RETURN LOCATIONS.
21. UNIT TO BE PROVIDED WITH 2 COMPRESSORS, 1 SUPPLY FAN, 2 CONDENSER FANS.
22. UNIT TO BE PROVIDED WITH 4 COMPRESSORS, 2 SUPPLY FANS, 4 CONDENSER FANS.
23. UNIT TO BE PROVIDED WITH 454B REFRIGERANT.
24. UNIT TO BE PROVIDED WITH 2 COMPRESSORS, 1 SUPPLY FAN, 3 CONDENSER FANS.
25. UNIT IS TO BE PROVIDED BY OWNER AND INSTALLED BY CONTRACTOR.
26. UNIT IS TO BE PROVIDED BY CONTRACTOR UNDER ADD ALTERNATE #2.

7/18/2025 11:22:46 AM

REGISTERED PROFESSIONAL ENGINEER
JUSTIN F. ROUSH
21528
OKLAHOMA
7-18-2025

EDA+FKI ENGINEERS

EDA + FKI Engineers PC
Oklahoma C.A. 50
10810 E. 45th Street - Suite 201
Tulsa, OK 74146
p: 918.258.6890 | f: 918.515.4338

TULSA ZOO - RAINFOREST
HVAC / ELECTRICAL
UPGRADES
6421 E 36TH ST. NORTH, TULSA, OK 74115

PROJECT NO. CP 24-20

CITY OF TULSA
PARKS, CULTURE & RECREATION
CABS (City Architectural Building Services)

DRAWN			PROJ. MGR.	BB	07/25
DESIGNED			LEAD MGR.		
SURVEY			FIELD MGR.		

ISSUE BLOCK	BY	DATE
ADDENDUM 3		07-18-2025

Sheet Name: Mechanical Schedules

SHEET 18 OF 31

SHEET NO. M601