

NORTHSIDE AERATION JOCKEY BLOWER ADDITION

TMUA PROJECT NO. ES 2022-05

WATER AND SEWER DEPARTMENT CITY OF TULSA, OKLAHOMA

BID ADVERTISE DATE MAY 2024

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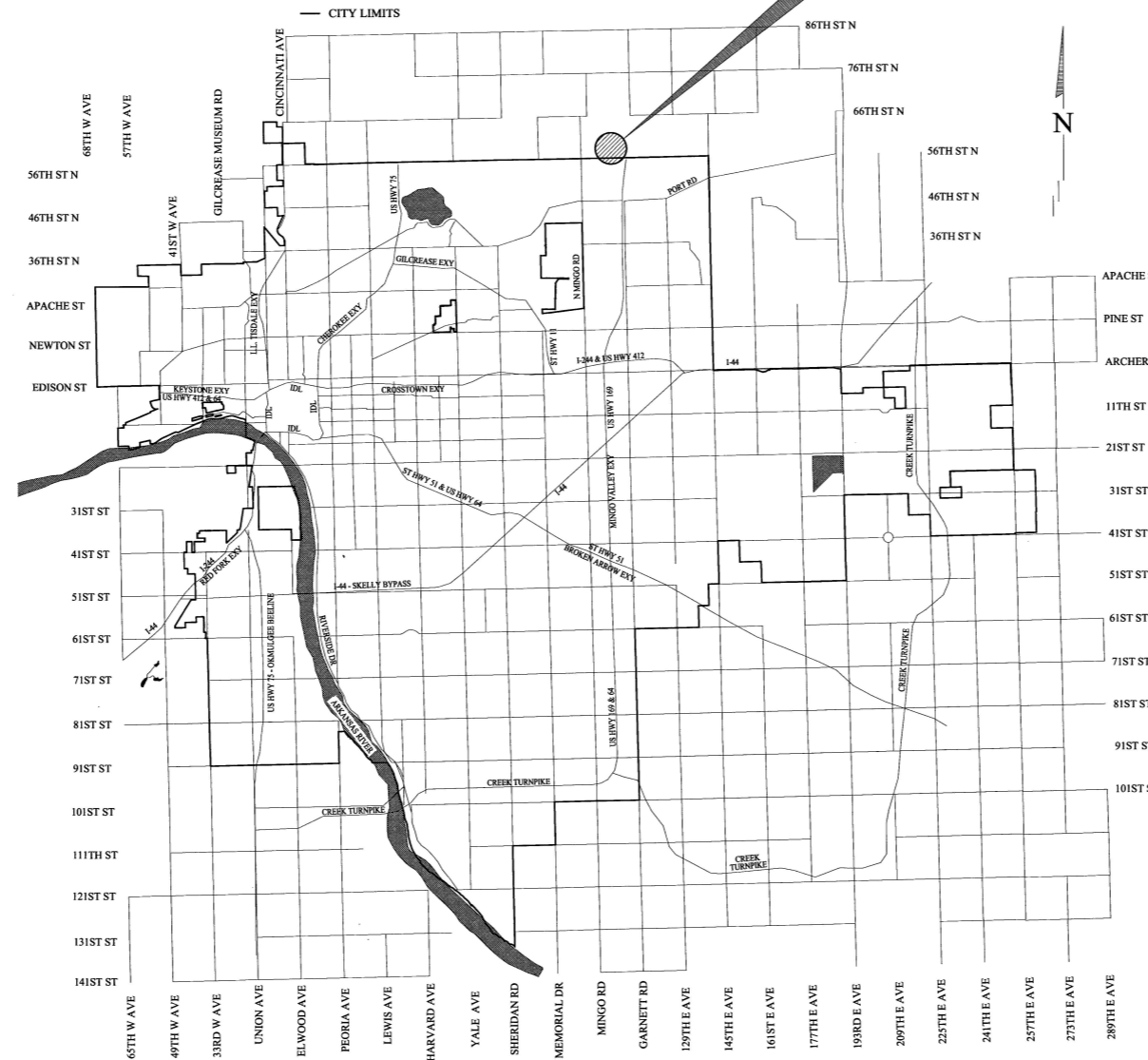
CITY OF TULSA STANDARD DETAILS

OKLAHOMA DOT STANDARD DETAILS

PLANS PREPARED BY
TETRA TECH
7645 E. 63RD STREET, SUITE 301
TULSA, OK 74133
PH (918) 249-3903
CA NO. 2388 (EXP. 6-30-2025)

PROJECT LOCATION

NORTHSIDE WWTP
5565 N. 105TH E. AVE.
TULSA, OK 74117



UTILITY COORDINATION INFORMATION	
TULSA ENGINEERING SERVICES DEPARTMENT	
WATER DESIGN	918-596-9566
WASTEWATER DESIGN	918-596-9564
TRANSPORTATION DESIGN	918-596-9636
TRAFFIC ENGINEERING DESIGN	918-596-9741
STORMWATER DESIGN	918-596-9498
COT UTILITY COORDINATION	918-596-9649
OKLAHOMA NATURAL GAS CO.	918-831-8215
COX COMMUNICATIONS	918-286-4716
AEP/PSO	918-250-6257
AT&T	918-596-4237
MTTA	918-830-0024

SURVEY DATUM:
HORIZONTAL - OKLAHOMA STATE PLANE COORDINATE (NAD 1983)
VERTICAL - (NAVD 1988)



APPROVED BY

WATER AND SEWER DIRECTOR

5.13.2024

DATE



Alexandria Belle Kindrick
ALEXIE KINDRICK, PE

5/16/2024

DATE

PROJECT MANAGER, TETRA TECH

TMUA ES 2022-05 NORTHSIDE AERATION JOCKEY BLOWER ADDITION

GENERAL NOTES

1. THE CONTRACTOR SHALL HAVE AT LEAST ONE (1) FULLY EXECUTED COPY OF THE CONTRACT DOCUMENTS AT THE JOB SITE AT ALL TIMES.
2. ALL CONSTRUCTION TO BE IN STRICT ACCORDANCE WITH THE STANDARDS OF THE CITY OF TULSA ENGINEERING DEPARTMENT.
3. CONTRACTOR SHALL SUBMIT A CONSTRUCTION SAFETY PLAN TO THE ENGINEER PRIOR TO COMMENCEMENT OF WORK. THE SAFETY PLAN SHALL ADDRESS BUT NOT BE LIMITED TO ISSUES SUCH AS TRAFFIC CONTROL, WORKSITE SAFETY, MANHOLE AND STRUCTURE VENTILATION, CONFINED SPACE ENTRY, WORKER PROTECTIVE EQUIPMENT, FIRST AID, HYGIENE, AND OTHER RELATED TOPICS. CONTRACTOR WILL BE EXPECTED TO FOLLOW THE SAFETY PLAN AND PERFORM THE WORK IN A MANNER THAT BEST PROTECTS THE SAFETY OF WORKERS, INSPECTORS, BYSTANDERS, AND OTHERS WHO MAY BE IN THE VICINITY OF THE PROJECT.
4. CONTRACTOR SHALL BE RESPONSIBLE TO DETERMINE AND DOCUMENT THE LOCATION OF ALL EXISTING UTILITY LINES, PIPING, CONDUITS AND STRUCTURES (BURIED OR EXPOSED) REGARDLESS OF WHETHER OR NOT THEY ARE SHOWN ON THE DRAWINGS. DURING CONSTRUCTION, CONTRACTOR SHALL CARRY OUT OPERATIONS IN A MANNER THAT WILL PREVENT DAMAGE TO ALL EXISTING UTILITIES OR STRUCTURES. ANY SUCH DAMAGE SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE. IF THERE IS ANY INTERFERENCE TO THE ALIGNMENT OR ELEVATION OF NEW FACILITIES, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE ENGINEER SUCH THAT THE CONFLICT CAN BE RESOLVED. A LIST OF UTILITY COMPANIES WHICH MAY HAVE FACILITIES IN THE PROJECT AREA ARE LISTED ON THE PROJECT CONTACT LIST SHOWN ON THE COVER SHEET.
5. CONTRACTOR SHALL MAINTAIN ALL PLANT FACILITIES IN SERVICE AT ALL TIMES EXCEPT WHEN TEMPORARILY REMOVED FROM SERVICE TO ALLOW CONNECTIONS OR MODIFICATIONS AS SHOWN ON THE DRAWINGS OR ADDRESSED IN THE SPECIFICATIONS. CONTRACTOR SHALL BE SUBJECT TO THE SEQUENCING REQUIREMENTS OF THESE DRAWINGS AND THE SPECIFICATIONS AND SHALL PROVIDE THE OWNER AND OPERATOR FOURTEEN (14) DAYS NOTICE BEFORE THE COMMENCEMENT OF WORK WHICH WILL REQUIRE ANY PUMPING UNIT, TREATMENT UNIT, WATER LINE, SEWER, FORCE MAIN OR OTHER FACILITY TO BE TAKEN OUT OF SERVICE. THE CONTRACTOR SHALL ALSO NOTIFY THE OPERATOR AT LEAST 24 HOURS IN ADVANCE WHEN THE OPERATION OF ANY EQUIPMENT, VALVES, PUMPS OR OTHER FACILITIES ASSOCIATED WITH THE FACILITY IS REQUIRED. ALL OPERATIONS SHALL BE PERFORMED ONLY BY THE OPERATOR'S STAFF.
6. CONTRACTOR SHALL CARRY OUT CONSTRUCTION OPERATIONS IN A MANNER THAT WILL PREVENT DAMAGE TO ALL EXISTING FACILITIES. ANY SUCH DAMAGE CAUSED BY THE CONTRACTOR SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
7. CONTRACTOR SHALL EXPOSE ALL EXISTING PIPING THAT SHALL BE MODIFIED OR CONNECTED TO NEW PIPING. CONTRACTOR SHALL CONFIRM THE TYPE OF PIPING, JOINTS IN USE, DIMENSIONS AND LOCATIONS (BOTH HORIZONTALLY AND VERTICALLY), AND GATHER ALL OTHER INFORMATION REQUIRED FOR PROPER FABRICATION AND INSTALLATION OF THE CONNECTIONS OR MODIFICATIONS. CONTRACTOR SHALL BE RESPONSIBLE TO CONFORM THE NEW PIPING TO THE CONDITIONS FOUND.
8. ALL DIMENSIONS OR ELEVATIONS WITH ± OR ATTRIBUTED TO AN EXISTING ITEM SHALL BE CONFIRMED BY THE CONTRACTOR. ADJUSTMENTS TO ACCOMMODATE DIFFERENCES IN ACTUAL ELEVATIONS OR DIMENSIONS TO THOSE SHOWN SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. ADJUSTMENTS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE THE WORK PROGRESSES.
9. CONSTRUCTION ITEMS SHOWN ON THE DRAWINGS OR OTHERWISE REQUIRED BY CODE BUT ARE NOT SPECIFICALLY INCLUDED IN THE SUMMARY OF BID ITEMS AND QUANTITIES SHALL BE CONSIDERED INCIDENTAL CONSTRUCTION ITEMS, AND THEIR COST SHALL BE INCLUDED IN THE COST OF THE BID ITEMS PROVIDED.
10. ALL SIGNAL, CONTROL AND ELECTRICAL WORK SHALL BE IN STRICT ACCORDANCE WITH ALL N.E.C. AND CITY OF TULSA CODES AND SHALL BE PERFORMED BY AN ELECTRICAL CONTRACTOR LICENSED IN THE STATE OF OKLAHOMA.
11. CONTRACTOR SHALL PROVIDE AND INSTALL PHENOLIC TAGS FOR THE NEW EQUIPMENT NUMBERS AND DESCRIPTIONS AS SHOWN ON THE EQUIPMENT TAG SCHEDULE ON THE DRAWINGS AND REQUIRED BY THE SPECIFICATIONS. OTHER ITEMS WHICH ARE NOT SPECIFICALLY SHOWN ON THE TAG SCHEDULE BUT ARE PART OF THE WORK SHALL BE TAGGED AT NO ADDITIONAL COST TO THE OWNER. ALL TAG DATA SHALL BE APPROVED BY THE ENGINEER AND OWNER BEFORE THE TAGS ARE PREPARED.
12. PRIMARY CONTACT FOR NOTIFICATION, SCHEDULING AND COORDINATION OF PLANT IS COLIN WILMERING, NSWWTP 918-591-4578 (cwilmering@cityof tulsa.org)
13. SALVAGED ITEMS SHALL BE TURNED OVER TO THE CITY OF TULSA TO BE PLACED IN STORAGE.

SUMMARY OF CONTRACT QUANTITIES					
ITEM NO.	DESCRIPTION	SPEC.	PAY ITEM NOTE	UNIT	EST. QUANTITY
1	Demolition (Pipe, supports, electrical, and blower removal), Complete	024119	1	EA	1
2	Concrete Pad, Complete	031000, 032000, 033000	2	EA	1
3	Steel Supports, Complete	055000	3	EA	1
4	NX700D-C080 High Speed Turbo Blower and Accessories, Complete	431111	4	EA	1
5	24" Stainless Steel Pipe	402700, 402701, 408001	5	LF	4
6	24" Stainless Steel 90° Bend	402700, 402701	5	EA	2
7	30"x24" Reducer	402700.08	5	EA	1
8	14" Butterfly Valve with Chainwheel	400523	6, 5	EA	2
9	14" Long Radius Elbow	402700, 402701, 408001	5	EA	4
10	14" Stainless Steel Pipe	402700, 402701, 408001	5	LF	4
11	20"x20"x14" Tee	402700.08	5	EA	2
12	20" Blind Flange	402701	5	EA	1
13	Switchgear Starter Rebuild	262816	7	EA	1
14	4" Rigid Metal Conduit	260533.13	7	LF	50
15	1" Rigid Metal Conduit	260533.13	7	LF	50
16	5 Kv Rated Wire - #1 90 degree C	260519	7, 10	CLF	3
17	Twisted Shielded Pair Wire - 2/C#18SH	260519	7, 10	CLF	3
18	Fiber	271523	7, 10	CLF	1
19	SCADA Programming, Complete	400500	8	EA	1
20	Mobilization	COT 303	--	EA	1
21	Owner's Allowance	SP-1	9	ALLOW	20,000

PAY ITEM NOTES

1. INCLUDES DEMOLITION OF ALL STRUCTURAL, MECHANICAL, AND ELECTRICAL COMPONENTS NECESSARY TO INSTALL AND INTEGRATE THE NX700D-C080 HIGH SPEED BLOWER INTO THE NORTHSIDE WASTEWATER TREATMENT'S AERATION SYSTEM AS SHOWN IN THE CONSTRUCTION DRAWINGS. SEE DEMOLITION SHEETS.
2. INCLUDES ALL CONCRETE, ANCHORS, REINFORCEMENT, TOOLS, AND LABOR NECESSARY TO BUILD A PAD CAPABLE OF SUPPORTING THE NEW JOCKEY BLOWER.
3. INCLUDES TOOLS, PARTS, AND LABOR NEEDED TO ANCHOR DUCTS ACCORDING TO THESE CONSTRUCTION DRAWINGS AND SPECIFICATIONS.
4. INCLUDES ALL ACCESSORIES, APPURTENANCES, WARRANTIES, TRAINING, LABOR, AND ALL OTHER COSTS NEEDED TO INSTALL THE NX700D-C080 HIGH SPEED BLOWER COMPLETE IN PLACE.
5. INCLUDES ALL MATERIALS, TOOLS AND LABOR FOR INSTALLATION.
6. INCLUDES COST OF COMPLETE, FULLY ASSEMBLED VALVE, ACTUATOR AND ALL APPURTENANCES IN ACCORDANCE WITH SECTION 40 05 23.
7. INCLUDES ALL MATERIALS, LABOR, AND TOOLS TO INSTALL ELECTRICAL COMPONENTS ACCORDING TO THESE CONSTRUCTION DRAWINGS AND DIVISION 26 SPECIFICATIONS.
8. INCLUDES ALL PROGRAMMING AND VENDOR COORDINATION NEEDED TO SATISFY THE PROGRAMMING NARRATIVE DETERMINED BY THE ENGINEER AND OWNER.
9. ALLOWANCE SHALL BE USED FOR THE COST OF MATERIALS, LABOR, INSTALLATION, OVERHEAD AND PROFIT, FOR ADDITIONAL MECHANICAL, ELECTRICAL, AND PLUMBING WORK THAT IS NOT IDENTIFIED IN THE CONSTRUCTION DOCUMENTS/PLANS. REFER TO SECTION 01 15 00.
10. ONE CLF IS ONE HUNDRED LINEAR FEET.

EQUIPMENT OBSOLETE BY THIS PROJECT


CHECK VALVE: N040-BLO1-VLV13
 VALVE: N040-BLO1-VLV03
 N040-BLO1-VLV08

EQUIPMENT REPLACED BY THIS PROJECT

BLOWER: N040-BLO1-BLO3
 VALVE: N040-BLO1-VLV18

NEW EQUIPMENT

VFD(s): N040-BLO1-VFD01
 N040-BLO1-VFD02
 CHECK VALVES: N040-BLO1-VLV13.0
 N040-BLO1-VLV13.1
 VALVES: N040-BLO1-VLV23.0
 N040-BLO1-VLV23.1

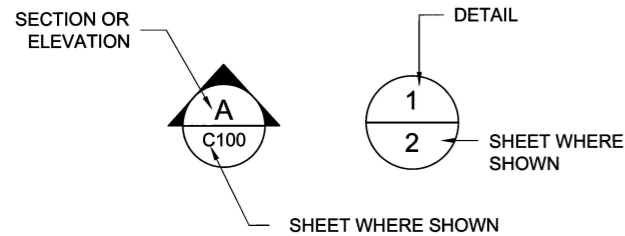
Alexandra Belle Kendrick

 9/10/2024

GENERAL NOTES	
TMUA PROJECT NO. ES 2022-05	
NORTHSIDE AERATION JOCKEY BLOWER ADDITION	
CITY OF TULSA, OKLAHOMA WATER AND SEWER DEPARTMENT	
PLANS AND ESTIMATES PREPARED BY: TETRA TECH	

REVISION	BY	DATE	PLAN SCALE:	DRAWN	KK	04/2024	APPROVED:
			AS SHOWN	DESIGNED	SM	04/2024	
			PROFILE SCALE:	SURVEY			
			HORIZONTAL: AS SHOWN	PROJ. MGR.	N.T.	9/24	
			VERTICAL: AS SHOWN	LEAD ENGR.	AK	9/24	
				FIELD MGR.	JM	9/24	DESIGN MANAGER
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SECTION OR DETAIL DESIGNATION



VALVE SYMBOLS

FLOW DIAGRAM SYMBOL	TYPE	MARK
	GATE VALVE	GTV
	BUTTERFLY VALVE	BFV
	BALL VALVE	BLV OR BV
	CHECK VALVE	CKV OR CV
	DOUBLE VANE CHECK VALVE	DC
	INDUSTRIAL BUTTERFLY VALVE	IB
	PLUG VALVE	PGV OR PV
	BLOW OFF VALVE	BOV
	SOLENOID VALVE	SNV OR SV
	PRESSURE REDUCING VALVE	PRV
	PLUG	PLG
	HUB DRAIN	HD
	SLIDE GATE	SGT OF SG
	STOP PLATE	SP

SURVEY SYMBOLS

	UNDERGROUND ELECTRIC
	OVERHEAD ELECTRIC
	UNDERGROUND TELEPHONE
	NATURAL GAS
	WATERLINE
	EXISTING CONTOURS
	RIP RAP

PIPE FITTINGS AND PLUMBING ITEMS

DOUBLE LINE	SINGLE LINE	DESCRIPTION	ABBREVIATION
		WELDED JOINT	
		BELL & SPIGOT JOINT	
		GROOVED END JOINT	
		FLANGED COUPLING ADAPTER WITH THRUST TIES	FCA
		FLEXIBLE COUPLING	FLEX. CPLG.
		FLEXIBLE COUPLING WITH THRUST TIES	
		ELASTOMER BELLOWS EXP. JOINT	EXP. JT.
		ELBOW UP	ELL
		ELBOW DOWN	ELL
		TEE UP	TEE
		TEE DOWN	TEE
		LATERAL UP	
		LATERAL DOWN	
		CONCENTRIC REDUCER	CONC. RED.
		ECCENTRIC REDUCER	ECC. RED.
		UNION	UN
		CAP	
		MECHANICAL JOINT	MJ
		FLANGED JOINT	FLG
		MJ W/ RETAINER GLAND	RJ
		FIRE HYDRANT	FHD
		YARD HYDRANT	YH
		HOSE BIBB	HB
		PRESSURE GAUGE	PG
		BLIND FLANGE	BF
		Y-STRAINER	YS
		COUPLING	CPLG
		THRUST BLOCK	T
		BLOWER	BL

PIPING SERVICE

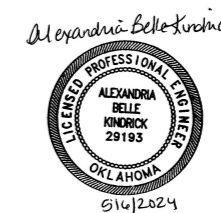
BP	BYPASS
CA	COMPRESSED AIR
D	DRAIN
FM	FORCE MAIN
INF	INFLUENT
NG	NATURAL GAS
NPW	NONPOTABLE WATER
PEW	PLANT EFFLUENT WATER
PW	POTABLE WATER
SD	STORM DRAIN
SS	SANITARY SEWER (GRAVITY)

PIPING MATERIAL

BS,CS	BLACK STEEL, CARBON STEEL
CI	CAST IRON
CIP	CAST IRON PIPE
CGMP	CORRUGATED GALVANIZED METAL PIPE
CISP	CAST IRON SOIL PIPE
DIP	DUCTILE IRON PIPE
FRP	FIBER REINFORCED PLASTIC
GS	GALVANIZED STEEL
PLE	POLYETHYLENE
PVC	POLYVINYL CHLORIDE (PLASTIC) PIPE
RCP	REINFORCED CONCRETE PIPE
VCP	VITRIFIED CLAY PIPE
WS	WELDED STEEL

MISCELLANEOUS

BFP	BACK FLOW PREVENTER
CL	CENTER LINE
CO	CLEAN OUT
FCA	FLANGED COUPLING ADAPTOR
FCA-R	FLANGED COUPLING ADAPTER-RESTRAINED
FD	FLOOR DRAIN
FEB	FLOW EQUALIZATION BASIN
FL	FLOW LINE
FV	FLAP VALVE
HD	HUB DRAIN
HGL	HYDRAULIC GRADE LINE
MH	MANHOLE
NIC	NOT IN THIS CONTRACT
PE	PLAIN END
PO	PUSH ON
RJ	RESTRAINED JOINT
SGT	SLIDE GATE
SBL	SURVEY BASE LINE
TB	THRUST BLOCK (CONC.)
TOC	TOP OF CONCRETE
TOS	TOP OF STRUCTURE
TOW	TOP OF WALL
VFD	VARIABLE FREQUENCY DRIVE
WS	WATER SURFACE

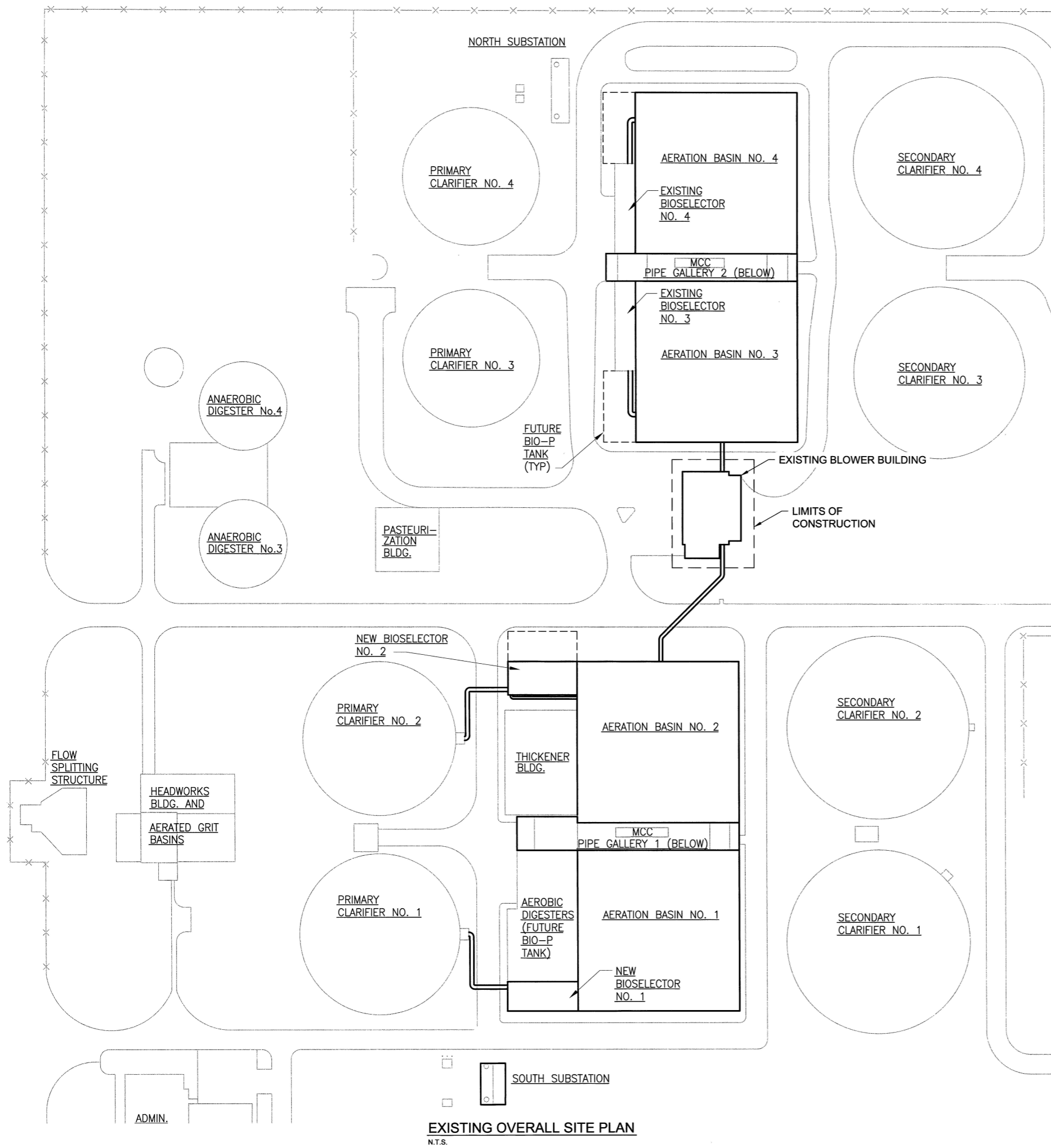


ABREVIATIONS	
TMUA PROJECT NO. ES 2022-05	
NORTHSIDE AERATION JOCKEY BLOWER ADDITION	
CITY OF TULSA, OKLAHOMA WATER AND SEWER DEPARTMENT	
PLANS AND ESTIMATES PREPARED BY: TETRA TECH	

REVISION	BY	DATE	PLAN SCALE:	DRAWN	KK	04/2024	APPROVED:
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			PROFILE SCALE:	SURVEY			
			HORIZONTAL: AS SHOWN	PROJ. MGR.	N.T.	5/24	
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EXISTING OVERALL SITE PLAN
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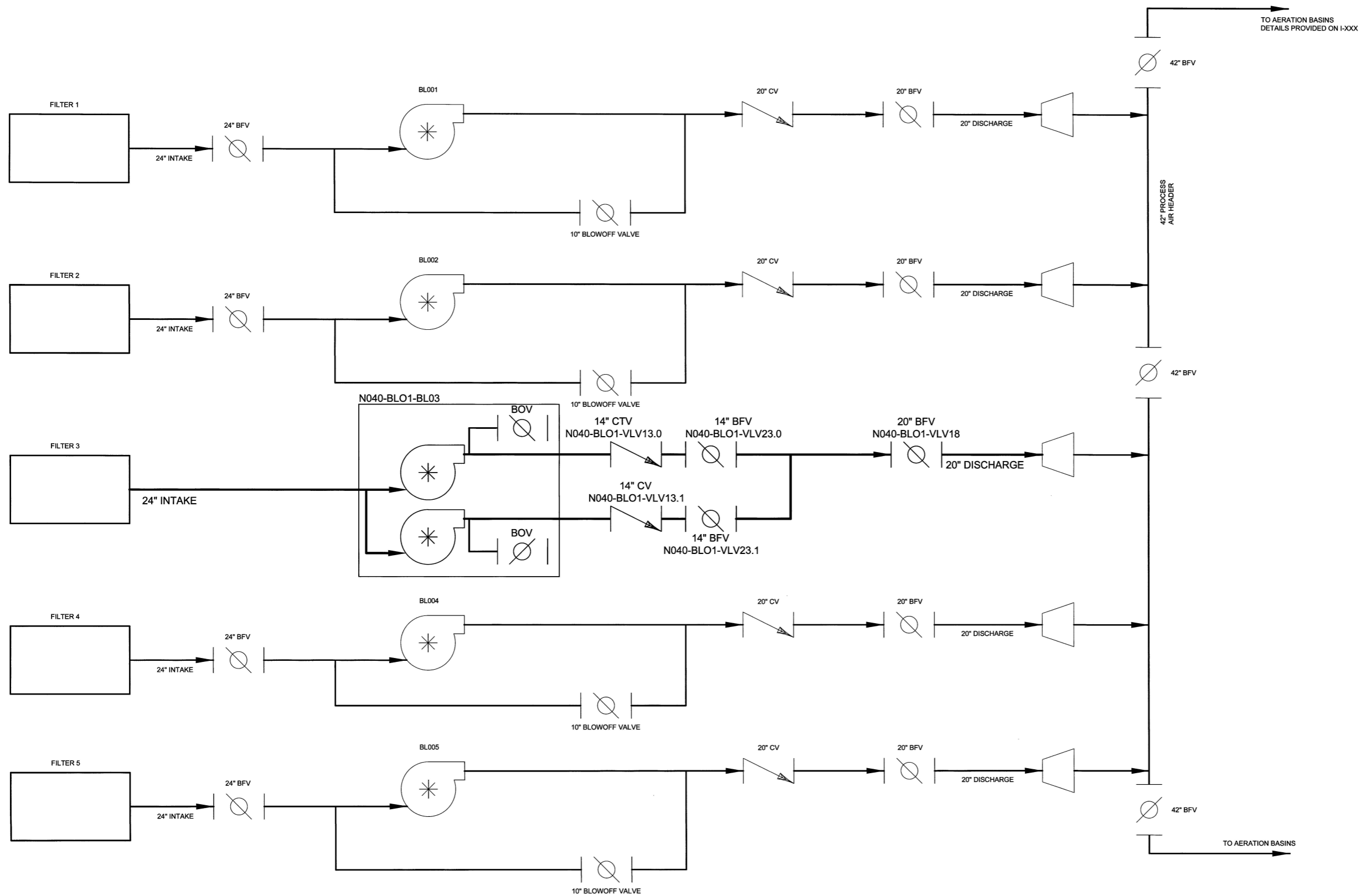
Alexandra Belle Kendrick

 5/16/2024

EXISTING SITE PLAN	
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NORTHSIDE AERATION JOCKEY BLOWER ADDITION	
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ATLAS PAGE NO: 620							SHEET 4 OF 22 SHEETS	

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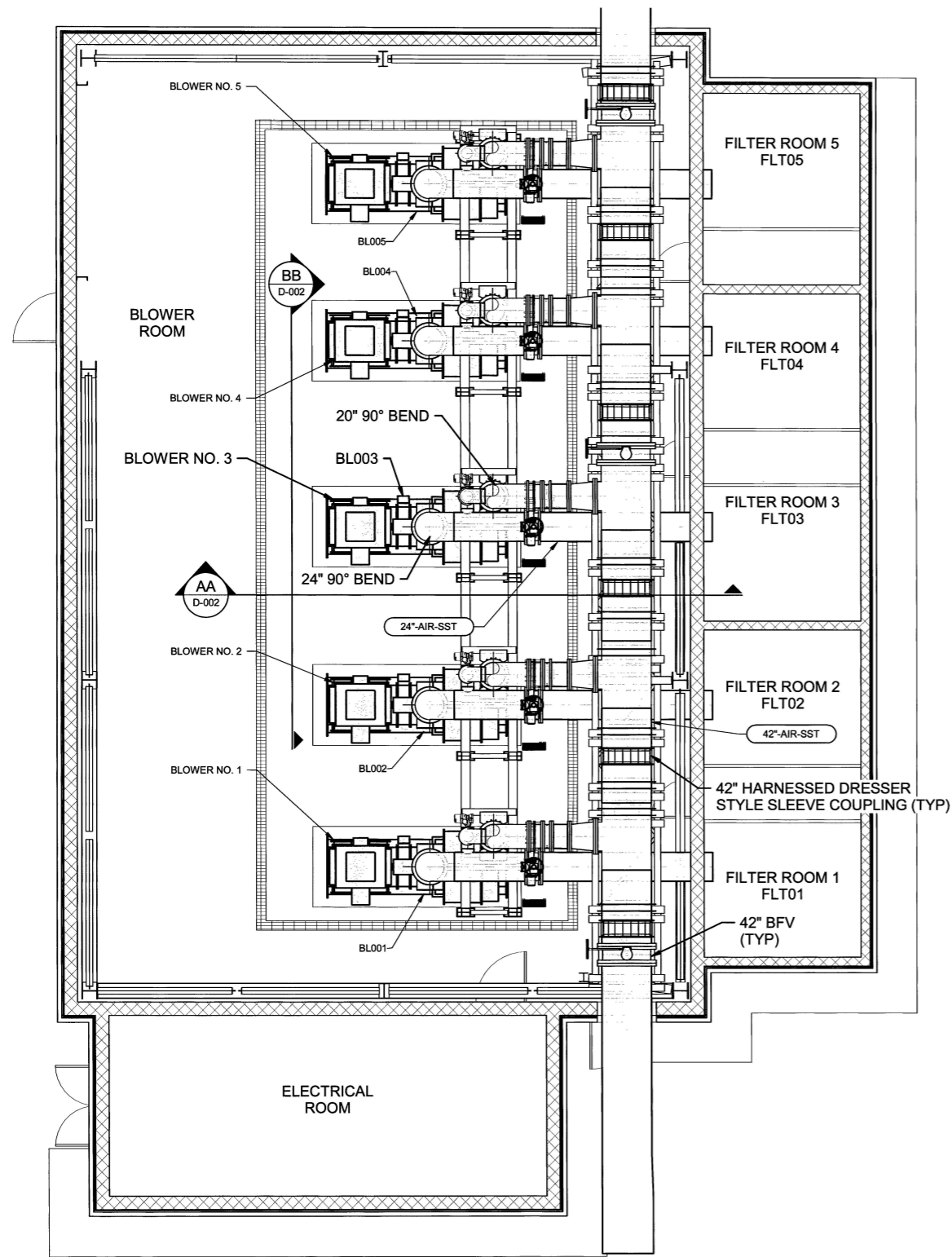
Alexandra Belle Kindrick

 5/14/2024

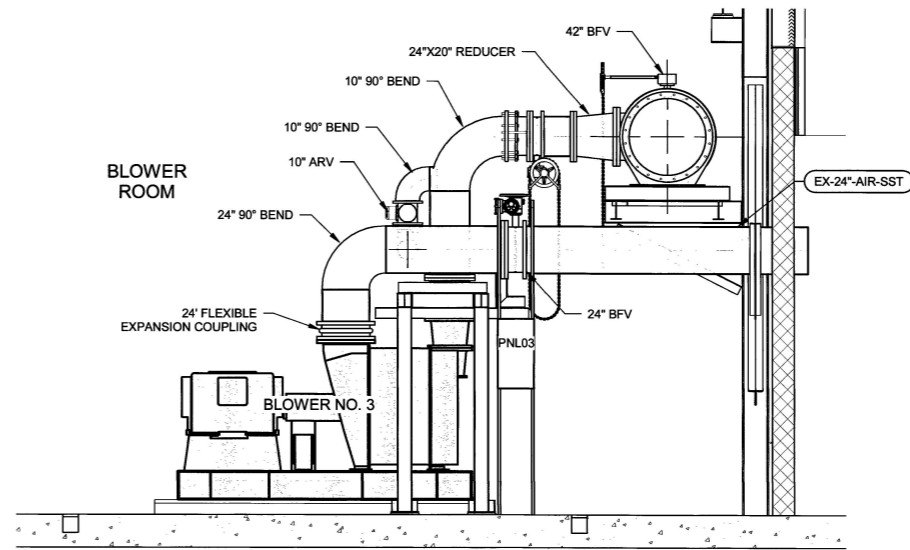
BLOWER PROCESS FLOW DIAGRAM
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 CITY OF TULSA, OKLAHOMA
 WATER AND SEWER DEPARTMENT

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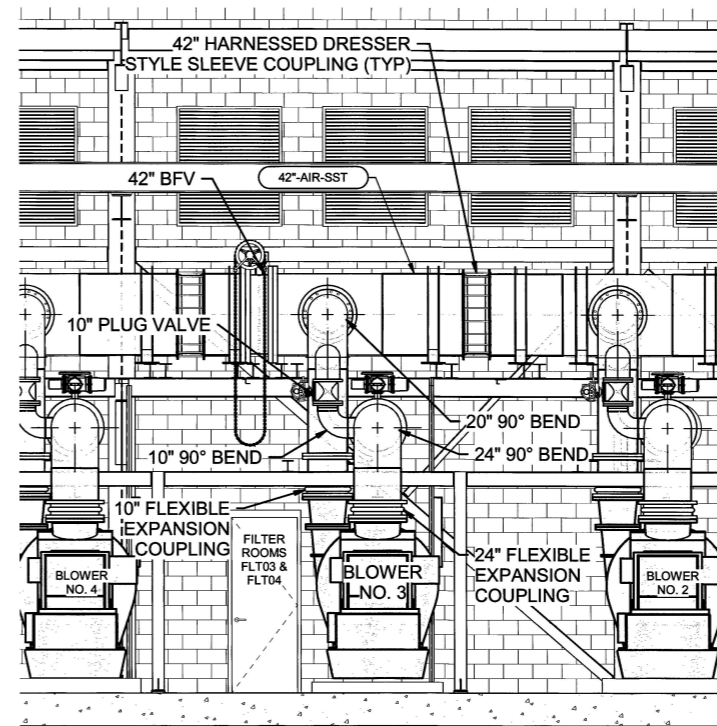
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			ATLAS PAGE NO: 620				SHEET 5 OF 22 SHEETS



EXISTING EQUIPMENT PLAN
SCALE: 3/16" = 1'-0"



AA Section AA
D-002 SCALE: 1/4" = 1'-0"



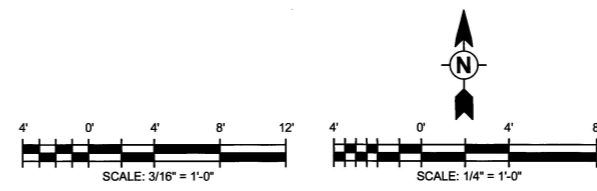
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D-002 SCALE: 1/4" = 1'-0"



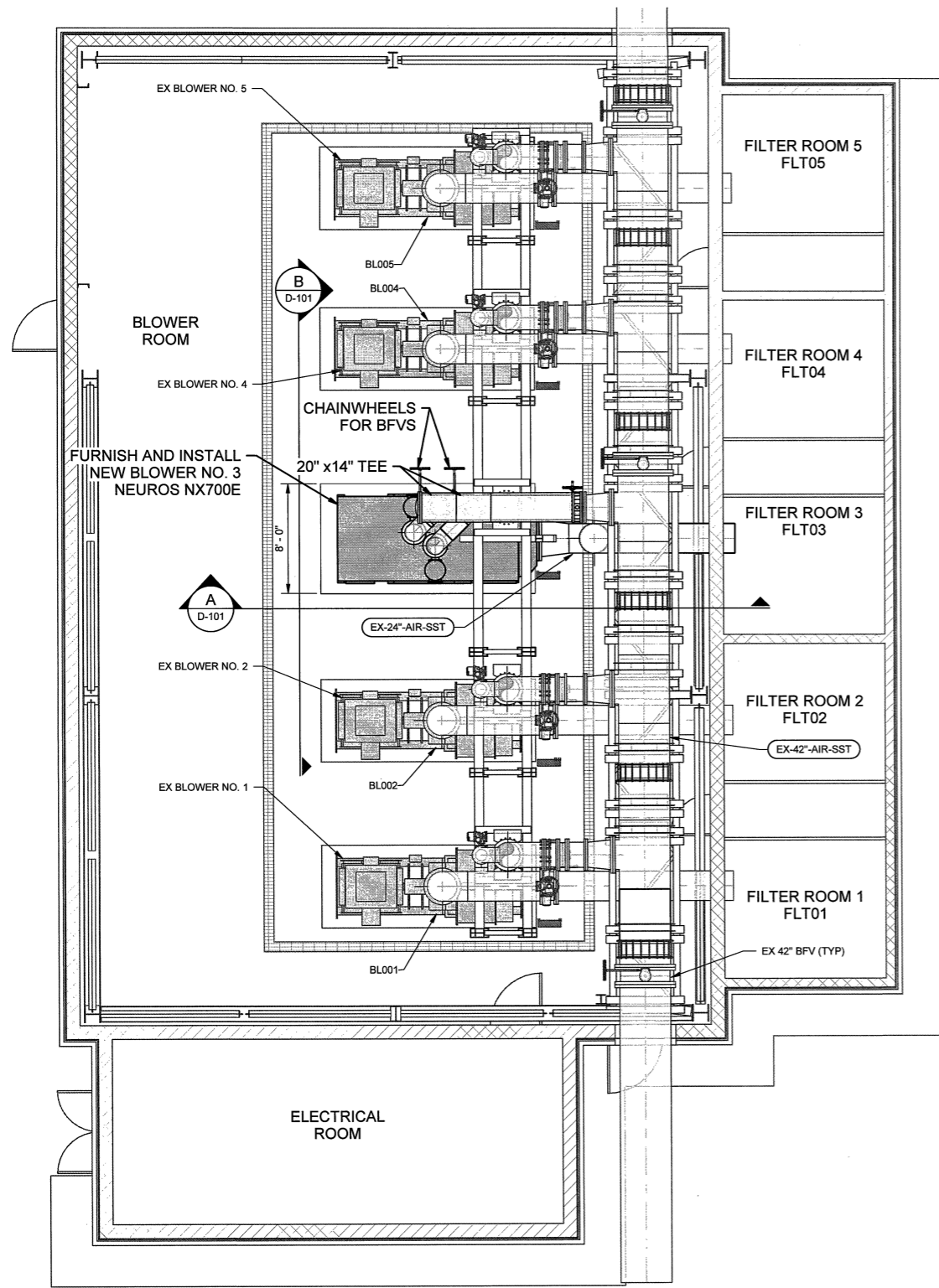
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CITY OF TULSA, OKLAHOMA
WATER AND SEWER DEPARTMENT

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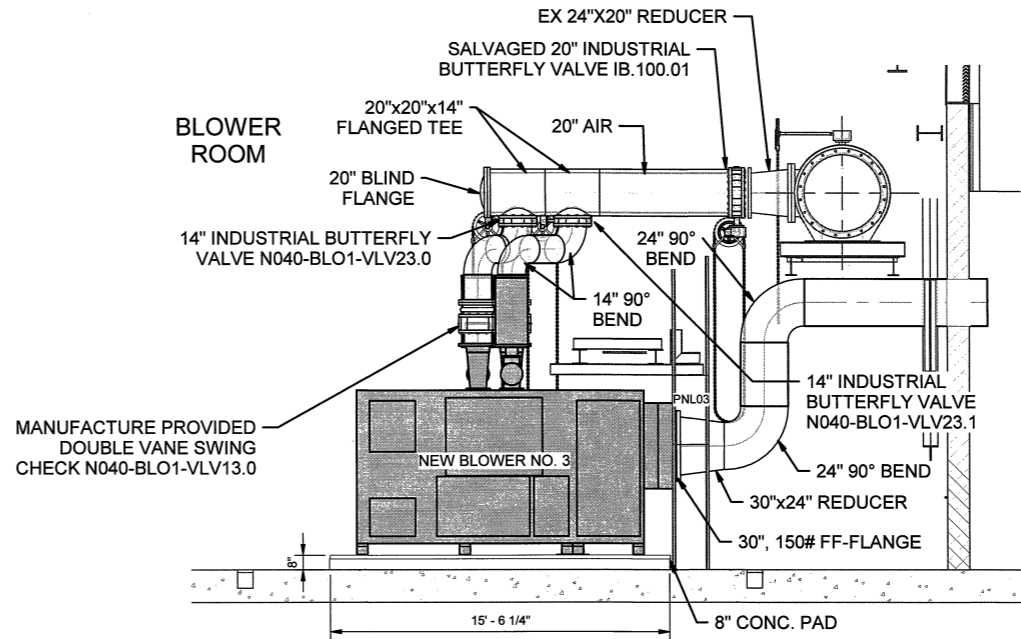
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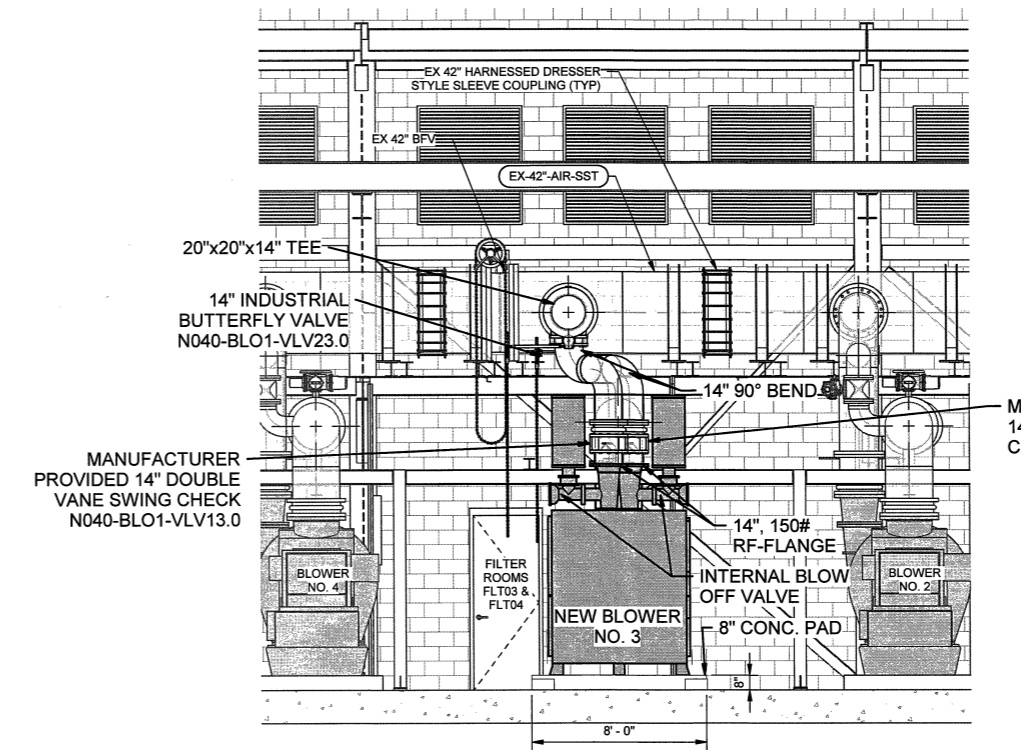


EQUIPMENT PLAN
SCALE: 3/16" = 1'-0"



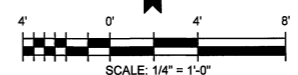
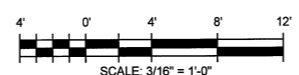
A SECTION
D-101 SCALE: 1/4" = 1'-0"

NOTE:
1. ALL DUCT FITTINGS AND APPURTENANCES ARE STAINLESS STEEL UNLESS OTHERWISE NOTED.
2. NEW STAINLESS STEEL PIPING SHALL BE INSULATED ACCORDING TO SECTION 40 05 23 OR MATCH EXISTING.



B SECTION
D-101 SCALE: 1/4" = 1'-0"

MANUFACTURER PROVIDED 14" DOUBLE VANE SWING CHECK N040-BLO1-VLV13.0

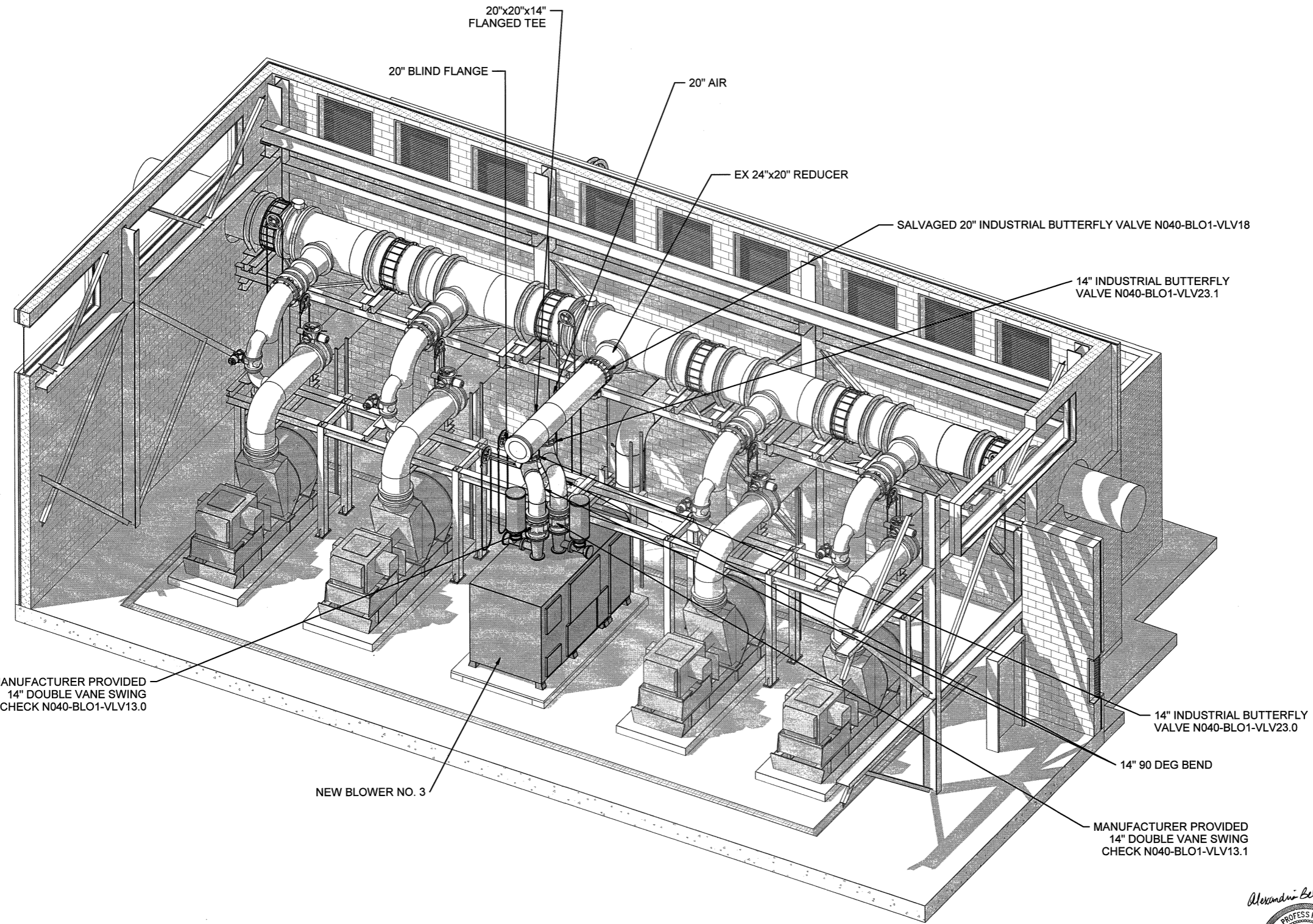


PROPOSED EQUIPMENT PLAN
TMUA PROJECT NO. ES 2022-05
NORTHSIDE
AERATION JOCKEY BLOWER ADDITION
CITY OF TULSA, OKLAHOMA
WATER AND SEWER DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:
TETRA TECH

REVISION	BY	DATE	PLAN SCALE:	DRAWN	RWP	04/2024	APPROVED:
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			VERTICAL: AS SHOWN	LEAD ENGR.	JK	9/24	
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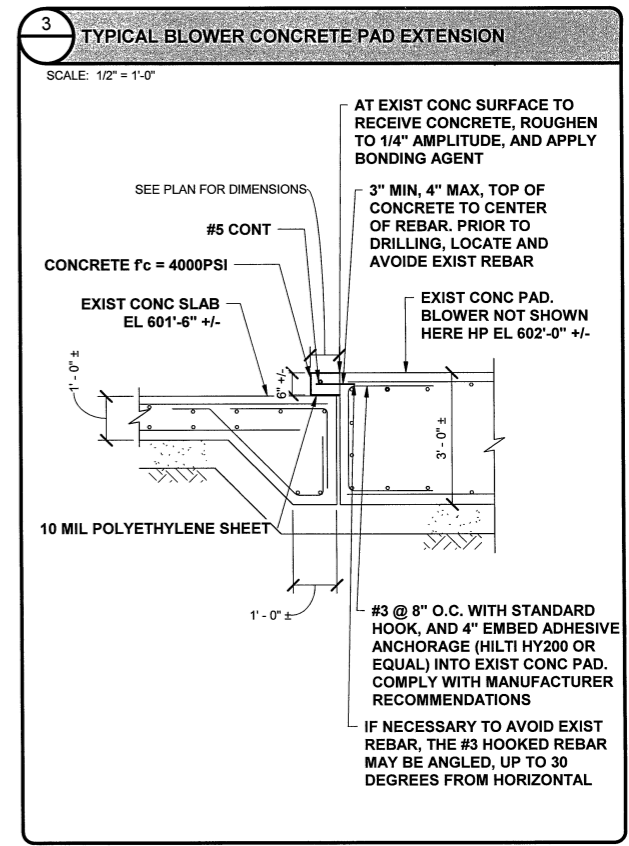
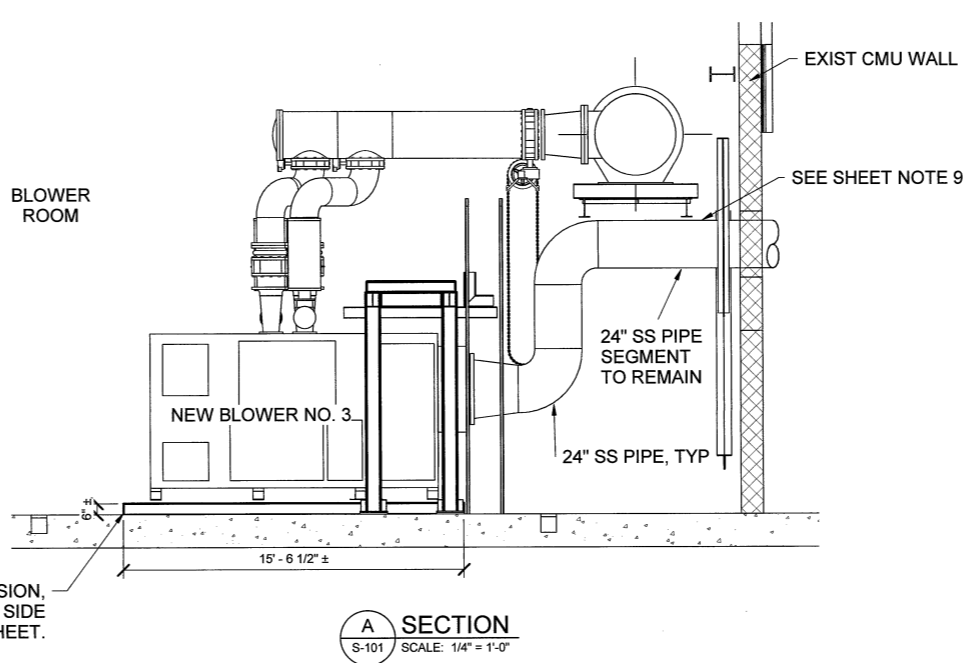
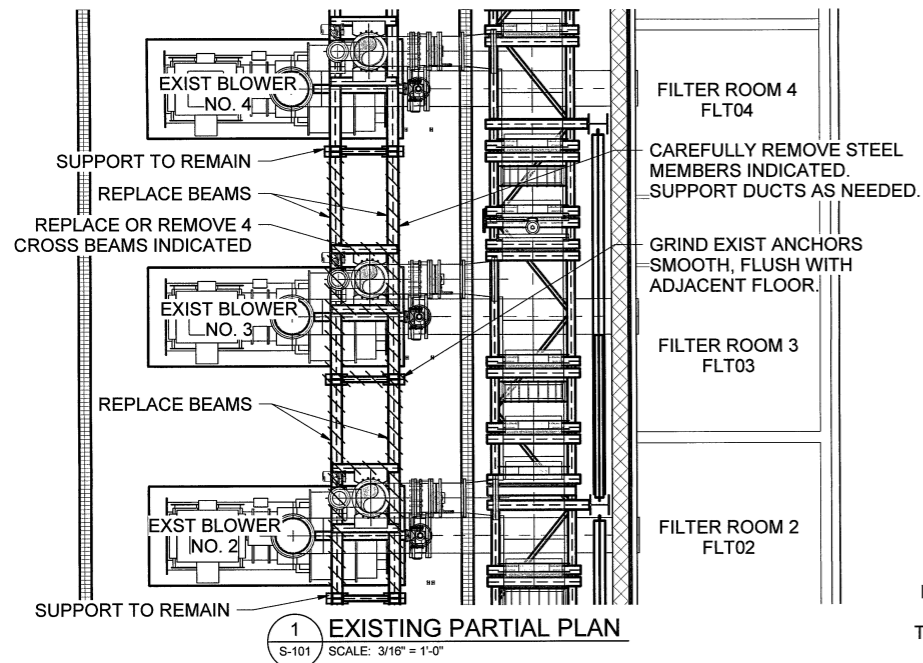


BLOWER REPLACEMENT ISOMETRIC
 TMUA PROJECT NO. ES 2022-05
 NORTHSIDE
 AERATION JOCKEY BLOWER ADDITION
 CITY OF TULSA, OKLAHOMA
 WATER AND SEWER DEPARTMENT

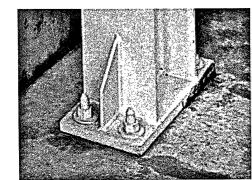
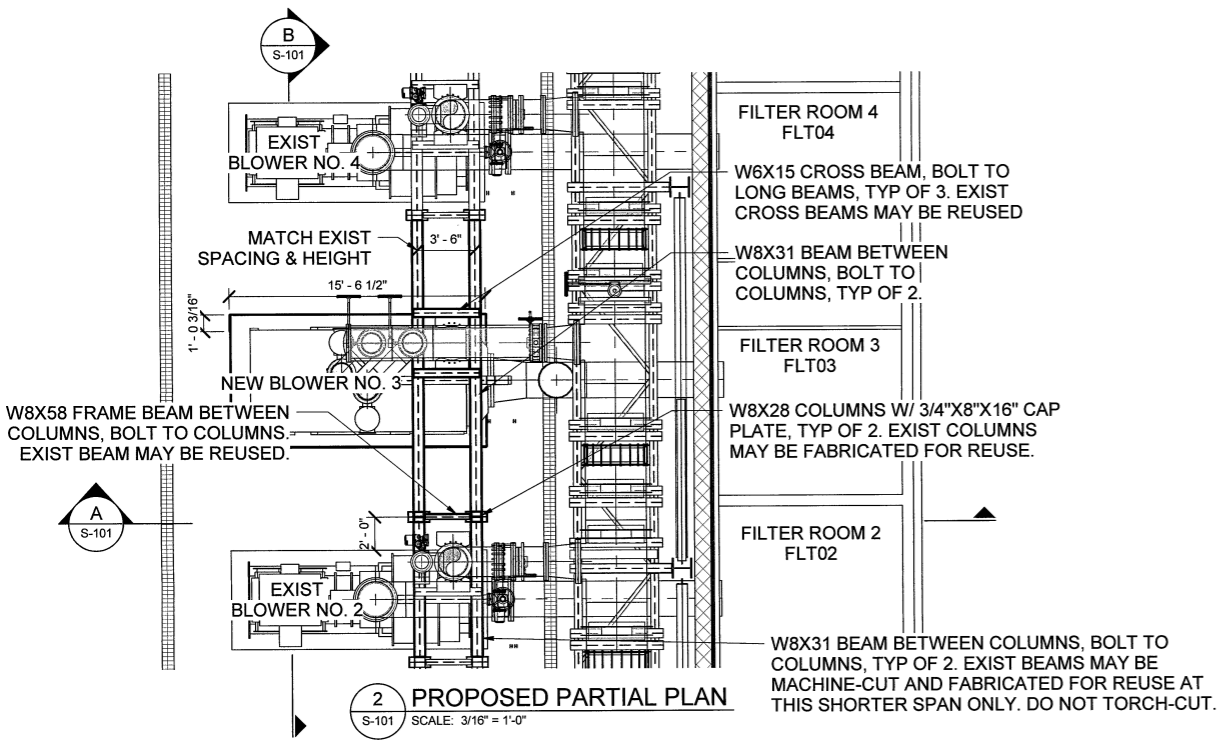
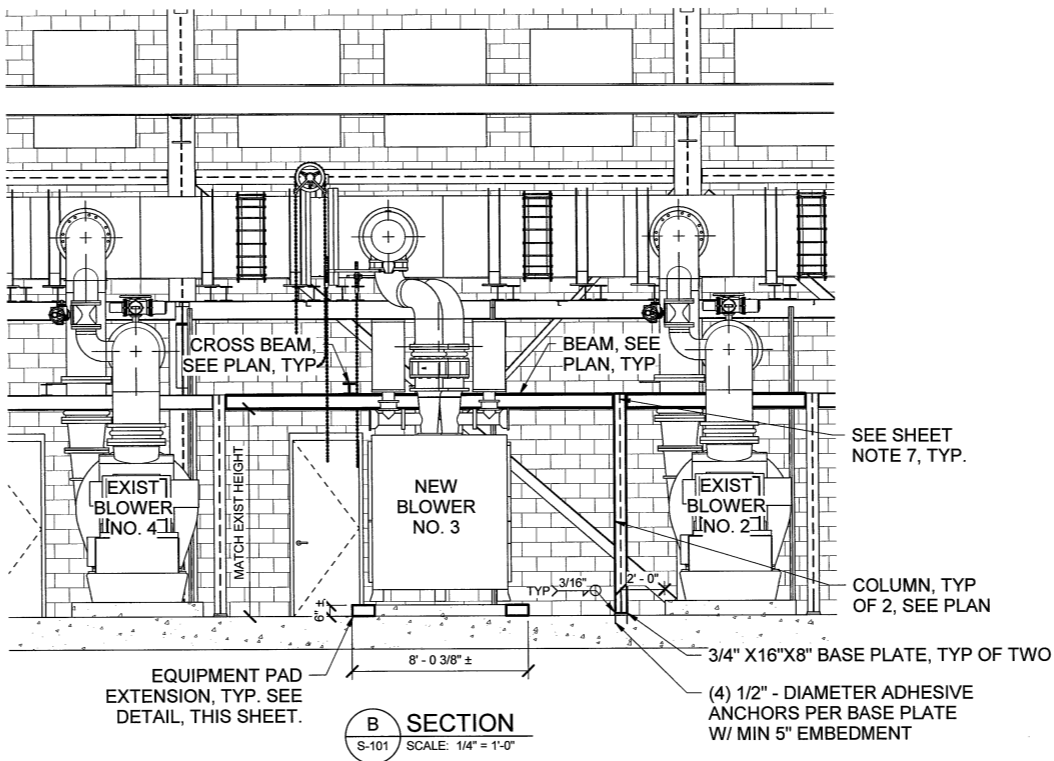
PLANS AND ESTIMATES PREPARED BY:
TETRA TECH

REVISION	BY	DATE	PLAN SCALE:	DRAWN	RWP	04/2024	APPROVED:	
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			VERTICAL: AS SHOWN	LEAD ENGR.	12/9/24			
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			FILE:	DRAWING: D-102			DATE: APRIL 2024	
							ATLAS PAGE NO: 620	SHEET 9 OF 22 SHEETS

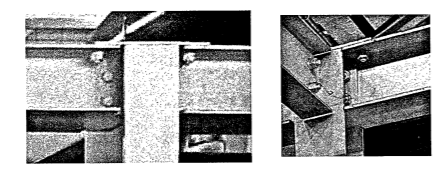
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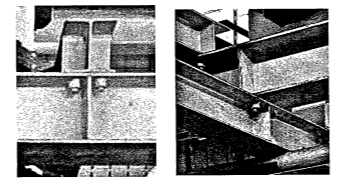
- SHEET NOTES:**
- COORDINATE WITH PROCESS DRAWINGS FOR EQUIPMENT, DUCTS, VALVES, ETC.
 - SEE SPECIFICATIONS FOR MATERIALS, INSTALLATIONS, ETC.
 - APPLICABLE CODES INCLUDE:
 - ICC INTERNATIONAL BUILDING CODE, 2018 EDITION
 - ASCE 7 "MINIMUM DESIGN LOADS FOR BUILDINGS", 2016 EDITION
 - AISC 360 "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS", 2016 EDITION
 - ACI 318 "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE", 2014 EDITION
 - SEISMIC LOADS:
 - RISK CATEGORY = III
 - SEISMIC IMPORTANCE FACTOR, I_e = 1.25
 - S_s = 0.128
 - S_1 = 0.072
 - S_Ds = 0.137
 - $SD1$ = 0.115
 - SITE CLASS = D (DEFAULT)
 - SEISMIC DESIGN CATEGORY = B
 - ANALYSIS PROCEDURE = EQUIVALENT LATERAL FORCE
 - RESPONSE MODIFICATION FACTOR, R = 3.0
 - BASIC SEISMIC FORCE RESISTING SYSTEM = SSSNDFSR
 - SEISMIC DESIGN COEFFICIENT, C_s = 0.057
 - DESIGN BASE SHEAR = $C_s * W$
 - PROTECT ITEMS TO REMAIN DURING DEMOLITION, REMOVAL AND CONSTRUCTION WORK.
 - FIELD-VERIFY ALL EXISTING DIMENSIONS BEFORE FABRICATION, DEMOLITION AND CONSTRUCTION. NOTIFY ENGINEER OF ANY DISCREPANCIES.
 - STEEL CONNECTIONS ARE SHOP-WELDED AND FIELD-BOLTED W/ 3/4" BOLTS, UNO. STEEL BEAM-ON-BEAM CONNECTIONS SHALL HAVE (4) 1/2"-DIAMETER BOLTS @ GAGE x GAGE, WITH 3/8" x 3" FULL-HEIGHT STIFFENER PLATES BOTH SIDES OF EACH BEAM. CONNECTIONS OF W8X31 BEAMS SHALL USE 1/2"-DIAMETER BOLTS AND 1/2" SHEAR TABS. MATCH EXIST CONNECTIONS UNLESS NOTED OTHERWISE.
 - ADHESIVE ANCHORS SHALL BE HILTI HIT HY200 OR EQUAL.
 - EXISTING PIPE SEGMENT TO REMAIN EMBEDDED IN CMU WALL. SEE "D" DRAWINGS.



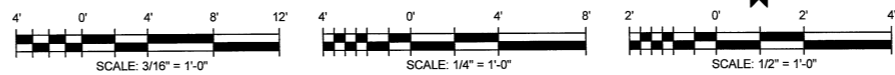
4 EXIST BASE PLATE
S-101 SCALE: NTS



5 EXIST BEAM-TO-COL CONNECTIONS
S-101 SCALE: NTS



6 EXIST CROSS BEAM CONNECTIONS
S-101 SCALE: NTS



FOUNDATION PLAN						
TMUA PROJECT NO. ES 2022-05						
NORTHSIDE AERATION JOCKEY BLOWER ADDITION						
CITY OF TULSA, OKLAHOMA WATER AND SEWER DEPARTMENT						
PLANS AND ESTIMATES PREPARED BY: TETRA TECH						
REVISION	BY DATE	PLAN SCALE:	DRAWN	WJ	04/2024	APPROVED:
QUANTITY CORRECTION	PP 06-24-2024	AS SHOWN	DESIGNED	PP	04/2024	
		PROFILE SCALE:	SURVEY			
		HORIZONTAL: AS SHOWN	PROJ. MGR.	N.T.	9/24	
		VERTICAL: AS SHOWN	LEAD ENGR.	WJ	9/24	
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ATLAS PAGE NO: 620			DESIGN MANAGER		DATE: APRIL 2024	
					SHEET 10 OF 22 SHEETS	

NOTES:

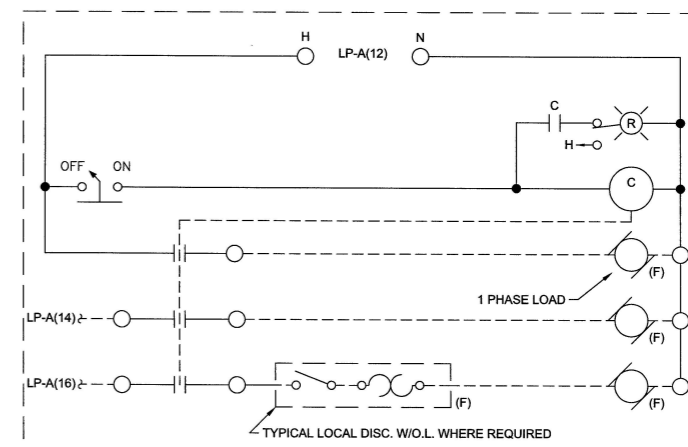
- FIELD VERIFY CONDUIT ROUTING AT THE STATION WITH OWNER. CORE HOLES AS REQUIRED TO SUIT INSTALLATION OF THE CONDUITS SHOWN. PATCH WITH NON-SHRINK GROUT.
- TURN OVER TO OWNER AT PROJECT COMPLETION OPERATION AND MAINTENANCE MANUALS (QUANTITY AS SPECIFIED) TO OWNER.
- MULTIMODE FIBER OPTIC PATCH CABLES, AND ETHERNET PATCH CABLES SUPPLIED IN THE PROJECT SHALL BE COLORED PURPLE.
- FIBER OPTIC PATCH PANELS SHALL BE THE PRODUCT OF CORNING CABLE SYSTEMS. (RACK OR SURFACE MOUNTED AS SHOWN", LC STYLE CONNECTORS, WITH QUANTITY OF BULKHEADS AS SHOWN.

GENERAL NOTES:

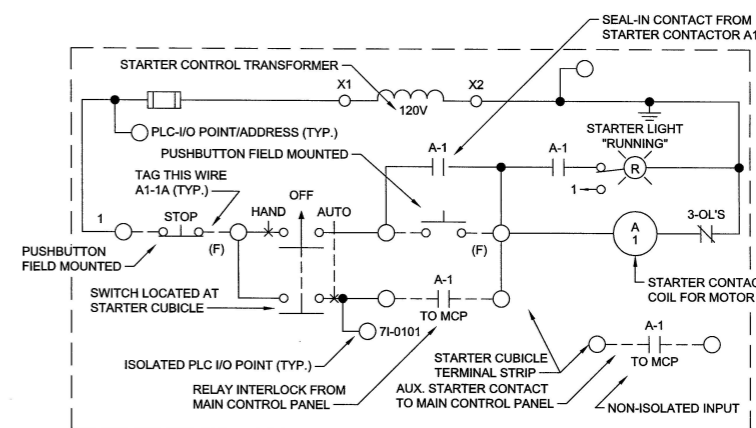
- PRIOR TO SUBMITTING A BID FOR THE WORK DETAILED UNDER THIS CONTRACT, BIDDER SHALL VISIT THE BOOSTER STATION. THE BIDDER SHALL FULLY ACQUAINT ONESELF WITH EXISTING FIELD CONDITIONS AT EACH SITE. NO BULLETINS WILL BE WRITTEN FOR WORK DUE TO LACK OF VERIFICATION OF EXISTING SITE CONDITIONS AND WIRING.
- NO WIRES SHALL BE TERMINATED TO TERMINAL STRIPS, OR OTHER EQUIPMENT WITHOUT FIRST VERIFYING SIGNAL TYPE. DAMAGES RESULTING IN LACK OF VERIFICATION SHALL BE BORNE BY THE CONTRACTOR. CONTRACTOR SHALL COORDINATE SIGNAL TYPE AND VOLTAGE WITH I/O CARDS SHOWN.
- WITHIN CONTROL PANELS, NAMEPLATES SHALL BE PROVIDED TO INDICATE DIFFERENT VOLTAGE LEVELS WITHIN PANELS. ALSO, A NAME TAG (YELLOW BACKGROUND, RED LETTERING) SHALL BE LOCATED ON THE FRONT OF EVERY PANEL INDICATING THAT WHEN MAIN PANEL DISCONNECTED 120V IS STILL PRESENT FROM FIELD DEVICES (YELLOW WIRING/ISOLATED INPUT CARDS.)
- PHENOLIC TAGS ON FACE OF CONTROL PANELS TO HAVE WHITE BACKGROUND AND BLACK LETTERING (EXCEPT WARNING TAGS; YELLOW BACKGROUND RED LETTERING).
- PROVIDE SAFETY COVERS ON 480V MOLDED CASE MAIN CIRCUIT BREAKERS TO INSULATE THE INCOMING CABLES AND SIDE CONDUCTORS FROM CONTACT. (TYP. FOR CONTROL PANELS.) PROVIDE BREAKER LOCKS FOR PUMP CIRCUIT BREAKERS (MCP) AND MAIN PANEL BREAKERS.
- REFER TO WIRING DIAGRAMS FOR ADDITIONAL INFORMATION ON ISOLATED I/O. A COMMON NEUTRAL MAY BE USED FOR SEVERAL ISOLATED INPUTS FROM THE SAME STARTER. PROVIDE NEUTRAL JUMPERS WIRES WITHIN THE PANEL AS REQUIRED.
- ITEMS SHOWN CROSSHATCHED (OR NOTED TO BE DEMOLISHED) ON THE DRAWINGS ARE EXISTING ITEMS TO BE REMOVED, FROM SITE BY CONTRACTOR.
- INSTALL A SINGLE CONDUCTOR INSULATED (RHW, THHN, OR XHHW) COPPER GROUND WIRE IN EACH CONDUIT, SIZE AS SHOWN ON DRAWINGS, OR AS A MINIMUM PER THE NATIONAL ELECTRICAL CODE. THIS GROUND WIRE SHALL BE CONNECTED AT EACH END TO THE EQUIPMENT GROUND. THIS ALSO INCLUDES INSTRUMENTATION DEVICES SUCH AS LEVEL, PRESSURE, FLOW TRANSMITTERS, LIMIT SWITCHES, CONDUITS, NETWORK AND I/O CABLES.
- THE FOLLOWING EXAMPLE COMPONENT IDENTIFICATION SHALL BE USED AS APPROPRIATE:
 - (F) FIELD MOUNTED, NOT AT STARTER OR OTHER CONTROL PANELS
 - (S) STARTER PANEL MOUNTED
 - (MCP) AT MAIN CONTROL PANEL
 - (1) AT CONTROL PANEL NO.1
 - (2) AT CONTROL PANEL NO.2
 - (TCP) AT TEMPERATURE CONTROL PANEL
- REFER TO DETAIL SHEETS. FURNISH AND INSTALL HARDWARE AND APPURTENANCES (I.E. PIPE TAPS, WETWELL BUBBLER TUBES, VALVES, COPPER TUBING, BALL VALVES, PNEUMATIC PIPING, SPOOL PIECES, ETC.) FOR FIELD DEVICES SHOWN (FLOWMETERS, PRESSURE TRANSMITTERS, LEVEL TRANSMITTERS, ETC.). WORK SHALL BE COORDINATED WITH OTHER TRADES (MECHANICAL INSTRUMENTATION, ETC.) CONTRACTOR SHALL BE RESPONSIBLE FOR SYSTEM COORDINATION AND INSTALLATION.
- REFER TO THE CABLE MANUFACTURER'S RECOMMENDATIONS FOR MINIMUM BEND RADIUS FOR FIBER OPTIC CABLES. INSTALL NEW PULL BOXES (PB) AS REQUIRED FOR CONDUITS. SIZE PULLBOXES AS REQUIRED PER FIBER OPTIC CABLE MANUFACTURERS RECOMMENDATIONS.
- CABLES (INCLUDING FIBER, ETHERNET, CONTROL WIRE, ETC.) WHERE PASSING THROUGH A PULLBOX SHALL BE LABELED AND COMPLETELY IDENTIFIED WITH IDENTIFICATION NUMBERS AND ORIGINATION/DESTINATION. THIS ALSO INCLUDES ALL CABLE BUNDLES ENTERING CONTROL PANELS, PULLBOXES, ETC.
- CONTROL WIRES SHALL BE TAGGED WITH THE PLC I/O ADDRESS IN THE FIELD AND AT THE PANEL.
- THE FIELD DEVICES SHOWN ON THE P&ID'S, ELECTRICAL BACKGROUNDS, AND DETAILS SHEETS MAKEUP THE FIELD DEVICE EQUIPMENT REQUIREMENTS. NOT ALL FIELD DEVICES REQUIRED ARE SHOWN ON THE P&ID'S.
- UPS SELECTED SHALL BE COMPATIBLE WITH ISOLATION TRANSFORMERS. (TYP.)
- REFER TO I/O DRAWING LAYOUT FOR ADDITIONAL SIGNALS NOT SHOWN ON P&ID FLOW DIAGRAMS.

GENERAL CONSTRUCTION NOTES:

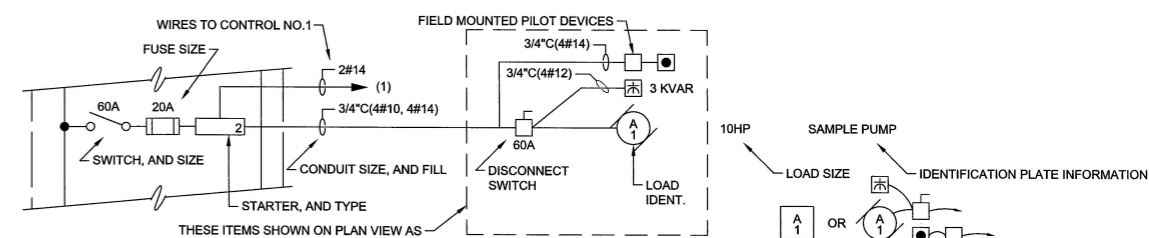
- ELECTRICAL MATERIALS AND EQUIPMENT ITEMS SHOWN IN LIGHT LINE WEIGHTS ON THE DRAWINGS ARE EXISTING ITEMS TO REMAIN. ELECTRICAL MATERIALS AND EQUIPMENT ITEMS SHOWN IN HEAVY LINE WEIGHTS ARE NEW THIS CONTRACT.
- FOR ITEMS INDICATED AS "FIELD LOCATE", THE CONTRACTOR SHALL FIELD VERIFY FOR INTERFERENCE AND FOR LOCATIONS OF MOUNTING FLANGES, CONNECTION POINTS, ETC.
- CONDUIT ROUTINGS SHOWN ON BACKGROUND PLANS ARE INTENDED ROUTINGS ONLY. EXACT CONDUIT ROUTINGS FOR CONDUITS, AND LENGTH SHALL BE FIELD LOCATED AND VERIFIED BY THE CONTRACTOR. COORDINATE CONDUIT ROUTING IN FINISHED AREAS WITH OWNER. CONDUIT TO BE CONCEALED IN THESE AREAS.
- ETHERNET AND FIBER OPTIC TERMINATIONS (LC STYLE) SHALL BE PERFORMED BY A QUALIFIED CONTRACTOR, (NOT THE INSTALLING CONTRACTOR). THE CABLES SHALL BE TESTED. NO SPLICING SHALL BE PERMITTED OF FIBER OPTIC CABLES, BETWEEN PANELS. FIBERS SHALL BE TERMINATED AT PATCH PANELS, INCLUDING SPARES.
- REFER TO THE CABLE MANUFACTURER'S RECOMMENDATIONS FOR MINIMUM BEND RADIUS FOR FIBER OPTIC CABLES. INSTALL NEW PULL BOXES (PB) AS REQUIRED FOR CONDUITS. SIZE PULL BOXES AS REQUIRED PER FIBER OPTIC CABLE MANUFACTURERS RECOMMENDATIONS.
- CONDUITS/RACEWAYS, PULL BOXES AND JUNCTION BOXES SHALL BE INSTALLED WITH 316 STAINLESS STEEL CHANNEL STRUT. MINIMUM STRUT LENGTH SHALL BE 12 INCHES, WHERE POSSIBLE.
- PANELS SHALL BE MOUNTED OFF WALLS WITH STRUT, CONDUITS SHALL BE MOUNTED ON STRUT INCLUDING SINGLE RUNS.
- CONDUIT ENTERING CONTROL PANELS AND ELECTRICAL EQUIPMENT ENCLOSURES SHALL BE FILLED WITH DUCT SEAL, INCLUDING OPENINGS IN BOTTOM OF PANELS, AND EQUIPMENT.
- CABLES (INCLUDING FIBER, ETHERNET, CONTROL WIRE, ETC.) WHERE PASSING THROUGH A PULL BOX SHALL BE LABELED AND COMPLETELY IDENTIFIED WITH IDENTIFICATION NUMBERS AND ORIGINATION/DESTINATION. THIS ALSO INCLUDES ALL CABLE BUNDLES ENTERING CONTROL PANELS, PULL BOXES, ETC.
- PULL CORDS SHALL BE INSTALLED IN CONDUITS CONTAINING NETWORK CABLES, AND FIBER OPTIC CABLES.
- CORE HOLES AS REQUIRED TO SUIT INSTALLATION OF CONDUIT AND WIRING/CABLING AS SHOWN. FIELD VERIFY EXACT EXTENT OF WORK REQUIRED.
- FURNISH PULL BOXES FOR FIBER OPTIC CABLE. COORDINATE EXACT BENDING RADIUS WITH MANUFACTURER.
- NEW CONDUITS INSTALLED THIS CONTRACT WITH FIBER OPTIC CABLES SHALL BE LABELED WITH PHENOLIC TAGS (AT BEGINNING TO END) TO INDICATE THE NUMBER OF STRANDS, ORIGINATION AND DESTINATION. TAGS TO BE COLOR CODED ORANGE FOR MULTIMODE.
- THE ASSOCIATED INSTRUMENTATION DRAWINGS SHOW EXISTING WIRES AND TERMINAL NUMBERS REQUIRED TO PROPERLY INTERFACE WITH NEW EQUIPMENT. THIS INFORMATION WAS COLLECTED FROM AS-BUILT DRAWINGS AND EXTENSIVE FIELD VERIFICATION. THE INFORMATION SHALL BE USED AS A GUIDE IN RE-TERMINATION. IT SHALL REMAIN THE CONTRACTOR'S RESPONSIBILITY TO EXAMINE THE WIRING AND TO REVISE TO SUIT AS REQUIRED. CHANGES IN THE CONTRACT OR COST WILL NOT BE GRANTED FOR THIS COORDINATION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO EXAMINE PROPOSED WORK SHOWN.
- RACEWAYS, PULL BOXES AND JUNCTION BOXES SHALL BE INSTALLED WITH 316 STAINLESS STEEL FASTENERS SUPPORTS, AND THREADED ROD, ETC. (CHANNEL STRUT TO ALSO BE STAINLESS STEEL). MINIMUM STRUT LENGTH TO BE 12 INCHES, WHERE POSSIBLE. TYPICAL FOR NEMA 12, 4, AND 7 AREAS.
- WIRING FOR STARTERS SHALL BE IN ACCORDANCE WITH NEMA CLASS II B STANDARDS. SUBMIT ENGINEERED SHOP DRAWINGS FOR STARTERS SHOWN TO BE WIRED.
- WIRE NUMBERS (1, 3, 5, ETC.) SHALL BE PREFIXED WITH STARTER TAG NUMBERS. THE WIRE NUMBER AFTER THE PREFIX SHALL BE THE MANUFACTURER'S WIRE NUMBERING SYSTEM. WIRE MARKERS SHALL BE USED AT EACH WIRE TERMINATION POINT.
- IN AREAS WHERE EQUIPMENT AND CONDUIT IS REMOVED, REPAIR WALL AND FLOOR SURFACES AS REQUIRED TO MATCH SURROUNDING AREA. WHERE DEVICES ARE REMOVED FROM CONCEALED BOXES, FURNISH AND INSTALL A BLANK COVER ON THE BOX.
- FIBER OPTIC CABLE SHALL BE AS CALLED OUT ON SYSTEM CONFIGURATION DRAWINGS, SINGLE MODE, ALL DIELECTRIC, SUITABLE FOR INSTALLATION UNDERGROUND IN WET CONDUIT.



TYPICAL 120V 3 POLE CONTACTOR
(EXAMPLE CIRCUIT)



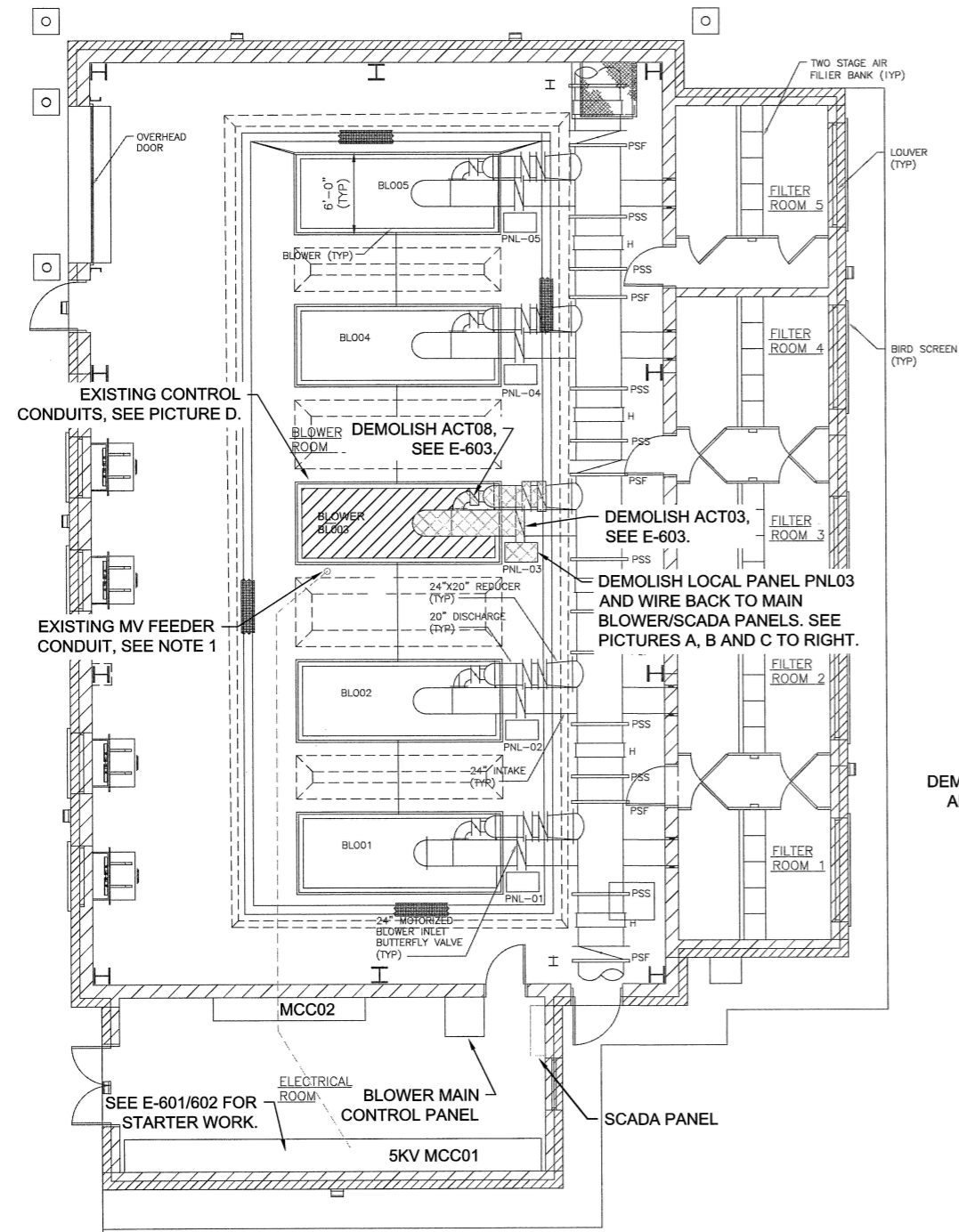
EXAMPLE PUMP
(TAG A1)
(EXAMPLE CIRCUIT)



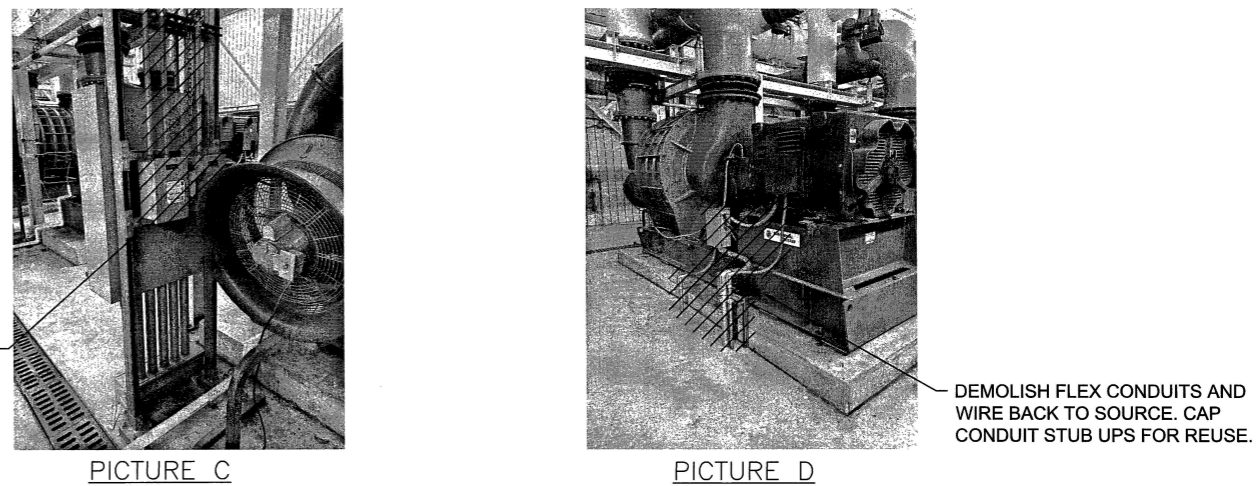
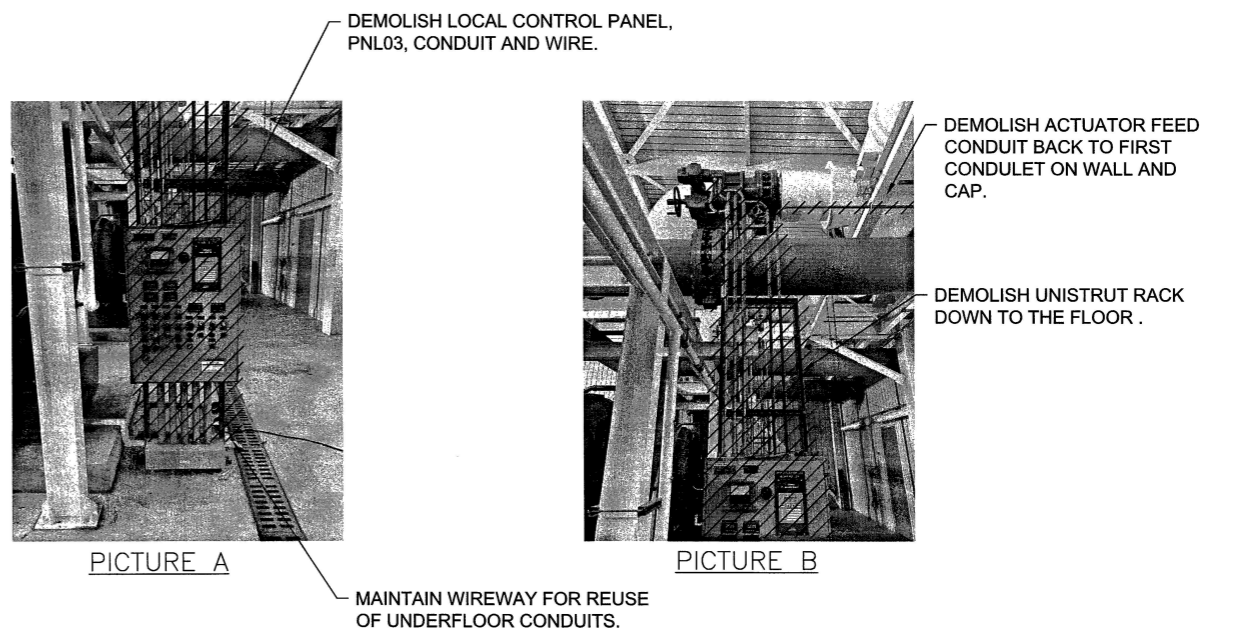
MCC LEGEND EXAMPLE



ELECTRICAL LEGEND & NOTES	
TMUA PROJECT NO. ES 2022-05	
NORTHSIDE AERATION JOCKEY BLOWER ADDITION	
CITY OF TULSA, OKLAHOMA WATER AND SEWER DEPARTMENT	
PLANS AND ESTIMATES PREPARED BY: TETRA TECH	
REVISION	BY DATE
PLAN SCALE:	DRAWN: EDP 04/2024
AS SHOWN:	DESIGNED: WAP 04/2024
PROFILE SCALE:	SURVEY
HORIZONTAL: AS SHOWN:	PROJ. MGR. N.T. 5/24
VERTICAL: AS SHOWN:	LEAD ENGR. [Signature] 5/24
FILE:	FIELD MGR. [Signature] 5/24
DRAWING: E-002	DATE: APRIL 2024
ATLAS PAGE NO: 629	SHEET 12 OF 22 SHEETS

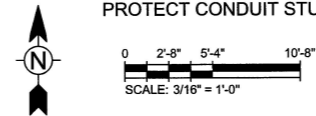


PLAN
SCALE: 3/16" = 1'-0"



NOTES:

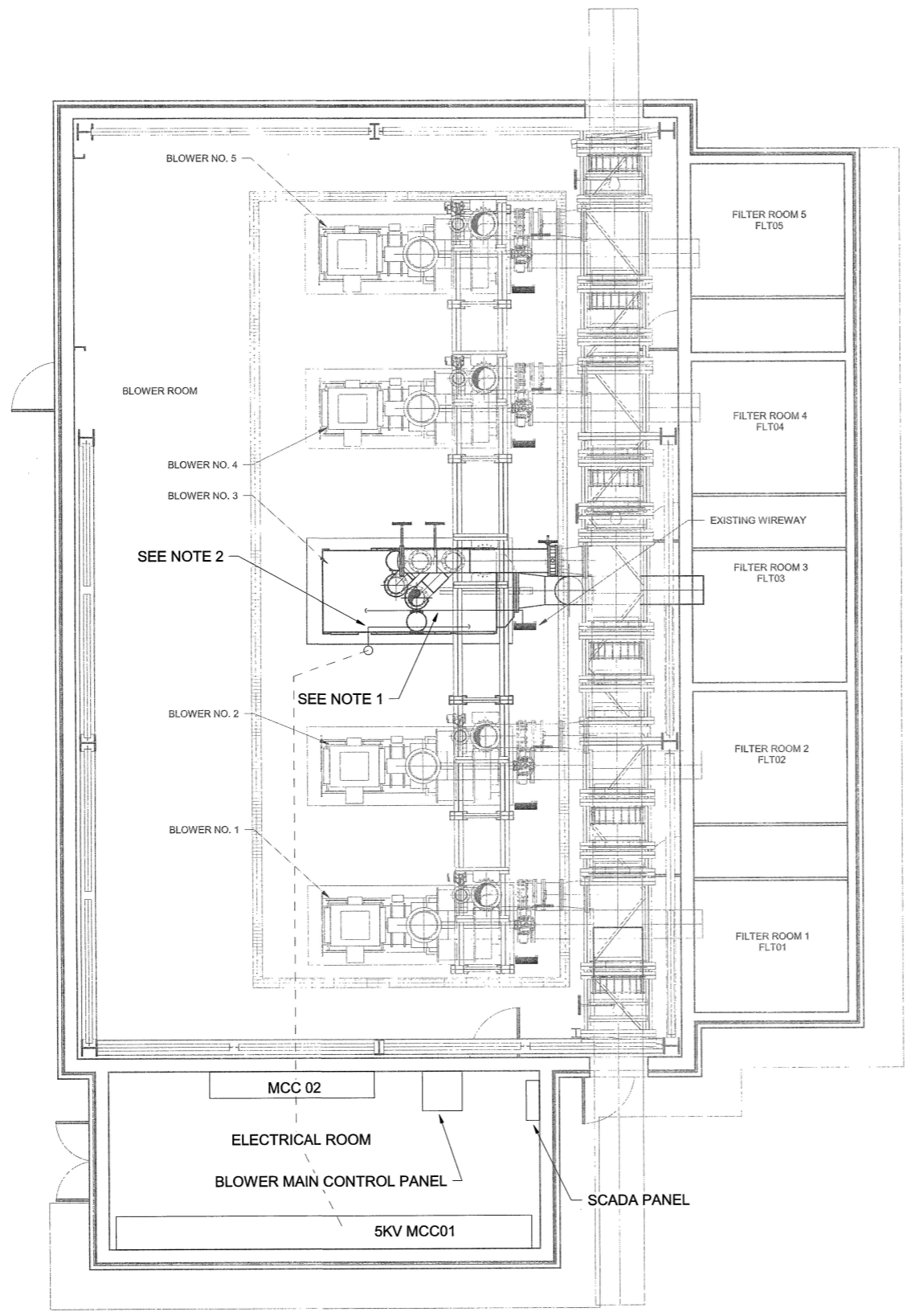
1. DEMOLISH FLEXIBLE CONDUIT FROM FLOOR STUB UP TO BLOWER. REMOVE WIRE BACK TO THE MEDIUM VOLTAGE STARTER. PROTECT CONDUIT STUB UP FOR REUSE.



DEMOLITION FLOOR PLAN
TMUA PROJECT NO. ES 2022-05
NORTHSIDE
AERATION JOCKEY BLOWER ADDITION
CITY OF TULSA, OKLAHOMA
WATER AND SEWER DEPARTMENT

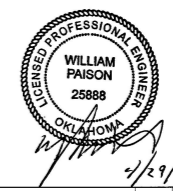
PLANS AND ESTIMATES PREPARED BY:
TETRA TECH

REVISION	BY	DATE	PLAN SCALE:	DRAWN	EDP	04/2024	APPROVED:
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			FILE:	DRAWING:	E-301		DATE: APRIL 2024
			ATLAS PAGE NO:	620			SHEET 13 OF 22 SHEETS



EQUIPMENT PLAN
SCALE: 3/16" = 1'-0"

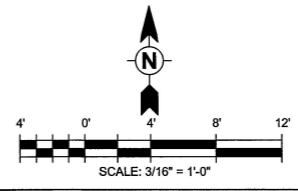
- NOTES**
1. PROVIDE 1"C(2-2/C#18SH) AND 1"C(4 STRAND FIBER) FROM PNL03 INTEGRAL TO BLOWER ENCLOSURE TO EXISTING WIREWAY. FIELD VERIFY CONDUITS BETWEEN WIREWAY AND SCADA PANEL AND BMCP. ROUTE 2/C CABLES IN ONE EX. CONDUIT TO BMCP. ROUTE FIBER IN SECOND EX. CONDUIT TO BMCP.
 2. EXTEND 4" CONDUIT VERTICALLY ABOVE THE BLOWER ENCLOSURE, THEN HORIZONTALLY OVER TO THE MEDIUM VOLTAGE ACCESS POINT OF THE BLOWER ENCLOSURE. PULL NEW WIRE INTO THE CONDUIT BETWEEN THE 5KV MCC01 AND BLOWER.



PROPOSED FLOOR PLAN
TMUA PROJECT NO. ES 2022-05
NORTHSIDE
AERATION JOCKEY BLOWER ADDITION
CITY OF TULSA, OKLAHOMA
WATER AND SEWER DEPARTMENT

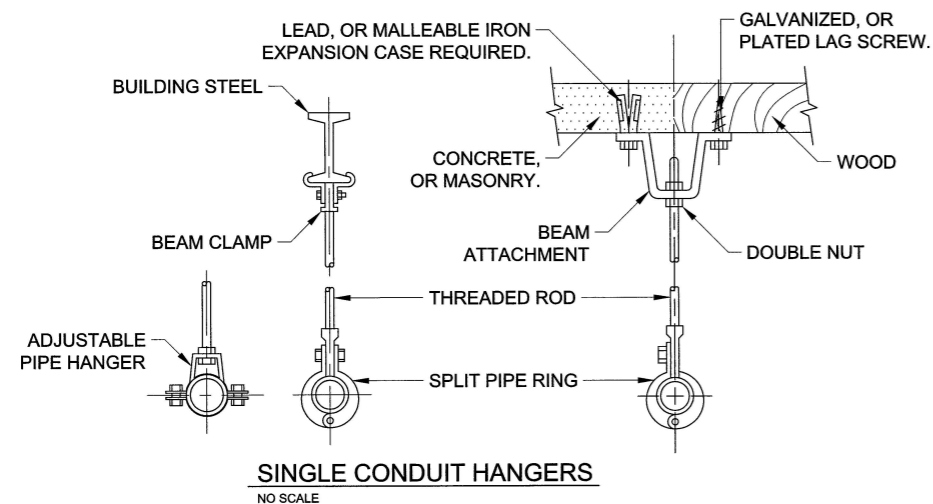
PLANS AND ESTIMATES PREPARED BY:
TETRA TECH

REVISION	BY	DATE	PLAN SCALE:	DRAWN	EDP	04/2024	APPROVED:	
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			PROFILE SCALE:	SURVEY				
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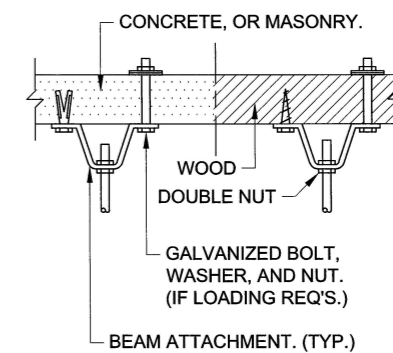
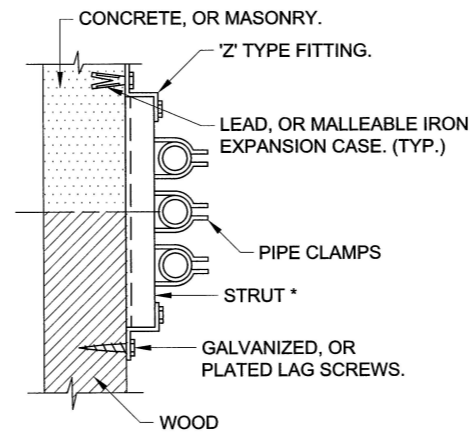


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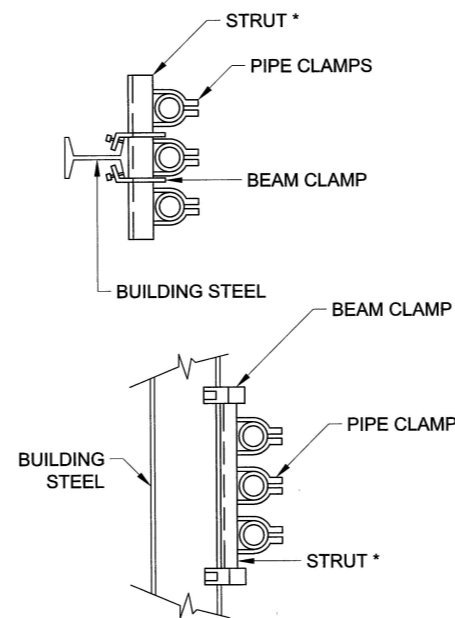
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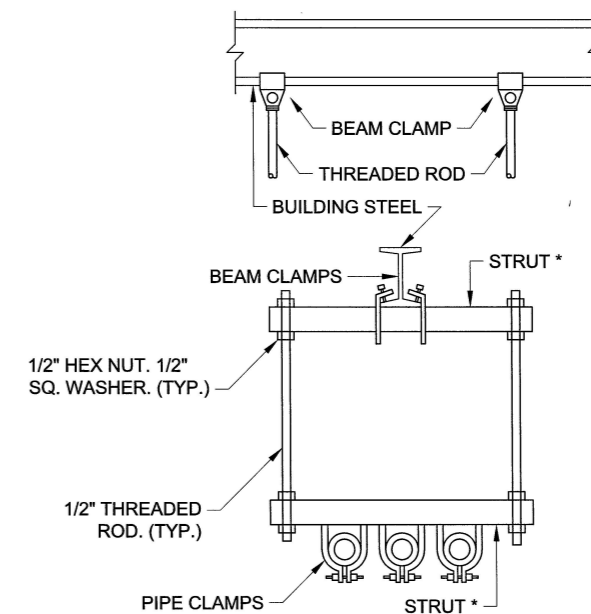
SINGLE CONDUIT HANGERS
NO SCALE



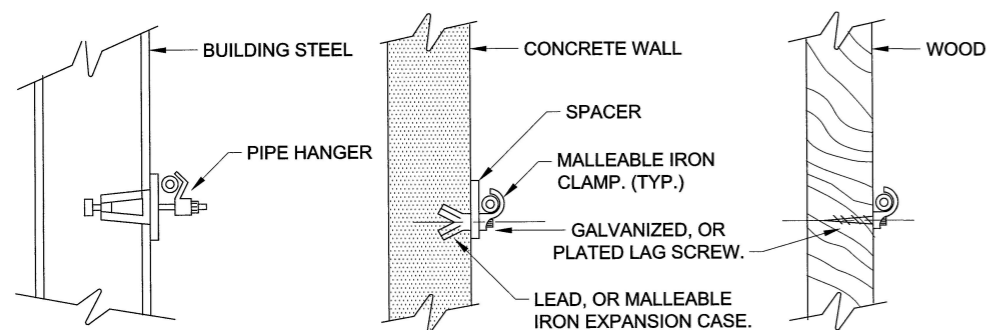
NOTE: * = STRUT SHALL HAVE A MIN. THICKNESS OF .105 INCH, OR 12 GA.



VERTICALLY RACKED AND VERTICAL RUNS
NO SCALE



HORIZONTAL RACKED SUSPENDED RUN
NO SCALE

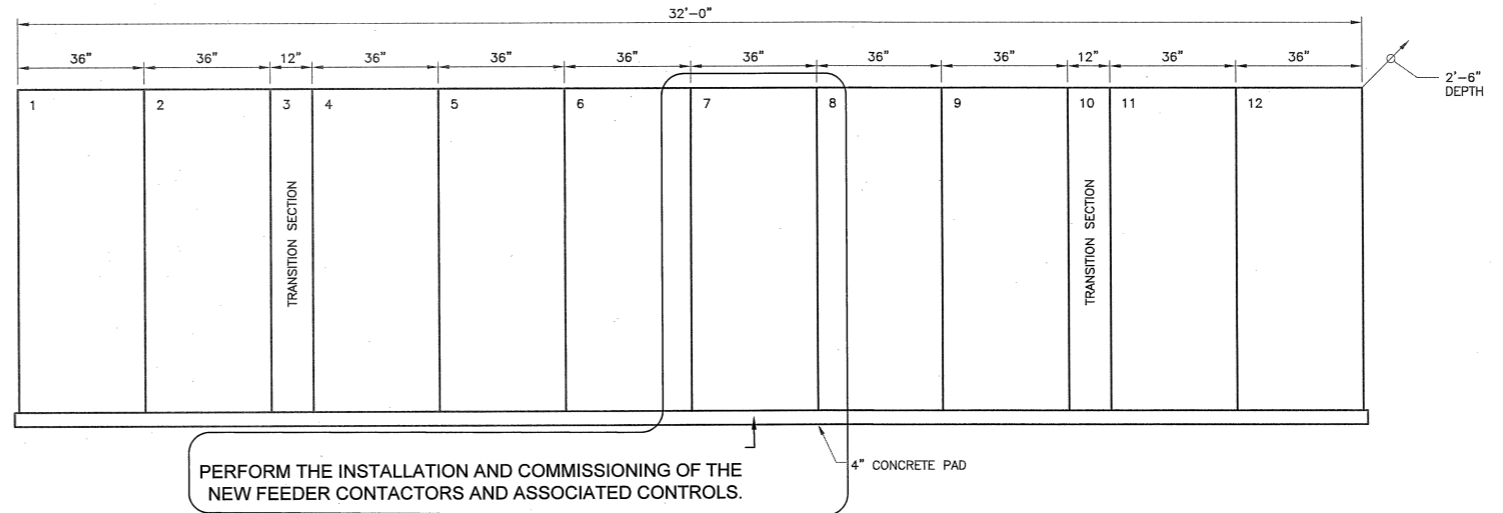
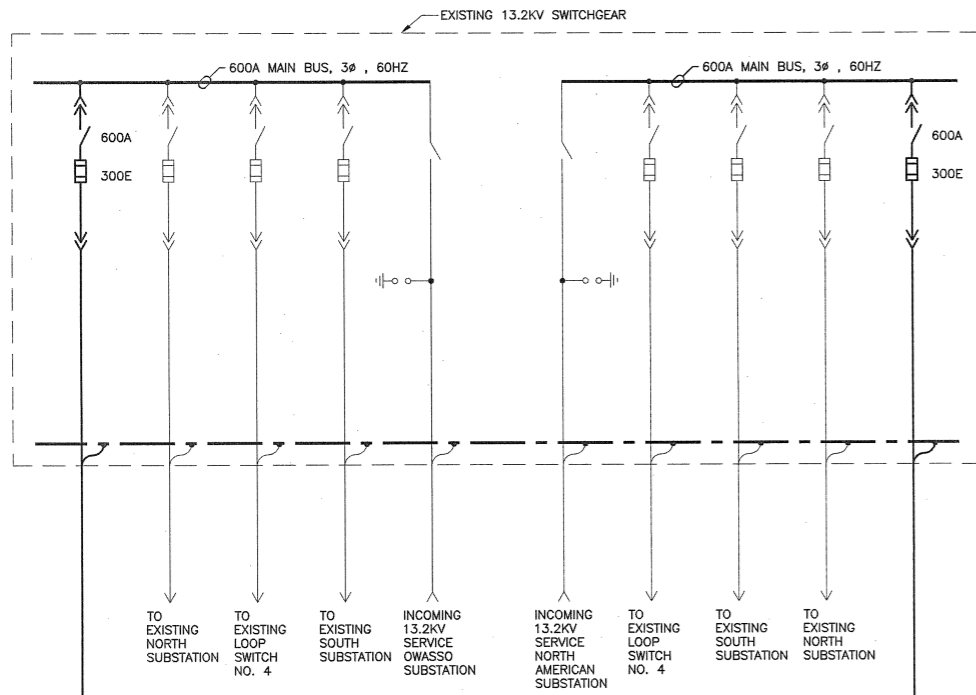


VERTICAL AND HORIZONTAL CONDUIT RACKS AND HANGERS
NO SCALE

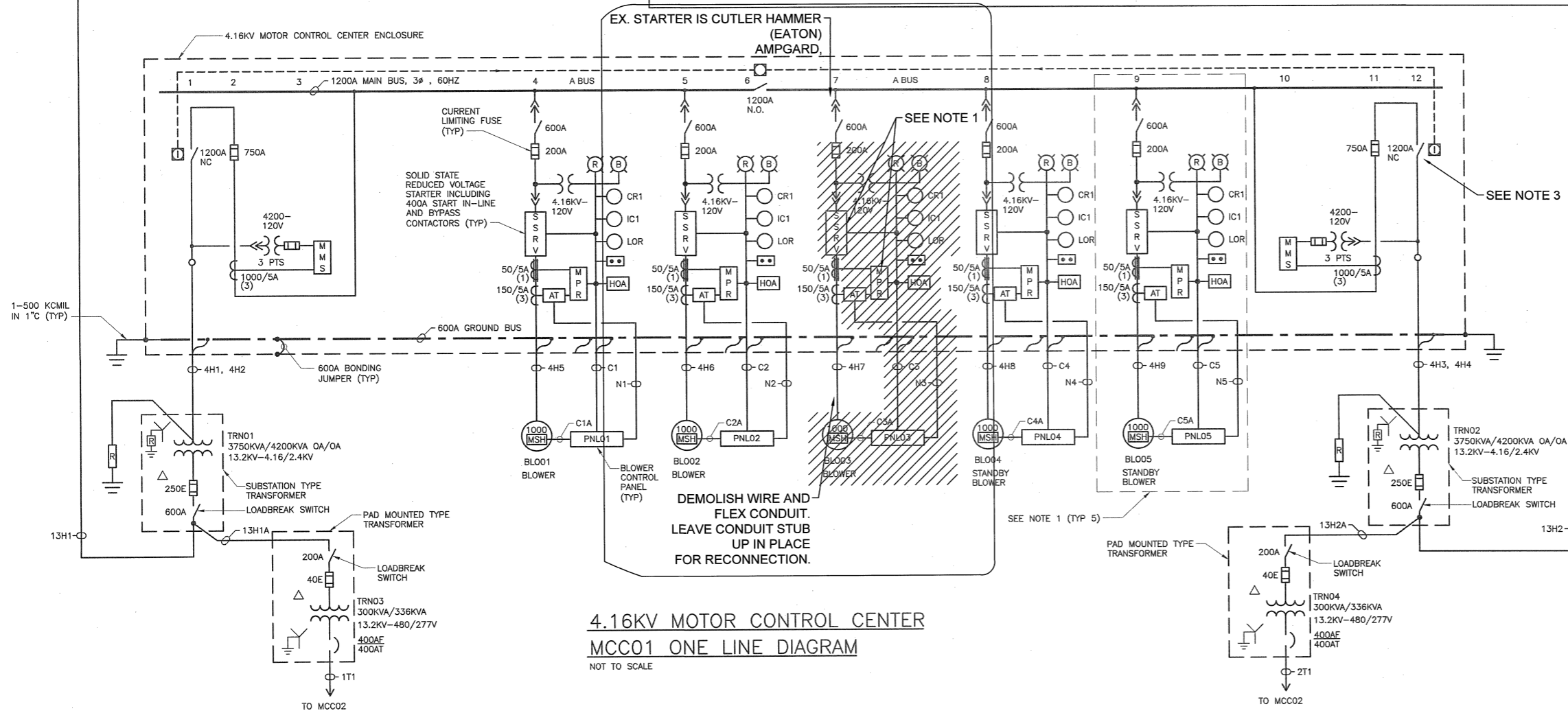


4/29/24

DETAILS						
TMUA PROJECT NO. ES 2022-05						
NORTHSIDE AERATION JOCKEY BLOWER ADDITION						
CITY OF TULSA, OKLAHOMA WATER AND SEWER DEPARTMENT						
PLANS AND ESTIMATES PREPARED BY: TETRA TECH						
REVISION	BY	DATE	PLAN SCALE:	DRAWN	EDP	APPROVED:
			AS SHOWN	DESIGNED	WAP	04/2024
			PROFILE SCALE:	SURVEY		
			HORIZONTAL: AS SHOWN	PROJ. MGR.	N.T.	5/24
			VERTICAL: AS SHOWN	LEAD ENGR.	K.A.	5/24
				FIELD MGR.	Spau	5/24
			FILE:	DRAWING: E-501		
			ATLAS PAGE NO: 620	DATE: APRIL 2024		
SHEET 15 OF 22						SHEETS



4.16KV MOTOR CONTROL CENTER MCC01 FRONT ELEVATION
NOT TO SCALE



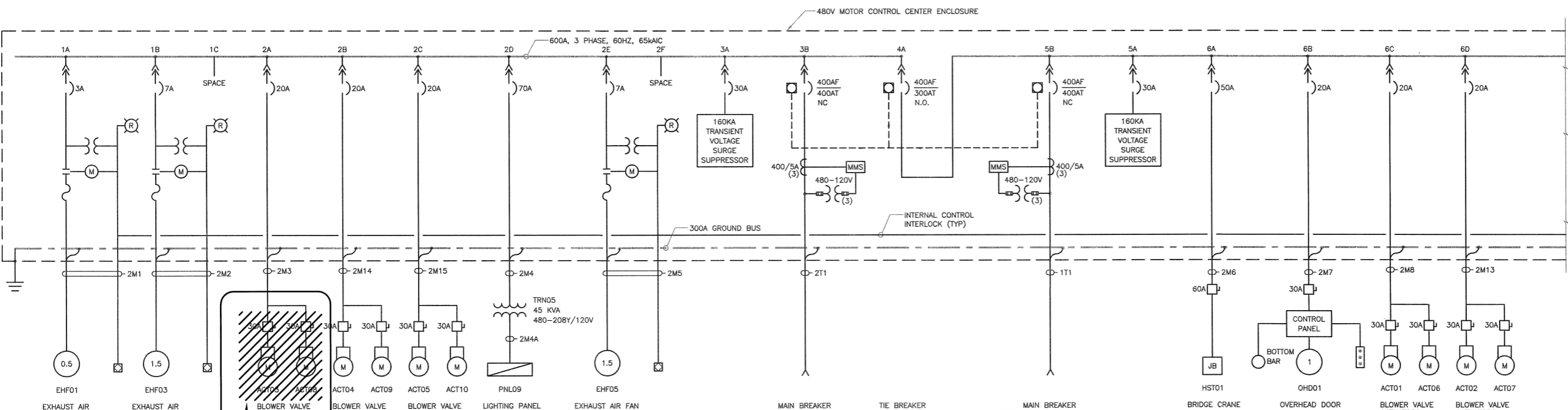
4.16KV MOTOR CONTROL CENTER MCC01 ONE LINE DIAGRAM
NOT TO SCALE

- NOTES:**
1. AFTER DEMOLITION, TURN OVER RVSS AND MPR TO OWNER.
 2. FIELD VERIFY EXISTING CONDITIONS IN STARTER PRIOR TO BID AS WIRING AND LAYOUT MAY NOT EXACTLY MATCH WHAT IS SHOWN HERE IN ONE-LINE SCHEMATIC
 3. COORDINATE WITH OWNER FOR THE DE-ENERGIZING OF B BUS TO ALLOW FOR REPLACEMENT OF BLOWER #3 STARTER. PROVIDE 48 HOURS NOTICE OF DESIRED SHUTDOWN. ONCE SHUTDOWN COMMENCES, WORK SHALL NOT CEASE UNTIL UPGRADE HAS BEEN COMPLETED.

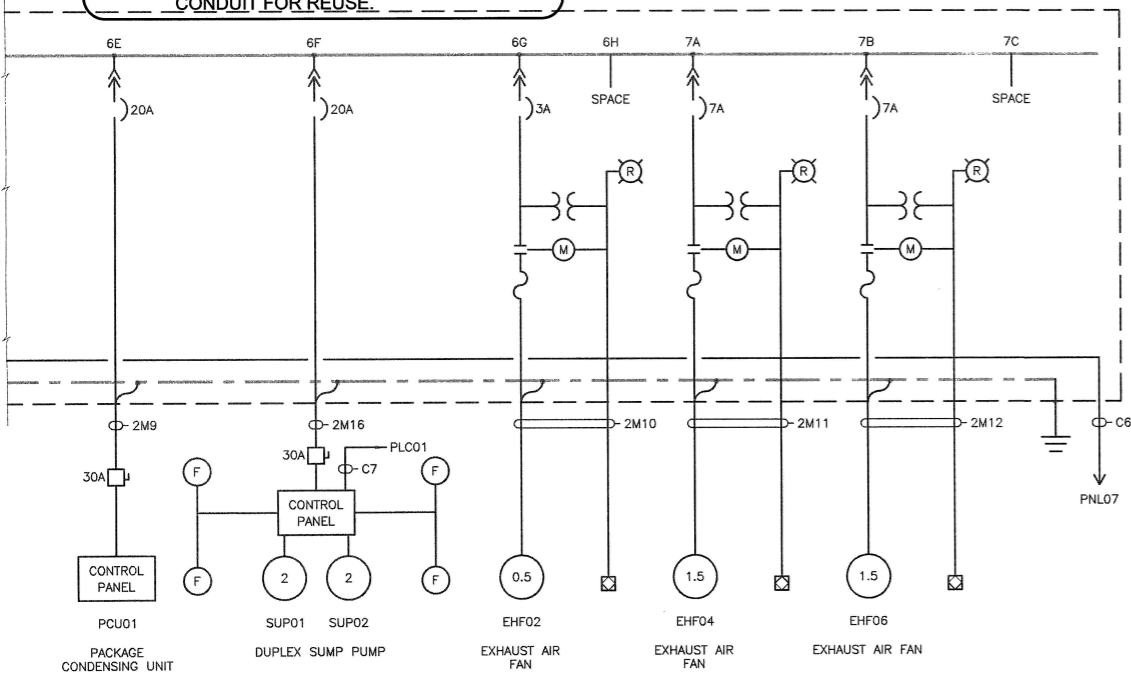
EXISTING DRAWING FROM PREVIOUS PROJECT. PROPOSED WORK SHOWN BOLD, CROSSHATCHED, AND/OR OUTLINED



4KV MCC DEMOLITION	
TMUA PROJECT NO. ES 2022-05	
NORTHSIDE AERATION JOCKEY BLOWER ADDITION	
CITY OF TULSA, OKLAHOMA WATER AND SEWER DEPARTMENT	
PLANS AND ESTIMATES PREPARED BY: TETRA TECH	
REVISION	BY DATE
AS SHOWN	DRAWN: EDP 04/2024 DESIGNED: WAP 04/2024
PROFILE SCALE:	SURVEY
HORIZONTAL: AS SHOWN	PROJ. MGR. N.T. 9/24
VERTICAL: AS SHOWN	LEAD ENGR. [Signature] 9/24
FILE:	FIELD MGR. [Signature] 9/24
ATLAS PAGE NO: 620	DRAWING: E-601 DATE: APRIL 2024
	DESIGN MANAGER: [Signature] SHEET 16 OF 22 SHEETS



CONTINUED BELOW AT LEFT



MAIN BREAKER TIE BREAKER MAIN BREAKER

1	2	3	4	5	6	7
1A	2A 2B	3A	4A	5A	6A 6B	7A
1B	2C 2D	3B		5B	6C 6D	7B
1C	2E 2F				6E 6F	7C
					6G	
					6H	

**480V MOTOR CONTROL CENTER
MCC02 FRONT ELEVATION**
NOT TO SCALE

EXISTING DRAWING FROM PREVIOUS PROJECT. PROPOSED WORK SHOWN BOLD, CROSSHATCHED, AND/OR OUTLINED

**480V MOTOR CONTROL CENTER
MCC02 ONE LINE DIAGRAM**
NOT TO SCALE



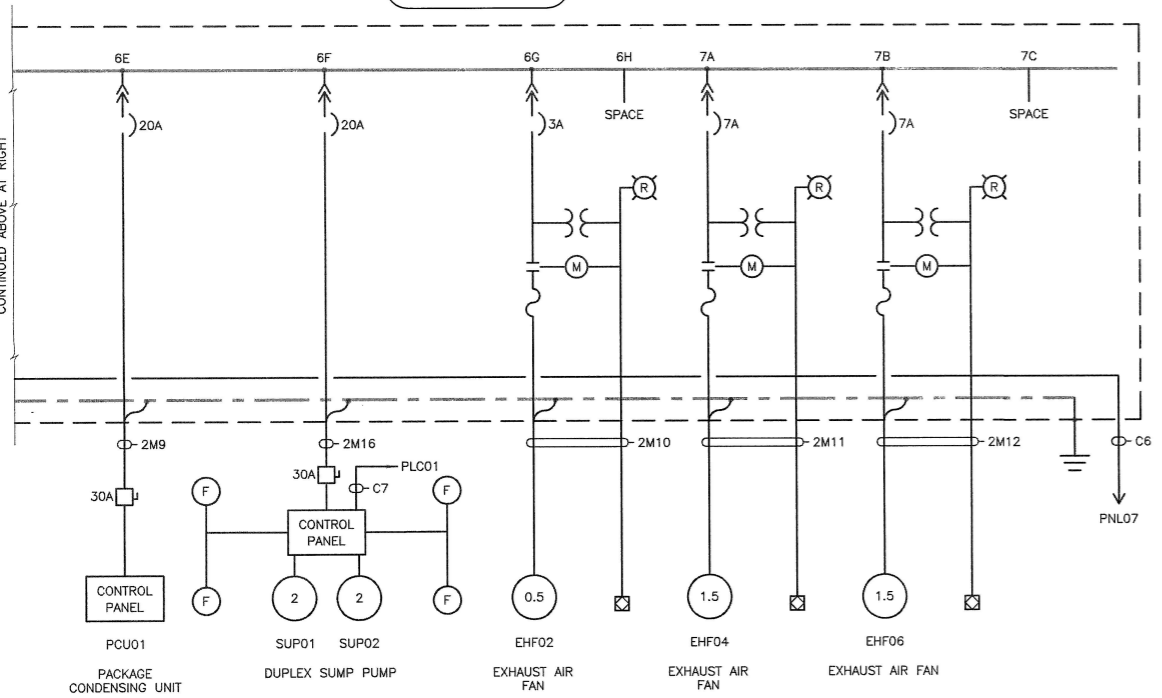
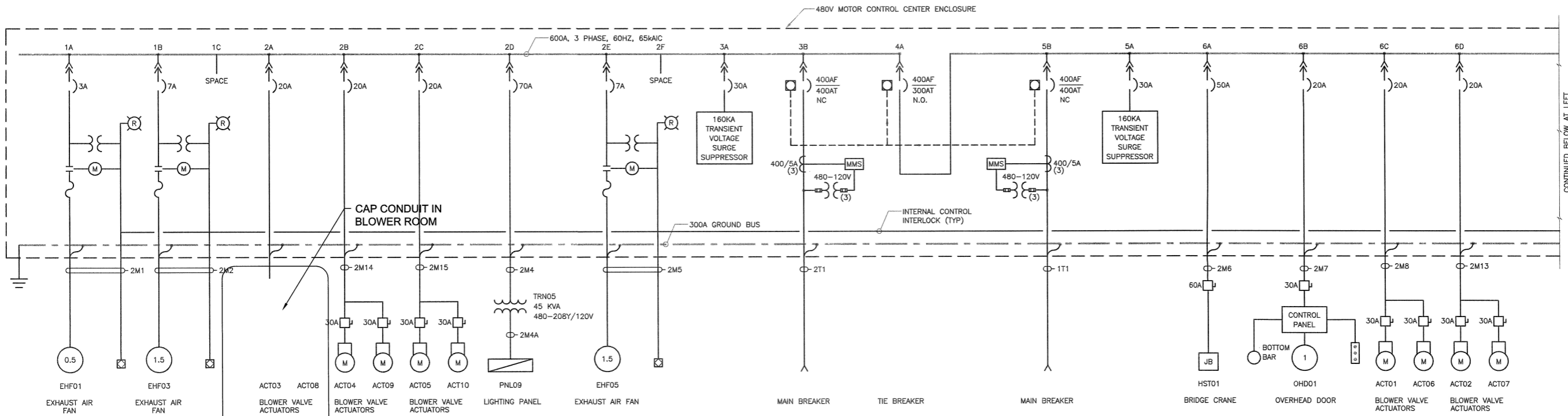
480V MCC DEMOLITION
TMUA PROJECT NO. ES 2022-05
NORTHSIDE
AERATION JOCKEY BLOWER ADDITION
CITY OF TULSA, OKLAHOMA
WATER AND SEWER DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:
TETRA TECH

REVISION	BY	DATE	PLAN SCALE:	DRAWN	EDP	DATE	APPROVED:
			AS SHOWN	DESIGNED	WAP	04/2024	
			PROFILE SCALE:	SURVEY			
			HORIZONTAL:	PROJ. MGR.	N.T.	5/24	
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			AS SHOWN	FIELD MGR.	JEM/24		
			FILE:	DESIGN MGR.			
			ATLAS PAGE NO: 620	DATE: APRIL 2024			

DESIGN MANAGER

SHEET 18 OF 22 SHEETS



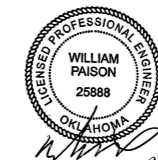
REPLACE BUCKET TAG WITH NEW TAG READING "SPARE 20A".

1	2	3	4	5	6	7
1A	2A	2B	3A	4A	5A	6A
1B	2C	2D	3B	5B	6B	7A
1C	2E				6C	7B
	2F				6D	7C
					6E	
					6F	
					6G	
					6H	

480V MOTOR CONTROL CENTER
MCC02 FRONT ELEVATION
NOT TO SCALE

480V MOTOR CONTROL CENTER
MCC02 ONE LINE DIAGRAM
NOT TO SCALE

EXISTING DRAWING FROM PREVIOUS PROJECT. PROPOSED WORK SHOWN BOLD, CROSSHATCHED, AND/OR OUTLINED

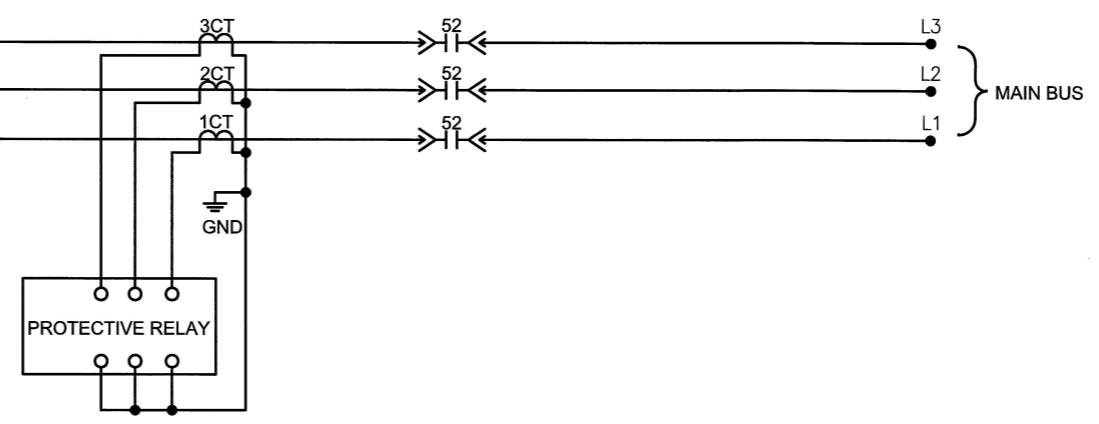
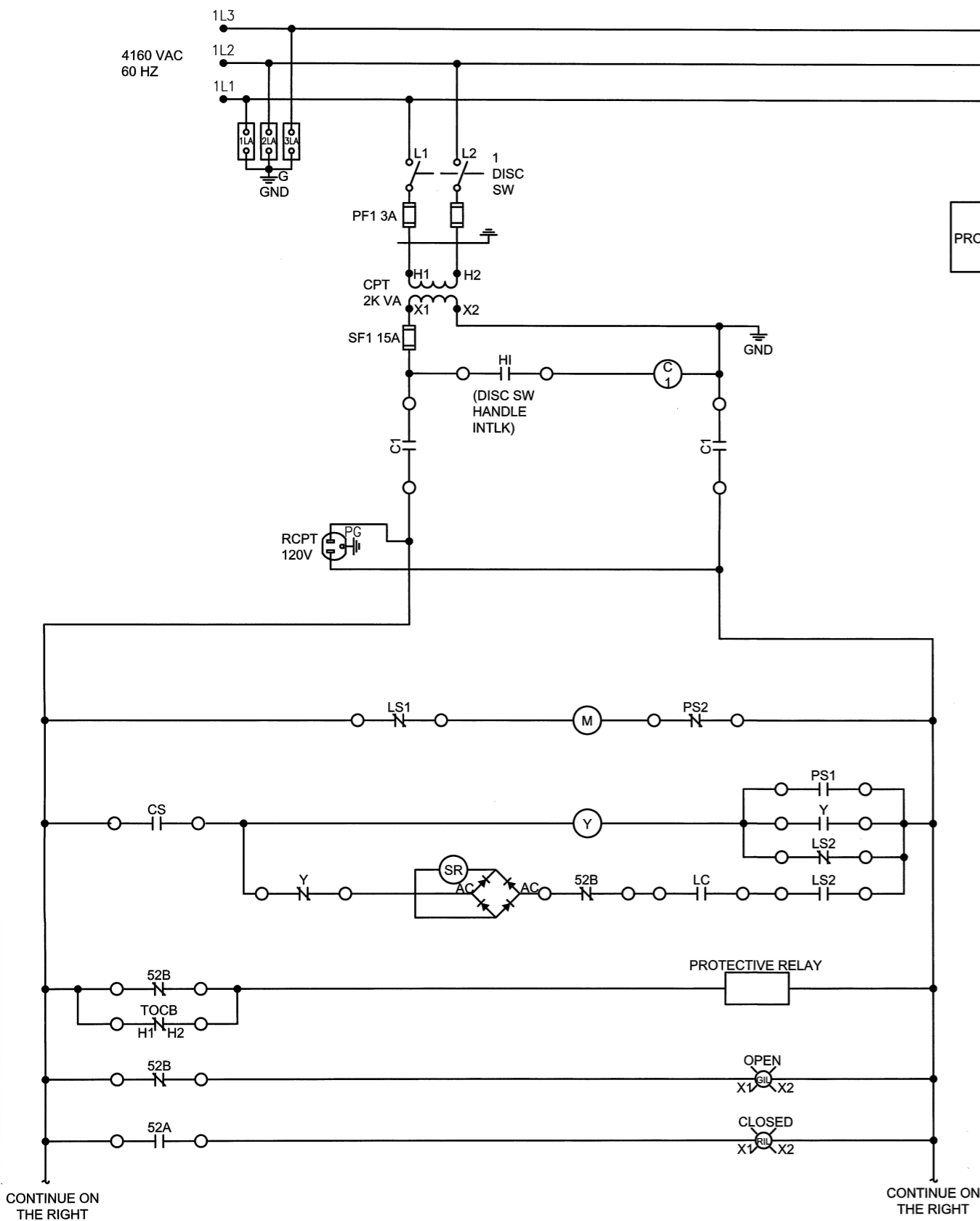


480V MCC ONE-LINE DIAGRAM
TMUA PROJECT NO. ES 2022-05
NORTHSIDE
AERATION JOCKEY BLOWER ADDITION
CITY OF TULSA, OKLAHOMA
WATER AND SEWER DEPARTMENT

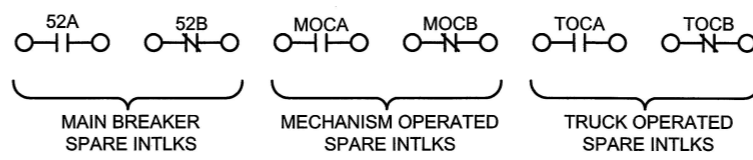
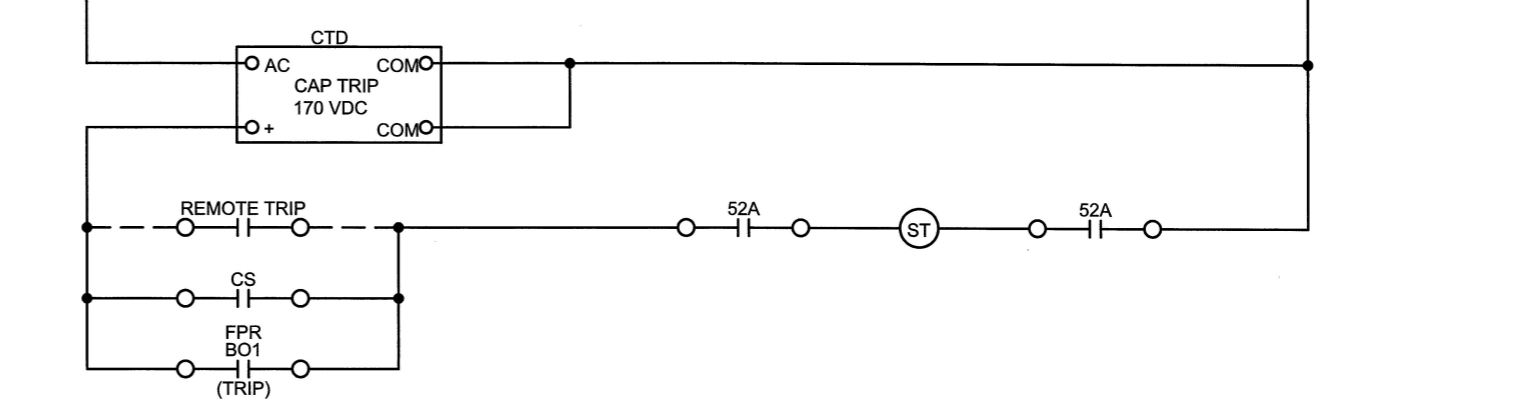
PLANS AND ESTIMATES PREPARED BY:
TETRA TECH

REVISION	BY	DATE	PLAN SCALE:	DRAWN	EDP	04/2024	APPROVED:
			AS SHOWN	DESIGNED	WAP	04/2024	
			PROFILE SCALE:	SURVEY			
			HORIZONTAL:	PROJ. MGR.	N.T.	5/24	
			AS SHOWN	LEAD ENGR.	N.T.	5/24	
			VERTICAL:	FIELD MGR.			
			AS SHOWN				
			FILE:	DRAWING: E-604			DATE: APRIL 2024
			ATLAS PAGE NO: 620				SHEET 19 OF 22 SHEETS

PATH NAME: O:\Projects\Tulsa\11383-23002\CAD\SheetFiles\E-605 BLOWER#3 FEEDER CONTRACTOR WIRING SCHEMATIC.dwg Warren, Austin 11/28/2023 4:19 PM



CONTINUE ON THE LEFT



1. TOC CONTACTS SHOWN WITH BREAKER IN TEST POSITION.
2. REFER TO EATON INSTRUCTION BOOK I.B. 32-255-1C FOR TYPICAL BREAKER OPERATION AND DEVICE LEGEND.

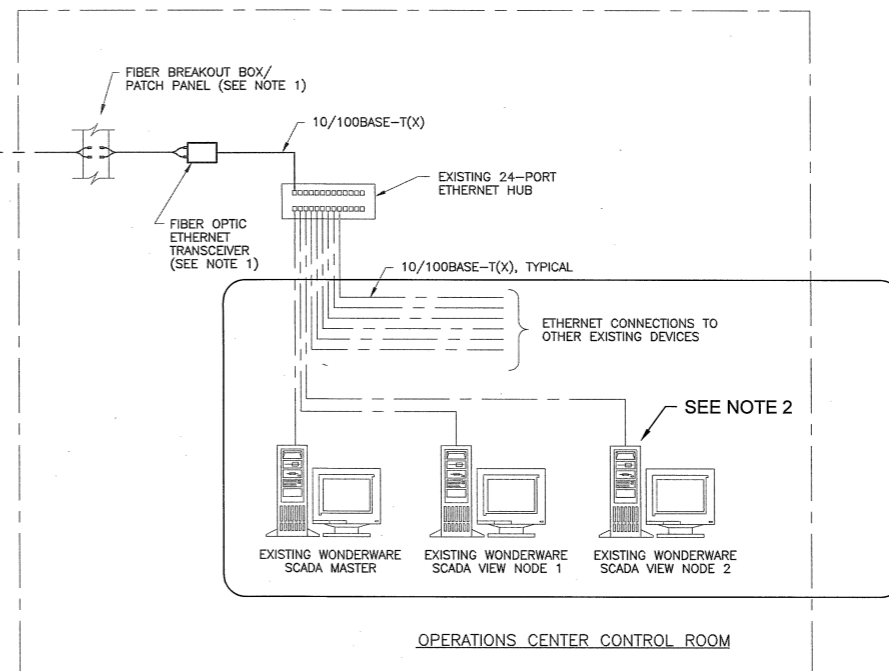
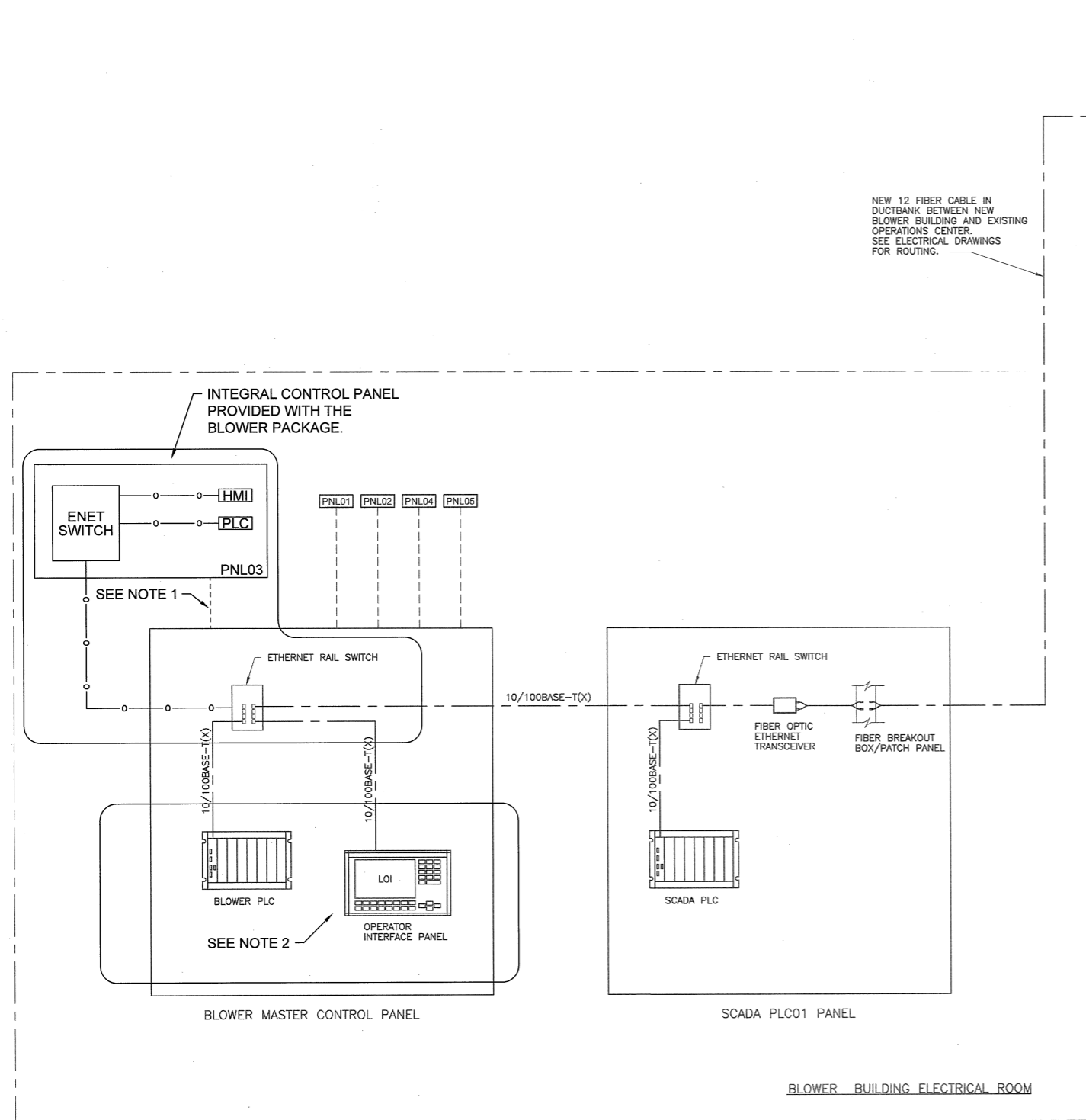
CONTINUE ON THE RIGHT

CONTINUE ON THE RIGHT



BLOWER#3 FEEDER CONTACTOR WIRING SCH.
 TMUA PROJECT NO. ES 2022-05
 NORTHSIDE
 AERATION JOCKEY BLOWER ADDITION
 CITY OF TULSA, OKLAHOMA
 WATER AND SEWER DEPARTMENT
 PLANS AND ESTIMATES PREPARED BY:
 TETRA TECH

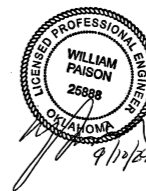
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			PROFILE SCALE:	SURVEY			
			HORIZONTAL: AS SHOWN	PROJ. MGR.	N.T.	5/24	
			VERTICAL: AS SHOWN	LEAD ENGR.	WAP	5/24	
			FILE:	FIELD MGR.	WAP	5/24	
			DRAWING: E-605	DESIGN MANAGER			
			ATLAS PAGE NO: 620				DATE: APRIL 2024
							SHEET 20 OF 22 SHEETS



NOTES:

- EXISTING TWO PRESSURE SIGNALS SHALL BE EXTENDED TO THE NEW LOCAL CONTROL PANEL. REFER TO PID FOR CLARIFICATION.
- UPDATE PROGRAMMING IN BMCP TO REMOVE CONTROL AND MONITORING OF BLOWER #3. UPDATE PROGRAMMING OF HMI SCREENS IN CONTROL ROOM TO MONITOR THE NEW BLOWER. ALLOT FOR MONITORING AND TRENDED OF 25 VARIABLES. UPDATE HMI PROGRAMMING TO ALLOW FOR PRESSURE SIGNAL SELECTION AT NEW BLOWER LCP
- BLOWER MANUFACTURER SHALL PROGRAM THE BLOWER LCP. CONTRACTOR SHALL PROGRAM THE REMAINING ITEMS LISTED IN NOTE 2 ABOVE.

EXISTING DRAWING FROM PREVIOUS PROJECT. PROPOSED WORK SHOWN BOLD, CROSSHATCHED, AND/OR OUTLINED



SCADA NETWORK DETAILS
 TMUA PROJECT NO. ES 2022-05
 NORTHSIDE
 AERATION JOCKEY BLOWER ADDITION
 CITY OF TULSA, OKLAHOMA
 WATER AND SEWER DEPARTMENT

PLANS AND ESTIMATES PREPARED BY:
TETRA TECH

REVISION	BY	DATE	PLAN SCALE:	DRAWN	EDP	04/2024	APPROVED:
			AS SHOWN	DESIGNED	WAP	04/2024	
			PROFILE SCALE:	SURVEY			
			HORIZONTAL: AS SHOWN	PROJ. MGR.	N.T.	9/24	
			VERTICAL: AS SHOWN	LEAD ENGR.	WAP	9/24	
			FILE:	FIELD MGR.	WAP	9/24	William M. Mason DESIGN MANAGER
			ATLAS PAGE NO: 620	DRAWING: I-100			DATE: APRIL 2024
							SHEET 21 OF 22 SHEETS

BLOWER BLDG
SCADA PLC01

FILTER 1
HEAD LOSS
FILTER 2
HEAD LOSS
FILTER 3
HEAD LOSS
FILTER 4
HEAD LOSS
FILTER 5
HEAD LOSS

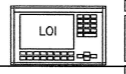
ETHERNET DATA LINK

PACKAGE CONTROL SYSTEM WITH
DEDICATED PLC BY BLOWER MANUFACTURER

HVAC ALARM
FIRE ALARM
BLDG SUMP
HIGH WATER ALARM

CONTINUED ON
DWG AN4

MASTER BLOWER CONTROL PANEL - PNL06



BLOWER PLC

TO PLC

SEE NOTE

TO PNL01
TO PNL02
TO PNL04
TO PNL05

SEE SIGNAL
INTERFACE
DESCRIPTION
AT RIGHT.

PROVIDED AS PART OF
PACKAGE CONTROL SYSTEM
BY BLOWER MANUFACTURER

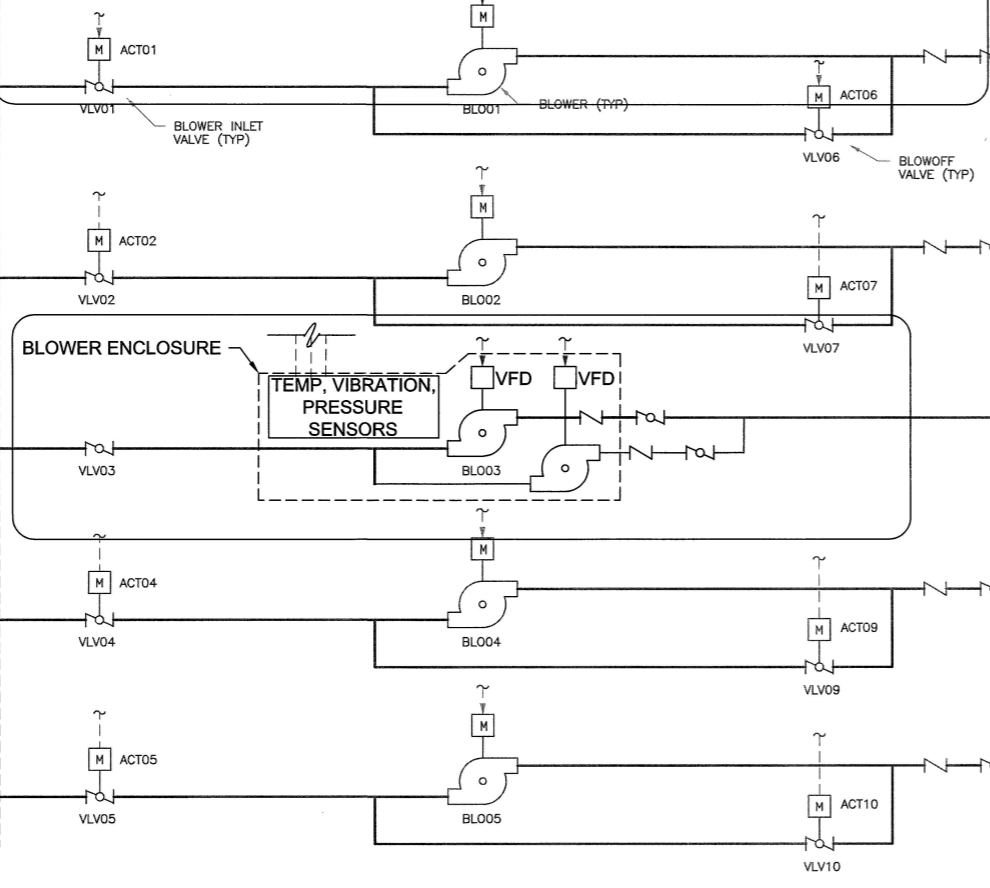
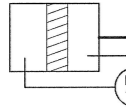
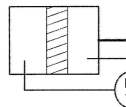
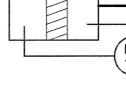
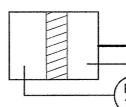
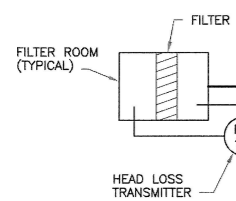
ETHERNET, CAT6

BLOWER NO.3 INTEGRAL CONTROL PANEL - PNL03

PROCESS AIR HEADER
TO NORTH AERATION
BASINS NO. 3 AND NO. 4

TEMPERATURE
CONTROL PANEL
PNL07

SUMP PUMP
CONTROL PANEL
PNL08



TYPICAL FOR
EACH BLOWER

REDUNDANT
PRESSURE
TRANSMITTERS

PROCESS AIR HEADER
TO SOUTH AERATION
BASINS NO. 1 AND NO. 2

EXISTING DRAWING FROM PREVIOUS
PROJECT. PROPOSED WORK SHOWN BOLD,
CROSSHATCHED, AND/OR OUTLINED



BLOWER P&ID	
TMUA PROJECT NO. ES 2022-05	
NORTHSIDE AERATION JOCKEY BLOWER ADDITION	
CITY OF TULSA, OKLAHOMA WATER AND SEWER DEPARTMENT	
PLANS AND ESTIMATES PREPARED BY:	
TETRA TECH	

NOTES:

1. PROVIDE TWO 4-20 MA SIGNAL SPLITTER/TRANSMITTERS. OUTPUTS FROM EACH TRANSMITTER SHALL BE RECONNECTED TO BMCP PLC AND NEW CONNECTIONS TO PNL03. PROVIDE POWER WIRING UPDATES INSIDE BMCP TO POWER CURRENT TRANSMITTERS.

REVISION	BY	DATE	PLAN SCALE:	DRAWN	EDP	DATE	APPROVED:
			AS SHOWN	DESIGNED	WAP	04/2024	
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			ATLAS PAGE NO: 620	DRAWING: I-101			SHEET 22 OF 22 SHEETS

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