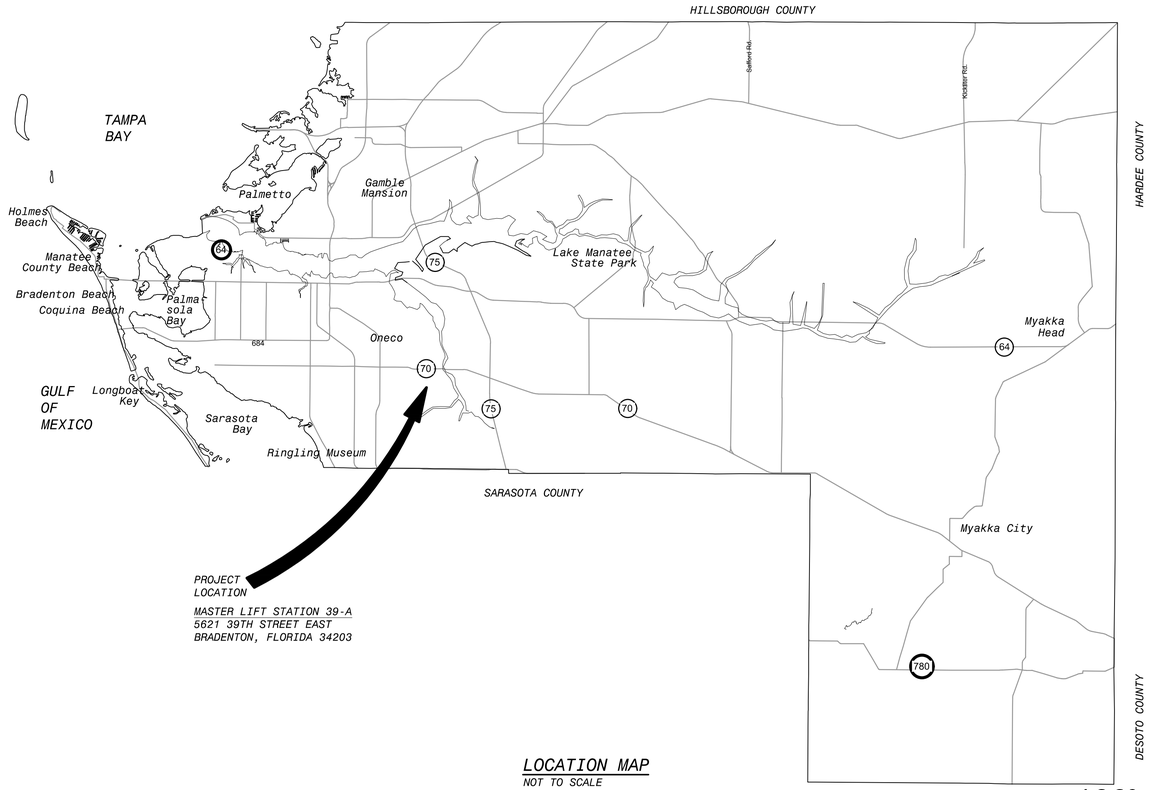
MANATEE COUNTY
IMPROVEMENTS AT MASTER LIFT STATION 39-A

Manatee County FLORIDA



LOCATION MAP
NOT TO SCALE

VICINITY MAP
NOT TO SCALE

48 HOURS BEFORE YOU DIG
CALL SUNSHINE
1-800-432-4770 or 811
IT'S THE LAW IN FLORIDA
FLORIDA LAW REQUIRES EXCAVATORS TO NOTIFY OWNERS OF UNDERGROUND FACILITIES NO LESS THAN TWO (2) DAYS PRIOR TO EXCAVATION

THIS DRAWING WAS ORIGINALLY APPROVED FOR CONSTRUCTION BY MICHAEL N. TACHE, ON 09/16/2022 AND SEALED BY MICHAEL N. TACHE, A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF FLORIDA, NO. 83893

GENERAL, DEMOLITION, CIVIL & MECHANICAL

Digitally signed by Michael Tache
Date: 2023.01.10 15:53:54-05'00'

THIS DRAWING WAS ORIGINALLY APPROVED FOR CONSTRUCTION BY PHILIP D RISHEL, ON 09/16/2022 AND SEALED BY PHILIP D RISHEL, A REGISTERED ARCHITECT IN THE STATE OF FLORIDA, NO. AR101040

ARCHITECTURAL

STATE OF FLORIDA · PHILIP D RISHEL · AR101040 · REGISTERED ARCHITECT
1-9-2023

100% SUBMITTAL
SEPTEMBER 2022
PROJECT #402142
MANATEE COUNTY PROJECT NUMBERS
6017983, 6017984, 6017982

BLACK & VEATCH

Black & Veatch Corporation
3405 W. Dr. M. L. King Jr. Blvd, Suite 125
Tampa, Florida Certificate No. 8132

THIS DRAWING WAS ORIGINALLY APPROVED FOR CONSTRUCTION BY MICHELE ROTH, ON 09/16/2022 AND SEALED BY MICHELE ROTH, A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF FLORIDA, NO. 82002

HVAC

MICHELE F. ROTH · LICENSE No. 82002 · STATE OF FLORIDA · PROFESSIONAL ENGINEER
2023.01.09 15:49:13-06'00'

THIS DRAWING WAS ORIGINALLY APPROVED FOR CONSTRUCTION BY JULIE GLOSS, ON 09/16/2022 AND SEALED BY JULIE GLOSS, A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF FLORIDA, NO. 86822

STRUCTURAL

JULIA C. GLOSS · LICENSE No. 86822 · STATE OF FLORIDA · PROFESSIONAL ENGINEER
Digitally signed by Julia Gloss
Date: 2023.01.09 15:50:37-05'00'

THIS DRAWING WAS ORIGINALLY APPROVED FOR CONSTRUCTION BY RYAN BINKLEY, ON 09/16/2022 AND SEALED BY RYAN BINKLEY, A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF FLORIDA, NO. 89014

ELECTRICAL

RYAN R. BINKLEY · LICENSE No. 89014 · STATE OF FLORIDA · PROFESSIONAL ENGINEER
2023.01.09 15:51:19-06'00'

THIS DRAWING WAS ORIGINALLY APPROVED FOR CONSTRUCTION BY LARRY BROUILLETTE, ON 09/16/2022 AND SEALED BY LARRY BROUILLETTE, A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF FLORIDA, NO. 57973

INSTRUMENTATION

LARRENCE BROUILLETTE · LICENSE NO.57973 · STATE OF FLORIDA · PROFESSIONAL ENGINEER
2023.01.09 15:52:05-06'00'

ISSUED FOR CONSTRUCTION

DISCIPLINE	DRAWING NO.	DRAWING TITLE
GENERAL		
1	-	COVER SHEET AND VICINITY MAP
2	G-01	GENERAL - INDEX OF DRAWINGS
3	G-02	GENERAL - NOTES, LEGEND AND ABBREVIATIONS
DEMOLITION		
4	D-01	DEMOLITION - PLAN
5	D-02	DEMOLITION - CIVIL SITE DEMO - PLAN
6	D-03	DEMOLITION - ELECTRICAL EQUIPMENT
7	D-04	DEMOLITION - PUMP ROOM AND FUEL TANK
SITEWORK		
8	C-01	CIVIL - SITE PLAN
9	C-02	CIVIL - TYPICAL DETAILS
ARCHITECTURAL		
10	A-01	ARCHITECTURAL - FLOOR PLAN, LIFE SAFETY PLAN AND CODE ANALYSIS
11	A-02	ARCHITECTURAL - MLS 39A PUMP BUILDING ELEVATIONS
12	A-03	ARCHITECTURAL - SCHEDULES AND DETAILS
STRUCTURAL		
13	S-01	STRUCTURAL - STANDARD NOTES
14	S-02	STRUCTURAL - LOADING CRITERIA
15	S-03	STRUCTURAL - MASTER LIFT STATION PLAN AND SECTION
16	S-04	STRUCTURAL - EQUIPMENT FOUNDATION PLANS AND SECTIONS
17	S-05	STRUCTURAL - PREFAB ELECTRICAL BUILDING FOUNDATION PLAN AND SECTION
18	S-06	STRUCTURAL - STANDARD CONCRETE REINFORCEMENT AND CMU DETAILS
MECHANICAL		
19	M-01	MECHANICAL - PIPING PLAN
20	M-02	MECHANICAL - PIPING SECTION
HVAC		
21	H-01	HVAC - LEGEND, ABBREVIATIONS AND GENERAL NOTES
22	H-02	HVAC - MLS 39-A - PLAN
23	H-03	HVAC - NEW PREFAB ELECTRICAL BUILDING PLAN
24	H-04	HVAC - SCHEDULES AND DETAILS
ELECTRICAL		
25	E-01	ELECTRICAL - LEGENDS
26	E-02	ELECTRICAL - ABBREVIATIONS AND NOTES
27	E-03	ELECTRICAL - STANDARD DETAILS 1
28	E-04	ELECTRICAL - STANDARD DETAILS 2
29	E-05	ELECTRICAL - EXISTING ELECTRICAL DEMO ONE-LINE DIAGRAMS
30	E-06	ELECTRICAL - SWBD-1 ONE-LINE DIAGRAM
31	E-07	ELECTRICAL - MISCELLANEOUS ONE-LINE DIAGRAM
32	E-08	ELECTRICAL - PANELBOARD & LIGHTING FIXTURE SCHEDULES
33	E-09	ELECTRICAL - OVERALL SITE PLAN
34	E-10	ELECTRICAL - MASTER LIFT STATION 39-A ELECTRICAL EQUIPMENT ROOM DEMO PLAN
35	E-11	ELECTRICAL - NEW ELECTRICAL PREFAB BUILDING - POWER AND GROUNDING PLAN
36	E-12	ELECTRICAL - MASTER LIFT STATION 39-A ELECTRICAL EQUIPMENT BUILDING POWER AND LIGHTING PLAN
37	E-13	ELECTRICAL - DRYWELL POWER AND LIGHTING PLAN
38	E-14	ELECTRICAL - SCHEMATICS
INSTRUMENTATION		
39	I-01	INSTRUMENTATION - LEGEND & ABBREVIATIONS (SHEET 1 OF 3)
40	I-02	INSTRUMENTATION - LEGEND & ABBREVIATIONS (SHEET 2 OF 3)
41	I-03	INSTRUMENTATION - LEGEND & ABBREVIATIONS (SHEET 3 OF 3)
42	I-04	INSTRUMENTATION - P&ID MASTER LIFT STATION PUMPS
43	I-05	INSTRUMENTATION - P&ID ENGINE GENERATOR
44	I-06	INSTRUMENTATION - INSTALLATION DETAILS
45	I-07	INSTRUMENTATION - NETWORK BLOCK DIAGRAM

ISSUED FOR CONSTRUCTION

NO.	BY	CK APP
C	AD	AW MNT
B	AD	AW MNT
A	AD	NE MT

REVISIONS AND RECORD OF ISSUE

DATE	
SEPT 2022	100% SUBMITTAL
JUL 2022	90% SUBMITTAL
MAR 2021	50% SUBMITTAL

50.3040 - General Drawings
G-01.dwg

SAVED:DUT48884, 9/15/2022 4:06:50 PM
PLOTTED:DUT48884, 9/15/2022 4:22:02 PM
USER:DUT48884 DWG VER:1009

XREF1:
XREF2:
XREF3:
XREF4:

THIS DRAWING WAS ORIGINALLY APPROVED FOR CONSTRUCTION BY MICHAEL N. TACHE, ON 09/16/2022 AND SEALED BY MICHAEL N. TACHE, A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF FLORIDA, NO. 83983

BLACK & VEATCH

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3405 W. Dr. M. L. King Jr. Blvd. Suite 125
Tampa, Florida. Certificate No. 8132

MANATEE COUNTY FLORIDA
IMPROVEMENTS AT
MASTER LIFT STATION 39-A

GENERAL
INDEX OF DRAWINGS

DESIGNED: AD
DETAILED: AD
CHECKED: AW
APPROVED: MNT
DATE: SEPT 2022

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
402142

G-01
SHEET
2 OF 45

FD7000
402142

GENERAL

1. ALL EXISTING AND NEW MANATEE COUNTY UTILITIES VALVES, VALVE BOXES, AIR RELEASE VALVES, FIRE HYDRANTS, MANHOLES, MANHOLE COVERS, ETC IN CONFLICT WITH ROADWAY AND OTHER NEW WORK SHALL BE PROTECTED AND ADJUSTED BY CONTRACTOR TO FINISH GRADE AS INDICATED ON THE DRAWINGS.
2. UTILITIES CONSTRUCTION DIVISION SHALL BE NOTIFIED AT LEAST TWENTY ONE (21) DAYS PRIOR TO ANY CONSTRUCTION ACTIVITY WITHIN PROXIMITY OF ANY UTILITIES, INCLUDING TIE-IN AND VALVE OPERATIONS.
3. THE CONTRACTOR SHALL COORDINATE ALL PUMP STATION OPERATION AND SHUT DOWN CONTROL WITH A UTILITIES INSPECTOR. CONTRACTOR SHALL PROVIDE 24 HOUR BYPASS MONITORING WHILE STATION IS BEING BYPASSED.
4. ALL NEW VALVES BEING INSTALLED SHALL REMAIN CLOSED DURING CONSTRUCTION. KEEP VALVES ON ALL WET TAPS CLOSED UNTIL CLEARED BY FDEP. DO NOT CONNECT ANY PROPOSED WATER MAIN TO ANY EXISTING WATER MAIN UNLESS CLEARED BY FDEP AND UTILITIES.
5. THE UTILITY IMPROVEMENTS AND ADJUSTMENTS SHOWN ON THESE PLANS ARE INTENDED TO MAINTAIN THE INTEGRITY OF THE MANATEE COUNTY WATER, WASTEWATER AND RECLAIMED WATER SYSTEMS. ALL MATERIALS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS. THE PLANS DO NOT INCLUDE WORK PERFORMED ON OR FOR UTILITY SYSTEMS OWNED BY OTHERS UNLESS STATED OTHERWISE ON THE PLANS.
6. EXISTING UTILITIES AND STRUCTURES (UNDERGROUND, SURFACE, OR OVERHEAD) ARE INDICATED ONLY TO THE EXTENT THAT SUCH INFORMATION WAS KNOWN, OR MADE AVAILABLE TO, OR DISCOVERED BY THE ENGINEER IN PREPARING THE DRAWINGS. THE LOCATIONS, CONFIGURATIONS, AND ELEVATIONS OF SUBSURFACE FACILITIES AND UTILITIES ARE APPROXIMATE, AND NOT ALL UTILITIES AND FACILITIES MAY BE INDICATED. THE CONTRACTOR SHALL VERIFY THE EXACT HORIZONTAL AND VERTICAL LOCATION OF UNDERGROUND UTILITIES IN THE AREA OF CONSTRUCTION PRIOR TO PROCEEDING WITH THE WORK. THE CONTRACTOR SHALL MAKE ALL NECESSARY ARRANGEMENTS AND PAY ALL COSTS ASSOCIATED WITH THE TEMPORARY RELOCATION, SUPPORT, MONITORING, PROTECTION, OR OTHER INTERACTION WITH UTILITY FEATURES WHICH MIGHT BE AFFECTED BY THE WORK. PROVIDE REQUIRED NOTICE TO OTHERS FOR SUCH WORK TO ALLOW THE PROJECT TO CONTINUE IN ACCORDANCE WITH THE CONTRACT SCHEDULE. THE COST OF SUCH WORK SHALL BE INCORPORATED INTO THE VARIOUS ITEMS OF WORK REQUIRED AND RELATED TO SUCH RELOCATION, SUPPORT, MONITORING OR PROTECTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL DAMAGE WHICH MIGHT RESULT FROM HIS FAILURE TO EXACTLY LOCATE AND PROTECT ANY AND ALL UTILITIES, WHETHER ABOVE OR BELOW GRADE. ANY DAMAGE SHALL BE REPAIRED AT NO ADDITIONAL COST TO OWNER.
7. CONTRACTOR SHALL RETURN SITE BACK TO ORIGINAL CONDITION BEFORE FINAL PAYMENT IS ISSUED. THIS INCLUDES SEEDING AND SODDING WORK.
8. CONTRACTOR SHALL EMPLOY A LAND SURVEYOR LICENSED IN THE STATE OF FLORIDA TO MARK ALL CONSTRUCTION AREAS, CONSTRUCTION EASEMENTS, PROPERTY LINES AND CONFIRM EXISTING CONDITIONS AS DOCUMENTED ON THESE DRAWINGS, PRIOR TO CONSTRUCTION.
9. EXISTING UTILITIES AND STRUCTURES (UNDERGROUND, SURFACE, OR OVERHEAD) ARE INDICATED ONLY TO THE EXTENT THAT SUCH INFORMATION WAS KNOWN, OR MADE AVAILABLE TO, OR DISCOVERED BY THE ENGINEER IN PREPARING THE DRAWINGS. NOTE ALL UTILITIES AND FACILITIES MAY BE INDICATED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE WHICH RESULTS FROM HIS FAILURE TO ADEQUATELY LOCATE AND PROTECT ANY AND ALL UTILITIES OF FACILITIES, WHETHER ABOVE OR BELOW GROUND. ALL DAMAGE SHALL BE REPAIRED AT NO ADDITIONAL COST TO OWNER.
10. ONLY MANATEE COUNTY UTILITIES SHALL OPERATE WATER, WASTEWATER, AND RECLAIMED WATER VALVES. COORDINATE VALVE OPERATION WITH APPROPRIATE UTILITIES INSPECTOR.
11. CONTRACTOR'S STAGING AREA SHALL BE LIMITED TO THE LOCATION(S) SHOWN ON THE DRAWINGS.
12. CONTRACTOR SHALL INSTALL ALL PIPELINES, PAVING, AND WALKWAYS AT A UNIFORM GRADE BETWEEN ELEVATIONS DEPICTED ON THE DRAWINGS.
13. THE MANATEE COUNTY UTILITIES, STANDARD FOR DESIGN AND CONSTRUCTION OF WATER, WASTEWATER AND RECLAIMED WATER FACILITIES (LATEST EDITION) SHALL BE USED FOR DETAILS AND INFORMATION NOT SHOWN HEREIN.
14. COATINGS AND LININGS SHALL BE AS SPECIFIED IN SECTION 09940. OTHER BUILDING FINISHES (E.G. INTERIOR PAINTING OF EXISTING PUMP BUILDING) ARE COVERED IN OTHER DIVISION 9 SPECIFICATIONS.
15. THE EXISTING PUMP STATION MUST BE KEPT IN CONTINUOUS OPERATION THROUGHOUT THE CONSTRUCTION PERIOD. SEE SPECIFICATIONS FOR FURTHER REQUIREMENTS.
16. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL PROPERTIES ADJACENT TO THE WORK THROUGHOUT THE PERIOD OF CONSTRUCTION, AND AT NO TIME SHALL HIS OPERATIONS BLOCK OR RESTRICT ACCESS TO COUNTY O&M STAFF WITHOUT ADVANCED NOTIFICATION AND APPROVAL.
17. FOR ALL SITE GRADING, SMOOTH PARABOLIC TRANSITIONS SHALL BE MADE BETWEEN CHANGES IN SLOPE.
18. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION WHEN EXCAVATING. PIPING AND UTILITY LOCATIONS SHOWN ON PLANS ARE NOT EXACT OR GUARANTEED. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING EXISTING UTILITY LOCATIONS.
19. "SCREENED" (LIGHT) DELINEATION INDICATED ON THE DRAWINGS DENOTES EXISTING FACILITIES. "SCREENED" INFORMATION WAS TAKEN FROM EXISTING CONSTRUCTION DRAWINGS AND DATA, AND IS FOR REFERENCE ONLY, AND SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO THE ORDERING OF MATERIALS AND BEGINNING OF CONSTRUCTION. "BOLD" DELINEATION IS NEW WORK TO BE CONSTRUCTED UNDER THIS CONTRACT.
20. CONTRACTOR SHALL PROTECT AND MAINTAIN ALL EXISTING TREES, SHRUBS, AND PLANTS, UNLESS OTHERWISE NOTED.
21. CONTRACTOR SHALL PROTECT EXISTING INFRASTRUCTURE / EQUIPMENT FROM DAMAGE DURING THE DURATION OF CONSTRUCTION. THE CONTRACTOR, AT THE CONTRACTOR'S EXPENSE, SHALL IMMEDIATELY REPAIR ALL DAMAGES TO UTILITIES, MAINS AND FACILITIES. IF THE REPAIR IS NOT MADE IN A TIMELY MANNER, AS DETERMINED BY OWNER, OWNER MAY PERFORM REQUIRED REPAIRS AND CLEANUP. THE CONTRACTOR WILL BE CHARGED FOR ALL EXPENSES ASSOCIATED WITH THE REPAIR.
22. CONTRACTOR SHALL NOT ADVERSELY IMPACT DRAINAGE SYSTEMS DURING CONSTRUCTION. TEMPORARILY RECONFIGURE THE DRAINAGE SYSTEM, AS NEEDED AS THE CONSTRUCTION WORK PROGRESSES, TO NOT CAUSE ADVERSE IMPACTS TO SURFACE WATER DRAINAGE EFFICIENCY. DO NOT IMPAIR SURFACE WATER DRAINAGE CAPACITY. FOLLOW THE REQUIREMENTS OF THE APPROVED POLLUTION PREVENTION PLAN FOR THE PROJECT.
23. THE CONTRACTOR SHALL NOTIFY THE OWNER PRIOR TO CONNECTING TO OR DISRUPTING ANY EXISTING SERVICES (PIPING, ELECTRICAL, ETC). COUNTY INSPECTOR SHALL BE NOTIFIED BY CONTRACTOR TWENTY-ONE (21) DAYS IN ADVANCE OF CONNECTING INTO EXISTING FACILITIES / PIPING.
24. THE CONTRACTOR SHALL PROVIDE AT LEAST 48-HOURS NOTICE TO THE VARIOUS UTILITIES COMPANIES IN ORDER TO PERMIT THE LOCATION OF EXISTING UNDERGROUND UTILITIES IN ADVANCE OF CONSTRUCTION. THE CONTRACTOR SHALL CONTACT THE UTILITIES NOTIFICATION CENTER, SUNSHINE STATE ONE CALL OF FLORIDA.
25. THE COUNTY SHALL HAVE RIGHT OF FIRST REFUSAL FOR ANY SALVAGED MATERIALS. IF REFUSED, MATERIAL / EQUIPMENT SHALL BECOME THE CONTRACTOR'S RESPONSIBILITY AND DISPOSED IN ACCORDANCE WITH THE DEMOLITION SPECIFICATION.
26. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL SURPLUS EXCAVATION MATERIALS AND DEBRIS FROM THE SITE AND SHALL MAINTAIN THE SITE IN A NEAT AND ORDERLY CONDITION.
27. THE SOIL EROSION AND SEDIMENT CONTROL DEVICES SHALL BE INSTALLED PRIOR TO CONSTRUCTION, MAINTAINED THROUGHOUT CONSTRUCTION AND UNTIL THE SITE IS PERMANENTLY STABILIZED. THE CONTRACTOR SHALL PROVIDE AND INSTALL SILT SCREENS AROUND THE PROPOSED CONSTRUCTION ACTIVITY, AS NECESSARY, TO PREVENT THE TRANSPORT OF SEDIMENT DOWNSTREAM INTO STREET, STORM SEWERS, OPEN DITCHES, LAKES, DETENTION PONDS, ETC., AND SHALL PERFORM ALL NECESSARY INSPECTIONS AT A MINIMUM.

ABBREVIATIONS

AL	ALUM
ALT	ALTERNATE, (IVE)
ALUM	ALUMINUM
APPROX	APPROXIMATE, (LY)
AWG	AMERICAN WIRE GAGE
BF	BLIND FLANGE
BFV	BUTTERFLY VALVE
BLDG	BUILDING
BM	BENCHMARK
BV	BALL VALVE
CFM	CUBIC FEET PER MINUTE
C&G	CURB AND GUTTER
CI	CAST IRON
CIP	CAST IRON PIPE
C/L	CENTERLINE
CONT	CONTINUOUS, CONTINUATION
CPLG	COUPLING
CTR(S)	CENTER(S)
CV	CHECK VALVE
CW	COLD WATER
DI	DUCTILE IRON
DIA	DIAMETER
DIP	DUCTILE IRON PIPE
DMJ	DISMANTLING JOINT
DN	DOWN
DRN	DRAIN
DWG(S)	DRAWING(S)
E	EAST
EA	EACH
ECC	ECCENTRIC
EFF	EFFLUENT
EJ	EXPANSION JOINT
EL, ELEV	ELEVATION
EQ	EQUAL
EQUIP	EQUIPMENT
EXIST	EXISTING
FCA	FLANGED COUPLING ADAPTER
FH	FIRE HYDRANT
FIN	FINISHED
FL	FLOOR
FLEX	FLEXIBLE
FLG	FLANGE
FM	FORCE MAIN
FRP	FIBERGLASS REINFORCED PLASTIC
FT	FOOT
FWD	FORWARD
G	GAS
GA	GAUGE
GAL	GALLON
GALV	GALVANIZED
GPM	GALLONS PER MINUTE
GR	GRADE
GV	GATE VALVE
HB	HOSE BIBB
HF	HOSE FAUCET
HMC	HARNESSED MECHANICAL COUPLING
HORIZ	HORIZONTAL
HP	HORSEPOWER
HW	HOT WATER
HWY	HIGHWAY
ID	INSIDE DIAMETER
IN	INCHES
INC	INCORPORATED
INV	INVERT
LAT	LATERAL
LBR	LIMEROCK BEARING RATIO
LB(S)	POUNDS
LOC	LIMITS OF CONSTRUCTION
LT	LEFT
MAX	MAXIMUM
MFM	MAGNETIC FLOWMETER
MFR(S)	MANUFACTURER(S)
MGD	MILLION GALLONS PER DAY
MH	MANHOLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MJ	MECHANICAL JOINT
MLS	MASTER LIFT STATION
MTL	MATERIAL
N	NORTH
N/A	NOT APPLICABLE
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
NO.(S)	NUMBER(S)
NPT	NATIONAL PIPE THREAD
NPW	NONPOTABLE WATER
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OF	OVERFLOW
OH	OVERHEAD
OZ	OUNCE
P	CHEMICAL FEED PIPE
PDPS	PLANT DRAIN PUMP STATION
PE	PLAIN END
POLY	POLYMER
PP	POWER POLE
PRV	PRESSURE REDUCING VALVE
PS	PIPE SUPPORT
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	POINT
PV	PLUG VALVE
PVC	POLYVINYL CHLORIDE
PVCP	POLYVINYL CHLORIDE PIPE
PVMT	PAVEMENT
PW	POTABLE WATER
R	RADIUS
RCP	REINFORCED CONCRETE PIPE
RD	ROAD
RED	REDUCER, REDUCING
REQD	REQUIRED
RPM	REVOLUTIONS PER MINUTE
RT	RIGHT
R/W	RIGHT OF WAY
RAS	RETURN ACTIVATED SLUDGE
S	SOUTH
SAN	SANITARY
SCH	SCHEDULE
SIM	SIMILAR
SPEC(S)	SPECIFICATION(S)
SQ	SQUARE
SS	SANITARY SEWER, STAINLESS STEEL
ST SWR	STORM SEWER
STA	STATION
STD	STANDARD
SYM	SYMMETRICAL
SYS	SYSTEM
T	TOP
TBM	TEMPORARY BENCHMARK
TH	TEST HOLE
TYP	TYPICAL
UGND	UNDERGROUND
UNO	UNLESS NOTED OTHERWISE
USGS	UNITED STATES GEOLOGICAL SURVEY
V	VALVE, VENT
VCP/VC	VITRIFIED CLAY PIPE
VERT	VERTICAL
VR	AIR/VACUUM RELEASE VALVE
VV	VENT VALVE
W	WEST, WATER
W/	WITH
WAS	WASTE ACTIVATED SLUDGE
WL	WATER LEVEL
WM	WATER METER
W/O	WITHOUT
WT	WEIGHT
WW	WET WELL
X	BY,TIMES
YH	YARD HYDRANT
&	AND
@	AT
°	DEGREE
<	DEFLECTION ANGLE
#	NUMBER
%	PER CENT

GENERAL LEGEND

- NEW PIPING
- UNDERGROUND PIPING
- EXISTING PIPING
- PROPERTY LINE
- EASEMENT LINE
- FENCE
- CENTERLINE
- SILT FENCE
- WATER OR GAS VALVE (G) (W)
- WATER OR GAS METER (WM) (GM)
- TELEPHONE OR POWER POLE WITH GUY ANCHOR
- MANHOLE (MH)
- FIRE HYDRANT (FH)
- YARD, POST HYDRANT (YH)
- STREET LIGHT POLE
- HEDGE, BRUSH, SHRUBS, WOODS
- TREE
- SECTION NUMBER OR DETAIL LETTER (1 / AC45) — DRAWING NUMBER ON WHICH SECTION OR DETAIL APPEARS; OR WHERE SECTION IS CUT OR DETAIL IS NOTED
- DEMOLISH AND DISPOSE
- NEW CMU INFILL
- DRAINAGE ARROW (FLOW DIRECTION)
- X 57.50 — EXISTING SPOT ELEVATION
- XX.X — PROPOSED SPOT ELEVATION

MATERIALS LEGEND

- EARTH OR GRADE
- GRANULAR FILL (CRUSHED STONE OR GRAVEL)
- CONCRETE
- ASPHALT PAVEMENT

ISSUED FOR CONSTRUCTION

NO.	DATE	REVISIONS AND RECORD OF ISSUE	BY	CK	APP
	MAR 2021	50% SUBMITTAL			
A	JUL 2022	90% SUBMITTAL	AD	NE	MT
B	SEPT 2022	100% SUBMITTAL	AD	AW	MNT
C			AD	AW	MNT

50.3042 - MLS 39-A
G-02.dwg
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USER:DUT48884
DWG VER:1005
XREF1:
XREF2:
XREF3:
XREF4:

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Manatee County Florida

BLACK & VEATCH

Black & Veatch Corporation
3405 W. Dr. M. L. King Jr. Blvd. Suite 125
Tampa, Florida. Certificate No. 8132

MANATEE COUNTY FLORIDA
IMPROVEMENTS AT
MASTER LIFT STATION 39-A

GENERAL
NOTES, LEGEND AND ABBREVIATIONS

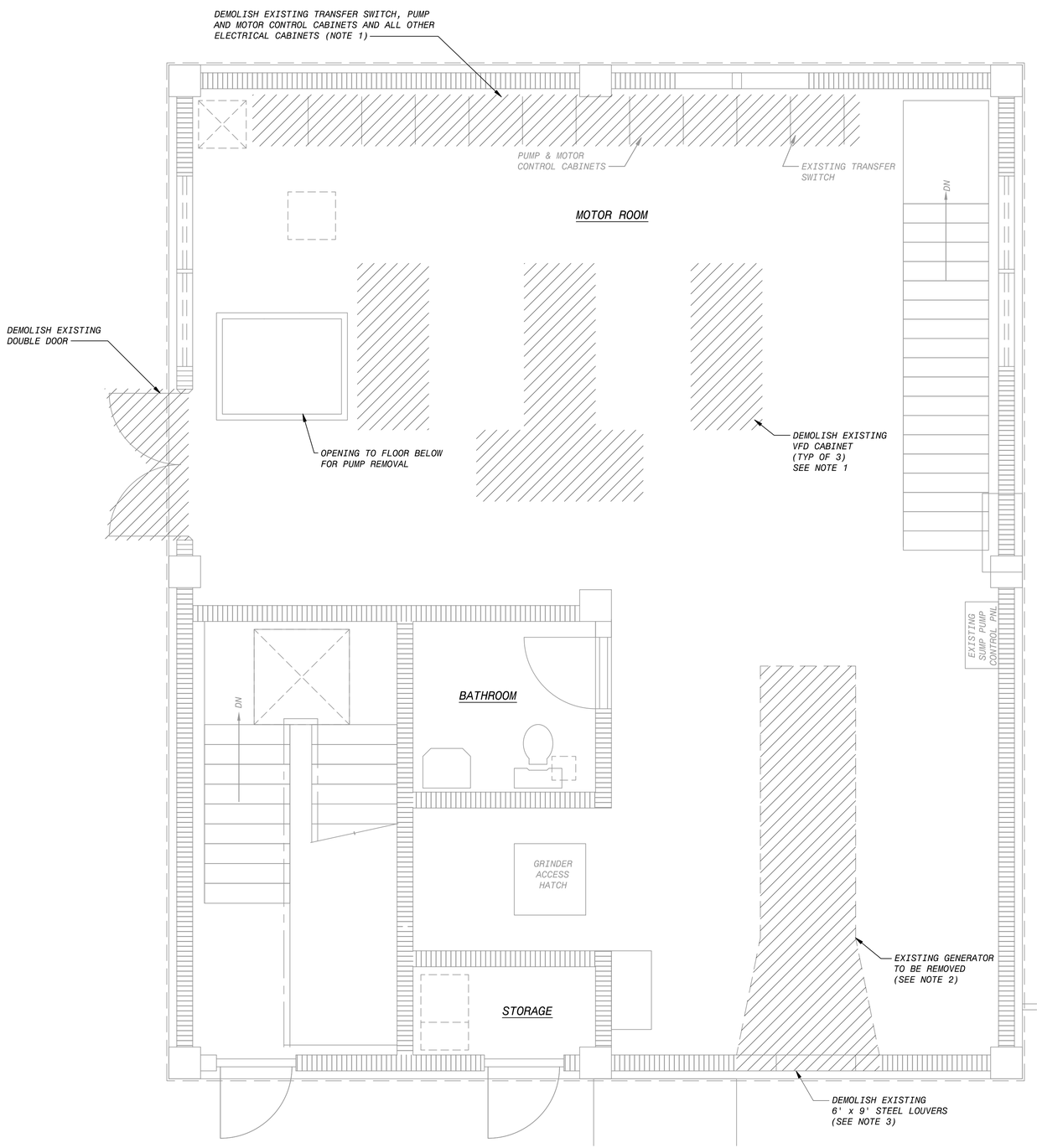
DESIGNED: NE
DETAILED: HT/AD
CHECKED: AW
APPROVED: MNT
DATE: SEPT 2022

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
402142

G-02
SHEET
3 OF 45

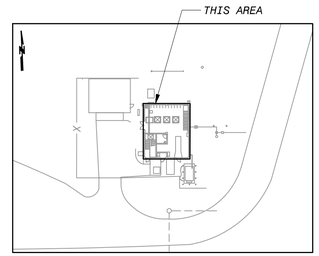
FD7000
402142



MLS 39-A - PLAN
3/8" = 1'-0"

DEMO NOTES:

1. EXISTING ELECTRICAL EQUIPMENT AS SHOWN SHALL BE DEMOLISHED ALONG WITH THE CONDUITS AND CIRCUITS NOTED TO BE DEMOLISHED ON THE ELECTRICAL DRAWINGS. EXISTING EQUIPMENT PADS TO BE DEMOLISHED AND REMOVED.
2. EXISTING ENGINE GENERATOR TO BE SALVAGED AND CONVERTED INTO A TRAILER MOUNTED PORTABLE UNIT. EXISTING CONCRETE EQUIPMENT PADS TO BE DEMOLISHED AND REMOVED.
3. ENGINE GENERATOR LOUVER TO BE REMOVED AND WALL SEALED UP USING CMU BLOCK WITH STUCCO FINISH TO MATCH EXISTING. REFER TO SHEET A-01 AND A-02.



KEY PLAN

LEGEND:

DEMOLITION WORK

12" 6" 0 1' 2' 3' 4' 5' 6' 7'
3/8"=1'-0"

ISSUED FOR CONSTRUCTION

NO.	BY	CK	APP	DATE	REVISIONS AND RECORD OF ISSUE
C	AD	AW	MNT	SEPT 2022	100% SUBMITTAL
B	AD	AW	MNT	JUL 2022	90% SUBMITTAL
A	AD	NE	MT	MAR 2021	50% SUBMITTAL

50.3042 - MLS 39-A
D-01.dwg
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XREF3:
XREF4:

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Manatee County FLORIDA

BLACK & VEATCH

Black & Veatch Corporation
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Tampa, Florida. Certificate No. 8132

MANATEE COUNTY FLORIDA
IMPROVEMENTS AT
MASTER LIFT STATION 39-A

DEMOLITION PLAN

DESIGNED: NE
DETAILED: HT/AD
CHECKED: AW
APPROVED: MNT
DATE: SEPT 2022

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
402142

D-01
SHEET
4 OF 45

FD7000
402142

CIVIL SITE DEMO - PLAN
NO SCALE

DEMO NOTES:

1. SKY LIGHTS (THREE) TO BE REMOVED AND ROOF PATCHED TO MATCH EXISTING.
2. NEW FENCING AND GATES WILL BE INSTALLED BY THE COUNTY AT NO COST TO THE CONTRACTOR. CONTRACTOR SHALL PROVIDE TEMPORARY FENCING (6 FT TALL) TO SECURE SITE BEFORE MOBILIZATION.
3. CONTRACTOR TO COORDINATE WITH THE COUNTY ON THE RELOCATION OF EXISTING ANTENNA.
4. CONTRACTOR SHALL DEMOLISH CONCRETE PAD UNDERNEATH FUEL TANK. APPROXIMATE DIMENSIONS OF PAD IS 16'x9'x1.5'. STEEL FUEL TANK IS 2000 GALLONS AND IS APPROXIMATELY 10'x7' IN PLAN VIEW.
5. ALL DEMOLITION WORK SHALL BE DONE IN ACCORDANCE WITH SPECIFICATION SECTION 02050.
6. REFER TO DRAWINGS D-03 AND D-04 FOR DEMOLITION WORK INSIDE THE EXISTING PUMP BUILDING. THIS INCLUDES DEMOLITION OF EXISTING PUMPS, PIPING, VALVES, AND APPURTENANCES AS WELL AS DEMOLITION OF THE GENERATOR WHICH WILL BE SALVAGED AS REQUIRED BY THIS CONTRACT.
7. CONTRACTOR TO TURN OVER THE TANK AND ANY REMAINING FUEL OVER TO THE COUNTY. NEW GENERATOR TO BE SUPPLIED FULL OF FUEL WHEN TURNED OVER TO THE COUNTY.

ISSUED FOR CONSTRUCTION

	DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP
			C	AD	AW	MNT
			B	AD	AW	MNT
			A	AD	NE	MT
	MAR 2021	50% SUBMITTAL				
	JUL 2022	90% SUBMITTAL				
	SEPT 2022	100% SUBMITTAL				

50.3042 - WLS 39-A

D-02.dwg

XREF1:
XREF2:
XREF3:
XREF4:

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Manatee County Florida

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MANATEE COUNTY FLORIDA
IMPROVEMENTS AT
MASTER LIFT STATION 39-A

DEMOLITION - PLAN
CIVIL SITE DEMO - PLAN

DESIGNED: AZ
DETAILED: HT/AD
CHECKED: AW
APPROVED: MNT
DATE: SEPT 2022

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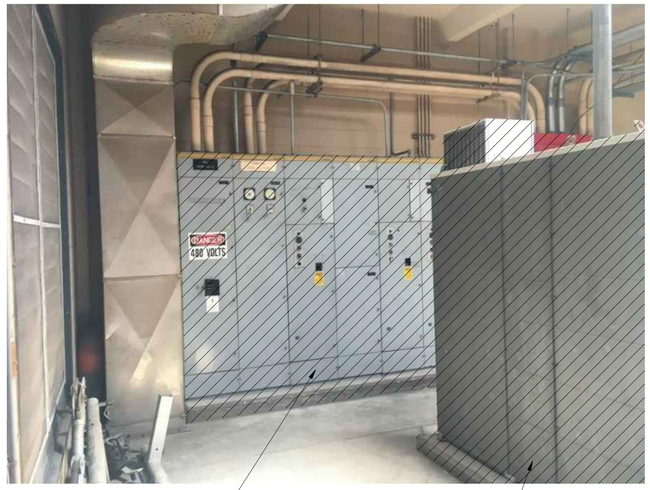
PROJECT NO.
402142

D-02
SHEET
5 OF 45

FD7000
402142



DEMOLISH EXISTING MCC PANELS AND HOUSEKEEPING PADS

DEMOLISH EXISTING VFDS AND HOUSEKEEPING PADS

ELECTRICAL - MCC PANELS

DEMOLISH EXISTING MCC PANELS AND HOUSEKEEPING PADS

DEMOLISH EXISTING VFDS AND HOUSEKEEPING PADS

DEMOLISH EXISTING VFDS

ELECTRICAL - VFDS

DEMOLISH FUEL DAY TANK AND FUEL PIPING

ELECTRICAL - GENERATOR

DEMOLISH LOUVER

LOAD BANK TO BE SALVAGED ALONG WITH GENERATOR

SALVAGE GENERATOR

ELECTRICAL - GENERATOR

ISSUED FOR CONSTRUCTION

NO.	BY	CK	APP
A	AD	AW	MNT
B	AD	AW	MNT

DATE	REVISIONS AND RECORD OF ISSUE
JUL 2022	90% SUBMITTAL
SEPT 2022	100% SUBMITTAL

50.3042 - MLS 39-A

D-03.dwg

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MANATEE COUNTY FLORIDA
IMPROVEMENTS AT
MASTER LIFT STATION 39-A

DEMOLITION
ELECTRICAL EQUIPMENT

DESIGNED: VK
DETAILED: AD
CHECKED: AW
APPROVED: MNT
DATE: SEPT 2022

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PROJECT NO.
402142

D-03
SHEET
6 OF 45

FD7000
402142

PUMP ROOM

FUEL TANK AND MISCELLANEOUS

DEMO NOTE:

1. CONTRACTOR SHALL COORDINATE DEMO OF THE FUEL TANK WITH THE COUNTIES FUEL SERVICES DIVISION. TANK IS FDEP REGULATED AND CONTRACTOR SHALL SUPPORT COUNTY WITH FILING TANK CLOSURE DOCUMENTATION AND DRAINING THE FUEL TANK. CONTRACTOR SHALL SALVAGE TANK, ALONG WITH THE VEEDER ROOT TLS-350 TANK MONITORING SYSTEM.

ISSUED FOR CONSTRUCTION

FD7000
402142

NO.	BY	CK APP
A	AD	AW MNT
B	AD	AW MNT

REVISIONS AND RECORD OF ISSUE

DATE
JUL 2022 90% SUBMITTAL
SEPT 2022 100% SUBMITTAL

50.3042 - WLS 39-A
D-04.dwg

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Manatee County FLORIDA

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MANATEE COUNTY FLORIDA
IMPROVEMENTS AT
MASTER LIFT STATION 39-A

DEMOLITION
PUMP ROOM AND FUEL TANK

DESIGNED: VK
DETAILED: AD
CHECKED: AW
APPROVED: MNT
DATE: SEPT 2022

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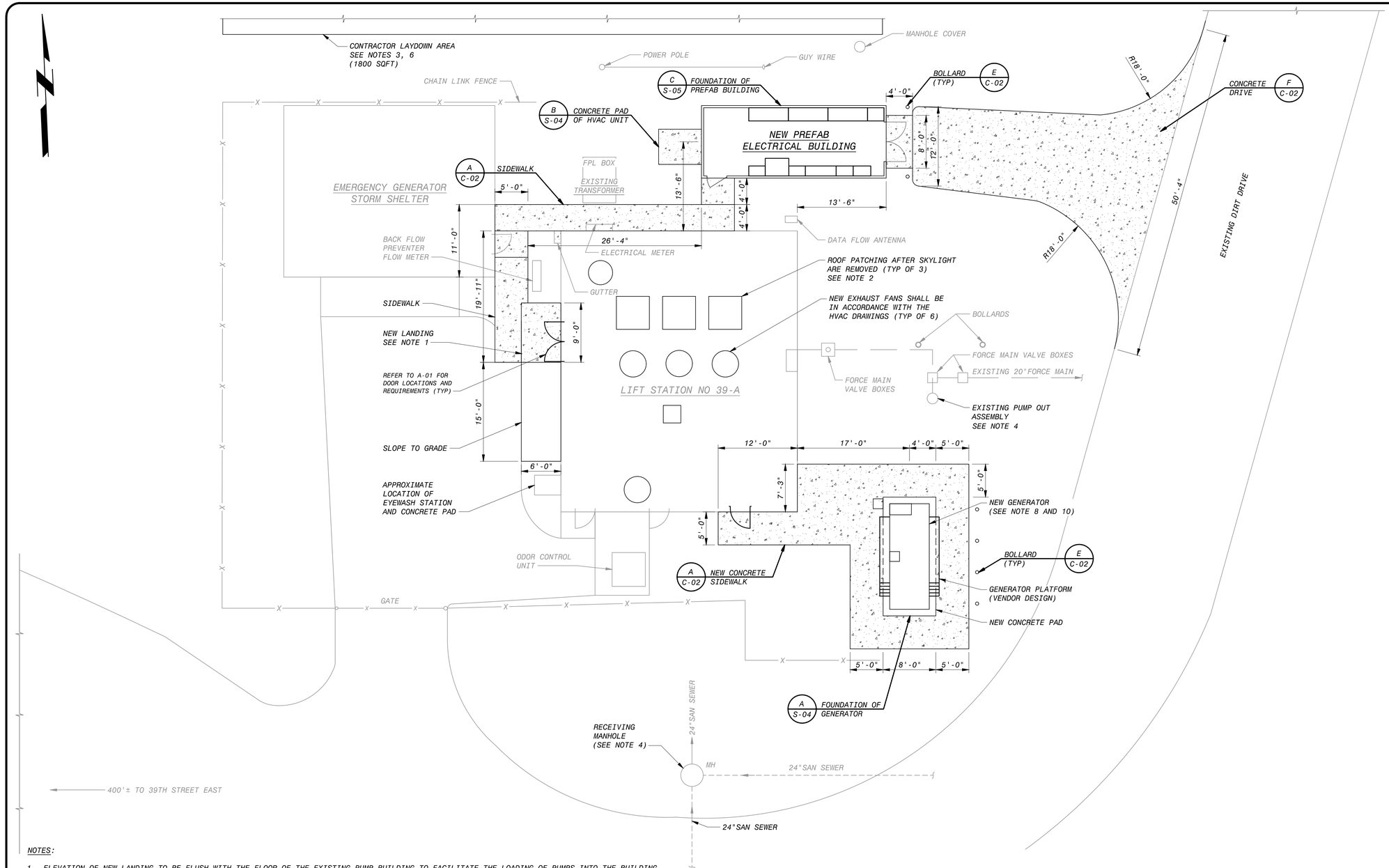
PROJECT NO.
402142

D-04
SHEET
7 OF 45



NOTES:

1. ELEVATION OF NEW LANDING TO BE FLUSH WITH THE FLOOR OF THE EXISTING PUMP BUILDING TO FACILITATE THE LOADING OF PUMPS INTO THE BUILDING.
2. SEE ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR REQUIREMENTS / DETAILS FOR PATCHING THE ROOF.AS BUILT INFORMATION WILL BE PROVIDED TO THE CONTRACTOR AFTER CONTRACT AWARD.
3. CONTRACTOR SHALL MAINTAIN THE SITE AND ACCESS TO THE PUMP STATION AT ALL TIMES. ONSITE LAYDOWN AREA IS LIMITED TO THE AREA NORTH OF THE STATION. CONTRACTOR RESPONSIBLE FOR ADDITIONAL OFFSITE LAYDOWN AREAS AS NEEDED FOR THE WORK.CONTRACTOR SHALL ALSO MAINTAIN ACCESS TO THE EXISTING GENERATOR AND FUEL TANK UNTIL THIS IS DEMOLISHED. THIS EQUIPMENT WILL BE SALVAGED AS REQUIRED BY THE CONTRACT SPECIFICATIONS.
4. STATION BYPASSING WHILE DOWN FOR THE WORK TO BE PROVIDED BY THE CONTRACTOR. EXISTING RECEIVING MANHOLE AND THE EXISTING PUMP OUT ASSEMBLY SHALL BE USED FOR STATION BYPASSING. CONTRACTOR SHALL PROVIDE 24 HOUR BYPASS MONITORING WHILE STATION IS BEING BYPASSED.
5. THE BACKGROUND OF THIS DRAWING IS BASED ON RECORD DRAWINGS AND ENGINEER'S FIELD OBSERVATIONS, THE BACKGROUND IS NOT A SURVEY. THE CONTRACTOR SHALL SURVEY THE SITE PRIOR TO STARTING WORK AND VERIFY LOCATIONS AND DISTANCES. DIMENSIONS PROVIDED ON THIS SHEET ARE APPROXIMATE AND THE CONTRACTOR SHALL BASE QUANTITIES APPROPRIATELY.
6. ENTIRE EXTENTS OF CONTRACTOR LAYDOWN NOT SHOWN. LAYDOWN SPACE IS ON COUNTY OWNED PROPERTY OUTSIDE OF THE FENCE LINE. CONTRACTOR IS RESPONSIBLE FOR SECURING EQUIPMENT / MATERIALS. LAYDOWN AREA IS 60 FEET BY 30 FEET.
7. BEFORE MOBILIZATION, CONTRACTOR SHALL INSTALL SUITABLE TEMPORARY FENCING (6-FT TALL) TO SECURELY ENCAPSULATE ENTIRE SITE, IN VICINITY OF WHERE EXISTING FENCING IS BEING DEMOLISHED.
8. THE GENERATOR SHALL BE 550kW, ENCLOSED WITH INTEGRAL SUB-BASE FUEL TANK OF CAPACITY 2000 GALLONS AND COMPLETE WITH ACCESS PLATFORM. GENERATOR MANUFACTURER SHALL BE CATTERPILLAR C18 OR EQUAL. REFER GENERATOR CUT SHEETS IN SPECIFICATION.
9. CONTRACTOR SHALL PROVIDE WALL MOUNTED LADDER AFFIXED TO PUMP BUILDING FOR ROOF ACCESS COMPLETE WITH FALL PROTECTION CAGES, REST PLATFORMS, GUARDRAILS, LANDSCAPE SYSTEM IN CONFORMATION WITH OSHA STANDARDS. LOCATION TO BE COORDINATED WITH THE COUNTY. CONTRACTOR SHALL BUDGET $7,500 FOR COORDINATION AND INSTALLATION.
10. EXISTING UTILITIES AND STRUCTURES (UNDERGROUND, SURFACE, OR OVERHEAD) ARE INDICATED ONLY TO THE EXTENT THAT SUCH INFORMATION WAS KNOWN, OR MADE AVAILABLE TO, OR DISCOVERED BY THE ENGINEER IN PREPARING THE DRAWINGS. THE LOCATIONS, CONFIGURATIONS, AND ELEVATIONS OF SUBSURFACE FACILITIES AND UTILITIES ARE APPROXIMATE, AND NOT ALL UTILITIES AND FACILITIES MAY BE INDICATED.

LEGEND:

- CONCRETE PAD/ SIDEWALK / DRIVE
- X CHAIN LINK FENCE
- FORCE MAIN
- SANITARY SEWER

8' 4' 0 8' 16'

1/8"=1'-0"

ISSUED FOR CONSTRUCTION

NO.	BY	CK	APP
C	AD	AW	MNT
B	AD	AW	MNT
A	AD	NE	MT

REVISIONS AND RECORD OF ISSUE

DATE	
SEPT 2022	100% SUBMITTAL
JUL 2022	90% SUBMITTAL
MAR 2021	50% SUBMITTAL

50.3072 - MLS 39-A

C-01.dwg

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XREF4:
DWG VER:1009

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Manatee County FLORIDA

BLACK & VEATCH

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Tampa, Florida. Certificate No. 8132

MANATEE COUNTY FLORIDA
IMPROVEMENTS AT
MASTER LIFT STATION 39-A

CIVIL
SITE PLAN

DESIGNED:	NE
DETAILED:	HT/AD
CHECKED:	AW
APPROVED:	MNT
DATE:	SEPT 2022

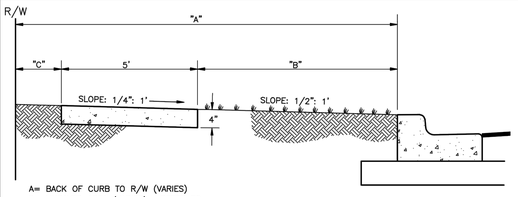
0 1/2 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
402142

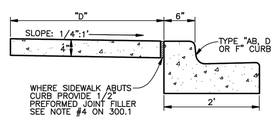
C-01
SHEET
8 OF 45

FD7000
402142



A= BACK OF CURB TO R/W (VARIES)
B= UNPAVED AREA (VARIES). REFER TO F.D.O.T. GREEN BOOK, TABLE 3-12, LATEST REVISION.
C= VARIES, SEE 401 SERIES

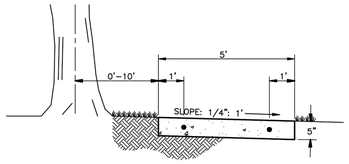
TYPICAL SIDEWALK LOCATION



D= SIDEWALK WIDTH SHALL BE 6' STANDARD, WHERE WALK ABUTS TYPE "AB, D OR F" CURB. WHERE SPEED LIMIT IS 25 MPH OR LESS, WIDTH CAN BE 5'-6".

* SEE SHEET 300.1 "GENERAL NOTES" FOR FURTHER INFORMATION

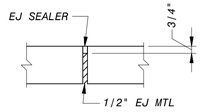
ALTERNATE SIDEWALK LOCATION



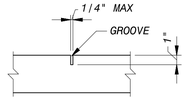
SIDEWALK LOCATION CLOSE TO TREES

MANATEE COUNTY TRANSPORTATION DEPARTMENT			
REV.BY	DATE		
		6/12/07 DATE OF B.O.C.C. APPROVAL	SIDEWALK REQUIREMENTS
			301.1

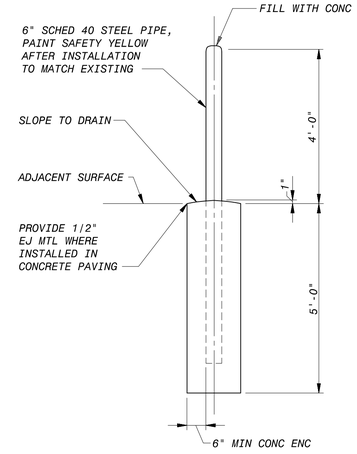
A TYPICAL SIDEWALK DETAIL
C-01 NO SCALE



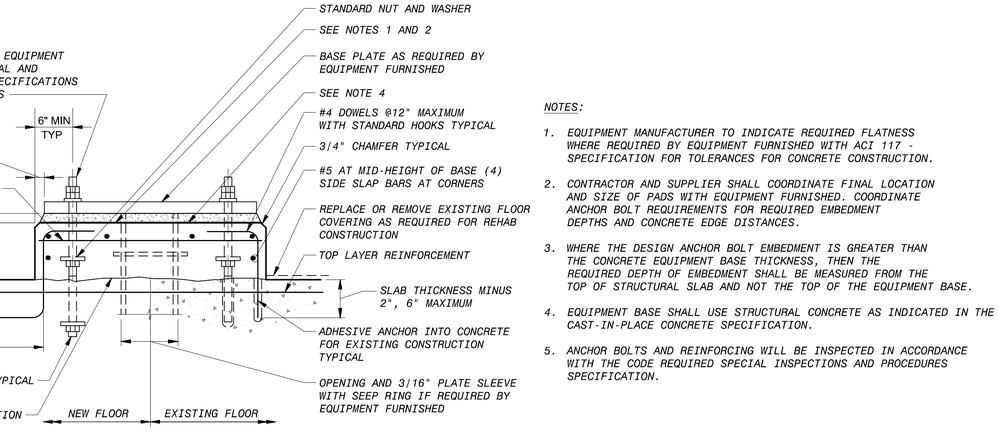
C EXPANSION JOINT
- NO SCALE



D TOOLED CONTRACTION JOINT
- NO SCALE



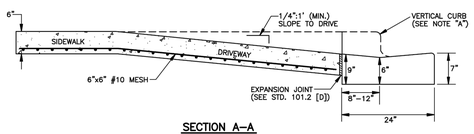
E BOLLARD
C-01 NO SCALE



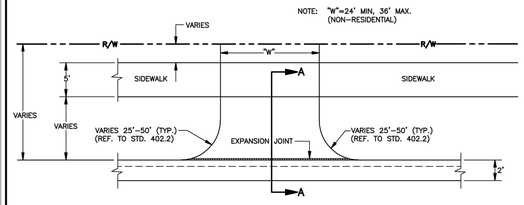
NOTES:

1. EQUIPMENT MANUFACTURER TO INDICATE REQUIRED FLATNESS WHERE REQUIRED BY EQUIPMENT FURNISHED WITH ACI 117 - SPECIFICATION FOR TOLERANCES FOR CONCRETE CONSTRUCTION.
2. CONTRACTOR AND SUPPLIER SHALL COORDINATE FINAL LOCATION AND SIZE OF PADS WITH EQUIPMENT FURNISHED. COORDINATE ANCHOR BOLT REQUIREMENTS FOR REQUIRED EMBEDMENT DEPTHS AND CONCRETE EDGE DISTANCES.
3. WHERE THE DESIGN ANCHOR BOLT EMBEDMENT IS GREATER THAN THE CONCRETE EQUIPMENT BASE THICKNESS, THEN THE REQUIRED DEPTH OF EMBEDMENT SHALL BE MEASURED FROM THE TOP OF STRUCTURAL SLAB AND NOT THE TOP OF THE EQUIPMENT BASE.
4. EQUIPMENT BASE SHALL USE STRUCTURAL CONCRETE AS INDICATED IN THE CAST-IN-PLACE CONCRETE SPECIFICATION.
5. ANCHOR BOLTS AND REINFORCING WILL BE INSPECTED IN ACCORDANCE WITH THE CODE REQUIRED SPECIAL INSPECTIONS AND PROCEDURES SPECIFICATION.

B EQUIPMENT BASE DETAIL
- 1" = 1'-0"



SECTION A-A



PLAN VIEW

A) IF REPLACING VERTICAL CURB AND GUTTER, REPLACE WITH MIAMI CURB AND GUTTER.
* NO CHANGE WITH 3' VALLEY CROSSING

B) SIDEWALK, CONSTRUCT WITH 6" CONCRETE, 6"X6" #10 MESH, 3000 PSI AT 28 DAYS.

C) DRIVEWAY CONSTRUCTED WITH 6" CONCRETE WITH 6"X6" #10 MESH, 3000 PSI AT 28 DAYS.

D) EXPANSION JOINT 1/2" PREFORMED JOINT FILLER PER FDOT SECTION 932-1.1 OR APPROVED ALTERNATE.
* IF DRIVE IS WIDER THAN 12', ADD JOINTS AT 10' CENTERS

E) 5' SIDEWALK ON LOCAL STREETS, 5' SIDEWALK ON THOROUGHFARES.
(MIXED USE PATHS MAY REQUIRE 8' SIDEWALKS PER LAND DEVELOPMENT CODE.)

MANATEE COUNTY TRANSPORTATION DEPARTMENT			
REV.BY	DATE		
		6/12/07 DATE OF B.O.C.C. APPROVAL	COMMERCIAL & INDUSTRIAL DRIVE
			101.3

F TYPICAL CONCRETE DRIVE
C-01 NO SCALE

NO.	BY	CK	APP	DATE	REVISIONS AND RECORD OF ISSUE
C	AD	AW	MNT	SEPT 2022	100% SUBMITTAL
B	AD	AW	MNT	JUL 2022	90% SUBMITTAL
A	AD	NE	MT	MAR 2021	50% SUBMITTAL

50.3040 - General Drawings
C-02.dwg
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Manatee County FLORIDA

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MANATEE COUNTY FLORIDA
IMPROVEMENTS AT
MASTER LIFT STATION 39-A

CIVIL
TYPICAL DETAILS

DESIGNED: NE
DETAILED: HT/AD
CHECKED: AW
APPROVED: MNT
DATE: SEPT 2022

0 1/2 1
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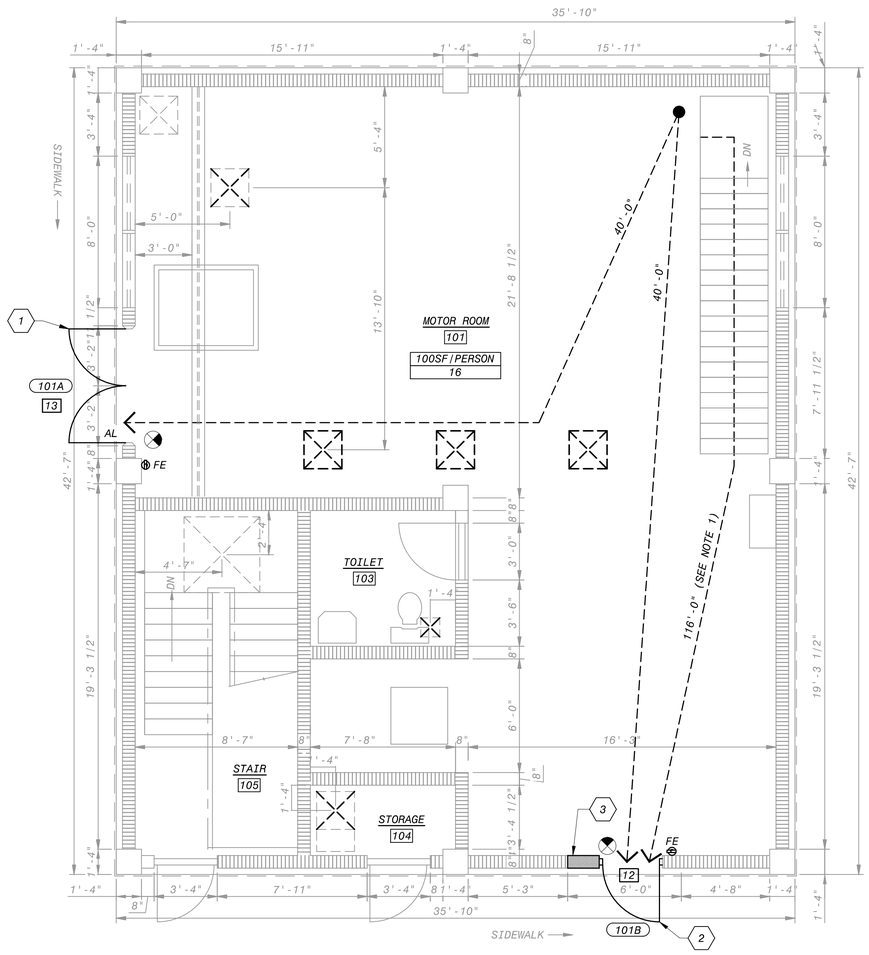
PROJECT NO.
402142

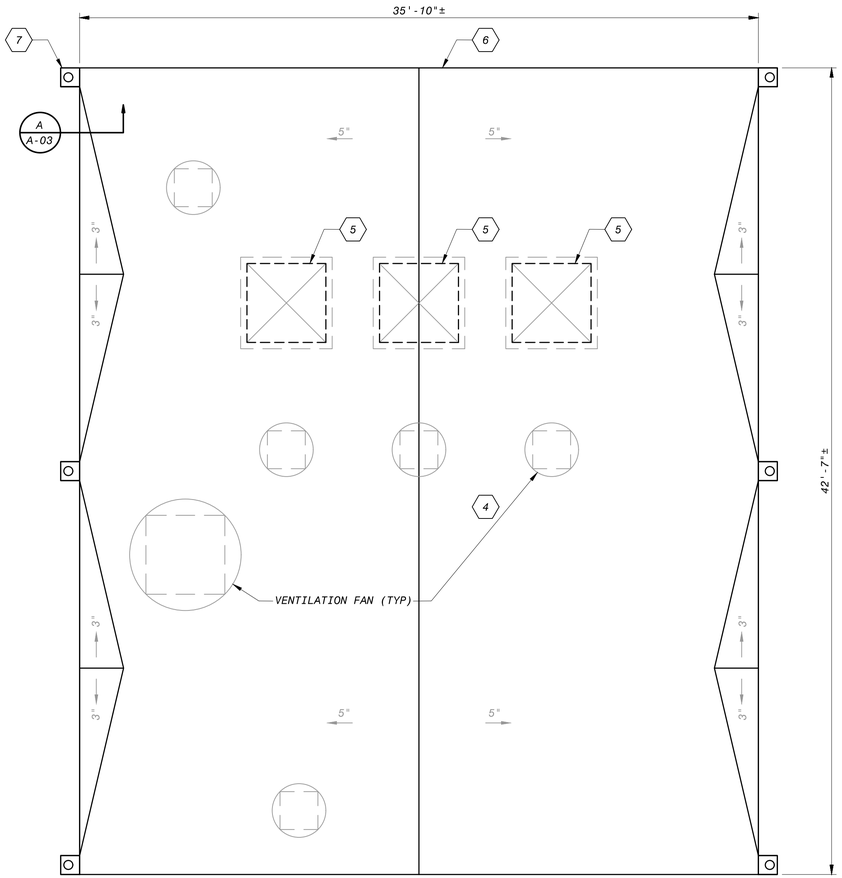
C-02
SHEET
9 OF 45

ISSUED FOR CONSTRUCTION

FD7000
402142



MLS 39A FLOOR PLAN AND LIFE SAFETY PLAN
1/4" = 1'-0"



MLS 39A ROOF PLAN
1/4" = 1'-0"

GENERAL SHEET NOTES

1. EXISTING FUNCTION AND OCCUPANCY CLASSIFICATION FOR LIFT STATION IS REMAINING SAME AS IT'S CURRENT USED. MODIFICATIONS TO THE BUILDING ARE MAINTAINING THE CURRENT LEVEL OF SAFETY FOR EGRESS.
2. SEE DRAWING A-03 FOR ARCHITECTURAL ABBREVIATION LEGEND.
3. ALL INTERIOR PAINTED SURFACES TO BE REPAINTED, SEE ROOM FINISH SCHEDULE ON DRAWING A-03.

SHEET KEYNOTES

1 NEW DOUBLE DOOR IN EXISTING DOOR OPENING.INCREASE OPENING HEIGHT BY 2'-0" TO 9'-4" ROUGH OPENING. SEE STRUCTURAL FOR NEW LINTEL INFORMATION.

2 NEW SINGLE DOOR IN EXISTING LOUVER OPENING.

3 NEW CMU INFILL WITH EXTERIOR STUCCO AT JAMB ADJACENT TO DOOR AND AT DEMOLISHED EXHAUST OPENING ABOVE DOOR. STUCCO FINISH TO MATCH EXISTING. SEE STRUCTURAL FOR CMU REINFORCING.

4 NEW SINGLE-PLY ROOF MEMBRANE SYSTEM. MAINTAIN EXISTING ROOF SLOPES TO SCUPPERS/DOWNSPOUTS.

5 EXISTING SKYLIGHT OPENING TO BE INFILLED PER STRUCTURAL, NEW ROOF INFILL SHALL MATCH SLOPE OF ADJACENT ROOF, TYP.

6 NEW PREFINISHED CANTED FASCIA, ENTIRE ROOF PERIMETER.

7 NEW COLLECTOR HEAD AND DOWNSPOUT, TYP OF 6.

ARCHITECTURAL SYMBOL LEGEND

101A	NEW DOOR
102A	LOUVER
ROOM NAME 101	ROOM NAME AND NUMBER

LIFE SAFETY LEGEND

FE	FIRE EXTINGUISHER
X'-X"	TRAVEL DISTANCE
100SF/PERSON	OCCUPANTS PER SF OCCUPANT LOAD
1	CUMULATIVE OCCUPANT LOAD
	EXIT

BUILDING CODE ANALYSIS

APPLICABLE BUILDING CODE:
2020 FLORIDA BUILDING CODE - EXISTING BUILDING

BUILDING NAME	MASTER LIFT STATION
OCCUPANCY CLASSIFICATION	F-2 (EXISTING)
TYPE OF CONSTRUCTION	II-B
AREA ALLOWED	23,000 SF
AREA ACTUAL	2,280 SF TOTAL (EXISTING) 754 SF @ LOWER LEVEL 1,526 SF @ GRADE LEVEL
BUILDING HEIGHT ALLOWED	3 STORIES, 55 SFT
BUILDING HEIGHT ACTUAL	1 STORY, 14 FT
DESIGN OCCUPANT LOAD	100 SF/PERSON (INDUSTRIAL) 23 TOTAL OCCUPANTS
TRAVEL DISTANCE	EXISTING BUILDING, SEE NOTE 1
EXITS REQUIRED	2
FIRE SEPARATION	NONE EXISTING
FIRE SPRINKLERS	NONE EXISTING

NO.	BY	CK	APP	DATE	REVISIONS AND RECORD OF ISSUE
C	AD	PR	MNT	SEPT 2022	100% SUBMITTAL
B	AD	PR	MNT	JUL 2022	90% SUBMITTAL
A	AD	NE	MT	MAR 2021	50% SUBMITTAL

50.3072 - MLS 39-A
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XREF1:
XREF2:
XREF3:
XREF4:

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PHILIP D RISHEL, A REGISTERED ARCHITECT IN THE STATE OF FLORIDA, NO. AR101040

Manatee County FLORIDA

Black & Veatch Architects, PLLC
Florida Registered
License Number: AA26002279
8400 Ward Parkway
Kansas City, Missouri

MANATEE COUNTY FLORIDA
IMPROVEMENTS AT MASTER LIFT STATION 39-A

ARCHITECTURAL
FLOOR PLAN, LIFE SAFETY PLAN AND CODE ANALYSIS

DESIGNED: PR
DETAILED: MVS/AD
CHECKED: PR
APPROVED: MNT
DATE: SEPT 2022

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

4' 2' 0 4' 8'
1/4"=1'-0"

PROJECT NO.
402142

A-01
SHEET
10 OF 45

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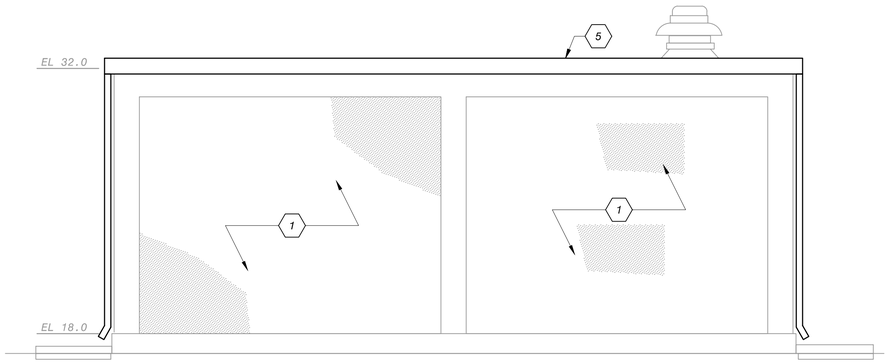
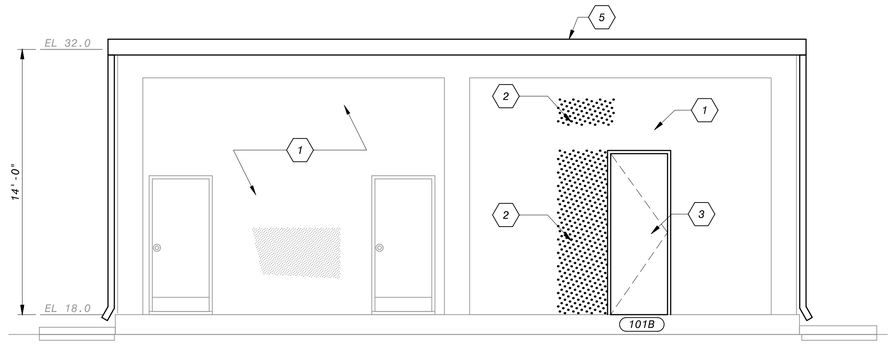
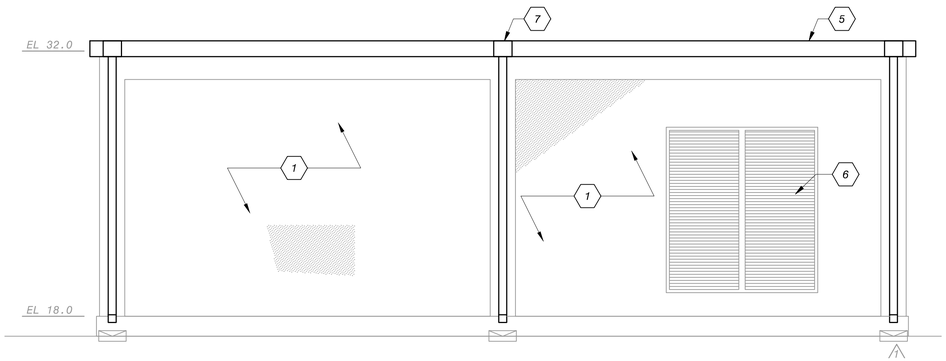
402142



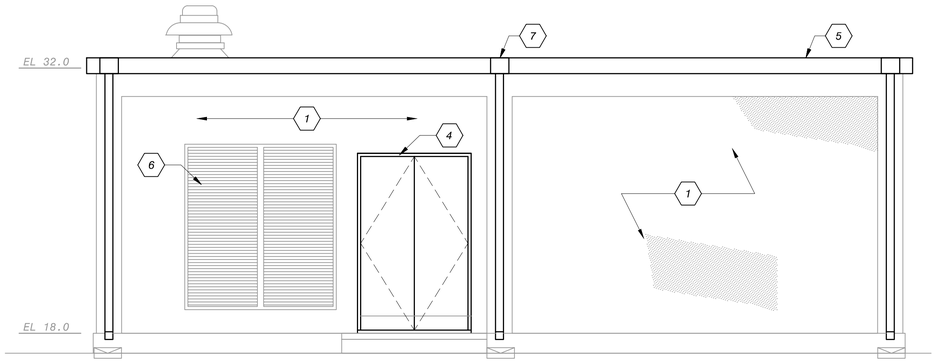
NORTH ELEVATION
1/4" = 1'-0"



SOUTH ELEVATION
1/4" = 1'-0"



EAST ELEVATION
1/4" = 1'-0"



WEST ELEVATION
1/4" = 1'-0"

GENERAL SHEET NOTES

1. SEE DRAWING A-03 FOR ARCHITECTURAL ABBREVIATION LEGEND.

SHEET KEYNOTES

1. RECOAT STUCCO FINISH AND EXPOSED CONCRETE STRUCTURE, TYPICAL.
2. NEW CMU INFILL WITH EXTERIOR STUCCO AT JAMB ADJACENT TO DOOR AND AT DEMOLISHED EXHAUST OPENING ABOVE DOOR. STUCCO FINISH TO MATCH EXISTING. SEE STRUCTURAL FOR CMU REINFORCING.
3. NEW SINGLE DOOR IN EXISTING LOUVER OPENING.
4. NEW DOUBLE DOOR IN EXISTING DOOR OPENING.INCREASE OPENING HEIGHT BY 2'0" TO 9'4"ROUGH OPENING.SEE STRUCTURAL FOR NEW LINTEL INFORMATION.
5. NEW PREFINISHED CANTED FASCIA, ENTIRE ROOF PERIMETER.
6. EXISTING LOUVER TO REMAIN.
7. NEW COLLECTOR HEAD AND DOWNSPOUT, TYP OF 6.

LEGEND:

NEW CMU INFILL

4' 2' 0 4' 8'
1/4"=1'-0"

ISSUED FOR CONSTRUCTION

	DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK APP
	SEPT 2022	100% SUBMITTAL	C	AD	AW MNT
	JUL 2022	90% SUBMITTAL	B	AD	AW MNT
	MAR 2022	50% SUBMITTAL	A	AD	NE MT

50.3072 - MLS 39-A
A-02.dwg
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USER: DUT48884
DWG VER: 1002
XREF1:
XREF2:
XREF3:
XREF4:

THIS DRAWING WAS ORIGINALLY APPROVED FOR CONSTRUCTION BY PHILIP D RISHEL, ON 09/15/2022 AND SEALED BY

PHILIP D RISHEL, A REGISTERED ARCHITECT IN THE STATE OF FLORIDA, NO. AR101040

Manatee County FLORIDA

Black & Veatch Architects, PLLC
Florida Registered
License Number: AA26002279
8400 Ward Parkway
Kansas City, Missouri

MANATEE COUNTY FLORIDA
IMPROVEMENTS AT
MASTR LIFT STATION 39-A

ARCHITECTURAL
MLS39A PUMP BUILDING ELEVATIONS

DESIGNED: PR
DETAILED: MVS/AD
CHECKED: PR
APPROVED: MNT
DATE: SEPT 2022

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
402142

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SHEET
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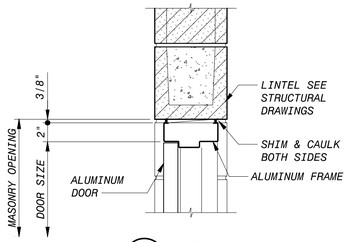
FD7000
402142

ROOM FINISH SCHEDULE

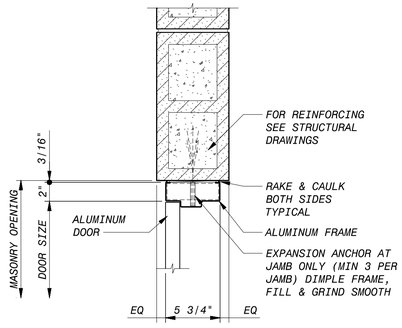
ROOM NO.	ROOM NAME	FLOOR		WALLS												CEILING			REMARKS
				NORTH			EAST			SOUTH			WEST						
		MATERIAL	FINISH	MATERIAL	FINISH	BASE	MATERIAL	FINISH	BASE	MATERIAL	FINISH	BASE	MATERIAL	FINISH	BASE	MATERIAL	FINISH	HEIGHT	
101	MOTOR ROOM	CO	EX. NO	CB,CO	PT	NO	CB,CO	PT	NO	CB,CO	PT	NO	CB,CO	PT	NO	CO	PT	12'0"	SEE NOTE 1
102	STAIR	CO	EX. NO	CB,CO	PT	NO	CB,CO	PT	NO	CB,CO	PT	NO	CB,CO	PT	NO	CO	PT	12'0"	SEE NOTE 1
103	TOILET	CO	EX. NO	CB,CO	PT	NO	CB,CO	PT	NO	CB,CO	PT	NO	CB,CO	PT	NO	CO	PT	12'0"	SEE NOTE 1
104	STORAGE ROOM	CO	EX. NO	CB,CO	PT	NO	CB,CO	PT	NO	CB,CO	PT	NO	CB,CO	PT	NO	CO	PT	12'0"	SEE NOTE 1
105	STAIR	CO	EX. NO	CB,CO	PT	NO	CB,CO	PT	NO	CB,CO	PT	NO	CB,CO	PT	NO	CO	PT	12'0"	SEE NOTE 1
001	PUMP ROOM	CO	EX. NO	CB,CO	PT	NO	CB,CO	PT	NO	CB,CO	PT	NO	CB,CO	PT	NO	CO	PT	12'0"	SEE NOTE 1

DOOR SCHEDULE

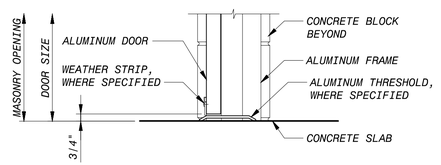
LEVEL	DOOR ID	DOOR SIZE			DOOR							FRAME				REMARKS
	NO.(D)		WIDTH	HEIGHT	MATERIAL	HEAD	JAMB	SILL	TYPE (D)	HARDWARE	RATING	MATERIAL	HEAD	JAMB	DEPTH	
OPERATING LEVEL	101A	PR	3'-0"	9'-2"	ALUM	1 SIM	2 SIM	3 SIM	A	1	-	ALUM	2"	2"	5-3/4"	
OPERATING LEVEL	101B		3'-0"	8'-6"	ALUM	1 SIM	2 SIM	3 SIM	A	2	-	ALUM	2"	2"	5-3/4"	



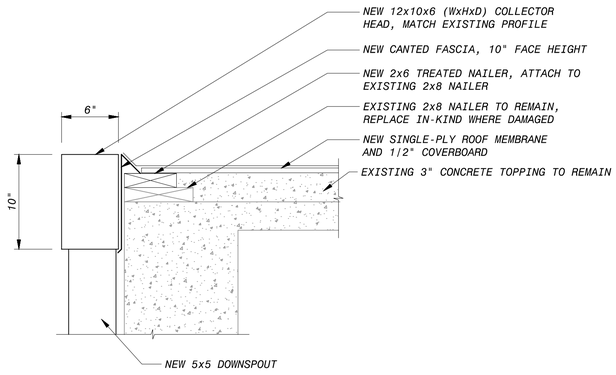
1 HEAD
- 1 1/2" = 1'-0"



2 JAMB
- 1 1/2" = 1'-0"



3 SILL
- 1 1/2" = 1'-0"



A DETAIL
A-01 1 1/2" = 1'-0"

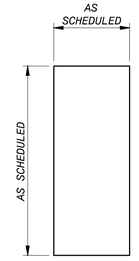
GENERAL SHEET NOTES

1. ALL EXISTING PAINTED AND UNPAINTED WALL INFILL SURFACES SHALL BE REPAINTED. CLEAN AND PREP ALL EXISTING PAINTED SURFACES PER MANUFACTURER RECOMMENDATIONS PRIOR TO PAINTING.

ARCHITECTURAL ABBREVIATION LEGEND

AL	ACTIVE LEAF
ALUM	ALUMINUM
CB	CONCRETE BLOCK
CO	CONCRETE
DN	DOWN
EX	EXISTING
FE	FIRE EXTINGUISHER
NO	NONE
PR	PAIR
PT	PAINT

DOOR TYPES



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NOT TO SCALE

NO.	BY	CK	APP	DATE	REVISIONS AND RECORD OF ISSUE
C	AD	PR	MNT	SEPT 2022	100% SUBMITTAL
B	AD	PR	MNT	JUL 2022	90% SUBMITTAL
A	AD	NE	MT	MAR 2021	50% SUBMITTAL

50.3072 - MLS 39-A
A-03.dwg
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DWG VER: 1001
XREF1:
XREF2:
XREF3:
XREF4:

THIS DRAWING WAS ORIGINALLY APPROVED FOR CONSTRUCTION BY PHILIP D RISHEL, ON 10/15/2022 AND SEALED BY PHILIP D RISHEL, A REGISTERED, ARCHITECT IN THE STATE OF FLORIDA, NO. AR101040

Black & Veatch Architects, PLLC
Florida Registered
License Number: AA26002279
8400 Ward Parkway
Kansas City, Missouri

MANATEE COUNTY FLORIDA
IMPROVEMENTS AT
MASTER LIFT STATION 39-A

ARCHITECTURAL
SCHEDULES AND DETAILS

DESIGNED: PR
DETAILED: MVS/AD
CHECKED: PR
APPROVED: MNT
DATE: SEPT 2022

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

12" 9" 6" 3" 0 1'
1 1/2"=1'-0"

PROJECT NO.
402142

A-03
SHEET
12 OF 45

ISSUED FOR CONSTRUCTION

FD7000
402142

STRUCTURAL NOTES

GENERAL

1. THE APPLICABLE BUILDING CODE IS THE 2020 FLORIDA BUILDING CODE (FBC) BASED ON IBC 2018.
2. THE REQUIREMENTS INDICATED ON THIS SHEET ARE INTENDED AS A BASIC SUMMARY OF THE MATERIAL AND CONSTRUCTION REQUIREMENTS FOR THE PROJECT. ADDITIONAL, MORE STRINGENT REQUIREMENTS ARE GIVEN IN THE PROJECT DETAIL DRAWINGS AND SPECIFICATIONS.
3. ALL STRUCTURAL RELATED SHOP DRAWINGS SHALL BE REVIEWED BY THE ENGINEER PRIOR TO CONSTRUCTION.
4. STRUCTURES MAY BE UNSTABLE UNTIL THEY ARE CONSTRUCTED IN THIER ENTIRETY. CONTRACTOR IS RESPONSIBLE FOR DESIGNING TEMPORARY STRUCTURAL SUPPORTS TO RESIST WIND LOADS, CONSTRUCTION LOADS, AND ANY OTHER TEMPORARY CONDITIONS THAT MAY OCCUR DURING CONSTRUCTION, IN ORDER TO MAINTAIN STABILITY OF THE CONSTRUCTION WORK. ANCHORS FOR CONTRACTOR'S TEMPORARY SUPPORT SYSTEMS THAT ATTACH TO CONCRETE OR MASONRY SHALL BE LOCATED TO AVOID DAMAGING EMBEDDED REINFORCEMENT OR UTILITIES.

CAST-IN-PLACE CONCRETE

1. A MINIMUM 28 DAY COMPRESSIVE STRENGTH (F'C) OF 4,000 PSI WAS UTILIZED IN THE DESIGN OF STRUCTURAL REINFORCED CONCRETE. SEE SPECIFICATIONS FOR CONSTRUCTION STRENGTH REQUIREMENTS.
2. THE LOCATION OF ALL CONSTRUCTION JOINTS AND OTHER TYPES OF JOINTS, OTHER THAN THOSE SPECIFIED OR SHOWN ON THE PLANS, SHALL BE ACCEPTABLE TO THE ENGINEER PRIOR TO PLACING CONCRETE.

REINFORCING STEEL

1. ALL REINFORCING BAR SHALL BE GRADE 60, DEFORMED, ASTM A615, UNLESS NOTED OTHERWISE.
2. DIMENSIONS TO REINFORCING BARS ARE TO BAR CENTERLINES, UNLESS NOTED OTHERWISE. REINFORCING BAR COVER IS THE CLEAR DISTANCE BETWEEN THE REINFORCING BAR AND THE CONCRETE SURFACE.
3. NO WELDING OF REINFORCING BARS SHALL BE PERMITTED UNLESS APPROVAL IS OBTAINED FROM THE ENGINEER PRIOR TO CONSTRUCTION.
4. FOR CONCRETE SLABS THAT HAVE A SLOPING TOP FACE, THE TOP LAYERS OF REINFORCEMENT SHALL BE PLACED ON A SIMILAR SLOPE SO THAT SPECIFIED COVER IS MAINTAINED.

POST-INSTALLED ANCHORS

1. POST-INSTALLED ANCHORS SHALL INCLUDE ADHESIVE ANCHORS (THREADED RODS, BOLTS OR REINFORCING BARS), EXPANSION ANCHORS, AND UNDERCUT ANCHORS INSTALLED INTO HARDENED CONCRETE OR MASONRY. SEE THE ANCHORAGE IN CONCRETE AND MASONRY SPECIFICATION SECTION FOR ADDITIONAL REQUIREMENTS.
2. POST-INSTALLED ANCHORS SHALL ONLY BE USED WHERE INDICATED ON THE DRAWINGS. CONTRACTOR SHALL OBTAIN APPROVAL FROM ENGINEER PRIOR TO USING POST-INSTALLED ANCHORS FOR MISSING OR MISPLACED CAST-IN-PLACE ANCHORS.
3. CARE SHALL BE TAKEN TO AVOID CONFLICTS WITH EXISTING REINFORCING STEEL AND OTHER EMBEDDED ITEMS WHEN DRILLING HOLES. REINFORCING BARS SHALL NOT BE DAMAGED DURING DRILLING OR ANCHOR INSTALLATION. HOLES SHALL BE DRILLED AND CLEANED PER THE PRODUCT MANUFACTURER'S INSTRUCTIONS. ANCHORS SHALL BE INSTALLED PER THE PRODUCT MANUFACTURER'S INSTRUCTIONS AT NOT LESS THAN MINIMUM EDGE DISTANCES AND/OR SPACING INDICATED IN THE MANUFACTURER'S LITERATURE.
4. SUBSTITUTION REQUESTS FOR PRODUCTS OTHER THAN THOSE LISTED IN THE SPECIFICATION OR INDICATED ON THE DRAWINGS SHALL BE SUBMITTED TO ENGINEER FOR REVIEW AND APPROVAL. PRODUCT ICC-ESR EVALUATION REPORTS SHALL BE INCLUDED WITH THE SUBMITTAL PACKAGE. IF REQUESTED, CALCULATIONS PREPARED BY A REGISTERED PROFESSIONAL ENGINEER USING METHODS AND PROCEDURES REQUIRED BY THE BUILDING CODE MAY BE REQUIRED AS PART OF THE SUBMITTAL PACKAGE.
5. UNLESS NOTED OTHERWISE, THE MINIMUM EMBEDMENT PROVIDED FOR ADHESIVE ANCHORED REINFORCING BARS SHALL DEVELOP THE FULL TENSILE STRENGTH OF THE BAR.
6. SPECIAL INSPECTION WILL BE PROVIDED FOR ALL POST-INSTALLED ANCHORS.

STAINLESS STEEL

1. STAINLESS STEEL BOLTS SHALL CONFORM TO ASTM F593, ALLOY GROUP 1 OR 2, UNLESS NOTED OTHERWISE. MINIMUM YIELD STRENGTH SHALL BE 45 KSI.
2. STAINLESS STEEL PLATES SHALL CONFORM TO ASTM A240, TYPE 316L.
3. STAINLESS STEEL STRUCTURAL SHAPES SHALL CONFORM TO ASTM A1069 OR ASTM A276, TYPE 316L.

ALUMINUM

1. UNLESS NOTED OTHERWISE, ALUMINUM ALLOY IN ALL ALUMINUM STRUCTURAL MATERIALS SHALL BE 6061-T6.
2. ALL ALUMINUM SURFACES IN CONTACT WITH CONCRETE OR DISSIMILAR METALS SHALL BE COATED OR COVERED WITH A HEAVY COAT OF BITUMINOUS PAINT TO PREVENT ALUMINUM-CONCRETE REACTION OR ELECTROLYTIC ACTION.

MASONRY

1. CONCRETE MASONRY UNITS SHALL CONFORM TO ASTM C90. THE TOTAL MASONRY ASSEMBLAGE SHALL HAVE A COMPRESSIVE STRENGTH EQUAL TO 2500 PSI AT 28 DAYS.
2. MASONRY MORTAR SHALL CONFORM TO ASTM C270, TYPE S.
3. ALL BOND BEAMS AND ANY BLOCK CELLS CONTAINING REINFORCING STEEL, ANCHORS OR OTHER EMBEDMENTS SHALL BE FILLED WITH GROUT MEETING THE REQUIREMENTS OF ASTM C476. WALLS SHALL BE FULLY GROUTED WHEN INDICATED ON THE DRAWINGS.
4. BOND BEAM REINFORCING SHALL BE CONTINUOUS AT CORNERS, INTERSECTIONS AND CONTROL JOINTS.

STRUCTURAL STEEL

1. ROLLED WIDE FLANGE SHAPES SHALL HAVE A MINIMUM YIELD STRENGTH OF 50 KSI;
   CHANNELS, PLATES, AND ANGLES A MINIMUM OF 36 KSI;
   STRUCTURAL PIPES A MINIMUM OF 35 KSI;
   ROUND STRUCTURAL TUBES A MINIMUM OF 46 KSI;
   RECTANGULAR STRUCTURAL TUBES A MINIMUM OF 50 KSI.
2. WELDING SHALL BE DONE WITH A FILLER MATERIAL HAVING A MINIMUM TENSILE STRENGTH OF 70 KSI.
3. BOLTED CONNECTIONS SHALL USE 3/4" DIA ASTM F3125, GRADE A325 BOLTS OR GRADE F1852 TWIST-OFF BOLTS, WITH THE THREADS EXCLUDED FROM THE SHEAR PLANE, UNLESS NOTED OTHERWISE.
4. CARBON STEEL OR GALVANIZED STEEL ANCHOR RODS AND ANCHOR BOLTS SHALL CONFORM TO ASTM F1554 GRADE 36.
5. HOLES FOR ANCHOR RODS AND ANCHOR BOLTS IN COLUMN BASE PLATES USING ASTM F844 OR F436 FLAT CIRCULAR WASHERS SHALL BE AS FOLLOWS:
   BOLTS/RODS 3/4" TO 1" - 5/16" OVERSIZE
   BOLTS/RODS 1" TO 2" - 1/2" OVERSIZE
   BOLTS/RODS OVER 2" - 1" OVERSIZE

   AT THE CONTRACTORS OPTION, OVERSIZE HOLES LARGER THAN THOSE LISTED ABOVE MAY BE USED, PROVIDED THAT 3/8" PLATE WASHERS ARE USED WITH STANDARD HOLES AND FIELD WELDED WITH A 5/16" FILLET WELD TO THE BASE PLATE ALONG A MIN OF 3 SIDES.
6. STEEL LEGEND

INDICATES TWO BOLT ATTACHMENT OF HORIZONTAL BRACING TO UNDERSIDE OF BEAM. SHIM AS REQUIRED

INDICATES ANGLE OR PLATE TO BE WELDED ON THREE SIDES

INDICATES FOUR BOLT ATTACHMENT OF MONORAIL TO UNDERSIDE OF SUPPORT BEAM. SPACER OR STANDOFF DETAIL AS REQUIRED.

INDICATES NONSTANDARD FRAMING CONNECTION

INDICATES HORIZONTAL OR VERTICAL BRACING CONNECTION DETAIL

INDICATES MOMENT CONNECTION

VERTICAL BRACING IS SHOWN ON PLANS THUS:

EXTENDING UP FROM THE ELEVATION INDICATED.

EXTENDING DOWN FROM THE ELEVATION INDICATED.

EXTENDING UP AND DOWN FROM THE ELEVATION INDICATED.

EXCAVATION, BACKFILL, AND FOUNDATIONS

1. FOUNDATION CONSTRUCTION SHALL NOT BEGIN UNTIL ANY REQUIRED INSPECTION HAS BEEN COMPLETED AND THE CONTRACTOR NOTIFIED TO PROCEED.
2. TO FACILITATE SCHEDULING, AT LEAST 48 HOURS ADVANCE NOTICE SHALL BE GIVEN TO THE ENGINEER PRIOR TO THE REQUIRED INSPECTIONS.
3. UNLESS NOTED OTHERWISE, BACKFILL SHALL NOT BE PLACED AGAINST WALLS WHICH SUPPORT A CONCRETE SLAB OR WALKWAY UNTIL THE TOP SLAB OR WALKWAY HAS BEEN PLACED IN ITS ENTIRETY AND ALL CONCRETE HAS REACHED THE SPECIFIED DESIGN STRENGTH.
4. OVER-EXCAVATION OF SOIL, OR OVER-BREAKING OF ROCK, THAT WOULD RESULT IN A STRUCTURAL CONCRETE THICKNESS GREATER THAN INDICATED ON THE DRAWINGS SHALL BE CLASSIFIED AS UNAUTHORIZED EXCAVATION. CONTRACTOR SHALL SELECT ONE OF TWO METHODS TO ADDRESS UNAUTHORIZED EXCAVATION.
   . REPLACE UNAUTHORIZED EXCAVATION MATERIAL WITH LEAN CONCRETE THAT IS PLACED SEPARATELY FROM THE STRUCTURAL CONCRETE INDICATED ON THE DRAWINGS. CONTRACTOR WILL RECEIVE NO ADDITIONAL PAYMENT FOR THE LEAN CONCRETE.
   . REPLACE UNAUTHORIZED EXCAVATION MATERIAL WITH STRUCTURAL CONCRETE THAT IS PLACED MONOLITHICALLY WITH THE STRUCTURAL CONCRETE INDICATED ON THE DRAWINGS, CREATING AN ENLARGED SECTION. CONTRACTOR SHALL NOTIFY ENGINEER FOR DIRECTION PRIOR TO PERFORMING THIS WORK. THE INCREASED CONCRETE THICKNESS MAY REQUIRE ADDITIONAL REINFORCEMENT AND/OR OTHER DESIGN MODIFICATIONS. IF THE INCREASED CONCRETE THICKNESS EXCEEDS 36 INCHES, ENGINEER MAY REQUIRE CONTRACTOR TO IMPLEMENT MASS CONCRETE HEAT MITIGATION PROCEDURES. CONTRACTOR WILL RECEIVE NO ADDITIONAL PAYMENT FOR EXTRA STRUCTURAL CONCRETE, ADDITIONAL REINFORCEMENT, OTHER DESIGN MODIFICATIONS, OR MASS CONCRETING PROCEDURES.
5. THE FOLLOWING NET ALLOWABLE BEARING PRESSURES WERE UTILIZED IN THE DESIGN OF THE FOUNDATIONS.
   MAT FOUNDATIONS.....1000 PSF (ASSUMED)

EXISTING STRUCTURES

1. THE DRAWINGS DEPICT WORK AT EXISTING STRUCTURES. ALL DIMENSIONS AND ALL DEPICTIONS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO ORDERING MATERIALS, STARTING FABRICATION, OR STARTING CONSTRUCTION.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE, REPAIRS OR STRUCTURAL MODIFICATIONS THAT ARE REQUIRED DUE TO DEMOLITION BEYOND THE LIMITS IDENTIFIED IN THE DRAWINGS.
3. REINFORCEMENT FOR ANY EXISTING CONCRETE OR MASONRY ELEMENT SHALL NOT BE DAMAGED UNLESS THE ELEMENT IS TO BE DEMOLISHED. WHEN LOCATING EXISTING REINFORCEMENT IS REQUIRED, IT SHALL BE LOCATED USING NON-DESTRUCTIVE METHODS. REINFORCING STRANDS IN EXISTING PRESTRESSED CONCRETE SHALL NOT BE CUT UNLESS INDICATED ON THE DRAWINGS OR OTHERWISE AUTHORIZED BY THE ENGINEER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE, REPAIRS OR STRUCTURAL MODIFICATIONS THAT ARE REQUIRED DUE TO DAMAGE OF CONCRETE, MASONRY OR REINFORCEMENT THAT HAS BEEN IDENTIFIED ON THE DRAWINGS TO REQUIRE FIELD VERIFICATION.
4. CORE DRILLING AND SAW CUTTING SHALL NOT BE PERFORMED UNLESS INDICATED ON THE DRAWINGS OR APPROVED BY ENGINEER.
5. EXPOSED CONCRETE SURFACES THAT REMAIN AFTER DEMOLITION SHALL BE REPAIRED TO MATCH ADJACENT CONCRETE SURFACES.
6. UNLESS OTHERWISE INDICATED ON THE DRAWINGS, EXPOSED CONCRETE SURFACES WITH REINFORCEMENT, ANCHOR BOLTS, HANGER RODS, OR OTHER EXPOSED METAL EMBEDMENTS SHALL BE REPAIRED BY CUTTING OFF THE METAL AT THE FACE OF THE CONCRETE, GRINDING SMOOTH, AND COATING. COATING SHALL EXTEND A MINIMUM OF 1" BEYOND THE EDGE OF ANY EXPOSED METAL.

SPECIAL INSPECTIONS

1. THRESHOLD INSPECTIONS ARE NOT REQUIRED FOR THIS PROJECT.

DELEGATED DESIGN

1. THE FOLLOWING ITEMS ARE IDENTIFIED IN THE DRAWINGS AND SPECIFICATIONS AS BEING DESIGNED AND SEALED BY OTHERS. SUBMITTALS FOR THESE ITEMS SHALL BE PREPARED BY THE SUPPLIERS AND SUBMITTED TO ENGINEER AND CODE OFFICIAL FOR REVIEW.

   SECTION 05550 - EQUIPMENT ANCHORAGE
   SECTION 13140 - PREFABRICATED FRP BUILDING

ISSUED FOR CONSTRUCTION

NO.	BY	CK APP
C	JCG	RAZ MNT
B	JCG	RAZ JCG
A	JCG	RAZ JCG

REVISIONS AND RECORD OF ISSUE

DATE	
SEPT 2022	100% SUBMITTAL
JUL 2022	90% SUBMITTAL
MAR 2021	50% SUBMITTAL

50.3071 - MLS 27-A
S-01.dwg

XREF1:
XREF2:
XREF3:
XREF4:

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THIS DRAWING WAS ORIGINALLY APPROVED FOR CONSTRUCTION BY JULIE GLOSS, ON 09/16/2022 AND SEALED BY JULIE GLOSS, A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF FLORIDA, NO. 86322

Manatee County FLORIDA

BLACK & VEATCH

Black & Veatch Corporation
3401 W. Dr. M. L. King Jr. Blvd. Suite 125
Tampa, Florida. Certificate No. 8132

MANATEE COUNTY FLORIDA
IMPROVEMENT AT
MASTER LIFT STATION 39-A

STRUCTURAL
STANDARD NOTES

DESIGNED: JCG
DETAILED: HT/AD
CHECKED: RAZ
APPROVED: MNT
DATE: SEPT 2022

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
402142

S-01
SHEET
13 OF 45

FD7000
402142

LOADING CRITERIA

BASIC LOADING CRITERIA THE APPLICABLE BUILDING CODE IS THE 2020 FLORIDA BUILDING CODE (FBC).

1. DEAD LOAD ..... CALCULATED

2. LIVE LOADS:
   - OPERATING AND PROCESS FLOORS..... 150 PSF
   - STAIRS, SERVICE PLATFORMS & LANDINGS..... 100 PSF
   - ELECTRICAL AND CONTROL ROOM FLOORS..... 250 PSF
   - CHEMICAL STORAGE ROOMS..... 250 PSF
   - STORAGE..... 250 PSF
   - ALL FLOORS NOT INDICATED..... 100 PSF
   - ROOF..... 20 PSF(UNREDUCED)

3. SNOW LOAD:
   - GROUND SNOW LOAD (Pg)..... 0 PSF

4. SEISMIC LOAD:
   - MAPPED MCE SHORT PERIOD SPECTRAL RESPONSE ACCELERATION (S_S)..... 0.049g
   - MAPPED MCE ONE SECOND PERIOD SPECTRAL RESPONSE ACCELERATION (S_1)..... 0.027g
   - DESIGN SPECTRAL RESPONSE ACCELERATION AT SHORT PERIODS (S_{DS})..... 0.052g
   - DESIGN SPECTRAL RESPONSE ACCELERATION AT ONE SECOND PERIOD (S_{D1})..... 0.043g
   - SITE CLASS..... D

5. WIND LOAD:
   - BASIC (ULTIMATE) DESIGN WIND SPEED..... 156 MPH
   - ALLOWABLE STRESS (NOMINAL) DESIGN WIND SPEED..... 122 MPH
   - GROUND ELEVATION FACTOR (K e)..... 1.0
   - EXPOSURE..... C

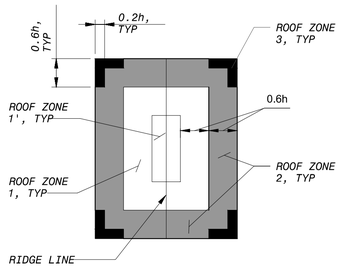
6. FEMA FLOOD RISK..... OUTSIDE THE 100 YEAR FLOODPLAIN

ELECTRICAL BUILDING	
INTERNAL PRESSURE COEFFICIENT	+/-0.55
DIMENSION "a" FOR WALLS	3.00 FT
DIMENSION "h" FOR ROOF	10.00 FT
ROOF TYPE	1

COMPONENT AND CLADDING WIND PRESSURES, PSF

EFFECTIVE WIND AREA (SQR FT) →		<=2	4	10	20	50	100	200	500	1000+
ROOF NEG PRESSURE, ZONE 1		-101.1	-101.1	-101.1	-95.6	-88.2	-82.6	-77.0	-69.7	-69.7
ROOF NEG PRESSURE, ZONE 1'		-65.2	-65.2	-65.2	-65.2	-65.2	-65.2	-58.4	-49.5	-42.7
ROOF NEG PRESSURE, ZONE 2		-128.1	-128.1	-128.1	-120.9	-111.5	-104.3	-97.1	-87.7	-87.7
ROOF NEG PRESSURE, ZONE 3		-168.6	-168.6	-168.6	-154.2	-135.3	-120.9	-106.6	-87.7	-87.7
ROOF POS PRESSURE, ZONES 1, 1'		38.2	38.2	38.2	36.9	35.1	33.7	33.7	33.7	33.7
ROOF POS PRESSURE, ZONES 2, 3		38.2	38.2	38.2	36.9	35.1	33.7	33.7	33.7	33.7
WALL ZONE 4	(+)	65.2	65.2	65.2	63.0	60.2	58.0	55.9	53.0	53.0
	(-)	-69.2	-69.2	-69.2	-67.1	-64.2	-62.1	-59.9	-57.1	-57.1
WALL ZONE 5	(+)	65.2	65.2	65.2	63.0	60.2	58.0	55.9	53.0	53.0
	(-)	-81.4	-81.4	-81.4	-77.1	-71.4	-67.1	-62.8	-57.1	-57.1

NOTES:
1. POSITIVE PRESSURES ACT TOWARDS THE SURFACE. NEGATIVE PRESSURES ACT AWAY FROM THE SURFACE.
2. LINEARLY INTERPOLATE PRESSURES FOR EFFECTIVE WIND AREAS BETWEEN THOSE SCHEDULED OR USE PRESSURES FOR THE SMALLER EFFECTIVE WIND AREA.
3. ALL ROOF OVERHANG PRESSURES ACT UPWARD.
4. SOFFITS BELOW ROOF OVERHANGS ARE DESIGNED FOR THE PRESSURE ON THE WALL BELOW THE SOFFIT.
5. PARAPET PRESSURES ARE THE TOTAL OF THE WINDWARD AND LEEWARD PARAPET FACE VALUES.



ROOF PLAN
TYPE 1 ROOF
(FLAT OR GABLE ≤7°)

WIND ZONE DIAGRAMS

NO.	BY	CK	APP	DATE	REVISIONS AND RECORD OF ISSUE
C	JCG	RAZ	MNT	SEPT 2022	100% SUBMITTAL
B	JCG	RAZ	MNT	JUL 2022	90% SUBMITTAL
A	JCG	RAZ	JCG	MAR 2021	50% SUBMITTAL

50.3071 - MLS 27-A
S-02.dwg

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Manatee County FLORIDA

BLACK & VEATCH

Black & Veatch Corporation
3405 W. Dr. M. L. King Jr. Blvd. Suite 125
Tampa, Florida. Certificate No. 8132

MANATEE COUNTY FLORIDA
IMPROVEMENT AT
MASTER LIFT STATION 39-A

STRUCTURAL
LOADING CRITERIA

DESIGNED: JCG
DETAILED: HT/AD
CHECKED: RAZ
APPROVED: MNT
DATE: SEPT 2022

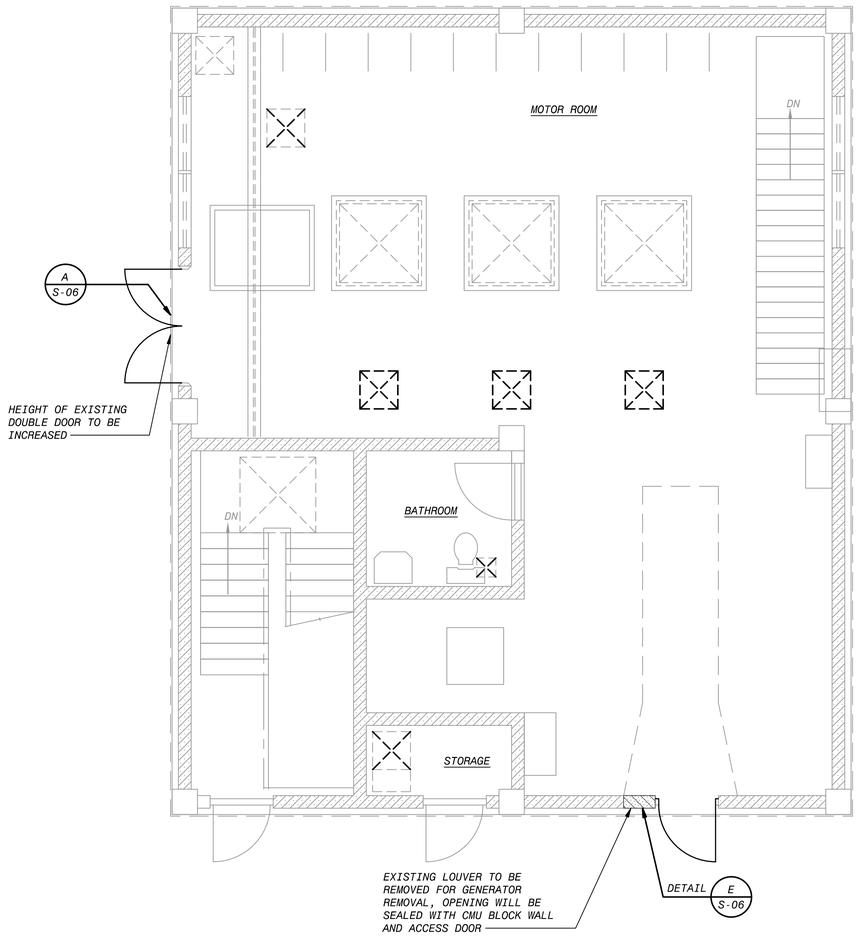
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
402142

S-02
SHEET
13 OF 45

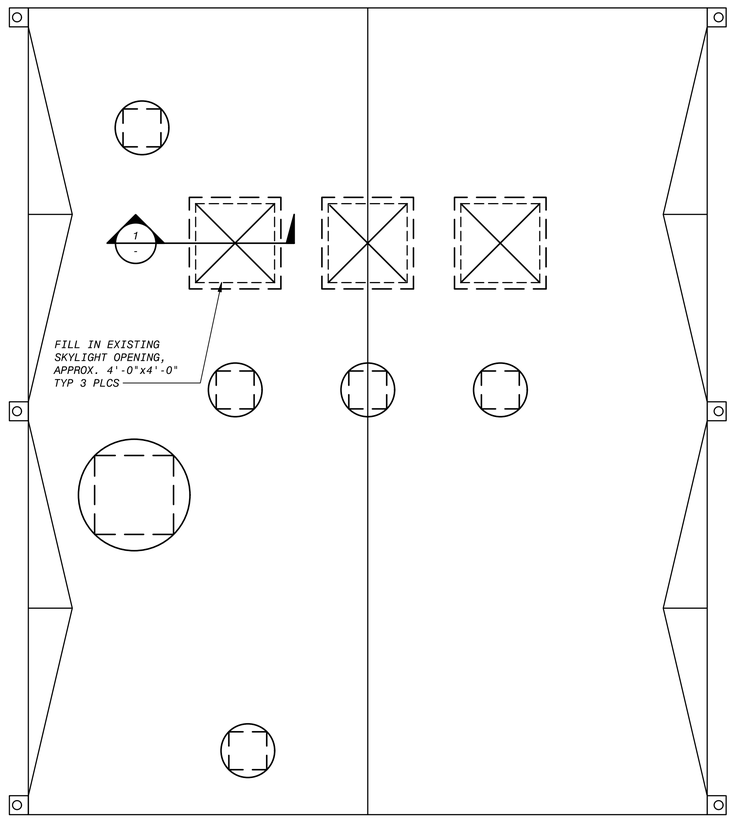
ISSUED FOR CONSTRUCTION

FD7000
402142



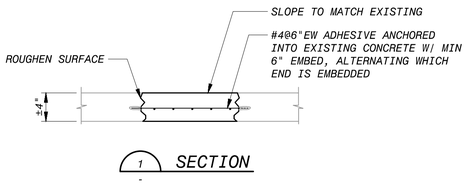
MLS 39-A - FLOOR PLAN

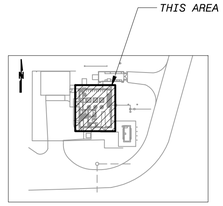
1/4" = 1'-0"



MLS 39-A - ROOF PLAN

1/4" = 1'-0"





KEY PLAN

4' 2' 0 4' 8'

1/4"=1'-0"

NO.	BY	CK	APP	DATE	REVISIONS AND RECORD OF ISSUE
C	JCG	RAZ	MNT	SEPT 2022	100% SUBMITTAL
B	JCG	RAZ	MNT	JUL 2022	90% SUBMITTAL
A	JCG	RAZ	MNT	MAR 2021	50% SUBMITTAL

S0.3040 - General Drawings
S-03.dwg

XREF1:
XREF2:
XREF3:
XREF4:

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Manatee County FLORIDA

BLACK & VEATCH

Black & Veatch Corporation
3401 W. Dr. M. L. King Jr. Blvd. Suite 125
Tampa, Florida. Certificate No. 8132

MANATEE COUNTY FLORIDA
IMPROVEMENT AT
MASTER LIFT STATION 39-A

STRUCTURAL
MASTER LIFT STATION PLAN AND SECTION

DESIGNED: JCG
DETAILED: HT/AD
CHECKED: RAZ
APPROVED: MNT
DATE: SEPT 2022

0 1/2 1

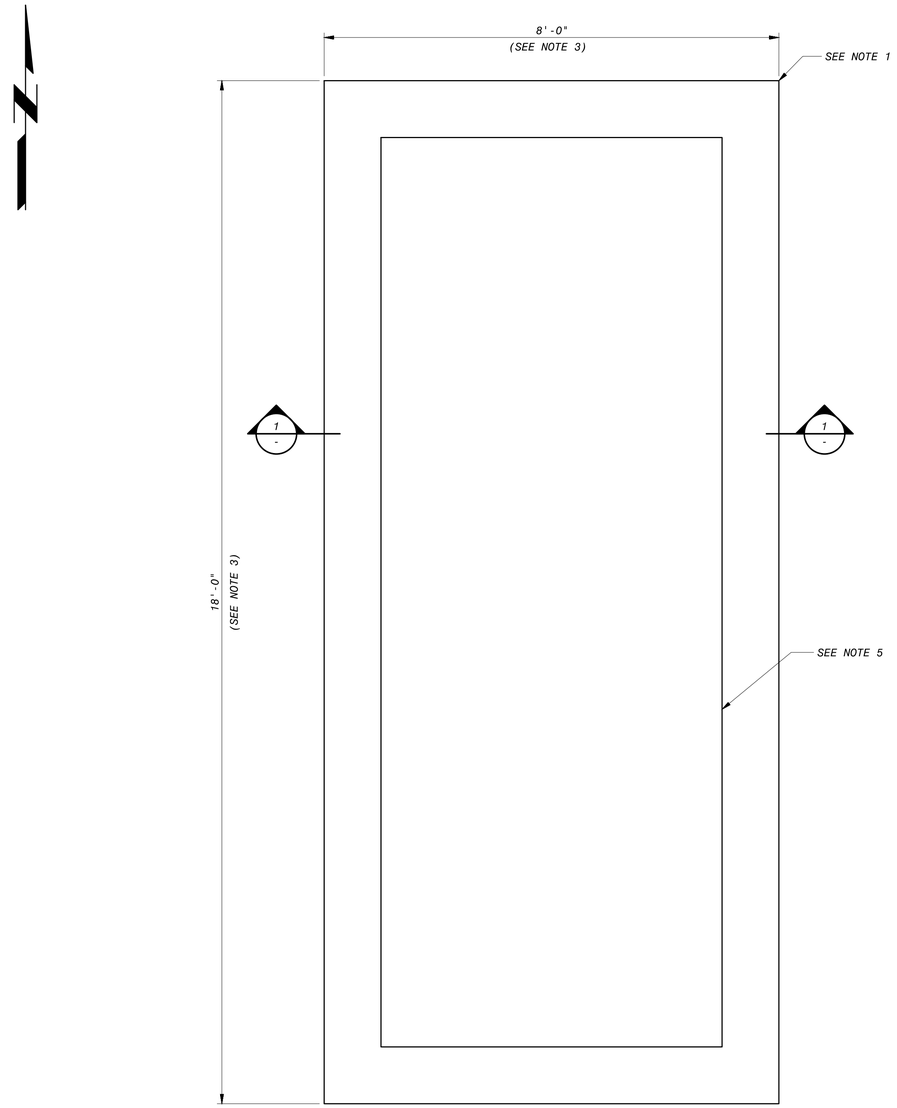
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
402142

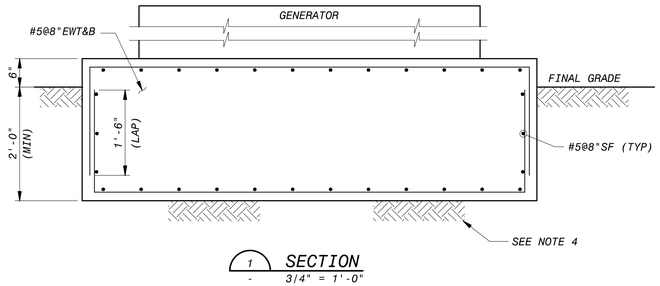
S-03
SHEET
15 OF 45

ISSUED FOR CONSTRUCTION

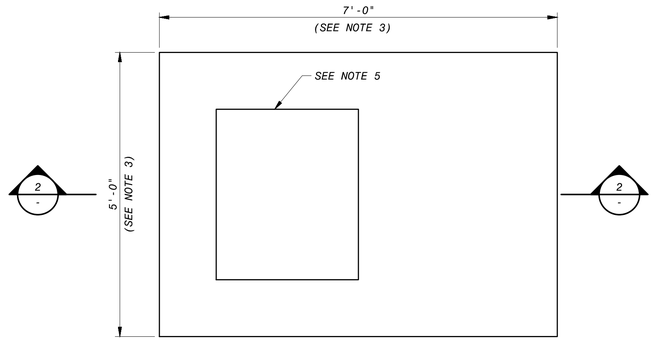
FD7000
402142



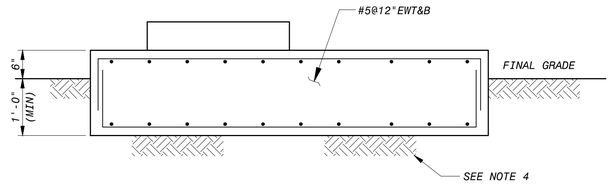
A C-01 GENERATOR FOUNDATION PLAN
3/4" = 1'-0"



1 - SECTION
3/4" = 1'-0"



B C-01 DETAIL
3/4" = 1'-0"



2 - SECTION
3/4" = 1'-0"

NOTES:

1. SEE CIVIL SITE PLAN FOR PAD/FOUNDATION LOCATIONS.
2. FOR GENERAL NOTES AND STANDARD DETAILS, SEE S-01, S-02 AND S-06.
3. CONTRACTOR SHALL COORDINATE SIZE AND LOCATION OF EQUIPMENT FOUNDATIONS WITH EQUIPMENT FURNISHED. CONTRACTOR SHALL MAINTAIN EDGE DISTANCE FOR EQUIPMENT ANCHORS PER EQUIPMENT SUPPLIER BUT NOT LESS THAN 12".
4. REMOVE UNSUITABLE SOIL AND REPLACE WITH SELECT FILL.
5. REFER TO DETAIL 'B' ON DRAWING C-02 FOR EQUIPMENT BASE DETAIL.

12" 6" 0 1' 2' 3'
3/4"=1'-0"

ISSUED FOR CONSTRUCTION

NO.	BY	CK APP
A	JCG	NE MNT
B	JCG	RAZ MNT
C	JCG	RAZ MNT

DATE	REVISIONS AND RECORD OF ISSUE
MAR 2021	50% SUBMITTAL
JUL 2022	90% SUBMITTAL
SEPT 2022	100% SUBMITTAL

50.3040 - General Drawings
S-04.dwg

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Manatee County Florida

BLACK & VEATCH

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3405 W. Dr. M. L. King Jr. Blvd. Suite 125
Tampa, Florida. Certificate No. 8132

MANATEE COUNTY FLORIDA
IMPROVEMENT AT MASTER LIFT STATION 39-A

STRUCTURAL
EQUIPMENT FOUNDATION
PLANS AND SECTIONS

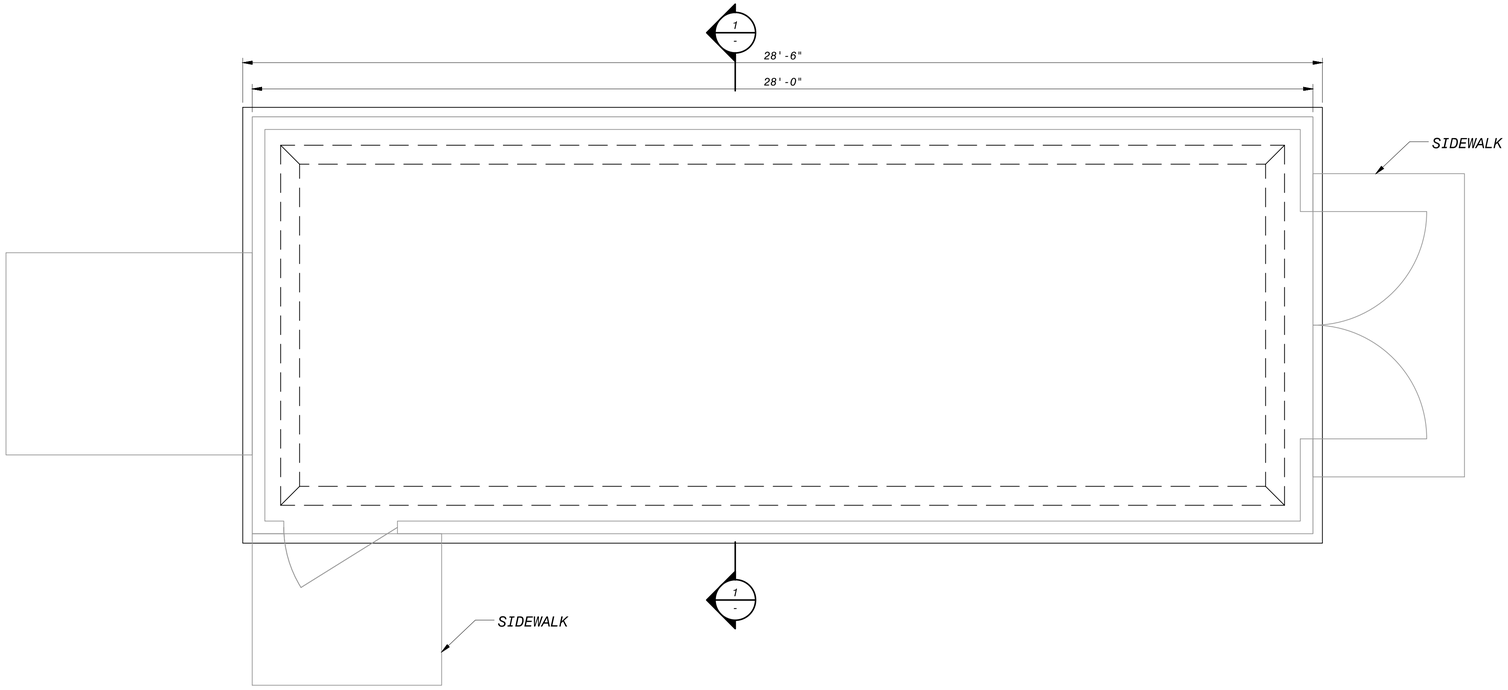
DESIGNED: JCG
DETAILED: HT/AD
CHECKED: RAZ
APPROVED: MNT
DATE: SEPT 2022

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEM DRAWING IS NOT TO FULL SCALE

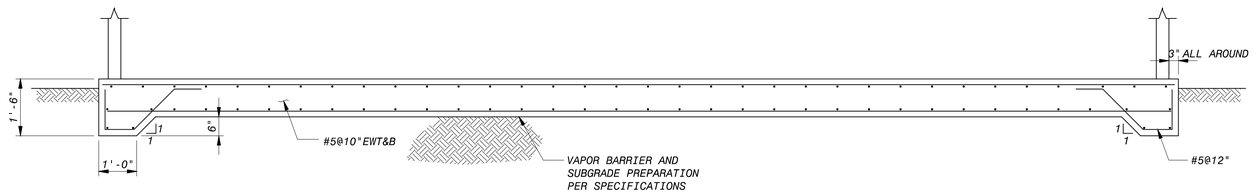
PROJECT NO.
402142

S-04
SHEET
16 OF 45

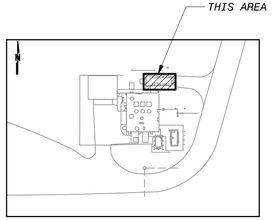
FD7000
402142



C-01 — PREFAB ELECTRICAL BUILDING FOUNDATION PLAN
1/2" = 1'-0"



1 - SECTION
1/2" = 1'-0"



KEY PLAN

12" 6" 0 1' 2' 3' 4' 5'
1/2"=1'-0"

NOTES:

1. REFER TO C-01 FOR BUILDING LOCATION AND LAYOUT.
2. FOUNDATION DIMENSIONS TO BE COORDINATED WITH BUILDING MANUFACTURER.

ISSUED FOR CONSTRUCTION

NO.	BY	CK	APP
C	AD	JCG	MNT
B	JCG	RAZ	MNT
A	JCG	RAZ	MNT

REVISIONS AND RECORD OF ISSUE

DATE	
MAR 2021	50% SUBMITTAL:
JUL 2022	90% SUBMITTAL:
SEPT 2022	100% SUBMITTAL

50.3040 - General Drawings
S-05.dwg

XREF1:
XREF2:
XREF3:
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Manatee County Florida

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MANATEE COUNTY FLORIDA
IMPROVEMENT AT
MASTER LIFT STATION 39-A

STRUCTURAL
PREFAB ELECTRICAL BUILDING
FOUNDATION PLAN AND SECTION

DESIGNED: JCG
DETAILED: HT/AD
CHECKED: RAZ
APPROVED: MNT
DATE: SEPT 2022

0 1/2 1
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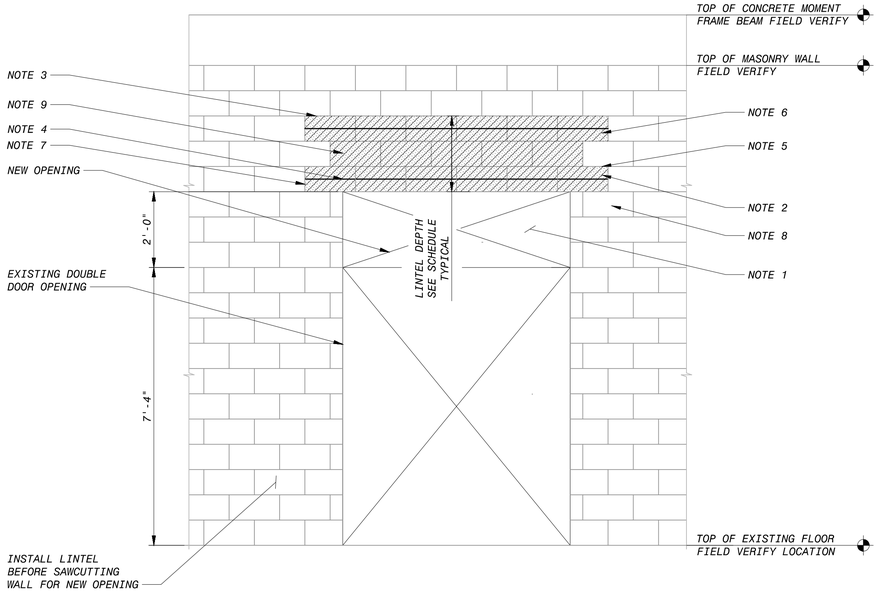
PROJECT NO.
402142

S-05
SHEET
17 OF 45

FDT000
402142

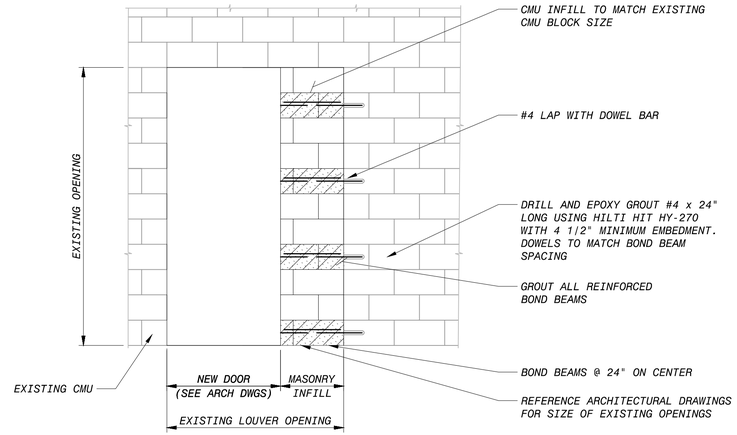


INSTALLATION OF NEW OPENING IN EXISTING WALL

1/2" = 1'-0"

NOTES:

1. AFTER INSTALLING NEW LINTEL, SAWCUT AND REMOVE EXISTING CMU WALL AS REQUIRED TO PROVIDE NEW OPENING.
2. IN THE AREA OF THE REPAIR, SAWCUT AND REMOVE EXISTING FACE SHELLS AND CLEAN OUT ALL CELLS TO RECEIVE NEW REINFORCEMENT AND GROUT. REMOVE ALL DEBRIS, INSULATION, LOOSE MORTAR, AND MORTAR WHICH OBSTRUCTS THE FLOW OF GROUT PRIOR TO INSTALLATION OF REINFORCEMENT. REFERENCE LINTEL SCHEDULE FOR WIDTH AND REINFORCING. SPLICE BARS IN 6'-0" TO 8'-0" LENGTHS.
4. IF EXISTING VERTICAL WALL REINFORCING IN GROUTED CELL IS PRESENT, INSTALL LINTEL DOWELS PER JAMB SCHEDULE TO MATCH SIZE AND QUANTITY OF NEW CMU LINTEL REINFORCING. EMBED HORIZONTAL DOWELS 8" INTO EXISTING REINFORCED CELL WITH HILTI HIT HY-270 ADHESIVE AND CONTACT LAP SPLICE DOWEL WITH NEW CMU LINTEL REINFORCEMENT.
5. REPLACE LINTEL BLOCKS AND GROUT SOLID WITH FINE OR COARSE GROUT. SURFACE TREATMENT RESTORE THE FACE OF THE CMU BY INSTALLING SOAP BLOCKS AND NEW BLOCKS AS NECESSARY, SURFACE TREATMENT OF NEW BLOCK TO MATCH ORIGINAL (SPLIT FACE OR SMOOTH FACE).
6. GROUT SOLID ALL CELLS CONTAINING REINFORCING WITH FINE OR COARSE GROUT USING THE LOW LIFT METHOD. GROUT TO BE CONSOLIDATED USING VIBRATORS.
7. RE-POINT ALL AFFECTED MORTAR JOINTS.
8. ELEVATION SHOWN IS FROM INSIDE OF BUILDING.
9. HATCHED AREA INDICATES LOCATION OF REPAIR TO INSTALL REINFORCEMENT AND GROUT. ACTUAL AREA OF REPAIR MAY VARY BASED ON FIELD CONDITIONS. CONTRACTOR TO BRACE AND/OR SHORE WALL AS REQUIRED TO PERFORM THE WORK.

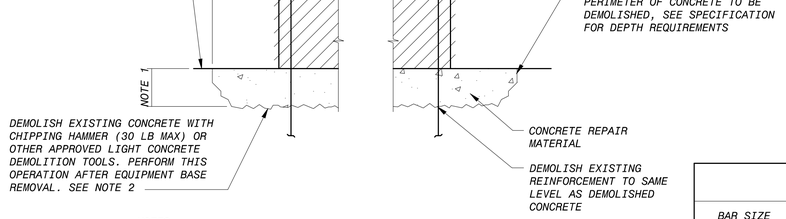


CMU INFILL DETAIL

1/2" = 1'-0"

BUILDING	WALL	LINTEL			
		CLEAR SPAN	DEPTH	REINFORCEMENT	
				TOP	BOTTOM
MLS 39-A	WEST	6'-0"	16"	-	2-#5

LINTEL SCHEDULE



NOTES:

1. DEPTH OF CONCRETE DEMOLITION SHALL BE THE LESSER OF 2" OR THE DEPTH OF CONCRETE COVER OVER THE EXISTING REINFORCEMENT. DO NOT DAMAGE EXISTING REINFORCEMENT PARALLEL TO REPAIRED SURFACE.
2. CARE SHALL BE TAKEN TO AVOID DAMAGING CONCRETE SUBSTRATE DURING CHIPPING OPERATION.

B CONCRETE FLOOR OR WALL REPAIR FOLLOWING DEMOLITION

- NO SCALE

LENGTH OF LAP SPLICES FOR REINFORCEMENT (INCHES) (f'c= 2500 PSI, IBC 2012, 2015 & 2018)				
BAR SIZE	8" CONCRETE MASONRY UNIT		12" CONCRETE MASONRY UNIT	
	SINGLE REINFORCEMENT	DOUBLE REINFORCEMENT	SINGLE REINFORCEMENT	DOUBLE REINFORCEMENT
4	12	20	12	17
5	18	32	12	27
6	34	-	21	51
7	47	-	29	(71)
8	(71)	-	45	(110)

NOTES:
1. NON-CONTACT LAP SPLICES SHALL NOT BE USED.
2. () BRACKETED SPLICE LENGTHS NOT RECOMMENDED. USE MECHANICAL CONNECTORS OR A FULL HEIGHT REINFORCEMENT BAR.

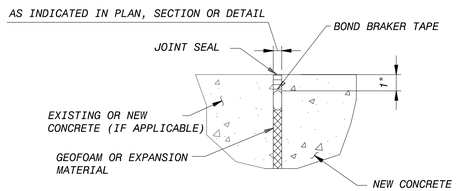
LENGTH OF LAPPED SPLICES FOR REINFORCEMENT (INCHES) IN CONCRETE (UNLESS NOTED OTHERWISE ON THE DRAWINGS) (f'c=4000 PSI)					
BAR SIZE *	BEAMS & COLUMNS		WALLS & SLABS		BAR SIZE
	**TOP BARS	OTHERS	**TOP BARS	OTHERS	
3	16	16	16	16	3
4	19	16	19	16	4
5	24	18	24	18	5
6	33	26	29	22	6
7	55	42	48	37	7
8	69	53	60	46	8
9	84	65	74	57	9
10	103	79	91	70	10
11	122	94	108	83	11

* LAP SPLICE LENGTH FOR BARS OF DIFFERENT SIZES SHALL BE THE GREATER OF THE SMALL BAR LAP LENGTH OR 0.75x THE LARGER BAR LAP LENGTH.

** TOP BARS ARE HORIZONTAL BARS SO PLACED THAT MORE THAN 12" OF CONCRETE IS CAST IN THE MEMBER BELOW THE BAR. HORIZONTAL BARS IN WALLS ARE TO BE PROVIDED WITH LAP LENGTHS AS REQUIRED FOR TOP BARS. VERTICAL BARS MAY BE CONSIDERED AS OTHER BARS.

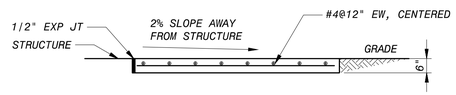
CONCRETE COVER FOR REINFORCEMENT	
LOCATION	MINIMUM COVER
UNFORMED SURFACES ADJACENT TO EXCAVATION	3"
SURFACES INSIDE OF OZONE CONTACTORS EXPOSED TO OZONE IN WATER OR AIR	3"
TOP SURFACES OF SLABS THAT ARE SUBMERGED	3"
FORMED SURFACES THAT ARE SUBMERGED, AND FORMED OR TOP SURFACES EXPOSED TO WEATHER, SATURATED AIR, OR EARTH.	2"
OTHER LOCATIONS:	
BEAMS OR GIRDERS	1 1/2"
SLABS, WALLS AND JOISTS	
#6 AND LARGER	1 1/2"
#5 AND SMALLER	1"

NOTES:
1. COVER IS MEASURED TO NEAREST BAR, STIRRUP, TIE, OR SPIRAL, AS APPLICABLE.
2. TOLERANCES FOR CONCRETE COVER AND THE FABRICATION AND PLACING OF REINFORCEMENT SHALL CONFORM TO ACI 117.



D EXPANSION JOINT

- NO SCALE



E DOOR STOOP

- NO SCALE

12" 6" 0 1' 2' 3' 4' 5'

1/2"=1'-0"

ISSUED FOR CONSTRUCTION

NO.	BY	CK	APP	DATE	REVISIONS AND RECORD OF ISSUE
C	AD	JCG	MNT	SEPT 2022	100% SUBMITTAL
B	JCG	RAZ	MNT	JUL 2022	90% SUBMITTAL
A	JG	NE	MT	MAR 2021	50% SUBMITTAL

50.3040 - General Drawings
S-06.dwg
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USER:DUT48884 DWG VER:TOO1
XREF1:
XREF2:
XREF3:
XREF4:

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Manatee County FLORIDA

BLACK & VEATCH

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MANATEE COUNTY FLORIDA
IMPROVEMENT AT
MASTER LIFT STATION 39-A

STRUCTURAL
STANDARD CONCRETE REINFORCEMENT AND CMU DETAILS

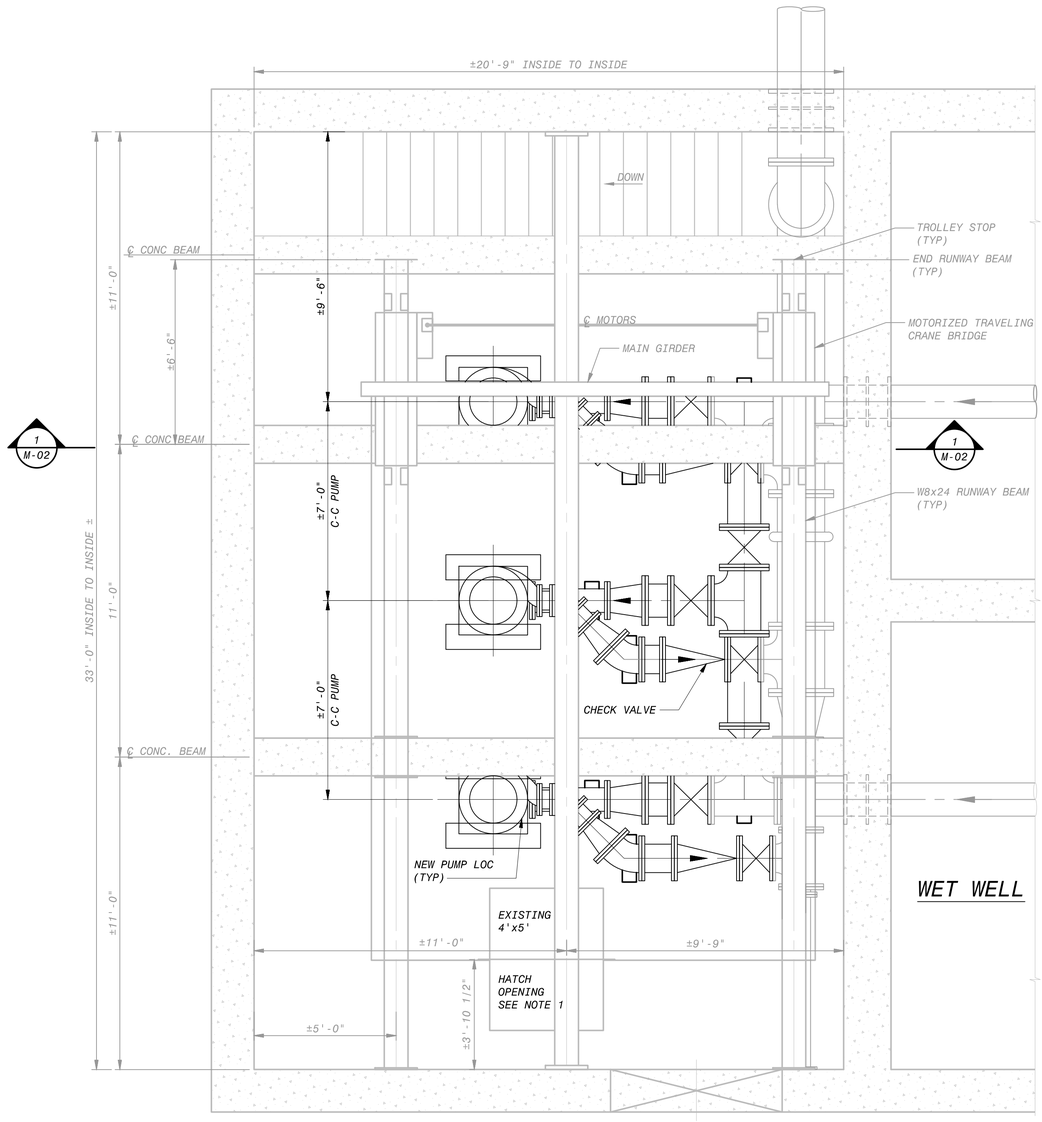
DESIGNED: JCG
DETAILED: AD/HT
CHECKED: RAZ
APPROVED: MNT
DATE: SEPT 2022

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

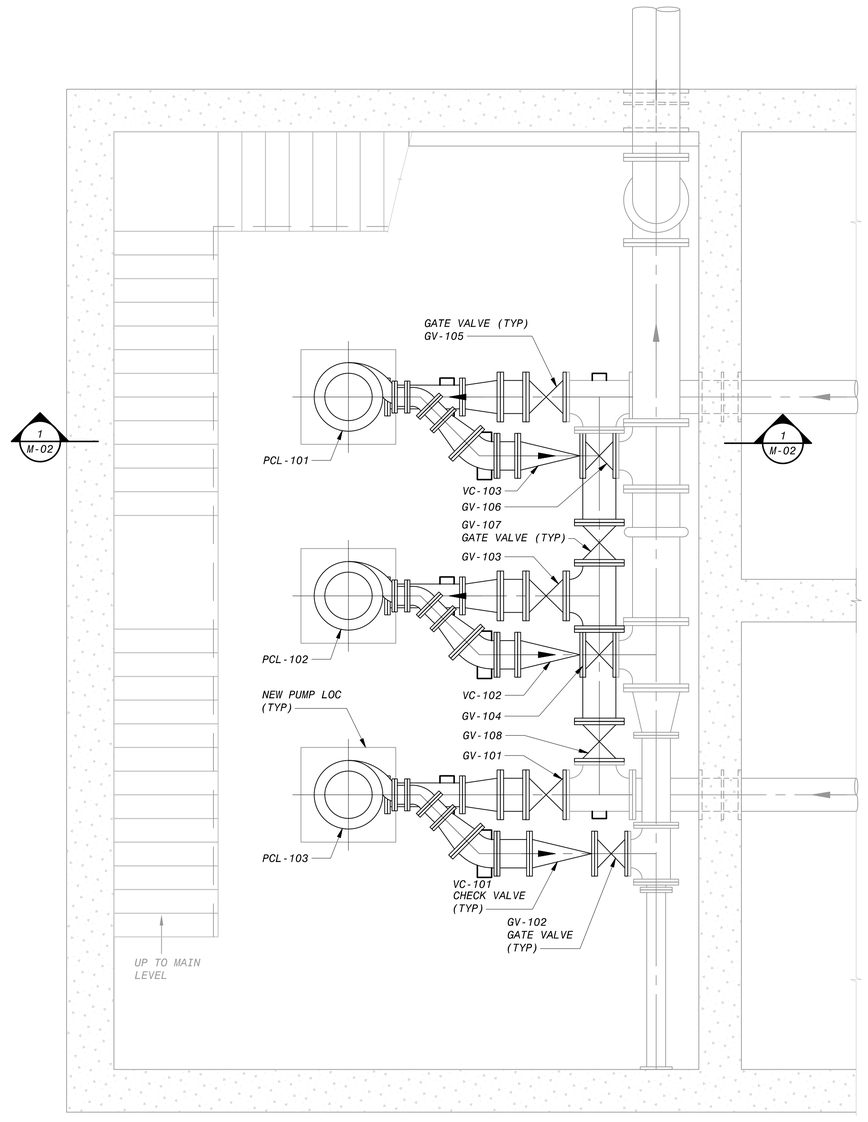
PROJECT NO.
402142

S-06
SHEET
18 OF 45

FD7000
402142



UPPER PLAN
3/8"=1'-0"



LOWER PLAN
3/8"=1'-0"

NOTES:

1. CONTRACTOR SHALL USE EXISTING HATCH AND BRIDGE CRANE TO LOWER NEW PUMPS DOWN INTO THE BASEMENT AREA.
2. CONTRACTOR SHALL REUSE EXISTING EQUIPMENT PAD FOR NEW PUMPS. CONTRACTOR SHALL MAKE MODIFICATIONS TO EXISTING EQUIPMENT PAD AS REQUIRED TO SUPPORT THE NEW PUMP.
3. CONTRACTOR SHALL MAINTAIN CONTINUOUS OPERATION OF THE MASTER LIFT STATION FOR THE DURATION OF CONSTRUCTION. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS, INCLUDING THE SANITARY SEWER BYPASS PUMPING SECTION (02720) AND THE CONSTRUCTION SCHEDULE AND PROJECT RESTRAINS SECTION (01310).
4. NEW PIPE, VALVES, AND APPURTENANCES SHALL MATCH ORIGINAL LAYOUT. ANY DEVIATIONS SHALL BE APPROVED BY ENGINEER.

12" 6" 0 1' 2' 3' 4' 5' 6' 7'
3/8"=1'-0"

ISSUED FOR CONSTRUCTION

NO.	BY	CK APP
A	AD	AW MNT

JUL 2022 — 90% SUBMITTAL.
DATE — REVISIONS AND RECORD OF ISSUE

50.3040 - General Drawings
M-01.dwg

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Manatee County FLORIDA

BLACK & VEATCH

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MANATEE COUNTY FLORIDA
IMPROVEMENTS AT
MASTER LIFT STATION 39-A

MECHANICAL PIPING PLAN

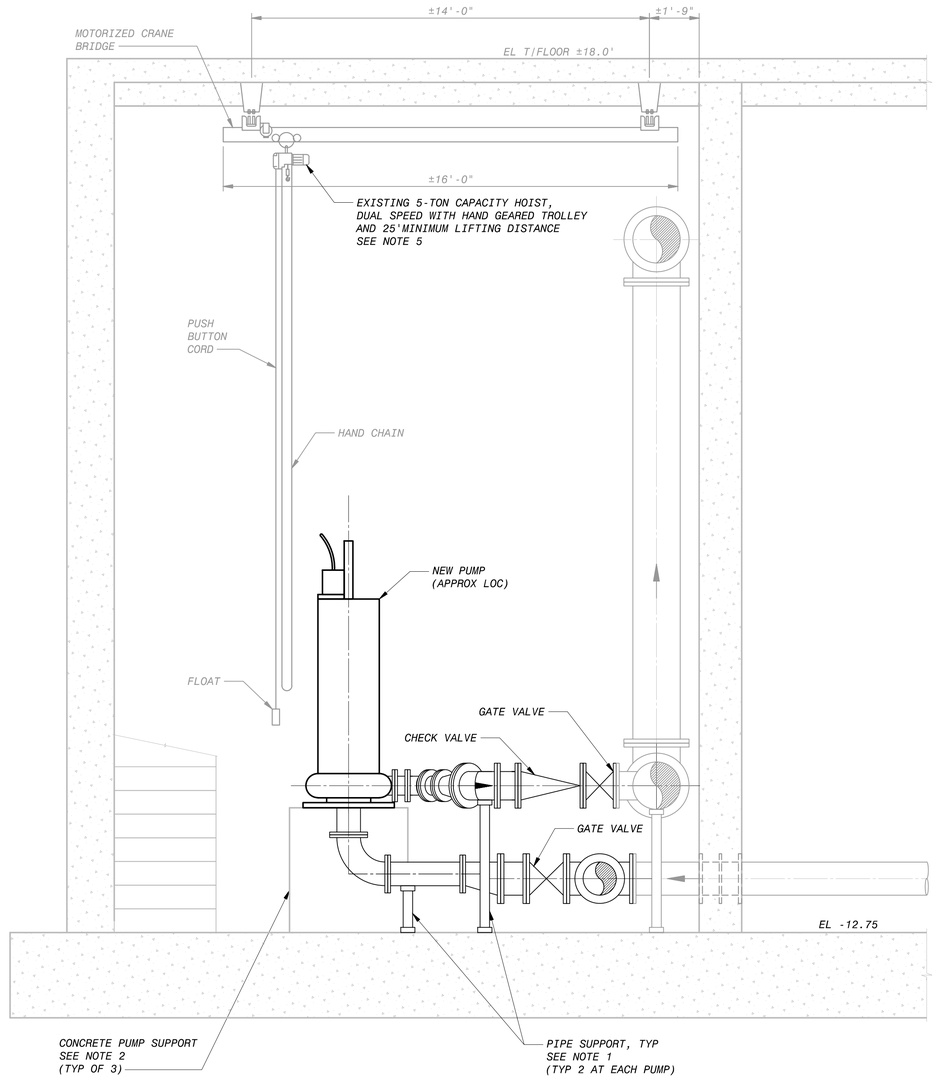
DESIGNED: AZ
DETAILED: HT/AD
CHECKED: AW
APPROVED: MNT
DATE: SEPT 2022

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEM DRAWING IS NOT TO FULL SCALE

PROJECT NO.
402142

M-01
SHEET
19 OF 45

FD7000
402142



1 SECTION
M-01 3/8" = 1'-0"

NOTES:

1. PIPE SUPPORTS SHALL BE IN ACCORDANCE WITH SPECIFICATION 15140.
2. CONTRACTOR SHALL REUSE EXISTING EQUIPMENT PAD FOR NEW PUMPS. CONTRACTOR SHALL MAKE MODIFICATIONS TO EXISTING EQUIPMENT PAD AS REQUIRED TO SUPPORT THE NEW PUMP.
3. CONTRACTOR SHALL MAINTAIN CONTINUOUS OPERATION OF THE MASTER LIFT STATION FOR THE DURATION OF CONSTRUCTION. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS, INCLUDING THE SANITARY SEWER BYPASS PUMPING SECTION (02720) AND THE CONSTRUCTION SCHEDULE AND PROJECT RESTRAINS SECTION (01310).
4. NEW PIPE, VALVES, AND APPURTENANCES SHALL MATCH ORIGINAL LAYOUT. ANY DEVIATIONS SHALL BE APPROVED BY ENGINEER.
5. BRIDGE CRANE IS SCHEMATICALLY SHOWN. CONTRACTOR SHALL USE EXISTING HATCH ON THE OPERATING FLOOR OF THE PUMP BUILDING FOR REMOVING EXISTING PUMPS AND INSTALLING NEW PUMPS. BRIDGE CRANE SHALL BE USED TO SET AND REMOVE PUMPS.

12" 6" 0 1' 2' 3' 4' 5' 6' 7'
3/8"=1'-0"

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MANATEE COUNTY FLORIDA
IMPROVEMENTS AT
MASTER LIFT STATION 39-A

MECHANICAL
PIPING SECTION

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M-02
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ABBREVIATIONS

A	ALARM, COMPRESSED AIR OUTLET	CH	CONVECTION HEATER	EVS	EMERGENCY VENTILATION SWITCH	HR	HEAT RECOVERY UNIT, HOUR,	OCSD	ODOR CONTROL SHUTOFF DAMPER	SRP	SCRUBBER RECIRCULATION PUMP
AC	AIR COMPRESSOR	C/L	CENTERLINE	EWC	ELECTRIC WATER COOLER		HOSE REEL	OD	OUTSIDE DIAMETER	SS	STAINLESS STEEL
AD	ACCESS DOOR, AIR DRYER	CO	CLEANOUT	EWH	ELECTRIC WATER HEATER	HUH	HEATING WATER UNIT HEATER	ORD	OVERFLOW ROOF DRAIN	SSK	SERVICE SINK
AF	AIR FLOW, AIRFOIL	CONC	CONCRETE	EWT	ENTERING WATER TEMPERATURE	HUM	HUMIDIFIER	ORP	OXIDATION REDUCTION POTENTIAL	SSP	SUBMERSIBLE SUMP PUMP
AFD	ADJUSTABLE FREQUENCY DRIVE	CONN	CONNECTION	EXIST	EXISTING	HV	HOSE VALVE	P	PNEUMATIC	STD	STANDARD
AFF	ABOVE FINISH FLOOR	CONT	CONTINUATION	F	DEGREES FAHRENHEIT	HWB	HEATING WATER BOILER	PD	PRESSURE DROP (INCHES OF	SV	SERVICE VALVE, SHUTOFF VALVE,
AFM	AIR FLOW MONITOR	CP	CIRCULATING PUMP	FA	FOUL AIR	HWP	HEATING WATER PUMP		WATER FOR AIR, FEET OF WATER		SUPPLY VALVE, SOLENOID VALVE
AHU	AIR HANDLING UNIT	CS	CUP SINK	FBD	FACE AND BYPASS DAMPER	HZ	HERTZ		FOR FLUIDS)	T	THERMOSTAT
ALUM	ALUMINUM	CT	COOLING TOWER	FC	FORWARD CURVE, FAN COIL	I	INTAKE	PAC	PACKAGED AIR CONDITIONING UNIT	TCP	TEMPERATURE CONTROL PANEL
AP	ACCESS PANEL	CU	CONDENSING UNIT	FCO	FLOOR CLEANOUT	ID	INSIDE DIAMETER	PAH	PACKAGED AIR HANDLING UNIT	TCV	TEMPERATURE CONTROL VALVE
APPROX	APPROXIMATE	CV	CHECK VALVE, CONTROL VALVE	FD	FIRE DAMPER, FLOOR DRAIN	IN	INCHES	PDI	PLUMBING AND DRAINAGE INSTITUTE	TD	TRENCH DRAIN
AR	AIR RECEIVER	CWP	CHILLED WATER PUMP	FDB	DEGREES FAHRENHEIT DRY BULB	INV	INVERT	PDS	PRESSURE DIFFERENTIAL SWITCH	TE	TEMPERATURE ELEMENT
AS	AIR SEPARATOR	CWW	CLEAR WATER WASTE	FEF	FUME EXHAUST FAN	JS	JANITOR'S SINK	PF	PROPELLER FAN	TL	TOP LEVEL
ATU	AIR TERMINAL UNIT	D	DIRECT DRIVE, DRAW-THRU	FLEX	FLEXIBLE	KS	KITCHEN SINK	PHP	PACKAGED HEAT PUMP	TP	TRAP PRIMER
AUTO	AUTOMATIC	DB	DRY BULB	FM	FLOW METER	KW	KILOWATT	PL	PLATE	TS	TIP SPEED, TAMPER SWITCH
AVG	AVERAGE	DDC	DIRECT DIGITAL CONTROL	FPM	FEET PER MINUTE	L	LINED DUCT, LOUVER	POS	POSITION	TYP	TYPICAL
AVS	AUTOMATIC VALVE STATION	DEH	DEHUMIDIFIER	FR	FUNNEL RECEPTOR	LAT	LEAVING AIR TEMPERATURE	PPM	PARTS PER MILLION	UR	URINAL
B	BELT DRIVE, BLOW THROUGH	DF	DRINKING FOUNTAIN, DUCT FAN	FRP	FIBERGLASS REINFORCED PLASTIC	LAV	LAVATORY	PROP	PROPELLER	V	VERTICAL
BDD	BACKDRAFT DAMPER	DIA	DIAMETER		PIPE	LBS	POUNDS	PRS	PRESSURE REDUCING STATION	VAC	VACUUM OUTLET
BF	BLIND FLANGE	DM	DUCT MOUNTED	FS	FLOOR SINK, FLOW SWITCH	LD	COMBINATION LOUVER/DAMPER	PRV	POWER ROOF VENTILATOR,	VANE	VANEAXIAL
BFF	BELOW FINISH FLOOR	DN	DOWN	FSD	COMBINATION FIRE/SMOKE DAMPER	LI	LEVEL INDICATOR		PRESSURE REDUCING VALVE	VAV	VARIABLE AIR VOLUME
BFP	BACKFLOW PREVENTER	DSN	DOWNSPOUT NOZZLE	FSW	FILTER SURFACE WASH	LS	LABORATORY SINK, LEVEL SWITCH	PS	PRESSURE SWITCH	VB	VACUUM BREAKER
BH	BASEBOARD HEATER	DX	DIRECT EXPANSION	FT	FEET, FIN TUBE HEATER, FLOW	LWT	LEAVING WATER TEMPERATURE	PSI	POUNDS PER SQUARE INCH	VCD	VOLUME CONTROL DAMPER
BI	BACKWARD INCLINED, BUILT-IN	E	ELECTRIC, ELECTRIC OPERATOR,		TUBE	MAU	MAKEUP AIR UNIT	PSIA	POUNDS PER SQUARE INCH ABSOLUTE	VF	VANEAXIAL FAN
	THERMOSTAT		EXHAUST	FUR	FURNACE	MAX	MAXIMUM	PSIG	POUNDS PER SQUARE INCH GAUGE	VP	VACUUM PUMP
BL	BOTTOM LEVEL	EA	EACH, EXHAUST AIR	FWB	DEGREES FAHRENHEIT WET BULB	MCA	MINIMUM CIRCUIT AMPS	PTAC	PACKAGED TERMINAL AIR	VSP	VERTICAL COLUMN SUMP PUMP
BLDG	BUILDING	EAT	ENTERING AIR TEMPERATURE	G	GAS OUTLET	ME	MIST ELIMINATOR		CONDITIONER	VTR	VENT THRU ROOF
BLR	BLOWER	EC	ECONOMIZER, EVAPORATIVE COOLER	GA	GAUGE	MFR	MANUFACTURER	RA	REACTIVATION AIR, RETURN AIR	W	WIDE FLANGE, WIDTH
BOD	BOTTOM OF DUCT ELEVATION	ECH	ELECTRIC CABINET HEATER	GALV	GALVANIZED	MOCP	MAXIMUM OVERCURRENT PROTECTION	RAC	ROOM AIR CONDITIONER	WB	WET BULB
BOT	BOTTOM	ECP	EQUIPMENT CONTROL PANEL	GD	GARBAGE DISPOSER	MIN	MINIMUM	RCS	REMOTE CONTROL STATION	WBP	WATER BOOSTER PUMP
BTF	BIOTRICKLING FILTER	EDH	ELECTRIC DUCT HEATER	GIH	GAS INFRARED HEATER	MOD	MODULATING	RD	ROOF DRAIN	WC	WATER CHILLER, WATER CLOSET
BTUH	BRITISH THERMAL UNITS PER HOUR	EEW	EMERGENCY EYE WASH	GPM	GALLONS PER MINUTE	MS	MOP SINK	REQD	REQUIRED		WATER COLUMN
BU	BELL-UP	EF	EXHAUST FAN	GUH	GAS UNIT HEATER	NC	NORMALLY CLOSED	RH	RELATIVE HUMIDITY, ROOF HOOD	WCO	WALL CLEANOUT
BV	BALL VALVE	EFF	EFFICIENCY	GV	GATE VALVE	NO	NORMALLY OPEN, NUMBER	RSF	ROOF SUPPLY FAN	WF	WALL FAN
C	CHANNEL, CONVECTOR, COOLING,	EGS	EMERGENCY GAS SCRUBBER	GW	GLASS WASHER	NPSHR	NET POSITIVE SUCTION HEAD	SA	SUPPLY AIR	WG	WATER GAUGE
	COOLING (MAKE ON RISE)	EIH	ELECTRIC INFRARED HEATER	GWH	GAS WATER HEATER		REQUIRED	SCD	SMOKE CONTROL DAMPER	WH	WALL HEATER, WALL HYDRANT
CAU	CARBON ADSORPTION UNIT	EL	ELEVATION	H	HAND OPERATOR, HEATING,	NT	NEUTRALIZATION TANK	SCFM	STANDARD CUBIC FEET PER	WHA	WATER HAMMER ARRESTOR
CB	CENTRIFUGAL BLOWER	EP	EXPLOSION PROOF		HEATING (MAKE ON FALL), HEIGHT,	OA	OUTSIDE AIR		MINUTE	WM	WALL MOUNTED
CBD	COUNTERBALANCE BACKDRAFT DAMPER	EQUIP	EQUIPMENT		HORIZONTAL, HUMIDISTAT	OC	ODOR CONTROL	SCP	SCRUBBER CONTROL PANEL	WST	WATER STORAGE TANK
CC	COOLING COIL	ES	EMERGENCY SHOWER, EMERGENCY	HC	HEATING COIL	OCBD	ODOR CONTROL BALANCE DAMPER	SF	SQUARE FEET, SUPPLY FAN	WT	WEIGHT
CCU	CARBON CANISTER UNIT		SWITCH	HCH	HEATING WATER CABINET HEATER	OCF	ODOR CONTROL FAN	SH	SHEET, SHOWER	WV	WATER CONTROL VALVE
CD	CONTROL DAMPER	ES/EEW	EMERGENCY SHOWER AND EYEWASH	HE	HEAT EXCHANGER, HELIUM	OCFS	ODOR CONTROL FLOW SWITCH	SIM	SIMILAR	ZD	ZONE DAMPER
CDWP	CONDENSER WATER PUMP	ESP	EXTERNAL STATIC PRESSURE	HF	HOSE FAUCET	OCLS	ODOR CONTROL LEVEL SWITCH	SMD	SMOKE DETECTOR		
CENTR	CENTRIFUGAL	ET	EXPANSION TANK	HO	HAND-OFF	OCP	ODOR CONTROL PANEL	SP	STATIC PRESSURE (INCHES OF		
CF	CABINET FAN	EUH	ELECTRIC UNIT HEATER	HOA	HAND-OFF-AUTO	OCPS	ODOR CONTROL PRESSURE SWITCH		WATER)		
CFM	CUBIC FEET PER MINUTE	EV	EXHAUST VALVE	HP	HEAT PUMP, HORSEPOWER	OCS	ODOR CONTROL SCRUBBER	SPS	STATIC PRESSURE SENSOR		

LEGEND

GENERAL

- PIPING ABOVE FLOOR OR GRADE
- PIPING BELOW FLOOR OR GRADE
- PIPE TURNING UP
- PIPE TURNING DOWN

HVAC/ODOR CONTROL

- CWR — CHILLED WATER RETURN
- CWS — CHILLED WATER SUPPLY
- C — CONDENSATE DRAIN
- CDWR — CONDENSER WATER RETURN
- CDWS — CONDENSER WATER SUPPLY
- FA — FOUL AIR
- HWR — HEATING WATER RETURN
- HWS — HEATING WATER SUPPLY
- LPC — LOW PRESSURE CONDENSATE
- LPS — LOW PRESSURE STEAM (<15 PSIG)
- R — REFRIGERANT
- SR — SCRUBBER RECIRCULATION

PIPING SPECIALTIES

- AUTOMATIC VALVE STATION
- BASKET STRAINER
- COMBINATION PUMP DISCHARGE VALVE
- FLEXIBLE CONNECTION
- FLOW CONTROL VALVE
- FLOW SENSOR METER
- HF — HOSE FAUCET
- HF — HOSE FAUCET W/ VACUUM BREAKER
- HOSE VALVE W/ HOSE NIPPLE
- AIR VENT
- PRS — PRESSURE REDUCING STATION
- PRESSURE RELIEF VALVE
- PRESSURE/TEMPERATURE RELIEF VALVE
- Q — QUICK COUPLING
- ROTAMETER
- SIGHT FLOW INDICATOR
- SUCTION DIFFUSER (SCHEMATIC)
- TP — TRAP PRIMER
- WH — WALL HYDRANT W/ VACUUM BREAKER
- M — METER
- S — WYE STRAINER
- S — WYE STRAINER W/ BLOWOFF
- VACUUM BREAKER

HVAC

- DIFFUSER FOR FLEXIBLE DUCT
- 30"x20"(L) — DUCTWORK DIMENSIONS, THE FIRST DIMENSION IS THE SIDE SEEN OR SIDE THE LEADER LINE TOUCHES. SEE GENERAL MECHANICAL NOTES.
- FLEXIBLE CONNECTION
- FLEXIBLE DUCTWORK
- XX — INCLINED RISE (UP) OR DROP (DN) IN RESPECT TO DIRECTION OF AIRFLOW
- NEGATIVE PRESSURE DUCT
- POSITIVE PRESSURE DUCT
- REGISTER, GRILLE OR DIFFUSER
- ROUND OR FLEXIBLE DUCT TAKEOFF
- ROUND TO SQUARE TRANSITION
- TURNING VANES

CONTROLS AND INSTRUMENTATION

- DIAL TYPE THERMOMETER
- DG — DRAFT GAUGE
- E — ELECTRIC OPERATOR (EXPLOSION PROOF)
- E — ELECTRIC OPERATOR (MODULATING)
- E — ELECTRIC OPERATOR (2 POSITION)
- EVS 1 — EMERGENCY VENTILATION SWITCH W/ NUMBER
- FS — FLOW SWITCH
- GAUGE ACTIVATOR/ISOLATOR
- H 1 — HUMIDISTAT W/ NUMBER
- I — INSTRUMENT TEST OPENING
- LS — LEVEL SWITCH
- PDS 1 — PRESSURE DIFFERENTIAL SWITCH W/ NUMBER
- P — PRESSURE GAUGE W/ SHUTOFF VALVE
- PS — PRESSURE SWITCH
- SMD 1 — SMOKE DETECTOR W/ NUMBER
- S — SOLENOID OPERATOR
- STEM TYPE THERMOMETER
- TS — TEMPERATURE SENSOR
- T 1 — THERMOSTAT WITH NUMBER
- V — VACUUM GAUGE W/ SHUTOFF VALVE

AIR INLET AND OUTLET IDENTIFICATION

24"x10"-10"
SR-1-760

- SIZE-LENGTH BY WIDTH (INCHES)
- FLEXIBLE DUCT DIAMETER (INCHES, IF USED)
- CFM THRU DEVICE
- DEVICE DESIGNATION
- DEVICE GROUP: R-REGISTER, G-GRILLE, D-DIFFUSER
- DEVICE TYPE: S-SUPPLY, E-EXHAUST, R-RETURN, T-TRANSFER

GENERAL MECHANICAL NOTES

1. THIS IS GENERAL LEGEND AND ABBREVIATION SHEET FOR HVAC DRAWINGS. SOME ITEMS CONTAINED ON THIS SHEET MAY NOT BE USED ON THIS SPECIFIC PROJECT.
2. ALL MECHANICAL HVAC WORK SHALL BE IN ACCORDANCE WITH THE FOLLOWING APPLICABLE CODES:
   - 2020 FLORIDA BUILDING CODE
   - 2020 FLORIDA ENERGY CONSERVATION CODE
   - 2020 FLORIDA EXISTING BUILDING CODE
   - 2020 FLORIDA MECHANICAL CODE
3. FOR ROOFTOP EQUIPMENT CURBS, FLUES, AND FLASHING DETAILS, SEE ARCHITECTURAL DRAWINGS.
4. SEE ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR ALL EQUIPMENT BASE DETAILS.
5. "SCREENED" DELINEATION DENOTES EXISTING AND NEW FACILITIES AND IS FOR REFERENCE ONLY. "LIGHT" LINE DELINEATION DENOTES EXISTING MECHANICAL EQUIPMENT AND SYSTEMS. EXISTING FACILITY AND MECHANICAL SYSTEMS INFORMATION WAS TAKEN FROM PREVIOUS DRAWINGS, CONSTRUCTION RECORDS, DATA, AND FIELD SURVEY INFORMATION. ACTUAL LOCATION, ARRANGEMENT, AND DIMENSIONS SHALL BE FIELD VERIFIED AND WORK INSTALLED TO MEET ACTUAL CONDITIONS AND LOCATIONS ENCOUNTERED. "BOLD" (DARK) DELINEATION IS NEW WORK TO BE CONSTRUCTED UNDER THIS CONTRACT.
6. ALL MATERIALS, FITTINGS, COVERS, AND EQUIPMENT INSTALLED IN RETURN AIR PLENUMS SHALL BE NONCOMBUSTIBLE AND UL LISTED FOR USE IN RETURN AIR PLENUMS.
7. ALL PIPE AND DUCT PENETRATIONS THROUGH FIRE RESISTANCE RATED ASSEMBLIES SHALL BE PROVIDED WITH FIRE STOP SYSTEMS, EQUIPMENT AND ACCESSORIES TO RESIST THE PASSAGE OF FIRE, SMOKE AND OTHER GASES. THE ORIGINAL FIRE RESISTANCE RATING OF THE ASSEMBLY PENETRATED SHALL BE MAINTAINED FOR ALL TYPES OF PENETRATIONS.
8. METAL ROOF DECKING OR BOTTOM CHORD OF BAR JOISTS SHALL NOT BE USED FOR THE SUPPORT OF EQUIPMENT, PIPING, OR DUCTWORK.
9. ALL HANGERS, BRACKETS, OR BRACES FOR DUCTWORK, EQUIPMENT, AND PIPING ARE NOT INDICATED ON THE DRAWINGS. REFER TO THE SPECIFICATIONS FOR SUPPORT REQUIREMENTS NOT SHOWN ON THE PLANS.
10. OUTSIDE AIR INLETS SHALL BE LOCATED A MINIMUM OF 10' AWAY FROM ANY EXHAUST AIR OR PLUMBING VENT OUTLET.
11. ALL EQUIPMENT, PIPING, AND DUCTWORK FINAL LOCATIONS SHALL BE COORDINATED TO AVOID INTERFERENCES WITH STRUCTURE, OTHER PIPING, EQUIPMENT, DUCTWORK, AND CONDUIT. UNLESS SPECIFICALLY DIMENSIONED, THE PIPE AND DUCTWORK ROUTING SHOWN IS INTENDED TO INDICATE GENERAL LOCATION ONLY. INSTALL DUCTWORK TO ALLOW FOR PIPING TO BE ROUTED AGAINST WALLS.
12. ALL PIPING AND DUCTWORK SHALL BE ROUTED AS HIGH AS POSSIBLE WITH A MINIMUM HEIGHT OF 8'-0" ABOVE THE WALKING SURFACE UNLESS OTHERWISE INDICATED BY A CENTERLINE, INVERT, OR BOTTOM OF DUCT ELEVATION.
13. DUCTWORK SHALL BE FABRICATED, REINFORCED, SUPPORTED AND SEALED FOR OPERATING PRESSURES INDICATED IN THE SCHEDULES FOR THE EQUIPMENT IT SERVES. ALL DUCTWORK SHALL HAVE A MINIMUM SMACNA PRESSURE CLASSIFICATION OF ONE INCH.
14. DUCT SIZES INDICATED ARE CLEAR DIMENSIONS INSIDE THE DUCT OR DUCT LINING. SHEET METAL SIZES ARE LARGER FOR INTERNALLY LINED DUCTWORK.
15. MINIMUM INSULATION THICKNESSES FOR DUCTWORK SHALL BE AS INDICATED IN THE SPECIFICATIONS UNLESS OTHERWISE INDICATED ON THE PLANS WITH A "L" OR "W" DESIGNATION. WHERE AN INSULATION THICKNESS IS INDICATED ON THE DRAWINGS, IT SHALL GOVERN. THE FOLLOWING DENOTES THE DIFFERENT INSULATION THICKNESSES INDICATED ON THE DRAWINGS:
    - L,L1 - 1 INCH INTERNALLY LINED
    - L15 - 1.5 INCH INTERNALLY LINED
    - L2 - 2 INCH INTERNALLY LINED
    - W,W1 - 1 INCH EXTERNALLY WRAPPED
    - W15 - 1.5 INCH EXTERNALLY WRAPPED
    - W2 - 2 INCH EXTERNALLY WRAPPED
16. DUCT CONNECTIONS TO EQUIPMENT, PIPING SIZES TO EQUIPMENT, AND EQUIPMENT SUPPORTS SHALL BE VERIFIED AND ADJUSTED TO MATCH ACTUAL EQUIPMENT FURNISHED.
17. THE LOCATION OF PIPING AND VALVES TO THE AIR HANDLING EQUIPMENT SHALL NOT INTERFERE WITH FILTER REMOVAL OR AIR HANDLING EQUIPMENT SERVICING.
18. SEISMIC RESTRAINTS/BRACING SHALL BE PROVIDED FOR ALL EQUIPMENT, DUCTWORK, PIPING AND ACCESSORIES IN ACCORDANCE WITH THE LATEST SMACNA SEISMIC RESTRAINT MANUAL AND LOCAL BUILDING CODES. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SEISMIC SUPPORTS AND ADDITIONAL/MISCELLANEOUS STEEL REQUIRED FOR PROPER INSTALLATION OF SUPPORTS. SUPPORTS AND SEISMIC RESTRAINTS DESIGN SUBMITTALS SHALL BEAR THE STAMP AND SIGNATURE OF A LICENSED ENGINEER.
19. INSULATION SHALL BE PROVIDED FOR EQUIPMENT, PIPING, AND DUCT SYSTEMS AS INDICATED IN THE SPECIFICATIONS.

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MANATEE COUNTY FLORIDA
IMPROVEMENTS AT
MASTER LIFT STATION 39-A

HVAC
LEGEND, ABBREVIATIONS AND GENERAL NOTES

DESIGNED: DAV
DETAILED: DAV
CHECKED: MFR
APPROVED: MNT
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PROJECT NO.
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H-01
SHEET
21 OF 45

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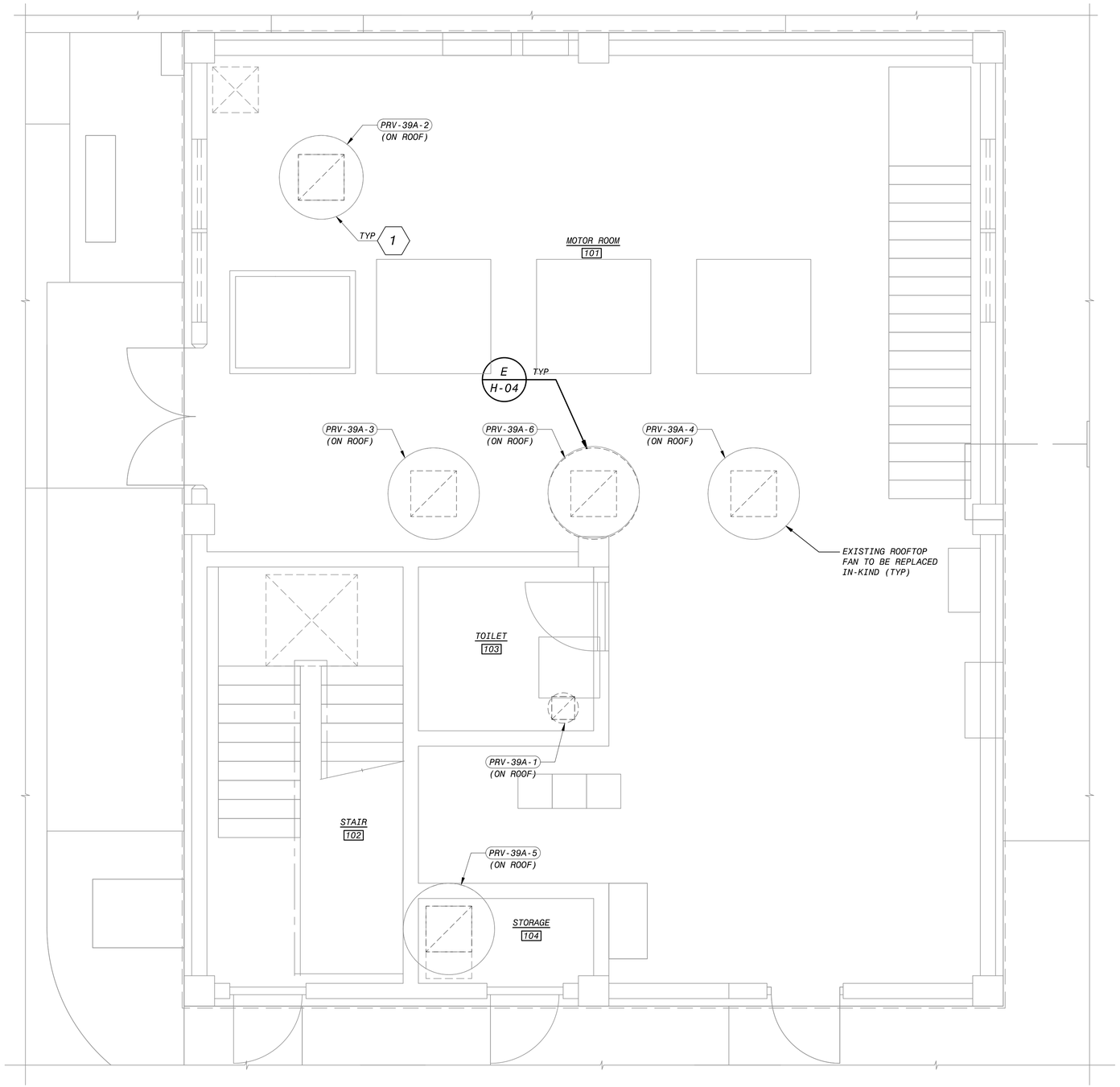
GENERAL SHEET NOTES

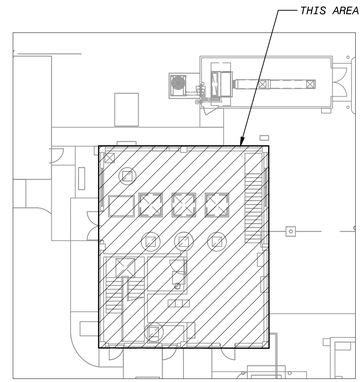
1. SEE DRAWING H-01 FOR HVAC LEGEND, ABBREVIATIONS AND GENERAL NOTES.

SHEET KEYNOTES

1. INSTALL FAN ON EXISTING ROOF CURB, FIELD VERIFY SIZE AND PROVIDE CURB ADAPTER AS NECESSARY. CONNECT TO EXISTING CONTROL WIRING AND NEW POWER SOURCE PB-1 IN PUMP STATION, FIELD VERIFY CONDITION OF CONTROL WIRING, THERMOSTATS, AND CONTROLS ACCESSORIES AND REPLACE AS NECESSARY.



MLS 39A - PLAN
3/8" = 1'-0"



KEY PLAN
NO SCALE

12" 6" 0 1' 2' 3' 4' 5' 6' 7'
3/8"=1'-0"

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IMPROVEMENTS AT
MASTER LIFT STATION 39-A

HVAC
MLS 39-A - PLAN

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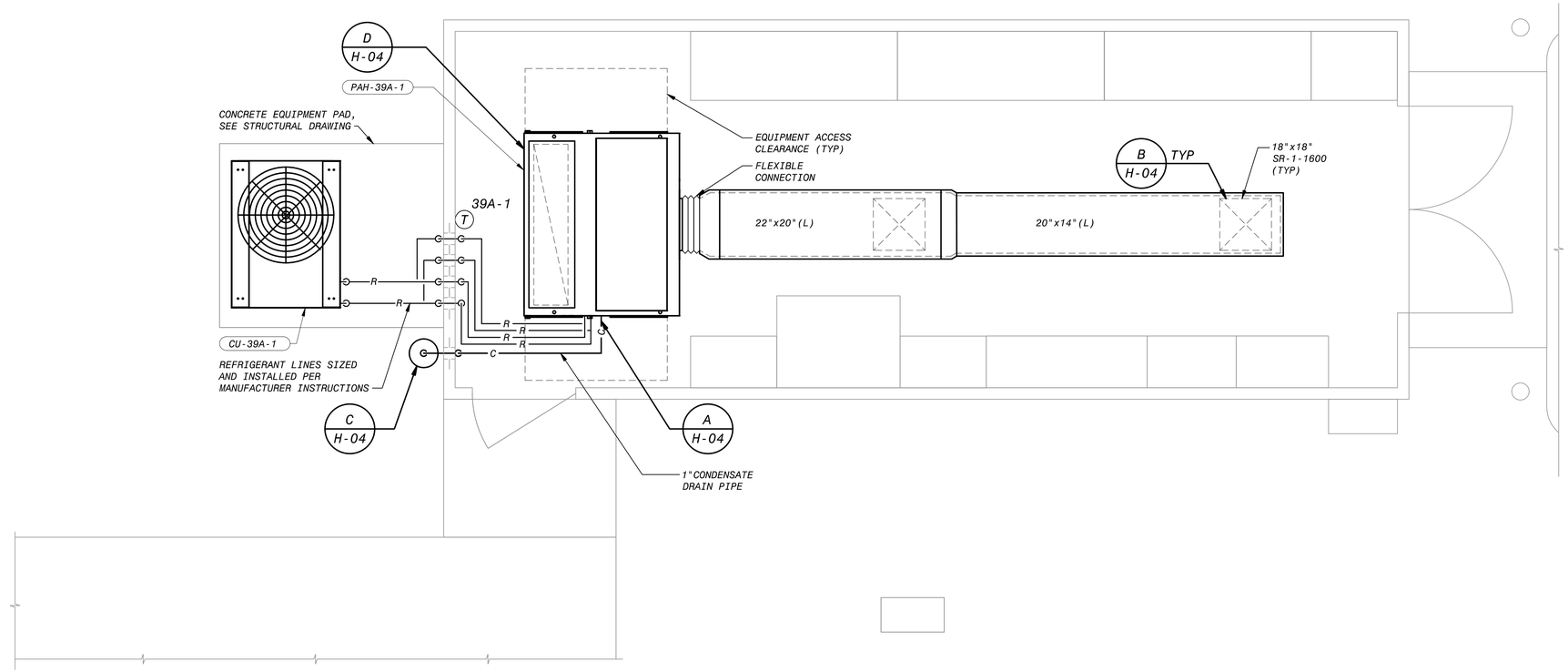
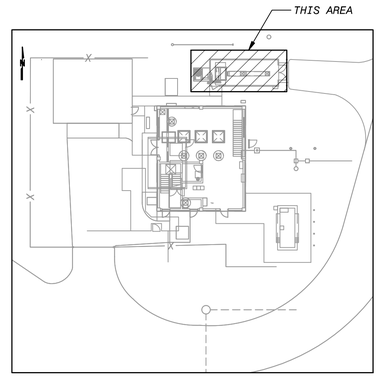
GENERAL SHEET NOTES

1. SEE DRAWING H-01 FOR HVAC LEGEND, ABBREVIATIONS AND GENERAL NOTES.



MLS 39-A - NEW PREFAB ELECTRICAL BUILDING - PLAN

1/2" = 1'-0"



KEY PLAN

NO SCALE

12" 6" 0 1' 2' 3' 4' 5'

1/2"=1'-0"

ISSUED FOR CONSTRUCTION

NO.	BY	CK	APP	DATE	REVISIONS AND RECORD OF ISSUE
C	AD	MFR	MNT	SEPT 2022	100% SUBMITTAL
B	AD	MFR	MNT	JUL 2022	90% SUBMITTAL
A	AD	MFR	MNT	MAR 2021	50% SUBMITTAL

50.3092 - MLS 39-A

H-03.dwg

XREF1:

XREF2:

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XREF4:

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USER:DUT48884 DWG VER:1007

THIS DRAWING WAS ORIGINALLY APPROVED FOR CONSTRUCTION BY MICHELE ROTH, ON 09/16/2022 AND SEALED BY MICHELE ROTH, A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF FLORIDA, NO. 82002

Manatee County Florida

BLACK & VEATCH

Black & Veatch Corporation
3405 W. Dr. M. L. King Jr. Blvd. Suite 125
Tampa, Florida Certificate No. 8132

MANATEE COUNTY FLORIDA
IMPROVEMENTS AT
MASTER LIFT STATION 39-A

HVAC
NEW PREFAB ELECTRICAL BUILDING PLAN

DESIGNED: DAV
DETAILED: MVS/AD
CHECKED: MFR
APPROVED: MNT
DATE: SEPT 2022

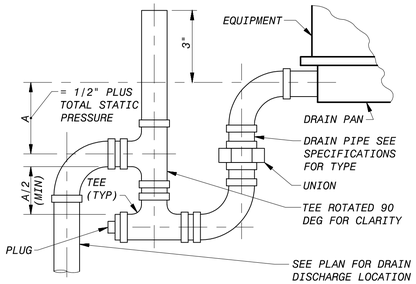
0 1/2 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
402142

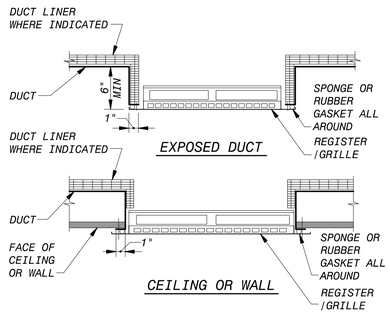
H-03
SHEET
23 OF 45

FD7000
402142



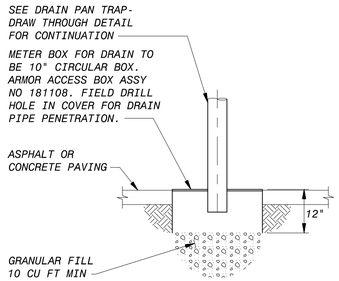
A DRAIN PAN TRAP - DRAW THROUGH

NO SCALE



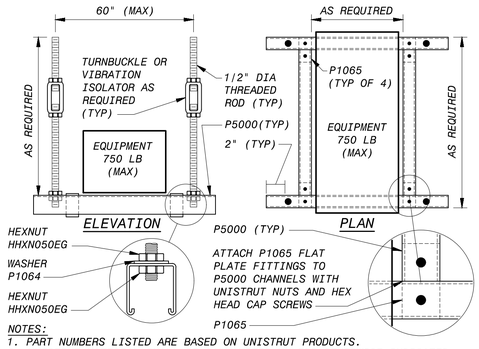
B REGISTER/GRILLE

NO SCALE



C CONDENSATE DRAIN SUMP

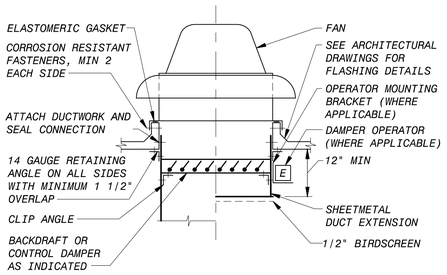
NO SCALE



NOTES:
1. PART NUMBERS LISTED ARE BASED ON UNISTRUT PRODUCTS.
2. UNISTRUT MATERIAL SHALL BE GALVANIZED UNLESS OTHERWISE INDICATED.

D CEILING HANGER - 4 ROD

NO SCALE



E ROOF MOUNTED FAN

NO SCALE

AIR DEVICE SCHEDULE

SYMBOL	MANUFACTURER	MODEL	FRAME/BORDER	MODULE SIZE	MATERIAL	FINISH	DAMPER TYPE	NOTES
SR-1	TITUS	272FS	SURFACE MOUNT	---	ALUMINUM	BAKED ALUM ENAMEL	OPPOSED BLADE	1

AIR HANDLING UNIT (PACKAGED) SCHEDULE

UNIT NUMBER	LOCATION	MANUFACTURER	MODEL	AIRFLOW (CFM)	ESP (IN WC)	ORIENTATION	INDOOR FAN MOTOR HP	DRIVE	POWER SUPPLY		COOLING				FILTER DATA		VIBRATION ISOLATION	APPROX WEIGHT (LBS)	NOTES
									VOLTS	PHASE	EAT (FDB)	EAT (FWB)	CAPACITY (BTUH) SENSIBLE	CAPACITY (BTUH) TOTAL	TYPE	THICKNESS (IN)			
PAH-39A-1	39-A ELECTRICAL ROOM	TRANE	TWE	3200	0.5	HORIZONTAL	2	BELT	480	3	85	64.5	94500	96000	PLEATED	2	INTERNAL	450	1, 2, 3

CONDENSING UNIT SCHEDULE

UNIT NUMBER	LOCATION	MANUFACTURER	MODEL	COOLING				HEATING CAPACITY (BTUH)	POWER SUPPLY		MINIMUM CIRCUIT AMPACITY	ARI MINIMUM EFFICIENCY	MATCHED WITH INDOOR UNIT	APPROX WEIGHT (LBS)	NOTES
				CAPACITY (BTUH)	MINIMUM CAPACITY STEPS	SUCTION TEMPERATURE (F) MINIMUM	SUCTION TEMPERATURE (F) MAXIMUM		VOLTS	PHASE					
CU-39A-1	39-A ELECTRICAL ROOM	TRANE	TWA	95500	2	38	48	---	480	3	25	12.7 EER	PAH-39A-1	450	1, 2

FAN SCHEDULE

UNIT NUMBER	LOCATION	BASIS OF DESIGN MANUFACTURER	MODEL	FAN TYPE	AIRFLOW (CFM)	ESP (IN WC)	BRAKE HP	MOTOR HP	POWER SUPPLY		MINIMUM WHEEL DIA (IN)	WHEEL TYPE	DRIVE	VIBRATION ISOLATION	APPROX WEIGHT (LBS)	NOTES
									VOLTS	PHASE						
PRV-39A-1	39-A MLS ROOF	GREENHECK	CUE	PRV	100	0.25	0.02	1/15	120	1	8	C	DIRECT	INTERNAL	30	1, 2, 4, 6, 7, 8
PRV-39A-2	39-A MLS ROOF	GREENHECK	CUBE	PRV	3300	0.25	0.31	3/4	480	3	24	C	BELT	INTERNAL	150	1, 2, 4, 6, 7, 8
PRV-39A-3	39-A MLS ROOF	GREENHECK	GB	PRV	4500	0.25	0.41	3/4	480	3	30	C	BELT	INTERNAL	175	1, 3, 4, 6, 7, 8
PRV-39A-4	39-A MLS ROOF	GREENHECK	GB	PRV	4500	0.25	0.41	3/4	480	3	30	C	BELT	INTERNAL	175	1, 3, 4, 6, 7, 8
PRV-39A-5	39-A MLS ROOF	AEROVENT	AWAB	PRV	11000	0.875	2.16	3	480	3	36	C	BELT	INTERNAL	650	1, 2, 4, 6, 7, 8
PRV-39A-6	39-A MLS ROOF	GREENHECK	GB	PRV	4500	0.25	0.41	3/4	480	3	30	C	BELT	INTERNAL	175	1, 2, 5, 7, 9

GENERAL SHEET NOTES

1. SEE DRAWING H-01 FOR HVAC LEGEND, ABBREVIATIONS AND GENERAL NOTES.

SCHEDULE NOTES

AIR DEVICE SCHEDULE:

NOTES:
1. SEE DRAWINGS FOR DEVICE LENGTH, WIDTH, AND SUPPLY PATTERN.

AIR HANDLING UNIT (PACKAGED) SCHEDULE:

NOTES:
1. FILTER VELOCITY SHALL NOT EXCEED 350 FPM.
2. PROVIDE BOTTOM INLET RETURN GRILLE.
3. SINGLE ZONE VARIABLE AIR VOLUME UNIT.

CONDENSING UNIT SCHEDULE:

OUTDOOR COIL ENTERING AIR TEMPERATURE: 96.1 F (COOLING)

NOTES:
1. UNIT IS SUBJECT TO CORROSION FROM A HYDROGEN SULFIDE LADEN AND COASTAL ATMOSPHERE. ALL HOUSINGS, AIRSTREAM COMPONENTS AND EXPOSED HEAT TRANSFER COMPONENTS SHALL BE GIVEN A PROTECTIVE FACTORY COATING OF HERESITE AND SEACOAST PROTECTION OR APPROVED EQUALS. CONTROL PANELS, WIRING CONNECTIONS AND OTHER SENSITIVE ELECTRONICS SHALL HAVE A CONFORMAL COATING APPLIED.
2. PROVIDE HAIL GUARDS.

FAN SCHEDULE

FAN TYPE ABBREVIATIONS:
PRV - POWER ROOF VENTILATOR

WHEEL TYPE ABBREVIATIONS:
C - CENTRIFUGAL

NOTES:
1. FAN REPLACING EXISTING. EXISTING ROOF CURB TO BE REUSED, PROVIDE CURB ADAPTER AS NECESSARY. CONNECT NEW FAN TO EXISTING FAN CONTROL WIRING.
2. UPLAST EXHAUST CONFIGURATION.
3. DOWNBLAST EXHAUST CONFIGURATION.
4. ALUMINUM CONSTRUCTION.
5. FIBERGLASS CONSTRUCTION.
6. PROVIDE BACKDRAFT DAMPER.
7. PROVIDE BIRDSCREEN MATCHING FAN CONSTRUCTION MATERIAL.
8. UNIT IS SUBJECT TO CORROSION FROM A HYDROGEN SULFIDE LADEN AND COASTAL ATMOSPHERE. ALL HOUSINGS AND AIRSTREAM COMPONENTS SHALL BE GIVEN A PROTECTIVE FACTORY COATING OF HERESITE OR SEACOAST PROTECTION OR APPROVED EQUALS. WIRING CONNECTIONS AND OTHER SENSITIVE ELECTRONICS SHALL HAVE A CONFORMAL COATING APPLIED.
9. EXPLOSION PROOF MOTOR AND SPARK RESISTANT CONSTRUCTION.

HVAC SEQUENCE OF OPERATION

1. AIR CONDITIONING SYSTEMS.

1.1. SINGLE ZONE VARIABLE VOLUME SYSTEMS. COOLING ONLY SINGLE ZONE VARIABLE VOLUME SYSTEMS SHALL BE CONTROLLED BY THEIR RESPECTIVE PROGRAMMABLE THERMOSTAT. SYSTEM OPERATION SHALL BE CONTROLLED BY "OFF-AUTO-COOL" MODES AND "AUTO-ON" FAN MODES SELECTED FROM THE THERMOSTAT TOUCHSCREEN INTERFACE. WHEN THE "AUTO" FAN MODE IS SELECTED, THE RESPECTIVE EQUIPMENT FAN SHALL BE ENERGIZED UPON A CALL FOR COOLING AS REQUIRED TO MAINTAIN THE DESIRED ROOM TEMPERATURE. WHEN "ON" FAN MODE IS SELECTED, THE FAN SHALL BE ENERGIZED. WHEN THE INDOOR TEMPERATURE IS GREATER THAN THE INDOOR TEMPERATURE SETPOINT, THE FAN SHALL BE ENERGIZED AND HELD AT THE MINIMUM SPEED REQUIRED TO MEET THE COOLING DEMAND. THE FAN SPEED SHALL INCREASE AS THE COOLING DEMAND INCREASES AND THE COMPRESSORS SHALL BE STAGED AND ENERGIZED AS REQUIRED TO MAINTAIN THE DESIRED INDOOR TEMPERATURE. UPON ALARM SIGNAL FROM FIRE ALARM CONTROL PANEL (FACP), PAH-39A-1 AND CU-39A-1 SHALL BE DE-ENERGIZED.

EQUIPMENT	THERMOSTAT
PAH-39A-1, CU-39A-1	T-39A-1

2. THERMOSTAT SETPOINTS

2.1. THERMOSTAT SETPOINTS SHALL BE AS INDICATED BELOW.

AIR CONDITIONED AREAS	-	85 F

ISSUED FOR CONSTRUCTION

NO.	BY	CK	APP
C	AD	MFR	MNT
B	AD	MFR	MNT
A	AD	MFR	MNT

REVISIONS AND RECORD OF ISSUE

DATE	
SEPT 2022	100% SUBMITTAL
JUL 2022	90% SUBMITTAL
MAR 2021	50% SUBMITTAL

50.3092 - MLS 39-A
H-04.dwg

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XREF3:
XREF4:

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Manatee County Florida

BLACK & VEATCH

Black & Veatch Corporation
3405 W. Dr. M. L. King Jr. Blvd. Suite 125
Tampa, Florida. Certificate No. 8132

MANATEE COUNTY FLORIDA
IMPROVEMENTS AT
MASTER LIFT STATION 39-A

HVAC
SCHEDULES AND DETAILS

DESIGNED: DAV
DETAILED: DAV
CHECKED: MFR
APPROVED: MNT
DATE: SEPT 2022

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IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
402142

H-04
SHEET
24 OF 45

FD7000
402142

ELECTRICAL LEGENDS

ONE-LINE DIAGRAM LEGEND

1500KVA
2.4KV Δ - 480Y/277V
3-PH, 60HZ
TRANSFORMER WITH PRIMARY AND SECONDARY VOLTAGE, AND KVA RATING AS NOTED

CS 4#14,3/4"
20 3P-60 22:3#8,#10G, 4#14,2"
CIRCUIT NO.22 WITH 3#8 INSULATED CONDUCTORS AND 1#10 GROUND WIRE FOR A 20HP MOTOR WITH 3 POLE, 60A, MOTOR DISCONNECT SWITCH AND 4#14 INSULATED CONDUCTORS FOR AUXILIARY ITEM, AS FOR EXAMPLE A CONTROL STATION, ALL IN 2" CONDUIT.

AUXILIARY ITEMS MAY NOT BE COMPLETELY SHOWN
HS
20 3P-60 22:3#8,#10G 4#14,2"
CONDUCTORS FOR AUXILIARY ITEM SHALL NOT PASS THROUGH MOTOR DISCONNECT SWITCH.

AUXILIARY ITEMS MAY NOT BE COMPLETELY SHOWN
15
ONE-LINE SHOWING POWER AND CONTROL TO A PACKAGE UNIT, AS FOR EXAMPLE A STEAM GENERATOR OR AN AIR HANDLING UNIT, SHALL IMPLY THAT ANY AND ALL ASSOCIATED EQUIPMENT SHALL ALSO BE INSTALLED AND WIRED AS REQUIRED BY THE EQUIPMENT FURNISHED.

INDICATES THAT ALL OR PART OF CIRCUIT MAY BE ROUTED IN DUCT BANK OR UNDERGROUND. CONDUIT SIZE SHOWN ON ONE-LINE IS ABOVE GROUND AND/OR INSIDE OF STRUCTURE. SEE DUCT BANK SCHEDULE AND SECTIONS FOR CONDUIT SIZE OF UNDERGROUND PORTION OF CIRCUIT.

HIGH VOLTAGE DRAWOUT AIR OR VACUUM CIRCUIT BREAKER

3P-20
LOW VOLTAGE AIR CIRCUIT BREAKER, 3 POLE, 20 AMPERE

S4
SIZE 4 COMBINATION MAGNETIC MOTOR STARTER

LOW VOLTAGE DRAWOUT AIR CIRCUIT BREAKER

HIGH VOLTAGE DRAWOUT CONTACTOR

FUSE AND DISCONNECT SWITCH

S2
SIZE 2 COMBINATION MAGNETIC MOTOR STARTER, REVERSING OR 2 SPEED

S1
SIZE 1 COMBINATION REDUCED VOLTAGE AUTOTRANSFORMER

POTENTIAL TRANSFORMER

CURRENT TRANSFORMER

CURRENT OR POTENTIAL TEST SWITCH

G
GENERATOR

K
KIRK KEY INTERLOCK

E
ELECTRICAL INTERLOCK

R
RESISTOR

59G
PROTECTION RELAY WITH IEEE DEVICE FUNCTION AS SHOWN

V
SINGLE-FUNCTION METER

SURGE OR LIGHTNING ARRESTER

SURGE ARRESTER WITH SURGE CAPACITOR

GROUND CONNECTION

SCHEMATIC SYMBOLS

- WIRE CONNECTION POINT
- EXTERNAL CONNECTION POINT
- NORMALLY OPEN CONTACT
- NORMALLY CLOSED CONTACT
- STARTER, CONTACTOR OR RELAY COIL
- NORMALLY OPEN PUSH BUTTON
- NORMALLY CLOSED PUSH BUTTON
- MAINTAINED PUSH BUTTON
- NORMALLY CLOSED GEARED LIMIT SWITCH
- NORMALLY OPEN GEARED LIMIT SWITCH
- INDICATING LIGHT
- FUSE
- POTENTIOMETER
- CAPACITOR
- DIODE
- RESISTOR
- CONTROL POWER TRANSFORMER
- SWITCH
- MS MANUAL STARTER
- OL OVERLOAD
- OVERLOAD
- ELECTRODE
- FLOAT SWITCH (CLOSING ON RISING LEVEL)
- FLOAT SWITCH (OPENING ON RISING LEVEL)
- P PRESSURE SWITCH (CLOSING ON RISING PRESSURE)
- P PRESSURE SWITCH (OPENING ON RISING PRESSURE)
- V VACUUM SWITCH (CLOSING ON INCREASING VACUUM)
- V VACUUM SWITCH (OPENING ON INCREASING VACUUM)
- TEMPERATURE SWITCH (CLOSING ON RISING TEMPERATURE)
- TEMPERATURE SWITCH (OPENING ON RISING TEMPERATURE)
- FLOW ACTUATED SWITCH (CLOSING ON INCREASE IN FLOW)
- FLOW ACTUATED SWITCH (OPENING ON INCREASE IN FLOW)
- ON TIME DELAY CONTACT (NORMALLY OPEN, WHEN THE COIL IS ENERGIZED THE CONTACT WILL CLOSE AFTER A TIME DELAY)
- ON TIME DELAY CONTACT (NORMALLY CLOSED, WHEN THE COIL IS ENERGIZED THE CONTACT WILL OPEN AFTER A TIME DELAY)
- OFF TIME DELAY CONTACT (NORMALLY OPEN, WHEN THE COIL IS DE-ENERGIZED THE CONTACT WILL OPEN AFTER A TIME DELAY)
- OFF TIME DELAY CONTACT (NORMALLY CLOSED, WHEN THE COIL IS DE-ENERGIZED THE CONTACT WILL CLOSE AFTER A TIME DELAY)
- TORQUE SWITCH (NORMALLY OPEN)
- TORQUE SWITCH (NORMALLY CLOSED)
- LIMIT SWITCH (NORMALLY OPEN)
- LIMIT SWITCH (NORMALLY OPEN, HELD CLOSED)
- LIMIT SWITCH (NORMALLY CLOSED)
- LIMIT SWITCH (NORMALLY CLOSED, HELD OPEN)
- DIFFERENTIAL PRESSURE SWITCH (NORMALLY OPEN, CLOSING ON INCREASING DIFF.)
- DIFFERENTIAL PRESSURE SWITCH (NORMALLY CLOSED, OPENING ON INCREASING DIFF.)

SWITCH & OUTLET SYMBOLS

- S SINGLE POLE SWITCH
- S_2 TWO POLE SWITCH
- S_{3A} THREE-WAY SWITCH CONTROLLING LIGHTS WITH "A" DESIGNATION
- S_4 FOUR-WAY SWITCH
- S_M^{C1} MOMENTARY SWITCH CONTROLLING CONTACTOR C1
- S_A^{DM} DIMMING WALL SWITCH CONTROLLING LIGHTS WITH "A" DESIGNATION
- S_A^{OS} WALL SWITCH OCCUPANCY SENSOR CONTROLLING LIGHTS WITH "A" DESIGNATION
- DUPLEX RECEPTACLE 120 VOLT
- SIMPLEX RECEPTACLE
- RANGE RECEPTACLE
- TWISTLOCK RECEPTACLE
- 30 240V, 1Ø RECEPTACLE, TYPICAL AMPERE RATING NOTED
- 60 480V, 3Ø WELDING RECEPTACLE, TYPICAL AMPERE RATING NOTED
- 120 VOLT DUPLEX RECEPTACLE (UPS)
- DUPLEX FLOOR OUTLET
- TELEPHONE OUTLET
- TELEPHONE FLOOR OUTLET
- CX COAXIAL CABLE OUTLET
- DATA NETWORK OUTLET

MISCELLANEOUS SYMBOLS

- STROBE
- HORN & STROBE
- HORN
- T THERMOSTAT
- J JUNCTION BOX
- GROUND ROD
- GROUND ROD WITH TEST WELL
- GROUND CONNECTION
- DISCONNECT SWITCH
- COMBINATION STARTER
- POWER PANEL
- LIGHTING PANEL
- MISCELLANEOUS PANEL
- LIGHTING CONTACTOR
- CAMERA
- PE PHOTOELECTRIC SENSOR, PHOTOCELL
- OS CEILING MOUNTED OCCUPANCY SENSOR
- OS WALL MOUNTED OCCUPANCY SENSOR

BREAKER DETAILS

DETAIL A

52 — 5KV, 1200A, 49KA
A 5KV CLASS MEDIUM-VOLTAGE, DRAWOUT, VACUUM OR AIR INSULATED CIRCUIT BREAKER WITH A 1,200 AMPERE FRAME. BREAKER HAS A 49,000 AMPERE MAXIMUM FAULT CURRENT INTERRUPTING RATING.

DETAIL B

3P-50
A LOW VOLTAGE FIXED MOUNTED MOLDED CASE CIRCUIT BREAKER WITH A 50 AMPERE TRIP RATING. TRIP UNIT IS NON-ADJUSTABLE THERMAL-MAGNETIC TYPE.

1000AT, 1200AF, SST, LSIG, AFRD
A LOW VOLTAGE FIXED MOUNTED MOLDED CASE CIRCUIT BREAKER WITH A 1200 AMPERE FRAME AND A 1000 AMPERE TRIP RATING. TRIP UNIT IS ADJUSTABLE SOLID-STATE TYPE WITH LONG-TIME, SHORT-TIME, INSTANTANEOUS, GROUND FAULT AND ARC-FLASH REDUCTION PROTECTION FEATURES.

DETAIL C

800AT, 1000AS, 1600AF, AFRD
A LOW VOLTAGE, DRAWOUT, POWER OR INSULATED CASE CIRCUIT BREAKER WITH A 1600A FRAME AND SOLID-STATE TRIP UNIT. TRIP UNIT HAS A SENSOR MODULE RATED FOR 1000 AMPERES AND WITH A TRIP RATING OF 800 AMPERES AND ARC-FLASH REDUCTION PROTECTION FEATURES.

COMMUNICATION SYMBOLS

- HORN SPEAKER
- DUAL HORN SPEAKER
- WALL MOUNTED CONE SPEAKER
- SK CEILING MOUNTED CONE SPEAKER

CONDUIT & WIRING INSTALLATION LEGEND

- CONDUIT EXPOSED
- CONDUIT CONCEALED
- CONDUIT TURNING UP. CONDUIT TURNING DOWN.
- CONDUIT PLUGGED FLUSH. CONDUIT CAPPED.
- L2 - 5 — TYPICAL FOR HOME RUN TO BE ROUTED TO LIGHTING PANEL L2 & CONNECTED TO CIRCUIT #5 (MINIMUM NO. 12 AWG CONDUCTORS AND 3/4" CONDUIT)
- 1 LP1-1 A — POLE OR STANCHION MOUNTED LIGHTING FIXTURE. REFER TO NUMBER OR LETTER IN FIXTURE SCHEDULE. POWERED FROM LIGHTING PANEL LP1, CIRCUIT 1. CONTROLLED VIA FROM SWITCH A.
- 1 LP1-1 A — WALL MOUNTED LIGHTING FIXTURE. REFER TO NUMBER OR LETTER IN FIXTURE SCHEDULE. POWERED FROM LIGHTING PANEL LP1, CIRCUIT 1. CONTROLLED VIA FROM SWITCH A.
- 1 LP1-1 A — CEILING, PENDANT, OR RECESSED LIGHTING FIXTURE. REFER TO NUMBER OR LETTER IN FIXTURE SCHEDULE. POWERED FROM LIGHTING PANEL LP1, CIRCUIT 1. CONTROLLED VIA FROM SWITCH A.
- LP1-1 — RECEPTACLE POWERED FROM LIGHTING PANEL LP1, CIRCUIT 1.
- LP1-1 A / 1 — LINEAR LIGHTING FIXTURE. REFER TO NUMBER OR LETTER IN FIXTURE SCHEDULE. POWERED FROM LIGHTING PANEL LP1, CIRCUIT 1. CONTROLLED VIA SWITCH A.
- LP1-1 EX — EXIT LIGHTING FIXTURE. REFER TO FIXTURE NUMBER OR LETTERS IN FIXTURE SCHEDULE. POWERED FROM LIGHTING PANEL 1, CIRCUIT 1.
- LP1-1 EM — EMERGENCY LIGHTING FIXTURE. REFER TO FIXTURE NUMBER OR LETTERS IN FIXTURE SCHEDULE. POWERED FROM LIGHTING PANEL 1, CIRCUIT 1.
- E — UNDERGROUND CONCRETE ENCASED ELECTRICAL DUCT BANK
- UNDERGROUND CONCRETE ENCASED ELECTRICAL BANK ROUTED BENEATH SLAB-ON-GRADE
- EE — DIRECT BURIED CONDUIT
- GROUND CONDUCTOR
- UE — UE — UNDERGROUND ELECTRIC
- OH — OH — OVERHEAD CIRCUIT

PROTECTION/RELAY DEVICE NUMBERS

25 - SYNCHRONIZING OR SYNCHRONISM-CHECK DEVICE
27 - UNDERVOLTAGE RELAY
32 - DIRECTIONAL POWER RELAY
37 - UNDERCURRENT OR UNDERPOWER RELAY
46 - REV. PHASE OR PHASE-BAL. CURRENT RELAY
47 - PHASE SEQ. OR PHASE BAL. VOLTAGE RELAY
49 - MACHINE OR TRANSFORMER THERMAL RELAY
50 - INSTANTANEOUS OVERCURRENT
51 - AC TIME OVERCURRENT RELAY
52 - AC CIRCUIT BREAKER
59 - OVERVOLTAGE RELAY
63 - PRESSURE SWITCH
64 - GROUND DETECTOR RELAY
67 - AC DIRECTIONAL OVERCURRENT RELAY
71 - LIQUID OR GAS LEVEL RELAY
81 - FREQUENCY RELAY
83 - AUTOMATIC SELECTIVE CONTROL OR TRANSFER RELAY
86 - LOCKOUT RELAY
87 - DIFFERENTIAL PROTECTIVE RELAY

ISSUED FOR CONSTRUCTION

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50.3062 - MLS 39-A
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USER:DUT48884 DWG VER:1000
XREF1:
XREF2:
XREF3:
XREF4:

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Manatee County Florida

BLACK & VEATCH
Black & Veatch Corporation
3405 W. Dr. M. L. King Jr. Blvd. Suite 125
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MANATEE COUNTY FLORIDA
IMPROVEMENTS AT
MASTER LIFT STATION 39-A

ELECTRICAL LEGENDS

DESIGNED: DG
DETAILED: HT/AD
CHECKED: MR
APPROVED: RB
DATE: SEPT 2022

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO. 402142

E-01
SHEET 25 OF 45

FD7000
402142

ELECTRICAL ABBREVIATIONS & NOTES

ELECTRICAL GENERAL NOTES

1. SOLID LINES (————————) INDICATE NEW WORK OR EQUIPMENT.
2. SCREENED LINES (————————) INDICATE EXISTING WORK OR EQUIPMENT.
3. DASHED LINES (- - - - - - - - -) INDICATE FUTURE WORK OR EQUIPMENT.
4. REFER TO INDIVIDUAL DISCIPLINE CONTRACT DRAWINGS FOR ADDITIONAL ABBREVIATIONS, DETAILS, AND GENERAL DESIGN NOTES.
5. LEGEND SHEETS ARE GENERAL. SOME SYMBOLS AND ABBREVIATIONS MAY NOT BE UTILIZED ON THIS SPECIFIC PROJECT.
6. INFORMATION RELATED TO CIRCUIT IDENTIFICATION, WIRE & CONDUIT SIZES, AND ROUTING, IS ON THE FOLLOWING DRAWING TYPES.
   - A. ONE-LINE DIAGRAMS SHOW CIRCUIT IDENTIFICATION, WIRE QUANTITY AND SIZES, AND CONDUIT SIZE WITHIN STRUCTURES. ONE-LINE DIAGRAMS ALSO INDICATE ORIGIN AND DESTINATION OF CIRCUITS, AND IDENTIFY CIRCUITS ROUTED UNDERGROUND.
   - B. FOR CIRCUITS WITHOUT UNDERGROUND PORTIONS, BUILDING FLOOR PLANS SHOW LOCATION OF EQUIPMENT FOR DETERMINING CIRCUIT LENGTH WITHIN THE STRUCTURE. FOR CIRCUITS WITH UNDERGROUND PORTIONS, ANTICIPATED PENETRATION OF UNDERGROUND CONDUITS ARE SHOWN ON STRUCTURE PLANS FOR DETERMINING THE LENGTH OF THE IN-STRUCTURE PORTIONS OF CIRCUITS. BUILDING FLOOR PLANS MAY ALSO SHOW HOME RUNS FOR LIGHTING, RECEPTACLE, AND OTHER MISCELLANEOUS EQUIPMENT CIRCUITS.
   - C. SITE PLANS INDICATE THE GENERAL ROUTING OF UNDERGROUND CONDUITS AND DUCT BANKS. CIRCUITS ROUTED IN UNDERGROUND CONDUITS OR DUCT BANKS ARE INDICATED IN DUCT BANK SECTIONS REFERENCED ON THE SITE PLAN.
   - D. DUCT BANK SECTIONS AND SCHEDULES IDENTIFY CONDUIT SIZE, CONDUIT MATERIAL, ARRANGEMENT OF THE UNDERGROUND CONDUITS, AND CIRCUITS ROUTED IN EACH UNDERGROUND CONDUIT.

AREA DESIGNATIONS

THE SPECIAL AREA DESIGNATION BOXES, AS DEFINED BELOW, ARE LOCATED ON THE PLAN DRAWINGS TO DEFINE ELECTRICAL INSTALLATION REQUIREMENTS. DESIGNATION BOXES ARE LOCATED WITHIN ROOM OR BELOW ROOM NUMBER. ALL INDOOR AREAS NOT INDICATED OTHERWISE ARE AREA TYPE 1 AND MINIMUM NEMA TYPE 1 ENCLOSURES.

AREA TYPE 1A	CORROSIVE CHEMICAL FEED AND STORAGE ROOMS. CONDUIT SYSTEM SHALL BE EXPOSED SCHEDULE 80 PVC RIGID NON-METALLIC CONDUIT WITH PVC FITTINGS, BOXES AND ACCESSORIES.
AREA TYPE 4	INDOOR WET LOCATIONS SUCH AS VAULTS, HOSEDOWN AREAS, BASEMENTS, ETC. MINIMUM NEMA TYPE 4 ENCLOSURE FOR EQUIPMENT AND GASKETED FITTINGS IN A CONDUIT SYSTEM.
AREA TYPE 7A	CLASS I, DIVISION 1 AREA AS DEFINED BY NEC. ALL EQUIPMENT AND CONDUIT SYSTEMS SHALL BE RATED FOR USE IN THIS AREA.
AREA TYPE 7B	CLASS I, DIVISION 2, GROUP C AND D (METHANE, GASOLINE) AS DEFINED BY NEC. EQUIPMENT AND CONDUITS SYSTEMS SHALL BE RATED FOR USE IN THIS AREA.
AREA TYPE 12	INDOOR, DRY, DIRTY AREA. REQUIRES MINIMUM NEMA TYPE 12 GASKETED ENCLOSURES FOR ALL EQUIPMENT AND GASKETED FITTINGS IN CONDUIT SYSTEMS.

GENERAL REQUIREMENTS

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ROUTING ALL CONDUITS NOT SHOWN ON THE PLANS. THIS SHALL INCLUDE ALL CONDUITS SHOWN ON THE ONE-LINES AND HOME-RUNS SHOWN ON THE PLAN DRAWINGS. CONDUITS SHALL BE ROUTED AS DEFINED IN THE SPECIFICATION.
2. SPARE WIRES SHALL BE TAPED AND COILED AND LABELED TO INDICATE WHERE OTHER END OF SPARE WIRE IS LOCATED.
3. IF EQUIPMENT SUPPLIED BY MANUFACTURER HAS A LARGER LOAD THAN VALUE SHOWN, THE CABLE CONDUIT AND ELECTRICAL EQUIPMENT SHALL BE ENLARGED, AS REQUIRED, TO ACCOMMODATE THE HIGHER VALUE.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING PROPERLY SIZED STARTER OVERLOADS FOR EQUIPMENT FURNISHED.
5. LIGHTING AND RECEPTACLE CIRCUITS DESIGNATED ON THE FLOOR PLANS ARE NOT SHOWN ON THE ONE-LINES. CONDUCTORS FOR LIGHTING, RECEPTACLES, AND MISCELLANEOUS 120VAC CIRCUITS SHALL BE MINIMUM NO. 12AWG. CONDUIT FOR LIGHTING, RECEPTACLES, AND MISCELLANEOUS 120VAC CIRCUITS SHALL BE MINIMUM 3/4".
6. IN AREAS WHERE THERE ARE OVERHEAD BRIDGE CRANES, HOISTS, ETC. NO CONDUITS SHALL BE RUN OVERHEAD THAT WILL INTERFERE WITH THE OPERATION OF THE EQUIPMENT.

ELECTRICAL ABBREVIATIONS

A

A	AMBER, AMPERE, ALARM
AC	ALTERNATING CURRENT
ACB	AIR CIRCUIT BREAKER
ACR	ACCESS CARD READER
AF	AMPERE FRAME
AFD	ADJUSTABLE FREQUENCY DRIVE
AFRD	ARC-FLASH REDUCTION DEVICE
AM	AMMETER
ANN	ANNUNCIATOR
AR	ALARM RELAY
AS	AMMETER SWITCH, AMPERE SENSOR
AT	AMPERE TRIP
ATS	AUTOMATIC TRANSFER SWITCH
AUX	AUXILIARY
AWG	AMERICAN WIRE GAUGE

B

B	BUS
BC	BATTERY CHARGER
BKR	BREAKER
BR	BRAKE
BT	BEARING TEMPERATURE

C

C	CLOSE, COUNTER, CONTACTOR, CONTROL, CCTV CAMERA
CAP	CAPACITOR
CB	CIRCUIT BREAKER
CB"A"	CIRCUIT BREAKER AUXILIARY CONTACT (OPEN WHEN BREAKER IS OPEN)
CB"B"	CIRCUIT BREAKER AUXILIARY CONTACT (CLOSED WHEN BREAKER IS OPEN)
CD	CONTROL DAMPER
CI	CELL INTERLOCK
CKT	CIRCUIT
CL2	CHLORINE
COS	CABLE OPERATED SWITCH
CP	CONTROL PANEL
CPT	CONTROL POWER TRANSFORMER
CR	CURRENT OF CONTROL RELAY, CARD READER
CS	CONTROL STATION
CT	CYCLE TIMER OR CURRENT TRANSFORMER
CTC	CYCLE TIMER CLUTCH
CTM	CYCLE TIMER MONITOR
2/C	2 CONDUCTOR
4"C	4" CONDUIT

D

DC	DIRECT CURRENT, DOOR CONTACT
DI	DOOR INTERLOCK
DM	DAMPER MOTOR, DEMAND METER, DIMMER SWITCH
DPDT	DOUBLE POLE DOUBLE THROW
DPST	DOUBLE POLE SINGLE THROW
DPR	DIFFERENTIAL PRESSURE REGULATOR
DPS	DIFFERENTIAL PRESSURE SWITCH
DS	DISCONNECT SWITCH, DOOR SWITCH, DESKTOP STATION
DVLS	DISCHARGE VALVE LIMIT SWITCH

E

E	ELECTRIC OPERATOR FOR CONTROL DAMPER OR VALVE
EC	EMPTY CONDUIT
EDS	ELECTRICAL DOOR STRIKE
EL	ELEVATION, EMERGENCY LIGHT
EMH	ELECTRICAL MANHOLE
ER	ELECTRODE RELAY
ES	END SWITCH, REQUEST TO EXIT SENSOR
E-STOP	EMERGENCY STOP
ETM	ELAPSED TIME METER
EX	EXISTING
EXP	EXPLOSION PROOF

F

F	FORWARD, FIELD
FO	FIBER OPTIC
FPR	FEEDER PROTECTION RELAY
FS	FLOW SWITCH

G

G	GREEN, GROUND, GENERATOR, GROUND FAULT
GD	GROUND DETECTOR
GEN	GENERATOR
GFCI,GFI	GROUND FAULT CURRENT INTERRUPTOR, GROUND FAULT INTERRUPTOR
GLS	GEARED LIMIT SWITCH
GPR	GENERATOR PROTECTION RELAY
GND	GROUND
#8G	#8 GROUND WIRE

H

H	HIGH, HUMIDISTAT
HH	HANDHOLE
HMT	HIGH MOTOR TEMPERATURE
HOA	HAND-OFF-AUTO
HOR	HAND-OFF-REMOTE
HP	HORSEPOWER
HS	HAND STATION
HWCO	HIGH WATER CUTOFF
HZ	HERTZ (CYCLE)

I

I/O	INPUT/OUTPUT
I	INSTANTANEOUS
IJB	INTERCOM JUNCTION BOX

J

J,JB	JUNCTION BOX

K

K	KEY INTERLOCK
KAIC	THOUSAND AMPERES INTERRUPTING CURRENT
KCMIL	THOUSAND CIRCULAR MIL
KO	KEY OPERATED
KV	KILOVOLT
KVA	KILOVOLT AMPERE
KVAR	KILOVAR
KW	KILOWATT
KWH	KILOWATT HOUR

L

L	LOW, LEVEL, LONG-TIME
LA	LIGHTNING ARRESTER
LAN	LOCAL AREA NETWORK
LC	LIGHTING CONTRACTOR
LCE	LIGHTING CONTACTOR ENCLOSURE
	LIGHTING CONTROL ENCLOSURE
LCP	LOCAL CONTROL PANEL
LCS	LOCAL CONTROL STATION
LOA	LOCAL-OFF-AUTO
LOR	LOCAL-OFF-REMOTE
LOS	LOCK OUT STOP
LP	LIGHTING PANEL
LS	LIMIT OR LEVEL SWITCH
LTG	LIGHTING
LWCO	LOW WATER CUTOFF

M

M	MAGNETIC MOTOR STARTER
MA	MILLIAMPERE
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MCLU	MOTOR CONTROL LINEUP
MD	MOISTURE DETECTOR, MOTION DETECTOR
MDL	MAGNETIC DOOR LOCK
MFR	MANUFACTURER
MH	MANHOLE, MOUNTING HEIGHT
MOV	MOTOR OPERATED VALVE
MPR	MOTOR PROTECTION RELAY
MS	MANUAL MOTOR STARTER
MSH	MOTOR SPACE HEATER
MTS	MANUAL TRANSFER SWITCH
MV	MILLIVOLT, MEDIUM VOLTAGE
MVA	MEGAVOLT AMPERE

N

N	NEUTRAL
NGR	NEUTRAL GROUNDING RESISTOR
NGT	NEUTRAL GROUNDING TRANSFORMER
NC	NORMALLY CLOSED
NO	NORMALLY OPEN, NUMBER

O

O	OPEN
OL	OVERLOAD
OOA	ON-OFF-AUTO
OOR	ON-OFF-REMOTE
OS	OCCUPANCY SENSOR
O/U	OVER/UNDER

P

P	PRIMARY, POWER, POLE
PCS	PLANT CONTROL SYSTEM
PB	PUSH BUTTON, PULL BOX
PE	PHOTOELECTRIC SENSOR, PHOTOCELL
PF	POWER FACTOR
PFCC	POWER FACTOR CORRECTION CAPACITOR
PH	PHASE
PL	PILOT LIGHT
PLC	PROGRAMMABLE LOGIC CONTROLLER
PP	POWER PANEL
PR	PAIR
PRS	PROXIMITY SWITCH
PS	PRESSURE SWITCH
PT	POTENTIAL TRANSFORMER, PROGRAM TIMER

Q

NOT USED

R

R	RED, RAISE, RELAY, REVERSE
RECP	RECEPTACLE
RES	RESISTOR
RH	REMOTE HANDSET
RT	REPEATING TIMER
RTD	RESISTANCE TEMPERATURE DETECTOR
RTU	REMOTE TERMINAL UNIT
RVSS	REDUCED VOLTAGE SOLID STATE STARTER

S

S	SHORT-TIME, SHIELDED, STARTER
SA	SURGE ARRESTER, SPEAKER AMPLIFIER
SCADA	SUPERVISORY CONTROL AND DATA ACQUISITION
SF6	SULFUR HEXAFLOURIDE
SH	SPACE HEATER
SN	SOLID NEUTRAL
SO	SOLENOID OILER
SP	SINGLE POLE
SPD	SURGE PROTECTION DEVICE
SPDT	SINGLE POLE DOUBLE THROW
SPST	SINGLE POLE SINGLE THROW
SS	SELECTOR SWITCH, START/STOP, STAINLESS STEEL
SSM	SOLID-STATE METERING
SSS	SOLID STATE STARTER
SST	SOLID-STATE TRIP
SUPV	SUPERVISORY CONTROL
SV	SOLENOID VALVE
SWB,SWBD	SWITCHBOARD
SWG,SWGR	SWITCHGEAR

T

T	THERMOSTAT, TIMER, TOTALIZER, TRANSFORMER
TACH	TACHOMETER
TB	TERMINAL BLOCK
TC	TIMER CLUTCH
TD	TIME DELAY RELAY
TEMP	TEMPERATURE
TM	TIMER MOTOR
TQ	TORQUE
TR	TIMER RELAY, TRIAD
TS	TEMPERATURE SWITCH
TTB	TELEPHONE TERMINAL BOARD

U

UG	UNDERGROUND
UPS	UNINTERRUPTIBLE POWER SUPPLY

V

V	VOLTS, VOLTAGE RESTRAINED
VA	VOLT AMPERE
VAR	VARMETER
VFD	VARIABLE FREQUENCY DRIVE
VI	VACUUM INTERRUPTER
VLS	VALVE LIMIT SWITCH
VM	VOLTMETER
VPI	VALVE POSITION INDICATOR
VS	VOLTMETER SWITCH

W

W	WHITE, WATTS
WI	WITHSTAND CURRENT
WH	WATTHOUR METER
WM	WATT METER
WP	WEATHERPROOF
WPI	WEATHERPROOF IN-USE
WS	WALL STATION

X

X	AUXILIARY RELAY
XFMR	TRANSFORMER
XP	EXPLOSION PROOF

Y

Y	YELLOW

Z

Z	AUXILIARY RELAY, IMPEDANCE
ZS	POSITION SWITCH
ZSS	ZERO SPEED SWITCH
1-1PR#16S	ONE, SINGLE PAIR, TWISTED SHIELDED #16 CABLE
3-7/C#14	THREE, SINGLE, SEVEN CONDUCTOR #14 MULTICONDUCTOR CONTROL CABLES

ISSUED FOR CONSTRUCTION

NO.	BY	CK	APP	DATE	REVISIONS AND RECORD OF ISSUE
C	AD	RB	MHT	SEPT 2022	100% SUBMITTAL
B	AD	RB	MHT	JUL 2022	90% SUBMITTAL
A	AD	RT	MT	MAR 2021	50% SUBMITTAL

50.3062 - MLS 39-A
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Manatee County Florida

BLACK & VEATCH

Black & Veatch Corporation
3405 W. Dr. M. L. King Jr. Blvd. Suite 125
Tampa, Florida Certificate No. 8132

MANATEE COUNTY FLORIDA
IMPROVEMENTS AT
MASTER LIFT STATION 39-A

ELECTRICAL
ABBREVIATIONS AND NOTES

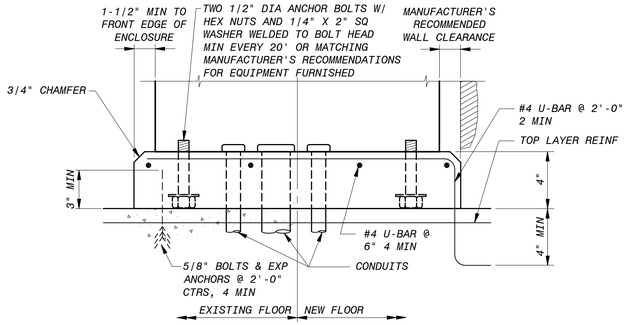
DESIGNED: DG
DETAILED: HT/AD
CHECKED: MR
APPROVED: RB
DATE: SEPT 2022

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
402142

E-02
SHEET
26 OF 45

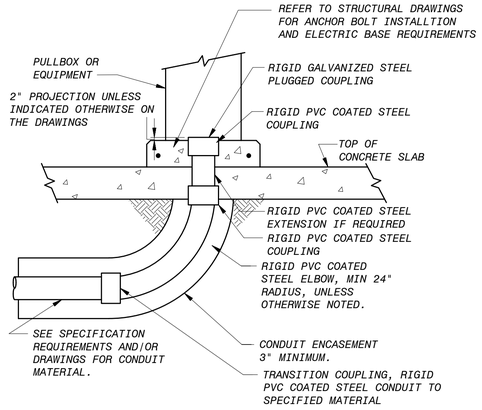
FD7000
402142



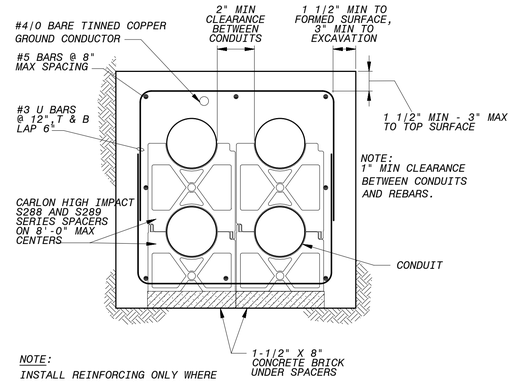
NOTE:

UNLESS OTHERWISE NOTED, ALL INDOOR FLOOR-MOUNTED ELECTRICAL EQUIPMENT, INCLUDING SWITCHGEAR, SWITCHBOARDS, MOTOR CONTROL CENTERS, ADJUSTABLE FREQUENCY DRIVES, INSTRUMENT CABINETS, ETC., SHALL BE PROVIDED WITH EQUIPMENT BASES.

A ELECTRICAL EQUIPMENT BASE
NO SCALE



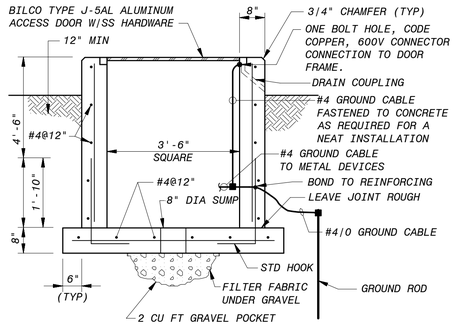
B TYPICAL CONDUIT RISER TERMINATING IN CONCRETE SLAB WITH EQUIPMENT BASE
NO SCALE



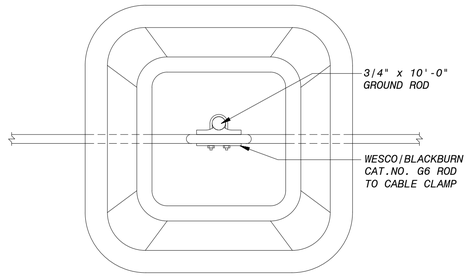
NOTE:

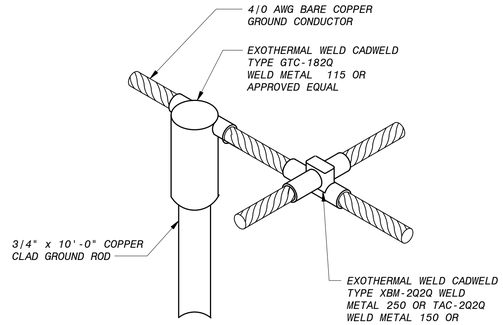
INSTALL REINFORCING ONLY WHERE SPECIFIED OR INDICATED ON THE DRAWINGS.

C DUCT BANK SECTION
NO SCALE

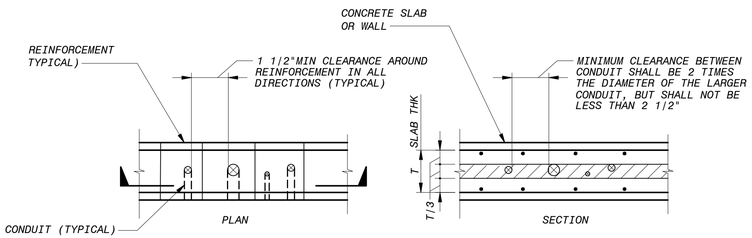


D TYPICAL ELECTRICAL HANDHOLE DETAIL
NO SCALE (NOT SUITABLE FOR ROADWAY LOCATIONS)





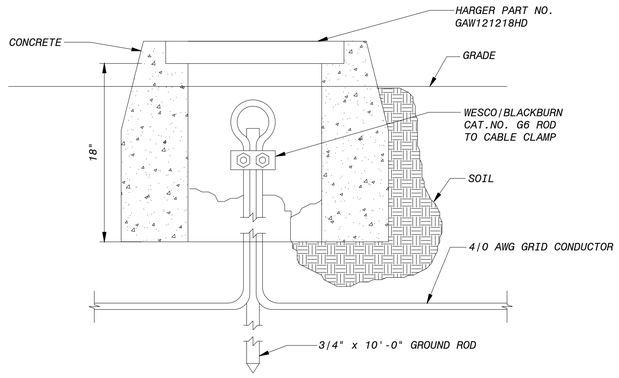
G TYPICAL EXOTHERMAL WELD GROUND ROD AT CROSS OR TEE CONNECTION
NO SCALE



NOTES:

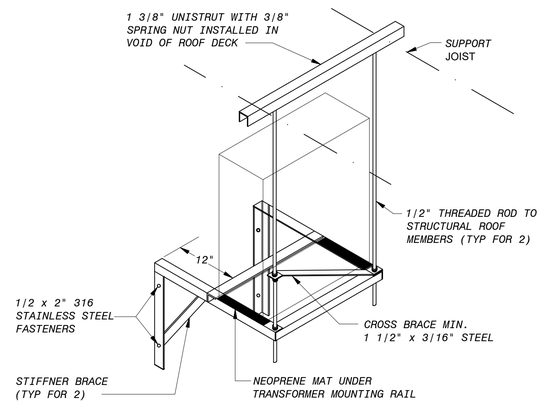
1. PLACE CONDUIT ONLY IN SHADED AREA.
2. FOR CONDUIT REQUIREMENTS SEE THE ELECTRICAL DRAWINGS AND SPECIFICATIONS.
3. CONDUIT THAT IS TOO LARGE OR CONGESTED TO FIT WITHIN THE SLAB AND REINFORCEMENT AS INDICATED SHALL BE ROUTED BELOW THE SLAB AS INDICATED IN THE ELECTRICAL SPECIFICATION OR ON THE DRAWINGS.

E CONDUIT PLACING DETAIL
NO SCALE



ELEVATION

F TYPICAL GROUND TEST STATION
NO SCALE



NOTES:

1. FRAME TO BE MINIMUM 2" x 2"x 1/4".
2. FULL WELD AT ALL JOINTS.
3. EPOXY ENAMEL PAINT ASSEMBLY PRIOR TO INSTALLATION.

H TYPICAL WALL MOUNTED TRANSFORMER SUPPORT FOR UP TO 50KVA UNITS
NO SCALE

NOTE:

1. SEE DRAWINGS E-01 AND E-02 FOR ELECTRICAL LEGEND, ABBREVIATIONS AND NOTES.

ISSUED FOR CONSTRUCTION

NO.	BY	CK	APP	DATE	REVISIONS AND RECORD OF ISSUE
C	AD	RB	MT	SEPT 2022	100% SUBMITTAL
B	AD	RB	MT	JUL 2022	90% SUBMITTAL
A	AD	RT	MT	MAR 2021	50% SUBMITTAL

50.3062 - MLS 39-A
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Manatee County FLORIDA

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Tampa, Florida Certificate No. 8132

MANATEE COUNTY FLORIDA
IMPROVEMENTS AT
MASTER LIFT STATION 39-A

ELECTRICAL
STANDARD DETAILS 1

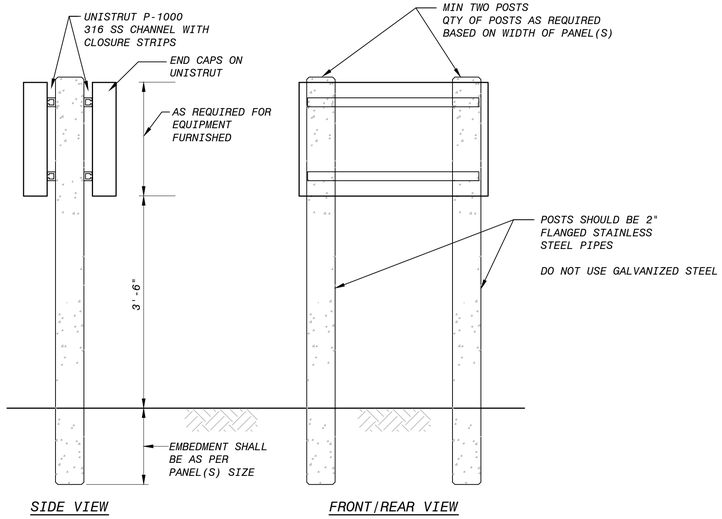
DESIGNED: DG
DETAILED: CP/AD
CHECKED: MR
APPROVED: RB
DATE: SEPT 2022

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
402142

E-03
SHEET
27 OF 45

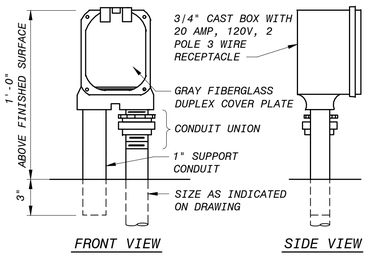
FD7000
402142



NOTES:

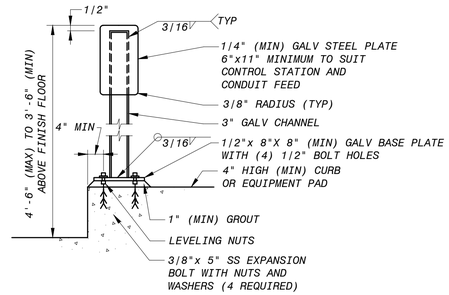
1. ALL INSTRUMENT MOUNTING HARDWARE SHALL BE 316 STAINLESS STEEL.
2. POSITION PANEL BOXES SO OPERATOR'S BACK IS NOT TO WET WELL WHILE FACING BOX
3. PANEL BOXES TO BE LOCATED TO ALLOW UNOBSTRUCTED ACCESS TO WET WELL

J TYPICAL OUTDOOR EQUIPMENT MOUNTING DETAIL
NO SCALE

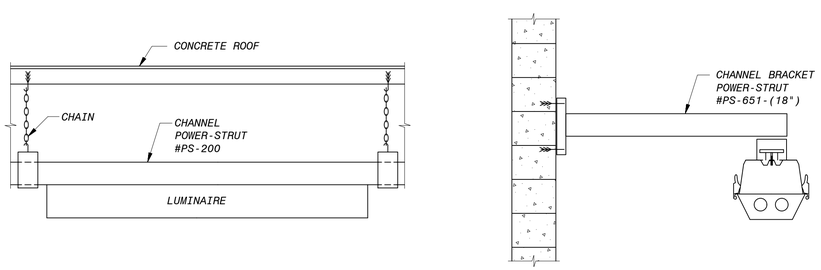


NOTE: ALL EXPOSED CONDUIT SHALL BE PVC SCHEDULE 80.

K WEATHERPROOF RECEPTACLE MOUNTING DETAIL
NO SCALE



L TYPICAL CONTROL STATION MOUNTING DETAIL
NO SCALE



P LIGHTING INSTALLATION DETAILS
NO SCALE

NOTE:

1. SEE DRAWINGS E-01 AND E-02 FOR ELECTRICAL LEGEND, ABBREVIATIONS AND NOTES.

ISSUED FOR CONSTRUCTION

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A	AD	RT	MT	MAR 2021	50% SUBMITTAL

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Manatee County Florida

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MANATEE COUNTY FLORIDA
IMPROVEMENTS AT
MASTER LIFT STATION 39-A

ELECTRICAL
STANDARD DETAILS 2

DESIGNED: DG
DETAILED: CP/AD
CHECKED: MR
APPROVED: RB
DATE: SEPT 2022

0 1/2 1
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PROJECT NO.
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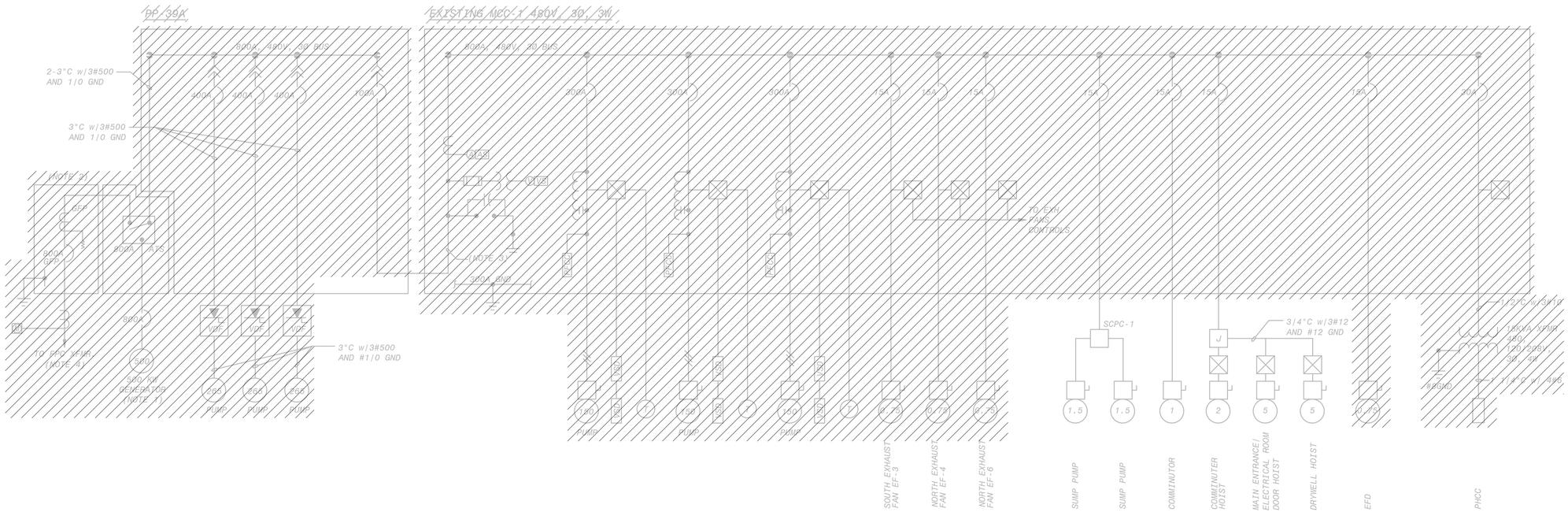
E-04
SHEET
28 OF 45

FD7000
402142



EXISTING ELECTRICAL DEMO ONE-LINE DIAGRAM
NO SCALE

FEEDER: 2 SETS 4 #300MCM + #1/0 GND					PANEL: PP-39A			VOLTS: 480Y, 3 PHASE, 4 WIRE				
MAIN: MLO 800A BUS					LOCATION: MASTER PUMP STATION 39A			MTG: FLOOR				
LOCATION	AMPS A	AMPS B	AMPS C	CIR	BKR	BKR	CIR	WATTS A	WATTS B	WATTS C	LOCATION	
PUMP 1	83000	82000	83000	1	400/3	400/3	2	82000	83000	82000	PUMP 2	
				3			4					
PUMP 3 STANDBY				5	400/3	400/3	6	8000	8000	8000	EXISTING MCC	
				7			8					
SPACE				9	20/3	20/3	10				SPARE	
				11			12					
SPACE				13	20/3	20/3	14				SPARE	
				15			16					
SPACE				17	20/3	20/3	18				SPARE	
				19			20					
SPACE				21	20/3	20/3	22				SPARE	
				23			24					
SPACE				25	20/3	20/3	26				SPARE	
				27			28					
SPACE				29	20/3	20/3	30				SPARE	
				31			32					
TOTALS:											0	
PHASE TOTALS:											0	
TOTALS LOAD IN VA:	174000	174000	174000					174000	174000	174000	0	
LINE AMPS:	628	628	628					628	628	628	0	

EXISTING PANELBOARD SCHEDULE - DEMOLITION
NO SCALE

NOTE:
1. SEE DRAWINGS E-01 AND E-02 FOR ELECTRICAL LEGEND, ABBREVIATIONS AND NOTES.

ISSUED FOR CONSTRUCTION

NO.	BY	CK APP
A	AD	RT MT
B	AD	RB MT
C	AD	RB MT

DATE	REVISIONS AND RECORD OF ISSUE
MAR 2021	50% SUBMITTAL
JUL 2022	90% SUBMITTAL
SEPT 2022	100% SUBMITTAL

50.3062 - MLS 39-A
E-05.dwg
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PLOTTED:DUT48884, 9/15/2022 2:52:07 PM
USER:DUT48884
DWG VER:T003
XREF1:
XREF2:
XREF3:
XREF4:

THIS DRAWING WAS ORIGINALLY APPROVED FOR CONSTRUCTION BY RYAN BINKLEY, ON 09/16/2022 AND SEALED BY RYAN BINKLEY, A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF FLORIDA, NO. 89014

Manatee County Florida

BLACK & VEATCH
Black & Veatch Corporation
3405 W. Dr. M. L. King Jr. Blvd. Suite 125
Tampa, Florida Certificate No. 8132

MANATEE COUNTY FLORIDA
IMPROVEMENTS AT
MASTER LIFT STATION 39-A

ELECTRICAL
EXISTING ELECTRICAL DEMO ONE-LINE DIAGRAMS

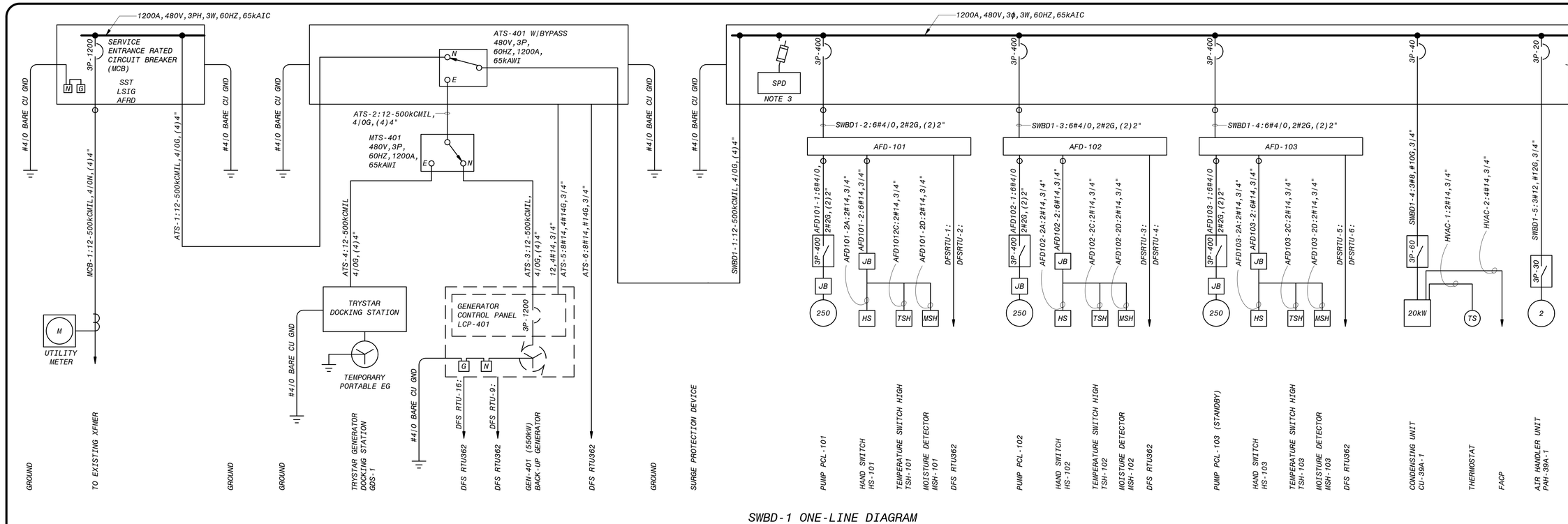
DESIGNED: DG
DETAILED: HT/AD
CHECKED: MR
APPROVED: RB
DATE: SEPT 2022

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

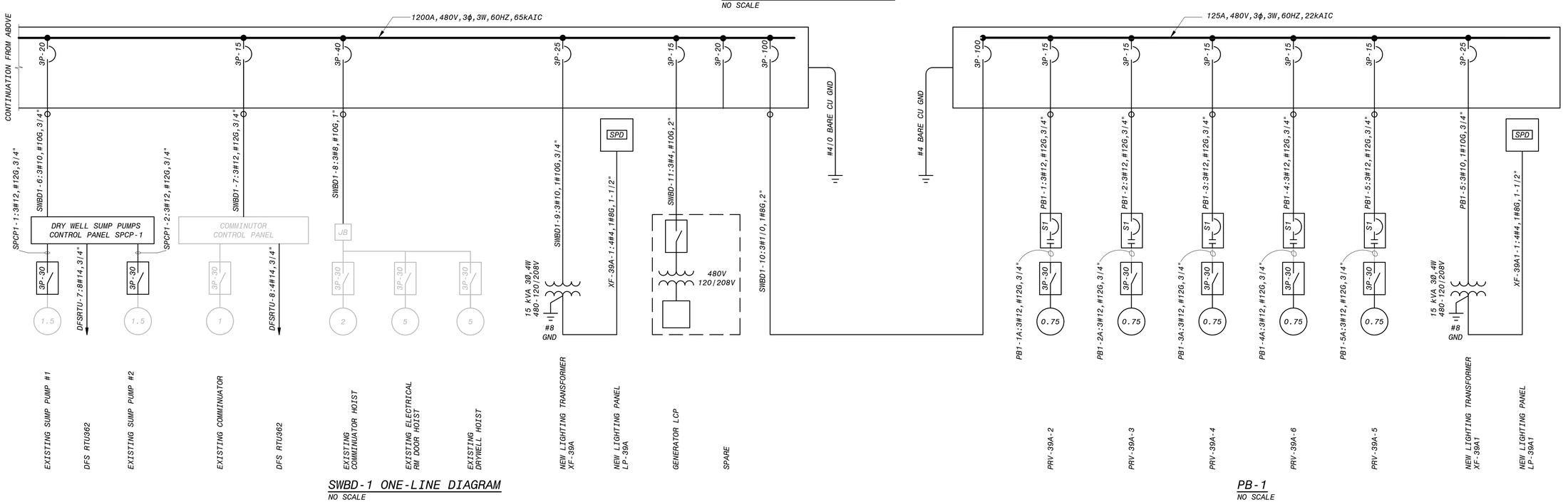
PROJECT NO. 402142

E-05
SHEET 29 OF 45

FD7000
402142



SWBD-1 ONE-LINE DIAGRAM
NO SCALE



SWBD-1 ONE-LINE DIAGRAM
NO SCALE

PB-1
NO SCALE

NOTES:

1. SEE DRAWINGS E-01 AND E-02 FOR ELECTRICAL LEGEND, ABBREVIATIONS AND NOTES.
2. CONTRACTOR SHALL COORDINATE WITH ELECTRIC UTILITY TO CONNECT TO EXISTING TRANSFORMER.
3. CONTRACTOR SHALL SIZE SURGE PROTECTIVE DEVICE PER MANUFACTURER RECOMMENDATION.
4. CONTRACTOR SHALL FURNISH AND INSTALL METER ENCLOSURE THAT MEETS FPL SERVICES STANDARDS AND IS LISTED ON THE FPL APPROVED METERING ENCLOSURE LIST.
5. CONTRACTOR SHALL USE STEEL CONDUITS TO ROUTE ALL POWER CONDUITS BETWEEN AFDS AND MOTORS/PUMPS. STEEL CONDUITS SHALL BE USED FOR THE ENTIRE RUN BETWEEN AFD AND MOTOR/PUMP. THE FOLLOWING CIRCUITS SHALL BE ROUTED IN STEEL CONDUITS: AFD101-1, AFD102-1, AND AFD103-1.

ISSUED FOR CONSTRUCTION

NO.	BY	CK	APP
A	AD	RT	MT
B	AD	RB	MT
C	AD	RB	MT

DATE	REVISIONS AND RECORD OF ISSUE
MAR 2021	50% SUBMITTAL
JUL 2022	90% SUBMITTAL
SEPT 2022	100% SUBMITTAL

50-3062 - WLS 39-A

E-06.dwg

XREF1:
XREF2:
XREF3:
XREF4:

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Manatee County Florida

Black & Veatch Corporation
3405 W. Dr. M. L. King Jr. Blvd. Suite 125
Tampa, Florida
Certificate No. 8132

MANATEE COUNTY FLORIDA
IMPROVEMENTS AT MASTER LIFT STATION 39-A

ELECTRICAL
SWBD-1 ONE-LINE DIAGRAM

DESIGNED: DG
DETAILED: HT/AD
CHECKED: MR
APPROVED: RB
DATE: SEPT 2022

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

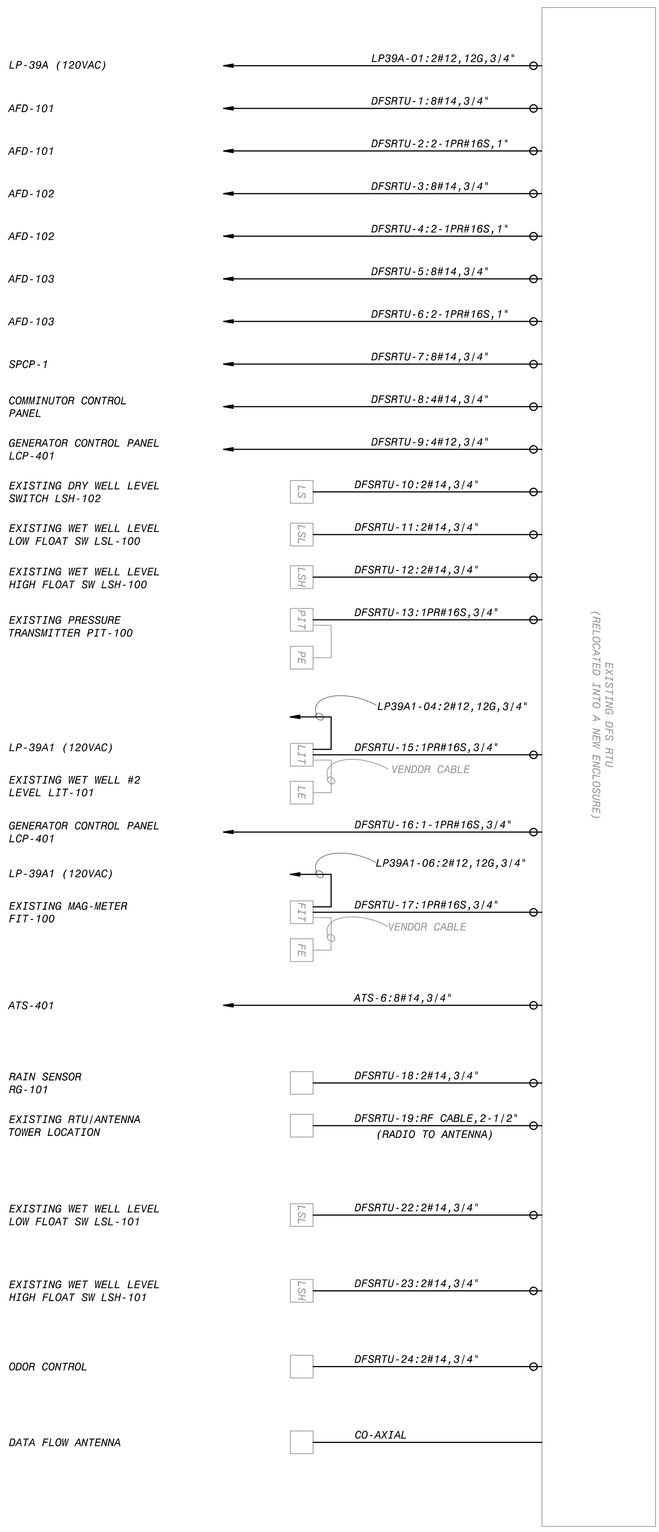
PROJECT NO.
402142

E-06
SHEET
30 OF 45

FD7000
402142

NOTE:
1. SEE DRAWINGS E-01 AND E-02 FOR ELECTRICAL LEGEND, ABBREVIATIONS AND NOTES.

RELOCATED DFS RTU ONE-LINE DIAGRAM
NO SCALE



ISSUED FOR CONSTRUCTION

SEPT 2022	100% SUBMITTAL	C	AD	RB	MNT
JUL 2022	90% SUBMITTAL	B	AD	RB	MNT
MAR 2021	50% SUBMITTAL	A	AD	RT	MT
DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CK	APP

50.3062 - MLS 39-A
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XREF1: XREF2: XREF3: XREF4:

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Black & Veatch Corporation
3405 W. Dr. M. L. King Jr. Blvd, Suite 125
Tampa, Florida Certificate No. 8132

MANATEE COUNTY FLORIDA
IMPROVEMENTS AT MASTER LIFT STATION 39-A

ELECTRICAL
MISCELLANEOUS ONE-LINE DIAGRAM

DESIGNED: DG
DETAILED: ADJHT
CHECKED: MR
APPROVED: RB
DATE: SEPT 2022

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE
0 1/2 1

PROJECT NO.
402142

SHEET
E-07
31 OF 45

PHASE			PANELBOARD: LP-39A		BUS: COPPER				MAINS: 3P-60A MAIN BREAKER		PHASE		
"A"	"B"	"C"	SERVICE: 120/208V, 3PH, 4W, S/N		RATING: 150A				LOCATION: ELECTRICAL ROOM		"A"	"B"	"C"
"A"	"B"	"C"	MOUNTING: SURFACE										
V.A.	V.A.	V.A.	LOAD	P	BKR	CKT #		BKR	P	LOAD	V.A.	V.A.	V.A.
1000			RTU DFS-362	1	20	1	2	20	1	SPARE			
				1	20	3	4	20	1	SPARE			
			SPARE	1	20	5	6	20	1	SPARE			
			SPARE	1	20	7	8	20	1	SPARE			
			SPARE	1	20	9	10	20	1	SPARE			
			SPARE	1	20	11	12	20	1	SPARE			
			SPARE	1	20	13	14	20	1	SPARE			
			SPARE	1	20	15	16	20	1	SPARE			
			SPARE	1	20	17	18	20	1	SPARE			
			SPARE	1	20	19	20	20	1	SPARE			
			SPARE	1	20	21	22	20	1	SPARE			
			SPARE	1	20	23	24	20	1	SPARE			
			SPARE	1	20	25	26	20	1	SPARE			
			SPARE	1	20	27	28	20	1	SPARE			
			SPARE	1	20	29	30	20	1	SPARE			
			SPARE	1	20	31	32	20	1	SPARE			
			SPARE	1	20	33	34	20	1	SPARE			
			SPARE	1	20	35	36	20	1	SPARE			
			SPARE	1	20	37	38	20	1	SPARE			
			SPACE	1		39	40		1	SPACE			
			SPACE	1		41	42		1	SPACE			
1000			TOTAL "A"		1000				TOTAL "A"		0		
	0		TOTAL "B"		0				TOTAL "B"			0	
		0	TOTAL "C"		0				TOTAL "C"				0
				TOTAL	1000								

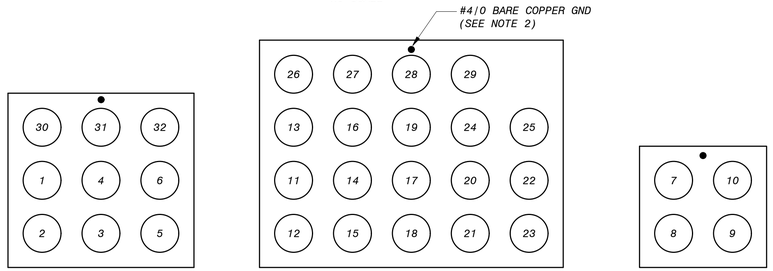
PANELBOARD SCHEDULE LP-39A

NO SCALE

PHASE			PANELBOARD: LP-39A1		BUS: COPPER				MAINS: 3P-60A MAIN BREAKER		PHASE		
"A"	"B"	"C"	SERVICE: 120/208V, 3PH, 4W, S/N		RATING: 150A				LOCATION: PUMP STATION		"A"	"B"	"C"
"A"	"B"	"C"	MOUNTING: SURFACE										
V.A.	V.A.	V.A.	LOAD	P	BKR	CKT #		BKR	P	LOAD	V.A.	V.A.	V.A.
328			LIGHTS-PUMP STATION OPERATING	1	20	1	2	20	1	LIT-100	30		
	314		LIGHTS-PUMP STATION OPERATING	1	20	3	4	20	1	LIT-101		30	
			SPARE	1	20	5	6	20	1	FIT-100			30
			SPARE	1	20	7	8	20	1	AIT-103	30		
	250		EXHAUST FAN CONTROL PANEL	1	20	9	10	20	1	LIGHTS - PUMP STATION EXTERIOR		241	
		100	PRV-39A-1	1	20	11	12	20	1	AIT-104			30
			SPARE	1	20	13	14	20	1	LIGHTING CONTROL STATION (CS-39A1)	200		
			SPARE	1	20	15	16	20	1	SPARE			
		416	LIGHTS-PUMP STATION DRYWELL	1	20	17	18	20	1	SPARE			
			SPARE	1	20	19	20	20	1	SPARE			
			SPARE	1	20	21	22	20	1	SPARE			
			SPARE	1	20	23	24	20	1	SPARE			
			SPARE	1	20	25	26	20	1	SPARE			
			SPARE	1	20	27	28	20	1	SPARE			
			SPARE	1	20	29	30	20	1	SPARE			
			SPARE	1	20	31	32	20	1	SPARE			
			SPARE	1	20	33	34	20	1	SPARE			
			SPARE	1	20	35	36	20	1	SPARE			
			SPARE	1	20	37	38	20	1	SPARE			
			SPACE	1		39	40		1	SPACE			
			SPACE	1		41	42		1	SPACE			
328			TOTAL "A"		588				TOTAL "A"		260		
	564		TOTAL "B"		835				TOTAL "B"			271	
		516	TOTAL "C"		576				TOTAL "C"				60
				TOTAL	1999								

PANELBOARD SCHEDULE LP-39A1

NO SCALE



1 SECTION E-09 NO SCALE

2 SECTION E-09 NO SCALE

3 SECTION E-09 NO SCALE

FIXTURE	LAMP	MTG HGT	DESCRIPTION	MANUFACTURER
1	LED 23.8 WATT 4079 LUMENS	AS NOTED ON PLANS	EMS LED, 4' LINEAR LENGTH, SURFACE/CEILING MOUNT, FIBERGLASS HOUSING WITH NEMA 4X GASKET, IP67, NEMA 4X RATED, SUTAIBLE FOR WET LOCATIONS, DIFFUSER WITH ACRYLIC CLEAR DEEP LENS, MEDIUM DISTRIBUTION, GZ10 DRIVER, 4000K, 80CRI, MVOLT, 60HZ ALONG WITH SURFACE/CEILING MOUNT BRACKET.	HOLOPHANE #EMS L48 4000LM IMACD MD MVOLT GZ10 40K 80CRI EMSSMB
1E	LED 23.8 WATT 4079 LUMENS	AS NOTED ON PLANS	SAME AS FIXTURE NO.1, EXCEPT WITH INBUILT EMERGENCY BATTERY PACK E10WMCP.	HOLOPHANE #EMS L48 4000LM IMACD MD MVOLT GZ10 40K 80CRI EMSSMB E10WMCP
2E	LED 23.8 WATT 4079 LUMENS	AS NOTED ON PLANS	EMS LED, 4' LINEAR LENGTH, WALL MOUNT, FIBERGLASS HOUSING WITH NEMA 4X GASKET, IP67, NEMA 4X RATED, SUTAIBLE FOR WET LOCATIONS, DIFFUSER WITH ACRYLIC CLEAR DEEP LENS, MEDIUM DISTRIBUTION, GZ10 DRIVER, 4000K, 80CRI, MVOLT, 60HZ ALONG WITH WALL MOUNT BRACKET AND WITH INBUILT EMERGENCY BATTERY PACK E10WMCP.	HOLOPHANE #EMS L48 4000LM IMACD MD MVOLT GZ10 40K 80CRI EMSANGBKT E10WMCP
3E	LED 37.8 WATT 6083 LUMENS	AS NOTED ON PLANS	EMS LED, 4' LINEAR LENGTH, SURFACE/CEILING MOUNT, FIBERGLASS HOUSING WITH NEMA 4X GASKET, IP67, NEMA 4X RATED, SUTAIBLE FOR WET LOCATIONS, DIFFUSER WITH ACRYLIC CLEAR DEEP LENS, MEDIUM DISTRIBUTION, GZ10 DRIVER, 4000K, 80CRI, MVOLT, 60HZ ALONG WITH SURFACE/CEILING MOUNT BRACKET AND WITH INBUILT EMERGENCY BATTERY PACK E10WMCP.	HOLOPHANE #EMS L48 6000LM IMACD MD MVOLT GZ10 40K 80CRI EMSSMB E10WMCP
4	LED 37.8 WATT 6083 LUMENS	AS NOTED ON PLANS	EMS LED, 4' LINEAR LENGTH, WALL MOUNT, FIBERGLASS HOUSING WITH NEMA 4X GASKET, IP67, NEMA 4X RATED, SUTAIBLE FOR WET LOCATIONS, DIFFUSER WITH ACRYLIC CLEAR DEEP LENS, MEDIUM DISTRIBUTION, GZ10 DRIVER, 4000K, 80CRI, MVOLT, 60HZ ALONG WITH WALL MOUNT BRACKET.	HOLOPHANE #EMS L48 6000LM IMACD MD MVOLT GZ10 40K 80CRI EMSANGBKT
4E	LED 37.8 WATT 6083 LUMENS	AS NOTED ON PLANS	SAME AS FIXTURE NO.4, EXCEPT WITH INBUILT EMERGENCY BATTERY PACK E10WMCP.	HOLOPHANE #EMS L48 6000LM IMACD MD MVOLT GZ10 40K 80CRI EMSANGBKT E10WMCP
5	LED 25 WATT 3512 LUMENS	AS NOTED ON PLANS	WST WALL MOUNT LED, DIE-CAST ALUMINUM HOUSING, IP65 RATED, POWDER COAT FINISH, WELL CRAFTED REFLECTOR OPTICS, SUPERIOR WIDE VISUAL COMFORT DISTRIBUTION, ZERO UPLIGHT AND QUALIFES AS A NIGHTTIME FRIENDLY PRODUCT, PERFORMANCE PACKAGE 2, DARK BRONZE FINISH, 4000K, MVOLT, 60HZ.	LITHONIA #WST LED P2 40K VW MVOLT DDBXD
5E	LED 25 WATT 3512 LUMENS	AS NOTED ON PLANS	SAME AS FIXTURE NO.5, EXCEPT WITH INBUILT EMERGENCY BATTERY PACK E7WH.	LITHONIA #WST LED P2 40K VW MVOLT E7WH DDBXD
EX	LED	AS NOTED ON PLANS	EMERGENCY EXIT SIGN, WHITE THERMOPLASTIC HOUSING, STENCIL FACE, RED LETTERS, NICKEL-CADMIUM BATTERY, SELF DIAGNOSTICS, TYPE WITH 3 NUMBER OF FACES, MVOLT, 60HZ.	LITHONIA #LQM S W 3 R MVOLT ELN SD

LIGHTING FIXTURE SCHEDULE

NO SCALE

COND. NO.	SIZE	CIRCUIT NUMBER	REMARKS
1	4"	ATS-3	FROM GEN-401 TO MTS, POWER
2	4"	ATS-3	FROM GEN-401 TO MTS, POWER
3	4"	ATS-3	FROM GEN-401 TO MTS, POWER
4	4"	ATS-3	FROM GEN-401 TO MTS, POWER
5	2"	ATS-5, DFSRTU-9	FROM GEN-401 TO MTS, DISCRETE
6	2"	DFSRTU-16	FROM GEN-401 TO MTS, ANALOG
7	4"	MCB-1	FROM MCB TO UTILITY TRANSFORMER
8	4"	MCB-1	FROM MCB TO UTILITY TRANSFORMER
9	4"	MCB-1	FROM MCB TO UTILITY TRANSFORMER
10	4"	MCB-1	FROM MCB TO UTILITY TRANSFORMER
11	2"	AFD101-1	FROM AFD101 TO PCL101, POWER
12	2"	AFD101-1	FROM AFD101 TO PCL101, POWER
13	2"	AFD101-2	FROM AFD101 TO PCL101, COMMS
14	2"	AFD102-1	FROM AFD102 TO PCL102, POWER
15	2"	AFD102-1	FROM AFD102 TO PCL102, POWER
16	2"	AFD102-2	FROM AFD102 TO PCL102, COMMS
17	2"	AFD103-1	FROM AFD103 TO PCL103, POWER
18	2"	AFD103-1	FROM AFD103 TO PCL103, POWER
19	2"	AFD103-2	FROM AFD103 TO PCL103, COMMS
20	2"	SWBD-6	FROM SWBD1 TO SPCP-1
21	2"	SWBD-7	FROM SWBD1 TO COMMUNTOR CONTROL PANEL
22	2"	SWBD-8	FROM SWBD1 TO HOIST CONTROL JUNCTION BOX
23	2"	SWBD-10	FROM SWBD1 TO PB1
24	2"	DFSRTU-8, 10, 11, 12	FROM DFSRTU TO DISCRETE INSTRUMENTS
25	2"	DFSRTU-18, 22, 23, 24	FROM DFSRTU TO DISCRETE INSTRUMENTS
26	2"	DFSRTU-13, 14	FROM DFSRTU TO ANALOG INSTRUMENTS
27	2"	DFSRTU-17	FROM DFSRTU TO ANALOG INSTRUMENTS
28	2"	SPARE	FROM ELECTRICAL ROOM TO PUMP STATION
29	2"	SPARE	FROM ELECTRICAL ROOM TO PUMP STATION
30	2"	SWBD-11	FROM GEN-401 TO SWBD-1
31	2"	SPARE	FROM GEN-401 TO SWBD-1
32	2"	SPARE	FROM GEN-401 TO SWBD-1

DUCT BANK SCHEDULE

NO SCALE

NOTES:

1. SEE DRAWINGS E-01 AND E-02 FOR ELECTRICAL LEGEND, ABBREVIATIONS AND NOTES.
2. #4/0 BARE COPPER GROUND SHALL BE ROUTED IN DUCT BANK. GROUND SAHLL BE BONDED TO GROUND SYSTEM AT END OF DUCT BANK.

ISSUED FOR CONSTRUCTION

NO.	BY	CK APP
B	AD	RB MNT
A	AD	RB MNT

REVISIONS AND RECORD OF ISSUE

DATE	
SEPT 2022	100% SUBMITTAL
JUL 2022	90% SUBMITTAL

50.3062 - MLS 39-A

E-08.dwg

XREF1:

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XREF2:

PLOTTED:PA179142, 21-Dec-22 3:32:06 PM

XREF3:

USER:PA179142

DWG VER:TOD1

XREF4:

THIS DRAWING WAS ORIGINALLY APPROVED FOR CONSTRUCTION BY RYAN BINKLEY, ON 09/16/2022 AND SEALED BY RYAN BINKLEY, A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF FLORIDA, NO. 89014

Manatee County FLORIDA

BLACK & VEATCH

Black & Veatch Corporation
3405 W. Dr. M. L. King Jr. Blvd Suite 125
Tampa, Florida
Certificate No. 8132

MANATEE COUNTY FLORIDA
IMPROVEMENTS AT
MASTER LIFT STATION 39-A

ELECTRICAL
PANELBOARD & LIGHTING FIXTURE SCHEDULES

DESIGNED: DG
DETAILED: AD/HT
CHECKED: MR
APPROVED: RB
DATE: SEPT 2022

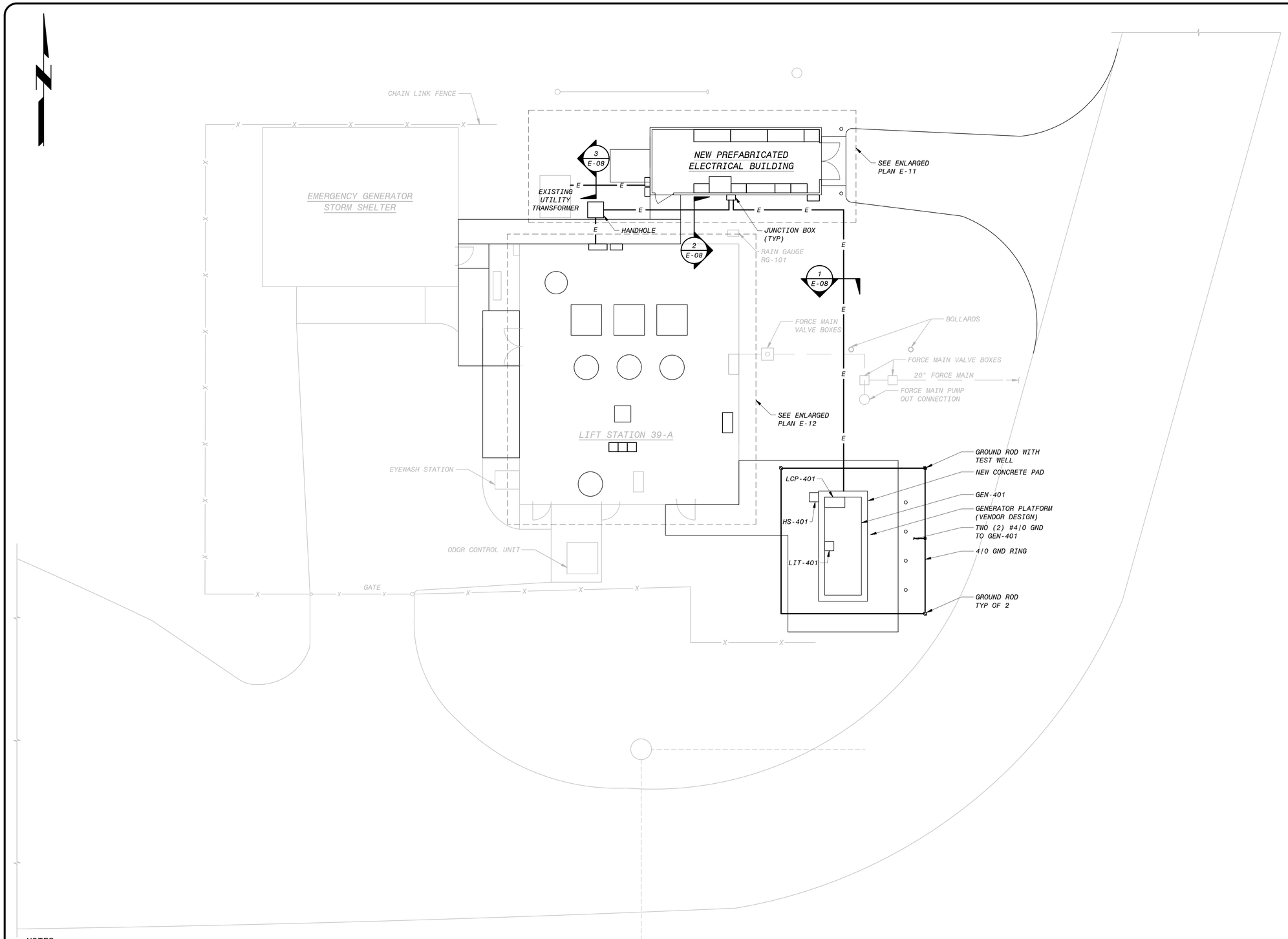
0 1/2 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
402142

E-08
SHEET
32 OF 45

FD7000
402142



NOTES:

1. SEE DRAWINGS E-01 AND E-02 FOR ELECTRICAL LEGEND, ABBREVIATIONS AND NOTES.
2. NEW ENGINE-GENERATOR SHALL BE PROVIDED AS SPECIFIED IN SECTION 26 32 13.
3. CONTRACTOR SHALL RECONNECT ALL EXISTING 120/208V LOADS TO NEW LIGHTING PANEL LP-39A1.
4. EXISTING UTILITIES AND STRUCTURES (UNDERGROUND, SURFACE, OR OVERHEAD) ARE INDICATED ONLY TO THE EXTENT THAT SUCH INFORMATION WAS KNOWN, OR MADE AVAILABLE TO, OR DISCOVERED BY THE ENGINEER IN PREPARING THE DRAWINGS. THE LOCATIONS, CONFIGURATIONS, AND ELEVATIONS OF SUBSURFACE FACILITIES AND UTILITIES ARE APPROXIMATE, AND NOT ALL UTILITIES AND FACILITIES MAY BE INDICATED.

ELECTRICAL-OVERALL SITE PLAN

1/8"=1'-0"

8' 4' 0 8' 16'

1/8"=1'-0"

ISSUED FOR CONSTRUCTION

NO.	BY	CK APP
C	AD	RB MNT
B	AD	RB MNT
A	AD	RT MT

REVISIONS AND RECORD OF ISSUE

DATE	
MAR 2021	50% SUBMITTAL
JUL 2022	90% SUBMITTAL
SEPT 2022	100% SUBMITTAL

50.3062 - WLS 39-A

E-09.dwg

XREF1:
XREF2:
XREF3:
XREF4:

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THIS DRAWING WAS ORIGINALLY APPROVED FOR CONSTRUCTION BY RYAN BINKLEY, ON 09/16/2022 AND SEALED BY RYAN BINKLEY, A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF FLORIDA, NO. 89014

Manatee County FLORIDA

BLACK & VEATCH

Black & Veatch Corporation
3405 W. Dr. M. L. King Jr. Blvd. Suite 125
Tampa, Florida Certificate No. 8132

MANATEE COUNTY FLORIDA
IMPROVEMENTS AT
MASTER LIFT STATION 39-A

ELECTRICAL
OVERALL SITE PLAN

DESIGNED: DG
DETAILED: AD/HT
CHECKED: MR
APPROVED: RB
DATE: SEPT 2022

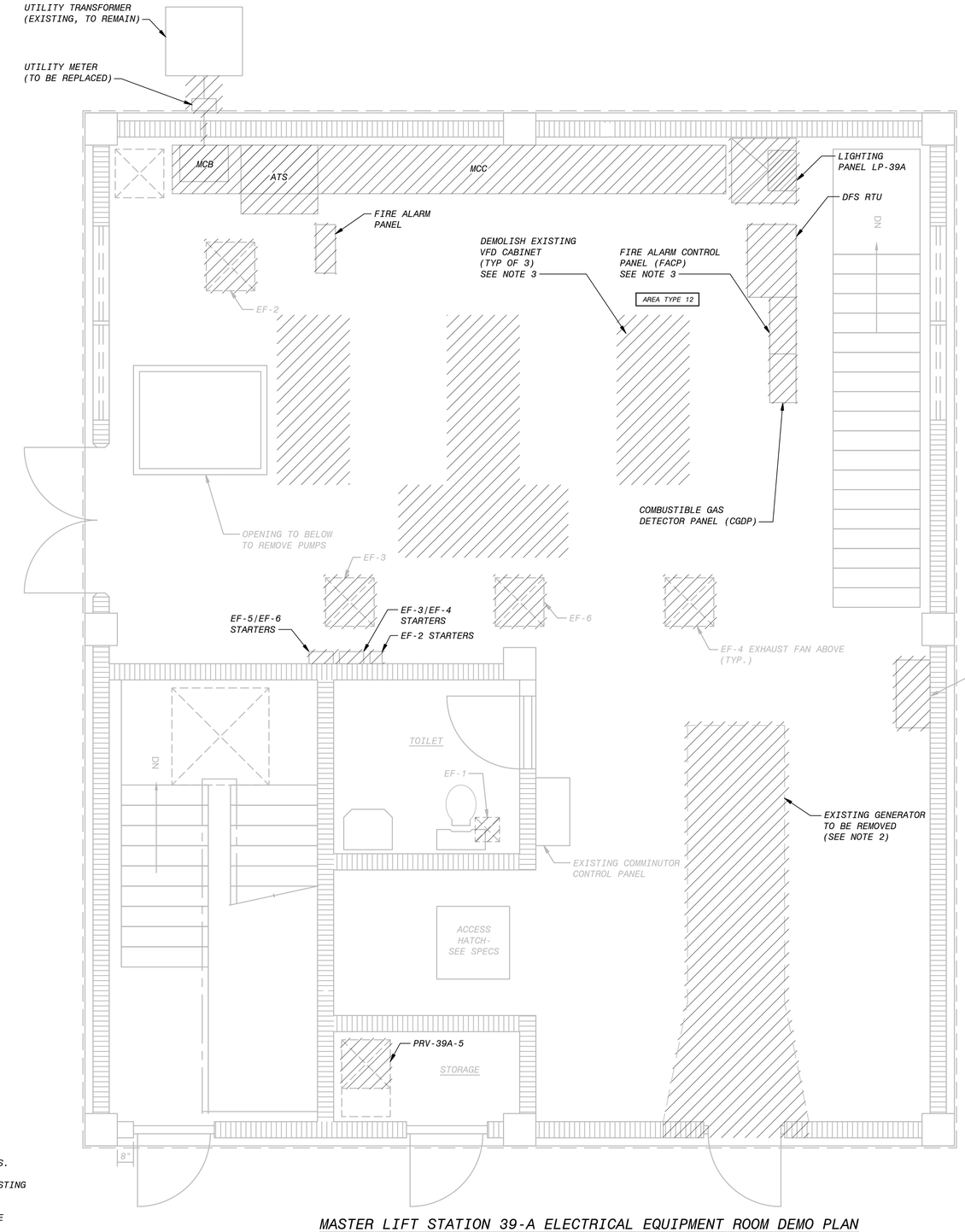
0 1/2 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

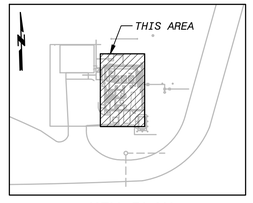
PROJECT NO.
402142

E-09
SHEET
33 OF 45

FD7000
402142



MASTER LIFT STATION 39-A ELECTRICAL EQUIPMENT ROOM DEMO PLAN
3/8" = 1'-0"



KEY PLAN

12" 6" 0 1' 2' 3' 4' 5' 6' 7'
3/8"=1'-0"

NOTES:

1. SEE DRAWINGS E-01 AND E-02 FOR ELECTRICAL LEGEND, ABBREVIATIONS AND NOTES.
2. EXISTING ENGINE GENERATOR TO BE SALVAGED AND RETURNED TO THE COUNTY. EXISTING CONCRETE EQUIPMENT PADS TO BE DEMOLISHED AND REMOVED.
3. EXISTING ELECTRICAL EQUIPMENT AS SHOWN SHALL BE DEMOLISHED ALONG WITH THE CONDUITS AND CIRCUITS NOTED TO BE DEMOLISHED ON THE ELECTRICAL DRAWINGS. EXISTING EQUIPMENT PADS TO BE DEMOLISHED AND REMOVED.

ISSUED FOR CONSTRUCTION

NO.	BY	CK	APP
C	AD	RB	MNT
B	AD	RB	MNT
A	AD	RT	MT

REVISIONS AND RECORD OF ISSUE

DATE	
SEPT 2022	100% SUBMITTAL
JUL 2022	90% SUBMITTAL
MAR 2021	50% SUBMITTAL

50.3062 - MLS 39-A
E-10.dwg

XREF1:
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XREF4:

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Manatee County Florida

BLACK & VEATCH

Black & Veatch Corporation
3405 W. Dr. M. L. King Jr. Blvd. Suite 125
Tampa, Florida Certificate No. 8132

MANATEE COUNTY FLORIDA
IMPROVEMENTS AT
MASTER LIFT STATION 39-A

ELECTRICAL
MASTER LIFT STATION 39-A
ELECTRICAL EQUIPMENT ROOM DEMO PLAN

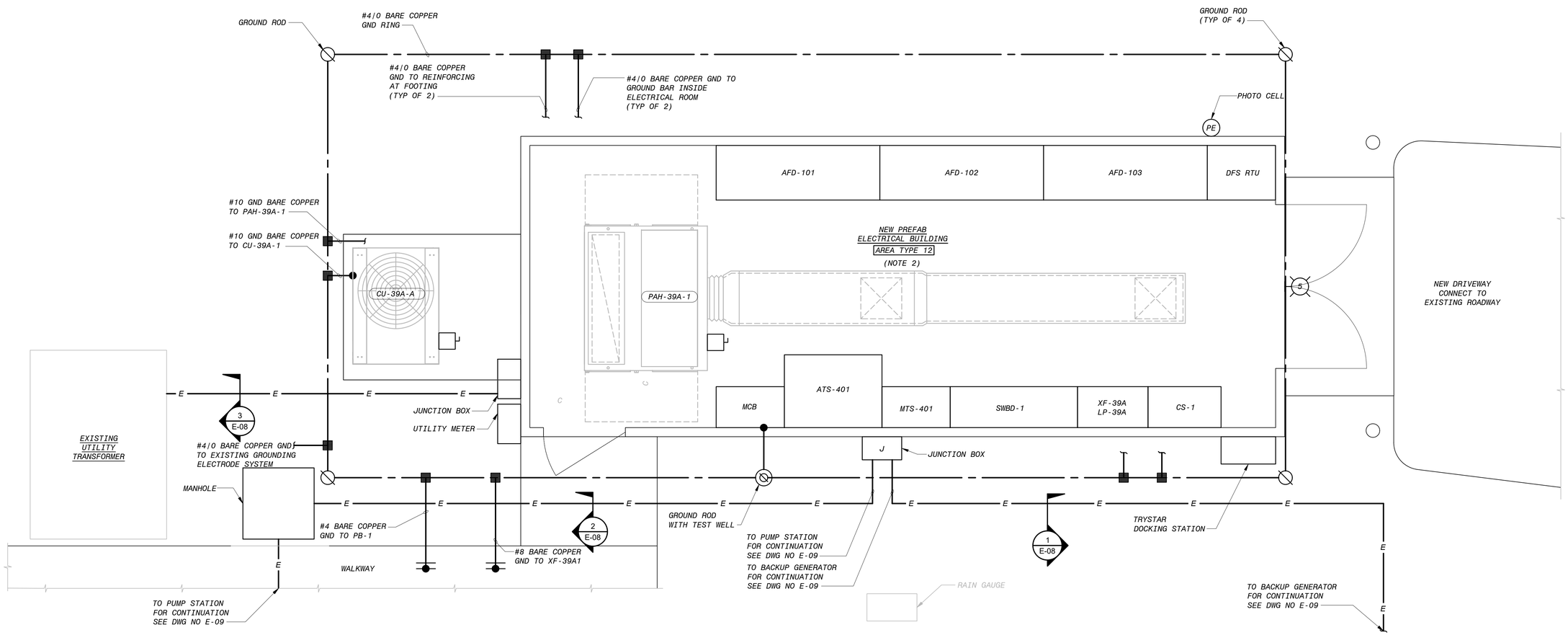
DESIGNED: DG
DETAILED: CP
CHECKED: RB
APPROVED: MNT
DATE: SEPT 2022

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
402142

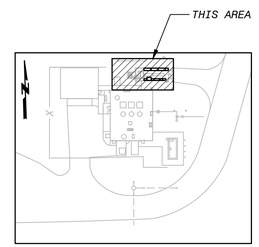
E-10
SHEET
34 OF 45

FD7000
402142



NEW ELECTRICAL PREFAB BUILDING POWER AND GROUNDING PLAN

1/2"=1'-0"



KEY PLAN
NTS

12" 6" 0 1' 2' 3' 4' 5'
1/2"=1'-0"

NOTES:

1. SEE DRAWINGS E-01 AND E-02 FOR ELECTRICAL LEGEND, ABBREVIATIONS AND NOTES.
2. LIGHTING AND RECEPTACLES IN NEW ELECTRICAL BUILDING WILL BE PROVIDED BY BUILDING SUPPLIER.

ISSUED FOR CONSTRUCTION

NO.	BY	CK	APP
C	AD	RB	MT
B	AD	RB	MT
A	AD	RT	MT

REVISIONS AND RECORD OF ISSUE

DATE	
SEPT 2022	100% SUBMITTAL
JUL 2022	90% SUBMITTAL
MAR 2021	50% SUBMITTAL

50.3062 - MLS 39-A
E-11.dwg
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Tampa, Florida. Certificate No. 8132

MANATEE COUNTY FLORIDA
IMPROVEMENTS AT
MASTER LIFT STATION 39-A

ELECTRICAL
NEW ELECTRICAL PREFAB BUILDING
POWER AND GROUNDING PLAN

DESIGNED: DG
DETAILED: AD/HT
CHECKED: MR
APPROVED: RB
DATE: SEPT 2022

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
402142

E-11
SHEET
35 OF 45

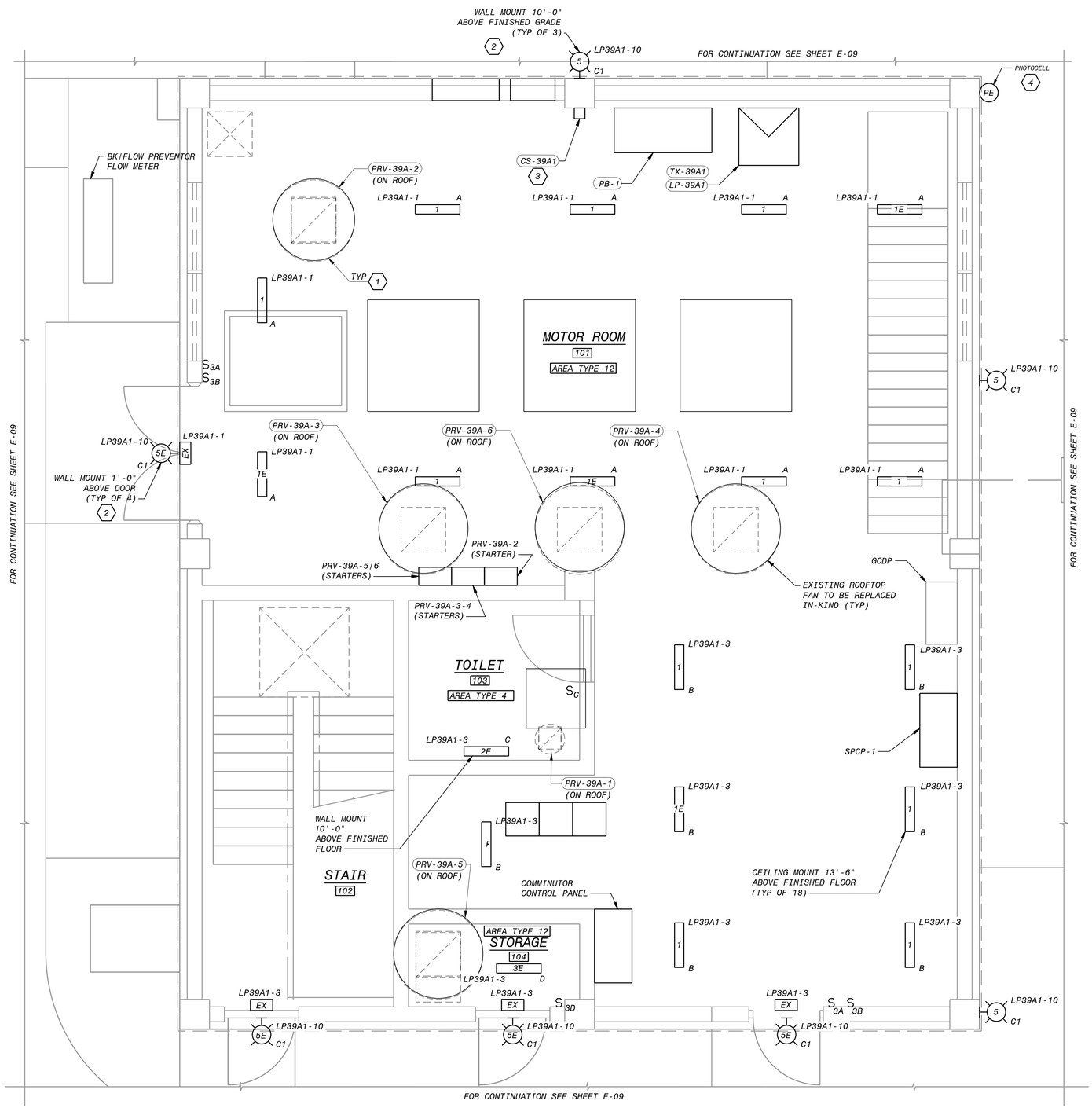
FD7000
402142

GENERAL SHEET NOTES

1. SEE DRAWING E-01 AND E-02 FOR ELECTRICAL LEGEND, ABBREVIATIONS AND NOTES.

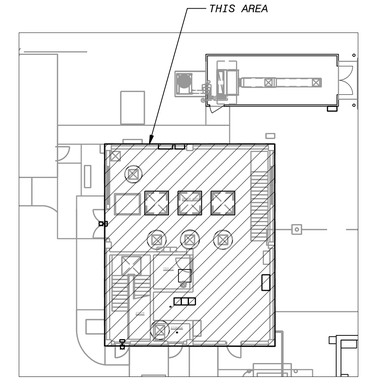
SHEET KEYNOTES

1. REPLACE FANS IN KIND, CONNECT TO EXISTING CONTROL WIRING AND NEW POWER SOURCE PB-1. FIELD VERIFY CONDITION OF CONTROL WIRING, THERMOSTATS, AND CONTROLS ACCESSORIES AND REPLACE AS NECESSARY.
2. ALL EXTERIOR LIGHT FIXTURES SHALL CONTROLLED BY PHOTOCELL (PE) THROUGH LIGHTING CONTACTOR 'C1' IN LIGHTING CONTROL STATION CS-39A1.
3. LIGHTING CONTROL STATION (CS-39A1) CONSISTING OF (1) ON-OFF-AUTO CONTROL STATION AND (1) LIGHTING CONTACTOR C1. ENCLOSURE SHALL NEMA 12.
4. PHOTOCELL SHOULD BE MOUNTED AS CLOSE TO ROOFLINE.
5. CONTRACTOR TO REPLACE THE EXISTING LIGHTING FIXTURES WITH NEW FIXTURES. EXISTING CONDUITS MAY BE REUSED IF IN GOOD CONDITION. INSTALL NEW CONDUIT AS REQUIRED TO EXTEND RACEWAYS TO NEW PANELBOARD. CONTRACTOR TO PROVIDE SUITABLE JUNCTION BOX/ADAPTOR FOR CONNECTION OF NEW FIXTURE.



MASTER LIFT STATION 39-A ELECTRICAL EQUIPMENT BUILDING POWER AND LIGHTING PLAN

3/8"=1'-0"



KEY PLAN

NO SCALE

12" 6" 0 1' 2' 3' 4' 5' 6' 7'

3/8"=1'-0"

ISSUED FOR CONSTRUCTION

NO.	BY	CK APP
C	AD	RB MNT
B	AD	RB MNT
A	AD	MFR MNT

REVISIONS AND RECORD OF ISSUE

DATE	
SEPT 2022	100% SUBMITTAL
JUL 2022	90% SUBMITTAL
MAR 2021	50% SUBMITTAL

50.3092 - MLS 39-A

E-12.dwg

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MANATEE COUNTY FLORIDA
IMPROVEMENTS AT
MASTER LIFT STATION 39-A

ELECTRICAL
MASTER LIFT STATION 39-A ELECTRICAL
EQUIPMENT BUILDING POWER AND LIGHTING PLAN

DESIGNED: DG
DETAILED: HT/AD
CHECKED: MR
APPROVED: RB
DATE: SEPT 2022

0 1/2 1

IF THIS BAR DOES NOT MEASURE 1" THEM DRAWING IS NOT TO FULL SCALE

PROJECT NO.
402142

E-12
SHEET
36 OF 45

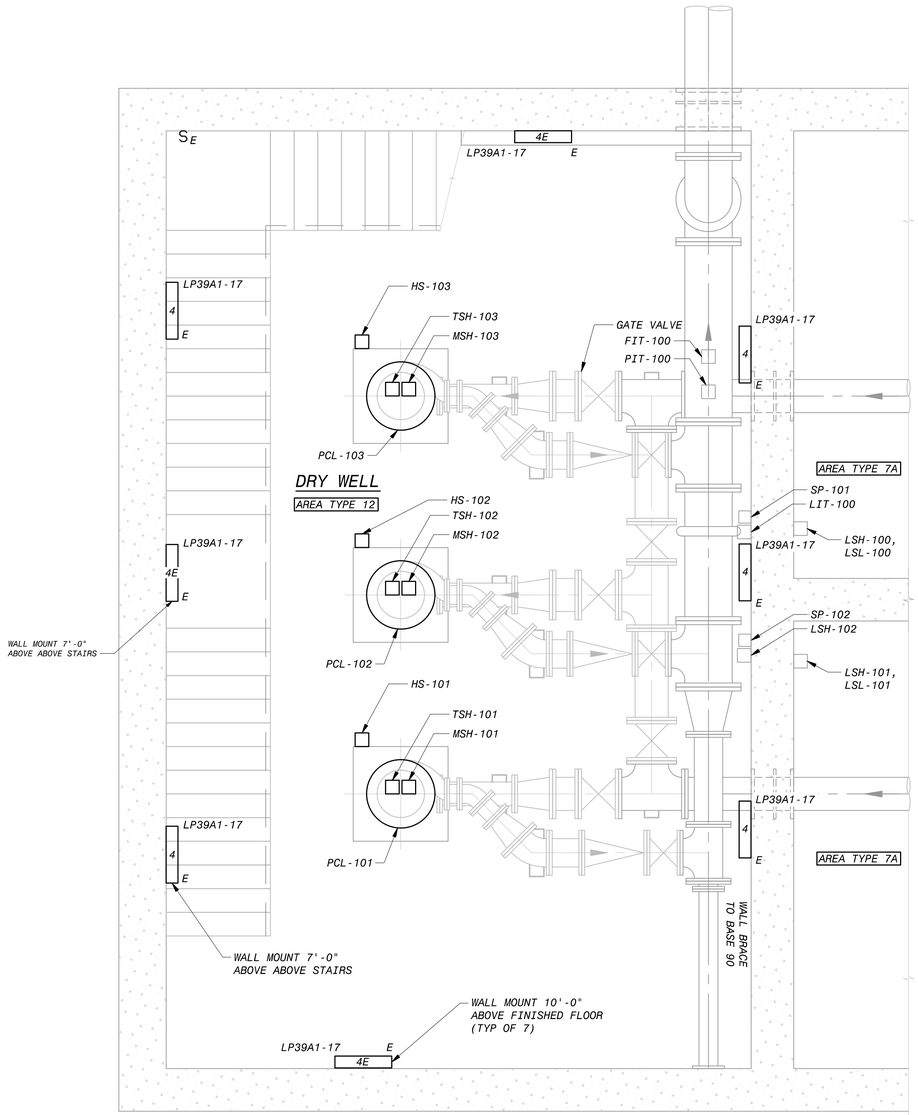
FD7000
402142

GENERAL SHEET NOTES

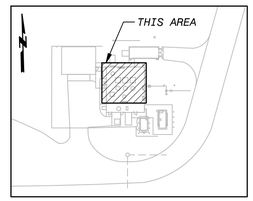
1. SEE DRAWING E-01 AND E-02 FOR ELECTRICAL LEGEND, ABBREVIATIONS AND NOTES.

SHEET KEYNOTES

1. CONTRACTOR TO REPLACE THE EXISTING LIGHTING FIXTURES WITH NEW FIXTURES. EXISTING CONDUITS TO BE USED AND INTERSECT NEW CONDUITS AS REQUIRED. CONTRACTOR TO PROVIDE SUITABLE JUNCTION BOX/ADAPTOR FOR CONNECTION OF NEW FIXTURE.



DRYWELL POWER AND LIGHTING PLAN
3/8"=1'-0"



KEY PLAN

12" 6" 0 1' 2' 3' 4' 5' 6' 7'
3/8"=1'-0"

ISSUED FOR CONSTRUCTION

NO.	BY	CK APP
B	AD	RB MNT
A	AD	MR RB

REVISIONS AND RECORD OF ISSUE

DATE	
SEPT 2022	100% SUBMITTAL
JUL 2022	90% SUBMITTAL

50.3040 - General Drawings
E-13.dwg

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MANATEE COUNTY, FLORIDA
IMPROVEMENTS AT
MASTER LIFT STATION 39-A

ELECTRICAL
DRYWELL POWER AND LIGHTING PLAN

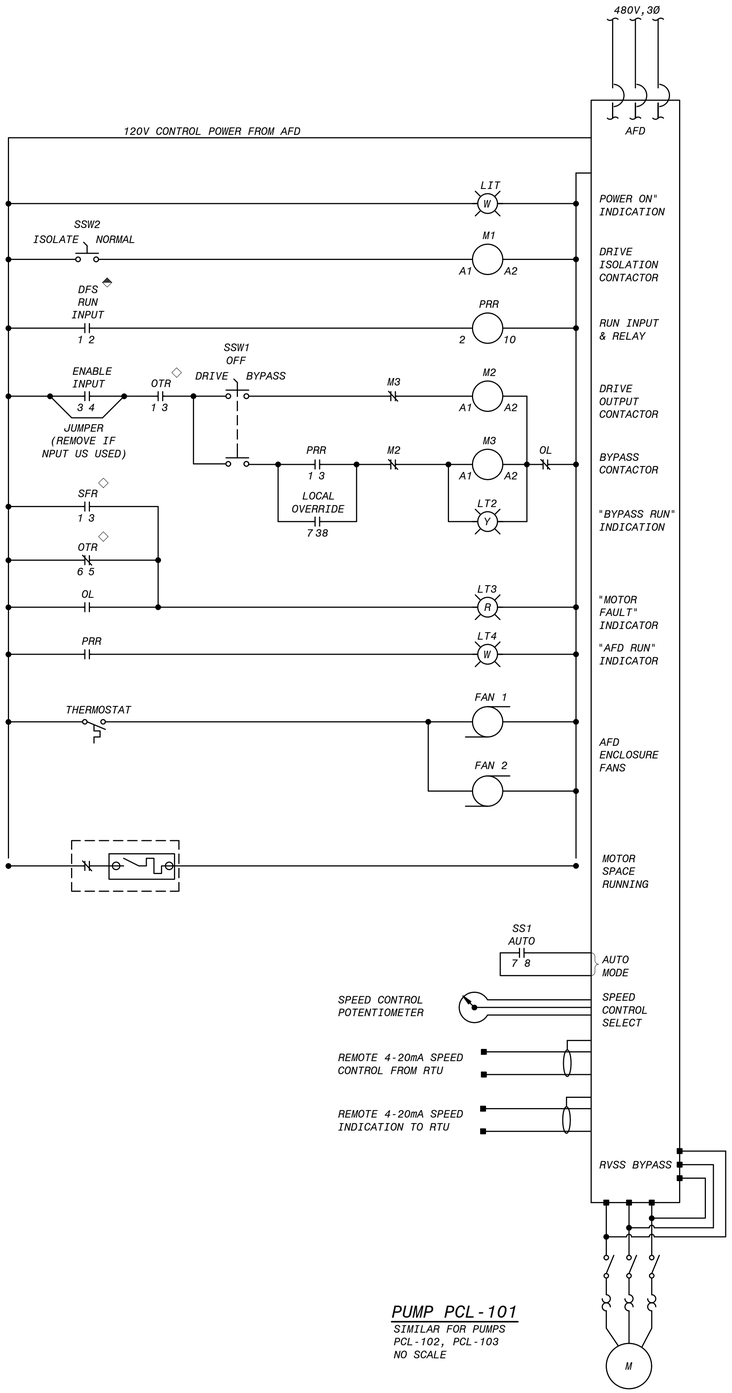
DESIGNED:	DG
DETAILED:	HT/AD
CHECKED:	MR
APPROVED:	RB
DATE:	SEPT 2022

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
402142

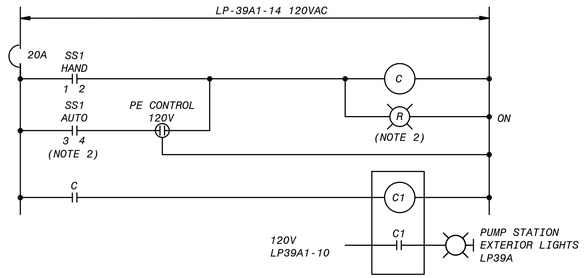
E-13
SHEET
37 OF 45

FD7000
402142



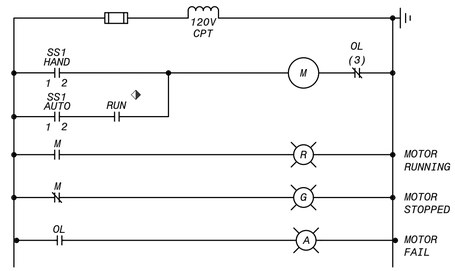
PUMP PCL-101

SIMILAR FOR PUMPS PCL-102, PCL-103
NO SCALE



BUILDING EXTERIOR & SITE LIGHTING CONTROL PANEL CS-39A1

NO SCALE



PRV-39A-1 EXHAUST FAN

NO SCALE

SS1 SWITCH DEVELOPMENT

CONTACTS	POSITION		
	HAND	OFF	AUTO
1-2	X		
3-4			X
5-6			X
7-8			X

LEGEND:

◇ AT DRIVEN EQUIPMENT

♠ FROM DFS RTU

◆ FROM THERMOSTAT T-1

NOTES:

1. SEE DRAWINGS E-01 AND E-02 FOR ELECTRICAL LEGEND, ABBREVIATIONS AND NOTES.
2. THE ON-OFF-AUTO SELECTOR SWITCH AND INDICATING LIGHT SHALL BE MOUNTED SEMI-FLUSH ON THE DOOR OF THE LIGHTING CONTROL PANEL (CS-1).
3. OFF-ON SWITCH MOUNTED ON FRONT OF DISCONNECT SWITCH.
4. TEMPERATURE AND MOISTURE RELAY SHALL BE ABLE TO WORK BOTH IN AFD AND BYPASS MODE.

ISSUED FOR CONSTRUCTION

NO.	BY	CK	APP
B	AD	RB	WMT
A	AD	RB	WMT

REVISIONS AND RECORD OF ISSUE

DATE	
JUL 2022	90% SUBMITTAL
SEPT 2022	100% SUBMITTAL

50.3062 - MLS 39-A
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XREF4:

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MANATEE COUNTY FLORIDA
IMPROVEMENTS AT
MASTER LIFT STATION 39-A

ELECTRICAL SCHEMATICS

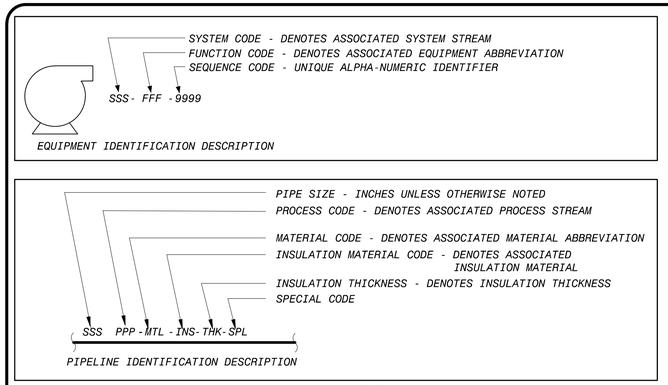
DESIGNED: DG
DETAILED: HT/AD
CHECKED: MR
APPROVED: RB
DATE: SEPT 2022

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
402142

E-14
SHEET
38 OF 45

FD7000
402142



LINE SYMBOLS

- MAJOR PROCESS PIPING OR FLOW CHANNEL
- SECONDARY PROCESS PIPING
- MISCELLANEOUS PIPING
- SCREENED LINE DENOTES EXISTING PIPE OR EQUIPMENT
- DASHED LINE DENOTES FUTURE PIPE AND EQUIPMENT
- ELECTRIC SIGNAL
- HYDRAULIC SIGNAL
- PNEUMATIC SIGNAL
- SIGNAL CONNECTION POINT
- CONTROL SYSTEM BACKBONE NETWORK SIGNAL (ETHERNET)
- FIELD DEVICE NETWORK SIGNAL (ETHERNET)
- NON-STANDARD OR INDEPENDENT CONTROL SYSTEM NETWORK SIGNAL (AS NOTED ON DRAWINGS)

- B | I-XX — SIGNAL LINE GOING TO ANOTHER SHEET
- B | I-XX — SIGNAL LINE FROM ANOTHER SHEET (MATCH LETTERS)
- B | I-XX — PROCESS LINE COMING/GOING TO/FROM ANOTHER SHEET
  - MATCH SHEET NO. IDENTIFIER
  - MATCH LINE NO.
- B — SIGNAL CONNECTION WITHIN THE SAME SHEET

PRIMARY ELEMENT & FITTING SYMBOLS

- DIAPHRAGM SEAL
- PRIMARY FLOW ELEMENT: ORIFICE PLATE
- PRIMARY FLOW ELEMENT: FLUME
- PRIMARY FLOW ELEMENT: TURBINE OR PROPELLER-TYPE
- PRIMARY FLOW ELEMENT: ELECTROMAGNETIC
- THERMAL DISPERSION OR THERMAL MASS TYPE FLOW ELEMENT
- PRIMARY FLOW ELEMENT: TRANSIT-TIME ULTRASONIC
- FLOW CONDITIONER
- CONDUCTANCE TYPE LEVEL SENSOR (LE / CON)
- RADAR TYPE LEVEL SENSOR (LE / RAD)
- GUIDED WAVE RADAR TYPE LEVEL SENSOR (LE / GWR)
- ANNULAR TYPE DIAPHRAGM SEAL
- PRIMARY FLOW ELEMENT: POSITIVE DISPLACEMENT
- PRIMARY FLOW ELEMENT: VENTURI TUBE, FLOW NOZZLE, OR FLOW TUBE. * SEE MEASUREMENT SYMBOL NOTATIONS LIST
- PRIMARY FLOW ELEMENT: WEIR
- PRIMARY FLOW ELEMENT: PITOT TUBE
- PRIMARY FLOW ELEMENT: CORIOLIS
- HORN OR SIREN
- ROTAMETER (FG)
- ULTRASONIC TYPE LEVEL SENSOR (LE / US)
- PRESSURE SENSING LEVEL SENSOR (LE / DP)
- PILOT LIGHT
- REDUCER - CONCENTRIC
- REDUCER - ECCENTRIC
- FLANGE
- DRAIN - BELL-UP
- DRAIN - FUNNEL
- FLEXIBLE CONNECTION
- CAP
- PLUG
- TRAP
- FLAME CHECK
- SURGE CHAMBER
- FLAME ARRESTER
- SEDIMENT TRAP
- INSTRUMENT PURGE OR FLUSHING DEVICE
- UNION
- HOSE CONNECTION
- STRAINER - Y TYPE
- STRAINER - BASKET
- QUICK CONNECT
- VENT
- VENT - SCREENED
- COUPLING
- SIGHTGLASS
- MOISTURE SEPARATOR
- EXPANSION LOOP
- SUCTION DIFFUSER
- BUBBLER TYPE LEVEL SENSOR

CHEMICAL FEED EQUIPMENT SYMBOLS

- DIFFUSER: TANK
- DIFFUSER: CHANNEL
- INJECTOR
- RUPTURE DISK
- PULSATION DAMPNER
- CHLORINE CYLINDER
- VAPOR SUPERHEATER
- PRESSURE BUILDING COIL
- SPECTACLE, BLIND, CLOSED
- SPECTACLE, BLIND, OPEN
- CALIBRATION COLUMN
- EXPANSION TANK OR FUNNEL
- WEIGH SCALE
- DRIP LEG HEATER
- TOTE
- AUTOMATIC SWITCHOVER
- PASTE TYPE LIME SLAKER
- EDUCTOR
- GAS FEEDER
- EVAPORATOR
- DRY CHEMICAL FEEDER
- TON CONTAINER
- POLYMER BLENDER FEEDER
- POLYMER BLENDER FEEDER
- POLYMER INJECTION RING
- DIFFUSER
- DIFFUSER - PLAN
- CO2 VAPORIZOR
- COMBINATION SHOWER/ EYEWASH FOUNTAIN
- EYEWASH FOUNTAIN
- SHOWER

MECHANICAL EQUIPMENT SYMBOLS

- VAPORIZER: AMBIENT
- PARTICULATE FILTER
- ROTARY SCROLL COMPRESSOR
- AIR FILTER
- WATER FILTER: CARTRIDGE TYPE
- WATER FILTER: MEMBRANE TYPE
- MIXER
- COMPRESSOR
- VALVE: MATERIAL HANDLING ROTARY
- AIR REGULATOR
- STATIC MIXER
- HEAT EXCHANGER: TYPE 1
- HEAT EXCHANGER: TYPE 2
- HEAT EXCHANGER: FINNED TUBE
- HEAT EXCHANGER: SHELL & TUBE
- HEAT EXCHANGER: PLATE & FRAME
- HEAT EXCHANGER: SPIRAL
- HEAT EXCHANGER: DOUBLE PIPE
- HEAT EXCHANGER: AIR
- BOILER
- AFTERCOOLER
- FILTER SEPARATOR
- SILENCER
- HYDROCYCLONE

PUMP & BLOWER SYMBOLS

- CENTRIFUGAL PUMP OR OTHER TYPE NOT SPECIFIED
- SUBMERGED CENTRIFUGAL PUMP
- SCREW (LIFT) PUMP
- ROTARY PUMP
- PROGRESSING CAVITY PUMP
- POSITIVE DISPLACEMENT PUMP
- PLUNGER PUMP
- VERTICAL PUMP
- SUMP PUMP
- CENTRIFUGAL FAN
- CENTRIFUGAL BLOWER
- POSITIVE DISPLACEMENT BLOWER
- COMPRESSOR: RECIPROCATING
- COMPRESSOR: ROTARY SCREW
- COMPRESSOR: LIQUID RING
- MOTOR DRIVEN DIAPHRAGM METERING PUMP
- SOLENOID PUMP (S)
- PERISTALTIC PUMP
- DRUM PUMP
- DOUBLE DIAPHRAGM PUMP
- ELECTRIC MOTOR

VALVE & GATE SYMBOLS

- GATE: SLUICE OR SLIDE
- VALVE: GATE OR OTHER TWO-WAY TYPE NOT OTHERWISE IDENTIFIED
- VALVE: BALL
- VALVE: GLOBE
- VALVE: BUTTERFLY
- VALVE: ECCENTRIC PLUG
- VALVE: NON-ECCENTRIC PLUG
- VALVE: THREE WAY
- VALVE: FOUR WAY
- VALVE: CHECK
- VALVE: DIAPHRAGM
- VALVE: VPORT BALL
- VALVE: MUD
- VALVE: THERMAL SHUTOFF
- VALVE: NEEDLE
- VALVE: SLEEVE
- GATE: FLAP
- VALVE: VENTED BALL
- VALVE: PRESSURE REDUCING
- VALVE: PRESSURE SUSTAINING
- VALVE: PRESSURE REDUCING (SELF ACTUATING TYPE)
- VALVE: PRESSURE SUSTAINING (SELF ACTUATING TYPE)
- VALVE: PILOT ACTUATED RELIEF (P)
- VALVE: VACUUM RELIEF
- VALVE: PRESSURE RELIEF
- VALVE: PRESSURE/VACUUM RELIEF
- VALVE: ANGLE
- VALVE: SET STOP
- VALVE: PINCH
- VALVE: TELESCOPING
- VALVE: COMBINATION AIR
- VALVE: AIR RELEASE
- VALVE: AIR VACUUM
- VALVE: CHLORINE WITH YOKE
- CHLORINE VACUUM REGULATOR (M)
- VALVE: KNIFE GATE
- BACKFLOW PREVENTER
- VACUUM BREAKER
- EXPLOSION RELIEF

VALVE AND GATE ACTUATOR SYMBOLS

- HANDWHEEL ACTUATOR
- SOLENOID (S)
- SOLENOID - MANUAL RESET (S / R)
- SOLENOID - REMOTE RESET (S / R R)
- PRESSURE BALANCED DIAPHRAGM
- INTELLIGENT ELECTRIC (M)
- SMALL MOTOR ACTUATOR (M / SM)
- CURRENT - TO-PNEUMATIC ACTUATOR (I/P)
- ELECTRIC-HYDRAULIC (E/H)
- SPRING-DIAPHRAGM ACTUATOR OR OTHERWISE UNSPECIFIED
- PNEUMATIC ACTUATOR (P)
- PNEUMATIC ACTUATOR DOUBLE ACTING (P / DA)
- PNEUMATIC ACTUATOR SPRING CLOSE (P / SC)
- PNEUMATIC ACTUATOR SPRING OPEN (P / SO)
- FLOAT OPERATED VALVE
- SPRING OR WEIGHT ACTUATED RELIEF OR SAFETY VALVE ACTUATOR LOADED VALVE
- QUICK OPENING VALVE
- QUICK CLOSING VALVE
- LOADING/BACK PRESSURE VALVE

WATER & WASTEWATER SYMBOLS

- OZONE GENERATOR WITH POWER SUPPLY
- OZONE GENERATOR
- GRIT CONCENTRATOR & DEWATERING SCREW
- BAR SCREEN: MECHANICAL
- GRIT COLLECTOR: VORTEX TYPE
- RECTANGULAR BASIN
- SOLIDS COLLECTOR
- SOLIDS COLLECTOR W/SETTLING PLATES
- RECTANGULAR SEDIMENTATION BASIN
- UV HORIZONTAL BULBS
- MANUAL BAR SCREEN
- GAS FLARE
- GRIT CLASSIFIER
- GRAVITY FILTER
- GRAVITY THICKENER
- CIRCULAR SEDIMENTATION BASIN
- DAF
- BELT FILTER PRESS
- GRAVITY BELT THICKENER
- CENTRIFUGE
- RECTANGULAR SEDIMENTATION BASIN WITH SETTLING PLATES
- GRIT BASIN
- SLUDGE GRINDER: INLINE
- SLUDGE GRINDER: CHANNEL MOUNTED
- GRIT CONCENTRATOR

MATERIAL HANDLING EQUIPMENT SYMBOLS

- CYCLONE SEPARATOR
- BIN: LIVE BOTTOM
- BIN: SLIDING FRAME
- SCREEN: SINGLE VIBRATORY
- SCREEN: DOUBLE VIBRATORY
- GRINDER
- BIN - CLOSED TOP
- BIN - OPEN TOP
- HORIZONTAL BAR SCREEN
- MIXER: PUGMILL
- MIXER: BLENDER
- CONVEYOR: BELT
- CONVEYOR: VIBRATORY
- PISTON CAKE PUMP: SINGLE (H)
- PISTON CAKE PUMP: DOUBLE (H H)
- HOPPER
- DUST HOPPER

GENERAL NOTES

1. IN GENERAL, THE P&ID SYMBOLS AND DEVICE IDENTIFICATIONS ARE BASED ON INTERNATIONAL SOCIETY OF AUTOMATION, STANDARD PRACTICE ANSI/ISA-5.1 (2009). SOME MODIFICATIONS, ADDITIONS, AND ALTERATIONS HAVE BEEN MADE AS NEEDED TO ACCOMMODATE THE PROJECT REQUIREMENTS.
2. SOME CONTROL AND INTERLOCK REQUIREMENTS WHICH CAN BE MORE CLEARLY ILLUSTRATED ON SCHEMATIC DRAWINGS HAVE BEEN OMITTED FROM THE P&ID DRAWINGS.
3. THIS IS A GENERAL LEGEND SHEET. SOME SYMBOLS AND ABBREVIATIONS MAY NOT BE UTILIZED ON THIS SPECIFIC PROJECT.
4. PIPING AND EQUIPMENT LEGEND APPLIES TO P&ID SHEETS ONLY AND MAY DIFFER FROM LEGENDS FOR OTHER SHEETS.

ISSUED FOR CONSTRUCTION

NO.	BY	CK	APP	DATE	REVISIONS AND RECORD OF ISSUE
C	AD	LB	MNT	SEPT 2022	100% SUBMITTAL
B	AD	LB	MNT	JULY 2022	90% SUBMITTAL
A	AD	RT	MT	MAR 2021	50% SUBMITTAL

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DWG VER: 1002
XREF1:
XREF2:
XREF3:
XREF4:

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Manatee County FLORIDA

BLACK & VEATCH

Black & Veatch Corporation
3405 W. Dr. M. L. King Jr. Blvd Suite 125
Tampa, Florida
Certificate No. 8132

MANATEE COUNTY, FLORIDA
IMPROVEMENTS AT
MASTER LIFT STATION 39-A

INSTRUMENTATION
LEGEND & ABBREVIATIONS
SHEET 1 OF 3

DESIGNED:	UB
DETAILED:	PR/AD
CHECKED:	LB
APPROVED:	MNT
DATE:	SEPT 2022

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
402142

I-01
SHEET
39 OF 45

FD7000
402142

INSTRUMENT AND I/O ABBREVIATIONS
MEANINGS OF IDENTIFICATION LETTERS

LETTER	FIRST LETTER		SUCCEEDING LETTERS		
	MEASURED OR INITIATING VARIABLE	VARIABLE MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT OR ACTIVE FUNCTION	FUNCTION MODIFIER
A	ANALYSIS		ALARM		
B	BURNER, COMBUSTION		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
C	USER'S CHOICE			CONTROL	CLOSE
D	USER'S CHOICE	DIFFERENTIAL			DEVIATION
E	VOLTAGE (EMF)		SENSOR, PRIMARY ELEMENT		
F	FLOW, FLOW RATE	RATIO (FRACTION)			
G	USER'S CHOICE		GLASS, GAUGE, VIEWING DEVICE		
H	HAND (MANUALLY INITIATED)				HIGH
I	CURRENT (ELECTRICAL)		INDICATE		
J	POWER		SCAN		
K	TIME OR TIME-SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		LIGHT		LOW
M	USER'S CHOICE	MOMENTARY			MIDDLE OR INTERMEDIATE
N	USER'S CHOICE		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
O	USER'S CHOICE		ORIFICE (RESTRICTION)		OPEN
P	PRESSURE OR VACUUM		POINT (TEST CONNECTION)		
Q	QUANTITY	INTEGRATE OR TOTALIZE	INTEGRATE OR TOTALIZE		
R	RADIATION		RECORD		RUN
S	SPEED OR FREQUENCY	SAFETY		SWITCH	STOP
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	
V	VIBRATION OR MECHANICAL ANALYSIS			VALVE, DAMPER OR LOUVER	
W	WEIGHT OR FORCE		WELL, PROBE		
X	UNCLASSIFIED	X-AXIS	ACCESSORY DEVICES OR UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED
Y	EVENT, STATE, OR PRESENCE	Y-AXIS		AUXILIARY DEVICES	
Z	POSITION, DIMENSION	Z-AXIS		DRIVE, ACTUATOR OR FINAL CTRL ELEMENT	

GENERAL NOTES

1. IN GENERAL, THE P&ID SYMBOLS AND DEVICE IDENTIFICATIONS ARE BASED ON INTERNATIONAL SOCIETY OF AUTOMATION, STANDARD PRACTICE ANSI/ISA-5.1 (2009). SOME MODIFICATIONS, ADDITIONS, AND ALTERATIONS HAVE BEEN MADE AS NEEDED TO ACCOMMODATE THE PROJECT REQUIREMENTS.
2. SOME CONTROL AND INTERLOCK REQUIREMENTS WHICH CAN BE MORE CLEARLY ILLUSTRATED ON SCHEMATIC DRAWINGS HAVE BEEN OMITTED FROM P&ID DRAWINGS.
3. THIS IS A GENERAL LEGEND SHEET. SOME SYMBOLS AND ABBREVIATIONS MAY NOT BE UTILIZED ON THIS SPECIFIC PROJECT. PIPING AND EQUIPMENT LEGEND APPLIES TO P&ID SHEETS.

PIPELINE MATERIAL CODE ABBREVIATIONS

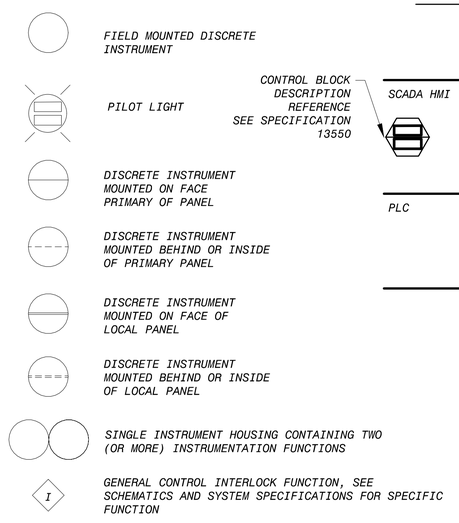
PCCP	SECTION 40 05 39.14, PRESTRESSED CONCRETE CYLINDER PIPE
CBWS	SECTION 40 05 39.16, CONCRETE BAR-WRAPPED, STEEL CYLINDER PIPE
RCP	SECTION 40 05 39.24, CONCRETE PIPE
PVC	SECTION 40 05 31.12, POLYVINYL CHLORIDE PIPE
DIP	SECTION 40 05 19, DUCTILE IRON PIPE
SP	SECTION 40 05 24, STEEL PIPE
SS-XX1	SECTION 40 05 23, STAINLESS STEEL PIPE, TUBING, AND ACCESSORIES
CSG-XX	SECTION 40 05 24.43, MISC. STEEL PIPE, TUBING, AND ACCESSORIES
CS-XX	SECTION 40 05 24.43, MISC. STEEL PIPE, TUBING, AND ACCESSORIES
FRPE-XX	SECTION 40 05 36.11, FIBERGLASS REINFORCED PLASTIC PIPE (EXHAUST AIR SERVICE)
FRP-XX	SECTION 40 05 32, MISCELLANEOUS PLASTIC PIPE, TUBING, AND ACCESSORIES
PVC-XX	SECTION 40 05 32, MISCELLANEOUS PLASTIC PIPE, TUBING, AND ACCESSORIES
CPVC-XX	SECTION 40 05 32, MISCELLANEOUS PLASTIC PIPE, TUBING, AND ACCESSORIES
PE-XX	SECTION 40 05 32, MISCELLANEOUS PLASTIC PIPE, TUBING, AND ACCESSORIES
PP-XX	SECTION 40 05 32, MISCELLANEOUS PLASTIC PIPE, TUBING, AND ACCESSORIES
PVDF-XX	SECTION 40 05 32, MISCELLANEOUS PLASTIC PIPE, TUBING, AND ACCESSORIES
RPT-XX	SECTION 40 05 32, MISCELLANEOUS PLASTIC PIPE, TUBING, AND ACCESSORIES
CI-XX	SECTION 22 13 17, CAST IRON SOIL PIPE AND ACCESSORIES
CU-XX	SECTION 40 05 17, COPPER TUBING AND ACCESSORIES
BR-XX	SECTION 40 05 41, MISCELLANEOUS PIPING AND PIPE ASSEMBLY
HS-XX	SECTION 40 05 41, MISCELLANEOUS PIPING AND PIPE ASSEMBLY
TG-XX	SECTION 40 05 41, MISCELLANEOUS PIPING AND PIPE ASSEMBLY
CRP-XX	SECTION 40 05 41, MISCELLANEOUS PIPING AND PIPE ASSEMBLY

1. XX= numbers 01-20

INSTRUMENT AND I/O ABBREVIATION DEFINITIONS

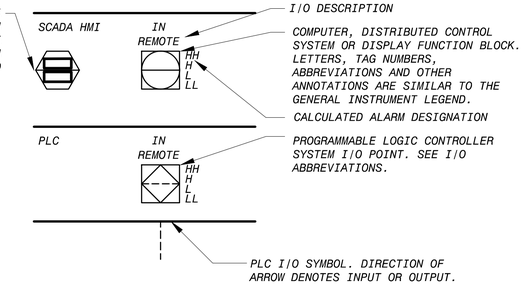
AAH	ANALYZER ALARM HIGH
AAHH	ANALYZER ALARM HIGH-HIGH
AAL	ANALYZER ALARM LOW
AALL	ANALYZER ALARM LOW-LOW
AAX	ALARM HORN
AAL	STROBE ALARM LIGHT
AE	ANALYZER SENSOR
AI	ANALYZER INDICATION
AIT	ANALYZER INDICATING TRANSMITTER
ASH	ANALYZER SWITCH HIGH
ASHH	ANALYZER SWITCH HIGH-HIGH
CB	CONTROL BLOCK REFERENCE (SCADA LEVEL)
FAL	FLOW ALARM LOW
FAH	FLOW ALARM HIGH
FC	FLOW CONTROLLER
FI	FLOW DIGITAL INDICATOR (LED OR SCREEN)
FIC	FLOW INDICATING CONTROLLER
FE	PRIMARY FLOW ELEMENT/SENSOR
FG	FLOW SIGHT GAUGE
FIT	FLOW INDICATING TRANSMITTER
FQG	FLOW TOTALIZING GAUGE
FQIT	FLOW TOTALIZING INDICATING TRANSMITTER
FSH	FLOW SWITCH HIGH
FSL	FLOW SWITCH LOW
FY	FLOW SIGNAL CONVERTER, REPEATER, OR ISOLATOR
HIC	HAND INDICATING CONTROLLER
HMS	MOMENTARY PUSHBUTTON OR SELECTOR SWITCH
HS	HAND SWITCH
IE	CURRENT ELEMENT/SENSOR
IAH	CURRENT ALARM HIGH (MOTOR OVERLOAD)
ISH	CURRENT SWITCH HIGH USED TO DETECT HIGH TORQUE)
JA	POWER FAILURE ALARM
JI	POWER INDICATOR
JL	POWER INDICATING LIGHT
JIT	POWER INDICATING TRANSMITTER
KQI	TIME TOTALIZING INDICATOR
LAL	LEVEL ALARM LOW
LALL	LEVEL ALARM LOW-LOW
LAH	LEVEL ALARM HIGH
LAHH	LEVEL ALARM HIGH-HIGH
LE	PRIMARY LEVEL ELEMENT/SENSOR
LG	LEVEL SIGHT GAUGE
LI	LEVEL INDICATOR (LED OR SCREEN)
LSL	LEVEL SWITCH LOW
LSLL	LEVEL SWITCH LOW LOW
LSH	LEVEL SWITCH HIGH
LSHH	LEVEL SWITCH HIGH-HIGH
LY	LEVEL SIGNAL CONVERTER, ISOLATOR, OR REPEATER
MSH	MOISTURE DETECTOR HIGH
PAL	PRESSURE ALARM LOW
PALL	PRESSURE ALARM LOW-LOW
PAH	PRESSURE ALARM HIGH
PAHH	PRESSURE ALARM HIGH-HIGH
PDG	DIFFERENTIAL PRESSURE GAUGE
PDI	DIFFERENTIAL PRESSURE INDICATOR (LED OR SCREEN)
PDIT	DIFFERENTIAL PRESSURE INDICATING TRANSMITTER
PDAH	DIFFERENTIAL PRESSURE ALARM HIGH
PDSH	DIFFERENTIAL PRESSURE ALARM HIGH-HIGH
PDSHH	DIFFERENTIAL PRESSURE SWITCH HIGH
PDSL	DIFFERENTIAL PRESSURE SWITCH HIGH-HIGH
PDSLL	DIFFERENTIAL PRESSURE SWITCH LOW
PE	DIFFERENTIAL PRESSURE SWITCH LOW-LOW
PG	PRESSURE SENSOR
PI	PRESSURE GAUGE
PIT	PRESSURE INDICATOR (LED OR SCREEN)
PSL	PRESSURE INDICATING TRANSMITTER
PSH	PRESSURE SWITCH LOW
SI	PRESSURE SWITCH HIGH
SC	SPEED INDICATION (LED OR SCREEN)
SIT	SPEED CONTROL
SSL	SPEED INDICATING TRANSMITTER
SIT	SPEED SWITCH LOW
TAH	SPEED INDICATING TRANSMITTER
TAHH	TEMPERATURE ALARM HIGH
TAL	TEMPERATURE ALARM HIGH-HIGH
TDI	TEMPERATURE ALARM LOW
TDIT	DIFFERENTIAL TEMPERATURE INDICATOR (LED OR SCREEN)
TE	DIFFERENTIAL TEMPERATURE TRANSMITTER
TSH	TEMPERATURE SENSOR/RESISTANCE
TSHH	TEMPERATURE DETECTOR
TSL	TEMPERATURE SWITCH HIGH
TG	TEMPERATURE SWITCH HIGH HIGH
TI	TEMPERATURE SWITCH LOW
TIT	TEMPERATURE GAUGE
UA	TEMPERATURE INDICATOR (LED OR SCREEN)
UCR	TEMPERATURE INDICATING TRANSMITTER
UCS	MULTIVARIABLE/COMMON ALARM/COMMON FAULT
VAH	RUN COMMAND
WAH	STOP COMMAND
WAHH	VIBRATION ALARM HIGH
WSH	TORQUE ALARM HIGH
WSHH	TORQUE ALARM HIGH HIGH
WE	TORQUE SWITCH HIGH
WG	TORQUE SWITCH HIGH-HIGH
WIT	PRIMARY WEIGHT SENSOR/LOAD CELL
YA	WEIGHT GAUGE
YI	WEIGHT INDICATING TRANSMITTER
YIR	GENERAL ALARM EVENT
YIS	EVENT INDICATION (LED OR SCREEN)
YL	RUNNING INDICATION
YLR	STOPPED INDICATION
YLS	EVENT INDICATING LIGHT
ZI	RUNNING INDICATING LIGHT
ZIC	STOPPED INDICATING LIGHT
ZIO	POSITION INDICATOR
ZLC	CLOSED INDICATION
ZLO	OPEN INDICATION
ZSC	CLOSED INDICATING LIGHT
ZSO	OPEN INDICATING LIGHT
ZIT	CLOSED POSITION SWITCH
ZT	OPEN POSITION SWITCH
	POSITION INDICATING TRANSMITTER
	POSITION TRANSMITTER

GENERAL INSTRUMENT SYMBOLS



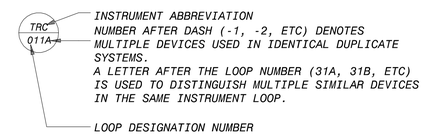
DIGITAL SYSTEMS INTERFACE SYMBOLS

NOTE: REFER TO DETAILED SYSTEM SPECIFICATIONS FOR FUNCTIONAL DESCRIPTION. ALSO SEE I/O SCHEDULES FOR COMPLETE INPUT AND OUTPUT LISTINGS.



- △ DISCRETE INPUT
- ▽ DISCRETE OUTPUT
- ▲ ANALOG INPUT
- ▼ ANALOG OUTPUT
- ◬ PULSE INPUT

INSTRUMENTATION SYMBOLOGY AND DESIGNATIONS



FUNCTION DESIGNATIONS AND ABBREVIATIONS

MEASUREMENT PRINCIPLE NOTATIONS

CON	CONDUCTANCE
DP	DIFFERENTIAL PRESSURE SENSING
FLN	FLOW NOZZLE
FLT	FLOW TUBE
GWR	GUIDED WAVE RADAR
RAD	RADAR
US	ULTRASONIC
VENT	VENTURI TUBE

CALCULATED ALARM DESIGNATIONS

L	LOW
LL	LOW-LOW
H	HIGH
HH	HIGH-HIGH

INDICATING LIGHT/ALARM DESIGNATIONS

OL	OVERLOAD
TRQ HI	TORQUE HIGH
TRQ HI-HI	TORQUE HIGH-HIGH

OTHER ABBREVIATIONS

DOB	DRIVE-IN-BYPASS
I/N	ISOLATE / NORMAL

INSTRUMENT FUNCTIONS

K	GAIN OR ATTENUATE (INPUT:OUTPUT)
-K	GAIN AND REVERSE
Σ	ADD OR SUM (ADD AND SUBTRACT)
Δ	SUBTRACT (DIFFERENCE)
√‾	EXTRACT SQUARE ROOT
÷	DIVIDE
F(X)	CHARACTERIZE SIGNAL
>	HIGH-SELECT
<	LOW-SELECT
×	MULTIPLY
∫	INTEGRATE (TIME INTEGRAL)
CH4	METHANE
CL2	CHLORINE RESIDUAL
CO2	CARBON DIOXIDE
COND	CONDUCTIVITY
DO	DISSOLVED OXYGEN
FL	FLUORIDE
H2S	HYDROGEN SULFIDE
LEL	LOWER EXPLOSIVE LIMIT
MCC	MOTOR CONTROL CENTER
MLSS	MIXED LIQUOR SUSPENDED SOLIDS
02	OXYGEN (PURITY)
03	OZONE
PCN	PARTICLE COUNTER
pH	pH
SCD	STREAMING CURRENT DETECTOR
TURB	TURBIDITY
HI RNG TURB	HIGH RANGE TURBIDITY

HAND SWITCH DESIGNATIONS

FR	FORWARD-REVERSE
HOA	HAND-OFF-AUTO
HOR	HAND-OFF-REMOTE
LOA	LOCAL-OFF-AUTO
LOR	LOCAL-OFF-REMOTE
LOS	LOCAL-OFF-SWITCH
LR	LOCAL REMOTE
OCA	OPEN-CLOSE-AUTO
OOA	ON-OFF-AUTO
OC	OPEN-CLOSE
OO	ON-OFF
OOR	ON-OFF-REMOTE
OSC	OPEN-STOP-CLOSE
OO/R	ON-OFF/RESET
I/N	ISOLATE/NORMAL
DOB	DRIVE/OFF/BYPASS

TRANSDUCER & CONVERTER DESIGNATION

E	VOLTAGE
FSK	FREQUENCY SHIFT KEYING
H	HYDRAULIC
I	CURRENT
P	PNEUMATIC PULSE
PD	PULSE DURATION
PF	PULSE FREQUENCY
R	RESISTANCE (ELECTRICAL)

EXAMPLE: I/P = CURRENT TO PNEUMATIC TRANSDUCER

POWER SUPPLY ABBREVIATIONS

AS	AIR SUPPLY
ES	ELECTRIC SUPPLY
GS	GAS SUPPLY
HS	HYDRAULIC SUPPLY
NS	NITROGEN SUPPLY
SS	STEAM SUPPLY
WS	WATER SUPPLY
120V	120VAC

120V — POWER SUPPLY SOURCE LABEL. USED ONLY WHERE NECESSARY TO HELP CLARIFY AN INSTRUMENT OR SYSTEM FUNCTION.

ISSUED FOR CONSTRUCTION

NO.	BY	CK	APP	DATE	REVISIONS AND RECORD OF ISSUE
C	AD	LB	MNT	SEPT 2022	100% SUBMITTAL
B	AD	LB	MNT	JUL 2022	90% SUBMITTAL
A	AD	RT	MT	MAR 2021	50% SUBMITTAL

50.3052 - MLS 39-A
I-02.dwg
SAVED: DUT48884, 9/15/2022 10:38:39 AM
PLOTTED: DUT48884, 9/15/2022 12:18:26 PM
USER: DUT48884
DWG VER: 1002
XREF1:
XREF2:
XREF3:
XREF4:

THIS DRAWING WAS ORIGINALLY APPROVED FOR CONSTRUCTION BY LARRY BROUILLETTE, ON 09/16/2022 AND SEALED BY LARRY BROUILLETTE, A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF FLORIDA, NO. 57973

Manatee County Florida

BLACK & VEATCH

Black & Veatch Corporation
3405 W. Dr. M. L. King Jr. Blvd. Suite 125
Tampa, Florida Certificate No. 8132

MANATEE COUNTY, FLORIDA
IMPROVEMENTS AT
MASTER LIFT STATION 39-A

INSTRUMENTATION
LEGEND & ABBREVIATIONS
SHEET 2 OF 3

DESIGNED: UB
DETAILED: PR/AD
CHECKED: LB
APPROVED: MNT
DATE: SEPT 2022

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
402142

I-02
SHEET
40 OF 45

FD7000
402142

SYSTEM CODE ABBREVIATIONS

ACE	ACETIC ACID	FLC	FLOCCULATION	R	RESIDUALS
ACT	ACETYLENE	GOX	GASEOUS OXYGEN	RAS	RETURN ACTIVATED SLUDGE
GAC	ACTIVATED CARBON - GRANULAR	GSL	GASOLINE	ROS	REVERSE OSMOSIS
AIR	AERATION AIR/PROCESS AIR	GRS	GREASE	SCR	SCREENINGS
AER	AERATION SYSTEM	GRT	GRIT	SCL	SECONDARY CLARIFICATION
AW	AIR WASH	HEL	HELIUM	SSC	SECONDARY SCUM
ALS	ALUMINUM SULFATE	HFL	HYDRAULIC FLUID	SED	SEDIMENTATION BASINS
NSO4	AMMONIUM SULFATE	HCL	HYDROCHLORIC ACID	SEP	SEPTAGE
NH3	ANHYDROUS AMMONIA	HFS	HYDROFLUOSILIC ACID (FLUORIDE)	SET	SETTLED WATER
AS	ANTI-SEALANT	HYD	HYDROGEN	SEW	SEWAGE
NHOH	AQUA AMMONIA	PER	HYDROGEN PEROXIDE	NAC	SODA ASH
ARG	ARGON	INC	INCINERATION	NAL	SODIUM ALUMINATE
ASH	ASH	INFP	INFLUENT PUMPING	NAM	SODIUM ALUMINATE
BWH	BACKWASH - MEMBRANE/FILTER	INT	INTAKE	NBC	SODIUM BICARBONATE
BAL	BALLASTED FLOCCULATION	LAG	LAGOON STORAGE	SB	SODIUM BISULFITE
BIO	BIOSOLIDS	LAP	LAND APPLICATION	NCL	SODIUM CHLORIDE
BIT	BIOTOWER	CAH	LIME - HYDRATED	NCL2	SODIUM CHLORITE
BLS	BLENDED SLUDGE	CAO	LIME - QUICKLIME	NAF	SODIUM FLUORIDE
BNR	BNR	LIM	LIME STABILIZATION	NAX	SODIUM HEXAMETAPHOSPHATE
BRN	BRINE	LOX	LIQUID OXYGEN	NAOH	SODIUM HYDROXIDE
CACL	CALCIUM HYPOCHLORITE	LPG	LP GAS OR PROPANE GAS	NOCL	SODIUM HYPOCHLORITE
CATS	CALCIUM THIOSULFATE	MGOH	MAGNESIUM HYDROXIDE	NASF	SODIUM SILICOFLUORIDE
CO2	CARBON DIOXIDE	MEM	MEMBRANE	STM	STEAM
CAS	CARBON SLURRY	MEG	METHANE GAS	STS	STORM SEWER
HCO3	CARBONIC ACID	MTH	METHANOL	STW	STORM WATER
CEN	CENTRATE	MXL	MIXED LIQUOR	SO2	SULFUR DIOXIDE
CEB	CHEMICAL ENHANCED BACKWASH - MEMBRANE	MLS	MASTER LIFT STATION	HSO4	SULFURIC ACID
CL2	CHLORINE	NG	NATURAL GAS	SW	SURFACE WASH
CLO2	CHLORINE DIOXIDE	NIT	NITROGEN	TERT	TERTIARY TREATMENT
CA	CITRIC ACID	NIO	NITROUS OXIDE	TPRS	THICKENED PRIMARY SLUDGE
CIP	CLEAN IN PLACE	ODC	ODOR CONTROL	TWAS	THICKENED WASTE ACTIVATED SLUDGE
COA	COAGULATION	OIL	OIL	THCK	THICKENING
CAI	COMPRESSED AIR - INSTRUMENT	FO	OIL - FUEL	TW	TREATED WATER
CMS	COMPRESSED AIR - SERVICE	OZN	OZONE	TF	TRICKLING FILTER
CUS	COPPER SULFATE	OZD	OZONE DESTRUCT	UV	ULTRAVIOLET
CI	CORROSION INHIBITOR	PPP	PHOSPHATE	VAC	VACUUM
DCL	DECHLORINATION	PO4	PHOSPHORIC ACID	WW	WASH WATER
DET	DETERGENT	PCL	POLYALUMINUM CHLORIDE	WAS	WASTE ACTIVATED SLUDGE
DWT	DEWATERING	POLF	POLYMER	WWW	WASTE WASH WATER
FUE	DIESEL FUEL	PP	POTASSIUM PERMANGANATE	CDW	WATER - CONDENSATE
DGG	DIGESTER GAS	PAC	POWDERED ACTIVATE CARBON	COLW	WATER - COOLING
DGM	DIGESTER GAS MIXING	PAR	PRE-AERATION	DW	WATER - DISTILLED WATER
DGS	DIGESTER SLUDGE	PDPS	PLANT DRAIN PUMP STATION	FW	WATER - FIRE
DGA	DIGESTION - AEROBIC	PSD	PRESEDIMENTATION	IRW	WATER - IRRIGATION
DIG	DIGESTION - ANAEROBIC	PRC	PRIMARY CLARIFICATION	OZW	WATER - OZONATED
DCB	DISINFECTION CONTACT BASIN	PSC	PRIMARY SCUM	SWT	WATER - SEAL
DAF	DISSOLVED AIR FLOTATION	PRS	PRIMARY SLUDGE	HW	WATER - WATER HEATING
DRN	DRAINAGE	WWP	RAW WASTEWATER PUMPING	DEIW	WATER DEIONIZED
EFP	EFFLUENT PUMPING	RWP	RAW WATER PUMPING	NPW	WATER NON-POTABLE
EXH	ENGINE EXHAUST	RWS	RAW WATER STORAGE	PEW	WATER PLANT EFFLUENT
EQB	EQUALIZATION BASIN	RCS	RECIRCULATED SLUDGE	PW	WATER POTABLE
FEC	FERRIC CHLORIDE	RCW	RECLAIMED WATER	RW	RAW WATER
FES	FERRIC SULFATE	REF	REFRIGERANT	WWT	WET WEATHER TREATMENT
FRC	FERROUS CHLORIDE			ZO	ZINC ORTHOPHOSPHATE
FRS	FERROUS SULFATE				
FLT	FILTRATION				

PROCESS CODE ABBREVIATIONS

ACE_X	ACETIC ACID	FLC_X	FLOCCULATION	RES_X	RESIDUALS
ACT_X	ACETYLENE	GOX_X	GASEOUS OXYGEN	RAS_X	RETURN ACTIVATED SLUDGE
GAC_X	ACTIVATED CARBON - GRANULAR	GSL_X	GASOLINE	ROS_X	REVERSE OSMOSIS
AIR_X	AERATION AIR/PROCESS AIR	GRS_X	GREASE	SCR_X	SCREENINGS
AER_X	AERATION SYSTEM	GRT_X	GRIT	SCL_X	SECONDARY CLARIFICATION
ARW_X	AIR WASH	HEL_X	HELIUM	SSC_X	SECONDARY SCUM
ALS_X	ALUMINUM SULFATE	HFL_X	HYDRAULIC FLUID	SEP_X	SEPTAGE
NSO4_X	AMMONIUM SULFATE	HCL_X	HYDROCHLORIC ACID	SET_X	SETTLED WATER
NH3_X	ANHYDROUS AMMONIA	HFS_X	HYDROFLUOSILIC ACID (FLUORIDE)	SEW_X	SEWAGE
AS_X	ANTI-SEALANT	HYD_X	HYDROGEN	NAC_X	SODA ASH
NHOH_X	AQUA AMMONIA	PER_X	HYDROGEN PEROXIDE	NAL_X	SODIUM ALUMINATE
ARG_X	ARGON	INC_X	INCINERATION	NAM_X	SODIUM ALUMINATE
ASH_X	ASH	INFP_X	INFLUENT PUMPING	NBC_X	SODIUM BICARBONATE
BWH_X	BACKWASH - MEMBRANE/FILTER	INT_X	INTAKE	NHS_X	SODIUM BISULFITE
BAL_X	BALLASTED FLOCCULATION	LAG_X	LAGOON STORAGE	NCL_X	SODIUM CHLORIDE
BNR_X	BIOSOLIDS	LAP_X	LAND APPLICATION	NCL2_X	SODIUM CHLORITE
BIO_X	BIOTOWER	CAH_X	LIME - HYDRATED	NAF_X	SODIUM FLUORIDE
BIT_X	BLENDED SLUDGE	CAO_X	LIME - QUICKLIME	NAX_X	SODIUM HEXAMETAPHOSPHATE
BLS_X	BNR	LIM_X	LIME STABILIZATION	NAOH_X	SODIUM HYDROXIDE
BRN_X	BRINE	LOX_X	LIQUID OXYGEN	NOCL_X	SODIUM HYPOCHLORITE
CACL_X	CALCIUM HYPOCHLORITE	LPG_X	LP GAS OR PROPANE GAS	NASF_X	SODIUM SILICOFLUORIDE
CATS_X	CALCIUM THIOSULFATE	MGOH_X	MAGNESIUM HYDROXIDE	STM_X	STEAM
CO2_X	CARBON DIOXIDE	MEM_X	MEMBRANE	STS_X	STORM SEWER
CAS_X	CARBON SLURRY	MEG_X	METHANE GAS	STW_X	STORM WATER
HCO3_X	CARBONIC ACID	MTH_X	METHANOL	SO2_X	SULFUR DIOXIDE
CEN_X	CENTRATE	MXL_X	MIXED LIQUOR	HSO4_X	SULFURIC ACID
CEB_X	CHEMICAL ENHANCED BACKWASH - MEMBRANE	NG_X	NATURAL GAS	SW_X	SURFACE WASH
CL2_X	CHLORINE	NIT_X	NITROGEN	TERT_X	TERTIARY TREATMENT
CLO2_X	CHLORINE DIOXIDE	NIO_X	NITROUS OXIDE	TPRS_X	THICKENED PRIMARY SLUDGE
CA_X	CITRIC ACID	ODC_X	ODOR CONTROL	TWAS_X	THICKENED WASTE ACTIVATED SLUDGE
CIP_X	CLEAN IN PLACE	FO_X	OIL	THCK_X	THICKENING
COA_X	COAGULATION	OIL_X	OIL - FUEL	TW_X	TREATED WATER
CAI_X	COMPRESSED AIR - INSTRUMENT	OZN_X	OZONE	TF_X	TRICKLING FILTER
CMS_X	COMPRESSED AIR - SERVICE	OZD_X	OZONE DESTRUCT	UV_X	ULTRAVIOLET
CUS_X	COPPER SULFATE	PPP_X	PHOSPHATE	VAC_X	VACUUM
CI_X	CORROSION INHIBITOR	PO4_X	PHOSPHORIC ACID	WW_X	WASH WATER
DCL_X	DECHLORINATION	PCL_X	POLYALUMINUM CHLORIDE	WAS_X	WASTE ACTIVATED SLUDGE
DET_X	DETERGENT	POLF_X	POLYMER	WWW_X	WASTE WASH WATER
DWT_X	DEWATERING	KMN_X	POTASSIUM PERMANGANATE	CDW_X	WATER - CONDENSATE
FUE_X	DIESEL FUEL	PAC_X	POWDERED ACTIVATE CARBON	COLW_X	WATER - COOLING
DGG_X	DIGESTER GAS	PAR_X	PRE-AERATION	DW_X	WATER - DISTILLED WATER
DGM_X	DIGESTER GAS MIXING	PSD_X	PRESEDIMENTATION	FW_X	WATER - FIRE
DGS_X	DIGESTER SLUDGE	PRC_X	PRIMARY CLARIFICATION	IRW_X	WATER - IRRIGATION
DGA_X	DIGESTION - AEROBIC	PSC_X	PRIMARY SCUM	OZW_X	WATER - OZONATED
DIG_X	DIGESTION - ANAEROBIC	PRS_X	PRIMARY SLUDGE	SWT_X	WATER - SEAL
DCB_X	DISINFECTION CONTACT BASIN	WWP_X	RAW WASTEWATER PUMPING	HW_X	WATER - WATER HEATING
DAF_X	DISSOLVED AIR FLOTATION	RWP_X	RAW WATER PUMPING	DEIW_X	WATER DEIONIZED
DRN_X	DRAINAGE	RWS_X	RAW WATER STORAGE	NPW_X	WATER NON-POTABLE
EFP_X	EFFLUENT PUMPING	RCS_X	RECIRCULATED SLUDGE	PEW_X	WATER PLANT EFFLUENT
EXH_X	ENGINE EXHAUST	RCW_X	RECLAIMED WATER	PW_X	WATER POTABLE
EQB_X	EQUALIZATION BASIN	REF_X	REFRIGERANT	RW_X	WATER RAW
FEC_X	FERRIC CHLORIDE			WWT_X	WET WEATHER TREATMENT
FES_X	FERRIC SULFATE			ZOP_X	ZINC ORTHOPHOSPHATE
FRC_X	FERROUS CHLORIDE				
FRS_X	FERROUS SULFATE				
FLT_X	FILTRATION				

X = PROCESS CODE SUFFIX USED TO FURTHER SPECIFY A PROCESS STREAM (I.E. CL2_G FOR CHLORINE GAS OR CL2_S FOR CHLORINE SOLUTION)

FUNCTION CODE ABBREVIATIONS

ACMB	ACTIVATION CHAMBER	DWS	DEWATERING SCREW	HSC	HOIST, CHAIN	RSV	RESERVOIR
AFD	ADJUSTABLE FREQUENCY DRIVE	DPS	DIAPHRAGM SEAL	HSE	HOIST, WIRE ROPE	RCO	RESIDUAL COLLECTOR
ACD	AERATOR, COARSE BUBBLE DIFFUSED	DIF	DIFFUSER, CHANNEL	HYDF	HYDRANT, FIRE	RM	ROTAMETER
AEFD	AERATOR, FINE PORE DIFFUSED	DFB	DIFFUSER BANK	HYDW	HYDRANT, WALL	RD	RUPTURE DISK
AFS	AERATOR, FLOATING SURFACE	DIP	DIFFUSER, PIPELINE	HYC	HYDROCYCLONE	SAMP	SAMPLER
AES	AERATOR, SURFACE	DIR	DIFFUSER, TANK	INJ	INJECTOR, CHEMICAL	SCL	SCALE
AFC	AFTERCOOLER	DGE	DIGESTER, AEROBIC	LS	LIME SLAKER	SC	SCALE, WEIGHT
AD	AIR DRYER	DGAP	DIGESTER, ANAEROBIC PRIMARY	LCP	LOCAL CONTROL PANEL	SCRHT	SCREEN, HORIZONTAL
AF	AIR FILTER	DGAS	DIGESTER, ANAEROBIC SECONDARY	MFM	MEMBRANE	SCRI	SCREEN, INLINE SLUDGE
AR	AIR RECEIVER OR REGULATOR	DSUV	DISINFECTION UNIT, UV	MBMF	MEMBRANE, MICROFILTRATION	SCRA	SCREEN, MANUAL OR MECH CLEANED BAR
AS	AIR SEPARATOR	DAF	DISSOLVED AIR FLOTATION THICKENER	MBNF	MEMBRANE, NANOFILTRATION	SCRS	SCREEN, STEP
AST	AIR STRIPPER	DUC	DUST COLLECTOR	MBRO	MEMBRANE, REVERSE OSMOSIS	SCT	SCREEN, TRAVELLING WATER
BFP	BACKFLOW PREVENTER	EDC	EDUCTOR	MBUF	MEMBRANE, ULTRAFILTRATION	SCR	SCREEN, VIBRATORY
BSNA	BASIN, AERATION	EG	ENGINE GENERATOR	MXC	MIXER, CARBON	SCU	SCRUBBER
BSNX	BASIN, ANOXIC/OXIC	EQPE	ELECTRICAL EQUIPMENT, GENERAL	FLM	MIXER, FLOCCULATION	SMC	SCUM COLLECTOR
BNR	BASIN, BNR	EWSH	EMERGENCY EYE WASH FOUNTAIN	M	MOTOR	SCW	SCUM WEIR - ROTATING
BSNC	BASIN, CHLORINE CONTACT	ESHR	EMERGENCY SHOWER	MXI	MIXER, IN-LINE	SEP	SEPARATOR, MOISTURE OR CYCLONE
BSNO	BASIN, OXIC	EMEW	EMERGENCY SHOWER & EYEWASH	MXPG	MIXER, PUGMILL	SGT	SIGHT GLASS - TALL
RBSN	BASIN, RECTANGULAR SEDIMENTATION	EQPB	EQUIPMENT, BUILDING SERVICES	MXR	MIXER, RAPID	SG	SIGHT GAUGE
BFPS	BELT FILTER PRESS	EQPT	EQUIPMENT, GENERAL OR UNSPECIFIED	MXS	MIXER, STATIC	SIL	SILENCER
B	BIN (STORAGE - ALL TYPES)	EV	EVAPORATOR	MXP	MIXER, SUBMERSIBLE, PROP OR BLENDER	SLC	SLUDGE COLLECTOR, CIRCULAR
BA	BIN ACTIVATOR	EXC	EXPANSION CHAMBER	MM	MUFFIN MONSTER	SCLR	SLUDGE COLLECTOR, CROSS
BLC	BLOWER, CENTRIFUGAL	FAX	FAN, AXIAL FLOW	ORD	OVERFLOW ROOF DRAIN	SFC	SLUDGE COLLECTOR, FLOC-CLARIFYING
BL	BLOWER, POSITIVE DISPLACEMENT	FAN	FAN, CENTRIFUGAL	ODU	OZONE DESTRUCT UNIT	SCS	SLUDGE COLLECTOR, SEC CLARIFIERS
BLR	BOILER	FST	FENCE STIRRER	OGEN	OZONE GENERATOR	SSC	SLUDGE COLLECTOR, SOLIDS CONTACT
BDZ	BULLDOZER	FTSP	FILTER GAS PARTICULATE	PSU	OZONE POWER SUPPLY UNIT	SLCS	SLUDGE COLLECTOR, STRAIGHT LINE
CCLM	CALIBRATION COLUMN	FLC	FILTER, CARTRIDGE TYPE	PP	PACKAGED PLANT	GRD	SLUDGE GRINDER, INLINE OR CHANNEL
CFG	CENTRIFUGE	FLT	FILTER, UNDERDRAINS OR PRESSURE	PCN	PARTICLE COUNTER	SBL	SOLIDS BLENDER-INLINE
CHF	CHEMICAL FEEDER	FSW	FILTER. SURFACE WASH EQUIPMENT	PLT	PELLETIZER	STR	STRAINER
CGS	CHLORINE GAS SCRUBBER	FTTNG	FITTING, MISCELLANEOUS	PLC	PROGRAMMABLE LOGIC CONTROLLER	STRB	STRAINER BASKET TYPE
PCLR	CLARIFIER, PRIMARY	FAR	FLAME ARRESTER	PS	PENSTOCK	STRY	STRAINER Y TYPE
SCLR	CLARIFIER, SECONDARY	FC	FLAME CHECK	PIPE	PIPE	SRCH	SURGE CHAMBER
CGR	CLASSIFIER, GRIT	FLCH	FLOCCULATOR, HORIZONTAL	PSE	PLATE SETTLER	TSA	TANK, ABOVE GROUND STORAGE
CW	CLEARWELL	FLCV	FLOCCULATOR, VERTICAL	INJ	POLYMER INJECTOR RING	TCN	TANK, AMMONIA STORAGE
CMP	COMPRESSOR	FD	FLOOR DRAIN	PBC	PRESSURE BUILDING COIL	TCR	TANK, CRYOGENIC STORAGE
CMB	COMPRESSOR, LIQUID RING	FS	FLOW SPLITTER	PD	PULSATION DAMPNER	DWT	TANK, DOUBLE WALL
CMR	COMPRESSOR, ROTARY SCREW	FE	FLUME, PARSHALL	PAD	PUMP, AIR DIAPHRAGM	TSE	TANK, ELEVATED STORAGE
CMPS	COMPRESSOR, STEAM	FMSP	FOAM SEPARATOR	PCL	PUMP, CENTRIFUGAL	TX	TANK, EXPANSION
CTR	CONTAINER, PROCESS	FL	FORKLIFT	PDM	PUMP, DIAPHRAGM METERING	TNK	TANK, FRP CHEMICAL STORAGE
COB	CONVEYOR, BELT	CHF	GAS FEEDER	PHW	PUMP, HEATING WATER	TNK	TANK, GENERAL OR UNSPECIFIED
COS	CONVEYOR, SCREW	GF	GAS FLARE	PHE	PUMP, HORIZONTAL END SUCTION	TCP	TANK, METHANOL
CFA	COVER, ALUMINUM DOME BASIN	GWH	GAS WATER HEATER	PSC	PUMP, HORIZONTAL SPLIT CASE	SMPT	TANK, SAMPLER
CFD	COVER, FIXED DIGESTER	GFL	GATE, FLAP	PPS	PUMP, PERISTALTIC	TCS	TANK, CHLORINE CONTACTOR
CFL	COVER, FLOATING DIGESTER	SLG	SLIDE GATE	PPL	PUMP, PLUNGER	TSW	TANK, FLAT TOP STEEL WATER
DCG	COVER, GAS HOLDER	SG	SLUICE GATE	PPC	PUMP, PROGRESSING CAVITY	TRP	TRAP, DRIP
DCM	COVER, MEMBRANE	G	GATE, WEIR	PSE	PUMP, SCREW ENCLOSED	TRPS	TRAP, SEDIMENT
CRN	CRANE	GBT	GRAVITY BELT THICKENER	PSE	PUMP, SCREW OPEN	TRK	TRUCK
CRG	CRANE, GANTRY	GVT	GRAVITY THICKENER	PCL	PUMP, SUBMERSIBLE	TB	TURBINE
CRJ	CRANE, JIB	GRD	GRINDER PULVERIZER	PCH	PUMP, SUBMERSIBLE CHOPPER	TBC	TURBINE COMPRESSOR
CRP	CRANE, PORTABLE GANTRY	GRB	GRIT BASIN, VORTEX TYPE	PSS	PUMP, SUBMERSIBLE SUMP	TBG	TURBINE ENGINE
CRT	CRANE, TRAVELLING BRIDGE	GRV	GRIT SCREW CONCENTRATOR	SP	SUMP PUMP	UPS	UNINTERRUPTABLE POWER SUPPLY
CYL	CYLINDER, CHLORINE	HEX	HEAT EXCHANGER	P	PUMP, POSITIVE DISPLACEMENT, ROTARY, DRUM OR BELL MOUNTED	UVE	UV REACTOR
CYG	CYLINDER, GAS	HST	HOIST	PVD	PUMP, VERTICAL DIFFUSION VANE	UVL	UV REACTOR, HORIZONTAL OR VERTICAL
				PVE	PUMP, VERTICAL END SUCTION		
				PVW	PUMP, VERTICAL WET PIT		

VB	VACUUM BREAK		
VRG	VACUUM REGULATOR		
AVR	VALVE, AIR RELEASE		
CAV	COMBINATION AIR/VACUUM VALVE		
VAG	VALVE, ANGLE		
BV	AWWA BALL VALVE		
BFV	AWWA BUTTERFLY VALVE		
VBFP	VALVE, BACKFLOW PREVENTER		
VBM	VALVE, BALL MISCELLANEOUS		
VC	VALVE, CHECK		
VCN	VALVE, CONE		
VDG	VALVE, DIAPHRAGM OPERATED		
VGD	VALVE, DOUBLE DISC GATE		
EPV	VALVE, ECCENTRIC PLUG		
VER	VALVE, EXPLOSION RELIEF		
VFW	VALVE, FOUR WAY		
GV	GATE VALVE		
V	VALVE, GENERAL OR UNSPECIFIED		
VGL	VALVE, GLOBE		
VBI	VALVE, INDUSTRIAL BUTTERFLY		
VKG	VALVE, KNIFE GATE		
VMR	VALVE, MATERIAL HANDLING ROTARY		
VMD	VALVE, MUD		
VND	VALVE, NEEDLE		
PTV	VALVE, PILOT		
VPN	VALVE, PINCH		
VPO	VALVE, PISTON OPERATED		
PV	NON-ECCENTRIC PLUG VALVE		
VPC	VALVE, PRESSURE REDUCING		
VPC	VALVE, PRESSURE SUSTAINING		
VSP	VALVE, PRESSURE RELIEF		
VSPV	VALVE, PRESSURE/VACUUM RELIEF		
VP	VALVE, PROCESS		
VGR	VALVE, RESILIENT SEATED GATE		
VS	VALVE, SAFETY		
VSLV	VALVE, SLEEVE		
VSL	VALVE, SOLENOID		
VTV	VALVE, TELESCOPING		
VTS	VALVE, THERMAL SHUTOFF		
VTW	VALVE, THREE WAY		
VVB	VALVE, VACUUM BREAKER		
VSV	VALVE, VACUUM RELIEF		
VVP	VALVE, V-PORT BALL		
VAP	VAPORIZER		
VSLB	VESSEL, BOOT		
WC	WEIR, CIPOLETTI		
WR	WEIR, RECTANGULAR		
WV	WEIR, V-NOTCH		
WLHC	WELL, HORIZONTAL COLLECTOR		
WLV	WELL, VERTICAL		

ISSUED FOR CONSTRUCTION

FD7000
402142

NO.	BY	CK	APP
A	AD	RT	MT
B	AD	LB	MNT
C	AD	LB	MNT

REVISIONS AND RECORD OF ISSUE

DATE	
MAR 2021	50% SUBMITTAL
JUL 2022	90% SUBMITTAL
SEPT 2022	100% SUBMITTAL

50.3052 - MLS 39-A
I-03.dwg

XREF1:
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XREF3:
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SAVED: DUT48884, 9/15/2022 12:17:33 PM
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Manatee County FLORIDA

BLACK & VEATCH

Black & Veatch Corporation
3405 W.D. M. L. King Jr. Blvd Suite 125
Tampa, Florida Certificate No. 8132

MANATEE COUNTY, FLORIDA
IMPROVEMENTS AT
MASTER LIFT STATION 39-A

INSTRUMENTATION
LEGEND & ABBREVIATIONS
SHEET 3 OF 3

DESIGNED: UB
DETAILED: PR/AD
CHECKED: LB
APPROVED: MNT
DATE: SEPT 2022

0 1/2 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
402142

I-03
SHEET
41 OF 45

TO ANTENNA THROUGH MODEM

RF CABLE

TO I-05

DFS-RTU362

TYPICAL FOR WET WELL 2

WET WELL 1

COMMUNITOR RUNNING — YIR 100
COMMUNITOR FAIL — YA 100

RUNNING STATUS — YIR 103
RUN COMMAND — UCR 103
SPEED COMMAND — SC 103
SPEED FEEDBACK — SI 103
IN BYPASS — YI 103
FAULT — YA 103
WET WELL1 LEVEL — LI 100
HIGH LEVEL — LAH 100
LOW LEVEL — LAL 100

RUNNING STATUS — YIR 102
RUN COMMAND — UCR 102
SPEED COMMAND — SC 102
SPEED FEEDBACK — SI 102
IN BYPASS — YI 102
FAULT — YA 102

RUNNING STATUS — YIR 101
RUN COMMAND — UCR 101
SPEED COMMAND — SC 101
SPEED FEEDBACK — SI 101
IN BYPASS — YI 101
FAULT — YA 101

FLOW — FT 100
PRESSURE — PT 100
SUMP HIGH LEVEL — LAH 102
ODOR CONTROL — YI 100

EXISTING PANEL (COMMUNITOR) — I

AFD-103: OL — UA 103; BYPASS RUN — YL 103A; YL 103B; PWR — YL 103C; DOB — SI 103, SK 103, HS 103; I/N — HS 103; I
AFD-102: OL — UA 102; BYPASS RUN — YL 102A; YL 102B; PWR — YL 102C; DOB — SI 102, SK 102, HS 102; I/N — HS 102; I
AFD-101: OL — UA 101; BYPASS RUN — YL 101A; YL 101B; PWR — YL 101C; DOB — SI 101, SK 101, HS 101; I/N — HS 101; I

ODOR CONTROL

LT 100
LSH 100, LSL 100
LSH 101, LSL 101

NOTE 4 (TYP)

TO WASTE WATER TREATMENT FACILITY

120V — FIT 100, FE 100
PIT 100
NOTE 3 — PI 103

WET WELL 1
COMMUNITOR
UNTREATED INFLUENT
SCREEN
GV-100
SEE TYPICAL I/Os & CONTROLS

LOS — HS 103, MSH 103, TSH 103
14" DIP — GV-103A — PCL-103 — 12" DIP — VC-103 — GV-103B

GV-106

LOS — HS 102, MSH 102, TSH 102
14" DIP — GV-102A — PCL-102 — 12" DIP — VC-102 — GV-102B

14" DIP

GV-107

LOS — HS 101, MSH 101, TSH 101
14" DIP — GV-101A — PCL-101 — 12" DIP — VC-101 — GV-101B

WET WELL 2

DRY WELL

SUMP — SP-101, SP-102 — LSH 102

480V — LOR 100, OO 101, OO 102 — SPCP-1

NOTES:

1. SEE LEGEND AND ABBREVIATIONS ON DRAWINGS I-01, I-02 AND I-03.
2. FACILITY CODE IS 'MLS' FOR ALL INSTRUMENTATION EQUIPMENT AND VALVES OTHERWISE NOTED.
3. ADD PRESSURE GAUGE TO EXISTING TAP OR PROVIDE NEW TAP AS NEEDED
4. EXISTING WET WELL DEVICES TO BE TERMINATED NEAR THE WET WELL JUNCTION BOX.

ISSUED FOR CONSTRUCTION

NO.	BY	CK APP
C	AD	LB MNT
B	AD	LB MNT
A	AD	RT MT

REVISIONS AND RECORD OF ISSUE

DATE	
SEPT 2022	100% SUBMITTAL
JUL 2022	90% SUBMITTAL
MAR 2021	50% SUBMITTAL

50-3052 - MLS 39-A
I-04.dwg

XREF1:
XREF2:
XREF3:
XREF4:

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DWG VER: 1002

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Manatee County FLORIDA

BLACK & VEATCH

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Tampa, Florida. Certificate No. 8132

MANATEE COUNTY, FLORIDA
IMPROVEMENTS AT
MASTER LIFT STATION 39-A

INSTRUMENTATION P&ID
MASTER LIFT STATION PUMPS

DESIGNED: UB
DETAILED: PR/AD
CHECKED: LB
APPROVED: MNT
DATE: SEPT 2022

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO. 402142

I-04
SHEET 42 OF 45

FD7000
402142

FROM I-05

DFS-RTU362

DFS-RTU362

EMERGENCY CONNECTION — YI 401A

NORMAL CONNECTION — YI 401B

EMERGENCY POWER AVAILABLE — YI 401C

NORMAL POWER AVAILABLE — YI 401D

FUEL METER — LI 401

GENERATOR RUN — YIR 403

GENERATOR FAIL — UA 404

RAIN GAUGE — YI 101

AUTOMATIC TRANSFER SWITCH ATS-401

RAIN GAUGE RG-101

ESTOP HS 401 — REMOTE EMERGENCY SHUTDOWN SWITCH

ENGINE-GENERATOR LOCAL CONTROL PANEL LCP-401

FUEL OIL COOLER (IF REQUIRED FOR PROPER OPERATION)

RETURN FROM ENGINE

ENGINE SUPPLY

FUEL SUPPLY

FILTER/SEPARATOR

FLEXIBLE CONNECTOR (TYP)

ENGINE-GENERATOR GEN-401 (NOTE 4)

LIT 401 — 120V

LE 401 US

FUEL TANK (NOTE 5)

BATTERY CHARGER

ENGINE-GENERATOR PACKAGE

ENGINE-GENERATOR ENCLOSURE

NOTES:

1. SEE LEGEND AND ABBREVIATIONS ON DRAWINGS I-01, I-02 AND I-03.
2. FACILITY CODE IS EG, UNLESS OTHERWISE NOTED.
3. ALL ITEMS INSIDE DASHED LINE IS LOCATED WITHIN THE ENGINE-GENERATOR ENCLOSURE.
4. LOCAL CONTROL DEVICES, SUCH AS LIGHTS AND SWITCHES LOCATED ON EQUIPMENT MAY NOT BE SHOWN ON THIS P&ID.
5. FUEL TANK ACCESSORIES, FUEL PUMPS, VENTS, MISCELLANEOUS EQUIPMENT AND INSTRUMENTS NOT SHOWN FOR CLARITY.

ISSUED FOR CONSTRUCTION

NO.	BY	CK APP
C	AD	LB MNT
B	AD	LB MNT
A	AD	RT MT

REVISIONS AND RECORD OF ISSUE

DATE	
SEPT 2022	100% SUBMITTAL
JUL 2022	90% SUBMITTAL
MAR 2021	50% SUBMITTAL

50.3052 - MLS 39-A

I-05.dwg

XREF1:
XREF2:
XREF3:
XREF4:

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USER:DUT48884 DWG VER:1002

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Manatee County FLORIDA

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MANATEE COUNTY, FLORIDA
IMPROVEMENTS AT
MASTER LIFT STATION 39-A

INSTRUMENTATION P&ID
ENGINE GENERATOR

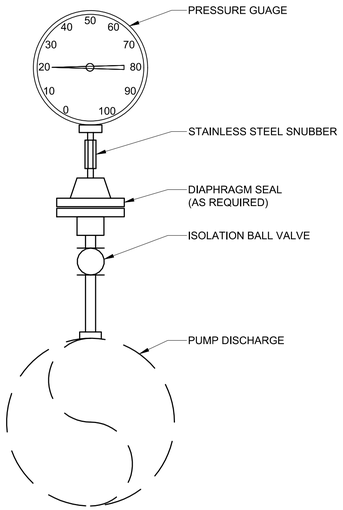
DESIGNED: UB
DETAILED: PR/AD
CHECKED: LB
APPROVED: MNT
DATE: SEPT 2022

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
402142

I-05
SHEET
43 OF 45

FD7000
402142



A PRESSURE GAUGE INSTALLATION DETAIL

NO SCALE
(PIT-103)

ISSUED FOR CONSTRUCTION

NO.	DATE	BY	CK	APP
	REVISIONS AND RECORD OF ISSUE			
C	SEPT 2022	AD	LB	MNT
B	JUL 2022	AD	LB	MNT
A	MAR 2021	AD	RT	MT
	100% SUBMITTAL			
	90% SUBMITTAL			
	50% SUBMITTAL			

50.3052 - MLS 39-A

I-06.dwg

XREF1:
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XREF3:
XREF4:

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MANATEE COUNTY, FLORIDA
IMPROVEMENTS AT
MASTER LIFT STATION 39-A

INSTRUMENTATION
INSTALLATION DETAILS

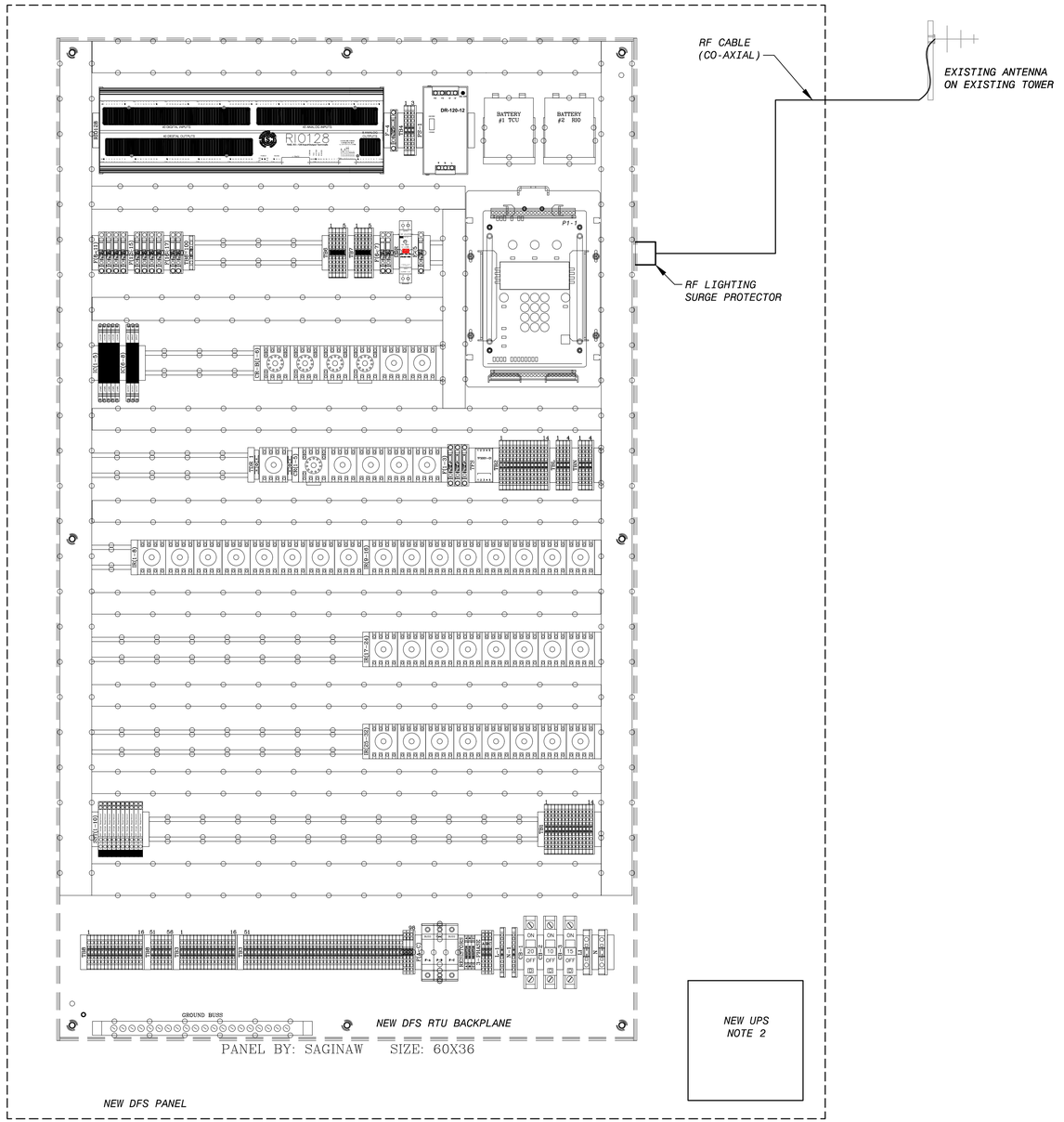
DESIGNED: UB
DETAILED: PR/AD
CHECKED: LB
APPROVED: MNT
DATE: SEPT 2022

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
402142

I-06
SHEET
44 OF 45

FD7000
402142



NOTES:

1. PROVIDE NEW RTU BACKPLANE IN NEW PANEL.
2. PROVIDE NEW "NEWMAR AC UPS 48-2000 IN A CABINET MOUNTED CONFIGURATION.
3. PANEL IS TO BE MODELED ON THE SOUTHEAST MASTER LIFTSTATION 677E PANEL MODIFIED TO ACCOMMODATE THE UPS.

ISSUED FOR CONSTRUCTION

NO.	BY	CK	APP
A	AD	RT	NE
B	AD	LB	MNT
C	AD	LB	MNT

REVISIONS AND RECORD OF ISSUE

DATE	
MAR 2021	50% SUBMITTAL
JUL 2022	90% SUBMITTAL
SEPT 2022	100% SUBMITTAL

50-3052 - WLS 39-A

I-07.dwg

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XREF3:
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Manatee County FLORIDA

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MANATEE COUNTY, FLORIDA
IMPROVEMENTS AT
MASTER LIFT STATION 39-A

INSTRUMENTATION
NETWORK BLOCK DIAGRAM

DESIGNED: UB
DETAILED: PR/AD
CHECKED: LB
APPROVED: MNT
DATE: SEPT 2022

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
402142

I-07
SHEET
45 OF 45

FD7000
402142