MECHANICAL NOTES

1. THESE DRAWINGS HAVE BEEN DEVELOPED FROM THE BEST AVAILABLE INFORMATION. CONTRACTOR SHALL FIELD VERIFY ALL FIELD CONDITIONS, DIMENSIONS, CLEARANCES, LOCATION OF EXISTING UTILITIES, ETC. PRIOR TO BIDDING, FABRICATION, OR INSTALLATION. DO NOT SCALE FROM THESE DRAWINGS.

2. COORDINATE INSTALLATION AMONG TRADES TO AVOID INTERFERENCES. WHERE PIPING AND DUCTWORK ARE ROUTED TOGETHER, INSTALL PIPING BELOW DUCTWORK FOR MAINTENANCE ACCESSIBILITY. INSTALL ALL MECHANICAL SYSTEM COMPONENTS TO PERMIT INSTALLATION OF CEILINGS AT HEIGHTS INDICATED ON THE ARCHITECTURAL DRAWINGS.

3. INSTALL ALL HVAC EQUIPMENT PER MANUFACTURER RECOMMENDATIONS, INCLUDING REQUIRED MAINTENANCE CLEARANCES. PIPING, DUCTWORK, AND CONDUIT ROUTING SHALL NOT BLOCK REQUIRED ACCESS TO EQUIPMENT DOORS OR PANELS.

4. DESIGN BASIS FOR HVAC SYSTEMS, INCLUDING ASSOCIATED PIPING AND ELECTRICAL WORK, IS THE SCHEDULED EQUIPMENT. SUBSTITUTION OF OTHER EQUIPMENT MAY REQUIRE CHANGES IN PIPING, ELECTRICAL POWER SUPPLY, MAINTENANCE CLEARANCES, STRUCTURAL SUPPORTS, ETC. ALL SUCH CHANGES SHALL BE COORDINATED THROUGHOUT ALL TRADES, AND SHALL BE PERFORMED WITH NO EXTENSION OF SCHEDULE, AND AT NO ADDITIONAL COST TO THE OWNER.

5. ARCHITECTURAL GLAZING USED AS THE DESIGN BASIS FOR HVAC LOADS WAS INSULATED LOW E, MAXIMUM U VALUE 0.40 AND A SOLAR HEAT GAIN COEFFICIENT OF 0.40. SUBSTITUTION OF OTHER GLAZING PRODUCTS MAY RESULT IN INADEQUATE COOLING, AND SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER FOR EVALUATION.

6. MOUNT OUTDOOR EQUIPMENT INSTALLED AT GRADE ON 4" THICK REINFORCED CONCRETE PADS. ANCHOR TO PAD.

7. HVAC UNITS WITH MULTIPLE COMPRESSORS SHALL BE PROVIDED WITH INTERTWINED OR ROW-SPLIT EVAPORATOR COILS. FACE-SPLIT EVAPORATOR COILS SHALL NOT BE USED.

8. INSTALL ROOF MOUNTED EQUIPMENT IN ACCORDANCE WITH THE LOCAL CODE REQUIREMENTS FOR CLEARANCE TO EDGE OF BUILDING. INSTALL ROOF MOUNTED EQUIPMENT ON PREFABRICATED ROOF CURBS OR EQUIPMENT RAILS COMPATIBLE WITH ROOF. COORDINATE WITH GENERAL CONTRACTOR.

9. PROVIDE CONDENSER COIL GUARDS FOR ALL EXTERIOR MOUNTED AC EQUIPMENT.

10. FABRICATE NEW DUCTWORK FROM MILL GALVANIZED STEEL SHEET. MATERIAL GAGES, FABRICATION DETAILS, INSTALLATION AND DUCT SUPPORT SHALL BE IN ACCORDANCE WITH SMACNA DUCT CONSTRUCTION STANDARDS. SEAL ALL JOINTS PER SMACNA STANDARDS. DUCTS SHALL BE OF LOCK FORMING QUALITY-GALVANIZED STEEL OF NOT LESS THE FOLLOWING GAUGES UNLESS OTHERWISE NOTED ON DRAWINGS.

DUCT WIDEST DIMENSION	U.S. STANDARD GAUGE
0"-12"	26
13"-30"	24
31"-54"	22
55"-84"	20
85"-UP	18

11. THE INDICATED DUCT ROUTING AND SIZES ARE DIAGRAMMATIC. DO NOT FABRICATE FROM THESE DRAWINGS. FIELD VERIFY ROUTING AND AVAILABLE CLEARANCES. WHERE REQUIRED BY FIELD CONDITIONS, DUCTWORK MAY BE RE-SIZED UTILIZING ASHRAE/SMACNA EQUIVALENT SIZES. NOTIFY ENGINEER AND OBTAIN APPROVAL FOR REQUIRED ROUTING AND SIZE CHANGES PRIOR TO BEGINNING FABRICATION.

12. SMACNA EQUIVALENT ROUND DUCT OR RECTANGULAR DUCT SIZES MAY BE SUBSTITUTED FOR THE DUCT SIZES INDICATED ON THE PLANS. RECTANGULAR SUBSTITUTIONS SHALL MAINTAIN A MAXIMUM OF 3:1 ASPECT RATIO.

13. RIGID SUPPLY, RETURN, OUTSIDE AIR, AND EXHAUST DUCTWORK INSULATION SHALL BE PROVIDED WITH FACTORY APPLIED REINFORCED FOIL VAPOR BARRIER. INSULATION AND VAPOR BARRIER SHALL HAVE A FIRE SMOKE RATING OF 25/50. APPLY INSULATION PER SMACNA STANDARDS.

A. DUCT INSULATION

1. DUCT INSULATION SHALL BE AS FOLLOWS, UNLESS OTHERWISE STATED ON PLANS.
   a. FLAME SPREAD INDEX SHALL NOT EXCEED 25 AND SMOKE DEVELOPED 50.
   b. R-FACTOR FOR BUBBLE WRAP INSULATION SHALL NOT BE LESS THAN 5.2 AND SHALL BE NOT LESS THAN 6.9 PER HANDWRITTEN SHEET.
   c. INTERIOR DUCT WORK IN CONDITIONED SPACE SHALL HAVE INSULATION OF 1" THICK FOIL BACKED FIBERGLASS.
   d. INTERIOR DUCT WORK IN UNCONDITIONED SPACE SHALL HAVE INSULATION OF 2" THICK FOIL BACKED FIBERGLASS (MIN R-6).
   e. EXTERIOR DUCTWORK SHALL BE INSULATED TO R-8 OR BETTER WITH CLOSED CELL INSULATION AND EXTERNALLY WEATHER PROOFED WITH FOSTER'S WEATHERPROOFING MASTIC SYSTEM OR APPROVED EQUIVALENT.

B. INSTALLATION OF DUCTWORK INSULATION
1. GENERAL: INSTALL INSULATION PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS, AND IN ACCORDANCE WITH RECOGNIZED INDUSTRY PRACTICES TO ENSURE THAT INSULATION SERVES ITS INTENDED PURPOSE.
2. INSTALL INSULATION MATERIALS WITH SMOOTH AND EVEN SURFACES
3. CLEAN AND DRY DUCTWORK PRIOR TO INSULATION. BUTT INSULATION JOINTS FIRMLY TOGETHER TO ENSURE COMPLETE AND TIGHT FIT OVER SURFACES TO BE COVERED
   a. MAINTAIN INTEGRITY OF VAPOR-BARRIER ON DUCTWORK INSULATION, AND PROTECT TO ENSURE COMPLETE AND TIGHT FIT OVER SURFACES TO BE COVERED.
   b. EXTEND DUCTWORK INSULATION WITHOUT INTERRUPTION THROUGH WALLS, FLOORS AND SIMILAR DUCTWORK PENETRATIONS, EXCEPT WHERE OTHERWISE INDICATED
   c. DO NOT COMPRESS INSULATION TO LESS THAN 75% ITS ORIGINAL THICKNESS

14. PROVIDE DOUBLE THICKNESS TURNING VANES IN ALL MITERED ELBOWS AND TEES.

15. COMBINATION FIRE/SMOKE DAMPERS ARE TO BE MINIMUM CLASS II AND WIRED TO CLOSE BASED ON DUCT MOUNTED SMOKE DETECTOR SIGNAL AND WIRED TO FIRE ALARM SYSTEM. COORDINATE WITH FIRE ALARM CONTRACTOR.

16. INSULATED FLEXIBLE DUCT SHALL BE UL LISTED, CONSTRUCTED OF A CPE INNER LINER, COATED SPRING STEEL WIRE HELIX WITH FIBERGLASS BLANKET, AND VAPOR BARRIER EQUAL TO THERMAFLEX G-KM BY FLEXIBLE TECHNOLOGIES. INSULATION SHALL HAVE A FIRE SMOKE RATING OF 25/50.

17. MAXIMUM LENGTH OF FLEXIBLE DUCT SHALL BE FIVE FEET, UNLESS OTHERWISE INDICATED.

18. SECURE FLEXIBLE DUCT CONNECTIONS WITH STAINLESS STEEL WORM GEAR CLAMPS AND DUCT TAPE.

19. INSTALL INDOOR FURNACES ON 18 INCH HIGH (OR HIGHER IF CALLED FOR ON PLAN), ANGLE REINFORCED GALVANIZED STEEL PLENUMS INTERNALLY INSULATED WITH 1-INCH THICK DUCTLINER. SET PLENUMS ON A 1/4 INCH THICK NEOPRENE ISOLATION PAD. CONFIGURE UNITS FOR BOTTOM RETURN.

20. WHERE LAY-IN AIR DEVICES ARE SPECIFIED IN AREAS WITH PLASTER OR GYPSUM BOARD CEILINGS, PROVIDE PLASTER FRAMES.

21. SEE REFLECTED CEILING PLAN FOR FINAL LIGHT FIXTURE LOCATIONS AND DIMENSIONS. ADJUST DUCTWORK/DIFFUSER LOCATIONS AS REQUIRED TO SUIT LIGHTING ARRANGEMENT.

22. PIPING MATERIALS AND FITTINGS SHALL BE AS FOLLOWS:

- REFRIGERANT PIPING SHALL BE TYPE L, HARD DRAWN, COPPER TUBING PER ASTM B88; CLEANED, DEHYDRATED, AND SEALED PER ASTM B280, WITH WROUGHT COPPER SOCKET-JOINT FITTINGS AND SILVER SOLDER.
- COIL AND FURNACE CONDENSATE DRAIN PIPING SHALL BE SCHEDULE 40 PVC WITH SOLVENT WELD FITTINGS.

23. INSULATE COIL CONDENSATE DRAIN AND REFRIGERANT SUCTION PIPING WITH 1/2 INCH CLOSED CELL FOAM, "ARMAFLEX" OR EQUAL.

24. PITCH CONDENSATE PIPING TO DRAIN A MINIMUM OF 1/8th INCH PER FOOT. PROVIDE P-TRAPS PER A/C UNIT MANUFACTURER INSTALLATION MANUAL.

25. ROUTE CONDENSATE PIPING TO NEAREST FLOOR OR ROOF DRAIN WITH AIR GAP PER CODE.

26. SUPPORT HORIZONTAL PIPING FROM STRUCTURE WITHIN 1 FOOT OF ELBOWS AND AT THE MAXIMUM INTERVALS SPECIFIED BELOW:

NOMINAL PIPE SIZE	DISTANCE BETWEEN SUPPORTS
1/2 TO 1-1/4 INCH	6'-0"
1-1/2 TO 2-1/2 INCH	10'-0"
3 TO 4 INCH	12'-0"
PVC	4'-0"

SUPPORT VERTICAL PIPING WITH RISER CLAMPS WITHIN 1 FOOT OF ELBOWS AND BENDS.

MECHANICAL NOTES (CONT.)

27. INSTALL REFRIGERANT PIPING PER ANSI B31.5 AND LOCAL MECHANICAL CODE. CLEAN, DEHYDRATE, TEST, AND CHARGE LINES PER A/C MANUFACTURER INSTALLATION SPECIFICATIONS. ROUTE PIPING FROM CONDENSING UNITS INSIDE EXTERIOR WALL AND ABOVE CEILING TO AC UNITS.

28. ALL PIPING PENETRATIONS THROUGH NON-RATED CONSTRUCTION SHALL BE SLEEVED. SEAL PENETRATIONS THROUGH EXTERIOR WALL WEATHERTIGHT WITH SILICONE SEALANT. PROVIDE ESCUTCHEONS AT EXPOSED INTERIOR LOCATIONS. ALL PIPING PENETRATIONS THROUGH RATED CONSTRUCTION SHALL BE SEALED PER UL DETAIL. SEE ARCHITECTURAL FOR LOCATIONS OF RATED CONSTRUCTION.

29. DUCT SMOKE DETECTORS SHALL BE UL LISTED, WITH METAL SAMPLING TUBE. DETECTORS SHALL BE FURNISHED AND INSTALLED BY THE MECHANICAL CONTRACTOR. PROVIDE POWER FROM UNIT SERVED OR AS OTHERWISE NOTED ON ELECTRICAL DRAWINGS AND WIRE TO SHUT DOWN UNIT WHEN PRODUCTS OF COMBUSTION ARE DETECTED. PROVIDE LOCAL AUDIBLE/VISUAL ALARM AND MONITORING. COORDINATE WITH ELECTRICAL CONTRACTOR.

30. NEW THERMOSTATS (OWNER TO DETERMINE FINAL LOCATION) SHALL BE 7-DAY PROGRAMMABLE AND SHALL BE PROGRAMMED TO PERFORM THE FOLLOWING SEQUENCES OF OPERATION:

- UN-OCCUPIED MODE: SYSTEM SHALL CYCLE TO MAINTAIN SET-POINTS OF 80 DEGREES F COOLING AND 65 DEGREES F HEATING. WHERE MOTORIZED OUTSIDE AIR DAMPERS OR ECONOMIZERS ARE PROVIDED, DAMPER SHALL CLOSE, ECONOMIZER OFF.
- OCCUPIED MODE: FAN SHALL RUN CONTINUOUSLY TO PROVIDE REQUIRED VENTILATION. SYSTEM COOLING AND HEATING SHALL CYCLE AS REQUIRED TO MAINTAIN SET-POINTS OF 74 DEGREES F COOLING AND 70 DEGREES F HEATING. WHERE MOTORIZED OUTSIDE AIR DAMPERS OR ECONOMIZERS ARE PROVIDED, DAMPER SHALL OPEN TO MINIMUM POSITION WHEN FAN RUNS. ECONOMIZER SHALL OPERATE IF OUTSIDE AIR ENTHALPY IS LOWER THAN RETURN AIR.

31. COMPLETED HVAC SYSTEMS SHALL BE BALANCED BY THE CONTRACTOR. CONTRACTOR SHALL REPORT TO THE ENGINEER/ARCHITECT ON BEHALF OF THE OWNER.

32. BALANCE ALL HVAC SYSTEMS BY ADJUSTING FAN SPEEDS AND DAMPERS TO PROVIDE DESIGN CFM AT ALL INLETS AND OUTLETS, INCLUDING OUTSIDE AIR QUANTITIES AND AS OTHERWISE REQUIRED FOR THE OWNER'S SATISFACTION.

33. NEW MECHANICAL EQUIPMENT SHALL NOT BE UTILIZED FOR SPACE CONDITIONING DURING CONSTRUCTION. EQUIPMENT SHALL BE OPERATED ONLY AS REQUIRED TO PROVIDE PROPER START-UP, CHECK-OUT, BALANCE, ETC. IN ORDER TO MEET "SUBSTANTIAL COMPLETION" GOALS AND PROVIDE A COMPLETE WORKING SYSTEM TO TURN OVER TO OWNER.

34. MECHANICAL EQUIPMENT SHALL BE AS INDICATED ON THE DRAWINGS. EQUIPMENT OTHER THAN SCHEDULED BRAND AND MODEL MAY BE CONSIDERED PER FULL COMPLIANCE WITH SCHEDULE AND SPECIFICATIONS. MECHANICAL CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY CHANGES AND/OR COSTS ASSOCIATED WITH USING PRODUCTS OTHER THAN THOSE SCHEDULED. HVAC SUPPLIER SHALL HAVE AVAILABLE FACTORY SERVICE TECHNICIANS WITHIN 100 MILE RADIUS OF JOBSITE AND OFFER 24 HR/7 DAY SERVICE, MAINTENANCE AND REPAIRS.

35. EQUIPMENT SUBMITTED, INCLUDING THE SPECIFIED EQUIPMENT SHALL BE FACTORY DIRECT FROM THE MANUFACTURER'S COMMERCIAL SALES OFFICE, INCLUDING FACTORY DIRECT WARRANTY AND SUPPORT. EQUIPMENT SUBMITTED FOR APPROVAL DURING THE SUBMITTAL PROCESS SHALL BE SUBMITTED COMPLETE WITH MANUFACTURER PERFORMANCE DATA AT THE DESIGN CONDITIONS. SUBMITTAL DATA SHALL BE PROVIDED FROM FACTORY AUTHORIZED REPRESENTATIVES. MANUFACTURER CATALOG STANDARD CUT SHEETS ARE NOT ACCEPTABLE. MANUFACTURERS' DESIGNATED DEALERS AND/OR WHOLESALERS ARE NOT A SUBSTITUTE FOR FACTORY SERVICE AND SUPPORT.

36. PROVIDE REQUIRED SEISMIC BRACING AND SUPPORTS PER FLORIDA BUILDING CODE.

37. EXHAUST FAN OPERATION IS TO BE PER EXHAUST FAN SCHEDULE.

38. CHECK OUT AND START UP

A. COMPLETELY CHECK THE UNIT AND TEST ALL REFRIGERANT PIPING INCLUDING EVACUATION, DEHYDRATION AND CHARGING.
B. COMPLETELY CHECK THE ENTIRE CONTROL WIRING SYSTEM, INCLUDING CONTROLS, STARTERS AND INTERLOCKS.
C. START THE SYSTEM MAKING ALL NECESSARY ADJUSTMENTS IN CONTROLS, ETC., FOR COMPLETELY AUTOMATIC OPERATION.
D. UPON COMPLETION OF ALL WORK TESTS, THE CONTRACTOR SHALL INSTRUCT THE OWNER OR HIS/HER REPRESENTATIVE(S) FULLY IN THE OPERATIONS, ADJUSTMENT AND MAINTENANCE OF ALL EQUIPMENT FURNISHED. THE TIME AND A LIST OF REPRESENTATIVES REQUIRED TO BE PRESENT WILL BE AS DIRECTED. TURN OVER ALL SPECIAL WRENCHES, KEYS, ETC., TO THE OWNER AT THIS TIME.
E. THE CONTRACTOR SHALL FURNISH THREE (3) COMPLETE BOUND SETS OF TYPEWRITTEN AND/OR BLUEPRINTED INSTRUCTIONS FOR OPERATING AND MAINTAINING ALL SYSTEMS AND EQUIPMENT INCLUDED IN THE CONTRACT. ALL INSTRUCTIONS SHALL BE SUBMITTED IN DRAFT, FOR APPROVAL, PRIOR TO FINAL ISSUE, MANUFACTURER'S ADVERTISING LITERATURE OF CATALOGS ALONE WILL NOT BE ACCEPTABLE FOR OPERATING AND MAINTENANCE INSTRUCTIONS.
F. THE CONTRACTOR, IN THE INSTRUCTIONS, SHALL INCLUDE A PREVENTIVE MAINTENANCE SCHEDULE FOR THE EQUIPMENT FURNISHED UNDER THE CONTRACT

39. ALL MECHANICAL WORK SHALL BE PERFORMED BY A FLORIDA LICENSED MECHANICAL CONTRACTOR.

40. ALL WORK SHALL BE IN ACCORDANCE WITH THE 2020 FLORIDA BUILDING CODE – MECHANICAL.

41. WARRANTY

A. IN ADDITION TO THE MECHANICAL CONTRACTOR'S ONE YEAR LABOR WARRANTY AND GUARANTEE; THE AIR CONDITIONING MANUFACTURER SHALL PROVIDE A WRITTEN ONE-YEAR WARRANTY ON THAT MANUFACTURER'S EQUIPMENT COVERING ALL PARTS AND AN ADDITIONAL FOUR-YEAR WARRANTY ON THE COMPRESSOR. WARRANTIES SHALL START ON DATE OF FINAL ACCEPTANCE.

42. AIR DISTRIBUTION DEVICES

A. REGISTERS, GRILLS, OR DIFFUSERS, SHALL BE AS SPECIFIED (OR EQUIVALENT) AND OF THE TYPES LISTED HEREIN OR AS SHOWN ON THE PLANS.
B. EACH REGISTER OR GRILL SHALL BE PROVIDED WITH A SPONGE RUBBER GASKET.
C. SIZES, TOGETHER WITH AIR QUANTITIES, ARE SHOWN ON THE DRAWINGS OR ARE SCHEDULED HEREIN.
D. ALL SUPPLY DIFFUSERS ARE TO INCLUDE AN ADJUSTABLE DAMPER.
E. DIFFUSERS AND REGISTERS SHALL BE CENTERED (IN BOTH DIRECTIONS) IN THE CEILING TILE, WHERE APPLICABLE.

43. FLEXIBLE CONNECTIONS

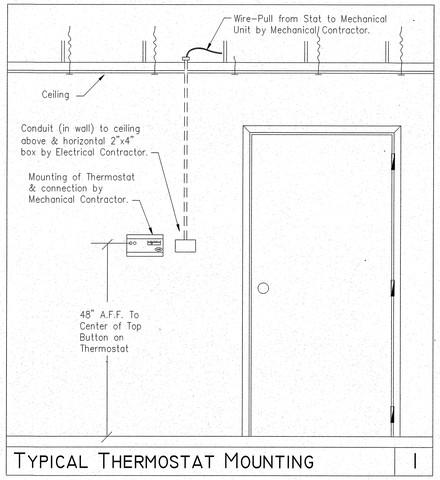
A. FLEXIBLE CONNECTIONS SHALL BE DURO-DYNE, ELGEN, OR VENTFABRICS "VENTGLASS", 4" LONG (MINIMUM), FIRE RESISTANT, AND SUPPORTED AT EACH END WITH AN ANGLE OR BAND IRON FRAME WHICH SHALL BE SECURELY ATTACHED TO DUCTWORK, FANS, ETC., TO FORM AN AIRTIGHT INSTALLATION. FLEXIBLE CONNECTIONS SHALL NOT CONTAIN ASBESTOS.
B. PROVIDE FLEXIBLE CONNECTIONS ON THE INLET AND DISCHARGE SIDES OF ALL AIR HANDLING EQUIPMENT CONNECTED BY DUCTWORK. ALLOW AT LEAST 1" SLACK IN EACH CONNECTION TO INSURE THAT NO VIBRATION IS TRANSMITTED THROUGH THE CONNECTION. SEAL ALL CONNECTIONS; AIR LEAKS WILL NOT BE ACCEPTABLE. VIBRATION SEPARATION: PROVIDE FLEXIBLE DUCT CONNECTORS WHERE DUCTWORK CONNECTS TO AIR HANDLERS, FANS, AND BLOWERS. CONNECTORS SHALL BE AT LEAST 4" LONG WITH METAL SECURING STRIPS ON EACH END. PROVIDE A GROUNDING STRAP ACROSS THE CONNECTION.

44. BALANCING DEVICES

A. DAMPER QUADRANT SHALL HAVE AN INDICATOR SHOWING OPEN AND CLOSED CONDITIONS. PROPERLY LABEL ALL DAMPERS AS TO POSITION AFTER FINAL BALANCING.
B. SPLITTER DAMPERS SHALL BE PROVIDED AT EACH DUCTWORK SPLIT. DAMPERS SHALL BE OF THE PIVOTING BLADE TYPE WITH EXTERNAL ADJUSTMENT AND RAKING DEVICE. DAMPER POSITION SHALL BE VISUALLY INDICATED. LABEL FINAL POSITIONS BY PAINTING ARROWS ON THE DUCTWORK.
C. OUTDOOR AIR DAMPERS SHALL BE PROVIDED AND ADJUSTED TO SUPPLY A MINIMUM OF 10% OUTDOOR AIR TO EACH SYSTEM, OR AS INDICATED ON PLANS.

45. MISCELLANEOUS DUCT REQUIREMENTS

A. DUCT HANGERS SHALL BE RODS OR STRAPS OF ADEQUATE SIZE AND SPACING TO PROVIDE PROPER SUPPORT FOR THE DUCTWORK. PROVIDE SUITABLE BRACING TO PREVENT DUCTWORK FROM VIBRATING OR SWAYING. HANGERS SHALL BE OF THE SAME MATERIAL AS THE DUCTWORK. ANY DUCTWORK FOUND TO VIBRATE SHALL BE REINFORCED OR REWORKED AS REQUIRED BY THE CONTRACTOR TO THE SAME SATISFACTION OF THE OWNER AND MECHANICAL ENGINEER.
B. EXTRACTORS: PROVIDE EXTRACTORS OF PROPER DESIGN AT ALL BRANCH DUCT TAKE-OFFS. THE DEVICE SHALL PROPORTION, DEFLECT, AND DIRECT AIR OF THE CORRECT QUANTITIES TO PRODUCE THE INDICATED DELIVERY CFM WITHOUT OBJECTIONABLE NOISE OR PRESSURE DROP. PROVIDE EXTRACTORS WITH EXTERNAL ADJUSTMENT.
C. DUCT ACCESS DOORS: PROVIDE ACCESS FOR EACH MANUAL OR MOTORIZED DAMPER, FIRE DAMPER AND ELSEWHERE AS NECESSARY FOR ACCESS TO THE DUCT INTERIOR. EQUIP DOORS WITH HAND OPERATED ADJUSTABLE TENSION CATCHES AND FULL PERIMETER GASKETS.
D. TEST OPENINGS: PROVIDE GASKET AND CAPPED TEST OPENINGS FOR TEST EQUIPMENT ON ENTERING AND LEAVING THE SIDES OF THE AIR-HANDLING UNITS. TEST OPENINGS SHALL BE EQUAL TO YOUNG REGULATOR NO.1110.
E. ALL CROSS SECTION DUCT AND ROUND PIPE JOINTS SHALL BE SEALED WITH HARDCAST, INC., VERSA GRIP VG-102, AS PER MANUFACTURER'S INSTRUCTIONS.



TYPICAL THERMOSTAT MOUNTING | I

DONALD H. STONEBURG
LICENSE
No. 85872
STATE OF FLORIDA
PROFESSIONAL ENGINEER
3/29/22

NO	DRAWN BY	CHECKED BY	DATE	DESCRIPTION
0	IBT	DHS	03/28/22	FOR CONSTRUCTION

S.E. Engineering
1733 Campus Plaza Court, Suite 10
Bowling Green, KY 42101
Phone: 270-796-3052
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STAMP:
DONALD H. STONEBURG, P.E.
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BOWLING GREEN, KY 42101
FLORIDA P.E. NO. 85872

CONSULTANT

STAMP:

DRAWINGS FOR:
Starwash Express
925 Lockwood Blvd
Oviedo, FL 32765

SHEET TITLE:
Mechanical Notes

PROJECT NUMBER: 22-1017
FILENAME:
SCALE: AS NOTED
PLOT DATE: 03/28/22
DRAWN BY: IBT

SHEET:
M-0.1

Report Prepared By:

S.E. Engineering

For: Star Wash - Command/Office

Oviedo, FL

Design Conditions: Orlando; Latitude: 28; Time 4:00 PM

Indoor:
Summer temperature: 75
Winter temperature: 72
Relative humidity: 50

Outdoor:
Summer temperature: 93
Winter temperature: 38
Summer grains of moisture: 110
Daily temperature range: 17

Building Component	Sensible Gain (BTUH)	Latent Gain (BTUH)	Total Heat Gain (BTUH)	Total Heat Loss (BTUH)
Windows	6,014	0	6,014	1,176
Partitions	3,334	0	3,334	6,297
Miscellaneous	3,000	0	3,000	0
Ceilings	2,604	0	2,604	1,325
Ventilation	990	1,564	2,554	1,870
People	1,000	800	1,800	0
Doors	1,562	0	1,562	218
Door Leakage	594	938	1,532	2,057
Lights	1,033	0	1,033	0
Walls	267	0	267	777
Infiltration	0	0	0	0
Duct	0	0	0	0
Skylights	0	0	0	0
Floors	0	0	0	464
Whole Building - All Components	**20,398**	**3,302**	**23,700 (2 tons)**	**14,184**

Report Prepared By:

S.E. Engineering

For: Star Wash - Breakroom

Oviedo, FL

Design Conditions: Orlando; Latitude: 28; Time 4:00 PM

Indoor:
Summer temperature: 75
Winter temperature: 72
Relative humidity: 50

Outdoor:
Summer temperature: 93
Winter temperature: 38
Summer grains of moisture: 110
Daily temperature range: 17

Building Component	Sensible Gain (BTUH)	Latent Gain (BTUH)	Total Heat Gain (BTUH)	Total Heat Loss (BTUH)
Partitions	4,048	0	4,048	7,647
Infiltration	1,529	2,415	3,944	3,022
People	1,000	800	1,800	0
Ceilings	1,624	0	1,624	826
Doors	1,562	0	1,562	218
Door Leakage	594	938	1,532	2,057
Lights	746	0	746	0
Walls	173	0	173	486
Miscellaneous	0	0	0	0
Ventilation	0	0	0	0
Duct	0	0	0	0
Skylights	0	0	0	0
Windows	0	0	0	0
Floors	0	0	0	257
Whole Building - All Components	**11,276**	**4,153**	**15,429 (1.5 tons)**	**14,513**

NO	DRAWN BY	CHECKED BY	DATE	DESCRIPTION
0	IBT	DHS	03/28/22	FOR CONSTRUCTION

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DONALD H. STONEBURG LICENSE No. 85872 STATE OF FLORIDA PROFESSIONAL ENGINEER
3/29/22

CONSULTANT

STAMP:

DRAWINGS FOR:
Starwash Express
925 Lockwood Blvd
Oviedo, FL 32765

SHEET TITLE:
Mechanical Load Calculations

PROJECT NUMBER: 22-1017
FILENAME:
SCALE: AS NOTED
PLOT DATE: 03/28/22
DRAWN BY: IBT

SHEET:
M-0.2

SPLIT SYSTEM HVAC UNIT

INDOOR UNIT									OUTDOOR UNITS						
MARK	NOM. CAP. (TONS)	CFM (HIGH)	MAKE	MODEL NUMBER	ORIENTATION	VOLTAGE	MCA/MOCP	CONDENSATE DRAIN	MARK	MAKE	MODEL NUMBER	VOLTAGE	MCA/MOCP	ACCESSORIES	NOTES
AHU-1	2	780	CARRIER	40MBDQ24---3	WALL MOUNT	208-230/1/60	POWERED FROM HP-1	5/8"	HP-1	CARRIER	38MGRQ24B--3	208-230/1/60	18/25	1,2	1,2,3,4
AHU-2	1.5	650	CARRIER	40MAQB18B--3	WALL MOUNT	208-230/1/60	POWERED FROM HP-2	5/8"	HP-2	CARRIER	38MGRQ18B--3	208-230/1/60	25/35	1,2	1,2,3,4

ACCESSORIES:
1. PROVIDE 5 YEAR COMPRESSOR WARRANTY.
2. WIRELESS REMOTE THERMOSTAT AND LOCATE ON WALL AS SHOWN ON DRAWINGS.

NOTES:
1. ROUTE CONDENSATE DRAIN TO EXTERIOR NEAR HEAT PUMP.
2. PROVIDE 4" THICK CONCRETE PAD FOR OUTDOOR UNITS.
3. ROUTE REFRIGERANT PIPING FROM OUTDOOR UNITS TO INDOOR UNIT IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS ROUTE UNDERGROUND IN PVC SLEEVE AS REQUIRED.
4. MANUFACTURER SPECIFIED IS TO ESTABLISH MINIMUM STANDARD FOR EQUIPMENT. EQUIPMENT OF OTHER MANUFACTURERS MEETING THESE STANDARDS, INCLUDING ENERGY EFFICIENCY ARE ACCEPTABLE.

NEW - DUCT SIZE CHART

SUPPLY AIR AND EXHAUST ROUND DUCT DIAMETER (IN.)	RETURN AIR ROUND DUCT DIAMETER (IN.)	MIN. AIR FLOW (CFM)	MAX. AIR FLOW (CFM)
4	5	0	70
5	6	70	110
6	8	110	150
8	10	150	275
10	12	275	425
12	14	425	620
14	16	620	840
16	18	840	1100
18	20	1100	1700
20	22	1700	2100
22	24	2100	3100
24	26	3100	3700
26	28	3700	4350
28	30	4350	5050
30	32	5050	5800
32	36	5800	7700
36	40	7700	9750

NOTES:
1. EQUIVALENT AREA RECTANGULAR DUCT WITH NO LARGER THAN 2:1 W/H OR H/W RATIO MAY BE USED IN LIEU OF ROUND DUCT.

VENTILATION REQUIREMENTS

ROOM NUMBER	ROOM NAME	AREA (SF)	MAXIMUM OCCUPANTS	REQUIRED OUTDOOR AIR (CFM/PERSON)	REQUIRED OUTDOOR AIR (CFM/SF)	OSA PER FL. MECH. CODE (CFM)	CORRECTED OUTDOOR AIR (CFM)	EXHAUST RATE PER FL. MECH. CODE (CFM)	ACTUAL EXHAUST RATE	NOTES
101	WASH BAY	3347	0	0.0	0.00	0.0	0	0	0	1
102	EQUIPMENT ROOM	1261	0	0.0	0.00	0.0	0	0	0	1
103	RESTROOM	49	0	0.0	0.00	0.0	0	70	70	1
104	BREAKROOM	212	4	5.0	0.12	45.4	46	0	0	2
105	COMMAND	236	2	5.0	0.06	24.2	25	0	0	1
106	OFFICE	194	2	5.0	0.06	21.6	25	0	0	1

TABLE NOTES:
1. BASED ON 2020 FLORIDA BUILDING CODE - MECHANICAL TABLE 403.3.1.1
2. OUTSIDE AIR REQUIREMENT IS SATISFIED BY SECTION 402: NATURAL VENTILATION.

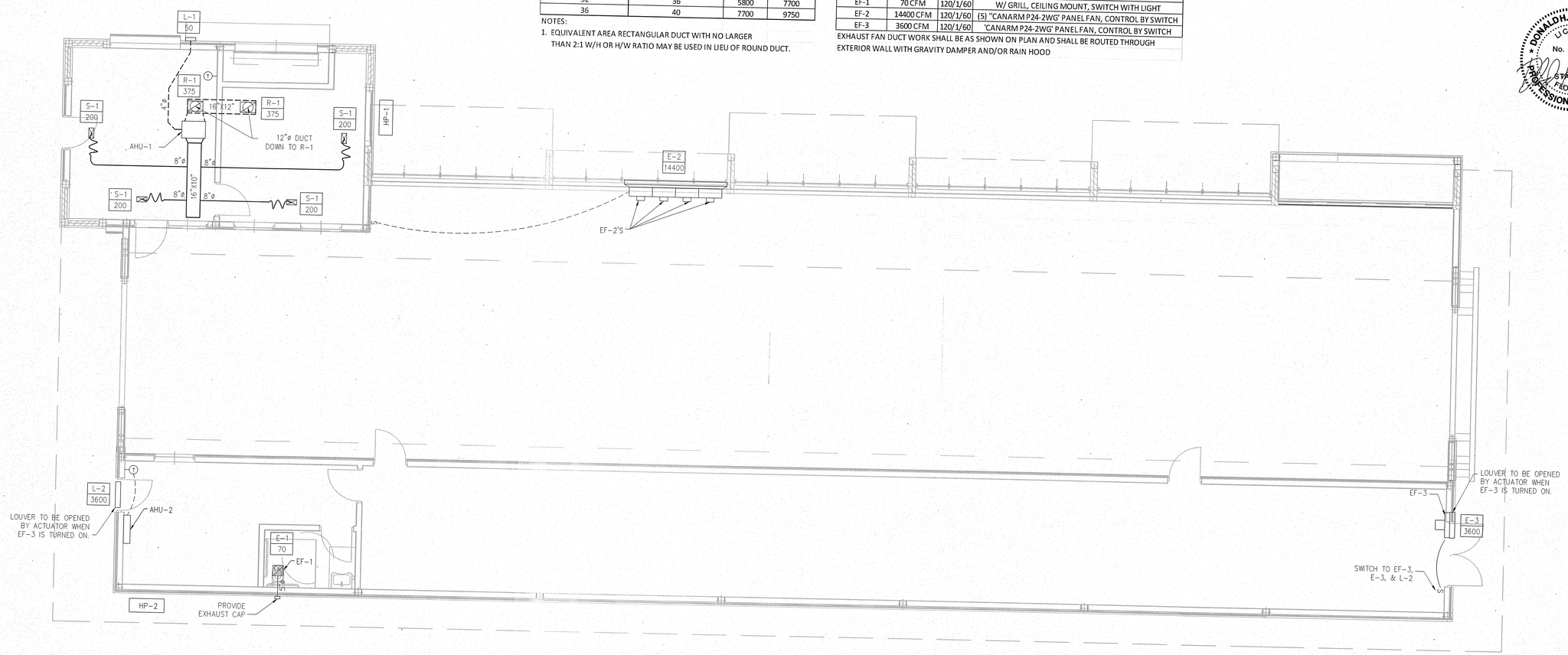
GRILLS AND DAMPERS

MARK	SERVICE	SIZE	LOCATION	PROVIDED BY	REMARKS
E-1	EXHAUST	12"X12"	CEILING	GENERAL CONTRACTOR	INCLUDED WITH EXHAUST FAN EF-1
E-2	EXHAUST	120"X30"	EXTERIOR WALL, TOP 16'-6" AFF	GENERAL CONTRACTOR	'RUSKIN ELM6DW' DRAINABLE ADJUSTABLE ALUMINUM LOUVER, CHAIN OPERATED
E-3	EXHAUST	30"X30"	EXTERIOR WALL, TOP 13'-0" AFF	GENERAL CONTRACTOR	'RUSKIN ELM6DW' DRAINABLE ADJUSTABLE ALUMINUM LOUVER W/ 120V ELECTRIC ACTUATOR
L-1	OUTSIDE AIR	12"x12"	EXTERIOR WALL, TOP 13'-0" AFF	GENERAL CONTRACTOR	RUSKIN ELBD375I' AUTOMATIC INTAKE DUAL COMBINATION ALUMINUM LOUVER
L-2	OUTSIDE AIR	30"x30"	EXTERIOR WALL, TOP 13'-0" AFF	GENERAL CONTRACTOR	'RUSKIN ELM6DW' DRAINABLE ADJUSTABLE ALUMINUM LOUVER W/ 120V ELECTRIC ACTUATOR

EXHAUST FANS

MARK	AIR FLOW	POWER	REMARKS
EF-1	70 CFM	120/1/60	W/ GRILL, CEILING MOUNT, SWITCH WITH LIGHT
EF-2	14400 CFM	120/1/60	(5) "CANARM P24-2WG' PANEL FAN, CONTROL BY SWITCH
EF-3	3600 CFM	120/1/60	'CANARM P24-2WG' PANEL FAN, CONTROL BY SWITCH

EXHAUST FAN DUCT WORK SHALL BE AS SHOWN ON PLAN AND SHALL BE ROUTED THROUGH EXTERIOR WALL WITH GRAVITY DAMPER AND/OR RAIN HOOD



A
M-1.0
HVAC PLAN
SCALE: 3/16" = 1'-0"

NO	DRAWN BY	CHECKED BY	DATE	DESCRIPTION
0	IBT	DHS	03/28/22	FOR CONSTRUCTION

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DONALD H. STONEBURG LICENSE No. 85872 STATE OF FLORIDA PROFESSIONAL ENGINEER
3/29/22

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FLORIDA P.E. NO. 85872

CONSULTANT

STAMP:

DRAWINGS FOR: Starwash Express
925 Lockwood Blvd
Oviedo, FL 32765

SHEET TITLE: HVAC Plan

PROJECT NUMBER: 22-1017
FILENAME:
SCALE: AS NOTED
PLOT DATE: 03/28/22
DRAWN BY: IBT

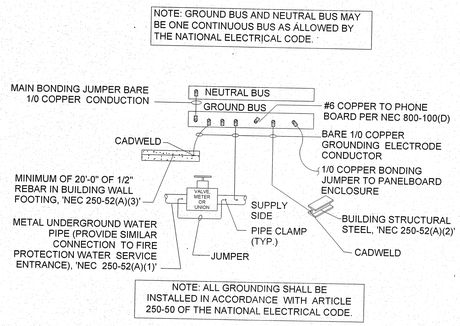
SHEET: M-1.0

ELECTRICAL GENERAL NOTES:

1. PROTECT MOTORS ½ H.P. OR LESS W/BUSSMAN "SSU" UNIT, FUSED AS REQUIRED BY THE 2017 N.E.C. (120 ONLY).
2. TO AVOID SOUND TRANSMISSION BETWEEN ROOMS, DO NO USE "THRU-THE-WALL" OUTLET BOXES, STAGGER BOXES. MOUNT OUTLET BOXES W/ONE STUD BETWEEN THEM.
3. JUNCTIONS FOR DATA, TELEPHONE OR T.V. OUTLETS SHALL BE SINGLE GANG BOXES.
4. LEAVE PULL CORDS OR CABLES IN ALL EMPTY CONDUITS W/CONNECTORS OR BUSHINGS AT BOTH ENDS.
5. PROVIDE SEPARATE NEUTRALS FOR EACH 20A 120V G.F.I. CIRCUIT. INCREASE NEUTRAL ONE WIRE SIZE FOR COMBINED BRANCH CIRCUITS.
6. THE CONTRACTOR SHALL NOTE THAT THE DRAWINGS INDICATE ONLY THE EXTENT DIAGRAMMATICALLY OF THE WORK INTENDED TO BE PERFORMED. WORK INTENDED, HAVING MINOR DETAILS OBVIOUSLY OMITTED SHALL BE FURNISHED & INSTALLED COMPLETE TO PERFORM THE PROPER FUNCTIONS OF THE ELECTRICAL SYSTEMS INTENDED.
7. IT SHALL BE THE RESPONSIBILITY OF EACH CONTRACTOR, CARWASH INSTALLER, AND EQUIPMENT PROVIDER TO COORDINATE W/ALL OTHER TRADES ANY CHANGES IN THE ORIGINAL DRAWINGS OR SPECS, THIS SHALL INCLUDE NO. OR SIZE OF STARTERS, DISCONNECT SWITCHES, FUSES, BREAKERS, CONDUCTORS & CONDUIT.
8. PRIOR TO ELECTRICAL ROUGH-IN, THE ELECTRICAL CONTRACTOR, CARWASH INSTALLER, AND EQUIPMENT PROVIDER MUST HAVE AN APPROVED SET OF MECHANICAL SHOP DRAWINGS. COORDINATE THESE DRAWINGS W/THE MECHANICAL CONTRACTOR AND THE ELECTRICAL ENGINEER. AS A RESULT OF THIS COORDINATION, MINOR CHANGES TO THE ELECTRICAL SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR AT NO ADDED EXPENSE TO THE OWNER.
9. SYSTEM MANUFACTURERS, (SUCH AS FIRE ALARM, SECURITY, SOUND, T.V., ETC.) SHALL FURNISH ONE LINE DIAGRAM INDICATING NO. AND SIZE OF CONDUCTORS, CONDUITS AND DEVICES ALONG W/EACH COPY OF THE SHOP DRAWINGS. ALL ELECTRICAL SYSTEMS IN THE WASH TUNNEL SHALL BE IN PVC BOXES AND CONDUIT. ALL OTHER ELECTRICAL SYSTEMS SHALL BE IN METALLIC CONDUIT UNLESS OTHERWISE NOTED.
10. TOP OF LIGHT SWITCHES SHALL BE AT 48" A.F.F., UNLESS NOTED OTHERWISE.
11. BOTTOM OF RECEPTACLES IN WASH TUNNEL SHALL BE AT 48" A.F.F. FOR ALL OTHER LOCATIONS, BOTTOM OF RECEPTACLES SHALL BE AT 18" A.F.F., UNLESS NOTED OTHERWISE. RECEPTACLES SHOWN AT COUNTERS SHALL BE AT HEIGHT INDICATED IN EQUIPMENT SCHEDULE.
12. COORDINATE FINAL LOCATIONS OF CAMERA'S, MONITORS, TV JACKS, TELEPHONE JACKS AND DATA JACKS WITH THE OWNER, CARWASH INSTALLER, AND EQUIPMENT PROVIDER PRIOR TO CONDUIT ROUGH-IN.
13. ALL EXIT & EMERGENCY LIGHTS SHALL BE POWERED FROM LOCAL CIRCUITS.
16. ALL RECEPTACLES AND LIGHT FIXTURES IN DAMP OR WET LOCATIONS MUST BE PROTECTED PER THE REQUIREMENTS OF THE NEC.

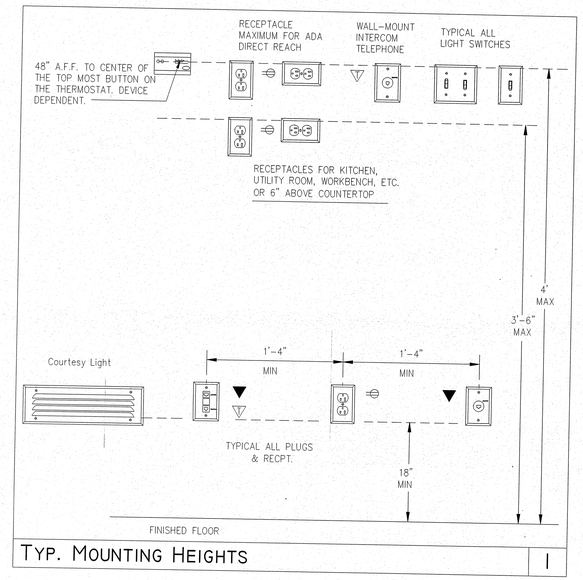
ELECTRICAL SPECIFICATIONS:

1. ALL WIRING SHALL CONFORM TO THE 2017 NATIONAL ELECTRICAL CODE AND APPLICABLE STATE AND LOCAL CODES.
2. PROVIDE GROUNDING AS REQUIRED BY THE 2017 NATIONAL ELECTRICAL CODE.
3. ALL MATERIAL SHALL BE SPECIFICATION GRADE AND DESIGNED FOR THE INTENDED USE. COLORS SHALL BE SELECTED BY THE OWNER.
4. THE CONTRACTOR SHALL GUARANTEE THE ENTIRE ELECTRICAL SYSTEM TO BE FREE OF DEFECTS IN MATERIAL AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE.
5. AS FAR AS PRACTICAL, RUN ALL WIRING CONCEALED. WHERE IT MUST BE RUN EXPOSED THE WIRING SHALL BE PARALLEL TO THE BUILDING LINES IN A NEAT WORKMANLIKE MANNER.
6. 120V AND UP: WIRING SHALL BE #12 THHN MINIMUM RUN IN ELECTRICAL METALLIC TUBING (PVC IN WASH TUNNEL) USING COMPRESSION FITTINGS. BELOW 120V: WIRING SHALL BE #18 THHN MINIMUM RUN IN ELECTRICAL METALLIC TUBING (PVC IN WASH TUNNEL) USING COMPRESSION FITTINGS.
7. USE ONLY STRANDED COPPER WIRE (MIN 75 DEG C CU WIRE).
8. ALL CONDUCTORS SHALL HAVE A MINIMUM VOLTAGE RATING OF 600V.
9. USE THWN IN ALL WET OR DAMP LOCATIONS AND TYPE THHN IN ALL DRY LOCATIONS.
10. ALL WIRE CONNECTIONS FOR 3 PHASE MOTORS SHALL USE UL LISTED SPILT BOLT CONNECTORS APPROVED BY N.E.C. AND EQUIPMENT MANUFACTURER/SUPPLIER.
11. LABEL ALL CONTROL WIRES WITH TERMINAL NUMBERS ON BOTH ENDS.
12. NO ROMEX, BX, MC, ETC. SHALL BE PERMITTED.
13. LIGHT FIXTURES SHALL BE PROVIDED WITH ENERGY SAVING LAMPS.



2 E-0.1 TYPICAL GROUNDING DETAIL

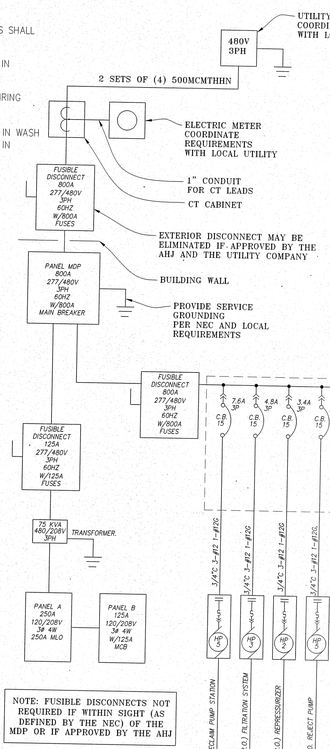
SCALE: 1/8" = 1'-0"



TYP. MOUNTING HEIGHTS 1

LEGEND

X	LED STRIP FIXTURE SEE SCHEDULE FOR REQUIREMENTS X = FIXTURE LETTER IN SCHEDULE		DUPLEX RECEPTACLE
R X	RECESSED CAN LIGHT X = FIXTURE LETTER IN TABLE	GFI	GROUND FAULT RECEPTACLE
X	EMERGENCY REMOTE HEAD X = FIXTURE LETTER IN TABLE	WP GFI	WEATHERPROOF AND GROUND FAULT RECEPTACLE
X	COMBO EMERGENCY/EXIT LIGHT X = FIXTURE LETTER IN TABLE	J	JUNCTION BOX
X	EMERGENCY LIGHT X = FIXTURE LETTER IN TABLE		DISCONNECT
S_3	THREE WAY SWITCH (WATERTIGHT IN WASH BAY AREAS)		DATA OUTLET – SINGLE GANG BOX, 3/4"ø CONDUIT TO BE STUBBED ABOVE CEILING
S_V	SINGLE POLE WITH VACANCY SENSOR		VOIP PHONE OUTLET – SINGLE GANG BOX, 3/4"ø CONDUIT TO BE STUBBED ABOVE CEILING
S_O	SINGLE POLE WITH OCCUPANCY SENSOR		
S_{3V}	THREE WAY WITH VACANCY SENSOR		FLUSH MOUNTED PANELBOARD
	PHOTO CELL		SURFACE MOUNTED PANELBOARD



05.10.06

NOTES:
1. PROVIDE 4" HIGH CONCRETE HOUSEKEEPING PAD FOR MCC.
2. LOCATE MCC SUCH THAT PROPER FRONT WORKING SPACE IS MAINTAINED IN ACCORDANCE TO NEC 110-16(a).
3. ALL WIRE TO BE TYPE THHN/THWN.

MOTOR CONTROL CENTER

480V, 3~ 4W

TOTAL CONNECTED LOAD: 564A
BREAKER SIZE 800A MLO
PANEL RATED 25,712 AIC
RMS SYMMETRICAL

- HANDLE MECHANISMS SHALL HAVE "LOCK-OFF" PROVISIONS
- ALL STARTERS ARE FVNR
- MCC SHALL BE WIRED NEMA CLASS I, TYPE A
- MCC SHALL HAVE MOTOR CIRCUIT PROTECTORS ON STARTER UNITS
- IF VFD'S ARE USED, ALL CONDUITS TO MOTORS CONTROLLED BY VFD MUST BE STEEL (NO PVC ALLOWED), AND ALL VFD MUST HAVE INDIVIDUAL DRIVEN GROUND RODS. VFD'S CONTROL REQUIRES (2) #16 TO DRY-CONTACT POWER SUPPLY INDIVIDUALLY PER VFD'S. ALSO THE CB IS INSTATANEOUS TRIP BREAKER (ARTICLE 430.52-A)

MCC NOTES:

- ("⊔")-DISCONNECTS TO BE MOUNTED IN TUNNEL OR OTHER AREAS NOT WITHIN 50 L.F. OR L.O.S. OF MCC IN CONFORMANCE WITH N.E.C. AND/OR LOCAL CODES..ALSO TO BE TYPE 4X NON-METALLIC ENCLOSURES, NON-FUSED SIZED FOR LOAD. DISCONNECTING MEANS SHALL NOT BE REQUIRED WHERE SUCH A LOCATION OF THE DISCONNECTING MEANS IS IMPRACTICABLE OR INTRODUCES ADDITIONAL OR INCREASED HAZARDS TO PERSON OR PROPERTY. N.E.C. (ARTICLE 430.102-B-a)
- ALL CONDUIT, WIRES, DISCONNECTS, AND TERMINATIONS BY G.C. ELECTRICIAN.
- MOTOR WIRE SIZE INDICATED ON THIS SHEET ASSUMES LENGTHS OF RUN TO BE 100 LF OR LESS. IF RUNS EXCEED 100 LF, PROJECT M.E.P. ENGINEER OF RECORD IS REQUIRED TO RUN NECESSARY CALCULATIONS TO DETERMINE VOLTAGE DROP AND CHANGE WIRE SPECIFICATIONS, AS NECESSARY.

THREE PHASE PANEL SERVICES AND FEEDERS

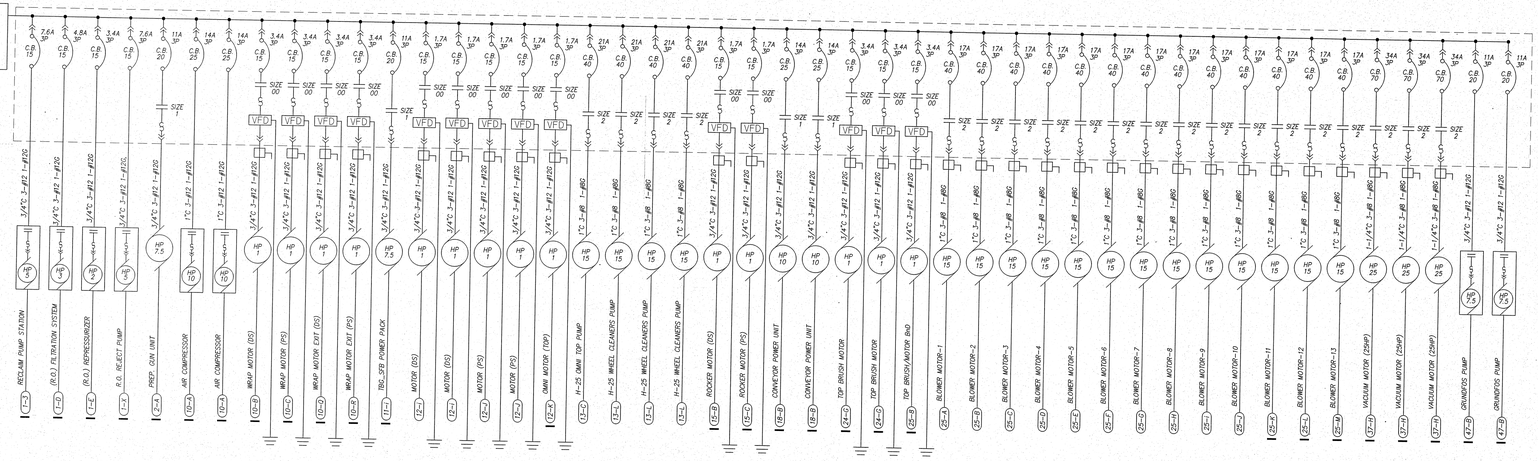
30A	(3) # 10THHN, (1) # 8 NEUTRAL & (1) # 10 GR. 3/4" C.
60A	(3) # 6THHN, (1) # 4 NEUTRAL & (1) # 10 GR. 1" C.
100A	(3) # 3THHN, (1) # 2 NEUTRAL & (1) # 8 GR. 1 1/2" C.
125A	(3) # 1THHN, (1) # 1/0 NEUTRAL & (1) # 6 GR. 2" C.
150A	(3) 1/0THHN, (1) 2/0 NEUTRAL & (1) # 6 GR. 2" C.
200A	(3) 3/0THHN, (1) 4/0 NEUTRAL & (1) # 6 GR. 2" C.
250A	(3) 250MCMTHHN, (1) 350 NEUTRAL & (1) # 4 GR. 3" C.
400A	(4) 500MCMTHHN & (1) # 3 GR. 3 1/2" C.
600A	2- 3" C., EA. w/ (4) 350MCMTHHN & (1) # 1 GR.
800A	2- 3 1/2" C. , EA. w/ (4) 500MCMTHHN & (1) 1/0 GR.

*SIZES BASED ON COPPER WIRE

THREE PHASE EQUIP. FEEDERS

30A	(4) # 10THHN & (1) # 10 GR. 3/4" C.
60A	(4) # 6THHN & (1) # 10 GR. 1" C.
100A	(4) # 3THHN & (1) # 8 GR. 1 1/4" C.
150A	(4) 1/0THHN & (1) # 6 GR. 2" C.
200A	(4) 3/0THHN & (1) # 6 GR. 2" C.
300A	(4) 350MCMTHHN & (1) # 4 GR. 3" C.
400A	(4) 500MCMTHHN & (1) # 3 GR. 3 1/2" C.
600A	2- 3" C., EA. w/ (4) 350MCMTHHN & (1) # 1 GR.

*SIZES BASED ON COPPER WIRE



1 E-0.1 ELECTRICAL RISER DIAGRAM

SCALE: NTS

NO	DRAWN BY	CHECKED BY	DATE	DESCRIPTION
0	IBT	DHS	03/28/22	FOR CONSTRUCTION

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FLORIDA P.E. NO. 85872

DONALD H. STONEBURG LICENSE No. 85872 STATE OF FLORIDA PROFESSIONAL ENGINEER
3/29/22

CONSULTANT

STAMP:

DRAWINGS FOR: Starwash Express
925 Lockwood Blvd
Oviedo, FL 32765

SHEET TITLE: Electrical Notes and Riser

PROJECT NUMBER: 22-1017
FILENAME:
SCALE: AS NOTED
PLOT DATE: 03/28/22
DRAWN BY: IBT

SHEET: E-0.1

MOUNTING: SURFACE | 277/480 | 3-PHASE, 4W | PANEL **MDP** | CAPACITY: 800A
LOCATION: EQUIPMENT ROOM | MCB | DEMAND LOAD: 622A | V. DROP: 0.24% | AV. FAULT: 25,606 A

CKT	LTG	REC	HVAC	MISC	MOT	DESCRIPTION	AMP	POLE	Φ	AMP	POLE	DESCRIPTION	LTG	REC	HVAC	MISC	MOT	CKT
1					156.3	MCC (21)	800	3	A	125	3	TRANSFORMER - PANEL A	2.0	1.4	5.0	8.9	0.0	2
3					156.3				B				1.5	2.4	4.5	9.2	0.0	4
5					156.3				C				1.2	3.3	2.6	6.6	0.0	6
7						SPACE			A			SPACE						8
9									B									10
11									C									12
13						SPACE			A			SPACE						14
15									B									16
17									C									18
19						SPACE			A			SPACE						20
21									B									22
23									C									24

PHASE BALANCE			LOAD TYPE	CONNECTED	DEMAND	DEMAND FORMULA	TOTAL LOAD	
			LIGHTING	4.7 KVA	4.7 KVA	LOAD X 100% NEC 220.42	CONNECTED	DEMAND
Φ	LOAD	%	RECEPTACLE	7.1 KVA	7.1 KVA	10KVA + 50% REMAINDER NEC 220.44	517.5 KVA	517.5KVA
A	305.2 KVA	33%	HVAC	12.1 KVA	12.1 KVA	LOAD X 100% (USED MCA IN CALCULATION)	622.5A	622.5A
B	305.5 KVA	33%	MISC	24.7 KVA	24.7 KVA	LOAD X 100% NEC 210.19 NON-CONT.	RILENAME:	
C	301.6 KVA	33%	MOTOR	468.9 KVA	468.9 KVA	LOAD X 100% (USED MCA IN CALCULATION)		

NOTE: THE NUMBER IN PARENTHESES CORRESPONDS TO THE ITEM #/LETTER ON SHEETS E-0.3, E-0.4, E-0.5, & E-0.6.

MOUNTING: SURFACE | 277/480 | 3-PHASE, 4W | PANEL **MCC** | CAPACITY: 800A
LOCATION: EQUIPMENT ROOM | MLO | DEMAND LOAD: 564A | V. DROP: 0.05% | AV. FAULT: 25,171 A

CKT	LTG	REC	HVAC	MISC	MOT	DESCRIPTION	AMP	POLE	Φ	AMP	POLE	DESCRIPTION	LTG	REC	HVAC	MISC	MOT	CKT
1					2.1	RECLAIM PUMP STATION (1-3)	15	3	A	15	3	(R.O.) FILTRATION SYSTEM (1-D)					1.3	2
3					2.1				B								1.3	4
5					2.1				C								1.3	6
7					0.9	(R.O.) REPRESSURIZER (1-E)	15	3	A	15	3	R.O. REJECT PUMP (1-X)					2.1	8
9					0.9				B								2.1	10
11					0.9				C								2.1	12
13					3.0	PREP. GUN UNIT (2-A)	20	3	A	25	3	AIR COMPRESSOR (10-A)					3.9	14
15					3.0				B								3.9	16
17					3.0				C								3.9	18
19					3.9	AIR COMPRESSOR (10-A)	25	3	A	15	3	WRAP MOTOR DS (10-B)					0.9	20
21					3.9				B								0.9	22
23					3.9				C								0.9	24
25					0.9	WRAP MOTOR PS (10-C)	15	3	A	15	3	WRAP MOTOR EXIT DS (10-Q)					0.9	26
27					0.9				B								0.9	28
29					0.9				C								0.9	30
31					0.9	WRAP MOTOR EXIT PS (10-R)	15	3	A	20	3	TBG_SFB POWER PACK (11-I)					3.0	32
33					0.9				B								3.0	34
35					0.9				C								3.0	36
37					0.5	MOTOR DS (12-I)	15	3	A	15	3	MOTOR DS (12-I)					0.5	38
39					0.5				B								0.5	40
41					0.5				C								0.5	42
43					0.5	MOTOR PS (12-J)	15	3	A	15	3	MOTOR PS (12-J)					0.5	44
45					0.5				B								0.5	46
47					0.5				C								0.5	48
49					0.5	OMNI MOTOR TOP (12-K)	15	3	A	40	3	H-25 OMNI TOP PUMP (13-C)					5.8	50
51					0.5				B								5.8	52
53					0.5				C								5.8	54
55					5.8	H-25 WHEEL CLEANERS PUMP (13-L)	40	3	A	40	3	H-25 WHEEL CLEANERS PUMP (13-L)					5.8	56
57					5.8				B								5.8	58
59					5.8				C								5.8	60
61					5.8	H-25 WHEEL CLEANERS PUMP (13-L)	40	3	A	15	3	ROCKER MOTOR DS (15-B)					0.5	62
63					5.8				B								0.5	64
65					5.8				C								0.5	66
67					0.5	ROCKER MOTOR PS (15-C)	15	3	A	25	3	CONVEYOR POWER UNIT (18-B)					3.9	68
69					0.5				B								3.9	70
71					0.5				C								3.9	72
73					3.9	CONVEYOR POWER UNIT (18-B)	25	3	A	15	3	TOP BRUSH MOTOR (24-G)					0.9	74
75					3.9				B								0.9	76
77					3.9				C								0.9	78
79					0.9	TOP BRUSH MOTOR (24-G)	15	3	A	15	3	TOP BRUSH/MOTOR BnD (25-8)					0.9	80
81					0.9				B								0.9	82
83					0.9				C								0.9	84
85					4.7	BLOWER MOTOR 1 (25-A)	40	3	A	40	3	BLOWER MOTOR 2 (25-B)					4.7	86
87					4.7				B								4.7	88
89					4.7				C								4.7	90
91					4.7	BLOWER MOTOR 3 (25-C)	40	3	A	40	3	BLOWER MOTOR 4 (25-D)					4.7	92
93					4.7				B								4.7	94
95					4.7				C								4.7	96
97					4.7	BLOWER MOTOR 5 (25-E)	40	3	A	40	3	BLOWER MOTOR 6 (25-F)					4.7	98
99					4.7				B								4.7	100
101					4.7				C								4.7	102
103					4.7	BLOWER MOTOR 7 (25-G)	40	3	A	40	3	BLOWER MOTOR 8 (25-H)					4.7	104
105					4.7				B								4.7	106
107					4.7				C								4.7	108
109					4.7	BLOWER MOTOR 9 (25-I)	40	3	A	40	3	BLOWER MOTOR 10 (25-J)					4.7	110
111					4.7				B								4.7	112
113					4.7				C								4.7	114
115					4.7	BLOWER MOTOR 11 (25-K)	40	3	A	40	3	BLOWER MOTOR 12 (25-L)					4.7	116
117					4.7				B								4.7	118
119					4.7				C								4.7	120
121					4.7	BLOWER MOTOR 13 (25-M)	40	3	A	70	3	VACUUM MOTOR (37-H)					9.4	122
123					4.7				B								9.4	124
125					4.7				C								9.4	126
127					9.4	VACUUM MOTOR (37-H)	70	3	A	70	3	VACUUM MOTOR (37-H)					9.4	128
129					9.4				B								9.4	130
131					9.4				C								9.4	132
133					3.0	GRUNDFOS PUMP (47-B)	20	3	A	20	3	GRUNDFOS PUMP (47-B)					3.0	134
135					3.0				B								3.0	136
137					3.0				C								3.0	138

PHASE BALANCE			LOAD TYPE	CONNECTED	DEMAND	DEMAND FORMULA	TOTAL LOAD	
			LIGHTING	0.0 KVA	0.0 KVA	LOAD X 100% NEC 220.42	CONNECTED	DEMAND
Φ	LOAD	%	RECEPTACLE	0.0 KVA	0.0 KVA	10KVA + 50% REMAINDER NEC 220.44	468.9 KVA	468.9KVA
A	156.3 KVA	33%	HVAC	0.0 KVA	0.0 KVA	LOAD X 100% (USED MCA IN CALCULATION)	564.0A	564.0A
B	156.3 KVA	33%	MISC	0.0 KVA	0.0 KVA	LOAD X 100% NEC 210.19 NON-CONT.	RILENAME:	
C	156.3 KVA	33%	MOTOR	468.9 KVA	468.9 KVA	LOAD X 100% (USED MCA IN CALCULATION)		

NOTE: THE NUMBER IN PARENTHESES CORRESPONDS TO THE ITEM #/LETTER ON SHEETS E-0.3, E-0.4, E-0.5, & E-0.6.

MOUNTING: SURFACE | 120/208 | 3-PHASE, 4W | PANEL **A** | CAPACITY: 250A
LOCATION: EQUIPMENT ROOM | MLO | DEMAND LOAD: 135A | V. DROP: 0.12% | AV. FAULT: 13,326 A

CKT	LTG	REC	HVAC	MISC	MOT	DESCRIPTION	AMP	POLE	Φ	AMP	POLE	DESCRIPTION	LTG	REC	HVAC	MISC	MOT	CKT
1					0.7	UNUNAC (32-A)	20	2	A	25	2	HP-2			1.9			2
3					0.7				B						1.9			4
5					0.5	SOFTENER (1-P)	15	1	C	20	1	RC. BREAKROOM		0.7				6
7					0.7	AIR DRYER (10-L)	15	1	A	20	1	RC. BREAKROOM		0.5				8
9						SPARE	20	1	B	20	1	WH-1				1.8		10
11					1.9	MAT WASHER	20	1	C	20	1	RC. BATHROOM		0.2				12
13					1.9	MAT WASHER	20	1	A	20	1	RC. EXTERIOR		0.2				14
15					1.9	MAT WASHER	20	1	B	20	1	RC. EQUIPMENT ROOM		0.7				16
17					0.1	LED EQ. LIGHT (29-3)	20	1	C	20	1	L-2 ACTUATOR			0.1			18
19					0.1	LED EQ. LIGHT (29-3)	20	1	A	20	1	EF-3/E-3 ACTUATOR			0.5			20
21					0.1	LED EQ. LIGHT (29-3)	20	1	B	20	1	RC. WASH BAY				1.0		22
23					0.1	G&G CONTROLLER (29-8)	20	1	C	30	1	EF-2'S			2.5			24
25					0.1	G&G CONTROLLER (29-8)	20	1	A	20	1	SIGNAGE				1.0		26
27					0.1	G&G CONTROLLER (29-8)	20	1	B	20	1	SIGNAGE				1.0		28
29					0.1	G&G CONTROLLER (29-8)	20	1	C	20	1	SIGNAGE				1.0		30
31					0.1	CONTROL_120V (1-3)	15	1	A	20	1	SIGNAGE				1.0		32
33					0.1	CONTORL_120V (1-DE)	15	1	B	20	1	LTS. EQUIP/BREAKROOM/BATH	0.9					34
35					0.1	CONTROL_120V (1-X)	15	1	C	20	1	LTS. WASH BAY	0.7					36
37					0.1	CONTROL BOX (21-E)	15	1	A	20	1	LTS. WASH BAY	0.7					38
39					0.1	CONTROL BOX (27-C)	15	1	B	20	1	LTS. CANOPY	0.1					40
41					0.1	CONTROL_120V (32-A)	15	1	C	20	1	PHOTOCELL/TIME CLOCK				0.5		42
43					0.1	GALAXY ARCH (29-6)	20	1	A	20	1	LTS. SITE	0.5					44
45					0.3	WAIT & GO (30-C)	20	1	B	20	1	LTS. SITE	0.5					46
47					0.1	GRAND ARCH (40-D)	20	1	C	20	1	LTS. VACUUM	0.5					48
49					0.1	MONSTER ARCH (40-G)	20	1	A	20	1	LTS. VACUUM	0.5					50
51					0.1	DIGITAL QUEUE (20)	20	1	B	20	1	SPARE						52
53					0.1	RELAY BOX (20-1)	20	1	C	20	1	SPARE						54
55						SPACE			A	20	1	SPARE						56
57						SPACE			B	20	1	SPARE						58
59						SPACE			C	20	1	SPARE						60
61						SPACE			A	125	3	PANEL B	0.3	0.7	2.6	3.0	0.0	62
63						SPACE			B				0.0	1.7	2.6	2.0	0.0	64
65						SPACE			C				0.0	2.4	0.0	2.0	0.0	66

PHASE BALANCE			LOAD TYPE	CONNECTED	DEMAND	DEMAND FORMULA	TOTAL LOAD	
			LIGHTING	4.7 KVA	4.7 KVA	LOAD X 100% NEC 220.42	CONNECTED	DEMAND
Φ	LOAD	%	RECEPTACLE	7.1 KVA	7.1 KVA	10KVA + 50% REMAINDER NEC 220.44	48.6 KVA	48.6KVA
A	17.3 KVA	36%	HVAC	12.1 KVA	12.1 KVA	LOAD X 100% (USED MCA IN CALCULATION)	134.9A	134.9A
B	17.6 KVA	36%	MISC	24.7 KVA	24.7 KVA	LOAD X 100% NEC 210.19 NON-CONT.	RILENAME:	
C	13.7 KVA	28%	MOTOR	0.0 KVA	0.0 KVA	LOAD X 100% (USED MCA IN CALCULATION)		

NOTE: THE NUMBER IN PARENTHESES CORRESPONDS TO THE ITEM #/LETTER ON SHEETS E-0.3, E-0.4, E-0.5, & E-0.6.

MOUNTING: RECESSED | 120/208 | 3-PHASE, 4W | PANEL **B** | CAPACITY: 125A
LOCATION: COMMAND AREA | MCB | DEMAND LOAD: 48A | V. DROP: 0.58% | AV. FAULT: 5,712 A

CKT	LTG	REC	HVAC	MISC	MOT	DESCRIPTION	AMP	POLE	Φ	AMP	POLE	DESCRIPTION	LTG	REC	HVAC	MISC	MOT	CKT
1			2.6			HP-1	35	2	A	20	1	PAY STATION (20-C)				1.0		2
3			2.6						B	20	1	PAY STATION (20-C)				1.0		4
5		0.5				RC. COMMAND	20	1	C	20	1	GATE (20-D)				1.0		6
7		0.7				RC. COMMAND	20	1	A	20	1	GATE (20-D)				1.0		8
9		0.5				RC. OFFICE	20	1	B	20	1	MENU SIGN (30-i)				1.0		10
11		0.7				RC. OFFICE	20	1	C	20	1	MENU SIGN (30-i)				1.0		12
13	0.3					LTS. COMMAND/OFFICE	20	1	A	20	1	MASTER COMP.				1.0		14
15		1.0				RC. VENDING	20	1	B	20	1	RC. EXTERIOR	0.2					16
17		1.0				RC. VENDING	20	1	C	20	1	RC. WASH BAY	0.2					18
19						SPARE	20	1	A	20	1	SPACE						20
21						SPARE	20	1	B	20	1	SPACE						22
23						SPARE	20	1	C	20	1	SPACE						24
25						SPACE	20	1	A	20	1	SPACE						26
27						SPACE	20	1	B	20	1	SPACE						28
29						SPACE	20	1	C	20	1	SPACE						30

PHASE BALANCE			LOAD TYPE	CONNECTED	DEMAND	DEMAND FORMULA	TOTAL LOAD	
			LIGHTING	0.3 KVA	0.3 KVA	LOAD X 100% NEC 220.42	CONNECTED	DEMAND
Φ	LOAD	%	RECEPTACLE	4.8 KVA	4.8 KVA	10KVA + 50% REMAINDER NEC 220.44	17.3 KVA	17.3KVA
A	6.6 KVA	38%	HVAC	5.2 KVA	5.2 KVA	LOAD X 100% (USED MCA IN CALCULATION)	48.0A	48.0A
B	6.3 KVA	36%	MISC	7.0 KVA	7.0 KVA	LOAD X 100% NEC 210.19 NON-CONT.	RILENAME:	
C	4.4 KVA	25%	MOTOR	0.0 KVA	0.0 KVA	LOAD X 100% (USED MCA IN CALCULATION)		

NOTE: THE NUMBER IN PARENTHESES CORRESPONDS TO THE ITEM #/LETTER ON SHEETS E-0.3, E-0.4, E-0.5, & E-0.6.

VOLTAGE DROP CALCULATIONS

PANEL	FEEDER AWG	FEEDER SETS	OHMS/K-FT NEC T9	LENGTH	Z	LOAD	V-DROP	V	%V-DROP
MDP	#500	2	0.043 OHM/K-FT	50 FT	0.0011 OHM	622 A	1.16 V	480 V	0.24%
MCC	#500	2	0.050 OHM/K-FT	10 FT	0.0003 OHM	564 A	0.24 V	480 V	0.05%
PANEL A	#250	1	0.073 OHM/K-FT	15 FT	0.0011 OHM	135 A	0.26 V	208 V	0.12%
PANEL B	#1	1	0.160 OHM/K-FT	90 FT	0.0144 OHM	48 A	1.20 V	208 V	0.58%

NOTES:
VOLTAGE DROP CALCULATIONS ARE BASED ON TABLE 9 OF THE NEC FOR EFFECTIVE Z AT 0.85 PF,
UNCOATED COPPER WIRES IN STEEL CONDUIT (WORST CASE).
LOAD IS THE DEMAND LOAD OF THE PANEL OR TRANSFORMER.

UTILITY TRANSFORMER FAULT CALCULATION

SERVICE ENTRANCE		CALCULATION
VOLTAGE (L-L):	480V	I-FLA=[RATED KVA * 1000]/
PHASE (PH):	3	[V-LL*SQRT(PHASE)]
AMPS:	800A	I-FLA= 902A
FULL LOAD KVA:	519KVA	
TRANSFORMER:	750KVA	M=100/%Z= 28.57
IMPEDANCE (%Z):	3.5%Z	I-SC=I-FLA*M= 25,775 A

CALCULATION IS BASED ON ESTIMATED TRANSFORMER SIZE WITH %Z FROM BUSSMANN SPD. CONTRACTOR SHALL CONTACT UTILITY AND VERIFY I-SC AVAILABLE AT SECONDARY OF TRANSFORMER. CONTACT ENGINEER FOR RE-CALCULATION IF LARGER THAN CALCULATED.

MOTOR LOAD FAULT CALCULATION

STARTING I-SC:	25,775 A	CALCULATION
MOTOR LOAD (KVA):	469KVA	I-SC(ML)=I-ML*4= 2,256A
MOTOR LOAD (A):	564A	I-SC=I-SC+I-SC(ML)= 28,031 A

FEEDER FAULT CALCULATION (MDP)

STARTING I-SC:	28,031 A	IMPEDANCE BASED ON 3 SINGLE
VOLTAGE (L-L):	480V	CONDUCTORS IN NON-MAGNETIC
PHASE (PH):	3	CONDUIT
FEEDER SIZE:	500	CALCULATION
FEEDER MATERIAL:	CU	*f=[SQRT(PHASE)*L*IS-C]/
PARALLEL SETS (Q):	2	[Q*C*V-LL]
FEEDER LENGTH (L):	50FT	f= 0.095
FEET PER OHMS (C):	26,706 FT/OHMS	M=1/(1+f)= 0.914
		I-SC=I-SC*M= 25,606 A

FEEDER FAULT CALCULATION (MCC)

STARTING I-SC:	25,606 A	IMPEDANCE BASED ON 3 SINGLE
VOLTAGE (L-L):	480V	CONDUCTORS IN NON-MAGNETIC
PHASE (PH):	3	CONDUIT
FEEDER SIZE:	500	CALCULATION
FEEDER MATERIAL:	CU	*f=[SQRT(PHASE)*L*IS-C]/
PARALLEL SETS (Q):	2	[Q*C*V-LL]
FEEDER LENGTH (L):	10FT	f= 0.017
FEET PER OHMS (C):	26,706 FT/OHMS	M=1/(1+f)= 0.983
		I-SC=I-SC*M= 25,171 A

STEP-DOWN TRANSFORMER FAULT CALCULATION

STARTING I-SC:	25,606 A	CALCULATION
VOLTAGE (PRI):	480V	f=[I-SC(PRI)*V-PRI*SQRT(PHASE)*2]/
VOLTAGE (SEC):	208V	[KVA * 1000]
PHASE (PH):	3	f= 3.037
KVA TRANSFORMER	75KVA	M=1/(1+f)= 0.248
%Z TRANSFORMER	1.07%	I-SC=V-PRI/V-SEC*I-SC*M=
		I-SC= 14,636.8A

BASED ON BUSSMANN SPD CALCULATIONS

FEEDER FAULT CALCULATION (PANEL A)

STARTING I-SC:	14,637 A	IMPEDANCE BASED ON 3 SINGLE
VOLTAGE (L-L):	208V	CONDUCTORS IN NON-MAGNETIC
PHASE (PH):	3	CONDUIT
FEEDER SIZE:	250	CALCULATION
FEEDER MATERIAL:	CU	*f=[SQRT(PHASE)*L*IS-C]/
PARALLEL SETS (Q):	1	[Q*C*V-LL]
FEEDER LENGTH (L):	15FT	f= 0.098
FEET PER OHMS (C):	18,594 FT/OHMS	M=1/(1+f)= 0.910
		I-SC=I-SC*M= 13,326 A

FEEDER FAULT CALCULATION (PANEL B)

STARTING I-SC:	13,326 A	IMPEDANCE BASED ON 3 SINGLE
VOLTAGE (L-L):	208V	CONDUCTORS IN NON-MAGNETIC
PHASE (PH):	3	CONDUIT
FEEDER SIZE:	1	CALCULATION
FEEDER MATERIAL:	CU	*f=[SQRT(PHASE)*L*IS-C]/
PARALLEL SETS (Q):	1	[Q*C*V-LL]
FEEDER LENGTH (L):	90FT	f= 1.333
FEET PER OHMS (C):	7,493 FT/OHMS	M=1/(1+f)= 0.429
		I-SC=I-SC*M= 5,712 A

LIGHT FIXTURE SCHEDULE

Fixture ID	MANUFACTURER	MODEL	LAMPS (TYPE/WATTS/TEMP)	DESCRIPTION	PROVIDED BY / INTSTALLED BY
A	G&G	WPX8-SO-50K	LED / 50W/ 5000K	6' CONNECTORIZED HARSH ENVIRONMENT LINEAR LED FIXTURE, STANDARD OUTPUT	MW / GC
B	G&G	GPX8-HO-50K-GC-120V	LED / 62W/ 5000K	8' DRIVERLESS HARSH ENVIRONMENT LINEAR LED FIXTURE, STANDARD OUTPUT	MW / GC
C	G&G	GPX4-HO-50K-GC-UVO-120V	LED / 31W/ 5000K	8' DRIVERLESS HARSH ENVIRONMENT LINEAR LED FIXTURE, HIGH OUTPUT	MW / GC
D	LITHONIA	WF6-LED-40K-MVOLT-MW	LED / 13.6W / 4000K	LED RECESSED LIGHT	GC/ GC
E	LITHONIA	ECRG RD M6	LED / 2W / -	LED COMBO EXIT/EMERGENCY LIGHT	GC/ GC
F	LITHONIA	AFO DB MVOLT N SD	LED / 2.8W / -	EXTERIOR REMOTE EMERENCY LIGHT (CONFIRM COLOR WITH OWNER)	GC/ GC
G	LITHONIA	EU2C SD	LED / 2W / -	LED EMERGENCY LIGHT	GC/ GC
H	LITHONIA	WLTU LED	LED / 2.7W / -	WET LOCATION EMERGENCY LIGHT	GC/ GC

MW = MODERN WASH (PROVIDES LIGHTING FIXTURES, MOUNTING HARDWARE, CONNECTING/JUMPER CABLES, AND POWER SUPPLY)
GC = GENERAL CONTRACTOR

DONALD H. STONEBURG LICENSE No. 85872 STATE OF FLORIDA PROFESSIONAL ENGINEER 3/29/22

NO	DRAWN BY	CHECKED BY	DATE	DESCRIPTION
0	IBT	DHS	03/28/22	FOR CONSTRUCTION

S.E. Engineering
1733 Campus Plaza Court, Suite 10
Bowling Green, KY 42101
Phone: 270-796-3052
Fax: 270-842-3102

STAMP:
DONALD H. STONEBURG, P.E.
1733 CAMPUS PLAZA COURT,
SUITE 10
BOWLING GREEN, KY 42101
FLORIDA P.E. NO. 85872

CONSULTANT

STAMP:

DRAWINGS FOR:
Starwash Express
925 Lockwood Blvd
Oviedo, FL 32765

SHEET TITLE:
Electrical Schedules

PROJECT NUMBER: 22-1017
FILENAME:
SCALE: AS NOTED
PLOT DATE: 03/28/22
DRAWN BY: IBT

SHEET:
E-0.2

SOLENOID VOLTAGE = 24V

480V	EQUIPMENT LIST										RESPONSIBILITY MATRIX							
		ELECTRICAL						WATER				PLUMBING AND MECHANICAL WORK				ELECTRICAL WORK			
ITEM #	DESCRIPTION	VOLT	HP	PHASE	AMP	C.B.	M.S.	COLD	HOT	RECLAIM	AIR	FURN. BY:	ERECTED BY:	EQ. RM. PIPING:	TUNNEL. PIPING:	FURN. BY:	ERECTED BY:	WIRED BY:	REMARKS
CWC-SYS	CARWASH CONTROL SYSTEMS	120V		1P		20						SONNYS	GC	GC	GC	SONNYS	GC	GC	
1-3	RECLAIM PUMP STATION 100-GPM	480V	5HP	3P	7.6A	15		1-1/2"		2"	1/2"	SONNYS	SCWI	GC	GC	SONNYS	SCWI	GC	1/2" AIR FOR PURGE
1-C	ROLLER UP SOLENOID	24V		1P	.27A							SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	SCWI	
1-D	(R.O.) FILTRATION SYSTEM	480V	3HP	3P	4.8A	15		* 1-1/2"				SONNYS	SCWI	GC	N/A	SONNYS	SCWI	GC	
1-E	(R.O.) REPRESSURIZER	480V	2HP	3P	3.4A	15		1-1/2"				SONNYS	SCWI	GC	SCWI	SONNYS	SCWI	GC	
1-F	(R.O.) WATER STORAGE TANK											SONNYS	SCWI	GC	GC	SONNYS	SCWI	N/A	
1-F	(R.O.) WATER STORAGE TANK											SONNYS	SCWI	GC	GC	SONNYS	SCWI	N/A	
1-K	R.T.S. (3-TANK VELOCITY-SONNY'S)									VARIES		GC	GC	GC	GC	GC	GC	GC	
1-P	WATER SOFTENER SYSTEM	120V		1P	4.0A	10		2"				SONNYS	SCWI	GC	GC	SONNYS	SCWI	GC	
1-W	(RO. REJECT) WATER STORAGE TANK							1"				SONNYS	SCWI	GC	GC	SONNYS	SCWI	N/A	
1-W	(RO. REJECT) WATER STORAGE TANK							1"				SONNYS	SCWI	GC	GC	SONNYS	SCWI	N/A	
1-X	R.O. REJECT PUMP	480V	5HP	3P	7.6A	15		*** 1-1/2"				SONNYS	SCWI	GC	SCWI	SONNYS	SCWI	GC	
2-A	PREP. GUN PUMP	480V	7.5HP	3P	11A	20	1	3/4"				SONNYS	SCWI	GC	GC	SONNYS	SCWI	GC	
2-B	PREP. GUN STATION							1/2"				SONNYS	SCWI	GC	GC	SONNYS	SCWI	N/A	SCH-80 GALVANIZED PIPE
3-D	WHEEL CLEANER SOLENOID	24V		1P	1.2A							SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	SCWI	
4-B	BUG CLEANER PUMP UNIT (G-57)							* 3/4"			1/2"	SONNYS	SCWI	GC	SCWI	SONNYS	SCWI	N/A	
4-J	BUCKET PUMP UNIT (G-57)							* 3/4"			1/2"	SONNYS	SCWI	GC	SCWI	SONNYS	SCWI	N/A	
5-4	FOAMING APPLICATOR-APAP3 (ARCH)											SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	N/A	
5-5	FLOOR APPLICATOR-D (APA200F)											SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	N/A	
5-8	UNDER CARRIAGE											SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	N/A	
5-C	APPLICATOR #1 TOP SOLENOID	24V		1P	1.2A							SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	SCWI	
5-D	APPLICATOR #1 SIDE SOLENOID	24V		1P	1.2A							SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	SCWI	
5-E	FRONT APPLICATOR FLOOR SOLENOID	24V		1P	1.2A							SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	SCWI	
5-M	UNDER CARRIAGE SOLENOID	24V		1P	1.2A							SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	SCWI	
6-7	Fusion BATH (Foaminator II)											SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	N/A	
6-E	REAR APPLICATOR FLOOR SOLENOID	24V		1P	1.2A							SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	SCWI	
6-G	Fusion BATH SOLENOID	24V		1P	1.2A							SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	SCWI	
6-G	Fusion BATH SOLENOID	24V		1P	1.2A							SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	SCWI	
6-G	Fusion BATH SOLENOID	24V		1P	1.2A							SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	SCWI	
7-4	CTA Mr.FOAMER											SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	N/A	
7-4	CTA Mr.FOAMER											SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	N/A	
7-4	CTA Mr.FOAMER											SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	SCWI	
7-C	CTA SOLENOID #1	24V		1P	1.2A							SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	SCWI	
7-D	CTA SOLENOID #2	24V		1P	1.2A							SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	SCWI	
8-4	Fusion PRIME (Mr.Foamer)											SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	N/A	
8-8	TOTAL SCENT APPLICATOR											SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	N/A	
8-G	Fusion PRIME SOLENOID	24V		1P	1.2A							SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	SCWI	
8-i	SCENT SOLENOID	24V		1P	1.2A							SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	SCWI	
10-6	WRAP FOAMER TUBE											SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	N/A	
10-7	WRAP FOAMER TUBE											SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	N/A	
10-12	WRAP ENT. DOUBLE JOG ELECTRIC											SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	N/A	
10-13	WRAP EXIT DOUBLE JOG ELECTRIC											SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	N/A	
10-A	AIR COMPRESSOR	480V	10HP	3P	14A	25					1"	SONNYS	SCWI	GC	N/A	SONNYS	SCWI	GC	(SEE MANUFACTURER MANUAL)
10-A	AIR COMPRESSOR	480V	10HP	3P	14A	25					1"	SONNYS	SCWI	GC	N/A	SONNYS	SCWI	GC	(SEE MANUFACTURER MANUAL)
10-B	WRAP MOTOR (DS)	480V	1HP	3P	1.65A	15	00					SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	
10-C	WRAP MOTOR (PS)	480V	1HP	3P	1.65A	15	00					SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	
10-E	WRAP RETRACT SOLENOID (D.S.)	24V		1P	.27A							SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	SCWI	
10-F	WRAP RETRACT SOLENOID (P.S.)	24V		1P	.27A							SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	SCWI	
10-J	WRAP BRUSH WATER SOLENOID	24V		1P	1.2A							SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	SCWI	
10-K	WRAP BRUSH WATER SOLENOID	24V		1P	1.2A							SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	SCWI	
10-L	AIR DRYER 64.CFM	120V	1/4HP	1P	5.8	15					3/4"	SONNYS	SCWI	GC	N/A	SONNYS	SCWI	GC	
10-N	WRAP FOAMER SOLENOID #1	24V		1P	1.2A							SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	SCWI	
10-P	WRAP FOAMER SOLENOID #2	24V		1P	1.2A							SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	SCWI	
10-Q	WRAP MOTOR EXIT (DS)	480V	1HP	3P	1.65A	15	00					SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	
10-R	WRAP MOTOR EXIT (PS)	480V	1HP	3P	1.65A	15	00					SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	
10-S	WRAP RETRACT SOLENOID (D.S.)	24V		1P	.27A							SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	SCWI	
10-T	WRAP RETRACT SOLENOID (P.S.)	24V		1P	.27A							SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	SCWI	

GC= GENERAL CONTRACTOR
SCWI = SONNYS (CARWASH INSTALLER)
* SOFT WATER LINE
** R.O. WATER LINE
*** REJECT WATER LINE

NO	DRAWN BY	CHECKED BY	DATE	DESCRIPTION
0	IBT	DHS	03/28/22	FOR CONSTRUCTION

S.E. Engineering
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DONALD H. STONEBURG LICENSE No. 85872 STATE OF FLORIDA PROFESSIONAL ENGINEER 3/27/22

STAMP:
DONALD H. STONEBURG, P.E.
1733 CAMPUS PLAZA COURT,
SUITE 10
BOWLING GREEN, KY 42101
FLORIDA P.E. NO. 85872

CONSULTANT

STAMP:

DRAWINGS FOR:
Starwash Express
925 Lockwood Blvd
Oviedo, FL 32765

SHEET TITLE:
Equipment Schedules

PROJECT NUMBER: 22-1017
FILENAME:
SCALE: AS NOTED
PLOT DATE: 03/28/22
DRAWN BY: IBT

SHEET:
E-0.3

SOLENOID VOLTAGE = 24V

480V	EQUIPMENT LIST											RESPONSIBILITY MATRIX							
		ELECTRICAL						WATER				PLUMBING AND MECHANICAL WORK				ELECTRICAL WORK			
ITEM #	DESCRIPTION	VOLT	HP	PHASE	AMP	C.B.	M.S.	COLD	HOT	RECLAIM	AIR	FURN. BY:	ERECTED BY:	EQ. RM. PIPING:	TUNNEL. PIPING:	FURN. BY:	ERECTED BY:	WIRED BY:	REMARKS
11-7	TIRE/WHEEL POODLE (TBGPDL200)											SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	N/A	
11-11	TIRE SEAL-9'											SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	N/A	
11-C	TIRE BRUSH RETRACT SOLENOID	24V		1P	.27A							SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	SCWI	
11-D	(T.S.A.) TIRE SHINE RETRACT SOLENOID	24V		1P	.27A							SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	SCWI	
11-E	TIRE BRUSH INWARD AIR SOLENOID	24V		1P	.27A							SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	SCWI	
11-F	(T.S.A.) SUPPLY STATION (G-57)										1/2"	SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	N/A	
11-G	(T.S.A.) CONTROL PANEL											SONNYS	SCWI	GC	SCWI	SONNYS	SCWI	N/A	
11-i	TBG_SFB POWER PACK	480V	7.5HP	3P	11A	20	1					SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	GC	
11-P	HYDRAULIC SOLENOID VALVE	24V		1P	1.06A							SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	SCWI	
12-7	H-PRESSURE SPINNER ARCH											SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	N/A	
12-25	SIDE BLASTER											SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	N/A	
12-C	WHEEL CLEANERS FLIP SOLENOID	24V		1P	.27A							SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	SCWI	
12-C	WHEEL CLEANERS FLIP SOLENOID	24V		1P	.27A							SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	SCWI	
12-C	WHEEL CLEANERS FLIP SOLENOID	24V		1P	.27A							SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	SCWI	
12-i	SIDE MOTOR (DS)	480V	1HP	3P	1.65A	15	00					SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	
12-i	SIDE MOTOR (DS)	480V	1HP	3P	1.65A	15	00					SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	
12-J	SIDE MOTOR (PS)	480V	1HP	3P	1.65A	15	00					SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	
12-J	SIDE MOTOR (PS)	480V	1HP	3P	1.65A	15	00					SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	
12-K	OMNI MOTOR (TOP)	480V	1HP	3P	1.65A	15	00					SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	
13-B	H-25 STAND & CONT. (DOUBLE UNIT)	24V		1P				1"		1-1/2"		SONNYS	SCWI	GC	SCWI	SONNYS	SCWI	GC	
13-BB	H-25 STAND & CONT. (DOUBLE UNIT)	24V		1P				1"		1-1/2"		SONNYS	SCWI	GC	SCWI	SONNYS	SCWI	GC	
13-C	H-25 OMNI PUMP TOP (#1)	480V	15HP	3P	21A	40	2			1-1/2"		SONNYS	SCWI	GC	SCWI	SONNYS	SCWI	GC	
13-E	OMNI TOP FLIP SOLENOID	24V		1P	.27A							SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	SCWI	
13-L	H-25 WHEEL CLEANERS PUMP	480V	15HP	3P	21A	40	2			1-1/2"		SONNYS	SCWI	GC	SCWI	SONNYS	SCWI	GC	
13-L	H-25 WHEEL CLEANERS PUMP	480V	15HP	3P	21A	40	2			1-1/2"		SONNYS	SCWI	GC	SCWI	SONNYS	SCWI	GC	
13-L	H-25 WHEEL CLEANERS PUMP	480V	15HP	3P	21A	40	2			1-1/2"		SONNYS	SCWI	GC	SCWI	SONNYS	SCWI	GC	
14-16	3 COLOR FOAMER (Mr.Foamer)											SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	N/A	
14-17	Fusion SEAL (Foaminator II)											SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	N/A	
14-18	Fusion WAX (Foaminator II)											SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	N/A	
14-F	COLOR FOAMER SOLENOID #1	24V		1P	1.2A							SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	SCWI	
14-G	COLOR FOAMER SOLENOID #2	24V		1P	1.2A							SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	SCWI	
14-H	COLOR FOAMER SOLENOID #3	24V		1P	1.2A							SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	SCWI	
14-J	Fusion SEAL SOLENOID	24V		1P	1.2A							SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	SCWI	
14-J	Fusion SEAL SOLENOID	24V		1P	1.2A							SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	SCWI	
14-L	Fusion WAX SOLENOID	24V		1P	1.2A							SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	SCWI	
14-L	Fusion WAX SOLENOID	24V		1P	1.2A							SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	SCWI	
14-L	Fusion WAX SOLENOID	24V		1P	1.2A							SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	SCWI	
15-3	SIDE BRUSH BM-21"											SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	N/A	
15-6	SIDE BRUSH TM-28"											SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	N/A	
15-B	SIDE WASHER MOTOR (DS)	480V	1HP	3P	1.65A	15	00					SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	
15-C	SIDE WASHER MOTOR (PS)	480V	1HP	3P	1.65A	15	00					SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	
15-i	SIDE BRUSH WATER SOLENOID	24V		1P	1.2A							SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	SCWI	
15-J	SIDE BRUSH- REC. SOLENOID	24V		1P	1.2A							SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	SCWI	
16-0	ALUMINUM ARCH											SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	N/A	
16-10	MIRROR RINSE (RNSMIRRAIN)											SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	N/A	
16-12	Fusion RINSE (Foaminator II)											SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	N/A	
16-B	DRYING AGENT/RINSE WAX SOLENOID	24V		1P	1.2A							SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	SCWI	
16-i	MIRROR RINSE SOLENOID	24V		1P	1.2A							SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	SCWI	
16-R	Fusion RINSE SOLENOID	24V		1P	1.2A							SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	SCWI	

GC= GENERAL CONTRACTOR
SCWI = SONNYS (CARWASH INSTALLER)
* SOFT WATER LINE
** R.O. WATER LINE
*** REJECT WATER LINE

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0	IBT	DHS	03/28/22	FOR CONSTRUCTION

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DONALD H. STONEBURG LICENSE No. 85872 STATE OF FLORIDA PROFESSIONAL ENGINEER

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BOWLING GREEN, KY 42101
FLORIDA P.E. NO. 85872

CONSULTANT

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DRAWINGS FOR:
Starwash Express
925 Lockwood Blvd
Oviedo, FL 32765

SHEET TITLE:
Equipment Schedules

PROJECT NUMBER: 22-1017
FILENAME:
SCALE: AS NOTED
PLOT DATE: 03/28/22
DRAWN BY: IBT

SHEET:
E-0.4

SOLENOID VOLTAGE = 24V

480V	EQUIPMENT LIST											RESPONSIBILITY MATRIX							
		ELECTRICAL						WATER				PLUMBING AND MECHANICAL WORK				ELECTRICAL WORK			
ITEM #	DESCRIPTION	VOLT	HP	PHASE	AMP	C.B.	M.S.	COLD	HOT	RECLAIM	AIR	FURN. BY:	ERECTED BY:	EQ. RM. PIPING:	TUNNEL. PIPING:	FURN. BY:	ERECTED BY:	WIRED BY:	REMARKS
17-3	SPOT FREE ARCH FOR (R.O./D.I.) SYS.											SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	N/A	
17-4	DRYING AGENT/RINSE WAX (ARCH)											SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	N/A	
17-5	FINAL RINSE (ARCH) RNS-100											SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	N/A	
17-6	MULTIPLE RAIN (ARCH-10')											SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	N/A	
17-11	CERAMIC APPLICATOR-(ARCH)											SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	N/A	
17-11	CERAMIC APPLICATOR-(ARCH)											SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	N/A	
17-11	CERAMIC APPLICATOR-(ARCH)											SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	N/A	
17-13	Fusion RAIN REPEL (Mr.Foamer)											SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	N/A	
17-D	FINAL RINSE SOLENOID	24V		1P	1.2A							SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	N/A	
17-E	Fusion RAIN REPEL SOLENOID	24V		1P	1.2A							SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	SCWI	
17-H	SPOT FREE SOLENOID (RO & D.I.-OPT.)	24V		1P	1.2A							SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	SCWI	
17-L	CERAMIC SOLENOID	24V		1P	1.2A							SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	SCWI	
17-L	CERAMIC SOLENOID	24V		1P	1.2A							SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	SCWI	
17-L	CERAMIC SOLENOID	24V		1P	1.2A							SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	SCWI	
18-0	CONVEYOR PIT											GC	GC	GC	GC	N/A	N/A	N/A	CONVEYOR PIT 1'-6" LONGER THAN CONVEYOR
18-1	(8X2) CORRELATOR PIT											GC	GC	N/A	N/A	N/A	N/A	N/A	
18-10	GALVANIZED TUBE (3X5)"											SONNYS	SCWI						
18-B	CONVEYOR POWER PACK (Twin)	480V	10HP	3P	14A	25	1					SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	GC	
18-C	CONVEYOR AIR SOL.	24V		1P	.27A						1/2"	SONNYS	SCWI	GC	SCWI	SONNYS	SCWI	GC	
18-E	GRATING, FIBERGLASS 1-1/2"											SONNYS	SCWI	N/A	SCWI	N/A	N/A	N/A	
19	ENTRANCE EYE CONTROL STATION	24V		1P	.67A							SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	
19-3	ROLLER MID 4WHL W/LOG LINK											SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	N/A	
20	DIGITAL QUEUE	120V		1P		10						SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	GC	
20-1	TUNNEL CONTROLLER	24V		1P	.67A							SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	
20-2	Mr.FOAMER POS CANOPY (2 Legs)											SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	N/A	
20-2	Mr.FOAMER POS CANOPY (2 Legs)											SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	N/A	
20-B	PROGRAMMER PUSH BUTTON STATION	120V		1P		20						SONNYS				SONNYS		GC	
20-C	PAY STATION (Qty.2)	120V		1P		20						SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	
20-D	GATE (Qty.2)	120V		1P		20						SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	
20-J	LICENSE PLATE RECOGNITION POLE											SONNYS	GC	N/A	N/A	SONNYS	GC	GC	
20-K	SMART QUEUE-LPR POLE											SONNYS	GC	N/A	N/A	SONNYS	GC	GC	
21-2	M.C.C. & TUNNEL CONTROLER	480V		3P	TBD							SONNYS	GC	N/A	N/A	SONNYS	GC	GC	(VERIFY TCL)
21-D	M-GAGE- ANTI COLLISION	24V		1P	1.2A							SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	
21-E	ANTI COLLISION CONTROL BOX	120V		1P	1.2A	10						SONNYS	GC	N/A	N/A	SONNYS	GC	GC	
22-A	ELECTRICAL EYE SENSORS											SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	
22-B	ENTRANCE TIRE SWITCH											SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	
22-C	STOP / START STATIONS	24V		1P								GC	GC	N/A	N/A	GC	GC	GC	MOMENTARY START
22-E	WARNING HORN	24V		1P								GC	GC	N/A	N/A	GC	GC	GC	
22-Q	AUTO ROLLER UP											SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	
24-16	COMPACT TOP BRUSH											SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	N/A	
24-16	COMPACT TOP BRUSH											SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	N/A	
24-G	TOP BRUSH MOTOR	480V	1HP	3P	1.65A	15	00					SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	
24-G	TOP BRUSH MOTOR	480V	1HP	3P	1.65A	15	00					SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	
24-i	TOP BRUSH RETRACT SOLENOID	24V		1P	.27A							SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	SCWI	
24-i	TOP BRUSH RETRACT SOLENOID	24V		1P	.27A							SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	SCWI	
24-J	TOP BRUSH WATER SOLENOID	24V		1P	1.2A							SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	SCWI	
24-J	TOP BRUSH WATER SOLENOID	24V		1P	1.2A							SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	SCWI	
24-K	TOP BRUSH RETRACT SOLENOID	24V		1P	.27A							SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	SCWI	
24-K	TOP BRUSH RETRACT SOLENOID	24V		1P	.27A							SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	SCWI	

GC= GENERAL CONTRACTOR
SCWI = SONNYS (CARWASH INSTALLER)
* SOFT WATER LINE
** R.O. WATER LINE
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NO	DRAWN BY	CHECKED BY	DATE	DESCRIPTION
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DONALD H. STONEBURG LICENSE No. 85872 STATE OF FLORIDA PROFESSIONAL ENGINEER
3/29/22

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SHEET:
E-0.5

SOLENOID VOLTAGE = 24V

480V	EQUIPMENT LIST											RESPONSIBILITY MATRIX							
		ELECTRICAL						WATER				PLUMBING AND MECHANICAL WORK				ELECTRICAL WORK			
ITEM #	DESCRIPTION	VOLT	HP	PHASE	AMP	C.B.	M.S.	COLD	HOT	RECLAIM	AIR	FURN. BY:	ERECTED BY:	EQ. RM. PIPING:	TUNNEL. PIPING:	FURN. BY:	ERECTED BY:	WIRED BY:	REMARKS
25-0	BLOWER ARCH SPACER (Qty.6)											SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	N/A	
25-4	BLOWER BnD TOP FRAME											SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	N/A	
25-8	TOP BRUSH/MOTOR BnD	480V	1HP	3P	1.65A	15	00					SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	
25-10	BLOWER ARCH 144" (Qty.4)											SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	N/A	
25-A	BLOWER MOTOR NO.1	480V	15HP	3P	17A	40	2					SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	
25-B	BLOWER MOTOR NO.2	480V	15HP	3P	17A	40	2					SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	
25-C	BLOWER MOTOR NO.3	480V	15HP	3P	17A	40	2					SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	
25-D	BLOWER MOTOR NO.4	480V	15HP	3P	17A	40	2					SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	
25-E	BLOWER MOTOR NO.5	480V	15HP	3P	17A	40	2					SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	
25-F	BLOWER MOTOR NO.6	480V	15HP	3P	17A	40	2					SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	
25-G	BLOWER MOTOR NO.7	480V	15HP	3P	17A	40	2					SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	
25-H	BLOWER MOTOR NO.8	480V	15HP	3P	17A	40	2					SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	
25-i	BLOWER MOTOR NO.9	480V	15HP	3P	17A	40	2					SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	
25-J	BLOWER MOTOR NO.10	480V	15HP	3P	17A	40	2					SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	
25-K	BLOWER MOTOR NO.11	480V	15HP	3P	17A	40	2					SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	
25-L	BLOWER MOTOR NO.12	480V	15HP	3P	17A	40	2					SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	
25-M	BLOWER MOTOR NO.13	480V	15HP	3P	17A	40	2					SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	
26-1	BLOWER GATOR (Qty.13)											SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	
26-3	BLOWER, MAMMOTH PIVOTING (Qty.2)											SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	N/A	
26-A	BLOWER (FLIP) SOLENOID (Qty.2)	24V		1P	.27A							SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	N/A	
26-B	BLOWER (GATOR) SOLENOID (Qty.8)	24V		1P	.27A							SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	SCWI	
26-D	TOP BRUSH RETRACT SOLENOID_B&D	24V		1P	.27A							SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	SCWI	
26-E	BL MAMMOTH PIV. SOLENOID (Qty.2)	24V		1P	.27A							SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	SCWI	
27	PULSE SWITCH											SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	SCWI	
27-1	CAMARA ARCH											SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	
27-2	TRUCK BED CONCIERGE	24V		1P								SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	N/A	
27-B	U. SOUND SENSOR CONTROL BOX	120V		1P	.25A							SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	SCWI	
27-C	CONVEYOR PULSE CONTROL BOX	120V		1P	.25A	10						SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	
29-3	PIPE LIGHT, LED IP69K (SIGN)	120V		1P	0.57A							SONNYS	SCWI	GC	SCWI	SONNYS	SCWI	GC	
29-6	GALAXY ARCH (Mr. Foamer)	120V		1P		20						SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	
29-8	G&G INFINITY CONTROLLER	120V		1P								SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	
30-C	(WAIT & GO') INSTRUCTIONAL SIGN	120V		1P	2.5A	20						SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	
30-E	ENTRANCE INSTRUCTIONAL CABINET	120V		1P		20						SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	24X24X6 CONCRETE PAD REQUIRED
30-G	PKG. RECEIVED SIGN	120V		1P		20						SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	
30-i	MENU DISPLAY (Qty.2)	120V		1P		20						SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	
32-A	UNIMAC WASHER TYPE-(UF-35)	(208V)	1/3HP	1P	7.2A	20		3/4"				SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	
33-C	CHEMICAL DISPENSER	24V		1P	1.2A			1"			1/2"	SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	4"DIA. DRAIN/ SERVICE DISCONNECT REQUIRED
33-F	CHEMICAL DISPENSER	24V		1P	1.2A			1"			1/2"	SONNYS	SCWI	GC	SCWI	SONNYS	SCWI	GC	
33-G	CHEMICAL DISPENSER	24V		1P	1.2A			1"			1/2"	SONNYS	SCWI	GC	SCWI	SONNYS	SCWI	GC	
33-H	CHEMICAL DISPENSER	24V		1P	1.2A			1"			1/2"	SONNYS	SCWI	GC	SCWI	SONNYS	SCWI	GC	
36-0	VACUUM PIPE											SONNYS	SCWI	GC	SCWI	SONNYS	SCWI	GC	
37-4	VACUUM 1100 (Qty.11)											GC	GC	N/A	N/A	N/A	N/A	N/A	
37-6	VACUUM 2500 (Qty.19)											SONNYS	SCWI	N/A	N/A	N/A	N/A	N/A	
37-B	VACUUM SEPARATOR (Qty.3)											SONNYS	SCWI	N/A	N/A	N/A	N/A	N/A	
37-H	VACUUM (25HP)	480V	25HP	3P	34A	70	2					SONNYS	SCWI	N/A	GC	SONNYS	SCWI	N/A	
37-H	VACUUM (25HP)	480V	25HP	3P	34A	70	2					SONNYS	SCWI	N/A	GC	SONNYS	SCWI	GC	STOP/START STATIONS BY OTHERS
37-H	VACUUM (25HP)	480V	25HP	3P	34A	70	2					SONNYS	SCWI	N/A	GC	SONNYS	SCWI	GC	STOP/START STATIONS BY OTHERS
38	MAT. MACHINE	120V		1P		20						SONNYS	SCWI	N/A	GC	SONNYS	SCWI	GC	STOP/START STATIONS BY OTHERS
38	MAT. MACHINE	120V		1P		20						SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	STOP/START STATION BY OTHERS
38	MAT. MACHINE	120V		1P		20						SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	STOP/START STATION BY OTHERS
40-D	GRAND ARCH (Mr. Foamer)	120V		1P		20						SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	STOP/START STATION BY OTHERS
40-G	MONSTER ARCH (Mr. Foamer)	120V		1P		20						SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	
42	SOL_CONTROL PANEL (RECLAIM)							1"		1"		SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	
42-A	SOL_CONTROL PANEL (REJECT)							*** 1"				SONNYS	SCWI	GC	SCWI	SONNYS	SCWI	N/A	
42-B	SOL_CONTROL PANEL (R.O.)							** 1"				SONNYS	SCWI	GC	SCWI	SONNYS	SCWI	N/A	
44	SOL_CONTROL PNL. (PNEUMATIC)										1"	SONNYS	SCWI	GC	SCWI	SONNYS	SCWI	N/A	
44-A	SOL_CONTROL PNL. (PNEUMATIC)										1"	SONNYS	SCWI	GC	SCWI	SONNYS	SCWI	N/A	
44-B	SOL_CONTROL PNL. (PNEUMATIC)										1"	SONNYS	SCWI	GC	SCWI	SONNYS	SCWI	N/A	
45	SINGLE DOSATRON PUMP STATION							*** 3/4"			1/2"	SONNYS	SCWI	GC	SCWI	SONNYS	SCWI	N/A	
47-B	GRUNDFOS PUMP	480V	7.5HP	3P	11A	20		* 2"				SONNYS	SCWI	GC	N/A	SONNYS	SCWI	GC	
47-B	GRUNDFOS PUMP	480V	7.5HP	3P	11A	20		* 2"				SONNYS	SCWI	GC	N/A	SONNYS	SCWI	GC	

GC= GENERAL CONTRACTOR
SCWI = SONNYS (CARWASH INSTALLER)
* SOFT WATER LINE
** R.O. WATER LINE
*** REJECT WATER LINE

NO	DRAWN BY	CHECKED BY	DATE	DESCRIPTION
0	IBT	DHS	03/28/22	FOR CONSTRUCTION

S.E. Engineering
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DONALD H. STONEBURG LICENSE No. 85872 STATE OF FLORIDA PROFESSIONAL ENGINEER
3/29/22

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SUITE 10
BOWLING GREEN, KY 42101
FLORIDA P.E. NO. 85872

CONSULTANT

STAMP:

DRAWINGS FOR:
Starwash Express
925 Lockwood Blvd
Oviedo, FL 32765

SHEET TITLE:
Equipment Schedules

PROJECT NUMBER: 22-1017
FILENAME:
SCALE: AS NOTED
PLOT DATE: 03/28/22
DRAWN BY: IBT

SHEET:
E-0.6

SOLENOID VOLTAGE = 24V

480V	EQUIPMENT LIST											RESPONSIBILITY MATRIX							
		ELECTRICAL						WATER			AIR	PLUMBING AND MECHANICAL WORK				ELECTRICAL WORK			REMARKS
ITEM #	DESCRIPTION	VOLT	HP	PHASE	AMP	C.B.	M.S.	COLD	HOT	RECLAIM		FURN. BY:	ERECTED BY:	EQ. RM. PIPING:	TUNNEL. PIPING:	FURN. BY:	ERECTED BY:	WIRED BY:	
25-0	BLOWER ARCH SPACER (Qty.6)											SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	N/A	
25-4	BLOWER BnD TOP FRAME											SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	N/A	
25-8	TOP BRUSH/MOTOR BnD	480V	1HP	3P	1.65A	15	00					SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	
25-10	BLOWER ARCH 144" (Qty.4)											SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	N/A	
25-A	BLOWER MOTOR NO.1	480V	15HP	3P	17A	40	2					SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	
25-B	BLOWER MOTOR NO.2	480V	15HP	3P	17A	40	2					SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	
25-C	BLOWER MOTOR NO.3	480V	15HP	3P	17A	40	2					SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	
25-D	BLOWER MOTOR NO.4	480V	15HP	3P	17A	40	2					SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	
25-E	BLOWER MOTOR NO.5	480V	15HP	3P	17A	40	2					SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	
25-F	BLOWER MOTOR NO.6	480V	15HP	3P	17A	40	2					SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	
25-G	BLOWER MOTOR NO.7	480V	15HP	3P	17A	40	2					SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	
25-H	BLOWER MOTOR NO.8	480V	15HP	3P	17A	40	2					SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	
25-i	BLOWER MOTOR NO.9	480V	15HP	3P	17A	40	2					SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	
25-J	BLOWER MOTOR NO.10	480V	15HP	3P	17A	40	2					SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	
25-K	BLOWER MOTOR NO.11	480V	15HP	3P	17A	40	2					SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	
25-L	BLOWER MOTOR NO.12	480V	15HP	3P	17A	40	2					SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	
25-M	BLOWER MOTOR NO.13	480V	15HP	3P	17A	40	2					SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	N/A	
26-1	BLOWER GATOR (Qty.13)											SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	N/A	
26-3	BLOWER, MAMMOTH PIVOTING (Qty.2)											SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	SCWI	
26-A	BLOWER (FLIP) SOLENOID (Qty.2)	24V		1P	.27A							SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	SCWI	
26-B	BLOWER (GATOR) SOLENOID (Qty.8)	24V		1P	.27A							SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	SCWI	
26-D	TOP BRUSH RETRACT SOLENOID_B&D	24V		1P	.27A							SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	SCWI	
26-E	BL MAMMOTH PIV. SOLENOID (Qty.2)	24V		1P	.27A							SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	
27	PULSE SWITCH											SONNYS	SCWI	N/A	SCWI	SONNYS	SCWI	N/A	
27-1	CAMARA ARCH											SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	SCWI	
27-2	TRUCK BED CONCIERGE	24V		1P								SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	
27-B	U. SOUND SENSOR CONTROL BOX	120V		1P	.25A							SONNYS	SCWI	GC	SCWI	SONNYS	SCWI	GC	
27-C	CONVEYOR PULSE CONTROL BOX	120V		1P	.25A	10						SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	
29-3	PIPE LIGHT, LED IP69K (SIGN)	120V		1P	0.57A							SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	
29-6	GALAXY ARCH (Mr. Foamer)	120V		1P		20						SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	24X24X6 CONCRETE PAD REQUIRED
29-8	G&G INFINITY CONTROLLER	120V		1P								SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	
30-C	(WAIT & GO') INSTRUCTIONAL SIGN	120V		1P	2.5A	20						SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	
30-E	ENTRANCE INSTRUCTIONAL CABINET	120V		1P		20						SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	
30-G	PKG. RECEIVED SIGN	120V		1P		20						SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	4"DIA. DRAIN/ SERVICE DISCONNECT REQUIRED
30-i	MENU DISPLAY (Qty.2)	120V		1P		20						SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	
32-A	UNIMAC WASHER TYPE-(UF-35)	(208V)	1/3HP	1P	7.2A	20		3/4"				SONNYS	SCWI	GC	SCWI	SONNYS	SCWI	GC	
33-C	CHEMICAL DISPENSER	24V		1P	1.2A			1"			1/2"	SONNYS	SCWI	GC	SCWI	SONNYS	SCWI	GC	
33-F	CHEMICAL DISPENSER	24V		1P	1.2A			1"			1/2"	SONNYS	SCWI	GC	SCWI	SONNYS	SCWI	GC	
33-G	CHEMICAL DISPENSER	24V		1P	1.2A			1"			1/2"	SONNYS	SCWI	GC	SCWI	SONNYS	SCWI	GC	
33-H	CHEMICAL DISPENSER	24V		1P	1.2A			1"			1/2"	GC	GC	N/A	N/A	N/A	N/A	N/A	
36-0	VACUUM PIPE											SONNYS	SCWI	N/A	N/A	N/A	N/A	N/A	
37-4	VACUUM 1100 (Qty.11)											SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	N/A	
37-6	VACUUM 2500 (Qty.19)											SONNYS	SCWI	N/A	GC	SONNYS	SCWI	GC	STOP/START STATIONS BY OTHERS
37-B	VACUUM SEPARATOR (Qty.3)											SONNYS	SCWI	N/A	GC	SONNYS	SCWI	GC	STOP/START STATIONS BY OTHERS
37-H	VACUUM (25HP)	480V	25HP	3P	34A	70	2					SONNYS	SCWI	N/A	GC	SONNYS	SCWI	GC	STOP/START STATIONS BY OTHERS
37-H	VACUUM (25HP)	480V	25HP	3P	34A	70	2					SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	STOP/START STATION BY OTHERS
37-H	VACUUM (25HP)	480V	25HP	3P	34A	70	2					SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	STOP/START STATION BY OTHERS
38	MAT. MACHINE	120V		1P		20						SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	STOP/START STATION BY OTHERS
38	MAT. MACHINE	120V		1P		20						SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	
38	MAT. MACHINE	120V		1P		20						SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	GC	
40-D	GRAND ARCH (Mr. Foamer)	120V		1P		20						SONNYS	SCWI	N/A	N/A	SONNYS	SCWI	N/A	
40-G	MONSTER ARCH (Mr. Foamer)	120V		1P		20						SONNYS	SCWI	GC	SCWI	SONNYS	SCWI	N/A	
42	SOL_CONTROL PANEL (RECLAIM)							1"		1"		SONNYS	SCWI	GC	SCWI	SONNYS	SCWI	N/A	
42-A	SOL_CONTROL PANEL (REJECT)							*** 1"				SONNYS	SCWI	GC	SCWI	SONNYS	SCWI	N/A	
42-B	SOL_CONTROL PANEL (R.O.)							** 1"				SONNYS	SCWI	GC	SCWI	SONNYS	SCWI	N/A	
44	SOL_CONTROL PNL. (PNEUMATIC)										1"	SONNYS	SCWI	GC	SCWI	SONNYS	SCWI	N/A	
44-A	SOL_CONTROL PNL. (PNEUMATIC)										1"	SONNYS	SCWI	GC	SCWI	SONNYS	SCWI	N/A	
44-B	SOL_CONTROL PNL. (PNEUMATIC)										1"	SONNYS	SCWI	GC	SCWI	SONNYS	SCWI	N/A	
45	SINGLE DOSATRON PUMP STATION							*** 3/4"			1/2"	SONNYS	SCWI	GC	N/A	SONNYS	SCWI	GC	
47-B	GRUNDFOS PUMP	480V	7.5HP	3P	11A	20		* 2"				SONNYS	SCWI	GC	N/A	SONNYS	SCWI	GC	
47-B	GRUNDFOS PUMP	480V	7.5HP	3P	11A	20		* 2"											

GC= GENERAL CONTRACTOR
SCWI = SONNYS (CARWASH INSTALLER)
* SOFT WATER LINE
** R.O. WATER LINE
*** REJECT WATER LINE

NO	DRAWN BY	CHECKED BY	DATE	DESCRIPTION
0	IBT	DHS	03/28/22	FOR CONSTRUCTION

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DONALD H. STONEBURG LICENSE No. 85872 STATE OF FLORIDA PROFESSIONAL ENGINEER
3/29/22

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1733 CAMPUS PLAZA COURT,
SUITE 10
BOWLING GREEN, KY 42101
FLORIDA P.E. NO. 85872

CONSULTANT

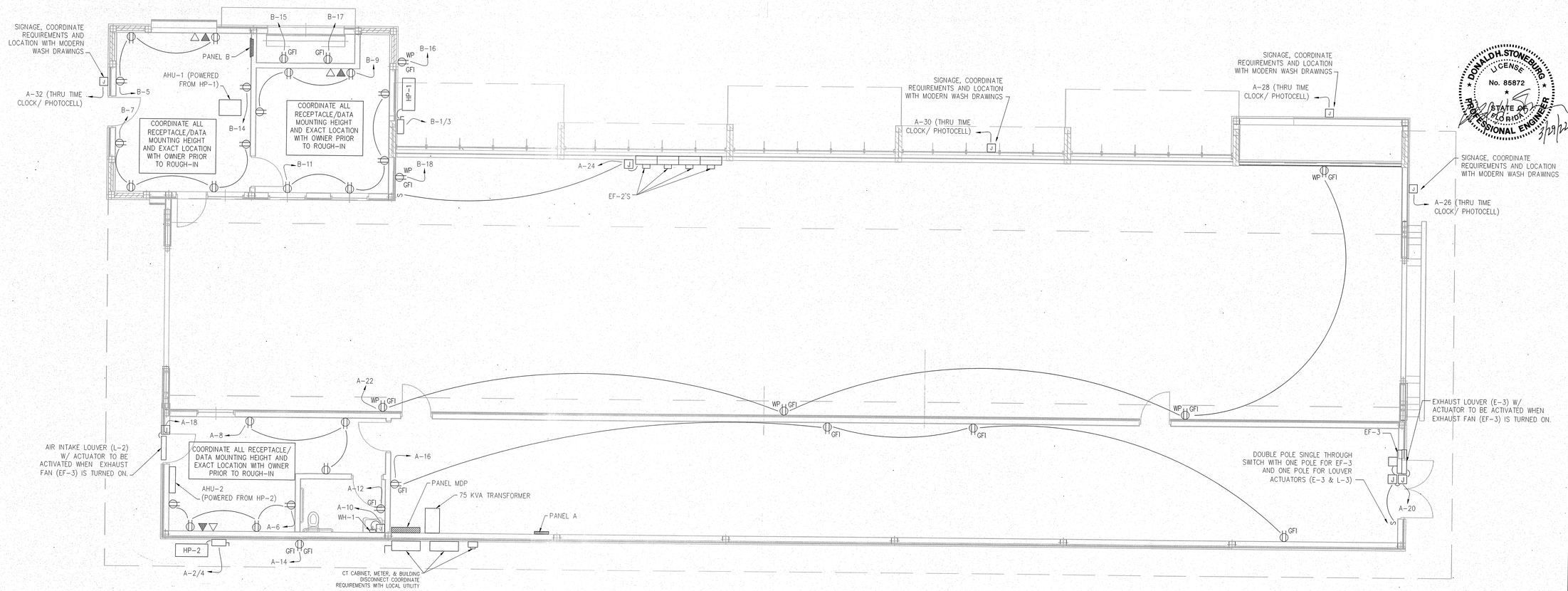
STAMP:

DRAWINGS FOR:
Starwash Express
925 Lockwood Blvd
Oviedo, FL 32765

SHEET TITLE:
Equipment Schedules

PROJECT NUMBER: 22-1017
FILENAME:
SCALE: AS NOTED
PLOT DATE: 03/28/22
DRAWN BY: IBT

SHEET:
E-0.6



A
E-1.1

POWER PLAN - BUILDING

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

NO	DRAWN BY	CHECKED BY	DATE	DESCRIPTION
0	IBT	DHS	03/28/22	FOR CONSTRUCTION

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FLORIDA P.E. NO. 85872

DONALD H. STONEBURG LICENSE No. 85872 STATE OF FLORIDA PROFESSIONAL ENGINEER 3/29/22

CONSULTANT

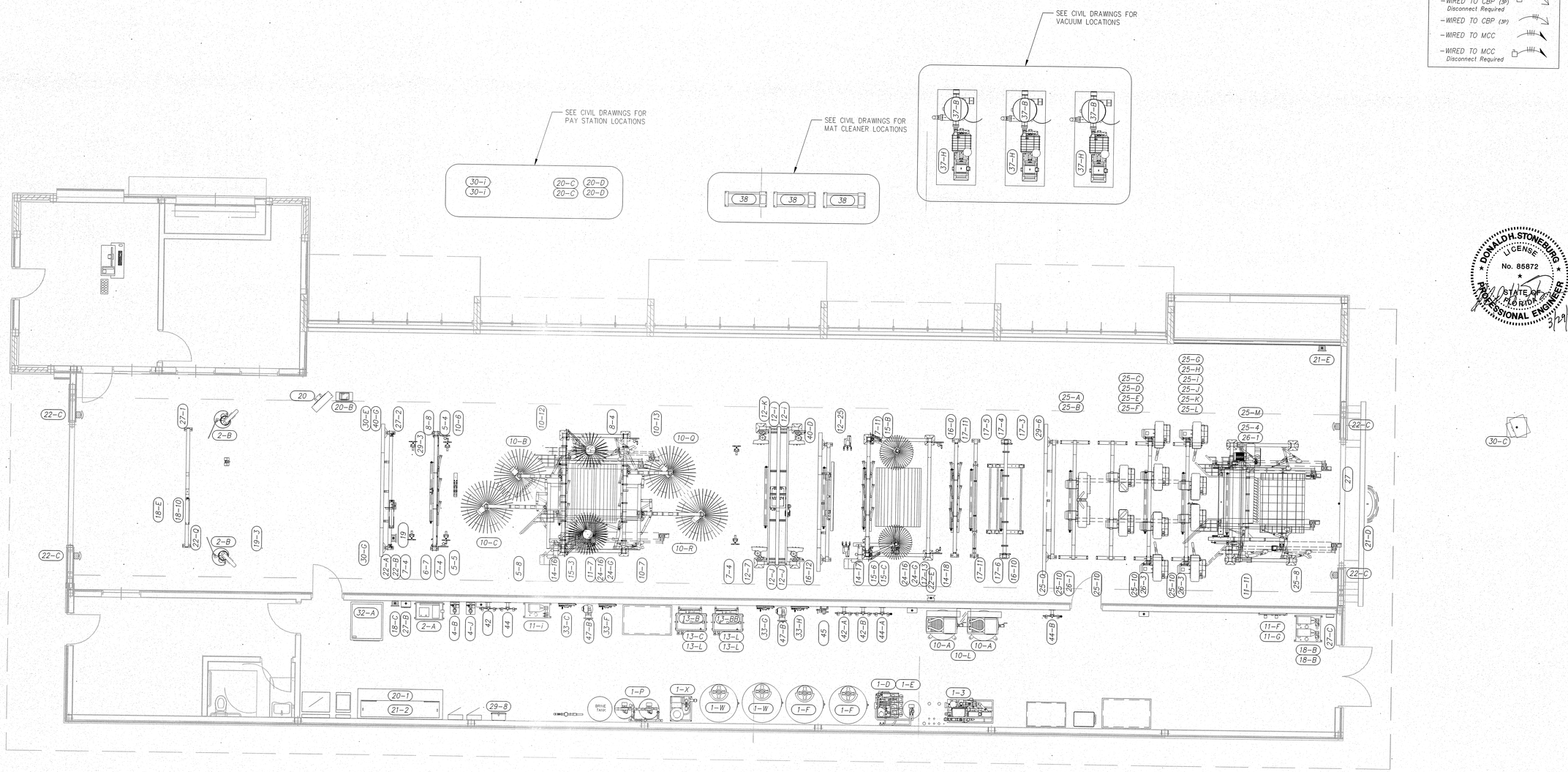
STAMP:

DRAWINGS FOR:
Starwash Express
925 Lockwood Blvd
Oviedo, FL 32765

SHEET TITLE
Power Plan - Building

PROJECT NUMBER: 22-1017	
FILENAME:	
SCALE: AS NOTED	
PLOT DATE: 03/28/22	
DRAWN BY: IBT	

SHEET:
E-1.1



A
E-1.2

POWER PLAN - EQUIPMENT LAYOUT

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

NO	DRAWN BY	CHECKED BY	DATE	DESCRIPTION
0	IBT	DHS	03/28/22	FOR CONSTRUCTION

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FLORIDA P.E. NO. 85872

DONALD H. STONEBURG LICENSE No. 85872 STATE OF FLORIDA PROFESSIONAL ENGINEER
3/29/22

CONSULTANT

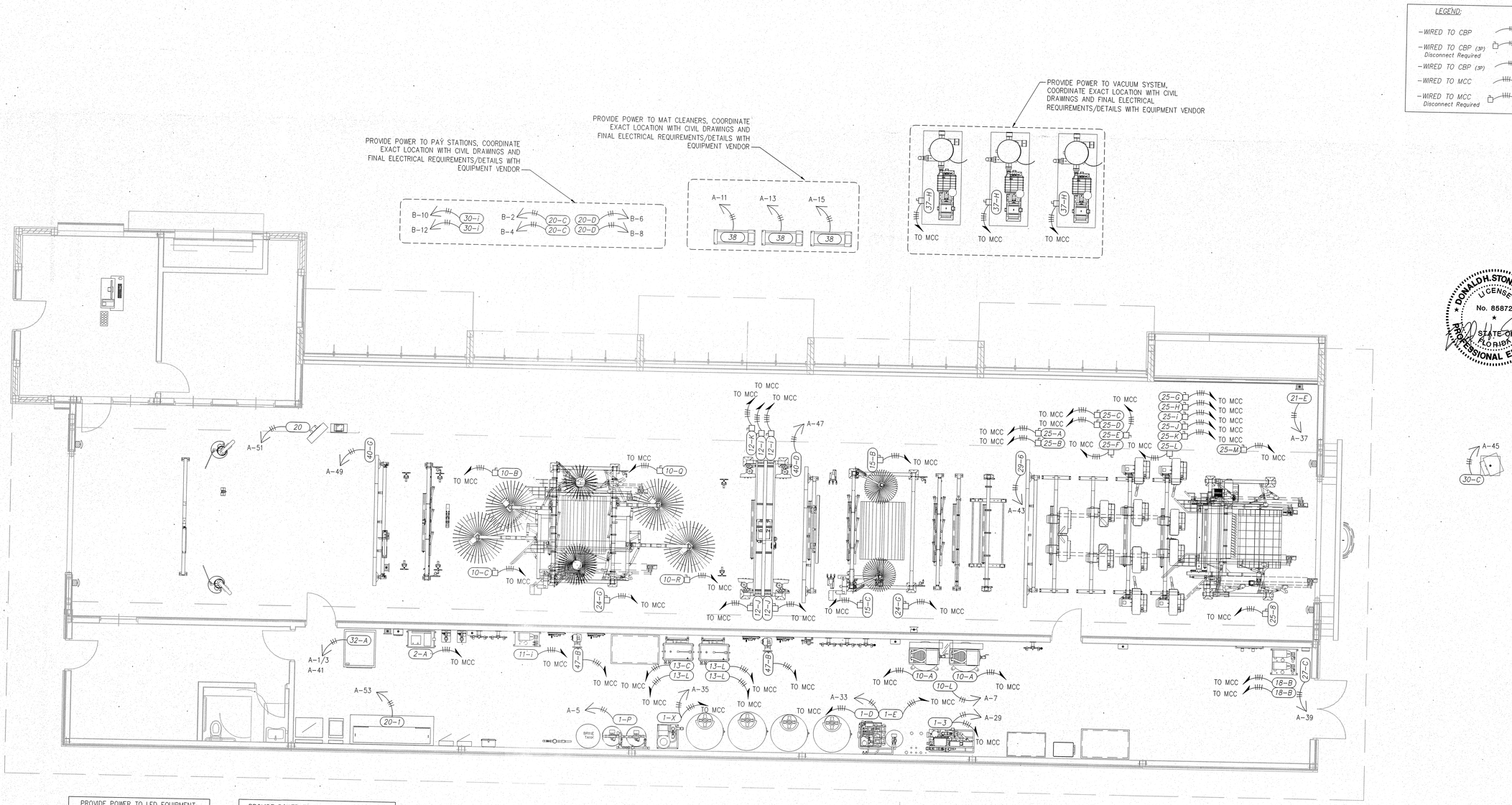
STAMP:

DRAWINGS FOR:
Starwash Express
925 Lockwood Blvd
Oviedo, FL 32765

SHEET TITLE:
Power Plan - Equip. Layout

PROJECT NUMBER: 22-1017
FILENAME:
SCALE: AS NOTED
PLOT DATE: 03/28/22
DRAWN BY: IBT

SHEET:
E-1.2



PROVIDE POWER TO LED EQUIPMENT LIGHTS (29-3 & 29-8) THRU CIRCUITS A-17, A-19, A-21, A-23, A-25, A-27 & A-29. COORDINATE LOCATION AND REQUIREMENTS WITH EQUIPMENT VENDOR

PROVIDE POWER TO CONTROL BOX (21-E), CONTROL BOX (27-C), CONTROL_120V (32-A), GALAXY ARCH (29-6), WAIT & GO (30-C), GRAND ARCH (40-D), MONSTER ARCH (40-G), DIGITAL QUEUE (20), AND RELAY BOX (20-1). COORDINATE LOCATION AND REQUIREMENTS WITH EQUIPMENT VENDOR

A / E-1.3 **POWER PLAN - EQUIPMENT (120V-480V)**

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

LEGEND:

- WIRED TO CBP
- WIRED TO CBP (3P) Disconnect Required
- WIRED TO CBP (3P)
- WIRED TO MCC
- WIRED TO MCC Disconnect Required

NO	DRAWN BY	CHECKED BY	DATE	DESCRIPTION
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3/28/22

CONSULTANT

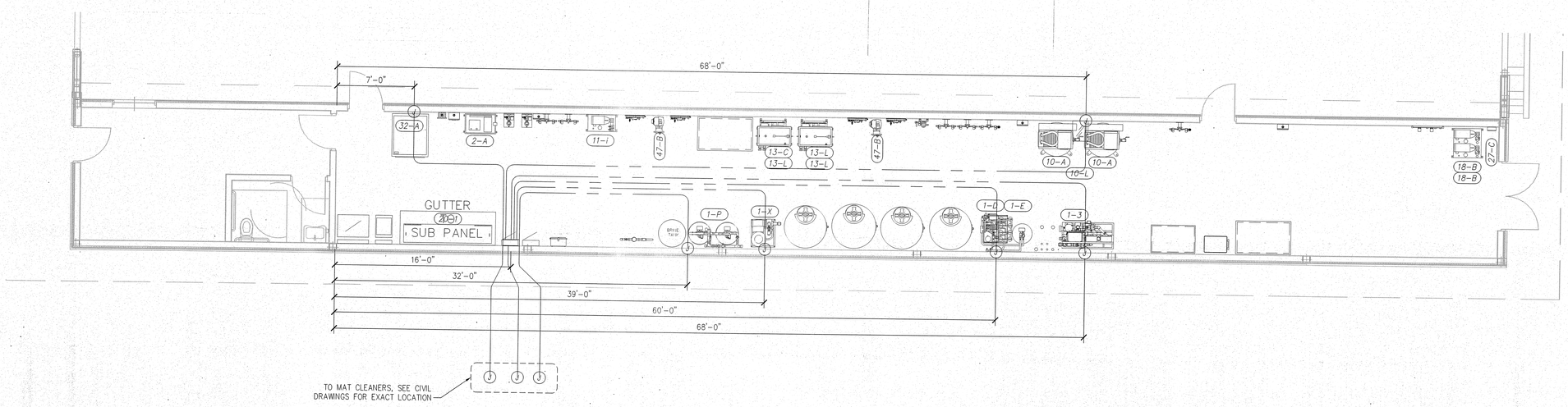
STAMP:

DRAWINGS FOR: Starwash Express
925 Lockwood Blvd
Oviedo, FL 32765

SHEET TITLE: Power Plan - Equip. (120V-480V)

PROJECT NUMBER: 22-1017
FILENAME:
SCALE: AS NOTED
PLOT DATE: 03/28/22
DRAWN BY: IBT

SHEET: E-1.3



B
E-1.4

POWER PLAN - EQUIPMENT U.G. (120V-208V)

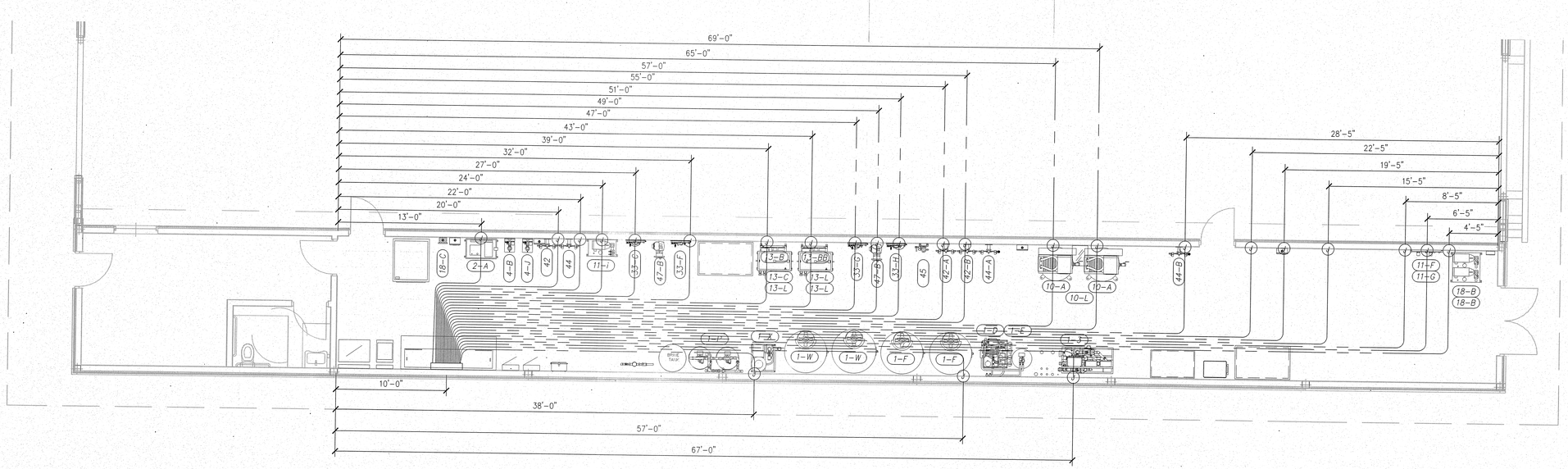
SCALE: 3/16" = 1'-0"

LEGEND:

- SURFACE MOUNTED Coundult
- CONCEALED Coundult
- JUNCTION BOX

ELECTRICAL UNDERGROUND GENERAL NOTES:

1. BLOWERS AND VACUUM CONDUITS SHALL BE 1¼"ø PVC SCH80 AND ALL OTHER CONDUITS TO BE 1"ø PVC SCH80, UNLESS OTHERWISE NOTED.



A
E-1.4

POWER PLAN - EQUIPMENT U.G. (480V)

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

NO	DRAWN BY	CHECKED BY	DATE	DESCRIPTION
0	IBT	DHS	03/28/22	FOR CONSTRUCTION

S.E. Engineering
1733 Campus Plaza Court, Suite 10
Bowling Green, KY 42101
Phone: 270-796-3052
Fax: 270-842-3102

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DONALD H. STONEBURG
LICENSE
No. 85872
STATE OF FLORIDA
PROFESSIONAL ENGINEER
3/29/22

CONSULTANT

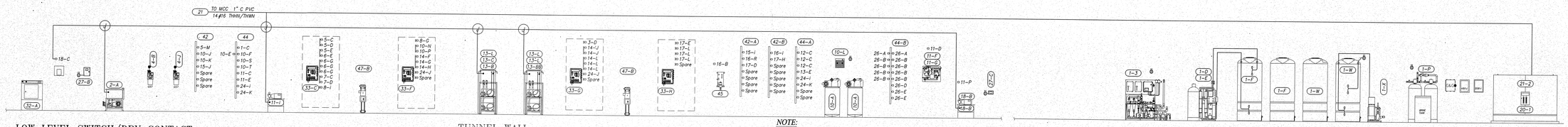
STAMP:

DRAWINGS FOR:
Starwash Express
925 Lockwood Blvd
Oviedo, FL 32765

SHEET TITLE:
Power Plan - Equip. U.G. (120V-480V)

PROJECT NUMBER: 22-1017
FILENAME:
SCALE: AS NOTED
PLOT DATE: 03/28/22
DRAWN BY: IBT

SHEET:
E-1.4



NOTE:
1–SEE LEGEND SHEET
2–CONNECTIONS SHOWN IN THE ELEVATION VIEW ARE SCHEMATIC ONLY. REFER TO PLAN VIEWS FOR PLACEMENT.

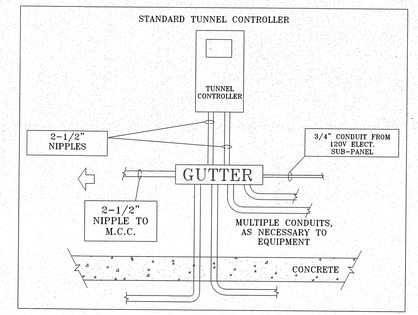
1 POWER PLAN - EQUIPMENT ROOM ELEVATION

E-1.5

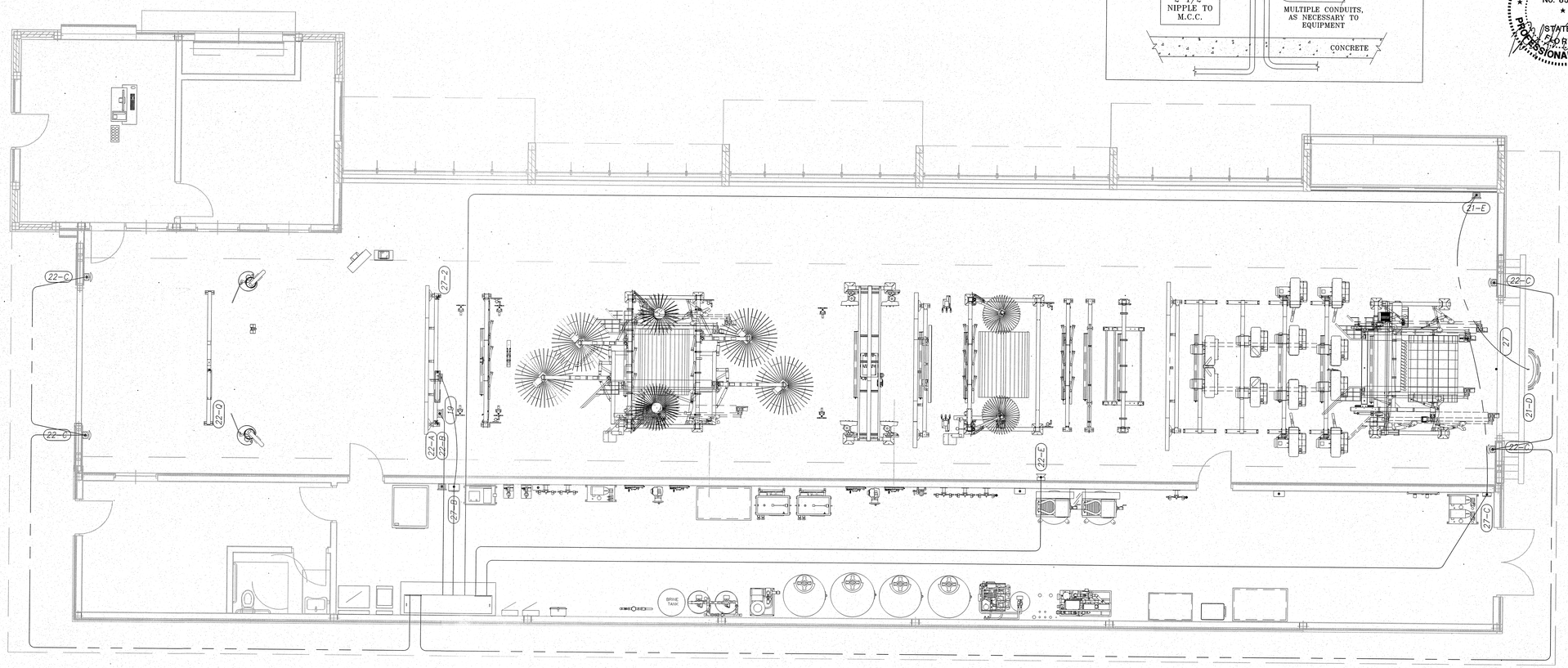
SCALE: NTS

ELECTRICAL CONTROL VOLTAGE GENERAL NOTES:

1. PROVIDE WIRE/CONDUIT TO RECLAIM TANK FOR LOW LEVEL FLOAT. SEE CIVIL DRAWINGS FOR TANK LOCATIONS AND DETAILS.



LEGEND:
- SURFACE MOUNTED Counduit
- CONCEALED Counduit
- JUNCTION BOX (J)



A POWER PLAN - EQUIPMENT CONTROL VOLTAGE

E-1.5

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

NO	DRAWN BY	CHECKED BY	DATE	DESCRIPTION
0	IBT	DHS	03/28/22	FOR CONSTRUCTION

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3/29/22

CONSULTANT

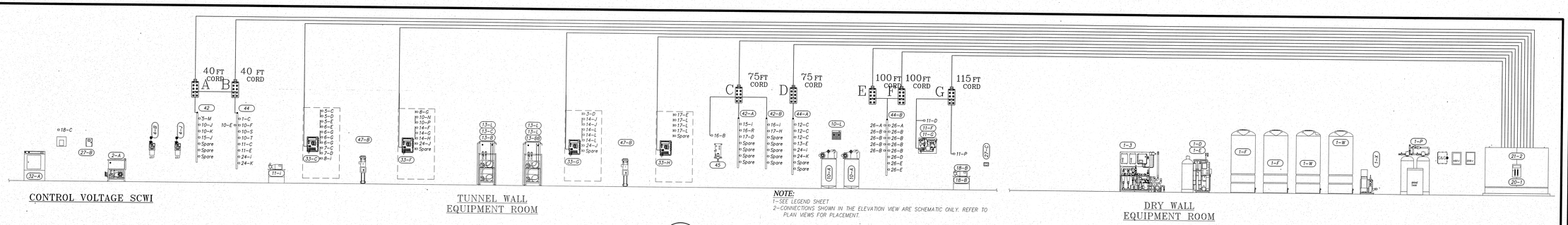
STAMP:

DRAWINGS FOR:
Starwash Express
925 Lockwood Blvd
Oviedo, FL 32765

SHEET TITLE:
Power Plan - Equip. Control Voltage

PROJECT NUMBER: 22-1017
FILENAME:
SCALE: AS NOTED
PLOT DATE: 03/28/22
DRAWN BY: IBT

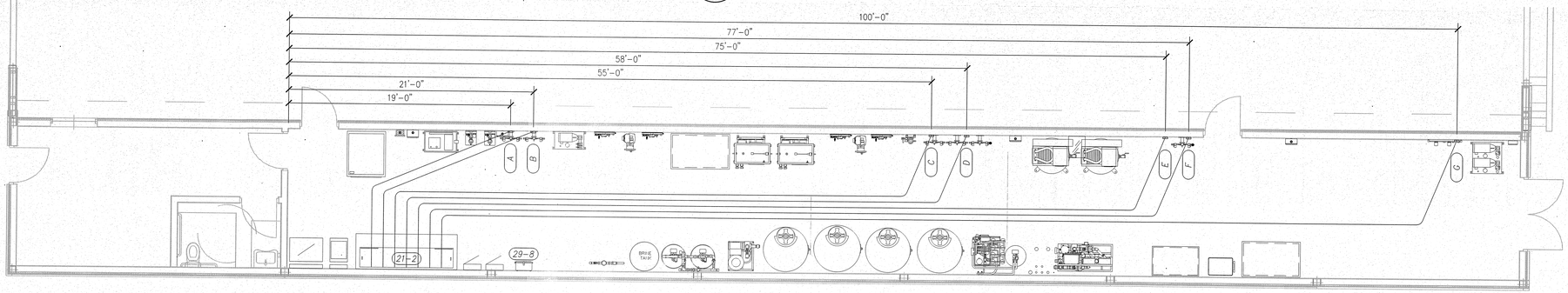
SHEET: E-1.5



NOTE:
1-SEE LEGEND SHEET
2-CONNECTIONS SHOWN IN THE ELEVATION VIEW ARE SCHEMATIC ONLY. REFER TO PLAN VIEWS FOR PLACEMENT.

1 / E-1.6 POWER PLAN - EQUIPMENT ROOM ELEVATION

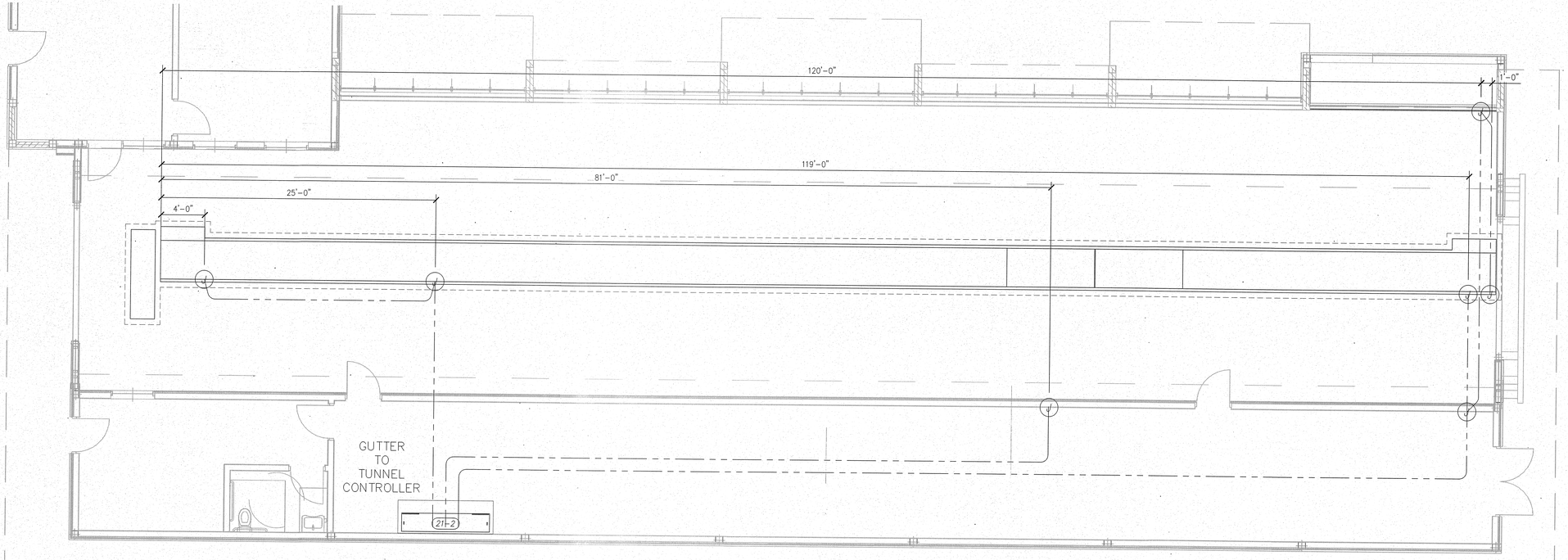
SCALE: NTS



LEGEND:
- SURFACE MOUNTED Counduit
- CONCEALED Counduit
- JUNCTION BOX (J)

B / E-1.6 POWER PLAN - EQUIPMENT CONTROL VOLTAGE

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



A / E-1.6 POWER PLAN - EQUIPMENT U.G. CONTROL VOLTAGE

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

NO.	DRAWN BY	CHECKED BY	DATE	DESCRIPTION
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3/29/22

CONSULTANT

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Starwash Express
925 Lockwood Blvd
Oviedo, FL 32765

SHEET TITLE:
Power Plan - Equip. Control Voltage

PROJECT NUMBER: 22-1017
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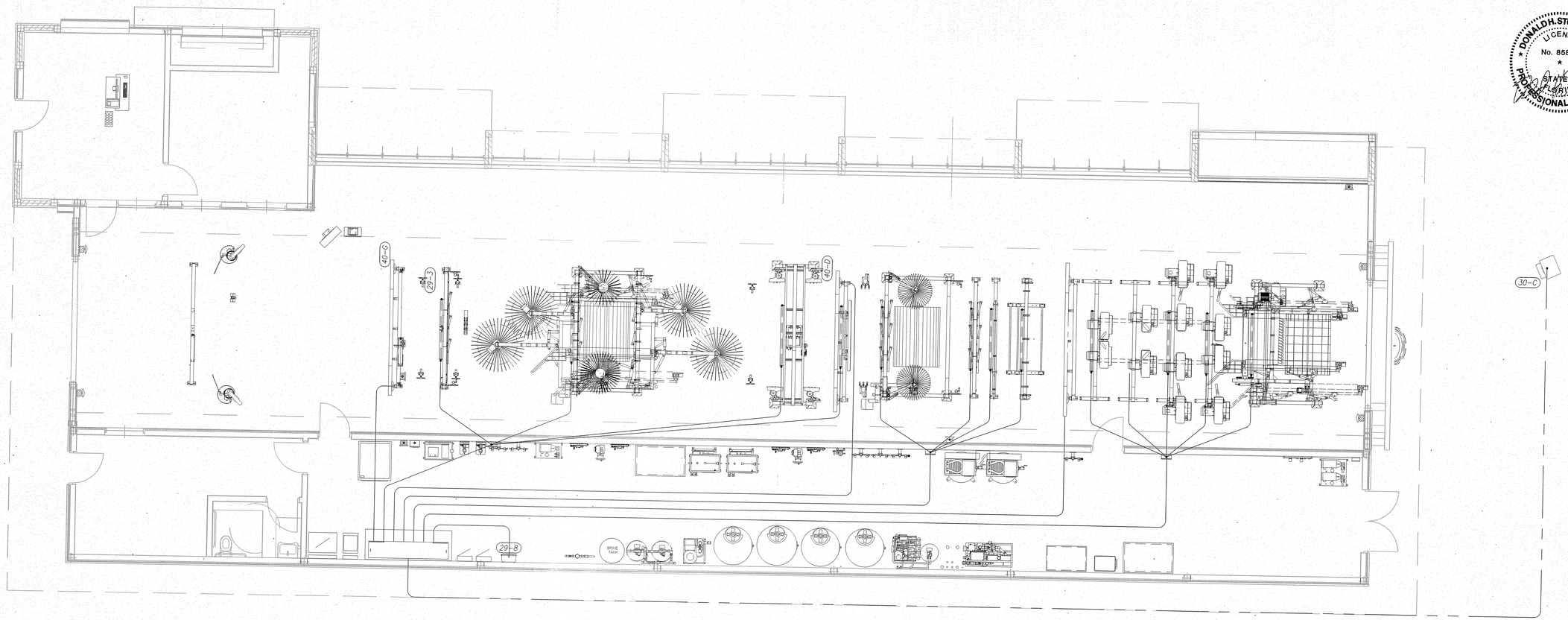
SCALE: AS NOTED
PLOT DATE: 03/28/22
DRAWN BY: IBT

SHEET: E-1.6



A
E-1.7

POWER PLAN - SIGNAGE/LIGHT BAR

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

LEGEND:

- SURFACE MOUNTED Counduit
- CONCEALED Counduit
- JUNCTION BOX (J)

DONALD H. STONEBURG LICENSE No. 85872 STATE OF FLORIDA PROFESSIONAL ENGINEER

3/29/22

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FLORIDA P.E. NO. 85872

CONSULTANT

STAMP:

DRAWINGS FOR:
Starwash Express
925 Lockwood Blvd
Oviedo, FL 32765

SHEET TITLE:
Power Plan - Equip. Signage

PROJECT NUMBER: 22-1017
FILENAME:
SCALE: AS NOTED
PLOT DATE: 03/28/22
DRAWN BY: IBT

SHEET:
E-1.7

INSTALLATION NOTES:

1. ALL WATER SUPPLY PIPING SHALL BE AS SHOWN ON THE PLANS AND SHALL BE ROUTED OVERHEAD, IN WALLS OR CABINETS TO REQUIRED LOCATIONS, EXCEPT WHERE NOTED AS UNDER SLAB.
2. ALL INSTALLATION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE MATERIAL NOTES AND 2020 FLORIDA BUILDING CODE – PLUMBING.
3. ALL HOT WATER PIPING SHALL BE INSULATED WITH MIN. 1" FIBERGLASS INSULATION. ALL COLD WATER PIPING IN UNCONDITIONED SPACE SHALL BE INSULATED WITH MIN. 1" FIBERGLASS INSULATION.
4. INSTALL STOPS IN SUPPLY TO ALL FIXTURES.
5. INSTALL PROPER VALVES AT ALL EQUIPMENT.
6. ALL VENTS, CLEANOUTS, AND PLUMBING AS REQ'D BY STATE PLUMBING CODE.
7. PIPING TO BE CONCEALED IN ALL FINISHED AREAS.
8. CONTRACTOR TO VERIFY ALL DIMENSIONS BEFORE STARTING WORK.
9. ALL EQUIPMENT INSTALLED AS PER CERTIFIED SHOP DRAWING FROM MANUFACTURER.
10. PROVIDE ACCESS PANELS FOR CONCEALED VALVES.
11. AIR CHAMBER AT EACH FIXTURE TO PREVENT WATER HAMMER.
12. FIXTURES SHOWN ARE AN INDICATION OF INTENDED QUALITY, OWNER MAY SELECT OTHER FIXTURES AT THEIR DISCRETION.
13. CONTRACTOR SHALL PROVIDE A 1 YEAR WARRANTY ON PARTS AND LABOR FOR ALL WORK PROVIDED. WARRANTY SHALL COMMENCE UPON FINAL ACCEPTANCE.
14. PROVIDE FLOOR DRAIN AND HUB DRAIN TRAP SEALS OR TRAP PRIMERS AS REQUIRED BY LOCAL CODES.

MATERIALS

DOMESTIC WATER PIPE – TYPE L COPPER, SCH. 80 PVC OR PEX

WASTE AND VENT PIPING – SCHEDULE 40 PVC

GENERAL MATERIAL NOTES:

COPPER PIPE FITTINGS SHALL BE WROT COPPER, SOCKET TYPE, MIL-F-1183 WITH 95/5 SOLDER OR "NO LEAD" SOLDER FOR POTABLE WATER.

PVC PIPE FITTINGS 4" AND SMALLER SHALL BE ASTM D-1785, TYPE 1, GRADE 1, SOCKET TYPE WITH ASTM D-2564 SOLVENT CEMENT.

DIELECTRIC UNIONS OR FLANGED UNIONS SHALL BE USED WHEN JOINING DISSIMILAR PIPE MATERIAL.

1.0 EQUIPMENT PLUMBING SYSTEMS:

1.1 PROHIBITED LOCATIONS

WATER CARRYING PIPE SHALL NOT BE INSTALLED OVER SWITCH GEAR OF ELECTRICAL EQUIPMENT.

1.2 PROTECTIVE CHASES

A. PIPE AND FITTINGS

1. ABOVE AND BELOW GRADE: SCHEDULE-40 PVC DWV CONFORMING TO ASTM D2665-82.

1.3 WATER DISTRIBUTION

A. PIPE AND FITTINGS

COPPER TUBE, TYPE-K, BELOW GROUND. TYPE-L, ABOVE GROUND, WROUGHT COPPER OR BRONZE SWEAT FITTINGS WITH LEAD FREE SOLDER.
COPPER PIPING SHALL NOT COME IN CONTACT WITH CONCRETE. PROVIDE INSULATING MATERIAL BETWEEN THE PIPE AND CONCRETE AT ALL REQUIRED LOCATIONS.

B. VALVES

1. BALL VALVES TWO INCHES (2") AND SMALLER BY

MILWAUKEE (OR APPROVED EQUAL) MODEL #BA-150 RATED AT 150 SWP, 600 CWP. BODY OF ASTM B-584 BRONZE WITH CHROME PLATED ASTM B-16 BRASS BALL WITH GLASS REINFORCED PTFE SEATS AND STERN SEAL. FULL PORT FLOW AND ADJUSTABLE PACKING NUT.

2. GATE VALVES TWO INCHES (2") AND SMALLER: NRS, MSS

SP-80: CLASS 125 (125 SWP/200 CWP). BODY BONNET AND STEM OF ASTM B-62 BRONZE, THREADED ENDS TO ANSI B1.20.1, SOLDER ENDS TO ANSI B16.18, SOLID WEDGE DISC, GLAND PACKED WITH NON-ASBESTOS PACKING AND MALLEABLE IRON HANDWHEEL.

3. GATE VALVES TWO AND ONE-HALF INCHES (2-1/2") AND

LARGER: NRS, MSS SP-70; CLASS 125 (125 SWP/200 CWP). BODY AND BONNET OF ASTM A126 CLASS B CAST IRON, ASTM B-16 BRASS STERN AND ASTM B-62 BRONZE SEAT AND DISC FACE. FLANGED ENDS TO ANSI B16.1. NON-ASBESTOS PACKING.

1.4 CAR WASH CHASE WAY, DRAINS AND SUPPLY LINES

A. RECLAMATION DRAINAGE PIPE, SECTION LINES AND OZONE TREATMENT LINES AND FITTINGS.

1. (IF PERMITTED BY LOCAL OR APPLICABLE CODES) ALL RECLAIM DRAINAGE LINES, SUCTION LINES, OZONE TREATMENT LINES AND RELATED FITTINGS SHALL BE SCHEDULE-80 POLYVINYL CHLORIDE (PVC) PIPING CONFORMING TO ASTM D-1785-83.
2. MECHANICAL ENGINEER TO VERIFY LOCAL OR APPLICABLE CODES AND SPECIFY ALTERNATE MATERIAL IF PVC IS NOT PERMITTED.

1.5 PNEUMATIC LINES

A. PNEUMATIC SUPPLY LINES

1. ALL PNEUMATIC SUPPLY LINES SHALL BE TYPE-K COPPER TUBE WITH WROUGHT COPPER OR BRONZE SWEAT FITTINGS ABOVE GRADE. NO FITTINGS SHALL BE ALLOWED BELOW GRADE.
2. ALL PNEUMATIC SUPPLY LINES BELOW GRADE SHALL BE ENCASED IN SCHEDULE-40 CHASEWAYS.

1.6 HYDRAULIC HOSE

A. PIPE AND FITTINGS

1. ALL HYDRAULIC HOSE SHALL BE SAE-100R7 BY SYNFLEX (OR APPROVED EQUAL) WITH 2,000 PSI WORKING PRESSURE; 10.000 PSI BURST PRESSURE.
2. ALL HYDRAULIC SUPPLY LINES BELOW GRADE SHALL BE ENCASED IN SCHEDULE-40 PVC CHASEWAYS.

1.7 PRESSURE TEST

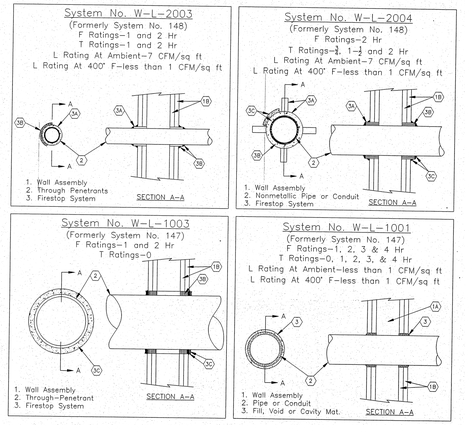
LEAVE UNCOVERED AND UNCONCEALED ALL WATER DISTRIBUTION PIPING UNTIL IT HAS TESTED AND APPROVED. EXPOSE ALL SUCH WORK FOR TESTING THAT HAS BEEN COVERED OR CONCEALED BEFORE IT HAS BEEN TESTED AND APPROVED.

CAP AND SUBJECT THE PIPING SYSTEM TO A STATIC WATER PRESSURE OF 150 PSIG WITHOUT EXCEEDING THE PRESSURE RATING OF THE PIPING SYSTEM MATERIALS. ISOLATE THE TEST SOURCE AND ALLOW TO STAND FOR A PERIOD OF FOUR HOURS. LEAKS AND LOSS IN TEST PRESSURE CONSTITUTE DEFECTS WHICH MUST BE REPAIRED. REPAIR ALL LEAKS AND DEFECTS USING NEW MATERIAL AND RETEST SYSTEM OR PORTION THEREOF UNTIL SATISFACTORY RESULTS ARE OBTAINED.

TESTING REQUIREMENTS ARE MINIMUM AND ARE NOT INTENDED TO BE LIMITING WHERE ADDITIONAL TESTING METHODS ARE REQUIRED BY THE AUTHORITY HAVING JURISDICTION.

WATER HEATER SCHEDULE					
Item No.	Manuf.	Model No.	Volt/Ph	Amps	Remarks
WH-1	AQUA POWER	AQM 2-1	120V	1800	POINT OF USE

PLUMBING FIXTURE SCHEDULE	
ITEM	DESCRIPTION
FD-1	4" FLOOR DRAIN WATTS FD7-6R-4PVC 4" PVC WITH 6" ROUND NICKEL BRONZE STRAINER
FD-2	3" FLOOR DRAIN WATTS FD7-5R-3PVC 3" PVC WITH 5" ROUND NICKEL BRONZE STRAINER
FHB-1	ANTI-SIPHON FREEZELESS HOSE BIBB WOODFORD MODEL B65
HB-1	HOSE BIB WOODFORD 75
HD-1	HUB DRAIN SEE DETAIL '2/P-0.1'
LAV-1	WALL-MOUNT LAVATORY BOWL, ADA KOHLER K-2005 K-15199 FAUCET K-8998 P-TRAP
RPZ-1	3/4" REDUCED PRESSURE PRINCIPLE ASSEMBLY ZURN 375XL-SAG
WC-1	TWO-PIECE ELONGATED ADA TANK TOILET KOHLER K-3999 1.28 GPF RIGHT-HAND TRIP LEVER K-4467 TANK, K-4199 BOWL

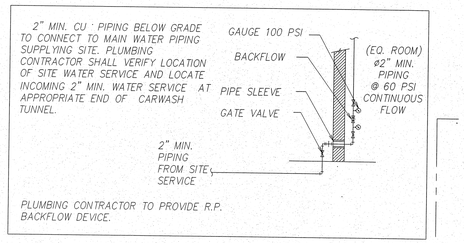


TYP. RATED WALL PENETRATIONS

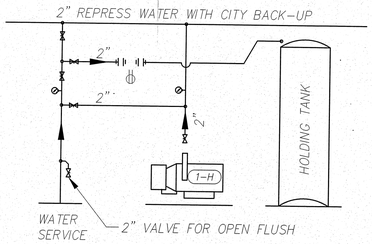
FIRESTOP PIPING SCHEDULE				
PENETRATING ITEM	CONCRETE		GYPSUM	WOOD FLR/CEILING
PLASTIC PIPE	64 FS195/RC-1 PPD 182 FS195-RC-1 E5A,FD150 245 FS195/RC-1 CS195	394 FS195 CP 25WB 488 FS195;RC-1 PPD INSULATE 562 FS195 CP25WB	148 FS195/RC-1 570 CS195 FS195 CP25WB	160 FS195/RC-1 CS195/PPD 167 FS195/RC-1 PPD 446 FS195/RC-1 PPD 451 FS195/RC-1 PPD
METAL PIPE	49 CP 25N/S, S/L 63 7900 KIT 93 CS195, FS195 FS195, CP25 94 CP 25N/S, S/L 95 FS195 137 CS195 CP 25N/S, S/L 160 FD150	170 FD150 202 MOLD, PUTTY 233 CS195 CP 25 234 CS195 CP 25N/S, S/L OR PUTTY 319 CP25WB 321 CP25WB 337 CP25N/S, S/L 395 CP 25 487 CP25WB 561 FS195 CP 25	147 CP 25 322 CP25WB 328 CP 25N/S S/L 569 FD150 FS195 CP 25WB.	159 CS195, CP 25 E5A 169 CP 25N/S, S/L 453 CP 25WB
INSULATED METAL PIPEL	91 CP 25N/S, S/L FS195, CP 25 152 CP 25N/S, S/L 203 MOLD, PUTTY	233 CS195, FS195 395 FS195, CP25	147 FS195, CP 25 566 FS195, CP 25WB 567 FS195, CP 252B 568 CP 25WB	454 FS195 CP 25WB

NOTE: ALL FIRE RATED FLOORS, WALLS, ETC. SHALL BE PROTECTED WHERE PIPING PENETRATES WITH 3M SYSTEMS AS NOTED IN THE ABOVE SCHEDULE. VERIFY ALL RATED AREAS WITH THE ARCHITECTURAL PLANS. ALL RATINGS THROUGHOUT THE BUILDING SHALL BE PROTECTED AS PER CODE, WITH NO EXCEPTIONS.

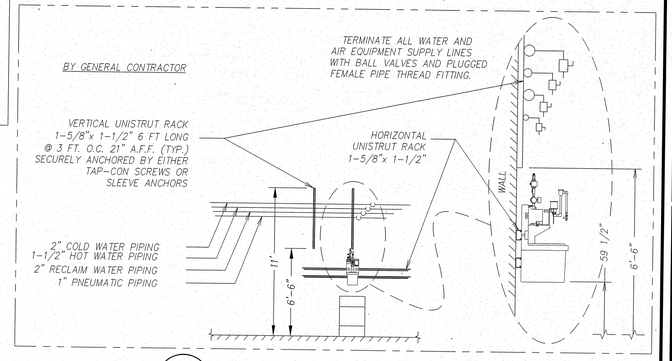
FIRESTOP PIPING SCHEDULE



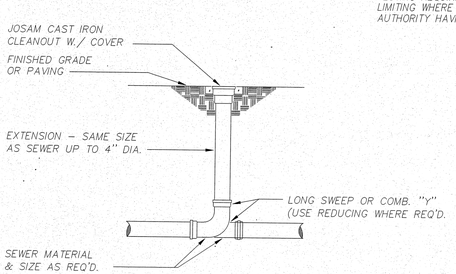
3 P-0.1 TYP. WATER ENTRANCE DETAIL
SCALE: NONE



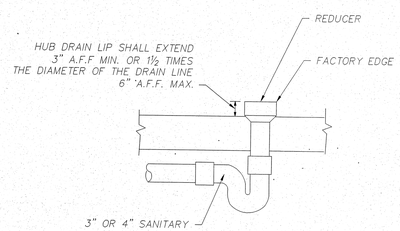
4 P-0.1 WATER BYPASS DETAIL
SCALE: NONE



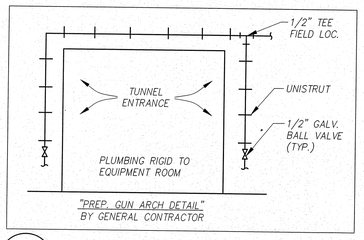
6 P-0.1 TYP. HANGER CONFIGURATION
SCALE: NONE



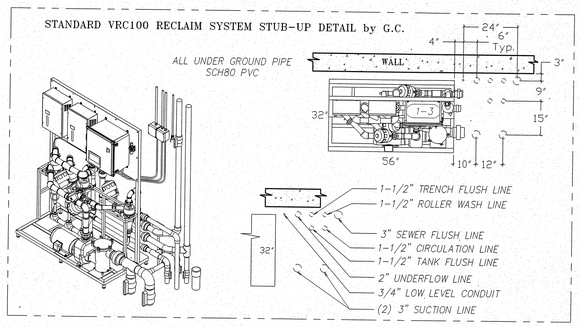
1 P-0.1 EXTERIOR CLEAN-OUT DETAIL
SCALE: NONE



2 P-0.1 HUB DRAIN DETAIL
SCALE: NONE



5 P-0.1 PREP GUN ARCH DETAIL
SCALE: NONE



7 P-0.1 RECLAIM SYSTEM DETAILS
SCALE: NONE

NO	DRAWN BY	CHECKED BY	DATE	DESCRIPTION
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CONSULTANT

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925 Lockwood Blvd
Oviedo, FL 32765

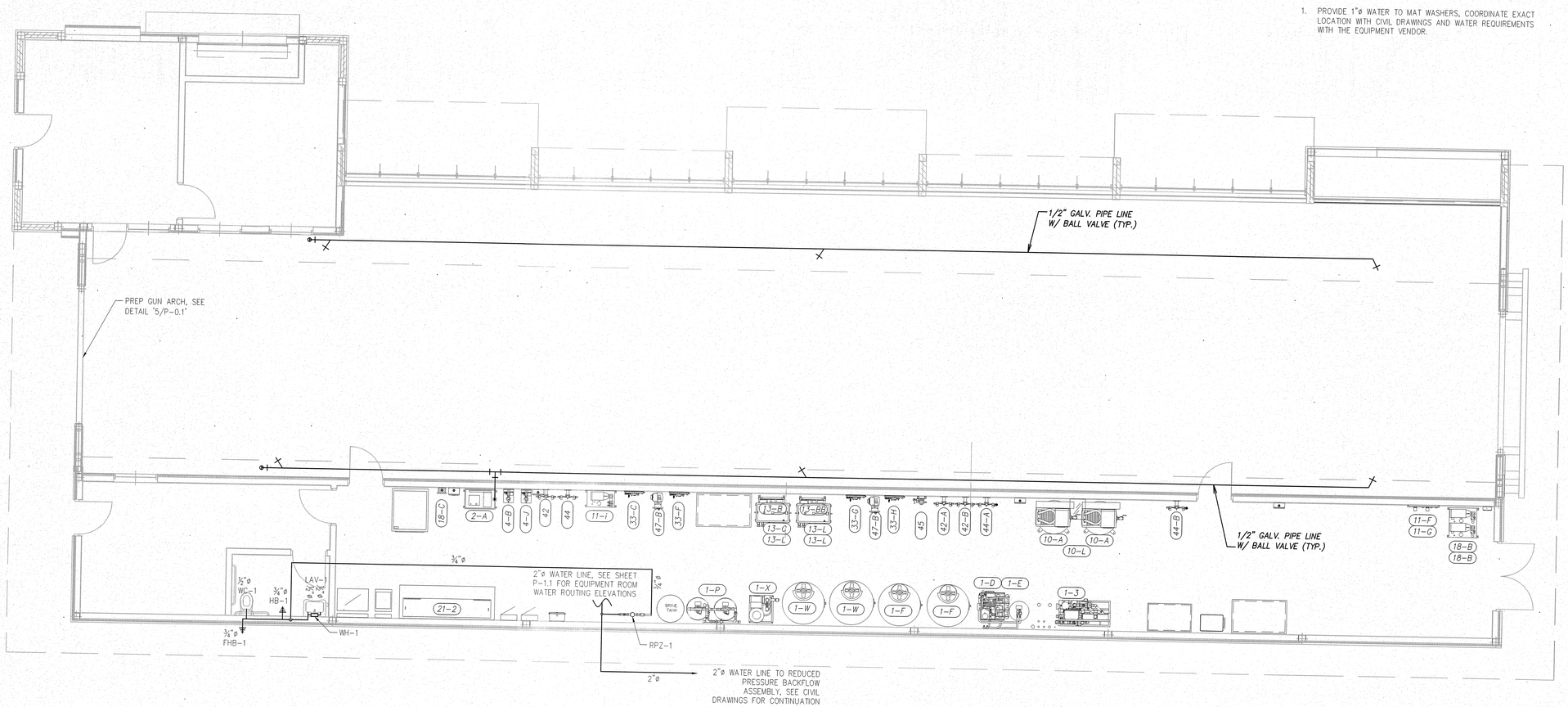
SHEET TITLE: Plumbing Notes

PROJECT NUMBER: 22-1017
FILENAME:
SCALE: AS NOTED
PLOT DATE: 03/28/22
DRAWN BY: IBT

SHEET: P-0.1

WATER PLAN GENERAL NOTE:

1. PROVIDE 1"ø WATER TO MAT WASHERS, COORDINATE EXACT LOCATION WITH CIVIL DRAWINGS AND WATER REQUIREMENTS WITH THE EQUIPMENT VENDOR.



A P-1.0 **WATER PLAN**

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

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Water Plan

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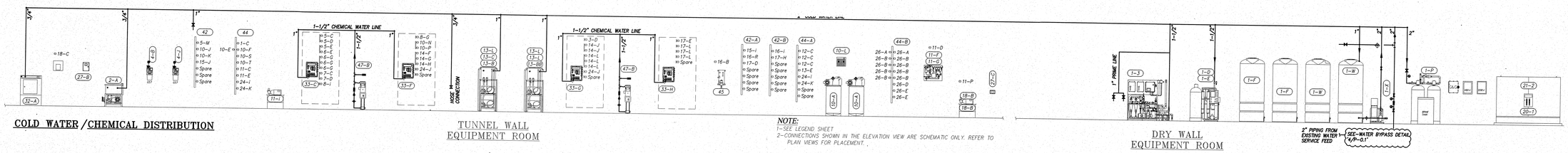
SHEET: P-1.0

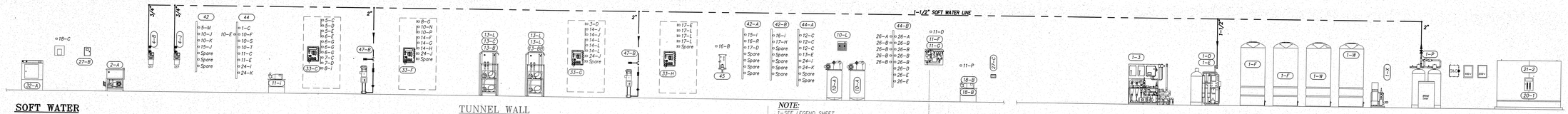


COLD WATER /CHEMICAL DISTRIBUTION

TUNNEL WALL EQUIPMENT ROOM

NOTE:
1-SEE LEGEND SHEET
2-CONNECTIONS SHOWN IN THE ELEVATION VIEW ARE SCHEMATIC ONLY. REFER TO PLAN VIEWS FOR PLACEMENT.

DRY WALL EQUIPMENT ROOM

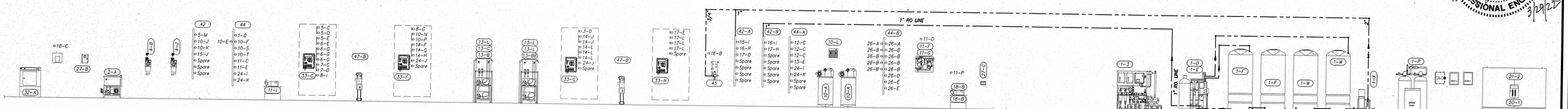


SOFT WATER

TUNNEL WALL EQUIPMENT ROOM

NOTE:
1-SEE LEGEND SHEET
2-CONNECTIONS SHOWN IN THE ELEVATION VIEW ARE SCHEMATIC ONLY. REFER TO PLAN VIEWS FOR PLACEMENT.

DRY WALL EQUIPMENT ROOM

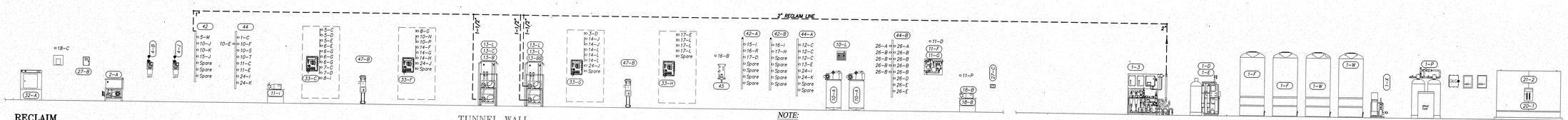


R.O. /REJECT WATER

TUNNEL WALL EQUIPMENT ROOM

NOTE:
1-SEE LEGEND SHEET
2-CONNECTIONS SHOWN IN THE ELEVATION VIEW ARE SCHEMATIC ONLY. REFER TO PLAN VIEWS FOR PLACEMENT.

DRY WALL EQUIPMENT ROOM

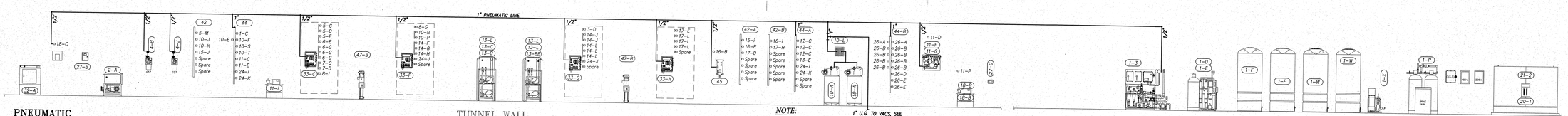


RECLAIM

TUNNEL WALL EQUIPMENT ROOM

NOTE:
1-SEE LEGEND SHEET
2-CONNECTIONS SHOWN IN THE ELEVATION VIEW ARE SCHEMATIC ONLY. REFER TO PLAN VIEWS FOR PLACEMENT.

DRY WALL EQUIPMENT ROOM



PNEUMATIC

TUNNEL WALL EQUIPMENT ROOM

NOTE:
1-SEE LEGEND SHEET
2-CONNECTIONS SHOWN IN THE ELEVATION VIEW ARE SCHEMATIC ONLY. REFER TO PLAN VIEWS FOR PLACEMENT.

1" U.G. TO VACS, SEE CIVIL DRAWINGS FOR CONT.

DRY WALL EQUIPMENT ROOM

NO	DRAWN BY	CHECKED BY	DATE	DESCRIPTION
0	IBT	DHS	03/28/22	FOR CONSTRUCTION

S.E. Engineering
1733 Campus Plaza Court, Suite 10
Bowling Green, KY 42101
Phone: 270-796-3052
Fax: 270-842-3102

STAMP:
DONALD H. STONEBURG, P.E.
1733 CAMPUS PLAZA COURT, SUITE 10
BOWLING GREEN, KY 42101
FLORIDA P.E. NO. 85872

DONALD H. STONEBURG LICENSE No. 85872 STATE OF FLORIDA PROFESSIONAL ENGINEER
3/29/22

CONSULTANT

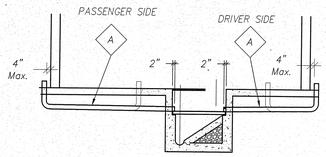
STAMP:

DRAWINGS FOR:
Starwash Express
925 Lockwood Blvd
Oviedo, FL 32765

SHEET TITLE:
Plumbing Equip. Room Elevation

PROJECT NUMBER:	FILENAME:	SCALE:	PLOT DATE:	DRAWN BY:
22-1017		AS NOTED	03/28/22	IBT

SHEET:
P-1.1



TYPICAL SELF CLEAN CHASEWAY INSTALLATION DETAIL

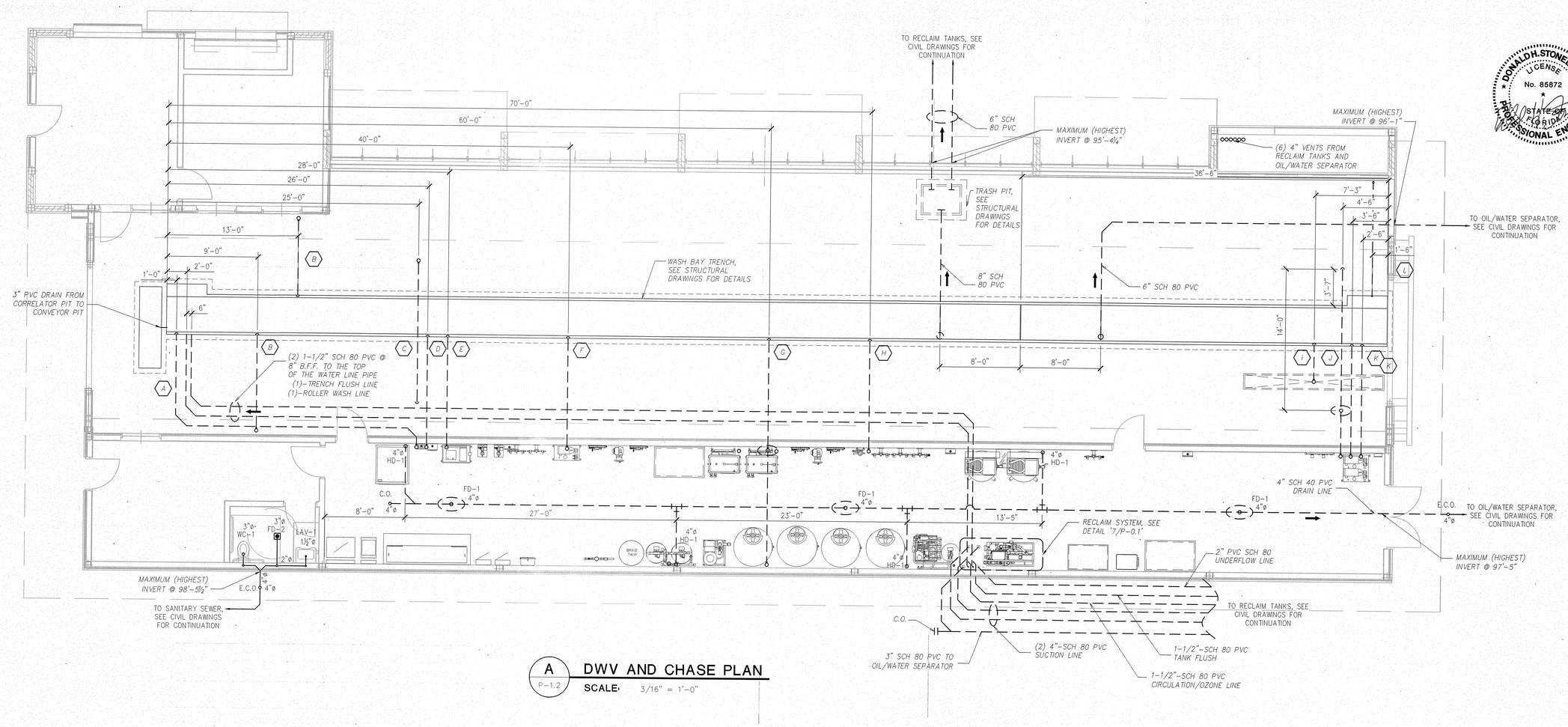
N.T.S.

CHASEWAYS NOTES

1. SLOPE CHASEWAYS TO DRAIN INTO TRENCH
2. 90° BENDS IN CHASEWAYS SHALL BE MADE USING "SWEEP" ELBOWS OR TWO (2) 45° ELBOWS OR "SWEEP" TEE WHEN APPLICABLE.

A — 19" BOTTOM OF PIPE.

NO.	CHASEWAY SCHEDULE		
A	4" PVC PIPE	ROLLER UP	PNEUMATIC
B	4" PVC PIPE	PREP. GUN STATION	WATER
C	4" PVC PIPE	MONSTER ARCH	
D	4" PVC PIPE	FLOOR SWITCH	ELECTRIC
E	4" PVC PIPE	CTA	CHEMICAL DISTRIBUTION
F	4" PVC PIPE	UNDER CARRIAGE	WATER
G	4" PVC PIPE	DRAIN	
H	4" PVC PIPE	SPARE	
I	4" PVC PIPE	DRAIN	
J	4" PVC PIPE	TSA	CHEMICAL
K	4" PVC PIPE	CONVEYOR	HYDRAULIC
L	2" PVC PIPE	ANTI COLLISION BOX	ELECTRIC



A / P-1.2 **DWV AND CHASE PLAN**

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

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FLORIDA P.E. NO. 85872

DONALD H. STONEBURG LICENSE No. 85872 STATE OF FLORIDA PROFESSIONAL ENGINEER 3/29/22

CONSULTANT

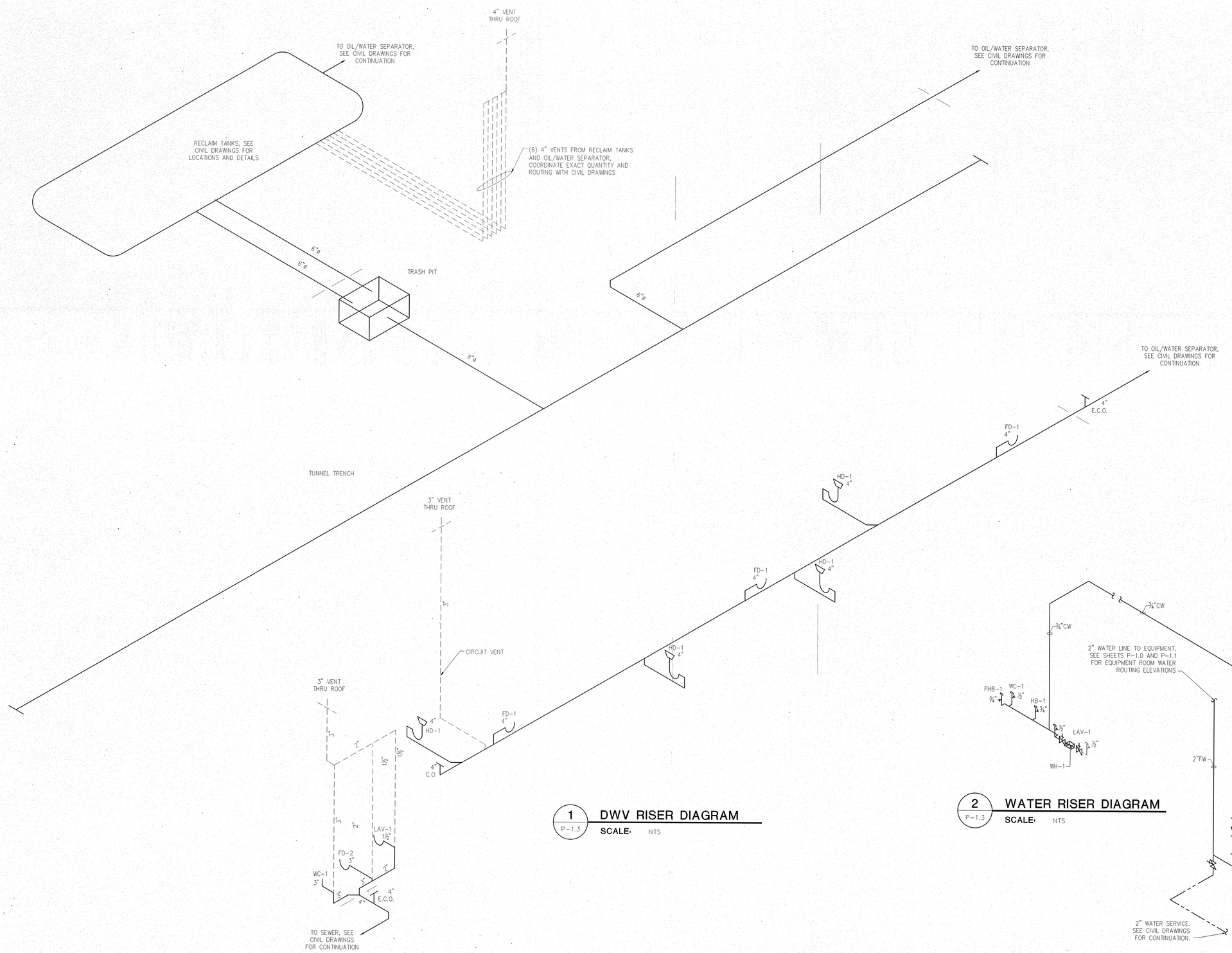
STAMP:

DRAWINGS FOR: Starwash Express
925 Lockwood Blvd
Oviedo, FL 32765

SHEET TITLE: DWV and Chase Plan

PROJECT NUMBER: 22-1017
FILENAME:
SCALE: AS NOTED
PLOT DATE: 03/28/22
DRAWN BY: IBT

SHEET: P-1.2



1 P-1.3 **DWV RISER DIAGRAM**
SCALE: NTS

2 P-1.3 **WATER RISER DIAGRAM**
SCALE: NTS

NO	DRAWN BY	CHECKED BY	DATE	DESCRIPTION
0	IBT	DHS	03/28/22	FOR CONSTRUCTION

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PROFESSIONAL ENGINEER
3/29/22

CONSULTANT

STAMP:

DRAWINGS FOR:
Starwash Express
925 Lockwood Blvd
Oviedo, FL 32765

SHEET TITLE:
DWV Riser Diagram

PROJECT NUMBER: 22-1017
FILENAME:
SCALE: AS NOTED
PLOT DATE: 03/28/22
DRAWN BY: IBT

SHEET:
P-1.3