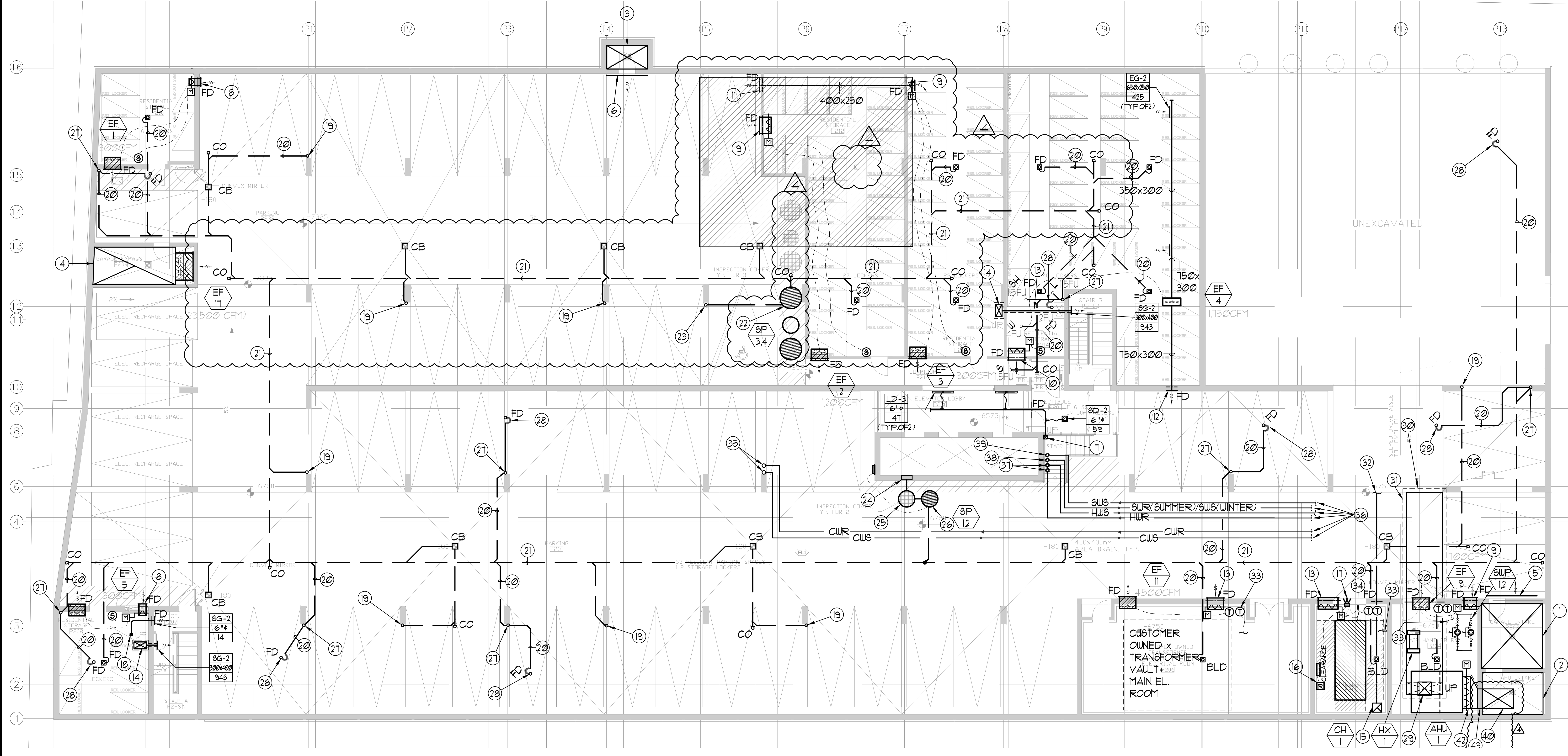
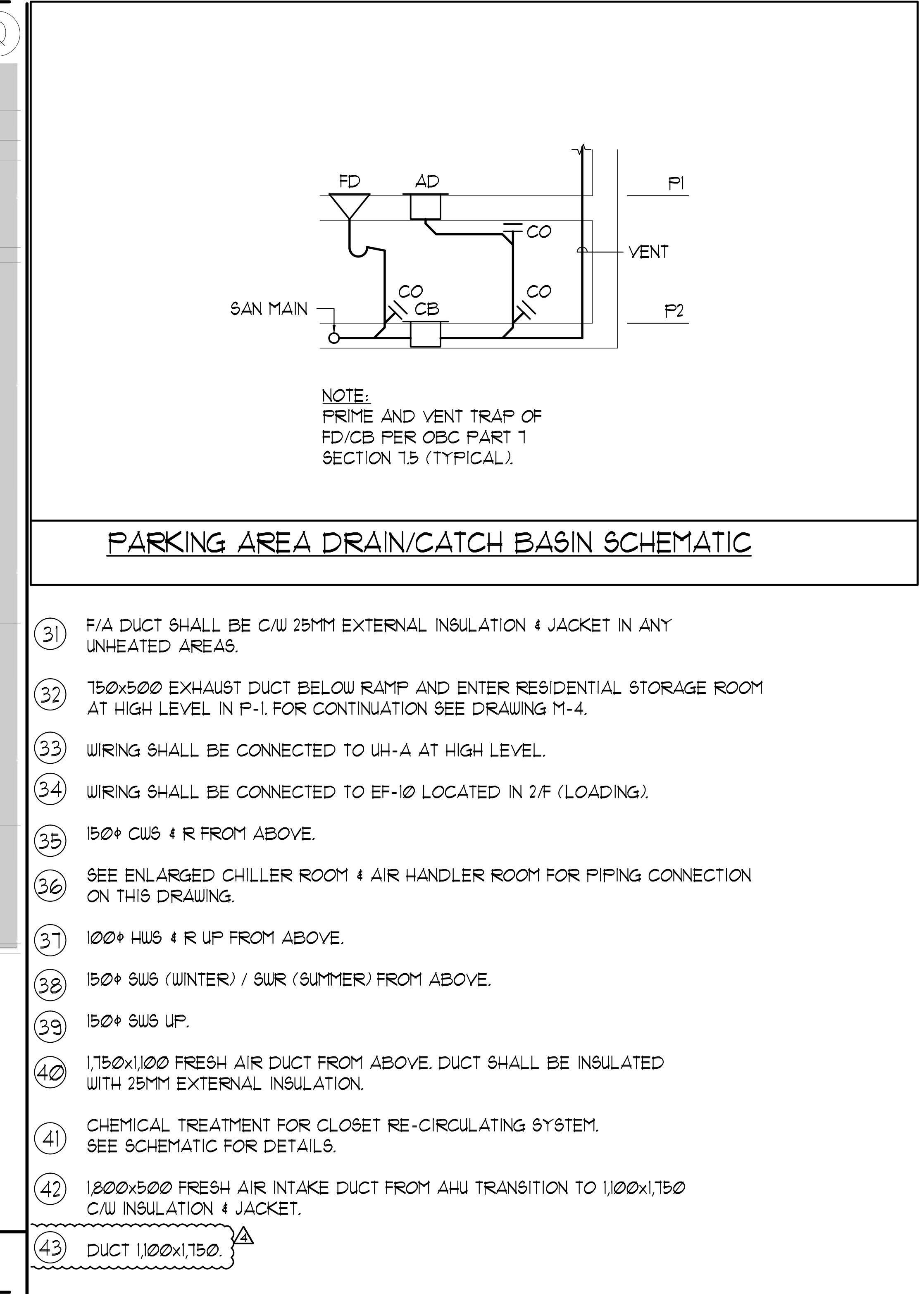
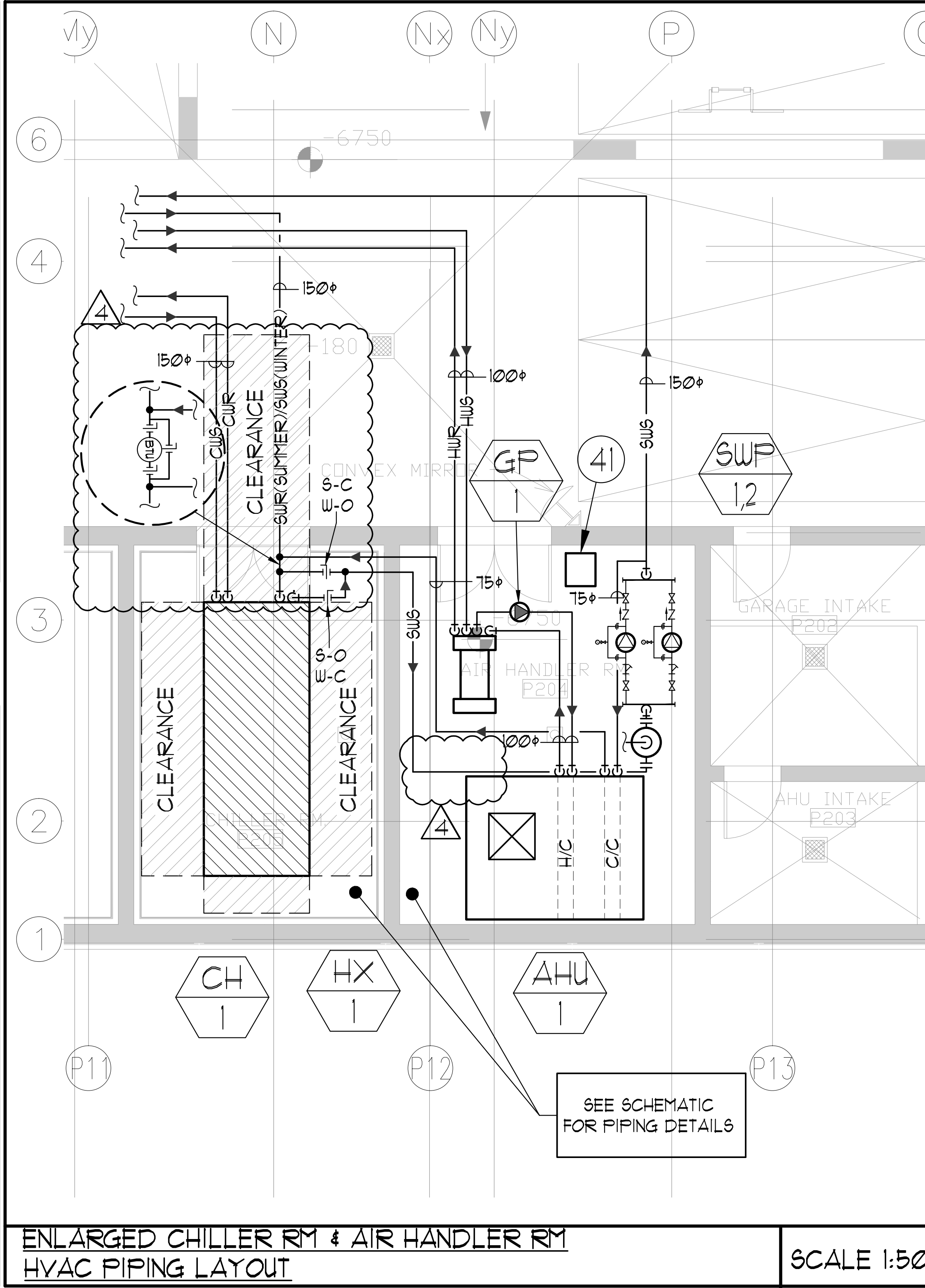


QTY.	DESCRIPTION
2	BARNES 26E-554L SUBMERSIBLE PUMPS INSIDE A 300MMØ SUMP PIT, EACH C/W 1/2 HP, 575 VOLT, 3 PHASE, 60 CYCLE MOTOR WITH 30 FT POWER CORD, 2" N.P.T. DISCHARGE, HANDLES 2" DIAMETER SOLIDS AND DELIVERS 35 U.S. GPM. AT 22 FT TOTAL HEAD.
1	LDP 515 DUPLEX ELECTRICAL ALTERNATOR, STARTER AND CONTROL PANEL, WITH LOCKABLE DEAD-FRONT, 575 VOLT, 3 PHASE, 60 CYCLE C/W H.O.A. SELECTOR SWITCHES, RUN LIGHTS, THERMAL OVERLOAD HEATERS TO SUIT PUMP MOTORS WITH RESET BUTTON, AND CIRCUIT BREAKERS IN EEMAC 3R ENCLOSURE.
4	LS 20 MECHANICAL LEVEL SENSORS, 1 FOR PUMP "ON", 1 FOR PUMP "OFF", 1 FOR BOTH PUMPS "ON", AND 1 FOR ALARM LEVEL.
1	LHW 115 HIGH WATER ALARM PANEL, 115 VOLT, 1 PHASE WITH PILOT LIGHT, ON-OFF-TEST SWITCH, BUZZER AND EXTRA RELAY FOR REMOTE SIGNALING, IN EEMAC 1 ENCLOSURE.
1	TRIM BAR CURB FRAME C/W CHECKERED COVER PLATE IN 2 SECTIONS, FOR INSPECTION AND ACCESS.

QTY.	DESCRIPTION
2	BARNES 6GVF-2052L SUBMERSIBLE GRINDER PUMPS INSIDE A 300MMØ SUMP PIT, EACH C/W 2 HP, 515 VOLT, 3 PHASE, 60 CYCLE MOTOR WITH 30 FT POWER CORD, 125" N.P.T. DISCHARGE, AND DELIVERS 50 U.S. G.P.M. AT 30 FT TOTAL HEAD.
1	LDP 515 DUPLEX ELECTRICAL ALTERNATOR, STARTER AND CONTROL PANEL, WITH LOCKABLE DEAD-FRONT, 515 VOLT, 3 PHASE, 60 CYCLE C/W H.O.A. SELECTOR SWITCHES, RUN LIGHTS, THERMAL OVERLOAD HEATERS TO SUIT PUMP MOTORS WITH RESET BUTTON, AND CIRCUIT BREAKERS IN EEMAC 3R ENCLOSURE.
4	LS 20 MECHANICAL LEVEL SENSORS, 1 FOR PUMP "ON", 1 FOR PUMP "OFF", 1 FOR BOTH PUMPS "ON", AND 1 FOR ALARM LEVEL.
1	LHW 115 HIGH WATER ALARM PANEL, 115 VOLT, 1 PHASE WITH PILOT LIGHT, ON-OFF-TEST SWITCH, BUZZER AND EXTRA RELAY FOR REMOTE SIGNALING, IN EEMAC 1 ENCLOSURE.
1	TRIM BAR CURB FRAME C/W CHECKERED COVER PLATE IN 2 SECTIONS, FOR INSPECTION AND ACCESS.



- 1) ALL PIPES 50 MM AND LARGER SHALL BE ISOLATED USING 12 MM RUBBER PADS IN THE SADDLES OF CLEVIS HANGERS.
- 2) ALL MAIN VERTICAL PIPE RISERS REQUIRE VIBRATION ISOLATION. ANY OF THESE RISERS MAY REQUIRE THE SLES OR ANY PERFORATED PARTITION. ALL RISER ANCHORS MUST INCLUDE 1/2" THICK NON ISOLATION PADS, TO BE HELD IN PLACE WITH HORIZONTAL STEEL PLATES WELDED TO BRACKETS THAT ARE IN TURN WELDED TO THE RISER. BOLTING THROUGH THE PADS IS NOT ACCEPTABLE.
- 3) FOR THE MAIN RISERS, ANY PIPE GUIDES USED IN CONNECTION WITH EXPANSION JOINTS OR LOOPS MUST BE ISOLATED WITH RUBBER PADS AND SLEEVES WHERE FASTENED TO THE BUILDING STRUCTURE.
- 4) IN-LINE AND CABINET FANS SHOULD BE ISOLATED WITH SPRINGS OR NEOPRENE IN-SHEAR MOUNTS. SIDEWALL FANS SHOULD BE ISOLATED USING NEOPRENE MOUNTS, PADS OR GROMMETS. ALL FANS SUSPENDED ON P.I. LEVEL SHALL BE WELL ISOLATED USING ISOLATORS INCORPORATING BOTH A SPRING ELEMENT AND A SECONDARY NEOPRENE-IN-SHEAR ELEMENT IN SERIES. DUCTWORK SHALL BE DE-COUPLED FROM FAN BY FLEXIBLE CONNECTORS.
- 5) ALL RUBBER PADS OR MOUNTS USED TO ISOLATE PIPES SHOULD BE 45 DUROMETER OR LOWER.

7) SPLIT HEAT PUMP OR SPLIT AC SYSTEM CONDENSERS SHOULD BE MOUNTED WITH RUBBER PADS. REFRIGERANT PIPING BETWEEN THE TWO SHOULD BE ISOLATED AT POINTS OF SUPPORT OUTSIDE OF THE ARMAFLEX WRAP AROUND THE PIPE, OR A SECTION OF SUCH WRAP SHOULD BE INCLUDED AT ANY POINT OF SUSPENSION.

9) ALL PIPE HANGERS FOR THE MAIN DCW LINE SHALL BE ISOLATED USING NEOPRENE -IN-SHEAR HANGERS FOR THE FIRST 10 POINTS OF SUPPORT FROM THE PUMPS, AND USING 12 MM RUBBER PADS IN THE SADDLES OF CLEVIS HANGERS IN ALL OTHER POINTS OF SUPPORT TO THE MAIN VERTICAL RISER LOCATION.

11) AT THE MECHANICAL ROOM, ALL PIPING PENETRATIONS THROUGH PARTITIONS SHOULD NOT HAVE DIRECT CONTACT WITH THE WALLS OR CEILING. PIPES SHALL BE WRAPPED IN MINERAL WOOL AND THE OPENING SHALL BE CAULKED.

12) AT THE MECHANICAL ROOM, IF ANY H/C PIPES MUST BE SUSPENDED FROM ABOVE, THE PIPES SHOULD BE SUSPENDED USING UPGRADED VIBRATION ISOLATION HANGERS INCLUDING SPRINGS WITH AT LEAST 38MM STATIC DEFLECTION, NEOPRENE-IN-SHEAR ELEMENTS IN SERIES (ADDITIONAL 6MM DEFLECTION), AND RUBBER PADS IN HANGER SADDLES (6MM THICK MINIMUM).

13) SPW SHALL BE DECOUPLED FROM THE ATTACHED PIPING USING TWIN-SPHERE RUBBER EXPANSION JOINTS ON BOTH THE SUCTION AND DISCHARGE SIDES. SECONDARY TWIN-SPHERE JOINTS SHOULD ALSO BE USED FOR SPW PIPING, WHERE THEY EXIT THE MECHANICAL ROOM. FOR VIL PUMPS, THESE EXPANSION JOINTS ARE TYPICALLY LOCATED IN THE VERTICAL SECTION ABOVE THE SUCTION STRAINER AND SHUT-OFF VALVE. THE PUMP AND JOINTS ACTUALLY ARE LOCATED UP TO 10' FROM THE TWIN-SPHERE JOINTS. ALL JOINTS ON CONCRETE UPTAKE BASES, AND ISOLATED FROM THE STRUCTURAL SLAB BELOW US SPRING ISOLATORS WITH MINIMUM 38 MM STATIC DEFLECTION AND 25 MM THICK NEN PADS UNDER THE SPRING BASE, PROPERLY LOADED.

14) SMALL PUMPS SHALL BE ISOLATED USING NEOPRENE-IN-SHEAR ISOLATORS FOR THE FIRST 3 POINTS OF SUPPORT ON EITHER SIDE OF THE PUMP.

15) ALL PUMPS (OTHER THAN THE DCWBP) SHALL BE MOUNTED ON ND MOUNTS FROM MASON INDUSTRIES OR EQUAL. STANDARD WAFFLE PADS WILL NOT BE SUFFICIENT.

16) ALL AHU/FAU/MAU SHALL BE MOUNTED ON DOUBLE LAYER (NSN) PADS BETWEEN UNIT CASING AND HOUSEKEEPING PAD. ALL UNIT DUCTWORK WITHIN THE MECHANICAL ROOM SHALL BE C/W 25MM INTERNAL ACOUSTIC LINING, 25MM INSULATION AND JACKETING. ALL ASSOCIATED DUCTWORK SHALL BE HUNG BY HANGERS WITH NEOPRENE PADS.

17) MAIN FRESH AIR SHAFT TO BE C/W 25MM THICK ACOUSTIC DUCT LINER STARTING FROM THE AHU ROOM AND UP THREE FLOORS.

18) CHILLER ROOM IS TO BE CONSTRUCTED WITH A MINIMUM 100MM FLOATING CONCRETE FLOOR ON 50 MM THICK ISOLATORS, DESIGNED FOR A FUNDAMENTAL FREQUENCY OF 10 HZ OR LESS, WITH BATT INSULATION IN THE CAVITY.

THE FLOATING FLOOR DESIGN SHALL INCLUDE SEPARATE CONCRETE PIERS WHICH PENETRATE THE FLOATING FLOOR TO SUPPORT THE CHILLER. THE PAD MATERIAL UNDER THE PIER SHALL BE CDM-42 OR EQUIVALENT.

THE CHILLER BODY SHALL BE ISOLATED FROM THE PIERS USING MULTIPLE-COIL SPRING ISOLATORS HAVING A STATIC DEFLECTION OF APPROXIMATELY 2" PLUS A THICK NOISE PAD UNDER THE SPRING BASE. THE NOISE PAD SHALL CONSIST OF MULTIPLE LAYERS OF RUBBER MAXIMUM .45 DIAMETER, SEPARATED BY STEEL SHIMS AND TOPPED BY A STEEL LOAD PLATE. THE NOISE PAD SHALL BE SIZED TO ACHIEVE A STATIC DEFLECTION OF APPROXIMATELY $\varnothing 3"$ AT A LOAD EQUAL TO 2/3 OF THE MAXIMUM EXPECTED POINT LOAD OF THE CHILLER.

CHILLER SHALL BE COMPLETE WITH ACOUSTIC BLANKET.

19) ALL CONNECTIONS BETWEEN THE CHILLER AND THE ATTACHED PIPING SHALL INCLUDE TWIN-SPHERE RUBBER EXPANSION JOINTS.

- 1) CONTRACTOR SHALL CO-ORDINATE ARCHITECTURAL, STRUCTURAL, LIGHTING, HVAC, SPRINKLER DRAWINGS TO AVOID AREAS OF CONFLICT AND TO MAINTAIN CEILING HEIGHTS.
- 2) CONTRACTOR SHALL REPORT ALL DISCREPANCIES AND AREAS OF CONFLICT TO THE ENGINEER PRIOR TO BEGINNING WORK.
- 3) MINIMUM HEAD ROOM IS 2100 mm ABOVE FINISH FLOOR LEVEL.
- 4) WHERE THERE IS A DROPPED CEILING, GAS PIPING SHALL BE HUNG BELOW AND TIGHT TO CEILING.
- 5) ALL EQUIPMENT TO BE INSTALLED PER SPECIFICATION AND MANUFACTURER'S INSTALLATION MANUAL. PROVIDE ACCESS PANEL FOR CONCEALED EQUIPMENT VALVES, ETC.
- 6) ALLOW 3M SEPARATION BETWEEN THE CONNECTION OF THE MAIN SANITARY RISER AND ITS AUXILIARY RISER.
- 7) ALL SANITARY PIPE OUTSIDE OF HEATED CEILING SPACE SHALL BE INSULATED, CANVASSED AND PAINTED.
- 8) ALL VENTS SHALL COMPLY WITH O.B.C. AND PLUMBING CODE.
- 9) FOR STORAGE ROOM VENTILATION SYSTEM, DIV.16 TO PROVIDE CONDUIT, WIRING AND SWITCH TO START 1 STOP FAN 4 DAMPER, FAN AND 110V ACTUATOR TO BE SUPPLIED AND INSTALLED BY DIV. 15.
- 10) FOR UTILITY ROOM VENTILATION SYSTEM, DIV.15 WILL PROVIDE LINE VOLTAGE THERMOSTAT TO DIV.16. DIV.16 TO PROVIDE CONDUIT 4 WIRING TO START/STOP FAN 4 DAMPER VIA THERMOSTAT. FAN AND 110V ACTUATOR TO BE SUPPLIED AND INSTALLED BY DIV. 15.
- 11) FOR UNIT HEATER, DIV. 15 TO PROVIDE LINE VOLTAGE THERMOSTAT TO DIV. 16. DIV. 16 TO PROVIDE CONDUIT 4 WIRING TO START/STOP UNIT HEATER.
- 12) FIRE DAMPERS ARE REQUIRED TO BE LISTED AND ARE TO HAVE FIRE-PROTECTION RATING OF THE PENETRATED FIRE SEPARATION.
- 13) THE PIPING PENETRATING THE VARIOUS FIRE SEPARATION IS REQUIRED TO BE FIRESTOPPED WITH A LISTED FIRESTOPPING MATERIAL IN ACCORDANCE WITH OBC ARTICLE 3.1.3.1.
- 14) DIV. 16 TO PROVIDE START/STOP FOR ALL THE MAIN GARAGE EXHAUST FANS INSIDE CACF ROOM.
- 15) ALL TRAPS 4 PRIMERS TO BE HEAT TRACED BY DIV.16, INSULATED 4 JACKETED BY THIS CONTRACTOR.

- (1) 3,300x3,600 (1226 M², 132 FT²) FRESH AIR INTAKE SHAFT FOR P-2 LEVEL.
- (2) 3,300x2,300 (7.8 M², 84 FT²) FRESH AIR INTAKE SHAFT FOR MAU.
- (3) 2,250x1,300 (2.93 M², 315 FT²) FRESH AIR SHAFT FOR P-2 LEVEL.
- (4) 3,500x2,000 (1161 M², 125 FT²) EXHAUST AIR SHAFT FOR P-1 & P-2 LEVEL.
- (5) 1,000x2,000 WEATHERPROOF INTAKE LOUVRE C/W BIRDSCREEN. (16,350 CFM)
- (6) 2,000x1,500 WEATHERPROOF INTAKE LOUVRE C/W BIRDSCREEN. (18,000 CFM)
- (7) 200x200 FRESH AIR DUCT FROM ABOVE C/W FIRE DAMPER AT SLAB.
- (8) 400x200 INTAKE LOUVRE C/W MOTORIZED DAMPER, FIRE DAMPER & WIRE MESH.
- (9) 800x400 INTAKE LOUVRE C/W MOTORIZED DAMPER, FIRE DAMPER & WIRE MESH.
- (10) 800x800 INTAKE LOUVRE C/W MOTORIZED DAMPER, FIRE DAMPER & WIRE MESH.
- (11) 800x400 INTAKE LOUVRE C/W FIRE DAMPER & WIRE MESH.
- (12) 600x400 EXHAUST LOUVRE C/W FIRE DAMPER & WIRE MESH.
- (13) 1200x800 INTAKE LOUVRE C/W MOTORIZED DAMPER, FIRE DAMPER & WIRE MESH.
- (14) 700x350 STAIR PRESSURIZATION DUCT FROM ABOVE C/W FIRE RATED ENCLOSURE, FIRE RATED ENCLOSURE BY OTHERS.
- (15) 750x400 DUCT DOWN TO 450 mm AFFL C/W OPEN END AND WIRE MESH.

16) REFRIGERANT MONITORING MASTER & SLAVE PANELS AND SENSOR SLAVE PANEL SHOWING STATUS OF REFRIGERATION MONITORING SYSTEM TO BE MOUNTED OUTSIDE OF CHILLER ROOM. UPON SENSING OF REFRIGERANT LEAKAGE CHILLER WILL BE SHUT DOWN AND EF-10 LOCATED IN 2/F (LOADING) TO BE ACTIVATED TO RUN IN HIGH SPEED.

17 ALARM STROBE LIGHT SUPPLIED AND WIRED TO THE REFRIGERANT MONITORING SYSTEM BY MECHANICAL CONTRACTOR.

18) 150x100 FRESH AIR DUCT FROM ABOVE c/w FIRE DAMPER AT SLAB.

19) 100Ø SAN FROM ABOVE AND DOWN c/w CLEANOUT AT BASE.

20) 100¢ SAN @ 1%.

(22) SANITARY SUMP PIT. SEE DETAIL ON THIS DRAWING.

(23) 75# PUMPED SAN UP c/w HEAT TRACING. HEAT TRACING BY DIV. 16. INSULATION AND JACKET BY THIS CONTRACTOR.

(25) BACKWATER VALVE AND CLEANOUT PRIMED & VENTED INSIDE 900 ϕ MANHOLE c/w COVER SEE DETAIL ON THIS DRAWING.

(26) ELEVATOR SUMP PIT. SEE DETAIL ON DRAWING M-40.

(27) 100¢ SAN DOWN c/w CLEANOUT AT BASE.

(29) 750x750 F/A DUCT FROM AHU AND TRANSITION TO 2,000x650 F/A DUCT IN VERTICAL RUN & UP.

(30) 2000x650 DUCT BELOW RAMP AND ENTER RESIDENTIAL STORAGE ROOM
AT HIGH LEVEL IN P-1 C/W FIRE DAMPER FOR CONTINUATION SEE DRAWING M-4.

LEGEND MECHANICAL			
SYMBOL	DESCRIPTION		
	SUPPLY AIR DIFFUSER		
	SUPPLY AIR REGISTER		
	SUPPLY AIR DIFFUSER		
	THERMOSTAT		
	FAN		
	RETURN AIR GRILLE		
	EXHAUST AIR GRILLE		
	SUPPLY DUCT		
	SUPPLY DUCT DOWN		
	RETURN DUCT		
	RETURN DUCT DOWN		
	EXHAUST DUCT		
	EXHAUST DUCT DOWN		
	FIRE DAMPER		
	BALANCING DAMPER		
	MOTORIZED DAMPER		
	MOTORIZED FIRE DAMPER		
	BACKDRAFT DAMPER		
	APPROVED BLADE VALVE CONTROL DAMPER WITH LOCKING QUASMAN		
	TURNING VANES		
	FLEXIBLE CONNECTION		
	ACOUSTIC INSULATION		
	TYPE OF EQUIPMENT		
	EQUIPMENT IDENTIFICATION		
	TYPE OF EQUIPMENT ON GRILLE		
	GRILLE SIZE OR DIFFUSER NECK SIZE		
	GRILLE SIZE OR DIFFUSER NECK SIZE		
	STARTERS - 3 PHASE / 1 PHASE		
	NUISANCE FREE MASTER SWITCH		
	FAN RUN / N/A NOTE FREE OVERRIDE BUTTON		
	CO RENOTE		
	GAS LINE		
	GAS METER		
	GAS COOK		
	PRESSURE REDUCING VALVE		
	BANTANT ABOVE GRADE		
	BANTANT BELOW GRADE		
	STONE ABOVE GRADE		
	STONE BELOW GRADE		
	DORMESTIC COLD WATER		
	DORMESTIC HOT WATER		
	DORMESTIC HOT WATER RECIRCULATION		
	BANTANT VENT		
	WATER FITTER		
	FLOOR DRAIN		
	FLOOR DRAIN		
	HUB DRAIN		
	ROOF DRAIN		
	BLU AREA DRAIN		
	AREA DRAIN		
	CATCH BASIN		
	SANTAP TRAP		
	ELBOW		
	FLOOR CLEANOUT		
	HOBSE BIBB		
	HOBSE BIBB		
	GATE VALVE		
	GATE VALVE		
	BALL VALVE		
	BUTTERFLY VALVE		
	PRESSURE REDUCING VALVE		
	CHECK VALVE		
	CAP		
	COMPRESSED AIR OUTLET		
	COMPRESSED AIR OUTLET		
	CIRCUIT BREAKER		
	MULTIPLE PIPES		
	THERMISTOR		
	THERMISTOR		
	THERMISTOR		
	2-WAY MODULATING VALVE		
	3-WAY MODULATING VALVE		

02/01/19	4	BASED FOR SITE INTERSECTION P-1	EP
02/01/19	1	BASED FOR TOWER	EP
01/01/19	1	RE-BASED FOR PERMIT	EP
06/30/14	1	BASED FOR PERMIT	EP
DATE	NO.	DESCRIPTION	BY

MARK VOID ALL PREVIOUS DATES PREVIOUS TO FINAL DATE ABOVE

REVISIONS			
CONTRACTOR MUST CHECK AND VERIFY ALL DIMENSIONS AND CONDITIONS ON THE JOB AND REPORT ANY DISCREPANCIES TO THE ENGINEER BEFORE PROCEEDING. REVISIONS MUST BE RETURNED UPON COMPLETION OF THE WORK.			
DRAWINGS ARE NOT TO BE SCALED			

NOVA LAND CONSTRUCTING LTD.		PROFESSIONAL ENGINEER 02/10/19 ERIC P. M-3 MINISTRE OF HOUSING
175 West Beaver Creek Road, Unit 31 Richmond Hill, Ontario L4B 3H1 Tel: 905 882-5444 Fax: 905 882-5447		
Drawing Title: P-7 FLOOR PLAN MECHANICAL LAYOUT		
PROJECT FILE: 302 ALEXANDRA PARK BLOCK II 38 CARMON STREET TORONTO	ONTARIO	
G.S.	DESIGNED BY: E.P.	SCALE: 1:100
DATE: FEB. 13	PROJECT NUMBER: 1313	DRAWING NUMBER: M-3
OF 4		