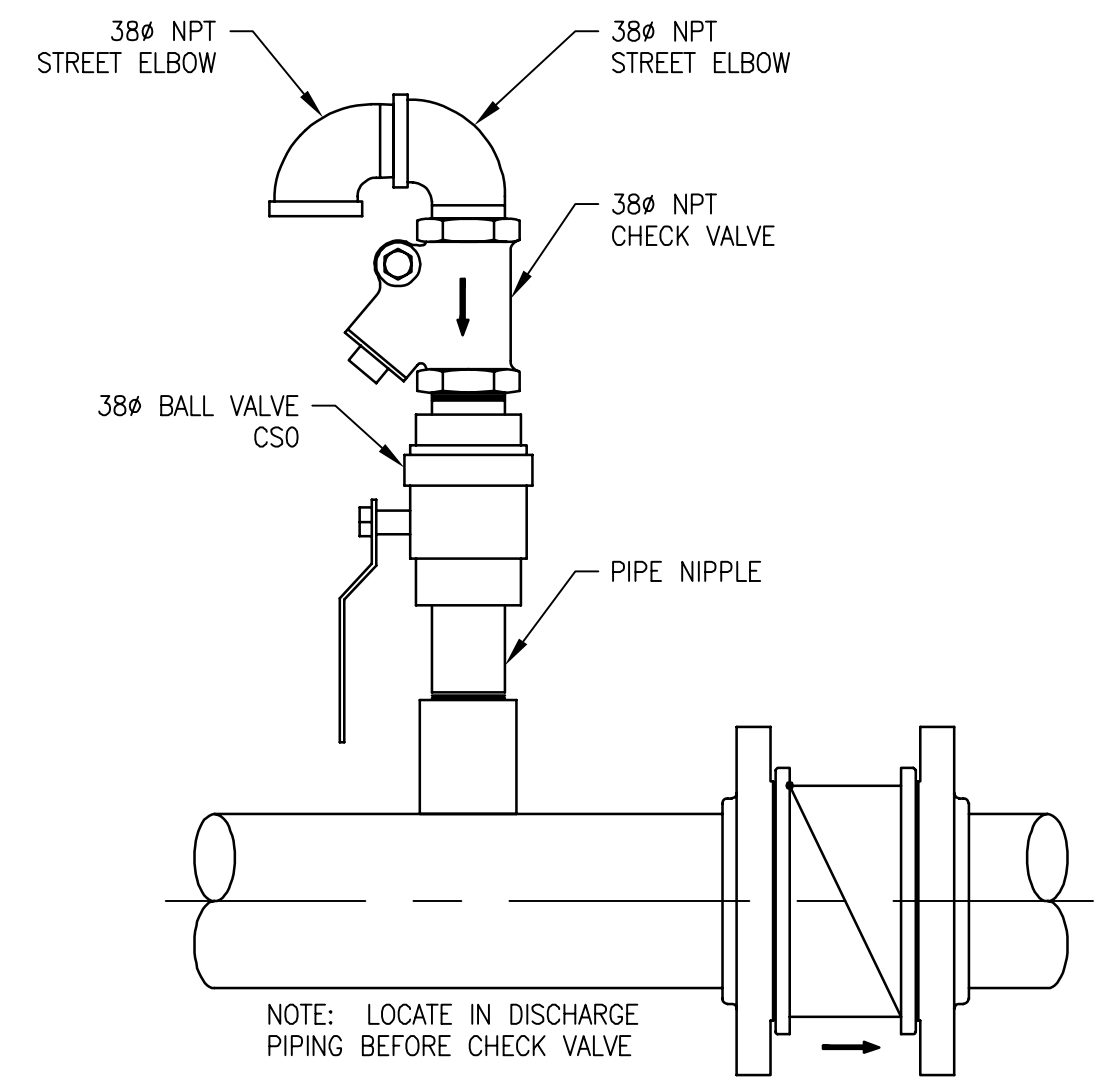


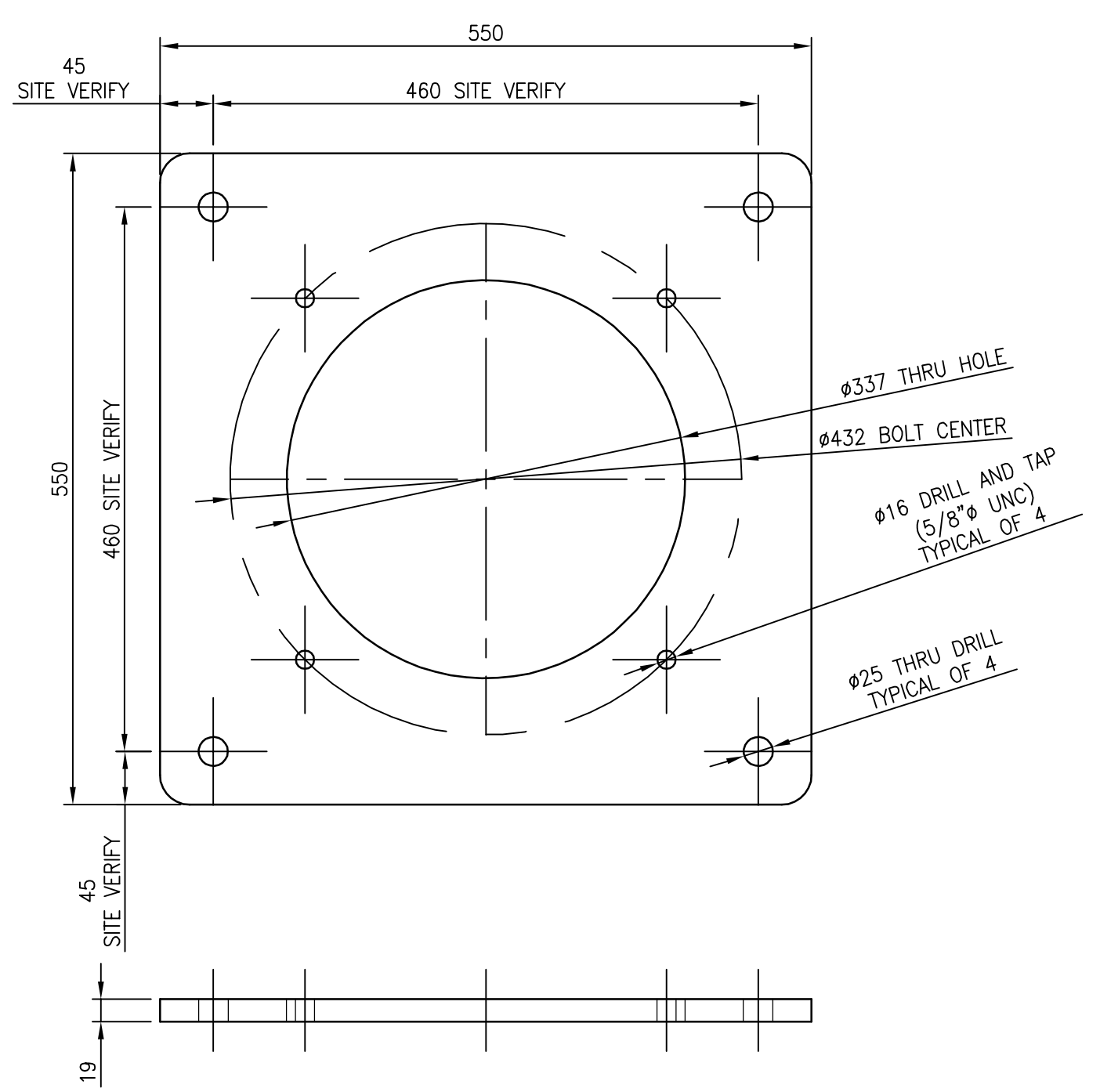
D SIZE 22" x 34" (559mm x 864mm)

PLOT: 5/8/2018 11:17:13 AM

AECOM REVIEW DRFT CHK
AECOM FILE NAME: P0008.dwg Saved By: landersd



1 AUTOMATIC AIR RELEASE VALVE
P0008 SCALE N.T.S.



FABRICATION NOTES:
THE TRANSITION PLATE IS TO TRANSITION FROM THE EXISTING FIRE PUMP ANCHOR BOLTS TO THE NEW FIRE PUMP. SITE CONFIRM ALL ANCHOR BOLT DIMENSIONS AND LOCATIONS PRIOR TO PLATE FABRICATION FOR EACH FIRE PUMP. PLATE MATERIAL: CSA G40.21-38W OR EQUAL. HOT DIP GALVANIZE PLATE AFTER FABRICATION. PROTECT THREADED HOLES DURING THE GALVANIZING PROCESS. DEBURR AND BREAK ALL EDGES.

2 FIRE PUMP TRANSITION BASE PLATE
P0008 SCALE 1:5

FIRE PUMP MECHANICAL SPECIFICATIONS

- THE FOLLOWING SPECIFICATION SHALL BE READ IN CONJUNCTION WITH THE SPECIFICATIONS IN THE BID OPPORTUNITY.
- WATER FLOW TEST DEVICES ARE NOT INCLUDED AS A PART OF THIS CONTRACT AND ARE ASSUMED TO BE AVAILABLE AS A PART OF THE EXISTING FIRE SYSTEM.
- THIS INSTALLATION SHALL MEET THE REQUIREMENTS OF NFPA 20-2016 - "STANDARD FOR THE INSTALLATION OF STATIONARY PUMPS FOR FIRE PROTECTION".
- FIRE SYSTEM INSTALLER SHALL MEET THE QUALIFICATIONS AND REQUIREMENTS AS LISTED IN NFPA 20.
- PROVIDE ALL ACCEPTANCE TESTING, PERFORMANCE TESTS AND FLUSHING AS REQUIRED BY NFPA 20.
- ABOVE GROUND PIPE SHALL BE ASTM A53 SCHEDULE 40 CARBON STEEL PIPE UNLESS NOTED OTHERWISE.
- PRESSURE SENSING LINE SHALL BE 15# (1/2") SERIES 304 OR 316 STAINLESS STEEL PIPE OR TUBE, AS WELL AS THE FITTINGS AND VALVES.
- PIPE JOINING SHALL BE BY MEANS OF SCREWED (50mm AND UNDER), FLANGED OR MECHANICAL GROOVED JOINTS.
- TORCH CUTTING OR WELDING IN THE PUMP HOUSE SHALL BE PERMITTED AS A MEANS OF MODIFYING / CONNECTING TO THE EXISTING PIPING WHEN IN ACCORDANCE WITH NFPA 51B.
- THE NEW DISCHARGE PIPING SHALL BE HYDROSTATICALLY TESTED IN ACCORDANCE WITH NFPA 13.
- VERTICAL SHAFT TURBINE FIRE PUMP: SHALL BE ULC AND FM LISTED / APPROVED PUMP FOR FIRE SERVICE. PUMP AND MOTOR SHALL BE SIZED IN ACCORDANCE WITH AND MEET ALL THE REQUIREMENTS OF NFPA 20. MANUFACTURER TO PROVIDE CERTIFIED SHOP TESTS IN CONFORMANCE WITH NFPA 20. FLOW PERFORMANCE - 47.3 L/S (750 USGPM). HEAD - 725 kPa (105 PSI). STAGES - FOUR (4). ELECTRICAL - 44.8 kW (60 HP), 575V/3PH/60HZ. FLANGES - 125#. ACCEPTABLE MATERIAL: AC FIRE PUMP MODEL FP11CHC, SIZE 6x11CHC OR APPROVED EQUAL.
- ELECTRIC FIRE PUMP CONTROLLER WITH AUTOMATIC POWER TRANSFER SWITCH: SHALL MEET THE REQUIREMENTS OF NFPA 20 AND BE ULC LISTED FOR FIRE PUMP CONTROLLERS AND AUTOMATIC POWER TRANSFER SWITCHES FOR FIRE PUMP CONTROLLERS. FM APPROVED AND CSA C22.2, No 14 INDUSTRIAL CONTROL EQUIPMENT APPROVED. THE POWER TRANSFER SWITCH AND FIRE PUMP CONTROLLER SHALL BE FACTORY ASSEMBLED, WIRED AND TESTED, SHALL BE IN A NEMA 4 ENCLOSURE. SHALL HAVE THE FOLLOWING:
 - LIFTING LUGS
 - KEYLOCK HANDLE
 - RED POWDER COAT PAINT
 - 5' TO 40' AMBIENT TEMPERATURE RATING
 - SURGE ARRESTOR
 - DISCONNECT / ISOLATING SWITCH AND CIRCUIT BREAKER ASSEMBLY RATED FOR NOT LESS THAN 115% OF MOTOR FULL LOAD CURRENT
 - FLANGE MOUNTED EMERGENCY START HANDLE WITH INTEGRATED LIMIT SWITCH, PULL AND LATCH ACTIVATION AND ACROSS THE LINE START
 - LOCKED ROTOR PROTECTOR
 - VOLTAGE PHASE TO PHASE (NORMAL POWER) AND AMPERAGE OF EACH PHASE WHEN MOTOR IS RUNNING ELECTRICAL READINGS
 - CONTINUOUS SYSTEM PRESSURE DISPLAY AND CUT-IN AND CUT-OUT PRESSURE SETTINGS
 - PRESSURE AND EVENT RECORDER WITH DATE STAMP VIEWABLE ON OPERATOR INTERFACE DISPLAY SCREEN DOWNLOADABLE BY USB.
 - PRESSURE TRANSDUCER AND RUN TEST SOLENOID VALVE ASSEMBLY RATED FOR 0-500 PSI WORKING PRESSURE AND EXTERNALLY MOUNTED WITH PROTECTIVE COVER
 - AUDIBLE ALARM BELL
 - VISIBLE INDICATION AND ALARMS
 - REMOTE ALARM CONTACTS FOR MOTOR RUNNING, LOSS OF PHASE, PHASE REVERSAL AND CONTROLLER CONNECTED TO GENERATOR
 - PROVIDE MODBUS COMMUNICATION CAPABILITY AND INTERNAL PROGRAMMING FOR ALL MONITORING AND ALARMS. EXTERNAL CONNECTION AND PROGRAMMING PROVIDED BY THE CITY.
 - COLOUR TOUCHSCREEN OPERATOR INTERFACE EMBEDDED MICROCOMPUTER WITH SOFTWARE PLC LOGIC
 - AUTOMATIC START FROM PRESSURE DROP AND REMOTE START SIGNAL
 - MANUAL PUSHBUTTON START, RUN TEST PUSHBUTTON, DELUGE VALVE START AND REMOTE START FROM MANUAL DEVICE.
 - MANUAL STOP WITH STOP PUSHBUTTON AND AUTOMATIC STOP AFTER MINIMUM RUN TIMER EXPIRE.
 - FIELD ADJUSTABLE TIMERS
 - AUTOMATIC OPERATION MODE
 - TRANSFER SWITCH SURGE SUPPRESSION, ISOLATING SWITCH AND CIRCUIT BREAKER ASSEMBLY, LOCKED ROTOR PROTECTOR SET AT 600% OF MOTOR FULL LOAD CURRENT AND VISUAL INDICATORS
 - TRANSFER SWITCH TEST PUSHBUTTON
 - TRANSFER SWITCH BYPASS FOR RE-TRANSFER AND GENERATOR SHUTDOWN
 - TRANSFER SWITCH ELECTRICALLY OPERATED AND MECHANICALLY HELD IN THE NORMAL OR ALTERNATE POSITION
 - TRANSFER SWITCH REMOTE ALARM CONTACTS, TIMER DELAYS, VOLTAGE SENSING, AUDIBLE ALARM AND GENERATOR START CONNECTION.
 - SHORTCIRCUIT WITHSTAND RATING OF 50kA 575 V 60 Hz.
 - THE CONTROLLERS FOR FIRE PUMP 1 AND FIRE PUMP 2 SHALL OPERATE AS DUTY/STANDBY. PROVIDE LOCKOUT/INTERLOCK CIRCUIT FROM EQUIPMENT INSTALLED INSIDE THE PUMP ROOM OPTION.
 ACCEPTABLE EQUIPMENT: TORNA TECH MODEL GPR +GPU FULL SERVICE REDUCED VOLTAGE AUTOTRANSFORMER ELECTRIC FIRE PUMP CONTROLLER WITH AUTOMATIC POWER TRANSFER SWITCH.
- DISCHARGE PRESSURE GAUGE ASSEMBLY: 89mm (3.5") DIAMETER DIAL, 3-2-3% ACCURACY, C/W 2 WAY BALL VALVE. PRESSURE GAUGE READINGS SHALL BE IN kPa AND PSI. PRESSURE RANGE SHALL BE 0 - 2000 kPa AND 0-300 PSI.
- AIR RELEASE VALVE: SIZE - 38mm (1 1/2"). REFER TO DETAIL 1/P0008. EACH AIR RELEASE VALVE ASSEMBLY SHALL CONSIST OF A PIPE NIPPLE, BALL VALVE (LOCKED OPEN), CHECK VALVE AND TWO NPT STREET ELBOWS. CHECK VALVE TO BE A MINIMUM 200 CWP, LEAD FREE, THREADED ENDS, BRASS Y PATTERN SWING CHECK VALVE. ACCEPTABLE MATERIAL: CRANE LF37 OR APPROVED EQUAL.
- CIRCULATION PRESSURE RELIEF VALVE: ULC LISTED AND FM APPROVED FOR FIRE PROTECTION SERVICES. DIRECT ACTING - PRECISE PRESSURE CONTROL, DIAPHRAGM TYPE, POSITIVE DEPENDABLE OPENING, DRIP TIGHT ENCLOSURE, SENSITIVE TO SMALL PRESSURE VARIATIONS. PRESSURE RANGE - 138 TO 1207 kPa (20 TO 175 PSI). MINIMUM NOMINAL SIZE 19mm (3/4"). ON SITE PRESSURE RELIEF SETTING 745 kPa (108 PSI). ACCEPTABLE MATERIAL: CIA-VAL MODEL 55L.
- WAFFER STYLE CHECK VALVE: ULC LISTED AND FM APPROVED FOR FIRE PROTECTION SERVICES. TO BE LEAD FREE SUITABLE FOR 250 PSI. HOUSING SHALL BE DUCTILE IRON CONFORMING TO ASTM A-536, GRADE 65-45-12. DISC SHALL BE BRONZE ASTM B584 ALLOY C87600, TORSION SPRING, HINGE PIN, STOP PIN AND THRUST BEARING TO BE STAINLESS STEEL, HINGE PIN RETAINER AND STOP PIN RETAINER TO BE STEEL, STABILIZATION SPHERE TO BE BUNA-N, SPACER TO BE STAINLESS STEEL ASTM A276 UNS S31600. INSTALL MINIMUM 5 PIPE DIAMETERS DOWNSTREAM OF THE PUMP DISCHARGE. ACCEPTABLE MATERIAL: NIBCO MODEL KW-900-W-LF.
- LUG STYLE BUTTERFLY VALVE C/W INDICATOR FLAG: ULC LISTED AND FM APPROVED FOR FIRE PROTECTION SERVICES. MATERIAL TO BE AS FOLLOWS: STEM-STAINLESS STEEL ASTM 582 TYPE 416, COLLAR BUSHING-BRASS ASTM B124, UPPER BUSHING-COPPER ALLOY CDA 122, STEM AND BODY SEAL AND LINER-EPDM, DISC-DUCTILE IRON ASTM 395 (NICKEL PLATED), LOWER BUSHING-COPPER ALLOY CDA 122, INDICATOR FLAG AND HANDWHEEL- CAST IRON, NAMEPLATE-ALUMINUM, BODY-DUCTILE IRON ASTM A536, GEAR OPERATOR CAST IRON AND STEEL. ACCEPTABLE MATERIAL: NIBCO MODEL LD3510-4.
- BUTTERFLY VALVE TO BE LOCKED OPEN (CAR SEAL OPEN - CSO).
- GROOVE COUPLERS: SHALL BE ULC AND FM APPROVED FOR FIRE PROTECTION SERVICES FOR 2500 kPa (365 PSI) PRESSURE. COUPLERS SHALL BE RIGID. HOUSING TO BE MADE OF DUCTILE IRON CONFORMING TO ASTM A 536, GRADE 65-45-12, GRADE "E" EPDM GASKET, ZINC ELECTROPLATED CARBON STEEL BOLTS / NUTS. ACCEPTABLE MATERIAL: VICTAULIC FIRELOCK RIGID COUPLING STYLE 009N.
- GROOVE FITTINGS: SHALL BE ULC LISTED AND FM APPROVED FOR FIRE PROTECTION SERVICES. APPROVED MATERIAL: VICTAULIC FIRELOCK FITTINGS.

LOCATION APPROVED
UNDERGROUND STRUCTURES

SUPR. U/G STRUCTURES DATE COMMITTEE

NOTE:
LOCATION OF UNDERGROUND STRUCTURES AS SHOWN ARE BASED ON THE BEST INFORMATION AVAILABLE. BUT NO GUARANTEE IS GIVEN THAT ALL EXISTING UTILITIES ARE SHOWN OR THAT THE GIVEN LOCATIONS ARE EXACT. CONFIRMATION OF EXISTENCE AND EXACT LOCATION OF ALL SERVICES MUST BE OBTAINED FROM THE INDIVIDUAL UTILITIES BEFORE PROCEEDING WITH CONSTRUCTION.

AECOM
Certificate of Authorization
AECOM Canada Ltd.
No. 4671 Date: May 9/18

0	ISSUED FOR PHASE 2 & 3: BID OPP. 502-2017	18/05/09	DRL
NO.	REVISIONS	YYMMDD	BY

AECOM

DESIGNED BY	CC	CHECKED BY	GD
DRAWN BY	DRL	APPROVED BY	
HOR. SCALE	NTS	RELEASED FOR CONSTRUCTION	
VERT. SCALE			
DATE			

PROVINCE OF MANITOBA
REGISTERED PROFESSIONAL ENGINEER
May 9/18
C.A.D. COURCHAINE
CONSULTANT DRAWING NO.
P0008

THE CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT

SHOAL LAKE
AQUEDUCT INTAKE FACILITY
FIRE PUMP UPGRADES
PROCESS
NEW FIRE PUMPS
FLOW DIAGRAM AND DETAILS

SHEET 25 OF 27
CITY DRAWING NUMBER
REV
1-0600A-P0008-001 0

BID OPPORTUNITY NO. 502-2017

-0600P-P0004-001-00	PROCESS & INSTRUMENTATION DIAGRAM - GEN-P717
-0600P-P0002-001-00	PROCESS & INSTRUMENTATION DIAGRAM - LOW LIFT WATER PUMP P-P042
-0600G-P0005-001-00	PROCESS & INSTRUMENTATION DIAGRAM - FIRE PUMPS
-0600A-Pxxxx-00x-00	PROCESS & INSTRUMENTATION DIAGRAM - LEGEND & DETAILS
DRAWING NUMBER	REFERENCE DRAWINGS