GENERAL NOTES

1. CODE COMPLIANCE: THE CONTRACTOR SHALL COMPLY WITH THE LAWS, ORDINANCES, RULES AND REGULATIONS OF THE COATESVILLE VETERANS AFFAIRS MEDICAL CENTER, OF THE NATIONAL FIRE PROTECTION ASSOCIATION, OF THE NATIONAL ELECTRIC CODE AND OF THE PUBLIC UTILITIES HAVING JURISDICTION OVER ANY OF THE SYSTEMS HEREIN SPECIFIED.

2. DEFINITIONS:
   A. "PROVIDE" UNDER THIS CONTRACT IS DEFINED AS FURNISH AND INSTALL.
   B. "CONCEALED" UNDER THIS CONTRACT IS DEFINED AS HIDDEN BY ARCHITECTURAL WALLS AND CEILINGS.
   C. "EXPOSED" UNDER THIS CONTRACT IS DEFINED AS VISIBLE TO VIEW.
   D. "INDICATED" UNDER THIS CONTRACT IS DEFINED AS SHOWN IN THE CONTRACT DOCUMENTS.

3. SCOPE OF WORK: PROVIDE ALL WORK INDICATED IN THE CONTRACT DOCUMENTS.

4. EXISTING CONDITIONS: THE SITE, LOCATION AND ROUTING OF SYSTEMS INDICATED TO HAVE NEW CONNECTIONS MADE TO THEM ARE SHOWN AS ACCURATELY AS FIELD CONDITIONS WOULD PERMIT. ALL EXISTING CONDITIONS SHALL BE EXAMINED AND THEIR EXACT LOCATIONS VERIFIED BY CONTRACTOR. NO CONSIDERATION OR ALLOWANCE WILL BE GRANTED FOR FAILURE TO INVESTIGATE EXISTING CONDITIONS OR MISUNDERSTANDINGS OF THE CONTRACT DOCUMENTS.

5. CONTRACT DOCUMENTS: THE CONTRACT DOCUMENTS SHALL BE CONSIDERED AS DIAGRAMMATIC AND FOR BIDDING PURPOSES ONLY. ATTENTION IS CALLED TO THE FACT THAT WHILE THE DOCUMENTS ARE GENERALLY TO SCALE AND ARE AS ACCURATE AS THE SCALE WILL PERMIT, ALL IMPORTANT DIMENSIONS SHALL BE DETERMINED IN THE FIELD. THE DRAWINGS ARE NOT TO BE CONSIDERED AS CONSTRUCTION DRAWINGS. THE DRAWINGS DO NOT INDICATE EVERY FITTING, ELBOW, OFFSET OR SIMILAR COMPONENTS WHICH ARE REQUIRED TO COMPLETE THE PROJECT WORK. PREPARE FIELD CONSTRUCTION DRAWINGS AS REQUIRED TO INSURE PROPER INSTALLATION. PROVIDE ALL NECESSARY OFFSETS AND FITTINGS, TO INSTALL THE SYSTEMS AS DIAGRAMED, AT NO ADDITIONAL COST TO THE OWNER.

6. DEMOLITION: THE CONTRACTOR SHALL REMOVE ALL EQUIPMENT AND MATERIALS, NOT INDICATED TO BE REUSED, TO A DESIGNATED LOCATION AT THE PROJECT SITE FOR THE OWNERS INSPECTION AND POSSIBLE RETENTION. ALL EQUIPMENT, NOT TO BE RETAINED BY THE OWNER, SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR.

7. EQUIPMENT AND MATERIALS:
   A. ALL EQUIPMENT AND MATERIALS SHALL BE NEW, UNLESS INDICATED OTHERWISE, AND THE CURRENT MODEL FOR WHICH REPLACEMENT PARTS ARE AVAILABLE. SUBSTITUTIONS SHALL ONLY BE ACCEPTED AT THE DISCRETION OF THE OWNER'S REPRESENTATIVE OR THE ENGINEER.
   B. THE CONTRACTOR SHALL INSTALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH THE BEST ENGINEERING PRACTICE. THE CONTRACTOR SHALL FOLLOW THE MANUFACTURERS PUBLISHED INSTALLATION INSTRUCTIONS AND RECOMMENDATIONS, UNLESS INDICATED OTHERWISE.
   C. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL REQUIRED AUXILIARY ITEMS COMPLETE.
   D. ALL MECHANICAL EQUIPMENT, PIPING, ETC. SHALL BE SUPPORTED AS DETAILED OR AS SPECIFIED. ADDITIONAL SUPPORTS SHALL BE PROVIDED AS REQUIRED TO INSURE A VIBRATION FREE INSTALLATION.
   E. REFER TO THE DETAIL DRAWINGS FOR PIPING AND INSTALLATION OF PUMPS.

8. COORDINATION: THE CONTRACTOR SHALL INSTALL ALL PIPING PARALLEL OR PERPENDICULAR TO THE BUILDING WALLS IN A NEAT WORKMANLIKE MANNER. AVOID CONFLICT WITH EXISTING EQUIPMENT, LIGHTS, ETC. IF CONFLICT WITH EXISTING DOES OCCUR, THE CONTRACTOR SHALL RE-ROUTE CONFLICTING PROJECT WORK AS DIRECTED BY THE OWNER'S REPRESENTATIVE AT NO ADDITIONAL COST.

9. PARTITIONS: THE CONTRACTOR SHALL REPAIR ALL OPENINGS IN THE WALLS AND FLOORS, ETC., WHICH ARE CREATED BY DEMOLITION AND/OR NEW PROJECT WORK. THE REPAIRS SHALL BE WITH MATERIALS AND FINISHED TO MATCH THE EXISTING SURFACES. OPENINGS AND PENETRATIONS IN FIRE RATED PARTITIONS SHALL BE SEALED WITH U.L. APPROVED FIRE STOPPING MATERIAL TO MAINTAIN FIRE RESISTANT INTEGRITY.

10. SITE CLEAN-UP: THE CONTRACTOR SHALL AT ALL TIMES, AND ON A CONTINUING BASIS, KEEP THE PREMISES AND AREAS OF WORK FREE FROM ALL REFUSE AND WASTE MATERIALS AS A RESULT OF THE CONSTRUCTION WORK. ALL SUCH REFUSE SHALL BE REMOVED FROM THE PROPERTY, UNLESS SPECIFIED OR DIRECTED OTHERWISE, SO THAT THE PREMISES AND AREAS OF WORK PRESENT A NEAT, ORDERLY AND WORKMANLIKE APPEARANCE. UPON COMPLETION OF THE WORK, THE CONTRACTOR SHALL THOROUGHLY CLEAN THE CONTRACT AREAS AND ALL OTHER AREAS USED FOR STORAGE, STAGING, ETC.

11. TESTS AND DEMONSTRATIONS: THE CONTRACTOR SHALL TEST ALL EQUIPMENT INSTALLED UNDER THIS CONTRACT AND DEMONSTRATE TO THE OWNER'S REPRESENTATIVE ITS PROPER OPERATION(S).

12. BUILDING SMOKE/FIRE ALARM SYSTEM: PROTECT THE EXISTING BUILDING SMOKE/FIRE ALARM DETECTION SYSTEM AS REQUIRED TO PREVENT FALSE ALARMS WITHIN THE PROJECT CONSTRUCTION AREA.

HVAC SYMBOLS

CH	CHILLED WATER SUPPLY
CHR	CHILLED WATER RETURN
CW	CITY WATER (MAKE-UP)
CD	CONDENSATE DRAIN
CWS	CONDENSER WATER SUPPLY
CWR	CONDENSER WATER RETURN
D	DRAIN LINE
	EXISTING OBJECT TO BE REMOVED (DEMOLITION)
	EXISTING OBJECT TO REMAIN
	NEW WORK
V	VENT (TO ATMOSPHERE)
1	KEYED WORK NOTE
1 / M-2	DETAIL NUMBER / SHEET LOCATION
ET-2	EQUIPMENT TAG FOR SCHEDULES
	NEW TO EXISTING CONNECTION
	POINT OF DISCONNECTION FOR DEMOLITION
ACV	AUTOMATIC CONTROL VALVE
	BALL VALVE
	BUTTERFLY VALVE
	CAPPED LINE
	CONCENTRIC REDUCER
	DIRECTION OF FLOW
	DIRECTION OF PIPE PITCH
	DRAIN VALVE W/HOSE BIBB END (3/4")
	ELBOW TURNING DOWN
	ELBOW TURNING UP
	FLEXIBLE CONNECTION
	FLOW MEASURING STATION
	FLOW SWITCH
	45° OR 90° BOTTOM CONNECTION
	45° OR 90° TOP CONNECTION
	GATE VALVE
	MANUAL AIR VENT
	PIPE BREAK
	PRESSURE GAGE
	SIDE CONNECTION
	THERMOMETER
	UNION - SCREWED

ABBREVIATIONS

ACCH	AIR COOLED CHILLER
ACV	AUTOMATIC CONTROL VALVE
AFF	ABOVE FINISHED FLOOR
AS	AIR SEPARATOR
BV	BUTTERFLY VALVE
CH	CHILLED WATER SUPPLY
CHWP	CHILLED WATER PUMP
CHR	CHILLED WATER RETURN
COMP	COMPRESSOR
CT	COOLING TOWER
CW	CITY WATER
CWP	CONDENSER WATER PUMP
CWR	CONDENSER WATER RETURN
CWS	CONDENSER WATER SUPPLY
D	DEEP OR DEPTH; CONDENSATE DRAIN
DIA OR ø	DIAMETER
DP	DIFFERENTIAL PRESSURE
(E)	EXISTING
EFF	EFFICIENCY
ET	EXPANSION TANK
EWT	ENTERING WATER TEMPERATURE
FMS	FLOW MEASURING STATION
FT	FOOT OR FEET
GPM	GALLONS PER MINUTE
HP	HORSEPOWER
IN	INCHES
KW	KILOWATTS
MAX	MAXIMUM
MCA	MINIMUM CIRCUIT AMPACITY
MER	MECHANICAL EQUIPMENT ROOM
MIN	MINIMUM
MPR	MEDIUM PRESSURE STEAM RETURN
MPS	MEDIUM PRESSURE STEAM SUPPLY
NO	NUMBER
NPSH	NET PUMP SUCTION HEAD
P	PUMP
PPM	PARTS PER MILLION
RLA	RUNNING LOAD AMPS
RPM	REVOLUTIONS PER MINUTE
TEMP	TEMPERATURE
UH	UNIT HEATER
WC	WATER CHILLER

KEYED NOTES

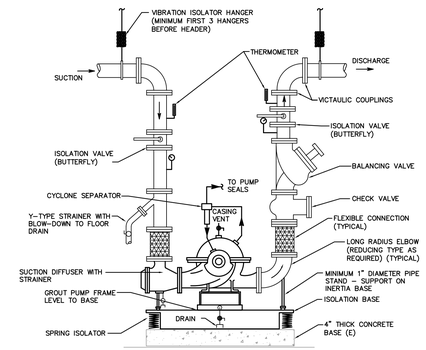
THE FOLLOWING NOTES ARE FOR CLARIFICATION IN THE INDICATED AREAS OF WORK

1. DISCONNECT AND REMOVE THE EXISTING CONDENSER WATER PUMPS AND ASSOCIATED PIPING TO THE EXTENT REQUIRED FOR INSTALLATION OF THE NEW REPLACEMENT PUMPS. REFER TO THE PUMP INSTALLATION DETAIL ON DRAWING M-1 FOR THE EXTENT OF THE NEW PIPING SPECIALTIES. EACH NEW PUMP SHALL BE BALANCED FOR THE WATER QUANTITIES INDICATED AND WIRED AND MAPPED INTO THE EXISTING BUILDING AUTOMATION SYSTEM FOR REMOTE MONITORING, (TYPICAL FOR THREE PUMP INSTALLATIONS). ALL COSTS ASSOCIATED WITH THE PURCHASE AND INSTALLATION OF THE THREE, (3) CONDENSER WATER PUMPS INCLUDING ALL PIPING, PIPING SPECIALTIES AND AUTOMATIC TEMPERATURE CONTROL WORK SHALL BE IDENTIFIED IN THE BID DOCUMENTS AS THE FOLLOWING DEDUCT ALTERNATES:
   - CONDENSER WATER PUMP CWP-1 – DEDUCT ALTERNATE #1
   - CONDENSER WATER PUMP CWP-2 – DEDUCT ALTERNATE #2
   - CONDENSER WATER PUMP CWP-3 – DEDUCT ALTERNATE #3

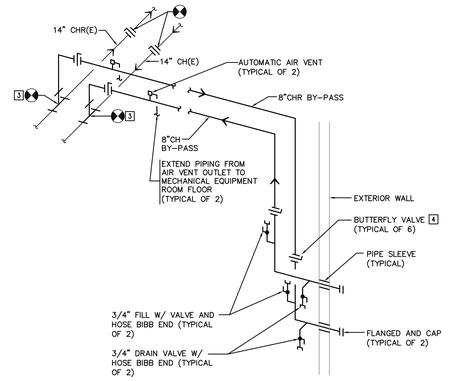
   THE DEDUCT ALTERNATES SHALL IDENTIFY THE CREDIT VALUE OF THE EXISTING PUMP/MOTOR REPLACED UNDER EACH ALTERNATE.
2. PROVIDE A SUSPENDED EMERGENCY DRAIN PAN BELOW ALL EXISTING PIPING LOCATED ABOVE THE NEW CHILLER SWITCHBOARD. THE DRAIN PAN SHALL BE CONSTRUCTED FROM 18-GAUGE, (MINIMUM) GALVANIZED STEEL AND EXTEND A MINIMUM OF 12-INCHES BEYOND THE PERIMETER OF THE NEW SWITCHBOARD. THE DRAIN PAN SHALL HAVE A 3-INCH HIGH EDGE TURNED UP ALL AROUND WITH ALL JOINTS SOLDERED AND PROVEN WATER-TIGHT PRIOR TO INSTALLATION. PROVIDE A 1½-INCH EMERGENCY DRAIN CONNECTION TO THE DRAIN PAN, AT ITS LOWEST ELEVATION, AND EXTEND THE DRAIN PIPING TO THE MECHANICAL EQUIPMENT ROOM FLOOR.
3. PIPING CONNECTIONS TO THE EXISTING CHILLED WATER SYSTEM SHALL BE COMPLETED WITH T-FITTINGS, WHEN THE CHILLER PLANT IS INACTIVE, DURING THE MONTHS OF MID NOVEMBER THROUGH MARCH. THE USE OF "WET-TAP" TYPE CONNECTIONS WILL NOT BE PERMITTED, (TYPICAL FOR TWO LOCATIONS).
4. PROVIDE THE NEW BUTTERFLY VALVES, (BV) WITH CHAIN OPERATORS WHENEVER THE VALVE IS INSTALLED 8'-0", (OR HIGHER) ABOVE THE MECHANICAL EQUIPMENT ROOM FLOOR. THE VALVE CHAINS SHALL EXTEND TO 6'-6" ABOVE THE FLOOR LEVEL.
5. DISCONNECT AND RELOCATE THE EXISTING CHILLED WATER FLOW MEASURING STATION, FMS-CH-1 TO THE NEW LOCATION INDICATED. PROVIDE ADDITIONAL PIPING/CAP AND INSULATION AS REQUIRED IN THE LOCATION OF THE EXISTING FLOW STATION AFTER REMOVAL. THE RELOCATED MEASURING STATION SHALL BE WIRED AND MAPPED INTO THE EXISTING BUILDING AUTOMATION SYSTEM.

PUMP SCHEDULE [1]

UNIT NO	LOCATION	SERVICE	TYPE	GPM (EA)	HEAD (FT H_2O)	RPM	EFF %	MOTOR HP	VOLTS / PH	IMPELLER SIZE (IN)	BASIS OF DESIGN
CWP-1/2/3	BLDG 17 MER	CONDENSER WATER	HORIZ SPLIT CASE	3200	95	1750	85	100	460 / 3	11.75	WEINMAN MODEL 10L3A



1 / M-2 **HORIZONTAL SPLIT-CASE PUMP [1] DETAIL** — NOT TO SCALE



NOTE:
PROVIDE INSULATION FOR ALL CHILLED WATER BY-PASS PIPING INSTALLED UNDER THIS CONTRACT

2 / M-2 **TEMPORARY CHILLER CONNECTION DIAGRAM DETAIL** — NOT TO SCALE

FINAL CONSTRUCTION DOCUMENTS

INFECTION CONTROL COORDINATOR: Janice Myers	GENERAL PROPERTIES SECTION: Steve Gray
SAFETY/OCCUPATIONAL HEALTH MGR: Scott McNally	GENERAL UTILITIES SECTION: H. Edward Prange
PATIENT SAFETY MANAGER: Lyn Ordonez	PATIENT CARE SECTION: Peter Duca

CHIEF,A&MM SECT,CONTRACTING OFFICER: Elizabeth Morin	PROJECT MANAGER (COTR): John Sauser
ENVIRON HEALTH FIRE/SAFETY SECT.: William Gulliver	SUPERVISOR PROJECT SECTION: Michael Carcanague
VA POLICE CHIEF: Gerald Bonner	SUPERVISOR, BIOMED / M&O: Kimberly Sekiya

Revisions | Date

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL ENGINEER MATTHEW D. BOWERS No. PE066918 — 7/6/12

DESIGNTECH INC.
Engineering Services
10410 Kensington Parkway, Suite 200
Kensington, MD 20895
Phone: 301 949-2068 - Fax: 301 949-2069
Project #: 10033

Drawing Title: SYMBOLS, ABBREVIATIONS, NOTES, SCHEDULE AND DETAILS	Project Title: EMERGENCY CHILLER MEP CONNECTION
Approved: Chief Engineering Service: Stephan Blanchard	Drawn: MG
Approved: Medical Center Director: Gary W Devansky	Checked: RWH
Building Number: 17	Location: COATESVILLE, PENNSYLVANIA
Date: 19 July 2010	Project No.: 542-09-117
DRAWING No.: M-1	Dwg. 2 Of 6

VA