U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE
FACILITIES DIVISION

DESIGN FOR THE REPLACEMENT OF THE CHILLERS
FINAL SUBMITTAL - MARCH 2005

ABBREVIATIONS

A	AIR (COMPRESSED AIR), AMPHERE
AB	ANCHOR BOLT
ABI	ADDITIVE BID ITEM
ABV	ABOVE
AC	ALTERNATING CURRENT
ACT	ACOUSTIC COMPOSITION TILE
A/C	AIR CONDITIONING
ACOUS	ACOUSTICAL
AD	AREA DRAIN
ADD	ADDENDUM
ADDL	ADDITONAL
ADJ	ADJACENT
AFF	ABOVE FINISHED FLOOR
AGG	AGGREGATE
AHU	AIR HANDLING UNIT
ALLOW	ALLOWANCE
ALT	ALTERNATE
ALUM	ALUMINUM
AMP	AMPERE
ANOD	ANODIZED
AP	ACCESS PANEL
APPROX	APPROXIMATE (LY)
ARCH	ARCHITECT (URAL)
ASPH	ASPHALT
ASSY	ASSEMBLY
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
AUTO	AUTOMATIC
AUX	AUXILIARY
AVG	AVERAGE
AW	ACID WASTE
BD	BOARD
BEL	BELOW
BLDG	BUILDING
BLK	BLOCK
BLKG	BLOCKING
BLVD	BOULEVARD
BM	BEAM, BENCH MARK
BTM	BOTTOM
B PL	BEARING PLATE
BRDG	BRIDGING
BS	BOTH SIDES
BSC	BIO-SAFETY CABINET
BSMT	BASEMENT
BUR	BUILT-UP ROOFING
CAB	CABINET(S)
CAD	CADMIUM
CB	CATCH BASIN, CASING BOARD
CC	CENTER TO CENTER
	CUBIC CENTIMETERS
CHD	CANOPY HOOD

CFCI	CONTRACTOR FURNISHED
	CONTRACTOR INSTALLED
CMU	CONCRETE MASONRY UNIT
CONT	CONTINUOUS
CP	CIRCULATING PUMP
CPP	COOLING PAD PUMP
CRU	CONDENSATE RETURN UNIT
CHWR	CHILLED HOT WATER RETURN
CHWS	CHILLED HOT WATER SUPPLY
DCW	DOMESTIC COLD WATER
DHW	DOMESTIC HOT WATER
DHWR	DOMESTIC HOT WATER RETURN
DN	DOWN
DO	DOWN OPENING
DR	DOOR
DS	DOWNSPOUT
DWG	DRAWING(S)
DWR	DRAWER
E	EAST
EA	EACH
E/A	EXHAUST AIR
EB	EXPANSION BOLT
EF	EACH FACE
EFIS	EXTERIOR INSULATION FINISH SYSTEM
EJ	EXPANSION JOINT
ELEV	ELEVATION
ELAS	ELASTIC, ELASTOMERIC
ELEC	ELECTRIC(AL)
ELB	ELBOW
EMER	EMERGENCY
ENGR	ENGINEER
ENVIRON	ENVIRONMENT(AL)
EQ	EQUAL
EQPM	EQUIPMENT
EST	ESTIMATE(D)
ETC	ET CETERA
EW	EACH WAY
EWH	ELECTRIC WATER HEATER
EXH	EXHAUST
EXIST	EXISTING
EXP	EXPANSION
EXPO	EXPOSED
EXT	EXTERIOR, EXTENSION
F	FAHRENHEIT
FF	FINISHED FLOOR
F/F	FACE TO FACE
FA	FIRE ALARM
FAB	FABRICATE(D)
FD	FLOOR DRAIN
FDC	FIRE DEPARTMENT CONNECTION
FDN	FOUNDATION

FE	FIRE EXTINGUISHER
FED	FEDERAL
FEM	FEMALE
FH	FIRE HYDRANT, FUME HOOD
G	GAS
GFGI	GOVERNMENT FURNISHED GOVERNMENT INSTALLED
HC	HANDICAP
HND	HAND
HOR	HORIZONTAL
HPT	HIGH POINT
HR	HOUR
HT	HEIGHT
HW	HOT WATER
ID	INSIDE DIAMETER
INCL	INCLUDE(D)
INFO	INFORMATION
INSUL	INSULATION, INSULATE(D)
INT	INTERIOR
INTM	INTERMEDIATE
INV	INVERT
JT	JOINT
KD	KNOCK(ED) DOWN
KS	KNEE SPACE
L	LONG, LENGTH
LAB	LABORATORY
LAM	LAMINATE(D)
LAT	LATERAL, LATITUDE
LAV	LAVATORY
LB	POUND
LH	LEFT HAND
LHR	LEFT HAND REVERSE
LIN	LINEAR
LIQ	LIQUID
LKR	LOCKER
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LPT	LOW POINT
LPS	LOW PRESSURE STEAM
LT	LIGHT
LTL	LINTEL
LVL	LEVEL
LVR	LOUVER
M	METER(S)
MACH	MACHINE
MAS	MASONRY
MTL	MATERIAL
MAX	MAXIMUM
MB	MACHINE BOLT
MEMB	MEMBER
MECH	MECHANICAL

MED	MEDIUM, MEDICAL, MEDICATION
MEMB	MEMBRANE
MEZZ	MEZZANINE
NTS	NOT TO SCALE
PC	PUMPED CONDENSATE
PERF	PERFORATE(D)
PERP	PERPENDICULAR
PL	PLATE, PROPERTY LINE
PLAM	PLASTIC LAMINATE(D)
PLAS	PLASTER
PLAT	PLATFORM
PLUMB	PLUMBING
PLYWD	PLYWOOD
PNEU	PNEUMATIC
PNL	PANEL(ING)
POC	POINT OF CONNECTION
POL	POLISH(ED)
POS	POSITION
PR	PAIR
PROC	PROCESS(ED) (ING)
PROD	PRODUCT
PROJ	PROJECT(ED)
PROP	PROPERTY
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	POINT, PAINT
PTN	PARTITION
PVC	POLYVINYL CHLORIDE
PVMT	PAVEMENT
PWR	POWER
QT	QUARRY TILE
QTR	QUARTER
R	RISER, RADIUS
R/A	RETURN AIR
R/F	RADIOGRAPHIC/FLUOROSCOPIC
RAD	RADIUS
RAIL	RAILING
RE	REGARDING
RD	ROOF DRAIN
RCP	REINFORCED CONCRETE PIPE
	REFLECTED CEILING PLAN
RECPT	RECEPTACLE
RECT	RECTANGLE
REF	REFER, REFERENCE
REFL	REFLECT(ED), REFLECTIVE
REFR	REFRIGERATOR
REG	REGISTER, REGULATOR
REINF	REINFORCE(D)
REM	REMOVE(D)
REQ	REQUIRE(D)
RES	RESILIENT

RM	ROOM
STRUCT	STRUCTURAL
SVC	SERVICE
SYM	SYMMETRIC(AL)
TECH	TECHICAL
TEL	TELEPHONE
TEMP	TEMPERED, TEMPORARY, TEMPERATURE
THER	THERMAL
THK	THICK(NESS)
THRES	THRESHOLD
THRU	THROUGH
TLT	TOILET
TOB	TOP OF BRICK
TOB	TOP OF CONCRETE
TOJ	TOP OF JOIST
TOM	TOP OF MASONRY
TOW	TOP OF WALL
TOL	TOLERANCE
TOS	TOP OF STEEL/STRUCTURE
TOP	TOP OF PAVEMENT
TPTN	TOILET PARTITION
TRANS	TRANSFORMER
TRTD	TREATED
TSL	TOP OF SLAB
TTD	TOILET TISSUE DISPENSER
TV	TELEVISION
TYP	TYPICAL
UL	UNDERWRITERS LABORATORIES, INC.
UNO	UNLESS NOTED OTHERWISE
UR	URINAL
UTIL	UTILITY
V	VOLT(S), VACUUM
VAC	VACUUM
VAR	VARIES
VCT	VINYL COMPOSITION TILE
VERT	VERTICAL
VEST	VESTIBULE
VIF	VERIFY IN FIELD
VIS	VISIBLE
VNR	VENEER
VOL	VOLUME
VTR	VENT THROUGH ROOF
W	WEST, WIDTH, WATER, WATT(S)
WG	WALL GUARD
W/	WITH
WC	WATER CLOSET
WD	WOOD
WD	WINDOW
WF	WIDE FLANGE
WGL	WIRE GLASS
WH	WALL HUNG, WALL HYDRANT

DRAWING INDEX

GENERAL

SHEET NO	SHEET TITLE
T01.01	TITLE SHEET, ABBREVIATIONS, DRAWING INDEX, LEGEND & GRAPHIC SYMBOLS, & SITE MAPS

ASBESTOS ABATEMENT

SHEET NO	SHEET TITLE
AS00.01	PARTIAL BASEMENT ASBESTOS ABATEMENT PLAN

ARCHITECTURAL

SHEET NO	SHEET TITLE
A00.01	PARTIAL DEMOLITION PLANS & ELEVATIONS
A01.01	PARTIAL FLOOR PLANS, ELEVATIONS, DOOR & FRAME SCHEDULES

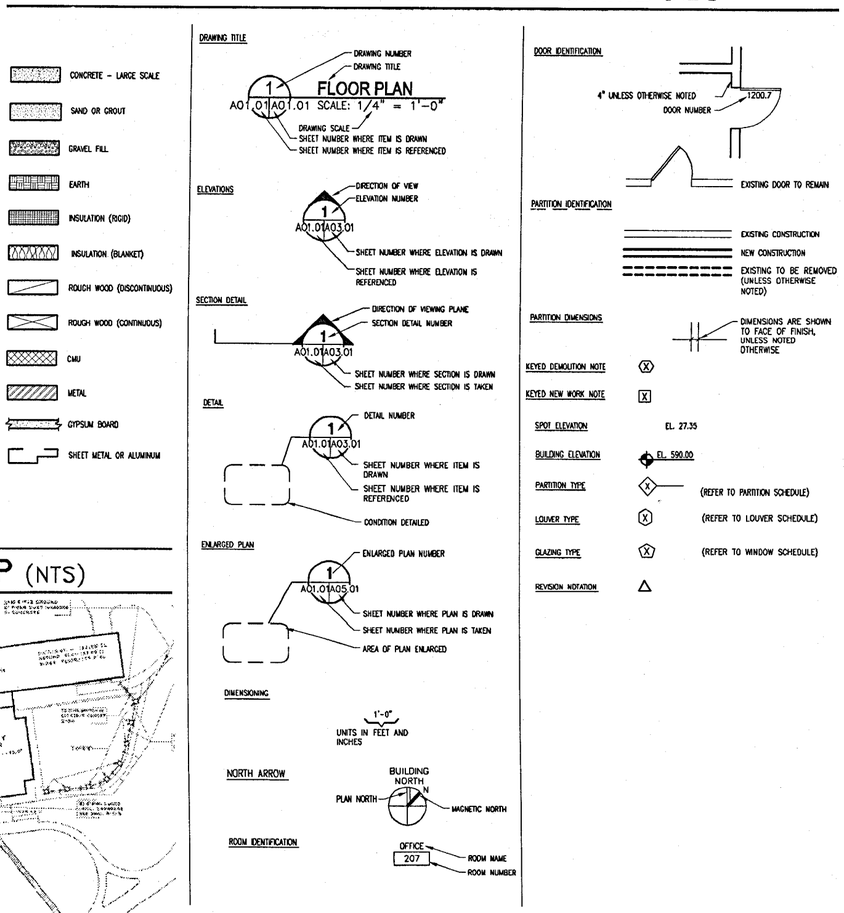
MECHANICAL

SHEET NO	SHEET TITLE
M00.00	MECHANICAL SYMBOLS, ABBREVIATIONS & NOTES
M00.01	PARTIAL MECHANICAL BASEMENT DEMOLITION PLAN
M01.01	PARTIAL MECHANICAL BASEMENT PLAN
M02.01	MECHANICAL DETAILS
M03.01	CONTROLS

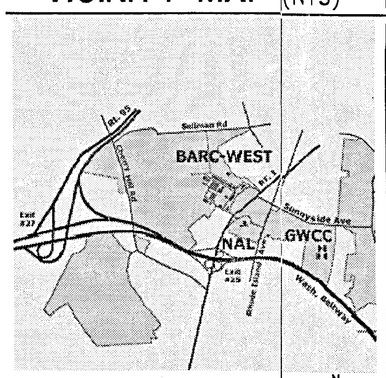
ELECTRICAL

SHEET NO	SHEET TITLE
E00.00	SYMBOLS, ABBREVIATIONS & NOTES
E00.01	PARTIAL ELECTRICAL BASEMENT DEMOLITION PLAN
E01.01	PARTIAL ELECTRICAL BASEMENT PLAN
E02.01	SPECIFICATIONS & SCHEDULES

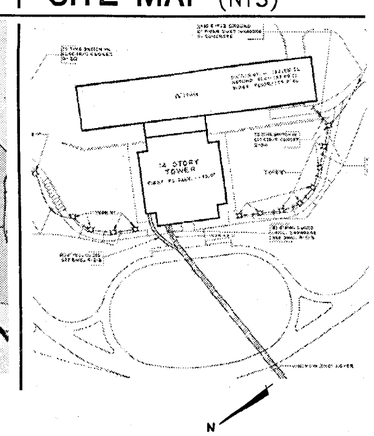
LEGEND AND GRAPHIC SYMBOLS



VICINITY MAP (NTS)



SITE MAP (NTS)



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DESIGN FOR THE REPLACEMENT OF THE CHILLERS

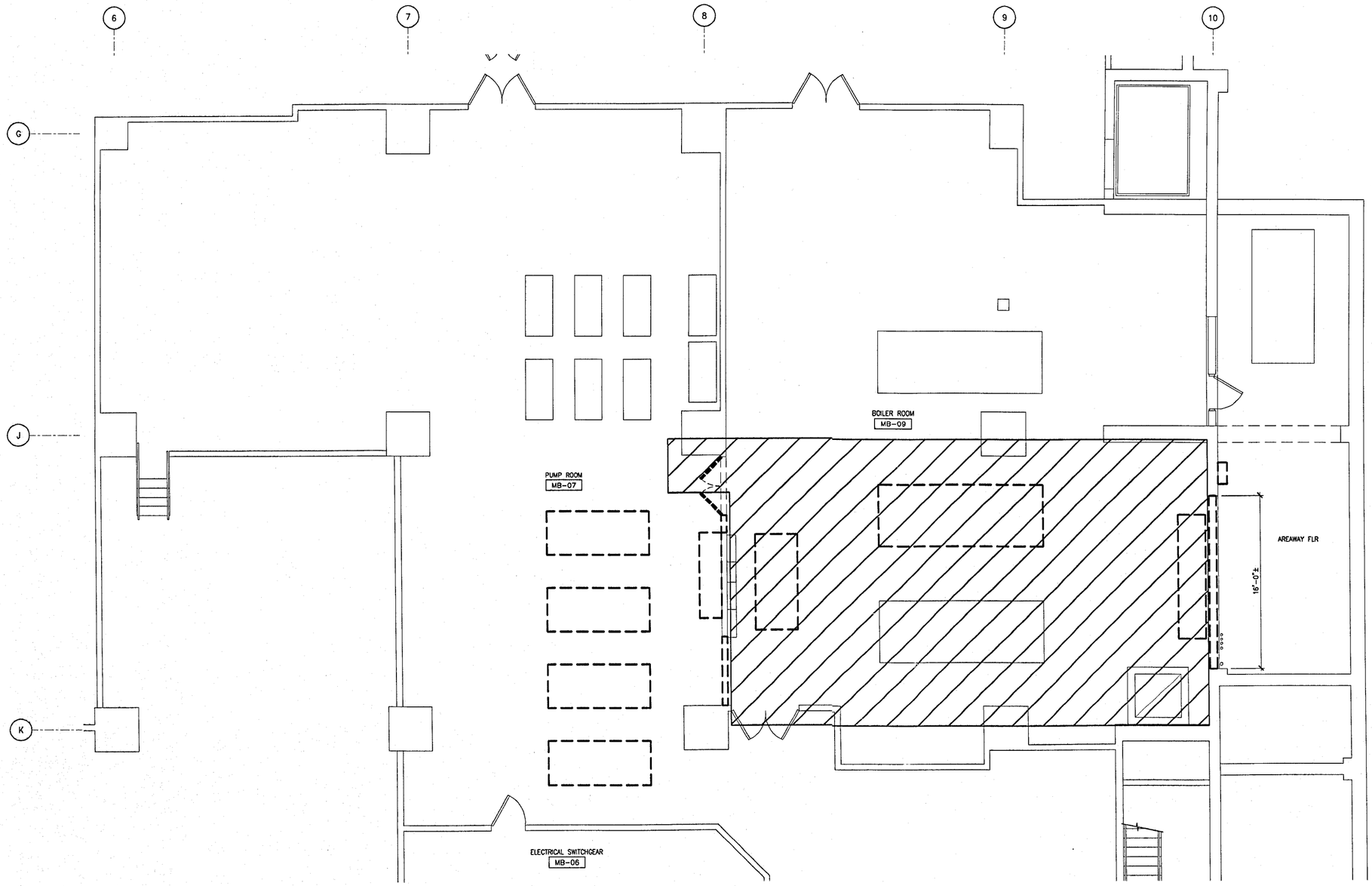
TITLE SHEET, ABBREV, DRAWING INDEX, LEGEND & GRAPHIC SYMBOLS, & SITE MAPS

A-E FIRM	USDA
PROJECT MANAGER: D. TASH	EPM: F. KING
DESIGNER: A. ABBAS	PPM: -
CHECKED BY: B. LINDEN	SAFETY & HEALTH T. ROARK
DRAWN BY: A. ABBAS	REAL PROPERTY E. REILLY

PROJECT NO. 03308
DATE: 3-14-2005

FACILITIES DIVISION
FACILITIES ENGINEERING BRANCH
5601 SUNNYSIDE AVENUE
BELTSVILLE, MARYLAND 20705-5124

SHEET T01.01
1 OF 13



1 PARTIAL BASEMENT ASBESTOS ABATEMENT PLAN

AS00.01 AS00.01 SCALE: 1/4" = 1'-0"

SYMBOL LEGEND

ASBESTOS-CONTAINING BOILER BREECHING, PIPE HANGER BLOCKS AND PIPE FITTING INSULATION

TABLE 1: Asbestos-Containing Materials

MATERIAL	MATERIAL LOCATION	CONDITION	FRIABLE YES/NO	APPROX. QUANTITY	ASBESTOS CONTENT
Boiler Breeching Insulation	Boiler Room	Fair	Yes	10 LF	30% Chrysotile
Pipe Hanger Support Block	Boiler Room	Good	Yes	4 Blocks	25% Amosite 7% Chrysotile
Troweled on Pipe Fitting Insulation	Boiler Room / Chiller Room	Good	Yes	38 Fittings	3% Amosite 3% Chrysotile

SF = Square Feet
LF = Linear Feet

GENERAL ABATEMENT NOTES

A. ASBESTOS CONTAINING PIPE MASTIC ON FIBERGLASS PIPE INSULATION LOCATED PRIMARILY IN MARKED PORTIONS. SMALL AMOUNTS OF ASBESTOS CONTAINING PIPE MASTIC MAY BE LOCATED OUTSIDE OF MARKED AREAS.

B. ALL ABATEMENT ACTIVITIES ARE TO BE PERFORMED ACCORDING TO ALL STATE, LOCAL AND FEDERAL REGULATIONS.

C. ALL LIGHT BALLASTS SHALL BE INSPECTED FOR "NO-PCBs" MARKINGS PRIOR TO DISPOSAL. ALL BALLASTS WITHOUT THE "NO-PCBs" MARKINGS SHALL BE ASSUMED TO BE PCB CONTAINING.

D. LIGHT TUBES IMPACTED BY THE PROJECT SHALL BE PROPERLY RECYCLED BY AN APPROVED TREATMENT FACILITY OR PROPERLY DISPOSED.

E. LEAD-BASED PAINTED COMPONENTS ON THIS LEVEL INCLUDE:
1) METAL SUPPORT BEAMS
2) CONCRETE BLOCK WALLS
3) METAL DOOR FRAMES
4) CONCRETE CHILLER AND PUMP PADS

COMPONENTS COVERED WITH LEAD-BASED PAINT ARE NOT ANTICIPATED TO REQUIRE ABATEMENT TO PERFORM THE SPECIFIED WORK. ALL WORK INVOLVING MATERIALS WITH LEAD IN ANY CONCENTRATION SHALL BE DONE IN ACCORDANCE WITH 29CFR 1926.62.

F. LEAD-CONTAINING PAINT IS LOCATED THROUGOUT THE FACILITY. THE QUANTITY OF LEAD PRESENT IN NON-LEAD BASED PAINTS AT THE SITE IS CONSIDERED MINIMAL. ALL WORK INVOLVING LEAD-CONTAINING PAINT SHALL BE DONE IN ACCORDANCE WITH 29CFR 1926.62.

G. REFER TO MECHANICAL FLOOR PLANS FOR EQUIPMENT DESIGNATION.

THE EXISTING CONDITIONS SHOWN ON THE DRAWINGS ARE BASED ON RECORD DRAWINGS AND LIMITED FIELD VERIFICATION. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ASSURE THAT SURFACE AND SUBSURFACE AREAS DISTURBED BY DEMOLITION ARE RETURNED TO, OR FURTHER REFINED TO, AN APPROPRIATE CONDITION THAT WILL ALLOW FOR COMPLETE INSTALLATION OF ALL NEW SYSTEMS TO A FULL OPERATION LEVEL AND ALLOW FOR NEW FINISHES TO MEET FINAL DESIGN CONDITIONS.

0 2' 4' 8' 12'
SCALE: 1/4"=1'-0"

NOTE: CONTRACTOR TO VERIFY PRINT SIZE AND DRAWING SCALE, TYPICAL ALL SHEETS

KEYPLAN (NTS)

N

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PARTIAL BASEMENT ASBESTOS ABATEMENT PLAN

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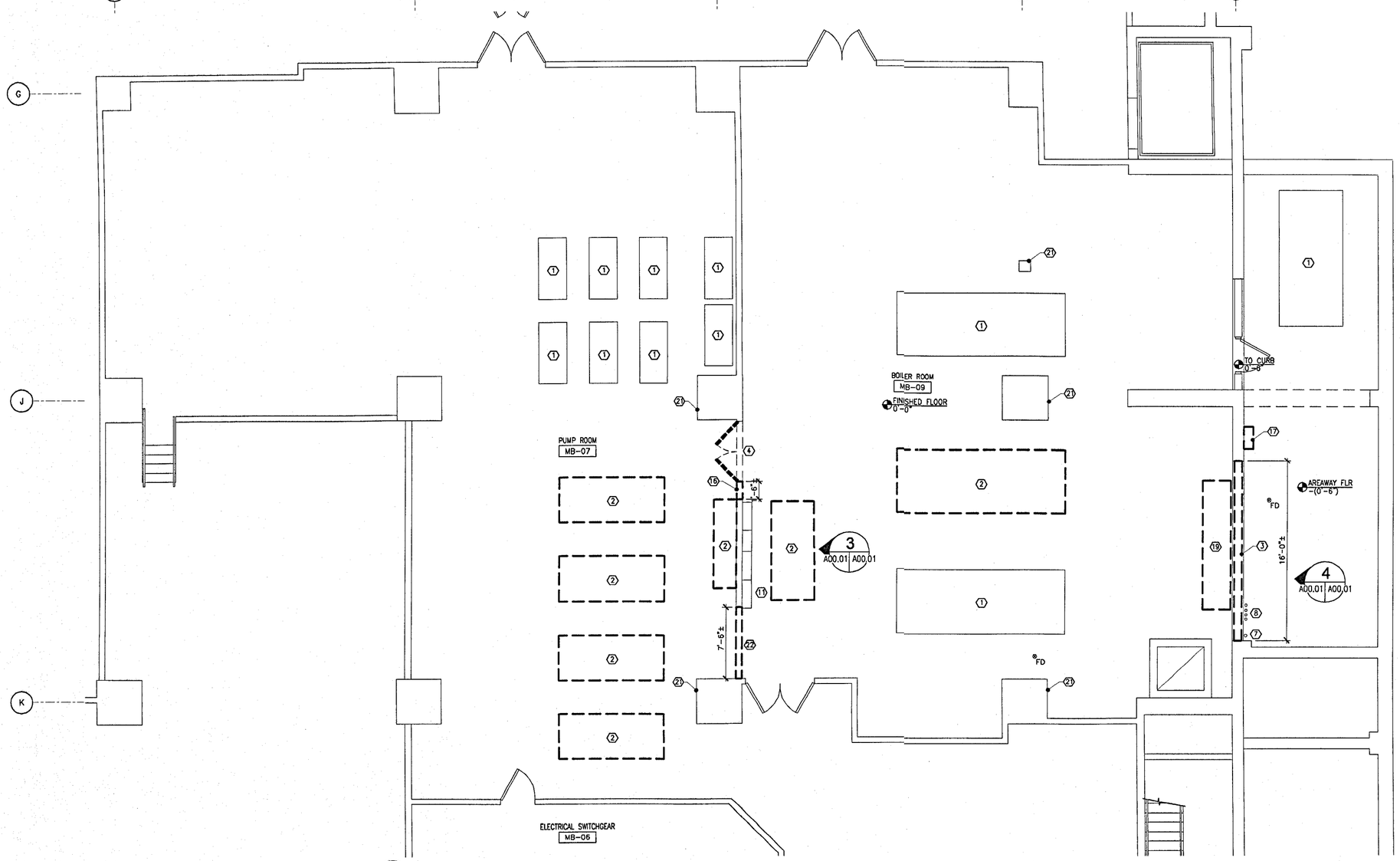
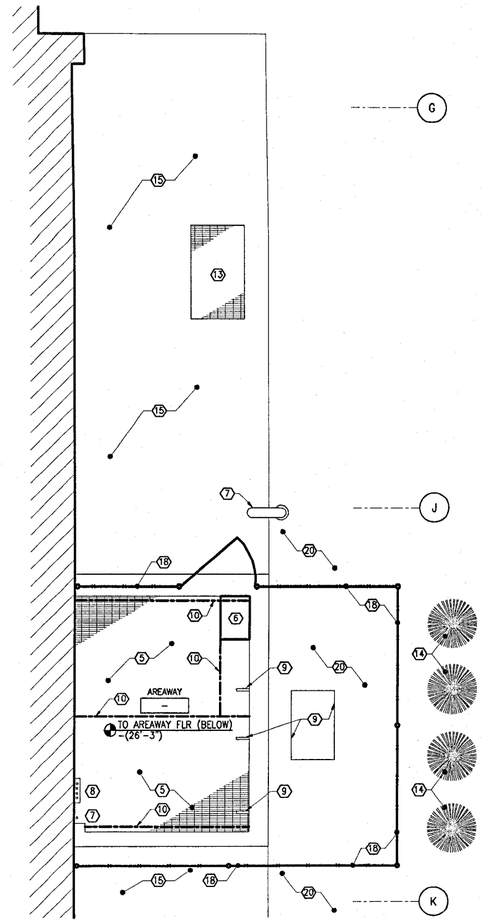
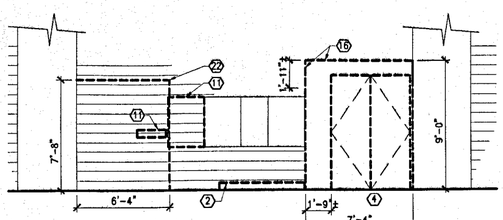
2 OF 13



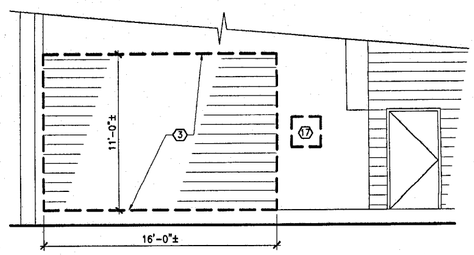
1 PARTIAL MECHANICAL BASEMENT DEMOLITION FLOOR PLAN
A00.01 A00.01 SCALE: 1/4" = 1'-0"



2 PARTIAL GRADE LEVEL AREAWAY DEMOLITION PLAN
A00.01 A00.01 SCALE: 1/4" = 1'-0"



3 PARTIAL DEMOLITION ELEVATION
A00.01 A00.01 SCALE: 1/4" = 1'-0"



4 PARTIAL DEMOLITION ELEVATION
A00.01 A00.01 SCALE: 1/4" = 1'-0"

KEYED NOTES:

1. EXISTING CONCRETE EQUIPMENT PAD TO REMAIN.
2. REMOVE AND DISCARD EXISTING CONCRETE EQUIPMENT PAD.
3. REMOVE AND DISCARD EXISTING 11'-0" x 16'-0" 8" CMU KNOCK-OUT PANEL IN ITS ENTIRETY. PREPARE OPENING FOR INSTALLATION OF TEMPORARY PLYWOOD CLOSURE PANEL, FOR DETAILS, REFER TO A01.01.
4. REMOVE AND DISCARD EXISTING 6'-0" X 7'-0" STEEL DOOR AND FRAME. REFER TO KEY NOTE "16" FOR RELATED WORK.
5. REMOVE AND STORE EXISTING STEEL GRATING FOR REINSTALLATION.
6. REMOVE AND STORE EXISTING STEEL HATCH AND ASSOCIATED FRAMING FOR REINSTALLATION.
7. EXISTING VENT TO REMAIN, TYPICAL.
8. PROTECT EXISTING UTILITY PIPING FROM DAMAGE DURING ALL PHASES OF CONSTRUCTION.
9. PROTECT EXISTING GAS UTILITY PIPING AND EQUIPMENT FROM DAMAGE DURING ALL PHASES OF CONSTRUCTION.
10. REMOVE STEEL BEAM AND STORE FOR REINSTALLATION.
11. REPOSITION EXISTING ELECTRICAL JUNCTION BOX. COORDINATE WITH ELECTRICAL DRAWINGS.
12. EXISTING AIR INTAKE DUCT TO REMAIN.
13. REMOVE AND STORE TREE FOR REPLANTING. EXERCISE CARE NOT TO DAMAGE ROOT SYSTEM. COORDINATE WITH GOVERNMENT.
14. EXISTING CONCRETE AREAWAY DECK TO REMAIN.
15. SAWCUT AND REMOVE EXISTING CMU WALL AT JAMB SIDE AND HEAD OF EXISTING DOOR AS REQUIRED TO ALLOW INSTALLATION OF 7' WIDE BY 8'-6" HIGH DOOR FRAME AND LINTEL. PROVIDE TEMPORARY SHORING OF WALL ABOVE OPENING DURING DEMOLITION. PREPARE OPENING FOR INSTALLATION OF NEW DOOR JAMB FOR DOOR AND FRAME INSTALLATION. REFER TO A01.01.
16. REMOVE AND DISCARD EXISTING WEATHER STATION AND ASSOCIATED UTILITY AND HARDWARE. REPAIR AND PATCH EXISTING WALL SURFACE TO MATCH EXISTING ADJACENT SURFACE.
17. REMOVE AND STORE EXISTING CHAIN-LINK FENCE AND ASSOCIATED HARDWARE FOR REINSTALLATION.
18. REMOVE AND STORE EXISTING WORKBENCH AND ALL ASSOCIATED EQUIPMENT. COORDINATE STORAGE LOCATION WITH GOVERNMENT.
19. EXISTING GRASS LAWN TO REMAIN.
20. EXISTING COLUMN TO REMAIN.
21. SAWCUT AND REMOVE EXISTING CMU WALL 8" LARGER THAN THE ACTUAL OPENING. PROVIDE TEMPORARY SHORING OF WALL ABOVE OPENING DURING DEMOLITION. PREPARE OPENING WITH DOOR JAMB FOR INSTALLATION OF NEW DOOR AND FRAME. REFER TO A01.01.

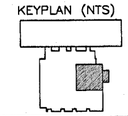
THE EXISTING CONDITIONS SHOWN ON THE DRAWINGS ARE BASED ON RECORD DRAWINGS AND LIMITED FIELD VERIFICATION. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ASSURE THAT SURFACE AND SUBSURFACE AREAS DISTURBED BY DEMOLITION ARE RETURNED TO, OR FURTHER REFINED TO, AN APPROPRIATE CONDITION THAT WILL ALLOW FOR COMPLETE INSTALLATION OF ALL NEW SYSTEMS TO A FULL OPERATION LEVEL AND ALLOW FOR NEW FINISHES TO MEET FINAL DESIGN CONDITIONS.

0 2' 4' 8' 12'
SCALE: 1/4"=1'-0"

NOTE: CONTRACTOR TO VERIFY PRINT SIZE AND DRAWING SCALE, TYPICAL ALL SHEETS

N

KEYPLAN (NTS)



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PARTIAL DEMOLITION PLANS & ELEVATIONS

A-E FIRM	USDA
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DESIGNER: M. SWIDER	PPM: –
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DRAWN BY: A. ABBAS	REAL PROPERTY E. REILLY

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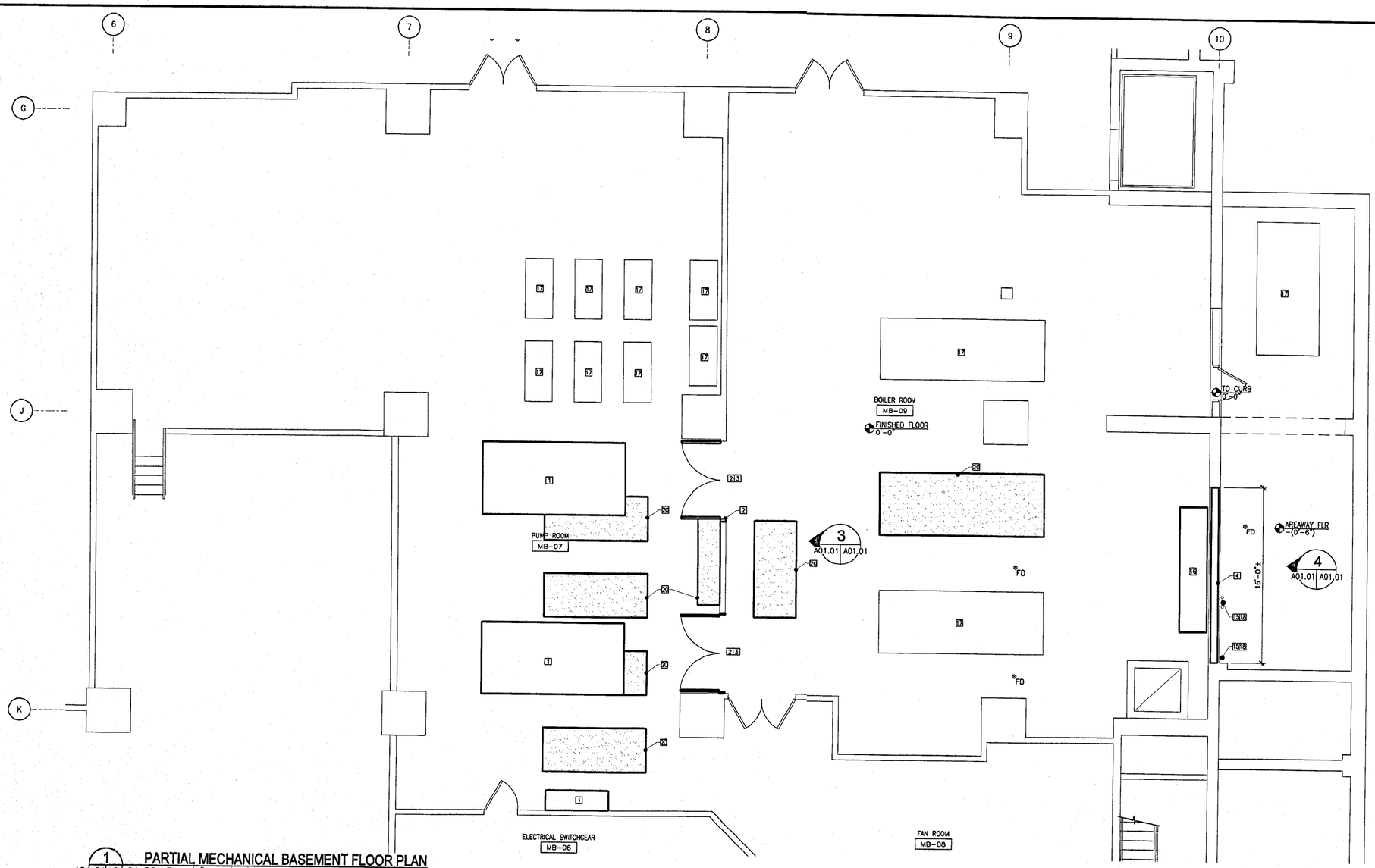
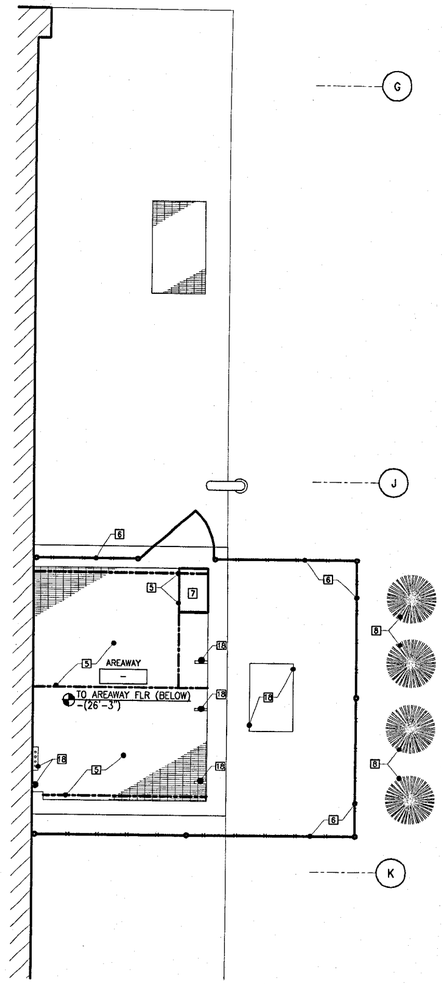
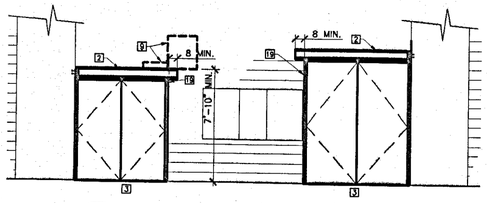
3 OF 13



1 PARTIAL MECHANICAL BASEMENT FLOOR PLAN
A01.01 A01.01 SCALE: 1/4" = 1'-0"



2 PARTIAL GRADE LEVEL AREAWAY PLAN
A00.01 A00.01 SCALE: 1/4" = 1'-0"



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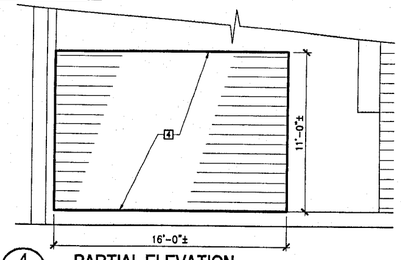
A01.01 A01.01 SCALE: 1/4" = 1'-0"



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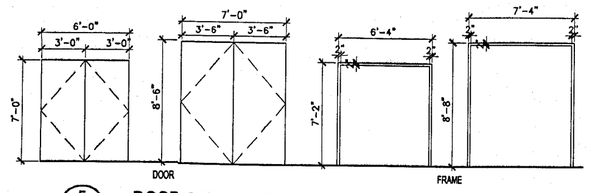
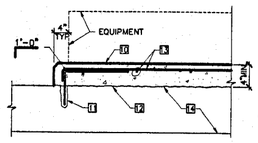
A01.01 A01.01 SCALE: 1/4" = 1'-0"



5 DOOR & FRAME SCHEDULE
A01.01 A01.01 SCALE: 1/4" = 1'-0"



6 EQUIPMENT PAD DETAIL
A01.01 A01.01 SCALE: 3/4" = 1'-0"

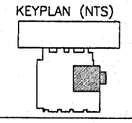
0 6" 1' 2' 4'
SCALE: 3/4" = 1'-0"

0 2' 4' 8' 12'
SCALE: 1/4" = 1'-0"

NOTE: CONTRACTOR TO VERIFY PRINT SIZE AND DRAWING SCALE, TYPICAL ALL SHEETS

N

KEYPLAN (NTS)



GENERAL NOTES:

A. CONTRACTOR SHALL COORDINATE EXACT LOCATIONS OF SCHEDULED NEW EQUIPMENT PADS WITH MECHANICAL AND ELECTRICAL DRAWINGS. CONTRACTOR SHALL COORDINATE EXACT DIMENSIONS OF EQUIPMENT WITH EQUIPMENT PROVIDER. EQUIPMENT PAD SHALL EXTEND 4" ON ALL SIDES BEYOND THE BASE OF SCHEDULED EQUIPMENT.

B. CONTRACTOR SHALL SECURE ALL AREAS AFFECTED BY CONSTRUCTION ACTIVITY DURING THE CONSTRUCTION PHASE. ALL PENETRATIONS THROUGH EXISTING WALLS SHALL BE SECURED USING APPROPRIATE MEANS. DURING CONSTRUCTION ACTIVITY, CONTRACTOR SHALL SECURE THE KNOCK-OUT PANEL OPENING THAT ADJOINS THE AREAWAY AND BOILER ROOM WITH 3/4" EXTERIOR GRADE PLYWOOD OVER 2x6 WOOD STUDS SPACED AT 16" OC. THE CLOSURE SHALL BE CONSTRUCTED IN PANELS IN ORDER TO PERMIT MULTIPLE INSTALLATION AND REMOVAL DURING CONSTRUCTION. CONTRACTOR SHALL COORDINATE FINAL DESIGN OF TEMPORARY CLOSURE WITH USDA.

KEYED NOTES:

1. INSTALL CONCRETE EQUIPMENT PAD AS SHOWN IN DETAIL 6/A01.01. EXTEND PAD 4" BEYOND BASE OF EQUIPMENT ON ALL SIDES, TYPICAL.
2. INSTALL W6x20 STEEL LINTEL (ASTM A572, GRADE 50) W/2-L 4x4x3/8X6" LONG ATTACHED TO EXISTING COLUMN W/2-5/8"DIA EXPANSION ANCHORS (4" MIN. EMBEDMENT) AT EACH ANGLE AND PROVIDE 7x7x1/2" BEARING PLATE AT THE DOOR JAMB END. RECONSTRUCT CMU WALL USING TOOTHING METHOD AND PAINT TO MATCH EXISTING ADJACENT SURFACE. SEE KEY NOTE 19 FOR DOOR JAMB INFORMATION.
3. NEW STEEL DOOR AND FRAME AND HARDWARE. REFER TO SCHEDULE ABOVE.
4. INSTALL 8" CMU INFILL AS INDICATED. PROVIDE TRUSS TYPE JOINT REINFORCEMENT SPACED NOT MORE THAN 16" OC.
5. REINSTALL EXISTING GRATING AND ASSOCIATED STRUCTURE IN ITS ENTIRETY. REPLACE ASSOCIATED HARDWARE AND FASTENERS WITH GALVANIZED TYPE.
6. REINSTALL EXISTING CHAIN-LINK FENCING IN ITS ENTIRETY.
7. REINSTALL EXISTING STEEL HATCH AND ASSOCIATED STRUCTURE. REPLACE ALL FASTENERS WITH NEW GALVANIZED TYPE.
8. REPLANT TREE AND RESEED LAWN AS NECESSARY, COORDINATE WITH GOVERNMENT FOR THE ENTIRE WORK, INCLUDING LAWN SEED TYPE.
9. RELOCATE EXISTING ELECTRICAL JUNCTION BOXES ABOVE NEW LINTEL. FOR DETAILS, REFER TO ELECTRICAL DRAWINGS.
10. PROVIDE NEW EQUIPMENT PAD WITH Fc'= 4000PSI CONCRETE AND ASTM A615 GRADE 60 (Fy=60KSI) REINFORCEMENT.
11. DRILL INTO SLAB AND INSTALL #4 REBAR W/EPOXY GROUT, 3" MIN EMBEDMENT @ 2'-0" OC, ONE @ EACH CORNER, MIN.
12. ROUGHEN INTERFACE MINIMUM 1/4 " AMPLITUDE, AND USE EPOXY BONDING AGENT ON THE SURFACE.
13. #4 @ 12" OC, EW
14. EXISTING CONCRETE FLOOR TO REMAIN, TYPICAL.
15. CONSTRUCT WALL WITH PIPING IN PLACE. REMOVE AND REINSTALL PIPING AS NECESSARY.
16. REINSTALL EXISTING WORKBENCH AND ASSOCIATED EQUIPMENT AS INDICATED. COORDINATE FINAL LOCATION OF BENCH WITH GOVERNMENT.
17. EXISTING CONCRETE EQUIPMENT PAD.
18. EXERCISE CARE TO PROTECT EXISTING UTILITY PIPING AND EQUIPMENT FROM RIGGING AND EQUIPMENT DURING REMOVAL AND INSTALLATION OF MECHANICAL EQUIPMENT.
19. PROVIDE 2#5 REINFORCEMENT (ASTM A615 GRADE 60) W/SAME SIZE DOWELS TO THE FLOOR AT FIRST CELL OF THE DOOR JAMB AT BEAM BEARING AND GROUT WITH 3000 PSI GROUT.
20. AFTER REMOVAL OF EXISTING CONCRETE PAD, REPAIR AND PATCH CONCRETE FLOOR TO MATCH ADJACENT EXISTING FLOOR SURFACE

THE EXISTING CONDITIONS SHOWN ON THE DRAWINGS ARE BASED ON RECORD DRAWINGS AND LIMITED FIELD VERIFICATION. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ASSURE THAT SURFACE AND SUBSURFACE AREAS DISTURBED BY DEMOLITION ARE RETURNED TO, OR FURTHER REFINED TO, AN APPROPRIATE CONDITION THAT WILL ALLOW FOR COMPLETE INSTALLATION OF ALL NEW SYSTEMS TO A FULL OPERATION LEVEL AND ALLOW FOR NEW FINISHES TO MEET FINAL DESIGN CONDITIONS.

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DESIGN FOR THE REPLACEMENT OF THE CHILLERS

PARTIAL FLOOR PLANS, ELEVATIONS, DOOR & FRAME SCHEDULES

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PROJECT NO. 03308
DATE: 3-14-2005

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SHEET A01.01
4 OF 13

ABBREVIATIONS

ABBREV.	DESCRIPTION	ABBREV.	DESCRIPTION
@	AT	GPM	GALLONS PER MINUTE
ADJ	ADJUSTABLE	HB	HOSE BIBB
AFF	ABOVE FINISHED FLOOR	HP	HORSEPOWER
AI	ANALOG INPUT	HR	HOUR
AO	ANALOG OUTPUT	Hz	HERTZ
APP	APPROXIMATELY	IN	INCH
ARCH	ARCHITECTURAL	kW	KILOWATT
BFP	BACKFLOW PREVENTER	LBS	POUNDS
BLDG	BUILDING	LRA	LOCKED ROTOR AMPS
C	COMMON	LVG	LEAVING
CH	CHILLER	MAX	MAXIMUM
CHR	CHILLED WATER RETURN	MFR	MANUFACTURER
CHS	CHILLED WATER SUPPLY	MIN	MINIMUM, MINUTE
CONC	CONCRETE	MU	MAKE UP
CONFIG	CONFIGURATION	NC	NORMALLY CLOSED
CONN	CONNECTION	NO	NORMALLY OPEN, NUMBER
CONT.	CONTINUATION	NTS	NOT TO SCALE
COR	CONTRACTING OFFICER'S REPRESENTATIVE	OC	ON CENTER
CWR	CONDENSER WATER RETURN	OPNG	OPENING
CWS	CONDENSER WATER SUPPLY	P	PUMP
CW	COLD WATER	PC	PERSONAL COMPUTER
D	DRAIN	PH	PHASE
DDC	DIRECT DIGITAL CONTROL	PPM	PARTS PER MILLION
DI	DIGITAL INPUT	PRESS	PRESSURE
DIA	DIAMETER	PRV	PRESSURE REDUCING VALVE
DN	DOWN	QTY	QUANTITY
DO	DIGITAL OUTPUT	REQ'D	REQUIRED
DWG., DWGS	DRAWING, DRAWINGS	RLA	RUNNING LOAD AMPS
(E)	EXISTING TO REMAIN	RPM	REVOLUTIONS PER MINUTE
EA	EACH	SF	SQUARE FEET
EF	EXHAUST FAN	SRV	SAFETY RELIEF VALVE
EG	EXHAUST GRILLE	ST	START, STOP
ELECT	ELECTRICAL	STRUCT	STRUCTURAL
(EL)	ELEVATION ABOVE FLOOR TO BOTTOM SURFACE OF ITEM	TEMP	TEMPERATURE
EXT.	EXTERNAL	TRANS	TRANSITION
°F	DEGREES FAHRENHEIT	TYP	TYPICAL
FD	FLOOR DRAIN	V	VOLTS
FLA	FULL LOAD AMPS	VERT	VERTICAL
FLEX	FLEXIBLE	VLV	VALVE
FM	FLOW METER	W	WATT, WITH
FPM	FEET PER MINUTE		
GAL	GALLONS		

SYMBOLS

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
CHS	CHILLED WATER SUPPLY	D	DRAIN LINE
CHR	CHILLED WATER RETURN		DIRECTION OF FLOW
CWS	CONDENSER WATER SUPPLY		ELBOW DOWN
CWR	CONDENSER WATER RETURN		ELBOW UP
V	VENT		ECCENTRIC REDUCER
HWS	HOT WATER SUPPLY		CONCENTRIC REDUCER
HWR	HOT WATER RETURN		FLEXIBLE CONNECTION FOR PIPING
FOS/FOR	FUEL OIL SUPPLY/RETURN	1	DRAWING NOTES DESIGNATION, REMOVAL
	UNION		POINT OF CONNECTION NEW TO EXISTING
	SAFETY RELIEF VALVE	Ø	DIAMETER
	BALL VALVE	1 1	DRAWING NOTES DESIGNATION
	GATE VALVE		EXISTING EQUIPMENT TO BE REMOVED
	GLOBE VALVE		EXISTING EQUIPMENT TO REMAIN
	BUTTERFLY VALVE		NEW EQUIPMENT
	CHECK VALVE		GAUGE COCK
	STRAINER W/NIPPLE & BLOWDOWN VALVE		FLEXIBLE CONNECTION FOR DUCT WORK
	PRESSURE REDUCING VALVE		CAPPED PIPING
	AUTOMATIC VALVE-2 WAY, MODULATING		PUMP
	BALANCING VALVE		
	COMBINATION BALANCING, FLOW MEASUREMENT		
M	MOTORIZED VALVE		
	THERMOMETER		
	PRESSURE GAUGE & BALL VALVE		
	DROP OR RISE ON CROSS MAIN		
	EXTENT OF DEMOLITION WORK		
	GATE VALVE IN VERTICAL		

GENERAL DEMOLITION NOTES:

1. ALL WORK SHOWN ON DEMOLITION DWG'S WITH A HEAVY BROKEN LINE (— — —) SHALL BE REMOVED UNLESS OTHERWISE NOTED. ALL EQUIPMENT TO BE REMOVED EXCEPT THOSE DESIGNATED FOR TURNOVER TO COR AT DESIGNATED LOCATION, SHALL BE REMOVED FROM THE JOB SITE BY THE CONTRACTOR. ALL PIPING SYSTEMS REMOVED SHALL BE REMOVED COMPLETELY, INCLUDING HANGERS, VALVES AND FITTINGS. ALL WORK SHOWN ON DEMOLITION DRAWINGS WITH A LIGHT LINE (————) SHALL REMAIN.
2. CONTRACTOR SHALL COORDINATE POWER DISCONNECTION TO AND FROM ALL EXISTING MECHANICAL EQUIPMENT SHOWN TO BE REMOVED WITH DIVISION 16.
3. REFRIGERANT FROM ALL HVAC AND REFRIGERATION EQUIPMENT SHALL BE REMOVED BY FIRMS CERTIFIED IN THE REMOVAL OF OZONE DEPLETING MATERIALS PRIOR TO THE DEMOLITION OF EQUIPMENT CONTAINING SAID MATERIALS. MATERIALS SHALL BE DISPOSED OF OFFSITE IN COMPLIANCE WITH ALL LOCAL STATE AND FEDERAL REGULATIONS. SUBMIT MANIFESTS TO COR.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOSS OR DAMAGE TO EXISTING FACILITIES CAUSED BY HIM AND HIS WORKMEN, AND SHALL BE RESPONSIBLE FOR REPAIRING OR REPLACING SUCH LOSS OR DAMAGE. THE CONTRACTOR SHALL SEND PROPER NOTICES, MAKE NECESSARY ARRANGEMENTS, AND PERFORM OTHER SERVICES REQUIRED FOR THE CARE, PROTECTION AND IN-SERVICE MAINTENANCE OF ALL MECHANICAL, PLUMBING AND FIRE PROTECTION SERVICES FOR THE NEW AND EXISTING FACILITIES. THE CONTRACTOR SHALL ERECT TEMPORARY BARRICADES, WITH NECESSARY SAFETY DEVICES, AS REQUIRED TO PROTECT PERSONNEL FROM INJURY, REMOVING ALL SUCH TEMPORARY PROTECTION UPON COMPLETION OF THE WORK.
5. OUTAGES OF SERVICES AS REQUIRED BY THE NEW INSTALLATION WILL BE PERMITTED BUT ONLY AT A TIME APPROVED BY THE COR. THE CONTRACTOR SHALL ALLOW THE COR 2 WEEKS PRIOR NOTICE IN ORDER TO SCHEDULE REQUIRED OUTAGES. THE TIME ALLOWED FOR OUTAGES SHALL NOT BE DURING NORMAL WORKING HOURS UNLESS OTHERWISE APPROVED BY THE COR.
6. THE CONTRACTOR SHALL MAKE EVERY EFFORT TO MINIMIZE DAMAGE TO THE EXISTING BUILDING AND THE GOVERNMENT'S PROPERTY. THE CONTRACTOR SHALL REPAIR, PATCH OR REPLACE AS DETERMINED BY THE BUILDING ACTIVITIES ANY DAMAGE WHICH MIGHT OCCUR AS A RESULT OF WORK AT THE SITE. CARE SHALL BE TAKEN TO MINIMIZE INTERFERENCE WITH THE BUILDING ACTIVITIES DURING CONSTRUCTION. COOPERATE WITH THE BUILDING ACTIVITIES AND OTHER TRADES IN SCHEDULING AND PERFORMANCE OF WORK.
7. THE EXISTING EQUIPMENT SHOWN ON THE DRAWINGS IS BASED ON EXISTING DRAWINGS AND LIMITED FIELD VERIFICATIONS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY EXACT LOCATION & SIZES OF ALL EQUIPMENT (INCLUDING PIPING) PRIOR TO ANY INSTALLATION. IF THERE IS ANY CONFLICT, CONTRACTOR SHALL NOTIFY THE COR PRIOR TO ANY PURCHASE OR INSTALLATION.

WATER CHILLER (CH) SCHEDULE (NOTES 1 THROUGH 7)

TAG	LOCATION	SERVICE	CAPACITY		EVAPORATOR				COMPRESSOR				CONDENSER				BASIS OF DESIGN		WEIGHT	
			MAX KW/TON	MIN. TONS	FLOW (GPM)	ENT. WATER (°F)	LVG. WATER (°F)	PRESS. DROP (FT.W.G)	UNIT POWER (KW)	(RLA)	(LRA)	ELECT. CHAR. (V/PH/Hz)	FLOW (GPM)	ENT. WATER (°F)	LVG. WATER (°F)	PRESS DROP (FT.W.G)	MAKE	MODEL	SHIPPING (LBS)	OPERATING (LBS)
CH-1	CHILLER ROOM	COOLING	0.563	400	960	52	42	20.7	225	307	2234	460/3/60	1200	85	95	24.23	TRANE	CVHE-0500	17,764	19,690
CH-2	CHILLER ROOM	COOLING	0.563	400	960	52	42	20.7	225	307	2234	460/3/60	1200	85	95	24.23	TRANE	CVHE-0500	17,764	19,690

NOTES
1. EVAPORATOR FOULING FACTOR = 0.00010
2. CONDENSOR FOULING FACTOR = 0.00025
3. PROVIDE MOTOR DISCONNECT AND MOTOR CONTROLLERS.
4. PROVIDE CHILLER CH-1 W/ VFD.
5. CHILLER SHALL BE DISASSEMBLED AND REASSEMBLED IN THE FIELD BY CHILLER MANUFACTURER TRAINED REPRESENTATIVE, AS REQUIRED TO PLACE CHILLER IN DESIGNATED LOCATION.
6. HEAT REJECTED INTO EQUIPMENT ROOM 3840 BTUH FOR EACH CHILLER.
7. CHILLER DIMENSIONS SHALL BE LIMITED TO CLEARANCES AS SHOWN ON DESIGN DOCUMENTS.
8. CHILLERS SHALL BE PROVIDED WITH SINGLE POINT POWER CONNECTION.

PUMP (P) SCHEDULE

TAG	LOCATION	SERVICE	TYPE	FLOW (GPM)	HEAD (FT.)	MOTOR		ELECT. CHART (V/PH/Hz)	BASIS OF DESIGN		% EFF.	REMARKS
						HP	RPM.		MAKE	MODEL		
P-1A	CHILLER ROOM	CHILLED WATER	BASE MOUNTED CENTRIFUGAL	960	144	50	1750	460/3/60	BELL AND GOSSETT	SERIES 1510 - 5G	82.5	
P-1B	CHILLER ROOM	CHILLED WATER	BASE MOUNTED CENTRIFUGAL	960	144	50	1750	460/3/60	BELL AND GOSSETT	SERIES 1510 - 5G	82.5	
P-1C	CHILLER ROOM	CHILLED WATER	BASE MOUNTED CENTRIFUGAL	960	144	50	1750	460/3/60	BELL AND GOSSETT	SERIES 1510 - 5G	82.5	BACK-UP PUMP
P-2A	CHILLER ROOM	CONDENSER WATER	BASE MOUNTED CENTRIFUGAL	1200	143	75	1770	460/3/60	BELL AND GOSSETT	SERIES 1510 - 6G	80	
P-2B	CHILLER ROOM	CONDENSER WATER	BASE MOUNTED CENTRIFUGAL	1200	143	75	1770	460/3/60	BELL AND GOSSETT	SERIES 1510 - 6G	80	
P-2C	CHILLER ROOM	CONDENSER WATER	BASE MOUNTED CENTRIFUGAL	1200	143	75	1770	460/3/60	BELL AND GOSSETT	SERIES 1510 - 6G	80	BACK-UP PUMP

NOTES
1. PROVIDE NEW VALVES AND FITTINGS AT THE PUMPS.
2. NEW PUMP DIMENSIONS SHALL MATCH EXISTING ASSOCIATED CONCRETE PADS.

GENERAL NEW WORK NOTES:

1. ALL INSTALLATIONS SHALL COMPLY WITH ALL LOCAL, COUNTY AND STATE REGULATIONS AS WELL AS UNIT MANUFACTURER'S RECOMMENDATIONS. CONTRACTOR SHALL PROVIDE ALL NECESSARY MATERIALS AND LABOR AS REQUIRED AT NO ADDITIONAL COST TO THE OWNER WHETHER SUCH WORK IS INDICATED IN THE DRAWINGS OR NOT.
2. ANY EXISTING EQUIPMENT PADS CALLED FOR TO BE REUSED SHALL BE REPAIRED AND ENLARGED AS NEEDED FOR NEW EQUIPMENT.
3. PIPING SHOWN INDICATES CONNECTIONS TO EQUIPMENT USED FOR THE BASIS OF DESIGN. COORDINATE PIPING CONNECTION WITH ACTUAL EQUIPMENT PROVIDED.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL EQUIPMENT SHOWN ON PLANS, DIAGRAMS AND DETAILS. IF THERE ARE ANY CONFLICTS OF QUANTITIES, SIZES AND LOCATIONS, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REQUEST CLARIFICATION PRIOR TO BIDDING THE PROJECT.
5. AUTOMATIC FLOW CONTROL VALVES SHALL BE FULL SIZE OF PIPE IN WHICH INSTALLED. CONTROL VALVE PRESSURE DROPS INDICATED ON DRAWINGS ARE BASED ON THE REQUIRED FLOW OF THE EQUIPMENT SERVED.
6. THE PNEUMATIC AIR TUBING TO EXISTING PNEUMATIC ACTUATED VALVES BEING REMOVED SHALL BE REMOVED BACK TO MAIN AT EXISTING CONTROLS AIR COMPRESSOR. EXISTING CONTROLS AIR COMPRESSOR SHALL BE UTILIZED AS REQUIRED FOR NEW PNEUMATIC ACTUATED VALVES IF APPLICABLE. PROVIDE NEW PNEUMATIC TUBING FOR NEW VALVES IF APPLICABLE.
7. ALL DIAGRAMS ARE PREPARED FOR DESIGN AND ROUTING CLARIFICATIONS, SOME PIPING AND FITTINGS ARE SHOWN ONLY IN FLOW DIAGRAMS TO INCREASE THE CLARITY OF PLANS. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL EQUIPMENT SHOWN ON PLANS, DETAILS AND FLOW DIAGRAMS. IN CASE OF CONFLICT, CONTRACTOR IS RESPONSIBLE FOR THE MOST STRINGENT REQUIREMENT.
8. CONTRACTOR SHALL FIELD VERIFY ALL PIPE INVERT ELEVATIONS PRIOR TO ANY INSTALLATION TO ENSURE THAT THERE ARE NO CONFLICTS.
9. ALL PIPING CAPS SHALL MATCH SURROUNDING MATERIALS.
10. ALL EQUIPMENT LISTED AS THE DESIGN BASIS IS INTENDED FOR FURTHER CLARIFICATION AND IS NOT INTENDED TO LIMIT THE MANUFACTURERS USED. ANY PRODUCTS FROM OTHER MANUFACTURERS SHALL BE PREAPPROVED PRIOR TO BID BY THE COR.
11. DIVISION 15 CONTRACTOR SHALL PROVIDE ALL NECESSARY MOTOR STARTERS, DISCONNECT SWITCHES, DUPLEX MOTOR CONTROLLERS, ALTERNATORS, OVERCURRENT PROTECTION, CONTROLS, INTERLOCKS AND STEP DOWN TRANSFORMER FOR ALL EQUIPMENT REQUIRING SUCH. WORK SHALL CONFORM TO THE REQUIREMENTS OF DIVISION 16.
12. REFER TO SPECIFICATIONS FOR ALL EQUIPMENT MINIMUM EFFICENCY REQUIREMENTS.
13. ALL RUNOUTS TO EQUIPMENT SHALL BE LINE SIZE SHOWN ON DRAWINGS INDICATED TRANSITION TO UNIT OPENING SIZE AT UNIT.
14. CONTRACTOR SHALL AVOID RUNNING ANY PIPING WITHIN 3 FEET ABOVE THE ELECTRICAL CONTROL PANELS AND ELECTRICAL SWITCH GEAR.
15. CONTRACTOR SHALL CLEAN ALL WATER SYSTEM STRAINERS AFTER FINAL ACCEPTANCE OF SYSTEMS.
16. PROVIDE ALL APPURTENANCES NECESSARY FOR ALL EQUIPMENT TO PERFORM ITS FUNCTION, INCLUDING BUT NOT LIMITED TO SUPPORTS AND MOUNTING.
17. CONTRACTOR SHALL FIELD VERITY EXACT AVAILABLE SPACES FOR INSTALLING NEW EQUIPMENT PRIOR TO SUBMITTING SHOP DRAWINGS AND ANY PURCHASE OR INSTALLATION TO ENSURE PROPER INSTALLATION. IN CASE OF CONTRACTOR'S FAILURE TO DO SO, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL LABOR AND MATERIAL COSTS ASSOCIATED WITH THE REPLACEMENT OF SUCH EQUIPMENT AND RELATED CONSTRUCTION DELAYS.
18. CONTRACTOR SHALL COVER ALL SHARP EDGES OF ANY EQUIPMENT INCLUDING HANGERS AND SUPPORTS WITHIN 8 FEET HEIGHT ELEVATION W/SOFT MATERIALS SUCH AS ARMAFLEX INSULATION TO AVOID ANY PERSONNEL INJURY. THE COVERS SHALL BE ATTACHED TO THE EQUIPMENT IN AN APPROVED MANNER. SUBMIT CATALOG DATA FOR APPROVAL.
19. CONTRACTOR SHALL COORDINATE HIS WORK WITH THE WORK OF OTHER TRADES TO AVOID ANY CONFLICTS PRIOR TO ANY PURCHASE, INSTALLATION, AND SHOP DRAWING/SUBMITTAL PREPARATION. IT WILL BE ASSUMED BY THE REVIEWER THAT SUCH COORDINATION HAS TAKEN PLACE WHEN REVIEWING THE SHOP DRAWINGS/SUBMITTALS. IN CASE OF CONTRACTOR'S FAILURE TO DO SO, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL LABOR AND MATERIAL COSTS ASSOCIATED WITH THE REPLACEMENT OF SUCH EQUIPMENT.
20. ALL EQUIPMENT, INCLUDING BUT NOT LIMITED TO, PIPING SHALL BE INSTALLED AS HIGH AS POSSIBLE TO PROVIDE THE MAXIMUM POSSIBLE HEIGHT CLEARANCE.
21. CONTRACTOR SHALL PROVIDE SHUT-OFF VALVES AND BALANCING VALVES AND FLOW METERS WHERE SHOWN ON PLANS AND RISER DIAGRAMS, AND WHERE REQUIRED FOR PROPER BALANCING. WHETHER SHOWN ON DWGS OR NOT.
22. CONTRACTOR SHALL SEAL ALL PIPE PENETRATIONS THROUGH FIRE RATED ASSEMBLIES WITH AN U.L. LISTED FIRE STOPPING MATERIAL.

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MECHANICAL SYMBOLS, ABBREVIATIONS & NOTES

PROJECT NO. 03308

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11-07-2003 S.TODOROV
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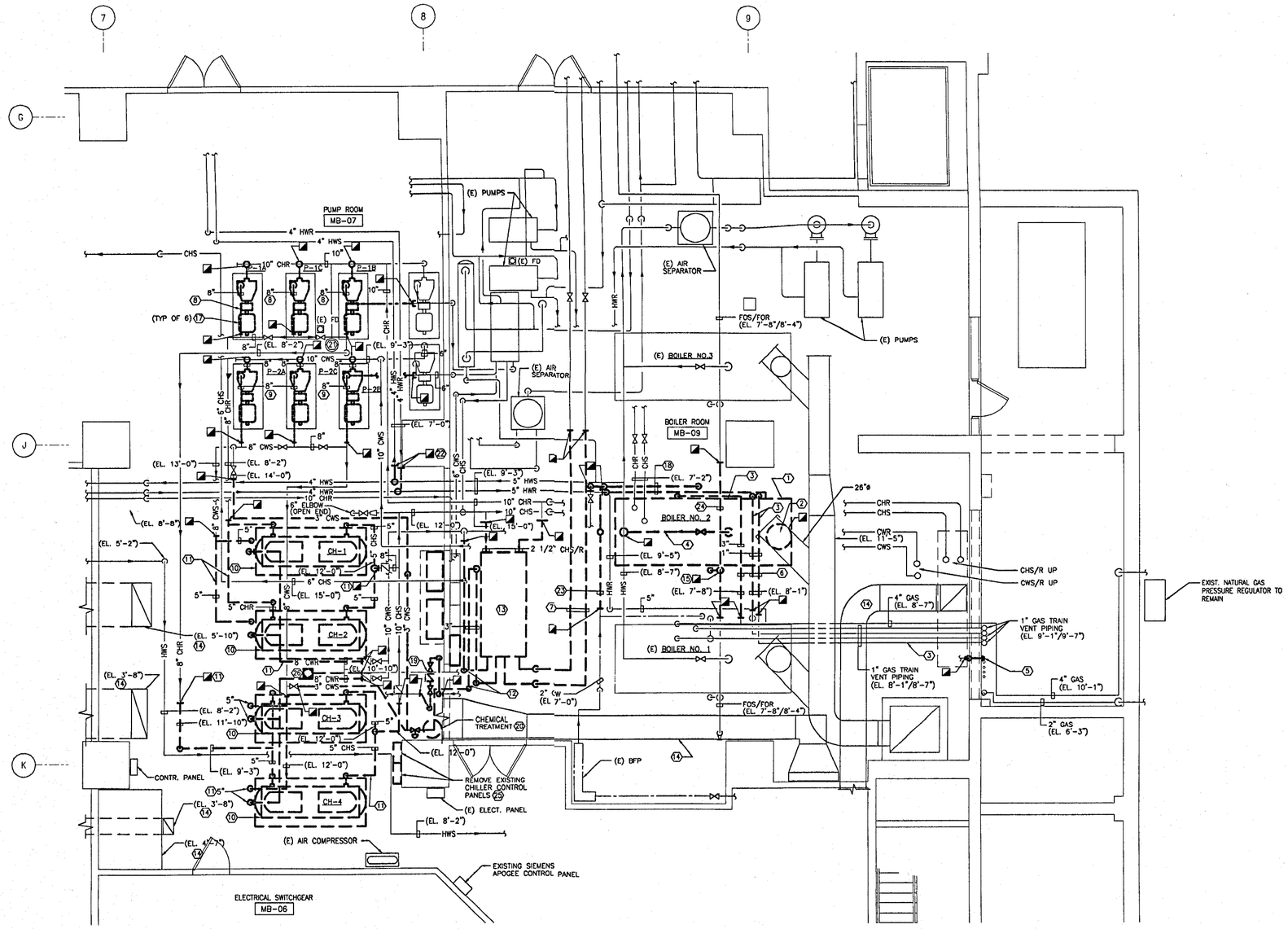

1 PARTIAL BASEMENT MECHANICAL DEMOLITION PLAN

M00.01 M00.01 SCALE: 1/4" = 1'-0"

GENERAL NOTES:

A. CONTRACTOR SHALL VERIFY ALL PIPING ELEVATIONS AND DIMENSIONS INDICATED ON THE FLOOR PLAN.

B. SEAL ALL UNUSED WALL OPENINGS AFTER PIPING DEMOLITION TO MATCH EXISTING.

C. CONTRACTOR SHALL KEEP SMOKE DETECTION SYSTEM OPERATIONAL, DURING CONSTRUCTION. COVER DETECTORS DURING WORK AND UNCOVER AT END OF WORK DAY.

KEYED NOTES:

1. REMOVE EXISTING BOILER NO.2 IN ITS ENTIRETY INCLUDING PIPING AND CONC. CURB AS REQUIRED TO ALLOW CLEARANCE FOR REMOVING CHILLERS FROM BASEMENT THRU AREAWAY AND INSTALLING NEW.
2. REMOVE EXISTING 26" DIA VERTICAL FLUE DUCT AND CAP AS SHOWN.
3. REMOVE EXISTING 1" & 3" GAS VENT TO EXTENT SHOWN.
4. REMOVE EXISTING 6" DIA (APPROXIMATE) HOT WATER SUPPLY PIPE AND ASSOCIATED VALVES AND SUPPORTS. CAP AT MAIN.
5. REMOVE EXISTING HOSE BIBB AND ASSOCIATED PIPING FOR WALL DEMOLITION.
6. REMOVE EXISTING 3" GAS VENT AND CAP EXISTING PIPE.
7. REMOVE 3" LOW PRESSURE SOLAR SUPPLY AND RETURN PIPES.
8. REMOVE EXISTING 8" CHILLED WATER PIPE AND ASSOCIATED FITTINGS, VALVES, AND SUPPORTS BACK TO MAIN AS INDICATED.
9. REMOVE EXISTING 8" CONDENSER WATER PIPE AND ASSOCIATED FITTINGS, VALVES, AND SUPPORTS BACK TO MAIN AS INDICATED.
10. REMOVE EXISTING CHILLERS CH-1, CH-2, CH-3, AND CH-4 IN THEIR ENTIRETY INCLUDING CONTROLS, PIPING AND SUPPORTS AS INDICATED.
11. REMOVE EXISTING CHILLED WATER AND CONDENSER WATER SUPPLY AND RETURN PIPING INCLUDING HANGERS AND SUPPORTS AS INDICATED.
12. REMOVE EXISTING PIPING TO EXTEND INDICATED.
13. REMOVE EXISTING ABSORPTION CHILLER IN ITS ENTIRETY INCLUDING PIPING AND SUPPORTS TO EXTENT INDICATED.
14. EXISTING DUCT TO REMAIN
15. REMOVE EXISTING FOS/FOR PIPING AND ASSOCIATED FITTINGS AND SUPPORTS.
16. NOT USED.
17. REMOVE EXISTING PUMP.
18. REMOVE EXISTING CW PIPING AND CAP. FIELD VERIFY PIPE DIMENSION.
19. RELOCATE THE EXISTING BACKFLOW PREVENTOR.
20. RELOCATE THE EXISTING CHEMICAL TREATMENT TANK AND ALL PIPING CONNECTIONS.
21. EXISTING MANUAL CHEMICAL FEED SYSTEM TO REMAIN. DISCONNECT ALL PIPING CONNECTIONS TO EXISTING PUMPS P-1A, P-1B, AND P-1C.
22. REMOVE EXISTING HWS & HWR PIPING AND INSTALL AT HIGHER ELEVATION AS REQUIRED TO ALLOW CLEARANCE FOR INSTALLATION OF NEW CHILLERS.
23. REMOVE EXISTING 2" CW PIPING & INSULATION AND INSTALL AT HIGHER ELEVATION.
24. REMOVE EXISTING FOS/FOR PIPING AT (EL 7'-8" AND 8'-3") AND INSTALL AT NEW (EL 8'-7")
25. DISCONNECT POWER AT SOURCE. REMOVE PANELS. CUT CONDUITS & ABANDON 10'-0" ABOVE FLOOR REMOVE WIRING.
26. REMOVE EXISTING FLOOR DRAIN TO ALLOW CLEARANCE FOR NEW CHILLER CONC. PAD.

THE EXISTING CONDITIONS SHOWN ON THE DRAWINGS ARE BASED ON RECORD DRAWINGS AND LIMITED FIELD VERIFICATION. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ASSURE THAT SURFACE AND SUBSURFACE AREAS DISTURBED BY DEMOLITION ARE RETURNED TO, OR FURTHER REFINED TO, AN APPROPRIATE CONDITION THAT WILL ALLOW FOR COMPLETE INSTALLATION OF ALL NEW SYSTEMS TO A FULL OPERATION LEVEL AND ALLOW FOR NEW FINISHES TO MEET FINAL DESIGN CONDITIONS.

USDA

0 2' 4' 8' 12'
SCALE: 1/4"=1'-0"

NOTE: CONTRACTOR TO VERIFY PRINT SIZE AND DRAWING SCALE, TYPICAL ALL SHEETS

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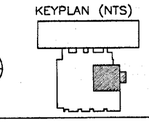
KEYPLAN (NTS)



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Agricultural Research Service

NATIONAL AGRICULTURE LIBRARY
DESIGN FOR THE REPLACEMENT OF THE CHILLERS

PARTIAL MECHANICAL BASEMENT DEMOLITION PLAN

A-E FIRM	USDA
PROJECT MANAGER: D. TASH	EPM: F. KING
DESIGNER: L.SHIPLEY	PPM: –
CHECKED BY: D.TASH	SAFETY & HEALTH T. ROARK
DRAWN BY: S.TODOROV	REAL PROPERTY E. REILLY

PROJECT NO. 03308
DATE: J-14-2005

FACILITIES DIVISION
FACILITIES ENGINEERING BRANCH
5601 SUNNYSIDE AVENUE
BELTSVILLE, MARYLAND 20705-5124

SHEET M00.01
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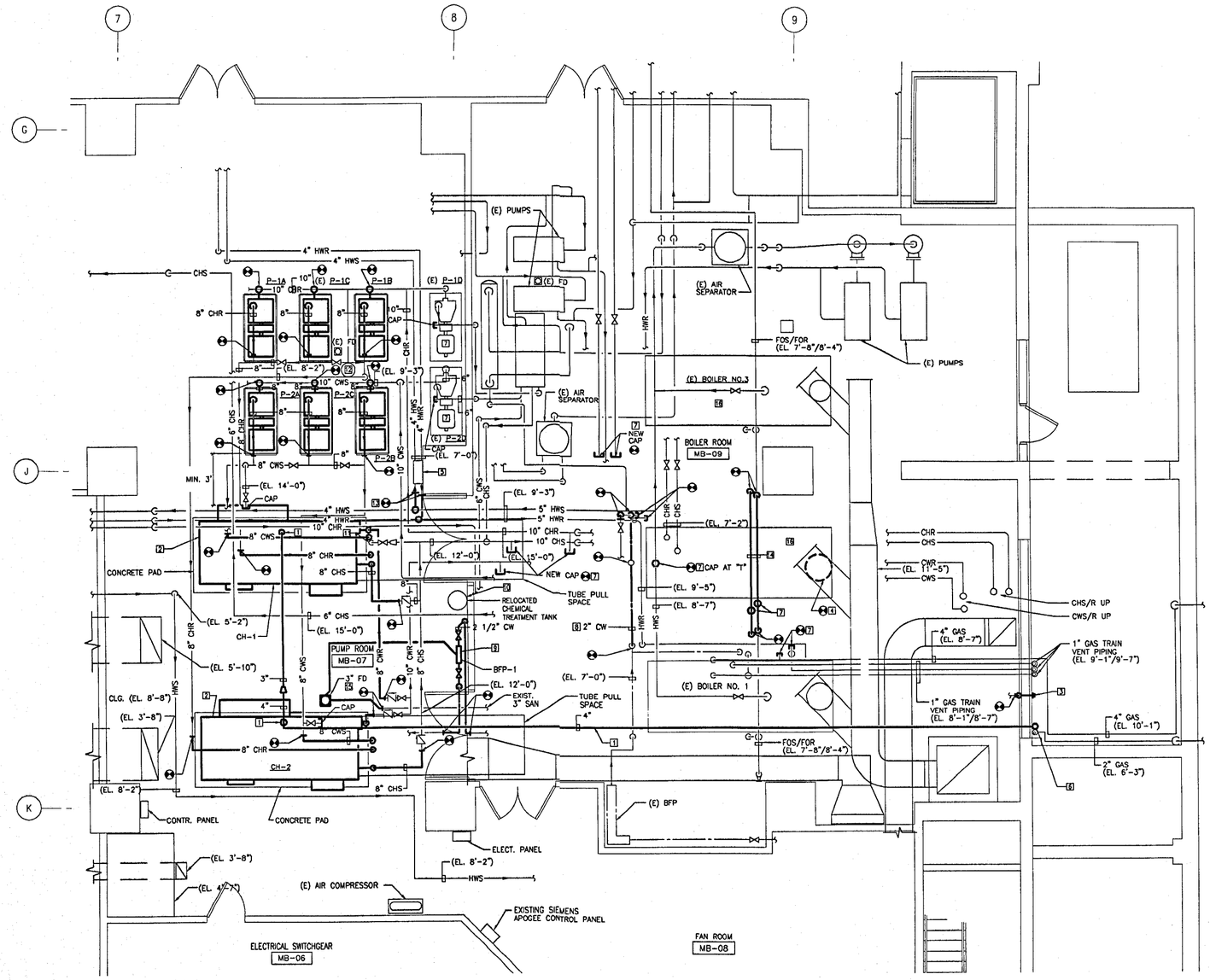

1 PARTIAL MECHANICAL BASEMENT PLAN

M01.01 M01.01 SCALE: 1/4" = 1'-0"

GENERAL NOTES:

A. CONTRACTOR SHALL VERIFY ALL PIPING ELEVATIONS AND DIMENSIONS INDICATED ON THE FLOOR PLAN.

B. CONTRACTOR SHALL PROTECT THE EXISTING PIPING INSIDE THE AREAWAY FROM DAMAGE DURING CHILLER DELIVERY THROUGH THE AREAWAY. CONTRACTOR SHALL REPLACE ALL DAMAGED PIPING TO MATCH EXISTING.

C. CONTRACTOR SHALL COORDINATE AND INSTALL NEW CHILLER AND DOUBLE DOORS TO ALLOW CHILLER TUBE PULL SPACE THROUGH THE DOUBLE DOORS OPENINGS.

D. THE BUILDING IS EQUIPPED WITH A COMPLETE NFPA COMPLIANT WET TYPE SPRINKLER SYSTEM. THE CONTRACTOR SHALL EXERCISE CARE TO AVOID DAMAGE TO EXISTING SPRINKLER HEADS AND PIPING. THE CONTRACTOR SHALL ALSO INCLUDE IN HIS/HER BID RELOCATION AND ADDITION OF SPRINKLER HEADS AND PIPING AS REQUIRED TO DEMOLISH EXISTING AND INSTALL NEW CHILLERS, PUMPS, PIPING, ETC. MATCH EXISTING IN MATERIALS AND TYPE.

KEYED NOTES:

1. PROVIDE 3" VENT PIPE FOR CHILLERS CH-1 AND CH-2.
2. PROVIDE NEW CHILLERS (CH-1 & CH-2) WITH ASSOCIATED CHILLED WATER & CONDENSER WATER SUPPLY AND RETURN PIPING AND ITS ACCESSORIES. PROVIDE A 86" WIDTH BY 160" LENGTH BY 6 INCH THICK CONCRETE PAD. COORDINATE AND VERIFY EXACT DIMENSIONS WITH CHILLER MANUFACTURER.
3. REINSTALL EXISTING HOSE BIBB IN THE ORIGINAL LOCATION AFTER WALL REPLACEMENT.
4. NEW INSULATED CAP FOR FLUE DUCT OPENING TO MATCH EXISTING.
5. NEW REFRIGERANT MONITORING PANEL.
6. 4" CHILLER VENT UP TO 2 FEET ABOVE THE EXITING METAL GRADING AT THE TOP OF THE AREAWAY. TERMINATE VENT PIPING PER CHILLER MANUFACTURER RECOMMENDATIONS.
7. NEW PIPE CAP TO MATCH EXISTING.
8. NEW 2" CW PIPE. INSTALL ABOVE 9'-0" ELEVATION. FIELD VERIFY EXACT PIPING CONFIGURATION.
9. REINSTALL EXISTING BACKFLOW PREVENTOR IN NEW LOCATION. RECONNECT ALL PIPING ACCORDINGLY.
10. REINSTALL THE EXISTING CHEMICAL TREATMENT TANK TO NEW LOCATION AS SHOWN. RECONNECT ALL PIPING TO THE TANK.
11. EXISTING 6" ELBOW (OPEN END) TO REMAIN.
12. REUSE THE EXISTING MANUAL CHEMICAL FEEDER SYSTEM. RECONNECT ALL PIPING CONNECTIONS TO SUCTIONS AND DISCHARGE PIPING OF NEW CHILLED WATER PUMPS (P-1A, P-1B, AND P-1C)
13. PROVIDE NEW HWS & HWR PIPE & FITTINGS AT HIGHER ELEVATION TO ALLOW INSTALLATION OF NEW CHILLERS.
14. RELOCATED FOS/FOR PIPING
15. NEW 3" FD CONNECT TO EXISTING UNDER FLOOR PIPING (SIMILAR OR EQUAL TO ZURN Z-511)
16. EXISTING BOILER RESET ON NEW CURB AFTER NEW CHILLERS HAVE BEEN INSTALLED.

THE EXISTING CONDITIONS SHOWN ON THE DRAWINGS ARE BASED ON RECORD DRAWINGS AND LIMITED FIELD VERIFICATION. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ASSURE THAT SURFACE AND SUBSURFACE AREAS DISTURBED BY DEMOLITION ARE RETURNED TO, OR FURTHER REFINED TO, AN APPROPRIATE CONDITION THAT WILL ALLOW FOR COMPLETE INSTALLATION OF ALL NEW SYSTEMS TO A FULL OPERATION LEVEL AND ALLOW FOR NEW FINISHES TO MEET FINAL DESIGN CONDITIONS.

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SCALE: 1/4"=1'-0"

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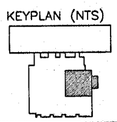

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SHEET M01.01
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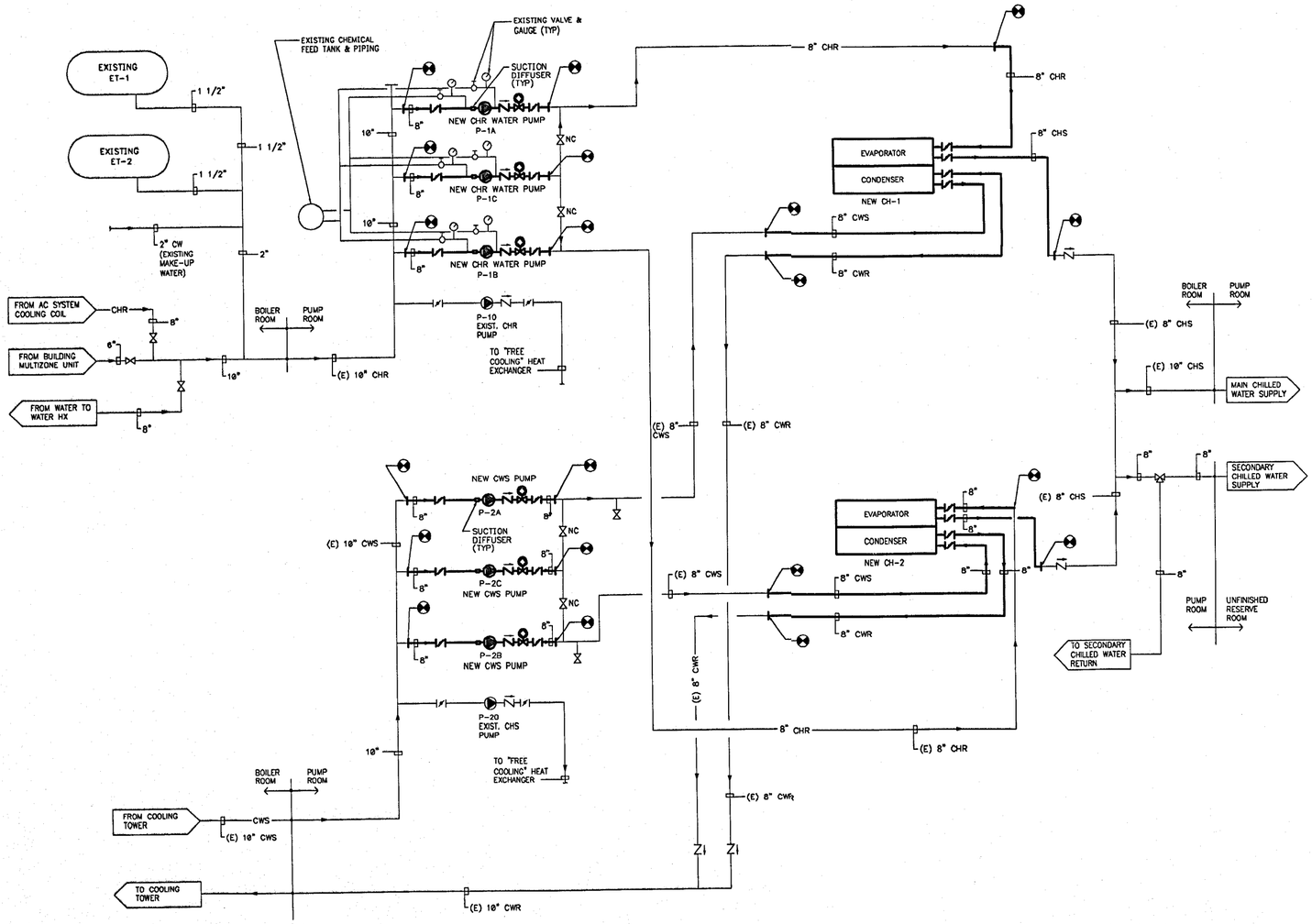
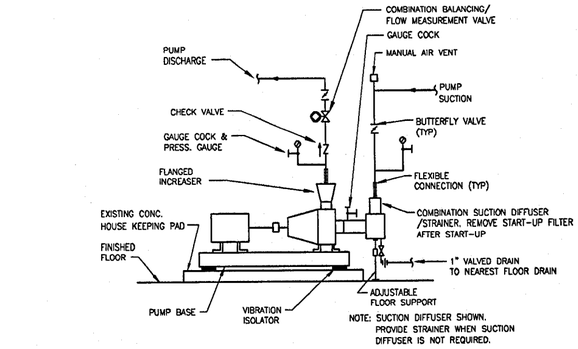


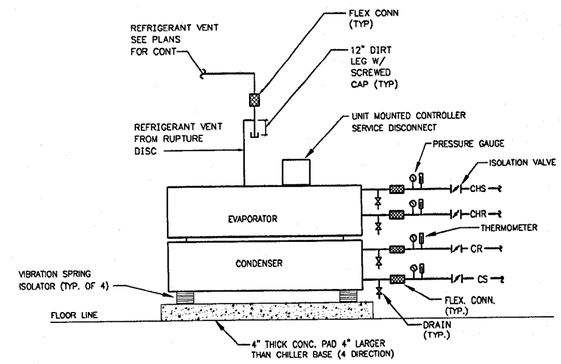
3 TYP. M02.01 SCALE: N.T.S.

CHILLED/ CONDENSER WATER FLOW DIAGRAM



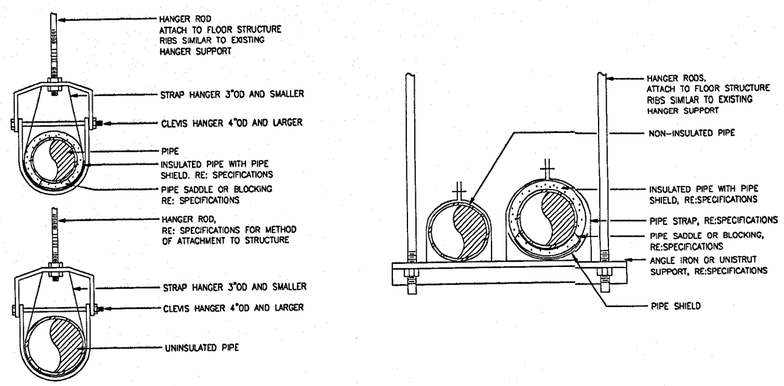
1 TYP. M02.01 SCALE: N.T.S.

END SUCTION PUMP PIPING DETAIL



2 TYP. M02.01 SCALE: N.T.S.

CHILLER DETAIL



4 TYP. M02.01 SCALE:N.T.S

SINGLE AND TRAPEZE TYPE MULTIPLE PIPE HANGERS

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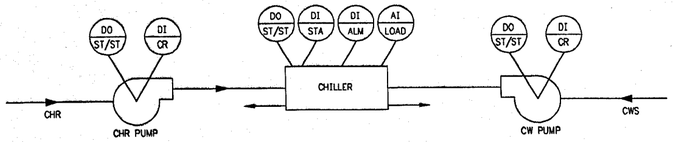
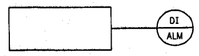


CHILLERS CH-1 & CH-2 (TYP.)



REFRIGERANT MONITOR

CONTROL ABBREVIATIONS AND SYMBOLS

AI	ANALOG IN	OAT	OUTSIDE AIR TEMPERATURE
ALM	ALARM	STA	STATUS
AO	ANALOG OUT	ST/ST	START/STOP
CHW	CHILLED WATER		
CW	CONDENSER WATER		
CR	CURRENT RELAY		
DDC	DIRECT DIGITAL CONTROL		
DI	DIGITAL IN		
DO	DIGITAL OUT		
LOAD	% CHILLER LOADING		

SEQUENCE OF OPERATION

CONDENSER WATER

THE EXISTING CONDENSER WATER SYSTEM SEQUENCE SHALL REMAIN "AS IS" EXCEPT AS FOLLOWS:

A. REVISE THE MECHANICAL CONDENSER WATER SETPOINT TO MATCH THE CONDENSER SETPOINT RECOMMENDED BY THE CHILLER MANUFACTURER.
B. REVISE THE FREE-COOLING TO MECHANICAL COOLING CHANGE-OVER POINT TO A SETPOINT RECOMMENDED BY THE CHILLER MANUFACTURER.

CHILLERS

THE EXISTING SYSTEM SEQUENCE USES OUTDOOR WET BULB TO INITIATE CHANGEOVER FROM FREE-COOLING TO MECHANICAL COOLING. THIS SHALL REMAIN. WHEN MECHANICAL COOLING IS CALLED FOR, DDC SHALL START THE CHILLED WATER AND CONDENSER PUMPS ASSOCIATED WITH CHILLER CH-1. UPON PROOF OF PUMP RUNNING VIA CURRENT RELAY, THE CHILLER SHALL BE ENABLED TO RUN AND CONTROL UNDER FACTORY CONTROLS.

DDC SHALL MONITOR THE CHILLER LOADING PERCENTAGE FROM A 0-10vdc OR 4-20mA OUTPUT PROVIDED BY THE CHILLER MANUFACTURER. UPON THE CHILLER LOADING EXCEEDING A MANUFACTURER PRESCRIBED SETPOINT, THE SECOND CHILLER AND PUMPS SHALL BE STARTED AS DESCRIBED ABOVE. THE REVERSE SHALL OCCUR UPON SYSTEM DEMAND DROPPING. THE INTENT OF THIS SEQUENCE IS TO TAKE ADVANTAGE OF THE EFFICIENCY OF CENTRIFUGAL CHILLERS.

A CHILLER AND ITS ASSOCIATED PUMPS SHALL REMAIN "ON" FOR A MINIMUM OF 20 MINUTES WHEN COMMANDED "ON" AND REMAIN "OFF" FOR A MINIMUM OF 20 MINUTES WHEN COMMANDED "OFF". LOCAL DIFFERENTIAL OR FLOW SWITCHES' SAFETY INTERLOCK SHALL ENABLE THE CHILLER TO RUN.

PROVIDE AN ALARM TO THE WORKSTATION SHOULD ANY SYSTEM COMMANDED TO RUN NOT BE "ON" OR IF THE CHILLER FAULT POINT INDICATES A CHILLER PROBLEM.

SHOULD CHILLER CH-1 OR EITHER OF ITS PUMPS FAIL TO START CHILLER CH-2 SYSTEM SHALL BE INITIATED TO RUN AND THE OTHER CHILLER CH-1 PUMP(S)/CHILLER CH-1 BE DISABLED, AND AN ALARM SENT TO THE WORKSTATION.

CHILLER POINTS SHALL BE WIRED TO INTERFACE ON CHILLER. CHILLER MANUFACTURE TO PROVIDE POINTS PER POINT LIST.

THE BACK-UP PUMPS ARE CONTROLLED MANUALLY AND VALVED MANUALLY WHEN NEEDED.

FREE-COOLING

THE EXISTING FREECOOLING SYSTEM CONTROL SHALL REMAIN AS IS EXCEPT FOR THE CHANGE-OVER POINT REFERENCED UNDER CONDENSER WATER ABOVE.

REFRIGERANT MONITOR

DDC SYSTEM SHALL CONNECT TO THE REFRIGERANT MONITOR ALARM CONTACTS AND DISPLAY AN ALARM AT THE WORKSTATION. THERE IS NO VENTILATION SEQUENCE AT THIS TIME.

PROVIDE A CENTRALLY LOCATED LOCAL AUDIBLE AND VISUAL ALARM INSIDE STORAGE ROOM MB-16, DIRECTLY TIED TO THE NEW REFRIGERANT MONITOR PANEL, TO BE ACTIVATED IN CASE OF REFRIGERANT RELEASE INSIDE THE CHILLER ROOM.

INPUT/OUTPUT SUMMARY

SYSTEM, APPARATUS, OR AREA POINT DESCRIPTION	INPUTS: ANALOG MEASURED: TEMPERATURE	PRESSURE	RH	CO	CFM	M.V. PRESS	E. LEVEL	ANALOG CALC: CHW	CW	EVAPORATOR	DISCHARGE	BINARY: FLOW	FLOW SWITCH	CURRENT	AIR FLOW	AIR STA	FAULT (TROUBLE)	OUTPUTS: DIGITAL: OP-CR	OP-CR-CS	OP-HS-CS	OP-CS	ANALOG: ANALOG POS.	ANALOG SPD.	ST (FAN, PUL.	SYSTEM FEATURES: ALARMS: SS-ANALOG	SS-BINARY	SS-BINARY-DELAY	SS-BINARY-PROOF	PROGRAMS: TIME SCHEDULE	DAILY TIME OF	DAILY TIME OF	DYNAMIC OP.	TREND DATA	SUMMARY REL. TOOL	GENERAL: COLOR GRAPHIC	SUPPLEMENTARY NOTES
CHILLER 1,2 (TYP.)																																				X	
CHILLER							X					X					X	X										X									
CHW PUMP P-1A,B,C												X						X										X									
CW PUMP P-2A,B,C												X						X										X									
REFRIGERANT MONITOR																	X																				

NOTE: THE ABOVE POINTS ARE MINIMUM REQUIREMENTS. CONTRACTOR SHALL INCLUDE AND PROVIDE ALL ADDITIONAL POINTS REQUIRED TO PERFORM THE SEQUENCE OF OPERATION AND AS REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM.

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FACILITIES DIVISION
FACILITIES ENGINEERING BRANCH
5601 SUNNYSIDE AVENUE
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SHEET M03.01
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RACEWAY

SYMBOL	DESCRIPTION
———	RACEWAY AND WIRING.
LIR13-1	BRANCH CIRCUIT NUMBER DENOTES THE CIRCUIT THE DEVICE IS CONNECTED TO. THE SYMBOL DENOTES THE PANEL BOARD OR MCC AND THE BRANCH CIRCUIT BREAKER NUMBER

OUTLETS & BOXES

SYMBOL	DESCRIPTION
	DUPLEX RECEPTACLE. EXISTING RE-INSTALLED

DEMOLITION SYMBOLS

SYMBOL	DESCRIPTION
	1'X8' FLUORESCENT WALL BRACKET LIGHT
	DISCONNECT SWITCH
S	WALL SWITCH
	DUPLEX RECEPTACLE
	EXISTING CONDUITS REMOVED WHERE EXPOSED. CUT FLUSH WITH FINISH SURFACES WHERE THEY ARE CONCEALED AND THE SURFACE PATCHED TO MATCH ADJACENT SURFACES.

SWITCHES & STARTERS

SYMBOL	DESCRIPTION
	DISCONNECT SWITCH
S	WALL SWITCH, EXISTING REINSTALLED

NOTE: ALL DEVICES SHALL BE NEMA 1 ENCLOSURES WHEN INSTALLED INDOORS AND IN NEMA 4 ENCLOSURES WHEN ON ROOF OR EXPOSED TO THE ELEMENTS.

NOTE: ALL MOTOR STARTERS AND DISCONNECT SWITCHES ARE FURNISHED UNDER DIVISION SPECIFYING THE EQUIPMENT. THESE ARE INSTALLED AND CONNECTED UNDER 16000.

EQUIPMENT

SYMBOL	DESCRIPTION
	EQUIPMENT OR APPARATUS AS NOTED
N	MOTOR, MOTOR CONNECTION WITH FLEXIBLE CONDUIT

BRANCH CIRCUITS

SYMBOL	DESCRIPTION
HA1-31,33,35	DENOTES CIRCUIT HOME RUN SERVED WITH THREE PHASE SERVICE FROM THREE POLE BRANCH CIRCUIT BREAKER IN PANEL "HA1". THE THREE POLE BREAKER OCCUPYING POLE SPACES 31,33 AND 35 RESPECTIVELY. CONDUIT AND WIRE SIZES ARE INDICATED ON PANEL BOARD SCHEDULE

LIGHTING FIXTURES

SYMBOL	DESCRIPTION
	FLUORESCENT LIGHTING FIXTURE EXISTING REINSTALLED

ABBREVIATIONS

SYMBOL	DESCRIPTION
A, AMP	AMPERE(S)
AWG	AMERICAN WIRE GAUGE
(E)	EXISTING EQUIPMENT TO REMAIN
GND,GRD,G	GROUND
MCA	MINIMUM CIRCUIT AMPS
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MSG	MAIN SWITCH GEAR
PH,ø	PHASE(S)
RMP	REFRIGERANT MONITOR PANEL
SPEC SEC	SPECIFICATION SECTION
SWGR	SWITCH GEAR
V	VOLTS
W	WIRE

GENERAL NOTES

A. THE ELECTRICAL DRAWINGS ARE GENERALLY DIAGRAMMATIC. THE ELECTRICAL INSTALLATION SHALL BE COORDINATED WITH ALL OTHER TRADES SO THAT INTERFERENCE BETWEEN THE ELECTRICAL INSTALLATION AND ARCHITECTURAL, STRUCTURAL, MECHANICAL, PLUMBING, FIRE PROTECTION AND EQUIPMENT INSTALLATIONS WILL BE AVOIDED. REFER TO ARCHITECTURAL DRAWINGS FOR DIMENSIONS, ROOM FINISHES, DOOR SWINGS, FIRE RATED PARTITIONS, CASE WORK AND BUILT-IN DETAILS.

B. CONTRACTOR SHALL PROVIDE ALL DISCONNECTS TO MEET NEC AND LOCAL CODES.

C. PROVIDE ALL FINAL CONNECTIONS SHOWN ON THE DRAWINGS AT THE ACTUAL INSTALLED LOCATION OF THE EQUIPMENT. COORDINATE WITH OTHER TRADES PRIOR TO INSTALLATION.

D. ALL COMBINATION MOTOR STARTERS DISCONNECT SWITCHES SHALL BE INSTALLED BY THE ELECTRICAL CONTRACTOR UNLESS OTHERWISE NOTED.

E. ALL RACEWAYS CONTAINING CONDUCTORS AT OVER 50 VOLTS SHALL INCLUDE A GROUND CONDUCTOR.

F. CONTRACTOR SHALL PROVIDE POWER TO HVAC CONTROLS AND CONTROL PANELS. COORDINATE WITH MECHANICAL DRAWINGS FOR LOCATION.

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SYMBOLS, ABBREVIATIONS & NOTES

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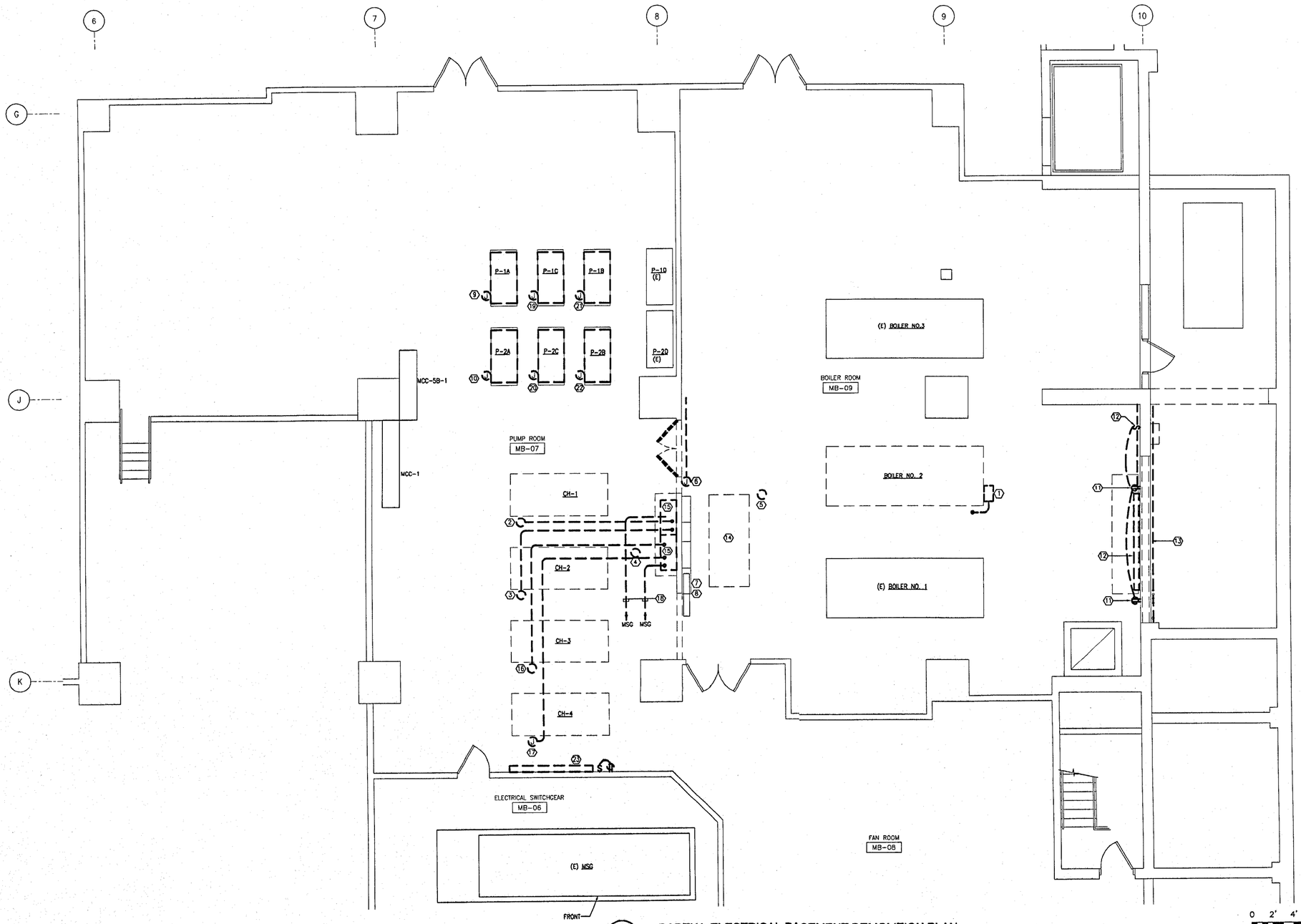
03308	FACILITIES ENGINEERING BRANCH	E00.00
DATE: 3-14-2005	5601 SUNNYSIDE AVENUE BELTSVILLE, MARYLAND 20705-5124	10 OF 11



1 PARTIAL ELECTRICAL BASEMENT DEMOLITION PLAN

E00.01 | E00.01 SCALE: 1/4" = 1'-0"

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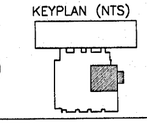

KEYED DEMOLITION NOTES

1. DISCONNECT AND REMOVE EXISTING POWER CONNECTION TO BOILER. REMOVE CONDUCTORS BACK TO SOURCE. REMOVE CONDUIT BACK TO FLOOR, CUT AND PATCH FLOOR TO MATCH ADJACENT CONDITIONS.
2. DISCONNECT AND REMOVE EXISTING POWER CONNECTIONS TO THE CHILLER CH-1. REMOVE CONDUCTORS AND CONDUITS BACK TO SOURCE AS INDICATED.
3. DISCONNECT AND REMOVE EXISTING POWER CONNECTIONS TO THE CHILLER CH-2. REMOVE CONDUCTORS AND CONDUITS BACK TO SOURCE AS INDICATED
4. EXISTING ALARM WARNING LIGHTS AND CIRCUITS SHALL BE MAINTAINED IN SERVICE. REMOVE TEMPORARILY AS NEEDED AND AT THE END OF WORK DAY REINSTALL AND RECONNECT FOR A FULLY FUNCTIONAL SYSTEM.
5. EXISTING ALARM WARNING LIGHTS AND CIRCUITS SHALL BE MAINTAINED IN SERVICE. REMOVE TEMPORARILY AS NEEDED AND AT THE END OF WORK DAY REINSTALL AND RECONNECT FOR A FULLY FUNCTIONAL SYSTEM.
6. EXISTING PULL BOX AND SMALL DIAMETER CONDUIT WITH 4-#12AWG CONDUCTORS. INSTALL NEW PULL BOXES ON EITHER SIDE OF THE DOOR OPENING, RE-ROUTE AND RE-INSTALL THE CONDUIT ABOVE THE INCREASED DOOR OPENING. FURNISH AND INSTALL NEW CONDUCTORS BETWEEN THE NEW PULL BOXES TO MAINTAIN THE EXISTING CIRCUITS.
7. EXISTING PULL BOXES FOR FEEDERS TO BRANCH CIRCUIT PANEL BOARDS. RELOCATE PULL BOXES. SEE DETAIL ON SHEET E01.01.
8. EXISTING PULL BOXES FOR FEEDERS TO BRANCH CIRCUIT PANEL BOARDS. RELOCATE PULL BOXES. SEE DETAIL ON SHEET E01.01
9. DISCONNECT AND REMOVE EXISTING ELECTRICAL POWER CONNECTIONS TO PUMP P1-A. REMOVE CONDUCTORS AND EXPOSED BRANCH CIRCUIT CONDUIT BACK TO MCC-1.
10. DISCONNECT AND REMOVE EXISTING ELECTRICAL POWER CONNECTIONS TO PUMP P2-A. REMOVE CONDUCTORS AND EXPOSED BRANCH CIRCUIT CONDUIT BACK TO MCC-1
11. REMOVE EXISTING QUAD RECEPTACLES AND SURFACE MOUNTED CONDUITS AND WIRING TO CLEAR KNOCK-OUT WALL. TERMINATE CONDUCTORS AT THE PREVIOUS JUNCTION BOX AND LABEL FOR EXTENSION AND REINSTALLATION EXACTLY AS IT EXISTS NOW. SEE SHEET E01.01
12. DISCONNECT AND REMOVE EXISTING WALL MOUNTED 8' FLUORESCENT FIXTURE AND RELATED WALL SWITCH AND SURFACE CONDUIT. TERMINATE CONDUCTORS AT THE PREVIOUS JUNCTION BOX AND LABEL FOR EXTENSION AND RE-INSTALLATION EXACTLY AS IT EXISTS NOW. SEE SHEET E01.01.
13. REMOVE EXISTING 1.5" CONDUIT RUNNING ACROSS KNOCK-OUT WALL. INSTALL JUNCTION BOXES AND EACH END AND REROUTE THE CONDUIT 1' ABOVE TOP OF KNOCK-OUT WALL. SPLICE AND RE-INSTALL NEW CONDUCTORS IN JUNCTION BOXES (4-#3AWG + 1-#8GRD)
14. DISCONNECT AND REMOVE EXISTING POWER CONNECTIONS TO THE ABSORPTION CHILLER. REMOVE CONDUCTORS AND CONDUITS BACK TO MCC-1.
15. DISCONNECT AND REMOVE SIEMENS PANELS WITH MOTOR DISCONNECTS, CONTROLLERS, SWITCH BOARDS AND RELATED FEEDERS IN THEIR ENTIRETY.
16. DISCONNECT AND REMOVE EXISTING POWER CONNECTIONS TO CHILLER CH-3. REMOVE CONDUCTORS AND CONDUIT BACK TO SOURCE.
17. DISCONNECT AND REMOVE EXISTING POWER CONNECTIONS TO CHILLER CH-4. REMOVE CONDUCTORS AND CONDUIT BACK TO SOURCE.
18. DISCONNECT AND REMOVE EXISTING CONDUIT AND FEEDER CONDUCTORS FROM 'MSG' IN ROOM MB-06.
19. DISCONNECT AND REMOVE EXISTING POWER CONNECTIONS TO PUMP P-1C. REMOVE CONDUCTORS AND EXPOSED BRANCH CIRCUIT BACK TO SIEMENS PANEL
20. DISCONNECT AND REMOVE EXISTING POWER CONNECTIONS TO PUMP P-2C. REMOVE CONDUCTORS AND EXPOSED BRANCH CIRCUIT BACK TO SIEMENS PANEL
21. DISCONNECT AND REMOVE EXISTING POWER CONNECTIONS TO PUMP P-1B. REMOVE CONDUCTORS AND EXPOSED BRANCH CIRCUIT BACK TO MCC-1.
22. DISCONNECT AND REMOVE EXISTING POWER CONNECTIONS TO PUMP P-2B. REMOVE CONDUCTORS AND EXPOSED BRANCH CIRCUIT BACK TO MCC-1.
23. DISCONNECT AND REMOVE LIGHTING FIXTURE AND RELATED WALL SWITCH AND RECEPTACLE.

THE EXISTING CONDITIONS SHOWN ON THE DRAWINGS ARE BASED ON RECORD DRAWINGS AND LIMITED FIELD VERIFICATION. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ASSURE THAT SURFACE AND SUBSURFACE AREAS DISTURBED BY DEMOLITION ARE RETURNED TO, OR FURTHER REFINED TO, AN APPROPRIATE CONDITION THAT WILL ALLOW FOR COMPLETE INSTALLATION OF ALL NEW SYSTEMS TO A FULL OPERATION LEVEL AND ALLOW FOR NEW FINISHES TO MEET FINAL DESIGN CONDITIONS.

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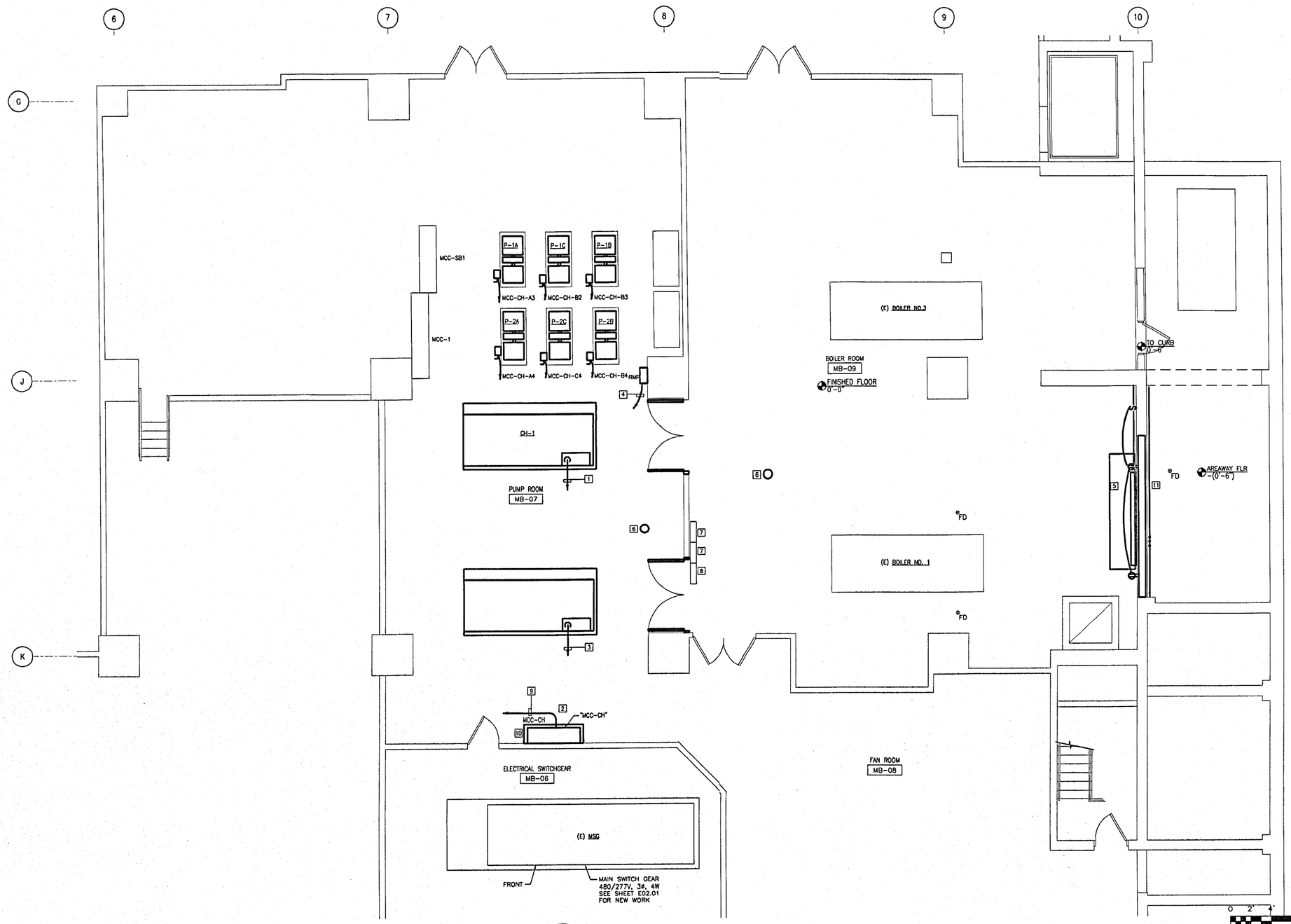
DESIGN FOR THE REPLACEMENT OF THE CHILLERS

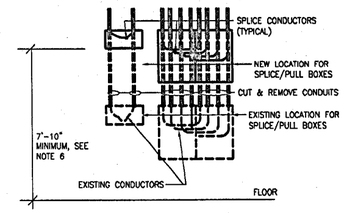
PARTIAL ELECTRICAL BASEMENT DEMOLITION PLAN

A-E FIRM	USDA		
PROJECT MANAGER: D. TASH	EPM: F. KING		
DESIGNER: J. TELIKICHERLA	PPM: –		
CHECKED BY: J. TELEKICHERLA	SAFETY & HEALTH T. ROARK	PROJECT NO. 03308	FACILITIES DIVISION FACILITIES ENGINEERING BRANCH 5601 SUNNYSIDE AVENUE BELTSVILLE, MARYLAND 20705-5124
DRAWN BY: S. TODOROV	REAL PROPERTY E. REILLY	DATE: 3-14-2005	SHEET E00.01 11 OF 13



1 PARTIAL ELECTRICAL BASEMENT PLAN

E01.01 E01.01 SCALE: 1/4" = 1'-0"



RELOCATION OF PULL BOXES

NOT TO SCALE

REFER TO KEYED DEMOLITION NOTES 7 & 8.

1. WITH SCHEDULED POWER OUTAGE DEENERGIZE THE FEEDERS AND CUT THE CONDUCTORS IN THE EXISTING PULL BOXES, AND LABEL FOR FUTURE SPLICING.
2. PULL THE CONDUCTORS BACK FROM PULL BOXES SUFFICIENT LENGTH TO REMOVE PULL BOXES.
3. CUT THE CONDUITS AND INSTALL NEW PULL BOXES HIGHER ON WALL.
4. REPULL THE CONDUCTORS INTO THE PULL BOXES. CUT AND SPLICE CONDUCTOR PER NEC AND NECA STANDARDS. COLOR CODE WITH COLORED TAPE.
5. ENERGIZE AND TEST FEEDER FOR PHASE ROTATION.
6. VERIFY MINIMUM CLEARANCE INDICATED WITH ARCHITECTURAL SHEETS. THE INTENT IS TO LOCATE THE BOX ABOVE DOOR JAMB LEVEL
7. THE CONDUCTORS ARE 4-#500KCMIL + 1-#3AWG GROUND IN EACH CONDUIT.
9. PROVIDE NEW PULL/SPLICE BOXES WITH BOX HEIGHT ADJUSTED AS NEEDED TO CLEAR THE DOOR FRAME.

0 2' 4' 8' 12'

SCALE: 1/4"=1'-0"

NOTE: CONTRACTOR TO VERIFY PRINT SIZE AND DRAWING SCALE, TYPICAL ALL SHEETS

N

KEYPLAN (NTS)

GENERAL NOTES:

CONTRACTOR SHALL KEEP EXISTING SMOKE DETECTION SYSTEM OPERATIONAL DURING CONSTRUCTION. COVER DETECTORS DURING WORK AND UNCOVER AT END OF WORK DAY.

KEYED NOTES:

1. 2-3" CONDUITS EACH WITH 3-#350KCMIL + 1-#1AWG GRD TO 3P600A BREAKER IN CUBICLE D1 IN "MSG".
2. NEW MOTOR CONTROL CENTER "MCC-CH" REFER TO SCHEDULE ON SHEET E02.01.
3. 2-3" CONDUITS EACH WITH 3-#350KCMIL + 1-#1AWG GRD TO 3P600A BREAKER IN CUBICLE J2 IN "MSG"
4. 3/4" CONDUIT WITH 3-#12AWG TO NEAREST CONVENIENCE OUTLET FOR 120V AC SERVICE TO REMOTE MONITORING PANEL. AT THE EXISTING CONVENIENCE OUTLET, DISCONNECT AND REMOVE RECEPTACLE, FURNISH AND INSTALL EXTENSION BOX AND RELOCATE CONVENIENCE OUTLET TO FRONT OF EXTENSION BOX. SPLICE NEW #12AWG CONDUCTORS TO EXTEND TO NEW LOCATION OF CONVENIENCE OUTLET AND THE REMOTE MONITORING PANEL. INSTALL COVER PLATE OVER RECEPTACLE.
5. RE-INSTALL 1-WALL SWITCH, 1-8' FLUORESCENT LIGHTING FIXTURE, 2-QUAD RECEPTACLES AND RELATED SURFACE MOUNTED CONDUIT AND WIRES AFTER THE KNOCK-OUT WALL IS RE-INSTALLED.
6. WARNING LIGHTS REMOVED DURING DEMOLITION SHALL BE INSTALLED AND RECONNECTED TO EXISTING CIRCUITS.
7. RELOCATE EXISTING PULL BOXES ON THE WALL TO RAISE IT ABOVE THE NEW DOOR JAMB LEVEL. SEE TYPICAL DETAIL THIS SHEET.
8. RELOCATE EXISTING PULL BOX ON THE WALL TO RAISE IT ABOVE THE NEW DOOR JAMB LEVEL. SEE TYPICAL DETAIL THIS SHEET.
9. 2-3" CONDUITS EACH WITH 3-#350KCMIL + 1-#1AWG GRD TO 3P600A BREAKER IN CUBICLE C4 IN "MSG".
10. 4" HIGH HOUSE KEEPING CONCRETE PAD WITH ANCHOR BOLTS TO MOUNT THE MCC-CH.
11. REINSTALLED CONDUIT. REFER TO DEMOLITION SHEET E00.01, DEMOLITION NOTE 13.

THE EXISTING CONDITIONS SHOWN ON THE DRAWINGS ARE BASED ON RECORD DRAWINGS AND LIMITED FIELD VERIFICATION. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ASSURE THAT SURFACE AND SUBSURFACE AREAS DISTURBED BY DEMOLITION ARE RETURNED TO, OR FURTHER REFINED TO, AN APPROPRIATE CONDITION THAT WILL ALLOW FOR COMPLETE INSTALLATION OF ALL NEW SYSTEMS TO A FULL OPERATION LEVEL AND ALLOW FOR NEW FINISHES TO MEET FINAL DESIGN CONDITIONS.

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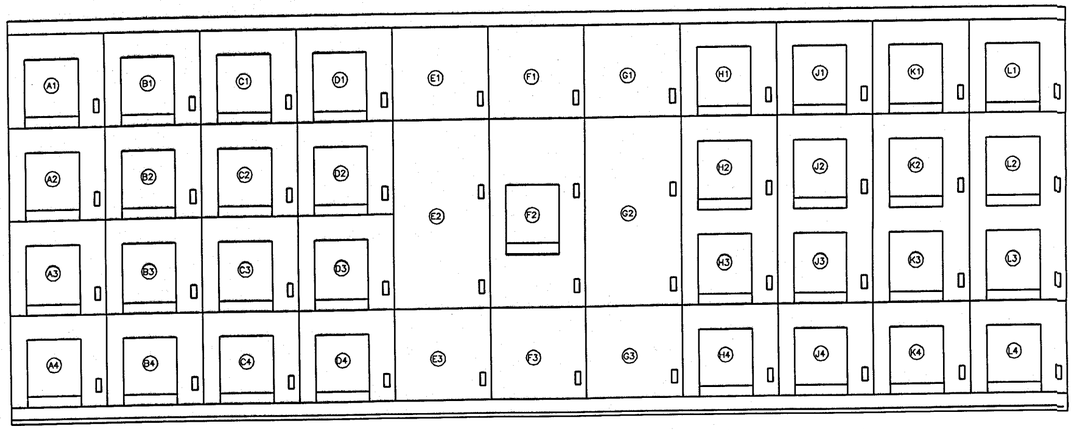
CHECKED BY: J.TELEKICHERIA	SAFETY & HEALTH T. ROARK	PROJECT NO. 03308	FACILITIES DIVISION FACILITIES ENGINEERING BRANCH 5601 SUNNYSIDE AVENUE BELTSVILLE, MARYLAND 20705-5124
DRAWN BY: S.TODOROV	REAL PROPERTY E. REILLY	DATE: 3-14-2005	

PARTIAL ELECTRICAL BASEMENT PLAN

SHEET E01.01 12 OF 13



1 EXISTING SWITCHGEAR "MSG" - FRONT ELEVATION

E02.01 | E02.01 SCALE: NO SCALE

MAIN SWITCHGEAR "MSG" SCHEDULE – SQUARE D, POWER ZONE

CUBICLE	EXISTING LABEL-LOAD SERVED	FRAME	TRIP	AMPS	FEEDER	REVISIONS	NOTES
A1	NO LABEL	800A	NA	45A	EXISTING FEEDER	NONE	
A2	MCC-2	800A	400A	11A	EXISTING FEEDER	NONE	
A3	COMP A/C	800A	NA	0A	EXISTING FEEDER	NONE	
A4	SHOP	800A	NA	0A	EXISTING FEEDER	NONE	
B1	MCC-5	800A	NA	95A	EXISTING FEEDER	NONE	
B2	LGE	800A	NA	64A	EXISTING FEEDER	NONE	
B3	COMP. RM LGK	800A	NA	0A	EXISTING FEEDER	NONE	
B4	MCC 1SB	800A	NA	32A	EXISTING FEEDER	NONE	
C1	L3C	800A	NA	11A	EXISTING FEEDER	NONE	
C2	LGH	800A	NA	35A	EXISTING FEEDER	NONE	
C3	MCC-3	800A	NA	48A	EXISTING FEEDER	NONE	
C4	NO LABEL	800A	600A	–	NEW FEEDER – 2-3", EACH WITH 3-#300 KCMIL + 1-#1 AWG GRD	NEW LABEL "MCC-CH"	NOTE 3
D1	CH-1,2	800A	NA	176A	NEW FEEDER – 2-3", EACH WITH 3-#300 KCMIL + 1-#1 AWG GRD	REVISE LABEL TO CH-1	NOTE 1
D2	L11A	800A	NA	11A	EXISTING FEEDER	NONE	
D3	NO LABEL	800A	400A	0A	NO FEEDER – SPARE BREAKER	NONE	
D4	NO LABEL	800A	400A	0A	NO FEEDER – SPARE BREAKER	NONE	
E1	NO LABEL	–	–	–	EXISTING FEEDER	NONE	
E2	NO LABEL	–	–	–	EXISTING FEEDER	NONE	
E3	NO LABEL	–	–	–	EXISTING FEEDER	NONE	
F1	NO LABEL	–	–	–	EXISTING FEEDER	NONE	
F2	TIE-BREAKER	3200A	2500A	–	OPEN BREAKER	NONE	
F3	NO LABEL	–	–	–	EXISTING FEEDER	NONE	
G1	NO LABEL	–	–	–	EXISTING FEEDER	NONE	
G2	NO LABEL	–	–	–	EXISTING FEEDER	NONE	
G3	NO LABEL	–	–	–	FEEDER CONDUCTORS	NONE	
H1	LGA	800A	NA	21A	FEEDER CONDUCTORS	NONE	
H2	NO LABEL	800A	800A	0A	NO FEEDER – SPARE BREAKER	NONE	
H3	MCC-1	800A	NA	190A	FEEDER CONDUCTORS	NONE	
H4	NO LABEL	800A	400A	0A	NO FEEDER – SPARE BREAKER	NONE	
J1	NO LABEL	800A	800A	0A	NO FEEDER – SPARE BREAKER	NONE	
J2	CH-3,4	800A	NA	61A	NEW FEEDER – 2-3", EACH WITH 3-#300 KCMIL + 1-#1 AWG GRD	REVISE LABEL TO CH-2	NOTE 2
J3	L3A	800A	NA	45A	EXISTING FEEDER	NONE	
J4	MDP	800A	NA	61A	EXISTING FEEDER	NONE	
K1	LGC	800A	NA	34A	EXISTING FEEDER	NONE	
K2	L1A	800A	NA	79A	EXISTING FEEDER	NONE	
K3	EDP	800A	NA	116A	EXISTING FEEDER	NONE	
K4	NO LABEL	800A	800A	0A	NO FEEDER – SPARE BREAKER	NONE	
L1	MCC-4	800A	NA	75A	EXISTING FEEDER	NONE	
L2	MCC-5A	800A	NA	169A	EXISTING FEEDER	NONE	
L3	L10A	800A	NA	30A	EXISTING FEEDER	NONE	
L4	FIRE PUMP	800A	NA	0A	EXISTING FEEDER	NONE	

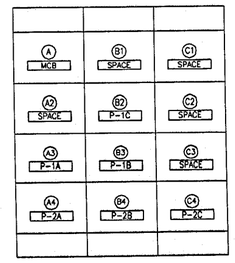
NOTES FOR SWITCHGEAR SCHEDULE

NA DENOTES EXISTING TRIP UNIT RATING TO REMAIN UNCHANGED
THE AMPERE READINGS ARE OBSERVED READINGS ON THE DATE OF THE SURVEY
NOTE 1. RESET THE TRIP UNIT TO 600AMPS TO SERVE THE NEW CHILLER CH-1
NOTE 2. RESET THE TRIP UNIT TO 600AMPS TO SERVE THE NEW CHILLER CH-2
NOTE 3. RESET THE TRIP UNIT TO 600AMPS TO SERVE THE NEW MOTOR CENTER "MCC-CH".

EQUIPMENT SCHEDULE

LABEL	DESCRIPTION	LOCATION	VOLTS	HP	FLA.	MCA	DISCONNECT	STARTER	SERVICE
CH-1,2	CHILLER	CHILLER RM	480/3	–	–	393	NOTE 1	NOTE 2	NORMAL
RMP	REF. MONIT. PANEL	CHILLER RM	120/1	–	–	–	–	–	NOTE 4
P-1A	PUMP	CHILLER RM	480/3	50	65	81.25A	NOTES 1, 3	SIZE 3, FVNR	–
P-1B	PUMP	CHILLER RM	480/3	50	65	81.25A	NOTES 1, 3	SIZE 3, FVNR	–
P-1C	PUMP	CHILLER RM	480/3	50	65	81.25A	NOTES 1, 3	SIZE 3, FVNR	–
P-2A	PUMP	CHILLER RM	480/3	75	96	120A	NOTES 1, 3	SIZE 4, FVNR	–
P-2B	PUMP	CHILLER RM	480/3	75	96	120A	NOTES 1, 3	SIZE 4, FVNR	–
P-2C	PUMP	CHILLER RM	480/3	75	96	120A	NOTES 1, 3	SIZE 4, FVNR	–

NOTES:
NOTE 1: THE DISCONNECT SWITCH AT THE MOTOR IS PROVIDED UNDER DIVISION 15, SIZED PER NEC TO SATISFY THE EQUIPMENT RATINGS. INSTALLED UNDER DIVISION 16.
NOTE 2: THE UNIT IS PREWIRED WITH FACTORY MOUNTED STARTERS AND OVERCURRENT PROTECTIVE DEVICES INSTALLED IN A UNIT MOUNTED CONTROL PANEL. SINGLE POINT ELECTRICAL CONNECTION.
NOTE 3: UNIT MOUNTED MOTOR DISCONNECT SWITCHES. STARTERS LOCATED IN MOTOR CONTROL CENTER MCC-CH.
NOTE 4: 120V, 1ø, POWER FROM NEAREST RECEPTACLE CIRCUIT. (3-#12AWG)



2 NEW MOTOR CONTROL CENTER "MCC-CH"

E02.01 | E02.01 SCALE: NO SCALE

NEW MOTOR CONTROL CENTER "MCC-CH", 480V, 3ø, 3W, 600A, 42,000 AIC

CUBICLE	LABEL	LOAD SERVED	HP	FLA.	STARTER TYPE	STARTER SIZE	BREAKER	BRANCH CIRCUIT	NOTES
A1	MAIN BREAKER	MAIN DISCONNECT	–	–	–	–	3P600A	–	–
A2	SPACE	–	–	–	–	–	–	–	NOTE 1
A3	P-1A	PUMP P-1A	50	65	FVNR	3	3P100A	3-#3AWG + 1-#8AWG GRD, 1 1/2"C	NOTE 2
A4	P-2A	PUMP P-2A	75	96	FVNR	4	3P150A	3-#1AWG + 1-#6AWG GRD, 1 1/2"C	NOTE 2
B1	SPACE	–	–	–	–	–	–	–	NOTE 1
B2	P-1C	PUMP P-1C *	50	65	FVNR	3	3P100A	3-#3AWG + 1-#8AWG GRD, 1 1/2"C	NOTE 2, 3
B3	P-1B	PUMP P-1B	50	65	FVNR	3	3P100A	3-#3AWG + 1-#8AWG GRD, 1 1/2"C	NOTE 2
B4	P-2B	PUMP P-2B	75	96	FVNR	4	3P150A	3-#1AWG + 1-#6AWG GRD, 1 1/2"C	NOTE 2
C1	SPACE	–	–	–	–	–	–	–	NOTE 1
C2	SPACE	–	–	–	–	–	–	–	NOTE 1
C3	SPACE	–	–	–	–	–	–	–	NOTE 1
C4	P-2C	PUMP P-2C *	75	96	FVNR	4	3P150A	3-#1AWG + 1-#6AWG GRD, 1 1/2"C	NOTE 2, 3

NOTE 1: FURNISH COMPLETE WITH BUSSING AND ALL HARDWARE FOR FUTURE INSTALLATION OF BREAKERS AND MOTOR CONTROL COMPONENTS.
NOTE 2: FURNISH COMPLETE WITH CONTROL POWER TRANSFORMERS, START-STOP, RESET PUSH BUTTONS, PILOT LIGHTS FOR "STOP", "RUNNING" AND "TRIPPED".
NOTE 3: * STAND-BY PUMPS.

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SCHEDULES

PROJECT NO. 03308
DATE: 3-14-2005

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FACILITIES ENGINEERING BRANCH
5601 SUNNYSIDE AVENUE
BELTSVILLE, MARYLAND 20705-5124

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13 OF 13