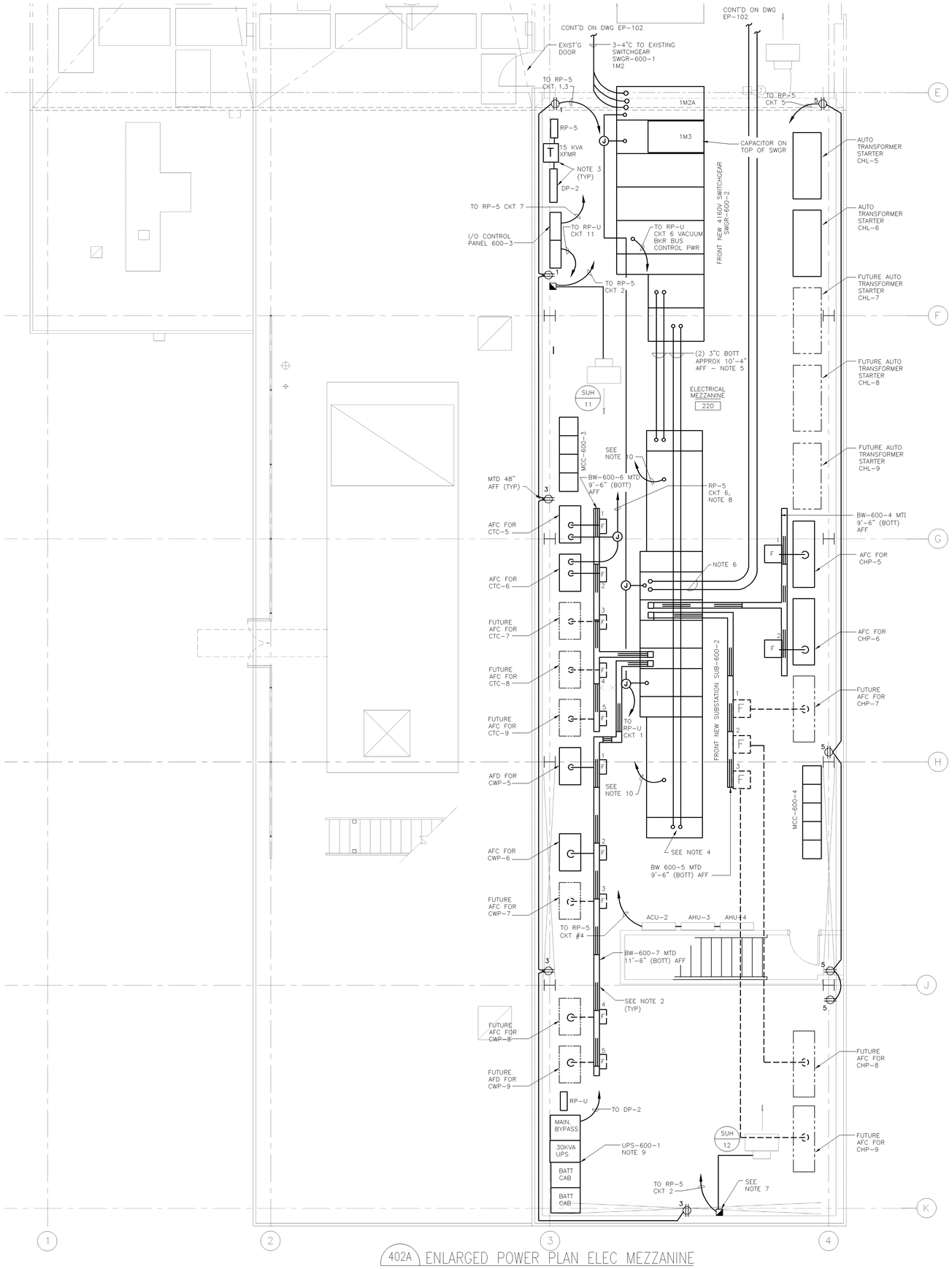
Date (mmm dd yyyy)	Issued For	Rev.
09-24-2007	TITLE I 100% REVIEW	B
12-07-2007	TITLE II DESIGN 30% REVIEW SUBMITTAL	C
03-28-2008	TITLE II DESIGN 60% REVIEW SUBMITTAL	D
07-31-2008	TITLE II DESIGN 90% REVIEW SUBMITTAL	E
08-25-2008	TITLE II DESIGN 100% REVIEW SUBMITTAL	F
02-19-2009	TITLE II CONSTRUCTION BID ISSUE	0



402A ENLARGED POWER PLAN ELEC MEZZANINE
EP-102 1/4" = 1'-0"

NOTES:

1. REFER TO DRAWING E-001 FOR ELECTRICAL ABBREVIATIONS, GENERAL NOTES AND DRAWING LIST AND DRAWING E-002 FOR ELECTRICAL SYMBOLS.
2. BUSWAY DESIGNED AROUND GE SPECTRA SERIES BUSWAY.
3. MAINTAIN A MINIMUM OF FIVE FEET (WORKING SPACE) BETWEEN 4160 VOLT SWITCHGEAR AND EQUIPMENT AGAINST WALL.
4. LOW POINT OF MECHANICAL DUCT ABOVE IS 11'-2" (INCLUDES HANGER SPACE). SEE SUBSTATION SUB-600-2 FRONTAL DRAWING E-610 WHICH SHOWS TYPICAL 3" CONDUIT OUT OF TOP.
5. FEEDS TO NORTH AND SOUTH ENDS OF SUBSTATION SUB-600-2 FROM FUSED SWITCH POSITIONS OF SWITCHGEAR SWGR-600-2 - SEE ONE LINE DIAGRAM E-601.
6. SEE SUBSTATION SUB-600-2 FRONTAL ON DRAWING E-610 WHICH SHOWS THE (2) 3-1/2"C ENTRY INTO THE TOP OF THE SUBSTATION - FOR FEED TO MCC-600A-2 IN THE PUMP HOUSE.
7. MAINTAIN 30" WIDE BY 3'-0" DEEP BY 6'-6" HIGH WORKING SPACE IN FRONT OF EQUIPMENT PER NEC ARTICLE 110.26(A) CONDITION 3 FOR VOLTAGE OF 0-150 VOLTS TO GROUND.
8. 120V THRU DRIVE AUXILIARY CONTACT FOR COOLING TOWER FAN MOTOR HEATER POWER.
9. PROVIDE ONE 30KVA/24KW THREE PHASE UNINTERRUPTIBLE POWER SUPPLY, BATTERY POWER PACKS AND MAINTENANCE BYPASS CABINET AS FOLLOWS:
   I. UNINTERRUPTIBLE POWER SUPPLY WITH 480V INPUT (3PH, 3W PLUS GRD) AND 208/120V OUTPUT (3PH, 4W PLUS GRD) WITH THE FOLLOWING FEATURES:
      a. SINGLE INPUT, TRUE ON-LINE, DOUBLE COVERSION
      b. REVERSE TRANSFER CONFIGURATION
      c. PHASE CONTROLLED RECTIFIER/CHANGER
      d. IGBT PULSE-WIDTH MODULATED (PWM) INVERTER
      e. AUTOMATIC CONTINUOUS DUTY STATIC TRANSFER SWITCH
      f. INTERNAL MAINTENANCE BYPASS SWITCH
      g. DSP (DIGITAL SIGNAL PROCESSING) CONTROLS
      h. MICROPROCESSOR BASED MONITORING AND CONTROL PANEL WITH MIMIC BUS
      i. LCD GRAPHIC DISPLAY WITH ALARM HISTORY DATABASE
      j. POGRAMMABLE BATTERY LOAD TESTING FOR ADDED RELIABILITY
      k. LOAD NEUTRAL ISOLATION
      l. INPUT FILTER WITH 10% THD AT FULL OUTPUT LOAD
      m. 1 OPEN COMMS-DISCRETE OUTPUT OPTION (PROGRAMMABLE RELAY BOARD)
      n. 2 (TWO) INTELLISLOT RELAY INTERFACE KIT
      o. 1 (ONE) IS-WEBLB: INTELLISLOT WEB CARD LB
      p. LOCAL E.P.O. WITH PROVISION FOR REMOTE E.P.O.
      q. RS 232 INTERFACE PORT
      r. CASTERS AND LEVELING FEET
      s. UL 1778, CSA

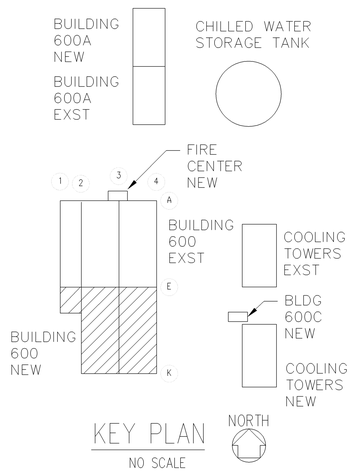
   UPS MODULE SHALL BE LIEBERT MODEL 37SA030A0C6EA05 OR APPROVED EQUAL

   II. TWO BATTERY POWER PACKS RATED AT 90 MINUTES AT 24KW LOAD WITH INTERCONNECTING CABLES TO BOLT TO THE LEFT SIDE OF THE UPS MODULE AND WITH THE FOLLOWING FEATURES:
      a. BATTERY CIRCUIT BREAKER TO ISOLATE THE BATTERIES DURING MAINTENANCE
      b. VALVE REGULATED LEAD ACID BATTERY CELLS IN FLAME RETARDANT CASES
      c. BATTERY TO BE PROVIDED WITH 3 YEAR FULL AND 7 YEAR PRORATED WARRANTY
      d. BATTERY POWER PACKS SHALL BE LIEBERT MODEL 37BP030XRX1BNL OR APPROVED EQUAL

   III. MAINTENANCE BYPASS CABINET WITH THE FOLLOWING FEATURES:
      a. SINGLE ROTARY HANDLE SWITCH INTERLOCKED FOR "MAKE-BEFORE-BREAK" TRANSFER OF THE LOAD, BYPASS TRANSFORMER WITH INPUT AND OUTPUT CIRCUIT BREAKERS
      b. INCLUDING INTERCONNECTION CABLES TO BOLT TO THE RIGHT SIDE OF THE UPS
      c. CASTERS AND LEVELING FEET.

   MAINTENANCE BYPASS CABINET SHALL BE LIEBERT MODEL 37MB0300AC61Q OR APPROVED EQUAL

10. 3/4"C-2#12 - WIRING FOR CONTACT TO CONTROL ROOM TO INDICATE TRANSFORMER FANS ON. FIELD VERIFY WITH BROOKHAVEN CABLE TERMINATION POINT.



KEY PLAN
NO SCALE

REFERENCE DRAWINGS:

BUSWAY ONE LINE DIAGRAMS..... E-606
DP-2 RISER DIAGRAM..... E-607
RP-5 & RP-U SCHEDULES..... E-607
SWGR-600-2 & E-610
SUB-600-2 FRONTIALS

This drawing has been prepared solely for the use of Brookhaven National Laboratory and there are no representations of any kind made by Giffels, Partnership to any party with whom Giffels, Partnership has not entered into a contract.

This drawing shall not be used for construction purposes until the seal and signature of the responsible registrant appears on the drawing, and proper permit forms and related fees are transmitted by the Owner, Owner's Agent or Contractor to the Authority Having Jurisdiction.

JOB NO.	SHEET	NO.	REVISION	DATE	DWN.	APP'D.	QA
		A					

BROOKHAVEN NATIONAL LABORATORY
UNDER CONTRACT WITH
UNITED STATES DEPARTMENT OF ENERGY
PLANT ENGINEERING DIVISION
UPTON, NEW YORK 11973

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Project Manager: G. KAPLAN
Project Engineer/Architect: J BOSSORY
Project No.: SF070003

JOB TITLE: CENTRAL CHILLED WATER FACILITY PHASE II		DWG. TITLE: ENLARGED PWR PLAN ELECTRICAL MEZZ	
ILR,GPP,LNI, HEM	DATE	ACCT. NO.	SHEET OF
SCALE: 1/8" = 1'-0"	DWN. BY: EA / RD'D BY: RB	JOB NO.: 11705	DWG. NO.: EP-402
ESHQ RISK LEVEL	APP'D. BY: R BARTOY	BLDG. NO.: 600	
PATH:			