

**ISSUE LOG**

NO.	DATE	DESCRIPTION
1	04.13.2012	BID AND PERMIT
2	08.31.2012	CITY COM./BID ADD.
3	10.24.2012	BID ADD. #2

CONSULTANT(S):  
 MEP Henderson Engineers Inc.  
 3535 Briarpark Dr, Suite 200  
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 B/A Project #: 11172  
 Contact: Greg Ryden, AIA

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 V: 713.780.3345  
 Contact: Hunter Kornegay, PE

SEAL(S):  
 THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF PRELIMINARY SUBMITTAL THOMAS D. SIMMONS LICENSE # 71460  
 IT IS NOT TO BE USED FOR CONSTRUCTION PURPOSES.

PROJECT NAME:  
 City of Houston  
 Emergency Generator Relocation  
 62 Riesner  
 Houston, TX 77002



REVIEWED:  
 PROGRAM MANAGER \_\_\_\_\_ SPONSORING DEPARTMENT \_\_\_\_\_  
 PROJECT MANAGER \_\_\_\_\_

DATE: \_\_\_\_\_  
 G.F.S. No.: \_\_\_\_\_  
 SCALE: 1/4" = 1'  
 DRAWN BY: RG  
 CHECKED BY: DD

SHEET TITLE:  
**PHASE A  
 DEMOLITION PLAN**

SHEET NO.:  
**PH-A1**

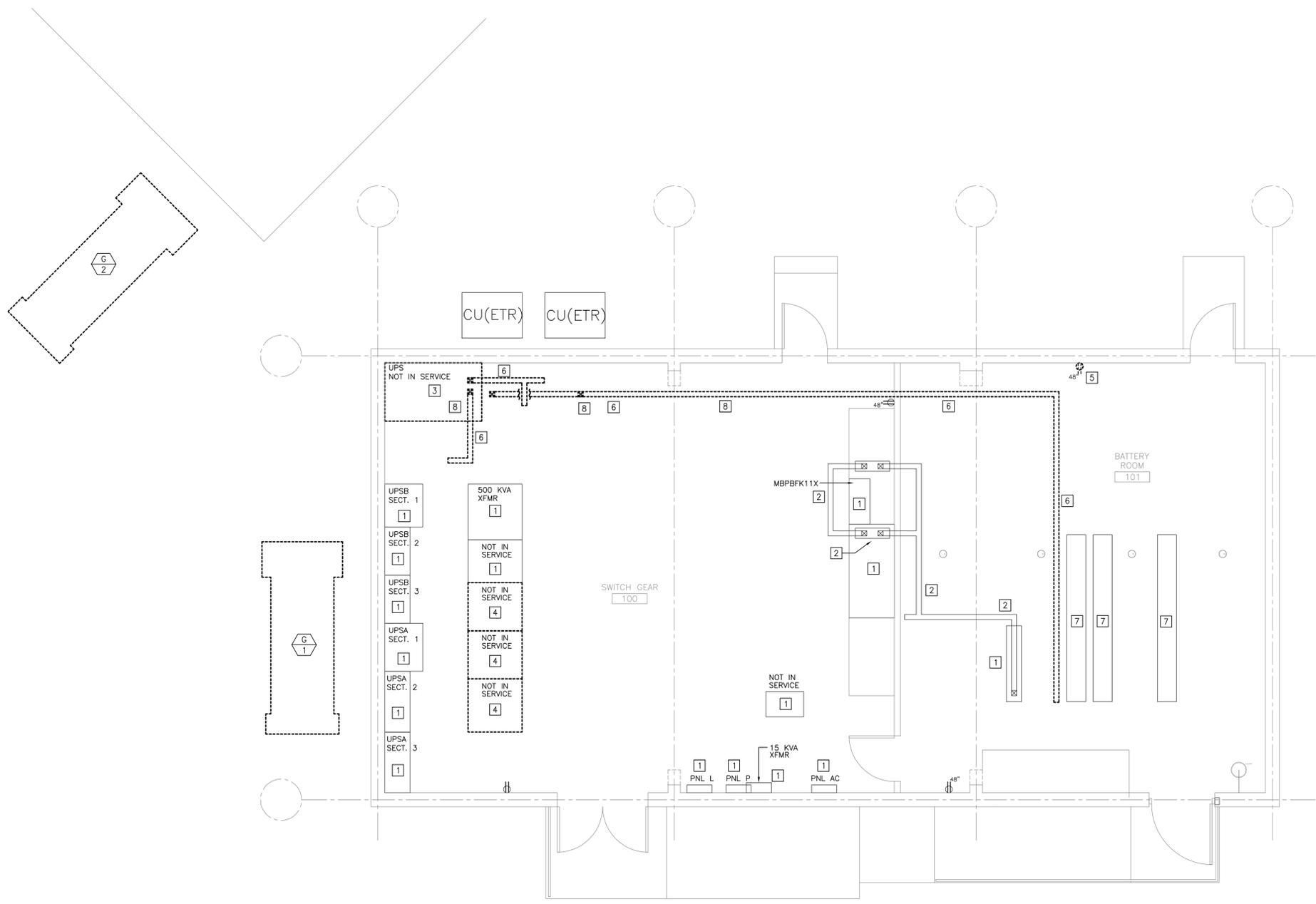
CITY DWG. NO.:

**GENERAL DEMO NOTES:**

1. ALL CRITICAL SYSTEM TO REMAIN OPERATIONAL. DOWN TIME SHALL REMAIN TO A MINIMUM COORDINATE ANY DOWN TIME WITH FACILITIES AND GSD.

**PHASE A DEMOLITION NOTES:**

- 1 EXISTING EQUIPMENT TO REMAIN.
- 2 EXISTING BUSS DUCT TO REMAIN.
- 3 DEMOLISH OLD ABANDONED UPS TO MAKE SPACE FOR NEW EQUIPMENT.
- 4 DEMOLISH NOT IN SERVICE EQUIPMENT TO MAKE SPACE FOR RELOCATED UPS EQUIPMENT.
- 5 REMOVE RECEPTACLE, CIRCUIT, CONDUIT AND ALL HARDWARE ASSOCIATED WITH RECEPTACLE.
- 6 REMOVE BUS DUCT AND SAVE TO REUSE FOR UPS BATTERY RELOCATION.
- 7 EXISTING BATTERY RACKS TO REMAIN.
- 8 REMOVE ALL ABANDONED IN PLACE CONDUIT AND WIREWAY LOCATED IN AREA WERE THE NEW BATTERY ROOM WILL BE (SEE PLANS FOR LOCATION).



**1 UPS BUILDING  
 PHASE A DEMOLITION PLAN  
 1/4"=1'-0"**

NOTE: PHASING DRAWINGS ARE NOT CONSTRUCTION DRAWINGS. THEY ARE STRICTLY A SUGGESTED PHASE METHOD TO MINIMIZE FACILITY DOWN TIME. CONTRACTOR CAN IMPLEMENT ALTERNATE METHOD BUT IT MUST BE APPROVED BY GSD PRIOR TO SCHEDULING.



J:\Houston\011150000802-IPD 02 Riesner - Generator Relocation - Houston 77002\Elec\Phasing\1150000802 - Phase A1 DEMO.dwg, Plot, 10/24/2012 11:34:59 AM, utengualab0, L1  
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SHEET TITLE:  
**PHASE A  
 INSTALLATION PLAN**

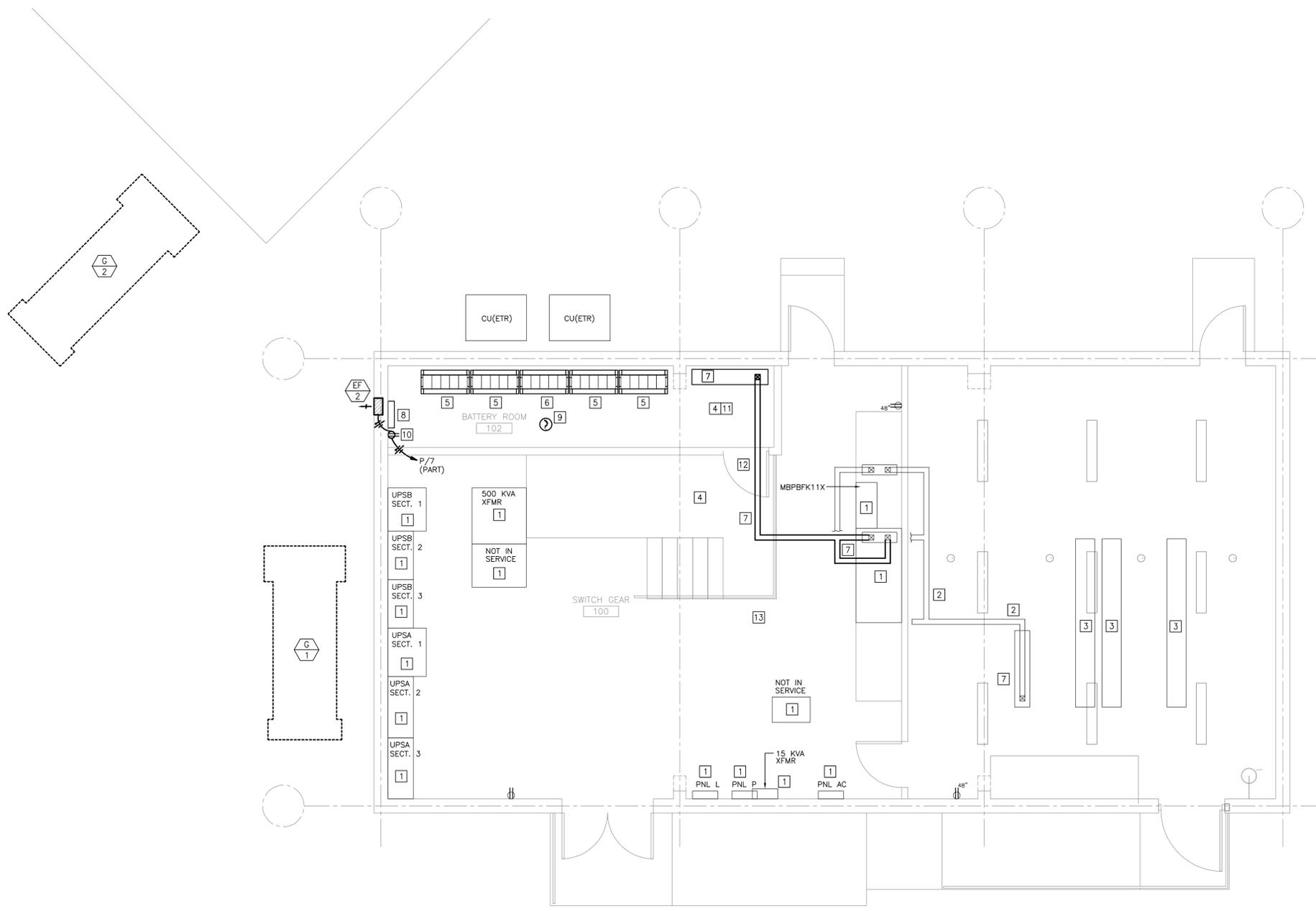
SHEET NO.:  
**PH-A2**  
 CITY DWG. NO.:

**GENERAL DEMO NOTES:**

- ALL CRITICAL SYSTEM TO REMAIN OPERATIONAL. DOWN TIME SHALL REMAIN TO A MINIMUM COORDINATE ANY DOWN TIME WITH FACILITIES AND GSD.

**ELECTRICAL A INSTALLATION PLAN:**

- EXISTING EQUIPMENT TO REMAIN.
- EXISTING BUSS DUCT TO REMAIN.
- EXISTING BATTERY RACKS TO REMAIN.
- INSTALL NEW SUB-FLOOR AND WALL FOR NEW BATTERY ROOM PER ARCHITECTURAL AND STRUCTURAL PLANS.
- PROVIDE NEW BATTERY RACKS AND NEW BATTERIES. RACK SHALL BE THREE TIER. EACH TIER SHALL HOLD 5 BATTERIES. PROVIDE SEISMIC PROTECTION AS REQUIRED BY IBC. BATTERIES SHALL BE VALVE-REGULATED LEAD-ACID TYPE AND OR EQUAL OR BETTER QUALITY AS WHAT IS BEING REPLACED.
- PROVIDE NEW BATTERY RACKS AND NEW BATTERIES. RACK SHALL BE FOUR TIER. EACH TIER SHALL HOLD 5 BATTERIES. PROVIDE SEISMIC PROTECTION AS REQUIRED BY IBC. BATTERIES SHALL BE VALVE-REGULATED LEAD-ACID TYPE AND OR EQUAL OR BETTER QUALITY AS WHAT IS BEING REPLACED.
- COORDINATE WITH GSD TO SCHEDULE RELOCATION OF BATTERY SWITCHES. RUN EXISTING GENERATORS G2 TO PROVIDE AS BACK-UP INCASE OF UNSCHEDULED OUTAGE WHILE UPS DISCONNECTS ARE DOWN FOR RELOCATION. USE EXISTING AND NEW (AS NEEDED) BUS DUCT TO CONNECT RELOCATED BATTERY SWITCHES TO UPS. BATTERIES PROVIDE SEISMIC PROTECTION AS REQUIRED BY IBC. INSTALL AND PREPARE ALL EQUIPMENT TO MINIMIZE UPS DOWN TIME.
- PROVIDE A MANAGEMENT SYSTEM TO PRECLUDE, DETECT AND CONTROL BATTERIES FROM THERMAL RUNAWAY.
- PROVIDE SMOKE DETECTOR IN NEW BATTERY ROOM AND CONNECT TO EXITING FIRE ALARM SYSTEM.
- POWER FOR BATTERY MANAGEMENT SYSTEM.
- PROVIDE METHOD AND MATERIALS TO HANDLE A 3% SPILL OF ONE BATTERY TO A pH BALANCE OF 7.0 TO 9.0. METHOD AND MATERIALS MUST HANDLE A SPILL OF 5.82 CUBIC INCHES.
- PROVIDE SIGNAGE AT DOOR TO BATTERY ROOM ENTRANCE STATING:  
 1. THE ROOM CONTAINS ENERGIZED BATTERY SYSTEMS.  
 2. THE ROOM CONTAINS ENERGIZED ELECTRICAL CIRCUITS.  
 3. THE BATTERY ELECTROLYTE SOLUTIONS, WHERE PRESENT, ARE CORROSIVE LIQUIDS.
- ONCE UPS IS UNDER NORMAL OPERATION PROCEED TO PHASE B.



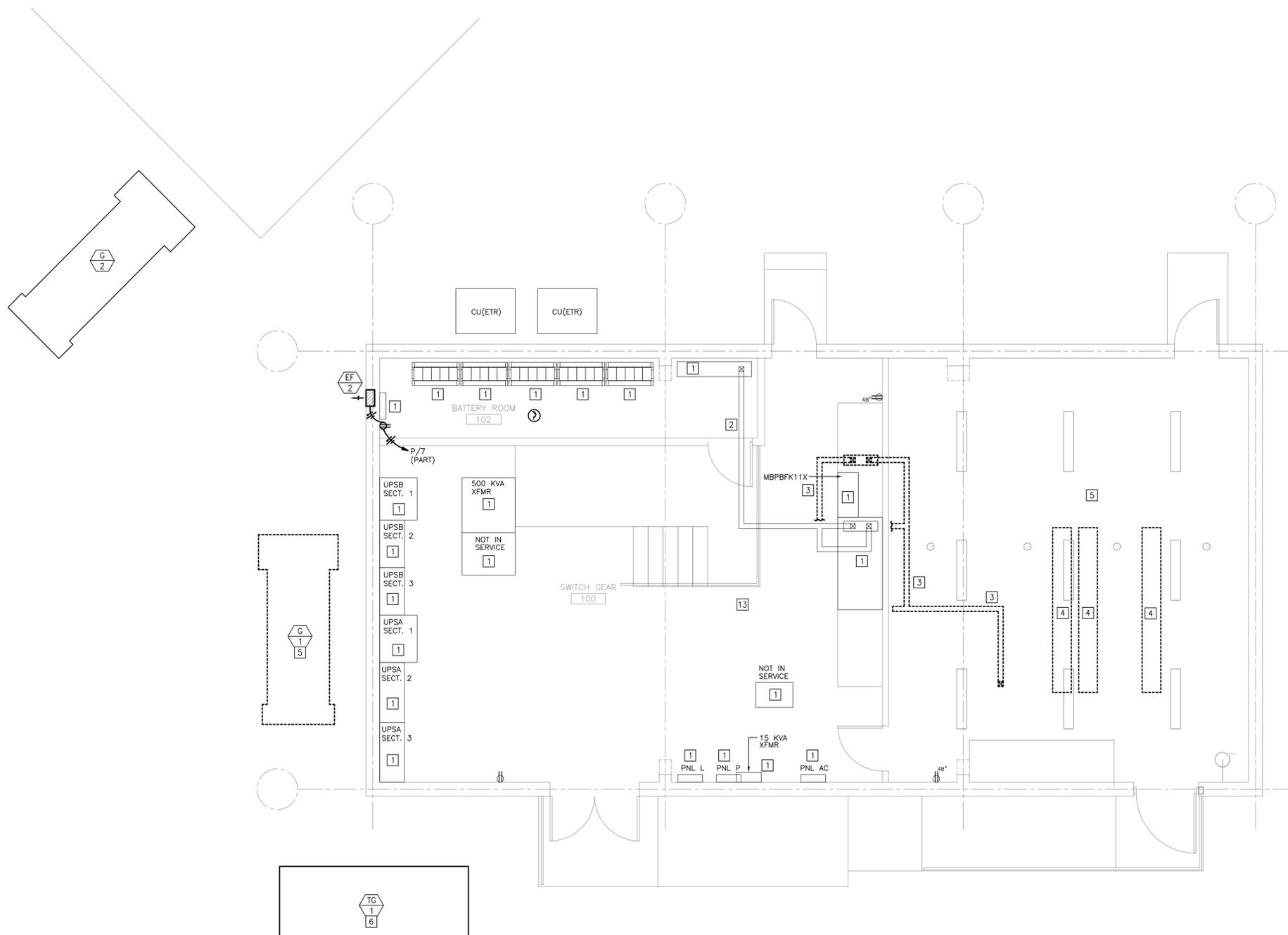
**1** UPS BUILDING  
**PHASE A INSTALLATION PLAN**  
 1/4"=1'-0"

NOTE: PHASING DRAWINGS ARE NOT CONSTRUCTION DRAWINGS. THEY ARE STRICTLY A SUGGESTED PHASE METHOD TO MINIMIZE FACILITY DOWN TIME. CONTRACTOR CAN IMPLEMENT ALTERNATE METHOD BUT IT MUST BE APPROVED BY GSD PRIOR TO SCHEDULING.



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 www.hel-eng.com  
 1150008802  
 TX. CORPORATE NUMBER: F-001236  
 EXPIRES 09/30/12

J:\Houston\011110000802 IPD 02 Riesner - Generator Relocation - Houston 77002\Elec\Phase A\1150008802 - Phase A2 INSTALL.dwg Pld. 10/24/2012 11:35:08 AM lubengajana, 1:1  
 THOMAS D. SIMMONS



**1** UPS BUILDING  
**PHASE B DEMOLITION PLAN**  
 1/4"=1'-0"

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**ELECTRICAL A INSTALLATION PLAN:**

1. EXISTING EQUIPMENT TO REMAIN.
2. EXISTING BUSS DUCT TO REMAIN.
3. REMOVE BUS DUCT AND SAVE TO REUSE FOR UPS RELOCATION.
4. DEMOLISH EXISTING BATTERY RACKS. PROPERLY DISPOSE OF EXISTING BATTERIES.
5. PREPARE ROOM FOR GENERATOR G-1 RELOCATION INTO ROOM. SEE CONSTRUCTION DRAWINGS FOR DETAILS.
6. PROVIDE A 600KW TEMPORARY GENERATOR TG-1 AND CONNECT TO EXISTING ATS-1 IN THE MAIN ELECTRICAL ROOM LOCATED IN THE BASEMENT OF 62 RIESNER. PREPARE G-1 FOR RELOCATION.

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SHEET TITLE:  
**PHASE B DEMOLITION PLAN**

SHEET NO.:  
**PH-B1**

CITY DWG. NO.:

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SHEET TITLE:  
**PHASE B  
 INSTALLATION PLAN**

SHEET NO.:  
**PH-B2**

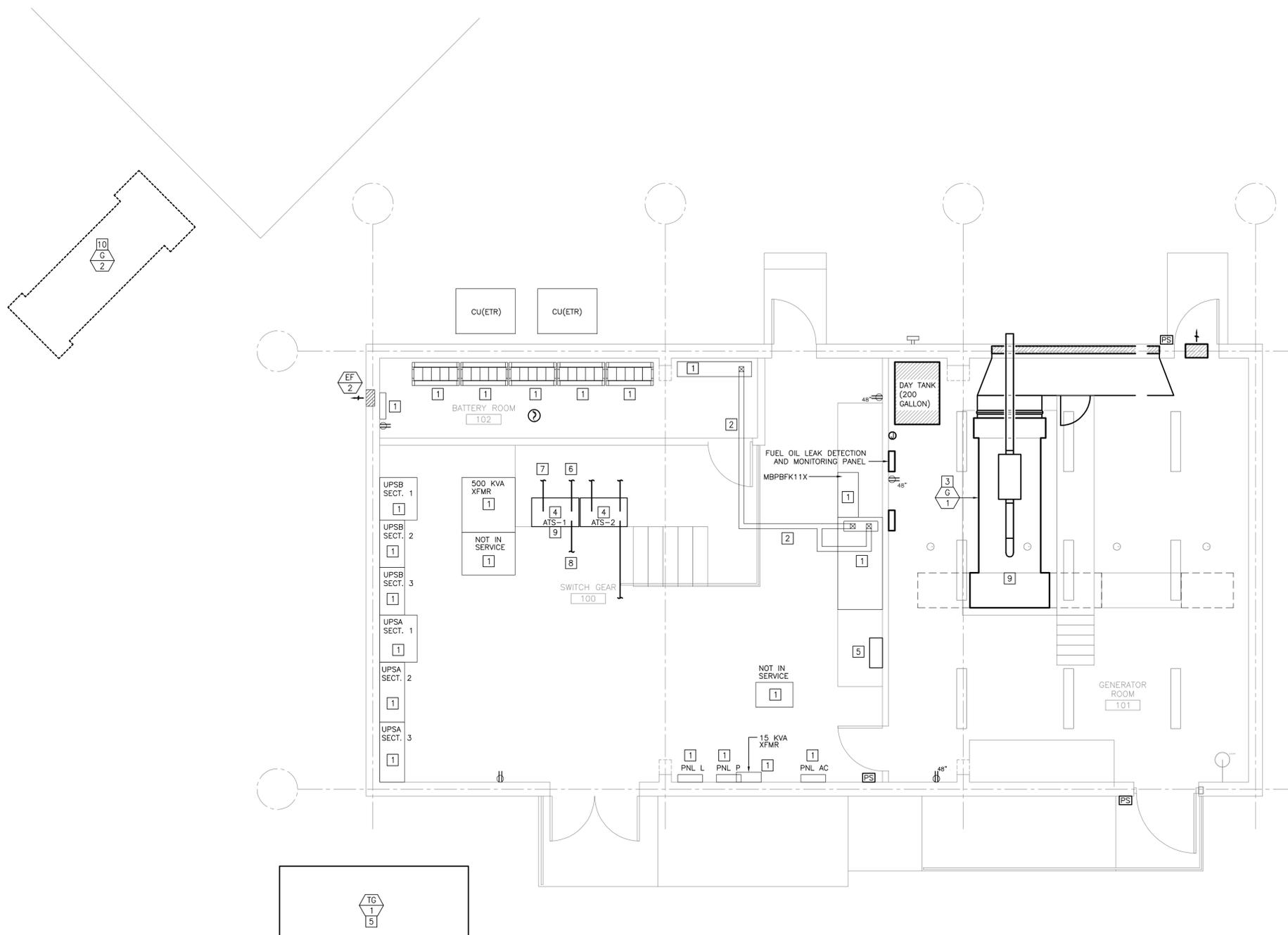
CITY DWG. NO.:

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- ALL CRITICAL SYSTEM TO REMAIN OPERATIONAL. DOWN TIME SHALL REMAIN TO A MINIMUM COORDINATE ANY DOWN TIME WITH FACILITIES AND GSD.

**PHASE A INSTALLATION PLAN:**

- EXISTING EQUIPMENT TO REMAIN.
- EXISTING BUSS DUCT TO REMAIN.
- RELOCATE GENERATOR 1 INSIDE OF ELECTRICAL BUILDING.
- INSTALL NEW ATS-1 AND ATS-2 ON RAISED PLATFORM AS SHOWN IN CONSTRUCTION DRAWINGS.
- LOCATE NEW PANEL UPSA AS SHOWN ON PERMIT DRAWINGS.
- ROUTE FEEDERS FROM GENERATOR G-1 TO ATS-1 AND MAKE CONNECTION AT BOTH EQUIPMENT.
- ROUTE FEEDERS FROM MS TO ATS-1 MAKE CONNECTIONS AT ATS-1 ONLY. LEAVE OTHER END OF FEEDERS FOR SCHEDULED OUTAGE 1.
- ROUTE FEEDERS FROM ATS-1 TO PANEL EDP LOCATED IN BASEMENT. MAKE CONNECTIONS AT ATS-1 ONLY. LEAVE OTHER END OF FEEDERS FOR SCHEDULED OUTAGE 1.
- COORDINATE WITH GSD TO PROVIDE OUTAGE 1. ACTIVE ALL GENERATORS AND TRANSFER ALL SWITCH TO EMERGENCY POWER FOR OUTAGE 1. DURING SCHEDULED OUTAGE 1 DISCONNECT POWER FROM OLD ATS-1 IN PANELBOARD MS AND USE EXISTING BREAK TO PROVIDE NORMAL POWER FOR NEW ATS-1. ONCE THE CONNECTION HAVE BEEN COMPLETE RE-ENERGIZE SYSTEM AND TRANSFER ALL SYSTEM EXCEPT TG-1 BACK TO NORMAL POWER. CONTINUE WITH SCHEDULED OUTAGE 1. ALL SYSTEMS IN PANEL EDP WILL NEED TO BE SHUT DOWN. DISCONNECT FEEDER INTO PANEL EDP AND CONNECT NEW ATS-1 FEEDER INTO PANEL EDP. ENERGIZE BREAKER IN MS FEEDING ATS-1 AND RETURN ALL EDP PANEL TO NORMAL OPERATION.
- REMOVE CONNECT FOR TG-1 FROM OLD ATS-1 AND ROUTE TO FEEDERS TG-1 TO OLD ATS-2. DISCONNECT G-2 FROM OLD ATS-2 AND CONNECT TO-1 TO THE EMERGENCY SIDE OF OLD TRANSFER SWITCH AND PREPARE G-2 FOR RELOCATION.
- DEMOLISH OLD ATS-1 FROM BASEMENT.



**1 UPS BUILDING  
 PHASE B INSTALLATION PLAN**  
 1/4"=1'-0"

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J:\Houston\011150008802-IPD 02 Riesner - Generator Relocation - Houston 77000\Elec\Phasing\1150008802 - Phase B2 INSTALL.dwg Pld. 10/24/2012 11:35:21 AM lubengajana, 1:1  
 THOMAS D. SIMMONS

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SHEET TITLE:  
**PHASE C**

SHEET NO.:  
**PH-C**

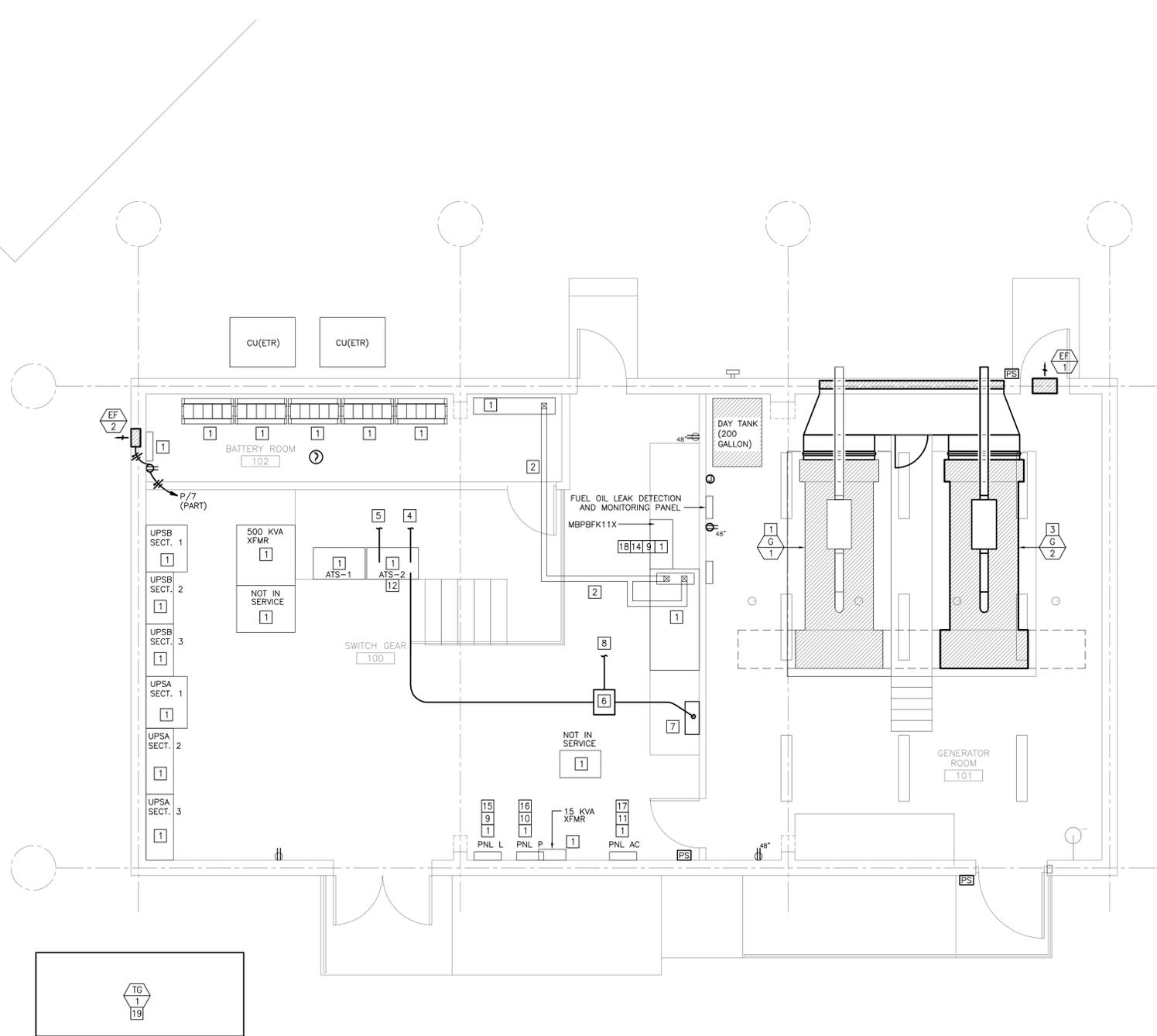
CITY DWG. NO.:

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**PHASE A INSTALLATION PLAN:**

- EXISTING EQUIPMENT TO REMAIN.
- EXISTING BUSS DUCT TO REMAIN.
- RELOCATE GENERATOR 2 INSIDE OF ELECTRICAL BUILDING.
- ROUTE FEEDERS FROM GENERATOR G-2 TO NEW ATS-2 AND MAKE CONNECTION AT BOTH EQUIPMENTS.
- ROUTE FEEDERS FROM MS TO ATS-2 MAKE CONNECTIONS AT ATS-2 ONLY. LEAVE OTHER END OF FEEDERS FOR SCHEDULED OUTAGE 2.
- ROUTE FEEDERS FROM ATS-2 TO PANEL NEW JUNCTION BOX FOR EDPA CONNECTION POINT AND PANEL UPSA.
- MAKE CONNECTIONS AT ATS-2 AND UPSA PANEL ONLY.
- ROUTE FEEDER TO PANEL EPDA AND LEAVE OUTSIDE OF GEAR FOR SCHEDULED OUTAGE 2.
- ROUTE NEW FEEDER FROM NEW UPSA PANE TO EXISTING PANEL L. DO NOT CONNECT FEEDER TO PANEL LEAVE FOR SCHEDULED OUTAGE 2
- ROUTE NEW FEEDER FROM NEW UPSA PANE TO EXISTING PANEL P. DO NOT CONNECT FEEDER TO PANEL LEAVE FOR SCHEDULED OUTAGE 2
- ROUTE NEW FEEDER FROM NEW UPSA PANE TO EXISTING PANEL AC. DO NOT CONNECT FEEDER TO PANEL LEAVE FOR SCHEDULED OUTAGE 2
- COORDINATE WITH GSD TO PROVIDE OUTAGE 2. ACTIVE ALL GENERATORS (EXCEPT FOR G-2) AND TRANSFER ALL SWITCH (EXCEPT ATS-2) TO EMERGENCY POWER FOR OUTAGE 2. DURING SCHEDULE OUTAGE 2 DISCONNECT POWER FROM OLD ATS-2 IN PANELBOARD MS AND USE EXISTING BREAK TO PROVIDE NORMAL POWER FOR NEW ATS-2. ONCE THE CONNECTION HAVE BEEN COMPLETE RE-ENERGIZE SYSTEM AND TRANSFER ALL SYSTEM EXCEPT TG-1 BACK TO NORMAL POWER. CONTINUE WITH SCHEDULE OUTAGE 2. ALL SYSTEMS IN PANEL EDPA WILL NEED TO BE POWERED DOWN. DISCONNECT FEEDER AT EDPA CONNECTION POINT AND CONNECT TO NEW ATS-2. ENERGIZE BREAKER IN MS FEEDING ATS-2. RETURN ALL EDPA PANEL TO NORMAL OPERATION.
- START UP G-2 SO IN CASE OF UNSCHEDULED OUTAGE DURING UPS TRANSFER.
- TRANSFER UPS TO MAINTENANCE BY PASS. CONNECT PREPARED FEEDER FROM NEW UPSA PANEL TO THE OLD MAINTENANCE BY PASS NORMAL POWER SIDE AND TRANSFER UPS BACK TO NORMAL BUILDING POWER.
- POWER DOWN EQUIPMENT IN PANEL L AND CONNECT FEEDER FROM NEW UPSA PANEL INTO L PANEL. POWER UP EQUIPMENT AND RETURN TO NORMAL OPERATION.
- POWER DOWN EQUIPMENT IN PANEL P AND CONNECT FEEDER FROM NEW UPSA PANEL INTO P PANEL. POWER UP EQUIPMENT AND RETURN TO NORMAL OPERATION.
- POWER DOWN EQUIPMENT IN PANEL AC AND CONNECT FEEDER FROM NEW UPSA PANEL INTO AC PANEL. POWER UP EQUIPMENT AND RETURN TO NORMAL OPERATION.
- ROUTE FEEDER FROM NEW UPSA FOR THE MAINTENANCE BY PASS SIDE FOR THE MAINTENANCE BY PASS SWITCH.
- POWER DOWN TG-1 DISCONNECT FROM OLD ATS-2 AND REMOVE TG-1 FROM SERVICE.



**1 UPS BUILDING  
 PHASE C PLAN  
 1/4"=1'-0"**

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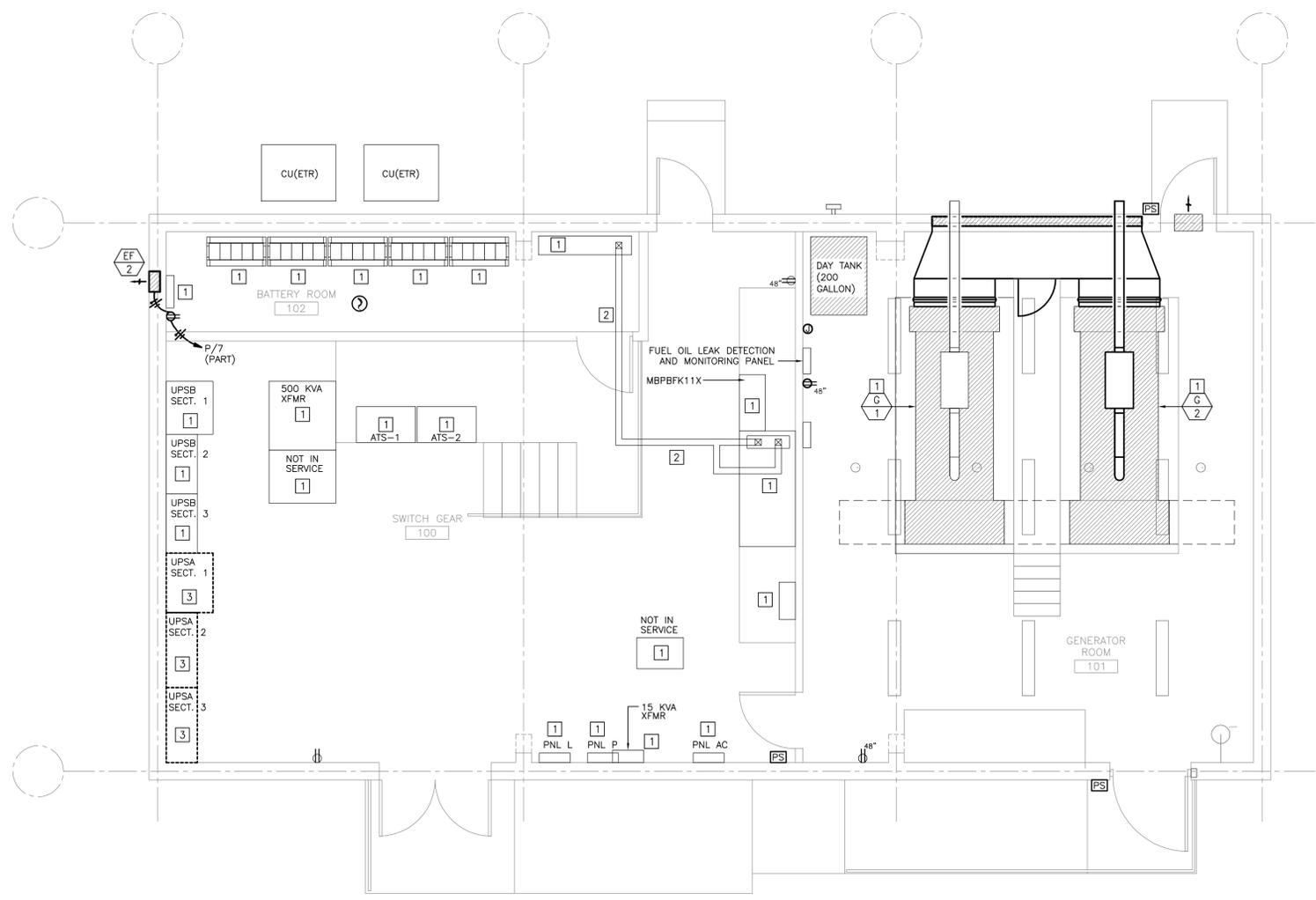
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**PHASE A INSTALLATION PLAN:**

- EXISTING EQUIPMENT TO REMAIN.
- EXISTING BUSS DUCT TO REMAIN.
- DEMOLISH OLD UPSA EQUIPMENT TO MAKE SPACE FOR NEW UPSB EQUIPMENT.



**1** UPS BUILDING  
**PHASE D DEMOLITION PLAN**  
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**PHASE D  
 INSTALLATION PLAN**

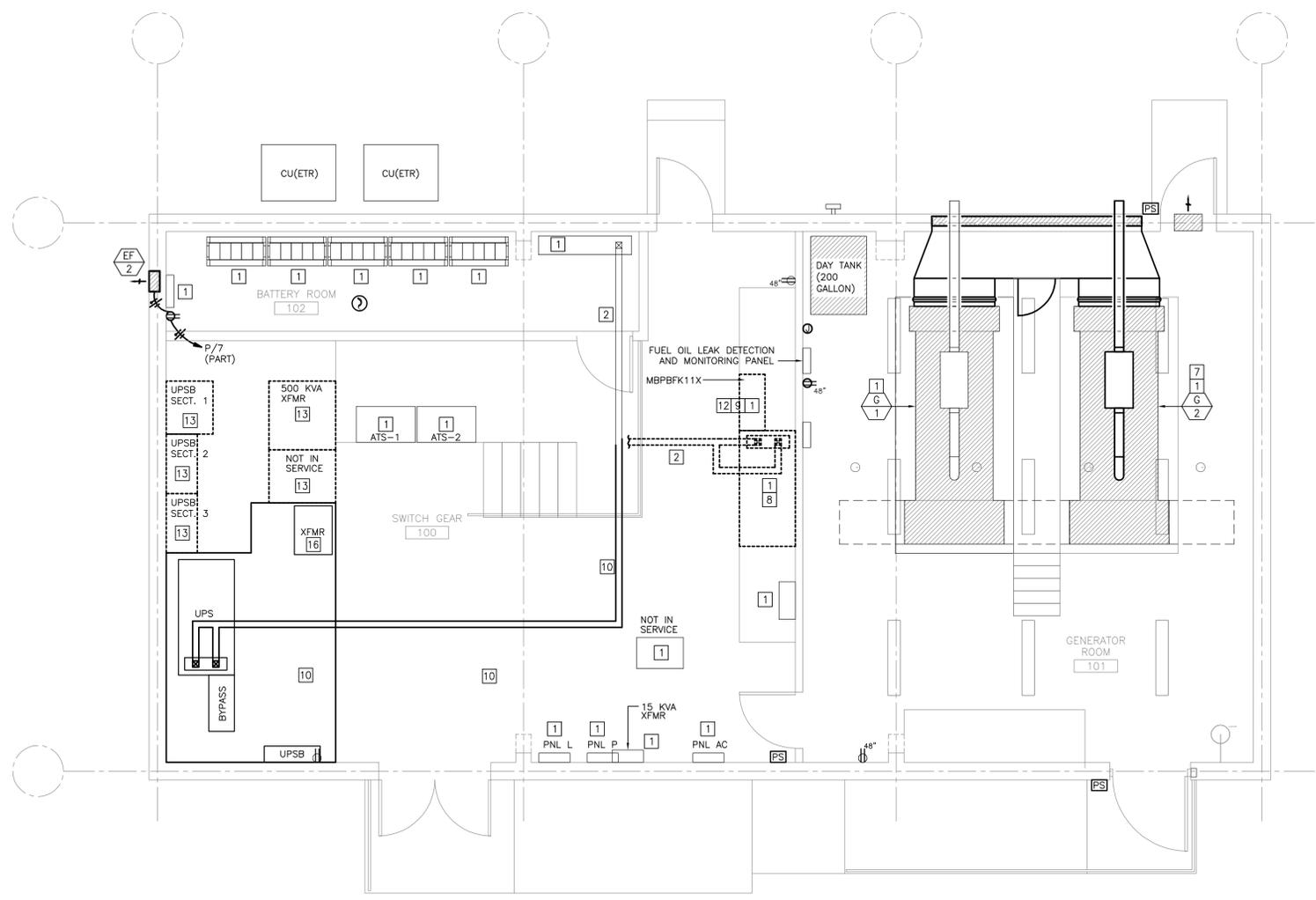
SHEET NO.:  
**PH-D2**  
 CITY DWG. NO.:

**GENERAL NOTES:**

- ALL CRITICAL SYSTEM TO REMAIN OPERATIONAL. DOWN TIME SHALL REMAIN TO A MINIMUM COORDINATE ANY DOWN TIME WITH FACILITIES AND GSD.

**PHASE A INSTALLATION PLAN:**

- EXISTING EQUIPMENT TO REMAIN.
- EXISTING BUSS DUCT TO REMAIN.
- INSTALL NEW RAISED FLOOR, FOR NEW ELECTRICAL EQUIPMENT, PER ARCHITECTURAL AND STRUCTURAL PLANS.
- INSTALL NEW PANEL UPSB AS SHOWN ON CONSTRUCTION PLANS.
- INSTALL NEW PANEL 225 KVA TRANSFORMER AS SHOWN ON CONSTRUCTION PLANS.
- INSTALL NEW UPS MAINTENANCE BY PASS PANEL AS SHOWN ON CONSTRUCTION PLANS.
- ROUTE FEEDER FROM NEW MAINTENANCE BY PASS SWITCH TO 225 KVA XFMR.
- ROUTE SECONDARY FEEDER FROM NEW XFMR TO NEW PANEL UPSB.
- PREPARE NEW FEEDERS FROM NEW PANEL UPSB TO CONNECTION POINTS FOR ALL EQUIPMENT BEING FED FROM THE OLD UPSB PANEL.
- TURN ON G-2 FOR SCHEDULE OUTAGE 3.
- PLACE THE UPS ON MAINTENANCE BY PASS MODE AND RELOCATE UPS TO NEW LOCATION AS SHOWN ON CONSTRUCTION PLANS.
- DISCONNECT NORMAL FEEDER FROM OLD MAINTENANCE BY PASS SWITCH AND CONNECT TO NORMAL FEEDER ON THE NEW MAINTENANCE BY PASS SWITCH. ONCE ALL FEEDERS HAVE BEEN SUCCESSFULLY TRANSFERRED REMOVE EQUIPMENT FROM FLOOR.
- RE-ROUTE BUS DUCT FROM NEW UPS LOCATION TO EXISTING UPS BATTERY SWITCHES.
- ENERGIZE POWER FOR NEW UPSB GEAR. POWER DOWN EACH PANEL BEING FED FROM OLD UPSB AND ONE BY ONE TRANSFER EACH PANEL TO THE NEW UPSB PANEL.
- DISCONNECT OLD MBPDS AND REROUTE TO NEW MBPDS.
- PROVIDE NEW 480V-208/120V NEMA-1 RATED TRANSFORMER. TO BE MOUNTED ABOVE NEW PLATFORM.
- PROVIDE NEW UPS EXTERIOR MAINTENANCE BYPASS SWITCH. TO BE MOUNTED ABOVE NEW PLATFORM.



**1 UPS BUILDING  
 PHASE D INSTALLATION PLAN**  
 1/4"=1'-0"

NOTE: PHASING DRAWINGS ARE NOT CONSTRUCTION DRAWINGS. THEY ARE STRICTLY A SUGGESTED PHASE METHOD TO MINIMIZE FACILITY DOWN TIME. CONTRACTOR CAN IMPLEMENT ALTERNATE METHOD BUT IT MUST BE APPROVED BY GSD PRIOR TO SCHEDULING.



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 THOMAS D. SIMMONS