STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL
Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@ct.gov
www.ct.gov/csc

April 21, 2011

Mark Hulshart, Principal
Hulshart & Associates, LLC
3009 Federal Hill Drive
Falls Church, VI 22044

RE: **EM-SPRINT-076-110329** – Sprint Spectrum L.P. notice of intent to modify an existing telecommunications facility located at 135 New Road, Madison, Connecticut.

Dear Mr. Hulshart:

The Connecticut Siting Council (Council) hereby acknowledges your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies with the following conditions:

- Any deviation from the proposed modification as specified in this notice and supporting materials with Council shall render this acknowledgement invalid;
- Any material changes to this modification as proposed shall require the filing of a new notice with the Council;
- Not less than 45 days after completion of construction, the Council shall be notified in writing that construction has been completed;
- The validity of this action shall expire one year from the date of this letter; and
- The applicant may file a request for an extension of time beyond the one year deadline provided that such request is submitted to the Council not less than 60 days prior to the expiration;

The proposed modifications including the placement of all necessary equipment and shelters within the tower compound are to be implemented as specified here and in your notice dated March 23, 2011. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six decibels, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council. Please be advised that the validity of this action shall expire one year from the date of this letter. Any additional change to this facility will require explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Thank you for your attention and cooperation.

Very truly yours,

Linda Roberts

Linda Roberts
Executive Director

LR/CDM/laf

c: The Honorable Fillmore McPherson, First Selectman, Town of Madison
Marilyn M. Ozols, Planning & Zoning Administrator, Town of Madison
Robert D. Gray, Program Administrator, Third Party Attachments Transmission Projects, Northeast Utilities Service Company

HULSHART & ASSOCIATES, LLC
STRATEGIC CONSULTING TO THE COMMUNICATIONS INDUSTRY

) FEDERAL HILL DRIVE
IRCH, VIRGINIA 22044
phone 703.533.1006

EM-SPRINT-076-110329

ORIGINAL

RECEIVED
MAR 29 2011
CONNECTICUT
SITING COUNCIL

March 23, 2011

Chairman Daniel F. Caruso
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

SUBJECT: Sprint Spectrum Realty Company L.P.'s Notice of Intent to Make an Exempt Modification to an Existing Facility at 135 New Road, Madison, CT 06443 (Site # CT03XC023)

Dear Chairman Caruso:

Pursuant to R.C.S.A. Sections 16-50j-73 and 16-50j-72(b), Sprint Spectrum Realty Company L.P. (Sprint) hereby gives notice to the Connecticut Siting Council (Council) and the Town of Madison of its intent to make an exempt modification to an existing telecommunications facility located at 135 New Road, Madison, Connecticut.

Sprint plans to install a hydrogen fuel cell at its 135 New Road facility to provide emergency backup power in the event of an electric outage. This planned installation does not constitute a modification subject to the Council's review as it falls within those activities provided for in R.C.S.A. Section 16-50j-72(b)(2). Specifically, this installation will not change the height of the existing tower, will not extend the boundaries of the existing compound, will not increase noise levels at the site by six decibels or more, and will not increase the total radio frequency electromagnetic radiation power density at the site to levels above applicable standards.

PROPOSED INSTALLATION

Sprint plans to install a 4kW ReliOn hydrogen fuel cell generator within the existing fenced equipment compound; the entire installation mounted to a new 6'0" x 9'0" concrete pad. The fuel cell will be inside a cabinet measuring 3'4" x 2'4" x 6'0". There will also be four cabinets with dimensions of 4'8" x 4'8" x 6'0", each cabinet houses four hydrogen cylinders.

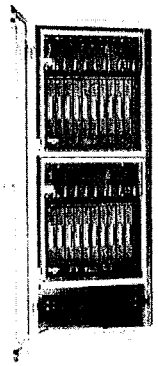
Please contact me at 703.533.1006 should you have any questions about this planned modification.

Sincerely,

Mark Hulshart
Principal

cc: Fillmore McPherson, First Selectman, Town of Madison
Marco Charamella, Connecticut Light & Power, property owner (135 New Road)

T-2000® 4kW Outdoor Solution



Features:

- T-2000® Outdoor Solution
- Ideal for site loads ranging from 0 – 4kW
  - Simple installation
  - Minimal site footprint
- Modular fuel storage solutions available for extended run capabilities

Dimensions (w x d x h)	27.5" x 41" x 72" (70 cm x 104 cm x 183 cm)
Weight	654 lbs / 297.3 kg without cylinders
Rated net power	0 to 4,000 Watts
Rated current	0 to 160A @ 24 VDC / 0 to 80A @ 48 VDC
DC voltage	24 or 48 VDC nominal
Fuel Composition	Standard industrial grade hydrogen (99.95%)
Supply pressure to unit	3.5 to 6 psig / 24 to 41 KPag / 0.24 bar to 0.41 bar
Fuel Consumption	60 slpm @ 4,000 Watts
Hydrogen Storage Capacity	Modular fuel storage solutions available
Ambient temperature	-40°F to 115°F / -40°C to 46°C
Relative humidity	0 to 95% non-condensing
Altitude	-197 ft to 13,800 ft / -60m to 4,206m
Location	Outdoors
Safety Compliance	UL/CSA/CE/NEBS
Water emissions	Max. 30mL / kWh
Noise	47 dBA @ 5 ft
Remote Monitoring/Control	System configuration & status / Historical & operational data
Communications	RJ45 / DB9/ Dry Contact

Sprint

SITE NAME: MADISON CONNECTICUT LIGHT & POWER

SITE NUMBER: CT03XC023

SITE ADDRESS: 135 NEW ROAD
MADISON, CT 06443

SITE TYPE: EXISTING 180'-0" GUYED TOWER

SITE INFORMATION

SITE ADDRESS:
135 NEW ROAD
MADISON, CT 06443

PROPERTY OWNER:
CONNECTICUT LIGHT & POWER

EQUIPMENT SUPPLIER:
ReliOn
15913 EAST EUCLID AVENUE
SPOKANE, WASHINGTON 99216

DARIN PAINTER
DIRECTOR OF SALES
OFFICE: 913-766-4256 MOBILE: 913-486-2550
dpainter@relion-inc.com

POWER COMPANY:
CONNECTICUT LIGHT & POWER
PHONE: 800-286-5000

TELCO COMPANY:
NA

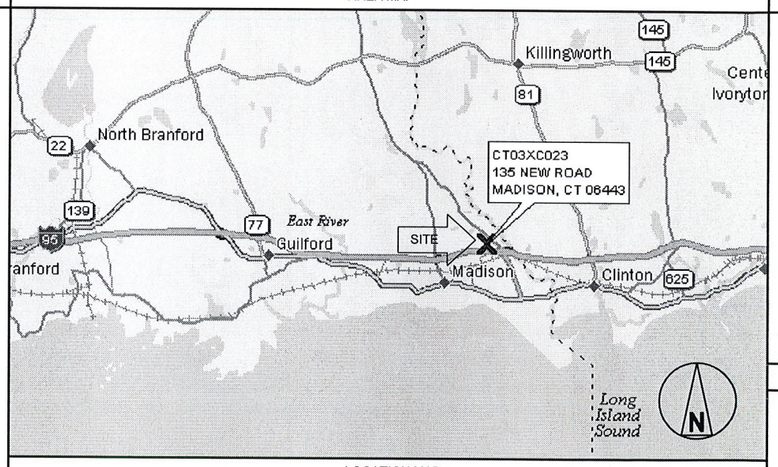
COUNTY:
NEW HAVEN

LATITUDE (NAD83):
41° 17' 36.348" N
41.293430

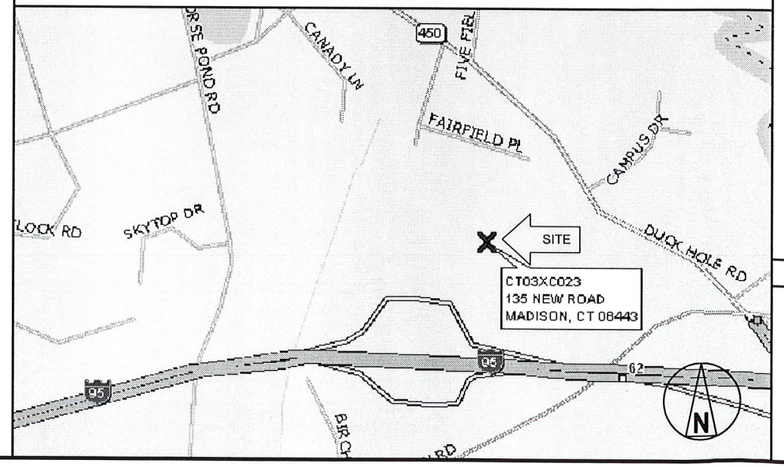
LONGITUDE (NAD83):
72° 34' 42.157" W
-72.578377

CONTACT ENGINEER:
BRYAN HANSEN
WORK: 913-458-7343
E-MAIL: hansenbj@bv.com

AREA MAP



LOCATION MAP



APPLICABLE CODES

ALL WORK SHALL COMPLY WITH THE FOLLOWING APPLICABLE CODES:

2003 INTERNATIONAL BUILDING CODE WITH 2005 STATE OF CONNECTICUT MODIFICATIONS

2003 INTERNATIONAL MECHANICAL CODE OF CONNECTICUT

2003 INTERNATIONAL PLUMBING CODE OF CONNECTICUT

2005 NEC NATIONAL ELECTRICAL CODE

IN THE EVENT OF CONFLICT, THE MOST RESTRICTIVE CODE SHALL PREVAIL

PROJECT DESCRIPTION

INSTALL POWER BACK UP EQUIPMENT TO EXISTING SITE WITHIN EXISTING COMPOUND. INSTALL (1) NEW FUEL CELL WITH (1) FUEL STORAGE CABINET ON CONCRETE PAD AND CONNECT TO THE SITE'S DC POWER PLANT BUS.

DRIVING DIRECTIONS FROM NEAREST AIRPORT

GRISWOLD AIRPORT: HEAD NORTH TOWARD US-1 S/BOSTON POST ROAD, SHARP LEFT AT US-1 S/BOSTON POST ROAD, TAKE THE 3RD RIGHT ONTO HAMMONASSET CON, MERGE ONTO I-95 S VIA THE RAMP TO NEW HAVEN, TAKE THE EXIT, CONTINUE STRAIGHT, DESTINATION WILL BE ON THE RIGHT.

DRAWING INDEX

ENGINEER OF RECORD

CHRISTOPHER ALAN KRAFFT
PE # 0027383

BLACK & VEATCH CORPORATION

Sprint
6580 SPRINT PARKWAY
OVERLAND PARK, KANSAS 66251

BLACK & VEATCH
10950 GRANDVIEW DRIVE
OVERLAND PARK, KANSAS 66210
(913) 458-2000

PROJECT NO:	168202
DRAWN BY:	SGS
CHECKED BY:	MB

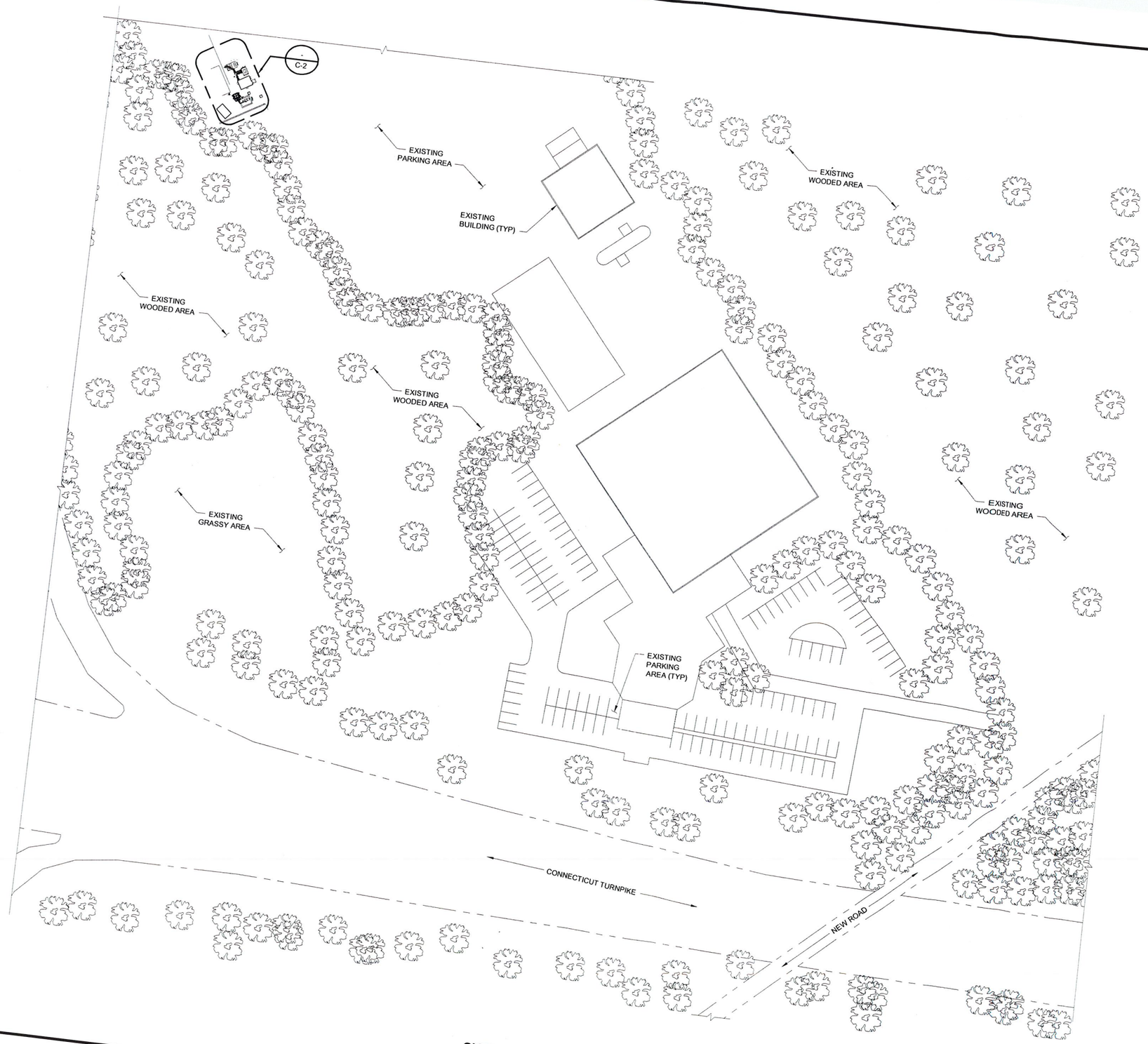
REV	DATE	DESCRIPTION
0	02/23/2011	ISSUED FOR CONSTRUCTION

STATE OF CONNECTICUT
CHRISTOPHER A. KRAFFT
0027383
LICENSED
PROFESSIONAL ENGINEER

MADISON CONNECTICUT LIGHT & POWER
CT03XC023
135 NEW ROAD
MADISON, CT 06443
CO-LOCATION

SHEET TITLE
TITLE SHEET & PROJECT DATA

SHEET NUMBER
T-1



OVERALL SITE PLAN

NO SCALE

Sprint

6580 SPRINT PARKWAY
OVERLAND PARK, KANSAS 66251

BLACK & VEATCH

10950 GRANDVIEW DRIVE
OVERLAND PARK, KANSAS 66210
(913) 458-2000

PROJECT NO:	168202
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REV	DATE	DESCRIPTION
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STATE OF CONNECTICUT
CHRIS A. KRAFFT
0027363
LICENSED
PROFESSIONAL ENGINEER

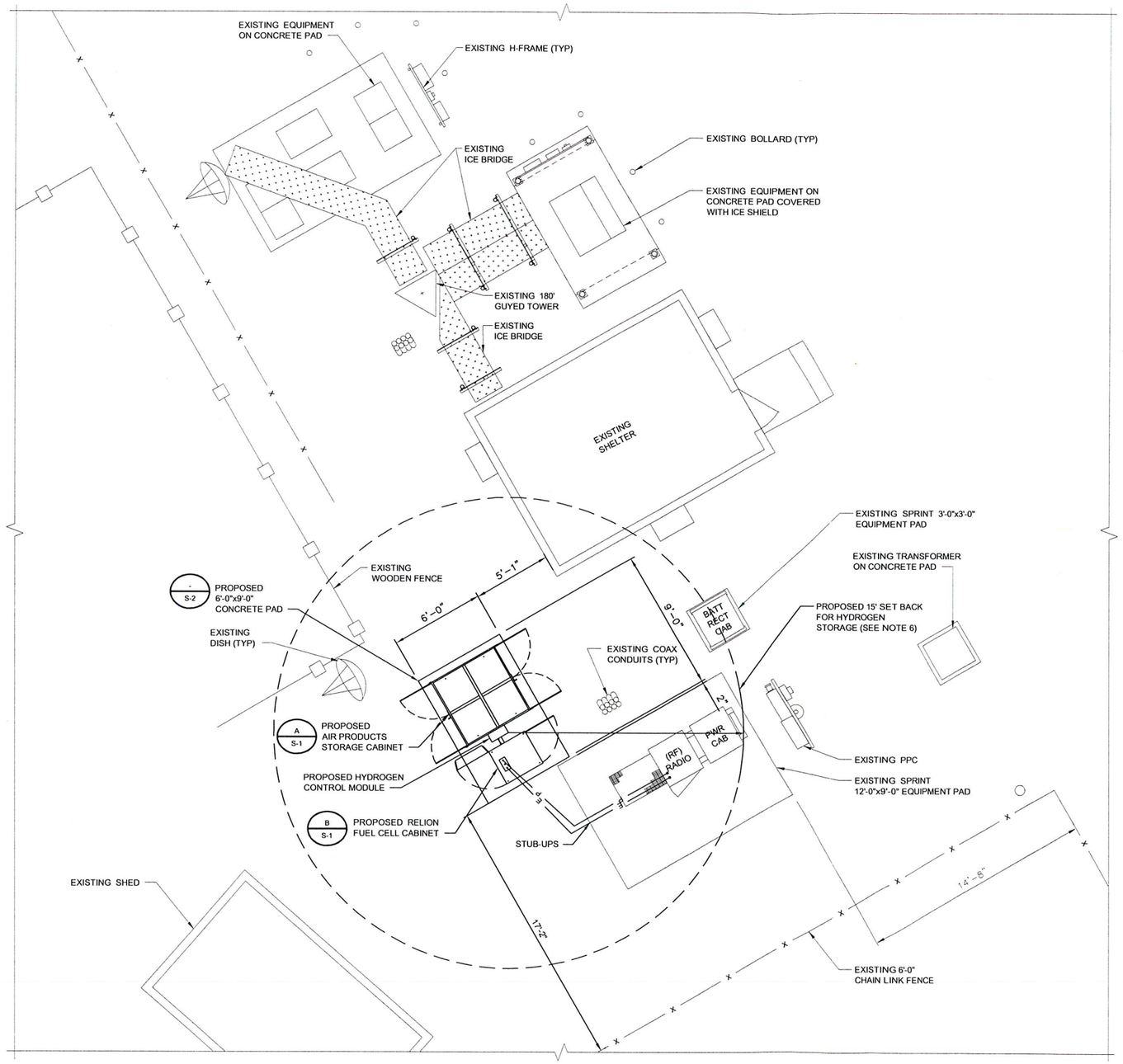
MADISON CONNECTICUT LIGHT & POWER
CT03XC023
135 NEW ROAD
MADISON, CT 06443
CO-LOCATION

SHEET TITLE

OVERALL SITE PLAN

GENERAL NOTES:

1. CONTRACTOR SHALL GROUND ALL NEW EQUIPMENT TO THE NEAREST GROUND RING (SEE G-1).
2. CONTRACTOR SHALL ROUTE CONDUIT TO AVOID TRIP HAZARDS BY EITHER UTILIZING EXISTING CABLE TRAY, OVERHEAD ICE BRIDGE, UNDERNEATH RAISED PLATFORM, OR AROUND EDGE OF CONCRETE PAD.
3. CONTRACTOR SHALL FOLLOW ALL MANUFACTURER'S RECOMMENDATIONS FOR INSTALLATION OF ALL NEW EQUIPMENT.
4. CONTRACTOR SHALL VERIFY THE ALARM CABLES ARE OF SUFFICIENT LENGTH.
5. EXCESS CABLES SHALL BE LACED IN A NEAT AND ORGANIZED MANNER.
6. HYDROGEN STORAGE CABINET HAS A REQUIRED SET BACK OF 15' FROM IGNITION SOURCES & AIR INTAKES.



SITE PLAN

Sprint

6580 SPRINT PARKWAY
OVERLAND PARK, KANSAS 66251

BLACK & VEATCH

10950 GRANDVIEW DRIVE
OVERLAND PARK, KANSAS 66210
(913) 458-2000

PROJECT NO:	168202
DRAWN BY:	SGS
CHECKED BY:	MB

REV	DATE	DESCRIPTION
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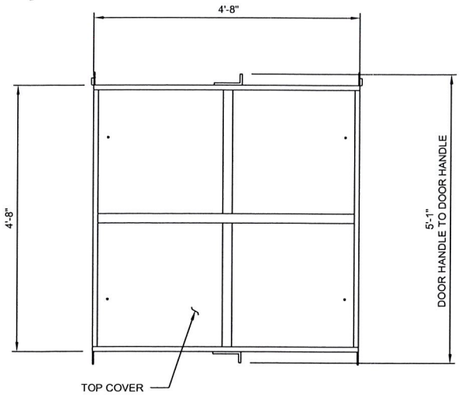
STATE OF CONNECTICUT
CHRIS A. KRAFT
027387
LICENSED
PROFESSIONAL ENGINEER

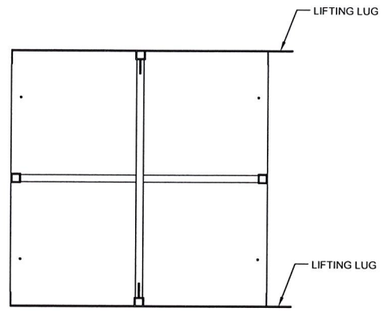
MADISON CONNECTICUT LIGHT & POWER
CT03XC023
135 NEW ROAD
MADISON, CT 06443
CO-LOCATION

SHEET TITLE
SITE PLAN

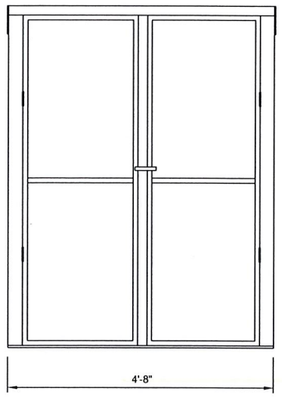
SHEET NUMBER
C-2



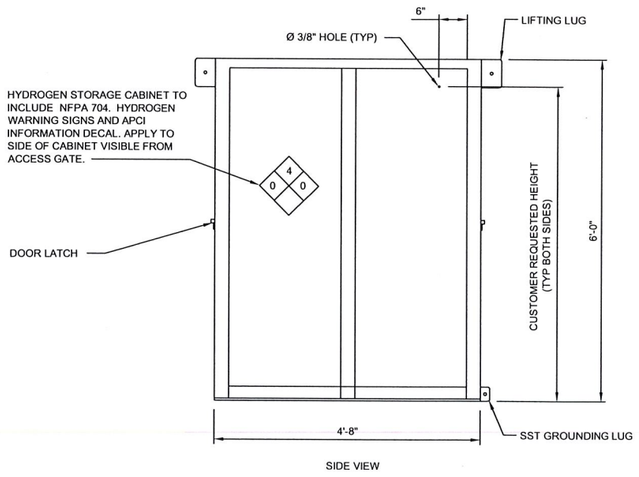
TOP VIEW



BOTTOM VIEW

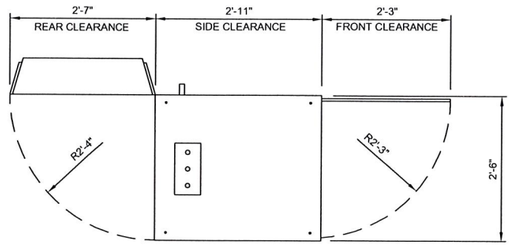


FRONT VIEW

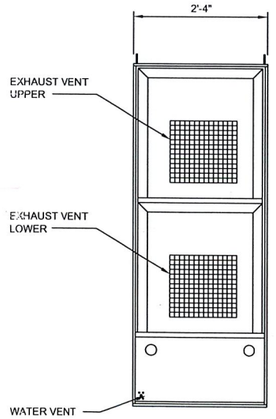


SIDE VIEW

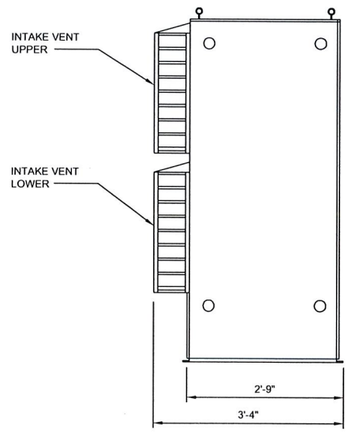
DETAIL A
HYDROGEN STORAGE CABINET
SCALE: 3/4" = 1'-0"



TOP VIEW CLEARANCE
(DOOR OPEN)



REAR VIEW



SIDE VIEW

DETAIL B
FUEL CELL CABINET
SCALE: 3/4" = 1'-0"

Sprint

6580 SPRINT PARKWAY
OVERLAND PARK, KANSAS 66251

BLACK & VEATCH

10950 GRANDVIEW DRIVE
OVERLAND PARK, KANSAS 66210
(913) 458-2000

PROJECT NO:	168202
DRAWN BY:	SGS
CHECKED BY:	MB

REV	DATE	DESCRIPTION
0	02/23/2011	ISSUED FOR CONSTRUCTION

STATE OF CONNECTICUT
CHRIS A. KRAFFT
027354
LICENSED
PROFESSIONAL ENGINEER

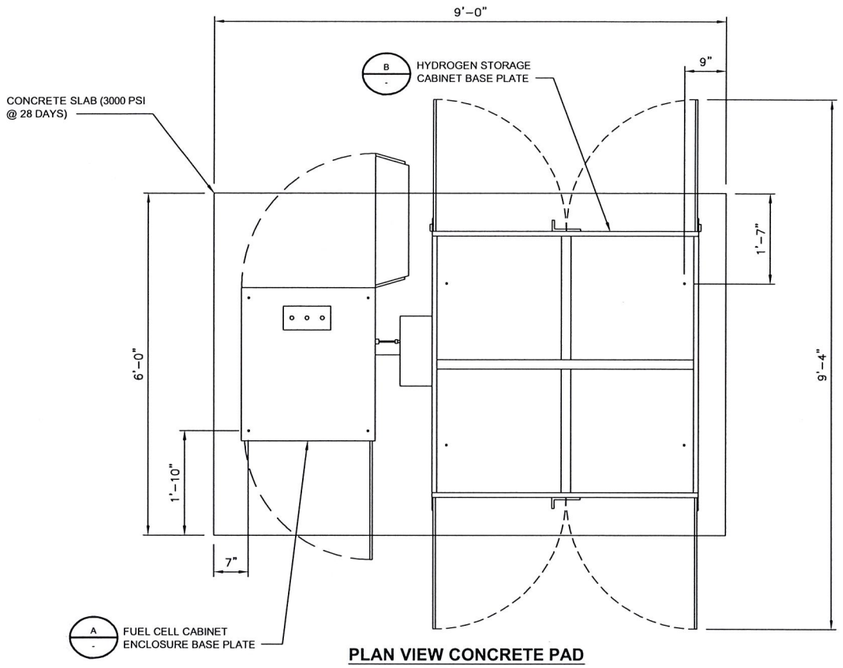
MADISON CONNECTICUT LIGHT & POWER
CT03XC023
135 NEW ROAD
MADISON, CT 06443
CO-LOCATION

SHEET TITLE

EQUIPMENT CABINET DETAILS

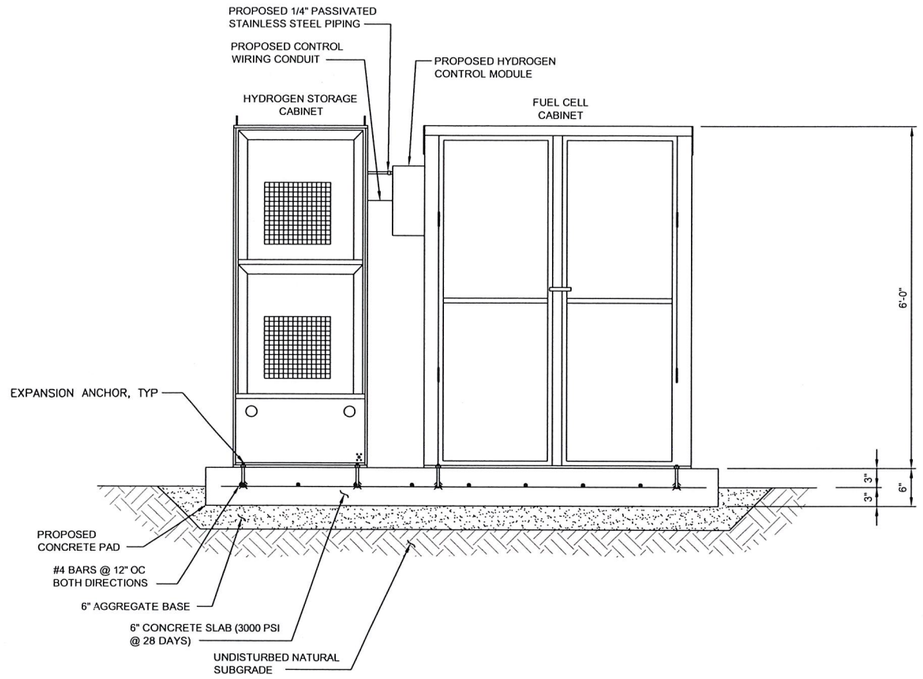
SHEET NUMBER

S-1



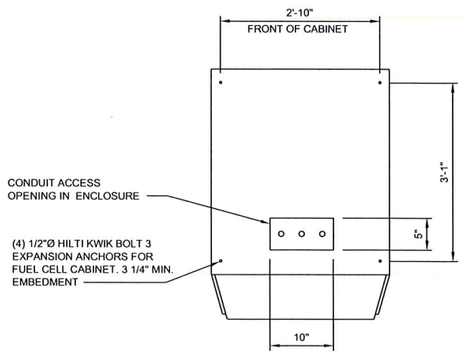
PLAN VIEW CONCRETE PAD

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



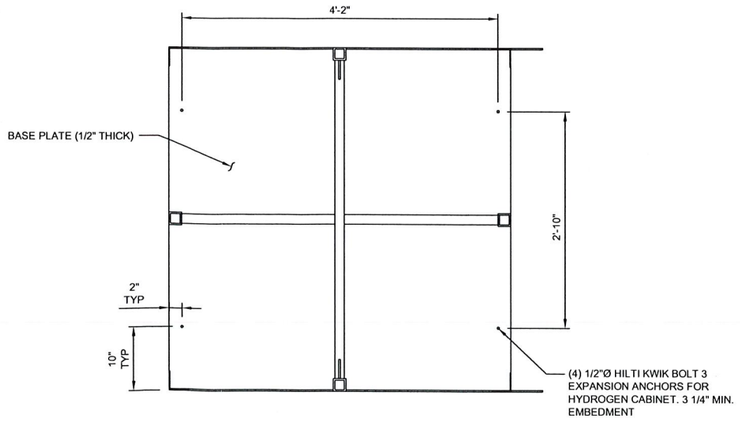
ELEVATION CONCRETE PAD

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



DETAIL A
CABINET
BOLT PATTERN

SCALE: 1" = 1'-0"



DETAIL B
HYDROGEN STORAGE CABINET
BOLT PATTERN

SCALE: 1" = 1'-0"

Sprint

6580 SPRINT PARKWAY
OVERLAND PARK, KANSAS 66251

BLACK & VEATCH

10950 GRANDVIEW DRIVE
OVERLAND PARK, KANSAS 66210
(913) 458-2000

PROJECT NO:	168202
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REV	DATE	DESCRIPTION
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STATE OF CONNECTICUT
CHRISTOPHER M. KRAFT
0027303
LICENSED
PROFESSIONAL ENGINEER

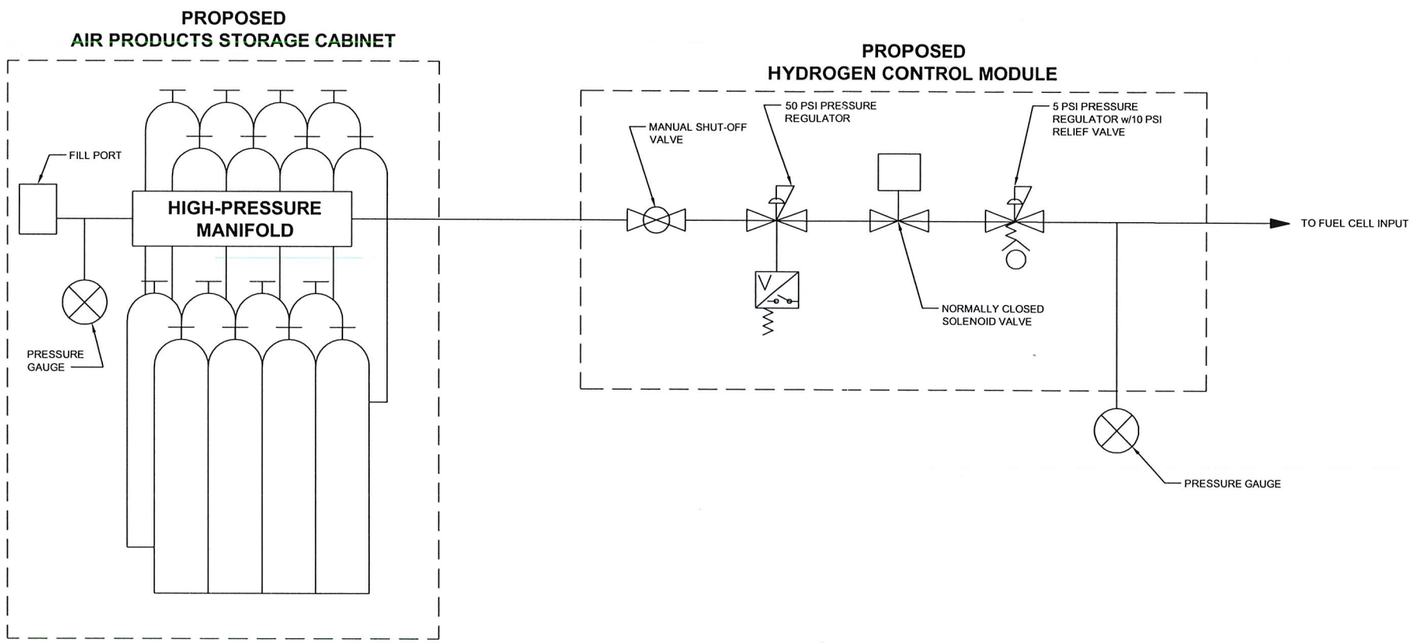
MADISON CONNECTICUT LIGHT & POWER
CT03XC023
135 NEW ROAD
MADISON, CT 06443
CO-LOCATION

SHEET TITLE

CONCRETE PAD DETAILS

SHEET NUMBER

S-2



HYDROGEN SUPPLY SCHEMATIC HSM WITH HYDROGEN CONTROL MODULE

Sprint

6580 SPRINT PARKWAY
OVERLAND PARK, KANSAS 66251

BLACK & VEATCH

10950 GRANDVIEW DRIVE
OVERLAND PARK, KANSAS 66210
(913) 458-2000

PROJECT NO:	168202
DRAWN BY:	SGS
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REV	DATE	DESCRIPTION
0	02/23/2011	ISSUED FOR CONSTRUCTION

STATE OF CONNECTICUT
CHARLES A. TRAFFORD
0027385
LICENSED
PROFESSIONAL ENGINEER

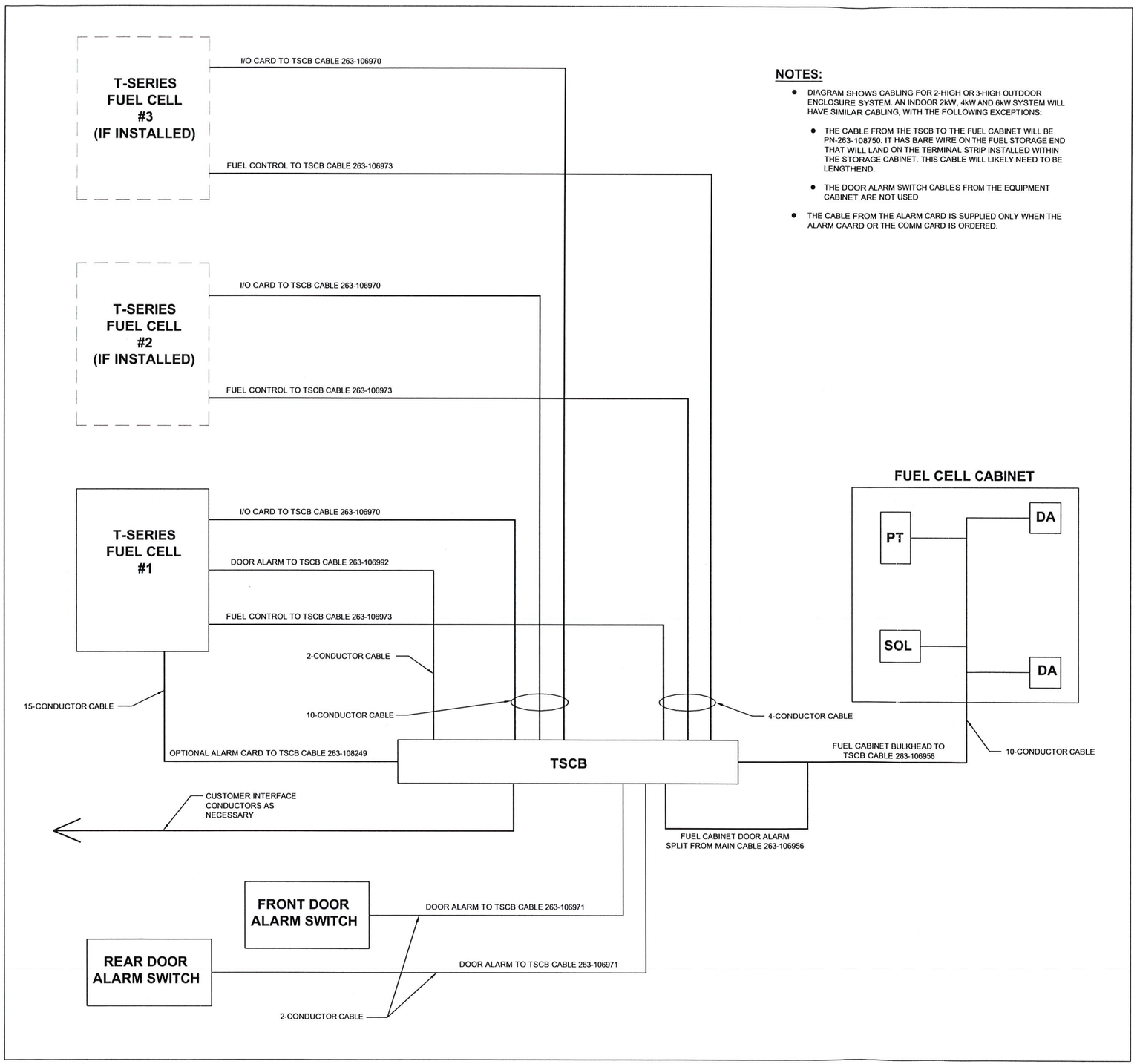
MADISON CONNECTICUT LIGHT & POWER
CT03XC023
135 NEW ROAD
MADISON, CT 06443
CO-LOCATION

SHEET TITLE

HYDROGEN PIPING SCHEMATIC

SHEET NUMBER

M-1



T-SERIES SIGNAL INTERCONNECT DIAGRAM

NOTES:

- DIAGRAM SHOWS CABLING FOR 2-HIGH OR 3-HIGH OUTDOOR ENCLOSURE SYSTEM. AN INDOOR 2kW, 4kW AND 6kW SYSTEM WILL HAVE SIMILAR CABLING, WITH THE FOLLOWING EXCEPTIONS:
  - THE CABLE FROM THE TSCB TO THE FUEL CABINET WILL BE PN-263-108750. IT HAS BARE WIRE ON THE FUEL STORAGE END THAT WILL LAND ON THE TERMINAL STRIP INSTALLED WITHIN THE STORAGE CABINET. THIS CABLE WILL LIKELY NEED TO BE LENGTHEND.
  - THE DOOR ALARM SWITCH CABLES FROM THE EQUIPMENT CABINET ARE NOT USED
- THE CABLE FROM THE ALARM CARD IS SUPPLIED ONLY WHEN THE ALARM CAARD OR THE COMM CARD IS ORDERED.

GENERAL ELECTRICAL NOTES:

1. ALL ELECTRICAL WORK SHALL CONFORM TO THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE (NEC), AND LOCAL CODES.
2. ALL ELECTRICAL MATERIALS, EQUIPMENT AND INSTALLATION PROCEDURES SHALL CONFORM WITH SPRINT'S STANDARD CONSTRUCTION SPECIFICATIONS.
3. ALL MATERIALS SHALL BE MANUFACTURED IN ACCORDANCE WITH APPLICABLE STANDARDS ESTABLISHED BY ANSI, NEMA NFPA, AND "UL" LISTED.
4. THE ELECTRICAL PLANS, DETAILS, AND DIAGRAMS SHOWN ON THESE DRAWINGS ARE DIAGRAMMATIC ONLY. ACTUAL FIELD CONDITIONS AND SITE REQUIREMENTS SHALL DICTATE THE AMOUNT AND LOCATION OF EQUIPMENT.
5. THE ENTIRE ELECTRICAL INSTALLATION SHALL BE GROUNDED AS REQUIRED BY THE NEC AND ALL APPLICABLE LOCAL CODES.
6. ALL CIRCUIT BREAKERS, FUSES AND ELECTRICAL EQUIPMENT SHALL HAVE A MINIMUM INTERRUPTING RATING OF 65,000 AIC (UNLESS NOTED OTHERWISE).
7. REFER TO THE VENDOR DRAWINGS OF THE PPC CABINET, BATTERY, AND BTS CABINETS FOR COMPLETE INTERNAL WIRING AND ARRANGEMENT.
8. PATCH, REPAIR AND PAINT ANY AREA THAT HAS BEEN DAMAGED IN THE COURSE OF THE ELECTRICAL INSTALLATION.
9. LABEL ALL ELECTRICAL EQUIPMENT PER SPRINT'S SPECIFICATIONS.
10. ALL SINGLE-PHASE SELF-CONTAINED METER CONNECTION DEVICES MUST INCLUDE HORN TYPE BYPASS PROVISIONS SO THAT SERVICE WILL NOT BE INTERRUPTED WHEN A METER IS REMOVED FROM THE SOCKET.
11. USE METER CONNECTION DEVICES LABELED BY THE MANUFACTURER WITH THE LETTERS "CECHA".
12. ALL INTERIOR CONDUITS AND BUSHINGS SHALL BE EMT. ALL EXTERIOR SHALL BE PVC UNLESS NOTED OTHERWISE (SEE SPRINT'S STANDARD CONSTRUCTION SPECIFICATIONS).
13. PROVIDE 2 PULL STRINGS SECURELY FASTENED AT EACH END OF ALL CONDUITS. THE PULL STRINGS ARE TO BE 200 LB. TEST POLYETHYLENE CORD. PROVIDE CAP ON THE END OF EACH CONDUIT AND MARK AS SHOWN ON THIS SITE PLAN.
14. THE CONTRACTOR SHALL LOCATE AND MARK ALL EXISTING UNDERGROUND POWER, TELCO, GROUNDING CONDUITS, AND ALL OTHER UTILITIES EASEMENTS AND/OR WIRES PRIOR TO TRENCHING. ANY DAMAGE CAUSED TO THE EXISTING UNDERGROUND SERVICES OR SYSTEMS SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE. VERIFY WITH UTILITY NEW SERVICE HAS BEEN APPLIED FOR. THERE SHALL BE NO SPLICING OF GROUND CONDUCTORS BELOW GRADE.
15. UTILITY RACK AND CONDUIT SIZES TO BE FIELD DETERMINED BY CONTRACTOR IN ACCORDANCE WITH THE LOCAL JURISDICTION.
16. ALL WORK SHALL MEET OR EXCEED ALL APPLICABLE LOCAL AND NATIONAL ELECTRICAL CODE REQUIREMENTS.
17. ALL INSTALLATION AND EQUIPMENT SHALL MEET OR EXCEED SPRINT CONSTRUCTION SPECIFICATIONS.

ELECTRICAL NOTES:

1. LIGHT SHADED LINES INDICATE EXISTING CONSTRUCTION.
2. CONTRACTOR TO VERIFY POWERWAVE MODEL AND ASSOCIATED POWER REQUIREMENTS. IF LARGER CIRCUIT BREAKERS ARE REQUIRED, CONTRACTOR SHALL PROVIDE CORRECT ELECTRICAL CONDUCTOR SIZES.

Sprint

6580 SPRINT PARKWAY
OVERLAND PARK, KANSAS 66251

BLACK & VEATCH

10950 GRANDVIEW DRIVE
OVERLAND PARK, KANSAS 66210
(913) 458-2000

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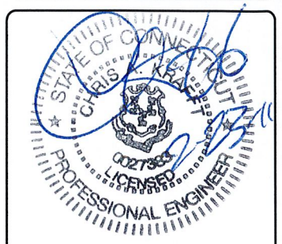


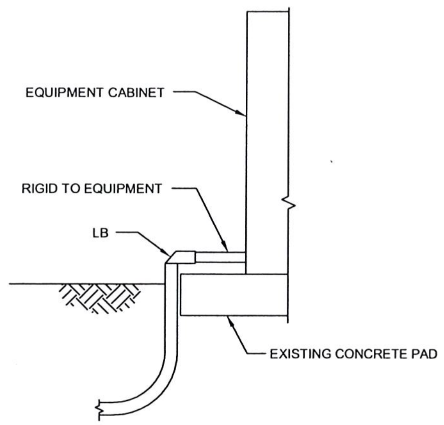
MADISON CONNECTICUT LIGHT & POWER
CT03XC023
135 NEW ROAD
MADISON, CT 06443
CO-LOCATION

SHEET TITLE

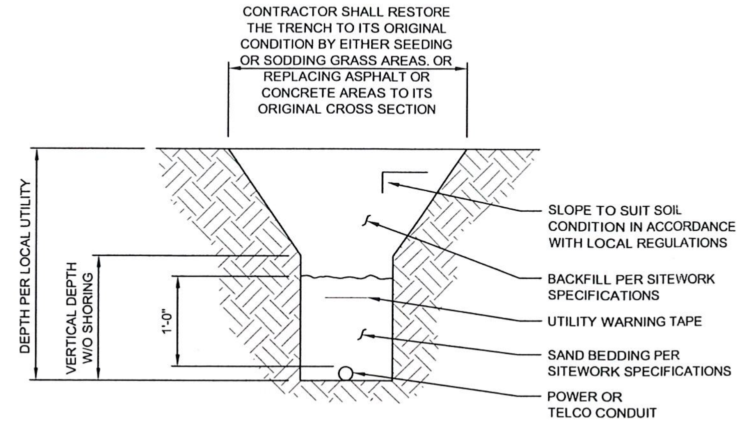
ELECTRICAL ONE-LINE DIAGRAM

SHEET NUMBER

E-1



DETAIL A
STUB UP DETAIL
NO SCALE

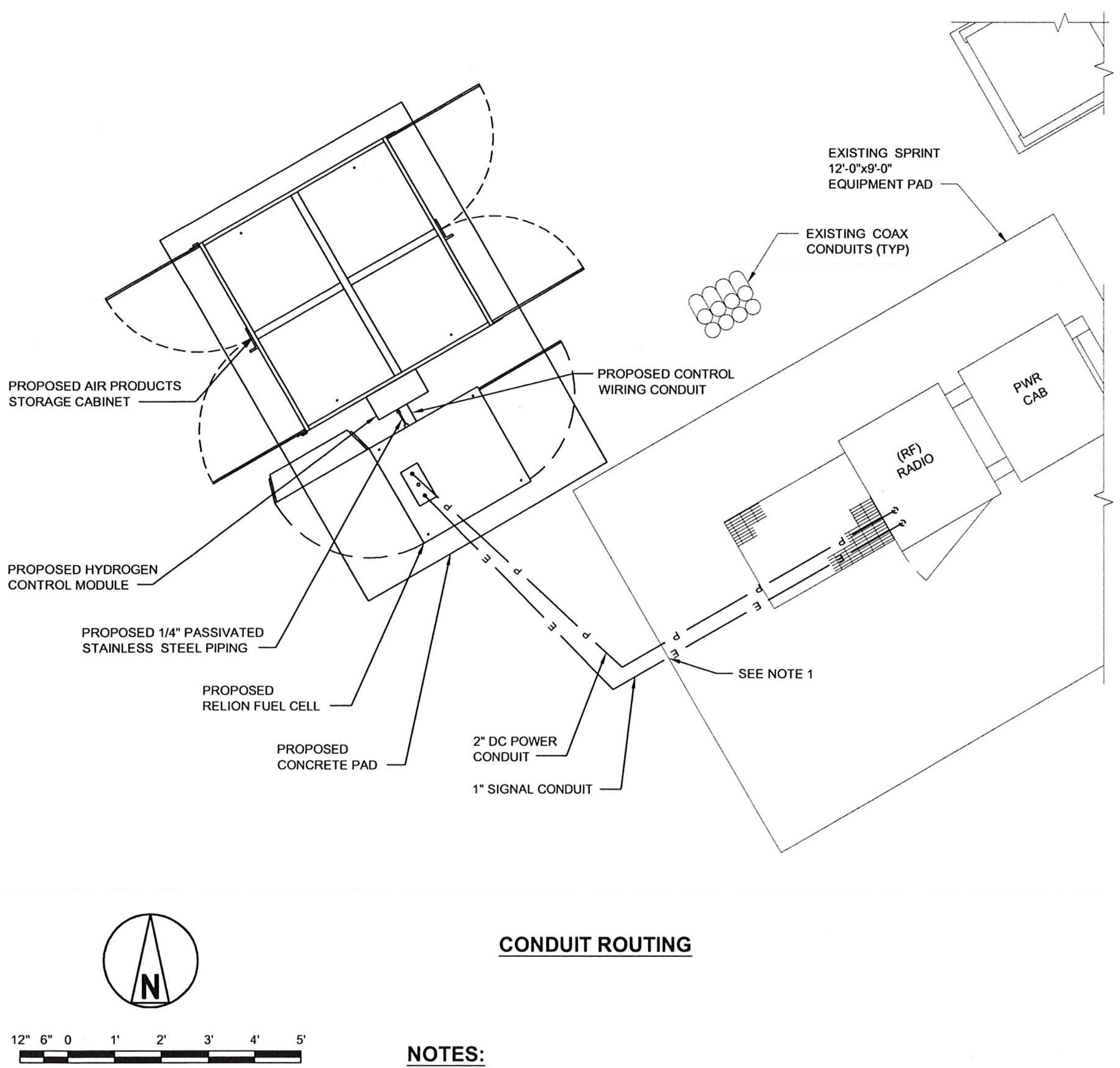


TYPICAL UTILITY TRENCH DETAIL
NO SCALE

" ONE CALL" SERVICE SHALL BE CALLED PRIOR TO EXCAVATION

GENERAL NOTES:

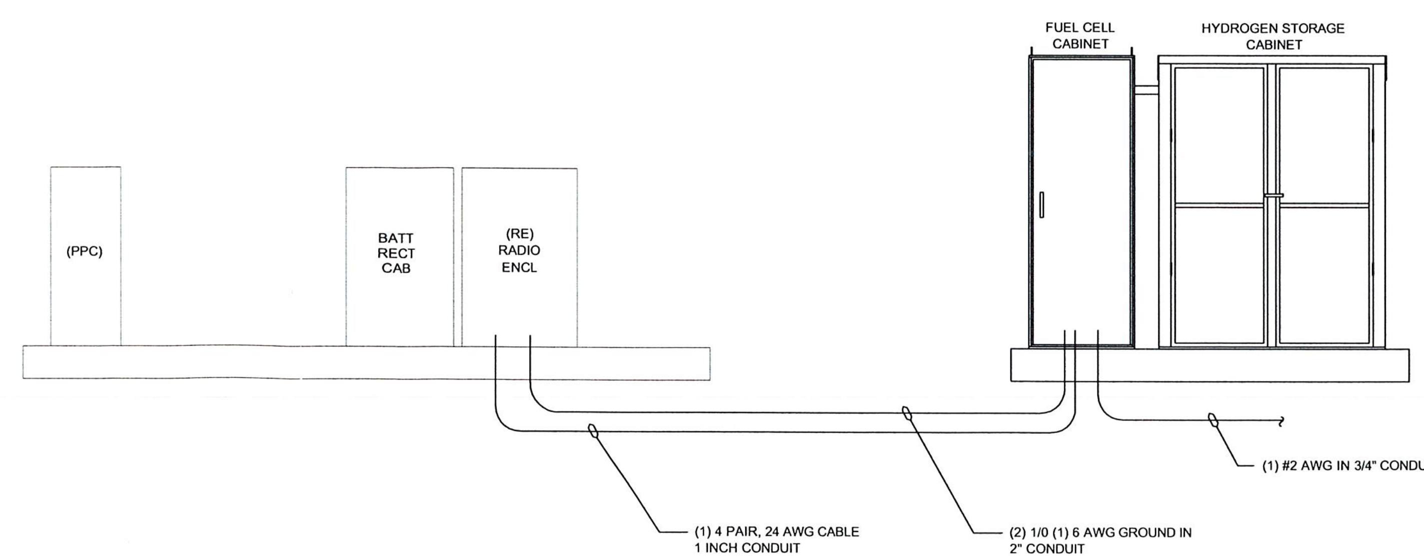
1. MATERIALS: ALL HANGERS, SUPPORTS, FASTENERS AND HARDWARE SHALL BE ZINC COATED OR OF EQUIVALENT CORROSION RESISTANCE BY TREATMENT OR INHERENT PROPERTY, AND SHALL BE MANUFACTURED PRODUCTS DESIGNED FOR THE APPLICATION. PRODUCTS FOR OUTDOOR USE SHALL BE HOT DIP GALVANIZED.
2. CONDUIT SEALS: INSTALL CONDUIT SEAL FOR EACH CONDUIT PENETRATING AN EXTERIOR BUILDING WALL BELOW GRADE (UNLESS PENETRATION IS BELOW LOWEST BUILDING FLOOR SLAB), AND ELSEWHERE AS INDICATED, AND SO AS TO ACHIEVE A SEALED WATERTIGHT INSTALLATION. MATCH EXISTING CONDITIONS AND MEET OR EXCEED INTEGRITY OF WALLS.
3. INSTALLATION: RIGIDLY SUPPORT AND SECURE ALL MATERIALS, RACEWAY AND EQUIPMENT TO BUILDING STRUCTURE USING HANGERS, SUPPORTS AND FASTENERS, SUITABLE FOR THE USE, MATERIALS AND LOADS ENCOUNTERED. PROVIDE ALL NECESSARY HARDWARE. PROVIDE CONDUIT SUPPORTS AT MAXIMUM 5 FT. O.C.
4. STRUCTURAL MEMBERS: DO NOT CUT, DRILL OR WELD ANY STRUCTURAL MEMBER EXCEPT AS SPECIFICALLY APPROVED BY THE ENGINEER.
5. INDEPENDENT SUPPORT: DO NOT SUPPORT MATERIALS OR EQUIPMENT FROM OTHER EQUIPMENT, PIPING, DUCTWORK OR SUPPORTS FOR SAME.
6. MISCELLANEOUS SUPPORTS: PROVIDE ANY ADDITIONAL STRUCTURAL SUPPORT STEEL BRACKETS ANGLES, FASTENERS AND HARDWARE AS REQUIRED TO ADEQUATELY SUPPORT ALL ELECTRICAL MATERIALS AND EQUIPMENT.
7. ONE HOLE STRAPS SHALL NOT BE USED FOR CONDUITS LARGER THAN 3/4"Ø.



CONDUIT ROUTING

NOTES:

1. FOR CONDUIT STUB UP LOCATIONS AND DETAILS, REFER TO DETAIL A (THIS SHEET) AND SHEET S-2



ELECTRICAL & SIGNAL RISER DIAGRAM

Sprint
6580 SPRINT PARKWAY
OVERLAND PARK, KANSAS 66251

BLACK & VEATCH
10950 GRANDVIEW DRIVE
OVERLAND PARK, KANSAS 66210
(913) 458-2000

PROJECT NO:	168202
DRAWN BY:	SGS
CHECKED BY:	MB

REV	DATE	DESCRIPTION
0	02/23/2011	ISSUED FOR CONSTRUCTION

STATE OF CONNECTICUT
CHRIS S. KRAFFT
0027363
LICENSED PROFESSIONAL ENGINEER

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

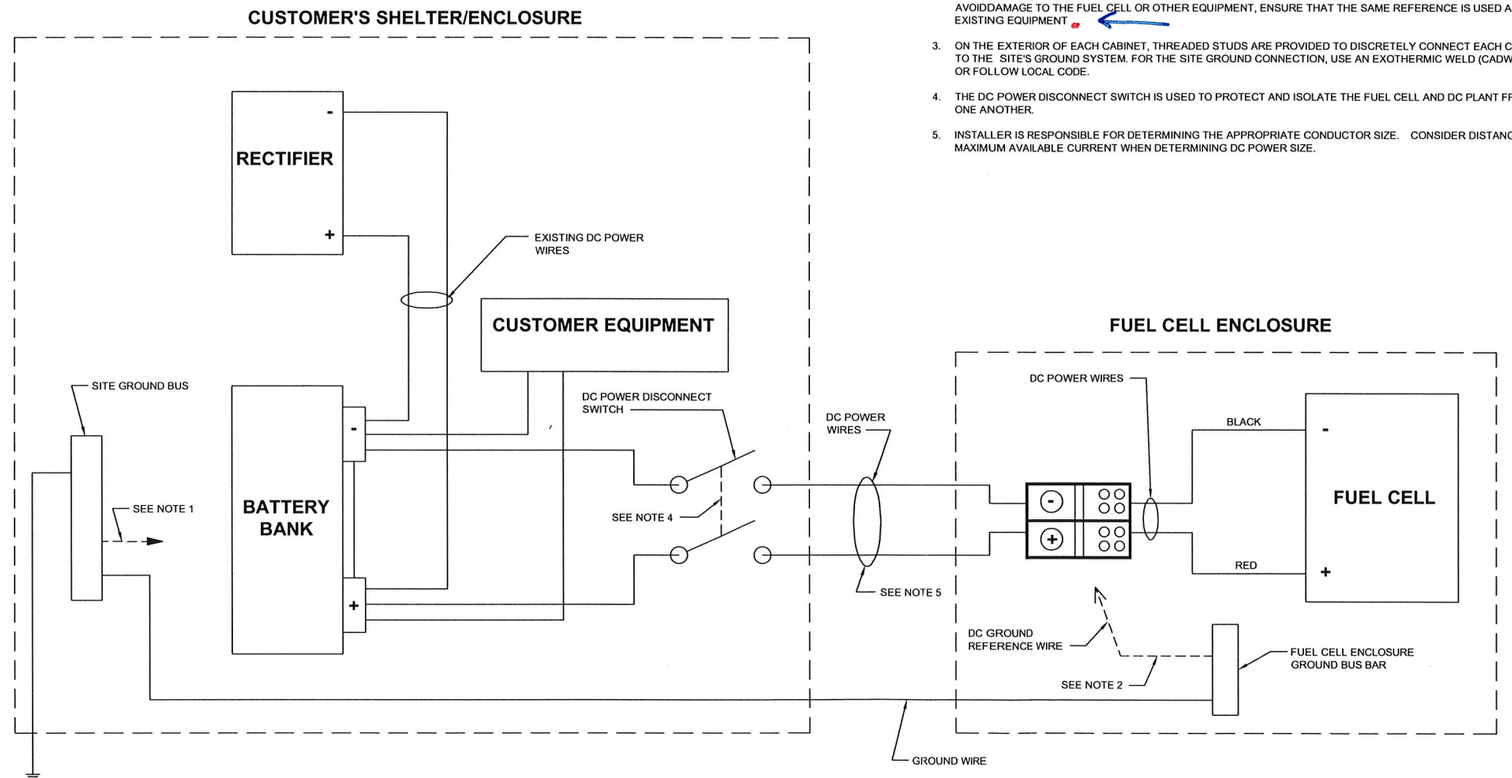
MADISON CONNECTICUT LIGHT & POWER
CT03XC023
135 NEW ROAD
MADISON, CT 06443
CO-LOCATION

SHEET TITLE
OVERALL CONDUIT DETAILS

SHEET NUMBER
E-2

NOTES:

1. IF USED, THE GROUND REFERENCE TO EXISTING DC SYSTEM.
2. IF NECESSARY, USE TO REFERNCE THE FUEL CELL ENCLOSURE'S DC TO ITS GROUND BUS BAR. NOTE: TO AVOIDDAMAGE TO THE FUEL CELL OR OTHER EQUIPMENT, ENSURE THAT THE SAME REFERENCE IS USED AS THE EXISTING EQUIPMENT
3. ON THE EXTERIOR OF EACH CABINET, THREADED STUDS ARE PROVIDED TO DISCRETELY CONNECT EACH CABINET TO THE SITE'S GROUND SYSTEM. FOR THE SITE GROUND CONNECTION, USE AN EXOTHERMIC WELD (CADWELD) OR FOLLOW LOCAL CODE.
4. THE DC POWER DISCONNECT SWITCH IS USED TO PROTECT AND ISOLATE THE FUEL CELL AND DC PLANT FROM ONE ANOTHER.
5. INSTALLER IS RESPONSIBLE FOR DETERMINING THE APPROPRIATE CONDUCTOR SIZE. CONSIDER DISTANCE AND MAXIMUM AVAILABLE CURRENT WHEN DETERMINING DC POWER SIZE.



DC POWER SCHEMATIC

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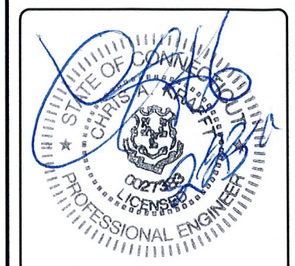


MADISON CONNECTICUT LIGHT & POWER
CT03XC023
135 NEW ROAD
MADISON, CT 06443
CO-LOCATION

SHEET TITLE

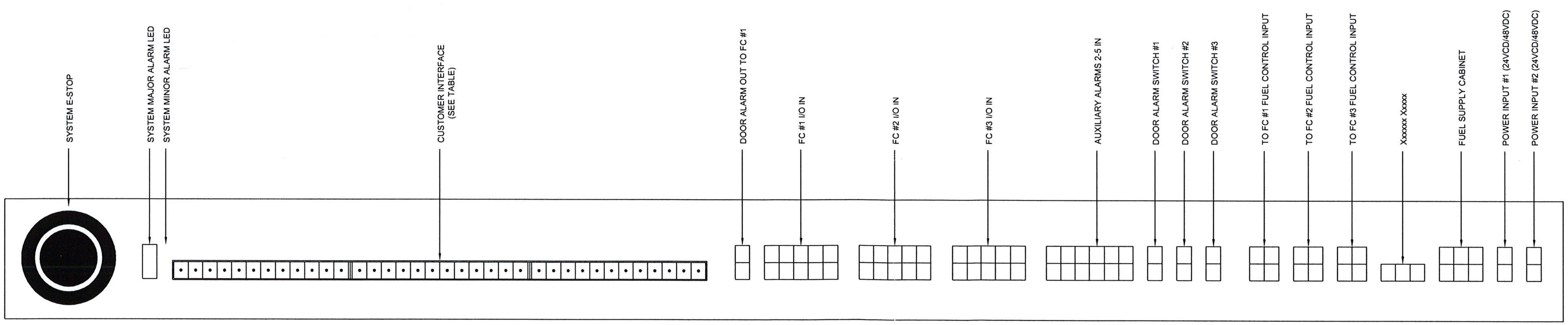
ELECTRICAL WIRING DIAGRAM

SHEET NUMBER

E-3

CUSTOMER CONNECTIONS

PIN	SIGNAL NAME	NOTES	PIN	SIGNAL NAME	NOTES	PIN	SIGNAL NAME	NOTES
1	DOOR SWITCH ALARM	THERE IS 1.1 k OHM SERIES RESISTANCE BETWEEN PINS 1 & 2	13	FC #1 AUX. ALARM RELAY (N.O.)	THERE IS 1.1 k OHM SERIES RESISTANCE BETWEEN PINS 1 & 2	25	AUX. 2 ALARM RELAY (N.O.)	AUXILIARY RELAYS 2 THROUGH 5 ARE AVAILABLE WITH THE ADDITION OF AN OPTIONAL ALARM CARD OR COMM CARD INSTALLED ONTO ONE OF THE FUEL CELLS
2	DOOR SWITCH ALARM RETURN		14	FC #1 AUX. ALARM RELAY (COMMON.)		26	AUX. 2 ALARM RELAY (COMMON.)	
3	NOT USED		15	FC #1 AUX. ALARM RELAY (N.C.)		27	AUX. 2 ALARM RELAY (N.C.)	
4	NOT USED		16	FC #2 AUX. ALARM RELAY (N.O.)		28	AUX. 2 ALARM RELAY (N.O.)	
5	SYSTEM MAJOR ALARM (N.O.)		17	FC #2 AUX. ALARM RELAY (COMMON.)		29	AUX. 3 ALARM RELAY (COMMON.)	
6	SYSTEM MAJOR ALARM (COMMON.)		18	FC #2 AUX. ALARM RELAY (N.C.)		30	AUX. 3 ALARM RELAY (N.C.)	
7	SYSTEM MAJOR ALARM (N.C.)		19	FC #3 AUX. ALARM RELAY (N.O.)		31	AUX. 3 ALARM RELAY (N.O.)	
8	SYSTEM MINOR ALARM (N.O.)		20	FC #3 AUX. ALARM RELAY (COMMON.)		32	AUX. 4 ALARM RELAY (COMMON.)	
9	SYSTEM MINOR ALARM (COMMON.)		21	FC #3 AUX. ALARM RELAY (N.C.)		33	AUX. 4 ALARM RELAY (N.C.)	
10	SYSTEM MINOR ALARM (N.C.)		22	PRESSURE SW ALARM RELAY (N.O.)		34	AUX. 5 ALARM RELAY (N.O.)	
11	CONTACT START	THESE ARE WETTED CONTACTS; USE A CLOSED SWITCH TO ACTIVATE.	23	PRESSURE SW ALARM RELAY (COMMON.)		35	AUX. 5 ALARM RELAY (COMMON.)	
12	CONTACT START RETURN		24	PRESSURE SW ALARM RELAY (N.C.)		36	AUX. 5 ALARM RELAY (N.C.)	



T-SERIES SIGNAL AND CONTROL CONNECTIONS

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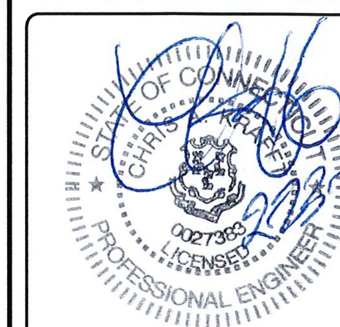

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MADISON CONNECTICUT LIGHT & POWER
CT03XC023
135 NEW ROAD
MADISON, CT 06443
CO-LOCATION

SHEET TITLE

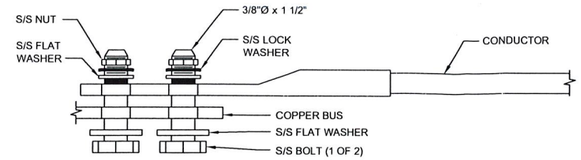
FUEL CELL INSTALL DETAIL

SHEET NUMBER

E-4

THE DETAILS ON THIS SHEET APPLY ONLY AS CALLED OUT ON SITE PLANS OR SITE SPECIFIC DRAWINGS.

CADWELD CONNECTIONS OR APPROVED EQUAL		BURNDY CONNECTIONS OR APPROVED EQUAL
 PARALLEL HORIZONTAL CONDUCTORS PARALLEL THROUGH CONNECTION OF HORIZONTAL CABLES TYPE PT	 HORIZONTAL STEEL SURFACE TO FLAT STEEL SURFACE OR HORIZONTAL PIPE TYPE HS	 BOND JUMPER FIELD FABRICATED GREEN STRANDED INSULATED TYPE 2-YA-2
 THROUGH CABLE TO GROUND ROD THROUGH CABLE TO TOP OF GROUND ROD TYPE GT	 VERTICAL STEEL SURFACE CABLE DOWN AT 45° TO VERTICAL STEEL SURFACE INCLUDING PIPE TYPE VS	 COPPER LUGS TWO HOLE - LONG BARREL LENGTH TYPE YA-2



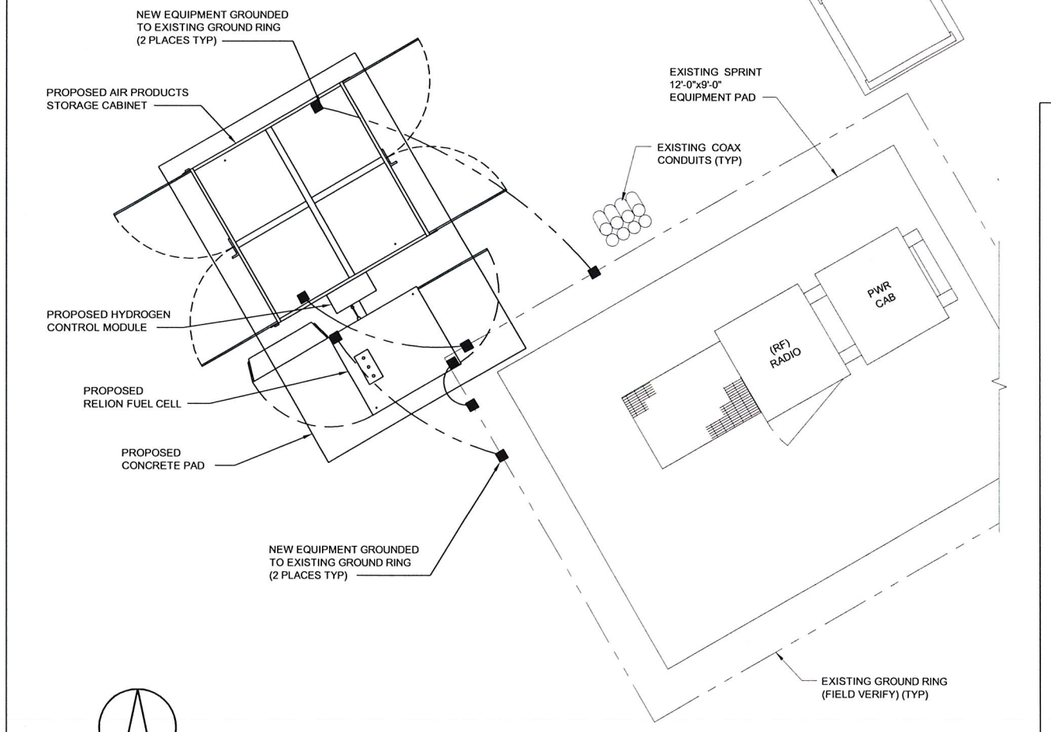
LUG DETAIL
NO SCALE

NOTES:

1. ALL HARDWARE 18-8 STAINLESS STEEL COAT ALL SURFACES WITH KOPR-SHIELD BEFORE MATING.
2. FOR GROUND BOND TO STEEL ONLY: INSERT A DRAGON TOOTH WASHER BETWEEN LUG AND STEEL. COAT ALL SURFACES WITH ANTI-OXIDATION COMPOUND (BURNDY PENETROX E, OR THOMAS & BETTS KOPR-SHIELD).

GROUNDING NOTES:

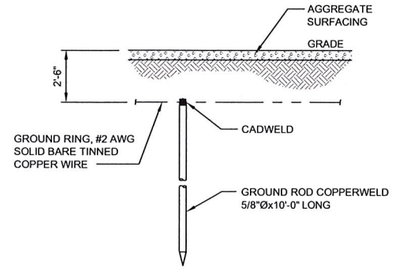
1. THE SUBCONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT.
2. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR & EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.
3. ALL EXTERIOR GROUNDING CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
4. ALL EXTERIOR GROUNDING CONDUCTORS SHALL BE 2 AWG SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
5. CONNECTIONS TO THE GROUNDING BUS SHALL NOT BE DOUBLED UP OR STACKED. BACK TO BACK CONNECTIONS ON OPPOSITE SIDES OF THE GROUND BUS ARE PERMITTED.
6. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.
7. MAXIMUM RESISTANCE OF THE COMPLETED GROUND SYSTEM SHALL NOT EXCEED 5 OHMS. TESTING SHALL BE PERFORMED IN ACCORDANCE WITH PROJECT SPECIFICATIONS FOR FACILITY GROUNDING, USING FALL OF POTENTIAL METHOD.



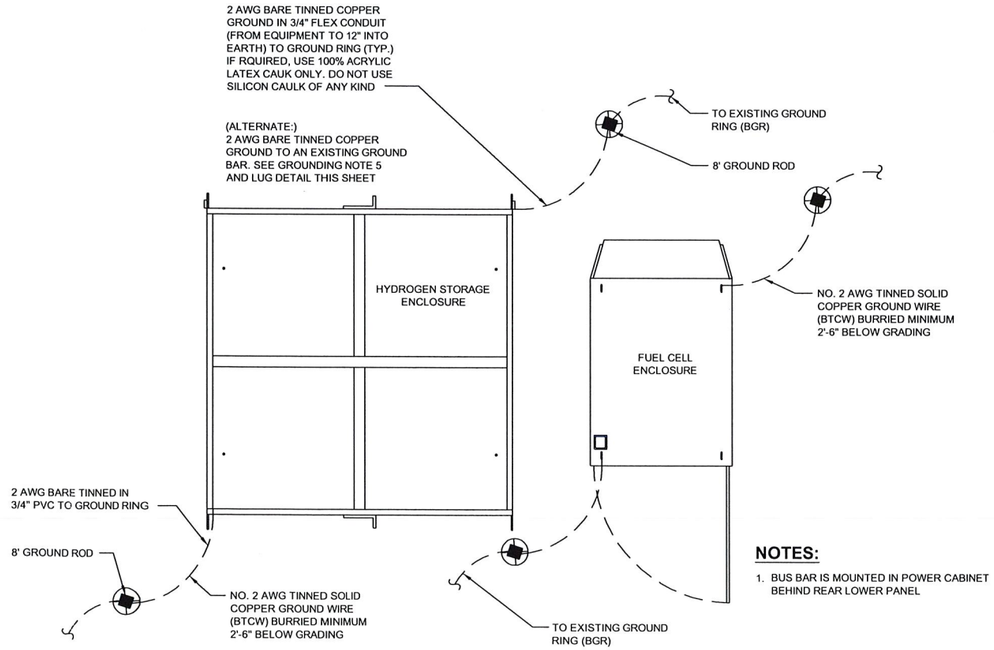
GROUNDING PLAN

GROUNDING LEGEND

- EXISTING GROUND RING
- NEW GROUND ROD
- CADWELD CONNECTION (EXOTHERMIC WELD)
- NEW GROUND RING



GROUND ROD DETAIL
NO SCALE



HYDROGEN TANKS AND ENGINE STAND ALONE GROUNDING DETAIL (IF APPLICABLE)

NOTES:

1. BUS BAR IS MOUNTED IN POWER CABINET BEHIND REAR LOWER PANEL

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SHEET TITLE
GROUNDING PLAN AND DETAILS

SHEET NUMBER
G-1