GENERAL:

THE INTENT OF THE FOLLOWING SPECIFICATION IS TO PROVIDE A SOLAR POWER SYSTEM TO POWER AN INFORMATION DISPLAY SPEED FEEDBACK DISPLAY 24 HOURS PER DAY 7 DAYS PER WEEK, AND HAVE THE CAPABILITY OF DATA COLLECTION.

DESCRIPTION:

THE PURPOSE OF THIS SPECIFICATION IS TO DESCRIBE THE MINIMUM ACCEPTABLE DESIGN FOR A SOLAR POWERED SYSTEM TO POWER A SPEED DISPLAY. THE SYSTEM WILL BE DESIGNED TO OPERATE FOR A PERIOD OF 24 HOURS PER DAY, 7 DAYS PER WEEK. THE SYSTEM SHALL BE DESIGNED TO OPERATE WITH A PROBABILITY OF NO LOSS OF LOAD DURING ALL MONTHS OF THE YEAR. THE VENDOR WILL SUPPLY DOCUMENTATION SHOWING SYSTEM DESIGN ASSUMPTIONS, PROBABILITY OF LOSS OF LOAD, ARRAY TO LOAD RATIO, AND BATTERY AUTONOMY. A SYSTEM SIMILAR TO ELTEC PART NUMBER S890587 IS ACCEPTABLE.

1. CABINET

THE CABINET SHALL BE MANUFACTURED OF 0.125" SHEET ALUMINUM. NOMINAL CABINET DIMENSIONS SHALL BE 26.25" H x 14.75" D. THE CABINET SHALL ACCOMMODATE 2 TYPE 31 BATTERIES. THE CABINET SHALL BE A TWO (2) COMPARTMENT TYPE, THE BOTTOM COMPARTMENT SHALL HAVE A NEOPRENE GASKET SEAL SO AS TO PREVENT BATTERY GASES FROM SEEPING INTO THE TOP COMPARTMENT. THE CABINET SHALL HAVE WIRE SCREENED INSECT PROOF LOUVERS ON EACH SIDE OF BOTH COMPARTMENTS FOR VENTILATION. THE LOUVERS SHALL BE DESIGNED TO NOT ALLOW ANY RAIN TO ENTER THE CABINET. ON THE BOTTOM OF THE CABINET THERE SHALL BE TWO SCREENED INSECT PROOF DRAIN HOLES.

THE DOOR SHALL BE A SINGLE UNIT WITH A CONTINUOUS PIANO HINGE RIVETED TO THE DOOR AND THE CABINET. THE DOOR SHALL INCORPORATE A NEOPRENE GASKET WHICH, WHEN CLOSED, FORMS A SNUG WEATHER TIGHT SEAL. THE DOOR LOCK SHALL BE A STANDARD POLICE LOCK, REINFORCED WITH A STEEL PLATE.

EACH CABINET SHALL BE EQUIPPED WITH THE NECESSARY RIGID TOP AND BOTTOM MOUNT FOR A 4 INCH ID POLE WITH 4.5 INCH OD POLE CLAMPS. ALL NECESSARY HARDWARE FOR PROPER MOUNTING SHALL BE INCLUDED.

2. CONTROL PANEL

THE CONTROL PANEL CONTAINING THE ELECTRONICS (SOLAR CHARGE CONTROLLER) SHALL BE MOUNTED IN THE TOP COMPARTMENT OF THE CABINET USING BOLTS WITH WING NUTS FOR QUICK AND EASY REMOVAL. THE SOLAR PANEL BEACON AND BATTERY SHALL BE CONNECTED THROUGH A MAIN WIRING HARNESS VIA A CIRCULAR PIN CONNECTOR (CPC).

THE SOLAR PANELS, LOAD, AND BATTERY SHALL BE FUSED FOR SHORT CIRCUIT PROTECTION AND EASE OF SYSTEM MAINTENANCE.

THE SOLAR CHARGE CONTROLLER SHALL CONTROL BATTERY CHARGING THROUGH PULSE WIDTH, MODULATED, TEMPERATURE COMPENSATING, CONSTANT CHARGING ALGORITHM. THE SOLAR CHARGE CONTROLLER WILL HAVE BOTH A LOW VOLTAGE DISCONNECT (LVD) OF 11.4 VDC AND A HIGH VOLTAGE DISCONNECT OF 15.5 VDC. A LIQUID CRYSTAL DISPLAY (LCD) OF BATTERY VOLTAGE, SOLAR ARRAY CURRENT, AND LOAD CURRENT WILL BE AVAILABLE WITH THE SOLAR CHARGE CONTROLLER. IN ADDITION, COLORED LED'S WILL DISPLAY BATTERY STATE. A GREEN LED WILL INDICATE FULL CHARGE, AMBER LED WILL INDICATE HALF CHARGE, AND A FLASHING RED LED WILL INDICATE LOW CHARGE. A SOLID GLOWING RED LED WILL INDICATE THE LOAD HAS BEEN DISCONNECTED. A SEPARATE GREEN LED WILL INDICATE THE BATTERY IS BEING CHARGED.

THE SOLAR CHARGE CONTROLLER WILL HAVE A LOAD DISCONNECT PUSHBUTTON. WHEN THE LOAD IS DISCONNECTED THE BUTTON WILL GLOW RED.

THE SOLAR CHARGE CONTROLLER WILL BE CAPABLE OF OPERATING IN A TEMPERATURE RANGE OF −40 DEGREES C AND +85 DEGREES C.

CITY OF
PUYALLUP
DEVELOPMENT ENGINEERING and
PUBLIC WORKS DEPARTMENTS

SOLAR POWERED ACTIVE SPEED DISPLAY SIGN NOTES

DRAWN BY	CHECKED BY	APPROVED BY	REVISED BY	CITY STANDARD
JIM ERWIN-SVOBODA	LINDA LIAN	COLLEEN HARRIS	XXXX	
FILE NAME		DATE APPROVED	DATE REVISED	SCALE
F:\DWG\COMMON\STDS\CITYSTDS\STR\01.07\01.07.01		07/01/2009	XX/XX/XX	1:1

01.07.01