ELECTRICAL NOTES

PART 1: GENERAL

A. DESCRIPTION

Provide all requirements and criteria for safety and reliability to furnish and install complete operating electrical system, including materials, labor, necessary equipment as herein specified. Comply with City of Elmood, National Electrical Code, IDOT, Ameren Illinois and all applicable codes and standards. The equipment and installation shall confirm with the standard specifications for road and bridge construction of the Illinois Department Of Transportation including latest revision and supplemental specifications, as well as the special Provisions.

B. Scope of Work

1. Contractor shall furnish, install, and test complete street lighting system with all lighting poles, luminaries, foundations, lighting control cabinet, conduits, hangers, supports, devices, wiring, etc., required for a complete and operational installation. After installation, contractor shall completely test all components in compliance with IDOT standards to ensure complete functional installation.
2. The work shall be performed in accordance with the rules and regulations set forth in the local governing code. The work shall also meet the laws and ordinance required by those agencies having jurisdiction.
3. Contractor shall visit the site and make himself thoroughly familior with existing conditions. Prior to submitting the proposal, include any relocation and/or alternations to the existing electrical system, components or equipment required to accommodate the new construction.
4. Contractor shall obtain all permits required to perform his work. Prepare and submit to the authorities any and all data, drawings and details required for approval before commencing the installation.
5. Maintain existing street lighting system operation during construction until new construction of street lighting system is completed. Maintain existing lighting as temporary lighting during the construction period. Remove same upon completion of the project.
6. Contractor shall coordinate work with all trades and avoid conflicts and delays.
7. Notify the engineer in writing of any discrepancies between the existing conditions and the new work. Lack of notification shall indicate that no discrepancies or conflicts exist.
8. All light poles shall be non-breakaway type.
9. Contractor shall coordinate work with utility companies, including electric, water, gas, sewer, cable, etc.
10. 2" DIA. PVC Conduit shall be pushed under street or driveway and extended 3'-0" on each side.
11. As part of this work Owner shall have first salvage rights to any item removed as part of this project. Dispose of all others. Any unused equipment or wiring will not be allowed to be abandoned in place.
12. Contractor is responsible to identify all underground and overhead utility conflicts and ensure adequate clearances between utilities and new lighting system.
13. After construction of new system remove old lighting poles, foundations and wiring. Abandon in place the conduit system.
14. The contractor shall be responsible for damage incurred by him in any area of the project such as pavement, driveways, and sidewalks and shall restore them to their original condition as directed by the engineer. Landscaped areas shall be restored and damaged plant materials replaced to the satisfaction of the engineer.
15. An Ameren Illinois approved meter socket shall be supplied at the electrical service installation which has a Meter Socket with a level bypass. The meter socket shall also meet all NESC codes.
16. Contractor shall provide Schedule 80 conduit on the power pole where the electrical service connection is to be made. Ameren Illinois will provide the connectors to keep the schedule 80 conduit 6-8 inches from the power pole.

C Guarantee

1. Guarantee in writing all electrical equipment for a period of one year following date of substantial completion.
2. All apparatus shall be built and installed so as to deliver its full rated capacity at the efficiency for which it was designed.

D Construction Phase Submittals

Submit shop drawings to the engineer for approval. Prepare and provide the engineer with a complete set of circuited " record" drawings at project completion. Such drawings shall be submitted on a clear and legible reproducible form.

PART 2: PRODUCTS

A. Quality Level

All material and equipment used for this project shall be UL listed and approved for the intended applications unless otherwise noted.

B. Material

1. Site lighting branch circuits shall be #8 AWG minimum, unless otherwise noted. Control wiring shall be #14 AWG minimum.

PART 3: EXECUTION

1. Provide a complete properly operating system for each item of equipment called for under this notes. Install in accord with the equipment manufacturer's instructions, the best industry practices and under competent supervision at all time.
2. Prior to inspection to determine substantial completion the contractor shall operate all electrical system to demonstrate that the installation and performance of the system conform to the requirements specified above and on the drawings.

SP	SPECIALTY	CODE NO.	ITEM	UNIT	TOTAL QUANTITY
		80500100	SERVICE INSTALLATION, TYPE A	EACH	1
		81028350	UNDERGROUND CONDUIT, PVC, 2" DIA.	FOOT	936
		81400100	HANDHOLE	EACH	3
		81702431	ELECTRIC CABLE IN CONDUIT, 600V, (XLP-TYPE USE) 3-1C NO.8, 1/C NO.8 GROUND	FOOT	1186
		81702120	ELECTRIC CABLE IN CONDUIT, 600V, (XLP-TYPE USE) 1C NO.8	FOOT	2372
		82500350	LIGHTING CONTROLLER, BASE MOUNTED, 240VOLT, 100AMP	EACH	1
		83600200	LIGHT POLE FOUNDATION, 24" DIAMETER	FOOT	38.5
		84200500	REMOVAL OF LIGHTING UNIT, SALVAGE	EACH	4
*		X0326654	ORNAMENTAL LIGHT UNIT, COMPLETE	EACH	7
*		Z0033028	MAINTENANCE OF LIGHTING SYSTEM	CAL MO	3

ELECTRICAL LOAD SCHEDULE

PANEL	CIRCUIT NUMBER	SIZE OF BREAKER	NO. OF LTG FIXTURE	RED PH. (AT 120V)	BLACK PH. (AT 120V)
A1 100A, 120/240V, 1PH, 3W	A	50A, 240V	(4) 300W		
	B	50A, 240V	(3) 300W		
	C	50A, 240V	SPARE		
	D	50A, 240V	SPARE		
	E,F,G,H	50A, 240V	SPARE		
			SUBTOTAL		
			CABINET A1 TOTAL LOAD (240V, 1PH)		

*120V RECEPTACLE LOAD IS INCLUDED

VOLTAGE DROP CALCULATION FOR CABINET A1

PROJECT	ELMWOOD STREETSCAPE		LOCATION		NW CORNER MAIN AND ROSE
CABINET	A1		CABLE SIZE		3-1/C NO.8 & 1-1/C NO.8
CIRCUIT	A		CONDUCTOR		COPPER
SYSTEM VOLTAGE	240V		LUMINAIRE VOLTAGE		240V
NO. OF LUMINAIRES	CURRENT/LUMINAIRE	DISTANCE	2X	RESISTIVITY	VOLTAGE DROP
4	1.42A	163FT	2	0.78	0.46V
3	1.42A	145FT	2	0.78	0.81V
2	1.42A	90FT	2	0.78	0.76V
1	1.42A	84FT	2	0.78	0.24V
				TOTAL	2.27V

TOTAL VOLTAGE DROP/ SYSTEM VOLTAGE
=0.99%

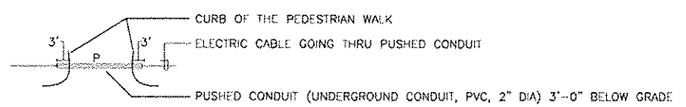
VOLTAGE DROP CALCULATION FOR CABINET A1

PROJECT	ELMWOOD STREETSCAPE		LOCATION		NW CORNER MAIN AND ROSE
CABINET	A1		CABLE SIZE		3-1/C NO.8 & 1-1/C NO.8
CIRCUIT	B		CONDUCTOR		COPPER
SYSTEM VOLTAGE	240V		LUMINAIRE VOLTAGE		240V
NO. OF LUMINAIRES	CURRENT/LUMINAIRE	DISTANCE	2X	RESISTIVITY	VOLTAGE DROP
3	1.42A	145FT	2	0.78	0.41V
2	1.42A	145FT	2	0.78	0.81V
1	1.42A	85FT	2	0.78	0.71V
				TOTAL	1.93V

TOTAL VOLTAGE DROP/ SYSTEM VOLTAGE
=0.85%

*All poles shall have the same offset from the roadway centerline to maintain visual alignment.

New foundation and poles shall be located away from any existing utilities. Contractor shall identify all utilities and dig by hand to expose utility lines. Final exact location of foundation and pole shall be coordinated and approved prior to installation.



TYPICAL PUSHED CONDUIT DIAGRAM
N.T.S.
REFER TO ELECTRICAL PLAN FOR EXACT LOCATION

Highway Lighting Voltage Drop Calculations

$V_d = 2(D)\ (I)\ (R)$

V_d = Voltage Drop

D = Length of cable

2 = Multiplier; since current leaves and returns

I = Total current in segment

R = DC Resistance of the cable

$\%V_d = \frac{V_d}{240}(100)$

FILE NAME =	DESIGNED CH	REVISED -	
	DRAWN CH	REVISED -	
USER NAME =	CHECKED DA	REVISED	
PLOT DATE =	DATE 10/29/2012	REVISED -	

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CHICAGO, IL 60654
(312)467-0123

CITY OF ELMWOOD

LIGHTING PLAN NOTES
ELMWOOD STREETSCAPE

SCALE: STA. TO STA.

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	10-00002-00-LS	PEORIA	34	27
		CONTRACT NO. 89604		
	ILLINOIS FED. AID PROJECT			