

CLERK'S CONTRACT and AGREEMENT COVER PAGE

Legistar File ID#:

Innoprise Contract #: C14-0023

Year: 2014

Amount:

Department: Finance - all

Contract Type: Master Agreement for Professional Services

Contractors Name: V3 Companies of Illinois

Contract Description: Master Agreement for Professional Services (all executed proposals are filed as Exhibit B)
C14-0024 03/19/2014 Topographic Survey of Nature Center \$4900
C17-0105 2017-0401 Harlem Ave Street Lights \$26000

MAYOR
Keith Pekau

VILLAGE CLERK
John C. Mehalek

14700 S. Ravinia Avenue
Orland Park, IL 60462
708.403.6100
OrlandPark.org



TRUSTEES

Kathleen M. Fenton
James V. Dodge
Patricia A. Gira
Carole Griffin Ruzich
Daniel T. Calandriello
Michael F. Carroll

September 14, 2017

Mr. Michael Rehtorik
V3 Companies of Illinois
7325 Janes Avenue
Woodridge, Illinois 60517

RE: Exhibit B for Harlem Avenue Street Lighting dated May 19, 2017 to Master Agreement dated March 20, 2014

Dear Mr. Rehtorik:

Enclosed is a copy of Exhibit B dated May 19, 2017 for the Harlem Avenue Street Light Maintenance project. Please attach this to the original Master Agreement for Professional Services dated March 20, 2014. All the terms of that agreement shall apply to this work.

If you have any questions, please call me at 708-403-6173.

Sincerely,

A handwritten signature in blue ink that reads "Denise Domalewski".

Denise Domalewski
Purchasing & Contract Administrator

Encl:

cc: Rich Rittenbacher



May 19, 2017

Mr. Richard Rittenbacher
Village of Orland Park
Public Works Department
15655 Ravinia Avenue
Orland Park, IL 60462

VIA Email: RRittenbacher@orlandpark.org

Re: Proposal for Professional Services
Harlem Avenue – From 159th Street to 151st Street
Street Light Maintenance Project
Romeoville, Illinois

Dear Mr. Rittenbacher:

On behalf of V3 Companies of Illinois, Ltd. (V3), we are pleased to submit this proposal for professional engineering services on the above referenced project. If you find this proposal to be acceptable, the executed copies of this letter, together with the General Terms and Conditions, attached hereto, which sets forth the contractual elements of this agreement, will constitute the entire agreement between the Village of Orland Park (Village) and V3 for services on this project.

of the
master
Agreement
March 20, 2014
6/21/17

I. Introduction

The project limits will include Harlem Avenue from 159th Street to 151st Street in Orland Park, Illinois. As part of the Village's street lighting maintenance plan, it is our understanding that the scope of work will include: replacing the wiring for the street lights, replacing the street lighting controller, adding weatherproof receptacles and associated wiring, and providing the project data in a GIS format compatible with the Village's GIS system. There are a total of 43 street lights within the project limits. The Village is requesting design engineering services for permitting the project through IDOT.

II. Scope of Services

The following tasks are V3's proposed scope of services on this project.

Task 1: Topographic Survey

V3 will perform a surface topographic survey of approximately 5,200 feet of Harlem Avenue from 159th Street to 151st Street. The survey area shall include the entire right-of-way of Harlem Avenue and shall extend 10 feet beyond the right-of-way on either side. The scale of the survey will be as necessary to show all topographic information in a clear and legible manner. Pavement types such as concrete, asphaltic concrete, gravel, etc. will be indicated. Surface topographic survey shall include all visible improvements such as; street lights, utilities, manholes, mailboxes signs, trees, landscape area, traffic signals, etc. Utilities shall be shown based on visible field verified structures, in coordination with atlas information provided by utility companies through J.U.L.I.E.'s design stage process, if available.

Right-of-way lines shall be established from existing monumentation and record drawings provided by the Village.

The topographic survey will not include elevations and utility invert data.

Task 2: Data Collection & Review

1. Obtain all available reports, as-built plans, right-of-way plans, mapping, surveys, aerials, and GIS data from the Village.
2. Conduct a field assessment of the lighting system. The field assessment will include, but not be limited to: an inventory of the lighting system, efficiency and functionality of the system, inspection of each street light pole, fixture, and foundation noting any damage, impacts to local businesses, and identification of any potential concerns or conflicts. V3 will summarize the findings and provide recommendations for the project.
3. The field data will be collected electronically using smart phones or tablets and the ArcGIS mobile application through WiFi or cellular networks. The field data will be synchronized with the GIS data provided by the Village and updated accordingly. The updated GIS data file will be submitted to the Village.
4. Perform voltage drop calculations and determine wire sizes for the existing street lights and new receptacles. Determine the number of circuits and breaker sizes to accommodate the new system.
5. It is assumed that the new lighting controller will be installed in close proximity to the existing lighting controller. Coordinate the power service location with ComEd and prepare the necessary forms on the Village's behalf.

Task 3: Phase II Engineering Plans, Specifications & Estimate (PS&E)

1. Phase II engineering plans will be prepared in accordance to IDOT standards. The engineering plans will be prepared by or under the supervision of an Illinois registered Professional Engineer. The plans will consist of the following sheets.
 - Title Sheet
 - Index of Sheets and General Notes
 - Summary of Quantities
 - Removal Plans
 - Street Lighting and Electrical Plans
 - Street Lighting and Electrical Details
 - District One Standard Details
 - IDOT Standard Details
2. V3 will prepare specifications and special provisions for the project. IDOT District 1 Electrical Special Provisions and any Village special provisions will be included in the document.
3. V3 will prepare an engineer's opinion of probable construction costs for the project utilizing Village unit prices (if available) and pay item reports from IDOT's website.
4. The PS&E will be submitted to the Village for review. V3 will revise the documents as necessary based on the Village's review.



Task 4: IDOT Permit Coordination

1. After the Village's review described in Task 3, the PS&E will be submitted to IDOT.
2. V3 will serve as the Village's representative in coordination with IDOT to obtain the necessary approvals and permit for the project.
3. V3 will prepare a disposition of comments letter for each IDOT review. It is assumed that a maximum of three submittals to IDOT will be required and any additional submittals to IDOT beyond that will be considered additional services.
4. V3 will assist the CLIENT in completing the Highway Permit Form, the Highway Permit Bond Form, and the Traffic Control Authorization Form.

Task 5: Meetings

V3 will schedule and attend meetings as necessary throughout the project and will prepare meeting minutes as necessary. It is anticipated that meetings will be required for, but not be limited to, the following:

- Project kick-off meeting with the Village;
- Progress, design, and submittal meetings with the Village and/or IDOT; and
- Utility coordination meetings.

A maximum of four meetings is included under this task.

Task 6: Project Bidding

If requested by the Village, once the final plans and specifications are approved by the Village and IDOT, V3 will:

1. Obtain the electronic copies of the Village's up-front bid documents and prepare a project manual for bidding in accordance to Village's requirements that will include instructions to bidders, required bid submission documents, and any other pertinent information.
2. Provide a list of potential qualified bidders to the Village.
3. Attend a pre-bid meeting.
4. Issue any addendums to perspective bidders as required to interpret or clarify the Bid Documents.
5. Address any RFI's during bidding phase.
6. Attend the bid opening meeting.
7. Assist the Village in reviewing contractor bid proposals and recommend award of contract.

III. Extent of Agreement

This agreement is for street lighting and electrical design engineering services as described above. If additional tasks are required, those services will be the subject of additional services or separate agreements. Furthermore, this agreement does not include services for:

- Temporary street lighting plans;
- Photometric analysis;



- Street light fixture and pole upgrades;
- Roadway or traffic signal design services;
- Structural design services;
- Meetings in addition to those specified above;
- Wetland, geotechnical, archaeological, environmental services, or CCDD testing;
- Utility improvements, extensions, or relocation to eliminate conflicts with the proposed improvements;
- Items related to right-of-way needs, additional coordination, and unforeseen activities;
- Permit fees and bonds; and
- Construction administration, construction engineering services, construction staking, or post construction services for as-built surveys and project acceptance by IDOT.

IV. Compensation

For the aforementioned Scope of Services, V3 shall be paid the following lump sum fees.

Task 1: Topographic Survey	\$ 6,000
Task 2: Data Collection and Review	\$ 4,000
Task 3: Phase II Engineering Plans, Specifications & Estimate (PS&E)	\$ 9,500
Task 4: IDOT Permit Coordination	\$ 2,000
Task 5: Meetings	\$ 2,000
Task 6: Project Bidding	\$ 1,750
Total:	<u>\$25,250</u>

In addition to the professional services fees set forth above, V3 shall be compensated for 100% of reimbursable expenses such as mileage, printing, postage, messenger service, and other similar project-related items. Expenses are estimated to not exceed \$750.

If Additional Services are required, they will be subject to a separate agreement. No additional services will be performed without prior written approval from the Village.

The CLIENT will be invoiced monthly for professional services and reimbursable expenses. The above financial arrangements are on the basis of prompt payment of invoices and the orderly and continuous progress of the project.

V. Miscellaneous Contractual Items

If the terms of this agreement are found to be satisfactory, please sign this agreement in the space provided and return one signed copy to our office. Receipt of the signed authorization will serve as our Notice to Proceed for this work.

If there are protracted delays for reasons beyond V3's control, an equitable adjustment of the above-noted compensation shall be negotiated taking into consideration the impact of such delay on the pay scales applicable to the period when V3's services are, in fact, being rendered.

If the Village or other interested parties request design data in electronic format, V3 shall be indemnified from any claims arising out of the accuracy, misuse or reuse by others of the data delivered in electronic form.



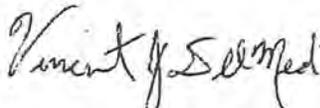
VI. Summary

This agreement, together with the General Terms and Conditions attached hereto, represents the entire understanding between the Village and V3. V3 will initiate its services promptly upon receipt of the Village's acceptance of this proposal.

We appreciate the opportunity to present this proposal and look forward to working with you on this project.

Sincerely,
V3 Companies of Illinois, Ltd.


Michael J. Rechterik, P.E., PTOE
Senior Project Manager


Vincent J. Del Medico, P.E.
Director of Transportation & Municipal
Engineering

Attachments: General Terms and Conditions

Accepted for:
VILLAGE OF ORLAND PARK

BY: 
TITLE: Village Manager
DATE: 8/24/17



Harlem Avenue Street Light Maintenance Project

A. General Description of Maintenance Project Area:

High commercial/retail zone, six lane (3 north bound and 3 south bound) north and south principal arterial, having dedicated fourth turning lanes to connector streets and businesses. North and south lanes separated by a B6-12 (raised concrete median). Sidewalks are installed along both sides of the project area.

B. Description of Existing Infrastructure

- Project Area is a FAP, State (IDOT) owned route;
 - Federal Aid to Highway Program 848
- Orland Park owns light standards and supporting infrastructure
- Approximately 23 to 25 light standards
- 40 ft. height
- No. 2 AWG and No. 4 AWG underground right-of-way wiring
- Luminaire Pole Arrangement - staggered light standards on alternating sides of the street
 - Approximately 150 feet apart

C. Description of Maintenance Plan

- Replace wiring for street lights along Harlem Avenue from 159th Street (Station 360+20) to 151st Street (Station 412+85)
- Replace street light controller system
- Add separate 120v circuit to accommodate holiday lighting at each pole
- Add weatherproof receptacle with in-use cover on each existing pole (15' above grade)
- Restoration of any disturbed land and/or ground features to existing or upgraded condition

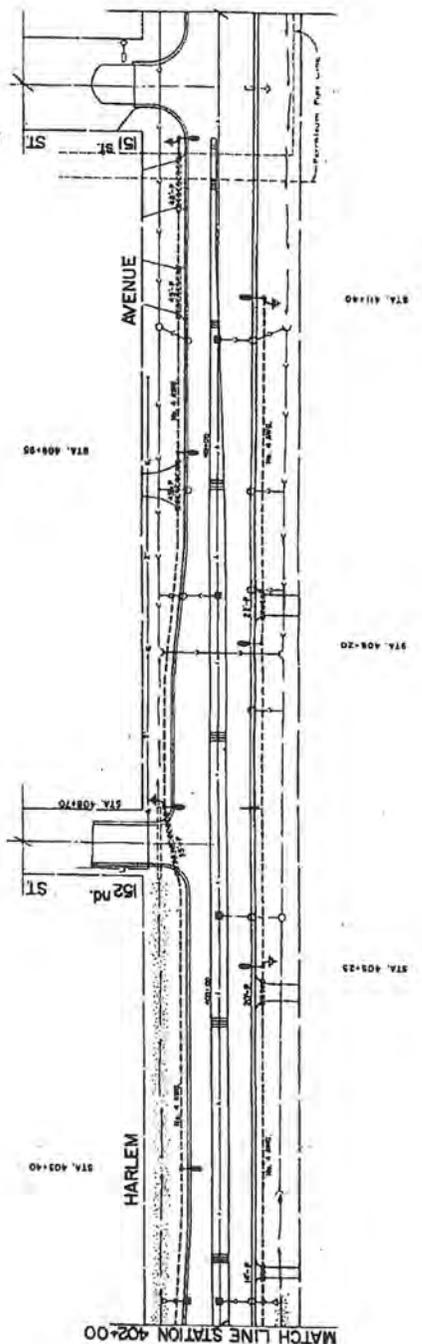
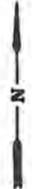
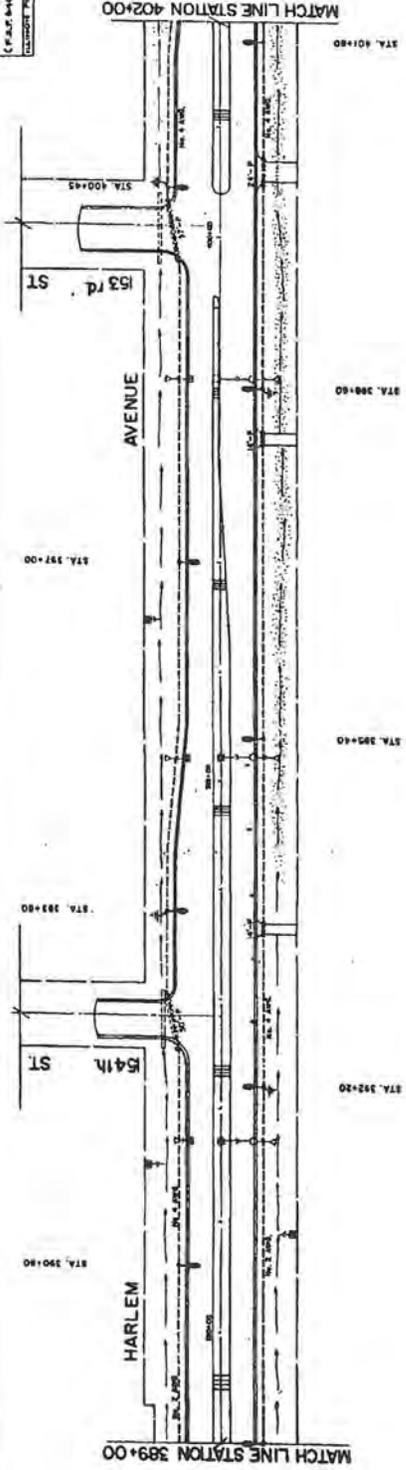
D. Areas of Special Concern

- IDOT permit is required; will IDOT require any upgrade compliance requirements
 - Increased pole height, additional standard spacing, illumination
- Potential impact on businesses ingress and egress
- Light structure base damage
- Utility Locates
- Timelines
- Work vehicle parking and traffic disruptions

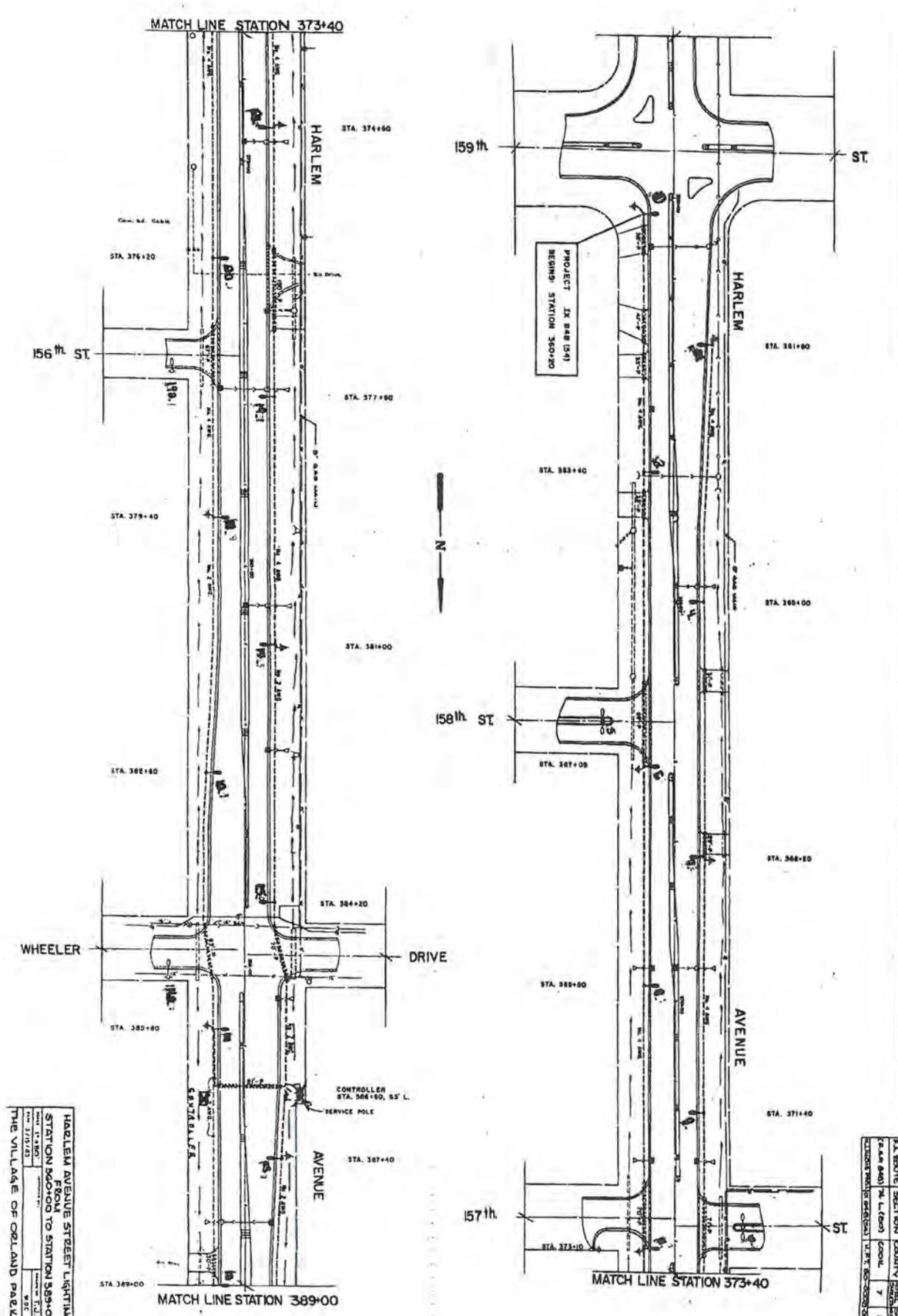
E. Expectations

- Engineers will perform a full field assessment of the lighting system and provide recommendations on efficiency and functionality
- All collected data including circuit and system mapping, right-of-way infrastructure discoveries and findings will be GIS ready and provided to Village to implement in its GIS system
- Engineer will document and record any and all potential right-of-way concerns/conflicts to include improperly installed infrastructure, undocumented and unmapped infrastructure, damaged infrastructure, etc.

S.A. BOYLE	SECTION	CONTRACT	DATE
(PLAN 842)	74 LINES	Case 7	7
CITY OF ORLANDO, FLORIDA			

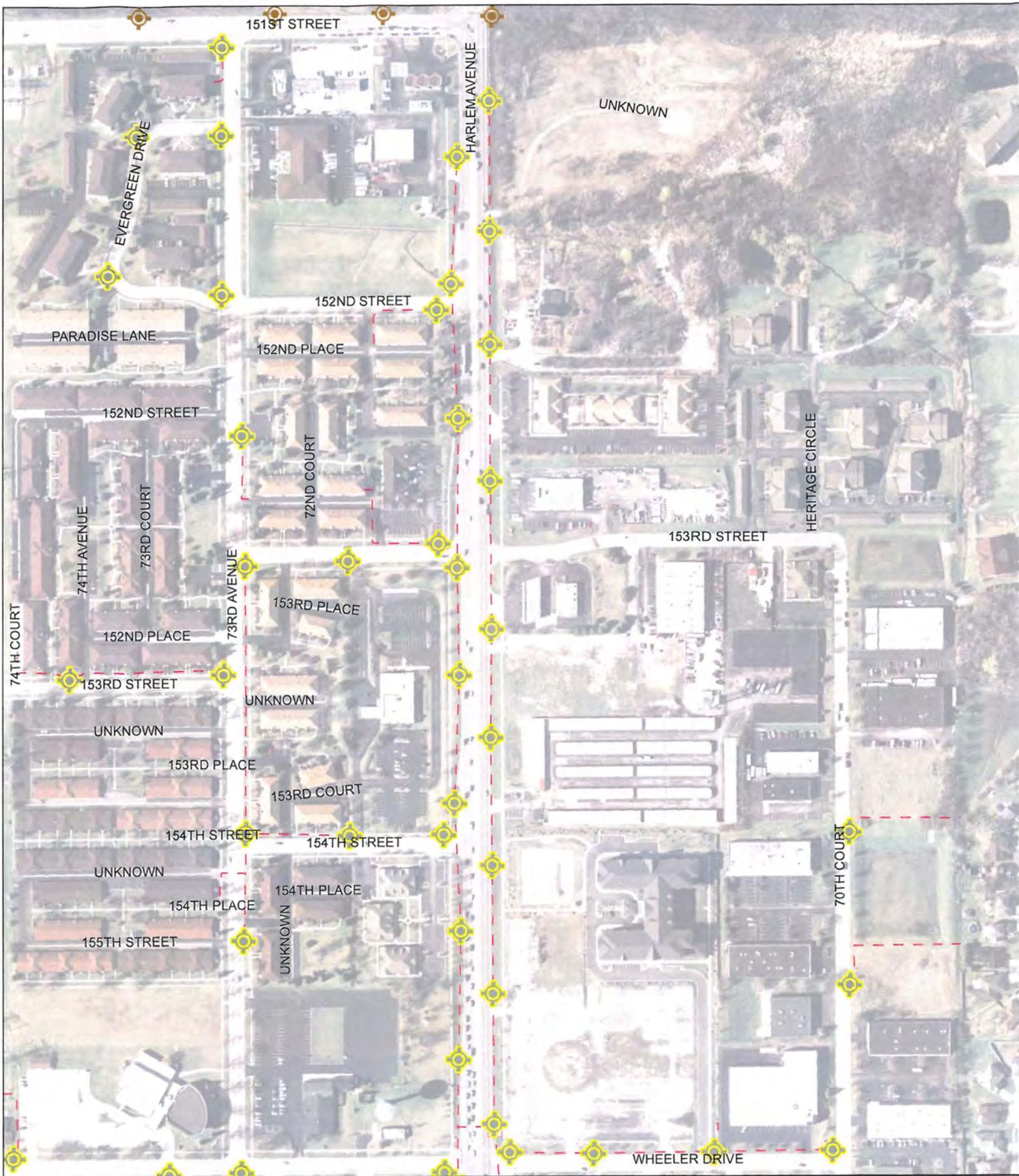


HARLEM AVENUE STREET LIGHTING	
STATION 389+00 TO STATION 412+85	
DATE	BY
7/17/23	S.A. BOYLE
THE VILLAGE OF ORLANDO PAR. 1	



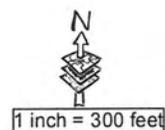
HARLEM AVENUE STREET LIGHTING
 STATION SECTION TO STATION 389+00
 DATE 11/20/23
 DRAWN BY J.L.S.
 CHECKED BY J.L.S.
 THE VILLAGE OF ORLAND PARK

P.A. ROUTE	SECTION	COUNTY	TOWNSHIP
(3484 440)	14	L. (600)	COOK
CUSTOMER PROJECT NO.	STATION	DATE	SCALE
	373+40	11/20/23	1"=40'

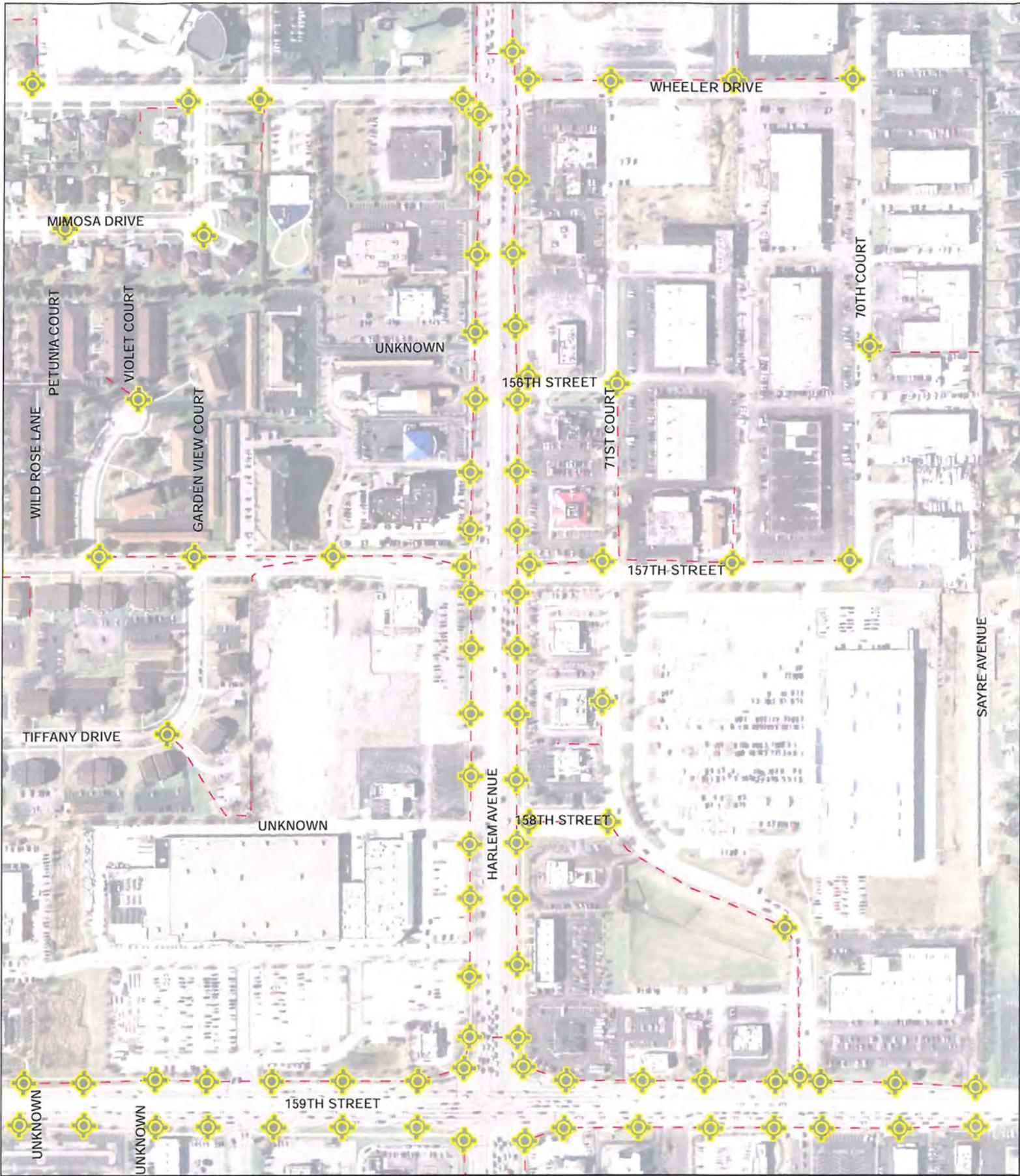


PUBLIC WORKS DEPARTMENT
 Village of Orland Park
 15655 Ravinia Avenue
 Orland Park, IL 60462
 (708) 403-6350
 publicworks@orland-park.il.us

Street Lighting Harlem Avenue Area 151st St to Wheeler Dr

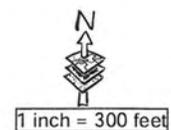


This map is for reference only. The Village makes no representations as to the accuracy of the depicted utility locations or sizes. The data is subject to change without notice. The Village of Orland Park assumes no liability in the use or application of the data. Reproduction or redistribution is forbidden without the expressed written consent from the Village of Orland Park.



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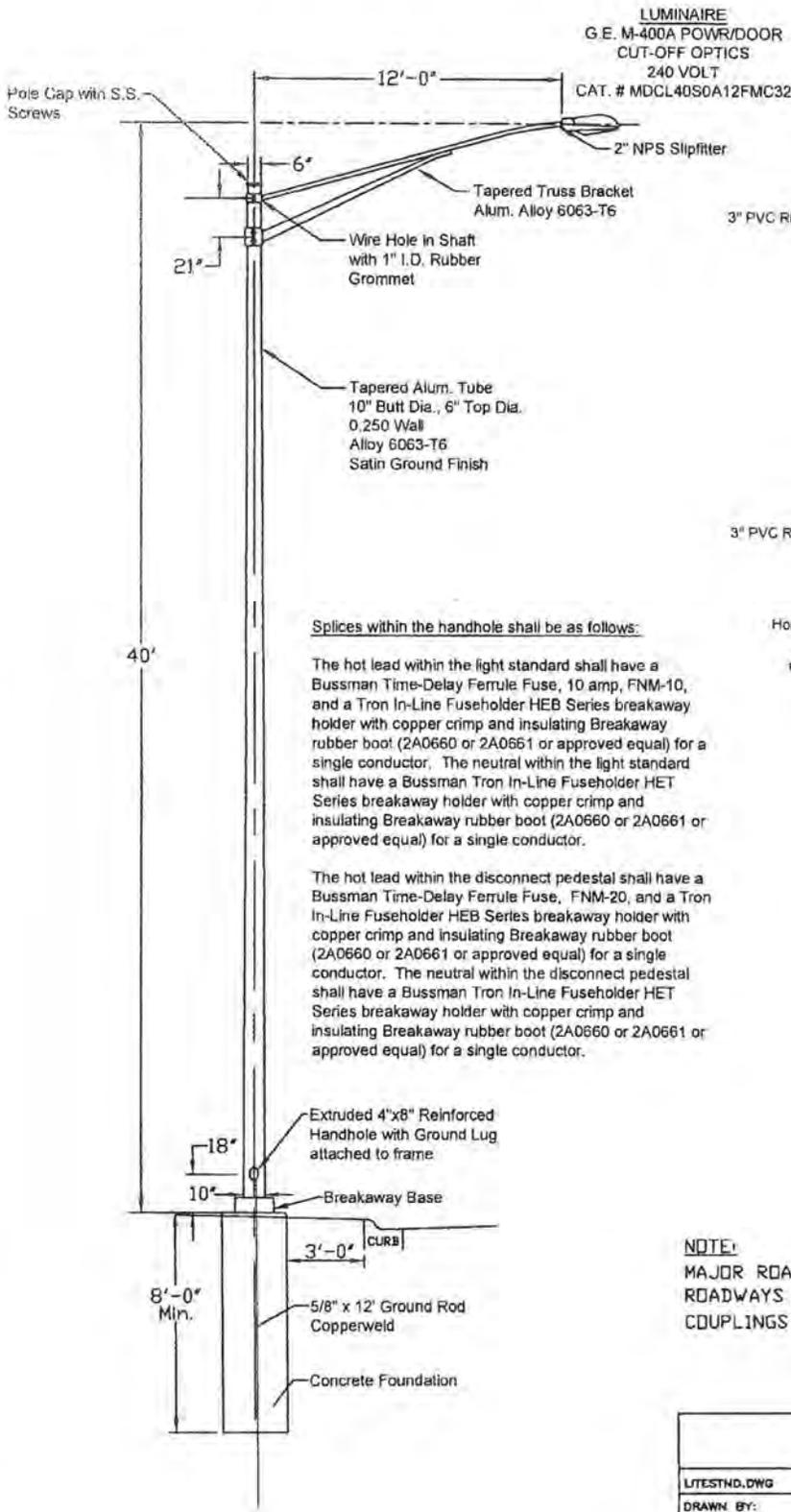
Street Lighting Harlem Avenue Area Wheeler Dr to 159th St



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ARTERIAL STREET LIGHT

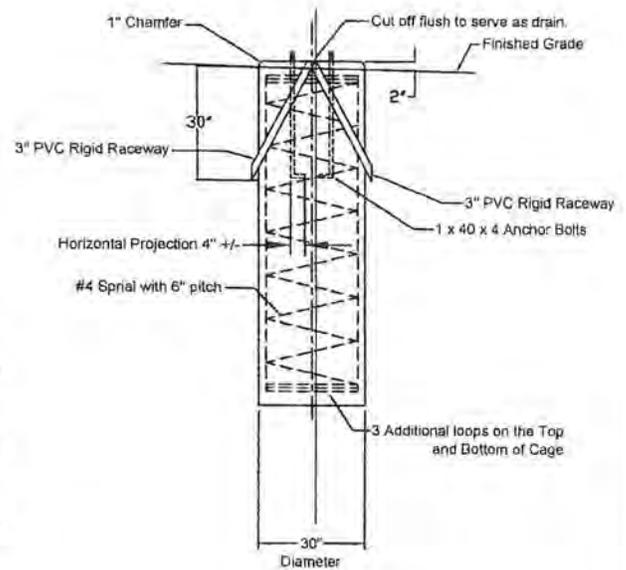
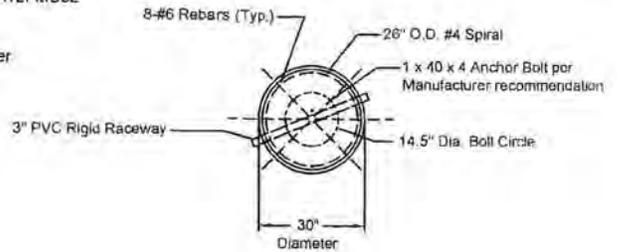
ROUND TAPERED ALUMINUM SINGLE TRUSS ARM-CLAMP ON



Splices within the handhole shall be as follows:

The hot lead within the light standard shall have a Bussman Time-Delay Ferrule Fuse, 10 amp, FNM-10, and a Tron In-Line Fuseholder HEB Series breakaway holder with copper crimp and insulating Breakaway rubber boot (2A0660 or 2A0661 or approved equal) for a single conductor. The neutral within the light standard shall have a Bussman Tron In-Line Fuseholder HET Series breakaway holder with copper crimp and insulating Breakaway rubber boot (2A0660 or 2A0661 or approved equal) for a single conductor.

The hot lead within the disconnect pedestal shall have a Bussman Time-Delay Ferrule Fuse, FNM-20, and a Tron In-Line Fuseholder HEB Series breakaway holder with copper crimp and insulating Breakaway rubber boot (2A0660 or 2A0661 or approved equal) for a single conductor. The neutral within the disconnect pedestal shall have a Bussman Tron In-Line Fuseholder HET Series breakaway holder with copper crimp and insulating Breakaway rubber boot (2A0660 or 2A0661 or approved equal) for a single conductor.



ALUMINUM POLE FOUNDATION DETAIL

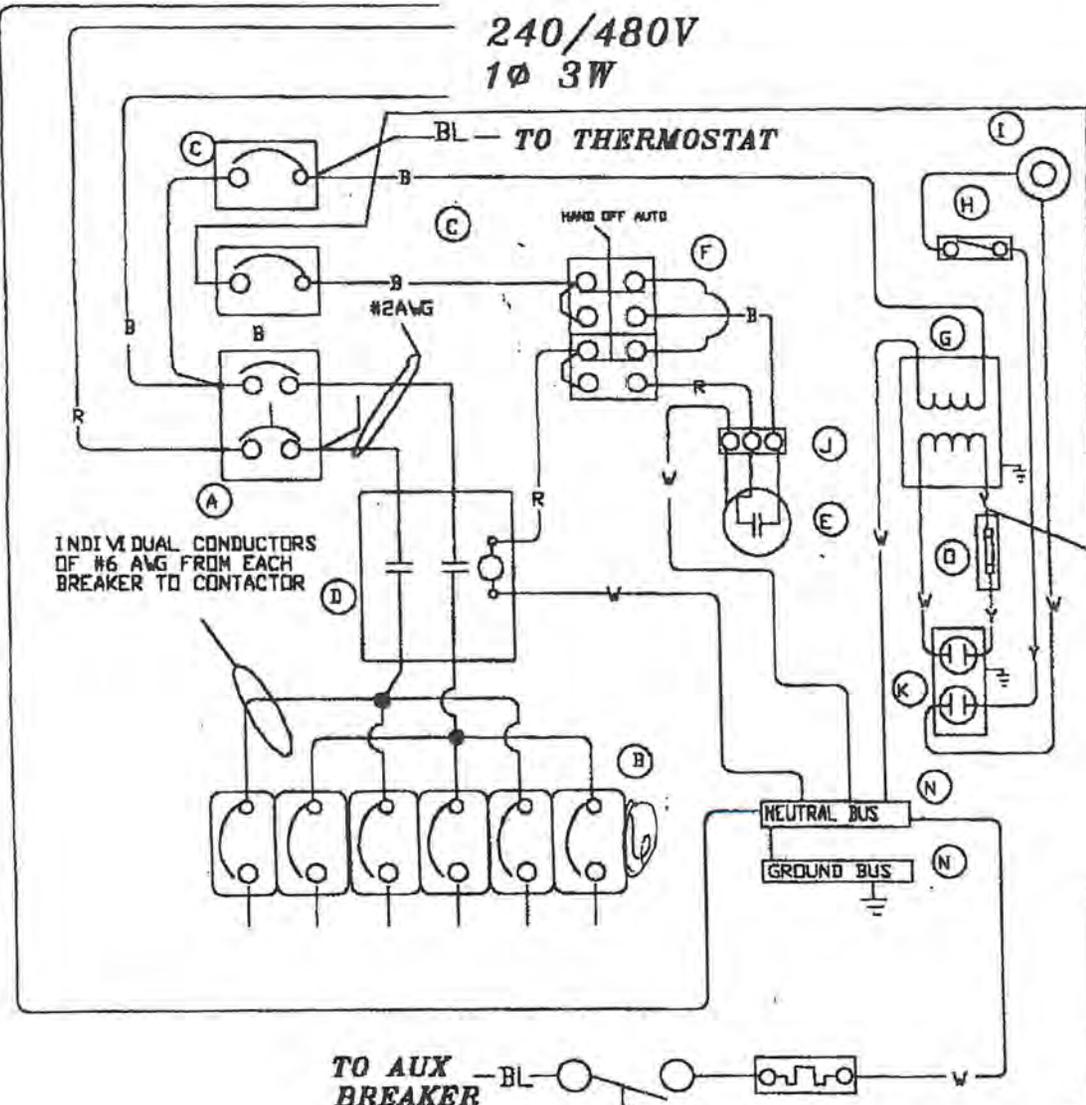
NO SCALE

NOTE:
MAJOR ROADWAYS AND ALL COUNTY AND STATE
ROADWAYS SHALL BE FITTED WITH BREAKAWAY
COUPLINGS AND COUPLING COVERS.

ALUMINUM LIGHTING STANDARD

NO SCALE

ARTERIAL STREET LIGHT		
LATEST.DWG	STREET & PAVEMENT	DATE: 08/17/2006
DRAWN BY:		REVISED:
Village of ORLAND PARK		REVISED:
Engineering Department		REVISED:
		DRAWING NO. STR-08



BILL OF MATERIALS

ITEM	QTY	DESCRIPTION
A	1	CUTLER HAMMER FD2100 2P 100 AMP
B	6	CUTLER HAMMER EHD1040 1P 40 AMP
C	2	CUTLER HAMMER EHD1015 1P 15 AMP
D	1	CH A202K3BW 2P 100A COIL 120V
E	1	NITELIGHTER PHOTOCELL FA105M
F	1	SQ D 900IKYK111 HDA SWITCH
G	1	JEFFERSON 21-0071-055 1KVA XFORMER
H	1	OMRON DOOR SWITCH A20G07BK
I	1	LEVITON 29816-C LIGHT FIXTURE
J	1	CHINCH 3 POINT TB
K	1	LEVITON 6599 15A GFCI RECP
L	1	WR THERMOSTAT # 2E552 0-50 DEG.
M	1	SS HEATER VULCAN # OS1408-250B 250 WATTS
N	2	GROUND AND NEUTRAL BUS
D	1	BUSSMAN KTK15 FUSE

POWER WIRING RHH/RHW
CONTROL WIRING #12 MTW
NEUTRAL BUS COLOR CODED WHITE
GROUND BUS COLOR CODED GREEN
UL LISTED

BL = BLUE
W = WHITE
B = BLACK
R = RED
Y = YELLOW

*Temp.
Drawing*

EXCEL LTD. INC.

888 EAST BELVIDERE ROAD PHONE: 847-543-9138
UNIT 105 FAX: 847-543-9230
GRAYSLAKE, IL. 60030 WWW.EXCELLTDINC.COM

SCALE: NTS	APPROVED BY:	DRAWN BY: JDC
DATE: 8-1-02		REVISED:

LTG CONTR PAD MT

VILLAGE OF ORLAND PARK DRAWING NUMBER: **J11478S**

*Harlem
Electric*

Instructions for Class A202 100 or 200 Ampere 2,3,4 or 5 Pole Lighting Contactors

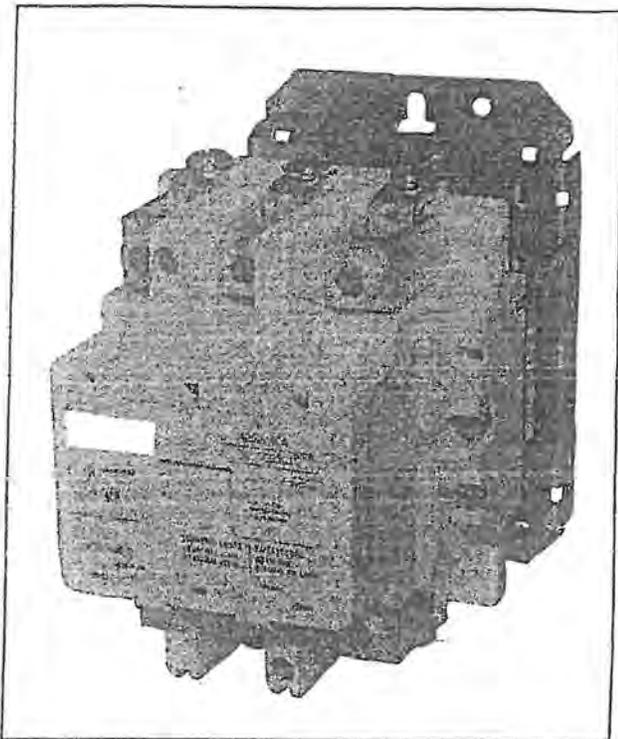


Fig. 1 200 Ampere Lighting Contactor

THE CONTACTORS

Electrically-held or magnetically-latched Class A202 lighting contactors when wired as shown in Figure 4 can control tungsten, fluorescent or metal-vapor lamp loads. Each contactor and its associated load should be protected against short circuits by a suitable branch circuit protective device selected in accordance with the National Electrical Code (NEC). See Tables IV and V.

TABLE I — CONTACTOR RATINGS	
Current Ratings	
Contactor Size	Continuous Current Per Pole, Enclosed
100 Ampere	100A
200 Ampere	200A
Voltage Ratings	
Incandescent Lamp Control	
Maximum, Line-to-Line	480VAC
Maximum, Line-to-Neutral	277VAC
Electric-Discharge Lamp Control	600VAC
General Use Switch	600VAC

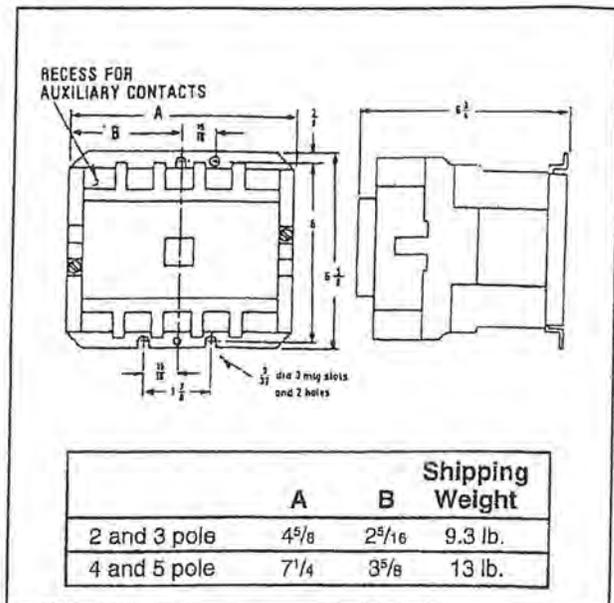


Fig. 2 Dimension Drawing (Dim. in inches)

INSTALLATION

This industrial type control is designed to be installed, operated, and maintained by adequately trained workmen. These instructions do not cover all details, variations, or combinations of the equipment, its storage, delivery, installation, check-out, safe operation, or maintenance. Care must be exercised to comply with local, state, and national regulations, as well as safety practices, for this class of equipment.

Wire with conductors rated 75°C. If conductors rated higher than 75°C are used, their size must be based on the ampacity values for 75°C conductors.

Where only three poles of a five-pole lighting contactor are to be used, it is recommended that the three poles selected be the three center poles.

TABLE II — POWER CIRCUIT TERMINALS	
Terminals are marked as suitable for either copper or aluminum conductors.	
Range of Conductor Sizes	
Contactor Rating	CU/AL Terminals
100A	#6-1/0 AWG
200A	#6-300 MCM

THE CABINET SHALL BE FABRICATED FROM .125 INCH TYPE 5052-H32 ALUMINUM. ALL EXTERNAL HARDWARE SHALL BE STAINLESS STEEL. THE CABINET SHALL BE RATED NEMA 3R.

THE DOORS SHALL BE GASKETED PER SPECIFICATIONS. THE DOOR HANDLE SHALL BE 3/4" STAINLESS STEEL AND HAVE A PROVISION FOR PADLOCKING.

THE ENCLOSURE SHALL BE VENTED. SLOTTED SCREENED VENT HOLES WILL BE PROVIDED IN THE OVERHANG.

THE MOUNTING PANEL SHALL BE 10 GAUGE GALVANIZED STEEL. EXPOSED BUS BARS SHALL BE INSULATED.

THE CABINET SHALL ~~BE PAINTED AND PRIMED AS SPECIFIED.~~ *Have A Smooth, Uniform Natural Aluminum Finish*
~~FINISH COAT SHALL BE RAL 6005 GREEN, POWDER PAINT.~~

CONNECTOR SCREWS SHALL BE PAINTED WHITE FOR NEUTRAL BUS AND GREEN FOR GROUND BUS.

POWER WIRING SHALL BE RATED RHH/RHW, 600V.

CONTROL WIRING SHALL BE #12 MTW.

ALL CONTROL WIRING SHALL BE STRANDED AND MARKED WITH BRADY MARKERS.

ALL SWITCHES AND CONTROLS SHALL BE IDENTIFIED BY MEANS OF TWO COLOR ENGRAVED NAMEPLATES.

TESTING OF THE CABINET SHALL BE PERFORMED BY EXCEL LTD, INC. AS SPECIFIED.

THE CABINET SHALL BE PROVIDED WITH A STAINLESS NAMEPLATE 6" X 12" ENGRAVED TO READ "VILLAGE OF ORLAND PARK LIGHTING CONTROLS"

THE CONTROL CABINET SHALL BE INSULATED WITH 1" THICK POLYISOCYANURATE INSULATION.

THE CONTROL CABINET SHALL BE U.L. LISTED UNDER U.L. 508A.

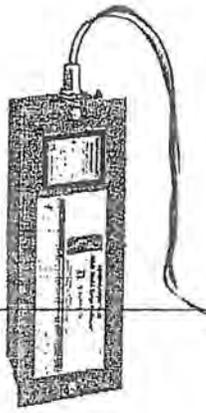
Surge Protective Devices

TVSS and Surge Arresters

Class 6671

SQUARE D
www.SquareD.com
For the most up-to-date information

5 SURGE PROTECTIVE DEVICES



SDSB1175C



QO2175SB



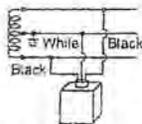
HOM2175SB



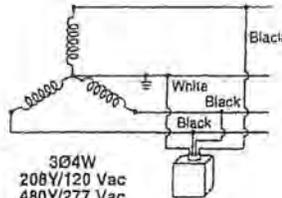
SDSA1175



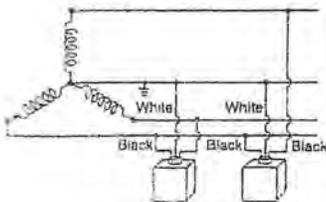
SDSA3650



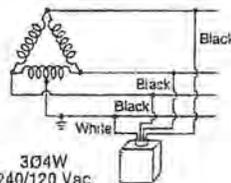
One SDSA1175 on 120/240 Vac Circuit



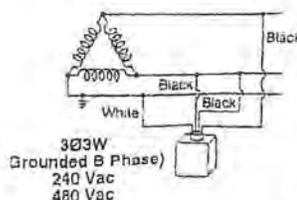
3Ø4W
208Y/120 Vac
480Y/277 Vac
600Y/347 Vac



Two SDSA1175 on 208Y/120 Vac Circuit



3Ø4W
240/120 Vac



3Ø3W
Grounded B Phase)
240 Vac
480 Vac

SURGEBREAKER® PLUS

Transient Voltage Surge Suppressor

Suitable for use in service entrance locations; meets requirements of NEC® Article 280, UL Listed 1449, 2nd Edition, and meets ANSI/IEEE C62.41-1991.

- AC line protection
- Four line telephone (Digital/Analog POTS) protection
- Two line coaxial protection
- Suitable for indoor applications only
- Flush or surface mounting
- LED status indicator
- Modular design

Single Phase Three Wire—120/240 Vac

Description	Catalog Number	Price
SURGEBREAKER PLUS	SDSB1175C	\$420.

SURGEBREAKER

Secondary Surge Arrester

Suitable for use in service entrance locations; meets requirements of NEC Article 280.

- cULus Listed secondary surge arresters; QO2175SB also CSA Certified
- Meet ANSI/IEEE C62.11-1993
- QO2175SB for QO® load centers and combination devices, NQOD panelboards
- HOM2175SB for HOMELINE® load centers and combination devices
- Plug-on design requires two pole spaces
- LED indicates operational status

Description	Catalog Number	Price
QO SURGEBREAKER cULus Listed Secondary Surge Arrester 150 Vac line-to-ground maximum.	QO2175SB	\$106.
HOMELINE SURGEBREAKER cULus Listed Secondary Surge Arrester 150 Vac line-to-ground maximum.	HOM2175SB	106.

Hard-Wired Secondary Surge Arrester

Suitable for use in service entrance locations; meets requirements of NEC Article 280.

- cULus Listed and CSA Certified secondary surge arresters
- Meet ANSI/IEEE C62.11-1993
- Suitable for indoor and outdoor applications
- LED indicates operational status

Description	Catalog Number	Price
SECONDARY SURGE ARRESTER For 1Ø3W systems. 150 Vac phase-to-ground maximum.	SDSA1175 [▲]	\$ 51.
SECONDARY SURGE ARRESTER For 3Ø systems. 600 Vac phase-to-ground maximum. ■	SDSA3650	166.

- ▲ See page 1-11 for QOSAMK mounting kit for installation in QO load centers.
- Do not use on ungrounded systems. Systems must be solidly grounded.

For additional information reference Catalog #6671CT9701R2/02.

Electric Heaters



Application

Designed to protect sensitive mechanical, electrical, and electronic equipment from the harmful effects of condensation, corrosion, and low temperatures. Thermostatically controlled fan-driven heater units maintain a stable temperature within enclosures so critical components can perform more reliably over a longer period of time.

Construction

- Attractive and durable housing is anodized aluminum
- Thermostat, standard on all units, is adjustable from 0°F to 100°F (-18°C to 38°C)
- Fan draws cool air from the bottom of the enclosure and passes this air across the thermostat and heating elements before being released into enclosure cavity
- Heated air is discharged through the top of the heater unit
- Four 10-32 x self-tapping screws are included with each heater
- Ball bearing fan runs continuously for even temperature distribution
- Terminal strip with clamp connector that accepts both solid and stranded wire

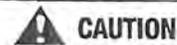
Finish

Anodized aluminum.

Industry Standards

UL Component Recognized
CSA Listed
CE

Installation



These electric heaters are not designed for use in dusty, dirty, corrosive, or hazardous locations.

Portions of the heater can get hot. Adequate protection must be taken to protect people from potential burns, and to protect other components from this heat.

This heater can only be installed in a totally enclosed metal enclosure.

Hoffman electric heaters should be centered as low as possible on an interior enclosure panel. This permits the unit to heat the cool air located at the bottom of the enclosure. For maximum efficiency and longevity, the heater should be mounted in a vertical position with the terminal block to the bottom and the air outlet openings at the top in a sealed enclosure free from dust or debris. However, the unit will also effectively distribute heat if turned 90 degrees with the terminal block out the bottom and the air outlet at the side. Although enclosure panels are preferable, heaters may be installed on any flat sheet metal surface. Do not install heaters on wood panels.

Heat sensitive components should not be placed near the heater discharge area since this air can be quite warm. The clearance range defines the space that must be kept free of these components for proper and safe operation of the heater.

Standard Sizes Electric Heaters

Catalog Number	Watts	Voltage	Hz	Amps	Weight lb. (kg.)
DAR1001A	100	115	50/60	0.9	4.00 (1.81)
DAR1002A	100	230	50/60	0.6	4.00 (1.81)
DAH2001A	200	115	50/60	1.7	4.00 (1.81)
DAH2002A	200	230	50/60	0.9	4.00 (1.81)
DAH4001B	400	115	50/60	3.3	6.00 (2.72)
DAH4002B	400	230	50/60	1.7	6.00 (2.72)
DAH8001B	800	115	50/60	6.5	6.00 (2.72)
DAH8002B	800	230	50/60	3.3	6.00 (2.72)