



Construction Solicitation #6479 (BID)

574467: ARTERIAL ROADWAY LIGHTING IMPROVEMENT CITYWIDE

Specification Number:574467

Required for use by: CHICAGO DEPARTMENT OF TRANSPORTATION

Bid/Proposal Submittal Date and Time: 11:00 AM Central Time, 24-SEP-2018

Deadline for Questions: 04:30 PM Central Time, 12-SEP-2018

Buyer: WARD, SONJI

Email Address: Sonji.Ward@cityofchicago.org

Phone Number: 3127444916

Pre-Solicitation Conference Date and Time: 01:00 PM Central Time, 11-SEP-2018

Pre-Solicitation Conference Location: City of Chicago, City Hall, 121 North LaSalle - Room 1103

Site Visit Date & Time: N/A

Site Visit Location: N/A

Please submit your response to:

<http://www.cityofchicago.org/eProcurement>
iSupplier vendor portal registration is required.
Allow 3 business days to complete registration.

RAHM EMANUEL
MAYOR

SHANNON E. ANDREWS
CHIEF PROCUREMENT OFFICER

Specification Number: 574467

Type of Funding: CITY

Title: 574467: ARTERIAL ROADWAY LIGHTING IMPROVEMENT CITYWIDE

Table of Contents

1 Header Information.....8

 1.1 General Information.....8

 1.2 Terms.....8

 1.3 Requirements.....8

 1.4 Attachments.....16

 1.5 Response Rules.....16

2 Price Schedule.....17

 2.1 Line Information.....17

 2.2 Line Details.....27

 2.2.1 Line 1.....27

 2.2.2 Line 2.....27

 2.2.3 Line 3.....27

 2.2.4 Line 4.....27

 2.2.5 Line 5.....27

 2.2.6 Line 6.....28

 2.2.7 Line 7.....28

 2.2.8 Line 8.....28

 2.2.9 Line 9.....28

 2.2.10 Line 10.....28

 2.2.11 Line 11.....28

 2.2.12 Line 12.....29

 2.2.13 Line 13.....29

 2.2.14 Line 14.....29

 2.2.15 Line 15.....29

 2.2.16 Line 16.....29

 2.2.17 Line 17.....29

 2.2.18 Line 18.....30

 2.2.19 Line 19.....30

 2.2.20 Line 20.....30

 2.2.21 Line 21.....30

2.2.22 Line 22.....30

2.2.23 Line 23.....30

2.2.24 Line 24.....30

2.2.25 Line 25.....31

2.2.26 Line 26.....31

2.2.27 Line 27.....31

2.2.28 Line 28.....31

2.2.29 Line 29.....31

2.2.30 Line 30.....31

2.2.31 Line 31.....32

2.2.32 Line 32.....32

2.2.33 Line 33.....32

2.2.34 Line 34.....32

2.2.35 Line 35.....32

2.2.36 Line 36.....32

2.2.37 Line 37.....32

2.2.38 Line 38.....33

2.2.39 Line 39.....33

2.2.40 Line 40.....33

2.2.41 Line 41.....33

2.2.42 Line 42.....33

2.2.43 Line 43.....33

2.2.44 Line 44.....34

2.2.45 Line 45.....34

2.2.46 Line 46.....34

2.2.47 Line 47.....34

2.2.48 Line 48.....34

2.2.49 Line 49.....34

2.2.50 Line 50.....34

2.2.51 Line 51.....35

2.2.52 Line 52.....35

2.2.53 Line 53.....35
2.2.54 Line 54.....35
2.2.55 Line 55.....35
2.2.56 Line 56.....35
2.2.57 Line 57.....36
2.2.58 Line 58.....36
2.2.59 Line 59.....36
2.2.60 Line 60.....36
2.2.61 Line 61.....36
2.2.62 Line 62.....36
2.2.63 Line 63.....37
2.2.64 Line 64.....37
2.2.65 Line 65.....37
2.2.66 Line 66.....37
2.2.67 Line 67.....37
2.2.68 Line 68.....37
2.2.69 Line 69.....38
2.2.70 Line 70.....38
2.2.71 Line 71.....38
2.2.72 Line 72.....38
2.2.73 Line 73.....38
2.2.74 Line 74.....38
2.2.75 Line 75.....38
2.2.76 Line 76.....39
2.2.77 Line 77.....39
2.2.78 Line 78.....39
2.2.79 Line 79.....39
2.2.80 Line 80.....39
2.2.81 Line 81.....39
2.2.82 Line 82.....40
2.2.83 Line 83.....40

2.2.84 Line 84.....40

2.2.85 Line 85.....40

2.2.86 Line 86.....40

2.2.87 Line 87.....40

2.2.88 Line 88.....41

2.2.89 Line 89.....41

2.2.90 Line 90.....41

2.2.91 Line 91.....41

2.2.92 Line 92.....41

2.2.93 Line 93.....41

2.2.94 Line 94.....42

2.2.95 Line 95.....42

2.2.96 Line 96.....42

2.2.97 Line 97.....42

2.2.98 Line 98.....42

2.2.99 Line 99.....42

2.2.100 Line 100.....43

2.2.101 Line 101.....43

2.2.102 Line 102.....43

2.2.103 Line 103.....43

2.2.104 Line 104.....43

2.2.105 Line 105.....43

2.2.106 Line 106.....44

2.2.107 Line 107.....44

2.2.108 Line 108.....44

2.2.109 Line 109.....44

2.2.110 Line 110.....44

2.2.111 Line 111.....44

2.2.112 Line 112.....45

2.2.113 Line 113.....45

2.2.114 Line 114.....45

2.2.115 Line 115.....45

2.2.116 Line 116.....45

2.2.117 Line 117.....45

2.2.118 Line 118.....46

2.2.119 Line 119.....46

2.2.120 Line 120.....46

2.2.121 Line 121.....46

2.2.122 Line 122.....46

2.2.123 Line 123.....46

2.2.124 Line 124.....47

2.2.125 Line 125.....47

2.2.126 Line 126.....47

2.2.127 Line 127.....47

2.2.128 Line 128.....47

2.2.129 Line 129.....47

2.2.130 Line 130.....47

2.2.131 Line 131.....48

2.2.132 Line 132.....48

2.2.133 Line 133.....48

2.2.134 Line 134.....48

2.2.135 Line 135.....48

2.2.136 Line 136.....48

2.2.137 Line 137.....49

2.2.138 Line 138.....49

2.2.139 Line 139.....49

2.2.140 Line 140.....49

2.2.141 Line 141.....49

2.2.142 Line 142.....49

2.2.143 Line 143.....50

2.2.144 Line 144.....50

2.2.145 Line 145.....50

2.2.146 Line 146.....	50
2.2.147 Line 147.....	50
2.2.148 Line 148.....	50
2.2.149 Line 149.....	50
2.2.150 Line 150.....	51
2.2.151 Line 151.....	51
2.2.152 Line 152.....	51
2.2.153 Line 153.....	51
2.2.154 Line 154.....	51

1 Header Information

1.1 General Information

Title	574467: ARTERIAL ROADWAY LIGHTING IMPROVEMENT CITYWIDE		
Description	574467: ARTERIAL ROADWAY LIGHTING IMPROVEMENT CITYWIDE		
Preview Date	29-AUG-2018 08:30:00	Open Date	29-AUG-2018 08:30:00
Close Date	11:00 AM Central Time, 24-SEP-2018	Award Date	Not Specified
Time Zone	Central Time	Buyer	WARD, SONJI
Quote Style	Sealed	Email	Sonji.Ward@cityofchicago.org
Event	Construction	Outcome	Construction Blanket Agreement

1.2 Terms

Effective Start Date	Not Specified	Effective End Date	Not Specified
Ship-To Address	084- CDOT RM600 30 N. LA SALLE ST. ROOM 600 Chicago, IL 60602 United States	Bill-To Address	084- CDOT RM600 30 N. LA SALLE ST. ROOM 600 Chicago, IL 60602 United States
Payment Terms	IMMEDIATE	Carrier	
FOB		Freight Terms	Paid
Total Agreement Amount (USD)	Not Specified	Minimum Release Amount (USD)	Not Specified

1.3 Requirements

KEY SOLICITATION PARAMETERS
BID DEPOSIT: 5% of Total Base Bid Type No Response Required
PERFORMANCE BOND: Full Amount of Contract Type No Response Required
CONTRACT SPECIFIC GOALS: MBE 25.64%, WBE 5.97% Type No Response Required
FUNDING SOURCE: City Type No Response Required
DPS UNIT: Construction Type No Response Required
CONTRACT TERM: Award date through March 31st, 2020 Type No Response Required
PRE-BID/PRE-PROPOSAL CONFERENCE: Strongly Suggested Type No Response Required
BIDDER QUESTIONS
Any deviations from or exceptions to any provisions or requirements of the bidding documents, including but not limited to the specifications of the goods and/or services to be provided, must be noted here or in

BIDDER QUESTIONS
<p>an attachment, with the exact nature of the change outlined in sufficient detail, and as provided in the contract terms and conditions "Trade Names and Substitutions," as applicable. Bidder must provide the reason for which deviations were made. Failure of a bidder to comply with the terms of this paragraph may be cause for rejection of its bid.</p> <p>.....</p> <p>Type Optional</p> <p>.....</p> <p>Provide your answer below</p>
<p>Enter the EDS number from your EDS Certificate and attach the certificate.</p> <p>.....</p> <p>Value Type Numeric Value only</p> <p>.....</p> <p>Provide your answer below</p>
COMMODITIES/WORK SERVICES/HEAVY EQUIPMENT/SMALL ORDERS/CONSTRUCTION/JOC CHECKLIST
<p>This is a checklist of all supporting documents that must be attached to your bid response. Attach all documents specified below. After attaching, click "YES" to indicate that the attachment was completed.</p> <p>.....</p> <p>Type No Response Required</p>
<p>- Bid Form properly completed. - (Construction)</p> <p>.....</p> <p>Circle one from the response values below: YES NO</p>
<p>- Award Criteria Determination completed. - (Construction)</p> <p>.....</p> <p>Circle one from the response values below: YES NO</p>
<p>- Schedule of Prices, completed and totaled. - (Construction)</p> <p>.....</p> <p>Circle one from the response values below: YES NO</p>
<p>- Proposal Page completed, signed and notarized - (ALL)</p> <p>.....</p> <p>Circle one from the response values below: YES NO</p>
<p>- Proposal To Be Completed By a Corporation - (ALL)</p> <p>.....</p>

COMMODITIES/WORK SERVICES/HEAVY EQUIPMENT/SMALL ORDERS/CONSTRUCTION/JOC CHECKLIST
Circle one from the response values below: YES NO
- Proposal To Be Completed By a Partnership - (ALL)
Circle one from the response values below: YES NO
- Proposal To Be Completed By a Joint Venture - (ALL)
Circle one from the response values below: YES NO
- Proposal To Be Completed By a Sole Proprietor - (ALL)
Circle one from the response values below: YES NO
- Bid Execution Page - (ALL)
Circle one from the response values below: YES NO
- Performance Bond (Construction)
Circle one from the response values below: YES NO
- Request for a reduction or waiver of MBE/WBE goals - (ALL)
Circle one from the response values below: YES NO
- Certificate of Filing of Economic Disclosure Statement and Affidavit (EDS) - (ALL)
Circle one from the response values below: YES NO
- Certificate of Insurance
Circle one from the response values below: YES NO
Bid incentive/preference affidavit(s)
Type No Response Required
- Local Manufacture Affidavit - (ALL)
Circle one from the response values below: YES NO
- Chicago Business Affidavit - (ALL)

COMMODITIES/WORK SERVICES/HEAVY EQUIPMENT/SMALL ORDERS/CONSTRUCTION/JOC CHECKLIST
<p>.....</p> <p>Circle one from the response values below: YES NO</p>
<p>- Small Business/Veterans Preference Joint Venture - (ALL)</p> <p>.....</p> <p>Circle one from the response values below: YES NO</p>
<p>- Alternately Powered Vehicles affidavit - (ALL)</p> <p>.....</p> <p>Circle one from the response values below: YES NO</p>
<p>- Manuals, Certificates, Applications(if required)</p> <p>.....</p> <p>Circle one from the response values below: YES NO</p>
<p>- Bidder Contact Information - (ALL)</p> <p>.....</p> <p>Circle one from the response values below: YES NO</p>
<p>- Bidder qualifications and/or certifications, permits, licenses, vehicle stickers, etc. (if required)</p> <p>.....</p> <p>Circle one from the response values below: YES NO</p>
<p>- Affidavit of Uncompleted Work (Construction)</p> <p>.....</p> <p>Circle one from the response values below: YES NO</p>
<p>- Affidavit of Availability (Construction)</p> <p>.....</p> <p>Circle one from the response values below: YES NO</p>
<p>- Department of Procurement Services Bid Bond (Construction)</p> <p>.....</p> <p>Circle one from the response values below: YES NO</p>
<p>- Contractor's Affidavit Regarding Removal of All Waster Materials and Identification of all Legal Dump Sites (Construction)</p> <p>.....</p> <p>Circle one from the response values below: YES NO</p>
<p>- Schedule AP: Letter of Intent to Hire/Sponsor Union Apprentices (Construction)</p> <p>.....</p>

<p>COMMODITIES/WORK SERVICES/HEAVY EQUIPMENT/SMALL ORDERS/CONSTRUCTION/JOC CHECKLIST</p>
<p>Circle one from the response values below: YES NO</p>
<p>- Exhibit D, DBE Requirement for Bidder/Proposer List completed (Construction)</p> <p>.....</p>
<p>Circle one from the response values below: YES NO</p>
<p>M/WBE DOCUMENTS</p> <p>.....</p>
<p>Type No Response Required</p>
<p>- Schedule B - MBE/WBE Affidavit of Joint Venture - (ALL)</p> <p>.....</p>
<p>Circle one from the response values below: YES NO</p>
<p>- Schedule C-1 - MBE/WBE Letter of Intent To Perform As a Subcontractor or Supplier - (ALL)</p> <p>.....</p>
<p>Circle one from the response values below: YES NO</p>
<p>-Schedule D-1 - Compliance Plan Regarding MBE and WBE Utilization - (ALL)</p> <p>.....</p>
<p>Circle one from the response values below: YES NO</p>
<p>- Schedule F - Report of Subcontractor Solicitations - (Construction)</p> <p>.....</p>
<p>Circle one from the response values below: YES NO</p>
<p>- Schedule H -Documentation of Good Faith Efforts (Construction)</p> <p>.....</p>
<p>Circle one from the response values below: YES NO</p>
<p>- Request for Full or Partial Waiver - (ALL)</p> <p>.....</p>
<p>Circle one from the response values below: YES NO</p>
<p>- Letters of Certification for all M/WBE's - (ALL)</p> <p>.....</p>
<p>Circle one from the response values below: YES NO</p>
<p>Award Criteria Determination - Canvassing Formula</p>
<p>LINE 1. Base Bid, in Figures</p> <p>.....</p>
<p>Value Type Numeric Value only</p> <p>.....</p>

Award Criteria Determination - Canvassing Formula
Provide your answer below
LINE2. Percentage of the total journey worker hours that the Contractor proposes to be worked by minority Journey workers during construction of the Project. (Maximum figure .70) Supplier needs to calculate and enter manually
..... Value Type Numeric Value only Provide your answer below
LINE3. Multiply Line 2 by Line 1 by 0.04 Supplier needs to calculate and enter manually
..... Value Type Numeric Value only Provide your answer below
LINE4. Percentage of the total Apprentice hours that the Contractor proposes to be worked by minority Apprentices during construction of the project. (Maximum figure .70) Supplier needs to calculate and enter manually
..... Value Type Numeric Value only Provide your answer below
LINE5. Multiply Line 4 by Line 1 by 0.03 Supplier needs to calculate and enter manually
..... Value Type Numeric Value only Provide your answer below

Award Criteria Determination - Canvassing Formula
<p>LINE6. Percentage of the total Laborer hours that the Contractor proposes to be worked by minority Laborers during construction of the project. (Maximum figure .70) Supplier needs to calculate and enter manually</p> <p>.....</p> <p>Value Type Numeric Value only</p> <p>.....</p> <p>Provide your answer below</p>
<p>LINE7. Multiply Line 6 by Line 1 by .01 Supplier needs to calculate and enter manually</p> <p>.....</p> <p>Value Type Numeric Value only</p> <p>.....</p> <p>Provide your answer below</p>
<p>LINE8. Percentage of the total Journey worker hours that the Contractor proposes to be worked by female Journey workers during construction of the project. (Maximum figure .15) Supplier needs to calculate and enter manually</p> <p>.....</p> <p>Value Type Numeric Value only</p> <p>.....</p> <p>Provide your answer below</p>
<p>LINE9. Multiply Line 8 by Line 1 by 0.04 Supplier needs to calculate and enter manually</p> <p>.....</p> <p>Value Type Numeric Value only</p> <p>.....</p> <p>Provide your answer below</p>
<p>LINE10. Percentage of the total Apprentice hours that the Contractor proposes to be worked by female Apprentices during construction of the project. (Maximum figure .15) Supplier needs to calculate and enter manually</p> <p>.....</p> <p>Value Type Numeric Value only</p>

Award Criteria Determination - Canvassing Formula
..... Provide your answer below
LINE11. Multiply Line 10 by Line 1 by 0.03 Supplier needs to calculate and enter manually Value Type Numeric Value only Provide your answer below
LINE12. Percentage of the total Laborer hours that the Contractor proposes to be worked by female Laborers during construction of the project. (Maximum figure .15) Supplier needs to calculate and enter manually Value Type Numeric Value only Provide your answer below
LINE13. Multiply Line 12 by Line 1 by 0.01 Supplier needs to calculate and enter manually Value Type Numeric Value only Provide your answer below
LINE14. Summation of Lines 3, 5, 7, 9, 11, and 13 Supplier needs to calculate and enter manually Value Type Numeric Value only Provide your answer below

Award Criteria Determination - Canvassing Formula
LINE15. Subtract Line 14 from Line 1 = Award Criteria Figure Supplier needs to calculate and enter manually
.....
Value Type Numeric Value only
.....
Provide your answer below

1.4 Attachments

Name	Data Type	Description
ATTACHMENT 01: APPENDIX EPROCUREMENT	Web Page	ATTACHMENT 01: APPENDIX EPROCUREMENT
ATTACHMENT 02: BOOK 1	Web Page	ATTACHMENT 02: BOOK 1
ATTACHMENT 03: BOOK 2	Web Page	ATTACHMENT 03: BOOK 2
ATTACHMENT 04: BOOK 3	Web Page	ATTACHMENT 04: BOOK 3
ATTACHMENT 05: EDS APPENDIX C	Web Page	ATTACHMENT 05: EDS APPENDIX C

1.5 Response Rules

- Solicitation is restricted to invited suppliers
- Suppliers are allowed to view other suppliers' contract terms, notes and attachments
- Suppliers are allowed to respond to selected lines
- Suppliers are allowed to provide multiple responses
- Buyer may close the solicitation before the Close Date
- Buyer may manually extend the solicitation while it is open

2 Price Schedule**2.1 Line Information**

Display Rank As **No indicator displayed**
 Ranking **Price Only**
 Cost Factors **None**

Line	Item, Rev / Job	Target Quantity	Unit	Unit Price	Amount
1	PAVEMENT REMOVED AND REPLACED	480	Square Yard		
2	TEMPORARY PAVEMENT PATCHING	80	Ton		
3	TEMPORARY STONE	3,000	Ton		
4	SIDEWALK REMOVAL	96,000	Square Foot		
5	SIDEWALK REMOVED AND REPLACED	52,000	Square Foot		
6	PORTLAND CEMENT CONCRETE DRIVEWAY, 8 INCH	800	Square Yard		
7	TRENCH AND BACKFILL WITH SCREENINGS	48,000	Linear Foot		
8	HOT-MIX ASPHALT SURFACE REMOVAL, VARIABLE DEPTH	7,500	Square Yard		
9	HOT-MIX ASPHALT BIT. CONCRETE SURFACE COURSE - MIX D, N70 OR HIGHER	900	Ton		
10	PORTLAND CEMENT CONCRETE ADA RAMP 5 INCH	27,000	Square Foot		
11	PORTLAND CEMENT CONCRETE ADA RAMP 8 INCH	15,000	Square Foot		
12	LINEAR DETECTABLE WARNING TILES (CAST IRON)	6,000	Square Foot		
13	RADIAL DETECTABLE WARNING TILES (CAST IRON)	330	Square Foot		
14	PROPERTY LINE CURB	300	Foot		
15	HIGH-EARLY-STRE	13,500	Square Yard		

Specification Number: 574467

Type of Funding: CITY

Title: 574467: ARTERIAL ROADWAY LIGHTING IMPROVEMENT CITYWIDE

Line	Item, Rev / Job	Target Quantity	Unit	Unit Price	Amount
NGTH PORTLAND CEMENT CONCRETE ALLEY PAVEMENT 8 INCH					
16 ALLEY PAVEMENT REMOVAL		13,500	Square Yard		
17 CURB-GUTTER REMOVE AND REPLACE		7,500	Linear Foot		
18 THERMOPLASTIC PAVEMENT MARKING - LINE 4"		700	Linear Foot		
19 THERMOPLASTIC PAVEMENT MARKING - LINE 6"		1,400	Linear Foot		
20 THERMOPLASTIC PAVEMENT MARKING - LINE 12"		700	Linear Foot		
21 THERMOPLASTIC PAVEMENT MARKING - LINE 24"		2,000	Linear Foot		
22 THERMOPLASTIC PAVEMENT MARKING - LETTERS AND SYMBOLS		700	Square Foot		
23 PRE-FORMED BIKE SYMBOL & CHEVRON		14	Each		
24 PRE-FORMED BIKE SYMBOL & ARROW		15	Each		
25 ELECTRICAL HANDHOLE, 30", 24" FRAME AND LID		20	Each		
26 ELECTRICAL HANDHOLE, 36", 24" FRAME AND LID, HEAVY-DUTY		20	Each		
27 ELECTRICAL MANHOLE 3'X4'X4', W/24" FRAME AND & LID		36	Each		
28 ROOF ON MANHOLE IN PAVEMENT 30" FRAME & LID		40	Each		
29 DRILL IN EXISTING MANHOLE OR HANDHOLE		300	Each		
30 CLEAN & INSERT CABLE RACK IN EXISTING MANHOLE OR HANDHOLE		170	Each		

Line	Item, Rev / Job	Target Quantity	Unit	Unit Price	Amount
31	ELECTRICAL MANHOLE ADJUSTMENT	20	Each		
32	ELECTRICAL HANDHOLE ADJUSTMENT	20	Each		
33	ELECTRICAL FRAME AND LID, 24"	20	Each		
34	ELECTRICAL FRAME AND LID, 30"	20	Each		
35	ROD AND CLEAN DUCT IN AN EXISTING CONDUIT SYSTEM	20,000	Linear Foot		
36	GALVANIZED STEEL CONDUIT ATTACHED TO STRUCTURE 3/4"	20,000	Linear Foot		
37	GALVANIZED STEEL CONDUIT ATTACHED TO STRUCTURE 2"	2,000	Linear Foot		
38	PVC CONDUIT IN TRENCH, 2" SCH 80	35,000	Linear Foot		
39	PVC CONDUIT IN TRENCH, 3" SCH 80	10,000	Linear Foot		
40	DUCT/DRBR, 2" W/O CBL/SCH80	250,000	Linear Foot		
41	DUCT/DRBR, 3" W/O CBL/SCH80	10,000	Linear Foot		
42	CONCRETE FOUNDATION FOR BASE MOUNTED STREET LIGHT CONTROLLER	44	Each		
43	CONCRETE FOUNDATION, 28" DIAMETER, 1 1/4" A. R., 15" B. C., 7 FEET	980	Linear Foot		
44	CONCRETE FOUNDATION, 30" DIAMETER, 1" A. R., 15" B. C., 7 FEET	700	Linear Foot		
45	CONCRETE FOUNDATION, 1 1/4" A. R., 15" B. C., OFFSET	50	Each		
46	HELIX FOUNDATION, 7 FOOT, 15" B.C., 4 A.B.	1,070	Each		
47	HELIX FOUNDATION, 5 FOOT, 10" B.C., 4 A.B.	100	Each		

Specification Number: 574467

Type of Funding: CITY

Title: 574467: ARTERIAL ROADWAY LIGHTING IMPROVEMENT CITYWIDE

Line	Item, Rev / Job	Target Quantity	Unit	Unit Price	Amount
48	GUARD POSTS	38	Each		
49	INTERCEPT EXISTING CONDUIT	20	Each		
50	2" ELBOW IN EXISTING FOUNDATION	10	Each		
51	2" ELBOW ON POLE/STRUCTURE	70	Each		
52	3" ELBOW ON POLE/STRUCTURE	28	Each		
53	2" CONDUIT RISER ON POLE/STRUCTURE W/ S.E.H.	70	Each		
54	3" CONDUIT RISER ON POLE/STRUCTURE W/ S.E.H.	28	Each		
55	RACK, SECONDARY AERIAL 3-WIRE	72	Each		
56	PAINT EXISTING POLE, MAST ARM & LUMINAIRE	60	Each		
57	PAINT ADDITIONAL TS EQUIPMENT	20	Each		
58	PAINT MONOTUBE & SIGNALS	22	Each		
59	PAINT POST & SIGNALS	25	Each		
60	CIRCUIT BREAKER, 1 POLE, 50A, 600V	20	Each		
61	CIRCUIT BREAKER, 1 POLE, 70A, 600V	20	Each		
62	SERVICE INSTALLATION - 200A	34	Each		
63	CONTROLLER, BASE MOUNTED, STREET LIGHT, 200A - SMART LIGHTING SYSTEM	34	Each		
64	CONTROLLER, BASE MTD, RECEPTACLE, 100A	10	Each		
65	CONTROLLER, POLE MTD, SL, 60A - SMART LIGHTING SYSTEM	10	Each		
66	ELECTRIC CABLE IN CONDUIT, 1/C # 2/0	33,000	Linear Foot		
67	ELECTRIC CABLE	10,000	Linear		

Specification Number: 574467

Type of Funding: CITY

Title: 574467: ARTERIAL ROADWAY LIGHTING IMPROVEMENT CITYWIDE

Line	Item, Rev / Job	Target Quantity	Unit	Unit Price	Amount
IN CONDUIT, 1/C # 2			Foot		
68 ELECTRIC CABLE IN CONDUIT, 1/C # 4		10,000	Linear Foot		
69 ELECTRIC CABLE IN CONDUIT, 1/C # 6		32,000	Linear Foot		
70 ELECTRIC CABLE IN CONDUIT, 1/C # 10		120,000	Linear Foot		
71 ELECTRIC CABLE IN CONDUIT 2#6 & 1#8, TRIPLEX		330,000	Linear Foot		
72 CABLE, ALUMINUM, AERIAL, 3 1/C #8, WITH MESSENGER		15,000	Linear Foot		
73 FIRE ALARM CABLE IN CONDUIT, 6 PAIR		7,000	Linear Foot		
74 JUNCTION BOX, ELECTRICAL		30	Each		
75 MAST ARM, STEEL, 12 FOOT WITH SIMPLEX PLATE		20	Each		
76 ALUMINUM POLE CAP ON DAVIT ARM MAST		20	Each		
77 FURNISH GAS LIGHT POLE, COMPLETE WITH LUMINAIRE - SMART LIGHTING		60	Each		
78 FURNISH LOOP POLE COMPLETE, 10 FOOT		50	Each		
79 FURNISH EXTENDED LOOP POLE COMPLETE, 16 FOOT		50	Each		
80 FURNISH CHICAGO 2000 ORNAMENTAL MAST ARM ASSEMBLY, 11" OR 12" DIA		20	Each		
81 FURNISH CHICAGO 2000 ORNAMENTAL MAST ARM ASSEMBLY, 10" DIA		90	Each		
82 FURNISH CHICAGO 2000 GATEWAY BASE FOR 34'6" POLE, 10" DIA		90	Each		
83 FURNISH POLE, STEEL, ARTERIAL,		90	Each		

Specification Number: 574467

Type of Funding: CITY

Title: 574467: ARTERIAL ROADWAY LIGHTING IMPROVEMENT CITYWIDE

Line	Item, Rev / Job	Target Quantity	Unit	Unit Price	Amount
34'6", 10" DIA. 15" B.C. BLACK					
84 FURNISH CHICAGO 2000 PENDANT LUMINAIRE, LED, 240V - SMART LIGHTING		110	Each		
85 FURNISH CHICAGO 2000 PEDESTRIAN 14' LIGHT POLE COMPLETE		50	Each		
86 FURNISH POLE, ALUMINUM, DAVIT, ARTERIAL, 35' MH		920	Each		
87 FURNISH POLE, ALUMINUM, DAVIT, ARTERIAL, 35' MH, ANODIZED		100	Each		
88 FURNISH POLE, ALUMINUM, DAVIT, ARTERIAL, 40' MH, ANODIZED		100	Each		
89 FURNISH MAST ARM, ALUMINUM, DAVIT, 6" ARTERIAL, 12 FOOT		920	Each		
90 FURNISH MAST ARM, ALUMINUM, DAVIT, 6" ARTERIAL, 12 FOOT, ANODIZED		100	Each		
91 FURNISH MAST ARM, ALUMINUM, DAVIT, 6" ARTERIAL, 15 FOOT, ANODIZED		100	Each		
92 FURNISH 12' POLE, 10" B.C., 4 A.B., & 8' MAST ARM, ALUMINUM, RESIDENTIAL		50	Each		
93 FURNISH 12' POLE, 10" B.C., 4 A.B., & 8' MAST ARM, ALUMINUM, RESIDENTIAL, ANODIZED		50	Each		
94 FURNISH LUMINAIRE, LED, 240V, ARTERIAL - SMART LIGHTING		1,012	Each		
95 FURNISH LUMINAIRE, LED, 240V, ARTERIAL, WIDE - SMART		600	Each		

Specification Number: 574467

Type of Funding: CITY

Title: 574467: ARTERIAL ROADWAY LIGHTING IMPROVEMENT CITYWIDE

Line	Item, Rev / Job	Target Quantity	Unit	Unit Price	Amount
LIGHTING					
96	FURNISH LUMINAIRE, LED, 240V, ARTERIAL ACORN & ARM - SMART LIGHTING	1,000	Each		
97	FURNISH LUMINAIRE, LED, 240V, ORNAMENTAL ACORN - SMART LIGHTING	150	Each		
98	FURNISH LUMINAIRE, LED, 240V, RESIDENTIAL - SMART LIGHTING	100	Each		
99	FURNISH LUMINAIRE, LED, 240V, MID-MOUNT RESIDENTIAL ACORN & ARM - SMART LIGHTING	100	Each		
100	FURNISH LUMINAIRE, LED, 120/240V FLOOD - SMART LIGHTING	30	Each		
101	FURNISH LUMINAIRE, LED, 120/240V VIADUCT - SMART LIGHTING	300	Each		
102	INSTALL GAS LIGHT POLE, COMPLETE WITH LUMINAIRE - SMART LIGHTING	60	Each		
103	INSTALL LOOP POLE COMPLETE, 10 FOOT	50	Each		
104	INSTALL EXTENDED LOOP POLE COMPLETE, 16 FOOT	50	Each		
105	INSTALL CHICAGO 2000 ORNAMENTAL MAST ARM ASSEMBLY, 11" OR 12" DIA	20	Each		
106	INSTALL CHICAGO 2000 ORNAMENTAL MAST ARM ASSEMBLY, 10" DIA	90	Each		
107	INSTALL CHICAGO 2000 GATEWAY BASE FOR 34'6" POLE, 10"	90	Each		

Specification Number: 574467

Type of Funding: CITY

Title: 574467: ARTERIAL ROADWAY LIGHTING IMPROVEMENT CITYWIDE

Line	Item, Rev / Job	Target Quantity	Unit	Unit Price	Amount
DIA					
108	INSTALL POLE, STEEL, ARTERIAL, 34'6", 10" DIA. 15" B.C. BLACK	90	Each		
109	INSTALL CHICAGO 2000 PENDANT LUMINAIRE, LED, 240V - SMART LIGHTING	110	Each		
110	INSTALL CHICAGO 2000 PEDESTRIAN 14' LIGHT POLE COMPLETE	50	Each		
111	INSTALL POLE, ALUMINUM, DAVIT, ARTERIAL, 35' MH	920	Each		
112	INSTALL POLE, ALUMINUM, DAVIT, ARTERIAL, 35' MH, ANODIZED	100	Each		
113	INSTALL POLE, ALUMINUM, DAVIT, ARTERIAL, 40' MH, ANODIZED	100	Each		
114	INSTALL MAST ARM, ALUMINUM, DAVIT, 6" ARTERIAL, 12 FOOT	920	Each		
115	INSTALL MAST ARM, ALUMINUM, DAVIT, 6" ARTERIAL, 12 FOOT, ANODIZED	100	Each		
116	INSTALL MAST ARM, ALUMINUM, DAVIT, 6" ARTERIAL, 15 FOOT, ANODIZED	100	Each		
117	INSTALL 12' POLE, 10" B.C., 4 A.B., & 8' MAST ARM, ALUMINUM, RESIDENTIAL	50	Each		
118	INSTALL 12' POLE, 10" B.C., 4 A.B., & 8' MAST ARM, ALUMINUM, RESIDENTIAL, ANODIZED	50	Each		
119	INSTALL LUMINAIRE, LED, 240V, ARTERIAL - SMART LIGHTING	1,612	Each		
120	INSTALL	1,000	Each		

Specification Number: 574467

Type of Funding: CITY

Title: 574467: ARTERIAL ROADWAY LIGHTING IMPROVEMENT CITYWIDE

Line	Item, Rev / Job	Target Quantity	Unit	Unit Price	Amount
	LUMINAIRE, LED, 240V, ARTERIAL ACORN & ARM - SMART LIGHTING				
121	INSTALL LUMINAIRE, LED, 240V, ORNAMENTAL ACORN - SMART LIGHTING	150	Each		
122	INSTALL LUMINAIRE, LED, 240V, RESIDENTIAL - SMART LIGHTING	100	Each		
123	INSTALL LUMINAIRE, LED, 240V, MID-MOUNT RESIDENTIAL ACORN & ARM - SMART LIGHTING	100	Each		
124	INSTALL LUMINAIRE, LED, 120/240V FLOOD - SMART LIGHTING	30	Each		
125	INSTALL LUMINAIRE, LED, 120/240V VIADUCT - SMART LIGHTING	300	Each		
126	INSTALL SMART LIGHTING CONTROL NODE, EXTERNAL	2,212	Each		
127	INSTALL SMART LIGHTING CONTROL NODE, INTERNAL	1,250	Each		
128	HANGING BASKET ASSEMBLY	150	Each		
129	REMOVE EMBEDDED POLE	200	Each		
130	REMOVE ANCHOR BASE POLE	1,335	Each		
131	REMOVE LUMINAIRE	1,600	Each		
132	REMOVE LUMINAIRE, VIADUCT	300	Each		
133	REMOVE MAST ARM	1,535	Each		
134	REMOVE CONTROLLER & POST	34	Each		
135	REMOVE CONTROLLER ONLY	10	Each		
136	REMOVE	44	Each		

Specification Number: 574467

Type of Funding: CITY

Title: 574467: ARTERIAL ROADWAY LIGHTING IMPROVEMENT CITYWIDE

Line	Item, Rev / Job	Target Quantity	Unit	Unit Price	Amount
SERVICE EQUIPMENT					
137 REMOVE SVC CABLES IN COND		20,000	Linear Foot		
138 REMOVE BRANCH WIRES / CABLES		165,000	Linear Foot		
139 BREAKDOWN HANDHOLE / MANHOLE		20	Each		
140 REMOVE AND BREAKDOWN FOUNDATION - STREET LIGHT OR CONTROLLER		1,369	Each		
141 REMOVE EXISTING SIGN PANEL & POST ASSEMBLY FROM PARKWAY/SIDEWALK AND RE-INSTALL		750	Each		
142 REMOVE EXISTING SIGN PANEL, SALVAGE AND RE-INSTALL		750	Each		
143 STREET NAME SIGN		75	Square Foot		
144 FURNISH SIGN PANEL, TYPE 1, NON-REFLECTIVE, SINGLE SIDED		150	Square Foot		
145 FURNISH SIGN PANEL, TYPE 1, REFLECTIVE TYPE A, SINGLE SIDED		150	Square Foot		
146 FURNISH SIGN PANEL, TYPE 1, REFLECTIVE TYPE A, DOUBLE SIDED		150	Square Foot		
147 FURNISH AND INSTALL SIGN POST, DIG METHOD		75	Each		
148 FURNISH AND INSTALL SIGN POST, DRILL METHOD		75	Each		
149 INSTALL SIGN PANEL (CENTER, FLAG OR BACK-TO-BACK MOUNT)		75	Each		
150 TREE PRUNING		150	Each		
151 LANDSCAPE RESTORATION		75	Block		
152 LANDSCAPE RESTORATION		1,500	Square Yard		

Specification Number: 574467

Type of Funding: CITY

Title: 574467: ARTERIAL ROADWAY LIGHTING IMPROVEMENT CITYWIDE

Line	Item, Rev / Job	Target Quantity	Unit	Unit Price	Amount
USING GRASS SEED MAT					
153 SPOILS REMOVAL INSPECTION AND CERTIFICATION		300	Cubic Yard		
154 TRAFFIC CONTROL & PROTECTION		300	Lump Sum		

2.2 Line Details

2.2.1 Line 1 PAVEMENT REMOVED AND REPLACED

Category **91350..** Start Price (USD) **Not Specified**
 Shopping Category **Not Specified** Target Price (USD) **Not Specified**
 Minimum Release **Not Specified**
 Amount (USD)
 Estimated Total **Not Specified**
 Amount (USD)

2.2.2 Line 2 TEMPORARY PAVEMENT PATCHING

Category **91350..** Start Price (USD) **Not Specified**
 Shopping Category **Not Specified** Target Price (USD) **Not Specified**
 Minimum Release **Not Specified**
 Amount (USD)
 Estimated Total **Not Specified**
 Amount (USD)

2.2.3 Line 3 TEMPORARY STONE

Category **91350..** Start Price (USD) **Not Specified**
 Shopping Category **Not Specified** Target Price (USD) **Not Specified**
 Minimum Release **Not Specified**
 Amount (USD)
 Estimated Total **Not Specified**
 Amount (USD)

2.2.4 Line 4 SIDEWALK REMOVAL

Category **91350..** Start Price (USD) **Not Specified**
 Shopping Category **Not Specified** Target Price (USD) **Not Specified**
 Minimum Release **Not Specified**
 Amount (USD)
 Estimated Total **Not Specified**
 Amount (USD)

2.2.5 Line 5 SIDEWALK REMOVED AND REPLACED

Category **91350..** Start Price (USD) **Not Specified**
 Shopping Category **Not Specified** Target Price (USD) **Not Specified**
 Minimum Release **Not Specified**
 Amount (USD)
 Estimated Total **Not Specified**
 Amount (USD)

2.2.6 Line 6 PORTLAND CEMENT CONCRETE DRIVEWAY, 8 INCH

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.7 Line 7 TRENCH AND BACKFILL WITH SCREENINGS

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.8 Line 8 HOT-MIX ASPHALT SURFACE REMOVAL, VARIABLE DEPTH

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.9 Line 9 HOT-MIX ASPHALT BIT. CONCRETE SURFACE COURSE - MIX D, N70 OR HIGHER

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.10 Line 10 PORTLAND CEMENT CONCRETE ADA RAMP 5 INCH

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.11 Line 11 PORTLAND CEMENT CONCRETE ADA RAMP 8 INCH

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.12 Line 12 LINEAR DETECTABLE WARNING TILES (CAST IRON)

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.13 Line 13 RADIAL DETECTABLE WARNING TILES (CAST IRON)

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.14 Line 14 PROPERTY LINE CURB

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.15 Line 15 HIGH-EARLY-STRENGTH PORTLAND CEMENT CONCRETE ALLEY PAVEMENT 8 INCH

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.16 Line 16 ALLEY PAVEMENT REMOVAL

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.17 Line 17 CURB-GUTTER REMOVE AND REPLACE

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.18 Line 18 THERMOPLASTIC PAVEMENT MARKING - LINE 4"

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.19 Line 19 THERMOPLASTIC PAVEMENT MARKING - LINE 6"

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.20 Line 20 THERMOPLASTIC PAVEMENT MARKING - LINE 12"

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.21 Line 21 THERMOPLASTIC PAVEMENT MARKING - LINE 24"

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.22 Line 22 THERMOPLASTIC PAVEMENT MARKING - LETTERS AND SYMBOLS

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.23 Line 23 PRE-FORMED BIKE SYMBOL & CHEVRON

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.24 Line 24 PRE-FORMED BIKE SYMBOL & ARROW

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.25 Line 25 ELECTRICAL HANDHOLE, 30", 24" FRAME AND LID

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.26 Line 26 ELECTRICAL HANDHOLE, 36", 24" FRAME AND LID, HEAVY-DUTY

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.27 Line 27 ELECTRICAL MANHOLE 3'X4'X4', W/24" FRAME AND & LID

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.28 Line 28 ROOF ON MANHOLE IN PAVEMENT 30" FRAME & LID

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.29 Line 29 DRILL IN EXISTING MANHOLE OR HANDHOLE

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.30 Line 30 CLEAN & INSERT CABLE RACK IN EXISTING MANHOLE OR HANDHOLE

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.31 Line 31 ELECTRICAL MANHOLE ADJUSTMENT

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.32 Line 32 ELECTRICAL HANDHOLE ADJUSTMENT

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.33 Line 33 ELECTRICAL FRAME AND LID, 24"

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.34 Line 34 ELECTRICAL FRAME AND LID, 30"

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.35 Line 35 ROD AND CLEAN DUCT IN AN EXISTING CONDUIT SYSTEM

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.36 Line 36 GALVANIZED STEEL CONDUIT ATTACHED TO STRUCTURE 3/4"

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.37 Line 37 GALVANIZED STEEL CONDUIT ATTACHED TO STRUCTURE 2"

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.38 Line 38 PVC CONDUIT IN TRENCH, 2" SCH 80

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.39 Line 39 PVC CONDUIT IN TRENCH, 3" SCH 80

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.40 Line 40 DUCT/DRBR, 2" W/O CBL/SCH80

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.41 Line 41 DUCT/DRBR, 3" W/O CBL/SCH80

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.42 Line 42 CONCRETE FOUNDATION FOR BASE MOUNTED STREET LIGHT CONTROLLER

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.43 Line 43 CONCRETE FOUNDATION, 28" DIAMETER, 1 1/4" A. R., 15" B. C., 7 FEET

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.44 Line 44 CONCRETE FOUNDATION, 30" DIAMETER, 1" A. R., 15" B. C., 7 FEET

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.45 Line 45 CONCRETE FOUNDATION, 1 1/4" A. R., 15" B. C., OFFSET

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.46 Line 46 HELIX FOUNDATION, 7 FOOT, 15" B.C., 4 A.B.

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.47 Line 47 HELIX FOUNDATION, 5 FOOT, 10" B.C., 4 A.B.

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.48 Line 48 GUARD POSTS

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.49 Line 49 INTERCEPT EXISTING CONDUIT

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.50 Line 50 2" ELBOW IN EXISTING FOUNDATION

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.51 Line 51 2" ELBOW ON POLE/STRUCTURE

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.52 Line 52 3" ELBOW ON POLE/STRUCTURE

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.53 Line 53 2" CONDUIT RISER ON POLE/STRUCTURE W/ S.E.H.

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.54 Line 54 3" CONDUIT RISER ON POLE/STRUCTURE W/ S.E.H.

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.55 Line 55 RACK, SECONDARY AERIAL 3-WIRE

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.56 Line 56 PAINT EXISTING POLE, MAST ARM & LUMINAIRE

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.57 Line 57 PAINT ADDITIONAL TS EQUIPMENT

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.58 Line 58 PAINT MONOTUBE & SIGNALS

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.59 Line 59 PAINT POST & SIGNALS

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.60 Line 60 CIRCUIT BREAKER, 1 POLE, 50A, 600V

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.61 Line 61 CIRCUIT BREAKER, 1 POLE, 70A, 600V

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.62 Line 62 SERVICE INSTALLATION - 200A

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.63 Line 63 CONTROLLER, BASE MOUNTED, STREET LIGHT, 200A - SMART LIGHTING SYSTEM

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.64 Line 64 CONTROLLER, BASE MTD, RECEPTACLE, 100A

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.65 Line 65 CONTROLLER, POLE MTD, SL, 60A - SMART LIGHTING SYSTEM

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.66 Line 66 ELECTRIC CABLE IN CONDUIT, 1/C # 2/0

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.67 Line 67 ELECTRIC CABLE IN CONDUIT, 1/C # 2

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.68 Line 68 ELECTRIC CABLE IN CONDUIT, 1/C # 4

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.69 Line 69 ELECTRIC CABLE IN CONDUIT, 1/C # 6

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.70 Line 70 ELECTRIC CABLE IN CONDUIT, 1/C # 10

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.71 Line 71 ELECTRIC CABLE IN CONDUIT 2#6 & 1#8, TRIPLEX

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.72 Line 72 CABLE, ALUMINUM, AERIAL, 3 1/C #8, WITH MESSENGER

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.73 Line 73 FIRE ALARM CABLE IN CONDUIT, 6 PAIR

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.74 Line 74 JUNCTION BOX, ELECTRICAL

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.75 Line 75 MAST ARM, STEEL, 12 FOOT WITH SIMPLEX PLATE

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.76 Line 76 ALUMINUM POLE CAP ON DAVIT ARM MAST

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.77 Line 77 FURNISH GAS LIGHT POLE, COMPLETE WITH LUMINAIRE - SMART LIGHTING

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.78 Line 78 FURNISH LOOP POLE COMPLETE, 10 FOOT

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.79 Line 79 FURNISH EXTENDED LOOP POLE COMPLETE, 16 FOOT

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.80 Line 80 FURNISH CHICAGO 2000 ORNAMENTAL MAST ARM ASSEMBLY, 11" OR 12" DIA

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.81 Line 81 FURNISH CHICAGO 2000 ORNAMENTAL MAST ARM ASSEMBLY, 10" DIA

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.82 Line 82 FURNISH CHICAGO 2000 GATEWAY BASE FOR 34'6" POLE, 10" DIA

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.83 Line 83 FURNISH POLE, STEEL, ARTERIAL, 34'6", 10" DIA. 15" B.C. BLACK

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.84 Line 84 FURNISH CHICAGO 2000 PENDANT LUMINAIRE, LED, 240V - SMART LIGHTING

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.85 Line 85 FURNISH CHICAGO 2000 PEDESTRIAN 14' LIGHT POLE COMPLETE

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.86 Line 86 FURNISH POLE, ALUMINUM, DAVIT, ARTERIAL, 35' MH

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.87 Line 87 FURNISH POLE, ALUMINUM, DAVIT, ARTERIAL, 35' MH, ANODIZED

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.88 Line 88 FURNISH POLE, ALUMINUM, DAVIT, ARTERIAL, 40' MH, ANODIZED

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.89 Line 89 FURNISH MAST ARM, ALUMINUM, DAVIT, 6" ARTERIAL, 12 FOOT

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.90 Line 90 FURNISH MAST ARM, ALUMINUM, DAVIT, 6" ARTERIAL, 12 FOOT, ANODIZED

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.91 Line 91 FURNISH MAST ARM, ALUMINUM, DAVIT, 6" ARTERIAL, 15 FOOT, ANODIZED

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.92 Line 92 FURNISH 12' POLE, 10" B.C., 4 A.B., & 8' MAST ARM, ALUMINUM, RESIDENTIAL

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.93 Line 93 FURNISH 12' POLE, 10" B.C., 4 A.B., & 8' MAST ARM, ALUMINUM, RESIDENTIAL, ANODIZED

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.94 Line 94 FURNISH LUMINAIRE, LED, 240V, ARTERIAL - SMART LIGHTING

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.95 Line 95 FURNISH LUMINAIRE, LED, 240V, ARTERIAL, WIDE - SMART LIGHTING

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.96 Line 96 FURNISH LUMINAIRE, LED, 240V, ARTERIAL ACORN & ARM - SMART LIGHTING

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.97 Line 97 FURNISH LUMINAIRE, LED, 240V, ORNAMENTAL ACORN - SMART LIGHTING

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.98 Line 98 FURNISH LUMINAIRE, LED, 240V, RESIDENTIAL - SMART LIGHTING

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.99 Line 99 FURNISH LUMINAIRE, LED, 240V, MID-MOUNT RESIDENTIAL ACORN & ARM - SMART LIGHTING

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.100 Line 100 FURNISH LUMINAIRE, LED, 120/240V FLOOD - SMART LIGHTING

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.101 Line 101 FURNISH LUMINAIRE, LED, 120/240V VIADUCT - SMART LIGHTING

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.102 Line 102 INSTALL GAS LIGHT POLE, COMPLETE WITH LUMINAIRE - SMART LIGHTING

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.103 Line 103 INSTALL LOOP POLE COMPLETE, 10 FOOT

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.104 Line 104 INSTALL EXTENDED LOOP POLE COMPLETE, 16 FOOT

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.105 Line 105 INSTALL CHICAGO 2000 ORNAMENTAL MAST ARM ASSEMBLY, 11" OR 12" DIA

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.106 Line 106 INSTALL CHICAGO 2000 ORNAMENTAL MAST ARM ASSEMBLY, 10" DIA

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.107 Line 107 INSTALL CHICAGO 2000 GATEWAY BASE FOR 34'6" POLE, 10" DIA

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.108 Line 108 INSTALL POLE, STEEL, ARTERIAL, 34'6", 10" DIA. 15" B.C. BLACK

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.109 Line 109 INSTALL CHICAGO 2000 PENDANT LUMINAIRE, LED, 240V - SMART LIGHTING

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.110 Line 110 INSTALL CHICAGO 2000 PEDESTRIAN 14' LIGHT POLE COMPLETE

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.111 Line 111 INSTALL POLE, ALUMINUM, DAVIT, ARTERIAL, 35' MH

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.112 Line 112 INSTALL POLE, ALUMINUM, DAVIT, ARTERIAL, 35' MH, ANODIZED

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.113 Line 113 INSTALL POLE, ALUMINUM, DAVIT, ARTERIAL, 40' MH, ANODIZED

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.114 Line 114 INSTALL MAST ARM, ALUMINUM, DAVIT, 6" ARTERIAL, 12 FOOT

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.115 Line 115 INSTALL MAST ARM, ALUMINUM, DAVIT, 6" ARTERIAL, 12 FOOT, ANODIZED

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.116 Line 116 INSTALL MAST ARM, ALUMINUM, DAVIT, 6" ARTERIAL, 15 FOOT, ANODIZED

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.117 Line 117 INSTALL 12' POLE, 10" B.C., 4 A.B., & 8' MAST ARM, ALUMINUM, RESIDENTIAL

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.118 Line 118 INSTALL 12' POLE, 10" B.C., 4 A.B., & 8' MAST ARM, ALUMINUM, RESIDENTIAL, ANODIZED

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.119 Line 119 INSTALL LUMINAIRE, LED, 240V, ARTERIAL - SMART LIGHTING

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.120 Line 120 INSTALL LUMINAIRE, LED, 240V, ARTERIAL ACORN & ARM - SMART LIGHTING

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.121 Line 121 INSTALL LUMINAIRE, LED, 240V, ORNAMENTAL ACORN - SMART LIGHTING

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.122 Line 122 INSTALL LUMINAIRE, LED, 240V, RESIDENTIAL - SMART LIGHTING

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.123 Line 123 INSTALL LUMINAIRE, LED, 240V, MID-MOUNT RESIDENTIAL ACORN & ARM - SMART LIGHTING

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.124 Line 124 INSTALL LUMINAIRE, LED, 120/240V FLOOD - SMART LIGHTING

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.125 Line 125 INSTALL LUMINAIRE, LED, 120/240V VIADUCT - SMART LIGHTING

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.126 Line 126 INSTALL SMART LIGHTING CONTROL NODE, EXTERNAL

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.127 Line 127 INSTALL SMART LIGHTING CONTROL NODE, INTERNAL

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.128 Line 128 HANGING BASKET ASSEMBLY

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.129 Line 129 REMOVE EMBEDDED POLE

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.130 Line 130 REMOVE ANCHOR BASE POLE

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.131 Line 131 REMOVE LUMINAIRE

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.132 Line 132 REMOVE LUMINAIRE, VIADUCT

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.133 Line 133 REMOVE MAST ARM

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.134 Line 134 REMOVE CONTROLLER & POST

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.135 Line 135 REMOVE CONTROLLER ONLY

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.136 Line 136 REMOVE SERVICE EQUIPMENT

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.137 Line 137 REMOVE SVC CABLES IN COND

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.138 Line 138 REMOVE BRANCH WIRES / CABLES

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.139 Line 139 BREAKDOWN HANDHOLE / MANHOLE

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.140 Line 140 REMOVE AND BREAKDOWN FOUNDATION - STREET LIGHT OR CONTROLLER

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.141 Line 141 REMOVE EXISTING SIGN PANEL & POST ASSEMBLY FROM PARKWAY/SIDEWALK AND RE-INSTALL

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.142 Line 142 REMOVE EXISTING SIGN PANEL, SALVAGE AND RE-INSTALL

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.143 Line 143 STREET NAME SIGN

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.144 Line 144 FURNISH SIGN PANEL, TYPE 1, NON-REFLECTIVE, SINGLE SIDED

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.145 Line 145 FURNISH SIGN PANEL, TYPE 1, REFLECTIVE TYPE A, SINGLE SIDED

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.146 Line 146 FURNISH SIGN PANEL, TYPE 1, REFLECTIVE TYPE A, DOUBLE SIDED

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.147 Line 147 FURNISH AND INSTALL SIGN POST, DIG METHOD

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.148 Line 148 FURNISH AND INSTALL SIGN POST, DRILL METHOD

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.149 Line 149 INSTALL SIGN PANEL (CENTER, FLAG OR BACK-TO-BACK MOUNT)

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.150 Line 150 TREE PRUNING

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.151 Line 151 LANDSCAPE RESTORATION

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.152 Line 152 LANDSCAPE RESTORATION USING GRASS SEED MAT

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.153 Line 153 SPOILS REMOVAL INSPECTION AND CERTIFICATION

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

2.2.154 Line 154 TRAFFIC CONTROL & PROTECTION

Category	91350..	Start Price (USD)	Not Specified
Shopping Category	Not Specified	Target Price (USD)	Not Specified
Minimum Release Amount (USD)	Not Specified		
Estimated Total Amount (USD)	Not Specified		

APPENDIX 1 - CONSTRUCTION ePROCUREMENT

This is an eProcurement Bid. Bids are to be submitted through the City's "iSupplier" system, the City's eProcurement computer system for electronic bidding and providing Contractors with access to contract, ordering and payment information for their City contracts. The following provisions apply to this bid and supersede any conflicting provisions in Books 1, 2, and 3.

1. Obtaining the Bid Documents

Bidders are solely responsible for obtaining all Bid Documents, including Clarifications and Addenda. Documents may be downloaded from the Department of Procurement Service's ("DPS") website at the following URL:

<http://www.cityofchicago.org/eProcurement>

Click on "Current Bids."

In order to receive notice of clarifications and addenda, Bidders must be registered for and log-in to iSupplier, search for the solicitation number, open the solicitation for review, and accept the disclaimer. This will sign Bidders up for notifications.

Bid Document Holders are listed on the Bid & Bond Room Opportunity Take Out List. The Opportunity Take Out List is public information and is posted to the DPS web site at www.cityofchicago.org/TOL. To find Opportunity Take Out lists go to "GetStarted Online" and search by the specification number.

2. Clarifications and Addenda

The City will send an email notification to suppliers who have indicated intent in a Bid that an addendum or clarification has been issued. The Clarifications and Addenda incorporated into the electronic bid document available at the following URL:

<https://www.cityofchicago.org/eProcurement>

Suppliers that have indicated interest in a Bid will receive email notification that an addendum or clarification has been issued. There may be multiple Clarifications and Addenda. Failure to obtain Clarifications and/or Addenda, for whatever cause, will not relieve a Bidder from the obligation to bid according to and comply with any changed or additional terms and conditions contained in the Clarifications and Addenda.

Electronic Acknowledgement of Clarifications and/or Addenda is mandatory to submit an electronic Bid. Any harm to the bidder resulting from failure to obtain all necessary documents, for whatever cause, will not be valid grounds for a protest against award(s) made under this bid solicitation.

3. Questions Regarding the Bid Documents; Bidder Inquiry Deadline

All inquiries regarding the Bid Documents or procurement process may be directed to the Procurement Specialist/Senior Procurement Specialist in iSupplier via online discussion or via email at the email address listed on the front cover of the Bid Documents.

The Bidder Inquiry Deadline is listed on the front cover of the Bid Documents under "Deadline for Questions." Inquiries received after the Bidder Inquiry Deadline will not be answered except at the discretion of the Chief Procurement Officer.

Bidders may only rely on written answers in a Clarification or in an Addendum duly issued by the Chief Procurement Officer. Bidders cannot rely on oral or informal responses; such answers will not be binding upon the City.

4. Completion of the Bid Documents

Each Bidder must complete all of the forms listed on the Bid Submittal Checklist (with the exception of the Proposal Pages) in the Requirements section and scan and upload them as attachments to the electronic bid submission. Bidders may not change any of the Bid Documents. Any changes made by a Bidder to the Bid Documents may result in rejection of the Bid, and will not be binding upon the City.

Bidders must submit their pricing electronically by filling out bid lines in the electronic Price Schedule in the iSupplier system.

Bidders must use the Bid Execution Page that is appropriate for their form of business organization (e.g., sole proprietorship, corporation, partnership, or joint venture). The individual(s) that sign the Bid Execution Page on behalf of the Bidder, by their signature, represents and warrants to the City that such individual is authorized to execute bids and contracts on behalf of the Bidder, and that the Bidder agrees and shall be bound to all of the terms and conditions of the Bid Documents and, upon execution by the City, the Contract Documents. Signatures must be sworn before a Notary Public. The form must be printed, signed, notarized and scanned then uploaded as an attachment to the electronic bid submission.

5. Date, Time, and Place

Bids are to be submitted electronically to the Department of Procurement on the date and prior to the time stated on the Cover Page of the Bid Documents, or any addendum issued by the City to change such Bid Opening Date. No bid will be accepted after the Bid Opening Date. The time of the receipt of the bid will be determined solely by the "Time of Quote" generated by the iSupplier system.

6. Bid Deposit

5% of the Total Base Bid

When submitting an electronic bid, scan and upload a copy of your bid deposit with your submittal documents. The 1st and 2nd apparent low bidders will be required to deliver their original and properly executed bid deposit to the Bid & Bond Room within 2 business days following the Bid Opening Date.

**BOOK 1
TERMS AND CONDITIONS FOR CONSTRUCTION**

**CITY OF CHICAGO
DEPARTMENT OF TRANSPORTATION**

**RAHM EMANUEL
MAYOR**



Issued by the
DEPARTMENT OF PROCUREMENT SERVICES

SHANNON E. ANDREWS
CHIEF PROCUREMENT OFFICER

City Funding

July 2018
(The City may from time to time revise these terms and conditions)

TABLE OF CONTENTS

I. GENERAL PROVISIONS	1
A. ACRONYMS.....	1
B. DEFINITIONS	1
C. USAGE AND CONTRACT INTERPRETATION	4
D. SEVERABILITY	5
E. ESTIMATES OF QUANTITIES	5
F. ORDER OF PRECEDENCE OF COMPONENT CONTRACT PARTS	5
G. ENTIRE AGREEMENT	6
II. PROJECT ORGANIZATION	6
A. THE COMMISSIONER.....	6
B. THE CHIEF PROCUREMENT OFFICER.....	6
C. CONTRACTOR	6
III. CONTRACTOR’S OBLIGATIONS.....	6
A. CONTRACTOR	6
B. SUBCONTRACTORS	8
C. SITE CONDITIONS AND INSPECTION	10
D. CLEANING UP.....	10
E. CONTRACTOR’S WARRANTIES AND REPRESENTATIONS.....	11
IV. PROPERTY.....	13
A. OWNERSHIP OF PROPERTY.....	13
B. OWNERSHIP OF DETAILED SPECIFICATIONS AND OTHER CONTRACT DOCUMENTS	14
C. RIGHT OF ENTRY	14
D. DAMAGE TO CITY PROPERTY	15
E. RIGHT TO OCCUPY BEFORE SUBSTANTIAL COMPLETION	15
F. FINAL COMPLETION AND ACCEPTANCE OF THE WORK.....	15
V. SHOP DRAWINGS, PRODUCT DATA, RECORDS AND SAMPLES	17
A. CONTRACTOR’S RESPONSIBILITIES AND SUBMITTAL PROCEDURES	17
B. REVIEW BY THE COMMISSIONER	19
C. SOURCE OF MATERIALS.....	20
D. RECORD DOCUMENTS.....	20
E. RECORD DRAWINGS	20
F. RECORD SHOP DRAWINGS AND PRODUCT DATA	21
G. CONSTRUCTION PROGRESS PHOTOGRAPHS	21
H. INSTRUCTIONS, PARTS LIST AND OPERATION AND MAINTENANCE MANUALS	22
I. ADJUSTMENT OF EQUIPMENT	22
J. PROJECT ACCOUNT RECORDS.....	22
VI. ASSIGNMENT.....	24
A. ASSIGNMENT OF CONTRACT BY CONTRACTOR.....	24
B. ASSIGNMENT OF FUNDS OR CLAIMS BY CONTRACTOR	24
C. ASSIGNMENT OF CONTRACT BY CITY	24
D. ASSIGNS	24
E. REQUESTS TO SUBCONTRACT.....	25
VII. QUALITY OF WORKMANSHIP, EQUIPMENT AND MATERIALS	25
A. STANDARD OF PERFORMANCE.....	25
B. CORRECTION OF WORK	25
C. MATERIALS AND EQUIPMENT	26

D.	SUBSTITUTION OF MATERIALS	26
E.	WARRANTIES.....	28
VIII.	PERSONNEL	28
A.	COMPETENCY OF WORKERS	28
B.	SUPERVISION AND SUPERINTENDENCE	29
C.	CONTRACTORS PROJECT PERSONNEL	29
D.	KEY PERSONNEL	29
E.	PREVAILING WAGE RATES	29
F.	“LIVING WAGE”	30
G.	MINIMUM WAGE, MAYORAL EXECUTIVE ORDER 2014-1	31
H.	EMPLOYMENT PREFERENCES.....	32
H.	WORKING HOURS IN CITY CONTRACTS	34
IX.	PERMITS AND LICENSES	34
A.	CONTRACTOR OBTAINS PERMITS	34
B.	CONTRACTOR PAYS PERMIT FEES	34
C.	OCCUPANCY PLACARD AND FEES.....	34
X.	COORDINATION WITH OTHER CITY DEPARTMENTS	35
A.	WATER SYSTEM WORK AND USAGE	35
B.	SEWER SYSTEM WORK.....	35
C.	PARKING METER REMOVAL AND REPLACEMENT	35
D.	TRAFFIC AND PARKING SIGN REMOVAL AND REPLACEMENT.....	36
E.	TREES.....	36
F.	DEMOLITION.....	36
XI.	SCHEDULE.....	37
A.	TIME.....	37
B.	PROGRESS SCHEDULE.....	37
C.	CONSTRUCTION OPERATIONS PLAN	38
D.	CRITICAL PATH METHOD (“CPM”) SCHEDULE	38
E.	RECOVERY SCHEDULE.....	42
F.	TIME FOR COMPLETING PUNCH LIST	42
G.	NO DAMAGES FOR DELAY; EXTENSIONS OF TIME	43
H.	SUSPENSION OF WORK	44
I.	LIQUIDATED DAMAGES	44
XII.	MEETINGS.....	45
A.	PRE-CONSTRUCTION MEETING.....	45
B.	WEEKLY REVIEW MEETINGS.....	45
C.	MONTHLY REVIEW MEETINGS	45
XIII.	PAYMENTS	46
A.	CONTRACT PRICE	46
B.	PROCEDURE FOR MONTHLY PAYMENT REQUESTS AND FINAL PAYMENT.....	46
C.	PAYMENT FOR STORED MATERIAL.....	48
D.	RETAINAGE	49
E.	PROMPT PAYMENT TO SUBCONTRACTORS.....	49
F.	PAYMENTS WITHHELD	51
G.	PAYMENT FOR CHANGES	54
H.	NIGHT, SUNDAY AND HOLIDAY WORK	59
I.	ACCELERATION	60
J.	PAYROLL CANVASS REPORTS.....	60
K.	ELECTRONIC ORDERING AND INVOICES	60
XIV.	CHANGES IN THE WORK	61
City Funded	I. General Provisions	2

A.	CITY’S RIGHT TO CHANGE WORK	61
B.	CONTRACTOR’S REQUEST	61
C.	CONTRACT MODIFICATION.....	61
D.	CONTRACTOR’S RELEASE	61
E.	PERFORMANCE OF CHANGED WORK	61
F.	CHANGE CLAIMS AND DISPUTES	62
XV. TESTING & INSPECTION.....		62
A.	MATERIAL, INSPECTION AND RESPONSIBILITY	62
B.	INSPECTION OF THE WORK	62
C.	MATERIALS AND EQUIPMENT TESTING AND INSPECTION	63
D.	TESTING LABORATORY LABELS	64
XVI. CONTRACTOR PRACTICES AT SITE.....		65
A.	COOPERATION AMONG CONTRACTORS	65
B.	PROTECTION OF PERSONS AND PROPERTY	65
C.	PROTECTION OF STREETS, ALLEYS AND PUBLIC GROUNDS	68
D.	PROTECTION OF EXISTING TREES IN THE RIGHT OF WAY	68
E.	CARE OF EXISTING STRUCTURES AND PROPERTY.....	70
F.	PRECAUTIONS AND SAFETY	74
G.	HEALTH, SAFETY AND SANITATION	75
H.	HAZARDOUS OPERATIONS AND SECURITY	77
I.	SERVICES AND USE OF SITE.....	78
J.	REPORTS AND PLANS.....	81
XVII. ENVIRONMENTAL REQUIREMENTS		81
A.	COMPLIANCE WITH ENVIRONMENTAL LAWS	81
B.	ENVIRONMENTAL PERMITS	81
C.	DISPOSAL OF MATERIALS, CONSTRUCTION DEBRIS, SOIL AND WASTE.....	82
D.	EQUIPMENT AND ENVIRONMENTAL CONTROL DURING TRANSPORT	83
E.	ENVIRONMENTAL CONTROL.....	83
F.	OPEN DUMPING PROHIBITED	83
G.	ENVIRONMENTAL PROTECTION	84
H.	CLEAN DIESEL FLEET: EMISSIONS REDUCTION (MCC 2-92-595) (WHERE APPLICABLE).....	85
XVIII. INSURANCE, INDEMNITY AND BONDS		86
A.	INDEMNITY	86
B.	CONTRIBUTION.....	87
C.	ADMIRALTY	87
D.	PERFORMANCE AND PAYMENT BONDS.....	88
E.	INSURANCE.....	88
XIX. CLAIMS AND DISPUTES		89
A.	GENERAL.....	89
B.	CLAIMS.....	89
C.	DISPUTES.....	90
XX. EVENTS OF DEFAULT AND TERMINATION		90
A.	CHIEF PROCUREMENT OFFICER’S RIGHT.....	90
B.	EVENTS OF DEFAULT	90
C.	REMEDIES.....	91
D.	NONEXCLUSIVITY OF REMEDIES.....	93
E.	ADJUDICATION OF TERMINATION	93
F.	EARLY TERMINATION.....	93
G.	NON-APPROPRIATION.....	94
XXI. COMPLIANCE WITH ALL LAWS		94

A.	CONTRACTOR MUST COMPLY WITH ALL LAWS	94
B.	CIVIL RIGHTS ACT OF 1964, TITLE VI, COMPLIANCE WITH NONDISCRIMINATION REQUIREMENTS	94
C.	BUSINESS RELATIONSHIPS WITH ELECTED OFFICIALS	100
D.	CHICAGO INSPECTOR.....	100
E.	GOVERNMENTAL ETHICS ORDINANCE.....	100
F.	FALSE STATEMENTS	101
G.	AMERICANS WITH DISABILITIES ACT	101
H.	MACBRIDE PRINCIPLES ORDINANCE	101
I.	PROHIBITION ON CERTAIN CONTRIBUTIONS – MAYORAL EXECUTIVE ORDER NO. 2011-4.....	101
J.	LICENSING OF GENERAL CONTRACTORS	102
K.	BUY AMERICA.....	102
L.	STEEL PRODUCTS	102
M.	WASTES.....	102
N.	DUTY TO REPORT CORRUPT ACTIVITY.....	103
O.	EQUAL PAY	103
P.	2014 HIRING PLAN PROHIBITIONS	103
Q.	CONTRACTOR’S LIABILITY – SAFETY BARRIERS AND LIGHTS	104
R.	ELECTRONIC MAIL COMMUNICATION	104
S.	DISCLOSURE OF OWNERSHIP INTEREST IN ENTITIES (ELECTRONIC DISCLOSURE STATEMENT)	104
T.	EDS UPDATE OBLIGATION.....	104
U.	WHEEL TAX (CITY STICKER).....	104
V.	SAFETY ENHANCING VEHICLE EQUIPMENT CONTRACTING (MCC 2-92-597)	105
W.	POLICY PROHIBITING SEXUAL HARASSMENT (SECTION 2-92-612 OF THE CHICAGO MUNICIPAL CODE)....	107
X.	DEEMED INCLUSION	108
XXII. STATUTORY ADJUSTMENTS TO THE BID.....		108
A.	CITY-BASED BUSINESSES (CHICAGO BUSINESS PREFERENCE)	108
B.	LOCALLY MANUFACTURED GOODS.....	109
C.	ALTERNATIVELY POWERED VEHICLES BID INCENTIVE	110
D.	BID INCENTIVES FOR VETERAN-OWNED SMALL LOCAL BUSINESSES AND ELIGIBLE JOINT VENTURES	112
E.	BID INCENTIVE FOR UTILIZATION OF VETERAN-OWNED SUBCONTRACTORS	113
F.	GRADUATES OF CHICAGO SCHOOLS APPRENTICE UTILIZATION (SECTION 2-92-335 OF THE CHICAGO MUNICIPAL CODE)	115
G.	EX-OFFENDER APPRENTICE UTILIZATION (SECTION 2-92-336 OF THE CHICAGO MUNICIPAL CODE).....	116
H.	MENTORING PROGRAM BID PREFERENCE (SECTION 2-92-535 OF THE CHICAGO MUNICIPAL CODE)	118
J.	COMMITMENT REGARDING BUSINESS ENTERPRISES OWNED BY PEOPLE WITH DISABILITIES (BEPD)	119
XXIII. MISCELLANEOUS.....		120
A.	COUNTERPARTS	120
B.	MODIFICATIONS	120
C.	NO WAIVER OF LEGAL RIGHTS	120
D.	GOVERNING LAW	121
E.	CONSENT TO SERVICE OF PROCESS AND JURISDICTION	121
F.	CONTRACTOR COOPERATION	121
G.	JOINT AND SEVERAL LIABILITY	121
H.	NO THIRD PARTY BENEFICIARIES.....	121
I.	NOTICES	122
J.	AUTHORITY	122
K.	SOFTWARE LICENSE AGREEMENTS.....	122
XXIV. SPECIAL CONDITIONS REGARDING MINORITY OWNED BUSINESS ENTERPRISE COMMITMENT AND WOMEN OWNED BUSINESS ENTERPRISE COMMITMENT IN CONSTRUCTION CONTRACTS.....		123

I. GENERAL PROVISIONS

A. Acronyms

“ACI” - American Concrete Institute
“AED” - Associated Equipment Distributors
“AISC” - American Institute of Steel Construction.
“ANSI” - American National Standards Institute.
“ASME” - American Society of Mechanical Engineers.
“ASTM” - American Society for Testing and Materials
“EDS” - *See Section XXI.S.*
“CTA” - Chicago Transit Authority
“FEPC” - Fair Employment Practices Commission.

“IEPA” - Illinois Environmental Protection Agency.
“IDOT” - Illinois Department of Transportation.
“NEC” - National Electric Code.
“NFPA” - National Fire Protection Association
“NEMA” - National Electrical Manufacturer’s Association.
“OSHA” - U.S. Occupational Safety and Health Administration

B. Definitions

1. “Architect/Engineer” means the person designated by the Commissioner to provide the Contract drawings and Detailed Specifications for the Work you are to perform.
2. “Business Days” means Monday through Friday, unless an officially designated City holiday falls on one of those days.
3. “Chief Procurement Officer” means the Chief Procurement Officer for the City of Chicago, and any representative duly authorized in writing to act on his/her behalf.
4. “City” means the City of Chicago, a municipal corporation and home rule unit of government existing under the Constitution of the State of Illinois.
5. “Commissioner” means the head of the Department and any designee duly authorized in writing to act on his/her behalf.
6. “Comptroller” means City Comptroller or his designated representative.
7. “Consultant(s)” refers to the person, firm or corporation awarded a contract by the City to provide professional architectural or engineering design services or construction supervision for the Project.
8. “Contract” means this Contract, including your bid proposal (as accepted by the City), the City’s bid specification, which includes Books 1, 2, and 3, plans and drawings, addenda, all exhibits and schedules that are attached to it and documents incorporated in it by reference; fully executed performance and payments bond(s); and all amendments, modifications, or revisions made from time to time in accordance with its terms.
9. “Contract Completion Date” is the date, determined by the Commissioner, on which the Project is to reach Substantial Completion. The Contract Completion Date will be

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

determined based on the duration for the Project set by the Contract as adjusted by any Contract modifications that extend or reduce the duration of the Project.

10. "Contract Modification" means a written modification of the terms and conditions of this Contract, signed by you, the Chief Procurement Officer, the Mayor and the Comptroller.
11. "Contractor" or "you" means the person who is awarded the Contract.
12. "Contract Price" is defined in Section XIII.A.
13. "Contract Time" is the duration of the Work from when the Work is required to begin until the scheduled date for Substantial Completion, including approved time extensions. See I.B.42.
14. "Corporation Counsel" means the head of the City's Department of Law and any Assistant Corporation Counsel duly authorized to act on the Corporation Counsel's behalf.
15. "Day" means calendar day.
16. "Daytime Work" means work performed between the hours of 6:00 a.m. to 6:00 p.m.
17. "Department" means the City Department identified on the cover of this Contract.
18. "Detailed Specifications" means the written requirements for materials and equipment to be used in the Work, including any plans or drawings, and standards of performance for the Work, which are set forth in Book 3 or incorporated by reference.
19. "Environmental Laws" means all applicable Federal, State, and local laws, ordinances, rules, regulations, and executive orders pertaining to environmental matters.
20. "Equipment" means all machinery and equipment, together with the necessary supplies for upkeep and maintenance, and all tools and apparatus necessary for the proper and acceptable completion of the Work.
21. "Field Order" means the written order to you, signed by the Commissioner, unilaterally directing changes in the Work or the Contract Time, or directing you to take corrective action and to adhere to Contract.
22. "Final Completion and Acceptance of the Work " means the last date on which all of the following events have occurred: (i) the Commissioner has determined that all Punch List Work and any other remaining Work have been completed in accordance with the Contract; (ii) final inspections have been completed and operations systems and equipment testing have been completed; (iii) final occupancy certifications have been issued; (iv) all deliverables have been provided to the Commissioner; and (v) all contractual requirements for final payment have been completed.
23. "Hazardous Materials" means asbestos and asbestos-containing materials, polychlorinated biphenyls (PCBs), oil or any other petroleum products, natural gas, special nuclear materials, and by-product materials regulated under the Atomic Energy Act (42 U.S.C. Sec. 2014, *et seq.*), pesticides under the Federal Insecticide, Fungicide and Rodenticide Act (7 U.S.C. Sec. 136, *et seq.*) and any hazardous waste, toxic substance or related material, including any substance defined or treated as "hazardous

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

waste," "special waste," or "toxic substance" (or comparable term) in any Environmental Law.

24. "Include" (in all of its forms) means "include without limitation" unless the context clearly indicates otherwise.
25. "Management Consultant" or "Program Manager" means the organization or entity, if any, that the City has retained to oversee the planning, design, and construction of the Project.
26. "Municipal Code" means the Municipal Code of Chicago.
27. "Night Work" means work performed between the hours of 6:00 p.m. and 6:00 a.m. unless otherwise defined in the plans.
28. "Notice to Bidders" means the Advertisement for Bids, the official notice inviting bids for the proposed Work to be done under this Contract.
29. "Notice to Proceed" means written authorization from the Commissioner for you to commence the Work on a specified date.
30. "Product Data" are illustrations, standard schedules, performance charts, instructions, descriptive literature, catalogs and brochures, performance and test data, test certifications, diagrams and other information furnished by you to illustrate a material, product or system for some portion of the Work.
31. "Project" means, collectively, the improvements you are to construct in accordance with the Contract.
32. "Provide" means furnish and install, unless otherwise specified in this Contract.
33. "Punch List" or "Punch List work" means minor adjustments, repairs or deficiencies in the Work, as determined by the Commissioner in his sole discretion.
34. "Record Documents" are all documents pertaining to the completed Work and the Project that the Contract requires you to provide to the City, including Record Drawings, Record Shop Drawings, product data, instructions, parts list, certified payrolls and operations and maintenance manuals.
35. "Record Drawings" means drawings reflecting the final built Project configuration, including approved modifications.
36. "Samples" mean physical examples that illustrate materials, equipment or workmanship. Samples include materials, fabricated items, equipment, devices, appliances, or parts of them, as called for in the Detailed Specifications and any other Samples that may be required by the Commissioner to determine whether the kind, quality, construction, workmanship, finish, color and other characteristics of the materials proposed by you conform to the required characteristics.
37. "Shop Drawings" means drawings, diagrams, schedules and other data specially prepared for the Work by you or any Subcontractor, manufacturer, supplier or distributor to illustrate some portion of the Work. Shop Drawings include: fabrication, erection, layout and setting drawings; manufacturer's standard drawings; schedules; wiring and control diagrams; and other drawings pertaining to materials, equipment and systems

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

and methods of construction that may be required to show that the materials, equipment or system conform to the Contract requirements. Shop drawings must establish the actual detail of all manufactured and fabricated items and indicate the proper relation to the adjoining Work.

38. "Special Wastes" means those substances as defined in the Illinois Environmental Protection Act, 415 ILCS 5/3.45, and further defined in Section 809.103 of 35 Illinois Administrative Code, Subtitle G, Ch. 1.
39. "Subcontractor" means any person or entity with whom you contract to provide any part of the Work, and all subcontractors of any tier, including suppliers and material persons, whether or not in privity with you.
40. "Submittal" means Schedule, Shop Drawings, Product Data or Samples and other items that the Contract may require you to submit to the Commissioner.
41. "Substantial Completion Date" is the date upon which you have met the requirements for Substantial Completion in the opinion of the Commissioner.
42. "Substantial Completion of the Project" or "Substantial Completion" means that, in the opinion of the Commissioner, you have completed all Work in accordance with the Contract, except for Punch List Work, and the City is able to occupy and use the Project for the purpose intended.
43. "Work" means all labor, materials, equipment, deliverables, and other incidentals to be provided by you under this Contract that are necessary or convenient to the successful completion of this Project and that are required by, incidental or collateral to the Contract.
44. "You" means "Contractor." See above.

C. Usage and Contract Interpretation

1. Unless a contrary meaning is specifically noted elsewhere, words such as, "as required," "as directed," "as permitted," and similar words mean that requirements, directions of, and permission of the Commissioner are intended. The words "approved," "acceptable," "satisfactory," or words of like import, mean "approved by," "acceptable to," or "satisfactory to" the Commissioner. The words "necessary," "proper," or words of like import as used regarding the extent, conduct or character of the Work specified means that Work must be conducted in a manner, to the extent, or be of character that is "necessary" or "proper" in the opinion of the Commissioner. The Commissioner's judgment in these matters is final and you are not permitted to contest it.
2. Where the imperative form of an address is used, such as "perform the excavating," "provide equipment required," "remove obstructions encountered," "furnish and install reinforcing steel bars," etc., that address is directed to you .
3. Any headings in this Contract are for convenience of reference only and do not define or limit its terms or provisions. All article and section references, unless otherwise expressly indicated, are to sections of this Contract. Words importing persons include firms, associations, partnerships, trusts, corporations, joint ventures and other legal entities, including public bodies, as well as natural persons. Words of any gender

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

include correlative words of other genders. Words importing the singular number include the plural and vice versa, unless the context otherwise indicates. All references to any exhibit or document include the latest version and all supplements and/or amendments to any such exhibits or documents. All references to any person or entity include any person or entity succeeding to the rights, duties, and obligations of those persons or entities in accordance with the terms and conditions of this Contract.

4. Whenever reference to a law is contained in this Contract, the reference includes any amendments to the law.

D. Severability

If any provision of this Contract is inoperative or unenforceable as applied in any particular case in any jurisdiction or jurisdictions because it conflicts with any other provision of this Contract, or of any constitution, statute, ordinance, rule of law, or public policy, or for any other reason, those circumstances will not render the provision in question inoperative or unenforceable in any other case or circumstance, or render any other provision or provisions of this Contract invalid, inoperative, or unenforceable to any extent whatever. The invalidity of any phrases, sentences, clauses, or sections contained in this Contract will not affect the remaining portions of this Contract or any part of it.

E. Estimates of Quantities

If an estimate of quantities of Work is listed in the Bid Schedule of Prices, you understand that:

1. the estimate is approximate only;
2. the City does not expressly or by implication represent or warrant that the actual quantities involved will correspond to the estimate;
3. payment to you will be made only for the actual quantities furnished and installed in accordance with the terms of this Contract; and
4. the Chief Procurement Officer and the Commissioner reserve the right to jointly order, in writing, to increase, decrease or delete quantities of Work pursuant to all terms and conditions of the Contract.

F. Order of Precedence of Component Contract Parts

The order of precedence of the component contract parts is as follows:

1. Terms and Conditions;
2. Addenda if any;
3. Plans or City Drawings;
4. Detailed Specifications;
5. Standard Specifications of the City, State or Federal Government, if any;
6. Advertisement for Bids (copy of advertisement to be attached to back of cover);
7. Requirements for Bidding and Instructions to Bidders; and

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

8. Performance Bond, if required.

The foregoing order of precedence governs the interpretation of the Contract in all cases of conflict or inconsistency in it.

G. Entire Agreement

The Contract constitutes the entire agreement between the parties with respect to its subject matter, and no other oral or written understandings, representations, inducements, consideration, promises, or interpretations are implied or impressed upon this Contract that are not expressly addressed in it.

II. PROJECT ORGANIZATION

A. The Commissioner

For the purposes of this Contract, the Commissioner, or any successor office to the Commissioner, will represent the City in all matters relating to the performance of your Work under this Contract and will constitute the point of receipt for all deliverables required under this Contract, unless expressly specified otherwise in this Contract. The Commissioner will decide all questions that arise with regard to the administration of the Contract such as to the quality and acceptability of materials furnished, the Work performed and rate of progress of the Work. The Commissioner will determine the amount and quality of Work performed and materials furnished and their estimates. The Commissioner's estimate will be a condition precedent to your right to receive money due under the Contract, but then only if the modifications or amendments to the Contract are approved in accordance with Article XIV, "Changes in the Work."

B. The Chief Procurement Officer

The approval of the Chief Procurement Officer is required to enter this Contract and to modify it.

C. Contractor

The Work is under your charge and care until Final Completion and Acceptance of the Work, unless otherwise specified elsewhere in the Contract.

III. CONTRACTOR'S OBLIGATIONS

A. Contractor

1. Except as may be expressly provided otherwise in the Contract, you are solely responsible for selecting the means, methods, techniques, sequences, and procedures used in performing the Work. The intent of the Detailed Specifications is to describe the completed Work that you must provide to fulfill the requirements of the Contract. The Detailed Specifications are not intended to cover every detail of materials, parts, or activities necessary to complete the Work. You must perform all activities that may be required or necessary to complete the Work in accordance with the Contract. For the Contract Price, you must construct, furnish and install all materials, parts and labor necessary to complete the entire Work, whether or not the Contract particularly specifies or shows the details of Work.

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

2. The Work under this Contract has not been completely segregated into divisions of Work to be performed by any trade or Subcontractor. You are responsible for all division of work. However, wherever any provision of any section of the specifications conflicts with any agreements or regulations of any kind at any time in force among members of any trade or craft associations, unions or councils that regulate or distinguish that work is or is not included in the work of any particular trade, you must make all necessary arrangements to reconcile any such conflict without delay, damage, or cost to the City.
3. Before submission of your bid, you must (i) inspect the site of the proposed Work and familiarize yourself with all the site conditions that may affect your performance of the Work; and (ii) review the Detailed Specifications, plans and drawings provided with the bid documents, as required in the "Requirements for Bidding and Instructions to Bidders," in Book 2. If at any time before the bid opening you discover any errors, discrepancies or omissions in the Contract or any discrepancy between the Contract and the physical conditions at the site or in any drawings that may be provided later, you must notify the Chief Procurement Officer immediately, in writing for an interpretation through an Addendum.
4. This written request must be received by the Chief Procurement Officer no later than 10 days before bid opening, or no response will be provided. You will not be allowed to take advantage of your discovery of any such error or omission or discrepancy in the Contract after the award of the Contract. Any Work done after the discovery, unless authorized by the Chief Procurement Officer, will be done at your expense.
5. Except as otherwise expressly provided in the Contract, the Contract Price includes all costs and expenses for which you will be compensated in connection with the Contract, including
 - a. the costs of performing any or all of your obligations and duties under the Contract;
 - b. the costs of all materials, equipment, supplies, tools, machinery, labor, supervision, management and items of any and all kinds that are or may be necessary and incidental to the full and satisfactory completion of the Work, whether or not specified or indicated in the Contract;
 - c. the costs of permits, insurance, bonds and license;
 - d. the costs associated with any risks you assume under the Contract;
 - e. the costs associated with all warranties and guarantees;
 - f. the costs of complying with the directives of the Chief Procurement Officer and/or the Commissioner;
 - g. the costs of complying with all laws applicable to the Contract; and
 - h. all overhead and profit.

No term of the Contract that further specifically indicates that you must bear the costs of an item or that further specifically indicates that an item will be performed at no additional cost to the City will be construed or interpreted to in any way limit the foregoing.

6. You must begin the Work on the date specified in the Notice to Proceed. In addition, upon receipt of the Notice to Proceed, you must assign and maintain during the term of

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

the Contract and any extension of it, an adequate staff of competent personnel who are fully equipped, licensed as appropriate, available as needed, and qualified to perform the Work. You must include among your staff such personnel and positions as the Contract may require.

If, in the reasonable opinion of the Commissioner, the performance of your personnel assigned to the Work is at an unacceptable level, or does not comply with the provisions of Section VIII.A, "Competency of Workers," those personnel must cease to be assigned to this Work and must return to you. You must then furnish to the Commissioner the name of a substitute person or persons in accordance with Section III.A.6. Absence of sufficient qualified personnel for the Work constitutes an event of default.

7. You must supervise and direct the Work competently and efficiently, devoting such attention and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract. You are responsible for providing a finished Project that complies fully with the Contract.
8. Risk of Loss. The Work is under your charge and care until Final Completion and Acceptance of the Work by the Commissioner, unless otherwise specified in the Contract. You assume all responsibility for injury or damage to the Work by action of the elements, fire or any other causes whatsoever, including injury or damage arising from the execution or non-execution of the Work. You must rebuild, repair, restore and make good, at no additional cost to the City, all injuries or damages to any portion of your Work before Final Completion and Acceptance of the Work.
9. When the City furnishes equipment or materials to you for use or inclusion in the Work, you must safeguard all such equipment and materials as you would equipment and materials that you furnished.
10. The Work will not be considered to be completed and accepted until you receive written notice from the Commissioner confirming the Final Completion and Acceptance of the Work.
11. If you have any questions or concerns with respect to the Detailed Specifications or Contract drawings, you must raise them with the Commissioner.

B. Subcontractors

1. All rights and obligations under this Contract are by and between the City and you. Except as may otherwise be provided in the Contract, there is no privity between Subcontractors and the City. Subcontractors have no rights as third-party beneficiaries under this Contract except as may be provided in Article XXIII. You must implement such measures as may be necessary to ensure that your Subcontractors are bound by all applicable provisions of the Contract.
2. All Subcontractors are subject to the approval of the Chief Procurement Officer. You must not substitute a Subcontractor previously accepted by the Chief Procurement Officer unless the substitution is acceptable to the Chief Procurement Officer. All requests to subcontract must be submitted on a form approved by the Chief Procurement Officer.
3. You are responsible in all aspects and at all times for all Subcontractor Work.

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

4. Except as required under Article XXIII, you must upon request furnish the Chief Procurement Officer with one copy of each written subcontract and subsequent modifications signed by you and the Subcontractor evidencing the agreement. All subcontracts must be in writing. All subcontracts must require that (i) all Subcontractors' Work be performed in strict accordance with this Contract; and (ii) the Subcontractor is bound by and subject to the requirements of this Contract, whether or not a particular provision specifically mentions Subcontractors. Subcontracts may contain different provisions than are provided in this Contract with respect to payments, schedules, and matters not affecting the quality or timely completion of the Work under this Contract, but only if the City's rights are not thereby prejudiced. You must require each Subcontractor to enter into similar subcontracts with its Subcontractors. You must make available to each Subcontractor, before the execution of the subcontract, copies of this Contract, to which the Subcontractor will be bound pursuant to the requirements of this Section III.B.4.
5. If a subcontract provided to the City does not comply with these requirements, the City's failure to object is not a waiver of them, and you will remain liable to the City for all damages, costs, fines, losses and claims arising out of the non-compliance.
6. In the case of Work performed by Subcontractors, you must secure warranties from the Subcontractors addressed to and in favor of the City; deliver copies of them to the City upon completion of the Subcontractors' Work and; guarantee and assume full responsibility for the performance of any repair or replacement Work that may be required for the full period of the warranties provided. However, the delivery of the warranties will not relieve you from any obligations assumed under this Contract.
7. Contractor hereby collaterally assigns any or all subcontracts to the City, effective upon the City's exercise, at its sole discretion, of its right to assume such assignment as a remedy for Contractor's default or in the event of early termination. The Contractor must require each of your Subcontractors (including materialmen) to consent to a collateral assignment to the City of their respective subcontract with the Contractor. The Contractor's subcontracts must include language stating:

Contractor has collaterally assigned this subcontract to the City of Chicago, effective upon written assumption of such assignment by the City in the event of Contractor's default or early termination of Contractor's contract with the City. Subcontractor hereby consents to such assignment and assumption. Subcontractor acknowledges and agrees that, in the event of such an assignment and assumption, the City will have no liability to Subcontractor for work performed by Subcontractor prior to the effective date of the assignment and assumption and that Subcontractor shall look solely to Contractor for any compensation or other obligations arising under the subcontract prior to such date.
8. The City encourages Contractors to use Subcontractors that are firms owned or operated by individuals with disabilities, as defined by § 2-92-586 of the Municipal Code, where not otherwise prohibited by Federal or State law.
9. Compliance with Multi-Project Labor Agreement (PLA). The City has entered into the PLA with various trades regarding projects as described in the PLA, which is hereby

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

incorporated by reference. A copy of the PLA, with appendices, may be found on the City's website at <http://www.cityofchicago.org/PLA>. Contractor acknowledges familiarity with the requirements of the PLA and its applicability to any work under this agreement, and shall comply in all respects with the PLA.

C. Site Conditions and Inspection

1. Surveys, soil borings, geotechnical information, data, plans or other materials generally describing the unimproved land or existing structures at the site may be provided to you by the City. Such information is not warranted by the City to be accurate. You are not entitled to rely on it. In signing this Contract you are acknowledging that when such information appears in Contract documents, prepared by the City or its Consultants, the City and its Consultants have not verified the information. Site plans do not constitute any representation by the City to you of site boundaries or characteristics.
2. You must take field measurements, verify field conditions and carefully compare those field measurements and conditions and any other information known to you with the Contract documents before commencing the Work. No allowance will be made to you for any extra labor and/or materials required due to site conditions or discrepancies that might have been discovered by a thorough and proper inspection of the site. If land surveying Work is required under this Contract, you must have the Work performed by a land surveyor that is licensed as such by the State of Illinois.
3. If conditions are encountered at the site which are (i) subsurface or otherwise unknown or concealed physical conditions which differ materially from those indicated in the Contract; or (ii) pre-existing unknown physical conditions of an unusual nature, which differ materially from those ordinarily found to exist and generally recognized as inherent in activities of the character provided for in the Contract, including the presence of unanticipated Hazardous Materials, then you must provide immediate written notice to the Commissioner before proceeding with the work or disturbing those areas.
4. If the conditions differ materially from those indicated in the Contract, and cause a material increase or decrease in your cost or time required for the performance of any part of the Work, an equitable adjustment in the Contract Price or Contract Time, or both, will be made under Article XIV, "Changes in the Work."
5. You must keep on hand at the Work site, for reference, a complete set of Contract documents for the Work, copies of all plans and shop drawings, all additional and revised plans furnished by the City and all orders issued to you by the Commissioner that relate to the Work.

D. Cleaning Up

During the construction, you must keep the Work site and adjacent premises as free from material, debris, and rubbish as is practicable and must remove them entirely and at once, if in the opinion of the Commissioner, the material, debris or rubbish constitutes a nuisance, a safety hazard, or is objectionable in any way to the public. Upon verbal and/or written notification of unacceptable work day conditions by the City, you will be responsible for immediate rededication within 48 hours of notification. Your failure to act accordingly will result in completion of remediation work by the City at your expense.

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

As a condition of Final Completion and Acceptance of the Work, you must remove from the Work site and adjacent premises all machinery, equipment, surplus materials, falsework, excavated and useless materials, rubbish, temporary buildings, barricades and signs, and must restore the site to the same general conditions that existed before the Work began.

You must clean off all cement streaks or drippings, paint smears or drippings, rust stains, oil, grease, dirt, and any other foreign materials deposited or accumulated on any portion of the Work, or existing work, due to your operations.

You are solely responsible for and must assume all liability associated with off-site disposal of any Hazardous Materials generated as a result of your construction activities.

E. Contractor's Warranties and Representations

You warrant and represent that:

1. You have carefully examined and analyzed the provisions and requirements of this Contract; you have inspected the Work site(s) to the extent made available by the City; from your own analysis you have satisfied yourself as to the nature and scope of work, all conditions, any obstructions and requirements needed for the preparation of your bid and the performance of this Contract, the general and local conditions, and all other matters that in any way may affect this Contract or your performance; and the time available for the examination, analysis, inspection and investigation was adequate;
2. This Contract is feasible of performance in accordance with all of its provisions and requirements and that you can and will perform, or cause to be performed, the Work in strict accordance with the provisions and requirements of this Contract;
3. Except for the contents of this Contract, no representation, statement or promise, oral or written, or of any kind whatsoever, by the City, its officials, agents, representatives or employees, has induced you to submit a bid nor have you relied upon any, including any reference to (i) the meaning, correctness, suitability or completeness of any provisions or requirements of this Contract; (ii) the nature, existence, or location of materials, structures, obstructions, utilities or conditions, surface or subsurface, that may be encountered at or on the Work site; (iii) the nature, quantity, quality or size of any materials, equipment, labor and other facilities needed for the performance of this Contract; (iv) the general conditions that may in any way affect this Contract or its performance; (v) the compensation provisions of the Contract; or (vi) any other matter;
4. You were given ample opportunity and time to review the Contract documents before submittal of your bid in order that you might request an addendum to the Contract documents that might correct or clarify them; you did so review the Contract documents, and every such correction or clarification has been included in this Contract or else, if omitted, you expressly relinquish the benefit of them and are willing to perform this Contract in its entirety without claiming reliance on any such omission or making any other claim on account of the omission;
5. In accordance with § 11-4-1600(e) of the Municipal Code, Contractor warrants and represents that it, and to the best of its knowledge, its Subcontractors have not violated and are not in violation of the following sections of the Code (collectively, the Waste Sections):

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

- 7-28-390 Dumping on public way;
- 7-28-440 Dumping on real estate without permit;
- 11-4-1410 Disposal in waters prohibited;
- 11-4-1420 Ballast tank, bilge tank or other discharge;
- 11-4-1450 Gas manufacturing residue;
- 11-4-1500 Treatment and disposal of solid or liquid waste;
- 11-4-1530 Compliance with rules and regulations required;
- 11-4-1550 Operational requirements; and
- 11-4-1560 Screening requirements.

During the period while this Contract is executory, Contractor's or any Subcontractor's violation of the Waste Sections, whether or not relating to the performance of this Contract, constitutes a breach of and an event of default under this Contract, for which the opportunity to cure, if curable, will be granted only at the sole discretion of the Chief Procurement Officer. Such breach and default entitles the City to all remedies under the Contract, at law or in equity.

This section does not limit the Contractor's and its Subcontractors' duty to comply with all applicable Federal, State, County and Municipal laws, statutes, ordinances and executive orders, in effect now or later, and whether or not they appear in this Contract.

Non-compliance with these terms and conditions may be used by the City as grounds for the termination of this Contract, and may further affect the Contractor's eligibility for future contract awards.

6. Contractor warrants and represents that neither Contractor nor an Affiliate, as defined below, appears on the Specially Designated Nationals List, the Denied Persons List, the Unverified List, the Entity List, or the Debarred List as maintained by the Office of Foreign Assets Control of the U.S. Department of the Treasury or by the Bureau of Industry and Security of the U.S. Department of Commerce or their successors, or on any other list of persons or entities with which the City may not do business under any applicable law, rule, regulation, order or judgment.

"Affiliate" means a person or entity which directly, or indirectly through one or more intermediaries, controls, is controlled by or is under common control with Contractor. A person or entity will be deemed to be controlled by another person or entity if it is controlled in any manner whatsoever that results in control in fact by that other person or entity, either acting individually or acting jointly or in concert with others, whether directly or indirectly and whether through share ownership, a trust, a contract or otherwise.

7. You understand that the City, in its acceptance of your proposal to perform the Work, materially relied upon your response to the Advertisement for Bids. The information you provided with the bid was accurate at the time it was made and no material changes in the information have occurred since then and will not be made without the express consent of the City.
8. In preparing and submitting your bid for this Contract, you have complied with and given full consideration to the following bidding requirements:

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

- a. You obtained for bidding purposes copies of the complete Contract as identified in the Advertisement for Bids and all addenda issued by the City and have become familiar with them and all Contract requirements and conditions described in them;
 - b. You clarified to your satisfaction and complete understanding any doubt as to the true meaning and intent of all parts of the specifications and plans or other portions of the Contract documents;
 - c. You have no claim for relief because of alleged mistakes or omissions in your bid, and you will be held strictly to your bid as presented.
9. You have the capability and financial resources to perform all of the provisions and requirements of this Contract.
10. You can perform all of your obligations under this Contract in accordance with all of the Contract's provisions and requirements.
11. Contractor warrants that no member of the governing body of the City or other units of government and no other officer, employee, or agent of the City or other unit of government who exercises any functions or responsibilities in connection with the Project to which this Contract pertains, has any personal interest, direct, or indirect, in this Contract. In accordance with 41 USC § 22, no member of or delegate to the Congress of the United States will be permitted to any share or part of this Contract or to any financial benefit to arise from it, nor, under applicable laws, will any member of or delegate to the Illinois General Assembly nor any alderman of the City or City employee. Contractor warrants that its officers, directors and employees, and the officers, directors and employees of each of member if a joint venture, and subcontractors, presently have no interest and will acquire no interest, direct or indirect, in the Project that would conflict in any manner or degree with the performance of the Work under this Contract. Contractor further warrants that in the performance of this Contract, no person having any such interest will be employed.

Furthermore, if any federal funds are to be used to compensate or reimburse Contractor under this Contract, Contractor represents that it is in compliance with federal restrictions, and promises to remain so, including federal restrictions on lobbying set forth in § 319 of the Department of the Interior and Related Agencies Appropriations Act for Fiscal Year 1990, 31 USCS 1352, and related rules and regulations set forth at 54 Fed. Reg. 52,309 ff. (1989), as amended. If federal funds are to be used, Contractor must execute a Certification Regarding Lobbying, which is contained in the EDS attached to this Contract as an exhibit.

IV. PROPERTY

A. Ownership of Property

The City will be the owner of the Work, including any improvements, equipment and fixtures installed or constructed by Contractor, as part of the Project or for which the City has paid Contractor to store in anticipation of installation or construction. The City's title shall be free and clear of liens, claims, security interests or other encumbrances, upon the earlier of installation, payment therefore or Final Completion of the Project; provided, however, that transfer of title to the City shall not relieve Contractor of any of its responsibilities under this

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

Contract with respect to Work in Progress. Nor will the transfer of title constitute acceptance of any portion of the work.

B. Ownership of Detailed Specifications and Other Contract Documents

1. The Detailed Specifications, plans and any copies of them furnished by the Commissioner are the property of the City. They are not to be used on other work. The City will provide you the number of Detailed Specifications and plans determined appropriate by the City. The City may provide you with additional copies at your request and at your cost. You are responsible for any loss or damage to the Detailed Specifications and plans while in your care and custody, and you must restore all Detailed Specifications and plans that may be lost or damaged. Contract documents will be furnished as follows:

Contract Plans	2 Sets
Subsequent Details	2 Sets
Specifications and Contract Documents	2 Sets

2. You must obtain specifications issued by organizations other than the City to which reference is made in the City's documents at your own expense. You must also retain them at the Work site and make them accessible to the Commissioner.
3. The City is the owner of the Project. All documents, data, studies, reports, and instruments of service prepared for or by the City under this Contract are the property of the City. During the performance of your Work, you are responsible for any loss or damage to documents while in your possession or the possession of a Subcontractor and you must restore any such document so lost or damaged at your expense.

You must deliver, or cause to be delivered, at any time during the term of this Contract, all documents, including drawings, models, specifications, estimates, reports, studies, maps, and computations, prepared by or for the City, under the terms of this Contract to the City, promptly upon reasonable demand for them or upon termination of the Work. If you fail to deliver them when required, then you must pay the City all damages the City may sustain by reason of the failure, including consequential damages.

C. Right of Entry

1. You, and any of your officers, employees, agents, and Subcontractors, are permitted to enter upon any part of the Work site owned by the City in connection with the performance of the Work under this Contract, subject to the terms and conditions contained in this Contract and those rules that may be established by the Commissioner. You must provide advance notice to the City of any such intended entry. Consent to enter upon all or any part of the Work site given by the City will not create, nor be deemed to imply the creation of, any additional responsibilities on the part of the City.
2. Inspections: You acknowledge that the City has a right of access to the Work site at all times and the right to inspect all Work during the Contract period.

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

3. You must use, and must cause each of your officers, employees, agents, and Subcontractors to use, the highest degree of care when entering upon property owned by the City in connection with the Work. In the case of any property owned by the City, or property owned by and leased from the City, you must comply and must cause each of your officers, employees, agents, and Subcontractors to comply, with all instructions and requirements for the use of the property, including any licenses for them, which are incorporated by reference. All claims, suits, judgments, costs, or expenses, including reasonable attorneys' fees, arising from, by reason of, or in connection with any such entry is treated in accordance with the indemnification provisions contained in this Contract.

D. Damage to City Property

If you cause damage to City property, you must, at the sole option of the City, either: (i) pay the cost of repair of the damage; or (ii) repair or replace any property so damaged. The City has the right to a set-off against its payments to you under this Contract for the cost of any such repairs. All cost to repair or replace any property so damaged will be completed before any final payment can be made to you by the City.

E. Right to Occupy Before Substantial Completion

1. The City may occupy and use the Project or portions of it in advance of Substantial Completion of the Work. If the City desires to exercise partial occupancy and use before Substantial Completion of the Work, the Commissioner will provide written notice to you, and you must cooperate with the Commissioner in making available for the City's use such Project services as heating, ventilating, cooling, water, lighting and telephone for space or spaces to be occupied, and if the equipment required to furnish the services is not entirely completed at the time the City desires to occupy and use the space or spaces, you must make every reasonable effort to complete that Work.
2. When the Commissioner determines that the City will use all or part of the Project before Substantial Completion, the Commissioner will determine:
 - a. The responsibility between the City and you for maintenance, repair, furnishing of utilities and the protection of the public (if required) for that part of the Work to be occupied;
 - b. The list of items remaining to be performed before the Work or portion of it to be occupied will be substantially complete;
 - c. Whether you will need any types of insurance; and
 - d. The effect of the City's use before Substantial Completion on required guarantees and warranties.

F. Final Completion and Acceptance of the Work

When you deem the Work to be complete, you must notify the Commissioner, in writing, that the Work will be ready for an inspection and/or test on a date you specify. The notice must be given at least 15 calendar days in advance of the date. If the Commissioner concurs that the Work will be ready for inspection or testing on the date given, the Commissioner will make the inspection within a reasonable period of time. The scheduling of the inspection to

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

determine whether the Work is complete does not relieve you of your responsibilities under the Contract. You must cooperate in all respects in the scheduling and performance of the inspection.

Final Payment at Final Completion and Acceptance of the Work. Unless expressly stated otherwise in Book 2 or Book 3, final payment will be made only when all Work, including Punch List Work, is complete and you submit to the Commissioner, within 180 calendar days or sooner from the Substantial Completion Date, a sworn affidavit stating the following:

1. All payrolls, invoices for materials and equipment and all other indebtedness connected with the Work for which the City might in any way be responsible have been paid or otherwise satisfied;
2. All waivers of lien required by the Contract have been provided to the Commissioner;
3. As of the date the affidavit is signed, all known claims made by Subcontractors of any tier and others against you, the City, any agents or representatives of the City pertaining to the Work required under this Contract were provided in writing to the Commissioner and have been resolved;
4. The warranties and guarantees required by the Contract have been provided to the Commissioner;
5. All warranties and guarantees are in full force and effect;
6. The surety's written consent, signed by its authorized representative, to final payment being made directly to you is attached to the affidavit;
7. Acceptance of final payment will constitute a general release to the City, its agents, representatives, officials and employees of all other claims of liability for anything done or furnished or relating to the Work or for any act or neglect of the City or its agents, representatives, officials and employees relating to or connected with this Contract;
8. Record Documents, including Record Drawings, Record Shop Drawings and operation and maintenance manuals have been provided to the Commissioner;
9. All other documents requested by the Commissioner have been provided; and
10. Wages paid and classifications for laborers and mechanics, including apprentices and trainees employed on the Project, in the following form:

FINAL CERTIFICATE

The undersigned, Contractor on _____ (Specification No: /Contract No. _____) certifies that all laborers, mechanics, apprentices and trainees employed by it or by a Subcontractor performing Work under the Contract have been paid wages at rates not less than those required by the Contract provisions, and that the Work performed by each such laborer, mechanic, apprentice or trainee conformed to the classifications set forth in the Contract or training program provisions applicable to the wage rate paid.

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

Signature and Title

<i>Name</i>	<i>Title</i>
<i>Authorized Officer</i>	
<i>Contractor:</i>	
<i>Project:</i>	

V. SHOP DRAWINGS, PRODUCT DATA, RECORDS AND SAMPLES

A. Contractor's Responsibilities and Submittal Procedures

1. Shop Drawings, Product Data, Samples are part of the Work under this Contract, and if also specified, video tape and/or photographs. You must provide them at your expense to the satisfaction of the Commissioner.
2. You must submit to the Commissioner those Shop Drawings, Product Data, Samples, video tape and photographs required for the Work involved under this Contract in accordance with the Schedule.
3. The Schedule must include a schedule of proposed submittal dates. The dates listed in the Schedule must allow sufficient time for review and processing of Shop Drawings or other data by the City and your re-submittal of them, if necessary, before you will need them to complete your performance of the Work they represent under this Contract. No extensions of time will be granted to you because of your failure to have Shop Drawings, Product Data, Samples, video tape and photographs submitted in time to allow for review, re-submittal and final review. You must also submit a separate submittal schedule (in table format), in addition to the Schedule, identifying all Submittals with submittal dates to the Commissioner for review and approval.
4. You must prepare and submit proper Shop Drawings, Product Data, Samples, video tape and photographs in accordance with your contractual obligations. By submitting them, you represent that you have determined and verified all materials, field measurements, field conditions and quantities, and that you have checked and coordinated the information contained within the Submittal, including your Subcontractors' Submittals, with the requirements of the Work and of the Contract.
5. You must date and stamp all Shop Drawings, Product Data, Samples, video tape and photographs. You must also indicate on them that you have reviewed and checked them before submission and found to be in conformance with the Contract. All Submittals must be transmitted to the Commissioner. You must clearly mark each Shop Drawing,

**Department of Transportation
Terms and Conditions for Construction Contract - Book 1**

Video Tape, Product Data and Sample, in accordance with the following for purposes of identification and record:

SUBMITTAL IDENTIFICATION

Name of Project: _____
Contract Name and Number: _____
Date of Submittal: _____
Submittal Number: _____
Re submittal of Submittal Number: _____
Identification of Deviations from Contract documents: _____
Specification Section, Page, and Paragraph No. and/or Drawing No.: _____
Type of Material and Manufacturer: _____
Intended use: _____
Applicable Standards such as ASTM numbers: _____
CHECKED AND SUBMITTED IN ACCORDANCE WITH DRAWINGS AND SPECIFICATIONS.
Contractor: _____
By: _____ Date: _____

6. Shop Drawings must be submitted with accurate dimensions. The Shop Drawings must represent the actual manner in which the Work is manufactured and installed, and the relation of the Work installed to that of other trades, clearances, and all other pertinent data. Cross-section drawings must indicate minimum clearances and all other pertinent data. Dimensions must be expressed in feet and inches. Designs prepared in the metric system may be submitted with metric units, but the equivalent English units must also be shown. All weights and dimensions must be certified before submission for review.
7. The Commissioner's review and acceptance of Shop Drawings in no way relieves you from responsibility for errors or omissions that may exist in the Work or on the certified Shop Drawings. Where such errors or omissions are discovered, you must correct them at no additional cost to the City. Submittals must be sufficiently complete to allow for proper review. You must submit all Shop Drawings, Product Data, Samples, video tape and photographs to the Commissioner for review with an accompanying transmittal letter containing the above Submittal identification data and a list of items being submitted. You must coordinate Submittals into logical groups or sets to facilitate review of several related items.
8. Any Submittal that in the Commissioner's sole opinion is not complete and in proper form will be returned to you without review. You must not submit as Shop Drawings duplicates or reproductions of any Contract documents issued by the City.
9. You must provide Submittals in the following quantities unless a greater number is specified elsewhere in the Contract or is required by the Commissioner:
 - a. Shop Drawings: Submit one reproducible transparency and six opaque copies of shop drawings;
 - b. Product Data: Submit six copies of Product Data;
 - c. Samples: Submit four samples; and

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

d. Video and photographs (when required under the Contract): Submit two copies of Video and photographs.

10. Before submitting Shop Drawings, Product Data, Samples, video tape and photographs, you must notify the Commissioner in writing of any deviations in the Submittals from the requirements of the Contract. If deviations from the Contract requirements are rejected by the Commissioner or if evaluation of the deviations delays the progress of Work, any delay caused will not be compensable by a time extension.

B. Review by the Commissioner

1. Submittals will be reviewed by the Commissioner for compliance with the Contract. In reviewing them the Commissioner will not verify dimensions and field conditions. Any such review does not relieve you, your Subcontractor, manufacturer, fabricator or supplier from responsibility for any deficiency that may exist or from any departures or deviations from the requirements of the Contract, nor does it relieve you or them from responsibility for (i) errors of any sort in Shop Drawings, Samples and Product Data, (ii) responsibility for proper fitting of the Work, or (iii) the necessity of furnishing any Work required by the Contract that may not be indicated on Shop Drawings when reviewed. You are solely responsible for any quantities that may be shown on the Shop Drawings. The Commissioner's review of a specific item does not indicate approval of an assembly of which the item is a component.
2. You must not fabricate products, begin Work, order or have delivered any material, equipment or system that requires a reviewed Submittal until return of the Submittal from the Commissioner with a stamp authorizing Work and/or delivery and installation to be performed, as described in Section V.B.3, immediately below.
3. The Commissioner will return Submittals stamped as follows:
 - a. "No Exceptions" means no changes need be made on the reviewed Submittal. You may proceed with the Work for that Submittal.
 - b. "Exceptions as Noted" indicates that the Submittal is accepted subject to the corrections and/or comments noted. You may proceed with the Work for that Submittal but only if you incorporate the Commissioner's comments, and/or corrections. Re-submittal is not required, but the corrections must be reflected in the Record Documents.
 - c. "Revise and Resubmit" means that the Submittal does not meet all the requirements necessary to proceed with the Work associated with the Submittal. You must resubmit in accordance with the reviewer's comments and/or corrections. Submittals marked in this manner must not be released for fabrication, delivery or construction.
4. If the Submittal requires revision, you must notify the Commissioner and all pertinent Subcontractors, in writing, that the reviewed set has been withdrawn.
5. Submittals that require revisions must be corrected and resubmitted to the Commissioner to maintain the approved CPM schedule, but in no event more than five days after receipt of the Commissioner's comments.

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

6. Shop Drawings: After review by the Commissioner, one reproducible stamped by the Commissioner as previously described in Section V.B.3 above will be returned to you.
7. Submission and Review of Samples: If a considerable range of color, graining, texture or other characteristics may be anticipated in finished products, you must furnish a sufficient number of Samples of the specified materials to indicate the full range of those characteristics that will be present in the finished products. Any product delivered or erected without submission and review of full-range Samples is subject to rejection. Each tag or sticker must have clear space for your stamps and those of the Commissioner. Notice of the result of the review will be provided to you with one of the stamps indicated in Section V.B.3 above. Rejected samples will be returned. Accepted samples will be retained by the Commissioner and become the property of the City. Where color samples are required to be submitted, color samples must be submitted in the actual material that will finally be installed in the Work. The various parts of the Work must be in accordance with the reviewed and approved Samples.
8. Product Data: After review by the Commissioner, two sets of Product Data stamped by the Commissioner as previously described will be returned to you.

C. Source of Materials

You must notify the Commissioner in writing as soon as possible after the Contract has been awarded, but not less than three weeks before the need for inspection and testing of the source (or sources) from which you expect to obtain the various construction materials. The source of supply of each material used must be approved by the Commissioner before delivery is commenced. If sources previously approved are found to be unacceptable at any time and fail to produce materials satisfactory to the Commissioner, you must furnish materials from other approved sources.

D. Record Documents

At Substantial Completion, you must deliver to the Commissioner, in suitable transfer cases clearly marked "Record Documents," all Record Drawings, Record Shop Drawings, warranties and guaranties, photographs, video Records (if any are required), Product Data, instructions, parts list, and operations and maintenance manuals arranged in proper order and indexed.

E. Record Drawings

1. As the Work progresses, you and the Subcontractor for each trade or division of work, under your direction must keep a complete and accurate record of the following:
 - a. Changes between the Work as shown on the Contract drawings and the Shop Drawings indicating the Work as actually installed;
 - b. The specific location of all infrastructure elements, including piping, valves, ductwork, equipment, driveways, catch basins, sewer lines, waterlines, water mains, and other such elements that were not accurately located or changed location or elevation from that shown on the Contract drawings; and
 - c. Equipment schedules indicating manufacturers' names and model numbers installed.

**Department of Transportation
Terms and Conditions for Construction Contract - Book 1**

2. You must record changes neatly and correctly daily on blue line prints of the Contract drawings updated daily. You must keep this record set of Contract drawings at the job site for inspection by the Commissioner. Upon completion of the Work, you must submit a final set of full-size prints to the Commissioner for review and acceptance.
3. At the time Record Drawings are delivered to the Commissioner, you and each Subcontractor must certify, in writing, that the Record Drawings are complete and accurate.

F. Record Shop Drawings and Product Data

1. As the work progresses, you must keep a complete and accurate record of the changes and deviations from the Work as shown on the Shop Drawings and Product Data indicating the Work performed. You must furnish Record Shop Drawings in a form and quantity acceptable to the Commissioner. Record Shop Drawings must be submitted for all items reviewed as Shop Drawings. Record Shop Drawings must be legibly drawn on sheets of mylar or such other medium as directed by the Commissioner. Record Shop Drawings must be submitted on the same size sheets as the Contract Document drawings and include an index of all items.
2. You must furnish six record copies of Product Data in loose leaf binders. Loose leaf binders must be subdivided by Submittal numbers and must contain an index of all items.

G. Construction Progress Photographs

You must submit to the Commissioner construction progress photographs consisting of exterior and interior views of the Work, with the date and location of the photographs as selected and directed by the City. If requested at any time by the Commissioner, you must use digital photography, at the resolution specified by the Commissioner. You must provide three prints of each view to the Commissioner within five days of taking the photographs. If digital photography is not requested or until it is requested, then you must provide each photograph on an 8" x 10" smooth surface, glossy, black and white print, on single-weight commercial-grade stock. The 1" wide margin, which is punched for a standard 3-ring binder, will have a left-sided margin for vertical shots and a top-sided margin for horizontal shots. A label will be included on the on the front bottom margin, which will contain the project name and date that the photograph was taken. On the back of each print, you must provide an applied label or rubber stamp impression with the following information:

1. Name of the Project;
2. Name and address of the photographer;
3. Name of the Architect;
4. Your name;
5. Date the photograph was taken;
6. Description of vantage point, in terms of location, direction (by compass point), and elevation or level of construction.

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

7. Notation of vantage point marked for location and direction of shot on a key plan of the site and building, with elevation (story height) noted.

The photographs must be taken monthly, coinciding with the cutoff date associated with each application for payment. From time-to-time the City may issue a request for additional photographs, in addition to the periodic photographs specified. Additional photographs are not included in the Contract Price and will be paid for by Change Order.

H. Instructions, Parts List and Operation and Maintenance Manuals

You must furnish a complete list of equipment actually installed. The list must include a copy of pertinent nameplate data, name and address of local representative who stocks or furnishes repair or replacement parts, and name, address, and telephone number of the Subcontractor responsible to you for the equipment under the guarantee. You must guarantee any such equipment with respect to the City.

You must submit suitable operating instructions for each major component of equipment and its controls. Instructions must include a schematic diagram accurately showing equipment and controls as installed. Included with each diagram must be a set of simple operating instructions stating how the system is stopped and started, what adjustments are to be made by the operator, and what to do in case of an emergency. Five copies of proposed instructions must be submitted to the Commissioner for review and acceptance. Upon acceptance, you must post applicable instructions as directed by the Commissioner.

You must submit maintenance data prepared by the manufacturer of each major component of equipment and its controls. Data must include complete parts list, itemized lists of common purchase items of materials (e.g., bearings, packing, connectors, sealing devices, and other standard items) indicated by their standard trade designation, recommended routine and inspection maintenance, including testing recommendations to evaluate efficiency of performance, lists of special tools and gauges, lubricating instructions, and recommended spare parts lists, tolerances and clearances required for maintenance, and trouble-shooting guides prepared in a simple format to indicate complaint or problem, probable cause, and remedy. You must submit five copies of the proposed maintenance data to the Commissioner for review and acceptance in accordance with Article XIV.

I. Adjustment of Equipment

Before the Work is turned over to the City, you must furnish the necessary instruments, test equipment, services, and personnel required to adjust and balance each piece of equipment in order to provide a smoothly functioning, well-integrated system complying with the letter and intent of the Contract.

J. Project Account Records

1. Project Data and Records

- a. You and each Subcontractor must keep an accurate record showing the names, occupation, and the actual hourly wages paid to all laborers, workers and mechanics employed by them in connection with the Work. The record must be open at all reasonable hours to the inspection of the Commissioner and to the Director of Labor of the State of Illinois and his deputies and agents. You also must furnish the

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

Commissioner and the Chief Procurement Officer with certified copies of the payrolls, in accordance with Section XIII.B.3.d.

- b. You must furnish to the Commissioner upon request a written statement, verified by affidavit, giving the names and addresses of all persons, firms and corporations who have up to that date furnished labor or materials in the performance of the Contract and the amounts due or to become due them.
- c. You and all Subcontractors must furnish the Commissioner with such information as the Commissioner may require relating to labor and materials, including all information necessary to determine the cost of the Work, such as the number of workers employed, their pay, the distribution of labor into Work items, equipment time distribution and any other information that the Commissioner may require. You must, on request, furnish the Commissioner with copies of delivery tickets and invoices, in triplicate, covering the expenditures on the Contract.

2. Audits

- a. You and your Subcontractors must furnish the Commissioner such information as he may request regarding the progress, execution, and cost of the Work. You must maintain complete records showing actual time devoted and costs incurred, adopting accounting procedures and practices sufficient to record properly all costs of whatever nature claimed to have been incurred and anticipated to be incurred for or in connection with the Work. This system of accounting must accord with generally accepted accounting principles and practices, consistently applied throughout. You must maintain its books, records, documents and other such evidence for five years after final payment.
- b. All books and accounts you and your Subcontractors are required to keep in connection with the Work under this Contract must be open to inspection and audit by authorized representatives of the City at reasonable times during the performance of the Work, and they must be retained in a safe place and available for inspection and audit during the five-year period after final payment, as provided above. No provision in this Contract granting the City a right of access to records and documents is intended to impair, limit, or affect any right of access to such records and documents that the City would have had in the absence of such provisions.
- c. If the City, in its sole discretion, chooses to conduct an audit either during the performance of the Work or in the five-year period after final payment, each audited calendar year or partial calendar year is considered an "audited period." If, as a result of such an audit, it is determined that you or any of your Subcontractors have overcharged the City in the audited period, the City will notify you. You must then promptly reimburse the City for any amounts the City has paid you due to the overcharges and also some or all of the cost of the audit, as follows:
 - (1) If the audit has revealed overcharges to the City representing less than 5% of the total value, based on the Contract Prices, of the goods, work, or services provided in the audited period, then you must reimburse the City for 50% of the cost of the audit and 50% of the cost of each subsequent audit that the City conducts;

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(2) If, however, the audit has revealed overcharges to the City representing 5% or more of the total value, based on the Contract Prices, of the goods, work, or services provided in the audited period, then you must reimburse the City for the full cost of the audit and of each subsequent audit.

d. Your failure to reimburse the City in accordance with V.J.2.c above is an event of default under this Contract, and you will be liable for all of the City's cost of collection, including any court cost and attorneys' fees.

3. Confidentiality

All of the reports, information, or data, prepared or assembled by or provided to you under this Contract are confidential and except as specifically authorized in this Contract or as may be required by law, you must not make available the reports, information, or data, to any other individual or organization, without the prior approval of the Commissioner. This requirement will survive expiration or termination of this Contract.

4. Electronic Records

Upon request by the Commissioner, Contractor shall provide the City electronic versions of any hard-copy record documents that the Contractor is required to prepare by the Contract.

VI. ASSIGNMENT

A. Assignment of Contract by Contractor

You must not assign the Contract, in whole or in part, without the prior written consent of the Chief Procurement Officer. The consent of the Chief Procurement Officer will not relieve you from any obligations under this Contract, or in any other way change the terms of this Contract.

B. Assignment of Funds or Claims by Contractor

You must not transfer, pledge or assign any Contract funds or claims due or to become due without the prior written consent of the Chief Procurement Officer. The transfer, pledge or assignment of any Contract funds, either in whole or in part, or any interest in the Contract funds, that are due or to become due to you, without the prior written consent of the Chief Procurement Officer, is void with respect to the City.

C. Assignment of Contract by City

The City reserves the right to assign or otherwise transfer all or any part of its interests under this Contract without your consent or approval.

D. Assigns

All of the terms and conditions of this Contract are binding upon and inure to the benefit of the parties to it and their respective legal representatives, successors, transferees, and assigns.

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

E. Requests to Subcontract

All requests to subcontract must be accompanied by three copies of a written subcontract agreement that sets forth the scope of services to be subcontracted, the lump sum or unit price for the services and the signature of the subcontracting parties. Proposed Subcontractors must not commence Work on any portion of the Project without prior written approval by the Chief Procurement Officer.

VII. QUALITY OF WORKMANSHIP, EQUIPMENT AND MATERIALS

A. Standard of Performance

In addition to performing the Work in full compliance with the Contract you must perform, or cause to be performed, all Work required of you under the terms and conditions of this Contract with that degree of skill, care, and diligence normally exercised by qualified and experienced contractors in performing work in projects of a scope and magnitude comparable to the Work.

B. Correction of Work

1. You must, upon discovery of any defective or non-conforming Work, or when directed in writing by the Commissioner, promptly re-perform, correct or remove all Work identified to be defective or as failing to conform to the standards set forth in, or any requirement of the Contract, whether or not completed. You must bear all costs of correcting the defective or non-conforming Work, including costs associated with removing any defective or non-conforming Work, replacing the defective or non-conforming Work with non-defective, conforming Work and any compensation for any additional equipment, materials and/or services made necessary by the removal and replacement.
2. If you do not proceed with re-performance, correction or removal of the defective or non-conforming Work after written notice from the City within the time period designated by the notice, the City may correct or remove it and may store the materials and/or equipment at your expense, then complete the corrective Work. If you do not pay the costs incurred for the removal, storage and correction within 10 days after you receive written notice from the City of the amount of the costs, the City may upon 10 additional days' written notice, sell any such materials and/or equipment at an auction or at a private sale and will account for the net proceeds, after deducting all the costs you are required to bear, including compensation for the City's services. If the proceeds of sale do not cover all costs for removal and correction of the Work, the difference will be charged to you with a deduction of any amounts due you, and an appropriate Contract modification will be issued. If later payments due you are not sufficient to cover the amount, you must pay the difference to the City, or the City may deduct the amount from any other funds due to you, including any amounts due under any other contract between City and you.
3. You must not perform any work without lines and grades or beyond the lines shown on the drawings or outside the scope of the Contract, without the prior written consent or direction of the City. It is not authorized, and if you do so you perform it at your sole expense. Upon direction of the City, work so done must be removed or replaced and those areas restored to their previously existing state at your sole expense.

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

4. Neither the determination of Final Completion and Acceptance of the Work, nor payment, nor any provisions in the Contract will relieve you of responsibility for defective or non-conforming Work, faulty materials, equipment or workmanship, and unless otherwise specified, you must remedy any defects due to the foregoing and pay for any damage to the Work or other property resulting from defective or non-conforming Work, or faulty materials, equipment or workmanship throughout the Warranty Period, as defined in Section VII.E, "Warranties," below, or such other period of time afforded by industry custom or law, whichever is longer. The City will give you written notice of the observed defects with reasonable promptness.

C. Materials and Equipment

1. **Quality of Materials.** Unless otherwise specified in the Contract you must use all new materials for the Project and use them in such a manner as to produce completed Work that conforms with the Contract and is acceptable in every detail to the Commissioner. Only materials that conform to the requirements of these specifications may be incorporated or used in the Work. In the absence of a definite specification, materials must be the best of their respective kind with properties best suited to the Work required.
2. **Materials Inspection and Responsibility.** Before any material is incorporated into the Work, you must submit a "Request for Materials Inspection" to the Commissioner. You are solely responsible for submitting the requests with sufficient time for the City to conduct its inspection. You are not entitled to payment for uninspected materials. The City has the right to inspect any material to be used in carrying out this Contract. The City does not assume any responsibility for the availability of any materials or equipment required under this Contract. By performing any tests or accepting any materials, the City in no way relieves you of any of your obligations or responsibility under this Contract. Materials, components or completed Work that do not comply with the Detailed Specifications and other requirements of this Contract may be rejected by the City, and you must replace them at no additional cost to the City. After you receive notice from the City that materials or components have been rejected, you must promptly remove them from the City's premises at no additional cost to the City.

D. Substitution of Materials

1. The City will consider your request for substitution in cases of product unavailability or other conditions beyond your control.
2. You must submit each request for substitution separately and each must include:
 - a. Complete data substantiating compliance of proposed substitution with requirements stated in the Contract;
 - (1) Product identification, including manufacturer's name and address
 - (2) Manufacturer's literature identifying:
 - (a) Product description
 - (b) Reference standards
 - (c) Performance and test data
 - (3) Samples, as applicable

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

- (4) Names and address of similar projects on which the product has been used, and date of each installation;
 - b. Itemized comparison of the proposed substitution with product specified that lists significant variations;
 - c. Data relating to changes in the Schedule;
 - d. Any effect of substitution on other parts of the Work, any Subcontractors, or any separate contracts;
 - e. List of changes required in other Work or products;
 - f. Accurate cost data comparing proposed substitution with product specified, including the amount of any net change to Contract Price;
 - g. Designation of required license fees or royalties; and
 - h. Designation of availability of maintenance services, sources of replacement materials.
3. When you make a formal request for substitution make you are warranting and representing that:
 - a. The proposed substitution is equivalent to or superior in all respects to the product specified;
 - b. The same warranties and guarantees will be provided for the substitute as for the product specified; and
 - c. You will coordinate the installation of accepted substitutes into the Work and will make such changes as may be required for the Work to be complete in all respects.
 4. If evidence you present does not, in the sole opinion of the Commissioner, provide a sufficient basis for reasonable certainty that the proposed substitution or deviations will provide a quality, result, function, and esthetic appearance, among other attributes, at least equal to that attainable by the specified product, the Commissioner may reject the substitution or deviation without further investigation.
 5. The Commissioner will judge the design and appearance of proposed substitutes on the basis of their suitability in relation to the overall design of the Project, as well as for their intrinsic merits. The Commissioner will not approve proposed substitutes as equal to items specified that, in the Commissioner's opinion, would be unharmonious, or otherwise inconsistent with the character, quality or design of the Project.
 6. You must bear any additional cost, or any loss or damage, arising from the substitution of any material or method for those specified, including the cost for damages incurred by other contractors notwithstanding approval or acceptance of the substitution by the Commissioner, unless the substitution was initiated by the written request or direction of the Commissioner.
 7. The investigation review and approval of substitute materials requires a minimum of 30 days beyond that required for specified routine items. No request for a delay or disruption will be allowed whether or not the substitution is granted.

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

8. Approval by the Commissioner of a substitution of material will be given in a Contract modification as required in Article XIV, "Changes in the Work."

E. Warranties

1. You warrant all Work furnished under this Contract against defective materials and workmanship, improper performance and non-compliance with the Contract for a period of one year after the date of Final Completion and Acceptance of the Work ("Warranty Period"), except as otherwise specifically stated in other parts of the Contract or within such longer periods of time as may be provided by law or by the manufacturer, which periods will then become the Warranty Period as applicable. Your warranty will be in addition to any Manufacturers' Warranties.
2. Your written warranty will include the name of the project as designated in the Contract, be signed by an officer of the company having authority to provide the warranty, and state: "This document serves as a one - year written warranty for the Work performed, and material and equipment installed on the above referenced project. This warranty incorporates all provisions of the Contract that refer or relates to the warranty. This warranty begins on (date) ."
3. During the Warranty Period, you must repair and replace at your own expense, when so ordered by the Chief Procurement Officer or the Commissioner, all Work that may develop defects whether these defects may be inherent in the equipment or materials, in the functioning of the piece of equipment, or in the functioning and operation of pieces of equipment operating together as a functional unit. Any equipment or material that is so repaired or replaced will have the Warranty Period extended for a period of one year from the date of the last repair or replacement.
4. You must bear all costs associated with any repair or replacement under this section, including removal, material, transportation, and reinstallation.
5. **Manufacturer's Warranties**
 - a. You must:
 - (1) ensure that all required Manufacturer's Warranties pass through to the City and the Department;
 - (2) submit all applicable manufacturers' warranties to the Commissioner and ensure that all warranty forms have been completed in the Department's name and registered with the appropriate manufacturers.
 - b. Whenever you make repairs or provide replacements under Section VII.E.3, you must provide a manufacturer's warranty for the repaired or replaced Work, if standard with the manufacturer, in addition to your warranty under Section VII.E.2.

VIII. PERSONNEL

A. Competency of Workers

You must employ only competent and efficient laborers, mechanics or artisans on the Work, as demonstrated by completion of a specific training program or demonstrated project experience. Whenever, in the opinion of the Commissioner, any worker is careless,

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

incompetent, violates safety or security rules, obstructs the progress of the Work, acts contrary to instructions or acts improperly, or fails to follow the safety requirements of this Contract, you must, upon request of the Commissioner, remove the worker from the Work. You must not permit any person or worker to enter any part of the Work or any buildings connected with it who is under the influence of intoxicating liquors or controlled substances.

B. Supervision and Superintendence

While Work is in progress, either by your labor force or that of your Subcontractor, you must have a full-time, experienced and qualified superintendent assigned to the Work. You must superintend the Work and must have a competent superintendent at the job site at all times with authority to act for you as the contact person with the Commissioner.

C. Contractors Project Personnel

No separate payment will be made to you for the cost of personnel. Those costs must be included in the Contract Price.

D. Key Personnel

Upon award of the Contract, you will submit a project staff organization chart that includes the names and resumes of employees in key positions for this project. All employees in key positions must be approved by the Commissioner.

Changes in the assignment of any key personnel due to commitments not related to this Contract are prohibited without Commissioner's approval. If any key personnel, selected in accordance with the key personnel provisions under this section of the Contract, should become unable to continue in the performance of the assigned duties for reasons due to death, disability or termination, you must promptly notify the Commissioner and explain the circumstances.

Under a request by Commissioner, you must provide to the Commissioner, within seven days, the name of the person substituting for the individual unable to continue, together with any information the Commissioner may require to judge the experience and competence of the substitute person. Upon approval by the Commissioner, the substitute person will be assigned to the project. If the Commissioner rejects the substitute, you will have seven days after that to provide the name a second substitute person, with any information the Commissioner may require, until a proposed replacement has been approved by the Commissioner.

E. Prevailing Wage Rates

In the performance of the Work, you are fully responsible for paying not less than the prevailing rate of wages as determined by the Illinois Department of Labor, which must be paid to all laborers, mechanics, and other workers performing Work under this Contract.

Your attention is called to the generally prevailing hourly rate of wages, as determined by the Illinois Department of Labor, which are bound in Book 2 of these specifications and which are incorporated into the Contract. These wage rates are also the prevailing wage rates for the City of Chicago, as determined by the Department as of the date of publication of these specifications.

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

The wage rates set forth in these specifications were the rates in effect at the time these specifications were issued. In the performance of the Work, however, you are fully responsible for paying the generally prevailing hourly rate of wages in effect, as determined by the Illinois Department of Labor, at the time the Work is performed. If the Illinois Department of Labor revises the prevailing rate of hourly wages to be paid for the Work before completion of the Project, the revised rate applies to this Contract from the effective date of the revision, but the revision does not entitle you to any increased compensation under the terms of this Contract.

As a condition of making payment to you, the City may require you to submit an affidavit to the effect that not less than the prevailing hourly wage rate is being paid to laborers, mechanics, and other workers employed on this Contract in accordance with Illinois law.

F. "Living Wage"

A. Section 2-92-610 of the Municipal Code of Chicago provides for a base wage for certain categories of workers employed in the performance of City contracts, specifically non-City employed security guards, parking attendants, day laborers, home and health care workers, cashiers, elevator operators, custodial workers, and clerical workers ("Covered Employees"). Accordingly, pursuant to Section 2-92-610 and regulations promulgated thereunder:

1. if the Contractor has twenty-five (25) or more full-time employees, and
2. if at any time during the performance of the contract the Contractor and/or any subcontractor or any other entity that provides any portion of the Services (collectively "Performing Parties") uses twenty-five (25) or more full-time security guards, or any number of other full-time Covered Employees, then
3. the Contractor must pay its Covered Employees, and must assure that all other Performing Parties pay their Covered Employees, not less than the minimum hourly rate as determined in accordance with this provision (the "Base Wage") for all work performed pursuant to the Contract.

B. The Contractor's obligation to pay, and to assure payment of, the Base Wage will begin at any time during the Contract term when the conditions set forth in A.1 and A.2 above are met, and will continue thereafter until the end of the Contract term.

C. As of July 1, 2018, the Base Wage is \$12.55 per hour. Each July 1st, thereafter the Base Wage will be adjusted, using the most recent federal poverty guidelines for a family of four (4) as published annually by the U.S. Department of Health and Human Services, to constitute the following: the poverty guidelines for a family of four (4) divided by two thousand (2000) hours or the current base wage, whichever is higher. At all times during the term of this Contract, Contractor and all other Performing Parties must pay the Base Wage (as adjusted in accordance with the above). If the payment of prevailing wages is required for work or services done under this Contract, and the prevailing

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

wages for Covered Employees are higher than the Base Wage, then the Contractor must pay the prevailing wage rates.

D. The Contractor must include provisions in all subcontracts requiring its subcontractors documentation acceptable to the Chief Procurement Officer demonstrating that all Covered Employees, whether employed by the Contractor or by a subcontractor, have been paid the Base Wage, upon the City's request for such documentation. The City may independently audit the Contractor and/or subcontractors to verify compliance herewith. Failure to comply with the requirements of this Section will be an event of default under this Contract, and further, failure to comply may result in ineligibility for any award of a City Contract or subcontract for up to three (3) years.

E. Not-for-Profit Corporations: If the Contractor is a corporation having Federal tax-exempt status under Section 501(c)(3) of the Internal Revenue Code and is recognized under Illinois not-for-profit law, then the provisions of Section A through D above do not apply.

G. Minimum Wage, Mayoral Executive Order 2014-1

Mayoral Executive Order 2014-1 provides for a fair and adequate Minimum Wage to be paid to employees of City contractors and subcontractors performing work on City contracts.

If this contract was advertised on or after October 1, 2014, Contractor must comply with Mayoral Executive Order 2014-1 and any applicable regulations issued by the CPO. The Minimum Wage to be paid pursuant to the Order is \$13.80 per hour. The Minimum Wage must be paid to:

- All employees regularly performing work on City property or at a City jobsite.
- All employees whose regular work entails performing a service for the City under a City contract.

The Minimum Wage is not required to be paid to employees whose work is performed in general support of contractors operations, does not directly relate to the services provided to the City under the contract, and is included in the contract price as overhead, unless that employee's regularly assigned work location is on City property or at a City jobsite. It is also not required to be paid by employers that are 501(c)(3) not-for-profits.

Except as further described, the Minimum Wage is also not required to be paid to categories of employees subject to subsection 4(a)(2), subsection 4(a)(3), subsection 4(d), subsection 4(e), or Section 6 of the Illinois Minimum Wage Law, 820 ILCS 105/1 et seq., in force as of the date of this Contract or as amended. Nevertheless, the Minimum Wage is required to be paid to those workers described in subsections 4(a)(2)(A) and 4(a)(2)(B) of the Illinois Minimum Wage Law.

Additionally, the Minimum Wage is not required to be paid to employees subject to a collective bargaining agreement that provides for different wages than those required by Mayoral Executive Order 2014-1, if that collective bargaining agreement was in force prior to October 1, 2014 or if that collective bargaining agreement clearly and specifically waives the requirements of the order.

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

If the payment a Base Wage pursuant to Municipal Code of Chicago Sect. 2-92-610 is required for work or services done under this Contract, and the Minimum Wage is higher than the Base Wage, then the Contractor must pay the Minimum Wage. Likewise, if the payment of a prevailing wage is required and the prevailing wage is higher than the Minimum Wage, then the Contractor must pay the prevailing wage.

Contractors are reminded that they must comply with Municipal Code Chapter 1-24 establishing a minimum wage.

H. Employment Preferences

1. Veterans Preference

In accordance with the Veterans Preference Act, 330 ILCS 55/0.01 *et seq.*, employment and appointment preference shall be given to veterans when filling positions. This preference may be given only where the individuals are available and qualified to perform the Work. Contractor must ensure that the above provision is inserted in all contracts it enters into with any Subcontractors and any labor organizations that furnish skilled, unskilled and craft union skilled labor, or that may provide any material, labor, or services in connection with this Agreement.

2. Chicago and Project Area Residency Requirements

If the funding under this contract is \$100,000 or more, Contractor and all subcontractors that perform work on the site on the construction project undertaken pursuant to this contract shall comply with the minimum percentage of total worker hours performed by actual eligible residents of the City of Chicago as specified in § 2-92-330 of the Municipal Code and rules and regulations adopted thereunder,, unless otherwise prohibited by law. 7.5% of the total work hours must be performed by project area residents and 50% of the total work hours must be performed by city residents unless the Chief Procurement Officer determines otherwise. Work hours performed by project area residents are counted as work hours performed by city residents for purposes of calculating the minimum work hour percentage required to be performed by city residents. In addition to complying with this requirement, Contractor and all Subcontractors must make good faith efforts to utilize qualified eligible residents of the City of Chicago in both unskilled and skilled labor positions.

“City residents” means persons domiciled within the city.

“Project area residents” means persons domiciled within that part of the city designated as the project area in the information for bidders issued by the Department of Procurement Services.

“Domicile” means an individual’s one and only true, fixed and permanent home and principal establishment.

"Eligible residents" means city residents and project area residents.

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

"Actual residents of the City of Chicago" shall mean persons domiciled within the City of Chicago. The domicile is an individual's one and only true, fixed and permanent home and principal establishment.

The contractor shall provide for the maintenance of adequate employee residency records to ensure that actual eligible Chicago residents are employed on the project. The contractor and subcontractors shall maintain copies of personal documents supportive of every Chicago employee's actual record of residence.

Certified payroll reports (U.S. Department of Labor Form WH-347 or equivalent) must be submitted weekly to the Commissioner of the supervising department in triplicate, shall identify clearly the actual residence of every employee on each submitted certified payroll. The first time that an employee's name appears on a payroll, the date that the company hired the employee should be written in after the employee's name.

Full access to the contractor's and subcontractors' employment record shall be granted to the Chief Procurement Officer, the Commissioner of the supervising department, the Superintendent of the Chicago Police Department, the inspector general, or any duly authorized representative thereof. The contractor and subcontractors shall maintain all relevant personnel data in records for a period of at least three years after final acceptance of the work.

At the direction of the supervising department, affidavits and other supporting documentation will be required of the contractor to verify or clarify an employee's actual address when doubt or lack of clarity has arisen.

Good faith efforts on the part of the contractor to provide utilization of actual eligible Chicago residents shall not suffice to replace the actual, verified achievement of the requirements of this section concerning the worker hours performed by actual eligible Chicago residents.

When work is completed, in the event that the City has determined that the contractor failed to ensure the fulfillment of the requirement of this section concerning the worker hours performed by actual eligible Chicago residents or has failed to report in the manner as indicated above, the City will thereby be damaged in the failure to provide the benefit of demonstrable employment to Chicagoans to the degree stipulated in this section. Therefore, in such a case of non-compliance it is agreed that 1/20 of 1 percent (.05%), 0.0005, of the approved contract value for this contract shall be surrendered by the contractor to the City in payment for each percentage of shortfall toward the stipulated residency requirement. Failure to report the residency of employees entirely and correctly shall result in the surrender of the entire liquidated damages as if no Chicago residents were employed in either of the categories. The willful falsification of

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

statements and the certification of payroll date may subject the contractor or subcontractors or employee to prosecution.

Nothing herein provided shall be construed to be a limitation upon the "Notice of Requirements for Affirmative Action to Ensure Equal Employment Opportunity, Executive Order 11246" and "Standard Federal Equal Employment Opportunity, Executive Order 11246," or other affirmative action required for equal opportunity under the provisions of this contract.

3. Employment of Illinois Laborers on Public Works Projects

Contractor must use only Illinois laborers in the performance of this Contract to the extent (1) required by the Employment of Illinois Laborers on Public Works Projects Act, 30 ILCS, 570/0.01, as amended from time to time and (2) otherwise permitted by law.

H. Working hours in city contracts

Eight hours constitutes a legal day's work under this Contract, in accordance with § 2-92-220 of the Municipal Code of Chicago.

IX. PERMITS AND LICENSES

A. Contractor Obtains Permits

Except for the three types specified below, you must obtain all permits wherever the Work under this Contract requires them, including from the City of Chicago or other public authorities. You must furnish triplicate copies of the permits to the City before the Work covered by them is started. **NO WORK IS ALLOWED TO PROCEED BEFORE SUCH PERMITS ARE OBTAINED.**

The City will obtain permits required from the Metropolitan Water Reclamation District of Greater Chicago, the Illinois Division of Waterways and the U.S. Army Corps of Engineers.

B. Contractor Pays Permit Fees

The special use of, or removal, alteration or replacement of certain City-owned facilities and appurtenances such as traffic signs, parking meters, trees, sewers, hydrants, bridges and viaducts which are required for you to perform your Work are subject to all applicable Municipal Ordinances. It is your responsibility to obtain all the necessary permits and pay the associated fees. You must furnish copies of the permits to the City before the Work covered is started. Information with regard to the above may be obtained by contacting the appropriate City Departments.

C. Occupancy Placard and Fees

You must provide an occupancy placard indicating occupancy and floor plans based upon key plans provided by the Architect. It is your responsibility to pay all fees and expenses related to providing the occupancy placard.

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

X. COORDINATION WITH OTHER CITY DEPARTMENTS

A. Water System Work and Usage

If water from a City hydrant is necessary for the execution of the Work, you must obtain a hydrant permit from the City's Department of Water Management. You must obtain a permit from that department also for any construction, repair or adjustment of any water main, branch or service connection. Requests for permits must be made at the **Department of Water Management, City Hall, 121 North LaSalle Street, Room 906, Chicago, Illinois 60602; 312/744-7060.**

B. Sewer System Work

If you will be constructing, repairing, adjusting or cleaning any subsurface structure designed to collect or transport storm and/or sanitary waste water, either in private property or in the public way you, through a licensed drainlayer, must obtain a permit issued under this Section X.B. (A licensed drainlayer is a person possessing a current sewer and drain license issued by the Department of Water Management.) Requests for permits must be made at the **Department of Water Management (Sewers and Drains), 333 S. State Street, Room 410, Chicago, IL 60604-3971; 312/747-8117.**

Project plans must be submitted to the Department of Water Management (Sewers and Drains) sufficiently in advance for examination and review. Plans meeting the department's requirements must be submitted with the application for permit at least four days before the issuance of permit. When applying for a permit, you must submit three sets of plans that show all new underground sewer Work inside and around the project with a clear site or location plan together with the estimate of quantities for sewer sizes and sewer structures to be installed.

A copy of the permit must be on the Work site before the start of construction. Failure to obtain a permit before the start of construction will result in a penalty and could result in the revocation of the drainlayer's license.

You must arrange for sewer inspections at least 48 hours before the start of Work. Inspections may be requested by calling **(312)744-7501 for Plumbing Inspections and (312) 747-7892 for Mason Inspections.**

C. Parking Meter Removal and Replacement

The City via the metered parking concessionaire shall close or remove and opened or reinstall any parking meters, including signs indicating pay boxes, as may be required. However, you must pay all fees and lost meter revenues required by § 9-68-050 of the Chicago Municipal Code. You must advise the Department of Transportation, Bureau of Inspections, Construction Compliance Section (Public Way Permits), Room 804, City Hall, Chicago, Illinois 60602, in writing at least two weeks in advance of the closure citing the location and meter number of the meters to be closed or removed. Closures of less than 6 hours on a given day and limited to less than 10 business days are strongly encouraged, and you must be prepared to detail any reason requiring closures of a longer hourly and daily duration.

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

You may not remove any parking meters without the express written consent of the Commissioner. If you violate this provision, you (a) recognize that the City will suffer damages as a result, including the costs incurred by the City in tracking, retrieving, and repairing damage to the parking meters, and (b) will be liable for liquidated damages in the amount of \$350 for each single-space parking meter or \$10,000 for each pay box you removed. All amounts, including any other debts, will be deducted from any amounts due or that may become due you.

Notification must be provided immediately once meters can be opened or reinstalled. That notification must be e-mailed to the Department of Revenue at parking-meter-closure@cityofchicago.org. Please include "REOPEN/REINSTALL" in the subject line and provide details concerning permit numbers, locations, and dates that the meters may be opened or reinstalled.

The City of Chicago Department of Transportation and the Department of Revenue may modify these requirements in the future.

D. Traffic and Parking Sign Removal and Replacement

The City will remove and re-install any traffic and parking sign(s) as may be required, however, you will be responsible for all fees relative to the removal and replacement of all of the City's traffic and parking signs. You must inform the Bureau of Signs and Markings, in writing, of the location of each sign to be removed and specify its distance from the property line of the nearest cross street. Each sign legend must also be stated. This information must be provided at least five days before removal. You must also inform the Bureau of Signs and Markings, in writing, of when signs may be reinstalled as soon as this date is known. Contact the **Bureau of Signs and Markings, 3458 S. Lawndale, Chicago, Illinois, 60623, Attn.: Deputy Commissioner, (312)747-2210.**

E. Trees

In accordance with § 10-32-060 *et seq.* of the Municipal Code, you must obtain a permit from the Bureau of Forestry when removing planting, trimming, spraying, or in any way affecting the general health or structure of trees in the public way. There is no fee for this permit. The permit must be obtained from the **Bureau of Forestry Permits Division; 3200 S. Kedzie, Chicago, Illinois 60623; (312)747-2098, fax (312) 747-2178.**

The Bureau of Forestry requires 48 hours' notice before starting Work for all activities with the exception of tree planting, which requires two weeks' prior notice. To obtain tree planting permits, two copies of the site plan must be presented to the Bureau for its review and approval. A Bureau representative must also assist in the selection of those trees to be planted in the public way. Tree planting standards and specifications are outlined in the Bureau of Forestry's "Manual of Tree Planting Standards," which is available upon request from the Bureau of Forestry.

F. Demolition

If demolition of a structure or removal of an underground storage tank is required during construction, you must obtain a permit and pay the required fee as set forth in the Municipal Code and its amendments to date. The permit must be obtained from the Department of

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

Construction and Permits, City Hall, 121 North LaSalle Street, Room 900, Chicago, Illinois
60602; (312/744-3400).

XI. SCHEDULE

A. Time

1. The date for commencement of the Work is the date set forth in the Contract or such other date as may be established at the discretion of the Commissioner in a Notice to Proceed. Within five calendar days after the award and release of the Contract, you must provide the Commissioner, a schedule for the performance of the Work, which complies in all respects with the Contract, within the Contract Time. The schedule may be used as a means of determining the progress of your performance of the Work, but neither the provision of the schedule to the City, nor the City's acceptance or use of the schedule, acts in any way to relieve you of any of your obligations under the Contract.
2. Progress and Completion. TIME IS OF THE ESSENCE IN THIS CONTRACT. No time extensions will be allowed unless they are contained in a Contract Modification that has been approved and executed by the City. Liquidated damages will be assessed against you for late completion of the Work and failure to achieve any milestone dates that provide for liquidated damages set forth in the Contract. You must not suspend any Work that may be subject to damage by climatic conditions without the Commissioner's prior written approval. Notwithstanding any other terms contained in this Contract, you must take measures to protect the Work and to minimize the impact of such conditions on the progress of the Work.

B. Progress Schedule

1. You must begin performance of the Work and to prosecute it with all due diligence, so as to complete the entire Work under this Contract within the Contract Time stipulated, after the date of commencement of Work, as specified in the written Notice to Proceed to you. The date for the commencement of Work is not counted as a day, but each day after that, from midnight to midnight, is counted as one day and the last day counted is the date of Final Acceptance and Completion of the Work. You must, when necessary, use overtime, multiple shifts, weekend and/or holiday work to maintain the approved schedule at no additional cost to the City.
2. Except when otherwise specified by the Commissioner, you must provide the progress schedule ("Schedule") for the Work using the Critical Path Method ("CPM") as described in Section XI.D, "Critical Path Method Schedule," below.
3. The Commissioner's approval of your Schedule is done for the sole purpose of insuring that all CPM scheduling documents you prepare are in conformance with the Contract requirements. This approval does not relieve you of the responsibility for the means, methods, procedures and sequence of the construction process nor does it entitle you to additional funds for completing Work in a period that is less than the Contract Time.
4. Daily Progress Reports: You and all Subcontractors must prepare and submit to the Commissioner daily progress reports on the various parts of the Work, including in the

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

report the number of workers and the classification of the trades involved, equipment used and any pertinent information regarding possible delays in the Work.

C. Construction Operations Plan

1. You must, within 14 days after Notice to Proceed, submit to the Commissioner for review the order of procedure you propose to follow in performing the Work. Work begins only after your proposed order of procedure in performing the Work and the Schedule have been submitted to and consented upon by the Commissioner, in writing. You understand that a reasonable amount of time is required by the Commissioner for the examination of the procedure and Schedule. As Work progresses, changes or modifications in the procedure and Schedule, may be required by the Commissioner. In that event, upon notice from the Commissioner to you, further Work is performed only in accordance with the changed or modified procedure and Schedule as have been submitted to and consented upon, by the Commissioner, in writing.
2. The Commissioner, in his/her sole discretion, may reject or require modification of any proposed or previously approved order of procedure, that he or she considers to be unsafe for the Work under this Contract, or for other Work being carried on in the vicinity, or for other structures, or for the public, or for workmen, engineers and inspectors employed thereon, or that will not provide for the completion of the Work within the period of time specified in the Schedule, or that is contrary to any other requirement of this Contract.
3. The City's acceptance or approval of any order or procedure or equipment that you submitted or employ does not in any manner relieve you of responsibility for the performance of the Work, or for the safety of the performance of the Work under this Contract, or from any liability whatsoever on account of any procedure employed by you, or due to any failure or movement of any structure or equipment furnished by it. Notwithstanding any approval by the Commissioner, should any structure or equipment installed under this Contract afterwards prove insufficient in strength or fail in any manner whatsoever, the insufficiency or failure in no way forms the basis of any claim for extra compensation for delay, or for damages or expenses caused by the insufficiency or failure, or for an extension of time for completion of the Work, or for material, labor or equipment required for repairing or rebuilding the structure or equipment, or for repairing or replacing any other Work that may have been damaged by the movement or insufficiency or failure of any such structure or equipment, respectively.

D. Critical Path Method ("CPM") Schedule

1. You must format the Schedule to show the proposed starting and completion date for the various stages of the Work, including any float time, and must prepare it in such a way that it can be used to plot actual progress against proposed progress. You must update the Schedule and submit it to the Commissioner no less than monthly or as directed by the Commissioner. The Commissioner may request more frequent Submittals. Monthly payment will be withheld for failure to submit updated Schedules. One copy of the Schedule must be submitted to the Commissioner in a reproducible format. A copy of the Schedule must be submitted on a computer diskette in a format acceptable to the Commissioner.

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

2. You must assure that the Schedule includes, at a minimum:
 - a. Project name, Contract number, Contractor's name, data date and plot date on each separate sheet. If multiple diagrams are prepared, each must, in addition to the above, include a descriptive title of that portion of the Work included in them.
 - b. The order and interdependency of activities, indicating the sequence in which you plan to perform the Work; the Schedule must describe and indicate the critical path; and
 - c. Estimates of man hours and/or crew sizes for each activity.
 - d. The dates for:
 - (1) starting and completing the various stages of the Work, including milestones identified by the City in the Contract;
 - (2) placing material orders, fabrication and delivery of materials and equipment;
 - (3) preparation, submittal and approval of all required submittals to the City;
 - (4) procuring material and equipment furnished by the City;
 - (5) interface activities performed by other contractors or Subcontractors upon which your Schedule depends;
 - (6) all Work activities and field construction operations;
 - (7) equipment installation, testing and balancing.
3. For purposes of the Schedule, "activity" means each logically separate part of the Work defined by an observable start and an observable finish, subject to the following:
 - a. To establish the scope of an activity for Schedule purposes, you must form a single activity from the largest grouping of related operations that permit a continuous and measurable flow of Work;
 - b. The scope of an activity must be small enough to permit a reasonable appraisal of its status or as directed by the Commissioner;
 - c. Each activity on the Schedule must be manpower loaded;
 - d. The activities must be defined so that the average activity has a value of approximately \$25,000, with no activity exceeding \$200,000 without the consent of the Commissioner; and
 - e. Activities of other contractors or companies that must be completed before the start of your Work or portion of Work must be included in the Schedule as milestones and identified with a designation approved by the Commissioner.
4. You must furnish the following information on the Schedule for each activity:

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

- a. Activity numbers assigned to the related portions of Work in the format of the project specification division and section numbers. You must submit the activity numbers to the Commissioner for review and approval;
 - b. A description of the activity that is sufficiently detailed to permit an evaluation of your performance of the Work described;
 - c. Duration of the activity in days, unless otherwise noted;
 - d. Responsibility code for each activity that is not performed by you, indicating which Subcontractor, supplier, fabricator, or other contractor is to perform the activity;
 - e. Each activity must be identified with early/late start, early/late finish, and total float;
 - f. A breakdown by monthly node of dollar amount and percentage of Contract Price.
5. In addition to the above, any activity whose start or finish dates has been specified elsewhere in the Contract must be shown as the specified dates in the Schedule.
6. The following information must be furnished on the Schedule as summary items:
- a. The projected total percentage complete, on a monthly basis;
 - b. Anticipated total partial payments, on a monthly basis, including Subcontractor payment breakdown; and
 - c. The projected total manpower requirements, on a weekly basis.
 - d. Within 14 days after receipt of the detailed Schedule and supporting documents, the Commissioner will either approve the Schedule or reject it with written comments. If the Schedule is rejected, you must submit a revised Schedule within seven calendar days of the date of rejection. The Commissioner's decision to reject the Schedule is final and you may not dispute it under Article XIX of the Contract.
 - e. You must provide prompt written notice to the Commissioner of any events or other changes that may delay or accelerate the Schedule.
 - f. If you fail to provide the Schedule within the time prescribed and/or updates within the stated time frames, it is an event of default under the Contract, and the Commissioner may, in addition to any other remedies available to the City, withhold monthly partial payments until such time as you submit the required information.
7. Changes to the Schedule
- a. If you propose to make any changes to the Schedule, you must provide the Commissioner notice of the proposed changes, in writing, stating the reasons for the change, identifying each changed activity (including durations and interrelationships between activities) and providing a diskette of the proposed changed Schedule.
 - b. The originally approved Schedule will be the Baseline Schedule. The Commissioner, in his sole discretion, may approve or disapprove the proposed change in the Schedule to the extent that the change does not extend the Contract Time. He will provide a decision in writing to you within 10 days of receipt of your submission. All monthly updates must be plotted against the current revision of the Baseline Schedule.

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

- c. If the Commissioner approves the change to the CPM Schedule you must submit a revised Schedule incorporating the change(s) within 10 days after approval along with a written description of the change(s) to the Schedule.
 - d. Any proposed change that would result in an extension of Contract Time requires a written modification of the Contract pursuant to Section XIII.B, "Modifications," of the Contract.
- 8. Updating.** The originally approved CPM will be designated as the Baseline Schedule and will only be changed based on a Contract Modification that extends the Contract duration.
- a. All updates will be plotted against the Baseline Schedule. You must update the CPM Schedule on a monthly basis coincident with the submission of the pay estimate. The updated information must include the Baseline Schedule detail and the following additional information for each activity:
 - (1) Actual start dates;
 - (2) Actual finish dates;
 - (3) Actual activity percent complete;
 - (4) Remaining duration of activities in progress; and
 - (5) Critical activities must be identified or highlighted.
 - b. The updated information must include the Baseline Schedule detail and the following additional information for each summary item:
 - (1) Actual monthly and total-to-date Work percentage complete.
 - (2) Actual monthly partial payments, including Subcontractor partial payments; and
 - (3) Actual weekly and total-to-date manpower utilization.
 - c. The City may withhold partial payments if you do not submit updates as required.
- 9.** Neither an update nor Schedule change may, in itself, extend the term of this Contract. The term of the Contract may only be extended by a written Contract Modification executed pursuant to Section XXIII.B, "Modifications," of the Contract.
- 10. Narrative Report.** As part of the CPM Schedule update, you must prepare a written narrative report, highlighting the progress during the past update period. This written report must include the following information:
- a. Summary of Work accomplished during the past update period;
 - b. Contract milestone comparison chart;
 - c. Analysis of critical path(s);
 - d. Analysis of time lost/gained during the update period;
 - e. Identification of problem areas; and

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

f. Recommended solutions to current problems.

11. You are required to attend a monthly CPM Schedule review meeting where the Schedule will be reviewed with the Commissioner. The purpose of this meeting is to review past progress, current status, problem areas and future progress. Your narrative report is reviewed at this meeting. Your representatives attending this meeting must have the authority to commit manpower and/or other resources to correct any negative impact to the Schedule. Any possible means of shortening the Schedule at no additional cost will be brought to the attention of the Commissioner. The Updated Progress Schedule will be used as a guide for verifying estimates of work completed for which payment is requested, and must accurately represent the project's current status. None of the information provided in this Section constitutes a request for a time extension.

E. Recovery Schedule

1. You must maintain an adequate work force and the necessary materials, supplies and equipment to meet the current approved Schedule. If you, in the sole opinion of the Commissioner, are failing to meet the approved Schedule, including any Contract milestones, you must submit a recovery Schedule (the "CPM Recovery Schedule"). The CPM Recovery Schedule sets forth a plan to eliminate the schedule slippage (negative float). The plan must be specific and show the methods to achieve the recovery of time, e.g., increasing manpower, working overtime, weekend work, employing multiple shifts. You must bear all costs associated with implementing the CPM Recovery Schedule.
2. Upon receipt of the CPM Recovery Schedule, the Commissioner will review it for conformance with the Contract and degree of detail. The Commissioner, within 14 days after receipt of the CPM Recovery Schedule and supporting documents will approve it or reject it with written comments. If the detailed CPM Recovery Schedule is rejected, you must submit a revised CPM Recovery Schedule within seven calendar days after the date of rejection. The Commissioner's decision to reject the CPM Recovery Schedule is final and you may not dispute it.
3. If you refuse to follow the direction of the Commissioner, the Commissioner reserves the right after seven days written notice to you, to procure the materials, equipment and labor to proceed with or to complete the Work or any portion of it and charge the cost to you. The Commissioner's rights under this provision are cumulative to rights under any other provisions of the Contract including the City's rights to terminate for default or to early termination.

F. Time for Completing Punch List

1. TIME IS OF THE ESSENCE IN CLOSING OUT THE WORK, and you must begin work immediately after receipt of a list of minor miscellaneous or finishing work known as "Punch List Work." Your failure or that of your Subcontractors to begin the Punch List work within three days of receipt of the Punch List is an event of default.
2. You must diligently prosecute the Punch List work once begun and complete it within 30 days from receipt of the Punch List. If you fail to complete Punch List work within the 30 day time period, you must pay the liquidated damages set forth for "Punch List Work" in Book 2.

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

3. If liquidated damages are assessed, they will be added to the previously determined liquidated damages assessed as of the Substantial Completion Date or the City's beneficial occupancy of the Project, whichever occurs earlier. The City's takeover of the Project under Section XX.C.3.b., however, does not constitute beneficial occupancy for purposes of liquidated damages.

G. No Damages for Delay; Extensions of Time

1. Should you be delayed in starting, prosecuting or completing the Work by any act of the City, including a delay, change, addition, deletion or modification in the Work or any omission, neglect or default of the City, or by order of the City, or anyone employed by or acting on behalf of the City, or by any cause beyond your control, none of which are due to any fault, neglect, act or omission on your part, then your relief is limited to an extension of the Contract Time that is no greater than the duration of any such delay. The extension of time releases and discharges the City, its employees, officials, agents and representatives from all claims for damages of whatever character, including any claims you may make on account of disruption, changes in sequence, interference, inefficiency, direct or indirect cost or any other causes of delay.
2. You must notify the Commissioner in writing of the cause within five calendar days after the delay begins. Consideration of a time extension for events beyond your reasonable control will be made if the delay directly impacts the Schedule for completion of the Work. Events considered to be beyond your reasonable control are limited to acts of God, acts of the public enemy, fires, floods, earthquakes, epidemics, quarantine restrictions, labor strikes at the job site, freight embargoes, or weather significantly more severe than the norm, but only if the listed causes were not foreseeable and did not result from your fault or negligence and only if you took reasonable precautions to prevent delays owing to such causes.
3. Unless otherwise provided in the Contract, the Contract Time is based on normal weather conditions. An extension is granted for weather significantly more severe than the norm only if you demonstrate to the satisfaction of the City that any delay in the progress of the Work was due to such weather. The basis used to define normal weather will be the "normal" data as compiled by the United States Department of Commerce, National Oceanic and Atmospheric Administration in their most current report entitled "Local Climatological Data, Annual Summary with Comparative Data" for the month for which the time extension is sought. The effects of weather less severe than the norm may be taken into account in considering your requests for time extensions for the effects of more severe weather.
4. No extension of time will be granted under this Section for any delay if you, by your action or inaction, including your fault or negligence or that of your Subcontractors, caused the delay, or for which any remedies are provided under any other provision of the Contract.
5. The grant of an extension of time pursuant to this Section XI.G, "No Damages for Delay and Extension of Time," in no way constitutes a waiver by the City of any rights or remedies existing under this Contract, at law or in equity.

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

6. You must submit in writing any claim for extension of time to the Commissioner not more than five days after the delay begins, otherwise the claim is waived. Any claim for extension of time must (i) state the cause of the delay; (ii) specifically demonstrate the impact of the delay on the Schedule; and (iii) state the number of extension days requested. If the cause of the delay is continuing, only one claim is necessary, but you must report, in writing, the cessation of the cause for the delay within 10 days after the termination. Any claim for extension of time that does not comply with this provision constitutes a waiver by you of your rights to any such extension.
7. After receipt of a timely and properly completed request for a time extension, the City may (i) grant a time extension for the entire length of the delay; (ii) grant a time extension for a portion of the extent of the delay; or (iii) deny the time extension.
8. If you do not agree with the City's decision on a claim for time extension, you may appeal the ruling to the Chief Procurement Officer under Article XIX, "Claims and Disputes," but only if you have complied with the notice requirements provided in these Terms and Conditions for Construction and the time extension request exceeds five calendar days or the liquidated damages exceed \$10,000. The Commissioner's decision is final whenever the time extension request is for a duration of less than five days or the liquidated damages are less than \$10,000.

H. Suspension of Work

The Commissioner has authority to suspend the Work wholly, or in part, for such period of time as the Commissioner may deem necessary due to conditions unfavorable for the satisfactory prosecution of the work, or to conditions that, in the Commissioner's opinion, warrant the action or for such time as is necessary by reason of failure on your part to carry out orders given or to perform any or all provisions of the Contract. No additional compensation will be paid to you because of any costs caused by the suspension when the suspension is ordered for reasons resulting from any action or omission on your part or is related to utility adjustments, railroad work, work by other contractors on or near the Work covered by the Contract, or unforeseeable weather conditions.

I. Liquidated Damages

1. If the Work is delayed, you are liable for liquidated damages for every day you fail to achieve the Contract Completion Date (or any milestone completion date that provides for liquidated damages), but only if the delay is not the result of an excusable cause permitted under Section XI.G.2, "No Damages for Delay and Extensions of Time." The specific amount of liquidated damages for which you are liable is set forth in Book 2 of this Contract.
2. The City will recover liquidated damages by deducting the amount thereof out of any moneys due or that may become due you. If the moneys are insufficient to cover the damages, then you or your surety must pay the amount due. Nothing contained in this Section is to be construed as limiting the right of the City to recover from you all amounts due or to become due, and all costs and expenses sustained by the City for improper performance under this Contract, repudiation of the Contract, failure to begin work on the date of commencement, or failure to perform the Work with adequate forces, equipment or materials or other resources, or breaches in any other respect, including defective

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

workmanship or materials. In addition to liquidated damages for failure to meet any milestones, you are liable to the City for any other damages sustained as the result of your refusal or failure to perform the Work.

3. If the City permits you to continue to perform Work despite your failure to meet any milestone date set forth in the Contract, the action in no way constitutes a waiver by the City of any rights or remedies that exist under this Contract, at law, or in equity.

XII. MEETINGS

A. Pre-Construction Meeting

Before beginning Work, the Commissioner may conduct a Pre-Construction meeting. Your representatives and Subcontractors must attend. The purpose of the meeting is to establish lines of authority and communication and the identification of duties and responsibilities of the organizations. Discussion will cover specific contract plans, specifications, unusual conditions, schedules of completion, and other features of the Contract. The Commissioner may conduct additional coordination meetings at his discretion.

B. Weekly Review Meetings

The Commissioner may conduct weekly review meetings. At a minimum, your project manager and superintendent must attend. However, you must arrange for Subcontractors to attend the meetings if expressly requested by the Commissioner. The meetings may include the following:

1. Review of Work progress since the previous weekly review meeting;
2. Discussion of field observations, problems and decisions;
3. Review of off-site fabrication problems and other problems affecting in the Contract Time;
4. Review of equipment deliveries;
5. Discussion of corrective measures and procedures to achieve the CPM Schedule;
6. Review of submittal schedules and effect on the CPM Schedule;
7. Review of proposed Contract changes and effect on the construction schedule;
8. Coordination requirements;
9. Clarifications and decisions required of the Commissioner;
10. Review of your forces on the Work; and
11. Review of Project Record Document status and content.

C. Monthly Review Meetings

The Commissioner may conduct monthly review meetings. At a minimum, your project manager and superintendent must attend. However, you must arrange for Subcontractors to attend the meetings if expressly requested by the Commissioner. The meetings may include the following:

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

1. Review of Work progress since the previous monthly review meeting;
2. Discussion of field observations, problems and decisions;
3. Review of off-site fabrication problems and other problems affecting the CPM Schedule;
4. Review of equipment deliveries;
5. Discussion of corrective measures and procedures to achieve completion in the Contract Time;
6. Review of submittal schedules and effect on the CPM Schedule;
7. Review of proposed Contract changes and effect on the Schedule;
8. Coordination requirements;
9. Clarifications and decisions required of the Commissioner;
10. Review of your forces on the Work; and
11. Review of Project Record Document status and content.

XIII. PAYMENTS

A. Contract Price

The "Contract Price" is the total dollar amount of your bid accepted by the City, including approved change orders. It includes all labor, equipment, materials, permits, licenses, fees, and taxes necessary to perform the Work. In the case of a lump sum Contract Price or lump sum line item, you must provide the Commissioner with a breakdown that includes a schedule of costs for the various parts of the Work included in the lump sum. The total of these costs must equal the lump sum Contract Price or lump sum line items, as applicable.

The breakdown must be submitted in such form and detail, and supported as to correctness by such data, as the Commissioner may direct. The City will make no payment to you until you have submitted the breakdown and the Schedule required by Article XI, "Schedule," and the Commissioner has approved them. The breakdown may be used for verifying monthly progress payments upon substantiation of the costs detailed and the progress of the Work.

For unit price line items, measurement and payment is as specified in the Detailed Specifications.

B. Procedure for Monthly Payment Requests and Final Payment

1. You and the City will agree upon a payment schedule of at least once per month, or more frequently if appropriate or if specified elsewhere in the Contract. The Commissioner will process payment requests pursuant to that agreement if your payment requests, in the Commissioner's sole judgment, are acceptable in form and content, and if the Work for which payment is being requested has been completed according to the terms and conditions of this Contract. All payment requests are subject to correction by the Commissioner.
2. In cases where you proceed to perform and complete the Work properly under the Contract, progress payments will be processed on a monthly basis unless the amount

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

earned is greater than \$1,000,000, then payments may be made twice a month. The payment period ends on the monthly anniversary date of the Notice to Proceed.

3. Each monthly payment request must include one original and two copies of the following:
 - a. Certified Statement. You must submit certified statement(s) (signed by an authorized individual and notarized) for each payment request; the statement, in the form acceptable to the Commissioner, must list the following for you and for each Subcontractor and supplier for the period for which payment is requested:
 - (1) the name and business address of the particular Subcontractor or supplier;
 - (2) description of the work performed and/or product supplied;
 - (3) indication of whether the Subcontractor or supplier is an MBE, WBE, or a non-certified firm.
 - (4) the total amount of the particular subcontract;
 - (5) the amount previously paid to the Subcontractor and the dates paid;
 - (6) the amount of the monthly pay request you will pay to each individual Subcontractor and/or supplier from payments you receive on the request, and the dates those amounts were invoiced or requested by the Subcontractor or supplier;
 - (7) the balance remaining under the subcontract to complete the Work.
 - b. Partial Waivers of Lien to Date and Affidavit for Payment. Following your first payment request, you must submit Partial Waivers of Lien from all Subcontractors and suppliers that performed services and provided supplies during the month before your previous payment request. The Partial Waivers of Lien must be in a form acceptable to the City and must identify, at a minimum, the payment request number and time period covered. The Partial Wavier of Lien must be in dollar amount equal to the dollar amount of the services performed or supplies provided by the Subcontractor or supplier during the relevant time period. With every payment request, you must also submit an Affidavit for Payment from all Subcontractors and suppliers for whose services or supplies you request payment. The Affidavit for payment must be in a form acceptable to the Commissioner and identify, at a minimum, the payment estimate number, the time period covered, and the total amount invoiced by the Subcontractor or supplier, and the total amount paid to the Subcontractor or supplier to date.
 - c. Status Report of MBE/WBE Subcontract Payments. A status report of MBE/WBE Subcontractor payments, as required by the Contract documents, must be submitted with each monthly invoice in the form required by the City; and
 - d. Certified Payrolls. You and all Subcontractors working on the job site must submit three copies of certified payrolls for the payment period to the Commissioner every week until all Work is completed. All payrolls must be identified with Contractor or Subcontractor's name, as appropriate, Contract name and be sequentially numbered. If there are periods of no Work by you or a Subcontractor, you must submit a payroll labeled "NO WORK." The final payroll must be clearly labeled

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

“FINAL”. Certified payrolls are required to assure EEO compliance as well as wage compliance. Race, worker classification, and gender must be clearly marked for each employee on the certified payroll along with all additional information required by the Chief Procurement Officer. An employee's address should appear every time his or her name appears on the payroll. You must submit the certified payrolls and additional information regarding EEO and wage compliance by providing a Payroll Summary Report in the form required by the Chief Procurement Officer. You and each Subcontractor must submit the EEO report forms required by the City and U.S. Department of Labor reflecting fully the periods of Work covered by the partial payment request. When directed, contractor shall be required to submit payrolls electronically using the City certified payroll reporting system.

- e. You must declare subcontractor payments with each invoice submitted to the City. You are required also to inform subcontractor each time you submit an invoice to the City that includes work for which you have been billed by the subcontractor. The Subcontractor Payment Certification Form can be downloaded from the City's website at www.cityofchicago.org/finance/subcontractorform. The information from this form will be recorded in the City's financial system and posted on the City website.

C. Payment for Stored Material

- 1. Whether stored on- or off-the job site, the risk of loss for stored material will remain with you, and you must insure the stored materials against the risk of loss, theft or damage until its installment in the Work.
- 2. Payment for material stored on the job site will be 100% of a valid invoice. No payment will be made for materials stored off the job site unless otherwise authorized by the Commissioner in accordance with Section XIII.C.3. If Materials stored on the job site cannot be incorporated in the finished Work within a reasonable period of time you may include them in the monthly progress payment, but only if the following documents are submitted with the request for payment:
 - a. Paid invoices showing the cost of material or equipment;
 - b. Waiver of lien from the supplier indicating that the cost of the material or equipment was paid; and
 - c. Inspection tickets showing that material or equipment had been inspected and accepted by the City.
- 3. Payment for material stored off-site, if authorized, will be 100% of a valid invoice when you have provided the Commissioner with the documents and assurances listed and complied with the requirements below:
 - a. A paid invoice from the supplier showing the unit, quantity, description of the material or equipment and costs;
 - b. A waiver of lien from the supplier for the total amount of the material purchased;
 - c. Inspection for all of the material stored;

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

- d. A certified statement giving the exact location of the materials or equipment, stating that:
 - (1) you have inspected all of the material stored and that it is complete and in good condition;
 - (2) the materials are suitably stored and maintained at a bonded, secure and environmentally appropriate location that the Commissioner has agreed upon and subject to the conditions required or established by him;
 - (3) you have complied with procedures satisfactory to the Commissioner to establish the City's title to the materials or otherwise protect the City's interest in them, including, insurance, storage and transportation to the Project site for the materials stored off-site, as the Commissioner may reasonably require;
 - (4) the materials, equipment and associated fabricated components will not be diverted away from the Project;
 - (5) a certificate of insurance coverage for the stored material upon which payment is requested;
- e. Immediately upon receipt of payment for the material, you must prepare and execute all documents required to transfer title to the City, including, any Uniform Commercial Code documentation necessary to perfect transfer of title; and
- f. All material and Work covered by payments will thereupon become the sole property of the City, subject to your obligation to insure it until Acceptance of the Work.

D. Retainage

- 1. Pursuant to § 2-92-250 of the Municipal Code, no retainage shall be withheld by the City. As a matter of prompt payment to subcontractors as required by Section XIII.E, Contractor must not withhold retainage from subcontractors in any form, including but not limited to administrative fees.

E. Prompt Payment to Subcontractors

- 1. **Payment Within Seven Days.** The Contractor must make payment to its Subcontractors **within 7 days** of receipt of payment from the City for each invoice.

Provided the Subcontractor's performance has met the terms of the Contract Documents, and that Subcontractor has submitted its request for payment to the Contractor with such documentation as is reasonably necessary to substantiate such performance, the Contractor shall bill the City for such performance when the Contractor is first authorized under the payment schedule of the Contract to submit an invoice to the City for such performance. Contractor may only invoice the City at the rates contained in the Contract Documents.

- 2. **Liquidated Damages for Failure to Promptly Pay.** Much of the City's economic vitality derives from the success of its small businesses. The failure by contractors to pay their subcontractors in a timely manner, therefore, is clearly detrimental to the City. Inasmuch as the actual damages to the City due to such failure are uncertain in amount and difficult to prove, Contractor and City agree that the Chief Procurement Officer may assess liquidated

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

damages against contractors who fail to meet their prompt payment requirements. Such liquidated damages shall be assessed to compensate the City for any and all damage incurred due to the failure of the Contractor to promptly pay its subcontractors, and does not constitute a penalty. Any and all such liquidated damages collected by the City shall be used to improve the administration and outreach efforts of the City's Small Business Program.

3. Reporting Failures to Promptly Pay. The City posts payments to prime contractors on the web at <http://webapps.cityofchicago.org/VCSearchWeb/org/cityofchicago/vcsearch/controller/payments/begin.do?agencyId=city>.

If the Contractor, without reasonable cause, fails to make any payment to its Subcontractors and material suppliers **within 7 days** after receipt of payment under a City contract, the Contractor shall pay to its Subcontractors and material suppliers, in addition to the payment due them, interest in the amount of 2% per month, calculated from the expiration of the 7-day period until fully paid.

In the event that a Contractor fails to make payment to a Subcontractor within the 7-day period required above, the Subcontractor may notify the City by submitting a report form that may be downloaded from the DPS website at:

http://www.cityofchicago.org/content/dam/city/depts/dps/ContractAdministration/StandardFormsAgreements/Failure_to_Promptly_Pay_Fillable_Form_3_2013.pdf

The report will require the Subcontractor to affirm that (a) its invoice to the Contractor was included in the payment request submitted by the contractor to the City and (b) Subcontractor has not, at the time of the report, received payment from the contractor for that invoice. The report must reference the payment (voucher) number posted on-line by the City in the notice of the payment to the contractor.

Subcontractors are hereby reminded that per Chapters 1-21, "False Statements," and 1-22, "False Claims," of the Municipal Code of Chicago, making false statements or claims to the City are violations of law and subject to a range of penalties including fines and debarment.

4. Action by the City. Upon receipt of an electronic report of a failure to pay, the City will issue notice to the contractor, and provide the contractor with an opportunity to demonstrate reasonable cause for failing to make payment within applicable period set forth in the Contract. The Chief Procurement Officer, in his or her sole judgment, shall determine whether any cause for nonpayment provided by a contractor is reasonable. In the event that the contractor fails to demonstrate reasonable cause for failure to make payment, the City shall notify the contractor that it will assess liquidated damages. Any such liquidated damages will be assessed according to the following schedule:

First Unexcused Report:	\$50
Second Unexcused Report:	\$100
Third Unexcused Report:	\$250
Fourth Unexcused Report:	\$500

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

Fifth and Each Succeeding
Unexcused Report: \$1,000

The liquidated damages set forth above shall be assessed per unexcused report per contract, i.e., each successive report regarding a contractor's failure to pay under this Contract will be assessed liquidated damages, regardless of which subcontractor files the unexcused report(s).

By executing this Agreement, Contractor acknowledges and agrees that the City may collect such damages by deducting any amount due to the City from the next payment to be made to the Contractor. In the event that no further payments are due to Contractor, Contractor agrees to promptly pay such liquidated damages as it may owe to the City. Failure to make such payment within thirty (30) days of receipt of notice of the assessment of liquidated damages may result in Contractor being debarred from participating in City contracts for a period of not less than one year.

Contractors are reminded that each unexcused failure to pay promptly is an event of default under the Contract and, in addition to the liquidated damages provided for in this Section, is subject to the remedies found in Section XX.C of this Contract. Contractors are further reminded that per Section 2-92-270 of the Municipal Code of Chicago, failure to pay subcontractors as required by law and the Contract may result in the City suspending payments to Contractor and making direct payments to such subcontractors. Any such direct payments shall be from funds due and owing to the contractor.

5. Whistleblower Protection. Contractor shall not take any retaliatory action against any subcontractor for reporting non-payment pursuant to this Section E. Any such retaliatory action is an event of default under this Contract and is subject to the remedies set forth in Section XX.C hereof, including termination. In addition to those remedies, any retaliatory action by a contractor may result in a contractor being deemed non-responsible for future City contracts or, if, in the sole judgment of the Chief Procurement Officer, such retaliatory action is egregious, the Chief Procurement Officer may initiate debarment proceedings against the contractor. Any such debarment shall be for a period of not less than one year.

6. If the Chief Procurement Officer determines that the circumstances pertaining to a contractor's failure to pay promptly warrant excusing such non-performance, or determines that excusing such non-performance is in the best interests of the City, the Chief Procurement Officer may waive any of the remedies provided in this Section E. Each such waiver is discrete, non-precedential and does not constitute a waiver of any subsequent remedies against a contractor who fails to comply with the terms and conditions set forth herein.

F. Payments Withheld

1. The Commissioner may decline a request for payment if, in the Commissioner's sole opinion, the request for payment is not adequately supported. If you and the Commissioner cannot agree on a revised amount, the Commissioner must process the payment in the amount he deems appropriate.

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

2. The Commissioner may decline to process any payment or may rescind in whole or in part any approval previously made to the extent that may be necessary in his sole opinion because of any failure to perform any obligation under the Contract, including:
 - a. Failure or refusal to provide the City the required initial schedule for the Work or monthly schedule updates and obtain the City's approval for either or both;
 - b. Your failure to remedy defective Work;
 - c. Your failure to make payments to Subcontractors, or employees, or provide partial waivers of lien;
 - d. Your failure to maintain timely progress of the Work as stated in your schedule, or the City's determination that the Work will not be completed within the Contract Time, or your failure to carry out the Work in accordance with the Contract;
 - e. Failure to follow the City, State, Federal, or Contract safety and security requirements;
 - f. Failure to maintain insurance policies as required by the Contract and/or to provide to the Commissioner each evidence of insurance coverage, in the form of current certificates of insurance, as he or she may require;
 - g. Failure to comply with other requirements as referenced in the Contract;
 - h. Failure to provide certified payrolls or other documents required under Section XI.G, "No Damages for Delay and Extensions of Time."
 - i. Failure to provide material inspections as required by the Contract; and
 - j. Failure to provide contract deliverables such as, accurate Record Drawings, warranties, guarantees, manuals, etc.
3. Pursuant to § 2-92-270 of the Municipal Code, the Chief Procurement Officer may, in his sole discretion, direct that no further payments be made, or vouchers or estimates issued to you, if he determines that you have failed to pay any Subcontractor, employee or worker for Work performed under this Contract. Failure to submit "Status Report of MBE/WBE Subcontract Payment" or "Certified Statement" as required under Section XIII.B. may result in a determination that you have failed to pay your Subcontractor(s). The City may withhold payment until you demonstrate, to the satisfaction of the Chief Procurement Officer, that payments to the Subcontractors, employees or workers have been made in full.

If the Chief Procurement Officer gives you notice under Section XXIII.H that no further vouchers or estimates will be issued or payments made on the Contract until the Subcontractors, workers, and employees have been paid, and you neglect or refuse for a period of 10 days or more after notice was given to pay those Subcontractors, workers or employees, the Chief Procurement Officer may apply any money due, or that may become due, under the Contract to the payment of those Subcontractors, workers or employees without further notice to you and the effect will be the same, for purposes of payment to you of the Contract Price, as if the City had paid you directly.

The failure of the City, however, to retain and apply any money, or of the Chief Procurement Officer to order or direct that no vouchers or estimates be issued or further payments made, will not, nor will the paying over of the reserved percentage without the

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

Subcontractor, workers, or employees being first paid, in any way affect your liability or that of your sureties to the City, or to any such Subcontractor, worker or employee upon any bond given in connection with this Contract.

4. Debts; Outstanding Parking Violation Complaints

In accordance with § 2-92-380 of the Municipal Code, and as otherwise permitted by law, in addition to any other rights and remedies (including any set-off) available to the City under the Contract or permitted at law or in equity, the City is entitled to set off a portion of the Contract price or compensation due under the Contract, in an amount equal to the amount of the fines and penalties for each outstanding parking violation complaint and the amount of any debt owed by the contracting party to the City. For purposes of this provision, the terms "outstanding parking violation complaints" and "debt" are defined in the Municipal Code as are the conditions under which no set-off will be made.

5. Provisions Relating to Liens

Contractor will notify Subcontractors that no mechanic's lien under the Illinois Mechanics' Lien Act, 770 ILCS 60/23, *et seq.*, will be permitted to arise, be filed, or maintained against public funds, the Project, or any part of it, or any interest in them, or any improvements on them, or against any monies due or to become due to Contractor on account of any work, labor, services, materials, equipment, or other items performed or furnished for or in connection with the Project to the extent permitted by law. Contractor, for itself and its Subcontractors, expressly waives, releases, and relinquishes such liens and all rights to file or maintain such liens; and Contractor further covenants that this waiver of liens and waiver of the rights to file or maintain such liens is an independent covenant.

If any of Subcontractors, employees, officials, agents, or any other person directly or indirectly acting for, through, or on their behalf files or maintains a lien or claim under the Illinois Mechanic's Lien Act, 770 ILCS 60/23, *et seq.*, against public funds or against any monies due or to become due to Contractor on account of any Work, labor, services, materials, equipment, or other items performed or furnished for or in connection with the Project, Contractor must cause such liens and claims to be satisfied, removed, or discharged within 30 days from the date of filing. The City may extend the 30 day period if (i) the City determines that the lien claim cannot be so satisfied, removed, or discharged in such period and (ii) Contractor, in the City's sole determination, is proceeding diligently to cause such liens or claims to be satisfied, removed or discharged. The City has the right, in addition to all other rights and remedies provided under this Contract or by law, to cause such liens or claims to be satisfied, removed, or discharged by any means at Contractor's sole cost, such cost to include reasonable legal fees.

6. The City's rights under this Section XIII.F, "Payments Withheld," are cumulative with any other rights provided for under this Contract. Failure by the City to exercise any such right afforded in this Contract, or at law or in equity, will not constitute a waiver of that right.

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

G. Payment for Changes

1. Payment for Changes. The amount to be paid by the City for changes (additions, deletions or revisions) in the Work or directions to change the Contract Time, will be made in accordance with Sections XIII.G.1.a through XIII.G.1.f below.
 - a. **Unit Price Basis.** Should the changes in the plans result in an increase or decrease in the quantities of unit priced Work to be performed, you will accept payment as follows:
 - (1) All increases in the Work of the type that appears in the Contract as unit price items will, except as provided in Section XIII.G.1.b., "Proposal Basis," be paid for at the Contract unit bid prices. Decreases in quantities included in the Contract will be deducted from the Contract value at the unit bid prices. No allowances will be made for delays or anticipated profits.
 - (2) Quantities in excess of 125% of the bid quantities, when the total dollar value of the unit price item exceeds 5% of the original Contract bid amount, will be paid for at a negotiated unit price based on costs that are demonstrated by you and agreed to by the Commissioner, subject to the approval of the Chief Procurement Officer. The negotiated unit price can be higher or lower than the Bid Unit Price. Quantities in excess of 125% of the bid quantities, when the total dollar value on any unit price item does not exceed 5% of the total value of the original Contract bid amount, will be paid at the bid unit price.
 - (3) Quantities below 75% of the bid quantities, when the total value of the unit price item exceeds 5% of the Contract Price at the time of bid, will be paid for at a negotiated unit price based on costs which are demonstrated by you and agreed to by the Commissioner, subject to the approval of the Chief Procurement Officer. The negotiated unit price can be higher or lower than the Bid Unit Price. Quantities below 75% of the bid quantities, when the total value on any unit price item does not exceed 5% of the total value of the Contract Price at the time of bid will be paid at the bid unit price.
 - (4) If the Commissioner and you are unable to agree on a negotiated unit price, the Commissioner will determine a unit price, prepare a Contract Modification with the Work so priced, that you will sign. You may, however, timely dispute the amount of the unit price to the Chief Procurement Officer under Article XIX, "Claims and Disputes." This is the only Contract Modification in which the release language required by Section XIV.D., "Contractor's Release," will not be included.
 - b. **Proposal Basis.** If there are no unit prices for the changed Work, the payment may be based upon a price agreed to by the City and you. The proposal submitted will be a starting point for negotiation between the City and you. You must submit any proposal for consideration for changed Work in writing, breaking down the Work to be done into segments of cost as follows:
 - (1) Labor. For all hourly wage labor and hourly wage foremen in direct charge of the specific operations, you will receive the prevailing rate of wage for every hour

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

that the labor and foremen are actually engaged in the Work. No additional allowance or payment will be made for general superintendence.

- (2) You will receive the actual costs paid to, or in behalf of, workers for health and welfare benefits, pension fund benefits or other benefits, when the amounts are required by collective bargaining agreement or other employment contract generally applicable to the classes of labor employed on the Work.
- (3) An amount not to exceed 30% of XIII.G.1.b.(1) above and an amount not to exceed 10% of XIII.G.1.b.(2) above will also be paid to you.
- (4) Insurance and Payroll Taxes. Cost for property damage, liability, and worker's compensation insurance premiums, unemployment insurance contributions and social security taxes on the extra Work, to which an amount not to exceed 10% of the cost of these items will be added. You must furnish satisfactory evidence of the rates paid for the insurance and taxes.
- (5) Materials. For materials accepted by the Commissioner and used as an integral part of finished Work, you will receive the actual costs of the materials delivered on the job site, including transportation charges that you paid (exclusive of machinery rentals as set forth below), as shown by original receipted bills, to which 15% will be added to the first \$10,000.00 and 10% for any amounts over \$10,000.00.
- (6) Equipment. Number of proposed equipment hours multiplied by the rate as allowed by the latest revision of "Schedule of Average Equipment Ownership Expense With Operating Cost" as issued by IDOT, or in the AED Compilation of Rental Rates if equipment is to be rented, for the period that the machinery and equipment are to be used on the Work, to which no percent will be added. Where machinery and equipment are not listed in these schedules, then the rates will be determined by the Commissioner after reviewing all of your available records or other information concerning the expense of operating that type of equipment.
- (7) Cost for Increase in Performance and Payment Bond. You will furnish the Commissioner written documentation from the surety of the rate or rates applicable for additional bonding for this Contract. These rates will be applied to all the changes increasing or decreasing the Contract Price. No bonding costs will be allowed for Subcontractors. In the absence of written documentation from the surety, a percentage of the total change, as determined by the Commissioner, will be added or subtracted to cover the increase or decrease of the cost of the bond.
- (8) When Work is to be performed by a Subcontractor, the proposal may include as administrative costs for you an amount not to exceed 5% of the first \$10,000.00 and 1% of any amount over \$10,000.00 of the total approved costs of the Work. The Subcontractor, however, is not allowed any additional markup if it sublets its Work. The use of a Subcontractor requires the approval of the Chief Procurement Officer. All subcontracted costs must be supported by proposals from the Subcontractors performing the Work. The Subcontractor's proposal

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

must be broken down into its various parts of Work as described in items XIII.G.1.b.(1) through XIII.G.1.b.(8) above, or as required by the Commissioner.

- c. **Time and Material Basis.** If the Commissioner and you cannot agree on a price based on a proposal, the Work will be paid for on a time and material basis. Work that is done on a time and material basis will be paid for as follows:
- (1) Labor. For all hourly wage labor and hourly wage foremen in direct charge of the specific operations, you will receive the prevailing rate of wage for every hour that the labor and foremen are actually engaged in the Work. No additional allowance or payment will be made for general superintendence.
 - (2) You will receive the actual costs paid to, or in behalf of, workers for health and welfare benefits, pension fund benefits or other benefits, when the amounts are required by collective bargaining agreement or other employment contract generally applicable to the classes of labor employed on the Work.
 - (3) An amount not to exceed 30% of XIII.G.1.c.(1) above and an amount not to exceed 10% of XIII.G.1.c.(2) above will also be paid to you.
 - (4) No payment will be made for labor performed on a time and material basis until you have furnished the Commissioner with itemized statements of the labor cost as follows.
 - (a) Name, classification, date, daily hours, total hours, rate, and extension for each laborer and foreman.
 - (b) Certified payrolls or certified copies of them, pertinent to the Work for which payment is requested. The payroll records will contain the name, address and social security number of each employee, the employees correct classification, rate of pay, daily and weekly number of hours worked, itemized deductions made and actual wages paid. The time and material bills will be audited and corrected against the certified payrolls. Falsification of the certified payroll is an offense punishable by law.
 - (5) Insurance and Payroll Tax. For property damage, liability, and workers compensation insurance premiums, unemployment insurance contributions and social security taxes on the time and material Work, you will receive the actual costs, to which 10% will be added. No payment will be made for insurance and payroll taxes until you have furnished satisfactory evidence of the rate or rates paid for the insurance and tax.
 - (6) Materials. For materials accepted by the Commissioner and used as an integral part of finished Work, you will receive the actual costs of the materials delivered on the job site, including transportation charges paid by him (exclusive of machinery rentals as set forth below), as shown by original receipted bills, to which 15% will be added to the first \$10,000.00 and 10% for any amounts over \$10,000.00.
 - (7) You will be reimbursed for any materials used in the construction of the Work, such as sheeting, falsework, form lumber, burlap, or other materials for curing, etc., that are not integral part of the finished Work. The amount of

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

reimbursement will be agreed upon in writing before the Work is begun and no percent will be added. The salvage value of the materials will be taken into consideration in the reimbursement agreed upon.

- (8) No payment will be made for material cost until you have furnished itemized statements of the material costs, which must include:
- (a) Quantities of materials, prices, and extension;
 - (b) Material transportation costs supported by receipted invoices; and
 - (c) Receipted invoices for all materials used. However, if materials used on the time and material Work are not specifically purchased for the Work but are taken from your stock, then in lieu of the invoices, you will furnish an affidavit certifying that the materials were from your stock, that the quantity claimed was actually used, and that the price and transportation claimed represent the actual cost to you. The price quoted for the material must be reasonable and acceptable as per the normal industry practice.
- (9) Equipment. You will be paid for all machinery and equipment (other than small tools as currently defined by the Illinois Department of Transportation) used on the Work in accordance with the latest revision of "Schedule of Average Annual Equipment Ownership Expense with Operating Cost," as issued by the Illinois Department of Transportation, for the period that the machinery and equipment are in use on the Work, to which no percent will be added. Where machinery and equipment are not listed in this schedule, the rates will be determined by the Commissioner after reviewing all your available records or other information concerning the expense of operating that type of equipment. Where idle time for equipment is authorized by the Commissioner, it will be paid at a rate not to exceed 50% of the rates described above.
- (10) When equipment is rented, you will receive actual rental cost as shown by original receipted bills to which 5% will be added.
- (11) No payment will be made for equipment unless designations, dates, daily hours, rental rates, and extensions for each unit of machinery and equipment are shown on the itemized statement of time and material Work.
- (12) Bond. The City will pay you the actual increase in cost of your performance bond. You will furnish from the bonding company written documentation of the rate or rates applicable for additional bonding for this Contract. These rate/rates will be applied to all the changes increasing or decreasing the Contract value. No bonding costs will be allowed for Subcontractors. In the absence of written documentation from the bonding company, a percentage of the total change, as determined by the Commissioner, will be added or subtracted to cover the increase or decrease of the cost of the bond.
- (13) When Work is performed by Subcontractor, you will receive as administrative costs an amount equal to 10% of the first \$10,000 and 5% of any amount over \$10,000 of the total approved costs of the Work. The Subcontractor, however, is not allowed any additional markup if it sublets its

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

Work. The use of a Subcontractor will require the approval of the Chief Procurement Officer. All subcontracted costs must be supported by invoices from the Subcontractors performing the Work. The Subcontractors' invoices must be submitted in the form described in items (1) through (4) above.

- (14) Documentation. For additional Work performed on a time and material basis you will each day submit to the Commissioner detailed and complete records of the labor, material, equipment, and other costs relating to any force account Work performed on the day the Work is performed. You and the Commissioner will sign these daily extra Work reports.
- (15) Base Contract Work on a Premium Time Basis.
- (a) For Contract Work performed outside of regularly schedule working hours as defined by the Contract, premium time costs will be paid, only if expressly directed in writing by the Commissioner before you begin the Work. Compensation, when authorized, will cover only the direct cost of the premium portion of the time involved and will be without any charge for insurance. No payment will be made for union fringe benefits on the premium portion of the time unless expressly required by union agreement. Taxes that are attributed to the premium portion of the time will be paid. If you seek to charge taxes, the Commissioner may require you to supply verification that the employees' Social Security Tax, Federal Unemployment Tax, and State Unemployment Tax limits have not been exceeded.
 - (b) An amount equal to 7% of the sum of the premium portion of the work plus taxes will also be paid to you to cover job site general conditions, overhead, and profit. All indirect costs are considered part of the overhead, including supervision, engineering, and other technical personnel.
 - (c) If you enter into a subcontract, you will be allowed an additional 2% of the Subcontractor's premium time billing to cover your supervisory and related expense on subcontract operations. The Subcontractor is not allowed the additional 2% if it sublets its Work.
 - (d) You must keep Daily Work Reports for the premium time hours signed by you and the Commissioner. The reports must indicate the time of day when the Work was performed and wage rate differential that will be charged. Billings must reflect hours reported on Daily Work Reports.
- d. **Changes on Lump Sum Contracts or Lump Sum Items in Unit Priced Contracts.** All increases or decreases in the Work that is listed in the approved schedule of values will be priced, for the purpose of any change, based on the amounts stated for the Work in the approved schedule of values.
- e. **All invoices for changed work.** You must submit all invoices for changed work within 45 days following completion of the changed work. Failure to provide a complete invoice for the changed work within that period, will authorize the Commissioner, subject to the approval of the Chief Procurement Officer, to determine the final amount for the Contract Modification that may be awarded without your signature.

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

f. Miscellaneous.

- (1) For the purposes of this Section, any business entity which employs field labor and performs Contract Work on the job site is defined as a Subcontractor.” (This definition excludes suppliers/deliverers of materials.)
- (2) When the extra Work involves only supply of material without any field labor at the job site, the supplier, for the purposes of this Section, will be considered a “Materials Subcontractor” and the mark up specified in Section XIII.G.1.c (6), “Materials,” will apply.
- (3) Expenses incurred by the City. Upon written request of the Commissioner, you will pay the costs related to the Work that are the responsibility of the City. You will be reimbursed for the actual amount paid out to which will be added a markup as specified in Section XIII.G.1.c above.

2. Change Claims:

- a. If you and Commissioner are unable to agree on the price and/or time extension in connection with a change, you must, within 15 days of completing the changed work, provide written notice to the Commissioner of the amount of money and/or time extension sought by you and the Contractual and factual basis for each. You will designate the document Notice of Claim.
- b. The Commissioner will, within 30 days from receipt of the Notice of Claim, respond by requesting a meeting with you, making a written request for additional information from you, including a general statement of the basis for the claim, the facts underlying the claim, the notice to the Commissioner of the change that gave rise to the claim, reference to the applicable Contract provisions, and all documentation that describes, relates to and supports the claim; taking other action to attempt to resolve the Notice of Claim, and/or advising you in writing that it should file a claim under Article XIX, “Claims and Disputes.” Any steps taken by the Commissioner to resolve the Notice of Claim will not exceed 60 days from receipt of the Notice of Claim unless you agree to an additional amount of time in writing.
- c. If the Notice of Claim cannot be resolved as provided for in Section XIII.G.2, you must follow the requirements of Sections XIX.B and C, “Claims” and “Disputes.”
- d. If you do not agree with the adjustment for time and/or money proposed by the Commissioner, you must follow the procedures set out by the Contract to file a claim and/or dispute as provided in Article XIX, Failure to follow the procedures set out by the Contract to file a claim and/or dispute as provided in Article XIX, constitutes a waiver of the right to make a claim or file a Dispute to the Chief Procurement Officer. In the event of your waiver, you may file a Dispute under Section XX with the Chief Procurement Officer seeking a final decision as to the adjustment for the changed work.

H. Night, Sunday and Holiday Work

Whenever you are permitted to perform Work at night, or on Sundays or State or Federal holidays, or to vary the period of hours during which any work is carried on each day, you must give written notice to the Commissioner, at least 24 hours in advance, so that proper

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

inspection may be provided. The Work will be done under regulations to be furnished in writing by the Commissioner, and no extra compensation will be allowed therefore.

I. Acceleration

1. If progress falls behind the approved schedule, the Commissioner may direct and authorize you, in writing, to perform premium time work as indicated in TIME OF COMPLETION in the Proposal section of the specifications. No additional compensation will be paid for such premium time work and the cost incurred for inspection and testing during the premium time work will be considered as “extra” inspection, and reimbursement will be provided by you as described in Section XV.C, “Materials and Equipment Testing and Inspection.”
2. If conditions are encountered where you are specifically directed and authorized in writing by the Commissioner to perform premium time work, on the original contract, to advance an already established completion date of an event or the project, or project milestone, you will be compensated in accordance with Section XIII.G.c (15).
3. When the premium time Work is performed by approved subcontractor, you will receive a markup as specified in Section XIII.G.c (15) of the Contract.

J. Payroll Canvass Reports

You must submit to the Commissioner with each pay request a Payroll Canvass Reports (PCR) on Exhibits B and C, included in Book 2. You must submit the PCRs to indicate compliance with both your “Award Criteria Determination” commitments made for each trade in Book 2 and the Chicago Residency Ordinance requirements. A pay period canvass report must be prepared separately by you and each of your Subcontractors on Exhibit B to indicate, on a weekly basis, hours of each trade utilized during each pay period by you and your Subcontractors on the project. A combined Payroll Canvass Summary Report must be prepared by you on Exhibit C to indicate accumulated hours of each trade you and all of your Subcontractors have utilized, to date, on the Project. You are also responsible for the accuracy of information and all arithmetical calculations made in the Payroll Canvass Reports.

You must submit within five days after the award of the Contract Exhibit A, Anticipated Workforce Projection Form, included in the Contract, to the Chief Procurement Officer.

K. Electronic Ordering And Invoices

The Contractor will cooperate in good faith with the City in implementing electronic ordering and invoicing, including but not limited to catalogs, purchase orders, releases, and invoices. Contractor will accept electronic purchase orders and releases upon request of the Chief Procurement Officer. Contractor will provide the City electronic catalogs, copies of invoices and other electronic documents upon request. The electronic ordering and invoice documents will be in a format specified by the City and transmitted by an electronic means specified by the City. Such electronic means may include, but are not limited to, disks, e-mail, EDI, FTP, web sites, and third party electronic services. The Chief Procurement Officer reserves the right to change the document format and/or the means of transmission upon written notice to the Contractor. Contractor will ensure that the essential information, as determined by the Chief Procurement Officer, in the electronic document, corresponds to

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

that information submitted by the Contractor in its paper documents. The electronic documents will be in addition to paper documents required by this Contract, however, by written notice to the Contractor, the Chief Procurement Officer may deem any or all of the electronic ordering and invoice documents the official documents and/or eliminate the requirement for paper ordering and invoice documents.

XIV. CHANGES IN THE WORK

A. City's Right to Change Work

The Chief Procurement Officer and the Commissioner reserve the right to jointly order, in writing, changes in the Work or the Contract Time without prior notice to your surety. You are obligated to perform in a timely manner the changed Work included in the written notice from the Chief Procurement Officer and Commissioner. These changes may consist of additions, deletions, or other revisions, at the discretion of the City. You must begin the changed work upon receipt of a Field Order, signed by the Commissioner, with the prior written approval of the Chief Procurement Officer, unilaterally directing changes in the Work or Contract Time.

B. Contractor's Request

Within 14 days of receipt of the written notice from the Commissioner, you must submit to the Commissioner a written request for adjustment to the Contract Price and/or Contract Time for the revised Work.

C. Contract Modification

The final provisions of the Proposed Contract Modification, including the adjustment in the Contract Sum and/or the Contract time, if any, will be incorporated into a written Contract Modification signed by the City and you.

D. Contractor's Release

All Contract Modifications constitute a full release of the City from any liability for any additional compensation or extension of time arising or resulting from the Work performed pursuant to the Contract Modification. By executing a Contract Modification, you accept the compensation and/or time extension provided in it in full accord and satisfaction for that Contract Modification, and you expressly waive, release and relinquish all additional claims and demands relating to or arising out of the matters covered by that Contract Modification, including direct or indirect cost, profit, or damages related to disruptions.

E. Performance of Changed Work

You must promptly proceed with any changes in the Work or Contract Time as directed by a written order of the Commissioner ("Field Order"), in accordance with Section XIV.A., "City's Right to Change Work," with or without any Contract Modification. Your refusal or failure to proceed promptly with the changed Work as directed constitutes an event of default under the Contract. No change to the Work by you as directed by the Commissioner will operate to invalidate the Contract or release your surety.

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

F. Change Claims and Disputes

If you and Commissioner are unable to agree on the price and/or time extension in connection with a change, the procedures set forth in Article XIX, "Claims and Disputes," will govern.

XV. TESTING & INSPECTION

A. Material, Inspection and Responsibility

The City has the right to inspect all materials, equipment and each part or detail of Work, at any time, to be used in carrying out this Contract. The City does not assume any responsibility for the availability of any materials or equipment required under this Contract. You are responsible for all materials, components and completed Work furnished under this Contract. The City may reject materials, components or completed Work not complying with the terms and provisions of this Contract and you must replaced it or them at no additional cost to the City. You must promptly remove any rejected materials or components rejected from the City's premises at no additional cost to the City after you receive notice from the City that the materials or components have been rejected.

B. Inspection of the Work

1. All materials and equipment and each part or detail of the Work are subject at all times to inspection by the Commissioner or the Commissioner's authorized representatives. You are held strictly to the requirements of the Contract with respect to quality of materials, workmanship and the diligent execution of the Contract. Inspection may include mill, plant, shop and field inspection of any material or equipment furnished and any installation and construction under the Contract. You must allow the Commissioner and his representatives access to all parts of the Work and furnish such information and assistance as may be required to make a complete and detailed inspection.
2. All tests performed by or at the direction of the Commissioner under this Contract are to verify that the materials you are providing meet the Contract requirements. You, at your own expense, may perform or have others perform similar tests for the purpose of maintaining the quality of the material being provided. Payment will not be made for uninspected or unauthorized use of materials incorporated into the Work.
3. You must remove or uncover such portions of the finished Work as the Commissioner may direct before acceptance. After the examination, you must restore the portion of the Work to the standard required by the Contract. If the Work thus exposed or examined proves acceptable, the City will pay the expenses of uncovering, removing and/or replacing the parts as extra work, but if the Work so exposed or examined is unacceptable, you must bear the expense of uncovering, removing and/or replacing of it in accordance with the Contract.
4. Except as may be otherwise specified in other sections of the Contract, the Commissioner will make final inspection of all Work included in the Contract as soon as possible after you notify him that the Work is substantially completed and ready for acceptance. If the Work is not acceptable to the Commissioner at the time of the

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

inspection, he or she will inform you as to the particular defects to be remedied before the Work is accepted as substantially complete.

C. Materials and Equipment Testing and Inspection

1. You must provide the Commissioner sufficient notice of placing orders to permit tests to be completed before the materials are incorporated into the Work. You must afford such facilities as the Commissioner may require for collecting and forwarding Samples and making inspections and test. All Samples must be furnished without charge to the Commissioner. You must not make use of or incorporate into the Work the materials represented by the Samples until tests have been made and the materials have been found to be in accordance with the requirements of the Contract.
2. For materials that are integral parts of machinery or equipment or of parts of equipment that you or your Subcontractor normally stock, you must furnish the original and one copy of certified tests made at the time of production. You will keep the original and the Commissioner will retain the copy.
3. You must assure that the Commissioner has free entry, at all times while Work is being performed, to all parts of the manufacturer's works that concern the manufacture of the material or equipment ordered. The Commissioner must be permitted to examine all components and subassemblies. Assemblies and parts must be numbered for identification. You must provide the Commissioner with a detailed production schedule before the first inspection. After review of the schedule, the Commissioner will inform you of the methods, extent of inspection, facilities desired and date of inspection. You will afford the Commissioner without charge, all facilities necessary to determine that the material or equipment furnished are in accordance with the Contract. Test and inspection may be at the place of manufacture before shipment.
4. If for any reason, the City elects not to make the tests, the Commissioner may direct you to make the necessary tests. You must furnish a certification of the ordered tests after completion. The Commissioner reserves the right to inspect and reject all materials or equipment that were previously inspected and accepted at the place of manufacture or source of supply, after they were delivered to the Work site, if the materials or equipment do not meet the requirements of the Contract.
5. When an inspection trip is terminated due to insufficient materials, unacceptable quality, Contractor labor problems, or Contractor equipment problems, you must pay the City its costs for any additional inspection trip.
6. The Contract documents may require you to include the cost of travel and living expenses for a specific number of City employees and/or other persons for a specific test. The manufacturer or you must furnish a certification of the ordered tests after completion. The Commissioner reserves the right to reinspect and reject all materials or equipment that have been previously inspected and accepted at the place of manufacture or source of supply, after they have been delivered to the site if the materials or equipment do not meet the requirements of the Contract.
7. Unless otherwise provided, all materials will be sampled and tested in accordance with the latest published standards and methods of the American Society for Testing and Materials (ASTM) and any revisions of them. If there are no ASTM standards that apply,

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

applicable standard methods of other recognized standardizing agencies will be used. You must provide the name and qualifications of any such standardizing agency to the Commissioner for review and approval.

D. Testing Laboratory Labels

You must submit all equipment containing electrical wiring to the City for acceptance before installation. All electrical components that you furnished and installed or assemble under this Contract must be approved and so labeled by one of the following Testing Laboratories:

1. Underwriters' Laboratories (UL)
2. Canadian Standards Association (CSA)
3. Electrical Testing Laboratory of New York (ETL)
4. Illinois Institute of Technology research Institute (IITRI)
5. American Gas Association (AGA)
6. Factory Mutual Research Corporation (FMRC)
7. Maintenance and Electrical Testing (MET)
8. American Research Lab (ARL)

Any electrical unit comprised of a number of components, assembled at the factory and considered custom made, must bear one of the above labels for the entire unit as well as for each component.

You must pay all costs in obtaining a testing laboratory label at no additional cost to the City. Any delays in completion of the Work caused by the manufacturer of equipment in obtaining the required testing laboratory labels and the City approval are not grounds for an extension of time beyond the time of completion indicated in the Contract.

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

XVI. CONTRACTOR PRACTICES AT SITE

A. Cooperation Among Contractors

You must conduct the Work so as not to interfere with or hinder the progress or completion of the work being performed by other contractors within or adjacent to the Work site. You must assume all liability, financial or otherwise, in connection with this Contract, and must protect and save harmless the City from all damages or claims that may arise because of inconvenience, delay, or loss experienced due to the presence and operations of other contractors working within the limits of the Work. You must assume all responsibility for Work not completed or accepted due to the presence and operations of other contractors. You must coordinate and tie-in, where appropriate, your Work with that of others in an acceptable manner and perform the Work in proper sequence to the work of others. When other contractors cause any damage to the Work that you performed, you must file claims with the other contractors, and not against the City, and you must obtain compensation for damage directly from those other contractors.

B. Protection of Persons and Property

1. Protection of Existing Structures and Property. You must avoid causing damage to trees, plant life, sidewalks, curbs, streets, alleys, pavements, utilities, adjoining property, the work of other contractors and the property of the City and others, and must, at your own expense, repair any damage that you or any Subcontractor may cause.

You are responsible for loss or damage by fire or theft of equipment, material, or other property of the City, incurred while the equipment, material or other property is located in any field office or on the site of the Work. Further, you must repair or replace any such equipment, material or other property so lost or damaged, to the satisfaction of the Commissioner, at no additional cost to the City.

You must familiarize yourself with the requirements of local and state laws applicable to underpinning, shoring and other Work affecting adjoining property and, wherever and whenever required by law, site conditions or standard industry practice, you must shore-up, brace, underpin, secure and protect all foundations and other parts of existing structures adjacent to, adjoining and in the vicinity of the Work site that may be in any way affected by the excavations or other operations connected with the Work to be performed under this Contract.

You are responsible for the giving of all required notices to any adjacent or adjoining property owner or other potentially affected party. The notice must be served in sufficient time so as not to delay the progress of the Work under this Contract.

You must take such precautions as are necessary to insure the safety of private property owners, lessees, and their invitees against injury caused as a result of settlement or displacement of structures. You must immediately proceed with all shoring or other Work necessary to restore the private property owner's property to a safe condition. If you fail to undertake the Work within 24 hours after written notice by the Commissioner, the City may proceed to repair or restore any such structure to a safe condition, and the cost of it will be deducted from any compensation due, or that may become due to you.

If, in the prosecution of the Work, it is necessary to excavate or occupy any street, alley, or public grounds of the City, you must erect and maintain such barriers, and, during the

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

night time, such lights as will effectively prevent the happening of any accidents or damage to life, limb, or property in consequence of such excavation or occupation of such street, alley, or public grounds. You are liable for all damage occasioned by you, your agents, employees or Subcontractors of any tier in the excavation or occupation of any street, alley, or public grounds, and you must indemnify the City pursuant to Article XVIII, "Insurance, Indemnity and Bonds."

Upon Final Completion and Final Acceptance of the Work, you must remove all machinery, equipment, materials, false work, rubbish or temporary structures and leave the Work site and the premises of any private property owners in as good condition as they were before commencement of Work.

Materials and equipment necessary for the performance of the Work may only be placed, stored or allowed to occupy any space in public streets or alleys upon the written consent of the Commissioner. It is the City's intent that the operations under this Contract are conducted as far as practicable without interference with the public use of streets and alleys. All materials or equipment used in the performance of the Work must be placed so as not to impede traffic on streets and alleys adjacent to the site of the Work, and to allow free access to all fire hydrants, water valves and manholes that are a part of electric, telephone and telegraph conduit lines, fire alarms and police call boxes in the vicinity.

In removing existing pavements, sidewalks, curbs, gutters, walls, foundations, vaults and other structures, the use of any type of impact device in a manner that might damage buildings or their foundations, or other underground structures and utilities is not permitted.

You must indemnify and hold the City harmless from any damage due to settlement or the loss of lateral support of adjacent or adjoining property and from all loss or expense and all damages for which the City may become liable in consequence of the injury or damage to adjacent and adjoining structures and their premises. Your indemnity obligations will survive the expiration or termination of this Contract and include and apply to any liabilities and duties placed upon the City as owner or occupant of the property on which the improvements provided for in this Contract are to be constructed, by the provisions of an Act entitled "An Act to Prescribe the Duty of an Owner or Occupant of Lands Upon Which Excavations are Made in Reference to the Furnishing of Lateral and Subjacent Support to Adjoining Lands and Structures Thereon." See of 765 ILCS 140/0.01 *et seq.*

2. Existing and Proposed Utilities. The Contract may show existing utilities lying within the limits of the Work, such as sewers, manholes, catch basins, gas lines, water lines, telephone and electrical duct lines, CTA facilities, and similar structures. The City does not guarantee the completeness or accuracy of the information regarding utilities, whether public or privately owned. You must make your own investigation to determine the existence, nature and location of all utilities at the Work site. You must verify the exact location of all utilities that may interfere with performance of the Work and must report to the Commissioner any differences from the locations shown on the Contract.

You must so arrange and conduct your Work that utilities may be removed, relocated or supported during excavation and maintained in service until the Work is completed. In addition, you must arrange and conduct your Work that utilities may be replaced,

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

rearranged or relocated before backfill being placed. You must cooperate with the owners of those utilities in the performance of the Work.

Where existing utilities are abandoned and it is necessary to remove them due to the performance of the Work, you must remove them at no additional cost to the City, and they will become your property.

It is your responsibility to protect those existing utilities that are to remain in operation during and after completion of the Work, and any new utilities installed by others during the performance of the Work. You will be held fully responsible for any damage resulting from your performance of the Work, and will be required to repair, replace or reconstruct any utilities damaged, at your own expense, to the satisfaction of the Commissioner. The protection of the utilities as specified in this Contract must be at no additional cost to the City.

3. **Utilities Outside the Limits of the Work.** You must protect and maintain City-owned water lines, sewers, connections and appurtenances and all City-owned electrical conduits, cables, vaults and appurtenances that are located entirely outside the limits of the Work in a satisfactory manner until the completion of the Work. Whenever in the performance of the Work it is necessary, because of the nature of the Work or because of your method of performing the Work, to support, remove, replace, relocate, rearrange, adjust or repair such City-owned structures located entirely outside of the excavations, you must notify the appropriate City department to perform the Work, and must cooperate with the department in preserving service. You must reimburse the appropriate City department for the cost of performing the Work at no additional cost to the City under the terms of this Contract.
4. **Utility Relocation and Continuance of Service Plan.** You must prepare a Utility Relocation and Continuance of Service Plan, identifying procedures, locations, time frames and affected agencies and private owners. The Plan must be submitted to the Commissioner for review within 14 days after the Notice to Proceed.
5. **Cooperation with Utilities.** You must cooperate with all utility companies involved in connection with the removal, temporary relocation, reconstruction, or abandonment by these agencies of all services or facilities owned or operated by them within the limits of the Work.
6. **Work Performed by Others.** The Work must be performed with a minimum of interference to street traffic in the area. You must coordinate your Work with that of other City contractors, with contractors employed by adjacent property owners, and with contractors employed by any other party or parties for work on utilities to insure the best progress of the Work as a whole.
7. **Preservation and Protection of City Standard Bench Monuments and Survey Controls.** You are responsible for the preservation and protection of all City Standard Bench Monuments, in accordance with the provisions of § 10-4-220 of the Municipal Code and Article 105.09 of the Standard Specifications, and as directed by the Commissioner. Any survey control point that you disturb or remove you must replace or reestablish to the satisfaction of the Commissioner, at no additional cost to the City. **DAMAGE TO ANY OF THE CITY STANDARD BENCH MONUMENTS WILL RESULT IN YOUR BEING PROSECUTED TO THE FULL MEASURE OF THE LAW.** The Department of General

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

Services will pursue the matter of compensation for damages incurred by the City resulting from your actions or your failure to act during the execution of Work on this project.

8. Protection of Streets and Traffic. You must provide all necessary barricades, signs, flags, lights and reflectors. You must assure that vehicular and pedestrian traffic on all streets, including adjacent streets, bridges, overpass structures and ramps is maintained during the performance of the Work in accordance with the requirements of the Contract.
9. Temporary Restoration of Trench Cuts. Failure to maintain the temporary restoration of trench cuts, which causes the surrounding work area to be in an impassable and/or hazardous condition thereby creating undue inconvenience and danger to area residents is an event of default under this Contract.
10. Temporary Barriers, Signs, Lights and Flaggers. You must furnish, relocate and remove portable barricades and lights, collision protection, temporary signs (including traffic and project signs) and supports as directed by the Commissioner; and furnishing all necessary flaggers and other protection necessary for the maintenance of traffic flow in a safe and orderly fashion, as required by Article 107.14 of the IDOT Standard Specifications, except as otherwise specified in the Contract.

You must maintain, repair or replace all damaged or destroyed appurtenances referenced in the immediately preceding paragraph throughout the life of the Contract. Maintenance includes cleaning of the barricades and traffic signs by means of clean water. Flaggers must be provided whenever circumstances warrant.

The barricades must be erected, moved, repaired and repainted as required. Upon the completion of the Work, all barricades remain your property and must be promptly removed from the Work site.

11. Historical and Scientific Specimens. You must preserve and deliver to the Commissioner any specimens of historical or scientific value encountered in the Work, as directed by the Commissioner.

C. Protection of Streets, Alleys and Public Grounds

When excavating or occupying any street, alley or public grounds of the City, you must erect and maintain temporary barriers and, during the night time, lights that will effectively prevent accidents or damage to life, limb or property in consequence of the excavation or occupation of the street, alley or public grounds. You are liable for all damages as a result of the excavation or occupation of any street, alley or public grounds, or by the carelessness of you, your subcontractors, agents, employees or workers and must indemnify and hold harmless the City against all judgments rendered against it by reason thereof.

D. Protection of Existing Trees in the Right of Way

1. In accordance with the provisions of Chapter 10-32 of the Municipal Code you must protect all trees and shrubs at the construction site from damage. You must restore all damaged parkways to their original condition and repair or remove and replace any trees and shrubs damaged as a result of construction activity (as determined by the Department of Streets and Sanitation, Bureau of Forestry) at your expense. If any trees or shrubs damaged by construction activity must be removed and replaced, and trees or

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

shrubs of comparable size, type, and value are unavailable or the time for planting is unsuitable, the City will charge you their appraised value determined as provided under § 10-32-200 of the Municipal Code, which amount the City will deduct from amounts due you, or, if no amounts are due, then you must promptly pay the City the amounts determined. Any tree greater than 4" D.B.H. that is permanently damaged due to the construction project and not originally marked for removal must be replaced with a new tree as identified by the Bureau of Forestry and must have a minimum of 4" caliper B&B. Any damaged tree smaller than 4" caliper measured 6" above the ground must be replaced in kind, inch for inch.

2. You must install a **protection barrier or temporary fence** of at least 1.2m (4 feet) in height around each tree to be *protected and preserved*. *The tree protection* must be installed before the actual construction starts and maintained for the duration of the project.

Within this protection zone, you must prevent construction materials from being stored, equipment from being operated and temporary storage buildings or work trailers from being placed.

The protection barrier must be constructed of orange snow fencing securely fastened to fence posts spaced a maximum of **1.5 m (5 feet)** on center. Posts are 1.8m (6 feet) in length with 61 cm (2 feet) set into the ground and 1.2m (4 feet) extending above ground. The fencing must be attached to the post with a minimum of four nylon locking ties evenly spaced at each post.

Dimensions of the **protection barrier** are as follows:

Trees located in Tree Pits: Where trees are located within Tree Pits, the temporary fencing should be installed at a minimum distance of the inside dimension of the Tree Pit opening with one stake at each corner of the opening.

Trees located in Parkways or Boulevards:

Small Trees (<9" D.B.H.): Minimum 1.5m (5 feet) from face of tree along the parkway length. In the dimension bordered by the public sidewalk or curb, the temporary fencing must be the width of the grass parkway with a maximum offset of 30cm (1 foot) from back of curb or edge of sidewalk. In no case must the closure be less than 61cm (2 feet) from the centerline of the tree.

(Example: 6" Tree in a 6' parkway as measured from back of curb to sidewalk. The dimension of the protection fencing would be 1.2m x 3m (4' x 10') with tree in the center). Note: Larger grass parkways (>12') may allow for a ten foot by ten foot (10' x 10'). Thus, the dimension bordered by the sidewalk or curb would not affect fencing distance.

Medium (10"to 15" D.B.H.): Minimum of ten (10) feet from face of tree along the parkway length. In the dimension bordered by the public sidewalk or curb, the fencing must be the width of the grass parkway with a maximum offset of one foot from back of curb or edge of sidewalk. In no case must the closure be less than two feet from the centerline of the tree.

Large (>15" D.B.H.): Minimum of 15 feet from face of tree along the parkway length. In the dimension bordered by the public sidewalk or curb, the fencing must be the width of

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

the grass parkway with a maximum offset of one foot from back of curb or edge of sidewalk. In no case must the closure be less than two feet from the centerline of the tree.

E. Care of Existing Structures and Property

1. Property Access Maintenance Plan. You must prepare a Property Access Maintenance Plan consistent with the requirements of the Contract. The plan must be submitted to the Commissioner for review within 14 days after award of the Contract. You must comply with all applicable Federal, State, and local requirements. You must also comply with the following requirements:
 - a. Maintain vehicle and pedestrian access to properties;
 - b. Maintain pedestrian access on both sides of all streets;
 - c. Provide access walkways to all buildings and businesses;
 - d. Sidewalks must remain open to the maximum extent possible;
 - e. Provide temporary relocation of access, where required;
 - f. Provide advisory and temporary signs for pedestrian and vehicle access changes and reroutings; and
 - g. Coordinate delivery locations and timing.
2. Before doing any Work adjacent to or on the site of any buildings or other structures adjoining or in the line of the Work to be performed under the Contract, you must supply written notice of it to the owner or owners that the Work is to be done, and must cooperate with the owner(s) in the maintaining, removing, relocating, rearranging or adjusting wherever necessary, of all basements of buildings, subsidewalk vaults, tunnels, conduits, wires, poles, pipes, gas mains, cables, steam and street railway tracks and equipment, or other appliances and structures located in any portion of the streets, public areas, highways and easements to be occupied or used during the prosecution of the Work.
3. Wherever in the performance of the Work it is necessary to remove, reconstruct, relocate, rearrange, adjust or repair City-owned sewers, catch basins, manholes, inlets, sewers connections and appurtenances by reason of the fact that the structures and appurtenances pass through or are located within the limits of the Work as shown on the plans, or ordered by the Commissioner you must perform the Work necessary to remove, reconstruct, relocate, rearrange, adjust or repair those structures and appurtenances, unless otherwise noted on the plans.
 - a. The Commissioner will, at his sole discretion, direct you to modify your method of Work to interfere as little as possible with the normal conduct of business in or around the portions of the buildings or structures in use.
 - b. The building or structures may be in full time use and operation and will continue in normal use during performance of the Work. Building facilities, including heating, ventilation, and air conditioning, lighting and plumbing, will not be interrupted in the occupied areas, except as required for making connections to power sources as specified below.

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

- c. You will serve written notification to the Commissioner requesting any anticipated interruption in facilities at least two weeks before disruption of services. You must provide any temporary facilities deemed necessary by the Commissioner due to a disruption of services. The Commissioner, in his sole discretion, will determine the procedures, times of day and dates you may accomplish the Work and may reject or modify your request.
 - d. Storage of all material and/or equipment must be in areas approved by the Commissioner, in a manner to minimize interference with the normal conduct of business in or around the occupied portions of the building and vehicular areas.
4. You must not perform Work on City-owned water mains, connections and appurtenances or on any City-owned electrical conduits, cables, vaults and appurtenances unless the City has abandoned the structure and the Commissioner has authorized the Work or the Work is included in the Contract. But, you must adjust City-owned water manholes and electric manholes that are shown as "to be adjusted" on the plans.
- a. You must protect and maintain in a manner satisfactory to the Commissioner, protect and maintain all City-owned water mains, connections and appurtenances and all City-owned electrical conduits, cables, vaults and appurtenances that are located entirely outside of the neat lines of the excavation as shown on the plans or as ordered by the Commissioner, until the completion of the Work under the Contract. Whenever in the performance of the Work under the Contract it becomes necessary because of the nature of the Work required by the Contract or because of your method of performing the Work, to support, remove, replace, relocate, rearrange, adjust or repair those City-owned structures located entirely outside of the excavations, you must notify the appropriate City Department to perform the Work, and must cooperate with the Department in preserving service in or through them. You must reimburse the appropriate City Department for the cost of performing the Work, and the cost must be included in the various Contract prices.
 - b. Without cost to you the City will support, protect and maintain all City-owned water mains, connections and appurtenances and all City-owned electrical conduits, cables, vaults and appurtenances, any part of which is located inside of the neat lines of the excavations as shown on the plans or ordered by the Commissioner, or it will remove, replace, relocate, rearrange, adjust, or repair them, both inside and outside of the excavations. You, however, must adjust those City-owned water manholes and electric manholes that are shown as "to be adjusted" on the plans. Whenever in the performance of the Work under the Contract it becomes necessary to support, protect, maintain, remove, replace, relocate, rearrange, adjust or repair such City-owned structures any part of which is located inside of the excavations, you must notify the appropriate City department to perform the Work and must cooperate with the department in preserving service in or through them.
 - c. With the exception of the City-owned water mains, connections and appurtenances and the City-owned electric conduits, cables, vaults and appurtenances described above, and with the exception of City-owned structures that are to be removed or otherwise Worked upon as part of the requirements of the Contract, you must support, protect, maintain or relocate and rebuild all poles, trees, shrubbery, fences, sewers, pipes, conduits, cables, wires, manholes, tunnels, buildings, subways and

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

other City-owned structures that pass through and are located within the excavations or that are adjacent to the Work to be constructed under the Contract during the construction and until the completion of the Work under the Contract.

5. You must notify and cooperate with the owners thereof in maintaining, removing, relocating, rearranging, or adjusting wherever necessary, all basements of buildings, subsidewalk vaults, tunnels, conduits, wires, poles, pipes, gas mains, cables, steam and street railway tracks and equipment or other appliances or structures located in any portion of the streets, public areas, highways and easements that are to be occupied or used during the construction of the Work specified under the Contract.
 - a. Wherever in the performance of the Work specified under the Contract it becomes necessary to remove, replace, rearrange, adjust or repair City-owned sewers, catch basins, manholes, inlets, sewer connections and appurtenances by reason of the fact that the structures and appurtenances pass through or are located within the limits of the excavations as shown on the plans or ordered by the Commissioner, you must perform the Work necessary to remove, replace, relocate, rearrange, adjust or repair the structures and appurtenances. The cost of performing the Work must be included in the Contract price.
 - b. Wherever in the performance of the work specified under the Contract it becomes necessary to support and maintain City-owned sewers, catch basins, manholes, inlets, sewer connections and appurtenances or wherever it becomes necessary as a result of your methods of construction during the Work under the Contract, to remove, replace, relocate, rearrange, adjust, or repair City-owned sewers, catch basins, manholes, inlets, sewer connections and appurtenances (other than those specified in the last preceding paragraph) you must perform the Work necessary to support, maintain, remove, replace, relocate, rearrange, adjust or repair the structures and appurtenances, and you must bear the cost of the Work without any additional compensation for it.
 - c. It is the intention of the specifications that you include in the appropriate Contract Price or prices, all necessary cost and expense of supporting, maintaining, removing, replacing, relocating, rearranging, adjusting or repairing all City-owned appliances and structures (other than City-owned water mains, connection and appurtenances and City-owned electrical conduits, cables, vaults and appurtenances described in Section XVI.E.4.b), encountered in or affected by the Work, and that you must also include in the price or prices all necessary cost and expense of removing structures that have been or will be abandoned by their owners and that are necessary to be removed in order to construct work under the Contract, but you must not include in the price or prices the cost or expense of supporting, maintaining, moving, replacing, relocating, rearranging, adjusting or repairing those appliances or structures that are not owned by the City and are not abandoned by their owners, except as may be otherwise specified below in this Section.
6. You must take all reasonable precautions for the protection of buildings, railroad tracks, street railway tracks and appurtenances, and other appliances and structures not owned by the City.

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

7. You must determine the methods to be employed, the procedure to be followed, the equipment, plant, falsework, shoring, bracing and other temporary structures and equipment to be used on the Work, subject to the requirements of the Contract and the approval of the Commissioner. Only adequate and safe procedures, methods, structures and equipment must be used.
8. You must provide drawings and calculations for all equipment, falsework, shoring, bracing and other temporary structures required for the Work, designed, signed and sealed by an Illinois licensed structural engineer. You must submit copies of all such drawings and calculations to the Commissioner for information only.
9. Field Check of Dimensions, Cutting and Patching. Where the Work connects to existing structures or appurtenances, you must take complete field measurements affecting all Work under this Contract and are solely responsible for the proper fit between the Work and existing structures or appurtenances. You must perform all cutting, patching, or fitting of Work that may be required to properly fit together the several parts of the Work and the existing structures or appurtenances.
10. Contractor's Layout of the Work. You are responsible for the correct lay-out and accurate fitting of all parts of the Work. You must furnish at your own expense all labor, materials and other expenses necessary for, or incidental to, the setting and maintaining of lines and grades (exclusive of the Work of establishing the original reference base line and bench marks that will be performed by the City). No separate payment to you for the cost of any of the Work specified in this Contract. The cost is included in the Contract unit or lump sum prices.
11. Salvage of Materials. If and whenever City- owned property such as valves, cast iron manholes, catch basin frames and covers, inlet boxes and grates, or any other appurtenance are to be removed and are not to be reused in the Work, you must securely store them at a suitable place on the job Site for possible use by the City (unless otherwise stipulated). You must take care to prevent damage in your handling of these appurtenances. You must deliver all items identified by the City for reuse to a location designated by the Commissioner and must legally dispose of the remaining items.
12. Wherever basements of buildings, subsidewalk vaults, tunnels, sewers, water, gas, telephone, telegraph, electric or other pipes, conduits, cables, wires, manholes, vaults, steam and street railway tracks or other similar structures and appliances not owned by the City are in or cross the excavations for structures to be built under this Contract, you must notify the owners of the structures and appliances to support, move, rearrange or abandon them, and cooperate with the owners of the structures and appliances in preserving the service or services provided by the structures and appliances, except as may be otherwise specified or provided in the Contract. If you have complied with the above requirements and has been notified by the owners of the structures and appliances that any of them have been abandoned, or lacking such notice, if you have made all investigations and has found that any of the above structures or appliances have been abandoned by their owners and if the removal of any such abandoned structure or appliance is necessary in order to construct the Work, you must remove them at no additional cost to the City.

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

13. Wherever basements of buildings, subsidewalk vaults, tunnels, sewers, water, gas, telephone, telegraph, electric or other pipes, conduits, cables, wires, manholes, vaults, steam and street railway tracks or other similar structures and appliances are adjacent to, but do not cut through or cross the excavations for structures to be built under the Contract, you must perform the Work in such a manner as to not cause damage to the structures and appliances and not interrupt their use during the progress of the Work.
14. You must arrange to notify the owners of structures and appliances that are to be supported, maintained, removed, reconstructed, relocated, rearranged, adjusted or repaired by reason of the Work in ample time to permit them to do their work. The Commissioner may direct you to suspend your operations on that part of the Work that affects the structures and appliances until their owners have had time to perform the work.
15. You must conduct the Work so that no equipment, material or debris is placed upon private property unless you have first obtained the owner's written consent thereto and provided this written consent to the Commissioner. You must take such means as may be required to prevent the creation of a public nuisance on any part of the Work site or adjacent streets or property.
16. You must thoroughly clean all streets, pavements, sidewalks and parkways and all private property of all surface materials, earth and rubbish and restore them to as good condition as before the commencement of the Work. Where you have removed or killed sod, you must provide new live sod. Where the areas have been seeded, you must replace top soil equivalent to that removed, fertilize it, seed and roll it to the satisfaction of the owner of the land. You must replace all trees, shrubs and plants damaged in the proper season of the year with live, growing stock of the same kind and variety and of the size ordinarily used for planting purposes.

F. Precautions and Safety

1. You must take any precautions that may be necessary to render all portions of the Work secure in every respect, to decrease the liability of accidents from any cause and to avoid contingencies that are liable to delay the completion of the Work. You must furnish and install, subject to the approval of the Commissioner, all necessary facilities to provide safe means of access to all points where Work is being performed and make all necessary provisions to insure the safety of workers and of engineers and inspectors during the performance of the Work. You are required to conduct your Work so as not to unnecessarily obstruct the activities of other contractors who also may be engaged in work on this or any other project.
2. Although the Commissioner may observe the performance of the Work and reserves the right to give you opinions and suggestions about safety defects and deficiencies, the City is not responsible for any unsafe working conditions. The Commissioner's suggestions on safety, or lack of it, will in no way relieve you of your responsibility for safety on the Work site. You have sole responsibility for safety and the obligation to immediately notify the Commissioner of all accidents.

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

3. Precautions must be exercised at all times for protection of persons (including employees) and property. The safety provisions of applicable laws and building and construction codes must be observed.
4. You must provide completely equipped first aid kits readily accessible at all times on the Work site. You must designate an appropriately trained individual on each shift to be in charge of first aid.
5. You must provide at appropriate locations fire extinguishers or other fire protection equipment that comply in all respects with the Municipal Code and NFPA standards. You must maintain this equipment in proper operating condition at all times and must cause the equipment to be inspected by all appropriate agencies as required by law, but in no event less than monthly. You must comply with the Municipal Code requirements on the use of standpipes, hoses and other fire protection equipment.
6. Only such materials and equipment as are necessary for the construction of the Work under this Contract must be placed, stored or allowed to occupy any such space at the site of the Work. Not more than one day's supply of flammable liquids, including oil, gasoline, paint, or solvent is permitted to be kept on hand at any one time. If gasoline, flammable oils, other highly combustible materials or compressed gas cylinders are to be stored at the site, they must be stored in a secure manner, in compliance with all applicable laws, ordinances and regulations, and all storage places must be clearly marked. The written consent of the Commissioner is required for such storage. That consent in no way limits your liability for the materials.
7. You must prohibit all lighting of fires about the premises and all smoking in restricted areas where posted with "NO SMOKING" signs, and you must diligently enforce this prohibition. You must furnish and post "NO SMOKING" signs. You must not permit any debris or waste materials to be burned at the Work site.

G. Health, Safety and Sanitation

1. Clean-Up. During construction, you must keep the Work site and adjacent premises as free from material, debris and rubbish as practicable. Haul roads, streets and public areas must be swept daily. Before Final Completion and Acceptance of the Work, you must remove from the Work site and adjacent premises all machinery, equipment, surplus materials, falsework, excavated and useless materials, rubbish, temporary buildings, barricades and signs and must restore the site to the same general conditions that existed before the commencement of the Work. The cost of final clean-up is included in the unit prices for the various items, or included in the Contract lump sum price, as the case may be. You must clean off all cement streaks or drippings, paint smears or drippings, rust stains, oil, grease, dirt and any other foreign materials deposited or accumulated on any portion of your Work, or existing facilities and structures, due to your performance of the Work.
2. Snow and Ice Removal. You must remove snow and ice that may impair progress of Work, be detrimental to workers, or impair trucking to and from points of delivery at the Work site.

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

3. Glass Breakage. You must replace all glass broken or damaged during construction at no additional cost to the City. You must promptly remove all broken glass from the Work site.
4. Noise and Vibration Control. All equipment, vehicles, and Work under this Contract must be conducted in accordance with the City Building Code, Chapter 11-4 of the Municipal Code, "Environmental Protection and Control," Article VII - *Noise and Vibration Control*, so as to cause a minimum of noise, vibration and inconvenience to the activities of the occupants of property and buildings in the vicinity of the Work. When the Commissioner, in his sole discretion, determines that your operations constitute a nuisance, you must immediately proceed to conduct your operations in a manner that abates the nuisance. You must provide all measures, including engine and exhaust mufflers, acoustic casing enclosures, maintaining equipment, or physical barriers along the edges of the construction zone, required to minimize noise and vibration. Noise and vibration levels may be monitored by the Commissioner.
5. Health and Safety. You must comply with the requirements of 29 C.F.R. part 1926 - Safety and Health Regulations for Construction, promulgated under the U.S. Occupational Safety and Health Act of 1970, as amended, 29 U.S.C. 651 *et seq.* (OSHA). Copies may be obtained from the Regional Administrator of the U.S. Department of Labor, Federal Office Building, 230 S. Dearborn, Chicago, Illinois.

You must comply with the requirements of the Illinois Health and Safety Act, 820 ILCS 225/01 *et seq.*, and the rules and regulations promulgated under it by the Director of Labor for the State of Illinois, which are on file with the Illinois Secretary of State.

Whenever a Federal OSHA Compliance Officer arrives at the work site, you must notify the Commissioner immediately. At the conclusion of the inspection, you must report any findings to the Commissioner. Copies of any citations issued and related documents must be submitted to the Commissioner.

You must maintain the following records and make available to the Commissioner for review: (i) all records required by OSHA, including the accident log, Fed/OSHA #200, and posting of the prescribed OSHA poster; (ii) log of safety activities, accident investigation, employee instruction, training, tool-box meetings, and any other pertinent information; and (iii) Material Safety Data Sheets (MSDS) as required for each material you have used at the Work site.

6. You must enforce among your employees such regulations in regard to cleanliness and the disposal of garbage and wastes that are necessary for their health and tend to prevent the inception and spread of contagious and infectious disease among them. You must provide an ample supply of suitable, pure drinking water, and must take such means as the Commissioner may direct to effectively prevent the creation of a nuisance on any part of the Work site or adjacent streets or property. You must construct and maintain necessary sanitary conveniences for the use of the laborers on the Work, properly secluded from public observation, in such manner and at such points as be approved, and their use must be strictly enforced. Whenever manholes have been used for sanitary purposes, they must be thoroughly flushed and cleaned when no longer needed.

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

The manner of disposing of waste must be such that all waste is disposed of without creating a public nuisance or health hazard and in accordance with Illinois Department of Public Health Circular No. 815, Educational Health Circular No. 4.001, and all Illinois Environmental Protection Agency rules and regulations.

You must also comply with all rules and regulations of the Federal and State governments and the City Department of Public Health.

H. Hazardous Operations and Security

1. During construction, all cutting or welding operations must be carried out with all precautions taken to prevent fires resulting from sparks or hot slag. Extreme care must be exercised to determine that sparks or embers do not fall into any combustible materials, even if such material is stored on lower floors. Sheet metal wind screens must be provided around the lead-melting furnaces whether the Work site is enclosed or not. Portable fire extinguishers must be provided at and below all locations where cutting or welding or melting operations are being performed or, if those operations are extensive, a hose from the stand pipe system or fire hydrant must be placed nearby. You must obtain special permission from the Commissioner of Water and pay all associated connection fees.
2. No welding, flame cutting, or other operations involving use of flame, arcs, or sparking devices, will be allowed without adequate protection. All combustible or flammable material must be removed from the immediate working area. If removal is impossible, flammable or combustible materials must be protected with fire blankets or suitable non-combustible shields to prevent sparks, flames or hot metal from reaching flammable or combustible materials. You must provide necessary personnel and equipment to control incipient fires resulting from welding, flame cutting, or other sources involving use of flame, arcs, or sparking devices.
3. You must immediately report any concentration of gas fumes, and you are responsible for clearing the area and notifying the Commissioner and the appropriate utility company. All operations in the area must be suspended until the source of the fumes has been located and corrected.
4. You must arrange for the installation of necessary fire protection lines and equipment as required by the Chicago Fire Department and as necessary to properly protect the Work site. Permanent fire protection facilities may be used for this purpose as soon as they are installed, tested and approved by the Commissioner for temporary use.
5. Salamander heaters or similar forms of uncontrolled heaters must not be used except with the special written permission of the Commissioner and City fire marshal and then only when each salamander is maintained under constant supervision.
6. Gasoline must be kept in and handled from approved safety cans.
7. All tarpaulins used for any purpose must be made of fire, water and weather-resistant materials.
8. You must furnish such watchmen as may be necessary to protect the public and those who are at or in the vicinity of the Work under this Contract, and to protect all materials, tools, machinery and equipment and all Work you have performed.

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

9. You must comply with all Federal and State and local occupational health and safety statutes, and any occupational health and safety standards promulgated thereunder; provide reasonable protection to the lives, health and safety of all persons employed under this Contract; furnish to all such persons a place of employment that is free from recognized hazards that are causing or are likely to cause death or serious physical harm; keep all persons employed under this Contract informed of your protections and obligations under the statutes; and provide all persons employed under this Contract with information regarding hazards in the workplace, including information about suitable precautions, relevant symptoms and emergency treatment. The Federal and State occupational health and safety statutes, and the rules and regulations promulgated thereunder, are considered part of this Contract as though fully set forth in this Contract.
10. You must provide safety instructions and training for all workers. You must conduct weekly craft safety meetings (tool-box type) of reasonable length as an effective means of communicating safety issues to workers. Reports containing tool box discussion topics must be signed-off by all attendees and must be submitted to the Commissioner.

I. Services and Use of Site

1. Work Area. After receipt of the Notice to Proceed, you must propose a suitable working area subject to approval by the Commissioner. You must secure the space at your own expense.
2. Temporary Services and Utilities. If specified in the Contract, you are responsible for arranging for and providing all general services and temporary facilities as specified in the Contract and as required for the proper and expeditious prosecution of the Work. You must pay all costs for those general services and temporary facilities. You must provide temporary connections for water, electricity and heat including installation, maintenance and removal of those facilities. You must pay the cost of all water, telephone, and electricity during the construction period.
 - a. Water. You must provide temporary water connections as required for drinking and construction purposes. The Commissioner reserves the right to regulate the use of water and may impose restriction on the use if you are using water carelessly. You must provide water and facilities for obtaining water for sanitary purposes, drinking, mixing concrete and for all other purposes at your expense. You are not permitted to obtain the water from the mains of the Chicago water system, except as may be provided in the Contract. Except with special permission from the Commissioner and the Department of Water, you must not make connections for water to the City's fire hydrants.
 - b. Light and Power. You must furnish the electricity and must furnish and install all wiring, electrical services, lighting units, insulated supports for wiring and all other electrical equipment together with all other incidental and collateral Work necessary for the furnishing of the temporary power and lighting facilities for the Work to be done under this Contract, all at no additional cost to the City. Electrical Work must be performed by a licensed electrician.
 - c. Temporary Heating During Construction. You must provide temporary closures or enclosures for all exterior door, window, roof or other types of exterior openings as

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

required to provide protection from the elements during construction. It is your responsibility to keep water in pipes from freezing and to maintain temporary heat in areas where Work is being performed at not less than 50° Fahrenheit. Finish Work includes, but is not limited to masonry, plastering painting, millwork and other temperature sensitive Work. The Heating period is from approximately October 1 to May 30 unless conditions warrant otherwise. You must furnish, install, operate and maintain all required temporary heating equipment, and must provide and pay all fuel costs.

3. Temporary Construction Facilities. Unless otherwise specified, you must provide and maintain the following temporary construction facilities throughout the construction period and remove them at the completion of the Work:

- a. Field Offices. Unless otherwise specified in Book 3, you must provide a temporary building or mobile type field office of such size and containing such equipment as you deem necessary to conduct the operations. The field office must be provided with a telephone for your superintendent and a pay telephone for use by others during the entire period of construction. The telephone must be removed promptly upon Final Completion and Acceptance of the Work.

Unless otherwise specified in Book 3, you must supply a field office for the City's Superintendent consisting of a separate office facility. It must be of adequate size for efficient operations and be furnished with a desk, three chairs, 4-drawer file cabinet and a plan table. It must be equipped with electric lighting, heating, ventilating and cooling facilities. You must provide a separate telephone for City Superintendent's use.

You must also provide and maintain in clean condition for Superintendent's use, including toilet facilities, having a water closet and laboratory fixture connected to sanitary sewer and water service. Temporary toilet facilities must be located in the City's Superintendent's trailer and comply with City and State regulations relating to health and sanitation. The toilet facility must be serviced twice weekly and kept stocked with toilet paper, soap, and paper towels.

- b. Toilets. You must provide at least one portable chemical toilet for every 20 workers or fraction of that number at the Work site as soon as construction operations commence. Toilet facilities must be serviced, at a minimum, twice weekly, which includes draining tank and refilling and disinfecting the interior of each toilet unit, and keeping each unit stocked with toilet paper. Toilet facilities must be maintained during the term of the construction period and removed upon completion of the Work.
- c. Stove heaters in temporary offices and sheds must be properly installed to protect combustible walls, floors and roof.
- d. Storage of Materials. If it is necessary to store materials, they must be protected in such a manner as to insure the preservation of their quality and fitness for the work. All stored materials will be inspected at the time of use in the Work even though they may have been inspected and approved before being placed in storage. You may store materials in the areas provided as working areas by the Contract. If no areas are provided, or if the areas provided are insufficient, you must provide the space

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

required at your expense. Upon completion of the Work, you must clean and restore the storage sites and working areas to their original condition at your expense.

All materials and equipment must be received at the Work undamaged. The Commissioner has the right to reject any method of packing and shipping that, in the Commissioner's opinion, will not adequately protect the materials and equipment against damage while they are in transit or storage or that will damage existing structures.

- e. Storage Sheds. You and each Subcontractor must provide suitable watertight storage sheds for your, or their own, use as needed. You and each Subcontractor are responsible for and must pay for any electric services to your or their storage sheds. However, the electrical Work must be performed by a licensed electrical Subcontractor. You are responsible for materials stored in the open; they must be arranged in an orderly manner and properly protected against the elements and damage.
4. Working Space. You must provide working space for your own use and for each of your Subcontractors. It must provide sufficient space for benches, tools, material storage and for such other purposes as may be required to properly perform and expedite the Work. Allocation of such Work areas is subject to approval by the Commissioner. You must maintain all Work areas in a clean and orderly condition and take whatever precautions as may be necessary adjacent to the new Work. You must clean, repair or replace any damage to Work site due to improper protection at no additional cost to the City.
5. Equipment and Falsework: You must determine the methods to be employed, the procedures to be followed, the equipment, plant, falsework, shoring, bracing, and other temporary structures and equipment to be used on the Work, subject to the requirements of the Contract. Only adequate and safe procedures, methods, structures, and equipment must be used. You must furnish and maintain and are solely responsible for all equipment such as temporary ladders, ramps, runways, hoists, scaffolding, and similar items required for proper execution of Work. All such apparatus, equipment and construction must meet the requirements of Federal, State and local laws concerning the safety and protection of employees. No hoist, scaffolding or other equipment must be erected at such location as will interfere with general construction or progress of other trades. Hoists, scaffolding or other equipment must be located at sufficient distance from exterior walls to prevent staining or marring of any permanent Work. All suspended scaffolding and staging must be lowered to ground level at the end of each work day.
6. Project Signs. You must erect and maintain signs identifying the Project and indicating City, and to the extent applicable, State and Federal participation. Work under this item includes constructing and erecting project signs of the size and material specified in the Contract drawings. These signs must be erected in locations approved by the Commissioner and must be maintained throughout the term of this Contract. You are responsible for the immediate removal of graffiti. If you are notified of graffiti, you must remove such within 24 hours. The signs must not be removed until you receive such notice from the Commissioner. No separate payment will be made for furnishing, erecting and maintaining the project signs; it is incidental to the Contract.

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

J. Reports and Plans

1. Daily Progress Reports. You and all Subcontractors must prepare and submit to the Commissioner daily progress reports on the various parts of the Work. The report must include the number of workers and the classification of the trades involved, equipment used and any pertinent information regarding possible delays in the Work.
2. Procedures, Methods and Equipment. You will determine the methods to be employed, the procedure to be followed, the equipment, plant, falsework, shoring, bracing and other temporary structures and equipment to be used on the Work, subject to the requirements of the Contract. Only adequate and safe procedures, methods, structures and equipment must be used. Any approval, constructive or otherwise, by the Commissioner of such methods, procedures and equipment in no way relieves you of any of your obligations under this Contract.

XVII. ENVIRONMENTAL REQUIREMENTS

A. Compliance with Environmental Laws

1. You must comply with all Environmental Laws including those listed in the Economic Disclosure Statement and Affidavit (EDS), which you must execute and have notarized, and any analogous future local, State or Federal ordinance or statute, rule and regulation promulgated under or under the foregoing, and any other present or future law, ordinance, rule, regulation, permit or permit condition, order, or directive which regulates, relates to, imposes liability for or establishes standards of conduct concerning any Hazardous Materials that may be set forth by the Federal government, any state or any political subdivision thereof, or any agency, court or body of the Federal government, any state or any political subdivision thereof exercising executive, legislative, judicial, regulatory or administrative functions.
2. If you are required under any Environmental Laws to file any notice or report of a release or threatened release of Hazardous Materials or Special Wastes on, under, or about any premises you use to perform the Work required under this Contract, you must provide a copy of the report or notice to the City. In the event of a release or threatened release of Hazardous Materials or special waste into the environment, or in the event of any claim, demand, action or notice is made against you regarding your failure or alleged failure to comply with any Environmental Law, you must notify the City pursuant to Section XVIII.C, "Disposal of Waste Materials, Construction Debris, Soils and Waste," below.
3. If you fail to comply with any Environmental Law, the City may terminate this Contract in accordance with the default provisions of this Contract and may adversely affect your eligibility for future contract awards.

B. Environmental Permits

1. You must show evidence of, and keep current throughout the term of this Contract, all waste hauling, special waste hauling, disposal permits and insurance certificates required by Federal, State, City or other local governmental body or agency pursuant to any Environmental Law.

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

2. When requested by the Chief Procurement Officer, you must submit copies of all hauling permits required by any Environmental Law. Copies of all permits and insurance certificates that require periodic renewal must be forwarded to the Chief Procurement Officer throughout the duration of this Contract. Noncompliance with this requirement may be cause for rejection of the bid and/or termination of this Contract and declaring you non-responsible in future bids.
3. Environmental Records and Reports. You are required to prepare and maintain proper, accurate and complete records of accounts of all transactions related to the performance of this Contract, including:
 - a. Vehicle maintenance records;
 - b. Safety and accident reports;
 - c. IEPA or OSHA manifests;
 - d. Disposal records, including disposal site used, date, truck number and disposal weight, bills of lading, manifests, or other confirmatory receipts signed by a representative of accepting facility for each load of material; and
 - e. Permit documentation and all other documentation and transactions pertaining to all Environmental Laws.

C. Disposal of Materials, Construction Debris, Soil and Waste

1. You are responsible for the proper disposal of all materials, construction debris, soil and other waste. Hauling and disposal by a Subcontractor does not relieve you from responsibility for proper disposal. Disposal of all materials, construction debris, soil, and other wastes must be at a disposal site that is properly licensed and permitted to accept the particular materials, construction debris, soil and other wastes delivered to it in accordance with all Environmental Laws. You must identify the disposal site(s) or transfer station(s) to which you have contractual access and for which proper, sanitary landfill permits and/or licenses have been obtained.
2. You must provide the Commissioner or his designated representative with copies of all load tickets, manifests, bills of lading, scale tickets and other pertinent documents. When requested by the Chief Procurement Officer, you must provide copies of all permits and/or licenses for the proposed transfer station and/or landfill. If the transfer station and/or landfill you propose to use does not possess the necessary permits and/or licenses to accept the materials, construction debris, soil or other wastes, you must replace the transfer station and/or landfill submitted as part of their bid proposal at no additional cost to the City. If you dispose of materials, construction debris, soil or other wastes at a site that is not properly permitted, you will be responsible for all costs associated with the removal of the waste to a properly licensed/permitted landfill or disposal site.
3. You must notify the Commissioner, within 24 hours, of receipt of any environmental complaints, fines, citations, violations or notices of violation ("Environmental Claim") by any governmental body or regulatory agency against you by any third party relating to the loading, hauling or disposal of materials, construction debris, soil or other wastes.

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

You must provide evidence to the Commissioner that any such Environmental Claim has been addressed to the satisfaction of its issuer or initiator.

4. You must notify the City of any community meetings, media involvement or media coverage related to the loading, hauling or disposal of materials, construction debris, soil and other wastes under this Contract in which you are asked to participate.
5. You must verify, in writing, whenever requested by the Commissioner, that all materials, construction debris, and other waste you accept from the City have been disposed of in compliance with all Environmental Laws.
6. The form for identifying your debris disposal/handling site(s) and acknowledging terms and conditions relating thereto which you have executed and attached to this Contract is incorporated by reference (the "Form"). In addition to the representations and requirements contained in the Form, you acknowledge that unless otherwise authorized in writing by the Commissioner of Environment, you must not continue to use a disposal/handling site identified in the Form that (i) has been cited as being in violation of any environmental law or regulation or of any City ordinance; or (ii) does not have a necessary permit. If only one site was identified in the Form, you must arrange for a substitute disposal/handling site that meets the requirements specified in the Form and provide a revised Form to the Commissioner of Environment. You further acknowledge that any such substitution is at no additional cost to the City, regardless of the reason necessitating such substitution.

D. Equipment and Environmental Control During Transport

You must haul materials, construction debris, soil and other wastes in vehicles and/or containers complying with all applicable Environmental Laws. All equipment used to transfer materials, construction debris, soil and other wastes must be designed to prevent spillage during the hauling operation. Your equipment must fully comply with all City, State and Federal Regulations, laws and ordinances pertaining to size, load weight, safety and any Environmental Law.

E. Environmental Control

In performing the Work, you must become thoroughly familiar with all Federal, State, and local statutes, ordinances, and directives with respect to the elimination of excessive noise and pollution of air, water, and soil due to construction and other operations. Attention must be given to reduce the noise of heavy construction equipment and to the control of dust, smoke, and fumes from construction equipment and other operations on the Work site, and the dirt and noise created by heavy truck operations over City streets in accordance with ordinances of the City and orders of the Commissioner. The discharge of Hazardous Materials into waterways and City sewers is not permitted.

F. Open Dumping Prohibited

The removal of all recyclable material and garbage, refuse or other waste material, including broken concrete, bricks, rock, paving asphalt and incidental debris generated from all construction or demolition activities performed under this Contract, must be transported to a facility that is zoned and permitted to accept the material under Chapter 11-4 of the Municipal Code and all applicable local, State, and Federal regulations.

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

You must retain bills of lading, manifests, or other confirmatory receipts signed by a representative of accepting facility for each load of material and make them available to the City upon request

G. Environmental Protection

You must comply with, and must cause your Subcontractors to comply with, all Federal environmental and resource conservation laws and regulations, whether existing or promulgated later, as they apply to this Contract. You must include these provisions in all subcontracts. Some, but not all, of the major Federal laws that may affect this Contract include the National Environmental Policy Act of 1969, as amended, 42 USC §§ 4321 *et seq.*; the Clean Air Act, as amended, 42 USC §§ 7401 *et seq.* and scattered sections of 29 USC; the Clean Water Act, as amended, scattered sections of 33 USC and 12 USC; the Resource Conservation and Recovery Act, as amended, 42 USC §§ 6901 *et seq.*; and the Comprehensive Environmental Response, Compensation, and Liability Act, as amended, 42 USC §§ 9601 *et seq.*. You and your Subcontractors must also comply with Executive Order No. 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," 59 Fed. Reg. 7629, Feb. 16, 1994; U.S. DOT statutory requirements on environmental matters at 49 USC § 5324(b); Council on Environmental Quality regulations on compliance with the National Environmental Policy Act of 1969, as amended, 40 CFR Part 1500 *et seq.*; and U.S. DOT regulations, "Environmental Impact and Related Procedures," 23 CFR Part 771 and 49 CFR Part 622.

1. Air Quality. You must comply with all applicable standards, orders, or regulations issued pursuant to the Clean Air Act, as amended, 42 USC §§ 7401 *et seq.* Specifically, you must comply with applicable requirements of U.S. EPA regulations, "Conformity to State of Federal Implementation Plans of Transportation Plans, Programs, and Projects Developed, Funded or Approved Under Title 23 USC or the Federal Transit Act," 40 CFR Part 51, Subpart T; and "Determining Conformity of Federal Actions to State or Federal Implementation Plans," 40 CFR Part 93; and National Emission Standards for Hazardous Air Pollutants (NESHAP), 40 CFR § 61.145. You further must report and require each Subcontractor at any tier to report any violation of these requirements resulting from any Contract implementation activity to the City and the appropriate U.S. EPA Regional Office.
2. Clean Water. You must comply with all applicable standards, orders, or regulations issued pursuant to the Federal Water Pollution Control Act, as amended, 33 USC §§ 1251 *et seq.* You further must report and require each Subcontractor at any tier to report any violation of these requirements resulting from any Contract implementation activity to the City and the appropriate U.S. EPA Regional Office.
3. List of Violating Facilities. You acknowledge that any facility to be used in the performance of the Contract or to benefit from the Contract must not be listed on the U.S. EPA List of Violating Facilities ("List"), and you must promptly notify the City if you receive any communication from the U.S. EPA that such a facility is under consideration for inclusion on the List.
4. Preference for Recycled Products. To the extent practicable and economically feasible and to the extent that it does not reduce or impair the quality of the Work, you must use

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

recycled products in performance of the Contract pursuant to U.S. Environment Protection Agency (U.S. EPA) guidelines at 40 CFR Parts 247-253, which implement section 6002 of the Resource Conservation and Recovery Act, as amended, 42 USC § 6962.

H. Clean Diesel Fleet: Emissions Reduction (MCC 2-92-595) (where applicable)

If this Contract is for construction, demolition, restoration, repair, renovation, environmental remediation or environmental abatement of any building, structure, tunnel, excavation, roadway, bridge, transit station or parcel of land and the estimated value of this Contract is \$2,000,000 or more:

Contractor must comply with the Clean Diesel Contracting Ordinance, MCC Section 2-92-595.

2. Contractor and any Subcontractor(s) must utilize Ultra Low Sulfur Diesel Fuel (ULSD) for any heavy-duty diesel-powered vehicle, non-road vehicle or non-road equipment used in the performance of the Contract.
3. Contractor and any Subcontractor(s) must minimize idling of motor vehicles and non-road vehicles used in the performance of the Contract during periods of inactivity, and must comply with the anti-idling requirements imposed by any applicable federal, state, or local law.
4. Contractor and any Subcontractor(s), may not use any of the following vehicles and equipment in the performance of the contract:
 - (i) any heavy-duty diesel vehicle not meeting or exceeding the US EPA's emission standards for heavy-duty diesel vehicles for the 1998 engine model year, unless such vehicle is fitted with a verified diesel emission control retrofit device; or
 - (ii) any non-road vehicle or non-road equipment not meeting or exceeding the US EPA's Tier 1 Non-road Diesel Standards, unless such vehicle or equipment is fitted with a verified diesel emission control retrofit device.
5. Any heavy-duty diesel vehicles, non-road vehicles and non-road equipment used in the performance of this Contract must incorporate such engine or retrofit technology so that the Contractor, through such engine or retrofit technology used directly by the Contractor and all subcontractors, shall have a minimum of 3.0 clean fleet score per a reporting period, as calculated by using the methodology described in MCC subsection 2-92-595(c)(5). Contractor may exclude from the calculation of the clean fleet score up to fifty percent of all of the heavy-duty diesel vehicles, non-road vehicles and non-road equipment used in the performance of the contract during a reporting period that are owned or leased by any firm that the CPO has granted a clean fleet score annual waiver certificate pursuant to MCC subsection 2-92-595 (f). However, pursuant to MCC subsection 2-92-595(b)(6), if this contract is advertised after January 1, 2020, the minimum clean fleet score is increased to 4.0, and Contractor may exclude from the calculation up to only twenty five percent of vehicles owned or leased by a firm that has received a clean fleet score waiver certificate instead of fifty percent.

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

6. The City may conduct an audit of the Contractor or inspect any vehicle or equipment used in the performance of the Contract to ensure compliance with the requirements specified above. In the event that Contractor or any Subcontractor fails to utilize ULSD or fails to minimize idling or comply with antiidling requirements, Contractor will be subject to liquidated damages of \$5,000 per day for each violation and each day of noncompliance will be a separate violation; provided, however, the damages will not exceed \$50,000 for any one vehicle or piece of equipment, as specified in MCC Section 2-92-595(e). Such liquidated damages are imposed not as a penalty but as an estimate of the damages that the City will sustain from delay in completion of the project and inspection and other enforcement costs, as well as the resultant damages to the public health of its citizens, which damages by their nature are not capable of precise proof. The City is authorized to withhold and deduct from monies otherwise payable to the contractor the amount of liquidated damages due to the City.
7. Contractor understands that pursuant to MCC subsection 2-92-595(e)(6), any person knowingly making a false statement of material fact to any City department with respect to compliance with the contract provisions specified in MCC subsection 2-92-595(e) Chicago may be fined not less than \$1,000 or more than \$5,000 for each statement.

XVIII. INSURANCE, INDEMNITY AND BONDS

A. Indemnity

1. You must protect, defend, indemnify, and hold the City, its officers, officials, representatives, and employees (collectively the "Indemnitees"), harmless from and against any and all claims, damages, demands, injury or death, in consequence of granting this Contract or arising out of or being in any way connected with your performance under this Contract except for matters shown by final judgment to have been caused by or attributable to the negligence of Indemnitees. This indemnification obligation is effective to the maximum extent permitted by applicable law. This indemnity extends to all legal costs, including attorney fees, costs, liens, judgments, settlements, penalties, professional fees, and other expenses incurred by the City, including fines and penalties imposed by public bodies, and the reasonable settlement of such claims. This indemnification obligation is not limited by any amount of insurance required under this Contract. Further, the indemnification obligation contained in this section will survive the expiration or termination of this Contract.
2. You will be solely responsible for the defense of any and all claims, demands, or suits against Indemnitees, including claims by your employees, subcontractors, agents, or servants even though the claimant may allege that the Indemnitees were in charge of the Work or alleged negligence on the part of Indemnitees. The City will have the right, at its sole option, to participate in the defense of any such suit, without relieving you of your obligations under this section.
3. "Injury" or "damage" as these words are used in this section will be construed to include injury or damage consequent upon the failure of or use or misuse by you, your Subcontractors, agents, servants, or employees, of any scaffolding, hoist cranes, stays,

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

ladders, supports, rigging, blocking or any and all other kinds of items of equipment, whether or not they are owned, furnished, or loaned by the Indemnitees.

4. You will promptly provide, or cause to be provided, to the Commissioner and City Corporation Counsel copies of all notices that you may receive of any claims, actions, or suits that may be given or filed in connection with your performance or the performance of any Subcontractor and for which the Indemnitees are entitled to indemnification under this Contract and to give the Indemnitees authority, information and assistance for the defense of any claim or action.

B. Contribution

To the extent permissible by law, you waive any limits on your liability that you would otherwise have by virtue of the Worker's Compensation Act or any other related law or judicial decision (such as *Kotecki v. Cyclops Welding Corporation*, 146 Ill. 2d 155 (1991)). The City, however, does not waive any limitations it may have on its liability under the Worker's Compensation Act, the Illinois Pension Code or any other statute.

C. Admiralty

In addition, you waive the right to receive the benefits of or to invoke the protection afforded by all maritime statutory limitations of liability, including the Limitation of Vessel Owner's Liability Act, 48 U.S.C. § 183 *et seq.*, that could act to diminish your liability for any harm or damage arising from your performance of your obligations under the Contract in any manner or for all claims or other costs arising from or occasioned by your operations on any waterways, including Lake Michigan and the Chicago River. This provision is not intended to avoid or waive Federal jurisdiction under the applicable admiralty laws. This waiver extends only to the Indemnitees, and not to third parties seeking recovery for claims solely against you.

1. Without limiting your waiver, you specifically consent to pay all sums in respect of any claims against the Indemnitees and other costs suffered by the Indemnitees arising from or occasioned by your operations in or on waterways, including the following:
 - a. Loss or damage to any other ship, vessel or boat caused proximately or otherwise by your vessel, or loss of the cargo or the other ship, vessel or boat;
 - b. Loss of life or personal injury, or for any cost of life salvage;
 - c. Loss or damage to any harbor, dock, building, graving or otherwise, slipway, pontoon, pier, quay, tunnel, jetty, stage, buoy, cables of any kind, or other fixed or movable object or property whatsoever;
 - d. The cost of the removal, raising or destruction of the wreck of any vessel you employ in performing your obligations under the Contract;
 - e. If a vessel is disabled or otherwise, the cost of towage or other salvage of any vessel you employ in performing your obligations under the Contract;
 - f. Loss or damage to the bottom, banks, or shoreline of the waterway.

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

D. Performance and Payment Bonds

You must, before award of the Contract, deliver to the Chief Procurement Officer a performance and payment bond in the amount set forth in Book 2. Any performance bond that you provide must comply with the provisions of 30 ILCS 550/1 *et seq.*, as amended, and of § 2-92-030 of the Municipal Code, as amended. It must also be in the form of the performance and payment bond form included in Book 2. The surety or sureties issuing the bond must be acceptable to the Comptroller and must have a Best's Key Rating Guide of "B+," Class XI or greater and be listed in the most recently published "Listing of Approved Sureties" of the U.S. Department of the Treasury Circular 570, with underwriting limitations in excess of the Contract Price. The bond must cover the warranty period required by the Contract.

In case of your neglect, failure, or refusal to provide satisfactory sureties when so directed within 10 days after such notification, pursuant to § 2-92-040 of the Municipal Code the Chief Procurement Officer may declare this Contract forfeit, but such forfeiture will not release you or your surety or sureties from any liability that may have accrued before the date of the forfeiture.

If at any time the surety or sureties, or any one of them, upon the bond become insolvent, or are, in the sole opinion of the Chief Procurement Officer, unsatisfactory, or unable to respond to damages in case of liability on such bond, the Chief Procurement Officer will notify you and direct that you furnish a bond issued by a satisfactory surety or sureties forthwith.

E. Insurance

You must procure and maintain at all times, at your own expense, through the completion of the warranty period, the types of insurance specified in Book 2 of the Contract, with insurance companies authorized to do business in the State of Illinois, covering all operations under this Contract, whether performed by you or by Subcontractors. Upon written request by the Commissioner, you must allow the Commissioner to review and copy any original insurance policies you are obligated to maintain under this policy.

You waive any and every claim or right of recovery from the City for all injuries and losses arising under this Contract or in any way related to the Work, including any claim for loss of or damage to the Work or to the contents of it, which injury, loss or damage is covered or is required to be covered by valid and collectible insurance policies, to the extent that such injury, loss or damage is recoverable under the insurance policies. As this waiver will preclude the assignment of any claim by subrogation (or otherwise) to an insurance company (or any other person), you must give each insurance company that has issued, or in the future may issue, your policies of insurance, written notice of the terms of this waiver, and to have the insurance policies properly endorsed, if necessary, to prevent the invalidation of insurance coverage by reason of the waiver. You must require each Subcontractor to include similar waivers of subrogation in favor of the City.

The City reserves the right to change, modify or delete insurance requirements set forth in the Contract, including the right to request that you provide additional types of insurance.

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

XIX. CLAIMS AND DISPUTES

A. General

Compliance with the provisions in this Article XIX is a precondition to seeking judicial review of an adverse decision of the Chief Procurement Officer. **You must not withhold performance of and must prosecute any Work required by the Commissioner while your claim, including judicial resolution, if any, is pending. You must prosecute all of your Work including any disputed Work with the same diligence and effort as if no dispute existed.** Neither the Chief Procurement Officer's determination (see Section XIX.C.3 below), nor the continued performance by either party, constitutes an admission as to any factual and/or legal position in connection with the dispute or a waiver of any rights under the Contract.

B. Claims

1. This provision applies to all claims under this Contract, including those for time, money, or both.
2. Procedures. Within 14 days after a basis for claim arises, you must submit your claim in writing to the City's resident engineer or its project manager ("Commissioner's Representative). This written claim to the Commissioner's Representative will constitute "notice" to the City for purposes of determining initial timeliness of the claim; oral notice is insufficient. If you and the Commissioner's Representative are unable promptly (depending upon the complexity of the matter) to resolve the claim, you must forward your claim in writing to the Commissioner together with the documents listed in (a) through (d) below (collectively, "your documents"). You must include:
 - a. A general statement of the basis for the claim,
 - b. Reference to the applicable Contract provisions,
 - c. All records that support the claim, and
 - d. All documents that relate to it, such as correspondence, and that are reasonably necessary for the Commissioner's understanding to resolve the claim.

It is your responsibility to furnish your documents to the Commissioner at the time you forward the claim to him, as, with or without the supporting documentation, the Commissioner has 30 days to respond in writing to you after he has received the claim. Incomplete information may result in an adverse response. The response may be in the form of a contract modification.

If within the 30 days the Commissioner neither responds nor forwards the claim to the Chief Procurement Officer in lieu of responding, the claim will be considered denied, unless you and the Commissioner have agreed to extend the time for him to complete his response. The Commissioner may, at his sole option, forgo the opportunity to respond directly to your claim by referring it with all your documentation and a Request for Resolution of Dispute to the Chief Procurement Officer and supplying such additional documentation as the Chief Procurement Officer may require of him.

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

C. Disputes

1. Invoking Dispute Resolution Procedures. If you dispute the Commissioner's resolution or denial of your claim, or if your claim is deemed denied, you have 10 days to forward your claim and your documentation to the Chief Procurement Officer indicating to him that you are requesting resolution of a dispute and showing that you have complied with the preceding claims procedures. Your 10-day period to invoke dispute resolution by the Chief Procurement Officer is counted from the date the Commissioner's written resolution was sent to you, or, if he has not responded or forwarded the claim, from the date on which the time for the Commissioner's response lapsed.
2. Waiver. If you fail to file a Request for Resolution of Dispute with the Chief Procurement Officer within the 10-day period you will have waived your claim, the right to make the claim later, and the right to dispute its resolution or denial.
3. Dispute Procedures. Once the dispute resolution procedures are invoked, the Chief Procurement Officer will proceed to a final and binding decision under such rules and regulations as he from time to time promulgates. A copy of those rules and/or regulations is available through the Department of Procurement Services. The Chief Procurement Officer's decision will be implemented through a Contract Modification, if required, that will be made a part of the Contract with your signature or without it should you refuse to sign the Contract Modification. If either you or the Commissioner disagree(s) with the decision of the Chief Procurement Officer, the exclusive remedy is judicial review by a common law *writ of certiorari*. Unless such review is sought within 35 days of receipt of the Chief Procurement Officer's decision, all rights to seek judicial review are waived.

XX. EVENTS OF DEFAULT AND TERMINATION

A. Chief Procurement Officer's Right

1. The Chief Procurement Officer may, at his sole discretion, exercise the right to send you notice under Sections XX.C.1 or XX.C.2. Whether to declare you in default is within the sole discretion of the Chief Procurement Officer and neither that decision nor the factual basis for it is subject to review or challenge under Article XIX, "Claims and Disputes."
2. If the Chief Procurement Officer terminates this Contract under the provisions of Section XX.C.1 or XX.C.2, the Commissioner may use the material and equipment, whether owned or leased, that is within the scope of the Work or necessary for completion of the Work paid for by the City (whether located on or off the Work site), to complete the Work and you will receive no further payment until the Work is completed. If, however, the cost of completion exceeds the unpaid balance of the Contract, you must pay the difference to the City immediately upon demand.

B. Events of Default

Your failure to perform any of your obligations under the Contract, including one or more of the following, is an event of default:

1. Failure to begin the Work at the time specified;

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

2. Failure to perform the Work with sufficient workers and equipment or with sufficient materials to insure the completion of Work or any part of the Work within the time specified by the Contract;
3. Failure to perform the Work in accordance with the Contract;
4. Failure to promptly remove materials, repair, or replace Work that was or were rejected as defective or unsuitable;
5. Unauthorized discontinuation of the Work;
6. Insolvency, bankruptcy or assignment for the benefit of creditors that impairs your ability to pay Subcontractors or perform the Work;
7. Failure to pay Subcontractors or material suppliers;
8. Failure to carry on the Work in a manner acceptable to the Commissioner;
9. Failure to observe Federal, State, or local laws or regulations governing safety and security requirements, including all environmental requirements;
10. Failure to comply with any other term of this Contract that states an event of default or failure to comply with any term of this Contract in any material respect; and
11. Failure to identify disposal site(s) for materials, construction debris, soil and other wastes or to submit such information when requested by the Chief Procurement Officer.
12. Disqualification as a MBE or WBE of the Contractor or any joint venture partner, subcontractor or supplier if its status as an MBE or WBE was a factor in the award of the Contract and such status was misrepresented by the Contractor.
13. Failure to notify City of change in information submitted in Contractor's original Economic Disclosure Statement ("EDS") and to submit a new EDS;
14. Default under any other City contract;
15. Violation of any City ordinance, even if unrelated to contract performance.
16. Failure to comply with the Child Support Arrearage Ordinance, § 2-92-415 of the Municipal Code;

C. Remedies

If an event of default occurs, the Chief Procurement Officer, at his sole discretion, may send you notice of his intent to exercise remedies pursuant to the following:

1. **Opportunity to Cure:** The Chief Procurement Officer may provide you the opportunity to cure the default. If he does so, you must cure the default within 10 days after notice from the Chief Procurement Officer is given. If the Chief Procurement Officer receives written notification from the Commissioner that you have not cured the default within the 10-day cure period, the Chief Procurement Officer may at any time after that terminate the Contract, in which event the termination of the Contract is final and effective.
2. **Termination:** The Chief Procurement Officer may terminate the Contract. Written notification of the default and termination of the Contract will be provided to you and the

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

bond company by the Chief Procurement Officer. The Chief Procurement Officer's decision and declaration of termination is final and effective.

3. In addition to the foregoing, upon an event of default as defined in Section XX.B, "Events of Default," the City may invoke any or all of the following remedies:
- a. The right of set-off against any payments due or to become due to you;
 - b. The right to take over and complete the Work, or any part of it, either directly or through others. The City may use your Subcontractors, materials and equipment to complete the Work. If the City notifies you that it is invoking this remedy, all rights you may have in or under your subcontracts are assigned to the City, subject to the City's right to take assignment of all or only selected subcontracts, at the City's discretion. The sole obligation accepted by the City under such subcontracts is to pay for Work satisfactorily performed after the date of the assignment. In the event a conditional assignment has not been executed, you must execute, or cause to be executed, any assignment, agreement, or other document that may be necessary, in the sole opinion of the Corporation Counsel, to evidence or effect compliance with this provision. You must promptly deliver such documents upon the City's request. In the case of any subcontract so assigned and accepted by the City, you remain liable to the Subcontractors for any payment already invoiced to and paid by the City, and for any claim, suit, or cause of action based on or resulting from any error, omission, negligence, fraud, willful or intentionally tortious conduct, or any other act or omission, or breach of Contract, by you, your officers, employees, agents, and other Subcontractors, arising before the date of assignment to the City, when such claim, suit, or cause of action has not been discharged, disposed of, or otherwise resolved as of that date. You must notify your Subcontractors of these requirements;
 - c. In the event of termination, all costs and changes incurred by the City, together with the cost of completing the Work, are deducted from any moneys due or that may become due to you. When the expense incurred by the City exceeds the sum that would have been payable under the Contract, you and the surety are liable and must pay to the City the amount of the excess;
 - d. The right to terminate the Contract as to any or all of the Work yet to be performed;
 - e. The right of specific performance, an injunction, or any other appropriate equitable remedy, as may be applicable;
 - f. The right to money damages, including all expert witness or other consultant fees, court costs, and attorneys' fees that the City may incur in connection with any claim, suit, or action based upon, related to, or arising from, directly or indirectly, an event of default under this Contract;
 - g. The right to withhold all or any part of your compensation;
 - h. The right to terminate any or all of any other contracts that you may have with the City; and
 - i. The right to deem you non-responsible in future contracts to be awarded by the City.

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

D. Nonexclusivity of Remedies

The remedies under the terms of this Contract are not intended to be exclusive of any other remedies provided, but each and every such remedy is cumulative and is in addition to any other remedies, existing now or hereafter, at law, or in equity. No delay or omission to exercise any right or power accruing upon any event of default impairs any such right or power, nor constitutes a waiver of any event of default or acquiescence in it, and every such right and power may be exercised from time to time and as often as may be deemed expedient.

E. Adjudication of Termination

If the Contract is terminated by the City for cause and it is subsequently determined by a court of competent jurisdiction that the termination was without cause, the termination will thereupon be deemed under Section XX.F, "Early Termination," and the provisions of Section XX.F, "Early Termination," apply.

F. Early Termination

1. The City, through the Chief Procurement Officer, may terminate your Work by written notice stating the effective date of the termination. Immediately upon receipt of the notice, you must provide similar written notice to the affected Subcontractor(s), whereupon you and Subcontractor(s) must, except for services necessary for the orderly termination of the Work.
 - a. Stop all Work and place no further order or subcontracts for materials, services, equipment or supplies;
 - b. Assign to the City, in the manner and to the extent directed, all of your rights under Work orders, purchase orders and subcontracts relating to the portion of the Work that has been completed;
 - c. Terminate Work orders, purchase orders and subcontracts outstanding to the extent that they relate to the Work and are not assigned to the City;
 - d. Take any action necessary to protect property in your possession in which the City has or may acquire an interest; and
 - e. Take any other action toward termination of the Work that the City may direct.
2. If all or a portion of your Work is terminated under this Section, "Early Termination," you are entitled to payment of those costs relating to the completed portion of the Work. No payment will be made for Work not actually performed. Deductions will be made by the City for any amounts previously paid to you and for any amounts that may be due the City, or that the City may offset or withhold by the terms of this Contract. Thus, the City will pay you, subject to the limitations set forth in this Contract, the sum of the following costs:
 - a. That portion of the Contract Price related to the Work you completed immediately before notice of termination less the payments for progress or changes previously made; and

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

- b. Expenses incurred for which you are liable as the result of your termination of respective Work orders, purchase orders or subcontracts related to the notice of termination. The total amount of all payments to you must not, in any event, exceed the proportion that the Work actually performed (including materials delivered to the Project site minus credits for returned goods or canceled orders) at the date of termination bears to the entire Work to be performed under this Contract. Any payment to you under this subsection will be made in accordance with the provisions of Article XIII, "Payments."
3. After receipt of a notice of termination under this Section XX.F, "Early Terminations," you must submit to the Commissioner your final invoice in the form required, with supporting documentation. The Commissioner may require certified payrolls, receipts and other proof of expenditures. The final invoice must be submitted promptly, but in no event more than 60 days after the effective date of termination. Failure to submit the final invoice within 60 days after the effective date of termination constitutes a waiver of the final invoice.

G. Non-Appropriation

If no funds or insufficient funds are appropriated and budgeted in any fiscal period of the City for payments to be made under this Contract, then the City will notify you of that occurrence and this Contract will terminate on the earlier of the last day of the fiscal period for which sufficient appropriation was made or whenever the funds appropriated for payment under this Contract are exhausted. No payments will be made to you under this Contract beyond those amounts appropriated and budgeted by the City to fund payments under it.

XXI. COMPLIANCE WITH ALL LAWS

A. Contractor Must Comply with All Laws

Contractor must observe and comply with all Applicable Laws, in effect now or later and whether or not they appear in the Agreement, including those specifically referenced herein or in any of the Contract Documents. Contractor must pay all taxes and obtain all licenses, certificates and other authorizations required in connection with the performance of its obligations hereunder, and Contractor must require all subcontractors to do so. Contractor is fully responsible for ascertaining and complying with all agency and code requirements applicable to the Work.

By entering into this Contract with the City, Contractor certifies to the best of its knowledge and belief that it, its principals and any subcontractors used in the performance of this contract, meet City requirements and have not violated any City or sister agency policy, codes, state, federal, or local laws, rules or regulations and have not been subject to any debarment, suspension or other disciplinary action by any government agency. Additionally, if at any time the contractor becomes aware of such information, it must immediately disclose it to the City.

B. Civil Rights Act of 1964, Title VI, Compliance With Nondiscrimination Requirements

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees as follows:

1. Compliance with Federal Nondiscrimination Requirements

The contractor will comply with federal nondiscrimination laws, regulations, and authorities, as they may be amended from time to time (Acts and Regulations), which include:

- Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d et seq., 78 stat. 252), (prohibits discrimination on the basis of race, color, national origin);
- 49 CFR part 21 (Non-discrimination In Federally-Assisted Programs of The Department of Transportation—Effectuation of Title VI of The Civil Rights Act of 1964);
- Section 504 of the Rehabilitation Act of 1973, (29 U.S.C. § 794 et seq.), as amended, (prohibits discrimination on the basis of disability); and 49 CFR part 27;
- The Age Discrimination Act of 1975, as amended, (42 U.S.C. § 6101 et seq.), (prohibits discrimination on the basis of age);
- The Civil Rights Restoration Act of 1987, (PL 100-209), (Broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, The Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms “programs or activities” to include all of the programs or activities of the Federal-aid recipients, sub-recipients and contractors, whether such programs or activities are Federally funded or not);
- Titles II and III of the Americans with Disabilities Act of 1990, which prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities (42 U.S.C. §§ 12131 – 12189) as implemented by Department of Transportation regulations at 49 CFR parts 37 and 38;
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which ensures non-discrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations;
- Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination under Title VI includes discrimination because of limited English proficiency (LEP). (70 Fed. Reg. at 74087 to 74100);
- Title IX of the Education Amendments of 1972, as amended, prohibits discrimination because of sex in education programs or activities (20 U.S.C. 1681 et seq);

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 U.S.C. § 4601), (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);
- Airport and Airway Improvement Act of 1982, (49 USC § 471, Section 47123), as amended, (prohibits discrimination based on race, religion, color, national origin, or sex in any activity carried out with a grant from the FAA).

2. Non-discrimination

The contractor, with regard to the work performed by it during the contract, will not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor will not participate directly or indirectly in the discrimination prohibited by the Acts and the Regulations, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR part 21 (Nondiscrimination in Federally-Assisted Programs of the US Department of Transportation).

3. Solicitations for Subcontracts, Including Procurements of Materials and Equipment

In all solicitations, either by competitive bidding, or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier will be notified by the contractor of the contractor's obligations under this contract and the Acts and the Regulations relative to Non-discrimination on the grounds of race, color, or national origin.

4. Information and Reports

The contractor will provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the City or applicable federal agency (e.g. Federal Aviation Administration, Federal Highway Administration, Federal Transit Authority, Transportation Security Administration, Department of Housing and Urban Development, etc.) providing funding to the City department(s) on this contract to be pertinent to ascertain compliance with such Acts, Regulations, and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish the information, the contractor will so certify to the sponsor or the federal agency, as appropriate, and will set forth what efforts it has made to obtain the information.

5. Sanctions for Noncompliance

In the event of a contractor's noncompliance with the Non-discrimination provisions of this contract, the City will impose such contract sanctions as it or the relevant federal funding agency may determine to be appropriate, including, but not limited to:

- A. Withholding payments to the contractor under the contract until the contractor complies; and/or

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

B. Cancelling, terminating, or suspending a contract, in whole or in part.

6. Incorporation of Provisions

The contractor will include the provisions of above paragraphs 1, "Compliance With Regulations" through 6 "Incorporation of Provisions" in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations and directives issued pursuant thereto. The contractor will take action with respect to any subcontract or procurement as the sponsor or the applicable federal agency may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if the contractor becomes involved in, or is threatened with litigation by a subcontractor, or supplier because of such direction, the contractor may request the sponsor to enter into any litigation to protect the interests of the sponsor. In addition, the contractor may request the United States to enter into the litigation to protect the interests of the United States.

7. Other Non-Discrimination Requirements

A. ILLINOIS HUMAN RIGHTS ACT

1. GENERALLY

Contractor must comply with the Illinois Human Rights Act, 775 ILCS 5/1-1 01 et seq., as amended and any rules and regulations promulgated in accordance therewith, including, but not limited to the Equal Employment Opportunity Clause, 44 Ill. Admin. Code 750 Appendix A, and as further described below.

Contractor must comply with the Public Works Employment Discrimination Act, 775 ILCS 10/0.01 et seq., as amended; and all other applicable state laws, rules, regulations and executive orders.

2. STATE OF ILLINOIS DUTIES OF PUBLIC CONTRACTORS (44 ILL. ADMIN. CODE 750 ET SEQ.)

Contractor shall comply with its obligations for public contractors under state law. These rules require that contractor examine all its job classifications to determine whether minorities or women are underutilized, and if underutilization exists in any job classification, the contractor must take appropriate affirmative action. 44 Ill. Admin. Code 750.110. Underutilization means "having fewer minority/female workers in a particular job classification than would reasonably be expected by their availability." 44 Ill. Admin. Code 750.120.

When required by the state rules, contractors shall develop and implement written affirmative action plans to overcome underutilization of minorities and/or women, including, at minimum, a description of the contractor's workforce analysis and goals and timetables for recruitment efforts, per 44 Ill. Admin. Code 750.130. Contractors shall also state in all solicitations that all applicants be afforded equal employment opportunity without discrimination ("because of race, color, religion, sex, marital status, national origin or ancestry, citizenship status, age, physical or mental disability unrelated to ability, sexual orientation, military status,

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

order of protection status or unfavorable discharge from military service,” 44 Ill. Admin. Code 750.150), and advise in writing their personnel, referral sources, and labor organizations of the contractor’s obligations under state law and any affirmative action plan.

3. STATE OF ILLINOIS EQUAL EMPLOYMENT OPPORTUNITY CLAUSE

In the event of the Contractor's non-compliance with the provisions of this Equal Employment Opportunity Clause or the Illinois Human Rights Act, the Contractor may be declared ineligible for future contracts or subcontracts with the State of Illinois or any of its political subdivisions or municipal corporations, and the contract may be cancelled or voided in whole or in part, and other sanctions or penalties may be imposed or remedies invoked as provided by statute or regulation. During the performance of this contract, the Contractor agrees as follows:

A) That Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, marital status, order of protection status, national origin or ancestry, citizenship status, age, physical or mental disability unrelated to ability, military status or an unfavorable discharge from military service; and, further, that he or she will examine all job classifications to determine if minority persons or women are underutilized and will take appropriate affirmative action to rectify any underutilization.

B) That, if Contractor hires additional employees in order to perform this contract or any portion of this contract, Contractor will determine the availability (in accordance with 44 Ill. Admin. Code Part 750) of minorities and women in the areas from which Contractor may reasonably recruit and Contractor will hire for each job classification for which employees are hired in a way that minorities and women are not underutilized.

C) That, in all solicitations or advertisements for employees placed Contractor or on Contractor's behalf, Contractor will state that all applicants will be afforded equal opportunity without discrimination because of race, color, religion, sex, sexual orientation, marital status, order of protection status, national origin or ancestry, citizenship status, age, physical or mental disability unrelated to ability, military status or an unfavorable discharge from military service.

D) That Contractor will send to each labor organization or representative of workers with which Contractor has or is bound by a collective bargaining or other agreement or understanding, a notice advising the labor organization or representative of the Contractor's obligations under the Illinois Human Rights Act and 44 Ill. Admin. Code Part 750. If any labor organization or representative fails or refuses to cooperate with the Contractor in Contractor's efforts to comply with the

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

Act and this Part, the Contractor will promptly notify the Illinois Department of Human Rights and the City and will recruit employees from other sources when necessary to fulfill its obligations under the contract.

E) That Contractor will submit reports as required by 44 Ill. Admin. Code Part 750, furnish all relevant information as may from time to time be requested by the Illinois Department of Human Rights or the City, and in all respects comply with the Illinois Human Rights Act and 44 Ill. Admin. Code Part 750.

F) That Contractor will permit access to all relevant books, records, accounts and work sites by personnel of the City and the Illinois Department of Human Rights for purposes of investigation to ascertain compliance with the Illinois Human Rights Act and the Illinois Department of Human Rights's Rules and Regulations.

G) That Contractor will include verbatim or by reference the provisions of this clause in every subcontract awarded under which any portion of the contract obligations are undertaken or assumed, so that the provisions will be binding upon the subcontractor. In the same manner as with other provisions of this contract, the Contractor will be liable for compliance with applicable provisions of this clause by subcontractors; and further it will promptly notify the City and the Illinois Department of Human Rights in the event any subcontractor fails or refuses to comply with the provisions. In addition, the Contractor will not utilize any subcontractor declared by the Illinois Human Rights Commission to be ineligible for contracts or subcontracts with the State of Illinois or any of its political subdivisions or municipal corporations.

B. CHICAGO HUMAN RIGHTS ORDINANCE MCC CH. 2-160

Contractor must comply with the Chicago Human Rights Ordinance, MCC Ch. 2-160, Sect. 2-160-010 et seq., as amended; and all other applicable municipal code provisions, rules, regulations and executive orders.

Contractor must furnish or shall cause each of its Subcontractors to furnish such reports and information as requested by the Chicago Commission on Human Relations.

**C. CITY OF CHICAGO EQUAL EMPLOYMENT OPPORTUNITY GOALS
MCC 2-92-390**

The City has established by ordinance equal employment opportunity goals for construction projects with an estimated contract value of \$100,000 or more. The City's yearly goals, as a percentage of construction aggregated work hours per category of worker, are as follows:

- A) 25% by minority journeyworkers and apprentices;
- B) 7% by women journey workers and apprentices;

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

- C) 40% by minority laborers; and
- D) 10% by women laborers.

The Contractor is encouraged to meet or exceed these goals. Contractor shall also comply with the State of Illinois equal employment opportunity requirements, as set forth above.

D. BUSINESS ENTERPRISES OWNED BY PEOPLE WITH DISABILITIES (BEPD)

Pursuant to MCC 2-92-586, Contractor is strongly encouraged to subcontract with businesses certified as business enterprises owned or operated by people with disabilities ("BEPD") as defined in that section or MCC 2-92-337, and to use BEPD businesses as suppliers.

C. Business Relationships with Elected Officials

Pursuant to MCC Sect. 2-156-030(b), it is illegal for any elected official, or any person acting at the direction of such official, to contact either orally or in writing any other City official or employee with respect to any matter involving any person with whom the elected official has any business relationship that creates a financial interest on the part of the official, or the domestic partner or spouse of the official, or from whom or which he has derived any income or compensation during the preceding twelve months or from whom or which he reasonably expects to derive any income or compensation in the following twelve months. In addition, no elected official may participate in any discussion in any City Council committee hearing or in any City Council meeting or vote on any matter involving the person with whom the elected official has any business relationship that creates a financial interest on the part of the official, or the domestic partner or spouse of the official, or from whom or which he has derived any income or compensation during the preceding twelve months or from whom or which he reasonably expects to derive any income or compensation in the following twelve months. Violation of MCC Sect. 2-156-030 by any elected official with respect to this contract will be grounds for termination of this contract. The term financial interest is defined as set forth in MCC Chapter 2-156.

D. Chicago Inspector

As required by § 2-56 of the Municipal Code, it is the duty of every Contractor, all subcontractors, every applicant for certification of eligibility for a City contract or program, and all officers, directors, agents, partners and employees of any bidder, Contractor, subcontractor or such applicant to cooperate with the Inspector General in any investigation or hearing undertaken pursuant to Chapter 2-56 of the Municipal Code. Contractor must abide by all provisions of Chapter 2-56 of the Municipal Code. All subcontracts must inform subcontractors of the provision and require understanding and compliance.

E. Governmental Ethics Ordinance

As required by § 2-156-120 of the Municipal Code, no payment, gratuity or offer of employment shall be made in connection with any city contract, by or on behalf of a

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

subcontractor to the prime contractor or higher-tier subcontractor or any person associated therewith, as an inducement for the award of a subcontract or order.

F. False Statements

False statements made in connection with this Agreement, including statements in, omissions from and failures to timely update the EDS, as well as in any other affidavits, statements or contract documents constitute a material breach of the Agreement (each a "Disclosure Misrepresentation"). Any such Disclosure Misrepresentation renders the Agreement voidable at the option of the City, notwithstanding any prior review or acceptance by the City of any materials containing a Disclosure Misrepresentation. In addition, the City may debar Contractor, assert any contract claims or seek other civil or criminal remedies as a result of a Disclosure Misrepresentation (including costs of replacing a terminated Contractor pursuant to Chicago Municipal Ordinance 1-21-010).

G. Americans with Disabilities Act

Contractor must perform all construction or alteration that Contractor undertakes in connection with this Contract in compliance with all federal, state and local laws and regulations regarding accessibility standards for disabled or environmentally limited persons including: Americans with Disabilities Act, P.L. 101-336 (1990) and the Uniform Federal Accessibility Standards ("UFAS") or the American with Disabilities Act ("ADA") and; the Illinois Environmental Barriers Act, 410 ILCS 25/1 *et seq.* (1991), and the regulations promulgated with them. If the above cited standards are inconsistent, Contractor must comply with the standard providing greater accessibility.

H. MacBride Principles Ordinance

If the Contractor conducts any business operations in Northern Ireland, it is hereby required that the contractor shall make all reasonable and good faith efforts to conduct any business operations in Northern Ireland in accordance with the MacBride Principles for Northern Ireland as defined in Illinois Public Act 85-1390 (1988 Ill. Law 3220).

I. Prohibition on Certain Contributions – Mayoral Executive Order No. 2011-4

During the Term of this Agreement, or during any period when an extension of this Agreement is being sought or negotiated, neither the Contractor nor any party with a beneficial interest or ownership interest in the Contractor of more than 7.5%, nor any subcontractor of the Contractor or any owner of a subcontractor with more than 7.5% interest in the subcontractor, nor any person with a familial or domestic relationship, including domestic partners, with any of the above may make themselves, may coerce or compel any employee to make or reimburse any employee for any amount, or otherwise participate in the solicitation of amounts contributed to the Mayor or to the Mayor's political fundraising committee.

Contractor's violation of Mayoral Executive Order No. 2011-4 constitutes an Event of Default for which no opportunity to cure will be granted. Such breach and default entitles the City to all remedies (including without limitation termination for default) under this Agreement, under Other Contract, at law and in equity.

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

J. Licensing of General Contractors

Important: The failure to comply with the provisions of Chapter 4-36 of the Municipal Code ("Chapter 4-36") may result in ineligibility to bid, inability to perform (or continue) to work, imposition of substantial fines, and/or in the City's revoking the Bidder's "general contractor" license. Information about Chapter 4-36 and application forms are available on the City's website, www.cityofchicago.org. A copy of the entire ordinance is provided in Book 2 of this contract.

As stated elsewhere in the specification, the City reserves the right to reject any or all bids.

Bidder must be in compliance with the requirements of Chapter 4-36, in the appropriate license class commensurate with the size of this project, if the license is required for the scope of work, **at the time Bidder submits its bid** and, if it is awarded a contract, throughout the term of the contract.

Contractor's failure to be licensed as a "general contractor" at all times throughout the term of the contract, if the license is required for the scope of work, is an **event of default** under the Agreement and the City may exercise any and all rights and remedies permitted under the contract, at law, or in equity.

K. Buy America

Contractor must ensure that, to the extent applicable, Work provided under this Contract complies with any Buy America provisions of the federal government and/or any similar provisions of the State or City.

L. Steel Products

Unless otherwise provided in the Steel Products Procurement Act, 30 ILCS 565/1 *et seq.*, steel products used or supplied in the performance of this contract or any subcontract to this contract must be manufactured or produced in the United States. Knowing violation of this law may result in the filing and prosecution of a complaint by the Attorney General of the State of Illinois and will subject violators to a fine of the greater of \$5,000 or the payment price received as a result of such violation.

M. Wastes

As required by § 11-4-1600(e) of the Municipal Code, violation of §§ 7-28-390 Dumping on public way; 7-28-440 Dumping on real estate without permit; 11-4-1410 Disposal in waters prohibited; 11-4-1420 Ballast tank, bilge tank or other discharge; 11-4-1450 Gas manufacturing residue; 11-4-1500 Treatment and disposal of solid or liquid waste; 11-4-1530 Compliance with rules and regulations required; 11-4-1550 Operational requirements; and 11-4-1560 Screening requirements by the Contractor or any subcontractor during the term of the Agreement, whether or not in the performance of the Agreement, constitutes an event of default. Non-compliance with these terms and conditions may be used by the City as grounds for the termination of the Agreement, and may further affect Contractor's eligibility for future contract awards. The opportunity to cure, if curable, will be granted only

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

at the sole discretion of the Chief Procurement Officer. Such breach and default entitles the City to all remedies under the Contract, at law or in equity.

N. Duty to Report Corrupt Activity

Pursuant to MCC 2-156-018, it is the duty of the Contractor to report to the Inspector General, directly and without undue delay, any and all information concerning conduct which it knows to involve corrupt activity. "Corrupt activity" means any conduct set forth in Subparagraph (a)(1), (2) or (3) of Section 1-23-020 of the MCC. Knowing failure to make such a report will be an event of default under this Contract. Reports may be made to the Inspector General's toll free hotline, 866-IG-TIPLINE (866-448-4754).

O. Equal Pay

The Contractor will comply with all applicable provisions of the Equal Pay Act of 1963, 29 U.S.C. 206(d) and the Illinois Equal Pay Act of 2003, 820 ILCS 112/1, et seq., as amended, and all applicable related rules and regulations including but not limited to those set forth in 29 CFR Part 1620 and 56 Ill. Adm. Code Part 320.

P. 2014 Hiring Plan Prohibitions

1. The City is subject to the June 16, 2014 "City of Chicago Hiring Plan" (the "2014 City Hiring Plan") entered in *Shakman v. Democratic Organization of Cook County*, Case No 69 C 2145 (United States District Court for the Northern District of Illinois). Among other things, the 2014 City Hiring Plan prohibits the City from hiring persons as governmental employees in non-exempt positions on the basis of political reasons or factors.
2. Contractor is aware that City policy prohibits City employees from directing any individual to apply for a position with Contractor, either as an employee or as a subcontractor, and from directing Contractor to hire an individual as an employee or as a Subcontractor. Accordingly, Contractor must follow its own hiring and contracting procedures, without being influenced by City employees. Any and all personnel provided by Contractor under this Contract are employees or Subcontractors of Contractor, not employees of the City of Chicago. This Contract is not intended to and does not constitute, create, give rise to, or otherwise recognize an employer-employee relationship of any kind between the City and any personnel provided by Contractor.
3. Contractor will not condition, base, or knowingly prejudice or affect any term or aspect of the employment of any personnel provided under this Contract, or offer employment to any individual to provide services under this Contract, based upon or because of any political reason or factor, including, without limitation, any individual's political affiliation, membership in a political organization or party, political support or activity, political financial contributions, promises of such political support, activity or financial contributions, or such individual's political sponsorship or recommendation. For purposes of this Contract, a political organization or party is an identifiable group or entity that has as its primary purpose the support of or opposition to candidates for elected public office. Individual political activities are the activities of individual persons in support of or in opposition to political organizations or parties or candidates for elected public office.

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

4. In the event of any communication to Contractor by a City employee or City official in violation of paragraph 2 above, or advocating a violation of paragraph 3 above, Contractor will, as soon as is reasonably practicable, report such communication to the Hiring Oversight Section of the City's Office of the Inspector General, and also to the head of the relevant City Department utilizing services provided under this Contract. Contractor will also cooperate with any inquiries by OIG Hiring Oversight.

Q. Contractor's liability – Safety barriers and lights

Whenever any work or improvement shall require the digging up, use, or occupancy of any public way or other public place in the city, substantial covenants requiring such Contractor to put up and maintain such barriers and lights during the night time as will effectually prevent the happening of any accident for which the City might be liable in consequence of such digging up, use, or occupancy of any public way or other public place, shall be inserted in the contract and also such other covenants and conditions as experience may prove necessary to save the City harmless from damages. The chief procurement officer shall also provide in such contract that the party contracting with the City shall be liable for all damages occasioned by the digging up, use, or occupancy of such public way or other public place, or which may result therefrom.

R. Electronic Mail Communication

Electronic mail communication between Contractor and City employees must relate only to business matters between Contractor and the City.

S. Disclosure of Ownership Interest in Entities (Electronic Disclosure Statement)

The Contractor understands and will abide by the terms of Section 2-154-020 of the Municipal Code of Chicago regarding disclosure of ownership interest in entities.

T. EDS Update Obligation

Contractor is required to notify the City and update the EDS whenever there is a change in circumstances that makes any certification or information provided in an EDS inaccurate, obsolete or misleading. Failure to notify the City and update the EDS is grounds for declaring the Contractor in default, termination of the Contract for default, and declaring that the Contractor is ineligible for future contracts.

U. Wheel Tax (City Sticker)

Contractor must pay all Wheel Tax required by Chapter 3-56 of the MCC, as amended from time to time. Contractor should take particular notice of MCC 3-56-020 and MCC 3-56-125 which relate to payment of the tax for vehicles that are used on City streets or on City property by City residents. For the purposes of Chapter 3-56, any business that owns, leases or otherwise controls a place of business within the City wherein motor vehicles or

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

semi-trailers are stored, repaired, serviced, or loaded or unloaded in connection with the business is also considered to be a City resident.

V. Safety Enhancing Vehicle Equipment Contracting (MCC 2-92-597)

1. Definitions

For purposes of this section, the following definitions shall apply:

"Commissioner of 2FM" means the City's Commissioner of Fleet and Facility Management.

"Conventional cab" means a large vehicle configuration in which the driver is behind the front axle and the engine is in front of the axle under a discrete hood.

"Convex mirrors" means wide-angle mirrors that enable the operator of a large vehicle to see along the left and right sides of the vehicle by allowing a view of all points on an imaginary horizontal line which is: (i) three feet above the road; and (ii) one foot outside the plane defined by the outer face of the wheels.

"Crossover mirror" means a fender-mounted or hood-mounted mirror that enables the operator of a large vehicle with a conventional cab to see: (i) any person or object at least three feet tall passing one foot in front of the vehicle; and (ii) the area from the front bumper to where direct vision is possible.

"Large vehicle" means any motor vehicle with a gross vehicle weight rating exceeding 10,000 pounds, except an ambulance, fire apparatus, low-speed vehicle with maximum speed under 15 mph, or agricultural tractor.

"Lateral protective device" or "vehicle side guard" means an apparatus installed between the front and rear wheels of a large vehicle that is designed to prevent road users from falling underneath the vehicle.

"Subcontractor" means any person that enters into any tier subcontract to perform work on this Contract.

"Volpe side guard standard" means the United States Department of Transportation's Volpe side guard standard published and referred to as US DOT Standard DOT-VNTSC-OSTR-16-05, as amended; or a functionally equivalent national vehicle side guard standard, as determined by the Commissioner of 2FM.

2. Safety Enhancing Requirements

Contractor and any Subcontractor must comply with MCC 2-92-597. Contractor and any Subcontractor must retrofit large vehicles used in the performance of the contract, in accordance with the Phase-In Period provided below, with:

- (A) Lateral protective devices. This requirement shall be considered satisfied if: (i) the vehicle is equipped with vehicle side guards in accordance with the requirements of the Volpe side guard standard; or (ii) the vehicle is so designed or equipped at the side that, by virtue of its shape and characteristics, its component parts can be regarded as replacing or functioning as vehicle side guards in accordance with the Volpe side guard standard; or (iii) the vehicle cannot be retrofitted with lateral protective devices as attested by the contractor or the subcontractor in a

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

statement accompanied by certification from two manufacturers of such devices.

- (B) Left and right side convex mirrors; and
- (C) At least one crossover mirror on the passenger side.

3. Phase-In Period

Except when a Contractor or a Subcontractor is granted a waiver pursuant to MCC 2-92-597(g), the Safety Enhancing Requirements set forth above shall apply to:

- (A) one-fourth of a Contractor's or a Subcontractor's large vehicles used in the performance of the Contract on or after July 1, 2018 but before July 1, 2019;
- (B) one-half of a Contractor's or a Subcontractor's large vehicles used in the performance of the Contract on or after July 1, 2019 but before July 1, 2020;
- (C) three-fourths of a Contractor's or a Subcontractor's large vehicles used in the performance of the Contract on or after July 1, 2020 but before July 1, 2021;
- (D) all of a Contractor's or a Subcontractor's large vehicles used in the performance of the Contract on or after July 1, 2021.

4. Compliance

Contractor shall submit a written compliance plan to the Commissioner of 2FM with respect to compliance with MCC 2-92-597 within 14 days following the notice to proceed or the placing of the first order under the contract, as applicable.

Every twelve-month period following the notice to proceed or the placing of the first order under the contract, as applicable, or when requested by the Commissioner of 2FM, the contractor must submit to the Commissioner of 2FM, in a form and manner provided by the CPO, a report that includes the following:

- (A) the number of large vehicles used in the performance of the Contract by the Contractor and any Subcontractor;
- (B) the number of large vehicles used in the performance of the Contract by the Contractor and any Subcontractor that are retrofitted with safety enhancing equipment as required as specified above and MCC 2-92-597(b);
- (C) one or more photographs of each large vehicle used in the performance of the Contract by the Contractor and any Subcontractor that is retrofitted with required safety enhancing equipment as specified above and set forth in MCC 2-92-597(b). The photographs must show the large vehicle's license plate number with the safety enhancing equipment fitted on the vehicle; and

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

- (D) a certification that the Contractor and any Subcontractor in the contract have met the requirements MCC 2-92-597 and the terms of the contract specified pursuant to that section.

5. Time Extension and Annual Waiver Requests

Upon a written request, accompanied by a compliance plan, of a Contractor or Subcontractor of a Contract entered on or before December 31, 2018, the CPO, in consultation with the Department, may grant a time extension of not more than six months for compliance with the requirements of MCC 2-92-597 with regard to the Contract.

Contractor and any Subcontractors may apply to the CPO for an annual waiver from the requirements of MCC 2-92-597. See MCC 2-92-597(g).

6. Costs

All costs that the contractor or any subcontractor may incur to comply with contract requirements imposed pursuant to this section are incidental to the overall contract. No additional time or monies shall be granted to the contractor for compliance with these requirements.

7. Enforcement

The CPO or Commissioner is authorized to inspect or to have inspected any large vehicle used in the performance of this Contract in order to ensure compliance with Safety Enhancing Equipment requirements and MCC 2-92-597.

In addition to other remedies provided by law or specified in the Contract, any person who knowingly makes a false statement of material fact to any city agency with respect to compliance with any contract requirements specified pursuant to MCC 2-92-597 or rules promulgated thereunder shall be fined not less than \$1,000.00 nor more than \$5,000.00 for each such false statement. For purposes of MCC 2-92-597, a person knowingly makes a false statement of material fact when such person makes a false statement of material fact as provided in subsection (d) of Section 1-21-010.

W. Policy Prohibiting Sexual Harassment (Section 2-92-612 of the Chicago Municipal Code)

This section applies if this Contract was advertised on or after June 30, 2018.

For purposes of this section, the following definitions shall apply:

“Contract” means any contract, purchase order, construction project, or other agreement (other than a delegate agency contract or lease of real property or collective bargaining agreement) awarded by the city and whose cost is to be paid from funds belonging to or administered by the city.

“Contractor” means the person to whom a contract is awarded.

“Sexual harassment” means any unwelcome sexual advances or requests for sexual favors or conduct of a sexual nature when (i) submission to such conduct is made either explicitly or implicitly a term or condition of an individual's employment; or (ii) submission to or rejection of such conduct by an individual is used as the basis for any employment decision affecting the individual; or (iii) such conduct has the purpose or effect of

Department of Transportation
Terms and Conditions for Construction Contract - Book 1

(Revised July 2018)

substantially interfering with an individual's work performance or creating an intimidating, hostile or offensive working environment.

“Subcontractor” means any person that enters into a contract with a contractor to perform work on a contract.

As a condition of contract award, Contractor shall, as prescribed by the Chief Procurement Officer, attest by affidavit that Contractor has a written policy prohibiting sexual harassment that shall include, at a minimum, the following information: (i) the illegality of sexual harassment; (ii) the definition of sexual harassment; and (iii) the legal recourse available for victims of sexual harassment. Contractor’s affidavit is included in Book 2 in the form titled “Sexual Harassment Policy Affidavit”.

Contractor’s failure to have a written policy prohibiting sexual harassment as provided above shall constitute an event of default. In the event of default, the Chief Procurement Officer shall notify Contractor of such noncompliance and may, as appropriate: (i) issue Contractor an opportunity to cure consistent with the default provisions in this Agreement; (ii) terminate the contract; or (iii) take any other action consistent with the default provisions in the contract. This section shall not be construed to prohibit the City from prosecuting any person who knowingly makes a false statement of material fact to the city pursuant to Chapter 1-21 of this Code, or from availing itself of any other remedies under contract or law.

X. Deemed Inclusion

Provisions required by Applicable Law to be inserted in the Agreement are deemed inserted in the Agreement whether or not they appear in the Agreement or, upon application by either party, the Agreement will be amended to make the insertion; however, in no event will the failure to insert the provisions before or after the Agreement is signed prevent its enforcement.

XXII. STATUTORY ADJUSTMENTS TO THE BID

A. City-based Businesses (Chicago Business Preference)

For purposes of this section only, the following definitions shall apply:

“City-based business” means a person who (i) conducts meaningful day-to-day business operations at a facility located within the city and reports such facility to the Internal Revenue Service as a place of employment for the majority of its regular, full-time workforce; (ii) holds all appropriate city licenses; and (iii) is subject to applicable city taxes. These taxes may include the City Wheel Tax as provided at Chapter 3-56 of the MCC.

“City residents,” as defined in Section 2-92-330 of the MCC, means persons domiciled within the city.

“Contract” means any contract, purchase order or agreement awarded by the city and whose cost is to be paid from funds belonging to or administered by the city; provided that the term “contract” does not include: (i) a delegate agency contract; (ii) a lease of real property; or (iii) a collective bargaining agreement.

“Prime Contractor” means a person who is a city- based business and the primary contractor on a contract. A “Prime Contractor” does not include any subcontractors.

”City resident employee” means an individual who resides In the City and who Is employed by a prime contractor in a permanent, full-time employment and whose work is not counted towards the work hours required by Section 2-92-330.

"Socio-economically disadvantaged area" means an area within the City that meets the criteria for designation as a socio-economically disadvantaged area as set forth in rules promulgated by the City's Commissioner of Planning and Development pursuant to Section 2-92-390.

If these Bid Documents pertain to a Contract having an estimated contract value of \$100,000 or more, the CPO may apply a bid preference ("City Based Business Preference") of: (i) four percent of the contract base bid; or (ii) six percent of the contract base bid, if the majority of such prime contractor's employees are city resident employees; or (iii) eight percent of the contract base bid, if such prime contractor is eligible for an incentive under subsection (ii) and the majority of such contractor's city resident employees are residents of a socio-economically disadvantaged area, in accordance with section 2-92-412 of the MCC, to any qualified bidder that is a Prime Contractor. If the CPO has determined that a City Based Business Preference may be applied, it will be indicated on the cover page of the Bid Documents.

If a City Based Business Preference is applied to a Bidder's Bid, the Local Goods Incentive pursuant to Section 2-92-410 of the MCC will not be applied to that same Bid.

Bidders desiring to take advantage of the City Based Business Preference must submit documentation with their Bid that Bidder is a City-Based Business.

B. Locally Manufactured Goods

For purposes of this section only, the following definitions shall apply:

“City-based manufacturer” means a person who: (i) holds any appropriate city license; (ii) is subject to applicable city taxes; and (iii) owns, operates, or leases a manufacturing facility within the city.

“Contract for goods” means any contract, purchase order or agreement for the purchase of goods awarded by the city and whose cost is to be paid from funds belonging to or administered by the city; provided that a “contract” does not include: (i) a delegate agency contract; (ii) a lease of real property; (iii) a collective bargaining agreement; or (iv) a construction contract as defined in Section 2-92-670.

“Locally manufactured goods” means goods whose value, either in whole or in part, is derived from growing, producing, processing, assembling, or manufacturing activities that occur within a city-based manufacturer's facility located within the city.

“Manufacture” means to produce tangible goods for use from raw or prepared materials by giving the materials new forms, qualities, properties or combinations, whether by hand-labor or machines.

If these Bid Documents pertain to a Contract for Goods having an estimated contract value of \$100,000 or more, the CPO may allocate a bid incentive ("Local Goods Incentive") in accordance with section 2-92-410 of the MCC. If the CPO has determined that a Local Goods Incentive will be allocated, it will be indicated on the cover page of the Bid Documents and shall consist of the following:

Total Dollar Value of Locally Manufactured Goods Provided in the Contract	Bid Incentive
---	---------------

25% to 49%	1% of the contract base bid
50% to 74%	1.5% of the contract base bid
75% or greater	2% of the contract base bid

Bidders desiring to take advantage of the Local Goods Incentive, if allocated, must submit documentation with their bid that the goods to be provided will be locally manufactured goods.

Upon completion of the work, any contractor that has failed to supply the required percentage of locally manufactured goods for which the Local Goods Incentive was allocated shall be fined in an amount equal to three times the amount of the difference between the bid incentive allocated and the bid incentive that would have been allocated to that contractor for the amount of locally manufactured goods actually supplied under the contract, unless the contractor can demonstrate that due to circumstances beyond the contractor's control, the contractor for good cause was unable to provide the required percentage of locally manufactured goods.

C. Alternatively Powered Vehicles Bid Incentive

1. Definitions for Alternatively Powered Vehicles Bid Incentive

For purposes of this Section XXII.C only, the following definitions apply:

"Alternative fuel" has the meaning ascribed to that term in the Energy Policy Act of 1992, and the rules promulgated by the United States Department of Energy pursuant to that Act. The term "alternative fuel" includes but is not limited to natural gas, liquefied petroleum gas, hydrogen, ethanol E85 or electricity;

"Alternatively powered vehicle" means a vehicle that:

(i) is fueled by alternative fuel; provided that if a vehicle is capable of being powered by alternative fuel and traditional petroleum-based gasoline or petroleum-based diesel fuel, the vehicle must be powered by the alternative fuel for no less than 80% BTUs consumed during the three months prior to the submission of the bid; or

(ii) is commonly referred to as a hybrid vehicle that is capable of being powered by a combination of any fuel and an alternative power source and the alternative power source includes an energy storage system to store generated or accumulated energy which substantially reduces the fuel use and emissions when compared to a standard vehicle of the same age, type and size; or

(iii) is fueled by a biodiesel blend; provided that the vehicle is powered by the biodiesel blend for no less than 80% of the gallons consumed during the three months prior to the submission of the bid; or

(iv) is fueled by traditional petroleum-based gasoline or petroleum-based diesel fuel, but powered by an engine substantially more efficiently designed than a standard vehicle of the same age, type and size; provided that the vehicle is rated by the United States Environmental Protection Agency in the top 5% for fuel efficiency for similar vehicles.

An "alternatively powered vehicle" does not include any vehicle which is: (i) primarily used in a warehouse or similar type of enclosed structure; (ii) required to use, or given credit for using, alternative fuel by any federal, state or local law; or (iii) subject to Section 2-92-595 of the Municipal Code of Chicago.

"Bid incentive" means an amount deducted, for bid evaluation purposes only, from the contract base bid in order to calculate the bid price to be used to evaluate the bid on a competitively bid contract.

"Biodiesel blend" has the meaning ascribed to that term in Section 2-92-595 of the Municipal Code of Chicago.

"Construction project" has the meaning ascribed to that term in Section 2-92-335 of the Municipal Code of Chicago.

"Contract" means any contract, purchase order, construction project, or other agreement (other than a delegate agency contract or lease of real property or collective bargaining agreement) awarded by the city and whose cost is to be paid from funds belonging to or administered by the city.

"Contract base bid" means the total dollar amount a contractor bids on a contract without factoring any bid incentive or percentage reductions in the bid amount.

"Eligible business" means a business located within the counties of Cook, DuPage, Kane, Lake, McHenry or Will in the State of Illinois (the "Six County Region"), and as to which: (1) a majority of the business' fleet is located and used within the Six County Region; and (2) a majority of those vehicles located and used within the Six County Region are alternatively powered vehicles.

"Fleet" means 10 or more vehicles that are owned, operated, leased or otherwise controlled by a business.

"Vehicle" means every device powered by a motor or engine and by, upon, or in which any person or property is or may be transported or drawn upon a street or highway, except a "vehicle" shall not include motorized wheelchairs, golf carts, neighborhood electric vehicles, as that term is defined in Section 9-4-010 of the Municipal Code of Chicago, devices moved solely by human power, devices used exclusively upon stationary rails or tracks, or snowmobiles, as defined in the Snowmobile Registration and Safety Act of Illinois.

2. Eligibility for Alternatively Powered Vehicles Bid Incentive

- a. Unless otherwise prohibited by any federal, state or local law, for any contract having an estimated contract value of \$100,000 or more advertised, or if not advertised awarded, the chief procurement officer may allocate a bid incentive of 1/2% of the contract base price to a qualified bidder when the qualified bidder is an eligible business. If the CPO has determined that an Alternatively Powered Vehicles Preference may be applied, it will be indicated on the cover page of the Bid Documents.
- b. The bid incentive is used only to calculate an amount to be used in evaluating the bid to determine the low bidder, and it does not affect the contract price.
- c. For purposes of this section the total dollar value of a construction project contract includes both materials and labor.
- d. As a condition of being awarded the bid incentive, the eligible business shall continue to meet the definition of an eligible business during the term of the contract.
- e. The contractor shall maintain adequate records necessary to monitor compliance with this section and shall submit such reports as required by the chief procurement officer. Full access to the contractor's and subcontractors' records shall be granted to the chief procurement officer, the commissioner of the supervising department, the inspector general, or any duly authorized representative thereof. The contractor and

subcontractors shall maintain all relevant records for a period of no less than seven years after final acceptance of the work.

f. A bidder desiring to receive an incentive pursuant to this section shall include with its bid submission the Affidavit of Eligible Business for Bid Incentive for Alternative Powered Vehicles, which affirms that the bidder satisfies all pertinent requirements as an eligible business.

g. Upon completion of the work, any eligible business that receives a bid preference but that fails to meet the definition as an eligible business during the term of the contract shall be fined in an amount equal to three times the amount of the bid incentive awarded.

h. This section shall not apply to any contract to the extent that the requirements imposed by this section are inconsistent with procedures or standards required by any law or regulation of the United States or the State of Illinois to the extent such inconsistency is not permitted under law or the home rule powers of the city.

D. Bid Incentives for Veteran-Owned Small Local Businesses and Eligible Joint Ventures

(1) Definitions

For purposes of this section only, the following definitions shall apply:

"Bid incentive" means an amount deducted, for bid evaluation purposes only, from the contract base bid in order to calculate the bid price to be used to evaluate the bid on a competitively bid contract.

"Contract base bid" means the total dollar amount a contractor bids on a contract without factoring any bid incentive or percentage reductions to the bid amount.

"Eligible joint venture" means an association of one or more small local business enterprises in combination with one or more veteran-owned business enterprises, proposing to perform as a single for-profit business enterprise, in which each joint venture partner contributes property, capital, efforts, skill and knowledge. Joint ventures must have an agreement in writing specifying the terms and conditions of the relationship between the partners and their respective roles in the contract.

"Local business enterprise" means a business entity located within the counties of Cook, DuPage, Kane, Lake, McHenry or Will in the State of Illinois (the "Six County Region"), which has the majority of its regular, full time work force located within the Six County Region.

"Owned" means having all of the customary incidents of ownership, including the right of disposition, and sharing in all of the risks, responsibilities and profits commensurate with the degree of ownership.

"Prime contractor" means a person who is the primary contractor on a contract.

"Small business enterprise" means: (i) for a construction business enterprise, a small business enterprise, as the term is defined in MCC 2-92-670; or (ii) for a non-construction business enterprise, a business enterprise which is not an established business, as the term is defined in MCC 2-92-640.

"Small local business enterprise" ("SBE") means a local business enterprise which is also a small business enterprise.

"Veteran-owned business enterprise" means an enterprise which: (1) is at least 51 percent owned by one or more veterans, or in the case of a publicly held corporation, at least 51 percent

of all classes of the stock of which is owned by one or more veterans, whose management, policies, major decisions and daily business operations are independently managed and controlled by one or more veterans; and (2) has been: (i) certified by the City as a veteran-owned small local business pursuant to MCC 2-92-930; (ii) certified by the County of Cook as a veteran business enterprise; (iii) certified by the State of Illinois as a qualified service-disabled veteran-owned small business or a qualified veteran-owned small business pursuant to 30 ILCS 500/45-57; or (iv) verified and approved by the United States Department of Veterans Affairs as a service-disabled veteran-owned small business or a veteran-owned small business.

"Veteran-owned small local business" ("VBE") means a business that is both a veteran-owned business enterprise and a small local business enterprise, and which has been certified by the City as a veteran-owned small local business pursuant to MCC 2-92-930.

"Veteran" means a person who has served in the United States armed forces and was discharged or separated under honorable conditions.

(2) **Bid Incentive**

Unless otherwise prohibited by any federal, state or local law, the CPO shall allocate a bid incentive of 5% of the contract base price, in accordance with section 2-92-950 of the MCC, to any qualified bidder that is a veteran-owned small local business or an eligible joint venture.

The bid incentive is used only to calculate an amount to be used in evaluating the bid to determine the low bidder, and it does not affect the contract price.

Bidders desiring to receive this incentive must submit an affidavit and other supporting documents demonstrating that the bidder satisfies all pertinent requirements as a veteran-owned small local business or an eligible joint venture. Bidders should consult the DPS regulations regarding this incentive and be prepared to comply with the self-performance requirements, which in some circumstances affect the calculation of MBE and WBE participation toward contract goals when a small business enterprise involved in receiving this incentive is also a certified MBE or WBE.

As a condition of being awarded the bid incentive, the veteran-owned small local business or eligible joint venture shall continue to meet the definition of a veteran-owned small local business or an eligible joint venture. If a contract is awarded to the veteran-owned small local business or eligible joint venture, upon completion of the work, any veteran-owned small local business or eligible joint venture that receives a bid preference but fails to meet the definition of a veteran-owned small local business or eligible joint venture during the term of the contract for which the bid incentive was awarded shall be fined in an amount equal to three times the amount of the bid incentive awarded.

The contractor shall maintain adequate records necessary to ensure compliance with this section and shall submit such reports as required by the chief procurement officer. Full access to the contractor's and subcontractors' records shall be granted to the chief procurement officer, the commissioner of the supervising department, the inspector general, or any duly authorized representative thereof. The contractor and subcontractor shall maintain all relevant records a period that is the longer of seven years or as after final acceptance of the work in accordance with the Local Records Act.

E. Bid Incentive for Utilization of Veteran-Owned Subcontractors

"Bid incentive" means an amount deducted, for bid evaluation purposes only, from the contract base bid in order to calculate the bid price to be used to evaluate the bid on a competitively bid contract.

“Construction project” means any project to be paid for by the city, but which is not funded in whole or part by any federal or state funds, to construct, remodel or reconstruct any public works, public buildings, public structures, roadways, parkways, bridges, parking facilities or parks, or any portion of any of the same, belonging to the city within its geographical boundaries as they exist or shall exist in the future.

"Contract base bid" means the total dollar amount a contractor bids on a contract without factoring any bid incentive or percentage reductions to the bid amount.

“Prime contractor” means a person who is the primary contractor on a contract.

“Veteran-owned subcontractor” means a subcontractor that: (i) is a veteran-owned small local business, as the term is defined in MCC Section 2-92-920; (ii) holds all appropriate city licenses; and (iii) is subject to applicable city taxes; provided that a veteran-owned subcontractor shall not include the prime contractor.

Pursuant to MCC Section 2-92-940, unless otherwise prohibited by any federal, state or local law, the CPO shall allocate to any qualified bidder on any construction project the following bid incentive for utilization of veteran-owned subcontractors in the performance of the contract.

Total Dollar Value of Work Performed by Veteran-Owned Subcontractors as a Percentage of the Total Contract Value	Bid Incentive
1 to 16%	0.5% of the contract base bid
17 to 32%	1% of the contract base bid
33 to 49%	1.5% of the contract base bid
50% or greater	2% of the contract base bid

If a veteran-owned subcontractor subcontracts part of the work to another contractor, only the value of work performed by the veteran-owned subcontractor’s employees shall count towards the bid incentive, unless the sub-subcontractor is a veteran-owned subcontractor.

The bid incentive is used only to calculate an amount to be used in evaluating the bid to determine the low bidder, and it does not affect the contract price.

A contractor shall not be eligible to receive in one contract bid, the bid incentive allocated pursuant to this Section 2-92-940 and that allocated pursuant to Section 2-92-410 (bid incentive for certain city-based manufacturers). This bid incentive may not be combined with any other procurement set-aside benefit for a veteran-owned business enterprise under the MCC.

If a veteran-owned subcontractor is also an MBE/WBE, any participation on the contract that is utilized toward MBE/WBE goals on the prime contractor’s compliance plan shall not count toward the total dollar value of work performed by veteran-owned subcontractors for purposes of this Bid Incentive.

The prime contractor shall maintain records adequate to monitor compliance with this section and shall submit such reports as required by the CPO. Full access to the prime contractor’s records shall be granted to the CPO, the commissioner of the supervising department, the

inspector general, or any duly authorized representative thereof. The prime contractor and subcontractors shall maintain all relevant records for at least three years after the expiration of the contract.

The CPO may require, at the time of submission of a bid or at any time during the term of the contract, that the bidder or veteran-owned subcontractor submit an affidavit and other supporting documents demonstrating that a subcontractor is a veteran-owned subcontractor.

Upon completion of the work, any prime contractor that has failed to retain the percentage of veteran-owned subcontracts for which a bid incentive was taken into consideration in awarding of a contract shall be fined an amount equal to three times the amount of the bid incentive allocated, unless the prime contractor can demonstrate that due to circumstances beyond the prime contractor's control, the prime contractor for good cause was unable to retain the percentage of veteran-owned subcontractors throughout the duration of the contract period.

F. Graduates of Chicago Schools Apprentice Utilization (Section 2-92-335 Of The Chicago Municipal Code)

(a) For purposes of this section the following definitions apply:

"Apprentice" means any person who (1) is sponsored into an apprenticeship training program by a contractor that is authorized by a union to sponsor apprentices; and (2) has graduated from a Chicago Public Schools high school or is enrolled in, or has graduated from, a construction technology training program administered by the City Colleges of Chicago. The union's apprenticeship training program must be registered with the United States Department of Labor, or approved or recognized by the State of Illinois.

"Bid incentive" means an amount deducted, for bid evaluation purposes only, from the contract base bid in order to calculate the bid price to be used to evaluate the bid on a competitively bid construction project.

"Construction project" means any project to be paid for by-D.P.S., but which is not funded in whole or part by any federal funds, to construct, remodel or reconstruct any public works, public buildings, public structures, roadways, parkways, bridges, parking facilities or parks, or any portion of any of the same, belonging to the City within its geographical boundaries as they exist or shall exist in the future.

"Contract base bid" means the total dollar amount a contractor bids on a construction project without factoring any bid incentive or percentage reductions to the bid amount.

"Earned credit" means the amount of the bid incentive allocated to a contractor upon completion of a construction project in which the contractor met or exceeded his or her goals for the utilization of apprentices in performance of the total labor hours performed under the contract.

"Earned credit certificate" means a certificate issued by the chief procurement officer evidencing the amount of earned credit a contractor has been awarded.

"Labor hours" means the total hours of workers receiving an hourly wage who are directly employed at the work site. "Labor hours" shall include hours performed by workers employed by the contractor and all subcontractors working at the work site. "Labor hours" shall not include hours worked by non-working foremen, superintendents, owners and workers who are not subject to prevailing wage requirements.

(b) (1) For any construction project advertised having an estimated contract value of \$100,000.00 or more, and where not otherwise prohibited by federal, state or local law, the chief procurement officer shall allocate to any qualified bidder the following bid incentive for utilization of apprentices in performance of the total labor hours performed under contract.

Percentage of Total Labor Hours Performed By Apprentices	Bid Incentive
5 to 10%	1/2% of bid price
11 to 15%	1% of bid price

The bid incentive shall be calculated and applied in accordance with subsection (b)(2). The bid incentive is used only to calculate an amount to be used in evaluating the bid. The bid incentive does not affect the contract price.

(2) As part of the contract close-out procedure, if the chief procurement officer determines that the contractor has successfully met its apprentice utilization goals, the chief procurement officer shall issue an earned credit certificate that evidences the amount of earned credits allocated to the contractor. The contractor may apply the earned credits as the bid incentive for any future construction project contract bid of equal or greater dollar value.

The earned credit certificate is valid for three years from the date of issuance and shall not be applied towards any future contract bid after the expiration of that period.

The contractor may apply the earned credit certificate on multiple future construction project contract bids during the three-year period in which the certificate is valid, but may only receive one bid incentive for bid evaluation purposes on one construction project contract award. If the contractor applies the earned credit certificate on multiple construction project bids and is the lowest responsive and responsible bidder on more than one construction project bid, the earned credit certificate shall be applied to the construction project first to be advertised by D.P.S., or if multiple construction project bids were advertised on the same date, the earned credit certificate shall be applied only to the construction project with the greatest dollar value.

(c) The contractor shall maintain accurate and detailed books and records necessary to monitor compliance with this section and shall submit such reports as required by the chief procurement officer, or the commissioner of the supervising department.

Full access to the contractor's and subcontractors' records shall be granted to the chief procurement officer, the commissioner of the supervising department, or any duly authorized representative thereof. The contractor and subcontractors shall maintain all relevant records for a period of at least three years after final acceptance of the work.

(d) The chief procurement officer is authorized to adopt, promulgate and enforce reasonable rules pertaining to the administration and enforcement of this section.

G. Ex-Offender Apprentice Utilization (Section 2-92-336 of the Chicago Municipal Code)

(a) For purposes of this section the following definitions apply:

“Apprentice” means any person who is: (1) sponsored into an apprenticeship training program by a contractor that is authorized by a union to sponsor apprentices; (2) participating in a workforce development program of a delegate agency that receives funding from the Department Of Family and Support Services; and (3) an ex-offender. The union's apprenticeship training program must be registered with the United States Department of Labor,

or approved or recognized by the State of Illinois. For purposes of this definition, “participating in” means the duration of the pertinent contract or one year, whichever is less.

“Bid incentive” means an amount deducted, for bid evaluation purposes only, from the contract base bid in order to calculate the bid price to be used to evaluate the bid on a competitively bid construction project.

“Construction project” means any project to be paid for by the City, but which is not funded in whole or part by any federal or state funds, to construct, remodel or reconstruct any public works, public buildings, public structures, roadways, parkways, bridges, parking facilities or parks, or any portion of any of the same, belonging to the City within its geographical boundaries as they exist or shall exist in the future.

“Contract base bid” means the total dollar amount a contractor bids on a construction project without factoring any bid incentive or percentage reductions to the bid amount.

“Earned credit” means the amount of the bid incentive allocated to a contractor upon completion of a construction project in which the contractor met or exceeded his or her goals for the utilization of apprentices in performance of the total labor hours performed under the contract.

“Earned credit certificate” means a certificate issued by the chief procurement officer evidencing the amount of earned credit a contractor has been awarded.

“Ex-offender” means a resident of the City of Chicago who has been convicted of an imprisonable offense under the Illinois Criminal Code or another state's penal statute.

“Labor hours” means the total hours of workers receiving an hourly wage who are directly employed at the work site. “Labor hours” shall include hours performed by workers employed by the contractor and all subcontractors working at the work site. “Labor hours” shall not include hours worked by non-working foremen, superintendents, owners and workers who are not subject to prevailing wage requirements.

(b)(1) For any construction project advertised after the effective date of this section having an estimated contract value of \$100,000.00 or more, and where not otherwise prohibited by federal, state or local law, the chief procurement officer shall allocate to any qualified bidder the following bid incentive for utilization of apprentices in performance of the total labor hours performed under the contract.

(2) The Chief Procurement Officer is authorized to limit or preclude the use of apprentices for a particular contract if she determines, following consultation with the Commissioner of Family and Support Services, that the nature of the underlying offense raises concerns of suitability for that contract.

Percentage of Total Labor Hours Performed By Ex-Offender Apprentices	Bid Incentive
5 to 10%	1/2% of bid price
11 to 15%	1% of bid price

The bid incentive shall be calculated and applied in accordance with subsection (c)(2). The bid incentive does not affect the contract price and is used only to calculate an amount to be used in evaluating the bid.

(c)(1) For all construction projects advertised after the effective date of this section, the chief procurement officer shall include the bid incentive provision in all such advertisements, unless the limitation or preclusion of subsection (b)(2) applies.

(2) As part of the contract close-out procedure, if the chief procurement officer determines that the contractor has successfully met its apprentice utilization goals, the chief procurement officer shall issue an earned credit certificate that evidences the amount of earned credits allocated to the contractor. The contractor may apply the earned credits as the bid incentive for any future construction project contract bid of equal or greater dollar value.

The earned credit certificate is valid for three years from the date of issuance and shall not be applied towards any future contract bid after the expiration of that period.

The contractor may apply the earned credit certificate on multiple future construction project contract bids during the three-year period in which the certificate is valid, but may only receive one bid incentive for bid evaluation purposes on one construction project contract award. If the contractor applies the earned credit certificate on multiple construction project bids and is the lowest responsive and responsible bidder on more than one construction project bid, the earned credit certificate shall be applied to the construction project first to be advertised by D.P.S., or if multiple construction project bids were advertised on the same date, the earned credit certificate shall be applied only to the construction project with the greatest dollar value.

(d) The contractor shall maintain accurate and detailed books and records necessary to monitor compliance with this section and shall submit such reports as required by the chief procurement officer, or the commissioner of the supervising department.

Full access to the contractor's and subcontractors' records shall be granted to the chief procurement officer, the commissioner of the supervising department, or any duly authorized representative thereof. The contractor and subcontractors shall maintain all relevant records for at least three years after final acceptance of the work.

(e) The chief procurement officer is authorized to adopt, promulgate and enforce rules pertaining to the administration and enforcement of this section.

H. Mentoring Program Bid Preference (Section 2-92-535 of the Chicago Municipal Code)

For purposes of this section only, the following definitions shall apply:

"Mentoring agreement" means a written mentor-protégé agreement approved by the CPO with MBEs and WBEs to develop their capacity in becoming self-sufficient, competitive and profitable business enterprises, as defined in Section 2-92-535.

"Subcontractor-to-subcontractor mentoring agreement" means a subcontractor's written mentor-protégé agreement approved by the CPO to develop the capacity of MBE or WBE subcontractors, as defined in Section 2-92-535.

Unless otherwise prohibited by any federal, state or local law, the CPO shall allocate a bid incentive of 1% of the contract base price, in accordance with Section 2-92-535 of the MCC, to any prime contractor that has entered into a mentoring agreement or whose subcontractor has entered into a subcontractor-to-subcontractor mentoring agreement.

Bidders desiring to receive this incentive must submit an affidavit and other supporting documents demonstrating that the bidder satisfies all pertinent requirements as a veteran-owned small local business or an eligible joint venture at the time of bid submission and at any time during the term of the Contract, as requested by the CPO.

As a condition of being awarded the bid preference, the Contractor shall maintain records adequate to monitor compliance with MCC Section 2-92-535 and shall submit such reports as required by the CPO. Full access to the Contractor's records shall be granted to the CPO, the Commissioner of the supervising department, the Inspector General, or any duly authorized representative thereof. The Contractor and subcontractors shall maintain all relevant records for a period of no less than three years after the expiration of the Contract.

Upon completion of the work, any Contractor that has failed to maintain a mentoring agreement or a subcontractor that has a subcontractor-to-subcontractor mentoring agreement, for which a bid preference was taken into consideration in awarding of a contract, shall be fined in an amount equal to three times the amount of the bid preference allocated, unless the Contractor can demonstrate that due to circumstances beyond the Contractor's control, the Contractor for good cause was unable to maintain a mentoring agreement or a subcontractor that has a subcontractor-to-subcontractor mentoring agreement throughout the duration of the Contract period.

J. Commitment Regarding Business Enterprises Owned By People With Disabilities (BEPD)

(a) Policy and Terms. It is the policy of the City that businesses certified as Business Enterprises owned by People with Disabilities (BEPD) in accordance with MCC 2-92-337 et seq., *Regulations Governing Certification of Business Enterprises owned by People with Disabilities*, and all other Regulations promulgated under the aforementioned sections of the Municipal Code; shall have the full and fair opportunities to participate fully in the performance of this Contract. Therefore, the Bidder or Contractor shall not discriminate against any person or business on the basis of disability, and shall take affirmative actions to ensure BEPDs shall have full and fair opportunities to compete for and perform subcontracts for supplies or services.

Failure to carry out the commitments and policies set forth herein shall constitute a material breach of the Contract and may result in the termination of the Contract or such remedy as the City deems appropriate.

(b) Definitions.

For purposes of this section only, the following definitions apply:

(1) "Business Enterprises owned or operated by People with Disabilities" or "BEPD" has the same meaning ascribed to it in section 2-92-586.

(2) "Bid incentive" means an amount deducted, for bid evaluation purposes only, from the contract base bid in order to calculate the bid price to be used to evaluate the bid on a competitively bid contract.

(3) "Contract base bid" means the total dollar amount a contractor bids on a contract without factoring any bid incentive or percentage reductions to the bid amount.

(c) Commitments. Where not otherwise prohibited by federal, state, or local law, the CPO shall allocate to any qualified bidder the following bid incentive for utilization of a BEPD as a prime contractor or subcontractor in the performance of the contract.

% of total dollar contract amount performed by BEPD	Bid incentive
2 to 5%	1% of the contract base bid
6 to 9%	2% of the contract base bid
10 to 13%	3% of the contract base

	bid
14% or more	4% of the contract base bid

The bid incentive shall be calculated and applied in accordance with the provisions of this section. The bid incentive is used only to calculate an amount to be used in evaluating the bid. The bid incentive does not affect the contract price.

Upon completion of the work, any Contractor that has failed to retain the percentage of BEPD subcontractors for which a bid incentive was taken into consideration in awarding of a contract shall be fined an amount equal to three times the amount of the bid incentive allocated, unless the Contractor can demonstrate that due to circumstances beyond the Contractor's control, the Contractor for good cause was unable to retain the percentage of BEPD participants throughout the duration of the contract period.\

(d) Records and Reports. The Contractor shall maintain accurate and detailed books and records necessary to monitor compliance with this section and shall submit such reports as required by the CPO, or the commissioner of the supervising department.

Full access to the Contractor's and Subcontractor's records shall be granted to the CPO, the commissioner of the supervising department, or any duly authorized representative thereof. The Contractor and Subcontractors shall maintain all relevant records for a period of at least three years after final acceptance of the work.

XXIII. MISCELLANEOUS

A. Counterparts

This Contract is comprised of several identical counterparts, each to be fully executed by the parties and each to be deemed an original having identical legal effect.

B. Modifications

No changes, modifications, cancellation, or discharge of this Contract, or any part of it, is valid unless in writing and signed by the parties to it, or their respective successors and assigns.

C. No Waiver of Legal Rights

1. The City will not be precluded or estopped from showing the true amount and character of the Work performed and materials furnished by you, or from showing that any measurement, estimate, or certificate is untrue or incorrectly made, or that the Work or materials do not conform in fact to the Contract. The City will not be precluded or estopped from recovering from you and your sureties such damages as the City may sustain by reason of your failure to comply with the terms of the Contract.
2. Neither the acceptance by the City, or any representative of the City, nor any payment for or acceptance of the whole or any part of the Work, nor any extension of time, nor any possession taken by the City, will operate as a waiver by the City of any portion of the Contract, or of any power reserved in it or any right of the City to damages provided in it. A waiver of any breach of the Contract does not constitute a waiver of any other or subsequent breach.
3. Miscellaneous Provisions: Whenever under this Contract, the City by a proper authority waives your performance in any respect or waives a requirement or condition to either the City's or your performance, the waiver so granted, whether express or implied, only applies to the particular instance and is not deemed a waiver forever or for subsequent instance of the performance, requirement, or condition. No such waiver may be construed as a modification of this Contract

regardless of the number of times the City may have waived the performance, requirement, or condition.

D. Governing Law

This Contract is governed in accordance with the laws of the State of Illinois without regard to choice of law principles. You irrevocably submit, and will cause your Subcontractors to submit, to the original jurisdiction of those State or Federal courts located within the County of Cook, State of Illinois, with regard to any controversy arising out of, relating to, or in any way concerning the execution or performance of this Contract. You consent to service of process on you, at the option of the City, either by registered or certified mail addressed to the applicable office as provided for in this Contract, by registered or certified mail addressed to the office actually maintained by you, or by personal delivery on any of your officers, directors, or managing or general agents.

E. Consent to Service of Process and Jurisdiction

All judicial proceedings brought against you with respect to this Contract may be brought in (i) any court of the State of Illinois of competent jurisdiction; and (ii) any Federal court of competent jurisdiction located within the boundaries of the Federal court district of the Northern District of Illinois, and by execution and delivery of this Contract, you accept, for yourself and in connection with your properties, generally and unconditionally, the exclusive jurisdiction of those courts, and irrevocably agree to be bound by any final judgment rendered by them from which no appeal has been taken or is available. You designate and appoint the representative identified on the signature page to this Contract under the heading "Designation of Agent for Service Process" as your agent in Chicago, Illinois to receive on your behalf service of all process in any such proceedings in the court (which representative must be available to receive the service at all times), the service being acknowledged by the representative to effective and binding service in every respect. The agent may be changed only upon the giving of written notice by you to the City of the name and address of a new Agent for Service of Process who works within the geographical boundaries of the City of Chicago and is retained or employed by you. You irrevocably waive any objection (including any objection of the laying of venue or based on the grounds of *forum non conveniens*) which you may now or later have to bring any action or proceeding with respect to this Contract in the jurisdiction set forth above. Nothing in this section affects the right to serve process in any other manner permitted by law or limits the right of the City to bring proceedings against you in the courts of any other jurisdiction.

F. Contractor Cooperation

You must act in good faith in the performance of this Contract and co-operate with the City and any other City contractors at the site to assure timely completion of the Work. You must implement such measures as may be necessary to ensure that your staff and your Subcontractors are bound by the provisions of this Contract.

G. Joint and Several Liability

If you, or your successors or assigns, if any, are comprised of more than one individual or other legal entity (or a combination of them), then each and every obligation or undertaking stated in this Contract that you are to fulfill or perform is the joint and several obligation or undertaking of each such individual or other legal entity.

H. No Third Party Beneficiaries

Except as may otherwise be provided in this Contract, this Contract is solely for the benefit of the parties and nothing in this Contract is intended to create any third party beneficiary rights for Subcontractors or other third parties.

I. Notices

Notices, unless expressly provided for otherwise in this Contract, must be in writing and must be delivered personally or by placing in the United States mail, first class and certified, return receipt requested, with postage prepaid and addressed as follows:

1. If to the City: Commissioner, (Addresses of Department set forth in Book Two)
2. With Copies to: The Chief Procurement Officer, City Hall, 121 North LaSalle, Room 403, Chicago, IL 60602;
3. If to you: The address identified on your Proposal; and
4. With Copies to: Your bonding company.

Notices delivered by mail are deemed effective three days after mailing in accordance with this Section. Notices delivered personally are deemed effective upon receipt. Refusal to accept notice has the same effect as if notice were delivered. The addresses stated in this Contract may be revised without need for modification or amendment of this Contract, as long as written notification is given in accordance with this Section.

J. Authority

1. Contractor: Your execution of this Contract is authorized and signature(s) of each person signing on your behalf has been made with complete and full authority to commit you to all terms and conditions of this Contract, including every representation, certification, and warranty contained in it, attached to it and collectively incorporated by reference in it, or that may be required by the terms and conditions of this Contract. If other than a sole proprietorship, you must provide satisfactory evidence that the execution of the Contract is authorized in accordance with the business entities rules and procedures.
2. Consents and Approvals: Unless otherwise expressly stated in this Contract, any consents and approvals to be given by the City are made by the Commissioner.

K. Software License Agreements

The City reserves the right to negotiate software license agreements directly with the software supplier.

XXIV. SPECIAL CONDITIONS REGARDING MINORITY OWNED BUSINESS ENTERPRISE COMMITMENT AND WOMEN OWNED BUSINESS ENTERPRISE COMMITMENT IN CONSTRUCTION CONTRACTS

I. Policy and Terms

As set forth in 2-92-650 *et seq.* of the Municipal Code of Chicago (MCC) it is the policy of the City of Chicago that businesses certified as Minority Owned Business Enterprises (MBEs) and Women Owned Business Enterprises (WBEs) in accordance with Section 2-92-420 *et seq.* of the MCC and Regulations Governing Certification of Minority and Women-owned Businesses, and all other Regulations promulgated under the aforementioned sections of the Municipal Code, as well as MBEs and WBEs certified by Cook County, Illinois, shall have full and fair opportunities to participate fully in the performance of this contract. Therefore, bidders shall not discriminate against any person or business on the basis of race, color, national origin, or sex, and shall take affirmative actions to ensure that MBEs and WBEs shall have full and fair opportunities to compete for and perform subcontracts for supplies or services.

Failure to carry out the commitments and policies set forth herein shall constitute a material breach of the contract and may result in the termination of the contract or such remedy as the City of Chicago deems appropriate.

Under the City's MBE/WBE Construction Program as set forth in MCC 2-92-650 *et seq.*, the program-wide aspirational goals are 26% Minority Owned Business Enterprise participation and 6% Women Owned Business Enterprise participation. The City has set goals of 26% and 6% on all contracts in line with its overall aspirational goals, unless otherwise specified herein, and is requiring that bidders make a good faith effort in meeting or exceeding these goals.

Pursuant to MCC 2-92-535, the prime contractor may apply be awarded an additional 0.5 percent credit, up to a maximum of a total of 5 percent additional credit, for every 1 percent of the value of a contract self-performed by MBEs or WBEs, or combination thereof, that have entered into a mentoring agreement with the contractor or subcontractor-to-subcontractor mentoring agreement. This up to 5% may be applied to the Contract Specific Goals, or it may be in addition to the Contract Specific Goals.

As provided in Section 2-92-720(e), Diversity Credit Program credits awarded by the City's affirmative action advisory board may also be applied to the contract specific goals.

Contract Specific Goals and Bids

A bid may be rejected as non-responsive if it fails to submit one or more of the following with its bid demonstrating its good faith efforts to meet the Contract Specific Goals by reaching out to MBEs and WBEs to perform work on the contract:

- A. An MBE/WBE compliance plan demonstrating how the bidder plans to meet the Contract Specific Goals (Schedule D); and/or
- B. Documentation of Good Faith Efforts (Schedule H).

If a bidder's compliance plan falls short of the Contract Specific Goals, the bidder must include either a Schedule H demonstrating that it has made Good Faith Efforts to find MBE and WBE firms to participate or a request for a reduction or waiver of the goals.

Accordingly, the bidder or contractor commits to make good faith efforts to expend at least the following percentages of the total contract price (inclusive of any and all modifications and amendments), if awarded the contract:

MBE Contract Specific Goal: [SEE BOOK 2]
WBE Contract Specific Goal: [SEE BOOK 2]

This Contract Specific Goal provision shall supersede any conflicting language or provisions that may be contained in this document.

For purposes of evaluating the bidder's responsiveness, the MBE and WBE Contract Specific Goals shall be percentages of the bidder's total base bid. However, the MBE and WBE Contract Specific Goals shall apply to the total value of this contract, including all amendments and modifications.

Contract Specific Goals and Contract Modifications

1. The MBE and WBE Contract Specific Goals established at the time of contract bid shall also apply to any modifications to the Contract after award. That is, any additional work and/or money added to the Contract must also adhere to these Special Conditions requiring Contractor to (sub)contract with MBEs and WBEs to meet the Contract Specific Goals.
 - a. Contractor must assist the Construction Manager or user Department in preparing its "proposed contract modification" by evaluating the subject matter of the modification and determining whether there are opportunities for MBE or WBE participation and at what rates.
 - b. Contractor must produce a statement listing the MBEs/WBEs that will be utilized on any contract modification. The statement must include the percentage of utilization of the firms. If no MBE/WBE participation is available, an explanation of good faith efforts to obtain participation must be included.
2. The Chief Procurement Officer shall review each proposed contract modification and amendment that by itself or aggregated with previous modification/amendment requests, increases the contract value by ten percent (10%) of the initial award, or \$50,000, whichever is less, for opportunities to increase the participation of MBEs or WBEs already involved in the Contract.

II. Definitions

"Area of Specialty" means the description of a MBE's or WBE's activity that has been determined by the Chief Procurement Officer to be most reflective of the firm's claimed specialty or expertise. Each MBE and WBE letter of certification contains a description of the firm's Area of Specialty. Credit toward the Contract Specific Goals shall be limited to the participation of firms performing within their Area of Specialty. The Department of Procurement Services does not make any representation concerning the ability of any MBE or WBE to perform work within its Area of Specialty. It is the responsibility of the bidder or contractor to determine the capability and capacity of MBEs and WBEs to perform the work proposed.

"B.E.P.D." means an entity certified as a Business enterprise owned or operated by people with disabilities as defined in MCC 2-92-586.

"Broker" means a person or entity that fills orders by purchasing or receiving supplies from a third party supplier rather than out of its own existing inventory and provides no commercially useful function other than acting as a conduit between his or her supplier and his or her customer.

"Chief Procurement Officer" or "CPO" means the chief procurement officer of the City of Chicago or his or her designee.

"Commercially Useful Function" means responsibility for the execution of a distinct element of the work of the contract, which is carried out by actually performing, managing, and supervising the work involved, evidencing the responsibilities and risks of a business owner such as negotiating the terms of (sub)contracts, taking on a financial risk commensurate with the contract or its subcontract, responsibility

for acquiring the appropriate lines of credit and/or loans, or fulfilling responsibilities as a joint venture partner as described in the joint venture agreement.

“Construction Contract” means a contract, purchase order or agreement (other than lease of real property) for the construction, repair, or improvement of any building, bridge, roadway, sidewalk, alley, railroad or other structure or infrastructure, awarded by any officer or agency of the City, other than the City Council, and whose cost is to be paid from City funds.

“Contract Specific Goals” means the subcontracting goals for MBE and WBE participation established for a particular contract.

“Contractor” means any person or business entity that has entered into a construction contract with the City, and includes all partners, affiliates and joint ventures of such person or entity.

“Direct Participation” the value of payments made to MBE or WBE firms for work that is done in their Area of Specialty directly related to the performance of the subject matter of the Construction Contract will count as Direct Participation toward the Contract Specific Goals.

“Directory” means the Directory of Minority Business MBEs and WBEs maintained and published by the Chief Procurement Officer. The Directory identifies firms that have been certified as MBEs and WBEs, and includes the date of their last certifications and the areas of specialty in which they have been certified. Bidders and contractors are responsible for verifying the current certification status of all proposed MBEs and WBEs.

“Executive Director” means the executive director of the Office of Compliance or his or her designee.

“Good Faith Efforts” means actions undertaken by a bidder or contractor to achieve a Contract Specific Goal that, by their scope, intensity, and appropriateness to the objective, can reasonably be expected to fulfill the program’s requirements.

“Joint venture” means an association of a MBE or WBE firm and one or more other firms to carry out a single, for-profit business enterprise, for which each joint venture partner contributes property, capital, efforts, skills and knowledge, and in which the MBE or WBE is responsible for a distinct, clearly defined portion of the work of the contract and whose share in the capital contribution, control, management, risks, and profits of the joint venture are commensurate with its ownership interest.

“Mentor-Protégé Agreement” means an agreement between a prime and MBE or WBE subcontractor (“Mentoring Agreement”), or an agreement between a prime’s subcontractor and MBE or WBE subcontractor (“Subcontractor-to-Subcontractor Mentoring Agreement”), pursuant to MCC 2-92-535, that is approved by the City of Chicago and complies with all requirements of MCC 2-92-535 and any rules and regulations promulgated by the Chief Procurement Officer.

“Minority Business Enterprise” or “MBE” means a firm awarded certification as a minority owned and controlled business in accordance with City Ordinances and Regulations as well as a firm awarded certification as a minority owned and controlled business by Cook County, Illinois.

“Supplier” or “Distributor” refers to a company that owns, operates, or maintains a store, warehouse or other establishment in which materials, supplies, articles or equipment are bought, kept in stock and regularly sold or leased to the public in the usual course of business. A regular distributor or supplier is a firm that owns, operates, or maintains a store, warehouse, or other establishment in which the materials or supplies required for performance of the Contract are bought, kept in stock, and regularly sold to the public in the usual course of business. To be a regular distributor the firm must engage in, as its principal business and in its own name, the purchase and sale of the products in question. A regular distributor in such bulk

items as steel, cement, gravel, stone, and petroleum products need not keep such products in stock if it owns or operates distribution equipment.

“Women Business Enterprise” or “WBE” means a firm awarded certification as a women owned and controlled business in accordance with City Ordinances and Regulations as well as a firm awarded certification as a women owned business by Cook County, Illinois.

III. Joint Ventures

The formation of joint ventures to provide MBEs and WBEs with capacity and experience at the prime contracting level, and thereby meet Contract Specific Goals (in whole or in part) is encouraged. A joint venture may consist of any combination of MBEs, WBEs, and non-certified firms as long as one member is an MBE or WBE.

A. The joint venture may be eligible for credit towards the Contract Specific Goals only if:

1. The MBE or WBE joint venture partner’s share in the capital contribution, control, management, risks and profits of the joint venture is equal to its ownership interest;
2. The MBE or WBE joint venture partner is responsible for a distinct, clearly defined portion of the requirements of the contract for which it is at risk;
3. Each joint venture partner executes the bid to the City; and
4. The joint venture partners have entered into a written agreement specifying the terms and conditions of the relationship between the partners and their relationship and responsibilities to the contract, and all such terms and conditions are in accordance with the conditions set forth in Items 1, 2, and 3 above in this Paragraph A.

B. The Chief Procurement Officer shall evaluate the proposed joint venture agreement, the Schedule B submitted on behalf of the proposed joint venture, and all related documents to determine whether these requirements have been satisfied. The Chief Procurement Officer shall also consider the record of the joint venture partners on other City of Chicago contracts. The decision of the Chief Procurement Officer regarding the eligibility of the joint venture for credit towards meeting the Contract Specific Goals, and the portion of those goals met by the joint venture, shall be final.

The joint venture may receive MBE or WBE credit for work performed by the MBE or WBE joint venture partner(s) equal to the value of work performed by the MBE or WBE with its own forces for a distinct, clearly defined portion of the work.

Additionally, if employees of the joint venture entity itself (as opposed to employees of the MBE or WBE partner) perform the work then the value of the work may be counted toward the Contract Specific Goals at a rate equal to the MBE or WBE firm’s percentage of participation in the joint venture as described in Schedule B.

The Chief Procurement Officer may also count the dollar value of work subcontracted to other MBEs and WBEs. Work performed by the forces of a non-certified joint venture partner shall not be counted toward the Contract Specific Goals.

C. Schedule B: MBE/WBE Affidavit of Joint Venture

Where the bidder’s Compliance Plan includes the participation of any MBE or WBE as a joint venture partner, the bidder must submit with its bid a Schedule B and the proposed joint venture agreement. These documents must both clearly evidence that the MBE or WBE joint venture partner(s) will be responsible

for a clearly defined portion of the work to be performed, and that the MBE's or WBE's responsibilities and risks are proportionate to its ownership percentage. The proposed joint venture agreement must include specific details related to:

1. The parties' contributions of capital, personnel, and equipment and share of the costs of insurance and bonding;
2. Work items to be performed by the MBE's or WBE's own forces and/or work to be performed by employees of the newly formed joint venture entity;
3. Work items to be performed under the supervision of the MBE or WBE joint venture partner;

and

4. The MBE's or WBE's commitment of management, supervisory, and operative personnel to the performance of the contract.

NOTE: Vague, general descriptions of the responsibilities of the MBE or WBE joint venture partner do not provide any basis for awarding credit. For example, descriptions such as "participate in the budgeting process," "assist with hiring," or "work with managers to improve customer service" do not identify distinct, clearly defined portions of the work. Roles assigned should require activities that are performed on a regular, recurring basis rather than as needed. The roles must also be pertinent to the nature of the business for which credit is being sought. For instance, if the scope of work required by the City entails the delivery of goods or services to various sites in the City, stating that the MBE or WBE joint venture partner will be responsible for the performance of all routine maintenance and all repairs required to the vehicles used to deliver such goods or services is pertinent to the nature of the business for which credit is being sought.

IV. Counting MBE and WBE Participation Towards the Contract Specific Goals

Refer to this section when preparing the MBE/WBE compliance plan and completing Schedule D-1 for guidance on what value of the participation by MBEs and WBEs will be counted toward the stated Contract Specific Goals. The "Percent Amount of Participation" depends on whether and with whom a MBE or WBE subcontracts out any portion of its work and other factors.

Firms that are certified as both MBE and WBE may only be listed on a bidder's compliance plan as either a MBE or a WBE to demonstrate compliance with the Contract Specific Goals. For example, a firm certified as both a MBE and a WBE may only listed on the bidder's compliance plan under one of the categories, but not both. Additionally, a firm that is certified as both a MBE and a WBE could not self-perform 100% of a contract, it would have to show good faith efforts to meet the Contract Specific Goals by including in its compliance plan work to be performed by another MBE or WBE firm, depending on which certification that dual-certified firm chooses to count itself as.

- A. Only expenditures to firms that perform a **Commercially Useful Function** as defined above may count toward the Contract Specific Goals.
 1. The CPO will determine whether a firm is performing a commercially useful function by evaluating the amount of work subcontracted, whether the amount the firm is to be paid under the contract is commensurate with the work it is actually performing and the credit claimed for its performance of the work, industry practices, and other relevant factors.
 2. A MBE or WBE does not perform a commercially useful function if its participation is only required to receive payments in order to obtain the appearance of MBE or WBE participation. The CPO may examine similar commercial transactions, particularly those in which MBEs or

WBEs do not participate, to determine whether non MBE and non WBE firms perform the same function in the marketplace to make a determination.

- B. Only the value of the dollars paid to the MBE or WBE firm for work that it performs in its **Area of Specialty** in which it is certified counts toward the Contract Specific Goals.

Only payments made to MBE and WBE firms that meet BOTH the Commercially Useful Function and Area of Specialty requirements above will be counted toward the Contract Specific Goals.

- C. If the MBE or WBE performs the work itself:

- 1. 100% of the value of work actually performed by the MBE's or WBE's own forces shall be counted toward the Contract Specific Goals, including the cost of supplies purchased or equipment leased by the MBE or WBE from third parties or second tier subcontractors in order to perform its (sub)contract with its own forces. 0% of the value of work at the project site that a MBE or WBE subcontracts to a non-certified firm counts toward the Contract Specific Goals

- D. If the MBE or WBE is a manufacturer:

- 1. 100% of expenditures to a MBE or WBE manufacturer for items needed for the Contract shall be counted toward the Contract Specific Goals. A manufacturer is a firm that operates or maintains a factory or establishment that produces on the premises the materials or supplies obtained by the bidder or contractor.

- E. If the MBE or WBE is a distributor or supplier:

- 1. 60% of expenditures for materials and supplies purchased from a MBE or WBE that is certified as a regular dealer or supplier shall be counted toward the Contract Specific Goals.

- F. If the MBE or WBE is a broker:

- 1. 0% of expenditures paid to brokers will be counted toward the Contract Specific Goals.
- 2. As defined above, Brokers provide no commercially useful function.

- G. If the MBE or WBE is a member of the joint venture contractor/bidder:

- 1. A joint venture may count the portion of the total dollar value of the contract equal to the distinct, clearly defined portion of the work of the contract that the MBE or WBE performs with its own forces toward the Contract Specific Goals.
 - i. OR if employees of this distinct joint venture entity perform the work then the value of the work may be counted toward the Contract Specific Goals at a rate equal to the MBE or WBE firm's percentage of participation in the joint venture as described in Schedule B.
- 2. Note: a joint venture may also count the dollar value of work subcontracted to other MBEs and WBEs, however, work subcontracted out to non-certified firms may not be counted.

- H. If the MBE or WBE subcontracts out any of its work:

- 1. 100% of the value of the work subcontracted to other MBEs or WBEs performing work in its Area of Specialty may be counted toward the Contract Specific Goals.

2. 0% of the value of work that a MBE or WBE subcontracts to a non-certified firm counts toward the Contract Specific Goals (except for the cost of supplies purchased or equipment leased by the MBE or WBE from third parties or second tier subcontractors in order to perform its (sub)contract with its own forces as allowed by C.1. above).
3. The fees or commissions charged for providing a *bona fide* service, such as professional, technical, consulting or managerial services or for providing bonds or insurance or the procurement of essential personnel, facilities, equipment, materials or supplies required for performance of the Contract, may be counted toward the Contract Specific Goals, provided that the fee or commission is determined by the Chief Procurement Officer to be reasonable and not excessive as compared with fees customarily allowed for similar services.
4. The fees charged for delivery of materials and supplies required on a job site (but not the cost of the materials and supplies themselves) when the hauler, trucker, or delivery service is not also the manufacturer of or a regular dealer in the materials and supplies, provided that the fee is determined by the Chief Procurement Officer to be reasonable and not excessive as compared with fees customarily allowed for similar services.
5. The fees or commissions charged for providing any bonds or insurance, but not the cost of the premium itself, specifically required for the performance of the Contract, provided that the fee or commission is determined by the Chief Procurement Officer to be reasonable and not excessive as compared with fees customarily allowed for similar services.

V. Procedure to Determine Bid Compliance

The following Schedules and requirements govern the bidder's or contractor's MBE/WBE proposal:

A. Schedule B: MBE/WBE Affidavit of Joint Venture

1. Where the bidder's Compliance Plan includes the participation of any MBE or WBE as a joint venture partner, the bidder must submit with its bid a Schedule B and the proposed joint venture agreement. See Section III above for detailed requirements.

B. Schedule C: MBE/WBE Letter of Intent to Perform as a Subcontractor or Supplier

The bidder must submit the appropriate Schedule C with the bid for each MBE and WBE included on the Schedule D. The City encourages subcontractors to utilize the electronic fillable format Schedule C, which is available at the Department of Procurement Services website, <http://cityofchicago.org/forms>. Suppliers must submit the Schedule C for Suppliers, first tier subcontractors must submit a Schedule C for Subcontractors to the Prime Contractor and second or lower tier subcontractors must submit a Schedule C for second tier Subcontractors. Each Schedule C must accurately detail the work to be performed by the MBE or WBE and the agreed upon rates/prices. Each Schedule C must also include a separate sheet as an attachment on which the MBE or WBE fully describes its proposed scope of work, including a description of the commercially useful function being performed by the MBE or WBE in its Area of Specialty. If a facsimile copy of the Schedule C has been submitted with the bid, an executed original Schedule C must be submitted by the bidder for each MBE and WBE included on the Schedule D within five (5) business days after the date of the bid opening.

C. Schedule D: Compliance Plan Regarding MBE and WBE Utilization

The bidder must submit a Schedule D with the bid. The City encourages bidders to utilize the electronic fillable format Schedule D, which is available at the Department of Procurement Services website, <http://cityofchicago.org/forms>. An approved Compliance Plan is required before a contract may commence.

The Compliance Plan must commit to the utilization of each listed MBE and WBE. The bidder is responsible for calculating the dollar equivalent of the MBE and WBE Contract Specific Goals as percentages of the total base bid. All Compliance Plan commitments must conform to the Schedule Cs.

A bidder or contractor may not modify its Compliance Plan after bid opening except as directed by the Department of Procurement Services to correct minor errors or omissions. Bidders shall not be permitted to add MBEs or WBEs after bid opening to meet the Contract Specific Goals, however, contractors are encouraged to add additional MBE/WBE vendors to their approved compliance plan during the performance of the contract when additional opportunities for participation are identified. Except in cases where substantial, documented justification is provided, the bidder or contractor shall not reduce the dollar commitment made to any MBE or WBE in order to achieve conformity between the Schedule Cs and Schedule D. All terms and conditions for MBE and WBE participation on the contract must be negotiated and agreed to between the bidder or contractor and the MBE or WBE prior to the submission of the Compliance Plan. If a proposed MBE or WBE ceases to be available after submission of the Compliance Plan, the bidder or contractor must comply with the provisions in Section VII.

D. Letters of Certification

A copy of each proposed MBE's and WBE's Letter of Certification from the City of Chicago or Cook County, Illinois, must be submitted with the bid.

A Letters of Certification includes a statement of the MBE's or WBE's area(s) of specialty. The MBE's or WBE's scope of work as detailed in the Schedule C must conform to its area(s) of specialty. Where a MBE or WBE is proposed to perform work not covered by its Letter of Certification, the MBE or WBE must request the addition of a new area at least 30 calendar days prior to the bid opening.

E. Schedule F: Report of Subcontractor Solicitations

A Schedule F must be submitted with the bid, documenting all subcontractors and suppliers solicited for participation on the contract by the bidder. Failure to submit the Schedule F may render the bid non-responsive.

F. Schedule H: Documentation of Good Faith Efforts

1. If a bidder determines that it is unable to meet the Contract Specific Goals, it must document its good faith efforts to do so, including the submission of Attachment C, Log of Contacts.
2. If the bidder's Compliance Plan demonstrates that it has not met the Contract Specific Goals in full or in part, the bidder must submit its Schedule H no later than three business days after notification by the Chief Procurement Officer of its status as the apparent lowest bidder. Failure to submit a complete Schedule H will cause the bid to be rejected as non-responsive.
3. Documentation must include but is not necessarily limited to:
 - a. A detailed statement of efforts to identify and select portions of work identified in the bid solicitation for subcontracting to MBEs and WBEs;
 - b. A listing of all MBEs and WBEs contacted for the bid solicitation that includes:
 - i. Names, addresses, emails and telephone numbers of firms solicited;

- ii. Date and time of contact;
 - iii. Person contacted;
 - iv. Method of contact (letter, telephone call, facsimile, electronic mail, etc.).
 - c. Evidence of contact, including:
 - i. Project identification and location;
 - ii. Classification/commodity of work items for which quotations were sought;
 - iii. Date, item, and location for acceptance of subcontractor bids;
 - iv. Detailed statements summarizing direct negotiations with appropriate MBEs and WBEs for specific portions of the work and indicating why agreements were not reached.
 - v. Bids received from all subcontractors.
 - d. Documentation of bidder or contractor contacts with at least one of the minority and women assistance associations on Attachment A.
- G. Agreements between a bidder or contractor and a MBE or WBE in which the MBE or WBE promises not to provide subcontracting quotations to other bidders or contractors are prohibited.
- H. Prior to award, the bidder agrees to promptly cooperate with the Department of Procurement Services in submitting to interviews, allowing entry to places of business, providing further documentation, or soliciting the cooperation of a proposed MBE or WBE. Failure to cooperate may render the bid non-responsive.
- I. If the City determines that the Compliance Plan contains minor errors or omissions, the bidder or contractor must submit a revised Compliance Plan within five (5) business days after notification by the City that remedies the minor errors or omissions. Failure to correct all minor errors or omissions may result in the determination that a bid is non-responsive.
- J. No later than three (3) business days after receipt of the executed contract, the contractor must execute a complete subcontract agreement or purchase order with each MBE and WBE listed in the Compliance Plan. No later than eight (8) business days after receipt of the executed contract, the contractor must provide copies of each signed subcontract, purchase order, or other agreement to the Department of Procurement Services.
- K. Any applications for City approval of a Mentor Protégé agreement must be included with the bid. If the application is not approved, the bidder must show that it has made good faith efforts to meet the contract specific goals.

VI. Demonstration of Good Faith Efforts

- A. In evaluating the Schedule H to determine whether the bidder or contractor has made good faith efforts, the performance of other bidders or contractors in meeting the goals may be considered.
- B. The Chief Procurement Officer shall consider, at a minimum, the bidder's efforts to:
- 1. Solicit through reasonable and available means at least 50% (or at least five when there are more than eleven certified firms in the commodity area) of MBEs and WBEs certified in the anticipated scopes of subcontracting of the contract, as documented by the Schedule H. The bidder or contractor must solicit MBEs and WBEs within seven (7) days prior to the date bids are due. The bidder or contractor must take appropriate steps to follow up initial solicitations with interested MBEs or WBEs.

2. Advertise the contract opportunities in media and other venues oriented toward MBEs and WBEs.
 3. Provide interested MBEs or WBEs with adequate information about the plans, specifications, and requirements of the contract, including addenda, in a timely manner to assist them in responding to the solicitation.
 4. Negotiate in good faith with interested MBEs or WBEs that have submitted bids. That there may be some additional costs involved in soliciting and using MBEs and WBEs is not a sufficient reason for a bidder's failure to meet the Contract Specific Goals, as long as such costs are reasonable.
 5. Not reject MBEs or WBEs as being unqualified without sound reasons based on a thorough investigation of their capabilities. The MBE's or WBE's standing within its industry, membership in specific groups, organizations, or associations and political or social affiliations are not legitimate causes for rejecting or not soliciting bids to meet the Contract Specific Goals.
 6. Make a portion of the work available to MBE or WBE subcontractors and suppliers and selecting those portions of the work or material consistent with the available MBE or WBE subcontractors and suppliers, so as to facilitate meeting the Contract Specific Goals.
 7. Make good faith efforts, despite the ability or desire of a bidder or contractor to perform the work of a contract with its own organization. A bidder or contractor who desires to self-perform the work of a contract must demonstrate good faith efforts unless the Contract Specific Goals have been met.
 8. Select portions of the work to be performed by MBEs or WBEs in order to increase the likelihood that the goals will be met. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate MBE or WBE participation, even when the bidder or contractor might otherwise prefer to perform these work items with its own forces.
 9. Make efforts to assist interested MBEs or WBEs in obtaining bonding, lines of credit, or insurance as required by the City or bidder or contractor.
 10. Make efforts to assist interested MBEs or WBEs in obtaining necessary equipment, supplies, materials, or related assistance or services; and
 11. Effectively use the services of the City; minority or women community organizations; minority or women assistance groups; local, state, and federal minority or women business assistance offices; and other organizations to provide assistance in the recruitment and placement of MBEs or WBEs.
- C. If the bidder disagrees with the City's determination that it did not make good faith efforts, the bidder may file a protest pursuant to the Department of Procurement Services Solicitation and Contracting Process Protest Procedures within 10 business days of a final adverse decision by the Chief Procurement Officer.

VII. Changes to Compliance Plan

- A. No changes to the Compliance Plan or contractual MBE and WBE commitments or substitution of MBE or WBE subcontractors may be made without the prior written approval of the Chief Procurement Officer. Unauthorized changes or substitutions, including performing the work designated for a subcontractor with the contractor's own forces, shall be a violation of these Special Conditions and a breach of the contract with the City, and may cause termination of the executed Contract for breach, and/or subject the bidder or contractor to contract remedies or other sanctions. The facts supporting the request for changes must not have been known nor reasonably could have been known by the parties prior to entering into the subcontract. Bid shopping is prohibited. The bidder or contractor must negotiate with the subcontractor to resolve the problem. If requested by either party, the Department of Procurement Services shall facilitate such a meeting. Where there has been a mistake or disagreement about the scope of work, the MBE or WBE can be substituted only where an agreement cannot be reached for a reasonable price for the correct scope of work.
- B. Substitutions of a MBE or WBE subcontractor shall be permitted only on the following basis:
1. Unavailability after receipt of reasonable notice to proceed;
 2. Failure of performance;
 3. Financial incapacity;
 4. Refusal by the subcontractor to honor the bid or proposal price or scope;
 5. Mistake of fact or law about the elements of the scope of work of a solicitation where a reasonable price cannot be agreed;
 6. Failure of the subcontractor to meet insurance, licensing or bonding requirements;
 7. The subcontractor's withdrawal of its bid or proposal; or
 8. De-certification of the subcontractor as a MBE or WBE. (Graduation from the MBE/WBE program does not constitute de-certification.
 9. Termination of a Mentor Protégé Agreement.
- C. If it becomes necessary to substitute a MBE or WBE or otherwise change the Compliance Plan, the procedure will be as follows:
1. The bidder or contractor must notify the Chief Procurement Officer in writing of the request to substitute a MBE or WBE or otherwise change the Compliance Plan. The request must state specific reasons for the substitution or change. A letter from the MBE or WBE to be substituted or affected by the change stating that it cannot perform on the contract or that it agrees with the change in its scope of work must be submitted with the request.
 2. The City will approve or deny a request for substitution or other change within 15 business days of receipt of the request.

3. Where the bidder or contractor has established the basis for the substitution to the satisfaction of the Chief Procurement Officer, it must make good faith efforts to meet the Contract Specific Goal by substituting a MBE or WBE subcontractor. Documentation of a replacement MBE or WBE, or of good faith efforts, must meet the requirements in sections V and VI. If the MBE or WBE Contract Specific Goal cannot be reached and good faith efforts have been made, as determined by the Chief Procurement Officer, the bidder or contractor may substitute with a non-MBE or non-WBE.
 4. If a bidder or contractor plans to hire a subcontractor for any scope of work that was not previously disclosed in the Compliance Plan, the bidder or contractor must obtain the approval of the Chief Procurement Officer to modify the Compliance Plan and must make good faith efforts to ensure that MBEs or WBEs have a fair opportunity to bid on the new scope of work.
 5. A new subcontract must be executed and submitted to the Chief Procurement Officer within five business days of the bidder's or contractor's receipt of City approval for the substitution or other change.
- D. The City shall not be required to approve extra payment for escalated costs incurred by the contractor when a substitution of subcontractors becomes necessary to comply with MBE/WBE contract requirements.

VIII. Reporting and Record Keeping

- A. During the term of the contract, the contractor and its non-certified subcontractors must submit partial and final waivers of lien from MBE and WBE subcontractors that show the accurate cumulative dollar amount of subcontractor payments made to date. Upon acceptance of the Final Quantities from the City of Chicago, FINAL certified waivers of lien from the MBE and WBE subcontractors must be attached to the contractor's acceptance letter and forwarded to the Department of Procurement Services, Attention: Chief Procurement Officer.
- B. The contractor will be responsible for reporting payments to all subcontractors on a monthly basis in the form of an electronic audit. Upon the first payment issued by the City of Chicago to the contractor for services performed, on the first day of each month and every month thereafter, email and/or fax audit notifications will be sent out to the contractor with instructions to report payments that have been made in the prior month to each MBE and WBE. The reporting of payments to all subcontractors must be entered into the Certification and Compliance Monitoring System (C2), or whatever reporting system is currently in place, on or before the fifteenth (15th) day of each month.

Once the prime contractor has reported payments made to each MBE and WBE, including zero dollar amount payments, the MBE and WBE will receive an email and/or fax notification requesting them to log into the system and confirm payments received. All monthly confirmations must be reported on or before the 20th day of each month. Contractor and subcontractor reporting to the C2 system must be completed by the 25th of each month or payments may be withheld.

All subcontract agreements between the contractor and MBE/WBE firms or any first tier non-certified firm and lower tier MBE/WBE firms must contain language requiring the MBE/WBE to respond to email and/or fax notifications from the City of Chicago requiring them to report payments received for the prime or the non-certified firm.

Access to the Certification and Compliance Monitoring System (C2), which is a web based reporting system, can be found at: <http://chicago.mwdb.com>

- C. The Chief Procurement Officer or any party designated by the, Chief Procurement Officer shall have access to the contractor's books and records, including without limitation payroll records, tax returns and records and books of account, to determine the contractor's compliance with its commitment to MBE and WBE participation and the status of any MBE or WBE performing any portion of the contract. This provision shall be in addition to, and not a substitute for, any other provision allowing inspection of the contractor's records by any officer or official of the City for any purpose.
- D. The contractor shall maintain records of all relevant data with respect to the utilization of MBEs and WBEs, retaining these records for a period of at least five years after final acceptance of the work. Full access to these records shall be granted to City, federal or state authorities or other authorized persons.

IX. Non-Compliance

- A. Without limitation, the following shall constitute a material breach of this contract and entitle the City to declare a default, terminate the contract, and exercise those remedies provided for in the contract at law or in equity: (1) failure to demonstrate good faith efforts; and (2) disqualification as a MBE or WBE of the contractor or any joint venture partner, subcontractor or supplier if its status as an MBE or WBE was a factor in the award of the contract and such status was misrepresented by the contractor.
- B. Payments due to the contractor may be withheld until corrective action is taken.
- C. Pursuant to 2-92-740, remedies or sanctions may include disqualification from contracting or subcontracting on additional City contracts for up to three years, and the amount of the discrepancy between the amount of the commitment in the Compliance Plan, as such amount may be amended through change orders or otherwise over the term of the contract, and the amount paid to MBEs or WBEs. The consequences provided herein shall be in addition to any other criminal or civil liability to which such entities may be subject.
- D. The contractor shall have the right to protest the final determination of non-compliance and the imposition of any penalty by the Chief Procurement Officer pursuant to 2-92-740 of the Municipal Code of the City of Chicago, within 15 business days of the final determination.

X. Arbitration

If the City determines that a contractor has not made good faith efforts to fulfill its Compliance Plan, the affected MBE or WBE may recover damages from the contractor.

Disputes between the contractor and the MBE or WBE shall be resolved by binding arbitration before the American Arbitration Association (AAA), with reasonable expenses, including attorney's fees and arbitrator's fees, being recoverable by a prevailing MBE or WBE. Participation in such arbitration is a material provision of the Construction Contract to which these Special Conditions are an Exhibit. This provision is intended for the benefit of any MBE or WBE affected by the contractor's failure to fulfill its Compliance Plan and grants such entity specific third party beneficiary rights. These rights are non-waivable and take precedence over any agreement to the contrary, including but not limited to those contained in a subcontract, suborder, or communicated orally between a contractor and a MBE or WBE. Failure by the Contractor to participate in any such arbitration is a material breach of the Construction Contract.

A MBE or WBE seeking arbitration shall serve written notice upon the contractor and file a demand for arbitration with the AAA in Chicago, IL. The dispute shall be arbitrated in accordance with the Commercial Arbitration Rules of the AAA. All arbitration fees are to be paid *pro rata* by the parties.

The MBE or WBE must copy the City on the Demand for Arbitration within 10 business days after filing with the AAA. The MBE or WBE must copy the City on the arbitrator's decision within 10 business days of receipt of the decision. Judgment upon the arbitrator's award may be entered in any court of competent jurisdiction.

XI. Equal Employment Opportunity

Compliance with MBE and WBE requirements will not diminish or supplant equal employment opportunity and civil rights provisions as required by law related to bidder or contractor and subcontractor obligations.

Assist Agencies are comprised of not-for-profit agencies and/or chamber of commerce agencies that represent the interest of small, minority and/or women owned businesses.

<p>51st Street Business Association * 220 E. 51st Street Chicago, IL 60615 Phone: 773-285-3401 Fax: 773-285-3407 Email: the51ststreetbusinessassociation@yahoo.com Web: www.51stStreetChicago.com Maintains list of certified firms: Yes Provides training for businesses: Yes</p>	<p>African American Contractors Association - AACA P.O. Box #19670 Chicago, IL 60619 Phone: 312-915-5960 Email: aacanatlassoc@gmail.com Web: www.aacanatl.org Maintains list of certified firms: Yes Provides training for businesses: Yes</p>
<p>Angel of God Resource Center, Inc. 14527 S. Halsted Chicago, IL 60827 Phone: 708-392-9323 Fax: 708-880-0121 Email: asmith5283@yahoo.com; aogrc@angelofgodresourcecenter.org Web: www.angelofgodresourcecenter.org Maintains list of certified firms: No Provides training for businesses: Yes</p>	<p>Association of Asian Construction Enterprises * 5677 W. Howard Niles, IL 60714 Phone: 847-673-7377 Fax: 847-673-2358 Email: nakmancorp@aol.com Maintains list of certified firms: Yes Provides training for businesses: Yes</p>
<p>Austin African American Business Networking Assoc. 5820 W. Chicago Ave., Chicago, IL 60651 Phone: 773-626-4497 Email: aaabna@yahoo.com Web: www.aaabna.org Maintains list of certified firms: No Provides training for businesses: Yes</p>	<p>Black Contractors United * 12000 S. Marshfield Ave. Calumet Park, IL 60827 Phone: 708-389-5730 Fax: 708-389-5735 Email: bcunewera@att.net Web: www.blackcontractorsunited.com Maintains list of certified firms: Yes Provides training for businesses: Yes</p>
<p>Business Leadership Council * 230 W. Monroe Street, Ste 2650 Chicago, IL 60606 Phone: 312-628-7844 Fax: 312-628-7843 Email: Karen.r@businessleadershipcouncil.org Web: www.businessleadershipcouncil.org Maintains list of certified firms: Yes Provides training for businesses: Yes</p>	<p>LGBT Chamber of Commerce of Illinois * 3179 N. Clark St., 2nd Floor Chicago, IL 60657 Phone: 773-303-0167 Fax: 773-303-0168 Email: jholston@lgbtcc.com Web: www.lgbtcc.com Maintains list of certified firms: Yes Provides training for businesses: Yes</p>
<p>Chatham Business Association Small Business Dev. * 800 E. 78th Street Chicago, IL 60619 Phone: 773-994-5006 Fax: 773-855-8905 Email: melindakelly@cbaworks.org Web: www.cbaworks.org Maintains list of certified firms: Yes Provides training for businesses: Yes</p>	<p>Chicago Minority Supplier Development Council Inc. * 105 W. Adams, Suite 2300 Chicago, IL 60603-6233 Phone: 312-755-2550 Fax: 312-755-8890 Email: pbarreda@chicagomsdc.org Web: www.chicagomsdc.org Maintains list of certified firms: Yes Provides training for businesses: Yes</p>

Assist Agencies are comprised of not-for-profit agencies and/or chamber of commerce agencies that represent the interest of small, minority and/or women owned businesses.

<p>Chicago Urban League * 4510 S. Michigan Ave. Chicago, IL 60653 Phone: 773-624-8810 Fax: 773-451-3579 Email: sbrinston@thechicagourbanleague.org Web: www.cul-chicago.org Maintains list of certified firms: Yes Provides training for businesses: Yes</p>	<p>Chicago Women in Trades (CWIT) 2444 W. 16th Street Chicago, IL 60608 Phone: 312-942-1444 Jayne Vellinga, Executive Director Email: jvellinga@cwit2.org Web: www.chicagowomenintradess2.org Maintains list of certified firms: No Provides training for businesses: Yes</p>
<p>Contractor Advisors Business Development Corp. * 1507 E. 53rd Street, Suite 906 Chicago, IL. 60615 Phone: 312-436-0301 Email: info@contractoradvisors.us Web: www.contractoradvisors.us Maintains list of certified firms: Yes Provides training for businesses: Yes</p>	<p>Cosmopolitan Chamber of Commerce 1633 S. Michigan Avenue Chicago, IL. 60616 Phone: 312-971-9594 Fax: 312-341-9084 Email: rmcgowan@cosmochamber.org Web: www.cosmochamber.org Maintains list of certified firms: Yes Provides training for businesses: Yes</p>
<p>Do For Self Community Development Co. * 7447 S South Shore Drive, Unit 22B Chicago, IL 60649 Phone: 773-356-7661 Email: dennisdoforself@hotmail.com Web: www.doforself.org Maintains list of certified firms: No Provides training for businesses: Yes</p>	<p>Far South Community Development Corporation 9923 S. Halsted Street, Suite D Chicago, IL 60628 Phone: 773-941-4833 Fax: 773-941-5252 Email: lacy@farsouth.org Web: www.farsouthcdc.org Maintains list of certified firms: No Provides training for businesses: Yes</p>
<p>Federation of Women Contractors * 216 W. Jackson Blvd. #625 Chicago, IL 60606 Phone: 312-360-1122 Fax: 312-750-1203 Email: fwcchicago@aol.com Web: www.fwcchicago.com Maintains list of certified firms: Yes Provides training for businesses: Yes</p>	<p>Fresh Start Home Community Development Corp. 5168 S. Michigan Avenue, 4N Chicago, IL 60615 Phone: 312-632-0811 Fax: 855-270-4175 Email: Info@FreshStartNow.us Web: www.FreshStartNow.us Maintains list of certified firms: Yes Provides training for businesses: Yes</p>
<p>Greater Englewood Community Development Corp. * 815 W. 63rd Street Chicago, IL 60621 Phone: 773-651-2400 Fax: 773-651-2400 Email: jharbin@greaterenglewoodcdc.org Web: www.greaterenglewoodcdc.org Maintains list of certified firms: Yes Provides training for businesses: Yes</p>	<p>Greater Pilsen Economic Development Assoc. * 1801 S. Ashland Chicago, IL 60608 Phone: 312-698-8898 Email: greaterpilsen@gmail.com Web: www.greaterpilsen.org Maintains list of certified firms: Yes Provides training for businesses: Yes</p>

Assist Agencies are comprised of not-for-profit agencies and/or chamber of commerce agencies that represent the interest of small, minority and/or women owned businesses.

<p>Greater Far South Halsted Chamber of Commerce * 10615 S. Halsted Street Chicago, IL 60628 Phone: 518-556-1641 Fax: 773-941-4019 Email: halstedchamberevents@gmail.com Web: www.greaterfarsouthhalstedchamber.org Maintains list of certified firms: Yes Provides training for businesses: Yes</p>	<p>Greater Southwest Development Corporation 2601 W. 63rd Street Chicago, IL 60629 Phone: 773-362-3373 Fax: 773-471-8206 Email: c.james@greatersouthwest.org Web: www.greatersouthwest.org Maintains list of certified firms: No Provides training for businesses: Yes</p>
<p>Hispanic American Construction Industry Association (HACIA) * 650 W. Lake St., Unit 415 Chicago, IL 60661 Phone: 312-575-0389 Fax: 312-575-0544 Email: jperez@haciaworks.org Web: www.haciaworks.org Maintains list of certified firms: Yes Provides training for businesses: Yes</p>	<p>Illinois Hispanic Chamber of Commerce * 222 Merchandise Mart Plaza, Suite 1212 c/o 1871 Chicago, IL 60654 Phone: 312-425-9500 Email: aalcantar@ihccbbusiness.net Web: www.ihccbbusiness.net Maintains list of certified firms: Yes Provides training for businesses: Yes</p>
<p>Illinois State Black Chamber of Commerce * 411 Hamilton Blvd., Suite 1404 Peoria, Illinois 61602 Phone: 309-740-4430 / 773-294-8038 Fax: 309-672-1379 Email: LarryIvory@IllinoisBlackChamber.org; vgilb66709@yahoo.com www.illinoisblackchamberofcommerce.org Maintains list of certified firms: Yes Provides training for businesses: Yes</p>	<p>JLM Business Development Center * 2622 W. Jackson Boulevard Chicago, IL 60612 Phone: 773-826-3295 Fax: 773-359-4021 Email: jlmbizcenter@gmail.com Web: www.jlmcenter.org Maintains list of certified firms: Yes Provides training for businesses: Yes</p>
<p>Latin American Chamber of Commerce * 3512 W. Fullerton Avenue Chicago, IL 60647 Phone: 773-252-5211 Fax: 773-252-7065 Email: d.lorenzopadron@LACCUSA.com Web: www.LACCUSA.com Maintains list of certified firms: Yes Provides training for businesses: Yes</p>	<p>National Association of Women Business Owners * 500 Davis Street, Ste 812 Evanston, IL 60201 Phone: 773-410-2484 Fax: 847-328-2018 Email: wjaehn@nawbochicago.org Web: www.nawbochicago.org Maintains list of certified firms: Yes Provides training for businesses: Yes</p>
<p>National Black Wall Street * 4655 S. King Drive, Suite 203 Chicago, IL 60653 Phone: 773-268-6900 Fax: 773-392-0165 Email: markallen2800@aol.com Web: www.nationalblackwallstreetchicago.org Maintains list of certified firms: Yes Provides training for businesses: Yes</p>	<p>National Organization of Minority Engineers (NOME) * 33 W. Monroe, Suite 1540 Chicago, IL 60603 Phone: 312-960-1239 Email: grandevents1@sbcglobal.net Web: www.nomeonline.org Maintains list of certified firms: Yes Provides training for businesses: Yes</p>

Assist Agencies are comprised of not-for-profit agencies and/or chamber of commerce agencies that represent the interest of small, minority and/or women owned businesses.

<p>Neighborhood Development Services, NFP * 10416 South Maryland Avenue Chicago, IL 60628 Phone: 773-413-9348 Fax: 773-371-0032 Email: neighborhooddevservices@gmail.com Web: www.ndsnfp.org Maintains list of certified firms: Yes Provides training for businesses: Yes</p>	<p>Rainbow/PUSH Coalition * 930 E. 50th Street Chicago, IL 60615 Phone: 773-256-2768 Fax: 773-373-4103 Email: jmitchell@rainbowpush.org Web: www.rainbowpush.org Maintains list of certified firms: Yes Provides training for businesses: No</p>
<p>Real Men Charities, Inc. 2423 E. 75th Street Chicago, IL 60649 Phone: 773-425-4113 Email: ymoyo@realmencook.com Web: www.realmencook.com Maintains list of certified firms: No Provides training for businesses: Yes</p>	<p>RTW Veteran Center 7415 E. End, Suite 120 Chicago, IL 60649 Phone: 773-406-1069 Fax: 866-873-2494 Email: rtwvetcenter@yahoo.com Web: www.rtwvetcenter.org Maintains list of certified firms: Yes Provides training for businesses: Yes</p>
<p>South Shore Chamber, Inc. * 1750 E. 71st Street Chicago, IL 60649-2000 Phone: 773-955- 9508 Tonya Trice, Executive Director Email: ttrice@southshorechamberinc.org Web: www.southshorechamberinc.org Maintains list of certified firms: Yes Provides training for businesses: Yes</p>	<p>St. Paul Church of God in Christ Community Development Ministries, Inc. (SPCDM) 4550 S. Wabash Avenue Chicago, IL. 60653 Phone: 773-538-5120 Fax: 773-538-5125 Email: spcdm@sbcglobal.net Web: www.stpaulcdm.org Maintains list of certified firms: No Provides training for businesses: Yes</p>
<p>The Monroe Foundation 1547 South Wolf Road Hillside, Illinois 60162 Phone: 773-315-9720 Email: omonroe@themonroefoundation.org Web: www.themonroefoundation.org Maintains list of certified firms: No Provides training for businesses: Yes</p>	<p>US Minority Contractors Association, Inc. * 1250 Grove Ave. Suite 200 Barrington, IL 60010 Phone: 847-708-1597 Fax: 847-382-1787 Email: admin@usminoritycontractors.org Web: www.USMinorityContractors.org Maintains list of certified firms: Yes Provides training for businesses: Yes</p>
<p>Women's Business Development Center * 8 S. Michigan Ave., 4th Floor Chicago, IL 60603 Phone: 312-853-3477 Fax: 312-853-0145 Email: fcurry@wbdc.org Web: www.wbdc.org Maintains list of certified firms: Yes Provides training for businesses: Yes</p>	<p>Urban Broadcast Media, Inc. 4108 S. King Drive, Chicago, IL 60653 Phone: 312-614-1075 Email: drleonfinney312@gmail.com Web: www.urbanbroadcastmedia.org Maintains list of certified firms: No Provides training for businesses: Yes</p>



**CITY OF CHICAGO
ASSIST AGENCY LIST**

Assist Agencies are comprised of not-for-profit agencies and/or chamber of commerce agencies that represent the interest of small, minority and/or women owned businesses.

Women Construction Owners & Executives (WCOE) * Chicago Caucus 308 Circle Avenue Forest Park, IL 60130 Phone: 708-366-1250 Email: mkm@mkmservices.com Web: www.wcoeusa.org Maintains list of certified firms: Yes Provides training for businesses: No	Your Community Consultants Foundation 9301 S. Parnell Ave., Chicago, IL 60620 Phone: 773-224-9299 Fax: 773-371-0032 Email: allen81354@aol.com Maintains list of certified firms: No Provides training for businesses: Yes
---	---

**Prime Contractors should contact with subcontracting opportunities to connect certified firms.*

**BOOK 2
INSTRUCTIONS AND EXECUTION DOCUMENTS**

ARTERIAL ROADWAY LIGHTING IMPROVEMENT CITYWIDE

CDOT PROJECT NO.: B-7-216

SPECIFICATION NO.: 574467

CITY OF CHICAGO



**RAHM EMANUEL
MAYOR**

Prepared by
Department of Transportation (CDOT)
Contracts Section

REBEKAH SCHEINFELD
Commissioner of Department of Transportation
30 North LaSalle Street, Suite 1100
Chicago, Illinois 60602-2570

Daniel Burke, P.E., S.E.
Deputy Commissioner – Division of Engineering

Issued by the
DEPARTMENT OF PROCUREMENT SERVICES

SHANNON E. ANDREWS
CHIEF PROCUREMENT OFFICER

Document Printed August 15, 2018

All Signatures To Be Sworn To Before A Notary Public

Any contract entered into as a result of this bid process is governed by the terms and conditions set forth in Book 1 "Terms and Conditions for Construction" for CDOT projects funded by the City, as amended and incorporated as if fully set forth here by this reference; and by Book 2, Book 3 (if applicable), plans, drawings, exhibits, and attachments as appropriate.

BOOK 2 - INSTRUCTIONS AND EXECUTION DOCUMENTS

ADVERTISEMENT FOR BIDS

ATTACH
LEGAL
ADVERTISEMENT
HERE



DEPARTMENT OF PROCUREMENT SERVICES

CITY OF CHICAGO

Dear Vendor:

Under the leadership of Mayor Rahm Emanuel, the City continues to identify ways contractors can be good corporate citizens, enhance the City's business community, and improve small businesses' chances of being successful City contractors. The City has several bid incentives and programs designed to benefit local businesses, small businesses and utilization thereof, and reward corporate responsibility and community awareness, including bid incentives for apprentice utilization, city-based businesses, city-based manufacturers, project-area subcontractors, veteran/small business joint ventures, and the use of alternatively powered vehicles, as well as the diversity credit program. Information about all of the City's programs and incentives can be found at www.cityofchicago.org/city/en/depts/dps/provdrs/comp.html.

One program that you may not be aware of is the City's Mentor-Protégé Program ("Program"). Under this Program, a prime contractor mentor is eligible to receive an additional 0.333 percent participation credit for every one percent of the value of the contract performed by a subcontractor MBE/WBE protégé, up to a maximum of five additional percentage points of utilization credit. The mentor and protégé must enter into a formal, written agreement that must be approved by the Chief Procurement Officer and that describes how the mentor-protégé relationship will develop the capacity of the MBE/WBE protégé firm to become self-sufficient, competitive, and profitable.

The Mentor-Protégé Program thus embodies two of the City's most important goals: fostering economic development through the growth of small businesses, and connecting our communities to one another through lasting relationships that may not otherwise have formed. We encourage you to make connections at pre-bids and other networking events, contact the assist agencies¹ for vendors specializing in the area of work you are looking to subcontract, and search our MBE/WBE directory online, with the hope that you will take advantage of this Program. For more information and a sample mentor-protégé agreement, see www.cityofchicago.org/content/dam/city/depts/dps/RulesRegulations/DPSPolicyMentorProtege102914.pdf.

Please also review the following additional reminders about bidding, contracting, and compliance.

Please read Instructions for Bidders, Requests for Proposals and Requests for Qualifications carefully. We understand that government solicitations for bids, proposals and qualifications contain a lot of information and may have mandatory forms to complete. However, errors and omissions in your bids, proposals and qualifications cost both you and the City time and money, since non-responsive bids must be rejected. Rejected bids may result in your firm not getting the contract and increase the cost of work to the City.

¹ For a list of assist agencies, visit www.cityofchicago.org/content/dam/city/depts/dps/Outreach/AssistAgencies082015.pdf.

If you have a question, ask us. The telephone number and e-mail address of the individual from DPS who is responsible for each solicitation is stated on the cover page of that solicitation. Call or write us – we are here to assist you. However, please keep in mind that in regards to bid solicitations, we must communicate answers to anything but the most general questions to all firms in the vendor pool. This is usually done via an addendum.

The City remains committed to the development and utilization of small, minority, women and disadvantaged owned businesses. In each bid solicitation, you receive a list of the City's registered assist agencies. As you plan for meeting your MBE/WBE goals, remember to contact the assist agencies. They have members holding certification in a variety of disciplines. Please utilize them whenever you have contracting needs. In fact, contacting these agencies *well in advance of the bid opening date* is a requirement for demonstrating good faith efforts to obtain MBE/WBE participation if you request a reduction or waiver of goals.

All subcontractors must be approved by the Chief Procurement Officer. A contractor may not make any substitution for a previously approved subcontractor unless the substitution is acceptable to the Chief Procurement Officer. All requests to substitute subcontractors must be submitted on the appropriate form.

You must pay all subcontractors and suppliers within seven days of your receiving payment for that portion of the work from the City. Failure to pay your subcontractors within the seven-day time period may subject you to fines or other penalties.

Vendors are required to report payments to all subcontractors and suppliers in C2. The City's Certification and Compliance Management system, C2, allows prime contractors to report M/W/DBE utilization quickly and efficiently through a web-based format while simultaneously allowing subcontractors the ability to confirm payment activity.

EDSs must be kept up to date. Vendors are required to fill out an Economic Disclosure Statement ("EDS") prior to award of a contract. Until final completion of the project, you must provide, without need for request by the City, an updated EDS if there is any change in ownership or change in any other circumstance that would render the EDS then currently on file inaccurate or obsolete. Failure to provide an updated EDS when required is an event of default.

Persons who lobby City government are required to register as a lobbyist with the Board of Ethics and submit activity reports every quarter. For more information regarding this requirement, please contact the City of Chicago Board of Ethics. Information about the Board may be found at www.cityofchicago.org/ethics.

Check the Debarred Vendor List. Prior to submitting a bid, or for existing contracts, a request for approval of subcontractors, you must check the list of debarred vendors to make sure that you are not proposing the use of a firm that is ineligible to do business with the City. The list of vendors ineligible to do business with the City may be found at www.cityofchicago.org/city/en/depts/dps/provdrs/debarred_firms_list.html.

Comply with prevailing wage and minimum wage requirements. Pursuant to the Illinois Prevailing Wage Act, (or Davis Bacon Act for federally funded contracts), contractors and subcontractors must pay laborers, workers and mechanics performing services on public works projects no less than the current "prevailing rate of wages" (hourly cash wages plus amount for fringe benefits) in the county where the work is performed and, no later than the tenth day of each calendar month, file a certified payroll for the immediately preceding month with the public

body in charge of the project. Additionally, pursuant to Mayoral Executive Order 2014-1, the minimum wage (\$13.00/hour as of October 1, 2014) must be paid to all employees regularly performing work on City property or at a City jobsite, and all employees whose regular work entails performing a service for the City under a City contract. For more information about the prevailing wage, visit www.illinois.gov/idol/Laws-Rules/CONMED/Pages/prevailing-wage-rates.aspx. For a copy of Mayoral Executive Order 2014-1 regarding minimum wage, visit www.cityofchicago.org/content/dam/city/depts/dps/RulesRegulations/ExecutiveOrderNo2014-1.pdf.

Comply with the United States Department of Labor Occupational Safety & Health Administration ("OSHA") laws and regulations. Under the Occupational Safety and Health Act, employers are responsible for providing a safe and healthful workplace. OSHA's mission is to assure safe and healthful workplaces by setting and enforcing standards, and by providing training, outreach, education and assistance. Employers must comply with all applicable OSHA standards. Employers must also comply with the General Duty Clause of the OSH Act, which requires employers to keep their workplace free of serious recognized hazards. For more information, visit www.osha.gov/law-regs.html.

Comply with the Multi-Project Labor Agreement ("PLA"). The City is a signatory to the PLA, which applies to all contractors and subcontractors of any tier performing construction work, including construction, demolition, rehabilitation, maintenance, and/or renovation of real property located in Chicago. See the relevant sections of the bid specification for more information.

Assistance in meeting the City's requirements for project area labor is available through the Chicago Cook Workforce Partnership. On construction projects of \$100,000 or more, at least 50% of the total hours worked must be provided by City residents, and at least 7.5% of the hours worked must be provided by residents of the project area. The City and Cook County have partnered to provide job training and collaborate with unions, among other workforce development initiatives. For more information and to request assistance with complying with Chicago residency and project area residency requirements, visit www.workforceboard.org/businesses or call (312) 603-7066.

I also want to remind you that on December 2, 2014, the City Council of the City of Chicago passed a new chapter of the Municipal Code, 1-24, specifying a minimum wage of \$10.00 per hour to be paid to all workers within the City of Chicago – not just employees of City contractors – effective July 1, 2015. For work performed on City contracts, a Contractor must pay the highest of (1) prevailing wage/Davis-Bacon rate, if applicable; (2) minimum wage specified by Mayoral Executive Order 2014-1 (currently at \$13.00 per hour); (3) "Living Wage" rate specified by MCC Sect. 2-92-610; (4) Chicago Minimum Wage rate specified by MCC Chapter 1-24, or (5) the highest applicable State or Federal minimum wage.

Please take a moment to fill out the **optional** survey that follows this letter to help us gain a better understanding of your firm. Thank you for your attention to these important matters, and we look forward to partnering with you on future City contracts.

Sincerely,



Jamie L. Rhee
Chief Procurement Officer

PLEASE NOTE: Do not return this survey with your bid, as it is optional and does not affect the evaluation of your bid. If you choose to complete the survey, please fax it to 312-744-0010 or email it to dps.feedback@cityofchicago.org.

Vendor Name ("Vendor"): _____

Date: _____

- (1) Does Vendor have a formal tracking and reporting system of energy/utility/waste/water usage to identify trends and unusual fluctuations and usage?

- (2) Does Vendor have an awareness program for energy conservation that includes regular communication to employees about avoiding wasteful practices and encourages turning off lights and other devices when not in use?

If so, are reminder signs posted in appropriate locations? _____

- (3) Has a policy or practice been adopted to avoid or prohibit the use of high energy-consuming outdoor advertising (such as LED billboards)?

- (4) Are employees instructed to shut down personal computers at the end of each work period?

Are computers set to turn off monitor, hard drive, or go on standby after 30 minutes or less of inactivity, or are network/system controls used to minimize energy use in idle work stations?

- (5) Are supplies and cleaning products chosen based on a goal of minimizing harmful or hazardous contents?

(6) Is preference given whenever practicable to local suppliers and products produced locally or regionally?

(7) What percentage of Vendor's full-time employees identify as:

- a. White _____%
- b. Black or African-American _____%
- c. Hispanic _____%
- d. Asian _____%
- e. Other _____%

(8) What percentage of Vendor's full-time employees identify as:

- a. Male _____%
- b. Female _____%

**BOOK 2 - INSTRUCTIONS AND EXECUTION DOCUMENTS
TABLE OF CONTENTS**

DOCUMENT SUBMITTAL CHECKLIST II

SECTION ONE 1

PROJECT INFORMATION 2

CONTRACT INSURANCE REQUIREMENTS..... 4

INSURANCE CERTIFICATE OF COVERAGE..... 14

PROPOSAL PAGES..... 15

SCHEDULE OF PRICES 21

AWARD CRITERIA DETERMINATION 25

SECTION TWO 30

REQUIREMENTS FOR BIDDING AND INSTRUCTIONS FOR BIDDERS 31

LICENSING OF GENERAL CONTRACTORS..... 39

EXHIBIT A ANTICIPATED WORKFORCE PROJECTION FORM 50

EXHIBIT B PAY PERIOD CANVASS REPORT 51

EXHIBIT C PAYROLL CANVASS SURVEY REPORT 52

AFFIDAVIT OF UNCOMPLETED WORK 53

PROPOSAL TO BE EXECUTED BY A CORPORATION 57

PROPOSAL TO BE EXECUTED BY A JOINT VENTURE..... 58

PROPOSAL TO BE EXECUTED BY A PARTNERSHIP..... 60

PROPOSAL TO BE EXECUTED BY A SOLE PROPRIETOR 61

PROPOSAL ACCEPTANCE 62

SCHEDULE B: MBE/WBE Affidavit of Joint Venture 63

SCHEDULE C (CONSTRUCTION) 71

SCHEDULE F: REPORT OF SUBCONTRACTOR SOLICITATIONS FOR CONSTRUCTION CONTRACTS. 75

SCHEDULE H: DOCUMENTATION OF GOOD FAITH EFFORTS TO UTILIZE MBEs AND WBEs ON
CONSTRUCTION CONTRACT 78

STATUS REPORT OF MBE/WBE (SUB) CONTRACT PAYMENTS 81

INSTRUCTIONS FOR COMPLETING ECONOMIC DISCLOSURE STATEMENT AND AFFIDAVIT (EDS)
ON-LINE 83

CITY-BASED BUSINESS AFFIDAVIT 89

ELIGIBLE BUSINESS FOR BID INCENTIVE FOR ALTERNATIVELY POWERED VEHICLES AFFIDAVIT
..... 90

VETERAN-OWNED SMALL LOCAL BUSINESSES AND ELIGIBLE JOINT VENTURES AFFIDAVIT 91

BIDDER'S COMMITMENT TO UTILIZE VETERAN-OWNED SUBCONTRACTORS AFFIDAVIT 93

BIDDER'S COMMITMENT TO UTILIZE APPRENTICES THAT ARE GRADUATES OF CHICAGO
SCHOOLS 95

REQUEST TO APPLY BID INCENTIVE: CHICAGO GRADUATES APPRENTICE UTILIZATION (MCC 2-92-
335)..... 96

BIDDER'S COMMITMENT TO UTILIZE EX-OFFENDER APPRENTICES 97

REQUEST TO APPLY BID INCENTIVE: EX-OFFENDER APPRENTICE UTILIZATION (MCC 2-92-336).... 98

BIDDER'S COMMITMENT TO UTILIZE BUSINESS ENTERPRISES OWNED BY PEOPLE WITH
DISABILITIES (BEPD)..... 99

MENTORING PROGRAM BID PREFERENCE AFFIDAVIT 100

SEXUAL HARASSMENT POLICY AFFIDAVIT (SECTION 2-92-612) 101

CONTRACTOR'S AFFIDAVIT REGARDING REMOVAL OF ALL WASTE MATERIALS AND
IDENTIFICATION OF ALL LEGAL DUMP SITES..... 102

BID BOND 103

DOCUMENT SUBMITTAL CHECKLIST

This checklist is intended to assist you. Missing forms may invalidate your bid. Please ensure that you have completed the forms and indicate such by placing an "X" next to each completed item:

1. Schedule of Prices

2. Submit the Appropriate Proposal

 Proposal To Be Completed By a Corporation (if applicable); or
 Proposal To Be Completed By a Partnership; or
 Proposal To Be Completed By a Joint Venture; or
 Proposal To Be Completed By a Sole Proprietor

3. Affidavit of Uncompleted Work

4. Department of Procurement Services Bid Bond

5. Contractor's Affidavit Regarding Removal of all Waste Materials and Identification of All Legal Dump Sites

6. Schedule B – MBE/WBE Affidavit of Joint Venture

7. Schedule C – MBE/WBE Letter of Intent To Perform As a Subcontractor or Supplier

8. Schedule D – Compliance Plan Regarding MBE and WBE Utilization

9. Schedule F – Report of Subcontractor Solicitations

10. Schedule H – Documentation of Good Faith Efforts (if applicable)

11. City of Chicago On-Line Economic Disclosure Statement and Affidavit and Appendix A

12. _____ Affidavit of Chicago Business (If Applicable)
13. _____ Affidavit of Eligible Business for Bid Incentive for Alternatively Powered Vehicles
14. Veteran-Owned Small Local Businesses and Eligible Joint Ventures Affidavit
15. Bidder's Commitment to Utilize Veteran-Owned Subcontractors Affidavit
16. Bidder's Commitment to Utilize Apprentices that are Graduates of Chicago Schools
17. Request to Apply Bid Incentive: Chicago Graduates Apprentice Utilization (MCC 2-92-335)
18. Bidder's Commitment to Utilize Ex-Offender Apprentices
19. Request to Apply Bid Incentive: Ex-Offender Apprentice Utilization (MCC 2-92-336)
20. Mentoring Program Bid Preference Affidavit
21. Bidder's Commitment to Utilize Business Enterprises Owned by People With Disabilities (BEPD)
22. Sexual Harassment Policy Affidavit (2-92-612)

SECTION ONE

PROJECT INFORMATION

The following Specifications supplement the “Requirements for Bidding and Instructions for Bidders” found in Section Two of this document.

Proposals will be received by the Chief Procurement Officer of the City of Chicago for:

ARTERIAL ROADWAY LIGHTING IMPROVEMENT CITYWIDE

C.D.O.T. PROJECT NO.: B-7-216

SPECIFICATION NO.: 574467

all in accordance with Contract Documents set forth below.

General Description of Work

The work for which proposals are invited consist of Arterial Roadway Lighting Improvement. This includes but is not limited to Arterial Ornamental Lighting foundations, hand holes, conduit cables, poles, davit arms, luminaires, service connections, controllers and wiring as described in the detail specifications, including all appurtenant work and accessories, to the complete satisfaction of, approval and acceptance by the City..

This description of work is intended to be general in nature and is neither a complete description nor a limitation on the work to be performed. Contractor shall perform all Work described in the Contract Documents or reasonably inferable as necessary to produce the results specified therein, except to the extent specifically indicated in the Contract Documents to be the responsibility of others.

Fund Source: City

Bid Deposit: 5% of Total Base Bid

MBE/WBE Participation Goal: MBE – 25.64% ; WBE – 5.97%

Award of Contract

Proposals will be compared based on the **Award Criteria Figure**, correctly computed, and a contract, if awarded, will be awarded to the lowest responsive and responsible bidder, in the amount of the Total Base Bid.

The City reserves the right to check all calculations and to correct all extensions in case of error.

Inspection of Site

The Bidder is expected to inspect the site of the Work. No allowance will be made for any difficulties that may be encountered in executing the Work due to a failure of the bidder to inspect the site. Site inspection shall be arranged through the Project Manager at the office of the Chicago Department of Transportation, Division of Electrical Operations, 30 North LaSalle Street, Suite 400, Chicago, IL (Telephone 312-742-8556).

Document Deposit

\$0.00 first set per bidder on CD-ROM

\$50.00 each subsequent set per bidder CD-ROM

Project Information

Pre Bid Conference

A pre bid conference will be held at the date, time and location indicated in the advertisement for bids. All interested parties are **strongly encouraged** to attend. The City may answer questions or clarify the terms of the bid documents at the conference. Written answers may be provided following the conference. Questions and requests for clarification may be submitted in writing, or may be raised at the conference; however, verbal questions and requests for clarification will be accepted only at the conference. All written questions or requests for clarification must be sent by mail or fax at 312-744-9687, and directed to the attention of the Contract Administrator, Department of Procurement Services, Room 806 of City Hall, 121 N. LaSalle, Chicago IL 60602. The City will not accept any questions for the ten (10) day period preceding the bid opening date.

On-Line EDS

The Bidder shall complete an online EDS prior to the bid due date. A bidder who does not file an electronic EDS prior to the bid due date may be found non-responsive and its bid rejected. If you are unable to complete the online EDS and print a Certificate of Filing prior to the response due date, the City will accept a paper EDS provided written justification is provided explaining the Bidders good faith efforts to complete it before the response due date and the reasons why it could not be completed.

ONLINE EDS FILING REQUIRED PRIOR TO BID OPENING

The Bidder must complete an online EDS prior to the bid opening date.

A Bidder that does not file an electronic EDS prior to the bid opening will be found non-responsive and its bid will be rejected unless a paper EDS and written justification is submitted with the bid as explained in the above paragraph.

ONLINE EDS WEB LINK

The web link for the Online EDS is <https://webapps.cityofchicago.org/EDSWeb>

Maximum Compensation

The maximum payment amount under the Agreement for the initial term and for each optional two year term extension is thirty million dollars (\$30,000,000). Therefore, the maximum payment amount under the Agreement is ninety million dollars (\$90,000,000) if all term extension options are exercised. All term extensions and associated maximum compensation increases and unit price adjustments require a written amendment in accordance with Section XXIII.B of Book 1 of the Contract Documents.

Sub-Orders

The Chicago Department of Transportation will prepare Sub-Order(s) for the work to be performed under this contract. Sub-Orders must receive the Department of Procurement Services approval prior to the commencement of the work. The Department of Transportation will issue to the Contractor a Sub-Order in accordance with the procedures outlined in Paragraph A below, "Procedures for initiating Sub-Orders." Payment will be based on actual quantities installed.

The Commissioner retains the right, at his sole discretion, to delete Work from any Sub-Order.

A. Procedure for Initiating Sub-Orders

1. Notification of Pre-construction Meeting: As the need exists for performance of Work by the Contractor under the terms of this Contract, the Commissioner will notify the Contractor of the construction work required. The Commissioner will notify the Contractor of the place and time of the joint Pre-construction Meeting.
2. Joint Pre-Construction Meeting: The Contractor will participate in a joint Pre-construction Meeting which will include discussion and/or issue the following information as appropriate:
 - a. Issue Sub-Order number and title.
 - b. Identify work locations.
 - c. Define the Scope of Work.
 - d. Issue engineer's estimate of quantities for work, when available.
 - e. Discuss tentative work schedule and completion dates.
 - f. Identify due dates for Cost Estimates for the work of the sub-order from the Contractor.
 - g. Discuss Permit requirements.
 - h. Identify start date for the work.

B. Preparation of the Cost Estimate for Work under Sub-Order(s)

To aid the City in administering the Contract, the Contractor will prepare the Cost Estimate in accordance with the unit prices established in the "Schedule of Prices" for the Contract. The City will request a proposal from the Contractor for each Sub-Order broken down by location. The Contractor must submit this proposal within ten (10) business days from receipt of this request.

C. Review of the Cost Estimate and Issuance of Sub-Order(s)

1. The Commissioner will evaluate the Contractor's Cost Estimate with respect to the estimated quantities for the Work and compare these to the quantities estimated by the City for the Work.
2. The City is not bound by the Contractor's Cost Estimate. If the Contractor's Cost Estimate is rejected, the Commissioner may request the Contractors to submit a new Cost Estimate.
3. The Sub-Order Release provided to the Contractor will state the Description of Work to be performed. The sub-order release sets the scope and price for the work to be

Project Information

performed. The Sub-Order Release must be signed by the Commissioner. A signed copy will be provided to the Contractor.

D. Changes in the Work

1. The City, without invalidating the Sub-Order, may order changes in the Work by altering adding to or deducting from the Work, by issuing a revised Sub-Order Notice to Proceed.
2. No changes may be made without a written revised Sub-Order Notice to Proceed from the City, signed by the Commissioner. Any claim for an extension of time to complete the Work of a Sub-Order must conform to the requirements set forth under Time of Completion.

Initial Term of Contract

This Contract will begin on the date of formal award and continue through March 31st, 2020, unless terminated prior to this date according to the Termination paragraph, or extended as provided for herein.

Extension Option

The City will have the option to extend the term of this Contract for an additional two-year term, which will commence on April 1st, 2020 and will terminate no later than March 31st, 2022. The Contractor will be notified of the City's election to exercise such option no later than December 1st, 2019. Work during such extension period will be performed in accordance with the same terms and conditions of this contract, except that the City will provide for a price adjustment in accordance with the provision for "Price Adjustment" defined herein.

The City of Chicago will have the option to extend the term of this Contract for a final two-year term, which will commence on April 1st, 2022 and will terminate no later than March 31st, 2024. The Contractor will be notified of the City's election to exercise such option no later than December 1st, 2021. Work during such extension period will be performed in accordance with the same terms and conditions of this contract, except that the City will provide for a price adjustment in accordance with the provision for "Price Adjustment" defined herein.

Term	Commence date	End date
Initial	Date of formal award	March 31 st , 2020
1st extension (Price Adjustment)	April 1 st , 2020	March 31 st , 2022
2nd extension (Price Adjustment)	April 1 st , 2022	March 31 st , 2024

Project Information

Price Adjustment

The original bid prices are valid for the initial term of the contract which ends on March 31st, 2020.

If the contract is extended beyond the initial term, then the original bid prices will be adjusted (increased or decreased) after the initial term ends on March 31st, 2020.

If the contract is extended beyond the first extension which ends on March 31st, 2022 then the bid prices will be adjusted (increased or decreased) after the first extension term ends on March 31, 2022.

The increase or decrease will be based upon changes in the Construction Cost Index (CCI) published in the ENR, Engineering News Record (a division of McGraw-Hill Companies) for Chicago, Illinois. CCI indices are published monthly

The “Base Year “for the purposes of this clause will be the 12-month period which preceded the contract award date. The “Base Year Index” is determined by summing the monthly CCI indices for each of the months of the “Base Year” and dividing by 12.

The “Option Extension Index - 1” for the first extension is determined by summing the monthly CCI indices for the period beginning April 1st, 2019 through March 31st, 2020 and dividing by 12. The New Contract Prices will apply to any work performed after the beginning of the 1st extension period of the Contract. Any Sub-order issued prior to March 31st. of the prior period **WILL NOT** be considered for price escalation.

The “Option Extension Index - 2” for the second extension is determined by summing the monthly CCI indices for the period beginning April 1st, 2021 through March 31st, 2022 and dividing by 12. The New Contract Prices will apply to any work performed after the beginning of the 2nd extension period of the Contract. Any Sub-order issued prior to March 31st of the prior period **WILL NOT** be considered for price escalation.

The “Price Adjustment Factor” for the option period is determined by dividing the “Option Extension Index” by the “Base Year Index”. The “New Price” for each item is equal to the product derived by multiplying “Original Bid Price” by the “Price Adjustment Factor” as illustrated below:

$$\begin{aligned} \text{NP (each item)} &= \text{OBP} \times \text{PAF} \text{ where,} \\ \text{NP} &= \text{New Price} \\ \text{OBP} &= \text{Original Bid Price} \\ \text{PAF} &= \text{Price Adjustment Factor} \end{aligned}$$

All the above computation will be carried out to 5 decimal places and then rounded to 4 decimal places.

If, during the term of the Contract, the manner in which the Construction Cost Index is determined by ENR is substantially revised, including a change in the base index year, the City will make an adjustment in the revised index that would produce results equivalent, as nearly as possible, to those that would have been obtained if the Construction Cost Index had not been so revised. If the Construction Cost Index becomes unavailable to the public because publication is

Project Information

discontinued, or otherwise, or if equivalent data is not readily available to enable the City to make the adjustment, then the City will Substitute for it a comparable index based upon changes in the cost of construction published by a governmental agency or, if no such index is available, then a comparable index published by a university or a recognized trade publication.

Project Area Participation Goal: 7.5%

Pursuant to Municipal Code Section 2-92-330 the City has established that the Project Area for this contract will coincide with all 77 community areas, meeting the City's 7.5% Chicago Residency Requirement.

Contract Insurance Requirements

CONTRACT INSURANCE REQUIREMENTS

Chicago Department of Transportation
Arterial Roadway Lighting Improvement Citywide

A. INSURANCE REQUIRED

The Contractor must provide and maintain at Contractor's own expense, until Contract completion and during the time period following final completion if Contractor is required to return and perform any additional work, services, or operations, the insurance coverages and requirements specified below, insuring all work, services or operations related to the Contract.

- 1) Workers Compensation and Employers Liability (Primary and Umbrella)
Workers Compensation Insurance, as prescribed by applicable law covering all employees who are to provide a work, services or operations under this Contract and Employers Liability coverage with limits of not less than \$1,000,000 each accident, \$1,000,000 disease-policy limit, and \$1,000,000 disease-each employee, or the full per occurrence limits of the policy, whichever is greater. Coverage must include but not be limited to, the following: alternate employer and voluntary compensation endorsement, when applicable.

Contractor may use a combination of primary and excess/umbrella policy/policies to satisfy the limits of liability required herein. The excess/umbrella policy/policies must provide the same coverages/follow form as the underlying policy/policies.

- 2) Commercial General Liability (Primary and Umbrella)
Commercial General Liability Insurance or equivalent must be maintained with limits of not less than \$1,000,000 per occurrence, or the full per occurrence limits of the policy, whichever is greater, for bodily injury, personal injury, and property damage liability. Coverages must include but not be limited to, the following: All premises and operations, products/completed operations, explosion, collapse, underground, separation of insureds, defense, contractual liability (not to include endorsement CG 21 39 or equivalent), no exclusion for damage to work performed by Subcontractors, any limitation of coverage for designated premises or project is not permitted (not to include endorsement CG 21 44 or equivalent) and any endorsement modifying or deleting the exception to the Employer's Liability exclusion is not permitted. If a general aggregate limit applies, the general aggregate must apply per project/location and once per policy period if applicable, or Contractor may obtain separate insurance to provide the required limits which will not be subject to depletion because of claims arising out of any other work or activity of Contractor. If a general aggregate applies to products/completed operations, the general aggregate limits must apply per project and once per policy period.

The City must be provided additional insured status with respect to liability arising out of Contractor's work, services or operations and completed operations performed on behalf of the City. Such additional insured coverage must be provided on ISO form CG 2010 10 01 and CG 2037 10 01 or on an endorsement form at least as broad for ongoing

Contract Insurance Requirements

operations and completed operations. The City's additional insured status must apply to liability and defense of suits arising out of Contractor's acts or omissions, whether such liability is attributable to the Contractor or to the City. The full policy limits and scope of protection also will apply to the City as an additional insured, even if they exceed the

City's minimum limits required herein. Contractor's liability insurance must be primary without right of contribution by any other insurance or self-insurance maintained by or available to the City.

Contractor may use a combination of primary and excess/umbrella policy/policies to satisfy the limits of liability required herein. The excess/umbrella policy/policies must provide the same coverages/follow form as the underlying policy/policies.

3) Automobile Liability (Primary and Umbrella)

Contractor must maintain Automobile Liability Insurance with limits of not less than \$1,000,000 per occurrence, or the full per occurrence limits of the policy, whichever is greater, for bodily injury and property damage. Coverage must include but not be limited to, the following: ownership, maintenance, or use of any auto whether owned, leased, non-owned or hired used in the performance of the work or devices, both on and off the Project site including loading and unloading. The City is to be named as an additional insured on a primary, non-contributory basis.

4) Railroad Protective Liability

When any work or services is to be done adjacent to or on railroad or transit property, Contractor must provide, with respect to the operations that Contractor or subcontractors perform, Railroad Protective Liability Insurance in the name of railroad or transit entity. The policy must have limits of not less than the requirement of the operating railroad for losses arising out of injuries to or death of all persons, and for damage to or destruction of property, including the loss of use thereof.

If applicable, a certified copy of the Railroad Protective policy is to be submitted to:

Chicago Transit Authority (CTA), ATTN: Manager of Benefits Compliance, 567 West Lake Street, 3rd Floor, Chicago, IL 60661.

METRA, ATTN: Risk Management, 547 West Jackson Blvd, Chicago, IL 60661.

An Insurance binder will be accepted until such time the policy is submitted

5) Excess/Umbrella

Excess/Umbrella Liability Insurance must be maintained with limits of not less than \$5,000,000 per occurrence, or the full per occurrence limits of the policy, whichever is greater. The policy/policies must provide the same coverages/follow form as the underlying Commercial General Liability, Automobile Liability, Employers Liability and Completed Operations coverage required herein and expressly provide that the excess or umbrella policy/policies will drop down over reduced and/or exhausted aggregate limit, if

Contract Insurance Requirements

any, of the underlying insurance. If a general aggregate limit applies the general aggregate must apply per project/location. The Excess/Umbrella policy/policies must be primary without right of contribution by any other insurance or self-insurance maintained by or available to the City.

Contractor may use a combination of primary and excess/umbrella policies to satisfy the limits of liability required in sections A.1, A.2, A.3 and A.4 herein.

6) Builders Risk

When Contractor undertakes any construction, including improvements, betterments, and/or repairs, the Contractor must provide All Risk Builders Risk Insurance at replacement cost for materials, supplies, equipment, machinery and fixtures that are or will be part of the project. Coverages must include but are not limited to the following: material stored off-site and in-transit, water including overflow, leakage, sewer backup or seepage, damage to adjoining and existing property, collapse, damage from faulty workmanship or materials, mechanical-electrical breakdown and testing. The City of Chicago is to be named as an additional insured and loss payee.

The Contractor is responsible for all loss or damage to personal property (including materials, equipment, tools and supplies) owned, rented or used by Contractor.

7) Professional Liability

When any architects, engineers, construction managers or other professional consultants perform work, services, or operations in connection with this Contract, Professional Liability Insurance covering acts, errors, or omissions must be maintained with limits of not less than \$1,000,000. Coverage must include but not be limited to, pollution liability if environment site assessments will be done. When policies are renewed or replaced, the policy retroactive date must coincide with, or precede, start of work on the Contract. A claims-made policy which is not renewed or replaced must have an extended reporting period of two (2) years.

B. ADDITIONAL REQUIREMENTS

Evidence of Insurance. Contractor must furnish the City, Department of Procurement Services, 121 N. LaSalle Street, Room 806, Chicago, IL 60602, original certificates of insurance and additional insured endorsement, or other evidence of insurance, to be in force on the date of this Contract, and renewal certificates of Insurance and endorsement, or such similar evidence, if the coverages have an expiration or renewal date occurring during the term of this Contract. Contractor must submit evidence of insurance prior to execution of Contract. The receipt of any certificate does not constitute agreement by the City that the insurance requirements in the Contract have been fully met or that the insurance policies indicated on the certificate are in compliance with all requirements of Contract. The failure of the City to obtain, nor the City's receipt of, or failure to object to a non-complying insurance certificate, endorsement or other insurance evidence from Contractor, its insurance broker(s) and/or insurer(s) will not be construed as a waiver by the City of any of the required insurance provisions. Contractor must advise all insurers of the Contract provisions regarding insurance. The City in no way warrants

Contract Insurance Requirements

that the insurance required herein is sufficient to protect Contractor for liabilities which may arise from or relate to the Contract. The City reserves the right to obtain complete, certified copies of any required insurance policies at any time.

Failure to Maintain Insurance. Failure of the Contractor to comply with required coverage and terms and conditions outlined herein will not limit Contractor's liability or responsibility nor does it relieve Contractor of its obligation to provide insurance as specified in this Contract. Nonfulfillment of the insurance conditions may constitute a violation of the Contract, and the City retains the right to suspend this Contract until proper evidence of insurance is provided, or the Contract may be terminated.

Notice of Material Change, Cancellation or Non-Renewal. Contractor must provide for sixty (60) days prior written notice to be given to the City in the event coverage is substantially changed, canceled or non-renewed and ten (10) days prior written notice for non-payment of premium.

Deductibles and Self-Insured Retentions. Any deductibles or self-insured retentions on referenced insurance coverages must be borne by Contractor.

Waiver of Subrogation. Contractor hereby waives its rights and its insurer(s)' rights of and agrees to require their insurers to waive their rights of subrogation against the City under all required insurance herein for any loss arising from or relating to this Contract. Contractor agrees to obtain any endorsement that may be necessary to affect this waiver of subrogation, but this provision applies regardless of whether or not the City received a waiver of subrogation endorsement for Contractor's insurer(s).

Contractors Insurance Primary. All insurance required of Contractor under this Contract shall be endorsed to state that Contractor's insurance policy is primary and not contributory with any insurance carrier by the City.

No Limitation as to Contractor's Liabilities. The coverages and limits furnished by Contractor in no way limit the Contractor's liabilities and responsibilities specified within the Contract or by law.

No Contribution by City. Any insurance or self-insurance programs maintained by the City do not contribute with insurance provided by Contractor under this Contract.

Insurance not Limited by Indemnification. The required insurance to be carried is not limited by any limitations expressed in the indemnification language in this Contract or any limitation placed on the indemnity in this Contract given as a matter of law.

Insurance and Limits Maintained. If Contractor maintains higher limits and/or broader coverage than the minimums shown herein, the City requires and shall be entitled the higher limits and/or broader coverage maintained by Contractor. Any available insurance proceeds in excess of the specified minimum limits of insurance and coverage shall be available to the City.

Contract Insurance Requirements

Joint Venture or Limited Liability Company. If Contractor is a joint venture or limited liability company, the insurance policies must name the joint venture or limited liability company as a named insured.

Other Insurance obtained by Contractor. If Contractor desires additional coverages, the Contractor will be responsible for the acquisition and cost.

Insurance required of Subcontractors. Contractor shall name Subcontractor(s) as a named insured(s) under Contractor's insurance or Contractor will require each Subcontractor(s) to provide and maintain Commercial General Liability, Commercial Automobile Liability, Worker's Compensation and Employers Liability Insurance and when applicable Excess/Umbrella Liability Insurance with coverage at least as broad as in outlined in Section A, Insurance Required. The limits of coverage will be determined by Contractor. Contractor shall determine if Subcontractor(s) must also provide any additional coverage or other coverage outlined in Section A, Insurance Required. Contractor is responsible for ensuring that each Subcontractor has named the City as an additional insured where required and name the City as an additional insured under the Commercial General Liability on ISO form CG 2010 10 01 and CG 2037 10 01 for ongoing operation and completed operations on an endorsement form at least as broad and acceptable to the City. Contractor is also responsible for ensuring that each Subcontractor has complied with the required coverage and terms and conditions outlined in this Section B, Additional Requirements. When requested by the City, Contractor must provide to the City certificates of insurance and additional insured endorsements or other evidence of insurance.

The City reserves the right to obtain complete, certified copies of any required insurance policies at any time. Failure of the Subcontractors to comply with required coverage and terms and conditions outlined herein will not limit Contractor's liability or responsibility.

City's Right to Modify. Notwithstanding any provisions in the Contract to the contrary, the City, Department of Finance, Risk Management Office maintains the right to modify, delete, alter or change these requirements.

Contract Insurance Requirements

INSURANCE CERTIFICATE OF COVERAGE

Named Insured: _____
 Address: _____

 (City) (State) (Zip)

Specification #: _____
 RFP: _____
 Project#: _____
 Contract#: _____

Description of Operation/Location	
-----------------------------------	--

The insurance policies and endorsements indicated below have been issued to the designated named insured with the policy limits as set forth herein covering the operation described within the contract involving the named insured and the City of Chicago. The Certificate issuer agrees that in the event of cancellation, non-renewal or material change involving the indicated policies, the issuer will provide at least sixty (60) days prior written notice of such change to the City of Chicago at the address shown on this Certificate. This certificate is issued to the City of Chicago in consideration of the contract entered into with the named insured, and it is mutually understood that the City of Chicago relies on this certificate as a basis for continuing such agreement with the named insured:

Type of Insurance	Insurer Name	Policy Number	Expiration Date	Limits of Liability All Limits in Thousands
General Liability <input type="checkbox"/> Claims made <input type="checkbox"/> Occurrence <input type="checkbox"/> Premise-Operations <input type="checkbox"/> Explosion/Collapse Underground <input type="checkbox"/> Products/Completed Operations <input type="checkbox"/> Blanket Contract <input type="checkbox"/> Broad Form <input type="checkbox"/> Independent Contractors <input type="checkbox"/> Personal Injury <input type="checkbox"/> Pollution				CSL Per Occurrence \$ _____ General \$ _____ \$ _____ \$ _____
Automobile Liability <input type="checkbox"/> Excess Liability <input type="checkbox"/> Umbrella Liability				CSL Per Occurrence \$ _____ Each Occurrence \$ _____
Worker's Compensation and Employer's Liability				Statutory/Illinois Employers Liability \$ _____
Builders Risk/Course of Construction				Amount of Contract
Professional Liability				\$ _____
Owner Contractors Protective				\$ _____
Other				\$ _____

Specimen

- a) Each Insurance policy required by this agreement, excepting policies for worker's compensation and professional liability, will read: "The City of Chicago is an additional insured as respects operations and activities of, or on behalf of the named insured, performed under contract with or permit from the City of Chicago."
- b) The General, Automobile and Excess/Umbrella Liability Policies described provide for severability of Interest (cross liability) applicable to the named insured and the City.
- c) Workers Compensation and Property Insurers shall waive all rights of subrogation against the City of Chicago.
- d) The receipt of this certificate by the City does not constitute agreement by the City that the insurance requirements in the contract have been fully met, or that the insurance policies indicated by this certificate are in compliance with all contract requirements.

Name and Address of Certificate Holder and Recipient of Notice	
Certificate Holder/Additional Insured	Signature of Authorized Rep.: _____
City of Chicago	Agency/Company: _____
Department of Procurement Services	Address: _____
121 N. LaSalle St., #806	Telephone: _____
Chicago, IL 60602	

For City use only
 Name of City Department requesting certificate: (Using Dept.) _____
 Address: _____ ZIP Code: _____
 Attention: _____

Proposal Pages

PROPOSAL PAGES

PROPOSAL

The undersigned proposes to construct

**ARTERIAL ROADWAY LIGHTING IMPROVEMENT CITYWIDE
C.D.O.T. PROJECT NO.: B-7-216
SPECIFICATION NO.: 574467**

as required by this Contract, to perform all Work required, and to provide and furnish the required performance and payment bond and all of the labor, materials, tools, equipment, expendable and otherwise, and all accessories and transportation services necessary to perform and complete the Work required in a workmanlike manner and within the specified time the Work required, all in accordance with the Contract Documents, at the unit and lump sum prices hereinafter set forth in the Schedule of Prices; and

Further, the undersigned agrees that upon receipt of written notice of acceptance of this Proposal, he will furnish a satisfactory Performance Bond within seven (7) calendar days; and

Further, the undersigned declares that he has carefully examined the Contract Documents, Addenda (if any), and Exhibits on file at the Department of Transportation; that he has inspected in detail the site of the proposed Work; that he has familiarized himself with all of the conditions affecting the Contract; that he has familiarized himself as to the Work to be done and the conditions under which it must be carried out; that he understands that in making this Proposal he waives all rights to plead any misunderstanding regarding the same; and

Further, the undersigned declares that he has filled out and signed the "Economic Disclosure Statement" form and all other forms requiring Bidders' signature; and

Further, the undersigned understands that he shall be prepared to provide the satisfactory documentation to the Chief Procurement Officer relating to his performance ability and possession of necessary facilities, pecuniary resources and adequate insurance as called for in Article 6 entitled "Competency of Bidder" of the "Requirements for Bidding and Instructions for Bidders"; and

Further, the undersigned firm certifies that it is not barred from contracting with any unit of State or local government as a result of a conviction for the violation of State laws prohibiting bid-rigging or bid-rotating; and

Further, the undersigned understands that he must show the lump sum price, and the Award Criteria Figure and that if not so made, his Proposal may be rejected as irregular; and

Further, the undersigned understands that he must show in the Schedule of Prices the unit or lump sum price, as the case may be for which he proposes to perform each item of work, and that all extensions and the summation for the base bid amount must be made by him, and that if not so made his Proposal may be rejected as irregular; and

Further, the undersigned declares that the price stated for each item is based on the projected cost of that item at the time that the Work is to be performed, and also includes a proportionate amount of the total cost of the entire Work in full compliance with the Contract Documents and the requirements of the Commissioner and City Chief Procurement Officer, and constitutes

Proposal Pages

compensation in full for performing and completing the work pertaining to said item, free of all claims, liens and charges whatsoever; and

Further, the undersigned declares that the prices herein are in compliance with all applicable laws, ordinances, regulations and codes of the Federal, State and City government having jurisdiction.

NOTE: THE BIDDER SHOULD NOT ADD ANY CONDITIONS OR QUALIFYING STATEMENTS TO HIS PROPOSAL, AS SUCH ADDITIONS MAY CAUSE THE PROPOSAL TO BE DECLARED INFORMAL AND AS NOT BEING RESPONSIVE TO THE ADVERTISEMENT FOR BIDS.

Further, the undersigned declares that he has filled in the required percentages in the “Award Criteria” Determination forms.

TIME OF COMPLETION

It is understood and agreed that TIME IS OF THE ESSENCE IN THIS CONTRACT, and the Contractor agrees to begin actual work covered by this Contract after notification by the Commissioner to commence work and to prosecute the same with all due diligence so as to complete the entire work under the Contract as assigned by the specific Sub-Order **within Seven (7) calendar days** of the issuance of the specific Sub-Order in Accordance with the following duration:

<u>SEGMENT LENGTH (BLOCKS)</u>	<u>CALENDAR DAYS ALLOWED</u>
LESS THAN ONE (1) BLOCK	15
ONE (1) TO TWO (2) BLOCKS	30
TWO (2) TO FOUR (4) BLOCKS	60

It is understood that “Completion” shall mean completion to the point of acceptance by the Commissioner, i.e. substantial completion/beneficial occupancy and sidewalk restoration, with rest of overhead work to follow at the Commissioner’s discretion.

The Contractor’s work is to be allocated incrementally with Notice to proceed date and time of completion date for each assigned allotment of city blocks and 24 month contract duration.

The Contractor may prosecute the work through two shifts each day if he deems such action necessary in order to complete the work within the specified time period. However, no work will be permitted between the hours of 9:00 p.m. and 8:00 a.m. Any variation from these restricted working hours to include extended shift hours and daytime work, if any, can only be permitted with the written approval of the Commissioner.

In the event that progress falls behind the approved schedule, work shall proceed on a twenty-four (24) hour per day basis without additional compensation, if so ordered by the Commissioner, to comply with the requirements of this Section.

Proposal Pages

PUNCH LIST TIME OF COMPLETION

It is also understood and agreed that TIME IS OF THE ESSENCE IN CLOSING OUT THE JOB SITE WORK OF THIS CONTRACT, and the Contractor agrees to begin work immediately after receipt of formal comprehensive list of minor miscellaneous or finishing work also known as "Punch List" work.

Further, upon physical completion of the Work and final inspection of same, a final "Punch List" will be transmitted to the Contractor from the Commissioner. This final "Punch List" will consist of not only physical work items requiring corrective action, but will also include all applicable Contractor submittals as may be required by the Contract. It is understood and agreed that **all** final "Punch List" work will be prosecuted expeditiously and completed, in total, within thirty (30) calendar days of the date of the transmittal to the Contractor. Failure to complete **all** final "Punch List" items within the thirty (30) calendar day time limit shall be construed as failure to prosecute work of the contract and, as such, will subject the Contractor to the assessment of project liquidated damages in the amount(s) specified under the "Liquidated Damages" section of this proposal. These damages will be assessed continuously from the time of the expiration of the thirty (30) calendar day time limit until such time as **all** final "Punch List" items are completed to the satisfaction of the Commissioner.

LIQUIDATED DAMAGES

Failure of the Contractor to complete the Work under this Contract within the specified completion time will result in the incurrence by the City of additional construction and engineering costs, including but not limited to supervision and inspection, together with other tangible and intangible losses. Therefore, if any work shall remain uncompleted after the time specified for the completion of the work or after any authorized extension of such stipulated time, the Contractor shall pay to the City the sum listed below for each and every day that such work remains uncompleted, and such moneys shall be paid as liquidated damages, not a penalty, to partially cover costs and losses by the City.

Completion of all Work: \$ 2,000 per calendar day

Completion of "Punch List" Work: \$ 1,500 per calendar day

The City shall recover said liquidated damages by deducting the amount thereof out of any moneys due or that may become due, and if said moneys are insufficient to cover said damages, then the Contractor or the Surety shall pay the amount due.

Nothing herein contained shall be construed as limiting the right of the City to recover from the Contractor any and all amounts due or to become due, and any and all costs and expenses sustained by the City for improper performance hereunder, repudiation of the Contract by the Contractor, failure to perform or breach or breaches in any other respect, including but not limited to defective workmanship or materials.

The date for commencement of work will not be counted as a calendar day but each subsequent day thereafter from midnight to midnight will be counted as one calendar day and the last day counted will be the day on which the Contractor shall have completed and the Commissioner shall have accepted the entire work under this Contract.

Proposal Pages

GENERAL CONSTRUCTION PROCEDURES

Description: The Contractor must complete all construction operations according to the Contract Plans, applicable Standard Specifications, Detail Specifications, and as directed by the Commissioner. The Contractor must not commence with construction operations until the required obligations for structural stability, verification of dimensions, and procedure requirements, as detailed in these specifications are fulfilled to the satisfaction of the Commissioner.

Verification of Dimensions: Plan dimensions and details relative to the existing site conditions are subject to nominal construction variations. The Contractor must verify such dimensions and details in the field and make the necessary approved adjustments prior to construction or ordering of materials. Such variations will not be cause for additional compensation for a change in Scope of work and no additional time will be granted. However, the Contractor will be paid for the quantity actually furnished at the unit price bid for the Work. Elevations given on reference drawings must not be used.

Record Existing Conditions: The Contractor must document all existing conditions prior to starting construction and provide a copy of this documentation to the Commissioner prior to starting construction. Contractor will be deemed responsible for existing lighting system and will maintain it until new system is functioning and approved by Commissioner. Existing damaged areas must be documented in writing. This Work is included in the Contract and no separate payment will be made.

Construction operations cannot block the existing exit doors or service doors within the work zone at any time during construction.

Contractor to be liable if any housing drain pipe is broken or damaged by underground installation.

COORDINATION WITH MATERIAL SUPPLIERS AND/OR SUBCONTRACTORS

This Contract includes Work items that will involve special material suppliers and will likely involve other Subcontractors. Each Work item requires close coordination between the Material Suppliers and/or Subcontractors, and the General Contractor, regarding the sequence and timing for execution of such Work items.

Supplement to the requirements of the Standard Specifications article 105.08- Cooperation Between Contractors, the Contractor must identify all such Work items at the beginning of the Contract, and coordinate sequence and timing for their execution with the other Material Suppliers and/or Subcontractors through the Commissioner. These Work items must be identified as separate line items in the Contractor's proposed Construction and Progress Schedule. Additional compensation or extension of the Contract time will not be allowed for Work and/or progress and/or lack of progress affected by lack of such coordination by the Contractor.

Proposal Pages

UNIT PRICES

Unit prices will be used to determine the amount to ADD TO or DEDUCT FROM contract price for any properly authorized additional or omitted work. Unit prices shall be inclusive of the cost of materials, work, layout, drafting, balancing and testing, tools and sundries, overhead and profit, supervision and any and all other costs of whatsoever nature in connection therewith for work in place and accepted or omitted as the case may be. The calculation for determining the number of units of work shall be actual surface, volume, length, hours and number of individual items listed for the class of work complete in place and accepted or omitted. No allowance for waste, loss, breakage, damage or difficulties shall be made.

Unit Schedule of Prices for all applicable materials related to the Work under this Contract shall be inserted in the spaces provided, in this proposal.

The Chief Procurement Officer reserves the right to make corrections, after receiving the bids, to any clerical error apparent on the Line Items, including but not limited to obviously incorrect units or misplaced decimal points, or arithmetic error. The Bidder must bid all line items set forth on the Proposal Pages, except to the extent that the Specifications expressly allows otherwise. In the event that a comparison of the Bidder's "Unit Price" and "Total Price" submitted for any line item reveals a calculation error or other discrepancy, the Unit Price will prevail.

SUBMITTALS

Description: The Contractor must submit Shop Drawings, Product Data, and Samples in accordance with the Detailed Specifications. Failure to submit these items as specified will subject the Contractor to liquidated damages as stated herein.

The Contractor must submit a Schedule of Submittals along with the Construction and Progress Schedule (Time Schedule) specified in the Contract Plans. The Contractor must directly correlate the submittal schedule to Construction Progress Schedule. The Contractor must routinely update each schedule as specified. Failure to submit a Schedule of Submittals prior to the start of Work as specified will subject the Contractor to liquidated damages stated herein.

NOTIFICATION OF PROPERTY OWNER/TENANTS

The contractor must notify the property owners/tenants in writing of the Work to be done at each property location. This notice must be sent after receiving approval from the Commissioner for the draft letter to the owners.

SCHEDULE OF PRICES

SCHEDULE OF PRICES
ARTERIAL ROADWAY LIGHTING IMPROVEMENT CITYWIDE
CDOT PROJECT NO.: B-7-216

ITEM NO.	CODE NUMBER	DESCRIPTION	UNIT	TOTAL QTY	UNIT COST	TOTAL COST
1	*****	PAVEMENT REMOVED AND REPLACED	SQYD	480		
2	*****	TEMPORARY PAVEMENT PATCHING	TON	80		
3	*****	TEMPORARY STONE	TON	3,000		
4	*****	SIDEWALK REMOVAL	SQFT	96,000		
5	*****	SIDEWALK REMOVED AND REPLACED	SQFT	52,000		
6	*****	PORTLAND CEMENT CONCRETE DRIVEWAY, 8 INCH	SQYD	800		
7	*****	TRENCH AND BACKFILL WITH SCREENINGS	LNFT	48,000		
8	CDOT4400010	HOT-MIX ASPHALT SURFACE REMOVAL, VARIABLE DEPTH	SQYD	7,500		
9	*****	HOT-MIX ASPHALT BIT. CONCRETE SURFACE COURSE - MIX D, N70 OR HIGHER	TON	900		
10	CDOT4240030	PORTLAND CEMENT CONCRETE ADA RAMP 5 INCH	SQFT	27,000		
11	CDOT4240040	PORTLAND CEMENT CONCRETE ADA RAMP 8 INCH	SQFT	15,000		
12	CDOT4240055	LINEAR DETECTABLE WARNING TILES (CAST IRON)	SQFT	6,000		
13	CDOT4240065	RADIAL DETECTABLE WARNING TILES (CAST IRON)	SQFT	330		
14	CDOT4240070	PROPERTY LINE CURB	FOOT	300		
15	CDOT4230030	HIGH-EARLY-STRENGTH PORTLAND CEMENT CONCRETE ALLEY PAVEMENT 8 INCH	SQYD	13,500		
16	CDOT4400020	ALLEY PAVEMENT REMOVAL	SQYD	13,500		
17	*****	CURB-GUTTER REMOVE AND REPLACE	LNFT	7,500		
18	78000200	THERMOPLASTIC PAVEMENT MARKING - LINE 4"	LNFT	700		
19	78000400	THERMOPLASTIC PAVEMENT MARKING - LINE 6"	LNFT	1,400		
20	78000600	THERMOPLASTIC PAVEMENT MARKING - LINE 12"	LNFT	700		
21	78000650	THERMOPLASTIC PAVEMENT MARKING - LINE 24"	LNFT	2,000		
22	78000100	THERMOPLASTIC PAVEMENT MARKING - LETTERS AND SYMBOLS	SQFT	700		
23	*****	PRE-FORMED BIKE SYMBOL & CHEVRON	EACH	14		
24	*****	PRE-FORMED BIKE SYMBOL & ARROW	EACH	15		
25	*****	ELECTRICAL HANDHOLE, 30", 24" FRAME AND LID	EACH	20		
26	*****	ELECTRICAL HANDHOLE, 36", 24" FRAME AND LID, HEAVY-DUTY	EACH	20		
27	*****	ELECTRICAL MANHOLE 3'X4'X4', W/24" FRAME AND & LID	EACH	36		
28	*****	ROOF ON MANHOLE IN PAVEMENT 30" FRAME & LID	EACH	40		
29	*****	DRILL IN EXISTING MANHOLE OR HANDHOLE	EACH	300		
30	*****	CLEAN & INSERT CABLE RACK IN EXISTING MANHOLE OR HANDHOLE	EACH	170		
31	*****	ELECTRICAL MANHOLE ADJUSTMENT	EACH	20		
32	*****	ELECTRICAL HANDHOLE ADJUSTMENT	EACH	20		
33	*****	ELECTRICAL FRAME AND LID, 24"	EACH	20		
34	*****	ELECTRICAL FRAME AND LID, 30"	EACH	20		
35	*****	ROD AND CLEAN DUCT IN AN EXISTING CONDUIT SYSTEM	LNFT	20,000		
36	*****	GALVANIZED STEEL CONDUIT ATTACHED TO STRUCTURE 3/4"	LNFT	20,000		
37	*****	GALVANIZED STEEL CONDUIT ATTACHED TO STRUCTURE 2"	LNFT	2,000		
38	*****	PVC CONDUIT IN TRENCH, 2" SCH 80	LNFT	35,000		
39	*****	PVC CONDUIT IN TRENCH, 3" SCH 80	LNFT	10,000		
40	*****	DUCT/DRBR, 2" W/O CBL/SCH80	LNFT	250,000		
41	*****	DUCT/DRBR, 3" W/O CBL/SCH80	LNFT	10,000		
42	*****	CONCRETE FOUNDATION FOR BASE MOUNTED STREET LIGHT CONTROLLER	EACH	44		
43	*****	CONCRETE FOUNDATION, 28" DIAMETER, 1 1/4" A. R., 15" B. C., 7 FEET	LNFT	980		
44	*****	CONCRETE FOUNDATION, 30" DIAMETER, 1" A. R., 15" B. C., 7 FEET	LNFT	700		
45	*****	CONCRETE FOUNDATION, 1 1/4" A. R., 15" B. C., OFFSET	EACH	50		
46	*****	HELIX FOUNDATION, 7 FOOT, 15" B.C., 4 A.B.	EACH	1,070		
47	*****	HELIX FOUNDATION, 5 FOOT, 10" B.C., 4 A.B.	EACH	100		
48	CDOT63400105	GUARD POSTS	EACH	38		
49	*****	INTERCEPT EXISTING CONDUIT	EACH	20		
50	*****	2" ELBOW IN EXISTING FOUNDATION	EACH	10		
51	*****	2" ELBOW ON POLE/STRUCTURE	EACH	70		
52	*****	3" ELBOW ON POLE/STRUCTURE	EACH	28		
53	*****	2" CONDUIT RISER ON POLE/STRUCTURE W/ S.E.H.	EACH	70		
54	*****	3" CONDUIT RISER ON POLE/STRUCTURE W/ S.E.H.	EACH	28		
55	*****	RACK, SECONDARY AERIAL 3-WIRE	EACH	72		
56	*****	PAINT EXISTING POLE, MAST ARM & LUMINAIRE	EACH	60		

**SCHEDULE OF PRICES
ARTERIAL ROADWAY LIGHTING IMPROVEMENT CITYWIDE
CDOT PROJECT NO.: B-7-216**

ITEM NO.	CODE NUMBER	DESCRIPTION	UNIT	TOTAL QTY	UNIT COST	TOTAL COST
57	*****	PAINT ADDITIONAL TS EQUIPMENT	EACH	20		
58	*****	PAINT MONOTUBE & SIGNALS	EACH	22		
59	*****	PAINT POST & SIGNALS	EACH	25		
60	*****	CIRCUIT BREAKER, 1 POLE, 50A, 600V	EACH	20		
61	*****	CIRCUIT BREAKER, 1 POLE, 70A, 600V	EACH	20		
62	*****	SERVICE INSTALLATION - 200A	EACH	34		
63	*****	CONTROLLER, BASE MOUNTED, STREET LIGHT, 200A - SMART LIGHTING SYSTEM	EACH	34		
64	*****	CONTROLLER, BASE MTD, RECEPTACLE, 100A	EACH	10		
65	*****	CONTROLLER, POLE MTD, SL, 60A - SMART LIGHTING SYSTEM	EACH	10		
66	*****	ELECTRIC CABLE IN CONDUIT, 1/C # 2/0	LNFT	33,000		
67	*****	ELECTRIC CABLE IN CONDUIT, 1/C # 2	LNFT	10,000		
68	*****	ELECTRIC CABLE IN CONDUIT, 1/C # 4	LNFT	10,000		
69	*****	ELECTRIC CABLE IN CONDUIT, 1/C # 6	LNFT	32,000		
70	*****	ELECTRIC CABLE IN CONDUIT, 1/C # 10	LNFT	120,000		
71	*****	ELECTRIC CABLE IN CONDUIT 2#6 & 1#8, TRIPLEX	LNFT	330,000		
72	*****	CABLE, ALUMINUM, AERIAL, 3 1/C #8, WITH MESSENGER	LNFT	15,000		
73	*****	FIRE ALARM CABLE IN CONDUIT, 6 PAIR	LNFT	7,000		
74	*****	JUNCTION BOX, ELECTRICAL	EACH	30		
75	*****	MAST ARM, STEEL, 12 FOOT WITH SIMPLEX PLATE	EACH	20		
76	*****	ALUMINUM POLE CAP ON DAVIT ARM MAST	EACH	20		
77	*****	FURNISH GAS LIGHT POLE, COMPLETE WITH LUMINAIRE - SMART LIGHTING	EACH	60		
78	*****	FURNISH LOOP POLE COMPLETE, 10 FOOT - SMART LIGHTING	EACH	50		
79	*****	FURNISH EXTENDED LOOP POLE COMPLETE, 16 FOOT	EACH	50		
80	*****	FURNISH CHICAGO 2000 ORNAMENTAL MAST ARM ASSEMBLY, 11" OR 12" DIA	EACH	20		
81	*****	FURNISH CHICAGO 2000 ORNAMENTAL MAST ARM ASSEMBLY, 10" DIA	EACH	90		
82	*****	FURNISH CHICAGO 2000 GATEWAY BASE FOR 34'6" POLE, 10" DIA	EACH	90		
83	*****	FURNISH POLE, STEEL, ARTERIAL, 34'6", 10" DIA. 15" B.C. BLACK	EACH	90		
84	*****	FURNISH CHICAGO 2000 PENDANT LUMINAIRE, LED, 240V - SMART LIGHTING	EACH	110		
85	*****	FURNISH CHICAGO 2000 PEDESTRIAN 14' LIGHT POLE COMPLETE	EACH	50		
86	*****	FURNISH POLE, ALUMINUM, DAVIT, ARTERIAL, 35' MH	EACH	920		
87	*****	FURNISH POLE, ALUMINUM, DAVIT, ARTERIAL, 35' MH, ANODIZED	EACH	100		
88	*****	FURNISH POLE, ALUMINUM, DAVIT, ARTERIAL, 40' MH, ANODIZED	EACH	100		
89	*****	FURNISH MAST ARM, ALUMINUM, DAVIT, 6" ARTERIAL, 12 FOOT	EACH	920		
90	*****	FURNISH MAST ARM, ALUMINUM, DAVIT, 6" ARTERIAL, 12 FOOT, ANODIZED	EACH	100		
91	*****	FURNISH MAST ARM, ALUMINUM, DAVIT, 6" ARTERIAL, 15 FOOT, ANODIZED	EACH	100		
92	*****	FURNISH 12' POLE, 10" B.C., 4 A.B., & 8' MAST ARM, ALUMINUM, RESIDENTIAL	EACH	50		
93	*****	FURNISH 12' POLE, 10" B.C., 4 A.B., & 8' MAST ARM, ALUMINUM, RESIDENTIAL, ANODIZED	EACH	50		
94	*****	FURNISH LUMINAIRE, LED, 240V, ARTERIAL - SMART LIGHTING	EACH	1,012		
95	*****	FURNISH LUMINAIRE, LED, 240V, ARTERIAL, WIDE - SMART LIGHTING	EACH	600		
96	*****	FURNISH LUMINAIRE, LED, 240V, ARTERIAL ACORN & ARM - SMART LIGHTING	EACH	1,000		
97	*****	FURNISH LUMINAIRE, LED, 240V, ORNAMENTAL ACORN - SMART LIGHTING	EACH	150		
98	*****	FURNISH LUMINAIRE, LED, 240V, RESIDENTIAL - SMART LIGHTING	EACH	100		
99	*****	FURNISH LUMINAIRE, LED, 240V, MID-MOUNT RESIDENTIAL ACORN & ARM - SMART LIGHTING	EACH	100		
100	*****	FURNISH LUMINAIRE, LED, 120/240V FLOOD - SMART LIGHTING	EACH	30		
101	*****	FURNISH LUMINAIRE, LED, 120/240V VIADUCT - SMART LIGHTING	EACH	300		
102	*****	INSTALL GAS LIGHT POLE, COMPLETE WITH LUMINAIRE - SMART LIGHTING	EACH	60		
103	*****	INSTALL LOOP POLE COMPLETE, 10 FOOT	EACH	50		
104	*****	INSTALL EXTENDED LOOP POLE COMPLETE, 16 FOOT	EACH	50		
105	*****	INSTALL CHICAGO 2000 ORNAMENTAL MAST ARM ASSEMBLY, 11" OR 12" DIA	EACH	20		
106	*****	INSTALL CHICAGO 2000 ORNAMENTAL MAST ARM ASSEMBLY, 10" DIA	EACH	90		
107	*****	INSTALL CHICAGO 2000 GATEWAY BASE FOR 34'6" POLE, 10" DIA	EACH	90		
108	*****	INSTALL POLE, STEEL, ARTERIAL, 34'6", 10" DIA. 15" B.C. BLACK	EACH	90		
109	*****	INSTALL CHICAGO 2000 PENDANT LUMINAIRE, LED, 240V - SMART LIGHTING	EACH	110		
110	*****	INSTALL CHICAGO 2000 PEDESTRIAN 14' LIGHT POLE COMPLETE	EACH	50		
111	*****	INSTALL POLE, ALUMINUM, DAVIT, ARTERIAL, 35' MH	EACH	920		
112	*****	INSTALL POLE, ALUMINUM, DAVIT, ARTERIAL, 35' MH, ANODIZED	EACH	100		

**SCHEDULE OF PRICES
ARTERIAL ROADWAY LIGHTING IMPROVEMENT CITYWIDE
CDOT PROJECT NO.: B-7-216**

ITEM NO.	CODE NUMBER	DESCRIPTION	UNIT	TOTAL QTY	UNIT COST	TOTAL COST	
113	*****	INSTALL POLE, ALUMINUM, DAVIT, ARTERIAL, 40' MH, ANODIZED	EACH	100			
114	*****	INSTALL MAST ARM, ALUMINUM, DAVIT, 6" ARTERIAL, 12 FOOT	EACH	920			
115	*****	INSTALL MAST ARM, ALUMINUM, DAVIT, 6" ARTERIAL, 12 FOOT, ANODIZED	EACH	100			
116	*****	INSTALL MAST ARM, ALUMINUM, DAVIT, 6" ARTERIAL, 15 FOOT, ANODIZED	EACH	100			
117	*****	INSTALL 12" POLE, 10" B.C., 4 A.B., & 8' MAST ARM, ALUMINUM, RESIDENTIAL	EACH	50			
118	*****	INSTALL 12" POLE, 10" B.C., 4 A.B., & 8' MAST ARM, ALUMINUM, RESIDENTIAL, ANODIZED	EACH	50			
119	*****	INSTALL LUMINAIRE, LED, 240V, ARTERIAL - SMART LIGHTING	EACH	1,612			
120	*****	INSTALL LUMINAIRE, LED, 240V, ARTERIAL ACORN & ARM - SMART LIGHTING	EACH	1,000			
121	*****	INSTALL LUMINAIRE, LED, 240V, ORNAMENTAL ACORN - SMART LIGHTING	EACH	150			
122	*****	INSTALL LUMINAIRE, LED, 240V, RESIDENTIAL - SMART LIGHTING	EACH	100			
123	*****	INSTALL LUMINAIRE, LED, 240V, MID-MOUNT RESIDENTIAL ACORN & ARM - SMART LIGHTING	EACH	100			
124	*****	INSTALL LUMINAIRE, LED, 120/240V FLOOD - SMART LIGHTING	EACH	30			
125	*****	INSTALL LUMINAIRE, LED, 120/240V VIADUCT - SMART LIGHTING	EACH	300			
126	*****	SMART LIGHTING CONTROL NODE, EXTERNAL	EACH	2,212			
127	*****	SMART LIGHTING CONTROL NODE, INTERNAL	EACH	1,250			
128	*****	HANGING BASKET ASSEMBLY	EACH	150			
129	*****	REMOVE EMBEDDED POLE	EACH	200			
130	*****	REMOVE ANCHOR BASE POLE	EACH	1,335			
131	*****	REMOVE LUMINAIRE	EACH	1,600			
132	*****	REMOVE LUMINAIRE, VIADUCT	EACH	300			
133	*****	REMOVE MAST ARM	EACH	1,535			
134	*****	REMOVE CONTROLLER & POST	EACH	34			
135	*****	REMOVE CONTROLLER ONLY	EACH	10			
136	*****	REMOVE SERVICE EQUIPMENT	EACH	44			
137	*****	REMOVE SVC CABLES IN COND	LNFT	20,000			
138	*****	REMOVE BRANCH WIRES / CABLES	LNFT	165,000			
139	*****	BREAKDOWN HANDHOLE / MANHOLE	EACH	20			
140	*****	REMOVE AND BREAKDOWN FOUNDATION - STREET LIGHT OR CONTROLLER	EACH	1,369			
141	*****	REMOVE EXISTING SIGN PANEL & POST ASSEMBLY FROM PARKWAY/SIDEWALK AND RE-INSTALL	EACH	750			
142	*****	REMOVE EXISTING SIGN PANEL, SALVAGE AND RE-INSTALL	EACH	750			
143	*****	STREET NAME SIGN	SQFT	75			
144	*****	FURNISH SIGN PANEL, TYPE 1, NON-REFLECTIVE, SINGLE SIDED	SQFT	150			
145	*****	FURNISH SIGN PANEL, TYPE 1, REFLECTIVE TYPE A, SINGLE SIDED	SQFT	150			
146	*****	FURNISH SIGN PANEL, TYPE 1, REFLECTIVE TYPE A, DOUBLE SIDED	SQFT	150			
147	*****	FURNISH AND INSTALL SIGN POST, DIG METHOD	EACH	75			
148	*****	FURNISH AND INSTALL SIGN POST, DRILL METHOD	EACH	75			
149	*****	INSTALL SIGN PANEL (CENTER, FLAG OR BACK-TO-BACK MOUNT)	EACH	75			
150	*****	TREE PRUNING	EACH	150			
151	*****	LANDSCAPE RESTORATION	BLOCK	75			
152	*****	LANDSCAPE RESTORATION USING GRASS SEED MAT	SQYD	1,500			
153	*****	SPOILS REMOVAL INSPECTION AND CERTIFICATION	CUYD	300			
154	*****	TRAFFIC CONTROL & PROTECTION	LUMP SUM	300			
					TOTAL	\$	-

AWARD CRITERIA DETERMINATION

In accordance with Chapter 2-92 of the Municipal Code of Chicago, and in order to promote equality of opportunity for minority and female personnel on this project, the City of Chicago has established the following canvassing formula for the purpose of evaluating proposals and awarding the contract.

Each bidder is invited to propose the minority and female employee utilization goals for the project, as percentages of the journeyworker and apprentice and laborer hours to be expended in the construction of the project. Lines 2, 4, and 6 in the formula shall not be greater than 70 percent in each category, for the purpose of canvassing only. The 70 percent limit shall not deter or restrict the fuller utilization of minority employees for the project, but shall only serve as a limiting figure for use in the formula. Similarly, lines 8, 10, and 12 shall not be greater than 15 percent in each category, for the purpose of canvassing only. Actual amounts of minority and female work will be measured for the total hours of construction workers employed on the projects within each of the categories of journeyworkers, apprentice, laborers by the contractor and all of the worksite subcontractors.

Canvassing Formula

- Line 1. **Base Bid, in figures** _____
- Line 2. Percentage of the total journeyworker hours that the Contractor proposes to be worked by minority Journeyworkers during construction of the Project.
(Maximum figure .70) _____
- Line 3. **Multiply Line 2 by Line 1 by 0.04** _____
- Line 4. Percentage of the total Apprentice hours that the Contractor proposes to be worked by minority Apprentices during construction of the project.
(Maximum figure .70) _____
- Line 5. **Multiply Line 4 by Line 1 by 0.03** _____
- Line 6. Percentage of the total Laborer hours that the Contractor proposes to be worked by minority Laborers during construction of the project.
(Maximum figure .70) _____
- Line 7. **Multiply Line 6 by Line 1 by .01** _____
- Line 8. Percentage of the total Journeyworker hours that the Contractor proposes to be worked by female Journeyworkers during construction of the project.
(Maximum figure .15) _____
- Line 9. **Multiply Line 8 by Line 1 by 0.04** _____

Award Criteria Determination

- | | | |
|----------|---|-------|
| Line 10. | Percentage of the total Apprentice hours that the Contractor proposes to be worked by female Apprentices during construction of the project.
(Maximum figure .15) | _____ |
| Line 11. | Multiply Line 10 by Line 1 by 0.03 | _____ |
| Line 12. | Percentage of the total Laborer hours that the Contractor proposes to be worked by female Laborers during construction of the project.
(Maximum figure .15) | _____ |
| Line 13. | Multiply Line 12 by Line 1 by 0.01 | _____ |
| Line 14. | Summation of Lines 3, 5, 7, 9, 11, and 13 | _____ |
| Line 15. | Subtract Line 14 from Line 1 = Award Criteria Figure | _____ |

The bidder shall complete the Canvassing Formula and transfer the final Award Criteria Figure, Line 15, to the space provided on the itemized Proposal Sheet. A contract in the amount of the Total Base Bid will be awarded to the responsible bidder with the lowest Award Criteria Figure. The City reserves the right to revise all arithmetic calculations for correctness.

The Contractor is obliged during the construction of the Project to fulfill every numerical commitment made under the Canvassing Formula categories. Therefore, every limiting condition of circumstance which may affect referral, hiring, or deployment of construction trades employees must be taken into account by the bidder before the commitment is proposed. Limits imposed by the policies or circumstances of labor organizations or other referral resources, for example, should be anticipated by the bidder, since relief from the contractor's obligations as established under the Canvassing Formula is not available due to such circumstances found to exist during Construction. Also, if Journeyworkers will not be employed in the project, or Apprentices, or Laborers, then the proposal made in the appropriate Lines, Lines 2 and 8, or Lines 4 and 10, or 6 and 12, should be entered as "0 percent" since no Journeyworker or Apprentice or Laborer hours are reported after construction, this will be computed by the City as "0 percent," minority/female hours achieved.

If commitments are made in the Apprentice category, Lines 4 and 10, the total apprentice hours to be employed on the projects should be anticipated to be a substantial number of hours; since it is the intention of the City that where a commitment for a percentage of minority or female Apprentices has been made, the percentage may be counted as fulfilled only as long as there were provided at least 40 actual hours of minority or female employment as Apprentices. For this reason, where a minority or female percentage commitment has been made, if in the final audit of the performance of the Contract there are less than 40 actual hours of minority or female Apprentice work performed, then the number of minority or female apprentice hours will be counted by the City as "0" for the purpose of measuring the achievement towards the apprentice canvassing formula goal.

Therefore, notice that when the Contractor is performing at a level under a minority or female Apprentice goal, Line 4 or Line 10 above, the Contractor will be subject to the full amount of

Award Criteria Determination

liquidated damages, see Lines 5 and 11, if at least 40 actual hours of minority or female Apprenticeship work are not achieved. When the bidder foresees that this minimum amount of apprenticeship is not available to the project, then "0" should be put in Lines 4 and 10 as the percentage commitment for apprentices.

The Contractor is obligated to meet the total commitment made in each category, subject to liquidated damages as described below for noncompliance. The Contractor hereby consents and agrees that, in the event of failure to comply with each of the minimum commitments submitted with the proposal on Lines 2, 4, 6, 8, 10, and 12 of the canvassing formula, covering Journeyworkers, Apprentices, and Laborers, respectively, the following shall apply to determine a monetary sum to be withheld from the final payment to the Contractor.

In calculating the aggregated work hours toward the utilization goal for construction Journeyworkers, Apprentices, or Laborers under this Canvassing Formula, the Contractor shall be given 150% credit for every work hour performed by a minority or woman worker residing within a socio-economically disadvantaged area. The criteria for designation of an area as socio-economically disadvantaged will be set forth in rules promulgated by the Commissioner of Planning and Development. Such criteria shall include, but not be limited to, the median family income of an area.

Liquidated Damages

For each one percent (1%) deficiency of minority journeyworkers not utilized toward the goal (Line 2), four cents for each hundred dollars of the base bid, calculated as follows:

Line 1	X	.04
100		

Each one percent (1%) deficiency of shortfall toward the goal line (Line 8) for female Journeyworkers shall be computed in the same way.

For each one percent (1%) deficiency of minority Apprentices not utilized toward the goal (Line 4), three cents per each hundred dollars on the base bid, calculated as follows:

Line 1	X	.03
100		

Each one percent (1%) of shortfall toward the goal (Line 10) for female Apprentices shall be computed in the same way.

For each one percent (1%) deficiency of minority Laborers not utilized towards the goal (Line 6), one cent per each hundred dollars of the Base Bid, calculated as follows:

Line 1	X	.01
100		

Each one percent shortfall toward the goal (Line 12) for female Laborers shall be computed in the same way.

Award Criteria Determination

Reporting

The Contractor shall submit to the City on a timely basis a completed weekly certified payroll, (U.S. Department of Labor Form WH-347, Illinois Department of Transportation Form RE-48, or equivalent) with race and gender of employees clearly named or coded each week. The Contractor is responsible for forwarding every worksite Subcontractor's weekly certified payroll. Supportive information regarding an employee's race, gender or work classification of such is required by the City. Failure to report fully all required workforce information will subject the contractor to liquidated damages in the total amount listed in Line 14 above.

In the weekly payroll reports, the following ethnic categories should be used to indicate minority personnel for purposes of the canvassing formula:

Black	—	Persons having origins in any of the Black racial groups of Africa.
Hispanic	—	Persons of Mexican, Puerto Rican, Cuban, Central American, or other Spanish culture or origin, regardless of race.
Native American	—	Persons who are American Indians, Eskimos, Aleuts or Native Hawaiians.
Asian Pacific	—	Persons whose origins are from Japan, China, Taiwan, Korea, Vietnam, Laos, Cambodia, the Philippines, Samoa, Guam, the U.S. Trust Territories or the Northern Marianas.
Asian Indian	—	Persons whose origins are from India, Pakistan, or Bangladesh.

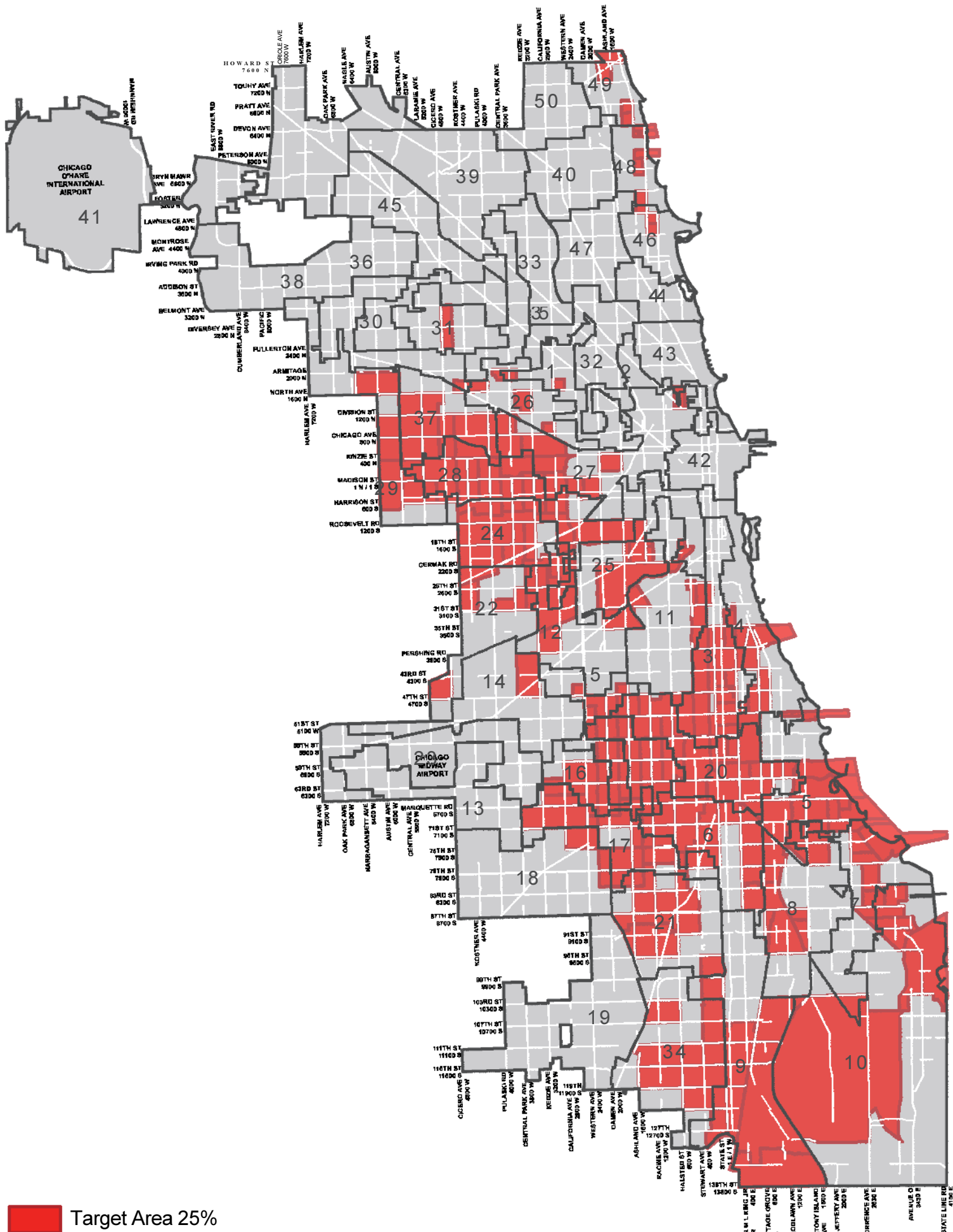
Included in the canvassing formula as "Journeyworkers" are the construction site Journeyworkers from the major trades including, without limitation, truck drivers, electrical groundsmen, and elevator construction helpers. Other "Helpers," watchmen, custodial workers, clerical workers, and salaried superintendents are not creditable in the formula. Hourly wage "Foremen" and "General Foremen" will be counted as journeyworkers for purposes of the canvassing formula.

Included in the canvassing formula as "Apprentices" are only bona fide Apprentices currently in a training program certified by the U.S. Department of Labor — Bureau of Apprenticeship and Training, and for the hours employed at the construction site. Other categories of trainees are not creditable in the formula. Individual workers who are both minority and female will have their hours counted towards both a minority goal and any female goal.

Other Regulations

The adherence to the canvassing formula does not abrogate other responsibilities of the contractor to comply with equal employment opportunity requirements under federal or state law, municipal ordinance, prevailing government regulations or terms contained elsewhere in this contract.

See Map of Socioeconomically Disadvantaged Areas on following page.



 Target Area 25%

SECTION TWO

REQUIREMENTS FOR BIDDING AND INSTRUCTIONS FOR BIDDERS

Contract for Work

Proposals are received by the Chief Procurement Officer of the City of Chicago in accordance with Contract Documents as set forth herein.

1. Examination by Bidder

The bidder shall, before submitting its bid, carefully examine the proposal, plans, specifications, contract documents and bonds. The bidder shall inspect in detail the site of the proposed work and familiarize itself with all of the local conditions affecting the contract and the detailed requirements of construction. If at any time prior to the bid opening, the Bidder discovers any errors, discrepancies or omissions in the Contract Documents, or any discrepancy between the Contract Documents and the physical conditions at the site or in any subsequent drawings that may be provided thereafter, the Bidder must notify the Chief Procurement Officer immediately, in writing, for an interpretation through an Addendum. The Chief Procurement Officer reserves the right to establish a date by which any written request must be submitted before bid opening. No response will be given for inquiries beyond that date. If its bid is accepted, the bidder will be responsible for all errors in its proposal resulting from failure or neglect to comply with these instructions. The City will, in no case, be responsible for any change in anticipated profits resulting from such failure or neglect.

Unless otherwise provided in the Contract, when the plans or specifications include information pertaining to subsurface exploration, borings, test pits, and other preliminary investigation, such information represents only the opinion of the City as to the location, character, or quantity of the materials encountered and is only included for the convenience of the bidder. The City assumes no responsibility with respect to the sufficiency or accuracy of the information, and there is no guaranty, either expressed or implied, that the conditions indicated are representative of those existing throughout the work, or that unanticipated developments may not occur.

2. Bid Deposit

Bid deposit shall be required for all competitive sealed bidding for contracts when required in the legal advertisement. The bid deposit must be a bond, or the equivalent in cashier's check, money order or certified check. Any bond must be executed by a surety authorized to do business in the State of Illinois. And, it must be in the form provided by the Chief Procurement Officer, an example of which is bound herein. All certified checks must be drawn on a bank doing business in the United States, and shall be made payable to the order of the City of Chicago. CASH IS NOT AN ACCEPTABLE FORM OF BID DEPOSIT.

Bid deposits shall be in the amount shown in the advertisement or as may be prescribed herein, but not in excess of 10% of the bid. Should the amount of the bid deposit shown in the advertisement prove to be more than 10% of the bid, then the bidder may submit, in lieu of the foregoing, an amount equal to 10% of his bid. When the legal advertisement requires a deposit, noncompliance requires rejection of the bid. Compliance with the provisions

Requirements for Bidding and Instructions for Bidders

herewith shall be determined in all cases by the Chief Procurement Officer and his determination shall be final.

After bids are opened, deposits shall be irrevocable for the period specified herein. If a bidder is permitted to withdraw its bid before award, no action shall be taken against the bidder or the bid deposit.

3. Preparation of Proposal

The bidder shall prepare its proposal on the attached proposal forms. Unless otherwise stated, all blank spaces on the proposal page or pages, applicable to the subject specification, must be correctly filled in. Either a unit price or a lump sum price, as the case may be, must be stated for each and every item, either typed in or written in ink, in figures, and, if required, in words.

If bidder is a corporation, the President and Secretary must execute the bid and the corporate seal must be affixed. In the event that this bid is executed by other than the President, attach hereto a certified copy of that section of Corporate By-Laws or other authorization by the Corporation which permits the person to execute the offer for the corporation.

If bidder is a partnership, all partners must execute the bid, unless one partner has been authorized to sign for the partnership, in which case, evidence of such authority satisfactory to the Chief Procurement Officer shall be submitted.

If bidder is a sole proprietorship, the sole proprietorship must execute the bid. A "Partnership", "Joint Venture" or "Sole Proprietorship" operating under an Assumed Name must be registered with the Illinois county in which located, as provided in 805ILCS 405 (1992).

4. Submission of Proposals

All prospective bidders shall submit sealed proposals with applicable bid deposit enclosed in envelopes provided for that purpose by the DEPARTMENT OF PROCUREMENT SERVICES, Room 301, City Hall. If proposals are submitted in envelopes other than those so provided for this purpose, then the sealed envelope submitted by the prospective bidder shall carry the following information on the face of the envelope: bidder's name, address, subject matter of proposal, advertised date of bid opening and the hour designated for bid opening as shown on the legal advertisement.

Where proposals are sent by mail to the DEPARTMENT OF PROCUREMENT SERVICES, the bidders shall be responsible for their delivery to the Chief Procurement Officer before the advertised date and hour for the opening of bids. If the mail is delayed beyond the date and hour set for the bid opening, proposals thus delayed will not be accepted.

Proposals must be submitted with original signatures in the space provided on the appropriate Proposal Execution Page. Proposals not properly signed shall be rejected.

5. Withdrawal of Proposals

Bidders may withdraw their proposals at any time prior to the time specified in the advertisement as the closing time for the receipt of bids. However, no bidder shall withdraw or cancel his proposal for a period of 60 calendar days after said advertised closing time for the receipt of proposals nor shall the successful bidder withdraw or cancel or modify his

Requirements for Bidding and Instructions for Bidders

proposal after having been notified by the Chief Procurement Officer that said proposal has been accepted by the City. The City reserves the right to withhold and deposit, as liquidated damages and not a penalty, the bid deposit of any bidder requesting withdrawal, cancellation or modification of its proposal prior to the stated period for acceptance of proposal.

Where this contract shall be approved by another agency, such as the Federal Government or State of Illinois, then the bidder shall not withdraw or cancel or modify his proposal for a period of 90 calendar days after said advertised closing time for the receipt of proposals.

6. Competency of Bidder

The Chief Procurement Officer reserves the right to refuse to award a Contract to any person, firm or corporation that is in arrears or is in default to the City of Chicago upon any debt or contract, or that is a defaulter, as surety or otherwise, upon any obligation to said City, or had failed to perform faithfully any previous contract with the City.

The bidder, if requested, must present within a reasonable time, as determined by the Chief Procurement Officer, evidence satisfactory to the Chief Procurement Officer of performance ability and possession of necessary facilities, pecuniary resources and adequate insurance to comply with the terms of these specifications and contract documents.

7. Compliance with Child Support Orders Ordinance

The Child Support Arrearage Ordinance, § 2-92-415 of the Municipal Code, furthers the City's interest in contracting with entities that demonstrate financial responsibility, integrity and lawfulness, and finds that it is especially inequitable for Contractors to obtain the benefits of public funds under City contracts while owners fail to pay court-ordered child support, and shift the support of their dependents onto the public treasury.

In accordance with § 2-92-415 of the Municipal Code, if the Circuit Court of Cook County or an Illinois court of competent jurisdiction has issued an order declaring one or more Substantial Owner(s) in arrearage on their child support obligations and: (1) such Substantial Owner has not entered into a court-approved agreement for the payment of all such child support owed, or (2) such Substantial Owner is not in compliance with a court-approved agreement for the payment of all such child support owed, (see Certification of Compliance with Child Support Orders in EDS), then:

For those bidders in competitive bid contracts, the City will assess an 8% penalty. This penalty will increase their bid price for the purpose of canvassing the bids in order to determine the lowest responsible bidder. This penalty will apply only for purposes of comparing bid amounts and will not affect the amount of any contract payment.

For purposes of this Section only, "SUBSTANTIAL OWNER" means any person who owns or holds a 10% or more interest in the bidder; where the bidder is an individual or sole proprietorship, substantial owner means that individual or sole proprietorship.

"PERCENTAGE OF INTEREST" includes direct, indirect and beneficial interests in the Contractor. Indirect or beneficial interest means that interest in a Contractor held by a corporation, joint venture, trust, partnership, association, estate or other legal entity, in which the individual holds an interest, or by agent(s) or nominee(s) on behalf of an individual or entity. For example, if Corporation B holds or owns a 20% interest in Contractor, and an individual or entity has a 50% or more percentage of interest in Corporation B, then such

Requirements for Bidding and Instructions for Bidders

individual or entity indirectly has a 10% or more interest in Contractor. If Corporation B is held by another entity, then this analysis similarly must be applied to that next entity.

The provisions of this Section will only apply where not otherwise prohibited by federal, state or local law.

8. Consideration of Proposals

The Chief Procurement Officer represents and acts for the City in all matters pertaining to this proposal and contract in conjunction therewith. The Chief Procurement Officer reserves the right to reject any or all proposals and to disregard any informality in the bids and bidding, when in his opinion the best interest of the City will be served by such action. The proposal is contained in these contract documents and **MUST NOT BE DETACHED HERE FROM** by any bidder when submitting a proposal. Incomplete proposals are subject to rejection.

9. Balanced Bids

Bidder's pricing for each line item should carry its share of the cost of work, plus its share of overhead and profit. Bidders should avoid nominal pricing for some lines and enhanced pricing for other lines. Bids that the Chief Procurement Officer considers in his sole opinion to be materially unbalanced will be rejected.

10. Acceptance of Proposals

The Chief Procurement Officer will accept in writing one of the proposals or reject all proposals, within 60 calendar days, or within 90 calendar days where approval by other agencies is required, from the date of opening of bids, unless the lowest responsible bidder, upon request of the City, extends the time of acceptance to the City.

11. Performance Bond

When required by the Chief Procurement Officer the successful bidder or bidders shall, within seven (7) calendar days of receipt of notice from the City, furnish a performance bond in the full amount of the contract on Form P.W.O. 62, a specimen of which is bound herein.

Receipt of written notice from the City to furnish a bond constitutes tentative notice of pending award and proposal acceptance. Release of the contract shall be withheld pending receipt and approval of a satisfactory bond.

Attention is called to the provisions of 30 ILCS 550/1, et. seq. and to the provisions of Section 2-92-030 of the Municipal Code of Chicago.

12. Failure to Furnish Bond

In the event that the bidder fails to furnish the performance bond in said period of seven (7) calendar days, then the bid deposit of the bidder shall be retained by the City as liquidated damages and not as a penalty.

13. Interpretation of Contract Documents

If any person contemplating submitting a proposal is in doubt as to the true meaning of any part of the specifications or other contract documents, a written request for an interpretation thereof may be submitted to the Chief Procurement Officer. The person submitting the request will be responsible for its prompt delivery. Any interpretation of the proposed

Requirements for Bidding and Instructions for Bidders

documents will be made only by an addendum duly issued by the Chief Procurement Officer. A copy of such addendum will be mailed, faxed, electronically mailed or delivered to each person receiving a set of such contract documents and to such other prospective bidders as shall have requested that they be furnished with a copy of each addendum. Failure on the part of the prospective bidder to receive a written interpretation prior to the time of the opening of bids will not be grounds for withdrawal of proposal. Bidder will acknowledge receipt of each addendum issued in space provided on proposal page. Oral explanations will not be binding.

14. Catalogs

Each bidder must submit, where necessary, or when requested by the Chief Procurement Officer, catalogs, descriptive literature, and detailed drawings, fully detailing features, designs, construction, appointments, finishes and the like not covered in the specifications, necessary to fully describe the material or work he proposes to furnish.

15. Substitution

The Bidder must, if awarded the Contract, provide the items specified in the Contract Documents when those items are specified by manufacturer's trade name in Book-Three, unless equivalent alternatives have been proposed as described below. Reference to a specific manufacturer, trade name, or catalog is intended to be descriptive but not restrictive and only to indicate to the prospective bidder items that will be satisfactory. The Bidder may bid another product(s) provided that the alternative product is on a separate sheet of paper designated as such and is supported by the type of information listed in Section VII.D.1.a.,b.,e.,g.,h., and Section VII.D.2., of the Terms and Conditions for Construction, in order to facilitate the Chief Procurement Officer's evaluation of such product. The Chief Procurement Officer may, in his sole discretion, accept an alternate bid for a specified item, provided the alternate item so bid is, in the Chief Procurement Officer's sole opinion, the equivalent of the item specified in the Contract Documents. An alternate that is not equivalent to the specified item may render the bid non-responsive. Unless the alternate item is so identified, it is understood that the Bidder proposes, and will be required to provide, the specific item described in the Contract Documents. No substitution of specified items will be allowed thereafter except as provided in Section VII.D.2., of the Terms and Conditions for Construction.

16. Return of Bid Deposit

The bid deposit of all except the two lowest bidders on each contract will be returned shortly after the bid opening. The Chief Procurement Officer reserves the right to hold all bid deposits, if the intent is to award multiple contracts for a requirement and/or if the two lowest responsible bidders cannot be readily determined based on price until all proposals have been evaluated.

The remaining bid deposits on each contract will be returned with the exception of the accepted bidder, after the Chief Procurement Officer has awarded the contract. The bid deposit of the accepted bidder will be returned after the contract has been awarded and a satisfactory performance bond has been approved, where such bond is required.

17. Taxes

Requirements for Bidding and Instructions for Bidders

With few exceptions, Federal Excise Tax does not apply to materials purchased by the City of Chicago. The Illinois Retailers' Occupation Tax, Use Tax, and Municipal Retailers' Occupation Tax also do not apply to materials or services purchased by the City of Chicago. The price or prices quoted herein shall include all other Federal and/or State, direct and/or indirect taxes which apply. The prices quoted herein shall agree with all Federal Laws and Regulations.

18. Contractor's Financial Statement

Each bidder must either (1) submit with the bid a current and valid Illinois Department of Transportation (IDOT) 'Certificate of Eligibility' issued by IDOT as a result of filing an application with IDOT for PREQUALIFICATION STATEMENT OF EXPERIENCE, EQUIPMENT AND FINANCIAL CONDITION showing prequalification in the required work categories, or (2) if the bidder has not been issued an applicable IDOT 'Certificate of Eligibility,' bidder must have on file in the office of the Chief Procurement Officer prior to bid opening a CONTRACTOR'S STATEMENT OF EXPERIENCE AND FINANCIAL CONDITION dated not earlier than the end of the Contractor's last fiscal year period. This Statement shall be kept on file by the Chief Procurement Officer as a representative statement for a period of one year only. Forms are available at the office of the Bid and Bond Section, DEPARTMENT OF PROCUREMENT SERVICES, Room 103 City Hall, 121 North LaSalle Street, Chicago, Illinois, 60602, 312-744-9773 or may be obtained online:

http://www.cityofchicago.org/city/en/depts/dps/provdrs/contract/svcs/forms_and_standardagreements.html

Failure to submit an IDOT 'Certificate of Eligibility' or alternatively to have a current financial statement on file in the DEPARTMENT OF PROCUREMENT SERVICES at time of bid opening may be cause for the rejection of Contractor's Proposal.

19. Notices

All communications and notices to the City herein provided for shall be faxed, delivered personally, electronically mailed or mailed first class, postage prepaid, to the Commissioner of the using department by name and address listed on the cover hereof, and to the Chief Procurement Officer, Room 806, City Hall, 121 N. LaSalle Street, Chicago, Illinois 60602. All communications and notices to the bidder, unless otherwise provided for, shall be faxed, delivered personally, electronically mailed or mailed first class, postage prepaid, to the bidder by name and address listed on the proposal hereof.

20. Acknowledgment of Receipt of Addenda

The bidder must acknowledge the receipt of all formally issued addenda in the space provided on the signature pages of the Proposal.

21. Economic Disclosure Statement and Affidavit (EDS)

The Contractor is required to complete an online Economic Disclosure Statement and Affidavit, (EDS), including the Disclosure of Retained Parties as required by Executive Order 97-1 prior to the bid due date. Refusal to execute such disclosure will result in the

Requirements for Bidding and Instructions for Bidders

CPO declaring the bidder non-responsible and the City retaining the bid deposit. Moreover, if a bidder is deemed- non responsible under this provision, the bidder's status as a non-responsible bidder may apply to the bidders subsequent bids. See the attached instructions for completing the on-line EDS: The web link for the on-line EDS is:

http://www.cityofchicago.org/city/en/depts/dps/provdrs/comp/svcs/economic_disclosurestatementseds.html.

The Contractor or each joint venture partner shall be required to submit with their bid, proposal or response, a fully executed Economic Disclosure Statement and Affidavit, which includes a Disclosure for Retained Parties, on the form attached herein, signed by an authorized officer of the company before a notary which includes a certification that the Contractor or each joint venture partner, its agents, employees, officers and any subcontractors have not been engaged in or been convicted of bidrigging or bid-rotating activities as defined in the Economic Disclosure Statement and Affidavit. The certification is required in accordance with the Illinois Criminal Code.

22. Minority Business Enterprise Commitment and Women Business Enterprise Commitment

The attention of bidders is directed to the Special Condition Regarding Minority Business Enterprise Commitment and Women Business Enterprise Commitment and the Proposal Schedules that precede the Proposal form. If awarded the Contract, the bidder agrees to expend at least the percentage of the contract price indicated on bidder's Proposal Schedules for participation by bona fide Minority Business Enterprises and Women Business Enterprises. Appropriate Schedules must be completed and executed by the bidder in submitting a proposal. Refer to Book 1.

23. Protests

The bidder shall submit any protests or claims regarding this solicitation to the office of the City's Chief Procurement Officer located at City Hall, 121 North LaSalle Street, Room 806, Chicago, Illinois 60602. A pre-bid protest must be filed no later than the five (5) working days before the bid opening date, a pre-award protest must be filed no later than 10 working days after the bid opening date, and a post-award protest must be filed no later than 10 working days after the award of the contract.

All protests or claims must set forth the name and address of the protester, the specification number, the grounds for the protest or claim, and the course of action that the protesting party desires that the Chief Procurement Officer take.

Copies of the Bid Protest Procedures are available at the Bid and Bond Room.

24. Multi-Project Labor Agreement (PLA)

The City has entered into the PLA with various trades regarding projects as described in the PLA, which is hereby incorporated by reference. A copy of the PLA, with appendices, may be found on the City's website at <http://www.cityofchicago.org/PLA>.

Contractor acknowledges familiarity with the requirements of the PLA and its applicability to any work under this agreement, and shall comply in all respects with the PLA

25. Prevailing Wage Rates

Requirements for Bidding and Instructions for Bidders

When engaged in construction of a “public work,” within the meaning of Illinois Prevailing Wage Act, 820 ILCS 130/.01 et seq. (“the Act”), the Act requires Contractors and Subcontractors to pay laborers, workers and mechanics performing services on public works projects no less than the “prevailing rate of wages” (hourly wages plus fringe benefits) in the county where the work is performed.

For information regarding current prevailing wage rates, please refer to the Illinois Department of Labor’s website at: www.state.il.us/agency/idol/rates/rates.HTM. All Contractors and Subcontractors rendering services under a Contract for the construction of a public work must comply with all requirements of the Act, including but not limited to, all wage, notice and record keeping duties.

The term general prevailing hourly rate, when used in this requirement will mean the hourly cash wages plus fringe benefits for health and welfare, insurance, vacations and pensions paid generally, in the locality in which the work is being performed, to employees engaged in work of a similar character on public works.

As a condition of making payment to the Contractor, the City may require the Contractor to submit an affidavit to the effect that not less than the prevailing hourly wage rate is being paid to laborers, mechanics and other workmen employed on this Contract in accordance with Illinois or federal law, as applicable.

26. Title VI Solicitation Notice

The City, in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 U.S.C. §§ 2000d to 2000d-4) and the Regulations, hereby notifies all bidders that it will affirmatively ensure that for any contract entered into pursuant to this advertisement, business enterprises owned by disadvantaged individuals will be afforded full and fair opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, or national origin in consideration for an award.

27. Policy Prohibiting Sexual Harassment (Section 2-92-612 of the Chicago Municipal Code)

If this Contract was advertised on or after June 30, 2018, Bidder shall, as prescribed by the Chief Procurement Officer, attest by affidavit (in the form of the “Sexual Harassment Policy Affidavit” included in Book 2) that Bidder has a written policy prohibiting sexual harassment that shall include, at a minimum, the following information: (i) the illegality of sexual harassment; (ii) the definition of sexual harassment; and (iii) the legal recourse available for victims of sexual harassment. Bidder shall include its “Sexual Harassment Policy Affidavit” with its bid submission.

Licensing of General Contractors

LICENSING OF GENERAL CONTRACTORS

- 4-36-010 Definitions.
- 4-36-020 License – Required.
- 4-36-030 License classifications.
- 4-36-040 License – Posting – Nontransferability.
- 4-36-050 License – Application.
- 4-36-060 License issuance and renewal prohibited when.
- 4-36-070 License – Fee – Termination.
- 4-36-080 License number to be printed where.
- 4-36-090 Proof of insurance – Required.
- 4-36-100 Reserved.
- 4-36-110 Unlawful acts.
- 4-36-120 Duties.
- 4-36-130 Permit privileges – Suspension for failure to correct defects in work.
- 4-36-140 License – Immediate suspension based upon a pattern of substantial code violations.
- 4-36-145 License suspension pending final adjudication of a bribery charge.
- 4-36-150 License – Suspension or revocation.
- 4-36-160 License revocation – Four-year wait for new license.
- 4-36-170 Regulations.
- 4-36-180 Enforcement.
- 4-36-190 Violation – Penalty.

4-36-010 Definitions.

As used in this chapter:

“Act related to general contracting” means: (1) any activity requiring a license under this chapter; or (2) any conduct regulated by this chapter; or (3) any activity requiring a building permit issued under Chapter 13-32 of this Code; or (4) any duty or other requirement imposed by this chapter; or (5) any inspection of a building or premises or performance of other legal or work-related duty by a city inspector, city personnel or other government official in connection with: (i) the issuance of a general contractor license under this chapter, or (ii) the issuance of a building permit under Chapter 13-32 of this Code, or (iii) for the purpose of enforcing the requirements of the building code, zoning code or any other law regulating building construction or the health or safety of construction site workers, of the current or eventual users or occupants of a building or premises or of the general public.

“Building code” has the meaning ascribed to the term in Section 1-4-090.

Licensing of General Contractors

“City” means the City of Chicago.

“City personnel” means any person employed by the City of Chicago.

“City inspector” means any person authorized by the City of Chicago to conduct an inspection.

“Department” means the department of buildings.

“Commissioner” means the commissioner of buildings.

“Controlling person” means any person who: (1) is an officer, director, partner, general partner, limited partner, manager, managing member or member of any entity seeking or holding a license under this chapter; or (2) owns, directly or indirectly through one or more intermediate ownership entities, 25 percent or more of the interest in the licensee or applicant, as applicable.

“General contractor” means any person who, as an investment or for compensation or with the intent to sell or to lease, (i) arranges or submits a bid or offers to undertake or purports to have the capacity to undertake or undertakes, through himself or through others, to erect, construct, alter, repair, move, install, replace, convert, remodel, rehabilitate, modernize, improve or make additions to any building as defined in Section 13-4-010 or to any appurtenance thereto attached to real estate and located on the same lot as the building, including, but not limited to, driveways, swimming pools, porches, decks, garages, fences, fallout shelters and other accessory objects or uses; and (ii) retains for himself control over the means, method and manner of accomplishing the desired result; and (iii) whose business operations, in whole or in part, require the hiring or supervision of one or more persons from any building trade or craft, including, but not limited to, plumbing, masonry, electrical, heating, air-conditioning or carpentry. The term includes nonresident general contractors who do business within the city and developers of conversion condominiums as defined in the Condominium Property Act, as amended.

“Knowingly”, with respect to a material fact, means (i) having actual knowledge of the material fact; or (ii) being aware of facts or information that would cause a reasonable person to have actual knowledge of the material fact; or (iii) acting in deliberate ignorance or reckless disregard of the truth or falsity of the material fact.

“Licensee” means any person licensed or required to be licensed under this chapter.

“Nonresident general contractor” means any general contractor who is not domiciled in the city and has not maintained a permanent place of business or residence in the city for at least six months.

“Zoning code” has the meaning ascribed to the term in Section 1-4-150.

4-36-020 License – Required.

(A) No person shall own, operate, conduct, manage, engage in, maintain or carry on the business of general contractor without first having obtained a general contractor license. The general contractor license shall be in addition to any other license required by law, including, but not limited to, the excavators license issued pursuant to Chapter 4-196 of this Code, if applicable.

(B) The following persons are not general contractors within the meaning of this section:

Licensing of General Contractors

- (1) Any subcontractor, employee or agent working for or under the supervision of a general contractor licensed or required to be licensed under this chapter and acting within the scope of his contract, employment or agency;
- (2) Any person who merely furnishes materials or supplies for use at a construction site without fabricating them into, or consuming them in the performance of, the work of a general contractor;
- (3) Any person licensed by the City of Chicago as a mason contractor, plumbing contractor or electrical contractor and acting within the scope of his license;
- (4) Any licensed architect or engineer acting within the scope of his license;
- (5) Any person who does general contracting work on property that constitutes his primary residence, if the primary residence is a single-family dwelling or a multiple-family dwelling that does not exceed three stories in height and contains six or fewer dwelling units as defined in Section 13-4-010 of this Code. This exception is limited to one such property during a calendar year;
- (6) Any person who hires a general contractor licensed under this chapter to do general contracting work on the person's property;
- (7) Any property owner, or employee or agent thereof, who does minor nonstructural repairs on the owner's property; and
- (8) A governmental entity for work upon premises owned by the governmental entity and performed by employees of the governmental entity.

4-36-030 License classifications.

General contractor licenses shall be divided into the classifications which follow. The holders of such licenses shall be entitled to engage in the business of general contractor within the city subject to the following limitations:

Class A license: The holder of a Class A license is subject to no limitation as to the value of any single contract project.

Class B license: The holder of a Class B license is not entitled to engage in the construction of any single contract project of a value in excess of \$10,000,000.00.

Class C license: The holder of a Class C license is not entitled to engage in the construction of any single contract project of a value in excess of \$5,000,000.00.

Class D license: The holder of a Class D license is not entitled to engage in the construction of any single contract project of a value in excess of \$2,000,000.00.

Class E license: The holder of a Class E license is not entitled to engage in the construction of any single contract project of a value in excess of \$500,000.00.

4-36-040 License – Posting – Nontransferability.

Licensing of General Contractors

Each license issued pursuant to this chapter shall be posted in a conspicuous place near the entrance of the licensee's chief place of business. A photocopy of the license shall be posted in a conspicuous place at each construction site maintained by the licensee. No transfer of ownership shall be allowed on any license issued under this chapter.

4-36-050 License – Application.

An application for a license under this chapter shall be made in writing to the commissioner on a form provided by the department of buildings, and shall be accompanied by the following:

- (A) If the applicant is an individual:
 - (1) The applicant's full name, residence address, business address, business e-mail address and business telephone number;
 - (2) Proof that the applicant is at least 18 years of age;
- (B) If the applicant is a corporation:
 - (1) The corporate name, address, e-mail address and telephone number of the applicant's principal office or place of business;
 - (2) The date and state of incorporation;
 - (3) The full name, title, residence address, e-mail address and residence telephone number of all controlling persons;
 - (4) Proof that all corporate officers and controlling persons are at least 18 years of age;
 - (5) Proof that the corporation is in good standing under the laws of the State of Illinois;
- (C) If the applicant is a partnership or limited liability company:
 - (1) The name, address, e-mail address and telephone number of the applicant's principal office or place of business;
 - (2) The full name, title, residence address, e-mail address and residence telephone number of all partners, if a general partnership; of all general and limited partners, if a limited partnership; of all managers, managing members and members, if a limited liability company; and of all controlling persons;
 - (3) Proof that all partners, managers, managing members, members and controlling persons are at least 18 years of age;
- (D) The class of license for which application is being made;
- (E) The license fee;
- (F) A description of the work and services the applicant will provide;
- (G) A statement verified by affidavit as to whether the applicant and each controlling person is financially solvent;

Licensing of General Contractors

(H) The name and address of the principal location from which the applicant has engaged in the business of general contracting at any time within the last five years;

(I) If the applicant is not a sole proprietor, proof that the applicant is authorized to do business in the State of Illinois;

(J) Proof of insurance as required by Section 4-36-090;

(K) The date of birth, and social security number or other acceptable identifier, of each natural person named in the license application;

(L) A statement as to whether the applicant or any controlling person has ever been convicted, in custody, under parole or under any other non-custodial supervision resulting from a conviction in a court of any jurisdiction for the commission of a felony or criminal offense of whatever degree involving bribery, and if so, the details surrounding each such conviction;

(M) A statement as to whether the applicant or any controlling person is currently under indictment or has been charged under any State or Federal law with the crime of bribery; and

(N) Any other information that the commissioner may require.

It is a condition of the license that all information in the application be kept current. Any change in required information shall be reported to the department of buildings within 14 business days after such change has occurred.

For purposes of this section, a post office box shall not suffice as an address.

4-36-060 License issuance and renewal prohibited when.

No general contractor license shall be issued to the following persons:

(A) Any person whose license under this chapter has been revoked for cause at any time within the last four years;

(B) Any person whose permit privileges have been suspended pursuant to Section 4-36-130 until such time that the suspension is lifted by the department of buildings;

(C) Any person who is under the age of 18;

(D) Any person who has been convicted, in custody, under parole or under any other non-custodial supervision resulting from a conviction in a court of any jurisdiction for the commission of a felony or criminal offense of whatever degree involving bribery, unless, upon request of such person, the commissioner determines that such person has been substantially rehabilitated to warrant the public trust. The burden of proof of substantial rehabilitation shall be on the person seeking such rehabilitation; and

(E) Any person who is currently under indictment or has been charged under any State or Federal law with the crime of bribery.

The above prohibitions and requirements shall apply to the licensee and to all controlling persons.

Eligibility for issuance of a license under this chapter shall be a continuing requirement for maintaining a license under this chapter. Failure to maintain such eligibility may result in

Licensing of General Contractors

license suspension or revocation in accordance with the requirements of Section 4-4-280 of this Code.

4-36-070 License – Fee – Termination.

The license fee set forth in Section 4-5-010 of this Code shall be payable annually. The general contractor license shall expire on the date indicated on the face of the license.

4-36-080 License number to be printed where.

The licensee shall print his general contractor license number legibly on the front page of every estimate, contract and subcontract, and in any advertisement placed by or on behalf of a general contractor. The general contractor license number, and the class of general contractor license obtained, shall appear on every application for a building permit. The licensee shall affix his name and general contractor license number on all vehicles used in the course of his business.

4-36-090 Proof of insurance – Required.

Prior to the issuance of a general contractor license, each applicant shall furnish a certificate of insurance, issued by an insurer authorized to insure in Illinois with a credit rating of B+ or higher by A.M. Best Company, evidencing commercial general liability insurance, as follows:

(A) If the applicant is applying for a Class A license: limits of not less than \$5,000,000.00 per occurrence (primary or umbrella) for bodily injury and property damage arising in any way from the issuance of the license;

(B) If the applicant is applying for a Class B license: limits of not less than \$3,000,000.00 per occurrence (primary or umbrella) for bodily injury or property damage arising in any way from the issuance of the license;

(C) If the applicant is applying for a Class C license: limits of not less than \$1,000,000.00 per occurrence, \$2,000,000.00 in the aggregate combined single limit, for bodily injury or property damage arising in any way from the issuance of the license;

(D) If the applicant is applying for a Class D license: limits of not less than \$1,000,000.00 per occurrence, \$2,000,000.00 in the aggregate combined single limit, for bodily injury or property damage arising in any way from the issuance of the license;

(E) If the applicant is applying for a Class E license: limits of not less than \$1,000,000.00 per occurrence for bodily injury or property damage arising in any way from the issuance of the license.

Each policy of insurance required under this section shall include a provision requiring 30 days advance notice to the commissioner prior to cancellation or lapse of the policy. The licensee shall maintain the insurance required under this section in full force and effect for the duration of the license period. A single violation of this section shall result in suspension or revocation of the general contractor license in accordance with Section 4-4-280 of this Code.

Licensing of General Contractors

Each policy of insurance required under this section shall name the City of Chicago as an additional insured on a primary, noncontributory basis.

4-36-100 Reserved.

4-36-110 Unlawful acts.

It shall be unlawful for any licensee or for any person requiring a license under this chapter to engage in any of the following conduct:

(A) Knowingly to allow any person to use the licensee's name or license identification on a building permit application unless the licensee will be performing the work attributed to the licensee in the permit application. Any person who violates this subsection shall be punished by a fine of \$1,000.00 for the first offense; \$1,500.00 and a 90-day license suspension for the second offense; and \$2,000.00 and license revocation for the third offense;

(B) To do work or to direct, permit, encourage, assist, aid, abet or cause others to do work without first having obtained any permit required by this Code, or in violation of Section 13-12-050 of this Code;

(C) To violate or to direct, permit, encourage, assist, aid, abet or cause others to violate any stop work order issued under this Code;

(D) To hire any subcontractor or to direct, permit, encourage, assist, aid, abet or cause others to hire any subcontractor who lacks a valid license to perform the work for which the subcontractor is hired;

(E) To submit any bid on general contracting work without a valid license issued under this chapter;

(F) To fail to allow the department of buildings or the department of business affairs and consumer protection to examine pursuant to Section 4-36-120(B) the financial books and records of the business within three business days of the time a written request for such an examination is made by the commissioner of buildings or the department of business affairs and consumer protection;

(G) To fail to comply with the Workers' Compensation Act, as amended;

(H) To fail to maintain any insurance required by law, including but not limited to workers' compensation insurance and automobile liability insurance;

(I) To knowingly make or cause to be made a false statement of material fact on or in connection with a building permit application;

(J) To knowingly submit or cause to be submitted in support of a building permit application any document containing false or fraudulent information;

(K) To knowingly affix or cause to be affixed a false signature on a building permit application;

Licensing of General Contractors

(L) To bribe or attempt to bribe or cause others to bribe or attempt to bribe any building inspector, government official, city personnel or other person in connection with an act related to general contracting as defined in Section 4-36-010.

(M) To knowingly engage or cause others to engage in any conduct in connection with a building permit application in violation of the Illinois Architecture Practice Act, the Illinois Professional Land Surveyor Act, the Illinois Professional Engineering Practice Act or the Illinois Structural Engineering Act, as amended.

(N) To do work or to direct, permit, encourage, assist, aid, abet or cause others to do work in violation of the zoning code or in a manner that fails to conform to the minimum standards of health or safety set forth in this Code or in any other applicable law or that otherwise endangers the health or safety of construction site workers, or the current or eventual users or occupants of a building or premises or the general public.

(O) To fail to comply with any requirement applicable to the contractor on a project as set forth in Article XIV of Chapter 11-4 of this Code.

The prohibitions set forth in subsections (A) through (O) of this section shall apply to the licensee and to all controlling persons.

4-36-120 Duties.

A licensee under this chapter shall have the following duties:

(A) To maintain a list that includes information about all permits obtained and all contractors or subcontractors performing work on any project permitted or requiring a permit, under this Code, including the contractor's or subcontractor's name and address, and if applicable, their license number. If requested by the commissioner, the general contractor shall produce this list within 72 hours of the commissioner's request.

(B) To maintain sufficient and proper personnel, financial ability and facility to coordinate, develop, provide management expertise and complete in its entirety any proposed work for which a permit has been issued or is required to be issued under this Code. If the commissioner of buildings or the department of business affairs and consumer protection receives a complaint, or otherwise has reasonable cause to believe, that a licensee or any person requiring a license under this chapter is not financially solvent, the commissioner and the department of business affairs and consumer protection are authorized to examine that licensee's or person's financial books and records in order to determine whether the person's past and current financial solvency and expectations for financial solvency in the future give rise to a reasonable expectation that the person can successfully do business as a general contractor without jeopardizing the public health, safety or welfare, and can carry through to completion any project permitted or requiring a permit under this Code. Financial solvency is a continuing requirement for maintaining a license under this chapter. Any financial books and records submitted pursuant to this subsection, and all information contained therein, shall be deemed confidential, shall be used for purposes of enforcing this subsection only, and shall not be divulged to any person or agency, except to the United States Attorney, the Illinois Attorney General, the State's Attorney of Cook County or to the extent required by law. Any person who uses or divulges confidential information in violation of the requirements of this subsection shall

Licensing of General Contractors

be subject to incarceration for a term not to exceed six months or a fine not to exceed \$500.00 or both.

(C) To assure compliance with the building code by its employees, agents and subcontractors in the performance of a project.

(D) To comply with all reasonable requests made by any authorized city official necessary or appropriate to implement the requirements of this chapter;

(E) To cooperate fully with any authorized city official in any inquiry, inspection or investigation necessary or appropriate to implement the requirements of this chapter;

(F) To keep a copy of the certificate of insurance required under Section 4-36-090 at the following locations: (1) the licensee's principal office or place of business, as identified in the license application; and (2) each construction site within the city managed or controlled by the licensee. Upon request, such copy of the certificate of insurance shall be made available for inspection by any city inspector or other authorized city official.

The duties set forth in this section shall apply to the licensee and to all controlling persons.

(G) If the licensee is engaged at a specific job site in the business of home repair, as defined in Section 4-6-280(a), to comply with the requirements set forth in paragraphs (2) through (6), inclusive, of Section 4-6-280(d) and in paragraphs (1) through (4), inclusive, of Section 4-6-280(c).

4-36-130 Permit privileges – Suspension for failure to correct defects in work.

If the commissioner of buildings determines that a licensee or any person requiring a license under this chapter has failed to correct any substantial defect, error or deficiency, or has established a pattern of deviating from the drawings or plans approved by the appropriate department issuing the permit, in any work done under the authority of a permit issued pursuant to this Code, the commissioner shall notify the licensee or person that if the noncompliance is not corrected to the satisfaction of the department within ten business days after written notification thereof, the issuance to the general contractor of any new permit for any work at any location shall be prohibited until the noncompliance is cured. If the general contractor fails to correct the noncompliance within ten business days after written notification thereof, the commissioner shall, without further notice, stop the issuance of any new permit to the general contractor until such time that the noncompliance is corrected and the correction is inspected and approved by the department.

For purposes of this section:

“Substantial defect, error or deficiency” means any construction, alteration, installation, repair or razing of any building, structure, premises or part thereof which (i) is being done or has been done without any permit required by this Code; or (ii) creates a danger to the health or safety of workers on the site, to current or eventual users or occupants of the building, structure, premises or part thereof, or to the general public.

“Pattern” means five or more uncorrected deviations from any permit at one or more construction sites within any six-month period.

Licensing of General Contractors

4-36-140 License – Immediate suspension based upon a pattern of substantial code violations.

If the commissioner of buildings determines that a licensee is engaging in or has engaged in a pattern of substantial code violations, the commissioner may order the temporary suspension of any license issued pursuant to this chapter for a period not to exceed ten days. Notice of the temporary suspension and the grounds for that suspension shall be immediately sent or delivered to the licensee. The licensee shall have an opportunity for a hearing before the department of business affairs and consumer protection prior to the expiration of the ten day temporary suspension. If the department of business affairs and consumer protection determines by a preponderance of the evidence that a pattern of substantial code violations exists, nothing in this section shall prevent the department of business affairs and consumer protection from suspending the licensee's general contractor license for a longer period of time or from revoking the license in accordance with Section 4-4-280 of this Code.

For purposes of this subsection, the term “pattern of substantial code violations” means five or more violations of the building code which imperil the public health, safety or welfare, or two or more violations of any stop work order issued pursuant to this Code, or any combination thereof involving five or more violations of this Code, within any six-month period, at one or more construction sites within the city managed or controlled by the licensee.

4-36-145 License suspension pending final adjudication of a bribery charge.

If the commissioner has knowledge that a licensee under this chapter or any controlling person has been indicted or charged with any offense set forth in item (L) of Section 4-36-110 or with a similar offense under any State or Federal law and the commissioner determines that continued operation of the licensed business or activity may pose a threat to the public health, safety or welfare or may threaten to impair public confidence in the licensed business or activity, the commissioner may suspend the general contractor license of such licensee, in accordance with the requirements of Section 4-4-280, until final adjudication is made with respect to such offense. The subject matter of any hearing conducted under Section 4-4-280 shall be limited to determining (1) whether the licensee or any controlling person has, in fact, been indicted or charged with any offense set forth in item (L) of Section 4-36-110 or with a similar offense under any State or Federal law; and (2) whether such offense is connected in any way with an act related to general contracting; and (3) whether continued operation of the licensed business or activity may pose a threat to the public health, safety or welfare or may threaten to impair public confidence in the licensed business or activity. The burden of proving that continued operation of the licensed business or activity does not pose a threat to the public health, safety or welfare and does not threaten to impair public confidence in the licensed business or activity shall be on the licensee.

4-36-150 License – Suspension or revocation.

Any violation of this chapter or of the building code or of any regulation promulgated thereunder may result in license suspension or revocation in accordance with the requirements Section 4-4-280 of this Code.

Licensing of General Contractors

4-36-160 License revocation – Four-year wait for new license.

No person whose license under this chapter is revoked for any cause shall be granted another general contractor license under the same or a different name for a period of four years after the date of revocation.

4-36-170 Regulations.

The commissioner of buildings shall have the authority to promulgate rules and regulations necessary to implement the requirements of this chapter.

4-36-180 Enforcement.

The commissioner of buildings shall (i) enforce the requirements of this chapter; (ii) investigate complaints regarding violations of this chapter; and (iii) maintain a roster of all licensees under this chapter and of all persons whose general contractor license has been suspended or revoked within the previous four years.

(Added Coun. J. 10-1-03, p. 9163, § 2.1)

4-36-190 Violation – Penalty.

Except as otherwise provided in this chapter, any person violating any of the requirements of this chapter shall be fined, as follows:

(A) If the person holds or requires a Class A license under this chapter: not less than \$1,000.00, nor more than \$5,000.00, for each offense;

(B) If the person holds or requires a Class B license under this chapter: not less than \$750.00, nor more than \$3,500.00, for each offense;

(C) If the person holds or requires a Class C license under this chapter: not less than \$500.00, nor more than \$2,500.00, for each offense;

(D) If the person holds or requires a Class D license under this chapter: not less than \$400.00, nor more than \$2,000.00, for each offense;

(E) If the person holds or requires a Class E license under this chapter: not less than \$250.00, nor more than \$1,000.00, for each offense.

Each day that a violation continues shall constitute a separate and distinct offense.

EXHIBIT A
ANTICIPATED WORKFORCE PROJECTION FORM
AFFIRMATIVE ACTION EMPLOYMENT PROGRAM AND LOCAL EMPLOYMENT PROGRAM

DATE OF SUBMITTAL:							
TRADE OR WORK CLASS				ETHNIC CLASS			
KEY:	J	-	JOURNEYMAN	B	BLACK		DATE:
	L	-	LABORER	H	HISPANIC		NAME OF FIRM:
	A	-	APPRENTICE	A	ASIAN		SIGNATURE:
	EMPL	-	EMPLOYED	NA	NATIVE AMERICAN		SPECIFICATION NO.:
	RES	-	RESIDENT	O	OTHER:		NAME OF PROJECT:

TRADE OR WORK CLASS	EST. DATES OF EMPL. FROM-TO	WAGE RATE	NO. OF EMPL.	ETHNIC CLASS	MALE		FEMALE		CHICAGO RESIDENTS		PROJECTED NEW HIRES	
					TOTAL PERSON HOURS	% OF TOTAL	TOTAL PERSON HOURS	% OF TOTAL	TOTAL PERSON HOURS	% OF TOTAL	TOTAL PERSON HOURS	% OF TOTAL

Indicate above the number of employees, permanent, temporary or otherwise for each of the categories anticipated to be hired during the term of this contract and the date(s) for which the employee(s) are expected to be hired.

The developer or contractor shall submit this form with copies of W4's within five (5) working days after award of contract to the Attention of: Department of Procurement Services, Division of Contract Monitoring and Compliance, City Hall, Room 806, 121 North LaSalle Street, Chicago, IL 60602.

**EXHIBIT B
PAY PERIOD CANVASS REPORT**

Contractor:	
Title:	

Specification #:	
Award Amount:	

Week Number	Week Ending	Journeyworker			Apprentice			Laborer			Chicago Residents
		Total	Minority	Female	Total	Minority	Female	Total	Minority	Female	
TOTALS											

Note: The Contract’s General Conditions require that this “Pay Period Canvass Report” be submitted by the Contractor for its own firm and all of its subcontractor(s) with each pay request. The report must be completed on a weekly basis for each pay period.

**EXHIBIT C
PAYROLL CANVASS SURVEY REPORT**

Contractor:											
Project Title:											
Specification #:											
Award Amount:											
					Total Potential Damages	EEO					
										Residency	
Contractor	Journeyworker			Apprentice			Laborer			Chicago Residents	
	Total	Minority	Female	Total	Minority	Female	Total	Minority	Female		
TOTALS											

	Journeyworker			Apprentice			Laborer		Chicago Residents
	Minority	Female		Minority	Female		Minority	Female	
GOALS									
ACHIEVED									
DEFICIENCY									
Damages									

AFFIDAVIT OF UNCOMPLETED WORK

(Complete this form by either typing or using black ink.)

PART I. WORK UNDER CONTRACT

List below all work you have under contract as either a prime contractor or a subcontractor, including all pending low bids not yet awarded or rejected.

	1	2	3	4	5	Awards Pending	
PROJECT							
CONTRACT WITH							
ESTIMATED COMPLETION DATE							
TOTAL CONTRACT PRICE							TOTAL
UNCOMPLETED DOLLAR VALUE							

PART II. UNCOMPLETED WORK TO BE DONE WITH YOUR OWN FORCES.

List below the uncompleted dollar value of work for each contract to be completed with your own forces including all work indicated as awards pending. All work subcontracted TO others will be listed on PART III of this form.

In a joint venture, list only that portion of the work to be done by your company.

							TOTALS
EXCAVATING & GRADING							
PCC BASE, C&G PAVING							
BIT CONCRETE PAVING							
STABILIZED BASE (BAM, CAM, PAM)							
AGGREGATE BASE AND FILL							
FOUNDATION (CAISSON & PILE)							
HIGHWAY STRUCTURES							
SEWER & DRAIN STRUCTURES							
PAINTING							
PAVEMENT MARKING							
SIGNING							
LANDSCAPING							
DEMOLITION							
FENCING							

AFFIDAVIT OF UNCOMPLETED WORK

	1	2	3	4	5	Awards Pending
OTHERS (LIST)						
STRUCT. STEEL (BLDG. CONST.)						
ORNAMENTAL STEEL (BLDG. CONST.)						
MISCELLANEOUS CONCRETE						
FIREPROOFING						
MASONRY						
H.V.A.C.						
MECHANICAL						
ELECTRICAL						
PLUMBING						
ROOFING & SHEET METAL						
FLOORING & TILE WORK						
DRYWALL AND PLASTER WORK						
CEILING CONST.						
HOLLOW METAL AND HARDWARE						
GLAZING AND CAULKING						
MISCELLANEOUS ARCH. WORK						
OTHERS (LIST)						
TOTALS						

REMARKS: _____

AFFIDAVIT OF UNCOMPLETED WORK

PART III. WORK SUBCONTRACTED TO OTHERS. List below the work, according to each contract on the preceding page, which you have a subcontracted to others. **DO NOT** include work to be performed by another prime contractor in a joint venture. No work may be indicated as subcontracted to others on awards pending. If no work is subcontracted to others, show NONE.

	1	2	3	4	5
SUBCONTRACTOR					
TYPE OF WORK					
SUBCONTRACT PRICE					
AMOUNT UNCOMPLETED					
SUBCONTRACTOR					
TYPE OF WORK					
SUBCONTRACT PRICE					
AMOUNT UNCOMPLETED					
SUBCONTRACTOR					
TYPE OF WORK					
SUBCONTRACT PRICE					
AMOUNT UNCOMPLETED					
SUBCONTRACTOR					
TYPE OF WORK					
SUBCONTRACT PRICE					
AMOUNT UNCOMPLETED					

AFFIDAVIT OF UNCOMPLETED WORK

	1	2	3	4	5
SUBCONTRACTOR					
TYPE OF WORK					
SUBCONTRACT PRICE					
AMOUNT UNCOMPLETED					

I, being duly sworn do hereby declare that this affidavit is a true and correct statement relating to ALL uncompleted contracts of the undersigned for Federal, State, County, City and private work including ALL subcontract work, ALL pending low bids not yet awarded or rejected, and ALL estimated completion dates.

Subscribed and sworn to before me Signed _____
 this _____ day of _____ 20____ Company _____
 Address _____

My commission expires _____

State of _____

County of _____

This instrument was acknowledged before me on this _____ day of _____, 20____ by _____
 as President (or other authorized officer) and _____ as Secretary of _____
 (Corporation Name).
 (Seal)

 Notary Public Signature
 Commission Expires: _____

PROPOSAL TO BE EXECUTED BY A CORPORATION

The undersigned, hereby acknowledges having received **Specification No. 574467** containing a full set of Contract Documents, including, but not limited to, 1) Instructions to Bidders (Proposers), 2) General Conditions, 3) Special Conditions, 4) Contract Plans or Drawings (if applicable) 5) Detailed Specifications or Scope of Services, Evaluation/Selection Criteria and Submittal Requirements (If RFP/RFQ), 6) Proposal Pages, 7) Certifications and 8) Addenda Nos. **(none unless indicated here)** _____, and affirms that the corporation shall be bound by all the terms and conditions contained in the Contract Documents, regardless of whether a complete set thereof is attached to this proposal, except only to the extent that the corporation has taken express written exception thereto in the sections of this specification designated for that purpose.

Under penalty of perjury, the undersigned: (1) warrants that he/she was authorized to submit an EDS on behalf of the Disclosing Party on-line; (2) warrants that all certifications and statements contained in the EDS are true, accurate and complete as of the date the EDS was submitted on-line; and (3) further warrants that, as of the date of submission of this proposal or bid, there have been no changes in Circumstances since the date that the EDS was submitted that would render any certification in the EDS false, inaccurate or incomplete.

Further, the undersigned being duly sworn deposes and says on oath that no disclosures of ownership interests have been withheld and the information provided therein to the best of its knowledge is current and the undersigned has not entered into any agreement with any other bidder (proposer) or prospective bidder (proposer) or with any other person, firm or corporation relating to the price named in this proposal or any other proposal, nor any agreement or arrangement under which any act or omission in restraint of freedom of competition among bidders (proposers) and has not disclosed to any person, firm or corporation the terms of this bid (proposal) or the price named herein.

Proposals must be submitted with original signatures in the space provided. Proposals not properly signed will be rejected.

NAME OF CORPORATION: _____
(Print or Type)

SIGNATURE OF PRESIDENT*:
(Or Authorized Officer) _____
(Signature)

TITLE OF SIGNATORY: _____
(Print or Type)

BUSINESS ADDRESS: _____
(Print or Type)

*Note: In the event that this bid (proposal) is signed by other than the President, attach hereto a certified copy of that section of Corporate By-Laws or other authorization, such as a resolution by the Board of Directors, which permits the person to sign the offer for the Corporation.

ATTEST: _____
(Corporate Secretary Signature)
(Affix Corporate Seal)

State of _____
County of _____

This instrument was acknowledged before me on this ____ day of _____, 20__ by _____ as President (or other authorized officer) and _____ as Secretary of _____ (Corporation Name).
(Seal)

Notary Public Signature
Commission Expires: _____

PROPOSAL TO BE EXECUTED BY A JOINT VENTURE

The undersigned, hereby acknowledges having received **Specification No. 574467** containing a full set of Contract Documents, including, but not limited to, 1) Instructions to Bidders (Proposers), 2) General Conditions, 3) Special Conditions, 4) Contract Plans or Drawings (if applicable) 5) Detailed Specifications or Scope of Services, Evaluation/Selection Criteria and Submittal Requirements (If RFP/RFQ), 6) Proposal Pages, 7) Certifications and 8) Addenda Nos. **(none unless indicated here)** _____, and affirms that the Joint Venture shall be bound by all the terms and conditions contained in the Contract Documents, regardless of whether a complete set thereof is attached to this proposal, except only to the extent that the Joint Venture has taken express written exception thereto in the sections of this specification designated for that purpose.

Under penalty of perjury, the undersigned: (1) warrants that he/she was authorized to submit an EDS on behalf of the Disclosing Party on-line; (2) warrants that all certifications and statements contained in the EDS are true, accurate and complete as of the date the EDS was submitted on-line; and (3) further warrants that, as of the date of submission of this proposal or bid, there have been no changes in Circumstances since the date that the EDS was submitted that would render any certification in the EDS false, inaccurate or incomplete.

Further, the undersigned being duly sworn deposes and says on oath that no disclosures of ownership interests have been withheld and the information provided therein to the best of its knowledge is current and the undersigned has not entered into any agreement with any other bidder (proposer) or prospective bidder (proposer) or with any other person, firm or corporation relating to the price named in this proposal or any other proposal, nor any agreement or arrangement under which any act or omission in restraining of free competition among bidders (proposers) and has not disclosed to any person, firm or corporation the terms of this bid (proposal) or the price named herein.

Proposals must be submitted with original signatures in the space provided. Proposals not properly signed will be rejected.

JOINT VENTURE NAME: _____
(Print or Type)

JOINT VENTURE ADDRESS: _____
(Print or Type)

If you are operating under an assumed name, provide County registration number herein under as provided in the Illinois Revised Statutes 1965 Chapter 96 Sec. 4 et seq.

Registration Number: _____

SIGNATURES AND ADDRESSES OF ALL MEMBERS OF THE JOINT VENTURE

(If all members of the Joint Venture do not sign, indicate authority of signatories by attaching copy of Joint Venture agreement or other authorizing document):

SIGNATURE OF Authorized Party: _____
(Signature)

TITLE OF SIGNATORY: _____
(Print or Type)

BUSINESS ADDRESS: _____
(Print or Type)

ATTEST: _____
(Joint Venture Secretary Signature)
(Affix Joint Venture Seal)

OR
Joint Venturer Signature: _____
(Signature)

Address: _____
(Print or Type)

Joint Venturer Signature: _____
(Signature)

Address: _____
(Print or Type)

Joint Venturer Signature: _____
(Signature)

Address:

(Print or Type)

State of _____
County of _____

This instrument was acknowledged before me on this ____ day of _____, 20__ by _____ as
President (or other authorized officer) and _____ as Secretary of _____ (Corporation Name).
(Seal)

Notary Public Signature

Commission Expires: _____

PROPOSAL TO BE EXECUTED BY A PARTNERSHIP

The undersigned, hereby acknowledges having received **Specification No. 574467** containing a full set of Contract Documents, including, but not limited to, 1) Instructions to Bidders (Proposers), 2) General Conditions, 3) Special Conditions, 4) Contract Plans or Drawings (if applicable) 5) Detailed Specifications or Scope of Services, Evaluation/Selection Criteria and Submittal Requirements (If RFP/RFQ), 6) Proposal Pages, 7) Certifications and 8) Addenda Nos. **(none unless indicated here)** _____, and affirms that the partnership shall be bound by all the terms and conditions contained in the Contract Documents, regardless of whether a complete set thereof is attached to this proposal, except only to the extent that the partnership has taken express written exception thereto in the sections of this specification designated for that purpose.

Under penalty of perjury, the undersigned: (1) warrants that he/she was authorized to submit an EDS on behalf of the Disclosing Party on-line; (2) warrants that all certifications and statements contained in the EDS are true, accurate and complete as of the date the EDS was submitted on-line; and (3) further warrants that, as of the date of submission of this proposal or bid, there have been no changes in Circumstances since the date that the EDS was submitted that would render any certification in the EDS false, inaccurate or incomplete.

Further, the undersigned being duly sworn deposes and says on oath that no disclosures of ownership interests have been withheld and the information provided therein to the best of its knowledge is current and the undersigned has not entered into any agreement with any other bidder (proposer) or prospective bidder (proposer) or with any other person, firm or corporation relating to the price named in this proposal or any other proposal, nor any agreement or arrangement under which any act or omission in restraining of free competition among bidders (proposers) and has not disclosed to any person, firm or corporation the terms of this bid (proposal) or the price named herein.

Proposals must be submitted with original signatures in the space provided. Proposals not properly signed will be rejected.

BUSINESS NAME: _____
(Print or Type)

BUSINESS ADDRESS: _____
(Print or Type)

If you are operating under an assumed name, provide County registration number herein under as provided in the Illinois Revised Statutes 1965 Chapter 96 Sec. 4 et seq.

Registration Number: _____

SIGNATURES AND ADDRESSES OF ALL MEMBERS OF THE PARTNERSHIP

(If all General Partners do not sign, indicate authority of partner signatories by attaching copy of partnership agreement or other authorizing document):

Partner Signature: _____
(Signature)

Address: _____
(Print or Type)

Partner Signature: _____
(Signature)

Address: _____
(Print or Type)

Partner Signature: _____
(Signature)

Address: _____
(Print or Type)

State of _____

County of _____

This instrument was acknowledged before me on this ____ day of _____, 20__ by _____ as President (or other authorized officer) and _____ as Secretary of _____ (Corporation Name).
(Seal)

Notary Public Signature _____

Commission Expires: _____

PROPOSAL TO BE EXECUTED BY A SOLE PROPRIETOR

The undersigned, hereby acknowledges having received **Specification No. 574467** containing a full set of Contract Documents, including, but not limited to, 1) Instructions to Bidders (Proposers), 2) General Conditions, 3) Special Conditions, 4) Contract Plans or Drawings (if applicable) 5) Detailed Specifications or Scope of Services, Evaluation/Selection Criteria and Submittal Requirements (If RFP/RFQ), 6) Proposal Pages, 7) Certifications and 8) Addenda Nos. **(none unless indicated here)** _____, and affirms that the sole proprietor shall be bound by all the terms and conditions contained in the Contract Documents, regardless of whether a complete set thereof is attached to this proposal, except only to the extent that the sole proprietor has taken express written exception thereto in the sections of this specification designated for that purpose.

Under penalty of perjury, the undersigned: (1) warrants that he/she was authorized to submit an EDS on behalf of the Disclosing Party on-line; (2) warrants that all certifications and statements contained in the EDS are true, accurate and complete as of the date the EDS was submitted on-line; and (3) further warrants that, as of the date of submission of this proposal or bid, there have been no changes in Circumstances since the date that the EDS was submitted that would render any certification in the EDS false, inaccurate or incomplete.

Further, the undersigned being duly sworn deposes and says on oath that no disclosures of ownership interests have been withheld and the information provided therein to the best of its knowledge is current and the undersigned has not entered into any agreement with any other bidder (proposer) or prospective bidder (proposer) or with any other person, firm or corporation relating to the price named in this proposal or any other proposal, nor any agreement or arrangement under which any act or omission in restraining of free competition among bidders (proposers) and has not disclosed to any person, firm or corporation the terms of this bid (proposal) or the price named herein.

Proposals must be submitted with original signatures in the space provided. Proposals not properly signed will be rejected.

SIGNATURE OF PROPRIETOR: _____
(Signature)

DOING BUSINESS AS: _____
(Print or Type)

Business Address: _____
(Print or Type)

If you are operating under an assumed name, provide County registration number herein under as provided in the Illinois Revised Statutes 1965 Chapter 96 Sec. 4 et seq.

Registration Number: _____
(Print or Type)

State of _____
County of _____

This instrument was acknowledged before me on this _____ day of _____, 20__ by _____ as President (or other authorized officer) and _____ as Secretary of _____ (Corporation Name).
(Seal)

Notary Public Signature
Commission Expires: _____

PROPOSAL ACCEPTANCE

Contract No.: _____
Specification No.: _____
Vendor Name: _____
Total Amount (Value): _____
Fund Chargeable: _____

The undersigned, on behalf of the CITY OF CHICAGO, a municipal corporation of the State of Illinois, hereby accept the foregoing bid items as identified in the proposal.

CITY OF CHICAGO

Mayor Date

Comptroller Date

Chief Procurement Officer Date

SCHEDULE B: MBE/WBE Affidavit of Joint Venture

1) All information requested on this schedule must be answered in the spaces provided. Do not refer to your joint venture agreement except to expand on answers provided on this form. If additional space is required, attach additional sheets. **In all proposed joint ventures, each MBE and/or WBE venturer must submit a copy of its current Letter of Certification.**

I. Name of joint venture: _____
Address: _____
Telephone number of joint venture: _____

II. Email address: _____
Name of non-MBE/WBE venturer: _____
Address: _____
Telephone number: _____
Email address: _____
Contact person for matters concerning MBE/WBE compliance: _____

III. Name of MBE/WBE venturer: _____
Address: _____
Telephone number: _____
Email address: _____
Contact person for matters concerning MBE/WBE compliance: _____

IV. Describe the role(s) of the MBE and/or WBE venturer(s) in the joint venture: _____

V. Attach a copy of the joint venture agreement.

In order to demonstrate the MBE and/or WBE joint venture partner's share in the capital contribution, control, management, risks and profits of the joint venture is equal to its ownership interest, the proposed joint venture agreement must include specific details related to: (1) the contributions of capital, personnel and equipment and share of the costs of bonding and insurance; (2) work items to be performed by the MBE/WBE's own forces; (3) work items to be performed under the supervision of the MBE/WBE venturer; and (4) the commitment of management, supervisory and operative personnel employed by the MBE/WBE to be dedicated to the performance of the project.

VI. Ownership of the Joint Venture.

A. What is the percentage(s) of MBE/WBE ownership of the joint venture?
MBE/WBE ownership percentage(s) _____
Non-MBE/WBE ownership percentage(s) _____

B. Specify MBE/WBE percentages for each of the following (provide narrative descriptions and other details as applicable):

1. Profit and loss sharing: _____

2. Capital contributions:
a. Dollar amounts of initial contribution: _____
b. Dollar amounts of anticipated on-going contributions: _____

SCHEDULE B: MBE/WBE Affidavit of Joint Venture

3. Contributions of equipment (Specify types, quality and quantities of equipment to be provided by each venturer):

4. Other applicable ownership interests, including ownership options or other agreements which restrict or limit ownership and/or control: _____

5. Costs of bonding (if required for the performance of the contract):

6. Costs of insurance (if required for the performance of the contract):

C. Provide copies of all written agreements between venturers concerning this project.

D. Identify each current City of Chicago contract and each contract completed during the past two years by a joint venture of two or more firms participating in this joint venture:

VII. Control of and Participation in the Joint Venture.

Identify by name and firm those individuals who are, or will be, responsible for, and have the authority to engage in the following management functions and policy decisions. Indicate any limitations to their authority such as dollar limits and co-signatory requirements:

A. Joint venture check signing:

B. Authority to enter contracts on behalf of the joint venture:

C. Signing, co-signing and/or collateralizing loans:

D. Acquisition of lines of credit:

E. Acquisition and indemnification of payment and performance bonds:

F. Negotiating and signing labor agreements:

SCHEDULE B: MBE/WBE Affidavit of Joint Venture

G. Management of contract performance. (Identify by name and firm only):

- 1. Supervision of field operations: _____
- 2. Major purchases: _____
- 3. Estimating: _____
- 4. Engineering: _____

VIII. Financial Controls of joint venture:

A. Which firm and/or individual will be responsible for keeping the books of account?

B. Identify the "managing partner," if any, and describe the means and measure of his/her compensation:

C. What authority does each venturer have to commit or obligate the other to insurance and bonding companies, financing institutions, suppliers, subcontractors, and/or other parties participating in the performance of this contract or the work of this project?

IX. State the approximate number of operative personnel by trade needed to perform the joint venture's work under this contract. Indicate whether they will be employees of the non-MBE/WBE firm, the MBE/WBE firm, or the joint venture.

Trade	Non-MBE/WBE Firm (Number)	MBE/WBE (Number)	Joint Venture (Number)

X. If any personnel proposed for this project will be employees of the joint venture:

A. Are any proposed joint venture employees currently employed by either venturer?
 Currently employed by non-MBE/WBE venturer (number) Employed by MBE/WBE venturer _____

B. Identify by name and firm the individual who will be responsible for hiring joint venture employees:

SCHEDULE B: MBE/WBE Affidavit of Joint Venture

C. Which venturer will be responsible for the preparation of joint venture payrolls:

XI. Please state any material facts of additional information pertinent to the control and structure of this joint venture.

The undersigned affirms that the foregoing statements are correct and include all material information necessary to identify and explain the terms and operations of our joint venture and the intended participation of each venturer in the undertaking. Further, the undersigned covenant and agree to provide to the City current, complete and accurate information regarding actual joint venture work and the payment therefore, and any proposed changes in any provision of the joint venture agreement, and to permit the audit and examination of the books, records and files of the joint venture, or those of each venturer relevant to the joint venture by authorized representatives of the City or the Federal funding agency.

Any material misrepresentation will be grounds for terminating any contract that may be awarded and for initiating action under federal or state laws concerning false statements.

Note: If, after filing this Schedule B and before the completion on the joint venture's work on the project, there is any change in the information submitted, the joint venture must inform the City of Chicago, either directly or through the prime contractor if the joint venture is a subcontractor.

Name of MBE/WBE Partner Firm

Name of Non-MBE/WBE Partner Firm

Signature of Affiant

Signature of Affiant

Name and Title of Affiant

Name and Title of Affiant

Date

Date

On this ___ day of _____, 20 ____, the above-signed officers

(names of affiants)

personally appeared and, known to me be the persons described in the foregoing Affidavit, acknowledged that they executed the same in the capacity therein stated and for the purpose therein contained.

IN WITNESS WHEREOF, I hereunto set my hand and official seal.

Signature of Notary Public

My Commission Expires: _____(Seal)



SCHEDULE C

MBE/WBE Letter of Intent to
Perform as a Subcontractor to the Prime Contractor

**FOR
CONSTRUCTION
PROJECTS ONLY**

NOTICE: THIS SCHEDULE MUST BE AUTHORIZED AND SIGNED BY THE MBE/WBE SUBCONTRACTOR FIRM. FAILURE TO COMPLY MAY RESULT IN THE BID BEING REJECTED AS NON-RESPONSIVE.

Project Name: _____ Specification No.: _____

From: _____
(Name of MBE/WBE Firm)

To: _____ and the City of Chicago.
(Name of Prime Contractor)

The MBE or WBE status of the undersigned is confirmed by the attached City of Chicago or Cook County Certification Letter. 100% MBE or WBE participation is credited for the use of a MBE or WBE "manufacturer." 60% participation is credited for the use of a MBE or WBE "regular dealer."

The undersigned is prepared to perform the following services in connection with the above named project/contract. If more space is required to fully describe the MBE or WBE proposed scope of work and/or payment schedule, attach additional sheets as necessary. The description must establish that the undersigned is performing a commercially useful function:

The above described performance is offered for the following price and described terms of payment:

<u>Pay Item No./Description</u>	<u>Quantity/Unit Price</u>	<u>Total</u>

Subtotal: \$ _____

Total @ 100%: \$ _____

Total @ 60% (if the undersigned is performing work as a regular dealer): \$ _____

NOTICE: THIS SCHEDULE AND ATTACHMENTS REQUIRE ORIGINAL SIGNATURES ON EACH PAGE.

(If not the undersigned, signature of person who filled out this Schedule C) (Date)

(Name/Title-Please Print) (Company Name-Please Print)

(Signature of President/Owner/CEO or Authorized Agent of MBE/WBE) (Date)

(Name/Title-Please Print)

Schedule C: MBE/WBE Letter of Intent to Perform as a Subcontractor to the Prime Contractor

Partial Pay Items

For any of the above items that are partial pay items, specifically describe the work and subcontract dollar amount(s):

<u>Pay Item No./Description</u>	<u>Quantity/Unit Price</u>	<u>Total</u>

Subtotal: \$ _____

Total @ 100%: \$ _____

Total @ 60% (if the undersigned is performing work as a regular dealer): \$ _____

SUB-SUBCONTRACTING LEVELS

A zero (0) must be shown in each blank if the MBE or WBE will not be subcontracting any of the work listed or attached to this schedule.

_____ % of the dollar value of the MBE or WBE subcontract that will be subcontracted to non MBE/WBE contractors.

_____ % of the dollar value of the MBE or WBE subcontract that will be subcontracted to MBE or WBE contractors.

NOTICE: If any of the MBE or WBE scope of work will be subcontracted, list the name of the vendor and attach a brief explanation, description and pay item number of the work that will be subcontracted. MBE/WBE credit will not be given for work subcontracted to Non-MBE/WBE contractors, except for as allowed in the Special Conditions Regarding Minority Business Enterprise Commitment and Women Business Enterprise Commitment in Construction Contracts.

The undersigned will enter into a formal written agreement for the above work with you as a Prime Contractor, conditioned upon your execution of a contract with the City of Chicago, within three (3) business days of your receipt of a signed contract from the City of Chicago.

The undersigned has entered into a formal written mentor protégé agreement as a subcontractor/protégé with you as a Prime Contractor/mentor. () Yes () No

NOTICE: THIS SCHEDULE AND ATTACHMENTS REQUIRE ORIGINAL SIGNATURES ON EACH PAGE.

(If not the undersigned, signature of person who filled out this Schedule C) (Date)

(Name/Title-Please Print) (Company Name-Please Print)

(Email & Phone Number)

(Signature of President/Owner/CEO or Authorized Agent of MBE/WBE) (Date)

(Name/Title-Please Print)

(Email & Phone Number)

**FOR
CONSTRUCTION
PROJECTS ONLY**



SCHEDULE C

MBE/WBE Letter of Intent to Perform as a 2nd Tier Subcontractor to the Prime Contractor

NOTICE: THIS SCHEDULE MUST BE AUTHORIZED AND SIGNED BY THE MBE/WBE SUBCONTRACTOR FIRM. FAILURE TO COMPLY MAY RESULT IN THE BID BEING REJECTED AS NON-RESPONSIVE.

Project Name: _____ Specification No.: _____

From: _____
(Name of MBE/WBE Firm)

To: _____
(Name of 1st Tier Contractor)

To: _____ and the City of Chicago.
(Name of Prime Contractor)

The MBE or WBE status of the undersigned is confirmed by the attached City of Chicago or Cook County Certification Letter. 100% MBE or WBE participation is credited for the use of a MBE or WBE "manufacturer." 60% participation is credited for the use of a MBE or WBE "regular dealer."

The undersigned is prepared to perform the following services in connection with the above named project/contract. If more space is required to fully describe the MBE or WBE proposed scope of work and/or payment schedule, attach additional sheets as necessary. The description must establish that the undersigned is performing a commercially useful function:

The above described performance is offered for the following price and described terms of payment:

<u>Pay Item No./Description</u>	<u>Quantity/Unit Price</u>	<u>Total</u>

Subtotal: \$ _____

Total @ 100%: \$ _____

Total @ 60% (if the undersigned is performing work as a regular dealer): \$ _____

NOTICE: THIS SCHEDULE AND ATTACHMENTS REQUIRE ORIGINAL SIGNATURES ON EACH PAGE.

(If not the undersigned, signature of person who filled out this Schedule C) (Date)

(Name/Title-Please Print) (Company Name-Please Print)

(Signature of President/Owner/CEO or Authorized Agent of MBE/WBE) (Date)

(Name/Title-Please Print)

Schedule C: MBE/WBE Letter of Intent to Perform as a 2nd Tier Subcontractor to the Prime Contractor

Partial Pay Items

For any of the above items that are partial pay items, specifically describe the work and subcontract dollar amount(s):

<u>Pay Item No./Description</u>	<u>Quantity/Unit Price</u>	<u>Total</u>

Subtotal: \$ _____

Total @ 100%: \$ _____

Total @ 60% (if the undersigned is performing work as a regular dealer): \$ _____

SUB-SUBCONTRACTING LEVELS

A zero (0) must be shown in each blank if the MBE or WBE will not be subcontracting any of the work listed or attached to this schedule.

_____ % of the dollar value of the MBE or WBE subcontract that will be subcontracted to non MBE/WBE contractors.

_____ % of the dollar value of the MBE or WBE subcontract that will be subcontracted to MBE or WBE contractors.

NOTICE: If any of the MBE or WBE scope of work will be subcontracted, list the name of the vendor and attach a brief explanation, description and pay item number of the work that will be subcontracted. MBE/WBE credit will not be given for work subcontracted to Non-MBE/WBE contractors, except for as allowed in the Special Conditions Regarding Minority Business Enterprise Commitment and Women Business Enterprise Commitment in Construction Contracts.

The undersigned will enter into a formal written agreement for the above work with you as a Prime Contractor, conditioned upon your execution of a contract with the City of Chicago, within three (3) business days of your receipt of a signed contract from the City of Chicago.

The undersigned has entered into a formal written mentor protégé agreement as a subcontractor/protégé with you as a Prime Contractor/mentor: () Yes () No

NOTICE: THIS SCHEDULE AND ATTACHMENTS REQUIRE ORIGINAL SIGNATURES ON EACH PAGE.

(If not the undersigned, signature of person who filled out this Schedule C) (Date)

(Name/Title-Please Print) (Company Name-Please Print)

(Email & Phone Number)

(Signature of President/Owner/CEO or Authorized Agent of MBE/WBE) (Date)

(Name/Title-Please Print)

(Email & Phone Number)

SCHEDULE C (Construction)

MBE/WBE Letter of Intent to Perform as a SUPPLIER

Project Name: _____ Specification Number: _____

From: _____
(Name of MBE or WBE Firm)

To: _____ and the City of Chicago:
(Name of Prime Contractor)

The MBE or WBE status of the undersigned is confirmed by the attached City of Chicago or Cook County Certification Letter. 100% MBE or WBE participation is credited for the use of a MBE or WBE "manufacturer". 60% participation is credited for the use of a MBE or WBE "regular dealer".

The undersigned is prepared to supply the following goods in connection with the above named project/contract. On a separate sheet, fully describe the MBE or WBE proposed scope of work and/or payment schedule, including a description of the commercially useful function being performed. Attach additional sheets as necessary:

Pay Item No. / Description	Quantity / Unit Price	Total
_____	_____	_____
_____	_____	_____
_____	_____	_____
	Line 1: Sub Total:	\$ _____
	Line 2: Total @ 100%:	\$ _____
	Line 3: Total @ 60%:	\$ _____

Partial Pay Items.

For any of the above items that are partial pay items, specifically describe the work and subcontract dollar amount(s):

Pay Item No. / Description	Quantity / Unit Price	Total
_____	_____	_____
_____	_____	_____
_____	_____	_____
	Line 1: Sub Total:	\$ _____
	Line 2: Total @ 100%:	\$ _____
	Line 3: Total @ 60%:	\$ _____

SUB-SUBCONTRACTING LEVELS - A zero (0) must be shown in each blank if the MBE or WBE will not be subcontracting any of the work listed or attached to this schedule.

_____ % of the dollar value of the MBE or WBE subcontract that will be subcontracted to non-MBE/WBE contractors.

_____ % of the dollar value of the MBE or WBE subcontract that will be subcontracted to MBE or WBE contractors.

NOTICE: If any of the MBE or WBE scope of work will be subcontracted, list the name of the vendor and attach a brief explanation, description and pay item number of the work that will be subcontracted. MBE/WBE credit will not be given for work subcontracted to non-MBE/WBE contractors, except for as allowed in the Special Conditions Regarding Minority Business Enterprise Commitment and Women Business Enterprise Commitment in Construction Contracts.

The undersigned will enter into a formal written agreement for the above work with you as a Prime Contractor, conditioned upon your execution of a contract with the City of Chicago, within three (3) business days of your receipt of a signed contract from the City of Chicago.

The undersigned has entered into a formal written mentor protégé agreement as a subcontractor/protégé with you as a Prime Contractor/mentor: () Yes () No

NOTICE: THIS SCHEDULE AND ATTACHMENTS REQUIRE ORIGINAL SIGNATURES.

Signature of Owner, President or Authorized Agent of MBE or WBE _____ Date _____

Name / Title (Print) _____

Phone Number _____

Email Address _____



SCHEDULE D: Compliance Plan Regarding MBE And WBE Utilization

**FOR
CONSTRUCTION
PROJECTS ONLY**

SCHEDULE D
Compliance Plan Regarding MBE & WBE Utilization
Affidavit of Prime Contractor

MUST BE SUBMITTED WITH THE BID. FAILURE TO SUBMIT THE SCHEDULE D WILL CAUSE THE BID TO BE REJECTED. DUPLICATE AS NEEDED.

Project Name: _____

Specification No.: _____

In connection with the above captioned contract, I HEREBY DECLARE AND AFFIRM that I am the

_____ and a duly authorized representative of
(Title of Affiant)

(Name of Prime Contractor)

and that I have personally reviewed the material and facts set forth in the attached Schedule Cs regarding Minority Business Enterprise and Women Business Enterprise (MBE/WBE) to perform as subcontractor, Joint Venture Agreement, and Schedule B (if applicable). All MBEs and WBEs must be certified with the City of Chicago or Cook County in the area(s) of specialty listed.

<u>Name of MBE</u>	<u>Type of Work to be Performed in accordance with Schedule Cs</u>	<u>Total MBE Participation in dollars</u>	<u>MBE Participation in percentage</u>	<u>Mentor Protégé Program Credit Claimed</u>	<u>Total MBE Participation in percentage</u>
		\$	%	%	%
		\$	%	%	%
		\$	%	%	%
		\$	%	%	%
		\$	%	%	%
		\$	%	%	%
		\$	%	%	%
		\$	%	%	%
		\$	%	%	%
		\$	%	%	%
		\$	%	%	%
		\$	%	%	%
		\$	%	%	%
		\$	%	%	%
		\$	%	%	%

SCHEDULE D: Compliance Plan Regarding MBE And WBE Utilization

<u>Name of WBE</u>	<u>Type of Work to be Performed in accordance with Schedule Cs</u>	<u>Total WBE Participation in dollars</u>	<u>WBE Participation in percentage</u>	<u>Mentor Protégé Program Credit Claimed</u>	<u>Total WBE Participation in percentage</u>
		\$	%	%	%
		\$	%	%	%
		\$	%	%	%
		\$	%	%	%
		\$	%	%	%
		\$	%	%	%
		\$	%	%	%
		\$	%	%	%
		\$	%	%	%
		\$	%	%	%
		\$	%	%	%
		\$	%	%	%
		\$	%	%	%
		\$	%	%	%
		\$	%	%	%
		\$	%	%	%

Check here if the following is applicable: The Prime Contractor intends to enter into mentor protégé agreements with certain MBEs/WBEs listed above as indicated by entries in the “Mentor Protégé Program Credit Claimed” column. Copies of each proposed mentoring program, executed by authorized representatives of the Prime Contractor and respective subcontractor, are attached to this Schedule D. The Prime Contractor may claim an additional 0.333 percent participation credit (up to a maximum of five (5) percent) for every one (1) percent of the value of the contract performed by the MBE/WBE protégé firm.

Total MBE Participation \$ _____

Total MBE Participation % (including any Mentor Protégé Program credit) _____

Total WBE Participation \$ _____

Total WBE Participation % (including any Mentor Protégé Program credit) _____

Total Bid \$ _____

To the best of my knowledge, information and belief the facts and representations contained in the aforementioned attached Schedules are true, and no material facts have been omitted.

The Prime Contractor designates the following person as its MBE/WBE Liaison Officer:

 (Name- Please Print or Type) (Phone)

SCHEDULE D: Compliance Plan Regarding MBE And WBE Utilization

I DO SOLEMNLY DECLARE AND AFFIRM UNDER PENALTIES OF PERJURY THAT THE CONTENTS OF THE FOREGOING DOCUMENT ARE TRUE AND CORRECT, AND THAT I AM AUTHORIZED ON BEHALF OF THE PRIME CONTRACTOR TO MAKE THIS AFFIDAVIT.

(Name of Prime Contractor – Print or Type)

State of: _____

(Signature)

County of: _____

(Name/Title of Affiant – Print or Type)

(Date)

On this ____ day of _____, 20____, the above signed officer _____
(Name of Affiant)

personally appeared and, known by me to be the person described in the foregoing Affidavit, acknowledged that (s)he executed the same in the capacity stated therein and for the purposes therein contained.

IN WITNESS WHEREOF, I hereunto set my hand and seal.

(Notary Public Signature)

SEAL:

Commission Expires: _____

**SCHEDULE F: REPORT OF SUBCONTRACTOR SOLICITATIONS
FOR CONSTRUCTION CONTRACTS**

Submit Schedule F with the bid. Failure to submit the Schedule F may cause the bid to be rejected.

Duplicate sheets as needed.

Project Name: _____

Specification #: _____

I, _____ on behalf of _____
(Name of reporter) (Prime contractor)

(A) have either personally solicited, or permitted a duly authorized representative of this firm to solicit, work for this contract from the following subcontractors which comprise all MBE/WBE and non-MBE/WBE subcontractors who bid or quoted price information on this contract

Company Name _____
Business Address _____
Contact Person _____
Date of contact _____
Method of contact _____
Response to solicitation _____
Type of Work Solicited _____
Please circle classification: MBE Certified WBE Certified MBE & WBE Certified Non- Certified

Company Name _____
Business Address _____
Contact Person _____
Date of contact _____
Method of contact _____
Response to solicitation _____
Type of Work Solicited _____
Please circle classification: MBE Certified WBE Certified MBE & WBE Certified Non- Certified

Company Name _____
Business Address _____
Contact Person _____
Date of contact _____
Method of contact _____
Response to solicitation _____
Type of Work Solicited _____
Please circle classification: MBE Certified WBE Certified MBE & WBE Certified Non- Certified

Company Name _____
Business Address _____
Contact Person _____
Date of contact _____
Method of contact _____
Response to solicitation _____
Type of Work Solicited _____
Please circle classification: MBE Certified WBE Certified MBE & WBE Certified Non- Certified

Company Name _____
Business Address _____
Contact Person _____
Date of contact _____
Method of contact _____
Response to solicitation _____
Type of Work Solicited _____
Please circle classification: MBE Certified WBE Certified MBE & WBE Certified Non- Certified

Company Name _____
Business Address _____
Contact Person _____
Date of contact _____
Method of contact _____
Response to solicitation _____
Type of Work Solicited _____
Please circle classification: MBE Certified WBE Certified MBE & WBE Certified Non- Certified

Company Name _____
Business Address _____
Contact Person _____
Date of contact _____
Method of contact _____
Response to solicitation _____
Type of Work Solicited _____
Please circle classification: MBE Certified WBE Certified MBE & WBE Certified Non- Certified

Company Name _____
Business Address _____
Contact Person _____
Date of contact _____
Method of contact _____
Response to solicitation _____
Type of Work Solicited _____
Please circle classification: MBE Certified WBE Certified MBE & WBE Certified Non- Certified

Company Name _____
Business Address _____
Contact Person _____
Date of contact _____
Method of contact _____
Response to solicitation _____
Type of Work Solicited _____
Please circle classification: MBE Certified WBE Certified MBE & WBE Certified Non- Certified

I DO SOLEMNLY DECLARE AND AFFIRM UNDER PENALTIES OF PERJURY THAT THE CONTENTS OF THE FOREGOING DOCUMENT ARE TRUE AND CORRECT, AND THAT I AM AUTHORIZED ON BEHALF OF THE PRIME CONTRACTOR TO MAKE THIS AFFIDAVIT.

(Name of Prime Contractor - Print or Type)

(Signature)

(Name/Title of Affiant) - Print or Type)

(Date)

On this _____ day of _____, 20____,
the above signed officer, _____,
(Name of Affiant)

personally appeared and, known by me to be the person described in the foregoing Affidavit, acknowledged that (s)he executed the same in the capacity stated therein and for the purposes therein contained.

IN WITNESS WHEREOF, I hereunto set my hand and seal.

Notary Public Signature

(Seal)

Commission Expires:_____

07/29/04

**SCHEDULE H: DOCUMENTATION OF GOOD FAITH EFFORTS
TO UTILIZE MBEs AND WBEs ON CONSTRUCTION CONTRACT**

Project Name: _____

Specification # _____

The Department of Procurement Services reserves the right to audit and verify all Good Faith Efforts as a condition of award. Material misrepresentations and omissions shall cause the bid to be rejected.

(B) The following is documentation and explanation of the bidder’s Good Faith Efforts to meet the contract specific goals as described in the Good Faith Efforts Checklist as part of Schedule D. The Schedule D cannot be modified without the written approval of DPS.

I, _____ on behalf of _____
(Name of reporter) (Prime contractor)

have determined that it is unable to meet the contract specific goals in full or in part as set forth in the Special Conditions Regarding Minority and Women Business Enterprise Commitment in Construction Contracts. I hereby declare and affirm that the following good faith efforts were undertaken by the Bidder/Contractor to meet the MBE and/or WBE contract specific goals of this project.

**Good Faith Efforts Checklist from Schedule D
Attach additional sheets as needed.**

___ Solicited through reasonable and available means at least 50% (or at least 5 when there are more than 11 certified firms in the commodity area) of MBEs and WBEs certified in the anticipated scopes of subcontracting of the contract, within sufficient time to allow them to respond, as described in the Schedule F.
Attach copies of written notices sent to MBEs and WBEs.

___ Provided timely and adequate information about the plan, specifications and requirements of the contract.
Attach copies of contract information provided to MBES and WBEs.

___ Advertised the contract opportunities in media and other venues oriented toward MBEs and WBEs.
Attach copies of advertisements.

___ Negotiated in good faith with interested MBEs or WBEs that have submitted bids and thoroughly investigated their capabilities.
Attach Schedule F, Report of Subcontractor Solicitations for Construction Contracts.

___ Selected those portions of the work or material consistent with the available MBE or WBE subcontractors and suppliers, including, where appropriate, breaking out contract work items into economically feasible units to facilitate MBE or WBE participation.
Describe selection of scopes of work solicited from MBEs and WBEs and efforts to break out work items.

SCHEDULE H: DOCUMENTATION OF GOOD FAITH EFFORTS
TO UTILIZE MBEs AND WBEs ON CONSTRUCTION CONTRACT

___ Made efforts to assist interested MBEs or WBEs in obtaining bonding, lines of credit, or insurance as required by the City or bidder or contractor.

Describe assistance efforts.

___ Made efforts to assist interested MBEs or WBEs in obtaining necessary equipment, supplies, materials, or related assistance or services.

Describe assistance efforts.

___ Effectively used the services of the City; minority or women community organizations; minority or women assistance groups; local, state, and federal minority or women business assistance offices; and other organizations to provide assistance in the recruitment and placement of MBEs or WBEs as listed on Attachment A.

Describe efforts to use agencies listed on Attachment A.

SCHEDULE H: DOCUMENTATION OF GOOD FAITH EFFORTS
TO UTILIZE MBEs AND WBEs ON CONSTRUCTION CONTRACT

I DO SOLEMNLY DECLARE AND AFFIRM UNDER THE PENALTIES OF PERJURY THAT THE CONTENTS OF THE FOREGOING DOCUMENT ARE TRUE AND CORRECT, AND THAT I AM AUTHORIZED, ON BEHALF OF THE CONTRACTOR, TO MAKE THIS AFFIDAVIT.

Name of Contractor: _____
(Print or Type)

Signature: _____
(Signature of Affiant)

Name of Affiant: _____
(Print or Type)

Date: _____
(Print or Type)

State of _____

County (City) of _____

This instrument was acknowledged before me on _____ (date)
by _____ (name/s of person/s)
as _____ (type of authority, e.g., officer, trustee, etc.)
of _____ (name of party on behalf of whom instrument
was executed).

Signature of Notary Public

(Seal)

STATUS REPORT OF MBE/WBE (SUB) CONTRACT PAYMENTS

Specification No.: _____

Department Project No.: _____

Date: _____

Voucher No.: _____

STATE OF: _____)

COUNTY (CITY) OF: _____)

In connection with the above-captioned contract:

I HEREBY DECLARE AND AFFIRM that I am the _____

(Title - Print or Type)

and duly authorized representative of _____

(Name of Company - Print or Type)

(Address of Company) (_____) _____ (Phone)

and that the following Minority and Women Business Enterprises (MBE/WBEs) have been contracted with, and have furnished, or are furnishing and preparing materials for, and have done or are doing labor on the above referenced project; that there is due and to become due them, respectively the amounts set opposite their names for material or labor as stated; and that this a full, true and complete statement of all such MBE/WBEs and of the amounts paid, due, and to become due to them:

MBE/WBE	GOODS/SERVICES PROVIDED	AMOUNT OF CONTRACT	AMOUNT PAID TO DATE
		\$	\$
		\$	\$
		\$	\$
		\$	\$
		\$	\$
		\$	\$

TOTAL AMOUNT PAID TO MBEs TO DATE: \$ _____

TOTAL AMOUNT PAID TO WBEs TO DATE: \$ _____

I DO SOLEMNLY DECLARE AND AFFIRM UNDER THE PENALTIES OF PERJURY THAT THE CONTENTS OF THE FOREGOING DOCUMENT ARE TRUE AND CORRECT, AND THAT I AM AUTHORIZED, ON BEHALF OF THE CONTRACTOR, TO MAKE THIS AFFIDAVIT.

Name of Contractor: _____
(Print or Type)

Signature: _____
(Signature of Affiant)

Name of Affiant: _____
(Print or Type)

Date: _____
(Print or Type)

State of _____

County (City) of _____

This instrument was acknowledged before me on _____ (date)

by _____ (name/s of person/s)

as _____ (type of authority, e.g., officer, trustee, etc.)

of _____ (name of party on behalf of whom instrument was executed).

Signature of Notary Public

(Seal)

(Seal)

INSTRUCTIONS FOR COMPLETING ECONOMIC DISCLOSURE STATEMENT AND AFFIDAVIT (EDS) ON-LINE

The Bidder shall complete an online EDS prior to the bid due date. A Bidder who does not file an electronic EDS prior to the bid due date may be found non-responsive and its bid rejected. If you are unable to complete the online EDS and print a Certificate of Filing prior to the response due date, the City will accept a paper EDS provided written justification is provided explaining the Bidders good faith efforts to complete it before the response due date and the reasons why it could not be completed.

1.1. ***ONLINE EDS FILING REQUIRED PRIOR TO BID OPENING***

The Bidder must complete an online EDS prior to the bid opening date.

A Bidder that does not file an electronic EDS prior to the bid opening will be found non-responsive and its bid will be rejected unless a paper EDS and written justification is submitted with the bid as explained in the above paragraph).

1.2. ***ONLINE EDS WEB LINK***

The web link for the Online EDS is <https://webapps.cityofchicago.org/EDSWeb>

1.3. ***ONLINE EDS NUMBER***

Upon completion of the online EDS submission process, the Proposer will be provided an EDS number. Bidders should provide this number here:

EDS Number: _____

1.4. ***ONLINE EDS CERTIFICATION OF FILING***

Upon completion of the online submission process, the Proposer will be able to print a hard copy Certificate of Filing. The Proposer should submit the signed Certificate of Filing with its bid. Please insert your Certification of Filing following this page.

A Proposer that does not include a signed Certificate of Filing with its bid must provide it upon the request of the Chief Procurement Officer.

1.5. ***PREPARATION CHECKLIST FOR REGISTRATION***

To expedite and ease your registration process, we recommend that you collect the following information prior to registering for an Online EDS user account:

	1. Invitation number, if you were provided an invitation number.
	2. EDS document from previous years, if available.
	3. Email address to correspond with the Online EDS system.
	4. Company Information:
	a. Legal Name

	b. FEIN/SSN
	c. City of Chicago Vendor Number, if available.
	d. Address and phone number information that you would like to appear on your EDS documents.
	e. EDS Captain. Check for an EDS Captain in your company - this maybe the person that usually submits EDS for your company, or the first person that registers for your company.

1.6. PREPARATION CHECKLIST FOR EDS SUBMISSION

To expedite and ease your EDS submission, we recommend that you collect the following information prior to updating your EDS information online.

Items #1 through #7 are needed for both EDS information updates and contract related EDS documents:

- _____ 1. Invitation number, if you were provided with an invitation number.
- _____ 2. Site address that is specific to this EDS.
- _____ 3. Contact that is responsible for this EDS.
- _____ 4. EDS document from previous years, if available.
- _____ 5. Ownership structure, and if applicable, owners' company information:
 - _____ a. % of ownership
 - _____ b. Legal Name
 - _____ c. FEIN/SSN
 - _____ d. City of Chicago Vendor Number, if available.
 - _____ e. Address
- _____ 6. List of directors, officers, titleholders, etc. (if applicable).
- _____ 7. For partnerships/LLC/LLP/Joint ventures, etc.:
 - _____ a. List of controlling parties (if applicable).

Items #8 and #9 are needed ONLY for contract related EDS documents:

- _____ 8. Contract related information (if applicable):
 - _____ a. City of Chicago contract package
 - _____ b. Cover page of City of Chicago bid/solicitation package
 - _____ c. If EDS is related to a mod, then cover page of your current contract with the City.
- _____ 9. List of subcontractors and retained parties:
 - _____ a. Name
 - _____ b. Address
 - _____ c. Fees – Estimated or paid

1.7. EDS FREQUENTLY ASKED QUESTIONS

Q: Where do I file?

A: The web link for the Online EDS is <https://webapps.cityofchicago.org/EDSWeb>

Q: How do I get help?

A: If there is a question mark on a page or next to a field, click on the question mark for help filling out the page or field. You may also consult the User Manual and the Training Videos available on the left menu.

Q: Why do I have to submit an EDS?

A: The Economic Disclosure Statement (EDS) is required of applicants making an application to the City for action requiring City Council, City department or other City agency approval. For example, all bidders seeking a City contract are required to submit an EDS. Through the EDS, applicants make disclosures required by State law and City ordinances and certify compliance with various laws and ordinances. An EDS is also required of certain parties related to the applicant, such as owners and controlling parties.

Q: Who is the Applicant?

A: “Applicant” means any entity or person making an application to the City for action requiring City Council or other City agency approval. The applicant does not include owners and parent companies.

Q: Who is the Disclosing Party?

A: “Disclosing Party” means any entity or person submitting an EDS. This includes owners and parent companies.

Q: What is an entity or legal entity?

A: “Entity” or “Legal Entity” means a legal entity (for example, a corporation, partnership, joint venture, limited liability company or trust).

Q: What is a person for purposes of the EDS?

A: “Person” means a human being.

Q: Who must submit an EDS?

A. An EDS must be submitted in any of the following three circumstances:

Applicants:	An Applicant must always file this EDS. If the Applicant is a legal entity, state the full name of that legal entity. If the Applicant is a person acting on his/her own behalf, state his/her name.
Entities holding an interest:	Whenever a legal entity has a beneficial interest (E. G. direct or indirect ownership) of more than 7.5% in the Applicant, each such legal entity must file an EDS on its own behalf.
Controlling entities:	Whenever a Disclosing Party is a general partnership, limited partnership, limited liability company, limited liability partnership or joint venture that has a general partner, managing member, manager or other entity that can control the day-to-day management of the Disclosing Party, that entity must also file an EDS on its own behalf.

	Each entity with a beneficial interest of more than 7.5% in the controlling entity must also file an EDS on its own behalf.
--	---

Q: What information is needed to submit an EDS?

A: The information contained in the Preparation Checklist for EDS submission.

Q: I don't have a user ID & password. Can I still submit an Online EDS?

A: No. You must register and create a user ID and password before submitting an Online EDS.

Q: What information is needed to request a user ID & password for Online EDS?

A: The information contained in the Preparation Checklist for Registration is needed to request a login for the Online EDS.

Q: I already have a username and password from another City web site (City Web Portal, Department of Construction and Permits, Department of Consumer Services, etc.). Can I log-in the Online EDS with that account?

A: Usually not. The Online EDS uses a user ID and password system that is shared by the Public Vehicle Advertising and Water Payment web sites. You may use a username and password from those sites by answering "Yes" to "Is this an existing City of Chicago user ID?" when registering. Other usernames and passwords will not be automatically recognized. However, you may choose to create an identical username for the Online EDS if it is not already taken.

Q: I don't have an email address. How do I submit an Online EDS?

A: You cannot get an account to submit an online EDS without an email address. If you need an e-mail address, we suggest that you use a free internet email provider such as www.hotmail.com or www.yahoo.com or gmail.com to open an account. The City does not endorse any particular free internet email provider. Public computers are available at all Chicago Public Library branches.

Q: I forgot my user ID. Can I register again?

A: No. If you are the EDS Captain of your organization, please contact the Department of Procurement Services at 312-744-4900. If you are an EDS team member, contact your EDS Captain, who can look up your user ID.

Q: Who is the EDS Captain?

A: The EDS Captain is a person who performs certain administrative functions for an organization which files an EDS. Each organization registered with the Online EDS has at least one EDS Captain. There may be co-captains, who are all equal. EDS Captains approve new users, change contact information for an organization, and de-active accounts of employees who have left the organization. Please see the User Manual for more information.

Q: Why do we need EDS Captains?

A: The Online EDS is designed to be a self-service web application which allows those doing or seeking to do business with the City to perform as many routine functions as possible without City intervention. Because many organizations have multiple staff filing an EDS, the EDS Captain role allows those organizations to self-manage the contact information and users.

Q: Who is the EDS team?

A: The EDS team for an organization is everyone who is registered to file an EDS on behalf of the organization.

Q: I forgot my password. What should I do?

A: To retrieve a temporary password, click the “Forgot your password?” link on the login page. Enter your user ID that you provided when you registered your account. The system will automatically generate a temporary password and send it to you. When you log-in with your temporary password, you will be asked to create a new password.

Q: How do I complete an Online EDS?

A: Click on “Create New” after logging in. The Online EDS system will walk you through the EDS questions. Please see the User Manual for details.

Q: How do I fill out a Disclosure of Retained Parties?

A: There is no longer a separate Disclosure of Retained Parties filing. After logging in, click on “Create New”. Answer (click) “Contract” to “Is this EDS for a contract or an EDS information update?” Click “Fill out EDS”, and click on the “Retained Parties” tab. When finished, click on “Ready to Submit.”

Q: How do I attach documents?

A: Attachments are discouraged. If at all possible, please provide a concise explanation in the space provided in the online form. Attachments with pages of officers are not acceptable. Names of officers must be typed into the system. If you must provide an attachment for another reason, please send it to your City of Chicago contact (contract administrator or negotiator for procurements) and they will attach it for you. Documents can be sent in PDF (preferred), Word, or paper format.

Q: Who can complete an Economic Disclosure Statement online?

A: Any authorized representative of your business with a user ID and password can complete your EDS online. One person, such as an assistant, can fill in the information and save it, and another person can review and electronically sign the Online EDS.

Q: What are the benefits of filing my Economic Disclosure statement electronically?

A: Filing electronically reduces the chance of filing an incomplete EDS and speeds up the processing of contract awards. A certificate of filing can be printed at the completion of the process and inserted into your bid package. The biggest benefit for those who frequently do business with the City is that after the first EDS, each EDS is much easier to fill out because non-contract specific information is pre-filled from the last submitted EDS.

Q: Will my information be secure?

A: Yes. When making your internet connection to our Web Server, you will connect through a Secure Socket Layer (SSL for short) to the “Online EDS” login page. All information you type will be protected using strong encryption. Within the login page, you will provide us with a user ID, password, and secret question for user authentication, only you will have knowledge of this unique identification information.

Q: I am filing electronically. How do I sign my EDS?

A: Once you have completed the EDS, you will be prompted to enter your password and answer to your secret question. Together, these will serve as your electronic signature. Although you will also print and physically sign an EDS certification of filing as a notice that your EDS was filed, your EDS is complete as a legal document with only the electronic filing.

Q: My address has changed. How can I update my information?

A: You must be an EDS Captain for your organization to update this. Log-in and click on “Vendor Admin, Site Administration.” Select the appropriate site and click edit.

Q: I have more questions. How can I contact the Department of Procurement Services?

A: Please contact the contract administrator or negotiator assigned to your solicitation or contract. You may call DPS at

312-744-4900 between 8:30 AM and 5:00 PM Central Time.

Q: Can I save a partially complete EDS?

A: Yes. Click “Save”. To avoid data loss, we recommend you save your work periodically while filling out your EDS.

Q: Do I have to re-type my information each time I submit an EDS?

A: No. The system will remember non-contract specific information from your last submitted EDS for one year. This information will be filled-in for you in your new EDS. You will have an opportunity to correct it if it has changed since your last filing. When you submit your new EDS, the information is saved and the one-year clock begins running anew.

Q: What are the system requirements to use the Online EDS?

A: The following are minimum requirements to use the Online EDS:

- A PDF viewer such as Adobe Reader is installed and your web browser is configured to display PDFs automatically. You may download and install Adobe Reader free at <http://get.adobe.com/products/reader/>
- Your web browser is set to permit running of JavaScript.
- Your web browser allows cookies to be set for this site. Please note that while we use cookies in the Online EDS, we do not use them to track personally identifiable information, so your privacy is maintained.
- Your monitor resolution is set to a minimum of 1024 x 768.
- While not required to submit an EDS, if you wish to view the training videos, you must have Adobe Flash Plug in version 9 or higher, speakers, and sound. Please note that very old computers may not be able to run Adobe Flash and will not be able to play the training videos. In that case, we encourage you to seek help using the Online EDS Manuals. You may download and install Adobe Flash Plug in free at <http://get.adobe.com/flashplayer>

The Online EDS has been tested on Internet Explorer 6.0 and 7.0 and Firefox 2.0 and 3.0 on Windows XP and Mac OS X. Although it should work on other browsers and operating systems, the City of Chicago cannot guarantee compatibility.

CITY-BASED BUSINESS AFFIDAVIT

The City-Based Business bid preference of 4%, 6%, or 8%, as described in Section 2-92-412 of the Municipal Code of Chicago ("MCC"), is applicable to competitively bid Contracts funded in whole by City funds. Bidder must complete this form, and provide a copy of its Chicago business license(s) if applicable, if it desires to be considered for this preference. Bidders that do not complete this page will not be regarded as City-Based Businesses. Bidder understands that it may be required to produce records to the chief procurement officer to verify the information provided. If bidder's operations are at multiple locations in the City of Chicago, use additional sheets if necessary. If this preference is allocated, the Local Goods Incentive described in MCC 2-92-410 will not be allocated to the same bid.

1. Of the three following bid preference options from 2-92-412, check the one option that Bidder qualifies for and wishes to apply to this Bid:
 4% Bidder is a City-based business.
 6% Bidder meets 4% requirements and majority of Prime Contractor's employees are City resident employees and if applicable are not counted towards work hours required by Section 2-92-330.
 8% Bidder meets 6% requirements and majority of Prime Contractor's City resident employees are residents of a socio-economically disadvantaged area and are not counted towards work hours required by Section 2-92-330.
2. Is bidder a "City-Based Business" as defined in the Requirements for Bidding and Instructions for Bidders portion of this bid solicitation and in MCC 2-92-412? Yes No
3. Does the bidder report to the Internal Revenue Service that the place of employment for the majority (more than 50%) of its regular, full-time workforce is a facility within the City of Chicago? Yes No
3. Does the bidder conduct meaningful day-to-day business operations at a facility within the City of Chicago?
 Yes No
4. Street address of business location within the City of Chicago (P.O. address not accepted):

5. Describe the business activities are carried out at the location listed above: _____

6. How many full-time regular employees are currently employed at the location listed above? _____
7. How many full-time regular employees at the location listed above are "City resident employees," as that term is defined in this bid solicitation and MCC 2-92-412? _____(for 6% and 8% preferences only)
8. How many of Bidder's full-time City resident employees identified above are residents of a socio-economically disadvantaged area, as that term is defined in this bid solicitation and MCC 2-92-412? _____ (for 8% preference only)
9. Total number of full-time regular employees employed at all locations worldwide? _____
10. List City of Chicago business license(s) held; attach copies. If none are required, indicate "none required":

Under penalty of perjury the person signing below: (1) warrants that he/she is authorized to execute this Affidavit on behalf of bidder, and (2) warrants that all certifications and statements contained in this Affidavit are true, accurate, and complete as of the date of execution.

Name of Bidder (Print or Type): _____

Signature of Authorized Officer (Sign): _____ Date: _____

Title of Signatory (Print or Type): _____

State of _____; County of _____; Signed and sworn (or affirmed) to before me on _____ (date) by _____ (name/s of person/s making statement)

(Signature of Notary Public)

(seal)

ELIGIBLE BUSINESS FOR BID INCENTIVE FOR ALTERNATIVELY POWERED VEHICLES AFFIDAVIT

If this is a competitively bid Contract funded in whole by City funds, an Eligible Business preference for alternatively powered vehicles may be applicable. Bidder must complete this form if it desires to be considered for this preference. Bidders who do not complete and submit this form with their bid will be deemed to be non-Eligible Businesses.

1. Is bidder a business located within the counties of Cook, DuPage, Kane, Lake, McHenry or Will in the State of Illinois (the "Six County Region")? () Yes () No

2. Street address of principal place of business: _____

3. How many total vehicles, as defined in the Terms and Conditions, "Bid Incentive for Alternatively Powered Vehicles," are currently owned, operated, leased or otherwise controlled by bidder?

Line 3(a): _____

4. How many of bidder's vehicles are located and used within the Six County Region?

Line 4(a): number of vehicles _____

Line 4(b): percentage of fleet (line 4(a) divided by line 3(a)) _____

%

5. How many of bidder's vehicles located and used within the Six County Region are alternatively powered vehicles, as defined in the Terms and Conditions, Bid Incentive for Alternatively Powered Vehicles?

Line 5(a): number of vehicles _____

Line 5(b): percentage of Six County fleet (line 5(a) divided by line 4(a)) _____ %

Bidder understands that it may be required to produce records to the chief procurement officer to verify the information provided.

Under penalty of perjury the person signing below: (1) warrants that he/she is authorized to execute this Affidavit on behalf of bidder, and (2) warrants that all certifications and statements contained in this Affidavit are true, accurate, and complete as of the date of execution.

Name of Bidder: _____
(Print or Type)

Signature of Authorized Officer: _____
(Signature)

Title of Signatory: _____
(Print or Type)

State of _____

County of _____

Signed and sworn (or affirmed) to before me on _____ (date) by
_____ (name/s of person/s making statement).

(Signature of Notary Public)

(Seal)

VETERAN-OWNED SMALL LOCAL BUSINESSES AND ELIGIBLE JOINT VENTURES AFFIDAVIT

Bidder must complete this form if it desires to be considered for the bid incentive as described in Section 2-92-950 of the Municipal Code of Chicago ("MCC") for Veteran-Owned Small Local Businesses and Eligible Joint Ventures. Bidders that do not complete this page will not be regarded as veteran-owned small local businesses or eligible joint ventures. In some circumstances application of this incentive will affect counting MBE or WBE participation when the small local business involved in claiming the incentive is an MBE or WBE, please consult DPS regulations. Please use additional sheets if necessary. Attach all relevant certifications and/or support documents.

1. Is bidder a "veteran-owned small local business" as defined in Book 1, Section XXII.D. of this bid solicitation and in MCC 2-92-920?
() Yes () No If Yes, attach the bidder's current City of Chicago VBE certification letter and skip to #7 below.

2. Is bidder an "eligible joint venture" as defined in Book 1, Section XXII.D. of this bid solicitation and in MCC 2-92-920?
() Yes () No

3. Is at least one member of the eligible joint venture a "small business enterprise" as defined in MCC 2-92-920?
() Yes () No

4. Is at least one member of the eligible joint venture a "veteran-owned business enterprise" as that term is defined in MCC 2-92-920?
() Yes () No

5. Is the veteran-owned business identified in #4 above an enterprise which is at least 51 percent owned by one or more veterans, or in the case of a publicly held corporation, at least 51 percent of all classes of stock of which are owned by one or more veterans?
() Yes () No

If yes, please list all owners, their percentage of ownership interest, and provide appropriate documentation demonstrating status as veteran, as that term is defined in MCC 2-92-920.

6. Is the veteran-owned business identified in #4 above certified by either: (i) the City as a veteran-owned small local business pursuant to MCC 2-92-930; (ii) the County of Cook as a veteran business enterprise; (iii) the State of Illinois as a qualified service-disabled veteran-owned small business or a qualified veteran-owned small business pursuant to 30 ILCS 500/45-57; or (iv) verified and approved by the United States Department of Veterans Affairs as a service-disabled veteran-owned small business or a veteran-owned small business? If yes to any of the above, please provide appropriate documentation.
() Yes () No

7. List City of Chicago business license(s) held. If none are required, indicate "none required": _____

8. Provide address of the veteran-owned business, including the County in which it is located. _____

County: _____

Bidder understands that it may be required to produce records to the chief procurement officer to verify the information provided. Under penalty of perjury the person signing below: (1) warrants that he/she is authorized to execute this Affidavit on behalf of bidder, and (2) warrants that all certifications and statements contained in this Affidavit are true, accurate, and complete as of the date of execution.

Bidder must complete the applicable signature line(s) on the following page.

Veteran-Owned Small Local Businesses AND ELIGIBLE JOINT VENTURES Affidavit – signature page

Required Signature for All Applicants

Name of Veteran-Owned Business: _____
(Print or Type)

Signature of Authorized Officer for Veteran-Owned Business: _____
(Signature)

Title of Signatory: _____
(Print or Type)

Additional Required Signatures for Eligible Joint Venture Applicants

Name of Joint Venture (for eligible joint ventures only): _____
(Print or Type)

Name of SBE (for eligible joint ventures only): _____
(Print or Type)

Signature of Authorized Officer for SBE (for eligible joint ventures only): _____
(Signature)

Title of Signatory: _____
(Print or Type)

State of _____

County of _____

Signed and sworn (or affirmed) to before me on _____ (date) by
_____ (name/s of person/s making statement).

(Signature of Notary Public)
(Seal)

BIDDER'S COMMITMENT TO UTILIZE VETERAN-OWNED SUBCONTRACTORS AFFIDAVIT

The Veteran-Owned Subcontractors Incentive as described in Section 2-92-940 of the Municipal Code of Chicago ("MCC") is applicable to competitively bid construction projects funded in whole by City funds. Bidder must submit this form with the bid if it desires to be considered for this bid incentive. Bidders that do not submit this page with their bid will not be eligible for this bid incentive. Bidders must attach a copy of each veteran-owned subcontractor's City of Chicago VBE certification letter. No other certification letters will be accepted for purposes of determining eligibility for this bid incentive. If this incentive is allocated, neither the Bid Incentive for Certain City-Based Manufacturers described in MCC 2-92-410, nor any other procurement set-aside benefit for a veteran-owned business enterprise under the MCC, will be allocated to the same bid.

Note: The CPO may request additional information or documentation before determining to apply the preference.

1. Contract title: _____
Specification #: _____

2. The value of work performed by veteran-owned subcontractors (as defined in MCC 2-92-920 and the applicable bid solicitation) that Bidder commits to provide will be what percentage of the total dollar value of the contract?
() 1% to 16%-- 0.5% incentive () 17% to 32%-- 1% incentive
() 33% to 49%-- 1.5% incentive () 50% or greater-- 2% incentive

Bidder understands that if it fails to utilize the committed percentage of veteran-owned subcontractors, under MCC 2-92-940 it may be fined in an amount equal to three times the amount of the bid incentive allocated, unless the prime contractor can demonstrate that due to circumstances beyond the prime contractor's control, the prime contractor for good cause was unable to retain the percentage of veteran-owned subcontractors throughout the duration of the contract period.

Bidder understands that it may be required to produce records to the CPO to verify the information provided.

Bidder understands that if a veteran-owned subcontractor is also an MBE/WBE, any participation on the contract that is utilized toward MBE/WBE goals on the prime contractor's compliance plan shall not count toward the total dollar value of work performed by veteran-owned subcontractors for purposes of this Bid Incentive.

Signature page follows.

BIDDER'S COMMITMENT TO UTILIZE VETERAN-OWNED SUBCONTRACTORS AFFIDAVIT – SIGNATURE PAGE

Under penalty of perjury the person signing below: (1) warrants that he/she is authorized to execute this Affidavit on behalf of bidder, and (2) warrants that all certifications and statements contained in this Affidavit are true, accurate, and complete as of the date of execution.

Name of Bidder: _____
(Print or Type)

Signature of Authorized Officer: _____
(Signature)

Title of Signatory: _____
(Print or Type)

State of _____

County of _____

Signed and sworn (or affirmed) to before me on _____ (date) by
_____ (name/s of person/s making statement).

(Signature of Notary Public)
(Seal)

BIDDER'S COMMITMENT TO UTILIZE APPRENTICES THAT ARE GRADUATES OF CHICAGO SCHOOLS

The Apprentice Ordinance Bid Incentive as described in Section 2-92-335 of the Municipal Code of Chicago ("MCC") is applicable to competitively bid construction projects funded in whole by City funds with an estimated contract value of \$100,000.00 or more.

Bidder must submit this form with the bid if it desires to be considered for this bid incentive on a future eligible construction project. Bidders that do not submit this page with their bid may still be eligible for this future bid incentive if it is awarded a contract under this specification and submits this affidavit to the CPO during the contract term. Attach additional sheets if necessary.

Note: The CPO may request additional information or documentation before determining to award an earned credit certificate for use on a future eligible construction project bid following contract close-out.

- 1. Contract title: _____
Specification #: _____

- 2. The percentage of total labor hours for which Bidder commits to utilize apprentices (as defined in MCC 2-92-335 and the applicable bid solicitation) will be what percentage of the total hours performed under the contract?
 5% to 10%-- 0.5% incentive
 11% to 15%-- 1.0% incentive

Bidder understands that, pursuant to MCC 2-92-335, unless it meets or exceeds its apprentice utilization goals upon completion of this construction project, Bidder will not receive the above bid incentive for future construction project contracts.

Name of Bidder: _____
(Print or Type)

Signature of Authorized Officer: _____
(Signature)

Title of Signatory: _____
(Print or Type)

**REQUEST TO APPLY BID INCENTIVE: CHICAGO GRADUATES APPRENTICE UTILIZATION
(MCC 2-92-335)**

The Apprentice Ordinance Bid Incentive as described in Section 2-92-335 of the Municipal Code of Chicago ("MCC") is applicable to competitively bid construction projects funded in whole by City funds with an estimated contract value of \$100,000.00 or more.

Bidder must submit this form with the bid if it desires to use a previously obtained earned credit certificate bid incentive on its bid for this contract. Bidders that do not submit this page with their bid will not be eligible for this bid incentive. Attach additional sheets if necessary.

Note: The CPO may request additional information or documentation before determining to award this bid incentive.

1. Current Contract title: _____
Current Specification #: _____
2. Value of previously earned credit certificate for application to this contract bid:
\$ _____
Previous Contract title: _____
Previous Specification #: _____

Attach a copy of the earned credit certificate for verification.

Under penalty of perjury the person signing below: (1) warrants that he/she is authorized to execute this Affidavit on behalf of bidder; (2) warrants that all certifications and statements contained in this Affidavit are true, accurate, and complete as of the date of execution; and (3) warrants that bidder did in fact employ those apprentices on the identified previous contract and take all other actions that were required to qualify for this bid incentive.

Name of Bidder: _____
(Print or Type)

Signature of Authorized Officer: _____
(Signature)

Title of Signatory: _____
(Print or Type)

State of _____

County of _____

Signed and sworn (or affirmed) to before me on _____ (date) by

_____ (name/s of person/s making statement).

(Signature of Notary Public)

(Seal)

BIDDER'S COMMITMENT TO UTILIZE EX-OFFENDER APPRENTICES

The Ex-Offender Apprentice Ordinance Bid Incentive as described in Section 2-92-336 of the Municipal Code of Chicago ("MCC") is applicable to competitively bid construction projects funded in whole by City funds with an estimated contract value of \$100,000.00 or more.

Bidder must submit this form with the bid if it desires to be considered for this bid incentive on a future eligible construction project. Bidders that do not submit this page with their bid may still be eligible for this future bid incentive if it is awarded a contract under this specification and submits this affidavit to the CPO during the contract term. Attach additional sheets if necessary.

Note: The CPO may request additional information or documentation before determining to award an earned credit certificate for use on a future eligible construction project bid following contract close-out.

1. Contract title: _____
Specification #: _____

2. The percentage of total labor hours for which Bidder commits to utilize ex-offender apprentices (as defined in MCC 2-92-336 and the applicable bid solicitation) will be what percentage of the total hours performed under the contract?

() 5% to 10%-- 0.5% incentive

() 11% to 15%-- 1.0% incentive

Bidder understands that, pursuant to MCC 2-92-336, unless it meets its ex-offender apprentice utilization goals upon completion of this construction project, Bidder will not receive the above bid incentive for future construction project contracts.

Name of Bidder: _____
(Print or Type)

Signature of Authorized Officer: _____
(Signature)

Title of Signatory: _____
(Print or Type)

REQUEST TO APPLY BID INCENTIVE: EX-OFFENDER APPRENTICE UTILIZATION (MCC 2-92-336)

The Ex-Offender Apprentice Ordinance Bid Incentive as described in Section 2-92-336 of the Municipal Code of Chicago ("MCC") is applicable to competitively bid construction projects funded in whole by City funds with an estimated contract value of \$100,000.00 or more.

Bidder must submit this form with the bid if it desires to use a previously obtained earned credit certificate bid incentive on its bid for this contract. Bidders that do not submit this page with their bid will not be eligible for this bid incentive. Attach additional sheets if necessary.

Note: The CPO may request additional information or documentation before determining to award this bid incentive.

1. Current Contract title: _____
Current Specification #: _____

2. Value of previously earned credit certificate for application to this contract bid:
\$ _____
Previous Contract title: _____
Previous Specification #: _____

Attach a copy of the earned credit certificate for verification.

Under penalty of perjury the person signing below: (1) warrants that he/she is authorized to execute this Affidavit on behalf of bidder; (2) warrants that all certifications and statements contained in this Affidavit are true, accurate, and complete as of the date of execution; and (3) warrants that bidder did in fact employ those apprentices on the identified previous contract and take all other actions that were required to qualify for this bid incentive.

Name of Bidder: _____
(Print or Type)

Signature of Authorized Officer: _____
(Signature)

Title of Signatory: _____
(Print or Type)

State of _____
County of _____

Signed and sworn (or affirmed) to before me on _____ (date) by

(name/s of person/s making statement).

(Signature of Notary Public)
(SEAL)

BIDDER'S COMMITMENT TO UTILIZE BUSINESS ENTERPRISES OWNED BY PEOPLE WITH DISABILITIES (BEPD)

The BEPD Incentive as described in Section 2-92-337 of the Municipal Code of Chicago ("MCC") is applicable to competitively bid contracts funded in whole by City funds. Bidder must submit this form with the bid if it desires to be considered for this bid incentive. Bidders that do not submit this page with their bid will not be eligible for this bid incentive. Attach additional sheets if necessary.

Note: The CPO may request additional information or documentation before determining to apply the preference.

1. Contract title: _____
Specification #: _____

2. The value of work performed by BEPD prime contractors or subcontractors (as defined in MCC 2-92-586 and the applicable bid solicitation) that Bidder commits to provide will be what percentage of the total dollar value of the contract?
 2% to 5%-- 1% incentive 6% to 9%-- 2% incentive
 10% to 13%-- 3% incentive 14% or greater-- 4% incentive

Bidder understands that if it fails to utilize the committed percentage of BEPD subcontractors, under MCC 2-92-337 it may be fined in an amount equal to three times the amount of the bid incentive allocated, unless the prime contractor can demonstrate that due to circumstances beyond the prime contractor's control, the prime contractor for good cause was unable to retain the percentage of BEPD subcontractors throughout the duration of the contract period.

Bidder understands that it may be required to produce records to the CPO to verify the information provided.

Under penalty of perjury the person signing below: (1) warrants that he/she is authorized to execute this Affidavit on behalf of bidder, and (2) warrants that all certifications and statements contained in this Affidavit are true, accurate, and complete as of the date of execution.

Name of Bidder: _____
(Print or Type)

Signature of Authorized Officer: _____
(Signature)

Title of Signatory: _____
(Print or Type)

State of _____

County of _____

Signed and sworn (or affirmed) to before me on _____ (date) by
_____ (name/s of person/s making statement).

(Signature of Notary Public)
(Seal)

MENTORING PROGRAM BID PREFERENCE AFFIDAVIT

The Mentoring Program bid preference as described in Section 2-92-535 of the Municipal Code of Chicago (“MCC”) is applicable to contracts having an estimated value of \$100,000 or more.

A bid preference of **1 percent** of the contract base bid is available to qualified bidders that are prime contractors that have entered into a mentoring agreement or whose subcontractor has entered into a subcontractor-to-subcontractor mentoring agreement. The bid preference is used only to calculate an amount to be used in evaluating the bid to determine the low bidder, and it does not affect the contract price.

Bidder must submit this form, and a copy of either its mentoring agreement or a subcontractor-to-subcontractor mentoring agreement, with the bid if it desires to be considered for this bid preference. Bidders that do not submit this page with their bid will not be eligible for this bid preference. Attach additional sheets if necessary.

Note: The CPO may request additional information or documentation before determining to apply the preference.

Contract title: _____

Specification #: _____

Bidder understands that if it fails to maintain a mentoring agreement or a subcontractor that has a subcontractor-to-subcontractor mentoring agreement, for which this bid preference was taken into consideration in awarding of a contract, Bidder shall be fined in an amount equal to three times the amount of the bid preference allocated, unless the Bidder can demonstrate that due to circumstances beyond the Bidder’s control, Bidder for good cause was unable to maintain a mentoring agreement or a subcontractor that has a subcontractor-to-subcontractor mentoring agreement throughout the duration of the contract period.

Bidder understands that it may be required to produce records to the CPO to verify the information provided.

Under penalty of perjury the person signing below: (1) warrants that he/she is authorized to execute this Affidavit on behalf of bidder, and (2) warrants that all certifications and statements contained in this Affidavit are true, accurate, and complete as of the date of execution.

Name of Bidder: _____
(Print or Type)

Signature of Authorized Officer: _____
(Signature)

Title of Signatory: _____
(Print or Type)

State of _____

County of _____

Signed and sworn (or affirmed) to before me on _____ (date) by _____ (name/s of person/s making statement).

(Signature of Notary Public)

(Seal)

SEXUAL HARASSMENT POLICY AFFIDAVIT (SECTION 2-92-612)

The policy prohibiting sexual harassment as described in Section 2-92-612 of the Municipal Code of Chicago ("MCC") is applicable to contracts paid from funds belonging to or administered by the City.

Contract title: _____
Specification #: _____

In accordance with requirements set forth in Section 2-92-612 of the MCC, Contractor hereby attests that Contractor has a written policy prohibiting sexual harassment that includes, at a minimum, the following information:

- (i) the illegality of sexual harassment;
- (ii) the definition of sexual harassment; and
- (iii) the legal recourse available for victims of sexual harassment.

Contractor understands that it may be required to produce records to the CPO to verify the information provided.

Under penalty of perjury the person signing below: (1) warrants that he/she is authorized to execute this Affidavit on behalf of Contractor, and (2) warrants that all certifications and statements contained in this Affidavit are true, accurate, and complete as of the date of execution.

Name of Contractor: _____

(Print or Type)

Signature of Authorized Officer: _____

(Signature)

Title of Signatory: _____

(Print or Type)

State of _____

County of _____

Signed and sworn (or affirmed) to before me on _____ (date) by

_____ (name/s of person/s making statement).

(Signature of Notary Public)

(Seal)

CONTRACTOR'S AFFIDAVIT REGARDING REMOVAL OF ALL WASTE MATERIALS AND IDENTIFICATION OF ALL LEGAL DUMP SITES

Contractor to show here the name and location of the ultimate disposal site he/she is proposing to use for the subject project:

SPECIFY THE TYPE OF MATERIALS TO BE DISPOSED OF:

LEGAL NAME OF LANDFILL/DISPOSAL SITE:

(The Contractor must provide to the commissioner of his/her designated representative with copies of all dump tickets, manifests, etc.)

LOCATION ADDRESS: _____

PHONE: (_____) _____

CONTACT PERSON: _____

Disposal site submitted shall be of sufficient capacity as to insure acceptance of the volume of Construction and/or Demolition Debris received for the period of this contract. These disposal sites must meet all zoning and other requirements that may be necessary.

If requested by the Chief Procurement Officer, the Contractor shall submit copies of all contractual agreements, sanitary landfill permits and/or licenses for these disposal site(s) proposed by the Contractor.

(Revised 6/30/2000)



BID BOND

For use when bidding on City of Chicago projects. See instructions following.

PRINCIPAL (Legal name and business address)

State of incorporation or organization:

SURETY (Legal name and business address)

State of incorporation:

BID IDENTIFICATION

BID OPENING DATE:

SPECIFICATION NUMBER:

SPECIFICATION TITLE (AND PROJECT NUMBER IF AVAILABLE):

PENAL SUM OF BOND

_____ %, _____ PERCENT OF BASE BID

Surety Bond No.:

Obligation:

We, the Principal and Surety, are firmly bound to the City of Chicago (hereinafter called the City) in the above penal sum. For payment of the penal sum, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally.

Conditions:

The Principal has submitted the bid identified above.

Therefore:

The above obligation is void if the City accepts the bid identified above and the Principal enters into a Contract with the City in accordance with the terms of such bid, executes such further contractual documents that may be required by the terms of the bid or contract documents, and gives such bond(s) as may be specified in the bidding or contract documents with surety acceptable to the City.

The Surety executing this instrument agrees that its obligation is not impaired by any extension(s) of the time for acceptance of the bid that the Principal may grant to the City. Notice to the surety of extension(s) is waived.

In the event the City brings suit upon this bond, Surety will pay reasonable attorney's fees and costs incurred by the City in such suit.

Witness:

The Principal and Surety executed this bid bond and affixed their seals on the below dates. The person signing below on behalf of the Principal warrants that he or she is authorized to execute this document on behalf of the Principal.

PRINCIPAL

PRINCIPAL NAME		<i>Corporate Seal</i>
PRINCIPAL SIGNATURE		
SIGNER'S NAME & TITLE		
DATE		

SURETY

SURETY NAME		<i>Corporate Seal</i>
ATTORNEY-IN-FACT SIGNATURE		
ATTORNEY-IN-FACT NAME		
DATE		

NOTARY

STATE OF _____, COUNTY OF _____
 I, _____, a Notary Public in the County and State aforesaid, do hereby certify that _____ of the _____ who is personally known to be the same person whose name he/she subscribed in the foregoing instrument as such Attorney-in-Fact, appeared before me this day in person and acknowledged that he/she signed, sealed, and delivered the said instrument of writing as his/her free and voluntary act, and as the free and voluntary act of the said _____ for the uses and purposes therein set forth, and caused the corporate seal of said company to be thereto attached.

GIVEN UNDER MY HAND AND NOTARIAL SEAL THIS _____ DAY OF _____, 20 _____

 NOTARY PUBLIC

Notary Seal

The signature of the Surety's attorney-in-fact must be notarized, and an original power of attorney granting him or her authority to sign this document must be attached to this document.

INSTRUCTIONS FOR CITY OF CHICAGO BID BOND FORM

Bidders/Proposers: Give these instructions to your surety.

- 1.** The Bond must be on the City's form. No substitutions will be acceptable.
- 2.** Copies of the form are acceptable. However, copies of the Bond must be double sided, with page 1 on one side of the paper, and page 2 on the opposite side of the paper.
- 3.** The amount of the Bond must be that stated in the Legal Advertisement. Unless otherwise specified, the amount of the bond should be expressed as a percentage of the bid amount.
- 4.** All blank spaces to be filled in must be completed using a typewriter or legible hand printing unless otherwise indicated. Determinations of legibility will be in the sole discretion of the Chief Procurement Officer. Photocopied insertions will not be accepted, nor will any Bond form on which there is any evidence of correction fluid ("white-out").
- 5.** Insert the full legal name and business address of the Principal in the space designated "Principal" on the face of the form. If the Bidder/ Proposer is bidding under an assumed name ("d/b/a") the assumed name must be separately stated in the same space as the full legal name for identification purposes.
- 6.** The address of the Principal must be complete. If a different mailing address should be used, it should be included as well, as bonds to be returned will be mailed to address shown on the bond.
- 7.** The Bond must include the Surety's name, the state in which the Surety was incorporated, and the Surety's address.
- 8.** The specification number must appear on the Bond.
- 9.** The Surety executing the bond must appear on the Department of the Treasury's list of approved sureties (available at <http://www.fms.treas.gov/c570/c570.html>) and must act within the limitations listed therein.
- 10.** The names and titles of the people signing the bond must be given in the spaces provided.
- 11.** Corporations executing the bond shall affix their corporate seals if required. If a seal is not required, please indicate "seal not required" in the space where the seal would otherwise be affixed.
- 12.** A person authorized to bind the Bidder/Proposer as the Principal must sign the bond.
- 13.** The Bond must be signed by an attorney-in-fact of the surety company. An original Power of Attorney that identifies the surety company's signatory as an attorney-in-fact must be attached.
- 14.** The date on which the Surety's Power of Attorney was certified should be the same or later than the date on which the bond was signed by the Surety.
- 15.** In its application to negotiated contracts, the terms "bid" and "bidder" shall include "proposal" and "offeror."

CONTRACTOR'S PERFORMANCE & PAYMENT BOND

Know All Men by these Presents, That we,

Principal, hereinafter referred to as Contractor, and

, Surety

of the County of Cook and State of Illinois, are held and firmly bound unto the CITY OF CHICAGO in the penal sum of lawful money of the United States, for the payment of which sum of money, well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

Sealed with our seals and dated this _____ day of _____ A.D., 20

The Condition of the Above Obligation is such,

That whereas the above bounden Contractor has entered into a certain contract with the CITY OF CHICAGO, bearing Contract No. _____ and Specification No. _____ all in conformity with said contract, for,

The said contract is incorporated herein by reference in its entirety, including without limitation, any and all indemnification provisions.

Now, if the said Contractor shall in all respects well and truly keep and perform the said contract on its part, in accordance with the terms and provisions of all of the Contract Documents comprising said contract, and in the time and manner therein prescribed, and further shall save, indemnify, and keep harmless the City of Chicago against all loss, damages, claims, liabilities, judgements, costs and expenses which may in anywise accrue against said City of Chicago, in consequence of the granting of said contract, or which may in anywise result therefrom, or which may result from strict liability, or which may in anywise result from any injuries to, or death of, any person, or damage to any real or personal property, arising directly or indirectly from or in connection with, work performed or to be performed under said contract by said Contractor, its Agents, Employees or Workmen, assignees, subcontractors, or anyone else, in any respect whatever, or which may result on account of any infringement of any patent by reason of the materials, machinery, devices or apparatus used in the performance of said contract, and moreover, shall pay to said City any sum or sums of money determined by the Purchasing Agent, and/or by a court of competent jurisdiction, to be due said City by reason of any failure or neglect in the performance of the requirements of said contract, wherefore the said Purchasing Agent shall have elected to suspend or cancel the same, and shall pay all claims and demands whatsoever, which may accrue to each and every materialman and subcontractor, and to each and every person who shall be employed by the said Contractor or by its assignees and subcontractors, in or about the performance of said contract, and with wages paid at prevailing wage rates if so required by said contract, and shall insure its liability to pay the compensation, and shall pay all claims and demands for compensation which may accrue to each and every person who shall be employed by them or any of them in or about the performance of said contract, or which shall accrue to the beneficiaries or dependents of any such person, under the provisions of the Workers' Compensation Act, 820 ILCS 305, as amended, and the Workers' Occupational Disease Act, 820 ILCS 310, as amended (hereinafter referred to as "Acts") then is this obligation to be null and void, otherwise to remain in full force and effect.

And it is hereby expressly understood and agreed, and made a condition hereof, that any judgement rendered against said City in any suit based upon any loss, damages, claims, liabilities, judgements, costs or expenses which may in anywise accrue against said City as a consequence of the granting of said contract, or which may in anywise result therefrom, or which may in anywise result from any injuries to, or death of, any person, or damage to any real or personal property, arising directly or indirectly from, or in connection with, work performed, or to be performed under said contract by said Contractor or its agents, employees or workmen, assignees, subcontractors, or anyone else and also any decision of the Industrial Commission of the State of Illinois, and any order of court based upon such decision, or judgement thereon, rendered against said City of Chicago in any suit or claim arising under the aforementioned Acts when notice of the pendency or arbitration proceedings or suit shall have been given said Contractor, shall be conclusive against each and all parties to this obligation, as to amount, liability and all other things pertaining thereto.

Every person furnishing material or performing labor in the performance of said contract, either as an individual, as a subcontractor, or otherwise, shall have the right to sue on this bond in the name of the City of Chicago for his use and benefit and in such suit said person as plaintiff, shall file a copy of this bond, certified by the party or parties in whose charge this bond shall be, which copy shall be, unless execution thereof be denied under oath, prima facie evidence of the execution and delivery of the original; provided, that nothing in this bond contained shall be taken to make the City of Chicago liable to any subcontractor, materialman, laborer or to any other person to any greater extent than it would have been liable prior to the enactment of the Public Construction Bond Act, 30 ILCS 550, as amended; provided further, that any person having a claim for labor and materials furnished in the performance of this contract shall have no right of action unless he shall have filed a verified notice of such claim with the Clerk of the City of Chicago within 180 days after the date of the last item of work or the furnishing of the last item of materials, and shall have furnished a copy of such verified notice to the contractor within 10 days of the filing of the notice with the City of Chicago. Such claim shall be verified and shall contain the name and address of the claimant, the business address of the claimant within the State of Illinois, if any, or if the claimant be a foreign corporation having no place of business with the State the principal place of business of said corporation, and in all cases of partnership the names and residences of each of the partners, the name of the contractor for the City of Chicago, the name of the person, firm or corporation by whom the claimant was employed or to whom such claimant furnished materials, the amount of the claim and a brief description of the public improvement for the construction or installation of which the contract is to be performed. Provided, further, that no defect in the notice herein provided for shall deprive the claimant of his right of action under the terms and provisions of this bond unless it shall affirmatively appear that such defect has prejudiced the rights of an interested party asserting the same; provided, further, that no action shall be brought until the expiration of one hundred twenty (120) days after the date of the last item of work or of the furnishing of the last item of material, except in cases where the final settlement between the City of Chicago and the Contractor shall have been made prior to the expiration of the 120 day period in which case action may be taken immediately following such final settlement, and provided, further, that no action of any kind shall be brought later than six (6) months after the acceptance by the City of Chicago of the completion of work. Any suit upon this bond shall be brought only in a circuit court of the State of Illinois in the judicial district in which the contract shall have been performed.

The said Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of any of the Contract Documents comprising said contract, or to the work to be performed thereunder, shall in anywise affect the obligations on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of said Contract Documents or to the work.

Approved _____, 20____ (Seal)

(Seal)

Purchasing Agent (Seal)

(Seal)

Approved as to form and legality: _____ (Seal)

Assistant Corporation Counsel (Seal)

PRINCIPAL
IF CORPORATION

STATE OF ILLINOIS, }
COUNTY OF COOK, } ss.

I, _____, a Notary Public in and for the County and State
aforesaid, DO HEREBY CERTIFY that _____ President and
_____ Secretary of the _____
who are personally known to me to be the same persons whose names are subscribed in the foregoing instrument as
such _____ President and _____ Secretary, appeared
before me this day in person and acknowledged that they signed, sealed and delivered the said instrument of writing as
their free and voluntary act, and as the free and voluntary act of the said _____
for the uses and purposes therein set forth, and caused the corporate seal of said Company to be thereto attached.

GIVEN under my hand and Notarial Seal this _____ day of _____ 20____

Notary Public

SURETY, IF CORPORATE

STATE OF ILLINOIS, }
COUNTY OF COOK, } ss.

I, _____, a Notary Public in and for the County and State
aforesaid, DO HEREBY CERTIFY that _____
_____ of the _____ who _____ personally known
to be the same person _____ whose name _____ subscribed in the foregoing instrument as such _____
_____, appeared before me this day in person and acknowledged that _____
signed, sealed and delivered the said instrument of writing as _____ free and voluntary act, and as the free
and voluntary act of the said _____
for the uses and purposes therein set forth, and caused the corporate seal of said Company to be thereto attached.

GIVEN under my hand and Notarial Seal this _____ day of _____ 20____

Notary Public

PRINCIPAL
IF INDIVIDUAL

STATE OF ILLINOIS, }
COUNTY OF COOK, } ss.

I, _____, a Notary Public in and for the County and State
aforesaid, DO HEREBY CERTIFY that _____
who _____ personally known to me to be the same persons whose name _____ subscribed in the foregoing
instrument, appeared before me this day in person and acknowledged that _____ he _____ signed, sealed and delivered the
said instrument of writing as _____ free and voluntary act, for the uses and purposes therein set forth.

GIVEN under my hand and Notarial Seal this _____ day of _____ 20____

Notary Public

**BOOK 3
SPECIAL CONDITIONS
AND DETAIL SPECIFICATIONS**

ARTERIAL ROADWAY LIGHTING IMPROVEMENT

CITYWIDE

**SPECIFICATION NO.: 574467
CDOT PROJECT NO.: B-7-216**

CITY OF CHICAGO



**RAHM EMANUEL
MAYOR**

Prepared by the
DEPARTMENT OF TRANSPORTATION
Contracts Section

REBEKAH SCHEINFELD
Commissioner - Department of Transportation
Suite 1100, 30 North LaSalle
Chicago, Illinois 60602-2570

DANIEL BURKE, P.E., S.E.
Deputy Commissioner - Division of Engineering

Issued by the
DEPARTMENT OF PROCUREMENT SERVICES

Shannon E. Andrews
Chief Procurement Officer

Document Printed August 15, 2018

All Signatures To Be Sworn To Before A Notary Public

- THIS PAGE LEFT INTENTIONALLY BLANK -

STANDARD SPECIFICATIONS:

The following Detail Specifications supplement the IDOT “Standard Specification for Road and Bridge Construction”, adopted April 1, 2017 (hereinafter referred to as the Standard Specifications); the “Supplemental Specifications and Recurring Special Provisions”, adopted January 1, 2018, indicated on the Check Sheets; latest edition of the “Illinois Manual on Uniform Traffic Control Devices for Streets and Highways”; the City of Chicago Department of Transportation Regulations for Openings, Construction and Repair in the Public Way (including Appendix B - ADA Standards, found on CDOT’s website); and the “Manual of Test Procedures for Materials” are in effect on the date of invitation of bids, included herein which apply to and govern this project. In case of conflict with any part or parts of said specifications, these Detailed Specifications shall take precedence and shall govern.

SPECIAL PROVISION (SP)

NOTE:

"Y" DENOTES ITEMS WITH CONTRACT OR PROJECT SPECIFIC SPECIAL PROVISIONS, AND/OR CONFORMS TO IDOT RECURRING SPECIAL PROVISIONS AND IDOT BUREAU OF DESIGN & ENVIRONMENT (BDE) SPECIAL PROVISIONS.

"N" DENOTES ITEMS WHICH CONFORM TO THE ILLINOIS DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION", ADOPTED APRIL 1, 2017 OR THE LATEST EDITION OF THE SUPPLEMENTAL SPECIFICATIONS.

IDOT Standard Specifications Coded Pay Item Index

No. 201	-----	To No. 671	-----	Road and Bridge Construction Items
No. 701	-----	To No. 783	-----	Traffic Control, Signing, Pavement Marking
No. Z	-----	To No. Z	-----	Special Pay Items
No. XX	-----	To No.	-----	Local Roads Temporary Pay Items
No. XZ	-----	To XZ	-----	Design Temporary Pay Items

Typical Example and Digit Breakdown of a Coded Pay Item

Code No.	Description
20100110	Tree Removal (6 TO 15 Units Diameter)
201	- First 3 digits indicate the section in the Standard Specifications
00110	- Last 5 digits indicate the numerical sequence the item has in that section.

ARTERIAL ROADWAY LIGHTING IMPROVEMENT CITYWIDE
CDOT PROJECT NO. B-7-216

ITEM NO.	CODE NO.	CAT RLBT	ITEM DESCRIPTION	SP Req.	PAGE NO.
1	*****	R	PAVEMENT REMOVED AND REPLACED	Y	DS-6
2	*****	R	TEMPORARY PAVEMENT PATCHING	Y	DS-8
3	*****	R	TEMPORARY STONE	Y	DS-9
4	*****	R	SIDEWALK REMOVAL	Y	DS-10
5	*****	R	SIDEWALK REMOVED AND REPLACED	Y	DS-11
6	*****	R	PORTLAND CEMENT CONCRETE DRIVEWAY, 8 INCH	Y	DS-12
7	*****	R	TRENCH AND BACKFILL WITH SCREENINGS	Y	DS-13
8	CDOT44000 10	R	HOT-MIX ASPHALT SURFACE REMOVAL, VARIABLE DEPTH	Y	DS-14
9	*****	R	HMA BITUMINOUS CONCRETE SURFACE COURSE - MIX D, N70 OR HIGHER	Y	DS-15
10	CDOT42400 30	R	PORTLAND CEMENT CONCRETE ADA RAMP 5 INCH	Y	DS-17
11	CDOT42400 40	R	PORTLAND CEMENT CONCRETE ADA RAMP 8 INCH	Y	DS-17
12	CDOT42400 55	R	LINEAR DETECTABLE WARNING TILES (CAST IRON)	Y	DS-18
13	CDOT42400 65	R	RADIAL DETECTABLE WARNING TILES (CAST IRON)	Y	DS-18
14	CDOT42400 70	R	PROPERTY LINE CURB	Y	DS-19
15	CDOT42300 30	R	HIGH-EARLY-STRENGTH PORTLAND CEMENT CONCRETE ALLEY PAVEMENT 8 INCH	Y	DS-20
16	CDOT44000 20	R	ALLEY PAVEMENT REMOVAL	Y	DS-21
17	*****	R	CURB-GUTTER REMOVE AND REPLACE	Y	DS-22
18	78000200	R	THERMOPLASTIC PAVEMENT MARKING - LINE 4"	N	
19	78000400	R	THERMOPLASTIC PAVEMENT MARKING - LINE 6"	N	
20	78000600	R	THERMOPLASTIC PAVEMENT MARKING - LINE 12"	N	
21	78000650	R	THERMOPLASTIC PAVEMENT MARKING - LINE 24"	N	
22	78000100	R	THERMOPLASTIC PAVEMENT MARKING - LETTERS AND SYMBOLS	N	
23	*****	R	PRE-FORMED BIKE SYMBOL & CHEVRON	Y	DS-23
24	*****	R	PRE-FORMED BIKE SYMBOL & ARROW	Y	DS-23
25	*****	R	ELECTRICAL HANDHOLE, 30", 24" FRAME AND LID	Y	DS-24

ARTERIAL ROADWAY LIGHTING IMPROVEMENT CITYWIDE
CDOT PROJECT NO. B-7-216

ITEM NO.	CODE NO.	CAT RLBT	ITEM DESCRIPTION	SP Req.	PAGE NO.
26	*****	R	ELECTRICAL HANDHOLE, 36", 24" FRAME AND LID, HEAVY-DUTY	Y	DS-24
27	*****	R	ELECTRICAL MANHOLE 3'X4'X4', W/24" FRAME AND & LID	Y	DS-26
28	*****	R	ROOF ON MANHOLE IN PAVEMENT 30" FRAME & LID	Y	DS-28
29	*****	R	DRILL IN EXISTING MANHOLE OR HANDHOLE	Y	DS-29
30	*****	R	CLEAN & INSERT CABLE RACK IN EXISTING MANHOLE OR HANDHOLE	Y	DS-30
31	*****	R	ELECTRICAL MANHOLE ADJUSTMENT	Y	DS-31
32	*****	R	ELECTRICAL HANDHOLE ADJUSTMENT	Y	DS-31
33	*****	R	ELECTRICAL FRAME AND LID, 24"	Y	DS-31
34	*****	R	ELECTRICAL FRAME AND LID, 30"	Y	DS-31
35	*****	R	ROD AND CLEAN DUCT IN AN EXISTING CONDUIT SYSTEM	Y	DS-32
36	*****	R	GALVANIZED STEEL CONDUIT ATTACHED TO STRUCTURE 3/4"	Y	DS-33
37	*****	R	GALVANIZED STEEL CONDUIT ATTACHED TO STRUCTURE 2"	Y	DS-33
38	*****	R	PVC CONDUIT IN TRENCH, 2" SCH 80	Y	DS-33
39	*****	R	PVC CONDUIT IN TRENCH, 3" SCH 80	Y	DS-33
40	*****	R	DUCT/DRBR, 2" W/O CBL/SCH80	Y	DS-35
41	*****	R	DUCT/DRBR, 3" W/O CBL/SCH80	Y	DS-35
42	*****	R	CONCRETE FOUNDATION FOR BASE MOUNTED STREET LIGHT CONTROLLER	Y	DS-37
43	*****	R	CONCRETE FOUNDATION, 28" DIAMETER, 1 1/4" A. R., 15" B. C., 7 FEET	Y	DS-38
44	*****	R	CONCRETE FOUNDATION, 30" DIAMETER, 1" A. R., 15" B. C., 7 FEET	Y	DS-38
45	*****	R	CONCRETE FOUNDATION, 1 1/4" A. R., 15" B. C., OFFSET	Y	DS-40
46	*****	R	HELIX FOUNDATION, 7 FOOT, 15" B.C., 4 A.B.	Y	DS-42
47	*****	R	HELIX FOUNDATION, 5 FOOT, 10" B.C., 4 A.B.	Y	DS-42
48	CDOT63400 105	R	GUARD POSTS	Y	DS-43
49	*****	R	INTERCEPT EXISTING CONDUIT	Y	DS-44
50	*****	R	2" ELBOW IN EXISTING FOUNDATION	Y	DS-44

ARTERIAL ROADWAY LIGHTING IMPROVEMENT CITYWIDE
CDOT PROJECT NO. B-7-216

ITEM NO.	CODE NO.	CAT RLBT	ITEM DESCRIPTION	SP Req.	PAGE NO.
51	*****	R	2" ELBOW ON POLE/STRUCTURE	Y	DS-45
52	*****	R	3" ELBOW ON POLE/STRUCTURE	Y	DS-45
53	*****	R	2" CONDUIT RISER ON POLE/STRUCTURE W/ S.E.H.	Y	DS-46
54	*****	R	3" CONDUIT RISER ON POLE/STRUCTURE W/ S.E.H.	Y	DS-46
55	*****	R	RACK, SECONDARY AERIAL 3-WIRE	Y	DS-48
56	*****	R	PAINT EXISTING POLE, MAST ARM & LUMINAIRE	Y	DS-49
57	*****	R	PAINT ADDITIONAL TS EQUIPMENT	Y	DS-49
58	*****	R	PAINT MONOTUBE & SIGNALS	Y	DS-49
59	*****	R	PAINT POST & SIGNALS	Y	DS-49
60	*****	R	CIRCUIT BREAKER, 1 POLE, 50A, 600V	Y	DS-52
61	*****	R	CIRCUIT BREAKER, 1 POLE, 70A, 600V	Y	DS-52
62	*****	R	SERVICE INSTALLATION - 200A	Y	DS-53
63	*****	R	CONTROLLER, BASE MOUNTED, STREET LIGHT, 200A - SMART LIGHTING SYSTEM	Y	DS-55
64	*****	R	CONTROLLER, BASE MTD, RECEPTACLE, 100A	Y	DS-56
65	*****	R	CONTROLLER, POLE MTD, SL, 60A - SMART LIGHTING SYSTEM	Y	DS-58
66	*****	R	ELECTRIC CABLE IN CONDUIT, 1/C # 2/0	Y	DS-60
67	*****	R	ELECTRIC CABLE IN CONDUIT, 1/C # 2	Y	DS-60
68	*****	R	ELECTRIC CABLE IN CONDUIT, 1/C # 4	Y	DS-60
69	*****	R	ELECTRIC CABLE IN CONDUIT, 1/C # 6	Y	DS-60
70	*****	R	ELECTRIC CABLE IN CONDUIT, 1/C # 10	Y	DS-60
70	*****	R	ELECTRIC CABLE IN CONDUIT 2#6 & 1#8, TRIPLEX	Y	DS-61
72	*****	R	CABLE, ALUMINUM, AERIAL, 3 1/C #8, WITH MESSENGER	Y	DS-62
73	*****	R	FIRE ALARM CABLE IN CONDUIT, 6 PAIR	Y	DS-63
74	*****	R	JUNCTION BOX, ELECTRICAL	Y	DS-65
75	*****	R	MAST ARM, STEEL, 12 FOOT WITH SIMPLEX PLATE	Y	DS-67

ARTERIAL ROADWAY LIGHTING IMPROVEMENT CITYWIDE
CDOT PROJECT NO. B-7-216

ITEM NO.	CODE NO.	CAT RLBT	ITEM DESCRIPTION	SP Req.	PAGE NO.
76	*****	R	ALUMINUM POLE CAP ON DAVIT ARM MAST	Y	DS-68
77	*****	R	FURNISH GAS LIGHT POLE, COMPLETE WITH LUMINAIRE - SMART LIGHTING	Y	DS-69
78	*****	R	FURNISH LOOP POLE COMPLETE, 10 FOOT	Y	DS-70
79	*****	R	FURNISH EXTENDED LOOP POLE COMPLETE, 16 FOOT	Y	DS-70
80	*****	R	FURNISH CHICAGO 2000 ORNAMENTAL MAST ARM ASSEMBLY, 11" OR 12" DIA	Y	DS-71
81	*****	R	FURNISH CHICAGO 2000 ORNAMENTAL MAST ARM ASSEMBLY, 10" DIA	Y	DS-72
82	*****	R	FURNISH CHICAGO 2000 GATEWAY BASE FOR 34'6" POLE, 10" DIA	Y	DS-73
83	*****	R	FURNISH POLE, STEEL, ARTERIAL, 34'6", 10" DIA. 15" B.C. BLACK	Y	DS-74
84	*****	R	FURNISH CHICAGO 2000 PENDANT LUMINAIRE, LED, 240V - SMART LIGHTING	Y	DS-75
85	*****	R	FURNISH CHICAGO 2000 PEDESTRIAN 14' LIGHT POLE COMPLETE	Y	DS-76
86	*****	R	FURNISH POLE, ALUMINUM, DAVIT, ARTERIAL, 35' MH	Y	DS-77
87	*****	R	FURNISH POLE, ALUMINUM, DAVIT, ARTERIAL, 35' MH, ANODIZED	Y	DS-77
88	*****	R	FURNISH POLE, ALUMINUM, DAVIT, ARTERIAL, 40' MH, ANODIZED	Y	DS-77
89	*****	R	FURNISH MAST ARM, ALUMINUM, DAVIT, 6" ARTERIAL, 12 FOOT	Y	DS-79
90	*****	R	FURNISH MAST ARM, ALUMINUM, DAVIT, 6" ARTERIAL, 12 FOOT, ANODIZED	Y	DS-79
91	*****	R	FURNISH MAST ARM, ALUMINUM, DAVIT, 6" ARTERIAL, 15 FOOT, ANODIZED	Y	DS-79
92	*****	R	FURNISH 12' POLE, 10" B.C., 4 A.B., & 8' MAST ARM, ALUMINUM, RESIDENTIAL	Y	DS-81
93	*****	R	FURNISH 12' POLE, 10" B.C., 4 A.B., & 8' MAST ARM, ALUMINUM, RESIDENTIAL, ANODIZED	Y	DS-81
94	*****	R	FURNISH LUMINAIRE, LED, 240V, ARTERIAL - SMART LIGHTING	Y	DS-83
95	*****	R	FURNISH LUMINAIRE, LED, 240V, ARTERIAL, WIDE - SMART LIGHTING	Y	DS-83
96	*****	R	FURNISH LUMINAIRE, LED, 240V, ARTERIAL ACORN & ARM - SMART LIGHTING	Y	DS-84
97	*****	R	FURNISH LUMINAIRE, LED, 240V, ORNAMENTAL ACORN - SMART LIGHTING	Y	DS-85
98	*****	R	FURNISH LUMINAIRE, LED, 240V, RESIDENTIAL - SMART LIGHTING	Y	DS-86
99	*****	R	FURNISH LUMINAIRE, LED, 240V, MID-MOUNT RESIDENTIAL ACORN & ARM - SMART LIGHTING	Y	DS-87

ARTERIAL ROADWAY LIGHTING IMPROVEMENT CITYWIDE
CDOT PROJECT NO. B-7-216

ITEM NO.	CODE NO.	CAT RLBT	ITEM DESCRIPTION	SP Req.	PAGE NO.
100	*****	R	FURNISH LUMINAIRE, LED, 120/240V FLOOD - SMART LIGHTING	Y	DS-88
101	*****	R	FURNISH LUMINAIRE, LED, 120/240V, VIADUCT- SMART LIGHTING	Y	DS-89
102	*****	R	INSTALL GAS LIGHT POLE, COMPLETE WITH LED LUMINAIRE- SMART LIGHTING	Y	DS-89
103	*****	R	INSTALL LOOP POLE COMPLETE, 10 FOOT	Y	DS-91
104	*****	R	INSTALL EXTENDED LOOP POLE COMPLETE, 16 FOOT	Y	DS-91
105	*****	R	INSTALL CHICAGO 2000 ORNAMENTAL MAST ARM ASSEMBLY, 11" OR 12" DIA	Y	DS-93
106	*****	R	INSTALL CHICAGO 2000 ORNAMENTAL MAST ARM ASSEMBLY, 10" DIA	Y	DS-94
107	*****	R	INSTALL CHICAGO 2000 GATEWAY BASE FOR 34'6" POLE, 10" DIA	Y	DS-95
108	*****	R	INSTALL POLE, STEEL, ARTERIAL, 34'6", 10" DIA. 15" B.C. BLACK	Y	DS-96
109	*****	R	INSTALL CHICAGO 2000 PENDANT LUMINAIRE, LED, 240V - SMART LIGHTING	Y	DS-97
110	*****	R	INSTALL CHICAGO 2000 PEDESTRIAN 14' LIGHT POLE COMPLETE	Y	DS-98
111	*****	R	INSTALL POLE, ALUMINUM, DAVIT, ARTERIAL, 35' MH	Y	DS-100
112	*****	R	INSTALL POLE, ALUMINUM, DAVIT, ARTERIAL, 35' MH, ANODIZED	Y	DS-100
113	*****	R	INSTALL POLE, ALUMINUM, DAVIT, ARTERIAL, 40' MH, ANODIZED	Y	DS-100
114	*****	R	INSTALL MAST ARM, ALUMINUM, DAVIT, 6" ARTERIAL, 12 FOOT	Y	DS-102
115	*****	R	INSTALL MAST ARM, ALUMINUM, DAVIT, 6" ARTERIAL, 12 FOOT', ANODIZED	Y	DS-102
116	*****	R	INSTALL MAST ARM, ALUMINUM, DAVIT, 6" ARTERIAL, 15 FOOT, ANODIZED	Y	DS-102
117	*****	R	INSTALL 12' POLE, 10" B.C., 4 A.B., & 8' MAST ARM, ALUMINUM, RESIDENTIAL	Y	DS-104
118	*****	R	INSTALL 12' POLE, 10" B.C., 4 A.B., & 8' MAST ARM, ALUMINUM, RESIDENTIAL, ANODIZED	Y	DS-104
119	*****	R	INSTALL LUMINAIRE, LED, 240V, ARTERIAL - SMART LIGHTING	Y	DS-106
120	*****	R	INSTALL LUMINAIRE, LED, 240V, ARTERIAL ACORN & ARM - SMART LIGHTING	Y	DS-109
121	*****	R	INSTALL LUMINAIRE, LED, 240V, ORNAMENTAL ACORN - SMART LIGHTING	Y	DS-109
122	*****	R	INSTALL LUMINAIRE, LED, 240V, RESIDENTIAL - SMART LIGHTING	Y	DS-110
123	*****	R	INSTALL LUMINAIRE, LED, 240V, MID-MOUNT RESIDENTIAL ACORN & ARM - SMART LIGHTING	Y	DS-112

ARTERIAL ROADWAY LIGHTING IMPROVEMENT CITYWIDE
CDOT PROJECT NO. B-7-216

ITEM NO.	CODE NO.	CAT RLBT	ITEM DESCRIPTION	SP Req.	PAGE NO.
124	*****	R	INSTALL LUMINAIRE, LED, 120/240V FLOOD - SMART LIGHTING	Y	DS-113
125	*****	R	INSTALL LUMINAIRE, LED, 120/240V VIADUCT - SMART LIGHTING	Y	DS-115
126	*****	R	SMART LIGHTING CONTROL NODE, EXTERNAL	Y	DS-116
127	*****	R	SMART LIGHTING CONTROL NODE, INTERNAL	Y	DS-117
128	*****	R	HANGING BASKET ASSEMBLY	Y	DS-118
129	*****	R	REMOVE EMBEDDED POLE	Y	DS-120
130	*****	R	REMOVE ANCHOR BASE POLE	Y	DS-121
131	*****	R	REMOVE LUMINAIRE	Y	DS-121
132	*****	R	REMOVE LUMINAIRE, VIADUCT	Y	DS-121
133	*****	R	REMOVE MAST ARM	Y	DS-121
134	*****	R	REMOVE CONTROLLER & POST	Y	DS-121
135	*****	R	REMOVE CONTROLLER ONLY	Y	DS-121
136	*****	R	REMOVE SERVICE EQUIPMENT	Y	DS-122
137	*****	R	REMOVE SVC CABLES IN COND	Y	DS-123
138	*****	R	REMOVE BRANCH WIRES / CABLES	Y	DS-123
139	*****	R	BREAKDOWN HANDHOLE / MANHOLE	Y	DS-124
140	*****	R	REMOVE AND BREAKDOWN FOUNDATION – STREET LIGHT OR CONTROLLER	Y	DS-125
141	*****	R	REMOVE EXISTING SIGN PANEL & POST ASSEMBLY FROM PARKWAY/SIDEWALK AND RE-INSTALL	Y	DS-126
142	*****	R	REMOVE EXISTING SIGN PANEL, SALVAGE AND RE-INSTALL	Y	DS-126
143	*****	R	STREET NAME SIGN	Y	DS-127
144	*****	R	FURNISH SIGN PANEL, TYPE 1, NON-REFLECTIVE, SINGLE SIDED	Y	DS-128
145	*****	R	FURNISH SIGN PANEL, TYPE 1, REFLECTIVE TYPE A, SINGLE SIDED	Y	DS-128
146	*****	R	FURNISH SIGN PANEL, TYPE 1, REFLECTIVE TYPE A, DOUBLE SIDED	Y	DS-128
147	*****	R	FURNISH AND INSTALL SIGN POST, DIG METHOD	Y	DS-135
148	*****	R	FURNISH AND INSTALL SIGN POST, DRILL METHOD	Y	DS-135

ARTERIAL ROADWAY LIGHTING IMPROVEMENT CITYWIDE
CDOT PROJECT NO. B-7-216

ITEM NO.	CODE NO.	CAT RLBT	ITEM DESCRIPTION	SP Req.	PAGE NO.
149	*****	R	INSTALL SIGN PANEL (CENTER, FLAG OR BACK-TO-BACK MOUNT)	Y	DS-138
150	*****	R	TREE PRUNING	Y	DS-140
151	*****	R	LANDSCAPE RESTORATION	Y	DS-141
152	*****	R	LANDSCAPE RESTORATION USING GRASS SEED MAT	Y	DS-142
153	*****	R	SPOILS REMOVAL INSPECTION AND CERTIFICATION	Y	DS-143
154	*****	R	TRAFFIC CONTROL & PROTECTION	Y	DS-144

CDOT - DIVISION OF ELECTRICAL OPERATIONS - MATERIAL SPECIFICATION	APPENDIX A
CDOT - DIVISION OF ELECTRICAL OPERATIONS - STANDARD DRAWINGS	APPENDIX B
CDOT - DIVISION OF ELECTRICAL OPERATIONS - SAMPLE PLANS	APPENDIX C

- THIS PAGE LEFT INTENTIONALLY BLANK -

DETAILED SPECIFICATIONS

PROJECT LOCATION: Citywide locations

DESCRIPTION: This work shall consist of furnishing all labor, materials and equipment required for Arterial Roadway Lighting Improvement Citywide. This includes but is not limited to Arterial Ornamental Lighting foundations, hand holes, conduit cables, poles, davit arms, luminaires, service connections, controllers and wiring as described in the detail specifications, including all appurtenant work and accessories, to the complete satisfaction of, approval and acceptance by the City.

GENERAL REQUIREMENTS:

The following Detailed Specifications supplement the following documents, which shall govern the construction of this project:

- Illinois Department of Transportation "Standard Specifications for Road and Bridge Construction," adopted April 1, 2017 (hereafter referred to as the Standard Specifications or SSRBC).
- "Supplemental Specifications and Recurring Special Provisions", adopted January 1, 2018.
- Bureau of Design & Environment (BDE) Special Provisions, Local Roads and Streets Special Provisions, and District 1 (D1) Special Provisions included herein.
- "Illinois Manual of Uniform Traffic Control Devices for Streets and Highways" in effect on the date of invitation for bid.
- "Manual of Test Procedures for Materials" in effect on the date of invitation for bid.
- American Railway Engineering and Maintenance-of-Way Association Specifications (AREMA);
- City of Chicago Department of Transportation "Rules and Regulations for Construction in the Public Way" (including Section 3.3 – Office of Underground Coordination (OUC) Submittal Guidelines and Procedures and Appendix B – ADA Standards) in effect on date of invitation for bids. The latter document is available on the City of Chicago Department of Transportation's web site:

http://www.cityofchicago.org/city/en/depts/cdot/provdrs/construction_information/svcs/vie_w_constructionstandards.html

In case of conflict with any part or parts of said specifications, these Detailed Specifications will take precedence and will govern.

Unless otherwise specified, the Description, General Requirements, Method of Measurements and Basis of Payment for the following items shall be as stated in the appropriate Sections of the Standard Specifications.

ARTERIAL ROADWAY LIGHTING IMPROVEMENT CITYWIDE
CDOT PROJECT NO. B-7-216

Any references in these Detailed Specifications to "the Commissioner" will be read "the Commissioner, Department of Transportation, City of Chicago" (Commissioner), and any reference to the "Department" will be read "Chicago Department of Transportation, Division of Engineering" (CDOT).

Any reference in the contract documents to "Bureau of Streets and Sanitation – Department of Electrical Operations (DEO)" or "Department of Electrical Operations (DEO)" or "Bureau of Engineering (BOE)" shall be construed to mean "Department of Transportation – Division of Electrical Operations".

These contract documents have been prepared based on field inspection, existing plans, and other information available at the time. Actual field conditions may require modifications to construction details and quantities. It shall be the Contractor's responsibility to verify the plan dimensions and details in the field and make necessary (approved by the City) adjustments prior to construction or ordering of materials. Such variations shall not be cause for additional compensation or a change in the scope of work. However, the Contractor will be paid for the quantity actually furnished at the unit price bid for the work.

CONSTRUCTION PERMITS:

The Contractor shall be responsible for obtaining all construction permits that may be necessary for access to the job site, for storage of materials and equipment and for construction operation. The cost of complying with the requirements of this section shall be considered as included in the contract unit prices bid for the various items of work involved and no additional compensation will be allowed.

MAINTENANCE OF TRAFFIC:

The Contractor must, at all times, conduct the work in such a manner as to insure the least obstruction to vehicular and pedestrian traffic. The Contractor must provide all temporary facilities necessary to maintain vehicular and pedestrian traffic and access to all property to the satisfaction of the Commissioner. Traffic control devices, conforming to Illinois Department of Transportation Standards, must be placed as shown on the Standard Drawings at the end of the plans entitled Traffic Control Standards.

When directed by the Commissioner, the Contractor shall accommodate special events during construction which may include but are not limited to (and are subject to change):

- Taste of Chicago
- Chicago Air and Water Show
- Chicago Marathon
- Chicago Jazz Festival
- Chicago Blues Festival
- Chicago St. Patrick's Day Parade
- The Wednesday before Thanksgiving Day through the Monday following Thanksgiving
- Easter Sunday
- Gospel Fest
- Chicago Bears Home Games

ARTERIAL ROADWAY LIGHTING IMPROVEMENT CITYWIDE
CDOT PROJECT NO. B-7-216

- Lollapalooza
- Pride Parade
- Mamby on the Beach Festival
- Chicago Triathlon
- Other events as dictated by the Commissioner, local agencies, the Chicago Park District or the City of Chicago

To accommodate special events, the Contractor shall:

On the day before events: Completely clean the entire project area and move temporary drums, barriers, or barricades to optimize pedestrian access and safety. Trenches must be backfilled, covered with steel plates, or patched with temporary asphalt as directed by the Commissioner. Contractor equipment must be consolidated to a location specified by the Commissioner and protected with temporary fence.

On the day of the event: Perform no Work unless approved by the Commissioner except to be present to repair and maintain pedestrian safety and traffic control elements.

This work will be included in "Traffic Control and Protection".

ADJACENT CONTRACTS AND PROPERTY OWNER COORDINATION:

The Contractor shall coordinate construction staging and traffic control operations with adjoining, adjacent or overlapping construction contracts, including barricade placement necessary to provide a uniform traffic pattern prior to and throughout the duration of the project. The Contractor shall coordinate the maintenance of traffic with lane closures of concurrent projects. This effort is to help provide the most safe and effective staging environment throughout the project and at locations where adjacent projects impact the limits of staging.

General Requirements. The Contractor is responsible for coordinating the Work with the owners and their tenants when private property areas are to be reconstructed and/or otherwise disturbed due to construction activities. The Contractor shall maintain access at all times. The Contractor shall submit procedures and protection plans to the Commissioner prior to any work. The Contractor shall define the limits of any proposed disturbance and the location of improvements at each individual location in consultation with the building owners/occupants prior to demolition and construction. The Contractor shall provide flaggers as directed by the Commissioner to ensure uninterrupted access is maintained during construction activities.

Other separate contracts are, or may be, in force that intersects the limits of this project. The Contractor shall cooperate with the other Contractors in the staging and performance of this work so as not to delay, interrupt, or hinder the progress or completion of the work being performed by other Contractors. The Contractor will be required to provide and maintain access to all private and commercial property within the work areas during the construction period, which may include the installation and removal of temporary aggregate in the work zone to allow

ARTERIAL ROADWAY LIGHTING IMPROVEMENT CITYWIDE
CDOT PROJECT NO. B-7-216

trucks to turn into or out of private property. No additional payment will be made for the temporary aggregate.

The cost shall be included with TRAFFIC CONTROL AND PROTECTION.

This work will be included in "Traffic Control and Protection".

TRAFFIC CONTROL PLAN:

Traffic Control will be according to the applicable sections of the Standard Specifications for Road and Bridge Construction, the guidelines contained in the Illinois Manual on Uniform Traffic Control Devices for Streets and Highways, the Supplemental Specifications and the Recurring Special Provisions, the Specifications and any special details and highway standards contained herein and in the Plans.

1. Standards:

HIGHWAY STANDARDS: 701101-05, 701427-05, 701601-09, 701701-10, 701801-06, 701901-06, 704001-08, and 782006-08.

2. Special Provisions:

PUBLIC CONVENIENCE AND SAFETY (DIST 1)
MAINTENANCE OF ROADWAYS (DIST 1)
KEEPING ARTERIAL OPEN TO TRAFFIC
TEMPORARY INFORMATION SIGNING

ITEM 1.

PAVEMENT REMOVED AND REPLACED

Description. The scope of the work covered by this item is the removal and replacement of concrete pavement in small confined areas, such as the removal and replacement of various wide section for installing a conduit or multiple conduits across a roadway, or the removal of a rectangular area approximately four feet wide by five feet long (2.22 sq. yd.) for manhole construction.

Material. The concrete must meet the pavement patching concrete requirements for Portland Cement Concrete, Article 1020 of the Standard Specifications. Reinforcement bars and dowel rods must meet the requirements of the Standard Specifications, Article 1006, Sections 10 and 11, respectively.

Method of construction. The method of construction must conform to all applicable sections of Article 442 of the Standard Specifications. Reinforcement bars and dowel rods will be used if so directed by the Resident Engineer.

The size of the areas worked precludes the use of large machinery, permitting generally the use of a hand operated pneumatic (jack) hammer, a machine operated hydraulic bull point, or a concrete saw, with manual labor or a small back-hoe to load the broken concrete into a high-lift bucket or a dump truck for removal and off-site disposal of the spoil. Spoil disposal must meet the requirements of Article 202.03 of the Standard Specifications.

To maintain necessary lanes open to traffic, work will proceed in one lane at a time where possible. The use of a steel plate to cover cleared work areas will permit immediate resumption of vehicular traffic. Steel plates will be used and secured to the roadway as directed by the Resident Engineer.

When the below grade work is completed, the (top six inches 6") of sub grade must be compacted either by a mechanical or hand tamper meeting the approval of the Resident Engineer.

The concrete replacement must consist of Portland cement concrete, a minimum of 9 inches in depth, which will be struck-off and consolidated by the hand method. The Portland cement must be poured to a level even with the bituminous wearing service. Before the concrete has taken its initial set, the surface must be roughened by brooming, racking or other methods meeting the approval of the Resident Engineer. All pavement markings must be restored. The use of temporary steel plates to protect new concrete replacement eliminates closing of the roadway while the concrete cures.

Method of measurement. Pavement removal and replacement must be measured by the surface area affected, and must be measured only once for both removal and replacement. The depth of the removal and associated replacement will be incidental to the cost. The surface area must be measured in square yards. The use of steel plates will be incidental to this item. Saw-cuts will not be measured or paid for separately and will be considered incidental to this item. Any reinforcement bars or dowel rods installed will be considered incidental to this pay item.

ARTERIAL ROADWAY LIGHTING IMPROVEMENT CITYWIDE
CDOT PROJECT NO. B-7-216

Basis of payment. This work will be paid for at the contract unit price per square yard for PAVEMENT REMOVED AND REPLACED, and will be payment in full for removing and replacing concrete pavement as required by the plans.

ITEM 2.

TEMPORARY PAVEMENT PATCHING

Description. This work will consist of temporarily filling in excavations, creating temporary ramps for grade changes, temporarily filling voids left by removed sidewalk or removed pavement, or for any other use as directed by the Resident Engineer. Since this is temporary patching, the removal of the patching material will be included in this item.

Material. The material must meet the requirements of Section 406 of the Standard Specifications. The bituminous concrete must be Class 1, mixture C or D.

Construction requirements. The bituminous mixture must be applied as directed by the Engineer. The material must be placed on a dry base under favorable weather conditions. The temperature should not be below 60° Fahrenheit. Any material placed in areas exposed to vehicular traffic must be properly compacted. After placement, the bituminous patches must be level with any abutting surface. The patching should be removed at the direction of the Engineer. When patching is removed, it should be immediately replaced with a permanent surface. Patching materials must be disposed of according to the requirements of Section 202.03 of the Standard Specifications.

Method of measurement. This work will be measured per ton of material placed.

Basis of payment. This work will be paid for at the contract unit price per ton for TEMPORARY PAVEMENT PATCHING. Such price will include the cost of all material and labor necessary to provide the patching, including disposal of material.

ITEM 3. ***** **TEMPORARY STONE**

Description. This work will consist of temporarily backfilling with limestone screenings as a portion of the total backfill of the trench in excavations with temporary stone to grade, temporarily filling voids left by removed sidewalk or removed pavement, or for any other use as directed by the Resident Engineer. Since this is temporary stone, the removal of the patching material will be included in this item.

Material. Backfill must meet the requirements of Article 1003.04 of the Standard Specifications.

Construction requirements. Any material excavated from the trenches that in the opinion of the Resident Engineer is satisfactory backfill, may be used for backfill above the layer of screenings. The limestone screenings must be used to fill the bottom of the trench to a depth of one foot above the top of the conduit or duct encasement. Cinders, rocks, or other inappropriate materials will not be permitted to be used as backfilling material. Backfilling material, beginning with limestone screenings must be deposited in the trench in layers not to exceed six inches (6") in depth, and must be thoroughly compacted with a mechanical tamper before the next layer is deposited in the trench. Unsuitable material must be disposed of according to the requirements of Article 202.03 of the Standard Specifications.

Method of measurement. This work will be measured per ton of material placed.

Basis of payment. This work will be paid for at the contract unit price per ton for TEMPORARY STONE. Such price will include the cost of all material and labor necessary to provide the patching, including disposal of material.

ITEM 4. ***** **SIDEWALK REMOVAL**

Description. This item will consist of the full depth removal of concrete sidewalk, including any sub base material.

Removal. The sidewalk removal will conform to all applicable sections of Section 440 of the Standard Specifications. Removal will be necessitated by the need for conduit, handhole, foundation, and manhole installations. The width and length of the removal will be such that associated installations may be easily facilitated. Removal must include the entire concrete sidewalk slab, unless directed otherwise by the Engineer. All material will be disposed of according to the requirements of Article 202.03 of the Standard Specifications.

Method of measurement. Sidewalk removal will be measured by the surface area removed, measured in square feet. The depth of removal will be 5 inches on average, but must include the entire concrete slab regardless of depth. No additional measurements will be allowed for depth variances.

Basis of payment. This work will be paid for at the contract unit price per square foot for SIDEWALK REMOVAL. The contract unit price must include removing and disposing of all concrete. No additional payments will be made for sidewalks that are thicker than 5 inches. Any saw-cuts necessary to remove the sidewalk will be considered incidental to this pay item.

ITEM 5.

SIDEWALK REMOVED AND REPLACED

Description. The scope of the work covered by this item is the removal and replacement of concrete sidewalk in small areas to accommodate the installation of conduit, foundations, handholes, or manholes. The boundaries of the removal and replacement will include all sidewalks to the nearest break point or expansion joint as directed by the Resident Engineer.

The Contractor will also be required to construct pedestrian ramps at the intersection of streets where existing sidewalks have been removed and are being replaced, at alley returns, or as indicated on the plans or as directed by the Engineer.

This work must be in accordance with Section 440 of the Standard Specifications for removal, applicable sections of Section 424 of the Standard Specifications for installation, and the latest standards for pedestrian ramps.

Material. The concrete must be Class SI meeting the requirements of Section 1020 of the Standard Specifications.

Method of construction. The size of the areas worked precludes the use of large machinery, permitting generally the employment of a hand operated pneumatic jack hammer, a machine operated bull point, where required, or a concrete saw. Manual labor, or small back hoe, can be used to load broken concrete into a high lift bucket or a dump truck for removal and off-site disposal of the spoil. Spoil must be disposed according to the requirements of Section 202.03 of the Standard Specifications. The sidewalk to be removed must be cut with a concrete saw to produce a clean straight edge to meet the replacement work. Normally sidewalk is replaced by the whole slab. When the below grade work is completed, the sub grade must be compacted to match that of the surrounding soil, either by a mechanical or hand tamper meeting the approval of the Resident Engineer.

The concrete replacement must consist of Portland cement concrete, five inches (5") in depth and meet the requirements of Section 424 of the Standard Specifications.

Method of measurement. Sidewalk removal and replacement must be measured by the surface area affected in square feet. There will be only one measurement for both removal and replacement. The depth of the work will be incidental.

Basis of payment. This work will be paid for at the contract unit price per square foot for SIDEWALK REMOVED AND REPLACED, and will be payment in full for removing and replacing concrete sidewalk as required by the plans, and must include all material, labor, and equipment necessary. The construction of side flares, expansion joints, vertical height, edge treatment, saw cutting, minor grading, and removal and disposal of unsuitable material will not be paid for separately, but must be included in the contract unit price.

ITEM 6. ***** **PORTLAND CEMENT CONCRETE DRIVEWAY, 8 INCH**

Description. Work under this item shall be performed according to Section 423 of the IDOT Standard Specifications for Road and Bridge Construction, except as herein modified.

Material. The concrete must be Class SI meeting the requirements of Section 1020 of the Standard Specifications.

Method of Measurement. This work will be measured for payment in place and the area computed in square yards.

Basis of Payment. This work will be paid for at the contract unit price per square yard for PORTLAND CEMENT CONCRETE ALLEY PAVEMENT, 8 INCH.

ITEM 7. ***** **TRENCH AND BACKFILL WITH SCREENINGS**

Description. This work will consist of excavating a trench for the installation of conduit and backfilling with limestone screenings as a portion of the total backfill of the trench, all as shown in Division of Engineering Standard Drawings No. 579 and No. 813. This work must meet all applicable requirements of Section 810 of the Standard Specifications.

Material. Underground Cable Marking Tape must meet the requirements of Article 1066.05 of the Standard Specifications. Backfill must meet the requirements of Article 1003.04 of the Standard Specifications.

Construction requirements. The trench must be deep enough to provide thirty inches (30") of cover over the conduit to be installed. The trench must not exceed twelve inches (12") in width unless approved by the Resident Engineer. The bottom of the trench must be tamped, and the trench inspected by the Resident Engineer before conduit is installed. All trenches must be backfilled as soon as possible after the installation of the conduit or cable. Any material excavated from the trenches that in the opinion of the Resident Engineer is satisfactory backfill, may be used for backfill above the layer of screenings. The limestone screenings must be used to fill the bottom of the trench to a depth of one foot above the top of the conduit or duct encasement. Cinders, rocks, or other inappropriate materials will not be permitted to be used as backfilling material. Backfilling material, beginning with limestone screenings must be deposited in the trench in layers not to exceed six inches (6") in depth, and must be thoroughly compacted with a mechanical tamper before the next layer is deposited in the trench. All trenches for conduit must be backfilled as per this specification. Unsuitable material must be disposed of according to the requirements of Article 202.03 of the Standard Specifications. Underground cable marking tape must be installed twelve inches (12") below the finished grade for all conduit runs.

Method of measurement. This work will be measured in feet along the centerline of the trench. Trench and backfill will not be measured for payment for conduit which is installed by pushing or by directional boring. Where more than one (1) conduit is installed in a single trench, only one run will be measured for payment.

Basis of payment. This work will be paid for at the contract unit price per lineal foot, measured with conduit in place, for TRENCH AND BACKFILL WITH SCREENINGS. Such price will include the cost of all excavation, furnishing and placing all backfill material, and disposal of all surplus excavated material. If sidewalk, driveway pavement or pavement must be removed and replaced, such work will be paid for separately.

MATERIAL SPECIFICATION

DRAWINGS

813

579

ITEM 8.	CDOT4400010	HOT-MIX ASPHALT SURFACE REMOVAL, VARIABLE DEPTH
----------------	--------------------	--

Effective: May 15, 2009
Revised: July 1, 2010

Description. Work under this item shall be performed according to Section 440 of the IDOT Standard Specifications for Road and Bridge Construction, except as herein modified.

This work shall consist of the removal of hot-mix asphalt (HMA) surfaces, including adjacent Portland cement concrete pavement, trenches, and patches, in preparation for subsequent resurfacing as shown in the plans and as directed by the Commissioner.

Construction requirements. Prior to the start of grinding operations, all open lid structures shall be protected to prevent any grinding debris from entering the structure. Any debris entering structures shall be immediately removed and the entire structure shall be cleaned at no cost to the City.

When utility structures are in lanes opened to traffic before the bituminous surface course has been replaced, these structures shall be ramped in accordance with the temporary bituminous ramp details before the lanes are opened to traffic. The ramps are to be placed at structures as directed by the Commissioner regardless of whether the structure shape is round, square, or rectangular. Ramps may also be constructed at the limits of the ground pavement as directed by the Commissioner if the pavement is not being replaced the same day as removal. This work will not be paid for separately but considered to be included in the cost of this item.

Method of Measurement. This work will be measured for payment in square yards. No adjustment will be made for variations in depth of material removed.

Basis of Payment. This work will be paid for at the contract unit price per square yard for HOT-MIX ASPHALT SURFACE REMOVAL, VARIABLE DEPTH

ITEM 9.	*****	HOT-MIX ASPHALT BIT. CONCRETE SURFACE COURSE - MIX D, N70 OR HIGHER
----------------	-------	--

Description. The scope of work covered by this item is the constructing a bituminous concrete surface course and/or binder course of the specified thicknesses on a prepared base, or asphalt surface restoration where the pavement was removed and replaced to perform work on the project. This pay item only covers the asphalt surface portion of the restoration, not the full depth patch. This Work also includes the cleaning and applying of bituminous prime material on the prepared base or patch prior to paving. The sealing of the perimeter of the restoration limits on City moratorium streets is also part of this item.

Work under these items shall be performed in accordance with Section 406 of the Standard Specifications for Road and Bridge Construction adopted April 1, 2016.

General requirements. Prior to paving the base or uncovered opening must be cleaned of all dust, dirt, and foreign material by use of a mechanical sweeper, or a hand broom and blow-pipe if it is just a smaller patch. The bituminous material prime coat type must be as specified in Article 406.02 and must be applied uniformly at the rate of .05 gal / sqyd or as specified by the Commissioner. When directed by the Commissioner, the prime coat must be covered immediately following its application with fine aggregate mechanically spread at a rate of 2 to 4 lbs. per sqyd. The cleaning, furnishing and application of the prime coat and fine aggregate shall NOT be paid for separately, but considered incidental to this pay item.

"Fresh Oil" signs must be posted at all ingresses to primed surfaces if the area is open to traffic, larger than a patch, or as directed by the Commissioner.

Surface and/or binder course mixtures must be placed on a dry, clean base and when weather conditions are suitable. The prime coat shall be fully cured prior to placement of the HMA. In the event of sudden rain, loading additional trucks must immediately stop whether it be from the plant or storage bins. Material in transit will be permitted to be laid at the Contractor's risk providing the pavement is free of standing water and the proper temperature of the asphaltic mix is maintained. Approval to unload the trucks in transit must in no way relax the requirements for quality, density or smoothness of the bituminous mixture being placed.

A preset grade reference device, i.e. 30' ski with electronic grading sensors, traveling on the adjacent pavement surface shall be used for binder and surface course placement.

Any foreign material on the existing surface shall be removed to the satisfaction of the Commissioner before the binder or surface course is placed.

In no case shall the speed of the paver exceed 36 feet per minute.

Immediately after each lift of binder or surface course mixture is placed it shall be compacted with equipment meeting the requirements listed in Table 1 of Article 406.07.

Each lift of binder or surface course shall be compacted to an average density of not less than 93 percent (with no individual test less than 91 percent) of the maximum theoretical density as determined by Illinois Modified AASHTO T 209.

"Flow Boys" must be used at all locations where vertical clearance precludes the use of normal dump trucks. The use of "Flow Boys" must be considered incidental to this item and no additional payment will be made.

ARTERIAL ROADWAY LIGHTING IMPROVEMENT CITYWIDE
CDOT PROJECT NO. B-7-216

The Contractor must protect all sections of newly compacted surface and/or binder course from traffic until they have hardened to the satisfaction of the Commissioner.

Surface Tests must be made in accordance with applicable portions of Article 406.11 of the Standard Specifications. The Contractor must furnish a sixteen-foot straightedge for use by the Commissioner. The Commissioner will use the straightedge to verify that there are no surface variations that exceed 3/8".

The cost of furnishing the straightedge and providing for its jobsite transportation will not be paid for separately, but will be considered incidental to the above items

Should the Contractor be unable to place the surface course prior to winter shutdown the Contractor will be required to submit for approval and upon approval place a Winter Binder mix in lieu of the regular binder mix. No additional payment will be made for the required use of a Winter Binder mix.

The hot asphalt mix to be used for this work and the asphalt restoration areas shall comply with the latest version of the CDOT Rules and Regulations for Construction in the Public Way. Additionally, in accordance with the fore mentioned CDOT Rules and Regulations, the contractor shall seal the full perimeter of the asphalt restoration limits on a CITY Moratorium street. The sealant shall be a liquid asphaltic cement in accordance with Section 451 of the IDOT SSRBC, and the material shall be a hot-poured joint sealer in accordance with Article 1050.02 of the IDOT SSRBC. This work shall not be paid for separately, but considered incidental to this pay item.

The Contractor must submit an IDOT- approved mix for City-funded projects. Quality Assurance of the hot bituminous asphalt mix will be performed by CDOT. Quality Control of the hot bituminous mix asphalt will be performed by the Contractor.

Method of measurement. for payment in tons on approved platform scales, surge bin scales or surge bin hopper scales equipped with automatic printers as specified in Article 1102.01 (a) (13). Quantities of materials wasted or disposed or in a manner not called for in the contract will be deducted from the Final Total measured quantities.

The Contractor must furnish a load ticket upon which is recorded the net weight of the bituminous mixture in each truck, as specified in Article 1102.01 (a) (13). The Contractor must submit the load ticket to the Commissioner at the worksite when the truck arrives. Measurement for payment will not be made for bituminous concrete mixture in excess of 103 percent of the maximum theoretical quantity of mixture required to place a mat of the specified thickness over the area paved. Payment WILL NOT be made by Load Ticket. A deduction in payment will be made in the tonnage of surface course mixture for each variation in the surface course as specified in Article 406.13.

Bituminous Materials prime coat, bituminous materials aggregate and hot poured joint sealer will not be paid for separately but considered included in the cost of this item.

Basis of payment. The work under this item will be paid for at the contract unit price per ton as shown on the Schedule of Unit Prices for HOT-MIX ASPHALT BIT. CONCRETE SURFACE COURSE - MIX D, N70 OR HIGHER, which price will include all costs in full for materials, labor, equipment and all incidental work necessary to complete the work as specified.

ARTERIAL ROADWAY LIGHTING IMPROVEMENT CITYWIDE
CDOT PROJECT NO. B-7-216

ITEM 10.	CDOT4240030	PORTLAND CEMENT CONCRETE ADA RAMP 5 INCH
ITEM 11.	CDOT4240040	PORTLAND CEMENT CONCRETE ADA RAMP 8 INCH

Effective: December 1, 2008
Revised: July 1, 2010

Description. Work under this item shall be performed according to Section 424 of the IDOT Standard Specifications for Road and Bridge Construction, except as herein modified.

Construction requirements. This work shall be constructed according to current City of Chicago Department of Transportation ADA standards.

Method of Measurement. This work will be measured for payment in place in square feet. It will include the side curbs, side flares, level landing area, ramps and the sidewalk constructed between adjacent ramps within the corner radius.

Basis of Payment. This work will be paid for at the contract unit price per square foot for PORTLAND CEMENT CONCRETE ADA RAMP 5 INCH and PORTLAND CEMENT CONCRETE ADA RAMP 8 INCH. Detectable warning tiles required for this work will be paid for separately.

ARTERIAL ROADWAY LIGHTING IMPROVEMENT CITYWIDE
CDOT PROJECT NO. B-7-216

ITEM 12.	CDOT4240055	LINEAR DETECTABLE WARNING TILES (CAST IRON)
ITEM 13.	CDOT4240065	RADIAL DETECTABLE WARNING TILES (CAST IRON)

Effective: May 21, 2012

Description. Work under this item shall consist of installing cast iron detectable warning tiles on ADA curb ramps as shown on the plans and according to the latest Chicago Department of Transportation ADA Standards. Work shall be performed according to Section 424 of the IDOT Standard Specifications for Road and Bridge Construction, except as herein modified.

Materials. Detectable warning tiles shall be cast gray iron and shall be provided by a Manufacturer approved by the City of Chicago Department of Transportation. A list of approved Manufacturers of cast iron detectable warning tiles is available on the City of Chicago Department of Transportation website under Construction Guidelines/Standards. The cast iron detectable warning tiles shall be of uniform quality, free from surface defects and shall be provided with an untreated, natural surface finish as directed by the Commissioner.

Construction requirements. The detectable warning system shall be installed in fresh concrete and shall comply with the City of Chicago Department of Transportation Regulations for Openings, Construction and Repair in the Public Way, Appendix B, ADA Standards. The equipment and installation procedures shall be according to the Manufacturer's specifications. The contractor shall install the detectable warning system flush with adjacent concrete, and resulting in a snug fit between tiles to limit water infiltration around the perimeter of the system and between tiles, as directed by the Commissioner.

QA/QC requirements. A Manufacturer's written certification that the material complies with these specifications shall be provided to the Commissioner.

Method of Measurement. This work will be measured for payment in place in square feet.

Basis of Payment. This work will be paid for at the contract unit price per square foot for LINEAR DETECTABLE WARNING TILES (CAST IRON) and RADIAL DETECTABLE WARNING TILES (CAST IRON).

ITEM 14.	CDOT4240070	PROPERTY LINE CURB
-----------------	--------------------	---------------------------

Effective: July 1, 2010

Description. Work under this item shall be performed according to Section 424 of the IDOT Standard Specifications for Road and Bridge Construction, except as herein modified.

General requirements. This work shall be provided to maintain proper elevation for constructing ADA ramps as shown in the plans and as directed by the Commissioner.

Construction requirements. This work shall be constructed according to current City of Chicago Department of Transportation ADA Standards.

Method of Measurement. This work will be measured for payment in feet along the face of the curb.

Basis of Payment. This work will be paid for at the contract unit price per foot for PROPERTY LINE CURB.

ITEM 15.	CDOT4230030	HIGH-EARLY-STRENGTH PORTLAND CEMENT CONCRETE ALLEY PAVEMENT 8 INCH
-----------------	--------------------	---

Effective: July 1, 2009

Revised: July 1, 2010

Description. Work under this item shall be performed according to Section 423 of the IDOT Standard Specifications for Road and Bridge Construction, except as herein modified.

Materials. The Cement Factor shall be a minimum of 7.35 cwt. The mix shall be designed according to Section 3.0 of the IDOT QC/QA PCC Level III Technician Manual. High early strength concrete shall achieve a minimum compressive strength of 3,500 psi within 3 days of placement.

Basis of Payment. This work will be paid for at the contract unit price per square yard for HIGH-EARLY-STRENGTH PORTLAND CEMENT CONCRETE ALLEY PAVEMENT 8 INCH.

ITEM 16.	CDOT4400020	ALLEY PAVEMENT REMOVAL
-----------------	--------------------	-------------------------------

Effective: July 1, 2009
Revised: July 1, 2010

Description. Work under this item shall be performed according to Section 440 of the IDOT Standard Specifications for Road and Bridge Construction, except as herein modified.

This work shall consist of the removal and disposal of existing alley pavement, regardless of depth and material types encountered, as shown on the plans and as directed by the Commissioner.

Method of Measurement. This work will be measured for payment in place in square yards.

Basis of Payment. This work will be paid for at the contract unit price per square yard for ALLEY PAVEMENT REMOVAL.

ITEM 17. ***** **CURB-GUTTER REMOVE AND REPLACE**

Description. Work under this item must be in accordance with Section 440 of the Standard Specifications for Road and Bridge Construction adopted April 1, 2016

General requirements. This work will be performed in according to current Article 440 of the SSRBC for the removal, and Article 606 of the SSRBC for the replacement of the combination concrete curb and gutter . The new combination concrete curb and gutter shall have a cross section that matches the existing combination concrete curb and gutter where it is being replaced. The section shall be constructed and match the respective cross section as shown on the Standard Drawings.

Concrete curing shall follow Article 1020.13 of the Standard Specifications at no additional cost to this pay item.

If the concrete is placed when the air temperature below 32 degrees and the concrete is less than 72 hours old, winter protection shall be provided as stated in Article 1020.13 of the Standard Specifications at no additional cost to this pay item.

Hot weather protection shall also be provided as stated in Article 1020 of the Standard specifications at no additional cost to this pay item

Method of measurement. Concrete curb, type B, will be measured for payment in feet along the flow line of the gutter of the concrete curb being replaced. The lengths of transition from one type of curb to another type of curb and gutter will be included in the measured quantities for the types having the largest cross sectional areas of concrete. The concrete curing and hot and cold weather protection are incidental to this pay item.

Basis of payment. This work will be paid for at the contract unit price per linear foot for CURB-GUTTER REMOVE AND REPLACE.

ARTERIAL ROADWAY LIGHTING IMPROVEMENT CITYWIDE
CDOT PROJECT NO. B-7-216

ITEM 23.	*****	PRE-FORMED BIKE SYMBOL & CHEVRON
ITEM 24.	*****	PRE-FORMED BIKE SYMBOL & ARROW

Description. Work under this item must be in accordance with Section 780 of the Standard Specifications for Road and Bridge Construction adopted April 1, 2017.

General requirements. This work will be measured according to current Section 780 of the SSRBC. Material shall conform to 1095.03 or 1095.05.

Method of measurement. This item will be measured per each unit installed complete.

Basis of payment. This work will be paid for at the contract unit price per UNIT for PRE-FORMED BIKE SYMBOL & CHEVRON or PRE-FORMED BIKE SYMBOL & ARROW.

ITEM 25.	*****	ELECTRICAL HANDHOLE, 30", 24" FRAME AND LID
ITEM 26.	*****	ELECTRICAL HANDHOLE, 36", 24" FRAME AND LID, HEAVY-DUTY

Description. This item is for supplying and installing an electrical handhole 30" in diameter with a 24" frame and lid or a handhole 36" in diameter with a 24" frame and lid in a parkway or sidewalk.

Material. The frame and lid must meet the requirements of Material Specification 1579. The handhole must meet the requirements of Material Specification 1528. A 24" frame and lid must also meet the requirements of Standard Drawing 966 & 968. Bricks must meet the requirements of Section 1041 of the Standard Specifications. All other materials used must meet the appropriate material requirements of the Standard Specifications.

Method of construction. The handhole will be a precast concrete structure, or, if conditions merit, a cast in place concrete structure, complete with Polymer Concrete frame and cover, and conforming in detail with Drawing Number 867, except frame and cover as per 966 & 968, and that the number of conduit openings must be as shown on the construction plans.

Each handhole must be installed at the location specified on the plans or at the location identified by the Resident Engineer.

The area where the handhole is to be placed must be properly excavated. All disposable material must be properly disposed as per Article 202.03 of the Standard Specifications, and Item 39. Each handhole must be set or constructed on a foundation of loose stone not less than eight inches (8") deep. The frame casting must be accurately set on a full bed of mortar to the finished elevation so that no subsequent adjustment will be necessary. It is desirable not to use a neck for the frame. However, if approved by the Resident Engineer, mortar and brick, or mortar and concrete rings, may be used to adjust to the proper grade. Adjustment rings, bricks, and frames must be set in a full mortar bed. Use of partial bricks will not be allowed. Bricks must be laid in full header courses only. Mortar must be mixed in a proportion of one (1) part of cement to three (3) parts sand by volume of dry materials. After entering laterals have been installed in place in the handhole, the openings in the wall must be plugged in an approved manner flush with the inner surface. If backfill is required, screenings must be used and properly compacted. Parkway must be restored to the proper grade. Pavement must be properly restored to the correct grade. Patching of the pavement must be done with high early strength concrete meeting the requirements of Sections 1001 and 1020 of the Standard Specifications. Sidewalks must be restored to the proper grade using a 5 inch thickness of concrete. The inside of the handhole must be clear of all debris.

Method of measurement. This item will be paid for at the contract unit price per each unit installed.

Basis of payment. The necessary excavation, backfilling and restoration of parkway and pavement must be made in accordance with the foregoing specifications, and the cost thereof must be included in the unit price each for installing ELECTRICAL HANDHOLE 30" IN DIAMETER WITH 24" FRAME AND LID or ELECTRICAL HANDHOLE.36" IN DIAMETER WITH 24" FRAME AND LID. No additional payment will be allowed for restoring parkway, sidewalk, or

ARTERIAL ROADWAY LIGHTING IMPROVEMENT CITYWIDE
CDOT PROJECT NO. B-7-216

pavement. Removal of sidewalk or pavement will be paid for separately under a different pay item.

MATERIAL SPECIFICATION

1528

1579

DRAWING

867

966

968

ITEM 27. ***** **ELECTRICAL MANHOLE 3'X4'X4', W/24" FRAME AND
& LID**

Description. This item will consist of furnishing and installing an electrical manhole of the dimensions indicated with a 24" frame and lid.

Material. The concrete manhole must meet the applicable requirements of Material Specification 1528. The frame and lid must meet the requirements of Material Specification 1458. A 24" frame and lid must meet the requirements of Standard Drawing 872. Bricks must meet the requirements of Article 1041 of the Standard Specifications. All other materials used must meet the appropriate material requirements of the Standard Specifications.

Method of construction. The manhole will be a precast concrete structure, or, if conditions merit, a cast in place concrete structure, complete with cast iron frame and lid. A 3'X4'X4' manhole with a 24" frame and lid must conform to the requirements of Drawing 730. The number and size of conduit openings will be as shown on the construction plans.

Each manhole will be installed in paved sidewalk, earth parkway, or in pavement at the location specified on the construction plans or at a location as directed by the Resident Engineer.

The area where the manhole is to be placed must be properly excavated. All disposable material will be properly disposed of per Section 202.03 of the Standard Specifications. Each manhole must be set or constructed to conform with the appropriate City of Chicago drawings, except that the number and size of conduit openings will be in accordance with the construction plans. The frame casting must be accurately set on a full bed of mortar to the finished elevation so that no subsequent adjustment will be necessary. Mortar and brick, or mortar and concrete rings, may be used to adjust to the proper grade. Adjustment rings, bricks, and frames must be set in a full mortar bed. Use of partial bricks will not be allowed. Bricks must be laid in full header courses only. In no instance will the neck of the manhole exceed two (2) feet in height. Mortar will be mixed in a proportion of one (1) part cement to three (3) parts sand by volume of dry materials. After entering laterals have been installed in place in the manhole, the openings in the wall must be plugged in an approved manner flush with the inner surface. If backfill is required, screenings must be used and properly compacted. Parkway must be restored to the proper grade. Pavement must be restored to the correct grade. Patching of the pavement must be done with high early strength concrete meeting the requirements of Articles 1001 and 1020 of the Standard Specifications. Sidewalks must be restored to the proper grade using a 5-inch thickness of concrete. The inside of the manhole must be clean of all debris.

Replacing Handhole with Manhole. When a present handhole is to be replaced with a new manhole, the handhole must be broken down and all debris removed. This will be paid for as a separate pay item. The present laterals and cables must be maintained during breakdown of a present handhole and construction of a new manhole. Present laterals must be cut back to terminate at a distance from the inner face of the new manhole wall, as directed by the Resident Engineer. The cost of cutting back the present laterals will be included in the cost of the new manhole. New laterals terminating in the manhole must be included in the cost of installing new lateral. The new manhole must be installed in accordance with the appropriate City of Chicago drawings. All other work associated with this replacement will be considered incidental to this pay item.

ARTERIAL ROADWAY LIGHTING IMPROVEMENT CITYWIDE
CDOT PROJECT NO. B-7-216

Method of measurement. This item will be measured per each unit installed.

Basis of payment. The unit price for installing manholes will include necessary excavation, backfilling and restoration of parkway and pavement in accordance with the foregoing specifications. No additional payment will be allowed for restoring parkway or the restoration of sidewalk or pavement. Removal of sidewalk or pavement will be covered by separate pay items. New conduit, if necessary, will also be paid for separately. The unit cost will be for complete installation for each unit for ELECTRICAL MANHOLE 3'X4'X4', WITH/24" FRAME & LID

MATERIAL SPECIFICATION

DRAWING

1458

730

1528

872

ITEM 28. ***** **ROOF ON MANHOLE IN PAVEMENT 30" FRAME & LID**

Description. This item will consist of removing the existing roof of an existing manhole in pavement, due to its condition or to its relationship to the new grade, where adjusting the frame and cover will not be sufficient.

Material. Concrete must meet the requirements for Portland cement concrete, SI Class, in Article 1020 of the Standard Specifications. Dowel rods must meet the requirements of Section 1006.11 of the Standard Specifications. Reinforcement bars must meet the requirements of Section 1006.10 of the Standard Specifications.

Construction. The area above the roof will be excavated and pavement will be removed if necessary. The existing roof must be broken down and all debris removed. All debris must be disposed of per Section 202.03 of the Standard Specifications. The existing manhole walls must be preserved. The existing walls will be keyed so as to form a better bond with the new concrete roof. Dowelling may be used by drilling holes in the existing walls and inserting reinforcement bars of sufficient size, and grouting. Wooden forms will be used to form the new concrete roof. The new roof will be poured in place and must be reinforced as per Drawing 729 or Drawing 733. The new roof must be dimensioned as per Drawing 729 or Drawing 733. The roof for a roadway must accommodate a 30" frame and lid as per 10927 & 874.

Pavement must be properly restored to the correct grade. Patching of the pavement will be done with high early strength concrete meeting the requirements of Articles 1001 and 1020 of the Standard Specifications.

Method of measurement. This item will be measured per each unit installed complete.

Basis of payment. This work will be paid for at the contract unit price, and will include all excavation, backfilling, and restoration of pavement. New frame and lid are incidental. The unit measurement will be EACH for ROOF ON MANHOLE IN PAVEMENT, WITH 30" FRAME & LID.

DRAWINGS
729 733
10927 874

ITEM 29. ***** **DRILL IN EXISTING MANHOLE OR HANDHOLE**

Description. This work will consist of drilling a hole in an existing handhole or manhole for the installation of a new conduit and 3"-1 hole strap rack to train cables. This item must meet the requirements of Section 879 of the Standard Specifications.

Construction. The size of the hole must be as close as possible to the size of the conduit to be installed. The conduit must be installed in the drilled hole with a bushing before the hole is grouted. The conduit will be covered by a separate item. The space between the conduit and the handhole or manhole wall must be caulked with a waterproof grout. Drawing 814 provides additional information.

Method of measurement. This work will be measured per each hole drilled & insert racks.

Basis of payment. This work will be paid for at the contract unit price each for DRILL EXISTING MANHOLE OR HANDHOLE, which price will be payment in full for drilling the hole, grouting, and any additional work required to accomplish this task.

DRAWING
814

ITEM 30. ***** **CLEAN & INSERT CABLE RACK IN EXISTING
MANHOLE OR HANDHOLE**

Description. This item will consist of furnishing all labor, materials, tools and equipment necessary to clean a manhole or handhole. Work must include the removal and disposal of all foreign debris and liquids from the manhole or handhole. Manholes or handholes to be cleaned will be identified on the plans or by the Resident Engineer.

Cleaning. The inside dimension of the handhole will normally be 30 to 36 inches in diameter and three feet in depth. The inside dimension of the manhole will normally be 3'x4'x4' or 4'x6'x6'. Handholes and manholes of other dimensions may be encountered. Cleaning will include opening the lid and placing the lid back in place after cleaning. The cables must not be damaged or disturbed during the cleaning process. All debris removed from the hole must be properly disposed of in an approved manner and not be left in the public way or dumped into the City sewer system. Guidelines outlined in Article 202.03 of the Standard Specifications should be followed.

Method of measurement. This work will be measured per each manhole/handhole cleaned.

Basis of payment. This work will be paid at the contract unit price each for CLEAN & INSERT CABLE RACKS IN EXISTING MANHOLE OR HANDHOLE, as directed by the Resident Engineer, which payment will include both cleaning and debris disposal.

ARTERIAL ROADWAY LIGHTING IMPROVEMENT CITYWIDE
CDOT PROJECT NO. B-7-216

ITEM 31.	*****	ELECTRICAL MANHOLE ADJUSTMENT
ITEM 32.	*****	ELECTRICAL HANDHOLE ADJUSTMENT
ITEM 33.	*****	ELECTRICAL FRAME AND LID, 24"
ITEM 34.	*****	ELECTRICAL FRAME AND LID, 30"

Description. This item will consist of adjusting or replacing an existing or new 24-inch or 30 inch frame and lid for an existing manhole or handhole to the new or existing grade. The existing manhole or handhole may be in the street, in the sidewalk, or in the parkway.

Material. The 24-inch frame and lid must be as shown in Standard Drawing 872. The 30-inch frame and lid must be as shown in Standard Drawings 874 and 10927. All frames and lids must conform to Material Specification 1458. Bricks must meet the requirements of Section 1041 of the Standard Specifications.

Installation. Pavement, sidewalk, and dirt must be removed to the extent necessary to adjust the frame. Material must be disposed of according to the requirements of Article 202.03 of the Standard Specifications. Mortar and brick, or mortar and concrete rings, must be used to adjust to the proper grade. With the approval of the Resident Engineer, the contractor may use precast adjusting rings. Adjustment rings, bricks, and frames are to be set in a full mortar bed. Mortar must be mixed in a proportion of one (1) part cement to three (3) parts sand by volume of dry mix. The interior of the adjustment must be smooth. Use of partial bricks will not be allowed. Bricks must be laid in full header courses only. In no instance will the neck of the manhole or handhole exceed two (2) feet in depth.

The pavement, sidewalk, or parkway must be restored to the proper grade after adjustment. Patching of pavement around a structure must be with high early strength concrete meeting the requirements of Section 1001 and 1020 of the Standard Specifications. The bituminous concrete layer must be properly restored. Sidewalk must be replaced to the nearest full slab, or expansion joint, and must be a minimum of 5 inches in thickness. Parkways must be properly backfilled and topped with appropriate soil material.

Method of measurement. This work will be measured on per each basis.

Basis of payment. This work will be paid for at the contract price per each unit for ADJUST FRAME AND LID, or ELECTRICAL FRAME AND LID 24" or ELECTRICAL FRAME AND LID 30". All excavation and restoration, as well as bricks, concrete, mortar, backfill, soil, disposal of surplus excavated material, reinforcement bars, frames and lids, etcetera will be included in the unit price.

MATERIAL
1458

DRAWINGS
872
874
10927

ITEM 35. ***** **ROD AND CLEAN DUCT IN AN EXISTING CONDUIT SYSTEM**

Description. This work will consist of inserting a duct rod or electrical fish rod or tape of sufficient length and rigidity into an electrical conduit opening in one electrical manhole or handhole, and pushing the said rod through the conduit to emerge at the next or subsequent manhole in the conduit system at the location shown on the plans. The duct rod may be inserted and removed by any standard construction method which causes no damage to the conduit system. The size of the conduit may vary from two inch (2") to four inch (4"), but there will be no differentiation in cost for the size of the conduit.

The conduit system, which is to be rodded and cleaned, may exist with various amounts of standing water in the manholes. The contractor must pump the water or sufficient water from the manholes to drain the conduit and to afford compatible working conditions for the installation of the duct rods and/or cables. The pumping of the manholes will be incidental to the work of rodding and cleaning of the conduit.

Any manhole which, in the opinion of the Resident Engineer contains excessive debris, dirt or other materials to the extent that conduit rodding and cleaning is not feasible, will be cleaned at the Engineer's order and payment approved as a separate pay item, and not a part of this specification.

Prior to removal, of the duct rod, a duct cleaning attachment such as a properly sized wire brush or cleaning mandrel must be attached to the duct rod, which by removal of the duct rod will be pulled through the conduit to remove sand, grit, or other light obstructions from the duct to provide a clean, clear passage for the installation of cable. Whenever the installation of cables is not performed as an adjunct to or immediately following the cleaning of the duct, a light weight pulling line such as a 1/8" polyethylene line or conduit measuring tape must be placed and will remain in the conduit to facilitate future work. When great difficulty of either inserting the duct rod or removal of the cleaning mandrel is encountered, the duct may require further cleaning by use of a compressed air gun, or a low pressure water hose. In the case of a broken duct line, the conduit must be excavated and repaired. The existence and location of breaks in the duct line may be determined by rodding, but the excavation and repair work required will not be a part of this pay item.

Method of measurement. This work will be measured per lineal foot for each conduit cleaned. Measurements will be made from point to point horizontally. No vertical rises will count in the measurement.

Basis of payment. This work will be paid for at the contract unit price per lineal foot for ROD AND CLEAN DUCT IN AN EXISTING CONDUIT SYSTEM for the installation of new electric cables. Such price will include the furnishing of all necessary tools, equipment, and polyethylene line as required to prepare a conduit for the installation of cable. When the number of cables to be installed requires the use of more than one conduit in the same run, each additional conduit required will be rodded and cleaned as a separate unit and paid for at the contract unit price.

ARTERIAL ROADWAY LIGHTING IMPROVEMENT CITYWIDE
CDOT PROJECT NO. B-7-216

ITEM 36.	*****	GALVANIZED STEEL CONDUIT ATTACHED TO STRUCTURE 3/4"
ITEM 37.	*****	GALVANIZED STEEL CONDUIT ATTACHED TO STRUCTURE 2"
ITEM 38.	*****	PVC CONDUIT IN TRENCH, 2" SCH 80
ITEM 39.	*****	PVC CONDUIT IN TRENCH, 3" SCH 80

Description. This work will consist of furnishing and installing a conduit lateral of the type and size specified.

Materials. Galvanized rigid steel conduit must conform to the requirements of Material Specification 1462.

Polyvinyl chloride (PVC) conduit must conform to the requirements of Material Specification 1533 and to the requirements of the National Electrical Manufacturers Association Standard, Publication Number TC2 for EPC-40, or EPC-80. Conduit color will be determined by the Resident Engineer.

Construction. DEFINITION OF LATERALS A lateral will mean a conduit raceway extending from one sub-surface location to another sub-surface location, and in every case intended to encase electric circuit cable under paved surfaces, or in unpaved parkway, street or alley, where specifically designated.

LOCATIONS - Laterals must be installed at the locations shown on the construction plans. Laterals must be installed in the shortest practicable line between points of termination, or under adverse conditions, as directed by the Resident Engineer. Laterals not shown on the drawing, but necessary to be installed will be paid for at the unit price bid for laterals as additional units of construction.

INSTALLATION REQUIREMENTS - The Contractor must exercise care in installing the conduit to ensure that it is smooth, free from sharp bends or kinks, and has the minimum practicable number of bends. Crushed or deformed conduit will not be accepted. All conduit and fittings must have the burrs and rough places smoothed, and all conduit runs must be cleaned and swabbed before installation of electric cables. If cable is not to be installed immediately after cleaning of the conduit, a light weight pulling line such as 1/8" polyethylene line must be placed in the conduit and will remain in the conduit for future work. The excavation for pushing conduit must be located at least two feet (2') from the edge of pavement. All underground conduits must have a minimum cover of thirty inches (30") below grade. If conduit cannot be installed with a minimum cover of thirty inches (30"), the conduit must be encased in concrete for protection. The method of encasement and protection must be approved by the engineer. Concrete encasement will be paid for as a separate pay item.

When multiple laterals in a common trench are required, no more than three (3) three inch (3") or smaller conduit laterals can be laid on a single, horizontal level. Four or more conduit laterals must be installed on two (2) levels in accordance with instructions of the Resident Engineer.

Conduit laterals attached to a structure must be flush to the structure where possible. Clamps or hangers must be used at a maximum interval of five feet (5') to hold the conduit rigidly in place. Fittings must be supplied and installed that are compatible with the conduit in use.

ARTERIAL ROADWAY LIGHTING IMPROVEMENT CITYWIDE
CDOT PROJECT NO. B-7-216

Expansion couplings must be used at locations where the conduit crosses expansion joints in the structure.

Conduit laterals installed under vaulted walks must be securely attached to the retaining wall by means of galvanized clamps and clamp backs held in place by anchor bolts. Laterals will be fastened as close to the underside of the sidewalk as possible, and securing clamps installed every five feet (5'). Laterals must be continuous through party walls.

Threaded fittings and bends of the same material as conduit must be furnished and installed as required. Threadless couplings may be used only for splicing existing conduit. All conduit splices, where required, will be considered incidental to this pay item.

Method of measurement. The length measured will be the number of lineal feet of conduit installed and accepted, measured in place. Each conduit will be measured separately even if in a single trench. The length for measurement will be the distance horizontally between changes in the direction of the conduit plus the conduit vertically attached to structures. All conduits on structures will be measured from point to point, whether vertical or horizontal.

Basis of payment. This work will be paid for at the contract unit price per lineal foot for Conduit of the type and size as specified, measured with conduit in place, for which price will be payment in full for furnishing and installing the conduit and fittings complete. Cleaning, swabbing, and p-lining of new conduit will be incidental to this pay item. Hangers, clamps, and fittings for conduit attached to structure will be incidental to this item. Trench and backfill will be paid for separately. Concrete encasement, if required, will be paid for separately. No additional payment will be allowed for pushing under pavements or for jackholes for conduit laterals.

MATERIAL SPECIFICATIONS

1462 1533

DRAWINGS

579 813

ARTERIAL ROADWAY LIGHTING IMPROVEMENT CITYWIDE
CDOT PROJECT NO. B-7-216

ITEM 40.	*****	DUCT/DRBR, 2" W/O CBL/SCH80
ITEM 41.	*****	DUCT/DRBR, 3" W/O CBL/SCH80

Description. This work will consist of the installation of flexible conduit along, across, and/or around corners of roadways by the directional boring method. The conduit will be for street lighting or traffic signal cable.

Materials. All conduits must be coilable high strength polyethylene conforming to the applicable requirements of Material Specification 1533 and to the National Electrical Manufacturers Association, Standard TC7. The conduit must also meet the requirements of ASTM-D1248, Type III, Grade PE34, Category 5, Class C, and the requirements of Section 1088.01(c) of the Standard Specifications. The average wall thickness of the schedule 40 conduit must be .15 inches. The average wall thickness of the schedule 80 conduit must be .2 inches. The nominal inside diameter of each conduit must equal the designated conduit size.

Construction requirements. The Contractor will be responsible for obtaining all necessary permits from the Chicago Department of Transportation (CDOT) for work in the public way. The Contractor will provide necessary notification to the Chicago Utility Alert Network (CUAN) 48 hours before planned work in the public way. The Contractor will organize a CUAN meet at the work site for the purpose of identifying all underground obstructions. The contractor will be responsible for any and all damage caused to existing facilities, both private and public, including unmarked private drains.

The Contractor will open excavations for conduit access, the location of underground obstructions (find holes), and the pulling back of conduit, as necessary to perform the work. The excavations must be properly protected to insure that vehicular and pedestrian traffic are not endangered. Traffic lane blockage must be minimized and the intersection and roadway must be kept safe at all times during the installation work.

The top of the conduit or duct must be installed a minimum of thirty inches (30") below grade. Grade will mean the street surface level or the top of parkway. The contractor will later pick-up and extend the conduit to manholes, hand holes, foundations, etcetera as required by the plans or as directed by the Resident Engineer.

Conduit will be cleaned of dirt, debris, bentonite or other foreign materials by the use of a swab or mandrel. If cable is not to be installed immediately, a 1/4" polyethylene pull line will be installed in each conduit.

Any excavation will be backfilled as soon as possible after the installation of the conduit. Soil excavated may only be used for backfilling when approved by the Engineer. Backfill will be a fine or crushed screening aggregate material meeting the requirements of Section 1003.04 of the Standard Specifications. Cinders, rocks, or other inappropriate materials will not be permitted to be used as backfill material. Backfill material will be deposited in the excavation in layers not to exceed six inches (6") in depth, and must be thoroughly compacted with a mechanical tamper before the next layer is deposited in the excavation.

ARTERIAL ROADWAY LIGHTING IMPROVEMENT CITYWIDE
CDOT PROJECT NO. B-7-216

Excavations which are to remain open will be covered with steel plates, minimum 2" thickness for sidewalks and 1" thickness for streets, and will be secured in place as directed by the Engineer. Any costs involved will be considered incidental.

The Contractor will remove all excavated material, except that which is acceptable for backfilling, from the job site. Spoil will be disposed of according to Section 202.03 of the Standard Specifications.

Sidewalk removal and replacement and pavement removal and replacement, if necessary to accomplish the directional boring, will be done as separate pay items.

The contractor will directional bore and install the proper sizes of conduit as indicated on the plans provided by the Division of Engineering. The contractor must follow the plans and directional bore and install conduit from point to point as indicated. Conduit will be installed and p-lined and any excavations for find holes etcetera must be restored to original condition including pavement restoration, sidewalk restoration, and parkway restoration. Failure to accomplish point to point installation or to properly restore excavations will result in non-payment for that particular point-to-point installation.

Method of measurement. This item will be paid for the number of lineal feet bored with conduit installed from point to point, measured in place. The length will be the distance horizontally from point to point. No vertical distances will be measured or applied.

Basis of payment. This work will be paid for at the contract unit price per lineal foot for the type and number of conduits specified, measured with conduit in place, for DUCT/DRBR, 2" W/O CBL/SCH80 or DUCT/DRBR, 3" W/O CBL/SCH80. Such price will include the cost of all conduit, conduit fittings, excavations, change of direction, furnishing and placing all required backfill material, restoration of all find holes, plating and protection of all end holes when required, disposal of all surplus excavated material, and any trenching and backfill made for the purpose of placing conduit. Restoration of all pavements and sidewalks will be paid for separately.

MATERIAL SPECIFICATIONS

1533

ITEM 42. ***** **CONCRETE FOUNDATION FOR BASE MOUNTED
STREET LIGHT CONTROLLER**

General. The Contractor will install a concrete foundation for a base mounted street light controller cabinet, as shown on City of Chicago Drawing Number 876.

Material. Concrete will be Portland cement concrete, SI Class, meeting the requirements of Section 1020 of the Standard Specifications. Ground rods must meet the requirements of Material Specification 1465. Conduit will be PVC meeting the requirements of Material Specification 1533. Anchor rods must meet the applicable requirements of Material Specification 1467.

Construction. The contractor will install the concrete foundation as shown on Drawing 876. Work under this item will be performed in accordance with Section 800 of the Standard Specifications.

The foundation must have a minimum depth of at least fifty inches (50") below grade and will have large radius conduit elbows in quantity, size and type shown. The elbow ends above ground will be capped with standard conduit bushings. The Contractor must furnish anchor bolts, hardware, conduit elbows, and all other material shown on the foundation construction drawing.

All excavation and restoration of parkway will be included in this item. If the foundation is in sidewalk, an expansion joint will be required between the sidewalk and the foundation.

Method of measurement. This work will be measured as each for each unit installed complete.

Basis of payment. Unit price will include cost of all material and labor required to install this foundation, as per applicable construction plans and these specifications. The conduit elbows will be considered as part of the foundation and will not be paid for as a separate item or as part of the conduit laterals leading to the foundation. All necessary excavation and restoration of parkway to the original condition will be included in the unit price. Any sidewalk removal will be paid for as a separate pay item. However, any restoration of sidewalk will be considered as part of this item, including any expansion joint between the sidewalk and the foundation. This work will be paid for at the Contract Unit Price of each for CONC FDN FOR A BASE MOUNTED STREET LIGHT CONTROLLER.

MATERIAL SPECIFICATION
1465
1467
1533

DRAWING
876
880

ARTERIAL ROADWAY LIGHTING IMPROVEMENT CITYWIDE
CDOT PROJECT NO. B-7-216

ITEM 43.	*****	CONCRETE FOUNDATION, 28" DIAMETER, 1 1/4" A. R., 15" B. C., 7 FEET
ITEM 44.	*****	CONCRETE FOUNDATION, 30" DIAMETER, 1" A. R., 15" B. C., 7 FEET

Description. The foundation will be a poured in place concrete structure used for structurally supporting street light poles or traffic signal poles.

Material. Concrete must be Portland cement concrete meeting the requirements of Section 1020 of the Standard Specifications for SI Class concrete. Reinforcement bars must meet the requirements of Article 1006.10 of the Standard Specifications. Anchor rods must meet the requirements of Material Specification 1467 and the ground rod must meet the requirements of Material Specification 1465. Conduit elbows must be PVC conduit meeting the requirements of Material Specification 1533.

Construction. Every foundation will be installed at the location designated and in the manner herein specified or in special cases as specifically directed. The contractor will locate foundations as per plan or as directed by the Resident Engineer. A hole must be augured for placement of the concrete form.

The foundation for the Chicago 2000 Gateway and Pedestrian ornamental light poles (Standard Drawing 953). The foundation for both the Extended Loop pole and the Loop pole (Standard Drawing 956).

Top surface of these foundations in parkway will be at an elevation of two inches (2") above grade or as required by the Engineer. Care must be taken to install a level foundation and to ensure adequate anchor rod projections for double-nut installation. The foundations must be centered back from the face of the curb in accordance with dimensions shown on the construction plans. Foundation raceways must consist of large radius conduit elbow(s) in quantity, size and type as specified on the corresponding standard drawing or in the construction plans. Any number of elbows in excess of the number shown on the standard drawing must be paid for under a separate pay item. The elbow ends above ground will be capped with standard conduit bushings. The Contractor must furnish anchor rods, a ground rod, hardware, conduit elbow(s) and all other material shown on applicable foundation construction drawings. Depth of foundation will be as shown on the appropriate drawing. The foundation top must be chamfered 3/4 of an inch. When the foundation is installed in a sidewalk, the foundation must be installed level, with the height of the foundation as close to the height of the sidewalk as possible, or as directed by the Engineer. A proper expansion joint will be installed between the sidewalk and the foundation.

Anchor rods must be set in accordance with applicable construction plans so that when poles are mounted on the foundations, the street lighting mast arm will be properly oriented as indicated on the construction plans. The anchor rods will be set by means of a metal template which shall be submitted for approval before any foundation work is begun. The template must hold the rods vertical, and in proper position. Anchor rods must conform in all respects to the appropriate City drawing.

ARTERIAL ROADWAY LIGHTING IMPROVEMENT CITYWIDE
CDOT PROJECT NO. B-7-216

Method of measurement. This item will be measured per linear foot foundation installed complete.

Basis of payment. Payment will be made for foundations installed in place, including elbows, in accordance with construction drawings, constructions plans and these specifications. All necessary excavation and restoration of pavement, sidewalk and fill to their original conditions will be included in the unit price. This work will be paid for at the contract unit price per lineal foot, as specified in the contract, for CONCRETE FOUNDATION, 28" DIAMETER, 1 1/4" A. R., 15" B. C., 7 FEET; or CONCRETE FOUNDATION, 30" DIAMETER, 1" A. R., 15" B. C., 7 FEET

MATERIAL SPECIFICATION
1465
1467
1533

DRAWING
953
956

ITEM 45.	*****	CONCRETE FOUNDATION, 1 1/4" A. R., 15" B. C., OFFSET
-----------------	--------------	---

Description. The foundation will be a poured in place concrete structure used for structurally supporting street light poles or traffic signal poles.

Material. Concrete must be Portland cement concrete meeting the requirements of Article 1020 of the Standard Specifications for SI Class concrete. Reinforcement bars must meet the requirements of Section 1006.10 of the Standard Specifications. Anchor rods must meet the requirements of Material Specification 1467 and the ground rod must meet the requirements of Material Specification 1465. Conduit elbows must be PVC conduit meeting the requirements of Material Specification 1533.

Construction. Every foundation will be installed at the location designated and in the manner herein specified or in special cases as specifically directed. The contractor will locate foundations as per plan or as directed by the Resident Engineer. A hole must be augured for placement of the concrete form.

Offset foundation for an arterial street light pole is shown in Standard Drawing 937.

Top surface of these foundations in parkway will be at an elevation of two inches (2") above grade or as required by the Engineer. Care must be taken to install a level foundation and to ensure adequate anchor rod projections for double-nut installation. The foundations must be centered back from the face of the curb in accordance with dimensions shown on the construction plans. Foundation raceways must consist of large radius conduit elbow(s) in quantity, size and type as specified on the corresponding standard drawing or in the construction plans. Any number of elbows in excess of the number shown on the standard drawing must be paid for under a separate pay item. The elbow ends above ground will be capped with standard conduit bushings. The Contractor must furnish anchor rods, a ground rod, hardware, conduit elbow(s) and all other material shown on applicable foundation construction drawings. Depth of foundation will be as shown on the appropriate drawing. The foundation top must be chamfered 3/4 of an inch. When the foundation is installed in a sidewalk, the foundation must be installed level, with the height of the foundation as close to the height of the sidewalk as possible, or as directed by the Engineer. A proper expansion joint will be installed between the sidewalk and the foundation.

Anchor rods must be set in accordance with applicable construction plans so that when poles are mounted on the foundations, the street lighting mast arm will be properly oriented as indicated on the construction plans. The anchor rods will be set by means of a metal template which shall be submitted for approval before any foundation work is begun. The template must hold the rods vertical, and in proper position. Anchor rods must conform in all respects to the appropriate City drawing.

Method of measurement. This item will be measured per each foundation installed complete.

Basis of payment. Payment will be made for foundations installed in place, including elbows, in accordance with construction drawings, constructions plans and these specifications. All necessary excavation and restoration of pavement, sidewalk and fill to their original conditions

ARTERIAL ROADWAY LIGHTING IMPROVEMENT CITYWIDE
CDOT PROJECT NO. B-7-216

will be included in the unit price. This work will be paid for at the contract unit price per each as specified in the contract for CONC FDN, 1 1/4" A. R., 15" B. C., OFFSET.

MATERIAL SPECIFICATION
1465
1467
1533

DRAWING
937

ARTERIAL ROADWAY LIGHTING IMPROVEMENT CITYWIDE
CDOT PROJECT NO. B-7-216

ITEM 46.	*****	HELIX FOUNDATION, 7 FOOT, 15" B.C., 4 A.B.
ITEM 47.	*****	HELIX FOUNDATION, 5 FOOT, 10" B.C., 4 A.B.

Description. This item will include furnishing and installing a steel light pole foundation, as shown on the plans or as directed by the Engineer, of the size indicated. Proper size anchor bolts and hardware will be furnished for each foundation.

Material. The steel foundation must meet the applicable requirements of Section 1070.01 of the Standard Specifications unless specified differently here and in City Material Specification 1526. Each anchor rod must have a hex head. In addition, each anchor rod must include a washer and nut for tightening. Each anchor bolt and associated hardware must be hot dipped galvanized and must meet the applicable requirements of Material Specification 1467. The foundation for arterial street light poles must have a 7 foot shaft and must accommodate a 10 inch to 15 inch bolt circle for 4 anchor bolts. The base plate must be 15.5 inches square. The bolts must be 1 1/4 inches in diameter with a 6 inch thread length. The bolts must meet the applicable requirements of Standard Drawing 811. Each steel foundation must meet the applicable requirements of Standard Drawing 936.

Installation. The installation must follow the requirements of Article 836.03 (d) of the Standard Specifications for metal foundations. The foundation must be plumb with the base plate level with the existing grade. The foundation must be installed with an Anti-theft cable device to be approved by Commissioner. If installed in a sidewalk, the helix must be set lower than the sidewalk and topped with concrete level to the top of the sidewalk. An expansion joint must also be installed. Any improperly installed or damaged foundations will be replaced at no additional cost.

Method of payment. This work will be paid for at the contract unit price per each for HELIX FOUNDATION, 7 FOOT, 15" B. C., 4 A.B. or HELIX FOUNDATION, 5 FOOT, 10" B.C., 4 A.B., which payment will include all material and labor to properly provide and install the foundation.

MATERIAL SPECIFICATIONS
1467
1526
1465

DRAWINGS
936
811
830
844

ITEM 48.	CDOT63400105	GUARD POSTS
-----------------	---------------------	--------------------

Description. This item will consist of furnishing and installing a bollard to be used as a guard post to protect street light or traffic signal equipment in the right-of-way.

Material. The bollard will be made of A36 steel. The bollard must be galvanized inside and out. The outer surface will be powder coated at the factory to the color specified. The bollard must have an outside diameter of 6 inches. The steel must be 3 gauge at a minimum. The bollard will be six foot six inches in length.

Installation. A hole must be augered for the bollard, which will allow at least 3 inches of concrete to surround the bollard when installed. The bollard must be installed in concrete to a depth of three feet. The bollard will be set plumb. The top 42" of the bollard will be exposed above grade. The bollard must be filled with concrete. At the top of the bollard the concrete will be rounded off to shed water. The exposed concrete on the top must be painted to match the bollard.

Method of measurement. This item will be measured per each guard post installed, complete.

Basis of payment. This item will be paid for at the contract unit price per each GUARD POSTS installed, which will include all labor and material necessary to install the bollard, any concrete required, and any cleanup and disposal necessary.

ITEM 49.	*****	INTERCEPT EXISTING CONDUIT
ITEM 50.	*****	2" ELBOW IN EXISTING FOUNDATION

Description. This item will consist of intercepting an existing city conduit or conduits for the purpose of installing a new foundation, a new manhole or handhole, or making a connection to a new conduit or installing conduit into an existing foundation, or HELIX.

Construction. Work under this item will be performed in accordance with Division 800 of the Standard Specifications, Division of Engineering Standards and the Division of Chicago Electrical Code, except as herein modified.

Intercept existing conduit: The contractor must carefully cut the conduit so that the cut conduit ends will be flush with the inside walls of the new manhole or handhole. Where existing cables are in service in the conduit(s) being intercepted, conduit(s) must be carefully split so that all working cables are not interrupted. If conduit(s) are concrete encased, such concrete must be removed as required. Any concrete encasement damaged during installation must be restored as needed.

Install conduit in existing foundation: The earth must be excavated to form a trough approximately one foot wide by three feet deep adjacent to the vertical surface at the desired location and extending in a direction to meet the lateral to which the elbow will be connected. Sidewalk or pavement removal required for this excavation will be performed and paid for as work under the appropriate pay item and will not be a part of this item. A groove or channel of sufficient size to accommodate the desired elbow, and to allow the elbow to fit flush against the pole or column, will be cut into the concrete of the pole encasement, the column or the abutment foundation, as required, by use of a hydraulic chipping hammer, drill or saw. The groove must be cut in a workmanlike manner using care that the column foundation will not be cracked nor will the pole encasement concrete be cracked and separated from the pole.

Method of measurement. This work will be measured on a per each basis for each conduit end cut, or per each conduit installed in foundation.

Basis of payment. This work will be paid for at the contract unit price per each for INTERCEPT EXISTING CONDUIT or 2" ELBOW IN EXISTING FOUNDATION, which price will include all necessary excavation, backfilling, and restoration of a parkway. No additional compensation will be made for removal or placement of concrete. This item will include all work necessary to bring the conduit into the manhole, handhole, or foundation, or to make the necessary connection to a new conduit. The contractor will furnish all materials for a complete installation.

MATERIAL SPECIFICATION
1462

DRAWING
11825
709

ITEM 51.	*****	2" ELBOW ON POLE/STRUCTURE
ITEM 52.	*****	3" ELBOW ON POLE/STRUCTURE

Description. This item will consist of furnishing and installing a steel conduit elbow of the size indicated adjacent to a vertical surface to connect and extend a horizontal underground conduit lateral to a proposed extension of that lateral to run vertically up the face of an embedded pole, a structural steel column, or a wall of a building or an abutment for the installation of cables for street lighting, or traffic signals at the location shown on the plans or as directed by the Resident Engineer.

Material. The material must meet the requirements of the Material Specification 1462 for Rigid Steel Conduit, Zinc coated.

METHOD OF INSTALLATION. The earth must be excavated to form a trough approximately one foot wide by three feet deep adjacent to the vertical surface at the desired location and extending in a direction to meet the lateral to which the elbow will be connected. Sidewalk or pavement removal required for this excavation will be performed and paid for as work under the appropriate pay item and will not be a part of this item. A groove or channel of sufficient size to accommodate the desired elbow, and to allow the elbow to fit flush against the pole or column, will be cut into the concrete of the pole encasement, the column or the abutment foundation, as required, by use of a hydraulic chipping hammer, drill or saw. The groove must be cut in a workmanlike manner using care that the column foundation will not be cracked nor will the pole encasement concrete be cracked and separated from the pole.

The elbow must be grouted to the concrete encasement of the pole, column or abutment foundation with a mortar consisting of one (1) part cement to three (3) parts sand by volume of dry materials to support the elbow in a vertical position. The elbow must extend eleven inches (11") above the finished surface grade and must be attached to the pole or column with stainless steel banding or to the abutment wall with a pipe clamp secured to the wall.

The top of the pole encasement must be finished smooth. The earth must be replaced and compacted in the area of the new elbow and all concrete debris and surplus backfill must be removed from the area.

Method of measurement. This item will be measured per each elbow installation, complete.

Basis of payment. This work will be paid for at the contract unit price EACH for a Steel Conduit Elbow adjacent to an Embedded Pole, Column, or Wall, and will be payment in full for furnishing and installing the elbow, providing all hardware and materials, removing and replacing any fill, and repairing the concrete encasement of the pole or footing.

MATERIAL SPECIFICATION
1462

DRAWING
561

ITEM 53.	*****	2" CONDUIT RISER ON POLE/STRUCTURE W/ S.E.H.
ITEM 54.	*****	3" CONDUIT RISER ON POLE/STRUCTURE W/ S.E.H.

Description. This item will consist of furnishing and installing a conduit riser topped with a weatherproof service head of the size indicated at the location shown on the plans and attached to an embedded steel pole or structure, for the purpose of enclosing electric cables which will extend from an underground facility to the top of the pole at which point the conductors may be connected to aerial conductors or to a device located near the top of the pole. This item will also consist of furnishing and installing on top of a street light pole a pole cap which has been fitted with a conduit raceway on which a service entrance head is installed. The completed unit will be used in the transition from underground distribution to aerial distribution and will include the installation of cables from the base of the pole to the aerial distribution wires, and allows exiting the pole without the creation of additional pole openings.

Material. The material must meet the requirements of Material Specification 1462 for Rigid Steel Conduit, Zinc Coated.

Service riser. The galvanized rigid steel conduit riser twenty-five (25) feet long threaded at both ends must be connected at its lower end by means of a conduit coupling to a large radius elbow installed under a separate pay item. The conduit will be secured to the pole by means of three-quarter inch stainless steel banding installed at five foot intervals up the pole starting at 3 feet above grade. A service entrance head of the nominal size of the conduit must be securely attached to the upper end of the conduit. The riser will be wiped clean of dirt and foreign materials before painting, and must be painted with one coat of exterior enamel of the color specified. The complete cost of painting must be included in this item, and will be considered incidental to the installation of the riser.

Service Entrance Head: The pole cap must be a cast iron pole cap meeting the requirements of the pole top described in Electrical Specification 1447 for the pole size of intended use. The conduit raceway must be a one foot length of galvanized rigid steel conduit of sizes 2", as indicated on the drawing, and which has been reamed to remove burrs and sharp edges. The service entrance head must be the equivalent of a set screw entrance fitting manufactured by the Appleton Electric Company Catalog Number EF-200 for 2" conduit.

Method of Installation.

Riser: The galvanized rigid steel conduit riser twenty-five (25) feet long threaded at both ends shall be connected at its lower end by means of a conduit coupling to a large radius elbow installed under a separate pay item. The conduit shall be secured to the pole by means of three-quarter inch stainless steel banding installed at five foot intervals up the pole starting at 3 feet above grade. A service entrance head of the nominal size of the conduit shall be securely attached to the upper end of the conduit. The riser shall be wiped clean of dirt and foreign materials before painting, and shall be painted with one coat of exterior enamel of the color specified. The complete cost of painting shall be included in the bid price for a Conduit Riser Up Pole and shall be incidental to the installation of the riser and shall not constitute an additional pay item.

Service Entrance Head:

ARTERIAL ROADWAY LIGHTING IMPROVEMENT CITYWIDE
CDOT PROJECT NO. B-7-216

Assembly: A hole must be drilled axially centered through the pole cap to accommodate the specified size of the conduit. The conduit must be welded to the cap with a continuous weld so that the threaded end of the conduit will extend three inches (3") above the top of the pole cap for attachment of the service entrance head.

Installation: The unit must be installed on the top of the pole at the location shown on the plans. The cables of the size indicated must extend from the splice in the pole base, or from another indicated type of termination upward through the pole, through the conduit, and exit through the service entrance head, from which they will extend to the aerial wires or cable, and be connected with split bolt connectors in an approved manner. The installation of cables (approximately 40 feet) will be an integral part of the installation of the unit and will not constitute a separate pay item. The pole cap, conduit, and entrance head must be painted. This will not constitute a separate pay item.

Method of measurement. This item will be measured per each conduit riser with service entrance head installation, complete.

Basis of payment. This work will be paid for at the contract unit price each for a 2" CONDUIT RISER ON POLE/STRUCTURE W/ S.E.H or 2" CONDUIT RISER ON POLE/STRUCTURE W/ S.E.H of size specified, which will be payment in full for furnishing and installing the riser complete with service entrance head installed in place with cable installed and connected as indicated.

MATERIAL SPECIFICATION
1462

ITEM 55.

RACK, SECONDARY AERIAL 3-WIRE

Description. This item will consist of furnishing and installing an electrical secondary rack, to which wires may be attached, on a street light pole, as shown on the plans, specified herein, or directed by the Commissioner. The secondary rack must be banded to the pole in the manner as herein described.

Materials. The materials of the secondary rack must conform to the requirements of Specification 1443.

Installation requirements. The secondary rack must be banded securely to the pole at such height as to locate the upper insulating spool at six inches (6") below the top mast arm port of the pole. The banding must consist of two 3/4 inch stainless steel bands, one each through the top and bottom clevises. The rack must be banded at a position 90 degrees from the central axis of the street light mast arm, or in the position of direct strain, when the pole is the line termination, and at 180 degrees from the central axis of the street light mast arm when the pole is an intermediate one in the pole line.

Basis of Payment. This work will be paid for at the contract price each for a RACK, SECONDARY AERIAL 3-WIRE, which price will be payment in full for furnishing and installing a secondary rack of the size stated on the contract plans on an existing pole. Any attachment of wires to the rack will be paid for as part of the cost of installing the wire.

MATERIAL SPECIFICATION
1443

ARTERIAL ROADWAY LIGHTING IMPROVEMENT CITYWIDE
CDOT PROJECT NO. B-7-216

ITEM 56.	*****	PAINT EXISTING POLE, MAST ARM & LUMINAIRE
ITEM 57.	*****	PAINT ADDITIONAL TS EQUIPMENT
ITEM 58.	*****	PAINT MONOTUBE & SIGNALS
ITEM 59.	*****	PAINT POST & SIGNALS

Description. This work will consist of field painting existing steel and aluminum structures including poles and arms that support street lights and traffic control signals, controller cabinets for street lights and traffic signals, traffic signal housings, and street light luminaire housings.

Material. All paints and painting materials intended for applications specified herein must be certified by the contractor to be of highest quality, must be from the same manufacturer, and must conform to the following, as applicable:

- a. **Naptha.** The solvent to be used for wiping down all metallic surfaces prior to application of paint must be NAPHTHA conforming to ASTM Standard D838.
- b. **Primer.** This paint must meet the requirements of Section 4 (composition) and Section 5 (properties) of the Steel Structures Painting Council's Paint Specification No. 25 for red iron oxide, zinc oxide, raw linseed oil and alkyd primer as outlined in Volume 2, Systems and Specifications, Third Edition.
- c. **Intermediate Coat.** The paint must meet the same requirements as the primer except that it will contain a contrasting shade of iron oxide/ or be tinted or shaded to produce a distinct contrast of at least 10 Hunter Delta E units compared to the primer.
- d. **Finish Coat.** This paint must meet the requirements of Section 4 (composition) and Section 5 (properties) of the Steel Structures Painting Council's Paint Specification No. 21 for lead free white or colored silicone alkyd paint, Type 1, high gloss as outlined in Volume 2, Systems and Specifications, Third Edition.
- e. **Color.** A paint sample must be submitted for approval prior to authorization to paint. The color will be as specified by the Engineer. The sample must be in the form of a 4" by 8" color chip. The contractor must provide a field-painted sample, if requested by the Commissioner. The field sample must be of the same type of equipment to be painted and will be chosen by the Commissioner. Color will be green ,gray,, black, or another color as specified.
- f. **Product Data.** The contractor must submit the manufacturer's technical information, label analysis, and application instructions for each material proposed for use. Each material must be listed and cross-referenced for the specific coating, finish system, and application. Each material must include the manufacturer's catalog number.

Delivery, Storage, and Handling. The contractor must deliver, store, and handle the paint as herein specified.

- a. The materials must arrive at the job site in the manufacturer's original, unopened packages and containers bearing the manufacturer's name label, product name, product description, manufacturer's stock number, date of manufacture, contents by volume for pigment

ARTERIAL ROADWAY LIGHTING IMPROVEMENT CITYWIDE
CDOT PROJECT NO. B-7-216

and vehicle constituents, thinning instructions, application instructions, and color name and number.

b. Materials to be stored should be kept in tightly covered containers in a well ventilated area at a minimum ambient temperature of 45° Fahrenheit.

Preparation of Surfaces.

a. Steel Surfaces. Remove loose or scaling paint, dirt, oil grease, rust and foreign matter, as necessary, to receive paint. Wire brushing, where specified herein, must be done with an approved power tool operated from a portable power source. After wire brushing, the complete surface must be thoroughly wiped with a rag containing NAPTHA.

b. Aluminum Surfaces. Remove loose scale and paint, dirt, oil, grease and foreign matter, as necessary, to receive paint. Wire brush surfaces, where necessary, to remove loose scale. Wire brushing, where specified herein, must be done with an approved power tool operated from a portable power source. After wire brushing, the complete surface must be thoroughly wiped with a rag containing NAPTHA.

c. Weather Conditions. Do not apply paint coatings when temperature is below 40° F., or during periods of rain, fog, snow, or when relative humidity is above 85 %.

d. Application Conditions. Surfaces to be painted must be clean, dry, and relatively smooth. Each paint coating must be applied smoothly and worked out evenly. Paint must be thoroughly mixed just prior to application. Thinning must be held to a minimum, and must be done only when required for proper application. Thinners to be used will be the manufacturers recommended thinner for the paints used; mixed thoroughly to assure complete blending with the coating. Spray painting will not be permitted when wind conditions are greater than 15mph. Painting must be done as soon after cleaning as possible.

Detail Painting Requirements.

a. Street Light Poles. Street light poles to be painted under these specifications are steel structures which will vary from twenty seven (27) to thirty (30) feet in height, with average surface required to be painted of approximately forty eight (48) square feet. Some rusting and/or bare spots will be encountered which the contractor will be required to wire-brush. The pole must be thoroughly wiped with NAPTHA, and the finish coating applied.

b. Mast Arm Brackets. Mast arms which are attached to the street light poles will consist of 2 inch steel pipe sections which will vary between eight feet (8') and fifteen feet (15') in length. Mast arms in twelve foot (12') and 15 foot (15') sizes will have a supporting strut of two inch (2") steel pipe. Surface scale and rust will be wire-brushed, and these mast arms thoroughly wiped with NAPTHA, and finish painted.

c. Traffic Signal Post. Aluminum and steel posts consist of five inch (5") pipe sections atop a conical base or base flange sixteen inches (16") in diameter, and will vary in height from three feet six inches (3' 6") to twenty feet (20'). Spot scaling must be wire-brushed and the posts thoroughly wiped with NAPTHA, and finish painted.

ARTERIAL ROADWAY LIGHTING IMPROVEMENT CITYWIDE
CDOT PROJECT NO. B-7-216

d. Street Light Controllers. The control cabinets will be cast aluminum and are approximately 18" x 14" x 30" in size. They will be mounted atop a three foot six inch (3' 6") high post. The Contractor will wire-brush, as necessary, and thoroughly wipe the complete cabinet and casting with NAPTHA, and apply a finish coating.

Basis of Payment. This work will be paid for at the contract unit price each for PAINT EXISTING POLE, MAST ARM & LUMINAIRE; PAINT ADDITIONAL TS EQUIPMENT; PAINT MONOTUBE & SIGNALS; or PAINT POST & SIGNALS complete, which will be payment in full for all labor and materials necessary in painting the existing equipment.

ITEM 60.	*****	CIRCUIT BREAKER, 1 POLE, 50A, 600V
ITEM 61.	*****	CIRCUIT BREAKER, 1 POLE, 70A, 600V

Description. This item will consist of furnishing and installing a single pole thermal magnetic circuit breaker in an existing arterial street light controller at the designated location creating a controlled power source to supply a proposed traffic signal controller or other electrical device or circuit.

Material. The material of the circuit breaker must meet the requirements of Specification 1428.

Installation. The circuit breaker must be mounted on a 3/8" thick phenolic linen base bakelite panel 3" x 8" which will be attached on the inside of the lower left hand side of the controller cabinet with 4 1/4" 20x7/8" brass screws in holes which will be drilled and tapped into the side of the cabinet for this purpose. The ends of any screws protruding through the side of cabinet wall must be filed or ground off flush with the face of the cabinet. The bakelite panel shall be set out from the wall of the controller cabinet using four 1/4" bakelite spacer washers, one at each mounting screw position.

The line side terminal of the circuit breaker must be connected to one of the line side terminals of the main circuit breaker with a 1/C #4 600V 90 degree C. insulated copper cable trained around the cabinet in a neat and workman like manner. This cable will be a part of the installation of the circuit breaker and will not be a separate pay item. The installation and connection of the load side cables servicing the traffic signal controller will be a part of the installation of service cable and not a part of the installation of the circuit breaker.

Basis of Payment. This item will be paid for at the contract unit price each for a CIRCUIT BREAKER, 1 POLE, of Ampere and Voltage specified complete in place which will constitute payment in full for furnishing, installing and making line side connections of the circuit breaker.

MATERIAL SPECIFICATION
1428

ITEM 62.

SERVICE INSTALLATION - 200A

Description. This work will consist of furnishing and installing a service on a Commonwealth Edison Company wood pole for a 240 volt street lighting service installation per City of Chicago Drawing Number 11922. This work will also consist of providing a service connection from City cable to a Commonwealth Edison secondary cable. For an aerial service, this will be on a wood pole. For an underground service, this will be in a CECO manhole

Service Junction Cabinet. The cabinet must be cast from aluminum and met all the requirements of standard drawing 11922. Its dimensions must not exceed eight (8) inches in width, eighteen (18) inches in height and nine (9) inches in depth, and it must be weather proof. It must contain a two (2) pole disconnecting device, with bridge contacts and barrier strip, subject to approval. The disconnecting device must be rated for 200 amps and 600 volts. A suitable ground lug, subject to approval, to accommodate a 1/C #2, 1/C #4, 1/C #2/0 or 1/C #1/0 AWG stranded copper conductor must be provided. Any alternate cabinets which are considered equal to this may be considered.

Cable Grip. A one and one quarter inch (1 1/4") cable grip fitting must be installed at top of cabinet to accommodate a 3/C #2/0 or #1/0 AWG service cable.

Service Riser. A three (3) inch galvanized rigid steel conduit riser terminated at the bottom with a galvanized rigid steel, large radius, conduit elbow must be installed by the contractor on the Commonwealth Edison Company service pole as shown on City of Chicago Drawing Number 11922. The top of the riser must terminate in the service junction cabinet and the end of the elbow must connect to the horizontal conduit lateral leading to the control cabinet. Payment for the riser, elbow, and attachments must be included in the price bid for the complete Commonwealth Edison Company pole service junction unit. The laterals will be paid for separately under different pay items.

Cable. A sufficient length of three (3) conductor service entrance cable must be coiled at the top of the box in order to reach the Commonwealth Edison Company secondary wires for connection. The three (3) conductor service entrance cable must meet the requirements of Division of Engineering Specification Number 1457, or an approved equal. The black and red conductors must be connected to the disconnect device and the white conductor to the ground lug, for the 240 volt street lighting service installation. The red conductor must be taped and coiled inside box for future use.

Cables in Service Riser. Cables must extend continuously from the load side of the disconnect device, down the riser and elbow, and in the conduit lateral to the control cabinet. Payment for cables in riser and elbow will be included in separate pay items, and will not be considered as part of this pay item.

Service Connection to CECO line. The service installation will also consist of splicing or terminating City service cable to a Commonwealth Edison secondary cable, as directed by the Engineer. The contractor must obtain permission from Edison for the service at the required location. The contractor will inform Edison of the load required. Edison will make the connections, unless Edison gives the contractor permission to make the connections. Any costs associated with the connection will be borne by the contractor.

ARTERIAL ROADWAY LIGHTING IMPROVEMENT CITYWIDE
CDOT PROJECT NO. B-7-216

Basis of Payment. This work will be paid for at the contract unit price EACH for SERVICE INSTALLATION - 200A, which price must be payment in full for furnishing, installing the service equipment complete and providing all material and labor to make the service connection to CECO line. Any charges by the utility company to provide electrical service to the service installation will be paid for by the contractor.

MATERIAL SPECIFICATION
1457
1462

DRAWING
11922

ITEM 63. ***** **CONTROLLER, BASE MOUNTED, STREET LIGHT,
200A - SMART LIGHTING SYSTEM**

Description. This work will consist of furnishing and installing an aluminum cabinet to be mounted on a ballast housing base, and containing various electro mechanical devices to automatically control street lighting circuits, and to provide protection for the equipment so controlled. Controller is to provide constant power.

The controller specified will be equated to the service capability of the Commonwealth Edison Company at the given location and to the number of circuits to be serviced as required by the plans.

Material and assembly. The aluminum controller cabinet and electro-mechanical control devices must meet the requirements of Material Specification 1606.

The electro mechanical devices within the cabinet must be attached to a 3/8 inch thick phenolic, linen base, bakelite panel drilled to accommodate the various devices with allowable clearances, and secured in the cabinet with 5/16" 18 NC x 7/8" stainless steel machine screws, as per Drawing 984(1-phase, 200amp). The circuit breakers, single pole, two pole, or three pole must meet the requirements of Material Specification 1428.

INSTALLATION. The controller must be wired as shown on Drawing 983 (200 amp, 1-phase). For a 200 ampere controller the main circuit breaker must have a 200 ampere rating, and the branch circuit breakers must be as indicated on the plans. For grounding the cabinet, a bare copper wire, #4 AWG, must be attached from the ground lug in the cabinet to the grounding clamp on the ground rod.

The cabinet must be installed on a ballast housing base, 20 inches in height secured to a concrete foundation as shown on Drawing 880(200 amp), at the location indicated on the plans. The ballast housing base must meet the requirements of Material Specification 1375. The ballast housing must be part of this pay item. The foundation, including anchor rods, washers, and nuts will be a separate pay item.

The installation of feeder cables and branch circuit cables will be performed in a neat and workmanlike manner with all cable trained around the cabinet, secured to the proper terminals and identified either by tagging of the cables, or by identification of the branch breakers, all as part of the controller installation and not as a separate pay item. The lighting circuit will be placed in operation as soon as practicable with the Contractor being charged for the energy until the circuits are accepted by the City of Chicago, Division of Engineering.

Basis of payment. This work will be charged for at the contract unit price each for a CONTROLLER, BASE MOUNTED, STREET LIGHT, 200A – SMART LIGHTING SYSTEM of the proper phase, amperage, and color as noted in plans and will be payment in full for furnishing and installing the controller complete in place.

MATERIAL SPECIFICATION	DRAWING
1375	880
1428	983
1606	984

ITEM 64. ***** **CONTROLLER, BASE MTD, RECEPTACLE, 100A**

Description. This work will consist of furnishing and installing a ComEd metered aluminum cabinet to be mounted on a ballast housing base, and containing various electro mechanical devices to automatically control street lighting circuits, and to provide protection for the equipment so controlled.

The controller specified will be equated to the service capability of the Commonwealth Edison Company at the given location and to the number of circuits to be serviced as required by the plans.

Material and assembly. The aluminum controller cabinet and electro-mechanical control devices must meet the requirements of Material Specification 1590.

The electro mechanical devices within the cabinet must be attached to a 3/8 inch thick phenolic, linen base, bakelite panel drilled to accommodate the various devices with allowable clearances, and secured in the cabinet with 5/16" 18 NC x 7/8" stainless steel machine screws, as per Drawing 884, 1 phase, 100amp.

Contractor must make arrangements with ComEd to acquire the electric meter for proper billing charges directed to the neighborhood business consortium

The circuit breakers, single pole, two pole, or three pole must meet the requirements of Material Specification 1428. The remote control contactor must be as indicated on the referenced drawings.

Installation. The controller must be wired as shown on Drawing 862 (100 or 200 amp, 1-phase, with 120 volt photocell), 973, & 974. For a 100 ampere controller the main circuit breaker and the contactor must each have a 100 ampere rating, and the branch circuit breakers must be as indicated on the plans.

For grounding the cabinet, a bare copper wire, #4 AWG, must be attached from the ground lug in the cabinet to the grounding clamp on the ground rod.

The cabinet must be installed on a ballast housing base, 20 inches in height secured to a concrete foundation as shown on Drawing 876, at the location indicated on the plans. The ballast housing base must meet the requirements of Material Specification 1375. The ballast housing must be part of this pay item. The foundation, including anchor rods, washers, and nuts will be a separate pay item.

The installation of feeder cables and branch circuit cables will be performed in a neat and workmanlike manner with all cable trained around the cabinet, secured to the proper terminals and identified either by tagging of the cables, or by identification of the branch breakers, all as part of the controller installation and not as a separate pay item.

The receptacle circuit will be placed in operation as soon as practicable with the Contractor being charged for the energy until the circuits are accepted by the City of Chicago, Department of Transportation.

Basis of payment. This work will be charged for at the contract unit price each for a CONTROLLER, BASE MTD, RECEPTACLE, 100A of the proper phase and amperage, and will be payment in full for furnishing and installing the controller complete in place.

ARTERIAL ROADWAY LIGHTING IMPROVEMENT CITYWIDE
CDOT PROJECT NO. B-7-216

MATERIAL SPECIFICATION

1375
1428
1590

DRAWING

862
973
974

ITEM 65. ***** **CONTROLLER, POLE MTD, SL, 60A - SMART LIGHTING SYSTEM**

DESCRIPTION. This work will consist of furnishing and installing a street lighting controller cabinet onto a wood CECO pole and providing a service connection from City cable to Commonwealth Edison secondary cable. The cabinet will contain various electro-mechanical devices to automatically control residential street lighting circuits, and to provide protection for the equipment so controlled. The electrical control circuit will consist of a 60 amp main breaker with two 30 amp branch breakers. Controller is to provide constant power.

MATERIAL AND ASSEMBLY. The cabinet, panel, and circuitry must meet the requirements of Material Standard 1607 and Standard Drawing 985. The service cable must meet the requirements of Material Specification 1457.

INSTALLATION. The cabinet must be mounted as shown on Standard Drawing 11925, with the exception that the millbank is to be replaced with the residential control cabinet. The fiberglass cabinet has four mounting holes in the back; two top and two bottoms. The cabinet must be bolted to two (2) galvanized steel sheets; one at the top of the cabinet and one at the bottom. Each sheet must be sized to have two extensions which stick out beyond the sides of the cabinet and can be formed so that lag bolts can be inserted through the steel sheet into and through the wood pole. The steel sheets and the lag bolts must be of sufficient strength to safely mount the cabinet. This work will include mounting the cabinet to the CECO pole. This work will include all steel conduit & elbow mounted to the CECO pole. The service cable from the controller to the CECO secondary must be terminated at the controller and spliced at the other end to the CECO secondary. The street light cable must be terminated on the load side of the controller.

The contractor must obtain permission from Edison for the service at the required location. The contractor will inform Edison of the load required. Edison will make the connections, unless Edison gives the contractor permission to make the connections. Any costs associated with the connection will be borne by the contractor.

The lighting circuit must be placed in operation as soon as practicable with the Contractor being charged for the energy until the circuits are accepted by the City of Chicago, Division of Engineering.

METHOD OF MEASUREMENT. This work must include all conduit mounted to the pole, the controller with electrical components, all mounting hardware, the service cable from the controller to the CECO secondary, all cable terminations, and cable splicing including service connection to CECO line. The street light cable is not included.

ARTERIAL ROADWAY LIGHTING IMPROVEMENT CITYWIDE
CDOT PROJECT NO. B-7-216

BASIS OF PAYMENT. This work will be paid for at the contract unit price each for a CONTROLLER, CONTROLLER, POLE MTD, SL, 60A – SMART LIGHTING SYSTEM and will be payment in full for furnishing and installing the controller complete in place and for providing all material and labor to make the service connection to CECO line. 2” steel elbow installation will be considered incidental to this item.

MATERIAL SPECIFICATION
1457
1607

DRAWING
985
11925

ARTERIAL ROADWAY LIGHTING IMPROVEMENT CITYWIDE
CDOT PROJECT NO. B-7-216

ITEM 66.	*****	ELECTRIC CABLE IN CONDUIT, 1/C # 2/0
ITEM 67.	*****	ELECTRIC CABLE IN CONDUIT, 1/C # 2
ITEM 68.	*****	ELECTRIC CABLE IN CONDUIT, 1/C # 4
ITEM 69.	*****	ELECTRIC CABLE IN CONDUIT, 1/C # 6
ITEM 70.	*****	ELECTRIC CABLE IN CONDUIT, 1/C # 10

Description. This work will consist of furnishing and installing electric cable as specified. The cable will be installed in conduit underground.

Material. The cable must meet all requirements of Material Specification 1534 of the Bureau of Electricity, City of Chicago.

Construction Method. All cables must be installed with care to prevent damage to the cable. Any defects found in the cable must be reported to the resident engineer. Damaged cable must be replaced. The cable must be pulled into the conduit with a minimum of dragging on the ground or pavement. This will be accomplished by means of reels mounted on jacks or other suitable devices located for unreeling cable directly into duct. Lubricants must be used to facilitate installation if deemed necessary by the contractor.

Bends in the cable will conform to the recommended minimum radii as outlined in the National Electric Code. Cable passing through manholes must be trained and racked around the sides of the manhole into a permanent position. If racks are non-existent or in poor condition, the contractor must install racks. The material must be approved by the resident engineer. Any material and labor involved in training and racking the cable will be considered incidental to the cost of this pay item.

Where cable runs continue from manhole to manhole without tapping within a light pole, they will be continuous without splices unless authorized by the resident engineer.

All wire or cable in the distribution panels and control cabinets must be properly trained and have sufficient slack provided for any rearrangement of equipment or future additions. There must be at least two feet of slack in a street light pole base or street light controller base. A handhole must have at least five feet of slack and a manhole at least ten feet of slack.

Method of Measurement. The length of cable furnished and installed will be measured as the length of conduit plus three feet for cable entering and leaving a light pole or street light control cabinet, plus any slack in manholes or handholes.

Basis of Payment. This work will be paid for at the contract unit price per lineal foot for ELECTRIC CABLE IN CONDUIT of the size specified. Such price will be payment in full for furnishing, installing, and testing the cable, and will include all material, labor, terminations, and incidentals necessary to complete the work as per the contract plans.

MATERIAL
1534

ITEM 71. ***** **ELECTRIC CABLE IN CONDUIT 2#6 & 1#8, TRIPLEX**

Description. This work will consist of furnishing and installing electric cable that is triplexed. The cable must be rated at 600 volts and must consist of two number 6 conductors and one number 8 conductor. The cable will be installed in conduit underground.

Material. The cable must meet all requirements of Material Specification 1534 of the Division of Engineering, City of Chicago.

Construction Method. All cables must be installed with care to prevent damage to the cable. Any defects found in the cable must be reported to the resident engineer. Damaged cable must be replaced.

The cable must be pulled into the conduit with a minimum of dragging on the ground or pavement. This will be accomplished by means of reels mounted on jacks or other suitable devices located for unreeling cable directly into duct. Lubricants must be used to facilitate installation if deemed necessary by the contractor. Bends in the cable will conform to the recommended minimum radii as outlined in the National Electric Code.

Cable passing through manholes must be trained and racked around the sides of the manhole into a permanent position. If racks are non-existent or in poor condition, the contractor must install racks. The material must be approved by the resident engineer. Any material and labor involved in training and racking the cable will be considered incidental to the cost of this pay item.

Where cable runs continue from manhole to manhole without tapping within a light pole, they will be continuous without splices unless authorized by the resident engineer. The cable installation must be color coded so that each lead of all circuits may be easily identified and lighting units connected to the proper leg as indicated on the plans. The equipment grounding conductor (no. 8) must be color coded green.

All wire or cable in the distribution panels and control cabinets must be properly trained and have sufficient slack provided for any rearrangement of equipment or future additions. There must be at least three feet of slack in a street light pole base or street light controller base. A handhole must have at least five feet of slack and a manhole at least ten feet of slack.

Method of Measurement. The length of triplex cable furnished and installed will be measured as the length of conduit plus three feet for cable entering and leaving a light pole or street light control cabinet, plus any slack in manholes or handholes.

Basis of Payment. This work shall be paid for at the contract unit price per lineal foot for ELECTRIC CABLE IN CONDUIT 2#6 & 1#8, TRIPLEX. The price will be payment in full for furnishing, installing, and testing the cable, and will include all material, labor, terminations, and incidentals necessary to complete the work as per the contract plans.

MATERIAL SPECIFICATION
1534

ITEM 72. *** CABLE, ALUMINUM, AERIAL, 3 1/C #8, WITH MESSENGER**

Description. This item will consist of furnishing and installing an electrical cable, designated 'self supporting', consisting of two insulated color coded conductors spirally wrapped around one bare conductor. The cable will be strung between two poles and attached to cable supports on these poles. The conductors will be connected to other wires or cables for the purpose of providing power for street lighting that would normally have underground cable feeds.

Material. The cable must meet the requirements of Electrical Material Specification 1601. The wire rack must meet the requirements of Electrical Material Specification 1443. Other materials are described herein.

Installation requirements. The cable must be installed with a nominal tension adequate to produce sag of approximately 9 inches in a 60 ft. span. The cable must be attached to the poles by means of suitable dead end clamps which hold the bare conductor. Each dead end clamp must be an aluminum wedge cable clamp assembly consisting of a flexible galvanized steel bale attached to an aluminum body. The body must consist of an aluminum channel with an aluminum wedge that can securely grip the #8 messenger. The clamp must be supported by a clamp support device known as a one-spool rack. The rack support device must consist of a clevis with a porcelain insulator spool attached to the clevis with a cotter pin. The clevis must be attached to the pole by appropriate stainless steel banding. The bare conductor must be trimmed at each clamp. The insulated conductors must be directed through the top of each pole to the base of the pole and spliced to the pole wires that feed the luminaire. The splices must be accessible through the pole door. Each splice will consist of 2 or more wires, trimmed of insulation and clamped together with an appropriate connector. The connector must be made for and approved for splicing aluminum and copper conductors together. The entire assembly will be placed in a mold and filled with epoxy resin making a secure and weatherproof splice. All splices will be rated for 600 volts. All splices should be designed to operate within a temperature range of -55° Celsius to 110° Celsius.

Method of measurement. This work will be measured per lineal foot of cable installed.

Basis of payment. This work will be paid for at the contract unit price per lineal foot for furnishing and installing "CABLE, ALUMINUM, AERIAL, 3-1/C #8 WITH MESSENGER", which will be payment in full for furnishing and installing this cable, including cable clamps, clevises, insulators, dead end devices, and splices, which will be considered incidental to this item.

MATERIAL SPECIFICATION

1601

1443

ITEM 73. *** FIRE ALARM CABLE IN CONDUIT, 6 PAIR**

DESCRIPTION. This work will consist of furnishing and installing electric telephone cable for fire alarm systems of the type, size and number of conductors as specified on the plans.

MATERIAL. The IN CONDUIT cable shall be 19 AWG (BHBH) rated for telephone, underground, pressurized trunk service without messenger, compliant with TELCORDIA(BELLCORE) specification GR-421- core, aluminum corrugated tape shield, corrugated steel shield.

The AERIAL, Figure 8 cable shall be 19 AWG (BHBH) rated for telephone, underground, pressurized trunk service without messenger (IN CONDUIT), with messenger (AERIAL) compliant with TELCORDIA (BELLCORE) specification GR-421- core, aluminum corrugated tape shield, corrugated steel shield, with 7 strand galvanized steel wire support messenger cable.

The outer jacket must be marked at nominal 2" intervals with type, date of manufacture, sequential footage, pair count, size, and name of manufacturer.

Cable must be shipped on non-returnable wooden reels and be protected by (2"x 4") two by four inch lagging with three and a half inch steel reinforced centers. Maximum reel width 56". Minimum reel width 48"- maximum reel diameter 76", including lagging. Any reel costs must be included in the unit price bid.

The maximum cable length will be restricted by the physical size and weight of the reel. Smaller reels are acceptable if approved when ordering by the resident Engineer. If nothing is specified, it will be assumed that the standard size reel above will be used.

All copper telephone cable is to be delivered pressurized. The pressure must be between 8 and 10 psig. If the pressure on delivery is below 8psig, the cable will be considered unacceptable.

Metal tags must be securely fastened to each side of each reel indicating the reel number; gross and tare weight; a description of cable; directions for unrolling the cable; the total footage of cable upon the reel, and the beginning and ending sequential footage numbers on the reel.

The cable to be furnished under this contract shall meet the respective requirements of the most current revisions and meet the following general construction;

All conductors shall be No. 19 AWG solid annealed copper, insulated with high density polyethylene, color coded per telephone industry standards, or approved equal; the conductors shall be paired and bound into units and groups to form a variable lay cable core; a non-hygroscopic core tape shall be applied over the core; a black, high molecular weight polyethylene jacket shall be applied over the cable core tape; a corrugated, 0.005 inch copper tape shall be applied longitudinally with an approved overlap; a black, high molecular weight polyethylene jacket, or approved equal, shall be applied over the shielded,

ARTERIAL ROADWAY LIGHTING IMPROVEMENT CITYWIDE
CDOT PROJECT NO. B-7-216

jacketed cable core in parallel with a one-quarter inch, extra high strength, sealer filled, galvanized steel messenger, to provide a "Figure 8" configuration. The two circles comprising the "Figure 8" shall be extruded at one time so that the jacket is a single, continuous extrusion.

INSTALLATION REQUIREMENTS. All cable must be installed in conduit, as indicated on the plans, with care to prevent damage to the insulation or cable. Suitable devices must be used in pulling the cable, and only approved lubricants should be used. All cables will be installed as shown on the plans or directed by the Resident Engineer.

CABLE SLACK.

The length of cable slack that must be provided will be in accordance with the following schedule:

<u>Location</u>	<u>Length of Slack Cable (feet)</u>
Detector, Junction Box	1
City Handhole	6
City Manhole	12

Cable slack in manholes/handholes must be trained and racked in the holes. If racks are non-existent, racks must be provided, and considered incidental and a part of this pay item.

Fire alarm will not be connected/terminated by the contractor. A coil of cable will be left at a logical point and OEMC personnel will terminate the cable ends. OEMC will also disconnect the existing fire alarm to allow the removal by the contractor.

No cable splices will be allowed for fire alarm cable.

METHOD OF MEASUREMENT. The length of measurement must be the distance horizontally measured between changes in direction, and will include cable slack. All vertical cables will not be measured for payment.

BASIS OF PAYMENT. This work will be paid for at the contract unit price per lineal foot for FIRE ALARM CABLE IN CONDUIT, 6 PAIR. This price will be payment in full for furnishing, installing, connecting, and testing of cable, and will include all labor, materials, equipment, tools, and incidentals necessary to complete the work, as specified herein, and as shown on the plans.

MATERIAL SPECIFICATION
1537

ITEM 74. *** JUNCTION BOX, ELECTRICAL**

DESCRIPTION. This item will consist of furnishing and installing a Junction Box on each traffic signal post, traffic signal pole, or street light pole, as shown on the plans, specified herein, or directed by the Engineer.

MATERIAL. The Junction Box must conform to the requirements of Material Specification Number 1407 and to Drawing Number 954. The box will contain a 20 conductor terminal strip, securely fastened to an aluminum channel. Two Number 10 stainless steel machine screws will be used to mount the channel to the junction box.

INSTALLATION. The junction box must be mounted to the side of the pole away from the roadway, or as directed by the Engineer. The center of the box must be located approximately fifty-eight inches (58") above the adjacent sidewalk. Two long sweep elbows must be attached to the box, one to the top and one to the bottom, unless otherwise directed by the Engineer. Each will be attached with four (4) #10-24x3/4" stainless steel screws. The lower long sweep elbow will be properly positioned over a hole 1 1/2 inches in diameter drilled in the pole approximately 48" above the sidewalk, for the installation of cable. Another 1 1/2 inch hole must be drilled for the upper elbow. The holes must be reamed or filed to remove all sharp edges or burrs which might damage cable during installation, or through vibration when the signals are in operation. A stainless steel, banding bracket, Drawing Number 11984, must be attached to the center of the back of the box with a 5/16"-18 x 1" stainless steel machine screw. The entire unit must be banded to the pole with five (5) 3/4" stainless steel bands, one through the banding bracket and one each at the top and bottom of each elbow. The banding and clips must have a baked-on black finish.

METHOD OF MEASUREMENT. This work will be measured per each junction box unit installed, complete with elbow(s).

BASIS OF PAYMENT. This work will be paid for at the contract unit price each for a JUNCTION BOX, POLE OR POST MOUNTED, which price will be payment in full for furnishing and installing the junction box complete with its component parts and appurtenances. Connection of cables and wires to the terminal strip will not be part of the cost of the junction box but will be considered part of the installation of the underground cable and the installation of signal heads.

ITEM 75. ***** **MAST ARM, STEEL, 12 FOOT WITH SIMPLEX PLATE**

Description. This item will consist of furnishing and welding a mast arm attachment plate to a street light pole AND furnishing and installing a steel pipe truss mast arm of twelve (12) foot length for the purpose of installing a street light mast arm to support a street light luminaire or other electrical equipment as required, as is shown on Drawing Numbers 659, 724, 839, and 840.

Material. The material of the mast arm must conform to the requirements of Material Specification 1450. The 12 foot mast arm must conform to Standard Drawing 839. The two bolt arm attachment must be equal to that shown on Standard Drawing 724. The plate must be made of forged steel. The plate will be as shown on Standard Drawing 659.

Method of construction. The pole must have a mast arm attachment as shown in Standard Drawing 659 in order to properly mount the arm. The truss arms require 2 such mounts. The 12 foot truss arms will be attached with 4 bolts. Bolts will be supplied with the arm per Material Specification 1450.

The orientation of the plate to position the mast arm relative to the street light mast arm will be as designated on the drawing. The plate must be positioned such that the center lines of the mast arm mounting bolt holes will be in a horizontal plane, and the face of the plate will be in a vertical plane when the pole is installed plumb. The plate must be mounted on the pole with the wire guide lip extending inside the pole and positioned at the bottom of a two (2) inch diameter mounting hole drilled in the pole. The drilled hole must be reamed or filed to remove all sharp edges which may damage cable during installation.

The plate must be electric arc welded with a continuous 3/16" fillet weld, and the voids must be filled in at the top and bottom of the plate where the welding surface is not concentric with the pole. The height of the hole in the pole will be nominally fifteen (15) feet one (1) inch above the bottom of the pole base when the plate is used for a traffic signal installation. This height will be adjusted in each installation to meet the field criteria as specified in the following paragraph and table.

The governing criteria will be that the height of the bottom of the signal being installed, whether composed of three, four, or five sections, must be a minimum of fourteen (14) feet six (6) inches above the bottom of the pole base. The rise of the mast arm specified for the installation is also a controlling factor and the hole height must be located according to the following table for the various combinations listed.

<u>Mast Arm Length</u>	<u>Hole Height 3 Sec. or 4 Sec. Head</u>	<u>Hole Height 5 Sec Head</u>
12 Ft.	14' 3"	15' 5"

ARTERIAL ROADWAY LIGHTING IMPROVEMENT CITYWIDE
CDOT PROJECT NO. B-7-216

The twelve (12) foot mast arm is used, a second plate must be welded to the pole in the same orientation at a position thirty two (32) inches vertically below the first plate. When the plate is to be used for a street lighting installation for either double arming or mounting a lighting unit at a lower than normal height, the orientation and the height of the mounting hole will be as specified on the drawing.

The integrity of the weld between the mast arm support plate and the pole must be tested in the following manner. With an appropriate mast arm firmly attached to the pole, at test load of 300 pounds will be applied to the mast arm as a side pull at a point seven (7) feet from the pole. After the test, the mast arm support plate welds must be sound in all respects. This test must be performed with a time lapse of a minimum of two hours following the welding, and the test must be performed with the Resident Engineer as a witness. In the event of a failed weld, the crack may be re-welded and the pole assembly retested.

The plate must be cleaned and painted. This will not constitute a separate cost item for painting.

Method of measurement. This work will be measured per each unit installed, complete with painting.

Basis of payment. This work will be paid for at the contract unit price each for a MAST ARM, STEEL, 12 FOOT WITH SIMPLEX PLATE which will be payment in full for furnishing, installing a mast arm and welding the plate.

MATERIAL SPECIFICATION
1450

DRAWING
659
724
839
840

ITEM 76. ***** **ALUMINUM POLE CAP ON DAVIT ARM MAST**

Description. This item will consist of furnishing and installing on a davit mast arm pole cap.

Material. The pole cap must be an aluminum pole cap meeting the requirements of the mast arm described in Material Specification 1453 for the pole size of intended use.

Assembly. A hole must be drilled axially centered through the pole cap to accommodate the specified size of the conduit.

Installation. The unit must be installed on the top of the pole at the location shown on the plans. This will not constitute a separate pay item.

Basis of payment. This item will be paid for at the contract unit price each for a ALUMINUM POLE CAP ON DAVIT ARM MAST for the size of pole stated on the construction plans installed in place and painted will be considered payment in full for this installation.

MATERIAL SPECIFICATION
1453

ITEM 77. ***** **FURNISH GAS LIGHT POLE, COMPLETE WITH
LUMINAIRE - SMART LIGHTING**

Description. This work will consist of furnishing an ornamental pole onto a concrete foundation complete with LED luminaire. The ornamental light pole will have a tenon for a top mounted gaslight style LED luminaire. This work will be as shown on the plans or as directed by the Engineer.

Material. The pole must meet the requirements of Material Specification 1597. The pole must also meet the requirements of Standard Drawing 895. The luminaire must meet the requirements of Material Specification 1597. The luminaire must also meet the requirements of Standard Drawing 895. The luminaire must have or be retrofitted with an internal node to communicate with the Smart Lighting network and meet Material Specification 1608. The pole wire must meet the requirements of Material Specification 1351. The fuses must meet the requirements of Material Specification 1464. The luminaire must include the driver, all electrical components, fuses, pole wire, and any appurtenances necessary, to make the luminaire function once connected to the street light circuit.

Method of measurement. One unit will consist of furnishing one pole complete with pole door to be securely attached and one LED luminaire to be attached to the pole ready for installation. All wiring must be complete, ready for installation and the entire assembly will be ready for installation.

Basis of payment. This work will be paid for at the contract unit price per each FURNISH GAS LIGHT POLE, COMPLETE WITH LED LUMINAIRE - SMART LIGHTING furnished, which will be payment in full for furnishing the pole and LED luminaire. The City reserves the right to purchase this material for City construction crews to install.

MATERIAL SPECIFICATION
1351
1464
1597
1608

DRAWING
895

ARTERIAL ROADWAY LIGHTING IMPROVEMENT CITYWIDE
CDOT PROJECT NO. B-7-216

ITEM 78.	*****	FURNISH LOOP POLE COMPLETE, 10 FOOT
ITEM 79.	*****	FURNISH EXTENDED LOOP POLE COMPLETE, 16 FOOT

Description. This item will consist of furnishing a historic light pole, base of the dimension specified and ornamental twin arm, at the locations shown on the plans, or as directed by the Engineer.

Material. The ten-foot pole and base must meet the requirements of Material Specifications 1487 and 1488. The sixteen-foot pole and base must meet the requirements of Material Specification 1506. The ten-foot pole must have the appearance as that shown on Standard Drawing 911. The sixteen-foot pole must have the appearance as that shown on Standard Drawings 929 and 929A. The arm must meet the requirements of Material Specification 1489. The arm must have the appearance as that shown on Standard Drawing 911.

Method of measurement. This work will be measured per each unit furnished and will include all material necessary to install the pole and base on the foundation, and must include the handhole door, as well as the base doors, and all necessary hardware. On the 16 foot pole the ornamental bracelets, as shown on Standard Drawings 929 and 929A must be included. This item will also include furnishing the ornamental twin arm assembly that must have two tenons for mounting two luminaires and include all material necessary to install the twin arm assembly on the loop pole. This item will not include the luminaire.

Basis of payment. This item will be paid for at the contract unit price each for FURNISH LOOP POLE COMPLETE, 10 FOOT or FURNISH EXTENDED LOOP POLE COMPLETE, 16 FOOT, which payment will be in full for furnishing and installing the pole and base in place. The City reserves the right to purchase this material for City construction crews to install.

MATERIAL SPECIFICATION	DRAWING
1487	911
1488	929
1506	929A

ITEM 80. ***** **FURNISH CHICAGO 2000 ORNAMENTAL MAST ARM
ASSEMBLY, 11" OR 12" DIA**

Description. This item will consist of furnishing a luminaire arm, scroll, and ornamental mast head and finial to the upper part of an existing 11" or 12" traffic pole. The installation will be as directed by the engineer.

Material. The material must meet the requirements of Material Specification 1505 and Standard Drawings 930 and 930C. The castings must be properly sized to fit the appropriate pole diameter.

Method of measurement. This item will be measured per each unit furnished and must include the mast head castings, the finial, and all necessary hardware to securely attach the mast head and finial to the pole and arm.

Basis of payment. This work will be paid for at the contract unit price per each for FURNISH CHICAGO 2000 ORNAMENTAL MAST ARM ASSEMBLY, of the size indicated, which payment will be in full for furnishing the mast head and finial. The City reserves the right to purchase this material for City construction crews to install.

MATERIAL SPECIFICATION
1505

DRAWING
930
930C

ITEM 81. ***** **FURNISH CHICAGO 2000 ORNAMENTAL MAST ARM
ASSEMBLY, 10" DIA**

Description. This item will consist of furnishing a luminaire arm, scroll, and ornamental mast head and finial to the upper part of an existing 10", 11" or 12" traffic pole. The installation will be as directed by the engineer.

Material. The material must meet the requirements of Material Specification 1505 and Standard Drawings 930 and 930C. The castings must be properly sized to fit the appropriate pole diameter.

Method of measurement. This item will be measured per each unit furnished and must include the mast head castings, the finial, and all necessary hardware to securely attach the mast head and finial to the pole and arm.

Basis of payment. This work will be paid for at the contract unit price per each for FURNISH CHICAGO 2000 ORNAMENTAL MAST ARM ASSEMBLY, 10" DIA, which payment will be in full for furnishing the mast head and finial. The City reserves the right to purchase this material for City construction crews to install.

MATERIAL SPECIFICATION
1505

DRAWING
930
930C

ITEM 82.	*****	FURNISH CHICAGO 2000 GATEWAY BASE FOR 34'6" POLE, 10" DIA
-----------------	--------------	--

Description. This item will consist of furnishing an ornamental pole base to a steel light pole as directed by the Engineer or as shown on the plans.

Material. The base will be fiberglass meeting the appropriate requirements of Material Specification 1610 and Standard Drawing 986.

The contractor must exercise due caution in furnishing the base to minimize any possible damage to the finish. When necessary, and when approved by the Engineer, the contractor will utilize, at his own expense, factory approved touch-up materials and methods to restore the finish to like new appearance and durability.

Method of measurement. This item will be measured per each unit furnished and must include the ornamental base and all necessary hardware to securely install the base on the foundation and around the pole shaft.

Basis of payment. This work will be paid for at the contract unit price per each for FURNISH CHICAGO 2000 GATEWAY BASE FOR 34'6" POLE, 10" DIA, which payment will be in full for furnishing the ornamental base. The City reserves the right to purchase this material for City construction crews to install.

MATERIAL SPECIFICATION
1610

DRAWINGS
986

ITEM 83.	*****	FURNISH POLE, STEEL, ARTERIAL, 34'6", 10" DIA. 15" B.C. BLACK
-----------------	--------------	--

Description. This item will consist of furnishing a steel anchor base pole to which equipment may be attached for the extension of the City street light and traffic signal systems.

Material. The material of the pole must meet the requirements of Material Specification 1447.

The contractor will utilize non abrasive slinging materials and will otherwise exercise due care in furnishing the pole to minimize any possible damage to the finish. When necessary, the contractor will utilize, at his own expense, factory approved touch up materials and methods to restore the finish to like new appearance and durability.

Method of measurement. This item will be measured per each unit furnished, complete with anchor bolt covers, pole cap, and handhole cover.

Basis of payment. This work will be paid for at the Contract unit price each for a FURNISH POLE, STEEL, ARTERIAL, 34'6", 10" DIA. 15" B.C. BLACK which will be payment in full for furnishing the pole complete in place. Light standard foundations, mast arms, and luminaires will not be included in this pay item but will be paid for separately. The City reserves the right to purchase this material for City construction crews to install.

MATERIAL SPECIFICATION
1447

DRAWING
808
824
827
837

ITEM 84. ***** **FURNISH CHICAGO 2000 PENDANT LUMINAIRE, LED,
240V - SMART LIGHTING**

Description. This work will consist of furnishing a pendant luminaire with a teardrop refractor as specified herein, as shown on the plans or as directed by the Engineer. The luminaire must be complete with an LED array, driver, integral electrical components, fuses, arm fitter, pole wire, and mounting hardware.

Material. The luminaire must meet the requirements of Material Specification 1589 and Standard Drawing 931. The pole wire must meet the requirements of Material Specification 1351, the fuses must meet the requirements of Material Specification 1464, and the lamp must meet the requirements of Material Specification 1562.

Method of measurement. Each luminaire, complete with LED array, driver, components, pole wire, fuses, and any appurtenances necessary, to make the luminaire function once connected into the street light circuit, will count as one unit. Any labor and equipment necessary will be included.

Basis of payment. This work will be paid for at the contract unit price per each FURNISH CHICAGO 2000 PENDANT LUMINAIRE, LED, 240V - SMART LIGHTING, which will be payment in full for performing the work described herein. The City reserves the right to purchase this material for City construction crews to install.

MATERIAL SPECIFICATION
1351
1464
1589
1608

DRAWING
931

ITEM 85. ***** **FURNISH CHICAGO 2000 PEDESTRIAN 14' LIGHT POLE COMPLETE**

Description. This item will consist of furnishing a historic pedestrian style fourteen foot light pole and ornamental pole base, at the locations shown on the plans, or as directed by the Engineer. This item will not be include an acorn type ornamental luminaire.

Material. The Pole will be CHICAGO 2000 PEDESTRIAN 14' LIGHT POLE which must meet the requirements of Material Specification 1504. The pole must have the appearance as that shown on Standard Drawing 928.

The Base will be CHICAGO 2000 PEDESTRIAN 14' POLE BASE which material must be fiberglass meeting the applicable requirements of Material Specification 1512 and Standard Drawing 928.

Method of measurement. This work will be measured per each unit furnished and will include all material necessary to install the pole on a foundation, and must include the handhole door, the ornamental base and all necessary hardware to securely install the base on a foundation and around the pole shaft, will count as one unit. Any labor and equipment necessary must be included. This item will include the ornamental base. Acorn type ornamental luminaire will be paid for under a separate pay item.

Basis of payment. This item will be paid for at the contract unit price each for FURNISH CHICAGO 2000 PEDESTRIAN 14' LIGHT POLE COMPLETE, which payment will be in full for furnishing the pole and ornamental base as directed by the engineer. The City reserves the right to purchase this material for City construction crews to install.

MATERIAL SPECIFICATIONS	DRAWINGS
1351	912
1464	928
1504	
1512	
1575	

ARTERIAL ROADWAY LIGHTING IMPROVEMENT CITYWIDE
CDOT PROJECT NO. B-7-216

ITEM 86.	*****	FURNISH POLE, ALUMINUM, DAVIT, ARTERIAL, 35' MH
ITEM 87.	*****	FURNISH POLE, ALUMINUM, DAVIT, ARTERIAL, 35' MH, ANODIZED
ITEM 88.	*****	FURNISH POLE, ALUMINUM, DAVIT, ARTERIAL, 40' MH, ANODIZED

Description. This item will consist of furnishing,an aluminum anchor base pole to which a davit mast arm and street light luminaire will be attached. The pole and mast arm will be brushed aluminum, anodized black or in a color described by the Commissioner. The pole will be set on a separate foundation and affixed with anchor rods or bolts.

Material. The pole must meet the requirements of Material Specification 1452. In addition, the arterial pole must meet the requirements and dimensions of Standard Drawing 971 or 972.

ANODIZING

(a) An anodized finish will be either gloss black or gloss bronze. A color sample must be submitted for approval before any factory production. The anodizing process must include cleaning, etching, anodizing, and sealing the mast. The contractor must submit his anodizing process for approval before any factory production.

(b) Color must be black unless noted otherwise in the order. A paint chip must be submitted for approval prior to fabrication.

(c) Anodized pole and arm shall be spiral wrapped with foam backed 5-mil polyethylene film of sufficient tensile and elongation characteristics to ensure protection during handling and shipping. Shafts shall be placed in cardboard tubes prior to shipment. Curved product shall be wrapped in burlap. The product shall be bundled with sufficient dunnage and strapping to prevent damage during shipment.

(d) Warranty. The Anodizing company shall warrant its applied anodized coatings against excessive fading due to normal climatic exposure for a period of one (1) year from the date of shipment. This warranty shall apply to the repair or replacement (at the manufacturer's discretion) of the material involved and shall not include reimbursement of consequential expenses such as installation or removal of equipment or transportation costs.

Method of measurement. This item will be measured per unit furnished with appropriate size and finish complete and will include all necessary material for installation of the pole to the foundation including but not limited to nut covers and handhole door.

ARTERIAL ROADWAY LIGHTING IMPROVEMENT CITYWIDE
CDOT PROJECT NO. B-7-216

Basis of payment. This work will be paid for at the Contract unit price each for FURNISH POLE, ALUMINUM, DAVIT, ARTERIAL, 35' MH; or FURNISH POLE, ALUMINUM, DAVIT, ARTERIAL, 35' MH, ANODIZED; or FURNISH POLE, ALUMINUM, DAVIT, ARTERIAL, 40' MH, ANODIZED, which will be payment in full for furnishing the appropriate pole complete as directed by the engineer. Bolt covers and the handhole door will be included as incidentals. The light pole standard foundation (including nuts and washers), davit arm, and luminaire will not be included in this pay item but will be paid for separately. The City reserves the right to purchase this material for City construction crews to install.

MATERIAL SPECIFICATION
1452 1453

DRAWINGS
971 972

ARTERIAL ROADWAY LIGHTING IMPROVEMENT CITYWIDE
CDOT PROJECT NO. B-7-216

ITEM 89.	*****	FURNISH MAST ARM, ALUMINUM, DAVIT, 6" ARTERIAL, 12 FOOT
ITEM 90.	*****	FURNISH MAST ARM, ALUMINUM, DAVIT, 6" ARTERIAL, 12 FOOT', ANODIZED
ITEM 91.	*****	FURNISH MAST ARM, ALUMINUM, DAVIT, 6" ARTERIAL, 15 FOOT, ANODIZED

Description. This item will consist of furnishing an aluminum davit mast arm to which a street light luminaire will be attached. The arm will be attached to an aluminum pole constructed to accept the arm. These arms are designed to fit the arterial davit pole.

Material. The mast arm must meet the requirements of Material Specification 1453. The mast arm for a davit arterial pole must meet the requirements and dimensions of Standard Drawing 948, or 950, depending upon the required overall length of the arm. The davit arm will have a 6 inch outside diameter at the base, where the arm slips over the top of the pole.

ANODIZING

(a) An anodized finish will be either gloss black or gloss bronze. A color sample must be submitted for approval before any factory production. The anodizing process must include cleaning, etching, anodizing, and sealing the mast. The contractor must submit his anodizing process for approval before any factory production.

(b) Color must be black unless noted otherwise in the order. A paint chip must be submitted for approval prior to fabrication.

(c) Anodized pole and arm shall be spiral wrapped with foam backed 5-mil polyethylene film of sufficient tensile and elongation characteristics to ensure protection during handling and shipping. Shafts shall be placed in cardboard tubes prior to shipment. Curved product shall be wrapped in burlap. The product shall be bundled with sufficient dunnage and strapping to prevent damage during shipment.

(d) Warranty. The Anodizing company shall warrant its applied anodized coatings against excessive fading due to normal climatic exposure for a period of one (1) year from the date of shipment. This warranty shall apply to the repair or replacement (at the manufacturer's discretion) of the material involved and shall not include reimbursement of consequential expenses such as installation or removal of equipment or transportation costs.

ARTERIAL ROADWAY LIGHTING IMPROVEMENT CITYWIDE
CDOT PROJECT NO. B-7-216

Method of measurement. The item will be measured per each arm furnished, complete.

Basis of payment. This work will be paid for at the Contract unit price each for FURNISH MAST ARM, ALUMINUM, DAVIT, ARTERIAL, 12 FOOT; or FURNISH MAST ARM, ALUMINUM, DAVIT, ARTERIAL, 12 FOOT, ANODIZED; or FURNISH MAST ARM, ALUMINUM, DAVIT, ARTERIAL, 15 FOOT, ANODIZED, which will be payment in full for furnishing the mast arm and hardware complete as directed by the engineer. The light pole, foundation and luminaire will not be included in this pay item but will be paid for separately. The City reserves the right to purchase this material for City construction crews to install.

MATERIAL SPECIFICATION
1453

DRAWINGS
948
950

ITEM 92.	*****	FURNISH 12' POLE, 10" B.C., 4 A.B., & 8' MAST ARM, ALUMINUM, RESIDENTIAL
ITEM 93.	*****	FURNISH 12' POLE, 10" B.C., 4 A.B., & 8' MAST ARM, ALUMINUM, RESIDENTIAL, ANODIZED

Description. This item will consist of furnishing an aluminum anchor base pole and an aluminum davit mast arm to which a street light luminaire will be attached. The pole will be set on the foundation and affixed with anchor rods or bolts. The arm will be attached to an aluminum pole constructed to accept the arm.

Material. POLE. The pole must meet the requirements of Material Specification 1452. In addition, the residential pole must meet the requirements and dimensions of Standard Drawing 940.

MAST ARM: The mast arm must meet the requirements of Material Specification 1453. The mast arm for a davit residential pole must meet the requirements and dimensions of Standard Drawing 945. The davit arm will have a 4.5 inch outside diameter at the base, where it slips over the top of the pole.

ANODIZING

- (a) An anodized finish will be either gloss black or gloss bronze. A color sample must be submitted for approval before any factory production. The anodizing process must include cleaning, etching, anodizing, and sealing the mast. The contractor must submit his anodizing process for approval before any factory production.
- (b) Color must be black unless noted otherwise in the order. A paint chip must be submitted for approval prior to fabrication.
- (c) Anodized pole and arm shall be spiral wrapped with foam backed 5-mil polyethylene film of sufficient tensile and elongation characteristics to ensure protection during handling and shipping. Shafts shall be placed in cardboard tubes prior to shipment. Curved product shall be wrapped in burlap. The product shall be bundled with sufficient dunnage and strapping to prevent damage during shipment.
- (d) Warranty. The Anodizing company shall warrant its applied anodized coatings against excessive fading due to normal climatic exposure for a period of one (1) year from the date of shipment. This warranty shall apply to the repair or replacement (at the manufacturer's discretion) of the material involved and shall not include reimbursement of consequential expenses such as installation or removal of equipment or transportation costs.

Method of measurement. The item will be measured per each furnished pole and mast arm, complete. Work will consist of furnishing the pole with nut covers and handhole door, and furnishing the davit arm.

ARTERIAL ROADWAY LIGHTING IMPROVEMENT CITYWIDE
CDOT PROJECT NO. B-7-216

Basis of payment. This work will be paid for at the Contract unit price each for a FURNISH 12' POLE, 10" B.C., 4 A.B., & 8' MAST ARM, ALUMINUM, RESIDENTIAL;
or FURNISH 12' POLE, 10" B.C., 4 A.B., & 8' MAST ARM, ALUMINUM, RESIDENTIAL, ANODIZED which will be payment in full for furnishing the pole, mast arm and hardware complete as specified by commissioner. Bolt covers and the handhole door will be included as incidentals. The foundation & luminaire will not be included in this pay item but will be paid for separately. The City reserves the right to purchase this material for City construction crews to install.

MATERIAL SPECIFICATION
1452 1453

DRAWINGS
940 945

ARTERIAL ROADWAY LIGHTING IMPROVEMENT CITYWIDE
CDOT PROJECT NO. B-7-216

ITEM 94.	*****	FURNISH LUMINAIRE, LED, 240V, ARTERIAL - SMART LIGHTING
ITEM 95.	*****	FURNISH LUMINAIRE, LED, 240V, ARTERIAL, WIDE - SMART LIGHTING

Description. This item will consist of furnishing and installing a street lighting luminaire, complete with internal driver, and LED SSL lamp of the proper wattage and input voltage, on a street light mast arm attached to a street light pole, and connecting the unit to either an underground cable distribution system or an aerial wire distribution system at the location shown on the plans, or as directed by the Engineer.

Material. The luminaire must meet material specification 1609 for the lamp wattage and type of distribution specified. The luminaire for the wide distribution must meet material specification 1613. Luminaires to be either black or gray, or as specified by Commissioner. The luminaire must be equipped with a node capable to communicate with the Smart Lighting network and meet Material Specification 1608.

Method of measurement. This work will be measured per each unit furnished, complete. All wiring to the underground feeder cable, including splices, will be included in this measurement.

Basis of payment. This work will be paid for at the contract unit price each for a FURNISH LUMINAIRE, LED, 240V, ARTERIAL - SMART LIGHTING or FURNISH LUMINAIRE, LED, 240V, ARTERIAL, WIDE - SMART LIGHTING of the proper wattage, voltage, and distribution type, which will be payment in full for furnishing the unit. The City reserves the right to purchase this material for City construction crews to install.

MATERIAL SPECIFICATION
1608 1609 1613

ITEM 96. ***** **FURNISH LUMINAIRE, LED, 240V, ARTERIAL ACORN
& ARM - SMART LIGHTING**

Description. This work will consist of furnishing a mid-mount luminaire with arm onto a street light pole at approximately 13 feet from grade for an arterial street installation, or as directed by the Engineer or as shown on the plans. The luminaire will provide pedestrian level lighting.

Material. The LED luminaire for the arterial installation must meet the requirements of Material Specification 1612 and Standard Drawing 912. The arm for the arterial installation must meet Material Specification 1546 and Standard Drawing 959A. Fuses must meet the requirements of Material Specification 1464. Pole wire to connect the luminaire to the field cable at the base of the pole must meet Material Specification 1351. Pole wire will be installed in the arm by the supplier before the arm is shipped to the contractor. Luminaires and arms will be factory painted either gloss black or silver. The luminaire must have or be retrofitted with a node to communicate with the Smart Lighting network and meet Material Specification 1608.

Method of measurement. This work will be measured per each unit furnished with arm, complete and operational. All hardware and wire necessary to install the unit will be included.

Basis of payment. This work will be paid for at the contract unit price for LUMINAIRE, LED, (100W HPSV EQUIVALENT), 240V, ARTERIAL ACORN, TYPE III, & ARM - SMART LIGHTING which price will be payment in full for furnishing the unit. The City reserves the right to purchase this material for City construction crews to install.

MATERIAL SPECIFICATION
1351 1546
1603 1464
1608

DRAWING
912 959A

ITEM 97. ***** **FURNISH LUMINAIRE, LED, 240V, ORNAMENTAL
ACORN - SMART LIGHTING**

Description. This work will consist of furnishing an acorn type ornamental luminaire with a tenon mount, as specified on the plans or as directed by the Engineer. The luminaire must be complete with LED's, integral electrical components, fuses, pole wire, and mounting hardware.

Material. Materials must meet the requirements of Material Specifications: No. 1351 for pole wire, No. 1464 for the fuses, and No. 1612 for the luminaire. The luminaire must have the general appearance of Standard Drawing 912. The luminaire must have or be retrofitted with a node to communicate with the Smart Lighting network and meet Material Specification 1608.

Method of measurement. Each luminaire, complete with LED's, components, pole wire, fuses, and any appurtenances necessary, to make the luminaire function once connected to the street light circuit, must count as one unit. Any labor and equipment necessary will be included.

Basis of payment. This work will be paid for at the contract unit price per each FURNISH LUMINAIRE, LED, 240V, ORNAMENTAL ACORN - SMART LIGHTING, which will be payment in full for furnishing the luminaire. The City reserves the right to purchase this material for City construction crews to install.

MATERIAL
1351
1464
1612
1608

DRAWING
912

ITEM 98. *** FURNISH LUMINAIRE, LED, 240V, RESIDENTIAL - SMART LIGHTING**

Description. This item will consist of furnishing and installing a street lighting luminaire, complete with internal driver, and LED SSL lamp of the proper wattage and input voltage, on a street light mast arm attached to a street light pole, or a floodlight mounted to a post top attachment on a street light pole, and connecting the unit to either an underground cable distribution system or an aerial wire distribution system at the location shown on the plans, or as directed by the Engineer.

Material. The luminaire must meet Material Specification 1609 for the lamp wattage and type of distribution specified. Luminaires to be either black or gray, or as specified by Commissioner. The luminaire must have or be retrofitted with an external node to communicate with the Smart Lighting network and meet Material Specification 1608.

The Contractor must submit the manufacturer's certified test reports on all materials used on this project. Any material deemed defective must be removed and disposed of by the Contractor at his sole cost.

Method of measurement. This work will be measured per each unit furnished, complete.

Basis of payment. This work will be paid for at the contract unit price each for a FURNISH LUMINAIRE, LED, 240V, RESIDENTIAL - SMART LIGHTING of the proper wattage, voltage, and distribution type, which will be payment in full for furnishing the unit complete in place. The City reserves the right to purchase this material for City construction crews to install.

MATERIAL SPECIFICATION
1608 1609

ITEM 99. ***** **FURNISH LUMINAIRE, LED, 240V, MID-MOUNT
RESIDENTIAL ACORN & ARM - SMART LIGHTING**

Description. This work will consist of furnishing a mid-mount luminaire with arm which will be installed onto a street light pole at approximately 10.5 feet from grade for a residential street installation, or as directed by the Engineer or as shown on the plans. The luminaire will provide pedestrian level lighting.

Material. The residential acorn LED luminaire must meet the requirements of Material Specification 1603 and Standard Drawing 958. The arm for the residential installation must meet Material Specification 1546 and Standard Drawing 959. Fuses must meet the requirements of Material Specification 1464. Pole wire to connect the luminaire to the field cable at the base of the pole must meet Material Specification 1351. Pole wire will be installed in the arm by the supplier before the arm is shipped to the contractor. Luminaires and arms will be factory painted either black or silver. The luminaire must have or be retrofitted with an internal node to communicate with the Smart Lighting network and meet Material Specification 1608.

Method of measurement. This work will be measured per each unit furnished. All hardware and wire necessary to install the unit will be included.

Basis of payment. This work will be paid for at the contract unit price for FURNISH LUMINAIRE, LED, 240V, MID-MOUNT RESIDENTIAL ACORN & ARM – SMART LIGHTING, which price will be payment in full for furnishing the unit. The City reserves the right to purchase this material for City construction crews to install.

MATERIAL SPECIFICATION
1546 1531 1608 1603
1351 1464

DRAWING
959
958

ITEM 100. ***** **FURNISH LUMINAIRE, LED, 120/240V FLOOD - SMART LIGHTING**

Description. This item will consist of furnishing a street lighting luminaire, complete with internal driver, and LED SSL lamp of the proper wattage and input voltage, on a street light mast arm attached to a street light pole, or a floodlight mounted to a post top attachment on a street light pole, and connecting the unit to either an underground cable distribution system at the location shown on the plans, or as directed by the Engineer.

Material. The luminaire must meet Material Specification 1614 for the lamp wattage and type of distribution specified. Fuses must meet the requirements of Material Specification 1464. Pole wire to connect the luminaire to the field cable at the base of the pole must meet Material Specification 1351. The luminaire must have or be retrofitted with an external node to communicate with the Smart Lighting network and meet the requirements of Material Specification 1608.

Method of measurement. This work will be measured per each unit furnished, complete. All wiring to the feeder cable, including splices, will be included in this measurement.

Basis of payment. This work will be paid for at the contract unit price each for a FURNISH LUMINAIRE, LED, 120/240V FLOOD - SMART LIGHTING of the proper wattage, voltage, distribution type, and bracket which will be payment in full for furnishing, connecting and testing the unit complete in place. The City reserves the right to purchase this material for City construction crews to install.

MATERIAL SPECIFICATION
1608 1614
1351 1464

DRAWING

ITEM 101. *** FURNISH LUMINAIRE, LED, 120/240V, VIADUCT - SMART LIGHTING**

DESCRIPTION. This item will consist of furnishing a street lighting luminaire, complete with internal driver and SSL LED Optical Array of proper wattage and input along with appropriate brackets, beam clamps, channel and shock absorbers. .

MATERIAL. The luminaire must meet Electrical Specification 1604. All bolts, washers, and nuts must be stainless steel, or other approved non-corrosive or suitably protected metal, and where necessary must be plated to prevent electrolytic action by contact with aluminum. Beam clamps and shock absorbers must be structurally sound. Compression springs will absorb luminaire movement in all directions. All material will be subject to approval by the engineer.

SUBMITTALS. The contractor must provide documentation of material and transportation costs, and evidence that such material is properly stored on the project or a secure location acceptable and accessible to the City. The City must be able to take possession of the material if the contractor should default on the contract. The material must be properly protected from damage. If the luminaires or mounting brackets become damaged or otherwise unacceptable, they shall be removed from the quantity paid. The Contractor must present proof of payment for the materials to the Engineer within 60 days after receiving payment from the City or the payment for the luminaires shall be deducted on the next pay voucher. Proof of payment includes: Copies of cancelled checks, copies of checks with some form of verification from the financial institution, or a copy of an invoice from the Supplier marked "Paid by check number ____" which also includes the date, signature and title of suppliers' representative or other acceptable documentation. A copy of an invoice marked paid is not proper proof of payment.

METHOD OF MEASUREMENT. This work will be measured per each unit delivered and furnished complete. All mounting hardware and labor will be included.

BASIS OF PAYMENT. This work will be paid for at the contract unit price each for a LUMINAIRE, LED, 120/240V, VIADUCT - SMART LIGHTING, and mounting method, which will be payment in full for furnishing, and delivering this item complete. The voucher should be accompanied by the attached Material Allowance Affidavit, and Submittals as outlined above.

ELECTRICAL SPECIFICATION
1604 1608

DRAWING
869

ITEM 102. ***** **INSTALL GAS LIGHT POLE, COMPLETE WITH LED LUMINAIRE - SMART LIGHTING**

Description. This work will consist of installing an ornamental pole onto a concrete foundation complete with LED luminaire. The ornamental light pole will have a tenon for a top mounted gaslight style LED luminaire. The gaslight LED luminaire will be wired complete connecting it to the street lighting circuit. This work will be as shown on the plans or as directed by the Engineer.

Material. The pole must meet the requirements of Material Specification 1597. The pole must also meet the requirements of Standard Drawing 895. The luminaire must meet the requirements of Material Specification 1597. The luminaire must also meet the requirements of Standard Drawing 895. The pole wire must meet the requirements of Material Specification 1351. The fixture will be 70-90 watt or as specified. The fuses must meet the requirements of Material Specification 1464. The luminaire must include the driver, all electrical components, fuses, pole wire, and any appurtenances necessary, to make the luminaire function once connected to the street light circuit. The luminaire must have or be retrofitted with a node to communicate with the Smart Lighting network and meet the requirements of Material Specification 1608.

Installation. Installation must meet all applicable requirements of Section 801 and Section 830 of the Standard Specifications. The pole must be set plumb on the foundation without the use of double nutting or shims. Nuts and washers for the anchor rods will be provided under the foundation item. The luminaire must be attached to the pole tenon with hex head set screws. The pole wire must be spliced to the appropriate field cable at the base of the pole as shown on the plans or as directed by the Engineer. Splicing methods must be approved by the Engineer.

Method of measurement. One unit will consist of one pole complete with pole door securely attached and one LED luminaire attached to the pole and wired for operation. All wiring must be complete, so that the entire assembly will work when energized.

Basis of payment. This work will be paid for at the contract unit price per each INSTALL GAS LIGHT POLE, COMPLETE WITH LED LUMINAIRE - SMART LIGHTING installed, which will be payment in full for installing the pole and LED luminaire. The City reserves the right to provide material for work to be performed under this pay item.

MATERIAL SPECIFICATION	DRAWING
1351	895
1464	
1597	
1608	

ITEM 103.	*****	INSTALL LOOP POLE COMPLETE, 10 FOOT
ITEM 104.	*****	INSTALL EXTENDED LOOP POLE COMPLETE, 16 FOOT

Description. This item will consist of installing a historic light pole, base of the dimension specified and ornamental twin arm, at the locations shown on the plans, or as directed by the Engineer

Material. The ten-foot pole and base must meet the requirements of Material Specifications 1487 and 1488. The sixteen-foot pole and base must meet the requirements of Material Specification 1506. The ten-foot pole must have the appearance as that shown on Standard Drawing 911. The sixteen-foot pole must have the appearance as that shown on Standard Drawings 929 and 929A. The arm must meet the requirements of Material Specification 1489. The arm must have the appearance as that shown on Standard Drawing 911.

Installation. Installation must be according to Sections 801 and 830 of the Standard Specifications. The light pole must be set plumb on a concrete foundation using double nut construction. The nuts and washers should be part of the foundation item. The pole must be set with proper orientation of the handhole, as directed by the Engineer.

Any exposed portions of the anchor rods extending above the nuts which may interfere with setting the ornamental base must be cut off to provide the necessary clearance. The excess must not be burned off.

The base must be installed after the pole is erected. The base halves must be set around the pole shaft and secured to each other. The base must be set so that it sits evenly around the pole shaft. The base must be level and plumb so that it appears to be integral to the pole shaft. The base should sit level on the concrete foundation. Set screws will be used to keep the base from shifting about the shaft, and to attach the base to the pole as shown on Standard Drawings 911 or 929 and 929A. If the base has doors, the doors must be securely fastened to the pole base. One door must be aligned with the pole handhole when the base is properly installed.

On the sixteen-foot pole, the ornamental bracelets must be included, and will be installed as directed by the Engineer. The contractor must utilize non-abrasive slinging materials and must otherwise exercise due care in erecting the pole to minimize any possible damage to the finish. When necessary, and approved by the Engineer, the contractor will utilize, at his own expense, factory approved touch-up materials and methods to restore the finish to like new appearance and durability.

Method of measurement. This work will be measured per each unit installed and will include all labor necessary to install the pole and base on the foundation, and must include the handhole door, as well as the base doors, and all necessary hardware. On the 16 foot pole the ornamental bracelets, as shown on Standard Drawings 929 and 929A must be included. This item will also include furnishing the ornamental twin arm assembly that must have two tenons for mounting two luminaires and include all material necessary to install the twin arm assembly on the loop pole. This item will not include the luminaire.

Basis of payment. This item will be paid for at the contract unit price each for INSTALL LOOP POLE COMPLETE, 10 FOOT or INSTALL EXTENDED LOOP POLE COMPLETE, 16 FOOT

ARTERIAL ROADWAY LIGHTING IMPROVEMENT CITYWIDE
CDOT PROJECT NO. B-7-216

which payment will be in full for installing the appropriate loop pole complete with the mast arm assembly as directed by the Engineer. The City reserves the right to provide material for work to be performed under this pay item.

MATERIAL SPECIFICATION
1487
1488
1506

DRAWING
911
929
929A

ITEM 105. ***** **INSTALL CHICAGO 2000 ORNAMENTAL MAST ARM
ASSEMBLY, 11" OR 12" DIA**

Description. This item will consist of installing a luminaire arm, scroll, and ornamental mast head and finial to the upper part of an existing 11" or 12" traffic pole. The installation will be as directed by the engineer.

Material. The material must meet the requirements of Material Specification 1505 and Standard Drawings 930 and 930C. The castings must be properly sized to fit the appropriate pole diameter.

Installation. The mast head and finial must be securely mounted to the pole and arm as shown on Standard Drawings 930 and 930C.

The contractor must exercise due caution in installing the mast head and finial to minimize any possible damage to the finish. When necessary, and when approved by the Engineer, the contractor will utilize, at his own expense, factory approved touch-up materials and methods to restore the finish to like new appearance and durability.

Method of measurement. This item will be measured per each unit installed and must include the mast head castings, the finial, and all necessary hardware to securely attach the mast head and finial to the pole and arm.

Basis of payment. This work will be paid for at the contract unit price per each for INSTALL CHICAGO 2000 ORNAMENTAL MAST ARM ASSEMBLY, 11" OR 12" DIA, of the size indicated, which payment will be in full for securely attaching the mast head and finial to the pole and arm. The City reserves the right to provide material for work to be performed under this pay item.

MATERIAL SPECIFICATION
1505

DRAWING
930
930C

ITEM 106. ***** **INSTALL CHICAGO 2000 ORNAMENTAL MAST ARM
ASSEMBLY, 10" DIA**

Description. This item will consist of installing a luminaire arm, scroll, and ornamental mast head and finial to the upper part of an existing 10" traffic pole. The installation will be as directed by the engineer.

Material. The material must meet the requirements of Material Specification 1505 and Standard Drawings 930 and 930C. The castings must be properly sized to fit the appropriate pole diameter.

Installation. The mast head and finial must be securely mounted to the pole and arm as shown on Standard Drawings 930 and 930C.

The contractor must exercise due caution in installing the mast head and finial to minimize any possible damage to the finish. When necessary, and when approved by the Engineer, the contractor will utilize, at his own expense, factory approved touch-up materials and methods to restore the finish to like new appearance and durability.

Method of measurement. This item will be measured per each unit installed and must include the mast head castings, the finial, and all necessary hardware to securely attach the mast head and finial to the pole and arm.

Basis of payment. This work will be paid for at the contract unit price per each for INSTALL CHICAGO 2000 ORNAMENTAL MAST ARM ASSEMBLY, 10" DIA, of the size indicated, which payment will be in full for securely attaching the mast head and finial to the pole and arm. The City reserves the right to provide material for work to be performed under this pay item.

MATERIAL SPECIFICATION
1505

DRAWING
930
930C

ITEM 107. ***** **INSTALL CHICAGO 2000 GATEWAY BASE FOR 34'6"
POLE, 10" DIA**

Description. This item will consist of installing an ornamental pole base to a steel light pole as directed by the Engineer or as shown on the plans.

Material. The base will be fiberglass meeting the appropriate requirements of Material Specification 1610 and Standard Drawing 986.

Installation. The base must be installed after the steel pole is erected. The base halves must be set around the pole shaft and secured to each other. The base must be set so that it sits evenly around the pole shaft. The base must be level and plumb so that it appears to be integral with the pole shaft. The base should sit level on the concrete foundation. Set screws will be used to keep the base from shifting about the shaft, and to attach the base to the pole as shown on Standard Drawing 930A.

The contractor must exercise due caution in installing the base to minimize any possible damage to the finish. When necessary, and when approved by the Engineer, the contractor will utilize, at his own expense, factory approved touch-up materials and methods to restore the finish to like new appearance and durability.

Method of measurement. This item will be measured per each unit installed and must include the ornamental base and all necessary hardware to securely install the base on the foundation and around the pole shaft.

Basis of payment. This work will be paid for at the contract unit price per each for INSTALL CHICAGO 2000 GATEWAY BASE FOR 34'6" POLE, 10" DIA, which payment will be in full for securely installing the ornamental base. The City reserves the right to provide material for work to be performed under this pay item.

MATERIAL SPECIFICATION
1610

DRAWINGS
986

ITEM 108.	*****	INSTALL POLE, STEEL, ARTERIAL, 34'6", 10" DIA. 15" B.C. BLACK
------------------	--------------	--

Description. This item will consist of installing, and setting plumb a steel anchor base pole to which equipment may be attached for the extension of the City street light and traffic signal systems.

Material. The material of the pole must meet the requirements of Material Specification 1447.

INSTALLATION. The pole must be installed on the concrete foundation designed for the particular pole usage as indicated on the plans or as directed by the Engineer. Double nut construction must be used as shown on Drawing 837. Double nut construction provides the proper ventilation, as well as providing a way to plumb the pole. Any exposed portions of anchor rods extending above the nuts which interfere with the installation of the bolt covers must be cut off to provide the necessary clearance. The excess must not be burned off. The pole must be set secure, properly orientated, and plumb using the nuts and washers provided with the anchor bolts. The bolt covers, handhole cover, and pole cap must be securely attached.

The contractor will utilize non abrasive slinging materials and will otherwise exercise due care in erecting the pole and mast arm to minimize any possible damage to the finish. When necessary, the contractor will utilize, at his own expense, factory approved touch up materials and methods to restore the finish to like new appearance and durability.

1Method of measurement. This item will be measured per each unit installed, complete with anchor bolt covers, pole cap, and handhole cover.

Basis of payment. This work will be paid for at the Contract unit price each for a POLE, STEEL, ANCHOR BASE, 34' 6", which will be payment in full for installing the pole complete in place. Light standard foundations, mast arms, and luminaires will not be included in this pay item but will be paid for separately. The City reserves the right to provide material for work to be performed under this pay item.

MATERIAL SPECIFICATION	DRAWING	
1447	837	827
	808	824

ITEM 109. ***** **INSTALL CHICAGO 2000 PENDANT LUMINAIRE, LED,
240V- SMART LIGHTING**

Description. This work will consist of installing a pendant luminaire with a teardrop refractor as specified herein, as shown on the plans or as directed by the Engineer. The luminaire must be complete with an LED array, driver, integral electrical components, fuses, arm fitter, pole wire, and mounting hardware.

Material. The luminaire must meet the requirements of Material Specification 1611 and Standard Drawing 931. The pole wire must meet the requirements of Material Specification 1351, the fuses must meet the requirements of Material Specification 1464, and the lamp must meet the requirements of Material Specification 1562. The luminaire must have or be retrofitted with a node to communicate with the Smart Lighting network and meet Material Specification 1608.

Installation. This work will meet the applicable requirements of Sections 801 and 821 of the Standard Specifications. Each luminaire must be installed per the manufacturer's instructions. Luminaires must be securely attached to the end of a two inch diameter pipe arm and leveled to provide the proper illumination. The pole wire must be spliced to the field wire at the base of the pole using splicing methods approved by the Engineer. The pole wire must be of sufficient length to connect the luminaire to the field cable at the base of the pole. Typical mast arm lengths will be 8 feet. Pole heights will be 32 feet.

Method of measurement. Each luminaire, complete with LED array, driver, components, pole wire, fuses, and any appurtenances necessary, to make the luminaire function once connected into the street light circuit, will count as one unit. Any labor and equipment necessary will be included.

Basis of payment. This work will be paid for at the contract unit price per each INSTALL CHICAGO 2000 PENDANT LUMINAIRE, LED, 240V- SMART LIGHTING which will be payment in full for performing the work described herein. Payment will not be made until the luminaire can be shown to function properly within the street lighting circuit. The City reserves the right to provide material for work to be performed under this pay item.

MATERIAL SPECIFICATION
1351 1464
1611 1608

DRAWING
931

ITEM 110. ***** **INSTALL CHICAGO 2000 PEDESTRIAN 14' LIGHT POLE COMPLETE**

Description. This item will consist of installing a historic pedestrian style fourteen foot light pole and ornamental pole base, at the locations shown on the plans, or as directed by the Engineer. This item will not include an acorn type ornamental luminaire.

Material. The Pole will be CHICAGO 2000 PEDESTRIAN 14' LIGHT POLE which must meet the requirements of Material Specification 1504. The pole must have the appearance as that shown on Standard Drawing 928.

The Base will be CHICAGO 2000 PEDESTRIAN 14' POLE BASE which material must be fiberglass meeting the applicable requirements of Material Specification 1512 and Standard Drawing 928.

Installation. POLE: Installation will be according to applicable requirements of Sections 801 and 830 of the Standard Specifications. The light pole must be set plumb on a concrete foundation using double nut construction. The nuts and washers should be part of the foundation item. The pole must be set with proper orientation of the handhole, as directed by the Engineer.

Any exposed portions of the anchor rods extending above the nuts which may interfere with setting the ornamental base must be cut off to provide the necessary clearance. The excess must not be burned off.

The contractor must utilize non-abrasive slinging materials and will otherwise exercise due care in erecting the pole to minimize any possible damage to the finish. When necessary, and approved by the Engineer, the contractor will utilize, at his own expense, factory approved touch-up materials and methods to restore the finish to like new appearance and durability.

BASE:The base must be installed after the pole is erected. The base halves must be set around the pole shaft and secured to each other. The base must be set so that it sits evenly around the pole shaft. The base must be level and plumb so that it appears to be integral with the pole shaft. The base should sit level on the concrete foundation. Set screws must be used to keep the base from shifting about the shaft, and to attach the base to the pole as shown on Standard Drawing 928.

The contractor must exercise due caution in installing the base to minimize any possible damage to the finish. When necessary, and when approved by the Engineer, the contractor will utilize, at his own expense, factory approved touch-up materials and methods to restore the finish to like new appearance and durability 6.

Method of measurement. This work will be measured per each unit installed and will include labor necessary to install the pole on the foundation, and must include the handhole door, the ornamental base and all necessary hardware to securely install the base on the foundation and around the pole shaft, will count as one unit. Any labor and equipment necessary must be included. This item will include the ornamental base. Luminaire will be paid for under a separate pay item.

ARTERIAL ROADWAY LIGHTING IMPROVEMENT CITYWIDE
CDOT PROJECT NO. B-7-216

Basis of payment. This item will be paid for at the contract unit price each for INSTALL CHICAGO 2000 PEDESTRIAN 14' LIGHT POLE COMPLETE, which payment will be in full for securely installing the pole and ornamental base. Payment will not be made until the luminaire can be shown to function properly within the street lighting circuit. The City reserves the right to provide material for work to be performed under this pay item.

MATERIAL SPECIFICATION	DRAWINGS
1351 1464 1504	912 928
1512 1608	

ARTERIAL ROADWAY LIGHTING IMPROVEMENT CITYWIDE
CDOT PROJECT NO. B-7-216

ITEM 111.	*****	INSTALL POLE, ALUMINUM, DAVIT, ARTERIAL, 35' MH
ITEM 112.	*****	INSTALL POLE, ALUMINUM, DAVIT, ARTERIAL, 35' MH, ANODIZED
ITEM 113.	*****	INSTALL POLE, ALUMINUM, DAVIT, ARTERIAL, 40' MH, ANODIZED

Description. This item will consist of installing and setting plumb an anodized aluminum anchor base pole and aligning an anodized aluminum davit mast arm to which a street light luminaire will be attached. The pole and mast arm will be brushed aluminum, anodized black or in a color described by the Commissioner. The pole will be set on a separate foundation and affixed with anchor rods or bolts. The mast arm will be attached to an aluminum pole constructed to accept the arm. These arms are designed to fit the arterial davit pole.

Material. The pole must meet the requirements of Material Specification 1452. In addition, the arterial pole must meet the requirements and dimensions of Standard Drawing 971 or 972.

ANODIZING

(a) An anodized finish will be either gloss black or gloss bronze. A color sample must be submitted for approval before any factory production. The anodizing process must include cleaning, etching, anodizing, and sealing the mast. The contractor must submit his anodizing process for approval before any factory production.

(b) Color must be black unless noted otherwise in the order. A paint chip must be submitted for approval prior to fabrication.

(c) Anodized pole and arm shall be spiral wrapped with foam backed 5-mil polyethylene film of sufficient tensile and elongation characteristics to ensure protection during handling and shipping. Shafts shall be placed in cardboard tubes prior to shipment. Curved product shall be wrapped in burlap. The product shall be bundled with sufficient dunnage and strapping to prevent damage during shipment.

(d) Warranty. The Anodizing company shall warrant its applied anodized coatings against excessive fading due to normal climatic exposure for a period of one (1) year from the date of shipment. This warranty shall apply to the repair or replacement (at the manufacturer's discretion) of the material involved and shall not include reimbursement of consequential expenses such as installation or removal of equipment or transportation costs.

Installation. The pole must be installed on a concrete foundation or a steel helix foundation designed for the particular pole usage. When using double nut construction please follow the details as shown on Standard Drawing 837. Double nut construction provides proper ventilation, as well as providing a way to plumb the pole. When using a helix foundation, double nutting is not feasible. Any exposed portions of anchor rods extending above the nuts which interfere with the installation of the bolt covers must be cut off to provide the necessary clearance. The excess must not be burned off. The pole must be set secure and plumb using the nuts and washer provided with the foundation pay item. The bolt covers, and handhole cover must be securely attached. The pole must be properly orientated in relation to the street, so that the davit arm will be perpendicular to the direction of the roadway.

ARTERIAL ROADWAY LIGHTING IMPROVEMENT CITYWIDE
CDOT PROJECT NO. B-7-216

Method of measurement. This item will be measured per unit installed, complete. Work will consist of anodizing the pole, attaching the pole to the foundation, application of nut covers, attachment of handhole door, and plumbing of the pole.

Basis of payment. This work will be paid for at the Contract unit price each for INSTALL POLE, ALUMINUM, DAVIT, ARTERIAL, 35' MH, INSTALL POLE, ALUMINUM, DAVIT, ARTERIAL, 35' MH, ANODIZED, INSTALL POLE, ALUMINUM, DAVIT, ARTERIAL, 40' MH, ANODIZED, which will be payment in full for installing the anodized pole complete in place. Bolt covers and the handhole door will be included as incidentals. The light pole standard foundation (including nuts and washers), davit arm, and luminaire will not be included in this pay item but will be paid for separately. The City reserves the right to provide material for work to be performed under this pay item.

MATERIAL SPECIFICATION

1452 1453

DRAWINGS

971 972

ARTERIAL ROADWAY LIGHTING IMPROVEMENT CITYWIDE
CDOT PROJECT NO. B-7-216

ITEM 114.	*****	INSTALL MAST ARM, ALUMINUM, DAVIT, 6" ARTERIAL, 12 FOOT
ITEM 115.	*****	INSTALL MAST ARM, ALUMINUM, DAVIT, 6" ARTERIAL, 12 FOOT', ANODIZED
ITEM 116.	*****	INSTALL MAST ARM, ALUMINUM, DAVIT, 6" ARTERIAL, 15 FOOT, ANODIZED

Description. This item will consist of installing and aligning an aluminum davit mast arm to which a street light luminaire will be attached. The arm will be attached to an aluminum pole constructed to accept the arm. These arms are designed to fit the arterial davit pole.

Material. The mast arm must meet the requirements of Material Specification 1453. The mast arm for a davit arterial pole must meet the requirements and dimensions of Standard Drawing 948, 949, or 950, depending upon the required overall length of the arm. The davit arm will have a 6 inch outside diameter at the base, where the arm slips over the top of the pole.

ANODIZING

(a) An anodized finish will be either gloss black or gloss bronze. A color sample must be submitted for approval before any factory production. The anodizing process must include cleaning, etching, anodizing, and sealing the mast. The contractor must submit his anodizing process for approval before any factory production.

(b) Color must be black unless noted otherwise in the order. A paint chip must be submitted for approval prior to fabrication.

(c) Anodized pole and arm shall be spiral wrapped with foam backed 5-mil polyethylene film of sufficient tensile and elongation characteristics to ensure protection during handling and shipping. Shafts shall be placed in cardboard tubes prior to shipment. Curved product shall be wrapped in burlap. The product shall be bundled with sufficient dunnage and strapping to prevent damage during shipment.

(d) Warranty. The Anodizing company shall warrant its applied anodized coatings against excessive fading due to normal climatic exposure for a period of one (1) year from the date of shipment. This warranty shall apply to the repair or replacement (at the manufacturer's discretion) of the material involved and shall not include reimbursement of consequential expenses such as installation or removal of equipment or transportation costs.

Installation. The mast arm must be installed on the aluminum pole as shown on the appropriate standard drawing. The davit arm must be attached to the pole by slipping the arm over the top of the pole and securing the arm to the pole with two stainless steel hex-head bolts. Details of the installation may be found on the appropriate standard drawing. The pole and arm must be properly orientated in relation to the street.

Method of measurement. The item will be measured per each arm installed, complete.

Basis of payment. This work will be paid for at the Contract unit price each for a MAST ARM, ALUMINUM, DAVIT, ARTERIAL, 8 FOOT, MAST ARM, ALUMINUM, DAVIT, ARTERIAL, 8

ARTERIAL ROADWAY LIGHTING IMPROVEMENT CITYWIDE
CDOT PROJECT NO. B-7-216

FOOT, ANODIZED, or MAST ARM, ALUMINUM, DAVIT, ARTERIAL, 15 FOOT, ANODIZED, which will be payment in full for installing the mast arm and hardware complete in place. The light pole, foundation and luminaire will not be included in this pay item but will be paid for separately. The City reserves the right to provide material for work to be performed under this pay item.

MATERIAL SPECIFICATION
1453

DRAWINGS
948 949 950

ITEM 117.	*****	INSTALL 12' POLE, 10" B.C., 4 A.B., & 8' MAST ARM, ALUMINUM, RESIDENTIAL
ITEM 118.	*****	INSTALL 12' POLE, 10" B.C., 4 A.B., & 8' MAST ARM, ALUMINUM, RESIDENTIAL, ANODIZED

Description. This item will consist of furnishing, installing and setting plumb an aluminum anchor base pole and aligning an aluminum davit mast arm to which a street light luminaire will be attached. The pole will be set on the foundation and affixed with anchor rods or bolts. The arm will be attached to an aluminum pole constructed to accept the arm.

Material. POLE. The pole must meet the requirements of Material Specification 1452. In addition, the residential pole must meet the requirements and dimensions of Standard Drawing 940.

MAST ARM: The mast arm must meet the requirements of Material Specification 1453. The mast arm for a davit residential pole must meet the requirements and dimensions of Standard Drawing 945. The davit arm will have a 4.5 inch outside diameter at the base, where it slips over the top of the pole.

ANODIZING

(a) An anodized finish will be either gloss black or gloss bronze. A color sample must be submitted for approval before any factory production. The anodizing process must include cleaning, etching, anodizing, and sealing the mast. The contractor must submit his anodizing process for approval before any factory production.

(b) Color must be black unless noted otherwise in the order. A paint chip must be submitted for approval prior to fabrication.

(c) Anodized pole and arm shall be spiral wrapped with foam backed 5-mil polyethylene film of sufficient tensile and elongation characteristics to ensure protection during handling and shipping. Shafts shall be placed in cardboard tubes prior to shipment. Curved product shall be wrapped in burlap. The product shall be bundled with sufficient dunnage and strapping to prevent damage during shipment.

(d) Warranty. The Anodizing company shall warrant its applied anodized coatings against excessive fading due to normal climatic exposure for a period of one (1) year from the date of shipment. This warranty shall apply to the repair or replacement (at the manufacturer's discretion) of the material involved and shall not include reimbursement of consequential expenses such as installation or removal of equipment or transportation costs.

Installation. POLE. The pole must be installed on a concrete foundation or a steel helix foundation designed for the particular pole usage. When using double-nut construction please follow the details as shown on Standard Drawing 837. Double nut construction provides proper ventilation, as well as providing a way to plumb the pole. When using a helix foundation, double nutting is not feasible. Any exposed portions of anchor rods extending above the nuts which interfere with the installation of the bolt covers must be cut off to provide the necessary clearance. The excess must not be burned off. The pole must be set secure and plumb using

ARTERIAL ROADWAY LIGHTING IMPROVEMENT CITYWIDE
CDOT PROJECT NO. B-7-216

the nuts and washer provided with the foundation pay item. The bolt covers, and handhole cover must be securely attached. The pole must be properly orientated in relation to the street, so that the davit arm will be perpendicular to the direction of the roadway.

MAST ARM. The mast arm must be installed on the aluminum pole as shown on the appropriate standard drawing. The davit arm must be attached to the pole by slipping the arm over the top of the pole and securing the arm to the pole with two stainless steel hex-head bolts. Details of the installation may be found on the appropriate standard drawing. The pole and arm must be properly orientated in relation to the street.

Method of measurement. The item will be measured per each pole and mast arm installed, complete. Work will consist of attaching the pole to the foundation, application of nut covers, attachment of handhole door, and plumbing of the pole and attaching davit arm to pole.

Basis of payment. This work will be paid for at the Contract unit price each for INSTALL 12' POLE, 10" B.C., 4.5" DIA, & 8' MAST ARM, ALUMINUM, RESIDENTIAL or INSTALL 12' POLE, 10" B.C., 4.5" DIA, & 8' MAST ARM, ALUMINUM, RESIDENTIAL, ANODIZED, which will be payment in full for furnishing and installing the pole, as specified by commissioner, mast arm and hardware complete in place. Bolt covers and the handhole door will be included as incidentals. The foundation & luminaire will not be included in this pay item but will be paid for separately. The City reserves the right to provide material for work to be performed under this pay item.

MATERIAL SPECIFICATION

1452
1453
1467
1526

DRAWINGS

940 945

ITEM 119. ***** **INSTALL LUMINAIRE, LED, 240V, ARTERIAL - SMART LIGHTING**

Description. This item will consist of installing a street lighting luminaire, complete with internal driver, and LED SSL luminaire of the proper wattage and input voltage, on a street light mast arm attached to a street light pole, and connecting the unit to either an underground cable distribution system or an aerial wire distribution system at the location shown on the plans, or as directed by the Engineer.

Material. The luminaire must meet Electrical Specification 1609 for the distribution specified. Luminaires to be either black or gray, or as specified by Commissioner. The luminaire must have or be retrofitted with a node to communicate with the Smart Lighting network and meet Material Specification 1608.

Installation. The luminaire must be securely installed on the mast arm. The vertical axis of the luminaire must be in a vertical plane, and the longitudinal axis must be leveled as specified in shop drawings supplied by the manufacturer to produce the desired distribution pattern with the LEDs secured in the required position for that distribution.

A cartridge type fuse, type KTK, rated at 10 amperes must be installed in each of the fuse holders. The primary wiring to the driver must consist of 3 1/C No. 12 AWG wires with 150 degree C. irradiated polyefin, insulation connected to the terminal board "line" terminals. They must extend through the mast arm raceway and down the inside of the pole to the pole base where they must be spliced to the underground feeder cables. Sufficient wire must be supplied to extend the wires outside of the pole through the access handhole to permit splicing work to be performed outside the pole.

All splice methods must be approved by the Engineer before implemented. All splices, tapes and grounding connections must be inspected by the Commissioner's authorized representative before wires are permanently trained in the light pole. Current, insulation resistance, and voltage readings must be taken and tabulated by the Contractor for each circuit. These readings are to be witnessed by the Commissioner's authorized representative. Any indication of grounds, open, or crossed conductors must be thoroughly investigated and remedied before acceptance of the installation. Line voltage must be taken at any in-line fused location, within the pole designated by the Commissioner's authorized representative. Locations and voltage must be tabulated as directed. Three (3) copies of the tabulated voltage insulation resistance, and current readings must be submitted to the Commissioner's authorized representative. Maximum voltage drop must not exceed 10% of nominal source voltage. The insulation resistance must not be less than 2 Megohms, when tested to ground with 500 volts AC. The Contractor must submit the manufacturer's certified test reports on all materials used on this project. Any material deemed defective must be removed and disposed of by the Contractor at his sole cost. After the lighting installation has been completed and satisfactory current and voltage readings recorded, a field test must be made to insure that all lighting and control equipment are in proper operating condition. This field test must be witnessed by the Engineer.

The Contractor will furnish special test devices, tools and miscellaneous items that will be required for the testing of cables and control equipment, all as herein specified.

ARTERIAL ROADWAY LIGHTING IMPROVEMENT CITYWIDE
CDOT PROJECT NO. B-7-216

Method of measurement. This work will be measured per each unit installed, complete. All wiring to the underground feeder cable, including splices, will be included in this measurement.

Basis of payment. This work will be paid for at the contract unit price each for a INSTALL LUMINAIRE, LED, 240V, ARTERIAL - SMART LIGHTING of the proper wattage, voltage, and distribution type, which will be payment in full for installing, connecting and testing the unit complete in place. The City reserves the right to provide material for work to be performed under this pay item.

MATERIAL SPECIFICATION

1609

1608

ITEM 120. ***** **INSTALL LUMINAIRE, LED, 240V, ARTERIAL ACORN &
ARM - SMART LIGHTING**

Description. This work will consist of installing a mid-mount luminaire with arm onto a street light pole at approximately 13 feet from grade for an arterial street installation, or as directed by the Engineer or as shown on the plans. The luminaire will provide pedestrian level lighting.

Material. The LED luminaire for the arterial installation must meet the requirements of Material Specification 1586 and Standard Drawing 912. The arm for the arterial installation must meet Material Specification 1546 and Standard Drawing 959A. Fuses must meet the requirements of Material Specification 1464. Pole wire to connect the luminaire to the field cable at the base of the pole must meet Material Specification 1351. Pole wire will be installed in the arm by the supplier before the arm is shipped to the contractor. Luminaires and arms will be factory painted either gloss black or silver. The luminaire must have or be retrofitted with an internal node to communicate with the Smart Lighting network and meet Material Specification 1608.

Installation. For the arterial pole, the contractor must drill a one inch hole for the wire in the light pole at the proper height and location, as directed by the Engineer. The hole must be free from burrs and must be smooth. A rubber or nylon grommet must be inserted in the hole. The luminaire arm must be mounted to the pole to align with the wire hole. The arm will be attached to the pole with 2 (3/8-16X 1 1/4") bolts. The pole will be drilled at the proper locations and 2 rivnuts will be inserted to accept the bolts. An alternate method of attachment is to use two 5/8" stainless steel bands. The attachment method used will be determined by the Engineer. For the arterial pole, the pole will come with the holes pre-drilled, including a grommet for the wireway and 2 rivnuts.

The luminaire must be securely mounted to the arm tenon with hex head set screws. The pole wire will be run from the luminaire, through the arm, into and down the pole to the field cable. The pole wire must be spliced to the field cable in an acceptable and approved manner.

Method of measurement. This work will be measured per each unit installed with arm, complete and operational. All hardware and wire necessary to install the unit will be included.

Basis of payment. This work will be paid for at the contract unit price for INSTALL LUMINAIRE, LED, 240V, ARTERIAL ACORN & ARM - SMART LIGHTING which price will be payment in full for installing the unit. The City reserves the right to provide material for work to be performed under this pay item.

MATERIAL SPECIFICATION	DRAWING
1351 1608	912
1546	959A
1586	
1464	

ITEM 121. ***** **INSTALL LUMINAIRE, LED, 240V, ORNAMENTAL
ACORN - SMART LIGHTING**

Description. This work will consist of installing an acorn type ornamental luminaire on a tenon mount, as specified on the plans or as directed by the Engineer. The luminaire must be complete with LED's, integral electrical components, fuses, pole wire, and mounting hardware.

Material. Materials must meet the requirements of Material Specifications: No. 1351 for pole wire, No. 1464 for the fuses, and No. 1586 for the luminaire. The luminaire must have the general appearance of Standard Drawing 912. The luminaire must have or be retrofitted with a node to communicate with the Smart Lighting network and meet Material Specification 1608.

Installation. Installation must meet all applicable requirements of Section 801 and Section 821.03 of the Standard Specifications. The pole wire must be spliced to the field wire at the base of the pole using splicing methods approved by the Engineer. The luminaire must be properly mounted to a 3 inch high by 3 inch diameter tenon with set screws. The contractor must level and adjust the luminaire for proper illumination.

Method of measurement. Each luminaire, complete with LED's, components, pole wire, fuses, and any appurtenances necessary, to make the luminaire function once connected to the street light circuit, must count as one unit. Any labor and equipment necessary will be included.

Basis of payment. This work will be paid for at the contract unit price per each INSTALL LUMINAIRE, LED, 240V, ORNAMENTAL ACORN - SMART LIGHTING, which will be payment in full for performing the work described herein. Payment must not be made until the luminaire can be shown to function properly within the street lighting circuit. The City reserves the right to provide material for work to be performed under this pay item.

MATERIAL SPECIFICATION	DRAWING
1490 1608	912
1351	
1464	
1586	

ITEM 122. ***** **INSTALL LUMINAIRE, LED, 240V, RESIDENTIAL -
SMART LIGHTING**

Description. This item will consist of and installing a street lighting luminaire, complete with internal driver, and LED SSL luminaire of the proper wattage and input voltage, on a street light mast arm attached to a street light pole, or a floodlight mounted to a post top attachment on a street light pole, and connecting the unit to either an underground cable distribution system or an aerial wire distribution system at the location shown on the plans, or as directed by the Engineer.

Installation. The luminaire must be securely installed on the mast arm. The vertical axis of the luminaire must be in a vertical plane, and the longitudinal axis must be leveled as specified in shop drawings supplied by the manufacturer to produce the desired distribution pattern with the lamp socket secured in the required position for that distribution

For an aerial distribution system, the primary wiring to the driver must consist of 3 1/C #12 AWG wires, with 150 degree C. irradiated polyolefin insulation, connected to the terminal board "line" terminals. They must extend through the mast arm and exit from the mast arm through the grommet in the hole provided for this purpose, and extend further forming a drip loop and connect with aerial circuit wires. Connection to the aerial circuit wires must be made with a split bolt type pressure connector for a No. 6 solid copper wire and the connection so formed must be wrapped with two layers of an approved electrical tape. The ground wire must be terminated to the pole by drilling into the top of the pole and making the connection through the use of a Burndy grounding connector, or as specified by Commissioner.

A cartridge type fuse, type KTK, rated at 10 amperes must be installed in each of the fuse holders. The primary wiring to the driver must consist of 3 1/C No. 12 AWG wires with 150 degree C. irradiated polyefin, insulation connected to the terminal board "line" terminals. They must extend through the mast arm raceway and down the inside of the pole to the pole base where they must be spliced to the underground feeder cables. Sufficient wire must be supplied to extend the wires outside of the pole through the access handhole to permit splicing work to be performed outside the pole.

All splice methods must be approved by the Engineer before implemented. All splices, tapes and grounding connections must be inspected by the Commissioner's authorized representative before wires are permanently trained in the light pole.

Current, insulation resistance, and voltage readings must be taken and tabulated by the Contractor for each circuit. These readings are to be witnessed by the Commissioner's authorized representative. Any indication of grounds, open, or crossed conductors must be thoroughly investigated and remedied before acceptance of the installation. Line voltage must be taken at any in-line fused location, within the pole designated by the Commissioner's authorized representative. Locations and voltage must be tabulated as directed. Three (3) copies of the tabulated voltage insulation resistance, and current readings must be submitted to the Commissioner's authorized representative. Maximum voltage drop must not exceed 10% of nominal source voltage. The insulation resistance must not be less than 2 Megohms, when tested to ground with 500 volts A.C.

After the lighting installation has been completed and satisfactory current and voltage readings recorded, a field test must be made to insure that all lighting and control equipment are in proper operating condition. This field test must be witnessed by the Engineer.

The Contractor will furnish special test devices, tools and miscellaneous items that will be required for the testing of cables and control equipment, all as herein specified.

Method of measurement. This work will be measured per each unit installed, complete. All wiring to the underground feeder cable, including splices, will be included in this measurement.

Basis of payment. This work will be paid for at the contract unit price each for the INSTALL LUMINAIRE, LED, 240V, RESIDENTIAL – SMART LIGHTING of the proper wattage, voltage, and distribution type, which will be payment in full for furnishing all incidentals,(fuses ,wire...), installing, connecting and testing the unit complete in place. The City reserves the right to provide material for work to be performed under this pay item.

MATERIAL SPECIFICATION

1609 1608

ITEM 123. *** INSTALL LUMINAIRE, LED, 240V, MID-MOUNT
RESIDENTIAL ACORN & ARM - SMART LIGHTING**

Description. This work will consist of furnishing and installing a mid-mount luminaire with arm onto a street light pole at approximately 16 feet from grade for an arterial street installation, 10.5 feet from grade for a residential street installation, or as directed by the Engineer or as shown on the plans. The luminaire will provide pedestrian level lighting.

Material. The LED luminaire for the residential installation must meet the requirements of Electrical Specification 1588 and Standard Drawing 958. The arm for the residential installation must meet Electrical Specification 1546 and Standard Drawing 959. Fuses must meet the requirements of Electrical Specification 1464. Pole wire to connect the luminaire to the field cable at the base of the pole must meet Electrical Specification 1351. Pole wire will be installed in the arm by the supplier before the arm is shipped to the contractor. Luminaires and arms will be factory painted either black or silver. The luminaire must have or be retrofitted with an internal node to communicate with the Smart Lighting network and meet Material Specification 1608.

Installation. For the residential pole, the pole will come with the holes predrilled, including a grommet for the wireway and 2 rivnuts.

The luminaire must be securely mounted to the arm tenon with hex head set screws. The pole wire will be run from the luminaire, through the arm, into and down the pole to the field cable. The pole wire must be spliced to the field cable in an acceptable and approved manner.

Method of measurement. This work will be measured per each unit installed, complete and operational. All hardware and wire necessary to install the unit will be included.

Basis of payment. This work will be paid for at the contract unit price for INSTALL LUMINAIRE, LED, 240V, ARTERIAL ACORN & ARM - SMART LIGHTING, which price will be payment in full for furnishing and installing the unit. The City reserves the right to provide material for work to be performed under this pay item.

MATERIAL SPECIFICATION	DRAWING
1351 1608	959
1464	958
1546	
1588	

ITEM 124. ***** **INSTALL LUMINAIRE, LED, 120/240V FLOOD - SMART LIGHTING**

Description. This item will consist of installing a street lighting luminaire, complete with internal driver, and LED SSL luminaire of the proper wattage and input voltage, on a street light mast arm attached to a street light pole, or a floodlight mounted to a post top attachment on a street light pole, and connecting the unit to either an underground cable distribution system at the location shown on the plans, or as directed by the Engineer.

Installation. Floodlights must be mounted on the pole top using a bracket supplied with this item. The bracket will be for one or two fixtures, as specified, or as directed by the Engineer. Floodlights must be aimed for proper light distribution.

A cartridge type fuse, type KTK, rated at 10 amperes must be installed in each of the fuse holders. The primary wiring to the driver must consist of 3 1/C No. 12 AWG wires with 150 degree C. irradiated polyefin, insulation connected to the terminal board "line" terminals. They must extend through the mast arm raceway and down the inside of the pole to the pole base where they must be spliced to the underground feeder cables. Sufficient wire must be supplied to extend the wires outside of the pole through the access handhole to permit splicing work to be performed outside the pole.

All splice methods must be approved by the Engineer before implemented. All splices, tapes and grounding connections must be inspected by the Commissioner's authorized representative before wires are permanently trained in the light pole.

Current, insulation resistance, and voltage readings must be taken and tabulated by the Contractor for each circuit. These readings are to be witnessed by the Commissioner's authorized representative. Any indication of grounds, open, or crossed conductors must be thoroughly investigated and remedied before acceptance of the installation. Line voltage must be taken at any in-line fused location, within the pole designated by the Commissioner's authorized representative. Locations and voltage must be tabulated as directed. Three (3) copies of the tabulated voltage insulation resistance, and current readings must be submitted to the Commissioner's authorized representative. Maximum voltage drop must not exceed 10% of nominal source voltage. The insulation resistance must not be less than 2 Megohms, when tested to ground with 500 volts A.C.

The Contractor must submit the manufacturer's certified test reports on all materials used on this project. Any material deemed defective must be removed and disposed of by the Contractor at his sole cost.

After the lighting installation has been completed and satisfactory current and voltage readings recorded, a field test must be made to insure that all lighting and control equipment are in proper operating condition. This field test must be witnessed by the Engineer.

The Contractor will furnish special test devices, tools and miscellaneous items that will be required for the testing of cables and control equipment, all as herein specified.

Method of measurement. This work will be measured per each unit installed, complete. All wiring to the feeder cable, brackets, including splices, will be included in this measurement.

Basis of payment. This work will be paid for at the contract unit price each for INSTALL LUMINAIRE, LED, 120/240V, FLOOD – SMART LIGHTING of the proper wattage, voltage, distribution type, and bracket which will be payment in full for installing, connecting and testing the unit complete in place. The City reserves the right to provide material for work to be performed under this pay item.

MATERIAL SPECIFICATION

1614 1608

ITEM 125. *** INSTALL LUMINAIRE, LED, 120/240V VIADUCT - SMART LIGHTING**

DESCRIPTION. This item will consist of furnishing a street lighting luminaire, complete with internal driver and SSL LED Optical Array of proper wattage and input along with appropriate brackets, beam clamps, channel and shock absorbers. .

MATERIAL. The luminaire must meet Electrical Specification 1614. All bolts, washers, and nuts must be stainless steel, or other approved non-corrosive or suitably protected metal, and where necessary must be plated to prevent electrolytic action by contact with aluminum. Beam clamps and shock absorbers must be structurally sound. Compression springs will absorb luminaire movement in all directions. All material will be subject to approval by the engineer.

SUBMITTALS. The contractor must provide documentation of material and transportation costs, and evidence that such material is properly stored on the project or a secure location acceptable and accessible to the City. The City must be able to take possession of the material if the contractor should default on the contract. The material must be properly protected from damage. If the luminaires or mounting brackets become damaged or otherwise unacceptable, they shall be removed from the quantity paid. The Contractor must present proof of payment for the materials to the Engineer within 60 days after receiving payment from the City or the payment for the luminaires shall be deducted on the next pay voucher. Proof of payment includes: Copies of cancelled checks, copies of checks with some form of verification from the financial institution, or a copy of an invoice from the Supplier marked "Paid by check number____" which also includes the date, signature and title of suppliers' representative or other acceptable documentation. A copy of an invoice marked paid is not proper proof of payment.

METHOD OF MEASUREMENT. This work will be measured per each unit delivered and furnished complete. All mounting hardware and labor will be included.

BASIS OF PAYMENT. This work will be paid for at the contract unit price each for a INSTALL LUMINAIRE, LED, 120/240V VIADUCT - SMART LIGHTING, and mounting method, which will be payment in full for furnishing, and delivering this item complete. The voucher should be accompanied by the attached Material Allowance Affidavit, and Submittals as outlined above.

ELECTRICAL SPECIFICATION
1614

ITEM 126. *** SMART LIGHTING CONTROL NODE, EXTERNAL**

DESCRIPTION. This item will consist of furnishing and installing a twist-lock smart lighting control module in luminaire housing. The twist-lock smart lighting control module is also known as a node will be used to control the luminaire operation.

MATERIAL. The material of the smart lighting control module must meet the requirements of Material Specification 1608.

INSTALLATION. The node will be mounted to the top of the housing of a street light luminaire. The top of the luminaire housing will have a 5 or 7-pin receptacle intended for the purpose of mounting a control device intended for the purpose of communicating with Chicago Smart Lighting Network. Proper operation of the node must be verified before the installation can be considered complete.

METHOD OF MEASUREMENT. This item will be measured per each unit installed, complete with control module unit.

BASIS OF PAYMENT. This work will be paid for at the Contract unit price each for SMART LIGHTING CONTROL NODE, EXTERNAL, which will be payment in full for furnishing and installing the node complete in place.

MATERIAL SPECIFICATION
1608

ITEM 127. *** SMART LIGHTING CONTROL NODE, INTERNAL**

DESCRIPTION. This item will consist of furnishing and installing an internal smart lighting control module in luminaire housing. The smart lighting control module is also known as a node will be used to control the luminaire operation.

MATERIAL. The material of the smart lighting control module must meet the requirements of Material Specification 1608.

INSTALLATION. The internal node will be mounted inside the housing of a street light luminaire. The internal node may require an external antenna intended for the purpose of communicating with Chicago Smart Lighting Network. Proper operation of the node must be verified before the installation can be considered complete.

METHOD OF MEASUREMENT. This item will be measured per each unit installed, complete with control module unit.

BASIS OF PAYMENT. This work will be paid for at the Contract unit price each for SMART LIGHTING CONTROL NODE, INTERNAL, which will be payment in full for furnishing and installing the node complete in place.

MATERIAL SPECIFICATION
1608

ITEM 128. ***** **HANGING BASKET ASSEMBLY**

Description. This work must consist of furnishing and installing a new pair of hanging baskets with a polyethylene liner, soil, and plantings at the locations specified in the Contract plans or as directed by the Commissioner.

General requirements. Each pair of hanging baskets will be placed at the location indicated in the plans. The locations will be field marked and verified for approval by the Commissioner.

Assembly. Hanging Basket Assemblies shall consist of the following: 1. Basket shall be constructed from twelve 1" x 3/16" curved steel splines welded to basket rings at top and bottom as shown in the details. The basket shall be provided with two 5/8" x 5/8" steel bar hooks welded to top ring and two 5/8" x 5/8" hanging bars. The entire basket assembly shall be provided with a black powder coated finish.

Polyethylene Bowl liner shall be 3/16" thick, 24" diameter, and 12" in height, preformed to fit the basket above. Liner shall be perforated with three 5/16" diameter holes 2" on center, black in color.

Soil mix shall consist of 30% coarse pine bulk mulch, 10% fine pine bark mulch, 35% sphagnum peat moss, 10% perlite, and 15% vermiculate. Prior to installation and planting, a slow release general-purpose fertilizer (10-10-10) shall be added to the soil mix in accordance with the material label rates.

Refer to plans for details and materials to construct hanging basket assemblies. The Commissioner shall approve all materials and fabrication methods prior to construction.

Materials. Materials must be as specified in the plans and must be "Gloss Black" in color, Steel must meet the requirements of ASTM Specification A-36.

Finish. Finish must be powder coating or similar coating process Coating Phosphating must be performed by totally immersing parts in a heated phosphate solution to provide the transition coating between the metal and the electrodeposition coating. All parts must then be rinsed by total immersion in a continuously overflowing rinse tank to remove any excess phosphate solution.

Powder coating preparation for electrodeposition coating must require all parts to be totally immersed in a continuously overflowing tank containing PPG Powercron 590, or equivalent, heavy metal free cationic Electrodeposition coating. All parts must then be rinsed by total immersion in a continuously overflowing tank to remove any excess electrodeposition coating solution.

All parts must be cured by heating to the exact time and temperature requirements of the electrodeposition coating by precisely controlled gas ovens.

i. Powder coating must be applied by electrostatic ally depositing a uniform coating on all parts to a thickness of 8 mils minimum in two applications utilizing the electrodeposition coating preparation and 2.5-3 Mils utilizing the hot dip galvanizing preparation. Powder Coat specifications:

- a. Color: black.
- b. Resin Type: Polyester Urethane
- c. 60 Degree Gloss: 92+
- d. Specific Gravity: 1.36+/-0.05 g/cm³

- e. Cure schedule: 20 min. at 380° F peak metal temperature
- f. Impact Resistance 60 in. lbs/60 in lbs.
- g. Pencil Hardness: 2H
- h. 1/8 conical mandrel bend pass
- i. Storage Stability: Min. 6 months at or below 30°. F
- ii. All parts must be cured by heating to the exact time and temperature requirements of the powder in a precisely controlled oven.
An acceptable alternate to the above phosphating process is hot dip galvanizing all parts to ASTM 123 followed by an etch priming to prepare for powder coating

Submittals. Submit manufacturer's technical data for each manufactured product, including certification that each product complies with specified requirements. Submit shop drawings showing complete information for fabrication. Include anchoring detail.

Method of Measurement. HANGING BASKET ASSEMBLY will be measured in place per each paired unit as required to fabricate and install individual hanging basket assembly at two assemblies per pole as indicated on the plans. Unit price for HANGING BASKET ASSEMBLY shall include steel spline basket and attachments, hanging bars, polyethylene liner, hanging basket soil mix, and fertilizer.

Basis of Payment. HANGING BASKET ASSEMBLY will be measured in place per each paired unit hanging basket assembly, which price will include all labor, equipment, materials and incidental work necessary to complete the work as specified.

ITEM 129.

REMOVE EMBEDDED POLE

Description. This work will consist of the removal, salvage, and delivery of existing embedded poles and the restoration of the disturbed area as specified on the plans or as directed by the Engineer. Salvaged poles must be delivered to the Division of Electrical Operations yard at Cicero and 41st Street or to another City of Chicago location as directed by the Engineer.

General requirements. Electrical poles to be removed must be disassembled as required for the complete and safe removal and transport of the item from the work site. Poles will be hoisted, loaded and secured on adequate transport with care to prevent damage. The area of the pole removal must be restored to like condition of the area surrounding the removed pole. Removal must include all incidental work and items associated with the pole as directed by the Engineer. If a CTA pole cannot be removed, it must be burned off at 18 inches below grade and disposed of in an approved manner as directed by the Engineer. The area must then be restored in an approved manner. The engineer will determine if the pole is salvageable.

Method of measurement. Electrical poles to be removed will be measured for payment by each unit removed and salvaged.

Basis of payment. Electrical pole removal and salvage, including site restoration, will be paid for at the contract unit price for each pole, which price will be payment in full for all labor, equipment, materials, and incidental work necessary to remove and salvage the pole and for the restoration of the site as specified. Disposal, if necessary and disposal fees will be considered incidental and not be paid for separately.

ITEM 130.	*****	REMOVE ANCHOR BASE POLE
ITEM 131.	*****	REMOVE LUMINAIRE
ITEM 132.	*****	REMOVE LUMINAIRE, VIADUCT
ITEM 133.	*****	REMOVE MAST ARM
ITEM 134.	*****	REMOVE CONTROLLER & POST
ITEM 135.	*****	REMOVE CONTROLLER ONLY

Description. This work will consist of the removal, salvage, and delivery of existing electrical equipment, including but not limited to light poles, arms, luminaires, signs, signals, controllers, and enclosures as specified on the plans or as directed by the Engineer. Salvaged electrical equipment must be delivered to the Division of Electrical Operations yard at Cicero and 41st Street or to another City of Chicago location as directed by the Engineer.

General requirements. Electrical equipment to be removed and salvaged must be disassembled as required for the complete and safe removal and transport of the item from the work site. Electrical equipment must be hoisted, loaded and secured on adequate transport with care to prevent damage. Removal will include all incidental work and items associated with the equipment as directed by the Engineer.

Method of measurement. Electrical equipment to be removed and salvaged must be measured per each unit removed and salvaged.

Basis of payment. Electrical equipment removal and salvage will be paid for at the contract unit price for each unit removed and salvaged, which price will be payment in full for all labor, equipment, materials, and incidental work necessary to complete the work as specified.

ITEM 136.

REMOVE SERVICE EQUIPMENT

Description. This work will consist of the removal and disposal of existing electrical service equipment, except that the junction box must be salvaged and delivered to the Division of Electrical Operations as specified on the plans or as directed by the Engineer. The junction box must be delivered to the Division of Electrical Operations yard at Cicero and 41st Street or to another City of Chicago location as directed by the Engineer. The remainder of the removal shall conform to the requirements of Specification 541.

General requirements. Electrical service equipment to be removed must be disassembled as required for the complete removal of the item from the work site. Removal will include all incidental work and items associated with the electrical equipment as directed by the Engineer. The junction box to be removed and salvaged must be disconnected from the conduit riser and cables as required for safe removal and transport. The junction box must be handled with care to prevent damage.

Method of measurement. Electrical service equipment to be removed will be measured for payment by each service unit removed. This will include disconnecting all cable from the disconnect box, the removal of the service entrance cable, removal of the disconnect box, removal of any conduit or other pole attachments, and the salvaging of the disconnect box. Removal of the cable from the disconnect box to the street light or traffic controller will not be included under this item.

Basis of payment. Electrical service equipment removal will be paid for at the contract unit price for each unit removed, which price will be payment in full for all labor, equipment, materials, and incidental work necessary for the complete removal, transport, disposal, and disposal fees to complete the work as specified. Removal and salvage of the junction box will be considered incidental and not paid for separately.

ITEM 137.	*****	REMOVE SVC CABLES IN COND
ITEM 138,	*****	REMOVE BRANCH WIRES / CABLES

Description. This work will consist of the removal and disposal of existing electrical cable, as specified on the plans or as directed by the Engineer.

General requirements. Electrical cable to be removed must be disassembled as required for the complete removal of the item from the work site. Removal must include all incidental work and items associated with the electrical cable as directed by the Engineer.

Method of measurement. Electrical cable to be removed will be measured for payment by linear foot. Cable to be removed must be measured by horizontal distances only from point to point, and will not include slack, sag, or other vertical dimensions.

Basis of payment. Electrical cable removal will be paid for at the contract unit price per linear foot, which price will be payment in full for all labor, equipment, materials, and incidental work necessary for the complete removal, transport, disposal, and disposal fees to complete the work as specified.

ITEM 139.

BREAKDOWN HANDHOLE / MANHOLE

Description. Work under this item will include breaking down an existing handhole or manhole and filling in the affected area to grade.

Demolition. This work will consist of removing the frame and cover of an existing handhole or manhole, breaking down the handhole / manhole walls, removing large debris, and backfilling the hole with screenings or other approved material. Backfill must be installed in 6 inch layers and tamped. If the handhole / manhole is in a parkway, the hole must be filled level to the existing grade. The top six inches of fill must be of an approved soil mixture. If the handhole / manhole is in sidewalk or in pavement, the sidewalk or pavement must be restored under a different pay item. If the frame or cover is deemed re-useable by the Engineer, the frame and/or cover must be delivered to the Division of Engineering at a location identified by the Engineer. Any debris, including the frame and cover must be disposed of off-sight in an approved manner. The contractor will pay for all disposal fees.

Method of measurement. This work will be paid for per each manhole or handhole removed. All backfill will be considered as part of the manhole breakdown.

Basis of payment. This work will be paid for at the contract unit price per each for BREAKDOWN HANDHOLE / MANHOLE, which price will be payment in full for all labor and materials necessary to complete the work as described. Salvaging of the frame and cover will be considered incidental to this item.

ITEM 140. *** REMOVE AND BREAKDOWN FOUNDATION – STREET LIGHT
OR CONTROLLER**

Description. The work will consist of removing a concrete foundation for the specific item referenced. The foundation must be completely removed or broken down to a point three feet below grade, disposing of the debris off-sight in an approved manner, backfilling the excavation with screenings or other approved backfill material, and reconstructing the surface area. If the foundation is in a parkway, the parkway must be properly restored with dirt to the existing level. If the foundation is in sidewalk, the sidewalk must be restored under a different pay item and will not be considered as part of this work. Debris must be disposed of according to Section 202.03 of the Standard Specifications. Backfill must meet the requirements of Section 1003.04 of the Standard Specifications.

Method of measurement. This work will be measured per each foundation removed, which will also include proper disposal and backfill.

Basis of payment. This work will be paid for at the contract unit price each for REMOVE AND BREAKDOWN FOUNDATION – STREET LIGHT OR CONTROLLER, of the type specified, which price will be payment in full for all labor and materials necessary to complete the work as described above. No additional payment will be made for backfill or disposal of debris.

ITEM 141.	*****	REMOVE EXISTING SIGN PANEL & POST ASSEMBLY FROM PARKWAY/SIDEWALK AND RE-INSTALL
ITEM 142.	*****	REMOVE EXISTING SIGN PANEL, SALVAGE AND RE-INSTALL

Description. Work under these items consists of removing existing Sign Panels from light posts and traffic signal posts, and removal of existing Sign Panel and Post Assemblies, which consist of posts in ground, base mounted posts, embedded posts in concrete, the mounted sign panels, sleeves, wedges, bases and other associated hardware and re-installing the signs as directed. Note that all signs shall be removed carefully as they will be reused. Any signs damaged by the contractor shall not be paid for, but shall be replaced in size and type with new signs at no additional cost to the contract. The contractor shall deliver all salvaged Sign Panels and Sign Panel and Post Assemblies to the Bureau of Signs and Markings, 3458 South Lawndale Avenue, Chicago, Illinois 60623. The Contractor shall contact Bureau of Signs and Markings at (312)747-2210 at least 24 hours in advance to arrange delivery of salvaged Sign Panels and/or Sign Panel and Post Assemblies. The Contractor shall obtain a receipt for all the delivered Sign Panels and/or Sign Panel and Post Assemblies from the Superintendent of Signs Division and submit the same to the Commissioner within 24 hours of delivery. All removal work shall be performed in accordance with Article 724 of Standard Specifications.

The sign panels shall be re-installed in accordance with the "INSTALL SIGN PANEL (CENTER, FLAG, OR BACK-TO-BACK MOUNT) SPECIFICATION" with new hardware, and paid as the respective item herein described for re-installation.

Note that if an existing sign is mounted on a light post, but must be re-installed on a post, the post shall be paid as FURNISH AND INSTALL POST, DIG METHOD OR DRILL METHOD, and the sign relocation paid as REMOVE EXISTING SIGN PANEL, SALVAGE AND RE-INSTALL.

Note that if an existing sign is mounted on a post, but will be remounted at the same location on a light post, the work shall be paid as REMOVE EXISTING SIGN PANEL AND POST ASSEMBLY FROM PARKWAY/SIDEWALK AND RE-INSTALL. The post shall be salvaged at no additional cost.

In the case of removal of a post installed in a parkway that is not going to be replaced with a new post at the same location, the Contractor shall fill and compact the hole with approved fill materials at no additional cost to the City.

Method of Measurement. REMOVE EXISTING SIGN PANEL AND POST ASSEMBLY FROM PARKWAY/ SIDEWALK AND RE-INSTALL; and REMOVE EXISTING SIGN PANEL, SALVAGE, AND RE-INSTALL will be measured for payment on the basis of each item removed and salvaged or reinstalled.

Basis of Payment. This work will be paid for at the contract unit price per each for REMOVE EXISTING SIGN PANEL AND POST ASSEMBLY FROM PARKWAY/ SIDEWALK AND RE-INSTALL; and REMOVE EXISTING SIGN PANEL, SALVAGE, AND RE-INSTALL.

ITEM 143.

STREET NAME SIGN

Description. This item shall consist of furnishing, fabricating, and installing a street name sign to replace an existing sign that was in poor condition as identified by the Engineer. The sign shall be installed at the location identified from the street sign survey. The sign panel and associated hardware shall meet the specifications of Section 720– SIGN PANELS AND APPURTENANCES of the Illinois Department of Transportation’s Standard Specifications for Road and Bridge Construction. The signs shall meet the requirements as to size, mounting hardware, and mounting location per City of Chicago Department of Transportation standard drawings “Post and Mast Arm Mounted Street Name Signs”. If the sign is to be on its’ own post, the post shall be installed and paid for as FURNISH AND INSTALL POST, DIG METHOD.

Material acceptance. The contractor shall provide Manufacturer’s certifications that the materials comply with these specifications.

Method of Measurement. This work is to be measured for furnishing street name signs, measured in place and the area computed in square feet.

Basis of Payment. This work will be paid for at the contract unit price per square foot street name sign, and shall include all necessary hardware and labor to erect the sign.

ITEM 144.	*****	FURNISH SIGN PANEL, TYPE 1, NON-REFLECTIVE, SINGLE SIDED
ITEM 145.	*****	FURNISH SIGN PANEL, TYPE 1, REFLECTIVE TYPE A, SINGLE SIDED
ITEM 146.	*****	FURNISH SIGN PANEL, TYPE 1, REFLECTIVE TYPE A, DOUBLE SIDED

Work under this item shall be performed in accordance with the requirements of Section 720 of the Standard Specifications, the latest version of the City of Chicago Department of Transportation Field Manual For Sign Installation and the latest version of the Manual of Uniform Traffic Control Devices (MUTCD); except as herein modified to replace an existing sign that was in poor condition as identified by the Engineer.

Description. This work shall consist of the fabrication and delivery of signs to the project to replace existing signs that are in poor condition as identified by the Engineer.

Standard traffic signs designated by letters and numbers shall be according to the MUTCD. Standard traffic signs shall be according to the Standard Highway Signs, except where otherwise specified by the Commissioner.

Non-standard signs shall be in accordance with the Chicago Sign Manual and as directed by the Commissioner.

If the sign is to be on its own post, the post shall be installed and paid for as FURNISH AND INSTALL POST, DIG METHOD or FURNISH AND INSTALL POST, DRILL METHOD.

Materials. Material shall comply to the following:

SIGN BASE:

Flat Aluminum Base: Flat aluminum sign base material shall be Type 5052 H38/Mill flat sheet and shall meet the requirements of Article 1090.01 of Standard Specifications. Mill certification sheets shall be submitted with each order of fabricated signs. The sign panel thickness shall be according to Article 1090.02 of the Standard Specifications.

All sign-bases used for non-reflective signs shall be powder coated. The sign base material shall withstand exposure to temperatures up to 350 degrees Fahrenheit (as experienced during a powder coating process) and maintain all inherent physical characteristics. No warpage or other deformation shall result from exposure to said temperature, and the bowing, when laid on a true flat surface shall not exceed 1/16 inch per foot in length or width.

SIGN BASE COATING:

Powder Coat Finish: Powder coatings of aluminum sign blanks shall be used as the substrate for applying a reflective sheet of either heat applied or pressure sensitive adhesive, to be followed by direct application of message inks, pastes or baked enamel paints either by printing or silk screening processes and then receive a protective overlay film.

Powder coat of selected color shall be electrostatically applied and baked in controlled high temperature oven to assure a smooth, hard-satin finish. Powder coating shall be applied to both sides of sign blanks, including the back of one sided signs. Powder coating type shall be a

TGIC-Polyester. The powder coat color shall be the same as the sign background color, as defined in the MUTCD.

1. The powder coating process shall include a negative electrical charge administered to the sign blanks, a five (5) stage washing process, an oven dry process, a cooling period, a spray application of polyester coating, which has been given a positive electrical charge to strengthen the bonding, a baking process as recommended by the paint vendor, at a temperature no higher than 350° and a cool-down period.
 1. Coated surface shall be free of visual defects such as orange peel, craters, dust, discoloration, etc.
 2. Application: Electrostatic Spray, cold.
 Substrate: 0.08 inch sheet aluminum, alloy 5032 H38.
 Pretreatment: Chromium chromate, Alodine as recommended by the coating manufacturer.
 Cure Schedule: As recommended by the coating manufacturer.
 Film Thickness: 2.0-2.5 Mils, or as required to cover.
 3. Colors: Safety Yellow, Red, Brown or White. The color of the powder discoloration, etc. coating shall match the color of the sign background.
- a. Powder coating shall be tested and certified for the following properties:

<u>TEST METHOD</u>	<u>COATING PROPERTIES</u>	
*ASTM D3451 (18.3)	Specific Gravity	3.30±0.06
	Theoretical Coverage	147±4 ft. ² /lb/mil
*ASTM D3451 (13)	Volatile Content During Cure	<.5%
	Maximum Storage Temp.	75°F
ASTM D623	Gloss at 80°	85+
Visual Comparison	PCI Power Smoothness	7
*ASTM D2454	Overbake Resistance, Time	100%
ASTM D3383	Pencil Hardness	H-2H
ASTM D2794 (modified)	Dir/Rev Impact, Gardner	40/10 in/lbs
ASTM D3359B	Adhesion, Cross Hatch	5B Pass
ASTM D522	Flexibility, Mandrel	1/8 In. dia. no fracture
ASTM D117	Salt Spray	1,000 hrs
ASTM 04585	Humidity	1,000 hrs

* Above properties are typical, and vary with the product used.

SIGN FACE MATERIALS:

1. **Non-Reflective Signs:** The non-reflective material shall conform with Section 1091.01 and 1091.02 of the Standard Specifications.
2. **Reflective Signs:** The reflective material shall be Type A (glass spherical lens) as specified in Sections 1091.01 and 1091.02 of the Standard Specifications as specified herein. In accordance with the warranty requirements defined hereinafter, between the end of seven and ten years after installation, the coefficient of retroreflection shall be greater than or equal to the percentages shown below for .2° and .5° observation and -4° and +30° entrance angles.

Type A Sheeting: Initial requirements, for Type A sheeting, are as shown in Table 1091-2 of the Standard Specifications. For screen printed transparent colored areas or transparent colored overlay films on white sheeting, the coefficients of retroreflectivity shall be greater than or equal to the values for the corresponding color shown in the table below.

Sheeting Color	Min. Coefficient of Retroreflectivity After Seven Years (% of Initial Requirements)	Min. Coefficient of Retroreflectivity After Ten Years (% of Initial Requirements)
White	85%	80%
Yellow	85%	80%
Green	84%	80%
Red	84%	80%
Blue	85%	80%
Brown	83%	80%

Silk Screen Inks: The silk screen inks shall meet the recommendations of the manufacturer of the sign background material and be applied according to the ink manufacturer's recommendations. Inks shall be suitable for exterior applications with proven weather resistant and color retention properties.

Ink types shall include opaque, semi-transparent and transparent. The Contractor shall provide specific types as required for type of applications indicated, as selected by Owner's Representative and as shown on approved shop drawings. The Contractor has the option to use vinyl graphic marking film, 3M Scotchcal or approved equal in lieu of silkscreen inks. The Contractor shall provide certification that the material meets or exceeds the requirements specified for silkscreen inks, including warranty requirements, and is compatible with sign materials. The color of the graphic marking film shall be the same as specified for silkscreen inks.

Nighttime reflected colors shall be uniform, devoid of streaks, and appear substantially the same as daytime colors throughout the warranted service life.

Sheeting used for side by side overlay applications will require closer day/night color tolerances.

The sheeting surface shall exhibit a 85⁰ gloss-meter rating of not less than 50 when tested in accordance with ASTM D 523.

Processed and applied in accordance with recommended procedures, the sheeting shall be weather resistant. Following cleaning, the applied sheeting shall show no appreciable discoloration, cracking, streaking, crazing, blistering, or dimensional change and shall exhibit not less than 80 percent of the brightness values shown in Table 1091-2 of the Standard Specifications when exposed to 1,000 hours of accelerated weathering.

The test specimens shall be cleaned by immersing in 5% hydrochloric acid solution for 45 seconds, then rinsing with water and blotted dry with a soft clean cloth. The cycle used shall consist of 8 hours of light at 60⁰C followed by 4 hours of condensation at 40⁰C.

When tested according to ASTM D 4956, the sheeting shall not shrink in any dimension more than 1/32 inches in 10 minutes and not more than 1/8 inches in 24 hours.

After conditioning for 24 hours at $22\pm 4^{\circ}\text{C}$ at $50\pm 5\%$ relative humidity, with the protective liner removed, the sheeting shall show no cracking when tested by bending over a 1/8 in mandrel in one second (adhesive coated with talcum powder to prevent sticking to the mandrel).

A single roll shall not contain more than 4 splices per 50 Yd. length. The sheeting shall be overlapped not less than 3/16".

The sheeting shall form a durable bond to smooth corrosion and weather-resistant surface and adhere securely at temperatures of -35° to 70°C . The pre-coated adhesive, 48 hours after application, shall be elastic enough to resist shocking off when struck at -23°C and strong enough to resist appreciable peeling. The bond shall be sufficient to support a 1.75 lb. weight attached to the free end of a specimen and allowed to hang free from an angle of 90° to the panel surface for 5 minutes without peeling more than 2" as outlined in the test for adhesive backing in Federal Specification LS-300.

Sheeting, with Type I adhesive, used for manufacturing cut-out legends and borders shall provide sufficient position ability during the fabrication process to permit removal and reapplication without damage to either the legend or sign background and shall have a plastic liner suitable for use on bed cutting machines. Thereinafter, all other adhesive and bond requirements contained in the specification shall apply.

The thickness of the sheeting without protective liner shall not be more than 0.025". The sheeting shall permit cutting and color processing in accordance with the sheeting manufacturer's recommendations at temperatures of 15° to 38°C . and relative humidity of 20% to 80%. The sheeting shall be heat resistant and permit forced curing without staining of applied or unapplied sheeting at temperatures recommended by the manufacturer. The sheeting shall be solvent resistant and capable of being cleaned with VM & P naphtha, mineral spirits, and turpentine.

Stored under normal conditions and temperatures, the sheeting as supplied shall be suitable for use for a period of at least two years. With the exception of the mandrel test values specified, the sheeting shall continue to be pliable and workable.

The sheeting shall have a distinctive overall pattern in the sheeting unique to the individual manufacturer. If material orientation is required for optimum retroreflectivity, permanent marks indicating direction of orientation shall be incorporated into the face of the sheeting throughout the roll length. They shall be readily visible to the sign fabricator. Neither the overall pattern nor the orientation marks shall interfere with the reflectivity of the sheeting.

Documentation for roll materials shall contain a written declaration from the sheeting manufacturer stating that material storage conditions, fabrication and application processes, completed sign storage facilities, and packaging and shipping methods at the Department's Sign Shop facilities or equivalent are acceptable and comply with applicable material warranty conditions.

Rolls of the widths and lengths specified on the purchase order shall be supplied on a 3-inch I.D. fiber core the same width as the sheeting. The rolls shall be packed snugly in individual corrugated fiberboard boxes in such a manner that no damage or defacement shall occur to the reflective sheeting during shipment or storage. Rolls of 12 inches or less in width may be

multiply packaged. Both ends of each box shall be clearly labeled as to type, color, adhesive, manufacturer's lot number, date of manufacture, and vendor's name.

- (a) Opaque Silk Screen Ink - Black (Single Component, Low odor).
- (b) Transparent Silk Screen Ink - All colors (Single Component, Low Odor, Clear Coat not required, 8 Hour Maximum Dry Time).
- (c) Ink Thinner.
- (d) Slip Sheeting (Perforated) 24 in, 30 in, 36 in and 48 in widths by 100 yd rolls.
- (e) Nylon Protective Mounting Washer 1/16 in Thick by 3/8 in ID by 7/8 in OD.
- (f) Packing paper 24 in, 30 in, 36 in, and 48 in widths by 100 yd rolls.

Type A sheeting shall be guaranteed by the manufacturer to comply with the following:

- (a) Type A sheeting processed and applied to new or refurbished aluminum sign blank material shall perform effectively and maintain a uniform day/night color for a period of seven (7) years after erection.
- (b) The sheeting shall be considered unsatisfactory when it has deteriorated due to natural causes to the extent that any of the following conditions exist:
 - (1) The sign has been determined by the purchaser to be ineffective when viewed from a moving vehicle under normal day or night driving conditions.
 - (2) Permanent streaking, cracking, or color variations (either day or night) develop on the sign surface.
 - (3) The reflective value of a sign(s) at the 0.2° observation angle/-4.0° entrance angle is below the value shown in the following table. The reflective value shall be determined by averaging random reflective measurements * in accordance with the following criteria:

Sign Size	Square Feet		
	1-50	51-200	Over 200
Min. Random Measurement/Sign (Ea.)	5	9	15
Max. Readings Below Table 1091-2 (Ea.)	1	2	3

*Reflective Measurements shall be made with a calibrated hand held retroreflectometer after wiping with a soft dry cloth to remove any dust, lent, or road film from the area to be measured.

Material Safety Data:

The purchaser shall date all signs by month and year when they are fabricated. This guarantee shall be prorated accordingly for signs erected more than one year after fabrication.

All suppliers for roll material shall furnish at no cost, any product information, Material Safety Data Sheets, bulletins, technical service required to use the sheeting, and the name(s) and telephone number(s) of qualified service personnel that may be contacted during normal working hours to address any product related problems.

- a. Additional Sign Face Materials Requirement: Contractor shall certify that all materials used in the fabrication of signs (substrate material, inks, films, overlays) are compatible with one another under conditions of service and application, as demonstrated by the manufacturer based on testing and field experience, and that the materials comply with these specifications.
- b. City of Chicago Identifier: In addition to the above requirements, signs shall have "CITY OF CHICAGO XX" logo screened at the bottom center or top right corner of the sign where XX represents the last two digits of the year of sign manufacture.

Submittals:

- a. Shop drawings: Fabrication shop drawings showing full size sign layout, color, message (including "City of Chicago" logo and date of sign fabrication), graphics and proposed materials for each sign assembly, including posts, bases and hardware, shall be submitted for approval prior to start of fabrication. Similar sign types that have the same sizes, colors, symbols and text layout shall be submitted using one full size sign layout. Note: The message "City of Chicago XX", where XX represents the last two digits of the calendar year of sign manufacture, shall be screened on all signs furnished under this contract. For stock items, manufacturer's catalog sheets shall be submitted for approval before shipping the order.
- b. Materials:
 - 1. Aluminum: Mill Certifications, Samples
 - 2. Powder coating: Test Data; Sample; Manufacturer's Certification that material complies with the required specifications.
 - 3. Sign Face Material: Test Data; Samples; Manufacturer's Certification that material complies with the required specifications. Test Data shall be gathered by an independent agency, such as AASHTO's National Transportation Product Evaluation Program (NTPEP). Test data shall cover retroreflective sheeting and process inks and/or overlay films manufactured by the sheeting manufacturer in standard traffic colors.
- c. Samples: Submit one sample for each sign type.
- d. Certifications: The manufacturer shall submit written certification for material's compliance with these specifications.
- e. Maintenance Instructions: Submit manufacturer's printed instructions for maintenance of each product, coating and film, including precautions for use of cleaning materials and solvents for paint removal which could damage specified materials.

Warranty.

- a. Non-Reflective Signs: The manufacturer's written warranty period shall be one (1) year. Failures under warranty include, but are not limited to: coating degradation or failure, chalking, fading, structural or material failure, delamination of applied graphics and adhesive failure. The final punch list completion and acceptance constitutes the start of the warranty period.

- b. **Reflective Signs:** The manufacturer's written warranty period shall be one (1) year. The warranty shall cover the cost of replacement signs. Failure under warranty includes but is not limited to: loss of retroreflectivity below the minimum specified under sign face materials above, deterioration of retroreflectivity sheeting to the extent that the sign is ineffective for its intended purpose when viewed from a moving vehicle under normal day and night driving conditions, coating degradation or failure, chalking, fading, structural or material failure, delamination of applied graphics and adhesive failure. The final punch list completion and acceptance date constitutes the start of the warranty period.

Material Acceptance: The contractor shall provide Manufacturer's certifications that the materials comply with these specifications.

Method of Measurement. The sign panels will be measured for payment in square feet of furnished and delivered sign panel. The area used for measurement shall be the area of the smallest rectangle that will circumscribe each individual sign panel measured from edge to edge (horizontally and vertically).

Basis of Payment. This work will be paid for at the Contract unit price per square foot of fabricated, furnished and delivered FURNISH SIGN PANEL, TYPE 1 of the type specified.

ITEM 147.	*****	FURNISH AND INSTALL SIGN POST, DIG METHOD
ITEM 148.	*****	FURNISH AND INSTALL SIGN POST, DRILL METHOD

Description. Work under the above pay items consists of furnishing sign posts of various lengths and installation by dig or drill method as directed by the Engineer. The signs shall be installed at the locations identified from the street sign survey and as directed by the Engineer. Typically, the posts will be used to mount signs that were previously mounted on light posts and the light posts have been removed.

The "CDOT Field Manual for Sign Installation" should be adhered to and is available for review at 30 N. LaSalle St., Suite 400, Chicago, IL. The posts installed using dig method shall be 11'-6" in length while posts using drill method shall be 10'-6" in length. The cost of wedges, sleeves, post bases and all other required hardware to install posts is incidental to the cost of these items.

Sign Posts.

Materials. The material for the posts furnished shall be hollow steel tubes, 2 - 3/8 inches outside diameter, conforming to ASTM A500 Grade B and coated for resistance to corrosion and outdoor weathering. Nominal wall thickness of the post shall be 0.08". The sign post must be formed to the size and type required per the "CDOT Field Manual for Sign Installation" and/or the contract drawings. Holes shall be drilled prior to coating to prevent indentations and dimples in the posts.

Finish: The posts shall be galvanized, straight and have a smooth, black, uniform powder coating finish as specified below. The interior of the sign posts shall be coated with a minimum of an 81% zinc-rich primer. The exterior of the posts shall be galvanized with material conforming to AASHTO M 120 with a minimum weight of 1.00 ounce per square foot. The weight of the exterior galvanizing may be reduced to 0.65 ounces per square foot of High Grade material conforming to AASHTO M120 if applied with a chromate conversion coating and a clear high performance organic polymer coating. Powder coating of the posts and extensions shall meet the following requirements:

Color: Vulcan Black Polyester
Product No.: PFB-401-S6
Cure: 400F-18 minutes PMT
Resin type: Polyester
Gloss: Medium

Pretreatment Process:

Cleaning: All parts shall be cleaned utilizing spray washers and an alkaline cleaner to remove any remaining grease, dirt, or other contaminants.
Rinsing: All parts shall be spray rinsed in a continuously overflowing rinse stage to remove any remaining cleaning solution.
Phosphating: All parts shall be spray phosphated with a heated phosphate solution to provide a transition coating between metal and powder.
Rinse: All parts shall be spray rinsed in a continuously overflowing rinse stage to remove any remaining phosphate / sealant solution.

Powder Coating Process:

Drying: All parts shall be preheated to totally eliminate moisture and prevent off gassing of casting.

Powder Coating: A premium TGIC polyester powder shall be electro statically applied to provide a uniform coating to a thickness of 1-3 mils (1 mil minimum). To achieve proper mil thickness, the powder shall be applied with one application. The manufacturer shall be responsible for ensuring proper adhesion to the metal surface.

Curing: All parts shall be heated to the exact time and temperature requirements, recommended by the powder coat material manufacturer, in precisely controlled gas ovens.

Sleeve and Locking Wedge:

Post sleeve (pipe socket): Material must be hollow steel tubes conforming to ASTM A500 Grade B or ASTM A501, and galvanized according to AASHTO M111, nominal wall thickness of 0.109", 2-⁵/₈" inside diameter that allows for a minimum of 13-¹/₄" of sign post to nest inside the sleeve. The overall length must be 27". A drawing detail as shown in the "CDOT Manual for Sign Installation" shall govern.

Locking wedge: Material shall be 11 GA. Steel tube conforming to ASTM A500 Grade B or ASTM A501 and galvanized according to AASHTO M111. The locking wedge shall be contoured to fit between the steel post and the 27-inch sleeve. A drawing detail as shown in the "CDOT Field Manual for Sign Installation" shall govern.

Sign Post Base: The sign post base furnished under this contract includes a carriage bolt, tamper-resistant nuts and anchor bolts with nuts. The finished casting shall be free from burrs, cracks, voids, or other defects.

Support base: Twelve-inch diameter, aluminum-zinc alloy casting per ASTM A197. The casting shall have the words "City of Chicago" cast in relief as shown in the "CDOT Field Manual for Sign Installation".

Bolt washers and nut: Stainless steel as specified in Article 1006.31a of the Standard Specifications. Include a ¹/₂" x 4-¹/₂" carriage bolt with two 1" flat washers and a ¹/₂" x 13 full height hex nylon locknut.

Anchor Bolt: Galvanized steel expansion anchors conforming to Article 1006.09 of the Standard Specifications. Red Head #1236 (¹/₂"x 3-³/₄"). Furnish three (3) per each sign base provided.

Finish: Powder coat to minimum 1 mil thickness with satin black polyester finish.

Submittals:

Shop Drawings: Fabrication shop drawings showing the full size layout, color, and proposed materials for posts, bases, and hardware shall be submitted for approval prior to start of fabrication.

Posts: Mill certification, samples of each size of finished post and extension.

Locking wedge and sleeve: Samples of each item.

Cast aluminum base: Mill Certifications.

Powder coating: Test Data; Sample; Manufacturer's Certification that material complies with the required specifications.

Galvanizing: Manufacturer's Certification for compliance with these specifications.

Stainless steel bolts and nuts, anchor bolts: Sample, product data sheet.

Installation:

All installations shall be performed in accordance with Art. 720.04 of the Standard Specifications and as per the latest edition of the "CDOT Field Manual for Sign Installation".

Dig Method: To install a sign post by dig method, the Contractor will first drive a base sleeve to a level with the top of the sleeve near flush to the ground. The sign post will then be inserted into the sleeve and raised to a level with the bottom of the post 10"-12" inches below the ground. The sign post will then be locked in place by driving a locking wedge between the sign post and the base sleeve.

Note: Pipe sleeve and wedge shall not be bolted together. The holes at the top of the sign post will be properly aligned such that the sign to be installed will properly face the flow of traffic.

Drill Method: The base shall be secured to the concrete surface by steel expansion anchors and shall be leveled by using stainless steel washers as shims at the anchor bolt locations and under the base castings. The sign post shall be installed into the cast iron base and locked in place with a carriage bolt with two flat washers and a nylon lock nut as shown in the "CDOT Field Manual for Sign Installation". The holes at the top of the sign post shall be aligned such that the sign to be installed shall properly face the flow of traffic.

Sign posts shall be installed 18" from back of curb unless otherwise specified. Posts for transportation stops, e.g. bus, taxi, tour bus, or tour boat stops, shall be installed 24" from the back of the curb unless otherwise noted.

Warranty:

Manufacturer's warranty shall be 5 (five) years from the date of installation and acceptance.

Material Acceptance:

The contractor shall provide Manufacturer's certifications that the materials comply with these specifications.

Method of Measurement. Posts shall be measured on the basis of each post furnished and installed under the specified method.

Basis of Payment. This work will be paid for at the contract unit price each for FURNISH AND INSTALL POST, as per the method specified. The cost of bases and all other required hardware to complete the installation of posts shall be incidental to the unit price of the item.

ITEM 149. *** INSTALL SIGN PANEL (CENTER, FLAG OR BACK-TO-
BACK MOUNT)**

Description. Work under these pay items consists of installing the sign panels at locations as directed by the Engineer utilizing the mounting method specified. As part of the work under this item, the Contractor shall supply and install all hardware required for a complete installation including horizontal bracing channels, bands, bolts, washers and nuts.

Materials. The sign mounting hardware for the signs furnished under this contract includes brackets, holders, bands, bolts, nuts, washers, screws and all other necessary devices to connect sign assemblies and to mount signs to new posts, existing light or traffic signal posts, or adjacent structures. Bolts and nuts shall be tamper-resistant.

Sign Hardware for center mount on sign posts and light posts:

Stainless steel sign bracket, 5/16" x 5/8" stainless steel hex head flanged bolt, and 3/8" x 3/4" x 1/16" stainless steel washers. 5/16" x 3.5" stainless steel socket head screw with 1-1/2" x 1-1/4" sign bracket, two flat washers and nylon locknut per fastener assembly.

Sign Hardware for flag or center mount, banded to light posts:

Two 0.75 inch x 0.020 inch stainless steel band fasteners.

Sign hardware for center mounting:

One stainless steel button head socket head screw with two flat washers and nylon locknut per mounting bracket, to attach mounting bracket to post or adjacent structure. Two button head socket head screws with four flat washers and nylon locknut per mounting bracket to attach sign to the sign bracket.

Sign Hardware for flag mount on light post or sign post:

The sign mounting brackets shall be an aluminum-zinc alloy. The casting shall be tenzaloy with a multi-curve back design. The sign brackets shall be powder coated with a satin black finish, Product 311 B, with Cure 400F - 18 minutes PMT, TGIC polyester. Mount the brackets to a sign post with a 3" x 5/16" stainless steel bolt and nylon lock nut.

Mount the bracket to a light post by banding with 0.75 inch x 0.020 inch stainless steel banding. Attach the sign to each bracket with two 1-1/4" x 1/4" stainless steel bolts and nylon locknut.

Miscellaneous: All stainless steel screws, bolts, washers and nuts shall conform to the requirements of Section 1006.29(d) of the Standard Specifications. All bolts and nuts shall have National Coarse Thread.

Submittals: Materials data, catalog sheets, certifications and samples shall be submitted for each type of hardware specified, for the Commissioner's approval prior to the start of work.

Installation: All signs shall be installed at locations and with mounting type as specified on Contract Drawings. Sign panels shall be installed according to Article 720.04 of the Standard Specifications and as specified herein. Sign panels shall be installed on newly supplied sign posts, existing light posts, traffic signal posts or adjacent structures (such as viaduct structure or retaining wall). Installation shall include provision of all necessary support brackets, flanges, banding material, and hardware to provide a complete installation. On light posts or traffic signal posts, sign panels shall be installed by the banding method. Guide signs and flag

mounted signs shall be installed on brackets banded to the light/signal post. Two (2) stainless steel bands shall be required for signs up to six (6) feet high. Three (3) bands shall be required for signs over six (6) feet high.

Material Acceptance: The contractor shall provide Manufacturer's certifications that the materials comply with these specifications.

Method of Measurement. This contract item will be measured for payment per each Sign Panel installed.

Basis of Payment. This work will be paid for at the contract unit price each for INSTALL SIGN PANEL (CENTER, FLAG OR BACK-TO-BACK MOUNT).

ITEM 150. ***** **TREE PRUNING**

Description. This work will consist of furnishing all labor, material and equipment required to provide complete tree pruning services for all trees located at various landscaped areas as designated by the Commissioner. Particularly, trees or branches that interfere with the light pole or restrict the distribution of light shall be trimmed as directed by the Commissioner. The work includes, but is not exclusive to pruning, spraying, injecting, thinning, staking, and training for appearance, health and safety of the trees.

Construction requirements. All pruning shall be performed by trained staff and supervised by an ISA Certified Arborist and shall conform to the ANSI A 300 specifications for pruning and to ANSI specifications Z 133.1 for safety. Use clean implements, disinfecting between each cut, if necessary. All material resulting from pruning operations shall be removed and disposed of off-site in accordance with Article 202.03.

All tree care including pruning, thinning, staking, and training, for appearance, health and safety shall be provided by the Contractor's I.S.A. Certified Arborist. A Bureau of Forestry permit is required for all tree work, with the cost of permits shall be considered incidental to this item.

Annual pruning of tree branches shall be done April 1 to 15, and October 15 to November 30, when trees are dormant.

No tree climbing spikes shall be used. Arborist shall use a lift for pruning in tree canopies to avoid stepping on other plantings.

The Contractor shall use the collar-cut method that promotes proper wound healing. Flesh cuts, pruning paints or tars are unacceptable. The Contractor shall prune heavily, as directed by the Commissioner, to thin growth to allow for better air movement and light penetration.

In addition, pruning shall remove diseased branches and twigs, branches that present a hazard to vehicular traffic, branches that restrict light distribution from a street light, deadwood, split limbs, crossing branches, suckers, water sprouts, stubs and improper cuts from former pruning. Do not cut the leader (central highest branch) unless severely diseased or damaged. All pruning shall maintain the natural form and characteristics of each tree unless otherwise directed by the Commissioner.

Method of measurement. Tree pruning shall be measured for payment per each tree of the respective size. The tree diameter will be measured 4.5' above the highest ground level at the base of the tree.

Basis of payment. Tree pruning will be paid for at the contract unit price per each tree for TREE PRUNING, which price shall include all labor, equipment, and material necessary to complete the work as described herein.

ITEM 151. ***** **LANDSCAPE RESTORATION**

Description. The scope of the work covered by this item is the restoration of pre-existing landscape conditions through the placement of pulverized topsoil in sidewalk / parkway areas followed by seeding with type 1A grass seed mix. This may include furnishing, excavating, and replacing existing soil(s) with pulverized topsoil, special types of topsoil, or compost. Final grade must be restored at the Engineer's direction or shown in the plans or to match existing conditions. Additionally, landscape will be restored at locations indicated in the plans, or as directed by the engineer.

This work must be in accordance with the Standard Specifications for Road and Bridge Construction (latest addition) Articles 211.03 – 211.05, 250.01, 250.04, 250.07 of the Standard Specifications for Landscaping, and Erosion Control.

METHOD OF CONSTRUCTION. Restoration is an integral part of the walkway surface and utility work. Pulverized topsoil must be installed after the light poles and related equipment have been installed, and all exposed utilities required to facilitate conduit and foundation installation are complete. Following all utility installation, all areas to be restored must be verified and quantified in advance by the Engineer. All restored areas must be at final grade and fine graded prior to seeding.

Material. The materials will be according to the following:

Item	Article/Section
(A) Pulverized Topsoil & Compost (compost not to excess 10%)..... (Furnished from outside of the R.O.W.)	1081.05(a)
(B) Class 1A Grass Seed Mix	250.07

Method of measurement. Landscape restoration must be measured per block that is the surface area installed per City of Chicago block or fraction thereof.

Basis of payment. This work will be paid for at the contract unit price per block for LANDSCAPE RESTORATION, including the around the corner block up to the alley, and will be payment in full for restoring landscaping per square block as required by the plans, and must include all material, labor, and equipment necessary.

ITEM 152. ***** **LANDSCAPE RESTORATION USING GRASS SEED
MAT**

Description. The scope of the work covered by this item is the restoration of pre-existing landscape conditions through the placement of pulverized topsoil in sidewalk / parkway areas followed by seeding with type 1A grass seed mix. This item is only for localized areas requiring restoration and not for entire block restoration. This may include furnishing, excavating, and replacing existing soil(s) with pulverized topsoil, special types of topsoil, or compost. Final grade must be restored at the Engineer's direction or shown in the plans or to match existing conditions. Additionally, landscape will be restored at locations indicated in the plans, or as directed by the engineer.

This work must be in accordance with the Standard Specifications for Road and Bridge Construction (latest addition) Articles 209.03, 211.03 – 211.05, 250.01, 250.04, 250.07.

Method of construction. Restoration is an integral part of the walkway surface and utility work. Pulverized topsoil must be installed after the light poles and related equipment have been installed, and all exposed utilities required to facilitate conduit and foundation installation are complete. Following all utility installation, all areas to be restored must be verified and quantified in advance by the Engineer. All restored areas must be at final grade and fine graded prior to seeding. After the seed is placed and rolled, a straw erosion control blanket shall be placed on the seeded area. If needed, wire staples shall be installed to hold the mat in place. The straw mat and staples shall not be paid for separately, but are included in the cost of this item. Loose straw is not acceptable in place of the straw mat.

MATERIAL. The materials will be according to the following:

Item	Article/Section
(C) Pulverized Topsoil & Compost (compost not to excess 10%) (Furnished from outside of the R.O.W.)	1081.05(a)
(D) Class 1A Grass Seed Mix	250.07
(E) Knitted Straw Mat	1081.10(b)

Method of measurement. Landscape restoration shall be measured for payment in place and the area computed in square yards for area restored. To be acceptable for payment, the seed shall be growing in place for a minimum of 30 days in a live healthy condition. Any areas with no grass growth shall be reseeded and re-blanketed at no additional cost .

Basis of payment. This work will be paid for at the contract unit price per square yard for LANDSCAPE RESTORATION USING GRASS SEED MAT.

ITEM 153. ***** **SPOILS REMOVAL INSPECTION AND CERTIFICATION**

Description. This work will consist of the disposal of existing unsuitable material as directed by the Engineer. The Contractor shall be responsible for all additional testing with regards to the Clean Construction or Demolition Debris (CCDD) disposal requirements of IEPA Public Act 96-1416.

General requirements. Contractor shall be responsible for engaging a Licensed Professional Engineer to provide the necessary certification that the soil is uncontaminated. A copy of said certification shall be provided to the Commissioner.

Should the Contractor choose to dispose of surplus soil material at a registered uncontaminated soil fill location, Form LPC-633 must be submitted to the operator of that location before any materials can be disposed of at that site.

The Contractor shall be advised that, even with the submittal of the properly executed Form LPC-663, the fill operators retain the right to reject any or all loads from a particular construction site based on their own determination of the suitability of material from that site.

Each certification covers only material from that specified job site. The Contractor shall take care not to stockpile or mix together material from different sites before taking that material for disposal.

This special provision is not to be construed as a requirement that obligates the Contractor to dispose of surplus material at a registered uncontaminated soil fill location.

The Contractor must also be thoroughly familiar with the provisions of the Environmental Protection Act as it relates to proper disposal of excavated material and construction debris.

Form LPC-663 may be downloaded at the following link:

<http://www.epa.state.il.us/land/ccdd/uncontaminated-soil-certification-form.pdf>

Method of measurement. Disposal of existing unsuitable material will be measured per cubic yard disposed.

Basis of payment. This work will be paid for at the contract unit price per cubic yard, measured for SPOILS REMOVAL INSPECTION AND CERTIFICATION which price will be payment in full for all labor, equipment, materials, fees and incidental work necessary to complete the work as specified.

ITEM 154.

TRAFFIC CONTROL & PROTECTION

Description. Work under this item must be in accordance with Section 701/702 of the Standard Specification except as herein modified. This item of work shall include furnishing, installation, maintenance, relocation and subsequent removal of all signs, signals, markings, traffic cones, barricades, warning lights, flaggers and other devices which are to be used for the purpose of regulating, warning or guiding traffic during the construction of this improvement. Traffic protection will be as indicated in the construction plans or as directed by the engineer.

General requirements. Traffic Control shall be in accordance with the applicable section of the Standard Specifications, the applicable guidelines contained in the Illinois Manual or Uniform Traffic Control Devices for Streets and Highways, and any Special Details and Highway Standards contained herein and in the plans.

At the preconstruction meeting the Contractor shall furnish the name of the individual in this direct employ who is to be responsible for the installation and maintenance of the traffic control for this project. If the actual installation and maintenance are to be accomplished by a subcontractor, consent shall be requested of the Commissioner at the time of the preconstruction meeting in accordance with Article 108.01 of the Standard Specifications. This shall not relieve the Contractor of the foregoing requirement for a responsible individual in his direct employ. The Department will provide to the Contractor the name of its representative who will be responsible for the administration of the Traffic Control Plan. The Contractor shall notify the Office of Emergency Management-Traffic Management 48 hours before commencing construction or changing traffic flow.

Special attention is called to Articles 107.09 and 107.14 of the Standard Specifications and the Highway Standards, Details, Supplemental Specifications and Special Provisions, and Specifications relating to traffic control.

The Contractor's vehicles shall always move with and not against or across the flow of traffic. These vehicles shall enter or leave work areas in a manner which will not be hazardous to or interfere with normal traffic and shall not park or stop except within designated work areas. Personal vehicles will not be permitted to park within the right of way except in specific areas designated by the Commissioner.

The Contractor shall immediately furnish a certified flagger or flaggers if, in the opinion of the Commissioner the Contractor's construction means or methods warrant. No additional compensation shall be made for flaggers. If no flaggers are available, the Contractor shall cease operations until they become available.

All signs, signals, markings, traffic cones, barricades, warning lights, flaggers, and other traffic control devices must conform to the plans, specifications, special provisions and the latest edition of the "State of Illinois Manual on Uniform Traffic Control Devices." The Contractor shall obtain, erect, maintain, and remove all traffic control devices in accordance with Article 107.14 of the Standard Specifications. Placement and maintenance of all traffic control devices shall be as directed by the Commissioner. The Commissioner shall be the sole judge as to the acceptability of placement and maintenance of the traffic control devices prescribed in the appropriate standards.

The Contractor shall insure that all barricades, signs, lights and other devices installed by him are operational every day, including Sundays and holidays. In the event of severe weather conditions, the Contractor shall furnish any additional personnel required to properly maintain all traffic control devices as directed by the Commissioner.

The Contractor must be aware of the requirements for coordination of all work in this project and adjoining or overlapping projects and for coordination of barricade placement necessary to provide a uniform traffic detour barricade system without the prior approval of the Commissioner.

The placement of barricades and warning signs for the required lane closures shall be as specified herein and shall proceed in the direction of the flow of traffic. The removal of all signs and barricades shall begin at the end of construction areas and proceed toward oncoming traffic.

Project Signs: The contractor is required to furnish, erect and maintain two (2) signs identifying the project subject to the requirements in Article XVI, Part B, Paragraph 6 of Book 1 and detail included in these Specifications of Book 3, "Project Sign Detail-Building a New Chicago."

In addition, the Contractor is required to furnish, erect and maintain as required by Commissioner with a Sign: "**BUSINESS OPEN DURING CONSTRUCTION**" Black letters on a 30" x 30" sheeted white aluminum sign blank. Refer to detail included in these Specifications.

Pedestrian Sidewalk Control: This work shall consist of installing, maintaining, and removing necessary signs and barricades needed to direct pedestrian to usable sidewalks and walkways during construction. Illinois Standard sign R11-1102 (Sign legend "Sidewalk Closed (Arrow) Use Other Side": Size 24" x 30"; black legend on white reflectorized background) shall be placed at pedestrian crossing locations informing pedestrians of closed sidewalk sections. Barricades shall be placed on all closed sidewalk sections.

NOTES:

- 1) Barricades shall be Type II.
- 2) Use one "Sidewalk Closed" sign at each end of each sidewalk section being reconstructed.
- 3) At each point of closure, sufficient numbers of barricades shall be used to completely close the pathway.
- 4) Pedestrian walkways shall be maintained free of any obstructions and hazards such as holes, debris, mud, construction equipment, stored materials, etc.
- 5) All hazards near or adjacent to walkways shall be clearly delineated.
- 6) Where construction activities involve sidewalks on both sides of the street, the work shall be staged so that both sidewalks are not out of service at the same time.
- 7) Signboards or other advertising devices shall not be permitted on the premises, except upon the Commissioner's written approval and subject to mutual agreement concerning the extent and locations of such signs.

The Contractor shall, erect, and maintain signs furnished by the City at the project site identifying the project and indicating that the government is participating in the development of the project in accordance to the sign detail included herein, or as directed by the Commissioner. The signs shall be in place from the time of ground breaking or the commencement of construction, whichever occurs first, until the final inspection is completed. The location and orientation of the signs will be determined by the Commissioner.

Basis of payment. TRAFFIC CONTROL AND PROTECTION will be measured for payment on a lump sum price per each Sub Order issued under this contract this contract on the following formula:

$$\text{Lump Sum Price} = \frac{\text{Initial Estimated Total Cost of all items contained}}{\text{In the Sub Order except for Traffic Control}} \times 5\%$$

The initial estimated total cost of all line items in the Sub Order will be based on the Engineer's estimated quantities and contract unit prices.

The lump sum price per Sub Order for Traffic Control Complete will not be adjusted even though the final Sub Order cost may increase or decrease from the initial estimate based on the actual quantities of work performed. Increasing quantities over the initial estimate may require issuing one or more supplemental Sub Orders. However, supplemental Sub Orders will include no additional cost for traffic control and protection.

CHARGE FOR TRAFFIC CONTROL DEFICIENCY

To ensure a prompt response to incidents involving the integrity of the work zone traffic control devices, the Contractor shall provide a telephone number where a responsible individual can be contacted on a 24-hour-a-day basis. When the Commissioner is notified or determines a deficiency exists, (s) he will be the sole judge as to whether the deficiency is an immediate safety hazard. The Contractor shall dispatch sufficient resources within 2 hours of notification to make needed corrections of deficiencies that constitute an immediate safety hazard. Other deficiencies shall be corrected within 12 hours. If the Contractor fails to restore the required traffic control and protection within the time limits specified above, the Commissioner will impose a daily monetary deduction for each 24-hour period (or portion thereof) the deficiency exists. This time period will begin with the time of notification to the Contractor and end with the Commissioner's acceptance of the corrections. For this project, the daily deduction will be * per day. In addition, if the Contractor fails to respond the Commissioner may correct the deficiencies and the cost thereof will be deducted from monies due or which may become due the Contractor. This corrective action will in no way relieve the Contractor of his/her contractual requirements or responsibilities. In addition any work performed by the Contractor within the work zone that presents a hazard to vehicular or pedestrian traffic shall be subject to charges for TRAFFIC CONTROL DEFICIENCY. Debris removal, fly dumping, proper access to abutting property, timely and correct placement of short term, temporary and permanent pavement markings, along with all items of work contained within this item are also subject to this charge.

$$\text{CHARGE PER CALENDAR DAY} = \frac{\text{Specific Sub Order amount for all line}}{\text{Number of calendar days in the Sub Order}} \times 5\%$$

APPENDIX A

**ELECTRICAL SPECIFICATIONS
DIVISION OF ENGINEERING
DEPARTMENT OF TRANSPORTATION**

**DETAIL SPECIFICATION
DIVISION OF ENGINEERING
DEPARTMENT OF TRANSPORTATION
CITY OF CHICAGO**

**DETAIL SPECIFICATIONS
FOR
ARTERIAL STREET ADA RAMPS-CITY-WIDE**

CDOT PROJECT NUMBER B-7-216

The following Detail Specifications supplement the IDOT "Standard Specification for Road and Bridge Construction", adopted January 1, 2012 (hereinafter referred to as the Standard Specifications or the SSRBC); the "Supplemental Specifications and Recurring Special Provisions", adopted January 1, 2012; the latest edition of the "Illinois Manual on Uniform Traffic Control Devices for Streets and Highways" in effect on date of invitation for bids; the City of Chicago Department of Transportation Regulations for Openings, Construction and Repair in the Public Way (including Appendix B- ADA Standards) in effect on date of invitation for bids; and the City of Chicago Street Restoration Requirements in effect on date of invitation for bids. The latter two documents are available on the City of Chicago Department of Transportation's web site. In case of conflict with any part or parts of said specifications, these Detail Specifications will take precedence and will govern.

Unless otherwise specified, the Description, General Requirements, Method of Measurements and Basis of Payment for the following items shall be as stated in the appropriate Sections of the Standard Specifications.

ELECTRICAL SPECIFICATION 1351
DIVISION OF ENGINEERING
DEPARTMENT OF TRANSPORTATION
CITY OF CHICAGO
REVISED AUGUST 27, 2013

WIRE: SINGLE CONDUCTOR NO. 12 COPPER WITH CROSS LINKED
POLYETHYLENE INSULATION

SUBJECT

1. This specification states the requirements for insulated wire intended for use as a conductor to connect street light luminaires to aerial distribution wires or underground distribution cables in a street lighting circuit. This wire is also known as pole wire.

GENERAL

2. (a) Specifications. The cable shall conform in detail to the requirements herein stated and to the latest referenced specifications of the following organizations:

American Society for Testing and Materials (ASTM)
Insulated Cable Engineers Association (ICEA)
National Electric Code (NEC)
National Electrical Manufacturers Association (NEMA)
Underwriters Laboratories (UL)
- (b) Acceptance. Cable not conforming to this specification will not be accepted.
- (c) Sample. If requested by the Chief Procurement Officer, a three (3) foot sample of the cable intended to be provided under this specification, shall be submitted to the Engineer of Electricity within fifteen (15) business days after receipt of the request.
- (d) Warranty. The manufacturer shall warrant the cable to be first class material throughout. The manufacturer will be responsible for any cable failing during normal and proper use within one (1) year after the date of installation. The manufacturer will provide replacement of any failed cable segment, from the point of normal termination to the next point of normal termination. There will be no cost to the City.

CABLE

3. (a) Construction. The cable shall consist of an uncoated copper conductor concentrically encased in a moisture resistant thermosetting plastic of cross linked polyethylene. The cable shall be listed with UL as Type RHW-2 or Type USE-2, and shall meet the NEC's requirements for these types of cable up to 90° C in wet or dry locations.
- (b) Color. Cable will be black, red, or green.
- (c) Marking. The cable must be identified by a permanently inscribed legend in white lettering. The legend must have the following information at a minimum:

1/C #12AWG, 600V, XLPE, 90°, RHW-2 or USE-2, manufacturer's name, date of manufacture. The legend must be repeated at approximately eighteen inch (18") intervals parallel to the longitudinal axis of the cable.

- (d) Overall cable diameter shall be approximately 0.19 inches.

CONDUCTOR

- 4. (a) Material. Conductor shall be Number 12 AWG consisting of seven (7) strands of uncoated copper wires (.0305 inch diameter) per ASTM-B3.
- (b) Resistivity. Conductor shall conform to the requirements of ASTM B-33.

INSULATION

- 5. (a) Type. The insulation shall be a cross linked polyethylene compound meeting the physical and electrical requirements herein specified and the requirements of NEMA WC-70 (ICEA S-95-658).
- (b) Thickness. The insulation must be circular in cross section and have an average thickness of 45 mils. The thickness must not vary by more than plus or minus five percent (+/-5%).

TESTS

- 6. (a) General. The tests required to determine compliance with this specification must be certified by the manufacturer or an independent testing facility. Before shipment, copies of the test reports must be forwarded to the Division of Engineering for approval. The City reserves the right to reject any cable failing to meet the requirements of the tests. Tests must be made in accordance with methods in ASTM D-470.

(b) Physical Properties

Initial Values:

Tensile strength, minimum psi 2000
Elongation at rupture, minimum % 250

After Aging:

After 168 hours in an air oven at 121° +/-1°C:

Tensile strength, minimum % of initial value 80
Elongation at rupture, minimum % of initial value 80

(c) Modulus Test. After initial conditioning period of four (4) minutes at a temperature of 150° C and at 100% elongation, the modulus must not be less than 110 pounds per square inch.

(d) Accelerated Water Absorption Characteristics.

1. Electrical Method. After twenty-four (24) hours immersion in tap water at 75° +/- 1° C, the specific inductive capacity of the insulation must not be more than 7. After a continued fourteen (14) day immersion, the specific inductive capacity must not be more than three percent (3%) higher than the value determined at the end of the first day, nor more than two percent (2%) higher than the value determined at the end of the seventh day.

2. Gravimetric Method. The insulation must not absorb more than five (5) milligrams of water per square inch of exposed surface area after immersion in distilled water at 70° C for a period of seven (7) days.

(e) Electrical Characteristics. Each completed length of insulated conductor must withstand a test voltage of 3000 volts AC for a period of five (5) minutes after immersion in water for not less than six (6) hours and while still immersed. After withstanding this dielectric test, the cable must have an insulation resistance constant of not less than 25,000.

(f) Cold Bend Test. The cable must pass the cold bend, long-time voltage test on short specimens as outlined in ASTM D-470.

PACKING

7. (a) Sealing. Both ends of each length of cable must be thoroughly sealed to prevent the entrance of moisture and other foreign matter.

(b) The cable must be delivered in coils containing five hundred (500) feet each. Each coil must be packed in individual dispenser cartons. Each carton must be labeled, identifying the cable type and size, manufacturer, and date of manufacture.

ELECTRICAL SPECIFICATION 1375
DIVISION OF ELECTRICAL OPERATIONS
DEPARTMENT OF TRANSPORTATION
CITY OF CHICAGO
MARCH 31, 1977

BASE: BALLAST HOUSING, NO. 7 U.S. STANDARD GAUGE STEEL

SUBJECT

1. This specification states the requirements for ballast housing base assemblies to be installed on concrete foundations and to serve as bases for anchor base type steel poles with mast arm attached street light luminaires.

GENERAL REQUIREMENTS

2. (a) Specifications. The base assemblies shall conform in detail to the requirements herein stated and to the specifications of the American Society for Testing and Materials, of which the latest published revisions will govern.
- (b) Acceptance. Base assemblies not conforming to this specification will not be accepted.
- (c) Drawings. The drawing mentioned herein is a drawing of the Department of Transportation. It is an integral part of this specification cooperating to state necessary requirements.
- (d) Shop Drawing. One complete set of shop drawings of the base assembly intended to be furnished must be submitted within fifteen (15) days upon request of the Chief Procurement Officer.
- (e) Sample. One completely assembled base of the manufacture intended to be furnished must be submitted upon request of the Chief Procurement Officer within fifteen (15) days after receipt of the request.

DETAIL REQUIREMENTS

3. (a) Drawing. The base assembly must conform in detail to the design and dimensions shown on Drawing No. 785, dated March 25, 1977.
- (b) Material. The steel used in the fabrication of the base assemblies must conform to ASTM A-606 Type 4 for the sides and door and to ASTM A-36 for the top, bottom and anchor plates.
- (c) Thickness. The sides and door must be No. 7 U.S. Standard Gauge; the top, bottom and Anchor Plates must be 3/4 inch plate.
- (d) Door. The door must be drilled top and bottom for, and furnished with, four (4) 1/4-20NCX3/4" button head stainless steel tamper resistant bolts for fastening top and bottom of door to base as shown on drawing No. 785. Ten (10) wrenches or drivers to fit the door bolts must be furnished with each fifty (50) base housings.
- (e) Hardware. The bolts, nuts, lock washers and anchor plates must conform to the drawing. Four (4) galvanized hex head machine bolts, four (4) galvanized hex nuts, four (4) galvanized lock washers, and two (2) 3/4" thick steel anchor plates must be furnished with each base assembly. The anchor plates must be shipped bolted to the top of the ballast housing assembly using the hardware enumerated above.
- (f) Welding. Every welded joint shall be made in conformity with the proper interpretation of the standard welding symbols of the American Welding Society

as indicated on the drawings. Each bidder must submit with his proposal a drawing showing the sizes and types of welds, the type of electrode and the welding methods he proposes to use in fabricating the base assembly.

- (g) Sandblasting. The door and ballast housing shall be thoroughly sand blasted to remove all scale, oil or slag prior to painting.
- (h) Dating. The top of the ballast housing base must be stamped or engraved with the year of manufacture in numerals not less than 1/2" in height.
- (i) Painting. A coat of Penetrol shall be applied on the inside weld of the base. The complete base assembly, inside and outside, is to be given a coat of iron oxide zinc chromate primer meeting the requirements of Federal Specification TT-P-636B.

TESTING

- 4. (a) Chemical Composition. Certified reports from the steel manufacturer must be furnished to the City upon request of the Chief Procurement Officer.
- (b) Test Specimens. Shall conform to the requirements of ASTM Specifications A-36 and A-606 Type 4.
- (c) Strength Tests. One test specimen of the metal in each order of 50 base assemblies or less shall be tested for tensile strength and elongation, in accordance with ASTM Standards.
- (d) Welding Tests. One percent (1%) of the longitudinal and circumferential welds of the base assembly shall be inspected for penetration and soundness of the welds by the magnetic particle inspection method or by radiography. If the magnetic inspection process is used, the dry method with direct current shall be employed. All transverse welds must be magnetized by the "prod" (circular magnetization) method. Longitudinal welds may be magnetized by either circular or longitudinal magnetization.
- (e) Certificate. One certified copy of the test data sheet must be furnished to the City before delivery of the bases.

PACKING

- 5. When packed for transportation and delivery as per paragraph 3(e), the base assemblies must be thoroughly blocked or otherwise protected to prevent damage to painted surfaces.

ELECTRICAL SPECIFICATION 1428
DIVISION OF ENGINEERING
DEPARTMENT OF TRANSPORTATION
CITY OF CHICAGO
SEPTEMBER 11, 1989

THERMAL MAGNETIC CIRCUIT BREAKER

SUBJECT

1. This specification covers the requirements for thermal-magnetic circuit breakers capable of providing complete over-current protection for street lighting branch-load and service circuits.

GENERAL REQUIREMENTS

2. (a) Sample. One complete circuit breaker of each type and size, and of the manufacture intended to be furnished must be submitted upon request of the Chief Procurement Officer within fifteen (15) business days after receipt of such request. The sample(s) shall be delivered to the Division of Electrical Operations, 2451 South Ashland Avenue, Chicago, Illinois 60608.
- (b) U.L. Approval. Circuit breakers furnished under this specification shall be listed and approved by Underwriter's Laboratories, Inc.
- (c) Applicable Specifications. Where reference is made to applicable requirements of Underwriter's Laboratories, Inc., Bulletin #489, entitled "Standard for Branch Circuit and Service Circuit Breakers," hereinafter cited as the U.L. Standards, the most recently published revision will govern.
- (d) Assembly. Each circuit breaker must have the thermal-magnetic trip installed, calibrated and sealed within its insulated housing.
- (e) Instructions. Complete installation instructions, details on wiring, and information on operation shall be furnished with each circuit breaker, except as otherwise indicated.
- (f) Packing. Each circuit breaker shall be packed in a suitable manner so that it will not be damaged in shipping or handling.

TYPES AND SIZES

3. (a) EHD Frame Circuit Breakers. For use on A-C Systems with a 100-ampere frame; minimum interrupting rating of 18,000 R.M.S. symmetrical amperes at 240 volts A.C.
 1. Single pole, 240 or 480 volts A.C., ampere rating from 15 to 100.
 2. Double pole, 240 or 480 volts A.C., ampere rating from 15 to 100.
- (b) FDB Frame Circuit Breakers. For use on A-C Systems with a 150 ampere frame; minimum interrupting capacity of 18,000 R.M.S. symmetrical amperes at 240 volts A-C.
 1. Double pole, 240, 480 or 600 volts A-C, ampere rating from 15 to 150.
 2. Triple pole, 240, 480 or 600 volts A-C, ampere rating from 15 to 150.
- (c) JDB Frame Circuit Breakers. For use on A-C Systems with a 250 ampere frame; minimum interrupting current of 65,000 R.M.S. symmetrical amperes at 240 volts A-C.
 1. Double pole, 240, 480 or 600 volts A-C, ampere ratings from 70 to 250.
 2. Triple pole, 240, 480 or 600 volts A-C, ampere ratings from 70 to 250.

DESIGN AND CONSTRUCTION

4. Circuit breakers furnished under this specification must include the following design and construction features: (1) molded insulated housing, (2) thermal-magnetic trip mechanism, (3) silver alloy contacts, (4) corrosion-resistant internal parts, (5) trip-free, indicating handle, and (6) pressure-type terminals.

DETAIL REQUIREMENTS

5. (a) Thermal-Magnetic Trip Mechanism. The breaker must be activated on current overload by means of a thermal-magnetic trip mechanism. This mechanism must be non-adjustable, non-interchangeable, and factory calibrated and sealed. Instantaneous tripping as controlled by the magnetic trip setting, and time delay tripping accomplished by thermal action must be in accordance with the manufacturer's published characteristic curves for these breakers or with calibration requirements of the U. L. Standards, as applicable.
- (b) Contact Mechanism. The contacts must be spring loaded and provide a quick-make, quick-break non-teasing action. The contact mechanism must be such that the breaker will trip open even if the handle is held or locked in the ON position.
- (c) Calibration. Rating and performance of these breakers must be based on calibration at an ambient temperature of 40° C. (104°F.).
- (d) Rated Current. Each breaker must be capable of carrying 100% rated current continuously in its calibrated ambient temperature without tripping and without exceeding the temperature limits specified in the U. L. Standards.
- (e) Contacts. The contacts must be made of a non-welding silver alloy or equivalent, subject to approval.
- (f) Internal Parts. All internal parts of these circuit breakers shall be corrosion resistant material.
- (g) Terminals. Solderless, pressure type terminals of copper construction must be provided for both line and load connections.
- (h) Handle Indication. The handle must indicate clearly whether the circuit breaker is on the ON, OFF, or TRIPPED position.

- (i) Mounting. Breakers furnished under this specification must have drilled and counterbored holes for front mounting which must conform to spacings shown on Department of Transportation Drawings numbered 883, 884, 886, and 887.
- (j) Test Requirements. These breakers must be capable of meeting the following sequence of test requirements as specified in the U. L. Standards.
 - 1. Endurance test.
 - 2. Calibration test at 200% and 125% of rated current.
 - 3. Short circuit tests
 - 4. Calibration test at 500% rated current.
 - 5. Dielectric strength test.

WARRANTY

- 6. Circuit breakers furnished under this specification shall be warranted by the manufacturer against defects in materials or workmanship for a period of one year after installation. During this period, should a failure occur, repair or replacement must be made without cost to the City.

ELECTRICAL SPECIFICATION 1432
DIVISION OF ENGINEERING
DEPARTMENT OF TRANSPORTATION
CITY OF CHICAGO
REVISED JULY 31, 2006

SELF-SUPPORTING SECONDARY CABLE

SCOPE

1. This specification describes preassembled, reverse twist, secondary cable consisting of one (1) bare conductor used as a messenger and neutral in combination with two (2) or three (3) cross-linked polyethylene covered, stranded, copper conductors. Cable will be used on distribution circuits operated at a maximum voltage to ground of 600 volts.

GENERAL

2. (a) Specifications. The cable shall conform in detail to the requirements herein stated and to the referenced specifications of the American Society for Testing and Materials (ASTM), the National Electric Code (NEC), Underwriters Laboratories (UL), the Insulated Cable Engineers Association (ICEA), and the National Electrical Manufacturers Association (NEMA), in which the most recently published revisions will govern.
- (b) Acceptance. Cable not conforming to this specification will not be accepted.
- (c) Sample. If requested by the Chief Procurement Officer, a three (3) foot sample of the cable intended to be provided under this specification, shall be submitted within fifteen (15) business days after receipt of the request.
- (d) Warranty. The manufacturer shall warrant the cable to be first class material throughout. The manufacturer will be responsible for any cable failing during normal use within one (1) year after the date of installation. The manufacturer will be responsible for providing the footage of cable necessary to replace the failed cable length(without splices).

CABLE

3. (a) The cable must meet the requirements of ICEA Specification S-76-474 for neutral supported power cable assemblies rated for 600 Volts. Each insulated conductor must be listed with UL as Type RHW-2 or Type USE-2, and must meet the NEC's requirements for these types of cable up to 90° Centigrade in wet or dry conditions.
- (b) Messenger. The messenger must be bare hard drawn, copper wire meeting the requirements of ASTM B1.
- (c) Covered Conductors. The covered conductors must be stranded, soft drawn, copper meeting the requirements of ASTM B3.
- (d) Lay. The lay of the stranded conductors must meet the requirements of ASTM B8, Class B.
- (e) Joints. No welds are permitted in the messenger. The stranded conductors may be welded, but a welding in one strand shall be at least fifty feet (50') from any other weld in the same wire or any other wire in the conductor.
- (f) Separator. A separator of mylar tape under the insulation, or other equivalent material, shall be provided. The conductor covering shall be of such consistency that linemen will be able to cut and strip the covering with normally used line

tools. Any conductor received which does not meet the cutting and stripping requirements will be returned at the supplier's expense.

- (f) Insulation. The insulation must be black cross-linked polyethylene in accordance with the physical and electrical requirements detailed herein, and determined by the test procedures of ASTM D-470, except as otherwise specified. The outside diameter of the insulating covering must be circular and extruded concentrically over the conductor. It must have an average thickness as shown in these specifications, and a minimum thickness of not less than 95% of the average.

PHYSICAL AND ELECTRICAL PROPERTIES

4. (a) Physical Properties - Initial Value.

1. Tensile Strength	1800 psi min,
2. Elongation at Rupture	350% min.

(b) Physical Properties - After Aging.

After oven exposure at $121^{\circ} \pm 1^{\circ}\text{C}$ for 168 hours:

1. Tensile strength, min% of unaged value 80
2. Elongation, min % of unaged value at rupture 80

(c) Moisture Resistance. When tested in accordance with the procedure given in ASTM D-470, except that the water must be maintained at $75^{\circ}\text{C} \pm 1^{\circ}\text{C}$, the insulation must meet the following moisture resistance requirements:

1. Gravimetric Method:

Water absorption, maximum (Mg. per sq. in)	5.0
---	-----

2. Electrical Method:

Specific inductive capacitance-one day (Max.)	4.0
Percent (%) change in SIC:	
1 - 14 days (Max.)	3.0
7 - 14 days (Max.)	2.0
Percent (%) change in Power Factor - 1 day (Max.)	1.5
Stability Factor (Max.)	1.0

(d) Electrical Characteristics:

1. Dielectric Strength. Each length of insulated conductor must withstand an alternating current potential as shown in Table I for an exposure period of five (5) minutes when tested in accordance with ASTM D-470.
2. Insulation Resistance. The insulation resistance of the insulated conductor must not be less than that corresponding to a constant of 25,000 at 15.6°C (60°F).

(e) Cold Bend Test Requirement. The insulated conductor must pass the "Cold-Bend, Long-Time Voltage Test on Short Specimens" of ASTM D-470 except that the test must be at minus 55°C .

CABLE ASSEMBLY

5. (a) Cabling. The insulated conductors must be reverse twisted about the messenger one (1) to one and one quarter (1-1/4) revolutions in each direction so that each conductor occupies all of the positions on the periphery of the circle periodically with an approximate distance between reversals of four feet (4').
- (b) Binding of Cable. The insulated conductors shall be bound to the messenger without fillers. The binder wire or tape shall have sufficient strength to support the assembly, but in no case will it be smaller than a #10 AWG equivalent. The binder shall be flat without sharp edges. Its strength shall be suitable for installation by the use of stringing blocks and must not itself tear, nor cut, or otherwise damage the conductor insulation. The binder wire must be applied with a left hand lay of five and one-half inches (5-1/2") \pm one half inch (1/2").

SIZE OF SECONDARY CABLE

6. The size and number of the individual conductors (including the bare messenger) in the secondary cable must be as follows:

<u>No. of Conductors</u>	<u>AWG Size</u>	<u>Insulation Thickness (in.)</u>	<u>Reel Length (ft.)</u>
3	#6	0.060	2,800
3	#4	0.060	2,700
3	#2	0.060	1,700
4	#6	0.060	2,000
4	#4	0.060	1,700
4	#2	0.060	1,400

All the above conductors must be seven (7) strand. All stranding to be standard round or compressed only. Compacted stranding will not be acceptable.

TESTING

7. (a) General. Tests shall be performed on insulation and completed cables in accordance with applicable standards as listed in these specifications. Where standards are at variance with each other or with other portions of this specification, the most stringent requirements, as determined by an engineer from the Division of Engineering, shall apply. Included in these tests will be a 70,000 BTU per hour flame test in accordance with IEEE 383. All tests shall be conducted on cable produced for this order.
- (b) Number of Tests. Insulation tests shall be conducted on samples taken every 25,000 feet or fraction thereof of each conductor size. In no case will samples be taken closer than 15,000 feet apart.
- (c) Test Reports. No cable may be shipped until certified copies of all factory tests have been reviewed and approved by the engineer.
- (d) Acceptance. Where the cable fails to conform to any of the tests specified herein, the following will apply:
1. Insulation or Jacket Tests. Samples must be taken from each reel and must successfully conform to all tests specified herein. Reels from which samples fail to conform, will be rejected.

2. Completed Cable (Reel) Tests. Any reel which fails to conform to testing will be rejected.
3. Where five percent (5%) or more of the reels are rejected for any reason, the entire cable order will be rejected.

PACKING AND SHIPPING

8. (a) Reels. The cables must be shipped on non-returnable reels which shall be capable of withstanding, without damage, shipping, outside storage and handling during installation. "City of Chicago" shall be clearly printed on one (1) outside reel flange, and the insulated conductors on the beginning end shall not protrude beyond the reel flange. The bare neutral shall be securely stapled on the outside of the flange. The dimension of the reel flange must not be larger than thirty-eight inches (38") in diameter, the drum sixteen inches (16"0) in diameter, and eighteen inches (18") inside traverse. If reels are to be shipped on flange side, they must have two inch (2") spacers separating them for accessibility to fork lift trucks.
- (b) Length. The cable must be shipped in lengths shown above with a zero plus (+) tolerance and a ten percent (10%) minus (-) tolerance. Lengths shorter than minus ten percent (-10%) must not be shipped as they will not be accepted.

IDENTIFICATION

9. (a) Cable Identification. The cable must be identified by a permanently inscribed legend on each insulated conductor in white lettering. The legend must have the following information at a minimum: conductor size(AWG), 600V, XLPE, 90°, RHW-2 or USE-2, manufacturer's name, date of manufacturer, and phase number. All markings must be a minimum of one-eighth inch (1/8") in height. Marking shall be at approximately two (2) foot intervals.
- (b) Phase Conductor Identification. On the three conductor cable, indelible markings reading "1" and "2" must be imprinted on each phase conductor respectively. On the four conductor cable, "3" must be imprinted on the additional conductor with the phase identification on the other phase conductors to remain the same.
- (c) Reel Marking. Each reel must be tagged on both the inside and outside of one reel flange with the following information which must be indelibly imprinted on a 2" x 4" brass tag: Purchaser's name and address, wire description, Purchase, or Contract, order number, size designation, net length, manufacturer's name, date of manufacture and gross weight.

**ELECTRICAL SPECIFICATION 1438
DIVISION OF ENGINEERING
DEPARTMENT OF TRANSPORTATION
CITY OF CHICAGO
OCTOBER 16, 1990**

BRACKET-ARM: LIGHTING, 21 INCHES LONG

SUBJECT

1. This specification covers the requirements for a lighting bracket-arm, 21" in length measured from the face of the pole, which is to be attached to a utility company wood pole for the purpose of supporting an alley lighting luminaire.

GENERAL

2. (a) Specifications. The lighting bracket-arm shall conform in detail to the requirements herein stated and to the specifications of the American Society for Testing and Materials, where applicable, cited by ASTM number, of which the most recently published revision will govern. Assemblies not conforming to this specification will not be accepted.
- (b) Drawing. The drawings mentioned herein are issued by the Department of Transportation, and are an integral part of this specification.
- (c) Sample. A sample bracket-arm of the manufacture intended to be furnished must be submitted within fifteen (15) business days upon request of the Chief Procurement Officer. The sample must be delivered to the City of Chicago, Division of Electrical Operations, 2451 South Ashland Avenue, Chicago, Illinois 60608.
- (d) Warranty. The contractor warranties for a period of one (1) year from the date of acceptance by the City, that it will, at its own expense, replace any defective arm that has failed due to a design flaw, defective material, or poor workmanship.

LIGHTING BRACKET-ARM ASSEMBLY

3. (a) Design. The lighting bracket-arm assembly shall conform in design and dimensions with drawings numbered 641A and 641B.
- (b) Assembly. Each lighting bracket-arm assembly must be delivered with the pipe-arm in place, properly positioned, and secured in its socket. Each assembly must be furnished complete with grounding bolt in place with the necessary washer and nut.
- (c) The Casting. The bracket casting shall be homogeneous, free of spalling and blow holes. "Filler" metal shall not be used to provide a smooth surface.
- (d) Pipe-arm. The pipe-arm must be fabricated of aluminum alloy, one and a quarter (1-1/4) inch diameter standard (American Standards Association Schedule 40) pipe conforming to the requirements of ASTM B241 for alloy 6063-T6. The pipe-arm shall be formed as shown on the drawing, and shall have a smooth exterior surface free of protuberances, dents, cracks, or other imperfections marring its appearance. All sharp edges shall be deburred or reamed.
- (e) Pole bracket. The pole bracket must be a casting of high strength, aluminum alloy equal in chemical composition, tensile strength, yield strength and

elongation to ASTM B179, alloy ZG42A. A cable entrance shall be provided through the base of the socket, and a suitable bushing or grommet with an opening for two (2) wires of 1/4 inch diameter shall be provided in place in the entrance-way.

BOLTS, WASHERS AND NUTS

4. (a) Clamping Bolt and Nut. One (1) aluminum alloy machine bolt and nut of the size shown on the drawing shall be furnished with each lighting bracket arm assembly for clamping the pipe arm in its socket.
- (b) Grounding Bolt, Washer and Nut. A 5/16" diameter aluminum alloy bolt with aluminum alloy flat washer, and aluminum alloy nut must be provided in place as a means for grounding the bracket-arm.

PERFORMANCE TEST REQUIREMENTS

5. (a) Static Deflection. The lighting bracket-arm, when rigidly attached to a supporting structure, must withstand a vertical load of 100 pounds and a lateral load of 50 pounds, applied separately, with terminal deflection not exceeding 5% of the length of the bracket-arm. In addition, terminal deflection must not exceed 2° with a vertical load of 40 pounds.
- (b) Rupture Strength. The bracket-arm must be capable of withstanding a non-sustained vertical load of 250 pounds at its free end without collapse or rupture.
- (c) Testing. One (1) unit from each lot of 250 bracket-arms, with a minimum of 2 bracket-arms per contract, will be subject to test for static deflection and rupture strength. In the event any bracket-arm fails to meet test requirements, the entire lot shall be subject to rejection, except that the manufacturer may subject a minimum of 5 additional bracket-arms in the lot to test, and if all of these fulfill the requirements, the lot will be accepted. Should any of the additional five (5) bracket-arms fail, then the entire lot will be rejected. Certified test reports must be submitted to the Commissioner of Transportation or his duly authorized representative for his approval prior to shipment of material. All units subjected to test will remain the property of the Contractor and may not be included as part of this contract.

WELDS

6. No welds will be allowed. Any alley arms with welds will not be accepted.

PACKAGING

7. (a) General. The arms shall be shipped in bundles. Each arm must be individually wrapped so that the arm can be bundled for shipping and unbundled for delivery without damage to the arm or its finish. Materials such as lumber (2"x4" min.), non-marring banding, and other appropriate bundling materials must be used to make a rigid, long lasting, bundle capable of being handled, shipped and stored without shifting or breaking of the contents. Any bundles, in which either the mast arms or packaging is received broken, damaged or with contents shifted, will not be accepted and it will be the responsibility of the supplier to return the bundle at no cost to the City. Each bundle must be capable of being lifted by a fork lift and the bundles must be shipped in a flat bed truck to facilitate unloading. Each arm wrapping must be clearly labeled indicating the arm size, i.e. "21 INCH STEEL ALLEY MAST ARM".

ELECTRICAL SPECIFICATION 1441
DIVISION OF ENGINEERING
DEPARTMENT OF TRANSPORTATION
CITY OF CHICAGO
REVISED JULY 31, 2013

**CABLE: SINGLE CONDUCTOR AERIAL, #6 AWG
WEATHERPROOFED WITH POLYETHYLENE JACKET**

SUBJECT

1. This specification states the requirements for cable intended to be used in overhead distribution on insulators for 240 VAC, 60 cycle, single phase, street lighting circuits. The cable is weatherproofed.

GENERAL

2. (a) Specifications. The cable shall conform in detail to the requirements herein stated, and to the specifications and methods of test of the Insulated Cable Engineer's Association (ICEA) and the American Society for Testing and Materials (ASTM), cited by number, in which the most recently published revisions will govern.
- (b) Acceptance. Cable not conforming to this specification will not be accepted.
- (c) Sample. A three foot sample of the cable intended to be furnished shall be submitted within fifteen (15) business days after receipt of such a request from the Chief Procurement Officer. The sample must be sent to the Engineer of Electricity unless otherwise directed.
- (d) Warranty. The manufacturer shall warrant the cable to be first class material throughout. In lieu of other claims against them, if the cable is installed within twelve (12) months of date of shipment, the manufacturer must replace any cable failing during normal and proper use within two years of date of installation. The Commissioner will be the sole judge in determining if a cable section needs to be replaced. The length of replacement will be the entire length of unspliced cable from existing termination/splice point to termination/splice point All replacements under this warranty shall be made free of charge F.O.B. delivery point of the original contract.

CONSTRUCTION

3. (a) The cable must have a copper conductor with a tight fitting concentric layer of polyethylene.
- (b) Conductor. The conductor must be made up of medium hard drawn, solid, round copper wire meeting the requirements of ASTM B-2. The conductor must be size 6, American Wire Gauge.
- (c) Cover. The cover must be polyethylene. It must be circular in cross-section, concentric to the conductor, and must have an average thickness of 30 mils. The minimum thickness at any cross section must not be less than ninety percent (90%) of the average thickness.

PHYSICAL AND ELECTRICAL REQUIREMENTS

4. The cable must meet the physical and electrical requirements of ICEA S-70-547.

PACKAGING

5. (a) Cable Marking. The cable must be identified by a permanently inscribed legend in white lettering as follows:

1/C No. 6 AWG – WEATHERPROOFED AERIAL PE

The legend shall be repeated at approximately eighteen (18) inch intervals on the outside surface of the cable parallel to the longitudinal axis of the conductor. A sequential footage marking must be located on the opposite side from the legend.

- (b) Reels . The completed cable shall be delivered in lengths of 1000 feet in coils with a nominal 21 inch eye opening. Both ends of each length of cable shall be properly sealed against the entrance of moisture and other foreign matter by the use of clamp-on cable caps. The ends shall be securely fastened so as not to become loose in transit.

Before shipment, heavy cardboard or plastic wrapping shall be applied to all coils. Coils must then be fastened to 48 inch by 48 inch hardwood 4-way non-returnable pallets for shipment. Total height of each pallet must not exceed 64 inches. Total weight of each pallet must not exceed 2200 pounds.

- (c) Marking . A metal tag must be securely attached to each pallet indicating the coil number, contract number, date of shipment, gross and tare weights, City Commodity Code number if applicable, footage, and a description of the cable. Directions for unrolling the cable and any other pertinent information must be placed on each coil package with an approved permanent marking material such as oil-based paint or a securely attached metal tag.

**ELECTRICAL SPECIFICATION 1443
DIVISION OF ENGINEERING
DEPARTMENT OF TRANSPORTATION
CITY OF CHICAGO
REVISED JULY 11, 2006**

SECONDARY RACK, 2 OR 3 WIRE, WITH INSULATORS

SUBJECT

1. This specification covers the requirements for 2 and 3 wire secondary racks complete with insulators for attachment to street lighting poles for the purpose of supporting aerial circuit wires.

GENERAL

2. (a) Specifications. Each 2 or 3 wire secondary rack shall conform in detail to the requirements herein stated, and to the specifications of the American Society for Testing and Materials, cited by ASTM Designation number, of which the most recently published revision will govern. Secondary racks not conforming to this specification will not be accepted.
- (b) Sample. If requested, each bidder shall submit with his proposal one complete sample secondary rack with insulators for approval by the Commissioner. The sample must be submitted within fifteen (15) business days of such request from the Chief Procurement Officer.
- (c) Warranty. Secondary rack and pole clamps furnished under this specification shall be warranted against failure from defects due to materials or workmanship for a period of one year after delivery. In the event of failure of any of the components, the manufacturer will replace the rack, at no cost to the City.

SECONDARY RACK

3. (a) General Design. The secondary rack shall be the medium duty type with extended back. It shall be suitable for either 2 or 3 wire, as indicated in the bid proposal, with 8-inch spacing between centers of the clevises.
- (b) Back Section. The back section of the secondary rack must be made from hot-wrought merchant quality carbon steel 1/8 inch thick. The steel must conform with ASTM Specification A 575, Grade M1010. The back must be formed to the shape of an inverted trough, the flat portion of which must be approximately 1-1/4 inches in width. Mounting slots, 11/16 inch by 1-1/4 inch, must be longitudinally centered on the flat of the back section and located so as to coincide with the centers of the clevises, with additional slots provided at the top and bottom. The 2-wire back must be at least 18 inches in length. The 3-wire back must be at least 24 inches in length.
- (c) Clevises. Clevises must be made from 1/8 inch thick steel strip of the same material as the back section, and so formed to fit the back snugly. The prongs of the clevis must be approximately 4 inches apart and formed to the shape of an inverted trough, the flat portion of which must be approximately 3/4 inch in width with the edges pitched at an angle of 30° with the flat portion. Each clevis shall be fabricated in such a manner that the pitched edges of both prongs must slope in the same direction. The clevises must be riveted to the back section with two (2) 5/16 inch steel rivets.
- (d) Rack Bolt. The rack bolt must be a 9/16 inch diameter button head bolt made of hot-wrought carbon steel conforming with the requirements of ASTM Specification A 576, Grade 1040, complete with a 1/4 inch by 2 inch brass cotter

pin at the bottom end. Centerline of the rack bolt must be located 4 inches out from the face of the back section.

- (e) Spool Insulators. Spool insulators must be electrical grade white or gray glazed porcelain.
- (f) After fabrication, the secondary rack, clevises, and all steel hardware must be hot dip galvanized according to ASTM 123. Bolts, washers, and nuts must be hot dipped galvanized according to ASTM 153.

TESTS

4.

At the discretion of the Commissioner, secondary racks furnished under this specification will be subject to testing to determine compliance with the strength requirements of ANSI medium type secondary racks.

**ELECTRICAL SPECIFICATION 1447
DIVISION OF ENGINEERING
DEPARTMENT OF TRANSPORTATION
CITY OF CHICAGO
REVISED MARCH 20, 2007**

**POLE: ANCHOR BASE, 3 AND 7 GAUGE, TAPERED TUBULAR STEEL,
WITH HANDHOLE ENTRY**

SUBJECT

1. This specification states the requirements for tapered, tubular, 3 gauge and 7 gauge steel anchor base poles with mast arm supports. They will support street light luminaires and/or traffic signal mast arms and will be served by underground cables.

GENERAL

2. (a) Specifications. The poles shall conform in detail to the requirements herein stated, and to the requirements of the following organizations cited herein, of which the most recent revisions shall govern:

American Association of State Highway and Transportation Officials (AASHTO)
American National Standards Institute (ANSI)
American Society for Testing and Materials (ASTM)
American Welding Society (AWS)
Society for Protective Coatings (SSPC)
- (b) Acceptance. Poles not conforming to this specification will not be accepted.
- (c) Bidders Drawings. Bidders shall submit with their bids detailed scale drawings of the mast showing actual dimensions, details, and welds. Shop drawings must be original engineering drawings created by the manufacturer. The drawings must show every dimension necessary to show how all parts will fit each other and be properly held in assembly. These drawings must also be submitted in electronic format, preferably Microstation 95, if so requested by the City.
- (d) Drawings. The drawings mentioned herein are drawings of the Department of Transportation being an integral part of this specification cooperating to state necessary requirements.
- (e) Sample. If requested by the Chief Procurement Officer, one completely assembled anchor-base pole of the manufacture intended to be furnished, must be submitted for review within fifteen (15) business days of receiving the request.
- (f) Warranty. The manufacturer shall warrant the performance and construction of the light poles to meet the requirements of this Specification and must warrant all parts, components, and appurtenances against defects due to design, workmanship, or material developing within a period of five years after the light poles have been delivered. This will be interpreted particularly to mean structural or mechanical failure of any element or weld, or failure of any portion of the painting system. The warranty must be furnished in writing guaranteeing material replacement including shipment, free of charge to the City. The Commissioner will be the sole judge in determining which replacements are to be made and the Commissioner's decision will be final.

STANDARDS

3. (a) Assembly. Each anchor base pole shall consist of a steel mast with handhole entry, entry door with machine screws, grounding nut, mast base plate, top cap for mast, two (2) mast arm supports, bolt covers, and all necessary hardware required for complete assembly of these parts, ready for assembly, without special tools.
- (b) Interchangeability. Members of each pole type shall be mutually interchangeable for assembly, so that no reworking will be required to make any member fit properly in the place of any other similar member of any other similar pole.
- (c) Design. Each pole type shall conform in design and dimensions to the pertinent drawing(s) listed in Table "A".

MASTS

4. (a) Mast Size. The outside diameters of the mast of each pole type shall be as listed in Table A. The mast must be tapered at 0.14 inches per foot.
- (b) Material. The mast must be fabricated from one length of No. 3, No. 7, or No. 11 Standard gauge steel meeting the material requirements of ASTM A606 for low alloy high strength coil steel, which, after fabrication, must possess an ultimate tensile strength of not less than 70,000 psi and a yield strength of not less than 60,000 psi, in accordance with ASTM A595, Grade C. Chemistry of the steel must be such as to insure resistance to atmospheric corrosion superior to that of ordinary copper bearing steel. Material certification is required. Manufacturer's steel meeting the specified physical and chemical requirements, and approved by the Commissioner, will be accepted.
- (c) Fabrication. The mast must be fabricated with not more than one (1) longitudinal weld. The weld shall be ground smooth so that it is virtually invisible. There shall be no lateral welds in the masts other than where the masts are welded to the steel bases. Each mast must be straight and centered on its longitudinal axis. Each mast must be formed on a mandrel and worked to form a round cross-section. The completed, unpainted masts shall have smooth external surfaces free from protuberances, dents, cracks or other imperfections marring their appearance.
- (d) Base. The mast base shall be a steel plate, of low alloy, high strength steel as noted in Par. 4 (b).

Plate Base. The base plate for each pole type shall be as listed in Table "A". It must be fabricated from the same ASTM A606 low alloy, high strength steel as is used for the mast. After fabrication the steel must meet the requirements of ASTM A588. The mast must be inserted into the base to a maximum depth which will still allow for an adequate weld to be made between the bottom of the mast and the plate. A circumferential weld must be made between the mast and the base at both the top and underside of the plate. Non-metallic removable bolt covers which completely cover the anchor bolts and nuts shall be provided. The covers must be attached with stainless steel screws coated with a non-seizing compound, or another type of non-seizing fastener, as approved by the Commissioner. The covers shall enclose the anchor bolts and be secured in an approved manner. The base shall be attached to the mast so that the bearing surface of the base is at right angles to the longitudinal axis of the mast. The

vertical center line of the seam must be positioned so that no welds for the simplex attachments or the handhole opening will go through the seam.

Anchor Rod Openings. All anchor rod openings for each pole type shall have a width as listed in Table "A". Each opening must be sized to have a circumferential slot length equal to 15° of the circumference.

- (e) Mast Arm Support Plates. The mast arm support plates will be made of cast steel conforming to the requirements for Grade 65-35 cast steel of ASTM A27, or equivalent, subject to approval. They shall neatly fit the external surface of the mast. The upper mast arm support plate must have a hollow protuberance, the hole of which must be approximately equivalent to two (2) inches in diameter, extending into the interior of the pole providing a smooth surface for the lamp cables to rest upon. The mast arm support plates shall be designed so that they will carry the mast arm and hold it in the proper position for fastening the mast arm to the mast. The design of the mast arm support plates must be a two (2) bolt type as shown on Drawing No. 659.
- (f) Provision for Ground. A 1/2-13 UNC (unified thread – course ANSI B1.1) square nut must be welded to the inside of the mast on the handhole entry frame for a ground connection.
- (g) Entry. A vertical doorframe carrying a removable door providing access to the interior of the mast must be welded into a close fitting opening centered approximately 15 inches above the bottom of the base. The doorframe must be formed and welded of steel with a cross section of two and one-quarter (2-1/4) inches wide by one-quarter (1/4) inch thick so as to adequately reinforce the opening of the mast. The internal horizontal clearance of the doorframe must be four and three-quarter (4-3/4) inches; its internal vertical clearance must be seven (7) inches. Its upper and lower ends must be semi-circular meeting its straight sides tangentially. The radius of this opening must be two and three-eighths (2-3/8) inches. The vertical center line of the entry must be at a right angle clockwise from the vertical center line of the mast arm supports. The frame must have two welded tabs; one at the top and one at the bottom of the door frame. These tabs must be drilled and tapped to accept a 1/4-20 UNC screw. The top hole must be located 13/16 of an inch from the top of the opening. The bottom hole must be located 13/16 of an inch from the bottom of the opening. The 1/4-20 UNC machine screws must be stainless steel with hex heads, meeting the requirements of ASTM A193. The screws shall be treated with a compound to prevent seizing. Other non-seizing types of screws and fasteners may be considered. An alternate method of attachment consisting of a removable hinge on the bottom with a screw connection at the top may be considered. (The above requirements apply to all pole masts except those with a 10 inch bolt circle. Poles with 10 inch bolt circles must have handhole openings of 3" by 5". All other requirements apply.)
- (h) Door. The removable door must be formed of sheet steel approximately one-eighth (1/8) inch thick. It shall be flat or dished depending upon the pole type, and fit the doorframe closely so that it will stay in proper position even if its locking screws are slightly loosened. The door must be drilled top and bottom to accept the 1/4-20 UNC hex head machine screws which will fasten the door to the doorframe. A half-circle piece of steel must be welded by the screw opening, to allow only a socket wrench to be used. All doors shall be interchangeable. An

alternate method of attachment using an internal hinge at the bottom of the door with a screw at the top of the door will be considered. Any alternate method will be subject to approval by the Commissioner or his duly authorized representative.

- (i) Locking Device. Any other door locking device, other than the one outlined above in (g) and (h), must be approved by the Commissioner or his duly authorized representative.
- (j) Tag. To each pole must be attached immediately below the handhole, by mechanical means and not by adhesive, a stainless steel tag with a stamped or embossed legend which must include the pole outside diameter at the base, the overall length, and the gauge; i.e., 12.5" X 34'-6" X 3 gauge.
- (k) Structural Requirements. The mast shall be manufactured in accordance with AASTHO's 1994 version of the "Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals". The shaft and base assembly must be designed to meet AASTHO's 1994 criteria for 80 MPH wind loading with a 30% gust factor. The poles shall be designed appropriately for Chicago applications for both street lighting and traffic signal applications, including signal mast arms.

TOP

- 5. (a) Design. The mast top shall be essentially conical with a globe-shaped upper-end and having a minimum wall thickness throughout of not less than 1/4 inch. The cone portion must meet the skirted portion of the top in a smooth filet, the skirt must enclose the top 7/8" inches of the mast. Three stainless steel, or other similar approved material, set screws not less than 3/4 inches long must be equally spaced in tapped holes around the skirt and must hold the top securely in place atop the mast. The design of the top shall be similar to one shown on Drawing #11420A.
- (b) Material. The top must be aluminum alloy 356-F per ASTM B108. It shall have smooth surfaces, neat edges and corners and be free from fins, holes or other casting flaws. Non-metallic tops may be substituted if approved by the Commissioner.
- (c) Finish. Tops shall be painted as herein specified.

HARDWARE

- 6. All the hardware necessary to complete the assembly of the pole shall be furnished. All hardware will be as specified elsewhere in these specifications. Hardware not specified elsewhere must be stainless steel meeting the requirements of ASTM A193, or equal corrosion-resistant non-seizing metal, or a non-metallic material subject to approval by the Commissioner.

WELDING

- 7. (a) General. Every welded joint shall be made in conformity with the proper interpretation of the standard welding symbols of the American Welding Society as indicated on the drawings; however, each bidder must submit with his proposal a drawing showing the sizes and types of welds, must state the type of electrode, and must describe the welding methods, he proposes to use in fabricating the pole.

- (b) Testing. Welds shall be inspected for penetration and soundness of the welds by the magnetic particle inspection method or by radiography. Acceptance or rejection will be governed by the same conditions as in Section 9. If the magnetic inspection process is to be used, the dry method with the direct current must be employed. All transverse welds must be magnetized by the "prod" (Circular magnetization) method. Longitudinal welds may be magnetized by either circular or longitudinal magnetization.

PAINTING

8. (a) Oil and Grease Removal. All metal surfaces shall be washed with an alkaline detergent to remove any oils or grease.
- (b) Metal Cleaning. All exterior metal surfaces shall be cleaned by blasting with a combination of shot and grit to remove all dirt, mill scale, rust, corrosion, oxides and foreign matter and provide a "near white" surface in accordance with SSPC-SP10. Included in this process will be the interior base section of the mast to a minimum height of twelve (12) inches.
- (c) Chemical Pretreatment. The cleaned metal surfaces shall then be treated with a hot, pressurized iron phosphate wash and shall be dried by convection heat.
- (d) Primer Coat. All exterior surfaces are to be coated with Tnemec 90-97 corrosion-inhibiting zinc-rich aromatic urethane to a minimum dry film thickness of 2.5 mils (.0025"). The aromatic urethane is to consist of a zinc dust content not less than 83% by weight in dried film. The coating shall be airless-spray applied and moisture cured.
- (e) Finish Coat. All exterior surfaces are to be subsequently coated with Tnemec Endura-Shield II 1074 aliphatic acrylic polyurethane to a minimum dry film thickness of 3.0 mils (.003"). The coating shall be airless-spray applied and cured in a gas-fired convection oven by heating the steel substrate to between 150° Fahrenheit and 220° Fahrenheit.
- (f) Interior Coat. Interior surfaces are to be coated with red oxide rust inhibitive alkyd primer to a dry film thickness of 1.5 mils.
- (g) Durability. Both the exterior and interior coats must be capable of passing 1,000 hours of salt spray exposure as per ASTM B117 in a 5% NaCl (by weight) solution at 95°F and 95% relative humidity without blistering. Before test, the panel must be scribed with an "X" down to bare metal.
- (h) Coating Measurement. Measurement of coating thickness must be done in accordance with SSPC-Pa 2-73T, "Measurement of Dry Paint Thickness with Magnetic Gauges," except that the lowest "single spot measurement" in an area of two square inches must be not less than 5.5 mils.
- (i) Color. Color must be gloss black unless otherwise noted in the order. A color sample must be submitted for approval prior to fabrication.
- (j) Alternate Methods. Alternate painting methods may be reviewed and tested on a case by case basis. However, no coating method will be accepted unless the Commissioner judges such alternate to be equal to the coating herein specified.

MAST TEST

9. (a) General. All completed masts shall be available for testing for maximum deflection and set. The masts shall meet the structural requirements of Section 4(k). Unless specifically authorized in writing, all tests shall be made at the works of the manufacturer. A record of every test must be made and a certified copy of the test record must be submitted to the Commissioner before the masts are shipped.
- (b) Lot. Tests for welds, deflection and set of the mast and of the mast arm supports shall be made upon three (3) masts of the first fifty (50) in every order. An additional one (1) mast shall be tested for each additional fifty (50) masts in the order. The selection of masts for testing shall be random from the entire completed lot. If any of the masts in any lot fail to meet the test, an additional three (3) masts of the same lot must be tested. If any of these masts fail to meet the test requirements, the entire lot will be subject to rejection, except that the manufacturer may subject each mast in the lot to the test, and those which fulfill the requirement will be accepted. After testing, each base weld must be inspected by the magnetic particle method to determine that the welds have not been affected.
- (c) Mast Requirements. With base rigidly anchored, a test load as indicated in Table A must be applied at a point approximately two feet (2'0") from the free end. The load must be applied at right angles to the center line of the mast and in the same vertical plane. The deflection must not be greater than that indicated in Table A. Within one (1) minute after the test load is released, measurement must be made of the set taken by the mast. This set must not be greater than that indicated in Table A. The deflection measurement device must be reset to zero and the test load must be reapplied. The deflection must not change from the deflection noted in the first test by more than $\pm 5\%$. No measurable set must be noted within one (1) minute after test load is released.
- (d) Mast Arm Support (simplex) Requirements. With an appropriate mast arm firmly attached to the mast, a test load of 300 pounds must be applied to the mast arm as a side pull at a point seven (7) feet from the mast. After the test, the mast arm support welds on the mast must be tested by the magnetic particle method to determine that they have not been affected.

PACKAGING

10. (a) **General.** The poles must be shipped in twelve (12) pole bundles. Each pole must be individually wrapped so that the pole can be bundled for shipping and unbundled for delivery to the City without damaging the pole or its finish.
- (b) **Bundles.** The bundles shall consist of twelve (12) poles laid base to top to form an approximately rectangular cylinder. Materials such as lumber (2" x 4" min.), non-marring banding, and other appropriate bundling materials must be used to make a rigid, long lasting, bundle capable of being handled, shipped and stored without shifting of contents or breaking, subject to approval. Any bundles, in which either poles or packaging is received broken, damaged or with contents shifted, will not be accepted and it will be the responsibility of the supplier to return the bundle to its original destination at no cost to the City of Chicago. The bundles should be capable of being stacked two (2) high without breaking, or shifting of the contents. Each bundle must be capable of being lifted by a fork lift truck or crane and the bundles must be shipped on a flat bed truck to facilitate unloading. Each pole wrapping must be clearly labeled indicating the pole size, i.e. 34'6", 7 GAUGE, STEEL POLE, 15" B.C.
- (c) **Hardware.** The bolt covers and their attachment devices must be shipped with each bundle and packaged in twelve (12) sets of four (4) each. The package must be labeled and placed in a prominent position to facilitate accessibility, and must be attached to, or within, the bundle in such a manner as to assure safe delivery. Payment will be withheld for any bundle delivered without the accompanying hardware. Pole caps must be attached at the manufacturer's facilities, or be packed separately in a manner similar to the bolt covers, and the same payment conditions will prevail. Cracked, broken or chipped parts will be considered as an incomplete delivery as regards payment.

TABLE A

POLE	GAUGE	BOLT CIRCLE	ANCHOR ROD	BASE PLATE	TEST LOAD	MAX. DEF	MAX. SET	DRAWING
7.67"x12.5" x34'6"	3	16.5"	1.5"	1.75"	3200#	22"	2.5"	827
6.17"x11"x 34'6"	3	17.25"	1.25"	1.5"	2500#	26"	2.5"	824
5.17"x10.0" x34'6"	3	15.0"	1.25"	1.5"	2000#	30"	2.5"	808
5.17"x10.0" x34'6"	7	15.0"	1.25"	1.5"	1500#	30"	2.5"	808
3.95"x8.5"x 32'6"	3	11.5"	1.25"	1.5"	1500#	33"	2.5"	763
3.95"x8.5"x 32'6"	7	11.5"	1.0"	1.25"	1200#	33"	2.5"	762
3.87"x8.0"x 29'6"	3	10.0"	1.0"	1.5"	1500#	28"	1.0"	657
3.87"x8.0"x 29'6"	7	10.0"	1.0"	1.25"	1200#	28"	1.0"	656
4.15"x8.0"x 27'6"	3	10.0"	1.0"	1.5"	1500#	23"	1.0"	655
4.15"x8.0"x 27'6"	7	10.0"	1.0"	1.25	1200#	23"	1.0"	654
4.20"x7.0"x 20'0"	3	10.0"	1.0"	1.0"	1500#	13"	1.0"	653
3.70"x6.5"x 20'0"	11	10.0"	1.0"	1.0"	800#	14"	1.0"	652

ELECTRICAL SPECIFICATION 1450
DIVISION OF ENGINEERING
DEPARTMENT OF TRANSPORTATION
CITY OF CHICAGO
REVISED APRIL 20, 2007

MAST ARMS: 4-, 8-, 12-, AND 15-FOOT: STEEL

SUBJECT

1. This specification covers the requirements for 4-, 8-, 12-, and 15-foot steel mast arms for supporting street light luminaires.

GENERAL

2. (a) Specifications. The mast arms shall conform in detail to the requirements herein stated, and to the requirements of the following organizations cited herein, of which the most recently published revision will govern:
American National Standards Institute (ANSI)
American Society for Testing and Materials (ASTM)
American Welding Society (AWS)
Society for Protective Coatings (SSPC)
- (b) Acceptance. Mast arms not conforming to this specification will not be accepted.
- (c) Drawings. The drawings mentioned herein are drawings of the Department of Transportation. They are integral parts of this specification cooperating to state necessary requirements.
- (d) Bidders Drawings. Bidders shall submit with their bids detailed scale drawings of the mast arms and attachments showing actual dimensions, details, and welds. Shop drawings must be original engineering drawings created by the manufacturer. The drawings must give every dimension necessary to show how the parts will fit each other and be properly held in assembly. These drawings shall be submitted in electronic format, preferably Microstation 95, if so requested by the City.
- (e) Sample. One complete mast arm of each size and of the manufacture intended to be furnished must be submitted within fifteen (15) business days upon request of the Chief Procurement Officer.
- (f) Warranty. The manufacturer shall warrant the performance and construction of the mast arms to meet the requirements of this specification and must warrant all parts, components, and appurtenances against defects due to design, workmanship, or material developing within a period of five years after the mast arms have been delivered. This will be interpreted particularly to mean structural or mechanical failure of any element or weld, or failure of any portion of the painting system. The warranty must be furnished in writing guaranteeing material replacement including shipment, free of charge to the City. The Commissioner will be the sole judge in determining which replacements are to be made and the Commissioner's decision will be final.

DESIGN

3. (a) 4-Foot Mast Arm. Each 4-foot mast arm must be fabricated from a continuous, single piece, two (2) inch "extra strong" steel pipe conforming to the requirements of ASTM A53, Table X2. It must conform in detail with the mast arm shown on Drawing Number 661.

- (b) 8-Foot Mast Arm. Each 8-foot mast arm must be fabricated from a continuous, single piece, two (2) inch "extra strong" steel pipe conforming to the requirements of ASTM A53, Table X2. It must conform in detail with the mast arm shown on Drawing Number 620.
- (c) 12-Foot Mast Arm. Each 12-foot mast arm must be fabricated from two (2) continuous, single piece, two (2) inch "standard" steel pipes conforming to the requirements of ASTM A53, Table X2. It must conform in detail with the mast arm shown on Drawing Number 839.
- (d) 15-Foot Mast Arm. Each 15-foot mast arm must be fabricated from two (2) continuous, single piece, two (2) inch "standard" steel pipes conforming to the requirements of ASTM A53, Table X2. It must conform in detail with the mast arm shown on Drawing Number 840.
- (e) Mast Arm Attachment. The mast arm attachment to be welded to all mast arms will be steel forging per ASTM A668, Class D, or cast steel conforming to the requirements for Grade 65-35 cast steel of ASTM A27, or can be fabricated from corrosion resistant steel plate such as "Cor-Ten" or approved equal. It shall be so designed that it may be fitted over the mast arm supports on the pole and be held by the mast arm supports in proper position without other support. The attachment must conform to the details shown on Standard Drawing 724. Provision must be made for fastening the attachment to each mast arm support by two special screws and washers as noted in Section 6.
- (f) Entryway for Wires. A drilled opening lined with a neoprene grommet having inserted therein a neoprene plug must be provided on the underside of the upper member of all arms approximately three (3) inches from the point of attachment. The clear opening must not be less than five-eighths (5/8) inch in diameter. Its design must be submitted for approval by the Commissioner or his authorized representative.
- (g) Mast Arm Members. All mast arm members shall conform with the type of steel required for the arm specified. The members must be continuous lengths of pipe cut to the proper size to fabricate the mast arm lengths requested. No butt welded, swaged and welded or other pieced together configurations of pipe lengths will be accepted. The outer and inner surfaces of the pipes shall be smooth and even without protrusions, nicks, holes or other imperfections.

PAINTING

- 4. (a) Oil and Grease Removal. All metal surfaces shall be washed with an alkaline detergent to remove any oils or grease.
- (b) Metal Cleaning. All exterior metal surfaces shall be cleaned by blasting with a combination of shot and grit to remove all dirt, mill scale, rust, corrosion, oxides and foreign matter and provide a "near white" surface in accordance with SSPC-SP10. Included in this process shall be one to two inches of the interior section of the mast arm.
- (c) Chemical Pretreatment. The cleaned metal surfaces shall be treated with a hot, pressurized iron phosphate wash and shall be dried by convection heat.
- (d) Exterior Coat. A Thermosetting, polyester powder coat must be applied electrostatically to all cleaned and treated surfaces to a uniform eight (8) mil thickness in a one coat application. This powder coat must be cured in a convection oven at a minimum temperature of 400°F to form a high molecular weight fusion bonded finish.
- (e) Alternate Methods. Alternate powder coat methods may be reviewed and tested on a case by case basis. However, no coating method will be accepted unless

the Commissioner judges such alternate to be equal to the coating herein specified.

- (f) Interior Coat. The interior metal surfaces must be powder coated with a thermoplastic hydrocarbon resin containing corrosion inhibitors. The resin shall be formulated for application over untreated metal surfaces. The resin must be applied at a temperature of approximately 200°F to a minimum thickness of three (3) mils. The interior thermoplastic coat must overlap the interior, thermosetting base coat by approximately one (1) inch. Alternate interior coatings may be used subject to prior approval of the Commissioner.
- (g) Durability. Both the exterior and interior coats must be capable of passing 1,000 hours of salt spray exposure as per ASTM B117 in a 5% NaCl solution at 95°F and 95% relative humidity without blistering.
- (h) Coating Measurement. Measurement of coating thickness must be done in accordance with SSPC-PA 2-73T, "Measurement of Dry Paint Thickness with Magnetic Gauges," except that the lowest "Single spot measurement" in an area of two square inches must be not less than 7.0 mils.
- (i) Color. Color must be gloss black, unless otherwise specified in the order. A color chip sample must be submitted for approval prior to fabrication.

WELDING

- 5. (a) Standards. Every weld shall be made in conformity with the proper interpretation of the standard welding symbols of the American Welding Society as indicated on the drawings; however, each bidder must submit with his proposal a drawing showing the sizes and types of welds, must state the type of electrode, and must describe the welding methods he proposes to employ in fabricating the mast arm.
- (b) Testing. The welds shall be inspected for penetration and soundness by the magnetic particle inspection method or by radiography. If the magnetic inspection process is used, the dry method with direct current must be employed.

SCREWS

- 6. Two (2) special 1/2" - 13 NC x 1-1/2" long stainless steel cap screws, and two (2) stainless steel flat washers, must be provided for each mast arm attachment.

MAST ARM TESTS

- 7. (a) General. Tests must be made upon three (3) of the first fifty (50) arms in any order. An additional one (1) arm must be tested for each additional fifty (50) arms in the order.
- (b) 4-Foot Mast Arm. The 4-foot mast arm, when securely attached to a suitable and proper supporting structure, must withstand a side pull of not less than three hundred (300) pounds applied at a point three feet six inches (3'-6") from the connection to the supporting structure without failure of welds.
- (c) 8-Foot Mast Arms. The 8-foot mast arm, when securely attached to a suitable and proper supporting structure, must withstand a side pull of not less than three hundred (300) pounds applied at a point seven (7) feet from the connection to the supporting structure without failure of the welds.
- (d) 12-Foot and 15-Foot Mast Arms. The 12-foot mast arm and the 15-foot mast arm, when securely attached to a suitable and proper supporting structure, must withstand a side pull of 300 pounds applied at a point seven (7) feet from the connection to the supporting structure without failure of the welds.
- (e) Rejection. If any of the mast arms in any lot fail to meet the test, an additional three (3) arms in the same lot must be tested. If any of these mast arms fail to meet the test requirements the entire lot will be subject to rejection, except that

the manufacturer may subject each mast arm in the lot to the test, and those which meet the requirements will be accepted.

- (f) All test results must be certified by the manufacturer. Documentation must be available for the City to approve.

PACKAGING

- 8. (a) General. The arms shall be shipped in bundles. Each arm must be individually wrapped so that the arm can be bundled for shipping and unbundled for delivery without damage to the arm or its finish. Materials such as lumber (2"x4" min.), non-marring banding, and other appropriate bundling materials must be used to make a rigid, long lasting, bundle capable of being handled , shipped and stored without shifting or breaking of the contents. Any bundles, in which either the mast arms or packaging is received broken, damaged or with contents shifted, will not be accepted and it will be the responsibility of the supplier to return the bundle at no cost to the City. Each bundle must be capable of being lifted by a fork lift truck or crane and the bundles must be shipped in a flat bed truck to facilitate unloading. Each arm wrapping must be clearly labeled indicating the arm size, i.e. "8' STEEL LUMINAIRE MAST ARM".
- (b) The hardware must be shipped with each bundle. The package must be labeled and placed in a prominent position to facilitate accessibility, and must be attached to, or within, the bundle in such a manner as to assure safe delivery.

**ELECTRICAL SPECIFICATION 1452
DIVISION OF ENGINEERING
DEPARTMENT OF TRANSPORTATION
CITY OF CHICAGO
REVISED MARCH 19, 2014**

POLE: ANCHOR BASE, ALUMINUM, TAPERED TUBULAR SHAFT

SUBJECT

1. This specification states the requirements for tapered, tubular, aluminum anchor base poles. They will support street light luminaires mounted on either truss type arms or davit style arms. The poles will be served by underground cables.

GENERAL

2. (a) Specifications. The poles shall conform in detail to the requirements herein stated, and to the requirements of the following organizations as cited herein:
Aluminum Association (AA)
American Association of State Highway and Transportation Officials (AASHTO)
American National Standards Institute (ANSI)
American Society for Testing and Materials (ASTM)
American Welding Society (AWS)
Society for Protective Coatings (SSPC)
- (b) Acceptance. Poles not conforming to this specification will not be accepted. The Commissioner will be the sole judge in determining if the poles meet this specification.
- (c) Bidders Drawings. Bidders must submit with their bids detailed scale drawings of the mast showing actual dimensions, details, and welds. Shop drawings must be original engineering drawings created by the manufacturer. The drawings must show every dimension necessary to show how all parts will fit each other and be properly held in assembly. These drawings must also be submitted in electronic format, in the latest version of either Microstation or Autocad, if so requested by the City.
- (d) Standard Drawings. The drawings mentioned herein are drawings of the Department of Transportation being an integral part of this specification cooperating to state necessary requirements.
- (e) Sample. If requested by the Chief Procurement Officer, one completely assembled anchor-base pole of the manufacture intended to be furnished, must be submitted for review by the Commissioner within fifteen (15) business days after receipt of notice.
- (f) Warranty. The manufacturer shall warrant the performance and construction of the light poles to meet the requirements of this specification and shall warrant all parts, components, and appurtenances against defects due to design, workmanship, or material developing within a period of five years after the light poles have been delivered. This will be interpreted particularly to mean structural or mechanical failure of any element or weld, or any faults in the anodized surfaces. The warranty must be furnished in writing guaranteeing material replacement including shipment, free of charge to the City. The Commissioner will be the sole judge in determining which replacements are to be made. The Commissioner's decision will be final.

STANDARDS

3. (a) Assembly. Each anchor base pole shall consist of an aluminum mast with handhole entry, aluminum hinged entry door, grounding nut, mast base plate, top cap for non-davit masts, bolt covers, and all necessary hardware required for complete assembly of these parts, ready for assembly, without special tools.
- (b) Interchangeability. Members of each pole type must be mutually interchangeable for assembly, so that no reworking will be required to make any member fit properly in the place of any other similar member of any other similar pole.
- (c) Design. Each pole type must conform in design and dimensions to the pertinent drawing(s) listed in Table A.

MASTS

4. (a) Mast Size. The outside diameters of the mast of each pole type shall be as listed in Table A. The mast taper will be approximately 0.14 inches per foot.
- (b) Material. The shaft must be fabricated from one length of 6063-T4 wrought aluminum alloy meeting the requirements of ASTM B221. After all welding operations are completed, the mast must be brought to a T6 temper having minimum physical characteristics of ASTM B221. The wall thickness of the shaft and the diameter of the shaft shall be as listed in Table A and as shown on the appropriate standard drawing. Material certification shall be provided from the tube manufacturer.
- (c) Fabrication. The mast must be fabricated with no longitudinal or lateral welds in the tube. The completed masts must have smooth external surfaces free from protuberances, dents, cracks or other imperfections marring their appearance. Each mast must be straight and centered on its longitudinal axis.
- (d) Base. The mast base must be a permanent mold aluminum casting conforming to the requirements for aluminum alloy 356-T6 of ASTM B-108 or ASTM B-26. The base shall be similar in shape and dimensions to that shown on the appropriate standard drawing for the specific mast. The base shall consist of a collar, flange, and any other members necessary to provide strength and reduce the concentration of anticipated stresses. The shaft must extend into the base as shown on the appropriate standard drawing and be circumferentially welded to the base casting at the top outer surface and the lower inner surface of the base. Bases must be attached to the mast so that the bearing surface of the base is at right angles to the longitudinal axis of the mast.
Non-metallic removable bolt covers which completely cover the anchor bolts and nuts must be provided. The covers must be attached with stainless steel screws or another type of non-seizing fastener, as approved by the Commissioner. The covers must enclose the anchor bolts and be secured in an approved manner.
All anchor rod openings for each pole type must have a width as listed in Table A. Each opening must be sized to have a circumferential slot length equal to 15° of the circumference.
- (e) Cable Entry for Conventional Poles. An opening of approximately one and one quarter inches (1-1/4") in diameter, rimmed with a rubber or nylon grommet, must be furnished and installed at the point on the shaft where the clamp on the upper member of the mast arm bracket meets the pole. Certain masts may require two cable entries, depending on the order. There will be no extra compensation for the extra cable entry. This cable entry requirement does not apply to pole masts designed for davit style arms. This requirement does apply to conventional poles (Drawings 890 and 938).
- (f) Option: Side Mount for Luminaire. If requested, the pole mast will be prepared for the mounting of a sidewalk-side luminaire. An opening of approximately one

and one-quarter inches (1-1/4") in diameter, rimmed with a rubber or nylon grommet, must be furnished and installed at the proper height, as indicated on the appropriate standard drawing, or as directed in the order. In addition, two (2) holes must be drilled to accept two (2) rivnuts for mounting a City back plate for a mid-mount luminaire. All three (3) holes must be properly spaced and aligned to accept the City standard back plate for the appropriate mid-mount luminaire. The rivnuts (3/8-16) must be inserted in the pole. The holes must be properly aligned with the handhole as indicated on the standard drawings.

- (g) Top of Shaft for Davit Arm. The top one foot of the mast shall be formed as shown on the appropriate standard drawing. An adapter ring may be provided if required. Two sets of holes 9/16 inches in diameter must be drilled through the mast to accommodate two bolts to attach a davit arm. The lower set (two holes) must be in line with the mast arm. The other set must be 90° apart from the other. These requirements apply to pole masts designed for davit style arms.
- (h) Provision for Ground. A tapped hole must be provided on an extension or offset, centered on the handhole door frame's interior vertical surface, to accept a 1/2"-13 bolt for a ground connection.
- (i) Entry. A vertical doorframe for reinforcing a door opening which provides access to the interior of the mast must be welded on the inside of the pole and be centered approximately 18 inches above the bottom of the base. The doorframe must be formed and welded of aluminum alloy 6063-T6 with a cross-section to adequately reinforce the opening of the mast. The doorframe must be as indicated on the appropriate standard drawing. The actual door opening must be sized to perfectly match the door size. For all arterial poles and for all conventional poles, the vertical centerline of the entry must be at a right angle clockwise to the vertical centerline of the mast arm. For the residential davit poles, the vertical centerline of the entry must be in-line with the vertical centerline of the mast arm. An internal flange must be welded to the inside of the pole at the bottom of the door opening. This flange will be drilled to accept a bolt. The bolt will be used to attach a hinged door to the pole. An aluminum tab must be welded to the inside upper portion of the door opening. A hole must be drilled into the tab that will accept a 1/4 inch screw. The hole must be centered horizontally in the door opening and must be centered 3/8 of an inch down from the uppermost portion of the door opening. A steel spring clip must be mounted to the tab. The clip must be made to accept a 1/4"-20 machine screw.
- (j) Door. The removable door must be formed of the same aluminum as the pole. The door must fit the pole opening within a tolerance of 1/8 of an inch. The door must be flush with the pole surface in the closed position and appear as part of the original mast. The door must be attached to an internal hinge which will allow the door to open out and down. The hinge must be bolted to a flange on the inside of the pole at the bottom of the door opening, so that the door and hinge may be un-bolted and replaced if need be. The door opening must be sized according to the appropriate standard drawing. A hole must be drilled in the top of the door in alignment with the hole on the mast. A 1/4"-20 Allen head button machine screw must be provided to fasten the door to the doorframe. The screw must have a stainless steel core with a nylon threaded body. Other types of non-seizing fasteners may be considered. All doors of the same size must be interchangeable. The door and attachment method will be subject to approval by the Commissioner or his duly authorized representative.

- (k) Tag. To each pole must be attached immediately below the handhole, by mechanical means and not by adhesive, a stainless steel tag with a stamped or embossed legend which must include the pole outside diameter at the base, the overall length, and the wall thickness.
- (l) Structural Requirements. The mast shall be manufactured in accordance with AASTHO's 1994 version of the "Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals". The shaft and base assembly must be designed to meet AASTHO's 1994 criteria for 80 MPH wind loading with a 30% gust factor. The poles shall be designed appropriately for Chicago street lighting applications, including mast arm and luminaires. Thirty - foot davit poles and thirty- foot conventional poles for arterial streets must also allow for banner and flower basket attachments. The pole manufacturer must provide load calculations that verify that the poles are designed properly.

TOP CAP FOR NON-DAVIT POLES

- 5. The top cap shall be aluminum alloy. It must have smooth surfaces, neat edges and corners and be free from fins, holes, or other casting flaws. Three stainless steel set screws not less than 3/8 inches long must be equally spaced in tapped holes around the skirt to securely hold the top in place.

VIBRATION DAMPER

- 6. Each pole shaft will have an internal vibration damper, if requested, located at a position as shown on the appropriate standard drawing. The vibration damper must be welded or bolted to the inside of the pole shaft. If the standard drawing does not show a vibration damper none should be provided. The design of the vibration damper is subject to approval by the Commissioner or his representative.

HARDWARE

- 7. All the hardware necessary to complete the assembly of the pole must be furnished. All hardware will be as specified elsewhere in these specifications. Hardware not specified elsewhere must be stainless steel, or equal corrosion-resistant non-seizing metal, or a non-metallic material subject to approval by the Commissioner.

WELDING

- 8. (a) General. Every welded joint shall be made in conformity with the proper interpretation of the standard welding symbols of the American Welding Society as indicated on the drawings. Each bidder must submit with his proposal a drawing showing the sizes and types of welds, must state the type of electrode, and must describe the welding methods, he proposes to use in fabricating the pole.
- (b) Testing. All welds of five percent (5%) of the poles in every lot must be inspected for penetration and soundness of the welds by radiography, or by a penetrant method. Acceptance or rejection will be governed by the same conditions as in the TESTING Section.
- (c) Certifications. Welders must have proper certification for the welding operations required. Welding by non-certified personnel will not be allowed. Certifications must be available upon request.

FINISH

- 9. (a) General. All completed masts shall have a brushed satin natural finish or an anodized finish, as required by the project or in the purchase order.

- (b) A satin aluminum finish requires that each mast be rotary sand finished. The satin finish shall be accomplished by using 40-50 grit belts to remove taper marks and scratches. A minimum of one pass with a 120 grit belt over the entire shaft is required to provide a uniform appearance.
- (c) An anodized finish will be either matte black or semi-gloss black. A color sample must be submitted for approval before any factory production. The anodizing process must include cleaning, etching, anodizing, and sealing the mast. The etching process must meet the requirements of AA-C22. The anodizing process must meet the requirements of AA-A42. The contractor must submit his anodizing process for approval before any factory production.

MAST TEST

10. (a) General. All completed masts shall be available for testing for maximum deflection and set. The masts must meet the structural requirements of Section 4(l). Unless specifically authorized in writing, all tests must be made by the manufacturer. A record of every test must be made and a certified copy of the test record must be submitted to the Electrical Section of the Division of Engineering before the masts are shipped.
- (b) Lot. Tests for deflection of the mast must be made upon five (5%) percent of all the masts in every lot (two (2) min.). The selection of masts for testing must be random from the entire completed lot. If any of the masts in any lot fail to meet the test, an additional three (3%) percent of the masts of the same lot must be tested (two (2) min.). If any of these masts fail to meet the test requirements, the entire lot will be subject to rejection, except that the manufacturer may subject each mast in the lot to the test, and those which fulfill the requirement will be accepted. After testing, each base weld must be inspected by radiography or the penetrant method to determine that the welds have not been affected. After testing, no permanent set should be visible or apparent. The mast should appear straight.
- (c) Mast Requirements. With base rigidly anchored, a test load of 500 pounds must be applied at a point approximately eighteen inches (18") from the free end. The load must be applied at right angles to the center line of the mast and in the same vertical plane. With no failure of any component part, the deflection must not be greater than 7.5% of the pole height. After removal of the load, the deflection measurement device must be reset to zero and the test load must be reapplied. The deflection must not change from the deflection noted in the first test by more than $\pm 5\%$.

PACKAGING

11. (a) General. The poles must be shipped in bundles. Each pole or bundle shall be wrapped so that the poles can be handled and stored without damage to the surfaces.
- (b) Bundles. The poles in each bundle must be laid base to top to form an approximately rectangular cylinder. Materials such as lumber (2" x 4" min.), non-marring banding, and other appropriate bundling materials must be used to make a rigid, long lasting, bundle capable of being handled, shipped and stored without shifting of contents or breaking. Any bundles, in which either poles or packaging is received broken, damaged or with contents shifted, will not be accepted and it will be the responsibility of the supplier to return the bundle to its original destination at no cost to the City of Chicago. The bundles should be capable of being stacked two (2) high without breaking, or shifting of the

contents. Each bundle must be capable of being lifted by a fork lift truck or crane and the bundles must be shipped on a flat bed truck to facilitate unloading.

- (c) Hardware. The bolt covers and their attachment devices must be shipped with each bundle. The package must be labeled and placed in a prominent position to facilitate accessibility, and must be attached to, or within, the bundle in such a manner as to assure safe delivery. Payment will be withheld for any bundle delivered without the accompanying hardware. Pole caps must be attached at the manufacturer's facilities, or be packed separately in a manner similar to the bolt covers, and the same payment conditions will prevail. Cracked, broken or chipped parts will be considered as an incomplete delivery as regards payment.

TABLE A

POLE	T H I C K N E S S	BOLT CIRCLE	ANCHOR ROD	BASE P L A T E	M A X. D E F L	D R A W I N G
7"x4.5"x12'-5"	.156"	10"	1.0"	0.75"	11"	940
7"x4.5"x20'-0"	.156"	10"	1.0"	0.75"	18"	890
8"x4.5"x27'	.312	11.5"	1.0"	0.75"	26"	975
10"x6"x24'-5"	.312"	15"	1.25"	1.25"	22"	941
10"x6"x27'-10.5"	.312"	15"	1.25"	1.25"	25"	938
10"x6"x29'-4.625"	.312"	15"	1.25"	1.25"	27"	971
10"x6"x34'-4.625"	.312"	15"	1.25"	1.25"	31"	972

**ELECTRICAL SPECIFICATION 1453
DIVISION OF ENGINEERING
DEPARTMENT OF TRANSPORTATION
CITY OF CHICAGO
REVISED MARCH 14, 2013**

MAST ARMS: ALUMINUM, TRUSS TYPE AND DAVIT TYPE

SUBJECT

1. This specification covers the requirements for aluminum mast arms for supporting street light luminaires. The aluminum arms will be supported by aluminum light poles.

GENERAL

2. (a) Specifications. The mast arms shall conform in detail to the requirements herein stated and to the requirements of the following organizations as cited herein:
Aluminum Association (AA)
American Association of State Transportation and Highway Officials (AASTHO)
American National Standards Institute (ANSI)
American Society for Testing and Materials (ASTM)
American Welding Society (AWS)
Society for Protective Coatings (SSPC)
- (b) Acceptance. Mast arms not conforming to this specification will not be accepted. The Commissioner will be the sole judge in determining if the arms meet this specification.
- (c) Bidders Drawings. Bidders must submit with their bids detailed scale drawings of the mast arm and bracket attachment proposed to be welded to the mast arm as the means for attaching these mast arms to poles. For davit arms, drawings must show how the davit is attached to the top of the light pole and is secured. The drawings must give every dimension necessary to show how the parts will fit each other and be properly held in assembly. These drawings must also be submitted in electronic format, in the latest version of either Microstation or Autcad, if so requested by the City.
- (d) Drawings. The drawings mentioned herein are drawings of the Department of Transportation being an integral part of this specification cooperating to state the necessary requirements.
- (e) Sample. If requested by the Chief Procurement Officer, one complete mast arm of the manufacture intended to be furnished, must be submitted within fifteen (15) business days upon receipt of such request.
- (f) Warranty. The manufacturer shall warrant the performance and construction of the mast arms to meet the requirements of this specification and shall warrant all parts, components, and appurtenances against defects due to design, workmanship, or materials, developing within a period of five years after the mast arms have been delivered. This will be interpreted particularly to mean structural or mechanical failure of any element or weld, or any faults in the anodized surfaces. The warranty must be furnished in writing guaranteeing material

replacement including shipment, free of charge to the City. The Commissioner will be the sole judge in determining which replacements are to be made. The Commissioner's decision will be final.

- (g) Structural Requirements. The arms shall be manufactured in accordance with AASTHO's 1994 version of the Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals. The arms must be designed to meet AASTHO's 1994 criteria for 80 MPH wind loading with a 30% gust factor. The arms shall be designed for Chicago street lighting applications. The arm manufacturer must provide structural calculations that verify that the arms are designed properly.

TRUSS ARM DESIGN

- 3. (a) Each mast arm must be a truss type fabricated of two (2) inch "standard" aluminum pipe or tube 6063-T4 alloy conforming to the requirements of ASTM B429, or ASTM B221, or other approved design. The arm must be heat treated to a T-6 temper after fabrication and welding.
- (b) Mast Arm Attachment. The mast must be attached to the pole by means of an extruded aluminum clamp with a bolting arrangement to hold the arm firmly in place. The extrusion must be aluminum alloy 6061-T6 conforming to the requirements of ASTM B221, B308, or an approved equal. The clamps shall be designed to securely fasten the mast arm to the pole so that the arm cannot be dislodged vertically or horizontally from its intended position on the pole by wind gusts, vibrations or other normally anticipated natural phenomena.
- (c) Dimensions. The truss type arm must have the dimensions indicated on Standard Drawing 943 or Standard Drawing 944 for the appropriate arm specified. Truss arms will be available in nominal horizontal lengths of 4 foot, 6 foot, 8 foot, 12 foot, and 15 foot, with either 4.5 inch or 6 inch clamps. The distance between the lower and upper members, measured between the vertical centers of the upper and lower attachment plates, must be 1'-9". With the arm attached to the pole intended to be supplied, the vertical rise from the center of the top attachment plate to the horizontal centerline of the end of the arm must be no greater than 2'-8". The horizontal axis of the free end of the upper member, when attached to the pole, must not exceed 3° above the true horizontal without the luminaire weight, nor be less than 1/2° above the true horizontal with a 35 lb. weight supported at the free end of the arm.
- (d) Mating of Members. The upper and lower members shall be mated in such a manner as to assure that they will not separate due to vibration, weather conditions such as high wind gusts, icing, etc., or any other normally anticipated stress condition.
- (e) Interchangeability. Members of each truss arm size must be mutually interchangeable for assembly, so that no reworking will be required to make any member fit properly in the place of any other similar member of any other similar arm.

DAVIT ARM DESIGN

- 4. (a) Each arm must be fabricated from either 4.5 inch diameter or 6.0 inch diameter aluminum tubing of 6063-T4 alloy. After all fabrication and welding, the arm must be heat treated to a T6 temper.

- (b) The arm must be attached to the mast by slipping the bottom of the arm tube over the top of the mast. The arm must have four (4) holes pre-drilled at its base to accommodate two (2) through bolts set 90° apart, as shown on the Standard Drawings. The bottom bolt will be in direct line with the length of the arm. The holes must match the holes in the mast so that after assembly the arm and mast appear as a single continuous unit. When bolted to the pole, the arm must not shift or become dislodged by wind gusts, vibrations, or other phenomena.
- (c) The davit arm must be dimensioned as indicated on Standard Drawing 945, 946, 948, 949, or 950, for the appropriate arm specified. Davit arms must be available in nominal horizontal lengths of 8 foot and 12 foot for the 4.5 inch pole tops. Davit arms must be available in nominal lengths of 8 foot, 12 foot, and 15 foot for 6 inch pole tops. Davit arms will be single or twin as specified. A 2 3/8 inch diameter tenon will be attached to the end of each arm. The horizontal axis of the tenon, when the arm is attached to the pole, must not exceed 3° above the true horizontal without the luminaire weight, nor be less than 1/2° above the true horizontal with a 35 lb. weight supported by the tenon.
- (d) Interchangeability. All davit arms for a 4.5 inch pole top must be interchangeable with each other. The same is required of davit arms for a 6 inch pole top.

WELDING

- 5. (a) General. Every welded joint shall be made in conformity with the proper interpretation of the standard welding symbols of the American Welding Society as indicated on the drawings. Each bidder must submit with his proposal a drawing showing the sizes and types of welds, must state the type of electrode, and must describe the welding methods, he proposes to use in fabricating the arms.
- (b) Testing. All welds of five percent (5%) of the arms in every lot must be inspected for penetration and soundness of the welds by radiography or by penetrant inspection. Acceptance or rejection will be governed by the same conditions as in the TESTING Section.
- (c) Certifications. Welders must have proper certification for the welding operations required. Welding by non-certified personnel will not be allowed. Certifications must be made available upon request.

FINISH

- 6. (a) General. All completed arms shall have a brushed satin natural finish or an anodized finish, as required by the project or in the purchase order.
- (b) A satin aluminum finish requires that each arm be rotary sand finished. The satin finish shall be accomplished by using 40-50 grit belts to remove taper marks and scratches. A minimum of one pass with a 120 grit belt over the entire arm is required to provide a uniform appearance.
- (c) An anodized finish will be either matte black or semi-gloss black. A color sample must be submitted for approval before any factory production. The anodizing process must include cleaning, etching, anodizing, and sealing the aluminum arm. The etching process must meet the requirements of AA-C22. The anodizing process must meet the requirements of AA-A42. The contractor must submit his anodizing process for approval before any factory production.

HARDWARE

7. All hardware furnished for attachment of mast arm to pole must be series 300 stainless steel. All hardware necessary to complete the assembly of the arm to the pole must be provided.

MAST ARM TESTS

8. (a) General. Five percent (5%) of the mast arms of each size in every order shall be tested for structural integrity.
- (b) Tests. The mast arms, when securely attached to a suitable and proper supporting structure, must withstand a horizontal (sideward) pulling force as indicated in Table A, and a vertical (downward) load as indicated in Table A. These loads may be applied independently. Each load must be applied at the end of the arm without any apparent permanent set, or damage to the welds joining the arm and mast arm attachment. The appropriate loading for each arm is indicated in Table A. On twin arms each arm extension must be tested.
- (c) Rejection. If the mast arms fail to meet the test, an additional three percent (3%) of the mast arms in the same lot must be tested. If any of these mast arms fail to meet the test requirements, the entire lot will be subject to rejection, except that the manufacturer may subject each mast arm in the lot to the test, and those which fulfill the requirements will be accepted.
- (d) All mast arms must meet the structural requirements of Section 2(g). All tests shall be certified by the manufacturer. Test results should be submitted to the Electrical Section of the Division of Engineering, upon request.

PACKAGING

9. (a) General. The mast arms must be shipped in bundles. Each arm or bundle shall be wrapped so that the arms can be handled and stored without damage to the surfaces.
- (b) Bundles. The bundles shall consist of fifty (50) to seventy five (75) arms laid to form an approximately rectangular bundle. Materials such as lumber (2"x4"), stainless steel banding, and other appropriate bundling materials must be used to make a rigid, long lasting, bundle capable of being handled, shipped and stored without shifting of contents or breaking, subject to approval. Any bundles, in which either the arms or packaging, is received broken, damaged, or with contents shifted, will not be accepted, and it will be the responsibility of the supplier to return the bundle to its original destination at no cost to the City of Chicago. The bundles should be capable of being stacked two (2) high without breaking, or shifting of the contents. Each bundle must be capable of being lifted by a fork lift truck or crane and the bundles must be shipped on a flat bed truck to facilitate unloading.
- (c) Hardware. The clamp backs and mounting hardware must be attached to the clamp fronts on the end of the arm, and must be shipped with each mast arm bundle. Mounting hardware for the davit arms must be packed and shipped with each davit arm bundle. Payment will be withheld for any bundle delivered without the accompanying hardware. Cracked, broken or chipped parts will be considered as an incomplete delivery as regards payment.

TABLE A

ALUMINUM ARM	HORIZONTAL LOAD	VERTICAL LOAD	DRAWING #
Truss 4.5"x 4'	100#	250#	943
Truss 4.5"x 6'	100#	250#	943
Truss 4.5"x 8'	100#	250#	943
Truss 4.5"x 12'	100#	250#	943
Truss 4.5"x 15'	100#	250#	943
Davit 4.5"x 8'	100#	250#	945
Davit 4.5"x 12'	100#	200#	946
Davit 6.0"x 8'	100#	250#	948
Davit 6.0"x 12'	100#	250#	949
Davit 6.0"x 15'	100#	250#	950

ELECTRICAL SPECIFICATION 1457
DIVISION OF ENGINEERING
DEPARTMENT OF TRANSPORTATION
CITY OF CHICAGO
REVISED AUGUST 3, 2006

**CABLE: SERVICE ENTRANCE,
THREE INSULATED CONDUCTORS IN ONE OVERALL JACKET, 600 VOLT**

SUBJECT

1. This specification states the requirements for a three conductor (two power conductors and one neutral conductor) Ethylene Propylene Rubber (EPR) insulated, chlorosulfonated polyethylene (CSPE) or polyvinyl chloride (PVC) jacketed cable for installation on Commonwealth Edison service poles for the purpose of providing secondary power feeds from Commonwealth Edison to a City disconnect mounted on the pole for street lighting or traffic signal circuits.

GENERAL

2. (a) Specifications. The cable shall conform in detail to the requirements herein stated, and to the applicable portions of the specifications and methods of test of the following agencies:
 - (1) ICEA Specification S-95-658
 - (2) IEEE Standard 383
 - (3) ASTM Standard E-662-79
 - (4) ASTM Standard D-470-81
 - (5) U.L. 44
 - (6) U.L. 854
- (b) Acceptance. Cable not conforming to this specification will not be accepted.
- (c) Sample. A three (3) foot sample of the cable intended to be provided under this contract must be submitted to the Engineer of Electricity within fifteen (15) business days after receipt of such a request from the Chief Procurement Officer.
- (d) Warranty. The manufacturer shall warranty the cable to be first class material throughout. If the cable is installed within one year of the date of shipment, the manufacturer must replace any cable failing during normal and proper use within two years of installation. The cable length to be replaced will be the entire unspliced length where the fault has been located. The Commissioner will be the sole judge in determining if a cable has failed and should be replaced. All replacements under this warranty must be made free of charge F.O.B. delivery point of the original contract

CABLE

3. (a) Construction. The cable must consist of three (3) conductors separately insulated and color coded. Suitable fillers must be used to produce essentially a round cross section in the completed cable. The insulated conductors must be cabled with a suitable left hand lay in conformance with the latest revision of ICEA S-95-658. A binder tape must be used over the cabled conductor assembly and a jacket applied overall.

- (b) Sealing. The ends of each length of cable shall be sealed against the entrance of moisture.
- (c) Marking. The color of the neutral conductor must be white; that of the phase conductors must be black and red, respectively. The jacket must be black.
- (d) Each conductor shall consist of a round copper wire with a tight fitting, free stripping, concentric layer of Ethylene Propylene insulation. The cable must be rated for continuous duty at 90°C operating temperature, wet or dry, 130°C emergency overload temperature and 250°C short circuit temperature.

CONDUCTOR

- 4. (a) Material. The conductor shall either be soft or annealed round copper wire, tin coated.
- (b) Specifications. The conductor must meet the requirements of ASTM B3, and B8 for stranded Class B copper.
- (c) Size. The conductor size shall be as stated in the proposal or on the plans.

INSULATION

- 5. (a) Type. The insulation must be Ethylene Propylene compound meeting the physical and electrical requirements specified herein.
- (b) Thickness. The insulation must be circular in cross-section, concentric to the conductor, and must have an average thickness not less than 30 mils (.030") for #14 AWG, 55 mils (.055") for #4 AWG, 65 mils (.065") for #2 AWG, 80 mils (.080") for #1/0 AWG, 80 mils (.080") for #2/0 AWG ,and a spot thickness not less than ninety percent (90%) of the average thickness.
- (c) Initial Physical Requirements:
 - (1) Tensile Strength, min., psi. 1200
 - (2) Elongation at Rupture, min. % 250
- (d) Air Oven Exposure Test. After conditioning in an air oven at 121 ± 1°C for 168 hours using methods of test described in ASTM-D 573:
 - (1) Tensile strength, min% of unaged value 75
 - (2) Elongation, min % of unaged value at rupture 75
- (e) Mechanical Water Absorption:
 - (1)Gravimetric Method: After 168 hours in water at 70 ± 1°C:

Water absorption, maximum	
(Mg. per sq. in)	5.0
- (f) Cold Bend Test Requirements. The completed cable must pass the "Cold-Bend, Long-Time Voltage Test on Short Specimens" of ASTM D-470 except that the test temperature must be minus (-) 25°C.
- (g) Electrical Requirements.
 - (1) Voltage Test. The completed cable must meet an A.C. and D.C. voltage test in accordance with ASTM- D-470 and D-2655.

- (2) Insulation Resistance. The completed cable must have an insulation resistance constant of not less than 20,000 when tested in accordance with methods shown in ASTM D-470.

JACKET

6. (a) Type. The jacket shall be either a chlorosulfonated polyethylene (CSPE) or a polyvinylchloride (PVC) compound meeting the physical and electrical requirements specified herein. CSPE must meet the environmental requirements of CFR Title 40, Part 261 for leachable lead content.
- (b) Thickness. The jacket must be circular in cross-section, concentric with the insulation, must have an average thickness not less than 45 mils (.045") for #14 AWG, 80 mils (.080") for #2 and #4 AWG, and not less than 95 mils (.095") for #1/0 and #2/0 AWG, and a spot thickness not less than ninety percent (90%) of the average thickness.
- (c) Initial Physical Requirements:
- (1) Tensile strength minimum PSI..... 1800
 - (2) Elongation at rupture, minimum percent 300
- (d) Air Oven Exposure Test. After conditioning in an air oven at $121 \pm 1^{\circ}\text{C}$ for 168 hours:
- (1) Tensile strength, minimum percent of unaged value 75
 - (2) Elongation at rupture, minimum percent of unaged value 60
- (e) Mechanical Water Absorbtion. After 168 hours at $70 \pm 1^{\circ}\text{C}$:
- (1) Milligrams per square inch, maximum 20

TESTING

7. (a) General. Tests shall be performed on insulation, jacket and completed cables in accordance with the applicable standards as listed in these specifications. Included in these tests will be a 70,000 BTU per hour flame test in accordance with IEEE 383. Where standards are at variance with each other or with other portions of this specification, the most stringent requirements, as determined by an engineer from the Division of Engineering, will apply. All tests shall be conducted on cable produced for this order.
- (b) Number of Tests. Insulation and jacket tests shall be conducted on samples taken every 5,000 feet or fraction thereof of each conductor size. In no case must less than two (2) samples be taken. Approximately five percent (5%) of the cable must be tested. Where the cable fails to conform to any of the tests specified herein, samples must be taken from each reel and must successfully conform to all tests specified herein. Reels from which samples fail to conform, will be rejected.
- (c) Test Reports. No cable may be shipped until certified copies of all factory tests have been reviewed and approved by the engineer.

PACKAGING

8. (a) **Cable Marking.** The cable must be identified by a permanently inscribed legend in white lettering as follows:
3/C - No. (conductor size)AWG-600V-90°C-EPR/CSPE or EPR/PVC-
manufacturer's name- month/year of manufacture
The legend must be repeated at approximately eighteen (18) inch intervals on the outside surface of the cable parallel to the longitudinal axis of the conductor.
- (b) **Reels.** The completed cable shall be delivered on sound substantial, non-returnable reels. Both ends of each length of cable must be properly sealed against the entrance of moisture and other foreign matter by the use of clamp-on cable caps. The ends must be securely fastened so as not to become loose in transit. Before shipment, all reels must be wrapped with cardboard or other approved wrapping.
- (c) **Footage.** Each reel must contain 1,000 foot of cable for either #4 AWG or #2 AWG and 500 feet of cable for #1/0 AWG or #2/0 AWG. A tolerance limit of plus or minus ten percent ($\pm 10\%$) shall be adhered to.
- (d) **Reel Marking.** A metal tag must be securely attached to each reel indicating the reel number, contract number, date of shipment, gross and tare weights, description of the cable and the total footage. Directions for unrolling the cable must be placed on the reel with an approved permanent marking material such as oil-based paint or a securely attached metal tag.

TABLE 1 - THREE CONDUCTOR SERVICE ENTRANCE CABLE

Size (AWG)	Overall Diameter (mils)	No. Of Strands	Test Volts (KV)	Footage per Reel	Insulation (mils)	Jacket (mils)
4	950	7	4.5	1000	55	80
2	1100	7	4.5	1000	65	80
1/0	1400	19	5.5	500	80	95
2/0	1800	19	5.5	500	80	95

ELECTRICAL SPECIFICATION 1458
DIVISION OF ENGINEERING
DEPARTMENT OF TRANSPORTATION
CITY OF CHICAGO
REVISED MARCH 4, 2014

ELECTRICAL MANHOLE FRAMES AND COVERS
24 INCH AND 30 INCH DIAMETER

SCOPE

1. This specification describes the requirements for both 24 inch and 30 inch round frames and covers. These frames and covers will be used for electrical manholes and handholes and will provide access to the interior of the manholes and handholes. The 24 inch frames and covers will be used in parkway and sidewalk areas. The 30 inch frames and covers will be used in streets and in driveways and will provide sufficient strength to withstand normal traffic conditions.

GENERAL REQUIREMENTS

2.
 - (a) Conformance. The manhole frames and covers shall conform with every detail of the requirements herein stated and to the specifications and methods of test of the American Society for Testing and Materials cited by ASTM Designation Number in which the most recently published revision will govern.
 - (b) Acceptance. Frames and covers not conforming to this specification will not be accepted. The Commissioner of Transportation will have the final say as to whether or not the frames and covers meet specifications.
 - (c) Drawings. The drawings mentioned herein are drawings of the Department of Transportation, Division of Engineering, and must be interpreted as part of these specifications.
 - (d) Sample. Upon request, one complete manhole frame and cover of the manufacture intended to be furnished must be submitted within fifteen (15) business days after receipt of such a request from the Chief Procurement Officer. The samples must be delivered to the Division of Electrical Operations, 2451 South Ashland Avenue, Chicago, Illinois.
 - (e) Warranty. The manufacturer shall warrant that the frames and covers meet the specifications and warrant the frames and covers for a period of one (1) year from the date of delivery against defects which may occur during that period from normal and customary use. Any frame or cover which fails during this period must be replaced by the manufacturer at no cost to the City.

DESIGN

3.
 - (a) The frames and covers shall each conform in detail to the designs shown on Drawings 872, 874 and 10927.
 - (b) Each frame and cover shall weigh approximately as shown on the drawings.
 - (c) Machining. The bearing surfaces of both the cover and the frame shall be machine finished as indicated on the drawings.
 - (d) Workmanship. The frames and covers must be mutually interchangeable size for size, so that each lid will fit every frame neatly without jamming and with only

such clearance as the drawings indicate. In addition, 24" & 30" covers must fit existing 24" & 30" frames, as shown on drawings 872, 874 and 10927. The castings shall be neat, true to pattern and free from cracks and casting flaws. No welding of defective castings will be permitted nor must the castings be painted.

- (e) Material. The frames and covers must be made of Class 30 Cast Iron described in the specifications for Gray Iron Castings of ASTM A48. No plugging of defective castings will be permitted.

TESTS

- 4. (a) Test bars of the metal used for the castings shall be made and tested for tensile and transverse strength in accordance with ASTM A48. The metal must be tested at the works of the manufacturer. The manufacturer must furnish a certified copy of all test data sheets to the City prior to delivery of the castings. Frames and covers shall each be considered a separate casting for determining the requirement of testing.

**ELECTRICAL SPECIFICATION 1462
DIVISION OF ENGINEERING
DEPARTMENT OF TRANSPORTATION
CITY OF CHICAGO
REVISED NOVEMBER 21, 2014**

**RIGID STEEL CONDUIT
(HOT DIPPED GALVANIZED)**

SCOPE

1. This specification describes rigid steel conduit, zinc coated. This specification also describes rigid steel conduit that is both zinc and PVC coated. The conduit will be used underground or on structure as a raceway for electrical cables.

GENERAL REQUIREMENTS

2.
 - (a) Rigid steel conduit must be zinc coated by the hot-dip process. Conduit must be furnished in 10 foot lengths, threaded on each end and with one coupling attached to one end and a protective cap at the other end.
 - (b) The conduit shall be manufactured according to Underwriters Laboratories Standard U.L. - 6 and must meet ANSI Standard C 80.1 and the requirements of NEC Article 344. In addition, conduit must be recognized as an equipment grounding conductor as per NEC Article 250. There will be no exceptions to meeting these standards.
 - (c) Acceptance. Conduit not conforming to this specification will be rejected. The Commissioner will be the final judge in determining if the conduit meets the specification.
 - (d) Sample. If requested by the Chief Procurement Officer, a sample of conduit must be submitted to the Engineer of Electricity within fifteen (15) business days of receipt of such a request.
 - (e) Warranty. The manufacturer shall warrant the construction and performance of the conduit to meet the requirements of this specification and shall warrant all parts and components against defects due to design, workmanship, or material developing within a period of one (1) year after the conduit has been delivered.

STEEL

3. Conduit shall be formed from steel suitable for use as an electrical raceway. It shall be structurally sound so that it will hang straight and true when supported by hangers in accordance with Chicago electrical code requirements and shall be capable of being field bent without deformation of the walls.

Conduit shall have a circular cross section sufficiently accurate to permit the cutting of threads in accordance with Table 2 and shall provide a uniform wall thickness throughout. All surfaces shall be smooth and free of injurious defects. The dimensions and weights of rigid steel conduit must be in accordance with Table 1.

THREADING AND CHAMFERING

4. Each length of conduit, and each nipple, elbow and bend must be threaded on both ends, and each end must be chamfered to remove burrs and sharp edges.

The number of threads per inch, and the length of the threaded portion at each end of

each length of conduit, nipple and elbow must be as indicated in Table 2. The perfect thread must be tapered for its entire length, and the taper must be 3/4 inch per foot.

ZINC COATING

5. After all cutting, threading, and chamfering all conduit surfaces shall be thoroughly cleaned before application of zinc. The cleaning process shall leave the interior and exterior surfaces of the conduit in such a condition that the zinc will be firmly adherent and smooth.

The conduit must be hot dipped galvanized both inside and out to provide approximately two (2) ounces of zinc per square foot. This is equivalent to 3.4 mils of zinc coating. An additional interior coating to aid in the installation of wires is required.

COUPLINGS

6.
 - (a) The outside surface of couplings shall be protected by means of a zinc coating. The zinc content of the coating on the outside surface must be equivalent to a minimum thickness of 3.4 mils.
 - (b) Couplings shall be so made that all threads will be covered when the coupling is pulled tight on standard conduit threads.
 - (c) Both ends of the coupling must be chamfered to prevent damage to the starting threads.
 - (d) The outside diameter, length and weight of coupling must be as indicated in Table 3.
 - (e) Couplings must be straight tapped, except that the 2 1/2 inch and larger sizes may be taper-tapped.

PVC COATED (WHEN SPECIFIED)

7.
 - (a) Only hot dipped galvanized conduit, couplings, and fittings may be polyvinylchloride (PVC) coated.
 - (b) All conduit, couplings, and fittings must be cleaned before being coated.
 - (c) All conduit, couplings, and fittings must have a PVC coating applied to the exterior by dipping in liquid plastisol. The coating thickness must be a nominal 40 mils.
 - (d) All coated conduit, couplings, and fittings must conform to the requirements of NEMA Standard RN1- Section 3 , "External Coatings". The latest revision will apply.

PACKING AND IDENTIFICATION

8. The pipe shall be delivered in bundles. Each length of conduit must be marked with the manufacturer's name or trademark. Securely attached to each bundle at two (2) locations on the bundle must be a weather resistant tag containing the following information:
 - a. conduit size
 - b. footage of bundle
 - c. gross weight of bundle
 - d. manufacturer's name

Precaution will be taken by the contractor in handling during shipment or delivery of conduit, and any conduit found to be damaged will not be accepted.

TEST AND INSPECTION

9. Galvanized rigid conduit must be capable of being bent cold into a quarter of a circle around a mandrel, the radius of which is four times the nominal size of the conduit, without developing cracks at any portion and without opening the weld.

The protective coatings used on the outside and inside surfaces of rigid steel conduit must be sufficiently elastic to prevent their cracking or flaking off when a finished sample of 2 inch conduit is tested within one year after the time of manufacture, by bending it into a half of a circle around a mandrel, the radius of which is 3 1/2 inches.

Tests on sizes other than 1/2 inch may be conducted within one year after the time of manufacture. If such tests are conducted, the conduit must be bent into a quarter of a circle around a mandrel, the radius of which is six times the nominal size of the conduit.

One of the following three test methods shall be employed for measuring the thickness or extent of the external zinc coating on conduit:

(a)Magnetic test.

(b)Dropping test.

- (c) Preece test (Material which will withstand four 1-minute immersions will be considered as meeting requirements as follows; the zinc content of the coating on the outside surface must be equivalent to a minimum thickness of 3.4 mils).

All tests and inspections must be made at the place of manufacture prior to shipment unless otherwise specified, and shall be so conducted as not to interfere with normal manufacturing processes.

Each length of conduit shall be examined visually both on the outside and inside to determine if the product is free from slivers, burrs, scale or other similar injurious defects (or a combination thereof), and if coverage of the coating is complete.

If any samples of rigid steel conduit tested as prescribed in this specification should fail, two additional samples must be tested, both of which must comply with the requirements of the specification.

All pipe which may develop any defect under tests, or which may before testing or on delivery be found defective, or not in accordance with these specifications, must be removed by the Contractor at his own expense; and such pipe so removed by the Contractor must be replaced by him within ten (10) days of such rejection with other pipe which will conform to these specifications.

TABLE 1
Design Dimension and Weights of Rigid Steel Conduit

Nominal or Trade Size of Conduit	Inside Diameter	Outside Diameter	Wall Thickness	Length Without Coupling	Minimum Weight of Ten Unit Length w/couplings
(Inches)	(Inches)	(Inches)	(Inches)	(Feet/Inches)	(Pounds)
1/2	0.622	0.840	0.109	9-11 1/4	79.00
3/4	0.824	1.050	0.113	9-11 1/4	105.00
1	1.049	1.315	0.133	9-11	153.00
1 1/4	1.380	1.660	0.14	9-11	201.00
1 1/2	1.610	1.900	0.145	9-11	249.00
2	2.067	2.375	0.154	9-11	334.00
2 1/2	2.469	2.875	0.203	9-10 1/2	527.00
3	3.068	3.500	0.216	9-10 1/2	690.00
3 1/2	3.548	4.000	0.226	9-10 1/4	831.00
4	4.026	4.500	0.237	9-10 1/4	982.00

NOTE: The applicable tolerances are:

Length: + 1/4 inch (without coupling)

Outside diameter: + 1/64 inch or -1/32 inch for the 1 1/2 inch and smaller sizes,
± 1 % for the 2 inch and larger sizes.

Wall thickness: - 12 1/2 %

TABLE 2

Dimensions of Threads

Dimensions of Threads

Nominal or Trade Size of Conduit (Inches)	Threads per Inch	Pitch Diameter at end of Thread (Inches) Tapered 3/4 inch per foot	Length of Thread (Inches) Effective L2	Length of Thread (Inches) Overall L4
1/2	14	0.7584	0.53	0.78
3/4	14	0.9677	0.55	0.79
1	11 1/2	1.2136	0.68	0.98
1 1/4	11 1/2	1.5571	0.71	1.01
1 1/2	11 1/2	1.7961	0.72	1.03
2	11 1/2	2.2690	0.76	1.06
2 1/2	8	2.7195	1.14	1.57
3	8	3.3406	1.20	1.63
3 1/2	8	3.8375	1.25	1.68
4	8	4.3344	1.30	1.73

NOTE: The applicable tolerances are:

Threaded Length (L4 Col 5): Plus or minus one thread

Pitch Diameter (Col 3): Plus or minus one turn is the maximum variation permitted from the gaging face of the working thread gages. This is equivalent to plus or minus one and one half turns from basic dimensions, since a variation of plus or minus one half turn from basic dimensions is permitted in working gages.

TABLE 3**Designed Dimensions and Weights of Couplings**

Nominal or Trade Size of Conduit (INCHES)	Outside Diameter (INCHES)	Minimum Length (INCHES)	Minimum Weight (POUNDS)
1/2	1.010	1-9/16	0.115
3/4	1.250	1-5/8	0.170
1	1.525	2	0.300
1 1/4	1.869	2-1/16	0.370
1 1/2	2.155	2-1/16	0.515
2	2.650	2 1/8	0.671
2 1/2	3.250	3-1/8	1.675
3	3.870	3-1/4	2.085
3 1/2	4.500	3-3/8	2.400
4	4.875	3-1/2	2.839

FUSES FOR STREET LIGHTING

SUBJECT

1. This specification covers the requirements for fuses to be used to protect street lighting circuits and luminaires. The fuses will be installed in the fixture on fuse blocks, or in-line in in-line fuse holders.

DESIGN

2. (a) Fuses shall be rated for H.I.D. ballast and street lighting protection.
- (b) Fuses shall be fast acting, high interrupting capacity and current limiting.
- (c) Fuses must be rated for 10A, 600 VAC and 100,000 AMPS symmetrical interrupting.
- (d) Fuse dimensions must be 13/32" x 1-1/2".
- (e) Fuses must be U.L. listed.
- (f) Fuses shall be Buss fuse type KTK; Littlefuse type KLK; Gould (Chase-Shawmut) type CTK; or approved equal.

**ELECTRICAL SPECIFICATION 1465
DIVISION OF ENGINEERING
DEPARTMENT OF TRANSPORTATION
CITY OF CHICAGO
REVISED JULY 12, 2006**

GROUND RODS

SUBJECT

1. This specification states requirements for ground rods and clamps to be used for ground electrodes in street lighting, traffic signal, and miscellaneous electrical circuits.

GENERAL

2. (a) Ground rods must be copper clad, steel rods suitable for driving into the ground without deformation of the rod or scoring, separation or other deterioration of the copper cladding.
- (b) Sample. If requested by the Chief Procurement Officer, the contractor must furnish one sample of the ground rod proposed to be furnished within fifteen (15) business days from receipt of such request. The sample ground rod must be delivered to the Division of Electrical Operations, 2451 S. Ashland Avenue, Chicago, Illinois 60608.
- (c) Warranty. The manufacturer shall warrant every ground rod against defects due to design, workmanship, or material developing within a period of one (1) year after the ground rod has been accepted. Any ground rod which fails during this period must be replaced by the contractor without expense to the City. The Commissioner of Transportation or his duly authorized representative will be the sole judge in determining which replacements are to be made.
- (d) The Commissioner will be the sole judge in determining whether the submitted ground rods meet the requirements of this specification. Ground rods not accepted must be removed at the sole expense of the contractor.

DESIGN

3. (a) The ground rods and couplings must meet the latest requirements of (National Electrical Manufacturer's Association) NEMA Standard GR-1, for copper bonded ground rod electrodes and couplings. The ground rods must also meet the requirements of (Underwriter's Laboratories) UL 467.
- (b) Ground rods shall be made of steel core suitable for driving into the earth without deformation.
- (c) A uniform covering of electrolytic copper, 10 mils in thickness, shall be metallurgically bonded to the steel core to provide a corrosion resistant, inseparable bond between the steel core and the copper overlay.
- (d) The finished rod must be of uniform cross-section; straight, and free of nicks, cuts or protuberances.
- (e) The rod must be pointed at one end and chamfered at the other.

- (f) All ground rods must be three-quarter inches (3/4") in diameter. The length shall be as specified in the order or in the plans. The length and diameter of the rod and the manufacturer must be clearly and permanently marked near the top of the rod (chamfered end).
- (g) All ground rods must have a ground clamp capable of accommodating a No. 6 AWG Copper Wire.

PACKING

- 4. (a) Ground rods must be packed in bundles with reinforced tape or plastic banding that will not damage the rods. Small bundles may then be bound in larger bundles held together with steel banding.
- (b) Ground clamps must be packed in a suitable carton. The carton must be labeled to indicate the contents.

**SPECIFICATION 1467
DIVISION OF ENGINEERING
DEPARTMENT OF TRANSPORTATION
CITY OF CHICAGO
REVISED JUNE 28, 2012**

ROD: ANCHOR, STEEL, WITH HARDWARE

SUBJECT

1. This specification states the requirements for steel anchor rods with hardware for street light pole foundations.

GENERAL

2. (a) Specifications. The anchor rods shall conform in detail to the requirements herein stated, and to the specifications of the American Society for Testing and Materials cited by ASTM Designation Number, of which the most recently published revision will govern.
- (b) Drawing. The drawings mentioned herein are issued by the Department of Transportation, Division of Engineering, and are an integral part of this specification.

ANCHOR ROD

3. (a) Fabrication. Each anchor rod must be fabricated in conformity with City of Chicago drawings numbered 806, 811, 830 and 844.
- (b) Material. The rods must be fabricated from cold rolled carbon steel bar meeting the requirements of ASTM Specification A-36, except that the Specification must be modified to provide a minimum yield point of 55,000 psi (379 MPa).
- (c) Thread. The straight end of each rod must be threaded as shown on City of Chicago drawing for that size rod, and must be American Standard, National Coarse.

HARDWARE

4. Hardware furnished with the anchor rod shall be as shown on the applicable drawing. It must include two (2) hexagonal nuts, American Standard Regular, two (2) flat washers, type B, series W, and one (1) lock washer, steel, helical spring. The nuts must have a Class 2 or 3 fit.

FINISH

5. Galvanizing. The threaded end of each rod must be hot dipped galvanized for the distance shown on the applicable drawing. The thickness of the galvanized coating must not be less than 0.0021 inches. Each hexagonal nut and washer must be galvanized to the minimum thickness required by ASTM A-153, Class C, or ASTM B-454, Class 50. After galvanization, each anchor rod and nut must have a mating fit equivalent to the American Standard Class 2 or 3 fit for nuts and bolts.

TESTS

6. At the discretion of the Commissioner, anchor rods and hardware furnished under this specification will be subject to testing to determine compliance with the materials physical requirements.

INSPECTION

7. Final inspection must be made at point of delivery. Any anchor rods and hardware rejected must be removed by the Contractor at his sole expense.

**ELECTRICAL SPECIFICATION 1487
DIVISION OF ENGINEERING
DEPARTMENT OF TRANSPORTATION
CITY OF CHICAGO
REVISED NOVEMBER 14, 2014**

**POLE: ORNAMENTAL, LOOP STYLE, 10 FOOT
15" BOLT CIRCLE; STEEL, 7 GAUGE**

SUBJECT

1. This specification states the requirements for an ornamental street light pole. These poles will support a twin mast arm bracket which will in turn, support two tenon mounted luminaires. A split pedestal base will be provided to cover the bottom 43.75" of the pole. This pole will be served by underground cables.

GENERAL

2.
 - (a) Specifications. The poles shall conform in detail to the requirements herein, stated, and to the Specifications and Methods of Test of the American Society for Testing and Materials cited by ASTM Designation, of which the most recently published revisions will govern.
 - (b) Acceptance. Poles not conforming to this specification will not be accepted.
 - (c) Sample. One complete anchor-base pole of the manufacture intended to be furnished must be submitted within fifteen (15) business days upon request of the Chief Procurement Officer.
 - (d) Drawings. The drawings mentioned herein are drawings of the Department of Transportation, Division of Engineering, being an integral part of this specification cooperating to state the necessary requirements.
 - (e) Bidders Drawings. Bidders must submit with their bids scale drawings for the anchor base pole intended to be furnished. The drawings must show details of the pole design including the handhole, grounding and anchoring. Although the luminaire, the twin arm bracket and the split pedestal base are each covered by separate specifications, the drawing must include every dimension necessary to show how all parts and components will fit each other, be easily installed and maintained and be properly held in assembly.
 - (f) Interchangeableness. Each member including the handhole doors in the pole and the split pedestal base must be mutually interchangeable for assembly, so that no work will be required to make any member fit properly in the place of any other similar member of any other similar pole.
 - (g) Design. The pole must conform in design and dimensions to Drawing 911.
 - (h) Warranty. The manufacturer shall warrant the performance and construction of the light poles to meet the requirements of this Specification and must warrant all parts, components, and appurtenances against defects due to design, workmanship, or material developing within a period of five years after the light poles have been delivered. This will be interpreted particularly to mean structural or mechanical failure of any element or weld, or failure of any portion of the painting system. The warranty must be furnished in writing guaranteeing material replacement including shipment, free of charge to the City. The Commissioner will be the sole judge in determining which replacements are to be made and the Commissioner's decision will be final.

MASTS

3. (a) Mast Size. The mast size must be 10'-0" and must provide a 0.14" per foot taper. The mast diameter at a point 44" above the base must be 7.25". The mast must be rolled to provide a 16-flute pattern.
- (b) Mast Design. The mast design must be as shown on Drawing 911.
- (c) Material. The mast must be 7 gauge carbon steel in accordance with ASTM A595, Grade A and must provide a 0.14" per foot taper. The flutes must be neat, true to pattern and free from cracks and flaws. Each mast must be straight and centered on its longitudinal axis.
- (d) Mast Base. The mast base must be a 1" thick steel plate of low alloy, high strength steel conforming to ASTM A 595, grade C, ASTM A 588 or ASTM A 606.
 1. It must provide for mounting on a 15" bolt circle using 1" to 1 1/4" anchor bolts, nuts and washers provided by others. Any special hardware required must be provided by the Contractor.
 2. It must provide sufficient internal clearance for two 3" conduit entries and a 3/4" ground rod.
 3. The mast must be inserted into the base to a maximum depth which will still allow for an adequate weld to be made between the bottom of the mast and the plate. A circumferential weld must be made between the mast and the base at both the top and underside of the plate.
- (e) Provision for Ground. A 1/2-13 square nut must be welded to the inside of the mast on the handhole entry frame for a ground connection.
- (f) Entry. A vertical door frame carrying a removable door providing access to the interior of the mast must be welded into a close fitting opening centered approximately 15" above the bottom of the base. The door frame must be formed and welded of steel with cross section not less than 1-1/2" wide by 1/4" thick so as to adequately reinforce the opening of the mast. The internal horizontal clearance of the door frame must be 4"; its internal vertical height must be 8". Its upper and lower ends must be semi-circular meeting its straight sides tangentially. The frame must be drilled and tapped top and bottom to accept 1/4-20 hex head stainless steel machine screws.
- (g) Door. The removable door must be formed of sheet steel approximately 1/8" thick. It must fit the door frame closely and be dished so that it will stay in proper position even if its locking screws must be slightly loosened. The door must be drilled top and bottom to accept the 1/4 -20 hex head stainless steel machine screws which will fasten the door to the door frame. Half sections of 3/8" x 1" tubing must be welded to the door concentric with the drilled holes to prevent removal of machine screws after installation. Alternate methods will be subject to approval by the Commissioner or his fully authorized representative.
- (h) Tag. To each pole must be attached immediately above the handhole by mechanical means and not by adhesive, a stainless steel tag with a stamped or embossed legend which must include the pole outside diameter at the base, the overall length, and the gauge; i.e., 8.75" x 10'-7 gauge.
- (i) With pole set in place and the door securely fastened, there must be no exposed wires, bolts or appurtenant hardware other than the door fasteners.
- (j) Tenon. A tenon must be provided at the top of the pole for attachment of a twin mast arm bracket. The tenon diameter must be a minimum 5" I.P.S. pipe

equivalent and must be sufficiently long to ensure positive, structurally sound mating between the mast and the attached device. The Tenon must be factory assembled to the mast. The finished mast must give the appearance of a single, homogeneous mast and the entire assembly must be structurally sound so that with the weight of a twin mast arm and two luminaires, the mast will not twist, rack, vibrate or otherwise deform when subjected to the severe vibrations of passing elevated trains or heavily loaded vehicles.

WELDING

4. (a) General. Where welds are required and approved, each welded joint must be made in conformity with the proper interpretation of the standard welding symbols of the American Welding Society. Each bidder must submit with his proposal a drawing showing the sizes and types of welds, must state the type of electrode and must describe the welding methods he proposes to use in fabricating the pole.
- (b) Certifications. Welders must have proper certification for the welding operations required. Welding by non-certified personnel will not be allowed.
- (c) Testing. All welds of 5% of the poles in every lot must be inspected for penetration and soundness of the welds by the magnetic particle inspection method or by radiography. Acceptance or rejection will be governed by the same conditions as in the testing section. If the magnetic inspection process is used, the dry method with direct current must be employed. All transverse welds must be magnetized by the "prod" (Circular Magnetization) method.

PAINTING

5. (a) Oil and Grease Removal. All metal surfaces must be washed with an alkaline detergent to remove oils and grease.
- (b) Metal Cleaning. All exterior metal surfaces must be cleaned by blasting with a combination of shot and grit to remove all dirt, mill scale, rust, corrosion, oxides and foreign matter and provide a "near white" surface in accordance with SSPC-SP10. Included in this process, the pretreatment process and the painting process must be the interior base section of the mast to a minimum height of 12".
- (c) Chemical Pretreatment. The cleaned metal surfaces must then be treated with a hot, pressurized iron phosphate wash and must be dried by convection heat.
- (d) Exterior Coat. A thermosetting, weathering, Polyester powder coat must be applied electrostatically to all cleaned and treated surfaces to a uniform 8-mil thickness in a one coat application. This powder coat must be cured in a convection oven at a minimum temperature of 400° Fahrenheit to form a high molecular weight fusion bonded finish.
- (e) Alternate Methods. Alternate powder coat methods may be reviewed and tested on a case by case basis. However, no coating method will be accepted unless the Commissioner judges such alternate to be equal to the coating herein specified.
- (f) Interior coat. The interior metal surfaces must be powder coated with a thermoplastic hydrocarbon resin. The resin must be applied at a temperature of approximately 200° Fahrenheit to a minimum thickness of 3 mils. The interior thermoplastic coat must overlap the interior, thermosetting base coat by approximately 6". Alternate interior coatings may be used subject to prior approval of the Commissioner.

- (g) Durability. Both the exterior and interior coats must be capable of passing 1,000 hours of salt spray exposure per ASTM B117 in a 5% Na Cl (by weight) solution at 95° Fahrenheit and 95% relative humidity without blistering. Before test, the panel must be scribed with an "X" down to bare metal.
- (h) Coating Measurement. Measurement of coating thickness must be done in accordance with SSPC-Pa 2-73T, "Measurement of Dry Paint Thickness with Magnetic Gauges," except that the lowest "single spot measurement" in an area of two square inches must not be less than 7.0 mils.
- (i) Color. Color must be gloss black. A color sample must be submitted for approval prior to fabrication. This color sample must include the manufacturer's name and the manufacturer's color name as well as any other information required to purchase the same color for the mast arms, luminaire and the split pedestal base.
- (j) Field Touch-up. The Contractor must supply a field touch-up kit for every 20 poles or fraction thereof. The kit must consist of a highly legible instruction sheet, one gallon of the recommended touch-up paint and all other materials required to touch-up 20 light poles.

TESTING

- 6. (a) General. All completed masts shall be available for testing. Unless specifically authorized in writing, all tests must be performed at the manufacturer's plant. A record of every test must be made and a certified copy must be submitted to the Commissioner before the poles are shipped.
- (b) Requirements. The following tests must be included in the testing procedure:
 - 1. Coupon tests as outlined in ASTM A53 and A595, A588 or A606.
 - 2. With the mast base rigidly secured using the normal mast mountings, a 1000 pound force must be incrementally applied, perpendicular to the mast at the tenon. This force must then be applied a second time at approximately the same location. The mast must then be checked to insure that the mast is still securely fastened; that it is plumb; and that no cracks have developed in either the mast, tenon or base.
 - 3. Perform Weld tests as described in "welding" section.
- (c) Acceptance. Tests must be made on 5% of all masts. If any of the masts fail to meet these tests, an additional three masts must be tested for each failed mast. Should any of these additional masts fail to meet these test requirements, the entire lot will be subject to rejection. The Commissioner will then decide, based on the nature of the failure, whether the entire lot will be rejected outright or whether the manufacturer may subject each mast to testing, and those masts which fulfill the requirements will be accepted.

PACKAGING

7. (a) General. The poles shall be shipped in bundles weighing a maximum of 5,000 pounds. Each pole must be individually protected so that it can be bundled and unbundled, without damage to the pole or its finish. Where poles are delivered wrapped, specific instructions must be securely attached to each bundle indicating the proper methods of storage. In addition, each bundle must contain specific instructions on unbundling and erection of poles. Instructions must be printed on a fiber based paper with a permanent ink so that instructions will be completely legible after weathering outdoors for a minimum of 5 years.
- (b) Bundles. The bundles shall consist of poles laid base to top to form an approximately rectangular cylinder. Materials such as lumber (2" x 4" min.), non-marring banding, and other appropriate bundling materials must be used to make a rigid, long lasting bundle capable of being handled, shipped and stored without shifting of contents or breaking. Bundling procedure will be subject to approval. Any bundles, in which either poles or packaging is received broken, damaged or with contents shifted, will not be accepted and it will be the responsibility of the supplier to return the bundle to its original destination at no cost to the City of Chicago. The bundles should be capable of being stacked two high without breaking, or shifting of the contents. Each bundle must be capable of being lifted by a fork lift truck or crane and the bundles must be shipped on a flat bed truck to facilitate unloading.
- (c) Appurtenant Devices and Hardware. Any appurtenant devices and hardware not attached to the poles must be carefully wrapped and securely attached to each bundle. Payment will be withheld for any bundle delivered without the appurtenant devices and hardware. Cracked, broken, chipped or damaged parts will be considered as an incomplete delivery as regards payment.
- (d) Touch-up Paint. Touch-up paint and appurtenant materials must be packaged in units sufficient for twenty (20) poles. These units will be securely attached to a sufficient number of bundles to fulfill the touch-up paint requirements stated herein.

**ELECTRICAL SPECIFICATION 1488
DIVISION OF ENGINEERING
DEPARTMENT OF TRANSPORTATION
CITY OF CHICAGO
REVISED MARCH 6, 2014**

PEDESTAL BASE: ORNAMENTAL, FOR 10 FOOT LOOP STYLE POLE

SUBJECT

1. This specification states the requirements for an ornamental pedestal base (Clamshell) for mounting on the ornamental 10 foot Loop Style light pole. This base will be manufactured of fiberglass and will not have doors.

GENERAL

2. (a) Specifications. The pedestal bases shall conform in detail to the requirements herein stated, and to the specifications and methods of test of the American Society for Testing and Materials cited by ASTM Designation Number, of which the most recently published revision will govern.
- (b) Acceptance. Bases not conforming to this specification will not be accepted. Whenever "approval" and "approved" are used in this specification they will mean approval by the Commissioner. The Commissioner's approval must be secured prior to proceeding with the manufacture of the bases. The Commissioner will be the sole judge in determining if the submitted bases are in compliance with the specification. The Commissioner's decision will be final.
- (c) Drawings. The drawings mentioned herein are drawings of the Department of Transportation, Division of Engineering, being an integral part of this specification cooperating to state the necessary requirements.
- (d) Bidders Drawings. Bidders must submit with their bids detailed scale drawings of the pedestal bases and any necessary attachments. The drawings must give every dimension necessary to show how the parts will fit each other and be properly held in assembly. Shop drawings must be original engineering drawings created by the manufacturer; photocopied or scanned copies of the Standard Drawings will not be accepted. If so requested by the City, these drawings will be submitted in electronic format, preferably Microstation 95. Failure to provide drawings in this format will be cause for rejecting the submittal.
- (e) Sample. One complete pedestal base of the manufacture intended to be furnished must be submitted within fifteen (15) business days upon request of the Chief Procurement Officer.
- (f) Products. Bases must be products of established manufacturers, such as Shakespeare Company, W.J. Whatley, Incorporated, or an approved equal.
- (g) Warranty. The manufacturer shall warrant the performance and construction of the bases to meet the requirements of this specification and shall warrant all parts and appurtenances against defects due to design, workmanship, or material developing within a period of three years after the bases have been delivered. This will be interpreted particularly to mean structural or mechanical failure of any component, or failure or fading of the surface color. The warranty must be furnished in writing guaranteeing replacement, including cost of shipment, free of charge to the City. The Commissioner will be the sole judge in determining which replacements are to be made and the Commissioner's decision will be final.

- (h) Design. The bases must conform to the design and dimensions of Standard Drawing 911.

CONSTRUCTION OF BASE

3. (a) Each pedestal base must be formed of a fiberglass composite consisting of a polyester resin and containing a minimum of 65% fiberglass by weight. The resin must contain no clay fibers. The composite must be UV and weather resistant. Alternate materials may be considered. Each base half must be permanently marked on the inside identifying it as a base for the Loop Pole.
- (b) The base must conform in detail and dimensions to Standard Drawing 911.
- (c) The two halves of the clamshell must be identical to each other. They must be perfectly matched and when installed there must be no more than a 0.125 inch gap between the inside top of the assembled base and the outside surface of the mast.
- (d) Once installed, the base should be designed to remain in place without the use of set screws. An installed base should not be able to be shifted or rotated.
- (e) The color of the base must be gloss black and must match the color of existing and proposed Loop Poles. The resin must contain color pigment throughout. The pigment must be even throughout the base. A finish coat of urethane enamel must be applied to the surface of the base to a minimum dry thickness of 1.5 mils. The resin color must match the enamel color. A paint sample on fiberglass must be submitted for approval prior to production. The paint manufacturer's name and any information necessary to acquire the same color for the pole must be provided. The contractor must supply one quart of touch-up paint for every 50 bases ordered.
- (f) The texture of the fiberglass base exterior must resemble that of a cast iron base. Acceptance of the aesthetic appearance of the base will be by the Commissioner.
- (g) The two halves of the clamshell must be affixed by means of screws. The screws must fit so that the halves of the base are drawn together as the screws are tightened. The halves should fit snug against each other. Threaded stainless steel inserts in the base must be used to affix the screws. The screws must not detract from the appearance of the base. Other methods of attachment may be considered. Any method of attachment must be approved by the Commissioner.

TESTING

4. General. All completed split pedestal bases shall be available for testing. Unless specifically authorized in writing, all tests must be at the manufacturer's plant. A record of every test must be made and a certified copy of the test record must be submitted to the Commissioner before the units are shipped. Tests shall be standardized according to ASTM requirements or other suitable organization's standards. The manufacturer must provide evidence that the bases and doors are structurally sound and are able to withstand the normal abuse of salt spray, freeze-thaw cycles, and exposure to moisture. The bases must be impact resistant and must be resistant to UV damage.

PACKAGING

5. (a) General. The split pedestal bases must be shipped on pallets with at least six units per pallet. Each base must be individually protected so that it can be bundled and unbundled without damage to the base or its finish. Where bases are delivered wrapped, specific instructions must be securely attached to each pallet indicating the proper methods of storage. In addition, each pallet must contain specific instructions on the installation of the split pedestal bases. Instructions must be printed on a fiber-based paper with a permanent ink so that instructions will be completely legible after weathering outdoors for a minimum of five years. The pallets must be labeled in 3/8 inch high lettering indicating the type of base as "FIBERGLASS BASE FOR LOOP LIGHT POLE", the part number, the manufacturer, the date of manufacture, and the contract number.
- (b) Hardware. Any hardware not attached to the bases must be carefully wrapped and securely attached to each pallet. Hardware must be packaged in a clear bag with a label indicating the type of hardware and the quantity.
- (c) Touch-up Paint. Touch-up paint must be packaged in units sufficient for the number of bases on each pallet.

**ELECTRICAL SPECIFICATION 1505
DIVISION OF ENGINEERING
DEPARTMENT OF TRANSPORTATION
CITY OF CHICAGO
REVISED JULY 17, 2006**

**CHICAGO 2000 LIGHT POLE: ANCHOR BASE, 32'-6", 7 GAUGE FLUTED, TAPERED
STEEL FOR 15" BOLT CIRCLE**

SUBJECT

1. This specification states the requirements for an Anchor Base Chicago 2000 Light Pole. The pole must support single or twin, simplex mounted mast arm(s) and teardrop luminaire(s). A split pedestal base will be provided to cover the bottom nominal 40" of the pole. A finial will be mounted at the top of the pole. This pole will be served by underground cables.

SUBMITTAL INFORMATION REQUIRED

2. (a) Manufacturer's Shop Drawings. Scaled manufacturer's shop drawings showing actual light pole dimensions, details, and welds. Shop drawings must be original engineering drawings created by the manufacturer; photocopied or scanned copies of the Standard Drawings will not be accepted, and will be rejected as an incomplete submittal. These drawings must also be submitted in electronic format in Microstation 95, if requested; failure to provide drawings in this format will be cause for rejecting the submittal.

Dimensions must include but will not be limited to: mast height, width, taper, and fluting; base plate length, width, thickness, and bolt circle; handhole length, width, and height above base plate; component attachment plan locations and heights above baseplate including simplex brackets, finial top, banner arms, and flower basket rosettes; and all decorative bracelet heights above base plate.

Details must include scaled and dimensioned plan views, front elevations, side elevations, and section views as required for components including but not limited to: handhole; simplex brackets; finial top; banner arm attachments and finials; flower basket rosettes; and all decorative bracelets. All components must be clearly identified on the drawings.

Welds must include but will not be limited to: locations, sizes, and types of welds in accordance with the WELDING Section of this Specification.

- (b) Manufacturer's catalog cut sheets showing light pole designation(s), characteristics, and catalog number(s).
- (c) Manufacturer's specifications including fabricating materials and processes.
- (d) Manufacturer's written installation instructions and maintenance manuals including recommendations and/or procedures for storage, assembly, orientation,

installation, component access and wiring, and numeric tolerances for torquing the foundation anchor bolts to the light pole base plate.

- (e) Sample. If requested by the Chief Procurement Officer, one completely assembled anchor-base pole with integral components, or one mast head and finial, or ornamental bracelets, of the manufacture intended to be furnished, must be submitted for review within fifteen (15) business days from receipt of notice.
- (f) Warranty. The manufacturer must warrant the performance and construction of these light poles to meet the requirements of this specification and must warrant all parts, components, and appurtenances against defects due to design, workmanship, or material developing within a period of five years after the light poles have been delivered. This will be interpreted particularly to mean structural or mechanical failure of any component, failure of any weld, or failure of any portion of the painting system. The warranty must be furnished in writing guaranteeing replacement, including shipment, free of charge to this Contract and to the City, of any light pole assembly, or any component parts thereof, which, as determined by the Commissioner, would develop aforesaid failures. The warranty must accompany submittal information. Any light pole or part thereof not performing as required or developing defects within this period, must be replaced by the manufacturer at no cost to the City. The Commissioner will be the sole judge in determining which replacements are to be made and the Commissioner's decision will be final. Any cost for the warranty as specified will be incidental to this contract.

GENERAL

- 3. (a) Products. Light pole masts and component equipment must be the products of a single, established manufacturer, and must be suitable for the service required. Light pole masts or component equipment items which are proposed as similar or identical must be the products of a single manufacturer. Masts will be manufactured by Union Metal Corporation, Valmont Industries Incorporated, or an approved equal.
- (b) Specifications. The pole shall conform in detail to the requirements herein stated and to the requirements of the following organizations as cited herein:
 - American Association of State Highway and Transportation Officials (AASHTO)
 - American Society for Testing and Materials (ASTM)
 - American Welding Society (AWS)
 - Society for Protective Coatings (SSPC)
- (c) Drawings. The drawings mentioned herein are drawings of the Department of Transportation being an integral part of this specification cooperating to state the necessary requirements.
- (d) Design. The pole must conform in design and dimensions to corresponding Standard Drawings 930, 930C, and 724.
- (e) Approval. Whenever "approval" and "approved" are used in this specification they will mean a written approval by the Commissioner to be secured prior to proceeding with manufacture of these light poles.

- (f) Commissioner's Review. The Commissioner will be the sole judge in determining the submitted light pole compliance with this Specification. The Commissioner's decision will be final.

MAST

4. (a) Mast Size. The mast size must be nominally 32'-6" as shown on Standard Drawing 930. The mast diameter at the bottom must be 10".
- (b) Mast Design. The mast must be tapered at 0.14" per foot. The 32'-6" long mast must be of monotube construction and must be rolled on a mandrel to provide a 16-flute pattern. The flutes must be neat, true to pattern, and free from cracks and flaws. Each mast must be straight and centered on its' longitudinal axis. The mast must utilize a single longitudinal weld, 70% minimum penetration, in accordance with the WELDING Section of this Specification. There must be no lateral welds in the mast other than at the base plate and at the flower basket rosettes.
- (c) Material. The mast must be 7 gauge, high strength low alloy steel in accordance with ASTM A595, Grade A.
- (d) Mast Base. The mast base must be a 1/4" thick steel plate of low alloy, high strength steel conforming to ASTM A 595, Grade C, ASTM A 588 or ASTM A 606.
1. The base must be attached to the mast so that the bearing surface of the base is at right angles to the longitudinal axis of the mast. The vertical center line of the seam must be positioned 135° counter-clockwise from the vertical center line of the mast arm support plates.
 2. The mast must be inserted into the base to a maximum depth which will still allow for an adequate weld to be made between the bottom of the mast and the plate. A circumferential weld must be made between the mast and the base at both the top and underside of the plate.
 3. The base plate must have four (4) 1 1/2" wide slots to accommodate 1 1/4" diameter anchor bolts. The slots must be a total of three inches long measured along the circumference. The mast must provide for mounting on a 15" bolt circle using 1 1/4" anchor bolts, nuts and washers provided by others. Any special hardware required to facilitate installation must be provided under this contract.
- (e) Provision for Ground. A 1/2" - 13 square nut must be welded to the inside of the mast on the handhole entry frame for a ground connection.
- (f) Entry. A vertical doorframe carrying a removable door providing access to the interior of the mast must be welded into a close fitting opening centered approximately 24" above the bottom of the base. The doorframe must be formed and welded of steel with cross section not less than 1-1/2" wide by 1/4" inch thick so as to adequately reinforce the opening of the mast. The internal horizontal clearance of the doorframe must be 4"; its internal vertical height must be 8". Its upper and lower ends must be semi-circular meeting its straight sides tangentially. The frame must have two welded tabs; one at the top and one at the bottom of the door frame. The top hole must be located 13/16 of an inch from the top of the opening. The bottom hole must be located 13/16 of an inch from the bottom of the opening. These tabs must be drilled to accept a 1/4 inch screw. Stainless steel spring clips must be mounted to the tabs. These clips must be made to accept 1/4"-20 machine screws. The entry must in all respects be

identical to handhole openings on poles that have already been installed and accepted by the City.

- (g) Door. The removable door must be formed of sheet steel approximately 1/8" thick. It must fit the doorframe closely and be dished so that it will stay in proper position even if its locking screws become slightly loosened. The door must be drilled top and bottom to accept the 1/4" - 20 hex head stainless steel screws which will fasten the door to the doorframe. All doors must be interchangeable. Doors must fit pole handholes of like poles that have already been installed and accepted by the City. Alternate methods will be subject to approval by the Commissioner or his fully authorized representative.
- (h) Tag. A stainless steel tag must be attached to each pole immediately below the handhole by mechanical means and not by adhesive. The stainless steel tag must have an embossed legend which must include the pole outside diameter at the base, the overall length, and the gauge; i.e. 10" x 32'-6" - 7 gauge.
- (i) Interchangeability. Each member including the handhole doors in the pole and all component equipment must be mutually interchangeable for assembly, so that no work will be required to make any member fit properly in the place of any other similar member of any other similar pole.
- (j) Simplex Brackets. Two simplex mast arm support plates must be provided opposite each other as shown on the Drawings, and in accordance with Standard Drawing No. 659. The mast arm support plates must be made of cast steel conforming to the requirements for Grade 65-35 cast steel of ASTM A27, or equivalent, subject to approval. They must neatly fit the external surfaces of the fluted mast. Each mast arm support plate must have a hollow protuberance, the hole of which must be approximately equivalent to two (2) inches in diameter, extending into the interior of the pole providing a smooth surface for the lamp cables to rest upon. Each mast arm support plate must be designed so that it will carry the mast arm and hold it in the proper position for fastening the mast arm to the mast. The design of the mast arm support plates must be a two (2) bolt type as shown on Drawing No. 659. The brackets must be factory assembled to the mast. The finished mast must give the appearance of a single, homogeneous mast and the entire assembly must be structurally sound so that with the weight of the mast arm(s) and luminaire(s), the mast will not twist, rack, vibrate or otherwise deform when subjected to the severe vibrations of wind loading, passing elevated trains or heavily loaded vehicles.
- (k) Flower Basket Rosettes. The pole must be equipped with flower basket rosettes welded to the pole at the factory. Other flower basket attachments are not integral to the pole and are optional.
- (l) Luminaire Mounting Height. The luminaire mounting height indicates the height necessary to provide a distance of 30.0 feet from the top of the light pole foundation to the light source center of the luminaire.

BANNER AND BASKET ATTACHMENTS (Optional)

- 5. (a) Optional Attachments. Banner arm attachments and flower basket attachments must be provided as an option. These items must be provided only if ordered as a separate line item. All attachments must be manufactured to properly fit the pole shaft. All castings and parts must be permanently labeled on the back. The label must clearly identify the part and the pole it is to be used for.

- (b) Banner Arms. Banner arms, bracelets, couplings, and hardware necessary to attach banners must be provided. The appearance and dimensions of these items are shown on Standard Drawings 930, 930B, and 930C. Unless otherwise noted, the banner arms must be constructed of a light weight material flexible enough to withstand the loads presented by the appropriate size banners under ASSTHO wind loadings. The banner arms must have an approximate outside diameter of 1-3/4".
- (c) Flower Basket Attachments. The bracelet and all necessary hardware for attaching a flower basket must be provided. The appearance and dimensions of these items are shown on the Standard Drawings.

FINIAL TOP (Optional)

- 6. (a) Design. The finial mast top must include different pieces assembled together to resemble a single, uniform casting. The pieces must include a top, two side pieces and a side finial ball as shown on Standard Drawings 930, 930B, and 930C. Two sets of end covers for the arms should be included to accommodate the possible use of two arms. The top must be essentially conical with a globe-shaped lower-end and have a minimum wall thickness throughout of not less than 5/32 inches. The cone portion must meet the skirted portion of the top in a smooth filet, and the skirt must enclose the top 7/8 inches of the mast. Three stainless steel, or other similar approved material, set screws not less than 5/16 inches long must be equally spaced in tapped holes around the skirt and must hold the top securely in place atop the mast. The design of the top must be as shown on the Standard Drawings. All castings and parts must be permanently labeled on the back of the part. The part label must clearly identify the part and the pole it is intended for.

All mast heads and finials must have the appearance as shown on the Standard Drawings. The dimensions on the drawings are for attachment to the Chicago 2000 Gateway pole. Mast heads and finials for combination traffic poles, 11" or 12.5" poles, must be sized accordingly.

- (b) Material. The top finial must be made of aluminum alloy 356-F per ASTM B108. The top must have smooth surfaces, neat edges and corners and be free of fins, holes or other casting flaws.
- (c) Finish. Tops must be painted as herein specified. The color shall be black.

HARDWARE

- 7. All the hardware necessary to complete the assembly of the pole must be furnished. All hardware must be stainless steel, or equal corrosion-resistant metal, subject to approval.

WELDING

- 8. (a) General. Where welds are required and approved, each welded joint must be thoroughly cleaned of flux and spatter, and must be made in conformity with the standards of the American Welding Society. Each bidder must submit with his proposal a drawing showing the sizes and types of welds, in conformity with the proper interpretation of the standard welding symbols of the American Welding Society. The bidder's proposal must state the type of electrode and must describe the welding methods proposed for use in fabricating the pole.
- (b) Certifications. Welders must have proper certification for the welding operations required. Welding by non-certified personnel will not be allowed. Certifications

for welding personnel must be included with the submittal information package for review.

- (c) Testing. All welds of 5% of the poles in every lot must be inspected for penetration and soundness of the welds by the magnetic particle inspection method or by radiography. Acceptance or rejection will be governed by the same conditions as in the TESTING Section. If the magnetic inspection process is used, the dry method with direct current must be employed. All transverse welds must be magnetized by the "prod" (Circular Magnetization) method. Longitudinal welds may be magnetized by either circular or longitudinal magnetization. Proposed weld inspection method must be included with the submittal information package for review.

PAINTING

- 9. (a) Oil and Grease Removal. All metal surfaces must be washed with an alkaline detergent to remove oils and grease.
- (b) Metal Cleaning. All exterior metal surfaces must be cleaned by blasting with a combination of shot and grit to remove all dirt, mill scale, rust, corrosion, oxides and foreign matter and provide a "near white" surface in accordance with SSPC-SP10. Included in this process, the pretreatment process and the painting process must be the interior base section of the mast to a minimum height of 12".
- (c) Chemical Pretreatment. The cleaned metal surfaces must then be treated with a hot, pressurized iron phosphate wash and must be dried by convection heat.
- (d) Exterior Coat. A thermosetting, weathering, Polyester powder coat must be applied electrostatically to all cleaned and treated surfaces to a uniform 8 mil thickness in a one coat application. This powder coat must be cured in a convection oven at a minimum temperature of 400°F to form a high molecular weight fusion bonded finish.
- (e) Alternate Methods. Alternate powder coat methods may be reviewed and tested on a case by case basis. However, no coating method will be accepted unless the Commissioner judges such alternate to be equal to the coating herein specified.
- (f) Interior Coat. The interior metal surfaces must be powder coated with a thermoplastic hydrocarbon resin containing corrosion inhibitors. The resin must be formulated for full application over untreated metal surfaces. The resin must be applied at a temperature of approximately 200°F to a minimum thickness of 3 mils. The interior thermoplastic coat must overlap the interior, thermosetting base coat by approximately 6". Alternate interior coatings may be used subject to prior approval of the Commissioner.
- (g) Durability. Both the exterior and interior coats must be capable of passing 1,000 hours of salt spray exposure per ASTM B117 in a 5% NaCl (by weight) solution at 95°F and 95% relative humidity without blistering. Before test, the panel must be scribed with an "X" down to bare metal.
- (h) Coating Measurement. Measurement of coating thickness must be done in accordance with SSPC-Pa 2-73T, "Measurement of Dry Paint Thickness with Magnetic Gauges," except that the lowest "single spot measurement" in an area of two square inches must be not less than 7.0 mils.

- (i) Color. Color must be gloss black unless noted otherwise in the order. A 4" square color chip sample must be submitted for approval prior to fabrication. The chip sample must be of the same material as the pole mast, and must include the manufacturer's name and the manufacturer's color name as well. The sample must also include any other information required to purchase the same color for the mast arm(s), flower baskets, and the cast aluminum finial and split pedestal base.

STRUCTURAL REQUIREMENTS

- 10. The pole must be manufactured in accordance with AASHTO's 1994 version of the "Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals." The shaft and base plate assembly must be designed to meet AASHTO's 1994 criteria for 80 MPH wind loading with a 30% gust factor. The mast must be designed to support twin gateway mast arms with twin gateway luminaires of not less than 65 pounds each and having an effective projected area (EPA) of not less than 1.70 square feet each with twin gateway luminaire fitters of not less than 50 pounds each and having an EPA of not less than 0.73 square feet each. In addition the mast must be able to support twin banners 6 feet high by 1.5 feet wide each; and twin flower baskets weighing 75 pounds each and having an EPA of not less than 3.0 square feet each.

TESTING

- 11. (a) Testing. Structural testing must be conducted on 5% of the manufacturer's production masts for each order in which the quantity of masts is 20 or more. The testing must include coupon tests, load tests, and weld tests. All testing must be certified by the manufacturer.
- (b) The selection of pole masts must be a random selection from the entire completed lot of pole masts required for the Contract. Selections from partial lots will not be allowed.
- (c) Coupon tests as outlined in ASTM A53 and A 595, A588, or A606.
- (d) Load tests for masts. With base rigidly anchored, a test load of 1500 pounds must be applied at a point approximately two feet (2'-0") from the free end. The load must be applied at right angles to the center line of the mast and in the same vertical plane. The deflection must not be greater than 30". Within one (1) minute after the test load is released, measurement must be made of the set taken by the mast. This set must not be greater than 2.5". The deflection measurement device must be reset to zero and the test load must be reapplied. The deflection must not change from the deflection noted in the first test by more than $\pm 5\%$. No measurable set must be noted within one (1) minute after test load is released. The mast must then be checked to insure that it is still securely fastened, that it is plumb, and that no cracks have developed in either the mast or base plate.
- (e) Load tests for masts arm supports. With gateway mast arms rigidly anchored, a test load of 300 pounds must be applied to each mast arm at a point approximately seven feet (7'-0") from the pole mast. The load must be applied at right angles to the center line of the mast arm and in the same vertical plane. Each mast arm support must then be checked to insure that it is still securely fastened and that no cracks have developed in either mast arm support bracket or the weld.

- (f) Load tests for flower basket rosettes. With base rigidly anchored, a test load of 150 pounds must be applied to each rosette ring. The load must be applied at right angles to the center line of the mast and in the same vertical plane. Each rosette must then be checked to insure that it is still securely fastened and that no cracks have developed in either the ring, rosette, or rosette weld.
- (g) Weld tests as described in the WELDING Section of this Specification.

PACKAGING

- 12. (a) General. The poles must be carefully inspected at the factory prior to shipment to assure that the poles are complete and free of defects. When poles are stacked together, they must be supported with suitable spacers or must otherwise be protected from dents and other potential shipping damage. The spacing and protective materials must be suitable for and usable in the storage of the poles. All pole hardware must be packaged in a clear container and labeled. Castings and parts must be packaged in clearly labeled boxes. Parts hardware must be packaged in clear containers, properly labeled.
- (b) Pole Packaging. The poles must be shipped in bundles weighing a maximum of 5,000 pounds. Each pole must be individually wrapped and protected so that it can be bundled and unbundled without damage to the pole or its finish. Each pole wrapping must be labeled using permanent ink in two inch letters identifying the pole type, height, and gauge. Specific instructions must be securely attached to each bundle indicating the proper methods of storage. In addition, each bundle must contain specific instructions on unbundling and erection of poles. Instructions must be printed on a fibre based paper with a permanent ink so that instructions will be completely legible after weathering outdoors for a minimum of 5 years.
- (c) Pole Bundles. The bundles must consist of poles laid base to top to form an approximately rectangular cylinder. Materials such as lumber (2" x 4" min.) non-marring banding, and other appropriate bundling materials must be used to make a rigid, long lasting bundle capable of being handled, shipped and stored without shifting of contents or breaking. Bundling procedure will be subject to approval. Any bundles, in which either poles or packaging is received broken, damaged or with contents shifted, will not be accepted and it will be the responsibility of the supplier to return the bundle to its original destination at no cost to the City of Chicago. The bundles should be capable of being stacked two high without breaking, or shifting of the contents. Each bundle must be capable of being lifted by a fork lift truck or crane and the bundles must be shipped on a flat bed truck to facilitate unloading.
- (d) Pole Hardware. Any appurtenant devices and hardware not attached to the pole must be carefully wrapped and securely attached to each bundle. Payment will be withheld for any units provided without the appropriate appurtenant devices and hardware. Cracked, broken, chipped or damaged units will also be considered as incomplete quantities as regards payment.

- (e) Castings and Parts. Castings and parts, such as the finial, banner brackets, etcetera, must be individually wrapped and packaged in boxes. Hardware must be packaged in a clear package, clearly labeled. The label must identify each piece of hardware and the quantity of each, as well as what part the hardware is intended for. An individual box must contain like part types and the related hardware (i.e. the upper banner bracelet halves and hardware must be boxed separately from the lower banner bracelet halves and hardware). Each box must be labeled with 3/8" letters identifying the manufacturer, the casting or part numbers, the part name, the date of manufacture, the City contract number, and the City Commodity code.

ELECTRICAL SPECIFICATION 1506
DIVISION OF ENGINEERING
DEPARTMENT OF TRANSPORTATION
CITY OF CHICAGO
REVISED SEPTEMBER 24, 2001

**POLE: ORNAMENTAL, EXTENDED LOOP STYLE, 16 FOOT
15" BOLT CIRCLE; STEEL, 7 GAUGE**

SUBJECT

1. This specification states the requirements for an ornamental street light pole. These poles will support a twin mast arm bracket which will in turn, support two tenon mounted luminaires. A split pedestal base will cover the bottom of the pole. This pole will be served by underground cables. The luminaire mounting height will be 23 feet when the pole and arm are fully assembled.

GENERAL

2. (a) Specifications. The poles must conform in detail to the requirements herein stated, and to the requirements of the following organizations as cited herein:
American Association of State Highway and Transportation Officials (AASHTO)
American Society for Testing and Materials (ASTM)
American Welding Society (AWS)
Society for Protective Coatings (SSPC)
- (b) Acceptance. Poles not conforming to this specification will not be accepted.
- (c) Sample. One complete anchor-base pole of the manufacture intended to be furnished must be submitted within fifteen (15) business days upon receipt of notice from the Chief Procurement Officer.
- (d) Drawings. The drawings mentioned herein are drawings of the Department of Transportation being an integral part of this specification cooperating to state the necessary requirements.
- (e) Bidders Drawings. Bidders must submit with their bids scale drawings for the pole intended to be furnished. The drawings must show details of the pole design including the handholes, grounding and anchoring. Although the luminaires, the twin arm bracket, and the base are each covered by separate specifications, the drawings must include every dimension necessary to show how all parts and components will fit each other, be easily installed and maintained and be properly held in assembly. The successful bidder must submit these drawings in electronic format in Microstation 95, if requested; failure to provide drawings in this format will be cause to reject the bid.
- (f) Interchangeableness. Each member including the handhole doors in the pole, the luminaire twin arm assembly, and the split pedestal base must be mutually interchangeable for assembly, so that no work will be required to make any member fit properly in the place of any other similar member of any other similar pole.

- (g) Design. The pole must conform in design and dimensions to Drawings 929 and 929A.
- (h) Structural Requirements. The pole must be manufactured in accordance with AASHTO's 1994 "Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals". The pole must be designed to meet AASHTO's 1994 criteria for 80 MPH wind loading with a 30% gust factor with the twin arm and acorn luminaires attached.
- (i) Warranty. The manufacturer must warrant the construction of the poles and related parts to meet the requirements of this specification and must warrant all parts, components, and appurtenances against defects due to design, workmanship, or material developing within a period of five years after the parts have been delivered. This will be interpreted particularly to mean structural or mechanical failure of any component, failure of any weld, or failure of any portion of the painting system. The warranty must be furnished in writing guaranteeing replacement, including shipment, free of charge to the City, of any light pole assembly, or component parts thereof. The warranty must accompany any submittal information.

MASTS

3. (a) Mast Size. The mast size must be 16'-0" and must provide a 0.14" per foot taper. The mast must be rolled to provide a 16-flute pattern.
- (b) Mast Design. The mast design must be as shown on Drawing 929 and 929A.
- (c) Material. The mast must be 7 gauge high strength low alloy steel in accordance with ASTM A595, Grade A. The shaft must have a 0.14" per foot taper. The flutes must be neat, true to pattern and free from cracks and flaws. Each mast must be straight and centered on its longitudinal axis.
- (d) Mast Base. The mast base must be a 1" thick steel plate of low alloy, high strength steel conforming to ASTM A 595, grade C, ASTM A 588 or ASTM A 606.
1. The base plate must have four 1 ½" wide by 3" long (measured along the circumference) slots for a 15" bolt circle using 1 ¼" anchor bolts. Anchor bolts, nuts, and washers to be provided by others. Any special hardware required must be provided by the Contractor.
 2. It must provide sufficient internal clearance for two 3" conduit entries and a ¾" ground rod.
 3. The mast must be inserted into the base to a maximum depth which will still allow for an adequate weld to be made between the bottom of the mast and the plate. A circumferential weld must be made between the mast and the base at both the top and underside of the plate.
- (e) Provision for Ground. A ½"-13 square nut must be welded to the inside of the mast on the handhole entry frame for a ground connection.
- (f) Entry. A vertical door frame carrying a removable door providing access to the interior of the mast must be welded into a close fitting opening centered approximately 15" above the bottom of the base. The door frame must be formed and welded of steel with cross section not less than 1-1/2" wide by ¼" thick so as to adequately reinforce the opening of the mast. The internal horizontal clearance of the door frame must be 4"; its internal vertical height must be 8". Its upper and lower ends must be semi-circular meeting its straight sides tangentially. The frame must have two welded tabs; one at the top and one at the bottom of the door frame. The top hole must be located 13/16 of an inch from the top of the opening. The bottom hole must be located 13/16 of an inch from the

bottom of the opening. These tabs must be drilled to accept a 1/4 inch screw. Stainless steel spring clips must be mounted to the tabs. These clips must be made to accept 1/4"-20 machine screws. The entry must in all respects be identical to handhole openings on poles that have already been installed and accepted by the City.

- (g) Door. The removable door must be formed of sheet steel approximately 1/8" thick. It must fit the door frame closely and be dished so that it will stay in proper position even if its locking screws become slightly loosened. The door must be drilled top and bottom to accept the 1/4" -20 hex head stainless steel screws which will fasten the door to the door frame. All doors must be interchangeable. Doors must fit pole handholes of like poles that have already been installed and accepted by the City. Alternate methods will be subject to approval by the Commissioner or his fully authorized representative.
- (h) Tag. To each pole must be attached immediately below the handhole by mechanical means and not by adhesive, a stainless steel tag with an embossed legend which must include the pole outside diameter at the base, the overall length, and the gauge.
- (i) With pole set in place and the door securely fastened, there must be no exposed wires, bolts or appurtenant hardware other than the door fasteners.
- (j) Tenon. A tenon must be provided at the top of the pole for attachment of a twin mast arm bracket. The tenon must consist of one 5" I.P.S. pipe 3 inches long and one pipe of 2.5" diameter 20" long, as shown on Standard Drawing 929. The tenon must provide positive, structurally sound mating between the mast and the attached device. The tenon must be factory assembled to the mast. The finished mast must give the appearance of a single, homogeneous mast and the entire assembly must be structurally sound so that with the weight of a twin mast arm and two luminaires, the mast will not twist, rack, vibrate or otherwise deform when subjected to the severe vibrations of passing elevated trains or heavily loaded vehicles.
- (k) Flower Basket Rosettes. The pole must be equipped with flower basket rosettes welded to the pole as shown on Standard Drawings 929 and 929A. Other than the rosettes, no permanent attachments using welds or drilled and tapped holes will be allowed for the flower basket attachments.

BANNER ARMS, FLOWER BASKET BRACKETS, AND BRACELETS (Optional)

- 4. Under a separate item, banner arms, bracelets and attachments as shown on Standard Drawings 929 and 929A will be provided. Unless otherwise noted, the banner arms must be constructed of a lightweight material which will withstand the loading of banners under 1994 ASSTHO wind conditions. Banner arms must have an outside diameter of 1-3/4". Banner arms must be attached by means of stainless steel banding. Banner arm bracelets must be attached with set screws. Flower basket bracelets and base bracelets must be attached with set screws and must conform to Standard Drawings 929 and 929A. No permanent attachments using welds, drilled and tapped holes, etcetera should be provided for the banner arm or flower basket attachments. All castings and parts must be permanently identified on the back side.

WELDING

5. (a) General. Where welds are required and approved, each welded joint must be made in conformity with the proper interpretation of the standard welding symbols of the American Welding Society. Each bidder must submit with his proposal a drawing showing the sizes and types of welds, must state the type of electrode and must describe the welding methods he proposes to use in fabricating the pole.
- (b) Certifications. Welders must have proper certification for the welding operations required. Welding by non-certified personnel will not be allowed.
- (c) Testing. All welds of 5% of the poles in every lot must be inspected for penetration and soundness of the welds by the magnetic particle inspection method or by radiography. Acceptance or rejection will be governed by the same conditions as in the testing section. If the magnetic inspection process is used, the dry method with direct current must be employed. All transverse welds must be magnetized by the "prod" (Circular Magnetization) method.

PAINTING

6. (a) Oil and Grease Removal. All metal surfaces must be washed with an alkaline detergent to remove oils and grease.
- (b) Metal Cleaning. All exterior metal surfaces must be cleaned by blasting with a combination of shot and grit to remove all dirt, mill scale, rust, corrosion, oxides and foreign matter and provide a "near white" surface in accordance with SSPC-SP10. Included in this process, the pretreatment process and the painting process must be the interior base section of the mast to a minimum height of 12".
- (c) Chemical Pretreatment. The cleaned metal surfaces must then be treated with a hot, pressurized iron phosphate wash and must be dried by convection heat.
- (d) Exterior Coat. A thermosetting, weathering, Polyester powder coat must be applied electrostatically to all cleaned and treated surfaces to a uniform 8-mil thickness in a one coat application. This powder coat must be cured in a convection oven at a minimum temperature of 400° Fahrenheit to form a high molecular weight fusion bonded finish.
- (e) Alternate Methods. Alternate powder coat methods may be reviewed and tested on a case by case basis. However, no coating method will be accepted unless the Commissioner judges such alternate to be equal to the coating herein specified.
- (f) Interior coat. The interior metal surfaces must be powder coated with a thermoplastic hydrocarbon resin containing application over untreated metal surfaces. The resin must be applied at a temperature of approximately 200° Fahrenheit to a minimum thickness of 3 mils. The interior thermoplastic coat must overlap the interior, thermosetting base coat by approximately 6". Alternate interior coatings may be used subject to prior approval of the Commissioner.
- (g) Durability. Both the exterior and interior coats must be capable of passing 1,000 hours of salt spray exposure per ASTM B117 in a 5% Na Cl (by weight) solution at 95° Fahrenheit and 95% relative humidity without blistering. Before test, the panel must be scribed with an "X" down to bare metal.
- (h) Coating Measurement. Measurement of coating thickness must be done in accordance with SSPC-Pa 2-73T, "Measurement of Dry Paint Thickness with

Magnetic Gauges," except that the lowest "single spot measurement" in an area of two square inches must be not less than 7.0 mils.

- (i) Color. Color must be gloss black. A color sample must be submitted for approval prior to fabrication. This color sample must include the manufacturer's name and the manufacturer's color name as well as any other information required to purchase the same color for the mast arms, luminaire and the cast aluminum split pedestal base.

TESTING

- 7. (a) General. All completed masts must be available for testing. Unless specifically authorized in writing, all tests must be performed at the manufacturer's plant. A record of every test must be made and a certified copy must be submitted to the Commissioner before the poles are shipped.
- (b) Requirements. The following tests must be included in the testing procedure:
 - 1. Coupon tests as outlined in ASTM A53 and A595, A588, or A606.
 - 2. With the mast base rigidly secured using the normal mast mountings, a 1000 pound force must be incrementally applied, perpendicular to the mast at the tenon. This force must then be applied a second time at approximately the same location. The mast must then be checked to insure that the mast is still securely fastened; that it is plumb; and that no cracks have developed in either the mast, tenon or base.
 - 3. Perform Weld tests as described in "welding" section.
- (c) Acceptance. Tests must be made on 5% of all masts. If any of the masts fail to pass these tests, an additional three masts must be tested for each failed mast. Should any of these additional masts fail to pass these test requirements, the entire lot will be subject to rejection. The Commissioner will then decide, based on the nature of the failure, whether the entire lot will be rejected outright or whether the manufacturer may subject each mast to testing, and those masts which fulfill the requirements will be accepted.

PACKAGING

- 8. (a) General. The poles must be shipped in bundles weighing a maximum of 5,000 pounds. Each pole must be individually wrapped and protected so that it can be bundled and unbundled, without damage to the pole or its finish. Each pole wrapping must be permanently marked using 2 inch lettering identifying the pole type. Specific instructions must be securely attached to each bundle indicating the proper methods of storage. In addition, each bundle must contain specific instructions on unbundling and erection of the poles. Instructions must be printed on a fiber based paper with a permanent ink so that instructions will be completely legible after weathering outdoors for a minimum of 5 years. All pole hardware must be packaged in labeled containers and enclosed with the appropriate bundles. Castings and parts for the banners and flower baskets must be packaged in clearly labeled boxes. Parts hardware must be packaged in clear containers, properly labeled.
- (b) Pole Bundles. The bundles must consist of poles laid base to top to form an approximately rectangular cylinder. Materials such as lumber (2" x 4" min.), non-marring banding, and other appropriate bundling materials must be used to make a rigid, long lasting bundle capable of being handled, shipped and stored without

shifting of contents or breaking. Bundling procedure will be subject to approval. Any bundles, in which either poles or packaging is received broken, damaged or with contents shifted, will not be accepted and it will be the responsibility of the supplier to return the bundle to its original destination at no cost to the City of Chicago. The bundles should be capable of being stacked two high without breaking, or shifting of the contents. Each bundle must be capable of being lifted by a fork lift truck or crane and the bundles must be shipped on a flat bed truck to facilitate unloading.

- (c) Pole Hardware. Any appurtenant devices and hardware not attached to the poles must be carefully wrapped and securely attached to each bundle. Payment will be withheld for any bundle delivered without the appurtenant devices and hardware. Cracked, broken, chipped or damaged parts will be considered as an incomplete delivery as regards payment.
- (d) Castings and Parts. Castings and parts for the banners and flower basket attachments must be individually wrapped and packaged in boxes. Hardware must be packaged in a clear package, clearly labeled. The label must identify each piece of hardware and the quantity of each, as well as what part the hardware is for. An individual box must contain like part types and the related hardware (i.e. the upper banner bracelet halves and hardware must be boxed separately from the lower banner bracelet halves and hardware). Each box must be labeled with 3/8" lettering identifying the manufacturer, the casting or part numbers, the part name, the date of manufacture, the City contract number, and the City commodity code.

**ELECTRICAL SPECIFICATION 1526
DIVISION OF ENGINEERING
DEPARTMENT OF TRANSPORTATION
CITY OF CHICAGO
REVISED JUNE 12, 2014**

HELIX FOUNDATIONS

SUBJECT

1. This specification covers the requirements for steel helix foundations. These foundations may be used to support street light poles for both residential and arterial streets. They may also be used to support aluminum traffic signal posts. They may not be used for any combination poles that support both street lighting and traffic signals, or any traffic signal poles that support monotube arms.

GENERAL

2. (a) Specifications. The foundations must conform in detail to the requirements herein stated and to the specifications and methods of test of the American Society for Testing and Materials cited by ASTM Designation Number of which the most recently published revision will govern.
- (b) Acceptance. Foundations not conforming to this specification will not be accepted.
- (c) Drawings. The drawings mentioned herein are drawings of the Department of Transportation. They are integral parts of this specification cooperating to state necessary requirements.
- (d) Bidders Drawings. The apparent low bidder must submit detailed scale drawings of the foundations showing actual dimensions, details, and welds, if so requested. Shop drawings must be original engineering drawings created by the manufacturer. The drawings must give every dimension necessary to show how the foundation will function and how the pole or post will be mounted. These drawings must be submitted in electronic format, preferably Microstation 95, if so requested by the City.
- (e) Sample. One complete foundation of each size and of the manufacture intended to be furnished must be submitted within fifteen (15) business days upon request of the Chief Procurement Officer.
- (f) Warranty. The manufacturer must warrant the performance and construction of the foundations to meet the requirements of this specification and must warrant all parts, components, and appurtenances against defects due to design, workmanship, or material developing within a period of three years after the foundations have been delivered. This will be interpreted particularly to mean structural or mechanical failure of any element or weld, or failure of any portion of the galvanizing system. The warranty must be furnished in writing guaranteeing material replacement including shipment, free of charge to the City. The Commissioner will be the sole judge in determining which replacements are to be made and the Commissioner's decision will be final.

DESIGN

3. (a) Material. Steel must meet or exceed the requirements of ASTM A36. The shaft may be ASTM A53 Grade B, ASTM A252 Grade 2 or ASTM A36.
- (b) Dimensions. Each foundation must be dimensioned as shown on Standard Drawing 936. There are three types of foundations; a five foot foundation with a 13 inch bolt circle for three anchor bolts, a five foot foundation with a ten inch bolt circle for four anchor bolts, and a seven foot foundation with a ten to fifteen inch bolt circle for four anchor bolts.
- (c) Construction. Each foundation must have a shaft .250 inches thick with an outside diameter of 8-5/8 inches. The base plate must be 1 inch thick. The shaft must extend 1 inch into the base plate and be circumferentially welded top and bottom. The base plate must be even and flat on top with no sharp edges. The top of the base plate must be clearly and permanently marked to indicate the cableway orientation. The helix screw plate must be fabricated from a 3/8 inch thick 14 inch diameter circle of steel formed to a 3 inch pitch. The pilot point must extend 9 inches below the screw plate. The leading end of the pilot must be rounded, diamond shape, or chisel shaped. The pilot point must be welded concentric with the axis of the foundation. The cableways must be 3 inches wide by 18 inches long and be located as indicated on Standard Drawing 936. There must be no sharp edges on the cableway openings.

After fabrication, the complete foundation must be hot dipped galvanized in accordance with the provisions of ASTM A123, Grade B. This requires a zinc coating equal to 2 ounces per square foot. Touch up of small areas using a cold zinc rich coating or a cold galvanized coating is not permitted.

WELDING

4. (a) Standards. Every weld must be made in conformity with the American Welding Society. Each bidder must submit with his proposal a drawing showing the sizes and types of welds, must state the type of electrode, and must describe the welding methods he proposes to employ in fabricating the foundations.
- (b) Testing. The welds must be inspected for penetration and soundness by the magnetic particle inspection method or by radiography. If the magnetic inspection process is used, the dry method with direct current must be employed.

TESTING

5. (a) The foundations must be capable of withstanding 10000 foot-pounds of torque applied about the main axis.
- (b) The manufacturer must certify the type of steel used to form the foundations.
- (c) The manufacturer must certify that the welds have been properly tested.

PACKAGING

6. (a) General. The foundations must be packaged so as not to incur any damage during shipping and unloading. Materials such as lumber (2"x4" min.), non-marring banding, and other appropriate bundling materials must be used to make a rigid, long lasting, bundle capable of being handled , shipped and stored without shifting or breaking of the contents. Each bundle must be capable of being lifted by a fork lift truck and the bundles must be shipped in a flat bed truck to facilitate unloading.
- (b) All foundations will be delivered to the Division of Electrical Operations storage yard at 1539 South Ashland Avenue in Chicago, or to another location within the City as indicated on the order.

ELECTRICAL SPECIFICATION 1528
DIVISION OF ENGINEERING
DEPARTMENT OF TRANSPORTATION
CITY OF CHICAGO
REVISED JUNE 6, 2014

PRECAST CONCRETE STRUCTURES

SUBJECT

1. This specification covers the requirements for precast concrete structures to be used for City of Chicago electrical facilities. The structures will include manholes, handholes, and street light pole foundations.

GENERAL

2. (a) Specifications. The precast structures must conform in detail to the requirements herein stated and to the specifications and methods of test of the American Society for Testing and Materials cited by ASTM Designation Number of which the most recently published revision will govern.
- (b) Acceptance. Precast structures not conforming to this specification will not be accepted. The Commissioner of Transportation or his representative will be the sole judge in determining if the precast structures meet this specification. The Commissioner's decision will be final.
- (c) Drawings. The drawings mentioned herein are drawings of the Department of Transportation. They are integral parts of this specification cooperating to state necessary requirements.
- (d) Bidders Drawings. The apparent low bidder must submit detailed scale drawings of the precast structures showing actual dimensions and details, if so requested. Shop drawings must be original engineering drawings created by the manufacturer. The drawings must give every dimension necessary and show how the structure is assembled.
- (e) Sample. One complete precast structure of each item must be submitted within fifteen (15) business days upon request of the Chief Procurement Officer.
- (f) Warranty. The manufacturer must warrant the performance and construction of the precast structures to meet the requirements of this specification and must warrant all parts, components, and appurtenances against defects due to design, workmanship, or material developing within a period of one (1) year after the precast structures have been delivered. This will be interpreted particularly to mean structural failure of any element. The warranty must be furnished in writing guaranteeing material replacement including shipment, free of charge to the City. The Commissioner will be the sole judge in determining which replacements are to be made. The Commissioner's decision will be final.

DESIGN

3. (a) Material. Concrete must be Portland cement concrete, Class SI or PC, meeting current IDOT specifications. Pulling irons in manholes must meet or exceed the requirements of ASTM A36 steel. Pulling irons must be hot dipped galvanized. Steel reinforcing bars must meet or exceed the requirements of ASTM A615, Grade 60. Cable supports in manholes, including stanchions and racks, must be manufactured for that specific purpose. Stanchions must be non-metallic and must be capable of accommodating several different sizes of cable hooks at various elevations. A minimum of eight cable hooks, 4 inches in length, must be provided with each manhole, and should include any hardware necessary to affix the hooks to the racks. Cable hooks for handholes must be manufactured for that specific purpose. Cable hooks for handholes must be a minimum of 3 inches in length and 3 inches in depth. Anchor rods in foundations must meet the latest Electrical Material Specification 1467. Conduit elbows in foundations must meet the latest Electrical Material Specification 1462.
- (b) Foundations must include conduit elbows, anchor rods, washers, and nuts. The 7 foot foundation must include a 6 foot re-bar cage. Handholes must include cable hooks. Manholes must include cable racks, pulling irons, and cable hooks. Each manhole and each handhole must have lifting anchors cast in the concrete to facilitate shipment and installation. If the manhole or handhole is in more than one piece, instructions for assembly must be provided. Also, a sufficient amount of bonding agent must be provided. The bonding agent must be approved material. Frames and covers, sump grates, clay tile, and ground rods are not included under this specification.
- (c) Dimensions of Manholes and Handholes. Each manhole or handhole must be dimensioned as shown on the appropriate standard drawing. The 30 inch diameter handhole is Standard Drawing 867. The 36 inch diameter handhole for 24 inch frame and cover is Standard Drawing 866. The 36 inch diameter for 30 inch for frame and cover is Standard Drawing 871. The 3 foot by 4 foot by 4 foot manhole for a 24 inch diameter frame and cover is Standard Drawing 730. The 3 foot by 4 foot by 4 foot manhole for 30 inch frame and cover is Standard Drawing 729. The 4 foot by 6 foot by 6 foot manhole for 24 inch frame and cover is Standard Drawing 732. The 4 foot by 6 foot by 6 foot manhole for 30 inch frame and cover is Standard Drawing 733. The 5 foot 4 inch by 7 foot 4 inch manhole roof is Standard Drawing 733.
- (c) Dimensions of Grade Rings. Grade rings shall be in four different dimensions. The 39 inch outside diameter ring shall have a 24 inch diameter opening and shall come in both 2 inch and 4 inch thicknesses. The 45 inch outside diameter ring shall have a 30 inch diameter opening and shall also come in both 2 inch and 4 inch thicknesses.
- (d) Dimensions of foundations. The residential street light foundation shall be dimensioned as shown on standard drawing 565. The 7 foot arterial street light foundation shall be as shown on standard drawing 818.

DELIVERY

4. All manholes, handholes, and foundations will be delivered to the Division of Electrical Operations storage yard at 1539 South Ashland Avenue in Chicago, or to another location within the City as indicated on the order. Any manhole, handhole, or foundation deemed to be defective by the Commissioner or his representative must be removed and replaced at no cost to the City. The Commissioner's decision will be final.

ELECTRICAL SPECIFICATION 1533
DIVISION OF ENGINEERING
DEPARTMENT OF TRANSPORTATION
CITY OF CHICAGO
REVISED NOVEMBER 21, 2014

NON-METALLIC CONDUIT

SCOPE

1. This specification states the requirements for both rigid and coilable non-metallic conduit. The conduit will be used for low voltage (600 volt rated cables) electrical street lighting and traffic control systems. It may also be used for fiber-optic communications cables. This conduit will be installed underground. Rigid non-metallic conduit may be installed on structure.

GENERAL

2. (a) Standards. The following standards are referenced herein.
ASTM – American Society for Testing and Materials
NEC – National Electrical Code
NEMA – National Electrical Manufacturer’s Association
UL – Underwriter’s Laboratories
- (b) Warranty. The manufacturer must warrant the conduit against defective workmanship and material for a period of one year from date of installation or date of delivery. Any conduit that is found to be defective must be replaced without cost to the City.
- (c) Sample. If requested by the Chief Procurement Officer, a sample of the conduit intended to be furnished under this specification, must be submitted to the Engineer of Electricity within fifteen (15) business days upon receipt of such request.

MATERIAL

2. (a) Rigid non-metallic conduit will be made of polyvinyl chloride (PVC). All conduit and fittings must comply with ASTM D 1784 and with the applicable sections of NEMA TC2, UL standard 651, and NEC Article 352. Fittings must meet the standards of NEMA TC3 and TC6, as well as UL 514.
- (b) Coilable non-metallic conduit will be made of high density polyethylene (HDPE). All conduit must comply with ASTM D3485 ,ASTM D 1248, and NEMA TC7.
- (c) A tape must be installed in the HDPE conduit at the factory. The tape is for pulling cable through the conduit. The tape must be specifically manufactured for this purpose. The tape must have a tensile strength of at least 1000 pounds.

SIZES

3. (a) PVC and HDPE will come in two wall thicknesses; schedule 40 and schedule 80.
- (b) PVC will come in ten foot sections. HDPE will come on reels.
- (c) Nominal inside diameters (in inches) for non-metallic conduits will include the following: $\frac{1}{2}$, $\frac{3}{4}$, 1, 1 $\frac{1}{4}$, 1 $\frac{1}{2}$, 2, 2 $\frac{1}{2}$, 3, 3 $\frac{1}{2}$, 4.

PACKING

4. Rigid conduit must be shipped in bundles. Coilable conduit must come on wooden reels. Both bundles and reels must be tagged to indicate the size and diameter of the conduit, the quantity in feet, the weight, and the manufacturer's name. The conduit itself must be marked to indicate the type and size, as well as the manufacturer.

**ELECTRICAL SPECIFICATION 1534
DIVISION OF ENGINEERING
DEPARTMENT OF TRANSPORTATION
CITY OF CHICAGO
REVISED AUGUST 5, 2013**

CABLE: SINGLE-CONDUCTOR, COPPER 600 VOLT

SUBJECT

1. This specification states the requirements for single conductor cables intended to be used in 240 VAC street lighting circuits. The cable will also be used as service cable for both street light controllers and traffic signal controllers. The cables will be installed in underground conduit and rated as 600 volt.

GENERAL

2. (a) Specifications. The cable must conform in detail to the requirements herein stated, and to the applicable portions of the latest revisions of the specifications and methods of test of the following agencies:
 - (1) ASTM – American Society for Testing and Materials
 - (2) ICEA – Insulated Cable Engineers Association
 - (3) IEEE – Institute of Electrical and Electronics Engineers
 - (4) UL – Underwriters Laboratories
- (b) Acceptance. Cable not in accordance with this specification will not be accepted.
- (c) Sample. If requested by the Chief Procurement Officer, a three (3) foot sample of the cable intended to be provided under this specification must be sent to the attention of the Engineer of Electricity within fifteen (15) days of receipt of such request.
- (d) Warranty. The manufacturer must warrant the cable to be first class material throughout. In lieu of other claims against them, if the cables are installed within twelve (12) months of date of shipment, the manufacturer must replace any cable failing during normal and proper use within two years of date of installation. All replacements under this warranty must be made free of charge F.O.B. delivery point of the original contract.

CABLES

3. (a) Construction. The cable must consist of an uncoated multiple strand copper conductor with a tight fitting thermoset, free stripping, concentric layer of ethylene propylene (EPR) insulation.
- (b) The number of strands and the outer diameter of the cable shall be as noted in TABLE A.
- (c) Cable shall be UL approved for sunlight resistance and for direct burial applications.
- (d) Cable must meet IEEE 383 and UL 1581 70,000 BTUs per hour flame test requirements.

COLOR CODE

4. (a) Triplexed cable shall consist of a black cable, a red cable, and a green ground cable. Triplexed cable will have a 16" to 18" lay.
- (b) Individual cables will be black, red, or white, depending upon the order.

CONDUCTOR

5. (a) Material. The conductors must be soft round copper strands.
- (b) Specifications. The conductor must meet the requirements of ASTM B3 and ASTM B8.
- (c) Sizes. The conductor sizes must be in accordance with all requirements in Table A of this specification.
- (d) Stranding. The number of strands must be as indicted in Table A. Stranding must meet the requirements of ASTM B8, Class B.

INSULATION

6. (a) Type. The insulation must be ethylene propylene rubber compound (EPR) meeting the requirements of ICEA S-95-658 and UL 44 for RHW-2 cable and UL 854 for USE-2 cable.
- (b) Thickness. The insulation must be circular in cross-section, concentric to the conductor, and must have an average thickness not less than that set forth in Table A of this specification, and a spot thickness not less than ninety percent (90%) of the average thickness.
- (c) Cable Marking. The cable must be identified by a permanently inscribed legend in white lettering as follows:

1/C No. (conductor size) AWG-600V-90°C-EPR-RHW-2

The legend must be repeated at approximately eighteen (18) inch intervals on the outside surface of the cable parallel to the longitudinal axis of the conductor. A sequential footage marking must be located on the opposite side from the legend.

TESTING

7. (a) Initial Physical Requirements.
 1. Tensile strength, minimum, p.s.i. 1200
 2. Elongation at rupture, minimum %250
- (b) Oven Exposure Test. After conditioning in an air oven at 121±1°C for 168 hours using methods of test described in ASTM D 573:
 1. Tensile strength, minimum % of initial value 75
 2. Elongation at rupture, minimum percent of initial value 75
- (c) Water Absorption Test. Gravimetric method: After 168 hours in water at 70±1°C water absorption, at a maximum – 5 milligrams per square inch
- (d) Cold Bend Test. The completed cable must pass the test requirements of ASTM D 470, except that the test temperature must be -25°C.

- (e) Electrical Tests.
 - 1. Voltage. The completed cable must meet an A.C. and D.C. voltage test in accordance with ASTM D 470 and D 2655.
 - 2. Insulation Resistance. The completed cable must have an insulation resistance constant of not less than 20,000 ohms when tested in accordance with ASTM D 470.
- (f) Flame Tests. Cable must pass a 70,000 BTU flame test in accordance with IEEE 383.
- (g) All of the above tests must be on cable produced for the order. Tests must be taken on samples taken every 25,000 feet, or fraction thereof, of each conductor size.
- (h) Test Reports. No cable shall be shipped until certified copies of all factory tests have been reviewed and approved by the City. Cable that does not pass any one of the above tests will be rejected.

PACKAGING

- 8. (a) Reels. The completed cable must be delivered on sound substantial, non-returnable reels. Both ends of each length of cable must be properly sealed against the entrance of moisture and other foreign matter by the use of clamp-on cable caps. The ends must be securely fastened so as not to become loose in transit. Before shipment, complete 2 X 4 lagging must be applied to all reels.
- (b) Footage. Each reel must contain the length of cable as set forth in Table A of this specification. Alternate lengths may be considered.
- (c) Reel Marking. A metal tag must be securely attached to each reel indicating the reel number, contract number, date of shipment, gross and tare weights, the appropriate City commodity code if applicable, and a description of the cable. Also, each reel must have permanent marking on it indicating the total footage, and the beginning and ending sequential footage numbers. Directions for unrolling the cable must be placed on the reel with an approved permanent marking material such as oil-based paint or a securely attached metal tag.

TABLE A

CONDUCTOR		INSULATION THICKNESS	A-C TEST	REEL LENGTH	OVERALL DIAMETER
AWG	STRANDS	MILS	VOLTS	FEET	INCH
14	7	45	5500	2000	0.133
12	7	45	5500	2000	0.152
10	7	45	5500	2000	0.176
8	7	60	5500	2000	0.236
6	7	60	5500	2000	0.274
4	7	60	5500	2000	0.322
2	7	60	5500	1000	0.382
1/0	19	80	7000	1000	0.47
2/0	19	80	7000	1000	0.514
3/0	19	80	7000	1000	0.564
4/0	19	80	7000	1000	0.62
250 MCM	37	95	8000	1000	0.705

**ELECTRICAL SPECIFICATION 1535
DIVISION OF ENGINEERING
DEPARTMENT OF TRANSPORTATION
CITY OF CHICAGO
REVISED MARCH 12, 2015**

RESIDENTIAL STREET LIGHTING CONTROLLER

SUBJECT

1. This specification states the requirements for a residential street lighting controller and cabinet for controlling residential street lighting circuits. The controller is intended to be mounted to a Commonwealth Edison wood pole.

GENERAL

2. (a) Specifications. The controller and cabinet must conform in detail to the requirements herein stated, to the Specifications and Methods of Test of the American Society for Testing and Materials, cited by ASTM Designation Number, in which the most recently published revision will govern. Cabinets must meet or exceed the requirements of a NEMA 4X enclosure type and must be U.L. listed.
- (b) Acceptance. Controllers not conforming to this specification will not be accepted.
- (c) Drawings. The drawings mentioned herein are drawings of the Department of Transportation, and must be interpreted as part of these specifications cooperating to state necessary requirements.
- (d) Sample. One complete controller of the manufacture intended to be furnished must be submitted upon request of the Chief Procurement Officer within fifteen (15) business days after receipt of such a request. The sample must be delivered to the Division of Electrical Operations, 2451 South Ashland Avenue, Chicago, Illinois 60608.
- (e) Warranty. The manufacturer must warranty the controller and cabinet against flaws in material or workmanship for a period of two (2) years from the date of delivery. Any controller, cabinet, or components developing flaws within this period must be replaced by the manufacturer, including shipment, at no cost to the City.

DESIGN

3. (a) Drawings. The controller and cabinet must conform in detail to requirements shown on Electrical Standard Drawing 955.
- (b) Dimensions. The overall outside dimensions of the control cabinet must be 19.5 inches in height by 17.5 inches in width by 9.6 inches in depth. Cabinets must have sloped tops to shed water.

CABINET REQUIREMENTS

4. (a) Cabinet. The cabinet must be classified as NEMA 4X. The cabinet and the door must be constructed of gray, hot molded, fiberglass reinforced polyester resin compound with a minimum of 20% glass fibers by weight. Fiberglass material must meet UL 746C requirements with halogen-free and self-extinguishing characteristics. The enclosure should be listed under UL standard 508. The cabinet door opening must be double flanged on all four (4) sides. The cabinet will be made of one piece of molded fiberglass.
- (b) Door. The door will be fabricated of one-piece of fiberglass. The door size must be as shown on Electrical Standard Drawing 955. The door must be hinged on the left side when facing the cabinet. The door must have a gasket that meets the requirements found in U.L.508 Table 21.1. The gasket must form a weather-tight seal between the cabinet and the door.
- (c) Hinge. Hinge must be a continuous stainless steel piano hinge bolted to the cabinet and door with 1/4-20 stainless steel carriage bolts and nylock nuts. The hinge leaves must not be exposed externally when the door is closed. Only the hinge knuckles must be visible upon closing the door. The hinge pin must be .250 inch diameter stainless steel and must be capped top and bottom by weld to render it tamper-proof.
- (d) Latching. Two (2) quick release, padlockable, stainless steel latches must be provided.
- (e) Cable Openings. The bottom of the cabinet must have an opening to accommodate a cord grip for a cable up to 1.375 inches in diameter. The bottom of the cabinet must also have an opening to accommodate a 2.0 inch schedule 40 rigid galvanized steel conduit. The cord grip and conduit hub must be included as part of the cabinet assembly.
- (f) Cabinet Mounts. The cabinet must be equipped with two (2) galvanized steel brackets, a minimum of 1/16" in thickness, which will allow mounting to a wood pole. Each bracket will be mounted to the back of the cabinet with two (2) 1/4-20 stainless steel hex head bolts with washers, and nuts. Each bracket will be formed of a single piece of galvanized steel, 16" by 6". The top of the bracket will be straight and have two holes drilled to accept the mounting bolts of the cabinet. The lower part of the bracket must be bent to form two "wings" to fit around the ComEd pole. Each wing will be drilled to accept 1/2-13 X 4" stainless steel lag bolts. All bolts will be included.

PANEL

5. The panel must be composed of phenolic plastic 1/2 " in thickness, or an approved equal. It must be securely bolted to the cabinet using stainless steel hardware. The panel must have holes cut into it, and holes drilled into it, to accept mounting of all the electrical components. The location of the components must be as indicated on Electrical Standard Drawing 955.

ELECTRICAL COMPONENTS

- 6.(a)The contactor must be rated for 50 amps and fit a Milbank AP2300 socket.
- (b) Circuit breakers must have thermal magnetic trips. Each breaker must be enclosed in a hard case insulated housing. The frame must be rated for 100 amp service at 240 volts. The minimum interrupting capacity will be 18,000 r.m.s. amperes at 240 volts. All breakers must be UL listed.
 - (c) Wiring will be as indicated on Electrical Standard Drawing 955. All wire will have stranded copper conductors. All wires must be insulated with an approved 125° Centigrade insulation.
 - (d) All components will be as indicated on Drawing 955, or approved equals.

LUMINAIRE: ORNAMENTAL, LED GASLIGHT STYLE
I.E.S. CUTOFF TYPE II/III DISTRIBUTION

SUBJECT

1. This specification states the requirements for an ornamental gaslight style LED street lighting luminaire. The luminaire shall have an IES Type II/III cutoff distribution. The luminaire is to be mounted on the tenon of a 12 foot light pole. The LED luminaires will be integrated into a centralized lighting management system.

GENERAL

2. (a) Information. If so requested, the apparent low bidder shall submit the following information relative to the luminaire he proposes to furnish, within fifteen (15) business days of such request:
 1. Outline drawing.
 2. Complete description and weight.
 3. Luminaire efficiency.
 4. Projected area in square feet.
 5. Manufacturer's name and catalogue designation.
 6. Manufacturer's part list.
 7. IES formatted photometric curve in electronic format.
 8. Certified test reports.
- (b) Sample. One completely assembled luminaire of the manufacture intended to be furnished, shall be submitted upon request of the Chief Procurement Officer within fifteen (15) business days from receipt of notice.
- (c) Assembly. Each luminaire must be delivered completely assembled, wired, and ready for installation. The luminaire must consist of the capital and globe as shown on Electrical Standard Drawing 895, LED optical system as required to meet the photometric requirements of this specification, LED assembly, quick disconnects, terminal board, fuses, gaskets and all necessary hardware.
- (d) Warranty. The manufacturer shall warrant the performance and construction of these luminaires to meet the requirements of this specification, and must warrant all parts, components and appurtenances against defects due to design, workmanship or material developing within a period of ten (10) years from the date of acceptance by the City. A reduction of lighting output of more than 30% within the ten years will constitute luminaire failure. Any luminaire or part thereof, not performing as required, or developing defects within this period must be replaced by a new luminaire, delivered to the City by the manufacturer, without expense to the City. The Commissioner will be the sole judge in determining which replacements are to be made and his decision will be final.

- (e) The manufacturer shall have a history of manufacturing roadway and outside area lighting for a minimum of five years. The manufacturer must demonstrate to the City that the manufacturer has the capacity to supply the quantities required for the contract in a timely manner.
- (f) Organizations. The following organizations' specifications are mentioned herein.
 - ANSI – American National Standards Institute
 - ASTM – American Society for Testing and Materials
 - IEC – International Electrotechnical Commission
 - IES – Illuminating Engineering Society
 - UL – Underwriters Laboratories

CAPITAL

- 3. (a) Material. Each capital, including the harp and roof ring, must be cast aluminum conforming to ASTM B26, Grade 319. The roof or top of the luminaire shall be spun aluminum, .090 inches thick. The finial shall be cast aluminum conforming to ASTM B26, grade 319.
- (b) Appearance. The capital shall conform in appearance to that shown on Electrical Standard Drawing Number 895.
- (c) Construction. Castings must have smooth external surfaces free from protuberances, dents, cracks or other imperfections marring their appearance. Welding or plugging of casting defects is prohibited.
- (d) Structural Integrity. The capital shall fit over a 3" high by 3" O.D. tenon. The attachment to the tenon must provide the structural integrity to hold the luminaire firmly in place during the vibrations anticipated due to passing heavily loaded vehicles, wind loading, and inclement weather. A minimum of 3/16" thickness of metal must be provided where the set screws are inserted to minimize the possibility of stripping the threads when the set screws are tightened into place. The set screws must be 5/16-18 stainless steel hex head screws. A minimum of three (3) set screws must be provided, evenly spaced at 120° apart.

The spun aluminum roof must be made to be easily removed to access the interior of the luminaire. Gasketing must be provided to provide a dust free and moisture free interior.

PAINTING

- 4. (a) Surface Preparation. Exterior surfaces of the capital shall be prepared by "Solvent Cleaning" per SSPC-SP1 using a solvent recommended for aluminum surfaces such as "Sherwin Williams MEK #R6K10." Solvent must be used as per written instructions of the manufacturer to remove all oil, grease, dirt and contaminants.
- (b) Primer Type. Within one hour of surface preparation, surfaces must be primed using a primer specifically recommended for aluminum surfaces such as "Sherwin Williams Industrial Wash Primer #P60GZ."
- (c) Primer Application. Primer shall be applied in accordance with written instructions of the manufacturer to produce a minimum dry thickness film of 3.0

mils. Primer must dry for a minimum of 30 minutes and a maximum of 60 minutes before application of finish coat.

- (d) Finish Coat. Finish coat shall be a polyurethane enamel specifically recommended for use over a primed aluminum surface. Two (2) coats of finish must be applied. Each coat must be a minimum of 1.5 mils dry thickness.
- (e) Durability. The paint must be capable of passing 1000 hours of salt spray as per ASTM B117.
- (f) Color will be semi-gloss black for the capital, rope harp, roof ring, and finial. Color of the roof shall be gloss white. Color samples will be approved by the Commissioner.
- (g) Alternate painting methods will be considered where the contractor can demonstrate to the satisfaction of the Commissioner that these methods have been in successful use for a five (5) year minimum period.

COMPONENT MOUNTING

- 5. (a) Modular Construction. All electrical components shall be securely mounted to the capital by means of easily removable stainless steel captive thumb screws or by easily operated stainless steel latches. The luminaire shall be designed to allow easy access to quick disconnects, terminal blocks and components for installation and maintenance.
- (b) Quick Disconnect. Wiring from the terminal block to the components must utilize a three (3) conductor, phenolic, polarized, quick disconnect device.
- (c) Interchangeability. The driver must be mutually field interchangeable so that units can be restored to working condition without trouble shooting components.

ELECTRICAL COMPONENTS

- 6. (a) LED Optical Array. The LED arrays shall be optimized for the required roadway photometrics. The arrays must be properly secured at the factory and must not require field adjustment for optimum photometric performance. The LEDs shall deliver a minimum of 70% of initial lumen output at 100,000 hours (L70 at 100K). LEDs shall provide a color rendition index (CRI) of 70. The color temperature of the LEDs shall be 4000° Kelvin. The optical unit shall have an IP66 rating.
- (b) Terminal Block, Fusing, and Wiring. A barrier type terminal board of molded phenolic plastic shall be mounted to the capital in a readily accessible location. The terminal block must have plated copper or plated brass, clamp type pressure terminals of an approved type which will accommodate incoming wire sizes ranging from #12 AWG to #8 AWG. The luminaire must be prewired from the terminal block to and including the electrical components. Two in-line fuse holders will be wired from the terminal to a quick disconnect; the wiring will continue from the quick disconnect to the components mounted on the plate. By disconnecting the quick disconnect, the electrical components on the mounting plate may be removed as a unit, and easily replaced. The in-line fuse holders must accommodate KTK fuses rated for 10Amp, 600VAC, and 100,1000AMP interrupting capacity. The fuses must be included. In lieu of in-line fuses, a fuse block must be provided which will accommodate the same size fuses.

- (c) Driver Requirements:
1. Voltage. The electronic driver shall operate at a nominal input voltage range of between 120 and 277 volts, 60 Hertz.
 2. The driver shall provide the proper operating voltage to the LED arrays. Output frequency must be equal to or greater than 120 Hertz to avoid flicker.
 3. Power Factor. The power factor of the driver over the design range of input voltages specified above must not be less than 90%.
 4. The driver input current must have Total Harmonic Distortion (THD) of less than 20% when operated at nominal line voltage.
 5. The driver must be thermally protected to shut off when operating temperatures reach unacceptable levels.
 6. The driver shall be short circuit protected and over load protected.
 7. The driver must meet the EMI (electromagnetic interference) requirements of the FCC rules and regulations, Title 47 CFR, part 15 and 18.
 8. The driver shall have a Class A sound rating per ANSI C63.4.
 9. The drive current shall be as recommended by the manufacturer. The current level should be such that the LEDs are not overdriven or underdriven. LED current should produce the most efficient light output without compromising the life of the LEDs.
- (d) Surge Protection. Surge protection shall be 10kV/10kA per ANSI C62.41.2. The surge protection device shall be a 3 wire device. The surge suppressor shall be NRTL listed and be in accordance with UL 1449.
- (e) The minimum luminaire efficacy shall be 90 lumens per watt.
- (f) Wiring. The LED array and driver components must be completely factory wired with non-fading, color coded leads. These leads must be insulated with an approved class of insulation and must be #16 AWG conductor minimum. The use of wiring smaller than #16 AWG will require the written approval of the Commissioner. Color coding will be in a manner approved by the Commissioner. A complete wiring diagram must be displayed at an approved location on the interior of the luminaire and must include all luminaire and component identification and ratings. The wiring diagram must be provided on high quality material that will be resistant to cracking, yellowing, and fading in a luminaire environment. Quick disconnects must be provided for all components.

(g) Control Device Receptacle and Cap.

1. Twist-lock Receptacle for a control device that meets ANSI C136.41 must be mounted in the top of the housing with provision for proper positioning of the control device.
2. 7-pin Receptacle. The luminaire control receptacle must be fully prewired and compliant with ANSI C136.41.
3. 3-prong Shorting Cap that meets ANSI C136.10 must be provided.
4. Receptacle Wire Leads must all be properly terminated.
5. Receptacle repositioning. The receptacle must be able to be repositioned without the use of tools.
6. Control Devices Not Included in LED Specifications. Whereas specifications for control receptacles are included, specifications for control devices are not. The control device performance requirements are part of the lighting management system specifications in the Smart Lighting Project Technology specifications.

GLOBE

7. (a) Appearance. The globe must conform in appearance and design to that shown on Electrical Standard Drawing Number 895.
- (b) Material. The globe must consist of a clear DR acrylic lens having a minimum cross-section of 3/32". The bottom portion of the globe must be frosted as shown on Standard Drawing 895. The lens must provide maximum resistance to ultra-violet degradation along with maximum mechanical durability.
- (c) Gaskets. Gasketing must be provided for the interface of the globe and capital to effectively provide a dustproof assembly. This proposed gasketing material must be shown to have been effective in other applications for a minimum period of five (5) years. Should the optical system also require a filter, it must be a charcoal "breathing" filter of adequate size to provide effective filtering of particle and gaseous contaminants.
- (d) Alternate Designs. Other designs providing the required photometrics and giving equal performance and structural rigidity will be considered. However, no alternates will be allowed without the express written consent of the Commissioner.
- (e) The completed luminaire must be listed by an independent, nationally recognized testing laboratory to verify that the luminaire does not present an electrical or fire hazard.

PHOTOMETRIC REQUIREMENTS

8. (a) The manufacturer must demonstrate that the luminaire shall meet or exceed the specified photometric requirements. The manufacturer must provide photometric calculations using published luminaire data as part of the submitted package. Submittal information must include computer calculations which demonstrate achievement of all listed performance requirements. Computer calculations must be performed for roadway lighting and for sidewalk/parkway lighting. The

submitted roadway lighting calculations must be done in accordance with I.E.S. RP-8-14, and must include point-by-point illuminance and luminance, as well as listings of all indicated averages and ratios. The submitted sidewalk/parkway calculations must be done in accordance with I.E.S. RP-8-14, and must include point-by-point horizontal illuminance and vertical illuminance, as well as listings of all indicated averages and ratios.

(b) Unless otherwise indicated, the light distribution will be classified as medium-cutoff-Type II or Type III (M-S-II or M-S-III), as defined in Appendix E of I.E.S. RP-8-14.

(c) Performance Requirements using this luminaire:

1. Roadway Illuminance:

Average Horizontal 1.00fc

Uniformity Ratio Av/Min 6:1

2. Roadway Luminance:

Average Luminance 0.7 cd/m²

Uniformity Ratio Av/Min 6:1

Uniformity Ratio Max/Min 10:1

The above requirements should be achieved using a light loss factor (LLF) of 0.7.

(d) Typical Roadway. Lighting should be designed for the specific roadway designated in the project. If there is no specific location, typical roadway values should be used. Typical values are as follows:

1. Right-of way 66'

2. Curb-to-curb 34'

3. Mounting height 14'

4. Setback 3'

5. Arm Length 0'

6. Overhang 0'

7. Opposite Pattern

8. Pole Spacing 100'

9. Pavement R3

TESTING

9. (a) Testing. All testing must be done on a prototype of the actual luminaire to be provided under this specification. If recent test results are available, they may be considered as meeting the testing requirements of this specification. The Commissioner or Commissioner's representative will have the final approval of which tests are adequate.
- (b) The manufacturer will be responsible for all costs associated with the specified testing, incidental to this contract.
- (c) Photometric testing must be in accordance with IES recommendations. The photometric tests must be conducted with a reference lamp and ballast. The tests, at a minimum, must yield:
1. An isofootcandle chart with maximum candela and half maximum candela trace.
 2. An isocandela diagram.
 3. Maximum plane and maximum cone plots of candela.
 4. A candlepower table (house and street side).
 5. A coefficient of utilization chart.
 6. A luminous flux distribution table.
 - 7.
- (d) The luminaire must meet the electrical and photometric requirements of IESNA LM -79.
- (e) The luminaire must meet the lumen maintenance requirements of IESNA LM -80.
- (f) The luminaire must meet the requirements of IESNA TM -21 for long term maintenance of LED light sources.
- (g) The LEDs must meet the requirements for chromaticity per ANSI C78.377.
- (h) The following applicable UL standards shall be met:
- 1.8750 LED Light Sources in Lighting Products
 - 2.1598 Luminaires
 - 3.1012 power units other than Class 2
 - 4.1310 Class 2 power units
 - 5.2108 low voltage lighting systems

- (i) Additional Types of Testing.
1. Interchangeability of all component parts.
 2. Thermal testing in accordance with U.L. Standard 1572 or Standard 1598. The fixture must be placed in a controlled 25° Celsius environment and be energized for a minimum of 8 hours. At no time will any of the components exceed the manufacturer's recommended operating temperatures. At no time will any surface of the refractor exceed the manufacturer's recommended temperature limits.
 3. Vibration testing in accordance with ANSI Standard C136.31. Upon completion of the test, all set screws, castings, and components must be secure and undamaged. The luminaire will not be energized during the test, and will not include the LED's and fuses. However, the luminaire must be fully operational after the test.
 4. Moisture testing in accordance with U.L. Standard 1572 or Standard 1598. The luminaire will be subjected to a water spray from various directions for a sufficient amount of time to verify that the inside lamp compartment stays dry and that the fixture does not take on water. After the water spray the inside of the refractor must remain dry and the fixture should be demonstrated to operate properly.

PACKAGING

10. (a) Packing. Each luminaire assembly must be securely packed in a suitable carton so that it will not be damaged by shipment and/or handling.
- (b) Marking. Each carton containing a luminaire must be clearly marked on the outside in letters not less than three-eighths (3/8) inch tall with the legend: "ORNAMENTAL, GASLIGHT, LED, I.E.S. TYPE II/III". The appropriate City Commodity Code Number, the name of the manufacturer, the date of manufacture, and the contract number under which the luminaire is furnished shall also be listed.

SELF-SUPPORTING ALUMINUM STREET LIGHT CABLE

SCOPE

1. This specification describes preassembled, reverse twist, secondary cable consisting of one (1) bare steel reinforced aluminum conductor used as a messenger and neutral in combination with two (2) insulated, stranded, aluminum conductors. Cable will be used on aerial distribution circuits operated at a maximum voltage to ground of 600 volts.

GENERAL

2. (a) Specifications. The cable shall conform in detail to the requirements herein stated and to the referenced specifications of the American Society for Testing and Materials (ASTM), the National Electric Code (NEC), Underwriters Laboratories (UL), the Insulated Cable Engineers Association (ICEA), and the National Electrical Manufacturers Association (NEMA), in which the most recently published revisions will govern.
- (e) Acceptance. Cable not conforming to this specification will not be accepted.
- (f) Sample. If requested by the Chief Procurement Officer, a three (3) foot sample of the cable intended to be provided under this specification, shall be submitted within fifteen (15) business days after receipt of the request.
- (g) Warranty. The manufacturer shall warrant the cable to be first class material throughout. The manufacturer will be responsible for any cable failing during normal use within one (1) year after the date of installation. The manufacturer will be responsible for providing the footage of cable necessary to replace the failed cable length (without splices).

CABLE

3. (a) The cable must meet the requirements of ICEA Specification S-76-474 for neutral supported power cable assemblies rated for 600 Volts. Each insulated conductor must be listed with UL as Type RHW-2 or Type USE-2, and must meet the NEC's requirements for these types of cable up to 90° Centigrade in wet or dry conditions.
- (b) Messenger. The messenger must be bare steel reinforced aluminum wire (ACSR) meeting the requirements of ASTM B232.
- (c) Covered Conductors. The covered conductors must be made of compressed stranded aluminum meeting the requirements of ASTM B231.
- (d) Lay. The lay of the stranded conductors must meet the requirements of ASTM

- (e) Joints. No welds are permitted in the messenger. The stranded conductors may be welded, but a welding in one strand shall be at least fifty feet (50') from any other weld in the same wire or any other wire in the conductor.
- (f) Separator. A separator of Mylar tape under the insulation, or other equivalent material, shall be provided. The conductor covering shall be of such consistency that linemen will be able to cut and strip the covering with normally used line tools. Any conductor received which does not meet the cutting and stripping requirements will be returned at the supplier's expense.
- (f) Insulation. The insulation must be black cross-linked polyethylene in accordance with the physical and electrical requirements detailed herein, and determined by the test procedures of ASTM D-470, except as otherwise specified. The outside diameter of the insulating covering must be circular and extruded concentrically over the conductor. It must have an average thickness as shown in these specifications, and a minimum thickness of not less than 95% of the average.

PHYSICAL AND ELECTRICAL PROPERTIES

4. (a) Physical Properties - Initial Value.

- 1. Tensile Strength 1800 psi min,
- 2. Elongation at Rupture 350% min.

(b) Physical Properties - After Aging.

After oven exposure at 121° ± 1°C for 168 hours:

- 1. Tensile strength, min%
 of unaged value 80
- 2. Elongation, min % of
 unaged value at rupture 80

(c) Moisture Resistance. When tested in accordance with the procedure given in ASTM D-470, except that the water must be maintained at 75°C ± 1°C, the insulation must meet the following moisture resistance requirements:

- 1. Gravimetric Method:
 Water absorption, maximum
 (Mg. per sq. in) 5.0
- 2. Electrical Method:
 Specific inductive capacitance-
 one day (Max.) 4.0

Percent (%) change in SIC:

1 - 14 days (Max.)	3.0
7 - 14 days (Max.)	2.0

Percent (%) change in Power

Factor - 1 day (Max.)	1.5
Stability Factor (Max.)	1.0

(d) Electrical Characteristics:

1. Dielectric Strength. Each length of insulated conductor must withstand an alternating current potential as shown in Table I for an exposure period of five (5) minutes when tested in accordance with ASTM D-470.
2. Insulation Resistance. The insulation resistance of the insulated conductor must not be less than that corresponding to a constant of 25,000 at 15.6°C (60°F).

- (e) Cold Bend Test Requirement. The insulated conductor must pass the "Cold-Bend, Long-Time Voltage Test on Short Specimens" of ASTM D-470 except that the test must be at minus 55°C.

CABLE ASSEMBLY

5. (a) Cabling. The insulated conductors must be reverse twisted about the messenger one (1) to one and one quarter (1-1/4) revolutions in each direction so that each conductor occupies all of the positions on the periphery of the circle periodically with an approximate distance between reversals of four feet (4').
- (b) Binding of Cable. The insulated conductors shall be bound to the messenger without fillers. The binder wire or tape shall have sufficient strength to support the assembly, but in no case will it be smaller than a #10 AWG equivalent. The binder shall be flat without sharp edges. Its strength shall be suitable for installation by the use of stringing blocks and must not itself tear, nor cut, or otherwise damage the conductor insulation. The binder wire must be applied with a left hand lay of five and one-half inches (5-1/2") \pm one half inch (1/2").

SIZE OF SECONDARY CABLE

6. The insulated conductor must be No. 8 AWS – 7 strands. The bare neutral conductor must be No. 8 with 6 strands of aluminum around 1 strand of steel.

TESTING

7. (a) General. Tests shall be performed on insulation and completed cables in accordance with applicable standards as listed in these specifications. Where standards are at variance with each other or with other portions of this specification, the most stringent requirements, as determined by an engineer from the Division of Engineering, shall apply. Included in these tests will be a 70,000 BTU per hour flame test in accordance with IEEE 383.

- (b) Number of Tests. Insulation tests shall be conducted on samples taken every 25,000 feet or fraction thereof of each conductor size. In no case will samples be taken closer than 15,000 feet apart.
- (c) Test Reports. No cable may be shipped until certified copies of all factory tests have been reviewed and approved by the engineer.
- (d) Acceptance. Where the cable fails to conform to any of the tests specified herein, the following will apply:
 - 1. Insulation or Jacket Tests. Samples must be taken from each reel and must successfully conform to all tests specified herein. Reels from which samples fail to conform, will be rejected.
 - 2. Completed Cable (Reel) Tests. Any reel which fails to conform to testing will be rejected.

PACKING AND SHIPPING

- 8. (a) Reels. The cables must be shipped in 1000 foot lengths on non-returnable reels which shall be capable of withstanding, without damage, shipping, outside storage and handling during installation. "City of Chicago" shall be clearly printed on one (1) outside reel flange, and the insulated conductors on the beginning end shall not protrude beyond the reel flange. The bare neutral shall be securely stapled on the outside of the flange. The dimension of the reel flange must not be larger than thirty-eight inches (38") in diameter, the drum sixteen inches (16"0) in diameter, and eighteen inches (18") inside traverse. If reels are to be shipped on flange side, they must have two inch (2") spacers separating them for accessibility to fork lift trucks.
- (b) Length. The cable must be shipped in lengths shown above with a zero plus (+) tolerance and a ten percent (10%) minus (-) tolerance. Lengths shorter than minus ten percent (-10%) must not be shipped as they will not be accepted.

IDENTIFICATION

- 9. (a) Cable Identification. The cable must be identified by a permanently inscribed legend on each insulated conductor in white lettering. The legend must have the following information at a minimum: conductor size(AWG), 600V, XLPE, 90°, RHW-2 or USE-2, manufacturer's name, date of manufacturer, and phase number. All markings must be a minimum of one-eighth inch (1/8") in height. Marking shall be at approximately two (2) foot intervals.
- (b) Reel Marking. Each reel must be tagged on both the inside and outside of one reel flange with the following information which must be indelibly imprinted on a 2" x 4" brass tag: Purchaser's name and address, wire description, Purchase, or Contract, order number, size designation, net length, manufacturer's name, date of manufacture and gross weight.

**ELECTRICAL SPECIFICATION 1604
DIVISION OF ENGINEERING
DEPARTMENT OF TRANSPORTATION
CITY OF CHICAGO
Revised April 10, 2018**

LUMINAIRE: LED, VIADUCT/ELEVATED STRUCTURE RETROFIT

SUBJECT

1. This specification states the requirements for an LED (light emitting diode) luminaire. The luminaire will be for a one-to-one replacement of existing luminaires currently in use under viaducts and mounted under CTA elevated structures. The luminaires will have adjustable trunnion brackets for mounting. The LED luminaires will be integrated into a centralized lighting management system.

GENERAL

2. (a) References:
 - American National Standards Institute (ANSI)
 - ANSI C78.377-2015, "American National Standard for Electric Lamps—Specifications for the Chromaticity of Solid State Lighting (SSL) Products"
 - ANSI C82.77-10-2014, "American National Standard for Lighting Equipment—Harmonic Emission Limits—Related Power Quality Requirements"
 - ANSI C136.2-2015, "American National Standard for Roadway and Area Lighting Equipment—Dielectric Withstand and Electrical Transient Immunity Requirements"
 - ANSI C136.15-2015, "American National Standard for Roadway and Area Lighting Equipment—Luminaire Field Identification"
 - ANSI C136.22-2004 (R2009, R2014), "American National Standard for Roadway and Area Lighting Equipment—Internal Labeling of Luminaires"
 - ANSI C136.25-2013, "American National Standard for Roadway and Area Lighting Equipment—Ingress Protection (Resistance to Dust, Solid Objects and Moisture) for Luminaire Enclosures"
 - ANSI C136.30-2015, "American National Standard for Roadway and Area Lighting Equipment—Pole Vibration"
 - ANSI C136.31-2015, "American National Standard for Roadway and Area Lighting Equipment – Luminaire Vibration"
 - ANSI C136.37-2011, "American National Standard for Solid State Light Sources Used in Roadway and Area Lighting"
 - American Society for Testing and Materials (ASTM)
 - ASTM B85/B85M-14, "Standard Specification for Aluminum-Alloy Die Castings"
 - ASTM B209-14, "Standard Specification for Aluminum and Aluminum Alloy Sheet and Plate"
 - ASTM B117-16, "Standard Practice for Operating Salt Spray (Fog) Apparatus"
 - ASTM D523-14, "Standard Test Method for Specular Gloss"
 - ASTM D1654-08, "Standard Test Method for Evaluation of Painted or

- Coated Specimens Subjected to Corrosive Environments”
- ASTM G154-12a, “Standard Practice for Operating Fluorescent Ultraviolet (UV) Lamp Apparatus for Exposure of Nonmetallic Materials”

Illuminating Engineering Society of North America (IES)

- ANSI/IES LM-63-02, “Standard File Format for Electronic Transfer of Photometric Data”
- IES LM-79-08, “Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products”
- ANSI/IES LM-80-15, “IES Approved Method: Measuring Luminous Flux and Color Maintenance of LED Packages, Arrays and Modules”
- ANSI/IES RP-8-14, “Roadway Lighting”
- ANSI/IES RP-22-11, “Tunnel Lighting”
- IES TM-21-11 (with Addendum B), “Projecting Long Term Lumen Maintenance of LED Light Sources”

Institute of Electrical and Electronics Engineers (IEEE)

- IEEE Standard 1789-2015, “IEEE Recommended Practices for Modulating Current in High-Brightness LEDs for Mitigating Health Risks to Viewers”

International Electrotechnical Commission (IEC)

- IEC 60529-2004, “Degrees of Protection Provided by Enclosures (IP Code)”

Underwriters Laboratories (UL)

- ANSI/UL 1598 (3rd Edition), “Luminaires”

(b) Submittal Requirements:

The bidder, if so requested, must submit the following information pertaining to the specified luminaire within fifteen (15) days of such request:

1. Completed Table A – Submittal Form

2. Product Data Sheets.

Luminaire data sheets – including summary product description, dimensioned outline drawings, and nominal characteristics including but not limited to: initial luminous flux (lumens), input power (watts), input voltage range (volts), LED drive current (milliamperes), correlated color temperature (kelvins), color rendering index, and weight (pounds).

LED Driver data sheet – including information described in LED Driver Requirements Section 4(c).

LED light source data sheet

Surge protection device data sheet - if applicable

3. Photometric Performance Data

The manufacturer must provide photometric calculations, as part of each

luminaire's submittal package, that demonstrate the luminaire's photometric performance will meet or exceed the photometric requirements listed in this specification. The submitted lighting calculations must include point-by-point illuminance, luminance and veiling luminance data, as well as listings of all indicated averages and ratios. Photometric reports must include the following information and be in accordance with the standards listed below:

IES LM-79-08 photometric report that includes measured values for initial luminous flux, input power, correlated color temperature, and color rendering index.

ANSI/IES LM-63-02 electronic format photometric file that corresponds to the LM-79 report.

LM-63 photometric calculations that demonstrate compliance with the illumination requirements specified herein using the LM-63 file. Calculation grids and observer locations not specified herein must be in accordance with ANSI/IES RP-8-14.

IES TM-21-11 calculations that derive the lumen maintenance (lamp lumen depreciation or LLD) factor applied to photometric calculations specified herein.

ANSI/IES LM-80-15 and in-situ temperature measurement testing (ISTMT) reports containing data used in TM-21 calculations must also be submitted. TM-21 calculations must apply to the maximum LED case temperature from ISTMT, shall not extrapolate beyond six times the duration of available LM-80 test data, and must be submitted in the spreadsheet format of the ENERGY STAR TM-21 calculator (https://www.energystar.gov/products/spec/luminaires_specification_version_2_0_pd).

LM-79, ISTMT, and LM-80 reports must correspond directly to submitted luminaires, and must be produced by test laboratories that satisfy the Testing Laboratory Requirements of the DesignLights Consortium (www.designlights.org/content/QPL/ProductSubmit/LabTesting).

ISTMT must be conducted in accordance with the DesignLights Consortium Manufacturer's Guide (<https://www.designlights.org/content/qpl/productssubmit>).

ISTMT shall be conducted in an ambient temperature of 25 ± 5 °C. Ambient temperature variations above or below 25 °C shall be respectively subtracted from or added to temperatures recorded at points on the luminaire.

4. Safety Certification - file number indicating compliance with UL 1598. Applicable testing bodies are determined by the US Occupational Safety Health Administration (OSHA) as Nationally Recognized Testing Laboratories (NRTL) and include: CSA (Canadian Standards Association), ETL (Edison Testing Laboratory), and UL (Underwriters Laboratory).

5. Vibration Testing - the luminaire must be tested in accordance with ANSI C136.31 at a vibration level of 5G.
6. Product Samples - at least two samples of each luminaire that the contractor proposes to use must be submitted to the City. All samples must be representative production units and be supplied at no cost to the City.

(c) **Assembly.**

Each luminaire must be delivered completely assembled, wired, and ready for installation.

(d) **Warranty.**

The luminaire manufacturer must warrant the performance and construction of luminaires to meet the requirements of this specification, and must warrant all parts, components and appurtenances against defects due to design, workmanship or material developing within a period of ten (10) years from the date of acceptance by the City.

- Failure of 10% or more of the LED light sources (packages or arrays/modules) in a luminaire will constitute a luminaire failure.
- The warranty must apply for application on all of the City's existing electrical systems, both grounded and ungrounded.
- During the warranty period the City may, from time to time, test a random sampling of 7-10 luminaires for verification of light output per IES LM-79 and to test dimming functionality for a given luminaire population. The percentage of luminaires not performing as required in the random sampling will be applied to the total population quantity to determine the number of new luminaire replacements that must be delivered to the City by the manufacturer, without expense to the City.

(e) **Manufacturing Experience and Capacity**

The manufacturer must demonstrate at least a five year history of manufacturing LED roadway and outside area luminaires by providing a list of prior projects with project description, date, location, quantities and reference contact information. The manufacturer must also demonstrate the capacity to supply the quantities required for the contract in a timely man

CONSTRUCTION

3. (a) Weight. The net weight of this luminaire must not be more than 30 pounds.

(b) Housing. The housing must be precision die-formed, seam welded aluminum. The aluminum must be marine-grade (3003 alloy or equivalent). Alternate materials will be considered. The housing must have integral heat sink characteristics, such that all enclosed components will operate within their designed operating temperatures under expected service conditions. All heat shields and heat sinks will be integral to the luminaire.

The housing will be designed to encourage water shedding. The housing must be designed to minimize dirt and bug accumulation. The housing will have the general appearance of Electrical Standard Drawing 981.

A wiring compartment capable of accepting a .75 inch threaded conduit fitting to accommodate an electrical whip must be included.

(c) Mounting brackets. Each housing must have two trunnion type brackets. One bracket must be mounted to each end panel of the housing with appropriate

screws or bolts. The brackets will allow the luminaire to be positioned up to 90° in either direction from the horizontal. The brackets must be marked on the outside indicating the degrees of angle. The brackets will provide for positive locking in the desired position.

- (d) Door and Lens. A replaceable high impact UV resistant polycarbonate drop lens will cover the LED array. This lens will be attached to a door. The door must be of the same aluminum as the housing. The door will be hinged on one side such that when opened the door will fall open toward the roadway. The other side of the door will be attached to the housing with latches, allowing tool-less entry. The door will allow easy access to the driver and terminal strip (unless the terminal strip is in a separate accessible wiring compartment).

In order to make a dustproof assembly, a gasket of silicone rubber or other specifically approved material must be provided.

- (e) Hardware. All fasteners necessary to make a firm assembly must be furnished in place. All hardware must be of stainless steel, copper silicon alloy or other non-corrosive metal, and where necessary must be suitably plated to prevent electrolytic action by contact with aluminum.
- (f) Finish. The luminaire must have a polyester powder coat with a minimum 2.0 mil thickness. Surface texture and paint quality will be subject to approval. Color must be as specified in the purchase order. A paint chip must be submitted as a sample upon request. The finish must exceed a rating of six per ASTM D1654 after 1000 hours of testing per ASTM B117. The coating must exhibit no greater than 30% reduction of gloss per ASTM D523 after 500 hours of QUV testing at ASTM G154 Cycle 6.
- (g) Ingress Protection. The luminaire housing must have an ingress protection rating of IP54 or better as described in ANSI C136.25-2013. The optical system must have a rating of IP66 or better.
- (h) The luminaire must be listed for wet locations by a U.S. Occupational Safety Health Administration (OSHA) Nationally Recognized Laboratory (NRTL) and have a safety certification and file number indicating compliance with UL 1598.
- (i) The luminaire must be rated to operate between -40° to +50° Celsius.
- (j) The luminaire must meet the requirements of ANSI C136.22 for internal labeling.
- (k) The luminaire must be labeled for field identification according to ANSI C136.15.

ELECTRICAL COMPONENTS

- 4. (a) LED Optical Array. The LED arrays must be optimized for the required roadway photometrics. The arrays must be properly secured at the factory and must not require field adjustment for optimum photometric performance.
- (b) Terminal Board. A terminal block of high grade molded plastic of the barrier or safety type must be mounted within the housing in a readily accessible location. It must provide all terminals needed to completely prewire all luminaire components.

The terminal board must have plated copper or plated brass, clamp-type pressure terminals of an approved type for "line" connections, to accommodate wire sizes from #12 to #8 A.W.G. The terminals for connection of internal components must be either the screw-clamp or quick disconnect type.

(c) Driver Requirements:

1. Voltage. The electronic driver must operate at a nominal input voltage range of between 120 and 277 volts, 60 Hertz. It must automatically sense the input voltage and adjust the output accordingly. The City uses nominal input voltages of 120, 208, and 240. When operated at any supply voltage between 80% and 110 % of its rated supply voltage, a driver must supply proper current and/or voltage regulation that equals or exceeds the values specified by the manufacturer.
2. Electrical Safety. Luminaires must operate at or below the Low-Risk Level, as defined in Figure 18 of IEEE 1789-2015.
3. Power Factor. The power factor of the driver over the design range of input voltages specified above must be in accordance to ANSI C82.77-2014. Power factor must be equal to or greater than .9.
4. Total Harmonic Distortion. The driver input current must have Total Harmonic Distortion (THD) specified in accordance to ANSI C82.77-2014. Total harmonic distortion must be less than 20%.
5. Thermal Protection. The driver must be thermally protected to shut off when operating temperatures reach unacceptable levels.
6. Electromagnetic Interference. Luminaire must comply with the FCC radiation emission limits for Class B digital devices given at 47 CFR 15.109.

(d) Electrical Transient Immunity.

1. Dielectric Withstand Testing. Luminaire must meet the performance requirements specified in ANSI C136.2-2015 for dielectric withstand, using the DC test level and configuration.
2. Electrical Transient Immunity. Luminaire must meet the performance requirements specified in ANSI C136.2-2015 for electrical transient immunity, using the Enhanced (10kV/5kA) combination wave test level.
3. Transient Immunity Testing Requirements.

During electrical transient immunity testing, the device under test (DUT) must be connected to the power source through a series coupler/decoupler network(CDN), using a two-wire (hot or hot/neutral) connection between both the power supply and the CDN input and the CDN output and the DUT.

If the AC main is used to power the DUT, the input waveform must be characterized and documented both before and after electrical transient immunity testing, with the DUT operating at rated full output.

For pre-test DUT characterization, the diagnostic measurements must, at a minimum, include real power, input current(RMS), power factor, and current distortion factor (THD) when operating at full output.

4. Manufacturer must indicate whether failure of the electrical transient immunity system can possibly result in disconnect of power to the luminaire.

- (e) Wiring. All components must be completely factory wired with non-fading, color coded leads. All wires within a single circuit path must be of the same size. No wire nuts will be allowed. No unnecessary splices will be allowed. The use of wiring smaller than #16 AWG will require the written approval of the Commissioner. Quick disconnects must be provided for all components. All wires must be properly terminated.
- (f) Control Device Receptacle and Cap.
1. Twist-lock Receptacle for a control device that meets ANSI C136.41 must be mounted in the top of the housing with provision for proper positioning of the control device.
 2. 7-pin Receptacle. The luminaire control receptacle must be fully prewired and compliant with ANSI C136.41-2013.
 3. 3-prong Shorting Cap that meets ANSI C136.10 must be provided.
 4. Receptacle Wire Leads must all be properly terminated.
 5. Receptacle repositioning. The receptacle must be able to be repositioned without the use of tools.
 6. Control Devices Not Included in LED Specifications. Whereas specifications for control receptacles are included, specifications for control devices are not. The control device performance requirements are part of the lighting management system specifications in the Smart Lighting Project Technology specifications.
- (g) Component Mounting. All electrical components must be securely mounted in such manner that individual components can be easily maintained or replaced. Permanent straps or tie-wraps will not be permitted. The entire assembly should be easily disconnected and removed for replacement.

PHOTOMETRIC REQUIREMENTS

5. (a) Color Temperature. The correlated color temperature must be a nominal 3000 kelvin.
- (b) Lumen Maintenance. LED arrays must deliver a minimum of 90% of the initial lumen output at 36,000 hours of operation.
- (c) Light Loss Factor. The light loss factor must be calculated as per IES RP-8-14 using the following three factors.
1. LED Lumen Depreciation (LLD). Calculated at 60,000 hours as per Section 2(b)3. Luminaires with less than 10,000 hours of available LM-80 test data may be submitted for consideration, but must be indicated as such.
 2. Luminaire Dirt Depreciation. (LDD). Should be .86.
 3. Luminaire Ambient Temperature Factor (LATF). Should be .96.
- (d) Roadway Luminance:
- Average Luminance 2.5 cd/m²
Uniformity Ratio avg/min 3:1
Uniformity Ratio max/min 5:1
Max veiling Luminance 0.5
- (e) Roadway Conditions. The luminaires must meet the requirements for the following physical conditions:
- Right-of-way 66'
Curb-to-curb 46'
Sidewalk 10' each side
Mounting height 13'
Tilt 45°
Setback 10'
Arm length 0'
Spacing 30'
Pavement R3

PACKAGING

7. (a) Packing. Each luminaire assembly must be securely packed in a suitable carton so as not to be damaged in shipment and handling.
- (b) Marking. Each carton containing a luminaire must be clearly marked on the outside in letters not less than three-eighths (3/8) inch tall with the legend: "LUMINAIRE, LED, VIADUCT". The appropriate City Commodity Code Number, the name of the manufacturer, the date of manufacture, and the contract number under which the luminaire is furnished shall also be listed.

TABLE A
 PRODUCT SUBMITTAL FORM

PRODUCT INFORMATION	DATA	UNITS/REFERENCE
Luminaire Manufacturer		
Luminaire Model Number		complete ordering information
Initial luminous flux		lumens
Initial input power		watts
Maintained input power		watts
Input voltage range		volts
Initial LED drive current		milliamps
Maintained LED drive current		milliamps
Correlated Color Temperature(CCT)		kelvin
Color rendering Index (CRI)		
Luminaire Weight		pounds
Rated Driver Life		years
Electrical Transient Immunity		kV/kA ANSI C136.2
Vibration Test		5G ANSI C136.31
Warranty period		years
IES LM-80 test duration		hours IES LM-80 Report
LED lumen maintenance at 36,000 hours		% TM-21 Calculator
Max LED Case Temperature		°C ISTMT Report

ARTERIAL STREET LIGHTING CONTROLLER

SUBJECT

1. This specification states the requirements for an arterial street lighting controller and aluminum cabinet for use in controlling arterial street lighting circuits. The cabinet shall be mounted on top of a ballast base housing, which will be affixed to a concrete foundation.

GENERAL

2.
 - (a) Specifications. The controller shall conform in detail to the requirements herein stated, to the Federal Standard cited by number, and to the specifications and methods of test of the American Society for Testing and Materials, cited by ASTM Designation Number, in which the most recently published revision will govern. Cabinets must meet or exceed the requirements of a NEMA rating 3R and must be U.L. listed.
 - (b) Acceptance. Controllers and cabinets not conforming to this specification will not be accepted.
 - (c) Drawings. The drawings mentioned herein are drawings of the Department of Transportation, Division of Electrical Operations, and must be interpreted as part of these specifications cooperating to state necessary requirements.
 - (d) Sample. One complete controller in cabinet of the manufacture intended to be furnished must be submitted upon request of the Chief Procurement Officer within fifteen (15) business days after receipt of such a request. The sample must be delivered to the attention of the Engineer of Electricity, Division of Electrical Operations, 2451 South Ashland Avenue, Chicago, Illinois 60608.
 - (e) Warranty. The manufacturer shall warranty the controller and cabinet against flaws in material or workmanship for a period of two (2) years from the date of delivery. Any controller or cabinet developing flaws within this period must be replaced by the manufacturer, including shipment, at no cost to the City.

DESIGN

3.
 - (a) Drawings. The control cabinet must conform in detail to requirements shown on Drawing 876 for a 100 Amp application and to Drawing 880 for a 200 Amp application.
 - (b) Material. The cabinet and the door assembly must be constructed of 5052-H32 sheet aluminum alloy, with a minimum thickness of .125 inches. The base plate must be sheet aluminum of .250 inch thickness. All electrical components and wiring must be as shown on the appropriate drawings.

- (c) Dimensions. The overall outside dimensions of the 100 amp control cabinet must be 36 inches in height by 20 inches in width by 15 inches in depth. The overall outside dimensions of the 200 amp control cabinet must be 41 inches in height by 25 inches in width by 16 inches in depth. Cabinets must have sloped tops to shed water.

CABINET REQUIREMENTS

4. (a) Cabinet. The cabinet must be sized as shown on either Drawing 876 or Drawing 880, depending on the controller amp rating. The cabinet door opening must be double flanged on all four (4) sides. A door restraint must be provided to prevent the door from moving in windy conditions.
- (b) Door. The door size must be a minimum of 80% of the front surface area. The door must be hinged on the right side when facing the cabinet. The door must have a gasket that meets the requirements found in U.L.508 Table 21.1. The gasket must form a weather-tight seal between the cabinet and the door. The door, when closed, must be flush with the cabinet.
- (c) Hinges. Hinges must be continuous and bolted to the cabinet and door with 1/4-20 stainless steel carriage bolts and nylock nuts. Hinges must be made of .093 inch thick aluminum. The hinge leaves must not be exposed externally when the door is closed. Only the hinge knuckles must be visible upon closing the door. The hinge pin must be .250 inch diameter stainless steel and must be capped top and bottom by weld to render it tamper-proof.
- (d) Latching. The latching mechanism must be a three-point draw roller type. The pushrods must be aluminum. The rollers must be nylon with a minimum diameter of .875 inches. The center catch must be .187 inch aluminum, minimum.
- (e) Handle. The handle must be stainless steel with a .750 inch diameter shank. The handle must have provision for a padlock. The lock must be keyed dead bolt #200725 or equivalent. Two (2) keys must be provided for each cabinet.
- (f) Ventilation. Louvered vents must be provided in the door. Louvers must satisfy the NEMA rod entry test for 3R enclosures. A removable filter must cover the louvers from inside the door. The filter must be held firmly in place with top and bottom brackets and a spring-loaded clamp. Exhaust air must be vented out between the top of the cabinet and the door. The exhaust area must be screened with openings of .12 inch by 1.0 inch.
- (g) Equipment Mounts. The cabinet must be equipped with two (2) adjustable AC channels on both side walls and on the back wall. The internal dimensions of the channels must be 1.075 inches high by .625 inches wide. All mounting hardware must be furnished.
- (h) Workmanship. All control cabinets must be free of flaws, and must have neat, smooth exterior surfaces. All holes must be accurately located and drilled. All welds must be neatly formed and free of cracks, blow holes, or other irregularities. All inside and outside edges must be free of burrs.
- (i) Painting. The cabinet, door and other parts must be treated by an iron phosphate conversion technique. After which, all the parts must be baked dry. A polyester powder coat must then be applied. The inside of the cabinet and door must be white. The outside of the cabinet and door must be green meeting No. 14110 of

Federal standard Number 595, or a gloss black, or another color as specified. A paint chip must be provided upon request.

PANEL

5. (a) The panel must be composed of phenolic plastic ½ inch in thickness, or an approved equal. It must be securely bolted to the cabinet using stainless steel hardware.
- (b) The panel will be sized, cut, and drilled as shown on the appropriate standard drawing. For a 100 amp and 200 amp – 2 pole controller, the panel must comply with Drawing 984. For a 100 amp and 200 amp – 3 pole controller, the panel must comply with Drawing 984. If alternate components are proposed, the panels must be sized accordingly.

ELECTRICAL COMPONENTS

6. (a) All components will be as indicated on the appropriate drawing, or will be approved equals. Circuit breakers must have thermal magnetic trips. Each breaker must be enclosed in a hard insulated housing. All breakers must be UL listed. The photo-cell relay, if required, must meet City specifications.
- (b) Wiring will be as indicated on the appropriate drawing. All wire will have stranded copper conductors, unless indicated otherwise. All wires must be insulated with an approved 125° Centigrade insulation.
- (c) For a 3-wire, 1-phase, 240 volt ComEd input, components and wiring will be as indicated on Standard Drawing 983 (for either 100 amp or 200 amp service). For a 4-wire, 3-phase, 120/208 volt ComEd input, components and wiring will be as indicated on Standard Drawing 983 (for either 100 amp or 200 amp service).

THIS SPECIFICATION SHALL NOT BE ALTERED

RESIDENTIAL STREET LIGHTING CONTROLLER

SUBJECT

1. This specification states the requirements for a residential street lighting controller and cabinet for controlling residential street lighting circuits. The controller is intended to be mounted to a Commonwealth Edison wood pole.

GENERAL

2. (a) Organizations. Specifications from the following organizations are referenced in this specification:

ASTM – American Society for Testing and Materials

NEMA – National Electrical Manufacturers Association

UL – Underwriters Laboratories

- (a) Specifications. The controller and cabinet must conform in detail to the requirements herein stated, to the specifications ASTM, cited by ASTM designation number, in which the most recently published revision will govern. Cabinets must meet or exceed the requirements of a NEMA 4X enclosure type and must be U.L. listed.
- (b) Acceptance. Controllers not conforming to this specification will not be accepted.
- (c) Drawings. The drawings mentioned herein are drawings of the Department of Transportation, and must be interpreted as part of these specifications cooperating to state necessary requirements.
- (d) Sample. One complete controller of the manufacture intended to be furnished must be submitted upon request of the Chief Procurement Officer within fifteen (15) business days after receipt of such a request. The sample must be delivered to the Division of Electrical Operations, 2451 South Ashland Avenue, Chicago, Illinois 60608.
- (e) Warranty. The manufacturer must warranty the controller and cabinet against flaws in material or workmanship for a period of two (2) years from the date of delivery. Any controller, cabinet, or components developing flaws within this period must be replaced by the manufacturer, including shipment, at no cost to the City.

DESIGN

3. (a) Drawings. The controller and cabinet must conform in detail to requirements shown on Electrical Standard Drawing 985.
- (b) Dimensions. The overall outside dimensions of the control cabinet must be 19.5 inches in height by 17.5 inches in width by 9.6 inches in depth. Cabinets must have sloped tops to shed water.

CABINET REQUIREMENTS

4. (a) Cabinet. The cabinet must be classified as NEMA 4X. The cabinet and the door must be constructed of gray, hot molded, fiberglass reinforced polyester resin compound with a minimum of 20% glass fibers by weight. Fiberglass material must meet UL 746C requirements with halogen-free and self-extinguishing characteristics. The enclosure should be listed under UL standard 508. The cabinet door opening must be double flanged on all four (4) sides. The cabinet will be made of one piece of molded fiberglass.
- (b) Door. The door will be fabricated of one-piece of fiberglass. The door size must be as shown on Electrical Standard Drawing 985. The door must be hinged on the left side when facing the cabinet. The door must have a gasket that meets the requirements found in U.L.508 Table 21.1. The gasket must form a weather-tight seal between the cabinet and the door.
- (c) Hinge. Hinge must be a continuous stainless steel piano hinge bolted to the cabinet and door with 1/4-20 stainless steel carriage bolts and nylon insert lock nuts. The hinge leaves must not be exposed externally when the door is closed. Only the hinge knuckles must be visible upon closing the door. The hinge pin must be .250 inch diameter stainless steel and must be capped top and bottom by weld to render it tamper-proof.
- (d) Latching. Two (2) quick release, padlockable, stainless steel latches must be provided.
- (e) Cable Openings. The top of the cabinet must have an opening to accommodate a cord grip for a cable up to 1.375 inches in diameter. The bottom of the cabinet must have an opening to accommodate a 2.0 inch schedule 40 rigid galvanized steel conduit. The cord grip and conduit hub must be included as part of the cabinet assembly.
- (f) Cabinet Mounts. The cabinet must be equipped with two (2) galvanized steel brackets, a minimum of 1/16" in thickness, which will allow mounting to a wood pole. Each bracket will be mounted to the back of the cabinet with two (2) 1/4-20 stainless steel hex head bolts with washers, and nuts. Each bracket will be formed of a single piece of galvanized steel, 16" by 6". The top of the bracket will be straight and have two holes drilled to accept the mounting bolts of the cabinet. The lower part of the bracket must be bent to form two "wings" to fit around the ComEd pole. Each wing will be drilled to accept 1/2-13 X 4" stainless steel lag bolts. All bolts will be included.

PANEL

5. The panel must be composed of phenolic plastic 1/2 inch in thickness. It must be securely bolted to the cabinet using stainless steel hardware. The panel must have holes

cut into it, and holes drilled into it, to accept mounting of all the electrical components. The location of the components must be as indicated on Electrical Standard Drawing 985.

ELECTRICAL COMPONENTS

6. (a) Circuit breakers must have thermal magnetic trips. Each breaker must be enclosed in a hard case insulated housing. The frame must be rated for 100 amp service at 240 volts. The minimum interrupting capacity will be 18,000 r.m.s. amperes at 240 volts. All breakers must be UL listed.
- (b) Wiring will be as indicated on Electrical Standard Drawing 985. All wire will have stranded copper conductors. All wires must be insulated with an approved 125° Centigrade insulation.
- (c) All components will be as indicated on Drawing 985, or approved equals.

THIS SPECIFICATION SHALL NOT BE ALTERED

ELECTRICAL SPECIFICATION 1608
DIVISION OF ENGINEERING
DEPARTMENT OF TRANSPORTATION
CITY OF CHICAGO
REVISED OCTOBER 11, 2017

**CONTROL: SMART LIGHTING, FOR ROADWAY LIGHTING,
INTERNAL AND TWIST LOCK TYPE**

SUBJECT

1. This specification states the requirements for smart lighting control node, consisting essentially of a control module compatible with Silver Springs Network, photocell, relay, and a surge arrester, all enclosed in an approved housing, to control the operation of roadway luminaire. The internal node is to be used for acorns, globes, and approved luminaires. The external twist-lock node is to be used for cobra-head, gas light, teardrop/pendants and approved luminaires with the NEMA receptacle.

GENERAL

2. (a) Information Required. Each bidder shall submit with his proposal the following information relative to the photoelectric control he proposes to furnish.
 - (1) Outline drawing.
 - (2) Complete environmental, electrical, physical, and operating data on the control unit.
 - (3) Data by the control node manufacturer including sensitivity, operating temperature and load rating.
 - (4) Manufacturer's name and catalogue designation.
- (b) Assembly. Each control node must be delivered completely assembled, wired, and ready for installation.
- (c) Size and Weight.
 - (1) Internal Node - the unit must not be more than 2.5" high, 4.25" length and 3.5" width with a maximum weight of eleven (11) ounces.
 - (2) External Twist Lock Node - the unit must not be more than 5" high or 3.5" in diameter with a maximum weight of nine (9) ounces.
- (d) Smart Lighting control modules must meet or exceed all requirements of ANSI Standard C136-10-2010 for Twist Lock Controls & ANSI C136.41.2013 Dimming Control between an External Locking Type Control and Ballast or Driver. The external node must be SEL External CMS Module Part No. 8S570101-001002-1-CHI or approved equal. The internal node must be SEL Internal CMS Module Part No. 8S87138-001002-1-CHI or approved equal.

- (e) Warranty. The manufacturer shall warrant every node against any defects due to design, workmanship or materials developing within a period of five (5) years after the control has been delivered. This will be interpreted particularly to mean failure of any component impairing the proper operation or protection of the unit. Any control, or part thereof, developing defects within this period must be replaced by the manufacturer at his sole expense and without cost to the City.
- (f) Sample. A sample node of the manufacture intended to be furnished must be submitted within fifteen (15) business days upon receipt of a request from the Chief Procurement Officer.
- (g) Compliance with Specifications. The node must conform in detail to the requirements herein stated, and to other standards and specifications, as cited, of which the most recently published revision will govern. Certified test results must be submitted to the Commissioner as indicated below, prior to shipping of nodes. All shipments not meeting specification requirements will not be accepted.
- (h) Approved. Wherever "approved" is specified herein, it will be construed to mean approved by the Commissioner or the Commissioner's authorized representative.

CONSTRUCTION

- 3. (a) Photoconductive Cell. The photocell shall consist of a suitable substrate, a chemically inert electrode material and a thin layer of photosensitive cadmium sulfide or other acceptable photosensitive material. It must be hermetically sealed in a glass to metal package to prevent moisture and contamination damage. Plastic cased cells are not acceptable. Filtered silicon sensors in clear epoxy cases are also acceptable. Cell dissipation over a 24 hour period must not exceed the recommended allowable levels specified by the cell manufacturer. If the cell operates on D.C. an affidavit must be submitted giving the cell manufacturer's certification that such operation will not adversely affect the sensitivity, stability, or the life of the cell. The cell must not be subject to overloading due to the demand of the design circuit nor the ambient temperatures surrounding the cell. Color response of the cell or silicon sensor must be such that maximum sensitivity is in the blue-green portion of the color spectrum.
- (b) Switching Relay. The ON-OFF switching operations shall be accomplished by normally closed contacts which must be opened by means of a rugged, properly rated, magnetic relay, subject to approval. The switching shall be positive and free of chatter and/or sticking of contacts. The contractor must provide test data verifying that contact chatter does not exceed 5 milliseconds when operated under loads as herein specified. The relay must have contacts of silver alloy, tungsten, or other specifically approved material.
- (c) Surge Arrestor. Over voltage protection shall be provided for the control components and the load circuit by means of a metal oxide varistor (MOV) or other specifically approved type arrestor. It must limit high voltage surges to a value at least 20% below the basic impulse insulation level (BIL in accordance with EEI-NEMA) of the control. For the button control, the MOV must be rated for a minimum of 100 joules wired line to neutral. For the twist lock control the MOV must be rated for minimum of 160 joules wired line to neutral; a secondary MOV

or Zener diode of at least 6 joules must be provided to protect the electronic circuit. In both the button and twist lock controls, the MOV must be mounted internally of the control housing.

- (d) Printed Circuit Boards. A conformal coating shall be applied to all printed circuit boards for environmental protection.
- (e) Housing. The housing shall be molded of an approved, impact resistant, UV resistant weatherproof material such as acrylic, butyrate or polycarbonate, pigmented to an approved color. The housing is required to be impact resistance greater than 1.0 ft-lbs at -40° C. Year and manufacturer must be molded in cover.
- (f) Fail-Safe. Relay contacts must be normally closed so that when circuit failure occurs the lights are turned on, or remain on.
- (g) Dating. A weatherproof, permanent label must be attached to each unit indicating manufacturer's name, month and year of manufacture, model and serial numbers, voltage and load ratings, and, on twist lock control, provision for marking installation and removal dates.
- (h) Lead Wires.
 - (1) Internal Node - lead wires must be #18 AWG (Min); rated for 105°C; and 12" long. They must be color coded as follows:
 - Red - Load
 - White - Neutral (on 120 volt controls)
 - Black - Line
 - Yellow - Common (on 240 volt controls)240 volt internal node must have a permanent black on orange label 0.5"x2.0" in size that reads "240 VOLT".
 - (2) External Node - the base must provide an integral, 5-pin or 7-pin NEMA Twist-Lock in accordance with ANSI C136.41. A neoprene or other approved gasket must be attached to the base to effectively seal the connections against weather, insects and dust.

CHARACTERISTICS

4. (a) Electrical. The node must be stable and reliable over the range of 105 to 305 volts A.C., at 60 cycles. The external node twist lock control's direct load rating must be 1000 watts tungsten, 1800 VA ballast; the internal node control must be rated for 1000 VA ballast. Current inrush rating of the control must be not less than 100 amperes. Control nodes must turn on/off roadway luminaires and provide 0-10V dimming for roadway luminaires capable of dimming capable of dimming used by the City of Chicago.
- (b) Environmental. The control must be stable and reliable over an operating temperature range of -40°C (-40°F) to + 70°C (+158 °F).
- (c) Operating Levels. Each control furnished must be pre-aged in intense light for a period of not less than 10 hours, after which it must be calibrated using a photometer whose accuracy is traceable to the N.I.S.T. 100% quality control inspection must be performed after calibration and final assembly.
- (1) The internal node control must be calibrated at 120 VAC for a "turn-on" setting of $.50 \pm 0.1$ horizontal foot candles of natural illumination with a 7-15 second turn OFF delay. The "turn-off" setting must be adjusted to one and one half (1.5) times the "turn-on" setting. Internal node controls must have a 7-15 second turn ON delay.
- (2) The external node control must be calibrated at 120 VAC for a "turn-on" setting of 1.50 ± 0.30 horizontal foot candles of natural illumination with a 2-5 second turn OFF delay. The "turn-off" setting must be adjusted to one and one half (1.5) times the "turn-on" setting. The external node control must have a 1-2 second turn ON delay.
- (e) Network. The control nodes must operate on an open standards secure (WiSun) IEEE 802.15.4g wireless mesh IPv6 based multi-application network compatible with Silver Springs Network. The control nodes shall support Frequency-Hopping Spread Spectrum up to 300kb/s mesh networking as well as automatic data routing with self-configuration, auto-healing & redundant uplinks. The device must be FCC compliant.

The control nodes must have full application and link-layer security with full PKI, AES-128 and -256, and embedded firewall which includes integrated multi-layer security with end-to-end encryption and capability to prohibit unauthorized access.

Internal Nodes must be able to communicate with network even when installed inside a metal housing of the luminaire.

TESTS

5. (a) Procedures. Test procedures must conform to these specifications, and to ANSI Standards C136-10-2010, except as otherwise herein indicated.
- (b) Performance Test. The control shall be subject to an accelerated performance test which will consist of cycling ON (30 seconds) and OFF (30 seconds) sixty times per hour at rated load for 2000 cycles. The node must not exceed the limits indicated for the nominal or rated operating levels, and relay contact points must not stick or show high resistance due to excessive pitting and/or erosion.
- (c) Dielectric Strength Test. The control unit complete with enclosure shall be subject to a D.C. hypot test for dielectric strength. It must successfully withstand a 5.0 KV test for one (1) minute dry.
- (d) Drop Test. The control must be capable of withstanding a drop of 3 feet to a concrete floor without causing damage to the housing or changing electrical operation.
- (e) Surge Protection Test. The control shall be subject to a test for surge protection in accordance with UL 1449 and ANSI C62. By means of a surge generator, a 6.0 KV, 1.2 x 50 microsecond voltage wave impulse test must be made. The surge test must have a short circuit current average of at least 3 KA for 8.0 x 20 microseconds. The control must withstand the impulse testing, and change in calibration levels must not exceed the limits indicated for the nominal or rated operating levels.
- (f) Temperature and Humidity Tests. The control will be subject to specified calibration tests immediately following conditioning of the control at extremes of temperature and humidity, as indicated below:
- (1) Condition the control for a period of 24 hours at 98% relative humidity and 70° C temperature.
 - (2) Condition the control for a period of 10 hours at -40° C (-40° F).
- (g) Calibration Test. After completion of all specified testing, the control unit must be recalibrated and must be within the operating parameters of this specification. During this test, the manufacturer must demonstrate that there is no cycling during either "turn-on" or "turn-off."
- (h) Testing. One (1) unit from each lot of 500 nodes, with a minimum of 2 nodes per contract, will be subject to test. In the event any node fails to meet test requirements, the entire lot will be subject to rejection, except that the manufacturer, may subject a minimum of five (5) additional nodes in the lot to test and if all fulfill the requirements, the lot will be accepted. Should any of the additional five (5) nodes fail, then the entire lot will be rejected. Certified test reports must be submitted to the Commissioner for approval prior to shipment of material. All units subjected to test will remain the property of the Contractor and may not be included as part of this contract.

PACKAGING

6. (a) **Carton.** Each smart lighting control node must be individually packed in a carton of adequate strength and properly secured and protected to prevent damage to the unit during shipment, handling and storage.
- (b) **Marking.** Each carton into which a number of individually packed photoelectric units are packed must be clearly marked on the outside in letters not less than one-quarter (1/4) inch tall with the legend "SMART LIGHTING INTERNAL CONTROL NODE" or "SMART LIGHTING EXTERNAL CONTROL NODE" (as appropriate), preceded by the number of units in the carton in numbers of the same height as the letters: volt-ampere lamp load rating, voltage, manufacturer's name and catalogue number, contract or order number, and shipping date.

**OUTDOOR LED LUMINAIRE SPECIFICATIONS:
RESIDENTIAL STREETS, ALLEYS, & ARTERIAL STREETS (Cobra Head)**

(h) SUBJECT

- a. This specification states the requirements for non-ornamental Light Emitting Diode (LED) outdoor lighting luminaires. The LED luminaires will be integrated into a centralized lighting management system.

(i) GENERAL

a. References

American National Standards Institute (ANSI)

- ANSI C78.377-2015, "American National Standard for Electric Lamps—Specifications for the Chromaticity of Solid State Lighting (SSL) Products"
- ANSI C82.77-10-2014, "American National Standard for Lighting Equipment—Harmonic Emission Limits—Related Power Quality Requirements"
- ANSI C136.2-2015, "American National Standard for Roadway and Area Lighting Equipment—Dielectric Withstand and Electrical Transient Immunity Requirements"
- ANSI C136.10-2010, "American National Standard for Roadway and Area Lighting Equipment—Locking-Type Control Devices and Mating Receptacles—Physical and Electrical Interchangeability and Testing"
- ANSI C136.15-2015, "American National Standard for Roadway and Area Lighting Equipment—Luminaire Field Identification"
- ANSI C136.22-2004 (R2009, R2014), "American National Standard for Roadway and Area Lighting Equipment—Internal Labeling of Luminaires"
- ANSI C136.25-2013, "American National Standard for Roadway and Area Lighting Equipment—Ingress Protection (Resistance to Dust, Solid Objects and Moisture) for Luminaire Enclosures"
- ANSI C136.31-2015, "American National Standard for Roadway and Area Lighting Equipment—Luminaire Vibration"
- ANSI C136.37-2011, "American National Standard for Solid State Light Sources Used in Roadway and Area Lighting"
- ANSI C136.41-2013, "American National Standard for Roadway and Area Lighting Equipment—Dimming Control Between an External Locking Type Control and Ballast or Driver"
- ASTM B85/B85M-14, "Standard Specification for Aluminum-Alloy Die Castings"

- ASTM B117-16, “Standard Practice for Operating Salt Spray (Fog) Apparatus”
- ASTM D523-14, “Standard Test Method for Specular Gloss”
- ASTM D1654-08, “Standard Test Method for Evaluation of Painted or Coated Specimens Subjected to Corrosive Environments”
- ASTM G154-12a, “Standard Practice for Operating Fluorescent Ultraviolet (UV) Lamp Apparatus for Exposure of Nonmetallic Materials”

Illuminating Engineering Society of North America (IES)

- ANSI/IES LM-63-02, “Standard File Format for Electronic Transfer of Photometric Data”
- IES LM-79-08, “Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products”
- ANSI/IES LM-80-15, “IES Approved Method: Measuring Luminous Flux and Color Maintenance of LED Packages, Arrays and Modules”
- ANSI/IES RP-8-14, “Roadway Lighting”
- IES TM-21-11 (with Addendum B), “Projecting Long Term Lumen Maintenance of LED Light Sources”

Institute of Electrical and Electronics Engineers (IEEE)

- IEEE Std 1789-2015, “IEEE Recommended Practices for Modulating Current in High-Brightness LEDs for Mitigating Health Risks to Viewers”

International Electrotechnical Commission (IEC)

- IEC 60929:2011 (with Amendment 1), “AC and/or DC-supplied electronic control gear for tubular fluorescent lamps - Performance requirements”

Underwriters Laboratories (UL)

- ANSI/UL 1598 (3rd Edition), “Luminaires”

b. Submittal Requirements:

The Contractor must submit the following information pertaining to each specified luminaire type within fifteen (15) days of request:

i. Completed ATTACHMENT B – Submittal Form

ii. Product Data Sheets.

1. Luminaire data sheets – including summary product description, dimensioned outline drawings, and nominal characteristics including but not limited to: initial luminous flux (lumens), input power (watts), input voltage range (volts), LED drive current (milliamperes), correlated color temperature (kelvins), color rendering index, effective projected area (square feet) and weight (pounds).
2. LED Driver data sheet – including information described in LED Driver Requirements Section III-I-3.
3. LED light source data sheet
4. Surge protection device data sheet - if applicable

iii. Photometric Performance Data

The manufacturer must provide photometric calculations, as part of each luminaire's submittal package, that demonstrate the luminaire's photometric performance will meet or exceed the photometric requirements listed in this specification. The submitted lighting calculations must include point-by-point illuminance, luminance and veiling luminance data, as well as listings of all indicated averages and ratios. Photometric reports must include the following information and be in accordance with the standards listed below:

1. IES LM-79-08 photometric report that includes measured values for initial luminous flux, input power, correlated color temperature, and color rendering index.
2. ANSI/IES LM-63-02 electronic format photometric file that corresponds to the LM-79 report.
3. LM-63 photometric calculations that demonstrate compliance with the illumination requirements specified herein using the LM-63 file. Calculation grids and observer locations not specified herein must be in accordance with ANSI/IES RP-8-14.
4. IES TM-21-11 calculations that derive the lumen maintenance (lamp lumen depreciation or LLD) factor applied to photometric calculations specified herein.
 - ANSI/IES LM-80-15 and in-situ temperature measurement testing (ISTMT) reports containing data used in TM-21 calculations must also be submitted.
 - TM-21 calculations must apply to the maximum LED case temperature from ISTMT, shall not extrapolate beyond six times the duration of available LM-80 test data, and must be submitted in the spreadsheet format of the ENERGY STAR TM-21 calculator (https://www.energystar.gov/products/spec/luminaires_specification_version_2_0_pd).

LM-79, ISTMT, and LM-80 reports must correspond directly to submitted luminaires, and must be produced by test laboratories that satisfy the Testing Laboratory Requirements of the Design Lights Consortium (www.designlights.org/content/QPL/ProductSubmit/LabTesting).

ISTMT must be conducted in accordance with the Design Lights Consortium Manufacturer's Guide (<https://www.designlights.org/content/qpl/productssubmit>).

ISTMT shall be conducted in an ambient temperature of 25 ± 5 °C. Ambient temperature variations above or below 25 °C shall be respectively subtracted from or added to temperatures recorded at points on the luminaire.

- iv. Safety Certification - file number indicating compliance with UL 1598. Applicable testing bodies are determined by the US Occupational Safety Health Administration (OSHA) as Nationally Recognized Testing Laboratories (NRTL) and include: CSA (Canadian Standards Association), ETL (Edison Testing Laboratory), and UL (Underwriters Laboratory).
- v. Vibration Testing - the luminaire must comply with ANSI C136.31 at Vibration Test Level 2 (3.0 G).
- vi. Product Samples - at least two samples of each luminaire that the contractor proposes to use must be submitted to the City. All samples must be representative production units and be supplied at no cost to the City.

c. Assembly.

Each luminaire must be delivered completely assembled, wired, and ready for installation.

d. Warranty.

The luminaire manufacturer must warrant the performance and construction of luminaires to meet the requirements of this specification, and must warrant all parts, components and appurtenances against defects due to design, workmanship or material developing within a period of ten (10) years from the date of acceptance by the City.

- The inability of a luminaire to be dimmed will constitute a luminaire failure.
- Failure of 10% or more of the LED light sources (packages or arrays/modules) in a luminaire will constitute a luminaire failure.
- The warranty must apply for application on all of the City's existing electrical systems, both grounded and ungrounded.
- During the warranty period the City may, from time to time, test a random sampling of 10-20 luminaires for verification of light output per IES LM-79 and to test dimming functionality for a given luminaire population. The percentage of luminaires not performing as required in the random sampling will be applied to the total population quantity to determine the number of new luminaire replacements that must be delivered to the City by the manufacturer, without expense to the City.

e. Manufacturing Experience and Capacity

The manufacturer must demonstrate at least a five year history of manufacturing LED roadway and outside area luminaires by providing a list of prior projects with project description, date, location, quantities and reference contact information. The

manufacturer must also demonstrate the capacity to supply the quantities required for the contract in a timely manner.

(j) CONSTRUCTION

a. Weight

The net weight of these luminaires must not be more than 30 pounds.

b. Housing.

The preferred luminaire housing material is die-cast aluminum alloy meeting ASTM Specification A380. Alternate materials may be considered. The housing must enclose the mounting hardware, LED arrays, control receptacle, terminal board, and electronic driver. The housing must include a surface to facilitate leveling with a spirit level. The housing must have integral heat sink characteristics, such that all enclosed components will operate within their designed operating temperatures under expected service conditions. No external or removable heat shields or heat sinks; are permitted. The housing must be designed to encourage water shedding. The housing must be designed to minimize dirt and bug accumulation on the optic surface.

c. Mounting Provisions.

The luminaire must include a heavy gauge slip fitter clamping assembly suitable for secure attachment over the end of a two (2) inch 2" IP (2.375" OD) steel pipe with an approved means of clamping it firmly in mounting bracket. The slip fitter mounting clamp must contain an approved shield around the pipe entrance to block the entry of birds.

d. Access Door-Panel.

An access door panel allowing access to the terminal strip and LED driver must be provided. A die-cast aluminum door-panel composed of aluminum alloy A380 is preferred; alternate materials may be considered. The door-panel must be hinged to the luminaire housing and suitably latched and fastened at the closing end. It must be made to be removed easily. The hinge and fastening devices must be captive parts which will not become disengaged from the door panel.

e. Hardware.

All machine screws, locknuts, pins and set screws necessary to make a firm assembly, and for its secure attachment to the mast arm, must be furnished in place. All hardware must be of stainless steel, zinc plated steel, copper silicon alloy or other non-corrosive metal, and where necessary must be suitably plated to prevent electrolytic action by contact with dissimilar metals.

f. Finish.

The luminaire must have a polyester powder coat with a minimum 2.0 mil thickness. Surface texture and paint quality will be subject to approval. Color must be as specified in the order. A paint chip must be submitted as a sample upon request. The finish must exceed a rating of six per ASTM D1654 after 1000 hours of testing per ASTM B117. The coating must exhibit no greater than 30% reduction of gloss per ASTM D523 after 500 hours of QUV testing at ASTM G154 Cycle 6.

g. Ingress Protection.

- i. The luminaire electric compartment housing must have an ingress protection rating of IP54 or better as described in ANSI C136.25-2013). The optical system must have a minimum rating of IP 66.
- ii. The luminaire must be listed for wet locations by a U.S. Occupational Safety Health Administration (OSHA) Nationally Recognized Laboratory (NRTL) and have a safety certification and file number indicating compliance with UL 1598.
- h. General Luminaire Requirements
 - i. The luminaire must be rated to operate between -40° to +50° Celsius.
 - ii. The luminaire must have the option of adding a house side shield. The shield should be designed to be easily installed in the field. The house side shield must be composed of a sturdy material capable of withstanding vibrations and weather conditions. The shield must cut off light trespass at approximately one mounting height behind the pole.
 - iii. The luminaire must meet the requirements of ANSI C136.22 for internal labeling. A bar code with pertinent information for warranty and maintenance must be attached to the inside of the housing. A separate bar code label must be on the driver
 - iv. The luminaire must be able to provide pertinent product information, for warranty and maintenance purposes, in a digital format that is compliant with the Digital Addressable Lighting Interface (DALI) protocol. This information will be transmitted through the networked Lighting Management control system.

i. Electrical Components

i. LED Optical Arrays

1. The LED arrays must be properly secured at the factory and must not require field adjustment for optimum photometric performance.

ii. Terminal Block

1. A terminal block of high grade molded plastic of the barrier or safety type must be mounted within the housing in a readily accessible location.
2. Terminal block wiring; all necessary terminals, pre-wired to all luminaire components, must be provided.
3. Terminal block terminals must have copper plated or brass plated, clamp-type pressure connectors of an approved type for "line" connections, to accommodate wire sizes from #12 to #8 A.W.G.
4. Terminal block terminals for internal component connections must be either the screw-clamp or quick disconnect type.

iii. LED Driver:

1. Voltage. The electronic driver must operate at an input voltage range of between 120 and 277 volts, 60 Hertz. It must automatically sense the input voltage and adjust the output accordingly. The City uses nominal input voltages of 120, 208, and 240 for street lighting. When operated at any supply voltage between 80 percent and 110 percent of its rated supply voltage and at rated input frequency, a driver shall provide current and/or

voltage regulation that equals or exceeds the values specified by the manufacturer.

2. Electrical Safety. Luminaires must operate at or below the Low-Risk Level, as defined in Figure 18 of IEEE 1789-2015. This requirement must be satisfied across the dimming range.
3. Power Factor (PF). The power factor of the driver over the design range of input voltages specified above must be in accordance to ANSI C82.77-2014. PF must be ≥ 0.9 .
4. Total Harmonic Distortion (THD). The driver input current must have specified THD in accordance to ANSI C82.77-2014. THD must be $\leq 20\%$.
5. Thermal Protection. The driver must be thermally protected to shut off when operating temperatures reach unacceptable levels.
6. Electromagnetic Interference. Luminaire must comply with the FCC radiation emission limits for Class B digital devices given at 47 CFR 15.109.
7. Electrical Transient Immunity.
 - Dielectric Withstand Testing - luminaire must meet the performance requirements specified in ANSI C136.2-2015 for dielectric withstand, using the DC test level and configuration.
 - Electrical Transient Immunity - luminaire must meet the performance requirements specified in ANSI C136.2-2015 for electrical transient immunity, using the Enhanced (10 kV / 5 kA) combination wave test level.
 - Transient Immunity Testing Requirements
 - During electrical transient immunity testing, the device under test (DUT) must: be connected to the power source through a series coupler/decoupler network (CDN), using a two-wire (hot or hot/neutral) connection between both the power supply and CDN input and the CDN output and DUT.
 - If AC mains is used to power the DUT, the input waveform must be characterized and documented both before and after electrical transient immunity testing, with the DUT operating at rated full output.
 - For Pre-Test DUT Characterization, the diagnostic measurements shall, at a minimum, include the following: real power, input current (RMS; Root-Means-Square), power factor, and current distortion factor (THD-I Total Harmonic Distortion) when operating at rated full output.
 - Manufacturer must indicate on submittal form whether failure of the electrical transient immunity system can possibly result in disconnect of power to luminaire.

8. Dimming Capability. The driver must be capable of dimming. The dimming range must be 10% to 100% of full output. The digital lighting interface used for dimming must be DALI (Digital Addressable Lighting Interface) as per the requirements of IEC 62386. There must be a minimum of 100 dimming steps between the top and bottom of the dimming range.

iv. Wiring.

1. All components must be completely factory wired with non-fading, color coded leads. These leads must be insulated with an approved class of insulation and must be #16 AWG conductor at a minimum.
2. All wires within a single circuit path must be of the same size.
3. No wire-nut splicing will be allowed.
4. No unnecessary splices will be allowed.
5. Quick disconnects must be provided for all components.
6. All wires must be properly terminated.

v. Control Device Receptacle and Cap.

1. Twist-lock Receptacle for a control device that meets ANSI C136.41 must be mounted in the top of the housing with provision for proper positioning of the control device.
2. 7-pin Receptacle. The luminaire control receptacle must be fully prewired and compliant with ANSI C136.41.
3. 3-prong Shorting Cap that meets ANSI C136.10 must be provided.
4. Receptacle Wire Leads must all be properly terminated.
5. Receptacle repositioning. The receptacle must be able to be repositioned without the use of tools.
6. Control Devices Not Included in LED Specifications. Whereas specifications for control receptacles are included, specifications for control devices are not. The control device performance requirements are part of the lighting management system specifications in the Smart Lighting Project Technology specifications.

vi. Component Mounting.

All electrical components must be securely mounted in such manner that individual components can be easily maintained or replaced. Permanent straps or tie-wraps will not be permitted. The entire assembly should be easily disconnected and removed for replacement.

(k) PHOTOMETRIC REQUIREMENTS

i. Light Pollution.

To limit light pollution, the submitted luminaires must not emit any light above the horizon (0 lumens at angles $\geq 90^\circ$ from luminaire nadir).

ii. Lumen Maintenance.

1. LED arrays must deliver a minimum of 90% of initial lumen output at 36,000 hours of operation.
2. Light Loss Factor (LLF) < 1.0. Calculations for maintained values, i.e. $LLF = LLD \times LDD \times LAT$.
 - a. Lamp Lumen Depreciation (LLD) calculated at 60,000 hours as per Section II-B-3-d above,
 - b. Luminaire Dirt Depreciation (LDD) ≤ 0.90 , and
 - c. Luminaire Ambient Temperature (LAT) ≤ 0.96

Luminaires with less than 10,000 hours of available LM-80 test data may be submitted for consideration but must be clearly indicated as such.

iii. Color Attributes

1. Color Rendering Index (CRI) shall be no less than 65.
2. Nominal Correlated Color Temperature (CCT) shall be 3000K as defined by ANSI C78.377 and described below:

Manufacturer-Rated Nominal CCT (K)	Allowable IES LM-79 Chromaticity Values	
	Measured CCT (K)	Measured Duv
3000	2870 to 3220	-0.006 to 0.006

iv. City of Chicago Typical Lighting Contexts

ATTACHMENT A (below) lists the photometric performance requirements for luminaires used in the following typical municipal outdoor lighting applications:

- Modern Residential Streets - staggered poles on both sides.
- Arterial Streets – two-sided opposite pole spacing
- Arterial Streets – two-sided staggered pole spacing

ATTACHMENT A – Photometric Performance Requirements

STREET PARAMETERS				
TYPICAL LIGHTING CONTEXT	RESIDENTIAL	ARTERIAL		
POLE CONFIGURATION*	STAGGERED	OPPOSITE	STAGGERED	
RIGHT OF WAY (Width)	66 ft.	100 ft.	80 ft.	66 ft.
IES PAVEMENT CLASS	R3	R3	R3	R3
STREET WIDTH (Curb to Curb)	34 ft.	80 ft.	60 ft.	48 ft.
LANES (Incl Prking &Median)	4	7	6	4
PARKWAY (Width)	10 ft.	4 ft.	4 ft.	N/A
SIDEWALK (Width)	6 ft.	6 ft.	6 ft.	9 ft.
HEIGHT TO LUMINAIRE	18 ft.	33 ft.	33 ft.	33 ft.
MAST ARM LENGTH	8 ft.	12 ft.	12 ft.	8 ft.
POLE SETBACK (From Curb to Center of Pole)	3 ft.	3 ft.	3 ft.	3 ft.
IN-LINE POLE SPACING	220 ft.	210 ft.	210 ft.	210 ft.
MAINTAINED PERFORMANCE REQUIREMENTS				
LUMINAIRE REQUIREMENTS	STAGGERED	OPPOSITE	STAGGERED	
Max Input Power - Default /Normal Luminance (Watts)	120	180	180	180
Default/Normal AVG. Luminance (cd/m ²)	≥1.5	≥1.7	≥1.7	≥1.7
AVG/MIN Uniformity Ratio	≤ 6:1	≤ 3:1	≤ 3:1	≤ 3:1
MAX/MIN Uniformity Ratio	≤10:1	≤ 5:1	≤ 5:1	≤ 5:1
MAX Veiling Luminance Ratio	≤ 0.4	≤ 0.3	≤ 0.3	≤ 0.3
AVG. Boosted Luminance (cd/m ²) [Add-Alternate]	≥2.25	≥2.5	≥2.5	≥2.5
SIDEWALK				
Default AVG. Horizontal Illuminance (fc)	≥0.50	≥0.50	≥0.50	≥0.50
AVG. MIN Uniformity Ratio (Horizontal Illuminance)	≤ 4:1	≤ 4:1	≤ 4:1	≤ 4:1
LIGHT TRESPASS RESTRICTIONS - (as measured in a vertical plane 10' beyond ROW ≤3' height)				
MAX Vertical Illuminance	≤ 0.07	≤ 0.3	≤ 0.30	≤ 0.30

ATTACHMENT B - Product Submittal Form

Lighting Context	e.g. Alleys		
<i>Product Information Description</i>	<i>Product Data (Summary)</i>		<i>Submittal Reference Document</i>
Luminaire Designation			
Luminaire Manufacturer			
Luminaire Model Number			
Luminous Flux – initial	lumens		
Luminaire input power—initial	watts		
Luminaire input power—maintained	watts		
Luminaire input voltage- nominal range	volts		
LED drive current - initial	milliamps		
LED drive current - maintained	milliamps		
CCT (correlated color temperature)	kelvin		
CRI (color rendering index)			
EPA (effective projected area) - nominal	sq. ft.		
Luminaire Weight - nominal	lbs.		
Control Interface	<input type="checkbox"/> ANSI C136.41, 7-pin		
LED Driver – dimming capability	<input type="checkbox"/> Dimmable, 0-10V	<input type="checkbox"/> Dimmable, DALI	
LED driver- rated life	years		
Electrical transient immunity ANSI C136.2 combination wave test level	<input type="checkbox"/> Basic (6kV/3kA)	<input type="checkbox"/> Enhanced (10kV / 5kA)	<input type="checkbox"/> Elevated (20kV/10kA)
Vibration Test-ANSI C136.31	<input type="checkbox"/> Level 2		
Luminaire warranty period	years		
IES LM-80 test duration	hours		IES LM-80-15 report
LED lumen maintenance at 36,000 hours	%		TM-21 calculator
Max. LED case temperature	degrees Celsius		ISTMT report

**ELECTRICAL SPECIFICATION 1610
DIVISION OF ENGINEERING
DEPARTMENT OF TRANSPORTATION
CITY OF CHICAGO
OCTOBER 20, 2017**

SPLIT PEDESTAL BASE: FOR CHICAGO 2000 LIGHT POLE ASSEMBLY

SUBJECT

1. This specification states the requirements for a split pedestal base (Clamshell) for installation on a 10 inch by 34 foot- 6 inch tapered tubular, 3 gauge and 7 gauge steel anchor base poles with mast arm supports. This specification will address the requirements for a split fiberglass base without doors.

SUBMITTAL INFORMATION REQUIRED

2. (a) Manufacturer's Shop Drawings. Scaled manufacturer's shop drawings showing actual split pedestal base dimensions and details. Shop drawings must be original engineering drawings created by the manufacturer; photocopied or scanned copies of the Standard Drawings will not be accepted, and will be rejected as an incomplete submittal.

Dimensions must include but will not be limited to: base height, width, pattern, and fluting. Details must include scaled and dimensioned plan views, front elevations, side elevations, and section views as required.
- (b) Manufacturer's catalog cut sheets showing split pedestal base designation, and catalog number.
- (c) Manufacturer's specifications including fabricating materials and processes.
- (d) Manufacturer's written installation instructions and maintenance manuals including recommendations and/or procedures for storage, assembly, orientation, and installation.
- (e) Sample. If requested by the Chief Procurement Officer, one completely assembled split pedestal base with hardware and all components, of the manufacture intended to be furnished, shall be submitted for review within fifteen (15) business days from receipt of notice. The sample base must be coordinated with an existing 34 foot-6 inch tapered tubular for accuracy of fit.
- (f) Warranty. The manufacturer must warrant the performance and construction of these split pedestal bases to meet the requirements of this specification and must warrant all parts, components, and appurtenances against defects due to design, workmanship, or material developing within a period of five years after the bases have been delivered. This will be interpreted particularly to mean structural or mechanical failure of any component, or failure or fading of the surface color. The warranty must be furnished in writing guaranteeing replacement, including shipment, free of charge to the City, of any split pedestal base, which, as determined by the Commissioner, would develop aforesaid failures. Any split pedestal base, or part thereof not performing as required or developing defects within this period, must be replaced by the manufacturer at no cost to the City. The Commissioner will be the sole judge in determining which replacements are to be made and the Commissioner's decision will be final. Any cost for the warranty as specified must be incidental to this contract.

GENERAL

3. (a) Products. Split pedestal bases must be the products of established manufacturers and must be suitable for the service required. Split pedestal bases which are proposed must be the products of a single manufacturer. The manufacturer shall have been in the business for at least five years.
- (b) Specifications. The split pedestal bases must conform in detail to the requirements herein stated, and to the Specifications and Methods of Test of the American Society for Testing and Materials cited by ASTM Designation Number, of which the most recently published revision will govern.
- (c) Drawings. The drawings mentioned herein are drawings of the Department of Transportation being an integral part of this specification cooperating to state the necessary requirements.
- (d) Design. The base must conform in design and dimensions to Standard Electrical Drawings 808, 824, 827 and modified to accommodate non-fluted pole 986.
- (e) Approval. Whenever "approval" and "approved" are used in this specification they will mean a written approval by the Commissioner to be secured prior to proceeding with manufacture of the split pedestal bases.
- (f) Commissioner's Review. The Commissioner will be the sole judge in determining the submitted split pedestal bases compliance with this specification. The Commissioner's decision will be final.

CONSTRUCTION OF FIBERGLASS BASE

4. (a) Each pedestal base must be formed of a fiberglass composite consisting of a polyester resin and containing a minimum of 65% fiberglass by weight. The resin must contain no clay fibers. The composite must be UV and weather resistant. Alternate materials may be considered. Each base half must be permanently marked on the inside identifying it as a base for a Chicago 2000 assembly.
- (b) The split pedestal base must conform in detail and dimensions to Standard Electrical Drawings 808, 824, 827 and 986.
- (c) The two halves of the clamshell must be identical to each other. They must be perfectly matched and when installed there shall be no more than a 0.125 inch gap between the inside top of the assembled base and the outside surface of the mast.
- (d) Once installed, the base should be designed to remain in place without the use of set screws. An installed base should not be able to be shifted or rotated.
- (e) The color of the base must be gloss black and must match the color of existing and proposed light 3 gauge and 7 gauge steel anchor base poles with mast arm supports. The resin must contain color pigment throughout. The pigment must be even throughout the thickness of the base. A finish coat of urethane enamel must be applied to the surface of the base to a minimum dry thickness of 1.5 mils. The resin color must match the enamel color. A paint sample on fiberglass must be submitted for approval prior to production. The paint manufacturer's name and any information necessary to acquire the same color for the pole must be provided. The contractor must supply one quart of touch-up paint for every 50 bases ordered.

- (f) The texture of the fiberglass base exterior surface must be equal to that of a cast iron base. Acceptance of the aesthetic appearance of the base will be by the Commissioner.
- (g) The two halves of the shroud must be affixed by means of screws as shown on the Standard Drawings. The screws must fit so that the halves of the base are drawn together so that the edges of the base fit snug against each other. Threaded stainless steel inserts in the base must be used to affix the screws. The screws must not detract from the appearance of the base. Other methods of attachment may be considered. Any method of attachment must be approved by the Commissioner.

TESTING

- 5. (a) Testing. All completed fiberglass bases must be available for testing. Unless specifically authorized in writing, all tests must be at the manufacturer's plant. A record of every test must be made and a certified copy of the test record must be submitted to the Commissioner before the units are shipped. Tests shall be standardized according to ASTM requirements or other suitable organization's standards. The manufacturer must provide evidence that the bases are structurally sound and are able to take the normal abuse of salt spray, freeze-thaw cycles, and exposure to moisture. The bases must be impact resistant and must be resistant to UV damage.

PACKAGING

- 6. (a) General. The split pedestal bases must be carefully inspected at the factory prior to shipment to assure that the bases are complete and free of defects. When bases are stacked together, they must be supported with suitable spacers or must otherwise be protected from dents and other potential shipping damage. The spacing and protective materials must be suitable for and usable in the storage of the bases. All hardware must be packaged in a clear container and labeled as to size, quantity, and part association.
- (b) Packaging. The split pedestal bases must be shipped on pallets with at least six units per pallet. Each base must be individually wrapped and protected so that it can be bundled and unbundled without damage to the base or its finish. The base wrapping must be labeled to identify the base. Specific instructions must be securely attached to each pallet indicating the proper methods of storage. In addition, each pallet must contain specific instructions on the installation of the split pedestal bases. Instructions must be printed on a fiber based paper with a permanent ink so that instructions will be completely legible after weathering outdoors for a minimum of 5 years. The pallets must be labeled in 3/8 inch high lettering indicating the type of base as "FIBERGLASS BASE FOR CHICAGO 2000 SYSTEM", the part number, the manufacturer, the date of manufacture, and the contract number.
- (c) Hardware. Any hardware not attached to the bases must be carefully wrapped and securely attached to each pallet. Hardware must be packaged in a clear bag with a label indicating the type of hardware and quantity. Payment will be withheld for any units provided without the appropriate hardware, or for any missing or improper packaging or labeling. Cracked, broken, chipped or damaged units will also be considered as incomplete quantities as regards payment.

- (d) Touch-up Paint. Touch-up paint and appurtenant materials must be packaged in units sufficient for the number of bases on each pallet. These units will be securely attached to each pallet.

**OUTDOOR LED LUMINAIRE SPECIFICATION:
ORNAMENTAL ARTERIAL STREETS (Chicago 2000 Tear Drop)**

(l) SUBJECT

- A. This specification states the requirements for an ornamental Tear Drop LED street light luminaire. The luminaire shall be for arterial street lighting. The overall shape of the luminaire shall be historic teardrop. The LED luminaires will be integrated into a centralized lighting management system. The luminaire must include a fitter and must be fabricated for attachment to a 2" O.D. steel mast arm on a Chicago 2000 light pole system. The luminaire shall be mounted at 30 feet above grade.

(m) GENERAL

a. References

American National Standards Institute (ANSI)

- ANSI C78.377-2015, "American National Standard for Electric Lamps—Specifications for the Chromaticity of Solid State Lighting (SSL) Products"
- ANSI C82.77-10-2014, "American National Standard for Lighting Equipment—Harmonic Emission Limits—Related Power Quality Requirements"
- ANSI C136.2-2015, "American National Standard for Roadway and Area Lighting Equipment—Dielectric Withstand and Electrical Transient Immunity Requirements"
- ANSI C136.10-2010, "American National Standard for Roadway and Area Lighting Equipment—Locking-Type Control Devices and Mating Receptacles—Physical and Electrical Interchangeability and Testing"
- ANSI C136.15-2015, "American National Standard for Roadway and Area Lighting Equipment—Luminaire Field Identification"
- ANSI C136.22-2004 (R2009, R2014), "American National Standard for Roadway and Area Lighting Equipment—Internal Labeling of Luminaires"
- ANSI C136.25-2013, "American National Standard for Roadway and Area Lighting Equipment—Ingress Protection (Resistance to Dust, Solid Objects and Moisture) for Luminaire Enclosures"
- ANSI C136.31-2015, "American National Standard for Roadway and Area Lighting Equipment—Luminaire Vibration"
- ANSI C136.37-2011, "American National Standard for Solid State Light Sources Used in Roadway and Area Lighting"
- ANSI C136.41-2013, "American National Standard for Roadway and Area Lighting Equipment—Dimming Control Between an External Locking Type Control and Ballast or Driver"
- ASTM B85/B85M-14, "Standard Specification for Aluminum-Alloy Die Castings"
- ASTM B117-16, "Standard Practice for Operating Salt Spray (Fog) Apparatus"
- ASTM D523-14, "Standard Test Method for Specular Gloss"

- ASTM D1654-08, "Standard Test Method for Evaluation of Painted or Coated Specimens Subjected to Corrosive Environments"
- ASTM G154-12a, "Standard Practice for Operating Fluorescent Ultraviolet (UV) Lamp Apparatus for Exposure of Nonmetallic Materials"

Illuminating Engineering Society of North America (IES)

- ANSI/IES LM-63-02, "Standard File Format for Electronic Transfer of Photometric Data"
- IES LM-79-08, "Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products"
- ANSI/IES LM-80-15, "IES Approved Method: Measuring Luminous Flux and Color Maintenance of LED Packages, Arrays and Modules"
- ANSI/IES RP-8-14, "Roadway Lighting"
- IES TM-21-11 (with Addendum B), "Projecting Long Term Lumen Maintenance of LED Light Sources"

Institute of Electrical and Electronics Engineers (IEEE)

- IEEE Std 1789-2015, "IEEE Recommended Practices for Modulating Current in High-Brightness LEDs for Mitigating Health Risks to Viewers"

International Electrotechnical Commission (IEC)

- IEC 60929:2011 (with Amendment 1), "AC and/or DC-supplied electronic control gear for tubular fluorescent lamps - Performance requirements"

Underwriters Laboratories (UL)

- ANSI/UL 1598 (3rd Edition), "Luminaires"

b. Submittal Requirements:

The Contractor must submit the following information pertaining to each specified luminaire type within fifteen (15) days of request:

i. Completed ATTACHMENT B – Submittal Form

ii. Product Data Sheets.

1. Luminaire data sheets – including summary product description, dimensioned outline drawings, and nominal characteristics including but not limited to: initial luminous flux (lumens), input power (watts), input voltage range (volts), LED drive current (milliamperes), correlated color temperature (kelvins), color rendering index, effective projected area (square feet) and weight (pounds).
2. LED Driver data sheet – including information described in LED Driver Requirements Section III-D-3.
3. LED light source data sheet
4. Surge protection device data sheet - if applicable

iii. Photometric Performance Data

The manufacturer must provide photometric calculations, as part of each luminaire's submittal package, that demonstrate the luminaire's photometric performance will meet or exceed the photometric requirements listed in this specification. The submitted lighting calculations must include point-by-point illuminance, luminance and veiling luminance data, as well as listings of all indicated averages and ratios. Photometric reports must include the following information and be in accordance with the standards listed below:

1. IES LM-79-08 photometric report that includes measured values for initial luminous flux, input power, correlated color temperature, and color rendering index.
 2. ANSI/IES LM-63-02 electronic format photometric file that corresponds to the LM-79 report.
 3. LM-63 photometric calculations that demonstrate compliance with the illumination requirements specified herein using the LM-63 file. Calculation grids and observer locations not specified herein must be in accordance with ANSI/IES RP-8-14.
 4. IES TM-21-11 calculations that derive the lumen maintenance (lamp lumen depreciation or LLD) factor applied to photometric calculations specified herein.
- ANSI/IES LM-80-15 and in-situ temperature measurement testing (ISTMT) reports containing data used in TM-21 calculations must also be submitted.
 - TM-21 calculations must apply to the maximum LED case temperature from ISTMT, shall not extrapolate beyond six times the duration of available LM-80 test data, and must be submitted in the spreadsheet format of the ENERGY STAR TM-21 calculator (https://www.energystar.gov/products/spec/luminaires_specification_v)

[ersion 2 0 pd](#)).

- LM-79, ISTMT, and LM-80 reports must correspond directly to submitted luminaires, and must be produced by test laboratories that satisfy the Testing Laboratory Requirements of the Design Lights Consortium
(www.designlights.org/content/QPL/ProductSubmit/LabTesting).
 - ISTMT must be conducted in accordance with the Design Lights Consortium Manufacturer's Guide
(<https://www.designlights.org/content/qpl/productssubmit>).
 - ISTMT shall be conducted in an ambient temperature of 25 ± 5 °C. Ambient temperature variations above or below 25 °C shall be respectively subtracted from or added to temperatures recorded at points on the luminaire.
- iv. Safety Certification - file number indicating compliance with UL 1598. Applicable testing bodies are determined by the US Occupational Safety Health Administration (OSHA) as Nationally Recognized Testing Laboratories (NRTL) and include: CSA (Canadian Standards Association), ETL (Edison Testing Laboratory), and UL (Underwriters Laboratory).
- v. Vibration Testing - the luminaire must comply with ANSI C136.31 at Vibration Test Level 1 (1.5 G).
- vi. Product Sample - a sample of the luminaire that the contractor proposes to use must be submitted to the City. Sample must be representative production units and be supplied at no cost to the City.

c. **Assembly.**

Luminaire must be delivered completely assembled, wired, and ready for installation.

d. **Warranty.**

The luminaire manufacturer must warrant the performance and construction of luminaires to meet the requirements of this specification, and must warrant all parts, components and appurtenances against defects due to design, workmanship or material developing within a period of ten (10) years from the date of acceptance by the City.

- The inability of a luminaire to be dimmed will constitute a luminaire failure.
- Failure of 10% or more of the LED light sources (packages or arrays/modules) in a luminaire will constitute a luminaire failure.
- The warranty must apply for application on all of the City's existing electrical systems, both grounded and ungrounded.
- During the warranty period the City may, from time to time, test a random sampling of 10-20 luminaires for verification of light output per IES LM-79 and to test dimming functionality for a given luminaire population. The percentage of luminaires not performing as required in the random sampling will be applied to the total population quantity to determine the number of new luminaire replacements that must be delivered to the City by the manufacturer, without expense to the City.

e. Manufacturing Experience and Capacity

The manufacturer must demonstrate at least a five year history of manufacturing LED roadway and outside area luminaires by providing a list of prior projects with project description, date, location, quantities and reference contact information. The manufacturer must also demonstrate the capacity to supply the quantities required for the contract in a timely manner.

(n) CONSTRUCTION

a. Cast Housing and Fitter

1. Material

- a) Each housing and fitter must be cast aluminum, ASTM Grade 356, conforming to the Aluminum Association Standards for Aluminum Sand and Permanent Mold Castings, Washington, D.C., March 1980.
- b) The housing and fitter must conform in detail and dimensions to the applicable portions of Electrical Standard Drawing 931.
- c) Each casting must be die cast or made by the permanent mold process; sand castings will not be acceptable.
- d) Minimum thickness will be 3/16", excluding the fitter attachment to the pole, and will be uniform within each casting and throughout all castings in an entire order. Inconsistencies in casting thickness will be cause for rejection of the entire lot.

2. Appearance

- a) Castings will have smooth external surfaces free from protuberances, dents, cracks, or other imperfections marring their appearance. Welding or plugging of casting defects is prohibited. The housing will be of a similar design as manufactured by Lumec, Spring City, Sternberg or Hadco. Similar designs must be approved by the Commissioner. The Commissioner's decision of what constitutes a similar design will be final.

3. Housing

- a) The housing must enclose the LED array, electronic driver, terminal block, with provision for proper mounting of these parts.
- b) The housing must be of such size and surface area, or must have "heat sink" characteristics, such that all enclosed components will operate within their designed operating temperatures under expected service conditions.

4. Fitter

- a) The fitter must be suitable for attachment over the end of a two inch (2") steel mast arm inserted against a built-in pipe stop. The slip-fitter must be designed to permit adjustment of not less than three (3) degrees above and below the axis of the mounting bracket to compensate for slight misalignment. The fitter attachment to the pole mast arm must provide the structural integrity to hold the luminaire firmly in place during the vibrations anticipated due to wind loading, passing elevated trains and heavily loaded vehicles. Two 3/8-16, stainless steel (type 304) U-shape bolts must be used to secure the fitter to the pole mast arm. A minimum of 3/4" thickness of metal will be provided where the U-bolts are inserted to minimize the possibility of stripping the threads when the hardware is tightened into place. The hardware must include 3/8" x 16 threaded, stainless

steel bolts and nuts; four sets of nuts and washers must be provided where the cobra-head style leveling device and fitter attaches to mast arm. The U-bolts must be properly installed and torqued in accordance with the manufacturer's written installation instructions. The fitter must be securely threaded into the cast housing such that it will remain an integral part of the luminaire during the vibrations described above. The slip-fitter will contain an approved shield around the pipe entrance to block entry of birds.

b. Cast Housing and Fitter Painting

1. Oil and Grease Removal
 - a) All metal surfaces must be washed with an alkaline detergent to remove any oils or grease.
2. Chemical Pretreatment
 - a) The cleaned metal surfaces must be rinsed with de-ionized water
 - b) Treated with a hot, pressurized phosphate wash and sealer
 - c) Rinsed again with de-ionized water, and then dried by convection heat.
3. Exterior and Interior Coat
 - a) A thermosetting, weathering, polyester powder coat must be applied electrostatically to all cleaned and treated surfaces to a uniform four mil thickness in a one coat application.
 - b) This powder coat must be cured in a convection oven at a minimum 400°F to form a high molecular weight fusion bonded finish.
4. Alternate Methods
 - a) Alternate coating methods may be reviewed and tested on a case-by-case basis. However, no coating method will be accepted unless the Commissioner judges such alternate to be equal to the coating herein specified
5. Durability
 - a) Both the exterior and interior coats must be capable of passing 1,000 hours of salt spray exposure as per ASTM B117 in a 5% Na Cl (by weight) solution at 95°F and 95% relative humidity without blistering.
 - b) Before test, the panel must be scribed with an "X" down to bare metal.
6. Coating Measurement
 - a) Measurement of coating thickness must be done in accordance with SSPC-Pa 2-73T, "Measurement of Dry Paint Thickness with Magnetic Gauges", except that the lowest "single spot measurement" must not be less than 3.0 mils.
7. Color
 - a) Preferred color will be gloss black. A 4" square color chip sample must be submitted for approval prior to fabrication.
 - b) The chip sample must be of the same material as the capital, and must include the manufacturer's name and the manufacturer's color name as well.
 - c) The sample must also include any other information which will be required to purchase the same color for the poles and split pedestal bases.

c. Optical Assembly

1. Refractor
 - a) The refractor shall be pressed crystal clear, heat-resistant, boro-silicate glass, well annealed, homogeneous, and free from imperfections and striations.
 - b) It must contain prisms pressed on the inside surface and where necessary on the outside surface, and must be optically designed to redirect by refraction the light from the array and reflector to produce the desired light pattern.
 - c) The refractor must conform to that shown on the Electrical Standard Drawing 931.
 - d) The holder-door must be a precision, aluminum ASTM Grade 356 permanent mold casting which must be hinged to the luminaire housing and must open downward approximately 90 degrees to allow servicing.
 - e) The hinging arrangement must be of rugged construction with corrosion resistant hinge fittings.
 - f) The hinge must prevent the holder-door from disengaging and dropping in case it should swing open.
 - g) The door must also be connected to the housing with a stainless steel cable. The refractor must be securely held in the holder-door. The entire assembly should be easily disconnected for replacement. When closed, the holder-door must lock the assembly in precise optical alignment with the housing.
 - h) A sturdy, positive-acting, spring loaded latch will permit single-glove-handed release, and on closing, the holder-door must provide a definite snap action or visual indication that it is locked.
 - i) A silicone rubber, EPDM (ethylene propylene diene monomer), or EPR (ethylene propylene rubber) gasket must be fixed in place to seal the refractor door to the main housing.
 - j) A "breathing" filter of Fiberglass or other approved material must be incorporated in the reflector for sealed optical units. It must effectively filter out dirt and particle size contaminants.

d. Electrical Components

1. LED Optical Array.
 - a) The LED arrays shall be optimized for the required roadway photometrics. The arrays must be properly secured at the factory and must not require field adjustment for optimum photometric performance.
 - b) The optical assembly shall consist of the LED array, the refractor, the refractor holder-door, gasketing, and all associated items.
 - c) The LED optical assembly shall be rated IP66 for ingress protection for dust and water.
 - d) The optical unit as a whole must provide as similar as an IES Medium Cut-off Type II/III distribution.

2. Terminal Block
 - a) A terminal block of high grade molded plastic of the barrier or safety type must be mounted within the housing in a readily accessible location.
 - b) Terminal block wiring; all necessary terminals, pre-wired to all luminaire components, must be provided.
 - c) Terminal block terminals must have copper plated or brass plated, clamp-type pressure connectors of an approved type for "line" connections, to accommodate wire sizes from #12 to #8 A.W.G.
 - d) Terminal block terminals for internal component connections must be either the screw-clamp or quick disconnect type.
3. LED Driver:
 - a) Voltage.
 - The electronic driver must operate at an input voltage range of between 120 and 277 volts, 60 Hertz.
 - It must automatically sense the input voltage and adjust the output accordingly.
 - The City uses nominal input voltages of 120, 208, and 240 for street lighting.
 - When operated at any supply voltage between 80 percent and 110 percent of its rated supply voltage and at rated input frequency, a driver shall provide current and/or voltage regulation that equals or exceeds the values specified by the manufacturer.
 - b) Electrical Safety. Luminaires must operate at or below the Low-Risk Level, as defined in Figure 18 of IEEE 1789-2015. This requirement must be satisfied across the dimming range.
 - c) Power Factor (PF). The power factor of the driver over the design range of input voltages specified above must be in accordance to ANSI C82.77-2014. PF must be ≥ 0.9 .
 - d) Total Harmonic Distortion (THD). The driver input current must have specified THD in accordance to ANSI C82.77-2014. THD must be $\leq 20\%$.
 - e) Thermal Protection. The driver must be thermally protected to shut off when operating temperatures reach unacceptable levels.
 - f) Electromagnetic Interference. Luminaire must comply with the FCC radiation emission limits for Class B digital devices given at 47 CFR 15.109.
 - g) Electrical Transient Immunity:
 - Dielectric Withstand Testing - luminaire must meet the performance requirements specified in ANSI C136.2-2015 for dielectric withstand, using the DC test level and configuration.
 - Electrical Transient Immunity - luminaire must meet the performance requirements specified in ANSI C136.2-2015 for electrical transient immunity, using the Enhanced (10 kV / 5 kA) combination wave test level.
 - Transient Immunity Testing Requirements:

- During electrical transient immunity testing, the device under test (DUT) must: be connected to the power source through a series coupler/decoupler network (CDN), using a two-wire (hot or hot/neutral) connection between both the power supply and CDN input and the CDN output and DUT.
 - If AC mains is used to power the DUT, the input waveform must be characterized and documented both before and after electrical transient immunity testing, with the DUT operating at rated full output.
 - For Pre-Test DUT Characterization, the diagnostic measurements shall, at a minimum, include the following: real power, input current (RMS; Root-Means-Square), power factor, and current distortion factor (THD-I Total Harmonic Distortion) when operating at rated full output.
 - Manufacturer must indicate on submittal form whether failure of the electrical transient immunity system can possibly result in disconnect of power to luminaire.
- h) Dimming Capability. The driver must be capable of dimming. The dimming range must be 10% to 100% of full output. The digital lighting interface used for dimming must be DALI (Digital Addressable Lighting Interface) as per the requirements of IEC 62386. There must be a minimum of 100 dimming steps between the top and bottom of the dimming range.

4. Wiring.

1. All components must be completely factory wired with non-fading, color coded leads. These leads must be insulated with an approved class of insulation and must be #16 AWG conductor at a minimum.
2. All wires within a single circuit path must be of the same size.
3. No wire-nut splicing will be allowed.
4. No unnecessary splices will be allowed.
5. Quick disconnects must be provided for all components.
6. All wires must be properly terminated.

5. **Control Device Receptacle and Cap.**

- a) Twist-lock Receptacle for a control device that meets ANSI C136.41 must be mounted in the top of the housing or appropriate location with provision for proper positioning of the control device.
- b) 7-pin Receptacle. The luminaire control receptacle must be fully prewired and compliant with ANSI C136.41.
- c) 3-prong Shorting Cap that meets ANSI C136.10 must be provided.
- d) Receptacle Wire Leads must all be properly terminated.
- e) Receptacle repositioning. The receptacle must be able to be repositioned without the use of tools.
- f) Control Devices Not Included in LED Specifications. Whereas specifications for control receptacles are included, specifications for control devices are not. The control device performance requirements are part of the lighting management

system specifications in the Smart Lighting Project Technology specifications

6. Component Mounting.

All electrical components must be securely mounted in such manner that individual components can be easily maintained or replaced. Permanent straps or tie-wraps will not be permitted. The entire assembly should be easily disconnected and removed for replacement.

(o) PHOTOMETRIC REQUIREMENTS

A. Light Pollution.

To limit light pollution, the submitted luminaires must not emit any light above the horizon (0 lumens at angles $\geq 90^\circ$ from luminaire nadir).

B. Lumen Maintenance.

1. LED arrays must deliver a minimum of 90% of initial lumen output at 36,000 hours of operation.

2. Light Loss Factor (LLF) < 1.0. Calculations for maintained values, i.e. $LLF = LLD \times LDD \times LAT$.

a) Lamp Lumen Depreciation (LLD) calculated at 60,000 hours as per Section II-B-3-d above,

b) Luminaire Dirt Depreciation (LDD) ≤ 0.90 , and

c) Luminaire Ambient Temperature (LAT) ≤ 0.96

Luminaires with less than 10,000 hours of available LM-80 test data may be submitted for consideration but must be clearly indicated as such.

C. Color Attributes

1. Color Rendering Index (CRI) shall be no less than 65.

2. Nominal Correlated Color Temperature (CCT) shall be 3000K as defined by ANSI C78.377 and described below:

Manufacturer-Rated Nominal CCT (K)	Allowable IES LM-79 Chromaticity Values	
	Measured CCT (K)	Measured Duv
3000	2870 to 3220	-0.006 to 0.006

i. City of Chicago Typical Ornamental Lighting Contexts

ATTACHMENT A (below) lists the photometric performance requirements for luminaires used in the following typical municipal outdoor arterial ornamental lighting applications:

- Arterial Streets – two-sided opposite pole spacing
- Arterial Streets – two-sided staggered pole spacing

ATTACHMENT A – Photometric Performance Requirements

TYPICAL LIGHTING CONTEXT	ARTERIAL		
	OPPOSITE	STAGGERED	
POLE CONFIGURATION*			
RIGHT OF WAY (Width)	100 ft.	80 ft.	66 ft.
IES PAVEMENT CLASS	R3	R3	R3
STREET WIDTH (Curb to Curb)	80 ft.	60 ft.	48 ft.
LANES (Incl. Parking & Median)	7	6	4
PARKWAY (Width)	4 ft.	4 ft.	N/A
SIDEWALK (Width)	6 ft.	6 ft.	9 ft.
HEIGHT TO LUMINAIRE	30 ft.	30 ft.	30 ft.
MAST ARM LENGTH	8 ft.	8 ft.	8 ft.
POLE SETBACK (From Curb to Center of Pole)	3 ft.	3 ft.	3 ft.
IN-LINE POLE SPACING	100 ft.	150 ft.	175 ft.
LUMINAIRE REQUIREMENTS	OPPOSITE	STAGGERED	
Max Input Power - Default /Normal Luminance (Watts)	180	180	180
Default/Normal AVG. Luminance (cd/m ²)	≥1.7	≥1.7	≥1.7
AVG/MIN Uniformity Ratio	≤ 3:1	≤ 3:1	≤ 3:1
MAX/MIN Uniformity Ratio	≤ 5:1	≤ 5:1	≤ 5:1
MAX Veiling Luminance Ratio	≤ 0.3	≤ 0.3	≤ 0.3
AVG. Boosted Luminance (cd/m ²) [Add- Alternate]	≥2.5	≥2.5	≥2.5
SIDEWALK			
Default AVG. Horizontal Illuminance (fc)	≥0.50	≥0.50	≥0.50
AVG. MIN Uniformity Ratio (Horizontal Illuminance)	≤ 4:1	≤ 4:1	≤ 4:1
LIGHT TRESPASS RESTRICTIONS - (as measured in a vertical plane 10' beyond ROW ≤3' height)			
MAX Vertical Illuminance	≤ 0.3	≤ 0.30	≤ 0.30

ATTACHMENT B - Product Submittal Form

Lighting Context	e.g. Arterial Ornamental Wide		
<i>Product Information Description</i>	<i>Product Data (Summary)</i>		<i>Submittal Reference Document</i>
Luminaire Designation			
Luminaire Manufacturer			
Luminaire Model Number			
Luminous Flux – initial	lumens		
Luminaire input power—initial	watts		
Luminaire input power—maintained	watts		
Luminaire input voltage- nominal range	volts		
LED drive current - initial	milliamps		
LED drive current - maintained	milliamps		
CCT (correlated color temperature)	kelvin		
CRI (color rendering index)			
EPA (effective projected area) - nominal	sq. ft.		
Luminaire Weight - nominal	lbs.		
Control Interface	<input type="checkbox"/> ANSI C136.41, 7-pin		
LED Driver – dimming capability	<input type="checkbox"/> Dimmable, 0-10V	<input type="checkbox"/> Dimmable, DALI	
LED driver- rated life	years		
Electrical transient immunity ANSI C136.2 combination wave test level	<input type="checkbox"/> Basic (6kV/3kA)	<input type="checkbox"/> Enhanced (10kV / 5kA)	<input type="checkbox"/> Elevated (20kV/10kA)
Vibration Test-ANSI C136.31	<input type="checkbox"/> Level 2		
Luminaire warranty period	years		
IES LM-80 test duration	hours		IES LM-80-15 report
LED lumen maintenance at 36,000 hours	%		TM-21 calculator
Max. LED case temperature	degrees Celsius		ISTMT report

**OUTDOOR LED LUMINAIRE SPECIFICATION:
ORNAMENTAL ARTERIAL STREETS (Acorn)**

I. SUBJECT

- A. This specification states the requirements for an ornamental Acorn LED street light luminaire. The luminaire shall be for arterial street lighting. The overall shape of the luminaire shall be historic acorn. The LED luminaires will be integrated into a centralized lighting management system. The luminaire shall be mounted on a tenon at a mounting height of 14, 16 or 23 feet above grade and be as similar as an IES Type II/III medium non-cutoff distribution. The luminaire will be used to provide roadway lighting for arterial streets.

II. GENERAL

A. References

American National Standards Institute (ANSI)

- ANSI C78.377-2015, "American National Standard for Electric Lamps—Specifications for the Chromaticity of Solid State Lighting (SSL) Products"
- ANSI C82.77-10-2014, "American National Standard for Lighting Equipment—Harmonic Emission Limits—Related Power Quality Requirements"
- ANSI C136.2-2015, "American National Standard for Roadway and Area Lighting Equipment—Dielectric Withstand and Electrical Transient Immunity Requirements"
- ANSI C136.10-2010, "American National Standard for Roadway and Area Lighting Equipment—Locking-Type Control Devices and Mating Receptacles—Physical and Electrical Interchangeability and Testing"
- ANSI C136.15-2015, "American National Standard for Roadway and Area Lighting Equipment—Luminaire Field Identification"
- ANSI C136.22-2004 (R2009, R2014), "American National Standard for Roadway and Area Lighting Equipment—Internal Labeling of Luminaires"
- ANSI C136.25-2013, "American National Standard for Roadway and Area Lighting Equipment—Ingress Protection (Resistance to Dust, Solid Objects and Moisture) for Luminaire Enclosures"
- ANSI C136.31-2015, "American National Standard for Roadway and Area Lighting Equipment—Luminaire Vibration"
- ANSI C136.37-2011, "American National Standard for Solid State Light Sources Used in Roadway and Area Lighting"
- ANSI C136.41-2013, "American National Standard for Roadway and Area Lighting Equipment—Dimming Control Between an External Locking Type Control"

- and Ballast or Driver”
- ASTM B85/B85M-14, “Standard Specification for Aluminum-Alloy Die Castings”
- ASTM B117-16, “Standard Practice for Operating Salt Spray (Fog) Apparatus”
- ASTM D523-14, “Standard Test Method for Specular Gloss”
- ASTM D1654-08, “Standard Test Method for Evaluation of Painted or Coated Specimens Subjected to Corrosive Environments”
- ASTM G154-12a, “Standard Practice for Operating Fluorescent Ultraviolet (UV) Lamp Apparatus for Exposure of Nonmetallic Materials”

Illuminating Engineering Society of North America (IES)

- ANSI/IES LM-63-02, “Standard File Format for Electronic Transfer of Photometric Data”
- IES LM-79-08, “Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products”
- ANSI/IES LM-80-15, “IES Approved Method: Measuring Luminous Flux and Color Maintenance of LED Packages, Arrays and Modules”
- ANSI/IES RP-8-14, “Roadway Lighting”
- IES TM-21-11 (with Addendum B), “Projecting Long Term Lumen Maintenance of LED Light Sources”

Institute of Electrical and Electronics Engineers (IEEE)

- IEEE Std 1789-2015, “IEEE Recommended Practices for Modulating Current in High-Brightness LEDs for Mitigating Health Risks to Viewers”

International Electrotechnical Commission (IEC)

- IEC 60929:2011 (with Amendment 1), “AC and/or DC-supplied electronic control gear for tubular fluorescent lamps - Performance requirements”

Underwriters Laboratories (UL)

- ANSI/UL 1598 (3rd Edition), “Luminaires”

B. Submittal Requirements:

The Contractor must submit the following information pertaining to each specified luminaire type within fifteen (15) days of request:

1. Completed ATTACHMENT B – Submittal Form

2. Product Data Sheets.

a) Luminaire data sheets – including summary product description, dimensioned outline drawings, and nominal characteristics including but not limited to: initial luminous flux (lumens), input power (watts), input voltage range (volts), LED drive current (milliamps), correlated color temperature (kelvins), color rendering index, effective projected area (square feet) and weight (pounds).

b) LED Driver data sheet – including information described in LED Driver Requirements Section III-D-3.

c) LED light source data sheet

d) Surge protection device data sheet - if applicable

3. Photometric Performance Data

The manufacturer must provide photometric calculations, as part of each luminaire's submittal package, that demonstrate the luminaire's photometric performance will meet or exceed the photometric requirements listed in this specification. The submitted lighting calculations must include point-by-point illuminance, luminance and veiling luminance data, as well as listings of all indicated averages and ratios. Photometric reports must include the following information and be in accordance with the standards listed below:

a) IES LM-79-08 photometric report that includes measured values for initial luminous flux, input power, correlated color temperature, and color rendering index.

b) ANSI/IES LM-63-02 electronic format photometric file that corresponds to the LM-79 report.

c) LM-63 photometric calculations that demonstrate compliance with the illumination requirements specified herein using the LM-63 file. Calculation grids and observer locations not specified herein must be in accordance with ANSI/IES RP-8-14.

d) IES TM-21-11 calculations that derive the lumen maintenance (lamp lumen depreciation or LLD) factor applied to photometric calculations specified herein.

- ANSI/IES LM-80-15 and in-situ temperature measurement testing (ISTMT) reports containing data used in TM-21 calculations must also be submitted.
- TM-21 calculations must apply to the maximum LED case temperature from ISTMT, shall not extrapolate beyond six times the duration of available LM-80 test data, and must be submitted in the spreadsheet format of the ENERGY STAR TM-21 calculator (https://www.energystar.gov/products/spec/luminaires_specification_version_2_0_pd).

LM-79, ISTMT, and LM-80 reports must correspond directly to submitted luminaires, and must be produced by test laboratories that satisfy the Testing Laboratory Requirements of the Design Lights Consortium (www.designlights.org/content/QPL/ProductSubmit/LabTesting).

ISTMT must be conducted in accordance with the Design Lights Consortium Manufacturer's Guide (<https://www.designlights.org/content/qpl/productssubmit>).

ISTMT shall be conducted in an ambient temperature of 25 ± 5 °C. Ambient temperature variations above or below 25 °C shall be respectively subtracted from or added to temperatures recorded at points on the luminaire.

4. Safety Certification - file number indicating compliance with UL 1598. Applicable testing bodies are determined by the US Occupational Safety Health Administration (OSHA) as Nationally Recognized Testing Laboratories (NRTL) and include: CSA (Canadian Standards Association), ETL (Edison Testing Laboratory), and UL (Underwriters Laboratory).

5. Vibration Testing - the luminaire must comply with ANSI C136.31 at Vibration Test Level 1 (1.5 G).

6. Product Sample - a sample of the luminaire that the contractor proposes to use must be submitted to the City. Sample must be representative production units and be supplied at no cost to the City.

C. Assembly.

Luminaire must be delivered completely assembled, wired, and ready for installation.

D. Warranty.

The luminaire manufacturer must warrant the performance and construction of luminaires to meet the requirements of this specification, and must warrant all parts, components and appurtenances against defects due to design, workmanship or material developing within a period of ten (10) years from the date of acceptance by the City.

- The inability of a luminaire to be dimmed will constitute a luminaire failure.
- Failure of 10% or more of the LED light sources (packages or arrays/modules) in a luminaire will constitute a luminaire failure.
- The warranty must apply for application on all of the City's existing electrical systems, both grounded and ungrounded.
- During the warranty period the City may, from time to time, test a random sampling of 10-20 luminaires for verification of light output per IES LM-79 and to test dimming functionality for a given luminaire population. The percentage of luminaires not performing as required in the random sampling will be applied to the total population quantity to determine the number of new luminaire replacements that must be delivered to the City by the manufacturer, without expense to the City.

E. Manufacturing Experience and Capacity

The manufacturer must demonstrate at least a five year history of manufacturing LED roadway and outside area luminaires by providing a list of prior projects with project description, date, location, quantities and reference contact information. The

manufacturer must also demonstrate the capacity to supply the quantities required for the contract in a timely manner.

III. CONSTRUCTION

A. Capital and Finial

5. Material
 - a) Each capital and finial shall be cast aluminum conforming to American Die casting Standard ADC-1-C9-83 grade 380.
 - b) The capital shall fit over a 3" high by 3" O.D. tenon.
 - c) The capital attachment to the tenon shall provide the structural integrity to hold the luminaire firmly in place during the vibrations anticipated due to passing heavily loaded vehicles, wind loading, and inclement weather.
 - d) A minimum of 3/16" thickness of metal must be provided where the set screws are inserted to minimize the possibility of stripping the threads when the set screws are tightened into place.
 - e) The set screws must be 5/16-18 stainless steel hex head screws. A minimum of three (3) set screws must be provided, evenly spaced at 120° apart.
 - f) The finial shall be securely attached to the acorn globe such that it will remain in place during the vibrations described above.
 - g) The Casting must have smooth external surfaces free from protuberances, dents, cracks or other imperfections marring their appearance. Welding or plugging of casting defects is prohibited.
 - h) Each casting must be die cast or made by the permanent mold process; sand castings will not be acceptable.
 - i) Minimum thickness will be 3/16", and will be uniform within each casting and throughout all castings in an entire order. Inconsistencies in casting thickness will be cause for rejection of the entire lot.
6. Appearance
 - a) The housing will be of a similar design as manufactured by Spring City, or Sternberg. Similar designs must be approved by the Commissioner. The Commissioner's decision of what constitutes a similar design will be final.
 - b) The capital shall conform in appearance to that shown on Electrical Standard Drawing Number 912.

B. Cast Housing and Fitter Painting

8. Oil and Grease Removal
 - a) All metal surfaces must be washed with an alkaline detergent to remove any oils or grease.
9. Chemical Pretreatment
 - a) The cleaned metal surfaces must be rinsed with de-ionized water
 - b) Treated with a hot, pressurized phosphate wash and sealer
 - c) Rinsed again with de-ionized water, and then dried by convection heat.

10. Exterior and Interior Coat
 - a) A thermosetting, weathering, polyester powder coat must be applied electrostatically to all cleaned and treated surfaces to a uniform four mil thickness in a one coat application.
 - b) This powder coat must be cured in a convection oven at a minimum 400°F to form a high molecular weight fusion bonded finish.
11. Alternate Methods
 - a) Alternate coating methods may be reviewed and tested on a case-by-case basis. However, no coating method will be accepted unless the Commissioner judges such alternate to be equal to the coating herein specified
12. Durability
 - a) Both the exterior and interior coats must be capable of passing 1,000 hours of salt spray exposure as per ASTM B117 in a 5% Na Cl (by weight) solution at 95°F and 95% relative humidity without blistering.
 - b) Before test, the panel must be scribed with an "X" down to bare metal.
13. Coating Measurement
 - a) Measurement of coating thickness must be done in accordance with SSPC-Pa 2-73T, "Measurement of Dry Paint Thickness with Magnetic Gauges", except that the lowest "single spot measurement" must not be less than 3.0 mils.
14. Color
 - a) Preferred color will be gloss black. A 4" square color chip sample must be submitted for approval prior to fabrication.
 - b) The chip sample must be of the same material as the capital, and must include the manufacturer's name and the manufacturer's color name as well.
 - c) The sample must also include any other information which will be required to purchase the same color for the masts, mast arms and split pedestal bases.

C. Optical Assembly

2. Acorn Globe and Reflector
 - a) The Globe shall be constructed of clear, V825 HID acrylic utilizing a slip-fit 1/2" overlap, two piece which eliminates a "butt-glue" seam appearance.
 - b) The Globe must conform to that shown on Electrical Standard Drawing 912.
 - c) The bottom optical section of the globe must have a neck opening of 7-1/4" at the smallest diameter and an outside dimension of 8" at the bottom; be a minimum of 12-3/4" in height and 16 1/2" in width at the top.
 - d) The top section of the globe must be "Victorian" in appearance; a minimum of 13" in height and 16.313" in width with 100 horizontal prisms to evenly diffuse light. If so requested, a full top reflector of the same diameter as the globe shall be installed between the halves and secured to the globe. The top and bottom sections shall be secured in a slip-fit overlap design using four #10 -24 x 5/8 stainless steel pan head screws with four aluminum nutserts providing a mechanical lock. In addition, a sealant must be applied to the two halves to provide a dust-proof seal.

- e) The globe shall be mounted with four 5/16-18 hex head, stainless steel bolts with stop nuts mounted into the die cast fixture housing.
- f) They must securely contact an aluminum globe neck ring connected to the acorn globe. The globe must be clearly marked and keyed so that it will be properly installed to provide the required house side/street side photometrics. The mounting must afford the rigidity necessary to prevent the globe from twisting or rattling when subjected to the vibrating forces of passing elevated trains or heavily loaded vehicles. The mounting must not preclude any globe from being mutually interchangeable with any other globe intended for this function.
- g) A top reflector and a house-side reflector shall be provided.
- h) These reflectors shall be mounted to a removable bracket.
- i) The small dome shaped top reflector, approximately 6.5 inches in diameter and 3 inches deep shall be mounted on the bracket and attached by a spring clamp, or other suitable means, to the lamp socket or lamp socket holder.
- j) The side reflector shall be mounted to the same bracket. The reflectors shall be constructed of aluminum and polished to a high specular finish. Reflectance of the reflecting surfaces shall not be less than 75%. Measurements shall be made with a reflectometer using the fiber-optic method.
- k) If so ordered in the line item of a contract, a full top reflector will be provided as part of the globe. This reflector will be inserted between the two halves of the globe and permanently sealed to the globe halves. This reflector will not allow any light from the lamp to enter the top half of the globe.

D. Electrical Components

- 7. LED Optical Array.
 - a) The LED arrays shall be optimized for the required roadway photometrics. The arrays must be properly secured at the factory and must not require field adjustment for optimum photometric performance.
 - b) The optical assembly shall consist of the LED array, the refractor, the refractor holder-door, gasketing, and all associated items.
 - c) The LED optical assembly shall be rated IP66 for ingress protection for dust and water.
 - d) The optical unit as a whole must provide as similar as an IES Medium Cut-off Type II/III distribution.
- 8. Terminal Block

- e) A terminal block of high grade board of molded phenolic plastic shall be mounted to the capital in a readily accessible location.
- f) Terminal block wiring; all necessary terminals, pre-wired to all luminaire components, must be provided.
- g) Terminal block terminals must have copper plated or brass plated, clamp-type pressure connectors of an approved type for "line" connections, to accommodate wire sizes from #12 to #8 A.W.G.
- h) Terminal block terminals for internal component connections must be either the screw-clamp or quick disconnect type.

9. LED Driver:

h) Voltage.

- The electronic driver must operate at an input voltage range of between 120 and 277 volts, 60 Hertz.
 - It must automatically sense the input voltage and adjust the output accordingly.
 - The City uses nominal input voltages of 120, 208, and 240 for street lighting.
 - When operated at any supply voltage between 80 percent and 110 percent of its rated supply voltage and at rated input frequency, a driver shall provide current and/or voltage regulation that equals or exceeds the values specified by the manufacturer.
- i) Electrical Safety. Luminaires must operate at or below the Low-Risk Level, as defined in Figure 18 of IEEE 1789-2015. This requirement must be satisfied across the dimming range.
- j) Power Factor (PF). The power factor of the driver over the design range of input voltages specified above must be in accordance to ANSI C82.77-2014. PF must be ≥ 0.9 .
- k) Total Harmonic Distortion (THD). The driver input current must have specified THD in accordance to ANSI C82.77-2014. THD must be $\leq 20\%$.
- l) Thermal Protection. The driver must be thermally protected to shut off when operating temperatures reach unacceptable levels.
- m) Electromagnetic Interference. Luminaire must comply with the FCC radiation emission limits for Class B digital devices given at 47 CFR 15.109.
- n) Electrical Transient Immunity:
- Dielectric Withstand Testing - luminaire must meet the performance requirements specified in ANSI C136.2-2015 for dielectric withstand, using the DC test level and configuration.
 - Electrical Transient Immunity - luminaire must meet the performance requirements specified in ANSI C136.2-2015 for electrical transient immunity, using the Enhanced (10 kV / 5 kA) combination wave test level.

- Transient Immunity Testing Requirements:
 - During electrical transient immunity testing, the device under test (DUT) must: be connected to the power source through a series coupler/decoupler network (CDN), using a two-wire (hot or hot/neutral) connection between both the power supply and CDN input and the CDN output and DUT.
 - If AC mains is used to power the DUT, the input waveform must be characterized and documented both before and after electrical transient immunity testing, with the DUT operating at rated full output.
 - For Pre-Test DUT Characterization, the diagnostic measurements shall, at a minimum, include the following: real power, input current (RMS; Root-Means-Square), power factor, and current distortion factor (THD-I Total Harmonic Distortion) when operating at rated full output.
 - Manufacturer must indicate on submittal form whether failure of the electrical transient immunity system can possibly result in disconnect of power to luminaire.

h) Dimming Capability. The driver must be capable of dimming. The dimming range must be 10% to 100% of full output. The digital lighting interface used for dimming must be DALI (Digital Addressable Lighting Interface) as per the requirements of IEC 62386. There must be a minimum of 100 dimming steps between the top and bottom of the dimming range.

10. Wiring.

- i. All components must be completely factory wired with non-fading, color coded leads. These leads must be insulated with an approved class of insulation and must be #16 AWG conductor at a minimum.
- ii. All wires within a single circuit path must be of the same size.
- iii. No wire-nut splicing will be allowed.
- iv. No unnecessary splices will be allowed.
- v. Quick disconnects must be provided for all components.
- vi. All wires must be properly terminated.

11. Control Device Receptacle and Cap.

- a) Twist-lock Receptacle for a control device that meets ANSI C136.41 must be mounted in the top of the housing or appropriate location with provision for proper positioning of the control device.
- b) 7-pin Receptacle. The luminaire control receptacle must be fully prewired and compliant with ANSI C136.41.
- c) 3-prong Shorting Cap that meets ANSI C136.10 must be provided.
- d) Receptacle Wire Leads must all be properly terminated.
- e) Receptacle repositioning. The receptacle must be able to be repositioned without the use of tools.
- f) Control Devices Not Included in LED Specifications. Whereas specifications for

control receptacles are included, specifications for control devices are not. The control device performance requirements are part of the lighting management system specifications in the Smart Lighting Project Technology specifications

12. Component Mounting.

All electrical components must be securely mounted in such manner that individual components can be easily maintained or replaced. Permanent straps or tie-wraps will not be permitted. The entire assembly should be easily disconnected and removed for replacement.

IV. PHOTOMETRIC REQUIREMENTS

C. Light Pollution.

To limit light pollution, the submitted luminaires must not emit any light above the horizon (0 lumens at angles $\geq 90^\circ$ from luminaire nadir).

D. Lumen Maintenance.

1. LED arrays must deliver a minimum of 90% of initial lumen output at 36,000 hours of operation.

2. Light Loss Factor (LLF) < 1.0. Calculations for maintained values, i.e. $LLF = LLD \times LDD \times LAT$.

d) Lamp Lumen Depreciation (LLD) calculated at 60,000 hours as per Section II-B-3-d above,

e) Luminaire Dirt Depreciation (LDD) ≤ 0.90 , and

f) Luminaire Ambient Temperature (LAT) ≤ 0.96

Luminaires with less than 10,000 hours of available LM-80 test data may be submitted for consideration but must be clearly indicated as such.

C. Color Attributes

3. Color Rendering Index (CRI) shall be no less than 65.

4. Nominal Correlated Color Temperature (CCT) shall be 3000K as defined by ANSI C78.377 and described below:

Manufacturer-Rated Nominal CCT (K)	Allowable IES LM-79 Chromaticity Values	
	Measured CCT (K)	Measured Duv
3000	2870 to 3220	-0.006 to 0.006

1. City of Chicago Typical Ornamental Lighting Contexts

ATTACHMENT A (below) lists the photometric performance requirements for luminaires used in the following typical municipal outdoor arterial ornamental lighting applications:

- Arterial Streets – two-sided opposite pole spacing
- Arterial Streets – two-sided staggered pole spacing

ATTACHMENT A – Photometric Performance Requirements

TYPICAL LIGHTING CONTEXT	ARTERIAL		
	OPPOSITE	STAGGERED	
POLE CONFIGURATION*			
RIGHT OF WAY (Width)	80 ft.	66 ft.	66 ft.
IES PAVEMENT CLASS	R3	R3	R3
STREET WIDTH (Curb to Curb)	60 ft.	48 ft.	48 ft.
LANES (Incl. Parking &Median)	6	4	4
PARKWAY (Width)	4 ft.	N/A	N/A
SIDEWALK (Width)	6 ft.	9 ft.	9 ft.
HEIGHT TO LUMINAIRE	23 ft.	23 ft.	16 ft.
MAST ARM LENGTH	1ft.	1ft.	1ft.
POLE SETBACK (From Curb to Center of Pole)	4ft.	4ft.	4ft.
IN-LINE POLE SPACING	125 ft.	200 ft.	X?x ft.
LUMINAIRE REQUIREMENTS	OPPOSITE	STAGGERED	
Max Input Power - Default /Normal Luminance (Watts)	180	180	180
Default/Normal AVG. Luminance (cd/m ²)	≥1.7	≥1.7	≥1.7
AVG/MIN Uniformity Ratio	≤ 3:1	≤ 3.5:1	≤ 3.5:1
MAX/MIN Uniformity Ratio	≤ 5:1	≤ 6:1	≤ 6:1
MAX Veiling Luminance Ratio	≤ 0.5	≤ 0.5	≤ 0.5
AVG. Boosted Luminance (cd/m ²) [Add-Alternate]	≥2.5	≥2.5	≥2.5
SIDEWALK			
Default AVG. Horizontal Illuminance (fc)	≥0.50	≥0.50	≥0.50
AVG.MIN Uniformity Ratio (Horizontal Illuminance)	≤ 4:1	≤ 4:1	≤ 4:1
LIGHT TRESPASS RESTRICTIONS - (as measured in a vertical plane 10' beyond ROW ≤3' height)			
MAX Vertical Illuminance	≤ 0.3	≤ 0.30	≤ 0.30

ATTACHMENT B - Product Submittal Form

Lighting Context	e.g. Arterial Ornamental Wide		
<i>Product Information Description</i>	<i>Product Data (Summary)</i>		<i>Submittal Reference Document</i>
Luminaire Designation			
Luminaire Manufacturer			
Luminaire Model Number			
Luminous Flux – initial	lumens		
Luminaire input power—initial	watts		
Luminaire input power—maintained	watts		
Luminaire input voltage- nominal range	volts		
LED drive current - initial	milliamps		
LED drive current - maintained	milliamps		
CCT (correlated color temperature)	kelvin		
CRI (color rendering index)			
EPA (effective projected area) - nominal	sq. ft.		
Luminaire Weight - nominal	lbs.		
Control Interface	<input type="checkbox"/> ANSI C136.41, 7-pin		
LED Driver – dimming capability	<input type="checkbox"/> Dimmable, 0-10V	<input type="checkbox"/> Dimmable, DALI	
LED driver- rated life	years		
Electrical transient immunity ANSI C136.2 combination wave test level	<input type="checkbox"/> Basic (6kV/3kA)	<input type="checkbox"/> Enhanced (10kV / 5kA)	<input type="checkbox"/> Elevated (20kV/10kA)
Vibration Test-ANSI C136.31	<input type="checkbox"/> Level 2		
Luminaire warranty period	years		
IES LM-80 test duration	hours		IES LM-80-15 report
LED lumen maintenance at 36,000 hours	%		TM-21 calculator
Max. LED case temperature	degrees Celsius		ISTMT report

**OUTDOOR LED LUMINAIRE SPECIFICATIONS:
RESIDENTIAL STREETS, ALLEYS, & ARTERIAL STREETS (Cobra Head)**

I. SUBJECT

A. This specification states the requirements for non-ornamental Light Emitting Diode (LED) outdoor lighting luminaires. The specified LED luminaires will be used to replace existing High Pressure Sodium (HPS) and Ceramic Metal Halide (CMH) luminaires on Chicago residential streets, arterial streets, and alleys. The LED luminaires will be integrated into a centralized lighting management **system**.

II. GENERAL

A. References

American National Standards Institute (ANSI)

- ANSI C78.377-2015, "American National Standard for Electric Lamps—Specifications for the Chromaticity of Solid State Lighting (SSL) Products"
- ANSI C82.77-10-2014, "American National Standard for Lighting Equipment—Harmonic Emission Limits—Related Power Quality Requirements"
- ANSI C136.2-2015, "American National Standard for Roadway and Area Lighting Equipment—Dielectric Withstand and Electrical Transient Immunity Requirements"
- ANSI C136.10-2010, "American National Standard for Roadway and Area Lighting Equipment—Locking-Type Control Devices and Mating Receptacles—Physical and Electrical Interchangeability and Testing"
- ANSI C136.15-2015, "American National Standard for Roadway and Area Lighting Equipment—Luminaire Field Identification"
- ANSI C136.22-2004 (R2009, R2014), "American National Standard for Roadway and Area Lighting Equipment—Internal Labeling of Luminaires"
- ANSI C136.25-2013, "American National Standard for Roadway and Area Lighting Equipment—Ingress Protection (Resistance to Dust, Solid Objects and Moisture) for Luminaire Enclosures"
- ANSI C136.30-2015, "American National Standard for Roadway and Area Lighting Equipment—Pole Vibration"
- ANSI C136.31-2015, "American National Standard for Roadway and Area Lighting Equipment—Luminaire Vibration"

- ANSI C136.37-2011, "American National Standard for Solid State Light Sources Used in Roadway and Area Lighting"
- ANSI C136.41-2013, "American National Standard for Roadway and Area Lighting Equipment—Dimming Control Between an External Locking Type Control and Ballast or Driver"

- ASTM B85/B85M-14, “Standard Specification for Aluminum-Alloy Die Castings”
- ASTM B117-16, “Standard Practice for Operating Salt Spray (Fog) Apparatus”
- ASTM D523-14, “Standard Test Method for Specular Gloss”
- ASTM D1654-08, “Standard Test Method for Evaluation of Painted or Coated Specimens Subjected to Corrosive Environments”
- ASTM G154-12a, “Standard Practice for Operating Fluorescent Ultraviolet (UV) Lamp Apparatus for Exposure of Nonmetallic Materials”

Illuminating Engineering Society of North America (IES)

- ANSI/IES LM-63-02, “Standard File Format for Electronic Transfer of Photometric Data”
- IES LM-79-08, “Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products”
- ANSI/IES LM-80-15, “IES Approved Method: Measuring Luminous Flux and Color Maintenance of LED Packages, Arrays and Modules”
- ANSI/IES RP-8-14, “Roadway Lighting”
- IES TM-21-11 (with Addendum B), “Projecting Long Term Lumen Maintenance of LED Light Sources”

Institute of Electrical and Electronics Engineers (IEEE)

- IEEE Std 1789-2015, “IEEE Recommended Practices for Modulating Current in High-Brightness LEDs for Mitigating Health Risks to Viewers”

International Electrotechnical Commission (IEC)

- IEC 60929:2011 (with Amendment 1), “AC and/or DC-supplied electronic control gear for tubular fluorescent lamps - Performance requirements”

Underwriters Laboratories (UL)

- ANSI/UL 1598 (3rd Edition), “Luminaires”

B. Submittal Requirements:

The Contractor must submit the following information pertaining to each specified luminaire type within fifteen (15) days of request:

1. Completed ATTACHMENT G – Submittal Form

2. Product Data Sheets.

a) Luminaire data sheets – including summary product description, dimensioned outline drawings, and nominal characteristics including but not limited to: initial luminous flux (lumens), input power (watts), input voltage range (volts), LED drive current (milliamps), correlated color temperature (kelvins), color rendering index, effective projected area (square feet) and weight (pounds).

b) LED Driver data sheet – including information described in LED Driver Requirements Section III-I-3.

c) LED light source data sheet

d) Surge protection device data sheet - if applicable

3. Photometric Performance Data

The manufacturer must provide photometric calculations, as part of each luminaire's submittal package, that demonstrate the luminaire's photometric performance will meet or exceed the photometric requirements listed in this specification. The submitted lighting calculations must include point-by-point illuminance, luminance and veiling luminance data, as well as listings of all indicated averages and ratios. Photometric reports must include the following information and be in accordance with the standards listed below:

a) IES LM-79-08 photometric report that includes measured values for initial luminous flux, input power, correlated color temperature, and color rendering index.

b) ANSI/IES LM-63-02 electronic format photometric file that corresponds to the LM-79 report.

c) LM-63 photometric calculations that demonstrate compliance with the illumination requirements specified herein using the LM-63 file. Calculation grids and observer locations not specified herein must be in accordance with ANSI/IES RP-8-14.

d) IES TM-21-11 calculations that derive the lumen maintenance (lamp lumen depreciation or LLD) factor applied to photometric calculations specified herein.

- ANSI/IES LM-80-15 and in-situ temperature measurement testing (ISTMT) reports containing data used in TM-21 calculations must also be submitted.
- TM-21 calculations must apply to the maximum LED case temperature from ISTMT, shall not extrapolate beyond six times the duration of available LM-80 test data, and must be submitted in the spreadsheet format of the ENERGY STAR TM-21 calculator (https://www.energystar.gov/products/spec/luminaires_specification_version_2_0_pd).

LM-79, ISTMT, and LM-80 reports must correspond directly to submitted luminaires, and must be produced by test laboratories that satisfy the Testing Laboratory Requirements of the DesignLights Consortium (www.designlights.org/content/QPL/ProductSubmit/LabTesting).

ISTMT must be conducted in accordance with the DesignLights Consortium Manufacturer's Guide (<https://www.designlights.org/content/qpl/productssubmit>).

ISTMT shall be conducted in an ambient temperature of 25 ± 5 °C. Ambient temperature variations above or below 25 °C shall be respectively subtracted from or added to temperatures recorded at points on the luminaire.

4. Safety Certification - file number indicating compliance with UL 1598. Applicable testing bodies are determined by the US Occupational Safety Health Administration (OSHA) as Nationally Recognized Testing Laboratories (NRTL) and include: CSA (Canadian Standards Association), ETL (Edison Testing Laboratory), and UL (Underwriters Laboratory).

5. Vibration Testing - the luminaire must comply with ANSI C136.31 at Vibration Test Level 2 (3.0 G).

6. Product Samples - at least two samples of each luminaire that the contractor proposes to use must be submitted to the City. All samples must be representative production units and be supplied at no cost to the City.

C. Assembly.

Each luminaire must be delivered completely assembled, wired, and ready for installation.

D. Warranty.

The luminaire manufacturer must warrant the performance and construction of luminaires to meet the requirements of this specification, and must warrant all parts, components and appurtenances against defects due to design, workmanship or material developing within a period of ten (10) years from the date of acceptance by the City.

- The inability of a luminaire to be dimmed will constitute a luminaire failure.
- Failure of 10% or more of the LED light sources (packages or arrays/modules) in a luminaire will constitute a luminaire failure.
- The warranty must apply for application on all of the City's existing electrical systems, both grounded and ungrounded.
- During the warranty period the City may, from time to time, test a random sampling of 10-20 luminaires for verification of light output per IES LM-79 and to test dimming functionality for a given luminaire population. The percentage of luminaires not performing as required in the random sampling will be applied to the total population quantity to determine the number of new luminaire replacements that must be delivered to the City by the manufacturer, without expense to the City.

E. Manufacturing Experience and Capacity

The manufacturer must demonstrate at least a five year history of manufacturing LED roadway and outside area luminaires by providing a list of prior projects with project description, date, location, quantities and reference contact information. The manufacturer must also demonstrate the capacity to supply the quantities required for the contract in a timely manner.

III. CONSTRUCTION

A. Weight

The net weight of these luminaires must not be more than 30 pounds.

B. Housing.

The preferred luminaire housing material is die-cast aluminum alloy meeting ASTM Specification A380. Alternate materials may be considered. The housing must enclose the mounting hardware, LED arrays, control receptacle, terminal board, and electronic driver. The housing must include a surface to facilitate leveling with a spirit level. The housing must have integral heat sink characteristics, such that all enclosed components will operate within their designed operating temperatures under expected service conditions. No external or removable heat shields or heat sinks; are permitted. The housing must be designed to encourage water shedding. The housing must be designed to minimize dirt and bug accumulation on the optic surface.

C. Mounting Provisions.

The luminaire must include a heavy gauge slip fitter clamping assembly suitable for secure attachment over the end of a two (2) inch 2" IP (2.375" OD) steel pipe with an approved means of clamping it firmly in mounting bracket. The slip fitter mounting clamp must contain an approved shield around the pipe entrance to block the entry of birds.

D. Access Door-Panel.

An access door panel allowing access to the terminal strip and LED driver must be provided. A die-cast aluminum door-panel composed of aluminum alloy A380 is preferred; alternate materials may be considered. The door-panel must be hinged to the luminaire housing and suitably latched and fastened at the closing end. It must be made to be removed easily. The hinge and fastening devices must be captive parts which will not become disengaged from the door panel.

E. Hardware.

All machine screws, locknuts, pins and set screws necessary to make a firm assembly, and for its secure attachment to the mast arm, must be furnished in place. All hardware must be of stainless steel, zinc plated steel, copper silicon alloy or other non-corrosive metal, and where necessary must be suitably plated to prevent electrolytic action by contact with dissimilar metals.

F. Finish.

The luminaire must have a polyester powder coat with a minimum 2.0 mil thickness. Surface texture and paint quality will be subject to approval. Color must be as specified in the order. A paint chip must be submitted as a sample upon request. The finish must exceed a rating of six per ASTM D1654 after 1000 hours of testing per ASTM B117. The coating must exhibit no greater than 30% reduction of gloss per ASTM D523 after 500 hours of QUV testing at ASTM G154 Cycle 6.

G. Ingress Protection.

1. The luminaire electric compartment housing must have an ingress protection rating of IP54 or better as described in ANSI C136.25-2013). The optical system must have a minimum rating of IP 66.
2. The luminaire must be listed for wet locations by a U.S. Occupational Safety Health Administration (OSHA) Nationally Recognized Laboratory (NRTL) and have a safety certification and file number indicating compliance with UL 1598.

H. General Luminaire Requirements

1. The luminaire must be rated to operate between -40° to +50° Celsius.
2. The luminaire must have the option of adding a house side shield. The shield should be designed to be easily installed in the field. The house side shield must be composed of a sturdy material capable of withstanding vibrations and weather conditions. The shield must cut off light trespass at approximately one mounting height behind the pole.
3. The luminaire must meet the requirements of ANSI C136.22 for internal labeling. A bar code with pertinent information for warranty and maintenance must be attached to the inside of the housing. A separate bar code label must be on the driver
4. The luminaire must be able to provide pertinent product information, for warranty and maintenance purposes, in a digital format that is compliant with the 0-10 VDC Node as per Section III-I-h) . This information will be transmitted through the networked Lighting Management control system.

I. Electrical Components

1. LED Optical Arrays

- a) The LED arrays must be properly secured at the factory and must not require field adjustment for optimum photometric performance.

2. Terminal Block

- a) A terminal block of high grade molded plastic of the barrier or safety type must be mounted within the housing in a readily accessible location.
- b) Terminal block wiring; all necessary terminals, pre-wired to all luminaire components, must be provided.
- c) Terminal block terminals must have copper plated or brass plated, clamp-type pressure connectors of an approved type for "line" connections, to accommodate wire sizes from #12 to #8 A.W.G.
- d) Terminal block terminals for internal component connections must be either the screw-clamp or quick disconnect type.

3. LED Driver:

- a) Voltage. The electronic driver must operate at an input voltage range of between 120 and 277 volts, 60 Hertz. It must automatically sense the input voltage and adjust the output accordingly. The City uses nominal input voltages of 120, 208, and 240 for street lighting. When operated at any supply voltage between 80 percent and 110 percent of its rated supply voltage and at rated input

frequency, a driver shall provide current and/or voltage regulation that equals or exceeds the values specified by the manufacturer.

b)Electrical Safety. Luminaires must operate at or below the Low-Risk Level, as defined in Figure 18 of IEEE 1789-2015. This requirement must be satisfied across the dimming range.

c)Power Factor (PF). The power factor of the driver over the design range of input voltages specified above must be in accordance to ANSI C82.77-2014. PF must be ≥ 0.9 .

d)Total Harmonic Distortion (THD). The driver input current must have specified THD in accordance to ANSI C82.77-2014. THD must be $\leq 20\%$.

e)Thermal Protection. The driver must be thermally protected to shut off when operating temperatures reach unacceptable levels.

f)Electromagnetic Interference. Luminaire must comply with the FCC radiation emission limits for Class B digital devices given at 47 CFR 15.109.

g)Electrical Transient Immunity.

- Dielectric Withstand Testing - luminaire must meet the performance requirements specified in ANSI C136.2-2015 for dielectric withstand, using the DC test level and configuration.
- Electrical Transient Immunity - luminaire must meet the performance requirements specified in ANSI C136.2-2015 for electrical transient immunity, using the Enhanced (10 kV / 5 kA) combination wave test level.
- Transient Immunity Testing Requirements
 - During electrical transient immunity testing, the device under test (DUT) must: be connected to the power source through a series coupler/decoupler network (CDN), using a two-wire (hot or hot/neutral) connection between both the power supply and CDN input and the CDN output and DUT.
 - If AC mains is used to power the DUT, the input waveform must be characterized and documented both before and after electrical transient immunity testing, with the DUT operating at rated full output.
 - For Pre-Test DUT Characterization, the diagnostic measurements shall, at a minimum, include the following: real power, input current (RMS; Root-Means-Square), power factor, and current distortion factor (THD-I Total Harmonic Distortion) when operating at rated full output.
 - Manufacturer must indicate on submittal form whether failure of

the electrical transient immunity system can possibly result in disconnect of power to luminaire.

h)Dimming Capability. The driver must be capable of dimming. The dimming range must be 10% to 100% of full output. The digital lighting interface used for dimming must be 0-10 VDC as per the requirements of ANSI C136.41-2013. There must be a minimum of 100 dimming steps between the top and bottom of the dimming range.

4. Wiring.

- a)All components must be completely factory wired with non-fading, color coded leads. These leads must be insulated with an approved class of insulation and must be #16 AWG conductor at a minimum.
- b)All wires within a single circuit path must be of the same size.
- c)No wire-nut splicing will be allowed.
- d)No unnecessary splices will be allowed.
- e)Quick disconnects must be provided for all components.
- f)All wires must be properly terminated.

5. Control Device Receptacle and Cap.

- a) Twist-lock Receptacle for a control device that meets ANSI C136.41 must be mounted in the top of the housing with provision for proper positioning of the control device.
- b) 5-pin Receptacle. The luminaire control receptacle must be fully prewired and compliant with ANSI C136.41-2013.
- c) 3-prong Shorting Cap that meets ANSI C136.10 must be provided.
- d) Receptacle Wire Leads must all be properly terminated.
- e) Receptacle repositioning. The receptacle must be able to be repositioned without the use of tools.
- f) Control Devices Not Included in LED Specifications. Whereas specifications for control receptacles are included, specifications for control devices are not. The control device performance requirements are part of the lighting management system specifications in the Smart Lighting Project Technology specifications.

6.Component Mounting.

All electrical components must be securely mounted in such manner that individual components can be easily maintained or replaced. Permanent straps or tie-wraps will not be permitted. The entire assembly should be easily disconnected and removed for replacement.

IV. PHOTOMETRIC REQUIREMENTS

1. Light Pollution.

To limit light pollution, the submitted luminaires must not emit any light above the horizon (0 lumens at angles $\geq 90^\circ$ from luminaire nadir).

2. Lumen Maintenance.

a) LED arrays must deliver a minimum of 90% of initial lumen output at 36,000 hours of operation.

b) Light Loss Factor (LLF) < 1.0 . Calculations for maintained values, i.e. $LLF = LLD \times LDD \times LAT$.

(1) Lamp Lumen Depreciation (LLD) calculated at 60,000 hours as per Section II-B-3-d above,

(2) Luminaire Dirt Depreciation (LDD) ≤ 0.90 , and

(3) Luminaire Ambient Temperature (LAT) ≤ 0.96

Luminaires with less than 10,000 hours of available LM-80 test data may be submitted for consideration but must be clearly indicated as such.

3. Color Attributes

a) Color Rendering Index (CRI) shall be no less than 65.

b) Nominal Correlated Color Temperature (CCT) shall be 3000K as defined by ANSI C78.377 and described below:

Manufacturer-Rated Nominal CCT (K)	Allowable IES LM-79 Chromaticity Values	
	Measured CCT (K)	Measured Duv
3000	2870 to 3220	-0.006 to 0.006

4. City of Chicago Typical Lighting Contexts

ATTACHMENT A (below) lists the photometric performance requirements for luminaires used in the following typical municipal outdoor lighting applications:

- Alleys.
- Modern Residential Streets - staggered poles on both sides.
- Legacy Residential Streets - one-sided pole spacing.
- Legacy Residential Intersections and Alley Entrances.
- Arterial Streets – two-sided opposite pole spacing
- Arterial Streets – two-sided staggered pole spacing
- Arterial Streets – one-side pole spacing

See ATTACHMENTS B, C, & C-1 for residential street layouts.

Note: The layout for (i) the intersection of two Legacy Residential Streets, (ii) an alley entrance intersecting with a Legacy Residential Street, and (iii) a typical alley layout is found in ATTACHMENT C-1. Luminaires for both alley entrance lighting and intersection lighting are oriented 45° from the curb line. All other luminaires are oriented 90° from (i.e., perpendicular to) the curb line.

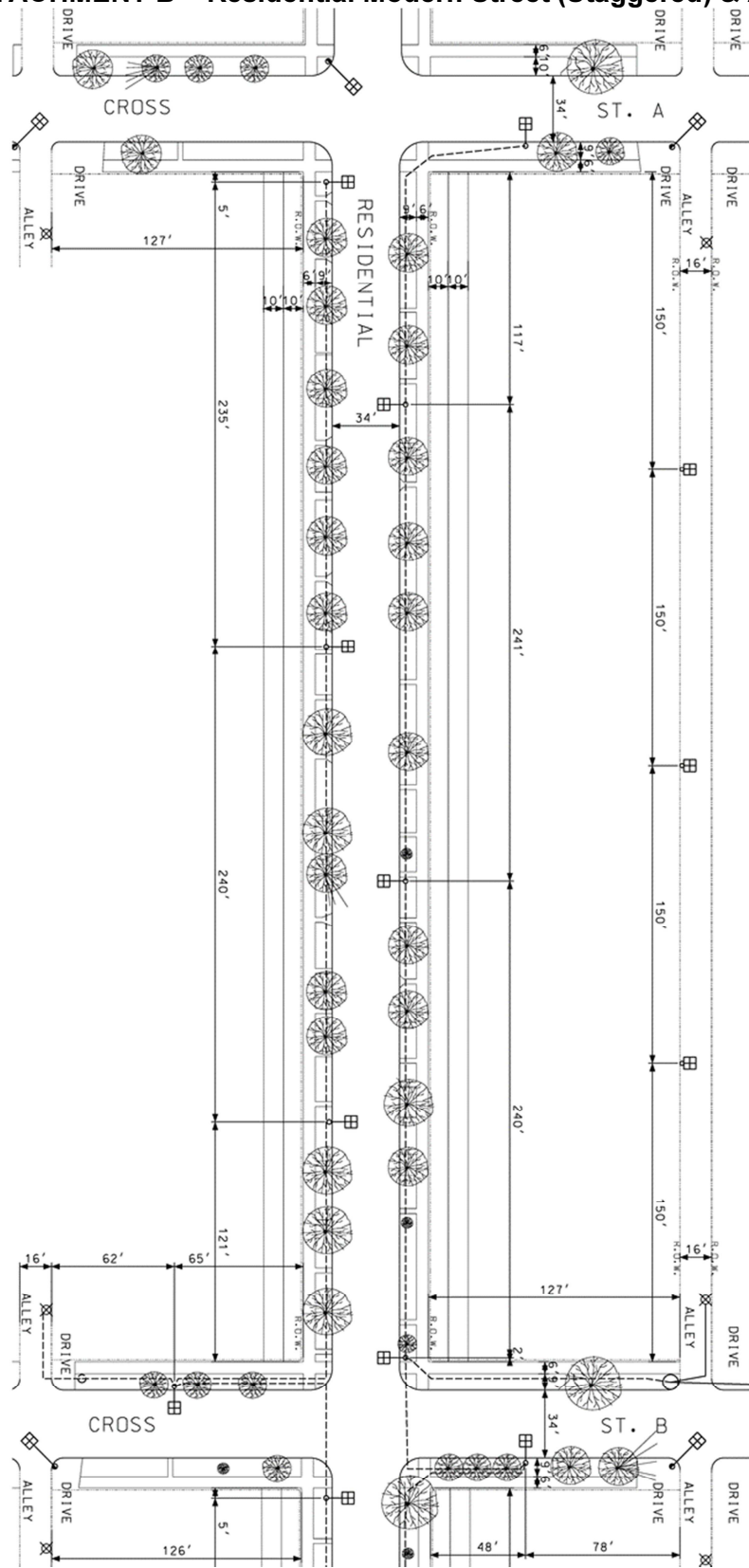
See ATTACHMENTS D, E, & F for arterial layouts.

ATTACHMENT A – Photometric Performance Requirements

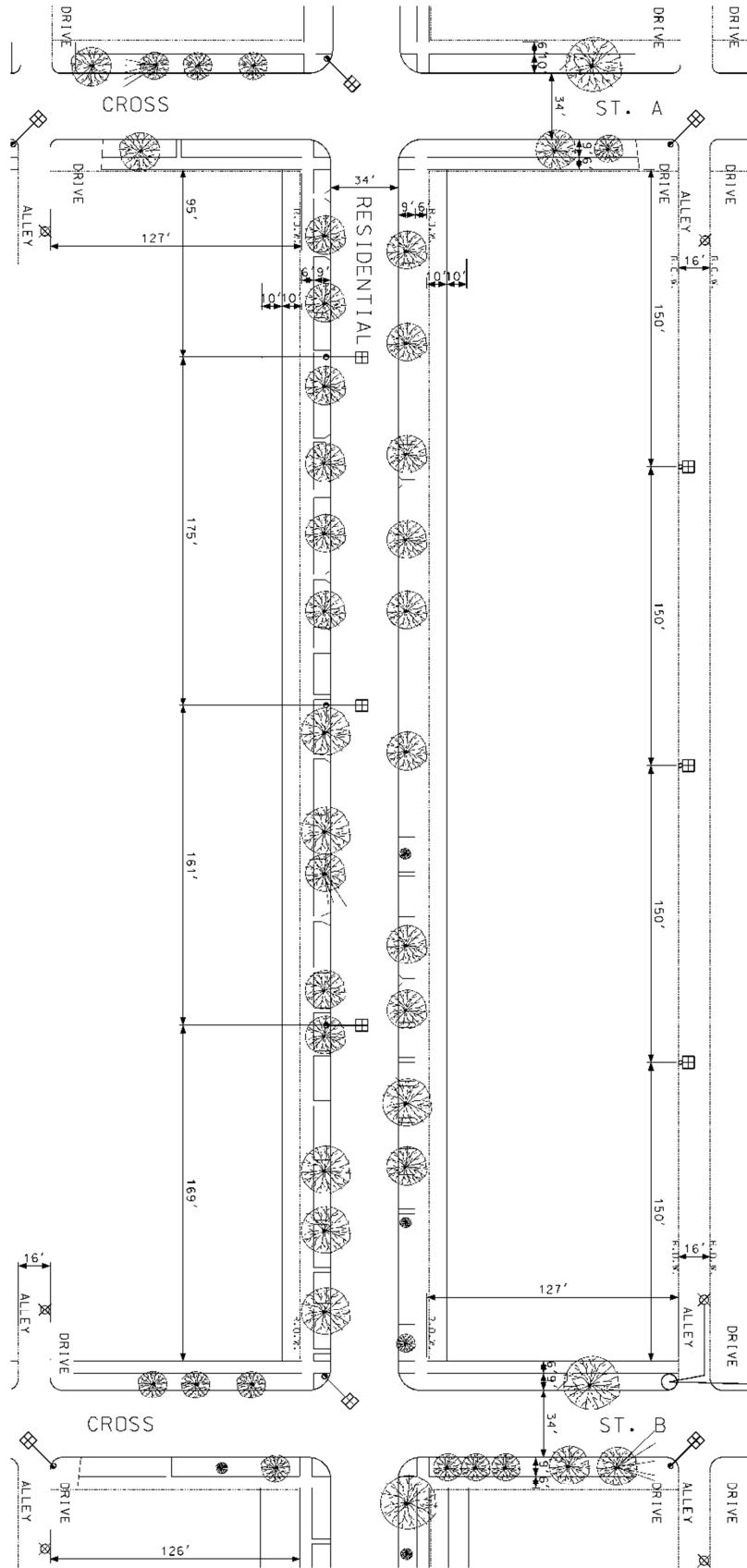
STREET PARAMETERS							
*	RESIDENTIAL*			ALLEY	ARTERIAL		
POLE CONFIGURATION*	STAGGERED	ONE-SIDED	INT R-R and R-A	ONE-SIDED	OPP-OSITE	STAGGERED	ONE-SIDED
RIGHT OF WAY (Width)	66 ft.	66 ft.	66 ft.	16 ft.	100 ft.	80 ft.	66 ft.
IES PAVEMENT CLASS	R3	R3	R3	R3	R3	R3	R3
STREET WIDTH (Curb to Curb)	34 ft.	34 ft.	34 ft.	16 ft.	80 ft.	60 ft.	48 ft.
LANES (Incl Prking &Median)	4	4	4	2	7	6	4
PARKWAY (Width)	10 ft.	10 ft.	10 ft.	N/A	4 ft.	4'	N/A
SIDEWALK (Width)	6 ft.	6 ft.	6 ft.	N/A	6 ft.	6 ft.	9 ft.
HEIGHT TO LUMINAIRE	18 ft.	22 ft.	22 ft.	18 ft.	33 ft.	33 ft.	33 ft.
MAST ARM LENGTH	8 ft.	15 ft.	15 ft.	1 ft.	12 ft.	12 ft.	8 ft.
POLE SETBACK (From Curb to Center of Pole)	3 ft.	2 ft.	2 ft.	N/A	3 ft.	3 ft.	3 ft.
IN-LINE POLE SPACING	See Site Plan Attachments B thru F for pole spacing assumptions for each Pole Configuration context						
MAINTAINED PERFORMANCE REQUIREMENTS							
LUMINAIRE REQUIREMENTS	STAGGERED	ONE-SIDED	INT R-R and R-A	ONE-SIDED	OPP-OSITE	STAGGERED	ONE-SIDED
Max Input Power - Default /Normal Luminance (Watts)	120	130	130	80	180	180	180
Default/Normal AVG. Luminance (cd/m ²)	≥1.5	≥1.5	≥1.5	≥.95	≥1.7	≥1.7	≥1.7
AVG/MIN Uniformity Ratio	≤ 6:1	≤ 6:1	≤ 6:1	≤ 6:1	≤ 3:1	≤ 3:1	≤ 3:1
MAX/MIN Uniformity Ratio	≤10:1	≤10:1	≤10:1	≤ 10:1	≤ 5:1	≤ 5:1	≤ 5:1
MAX Veiling Luminance Ratio	≤ 0.4	≤ 0.4	≤ 0.4	≤ 0.4	≤ 0.3	≤ 0.3	≤ 0.3
AVG. Boosted Luminance (cd/m ²) [Add-Alternate]	≥2.25	≥2.25	≥2.25	≥1.5	≥2.5	≥2.5	≥2.5
SIDEWALK							
Default AVG. Horizontal Illuminance (fc)	≥0.50	≥0.50	≥0.50	N/A	≥0.50	≥0.50	≥0.50
AVG.MIN Uniformity Ratio (Horizontal)	≤ 4:1	≤ 4:1	≤ 4:1	N/A	≤ 4:1	≤ 4:1	≤ 4:1

Illuminance)							
LIGHT TRESPASS LIMITS - (as measured in a vertical plane 20' beyond ROW ≤3' height)							
Vertical Illuminance **	0.1≤X≤0. 5	0.1≤X≤0 .5	≤0.30	0.1≤X≤0. 5	≤0.30	0.1≤X≤0. 5	0.1≤X≤ 0.5
<p>*Residential Pole Configuration Contexts: See Attachments B, C, & C-1</p> <p>Staggered = Residential street with Modern poles; (aluminum davit poles staggered on both sides of street) Attachment B.</p> <p>One-Sided = Residential street with Legacy poles; (steel poles on one side of street) Attachment C</p> <p>INT R-R = intersection of two Legacy residential streets, illuminated by one luminaire oriented diagonally (45°), Attachment C-1.</p> <p>INT R-A = intersection of Legacy residential street with alley, illuminated by one luminaire oriented diagonally (45°), Attachment C-1.</p> <p>**Trespass Limits for the following contexts: Residential Legacy One sided, Alley, Arterial Staggered & Arterial One-sided</p>							

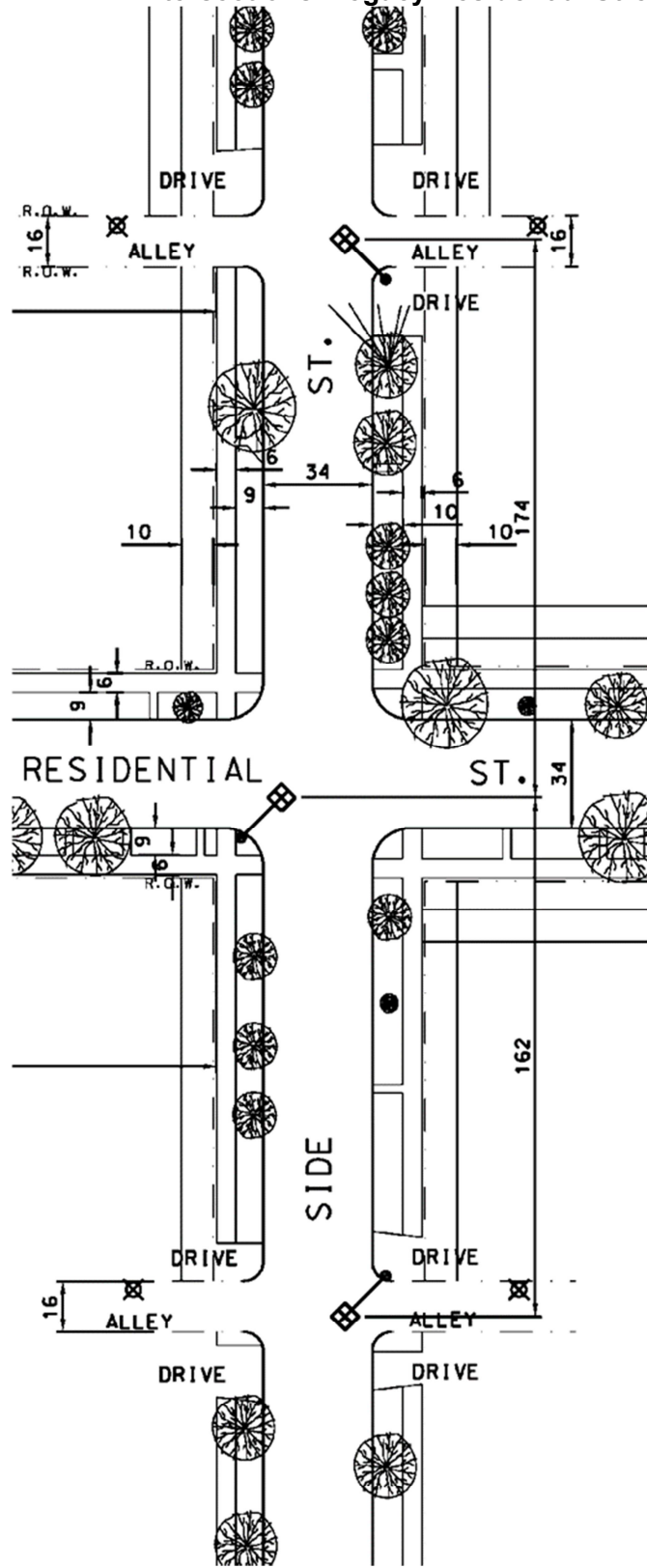
ATTACHMENT B – Residential Modern Street (Staggered) & Alley



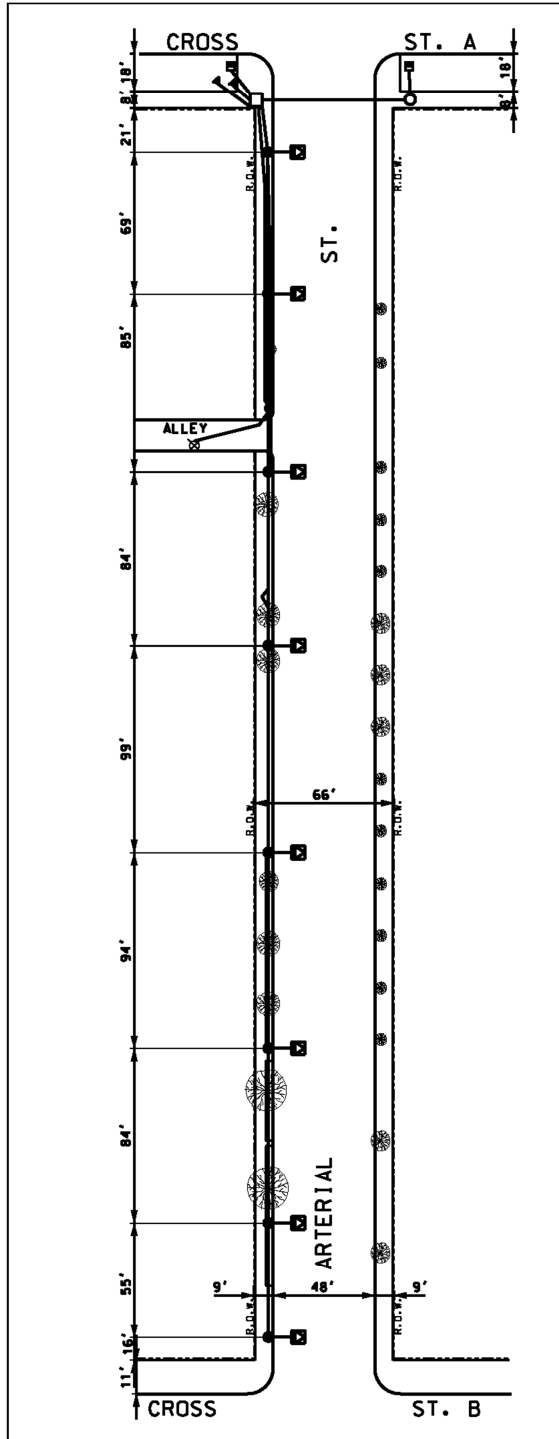
ATTACHMENT C – Residential Legacy Street (One-sided) & Alley



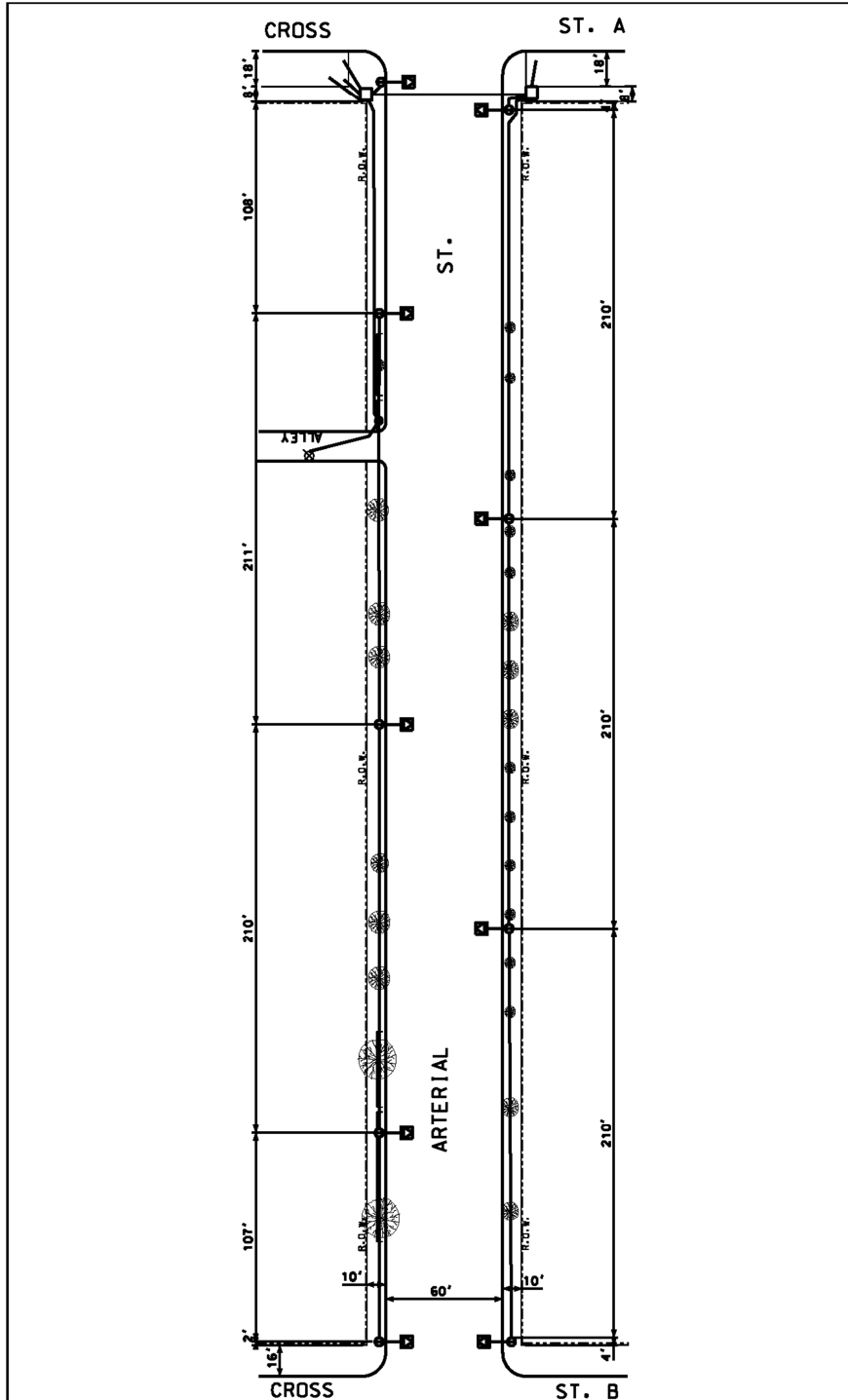
ATTACHMENT C-1-Intersections-Legacy Residential Streets & Alley



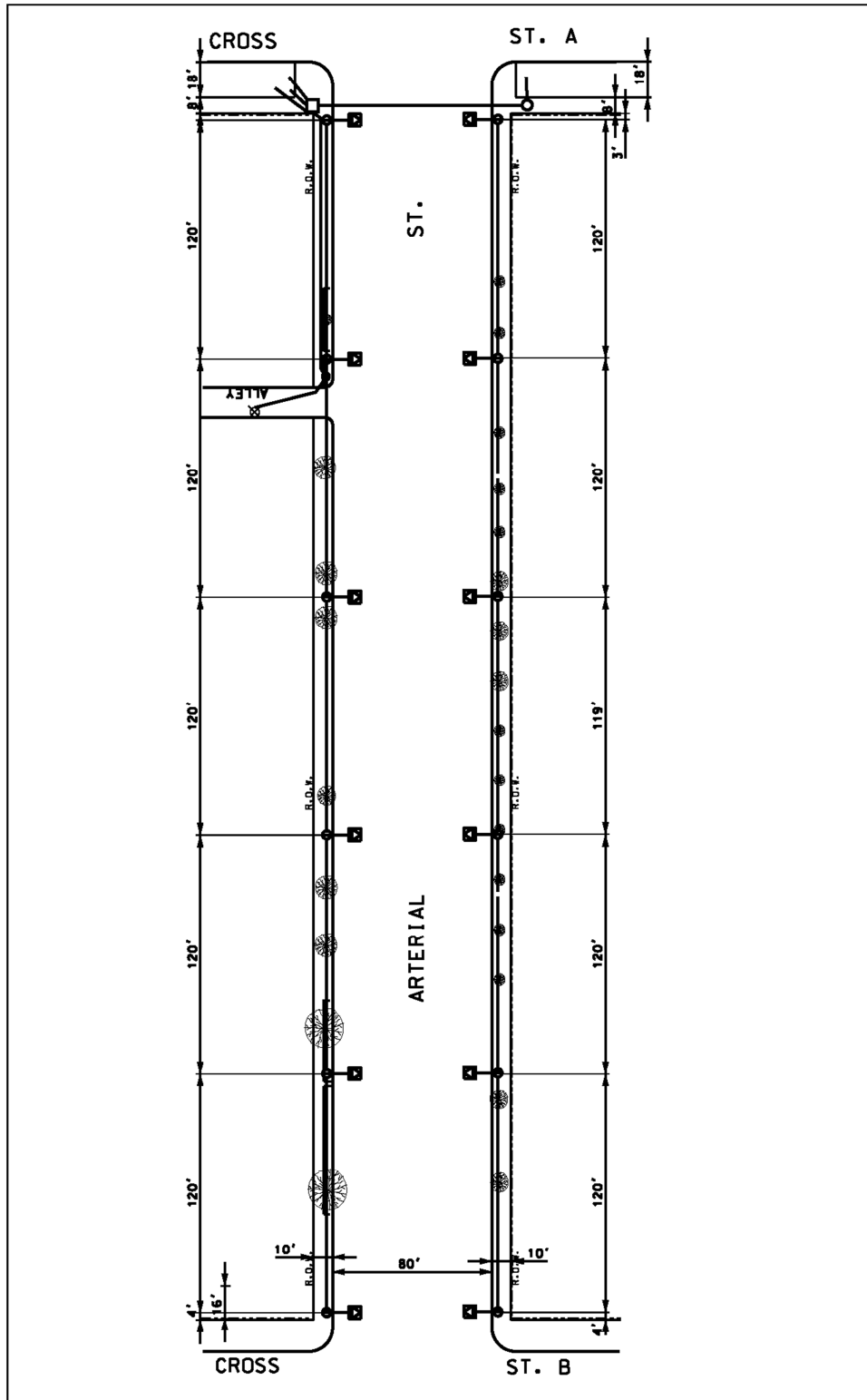
ATTACHMENT D – Arterial Street Single-Sided Poles



ATTACHMENT E – Arterial Street - Staggered Poles



ATTACHMENT F – Arterial Street Opposite Poles



ATTACHMENT G - Product Submittal Form

Lighting Context	e.g. Alleys		
<i>Product Information Description</i>	<i>Product Data (Summary)</i>		<i>Submittal Reference Document</i>
Luminaire Designation			
Luminaire Manufacturer			
Luminaire Model Number			
Luminous Flux – initial	lumens		
Luminaire input power—initial	watts		
Luminaire input power—maintained	watts		
Luminaire input voltage- nominal range	volts		
LED drive current - initial	milliamps		
LED drive current - maintained	milliamps		
CCT (correlated color temperature)	kelvin		
CRI (color rendering index)			
EPA (effective projected area) - nominal	sq. ft.		
Luminaire Weight - nominal	lbs.		
Control Interface	<input type="checkbox"/> ANSI C136.41, 7-pin		
LED Driver – dimming capability	<input type="checkbox"/> Dimmable, 0-10 VDC		
LED driver- rated life	years		
Electrical transient immunity ANSI C136.2 combination wave test level	<input type="checkbox"/> Basic (6kV/3kA)	<input type="checkbox"/> Enhanced (10kV / 5kA)	<input type="checkbox"/> Elevated (20kV/10kA)
Vibration Test-ANSI C136.31	<input type="checkbox"/> Level 2		
Luminaire warranty period	years		
IES LM-80 test duration	hours		IES LM-80-15 report
LED lumen maintenance at 36,000 hours	%		TM-21 calculator
Max. LED case temperature	degrees Celsius		ISTMT report

OUTDOOR LED LUMINAIRE SPECIFICATION:
FLOOD LIGHT

I. SUBJECT

A. This specification states the requirements for non-ornamental Light Emitting Diode (LED) outdoor lighting luminaires. The LED luminaires will be integrated into a centralized lighting management system.

II. GENERAL

A. References

American National Standards Institute (ANSI)

- ANSI C78.377-2015, "American National Standard for Electric Lamps—Specifications for the Chromaticity of Solid State Lighting (SSL) Products"
- ANSI C82.77-10-2014, "American National Standard for Lighting Equipment—Harmonic Emission Limits—Related Power Quality Requirements"
- ANSI C136.2-2015, "American National Standard for Roadway and Area Lighting Equipment—Dielectric Withstand and Electrical Transient Immunity Requirements"
- ANSI C136.10-2010, "American National Standard for Roadway and Area Lighting Equipment—Locking-Type Control Devices and Mating Receptacles—Physical and Electrical Interchangeability and Testing"
- ANSI C136.15-2015, "American National Standard for Roadway and Area Lighting Equipment—Luminaire Field Identification"
- ANSI C136.22-2004 (R2009, R2014), "American National Standard for Roadway and Area Lighting Equipment—Internal Labeling of Luminaires"
- ANSI C136.25-2013, "American National Standard for Roadway and Area Lighting Equipment—Ingress Protection (Resistance to Dust, Solid Objects and Moisture) for Luminaire Enclosures"
- ANSI C136.31-2015, "American National Standard for Roadway and Area Lighting Equipment—Luminaire Vibration"
- ANSI C136.37-2011, "American National Standard for Solid State Light Sources Used in Roadway and Area Lighting"
- ANSI C136.41-2013, "American National Standard for Roadway and Area Lighting Equipment—Dimming Control Between an External Locking Type Control and Ballast or Driver"
- ASTM B85/B85M-14, "Standard Specification for Aluminum-Alloy Die Castings"
- ASTM B117-16, "Standard Practice for Operating Salt Spray (Fog) Apparatus"
- ASTM D523-14, "Standard Test Method for Specular Gloss"

- ASTM D1654-08, "Standard Test Method for Evaluation of Painted or Coated Specimens Subjected to Corrosive Environments"
- ASTM G154-12a, "Standard Practice for Operating Fluorescent Ultraviolet (UV) Lamp Apparatus for Exposure of Nonmetallic Materials"

Illuminating Engineering Society of North America (IES)

- ANSI/IES LM-63-02, "Standard File Format for Electronic Transfer of Photometric Data"
- IES LM-79-08, "Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products"
- ANSI/IES LM-80-15, "IES Approved Method: Measuring Luminous Flux and Color Maintenance of LED Packages, Arrays and Modules"
- ANSI/IES RP-8-14, "Roadway Lighting"
- IES TM-21-11 (with Addendum B), "Projecting Long Term Lumen Maintenance of LED Light Sources"

Institute of Electrical and Electronics Engineers (IEEE)

- IEEE Std 1789-2015, "IEEE Recommended Practices for Modulating Current in High-Brightness LEDs for Mitigating Health Risks to Viewers"

International Electrotechnical Commission (IEC)

- IEC 60929:2011 (with Amendment 1), "AC and/or DC-supplied electronic control gear for tubular fluorescent lamps - Performance requirements"

Underwriters Laboratories (UL)

- ANSI/UL 1598 (3rd Edition), "Luminaires"

Submittal Requirements:

The Contractor must submit the following information pertaining to each specified luminaire type within fifteen (15) days of request:

1. Completed ATTACHMENT A – Submittal Form

2. Product Data Sheets.

a) Luminaire data sheets – including summary product description, dimensioned outline drawings, and nominal characteristics including but not limited to: initial luminous flux (lumens), input power (watts), input voltage range (volts), LED drive current (milliamps), correlated color temperature (kelvins), color rendering index, effective projected area (square feet) and weight (pounds).

b) LED Driver data sheet – including information described in LED Driver Requirements Section III-I-3.

c) LED light source data sheet

d) Surge protection device data sheet - if applicable

3. Photometric Performance Data

The manufacturer must provide photometric calculations, as part of each luminaire's submittal package that demonstrates the luminaire's photometric performance will meet or exceed the photometric requirements listed in this specification. The submitted lighting calculations must include point-by-point illuminance, luminance and veiling luminance data, as well as listings of all indicated averages and ratios. Photometric reports must include the following information and be in accordance with the standards listed below:

a) IES LM-79-08 photometric report that includes measured values for initial luminous flux, input power, correlated color temperature, and color rendering index.

b) ANSI/IES LM-63-02 electronic format photometric file that corresponds to the LM-79 report.

c) LM-63 photometric calculations that demonstrate compliance with the illumination requirements specified herein using the LM-63 file. Calculation grids and observer locations not specified herein must be in accordance with ANSI/IES RP-8-14.

d) IES TM-21-11 calculations that derive the lumen maintenance (lamp lumen depreciation or LLD) factor applied to photometric calculations specified herein.

- ANSI/IES LM-80-15 and in-situ temperature measurement testing (ISTMT) reports containing data used in TM-21 calculations must also be submitted.
- TM-21 calculations must apply to the maximum LED case temperature from ISTMT, shall not extrapolate beyond six times the duration of available LM-80 test data, and must be submitted in the spreadsheet format of the ENERGY STAR TM-21 calculator

https://www.energystar.gov/products/spec/luminaires_specification_version_2019).

LM-79, ISTMT, and LM-80 reports must correspond directly to submitted luminaires, and must be produced by test laboratories that satisfy the Testing Laboratory Requirements of the DesignLights Consortium (www.designlights.org/content/QPL/ProductSubmit/LabTesting).

ISTMT must be conducted in accordance with the DesignLights Consortium Manufacturer's Guide (<https://www.designlights.org/content/qpl/productssubmit>).

ISTMT shall be conducted in an ambient temperature of 25 ± 5 °C. Ambient temperature variations above or below 25 °C shall be respectively subtracted from or added to temperatures recorded at points on the luminaire.

4. Safety Certification - file number indicating compliance with UL 1598. Applicable testing bodies are determined by the US Occupational Safety Health Administration (OSHA) as Nationally Recognized Testing Laboratories (NRTL) and include: CSA (Canadian Standards Association), ETL (Edison Testing Laboratory), and UL (Underwriters Laboratory).

5. Vibration Testing - the luminaire must comply with ANSI C136.31 at Vibration Test Level 2 (3.0 G).

6. Product Samples - at least two samples of each luminaire that the contractor proposes to use must be submitted to the City. All samples must be representative production units and be supplied at no cost to the City.

B. Assembly.

Each luminaire must be delivered completely assembled, wired, and ready for installation.

C. Warranty.

The luminaire manufacturer must warrant the performance and construction of luminaires to meet the requirements of this specification, and must warrant all parts, components and appurtenances against defects due to design, workmanship or material developing within a period of ten (10) years from the date of acceptance by the City.

- The inability of a luminaire to be dimmed will constitute a luminaire failure.
- Failure of 10% or more of the LED light sources (packages or arrays/modules) in a luminaire will constitute a luminaire failure.
- The warranty must apply for application on all of the City's existing electrical systems, both grounded and ungrounded.
- During the warranty period the City may, from time to time, test a random sampling of 5-10 luminaires for verification of light output per IES LM-79 and to test dimming functionality for a given luminaire population. The percentage of luminaires not performing as required in the random sampling will be applied to the total population quantity to determine the number of new luminaire replacements that must be delivered to the City by the manufacturer, without expense to the City.

D. Manufacturing Experience and Capacity

The manufacturer must demonstrate at least a five year history of manufacturing LED roadway and outside area luminaires by providing a list of prior projects with project description, date, location, quantities and reference contact information. The manufacturer must also demonstrate the capacity to supply the quantities required for the contract in a timely manner.

III. CONSTRUCTION

A. Weight

The net weight of these luminaires must not be more than 29 pounds.

B. Housing.

The preferred luminaire housing material is die-cast aluminum alloy meeting ASTM Specification A380. Alternate materials may be considered. The housing must enclose the mounting hardware, LED arrays, control receptacle, terminal board, and electronic driver. The housing must include a surface to facilitate leveling with a spirit level. The housing must have integral heat sink characteristics, such that all enclosed components will operate within their designed operating temperatures under expected service conditions. No external or removable heat shields or heat sinks; are permitted. The housing must be designed to encourage water shedding. The housing must be designed to minimize dirt and bug accumulation on the optic surface.

C. Mounting Provisions.

The luminaire must include a heavy gauge knuckle fitter clamping assembly suitable for secure attachment over the end of a two (2) inch 2" IP (2.375" OD) steel pipe or tenon with a minimum of three (3) set screws. The fitter will be fitted with a knuckle joint to allow vertical positioning..

D. Access Door-Panel.

An access door panel allowing access to the terminal strip and LED driver must be provided. A die-cast aluminum door-panel composed of aluminum alloy A380 is preferred; alternate materials may be considered. The door-panel must be hinged to the luminaire housing and suitably latched and fastened at the closing end. It must be made to be removed easily. The hinge and fastening devices must be captive parts which will not become disengaged from the door panel.

E. Hardware.

All machine screws, locknuts, pins and set screws necessary to make a firm assembly, and for its secure attachment to the mast arm, must be furnished in place. All hardware must be of stainless steel, zinc plated steel, copper silicon alloy or other non-corrosive metal, and where necessary must be suitably plated to prevent electrolytic action by contact with dissimilar metals.

F. Finish.

The luminaire must have a polyester powder coat with a minimum 2.0 mil thickness. Surface texture and paint quality will be subject to approval. Color must be as specified in the order. A paint chip must be submitted as a sample upon request. The finish must exceed a rating of six per ASTM D1654 after 1000 hours of testing per ASTM B117. The coating must exhibit no greater than 30% reduction of gloss per ASTM D523 after 500

hours of QUV testing at ASTM G154 Cycle 6.

G. Ingress Protection.

1. The luminaire electric compartment housing must have an ingress protection rating of IP54 or better as described in ANSI C136.25-2013). The optical system must have a minimum rating of IP 66.
2. The luminaire must be listed for wet locations by a U.S. Occupational Safety Health Administration (OSHA) Nationally Recognized Laboratory (NRTL) and have a safety certification and file number indicating compliance with UL 1598.

H. General Luminaire Requirements

1. The luminaire must be rated to operate between -40° to +50° Celsius.
2. The luminaire must meet the requirements of ANSI C136.22 for internal labeling. A bar code with pertinent information for warranty and maintenance must be attached to the inside of the housing. A separate bar code label must be on the driver
3. The luminaire must be able to provide pertinent product information, for warranty and maintenance purposes, in a digital format that is compliant with the 0-10 VDC Node as per Section III-I-h). This information will be transmitted through the networked Lighting Management control system.

I. Electrical Components

1. LED Optical Arrays

- a) The LED arrays must be properly secured at the factory and must not require field adjustment for optimum photometric performance.

2. Terminal Block

- a) A terminal block of high grade molded plastic of the barrier or safety type must be mounted within the housing in a readily accessible location.
- b) Terminal block wiring; all necessary terminals, pre-wired to all luminaire components, must be provided.
- c) Terminal block terminals must have copper plated or brass plated, clamp-type pressure connectors of an approved type for "line" connections, to accommodate wire sizes from #12 to #8 A.W.G.
- d) Terminal block terminals for internal component connections must be either the screw-clamp or quick disconnect type.

3. LED Driver:

- a) Voltage. The electronic driver must operate at an input voltage range of between 120 and 277 volts, 60 Hertz. It must automatically sense the input voltage and adjust the output accordingly. The City uses nominal input voltages of 120, 208, and 240 for street lighting. When operated at any supply voltage between 80 percent and 110 percent of its rated supply voltage and at rated

input frequency, a driver shall provide current and/or voltage regulation that equals or exceeds the values specified by the manufacturer.

- b) Electrical Safety. Luminaires must operate at or below the Low-Risk Level, as defined in Figure 18 of IEEE 1789-2015. This requirement must be satisfied across the dimming range.
- c) Power Factor (PF). The power factor of the driver over the design range of input voltages specified above must be in accordance to ANSI C82.77-2014. PF must be ≥ 0.9 .
- d) Total Harmonic Distortion (THD). The driver input current must have specified THD in accordance to ANSI C82.77-2014. THD must be $\leq 20\%$.
- e) Thermal Protection. The driver must be thermally protected to shut off when operating temperatures reach unacceptable levels.
- f) Electromagnetic Interference. Luminaire must comply with the FCC radiation emission limits for Class B digital devices given at 47 CFR 15.109.
- g) Electrical Transient Immunity.
 - Dielectric Withstand Testing - luminaire must meet the performance requirements specified in ANSI C136.2-2015 for dielectric withstand, using the DC test level and configuration.
 - Electrical Transient Immunity - luminaire must meet the performance requirements specified in ANSI C136.2-2015 for electrical transient immunity, using the Enhanced (10 kV / 5 kA) combination wave test level.
 - **Transient Immunity Testing Requirements**
 - During electrical transient immunity testing, the device under test (DUT) must: be connected to the power source through a series coupler/decoupler network (CDN), using a two-wire (hot or hot/neutral) connection between both the power supply and CDN input and the CDN output and DUT.
 - If AC mains are used to power the DUT, the input waveform must be characterized and documented both before and after electrical transient immunity testing, with the DUT operating at rated full output.
 - For Pre-Test DUT Characterization, the diagnostic measurements shall, at a minimum, include the following: real power, input current (RMS; Root-Means-Square), power factor, and current distortion factor (THD-I Total Harmonic Distortion) when operating at rated full output.
 - Manufacturer must indicate on submittal form whether failure of the electrical transient immunity system can possibly result in disconnect of power to luminaire.
- h) Dimming Capability. The driver must be capable of dimming. The dimming range must be 10% to 100% of full output. The digital lighting interface used for dimming must be 0-10 VDC as per the requirements of ANSI C136.41-2013.

There must be a minimum of 100 dimming steps between the top and bottom of the dimming range.

4.Wiring.

- a) All components must be completely factory wired with non-fading, color coded leads. These leads must be insulated with an approved class of insulation and must be #16 AWG conductor at a minimum.
- b) All wires within a single circuit path must be of the same size.
- c) No wire-nut splicing will be allowed.
- d) No unnecessary splices will be allowed.
- e) Quick disconnects must be provided for all components.
- f) All wires must be properly terminated.

5.Control Device Receptacle and Cap.

- a) Twist-lock Receptacle for a control device that meets ANSI C136.41 must be mounted in the top of the housing with provision for proper positioning of the control device.
- b) 5-pin Receptacle. The luminaire control receptacle must be fully prewired and compliant with ANSI C136.41-2013.
- c) 3-prong Shorting Cap that meets ANSI C136.10 must be provided.
- d) Receptacle Wire Leads must all be properly terminated.
- e) Receptacle repositioning. The receptacle must be able to be repositioned without the use of tools.
- f) Control Devices Not Included in LED Specifications. Whereas specifications for control receptacles are included, specifications for control devices are not. The control device performance requirements are part of the lighting management system specifications in the Smart Lighting Project Technology specifications.

6.Component Mounting.

All electrical components must be securely mounted in such manner that individual components can be easily maintained or replaced. Permanent straps or tie-wraps will not be permitted. The entire assembly should be easily disconnected and removed for replacement.

IV. PHOTOMETRIC REQUIREMENTS

1. The light pattern will be wide angle with a NEMA 6X6 distribution.

2. Light Pollution.

To limit light pollution, the submitted luminaires must not emit any light above the horizon (0 lumens at angles $\geq 90^\circ$ from luminaire nadir).

3. Lumen Maintenance.

a) LED arrays must deliver a minimum of 90% of initial lumen output at 36,000 hours of operation.

b) Light Loss Factor (LLF) < 1.0 . Calculations for maintained values, i.e. $LLF = LLD \times LDD \times LAT$.

(1) Lamp Lumen Depreciation (LLD) calculated at 60,000 hours as per Section II-B-3-d above,

(2) Luminaire Dirt Depreciation (LDD) ≤ 0.90 , and

(3) Luminaire Ambient Temperature (LAT) ≤ 0.96

Luminaires with less than 10,000 hours of available LM-80 test data may be submitted for consideration but must be clearly indicated as such.

4. Color Attributes

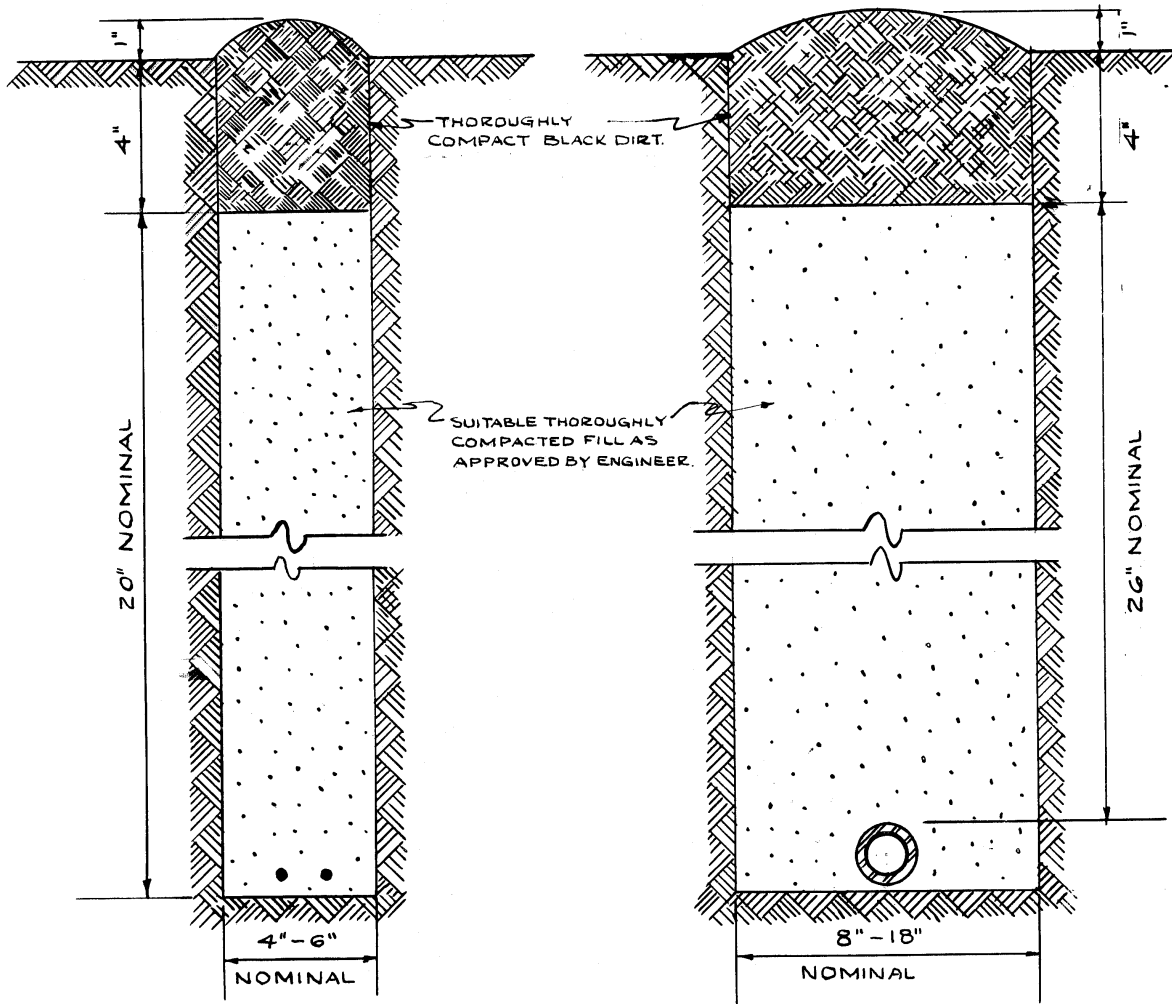
a) Color Rendering Index (CRI) shall be no less than 65.

b) Nominal Correlated Color Temperature (CCT) shall be 3000K as defined by ANSI C78.377 and described below:

Manufacturer-Rated Nominal CCT (K)	Allowable IES LM-79 Chromaticity Values	
	Measured CCT (K)	Measured Duv
3000	2870 to 3220	-0.006 to 0.006

ATTACHMENT A - Product Submittal Form

<i>Product Information Description</i>	<i>Product Data (Summary)</i>			<i>Submittal Reference Document</i>
Lighting Context	e.g. Alleys			
Luminaire Designation				
Luminaire Manufacturer				
Luminaire Model Number				
Luminous Flux – initial	lumens			
Luminaire input power—initial	watts			
Luminaire input power—maintained	watts			
Luminaire input voltage-nominal range	volts			
LED drive current - initial	milliamps			
LED drive current - maintained	milliamps			
CCT (correlated color temperature)	kelvin			
CRI (color rendering index)				
EPA (effective projected area) - nominal	sq. ft.			
Luminaire Weight - nominal	lbs.			
Control Interface	<input type="checkbox"/> ANSI C136.41, 7-pin			
LED Driver – dimming capability	<input type="checkbox"/> Dimmable, 0-10 VDC			
LED driver- rated life	years			
Electrical transient immunity ANSI C136.2 combination wave test level	<input type="checkbox"/> Basic (6kV/3kA)	<input type="checkbox"/> Enhanced (10kV / 5kA)	<input type="checkbox"/> Elevated (20kV/10kA)	
Vibration Test-ANSI C136.31	<input type="checkbox"/> Level 2			
Luminaire warranty period	years			
IES LM-80 test duration	hours			IES LM-80-15 report
LED lumen maintenance at 36,000 hours	%			TM-21 calculator
Max. LED case temperature	degrees Celsius			ISTMT report



CABLE TRENCH

CONDUIT TRENCH

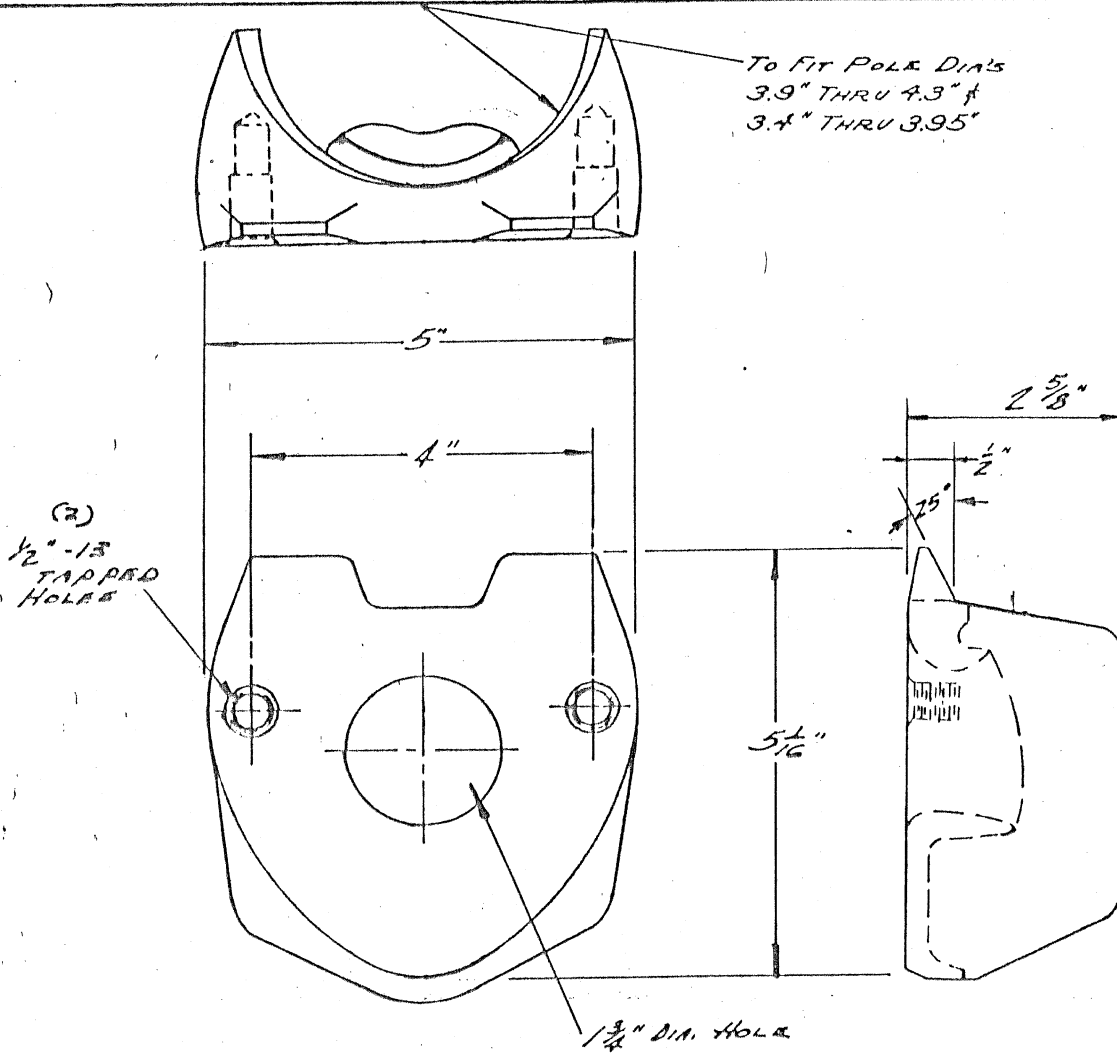
NOTE

EXCESS SOIL FROM TRENCH TO BE COMPLETELY REMOVED FROM SITE AS SOON AS PRACTICABLE.

BLACK DIRT TO BE TAMPED & THOROUGHLY COMPACTED AS SHOWN.

STANDARD METHOD FOR BACKFILLING CABLE & CONDUIT TRENCHES IN SODDED PARKWAY & LAWNS

CITY OF CHICAGO			
DEPT. OF STREETS & SANITATION			
DIVISION OF ELECTRICAL ENGINEERING.			
REVISION			
A			
B	DRAWN: W. E. HARP	CHECKED: M. J. Line	ENGINEER: J. O'CONNOR.
C	ENGR. IN CHARGE: <i>Frank D. Butts</i>		DRG. NO.
D	Supt. of Const. <i>Joseph J. Sullivan</i>		579
E	DEPUTY COMM. <i>John J. Kelley</i>		
F			
G			
H	SIZE: 8 1/2 x 14"	SCALE: N	DATE: 7-14-61

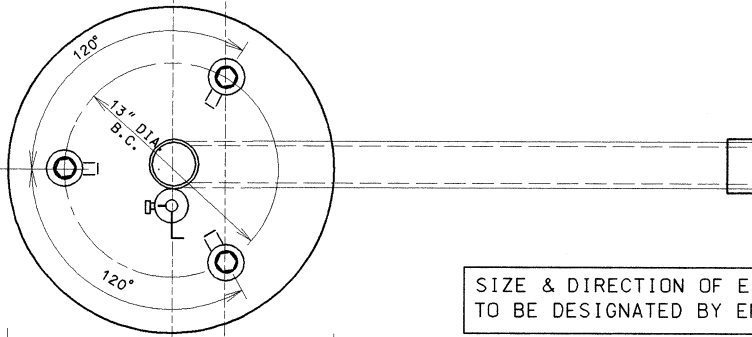


MATERIAL: CAST STEEL

A J.O.C. MATERIAL NOTE ADDED.				
<i>2 BOLT MAST ARM ATTACHMENT POLE PLATE DETAILS</i>				
REVISED		CITY OF CHICAGO DEPT. OF STREETS AND SANITATION DIVISION OF ELECTRICAL ENGINEERING		
A B C D E F G	5-27-76	DRAWN J. WANLFELDT	CHECKED U. BORE	
		<i>George R. Butcher</i> ENGINEER IN CHARGE		
		<i>Joseph J. Keeler</i> SUPT. OF CONST.		
		<i>John J. Keeler</i> DEPUTY COMM.		
		SIZE 8 1/2" x 14"	SCALE	DRG. NO. 659
				DATE 10-25-66

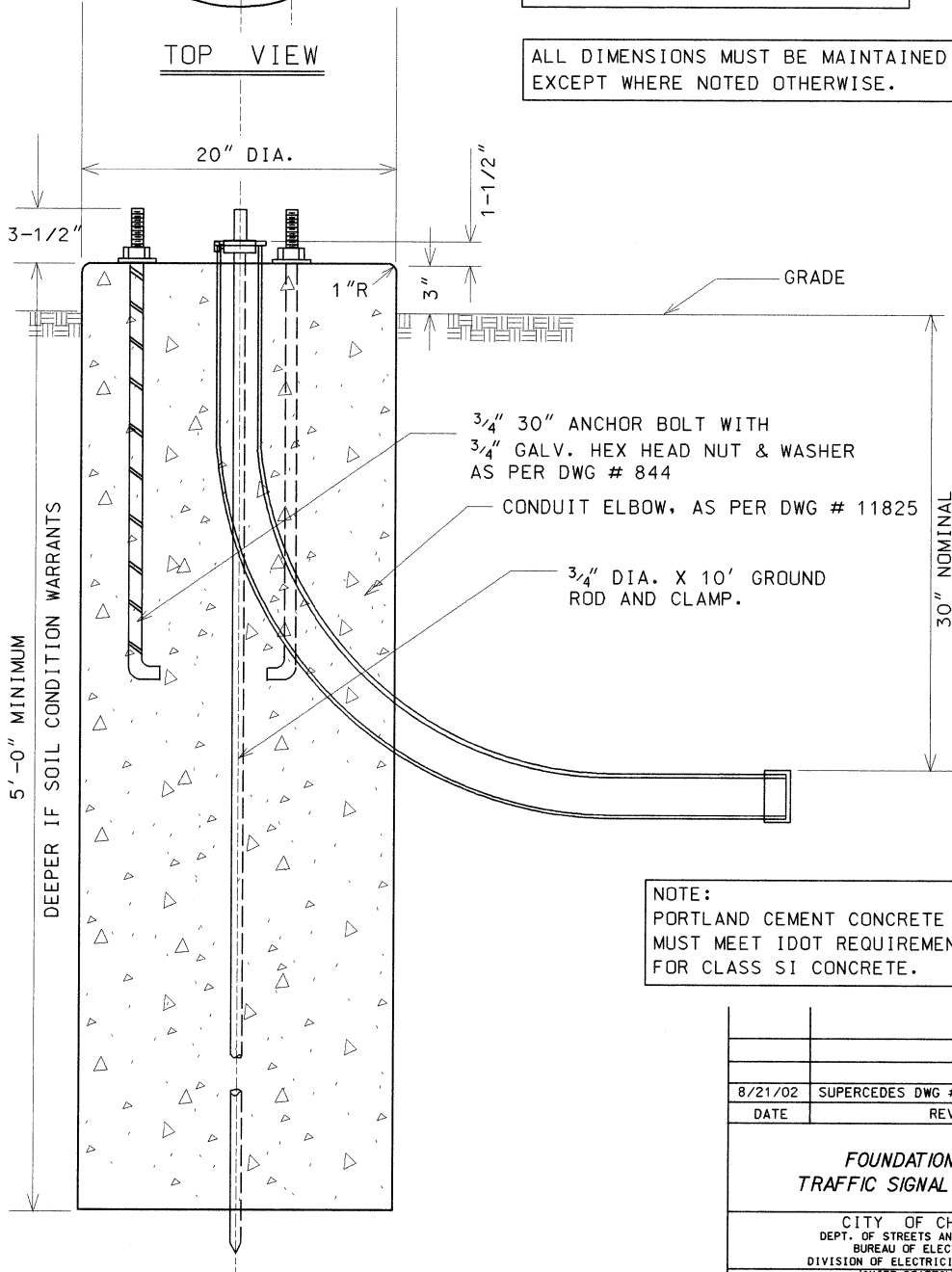
ORIENTATION OF BASE TO BE DESIGNATED BY ENGINEER

C/L OF BOLTS TO BE PERPENDICULAR TO ENTERING LATERALS OR AS DESIGNATED BY CITY ENGINEER.



SIZE & DIRECTION OF ELBOWS TO BE DESIGNATED BY ENGINEER.

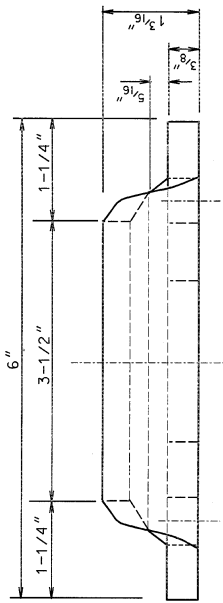
ALL DIMENSIONS MUST BE MAINTAINED EXCEPT WHERE NOTED OTHERWISE.



NOTE:
PORTLAND CEMENT CONCRETE MUST MEET IDOT REQUIREMENTS FOR CLASS SI CONCRETE.

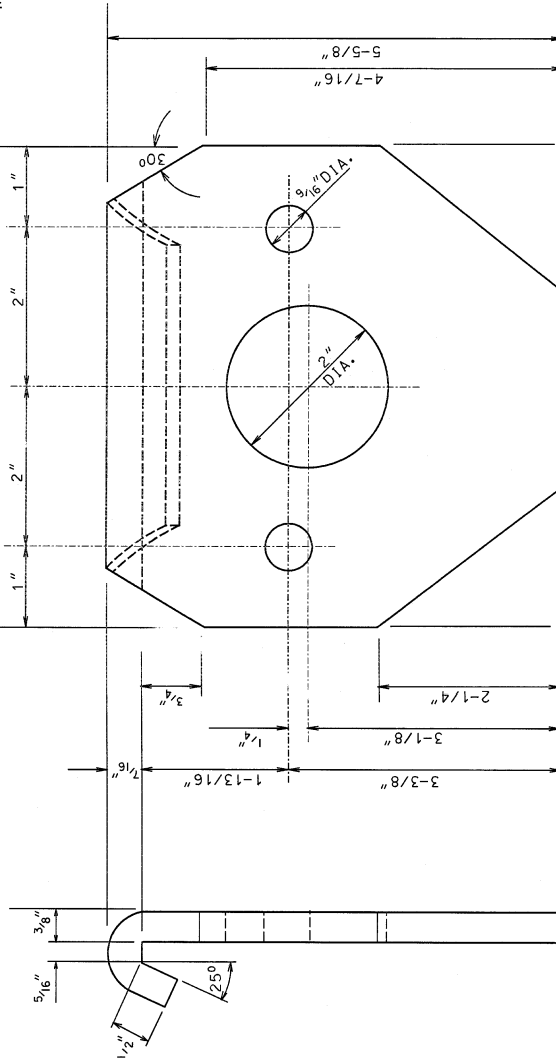
ELEVATION

8/21/02	SUPERCEDES DWG #709 DRAWN 7/22/80
DATE	REVISION
FOUNDATION FOR TRAFFIC SIGNAL PEDESTAL	
CITY OF CHICAGO DEPT. OF STREETS AND SANITATION BUREAU OF ELECTRICITY DIVISION OF ELECTRICAL ENGINEERING	
DRAFTSMAN: B. GARNSEY	CHIEF DRAFTSMAN: R. CARTER
ELECTRICAL ENGINEER	ENGINEER: B. GARNSEY
ENGINEER-OF-ELECTRICITY	
GENERAL SUPERINTENDENT	
DEPUTY COMMISSIONER	
SIZE: 11" x 17"	SCALE: NONE
DRAWING NO. 709 DATE: 8/21/02	



TOP VIEW

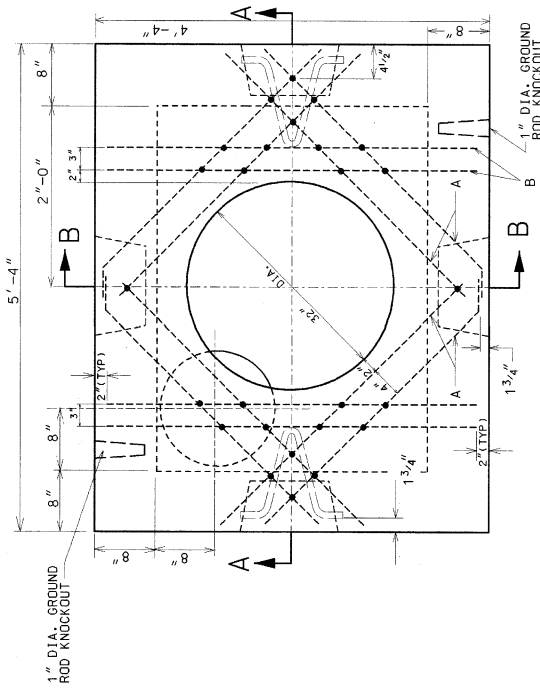
NOTE: REMOVE ALL SHARP EDGES
 MATERIAL: HOT ROLLED STEEL
 ASTM A-36



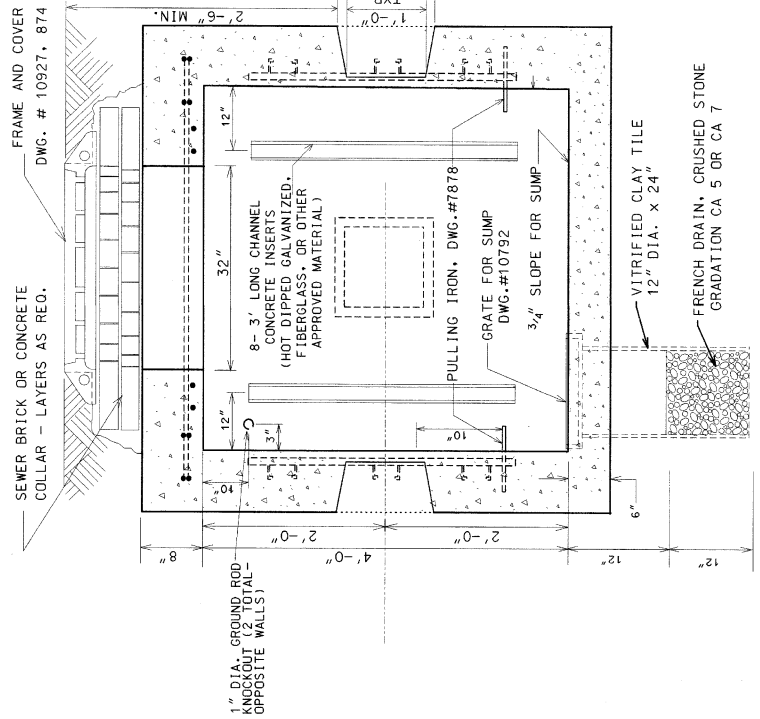
SIDE VIEW

FRONT VIEW

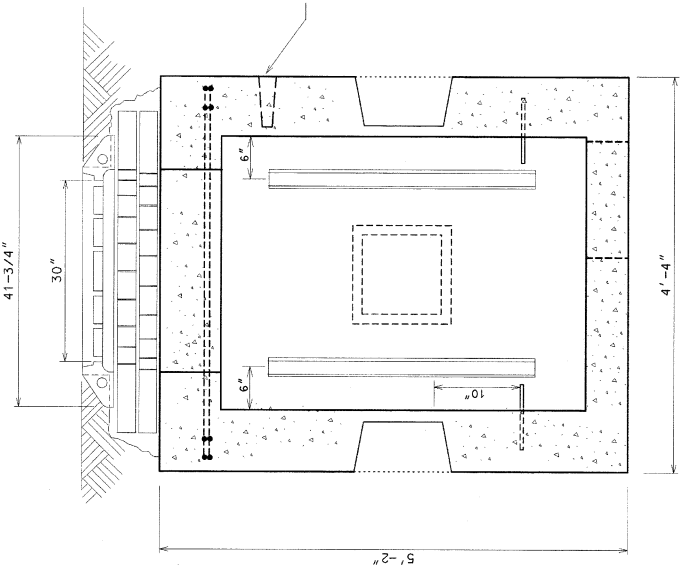
03-01-02	REDRAWN
TWO BOLT MAST ARM ATTACHMENT (BRACKET DETAILS)	
CITY OF CHICAGO DEPT. OF STREETS AND SANITATION DIVISION OF ELECTRICAL ENGINEERING	
DESIGNER: ROBERT IVY	ENGINEER: RON POOL
CHECKED BY: SUPERVISING ENGINEER	DATE: APPROVER
ENGINEER OF ELECTRICITY:	DWG. NO.
GENL. SUPV. OF ELECTRICITY: DEPUTY COMMISSIONER	724
DATE: 03-01-73	SCALE: NONE



ROOF PLAN



SECTION A-A



SECTION B-B

EXCAVATION (CONSTRUCTION INFORMATION)	
COMPLETE MANHOLE	5.0 CU. YDS.
NEW ROOF ONLY	2.0 CU. YDS.
SHEETING MANHOLE	150.0 SQ. FT.

#5 REINFORCING BARS	
BAR LENGTH	NO. OF RODS
A 2'-9"	8
B 4'-0"	4
TOTAL FT.	
22'-0"	
16'-0"	

MATERIALS FOR ROOF ONLY	
CONCRETE	0.5 CU. YDS.
REINFORCING BARS #5	38'

DRG.	MATERIAL	CODE	SIZE	No. Req'd
	FORM FOR MANHOLE	17-657-6000	3x4x4	1
	CONDUIT END BELL	17-668-535	AS	1
	TILE, SEWER	39-4038-3200	12"/24"	1
	SLAB BOLSTER		2"	20'
	BAR, REINFORCING	20-5472-9650	5/8" Ø	38'
	TIE WIRE	13-9938-6106	#20GA. 35'	
7878	PULLING IRON	02-4483-6970	3/4" Ø	2
	CONCRETE	05-3267-2940	3 CU. YDS	
	SEWER BRICK	05-1452-9720	STD.	50
10792	GRATE FOR SUMP	02-4368-7100	15" Ø	1
	GROUND ROD	09-7796-9200	3/4" x 10'	1
	GROUND ROD CLAMP	09-2636-3240	3/4"	1
	CRUSHED STONE	05-9057-5471	3/4" Ø	ONE BAG
874	MANHOLE FRAME	02-4239-5524	30"	1
10927	MANHOLE COVER	02-4574-5040	30"	1
	CONC. CHANNEL INSERT	02-4574-5040	3'	8

NOTES:

1. PRECAST MANHOLES MUST BE PROVIDED WITH CHANNEL INSERTS, PULLING IRONS, AND CONDUIT KNOCK-OUTS.
2. ALL CONCRETE MUST BE PORTLAND CEMENT CONCRETE MEETING IDOT REQUIREMENTS FOR CLASS PC CONCRETE FOR PRE-CAST STRUCTURES, OR CLASS S1 CONCRETE FOR CAST-IN-PLACE STRUCTURES.
3. REINFORCING BARS MUST MEET ASTM A615 GRADE 60.

8/21/02 SUPERCEDES DWG. 729 DATED JAN 12, 1996
 1/12/96 SUPERCEDES DWG. 729 DATED NOV. 21, 1973

DATE: _____ REVISION: _____

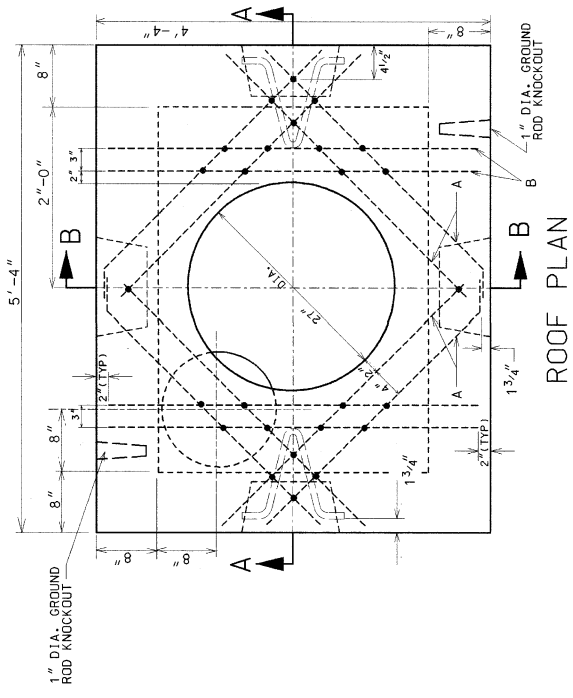
3' x 4' x 4' CONCRETE MANHOLE WITH 30" FRAME AND COVER

CITY OF CHICAGO
 DEPT. OF STREETS AND SANITATION
 BUREAU OF ELECTRICITY ILLINOIS
 DIVISION OF ELECTRICAL ENGINEERING
 B. GARNSEY CHIEF ELECTRICAL ENGINEER
 ELECTRICAL DESIGN ENGINEER
 ENGINEER OF ELECTRICITY
 GENERAL SUPERINTENDENT
 DEPUTY COMMISSIONER

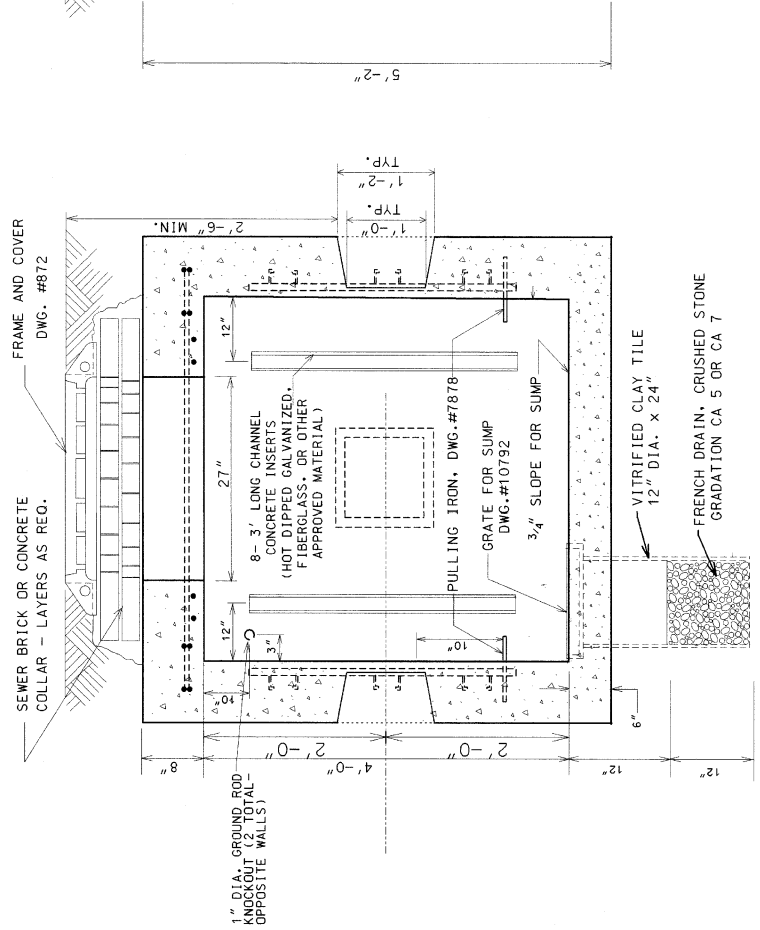
B. GARNSEY
 B. GARNSEY
 B. GARNSEY

DRAWING NO. **729**

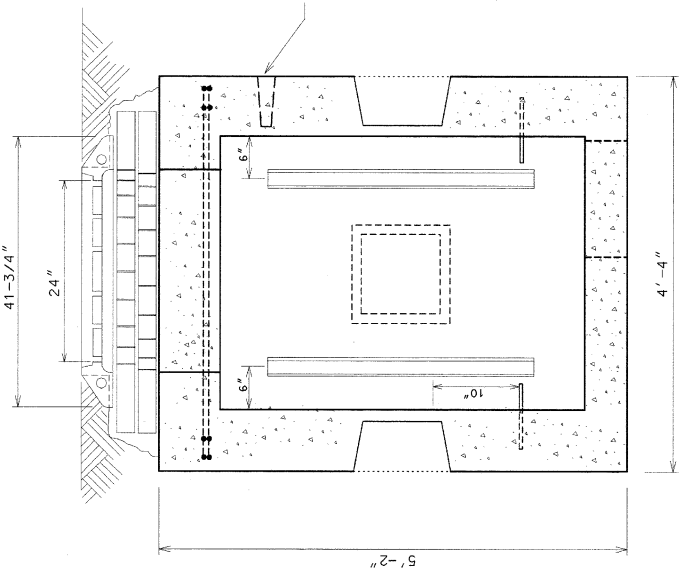
DATE: 8/21/02
 SCALE: NONE
 SIZE: 17" x 22"



ROOF PLAN



SECTION A-A



SECTION B-B

EXCAVATION (CONSTRUCTION INFORMATION)

COMPLETE MANHOLE	6.0 CU. YDS.
NEW ROOF ONLY	2.0 CU. YDS
SHEETING MANHOLE	150.0 SQ. FT.

#5 REINFORCING BARS

BAR	LENGTH	NO. OF RODS	TOTAL FT.
A	3'-4"	4	13'-4"
B	4'-0"	10	40'-0"

MATERIALS FOR ROOF ONLY

CONCRETE	0.45 CU. YDS.
REINFORCING BARS #5	54'

DRG.	MATERIAL	CODE	SIZE	No. Req.
	FORM FOR MANHOLE	17-6574-6090 17-6648-5320	3x4x4	1
	CONDUIT END BELL		AS REC.	
	TILE, SEWER	39-4038-3200	12"/24"	1
	SLAB BOLSTER		2" 20'	
	BAR, RE INFORCING	20-5472-9650	5/8" 15'	
	TIE WIRE	13-9938-6106	#20x1.35'	
7878	PULLING IRON	02-4483-6970	3/4" 12	
	CONCRETE	05-3267-2940	3 CU. YDS	
	SEWER BRICK	05-1452-9720	STD. 50	
10792	GRATE FOR SUMP	02-4368-7100	15" 1	
	GROUND ROD	09-7796-9200	3/4"x10'	1
	GROUND ROD CLAMP	09-2636-3240	3/4" 1	
	CRUSHED STONE	05-9087-5471	3/4" 1	
872	MANHOLE FRAME	02-4239-5524	24" 1	
872	MANHOLE COVER	02-4574-5040	24" 1	
	CONC. CHANNEL INSERT	02-4574-5040	3" 8	

NOTES:

1. PRECAST MANHOLES MUST BE PROVIDED WITH CHANNEL INSERTS, PULLING IRONS, AND CONDUIT KNOCK-OUTS.
2. ALL CONCRETE MUST BE PORTLAND CEMENT CONCRETE MEETING IDOT REQUIREMENTS FOR CLASS PC CONCRETE FOR PRE-CAST STRUCTURES, OR CLASS S1 CONCRETE FOR CAST-IN-PLACE STRUCTURES.
3. REINFORCING BARS MUST MEET ASTM A615 GRADE 60.

8/21/02	SUPERCEDES DWG. 730	DATED JAN 12, 1996
1/12/96	SUPERCEDES DWG. 730	DATED NOV. 21, 1973
DATE	REVISION	

3' x 4' x 4'
CONCRETE MANHOLE
WITH 24" FRAME AND COVER

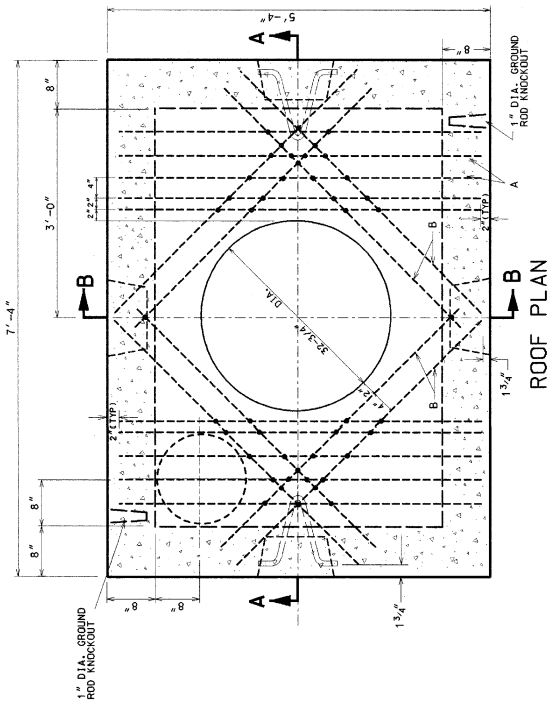
CITY OF CHICAGO
DEPT. OF STREETS AND SANITATION
BUREAU OF ELECTRICITY
ELECTRICAL ENGINEER
DRAFTSMAN: B. GARNSEY
DRAFTSMAN: R. CARTER
ELECTRICAL DESIGN ENGINEER
GENERAL SUPERINTENDENT
DEPUTY COMMISSIONER
8/21/02
DATE: 8/21/02
SCALE: NONE

730

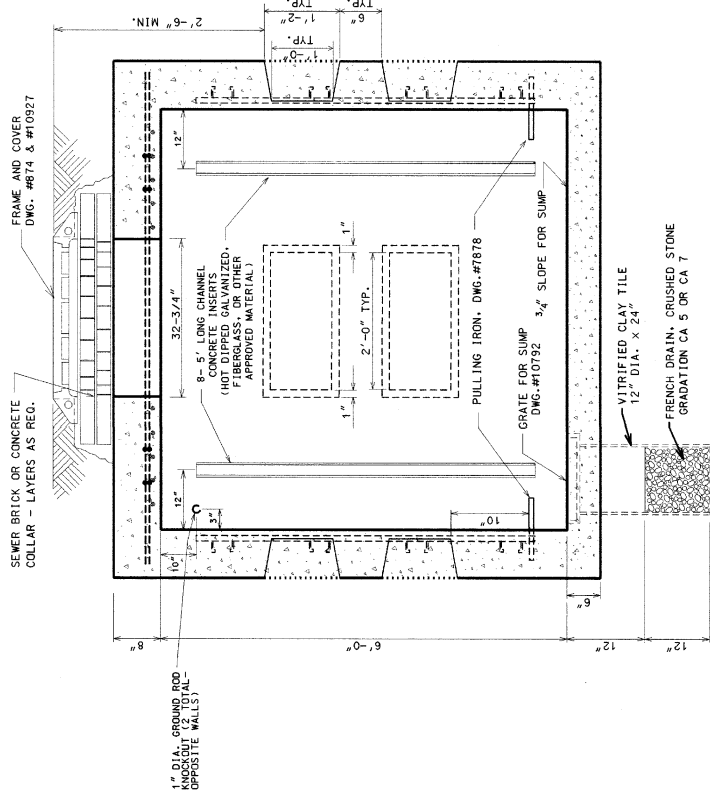
EXCAVATION (CONSTRUCTION INFORMATION)	
COMPLETE MANHOLE	11.5 CU. YDS.
NEW ROOF ONLY	2.2 CU. YDS.
SHEETING MANHOLE	254 SQ. FT.

#5 REINFORCING BARS		
BAR	LENGTH	NO. OF BARS
TOTAL FT.		
A	5'-0"	10
B	5'-0"	8

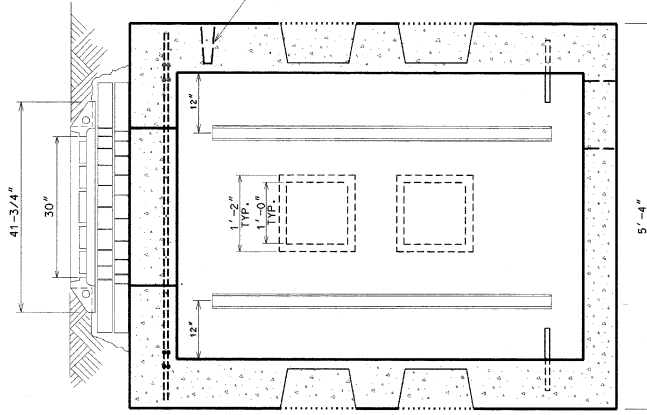
MATERIALS FOR ROOF ONLY	
CONCRETE	1.25 CU. YDS.
REINFORCING BARS #5	90'-0"



ROOF PLAN



SECTION A-A



SECTION B-B

DRG.	MATERIAL	CODE	SIZE	No. Req.
	FORM FOR MANHOLE	17-4574-5000	4' x 6' x 6'	1
	CONDUIT END BELL	17-6648-1320	AS REC.	
	TILE, SEWER	39-4038-3200	12' x 24"	50
	SLAB BOLSTER		2"	25'
	BAR, REINFORCING	20-5472-9650	5/8" ø	94'
	TIE WIRE	13-9938-6106	#20GA.	45'
7878	PULLING IRON	02-4483-6970	3/4" ø	2
	CONCRETE	05-3267-2940	8.5 CU. YDS.	
	SEWER BRICK	05-1452-9720	STD.	50
10792	GRATE FOR SUMP	02-4368-7100	15" ø	1
	GROUND ROD	09-7796-9200	3/4" x 10'	1
	GROUND ROD CLAMP	09-2636-3240	3/4"	1
	CRUSHED STONE	05-9057-5471	3/4" #40S	
874	MANHOLE FRAME	02-4299-5524	30"	1
10927	MANHOLE COVER	02-4574-5040	30"	1
	CONC. CHANNEL INSERT	02-4574-5040	5'	8

NOTES:

1. PRECAST MANHOLES MUST BE PROVIDED WITH CHANNEL INSERTS, PULLING IRONS, AND CONDUIT KNOCK-OUTS.
2. ALL CONCRETE MUST BE PORTLAND CEMENT CONCRETE MEETING 100% REQUIREMENTS FOR CLASS PC CONCRETE FOR PRE-CAST STRUCTURES, OR CLASS SL CONCRETE FOR CAST-IN-PLACE STRUCTURES.
3. REINFORCING BARS MUST MEET ASTM A615 GRADE 60.

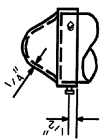
DATE	REVISION
10/8/02	SUPERCEDES DWG. 732 DATED 3/21/74

4' x 6' x 6'
CONCRETE MANHOLE
WITH 30" FRAME AND COVER

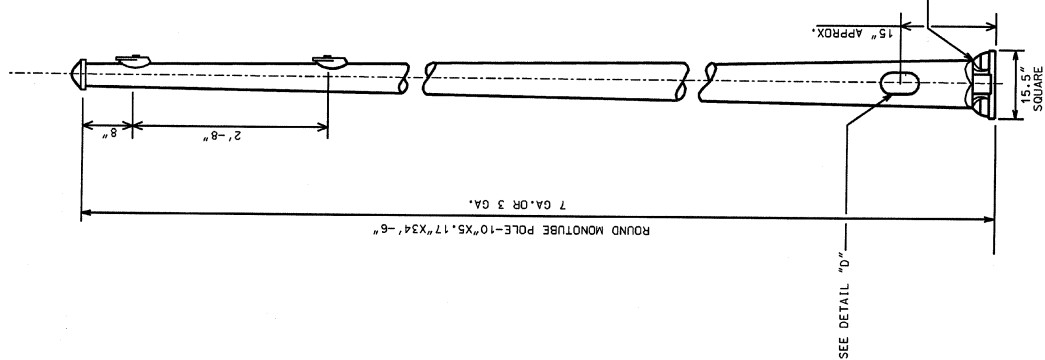
CITY OF CHICAGO
DEPT. OF PUBLIC WORKS
BUREAU OF ELECTRICAL ENGINEERING
DIVISION OF ELECTRICAL ENGINEERING
DRAFTSMAN: B. GARNSEY
CHIEF DRAFTSMAN: R. CARTER
ENGINEER: B. GARNSEY
ELECTRICAL DESIGN ENGINEER
GENERAL SUPERINTENDENT
DEPUTY COMMISSIONER
DATE: 10/08/02

DRAWING NO. **733**

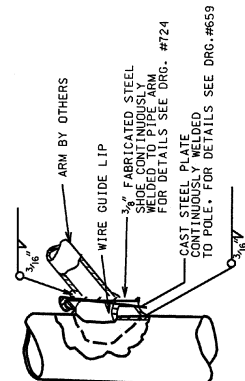
SIZE: 17" x 22" NONE



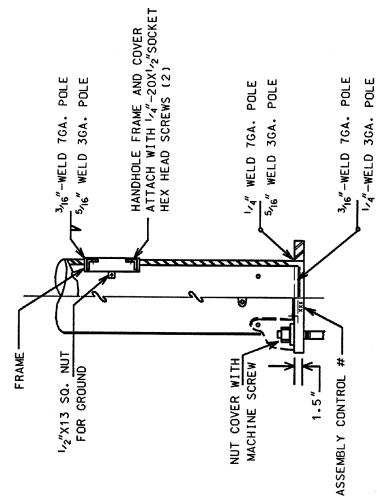
3/8" - 16NCX1" LONG SET SCREWS (3@120°)
POLE CAP
FOR DETAILS SEE DRG. # 11804A



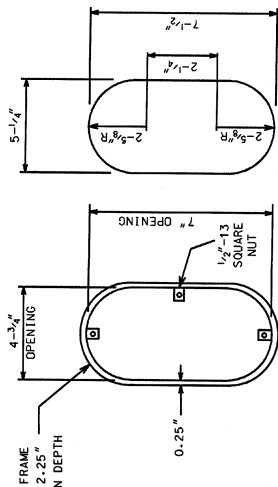
SEE DETAIL "D"



SECTION AT POLE PLATE



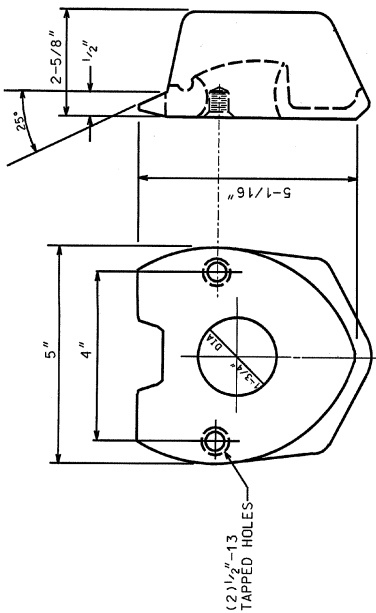
DETAIL "D"



FRAME

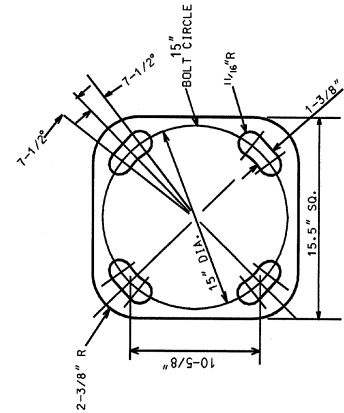
DOOR

HANDHOLE DETAIL



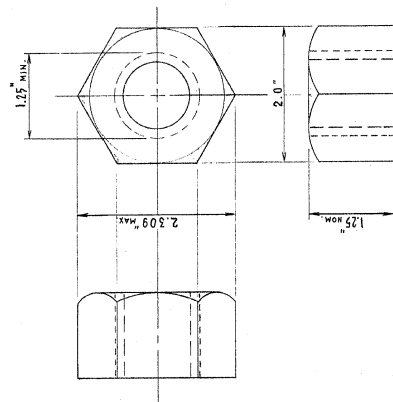
2 BOLT MAST ARM ATTACHMENT

FOR DETAILS SEE DRG. # 659 MATERIAL: CAST STEEL

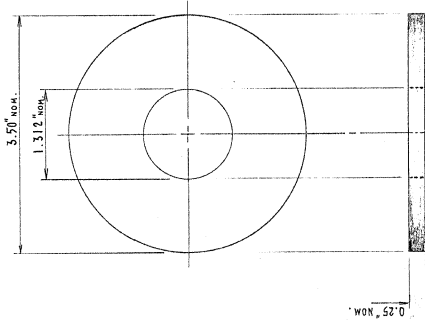


DETAIL "A"
BOLT SLOTS

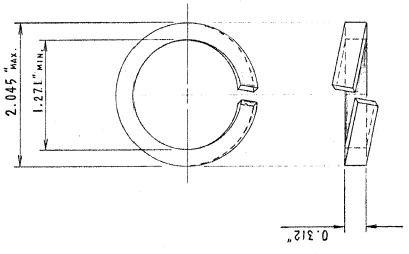
5.17" X 10.0" STEEL / 34' - 6" POLE 7 OR 3 GAUGE	
CITY OF CHICAGO DEPT. OF STREETS AND SANITATION DIVISION OF ELECTRICAL ENGINEERING	
DESIGNER: ROBERT IVY	ENGINEER: ROBERT CARTER
SUPERVISING ENGINEER: <i>[Signature]</i>	ELECT. DESIGN ENGR. <i>[Signature]</i>
ENGINEER OF ELECTRICITY: <i>[Signature]</i>	DWG. NO. 808
DEPT. CHIEF OF ELECTRICITY: <i>[Signature]</i>	10-03-01



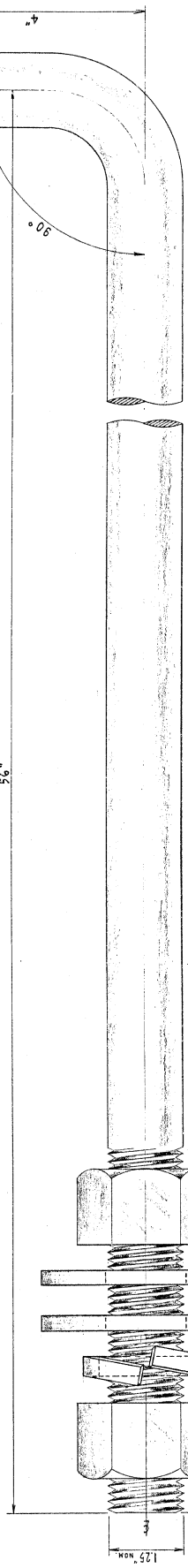
HEXAGON NUT
 AMER. MTL. STD. HEAVY HEX. FLAT NUT
 (ANSI B 18.2.2 - 1972)



FLAT WASHER
 AMER. MTL. STD. TYPE "B"
 SERIES "M" (ANSI B 18.22.1-1952, R15F)



LOCK WASHER
 AMER. MTL. STD. HELICAL SPRING LOCK WASHER
 (ANSI B 18.21.1 - 1972)



MATERIAL:

ASTM A490, CLASS B-2 MODIFIED STEEL, 55,000 LBS. MINIMUM YIELD.
 HARDWARE
 TO BE FURNISHED & ATTACHED IN PLACE OR ROD FOR SHIPPING:
 2 HEX. NUTS, HEAVY, GALV. 1/4"
 2 WASHERS, STEEL, ROUND, GALV. TYPE "B" SERIES "M", 1/4"
 1 WASHER, LOCK, STEEL, GALV., HELICAL SPRING, REGULAR, 1/4"
 BOLT & NUTS SHALL HAVE AN AMERICAN STANDARD CLASS 2 OR 3 FIT.
 (NUT IS TAPPED OVERSIZE BY 1/32")

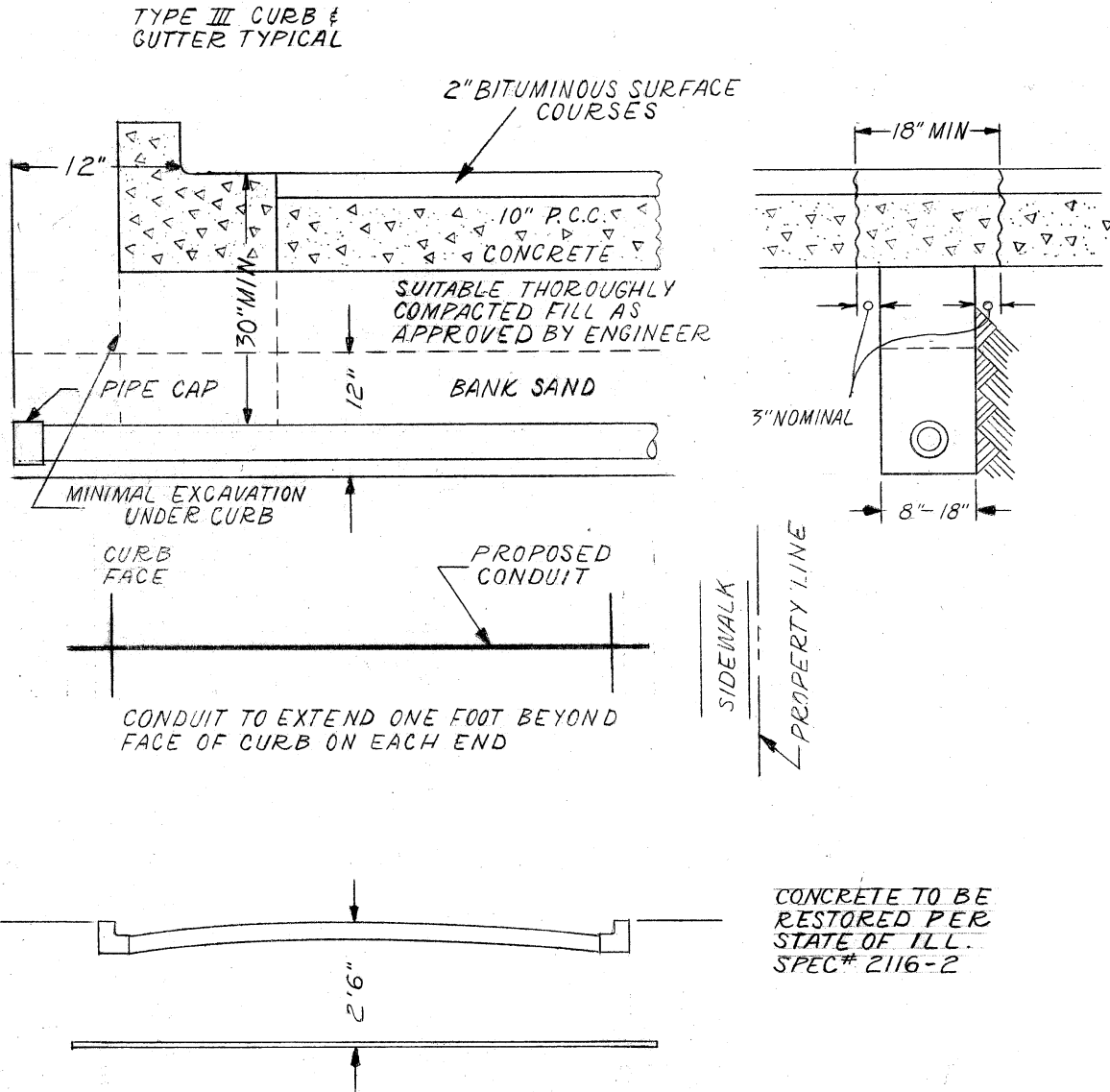
1/4" x 60"
STEEL ANCHOR ROD

REVISED	CITY OF CHICAGO
A JUL 28 1942	DEPT. BUREAU OF ELECTRICITY
B	DIVISION OF ELECTRICAL ENGINEERING
C	EUGENE GENSLER, CHIEF
D	EDWARD J. HILLIER
E	EDWARD J. HILLIER
F	EDWARD J. HILLIER
G	EDWARD J. HILLIER

811

LOGS-410-3-492

CONDUIT INSTALLATION UNDER PAVED STREET

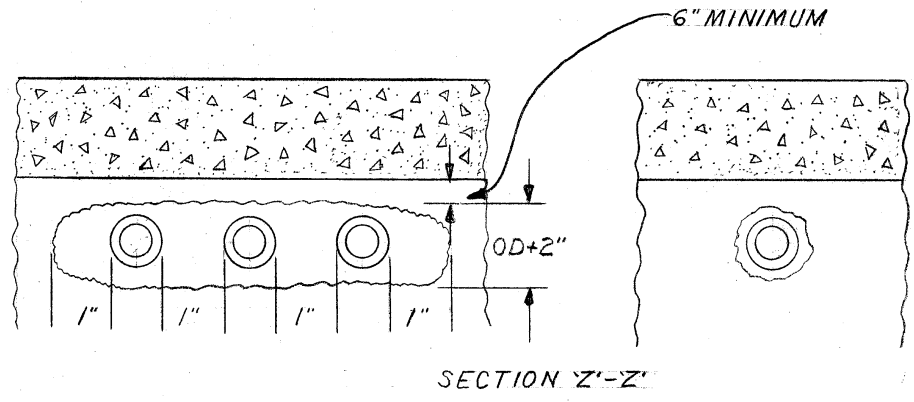
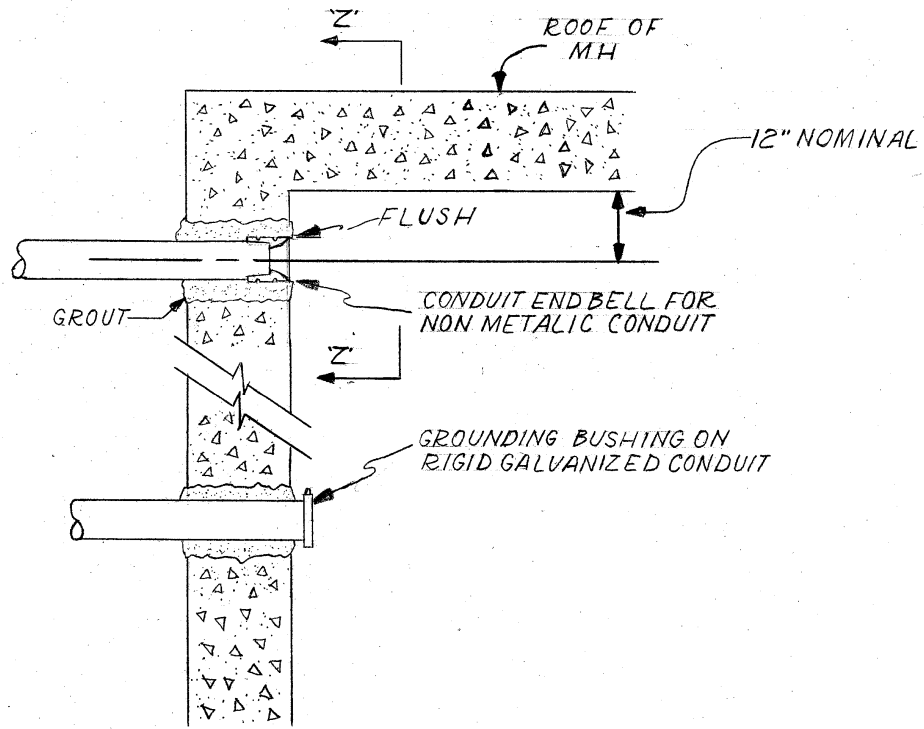


INSTALLATION METHOD OF
INSTALLING CONDUIT UNDER
PAVED ROADWAY

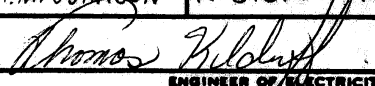
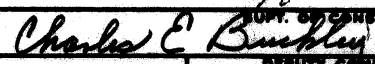
CITY OF CHICAGO
DEPT. OF STREETS AND SANITATION
BUREAU OF ELECTRICITY
DIVISION OF ELECTRICAL ENGINEERING

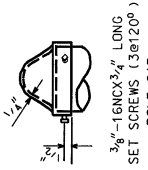
DRAWN A.M. JOHNSON	CHECKED R. SYCKOWSKI	ENGINEER R.L. MARTIN
<i>Thomas W. Kelly</i> ENGINEER OF ELECTRICITY		DRG. NO. 813
<i>Charles E. Binkley</i> DEPUTY COMM.		DATE 3-13-81
SIZE 8 1/2" X 14"	SCALE N.T.S.	

CONDUIT INSTALLATION THROUGH EXISTING
MANHOLE OR HANDHOLE WALL

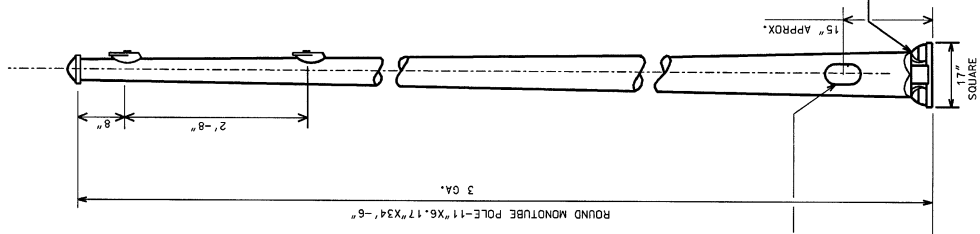


OPENING THROUGH WALL TO BE KEPT TO MINIMUM SIZE TO ADMIT CONDUIT AND SUFFICIENT GROUT TO ASSURE SEALING WALL.

INSTALLATION METHOD OF INSTALLING CONDUIT THRU MANHOLE WALL		
CITY OF CHICAGO DEPT. OF STREETS AND SANITATION BUREAU OF ELECTRICITY DIVISION OF ELECTRICAL ENGINEERING		
DRAWN A.M. JOHNSON	CHECKED R. SYCKOWSKI	ENGINEER R.L. MARTIN
 ENGINEER OF ELECTRICITY		DRG. NO. 814
 DEPUTY CHIEF ENGINEER		DEPUTY CHIEF DATE 3-13-81
SIZE 8 1/2" X 14"	SCALE N.T.	DATE

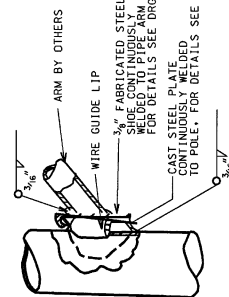


3/8" - 16NC x 3 1/2" LONG
SET SCREWS (3 @ 120°)
POLE CAP
FOR USE WITH POLE
DRG. # 11205-4

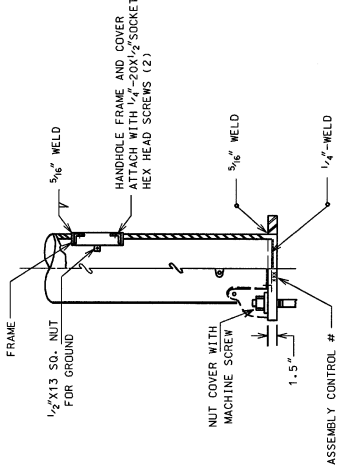


ROUND MONOTUBE POLE-11"x6.17"x34'-6"
3 GA.

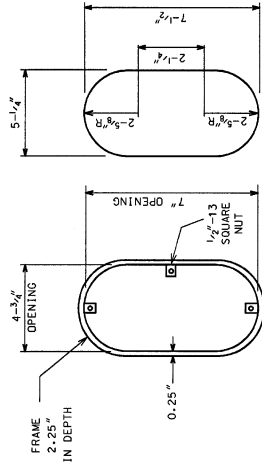
SEE DETAIL "D"



SECTION AT POLE PLATE



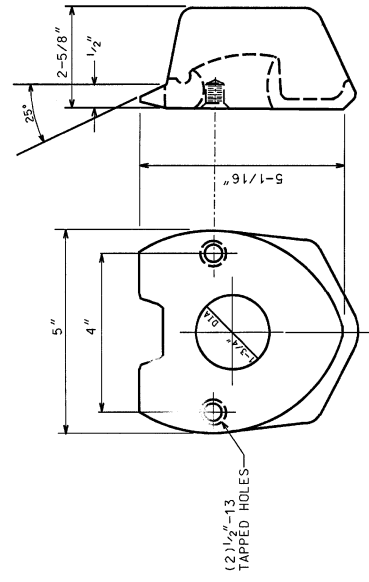
DETAIL "D"



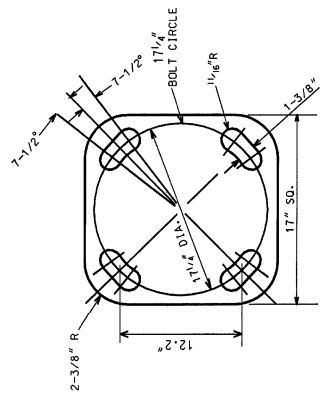
FRAME

DOOR

HANDHOLE DETAIL

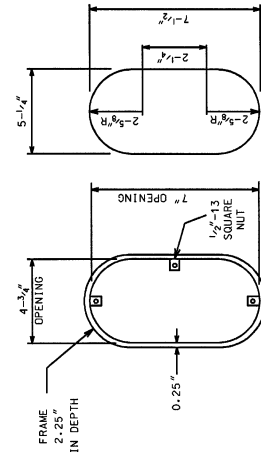
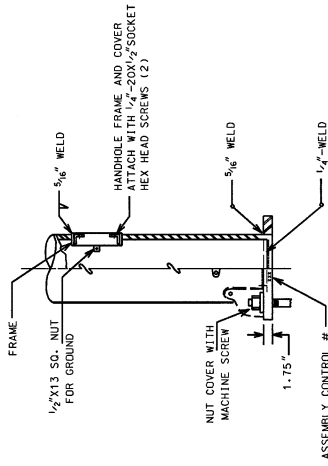
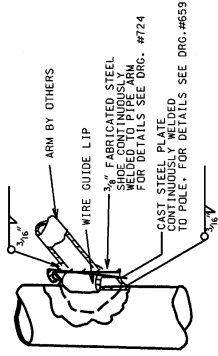
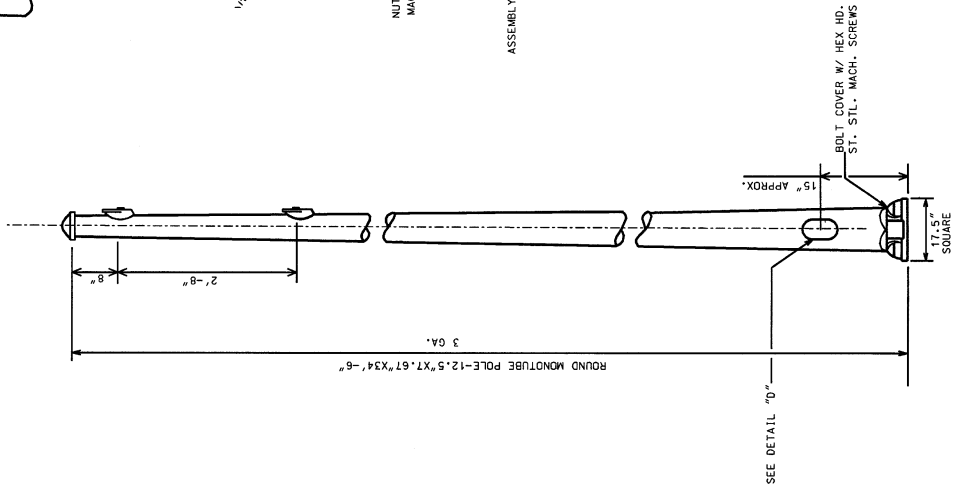
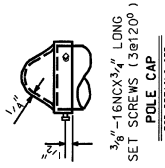


2 BOLT MAST ARM ATTACHMENT
FOR DETAILS SEE DRG.# 659 MATERIAL: CAST STEEL

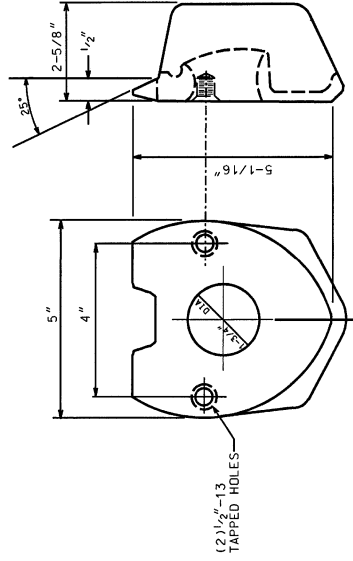


DETAIL "A"
BOLT SLOTS

6.17"x11.0" STEEL/34'-6" POLE 3 GAUGE	
CITY OF CHICAGO DEPT. OF STREETS AND SANITATION DIVISION OF ELECTRICAL ENGINEERING	
DRAFTSMAN: ROBERT IVY	ENGINEER: RON POOL
SUPERVISING ENGINEER: <i>[Signature]</i>	ELEC. DESIGN ENGR. <i>[Signature]</i>
ENGINEER OF ELECTRICITY: <i>[Signature]</i>	DWG. NO. 824
GEN'L SUPT. OF ELECTRICITY: <i>[Signature]</i>	DEPUTY COMMISSIONER: <i>[Signature]</i>
10-03-01	



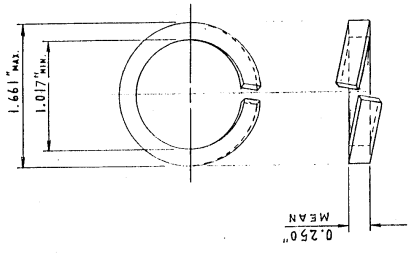
HANDHOLE DETAIL



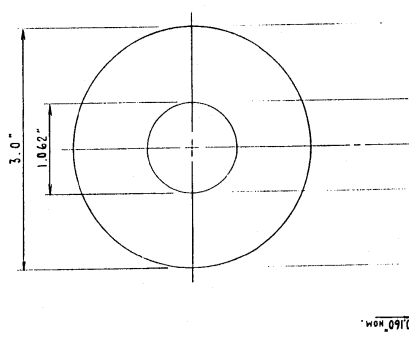
2 BOLT MAST ATTACHMENT
FOR DETAILS SEE DRG. # 659 MATERIAL: CAST STEEL

7.67" x 12.5" STEEL / 34' - 6" POLE
3 GAUGE

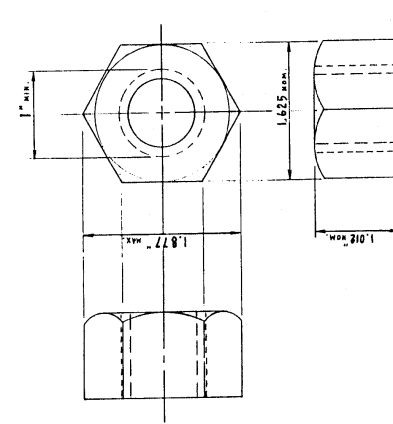
CITY OF CHICAGO DEPT. OF PUBLIC WORKS DIVISION OF ELECTRICITY		ENGINEER ROBERT IVY SUPERVISING ENGINEER	ENGINEER ROBERT CARTER ELECTRICAL ENGINEER	DWG. NO. 827
		DEPUTY COMMISSIONER D. J. Murphy		10-03-01



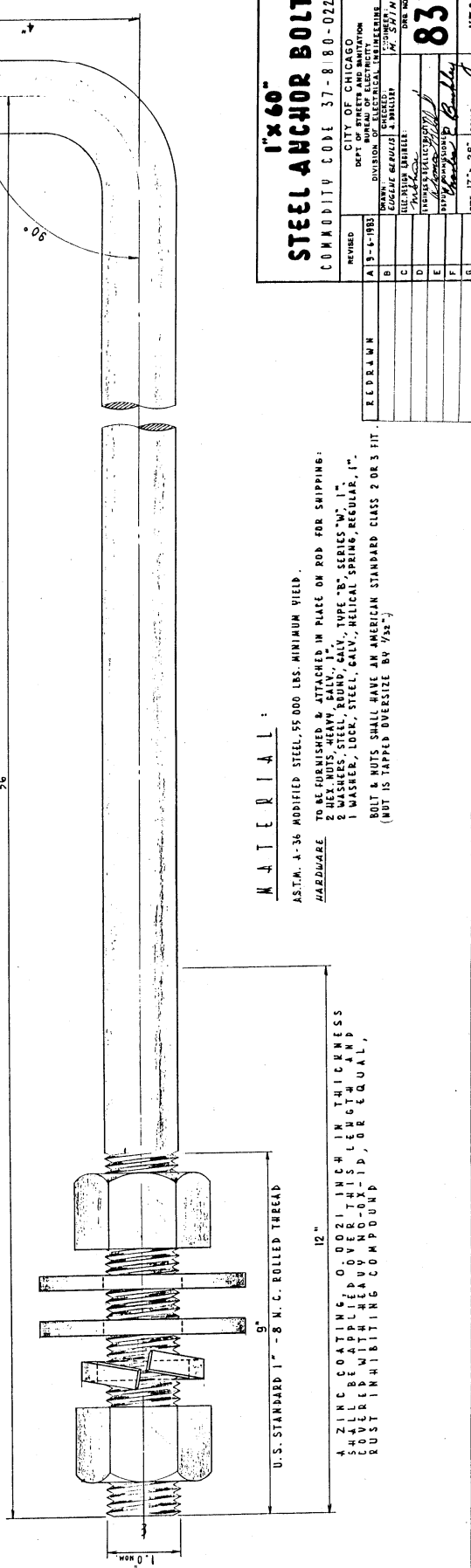
LOCK WASHER
 AMER. NAT'L. STD. HELICAL SPRING LOCK WASHER, REGULAR
 (ANSI B 18.21.1-1972)



FLAT WASHER
 AMER. NAT'L. STD. TYPE "B"
 SERIES "W" (1965, 1975)
 (ANSI B 18.21.1-1965, 1975)



HEXAGON NUT
 AMER. NAT'L. STD. HEAVY HEX. FLAT NUT
 (ANSI B 18.2.2 - 1972)



M A T E R I A L :

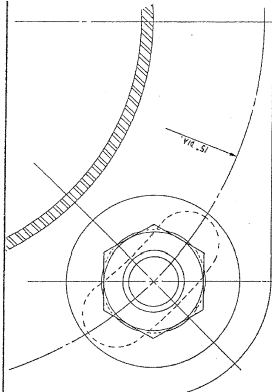
ASTM. A-36 MODIFIED STEEL, 55 000 LBS. MINIMUM YIELD.
 TO BE FURNISHED & ATTACHED IN PLACE ON ROD FOR SHIPPING:
 2 HEX. NUTS, HEAVY, GALV. 1"
 2 WASHERS, STEEL, ROUND, GALV., TYPE "B", SERIES "W", 1"
 1 WASHER, LOCK, STEEL, GALV., HELICAL SPRING, REGULAR, 1"
 BOLT & NUTS SHALL HAVE AN AMERICAN STANDARD CLASS 2 OR 3 FIT.
 (NUT IS TAPPED OVERSIZE BY 1/32")

1" x 60"	
STEEL ANCHOR BOLT	
COMMODITY CODE 37-8180-0220	
REVISED	CITY OF CHICAGO
A 19-1-1983	DEPT. OF STREETS AND MAINTENANCE
B	DIVISION OF PUBLIC UTILITIES
C	ENGINEER
D	INSPECTOR
E	ARCHITECT
F	DATE: 17. 26. 1983
G	SCALE: 1/4" = 1'-0"
DRAWN BY: <i>[Signature]</i> CHECKED BY: <i>[Signature]</i> DATE: 17. 26. 1983	
830	

INSTALLATION NOTES

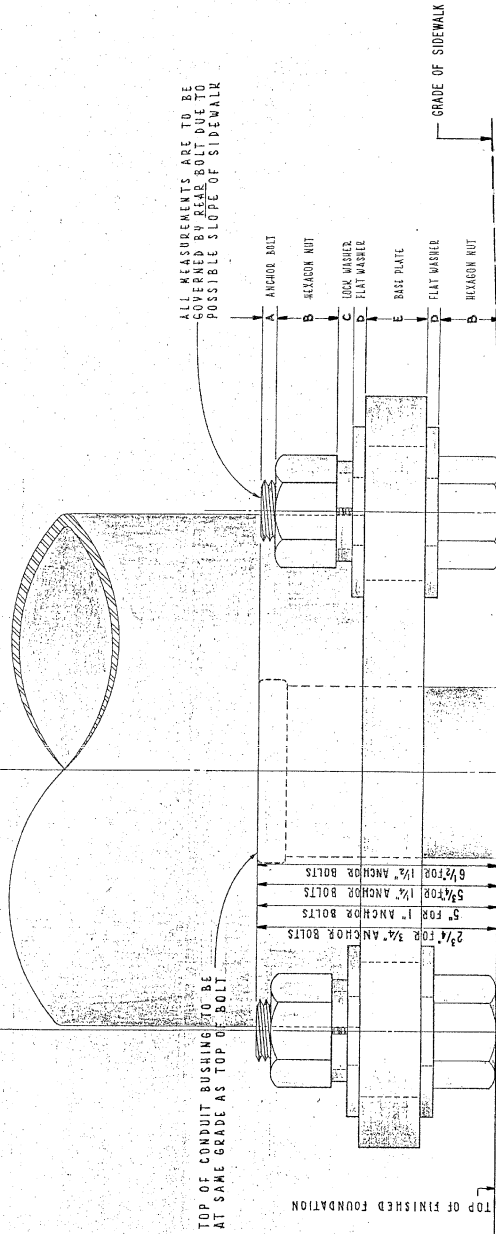
- STEP 1. COAT EXPOSED PORTION OF ANCHOR BOLTS WITH APPROVED ANTI RUSTING GREASE (NO-DX OR EQUAL).
- STEP 2. INSTALL LOWER LEVELLING NUTS & WASHERS, SET AT PROPER GRADE WITH HAND LEVEL. USE TABLE FOR APPROPRIATE DIMENSIONS.
- STEP 3. MOUNT POLE OR PEDESTAL, ATTACH TOP WASHERS & NUTS HAND TIGHT.
- STEP 4. PLUMB POLE OR PEDESTAL. AFTER ALL WASHERS, STREET LIGHTS, TRAFFIC SIGNALS & OTHER APPLIANCES ARE ATTACHED TO POLE & TIGHTEN ALL NUTS.
- STEP 5. ATTACH NUT COVERS WHERE REQUIRED.
- STEP 6. DO NOT GROUT IN SPACE BETWEEN BOTTOM OF POLE & TOP OF FOUNDATION. TOP OF FOUNDATION OR SURFACE OF SIDEWALK MUST BE LEFT CLEAN AND SMOOTH.
- STEP 7. POLE OR PEDESTAL IS TO BE PERFECTLY PLUMB. NO "KANE" IS TO BE LEFT.

NOTE:
BOLT COVER
NOT SHOWN



LINE	ANCHOR BOLT SIZE		ALUM. PEP.
	1"	1 1/2"	
A	7/16"	1 1/8"	7/16"
	7/16"	1 1/8"	7/16"
B	1"	1 1/4"	1 1/2"
	1"	1 1/4"	1 1/2"
C	5/8"	3/4"	3/8"
	5/8"	3/4"	3/8"
D	5/8"	3/4"	5/16"
	5/8"	3/4"	5/16"
E	1"	1 1/4"	1 3/8"
	1"	1 1/4"	1 3/8"

IF NECESSARY:
ANCHOR BOLT TO BE TRIMMED WITH SAW
TO THE CORRECT LENGTH OF ANCHOR BOLT
THEY WEARABLE STRENGTH OF ANCHOR BOLT
COAT ANCHOR BOLT WITH RUST-OLEUM HARD HAT ZINC RICH
COMPOUND.



ALL MEASUREMENTS ARE TO BE
GOVERNED BY REAR BOLT DUE TO
POSSIBLE SLOPE OF SIDEWALK.

REAR NUT TO BE SET TO GRADE OF
SIDEWALK OR TOP OF FOUNDATION

16" x 2 1/2"

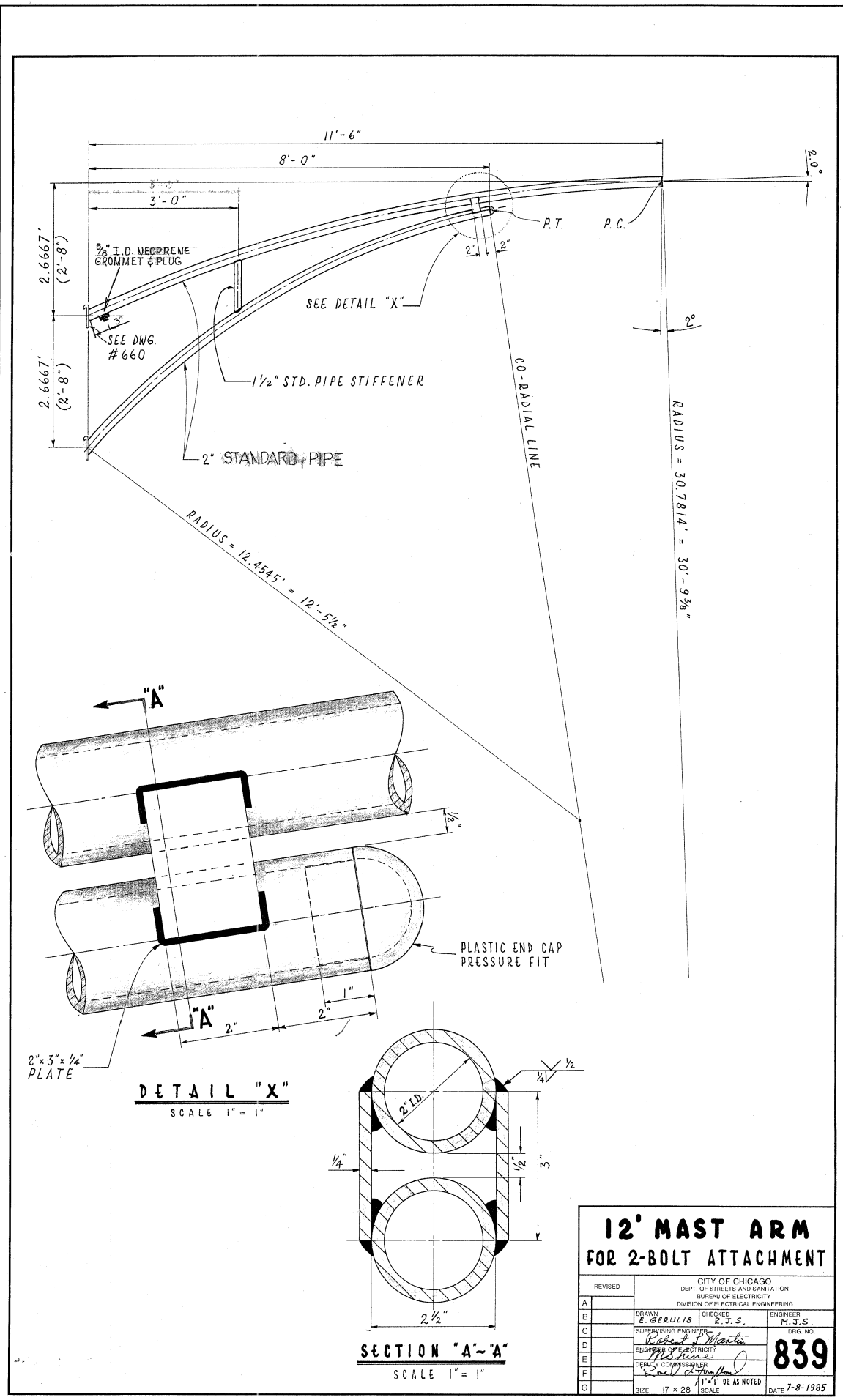
**CONSTRUCTION METHOD
FOR "DOUBLE-NUT"
INSTALLATION OF
POLES AND PEDESTALS**

CITY OF CHICAGO
DEPARTMENT OF PUBLIC WORKS
DIVISION OF STREET LIGHTS

DATE: 11-11-11
PROJECT: 11-11-11
DRAWN BY: [Signature]
CHECKED BY: [Signature]
APPROVED BY: [Signature]

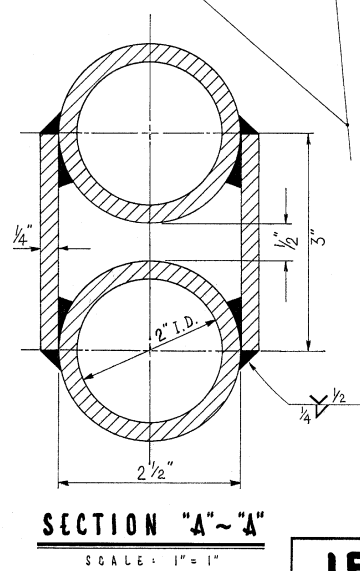
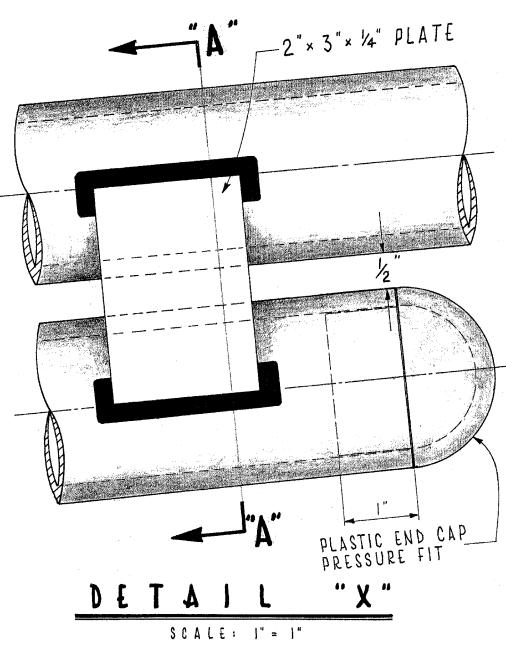
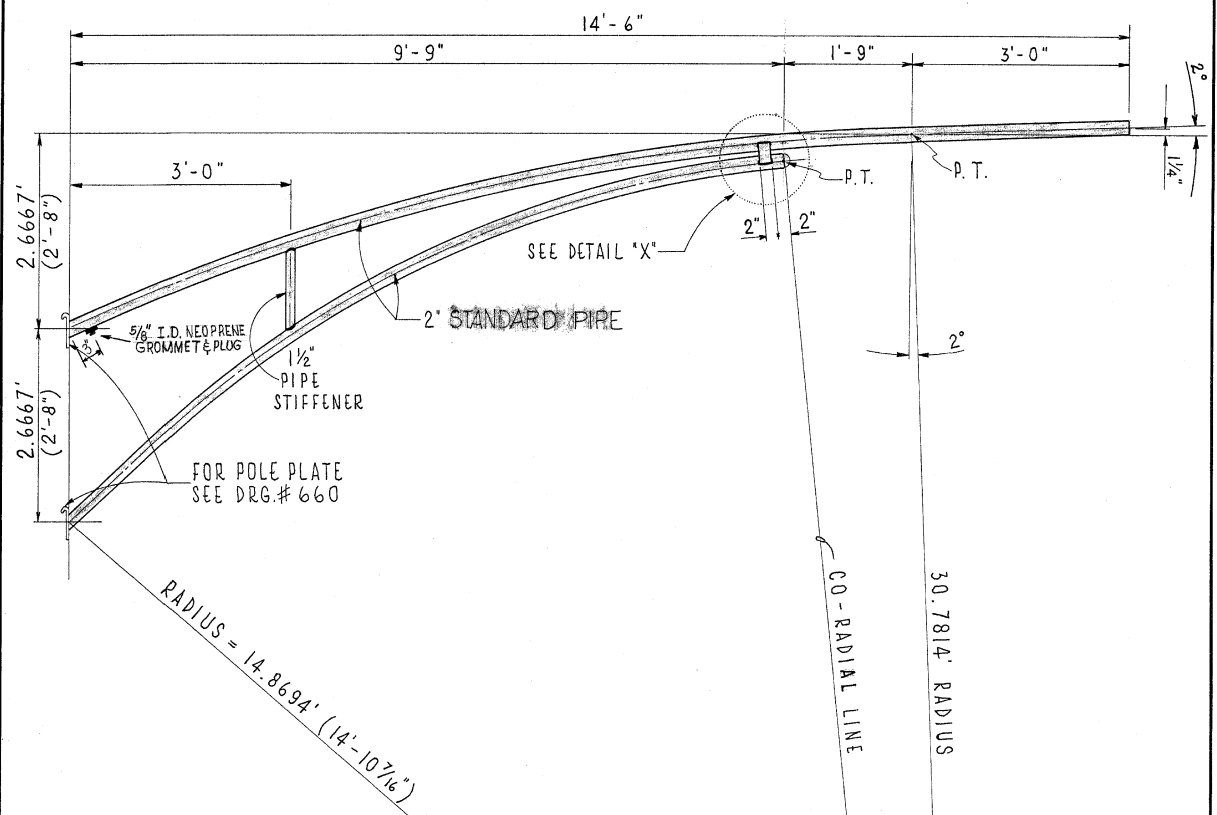
837

REV. 2-2-11

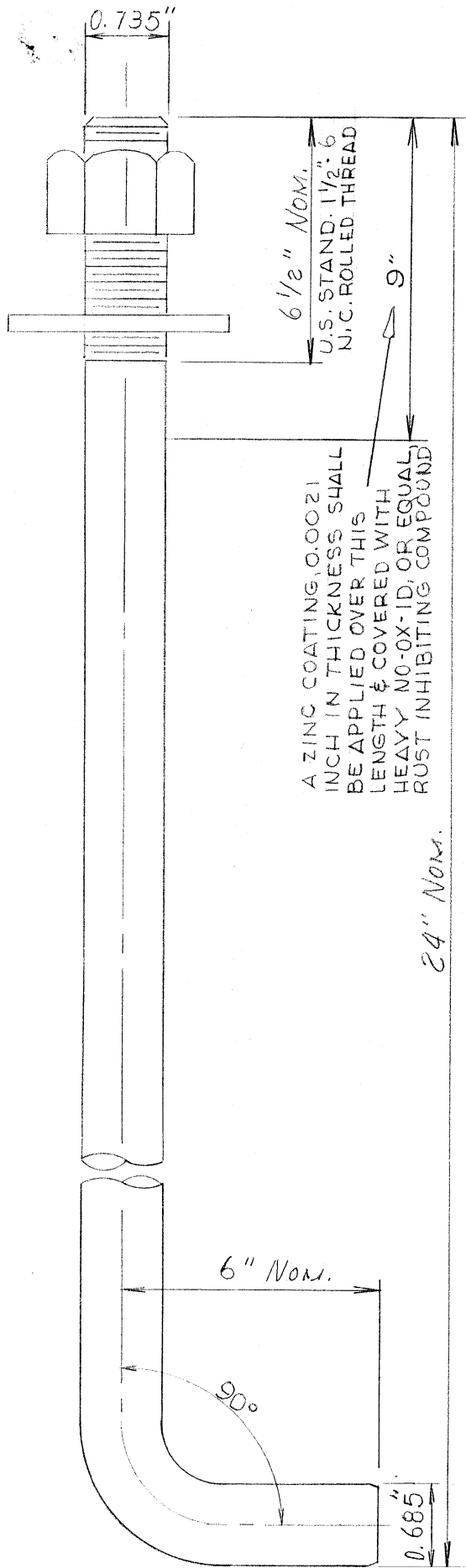


12' MAST ARM FOR 2-BOLT ATTACHMENT

CITY OF CHICAGO DEPT. OF STREETS AND SANITATION BUREAU OF ELECTRICITY DIVISION OF ELECTRICAL ENGINEERING	
DRAWN BY E. GERULIS	CHECKED BY R. J. S.
SUPERVISING ENGINEER <i>Robert J. Monte</i>	ENGINEER M. J. S.
DESIGNED BY <i>McSweeney</i>	839
DEADLY COMPOUNDER <i>Paul J. Thompson</i>	
SIZE 17 x 28	SCALE 1" = 1' OR AS NOTED
DATE 7-8-1985	

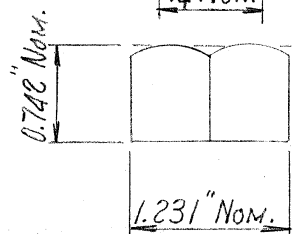
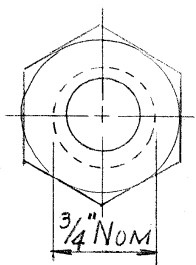


15' MAST ARM FOR 2-BOLT ATTACHMENT			
REVISED	CITY OF CHICAGO DEPT. OF STREETS AND SANITATION BUREAU OF ELECTRICITY DIVISION OF ELECTRICAL ENGINEERING		
A	DRAWN	CHECKED	ENGINEER
B	EUGENE GERLUS	R. J. S.	M. J. S.
C	SUPERVISOR ENGINEER		DRG. NO.
D	ENGINEER OF ELECTRICITY		840
E	DEPT. CHIEF ENGINEER		
F			
G	SIZE 17 X 28	SCALE	DATE
		1" = 1" OR AS NOTED	JULY 8, 1985



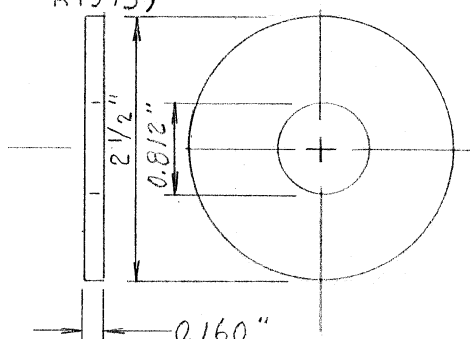
A ZINC COATING, 0.0021 INCH IN THICKNESS SHALL BE APPLIED OVER THIS LENGTH & COVERED WITH HEAVY NO-OX-ID, OR EQUAL RUST INHIBITING COMPOUND

24" Nom.



HEXAGON NUT

AMER. NAT'L. STD. HEAVY HEX. FLAT NUT (ANSI B18.22.1-1965, R1975)



FLAT WASHER

MATERIAL

A.S.T.M. A-36 MODIFIED STEEL, 55,000 LBS MINIMUM YIELD. HARDWARE TO BE FURNISHED & ATTACHED IN PLACE ON ROD FOR SHIPPING; 1 HEX NUT, HEAVY GALV. 1 1/2". 1 WASHER, STEEL, ROUND GALV., TYPE "B", SERIES "W", 1 1/2" BOLT & NUT SHALL HAVE AN AMERICAN STANDARD CLASS 2 OR 3 FIT. (NUT IS TAPPED OVERSIZE BY 1/32")

3/4" x 30"

STEEL ANCHOR ROD
COMMODITY CODE 37-8180-0130

CITY OF CHICAGO
DEPT. OF STREETS AND SANITATION
BUREAU OF ELECTRICITY
DIVISION OF ELECTRICAL ENGINEERING

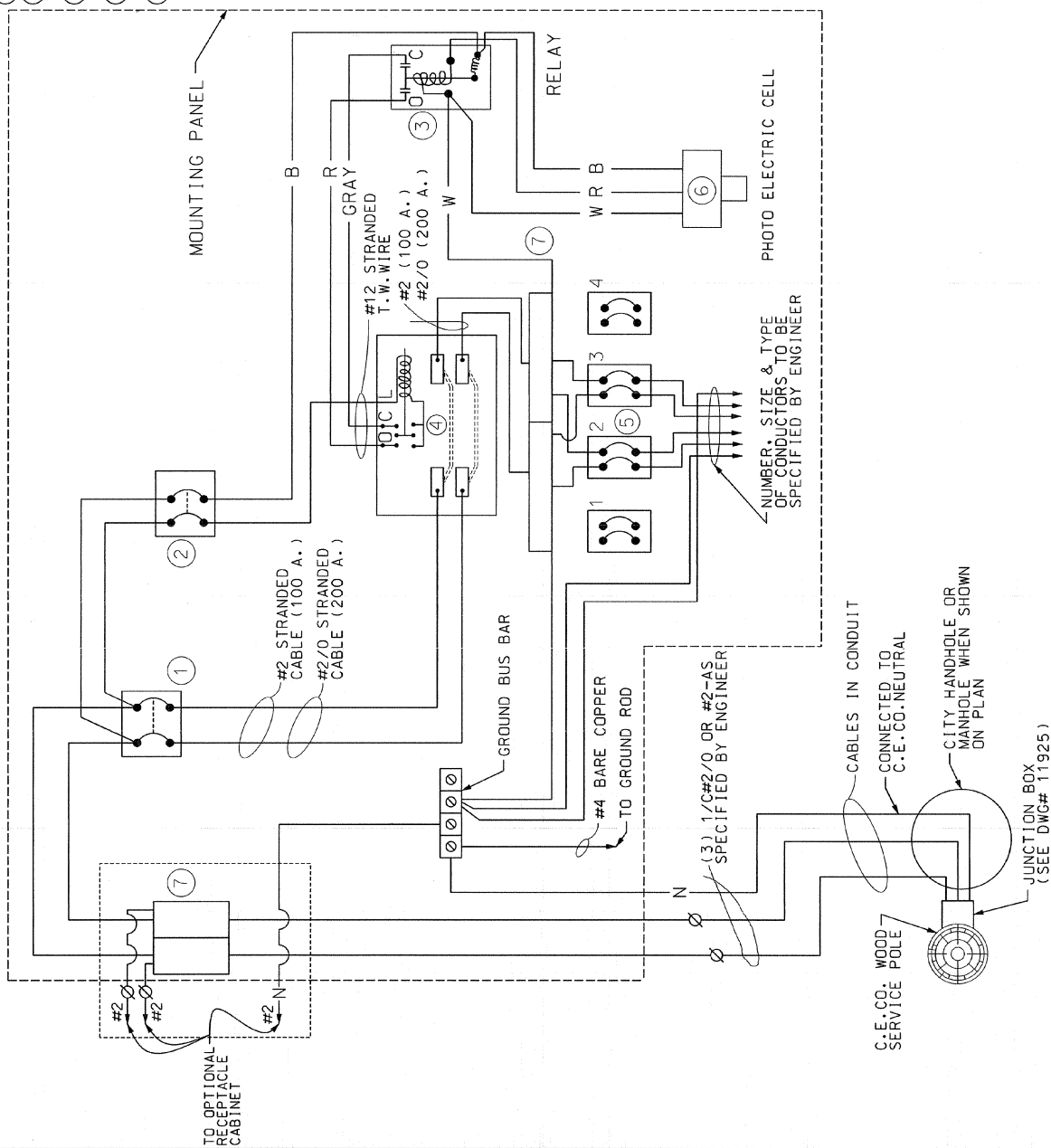
DRAWN RESPI NO	CHECKED R.J.S.	ENGINEER A. DUKELSKY
Michael J. Shnie ENGINEER OF ELECTRICITY		DRG. NO. 844
GEN'L. SUPT. OF ELECTRICITY		
SIZE 8 1/2 x 14	DEPUTY COMM. SCALE	DATE 10-31-85

- ① - CIRCUIT BREAKER-2 POLE, 100A "FDB" FRAME OR 2 POLE, 200A, "JDB" FRAME (WESTINGHOUSE CO.)
- ② - MANUAL STARTER-2 POLE, 5.3A, THERMAL OVERLOAD (SQUARE D, CLASS 2510, TYPE F0-2)
- ③ - RELAY (POTTER-BRUNFIELD PRD 5A0-120)
- ④ - REMOTE CONTROL SWITCH-2 POLE, 100A, OR 2 POLE, 200A, 240V. A.C. COIL (AUTOMATIC SWITCH CO.)
- ⑤ - BRANCH CIRCUIT BREAKER-2 POLE, 50A., OR 70A. "EHD" FRAME, (WESTINGHOUSE CO.)
- ⑥ - PHOTO ELECTRIC CELL (FISHER PIERCE "NIGHTLICHTER", MODEL FA105, 1000 WATT.)
- ⑦ - POWER DISTRIBUTION BLOCKS

NOTES :

1. MOUNT PHOTOCELL IN BOTTOM OF CABINET AT RIGHT SIDE. BOTTOM OF PHOTOCELL TO BE FLUSH OR SLIGHTLY ABOVE OUTSIDE EDGE OF CABINET.
2. GROUND BUS TO BE MOUNTED ON LEFT SIDE WALL OF CABINET (SEE DETAIL DRG.NO.883 AND 884)
3. SEE DRG.NO.883 FOR DETAIL OF MOUNTING PANEL.
4. SEE DRG.NO.884 FOR DETAIL OF MOUNTING PANEL.

SEE DRG.# 876 FOR CABINET ASSEMBLY (100 AMP.)
SEE DRG.# 880 FOR CABINET ASSEMBLY (200 AMP.)



NO.	DATE	REVISION
1		

WIRING DIAGRAM FOR 100/200 AMP. SINGLE PHASE 240V. STREET LIGHTING CONTROLLER WITH PHOTO CELL (120V.)

CITY OF CHICAGO
DEPARTMENT OF PUBLIC WORKS
DIVISION OF ENGINEERING

DRAFTSMAN: C.A. PADYAR
CHECKED BY: D.B. STANLEY, ENGINEER
CAMP/DIV/WR

SUPERVISING ENGINEER: ELEC. DESIGNER, T.M. R. POLE
ENGINEER OF ELECTRICITY: G.E. BROWN, JR.
DESIGN: J. J. BROWN, JR.

DWG. NO. 862

SCALE: NONE
DATE: 5/31/13

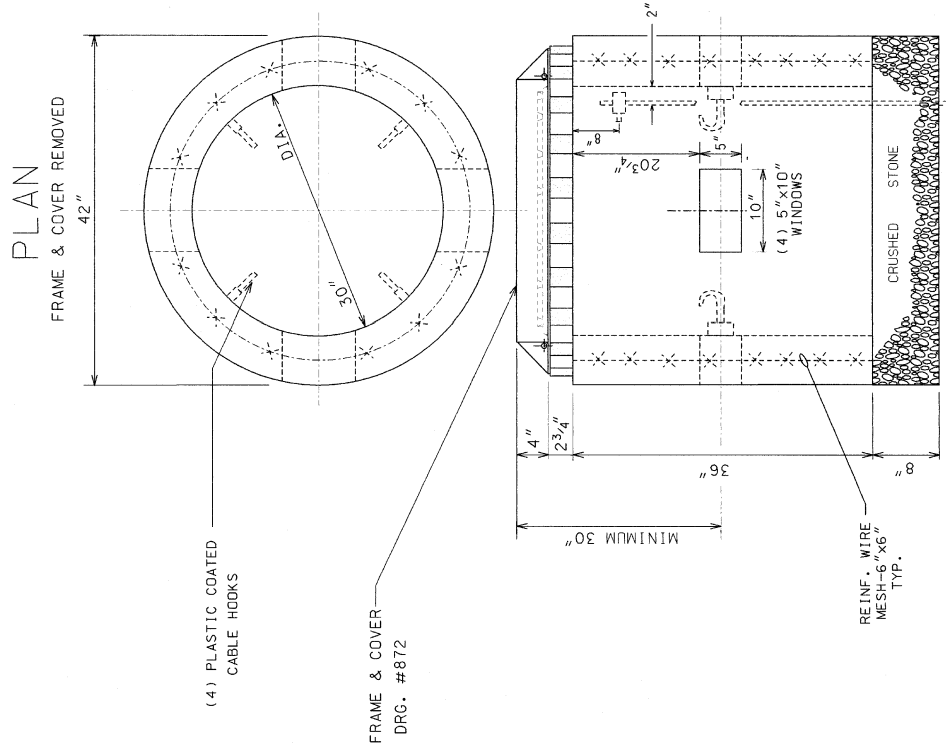
COMPLETE COMMODITY CODE NO. 05-6610-5310M

CODE NO.	MATERIALS	SIZE	QUAN.
(1) 05-6610-5310	PRE-CAST HANDHOLE	30"X36"	1
(2) 05-9075-5470	STONE 3/4" CRUSHED	BAG	5
(2) 05-5082-5330	SAND TUBE	30"	1
(2) 05-5082-5342	SAND TUBE	42"	1
(2) 05-3267-2940	CONC. REDI-MIX	CU. YD.	1 1/2
(2) 57-0770-0000	6" X 6" MESH	36"X10'	1
05-1452-9720	BRICK		24
02-4299-5524	FRAME MANHOLE	24"	1
02-4574-5040	COVER, MANHOLE	24"	1
09-7796-9312	GROUND ROD	3/4"X12'	1
09-2630-3240	GROUND CLAMP		1

- (1) PRE-CAST HANDHOLE SHALL INCLUDE CABLE HOOKS AND CONDUIT KNOCKOUTS.
- (2) THESE ITEMS ARE FOR POURED-IN-PLACE HANDHOLES ONLY.

CONSTRUCTION NOTES:

- 1. 8" BED OF STONE FOR DRAINAGE.
- 2. ALL METALLIC CONDUITS ENTERING HANDHOLE SHALL EXTEND MINIMUM 1" & MAXIMUM 3" INSIDE INNER WALL AND BE EQUIPPED WITH AN APPROVED TYPE OF THREADED GROUNDING BUSHING.



DATE	REVISION
B 01-23-00	ADDED CABLE HOOKS PER COMMISSIONER HARRY
A 12-8-95	REWORK (LOAD)

30" DIA.
CONCRETE HANDHOLE

CITY OF CHICAGO
 DEPARTMENT OF PUBLIC WORKS

DRAFTSMAN: M. PATTON
 ENGINEER: TROMPIA
 SUPERVISING ENGINEER: D. CARTER
 DEPARTMENT: DEPARTMENT OF PUBLIC WORKS

ENGINEER'S LICENSE NO. 867
 CIVIL NO.

SCALE: NONE
 DATE: 12-8-95

NOTE - THE TOP SURFACE OF THE 3 CIRCLES AND ALL OF THE LETTERS TO BE RAISED $\frac{1}{8}$ " ABOVE THE SURFACE WITHIN THE 9" DIAMETER WITH $\frac{1}{2}$ " DRAFT ANGLE.

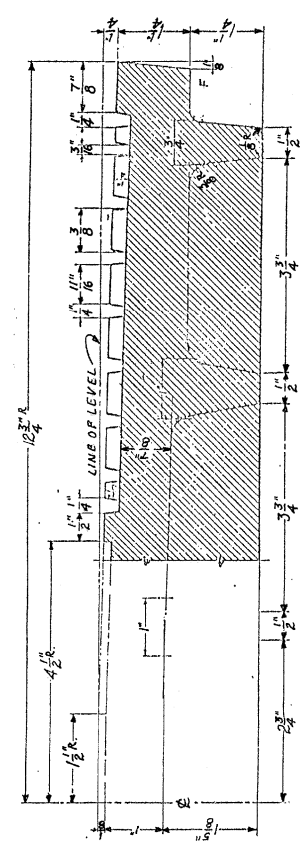
CITY OF CHICAGO DEPT. OF PUBLIC WORKS	
DESIGNED BY A. JOHNSON	CHECKED BY C. RESPIANO
SUPERVISING ENGINEER	ELECT. DESIGNER
DRAWN BY M. DE BARTOLO	
DATE 872	
SCALE 1" = 4" DIA.	DATE 4-24-32

24" DIA. CIRCULAR MANHOLE
FRAME & COVER WITH 4 1/2" O.D.
FRAME

COVER
(PLAN)
CAST IRON
APPROX. WEIGHT 260 LBS.

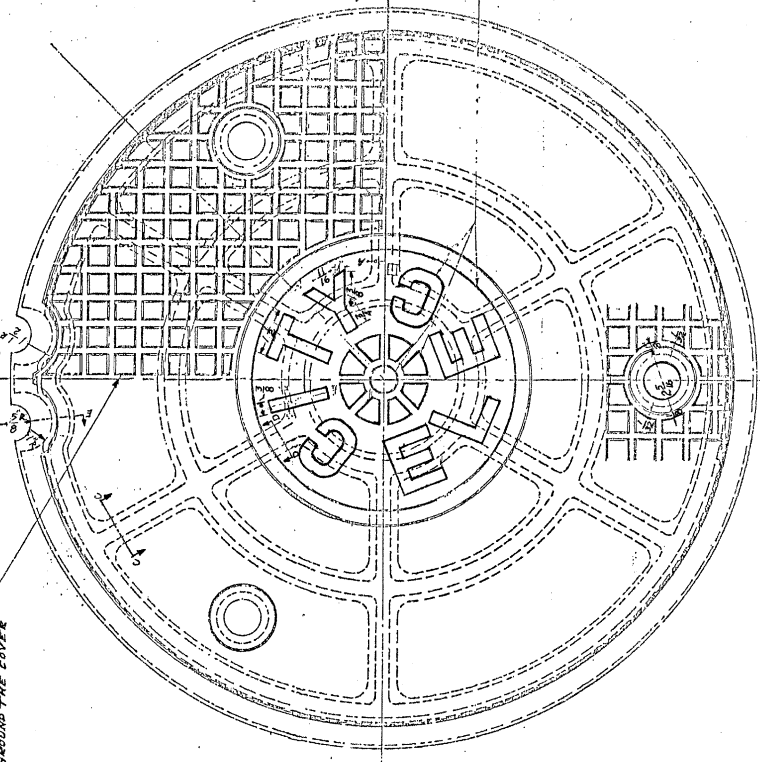
COMMODITY CODE
FRAME
COVER - 02 4574-5040

SUPERSEDES DWG# 10797
DATED 2-10-35

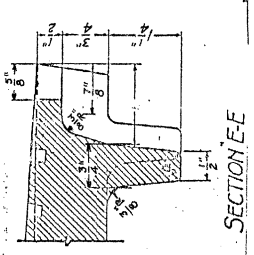


SECTION A-A

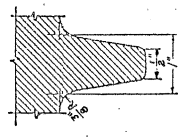
NOTE - GRID CENTERING TO RUN ENTIRELY AROUND THE COVER



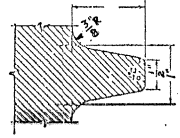
FRAME
(QUARTER PLAN)
CAST GRAY IRON ASTM
A-48, CLASS 35 B
APPROX. WEIGHT 205 LBS.



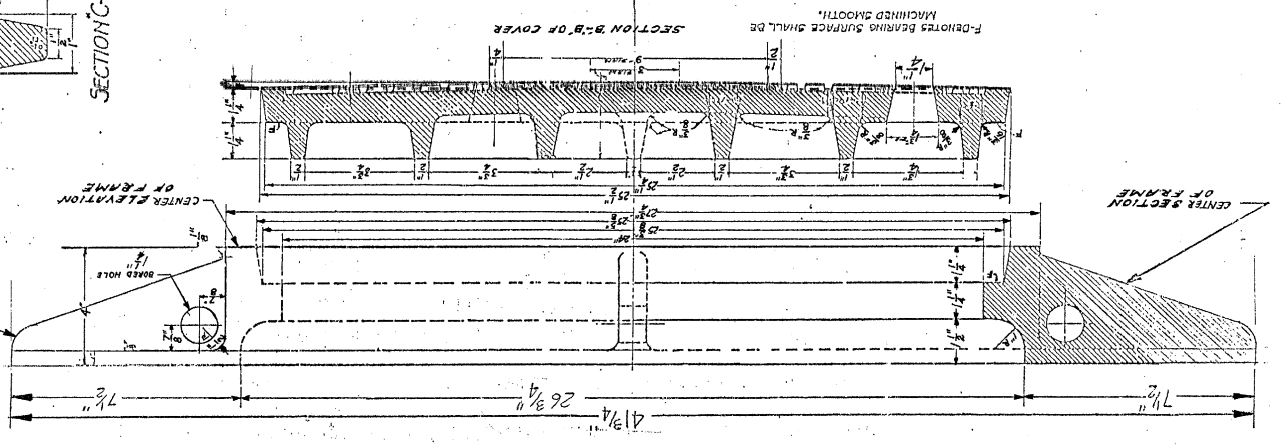
SECTION E-E



SECTION D-D



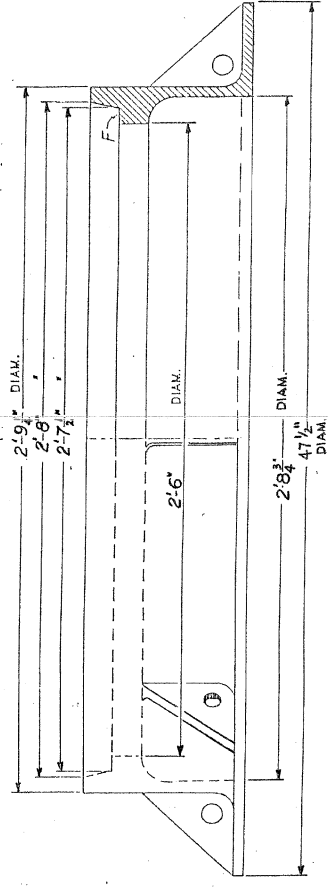
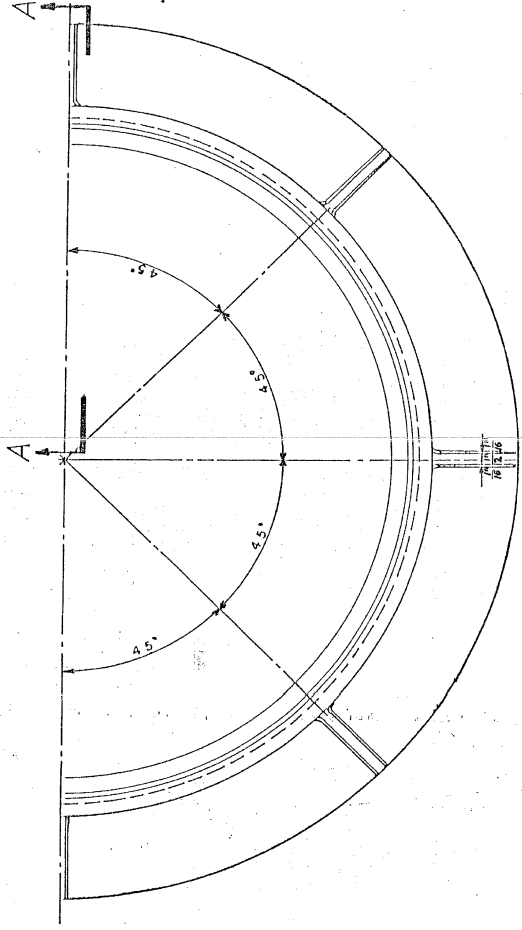
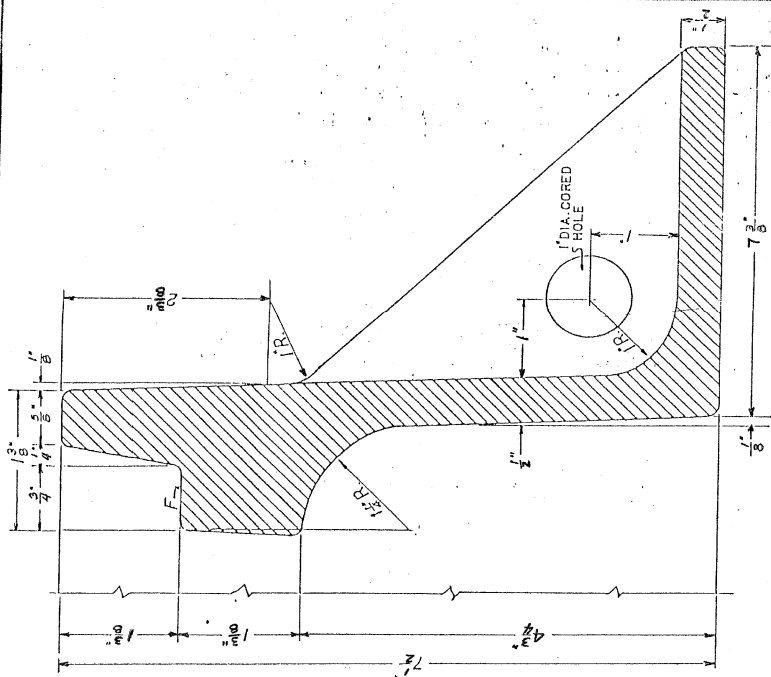
SECTION C-C



SECTION B-B OF COVER

CENTER ELEVATION OF FRAME

CENTER SECTION OF FRAME



MATERIAL - CAST IRON
 ESTIMATED WEIGHT APP. 250 LB.
 F - DENOTES BEARING SURFACE SHALL BE MACHINED SMOOTH.

TYPICAL SECTION
 THRU FRAME

COMMODITY CODE
 NO.

30" CIRCULAR STREET MANHOLE FRAME	
CITY OF CHICAGO	DEPT. OF STREETS AND SANITATION
BUREAU OF ELECTRICAL ENGINEERING	DIVISION OF ELECTRICAL ENGINEERING
DESIGNED BY	W. S. SPOONER
CHECKED BY	W. S. SPOONER
DRAWN BY	W. S. SPOONER
DATE	5-5-92
PROJECT NO.	874
EST. NO.	15221
ISSUE	3/5/10
DATE	5-5-92

HALF SECTION AA

HALF ELEVATION

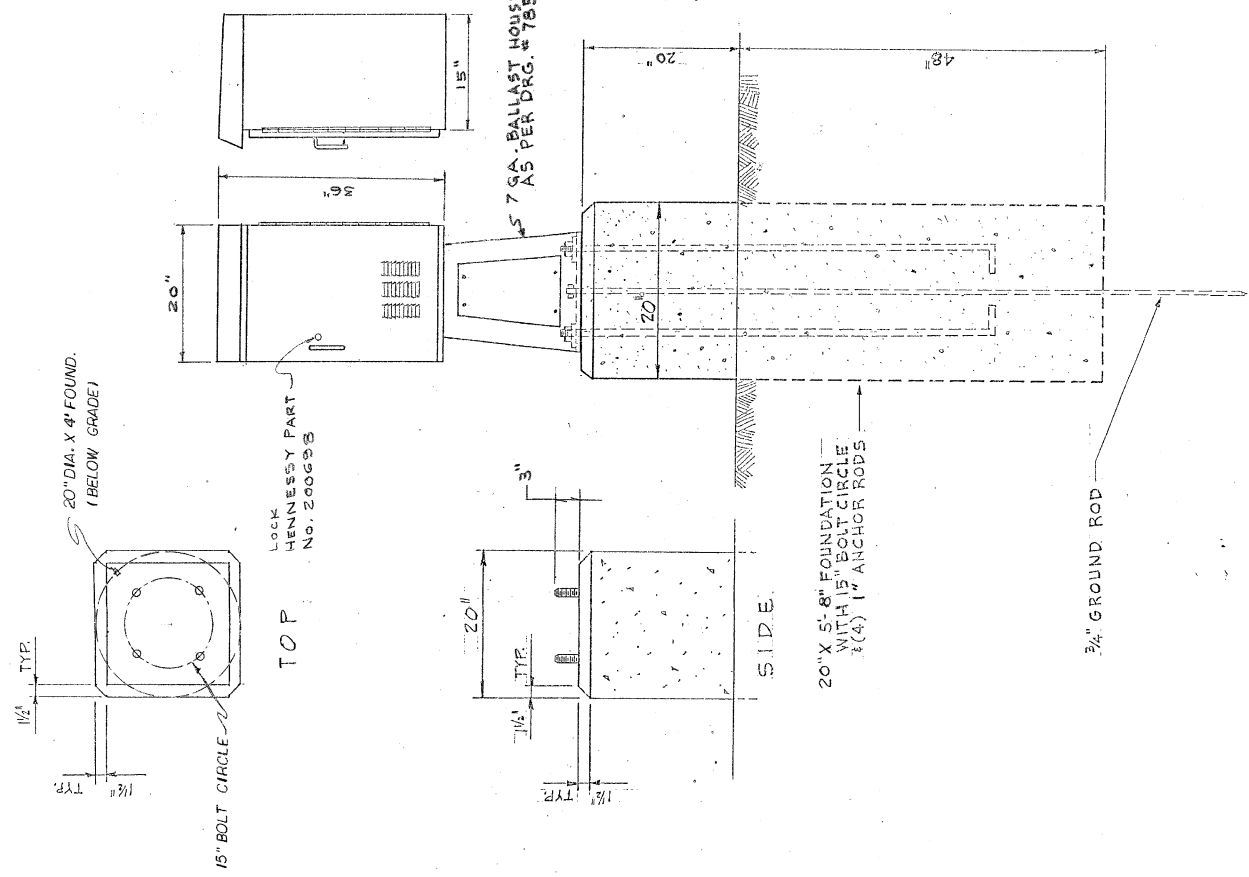
SUPERSEDES DRG. # 10926
 DATED 4-6-35

CODE	DES.	MATERIAL	SIZE	QUANTITY
05-3062-5324		FIBER FORM	20" ϕ	4
05-3267-2940		CONCRETE	CU. YD.	0.7
37-2180-0152	311	ANCHOR ROD	1" x 60"	4
09-7796-9200		GROUND ROD	$\frac{3}{4}$ " x 10'	1
09-2636-3240		CLAMP, GROUND ROD	$\frac{3}{4}$ "	1
		CABINET ALUMINUM	36" x 20" x 15"	1
37-2130-4280	785	BALLAST HOUSING BS	1'-4" x 1'-8"	1

NOTE:

HENNESSY "3B" CABINET # 212373 OR
U.L. APPROVED EQUIVALENT.

- SEE DRAWING # 883 FOR ELECTRICAL PANEL DETAILS.
- SEE DRAWINGS # 862 & 864 FOR WIRING DIAGRAM.
- DRILL (4) $\frac{1}{2}$ " DIA. HOLES IN BOTTOM OF CABINET & TOP OF BALLAST HOUSING BASE. BOLT CABINET TO B.H.B USING (4) $\frac{3}{8}$ " x $2\frac{1}{2}$ " BOLTS.
- OPENINGS IN BOTTOM OF CABINET & TOP OF B.H.B. MAY BE ENLARGED TO A MAX. OF 5" x 10" TO FACILITATE ADDITIONAL CABLE.
- NUMBER & SIZE OF CONDUITS TO BE SHOWN ON CONNECTION DIAG.

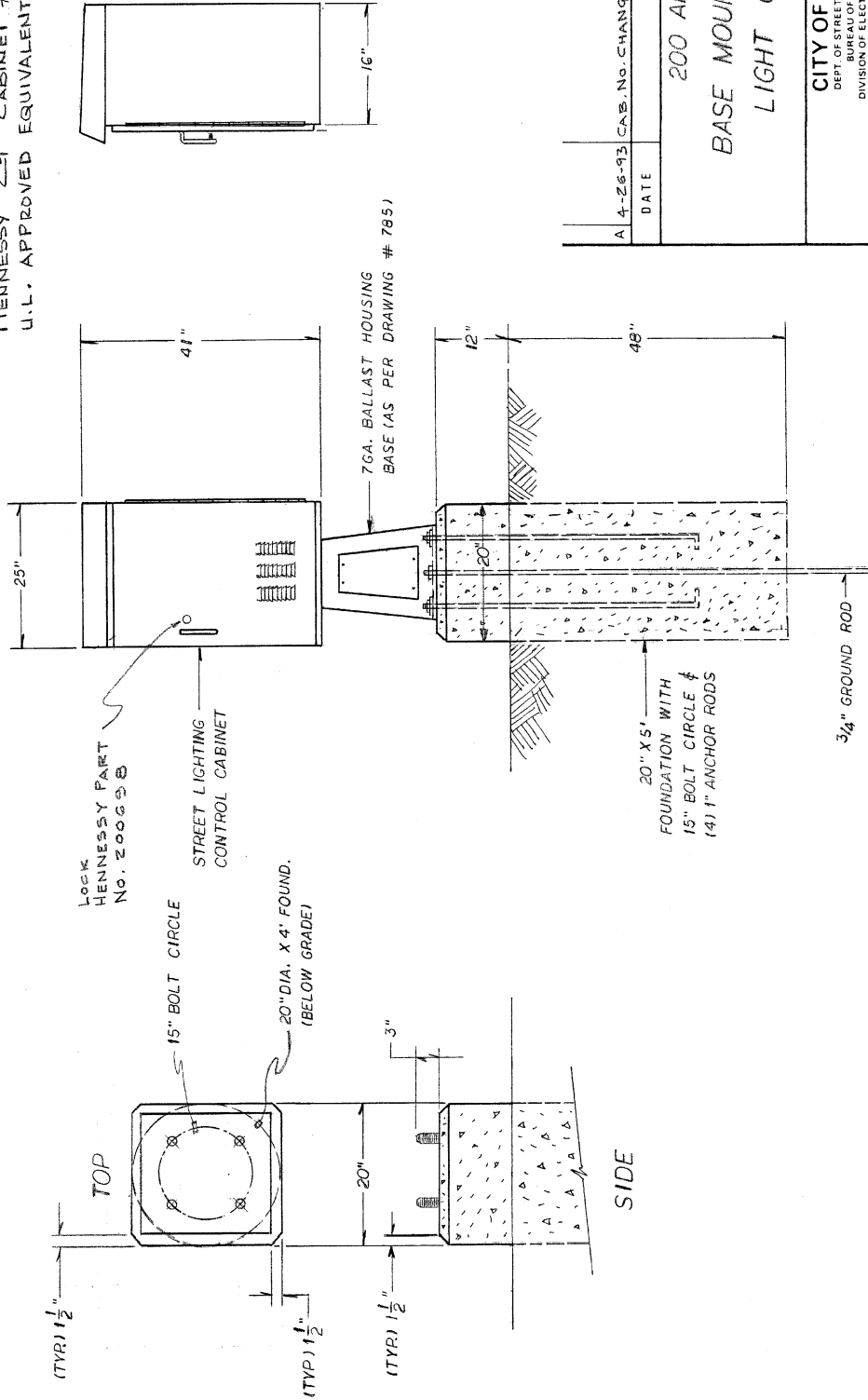


DATE	A 4-26-95	CAB. NO. CHANGED - CITY NAME REMOVED	REVISION
100 AMP. STREET BASE MOUNTED LIGHT CONTROLLER			
CITY OF CHICAGO DEPT. OF STREETS AND SANITATION DIVISION OF ELECTRICAL ENGINEERING			
DRAFTSMAN:	W. TROMPKA	ENGINEER:	M. DE BARTOLO
SUPERVISING ENGINEER:	C.R.	ELECT. DESIGN ENGR.	D.W.G.
ENGINEER OF ELECTRICITY:	A. Dubolsky	DEPUTY COMMISSIONER:	876
GEN'L. SUPT. OF ELECTRICITY:		SCALE:	1" = 1'-0"
DATE:		DATE:	

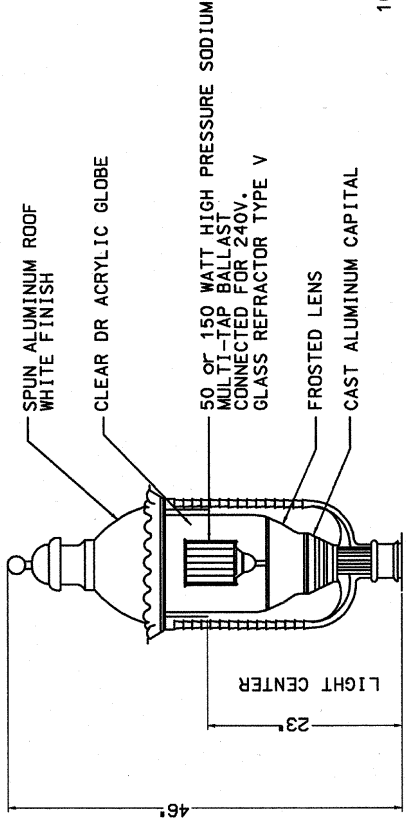
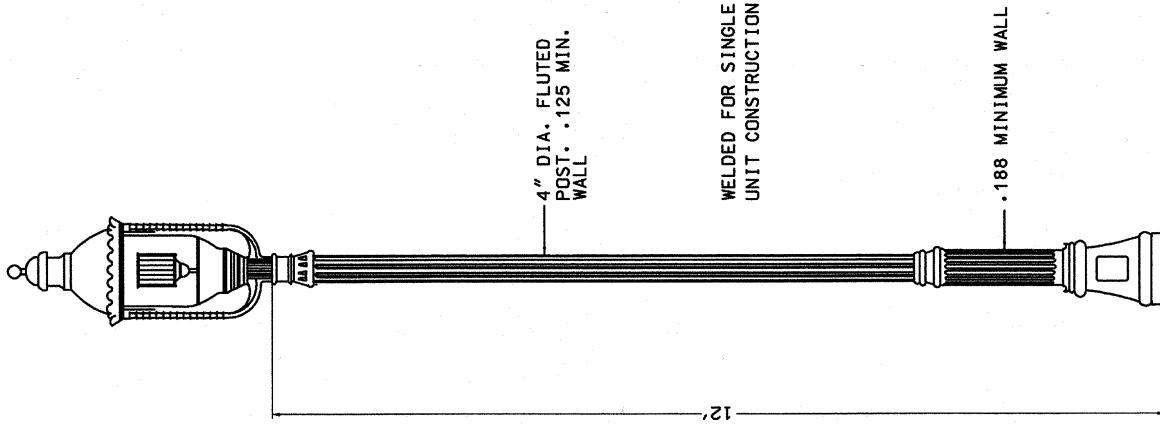
- DRILL (4) 1/2" DIA. HOLES IN BOTTOM OF CABINET & TOP OF BALLAST HOUSING BASE. BOLT CABINET TO B.H.P. USING (4) 3/8" X 2 1/2" BOLTS.
- OPENINGS IN BOTTOM OF CABINET & TOP OF B.H.P. MAY BE ENLARGED TO A MAX. OF 5" X 10" TO FACILITATE ADDITIONAL CABLE.
- NUMBER & SIZE OF CONDUITS TO BE SHOWN ON CONSTRUCTION DRAWINGS.
- SEE DRAWING # 884 FOR ELECTRICAL PANEL DETAILS.
- SEE DRAWINGS # 862 & 864 FOR WIRING DIAGRAM.

CODE	DRWG.	MATERIAL	SIZE	QUANT.
05-5082-5324	—	FIBER FORM	20" Ø	4'
05-3267-29AD	—	CONCRETE	CU. YD.	0.7
37-8180-0236	811	ANCHOR ROD	1" X 60"	4
09-7796-9200	—	GROUND ROD	3/4" X 10'	1
09-2636-32AD	—	CLAMP, GROUND ROD	3/4"	1
09-3592-7850	—	CABINET ALUMINUM	41" X 25" X 16"	1
37-2130-4280	785	BALLAST HOUSING BS	11"4" X 11"8"	1

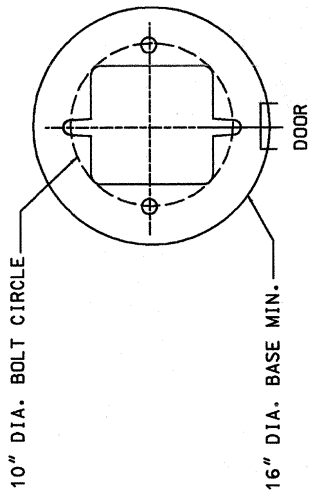
NOTE:
 HENNESSY "G" CABINET # 212374 OR
 U.I.L. APPROVED EQUIVALENT.



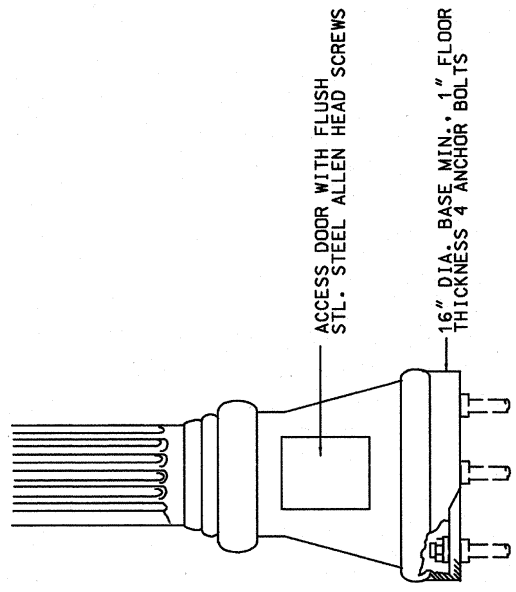
DATE	REVISION
A 4-26-93	CAB. NO. CHANGED CITY NAME REMOVED
200 AMP. BASE MOUNTED STREET LIGHT CONTROLLER	
CITY OF CHICAGO DEPT. OF STREETS AND SANITATION BUREAU OF ELECTRICITY DIVISION OF ELECTRICAL ENGINEERING	
DRAFTSMAN: ARMANDO VIVIANO	ENGINEER: M. DE BARTOLO
SUPERVISING ENGINEER: D. CARLSON	ELEC. DESIGN ENGR. A. D. Hulsly
ENGINEER OF ELECTRICITY: GEN. L. SUPT. OF ELECTRICITY	DWG. NO. 880
DEPUTY COMMISSIONER: E. M. ...	SCALE: 16 21
	DATE:



CAPITAL & GLOBE DETAIL

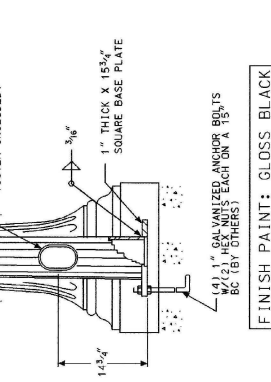
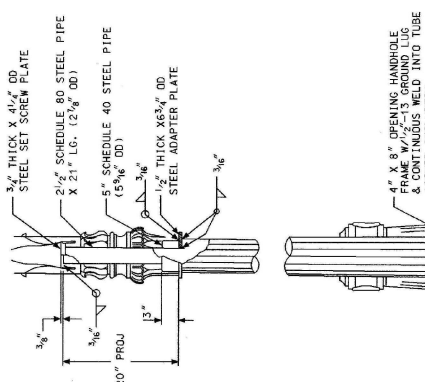


BASE PLAN DETAIL

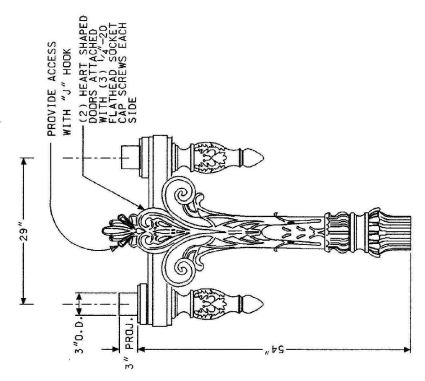


ANCHOR BOLT & BASE DETAIL

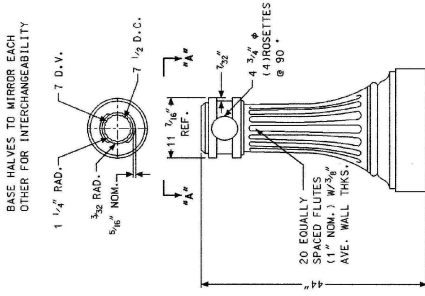
REVISION	DATE
ORNAMENTAL VICTORIAN GASLIGHT	
CITY OF CHICAGO DEPARTMENT OF PUBLIC WORKS DIVISION OF STREET LIGHTING	
DESIGNED BY: J. ABRAHAM	DWG. NO. 895
APPROVED BY: R. CHAFFER	DATE: 01-07-02
PROJECT NO. 02-0000000 PROJECT NAME: 15th & Franklin CONTRACTOR: [Signature] DATE OF SUBMITTAL: [Signature]	
SCALE: 1/8" = 1'-0"	SCALE: 1/8" = 1'-0"



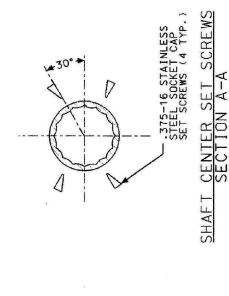
FINISH PAINT: GLOSS BLACK



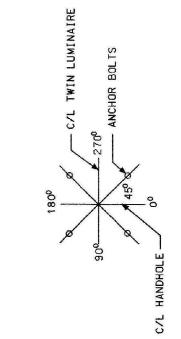
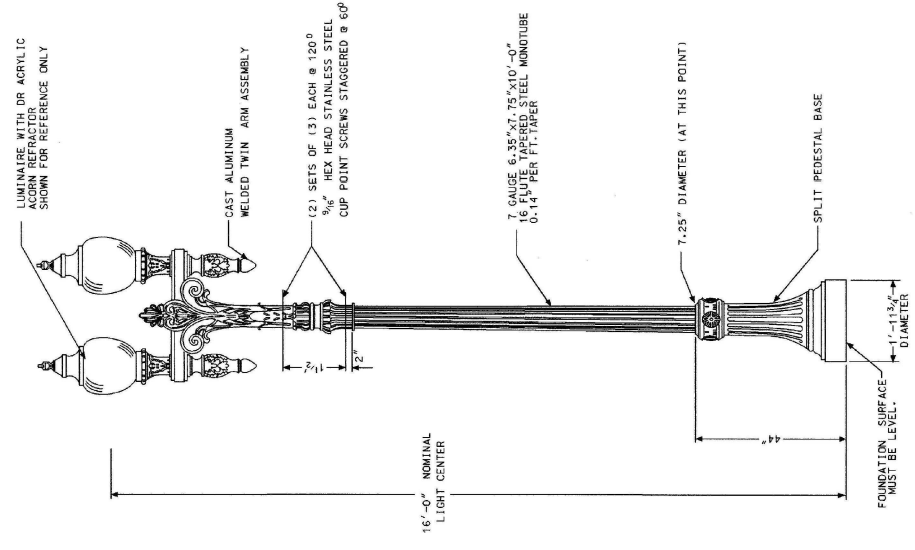
LUMINAIRE TENON DETAIL



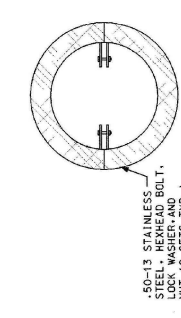
SPLIT BASE DETAIL



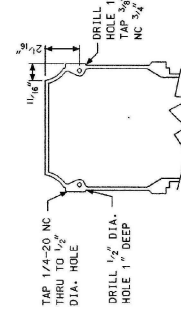
SHAFT CENTER SET SCREWS SECTION A-A



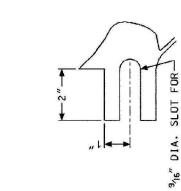
TOP VIEW ORIENTATION



LOWER CLAM SHELL ATTACHMENT

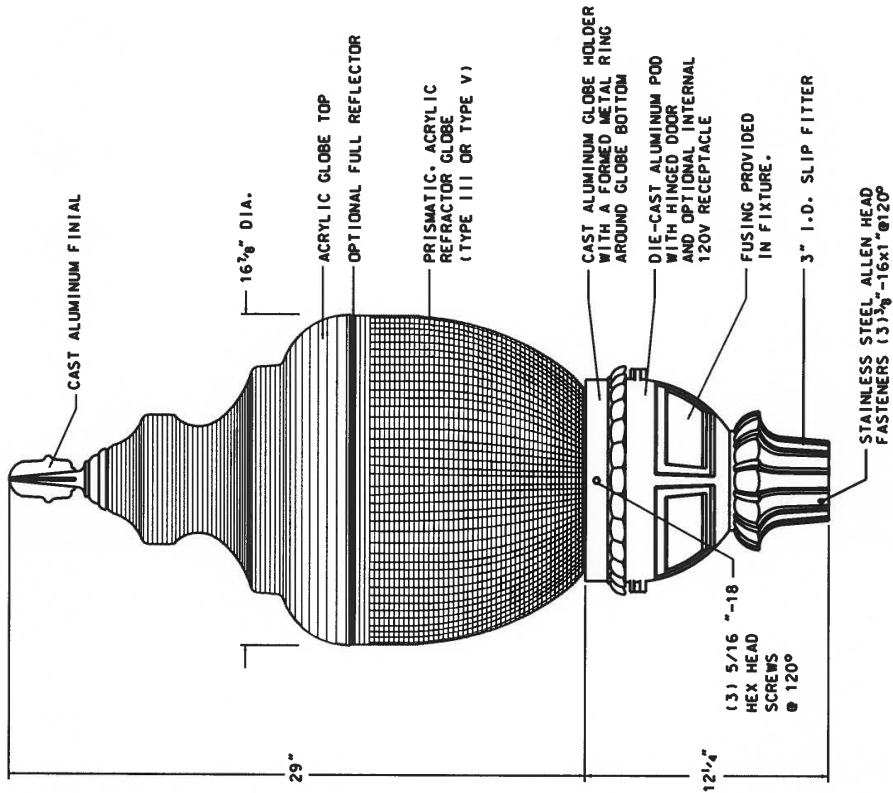


SEC. THRU SAW LINE

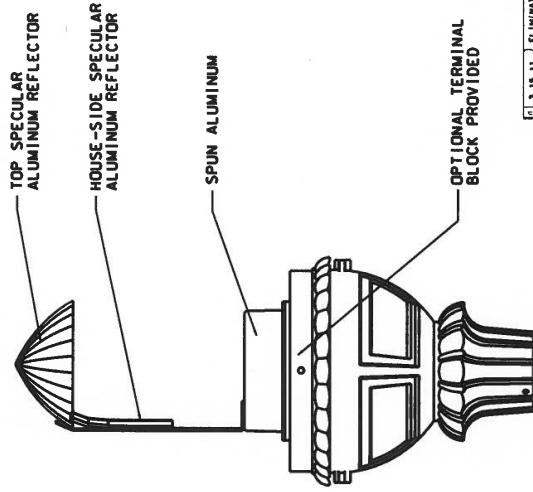


SEC. THRU SAW LINE 2 LUGS PER HALF

A	REVISION	DATE
ORNAMENTAL LOOP LIGHT POLE		
CITY OF CHICAGO DEPARTMENT OF TRANSPORTATION		
DESIGNED BY	PROJECT ENGINEER	DATE
DRAWN BY	CHECKED BY	DATE
APPROVED BY	DATE	
 Dean S. Blasingame		911 <small>ISSUES FOR</small> <small>DATE</small>



FINISH: CORVEL BLACK
POWDER COATING
FIXTURE DIMENSIONS
HEIGHT: 41 1/4"
WIDTH: 16 7/8"



BALLAST ASSEMBLY

REV	DATE	ELIMINATE RPS	REVISION	BY
1	3-15-11			G.PADILAR

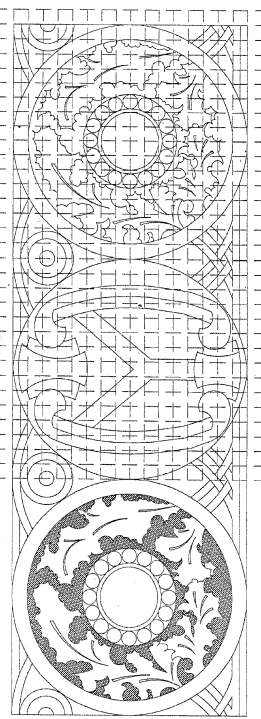
ACORN LUMINAIRE FOR
LOOP LIGHTING POLE

CITY OF CHICAGO
DEPT. OF PUBLIC WORKS
OFFICE OF ELECTRICAL SERVICES
ELECTRICAL SECTION
100 N. LAKE STREET, 10TH FLOOR
CHICAGO, IL 60602

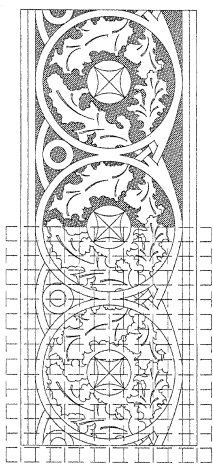
DATE: 3/15/11
DRAWN BY: G.PADILAR
CHECKED BY: [Signature]
IN CHARGE: [Signature]

912

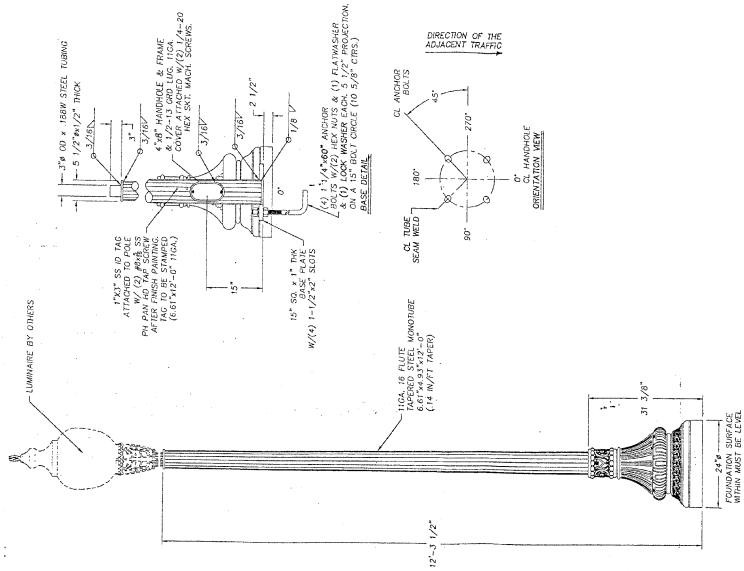
SCALE: 1:1



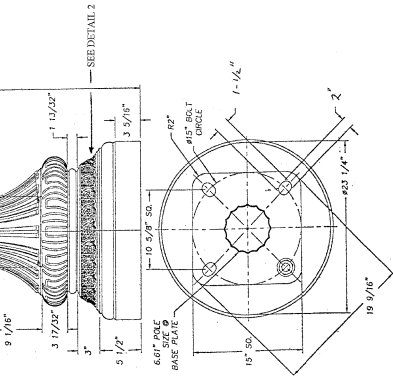
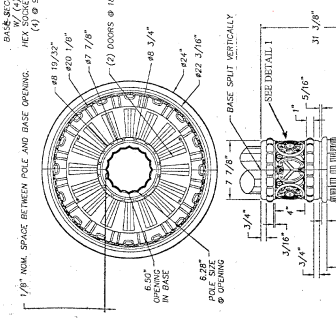
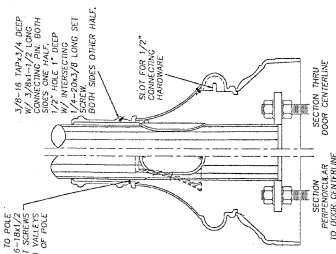
1 ENLARGED PATTERN TOP ORNAMENTATION
SCALE: FULL SIZE



2 ENLARGED PATTERN BOTTOM ORNAMENTATION
SCALE: FULL SIZE



POLE AND BASE
Scale: 3/4" = 1'

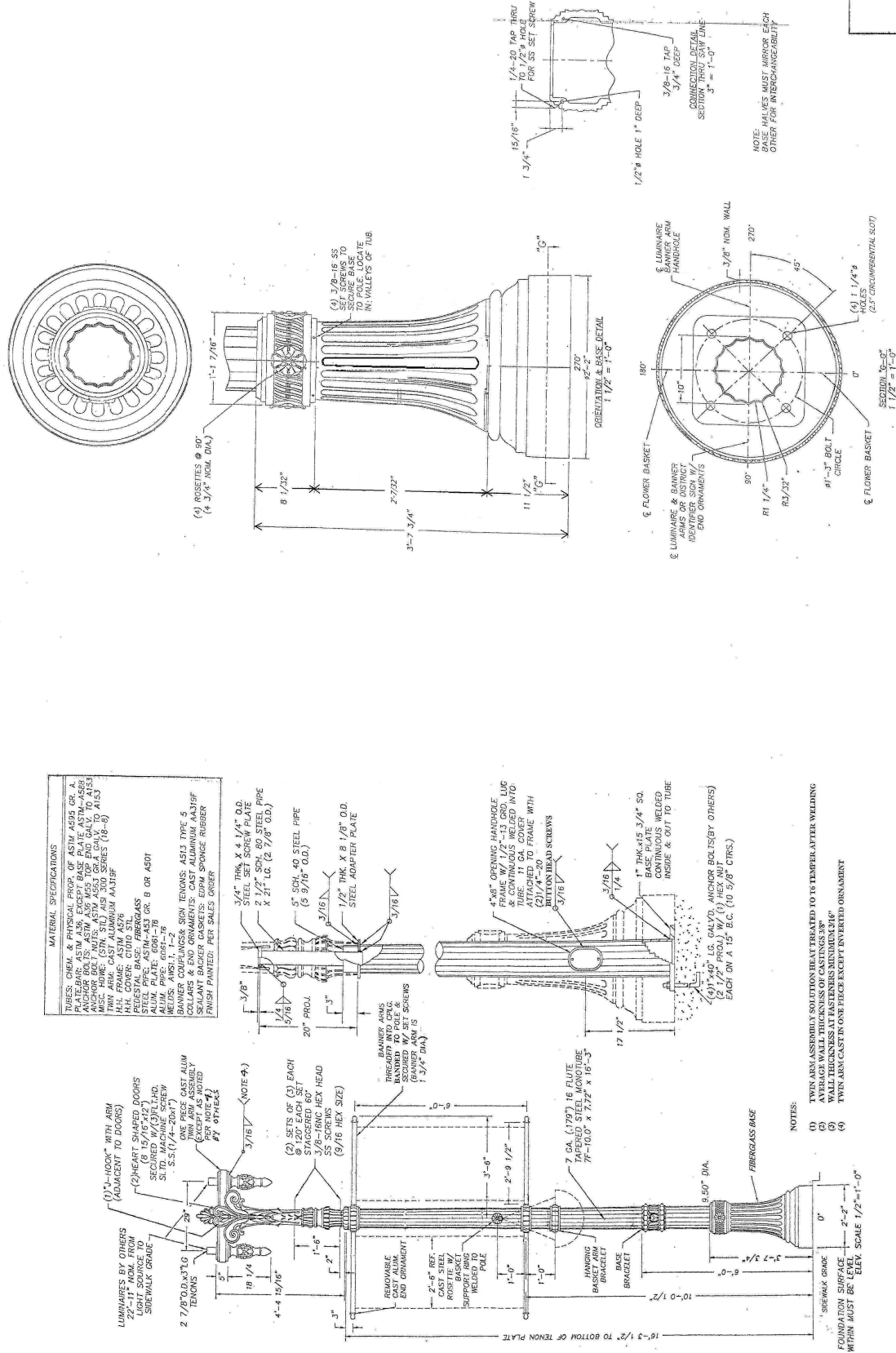


STUPE BASE DETAIL
Scale: 1/2" = 1'

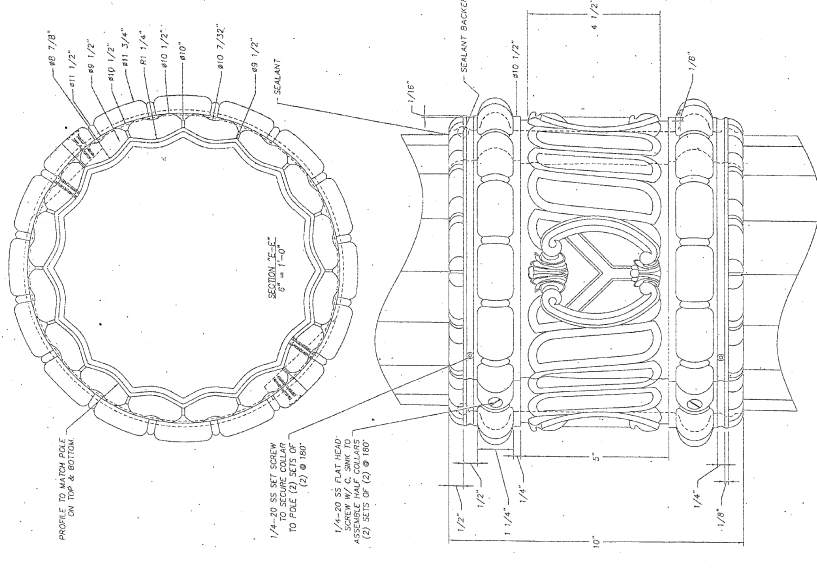
CHICAGO 2000		DATE: 1-28-2001	
PEDESTRIAN POLE		BY: A.S. WASTED	
CITY OF CHICAGO DEPARTMENT OF TRANSPORTATION			
DESIGNED BY: R. CARPER	DESIGNED BY: R. CARPER	NO. 100 L	DWG. NO. 928
CHECKED BY: [Signature]			
DATE: 1-28-2001			

THE CITY OF CHICAGO, PEDESTRIAN POLE, IS A REGISTERED TRADEMARK OF THE CITY OF CHICAGO. ALL RIGHTS RESERVED. NO PART OF THIS DOCUMENT MAY BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT PERMISSION IN WRITING FROM THE CITY OF CHICAGO. THE CITY OF CHICAGO, PEDESTRIAN POLE, IS A REGISTERED TRADEMARK OF THE CITY OF CHICAGO. ALL RIGHTS RESERVED.

MATERIAL SPECIFICATIONS	
TUBES: CHINA & PHYSICAL PROP. OF ASTM A594 GR. A	
ANCHOR BOLTS: ASTM A307 GR. 55	
MISC. HOLES: (2) 1/2" DIA. GALV. TO ATISS	
TWIN ARM: CAST ALUMINUM A4137F	
H.H. COVER: G010 ST	
FEDERAL BASE: FIBERGLASS	
ALUM. PIPE: 6061-T6	
ALUM. PLATE: 6061-T6	
BANNER COMPANIES SIGN TENSORS: A513 TYPE 5	
COLLARS & END ORNAMENTS: CAST ALUMINUM A4137F	
SEALANT BACKER CASSETS: EPDM SPONGE RUBBER	
FINISH: PAINTED PER SALES ORDER	



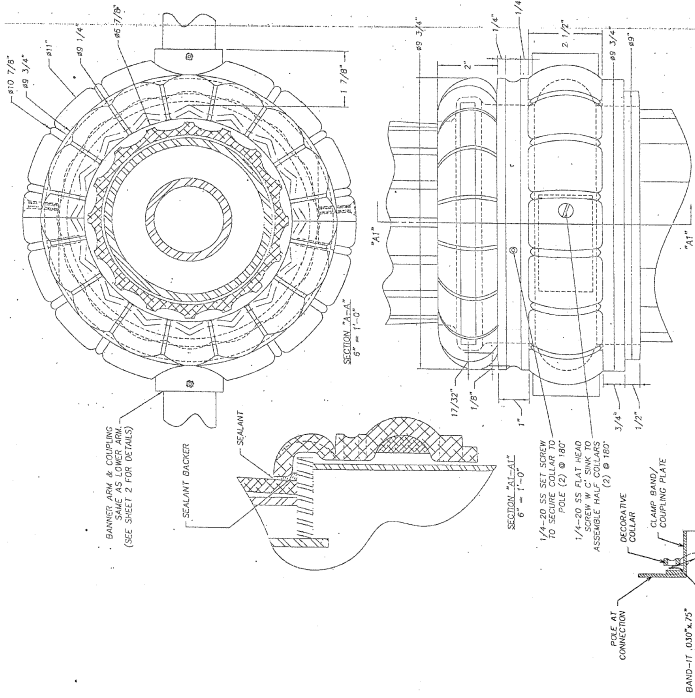
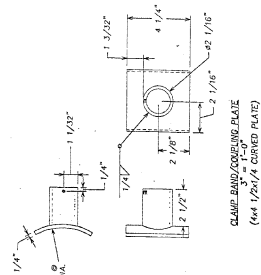
EXTENDED LOOP POLE AND BASE	
CITY OF CHICAGO DEPARTMENT OF TRANSPORTATION DIVISION OF ENGINEERING	ENGINEER: P. O'CONNOR
DESIGNED BY: [Signature]	DWG. NO.: 929
CHECKED BY: [Signature]	DATE: 02/26/01



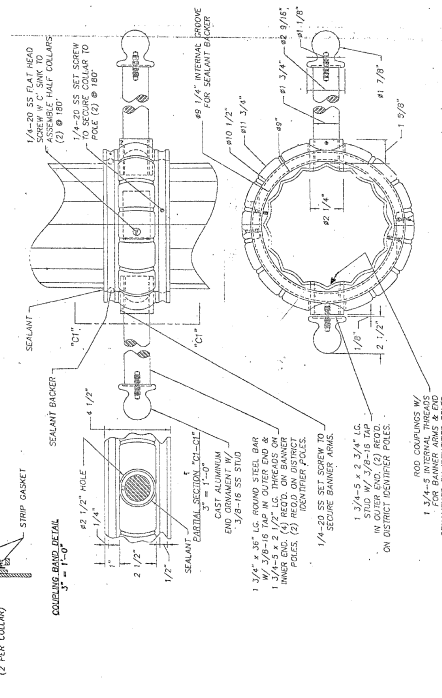
BASE BRACELET

EXTENDED LOOP POLE BRACELETS

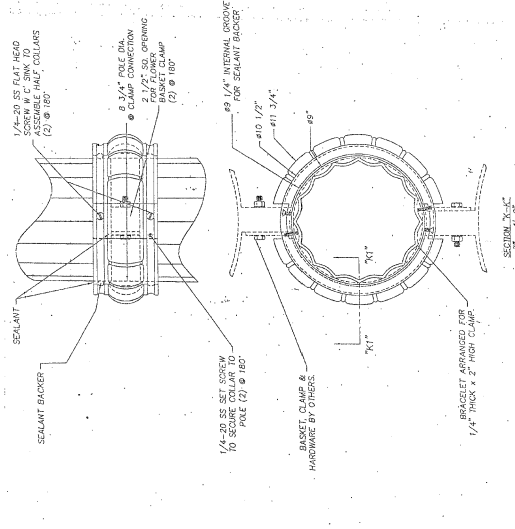
CITY OF CHICAGO
 Department of Transportation
 Office of the Chief Engineer
 535 North Dearborn Street
 Chicago, Illinois 60610
 DRAWN BY: R. CARPENTER
 CHECKED BY: R. POBIL
 DATE: 11/19/10
 DWG. NO. 929
 SHEET: A
 DESIGNED BY: [Signature]
 DATE: 11/19/10



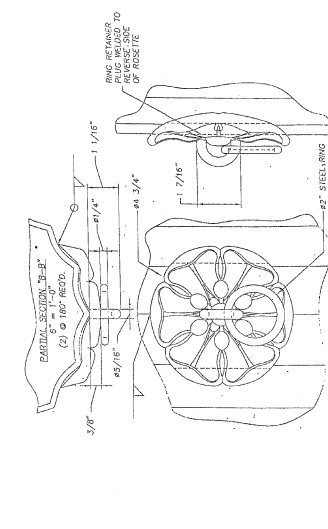
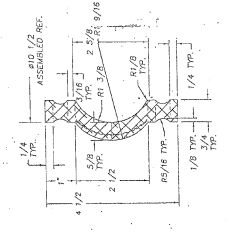
UPPER BANNER BRACELET



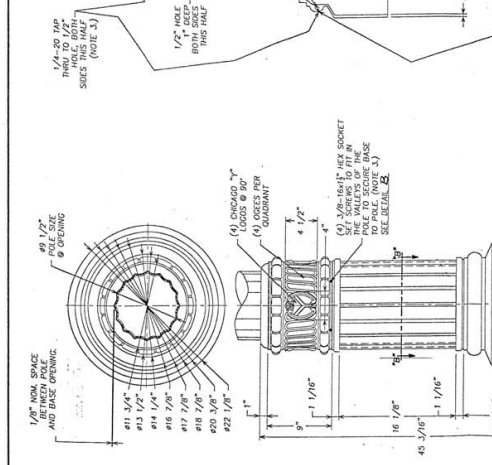
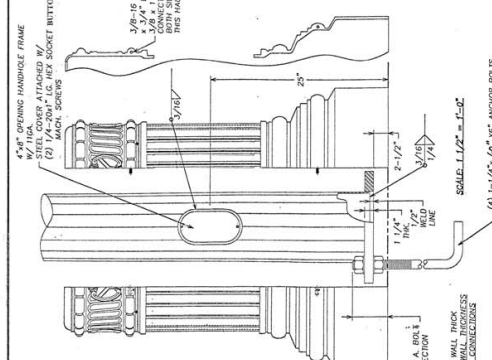
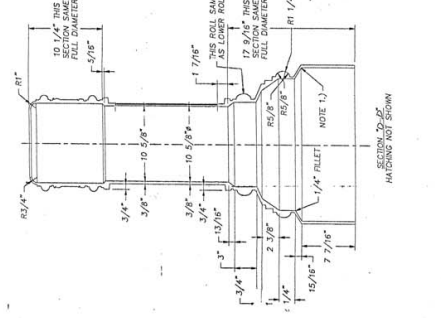
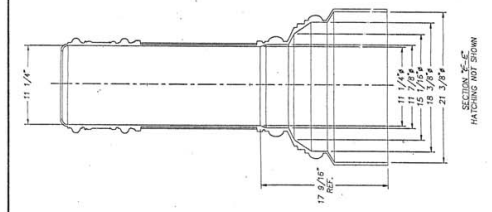
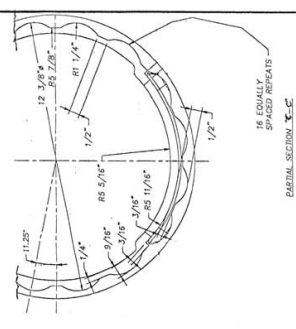
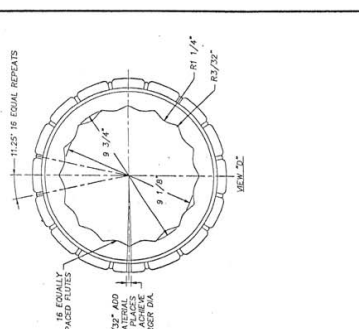
LOWER BANNER BRACELET



HANGING BASKET ARM BRACELET



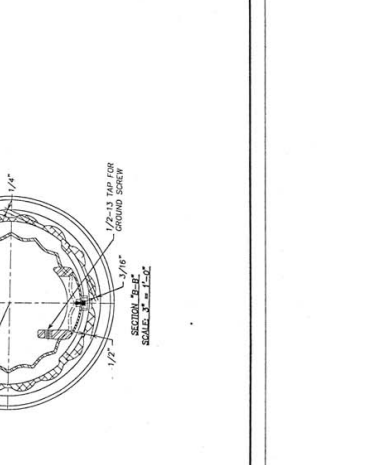
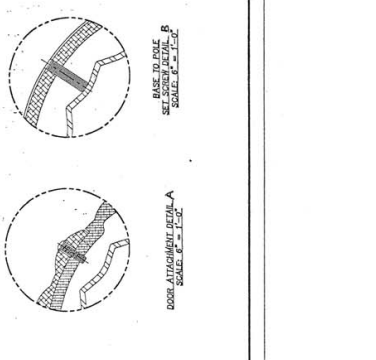
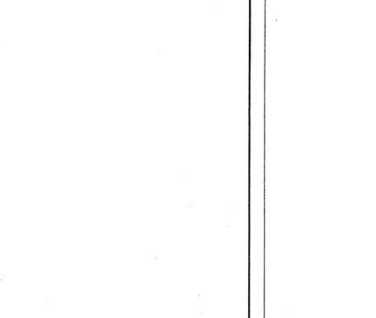
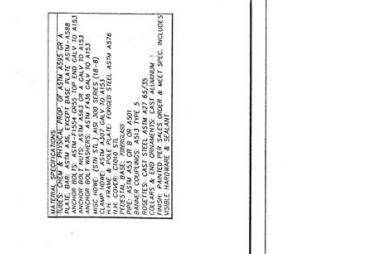
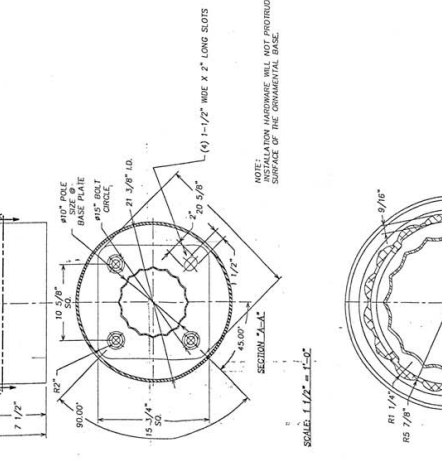
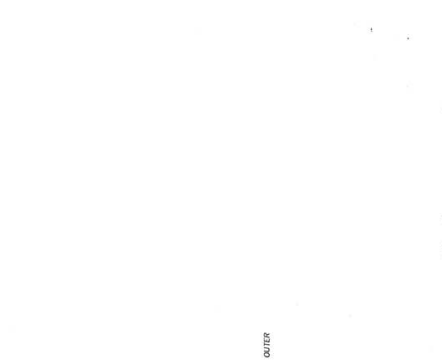
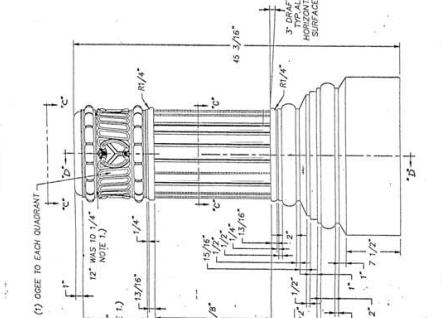
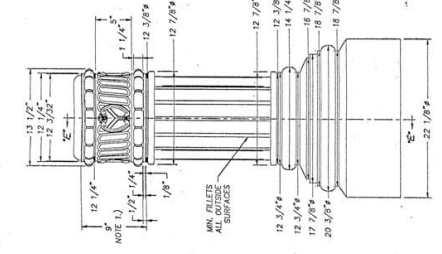
HANGING BASKET ROSETTE



SECTION 1-1
FILLET SIZE 1/2" FOR ALL CORNERS OF COBE UNLESS OTHERWISE SPECIFIED.

SECTION 2-2
FILLET SIZE 1/2" FOR ALL CORNERS OF COBE UNLESS OTHERWISE SPECIFIED.

SECTION 3-3
FILLET SIZE 1/2" FOR ALL CORNERS OF COBE UNLESS OTHERWISE SPECIFIED.



SECTION 4-4
FILLET SIZE 1/2" FOR ALL CORNERS OF COBE UNLESS OTHERWISE SPECIFIED.

SECTION 5-5
FILLET SIZE 1/2" FOR ALL CORNERS OF COBE UNLESS OTHERWISE SPECIFIED.

SECTION 6-6
FILLET SIZE 1/2" FOR ALL CORNERS OF COBE UNLESS OTHERWISE SPECIFIED.

SECTION 7-7
FILLET SIZE 1/2" FOR ALL CORNERS OF COBE UNLESS OTHERWISE SPECIFIED.

SECTION 8-8
FILLET SIZE 1/2" FOR ALL CORNERS OF COBE UNLESS OTHERWISE SPECIFIED.

SECTION 9-9
FILLET SIZE 1/2" FOR ALL CORNERS OF COBE UNLESS OTHERWISE SPECIFIED.

SECTION 10-10
FILLET SIZE 1/2" FOR ALL CORNERS OF COBE UNLESS OTHERWISE SPECIFIED.

SECTION 11-11
FILLET SIZE 1/2" FOR ALL CORNERS OF COBE UNLESS OTHERWISE SPECIFIED.

SCALE 1 1/2" = 1'-0"

SCALE 1 1/2" = 1'-0"

SCALE 1 1/2" = 1'-0"

NOTE:
INSTALLATION HARDWARE WILL NOT PROVIDE BEYOND THE OUTER SURFACE OF THE ORNAMENTAL BASE.

NOTE:
INSTALLATION HARDWARE WILL NOT PROVIDE BEYOND THE OUTER SURFACE OF THE ORNAMENTAL BASE.

NOTE:
INSTALLATION HARDWARE WILL NOT PROVIDE BEYOND THE OUTER SURFACE OF THE ORNAMENTAL BASE.

NOTE:
INSTALLATION HARDWARE WILL NOT PROVIDE BEYOND THE OUTER SURFACE OF THE ORNAMENTAL BASE.

CHICAGO 2000 POLE BASE		
CITY OF CHICAGO DEPARTMENT OF ENGINEERING		
DESIGNER POL SUPERVISOR	DATE 11.1.08	SCALE AS NOTED
CHIEF ENGINEER POL	DATE 11.1.08	SCALE AS NOTED
DESIGNED BY POL	DATE 11.1.08	SCALE AS NOTED
CHECKED BY POL	DATE 11.1.08	SCALE AS NOTED
DATE 11.1.08	SCALE AS NOTED	SCALE AS NOTED

ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED.
ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED.
ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED.

ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED.
ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED.
ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED.

ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED.
ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED.
ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED.

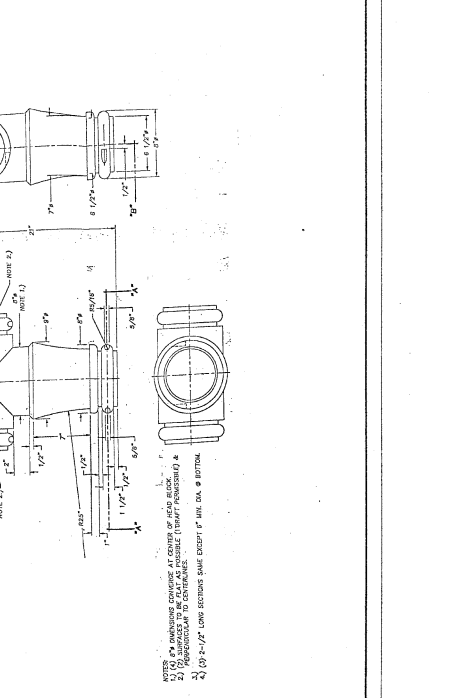
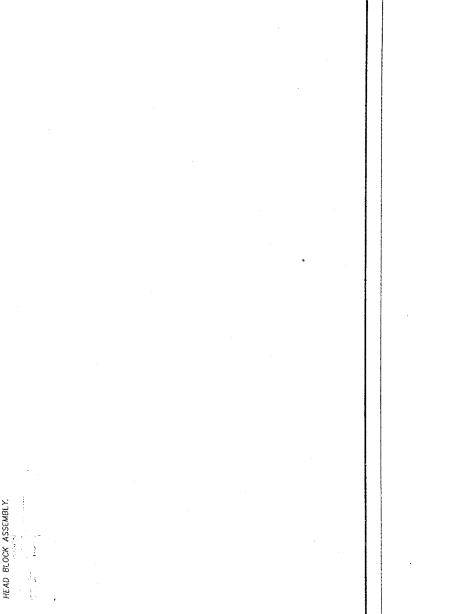
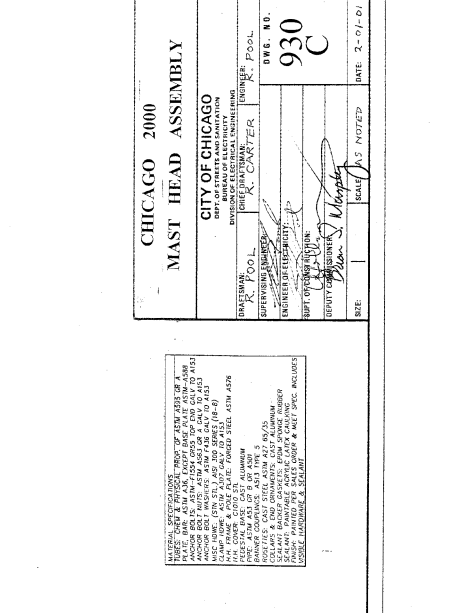
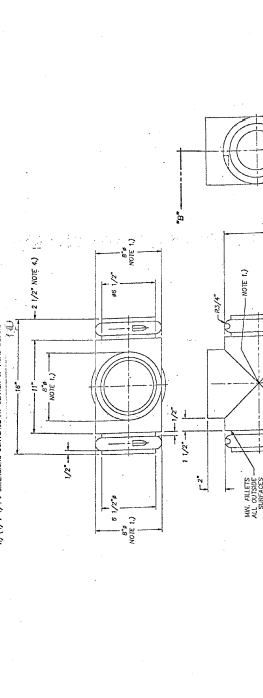
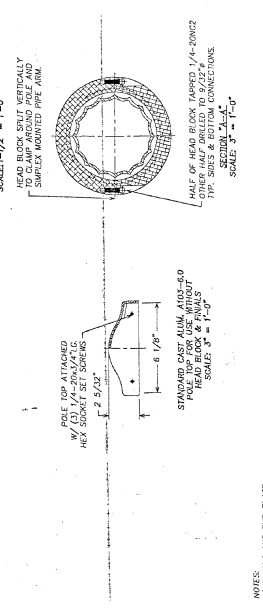
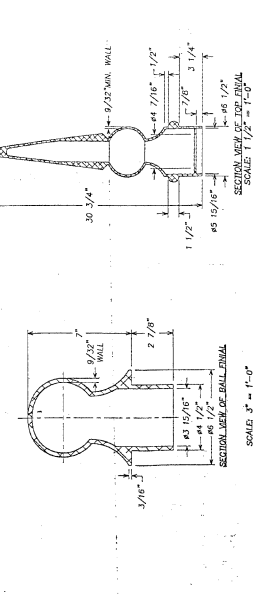
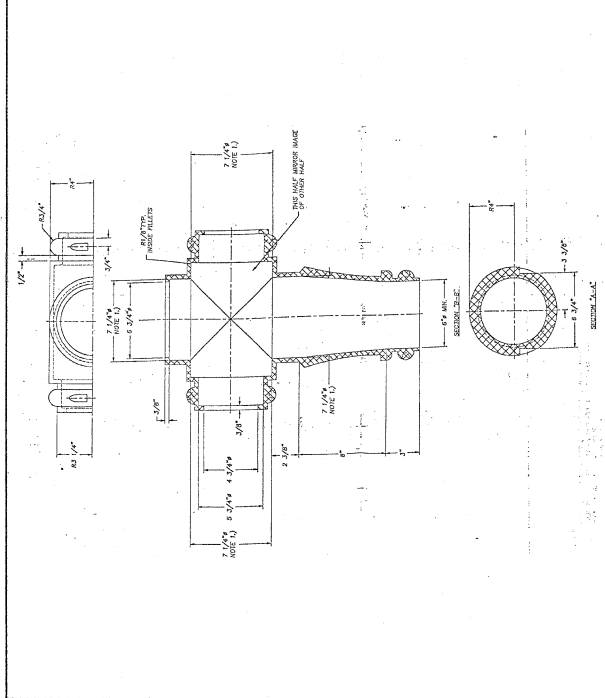
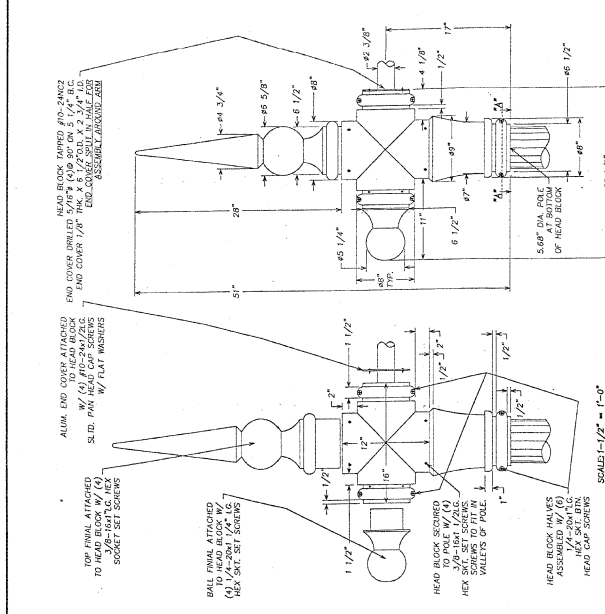
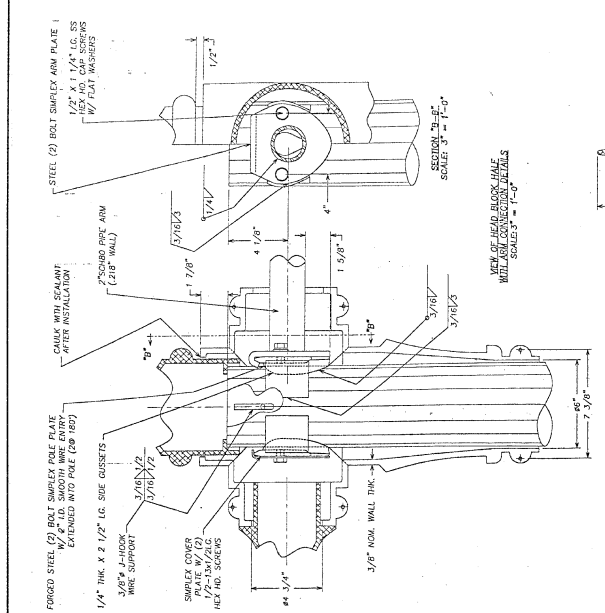
ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED.
ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED.
ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED.

ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED.
ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED.
ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED.

ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED.
ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED.
ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED.

ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED.
ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED.
ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED.

ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED.
ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED.
ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED.



CHICAGO 2000
MAST HEAD ASSEMBLY

CITY OF CHICAGO
 DEPARTMENT OF PUBLIC WORKS
 DIVISION OF MAINTENANCE

ENGINEER: [Signature]
 SUPERVISOR: [Signature]
 DATE: 2-07-01

NOTES:
 1) FINALS AND END PLATE TO BE ASSEMBLED TO HEAD BLOCK ASSEMBLY.
 2) TO BE ASSEMBLED TO HEAD BLOCK ASSEMBLY.
 3) TO BE ASSEMBLED TO HEAD BLOCK ASSEMBLY.

MATERIAL SPECIFICATIONS:
 STEEL: A36
 ALUMINUM: 6061-T6
 COPPER: C110
 BRASS: C360
 GALVANNEAL: G90
 NYLON: 6/6
 RUBBER: 60 durometer

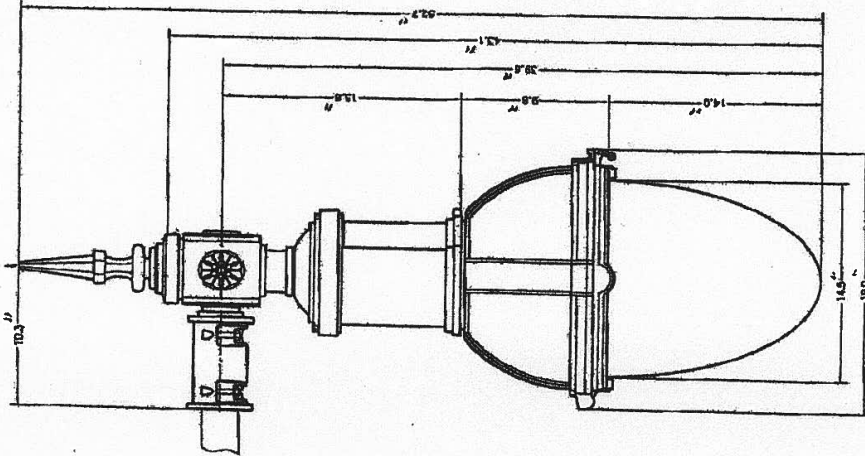
NOTES:
 1) FINALS AND END PLATE TO BE ASSEMBLED TO HEAD BLOCK ASSEMBLY.
 2) TO BE ASSEMBLED TO HEAD BLOCK ASSEMBLY.
 3) TO BE ASSEMBLED TO HEAD BLOCK ASSEMBLY.

NOTES:
 1) FINALS AND END PLATE TO BE ASSEMBLED TO HEAD BLOCK ASSEMBLY.
 2) TO BE ASSEMBLED TO HEAD BLOCK ASSEMBLY.
 3) TO BE ASSEMBLED TO HEAD BLOCK ASSEMBLY.

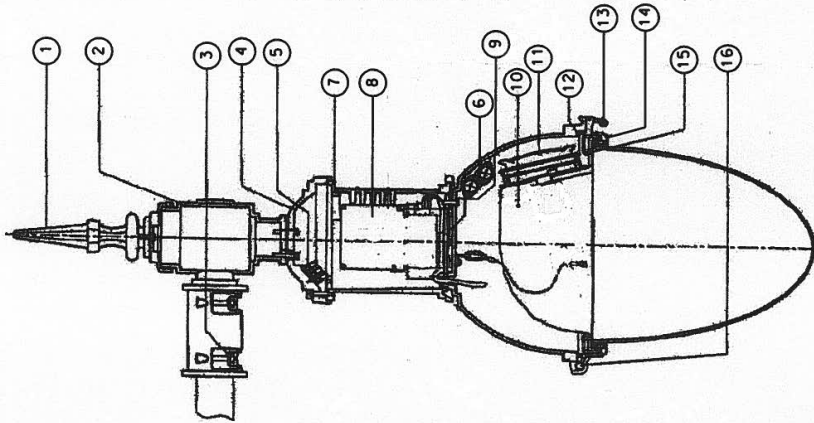
NOTES:
 1) FINALS AND END PLATE TO BE ASSEMBLED TO HEAD BLOCK ASSEMBLY.
 2) TO BE ASSEMBLED TO HEAD BLOCK ASSEMBLY.
 3) TO BE ASSEMBLED TO HEAD BLOCK ASSEMBLY.

NOTES:
 1) FINALS AND END PLATE TO BE ASSEMBLED TO HEAD BLOCK ASSEMBLY.
 2) TO BE ASSEMBLED TO HEAD BLOCK ASSEMBLY.
 3) TO BE ASSEMBLED TO HEAD BLOCK ASSEMBLY.

NOTES:
 1) FINALS AND END PLATE TO BE ASSEMBLED TO HEAD BLOCK ASSEMBLY.
 2) TO BE ASSEMBLED TO HEAD BLOCK ASSEMBLY.
 3) TO BE ASSEMBLED TO HEAD BLOCK ASSEMBLY.



1. LUMINAIRE ELEVATION

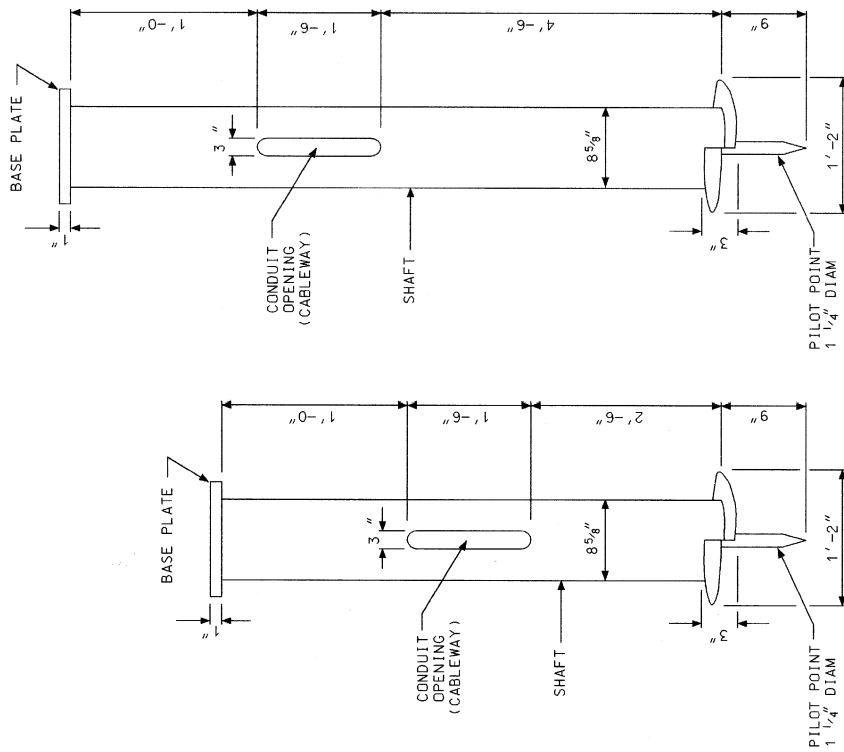


1. LUMINAIRE SECTION

1. Finital : Sand cast aluminum, 356 alloy, set screw assembled to slip-fitter.
2. Slip-fitter : Permanent cast aluminum, 356 alloy, allowing level adjustment.
3. Clamp (2x) : Galvanized steel c/w (4x) 13/8-16 s.s. dryloc treated bolts.
4. Upper Housing Cap : Permanent cast aluminum, 356 alloy, secured to slip-fitter by 6 x 3/16-18 bolts.
5. Terminal Block.
6. Fuse and Fuse Holder : (2x) Boyanet-type knob for 1-1/2 fuse.
7. Upper Housing : Permanent cast aluminum, 356 alloy.
8. Ballast Compartment.
9. Lower Housing : Permanent cast aluminum, 356 alloy, secured to upper housing by 3 1/4-20 bolts.
10. Reflector : Chemically brightened anodized hydroformed aluminum, permanently mounted to lens (Isosafe) using liquid silicone. Tool-free removable from the lens frame.
11. Shutter : Polyethylene sulfide plastic (PPS) c/w silicone gasket and lamp-holder. Tool-free lamp access.
12. Gasket : EPDM gasket.
13. Tension Latch : 0.125" dia. 304 s.s. wire allowing tool-free access to optical system.
14. Lens Frame : Permanent cast aluminum, 356 alloy, giving access to optical system and secured by stainless steel cable.
15. Optical System Retainer : (4x) 0.125" dia. 304 s.s. wire allowing tool-free access to optical system.
16. Hinge : Lens frame and lower housing have an integral hinge.

Color : Overall color is textured black, paint is applied at the interior and exterior of all concerned parts except the slip-fitter which is only partially interior painted.

DATE	REVISION
A3-15-111 ELIMINATE HPS REFERENCES G. PADYAR	
TEARDROP LUMINAIRE FOR CHICAGO 2000 POLE	
CITY OF CHICAGO DEPT. OF STREET LIGHTS & ILLUMINATION DIVISION OF ELECTRICAL ENGINEERING	
DESIGNED BY	ENGINEER
CHECKED BY	DATE
APPROVED BY	DATE
PROJECT NO.	931
SCALE	DATE 9-5-02

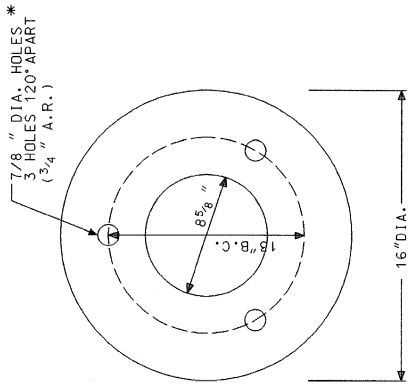


5' FOUNDATION

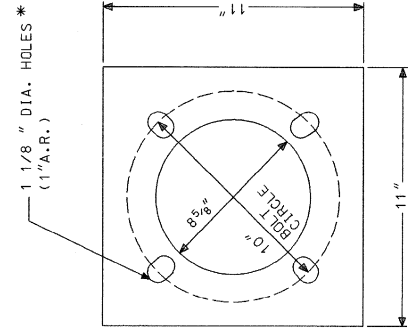
7' FOUNDATION

NOTES:

1. SHAFT MUST HAVE 1/4" WALL AND HAVE 8 5/8" OUTSIDE DIAMETER.
2. SHAFT MATERIAL MUST BE ASTM A53B STEEL PIPE OR LATEST REVISION.
3. HELIX MUST BE FORMED BY MATCHING METAL DIE.
4. HELIX MATERIAL MUST BE ASTM A709 GR 36 OR LATEST REVISION.
5. HELIX MUST HAVE 3 INCH PITCH.
6. PILOT POINT MATERIAL WILL BE ASTM A36 STEEL OR LATEST REVISION.
7. BASE PLATE MATERIAL WILL BE ASTM A36 STEEL.
8. ENTIRE STEEL FOUNDATION TO BE HOT DIP GALVANIZED PER ASTM A123 OR LATEST REVISION.
9. BASE PLATE MUST BE PERMANENTLY STAMPED WITH MANUFACTURER'S NAME, MANUFACTURING DATE, AND PRODUCT IDENTIFICATION.
10. BASE PLATE MUST BE PERMANENTLY MARKED ON TOP INDICATING CONDUIT OPENING ORIENTATION.

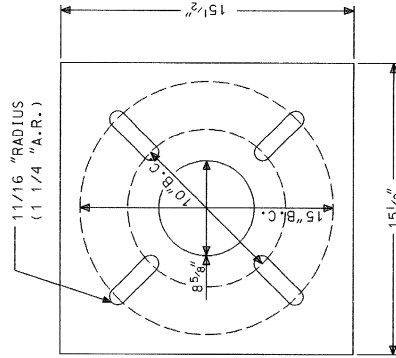


BASE PLATE
5 FOOT FOUNDATION
13" BOLT CIRCLE



BASE PLATE
5 FOOT FOUNDATION
10" BOLT CIRCLE

* HOLES IN BASE PLATE
MAY BE RADIALLY SLOTTED

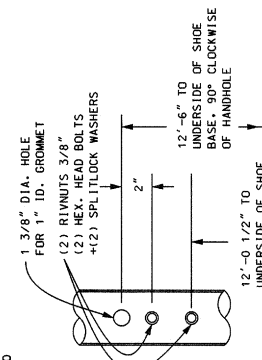
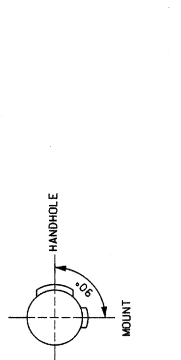
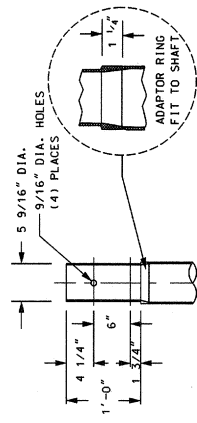


BASE PLATE
7 FOOT FOUNDATION
10"-15" BOLT CIRCLE

NO.	REVISION	DATE
1		

HELIX LIGHT POLE
FOUNDATIONS

CITY OF CHICAGO
DEPT. OF PUBLIC WORKS
DIVISION OF STREET LIGHTS
SUPERVISING ENGINEER: [Signature]
DESIGNED BY: [Signature]
CHECKED BY: [Signature]
DATE: [Signature]
DWG. NO. 936
SCALE: [Signature]
DATE: [Signature]



GENERAL NOTES:

- UNITS SHALL BE MANUFACTURED IN ACCORDANCE WITH THE 1994 ASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS.
- DESIGN WIND VELOCITY SHALL BE 80 MILES PER HOUR WITH 1.3 GUST FACTOR.
- LIGHT POLE SHALL BE DESIGNED TO SUPPORT (1) 40 POUNDS LUMINAIRE WITH AN EFFECTIVE PROJECTED AREA OF 1.2 SQUARE FEET MOUNTED ON A 30'-0" SINGLE DAVIT ARM.

A	DATE	REVISION

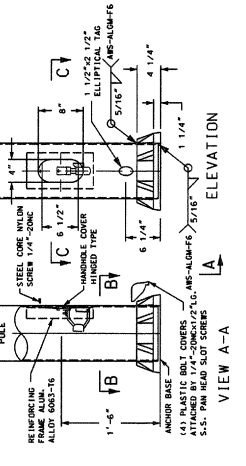
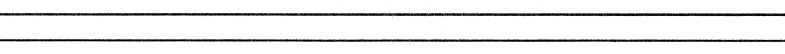
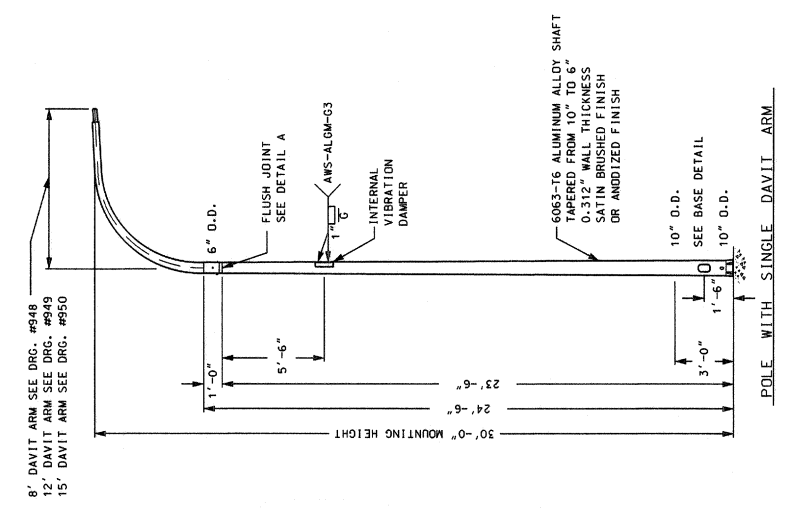
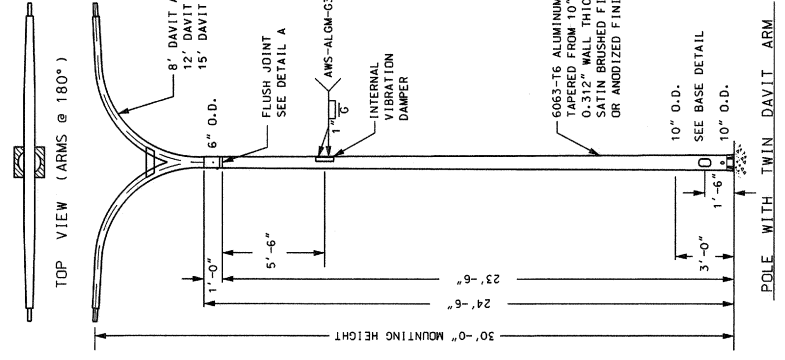
ALUMINUM DAVIT POLE
10" x 6" x 30'
FOR ARTERIAL STREETS

CITY OF CHICAGO
DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING

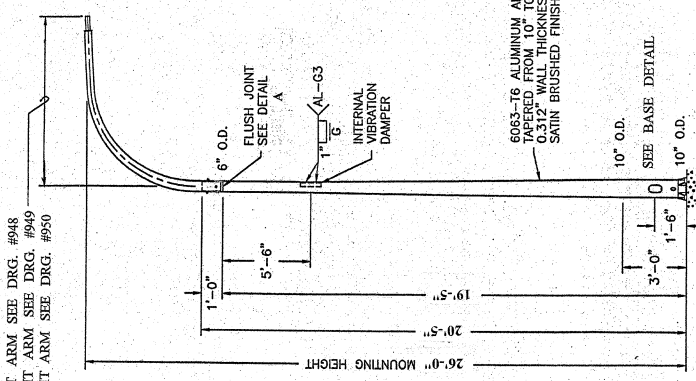
DRAFTSMAN: G. M. PADYAR
ENGINEER: O. LETAMENDI
SUPERVISING ENGINEER: R. POOL
ENGINEER OF ELECTRICITY: *[Signature]*
DEPUTY COMMISSIONER: *[Signature]*

DWG. NO. 941

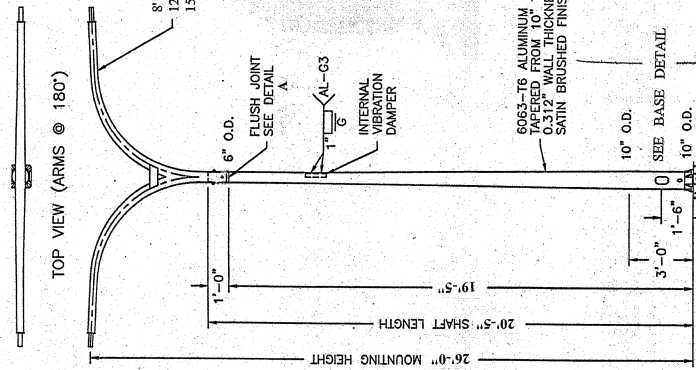
SCALE: NONE
DATE: 04/15/13



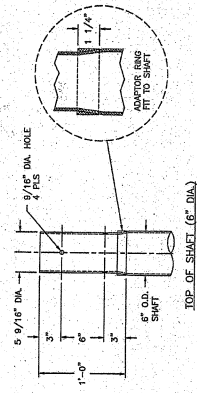
8' DAVIT ARM SEE DRG. #948
 12' DAVIT ARM SEE DRG. #949
 15' DAVIT ARM SEE DRG. #950



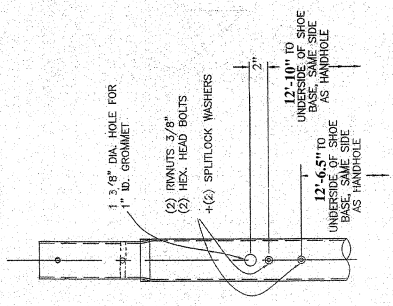
POLE WITH SINGLE DAVIT ARM



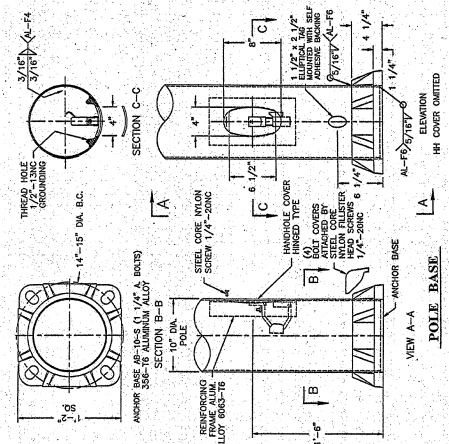
POLE WITH TWIN DAVIT ARMS



DETAIL A

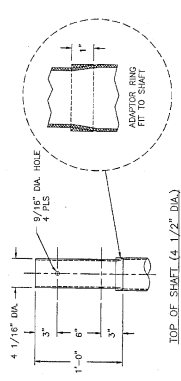
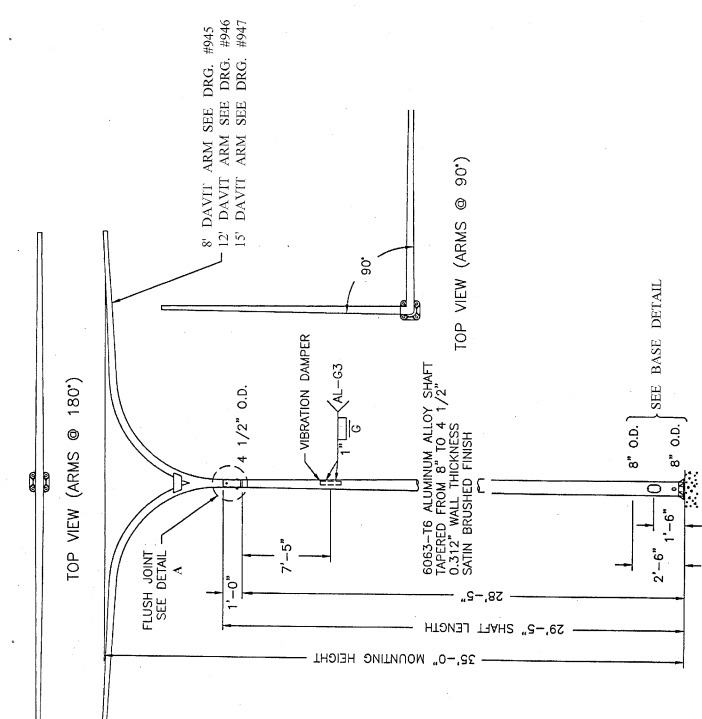
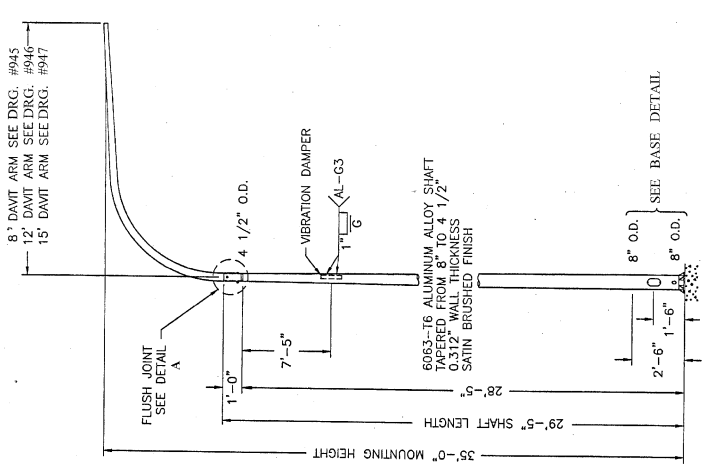


OPTION: SIDE MOUNT FOR LUMINAIRE



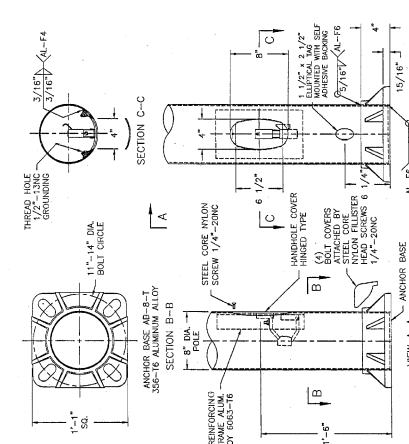
SECTION C-C

SHORT ALUMINUM DAVIT POLE		D.W.G. NO. 941	DATE
FOR ARTERIAL STREETS			
CITY OF CHICAGO		DRAWN BY <i>[Signature]</i>	SCALE
DEPT. OF STREETS AND SANITATION			
DESIGNED BY	CHECKED BY	DATE	
SUPERVISING ENGINEER			
ENGINEER OF ELECTRICITY			
SUPERVISOR OF CONSTRUCTION			

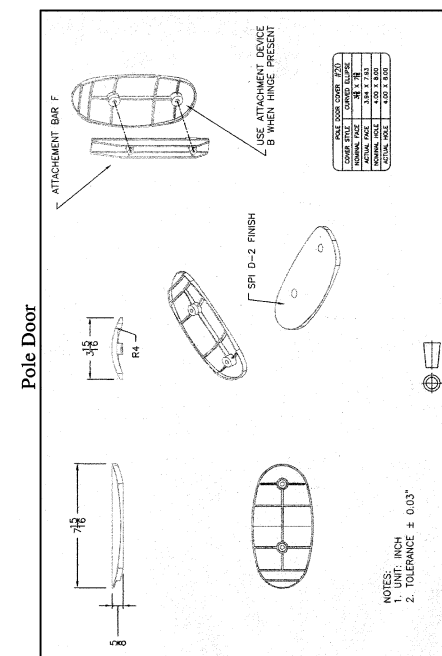


POLE WITH SINGLE DAVIT ARM

POLE WITH TWIN DAVIT ARMS



SECTION C-C



Pole Door

ELEVATION
1st FLOOR, LIMITED

POLE BASE

ALUMINUM DAVIT POLE
8" x 4.5" x 29'-5"

FOR CHICAGO SKYWAY

CITY OF CHICAGO
BUREAU OF ELECTRICITY
DIVISION OF TRANSPORTATION

DATE: 7-27-92

SCALE: _____

PROJECT NO.: 942

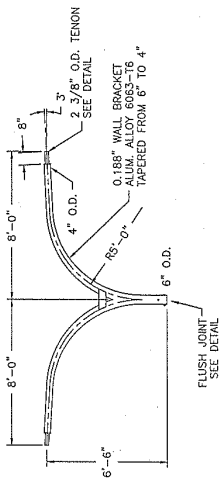
BY: _____

CHKD: _____

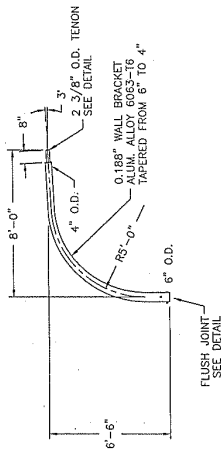
APP'D: _____

DESIGNED BY: _____

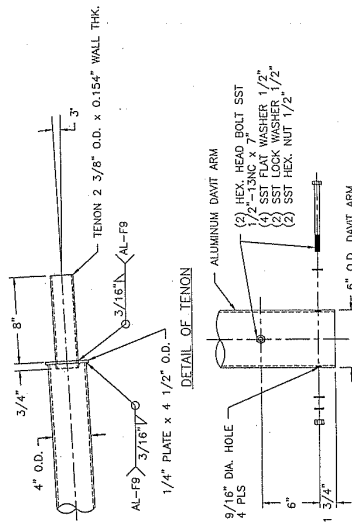
ENGINEER: _____



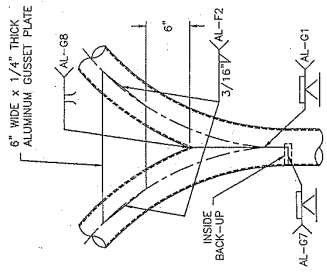
SINGLE DAVIT ARM



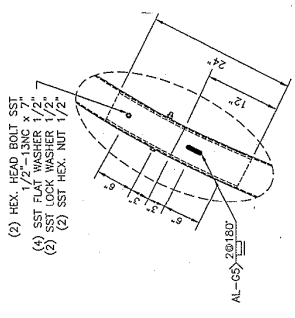
TWIN DAVIT ARM AT 180°



DETAIL OF TENON



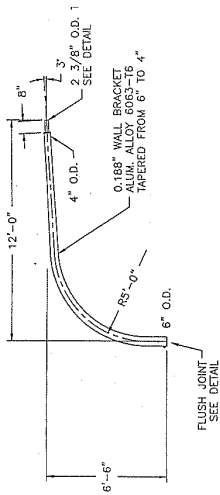
TWIN ARM (180°) WELD DETAIL



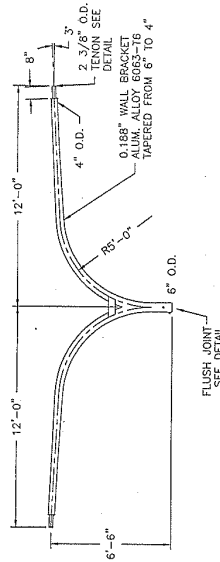
SPLICE DETAIL

- (2) HEX. HEAD BOLT SST
- (4) SST FLAT WASHER 1/2"
- (2) SST LOCK WASHER 1/2"
- (2) SST HEX. NUT 1/2"

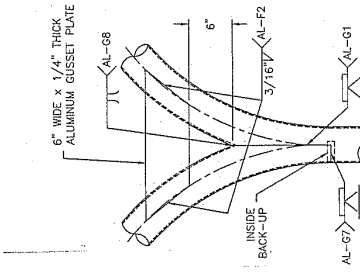
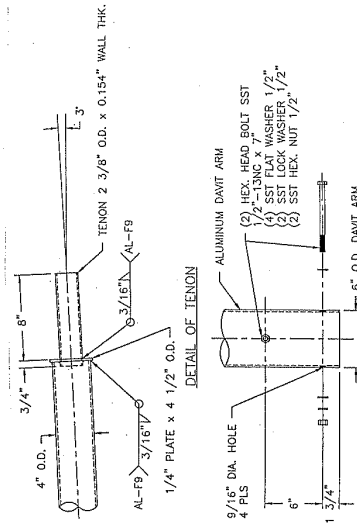
REVISED	06-12-2012
ALUMINUM DAVIT ARM 6" x 8'-0"	
CITY OF CHICAGO DEPARTMENT OF ELECTRICAL OPERATIONS	
SUPERVISOR	SELF DEPARTMENT ENGINEER
DESIGNED BY	ALUMINUM DAVIT ARM
CHECKED BY	ALUMINUM DAVIT ARM
DATE	06/12/12
DWG. NO.	948
DATE	06/12/12



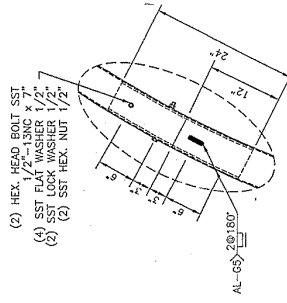
SINGLE DAVIT ARM.



TWIN DAVIT ARM AT 180°.

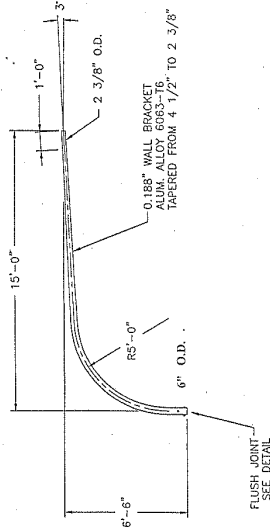


TWIN ARM (180°) WELD DETAIL

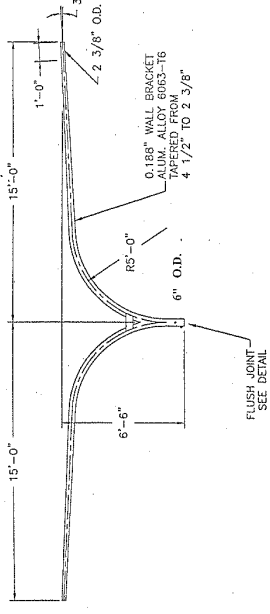


SPICE DETAIL

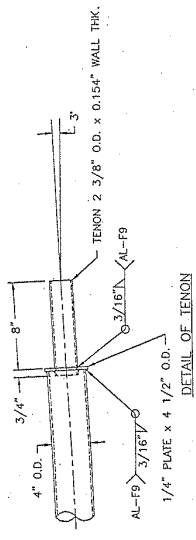
REVISED	06-16-2012
ALUMINUM DAVIT ARM	
6" x 12'-0"	
CITY OF CHICAGO DEPARTMENT OF TRANSPORTATION CONSTRUCTION DIVISION PORTS AND AIRPORTS ENGINEERS	
DESIGNED BY SUPERVISOR ENGINEER	CHECKED BY SENIOR ENGINEER
DATE APR 20 2012	DWG. NO. 949
SCALE	DATE -- 2-1-02



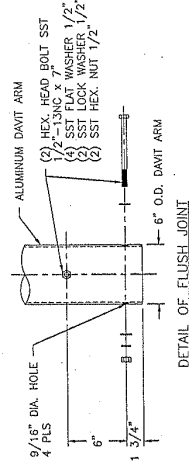
SINGLE DAVIT ARM



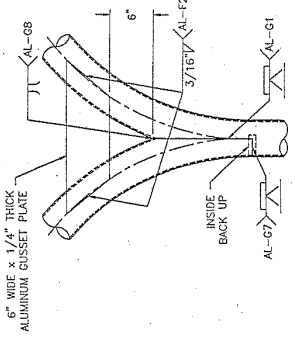
TWIN DAVIT ARM AT 180°



DETAIL OF TENON

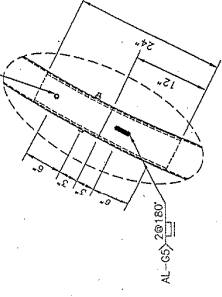


DETAIL OF FLUSH JOINT



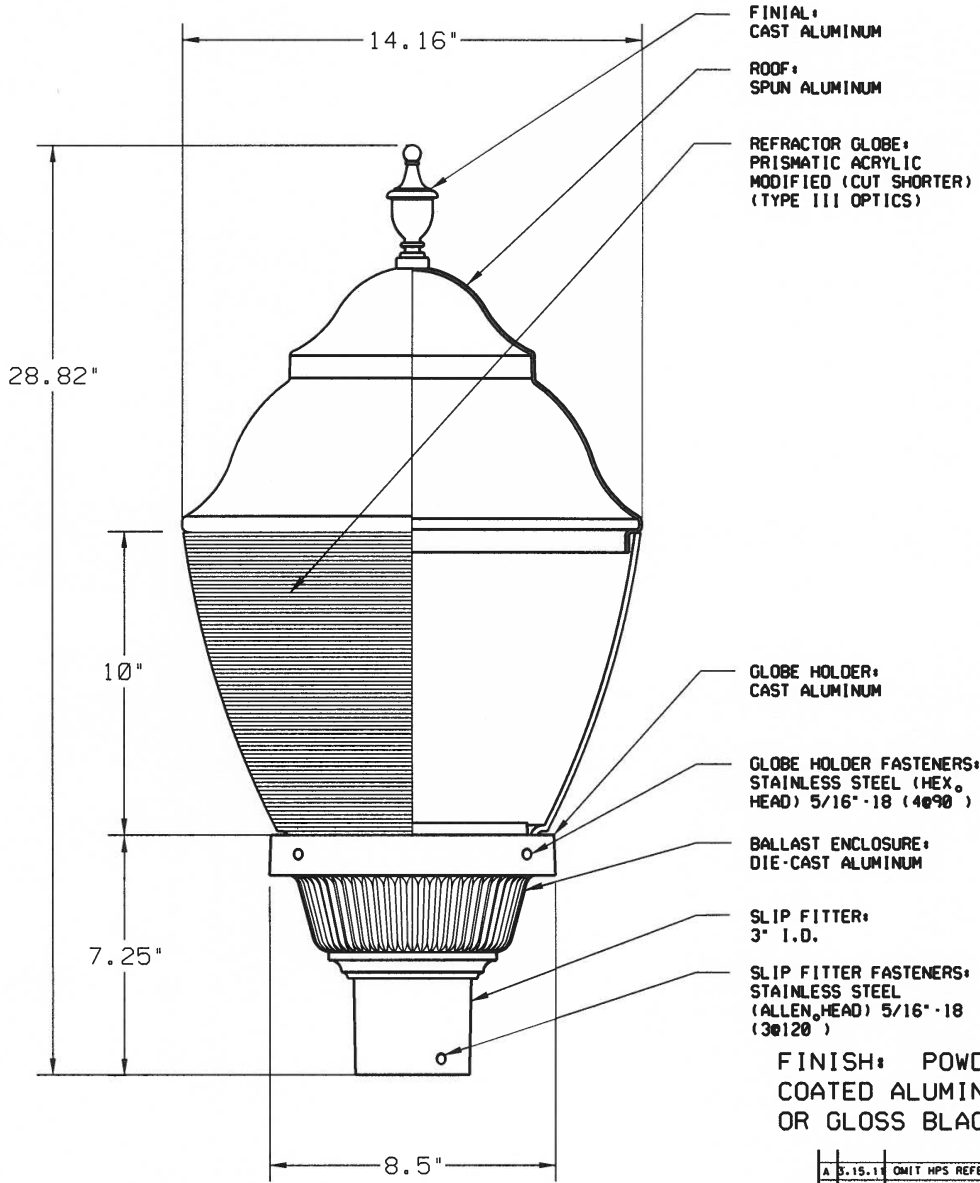
TWIN ARM (180°) WELD DETAIL

- (2) HEX. HEAD BOLT SST
- (1) 1/2" 13NC X 7"
- (1) SST LOCK WASHER 1/2"
- (2) SST HEX. NUT 1/2"



REVISED	6-18-2012
ALUMINUM DAVIT ARM	
6" x 15'-0"	
CITY OF CHICAGO DIVISION OF ELECTRICAL OPERATIONS	
DESIGNED BY	ELC. DESIGN GROUP
CHECKED BY	ELC. DESIGN GROUP
DATE	6-18-2012
DRG. NO.	950
REV.	1 - 2-7-92

LUMINAIRE SPECIFICATIONS



FINIAL:
CAST ALUMINUM

ROOF:
SPUN ALUMINUM

REFRACTOR GLOBE:
PRISMATIC ACRYLIC
MODIFIED (CUT SHORTER)
(TYPE III OPTICS)

GLOBE HOLDER:
CAST ALUMINUM

GLOBE HOLDER FASTENERS:
STAINLESS STEEL (HEX,
HEAD) 5/16" - 18 (4090)

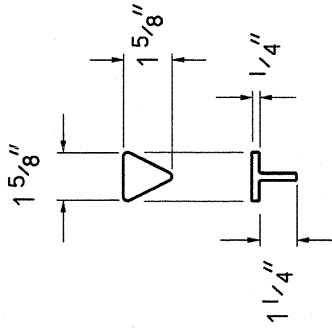
BALLAST ENCLOSURE:
DIE-CAST ALUMINUM

SLIP FITTER:
3" I.D.

SLIP FITTER FASTENERS:
STAINLESS STEEL
(ALLEN HEAD) 5/16" - 18
(30120)

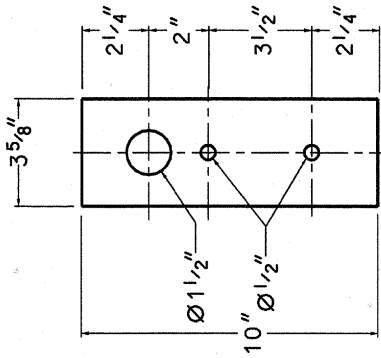
FINISH: POWDER
COATED ALUMINUM
OR GLOSS BLACK

A	3.15.11	OMIT HPS REFERENCES	G. PADHYAR
	DATE	REVISION	
LUMINAIRE RESIDENTIAL MID-MOUNT			
CITY OF CHICAGO DEPT. OF STREETS AND SANITATION BUREAU OF ELECTRICITY DIVISION OF ELECTRICAL ENGINEERING			
DRAFTSMAN: B. GARNSEY	CHIEF DRAFTSMAN: R. CARTER	ENGINEER: B. GARNSEY	DRAWING NO. 958
ELECTRICAL DESIGN ENGINEER			
ENGINEER OF ELECTRICITY			
GENERAL SUPERINTENDENT			
DEPUTY COMMISSIONER			
SIZE: 11" x 17"	SCALE: NONE	DATE: 6/30/03	

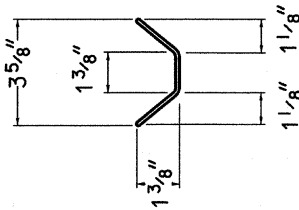


SECTION A-A

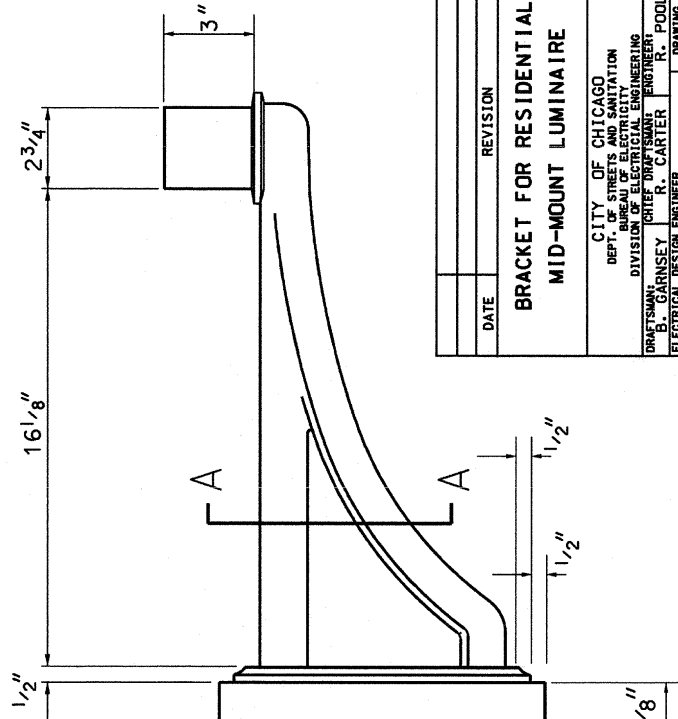
MATERIAL : GALVANISED STEEL PLATE, 1/8" THICKNESS



MOUNTING PLATE



TOP VIEW



1/2"

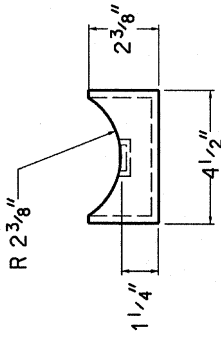
16 1/8"

2 3/4"

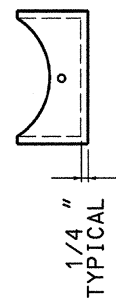
3"

A

DATE	REVISION
BRACKET FOR RESIDENTIAL MID-MOUNT LUMINAIRE	
CITY OF CHICAGO DEPT. OF STREETS AND SANITATION BUREAU OF ELECTRICITY ENGINEERING DRAFTSMAN: J. B. GARNSEY CHIEF DRAFTSMAN: R. POOL ELECTRICAL DESIGN ENGINEER: R. CARTER DRAWING NO. 959	
ENGINEER OF ELECTRICITY GENERAL SUPERINTENDENT DEPUTY COMMISSIONER SCALLET	
SIZE: 11" x 22"	SCALE: NONE
DRAWN BY: [Signature]	DATE: 02/01/06



TOP VIEW



BOTTOM VIEW

HEX HEAD BOLD
1/4" - 20 x 1 1/4"

1/4" - ALUMINUM
THICKNESS

11"

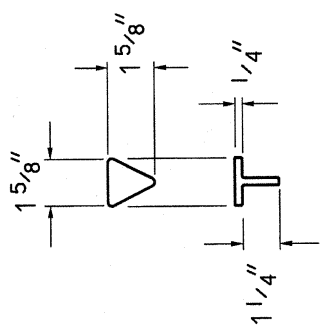
2 3/8"

1 1/2"

1 1/2"

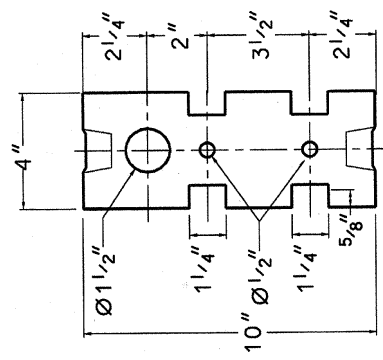
BACK OF ARM BRACKET

ARM BRACKET

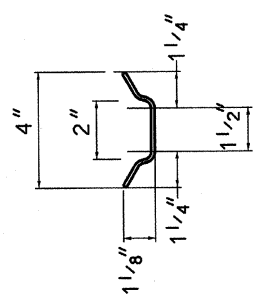


SECTION A-A

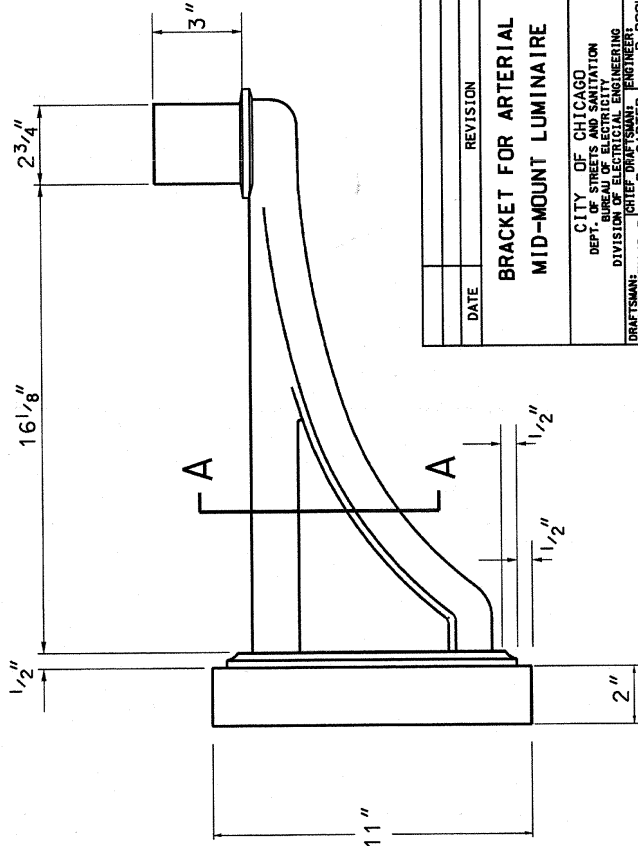
MATERIAL : GALVANISED STEEL PLATE, 1/8" THICKNESS



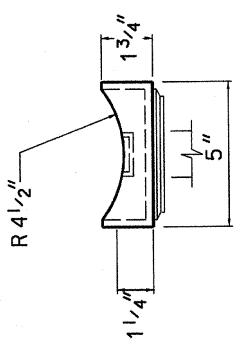
MOUNTING PLATE



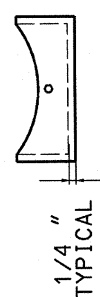
TOP VIEW



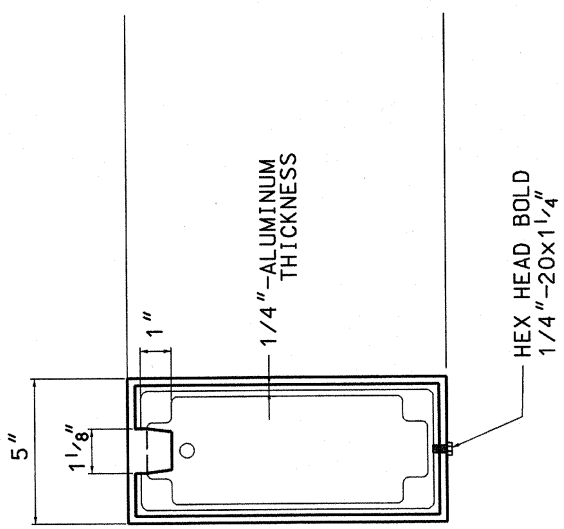
ARM BRACKET



TOP VIEW

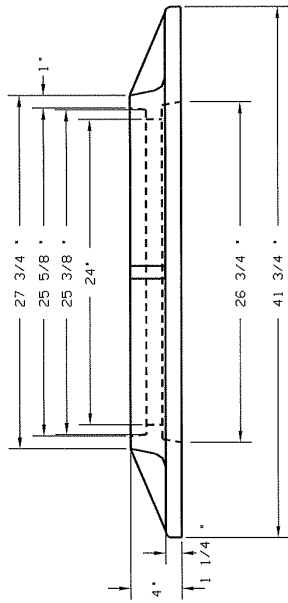


BOTTOM VIEW

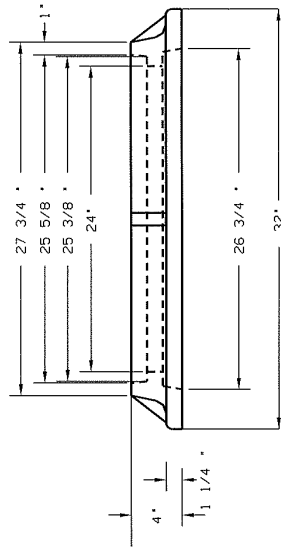


BACK OF ARM BRACKET

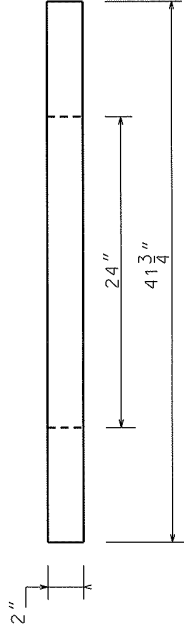
DATE	REVISION
BRACKET FOR ARTERIAL MID-MOUNT LUMINAIRE	
CITY OF CHICAGO DEPT. OF STREETS AND SANITATION DIVISION OF ELECTRICAL ENGINEERING	
DRAFTSMAN: B. GARNSEY/S.R.	BRIEF DRAFTSMAN: R. CARTER
ELECTRICAL DESIGN ENGINEER	
DRAWING NO. 959A	
ENGINEER OF ELECTRICITY GENERAL SUPERINTENDENT	DATE: 02/01/06
DEPUTY COMMISSIONER	SCALE: NONE
SHEET 17" x 22"	



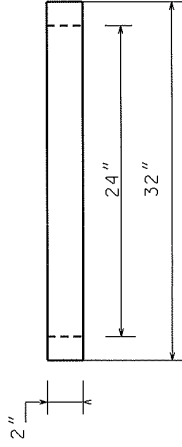
FRAME - SIDE ELEVATION
FOR CONCRETE MANHOLES/HANDHOLES



FRAME - SIDE ELEVATION
FOR FIBERGLASS HANDHOLES



FRAME EXTENSION - SIDE ELEVATION
FOR CONCRETE MANHOLES/HANDHOLES



FRAME EXTENSION - SIDE ELEVATION
FOR FIBERGLASS HANDHOLES

DATE	REVISION
A	

**POLYMER CONCRETE
24" FRAMES**

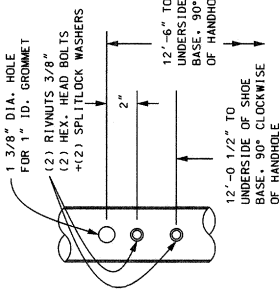
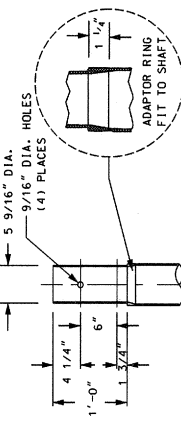
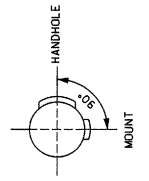
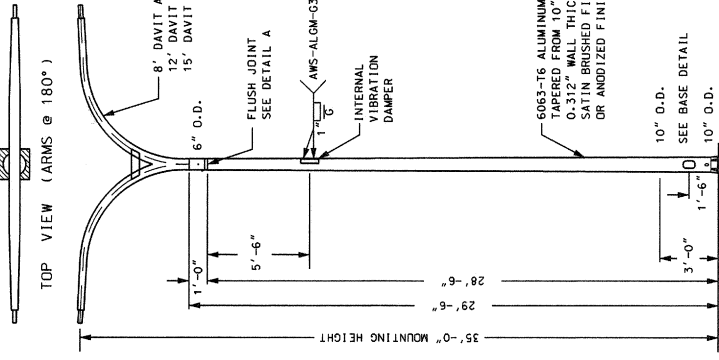
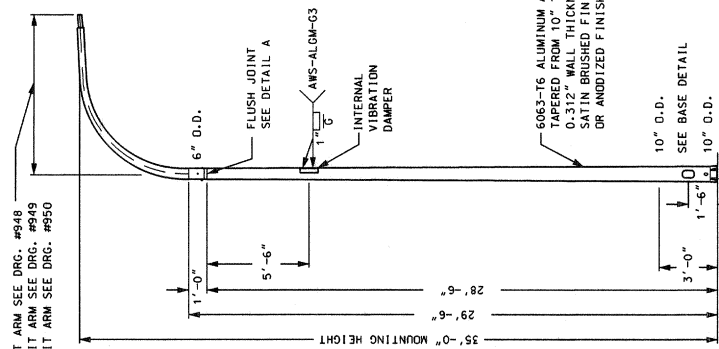
CITY OF CHICAGO
DEPARTMENT OF TRANSPORTATION
DIVISION OF ELECTRICAL OPERATIONS

DRAWN BY: G. M. PADILYAR
ENGINEER: R. POOL
SUPERVISING ENGINEER: D. LETAMENDI
ENGINEER OF ELECTRICITY: *Robert C. Meyer*
DEPUTY COMMISSIONER

DWG. NO. **968**

SIZE: 11" x 17" SCALE: NONE DATE: 07-21-11

8' DAVIT ARM SEE DRG. #948
 12' DAVIT ARM SEE DRG. #949
 15' DAVIT ARM SEE DRG. #950

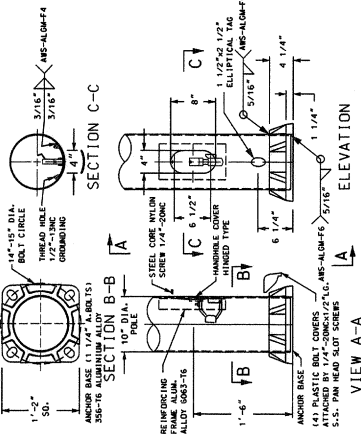


6063-T6 ALUMINUM ALLOY SHAFT
 TAPERED FROM 10" TO 6"
 0.312" WALL THICKNESS
 SATIN BRUSHED FINISH
 OR ANODIZED FINISH

6063-T6 ALUMINUM ALLOY SHAFT
 TAPERED FROM 10" TO 6"
 0.312" WALL THICKNESS
 SATIN BRUSHED FINISH
 OR ANODIZED FINISH

OPTION: SIDE MOUNT
 FOR LUMINAIRE

GENERAL NOTES:
 - UNITS SHALL BE MANUFACTURED IN ACCORDANCE WITH THE 1994 ASHSTANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS.
 - DESIGN WIND VELOCITY SHALL BE 80 MILES PER HOUR WITH 1.3 GUST FACTOR.
 - LIGHT POLE SHALL BE DESIGNED TO SUPPORT (1) 40 POUNDS LUMINAIRE WITH AN EFFECTIVE PROJECTED AREA OF 1.2 SQUARE FEET MOUNTED ON A 35'-0" SINGLE DAVIT ARM.



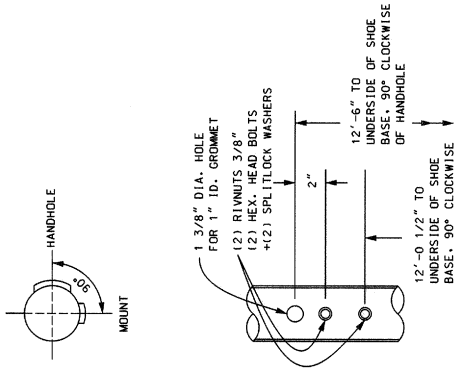
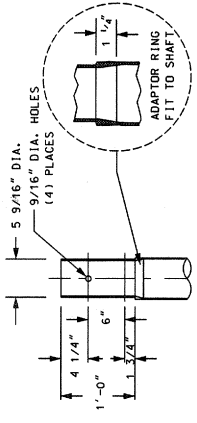
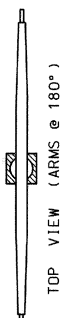
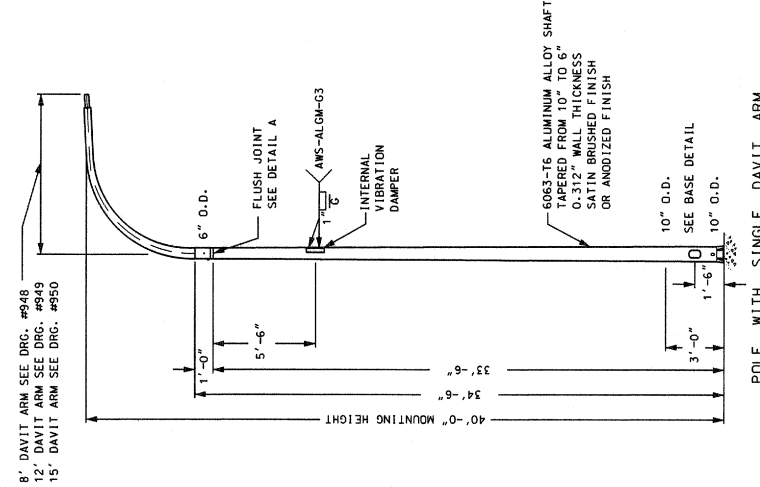
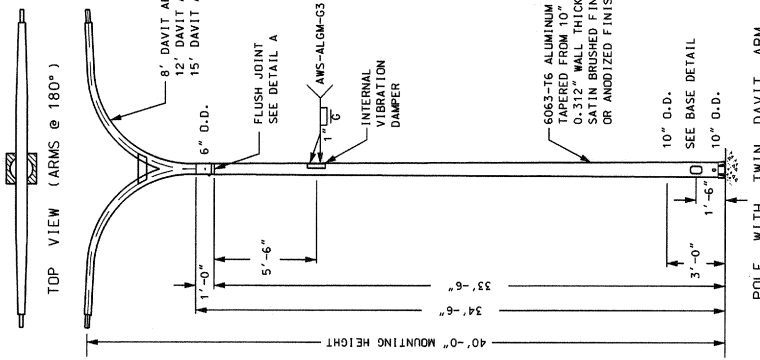
A	DATE	REVISION

ALUMINUM DAVIT POLE
 10" x 6" x 35'
 FOR ARTERIAL STREETS

CITY OF CHICAGO
 DEPARTMENT OF TRANSPORTATION
 DIVISION OF ENGINEERING

DRAFTSMAN: G.M.PADYAR
 ENGINEER: G.LETAMENDI
 SUPERVISING ENGINEER: R.POOL
 ENGINEER OF ELECTRICITY: J.W.K. COO
 DEPUTY COMMISSIONER: David B. ...

DWG. NO. 971
 SCALE: NONE
 DATE: 04/15/13



GENERAL NOTES:
 - UNITS SHALL BE MANUFACTURED IN ACCORDANCE WITH THE 1994 AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS.
 - DESIGN AND CONSTRUCTION SHALL BE 80 MILES PER HOUR WITH A SAFETY FACTOR OF 1.5.
 - LIGHT POLE SHALL BE DESIGNED TO SUPPORT (1) 40 POUNDS LUMINAIRE WITH AN EFFECTIVE PROJECTED AREA OF 1-2 SQUARE FEET MOUNTED ON A 40'-0" SINGLE DAVIT ARM.

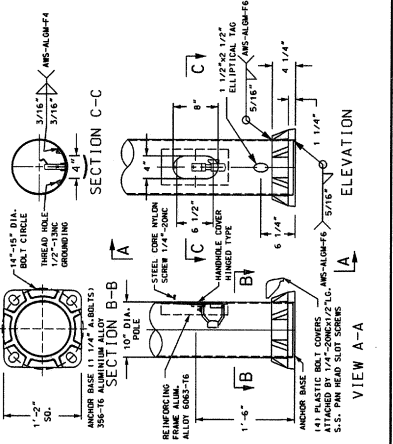
REVISION	DATE

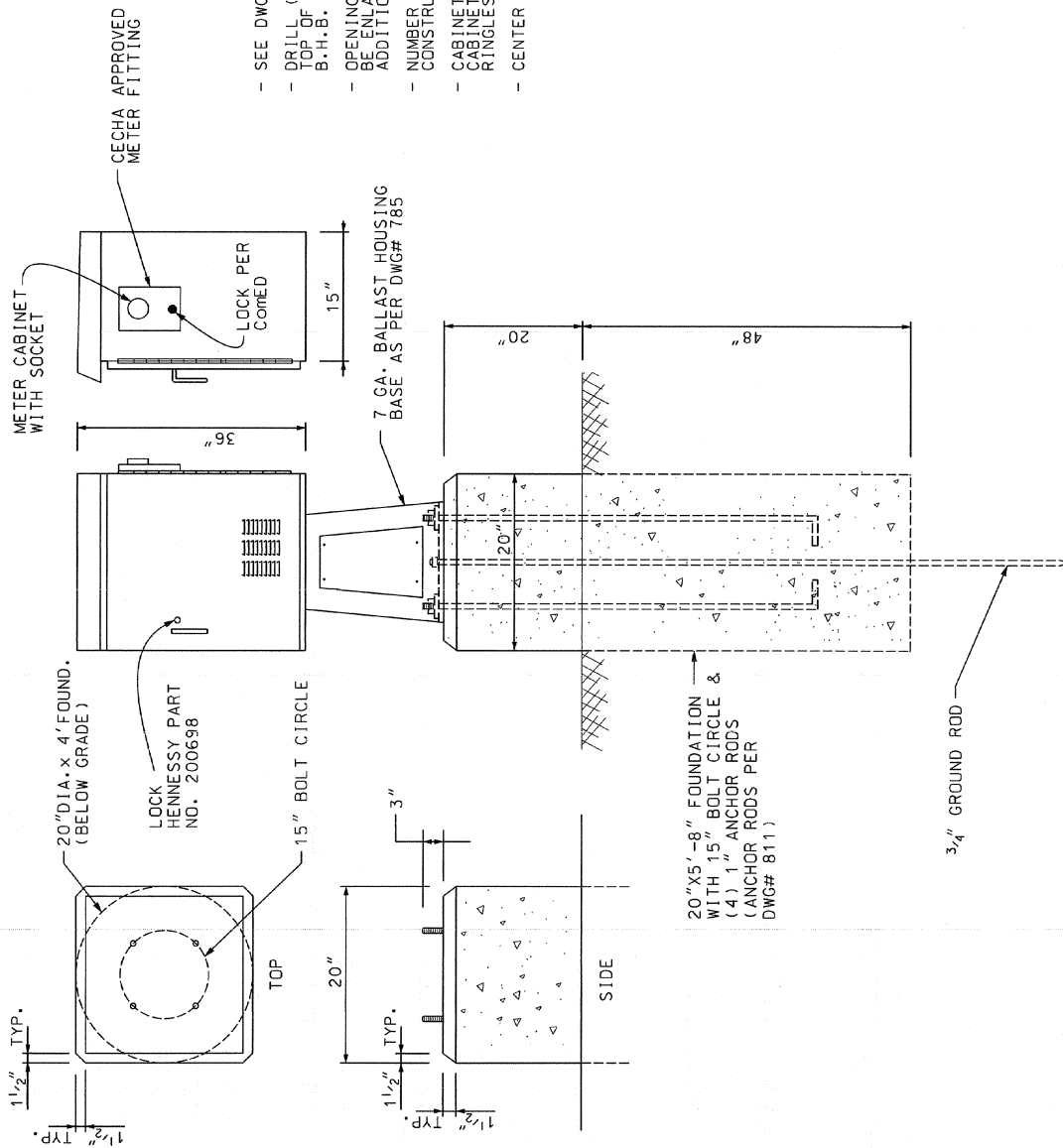
ALUMINUM DAVIT POLE
 10" x 6" x 40"
 FOR ARTERIAL STREETS

CITY OF CHICAGO
 DEPARTMENT OF TRANSPORTATION
 DIVISION OF ENGINEERING

DRAFTSMAN: G. M. PADYAR
 ENGINEER: D. LETAMENDI
 SUPERVISING ENGINEER: R. POOL
 ENGINEER OF ELECTRICITY: *J. [Signature]*
 DEPUTY COMMISSIONER: *Amil Bank*

DMG. NO. 972
 SCALE: NONE
 DATE: 04/15/13

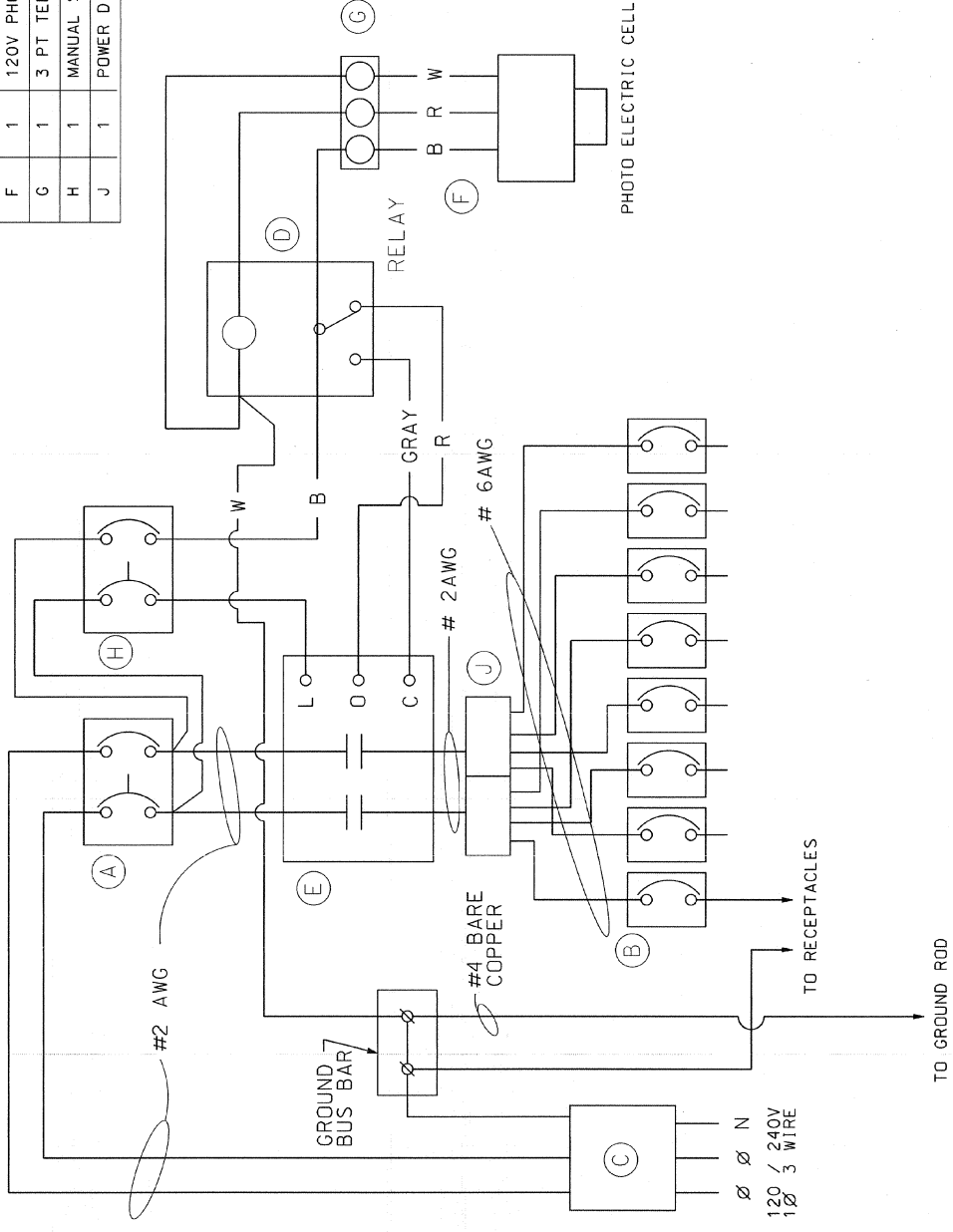




- SEE DWG# 974 FOR WIRING DIAGRAM.
- DRILL (4) 1/2" DIA. HOLES IN BOTTOM OF CABINET & TOP OF BALLAST HOUSING BASE, BOLT CABINET TO B.H.B. USING (4) 3/8"x2 1/2" BOLTS.
- OPENINGS IN BOTTOM OF CABINET & TOP OF B.H.B. MAY BE ENLARGED TO A MAX. OF 5"x10" TO FACILITATE ADDITIONAL CABLE.
- NUMBER & SIZE OF CONDUITS TO BE SHOWN ON CONSTRUCTION DRAWINGS.
- CABINET WITH METER SOCKET ATTACHED TO SIDE OF CABINET, MIL BANK 100 AMP, 200 AMP, 4 TERMINAL RINGLESS, 600 VAC., OR EQUIVALENT.
- CENTER OF METER NOT TO BE OVER 60" FROM GRADE.

DATE	REVISION
100 AMP. BASE MOUNTED RECEPTACLE CONTROLLER CABINET	
CITY OF CHICAGO DEPARTMENT OF TRANSPORTATION CHIEF ENGINEER	
DESIGNED BY C.A. RADIYAR	CHECKED BY C.A. RADIYAR
SUPERVISING ENGINEER (ELEC. DESIGN ENGR. A. POOL)	
ENGINEER (ELECTRICAL) GREGORY J. GIBSON	
DATE: 5/21/13	
DWG. NO. 973	
SCALE: NONE	DATE: 5/21/13

ITEM	QTY	DESCRIPTION
A	1	BREAKER 2P 100 AMP
B	8	BREAKER 1P 20 AMP
C	1	CECHA APPROVED METER FITTING
D	1	POTTER BRUMFIELD PRD5AYO-120 RELAY
E	1	REMOTE CONTROL SWITCH 2P 100 AMP 240V
F	1	120V PHOTOCELL
G	1	3 PT TERMINAL BLOCK
H	1	MANUAL STARTER SWITCH
J	1	POWER DISTRIBUTION BLOCK



A	DATE	REVISION

WIRING DIAGRAM
 100 AMP / 120 VOLT
 RECEPTACLE CONTROLLER

CITY OF CHICAGO
 DEPARTMENT OF INSPECTION
 DIVISION OF ELECTRICAL SAFETY

DRAFTSMAN: CHIEF DRAFTSMAN: ENGINEER: CAMPA/DTAR
 SUPERVISING ENGINEER: ELEC DESIGN ENGR. IN CHARGE: SUPERVISOR:

ENGINEER OF ELECTRICITY:
James E. Sullivan
 SUPERVISOR OF ELECTRICAL SAFETY:
Robert J. Sullivan

DWG. NO. 974
 SCALE: NONE
 DATE: 5/31/13

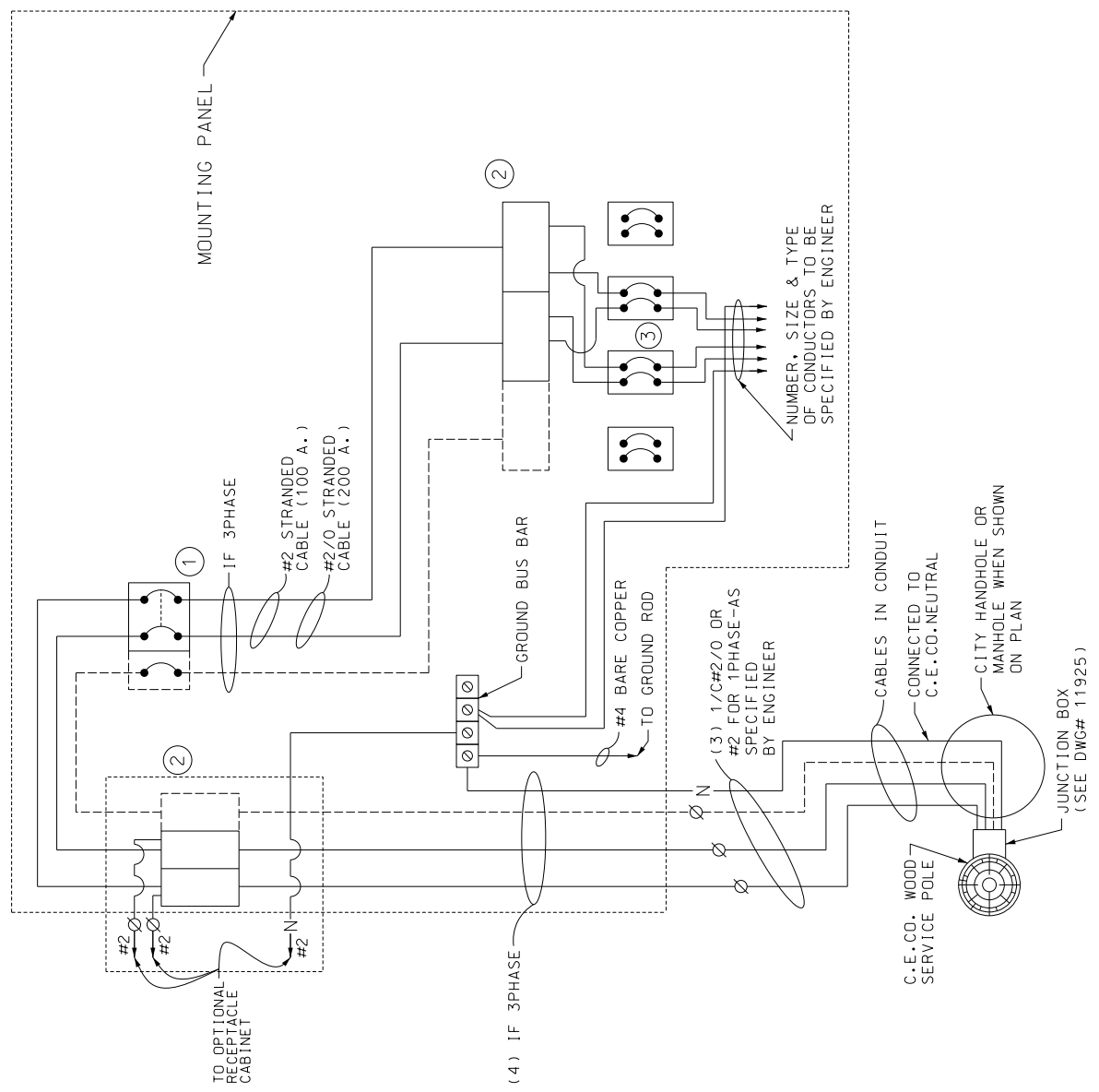
- ① - MAIN CIRCUIT BREAKER, 2 POLE OR 3 POLE
100A "FDB" FRAME OR
2 POLE OR 3 POLE, 200A, "JDB" OR "JDK" FRAME
AS TABLE BELOW
- 100A 1PHASE : C FDB 14KA i.c. AT 240VAC 2P
100A 3PHASE : C FDB 14KA i.c. AT 240VAC 3P
200A 1PHASE : C JDB 25KA i.c. AT 240VAC 2P
200A 3PHASE : C JDB 25KA i.c. AT 240VAC 3P
- ② - POWER DISTRIBUTION BLOCK, AS PER
NEC 376.56(B) 1-4, AND 310.15(B)(16) 75°C
AMPACITIES OPEN STYLE, COPPER CONTACTS,
600VAC RATED
- ③ - BRANCH CIRCUIT BREAKER-2 POLE, 50A., OR 70A.
"EHD" FRAME,
14KA i.r. AT 240VAC 2P
14KA i.r. AT 240VAC 3P

NOTES :

GROUND BUS TO BE MOUNTED ON LEFT SIDE WALL
OF CABINET (SEE DETAIL DRG.NO.984)

SEE DRG.NO.984 FOR DETAIL OF MOUNTING PANEL.

SEE DRG.# 876 FOR CABINET ASSEMBLY (100 AMP.)
SEE DRG.# 880 FOR CABINET ASSEMBLY (200 AMP.)



DATE	REVISION
A	

WIRING DIAGRAM FOR 100/200 AMP. SINGLE OR THREE PHASE, STREET LIGHTING CONTROLLER CONSTANT POWER

CITY OF CHICAGO
DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING-ELECTRICAL SECTION

DRAWING ENGINEER : GUNPATIYAR
SUPERVISING ENGINEER : D. LETAMENGI
PROFESSIONAL ENGINEER : R. POOL
ENGINEER OF ELECTRICITY :
DEPUTY COMMISSIONER :

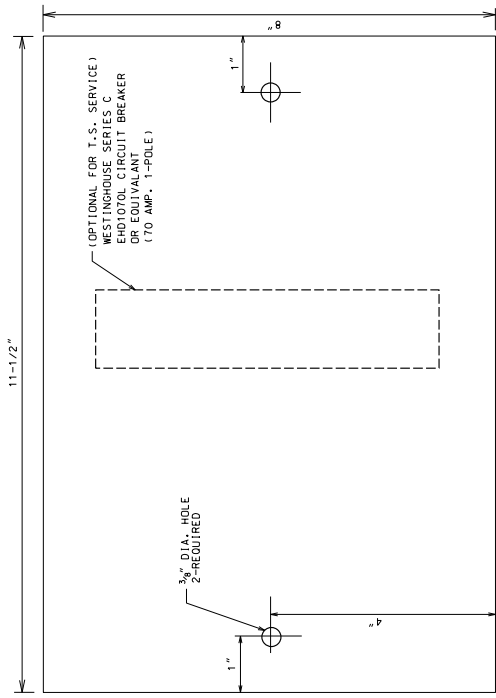
DWG. NO. 983

SIZE: 16" | 22" SCALE: NONE DATE: 10/23/17

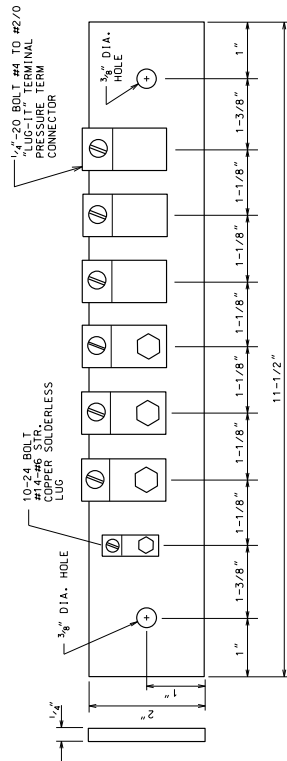
SEE DRG.#880 FOR CABINET DETAIL
SEE DRG# 983 FOR WIRING DIAGRAM

① - MAIN CIRCUIT BREAKER
100A 1PHASE : C FDB 14KA 1.F.F. of 240VAC 2P
100A 3PHASE : C FDB 14KA 1.F.F. of 240VAC 3P
200A 1PHASE : C JDB 25KA 1.F.F. of 240VAC 2P
200A 3PHASE : C JDB 25KA 1.F.F. of 240VAC 3P

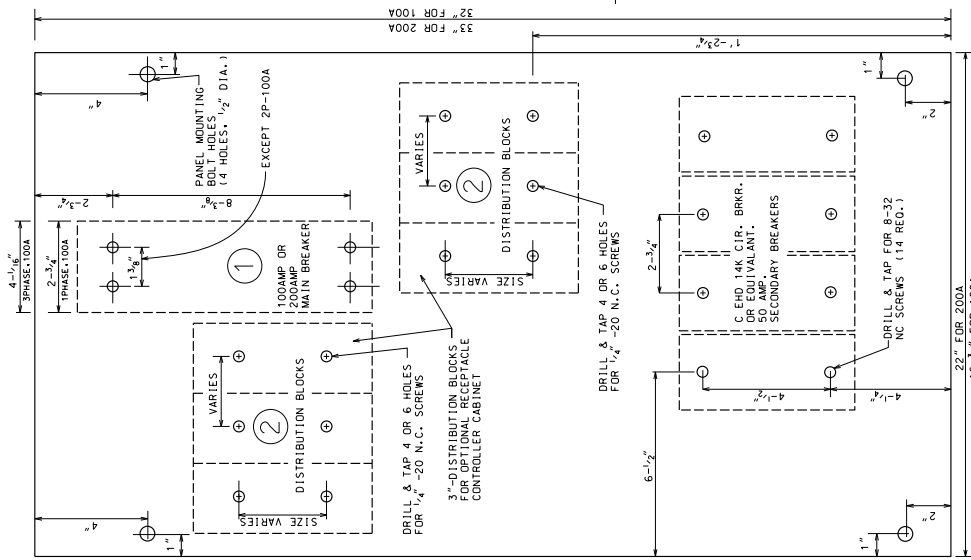
② - POWER DISTRIBUTION BLOCKS
RATED 600V, BASED ON NEC
376.56(B) 1-4, AND 310.15(B)(16)
75°C AMPACITIES



(OPTIONAL)
PANEL FOR TRAFFIC SIGNAL SERVICE
1/2" THICK PHENOLIC LINEN BASE PANEL
TO BE MOUNTED ON UPPER LEFT SIDE OF CABINET



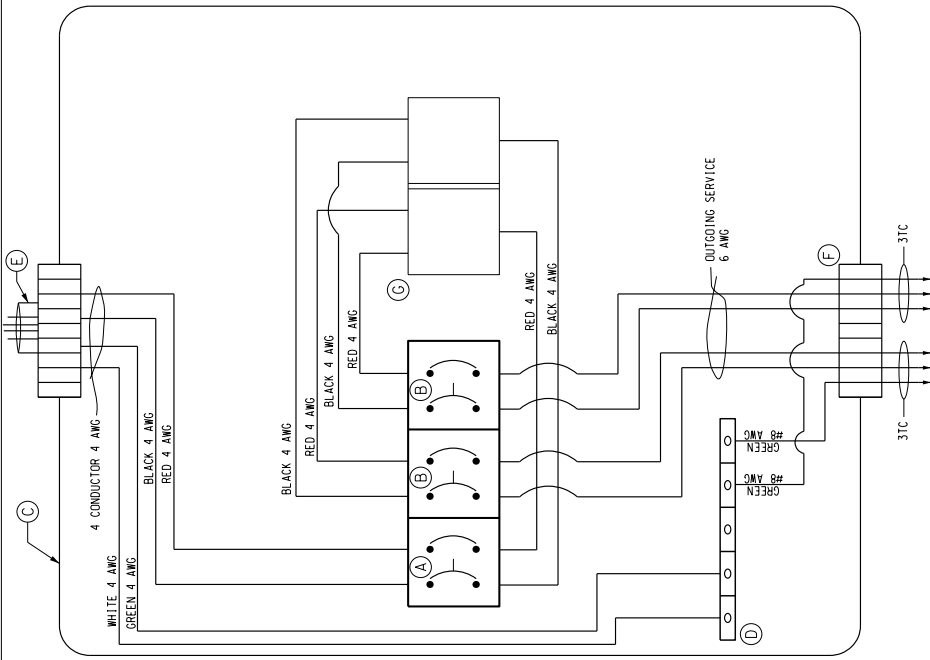
1/4" THICK COPPER BUS BAR
TO BE MOUNTED ON LOWER
LEFT SIDE OF CABINET.



BACK PANEL
1/2" THICK PHENOLIC
LINEN BASE

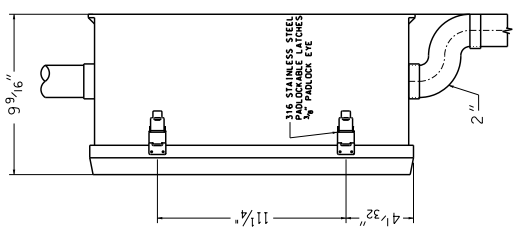
22" FOR 200A
16-3/4" FOR 100A

REVISION	
DATE	REVISION
PANELS FOR 100A/200A 2 AND 3 POLE EQUIPMENT IN STREET LIGHT CONTROL CABINET - CONSTANT POWER	
CITY OF CHICAGO DEPARTMENT OF TRANSPORTATION DIVISION OF ENGINEERING-ELECTRICAL SECTION	
DRAWING ENGINEER : DJM/PD/IVR	DWG. NO. 984
SUPERVISING ENGINEER : D. LETAMENI	R. POOL
ENGINEER OF ELECTRICITY :	
DEPUTY COMMISSIONER :	
SIZE: 16" 22"	SCALE: NONE
	DATE: 10/23/17

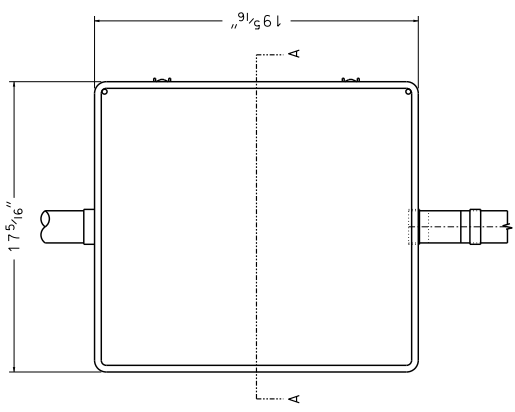


- A - C/H 2P 60A QC2060
- B - C/H 2P 30A QC2030
- C - VYNKIER ENCLOSURE VJ1816
- D - CB101 NEUTRAL BUS
- E - T&B 2564 CORD GRIP
- F - T&B H200GR FITTING
- G - POWER DISTRIBUTION BLOCK, OPEN STYLE, COPPER CONTACTS, 600 VAC RATED.

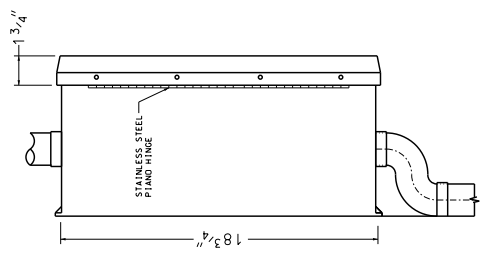
WIRING DIAGRAM



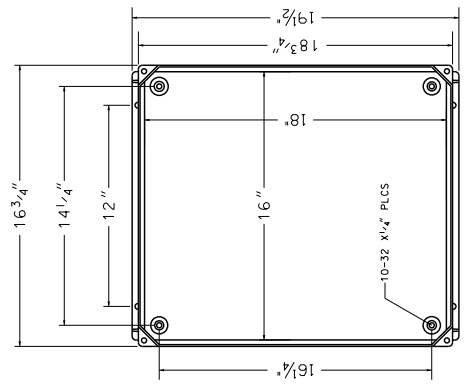
RIGHT SIDE VIEW



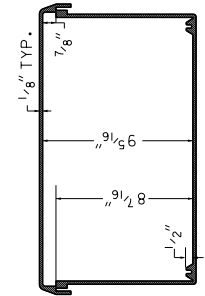
FRONT VIEW WITH COVER



LEFT SIDE VIEW



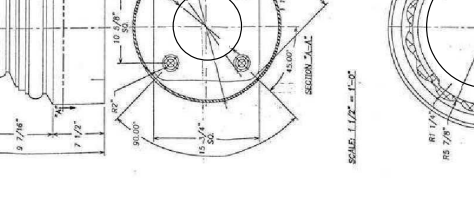
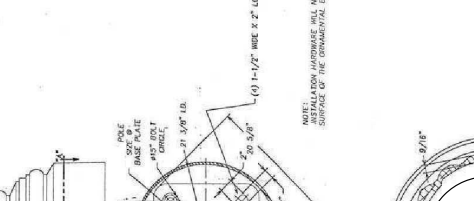
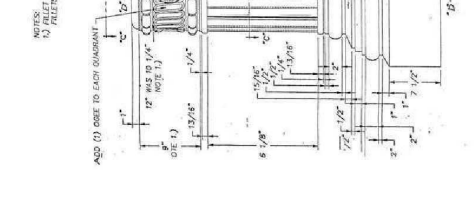
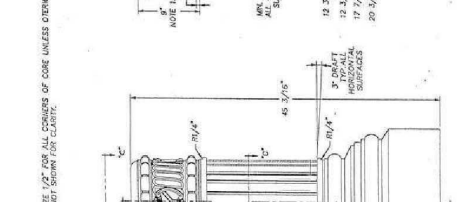
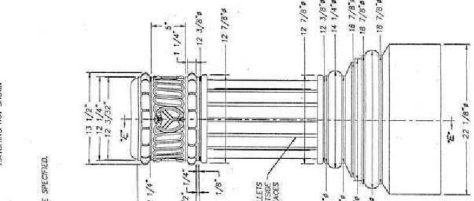
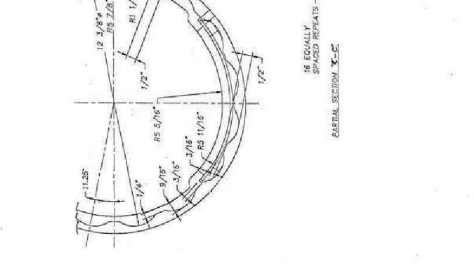
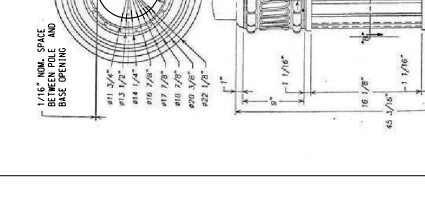
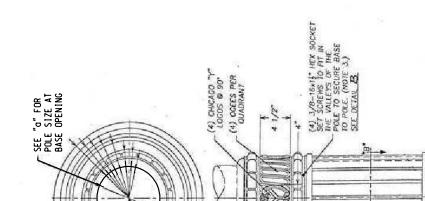
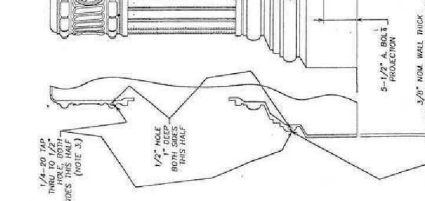
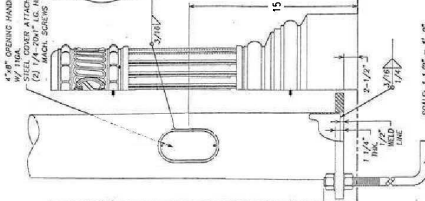
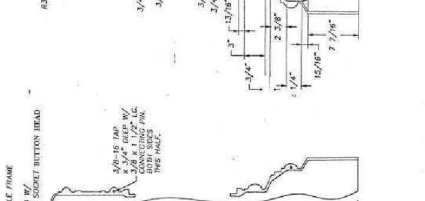
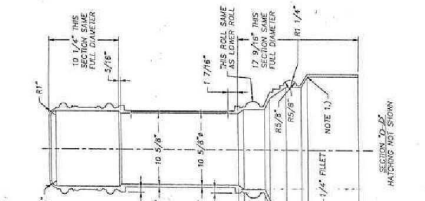
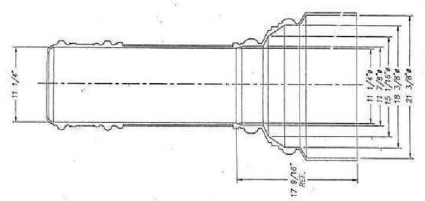
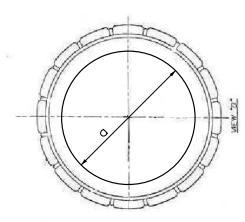
FRONT VIEW WITH COVER REMOVED



SECTION A-A

DATE	REVISION
	60 AMP - 240 V RESIDENTIAL LIGHTING CONTROLLER CONSTANT POWER

CITY OF CHICAGO DEPARTMENT OF ENGINEERING-ELECTRICAL SECTION	
DRAWING ENGINEER : DJM/PAV/AVR	DWG. NO. 985
SUPERVISING ENGINEER : D. LETAMENZI	
PROFESSIONAL ENGINEER : R. POOL	
ENGINEER OF ELECTRICITY :	
DEPUTY COMMISSIONER :	
SIZE: 16" x 22"	SCALE: NONE
	DATE: 10/23/17



DATE	REVISION
	CHICAGO 2000 POLE BASE FOR STANDRAD 34.5' POLE TO DRAWING NUMBERS 808, 824 & 827

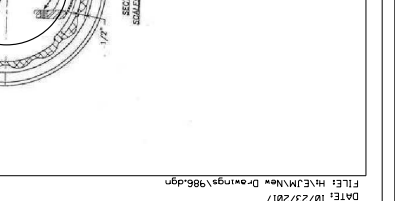
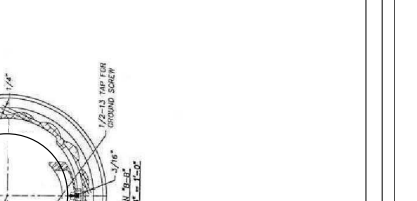
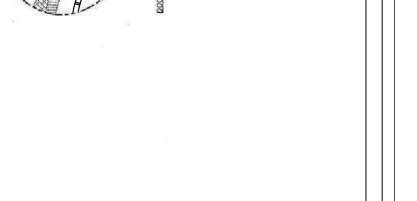
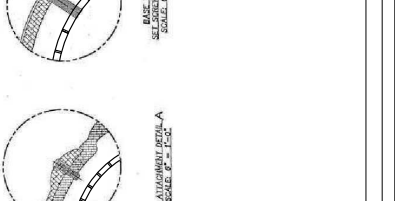
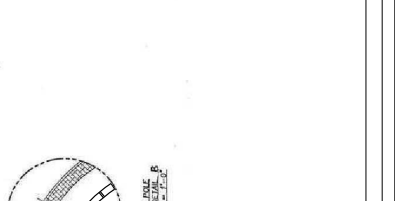
CITY OF CHICAGO
DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING-ELECTRICAL SECTION

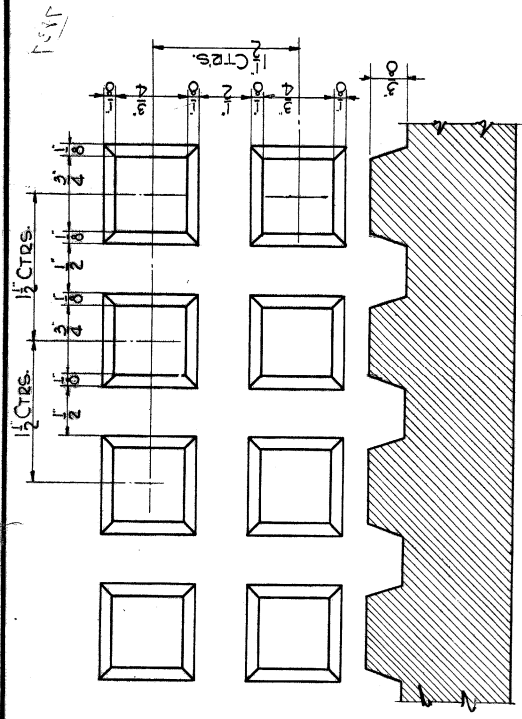
DRAWING ENGINEER : G.M.PADIVAR
SUPERVISING ENGINEER : D.LETAMENZI
PROFESSIONAL ENGINEER : R.POOL
ENGINEER OF ELECTRICITY:
DEPUTY COMMISSIONER:

DWG. NO. 986

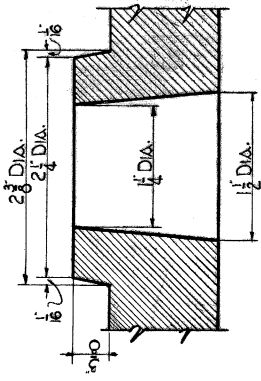
SCALE: NONE DATE: 10/23/17

MATERIAL SPECIFICATIONS :
 PEDESTAL BASE : FIBERGLASS
 PIPE : ASTM A53 B OR A501
 BANNER COUPLINGS : A513 TYPE 6
 COLLARS : 304 STAINLESS STEEL
 COLLARS & END ORNAMENTS : CAST ALUMINUM
 FINISH : PAINTED PER SALES ORDER & MEET SPEC. INCLUDES VISIBLE HARDWARE & SEALANT

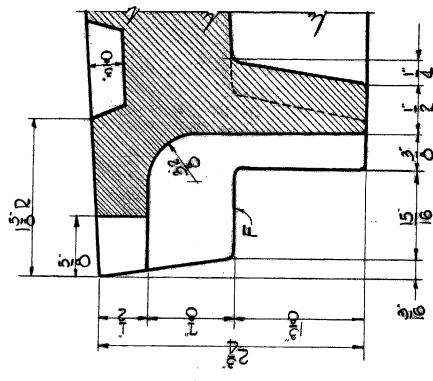




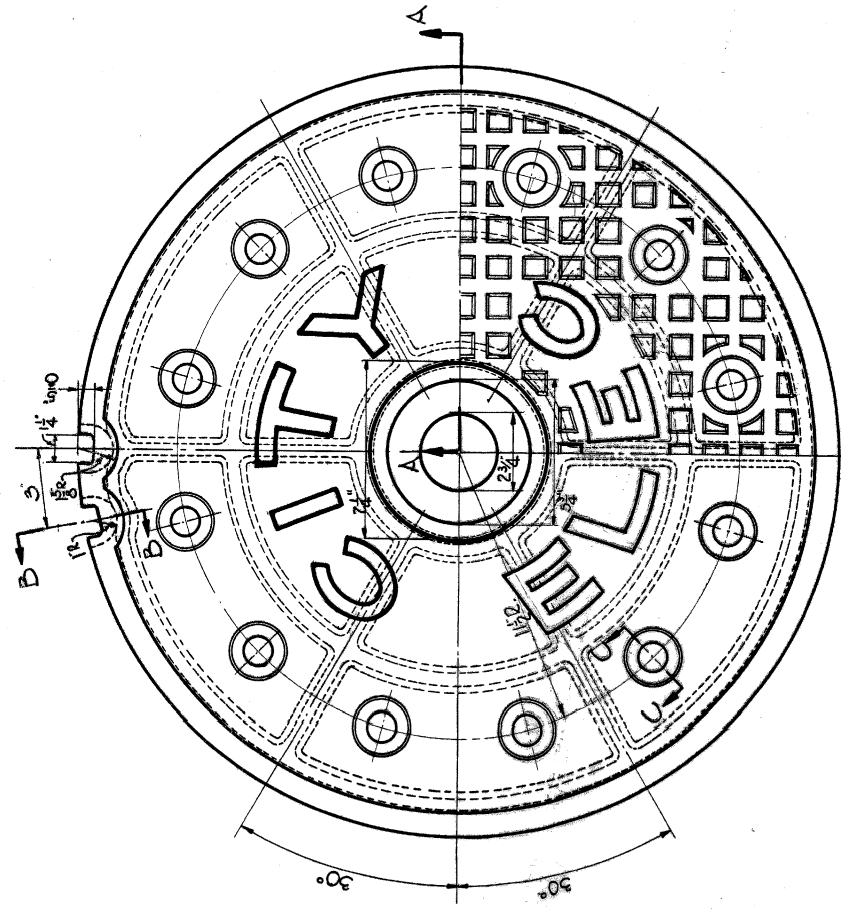
DETAIL OF CORRUGATIONS



SECTION C-C



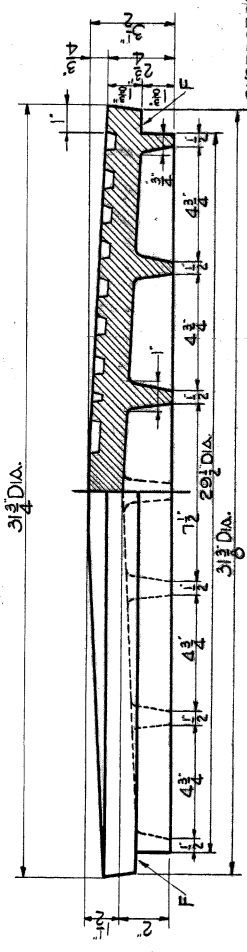
SECTION B-B



PLAN

MATERIAL - CAST IRON
ESTIMATED WEIGHT 315 LB.

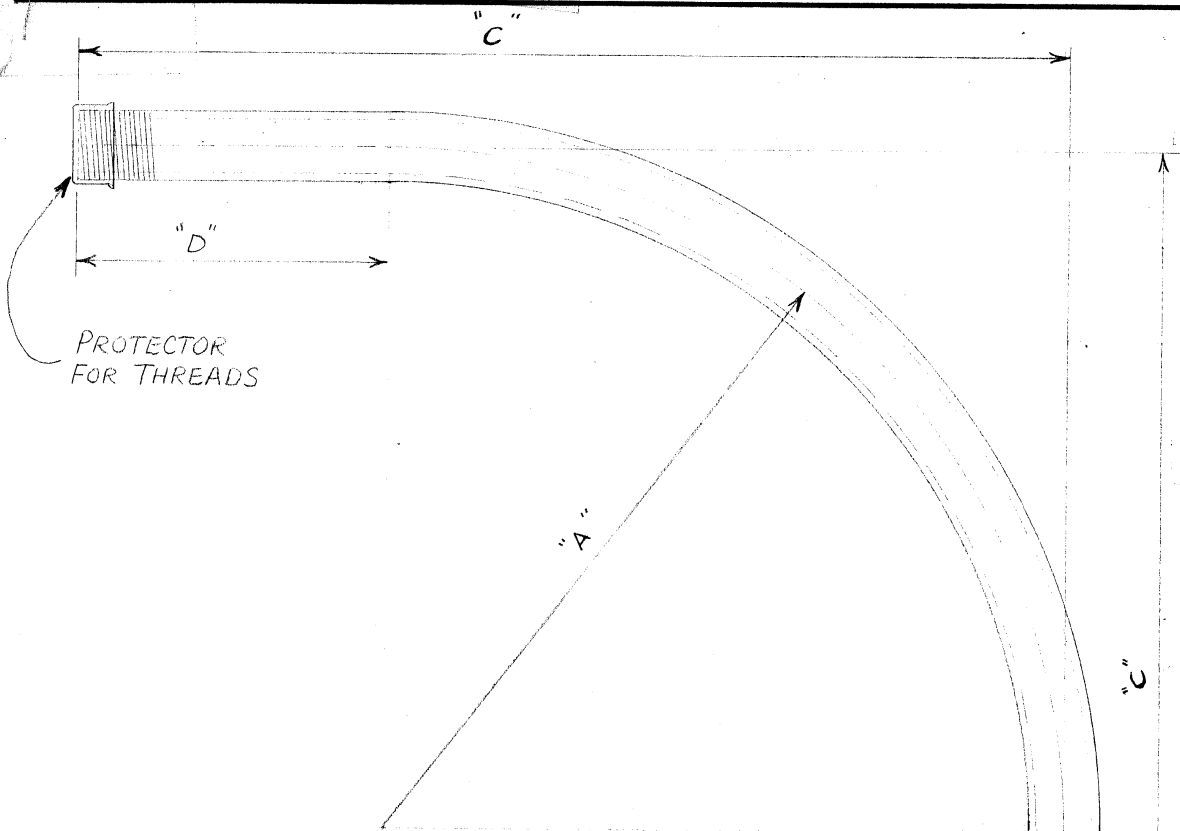
F - DENOTES BEARING SURFACE SHALL BE MACHINED SMOOTH.



HALF ELEVATION HALF SECTION A-A

C	WEIGHT REVISED
B	WEIGHT REVISED
A	IDENTIFICATION LETTERS ON COVER CHANGED
30" CIRCULAR STREET MANHOLE COVER	
REVISED	CITY OF CHICAGO
A 12-7-55	DEPT. OF STREETS AND SANITATION
B 9-7-79	DIVISION OF ELECTRICAL ENGINEERING
C 8-9-85	M. ZOLESKI
	<i>M. Zolewski</i>
	<i>M. Zolewski</i>
	<i>M. Zolewski</i>
	10927
	16"x21"
	4-534

SUPERSEDES DRG. 7223-DATED 6-29-10
COMMODITY CODE
02-4574-5630



ELBOWS SHALL BEAR THE LABEL OF THE UNDERWRITERS LABORATORIES INC., AND MEET SPECIFICATIONS OF UNDERWRITERS LABORATORIES, INC. NO. 6, UNITED STATES OF AMERICA. STANDARDS INSTITUTE, C80.1 AND FEDERAL SPECIFICATIONS WW-C-581E AND WF-408C WHERE APPLICABLE.

NOTE:
TWO THREAD PROTECTORS TO BE FURNISHED ON EACH ELBOW, PROTECTOR TO COVER A MINIMUM OF TEN THREADS.

REAM BOTH ENDS TO REMOVE BURRS

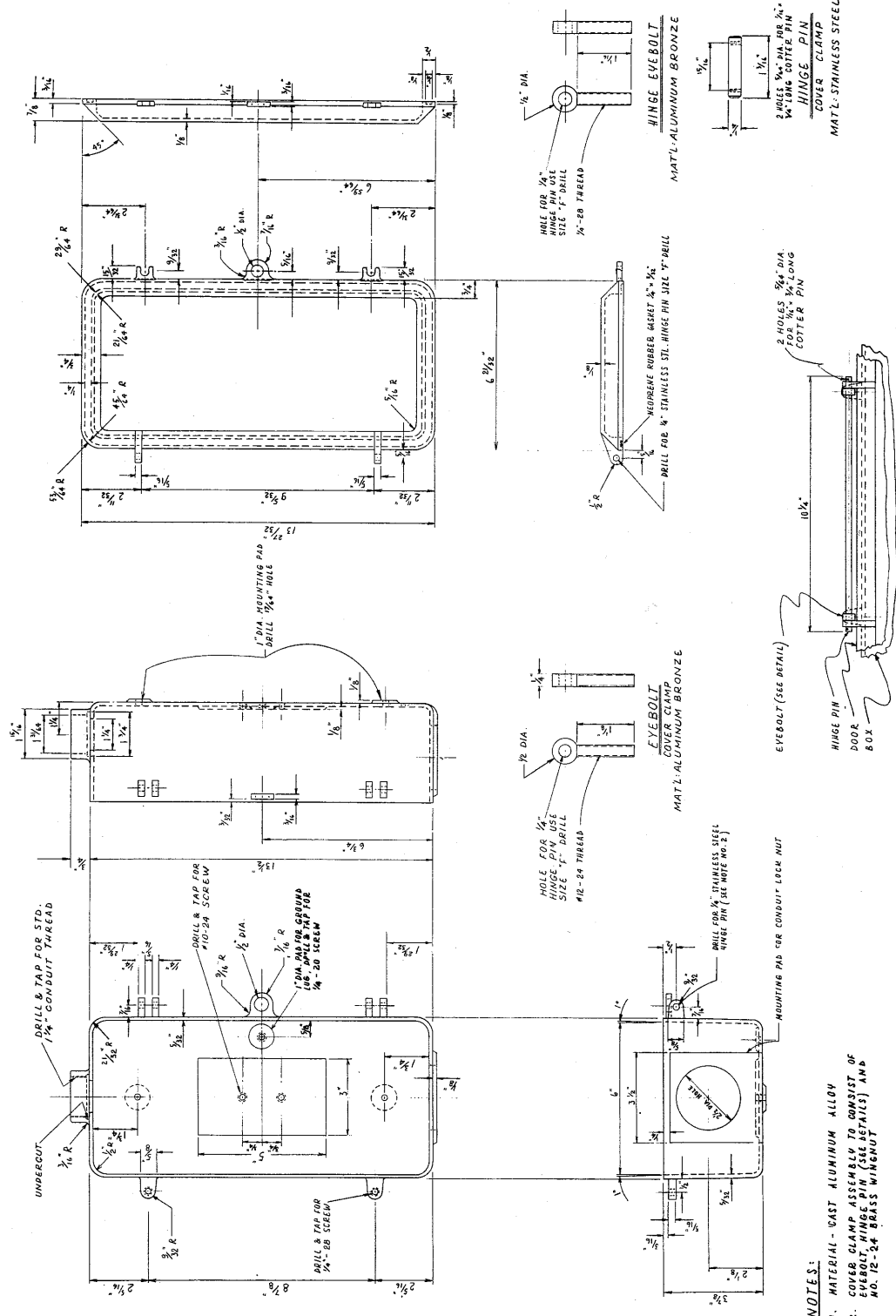
TABLE OF DIMENSIONS

CONDUIT SIZE	DIMENSIONS			COMMODITY CODE
	"A"	"C"	"D"	
1 1/4"	24"	35"	11"	09-4001-0510
1 1/2"	24"	35"	11"	09-4001-0520
2"	24"	35"	11"	09-4001-4126
2 1/2"	24"	35"	11"	09-4001-4128
3"	24"	35"	11"	09-4001-4230
4"	24"	35"	11"	09-4001-0000

B	SPECIFICATIONS REVISED		
A	REVISED DIMENSIONS ON 3" & 4" CONDUIT L.P.		
ELBOW, CONDUIT, RIGID GALVANIZED STEEL, LARGE RADIUS			
REVISED	CITY OF CHICAGO		
DEPT. OF STREETS AND SANITATION BUREAU OF ELECTRICITY DIVISION OF ELECTRICAL ENGINEERING			
A	7-22-71		
B	4-3-79		
C	DRAWN LON BURDY	CHECKED M.S.	ENGINEER M. SHINE
D	[Signature]		DRG. NO.
E	[Signature]		11825
F	[Signature]		
G	SIZE 8 1/2" X 14"	DEPUTY COMM. SCALE: 3/16"	DATE 6-2-71

BODY

COVER



- NOTES:**
1. MATERIAL - CAST ALUMINUM ALLOY
 2. COVER CLAMP ASSEMBLY TO CONSIST OF EYE BOLT, HINGE PIN (SEE DETAILS) AND NO. 12-24 BRASS WING NUT

DATE	REVISION	REVISOR
A 12-7-1978	DRIVER LUG & LUG BASE RELOCATED	J.O.C.
WORK ORDER NO.	DATE	
COST ALLOCATION ACCOUNT	MATERIAL	
APPROPRIATION ACCOUNT	LABOR	

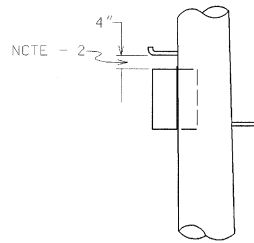
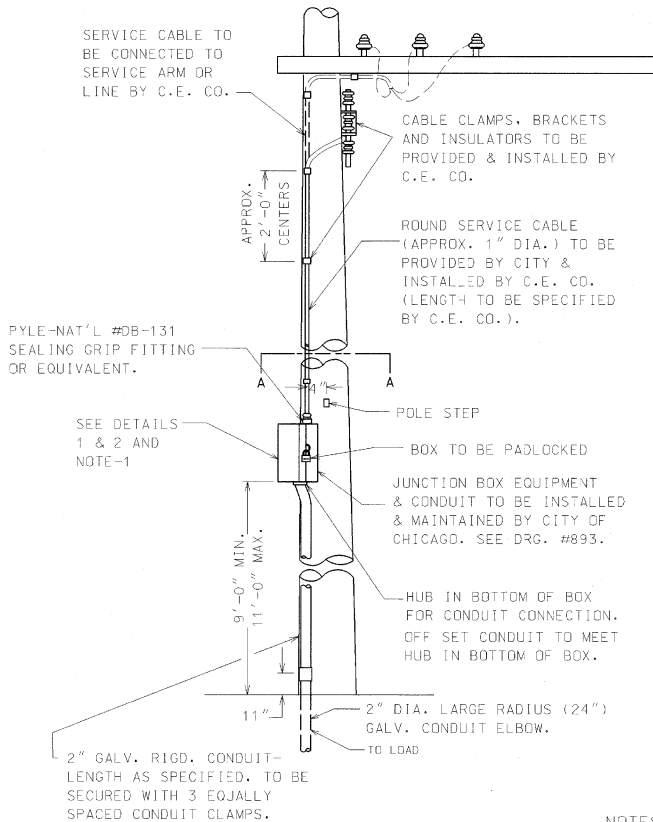
JUNCTION BOX
FOR ARTERIAL STREET
LIGHTING SERVICE
ON C. C. POLE

CITY OF CHICAGO
 DEPT. OF PUBLIC WORKS AND INFRASTRUCTURE
 DIVISION OF ELECTRICAL ENGINEERING

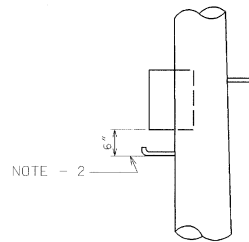
DESIGNED BY: [Signature]
 DRAWN BY: [Signature]
 CHECKED BY: [Signature]

SCALE: 1/4" = 1"

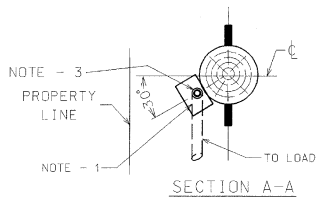
DWG. NO. **119211**
 DATE: MAR. 1978



DETAIL-1
BOTTOM POLE STEP ON SIDE OF POLE OPPOSITE JUNCTION BOX.

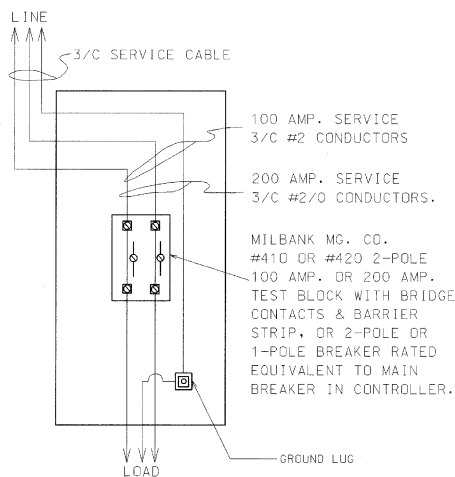


DETAIL-2
BOTTOM POLE STEP ON JUNCTION BOX SIDE OF POLE.



NOTES

- 1 - WHERE POSSIBLE THE JUNCTION BOX SHALL BE LOCATED FACING THE PROPERTY LINE.
- 2 - BOX SHALL HAVE A MINIMUM CLEARANCE OF 4" BELOW POLE STEP, DETAIL-1, OR 6" ABOVE STEP, DETAIL-2.
- 3 - SERVICE CABLE TO ENTER BOX THROUGH SEALING GRIP FITTING IN TOP.



WIRING DIAGRAM OF JUNCTION BOX MOUNTED ON C.E.CO. POLE.

A	9-3-96	REDRAW	MP.
DATE		REVISION	
INSTALLATION OF SERVICE EQUIPMENT ON C.E. CO. WOOD POLES			
CITY OF CHICAGO DEPT. OF STREETS AND SANITATION BUREAU OF ELECTRICITY DIVISION OF ELECTRICAL ENGINEERING			
DRAFTSMAN:	CHIEF DRAFTSMAN:	ENGINEER:	
E. LEMASTER	J. BORE	J. BORE	
SUPERVISING ENGINEER:	ELEC. DESIGN ENGR.	DWG. NO.	
S.W. BERTRAM	<i>[Signature]</i>		
ENGINEER OF ELECTRICITY:		11925	
GEN'L SUPT. OF ELECTRICITY:			
DEPUTY COMMISSIONER:		DATE: 12-26-56	
<i>Brian S. Murphy</i>			
SIZE:	SCALE:		



BUSINESSES

OPEN

DURING

CONSTRUCTION

3.75 IN

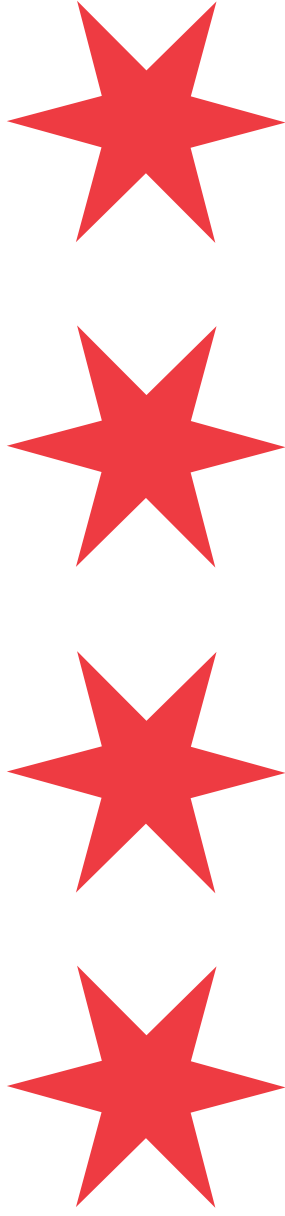
5 IN

4 IN

4 IN



BUILDING A NEW CHICAGO



Modernizing Neighborhoods | Creating Jobs | Investing in our Future



For additional information, please call 311 or visit www.cityofchicago.org

**CITY OF CHICAGO
ECONOMIC DISCLOSURE STATEMENT AND AFFIDAVIT
APPENDIX C**

PROHIBITION ON WAGE & SALARY HISTORY SCREENING - CERTIFICATION

This Appendix is to be completed only by an Applicant that is completing this EDS as a “contractor” as defined in MCC Section 2-92-385. That section, which should be consulted (www.amlegal.com), generally covers a party to any agreement pursuant to which they: (i) receive City of Chicago funds in consideration for services, work or goods provided (including for legal or other professional services), or (ii) pay the City money for a license, grant or concession allowing them to conduct a business on City premises.

On behalf of an Applicant that is a contractor pursuant to MCC Section 2-92-385, I hereby certify that the Applicant is in compliance with MCC Section 2-92-385(b)(1) and (2), which prohibit: (i) screening job applicants based on their wage or salary history, or (ii) seeking job applicants’ wage or salary history from current or former employers. I also certify that the Applicant has adopted a policy that includes those prohibitions.

Yes

No

N/A – I am not an Applicant that is a “contractor” as defined in MCC Section 2-92-385.

This certification shall serve as the affidavit required by MCC Section 2-92-385(c)(1).

If you checked “no” to the above, please explain.
