SP-150164
(New)

SPECIAL PROVISIONS
FOR
TRAFFIC SIGNALIZATION

Polk County
NHSX-160-1(13)--3H-77

Effective Date
December 20, 2016

THE STANDARD SPECIFICATIONS, SERIES 2015, ARE AMENDED BY THE FOLLOWING MODIFICATIONS AND ADDITIONS. THESE ARE SPECIAL PROVISIONS AND SHALL PREVAIL OVER THOSE PUBLISHED IN THE STANDARD SPECIFICATIONS.

INDEX

1. INTENT
   - 1.1 To set forth requirements of performance, type of equipment or structure desired, and standards of materials and construction.
   - 1.2 To describe work set out in contract documents, unless otherwise specifically indicated.
   - 1.3 To require performance of complete work in spite of omission of specific reference to any minor component parts.
   - 1.4 To provide for new materials and equipment, unless otherwise indicated.

2. INTERPRETATION
   - 2.1 Report errors or ambiguities in specifications to Engineer as soon as detected; Engineer will answer questions regarding and interpret intended meaning of specifications; Engineer's interpretation shall be accepted as final.

3. STANDARDS AND CODES
   - 3.1 Do work in accordance with best present-day installation and construction practices.
   - 3.2 Conform to and test materials in accordance with applicable sections of latest revisions or tentative revisions of following codes and standards unless specifically noted to contrary:

3.2.1 American Association of State Highway and Transportation Officials (AASHTO).
3.2.2 American Concrete Institute (ACI).
3.2.3 American Institute of Steel Construction (AISC).
3.2.4 American National Standards Institute (ANSI).
3.2.5 American Society for Testing and Materials (ASTM).
3.2.6 American Water Works Association (A WWA).
3.2.7 American Welding Society (A WS).
3.2.8 Federal Specifications (FS).
3.2.9 Manual of Accident Prevention in Construction by Associated General Contractors of America, Inc., (AGC).
3.2.10 Occupational Safety and Health Act of 1970 (Public Law 91-596) (OSHA).
3.2.11 Iowa Occupational Safety and Health Act of 1972 (Chapter 88, Code of Iowa 1997) (IOSHA).
3.2.12 Standards and codes of the State of Iowa and applicable local standards, codes and ordinances of the City of Ankeny.
3.2.13 Other standards and codes which may be applicable to acceptable standards of the industry for equipment, materials and installation under the contract.

4. SCHEDULE OF UNIT PRICES
4.1 Complete and forward to the Engineer three copies of a list of unit costs for each item listed on the Schedule of Unit Prices by the preconstruction meeting. The Schedule of Unit Prices will be provided to the Contractor. The sum of the costs for each item shall equal the total Lump Sum price for the traffic signal bid item. The unit costs will be used to prepare progress payments to the Contractor. The unit costs will also be used to establish the total cost for any Extra Work Orders related to traffic signal installation work items unless otherwise negotiated.

5. TESTS
5.1 Submit to Engineer duplicate copies of reports by an independent testing laboratory showing compliance of construction materials with specifications; selection of testing laboratory subject to approval by Engineer.
5.2 Contracting Authority will coordinate and pay cost of all tests including transportation charges on samples.
5.3 Provide samples of materials and forms for preparing concrete compression cylinders required for laboratory tests; sampling of materials at site and preparation of concrete compression cylinders shall be performed by Contracting Authority with approval of procedures by Engineer.
5.4 Ship no materials to the job until laboratory tests have been furnished and approved which show compliance of materials with the specifications.
5.5 All materials subject to sampling, testing, inspection and rejection at site by Engineer.
5.6 Independent laboratory tests for work specified herein include the following:
5.6.1 Portland cement: car, truck, or sealed bin samples for total requirements; ASTM C150.
5.6.2 Concrete aggregates: one sample of each, ASTM C33.
5.6.3 Portland cement and aggregates for concrete pavement: certify that sources are Iowa DOT approved; provide analysis of materials used.
5.6.4 Concrete mix: meet approval of Engineer before start of construction.
5.6.5 Structural concrete: two concrete compression cylinders each day concrete is poured; provide 7 day and 28 day tests in accordance with ASTM C39.
5.6.6 Concrete pavement: two concrete compression cylinders for each 100 cubic yards placed; provide at least two cylinders each day concrete is poured; provide 7 day and 28 day tests in accordance with ASTM C39.
5.6.7 If concrete compression cylinder tests for pavement fail, take two cores for each failing test; locate one core on each side of the test location within the next paving panel and test compressive strength; Contractor shall pay all costs for coring and retesting required due to failing tests on concrete compression cylinders.
5.6.8 Concrete slump and air tests: Taken by Contracting Authority with each set of compression cylinders.
5.6.9 Make soil tests necessary to determine optimum moisture-density relationships and the suitability of materials for compaction.
5.6.10 Compaction tests on pipe trench or structure backfill: ASTM D698; make three tests ever 200 feet of pipe trench and every 4 feet of vertical backfill.

5.6.11 Test moisture and density of street pavement subgrade for concrete surfaced streets: ASTM D698; two tests per 150 feet of subgrade per lane of pavement; locations of test selected by Engineer.
5.6.12 Test moisture and density of embankment construction: ASTM D698; one test for each 2 vertical feet for each 100 feet of embankment construction.
5.6.13 Retest any pipe trench or structure backfill or subgrade area that fails tests at no additional cost to Contracting Authority.
5.6.14 Polyvinyl chloride pipe (PVC); certify that pipe conforms to ASTM 3034 and A WW A C909 where applicable.
5.6.15 Ductile iron pipe (DI): certify that pipe conforms to ANSI A21.51.
5.6.16 Other pipe: certify that pipe conforms to applicable specifications.
5.6.17 Reinforcing steel: certify that steel conforms to ASTM A615 for grades specified.

6. RESPONSIBILITY OF CONTRACTOR
   6.1 Protection of work. Contractor shall protect all cast concrete from graffiti and vandalism. The city will not accept patches with messages, footprints, dog prints, tire tracks or any other form of vandalism, cast into the PCC patch or paving.
   6.2 Protection of all property from injury or loss resulting from his operations. During construction, all sites are to be maintained for traffic and kept clear of hazardous materials including, but not limited to, construction debris, dust and mud. Remove all defective materials immediately from the job site or to a city approved storage area.
   6.3 Replace or repair objects sustaining any such damage, injury or loss to satisfaction of Engineer.
   6.4 Protect flag poles, sidewalks, streets, pavements, fences, pipe, conduit, utilities, trees and shrubs and structures not shown for removal.
   6.5 Cooperate with Contracting Authority, Engineer and representative of utilities in locating underground utility lines and structures; incorrect, inaccurate or inadequate information concerning location of utilities or structures shall not relieve Contractor of responsibility for damage thereto caused by his operations. Prior to right-of -way excavation, the Contractor shall call for utility locations through the Iowa One call System (ph. 1-800-292-8989)
   6.6 Keep cleanup current with construction operations.
   6.7 It is the policy of the City of Ankeny to protect the public's investment in lawns, walk, driveways, utilities, etc. All utility facilities shall be protected. All restoration shall equal or exceed the before construction condition. Sod replacement is the method of restoring turf grass areas. Contractor shall water renovated project area until turf grass establishment and growth are obtained. Contractor shall promptly respond to adjacent property owner (or others) complaints, or inquires about restoration.

7. TEMPORARY WORK
   7.1 Make all temporary connections necessary for maintaining utility service during course of work.
   7.2 Construct temporary drains or bulkheads to keep work in the dry.
   7.3 Maintain access to local traffic as specified and shown on plans.

8. FINAL INSPECTION AND ACCEPTANCE
   8.1 Notify Engineer when project is considered to be complete and ready for final review.
   8.2 Engineer will accept work and make final payment to Contractor:
      8.2.1 When Engineer has certified that work of Contractor is complete and in conformance with the plans and specifications.
      8.2.2 When Contractor has filed with Engineer documents called for in specifications.
   8.3 Improvements such as sidewalks, curbs, driveways, roadway pavement and any other improvements removed, broken, or damaged by the Contractor shall be replaced or reconstructed with the same kind of materials found on the work or with materials of equal quality. The new work shall be left in serviceable condition satisfactory to the Engineer. Whenever a part of a square or slab of existing concrete sidewalk, driveway, or pavement is broken or damaged, the entire square or slab shall be removed and the concrete reconstructed.

9. SURFACE RESTORATION
   9.1 Restore all disturbed surfacing by backfilling, grading, replacing topsoil and raking as needed to provide uniform finished surface for planting.

9.2 Provide and place new sod on all disturbed areas. Install and maintain sod (including watering) in accordance with Article 2601.03, G of the Standard Specifications.
9.3 Sod maintenance is considered incidental to sodding

10. TESTING AND MAINTENANCE OF SIGNAL EQUIPMENT
10.1 Notify the Engineer the date the signal or signal system will be ready for testing once the project is open to traffic.
10.2 Upon authorization of the Engineer, place the signal or signal system in operation for a consecutive 30 day test period. The signal(s) shall not be placed into operation without prior notification and authorization of the Engineer. Any failure or malfunction of the equipment furnished by the Contractor, exclusive of minor malfunctions (such as lamp burnouts) occurring during the test period, shall be corrected at the Contractor's expense and the signal or signal system tested for an additional 30 consecutive day period. This procedure shall be repeated until the signal equipment has operated satisfactorily for 30 consecutive days.
10.3 A representative from the manufacturer and/or supplier of signal controller shall be at the project site when the signal controllers are ready to be turned on, to provide technical assistance including, as a minimum, programming of all necessary input data. All required signal timing data shall be provided by the Engineer.
10.4 After signal tum on and prior to final acceptance of the completed traffic signal system, the Contractor shall respond, within 24 hours, to perform maintenance or repair of any failure or malfunction reported.

11. EOUIPMENT AND MATERIALS
11.1 An itemized listing of the equipment and materials is included in the construction plans. Any additional equipment, materials, fixtures, etc. needed to complete the signal installation shall be provided by the contractor. No extra payments beyond the payments established by the bid schedule will be allowed.

12. INSTALLATION
12.1 Handholes shall be installed in a neat and workmanlike manner. All conduits shall enter the hand hole at a depth of 12 inches from the top of the hand hole. The Engineer shall approve any deviations from this requirement. The ends of all conduit leading into the hand hole shall fit approximately 2 inches beyond the inside wall. An eight-inch thick coarse aggregate drain shall be provided. The top of the handhole shall be set flush with the sidewalk, pavement, or the surface of the ground.
12.2 Conduit shall be placed as shown on the plans. Change in direction of conduit shall be accomplished by bending such that the conduit will not be injured or its internal diameter changed. Bends shall be of uniform curvature and the inside radius of curvature of any bend shall not be less than six times the internal diameter of the conduit.
12.3 When it is necessary to cut and thread steel conduit, no exposed threads will be permitted. All couplings shall be tightened until the ends of conduits are brought together so that an electrical connection will be made throughout the entire length of the conduit run. All conduit and fittings shall be free from burrs and rough places and all conduit runs shall be cleaned, swabbed and reamed before cables are installed. Nipples shall be used to eliminate cutting and threading where short lengths of conduit are required. Damaged galvanized finish on conduit shall be painted with zinc rich paint. All fittings used with rigid steel conduit shall be galvanized steel only.
12.4 Approved conduit bushings shall be installed on the exposed ends of rigid steel conduit. Bell end fittings shall be installed on the exposed ends of PVC conduit. In all bases, conduit shall extend a minimum of 4 inches above the finished surface.
12.5 Conduit buried in open trenches shall be placed a minimum of 24 inches deep unless otherwise directed by the Engineer. Conduit in pavement areas shall be placed to a minimum depth of 36 inches below the finished pavement surface or as directed by the Engineer.
12.6 "Pushed" conduit shall be placed by jacking, pushing, boring or any other means necessary to place the conduit without cutting, removing, or disturbing existing pavement. The size of a bored hole shall not exceed the outside diameter of the conduit that is to be placed. Tunneling under the pavement or water jetting will not be permitted. Pits for boring shall not be closer than 2 feet to the back of curb unless otherwise directed by the Engineer.

12.7 All conduit openings in the controller cabinet, hand boles, and bases shall be sealed with an approved sealing compound. This compound shall be readily workable soft plastic. It shall be workable at temperatures as low as 300°F, and shall not melt or run at temperatures as high as 3000°F.

12.8 Where practical, color codes shall be followed so that the red insulated conductor connects to the red indication terminal, yellow to yellow, and green to green. Circuits shall be properly labeled at the controller by durable labels, or other appropriate methods, attached to the cables.

12.9 All vehicle and pedestrian signal cable runs shall be continuous from the connections made in the hand bole compartment of signal pole bases to the terminal compartment in the controller cabinet. Splicing will not be allowed in underground hand holes unless specifically called for on the plans. Cable runs for video detection cables and emergency vehicle preemption cables shall be continuous from the unit to the control cabinet.

12.10 Power lead-in cable runs shall be continuous from the Power Company service point to the meter socket and from the meter socket to the controller cabinet.

12.11 Slack for each cable shall be provided by a 4 foot length in each hand hole and a 2 foot length in each signal pole, pedestal and controller base (measured from the hand hole compartment in the pole to the end of the cable). Coil cable slack in hand hole and place on the books.

12.12 Cables shall be pulled through conduit by means of a cable grip designed to provide a firm hold upon the exterior covering of the cable or cables, with a minimum of dragging on the ground or pavement. This shall be accomplished by means of reels mounted on jacks, frame mounted pulleys, or other suitable devices. Only vegetable lubricants may be used to facilitate the pulling of cable.

12.13 A tracer wire shall be installed in all conduits. The tracer wire shall be a No. 10 AWG, single conductor, stranded copper, Type THHN, with UL approval and an orange colored jacket. The tracer wire shall be spliced in the hand holes and controller to form a continuous network.

12.14 Concrete bases for poles and controllers shall be poured to form a monolithic foundation and shall conform to the dimensions shown on the plans. Excavations for these bases shall be made in a neat and workmanlike manner. The bottom of all foundations shall rest securely on firm undisturbed ground. The material for the forms shall be of sufficient thickness to prevent warping or other deflections from the specified pattern. The forms shall be set level or sloped slightly to blend with the adjacent ground level and means shall be provided for holding them rigidly in place while the concrete is being deposited. All conduits shall be installed and held rigidly in place before concrete is deposited in the forms. A ground rod (s) shall be placed at each pole and controller base as shown on the plans. Anchor bolts for the signal poles or the controller cabinet shall be set in place by means of a template constructed to space the anchor bolts in accordance with the manufacturer's requirements. The center of the template and the center of the concrete base shall coincide unless the Engineer shall direct otherwise. Concrete shall be consolidated by vibration during placement.

12.15 The top of the base shall be finished level and the top edges shall be rounded with an edger having a radius of 1/2 inch. In sidewalk areas, adjacent to sidewalks, or in other paved areas, the top 10 inches of the base shall be formed square and shall be flush with the surrounding paved area. Preformed expansion material shall be provided between the base and the other paved area. When installed in an earth shoulder away from the pavement edge, the top of the concrete base shall be approximately 2 inches above the surface of the ground. The exposed surface of the base shall have a rubbed surface finish.

12.16 After the foundation or base has been poured, absolutely no modification of any sort may be made. If the anchor bolts, conduit, or any part of the foundation or base is installed in an incorrect manner as determined by the Engineer, the entire foundation or base shall be removed and a new foundation or base installed at the Contractor's expense.

12.17 Prior to setting poles, the anchor bolts shall be covered in such a manner as to protect them against damage and to protect the public from possible injury. The foundations must be given a minimum of seven days to cure before poles are erected.

12.18 All conduit, steel poles and pedestals shall be bonded to form a continuous system, and be effectively grounded. Bonding jumpers shall be No.6 AWG bare copper wire or equal connected by Cadweld connectors.

12.19 During the course of construction and until the signals are placed in operation, signal faces shall be covered or turned away from the approaching traffic. When ready for operation, they shall be securely fastened in position facing toward approaching traffic and plumb.

12.20 The controller cabinet shall be installed at the location indicated on the Plans with the back of the cabinet facing SE Oralabor Road, unless otherwise directed by the Engineer.

12.21 The controller cabinet shall be installed on pre-placed caulking material on the concrete base. After the cabinet is installed in place the Contractor shall also place caulking material around the base of the cabinet.

12.22 All poles shall be erected so as to be vertical under normal load, with mast arms oriented at 90 degrees to the curb line, unless otherwise specified. The bases shall be securely bolted to the cast-in-place concrete foundations. Leveling shall be accomplished by the use of metal shims and/or one nut or two nuts on each anchor rod or as directed by the pole manufacturer. One nut shall be turned on each anchor rod and the pole placed in position on these nuts. The top nuts shall then be turned into place loosely and the pole adjusted to the vertical position by adjusting both the upper and lower nuts.

12.23 After leveling the poles, expansive type grout shall be troweled between the pole base and the foundation for gaps of 1inch or greater. Exposed edges of grout shall be neatly finished to present a pleasing appearance. A weep hole shall be placed in each side of the grout.

12.24 Each pole shall be grounded by installing a No. 6 AWG bare copper ground wire between the pole and the ground rod at the foundation.

12.25 If the painted or galvanized surface of any equipment is damaged in installation, such equipment shall be retouched or repaired in a manner satisfactory to the Engineer.

13. PAYMENT

13.1 No separate payment will be made for work covered under this part of the Specifications except as outlined below.

13.2 If items, for which no Unit Prices are shown on the Proposal, are required during construction, contract price shall be adjusted on basis of Unit Price negotiated with the Contractor.

13.3 The Traffic Signal Installation(s) will be paid for at the lump sum bid item price, which price shall be full compensation for furnishing all equipment, materials, and all other work necessary or incidental to the construction of the complete signal installation and for all equipment, tools, labor, and incidentals necessary to complete the work.

SCHDULE OF UNIT PRICES					
	ITEM DESCRIPTION	UNIT	PROJECT TOTAL	UNIT PRICE	TOTAL COST
1	MAST ARM SIGNAL POLE, 40' (ADVANCED SIGNING)	EA	**1**		
2	MAST ARM SIGNAL POLE, 50' (ADVANCED SIGNING)	EA	**1**		
3	MAST ARM SIGNAL POLE, 55' (ADVANCED SIGNING)	EA	**2**		
4	MAST ARM SIGNAL POLE, 60' (ADVANCED SIGNING)	EA	**1**		
5	COMBINATION MAST ARM LIGHTING SIGNAL AND LIGHTING POLE, 35'	EA	**1**		
6	COMBINATION MAST ARM LIGHTING SIGNAL AND LIGHTING POLE, 45'	EA	**1**		
7	COMBINATION MAST ARM LIGHTING SIGNAL AND LIGHTING POLE, 55'	EA	**1**		
8	COMBINATION MAST ARM LIGHTING SIGNAL AND LIGHTING POLE, 60'	EA	**2**		
9	COMBINATION MAST ARM LIGHTING SIGNAL AND LIGHTING POLE, 65'	EA	**2**		
10	COMBINATION MAST ARM LIGHTING SIGNAL AND LIGHTING POLE, 70'	EA	**2**		
11	COMBINATION MAST ARM LIGHTING SIGNAL AND LIGHTING POLE, 80'	EA	**1**		
12	PEDESTAL POLE, 13'	EA	**4**		
13	SUPPLEMENTAL LUMINAIRE ARM, 15', WITH TYPE V LIGHTING FIXTURE	EA	**2**		
14	SIGNAL FACE, 3-SECTION HEAD WITH BALL CAP VISOR, 12" LED WITH BACKPLATE (RED, YELLOW, GREEN)	EA	**23**		
15	SIGNAL FACE, 3-SECTION HEAD WITH BALL CAP VISOR, 12" LED WITH BACKPLATE (LT RED ARROW, LT YELLOW ARROW, LT GREEN ARROW)	EA	**9**		
16	SIGNAL FACE, 3-SECTION HEAD WITH BALL CAP VISOR, 12" LED WITH BACKPLATE (RT RED ARROW, RT YELLOW ARROW, RT GREEN ARROW)	EA	**8**		
17	SIGNAL FACE, 4-SECTION HEAD WITH BALL CAP VISOR, 12" LED WITH BACKPLATE (RED, YELLOW, THRU GREEN ARROW, LT GREEN ARROW)	EA	**2**		
18	SIGNAL FACE, 4-SECTION HEAD WITH BALL CAP VISOR, 12" LED WITH BACKPLATE (LT RED ARROW, LT YELLOW ARROW, LT YELLOW FLASHING ARROW, LT GREEN ARROW)	EA	**6**		
19	SIGNAL FACE, 5-SECTION HEAD WITH BALL CAP VISOR, 12" LED WITH BACKPLATE (RED, YELLOW, GREEN, RT YELLOW ARROW, RT GREEN	EA	**5**		
20	SIGNAL FACE, 2-SECTION HEAD WITH BALL CAP VISOR, 16" PEDESTRIAN COUNTDOWN HEAD WITH HAND/PERSON	EA	**6**		
21	4" CONDUIT	LF	**22**		
22	3" CONDUIT	LF	**967**		
23	2" CONDUIT	LF	**3590**		
24	1" CONDUIT	LF	**44**		
25	3C #20 EMERGENCY VEHICLES PREEMPTION	LF	**2304**		
26	1C #14 DETECTOR CABLE	LF	**505**		
27	2C #14 DETECTOR LEAD-IN CABLE	LF	**885**		
28	2C #14 TRAFFIC SIGNAL CABLE	LF	**1622**		
29	5C #14 TRAFFIC SIGNAL CABLE	LF	**7463**		
30	7C #14 TRAFFIC SIGNAL CABLE	LF	**4667**		
31	1C #10 POWER CABLE (STREET LIGHT)	LF	**5548**		
32	1C #10 TRACER WIRE	LF	**8374**		
33	1C #6 BARE GROUNDING WIRE	LF	**8374**		
34	1C #3 POWER CABLE (SERVICE)	LF	**1123**		
35	PTZ CABLE	LF	**208**		
36	COAX CABLE	LF	**5273**		
37	PULL ROPE	LF	**10024**		
38	FIBER OPTIC CABLE	LF	**5590**		
39	FIBER OPTIC FUSION SPLICE	EA	**192**		
40	FIBER OPTIC TERMINATION	EA	**144**		
41	FIBER OPTIC SPLICE ENCLOSURES	EA	**4**		
42	FIBER SWITCH	EA	**1**		
43	FIBER TERMINATION PANEL, 48 POSITION, RACK MOUNTED	EA	**3**		
44	FIBER TERMINATION PANEL, 24 POSITION, RACK MOUNTED	EA	**3**		
45	MULTIMODE PATCH CORDS	EA	**24**		
46	INSTALL SALVAGED 12 MM FIBER	LF	**350**		

SCHDULE OF UNIT PRICES					
	ITEM DESCRIPTION	UNIT	PROJECT TOTAL	UNIT PRICE	TOTAL COST
47	DETECTOR SAW CUT	LF	**230**		
48	ACCESSIBLE PEDESTRIAN SIGNAL (APS) PUSHBUTTON STATION WITH SIGN	EA	**6**		
49	VIDEO VEHICLE VIDEO DETECTION CAMERA AND ACCESSORIES	EA	**26**		
50	EVP DETECTOR	EA	**10**		
51	HANDHOLE, TYPE I	EA	**6**		
52	HANDHOLE, TYPE III	EA	**12**		
53	HANDHOLE, TYPE IV	EA	**3**		
54	CONDUIT SPLICE	EA	**3**		
55	ADJUST HANDHOLE TO GRADE	EA	**7**		
56	DRILL EXISTING HANDHOLE	EA	**3**		
57	TYPE 332 SIGNAL CONTROLLER, CABINET & FOOTING, AND ACCESSORIES (INCLUDING FIBER DISTRIBUTION PANEL AND UPS)	EA	**3**		
58	FIBER HUB CABINET	EA	**1**		
59	MALFUNCTION MANAGEMENT UNIT (MMU)	EA	**1**		
60	TRAFFIC SIGN: R3-5L 30" X 36"	EA	**14**		
61	TRAFFIC SIGN: R3-5R 30" X 36"	EA	**12**		
62	TRAFFIC SIGN: R3-6L 30" X 36"	EA	**4**		
63	TRAFFIC SIGN: R3-6R 30" X 36"	EA	**2**		
64	TRAFFIC SIGN: R10-12 30" X 36"	EA	**6**		
65	TRAFFIC SIGN: D1-1X 18" X 60" (AIRPORT)	EA	**2**		
66	TRAFFIC SIGN: D15-1X 30" X 60" (I-35 NORTH)	EA	**2**		
67	TRAFFIC SIGN: D15-1X 30" X 60" (I-35 SOUTH)	EA	**1**		
68	TRAFFIC SIGN: D15-1X 30" X 72" (I-35 SOUTH)	EA	**3**		
69	TRAFFIC SIGN: STREET NAME SIGN 18" X 102" BLUE BACKGROUND	EA	**4**		
70	TRAFFIC SIGN: STREET NAME SIGN 18" X 108" BLUE BACKGROUND	EA	**2**		
71	CONCRETE FOOTING: 24" DIA. X 3' DEPTH	EA	**4**		
72	CONCRETE FOOTING: 36" DIA. X 10.5' DEPTH	EA	**2**		
73	CONCRETE FOOTING: 36" DIA. X 13' DEPTH	EA	**1**		
74	CONCRETE FOOTING: 36" DIA. X 14' DEPTH	EA	**2**		
75	CONCRETE FOOTING: 36" DIA. X 16' DEPTH	EA	**4**		
76	CONCRETE FOOTING: 36" DIA. X 17' DEPTH	EA	**3**		
77	CONCRETE FOOTING: 42" DIA. X 18' DEPTH	EA	**4**		
78	CONCRETE FOOTING: 42" DIA. X 21' DEPTH	EA	**1**		
79	CONCRETE FOOTING: CABINET FOOTING	EA	**3**		
80	CONCRETE FOOTING: FIBER HUB CABINET FOOTING	EA	**1**		
81	TYPE V LIGHING FIXTURE	EA	**14**		
82	RELOCATE EXISTING 3-SECTION SIGNAL HEAD	EA	**2**		
83	RELOCATE EXISTING PTZ CAMERA	EA	**1**		
84	RELOCATE EXISTING TRAFFIC SIGNAL POLE & MAST ARM ASSEMBLY	EA	**2**		
85	RELOCATE EXISTING FIBER OPTIC CABLE	LS	**1**		
86	REMOVE EXISTING SIGN	EA	**6**		
87	REMOVE EXISTING 3-SECTION SIGNAL HEAD	EA	**2**		
88	REMOVE EXISTING 5-SECTION SIGNAL HEAD	EA	**4**		
89	REMOVE EXISTING LIGHT FIXTURE	EA	**2**		
90	REMOVE EXISTING FIBER HANDHOLE	EA	**15**		
91	REMOVE EXISTING TRAFFIC SIGNAL SYSTEM EQUIPMENT	LS	**1**		
92	MODIFY TRAFFIC SIGNAL EXISTING CONTROLLER	EA	**5**		
	TOTAL PROJECT COST				