

Construction Drawings For: Traffic Signal Modification

18th Street South & South Fern Street (TS#210)

Project Number: 241-CC20

Signal Notes

A. POLES AND FOUNDATIONS

- MAST ARM LENGTH IS TO BE AS SHOWN ON PLAN AND ALL MAST ARMS ARE TO BE FIELD DRILLED ONLY.
- MAST ARM POLES SHALL BE DESIGNED TO THE PROPER HEIGHT TO ACCOMMODATE A STREET LIGHT LUMINAIRE AND INSTALLED IN ACCORDANCE WITH ARLINGTON COUNTY TRAFFIC SIGNAL & STREETLIGHT SPECIFICATIONS.
- MAST ARM POLE FOUNDATIONS SHALL BE INSTALLED IN ACCORDANCE WITH ARLINGTON COUNTY STANDARDS AND SPECIFICATIONS. ALL POLES SHALL HAVE A 6-BOLT PATTERN.
- AT THE COUNTY'S REQUEST, THE CONTRACTOR SHALL DIG TEST PITS TO VERIFY THAT SIGNAL POLE FOUNDATIONS WILL NOT CONFLICT WITH UNDERGROUND UTILITIES AND THAT FOUNDATIONS WILL FIT WITHIN THE EXISTING RIGHT-OF-WAY.
- SIGNAL POLES AND MAST ARMS SHALL BE NON-ORNAMENTAL. COBRA LIGHTING SHALL BE LED.
- COBRA LIGHTING SHALL BE LED TYPE RFL-145W64LED4K-T-R2M-UNIV-DMG-PH8-RCD7-[USA-003]-BK. DECORATIVE POST-TOP LIGHTING SHALL BE HADCO DECORATIVE POST-TOP LUMINAIRE WITH RELUME LED KIT (UAZ XRE LED 57.69W).

B. CONTROLLER AND FOUNDATION

- NEW CONTROLLER CABINETS SHALL BE TS2, P TYPE WITH BATTERY BACKUP PER ARLINGTON COUNTY REQUIREMENTS.
- CONTROLLER SHALL BE INTELIGHT X-3 AND SHALL BE INSTALLED AND SET AS FOLLOWS:
2.1 TO REST IN PHASE 2 & 6 GREEN INTERVAL
2.2 TO START/RESTART IN PHASE 2 & 6 YELLOW CHANGE INTERVAL
- THE CONTROLLER CABINET AND FOUNDATION SHALL BE INSTALLED IN ACCORDANCE WITH ARLINGTON COUNTY TRAFFIC SIGNAL & STREETLIGHT SPECIFICATIONS 66-01, 66-02, AND 70-01.
- THE COUNTY WILL PROVIDE SIGNAL TIMINGS TO THE CONTRACTOR FOR THE CONTROLLER WHEN THE INTERSECTION IS TOTALLY PREPARED FOR OPERATION. THE CONTRACTOR SHALL NOTIFY THE COUNTY IN WRITING 10 DAYS IN ADVANCE OF REQUIRING FINAL TIMINGS.

C. TRAFFIC SIGNAL HEADS

- ALL NEW VEHICULAR SIGNAL SECTIONS SHALL BE 12 INCHES IN DIAMETER CAST ALUMINUM WITH LED DISPLAYS.
- PEDESTRIAN SIGNAL HEAD SECTIONS SHALL BE CAST ALUMINUM WITH LED DISPLAYS (COUNTDOWN).
- ALL SIGNAL HEADS SHALL BE YELLOW IN COLOR.

D. DETECTORS

- ALL NEW PEDESTRIAN PUSH BUTTON STATIONS SHALL CONFORM TO ARLINGTON COUNTY'S SPECIFICATIONS FOR ACCESSIBLE SIGNAL DESIGN AND SHALL USE POLARA NAVIGATOR VIBRO-TACTILE/AUDIO PUSH BUTTON ASSEMBLIES UNLESS OTHERWISE SPECIFIED.
- NEW OVERHEAD VIDEO DETECTION SHALL BE FLIR CAMERAS AND SHALL BE INSTALLED IN ACCORDANCE WITH COUNTY REQUIREMENTS.
- EMERGENCY VEHICLE PRE-EMPTION (EVP) EQUIPMENT (GTT MODEL M711 OR M721), OR APPROVED SUBSTITUTE, SHALL BE INSTALLED COMPLETE WITH DISCRIMINATOR CARDS, WIRING, ETC. IN ACCORDANCE WITH ARLINGTON COUNTY STANDARDS.
- EVP TO BE MOUNTED ON VEHICLE HEAD MOUNTING BRACKET OR AS APPROVED BY THE ENGINEER IN THE FIELD.

E. CONDUIT, CONDUCTORS, AND ELECTRICAL

- ALL JUNCTION BOXES SHALL HAVE THE WORDS "ARLINGTON COUNTY TRANSPORTATION" CAST IN THE LID. ALL JUNCTION BOXES SHALL BE INSTALLED PER STANDARDS 61-01, 61-02, 61-03, AND 61-04.
- METER PEDESTAL SHALL BE INSTALLED PER COUNTY STANDARDS. UNDERGROUND SERVICE SHALL BE OBTAINED FROM THE NEAREST UTILITY POLE OR SERVICE POINT. CONTRACTOR IS RESPONSIBLE FOR OBTAINING APPROVAL AND COORDINATING WITH POWER SERVICE COMPANY FOR CONNECTION.
- CONDUIT SYSTEM SHALL BE ADDED TO CONNECT EXISTING COMMUNICATION CABLE PLANT TO THE NEW CONTROLLER CABINET LOCATION AS DIRECTED BY THE COUNTY ENGINEER.
- ALL CONDUIT ENTERING INTO JUNCTION BOXES SHALL NOT EXTEND OVER 3" MAXIMUM NOR 2" MINIMUM INSIDE THE JUNCTION BOXES, AND SHALL BE FITTED WITH BELL ENDS OR BUSHING.
- ALL JUNCTION BOXES SHALL HAVE A GROUND ROD INSTALLED. ALL JUNCTION BOXES SHALL BE PROPERLY CONNECTED TO THE INTERSECTION GROUNDING SYSTEM. METAL LIDS SHALL BE BONDED TO THE GROUNDING SYSTEM.
- CONTRACTOR IS TO VERIFY DEPTHS OF UTILITIES AT PROPOSED CONDUIT CROSSINGS PRIOR TO EXCAVATING CONDUIT TRENCHES OR BORING.
- ALL CONDUITS BENEATH ROADWAYS SHALL BE DIRECTIONAL DRILLED UNLESS DIRECTED OTHERWISE BY THE COUNTY CONSTRUCTION MANAGER. WHERE DIRECTED ON THE PLANS OR BY THE CONSTRUCTION MANAGER, THE CONTRACTOR SHALL INSTALL SPARE CONDUITS WITH PULL TAPE AND TRACER WIRE FOR ROAD CROSSINGS.
- ALL EXISTING CONDUIT AND CABLES ARE BASED ON RECORD DRAWINGS OR WERE ESTIMATED. CONTRACTOR SHALL VERIFY CONDUIT FILL CAPACITY IN EXISTING CONDUITS PRIOR TO BEGINNING CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY ARLINGTON COUNTY IF CONDUIT CAPACITY IS NOT AVAILABLE IN EXISTING CONDUIT FOR NEW CABLES.
- NEW CCTV CAMERAS SHALL BE INSTALLED IN ACCORDANCE WITH ARLINGTON COUNTY REQUIREMENTS. CONTRACTOR SHALL CONFIRM MOUNTING LOCATION OF CCTV CAMERA WITH COUNTY PRIOR TO INSTALLATION.
- CONTRACTOR TO VERIFY THE CONDUIT AND % FILL. IF THERE IS NOT ENOUGH CAPACITY IN CONDUIT, THEN THE CONTRACTOR SHALL INSTALL NEW CONDUIT.
- ALL PROPOSED CONDUIT SHALL HAVE #6 AWG (EGC) & TRACER WIRE FOR GROUNDING SYSTEM.
- REMOVE ALL EXISTING UNUSED RISERS, JUNCTION BOXES, AND CABLES.

F. SIGNS

- ALL MAST ARM SIGNS SHALL BE MOUNTED IN ACCORDANCE WITH ARLINGTON COUNTY STANDARDS. SIGNS SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNLESS DIRECTED OTHERWISE.
- STREET NAME SIGNS SHALL HAVE A WHITE LEGEND ON GREEN BACKGROUND. CONTRACTOR SHALL SUBMIT SIGN DETAILS TO COUNTY TO REVIEW. THE DIMENSIONS PROVIDED ON PLANS ARE ESTIMATED.

G. DEMOLITION/SALVAGE

- ALL EXISTING SIGNAL EQUIPMENT IS TO BE REMOVED & RETURNED TO ARLINGTON COUNTY DEPARTMENT OF ENVIRONMENTAL SERVICES LOCATED AT 4300 29TH ST S., ARLINGTON, VA 22206.
- ALL EXISTING SIGNAL POLE FOUNDATIONS SHALL BE DEMOLISHED IN ACCORDANCE WITH ARLINGTON COUNTY SPECIFICATIONS.

H. COMMUNICATIONS

- EXISTING COUNTY FIBER JUNCTION BOXES AND CONDUITS CONTAIN LIVE FIBER OPTIC CABLES. THE CONTRACTOR SHALL NOT CUT OR DAMAGE THE COUNTY'S EXISTING FIBER CABLES.
- ALL FIBER OPTIC CABLE INSTALLATION, REMOVAL, SPLICING, AND TESTING SHALL BE PERFORMED BY THE COUNTY AT THE CONTRACTOR'S EXPENSE. CONTRACTOR MAY CONTRACT DIRECTLY WITH THE COUNTY'S FIBER CONTRACTORS. UPON REQUEST 703-228-7725, THE COUNTY WILL PROVIDE THE CONTACT INFORMATION FOR CURRENT QUALIFIED COUNTY FIBER CONTRACTORS.
- CONTACT ARLINGTON COUNTY DTS FOR FIBER OPTIC CABLE REMOVAL OR INSTALLATION AT LEAST 10 BUSINESS DAYS IN ADVANCE.
- CONTRACTOR SHALL FURNISH FIBER PATCH PANEL FOR INSTALLATION BY THE COUNTY. FIBER PIGTAIL SHALL BE APPROPRIATE LENGTH TO ALLOW FOR 50 FEET OF SLACK IN EACH INTERMEDIATE JUNCTION BOX. CONTRACTOR SHALL SUBMIT A SHOP DRAWING OF THE PATCH PANEL (INDICATING THE TAIL LENGTH) FOR COUNTY REVIEW PRIOR TO ORDERING.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION OF PROPOSED JUNCTION BOXES AND CONDUITS INCLUDING ALL APPURTENANCES SUCH AS GROUND RODS, TRACER WIRE, PULL TAPE, ETC.
- ALL NEW CONDUITS SHALL HAVE PULL TAPE INSTALLED BETWEEN JUNCTION BOXES AND TRACER WIRE INSTALLED WITHIN OR BESIDE AT LEAST ONE OF THE CONDUITS. TRACER WIRE SHALL BE CONNECTED TO THE GROUND RODS INSTALLED IN THE ADJACENT JUNCTION BOXES.
- DO NOT SPLICE TRACER WIRE.

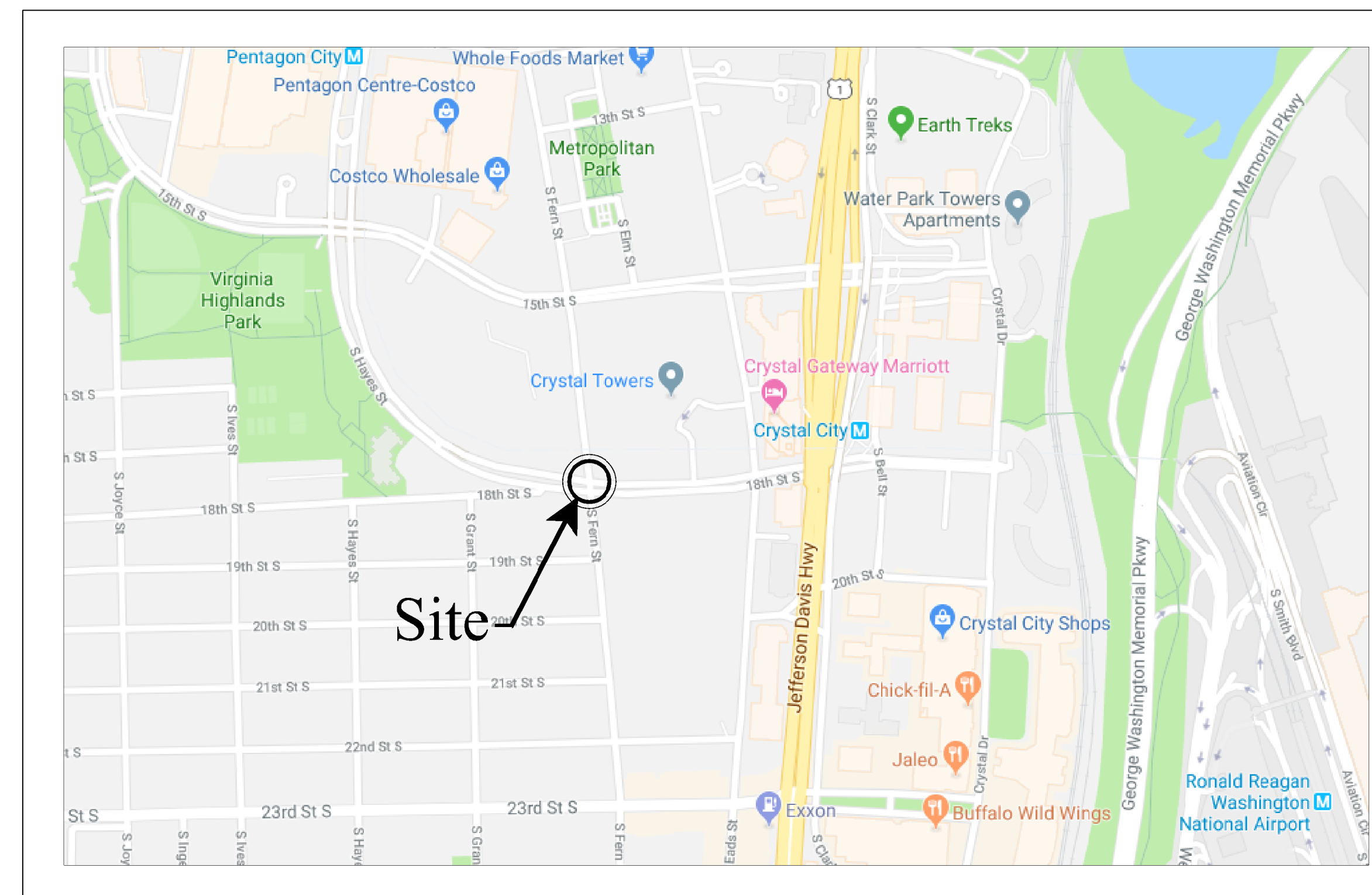
I. INSPECTIONS

- THE CONTRACTOR SHALL CONTACT THE COUNTY CONSTRUCTION MANAGER FOR INSPECTIONS THROUGHOUT CONSTRUCTION AS REQUIRED BY THE CONSTRUCTION MANAGER.
- THE COUNTY SHALL VERIFY POLE LOCATIONS PRIOR TO EXCAVATION. THE CONTRACTOR SHALL NOTIFY MR. SHAHID MOHIUDDIN, 703-228-7555 TO SCHEDULE INSPECTION PRIOR TO EXCAVATION, AND AGAIN PRIOR TO POURING CONCRETE. STAKEOUT IS THE RESPONSIBILITY OF THE CONTRACTOR UNLESS DIRECTED OTHERWISE.
- THE CONTRACTOR SHALL CONTACT THE COUNTY CONSTRUCTION MANAGER WITHIN 7 BUSINESS DAYS OF SIGNAL ACTIVATION. ALL POWER AND COMMUNICATIONS SHALL BE IN OPERATION AT THE TIME OF ACTIVATION UNLESS APPROVED BY THE COUNTY CONSTRUCTION MANAGER.

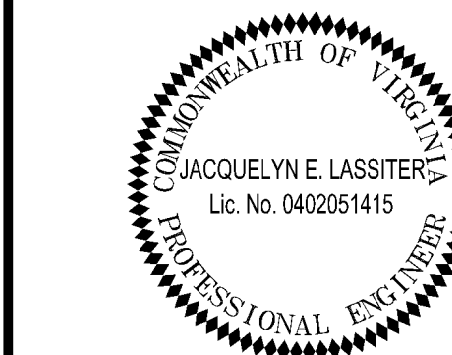
Location Map

Scale: N.T.S.

Vicinity



Seal



Approvals Date

<i>Kamell</i>	6/18/2020
QUALITY CONTROL ENGINEER	6.26.20
<i>Kamal N. Taktak</i>	
CONSTRUCTION MANAGEMENT SUPERVISOR	06.29.20
<i>Denis M. Leach</i>	6/24/20
WATER, SEWER, STREETS BUREAU CHIEF	
<i>Michael Yang</i>	6/17/2020
TRANSPORTATION DIRECTOR	
PROJECT MANAGER	

Revisions Date

Revisions	Date

Table of Contents:

- T-1. Cover Sheet
- T-2. Traffic Signal Modification Plan
- T-3. Communications Plan

I CERTIFY THAT THIS PROJECT WAS BUILT IN SUBSTANTIAL CONFORMANCE WITH THIS PLAN, UNLESS DULY NOTED IN THE ABOVE REVISION BLOCK.

PROJECT MANAGER _____ DATE _____
CONSTRUCTION MANAGER _____ DATE _____

Project Name and Location

Traffic Signal Design
18th Street South & South Fern Street
Cover Sheet

Designed: AK
Drawn: AK
Checked: JEL
Miss Utility Transmittal #:

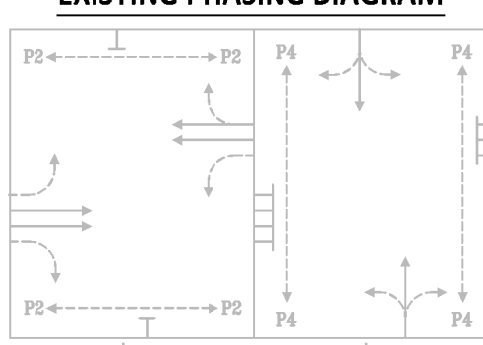
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Plotted: June 30, 2020
Plotted by: Kharkwa

Scale: N.T.S.

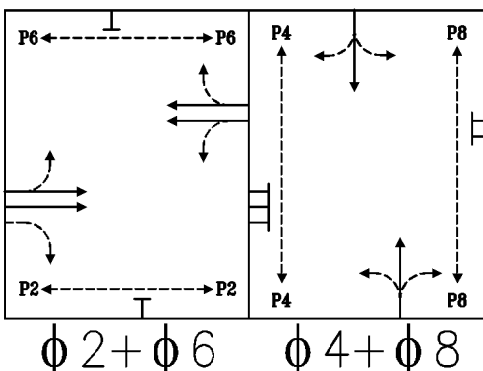
Sheet

T-1

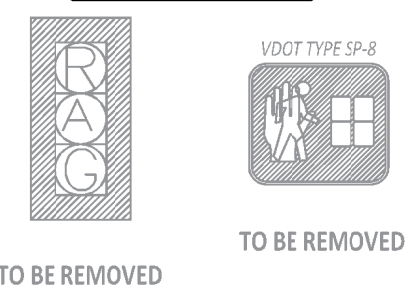
EXISTING PHASING DIAGRAM



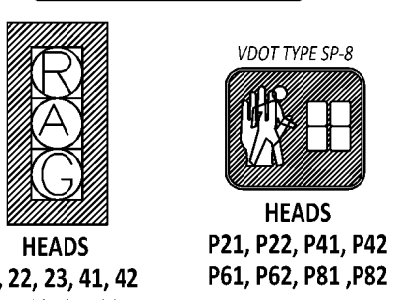
PROPOSED PHASING DIAGRAM



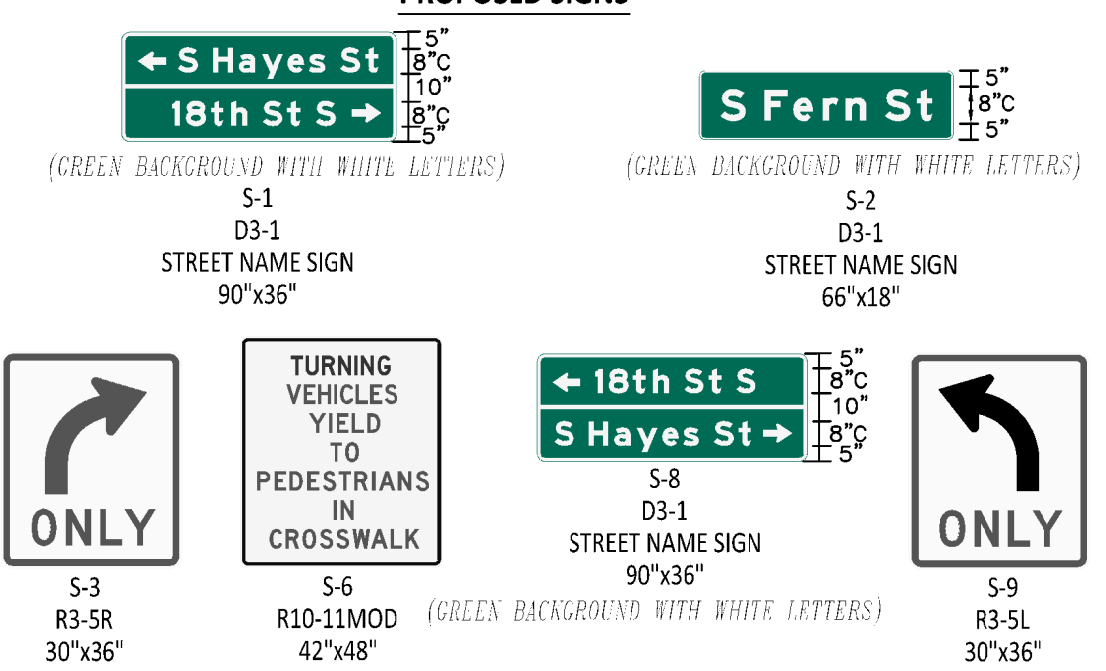
EXISTING SIGNALS



PROPOSED SIGNALS



PROPOSED SIGNS



ACCESSIBLE PEDESTRIAN PUSHBUTTON

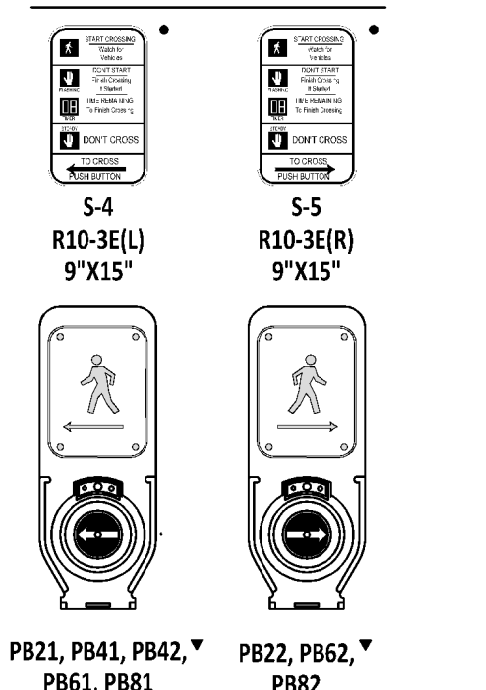


Table with 2 columns: PUSHBUTTON and WALK MESSAGE. Lists button models (PB41, PB42, PB81, PB82) and their corresponding messages for 18th Street and Fern Street.

TEST HOLE LOCATIONS

Table with 4 columns: No., TYPE, LATITUDE, LONGITUDE, STA.; OFFSET. Lists 12 test hole locations with their respective details.

COLOR SEQUENCE CHART

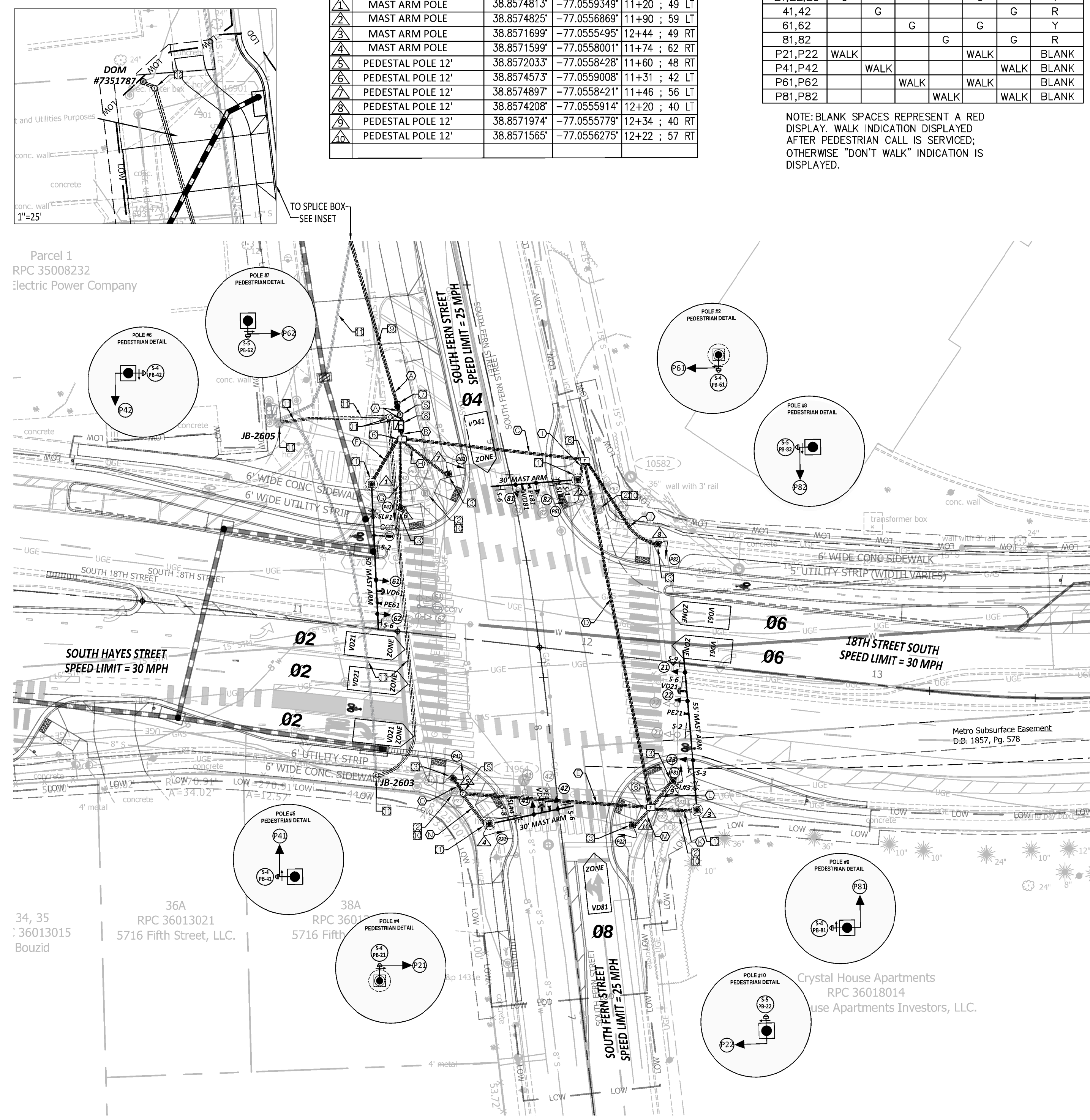
Color sequence chart table with columns for PHASE SIGNAL, 2, 4, 6, 8, 2+6, 4+8, and FLASH. Includes a note about blank spaces representing a red display.

POLE LOCATION DETAIL



CONDUIT & CABLE

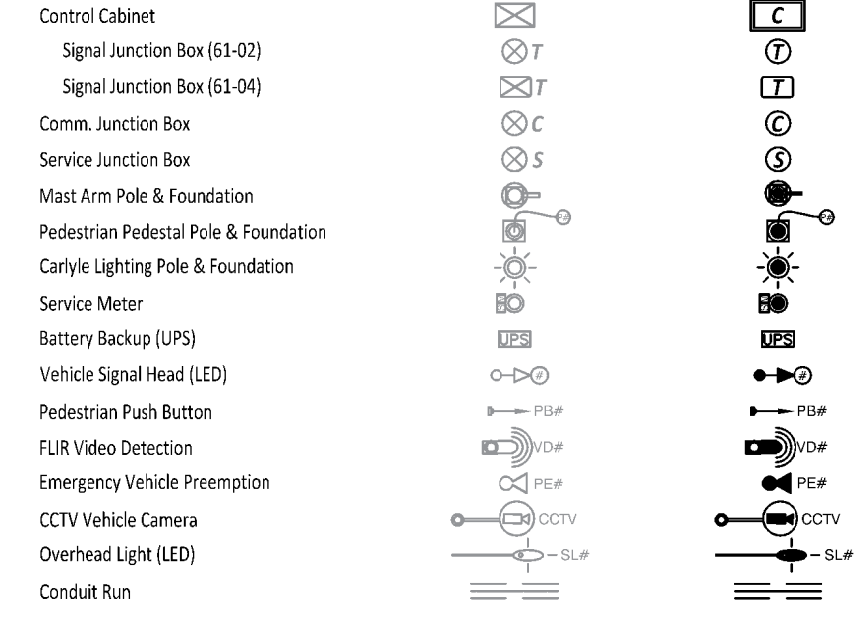
- List of conduit and cable specifications for various locations (A through O), including trenching, direct bored, and underground methods.



DEMOLITION & CONSTRUCTION NOTES

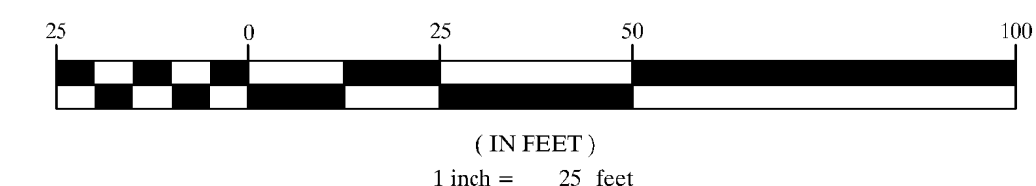
- Numbered list of 12 construction and demolition notes detailing site preparation, utility work, and equipment installation.

LEGEND



Pole Signal Mounting table with columns for No., STANDARD (TYPE, SIG. M.A., LUM. M.A., LUM. LED), POLE SIGNAL MOUNTING (VEHICLE & PED. HEADS, PED. PUSH BUTTONS, SIGNS, VIDEO DETECTOR), STREET NAME SIGN, and STATION ; OFFSET.

GRAPHIC SCALE



Approvals table with columns for Name, Title, and Date. Lists approvals from Kamal N. Taktak, Dennis W. Leach, and Aiel Yang.

Revisions table with columns for Revisions and Date. Includes a blank row for future revisions.

Project Name and Location: Traffic Signal Design, 18th Street South & South Fern Street, Traffic Signal Modification Plan

Designed: AK, Drawn: AK, Checked: JFL, Miss Utility Transmittal #:

Filename: TSD_18th St. S. & S. Fern St.dwg, Path: I:\PROJECTS\401963100_CAD MODELS AND SHEETS\18A_FERN STD, Plotted: June 30, 2020, Plotted by: Kharkwa, Scale: 1" = 25'



Seal



Approvals Date

<i>Samuel</i>	6/18/2020
QUALITY CONTROL ENGINEER	6.26.20
<i>Kamal W. Taktak</i>	
CONSTRUCTION MANAGEMENT SUPERVISOR	06.29.20
WATER, SEWER, STREETS BUREAU CHIEF	
<i>Dennis W. Leach</i>	6/24/20
TRANSPORTATION DIRECTOR	
<i>Ariel Yang</i>	6/17/2020
PROJECT MANAGER	

Revisions Date

Revisions	Date

Project Name and Location

Traffic Signal Design
18th Street South & South Fern Street
Communication Plan

Designed: AK
Drawn: AK
Checked: JEL
Miss Utility Transmittal #:

Filename: TSD_18th St. S. & S. Fern St.dwg
Path: I:\PROJECTS\40196310_CAD MODELS AND SHEETS\18A_FERN.TSD
Plotted: June 30, 2020
Plotted by: Kharkwa
Scale: 1" = 25'



Sheet
T-3

CONSTRUCTION NOTES

- 6 INSTALL ARLINGTON STANDARD 61-02 JUNCTION BOX.
- 13 TIE CONDUIT INTO EXISTING FIBER JUNCTION BOX.
- 14 CUT EXISTING INTERCONNECT AT SPLICE POINT AND RE-ROUTE THROUGH PROPOSED CONDUIT TO PROPOSED JUNCTION BOX. CONTRACTOR SHALL SALVAGE EXISTING FIBER PATCH PANEL FOR RE-USE. RESPLICE CABLE IN EXISTING JUNCTION BOX JB-2603.
- 15 PULL BACK EXISTING 12 STRAND FIBER OPTIC CABLE. COIL AT EXISTING CABINET.
- 16 PULL BACK EXISTING 24 STRAND FIBER OPTIC CABLE. COIL AT EXISTING CABINET.
- 17 RE-ROUTE EXISTING 12 STRAND FIBER OPTIC CABLE IN PROPOSED CONDUIT.
- 18 RE-ROUTE EXISTING 24 STRAND FIBER OPTIC CABLE IN PROPOSED CONDUIT.
- 19 RE-ROUTE EXISTING 24 STRAND FIBER OPTIC CABLE IN PROPOSED CONDUIT.
- 20 CONTRACTOR TO COORDINATE WITH DOMINION ENERGY ON FEEDING THE NEW SERVICE METER FROM EXISTING POWER SOURCE (DOM# 7351787) THROUGH SPLICE BOX.



NOTE:
CONDUIT INSTALLED PER TRAFFIC SIGNAL MODIFICATION PLAN (T-2) IS SHOWN IN GRAY SCALE ON THIS PLAN SHEET.

CONDUIT & CABLE

- P** 1-2" HDPE CONDUIT (TRENCHED)
1 - RE-ROUTED 12 STRAND FIBER OPTIC CABLE
1 - RE-ROUTED 24 STRAND FIBER OPTIC CABLE
- Q** 2-2" HDPE CONDUIT (TRENCHED)
1 - RE-ROUTED 12 STRAND FIBER OPTIC CABLE
1 - RE-ROUTED 24 STRAND FIBER OPTIC CABLE

LEGEND

	EXISTING	PROPOSED
Control Cabinet		
Signal Junction Box (S1-02)		
Signal Junction Box (S1-04)		
Comm. Junction Box		
Service Junction Box		
Mast Arm Pole & Foundation		
Pedestrian Pedestal Pole & Foundation		
Curby Lighting Pole & Foundation		
Service Meter		
Battery Backup (UPS)		
Vehicle Signal Head (LED)		
Pedestrian Push Button		
FLIR Video Detection		
Emergency Vehicle Preemption		
CCTV Vehicle Camera		
Overhead Light (LED)		
Conduit Run		

GRAPHIC SCALE

