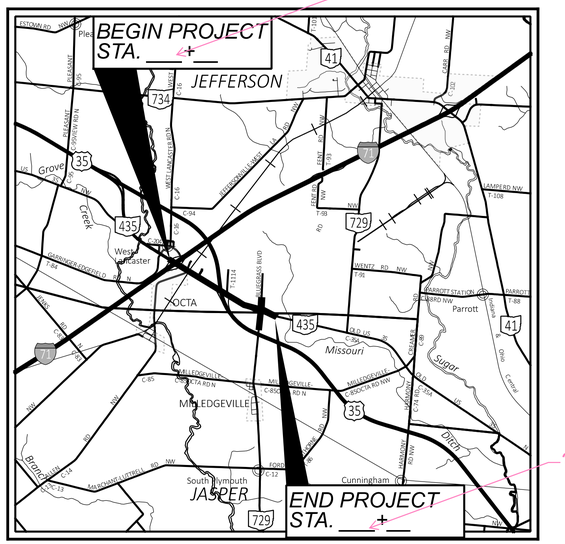

LOCATION MAP

LATITUDE: 39°36'52" N LONGITUDE: 83°35'50" W

PORTION TO BE IMPROVED
INTERSTATE HIGHWAY
FEDERAL ROUTES
STATE ROUTES
COUNTY & TOWNSHIP ROADS
OTHER ROADS

DESIGN DESIGNATION

FOR DESIGN DESIGNATIONS, REFER TO BU-1 PLANS

DESIGN EXCEPTIONS

N/A

FALSE. WE HAVE A D.E. ON THIS PROJECT

ADA DESIGN WAIVERS

NONE REQUIRED

UNDERGROUND UTILITIES
Contact Two Working Days Before You Dig
OHIO811.org Before You Dig
OHIO811, 8-1-1, or 1-800-362-2764
(Non members must be called directly)

PLAN PREPARED BY:

PALMER ENGINEERING
8350 EAST KEMPER RD - SUITE B
CINCINNATI, OH 45249
WINCHESTER • NASHVILLE • LOUISVILLE • CINCINNATI • AKRON • TALLAHASSEE • ORLANDO

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
FAY-435-1.52
TRAFFIC SIGNALS/LIGHTING (BU-3)

VILLAGE OF OCTA
JEFFERSON TOWNSHIP
JASPER TOWNSHIP
FAYETTE COUNTY

INDEX OF SHEETS:

REVIEW COMPLETE

PM
OVERALL Andrew Holloway 02/20/2024 1:05:43 PM
ENVIRO
REAL ESTATE Dale Mead 02/28/2024 No Comments
UTILITIES
STRUCTURES
GEOTECH
HYDRAULICS
MOT
PAVEMENT
GEOMETRICS
TRAFFIC
ITS
RAILROAD
CONST.
OTHER

FEDERAL PROJECT NUMBER

NONE

RAILROAD INVOLVEMENT

NONE

WOULD YOU SAY CHANGING A BOX SPAN TO A DIAGONAL SPAN IS AN IMPROVEMENT?

PROJECT DESCRIPTION

THE PROJECT WILL MAKE IMPROVEMENTS TO SR-435, I-71 INTERCHANGE RAMPS AT SR-435, AND THE US-35 EXIT RAMP AT SR-435 IN FAYETTE COUNTY WITH PAVEMENT WIDENING, RESURFACING, AND OTHER WORK AS REQUIRED.

REMOVE, REDESIGN, AND REPLACE THE EXISTING SIGNALS AT SR-435/I-71 SB RAMPS, SR-435/I-71 NB RAMPS, AND SR-435/ALLEN RD. DESIGN AND INSTALL A NEW SIGNAL AT SR-435/US-35 WB EXIT RAMP TO SR-435.

REMOVE THE TEMPORARY SIGNAL AT THE AT SR-435/BLUEGRASS BLVD/SR-729 INTERSECTION. DESIGN AND CONSTRUCT A ROUNDABOUT INTERSECTION.

EARTH DISTURBED AREAS

PROJECT EARTH DISTURBED AREA: *ACRES*
ESTIMATED CONTRACTOR EARTH DISTURBED AREA: *ACRES*
NOTICE OF INTENT EARTH DISTURBED AREA: *ACRES*

NO EDA FOR THIS BU?

LIMITED ACCESS

THIS IMPROVEMENT IS ESPECIALLY DESIGNED FOR THROUGH TRAFFIC AND HAS BEEN DECLARED A LIMITED ACCESS HIGHWAY OR FREEWAY BY ACTION OF THE DIRECTOR IN ACCORDANCE WITH THE PROVISIONS OF SECTION 5511.02 OF THE OHIO REVISED CODE.

2023 SPECIFICATIONS

THE STANDARD SPECIFICATIONS OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, INCLUDING SUPPLEMENTAL SPECIFICATIONS LISTED IN THE PLANS AND CHANGES LISTED IN THE PROPOSAL SHALL GOVERN THIS IMPROVEMENT.

MISSING MOT ENDORSEMENT. L&D3 1302.12.3

Anthony C. Turowski, P.E.
District 06 Deputy Director

Jack Marchbanks, PhD
Director, Department of Transportation

INCLUDE DATES FOR THE DRAWINGS AND SUPLEMENTAL SPECS

Fayette County Engineer

delete

STANDARD CONSTRUCTION DRAWINGS					*SUPPLEMENTAL SPECIFICATIONS*	*SPECIAL PROVISIONS*
HL-10.11	*MT-95.30*	*TC-21.21*			*SS 800*	
HL-10.12	*MT-95.31*	*TC-41.40*			*SS 804*	
HL-30.11	*MT-95.32*	*TC-41.41*			*SS 809*	
HL-40.20	*MT-95.50*	*TC-52.20*			*SS 813*	
HL-60.11	*MT-120.00*	*TC-81.11*			*SS 825*	
HL-60.31		*TC-83.10*				
		TC-83.20				
		TC-84.20				
		TC-85.10				
		TC-85.21				
		TC-85.22				

WE HAVE SPECIAL PROVISIONS. ADD THOSE HERE

BU-3 TRAFFIC SIGNALS/LIGHTING FINAL 02/12/2024

TITLE SHEET

DESIGN AGENCY
TEC
PLAN PREPARED BY:
TEC Engineering, Inc.
7288 Central Parke Blvd.
Mason, OH 45040
DESIGNER TEC
REVIEWER MJH 02/12/24
PROJECT ID 117955
SHEET 1 TOTAL 29

28?

FAY-435-1.52

MODEL: Sheet_SurvFt PAPERSIZE: 34x22 (in.) DATE: 2/13/2024 TIME: 9:09:47 AM USER: mike
\\10.1.2.4\projects\2023 Projects\23068 Palmer Engineering\002 FAY-435-1.52\117955400-Engineering\Roadway\Sheets\117955_GT001_BU3.dgn

SIGNAL ACTIVATION

PRIOR TO ACTIVATING THE NEW TRAFFIC SIGNAL TO STOP-AND-GO MODE AND/OR REMOVING THE EXISTING TRAFFIC SIGNAL FROM SERVICE, ALL ITEMS IN THE PROPOSED SIGNAL PLAN SHALL BE FULLY COMPLETED, (I.E., VEHICLE DETECTION, PEDESTRIAN SIGNAL HEADS, ETC). IF THERE ARE CONSTRUCTABILITY ISSUES (I.E., ROADWAY WIDENING, ETC.) THAT PREVENT THE SIGNAL FROM BEING COMPLETED PRIOR TO ACTIVATION, IT SHALL BE BROUGHT TO THE ATTENTION OF THE PROJECT ENGINEER AND DISTRICT TRAFFIC ENGINEER. THE DISTRICT TRAFFIC ENGINEER WILL THEN REVIEW, APPROVE OR REJECT PROPOSALS TO ACTIVATE THE TRAFFIC SIGNAL PRIOR TO COMPLETION.

THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER AND DISTRICT TRAFFIC ENGINEER AT LEAST 10 WORKING DAYS PRIOR TO SCHEDULING THE FINAL INSPECTION OF THE SIGNAL INSTALLATION. FINAL INSPECTION IS NOT CONSIDERED COMPLETE UNTIL DESIGNATED DISTRICT TRAFFIC PERSONNEL INSPECT THE TRAFFIC SIGNAL AND ISSUE WRITTEN APPROVAL. IF ISSUES ARE FOUND DURING THE FINAL INSPECTION THAT EFFECT THE SAFETY OF THE TRAVELING PUBLIC AND/OR THE EFFICIENCY OF THE INTERSECTION, THE SIGNAL SHALL NOT BE ACTIVATED ON THE PROPOSED DATE. ANY PUNCH LIST ITEMS THAT ARE FOUND SHALL BE CORRECTED AND REINSPECTED BY DISTRICT TRAFFIC PERSONNEL PRIOR TO FINAL ACCEPTANCE. ODOT FORCES SHALL ONLY ASSUME DAY TO DAY MAINTENANCE OF THE TRAFFIC SIGNAL AFTER FINAL WRITTEN ACCEPTANCE HAS BEEN ISSUED.

WORK INSPECTION

BEFORE ANY WORK IS STARTED ON THE TRAFFIC SIGNAL, THE DISTRICT SIX TRAFFIC ENGINEER (740-833-8332) AND THE CONTRACTOR'S REPRESENTATIVE SHALL REVIEW AND RESOLVE ANY POTENTIAL PROBLEMS AT THE LOCATION WHERE THE NEW SIGNAL WILL BE CONSTRUCTED.

THE CONTRACTOR SHALL PROVIDE THE PROJECT ENGINEER AND DISTRICT TRAFFIC ENGINEER WITH 72 HOUR NOTICE OF ANY SIGNAL WORK TO BE PERFORMED AT THE INTERSECTION SITE(S) SO THAT INSPECTION SERVICES CAN BE SUPPLIED.

MAINTENANCE OF TRAFFIC SIGNAL/FLASHER INSTALLATION

THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING TRAFFIC SIGNAL/FLASHER INSTALLATIONS WITHIN THE PROJECT UNDER THE FOLLOWING CONDITIONS:
1. EXISTING SIGNAL/FLASHER INSTALLATIONS WHICH THE PLANS REQUIRE THE CONTRACTOR TO ADJUST, MODIFY, ADD ONTO OR REMOVE, OR WHICH THE CONTRACTOR ACTUALLY ADJUSTS, MODIFIES OR OTHERWISE DISTURBS: THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ENTIRE INSTALLATION (AT AN INTERSECTION) FROM THE TIME HIS OPERATIONS FIRST DISTURB THE INSTALLATION UNTIL THE INSTALLATION HAS BEEN SUBSEQUENTLY REMOVED OR MODIFIED AND THE WORK IS ACCEPTED.
2. NEW OR REUSED SIGNAL/FLASHER INSTALLATIONS OR DEVICES INSTALLED BY THE CONTRACTOR: THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE OF THESE FROM THE TIME OF INSTALLATION UNTIL THE WORK IS ACCEPTED.

THE CONTRACTOR SHALL CORRECT AS QUICKLY AS POSSIBLE ALL OUTAGES OR MALFUNCTIONS. HE SHALL PROVIDE THE MAINTAINING AGENCY AND THE ENGINEER SUCH ADDRESSES AND PHONE NUMBERS WHERE HIS MAINTENANCE FORCES CAN BE CONTACTED. THE CONTRACTOR SHALL PROVIDE ONE OR MORE PERSONS TO RECEIVE ALL CALLS AND DISPATCH THE NECESSARY MAINTENANCE FORCES TO CORRECT OUTAGES. SUCH A PERSON OR PERSONS MAY BE USED TO PERFORM OTHER DUTIES AS LONG AS PROMPT ATTENTION IS GIVEN TO THESE CALLS AND A PERSON IS READILY AVAILABLE CONTINUOUSLY 24 HOURS A DAY, 7 DAYS A WEEK. ALL LAMP OUTAGES, CABLE OUTAGES, ELECTRICAL FAILURES, EQUIPMENT MALFUNCTIONS AND MISALIGNED SIGNAL HEADS SHALL BE CORRECTED TO THE SATISFACTION OF THE ENGINEER WITH THE SIGNAL BACK TO SERVICE WITHIN FOUR HOURS AFTER THE CONTRACTOR HAS BEEN NOTIFIED OF THE OUTAGE.

IN THE EVENT NEW SIGNALS ARE DAMAGED PRIOR TO ACCEPTANCE, ALL DAMAGED EQUIPMENT EXCEPT POLES AND CONTROL EQUIPMENT SHALL BE REPLACED BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER WITH THE SIGNAL BACK IN SERVICE WITHIN 8 HOURS AFTER THE CONTRACTOR'S NOTIFICATION OF THE OUTAGE. THE CONTRACTOR SHALL ARRANGE FOR FULL TRAFFIC CONTROL UNTIL THE SIGNAL IS BACK IN OPERATION. IF POLES AND/OR CONTROL EQUIPMENT ARE DAMAGED AND MUST BE REPLACED, THE CONTRACTOR SHALL MAKE TEMPORARY REPAIRS AS NECESSARY TO BRING THE SIGNAL BACK INTO FULL OPERATION WITHIN THE ALLOWED 8-HOUR PERIOD AND SHALL MAKE PERMANENT REPAIRS OR REPLACEMENT AS SOON THEREAFTER AS POSSIBLE.

NONE OF THE ABOVE SHALL BE CONSTRUED AS COLLECTIVE OR CONSECUTIVE OUTAGE TIME PERIODS AT ANY ONE LOCATION. THAT IS, WHERE MORE THAN ONE OUTAGE OCCURS AT ANY ONE LOCATION THEN THE ALLOTTED TIME LIMIT SHALL BE FOR THE WORST SINGLE OUTAGE.

WHERE OUTAGES ARE THE DIRECT RESULT OF A VEHICLE ACCIDENT THE RESPONSE OF THE CONTRACTOR SHALL BE AS OUTLINED ABOVE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COLLECTION OF ANY COMPENSATION FOR THIS WORK FROM THOSE PARTIES RESPONSIBLE FOR THE DAMAGE.

MAINTENANCE OF TRAFFIC SIGNAL/FLASHER INSTALLATION (CONTINUED)

WHERE THE CONTRACTOR HAS FAILED TO, OR CANNOT RESPOND TO, AN OUTAGE OR SIGNAL EQUIPMENT MALFUNCTION, AT THESE LOCATIONS WITHIN HIS RESPONSIBILITY, WITHIN PERIODS AS SPECIFIED ABOVE, THE ENGINEER MAY INVOKE THE PROVISIONS OF SECTION 105.15 AND ANY SUBSEQUENT BILLINGS FOR POLICE SERVICES AND MAINTENANCE SERVICES BY STATE (CITY) FORCES SHALL BE DEDUCTED FROM MONIES DUE OR TO BECOME DUE THE CONTRACTOR IN ACCORDANCE WITH PROVISIONS OF SECTION 105.15.

THE CONTRACTOR SHALL PROVIDE THE MAINTENANCE SERVICE ENTIRELY WITH HIS FORCES OR HE MAY CHOOSE TO ENTER INTO A COOPERATIVE UNDERSTANDING WITH THE LOCAL MAINTAINING AGENCY TO PROVIDE THE MAINTENANCE. THE CONTRACTOR SHALL INFORM THE ENGINEER, IN WRITING, OF THE MAINTENANCE METHOD SELECTED.

ANY VEHICULAR TRAFFIC SIGNAL HEAD, EITHER NEW OR EXISTING WHICH WILL BE OUT OF OPERATION SHALL BE COVERED IN THE MANNER DESCRIBED IN 632.25.

THE CONTRACTOR SHALL MAINTAIN COMPLETE RECORDS OF MALFUNCTIONS INCLUDING:
1. TIME OF NOTIFICATION OF MALFUNCTION;
2. TIME OF WORK CREWS ARRIVAL TO CORRECT THE MALFUNCTION;
3. ACTIONS TAKEN TO CORRECT THE MALFUNCTION, INCLUDING A LIST OF PARTS REPAIRED OR REPLACED;
4. A DIAGNOSIS OF REASON FOR THE MALFUNCTION AND PROBABILITY OF REOCCURRENCE;
5. TIME OF COMPLETION OF THE REPAIR AND SYSTEM RESTORED TO FULL SERVICE.

A COPY OF THESE RECORDS SHALL BE PROVIDED TO THE ENGINEER WITHIN THREE (3) WORKING DAYS FOLLOWING COMPLETION OF EACH REPAIR.

ALL COSTS RESULTING FROM THE ABOVE REQUIREMENTS SHALL BE CONSIDERED TO BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 614, MAINTAINING TRAFFIC.

ITEM 625 BRACKET ARM, 20', AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF THE C&MS AND STANDARD CONSTRUCTION DRAWINGS, THE FOLLOWING SHALL APPLY:

1. THE SPECIFIED BRACKET ARM SHALL BE "TRUSS ARM HIGH RISE"TYPE PER STANDARD DRAWING HL-10.11.

PAYMENT WILL BE MADE AT THE CONTRACT UNIT PRICE BID, PER EACH "ITEM 625 BRACKET ARM, BY LENGTH, AS PER PLAN" WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY AND WORKMANLIKE MANNER.

ITEM 625 - PULL BOX, MISC.: MODIFY EXISTING PULL BOX

IN ADDITION TO THE REQUIREMENTS OF THE ODOT C&MS AND SCD HL-30.11, MODIFIED PULL BOXES ON THIS PROJECT SHALL BE AS FOLLOWS:

THIS ITEM SHALL INCLUDE CLEARING THE PULL BOX OF DEBRIS, CUTTING INTO THE SIDE OF THE PULL BOX FOR NEW CONDUIT ENTRIES AND CEMENT PATCHING AND REPAIRING THE BOX TO SATISFACTORY CONDITION APPROVED BY THE ENGINEER.DISTURBED AREAS NEAR THE PULL BOX SHALL BE CLEARED OF WEEDS OR DEBRIS AND SHALL BE FULLY RESTORED. THE MATERIAL REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE PROPERLY DISPOSED OF OFF OF THE PROJECT SITE.PULLING, STORING, AND RECONNECTION OF THE EXISTING FIBER OPTIC CABLE IS QUANTIFIED ELSEWHERE.

PAYMENT WILL BE MADE AT THE UNIT BID PRICE FOR EACH "ITEM 625 - PULL BOX, MISC.: MODIFY EXISTING PULL BOX" WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS, EQUIPMENT, AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY AND WORKMANLIKE MANNER.

ITEM 625 ARC FLASH CALCULATIONS AND LABEL

THE CONTRACTOR SHALL SATISFY THE REQUIREMENTS OF ODOT SUPPLEMENTAL SPECIFICATION 825 FOR EACH OF THE POWER SERVICE/ELECTRICAL ENCLOSURE INDICATED IN THE PLANS.

THE CONTRACTOR MAY BE ABLE TO OBTAIN LABELS FOR ODOT MAINTAINED INSTALLATIONS FROM THE ODOT SIGN SHOP, 1606 WEST BROAD STREET, COLUMBUS, OH 43223. FOR NON-ODOT MAINTAINED INSTALLATIONS, THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING THE LABEL, MADE FROM "ENGINEER GRADE"SIGN SHEETING OR AN EQUIVALENT COMMERCIAL LABEL MATERIAL.

THE ODOT OFFICE OF ROADWAY ENGINEERING HAS AN EXCEL SPREADSHEET, AVAILABLE UPON REQUEST, TO ASSIST WITH MAKING AND DOCUMENTING THE REQUIRED CALCULATIONS.

METHOD OF MEASUREMENT SHALL BE PER SS 825.06.

ITEM 632 - VEHICULAR SIGNAL HEAD, (LED), (BY SECTION), 12" LENS, 1-WAY, POLYCARBONATE, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF C&MS 632 AND 732, THE FOLLOWING REQUIREMENTS SHALL APPLY:

1. SIGNAL HEADS AND VISORS SHALL BE CONSTRUCTED OF BLACK POLYCARBONATE PLASTIC WITH VISORS AS SPECIFIED AND MEET ITE SPECIFICATIONS.
2. PROPER EXTERIOR COLORS SHALL BE OBTAINED BY USE OF COLORED PLASTIC MATERIAL RATHER THAN PAINTING.
3. ALL UPPER SIGNAL SUPPORT HARDWARE AND PIPING UP TO AND INCLUDING THE WIRE INLET FITTING SHALL BE FERROUS METAL.
4. THE ENTRANCE FITTING SHALL BE OF THE TRI-STUD DESIGN WITH SERRATED RINGS IN ORDER TO ACHIEVE POSITIVE LOCKING.
5. ALUMINUM BACKPLATES SHALL BE IN ACCORDANCE WITH THE C&MS AND INCLUDE A FLUORESCENT YELLOW REFLECTIVE BORDER.
6. THE LIGHT EMITTING DIODE (LED) SIGNAL LAMP UNITS SHALL MEET THE REQUIREMENTS OF CMS 732.04. THE CONTRACTOR SHALL PROVIDE ODOT, IN WRITING, WITH THE LED MANUFACTURER NAME, SERIAL NUMBER, PART NUMBER, DESCRIPTION OF LAMP, AND DATE OF MANUFACTURE FOR ALL LED UNITS THAT ARE TO BE USED IN THE SIGNAL HEAD PRIOR TO INSTALLATION, FOR ACCEPTANCE AND WARRANTY PURPOSES.
7. SIGNAL HEADS SHALL HAVE A MINIMUM WALL THICKNESS OF 0.11 INCHES.
8. SIGNAL HEADS SHALL INCLUDE CUTAWAY TYPE VISORS UNLESS OTHERWISE SPECIFIED IN THE PLANS.
9. APPLY A BEAD OF SILICONE TO THE SIGNAL HEAD, WASHER, AND ENTRANCE ADAPTER SERRATIONS TO PREVENT WATER INTRUSION. ALSO, FILL THE SPACE BETWEEN CONCENTRIC SERRATION RINGS ON THE TOP OF THE SIGNAL HEAD TO COMPLETELY EXCLUDE WATER FROM THE SPACE BETWEEN THE CONCENTRIC RINGS. BEFORE CLOSING SERRATIONS, APPLY A BEAD OF ROOM-TEMPERATURE VULCANIZING (RTV) SILICONE TO ALL SERRATED SURFACES AND THEN TIGHTEN. RTV SILICONE SHALL BE WHITE TO FACILITATE VISUAL INSPECTION. ON HEADS WITH DUAL CONCENTRIC SERRATED RINGS, COMPLETELY FILL THE SPACE BETWEEN THE RINGS WITH RTV SILICONE.
10. BALANCE ADJUSTERS SHALL NOT BE USED ON ONE-WAY HEADS OR TETHERED HEADS.

PAYMENT FOR ITEM 632 VEHICULAR SIGNAL HEAD, (LED), (BY SECTION), 12" LENS, 1-WAY, POLYCARBONATE, AS PER PLAN SHALL BE MADE FOR COMPLETE SIGNAL HEAD FURNISHED AND INSTALLED, INCLUDING ALL LABOR, EQUIPMENT, MATERIALS, AND NEW ATTACHMENT HARDWARE.

ITEM 632 - POWER SERVICE, AS PER PLAN, TYPE A

THE CONTRACTOR SHALL CONTACT THE METER SECTION OF AES OHIO FOR INFORMATION REGARDING THE METER BASE INSTALLATION PRIOR TO ORDERING POLES. THE CONTRACTOR WILL BE RESPONSIBLE FOR REQUESTING AND SCHEDULING ANY INSPECTIONS THE POWER COMPANY MAY REQUIRE FOR THE POWER SERVICE HOOK UP. THE CONTRACTOR SHALL BE RESPONSIBLE TO CONTACT THE POWER COMPANY FOR THE ELECTRICAL SERVICE CONNECTION. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR SPLICE POWER CABLE INTO THE POWER COMPANY'S CIRCUITS.

THE VOLTAGE SUPPLIED SHALL BE NOMINALLY 120/240 VOLTS. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ANY NECESSARY PERMITS AND THE PAYING OF ALL FEES WITH THE EXCEPTION OF NORMAL MONTHLY ENERGY CHARGES. WHERE THERE IS AN EXISTING TRAFFIC SIGNAL THAT IS BEING REPLACED, THE CONTRACTOR SHALL COORDINATE WITH THE POWER COMPANY TO CONTINUE BILLING ON THE EXISTING DISTRICT 6 ACCOUNT. WHERE A NEW SIGNAL IS BEING INSTALLED, THE CONTRACTOR SHALL ESTABLISH THE ACCOUNT IN THE DISTRICT'S NAME FROM THE ONSET.

POWER SOURCE LOCATIONS ARE INDICATED ON THE PLANS. THE CONTRACTOR SHALL COORDINATE WITH THE POWER COMPANY TO CONFIRM AVAILABILITY. A POLE MOUNTED POWER SERVICE PER TC-83.10 SHALL BE PROVIDED AT THE LOCATION IDENTIFIED IN THE PLANS. POWER SUPPLIED SHALL BE 120/240 VOLT, SINGLE-PHASE.

DISCONNECT SWITCH ENCLOSURES SHALL INCLUDE A KEYED PADLOCK OR DEVICE APPROVED BY THE MAINTENANCE FORCE.

PAYMENT WILL BE MADE AT THE CONTRACT UNIT BID PRICE FOR EACH "ITEM 632 - POWER SERVICE, AS PER PLAN, TYPE A" WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS, EQUIPMENT, AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY AND WORKMANLIKE MANNER.

ITEM 632 - POWER SERVICE, AS PER PLAN, TYPE B

THE CONTRACTOR SHALL CONTACT THE METER SECTION OF AES OHIO FOR INFORMATION REGARDING THE METER BASE INSTALLATION PRIOR TO ORDERING POLES. THE CONTRACTOR WILL BE RESPONSIBLE FOR REQUESTING AND SCHEDULING ANY INSPECTIONS THE POWER COMPANY MAY REQUIRE FOR THE POWER SERVICE HOOK UP. THE CONTRACTOR SHALL BE RESPONSIBLE TO CONTACT THE POWER COMPANY FOR THE ELECTRICAL SERVICE CONNECTION. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR SPLICE POWER CABLE INTO THE POWER COMPANY'S CIRCUITS.

THE VOLTAGE SUPPLIED SHALL BE NOMINALLY 120/240 VOLTS. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ANY NECESSARY PERMITS AND THE PAYING OF ALL FEES WITH THE EXCEPTION OF NORMAL MONTHLY ENERGY CHARGES. WHERE THERE IS AN EXISTING TRAFFIC SIGNAL THAT IS BEING REPLACED, THE CONTRACTOR SHALL COORDINATE WITH THE POWER COMPANY TO CONTINUE BILLING ON THE EXISTING DISTRICT 6 ACCOUNT. WHERE A NEW SIGNAL IS BEING INSTALLED, THE CONTRACTOR SHALL ESTABLISH THE ACCOUNT IN THE DISTRICT'S NAME FROM THE ONSET.

POWER SOURCE LOCATIONS ARE INDICATED ON THE PLANS. THE CONTRACTOR SHALL COORDINATE WITH THE POWER COMPANY TO CONFIRM AVAILABILITY. A POLE MOUNTED POWER SERVICE PER TC-83.10 SHALL BE PROVIDED AT THE LOCATION IDENTIFIED IN THE PLANS. POWER SUPPLIED SHALL BE 120/240 VOLT, SINGLE-PHASE.

ONE 120 VOLT LEG WILL SUPPLY THE TRAFFIC SIGNALS AND THE OTHER LEG WILL SUPPLY THE ITS CAMERA SITE. IN ADDITION TO THE PRIMARY DISCONNECT SWITCH REQUIRED BY 632.23, PROVIDE A SECOND DISCONNECT SWITCH, NON-FUSIBLE, TO BE CONNECTED AS A SEPARATE DISCONNECT FOR THE ITS CAMERA SITE ONLY. DISCONNECT SWITCH ENCLOSURES SHALL INCLUDE A KEYED PADLOCK OR DEVICE APPROVED BY THE MAINTENANCE FORCE.

POWER SERVICE, TYPE B, SHALL ALSO INCLUDE THE WORK NECESSARY TO LOCATE AND REROUTE THE EXISTING POWER CABLES TO THE NEW DISCONNECT SWITCH FOR THE ITS CAMERA SITE. NEW CONDUIT AND TRENCH ASSOCIATED WITH THIS WORK IS QUANTIFIED ELSEWHERE. ALL OTHER WORK NECESSARY TO LOCATE, REROUTE, AND RECONNECT POWER TO THE ITS CAMERA SITE SHALL BE INCIDENTAL TO THIS ITEM OF WORK.

PAYMENT WILL BE MADE AT THE CONTRACT UNIT BID PRICE FOR EACH "ITEM 632 - POWER SERVICE, AS PER PLAN, TYPE B" WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS, EQUIPMENT, AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY AND WORKMANLIKE MANNER.

ITEM 632 - (COMBINATION) STRAIN POLE, TC-81.11, BY DESIGN, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF CMS 632.16, 732.12 AND ODOT STANDARD CONSTRUCTION DRAWINGS TC-81.11, STRAIN POLES SHALL INCLUDE 3"MINIMUM HALF BLIND COUPLINGS WHEN APPLICABLE.

PAYMENT WILL BE MADE AT THE CONTRACT UNIT PRICE BID FOR EACH "ITEM 632 - (COMBINATION) STRAIN POLE, TC-81.11, AS PER PLAN" SEPARATELY WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS, EQUIPMENT AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY AND WORKMANLIKE MANNER.

ITEM 632 - REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN

TRAFFIC SIGNAL INSTALLATIONS, INCLUDING SIGNAL HEADS, CABLE, CONDUIT, PULL BOXES, SIGNAL POLES, CABINET, CONTROLLER, ETC., SHALL BE REMOVED IN ACCORDANCE WITH 632.26 AND AS INDICATED ON THE PLANS. REMOVED ITEMS SHALL BE HANDLED WITH CAUTION AND DELIVERED TO THE DISTRICT HEADQUARTERS AT 400 E. WILLIAM STREET, DELAWARE, OH 43015. THE CONTRACTOR SHALL COORDINATE THE DELIVERY OF THE SALVAGED MATERIALS WITH THE PROJECT ENGINEER AND THE DISTRICT TRAFFIC ENGINEER.

THE CONTRACTOR SHALL COORDINATE WITH THE PROJECT ENGINEER AND THE DISTRICT TRAFFIC ENGINEER 5 WORKING DAYS PRIOR TO ANY REMOVAL WORK TO DETERMINE WHICH MATERIALS AT EACH LOCATION SHALL BE SALVAGED FOR DELIVERY TO THE DISTRICT. ANY MATERIALS THAT ARE NOT DEEMED SALVAGEABLE ARE TO BE DISPOSED OF BY THE CONTRACTOR.

PAYMENT WILL BE MADE AT THE CONTRACT UNIT BID PRICE FOR EACH "ITEM 632 - REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN" WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS, EQUIPMENT, AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY AND WORKMANLIKE MANNER.

DESIGN AGENCY
PLAN PREPARED BY:
TEC Engineering, Inc.
7288 Central Pointe Blvd.
Mason, OH 45040
DESIGNER TEC
REVIEWER MJH 02/12/24
PROJECT ID 117955
SHEET 2 TOTAL 28

FAY-435-1.52
MODEL: CN001 PAPERSIZE: 34x22 (in.) DATE: 2/13/2024 TIME: 9:09:49 AM USER: mike
\\10.1.2.4\projects\2023 Projects\23068 Palmer Engineering\002 FAY-435-1.52\117955\400-Engineering\Signals\Sheets\117955_CN.dgn

ITEM 632 - SIGNALIZATION, MISC.: REUSE OF EX. COMMUNICATIONS EQUIPMENT

THIS ITEM OF WORK SHALL INCLUDE THE REMOVAL AND REUSE OF EXISTING COMMUNICATIONS EQUIPMENT AS DESCRIBED BELOW.

SR 435 & I-71 SB RAMP TRAFFIC SIGNAL
REUSE EXISTING CDMA MODEM AND RELATED ACCESSORIES WITH THE NEW TRAFFIC SIGNAL CABINET. REUSE THE EXISTING (UBIQUITY) ETHERNET RADIO AND ANTENNA IN THE NEW TRAFFIC SIGNAL INSTALLATION. REUSE THE EXISTING ETHERNET SWITCH AND RELATED POWER SUPPLIES IN THE NEW TRAFFIC SIGNAL CABINET.

SR 435 & I-71 NB RAMP TRAFFIC SIGNAL
REUSE THE EXISTING (UBIQUITY) ETHERNET RADIO AND ANTENNAS IN THE NEW TRAFFIC SIGNAL INSTALLATION. REUSE THE EXISTING ETHERNET SWITCH AND RELATED POWER SUPPLIES IN THE NEW TRAFFIC SIGNAL CABINET.

SR 435 & ALLEN ROAD TRAFFIC SIGNAL
REUSE THE EXISTING (UBIQUITY) ETHERNET RADIO AND ANTENNAS IN THE NEW TRAFFIC SIGNAL INSTALLATION. REUSE THE EXISTING ETHERNET SWITCH AND RELATED POWER SUPPLIES IN THE NEW TRAFFIC SIGNAL CABINET.

NEW ETHERNET CABLES, QUANTIFIED SEPARATELY, SHALL BE PROVIDED AT ALL LOCATIONS.

THE DEPARTMENT WILL MEASURE "ITEM 632 - SIGNALIZATION, MISC.: REUSE OF EX. COMMUNICATION EQUIPMENT" PER EACH INTERSECTION WHERE REUSE OF COMMUNICATION IS SPECIFIED, REINSTALLED, TESTED, AND ACCEPTED.

632, SIGNALIZATION, MISC. CDMA MODEM, FURNISH ONLY

FURNISH A CDMA MODEM AND A 3-IN-1 SHARKFIN CELLULAR ANTENNA WITH CABLES FOR REMOTE WIRELESS CELLULAR COMMUNICATION. REQUIRED ETHERNET CABLES QUANTIFIED SEPARATELY. FOR NETWORK CONSISTENCY CDMA MODEMS SHALL BE THE SIERRA WIRELESS AIRLINK MP70 MODEL CONFIGURED FOR THE AT&T NETWORK.

THIS ITEM SHALL INCLUDE THE FURNISHING OF A COMTROL ROCKETLINX ES8108 ETHERNET SWITCH WITH ALL POWER SUPPLIES NECESSARY TO FUNCTION.

THIS ITEM SHALL INCLUDE THE FURNISHING AND INSTALLATION OF A MOUNTING BRACKET FOR THE ANTENNA WITH ALL NECESSARY HARDWARE INCLUDING BUT NOT LIMITED TO SPRING NUTS, WASHERS, AND BOLTS THAT INSTALLS TO THE MOUNTING CHANNEL ON THE SIDE OF THE SIGNAL CABINET.

THE CDMA MODEM EQUIPMENT SHALL BE DELIVERED TO ODOT DISTRICT 6 TRAFFIC FOR PROGRAMMING AND INSTALLATION.

ODOT DISTRICT 6 TRAFFIC
ATTN: DAVID CARLIN
400 EAST WILLIAM STREET
DELAWARE, OHIO 43015

THE CONTRACTOR SHALL PROVIDE THE MODEM SERIAL NUMBERS AND NECESSARY ESN NUMBERS FOR ODOT TO ESTABLISH WIRELESS SERVICE.

THE DEPARTMENT WILL MEASURE "SIGNALIZATION, MISC.: COMA MODEM, FURNISH ONLY" BY THE NUMBER OF COMPLETE UNITS FURNISHED AND RECEIVED BY ODOT DISTRICT 6 TRAFFIC.

ITEM 633 - CABINET, TYPE TS2, AS PER PLAN

THE CABINET SHALL BE FURNISHED AND INSTALLED ACCORDING TO CMS 633 AND 733 AND LISTED ON THE TRAFFIC AUTHORIZED PRODUCTS LIST (TAP).

THE EQUIPMENT PROVIDED AS PART OF THIS CONTRACT SHALL BE THE LATEST MODEL, CURRENTLY UNDER PRODUCTION AND NEW. THE CATALOG NUMBER FOR THE GROUND MOUNTED P CABINET SHALL BE EL 720 SIZE 7 (SIZE R) WITH A MINIMUM OF THREE SHELVES. THE CABINET SHALL BE ALUMINUM WITH THE NATURAL ALUMINUM FINISH INSIDE AND OUTSIDE. THE LOAD BAY SHALL BE THE TF5016 OR NEWER, WITH 16 LOAD SWITCH POSITIONS. PROVIDE ONLY THE EXACT NUMBER OF LOAD SWITCHES REQUIRED. EACH LOAD SWITCH SHALL HAVE LIGHT EMITTING DIODES (LEDS) FOR THE CONTROLLER OUTPUT AND LOAD SWITCH OUTPUT. ALSO PROVIDE 8 FLASH RELAY POSITIONS (BUT ONLY SUPPLY THE EXACT NUMBER OF RELAYS NEEDED FOR EACH SPECIFIC INTERSECTION), 1 NEMA 2-CIRCUIT FLASHER, AND AN MMU MONITOR. EACH CABINET SHALL COME EQUIPPED WITH TWO 16-CHANNEL CABINET DETECTOR RACKS (CDR) INCLUDING BUS INTERFACE UNITS (BIU). THE LOOP DETECTOR TERMINATION PANEL FOR THE SECOND DETECTOR RACK SHALL BE OMITTED. WHERE LOOP DETECTORS ARE SPECIFIED, THE CABINET SHALL INCLUDE THE EXACT NUMBER OF FOUR CHANNEL DETECTOR CARDS WITH SOFTWARE REQUIRED FOR EACH INTERSECTION. THE CABINET SHALL BE EQUIPPED WITH A CABINET POWER SUPPLY (CPS). THE CABINET SHALL BE WIRED TO ALLOW THE USE OF EVP CONFIRMATION LIGHTS. THE POLICE PANEL ON THE OUTSIDE OF THE CABINET DOOR SHALL HAVE A FLASH SWITCH, A SWITCH FOR AUTOMATIC/MANUAL OPERATION, SIGNAL ON/OFF SWITCH AND A MANUAL PUSHBUTTON WITH A MINIMUM CORD LENGTH OF 10 FEET. THE TECHNICIAN PANEL ON THE INSIDE OF THE CABINET DOOR SHALL INCLUDE A FLASH SWITCH, A STOP TIME SWITCH, AND AN EQUIPMENT ON/OFF SWITCH. A CABINET DOOR OPEN SWITCH AND A CABINET LIGHT ON / OFF SWITCH SHALL ALSO BE SUPPLIED.

THE CONTROLLER CABINET SHALL ALSO INCLUDE:

A. SLIDE-OUT LAPTOP SHELF
B. INTERIOR, UNDERSHELF LED CABINET LIGHTING, INCLUDING A MINIMUM OF 2 PANELS OF 6 HIGH-INTENSITY LED'S EACH AND A DOOR-ACTIVATED SWITCH. THE LED PANELS SHALL BE MOUNTED IN LOCATIONS TO MAXIMIZE LIGHT ON THE CABINET EQUIPMENT.
C. A GOOSENECK/ADJUSTABLE LIGHT FIXTURE WITH AN LED LAMP. THE ADJUSTABLE LIGHT FIXTURE SHALL BE MOUNTED ON THE LOWER RIGHT SIDE OF THE CONTROLLER CABINET.
D. A MINIMUM OF TWO (2) GFCI PROTECTED RECEPTACLES
E. A MINIMUM OF SIX (6) SURGE PROTECTED (NON-GFCI) RECEPTACLES

CONTROLLER CABINET LABELING TO IDENTIFY THE WIRING AND FUNCTION
DETECTOR LEAD-IN CABLE:
PHASE NUMBER SERVICE, DIRECTION, MOVEMENT TYPE, AND LOOP PLAN NUMBER.

SIGNAL HEAD FIELD WIRING:
PHASE NUMBER, DIRECTION, MOVEMENT TYPE, AND COLOR (RED, YELLOW, GREEN, YELLOW ARROW, GREEN ARROW) OR PEDESTRIAN MOVEMENT.

THE MALFUNCTION MANAGEMENT UNIT SHALL BE MANUFACTURED BY EDI AND HAVE A RJ-45 PORT FOR PC/NETWORK COMMUNICATIONS.

EACH CONDUIT ENTRANCE TO THE CABINET SHALL BE SEALED WITH A RUBBER PIPE/CONDUIT SEAL GASKET. THE SEAL SHALL BE OF A MATERIAL AND TYPE TIGHTLY FITTING AND ABLE TO SEAL OUT WATER, INSECTS, RODENTS, AND DIRT. THE SEAL SHALL BE EASILY REMOVED FOR SERVICE INSTALLATIONS OR CABLE REPLACEMENTS.

THE CONTRACTOR SHALL PROVIDE THE CABINET WIRING DIAGRAM/PLANS IN .PDF FORMAT TO ODOT DISTRICT 6 TRAFFIC.

PAYMENT FOR ITEM 633 CABINET, TYPE TS2, AS PER PLAN, WILL BE AT THE CONTRACT BID PRICE COMPLETE AND IN PLACE AND CONNECTIONS TESTED AND ACCEPTED.

ITEM 633 - CABINET FOUNDATION, AS PER PLAN

THIS ITEM SHALL CONSIST OF CONSTRUCTING A MODIFIED CONTROLLER CABINET FOUNDATION IN ACCORDANCE WITH ODOT STANDARD CONSTRUCTION DRAWING TC-83.20 AND ODOT CONSTRUCTION MATERIAL SPECIFICATIONS 633.10, 499, AND 511, EXCEPT THE FOUNDATION SHALL BE OF SUFFICIENT SIZE TO ACCOMMODATE THE PROPOSED COMBINED SIGNAL CONTROLLER AND UPS BATTERY BACKUP CABINET.PAYMENT WILL BE MADE AT THE UNIT BID PRICE FOR EACH "ITEM 633 - CABINET FOUNDATION, AS PER PLAN" WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS, EQUIPMENT, AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY AND WORKMANLIKE MANNER.

ITEM 633 - UNINTERRUPTIBLE POWER SUPPLY (UPS), 1000 WATT, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF CMS 633 AND 733, A CABINET RISER (8 INCH MINIMUM) AND ANCHOR BOLTS SHALL BE PROVIDED WITH THE BASE MOUNTED CABINET. BEFORE PERFORMING THE WORK, THE CONTRACTOR, THE DISTRICT TRAFFIC ENGINEER AND THE PROJECT ENGINEER WILL PERFORM A SITE INSPECTION TO ESTABLISH THE LOCATION OF THE UPS CABINET AND FOUNDATION.

THE UPS CABINET SHALL INCLUDE A GENERATOR POWER PANEL WITH A HEAVY DUTY POWER RELAY VERSUS THE LINE VOLTAGE GENERATOR SWITCH. THE GENERATOR INLET SHALL BE A RECESSED PANEL WITH A DOOR THAT IS FLUSH WITH THE EXTERNAL SIDE OF THE UPS CABINET. IT SHALL INCLUDE A RECESSED PLUG, AUTOMATIC TRANSFER SWITCH, A DOOR THAT SECURELY CLOSES OVER THE POWER CORD, AND AN LED LIGHT THAT INDICATES LINE POWER IS AVAILABLE.

THE UPS OUTPUT NOTIFICATIONS FOR ON BATTERY, BATTERY 2 HOUR TIMER, AND LOW BATTERY-NO LINE POWER SHALL BE WIRED INTO THE TRAFFIC SIGNAL CABINET BACK PANEL TO PROVIDE SPECIAL STATUS ALARMS FOR EACH OUTPUT INTO THE SIGNAL CONTROLLER. SPECIAL STATUS ALARMS SHALL BE PROGRAMMED INTO THE CONTROLLER.

THIS ITEM SHALL INCLUDE A RED LED STATUS INDICATOR LAMP TO ALLOW MAINTENANCE PERSONNEL AND LAW ENFORCEMENT TO QUICKLY ASSESS WHETHER A TRAFFIC SIGNAL CABINET IS BEING POWERED BY A UPS. THE LED HOUSING SHALL BE NEMA 4X, IP65 OR IR66, RATED FOR OUTDOOR USE AND BE TAMPER/ SHATTER RESISTANT. IT SHALL BE A DOMED ENCLOSURE CONTAINING A RED LENS WITH LED THAT IS VISIBLE FROM 100 FEET MINIMUM. THE ENCLOSURE AND LED LAMP UNIT SHALL BE PLACED ON THE STREET-SIDE OF THE CABINET OR CENTERED ON THE TOP SURFACE OF THE UPS CABINET AND SEALED FROM WATER INTRUSION. IT SHOULD BE WIRED USING MINIMUM 20GA STRANDED, INSULATED HOOKUP WIRE TO THE STATUS RELAY OUTPUTS OF THE UPS. THE WIRES SHALL BE TERMINATED BY LUGS AT THE DISPLAY END AND PERMANENTLY LABELED "BACKUP POWER STATUS DISPLAY," WITH WIRE POLARITY INDICATED. THE RED LED SHALL ONLY ILLUMINATE TO INDICATE THE CABINET IS OPERATING UNDER UPS BACKUP POWER (THE "BACKUP" OPERATING CONDITION). THIS ITEM ALSO INCLUDES PROGRAMMING THE UPS STATUS RELAY OUTPUTS TO PRODUCE THE LAMP STATUS DISPLAYS. THESE STATUS DISPLAYS WILL BE SOLID 100% DUTY CYCLE (NOT FLASHING) DISPLAYS. THE OPERATING VOLTAGE OF THE LED LAMP SHALL BE 120V AC UNLESS OTHERWISE INDICATED.

A BATTERY BALANCER SHALL BE FURNISHED AND INSTALLED WITH THE SYSTEM.

THIS ITEM SHALL INCLUDE A 60 MONTH WARRANTY AS REQUIRED PER ODOT CMS AND SUPPLEMENTAL SPEC 800.

PAYMENT FOR "ITEM 633 - UNINTERRUPTIBLE POWER SUPPLY (UPS), 1000 WATT, AS PER PLAN", FOR ALL OPERATIONS DESCRIBED ABOVE SHALL BE AT THE CONTRACT EACH BID PRICE AND SHALL INCLUDE ALL LABOR, MATERIAL AND EQUIPMENT REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY AND WORKMANLIKE MANNER.

ITEM 804 - FIBER TERMINATION PANEL, 12 FIBER, AS PER PLAN

THE CONTRACTOR SHALL FURNISH AND INSTALL ALL MATERIALS PER SUPPLEMENTAL SPECIFICATION 804/904. THE CONTRACTOR SHALL INSTALL A TERMINATION PANEL IN THE PROPOSED SIGNAL CABINET. THE CONTRACTOR SHALL FURNISH AND INSTALL THE CORRECT TYPE OF TERMINATION PANEL PER THE TYPE OF SIGNAL CABINET (NEMA), PER SS 804/904.

ALL FIBER TERMINATIONS WILL BE COMPLETED BY ODOT PERSONNEL.

PAYMENT SHALL BE MADE ONCE THE PANEL IS INSTALLED, TESTED AND FUNCTIONING ACCORDING TO THE PLANS AND SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIAL AND INCIDENTALS TO COMPLETE THE WORK.

PULLED

ITEM 804 - FIBER OPTIC CABLE, MISC.: DISCONNECTION AND STORAGE OF EX. FIBER OPTIC CABLE

THIS ITEM SHALL INCLUDE THE DISCONNECTION OF THE EXISTING FIBER OPTIC CABLES FROM THE TERMINATION PANEL IN THE EX. CONTROLLER CABINET. FIBER OPTIC CABLES SHALL BE PULL BACK OUT OF THE EXISTING TRAFFIC SIGNAL CABINET INTO THE EX. 32" FIBER OPTIC PULL BOX. THE CONTRACTOR SHALL COIL AND STORE THE FIBER OPTIC CABLES WITHIN THE EX. PULL BOX FOR RECONNECTION INTO THE NEW TRAFFIC SIGNAL CABINET BY ODOT PERSONNEL.

THE EXISTING FIBER SHALL NOT BE DISCONNECTED UNTIL THE NEW TRAFFIC SIGNAL CABINET AND CONDUIT CONNECTIONS ARE IN PLACE. THE CONTRACTOR SHALL MAINTAIN POWER/FUNCTIONALITY TO THE ITS CAMERA POLE THROUGHOUT CONSTRUCTION. THE ALLOWABLE DOWNTIME IS 72 HOURS FOR THE CAMERA POLE AND FIBER SERVING IT.

THE CONTRACTOR SHALL COORDINATE WITH THE PROJECT ENGINEER AND THE DISTRICT TRAFFIC ENGINEER 5 WORKING DAYS PRIOR TO THE SCHEDULED DISCONNECTION TO ENSURE ODOT PERSONNEL ARE AVAILABLE TO COMPLETE THE REQUIRED RECONNECTION.

PAYMENT FOR "ITEM 804 - FIBER OPTIC CABLE, MISC.: DISCONNECTION AND STORAGE OF EX. FIBER OPTIC CABLE" SHALL BE AT THE CONTRACT EACH BID PRICE AND SHALL INCLUDE ALL LABOR, MATERIAL AND EQUIPMENT REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY AND WORKMANLIKE MANNER.

ITEM 809 - ETHERNET CABLE, OUTDOOR-RATED

THE CONTRACTOR SHALL FURNISH AND INSTALL THIS ITEM ACCORDING TO ODOT SUPPLEMENTAL SPECIFICATION 809, AS WELL AS ANY STANDARD CONSTRUCTION DRAWINGS NOTED ON THE PLANS.

See note on sheet 5

THE CONTRACTOR SHALL PROVIDE 2-6' AND 2-3' CONNECTORIZED ETHERNET CABLES FOR EACH INTERSECTION CABINET.

PAYMENT FOR "ITEM 809 - ETHERNET CABLE, OUTDOOR-RATED" SHALL BE MADE AT THE CONTRACT UNIT PRICE PER FOOT, COMPLETE AND IN PLACE INCLUDING ALL REQUIRED CONNECTIONS TESTED AND ACCEPTED.

ITEM 809 - ADVANCE RADAR DETECTION

THIS ITEM OF WORK SHALL CONSIST OF FURNISHING AND INSTALLING A WAVETRONIX SMARTSENSOR ADVANCE DETECTION UNIT (MODEL SS-200E). THE DETECTION UNIT SHALL INCLUDE THE FOLLOWING:

1. POWER SHALL BE PROVIDED FROM THE TRAFFIC CABINET.
2. ALL REQUIRED INPUTS CARDS SHALL BE INCLUDED IN THE TRAFFIC CABINET AND SHALL BE COMPATIBLE WITH CALTRANS, NEMA TS1 AND NEMA ~~3.~~ TS2 DETECTOR RACKS. THE CARDS SHALL PROVIDE TRUE PRESENCE DETECTOR CALLS OR CONTACT CLOSURE TO THE TRAFFIC CONTROLLER.
4. THE UNIT SHALL BE MOUNTED DIRECTLY TO A POLE OR BRACKET ARM, AS RECOMMENDED BY THE MANUFACTURER. CABLE(S) SHALL BE PROVIDED AS REQUIRED AND RECOMMENDED BY THE MANUFACTURER.
5. SURGE PROTECTION DEVICES, AS RECOMMENDED BY THE MANUFACTURER SHALL BE INCLUDED BOTH AT THE POLE WHERE THE UNIT IS LOCATED TO PROTECT THE UNIT AND IN THE TRAFFIC CABINET TO PROTECT THE CABINET ELECTRONICS.
6. THE MANUFACTURER'S REPRESENTATIVE SHALL BE ON SITE DURING INSTALLATION AND TESTING AND SHALL PROVIDE ONSITE TRAINING ON THE SETUP, OPERATION AND MAINTENANCE OF THE UNIT.
7. A SERIAL TO ETHERNET COMMUNICATIONS MODULE AND ETHERNET CABLE (MIN. 7 FEET)
8. A CABINET INTERFACE DEVICE SHALL BE PROVIDED THAT SUPPORTS A MINIMUM OF SIX SENSORS OR THE NUMBER OF SENSORS INCLUDED IN THE PLANS, PROVIDES 64 DETECTOR CHANNELS, COMMUNICATES TO THE CONTROLLER THROUGH THE SDLC PORT AND PROVIDES AN ETHERNET PORT FOR NETWORK COMMUNICATIONS.
9. PRIOR TO PROGRAMMING, THE CONTRACTOR SHALL CONTACT THE ODOT DISTRICT 6 DISTRICT TRAFFIC ENGINEER AT 740-833-8198. A DISTRICT 6 TRAFFIC DEPARTMENT REPRESENTATIVE SHALL BE PRESENT DURING THE PROGRAMMING OF THE SYSTEM.

2. All required inputs cards shall be included in the traffic cabinet and shall be compatible with **Caltrans**, **NEMA TS1** and **NEMA TS2** detector racks. The cards shall provide true presence detector calls or contact closure to the traffic controller.
3. The unit shall be mounted directly to a pole or mast arm, as recommended by the manufacturer. Cable(s) shall be provided as required and recommended by the manufacturer.

PAYMENT FOR "ITEM 809 - ADVANCE RADAR DETECTION" SHALL BE MADE AT THE CONTRACT UNIT PRICE FOR EACH UNIT, COMPLETE AND IN PLACE INCLUDING ALL REQUIRED CABINET HARDWARE, MOUNTING BRACKETS, CABLES, CONDUIT, CONNECTIONS TESTED AND ACCEPTED, AND ANY OTHER NECESSARY HARDWARE TO ESTABLISH A FULLY FUNCTIONAL DETECTION SYSTEM.

ITEM 809 - STOP-BAR RADAR DETECTION

THIS ITEM OF WORK SHALL CONSIST OF FURNISHING AND INSTALLING A WAVETRONIX SMARTSENSOR MATRIX DETECTION UNIT. THE DETECTION UNIT SHALL INCLUDE THE FOLLOWING:

1. POWER SHALL BE PROVIDED FROM THE TRAFFIC CABINET.
2. ALL REQUIRED INPUTS CARDS SHALL BE INCLUDED IN THE TRAFFIC CABINET AND SHALL BE COMPATIBLE WITH CALTRANS, NEMA TS1 AND NEMA ~~3.~~ TS2 DETECTOR RACKS. THE CARDS SHALL PROVIDE TRUE PRESENCE DETECTOR CALLS OR CONTACT CLOSURE TO THE TRAFFIC CONTROLLER.
4. THE UNIT SHALL BE MOUNTED DIRECTLY TO A POLE OR BRACKET ARM, AS RECOMMENDED BY THE MANUFACTURER. CABLE(S) SHALL BE PROVIDED AS REQUIRED AND RECOMMENDED BY THE MANUFACTURER.
5. SURGE PROTECTION DEVICES, AS RECOMMENDED BY THE MANUFACTURER SHALL BE INCLUDED BOTH AT THE POLE WHERE THE UNIT IS LOCATED TO PROTECT THE UNIT AND IN THE TRAFFIC CABINET TO PROTECT THE CABINET ELECTRONICS.
6. THE MANUFACTURER'S REPRESENTATIVE SHALL BE ON SITE DURING INSTALLATION AND TESTING AND SHALL PROVIDE ONSITE TRAINING ON THE SETUP, OPERATION AND MAINTENANCE OF THE UNIT.
7. A SERIAL TO ETHERNET COMMUNICATIONS MODULE AND ETHERNET CABLE (MIN. 7 FEET)
8. A CABINET INTERFACE DEVICE SHALL BE PROVIDED THAT SUPPORTS A MINIMUM OF SIX SENSORS OR THE NUMBER OF SENSORS INCLUDED IN THE PLANS, PROVIDES 64 DETECTOR CHANNELS, COMMUNICATES TO THE CONTROLLER THROUGH THE SDLC PORT AND PROVIDES AN ETHERNET PORT FOR NETWORK COMMUNICATIONS.
9. PRIOR TO PROGRAMMING, THE CONTRACTOR SHALL CONTACT THE ODOT DISTRICT 6 DISTRICT TRAFFIC ENGINEER AT 740-833-8198. A DISTRICT 6 TRAFFIC DEPARTMENT REPRESENTATIVE SHALL BE PRESENT DURING THE PROGRAMMING OF THE SYSTEM.

PAYMENT FOR "ITEM 809 - STOP-BAR RADAR DETECTION" SHALL BE MADE AT THE CONTRACT UNIT PRICE FOR EACH UNIT, COMPLETE AND IN PLACE INCLUDING ALL REQUIRED CABINET HARDWARE, MOUNTING BRACKETS, CABLES, CONDUIT AND CONNECTIONS TESTED AND ACCEPTED.

TRAFFIC SIGNAL NOTES

DESIGN AGENCY
PLAN PREPARED BY:
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7288 Central Pointe Blvd.
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DESIGNER
TEC

REVIEWER
MJH 02/12/24

PROJECT ID
117955

SHEET 3 TOTAL 28

FAY-435-1.52

MODEL: CN002 PAPERSIZE: 34x22 (in.) DATE: 2/13/2024 TIME: 9:09:53 AM USER: mike
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ITEM 809 - ATC CONTROLLER, AS PER PLAN (PROGRAM AND INSTALL ONLY)

ALL REQUIREMENTS OF SS 809 SHALL BE FOLLOWED, ALONG WITH THE ADDITIONAL DESCRIPTION AS STATED BELOW. THE ATC CONTROLLER WILL BE PROVIDED BY THE DISTRICT WITHOUT PROGRAMMING.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROGRAMMING THE CONTROLLER. IF AVAILABLE, THE EXISTING CONTROLLER DATA WILL BE PROVIDED TO THE CONTRACTOR BY THE DISTRICT. ODOT WILL NOT BE RESPONSIBLE FOR THE PROGRAMMING. THE EXISTING DATA MAY REQUIRE UPDATES TO REFLECT THE PROPOSED CONDITIONS DESCRIBED IN THE PLANS.

THE CONTROLLER WILL BE A NEMA ECONOLITE COBALT AS LISTED ON THE TRAFFIC AUTHORIZED PRODUCTS LIST (TAP). THE CONTRACTOR SHALL INSURE THAT THE CABINET TYPE BEING INSTALLED BY THE PROJECT IS COMPATIBLE WITH THE PROVIDED CONTROLLER.

PAYMENT SHALL BE MADE ONCE THE CONTROLLER IS PROGRAMMED, INSTALLED, TESTED AND FUNCTIONING ACCORDING TO THE PLANS AND SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIAL AND INCIDENTALS TO COMPLETE THE WORK.

GROUNDING AND BONDING

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THE REQUIREMENTS OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS (CMS) AND THE TC SERIES OF STANDARD CONSTRUCTION DRAWINGS ARE MODIFIED AS FOLLOWS:

1. ALL METALLIC PARTS CONTAINING ELECTRICAL CONDUCTORS SHALL BE PERMANENTLY JOINED TO FORM AN EFFECTIVE GROUND FAULT CURRENT PATH BACK TO THE GROUNDED CONDUCTOR IN THE POWER SERVICE DISCONNECT SWITCH.

A. PROVIDE AN EQUIPMENT GROUNDING CONDUCTOR IN METALLIC CONDUITS (725.04) IN ADDITION TO THE CONDUCTORS SPECIFIED AND BOND THE CONDUIT TO THIS GROUNDING CONDUCTOR.

B. WHEN AN EQUIPMENT GROUNDING CONDUCTOR IS REQUIRED IN PLASTIC CONDUIT (725.05), THE INSTALLATION SHALL INCLUDE A SEPARATE EQUIPMENT GROUNDING CONDUCTOR IN ADDITION TO THE CONDUCTORS SPECIFIED.

C. METALLIC CONDUIT CARRYING THE LOOP WIRES FROM IN THE PAVEMENT TO THE PULL BOX SPLICE LOCATION WILL ONLY BE BONDED AT THE PULL BOX END, AND WILL NOT CONTAIN AN EQUIPMENT GROUNDING CONDUCTOR.

D. IF MULTIPLE CONDUIT RUNS BEGIN AND END AT THE SAME POINTS, ONLY ONE EQUIPMENT GROUNDING CONDUCTOR IS REQUIRED.

E. IF AN EQUIPMENT GROUNDING CONDUCTOR IS NEEDED IN CONDUIT BETWEEN SIGNALIZED INTERSECTIONS FOR UNDERGROUND INTERCONNECT CABLE, THE GROUNDING SYSTEM FOR EACH SIGNALIZED INTERSECTION WILL BE SEPARATED ABOUT MIDWAY BETWEEN THE INTERSECTIONS.

F. THE MESSENGER WIRE AT SIGNALIZED INTERSECTIONS WILL BE USED AS THE CONDUCTIVE PATH FROM CORNER TO CORNER IF CONDUIT IS NOT PROVIDED UNDER THE ROADWAY. WHEN CONDUIT CONNECTS THE CORNERS OF AN INTERSECTION, AN EQUIPMENT GROUNDING CONDUCTOR SHALL BE USED IN THE CONDUIT.

2. CONDUITS.

A. THE 725.04 CONDUIT SHALL HAVE GROUNDING BUSHINGS INSTALLED AT ALL TERMINATION POINTS. THE BUSHING MATERIAL SHALL BE COMPATIBLE WITH GALVANIZED STEEL CONDUIT AND THE GROUNDING LUG MATERIAL SHALL BE COMPATIBLE FOR USE WITH COPPER WIRE. THREADED OR COMPRESSION TYPE BUSHINGS MAY BE USED.

B. THE 725.05 CONDUIT SHALL HAVE THE INSIDE AND OUTSIDE DIAMETERS OF THE CONDUIT DEBURRED AT ALL TERMINATION POINTS.

C. BOTH ENDS OF THE METALLIC CONDUIT SHALL BE BONDED TO THE EQUIPMENT GROUNDING CONDUCTOR.

D. METALLIC CONDUIT MAY BE BONDED TO METALLIC BOXES THROUGH THE USE OF CONDUIT FITTINGS UL APPROVED FOR THIS TYPE OF CONNECTION, WITH THE BOX BONDED TO THE EQUIPMENT GROUNDING CONDUCTOR.

3. WIRING FOR GROUNDING AND BONDING.

A. USE INSULATED, COPPER WIRE FOR THE EQUIPMENT GROUNDING CONDUCTOR. BONDING JUMPERS IN BOXES AND ENCLOSURES MAY BE BARE OR INSULATED COPPER WIRE. WIRE SIZE SHALL BE AS FOLLOWS:

I. USE 4 AWG BETWEEN THE POWER SERVICE AND SUPPORTS, POLES, PEDESTALS, CONTROLLERS OR FLASHER CABINETS.

II. USE A MINIMUM 8 AWG BETWEEN LOOP DETECTOR PULL BOXES AND THE FIRST CONDUIT THAT REQUIRES A LARGER SIZE AS SPECIFIED IN 3.A.I ABOVE.

III. USE A MINIMUM 8 AWG BETWEEN THE "PREPARE TO STOP WHEN FLASHING" INSTALLATION (INCLUDING SUPPORT) AND THE FIRST CONDUIT THAT REQUIRES A LARGER SIZE AS SPECIFIED IN 3.A.I ABOVE.

IV. THE INSULATION SHALL BE GREEN OR GREEN WITH YELLOW STRIPE(S). FOR 4 AWG OR LARGER, INSULATION MAY ALSO BE BLACK WITH GREEN TAPE/LABELS INSTALLED AT ALL ACCESS POINTS.

GROUNDING AND BONDING (CONT'D)

B. IN A HIGHWAY LIGHTING SYSTEM, THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE THE SAME WIRE SIZE AS THE DUCT CABLE OR DISTRIBUTION CABLE CIRCUIT CONDUCTORS, WITH THE MINIMUM CONDUCTOR SIZE OF 4 AWG. BONDING JUMPERS WILL BE MINIMUM SIZE 4 AWG.

4. GROUND ROD.

A. 3/4 INCH SCHEDULE 40 PVC CONDUIT WILL BE USED IN FOUNDATIONS AND CONCRETE WALLS FOR THE GROUNDING CONDUCTOR (GROUND WIRE) RACEWAY TO THE GROUND ROD. SHOULD METALLIC CONDUIT BE USED, BOTH ENDS OF THE CONDUIT SHALL BE BONDED TO THE GROUNDING CONDUCTOR.

B. THE TYPICAL GROUNDING CONDUCTOR (GROUND WIRE) SHALL BE 4 AWG INSULATED, COPPER.

5. THE GREEN CONDUCTOR IN SIGNAL CABLES (CONDUCTOR #4) SHALL NOT BE USED TO SUPPLY POWER TO A SIGNAL INDICATION. IT WILL BE CONNECTED TO THE SIGNAL BODY AS AN EQUIPMENT GROUND IN ALUMINUM HEADS AND IT WILL BE UNUSED IN PLASTIC HEADS. UNUSED CONDUCTORS SHALL BE GROUNDED IN THE CABINET. TYPICAL USE OF CONDUCTORS IS AS FOLLOWS:

COND. NO	COLOR	VEHICLE SIGNAL	PEDESTRIAN SIGNAL
1	BLACK	GREEN BALL	#1 WALK
2	WHITE	AC NEUTRAL	AC NEUTRAL
3	RED	RED BALL	#1 DW/FDW
4	GREEN	EQUIP. GROUND	EQUIP. GROUND
5	ORANGE	YELLOW BALL	#2 DW/FDW
6	BLUE	GREEN ARROW	#2 WALK
7	WHITE/BLACK STRIPE	YELLOW ARROW	NOT USED

6. POWER SERVICE AND DISCONNECT SWITCH.

A. AT THE POWER SERVICE LOCATION, THE GROUNDING CONDUCTOR (GROUND WIRE) FROM THE DISCONNECT SWITCH NEUTRAL (AC-) BAR TO THE GROUND ROD SHALL BE A CONTINUOUS, UNSPLICED CONDUCTOR. IF SPLICED, IT SHALL BE AN EXOTHERMIC WELD BUTT SPLICE.

B. THE SERVICE NEUTRAL (AC-) SHALL ONLY BE CONNECTED TO GROUND AT THE PRIMARY POWER SERVICE DISCONNECT SWITCH.

I. NEMA CONTROLLER CABINETS: IF A POWER SERVICE DISCONNECT SWITCH IS LOCATED BEFORE THE CONTROLLER CABINET, THE NEUTRAL (AC-) AND THE GROUNDING BARS IN THE CONTROLLER CABINET SHALL NOT BE CONNECTED TOGETHER AS SHOWN IN NEMA TS-2, FIGURE 5-4.

II. IF SECONDARY DISCONNECT SWITCHES ARE CONNECTED AFTER THE PRIMARY DISCONNECT SWITCH, THE NEUTRAL (AC-) SHALL ONLY BE GROUNDED AT THE PRIMARY SWITCH. EQUIPMENT GROUNDING CONDUCTORS SHALL BE BROUGHT TO THE PRIMARY SWITCH, BUT SHALL BE GROUNDED AT BOTH SECONDARY AND PRIMARY SWITCHES.

7. PAYMENT - ALL MATERIALS AND WORK REQUIRED TO COMPLETE THE EFFECTIVE GROUND FAULT CURRENT PATH SYSTEM ARE INCIDENTAL TO THE CONDUCTORS INSTALLED BY CONTRACT.

TRAFFIC SIGNAL NOTES

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REVIEWER
MJH 02/12/24

PROJECT ID
117955

SHEET 4 TOTAL 28

FAY-435-1.52

MODEL: CN003 PAPERSIZE: 34x22 (in.) DATE: 2/13/2024 TIME: 9:09:56 AM USER: mike
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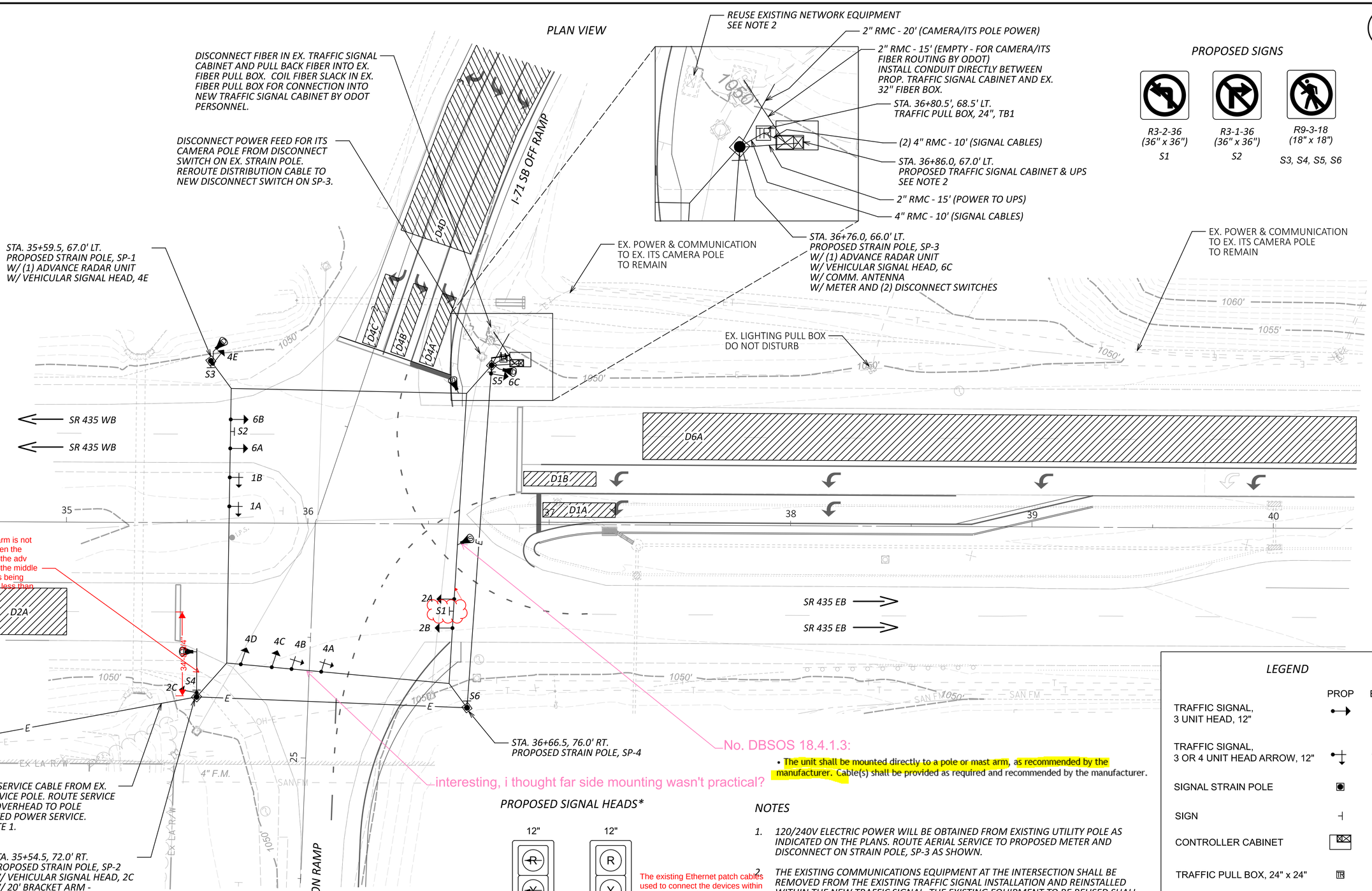
PLAN VIEW



PROPOSED SIGNS

R3-2-36 (36" x 36") S1

R3-1-36 (36" x 36") S2

R9-3-18 (18" x 18") S3, S4, S5, S6

No. DBSOS 18.4.1.3:

- The unit shall be mounted directly to a pole or mast arm, as recommended by the manufacturer. Cable(s) shall be provided as required and recommended by the manufacturer.

interesting, i thought far side mounting wasn't practical?

PROPOSED SIGNAL HEADS*

1A ,1B, 4A, 4B

2A, 2B, 2C, 4C, 4D, 4E, 6A, 6B, 6C

The existing Ethernet patch cables used to connect the devices within the cabinet can be reused. I expect that the existing outdoor rated Ethernet cable between the cabinet and Ubiquity radio will not be reusable (too short, damaged,etc.)

* - VEHICLE SIGNAL HEADS INCLUDE BACKPLATES

NOTES

1. 120/240V ELECTRIC POWER WILL BE OBTAINED FROM EXISTING UTILITY POLE AS INDICATED ON THE PLANS. ROUTE AERIAL SERVICE TO PROPOSED METER AND DISCONNECT ON STRAIN POLE, SP-3 AS SHOWN.
2. THE EXISTING COMMUNICATIONS EQUIPMENT AT THE INTERSECTION SHALL BE REMOVED FROM THE EXISTING TRAFFIC SIGNAL INSTALLATION AND REINSTALLED WITHIN THE NEW TRAFFIC SIGNAL. THE EXISTING EQUIPMENT TO BE REUSED SHALL INCLUDE THE EXISTING CELL MODEM, UBIQUITY ETHERNET RADIO AND ASSOCIATED CABLES/ANTENNAS, AND THE EXISTING ETHERNET SWITCH. PROVIDE NEW OUTDOOR RATED ETHERNET CABLES (2-6' & 2-3') FOR DEVICE CONNECTIONS.
3. LOCATION OF CONDUIT RUNS SHOWN ON THE DRAWING ARE APPROXIMATE. MAINTAIN 36" HORIZONTAL AND 12" VERTICAL CLEARANCE FROM WATER AND GAS LINES. FIELD ADJUST AS NEEDED.
4. ALL CONDUIT SHALL BE INSTALLED IN OPEN-CUT TRENCH.

LEGEND

	PROP	EXIST
TRAFFIC SIGNAL, 3 UNIT HEAD, 12"		
TRAFFIC SIGNAL, 3 OR 4 UNIT HEAD ARROW, 12"		
SIGNAL STRAIN POLE		
SIGN		
CONTROLLER CABINET		
TRAFFIC PULL BOX, 24" x 24"	TB	TB
ADVANCE RADAR DETECTION UNIT	D	D
STOP LINE RADAR DETECTION UNIT	S	S
DETECTION ZONE		

HORIZONTAL SCALE IN FEET
0 10 20 40

TRAFFIC SIGNAL PLAN
SR-435 & I-71 SB RAMPS

DESIGN AGENCY
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DESIGNER: TEC
REVIEWER: MJH 02/12/24
PROJECT ID: 117955
SHEET: 5 TOTAL: 28

FAY-435-1.52

MODEL: CP001 PAPERSIZE: 34x22 (in.) DATE: 2/13/2024 TIME: 9:10:06 AM USER: mike
\\10.1.2.4\projects\2023 Projects\23068 Palmer Engineering\002 FAY-435-1.52\117955\400-Engineering\Signals\Sheets\117955_CP.dgn

SIGNAL TIMING CHART

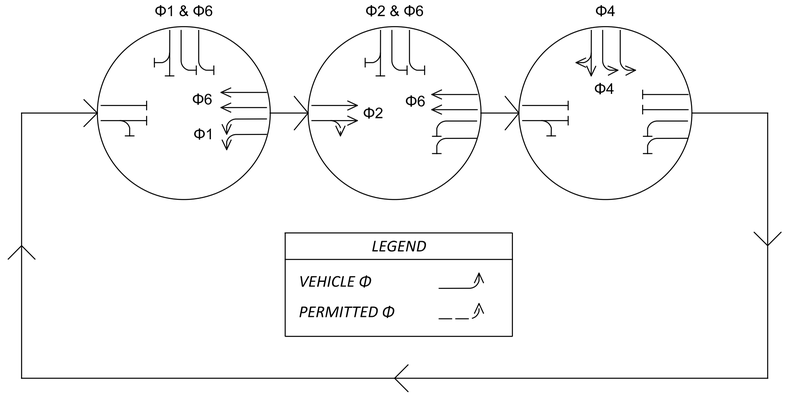
INTERSECTION: SR 435 & I-71 SB RAMPS MAINTAINING AGENCY: ODOT									
START UP START IN: ALL RED FLASH TIME FOR FLASH, ALL RED: 5 SEC FIRST PHASE(S): 2 & 6 COLOR DISPLAYED: GREEN			DUAL ENTRY: ON		PHASES:		2 & 6		
			REST IN RED:		RING 1	-	RING 2	-	
			OVERLAP			-	-	-	-
			PHASES			-	-	-	-
INTERVAL OR FEATURE			CONTROLLER MOVEMENT NO.						
INTERSECTION MOVEMENT (PHASE)			1	2	3	4	5	6	7	8
DIRECTION			WBL	EB	-	SB	-	WB	-	-
MINIMUM GREEN (INITIAL)		(SEC.)	10	20	-	10	-	20	-	-
ADDED INITIAL		*(SEC./ACTUATION)	-	-	-	-	-	-	-	-
MAXIMUM INITIAL		*(SEC.)	-	-	-	-	-	-	-	-
PASSAGE TIME (PRESET GAP)		(SEC.)	-	-	-	-	-	-	-	-
TIME BEFORE REDUCTION		*(SEC.)	-	-	-	-	-	-	-	-
MINIMUM GAP		*(SEC.)	3	1	-	4	-	1	-	-
TIME TO REDUCE		*(SEC.)	-	-	-	-	-	-	-	-
MAXIMUM GREEN I		(SEC.)	25	60	-	40	-	60	-	-
MAXIMUM GREEN II		(SEC.)	25	60	-	40	-	60	-	-
YELLOW CHANGE		(SEC.)	3.2	4.1	-	4.8	-	4.1	-	-
ALL RED CLEARANCE		(SEC.)	2.9	1.3	-	1.0	-	1.3	-	-
WALK		(SEC.)	-	-	-	-	-	-	-	-
PEDESTRIAN CLEARANCE		(SEC.)	-	-	-	-	-	-	-	-
RECALL	MAXIMUM	(ON/OFF)	OFF	OFF	-	OFF	-	OFF	-	-
	MINIMUM	(ON/OFF)	OFF	ON	-	OFF	-	ON	-	-
	PEDESTRIAN	(ON/OFF)	OFF	OFF	-	OFF	-	OFF	-	-
MEMORY		(ON/OFF)	-	-	-	-	-	-	-	-

COORDINATION TIMING

	INTERSECTION - SR 435 & I-71 SB RAMP								OFFSET 1 (SEC)	OFFSET 2 (SEC)
PHASE	1	2	3	4	5	6	7	8		
DIRECTION	WBL	EB	_	SB	_	WB	_	_		
PLAN NO.	SPLITS (G+Y+AR) IN SECONDS									
10	32	41	_	37	_	73	_	_	35	_
20	29	30	_	31	_	59	_	_	79	_
30	36	36	_	38	_	72	_	_	15	_
60	44	36	_	40	_	80	_	_	18	_
21	50	30	_	50	_	80	_	_	83	_

DAY(S) OF WEEK	PLAN NAME	HOURS	PLAN NO.	CYCLE LENGTH (SEC)
MON-FRI	FREE	00:00-06:00	100	-
	AM PLAN	06:00-09:00	10	110
	MIDDAY	09:00-15:30	20	90
	PM PLAN	15:30-18:30	30	110
	FREE	18:30-00:00	100	-
SAT-SUN	FREE	00:00-10:00	100	-
	MIDDAY	10:00-18:00	60	-
	FREE	18:00-00:00	100	120
BLACK FRIDAY	FREE	00:00-10:00	100	-
	MIDDAY	10:00-22:00	21	130
	FREE	22:00-00:00	100	-

SIGNAL PHASING DIAGRAM



FIELD WIRING HOOK-UP CHART

SIGNAL HEAD	INDICATION	FIELD TERMINAL	FLASH
1A, 1B (WB LT)	<--R---	Φ 1R	R
	<--Y---	Φ 1Y	
	<--G---	Φ 1G	
2A, 2B, 2C (EB)	R	Φ 2R	R
	Y	Φ 2Y	
	G	Φ 2G	
4A, 4B (SB LT)	<--R---	Φ 4R	R
	<--Y---	Φ 4Y	
	<--G---	Φ 4G	
4C, 4D, 4E (SB)	R	Φ 4R	R
	Y	Φ 4Y	
	G	Φ 4G	
6A, 6B, 6C (WB)	R	Φ 6R	R
	Y	Φ 6Y	
	G	Φ 6G	

DETECTOR TABLE

DETECTION ZONE	MOVEMENT	PULSE OR PRESENCE	ASSOCIATED PHASE	LOCK/ NON-LOCK	EXTEND (SEC)	DELAY IN CONTROLLER (SEC)	DELAY INHIBIT PHASE	PURPOSE	DETECTION ZONE LENGTH (FT)
D1A	WB LT	PRESENCE	1	NON-LOCK	0	0	1	CALL/EXTEND PHASE 1	30
D1B	WB LT	PRESENCE	1	NON-LOCK	0	0	1	CALL/EXTEND PHASE 1	30
D2A	EB ADV	PRESENCE	2	NON-LOCK	0	0	2	EXTEND PHASE 2	ADVANCE
D4A	SB LT	PRESENCE	4	NON-LOCK	0	0	4	CALL/EXTEND PHASE 4	30
D4B	SB LT	PRESENCE	4	NON-LOCK	0	0	4	CALL/EXTEND PHASE 4	30
D4C	SB RT	PRESENCE	4	NON-LOCK	0	0	4	CALL/EXTEND PHASE 4	30
D4D	SB ADV	PRESENCE	4	NON-LOCK	0	0	4	EXTEND PHASE 4	ADVANCE
D6A	WB ADV	PRESENCE	6	NON-LOCK	0	0	6	EXTEND PHASE 6	ADVANCE

TRAFFIC SIGNAL PLAN DETAILS
SR-435 & I-71 SB RAMPS

DESIGN AGENCY
PLAN PREPARED BY:
TEC Engineering, Inc.
7288 Central Parke Blvd.
Mason, OH 45040

DESIGNER TEC
REVIEWER MJH 02/12/24
PROJECT ID 117955
SHEET 6 TOTAL 28

FAY-435-1.52

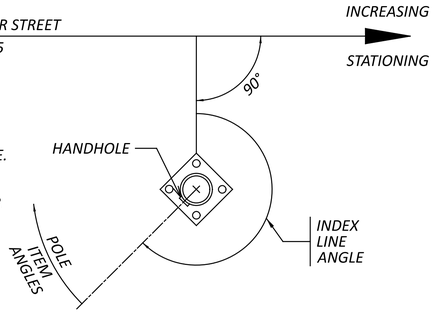
STRAIN POLE DETAILS

REFERENCE SHEET NO.*	POLE NO.	STATION*	OFFSET*	DESIGN NO. (TC-81.11)	POLE HEIGHT (FT.)	FOUNDATION ELEVATION*	SPAN WIRE ATTACHMENT HEIGHT*	CABLE ENTRANCE DISTANCE FROM TOP (IN.)	STRAIN POLE INDEX LINE ANGLE (DEG.)	POLE ITEM ANGLES (DEG.) FROM INDEX LINE							
										POWER SERVICE METER & DISCONNECT	CABLE ENTRANCE	BRACKET ARM (TRUSS ARM, HIGH RISE)	SUPPLEMENTAL SIGNAL HEAD	RADAR DETECTION UNIT	COMMUNICATIONS ANTENNA	POLE MOUNTED SIGN	-
-	SP-1	35+59.5	67.0' LT.	12	33.0	1050.43	31.0	12"	143	-	180	-	170	80	-	217	-
-	SP-2	35+54.5	72.0' RT.	12	38.0	1050.50	32.5	54"	221	-	180	139	139	-	-	139	-
-	SP-3	36+76.0	66.0' LT.	12	32.0	1050.71	30.0	12"	221	270	180	-	139	49	315	139	-
-	SP-4	36+66.5	76.0' RT.	12	34.5	1048.55	32.5	12"	143	-	180	-	-	-	-	217	-

* SEE TEM SECTION 441-8

The height of SP-2 can be reduced if Bracket arm is removed per note on Sht 5.

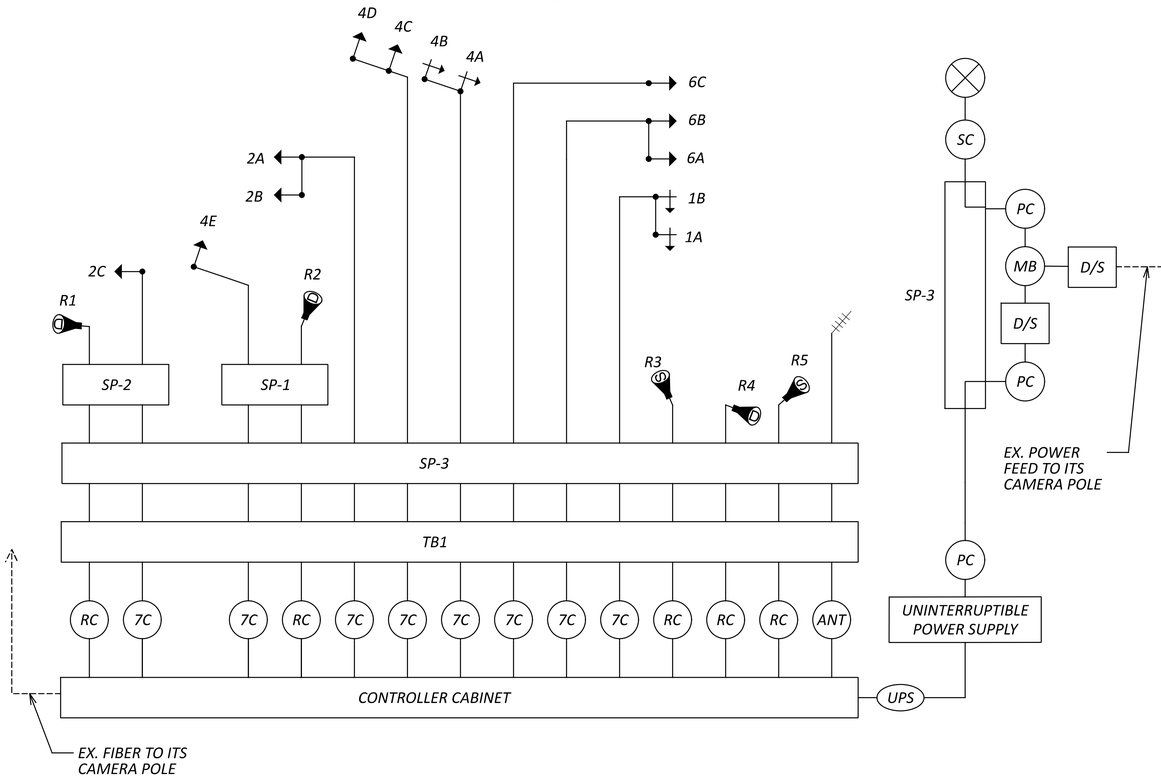
STRAIN POLE ORIENTATION



NOTES

1. ALL ANGLES ARE MEASURED CLOCKWISE.
2. THE INDEX LINE GOES THROUGH THE CENTER OF THE HANDHOLE.

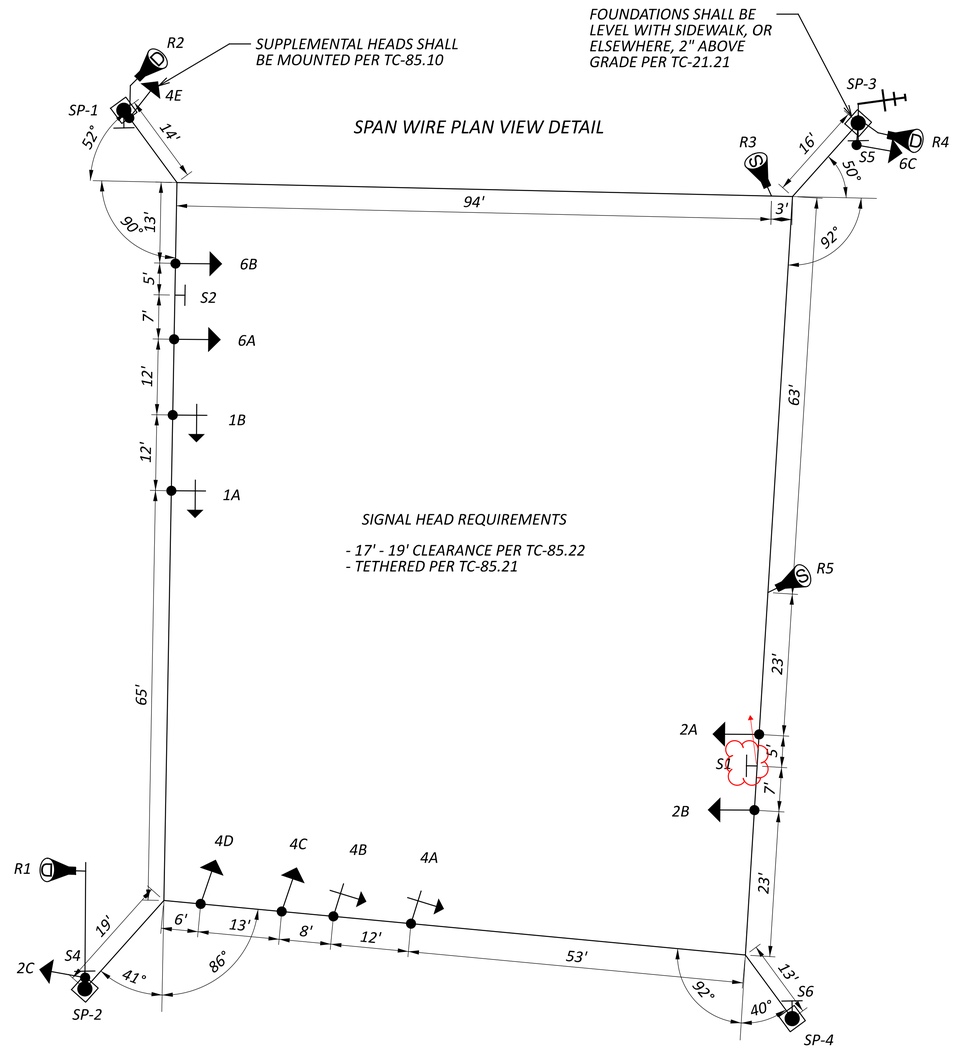
WIRING DIAGRAM



WIRING DIAGRAM LEGEND

3-SECTION VEHICULAR SIGNAL HEAD, 1-WAY		#C	SIGNAL CABLE, # CONDUCTOR, NO. 14 AWG
3-SECTION VEHICULAR SIGNAL HEAD, 1-WAY, ARROWS		RC	RADAR DETECTION CABLE
STOP LINE RADAR DETECTOR UNIT	S		POWER SOURCE
ADVANCE RADAR DETECTOR UNIT	D	PC SC	POWER CABLE, (3) 1C-NO. 6 AWG SERVICE CABLE, 3C-NO.6 AWG
SIGNAL SUPPORT POLE, NO. __	SP-#	ANT	COMM. ANTENNA CABLE
SIGNAL DISCONNECT SWITCH	D/S	UPS	UPS CABLE
RADIO ANTENNA (REUSE EXISTING)		MB	METER BASE

SPAN WIRE PLAN VIEW DETAIL



TRAFFIC SIGNAL PLAN DETAILS
SR-435 & I-71 SB RAMPS

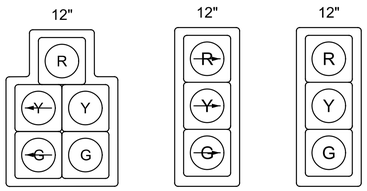
FAY-435-1.52

MODEL: CP003 PAPERSIZE: 34x22 (in.) DATE: 2/13/2024 TIME: 9:10:20 AM USER: mike
\\10.1.2.4\projects\2023 Projects\23068 Palmer Engineering\002 FAY-435-1.52\117955\400-Engineering\Signals\Sheets\117955_CP.dgn

DESIGN AGENCY
PLAN PREPARED BY:
TEC Engineering, Inc.
7388 Central Parke Blvd.
Mason, OH 45040

DESIGNER TEC
REVIEWER MJH 02/12/24
PROJECT ID 117955
SHEET 7 TOTAL 28

PROPOSED SIGNAL HEADS*



* - VEHICLE SIGNAL HEADS INCLUDE BACKPLATES

interesting, i thought far side mounting wasn't practical?

No. Follow DBSOS 18.4.1.3.

STA. 43+37.0, 72.0' LT.
PROPOSED STRAIN POLE, SP-1

STA. 44+49.5, 95.5' LT.
PROPOSED STRAIN POLE, SP-3
W/ VEHICULAR SIGNAL HEAD, 6D
W/ 20' BRACKET ARM - (1) ADVANCE RADAR UNIT

AERIAL SERVICE CABLE FROM EX. AES SERVICE POLE. ROUTE SERVICE CABLE OVERHEAD TO POLE MOUNTED POWER SERVICE. SEE NOTE 1.

AES SERVICE POLE
SIGNAL POWER SOURCE

I-71 NB ON RAMP

SR 435 WB

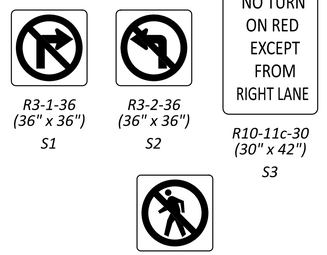
SR 435 WB

SR 435 EB

SR 435 EB

I-71 NB OFF RAMP

PROPOSED SIGNS



R3-1-36 (36" x 36") S1

R3-2-36 (36" x 36") S2

R10-11c-30 (30" x 42") S3

R9-3-18 (18" x 18")

S4, S5, S6, S7

REUSE EXISTING NETWORK EQUIPMENT
SEE NOTE 2

2" RMC - 15' (POWER TO UPS)

STA. 43+15.0, 88.0' RT.
PROPOSED TRAFFIC CABINET & UPS
SEE NOTE 2

(2) 4" RMC - 10' (SIGNAL CABLES)

STA. 43+23.0, 82.0' RT.
PROPOSED STRAIN POLE, SP-2
W/ (1) ADVANCE RADAR UNIT
W/ VEHICULAR SIGNAL HEAD, 2D
W/ COMM. ANTENNA(S)
W/ METER AND DISCONNECT SWITCH

4" RMC - 10' (SIGNAL CABLES)

STA. 43+22.0, 88.0' RT.
TRAFFIC PULL BOX, 24", TB1

STA. 44+43.0, 68.5' RT.
PROPOSED STRAIN POLE, SP-4
W/ (1) ADVANCE RADAR UNIT
W/ VEHICULAR SIGNAL HEAD, 8C

NOTES

1. 120/240V ELECTRIC POWER WILL BE OBTAINED FROM EXISTING UTILITY POLE AS INDICATED ON THE PLANS. ROUTE AERIAL SERVICE TO PROPOSED METER AND DISCONNECT ON STRAIN POLE, SP-2 AS SHOWN.
2. THE EXISTING COMMUNICATIONS EQUIPMENT AT THE INTERSECTION SHALL BE REMOVED FROM THE EXISTING TRAFFIC SIGNAL INSTALLATION AND REINSTALLED WITHIN THE NEW TRAFFIC SIGNAL. THE EXISTING EQUIPMENT TO BE REUSED SHALL INCLUDE THE UBIQUITY ETHERNET RADIO AND ASSOCIATED CABLES/ANTENNAS, AND THE EXISTING ETHERNET SWITCH. PROVIDE NEW OUTDOOR RATED ETHERNET CABLES (2-6' & 2-3') FOR DEVICE CONNECTIONS.
3. LOCATION OF CONDUIT RUNS SHOWN ON THE DRAWING ARE APPROXIMATE. MAINTAIN 36" HORIZONTAL AND 12" VERTICAL CLEARANCE FROM WATER AND GAS LINES. FIELD ADJUST AS NEEDED.
4. ALL CONDUIT SHALL BE INSTALLED IN OPEN-CUT TRENCH.

LEGEND

	PROP	EXIST
TRAFFIC SIGNAL, 3 UNIT HEAD, 12"		
TRAFFIC SIGNAL, 3 OR 4 UNIT HEAD ARROW, 12"		
TRAFFIC SIGNAL, 4 OR 5 UNIT HEAD, 12"		
SIGNAL STRAIN POLE		
SIGN		
CONTROLLER CABINET		
TRAFFIC PULL BOX, 24" x 24"	TB	TB
ADVANCE RADAR DETECTION UNIT	D	D
STOP LINE RADAR DETECTION UNIT	S	S
DETECTION ZONE		

HORIZONTAL SCALE IN FEET
0 10 20 40

TRAFFIC SIGNAL PLAN
SR-435 & I-71 NB RAMPS

DESIGN AGENCY
PLAN PREPARED BY:
TEC Engineering, Inc.
7286 Central Parke Blvd.
Mason, OH 45040

DESIGNER: TEC
REVIEWER: MJH 02/12/24
PROJECT ID: 117955
SHEET: 8 TOTAL: 28

FAY-435-1.52

MODEL: CP004 PAPERSIZE: 34x22 (in.) DATE: 2/13/2024 TIME: 9:10:21 AM USER: mike
\\10.1.2.4\projects\2023 Projects\23068 Palmer Engineering\002 FAY-435-1.52\117955\400-Engineering\Signals\Sheets\117955_CP.dgn

SIGNAL TIMING CHART

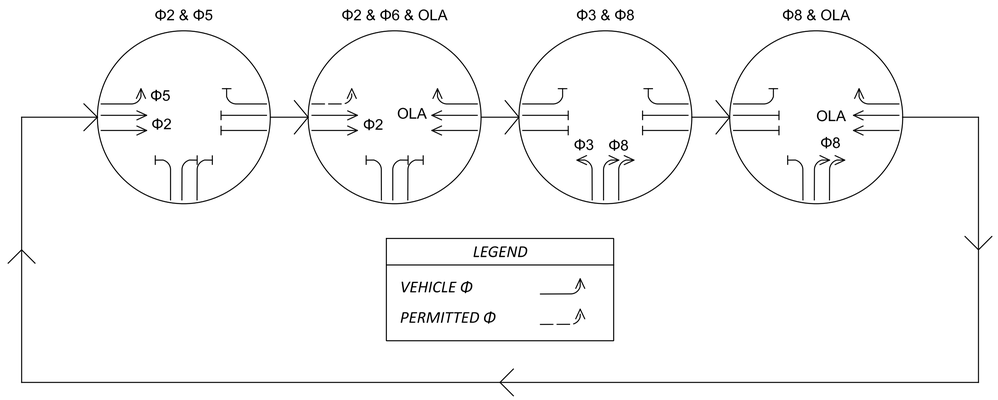
INTERSECTION: SR 435 & I-71 NB RAMPS MAINTAINING AGENCY: ODOT									
START UP START IN: ALL RED FLASH TIME FOR FLASH, ALL RED: 5 SEC FIRST PHASE(S): 2 & 6 COLOR DISPLAYED: GREEN			DUAL ENTRY: ON		PHASES:		2 & 6		
			REST IN RED:		RING 1	-	RING 2	-	
			OVERLAP		A	-	-	-	
			PHASES		6 & 8	-	-	-	
INTERVAL OR FEATURE			CONTROLLER MOVEMENT NO.						
INTERSECTION MOVEMENT (PHASE)			1	2	3	4	5	6	7	8
DIRECTION			-	EB	NBL	-	EBL	WB	-	NBR
MINIMUM GREEN (INITIAL)		(SEC.)	-	20	10	-	10	20	-	10
ADDED INITIAL		*(SEC./ACTUATION)	-	-	-	-	-	-	-	-
MAXIMUM INITIAL		*(SEC.)	-	-	-	-	-	-	-	-
PASSAGE TIME (PRESET GAP)		(SEC.)	-	-	-	-	-	-	-	-
TIME BEFORE REDUCTION		*(SEC.)	-	-	-	-	-	-	-	-
MINIMUM GAP		*(SEC.)	-	2	4	-	3	2	-	4
TIME TO REDUCE		*(SEC.)	-	-	-	-	-	-	-	-
MAXIMUM GREEN I		(SEC.)	-	60	20	-	20	60	-	40
MAXIMUM GREEN II		(SEC.)	-	60	20	-	20	60	-	40
YELLOW CHANGE		(SEC.)	-	4.1	3.9	-	3.2	4.1	-	4.8
ALL RED CLEARANCE		(SEC.)	-	1.3	2.7	-	3.0	1.3	-	1.0
WALK		(SEC.)	-	-	-	-	-	-	-	-
PEDESTRIAN CLEARANCE		(SEC.)	-	-	-	-	-	-	-	-
RECALL	MAXIMUM	(ON/OFF)	-	OFF	OFF	-	OFF	OFF	-	OFF
	MINIMUM	(ON/OFF)	-	ON	OFF	-	OFF	ON	-	OFF
	PEDESTRIAN	(ON/OFF)	-	OFF	OFF	-	OFF	OFF	-	OFF
MEMORY		(ON/OFF)	-	-	-	-	-	-	-	-

COORDINATION TIMING

	INTERSECTION - SR 435 & I-71 NB RAMP								OFFSET 1 (SEC)	OFFSET 2 (SEC)
PHASE	1	2	3	4	5	6	7	8		
DIRECTION	_	EB	NBL	_	EBL	WB	_	NBR		
PLAN NO.	SPLITS (G+Y+AR) IN SECONDS									
10	_	68	17	_	20	48	_	42	14	_
20	_	54	17	_	20	34	_	36	22	_
30	_	66	17	_	20	46	_	44	5	_
60	_	76	17	_	22	54	_	44	6	_
21	_	80	17	_	25	55	_	50	4	_

DAY(S) OF WEEK	PLAN NAME	HOURS	PLAN NO.	CYCLE LENGTH (SEC)
MON-FRI	FREE	00:00-06:00	100	-
	AM PLAN	06:00-09:00	10	110
	MIDDAY	09:00-15:30	20	90
	PM PLAN	15:30-18:30	30	110
	FREE	18:30-00:00	100	-
SAT-SUN	FREE	00:00-10:00	100	-
	MIDDAY	10:00-18:00	60	-
	FREE	18:00-00:00	100	120
BLACK FRIDAY	FREE	00:00-10:00	100	-
	MIDDAY	10:00-22:00	21	130
	FREE	22:00-00:00	100	-

SIGNAL PHASING DIAGRAM



FIELD WIRING HOOK-UP CHART

SIGNAL HEAD	INDICATION	FIELD TERMINAL	FLASH
2A (EB LT)	R	Φ 2R	R
	Y	Φ 2Y	
	G	Φ 2G	
	<--Y---	Φ 5Y	
	<--G---	Φ 5G	
2B, 2C, 2D (EB)	R	Φ 2R	R
	Y	Φ 2Y	
	G	Φ 2G	
6A, 6B, 6C, 6D (WB)	R	OLA R/LS 13	R
	Y	OLA Y/LS 13	
	G	OLA G/LS 13	
3A, 3B (NB)	R	Φ 3R	R
	Y	Φ 3Y	
	G	Φ 3G	
8A, 8B, 8C (NB RT)	--R-->	Φ 8R	R
	--Y-->	Φ 8Y	
	--G-->	Φ 8G	

DETECTOR TABLE

DETECTION ZONE	MOVEMENT	PULSE OR PRESENCE	ASSOCIATED PHASE	LOCK/ NON-LOCK	EXTEND (SEC)	DELAY IN CONTROLLER (SEC)	DELAY INHIBIT PHASE	PURPOSE	DETECTION ZONE LENGTH (FT)
D2A	EB ADV	PRESENCE	2	NON-LOCK	0	0	2	EXTEND PHASE 2	ADVANCE
D3A	NB LT	PRESENCE	3	NON-LOCK	0	0	3	CALL/EXTEND PHASE 3	30
D5A	EB LT	PRESENCE	5	NON-LOCK	0	0	5	CALL/EXTEND PHASE 5	30
D6A	WB ADV	PRESENCE	6	NON-LOCK	0	0	6	EXTEND PHASE 6	ADVANCE
D8A	NB RT	PRESENCE	8	NON-LOCK	0	0	8	CALL/EXTEND PHASE 8	30
D8B	NB RT	PRESENCE	8	NON-LOCK	0	0	8	CALL/EXTEND PHASE 8	30
D8C	NB ADV	PRESENCE	8	NON-LOCK	0	0	8	EXTEND PHASE 8	ADVANCE

TRAFFIC SIGNAL PLAN DETAILS
SR-435 & I-71 NB RAMPS

DESIGN AGENCY
PLAN PREPARED BY:
TEC Engineering, Inc.
7288 Central Parke Blvd.
Mason, OH 45040

DESIGNER TEC
REVIEWER MJH 02/12/24
PROJECT ID 117955
SHEET 9 TOTAL 28

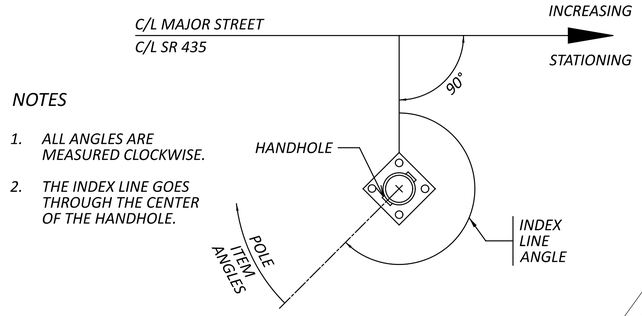
FAY-435-1.52

STRAIN POLE DETAILS

REFERENCE SHEET NO.*	POLE NO.	STATION*	OFFSET*	DESIGN NO. (TC-81.11)	POLE HEIGHT (FT.)	FOUNDATION ELEVATION*	SPAN WIRE ATTACHMENT HEIGHT*	CABLE ENTRANCE DISTANCE FROM TOP (IN.)	STRAIN POLE INDEX LINE ANGLE (DEG.)	POLE ITEM ANGLES (DEG.) FROM INDEX LINE							
										POWER SERVICE METER & DISCONNECT	CABLE ENTRANCE	BRACKET ARM (HIGH-RISE, TRUSS ARM)	SUPPLEMENTAL SIGNAL HEAD	RADAR DETECTION UNIT	COMMUNICATIONS ANTENNA	POLE MOUNTED SIGN	-
-	SP-1	43+37.0	72.0' LT.	12	32.5	1052.27	30.5	12"	143	-	180	-	-	-	-	217	-
-	SP-2	43+23.0	82.0' RT.	12	34.5	1052.08	32.5	12"	215	235	180	-	145	55	325	145	-
-	SP-3	44+49.5	95.5' LT.	12	39.0	1053.77	33.5	54"	215	-	180	145	145	-	-	145	-
-	SP-4	44+43.0	68.5' RT.	12	33.5	1053.14	31.5	12"	143	-	180	-	165	75	-	217	-

* SEE TEM SECTION 441-8

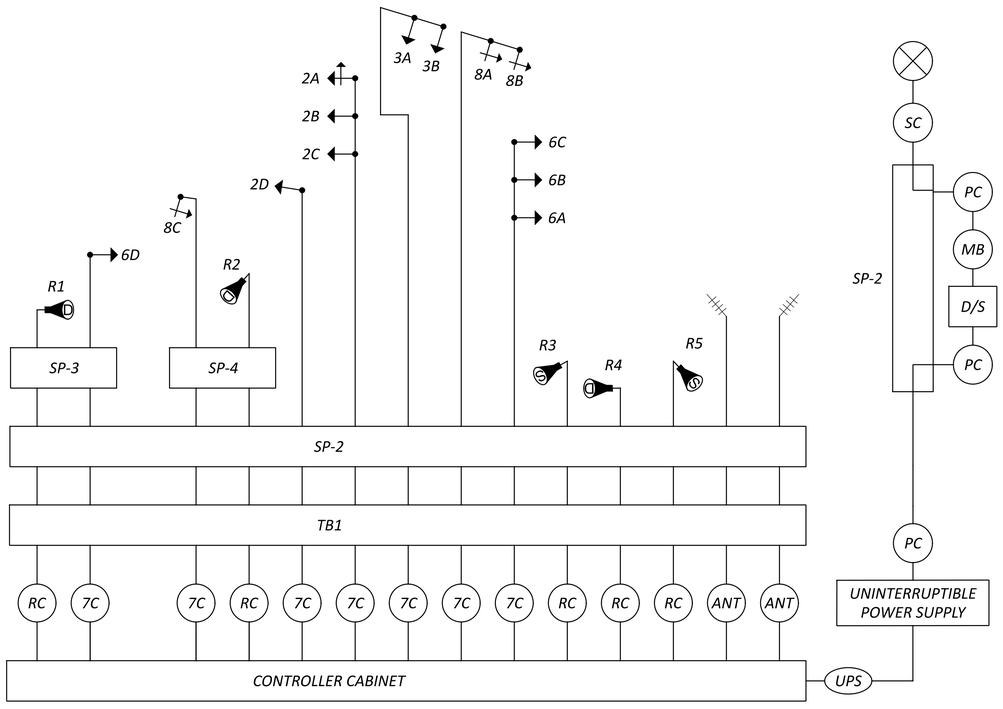
STRAIN POLE ORIENTATION



NOTES

1. ALL ANGLES ARE MEASURED CLOCKWISE.
2. THE INDEX LINE GOES THROUGH THE CENTER OF THE HANDHOLE.

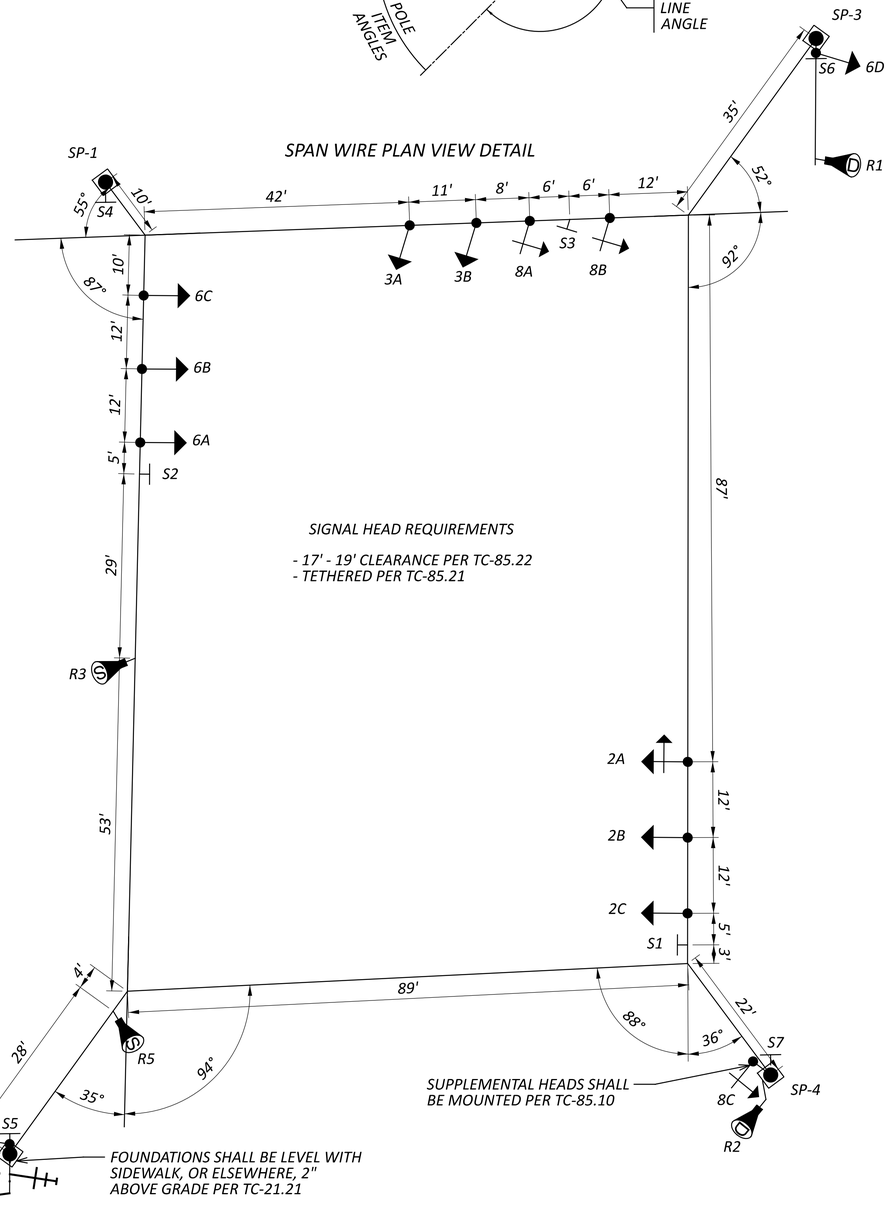
WIRING DIAGRAM



WIRING DIAGRAM LEGEND

3-SECTION VEHICULAR SIGNAL HEAD, 1-WAY		#C	SIGNAL CABLE, # CONDUCTOR, NO. 14 AWG
3-SECTION VEHICULAR SIGNAL HEAD, 1-WAY, ARROWS		RC	RADAR DETECTION CABLE
STOP LINE RADAR DETECTOR UNIT			POWER SOURCE
ADVANCE RADAR DETECTOR UNIT		PC SC	POWER CABLE, (3) 1C-NO. 6 AWG SERVICE CABLE, 3C-NO.6 AWG
SP-#	SIGNAL SUPPORT POLE, NO. __	ANT	COMM. ANTENNA CABLE
D/S	SIGNAL DISCONNECT SWITCH	UPS	UPS CABLE
	RADIO ANTENNA (REUSE EXISTING)	MB	METER BASE

SPAN WIRE PLAN VIEW DETAIL



SIGNAL HEAD REQUIREMENTS

- 17' - 19' CLEARANCE PER TC-85.22
- TETHERED PER TC-85.21

FOUNDATIONS SHALL BE LEVEL WITH SIDEWALK, OR ELSEWHERE, 2" ABOVE GRADE PER TC-21.21

SUPPLEMENTAL HEADS SHALL BE MOUNTED PER TC-85.10

TRAFFIC SIGNAL PLAN DETAILS
SR-435 & I-71 NB RAMPS

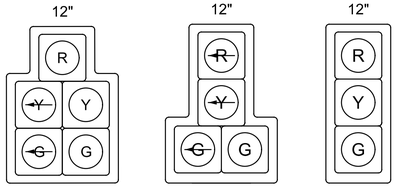
DESIGN AGENCY
PLAN PREPARED BY:
TEC Engineering, Inc.
7288 Central Parke Blvd.
Mason, OH 45040

DESIGNER: TEC
REVIEWER: MJH 02/12/24
PROJECT ID: 117955
SHEET: 10 TOTAL: 28

FAY-435-1.52

MODEL: CP006 PAPERSIZE: 34x22 (in.) DATE: 2/13/2024 TIME: 9:10:23 AM USER: mike
\\10.1.2.4\projects\2023 Projects\23068 Palmer Engineering\002 FAY-435-1.52\117955\400-Engineering\Signals\Sheets\117955_CP.dgn

PROPOSED SIGNAL HEADS*



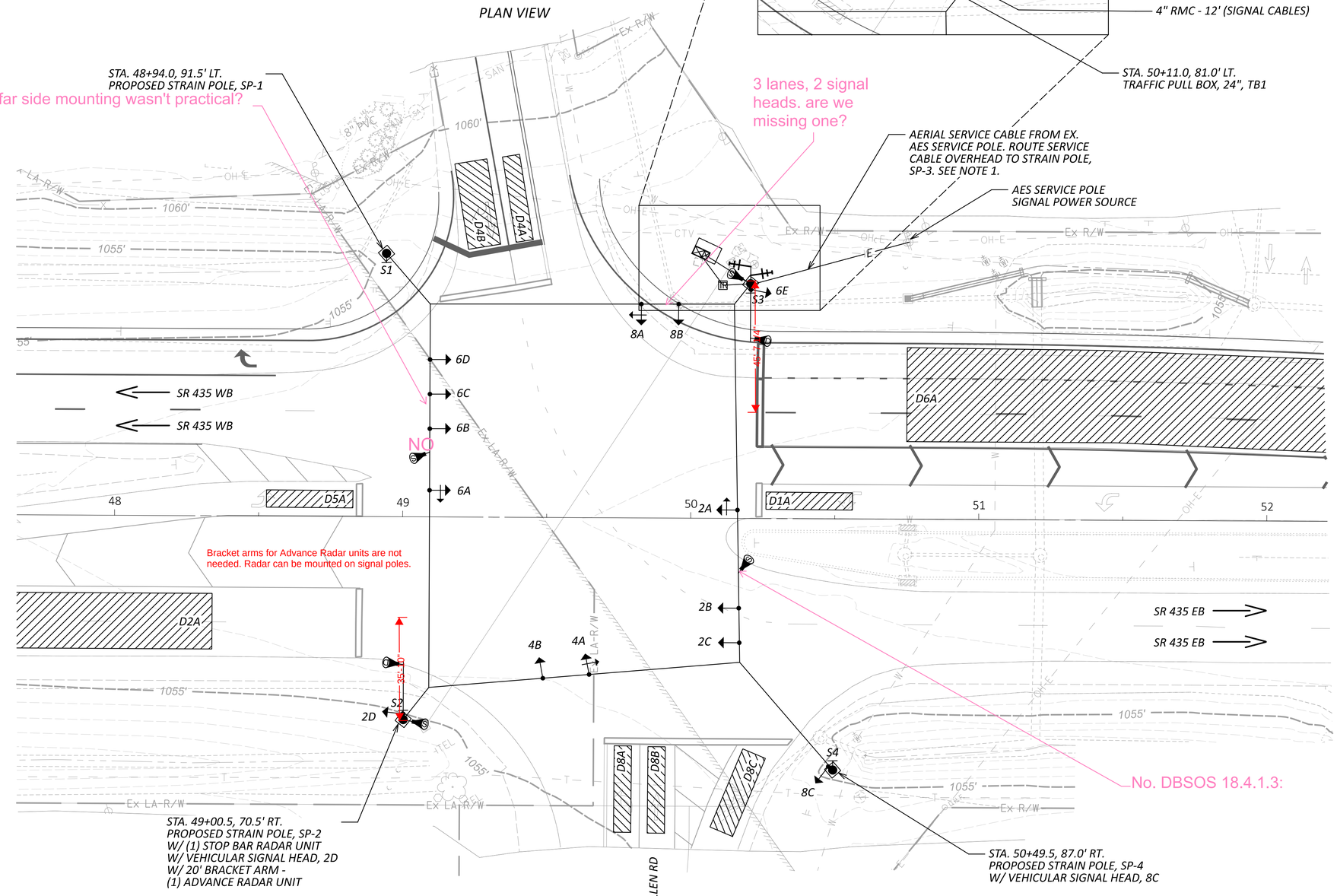
* - VEHICLE SIGNAL HEADS INCLUDE BACKPLATES

PROPOSED SIGNS

R9-3-18
(18" x 18")

S1, S2, S3, S4

PLAN VIEW



NOTES

1. 120/240V ELECTRIC POWER WILL BE OBTAINED FROM EXISTING UTILITY POLE AS INDICATED ON THE PLANS. ROUTE AERIAL SERVICE TO PROPOSED METER AND DISCONNECT ON STRAIN POLE, SP-3, AS SHOWN.
2. THE EXISTING COMMUNICATIONS EQUIPMENT AT THE INTERSECTION SHALL BE REMOVED FROM THE EXISTING TRAFFIC SIGNAL INSTALLATION AND REINSTALLED WITHIN THE NEW TRAFFIC SIGNAL. THE EXISTING EQUIPMENT TO BE REUSED SHALL INCLUDE THE UBIQUITY ETHERNET RADIO AND ASSOCIATED CABLES/ANTENNAS, AND THE EXISTING ETHERNET SWITCH. PROVIDE NEW OUTDOOR RATED ETHERNET CABLES (2-6' & 2-3') FOR DEVICE CONNECTIONS.
3. LOCATION OF CONDUIT RUNS SHOWN ON THE DRAWING ARE APPROXIMATE. MAINTAIN 36" HORIZONTAL AND 12" VERTICAL CLEARANCE FROM WATER AND GAS LINES. FIELD ADJUST AS NEEDED.
4. ALL CONDUIT SHALL BE INSTALLED IN OPEN-CUT TRENCH.

LEGEND

	PROP	EXIST
TRAFFIC SIGNAL, 3 UNIT HEAD, 12"		
TRAFFIC SIGNAL, 4 OR 5 UNIT HEAD, 12"		
SIGNAL STRAIN POLE		
SIGN		
CONTROLLER CABINET		
TRAFFIC PULL BOX, 24" x 24"		
ADVANCE RADAR DETECTION UNIT		
STOP LINE RADAR DETECTION UNIT		
DETECTION ZONE		

HORIZONTAL SCALE IN FEET
0 10 20 40

TRAFFIC SIGNAL PLAN
SR-435 & ALLEN ROAD

DESIGN AGENCY
PLAN PREPARED BY:
TEC Engineering, Inc.
7286 Central Parke Blvd.
Mason, OH 45040

DESIGNER: TEC
REVIEWER: MJH 02/12/24
PROJECT ID: 117955
SHEET: 11 TOTAL: 28

FAY-435-1.52

MODEL: CP007 PAPERSIZE: 34x22 (in.) DATE: 2/13/2024 TIME: 9:10:24 AM USER: mike
\\10.1.2.4\projects\2023 Projects\23068 Palmer Engineering\002 FAY-435-1.52\117955\400-Engineering\Signals\Sheets\117955_CP.dgn

SIGNAL TIMING CHART

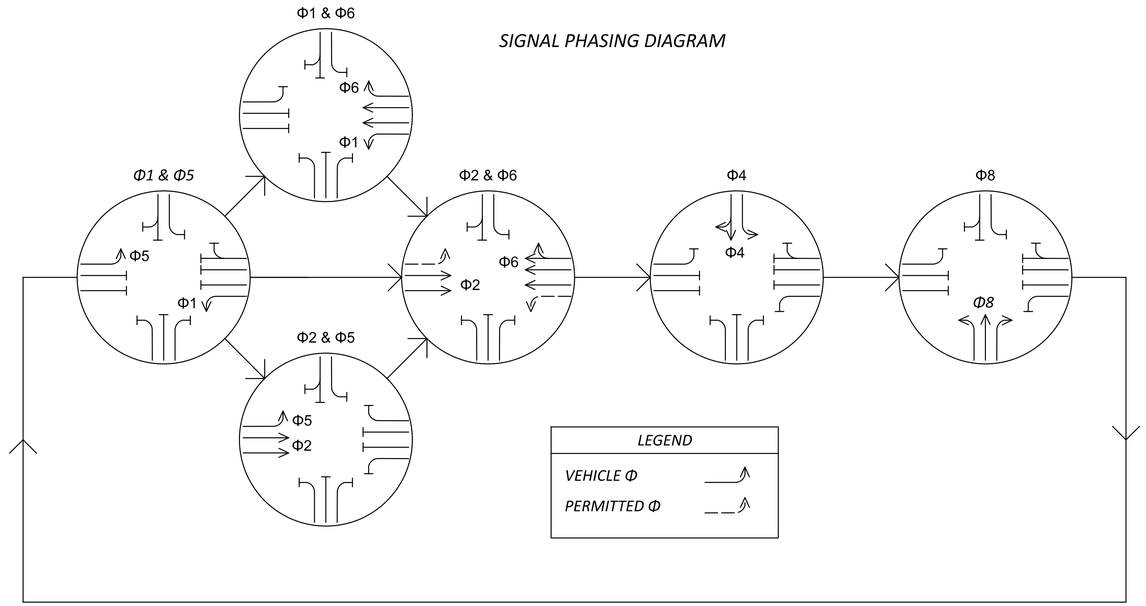
INTERSECTION: SR 435 & ALLEN ROAD MAINTAINING AGENCY: ODOT									
START UP START IN: ALL RED FLASH TIME FOR FLASH, ALL RED: 5 SEC FIRST PHASE(S): 2 & 6 COLOR DISPLAYED: GREEN			DUAL ENTRY: ON		PHASES:		2 & 6		
			REST IN RED:		RING 1	-	RING 2	-	
			OVERLAP			-	-	-	-
			PHASES			-	-	-	-
INTERVAL OR FEATURE			CONTROLLER MOVEMENT NO.						
INTERSECTION MOVEMENT (PHASE)			1	2	3	4	5	6	7	8
DIRECTION			WBL	EB	-	SB	EBL	WB	-	NB
MINIMUM GREEN (INITIAL)		(SEC.)	8	28	-	10	8	21	-	10
ADDED INITIAL		*(SEC./ACTUATION)	-	-	-	-	-	-	-	-
MAXIMUM INITIAL		*(SEC.)	-	-	-	-	-	-	-	-
PASSAGE TIME (PRESET GAP)		(SEC.)	-	-	-	-	-	-	-	-
TIME BEFORE REDUCTION		*(SEC.)	-	-	-	-	-	-	-	-
MINIMUM GAP		*(SEC.)	3	2	-	3	3	2	-	3
TIME TO REDUCE		*(SEC.)	-	-	-	-	-	-	-	-
MAXIMUM GREEN I		(SEC.)	20	50	-	21	20	50	-	21
MAXIMUM GREEN II		(SEC.)	20	50	-	21	20	50	-	21
YELLOW CHANGE		(SEC.)	3.2	4.1	-	3.4	3.2	4.1	-	4.1
ALL RED CLEARANCE		(SEC.)	2.5	1.8	-	2.3	2.5	1.8	-	1.5
WALK		(SEC.)	-	-	-	-	-	-	-	-
PEDESTRIAN CLEARANCE		(SEC.)	-	-	-	-	-	-	-	-
RECALL	MAXIMUM	(ON/OFF)	OFF	OFF	-	OFF	OFF	OFF	-	OFF
	MINIMUM	(ON/OFF)	OFF	ON	-	OFF	OFF	ON	-	OFF
	PEDESTRIAN	(ON/OFF)	OFF	OFF	-	OFF	OFF	OFF	-	OFF
MEMORY		(ON/OFF)	-	-	-	-	-	-	-	-

COORDINATION TIMING

	INTERSECTION - SR 435 & ALLEN ROAD								OFFSET 1 (SEC)	OFFSET 2 (SEC)
PHASE	1	2	3	4	5	6	7	8		
DIRECTION	WBL	EB	_	SB	EBL	WB	_	NB		
PLAN NO.	SPLITS (G+Y+AR) IN SECONDS									
10	17	34	_	35	17	34	_	24	0	_
20	16	34	_	20	18	32	_	20	0	_
30	16	34	_	20	18	32	_	20	0	_
60	18	35	_	46	26	27	_	21	0	_
21	19	38	_	52	30	27	_	21	0	_

DAY(S) OF WEEK	PLAN NAME	HOURS	PLAN NO.	CYCLE LENGTH (SEC)
MON-FRI	FREE	00:00-06:00	100	-
	AM PLAN	06:00-09:00	10	110
	MIDDAY	09:00-15:30	20	90
	PM PLAN	15:30-18:30	30	110
	FREE	18:30-00:00	100	-
SAT-SUN	FREE	00:00-10:00	100	
	MIDDAY	10:00-18:00	60	
	FREE	18:00-00:00	100	120
BLACK FRIDAY	FREE	00:00-10:00	100	
	MIDDAY	10:00-22:00	21	130
	FREE	22:00-00:00	100	-

SIGNAL PHASING DIAGRAM



FIELD WIRING HOOK-UP CHART

SIGNAL HEAD	INDICATION	FIELD TERMINAL	FLASH	SIGNAL HEAD	INDICATION	FIELD TERMINAL	FLASH
2A (EB LT)	R	Φ 2R	R	6A (WB LT)	R	Φ 6R	R
	Y	Φ 2Y			Y	Φ 6Y	
	G	Φ 2G			G	Φ 6G	
	<--Y---	Φ 5Y			<--Y---	Φ 1Y	
	<--G---	Φ 5G			<--G---	Φ 1G	
2B, 2C, 2D (EB)	R	Φ 2R	R	6B, 6C, 6D, 6E (WB)	R	Φ 6R	R
	Y	Φ 2Y			Y	Φ 6Y	
	G	Φ 2G			G	Φ 6G	
4A (SB LT)	R	Φ 4R	R	8A (NB LT)	R	Φ 8R	R
	Y	Φ 4Y			Y	Φ 8Y	
	G	Φ 4G			G	Φ 8G	
	<--G---	Φ 4G			<--G---	Φ 8G	
4B (SB)	R	Φ 4R	R	8B, 8C (NB)	R	Φ 8R	R
	Y	Φ 4Y			Y	Φ 8Y	
	G	Φ 4G			G	Φ 8G	

DETECTOR TABLE

DETECTION ZONE	MOVEMENT	PULSE OR PRESENCE	ASSOCIATED PHASE	LOCK/ NON-LOCK	EXTEND (SEC)	DELAY IN CONTROLLER (SEC)	DELAY INHIBIT PHASE	PURPOSE	DETECTION ZONE LENGTH (FT)
D1A	WB LT	PRESENCE	1	NON-LOCK	0	0	1	CALL/EXTEND PHASE 1	30
D2A	EB ADV	PRESENCE	2	NON-LOCK	0	0	2	EXTEND PHASE 2	ADVANCE
D4A	SB LT	PRESENCE	4	NON-LOCK	0	0	4	CALL/EXTEND PHASE 4	30
D4B	SB	PRESENCE	4	NON-LOCK	0	0	4	CALL/EXTEND PHASE 4	30
D5A	EB LT	PRESENCE	5	NON-LOCK	0	0	5	CALL/EXTEND PHASE 5	30
D6A	WB ADV	PRESENCE	6	NON-LOCK	0	0	6	EXTEND PHASE 6	ADVANCE
D8A	NB LT	PRESENCE	8	NON-LOCK	0	0	8	CALL/EXTEND PHASE 8	30
D8B	NB	PRESENCE	8	NON-LOCK	0	0	8	CALL/EXTEND PHASE 8	30
D8C	NB RT	PRESENCE	8	NON-LOCK	0	0	8	CALL/EXTEND PHASE 8	30

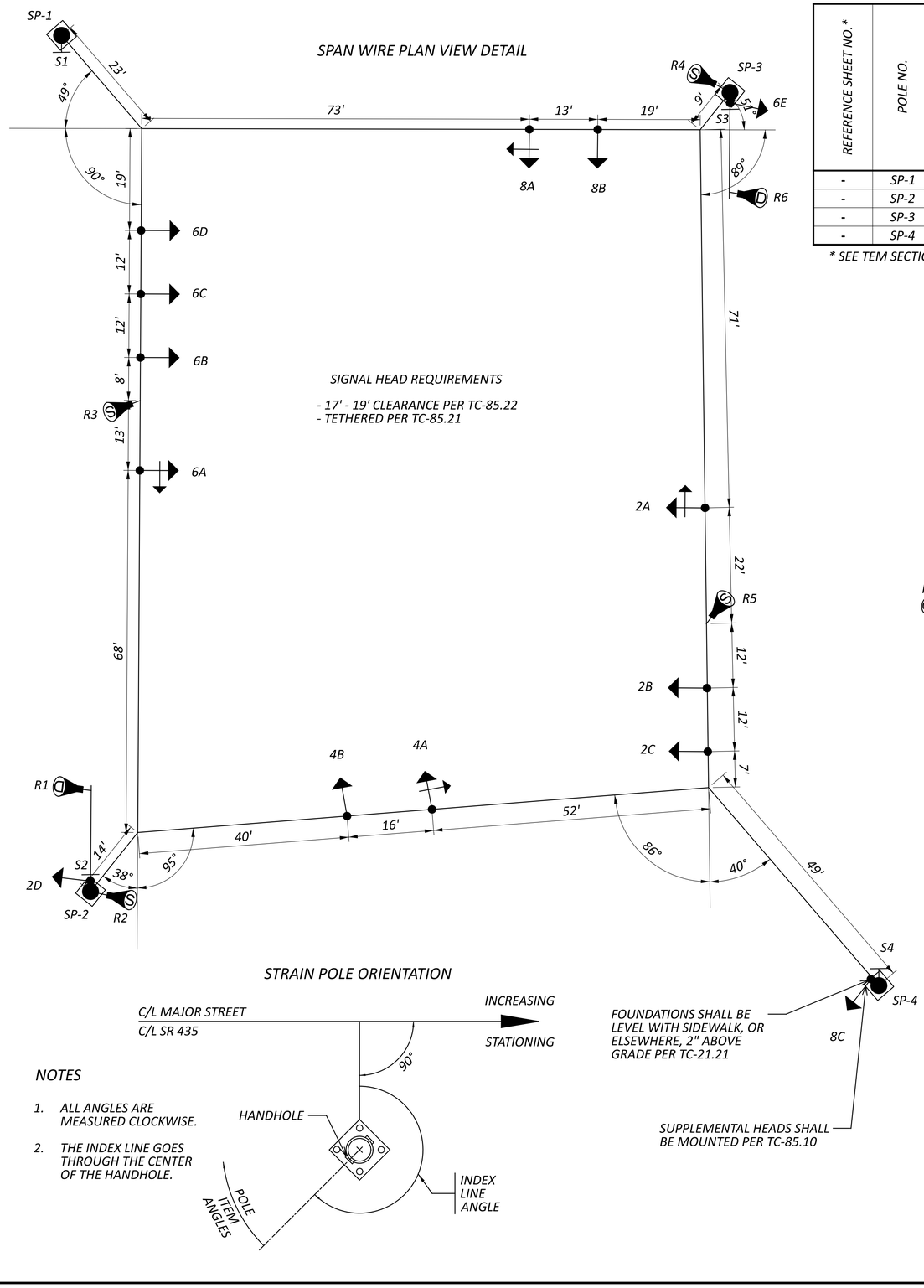
TRAFFIC SIGNAL PLAN DETAILS
SR-435 & ALLEN ROAD

DESIGN AGENCY
PLAN PREPARED BY:
TEC Consulting, Inc.
7288 Central Parke Blvd.
Mason, OH 45040

DESIGNER TEC
REVIEWER MJH 02/12/24
PROJECT ID 117955
SHEET 12 TOTAL 28

FAY-435-1.52

SPAN WIRE PLAN VIEW DETAIL



SIGNAL HEAD REQUIREMENTS

- 17' - 19' CLEARANCE PER TC-85.22
- TETHERED PER TC-85.21

STRAIN POLE ORIENTATION

FOUNDATIONS SHALL BE LEVEL WITH SIDEWALK, OR ELSEWHERE, 2" ABOVE GRADE PER TC-21.21

SUPPLEMENTAL HEADS SHALL BE MOUNTED PER TC-85.10

NOTES

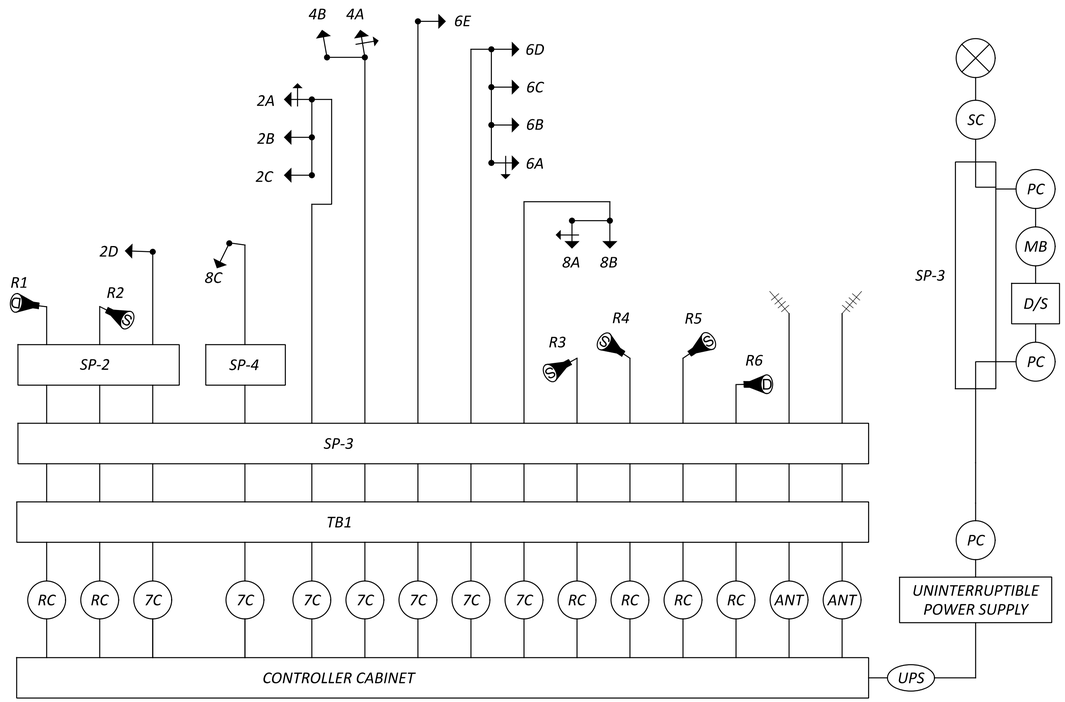
1. ALL ANGLES ARE MEASURED CLOCKWISE.
2. THE INDEX LINE GOES THROUGH THE CENTER OF THE HANDHOLE.

STRAIN POLE DETAILS

REFERENCE SHEET NO. *	POLE NO.	STATION*	OFFSET*	DESIGN NO. (TC-81.11)	POLE HEIGHT (FT.)	FOUNDATION ELEVATION*	SPAN WIRE ATTACHMENT HEIGHT*	CABLE ENTRANCE DISTANCE FROM TOP (IN.)	STRAIN POLE INDEX LINE ANGLE (DEG.)	POLE ITEM ANGLES (DEG.) FROM INDEX LINE							
										POWER SERVICE METER & DISCONNECT	CABLE ENTRANCE	BRACKET ARM (HIGH-RISE, TRUSS ARM)	SUPPLEMENTAL SIGNAL HEAD	RADAR DETECTION UNIT	COMMUNICATIONS ANTENNA	POLE MOUNTED SIGN	-
-	SP-1	48+94.0	91.5' LT.	13	33.0	1056.17	31.0	12"	139	-	180	-	-	-	-	221	-
-	SP-2	49+00.5	70.5' RT.	13	36.0	1054.93	30.5	54"	218	-	180	142	142	245	-	142	-
-	SP-3	50+20.5	81.5' LT.	13	34.0	1056.47	28.5	54"	218	270	180	142	142	259	45	142	-
-	SP-4	50+49.5	87.0' RT.	13	38.5	1054.61	36.5	12"	139	-	180	-	170	-	-	221	-

* SEE TEM SECTION 441-8

WIRING DIAGRAM



WIRING DIAGRAM LEGEND

3-SECTION VEHICULAR SIGNAL HEAD, 1-WAY		#C	SIGNAL CABLE, # CONDUCTOR, NO. 14 AWG
3-SECTION VEHICULAR SIGNAL HEAD, 1-WAY, ARROWS		RC	RADAR DETECTION CABLE
S	STOP LINE RADAR DETECTOR UNIT		POWER SOURCE
D	ADVANCE RADAR DETECTOR UNIT	PC SC	POWER CABLE, (3) 1C-NO. 6 AWG SERVICE CABLE, 3C-NO.6 AWG
SP-#	SIGNAL SUPPORT POLE, NO. __	ANT	COMM. ANTENNA CABLE
D/S	SIGNAL DISCONNECT SWITCH	UPS	UPS CABLE
	RADIO ANTENNA (REUSE EXISTING)	MB	METER BASE

TRAFFIC SIGNAL PLAN DETAILS
SR-435 & ALLEN ROAD

FAY-435-1.52

MODEL: CP009 PAPERSIZE: 34x22 (in.) DATE: 2/13/2024 TIME: 9:10:25 AM USER: mike
\\10.1.2.4\projects\2023 Projects\23068 Palmer Engineering\002 FAY-435-1.52\117955\400-Engineering\Signals\Sheets\117955_CP.dgn

DESIGN AGENCY
PLAN PREPARED BY:
TEC Engineering, Inc.
7288 Central Park Blvd.
Mason, OH 45040

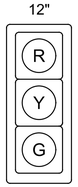
DESIGNER
TEC

REVIEWER
MJH 02/12/24

PROJECT ID
117955

SHEET 13 TOTAL 28

PROPOSED SIGNAL HEADS*



2A, 2B, 2C,
6A, 6B, 6C,
8A, 8B, 8C, 8D

* - VEHICLE SIGNAL HEADS INCLUDE BACKPLATES

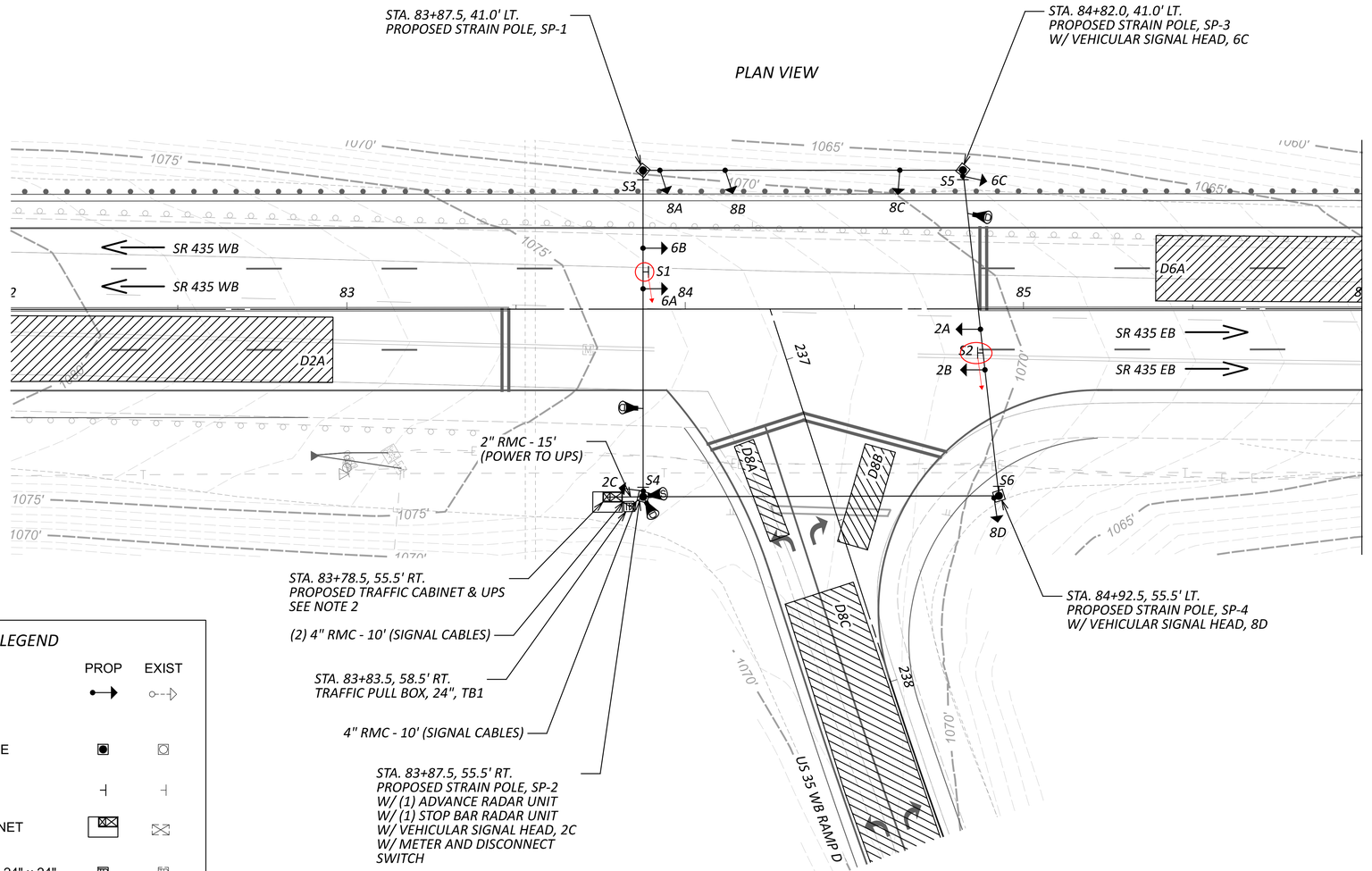
PROPOSED SIGNS

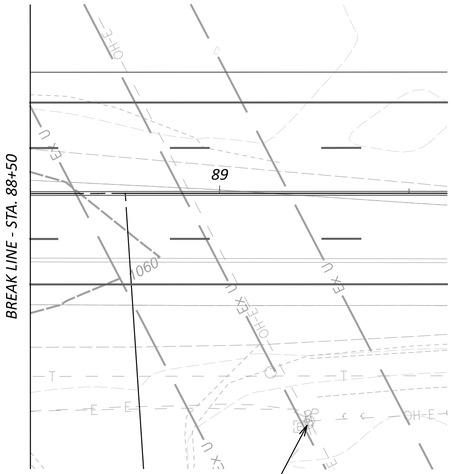
R3-2-36
(36" x 36")
S1

R3-1-36
(36" x 36")
S2

R9-3-18
(18" x 18")
S3, S4, S5, S6

PLAN VIEW





LEGEND

	PROP	EXIST
TRAFFIC SIGNAL, 3 UNIT HEAD, 12"	●→	○→
SIGNAL STRAIN POLE	■	□
SIGN	⊣	⊣
CONTROLLER CABINET	⊠	⊠
TRAFFIC PULL BOX, 24" x 24"	TB	TB
ADVANCE RADAR DETECTION UNIT	D	D
STOP LINE RADAR DETECTION UNIT	S	S
DETECTION ZONE	▨	

NOTES

1. 120/240V ELECTRIC POWER WILL BE OBTAINED FROM EXISTING UTILITY POLE AS INDICATED ON THE PLANS. ROUTE AERIAL SERVICE TO PROPOSED METER AND DISCONNECT MOUNTED ON SIGNAL SUPPORT, SP-2.
2. THE CABINET SHALL INCLUDE A CDMA MODEM (SIERRA WIRLESS AIRLINK MP70 MODEL CONFIGURED FOR THE AT&T NETWORK), A 3-IN-1 SHARKFIN CELLULAR ANTENNA, AND AN ETHERNET SWITCH (COMTROL ROCKETLINX ES8108). PROVIDE NEW OUTDOOR RATED ETHERNET CABLES (2-6' & 2-3') FOR DEVICE CONNECTIONS.
3. LOCATION OF CONDUIT RUNS SHOWN ON THE DRAWING ARE APPROXIMATE. MAINTAIN 36" HORIZONTAL AND 12" VERTICAL CLEARANCE FROM WATER AND GAS LINES. FIELD ADJUST AS NEEDED.
4. ALL CONDUIT SHALL BE INSTALLED IN OPEN-CUT TRENCH.

HORIZONTAL SCALE IN FEET
0 10 20 40

TRAFFIC SIGNAL PLAN
SR-435 & US 35 WB RAMP D

DESIGN AGENCY
PLAN PREPARED BY:
TEC Consulting, Inc.
7286 Central Parke Blvd.
Mason, OH 45040

DESIGNER: TEC
REVIEWER: MJH 02/12/24
PROJECT ID: 117955
SHEET: 14 TOTAL: 28

FAY-435-1.52

MODEL: CP010 PAPERSIZE: 34x22 (in.) DATE: 2/13/2024 TIME: 9:10:26 AM USER: mike
\\10.1.2.4\projects\2023 Projects\23068 Palmer Engineering\002 FAY-435-1.52\117955\400-Engineering\Signals\Sheets\117955_CP.dgn

SIGNAL TIMING CHART

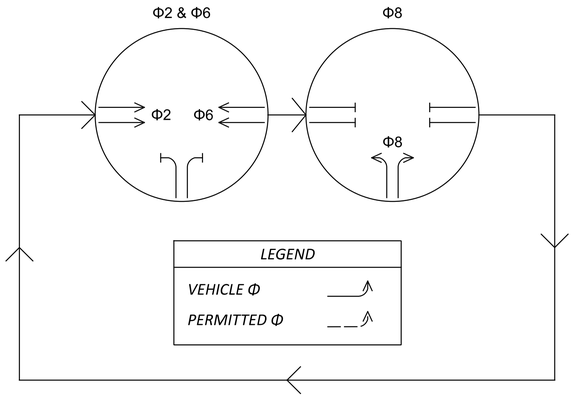
INTERSECTION: SR 435 & US 35 WB RAMP D MAINTAINING AGENCY: ODOT									
START UP START IN: ALL RED FLASH TIME FOR FLASH, ALL RED: 5 SEC FIRST PHASE(S): 2 & 6 COLOR DISPLAYED: GREEN			DUAL ENTRY: ON		PHASES:		2 & 6		
			REST IN RED:		RING 1	-	RING 2	-	
			OVERLAP			-	-	-	-
			PHASES			-	-	-	-
INTERVAL OR FEATURE			CONTROLLER MOVEMENT NO.						
INTERSECTION MOVEMENT (PHASE)			1	2	3	4	5	6	7	8
DIRECTION			-	EB	-	-	-	WB	-	NB
MINIMUM GREEN (INITIAL)		(SEC.)	-	23	-	-	-	20	-	10
ADDED INITIAL		*(SEC./ACTUATION)	-	-	-	-	-	-	-	-
MAXIMUM INITIAL		*(SEC.)	-	-	-	-	-	-	-	-
PASSAGE TIME (PRESET GAP)		(SEC.)	-	-	-	-	-	-	-	-
TIME BEFORE REDUCTION		*(SEC.)	-	-	-	-	-	-	-	-
MINIMUM GAP		*(SEC.)	-	2	-	-	-	2	-	4
TIME TO REDUCE		*(SEC.)	-	-	-	-	-	-	-	-
MAXIMUM GREEN I		(SEC.)	-	60	-	-	-	60	-	40
MAXIMUM GREEN II		(SEC.)	-	60	-	-	-	60	-	40
YELLOW CHANGE		(SEC.)	-	5.6	-	-	-	5.6	-	4.8
ALL RED CLEARANCE		(SEC.)	-	1.0	-	-	-	1.0	-	1.0
WALK		(SEC.)	-	-	-	-	-	-	-	-
PEDESTRIAN CLEARANCE		(SEC.)	-	-	-	-	-	-	-	-
RECALL	MAXIMUM	(ON/OFF)	-	OFF	-	-	-	OFF	-	OFF
	MINIMUM	(ON/OFF)	-	ON	-	-	-	ON	-	OFF
	PEDESTRIAN	(ON/OFF)	-	OFF	-	-	-	OFF	-	OFF
MEMORY		(ON/OFF)	-	-	-	-	-	-	-	-

COORDINATION TIMING

	INTERSECTION - SR 435 & US 35 WB RAMP D								OFFSET 1 (SEC)	OFFSET 2 (SEC)
PHASE	1	2	3	4	5	6	7	8		
DIRECTION	-	EB	-	-	-	WB	-	NB		
PLAN NO.	SPLITS (G+Y+AR) IN SECONDS									
10	-	65	-	-	-	65	-	45	31	-
20	-	54	-	-	-	54	-	36	57	-
30	-	60	-	-	-	60	-	50	106	-
60	-	66	-	-	-	66	-	54	48	-
21	-	72	-	-	-	72	-	58	17	-

DAY(S) OF WEEK	PLAN NAME	HOURS	PLAN NO.	CYCLE LENGTH (SEC)
MON-FRI	FREE	00:00-06:00	100	-
	AM PLAN	06:00-09:00	10	110
	MIDDAY	09:00-15:30	20	90
	PM PLAN	15:30-18:30	30	110
	FREE	18:30-00:00	100	-
SAT-SUN	FREE	00:00-10:00	100	-
	MIDDAY	10:00-18:00	60	-
	FREE	18:00-00:00	100	120
BLACK FRIDAY	FREE	00:00-10:00	100	
	MIDDAY	10:00-22:00	21	130
	FREE	22:00-00:00	100	-

SIGNAL PHASING DIAGRAM



FIELD WIRING HOOK-UP CHART

SIGNAL HEAD	INDICATION	FIELD TERMINAL	FLASH
2A, 2B, 2C (EB)	R	Φ 2R	R
	Y	Φ 2Y	
	G	Φ 2G	
6A, 6B, 6C (WB)	R	Φ 6R	R
	Y	Φ 6Y	
	G	Φ 6G	
8A, 8B, 8C, 8D (NB)	R	Φ 8R	R
	Y	Φ 8Y	
	G	Φ 8G	

DETECTOR TABLE

DETECTION ZONE	MOVEMENT	PULSE OR PRESENCE	ASSOCIATED PHASE	LOCK/ NON-LOCK	EXTEND (SEC)	DELAY IN CONTROLLER (SEC)	DELAY INHIBIT PHASE	PURPOSE	DETECTION ZONE LENGTH (FT)
D2A	EB ADV	PRESENCE	2	NON-LOCK	0	0	2	EXTEND PHASE 2	ADVANCE
D6A	WB ADV	PRESENCE	6	NON-LOCK	0	0	6	EXTEND PHASE 6	ADVANCE
D8A	NB LT	PRESENCE	8	NON-LOCK	0	0	8	CALL/EXTEND PHASE 8	30
D8B	NB RT	PRESENCE	8	NON-LOCK	0	10	8	CALL/EXTEND PHASE 8	30
D8C	NB ADV	PRESENCE	8	NON-LOCK	0	0	8	EXTEND PHASE 8	ADVANCE

TRAFFIC SIGNAL PLAN DETAILS
SR-435 & US 35 WB RAMP D

DESIGN AGENCY
PLAN PREPARED BY:
TEC Engineering, Inc.
7238 Central Parke Blvd.
Mason, OH 45040

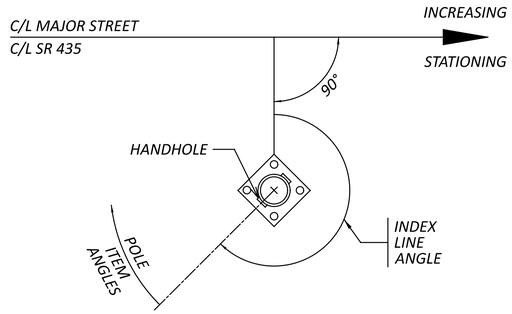
DESIGNER: TEC
REVIEWER: MJH 02/12/24
PROJECT ID: 117955
SHEET 15 TOTAL 28

FAY-435-1.52

STRAIN POLE DETAILS

REFERENCE SHEET NO.*	POLE NO.	STATION*	OFFSET*	DESIGN NO. (TC-81.11)	POLE HEIGHT (FT.)	FOUNDATION ELEVATION*	SPAN WIRE ATTACHMENT HEIGHT*	CABLE ENTRANCE DISTANCE FROM TOP (IN.)	STRAIN POLE INDEX LINE ANGLE (DEG.)	POLE ITEM ANGLES (DEG.) FROM INDEX LINE							
										POWER SERVICE METER & DISCONNECT	CABLE ENTRANCE	-	SUPPLEMENTAL SIGNAL HEAD	RADAR DETECTION UNIT	POLE MOUNTED SIGN	-	-
-	SP-1	83+87.5	41.0' LT.	10	32.0	1071.87	30.0	12"	129	-	180	-	-	-	231	-	-
-	SP-2	83+87.5	55.5' RT.	10	30.0	1073.47	28.0	12"	195	75	180	-	165	247/317	165	-	-
-	SP-3	84+82.0	41.0' LT.	10	34.0	1068.02	32.0	12"	219	-	180	-	141	-	141	-	-
-	SP-4	84+92.5	55.5' RT.	10	30.0	1069.67	28.0	12"	162	-	180	-	108	-	198	-	-

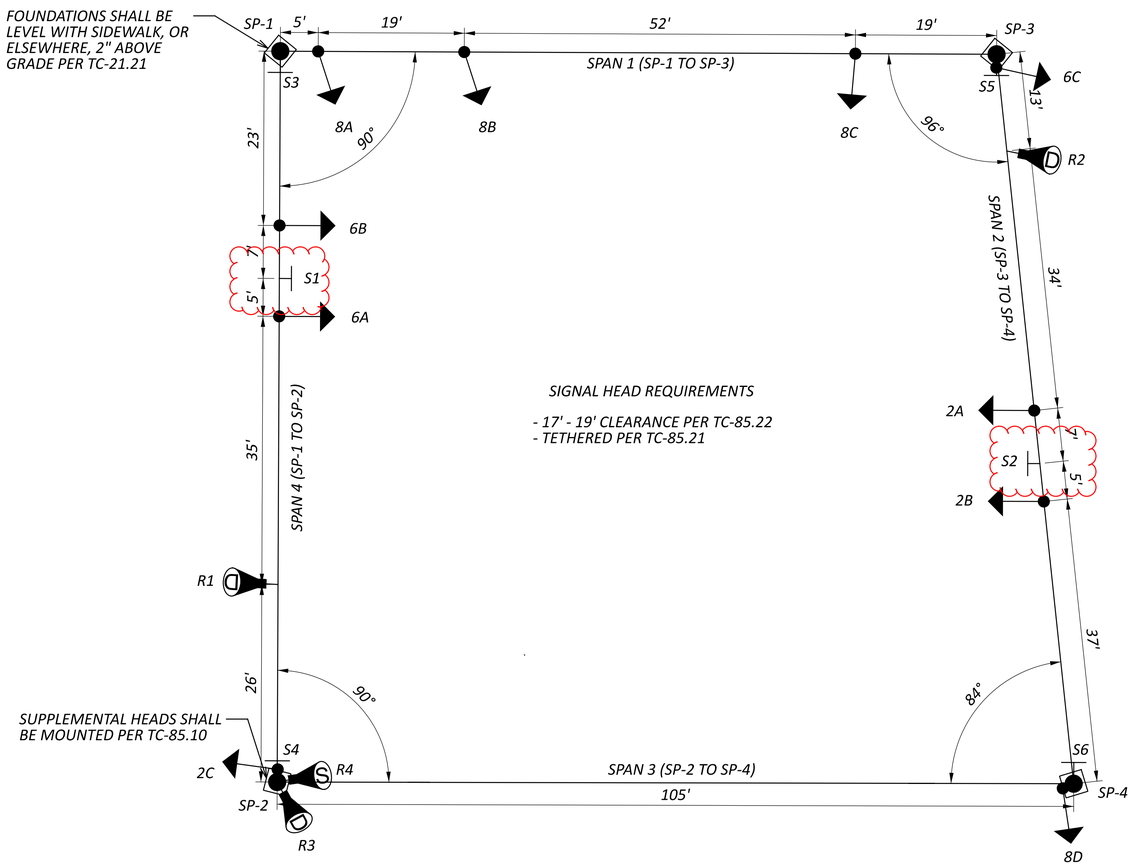
* SEE TEM SECTION 441-8



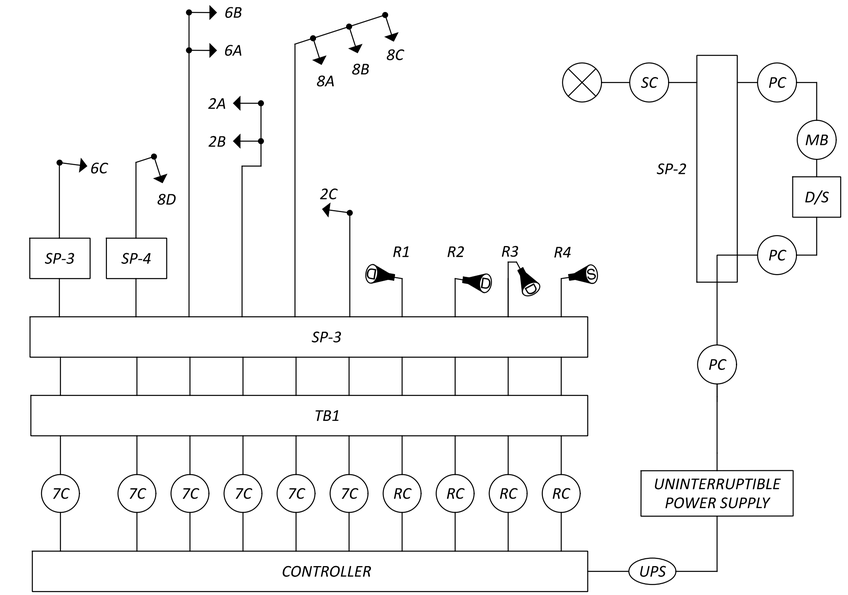
NOTES

1. ALL ANGLES ARE MEASURED CLOCKWISE.
2. THE INDEX LINE GOES THROUGH THE CENTER OF THE HANDHOLE.

SPAN WIRE PLAN VIEW DETAIL



WIRING DIAGRAM



WIRING DIAGRAM LEGEND

3-SECTION VEHICULAR SIGNAL HEAD, 1-WAY		#C	SIGNAL CABLE, # CONDUCTOR, NO. 14 AWG
3-SECTION VEHICULAR SIGNAL HEAD, 1-WAY, ARROWS		RC	RADAR DETECTION CABLE
STOP LINE RADAR DETECTOR UNIT			POWER SOURCE
ADVANCE RADAR DETECTOR UNIT		PC SC	POWER CABLE, (3) 1C-NO. 6 AWG SERVICE CABLE, 3C-NO.6 AWG
SP-#	SIGNAL SUPPORT POLE, NO. __	MB	METER BASE
D/S	SIGNAL DISCONNECT SWITCH	UPS	UPS CABLE

TRAFFIC SIGNAL PLAN DETAILS
SR-435 & US 35 WB RAMP D

DESIGN AGENCY
PLAN PREPARED BY:
TEC Engineering, Inc.
7288 Central Park Blvd.
Mason, OH 45040

DESIGNER: TEC
REVIEWER: MJH 02/12/24
PROJECT ID: 117955
SHEET: 16 TOTAL: 28

FAY-435-1.52

MODEL: CP012 PAPERSIZE: 34x22 (in.) DATE: 2/13/2024 TIME: 9:10:28 AM USER: mike
\\10.1.2.4\projects\2023 Projects\23068 Palmer Engineering\002 FAY-435-1.52\117955\400-Engineering\Signals\Sheets\117955_CP.dgn

ITEM 625 - LIGHT POLE, CONVENTIONAL, AS PER PLAN, AT15B36

IN ADDITION TO THE REQUIREMENTS OF THE ODOT C&MS, CONVENTIONAL LIGHT POLES SHALL BE AS FOLLOWS:

1. LIGHT POLES SHALL INCLUDE AN ALUMINUM TRANSFORMER BASE.
2. LIGHT POLES SHALL INCLUDE A 15' STANDARD TRUSS-ARM, HIGH-RISE BRACKET ARM.
3. LIGHT POLES SHALL BE SIZED TO PROVIDE A FINAL LUMINAIRE MOUNTING HEIGHT OF 36'.

SEE LIGHTING DETAIL SHEETS FOR LIGHT POLE SCHEMATIC.

PAYMENT WILL BE MADE AT THE CONTRACT UNIT BID PRICE FOR EACH "ITEM 625 - LIGHT POLE, CONVENTIONAL, AS PER PLAN, AT15B36" WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS, EQUIPMENT, AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY AND WORKMANLIKE MANNER.

ITEM 625 - LUMINAIRE, CONVENTIONAL, SOLID-STATE (LED), AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF THE ODOT C&MS, CONVENTIONAL LUMINAIRES INSTALLED ON THIS PROJECT SHALL BE AS FOLLOWS:

LUMINAIRES FOR CONVENTIONAL LIGHTING UNITS SHALL BE ROADFOCUS PLUS LED COBRA HEAD AS MANUFACTURED BY LUMEC BY SIGNIFY (CATALOG #: RPM-110W60LED-730-G1-4-UNV)

LUMINAIRES SHALL HAVE A COLOR TEMPERATURE OF 3000K.

PAYMENT WILL BE MADE AT THE CONTRACT UNIT BID PRICE FOR EACH "ITEM 625 - LUMINAIRE, CONVENTIONAL, SOLID-STATE (LED), AS PER PLAN" WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS, EQUIPMENT, AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY AND WORKMANLIKE MANNER.

ITEM 625 - PULL BOX, MISC.: MODIFY EXISTING PULL BOX

IN ADDITION TO THE ODOT C&MS, THIS ITEM SHALL INCLUDE CLEARING THE PULL BOX OF DEBRIS, REMOVING ANY EXISTING CABLES NOT BEING RECONNECTED, CUTTING INTO THE SIDES OF THE PULL BOX FOR NEW CONDUIT ENTRIES AND CEMENT PATCHING AND REPAIRING THE BOX TO SATISFACTORY CONDITION APPROVED BY THE ENGINEER.

DISTURBED AREAS NEAR THE PULL BOX SHALL BE CLEARED OF WEEDS OR DEBRIS AND SHALL BE FULLY RESTORED. MATERIAL REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE PROPERLY DISPOSED OF OFF OF THE PROJECT SITE.

PAYMENT WILL BE MADE AT THE CONTRACT UNIT BID PRICE, PER EACH "ITEM 625 - PULL BOX, MISC.: MODIFY EXISTING PULL BOX" WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS, AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM OF WORK.

ITEM 625 - PULL BOX, MISC.: PULL BOX, ADJUST TO GRADE

THIS ITEM SHALL INCLUDE ADJUSTING AN EXISTING PULL BOX TO GRADE IN ITS EXISTING LOCATION. ALL CONDUIT AND CABLES SHALL BE MAINTAINED.

PAYMENT WILL BE MADE AT THE CONTRACT UNIT BID PRICE, PER EACH "ITEM 625 - PULL BOX, MISC.: PULL BOX, ADJUST TO GRADE" WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS, AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM OF WORK.

ITEM 625 - POWER SERVICE, AS PER PLAN, LIGHTING TYPE A

THE CONTRACTOR SHALL CONTACT THE METER SECTION OF AES OHIO FOR INFORMATION REGARDING THE METER BASE INSTALLATION. THE CONTRACTOR WILL BE RESPONSIBLE FOR REQUESTING AND SCHEDULING ANY INSPECTIONS THE POWER COMPANY MAY REQUIRE FOR THE POWER SERVICE HOOK UP. THE CONTRACTOR SHALL BE RESPONSIBLE TO CONTACT THE POWER COMPANY FOR THE ELECTRICAL SERVICE CONNECTION. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR SPLICE POWER CABLE INTO THE POWER COMPANY'S CIRCUITS.

THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ANY NECESSARY PERMITS AND THE PAYING OF ALL FEES WITH THE EXCEPTION OF NORMAL MONTHLY ENERGY CHARGES. WHERE A NEW LIGHTING IS BEING INSTALLED, THE CONTRACTOR SHALL ESTABLISH THE ACCOUNT IN THE DISTRICT'S NAME FROM THE ONSET.

POWER SOURCE LOCATIONS ARE INDICATED ON THE PLANS. THE CONTRACTOR SHALL COORDINATE WITH THE POWER COMPANY TO CONFIRM AVAILABILITY. THE POWER SERVICE SUPPLIED AS PART OF THIS ITEM SHALL BE GROUND-MOUNTED AND BE PER ODOT HIGHWAY LIGHTING STANDARD CONSTRUCTION DRAWING HL-40.20. REFER TO ODOT SCD HL-60.31 FOR POWER SERVICE WIRING INFORMATION. CIRCUITS SHALL BE PHOTOCELL-CONTROLLED. POWER REQUIREMENTS FOR THE LIGHTING SERVICE ARE 120/240 VOLT, SINGLE-PHASE. SEE CIRCUIT SCHEMATIC & CONTROL CENTER DATA SHEET FOR POWER SERVICE DETAILS.

DISCONNECT SWITCH ENCLOSURES SHALL INCLUDE A KEYED PADLOCK OR DEVICE APPROVED BY THE MAINTENANCE FORCE.

PAYMENT WILL BE MADE AT THE CONTRACT UNIT BID PRICE FOR EACH "ITEM 625 - POWER SERVICE, AS PER PLAN, LIGHTING TYPE A" WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS, EQUIPMENT, AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY AND WORKMANLIKE MANNER.

ITEM 625 - POWER SERVICE, AS PER PLAN, LIGHTING TYPE B

THE CONTRACTOR SHALL CONTACT THE METER SECTION OF AES OHIO FOR INFORMATION REGARDING THE METER BASE INSTALLATION. THE CONTRACTOR WILL BE RESPONSIBLE FOR REQUESTING AND SCHEDULING ANY INSPECTIONS THE POWER COMPANY MAY REQUIRE FOR THE POWER SERVICE HOOK UP. THE CONTRACTOR SHALL BE RESPONSIBLE TO CONTACT THE POWER COMPANY FOR THE ELECTRICAL SERVICE CONNECTION. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR SPLICE POWER CABLE INTO THE POWER COMPANY'S CIRCUITS.

THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ANY NECESSARY PERMITS AND THE PAYING OF ALL FEES WITH THE EXCEPTION OF NORMAL MONTHLY ENERGY CHARGES. WHERE THERE IS AN EXISTING LIGHTING SERVICE THAT IS BEING REPLACED, THE CONTRACTOR SHALL COORDINATE WITH THE POWER COMPANY TO CONTINUE BILLING ON THE EXISTING DISTRICT 6 ACCOUNT.

EXISTING POWER SOURCE LOCATIONS ARE INDICATED ON THE PLANS. THE CONTRACTOR SHALL COORDINATE WITH THE POWER COMPANY TO CONFIRM AVAILABILITY. THE POWER SERVICE SUPPLIED AS PART OF THIS ITEM SHALL BE GROUND-MOUNTED AND BE PER ODOT HIGHWAY LIGHTING STANDARD CONSTRUCTION DRAWING HL-40.20. REFER TO ODOT SCD HL-60.31 FOR POWER SERVICE WIRING INFORMATION. CIRCUITS SHALL BE PHOTOCELL-CONTROLLED. POWER REQUIREMENTS FOR THE LIGHTING SERVICE ARE 240/480 VOLT, SINGLE-PHASE. SEE POWER SERVICE MODIFICATION PLAN SHEETS FOR POWER SERVICE DETAILS.

DISCONNECT SWITCH ENCLOSURES SHALL INCLUDE A KEYED PADLOCK OR DEVICE APPROVED BY THE MAINTENANCE FORCE.

PAYMENT WILL BE MADE AT THE CONTRACT UNIT BID PRICE FOR EACH "ITEM 625 - POWER SERVICE, AS PER PLAN, LIGHTING TYPE B" WHICH SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS, EQUIPMENT, AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY AND WORKMANLIKE MANNER.

ITEM 625 ARC FLASH CALCULATIONS AND LABEL

THE CONTRACTOR SHALL SATISFY THE REQUIREMENTS OF ODOT SUPPLEMENTAL SPECIFICATION 825 FOR EACH OF THE POWER SERVICE/ELECTRICAL ENCLOSURE INDICATED IN THE PLANS.

THE CONTRACTOR MAY BE ABLE TO OBTAIN LABELS FOR ODOT MAINTAINED INSTALLATIONS FROM THE ODOT SIGN SHOP, 1606 WEST BROAD STREET, COLUMBUS, OH 43223. FOR NON-ODOT MAINTAINED INSTALLATIONS, THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING THE LABEL, MADE FROM "ENGINEER GRADE"SIGN SHEETING OR AN EQUIVALENT COMMERCIAL LABEL MATERIAL.

THE ODOT OFFICE OF ROADWAY ENGINEERING HAS AN EXCEL SPREADSHEET, AVAILABLE UPON REQUEST, TO ASSIST WITH MAKING AND DOCUMENTING THE REQUIRED CALCULATIONS.

METHOD OF MEASUREMENT SHALL BE PER SS 825.06.

GROUNDING AND BONDING

THE REQUIREMENTS OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS (CMS) AND THE TC SERIES OF STANDARD CONSTRUCTION DRAWINGS ARE MODIFIED AS FOLLOWS:

1. ALL METALLIC PARTS CONTAINING ELECTRICAL CONDUCTORS SHALL BE PERMANENTLY JOINED TO FORM AN EFFECTIVE GROUND FAULT CURRENT PATH BACK TO THE GROUNDED CONDUCTOR IN THE POWER SERVICE DISCONNECT SWITCH.

A. PROVIDE AN EQUIPMENT GROUNDING CONDUCTOR IN METALLIC CONDUITS (725.04) IN ADDITION TO THE CONDUCTORS SPECIFIED AND BOND THE CONDUIT TO THIS GROUNDING CONDUCTOR.

B. WHEN AN EQUIPMENT GROUNDING CONDUCTOR IS REQUIRED IN PLASTIC CONDUIT (725.05), THE INSTALLATION SHALL INCLUDE A SEPARATE EQUIPMENT GROUNDING CONDUCTOR IN ADDITION TO THE CONDUCTORS SPECIFIED.

C. METALLIC CONDUIT CARRYING THE LOOP WIRES FROM IN THE PAVEMENT TO THE PULL BOX SPLICE LOCATION WILL ONLY BE BONDED AT THE PULL BOX END, AND WILL NOT CONTAIN AN EQUIPMENT GROUNDING CONDUCTOR.

D. IF MULTIPLE CONDUIT RUNS BEGIN AND END AT THE SAME POINTS, ONLY ONE EQUIPMENT GROUNDING CONDUCTOR IS REQUIRED.

E. IF AN EQUIPMENT GROUNDING CONDUCTOR IS NEEDED IN CONDUIT BETWEEN SIGNALIZED INTERSECTIONS FOR UNDERGROUND INTERCONNECT CABLE, THE GROUNDING SYSTEM FOR EACH SIGNALIZED INTERSECTION WILL BE SEPARATED ABOUT MIDWAY BETWEEN THE INTERSECTIONS.

F. THE MESSENGER WIRE AT SIGNALIZED INTERSECTIONS WILL BE USED AS THE CONDUCTIVE PATH FROM CORNER TO CORNER IF CONDUIT IS NOT PROVIDED UNDER THE ROADWAY. WHEN CONDUIT CONNECTS THE CORNERS OF AN INTERSECTION, AN EQUIPMENT GROUNDING CONDUCTOR SHALL BE USED IN THE CONDUIT.

2. CONDUITS.

A. THE 725.04 CONDUIT SHALL HAVE GROUNDING BUSHINGS INSTALLED AT ALL TERMINATION POINTS. THE BUSHING MATERIAL SHALL BE COMPATIBLE WITH GALVANIZED STEEL CONDUIT AND THE GROUNDING LUG MATERIAL SHALL BE COMPATIBLE FOR USE WITH COPPER WIRE. THREADED OR COMPRESSION TYPE BUSHINGS MAY BE USED.

B. THE 725.05 CONDUIT SHALL HAVE THE INSIDE AND OUTSIDE DIAMETERS OF THE CONDUIT DEBURRED AT ALL TERMINATION POINTS.

C. BOTH ENDS OF THE METALLIC CONDUIT SHALL BE BONDED TO THE EQUIPMENT GROUNDING CONDUCTOR.

D. METALLIC CONDUIT MAY BE BONDED TO METALLIC BOXES THROUGH THE USE OF CONDUIT FITTINGS UL APPROVED FOR THIS TYPE OF CONNECTION, WITH THE BOX BONDED TO THE EQUIPMENT GROUNDING CONDUCTOR.

3. WIRING FOR GROUNDING AND BONDING.

A. USE INSULATED, COPPER WIRE FOR THE EQUIPMENT GROUNDING CONDUCTOR. BONDING JUMPERS IN BOXES AND ENCLOSURES MAY BE BARE OR INSULATED COPPER WIRE. WIRE SIZE SHALL BE AS FOLLOWS:

I. USE 4 AWG BETWEEN THE POWER SERVICE AND SUPPORTS, POLES, PEDESTALS, CONTROLLERS OR FLASHER CABINETS.

II. USE A MINIMUM 8 AWG BETWEEN LOOP DETECTOR PULL BOXES AND THE FIRST CONDUIT THAT REQUIRES A LARGER SIZE AS SPECIFIED IN 3.A.I ABOVE.

III. USE A MINIMUM 8 AWG BETWEEN THE "PREPARE TO STOP WHEN FLASHING" INSTALLATION (INCLUDING SUPPORT) AND THE FIRST CONDUIT THAT REQUIRES A LARGER SIZE AS SPECIFIED IN 3.A.I ABOVE.

IV. THE INSULATION SHALL BE GREEN OR GREEN WITH YELLOW STRIPE(S). FOR 4 AWG OR LARGER, INSULATION MAY ALSO BE BLACK WITH GREEN TAPE/LABELS INSTALLED AT ALL ACCESS POINTS.

GROUNDING AND BONDING (CONT'D)

B. IN A HIGHWAY LIGHTING SYSTEM, THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE THE SAME WIRE SIZE AS THE DUCT CABLE OR DISTRIBUTION CABLE CIRCUIT CONDUCTORS, WITH THE MINIMUM CONDUCTOR SIZE OF 4 AWG. BONDING JUMPERS WILL BE MINIMUM SIZE 4 AWG.

4. GROUND ROD.

A. 3/4 INCH SCHEDULE 40 PVC CONDUIT WILL BE USED IN FOUNDATIONS AND CONCRETE WALLS FOR THE GROUNDING CONDUCTOR (GROUND WIRE) RACEWAY TO THE GROUND ROD. SHOULD METALLIC CONDUIT BE USED, BOTH ENDS OF THE CONDUIT SHALL BE BONDED TO THE GROUNDING CONDUCTOR.

B. THE TYPICAL GROUNDING CONDUCTOR (GROUND WIRE) SHALL BE 4 AWG INSULATED, COPPER.

5. THE GREEN CONDUCTOR IN SIGNAL CABLES (CONDUCTOR #4) SHALL NOT BE USED TO SUPPLY POWER TO A SIGNAL INDICATION. IT WILL BE CONNECTED TO THE SIGNAL BODY AS AN EQUIPMENT GROUND IN ALUMINUM HEADS AND IT WILL BE UNUSED IN PLASTIC HEADS. UNUSED CONDUCTORS SHALL BE GROUNDED IN THE CABINET. TYPICAL USE OF CONDUCTORS IS AS FOLLOWS:

COND. NO.	COLOR	VEHICLE SIGNAL	PED SIGNAL
1	BLACK	GREEN BALL	#1 WALK
2	WHITE	AC NEUTRAL	AC NEUTRAL
3	RED	RED BALL	#1 DW/FDW
4	GREEN	EQUIP. GROUND	EQUIP. GROUND
5	ORANGE	YELLOW BALL	#2 DW/FDW
6	BLUEGREEN	ARROW	#2 WALK
7	WHITE/BLACK STRIPE	YELLOW ARROW	NOT USED

6. POWER SERVICE AND DISCONNECT SWITCH.

A. AT THE POWER SERVICE LOCATION, THE GROUNDING CONDUCTOR (GROUND WIRE) FROM THE DISCONNECT SWITCH NEUTRAL (AC-) BAR TO THE GROUND ROD SHALL BE A CONTINUOUS, UNSPLICED CONDUCTOR. IF SPLICED, IT SHALL BE AN EXOTHERMIC WELD BUTT SPLICE.

B. THE SERVICE NEUTRAL (AC-) SHALL ONLY BE CONNECTED TO GROUND AT THE PRIMARY POWER SERVICE DISCONNECT SWITCH.

I. NEMA CONTROLLER CABINETS: IF A POWER SERVICE DISCONNECT SWITCH IS LOCATED BEFORE THE CONTROLLER CABINET, THE NEUTRAL (AC-) AND THE GROUNDING BARS IN THE CONTROLLER CABINET SHALL NOT BE CONNECTED TOGETHER AS SHOWN IN NEMA TS-2, FIGURE 5-4.

II. IF SECONDARY DISCONNECT SWITCHES ARE CONNECTED AFTER THE PRIMARY DISCONNECT SWITCH, THE NEUTRAL (AC-) SHALL ONLY BE GROUNDED AT THE PRIMARY SWITCH. EQUIPMENT GROUNDING CONDUCTORS SHALL BE BROUGHT TO THE PRIMARY SWITCH, BUT SHALL BE GROUNDED AT BOTH SECONDARY AND PRIMARY SWITCHES.

7. PAYMENT - ALL MATERIALS AND WORK REQUIRED TO COMPLETE THE EFFECTIVE GROUND FAULT CURRENT PATH SYSTEM ARE INCIDENTAL TO THE CONDUCTORS INSTALLED BY CONTRACT.

LIGHTING NOTES

DESIGN AGENCY
PLAN PREPARED BY:
TEC Engineering, Inc.
7288 Central Park Blvd.
Mason, OH 45040

DESIGNER TEC

REVIEWER MJH 02/12/24

PROJECT ID 117955

SHEET 17 TOTAL 28

FAY-435-1.52

MODEL: Sheet_SurvFt PAPERSIZE: 34x22 (in.) DATE: 2/13/2024 TIME: 9:10:30 AM USER: mike
\\10.1.2.4\projects\2023 Projects\23068 Palmer Engineering\002 FAY-435-1.52\117955\400-Engineering\Lighting\Sheets\117955_LN.dgn

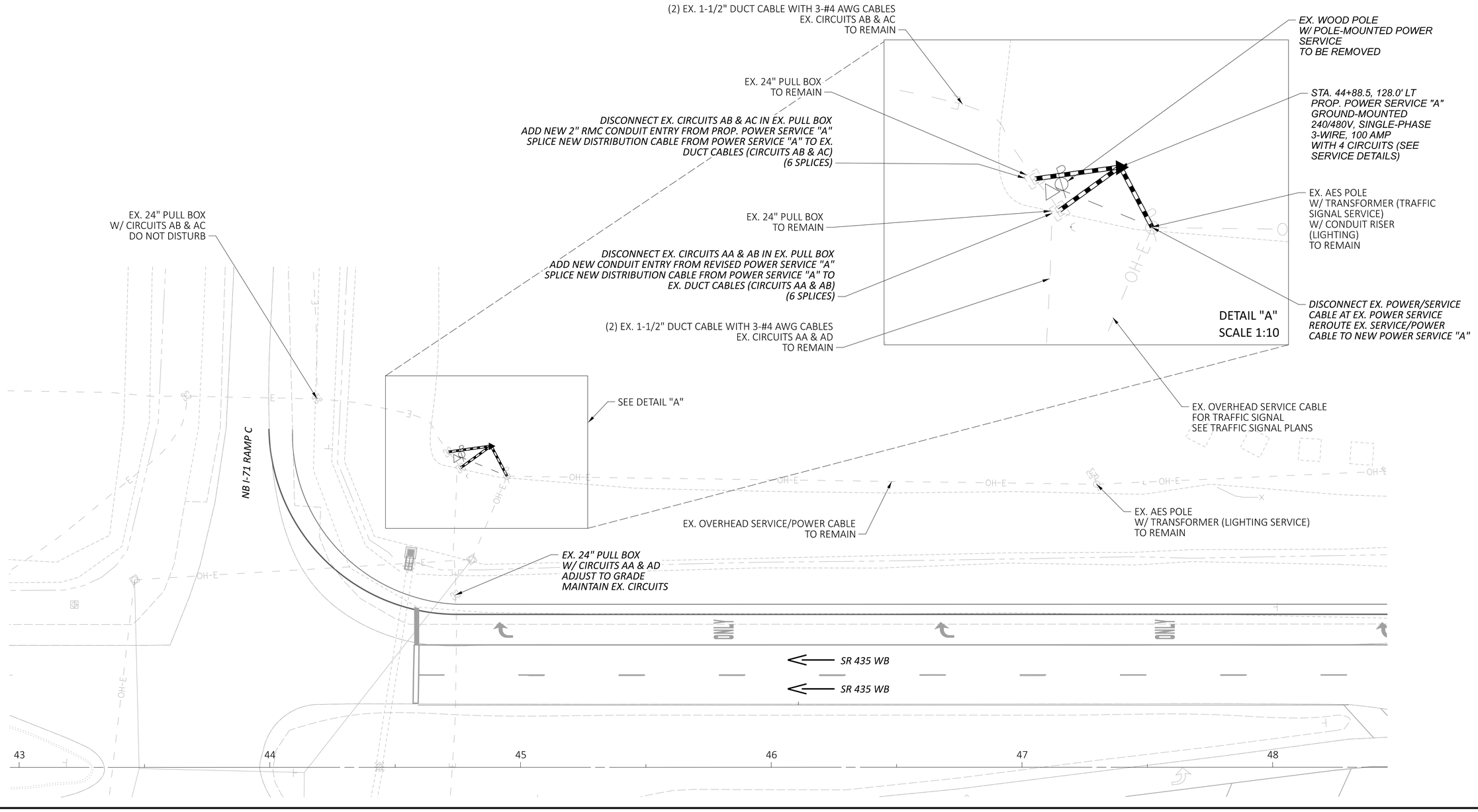
CONTROL CENTER DATA											
CONTROL CENTER	LINE VOLTAGE	CONNECTED LOAD (KVA)	ENCLOSURE RATING AMPS.	SERVICE ENTRANCE CONDUCTOR SIZE	CIRCUIT NUMBER	DESCRIPTION	CIRCUIT VOLTAGE	CIRCUIT LOAD AMPS.	CIRCUIT FUSE SIZE AMPS.	CIRCUIT CABLE SIZE	MAINTAINING AGENCY
LCCA	240/480V SINGLE PHASE 3-WIRE	23.9	100 AMPS	#1/0 AWG	AA	RAMP A LIGHTING	480V	11.8 AMPS	20 AMPS	#4	ODOT
					AB	RAMP B LIGHTING	480V	13.1 AMPS	20 AMPS	#4	
					AC	RAMP C LIGHTING	480V	11.8 AMPS	20 AMPS	#4	
					AD	RAMP D LIGHTING	480V	13.1 AMPS	20 AMPS	#4	

PLAN LEGEND

EX.	PROP.	ITEM
△	▲	PROPOSED POWER SERVICE
E	LT	PULL BOX, IDENTIFICATION NO.
		2" CONDUIT, 725.04

NOTES:

1. LOCATION OF TRENCH AND CONDUIT RUNS SHOWN ON THE DRAWING ARE APPROXIMATE. MAINTAIN 36" HORIZONTAL CLEARANCE AND 12" VERTICAL CLEARANCE FROM WATER AND GAS LINES. FIELD ADJUST AS NEEDED.
2. ALL CONDUIT SHALL BE RMC.
3. SEE CONTROL CENTER DATA FOR SERVICE INFORMATION.



HORIZONTAL SCALE IN FEET
0 10 20 40

POWER SERVICE MODIFICATION PLAN
I-71 & SR-435 INTERCHANGE LIGHTING

DESIGN AGENCY
PLAN PREPARED BY:
TEC Engineering, Inc.
7288 Central Parke Blvd.
Mason, OH 45040

DESIGNER: TEC
REVIEWER: MJH 02/12/24
PROJECT ID: 117955
SHEET: 18 TOTAL: 28

FAY-435-1.52

MODEL: LP001 PAPERSIZE: 34x22 (in.) DATE: 2/13/2024 TIME: 9:10:34 AM USER: mike
\\10.1.2.4\projects\2023 Projects\23068 Palmer Engineering\002 FAY-435-1.52\117955\400-Engineering\Lighting\Sheets\117955_LP_SERVICEMODS.dgn

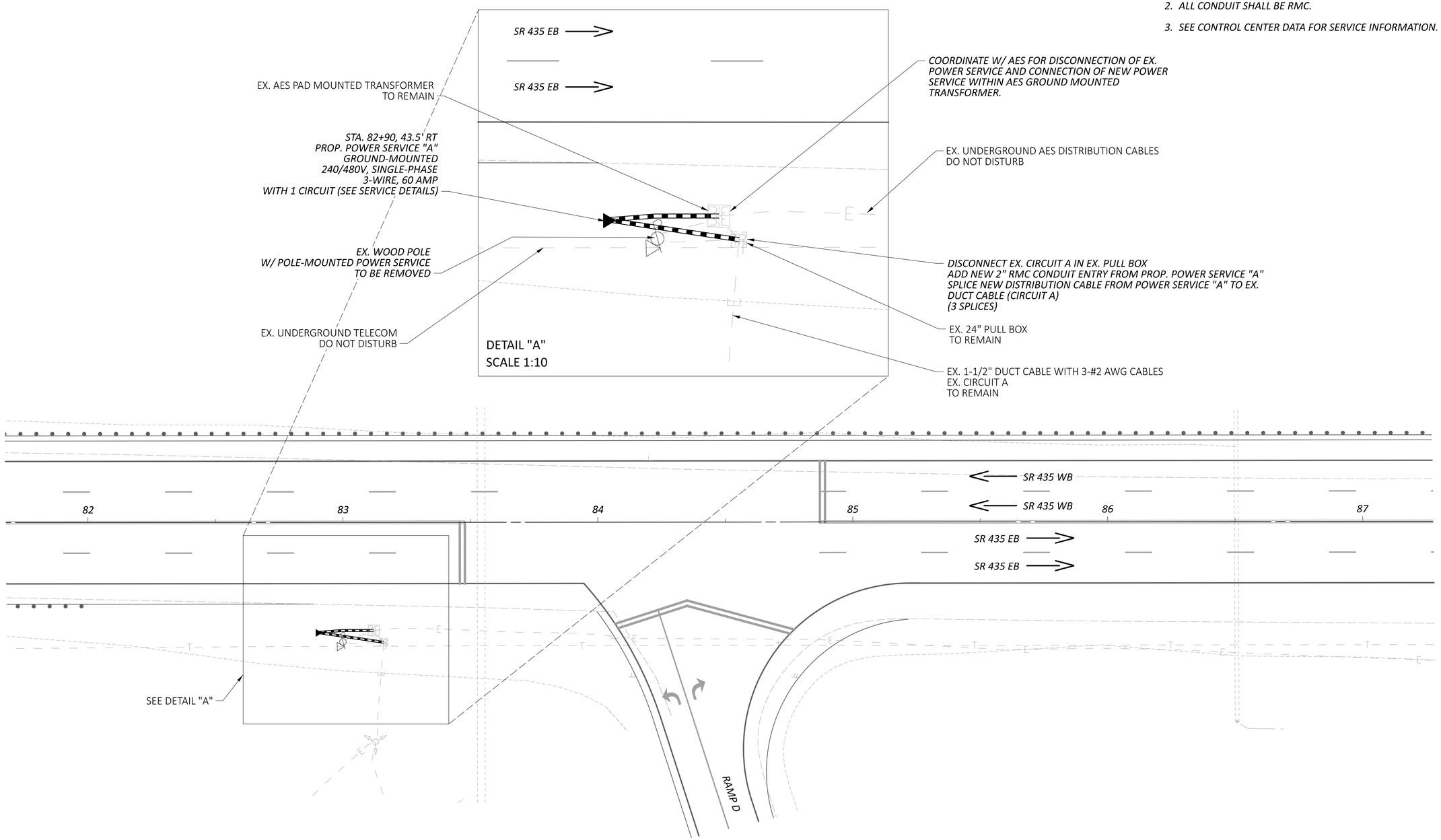
CONTROL CENTER DATA											
CONTROL CENTER	LINE VOLTAGE	CONNECTED LOAD (KVA)	ENCLOSURE RATING AMPS.	SERVICE ENTRANCE CONDUCTOR SIZE	CIRCUIT NUMBER	DESCRIPTION	CIRCUIT VOLTAGE	CIRCUIT LOAD AMPS.	CIRCUIT FUSE SIZE AMPS.	CIRCUIT CABLE SIZE	MAINTAINING AGENCY
LCCA	240/480V SINGLE PHASE 3-WIRE	15.2 KVA	60 AMPS	#2 AWG	A	ALL INTERCHANGE LIGHTING	480V	31.6 AMPS	50 AMPS	#2 (AT SERVICE)	ODOT
					-	-	-	-	-	-	

PLAN LEGEND

EX.	PROP.	ITEM
△	▲	PROPOSED POWER SERVICE
E	LT	PULL BOX, IDENTIFICATION NO.
		2" CONDUIT, 725.04

NOTES:

1. LOCATION OF TRENCH AND CONDUIT RUNS SHOWN ON THE DRAWING ARE APPROXIMATE. MAINTAIN 36" HORIZONTAL CLEARANCE AND 12" VERTICAL CLEARANCE FROM WATER AND GAS LINES. FIELD ADJUST AS NEEDED.
2. ALL CONDUIT SHALL BE RMC.
3. SEE CONTROL CENTER DATA FOR SERVICE INFORMATION.



HORIZONTAL SCALE IN FEET
0 10 20 40

POWER SERVICE MODIFICATION PLAN
US 35 & SR-435 INTERCHANGE LIGHTING

DESIGN AGENCY
PLAN PREPARED BY:
TEC Engineering, Inc.
7288 Central Parke Blvd.
Mason, OH 45040

DESIGNER: TEC
REVIEWER: MJH 02/12/24
PROJECT ID: 117955
SHEET: 19 TOTAL: 28

FAY-435-1.52

MODEL: LP002 PAPERSIZE: 34x22 (in.) DATE: 2/13/2024 TIME: 9:10:36 AM USER: mike
\\10.1.2.4\projects\2023 Projects\23068 Palmer Engineering\002 FAY-435-1.52\117955\400-Engineering\Lighting\Sheets\117955_LP_SERVICEMODS.dgn

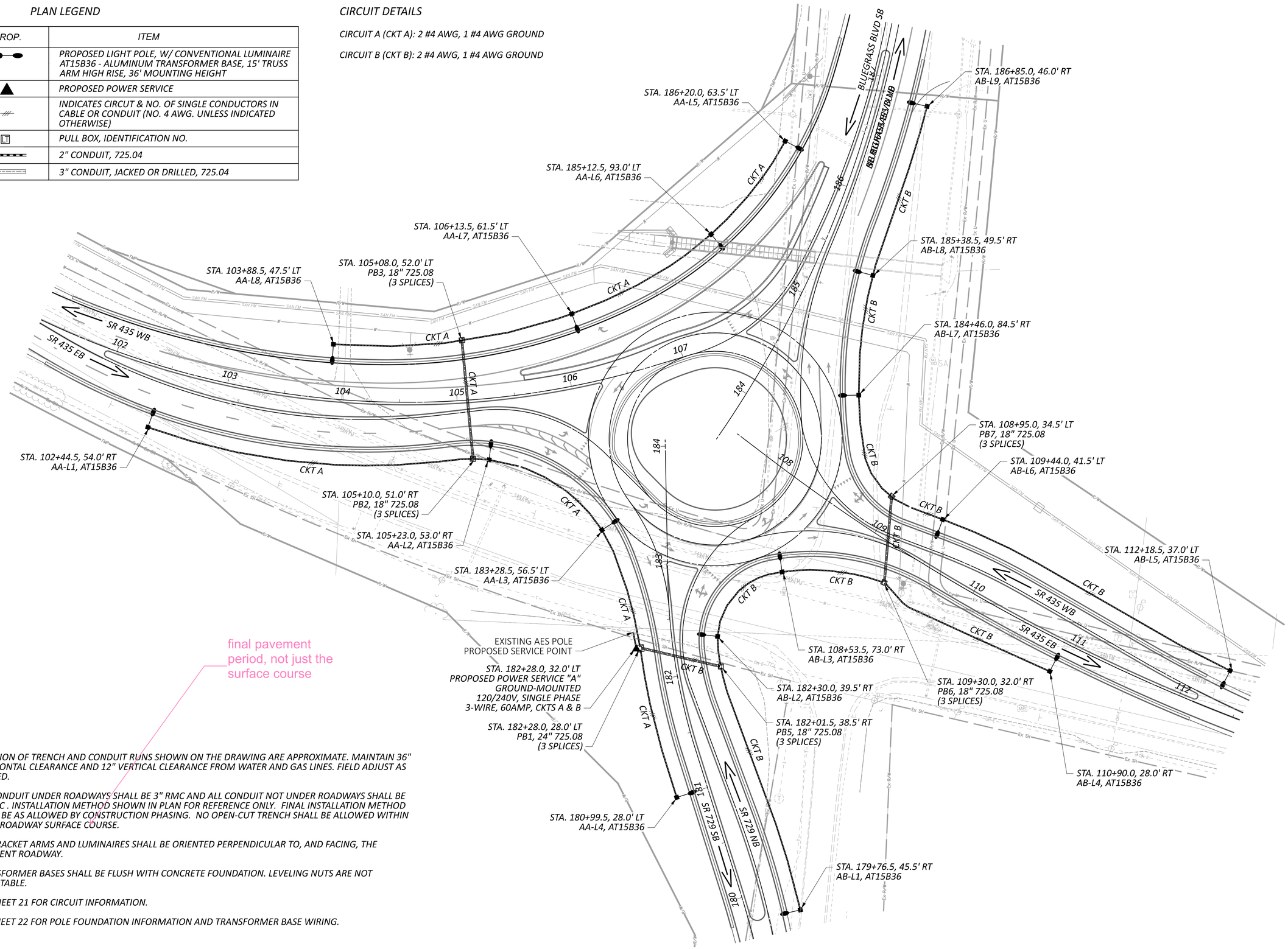
PLAN LEGEND

PROP.	ITEM
●—●	PROPOSED LIGHT POLE, W/ CONVENTIONAL LUMINAIRE AT15B36 - ALUMINUM TRANSFORMER BASE, 15' TRUSS ARM HIGH RISE, 36' MOUNTING HEIGHT
▲	PROPOSED POWER SERVICE
///	INDICATES CIRCUT & NO. OF SINGLE CONDUCTORS IN CABLE OR CONDUIT (NO. 4 AWG. UNLESS INDICATED OTHERWISE)
PB	PULL BOX, IDENTIFICATION NO.
▬▬	2" CONDUIT, 725.04
▭▭	3" CONDUIT, JACKED OR DRILLED, 725.04

CIRCUIT DETAILS

CIRCUIT A (CKT A): 2 #4 AWG, 1 #4 AWG GROUND

CIRCUIT B (CKT B): 2 #4 AWG, 1 #4 AWG GROUND



final pavement period, not just the surface course

NOTES:

1. LOCATION OF TRENCH AND CONDUIT RUNS SHOWN ON THE DRAWING ARE APPROXIMATE. MAINTAIN 36" HORIZONTAL CLEARANCE AND 12" VERTICAL CLEARANCE FROM WATER AND GAS LINES. FIELD ADJUST AS NEEDED.
2. ALL CONDUIT UNDER ROADWAYS SHALL BE 3" RMC AND ALL CONDUIT NOT UNDER ROADWAYS SHALL BE 2" RMC . INSTALLATION METHOD SHOWN IN PLAN FOR REFERENCE ONLY. FINAL INSTALLATION METHOD SHALL BE AS ALLOWED BY CONSTRUCTION PHASING. NO OPEN-CUT TRENCH SHALL BE ALLOWED WITHIN FINAL ROADWAY SURFACE COURSE.
3. ALL BRACKET ARMS AND LUMINAIRES SHALL BE ORIENTED PERPENDICULAR TO, AND FACING, THE ADJACENT ROADWAY.
4. TRANSFORMER BASES SHALL BE FLUSH WITH CONCRETE FOUNDATION. LEVELING NUTS ARE NOT ACCEPTABLE.
5. SEE SHEET 21 FOR CIRCUIT INFORMATION.
6. SEE SHEET 22 FOR POLE FOUNDATION INFORMATION AND TRANSFORMER BASE WIRING.

HORIZONTAL SCALE IN FEET
0 20 40 80

LIGHTING PLAN
SR-435 & BLUEGRASS BLVD ROUNDABOUT

DESIGN AGENCY
TEC
PLAN PREPARED BY:
TEC Engineering, Inc.
7288 Central Parke Blvd.
Mason, OH 45040

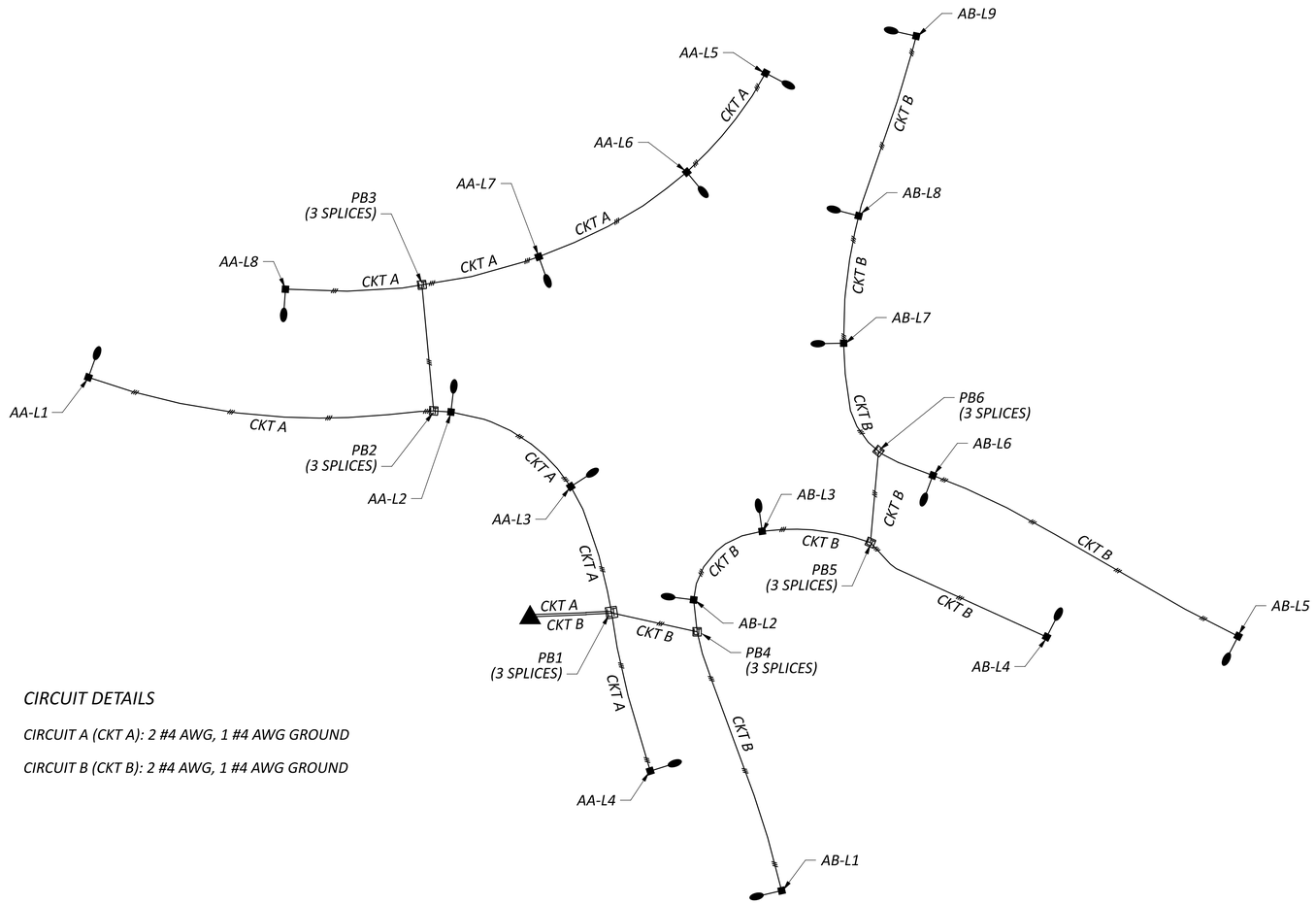
DESIGNER TEC
REVIEWER MJH 02/12/24
PROJECT ID 117955
SHEET 20 TOTAL 28

FAY-435-1.52

MODEL: LP003 PAPERSIZE: 34x22 (in.) DATE: 2/13/2024 TIME: 9:10:37 AM USER: mike
\\10.1.2.4\projects\2023 Projects\23068 Palmer Engineering\002 FAY-435-1.52\117955\400-Engineering\Lighting\Sheets\117955_LP_RAB.dgn

CONTROL CENTER DATA											
CONTROL CENTER	LINE VOLTAGE	CONNECTED LOAD (KVA)	ENCLOSURE RATING AMPS.	SERVICE ENTRANCE CONDUCTOR SIZE	CIRCUIT NUMBER	DESCRIPTION	CIRCUIT VOLTAGE	CIRCUIT LOAD AMPS.	CIRCUIT FUSE SIZE AMPS.	CIRCUIT CABLE SIZE	MAINTAINING AGENCY
LCCA	120/240V SINGLE PHASE	2.83 KVA	60 AMPS	#2 AWG	A	ROUNDABOUT LIGHTING - WESTSIDE	120V	11.1 AMPS	20 AMPS	#4	ODOT
					B	ROUNDABOUT LIGHTING - EASTSIDE	120V	12.5 AMPS	20 AMPS	#4	
					-	-	-	-	-	-	
					-	-	-	-	-	-	
					-	-	-	-	-	-	

The DBT bid the project to include 18 poles, an additional pull box and conduit to install poles in the median between RAB and bypass lane. ODOT made a comment allowing the DBT to reduce/remove this. What is the cost savings paid to the department?



CIRCUIT DETAILS

CIRCUIT A (CKT A): 2 #4 AWG, 1 #4 AWG GROUND

CIRCUIT B (CKT B): 2 #4 AWG, 1 #4 AWG GROUND

PLAN LEGEND

PROP.	ITEM
	PROPOSED LIGHT POLE, W/ CONVENTIONAL LUMINAIRE AT15B36 - ALUMINUM TRANSFORMER BASE, 15' TRUSS ARM HIGH RISE, 36' MOUNTING HEIGHT
	PROPOSED POWER SERVICE
	INDICATES CIRCUT & NO. OF SINGLE CONDUCTORS IN CABLE OR CONDUIT (NO. 4 AWG. UNLESS INDICATED OTHERWISE)
LT	PULL BOX, IDENTIFICATION NO.

CIRCUIT SCHEMATIC & CONTROL CENTER DATA
SR-435 & BLUEGRASS BLVD ROUNDABOUT

DESIGN AGENCY
PLAN PREPARED BY:
TEC Engineering, Inc.
7288 Central Parke Blvd.
Mason, OH 45040

DESIGNER: TEC

REVIEWER: MJH 02/12/24

PROJECT ID: 117955

SHEET: 21 TOTAL: 28

FAY-435-1.52

MODEL: LC001 PAPERSIZE: 34x22 (in.) DATE: 2/13/2024 TIME: 9:10:38 AM USER: mike
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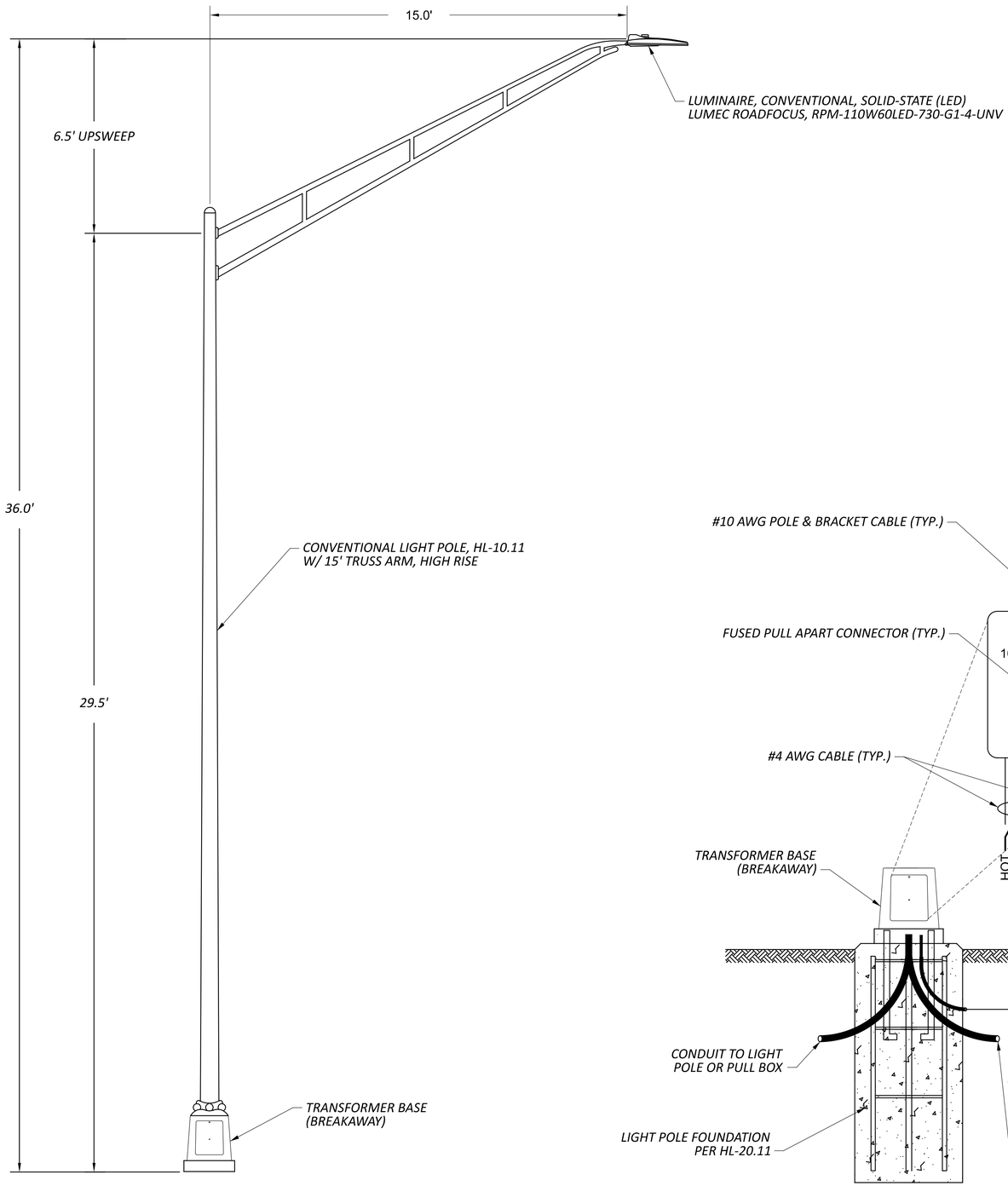
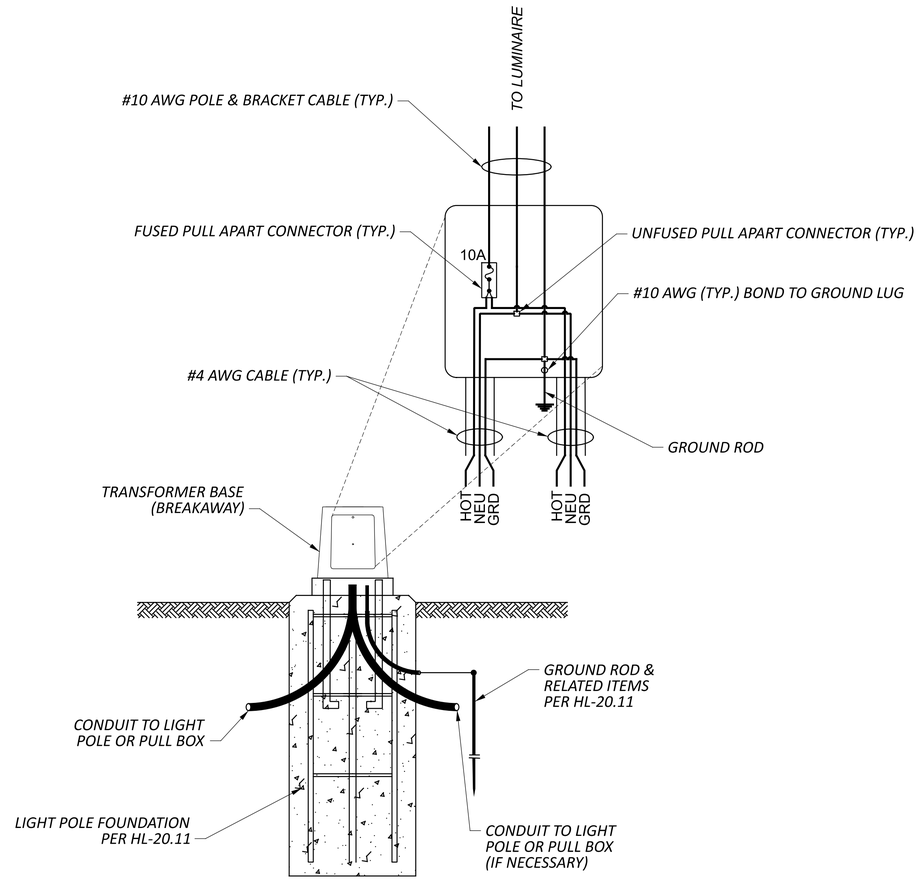


A 18 LIGHT POLE WITH BRACKET ARM AT15B36



B 18 LIGHT POLE FOUNDATION AND WIRING (TYPICAL)

FAY-435-1.52

MODEL: LD001_LIGHTING DETAILS PAPERSIZE: 34x22 (in.) DATE: 2/13/2024 TIME: 9:10:46 AM USER: mike
\\10.1.2.4\projects\2023 Projects\23068 Palmer Engineering\002 FAY-435-1.52\117955\400-Engineering\Lighting\Sheets\117955_LD.dgn

LIGHTING DETAILS
SR-435 & BLUEGRASS BLVD ROUNDABOUT

DESIGN AGENCY
PLAN PREPARED BY:
TEC Engineering, Inc.
7288 Central Parke Blvd.
Mason, OH 45040

DESIGNER
TEC

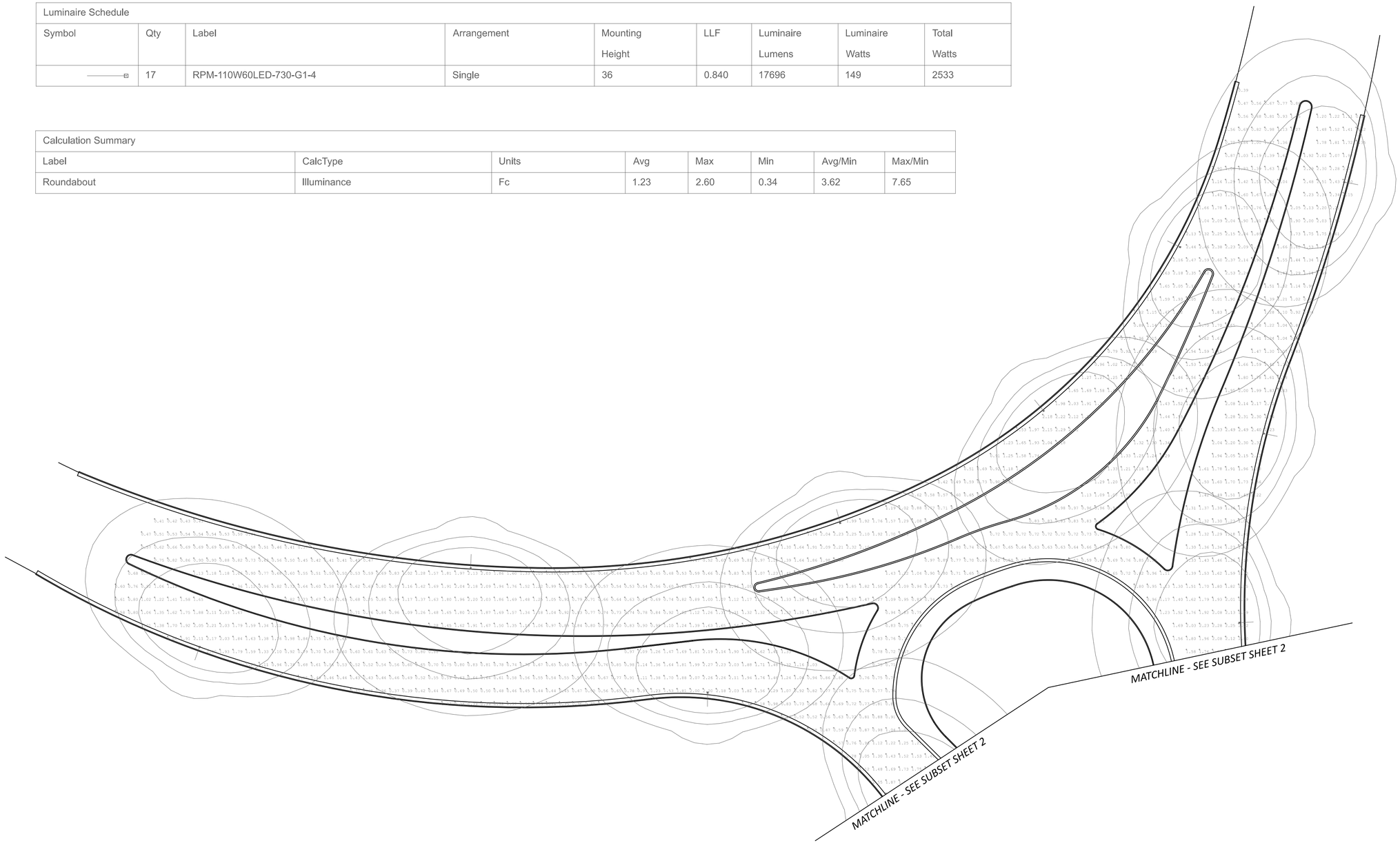
REVIEWER
MJH 02/12/24

PROJECT ID
117955

SHEET 22 TOTAL 28

Luminaire Schedule								
Symbol	Qty	Label	Arrangement	Mounting Height	LLF	Luminaire Lumens	Luminaire Watts	Total Watts
	17	RPM-110W60LED-730-G1-4	Single	36	0.840	17696	149	2533

Calculation Summary							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
Roundabout	Illuminance	Fc	1.23	2.60	0.34	3.62	7.65



PHOTOMETRIC ANALYSIS - PERMANENT LIGHTING
SR-435 & BLUEGRASS BLVD ROUNDABOUT

DESIGN AGENCY
PLAN PREPARED BY:
TEC Engineering, Inc.
7388 Central Parke Blvd.
Mason, OH 45040

DESIGNER
TEC

REVIEWER
MJH 02/12/24

PROJECT ID
117955

SUBSET 1 | TOTAL 2

SHEET 23 | TOTAL 28

FAY-435-1.52

MODEL: LD002_PHOTOMETRICS-PERM PAPERSIZE: 34x22 (in.) DATE: 2/13/2024 TIME: 9:10:46 AM USER: mike
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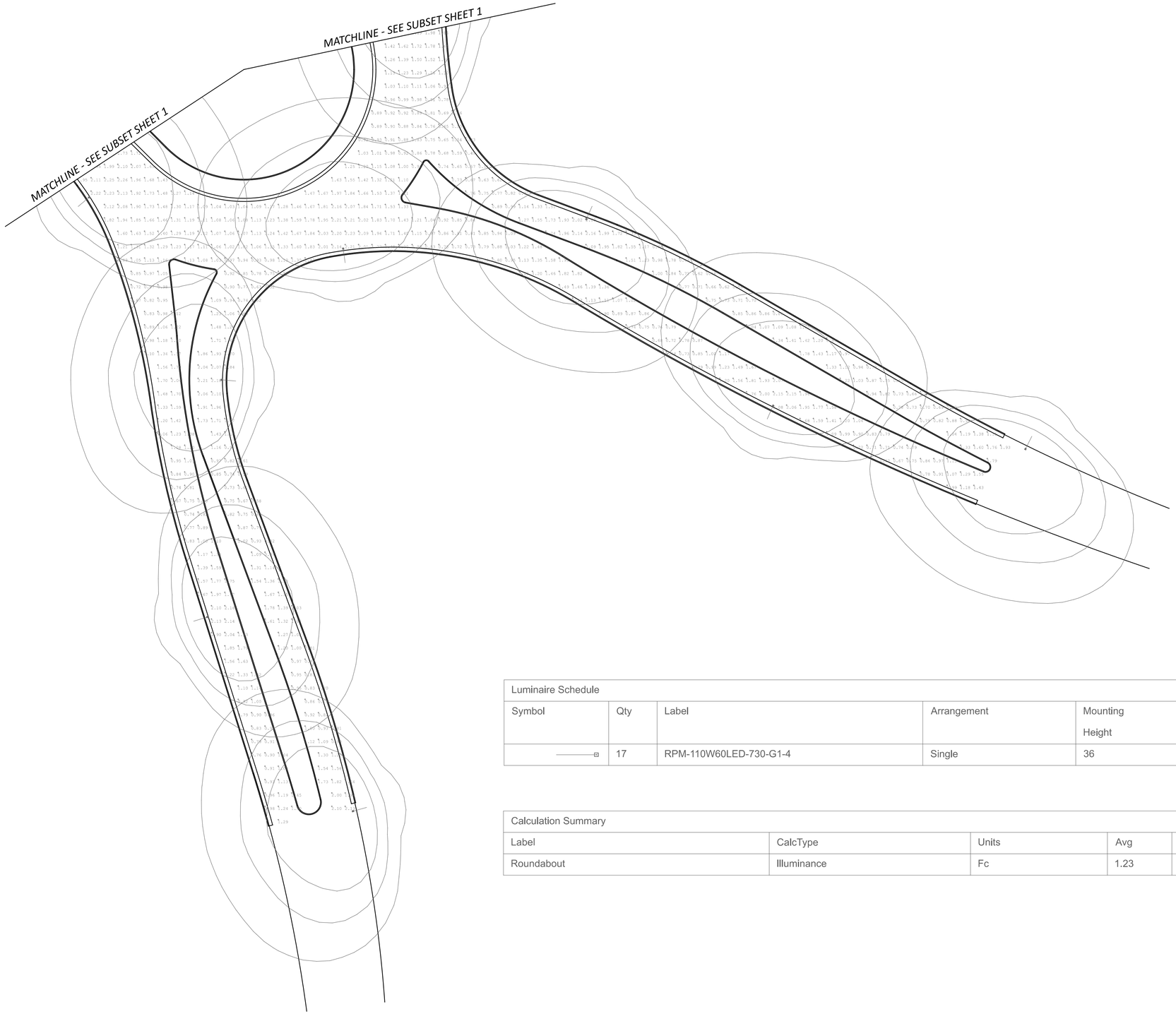


Luminaire Schedule								
Symbol	Qty	Label	Arrangement	Mounting Height	LLF	Luminaire Lumens	Luminaire Watts	Total Watts
	17	RPM-110W60LED-730-G1-4	Single	36	0.840	17696	149	2533

Calculation Summary							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
Roundabout	Illuminance	Fc	1.23	2.60	0.34	3.62	7.65

PHOTOMETRIC ANALYSIS - PERMANENT LIGHTING
SR-435 & BLUEGRASS BLVD ROUNDABOUT

FAY-435-1.52

MODEL: LD003_PHOTOMETRICS-PERM PAPERSIZE: 34x22 (in.) DATE: 2/13/2024 TIME: 9:10:47 AM USER: mike
\\10.1.2.4\projects\2023 Projects\23068 Palmer Engineering\002 FAY-435-1.52\117955\400-Engineering\Lighting\Sheets\117955_LD.dgn

DESIGN AGENCY
PLAN PREPARED BY:
TEC Engineering, Inc.
7288 Central Parke Blvd.
Mason, OH 45040

DESIGNER
TEC

REVIEWER
MJH 02/12/24

PROJECT ID
117955

SUBSET	TOTAL
2	2

SHEET	TOTAL
24	28

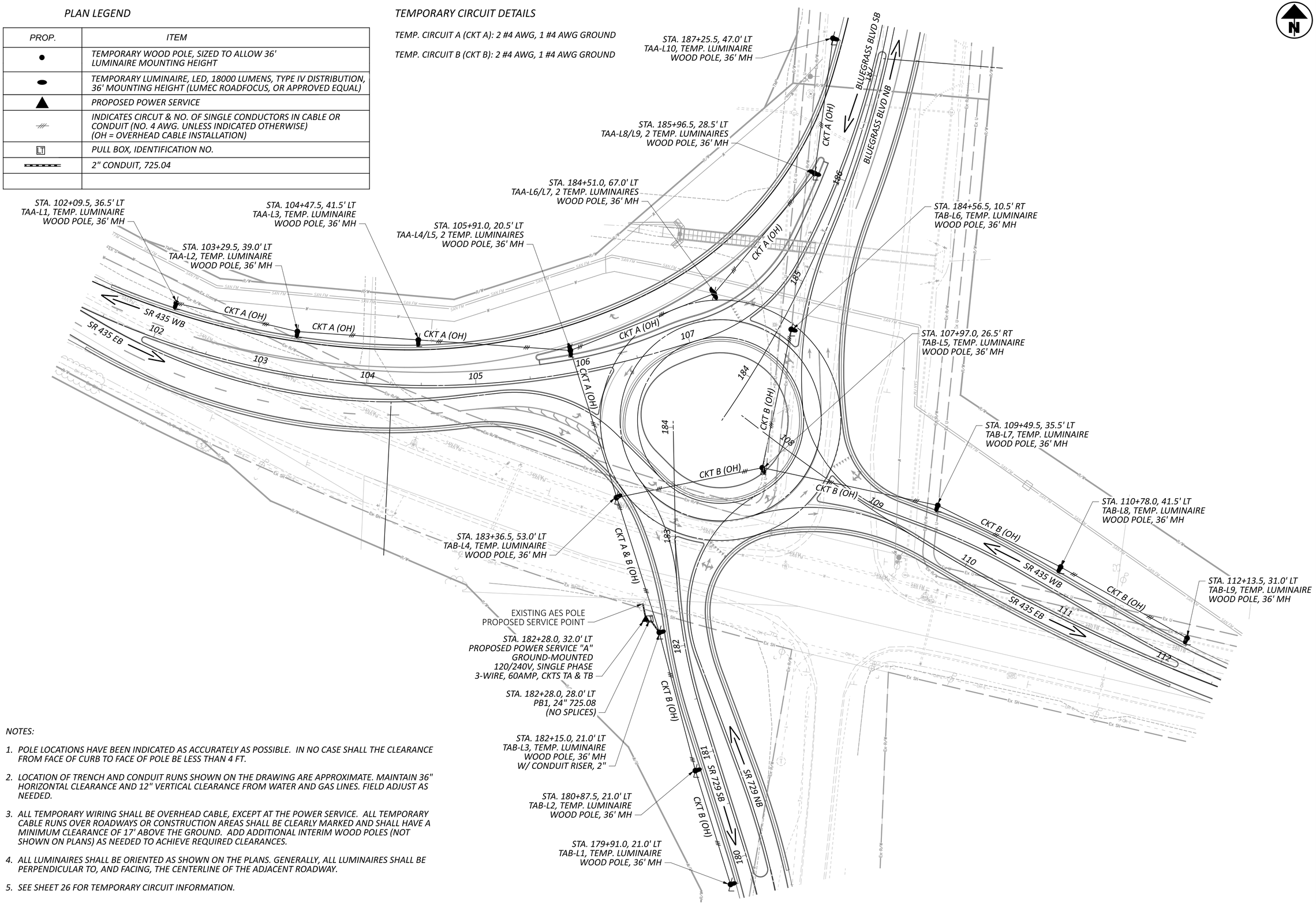
PLAN LEGEND

PROP.	ITEM
●	TEMPORARY WOOD POLE, SIZED TO ALLOW 36' LUMINAIRE MOUNTING HEIGHT
⬬	TEMPORARY LUMINAIRE, LED, 18000 LUMENS, TYPE IV DISTRIBUTION, 36' MOUNTING HEIGHT (LUMEC ROADFOCUS, OR APPROVED EQUAL)
▲	PROPOSED POWER SERVICE
###	INDICATES CIRCUT & NO. OF SINGLE CONDUCTORS IN CABLE OR CONDUIT (NO. 4 AWG. UNLESS INDICATED OTHERWISE) (OH = OVERHEAD CABLE INSTALLATION)
LT	PULL BOX, IDENTIFICATION NO.
	2" CONDUIT, 725.04

TEMPORARY CIRCUIT DETAILS

TEMP. CIRCUIT A (CKT A): 2 #4 AWG, 1 #4 AWG GROUND

TEMP. CIRCUIT B (CKT B): 2 #4 AWG, 1 #4 AWG GROUND



NOTES:

1. *POLE LOCATIONS HAVE BEEN INDICATED AS ACCURATELY AS POSSIBLE. IN NO CASE SHALL THE CLEARANCE FROM FACE OF CURB TO FACE OF POLE BE LESS THAN 4 FT.*
2. *LOCATION OF TRENCH AND CONDUIT RUNS SHOWN ON THE DRAWING ARE APPROXIMATE. MAINTAIN 36" HORIZONTAL CLEARANCE AND 12" VERTICAL CLEARANCE FROM WATER AND GAS LINES. FIELD ADJUST AS NEEDED.*
3. *ALL TEMPORARY WIRING SHALL BE OVERHEAD CABLE, EXCEPT AT THE POWER SERVICE. ALL TEMPORARY CABLE RUNS OVER ROADWAYS OR CONSTRUCTION AREAS SHALL BE CLEARLY MARKED AND SHALL HAVE A MINIMUM CLEARANCE OF 17' ABOVE THE GROUND. ADD ADDITIONAL INTERIM WOOD POLES (NOT SHOWN ON PLANS) AS NEEDED TO ACHIEVE REQUIRED CLEARANCES.*
4. *ALL LUMINAIRES SHALL BE ORIENTED AS SHOWN ON THE PLANS. GENERALLY, ALL LUMINAIRES SHALL BE PERPENDICULAR TO, AND FACING, THE CENTERLINE OF THE ADJACENT ROADWAY.*
5. *SEE SHEET 26 FOR TEMPORARY CIRCUIT INFORMATION.*

HORIZONTAL SCALE IN FEET
0 20 40 80

TEMPORARY LIGHTING PLAN
SR-435 & BLUEGRASS BLVD ROUNDABOUT

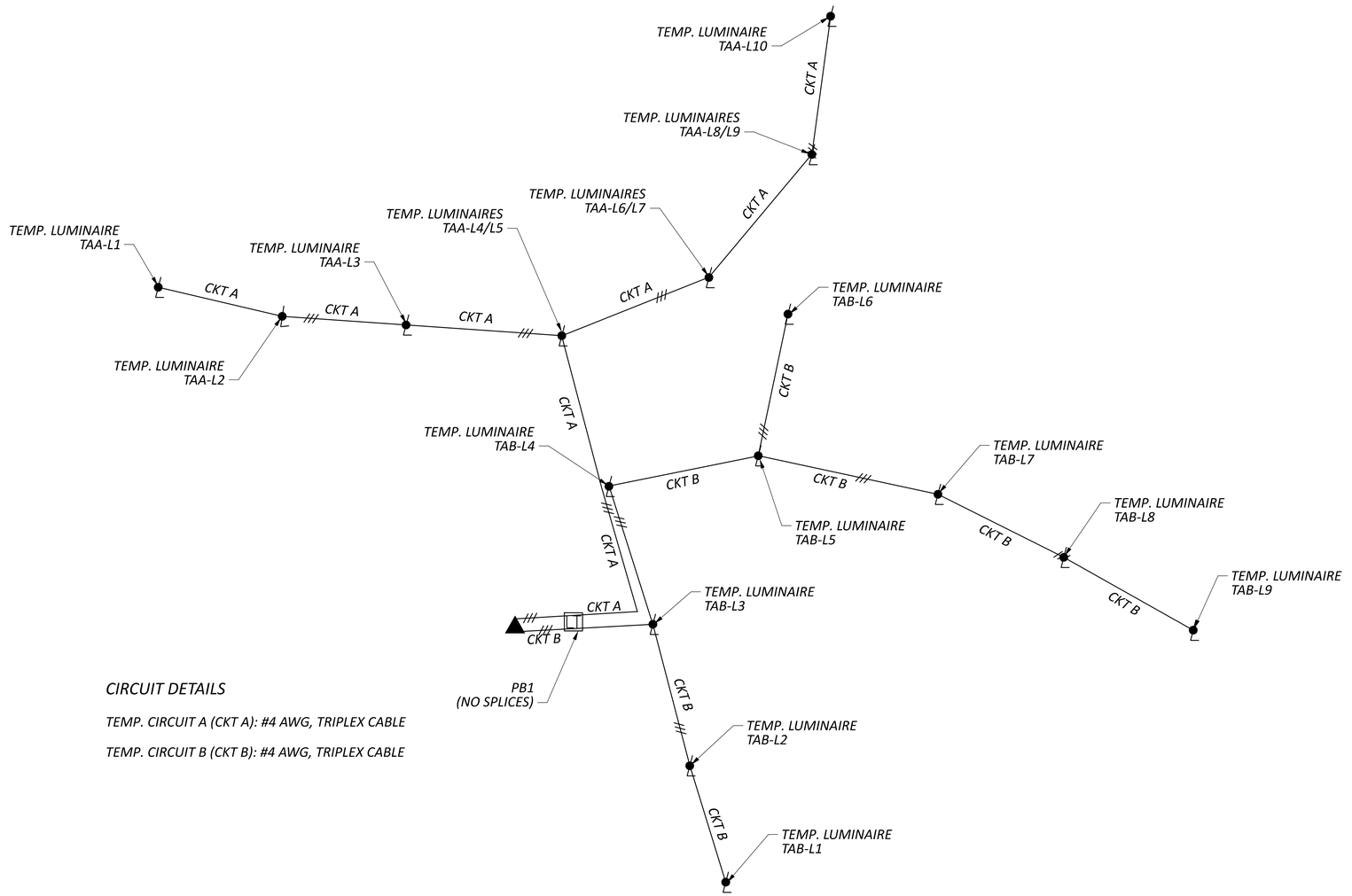
DESIGN AGENCY
TEC
PLAN PREPARED BY:
TEC Engineering, Inc.
7288 Central Parke Blvd.
Mason, OH 45040

DESIGNER TEC
REVIEWER MJH 02/12/24
PROJECT ID 117955
SHEET 25 TOTAL 28

FAY-435-1.52

MODEL: LP004 PAPERSIZE: 34x22 (in.) DATE: 2/13/2024 TIME: 9:10:49 AM USER: mike
\\10.1.2.4\projects\2023 Projects\23068 Palmer Engineering\002 FAY-435-1.52\117955\400-Engineering\Lighting\Sheets\117955_LP_RAB.dgn

TEMPORARY CONTROL CENTER DATA											
CONTROL CENTER	LINE VOLTAGE	CONNECTED LOAD (KVA)	ENCLOSURE RATING AMPS.	SERVICE ENTRANCE CONDUCTOR SIZE	CIRCUIT NUMBER	DESCRIPTION	CIRCUIT VOLTAGE	CIRCUIT LOAD AMPS.	CIRCUIT FUSE SIZE AMPS.	CIRCUIT CABLE SIZE	MAINTAINING AGENCY
TEMPORARY POWER SERVICE	120/240V SINGLE PHASE	3.17 KVA	60 AMPS	#2 AWG	A	TEMP CIRCUIT A	120V	13.9 AMPS	20 AMPS	#4	N/A
					B	TEMP CIRCUIT B	120V	12.5 AMPS	20 AMPS	#4	
					-	-	-	-	-	-	
					-	-	-	-	-	-	
					-	-	-	-	-	-	



PLAN LEGEND

PROP.	ITEM
	WOOD POLE WITH TEMPORARY LUMINAIRE(S) 36' MOUNTING HEIGHT
	PROPOSED POWER SERVICE
	INDICATES CIRCUT & NO. OF CONDUCTORS IN CABLE (NO. 4 AWG. UNLESS INDICATED OTHERWISE)
LT	PULL BOX, IDENTIFICATION NO.

CIRCUIT DETAILS

TEMP. CIRCUIT A (CKT A): #4 AWG, TRIPLEX CABLE

TEMP. CIRCUIT B (CKT B): #4 AWG, TRIPLEX CABLE

TEMPORARY CIRCUIT SCHEMATIC & CONTROL CENTER DATA
SR-435 & BLUEGRASS BLVD ROUNDABOUT

DESIGN AGENCY
PLAN PREPARED BY:
TEC Engineering, Inc.
7288 Central Parke Blvd.
Mason, OH 45040

DESIGNER: TEC

REVIEWER: MJH 02/12/24

PROJECT ID: 117955

SHEET 26 | TOTAL 28

FAY-435-1.52

FAY-435-1.52

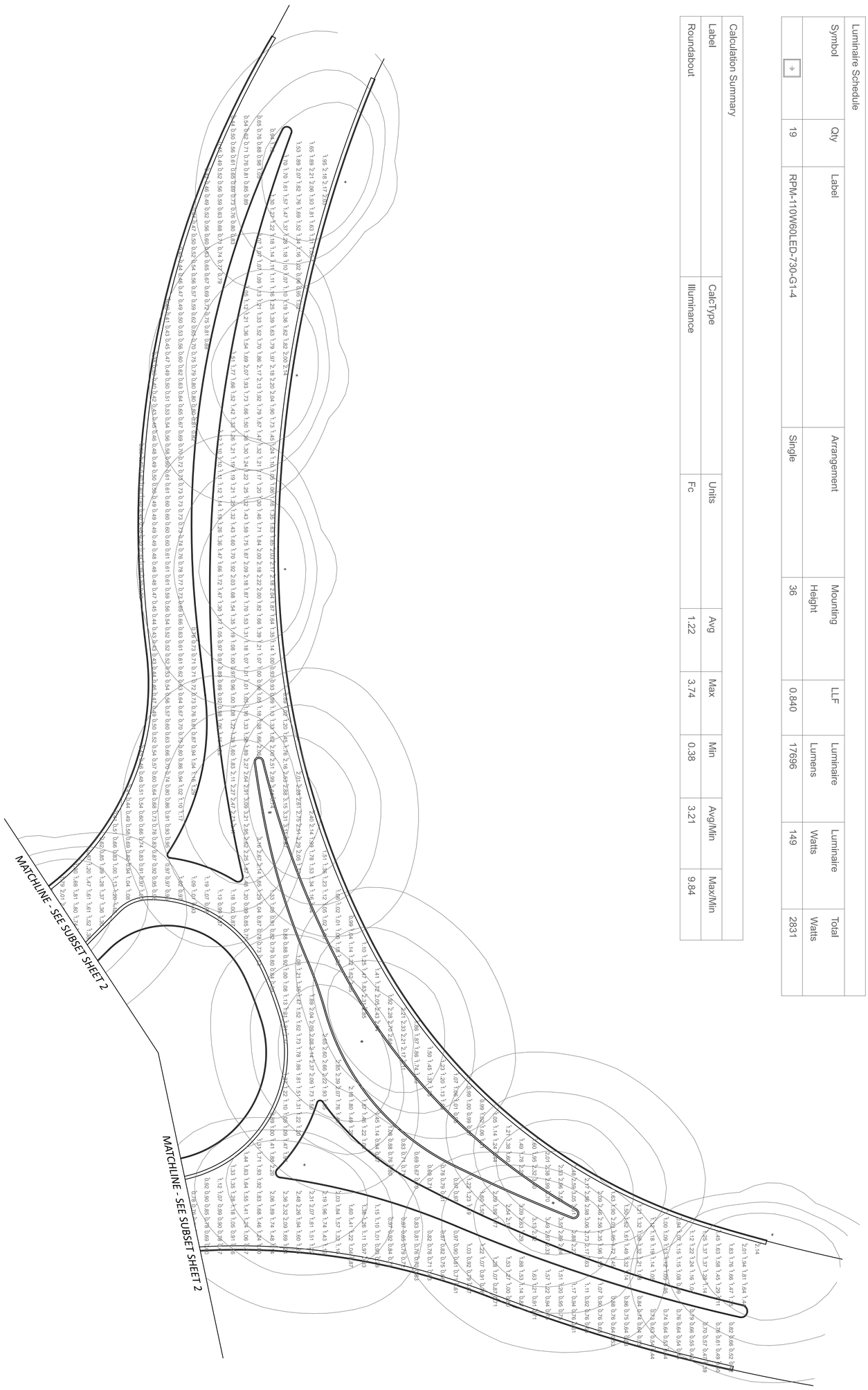
MODEL: LD004_PHOTOMETRICS-TEMP PAPERSIZE: 34x22 (in.) DATE: 2/13/2024 TIME: 9:10:58 AM USER: mike
\\10.1.2.4\projects\2023 Projects\23068 Palmer Engineering\002 FAY-435-1.52\117955\400-Engineering\Lighting\Sheets\117955_LD.dgn

Luminaire Schedule

Symbol	Qty	Label	Arrangement	Mounting Height	LLF	Luminaire Lumens	Luminaire Watts	Total Watts
+	19	RPM-110W60LED-730-G1-4	Single	36	0.840	17696	149	2831

Calculation Summary

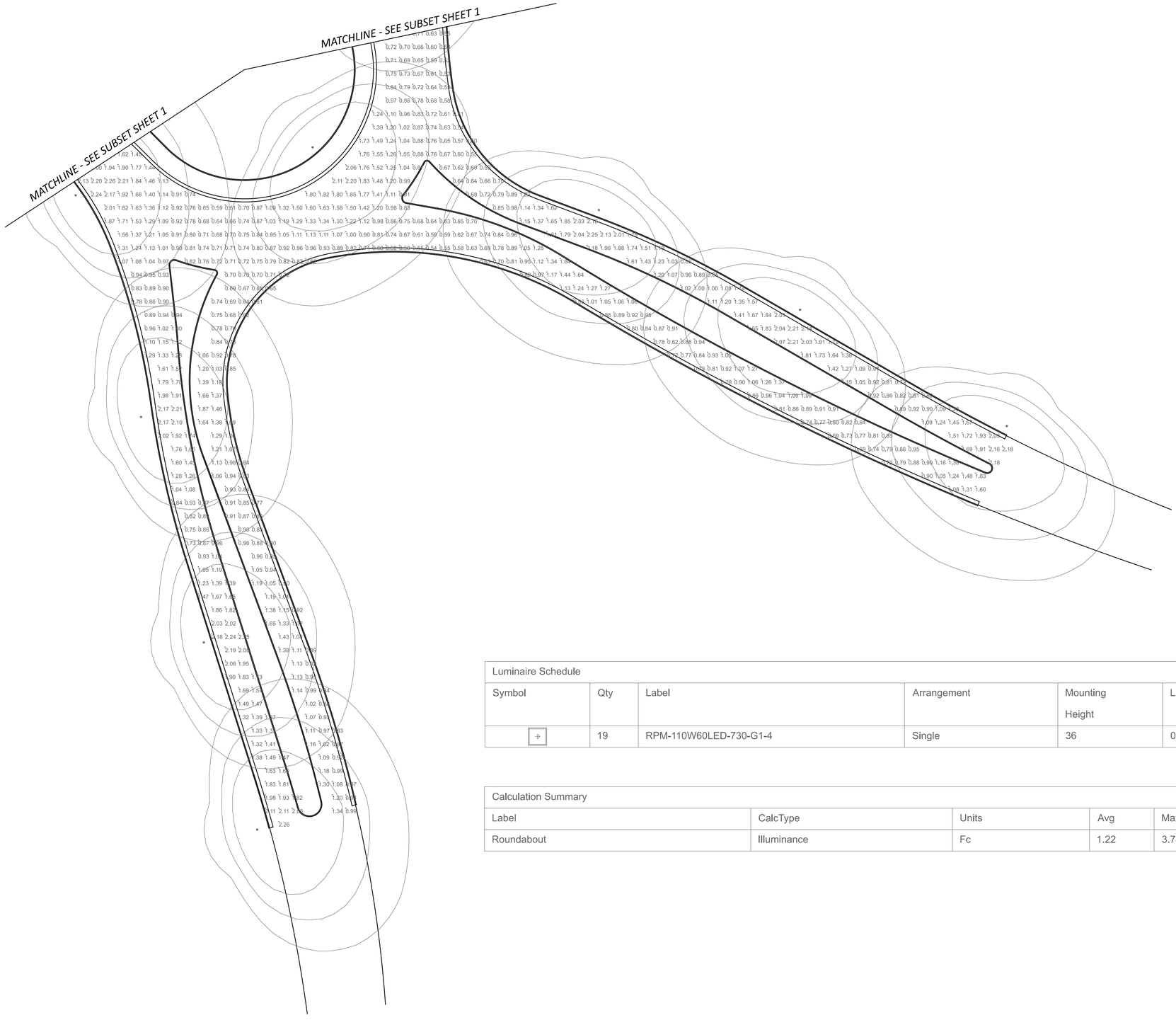
Label	Calc Type	Units	Avg	Max	Min	Avg/Min	Max/Min
Roundabout	Illuminance	Fc	1.22	3.74	0.38	3.21	9.84



PHOTOMETRIC ANALYSIS - TEMPORARY LIGHTING
SR-435 & BLUEGRASS BLVD ROUNDABOUT

PLAN PREPARED BY:
TEC Engineering, Inc.
7288 Central Parke Blvd.
Mason, OH 45040

DESIGNER: TEC
REVIEWER: MJH 02/12/24
PROJECT ID: 117955
SUBSET: 1 | TOTAL: 2
SHEET: 27 | TOTAL: 28



Luminaire Schedule								
Symbol	Qty	Label	Arrangement	Mounting Height	LLF	Luminaire Lumens	Luminaire Watts	Total Watts
	19	RPM-110W60LED-730-G1-4	Single	36	0.840	17696	149	2831

Calculation Summary							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
Roundabout	Illuminance	Fc	1.22	3.74	0.38	3.21	9.84

PHOTOMETRIC ANALYSIS - TEMPORARY LIGHTING
SR-435 & BLUEGRASS BLVD ROUNDABOUT

DESIGN AGENCY

PLAN PREPARED BY:
TEC Engineering, Inc.
7288 Central Parke Blvd.
Mason, OH 45040

DESIGNER: TEC

REVIEWER: MJH 02/12/24

PROJECT ID: 117955

SUBSET: 2 | TOTAL: 2

SHEET: 28 | TOTAL: 28

FAY-435-1.52