

CITY OF COLUMBUS, OHIO  
 DEPARTMENT OF PUBLIC SERVICE  
 DIVISION OF DESIGN AND CONSTRUCTION

FRA E RICH ST SIGNALS

IMPROVEMENTS OF  
 E. RICH STREET

FROM S 3RD ST TO  
 S GRANT AVE

PROJECT DESCRIPTION

This project consists of replacing the existing traffic signals at the intersections of Rich Street at 3rd Street, 4th Street, 5th Street, and Grant Avenue with new decorative mast arm traffic signals, brick intersection corners, decorative street lighting, and interconnect. Additionally, some drainage structures are being replaced with new connections to the system.

EARTH DISTURBED AREA

TOTAL EDA = 0.20 AC  
 Pre-Impervious = 0.19 AC  
 Post-Impervious = 0.19 AC

NOTE: The Project Disturbs under 10,000 SF of impervious area and is below the threshold for detention requirements.

2018 SPECIFICATIONS

The City of Columbus Construction and Materials Specifications (CMSC), 2018 Edition including all revisions and supplements in effect at the time of signature by the Director of Public Service, shall govern all construction items that are a part of this plan unless noted otherwise.

"City of Columbus" signatures on this plan signify only concurrence with the purpose and general location of the project. All technical details remain the responsibility of the Engineer preparing the plans.

CITY OF COLUMBUS APPROVALS

Design Section Engineer, Division of Design and Construction \_\_\_\_\_ Date \_\_\_\_\_

Administrator, Division of Power \_\_\_\_\_ Date \_\_\_\_\_

Administrator, Division of Sewerage and Drainage \_\_\_\_\_ Date \_\_\_\_\_

Administrator, Division of Water \_\_\_\_\_ Date \_\_\_\_\_

Director, Department of Public Utilities \_\_\_\_\_ Date \_\_\_\_\_

Fire Prevention Bureau, Division of Fire \_\_\_\_\_ Date \_\_\_\_\_

Engineering Supervisor, Department of Technology \_\_\_\_\_ Date \_\_\_\_\_

Director, Department of Recreation and Parks \_\_\_\_\_ Date \_\_\_\_\_

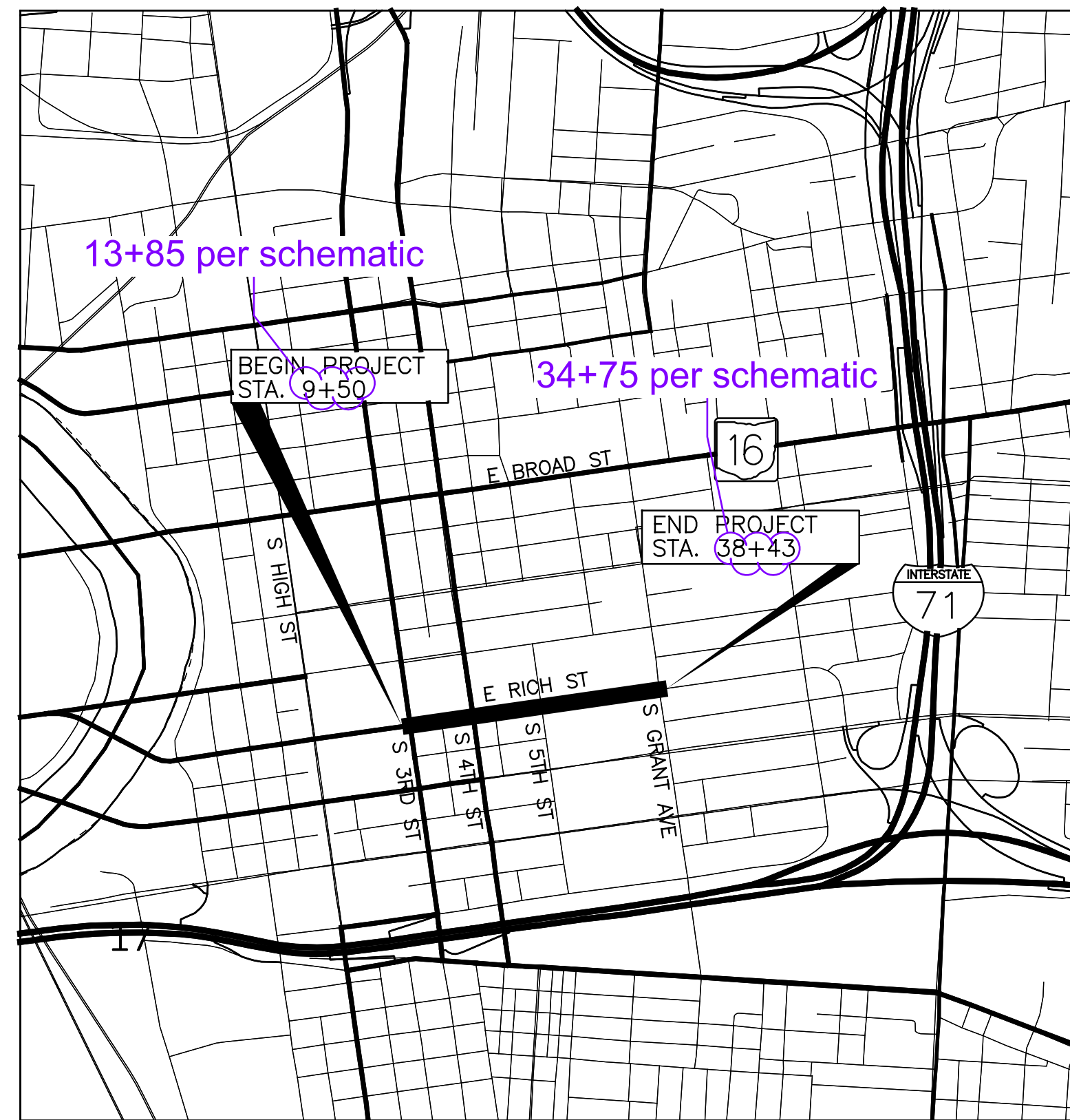
City Engineer—Administrator, Division of Design and Construction \_\_\_\_\_ Date \_\_\_\_\_

Director, Department of Public Service \_\_\_\_\_ Date \_\_\_\_\_

REV NO	Revision Description	Sheet(s)	Initial	Date

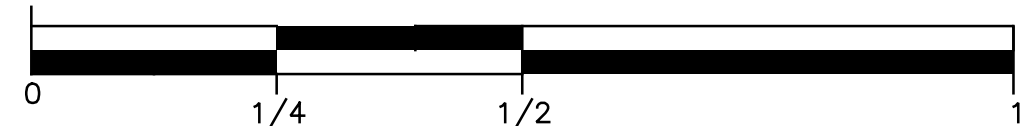


STAGE 3 SUBMITTAL,  
 DATE 02/19/24



LOCATION MAP

P.O.B. = LATITUDE: 39° 57' 53" N LONGITUDE: 82° 59' 40" W



Portions to be Improved: \_\_\_\_\_

DESIGN DESIGNATION DATA

Current ADT 3951  
 Design Year ADT (2043) 3951  
 Design Hourly Volume 397  
 Directional Distribution 100% WB  
 Trucks (24 hour b&c) 3%  
 Design Speed 25 mph  
 Legal Speed 25 mph  
 Design Functional Classification Urban Minor Arterial

DESIGN EXCEPTION

None

ASSOCIATED PLANS

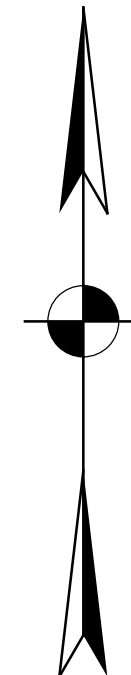
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PLAN PREPARED BY:  
  
 2421 REGINALD CT  
 POWELL, OHIO 43065

ENGINEER'S  
 SEAL

TRAFFIC  
 SIGNAL  
 ENGINEER'S  
 SEAL  
 (IF APPLICABLE)

Registered Engineer \_\_\_\_\_ Date \_\_\_\_\_ Registered Engineer \_\_\_\_\_ Date \_\_\_\_\_



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Janice Gartner 2/27/24  
 Katie Montoya 03/07/2024  
 Date Mead 03/21/2024

X/X/XX = APPROVAL DATE

COLUMBUS STANDARD CONSTRUCTION DRAWINGS						
AA-S102 12/6/13	AA-S126 12/6/13	1511 9/15/15	2185 7/1/22	4022 7/1/20	4163 7/1/21	
AA-S106 7/9/12	AA-S128 8/8/14	1520 9/15/15	2300 7/1/23	4106 7/1/20	4164 10/1/20	
AA-S107 7/9/12	AA-S149 10/15/14	1530 9/15/15	2301 7/1/23	4110 10/1/18	4200 8/1/15	
AA-S112 12/6/13	AA-S150 7/9/12	1640 3/1/23	2303 7/1/21	4111 8/10/17	4205 5/1/14	
AA-S117 7/9/12	AA-S151 7/9/12	1647 7/1/23	2320 4/13/18	4121 7/1/20	4230 10/1/18	
AA-S119 8/8/14	1441 7/7/23	2000 7/1/23	2319 7/1/23	4122 10/1/18	4253 5/1/14	
AA-S121 7/9/12	1442 7/1/23	2005 7/8/20	4000 8/10/17	4160 10/1/18	4650 7/1/20	
AA-S125A 8/8/14	1500 9/15/15	2161 7/1/23	4001 8/1/15	4161 8/1/15		
AA-S125B 8/8/14	1510 9/15/15	2179 7/1/21	4021 7/1/20	4162 7/1/20		

COLUMBUS SUPPLEMENTAL SPECIFICATIONS	
SS-1524	
SS-1611	
SS-1620	
SS-1630	

ODOT STANDARD CONSTRUCTION DRAWINGS	

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 PID 115410

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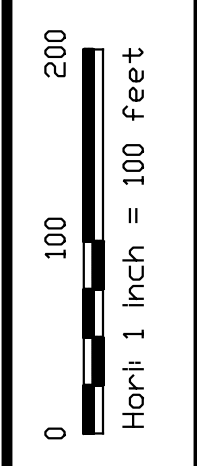
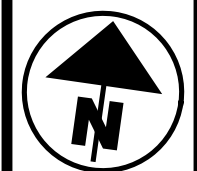
TITLE SHEET

IMPROVEMENTS OF  
 E RICH STREET FROM S 3RD ST TO S GRANT AVE  
 FRA E RICH ST SIGNALS

3921-E

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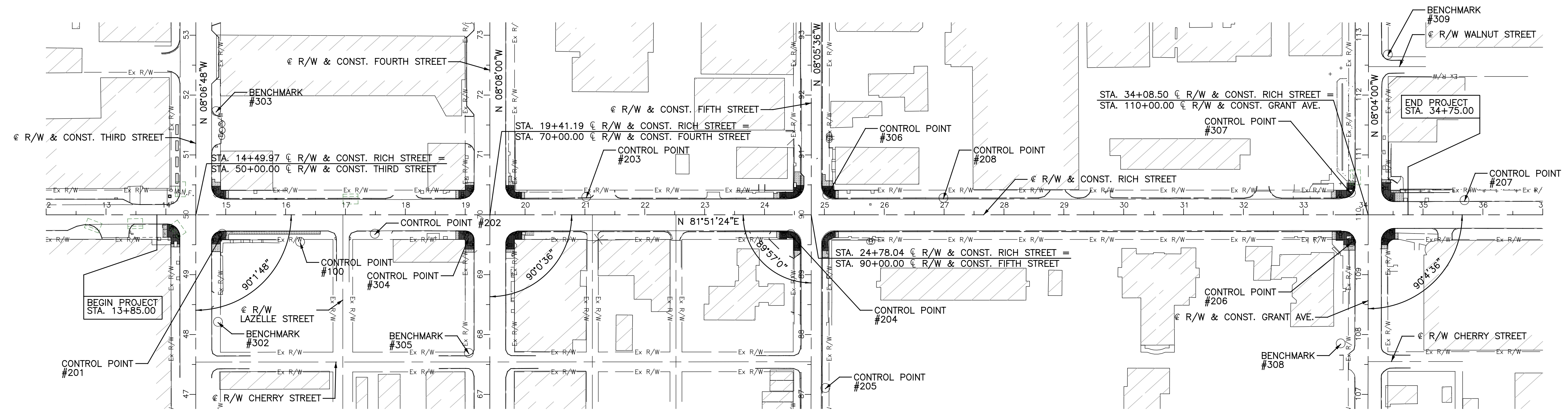
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SCHEMATIC PLAN

IMPROVEMENTS OF  
E RICH STREET FROM S 3RD ST TO S GRANT AVE  
FRA E RICH ST SIGNALS

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FLOODPLAIN

THE PROJECT IS LOCATED IN ZONE X AREA OF MINIMAL FLOOD HAZARD WITH NO DEFINED FLOODWAY AS SHOWN ON FIRM PANEL 39049C0328K, DATED 6/17/2008.

BASIS OF STATIONING

- RICH STREET: CENTERLINE STATION SET = 14+49.97 AT INTERSECTION WITH CENTERLINE OF THIRD STREET AS ESTABLISHED FOR THIS PROJECT.
- THIRD STREET: CENTERLINE STATION SET = 50+00.00 AT INTERSECTION WITH CENTERLINE OF RICH STREET AS ESTABLISHED FOR THIS PROJECT.
- FOURTH STREET: CENTERLINE STATION SET = 70+00.00 AT INTERSECTION WITH CENTERLINE OF RICH STREET AS ESTABLISHED FOR THIS PROJECT.
- FIFTH STREET: CENTERLINE STATION SET = 90+00.00 AT INTERSECTION WITH CENTERLINE OF RICH STREET AS ESTABLISHED FOR THIS PROJECT.
- GRANT STREET: CENTERLINE STATION SET = 110+00.00 AT INTERSECTION WITH CENTERLINE OF RICH STREET AS ESTABLISHED FOR THIS PROJECT.

CENTERLINE REFERENCE POINTS				
STATION	Alignment	Ground Northing	Ground Easting	
13+00.00	C/L R/W & CONST. RICH STREET	713467.164	1829091.935	
16+00.00	C/L R/W & CONST. RICH STREET	713509.659	1829388.910	
49+00.00	C/L R/W & CONST. THIRD STREET	713389.412	1829254.533	
51+00.00	C/L R/W & CONST. THIRD STREET	713587.41	1829226.307	
18+00.00	C/L R/W & CONST. RICH STREET	713537.989	1829586.893	
21+00.00	C/L R/W & CONST. RICH STREET	713580.483	1829883.868	
69+00.00	C/L R/W & CONST. FOURTH STREET	713458.997	1829740.829	
71+00.00	C/L R/W & CONST. FOURTH STREET	713656.985	1829712.534	
24+00.00	C/L R/W & CONST. RICH STREET	713622.978	1830180.843	
26+00.00	C/L R/W & CONST. RICH STREET	713651.308	1830378.827	
89+00.00	C/L R/W & CONST. FIFTH STREET	713535.032	1830272.198	
91+00.00	C/L R/W & CONST. FIFTH STREET	713733.04	1830244.041	
33+00.00	C/L R/W & CONST. RICH STREET	713750.462	1831071.768	
35+00.00	C/L R/W & CONST. RICH STREET	713778.792	1831269.752	
109+00.00	C/L R/W & CONST. GRANT AVE.	713666.825	1831193.236	
111+00.00	C/L R/W & CONST. GRANT AVE.	713864.846	1831165.171	

SURVEYING PARAMETERS	
PROJECT CONTROL	
POSITIONING METHOD: LOCAL RTK AND CONVENTIONAL TOTAL STATION OFF OF PUBLISHED (VERIFIED) MONUMENTATION	
MONUMENT TYPE: IRON PIN SET W/ ALUMINUM/PLASTIC CAP, MAG NAILS, CUT SQUARES	
VERTICAL POSITIONING	
ORTHOMETRIC HEIGHT DATUM: NAVD88	
GEOID: GEOID18	
HORIZONTAL POSITIONING	
REFERENCE FRAME: NAD83 (2011) EPOCH: 2010.00	
ELLIPSOID: GRS 80	
MAP PROJECTION: LAMBERT CONIC CONFORMAL	
COORDINATE SYSTEM: OHIO SOUTH 3402	
COMBINED SCALE FACTOR: 0.999955142 (GROUND TO GRID)	
PROJECT SCALE FACTOR: 1.00004486 (GRID TO GROUND)	
ORIGIN OF COORDINATE SYSTEM: GRID COORDINATES SCALED ABOUT 0,0	

VERTICAL CONTROL BENCHMARKS				
VERTICAL CONTROL WAS BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88), WITH GEOID 18 USED TO MODEL ELEVATIONS. ALL ELEVATIONS ARE REFERENCED FRANKLIN COUNTY BENCHMARKS DISCOVERY, BROAD, COLUMBUS, AND R 308.				
BENCHMARK	DESCRIPTION	GROUND NORTHING (US FEET)	GROUND EASTING (US FEET)	ELEVATION (US FEET)
301	CUT SQUARE	713421.130	1828544.693	761.740
302	CUT SQUARE	713316.636	1829302.410	756.096
303	CUT SQUARE	713664.677	1829249.437	755.721
304	CUT SQUARE	713515.167	1829696.968	755.627
305	CUT SQUARE	713324.580	1829724.569	754.229
306	CUT SQUARE	713670.970	1830279.831	757.103
308	CUT SQUARE	713546.696	1831164.028	764.094
309	CUT SQUARE	714035.422	1831173.658	763.909
501	CUT SQUARE	713545.738	1829434.163	757.428
502	CUT SQUARE	713629.262	1830012.984	758.594
HORIZONTAL CONTROL				
PRIMARY HORIZONTAL CONTROL POINTS WERE EITHER ESTABLISHED BY REPEATED GNSS RTK MEASUREMENTS FROM EXSITING NGS MONUMENT CNTRL GAR, OR BY REPEATED TOTAL STATION MEASUREMENTS (FROM CONTROL STATIONS LINKED DEFINED BY CNTRL GAR).				
ALL DISPLAYED HORIZONTAL COORDINATES ARE GROUND (SCALED) POSITIONS. GRID NAD83 (2011) OHIO STATE PLANE SOUTH POSITIONS WERE ORIGINALLY USED TO OBTAIN GROUND COORDINATES. IN ORDER TO OBTAIN SCALED (GROUND) POSITIONS, GRID COORDINATES WERE SCALED ABOUT 0,0 BY A FACTOR OF 1.00004486.				
CONTROL POINT	DESCRIPTION	GROUND NORTHING (US FEET)	GROUND EASTING (US FEET)	ELEVATION (US FEET)
100	5/8"x 30" IRON PIN WITH PLASTIC CAP	713468.313	1829419.330	755.887
101	5/8"x 30" IRON PIN WITH PLASTIC CAP	713486.695	1828896.498	758.720
201	MAG NAIL SET	713463.314	1829288.629	755.195
202	MAG NAIL SET	713499.457	1829540.894	755.344
203	MAG NAIL SET	713610.355	1829881.938	755.823
204	MAG NAIL SET	713597.335	1830228.666	757.103
205	MAG NAIL SET	713351.012	1830322.332	757.991
206	MAG NAIL SET	713716.980	1831157.663	762.611
207	MAG NAIL SET	713812.693	1831334.911	764.005
208	MAG NAIL SET	713693.319	1830472.620	758.196
307	MAG NAIL FOUND	713798.303	1831145.256	762.322
310	5/8"x 30" IRON PIN WITH PLASTIC CAP	713825.486	1831773.657	768.452

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1 Xref: Dr E Border



**REFERENCE SPECIFICATIONS**

THE CITY OF COLUMBUS CONSTRUCTION AND MATERIALS SPECIFICATIONS (CMSC), 2018 EDITION, INCLUDING ALL REVISIONS AND SUPPLEMENTS IN EFFECT AT THE TIME OF SIGNATURE BY THE DIRECTOR OF PUBLIC SERVICE, SHALL GOVERN ALL CONSTRUCTION ITEMS THAT ARE A PART OF THIS PLAN UNLESS NOTED OTHERWISE.

**PERMITS**

WHEN EXCAVATING WITHIN COLUMBUS PUBLIC RIGHT OF WAY LIMITS, THE CONTRACTOR SHALL OBTAIN AN EXCAVATION PERMIT FROM CITY OF COLUMBUS, DEPARTMENT OF PUBLIC SERVICE- PERMIT OFFICE BETWEEN THE HOURS OF 7:30 AM AND 4:00 PM MONDAY THROUGH FRIDAY.  
PHONE (614) 645-7497; FAX: (614) 645-1876;  
EMAIL: colspemits@columbus.gov

**UTILITIES**

THE IDENTITY AND LOCATION OF EXISTING UNDERGROUND UTILITIES LOCATED IN AND AROUND THE CONSTRUCTION AREA HAVE BEEN SHOWN AND LABELED ON THE PLANS BY USING INFORMATION PROVIDED BY THE RESPECTIVE UTILITY OWNERS. THE CITY OF COLUMBUS OR THE CONSULTING ENGINEER WILL NOT ASSUME RESPONSIBILITY FOR THE ACCURACY OF LOCATION OR DEPTH OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THE PLAN.

SUPPORT AND PROTECTION OF ALL UTILITIES AND APPURTENANCES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. COSTS FOR THE REPAIR AND RESTORATION OF EXISTING UTILITIES DAMAGED BY THE CONTRACTOR SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE CITY OF COLUMBUS UTILITIES WILL ONLY LOCATE AND MARK MAIN LINE FACILITIES. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL SERVICE LATERAL AND LINES. COSTS ASSOCIATED WITH THE ABOVE WORK AND RESPONSIBILITIES SHALL BE INCLUDED IN THE PRICE BID FOR VARIOUS ITEMS.

PRIOR TO EXCAVATION, THE CONTRACTOR SHALL GIVE A 48-HOUR NOTICE TO THE OHIO UTILITIES PROTECTION SERVICE (OUPS) BY CALLING (800) 362-2764. A 48-HOUR NOTICE SHALL BE GIVEN TO THE OWNERS OF UNDERGROUND UTILITIES SHOWN ON THE PLANS WHO ARE NOT MEMBERS OF A REGISTERED UNDERGROUND PROTECTION SERVICE.

LISTED BELOW ARE UTILITY COMPANIES THAT HAVE FACILITIES LOCATED WITHIN THE WORK LIMITS OF THIS PROJECT AND SUBSCRIBE TO OUPS.

AMERICAN ELECTRIC POWER  
777 HOPEWELL DRIVE  
HEATH, OHIO 43056  
CONTACT: PAUL PAXTON  
OFFICE: (740) 348-5322  
ppaxton@aep.com  
AEP SOLUTION CENTER: (800) 277-2177

LUMEN  
250 W. OLD WILSON BRIDGE ROAD,  
SUITE 130  
WORTHINGTON, OHIO 43085  
relocations@lumen.com  
relocations@brightspeed.com  
haley.wood@lumen.com

AMERICAN ELECTRIC POWER (TELECOM)  
CONTACT: UNA BLANUSA  
ohiofiberrelocate@aep.com

VERIZON BUSINESS (MCI)  
7575 COMMERCE COURT  
LEWIS CENTER, OHIO 43035  
CONTACT: BRIAN ANSEL  
brian.ansel@verizon.com  
vz.net.columbus@verizon.com

AMERICAN ELECTRIC POWER (TRANSMISSION)  
8600 SMITHS MILL ROAD  
NEW ALBANY, OHIO 43054  
CONTACT: MICHAEL CARR  
OFFICE: (380) 205-5072  
tl\_publicprojects@aep.com

WINDSTREAM-KDL  
2165 STATE ROUTE 133 SOUTH  
BLANCHESTER, OHIO 45107  
CONTACT: LEON TAYLOR  
CELL: (937) 725-5358  
leon.taylor@windstream.com

AT&T  
111 NORTH 4TH STREET  
COLUMBUS, OHIO 43215  
CONTACT: DONALD MARSHALL  
CELL: (614) 216-2396  
g01553@att.com  
AT&T REPAIR SERVICE: (888) 611-4466  
DAMAGE PREVENTION: (937) 296-3929

ZAYO GROUP  
251 NEILSTON STREET  
COLUMBUS, OHIO 43215  
CONTACT: ERIC ALEXANDER  
CELL: (614) 989-9655  
eric.alexander@zayo.com

BREEZELINE  
3675 CORPORATE DRIVE  
COLUMBUS, OHIO 43231  
dl\_cmhfr@atlanticbb.com  
jborreson@breezeline.com

CITY OF COLUMBUS  
DEPARTMENT OF PUBLIC SERVICE  
TRAFFIC SIGNALS  
1820 EAST 17TH AVENUE  
COLUMBUS, OHIO 43219  
OFFICE: (614) 560-0839

CHARTER COMMUNICATIONS  
3760 INTERCHANGE ROAD  
COLUMBUS, OHIO 43204  
dl-moh-construction-frelo-team@charter.com

CITY OF COLUMBUS  
DEPARTMENT OF TECHNOLOGY  
1355 MCKINLEY AVENUE  
BUILDING C  
COLUMBUS, OHIO 43222  
OFFICE: (614) 645-1501  
CONTRACTOR LINE: (614) 645-7756

COLUMBIA GAS OF OHIO  
3550 JOHNNY APPLESEED COURT  
COLUMBUS, OHIO 43231  
CONTACT: ROB CALDWELL  
OFFICE: (614) 818-2104  
CELL: (614) 370-1906  
rcaldwell@nisource.com  
columbiagas\_columbuseng@nisource.com  
CUSTOMER SERVICE: (800) 344-4077  
DAMAGE PREVENTION: (866) 632-6243

CITY OF COLUMBUS  
SUPPORT SERVICES DIVISION -  
COMMUNICATIONS  
4211 GROVES ROAD  
COLUMBUS, OHIO 43232  
OFFICE: (614) 645-7344  
RADIO ROOM: (614) 724-4006

CROWN CASTLE  
2 EASTON OVAL, SUITE 425  
COLUMBUS, OHIO 43219  
CONTACT: JON TARNOWSKI  
OFFICE: (585) 445-5813  
CELL: (614) 940-2462  
jon.tarnowski@crowncastle.com

CITY OF COLUMBUS  
DEPARTMENT OF PUBLIC UTILITIES  
DIVISION OF WATER  
910 DUBLIN ROAD  
OFFICE: (614) 645-7788

EVERSTREAM  
240 NORTH 5TH STREET, SUITE 168  
COLUMBUS, OHIO 43215  
CONTACT: SCOTT LANCIA  
OFFICE: (380) 204-5465  
CELL: (614) 515-3479  
slancia@everstream.com

CITY OF COLUMBUS  
DEPARTMENT OF PUBLIC UTILITIES  
DIVISION OF SEWERAGE AND DRAINAGE  
1250 FAIRFIELD AVENUE  
COLUMBUS, OHIO 43206  
OFFICE: (614) 645-7102

CITY OF COLUMBUS  
DEPARTMENT OF PUBLIC UTILITIES  
DIVISION OF POWER  
3568 INDIANOLA AVENUE  
COLUMBUS, OHIO 43214  
OFFICE: (614) 645-7569

**EMERGENCY PROVISIONS**

THE CONTRACTOR SHALL PROVIDE TO THE CITY OF COLUMBUS PROJECT REPRESENTATIVE A LIST OF 24 HOUR EMERGENCY TELEPHONE NUMBERS (IN WRITING) PRIOR TO THE START OF CONSTRUCTION.

**SECURING EXCAVATIONS & TRENCHES FOR NON-WORKING HOURS**

EXCAVATIONS AND TRENCHES OVER 24 INCHES DEEP SHALL BE SECURELY PLATED OR BACKFILLED DURING NON-WORKING HOURS.

**CONSTRUCTION LIMITS**

THE CONSTRUCTION LIMITS SHOWN ON THESE PLANS ARE FOR PHYSICAL CONSTRUCTION ONLY. THE INSTALLATION AND OPERATION OF ALL TEMPORARY TRAFFIC CONTROL AND TEMPORARY TRAFFIC CONTROL DEVICES REQUIRED BY THESE PLANS SHALL BE PROVIDED BY THE CONTRACTOR WHETHER INSIDE OR OUTSIDE OF THESE CONSTRUCTION LIMITS.

**MISCELLANEOUS WORK ITEMS**

THE CONTRACTOR SHALL PERFORM ALL ITEMS OF WORK CALLED FOR ON THE PLANS, FOR WHICH NO SPECIFIC METHOD OF PAYMENT IS PROVIDED. THE COST OF THESE ITEMS SHALL BE INCLUDED IN THE VARIOUS UNIT PRICES BID FOR THE PROJECT IMPROVEMENT.

**BENCHMARKS AND SURVEY MONUMENTS**

DO NOT DISTURB ANY FRANKLIN COUNTY CERTIFIED BENCHMARKS (VERTICAL AND/OR HORIZONTAL) LOCATED WITHIN THE WORKING LIMITS OF THE PROJECT. CONTRACTOR SHALL CONTACT THE FRANKLIN COUNTY SURVEY DEPARTMENT (614) 525-3026, PRIOR TO CONSTRUCTION, TO COORDINATE THE PROPER PROCEDURES FOR THE RESETTING, RELOCATION, OR REPLACEMENT OF ANY FRANKLIN COUNTY CERTIFIED BENCHMARK OR SURVEY MONUMENT.

**SAW CUTTING IS INCLUDED**

THE COST OF SAW CUTTING FOR THE REMOVAL OF PAVEMENT, CURB, WALKS, ETC. SHALL BE INCLUDED IN THE CONTRACT PRICE FOR ITEM 202 WORK ITEMS. SAW CUTTING IS REQUIRED TO PROVIDE SMOOTH STRAIGHT EDGES FOR REMOVAL PURPOSES.

**NEW CURB RADIUS**

INTERSECTION CORNERS OR HORIZONTAL CURVES SHALL MATCH THE EXISTING RADIUS UNLESS NOTED OTHER WISE.

**COTA- SIGNS AND/OR BUS STOPS**

PRIOR TO CONSTRUCTION THE CONTRACTOR SHALL CONTACT SENIOR SERVICE PLANNER OF THE CENTRAL OHIO TRANSIT AUTHORITY (COTA) @ PH- (614) 308-4373 OR FAX- (614) 275-5933 TO COORDINATE PROPER BUS MOVEMENTS THROUGH OR AROUND THE JOB SITE DURING THE PROJECT. THIS WILL INCLUDE, BUT NOT BE LIMITED TO, THE TEMPORARY RELOCATION OR REMOVAL OF COTA SIGNS AND/OR BUS STOP LOCATIONS.

**GAS SERVICE VALVES ADJUSTED TO GRADE**

THE CONTRACTOR SHALL CONTACT COLUMBIA GAS (614) 460-2244 TO COORDINATE THE ADJUSTMENT OF GAS SERVICE VALVES.

**COLUMBIA GAS DAMAGE PREVENTION CENTER**

FOR INFORMATION CONCERNING COLUMBIA GAS LINES OR EQUIPMENT, OR IF DAMAGE OCCURS TO GAS LINES OR EQUIPMENT, THE CONTRACTOR CAN CALL THE COLUMBIA GAS DAMAGE PREVENTION CENTER @ (614) 280-7372 OR TOLL FREE @ (866) 632-6243.

**CONTINGENCY QUANTITIES**

THE CONTRACTOR SHALL NOT ORDER MATERIALS OR PERFORM WORK SHOWN, LABELED, OR LISTED AS 'CONTINGENCY' OR REFERENCED BY PLAN NOTE TO BE USED 'AS DIRECTED BY THE ENGINEER,' UNLESS AUTHORIZED BY THE ENGINEER, OR A REPRESENTATIVE OF THE CITY OF COLUMBUS, DIVISION OF DESIGN AND CONSTRUCTION.

**CONCRETE WALKS**

ALL EXISTING CONCRETE SIDEWALKS BEING REPLACED WITH NEW CONCRETE SIDEWALKS SHALL BE REMOVED AT AN EXISTING JOINT AND REPLACED PER STANDARD DRAWING 2300. INSTALL EXPANSION JOINT WHERE NEW CONCRETE ADJOINS EXISTING SIDEWALK.

ALL EXISTING CONCRETE SIDEWALKS NOT SCHEDULED FOR REPLACEMENT BUT BEING CROSSED BY THE INSTALLATION OF TRAFFIC ITEMS, ELECTRICAL CONDUIT, PIPING, ETC. SHALL BE FULLY REMOVED AT AN EXISTING JOINT AND REPLACED PER STANDARD DRAWING 2300 UNLESS NOTED OTHERWISE. PAYMENT SHALL BE INCLUDED IN THE PRICE BID FOR ITEM 608- CONCRETE WALK.

**ITEM SPECIAL - BRICK PAVERS, INCLUDING 4" CONCRETE BASE. (SCD 2301- NON-RESIDENTIAL). COMPLETE**

PAVERS SHALL BE INSTALLED IN ACCORDANCE WITH SCD 2301 AND AS DETAILED WITHIN PLANS. CONTRACTOR SHALL SUBMIT (5 EA) BRICK SAMPLES TO CITY OF COLUMBUS PRIOR TO ORDERING MATERIALS. PAYMENT FOR BRICK WALK, COMPLETE SHALL BE FULL COMPENSATION AND INCLUDE THE FOLLOWING ITEMS: EXCAVATION, BACKFILL, GRADING, FORMING, FINISHING, MATERIALS PER SCD 2301. REFERENCE SS-1524 FOR JOINTING SAND, JOINT SAND STABILIZER, BITUMINOUS SETTING BED, NEOPRENE ADHESIVE REQUIREMENTS. BRICK PAVERS, CONCRETE BASE, STEEL EDGE RESTRAINTS, CONCRETE SAWING & EXPANSION JOINT MATERIALS AND ANY INCIDENTALS REQUIRED TO COMPLETE THE INSTALLATION AS SPECIFIED.

THE CITY WILL MEASURE BRICK WALK BY THE NUMBER OF SQUARE FEET OF FINISHED SURFACE, COMPLETE IN PLACE.

**ITEM SPECIAL - ABM PARKING SERVICES SIGN TO BE REMOVED**

THE CONTRACTOR SHALL REMOVE THE ENCROACHING AERIAL ABM PARKING SERVICES SIGN. THE SIGN FOUNDATION AND POLE SHALL REMAIN AND SHALL NOT BE DISTURBED.

PAYMENT SHALL BE MADE AT THE UNIT PRICE BID PER EACH FOR ITEM SPECIAL - ABM PARKING SERVICES SIGN TO BE REMOVED AND SHALL INCLUDE ALL LABOR, EQUIPMENT, AND MATERIALS NECESSARY TO PERFORM THE WORK NOTED ABOVE.

**ITEM SPECIAL - REMOVE AND REERECT MAILBOX**

THE CONTRACTOR SHALL CAREFULLY REMOVE THE EXISTING MAILBOX AND REERECT AT THE NEW LOCATION SPECIFIED IN THE PLANS. IN ORDER TO PREVENT DISRUPTION TO MAIL SERVICE, THE CONTRACTOR SHALL IMMEDIATELY REERECT THE MAILBOX AT ITS PROPOSED LOCATION UPON REMOVAL FROM ITS EXISTING LOCATION.

PAYMENT SHALL BE MADE AT THE UNIT PRICE BID PER EACH FOR ITEM SPECIAL - REMOVE AND REERECT MAILBOX AND SHALL INCLUDE ALL LABOR, EQUIPMENT, AND MATERIALS NECESSARY TO PERFORM THE WORK NOTED ABOVE.

**ITEM SPECIAL - ELECTRIC PULL BOX ADJUSTED TO GRADE**

THE CONTRACTOR SHALL ADJUST THE DIVISION OF POWER ELECTRIC PULL BOX TO GRADE. PULL BOX LID SHALL BE ADJUSTED TO THE ELEVATIONS SHOWN ON THE INTERSECTION DETAILS.

PAYMENT SHALL BE MADE AT THE UNIT PRICE BID PER EACH FOR ITEM SPECIAL - ELECTRIC PULL BOX ADJUSTED TO GRADE AND SHALL INCLUDE ALL LABOR, EQUIPMENT, AND MATERIALS NECESSARY TO PERFORM THE WORK NOTED ABOVE.

**ITEM SPECIAL - ELECTRIC VAULT GRATE ADJUSTED TO GRADE**

THE CONTRACTOR SHALL ADJUST THE DIVISION OF POWER ELECTRIC VAULT GRATE TO GRADE. THE GRATE SHALL BE ADJUSTED TO THE ELEVATIONS SHOWN ON THE INTERSECTION DETAILS.

PAYMENT SHALL BE MADE AT THE UNIT PRICE BID PER EACH FOR ITEM SPECIAL - ELECTRIC VAULT GRATE ADJUSTED TO GRADE AND SHALL INCLUDE ALL LABOR, EQUIPMENT, AND MATERIALS NECESSARY TO PERFORM THE WORK NOTED ABOVE.

**SUMMARY OF POST-CONSTRUCTION STORMWATER CONTROL FACILITIES (NO SCP'S)**

POST CONSTRUCTION STORMWATER CONTROL PRACTICES (SCP) FOR STORM WATER QUANTITY AND QUALITY ARE NOT REQUIRED FOR THE 112 SF OF ADDITIONAL IMPERVIOUS AREA AND 8300 SF OF DISTURBED IMPERVIOUS AREA ON THIS PLAN, AS THE ADDITIONAL IMPERVIOUS AREA AND DISTURBED IMPERVIOUS AREA FOR THE PROJECT ARE BELOW THE DE MINIMIS LEVELS AS DEFINED IN THE 2022 STORM WATER DRAINAGE MANUAL (SWDM).

THE STORM WATER MANAGEMENT FOR THIS PLAN WAS DESIGNED IN ACCORDANCE WITH THE DECEMBER 2022 STORM WATER DRAINAGE MANUAL.

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GENERAL NOTES

IMPROVEMENTS OF  
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FRA E RICH ST SIGNALS

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**PUBLIC TREE PRESERVATION NOTE**

ALL PUBLIC TREES AND THE GROUND BELOW THEIR RESPECTIVE DRIP LINES, WHETHER SHOWN OR NOT SHOWN ON THE PLANS, ARE TO BE PRESERVED UNLESS APPROVAL TO REMOVE OR PRUNE IS GIVEN IN WRITING BY COLUMBUS RECREATION & PARKS (CRPD)/CITY FORESTER OR IF THE PUBLIC TREE REMOVAL HAS BEEN DESIGNATED ON THE APPROVED FINAL SITE COMPLIANCE PLAN. TREES APPROVED FOR REMOVAL BY CRPD/CITY FORESTER SHALL BE PAID FOR UNDER CMSC ITEM 201, CLEARING AND GRUBBING, UNLESS OTHERWISE PROVIDED FOR BY UNIT PRICE BID UNDER ITEM 201. THE CONTRACTOR SHALL PROTECT TREES NEAR OR ADJACENT TO THE WORK AREA TO AVOID DAMAGE TO ALL TREES THAT ARE TO REMAIN. ALL TREES REMOVED SHALL INCLUDE STUMP REMOVAL TO EIGHTEEN (18) INCHES BELOW GRADE. ALL CLEARING AND GRUBBING PERFORMED ON CRPD PROPERTY, RIGHT-OF-WAY, OR ANY CITY OF COLUMBUS PROPERTY SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR. HEAVY EQUIPMENT WILL NOT BE ALLOWED TO COMPACT THE SOIL OVER THE ROOT ZONE OF EXISTING PUBLIC TREES. RESTRICTED EQUIPMENT ACCESS ROUTES SHALL BE COORDINATED WITH CRPD INSPECTOR, KEITH MAY, AT KAMAY@COLUMBUS.GOV BEFORE WORK IS BEGINS. TEMPORARY PAVING MATERIALS, SUCH AS PLYWOOD, LUMBER OR RUBBER MATTING, SPREAD OVER THE ROOT ZONE OF PUBLIC TREES MAY BE REQUIRED TO PREVENT COMPACTION. IF A PUBLIC TREE NEEDS TO BE REMOVED, THE CONTRACTOR SHALL PROVIDE A TREE MITIGATION PLAN TO THE CITY FORESTRY SECTION [(614) 724-1276] AND REFER TO THE CRPD TREE MITIGATION PLAN GUIDANCE, ANSI A300 AND/OR CITY OF COLUMBUS EXECUTIVE ORDER 2015-01 FOR TREE REPLACEMENT STANDARDS.

**PUBLIC TREE PROTECTION NOTE**

A TREE PROTECTION PLAN WITH A DRAWING OF ANY WORK LOCATED WITHIN THE DRIP LINE OF A PUBLIC TREE SHALL BE INCLUDED IN THE APPROVED FINAL SITE COMPLIANCE PLAN (FSCP). REFER TO CRPD STANDARD DRAWING FOR TREE PROTECTION. CONSTRUCTION MATERIALS, EXCAVATION DEBRIS, FUEL, EQUIPMENT, OR VEHICLES ARE NOT TO BE STOCKPILED, STORED, DUMPED, OR PARKED WITHIN THE DRIP LINE OF PUBLIC TREES. ALL TREES MUST BE PROTECTED AGAINST INJURY OR DAMAGE TO BRANCHES, TRUNKS, OR ROOTS FROM CONSTRUCTION AND EXCAVATION, AS DESCRIBED IN THE "BEST MANAGEMENT PRACTICES-MANAGING TREES DURING CONSTRUCTION" A COMPANION PUBLICATION TO ANSI A300 PART 5. IF THERE IS A QUESTION WHETHER A TREE OR NOT NEEDS TO BE PROTECTED, THE CONTRACTOR MUST CONTACT THE CITY FORESTRY SECTION AT (614) 724-1276. FAILURE TO CONTACT THE CITY FORESTRY REPRESENTATIVE IN ADVANCE OF CONSTRUCTION WILL RESULT IN THE CONTRACTOR REIMBURSING CITY FORESTRY FOR THE COST OF ANY AND ALL DAMAGE AS DETERMINED BY THE CURRENT ANSI A300/CITY OF COLUMBUS EXECUTIVE ORDER 2015-01 FOR TREE PROTECTION AND REPLACEMENT.

**DOP NOTES**

FOR THE DIVISION OF POWER: THE DIVISION OF POWER (DOP) MAY HAVE UNDERGROUND AND OVERHEAD PRIMARY, SECONDARY, AND STREET LIGHTING AT THIS WORK LOCATION. THE CONTRACTOR IS HEREBY REQUIRED TO CONTACT OUPS AT 811 OR 1-800-362-2764 FORTY-EIGHT HOURS PRIOR TO CONDUCTING ANY ACTIVITY WITHIN THE CONSTRUCTION AREA. ANY REQUIRED RELOCATION, SUPPORT, PROTECTION, OR ANY OTHER ACTIVITY CONCERNED WITH THE CITY'S ELECTRICAL FACILITIES IN THE CONSTRUCTION AREA IS TO BE PERFORMED BY THE CONTRACTOR UNDER THE 9 of 17 Version: October 1, 2022, DIRECTION OF DOP PERSONNEL AND AT THE EXPENSE OF THE PROJECT. THE CONTRACTOR SHALL USE MATERIAL AND MAKE REPAIRS TO A CITY OF COLUMBUS STREET LIGHTING SYSTEM BY FOLLOWING DOP'S "MATERIAL AND INSTALLATION SPECIFICATIONS" (MIS) AND THE CITY OF COLUMBUS "CONSTRUCTION AND MATERIAL SPECIFICATIONS" (CMSC). ANY NEW OR RE-INSTALLED UNDERGROUND STREETLIGHT SYSTEM SHALL REQUIRE TESTING AS REFERRED TO IN SECTION 1001.18 OF THE CMSC MANUAL. THE CONTRACTOR SHALL CONFORM TO DOP'S EXISTING STREET LIGHTING LOCKOUT/TAGOUT (LOTO) PROCEDURE MIS-01, COPIES OF WHICH ARE AVAILABLE FROM DOP. IF ANY ELECTRIC FACILITY BELONGING TO DOP IS DAMAGED IN ANY MANNER BY THE CONTRACTOR, ITS AGENTS, SERVANTS, OR EMPLOYEES, AND REQUIRES EMERGENCY REPAIRS, THE DOP DISPATCH OFFICE SHOULD BE CONTACTED IMMEDIATELY AT (614) 645-7627. DOP SHALL MAKE ALL NECESSARY REPAIRS, AND THE EXPENSE OF SUCH REPAIRS AND OTHER RELATED COSTS SHALL BE PAID BY THE CONTRACTOR TO THE DIVISION OF POWER, CITY OF COLUMBUS, OHIO.

**SEEDING AND MULCHING**

THE FOLLOWING QUANTITIES ARE PROVIDED TO PROMOTE GROWTH AND CARE OF PERMANENT SEEDED AREAS:

ITEM 659, SEEDING AND MULCHING, CLASS 1	100 SY
ITEM 659, TOPSOIL	12 CY
ITEM 659, COMMERCIAL FERTILIZER	0.02 TON
ITEM 659, WATER	1 M GAL

SEEDING AND MULCHING SHALL BE APPLIED TO ALL AREAS OF EXPOSED SOIL WITHIN THE CONSTRUCTION LIMITS. QUANTITY CALCULATIONS FOR SEEDING AND MULCHING ARE BASED ON THESE LIMITS.

**WATER NOTES**

THE CITY OF COLUMBUS, CONSTRUCTION AND MATERIAL SPECIFICATIONS, 2018 EDITION AND ALL REVISIONS, INCLUDING ALL SUPPLEMENTS THERETO, SHALL GOVERN ALL CONSTRUCTION ITEMS THAT ARE A PART OF THIS PLAN, UNLESS OTHERWISE NOTED.

ALL WATER MAIN MATERIALS AND INSTALLATIONS SHALL BE IN ACCORDANCE WITH THE CURRENT RULES AND REGULATIONS OF THE CITY OF COLUMBUS, DIVISION OF WATER. ALL CITY OF COLUMBUS, DIVISION OF WATER STANDARD DRAWINGS SHALL APPLY TO THE PROJECT, UNLESS OTHERWISE NOTED.

FOR ANY EMERGENCIES INVOLVING THE WATER DISTRIBUTION SYSTEM, PLEASE CONTACT THE DIVISION OF WATER DISTRIBUTION MAINTENANCE OFFICE AT 614-645-7788.

ALL BRASS FITTINGS ASSOCIATED WITH WATER WORK, INCLUDING REPAIRS TO THE EXISTING SYSTEM, SHALL CONFORM TO THE REVISED ALLOWABLE LEAD EXTRACTION LIMIT PER THE UPDATED NSF/ANSI 61 STANDARD. THE DIVISION OF WATER'S APPROVED MATERIALS LIST HAS BEEN UPDATED TO REFLECT THIS REQUIREMENT.

IT SHALL BE UNLAWFUL FOR ANY PERSON TO PERFORM ANY WORK ON CITY OF COLUMBUS WATER MAIN SYSTEMS WITHOUT FIRST SECURING LICENSE TO ENGAGE IN SUCH WORK, AS INDICATED IN COLUMBUS CITY CODE SECTION 1103.02 AND 1103.06. THIS WORK INCLUDES ANY ATTACHMENTS, ADDITIONS TO OR ALTERATIONS IN ANY CITY SERVICE PIPE OR APPURTENANCES (INCLUDING WATER SERVICE LINES AND TAPS). THIS REQUIREMENT MAY BE MET BY UTILIZATION OF A SUBCONTRACTOR WHO HOLDS A CITY OF COLUMBUS WATER CONTRACTOR LICENSE OR A COMBINED WATER/SEWER CONTRACTOR LICENSE TO PERFORM THIS WORK. UTILIZATION OF A SUBCONTRACTOR MUST MEET THE LICENSING REQUIREMENTS OF CITY OF COLUMBUS BUILDING CODE, IN PARTICULAR SECTION 4114.119 AND 4114.529.

NO PERSON SHALL BEGIN CONSTRUCTION OR INSTALLATION OF A PUBLIC WATER MAIN UNTIL PLANS HAVE BEEN APPROVED BY THE STATE OF OHIO ENVIRONMENTAL PROTECTION AGENCY (OEPA).

THE CONTRACTOR SHALL OBTAIN THE PROPER HYDRANT PERMIT(S), AND PAY ANY APPLICABLE FEES, FOR ANY APPROVED HYDRANT USAGE DEEMED NECESSARY FOR WORK UNDER THIS IMPROVEMENT. PERMITS MAY BE OBTAINED THROUGH THE DIVISION OF WATER PERMIT OFFICE (645-7330). THE CONTRACTOR SHALL ADHERE TO ALL RULES & REGULATIONS GOVERNING SAID PERMIT AND MUST HAVE THE ORIGINAL PERMIT ON SITE ANYTIME IN WHICH THE HYDRANT IS IN USE. PERMITS MAY BE OBTAINED BY ACCESSING [HTTP://PORTAL.COLUMBUS.GOV/PERMITS/](http://portal.columbus.gov/permits/). COST TO BE INCLUDED IN THE VARIOUS BID ITEMS.

THE INSTALLATION OF PVC PIPING IS NOT PERMITTED IN THE "DOWNTOWN" DISTRICT COMMUNITY, AS DEFINED BY THE CITY OF COLUMBUS CODE OF ORDINANCES, CODE 3359.03. IT IS ALSO NOT PERMITTED FOR INSTALLATION ON ANY "PRIORITY 1" (HIGH TRAFFIC VOLUME) ARTERIAL STREETS, AS DEFINED BY THE COLUMBUS DEPARTMENT OF PUBLIC SERVICE PER THE FOLLOWING LINK: [HTTPS://WWW.COLUMBUS.GOV/PUBLICSERVICE/SNOW-AND-ICE-CONTROL/](https://www.columbus.gov/publicservice/snow-and-ice-control/). PVC PIPE MAY ONLY BE USED AS AN ALTERNATE FOR 6 AND 8-INCH DUCTILE IRON WATER MAINS, AND SHALL NOT BE USED FOR HYDRANT LEADS OR WATER TAPS.

ALL WATER MAIN VALVE BOXES, WATER TAP BOXES, TEST STATIONS, PITOMETER TAP STRUCTURES, METER PIT COVERS, AND OTHER SURFACE UTILITY STRUCTURES WITHIN THE DISTURBED AREA SHALL BE ADJUSTED TO GRADE. ANY OF THESE STRUCTURES LOCATED WITHIN PAVEMENT, DRIVEWAYS, OR OTHER TRAVELED AREAS, WHETHER EXISTING OR PROPOSED, SHALL BE EQUIPPED WITH A TRAFFIC RATED, HEAVY DUTY VALVE BOX AND/OR COVER IN ACCORDANCE WITH THE STANDARD DRAWINGS. EXISTING WATER TAP BOXES TO REMAIN THAT ARE ENCOUNTERED WITHIN THE PROJECT LIMITS SHALL BE CLEANED OUT, CENTERED OVER THE CURB STOP, AND ADJUSTED TO THE PROPOSED GRADE.

RISER RINGS WILL NOT BE PERMITTED ON ANY NEWLY INSTALLED VALVE BOXES TO BRING VALVES TO FINAL GRADE. THE CONTRACTOR SHALL ENSURE THAT THE BOXES ARE INSTALLED AT THE CORRECT GRADE FOR FINAL PAVING OPERATIONS AND THAT THEIR PAVING CONTRACTOR INSTALLS PAVEMENT CORRECTLY AT LIDS DURING PAVING OPERATIONS. VALVE LIDS ARE NOT PERMITTED TO SET ABOVE FINAL GRADE AND SHALL BE A MAXIMUM OF 1/4" BELOW FINAL GRADE.

WHERE NEW CONDUIT IS PROPOSED TO CROSS AN EXISTING OR PROPOSED WATER MAIN OR WATER TAP/SERVICE LINE, A MINIMUM OF 12-INCHES OF VERTICAL CLEARANCE SHALL BE MAINTAINED BETWEEN THE CONDUIT AND THE WATER MAIN OR TAP/SERVICE LINE. A MINIMUM OF 3- FEET OF HORIZONTAL CLEARANCE (OUT TO OUT) IS REQUIRED AT LOCATIONS WHERE THE CONDUIT IS PARALLEL TO THE WATER MAIN AND AT LOCATIONS OF WATER MAIN THRUST BLOCKS.

A MINIMUM OF 3 FEET OF HORIZONTAL CLEARANCE (OUT TO OUT) SHALL BE MAINTAINED BETWEEN ALL EXISTING WATER MAINS AND FOUNDATIONS FOR POLES, PULL BOXES, PUSH BUTTON PEDESTALS, AND ANY OTHER MISCELLANEOUS ELECTRICAL STRUCTURE.

THE CONTRACTOR SHALL NOTIFY THE FOLLOWING DIVISIONS AT LEAST 24-HOURS IN ADVANCE OF ANTICIPATED START OF CONSTRUCTION:

DIVISION OF SEWERAGE AND DRAINAGE (614) 645-7102

DIVISION OF DESIGN AND CONSTRUCTION (CONSTRUCTION SECTION) (614) 645-0433

THE CONTRACTOR IS RESPONSIBLE FOR THE INVESTIGATION, LOCATION, SUPPORT, PROTECTION, AND RESTORATION OF ALL EXISTING UTILITIES AND APPURTENANCES WHETHER SHOWN ON THESE PLANS OR NOT. THE CONTRACTOR SHALL EXPOSE ALL UTILITIES OR STRUCTURES PRIOR TO CONSTRUCTION TO VERIFY THE VERTICAL AND HORIZONTAL EFFECT ON THE PROPOSED CONSTRUCTION. THE CONTRACTOR SHALL CALL, TOLL FREE, THE OHIO UTILITIES PROTECTION SERVICE (1-800-362-2764) 48-HOURS PRIOR TO CONSTRUCTION AND SHALL NOTIFY ALL UTILITY COMPANIES AT LEAST 48-HOURS PRIOR TO WORK IN THE VICINITY OF THEIR UNDERGROUND LINES.

ANY MODIFICATION TO THE WORK AS SHOWN ON THESE DRAWINGS MUST HAVE PRIOR WRITTEN APPROVAL BY THE ADMINISTRATOR, DIVISION OF SEWERAGE AND DRAINAGE.

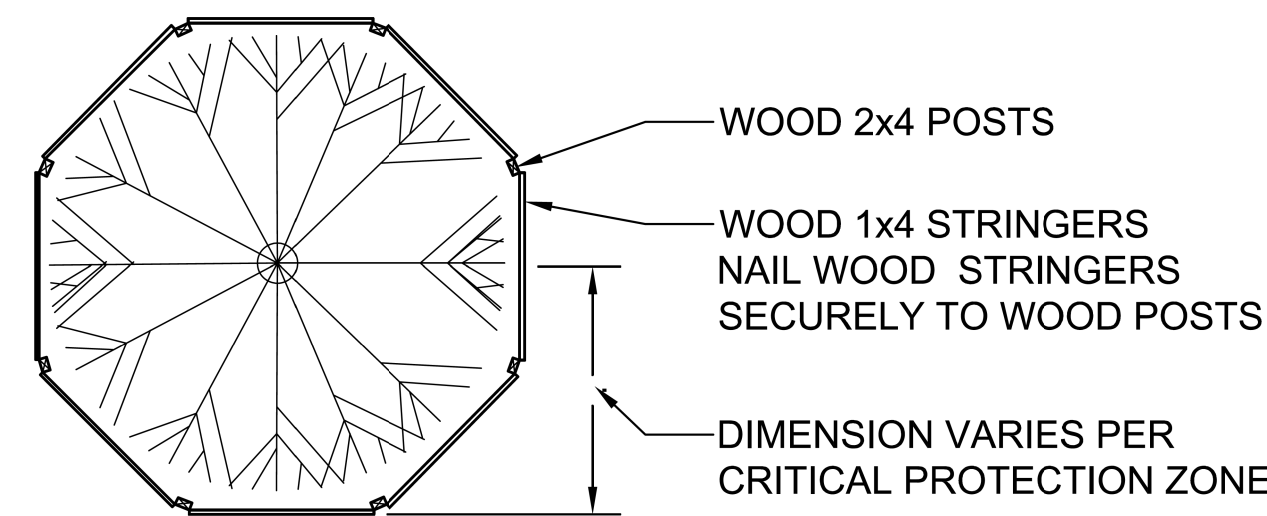
ALL PLASTIC SEWER LINES SHALL BE DEFLECTION TESTED AFTER INSTALLATION IN CONFORMANCE WITH THE REQUIREMENTS OF ITEM 901 OF THE CITY OF COLUMBUS, CONSTRUCTION AND MATERIAL SPECIFICATIONS, CURRENT VERSION.

ALL CONCRETE PIPE, STORM AND SANITARY SEWER STRUCTURES WILL BE STAMPED OR HAVE SUCH IDENTIFICATION NOTING THAT SAID PIPE, STORM AND SANITARY STRUCTURES HAVE BEEN INSPECTED BY THE CITY OF COLUMBUS AND MEETS THEIR SPECIFICATIONS. PIPE AND STRUCTURES WITHOUT PROPER IDENTIFICATION WILL NOT BE PERMITTED FOR INSTALLATION.

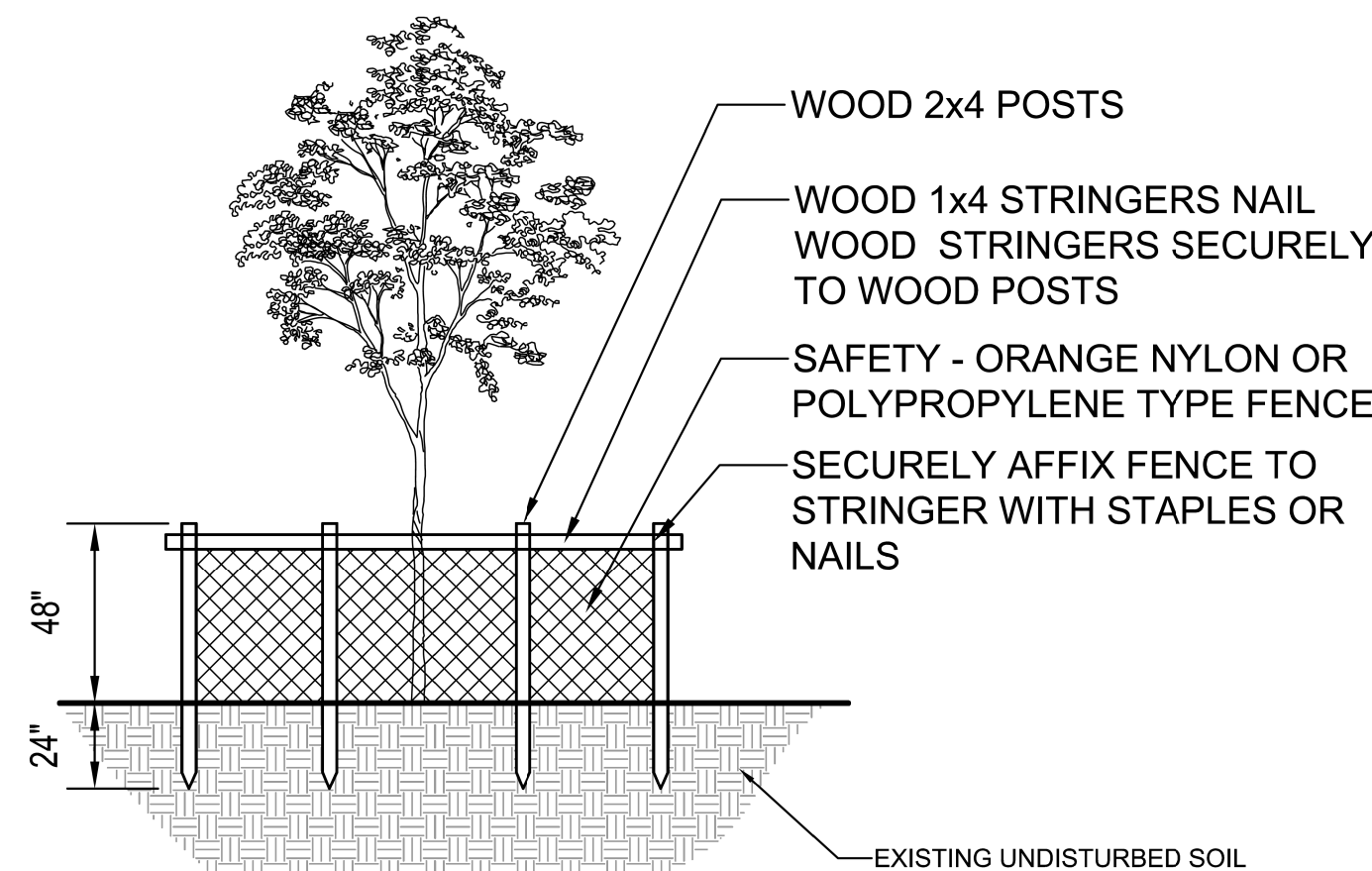
EROSION AND SEDIMENT CONTROL MEASURES ARE REQUIRED AS PART OF THIS PROJECT. EROSION AND SEDIMENT CONTROL MEASURES SPECIFIC TO THIS SITE MAY BE FOUND ON SHEET NO. 5 OF THIS PLAN. LAND-DISTURBING ACTIVITIES MUST COMPLY WITH ALL PROVISIONS OF THE DIVISION OF SEWERAGE AND DRAINAGE REGULATION FOR CONTROL OF STORMWATER POLLUTION FROM LAND DISTURBANCE. ALL LAND-DISTURBING ACTIVITIES SHALL BE SUBJECT TO INSPECTION AND SITE INVESTIGATION BY THE CITY OF COLUMBUS AND/OR THE OHIO EPA.

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE CITY OF COLUMBUS TWO WORKING DAYS PRIOR TO COMMENCEMENT OF INITIAL SITE LAND DISTURBANCE ON ANY SITE OF ONE OR MORE ACRES. THIS INCLUDES SITE CLEARING, GRUBBING AND ANY EARTH MOVING. PRIMARY EROSION AND SEDIMENT CONTROL PRACTICES ARE MANDATED BY REGULATION TO BE IN PLACE FROM THE BEGINNING OF THE CONSTRUCTION ACTIVITY. PLEASE CONTACT THE STORMWATER AND REGULATORY MANAGEMENT SECTION AT (614) 645-6311. DETAILS OF THIS REQUIREMENT MAY BE FOUND IN THE REGULATION FOR CONTROL OF STORMWATER POLLUTION FROM LAND DISTURBANCE. FAILURE TO COMPLY MAY RESULT IN ENFORCEMENT ACTION..

THE CONTRACTOR SHALL ENSURE THERE IS A SURVEYOR'S LEVEL AND ROD ON THE PROJECT FOR USE IN PERFORMING GRADE CHECKS WHENEVER SEWER LINE STRUCTURES OR PIPE ARE BEING INSTALLED. THE CONTRACTOR SHALL MAKE THIS EQUIPMENT AVAILABLE FOR USE AND ASSIST THE CITY INSPECTOR IN PERFORMING GRADE CHECKS WHEN REQUESTED BY THE INSPECTOR. THE INSPECTOR WILL MAKE ALL REASONABLE ATTEMPTS TO CONFINE REQUESTS FOR ASSISTANCE IN PERFORMING GRADE CHECKS TO TIMES CONVENIENT TO THE CONTRACTOR.



**NOTE:**  
FOR GROUPS OF TREES PLACE BARRICADES BETWEEN TREES AND CONSTRUCTION ACTIVITY



**ELEVATION**

**16** Tree Protection Detail  
N.T.S.

THESE CHECKS WILL BE PERFORMED TO ENSURE THE FOLLOWING:

1. PROPER PLACEMENT OF EACH STRUCTURE.
2. PROPER INSTALLATION OF INITIAL RUNS OF PIPE FROM A STRUCTURE.
3. GRADE, AFTER AN OVERNIGHT OR LONGER SHUTDOWN.
4. GRADE, AT ANY OTHER TIME THE INSPECTOR HAS REASON TO QUESTION GRADE OF INSTALLATION.

GRADE CHECKS PERFORMED BY THE CITY INSPECTOR IN NO WAY RELIEVE THE CONTRACTOR OF THE ULTIMATE RESPONSIBILITY TO ENSURE CONSTRUCTION TO THE PLAN GRADE.

**NOTE:**

1. FOR GROUPS OF TREES:
  - A. PLACE THE BARRICADES AT THE DRIPLINE AROUND THE GROUPS PERIMETER.
2. INSTALLATION OF TREE PROTECTION BARRICADES SHALL BE PERFORMED BEFORE ANY SITE DEVELOPMENT ACTIVITY TAKES PLACE.
3. THE TREE PROTECTION BARRICADES SHALL REMAIN IN PLACE THROUGHOUT THE CONSTRUCTION PHASE AND UNTIL ALL SITE DEVELOPMENT ACTIVITIES ARE FULLY COMPLETE.
4. ANY DAMAGE THAT MAY OCCUR TO THE BARRICADES SHALL BE REPAIRED OR REPLACED TO THE ORIGINAL SPECIFICATIONS WITHIN 24 HOURS OF THE DAMAGE OCCURRING.
5. THE AREA WITHIN THE TREE PROTECTION BARRICADES SHALL NOT BE USED FOR THE STORAGE OF ANY MATERIALS, SUPPLIES OR DEBRIS OR THE DISPOSAL OF ANY SOLID, LIQUID OR GASEOUS MATERIALS THAT COULD CAUSE HARM TO THE TREES.
6. ANY TREE SCHEDULED TO REMAIN IF DAMAGED DURING CONSTRUCTION SHALL BE REPLACED BY PROVIDING EQUIVALENT MONETARY VALUE TO THE CITY'S TREE FUND.
7. MONETARY TREE VALUE SHALL BE DETERMINED BY USING THE GUIDE FOR PLANT APPRAISAL PUBLISHED BY THE INTERNATIONAL SOCIETY OF ARBORICULTURE AND HORTICULTURE. ALL UNDERGROUND UTILITIES SHALL BE ROUTED BY THE CITY FORESTER.
8. BARRICADES SHALL PROTECT ALL TREES SCHEDULED TO REMAIN BEFORE AND DURING ALL CONSTRUCTION ACTIVITIES.
9. ANY PROPOSED UNDERGROUND UTILITIES SHALL BE ROUTED AROUND PROTECTED TREES TO THE OUTSIDE OF THE TREE'S DRIPLINE. IF THIS IS NOT FEASIBLE, AS DETERMINED BY THE CITY, A SLEEVE MAY BE USED UNDER THE TREE, PROVIDED THAT ALL ACCEPTABLE HORTICULTURAL/ARBORICULTURAL PRACTICES ARE ADHERED TO.

\*TREE PROTECTION BARRICADES SHALL BE LOCATED TO PROTECT A MINIMUM OF 75% OF THE CRITICAL PROTECTION ZONE.

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**GENERAL NOTES**

**IMPROVEMENTS OF**  
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**EROSION AND SEDIMENT CONTROL**

LAND DISTURBANCE AREAS LESS THAN ONE ACRE AND NOT PART OF A LARGER COMMON PLAN OF DEVELOPMENT ARE NOT REQUIRED TO SUBMIT TO THE CITY OF COLUMBUS A FULL SCALE EROSION AND SEDIMENT CONTROL PLAN FOR APPROVAL. HOWEVER, THE PROPOSED LAND DISTURBING ACTIVITIES MUST COMPLY WITH ALL OF THE PROVISIONS OF THE DIVISION OF SEWERAGE AND DRAINAGE EROSION AND SEDIMENT CONTROL REGULATION. ALL LAND DISTURBING ACTIVITIES SHALL BE SUBJECT TO INSPECTION AND SITE INVESTIGATION BY THE CITY OF COLUMBUS TO DETERMINE COMPLIANCE WITH CITY STANDARDS AND REGULATIONS. FAILURE TO COMPLY WITH THESE REGULATIONS MAY SUBJECT THE SITE TO ENFORCEMENT ACTION BY THE CITY. QUESTIONS REGARDING EROSION AND SEDIMENT CONTROL MAY BE REFERRED TO THE STORMWATER MANAGEMENT OFFICE AT 645-6311.

DIRECT DISCHARGE OF SEDIMENT LADEN WATER TO THE CITY'S SEWER SYSTEM OR A RECEIVING STREAM IS A VIOLATION OF THE OHIO EPA AND CITY OF COLUMBUS REGULATIONS. THE CONTRACTOR WILL BE HELD LIABLE FOR THE VIOLATION AND SUBSEQUENT FINES.

ON-SITE CONTACT: ANDREW FRANKHOUSER  
PHONE: (614) 645-3006  
E-MAIL: ACFRANKHOUSER@COLUMBUS.GOV  
SITE IS TRIBUTARY TO: SCIOTO RIVER

**PAVEMENT CUTTING, SAWING AND EXCAVATION OPERATIONS NOTE:**

ALL PUBLIC AGENCIES AND PRIVATE CONTRACTORS PERFORMING PAVEMENT-CUTTING OPERATIONS ON CITY OF COLUMBUS STREETS AND ROADWAYS SHALL PROTECT THE ENVIRONMENT FROM DISCHARGES CREATED BY THEIR PAVEMENT CUTTING OPERATIONS. NOTE THAT COLUMBUS CITY CODE 1145 PROHIBITS NON-STORMWATER DISCHARGE INTO THE CITY OF COLUMBUS SEWER SYSTEM. CURB INLETS AND ANY PART OF ITS MS4 (MUNICIPAL SEPARATE STORM SEWER SYSTEM).

THE REQUIREMENT INCLUDES BUT IS NOT LIMITED TO WET OR DRY SAW-CUTTING, JACK HAMMERING, EXCAVATION EQUIPMENT USE, ETC. THE PUBLIC AGENCY AND/OR PRIVATE CONTRACTOR WORK CREWS SHALL RECOVER AND DISPOSE OF DETRITUS, POLLUTED WATERS, OR OTHER SUCH DISCHARGES RESULTING FROM THEIR PAVEMENT CUTTING OPERATIONS AND PROTECT ALL STORM SEWER INLETS FROM RECEIVING ANY DISCHARGES FROM THE CONSTRUCTION OPERATIONS. THE AGENCY OR CONTRACTOR RESPONSIBLE FOR EACH PAVEMENT CUTTING ACTIVITY SHALL BE SOLELY LIABLE FOR NOTICE OF VIOLATIONS (NOV/S) AND FINES ISSUED BY CITY OF COLUMBUS AND/OR STATE OF OHIO AUTHORITIES.

EQUIPMENT, MATERIALS AND METHODS SHALL BE PROVIDED BY THE RESPONSIBLE PUBLIC AGENCY AND/OR PRIVATE CONTRACTOR TO WORK CREWS PERFORMING THE PAVEMENT CUTTING ACTIVITY AND MADE AVAILABLE TO WORK CREWS FOR USE IN CLEANING UP DISCHARGES RESULTING FROM SUCH CUTTING ACTIVITIES AND PREVENTING RUNOFF. ALL WORK CREWS SHALL BE TRAINED TO EXERCISE AND EMPLOY EQUIPMENT, MATERIALS, AND ENVIRONMENTAL PROTECTIVE MEASURES TO PREVENT POLLUTED DISCHARGES FROM ENTERING THE CITY OF COLUMBUS STORM SEWER SYSTEM AND WATERS OF THE STATE OF OHIO.

THE PUBLIC AGENCY AND/OR PRIVATE CONTRACTOR IS SOLELY RESPONSIBLE FOR ENSURING THAT THE INLET PROTECTION IS ADEQUATE. THE MOST STRINGENT PROJECT PLANS, NOTES AND/OR DRAWINGS INCLUDING STORMWATER POLLUTION PREVENTION PLAN (SWP3) OR SPILL PREVENTION/REMEDATION PLAN SHALL APPLY TO ALL PAVEMENT CUTTING, SAWING OR EXCAVATION OPERATIONS.

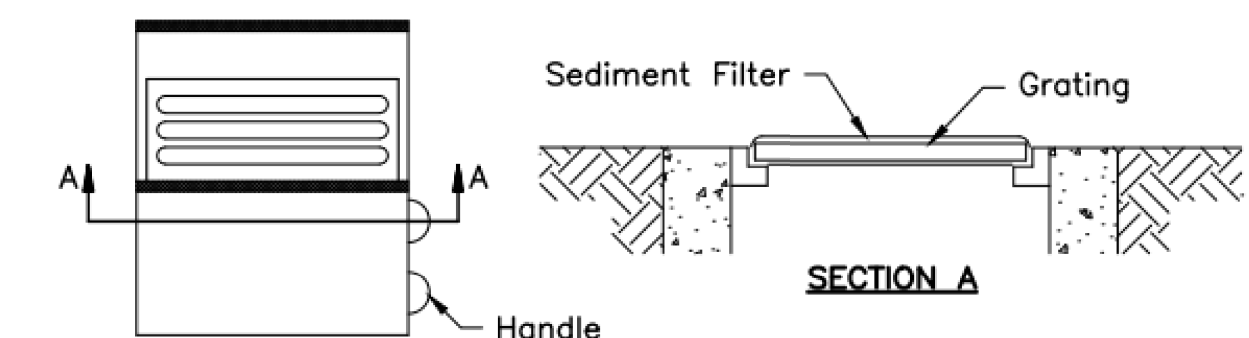
**ITEM 207 INLET PROTECTION**

PRIOR TO BEGINNING EARTH DISTURBANCE ACTIVITIES, THE CONTRACTOR SHALL PROVIDE AND INSTALL INLET PROTECTION FOR ALL EXISTING STORM WATER SEWER CATCH BASINS AND INLETS WITHIN THE PROJECT AREA.

INLET PROTECTION SHALL BE AS PER THE REQUIREMENTS OF ITEM 207 AND THE DETAILS ON THIS SHEET.

THE FOLLOWING QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY FOR THIS WORK:

ITEM 207 - INLET PROTECTION 22 EACH



**Installation:**  
1. Stand grate on end. Place Catch Basin Protection Bag over grate. Roll grate over so that open end is up. Pull up slack. Tuck flap in. Be sure end of grate is completely covered by flap or Catch Basin Protection Bag will not fit properly. Holding handles, carefully place Catch Basin Protection Bag with grate inserted into catch basin frame so that red dot on the top of the Catch Basin Protection Bag is visible.

**Maintenance:**  
1. With a stiff bristle broom or square point shovel, remove silt & other debris off surface after each event.

**Note:**  
1. Dandy Bag, FryeFlow Systems Inlet Protection, FLEXSTORM Inlet Filter or approved equal are acceptable

To be used on Structures: N/A

**CATCH BASIN SEDIMENT FILTER**  
SCALE: NONE

**ITEM SPECIAL FILL AND PLUG EXISTING CONDUIT**

THIS ITEM CONSISTS OF THE CONSTRUCTION OF BULKHEADS IN AN EXISTING 12 INCH DIAMETER CONDUIT AND FILLING THE AREA SEALED OFF WITH ITEM 613, SAND OR OTHER MATERIAL APPROVED BY THE ENGINEER.

LOCATE THE BULKHEADS AT THE LIMITS OF THE AREA TO BE FILLED, AS INDICATED ON THE PLANS. THE BULKHEADS CONSIST OF BRICK OR CONCRETE MASONRY WITH A MINIMUM THICKNESS OF 12 INCHES.

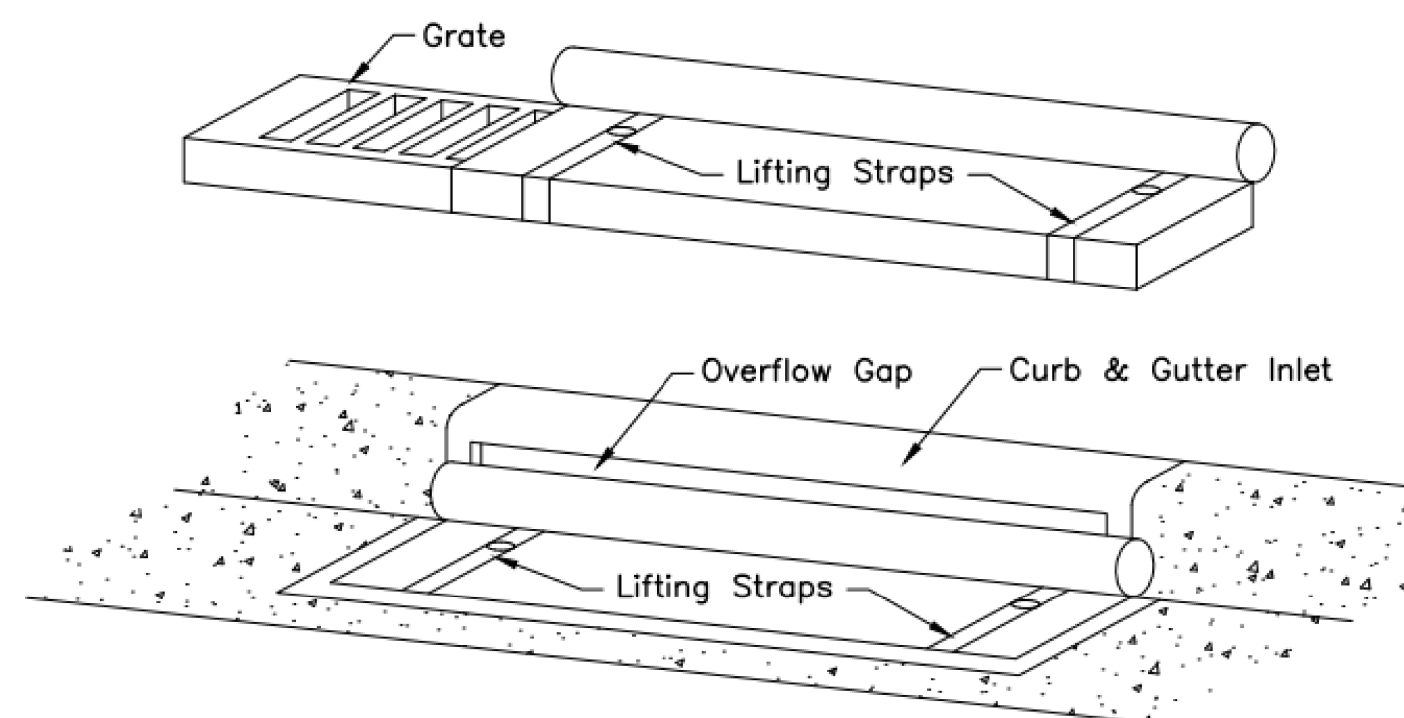
PUMP THE FILL MATERIAL INTO PLACE OR BY OTHER MEANS APPROVED BY THE ENGINEER, SO THAT AFTER SETTLEMENT, AT LEAST 90 PERCENT OF THE CROSS-SECTIONAL AREA OF THE CONDUIT, FOR ITS ENTIRE LENGTH IS FILLED. THE LENGTH OF FILLED AND PLUGGED CONDUIT TO BE PAID FOR IS THE ACTUAL NUMBER OF FEET (MEASURED ALONG THE CENTERLINE OF EACH CONDUIT FROM OUTER FACE TO OUTER FACE OF BULKHEADS) FILLED AND PLUGGED AS DESCRIBED ABOVE.

IN LIEU OF FILLING AND PLUGGING THE EXISTING CONDUIT, THE PIPE MAY BE CRUSHED AND BACKFILLED PER 203, OR IT MAY BE REMOVED. THE LENGTH, MEASURED AS PROVIDED ABOVE, WILL BE PAID FOR AT THE CONTRACT PRICE PER FOOT FOR, ITEM SPECIAL, FILL AND PLUG EXISTING CONDUIT.

**ITEM 627 REBOUNDBLE TRAFFIC POST - REMOVED, AS PER PLAN**

THE CONTRACTOR SHALL REMOVE AND STORE EXISTING REBOUNDBLE TRAFFIC POSTS THAT INTERFERE WITH CONSTRUCTION OF PROPOSED CURB AND PAVEMENT IMPROVEMENTS. UPON COMPLETION OF THE CURB AND PAVEMENT WORK, CONTRACTOR SHALL RE-ERECT REBOUNDBLE TRAFFIC POST AT ITS ORIGINAL LOCATION PER THE INSTALLATION REQUIREMENTS OF 627.

PAYMENT SHALL BE MADE AT THE UNIT PRICE BID PER EACH FOR ITEM 627 - REBOUNDBLE TRAFFIC POST - REMOVED, AS PER PLAN AND SHALL INCLUDE ALL LABOR, EQUIPMENT, AND MATERIALS NECESSARY TO REMOVE, STORE, AND REERECT THE TRAFFIC POSTS AS NOTED ABOVE.



**Installation:**  
Stand grate on end. Slide the Curb Bag over top of the grate. Pull all excess down. Lay unit on its side. Carefully tuck flap in. Press Velcro strips together. Install the unit making sure front edge of grate is inserted in frame first then lower back into place. Press Velcro dots together which are located under lifting straps. This insures straps remain flush with gutter.

**Maintenance:**  
With a stiff bristle broom sweep silt and other debris off surface after each event.

**Note:**  
Dandy Bag, FryeFlow Systems Inlet Protection, FLEXSTORM Inlet Filter or approved equal are acceptable.

To be used on Structures: N/A

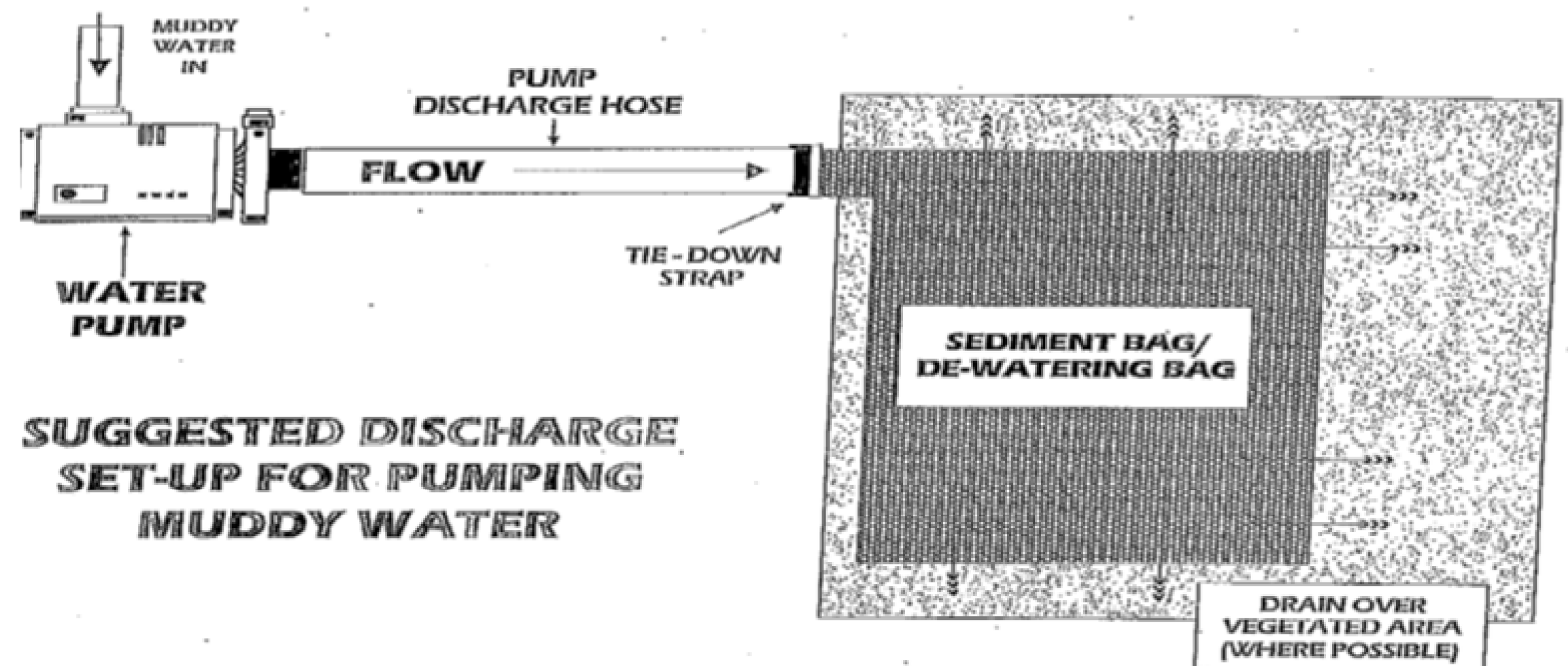
**CURB & GUTTER INLET SEDIMENT PROTECTION**  
SCALE: NONE

**NOTICE**

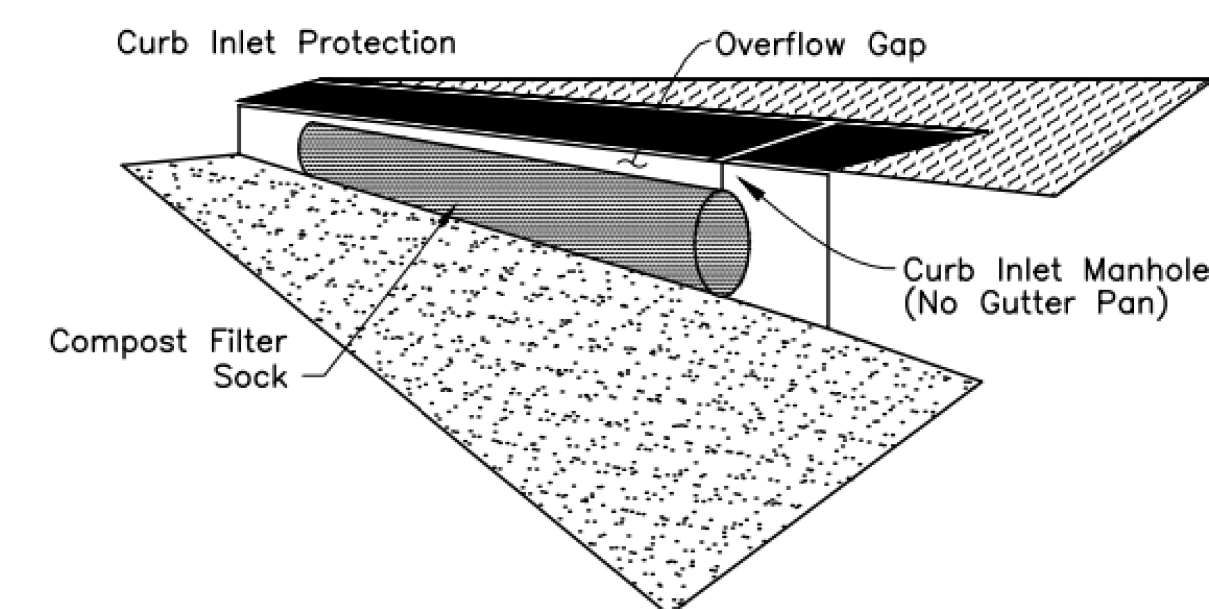
The pumping or direct discharge of sediment-laden (muddy) water to the City's sewer system or receiving stream is a violation of Ohio EPA and City of Columbus regulations.

All inlets receiving flow from runoff, pumping activities, or other direct discharges shall be fitted with an inlet protection device that is properly sized and secured to reduce the discharge of sediment into the storm sewer system and receiving stream. Inlet protection is required on all inlets receiving discharge regardless of whether or not the inlet is tributary to any downstream erosion and sediment controls.

Discharge hoses used during pumping activities shall be fitted with sediment bags that are properly sized per manufacturer's recommendations regardless of what other sediment controls are in place further downstream. Sediment bags must be properly secured to the discharge hose and placed over vegetated areas, where feasible, during discharge. See detail below of a typical sediment bag installation.



**SUGGESTED DISCHARGE SET-UP FOR PUMPING MUDDY WATER**



Maintenance: With a stiff bristle broom sweep silt and other debris off surface after each event.

To be used on Structures: N/A

CALCULATED  
ANC

CHECKED  
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GENERAL NOTES

IMPROVEMENTS OF  
E RICH STREET FROM S 3RD ST TO S GRANT AVE  
FRA E RICH ST SIGNALS

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EXISTING SYMBOLS

- FIRE HYDRANT
- WATER VALVE
- WATER REDUCER
- SANITARY MANHOLE
- COMBINATION MANHOLE
- SANITARY STRUCTURE NUMBER
- STORM MANHOLE
- GRATED STM MANHOLE
- CURB INLET MANHOLE
- CURB & GUTTER INLET
- CATCH BASIN
- STORM STRUCTURE NUMBER
- GAS VALVE
- GAS METER
- PULLBOX
- TRAFFIC PULL BOX
- SIGNAL CONTROLLER
- RAILROAD TRACKS
- VARIOUS UTILITY BOX
- UTILITY POLE
- LIGHT POLE
- SIGNAL POLE
- SIGNAL PEDESTAL SUPPORT
- MAILBOX
- SIGNS
- SOIL BORING
- GUY ANCHOR
- PARKING METER
- DOUBLE PARKING METER
- BENCHMARK/TEMPORARY BENCHMARK
- IRON PIN FOUND
- IRON PIPE FOUND
- MAG NAIL FOUND
- MONUMENT BOX FOUND
- RAILROAD SPIKE FOUND
- STUMP
- BUSH

PROPOSED SYMBOLS

- FIRE HYDRANT
- RELOC. FIRE HYDRANT
- WATER VALVE
- WATER REDUCER
- SANITARY MANHOLE
- SANITARY CLEANOUT
- SANITARY STRUCTURE NUMBER
- STORM MANHOLE
- STORM CLEANOUT
- CURB INLET
- CATCH BASIN
- STORM STRUCTURE NUMBER
- GAS VALVE
- DETECTABLE WARNING
- PULLBOX
- QUANTITY BUBBLE
- LIGHT POLE
- SIGNAL POLE
- SIGNAL PEDESTAL SUPPORT
- TRAFFIC PULL BOX
- SIGNAL CONTROLLER
- SIGNAL POWER METER CABINET
- GUY ANCHOR
- PARKING METER
- DOUBLE PARKING METER
- UTILITY POLE
- BENCHMARK/TEMPORARY BENCHMARK SET
- IRON PIN SET
- IRON PIPE SET
- MAG NAIL SET
- MONUMENT BOX SET
- RAILROAD SPIKE SET

EXISTING CONDITIONS LINETYPES

PROPOSED LAYOUT LINETYPES

CENTERLINE SURVEY/CONSTRUCTION	---	---
EDGE OF PAVEMENT	---	---
CURB	---	---
SIDEWALK/DRIVEWAY/SUP	---	---
FENCE	X-X-X	X-X-X
GUARDRAIL	o-o-o-o-o	o-o-o-o-o
RIGHT OF WAY	EX R/W	R/W
UTILITY EASEMENT	EX U	U
PERMANENT EASEMENT	EX P	P
CHANNEL EASEMENT	EX CH	CH
HIGHWAY EASEMENT	EX SH	SH
L/A HIGHWAY EASEMENT	EX L/A	L/A
SEWER EASEMENT	EX S	S
DITCH FLOW LINE	←	←
WATER	W	W
WATER ≥ 24"	W	W
WATER SERVICE	WS	WS
SANITARY	←	←
SANITARY ≥ 24"	←	←
STORM	←	←
STORM ≥ 24"	←	←
COMBINATION STORM & SEWER	←	←
COMBINATION STORM & SEWER ≥ 24"	←	←
GAS	GM	GM
COMMUNICATION	C	C
OVERHEAD COMMUNICATION	OHC	OHC
COMMUNICATION DUCT BANK	CDB	CDB
COMMUNICATION DUCT BANK ≥ 24"	C	C
ELECTRIC	E	E
OVERHEAD ELECTRIC	OHE	OHE
OVERHEAD ELECTRIC & COMMUNICATION	OHE-OHC	OHE-OHC
ELECTRIC DUCT BANK	EDB	EDB
ELECTRIC DUCT BANK ≥ 24"	EDB	EDB
CABLE TV	CATV	CATV
FIBER OPTIC	FO	FO
LIGHTING	L	L
OVERHEAD LIGHTING	OHL	OHL
TRAFFIC	TR	TR
TRAFFIC DUCT BANK	TRDB	TRDB
TRAFFIC DUCT BANK ≥ 24"	TRDB	TRDB
TRAFFIC INTERCONNECT	INT	INT
IRRIGATION	IRR	IRR
LANDSCAPE BED	---	---
PROPERTY LINE/LOT LINE	---	---
CORP LINE	---	---
TEMP CONSTRUCTION EASEMENT	TMP	TMP
CONSTRUCTION LIMITS	---	---

ABBREVIATIONS

- |                                       |   |                                       |
|---------------------------------------|---|---------------------------------------|
| ADA ___ AMERICANS WITH DISABILITY ACT | GM ___ GAS MAIN                           | RP ___ RECORD PLAN                    |
| AEP ___ AMERICAN ELECTRIC POWER       | GRND ___ GROUND                           | RR ___ RAILROAD                       |
| ASPH ___ ASPHALT                      | X" GS ___ 1" GAS SERVICE                  | RT ___ RIGHT                          |
| AVE ___ AVENUE                        | GV ___ GAS VALVE                          | SAN ___ SANITARY SEWER                |
| BH ___ BULK HEAD                      | HORZ ___ HORIZONTAL                       | SCP ___ SITE COMPLIANCE PLAN          |
| BLVD ___ BOULEVARD                    | HP ___ HIGH POINT                         | SF ___ SQUARE FEET                    |
| BM ___ BENCH MARK                     | HR ___ HOUR                               | SGNL ___ SIGNAL                       |
| BT ___ BOTH                           | HW ___ HEADWALL                           | SHLD ___ SHOULDER                     |
| CATV ___ CABLE TELEVISION             | IN ___ INSTRUMENT NUMBER                  | SPEC ___ SPECIAL                      |
| CB ___ CATCH BASIN                    | INV ___ INVERT                            | X" SS ___ 6" SANITARY SERVICE         |
| CCXXXX ___ CC PLAN                    | IRRG ___ IRRIGATION                       | ST ___ STREET                         |
| C ___ CENTERLINE                      | LAT ___ LATERAL                           | STA ___ STATION                       |
| CI ___ CURB INLET                     | LBS ___ POUNDS                            | STM ___ STORM SEWER                   |
| CIMH ___ CURB INLET MANHOLE           | LF ___ LINEAR FEET                        | SY ___ SQUARE YARDS                   |
| Ckft ___ CIRCUIT FEET                 | LN ___ LANE                               | TBM ___ TEMPORARY BENCH MARK          |
| CNTRL ___ CONTROLLER                  | LP ___ LOW POINT                          | TC ___ TOP OF CASTING                 |
| CO ___ CLEANOUT                       | LS ___ LUMP SUM                           | TDC ___ TOP OF DROP CURB              |
| COC ___ CITY OF COLUMBUS              | LT ___ LEFT                               | TELE ___ TELEPHONE                    |
| COL GAS ___ COLUMBIA GAS              | MB ___ MAILBOX                            | TEMP ___ TEMPORARY                    |
| COMB ___ COMBINED                     | MGAL ___ 1000 GALLONS                     | TOC ___ TOP OF CURB                   |
| COMM ___ COMMUNICATION                | MH ___ MANHOLE                            | TRAF ___ TRAFFIC                      |
| CONC ___ CONCRETE                     | MOD ___ MODIFIED                          | TYP ___ TYPICAL                       |
| CONST ___ CONSTRUCTION                | NF ___ NOT FOUND                          | UD ___ UNDERDRAIN                     |
| CT ___ COURT                          | NTS ___ NOT TO SCALE                      | UG ___ UNDERGROUND                    |
| CY ___ CUBIC YARDS                    | OFF ___ OFFSET                            | UGE ___ UNDERGROUND ELECTRIC          |
| DB ___ DUCT BANK                      | OH ___ OVERHEAD                           | UTIL ___ UTILITY                      |
| DEFL ___ DEFLECTION                   | OHC ___ OVERHEAD COMM                     | VC ___ VERTICAL CURVE                 |
| DI ___ DUCTILE IRON                   | OHD ___ OVERHEAD DOOR                     | VERT ___ VERTICAL                     |
| DOP ___ DIVISION OF POWER             | OHE ___ OVERHEAD ELECTRIC                 | WM ___ WATER MAIN                     |
| DOT ___ DEPARTMENT OF TECHNOLOGY      | OUPS ___ OHIO UTILITY PROTECTION SERVICES | WS ___ WATER SERVICE                  |
| DW ___ DEWATERING                     | PL ___ PROPERTY LINE                      | X" WS ___ 1" WATER SERVICE            |
| XXXX-E ___ E PLAN                     | PB ___ PULL BOX                           | WSB ___ WATER SERVICE BOX             |
| EA ___ EACH                           | PC ___ POINT OF CURVATURE                 | WSP ___ WATER SERVICE PLAN            |
| ELEC ___ ELECTRIC                     | PED ___ PEDESTRIAN                        | WV ___ WATER VALVE                    |
| ELIPT ___ ELLIPTICAL                  | PKWY ___ PARKWAY                          | (ATG) ___ ADJUST TO GRADE             |
| EOP ___ EDGE OF PAVEMENT              | PROP ___ PROPOSED                         | (APP) ___ AS PER PLAN                 |
| ESMT ___ EASEMENT                     | PT ___ POINT OF TANGENCY                  | (DND) ___ DO NOT DISTURB              |
| EW ___ ENDWALL                        | PVI ___ POINT OF VERTICAL INTERSECT       | (FIP) ___ FILL IN PLACE               |
| EX ___ EXISTING                       | PVMT ___ PAVEMENT                         | (PA) ___ PREVIOUSLY ABANDONED         |
| FDC ___ FIRE DEPARTMENT CONNECTION    | R ___ RADIUS                              | (R&B) ___ REMOVE AND REBUILD          |
| FDN ___ FOUNDATION                    | R/W ___ RIGHT-OF-WAY                      | (R&R) ___ REMOVE AND RESET            |
| FFE ___ FINISHED FLOOR ELEVATION      | RCC ___ ROLLER COMPACTED CONCRETE         | (RELOC) ___ RELOCATE                  |
| FH ___ FIRE HYDRANT                   | RCP ___ ROCK CHANNEL PROTECTION           | (RTG) ___ RECONSTRUCT TO GRADE        |
| FO ___ FIBER OPTIC                    | RCP ___ REINFORCED CONCRETE PIPE          | (TBA) ___ TO BE ABANDONED             |
| GAL ___ GALLON                        | RD ___ ROAD                               | (TBR) ___ TO BE REMOVED               |
| GB ___ GRADE BREAK                    | X" RD ___ 6" ROOF DRAIN                   | (TBRL) ___ TO BE RELOCATED            |
|                                       |   | (TBRs) ___ TO BE REMOVED AND SALVAGED |

CALCULATED  
ANC

CHECKED  
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LEGEND

IMPROVEMENTS OF  
E RICH STREET FROM S 3RD ST TO S GRANT AVE  
FRA E RICH ST SIGNALS

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**TEMPORARY TRAFFIC CONTROL**

- ALL TEMPORARY TRAFFIC CONTROL (TTC) DEVICES SHALL BE FURNISHED, ERECTED, MAINTAINED AND REMOVED BY THE CONTRACTOR IN ACCORDANCE WITH THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS (CURRENT EDITION). COPIES ARE AVAILABLE FROM THE OHIO DEPARTMENT OF TRANSPORTATION, OFFICE OF CONTRACTS, 1980 WEST BROAD STREET, COLUMBUS, OHIO 43223. NOTE: ALL DEVICES SHALL COMPLY, FOR CONDITION AND LOCATION, WITH THE CURRENT EDITION OF THE NCHRP 350 AND MASH CRASH TESTING GUIDELINES.
  - CONSTRUCTION OPERATIONS SHALL NOT BEGIN UNTIL ALL TRAFFIC CONTROL IS IN PLACE AND APPROVED BY THE DEPARTMENT OF PUBLIC SERVICE INSPECTOR. IF THE CONTRACTOR DOES NOT COMPLY WITH THE STANDARDS, INCLUDING THE INSTALLATION OF TEMPORARY PAVEMENT MARKINGS AND THE REMOVAL OF CONFLICTING TRAFFIC CONTROLS, THEIR PERMIT SHALL BE REVOKED AND ALL WORK SHALL BE TERMINATED. TEMPORARY PAVEMENT MARKINGS TO INCLUDE, BUT NOT LIMITED TO, CHANNELIZING LINES, EDGE LINES, AND CENTERLINES SHALL BE INSTALLED AND MAINTAINED ON ALL CONSTRUCTION OPERATIONS LASTING A MINIMUM OF 14 CALENDAR DAYS OR AS DIRECTED BY THE TEMPORARY TRAFFIC CONTROL COORDINATOR OR THE PROJECT ENGINEER.
  - THE CONTRACTOR SHALL GIVE ADVANCE NOTICE (WRITTEN AND VERBALLY) TO THE TEMPORARY TRAFFIC CONTROL COORDINATOR AT 614-645-0355 OR 614-645-5845 AND THE DIVISION OF REFUSE COLLECTION'S OPERATION MANAGER AT 614-645-1675, PROJECT ENGINEER, AND THE SENIOR SERVICE PLANNER OF COTA AT 614-308-4373 OR FAX 614-275-5933, INFORMING THEM OF ALL UPCOMING MAINTENANCE OF TRAFFIC CHANGES ON A WEEKLY BASIS. NOTIFICATION SHALL INCLUDE, BUT NOT BE LIMITED TO, WHAT, WHERE, WHEN, AND HOW PEDESTRIAN AND VEHICULAR TRAFFIC WILL BE AFFECTED, AND THE TEMPORARY TRAFFIC CONTROL PROCEDURES THE CONTRACTOR IS PLANNING TO USE. THE TYPE OF TRAFFIC CHANGE SHALL DETERMINE THE LENGTH OF ADVANCE NOTIFICATION REQUIRED:
- | TYPE OF CHANGE                        | ADVANCED NOTIFICATION NEEDED         |
|---------------------------------------|--------------------------------------|
| DETOUR/ROAD CLOSURES                  | 30-DAY NOTIFICATION PRIOR TO CLOSURE |
| LANE CLOSURES LASTING 2 WEEKS OR MORE | 2-WEEKS                              |
| LANE CLOSURES OF LESS THAN 2 WEEKS    | 3-DAYS                               |
| LANE CLOSURES OF 2 DAYS OR LESS       | 1-DAY                                |
- THE COTA SENIOR SERVICE PLANNER SHALL BE CONTACTED 30 DAYS PRIOR TO ANY PLANNED CLOSURE ON ASSIGNED COTA ROUTES. ANY OTHER UNFORESEEN IMPACTS TO TRAFFIC SHALL BE IMMEDIATELY REPORTED AS THEY OCCUR.
- THE CONTRACTOR SHALL REPORT ANY LANE CLOSURE, PLANNED, CURRENT, AND EMERGENCY, LASTING ONE HOUR OR MORE, OR THE PLACEMENT OF A STEEL PLATE WITHIN THE CITY OF COLUMBUS RIGHT OF WAY USING THE CLOSED LANES OR STEEL PLATE EVENTS (CLOSE) PROGRAM FORM. THE FORM "TIPCARD" CAN BE FOUND AT WWW.COLUMBUS.GOV/CLOSE. REPORTING LANE CLOSURES AND/OR STEEL PLATE PLACEMENT IS MANDATORY. PLEASE CONTACT CLOSEPROGRAM@COLUMBUS.GOV
  - THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION AND SAFE MOVEMENT OF PEDESTRIANS THROUGH, AROUND, OR DETOURED AWAY FROM THE CONSTRUCTION SITE. TRAFFIC CONTROL FOR PEDESTRIAN MOVEMENT SHALL BE AS PER CITY OF COLUMBUS CONSTRUCTION AND MATERIAL SPECIFICATIONS, CITY OF COLUMBUS STANDARD CONSTRUCTION DRAWINGS, AND FIGURES 6H-28 (TA-28) AND 6H-29 (TA-29) OF PART VI OF THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. WHEN NOT SHOWN ON A SIGNED PLAN, ALL SIDEWALK DIVERSIONS AND TEMPORARY MID-BLOCK CROSSINGS SHALL BE PRE-APPROVED BY THE PROJECT ENGINEER OR THE TEMPORARY TRAFFIC CONTROL COORDINATOR. ACCESS FOR PEDESTRIAN AND VEHICULAR TRAFFIC TO ALL ADJOINING PROPERTIES SHALL BE MAINTAINED AT ALL TIMES.
  - MAINTAINING TRAFFIC DURING HOLIDAYS AND SPECIAL EVENTS**  
NO WORK SHALL BE PERFORMED AND ALL EXISTING LANES SHALL BE OPEN TO TRAFFIC DURING DESIGNATED HOLIDAYS OR SPECIAL EVENTS INCLUDING THE OHIO STATE FOOTBALL HOME GAMES. THE PERIOD OF TIME THAT THE LANES ARE TO BE OPEN DEPENDS ON THE DAY OF THE WEEK ON WHICH THE HOLIDAY OR EVENT FALLS. CONTACT THE CITY OF COLUMBUS TEMPORARY TRAFFIC CONTROL COORDINATOR, 614-645-5845 OR CELL, 614-332-7472 FOR EVENT DATES, LOCATIONS, AND SCHEDULE. HOLIDAYS WILL CONSIST OF CHRISTMAS, NEW YEARS, FOURTH OF JULY-RED, WHITE AND BOOM FIREWORKS NIGHT (6:00AM-12MIDNIGHT), MEMORIAL DAY, LABOR DAY, AND THANKSGIVING. RED, WHITE AND BOOM, FIREWORKS CELEBRATION AND A MINIMUM OF ONE DAY PRIOR TO FIREWORKS NIGHT SHALL REQUIRE ALL TEMPORARY TRAFFIC CONTROL DEVICES TO BE REMOVED FROM THE PROJECT AREA AND PLACE EITHER IN A PRE-DETERMINED LOCATION APPROVED BY THE TEMPORARY TRAFFIC CONTROL COORDINATOR OR COMPLETELY REMOVED FROM THE SITE.
  - THE CONTRACTOR SHALL CONTACT THE CITY OF COLUMBUS TEMPORARY TRAFFIC CONTROL COORDINATOR FOR ANY ADDITIONAL MOT REQUIREMENTS FOR SPECIAL EVENTS, INCLUDING OSU FOOTBAL HOME GAMES.
  - THE CONTRACTOR SHALL MAINTAIN ALL PERMANENT TRAFFIC CONTROLS NOT IN CONFLICT WITH THE TEMPORARY TRAFFIC CONTROLS THROUGHOUT THIS PROJECT. PERMANENT TRAFFIC CONTROLS MAY BE TEMPORARILY RELOCATED OR COVERED, AS APPROVED BY THE ENGINEER. THE CONTRACTOR SHALL ASSUME ALL LIABILITY FOR MISSING, DAMAGED, OR IMPROPERLY PLACED SIGNS.
  - ANY WORK DONE BY THE DEPARTMENT OF PUBLIC SERVICE, INCLUDING INSTALLATION, RELOCATION, REMOVAL AND/OR REPLACEMENT OF TEMPORARY TRAFFIC CONTROL DEVICES AS A RESULT OF WORK DONE BY THE CONTRACTOR OR AS A RESULT OF NEGLIGENCE OF THE CONTRACTOR, SHALL BE AT THE CONTRACTORS' EXPENSE.

10. THE ROADWAY SHALL NOT BE OPENED TO NON-CONSTRUCTION TRAFFIC UNTIL THE CRITICAL PERMANENT TRAFFIC CONTROLS ARE IN PLACE, OR UNTIL TEMPORARY TRAFFIC CONTROLS APPROVED BY THE ENGINEER, ARE INSTALLED. THE CRITICAL PERMANENT TRAFFIC CONTROLS ARE STOP, YIELD, ONE - WAY, DO NOT ENTER, RESTRICTED TURN SIGNS AND ALL STREET NAME SIGNS. OTHER CRITICAL SIGNS MAY BE NOTED ON THE PLANS AS WELL. THE CONTRACTOR ASSUMES ALL LIABILITY FOR THE PREMATURE REMOVAL OF TEMPORARY TRAFFIC CONTROLS.

**11. ITEM 614 - MAINTAINING TRAFFIC**

ALL COSTS THAT CONSIST OF MAINTAINING AND PROTECTING VEHICULAR AND PEDESTRIAN TRAFFIC ACCORDING TO THE LATEST EDITION OF THE CITY OF COLUMBUS CONSTRUCTION AND MATERIAL SPECIFICATIONS, THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS (OMUTCD), AND PER THE REQUIREMENTS DESIGNATED IN THE PLAN INCLUDING ALL LAW ENFORCEMENT OFFICER (LEO) AND FLAGGER HOURS SHALL BE INCLUDED IN THE LUMP SUM ITEM 614.

IN ADDITION TO THE REQUIREMENTS HEREIN, AND THE LATEST EDITION OF THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, A UNIFORMED LAW ENFORCEMENT OFFICER (LEO) SHALL BE PROVIDED FOR CONTROLLING TRAFFIC UNDER THE FOLLOWING CONDITIONS:

- WORK WITHIN A SIGNALIZED INTERSECTION, DEFINED AS THE AREA BOUNDED BY THE REAR X-WALK LINES
- WHEN FLAGGING WITHIN THE INTERSECTION OF TWO ARTERIAL ROADWAYS
- WHEN SPECIFIED IN THE MAINTENANCE OF TRAFFIC PLAN OR AS WHEN DIRECTED BY THE PROJECT ENGINEER
- WHEN SHIFTING TRAFFIC LEFT OF CENTER, THROUGH A SIGNALIZED INTERSECTION, WITHOUT SHIFTING SIGNAL HEADS

A FLAGGER SHALL BE UTILIZED TO ASSIST IN CONTROLLING TRAFFIC WHILE EQUIPMENT IS ENTERING OR EXITING AN INTERSECTION OR WORK ZONE. THE CONTRACTOR MAY UTILIZE HIS OWN FLAGGER OR LEO UNDER PAY ITEM 614 MAINTAINING TRAFFIC, LUMP SUM. FLAGGERS AND LEO'S SHALL BE EQUIPPED ACCORDING TO THE STANDARDS FOR FLAGGING TRAFFIC CONTAINED IN THE OMUTCD. FLAGGING OPERATIONS PERFORMED BY LEO'S OR DESIGNATED FLAGGERS SHALL ONLY BE PERMITTED AS LONG AS ALL TRAFFIC CONTROL IS IN PLACE ACCORDING TO FIGURE 6H-10 (TA-10) IN THE OHIO MANUAL. PATROL CARS SHALL NOT BE USED IN FLAGGING OPERATIONS. IF THE CONTRACTOR WISHES TO UTILIZE LEO'S WITH OR WITHOUT PATROL CARS FOR TRAFFIC CONTROL OTHER THAN FOR THAT REQUIRED IN THE PLANS, THEY MAY DO SO AT THEIR OWN EXPENSE. THE CONTRACTOR SHALL MAKE ARRANGEMENT THROUGH THE COLUMBUS POLICE DIVISION AT (614) 645-4795.

LEO'S SHALL BE CONSIDERED TO BE EMPLOYED BY THE CONTRACTOR AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR THEIR ACTIONS. ALTHOUGH EMPLOYED BY THE CONTRACTOR, THE CITY REPRESENTATIVE SHALL HAVE CONTROL OVER THEIR PLACEMENT. LEO'S SHALL NOT HAVE THE AUTHORITY TO CHANGE, EDIT OR MODIFY ANY MAINTENANCE OF TRAFFIC SCHEME WITHOUT THE PERMISSION OF THE TEMPORARY TRAFFIC CONTROL COORDINATOR OR PROJECT ENGINEER UNLESS AN EMERGENCY DEVELOPS.

IF A SAFETY HAZARD DEVELOPS, A LEO MAY BE ASSIGNED BY THE COLUMBUS PUBLIC SAFETY AND/OR THE PUBLIC SERVICE DIRECTOR AT THE CONTRACTOR'S EXPENSE.

**ITEM 614 - LAW ENFORCEMENT OFFICER (LEO) WITH PATROL CAR, AS PER PLAN**

IN ADDITION TO LEO AND FLAGGER HOURS INCLUDED IN ITEM 614 MAINTAINING TRAFFIC, LUMP SUM; THE FOLLOWING QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY TO BE USED AS DIRECTED BY THE ENGINEER OR AN ACCEPTABLE REPRESENTATIVE FOR THE CITY OF COLUMBUS. THE OFFICIAL PATROL CAR WITH TOP MOUNTED EMERGENCY FLASHING LIGHTS SHALL BE A PUBLIC SAFETY VEHICLE AS REQUIRED BY THE OHIO REVISED CODE. THE CONTRACTOR SHALL BE PAID FOR THIS BID ITEM ONLY IF DIRECTED BY THE ENGINEER.

ITEM 614, LAW ENFORCEMENT OFFICER WITH PATROL CAR, AS PER PLAN-144 HOURS

12. TYPE C STEADY-BURN OR TYPE D 360-DEGREE STEADY-BURN WARNING LIGHTS SHALL BE REQUIRED ON ALL BARRICADES, DRUMS, AND SIMILAR TRAFFIC CONTROL DEVICES IN USE AT NIGHT. ONLY 42" REFLECTORIZED CHANNELIZING DEVICES (CONES) SHALL BE PERMITTED FOR NIGHTTIME WORK WITH THE APPROVAL OF THE TTC COORDINATOR AT 614-645-0355 OR 614-645-5845 PER O.D.O.T. STANDARDS.

13. A FLASHING ARROW PANEL (48" X 96"-TYPE C) SHALL BE USED IN LANE CLOSURES AS PER THE OHIO MANUAL.

14. ALL TRENCHES WITHIN THE ROAD RIGHT OF WAY SHALL BE BACKFILLED OR SECURELY PLATED PER (CITY OF COLUMBUS GENERAL POLICY ON STEEL PLATE USAGE DATED 11/15/2006 AND STD. DWG. 1441, LATEST EDITION) DURING NON-WORKING HOURS.

15. ALL TRAFFIC LANES SHALL BE FULLY OPEN TO TRAFFIC FROM 6:00 A.M. TO 9:00 A.M. AND 4:00 P.M. TO 6:00 P.M., OR 6:00 TO 9:00 A.M. AND 3:00 TO 6:00 P.M. IN THE COLUMBUS BUSINESS DISTRICT (CBD) PARKING AREA, MONDAY THROUGH FRIDAY ON RICH ST, 3RD ST, 4TH ST, 5TH ST, AND GRANT AVE. 1 LANE MAY BE CLOSED TO TRAFFIC DURING WORKING HOURS.

16. TWO-WAY, ONE-LANE TRAFFIC MAY BE MAINTAINED DURING CONSTRUCTION OPERATIONS ON 5TH ST, PER THE CITY OF COLUMBUS MAINTENANCE OF TRAFFIC, STANDARD CONSTRUCTION DRAWING 1550 AND FIGURE 6H-10 (TA-10) OF THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.

17. THE DEPARTMENT OF PUBLIC SERVICE WILL REMOVE OR COVER ALL PARKING METER HEADS PUT OUT OF SERVICE BY THIS PROJECT. THERE IS A \$60.00 DOLLAR CHARGE FOR THE REMOVAL AND REINSTALLATION OF EACH METER. IN ADDITION, A DAILY METER FEE WILL BE CHARGED FOR ALL ENFORCEMENT HOURS FOR EACH METER TAKEN OUT OF SERVICE, SEE THE PARKING METER OUT OF SERVICE FEES NOTE FOR MORE INFORMATION AND THE CALCULATION OF METERS TAKEN OUT OF SERVICE, PLUS THE METER POST AND CORE NOTE. THESE CHARGES WILL BE COLLECTED FROM THE CONTRACTOR IN ADVANCE WITH THE ISSUANCE OF THE STREET OCCUPANCY/EXCAVATION PERMIT FROM THE DEPARTMENT OF PUBLIC SERVICE'S PERMIT OFFICE. (614-645-7497) PARKING SERVICES SHALL BE NOTIFIED A MINIMUM OF FORTY-EIGHT (48) HOURS (EXCLUDING SAT, SUN, & HOLIDAYS) PRIOR TO BEGINNING WORK. CALL 614-645-4072. THIS COST IS TO BE INCLUDED IN THE BID FOR THIS PROJECT AS A PART OF ITEM 614 MAINTENANCE OF TRAFFIC, LUMP SUM.

18. FOR MOBILE PAYMENT ONLY ZONES, PLEASE REVIEW THE POSTED MOBILE PAYMENT ZONE SIGN AND PROVIDE THE MOBILE PAYMENT ZONE NUMBER FOR THE PARKING SPACE(S) THAT WILL BE REMOVED FROM SERVICE. IF "TICK-MARKS" ARE INCLUDED WITHIN THE PARKING ZONE, THEN COUNT THE NUMBER OF SPACES NEEDED TO BE OUT OF SERVICE. IF NO "TICK-MARKS" ARE WITHIN THE PARKING ZONE, THEN CALCULATE THE NUMBER OF "SPACES" NEEDED BY USING 20 FEET PER SPACE. ONCE ALL THE INFORMATION LISTED ABOVE HAS BEEN COLLECTED FOR THE PAID PARKING TO BE REMOVED FROM SERVICE, CONTACT THE CITY OF COLUMBUS, DIVISION OF PARKING SERVICES AT PARKINGSERVICES@COLUMBUS.GOV FOR ASSISTANCE WITH ESTIMATING THE DAILY PAID PARKING REVENUE RATE. PROVIDE THE PROJECT LOCATION IN THE SUBJECT LINE OF THE EMAIL. THE ONLINE METER MAP WILL ALSO INCLUDE THE HOURLY RATE FOR MOBILE PAYMENT ZONES. THIS COST IS TO BE INCLUDED IN THE BID FOR THIS PROJECT AS A PART OF ITEM 614 MAINTENANCE OF TRAFFIC, LUMP SUM. AT THE TIME THE CONTRACTOR SUBMITS FOR THE STREET OCCUPANCY/EXCAVATION PERMIT, ALONG WITH THE PAID PARKING IDENTIFICATION NUMBERS TO BE INCLUDED ON THE PERMIT REQUEST FORM, THE CONTRACTOR IS TO PROVIDE A LISTING OF THE METER IDENTIFICATION NUMBERS AND/OR MOBILE PAYMENT ONLY ZONE NUMBERS AND THE NUMBER OF DAYS THAT EACH PAID PARKING SPACE IS TO BE OUT OF SERVICE, TO THE DEPARTMENT OF PUBLIC SERVICE PERMIT OFFICE. THE PERMIT OFFICE WILL VERIFY THAT THE HOURLY RATES ARE CORRECT AND CALCULATE THE COST OF THE PERMIT.

19. TEMPORARY "EMERGENCY NO PARKING" SIGNS SHALL BE INSTALLED BY THE CONTRACTOR IN AREAS WITH NO PARKING METERS AND TO REMOVE PARKING FROM SERVICE IN AREAS WHERE PARKING METERS, KIOSKS, AND OR MOBILE PAYMENT ZONE(S) PARKING HAS BEEN TAKEN OUT OF SERVICE. THE SIGNS SHALL SHOW THE PERMIT NUMBER, INSTALLATION DATE, WORKING DATES, AND HOURS OF RESTRICTION ON EACH SIGN. SIGNS SHALL BE POSTED AT 50' C/C MINIMUM BY USE OF ANY OF THE FOLLOWING ITEMS: EXISTING SIGN POSTS, EXISTING UTILITY POLES, DRUMS AND/OR 42" CONES AND REMOVED BY THE CONTRACTOR IN AREAS WITH NO PARKING METERS. THE TEMPORARY SIGN(S) SHALL HAVE THE INSTALLATION DATE, WORKING DATES, AND HOURS OF RESTRICTION SHOWN ON EACH SIGN. THESE SIGNS MAY BE OBTAINED FROM THE DEPARTMENT OF PUBLIC SERVICE'S PERMIT OFFICE. THE POLICE DIVISION REQUIRES THE "EMERGENCY NO PARKING" SIGNS BE POSTED A MINIMUM OF SEVENTY-TWO (72) HOURS PRIOR TO ANY VEHICLES BEING TOWED. WITHIN TWENTY-FOUR (24) HOURS OF POSTING, THE CONTRACTOR SHALL SUPPLY THE DEPARTMENT OF PUBLIC SERVICE WITH A WRITTEN RECORD OF POSTED LOCATIONS (FAX: 614-645-3298).

20. THE CONTRACTOR SHALL CONTACT OHIO UTILITY PROTECTION SERVICE (OUPS), NOW "OHIO 811" TO LOCATE AND MARK ALL UNDERGROUND TRAFFIC CONTROL CABLES PRIOR TO THE BEGINNING OF ANY WORK WITHIN 450 FEET OF ANY SIGNALIZED INTERSECTION(S) OR WITHIN ANY POSTED AREA WHERE THE DEPARTMENT HAS UNDERGROUND CABLE. THE SIGNAL OPERATION ENGINEER (614-645-6418) SHALL BE NOTIFIED SIX (6) WEEKS IN ADVANCE FOR SIGNAL REVISIONS OR POLE RELOCATIONS.

21. THE CONTRACTOR SHALL CONTACT THE DIVISION OF REFUSE COLLECTION, OPERATIONS MANAGER MICHAEL PICKARD, 614-645-1675.

22. NO EXCAVATION SHALL BE MADE WITHIN FIVE (5) FEET OF ANY FOUNDATION THAT SUPPORTS SIGNAL POLES, TRAFFIC SIGNAL DISPLAYS OR SIGNS BY MAST ARM OR SIGNAL SPAN. EXCAVATION WITHIN EIGHT (8) FEET, BUT MORE THAN FIVE (5) FEET SHALL REQUIRE ADDITIONAL SUPPORT (DOWN GUY, HEAD GUY, BASE GUY, ETC.). THE CONTRACTOR SHALL CONTACT SIGNAL OPERATION PERSONNEL AT 614-645-0423 (CELL 614-419-4501) AT LEAST FORTY-EIGHT (48) HOURS (EXCLUDING SAT. & SUN.) PRIOR TO THE BEGINNING OF SUCH EXCAVATION SO THAT THE CITY CAN APPROVE THE STABILIZATION SETUP BY THE CONTRACTOR. IF UNABLE TO MAKE CONTACT THROUGH ABOVE NUMBERS, CALL 614-645-7393. STABILIZATION WILL BE DONE BY THE CONTRACTOR AT THE OWNERS'/CONTRACTING AGENCY'S EXPENSE.

23. SIGNAL CONDUIT CLEARANCE 3' HORIZONTAL AND 1' VERTICAL FROM ADJACENT UTILITIES SHALL BE MAINTAINED AT ALL TIMES.

24. WHEN ANY TRAFFIC CONTROL DEVICE, CONDUIT, OR CABLE IS DAMAGED, THE CONTRACTOR SHALL NOTIFY SIGNAL OPERATION PERSONNEL AT 614-645-0423 (CELL 614-419-4501) BETWEEN 7:00 AM AND 4:00 PM, MONDAY THROUGH FRIDAY. IF UNABLE TO MAKE CONTACT THROUGH THE OTHER NUMBERS, CALL 614-645-7393.

25. THE ROADWAY OR ANY SECTION OF ROADWAY SHALL NOT BE OPENED TO NON-CONSTRUCTION TRAFFIC UNTIL ALL TEMPORARY, NON-REFLECTIVE, BLACKOUT TAPE HAS BEEN COMPLETELY REMOVED FROM NON-CONFLICTING PERMANENT PAVEMENT MARKINGS FOR THAT AREA OF THE ROADWAY, OR UNLESS OTHERWISE DIRECTED IN WRITING BY THE ENGINEER. THIS IS SUPPLEMENTAL TO CITY OF COLUMBUS, CMS-614.11- G, AND SHALL BE PAID FOR THROUGH THE 614-LUMP SUM.

26. WHENEVER YELLOW CENTERLINES OR TURN-LANE LINES ARE PAVED OVER, REMOVED, OR OTHERWISE UNSERVICEABLE, THE CONTRACTOR SHALL INSTALL CLASS II TEMPORARY STRIPING (MINIMUM 4' LONG SEGMENTS). TEMPORARY PAINT SHALL BE USED ON ALL MILLED SURFACES. TEMPORARY TAPE SHALL BE USED ON ALL FINAL COURSES OF ASPHALT. PAINT OR TAPE MAY BE USED ON INTERMEDIATE COURSES OF ASPHALT. IF APPROVED BY THE ENGINEER, DRUMS WITH STEADY BURNING TYPE C OR TYPE D 360 DEGREE WARNING LIGHTS AND "KEEP RIGHT" SIGNS MAY BE SUBSTITUTED FOR CENTERLINE MARKINGS.

27. CLASS II TEMPORARY STRIPING (MINIMUM 4? LONG SEGMENTS) SHALL BE AS PER ITEM 614 - WORK ZONE PAVEMENT MARKING AND SHALL BE PLACED WITHIN ONE (1) FOOT LONGITUDINAL TOLERANCE OF THE PERMANENT STRIPE(S). ALL TEMPORARY STRIPING NOT TO WITHIN ONE (1) FOOT TOLERANCE SHALL BE REMOVED AND REPLACED IN THE PROPER LOCATION BY THE CONTRACTOR. CLASS II TEMPORARY STRIPING SHALL BE OF THE APPROPRIATE COLOR AND SPACED A MAXIMUM OF FORTY (40) FEET CENTER TO CENTER.

**EXISTING PERMANENT TRAFFIC CONTROL**

1. ANY WORK DONE BY THE DEPARTMENT OF PUBLIC SERVICE, INCLUDING INSTALLATION, RELOCATION, REMOVAL AND/OR REPLACEMENT OF PERMANENT TRAFFIC CONTROL DEVICES AS A RESULT OF WORK DONE BY THE CONTRACTOR OR AS A RESULT OF NEGLIGENCE OF THE CONTRACTOR, SHALL BE AT THE CONTRACTORS' EXPENSE.

2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REINSTALLATION AND/OR REPLACEMENT OF ALL PERMANENT TRAFFIC CONTROL DEVICES DAMAGED OR REMOVED DURING CONSTRUCTION. PERMANENT TRAFFIC CONTROL NO LONGER IN CONFLICT WITH TEMPORARY TRAFFIC CONTROL SHALL BE REPLACED IMMEDIATELY.

3. THE CONTRACTOR SHALL REPLACE ALL PAVEMENT MARKINGS, INCLUDING RAISED PAVEMENT MARKERS (RPM) SHOWN IN CONFLICT, REMOVED DUE TO CONSTRUCTION OR MAINTENANCE OF TRAFFIC SET UP, DESTROYED, OR RENDERED UNSERVICEABLE BY THE PROJECT ENGINEER OR THE PUBLIC SERVICE PAVEMENT MARKING MANAGER. ALL PAVEMENT MARKING MATERIALS SHALL BE REPLACED IN-LIKE KIND TO THE CURRENT CMSC SPECIFICATION REQUIREMENTS IF NOT SHOWN IN THE PLAN OR PERMIT INCLUDING RAISED PAVEMENT MARKERS. ALL PAVEMENT MARKINGS SHALL BE REPLACED IN FULL. NO PARTIAL LENGTH OR SECTIONS OF PAVEMENT MARKINGS SHALL BE REPLACED WITHOUT REMOVING THE ENTIRE MARKING BY USE OF THE WATER BLAST METHOD. REMOVAL BY ABRASIVE WHEEL GRINDING SHALL ONLY BE APPROVED BY THE PUBLIC SERVICE PAVEMENT MARKING MANAGER.

4. ALL OVERHEAD CABLE, AND DOWN GUYS OR BACK GUYS SHALL NOT BLOCK ANY PORTION OF A TRAFFIC SIGNAL, TRAFFIC CONTROL SIGN, OR OTHER TRAFFIC CONTROL DEVICE SUCH THAT VISIBILITY OR OPERATION OF THE TRAFFIC CONTROL DEVICE IS IMPAIRED.

5. ALL PERMANENT PAVEMENT MARKINGS AND TRAFFIC CONTROL SIGNS AS SHOWN ON THIS PLAN SHALL BE INSTALLED BY THE CONTRACTOR AT THE PROJECTS EXPENSE. THE PROJECT ENGINEER SHALL BE NOTIFIED TO DIRECT APPROPRIATE PERSONNEL A MINIMUM OF FORTY-EIGHT (48) HOURS (EXCLUDING SAT. & SUN.) PRIOR TO THE INSTALLATION OF PERMANENT MARKINGS TO INSPECT AND APPROVE THE PAVEMENT MARKING LAYOUT PRIOR TO PLACING THE PERMANENT MARKINGS.

6. PERMANENT STRIPING OR CLASS I TEMPORARY STRIPING SHALL BE INSTALLED NO LATER THAN FOURTEEN (14) CALENDAR DAYS AFTER THE FINAL PAVING COURSE IS COMPLETED. THE PAVING CONTRACTOR SHALL BE RESPONSIBLE TO NOTIFY THE STRIPING CONTRACTOR TO INSURE THE PERMANENT STRIPING IS INSTALLED WITHIN THE FOURTEEN (14) CALENDAR DAY LIMIT.

7. IF THE DEPARTMENT OF PUBLIC SERVICE IS TO INSTALL PERMANENT STRIPING, THE PROJECT ENGINEER SHALL BE NOTIFIED TO DIRECT APPROPRIATE PERSONNEL A MINIMUM OF TEN (10) WORKING DAYS PRIOR TO THE APPLICATION OF THE FINAL COURSE OF PAVEMENT.

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MAINTENANCE OF TRAFFIC  
GENERAL NOTES

IMPROVEMENTS OF  
E RICH STREET FROM S 3RD ST TO S GRANT AVE  
FRA E RICH ST SIGNALS

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**ITEM 614 SPECIAL – WORK ZONE TRAFFIC SIGNAL**

UNDER THIS ITEM OF WORK, THE CONTRACTOR SHALL FURNISH, INSTALL, RELOCATE, MODIFY AND SUBSEQUENTLY REMOVE: TEMPORARY SIGNAL SUPPORTS, DOWN GUYS, GROUND RODS, SIGNAL CABLE, POWER CABLE, SERVICE CABLE, CONDUIT RISERS, MESSENGER WIRE, SIGNAL HEADS, COVERING OF VEHICULAR SIGNAL HEADS AND A TEMPORARY CONTROLLER AS NEEDED TO RENDER A FULLY FUNCTIONAL TEMPORARY SIGNALIZED INTERSECTION.

AS DETAILED WITHIN, TEMPORARY TRAFFIC SIGNALS OR TRAFFIC SIGNAL MODIFICATIONS TO ACCOMMODATE INDIVIDUAL MAINTENANCE OF TRAFFIC PHASES SHALL BE INSTALLED AT THE INTERSECTIONS LISTED BELOW.

- E RICH ST AT THIRD ST
- E RICH ST AT FOURTH ST
- E RICH ST AT FIFTH ST
- E RICH ST AT GRANT AVE

ALL TEMPORARY TRAFFIC SIGNAL EQUIPMENT SHALL COMPLY WITH THE SPECIFICATIONS OUTLINED FOR THE PERMANENT SIGNAL INSTALLATION INCLUDING GROUNDING AND BONDING AND "TRAFFIC SIGNAL PLAN AND SPECIFICATION COMPLIANCE". ALL METHODS OF TRAFFIC CONTROL SHALL BE APPROVED BY THE ENGINEER AND SHALL BE IN PLACE AND OPERATING PRIOR TO THE DEACTIVATION AND REMOVAL AND/OR RELOCATION OF ANY EXISTING SIGNAL EQUIPMENT. REFERENCE IS MADE TO THE REQUIREMENTS OF ITEM 614. ALL MODIFICATIONS TO SIGNALIZATION SHALL BE DONE UNDER THE PROTECTION OF A LAW ENFORCEMENT OFFICER. REFERENCE IS MADE TO ITEM 614 MAINTAINING TRAFFIC, AS PER PLAN.

ANY VEHICULAR TRAFFIC SIGNAL HEAD THAT WILL BE OUT OF OPERATION SHALL BE COVERED IN ACCORDANCE WITH 632.25. ANY EXISTING VEHICULAR OR PEDESTRIAN HEAD THAT IS NOT FUNCTIONAL SHALL BE REMOVED IMMEDIATELY OR COVERED. ANY PEDESTRIAN BUTTONS NOT IN USE SHALL ALSO BE COVERED.

EACH TEMPORARY SIGNAL POLE LOCATION SHALL BE STAKED AND THE LOCATION APPROVED BY THE CITY OF COLUMBUS. THE CONTRACTOR MAY REUSE EXISTING SPAN AND PIGTAILS OR INSTALL NEW AS REQUIRED. THE CONTRACTOR SHALL TRANSFER EXISTING SIGNAL ITEMS AND EXTEND EXISTING CABLE AS NEEDED. WEATHERPROOF CABLE SPLICING IS PERMITTED. DOWN GUYS SHALL BE SPECIFIED FOR ALL TEMPORARY WOOD POLES. ONE DOWN GUY PER POLE SHALL BE USED FOR A LAYOUT THAT CONTAINS A MAXIMUM OF 2 VEHICULAR SIGNAL HEADS PER SPAN. TWO DOWN GUYS PER POLE SHALL BE SPECIFIED FOR 3 OR MORE VEHICULAR SIGNAL HEADS PER SPAN. DOWN GUYS SHALL BE POSITIONED TO COUNTERACT THE MOMENT CREATED BY THE SPAN CONFIGURATION. ANY CHANGE TO THE PLANNED POLE LOCATION OR SPAN CONFIGURATION AS DETAILED IN THE PLAN SHALL BE APPROVED BY THE CITY OF COLUMBUS. THE CONTRACTOR SHALL SUBMIT A DIAGRAM TO THE CITY DOCUMENTING PROPOSED CHANGES.

INSTALL THE SPAN TO PROVIDE FOR A 5 TO 6 PERCENT SAG FOR WOOD POLES. ATTACH THE SPAN NO CLOSER THAN 2 FT. FROM THE TOP OF THE POLE. THE LOWEST VEHICULAR HEAD IN EACH DIRECTION SHALL BE 16.5 FT. ABOVE PAVEMENT SURFACE WITH THE REMAINING VEHICULAR HEADS MEETING THE REQUIREMENTS OF THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.

THE CONTRACTOR SHALL SHIFT EXISTING SIGNAL HEADS TO ALIGN WITH LANES IN THE INDIVIDUAL MAINTENANCE OF TRAFFIC PHASES. DETAILED HEAD PLACEMENT HAS BEEN PROVIDED FOR EACH PHASE OF WORK IN THE MAINTENANCE OF TRAFFIC PLAN. THIS ITEM SHALL CONSIST OF ADJUSTING THE LOCATION OF TEMPORARY TRAFFIC SIGNAL HEADS FOR EACH PHASE OF CONSTRUCTION INCLUDING UNLASHING AND RELASHING ALL WIRING. ALL TEMPORARY AERIAL WIRING SHALL BE A MINIMUM OF 21 FT. ABOVE THE ROADWAY SURFACE.

VEHICULAR DETECTION SHALL BE MAINTAINED AT ALL TIMES AND DURING ALL PHASES OF CONSTRUCTION USING EITHER EXISTING LOOP DETECTORS OR TEMPORARY VIDEO OR RADAR DETECTION.

LOCATE THE NON-FUSED POWER SUPPLY VOLTAGE (120 VOLT) IN A SEPARATE CONDUIT. IN ADDITION, LOCATE THE LOOP DETECTOR, PUSH BUTTON, AND VIDEO DETECTION CABLES IN A SEPARATE CONDUIT FROM ALL OTHER CABLES.

THIS ITEM OF WORK SHALL INCLUDE ALL LABOR, EQUIPMENT AND MATERIAL NECESSARY TO PROVIDE POWER TO THE TRAFFIC SIGNAL CONTROLLER FROM THE PROPOSED OR EXISTING POWER SOURCES AS DETERMINED BY CONSTRUCTION SEQUENCING.

THIS ITEM OF WORK SHALL INCLUDE ALL LABOR, EQUIPMENT AND MATERIALS NECESSARY TO FURNISH, INSTALL, MODIFY, REMOVE, STORE, ERECT, RELOCATE, ADJUST AND REPAIR TEMPORARY TRAFFIC SIGNAL ITEMS AS DESCRIBED ABOVE.

ALL COSTS FOR THE ABOVE WORK SHALL BE INCLUDED IN THE PRICE BID FOR ITEM 614 SPECIAL – WORK ZONE TRAFFIC SIGNAL AND SHALL BE PER EACH INTERSECTION AT WHICH TEMPORARY SIGNALS OR MODIFICATIONS ARE INSTALLED.

- 8/27/21

**SEQUENCE OF CONSTRUCTION**

CONSTRUCTION OF RICH AT THIRD, FOURTH, AND GRANT SHALL FOLLOW THE ORDER OF OPERATIONS AS OUTLINED BELOW, AND ON THE MOT PLAN SHEETS:

- PHASE 1: NW CORNER
- PHASE 2: NE CORNER
- PHASE 3: SE CORNER
- PHASE 4: SW CORNER

CONSTRUCTION OF RICH AT FIFTH SHALL FOLLOW THE ORDER OF OPERATIONS AS OUTLINED BELOW, AND ON THE MOT PLAN SHEETS:

- PHASE 1: NE CORNER
- PHASE 2: SE CORNER
- PHASE 3: SW CORNER
- PHASE 4: NW CORNER

WITH APPROVAL BY THE ENGINEER, THE ORDER OF THE PHASES MAY BE REVISED SHOULD IT BENEFIT CONSTRUCTION, VEHICULAR MOVEMENTS, AND/OR PEDESTRIAN MOVEMENTS.

CONSTRUCTION SHALL BE LIMITED TO ONE CORNER AT ONE INTERSECTION AT A TIME. THE INTENT IS TO MINIMIZE IMPACTS TO PEDESTRIAN TRAVEL LENGTHS.

WORKING HOURS SHALL BE LIMITED TO:

- WEEKDAYS: 9AM-4PM
- WEEKEND: 7AM-10PM

AT THE END OF THE WORK DAY, ALL MOT ITEMS SHALL BE REMOVED FROM THE STREET AND PLACED ALONG THE CURB. ALL TRENCHING SHALL BE PLATED OR BACKFILLED PER ODOT STANDARDS AND AT THE APPROVAL OF THE CITY ENGINEER.

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**MAINTENANCE OF TRAFFIC  
GENERAL NOTES**

**IMPROVEMENTS OF  
E RICH STREET FROM S 3RD ST TO S GRANT AVE  
FRA E RICH ST SIGNALS**

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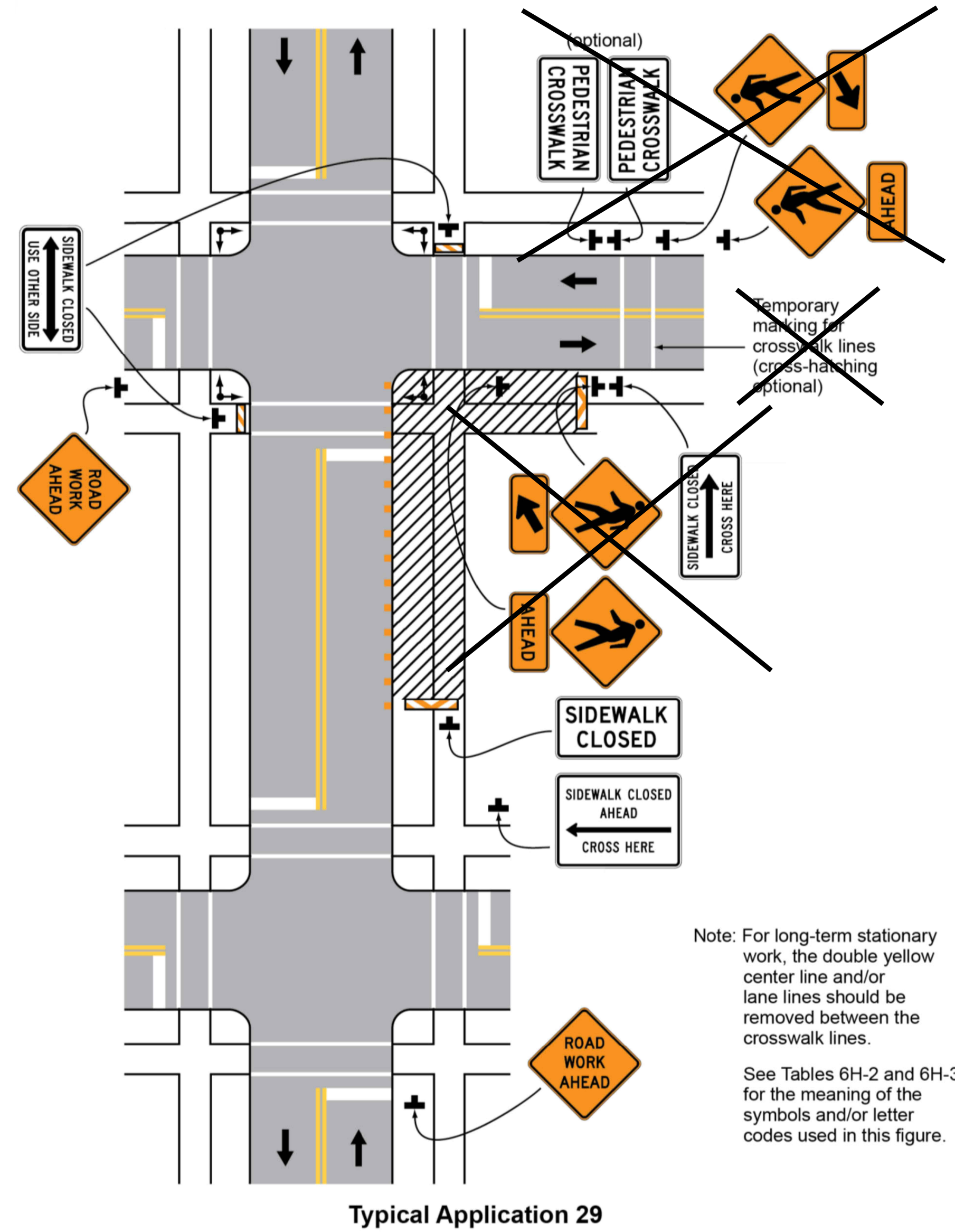
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**PEDESTRIAN DETOUR PLAN**

THE CONTRACTOR SHALL BE PERMITTED TO CLOSE A SINGLE CORNER OF THE INTERSECTION AT ONE TIME AND DETOUR PEDESTRIAN TRAFFIC AROUND THE WORK ZONE. THE CONTRACTOR SHALL PROVIDE DETOUR PLANS FOR EACH INDIVIDUAL CORNER. THE PROJECT ENGINEER OR THE TEMPORARY TRAFFIC CONTROL COORDINATOR SHALL APPROVE THE DETOUR PLAN AND ROUTE PRIOR TO IMPLEMENTATION. DETOURS SHALL BE DEVELOPED PER TA-29 IN THE OMTCD. MIDDLEBLOCK TEMPORARY CROSSINGS SHALL NOT BE PERMITTED AS PART OF THE DETOUR ROUTE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION AND SAFE MOVEMENT OF PEDESTRIANS THROUGH, AROUND, OR DETOURED AWAY FROM THE CONSTRUCTION SITE. ACCESS FOR PEDESTRIAN AND VEHICULAR TRAFFIC TO ALL ADJOINING PROPERTIES SHALL BE MAINTAINED AT ALL TIMES.

**Figure 6H-29. Crosswalk Closures and Pedestrian Detours (TA-29)**



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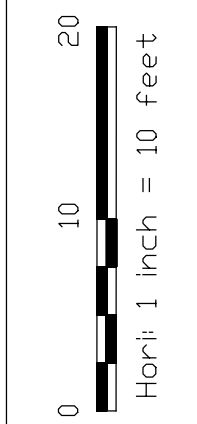
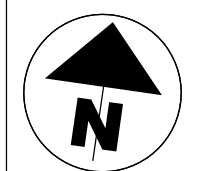
MAINTENANCE OF TRAFFIC NOTES

IMPROVEMENTS OF  
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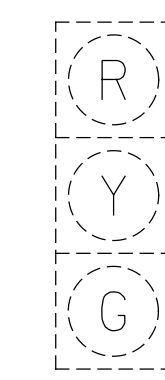
TEMPORARY SIGNAL PLAN  
RICH STREET AT THIRD STREET

IMPROVEMENTS OF  
E RICH STREET FROM S 3RD ST TO S GRANT AVE  
FRA E RICH ST SIGNALS

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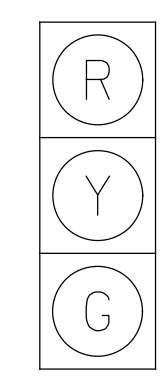
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EXISTING VEHICULAR SIGNAL HEAD CONFIGURATIONS (REMOVE)

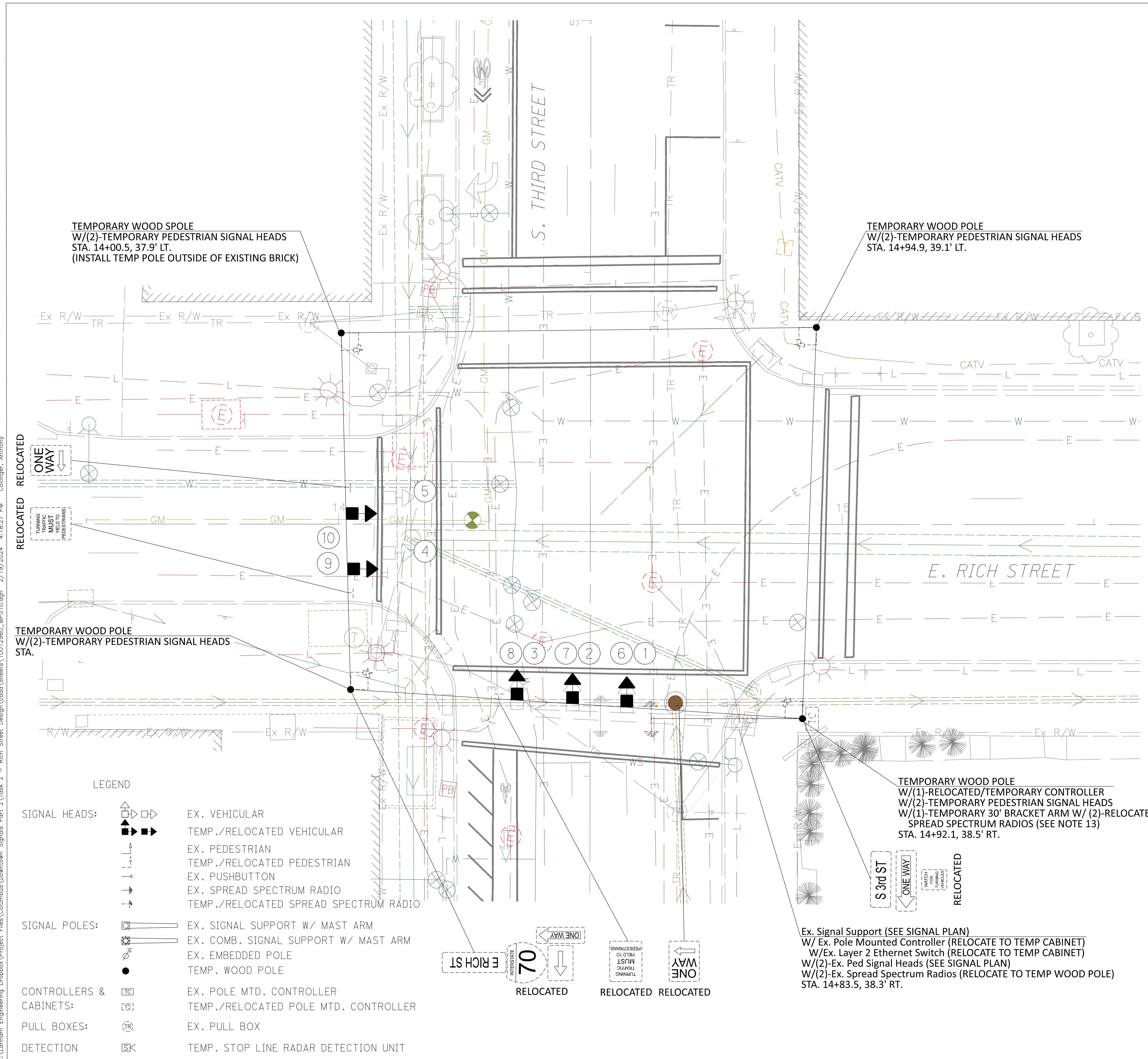


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TEMPORARY VEHICULAR SIGNAL HEAD CONFIGURATIONS 12" HEADS



6 - 10



1. AN EXISTING TRAFFIC SIGNAL, OR ANY PART THEREOF, SHALL NOT BE TAKEN OUT OF SERVICE UNLESS ALTERNATE MEANS OF TRAFFIC CONTROL ARE IN PLACE AND OPERATIONAL. UNLESS DIRECTED BY THE CITY OF COLUMBUS CITY ENGINEER OR APPOINTED DESIGNEE, EXISTING TRAFFIC SIGNALS SHALL NOT BE TAKEN OUT OF SERVICE BETWEEN THE HOURS OF:  
- 7:00 AM TO 9:00 AM MONDAY THROUGH FRIDAY AND  
- 4:00 PM TO 6:00 PM, MONDAY THROUGH FRIDAY (3:30 PM - 6:00 PM FOR THE DOWNTOWN BUSINESS DISTRICT)  
- OR ONE HOUR BEFORE SUNSET THROUGH ONE-HALF HOUR AFTER SUN RISE, WHICHEVER IS THE LONGEST DURATION.
2. ANY UNUSED SIGNAL HEAD, PEDESTRIAN SIGNAL HEAD, PEDESTRIAN PUSHBUTTON, OR POLE OR SPAN/ARM MOUNTED SIGN SHALL BE COVERED AND DISCONNECTED. VEHICULAR SIGNAL HEADS AND PEDESTRIAN SIGNAL HEADS SHALL BE COVERED PER THE REQUIREMENTS OF CMSC 632.25.
3. VEHICULAR SIGNAL HEADS SHALL BE ALIGNED PER THE PLAN. NO TWO VEHICULAR SIGNAL HEADS SHALL BE LOCATED WITHIN EIGHT FEET OF ONE ANOTHER, MEASURED PERPENDICULAR TO THE TRAVEL LANE.
4. SIGNS SHALL BE ALIGNED PER THE PLANS. EXISTING SIGNS IN CONFLICT WITH THE PROPOSED TEMPORARY TRAFFIC CONTROL SETUP SHALL BE COVERED OR TEMPORARILY REMOVED
5. WEATHERPROOF SPLICES MAY BE INTRODUCED INTO SIGNAL CABLE IN ORDER TO RELOCATE EXISTING VEHICULAR SIGNAL HEADS. NO SPLICES SHALL REMAIN IN THE CABLE WHEN THE SIGNAL HEADS ARE RETURNED TO THEIR ORIGINAL POSITION.
6. ALL EXISTING VEHICULAR DETECTION SHALL BE MAINTAINED AT ALL TIMES. LOOPS THAT CANNOT BE USED AS A RESULT OF LANE SHIFTS, LANE CLOSURES, ETC. SHALL BE DEACTIVATED DURING CONSTRUCTION. TEMPORARY RADAR OR VIDEO DETECTION SHALL BE USED TO MAINTAIN DETECTION WHEN AN EXISTING LOOP CANNOT BE USED. IF THE EXISTING DETECTION IS RADAR OR VIDEO, THE ZONES ON THE EXISTING RADAR OR VIDEO UNIT SHALL BE RELOCATED TO THE NEW LANE ALIGNMENT. WHEN TEMPORARY RADAR DETECTION IS USED, DILEMMA ZONE DETECTION SHALL BE PROVIDED FOR APPROACHES WITH SPEEDS GREATER THAN 40 MPH.
7. EXISTING PEDESTRIAN PUSHBUTTONS, PUSHBUTTON SIGNS, AND SIGNAL HEADS SHALL BE MAINTAINED FOR ALL CROSSWALKS THAT REMAIN OPEN DURING CONSTRUCTION. TEMPORARY PUSHBUTTONS AND SIGNS OR RELOCATED PUSHBUTTONS AND SIGNS SHALL BE POSITIONED ACCORDING TO THE CITY OF COLUMBUS ADA RULES AND REGULATIONS. RELOCATED PEDESTRIAN SIGNAL HEADS SHALL BE POSITIONED SUCH THAT THE HEAD IS AIMED AT THE CENTER OF THE CROSSWALK AREA (NOT THE CURB RAMP) THAT IS OPPOSITE THE UNIT. A MINIMUM OF ONE CROSSWALK TO CROSS EACH STREET AT A SIGNALIZED INTERSECTION SHALL BE MAINTAINED AT ALL TIMES. FOR SIGNALIZED INTERSECTIONS WITH THREE LEGS, THE CROSSWALK TO CROSS THE DEAD END STREET MAY BE CLOSED AS LONG A PEDESTRIAN PATH IS PROVIDED ALONG THE "TOP SIDE" OF THE INTERSECTION.
8. UNLESS NOTED IN THE PLANS, THE TRAFFIC SIGNAL SHALL UTILIZE THE EXISTING TIMING AND PHASING.
9. IF ANY CHANGES ARE MADE TO THE SIGNAL OPERATION INCLUDING PHASING CHANGES, PHASE OMISSIONS, TIMING CHANGES, ETC., SIGNAL OPERATION CHANGED SIGNS (W23-H2B) SHALL BE INSTALLED ON THE SPAN OR ARM FOR ALL DIRECTIONS. CENTER THE SIGN OVER THE APPROACH. SIGN SHALL BE LEFT IN PLACE NO LONGER THAN THE DURATION SPECIFIED UNDER ITEM 630 SIGNING, MISC.: TRAFFIC SIGNAL SIGNS.
10. TEMPORARY WOOD SIGNAL POLES SHALL BE SIZED AND THE TEMPORARY SIGNAL SPAN SHALL BE ADJUSTED SUCH THAT THE MINIMUM ROADWAY CLEARANCE TO THE BOTTOM OF THE LOWEST SIGNAL HEAD IS 16.5' MINIMUM AND THE HIGHEST SIGNAL HEAD IS 19' MAXIMUM.
11. WHEN TEMPORARY TRAFFIC SIGNAL CABINETS ARE USED, BASE MOUNTED CABINETS SHALL BE MOUNTED ON A STURDY FOUNDATION SECURE FROM ANIMALS AND WEATHER. POLE MOUNTED CABINETS SHALL BE POSITIONED TO PREVENT AN OVERHANG GREATER THAN 4 IN. INTO A PEDESTRIAN PATHWAY.
12. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING, COORDINATION, AND PAYING FOR POWER SERVICE AS NEEDED FOR THE MAINTENANCE OF TRAFFIC PHASES.
13. SIGNAL SHALL REMAIN CONNECTED TO THE CTSS THROUGHOUT CONSTRUCTION. THE CONTRACTOR SHALL INSTALL A TEMPORARY DROP CABLE OR RELOCATE THE EXISTING DROP CABLE TO THE TEMPORARY CABINET. ALTERNATIVELY THE CONTRACTOR MAY RELOCATE AND ACTIVATE THE EXISTING SPREAD SPECTRUM RADIOS AT THIS INTERSECTION AND THE ADJACENT INTERSECTIONS TO MAINTAIN INTERCONNECT CONNECTIVITY.
14. SEE PERMANENT SIGNAL PLANS FOR REMOVAL OF EXISTING SIGNAL ITEMS.

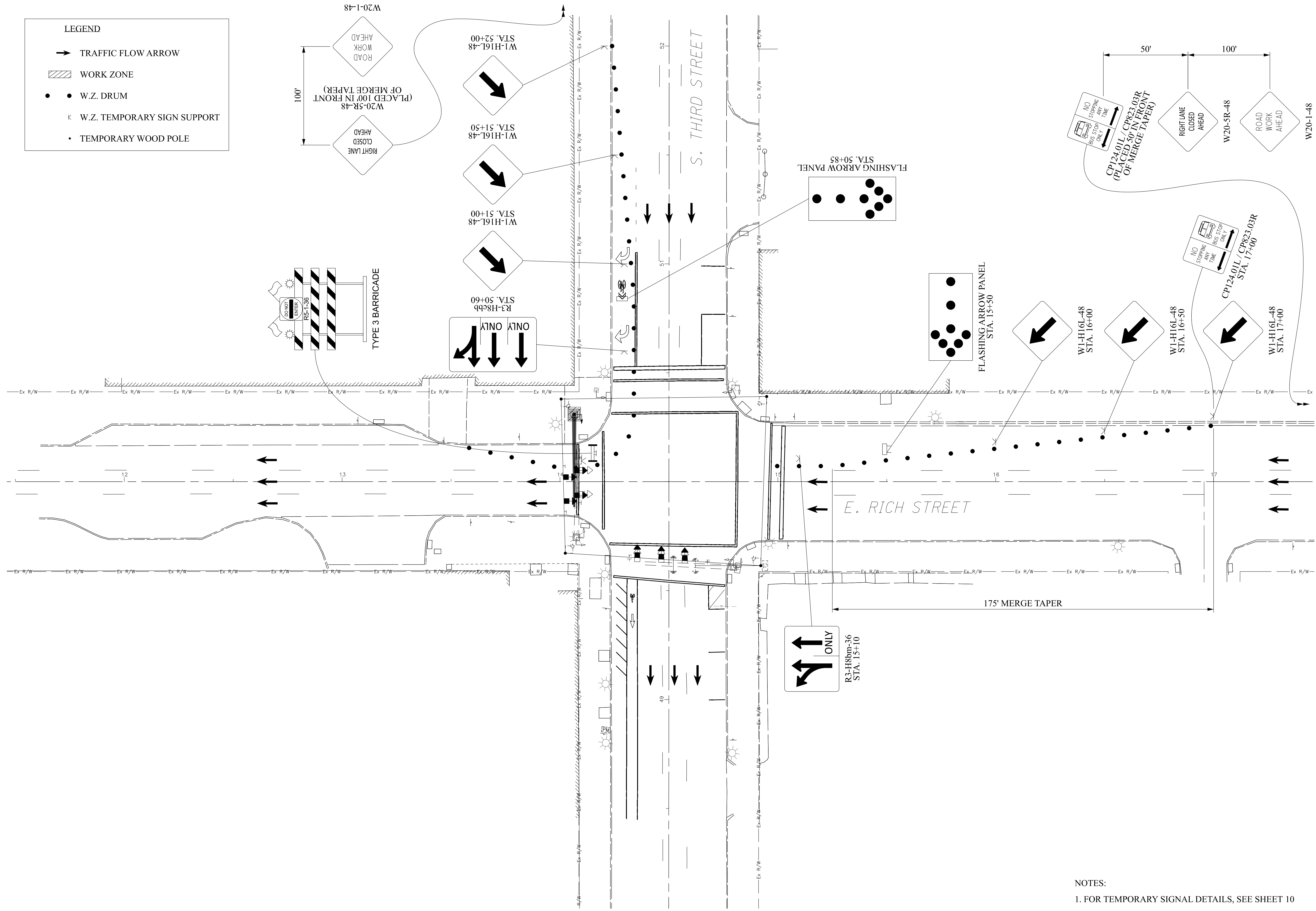
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**LEGEND**

- TRAFFIC FLOW ARROW
- ▨ WORK ZONE
- W.Z. DRUM
- ⋈ W.Z. TEMPORARY SIGN SUPPORT
- TEMPORARY WOOD POLE



0 20 40  
 Horizontal 1 inch = 20 Feet

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**MAINTENANCE OF TRAFFIC PLAN - NW CORNER CONST.**  
**E RICH ST AT S 3RD ST**

**IMPROVEMENTS OF**  
**E RICH STREET FROM S 3RD ST TO S GRANT AVE**  
**FRA E RICH ST SIGNALS**

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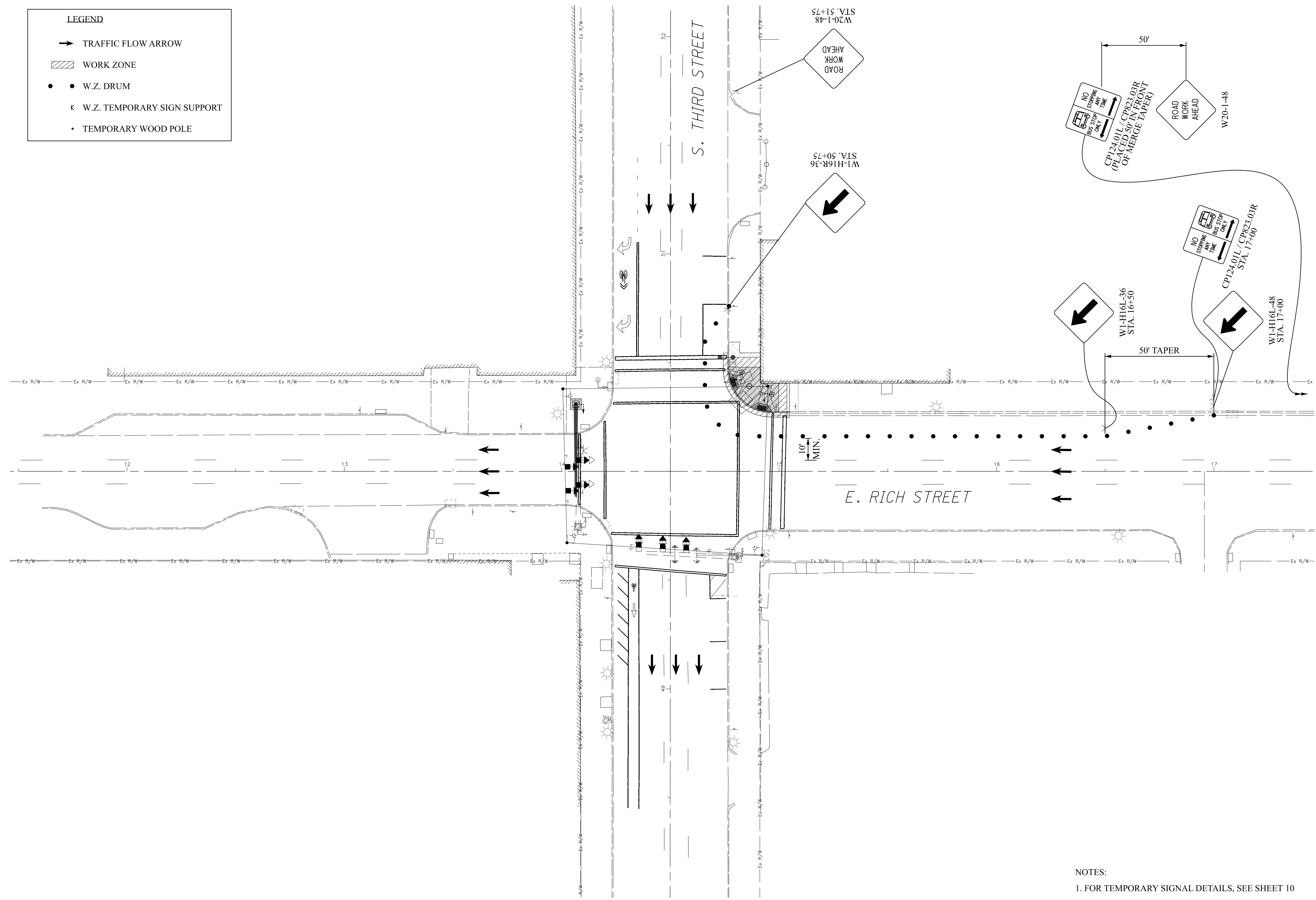
NOTES:  
 1. FOR TEMPORARY SIGNAL DETAILS, SEE SHEET 10



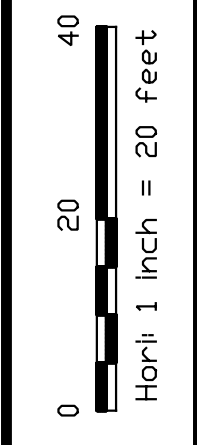
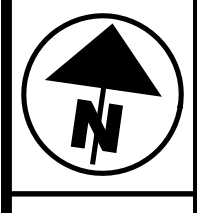
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**LEGEND**

- TRAFFIC FLOW ARROW
- ▨ WORK ZONE
- W.Z. DRUM
- K W.Z. TEMPORARY SIGN SUPPORT
- TEMPORARY WOOD POLE



NOTES:  
1. FOR TEMPORARY SIGNAL DETAILS, SEE SHEET 10



CALCULATED  
JAR  
CHECKED  
DKA

**MAINTENANCE OF TRAFFIC PLAN - NE CORNER CONST.**  
**E RICH ST AT S 3RD ST**

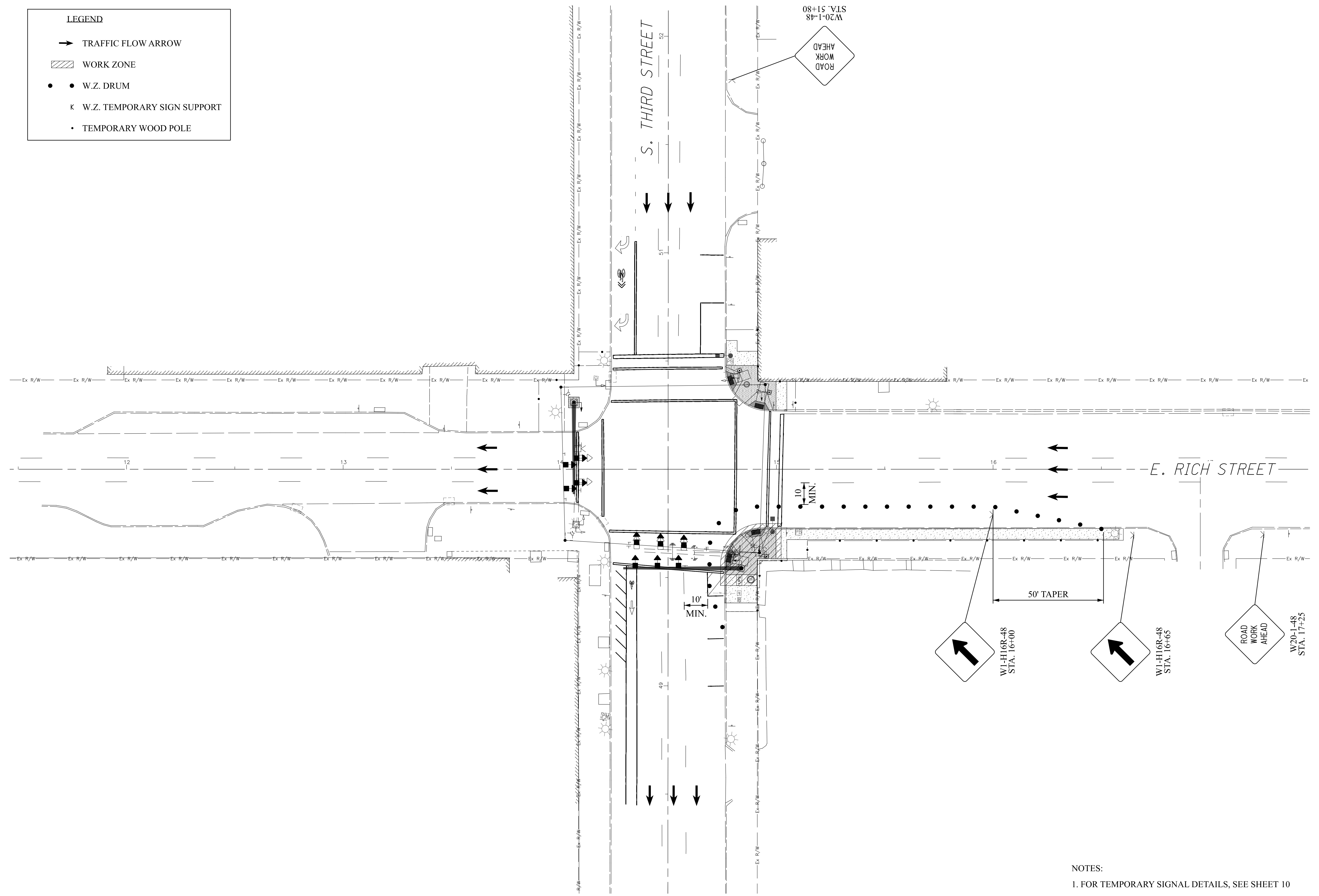
**IMPROVEMENTS OF**  
**E RICH STREET FROM S 3RD ST TO S GRANT AVE**  
FRA E RICH ST SIGNALS

3921-E

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**LEGEND**

- TRAFFIC FLOW ARROW
- ▨ WORK ZONE
- W.Z. DRUM
- K W.Z. TEMPORARY SIGN SUPPORT
- TEMPORARY WOOD POLE



0 20 40  
Horiz. 1 inch = 20 Feet

CALCULATED: JAR  
CHECKED: DKA

**MAINTENANCE OF TRAFFIC PLAN - SE CORNER CONST.**  
E RICH ST AT S 3RD ST

**IMPROVEMENTS OF**  
E RICH STREET FROM S 3RD ST TO S GRANT AVE  
FRA E RICH ST SIGNALS

3921-E

13  
95

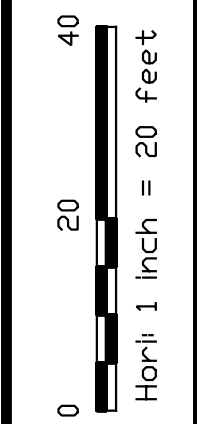
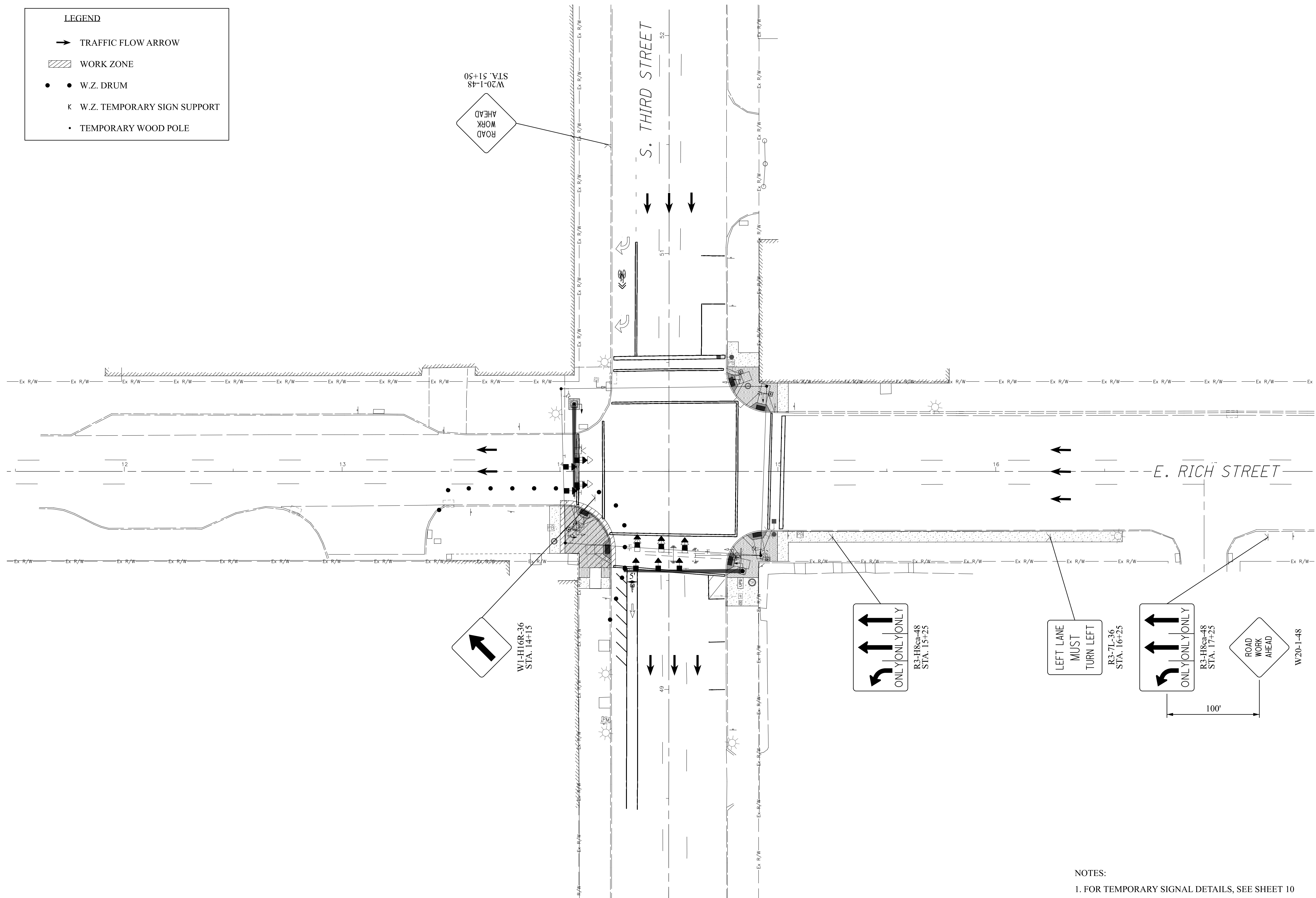
NOTES:  
1. FOR TEMPORARY SIGNAL DETAILS, SEE SHEET 10



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**LEGEND**

- TRAFFIC FLOW ARROW
- ▨ WORK ZONE
- W.Z. DRUM
- K W.Z. TEMPORARY SIGN SUPPORT
- TEMPORARY WOOD POLE



CALCULATED  
JAR  
CHECKED  
DKA

**MAINTENANCE OF TRAFFIC PLAN - SW CORNER CONST.**  
E RICH ST AT S 3RD ST

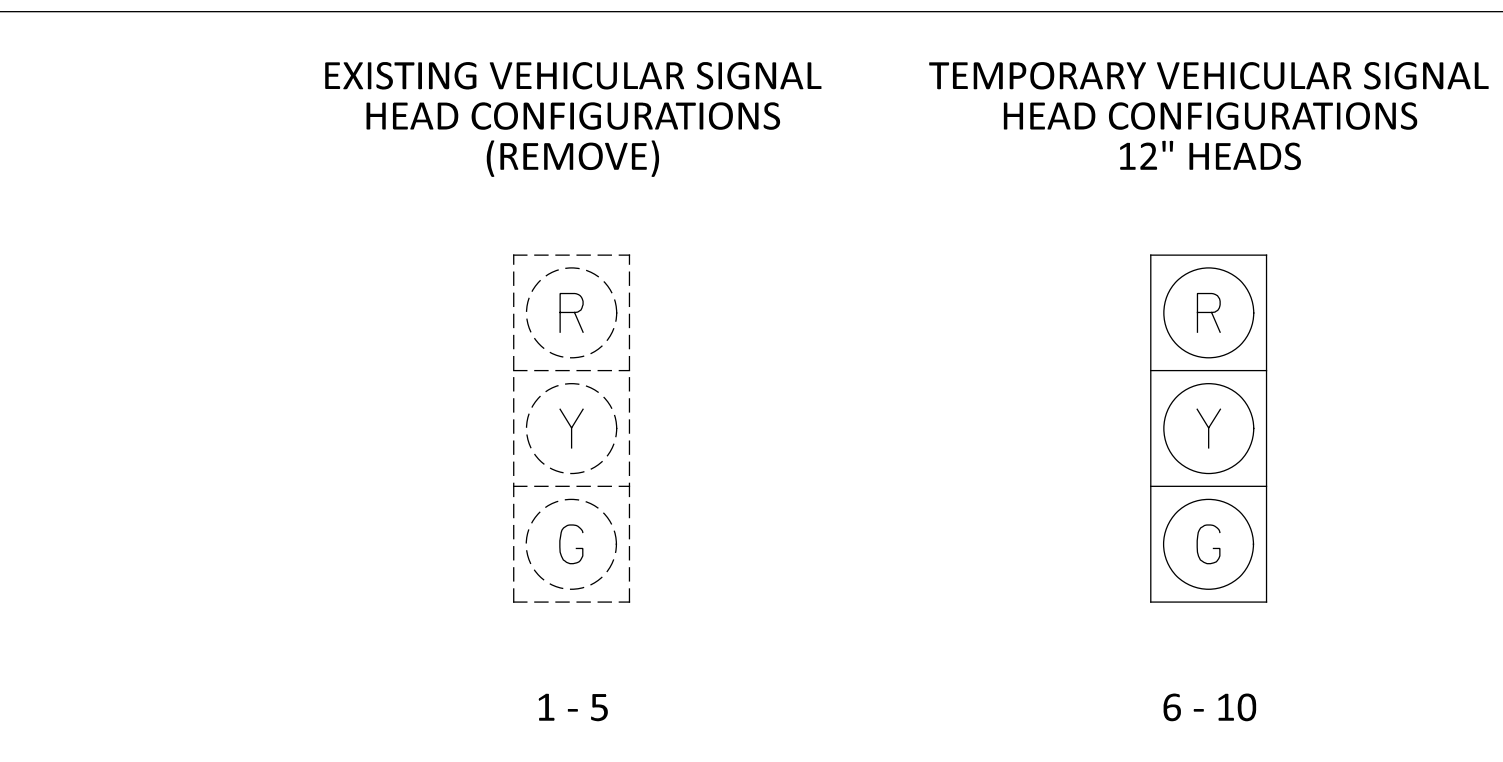
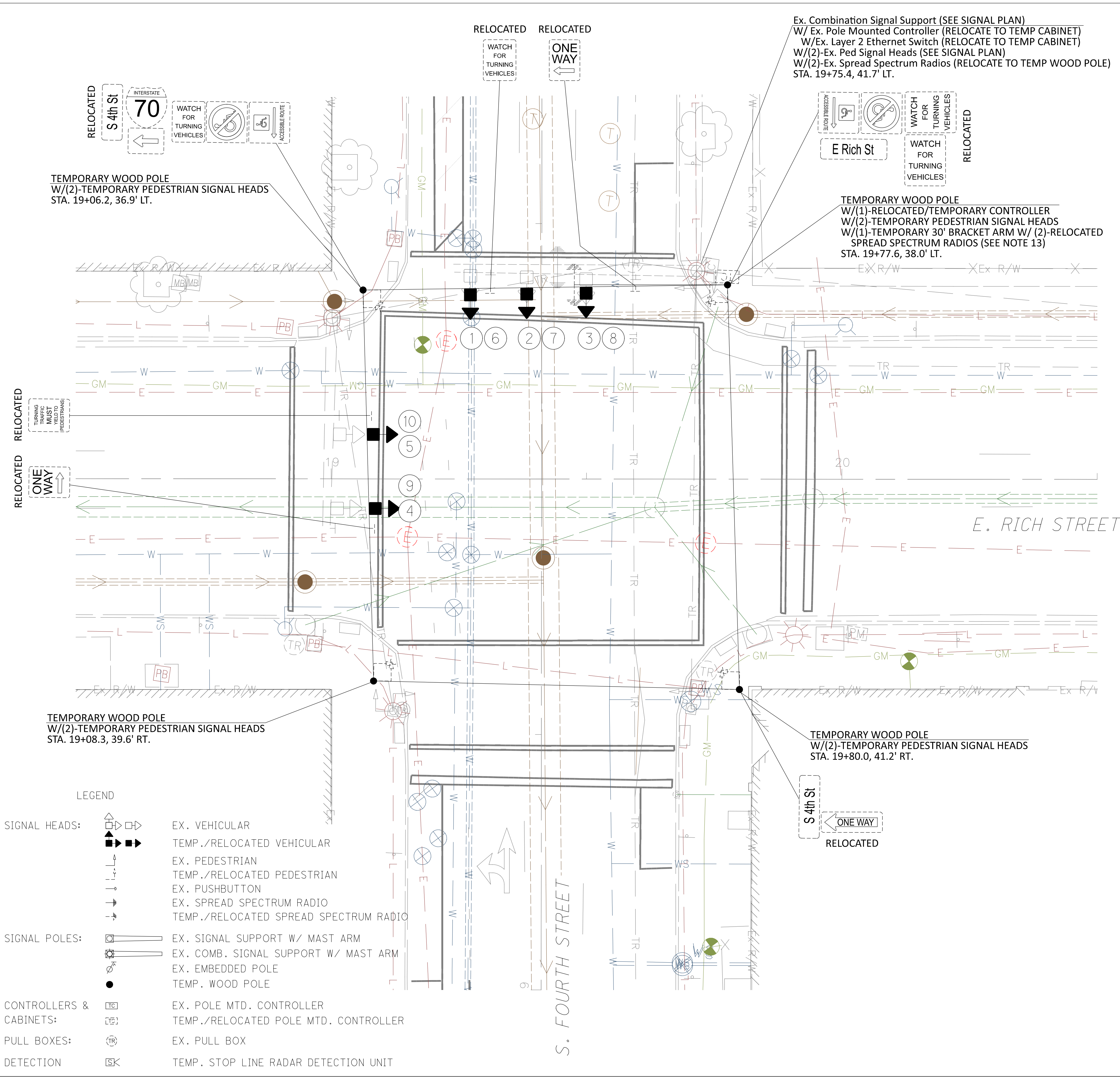
**IMPROVEMENTS OF**  
E RICH STREET FROM S 3RD ST TO S GRANT AVE  
FRA E RICH ST SIGNALS

3921-E

14  
95

NOTES:  
1. FOR TEMPORARY SIGNAL DETAILS, SEE SHEET 10

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1. AN EXISTING TRAFFIC SIGNAL, OR ANY PART THEREOF, SHALL NOT BE TAKEN OUT OF SERVICE UNLESS ALTERNATE MEANS OF TRAFFIC CONTROL ARE IN PLACE AND OPERATIONAL. UNLESS DIRECTED BY THE CITY OF COLUMBUS CITY ENGINEER OR APPOINTED DESIGNEE, EXISTING TRAFFIC SIGNALS SHALL NOT BE TAKEN OUT OF SERVICE BETWEEN THE HOURS OF:  
- 7:00 AM TO 9:00 AM MONDAY THROUGH FRIDAY AND  
- 4:00 PM TO 6:00 PM, MONDAY THROUGH FRIDAY (3:30 PM – 6:00 PM FOR THE DOWNTOWN BUSINESS DISTRICT)  
- OR ONE HOUR BEFORE SUNSET THROUGH ONE-HALF HOUR AFTER SUN RISE, WHICHEVER IS THE LONGEST DURATION.
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3. VEHICULAR SIGNAL HEADS SHALL BE ALIGNED PER THE PLAN. NO TWO VEHICULAR SIGNAL HEADS SHALL BE LOCATED WITHIN EIGHT FEET OF ONE ANOTHER, MEASURED PERPENDICULAR TO THE TRAVEL LANE.
4. SIGNS SHALL BE ALIGNED PER THE PLANS. EXISTING SIGNS IN CONFLICT WITH THE PROPOSED TEMPORARY TRAFFIC CONTROL SETUP SHALL BE COVERED OR TEMPORARILY REMOVED
5. WEATHERPROOF SPLICES MAY BE INTRODUCED INTO SIGNAL CABLE IN ORDER TO RELOCATE EXISTING VEHICULAR SIGNAL HEADS. NO SPLICES SHALL REMAIN IN THE CABLE WHEN THE SIGNAL HEADS ARE RETURNED TO THEIR ORIGINAL POSITION.
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7. EXISTING PEDESTRIAN PUSHBUTTONS, PUSHBUTTON SIGNS, AND SIGNAL HEADS SHALL BE MAINTAINED FOR ALL CROSSWALKS THAT REMAIN OPEN DURING CONSTRUCTION. TEMPORARY PUSHBUTTONS AND SIGNS OR RELOCATED PUSHBUTTONS AND SIGNS SHALL BE POSITIONED ACCORDING TO THE CITY OF COLUMBUS ADA RULES AND REGULATIONS. RELOCATED PEDESTRIAN SIGNAL HEADS SHALL BE POSITIONED SUCH THAT THE HEAD IS AIMED AT THE CENTER OF THE CROSSWALK AREA (NOT THE CURB RAMP) THAT IS OPPOSITE THE UNIT. A MINIMUM OF ONE CROSSWALK TO CROSS EACH STREET AT A SIGNALIZED INTERSECTION SHALL BE MAINTAINED AT ALL TIMES. FOR SIGNALIZED INTERSECTIONS WITH THREE LEGS, THE CROSSWALK TO CROSS THE DEAD END STREET MAY BE CLOSED AS LONG A PEDESTRIAN PATH IS PROVIDED ALONG THE "TOP SIDE" OF THE INTERSECTION.
8. UNLESS NOTED IN THE PLANS, THE TRAFFIC SIGNAL SHALL UTILIZE THE EXISTING TIMING AND PHASING.
9. IF ANY CHANGES ARE MADE TO THE SIGNAL OPERATION INCLUDING PHASING CHANGES, PHASE OMISSIONS, TIMING CHANGES, ETC., SIGNAL OPERATION CHANGED SIGNS (W23-H2B) SHALL BE INSTALLED ON THE SPAN OR ARM FOR ALL DIRECTIONS. CENTER THE SIGN OVER THE APPROACH. SIGN SHALL BE LEFT IN PLACE NO LONGER THAN THE DURATION SPECIFIED UNDER ITEM 630 SIGNING, MISC.: TRAFFIC SIGNAL SIGNS.
10. TEMPORARY WOOD SIGNAL POLES SHALL BE SIZED AND THE TEMPORARY SIGNAL SPAN SHALL BE ADJUSTED SUCH THAT THE MINIMUM ROADWAY CLEARANCE TO THE BOTTOM OF THE LOWEST SIGNAL HEAD IS 16.5' MINIMUM AND THE HIGHEST SIGNAL HEAD IS 19' MAXIMUM.
11. WHEN TEMPORARY TRAFFIC SIGNAL CABINETS ARE USED, BASE MOUNTED CABINETS SHALL BE MOUNTED ON A STURDY FOUNDATION SECURE FROM ANIMALS AND WEATHER. POLE MOUNTED CABINETS SHALL BE POSITIONED TO PREVENT AN OVERHANG GREATER THAN 4 IN. INTO A PEDESTRIAN PATHWAY.
12. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING, COORDINATION, AND PAYING FOR POWER SERVICE AS NEEDED FOR THE MAINTENANCE OF TRAFFIC PHASES.
13. SIGNAL SHALL REMAIN CONNECTED TO THE CTSS THROUGHOUT CONSTRUCTION. THE CONTRACTOR SHALL INSTALL A TEMPORARY DROP CABLE OR RELOCATE THE EXISTING DROP CABLE TO THE TEMPORARY CABINET. ALTERNATIVELY THE CONTRACTOR MAY RELOCATE AND ACTIVATE THE EXISTING SPREAD SPECTRUM RADIOS AT THIS INTERSECTION AND THE ADJACENT INTERSECTIONS TO MAINTAIN INTERCONNECT CONNECTIVITY.
14. SEE PERMANENT SIGNAL PLANS FOR REMOVAL OF EXISTING SIGNAL ITEMS.

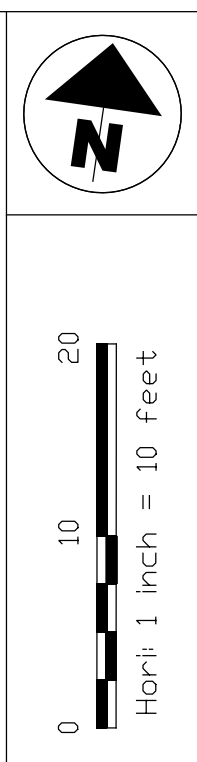
**TEMPORARY SIGNAL PLAN**  
**RICH STREET AT FOURTH STREET**

**IMPROVEMENTS OF**  
**E RICH STREET FROM S 3RD ST TO S GRANT AVE**  
**FRA E RICH ST SIGNALS**

3921-E

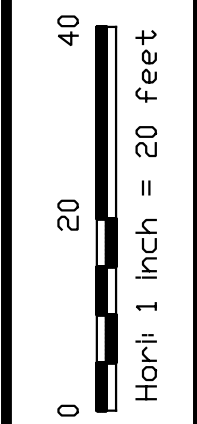
15  
95

- 1/21/20



CALCULATED: JAR  
CHECKED: DKA





CALCULATED  
JAR  
CHECKED  
DKA

MAINTENANCE OF TRAFFIC PLAN - NW CORNER CONST.  
E RICH ST AT S FOURTH ST

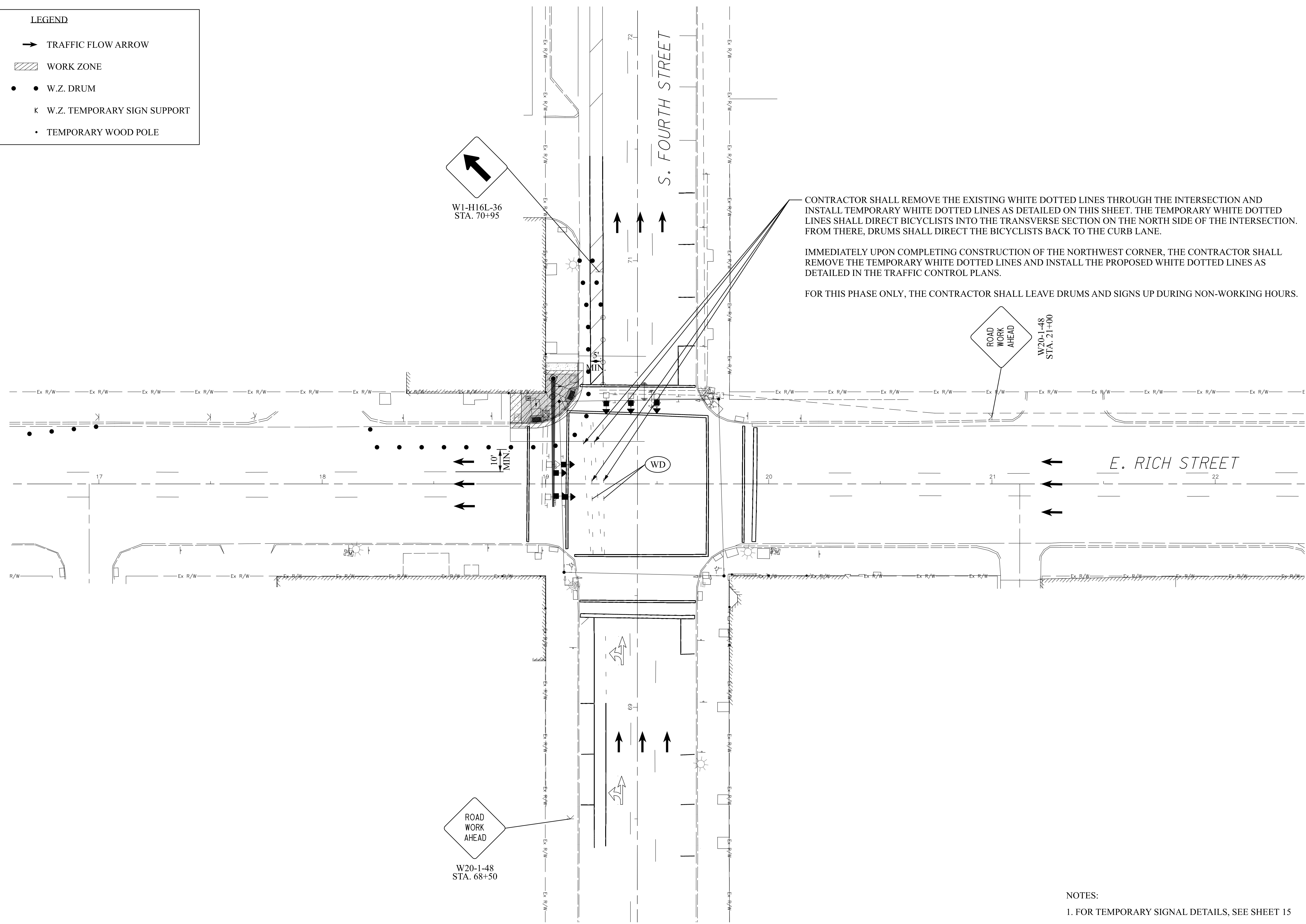
IMPROVEMENTS OF  
E RICH STREET FROM S 3RD ST TO S GRANT AVE  
FRA E RICH ST SIGNALS

3921-E

16  
95

**LEGEND**

- TRAFFIC FLOW ARROW
- ▨ WORK ZONE
- W.Z. DRUM
- K W.Z. TEMPORARY SIGN SUPPORT
- TEMPORARY WOOD POLE



CONTRACTOR SHALL REMOVE THE EXISTING WHITE DOTTED LINES THROUGH THE INTERSECTION AND INSTALL TEMPORARY WHITE DOTTED LINES AS DETAILED ON THIS SHEET. THE TEMPORARY WHITE DOTTED LINES SHALL DIRECT BICYCLISTS INTO THE TRANSVERSE SECTION ON THE NORTH SIDE OF THE INTERSECTION. FROM THERE, DRUMS SHALL DIRECT THE BICYCLISTS BACK TO THE CURB LANE.

IMMEDIATELY UPON COMPLETING CONSTRUCTION OF THE NORTHWEST CORNER, THE CONTRACTOR SHALL REMOVE THE TEMPORARY WHITE DOTTED LINES AND INSTALL THE PROPOSED WHITE DOTTED LINES AS DETAILED IN THE TRAFFIC CONTROL PLANS.

FOR THIS PHASE ONLY, THE CONTRACTOR SHALL LEAVE DRUMS AND SIGNS UP DURING NON-WORKING HOURS.

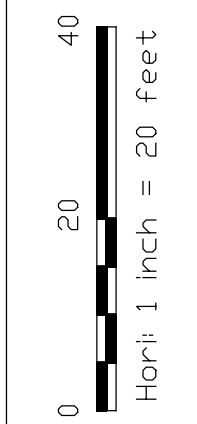
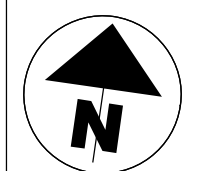
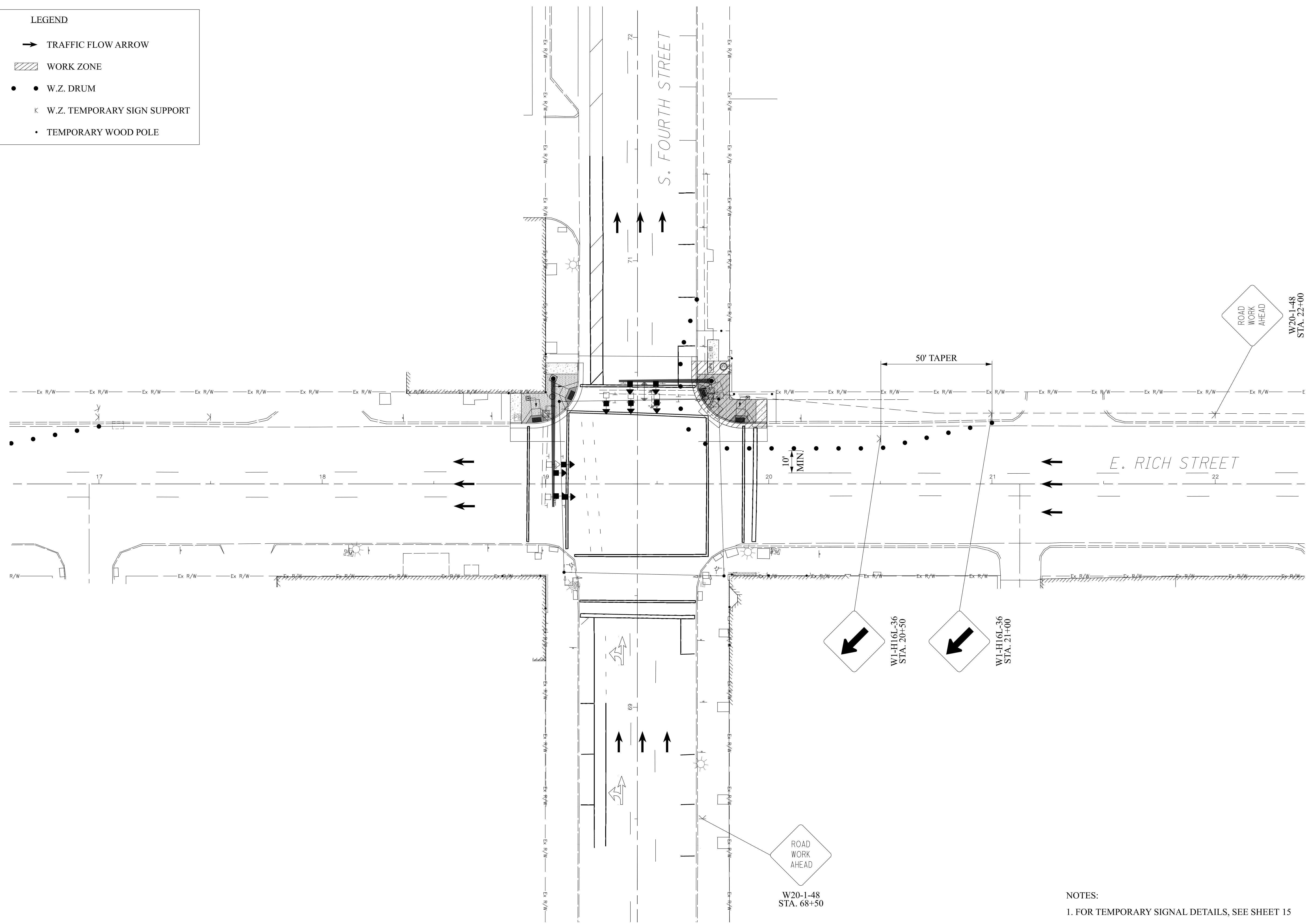
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NOTES:  
1. FOR TEMPORARY SIGNAL DETAILS, SEE SHEET 15

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**LEGEND**

- TRAFFIC FLOW ARROW
- ▨ WORK ZONE
- W.Z. DRUM
- ⊥ W.Z. TEMPORARY SIGN SUPPORT
- TEMPORARY WOOD POLE



CALCULATED  
JAR  
CHECKED  
DKA

**MAINTENANCE OF TRAFFIC PLAN - NE CORNER CONST.**  
E RICH ST AT S FOURTH ST

**IMPROVEMENTS OF**  
E RICH STREET FROM S 3RD ST TO S GRANT AVE  
FRA E RICH ST SIGNALS

3921-E

17  
95

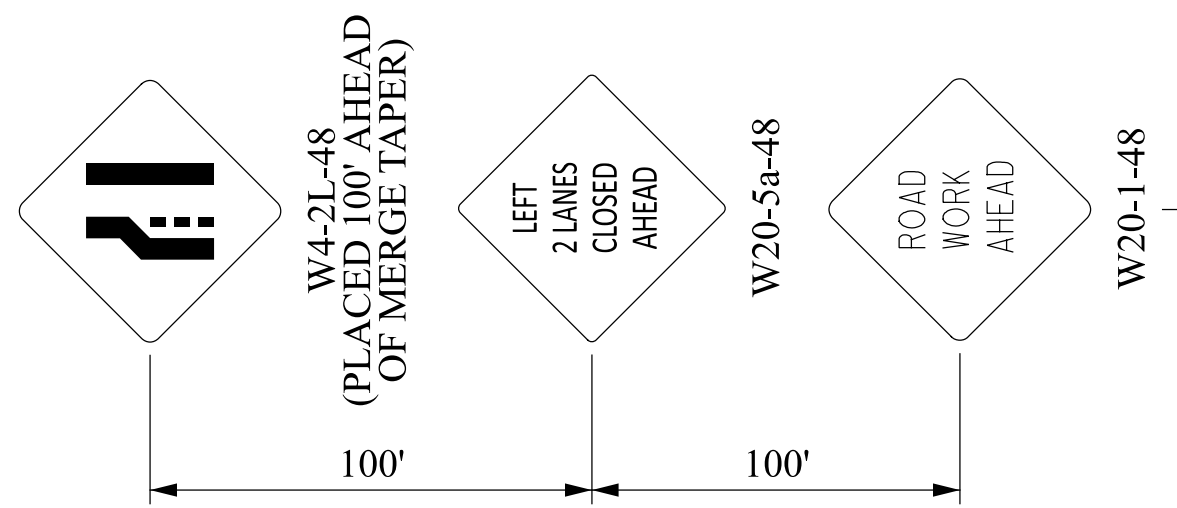
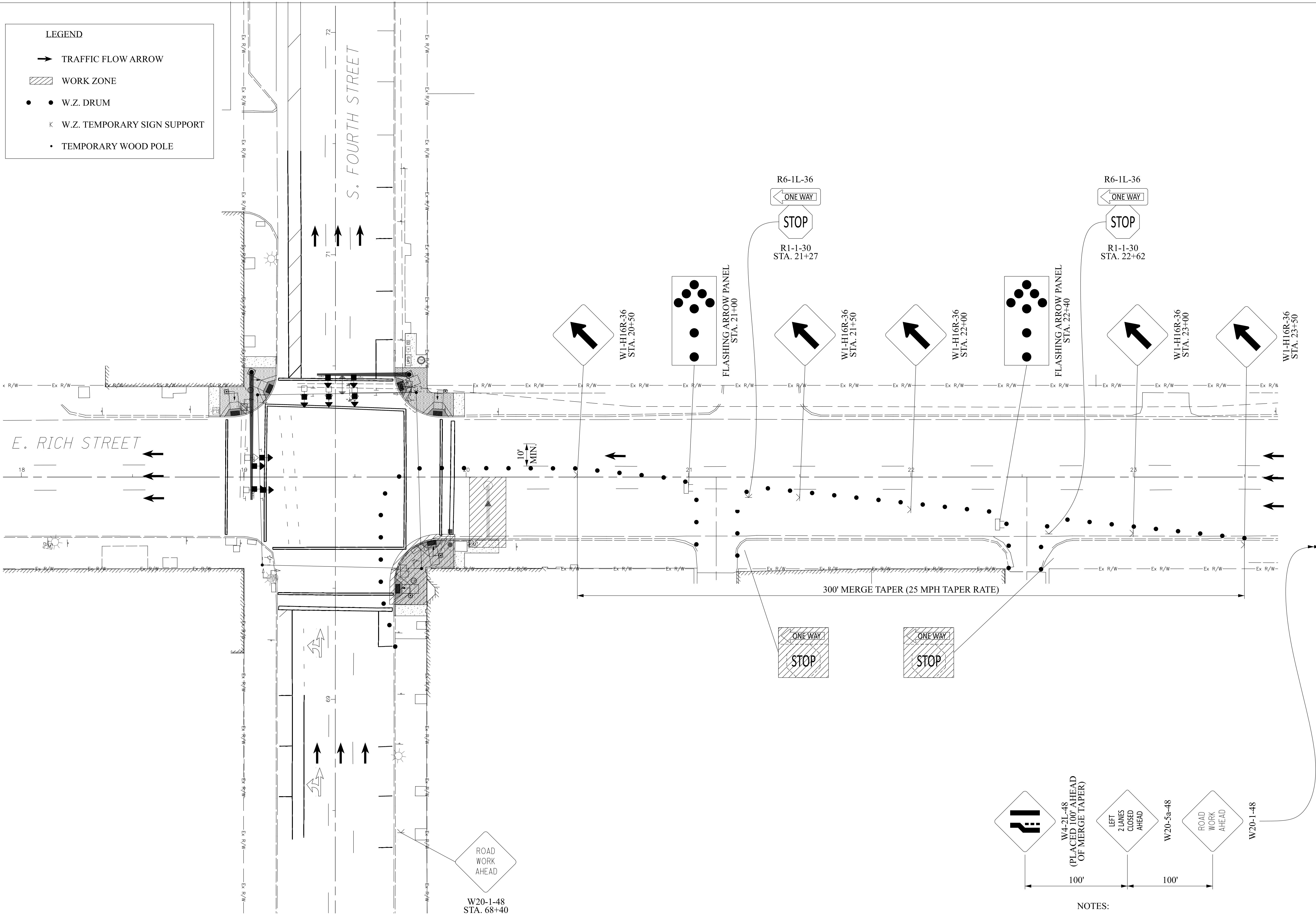
NOTES:  
1. FOR TEMPORARY SIGNAL DETAILS, SEE SHEET 15



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**LEGEND**

- TRAFFIC FLOW ARROW
- ▨ WORK ZONE
- W.Z. DRUM
- ⊠ W.Z. TEMPORARY SIGN SUPPORT
- TEMPORARY WOOD POLE



**MAINTENANCE OF TRAFFIC PLAN - SE CORNER CONST.**  
E RICH ST AT S FOURTH ST

**IMPROVEMENTS OF**  
E RICH STREET FROM S 3RD ST TO S GRANT AVE  
FRA E RICH ST SIGNALS

3921-E

18  
95

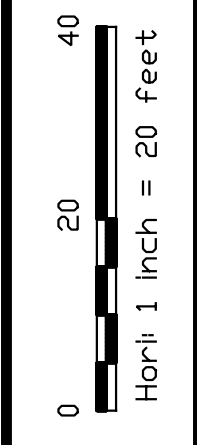
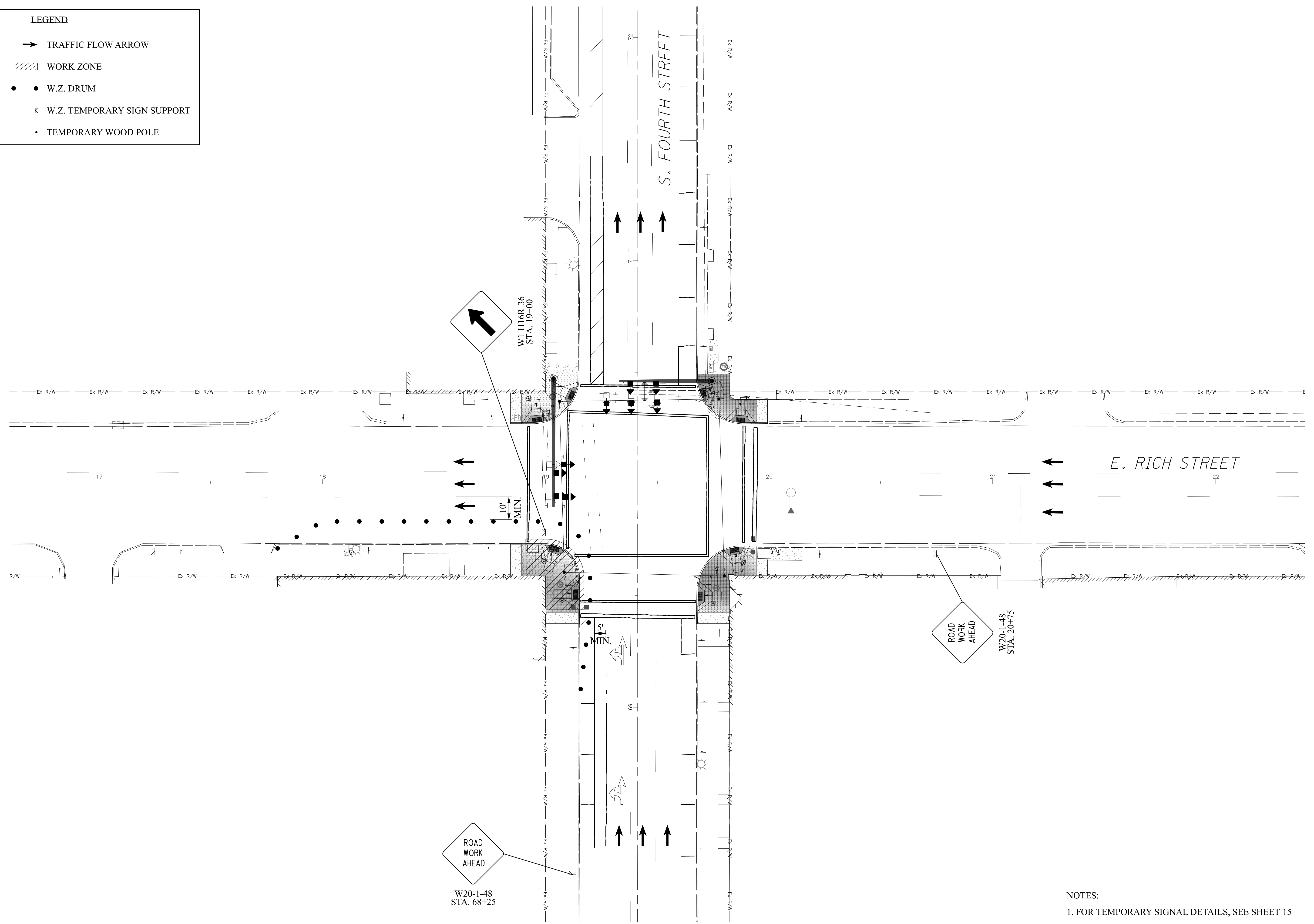
0 20 40  
Horiz 1 inch = 20 Feet

CALCULATED JAR  
CHECKED DKA

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**LEGEND**

- TRAFFIC FLOW ARROW
- ▨ WORK ZONE
- W.Z. DRUM
- K W.Z. TEMPORARY SIGN SUPPORT
- TEMPORARY WOOD POLE



CALCULATED  
JAR  
CHECKED  
DKA

**MAINTENANCE OF TRAFFIC PLAN - SW CORNER CONST.**  
E RICH ST AT S FOURTH ST

**IMPROVEMENTS OF**  
E RICH STREET FROM S 3RD ST TO S GRANT AVE  
FRA E RICH ST SIGNALS

3921-E

NOTES:  
1. FOR TEMPORARY SIGNAL DETAILS, SEE SHEET 15

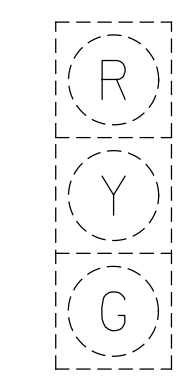


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Ex. Embedded Strain Pole (SEE SIGNAL PLAN)  
 W/ Ex. Pole Mounted Controller (RELOCATE TO TEMP CABINET)  
 W/Ex. Layer 2 Ethernet Switch (RELOCATE TO TEMP CABINET)  
 W/(2)-Ex. Ped Signal Heads (SEE SIGNAL PLAN)  
 W/(1)-Ex. Spread Spectrum Radio (RELOCATE TO TEMP WOOD POLE)  
 STA. 24+52.9, 38.7' LT.

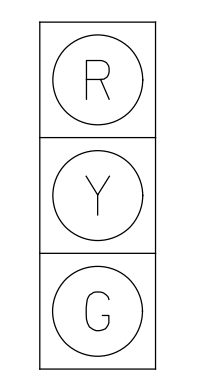
TEMPORARY WOOD POLE  
 W/(1)-RELOCATED/TEMPORARY CONTROLLER  
 W/(2)-TEMPORARY PEDESTRIAN SIGNAL HEADS  
 W/(1)-TEMPORARY 30' BRACKET ARM W/ (1)-RELOCATED  
 SPREAD SPECTRUM RADIO (SEE NOTE 13)  
 STA. 24+36.6, 39.5' LT.

EXISTING VEHICULAR SIGNAL  
 HEAD CONFIGURATIONS  
 (REMOVE)

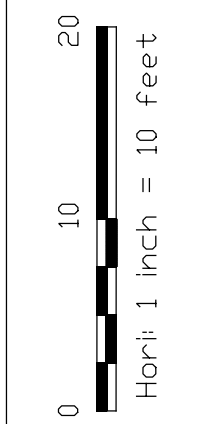
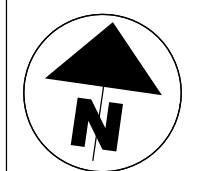


1 - 6

TEMPORARY VEHICULAR SIGNAL  
 HEAD CONFIGURATIONS  
 12" HEADS



7 - 12



CALCULATED  
JAR

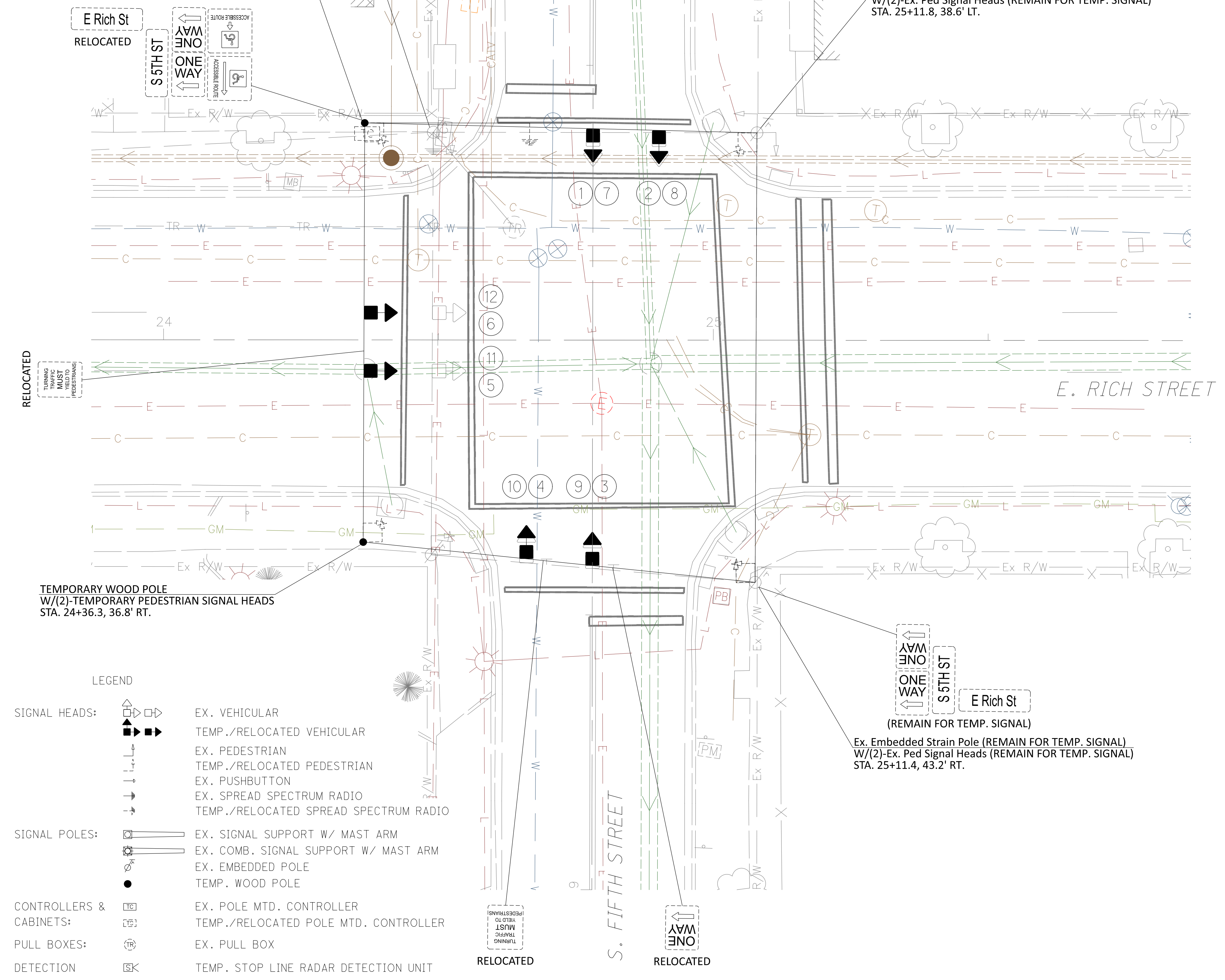
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DKA

TEMPORARY SIGNAL PLAN  
 RICH STREET AT FIFTH STREET

IMPROVEMENTS OF  
 E RICH STREET FROM S 3RD ST TO S GRANT AVE  
 FRA E RICH ST SIGNALS

3921-E

20  
95

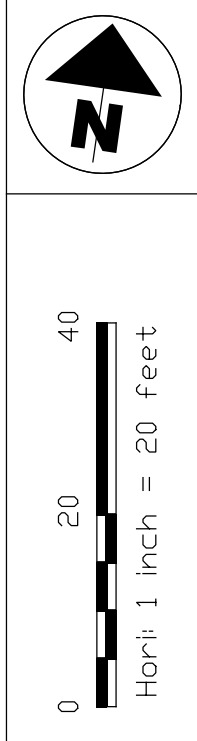
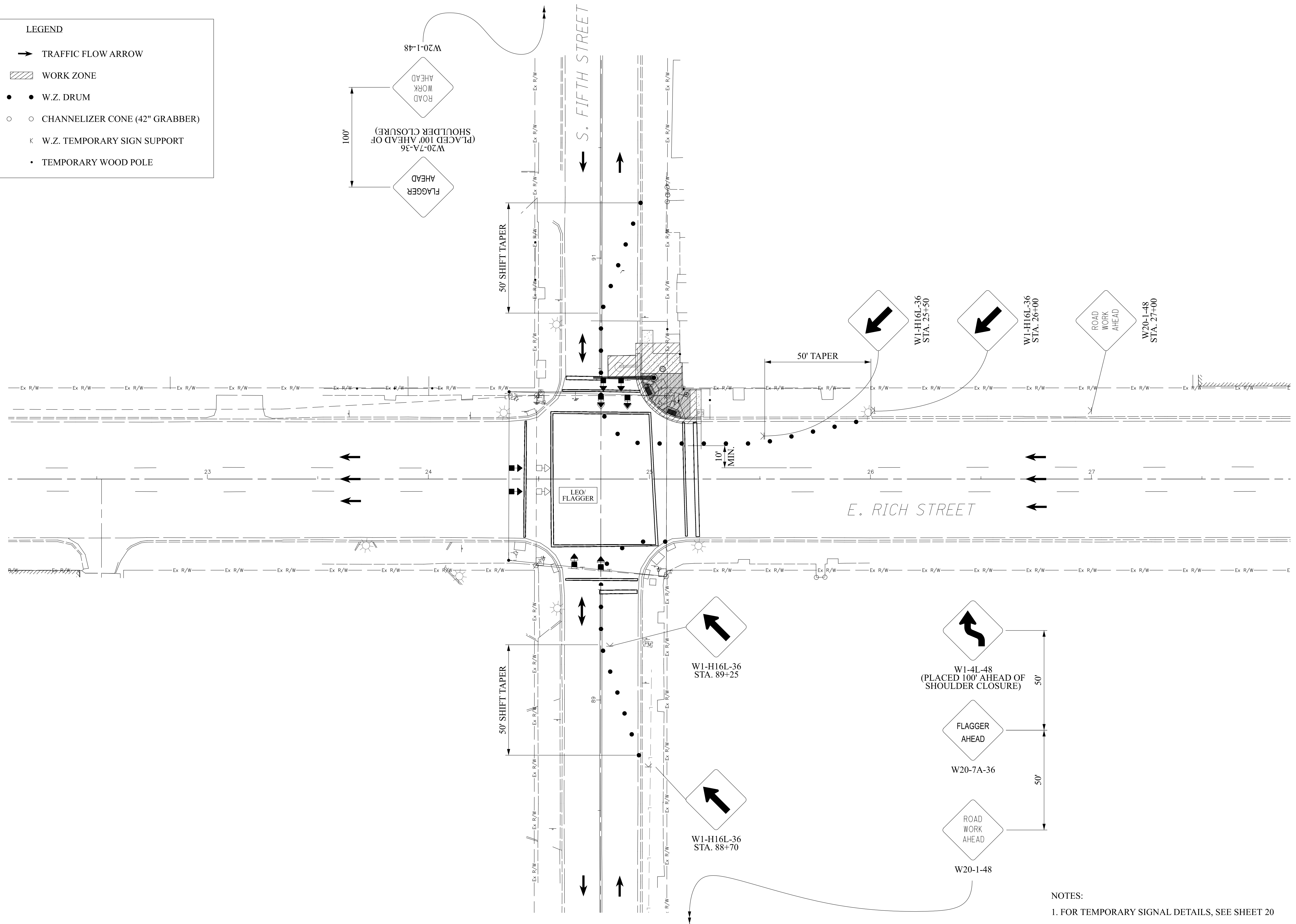


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14. SEE PERMANENT SIGNAL PLANS FOR REMOVAL OF EXISTING SIGNAL ITEMS.

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**LEGEND**

- TRAFFIC FLOW ARROW
- ▨ WORK ZONE
- W.Z. DRUM
- CHANNELIZER CONE (42" GRABBER)
- ⊠ W.Z. TEMPORARY SIGN SUPPORT
- TEMPORARY WOOD POLE



CALCULATED  
JAR  
CHECKED  
DKA

**MAINTENANCE OF TRAFFIC PLAN - NE CORNER CONST.**  
E RICH ST AT S FIFTH ST

**IMPROVEMENTS OF**  
E RICH STREET FROM S 3RD ST TO S GRANT AVE  
FRA E RICH ST SIGNALS

3921-E

21  
95

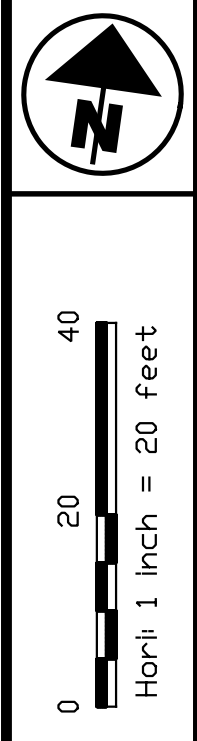
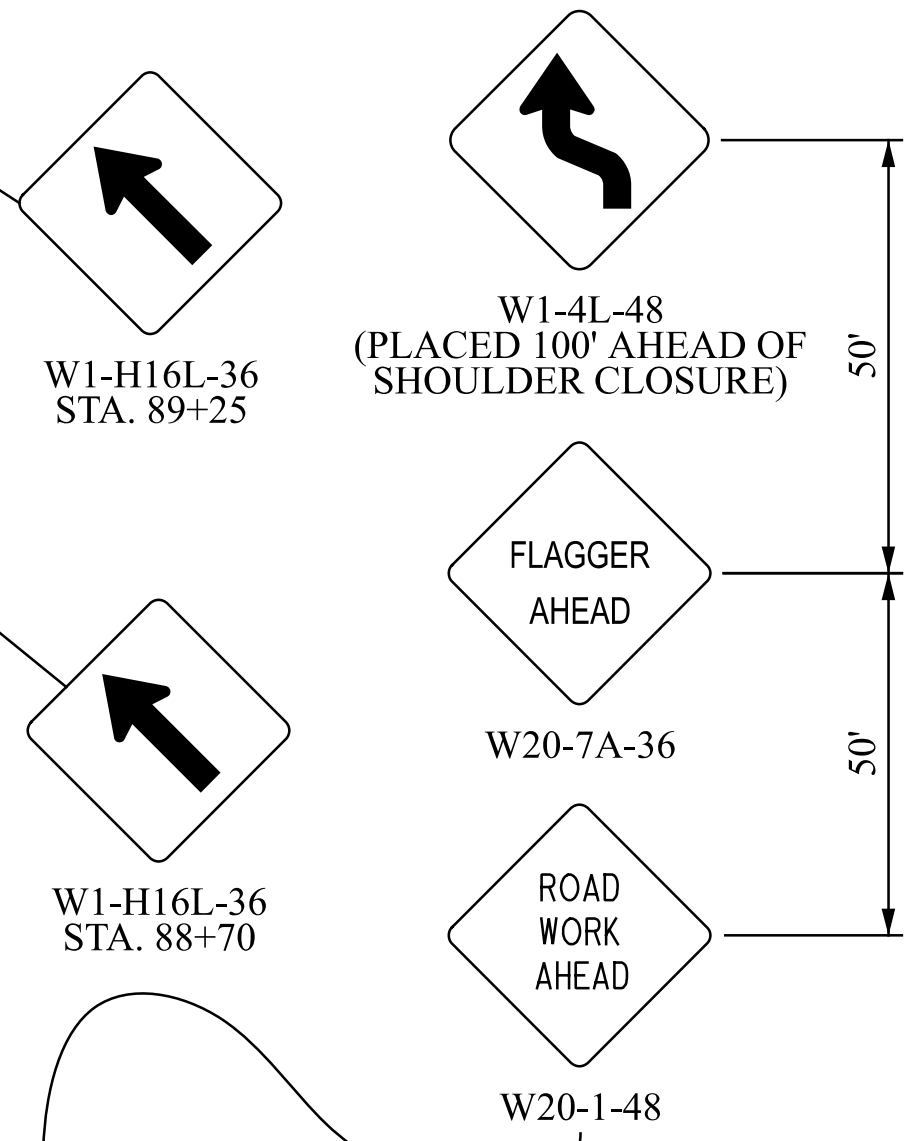
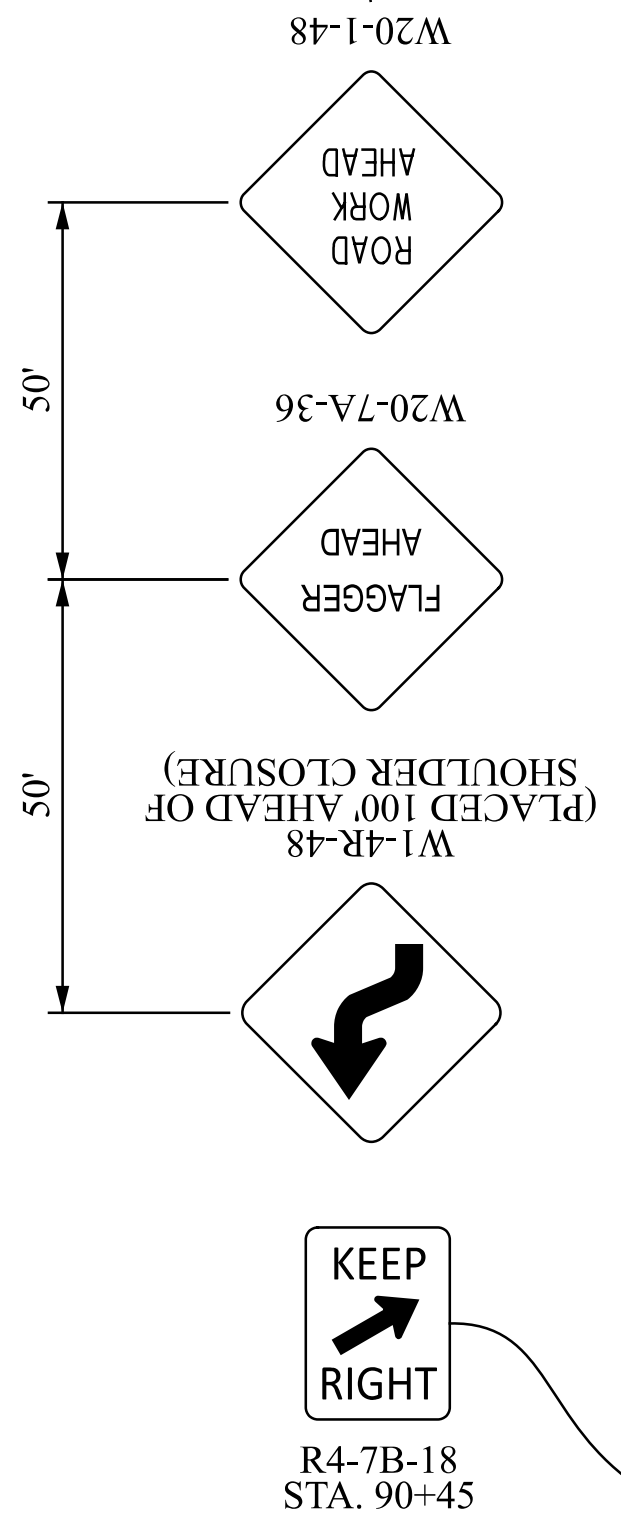
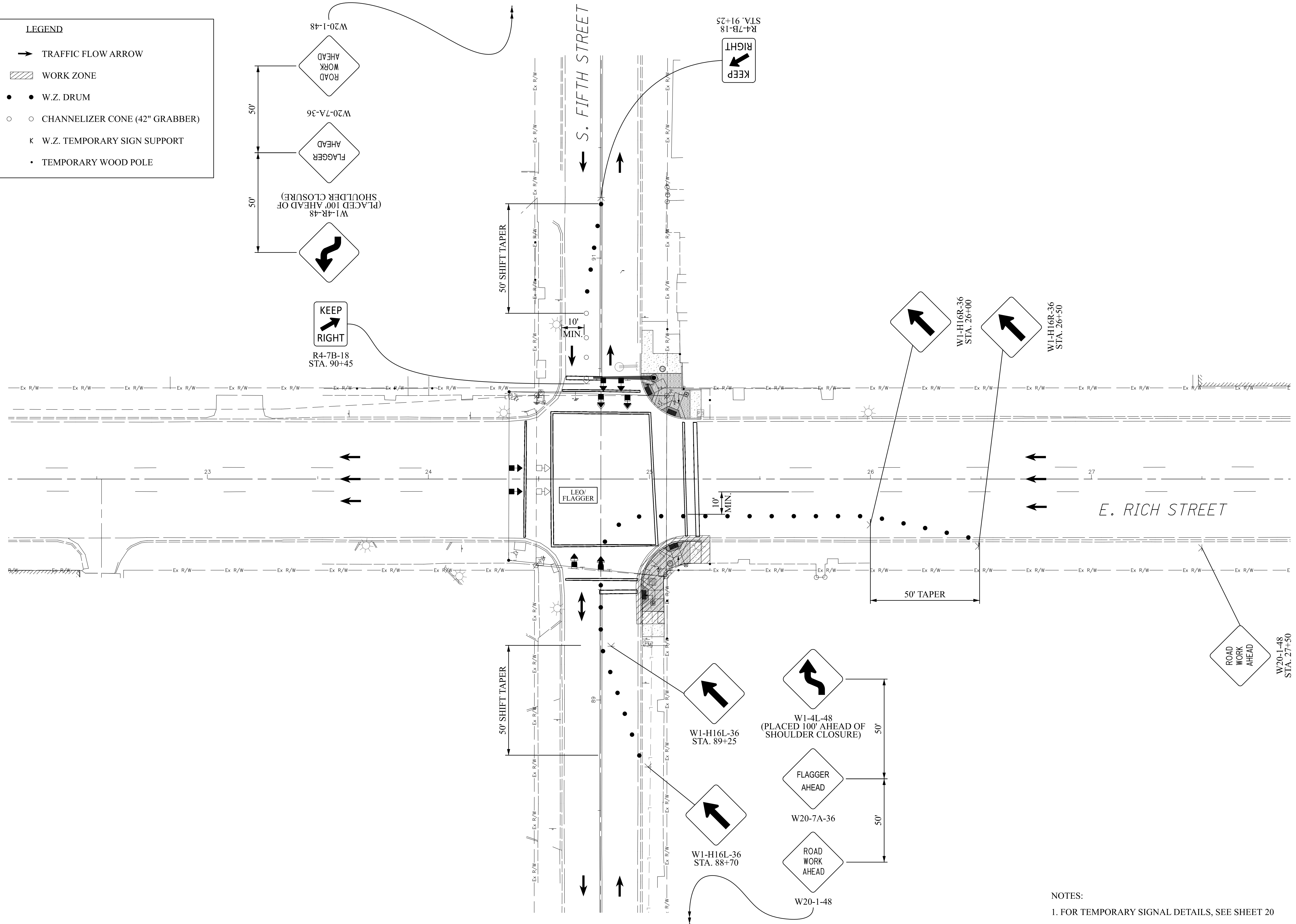
NOTES:  
1. FOR TEMPORARY SIGNAL DETAILS, SEE SHEET 20



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**LEGEND**

- TRAFFIC FLOW ARROW
- ▨ WORK ZONE
- W.Z. DRUM
- CHANNELIZER CONE (42" GRABBER)
- K W.Z. TEMPORARY SIGN SUPPORT
- TEMPORARY WOOD POLE



CALCULATED  
JAR  
CHECKED  
DKA

**MAINTENANCE OF TRAFFIC PLAN - SE CORNER CONST.**  
E RICH ST AT S FIFTH ST

**IMPROVEMENTS OF**  
E RICH STREET FROM S 3RD ST TO S GRANT AVE  
FRA E RICH ST SIGNALS

3921-E

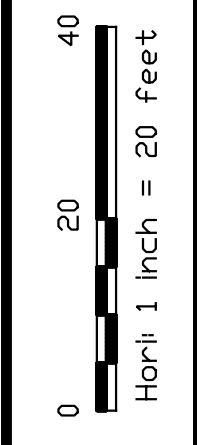
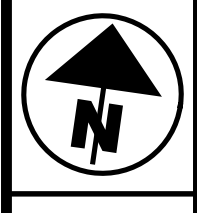
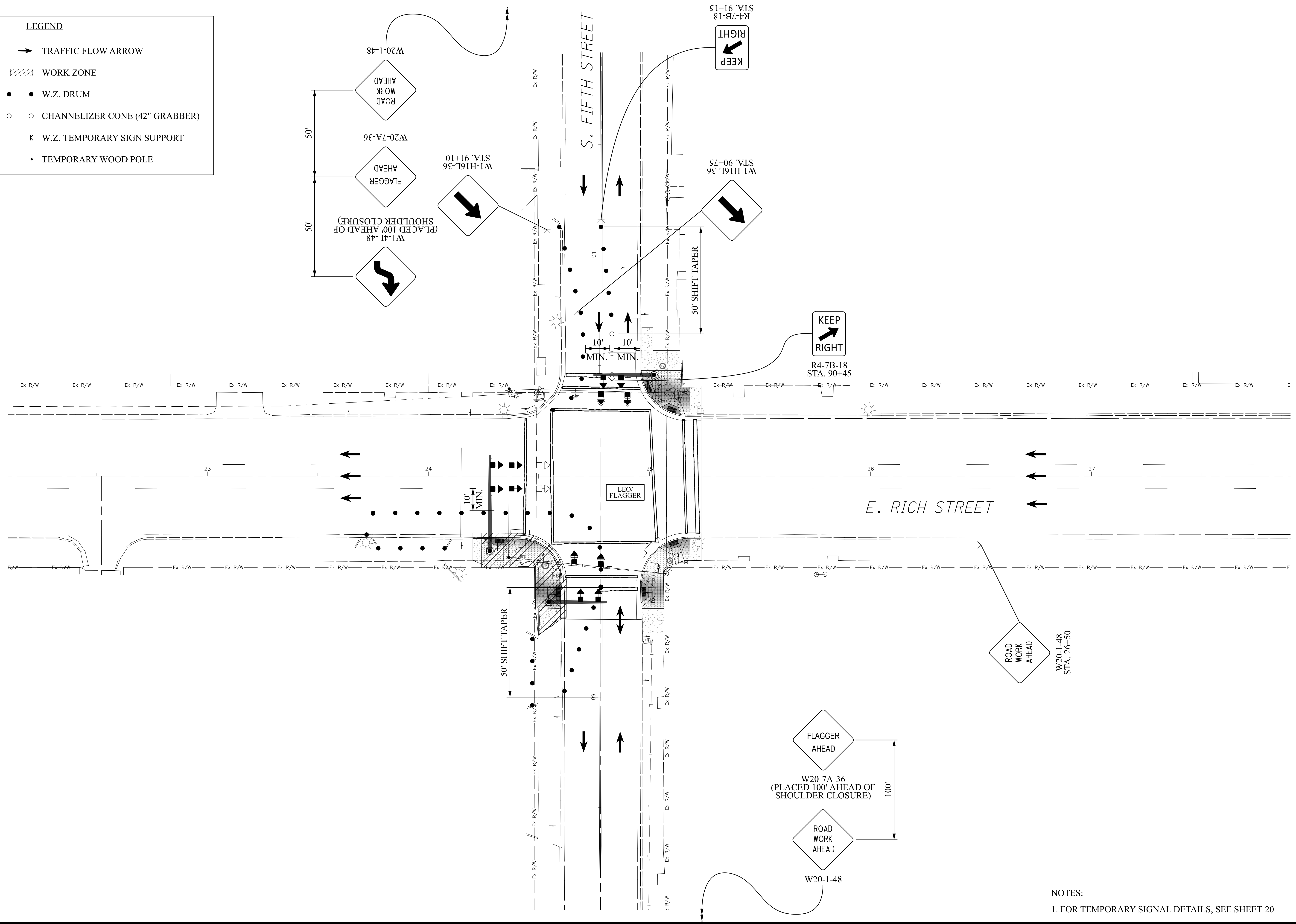
22  
95

NOTES:  
1. FOR TEMPORARY SIGNAL DETAILS, SEE SHEET 20

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**LEGEND**

- TRAFFIC FLOW ARROW
- ▨ WORK ZONE
- W.Z. DRUM
- CHANNELIZER CONE (42" GRABBER)
- K W.Z. TEMPORARY SIGN SUPPORT
- TEMPORARY WOOD POLE



CALCULATED  
JAR  
CHECKED  
DKA

**MAINTENANCE OF TRAFFIC PLAN - SW CORNER CONST.**  
E RICH ST AT S FIFTH ST

**IMPROVEMENTS OF**  
E RICH STREET FROM S 3RD ST TO S GRANT AVE  
FRA E RICH ST SIGNALS

3921-E

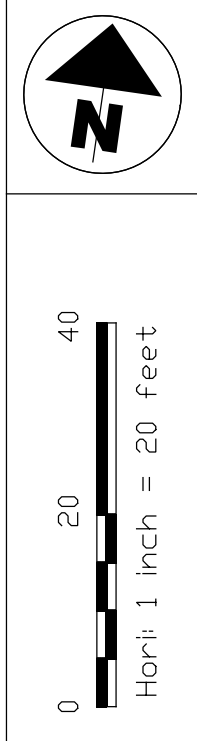
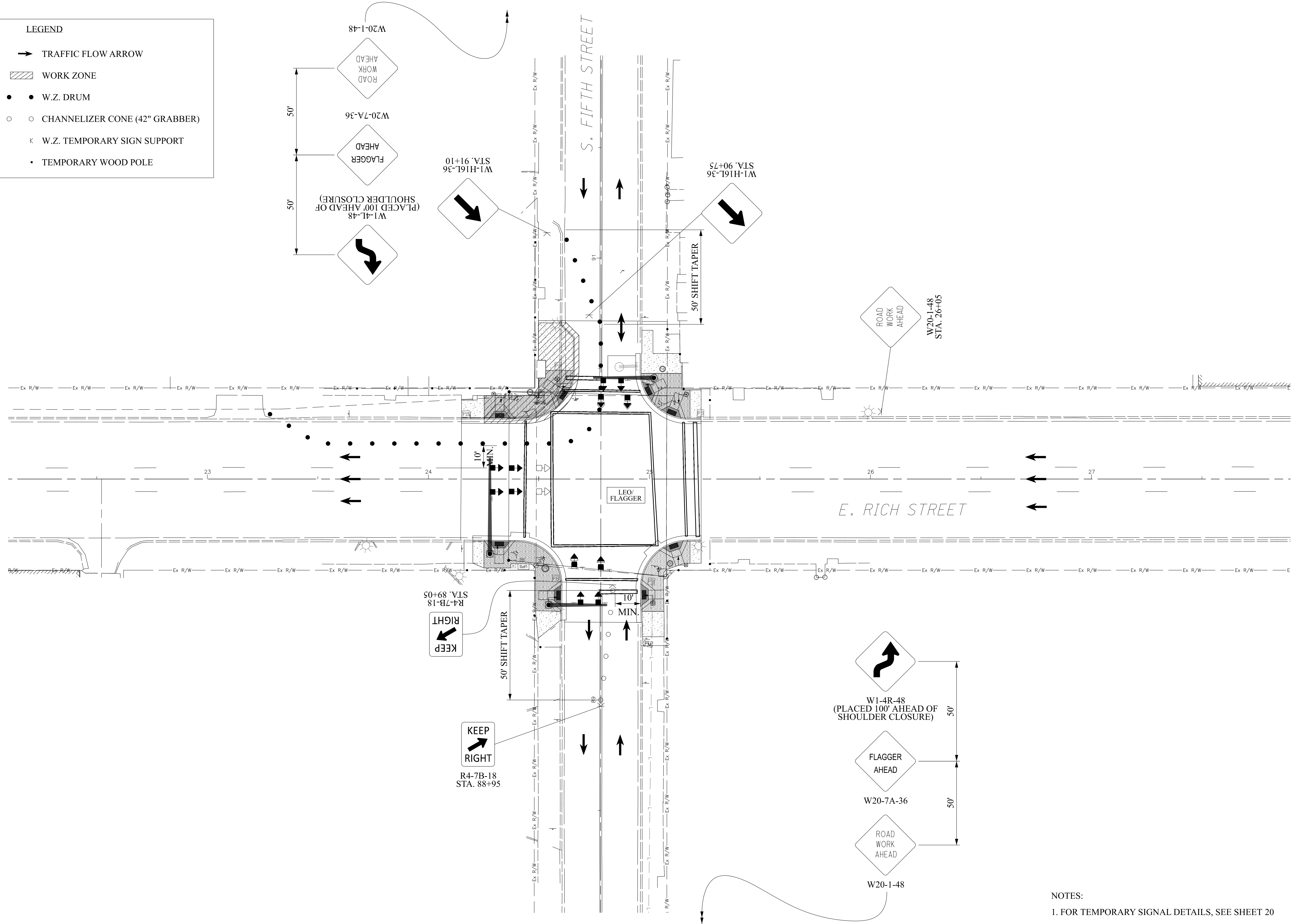
23  
95

NOTES:  
1. FOR TEMPORARY SIGNAL DETAILS, SEE SHEET 20



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LEGEND	
	TRAFFIC FLOW ARROW
	WORK ZONE
	W.Z. DRUM
	CHANNELIZER CONE (42" GRABBER)
	W.Z. TEMPORARY SIGN SUPPORT
	TEMPORARY WOOD POLE



CALCULATED  
JAR  
CHECKED  
DKA

**MAINTENANCE OF TRAFFIC PLAN - NW CORNER CONST.**  
E RICH ST AT S FIFTH ST

**IMPROVEMENTS OF**  
E RICH STREET FROM S 3RD ST TO S GRANT AVE  
FRA E RICH ST SIGNALS

3921-E

24  
95

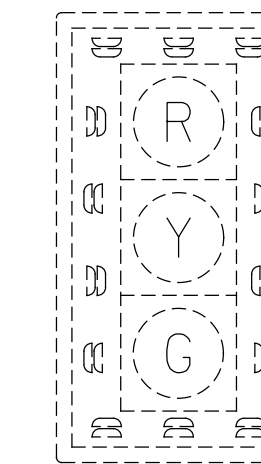
NOTES:  
1. FOR TEMPORARY SIGNAL DETAILS, SEE SHEET 20



LEGEND

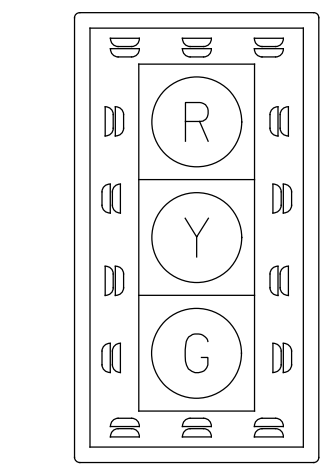
SIGNAL HEADS:		EX. VEHICULAR
		TEMP./RELOCATED VEHICULAR
		EX. PEDESTRIAN
		TEMP./RELOCATED PEDESTRIAN
		EX. PUSHBUTTON
		EX. SPREAD SPECTRUM RADIO
		TEMP./RELOCATED SPREAD SPECTRUM RADIO
SIGNAL POLES:		EX. SIGNAL SUPPORT W/ MAST ARM
		EX. COMB. SIGNAL SUPPORT W/ MAST ARM
		EX. EMBEDDED POLE
		TEMP. WOOD POLE
CONTROLLERS & CABINETS:		EX. POLE MTD. CONTROLLER
		TEMP./RELOCATED POLE MTD. CONTROLLER
PULL BOXES:		EX. PULL BOX
DETECTION		TEMP. STOP LINE RADAR DETECTION UNIT

EXISTING VEHICULAR SIGNAL HEAD CONFIGURATIONS (REMOVE)

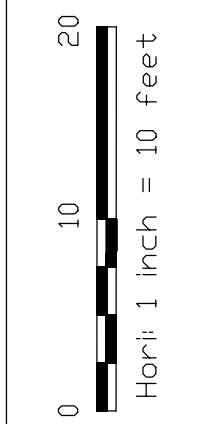
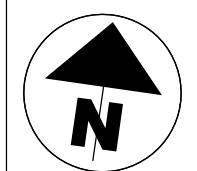


1 - 6

TEMPORARY VEHICULAR SIGNAL HEAD CONFIGURATIONS 12" HEADS



7 - 12



CALCULATED: JAR  
CHECKED: DKA

TEMPORARY SIGNAL PLAN  
RICH STREET AT GRANT AVENUE

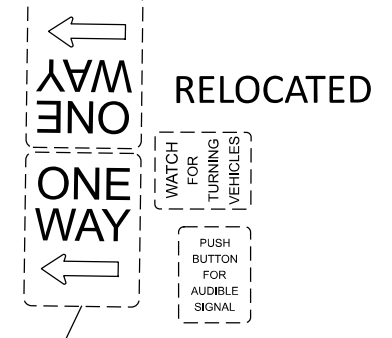
IMPROVEMENTS OF  
E RICH STREET FROM S 3RD ST TO S GRANT AVE  
FRA E RICH ST SIGNALS

3921-E

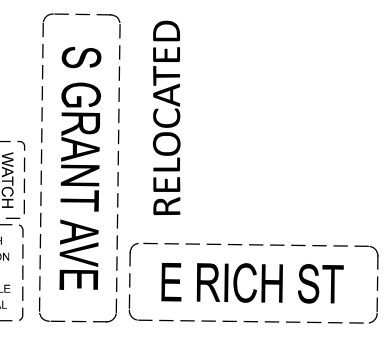
25  
95

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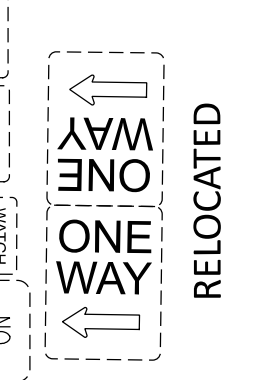
TEMPORARY WOOD POLE  
W/(2)-TEMPORARY PEDESTRIAN SIGNAL HEADS  
STA. 33+48.5, 36.1' LT.



TEMPORARY WOOD POLE  
W/(2)-TEMPORARY PEDESTRIAN SIGNAL HEADS  
STA. 34+38.5, 40.1' LT.

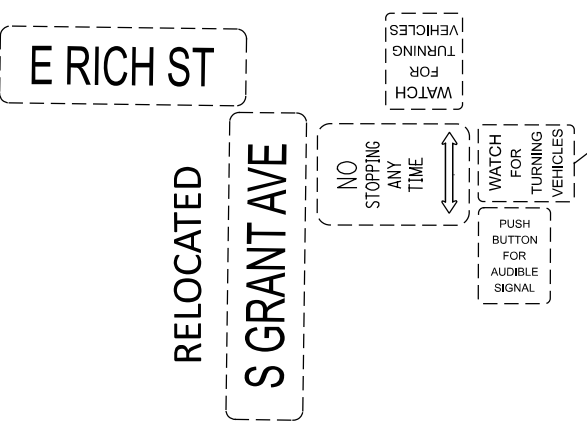


TEMPORARY WOOD POLE  
W/(2)-TEMPORARY PEDESTRIAN SIGNAL HEADS  
W/(1)-TEMPORARY 30' BRACKET ARM W/ (2)-RELOCATED  
SPREAD SPECTRUM RADIOS (SEE NOTE 13)  
STA. 34+37.7, 37.5' RT.

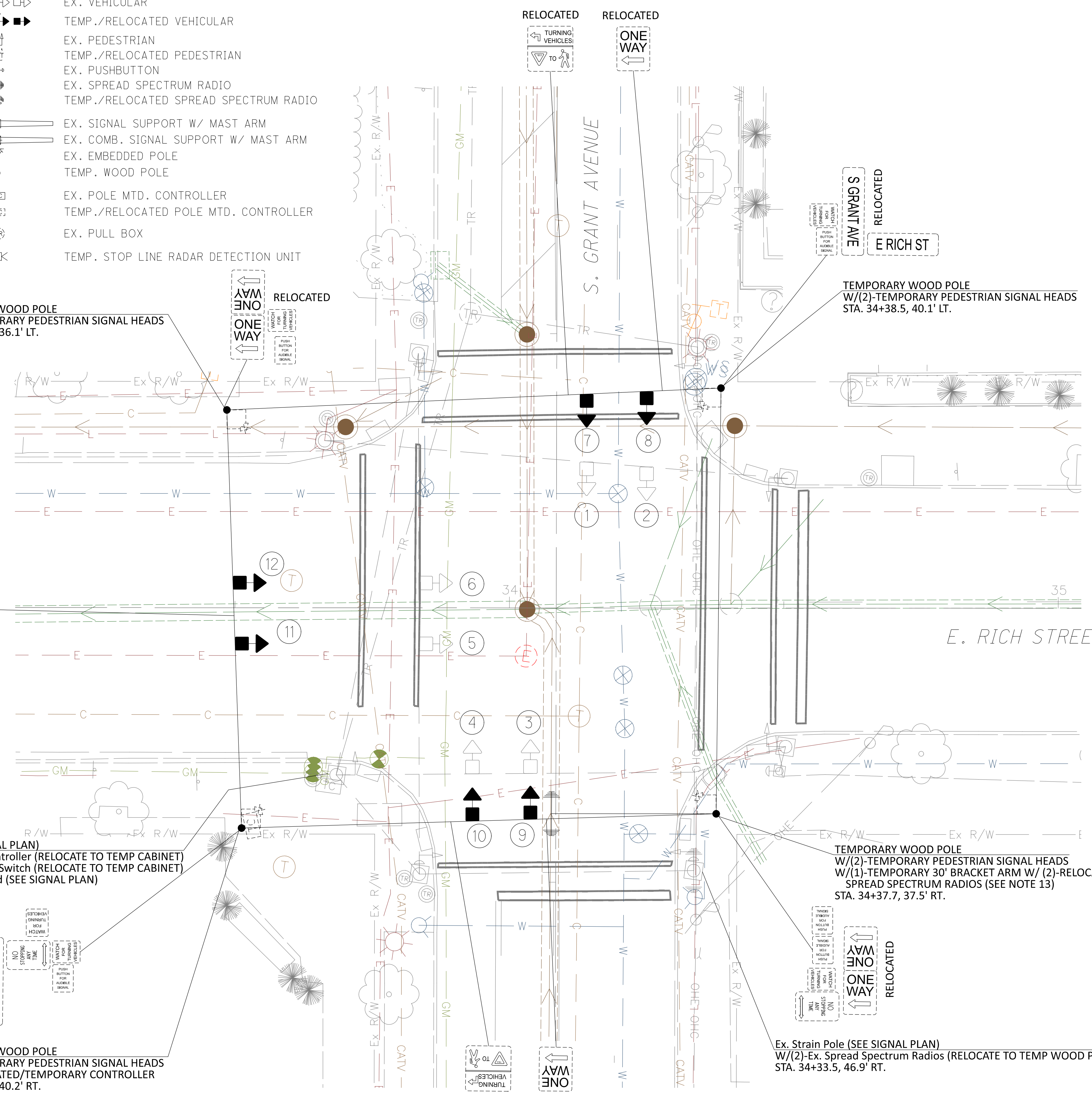


Ex. Strain Pole (SEE SIGNAL PLAN)  
W/(2)-Ex. Spread Spectrum Radios (RELOCATE TO TEMP WOOD POLE)  
STA. 34+33.5, 46.9' RT.

Ex. Strain Pole (SEE SIGNAL PLAN)  
W/ Ex. Pole Mounted Controller (RELOCATE TO TEMP CABINET)  
W/Ex. Layer 2 Ethernet Switch (RELOCATE TO TEMP CABINET)  
W/(1)-Ex. Ped Signal Head (SEE SIGNAL PLAN)  
STA. 33+72.3, 29.6' RT.



TEMPORARY WOOD POLE  
W/(2)-TEMPORARY PEDESTRIAN SIGNAL HEADS  
W/(1)-RELOCATED/TEMPORARY CONTROLLER  
STA. 33+51.2, 40.2' RT.



1. AN EXISTING TRAFFIC SIGNAL, OR ANY PART THEREOF, SHALL NOT BE TAKEN OUT OF SERVICE UNLESS ALTERNATE MEANS OF TRAFFIC CONTROL ARE IN PLACE AND OPERATIONAL. UNLESS DIRECTED BY THE CITY OF COLUMBUS CITY ENGINEER OR APPOINTED DESIGNER, EXISTING TRAFFIC SIGNALS SHALL NOT BE TAKEN OUT OF SERVICE BETWEEN THE HOURS OF:  
- 7:00 AM TO 9:00 AM MONDAY THROUGH FRIDAY AND  
- 4:00 PM TO 6:00 PM, MONDAY THROUGH FRIDAY (3:30 PM - 6:00 PM FOR THE DOWNTOWN BUSINESS DISTRICT)  
- OR ONE HOUR BEFORE SUNSET THROUGH ONE-HALF HOUR AFTER SUN RISE, WHICHEVER IS THE LONGEST DURATION.
2. ANY UNUSED SIGNAL HEAD, PEDESTRIAN SIGNAL HEAD, PEDESTRIAN PUSHBUTTON, OR POLE OR SPAN/ARM MOUNTED SIGN SHALL BE COVERED AND DISCONNECTED. VEHICULAR SIGNAL HEADS AND PEDESTRIAN SIGNAL HEADS SHALL BE COVERED PER THE REQUIREMENTS OF CMSC 632.25.
3. VEHICULAR SIGNAL HEADS SHALL BE ALIGNED PER THE PLAN. NO TWO VEHICULAR SIGNAL HEADS SHALL BE LOCATED WITHIN EIGHT FEET OF ONE ANOTHER, MEASURED PERPENDICULAR TO THE TRAVEL LANE.
4. SIGNS SHALL BE ALIGNED PER THE PLANS. EXISTING SIGNS IN CONFLICT WITH THE PROPOSED TEMPORARY TRAFFIC CONTROL SETUP SHALL BE COVERED OR TEMPORARILY REMOVED
5. WEATHERPROOF SPLICES MAY BE INTRODUCED INTO SIGNAL CABLE IN ORDER TO RELOCATE EXISTING VEHICULAR SIGNAL HEADS. NO SPLICES SHALL REMAIN IN THE CABLE WHEN THE SIGNAL HEADS ARE RETURNED TO THEIR ORIGINAL POSITION.
6. ALL EXISTING VEHICULAR DETECTION SHALL BE MAINTAINED AT ALL TIMES. LOOPS THAT CANNOT BE USED AS A RESULT OF LANE SHIFTS, LANE CLOSURES, ETC. SHALL BE DEACTIVATED DURING CONSTRUCTION. TEMPORARY RADAR OR VIDEO DETECTION SHALL BE USED TO MAINTAIN DETECTION WHEN AN EXISTING LOOP CANNOT BE USED. IF THE EXISTING DETECTION IS RADAR OR VIDEO, THE ZONES ON THE EXISTING RADAR OR VIDEO UNIT SHALL BE RELOCATED TO THE NEW LANE ALIGNMENT. WHEN TEMPORARY RADAR DETECTION IS USED, DILEMMA ZONE DETECTION SHALL BE PROVIDED FOR APPROACHES WITH SPEEDS GREATER THAN 40 MPH.
7. EXISTING PEDESTRIAN PUSHBUTTONS, PUSHBUTTON SIGNS, AND SIGNAL HEADS SHALL BE MAINTAINED FOR ALL CROSSWALKS THAT REMAIN OPEN DURING CONSTRUCTION. TEMPORARY PUSHBUTTONS AND SIGNS OR RELOCATED PUSHBUTTONS AND SIGNS SHALL BE POSITIONED ACCORDING TO THE CITY OF COLUMBUS ADA RULES AND REGULATIONS. RELOCATED PEDESTRIAN SIGNAL HEADS SHALL BE POSITIONED SUCH THAT THE HEAD IS AIMED AT THE CENTER OF THE CROSSWALK AREA (NOT THE CURB RAMP) THAT IS OPPOSITE THE UNIT. A MINIMUM OF ONE CROSSWALK TO CROSS EACH STREET AT A SIGNALIZED INTERSECTION SHALL BE MAINTAINED AT ALL TIMES. FOR SIGNALIZED INTERSECTIONS WITH THREE LEGS, THE CROSSWALK TO CROSS THE DEAD END STREET MAY BE CLOSED AS LONG A PEDESTRIAN PATH IS PROVIDED ALONG THE "TOP SIDE" OF THE INTERSECTION.
8. UNLESS NOTED IN THE PLANS, THE TRAFFIC SIGNAL SHALL UTILIZE THE EXISTING TIMING AND PHASING.
9. IF ANY CHANGES ARE MADE TO THE SIGNAL OPERATION INCLUDING PHASING CHANGES, PHASE OMISSIONS, TIMING CHANGES, ETC., SIGNAL OPERATION CHANGED SIGNS (W23-H28) SHALL BE INSTALLED ON THE SPAN OR ARM FOR ALL DIRECTIONS. CENTER THE SIGN OVER THE APPROACH. SIGN SHALL BE LEFT IN PLACE NO LONGER THAN THE DURATION SPECIFIED UNDER ITEM 630 SIGNING, MISC.: TRAFFIC SIGNAL SIGNS.
10. TEMPORARY WOOD SIGNAL POLES SHALL BE SIZED AND THE TEMPORARY SIGNAL SPAN SHALL BE ADJUSTED SUCH THAT THE MINIMUM ROADWAY CLEARANCE TO THE BOTTOM OF THE LOWEST SIGNAL HEAD IS 16.5' MINIMUM AND THE HIGHEST SIGNAL HEAD IS 19' MAXIMUM.
11. WHEN TEMPORARY TRAFFIC SIGNAL CABINETS ARE USED, BASE MOUNTED CABINETS SHALL BE MOUNTED ON A STURDY FOUNDATION SECURE FROM ANIMALS AND WEATHER. POLE MOUNTED CABINETS SHALL BE POSITIONED TO PREVENT AN OVERHANG GREATER THAN 4 IN. INTO A PEDESTRIAN PATHWAY.
12. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING, COORDINATION, AND PAYING FOR POWER SERVICE AS NEEDED FOR THE MAINTENANCE OF TRAFFIC PHASES.
13. SIGNAL SHALL REMAIN CONNECTED TO THE CTSS THROUGHOUT CONSTRUCTION. THE CONTRACTOR SHALL INSTALL A TEMPORARY DROP CABLE OR RELOCATE THE EXISTING DROP CABLE TO THE TEMPORARY CABINET. ALTERNATIVELY THE CONTRACTOR MAY RELOCATE AND ACTIVATE THE EXISTING SPREAD SPECTRUM RADIOS AT THIS INTERSECTION AND THE ADJACENT INTERSECTIONS TO MAINTAIN INTERCONNECT CONNECTIVITY.
14. SEE PERMANENT SIGNAL PLANS FOR REMOVAL OF EXISTING SIGNAL ITEMS.

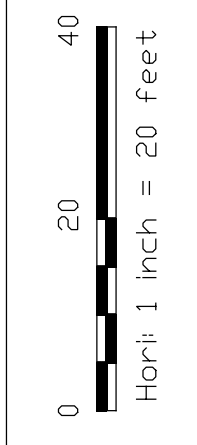
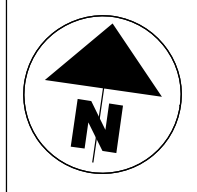
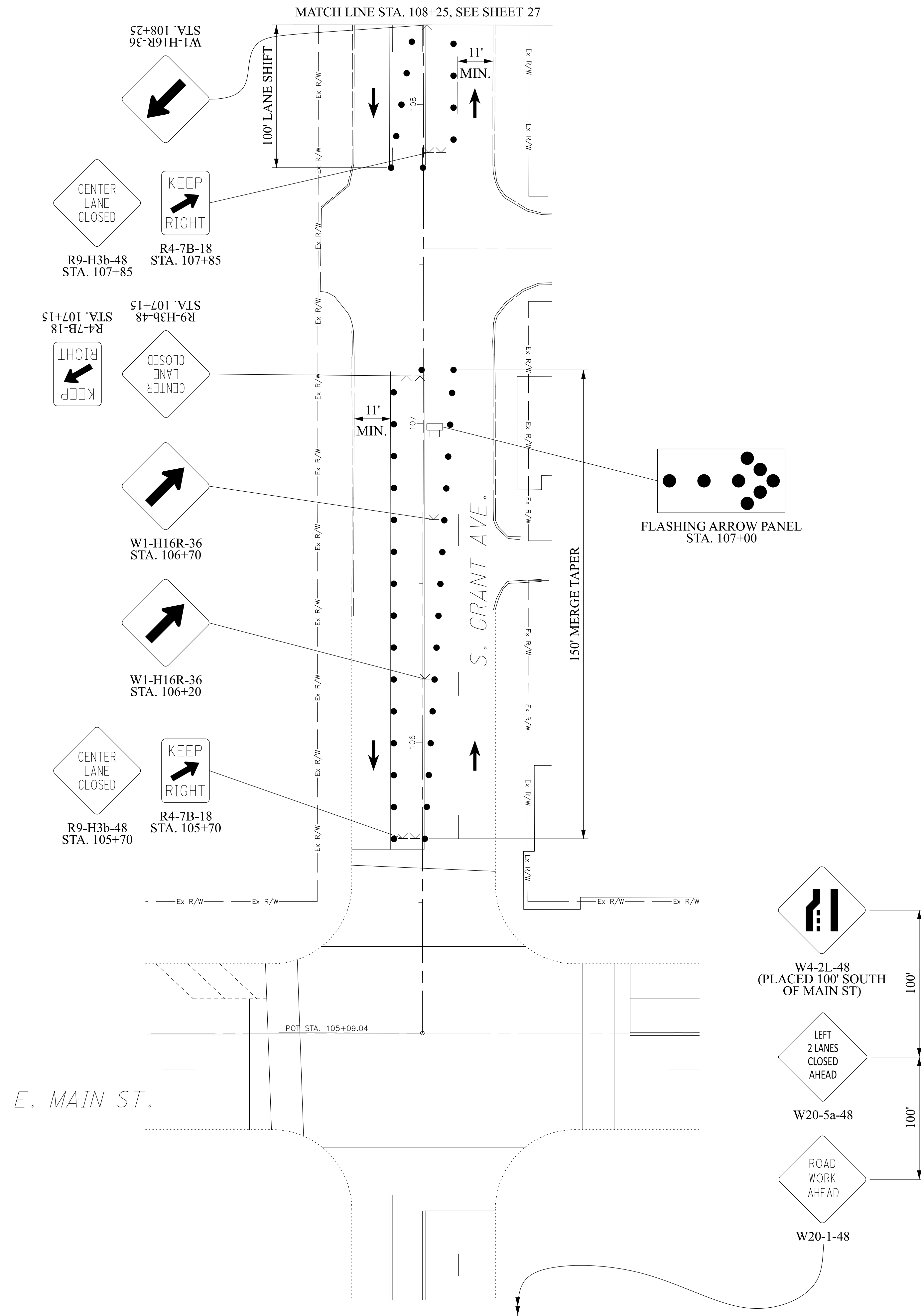
- 1/21/20

RELOCATED RELOCATED



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LEGEND	
	TRAFFIC FLOW ARROW
	WORK ZONE
	W.Z. DRUM
	CHANNELIZER CONE (42" GRABBER)
	W.Z. TEMPORARY SIGN SUPPORT
	TEMPORARY WOOD POLE



CALCULATED  
JAR  
CHECKED  
DKA

MAINTENANCE OF TRAFFIC PLAN - NW CORNER CONST.  
E RICH ST AT S GRANT ST

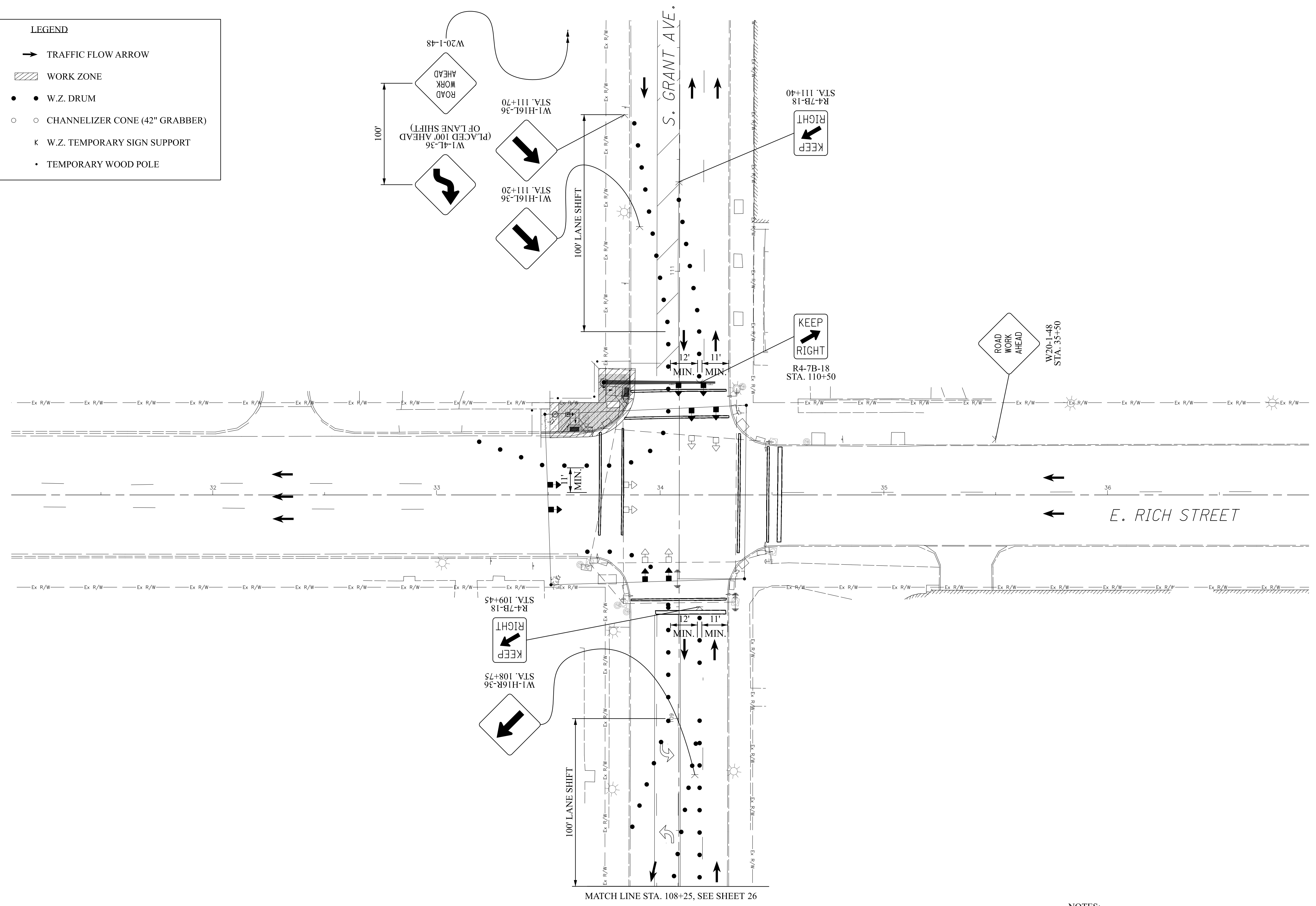
IMPROVEMENTS OF  
E RICH STREET FROM S 3RD ST TO S GRANT AVE  
FRA E RICH ST SIGNALS

3921-E

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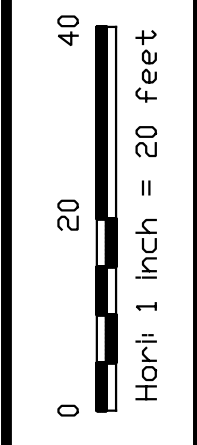
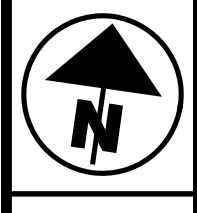
**LEGEND**

- TRAFFIC FLOW ARROW
- ▨ WORK ZONE
- W.Z. DRUM
- CHANNELIZER CONE (42" GRABBER)
- K W.Z. TEMPORARY SIGN SUPPORT
- TEMPORARY WOOD POLE



MATCH LINE STA. 108+25, SEE SHEET 26

NOTES:  
1. FOR TEMPORARY SIGNAL DETAILS, SEE SHEET 25



CALCULATED  
JAR  
CHECKED  
DKA

MAINTENANCE OF TRAFFIC PLAN - NW CORNER CONST.  
E RICH ST AT S GRANT ST

IMPROVEMENTS OF  
E RICH STREET FROM S 3RD ST TO S GRANT AVE  
FRA E RICH ST SIGNALS

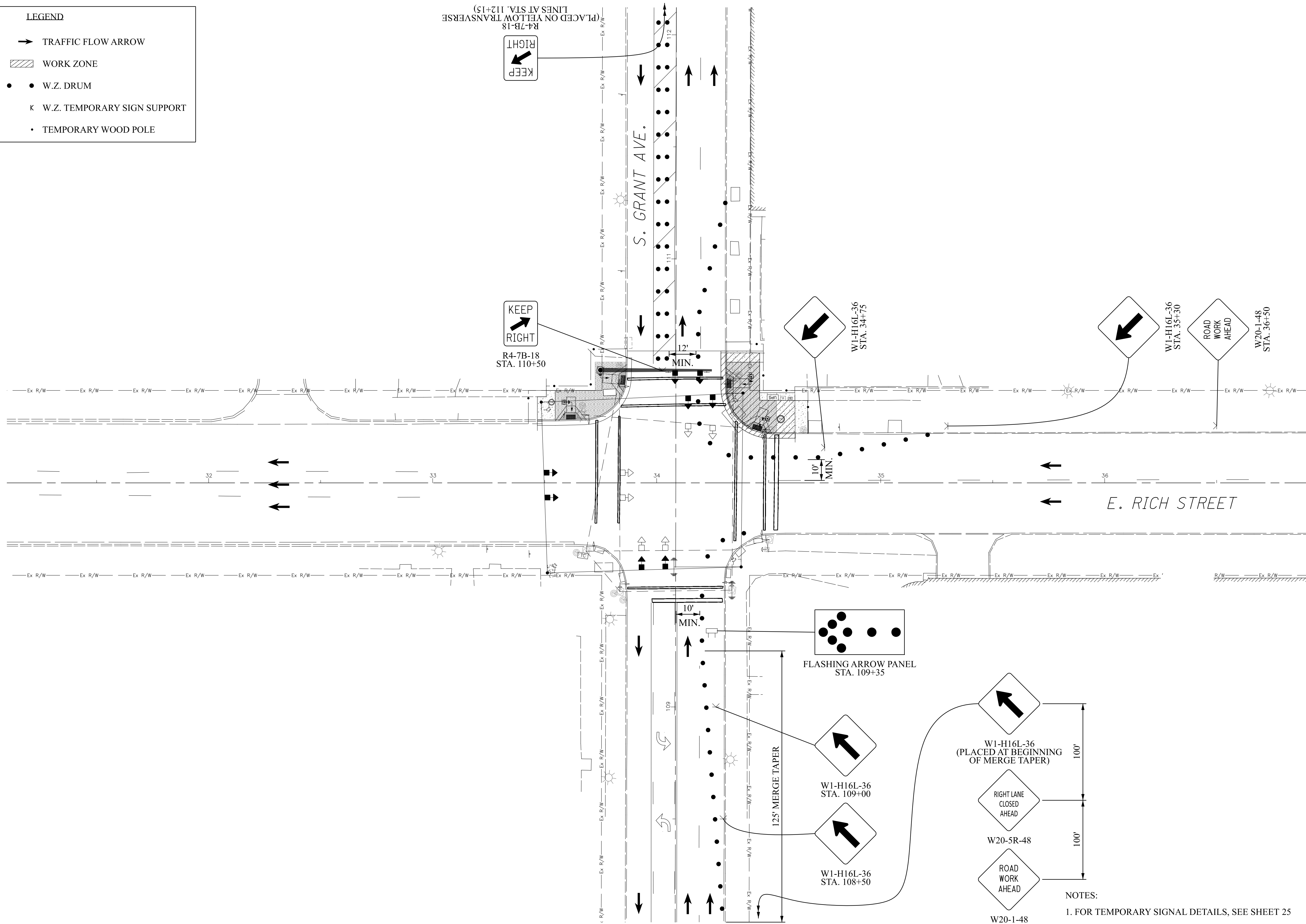
3921-E



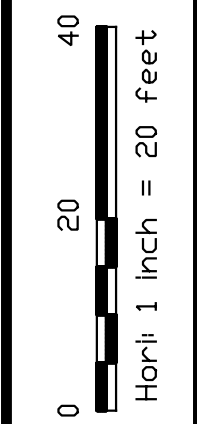
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**LEGEND**

- TRAFFIC FLOW ARROW
- ▨ WORK ZONE
- W.Z. DRUM
- K W.Z. TEMPORARY SIGN SUPPORT
- TEMPORARY WOOD POLE



NOTES:  
1. FOR TEMPORARY SIGNAL DETAILS, SEE SHEET 25



CALCULATED  
JAR  
CHECKED  
DKA

MAINTENANCE OF TRAFFIC PLAN - NE CORNER CONST.  
E RICH ST AT S GRANT ST

IMPROVEMENTS OF  
E RICH STREET FROM S 3RD ST TO S GRANT AVE  
FRA E RICH ST SIGNALS

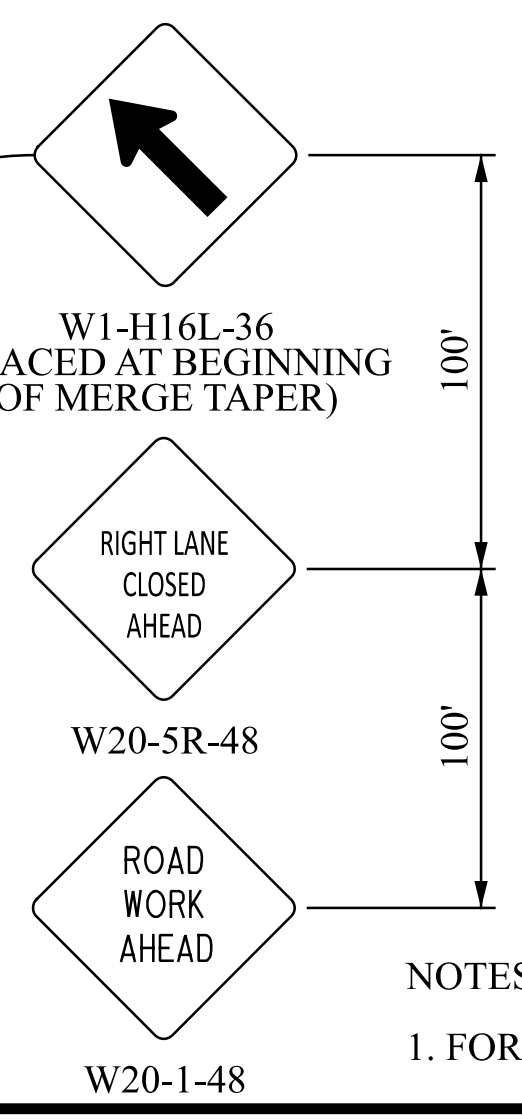
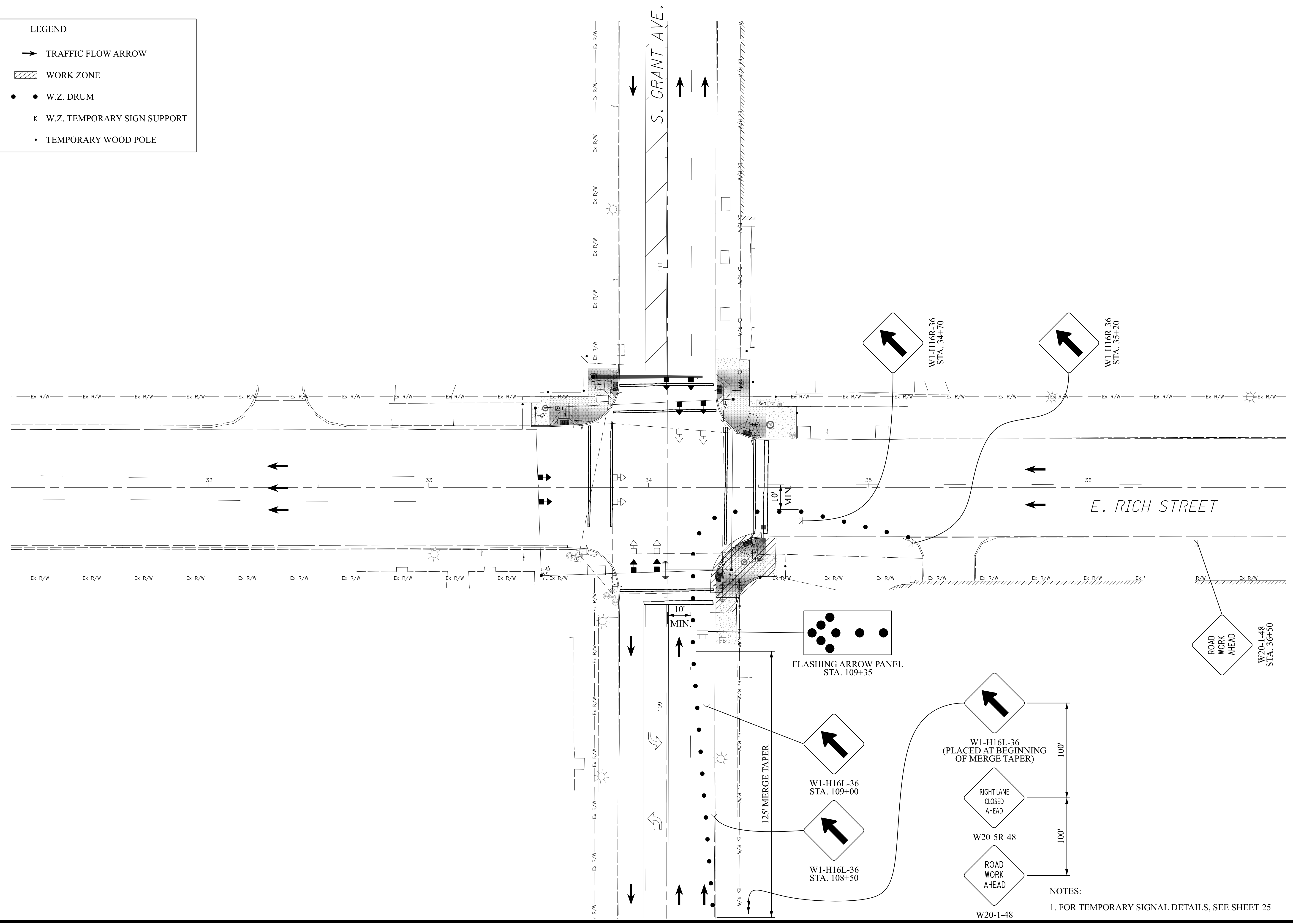
3921-E

28  
95

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**LEGEND**

- TRAFFIC FLOW ARROW
- ▨ WORK ZONE
- W.Z. DRUM
- K W.Z. TEMPORARY SIGN SUPPORT
- TEMPORARY WOOD POLE



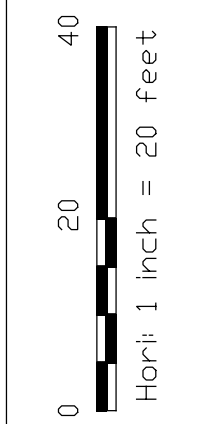
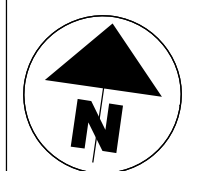
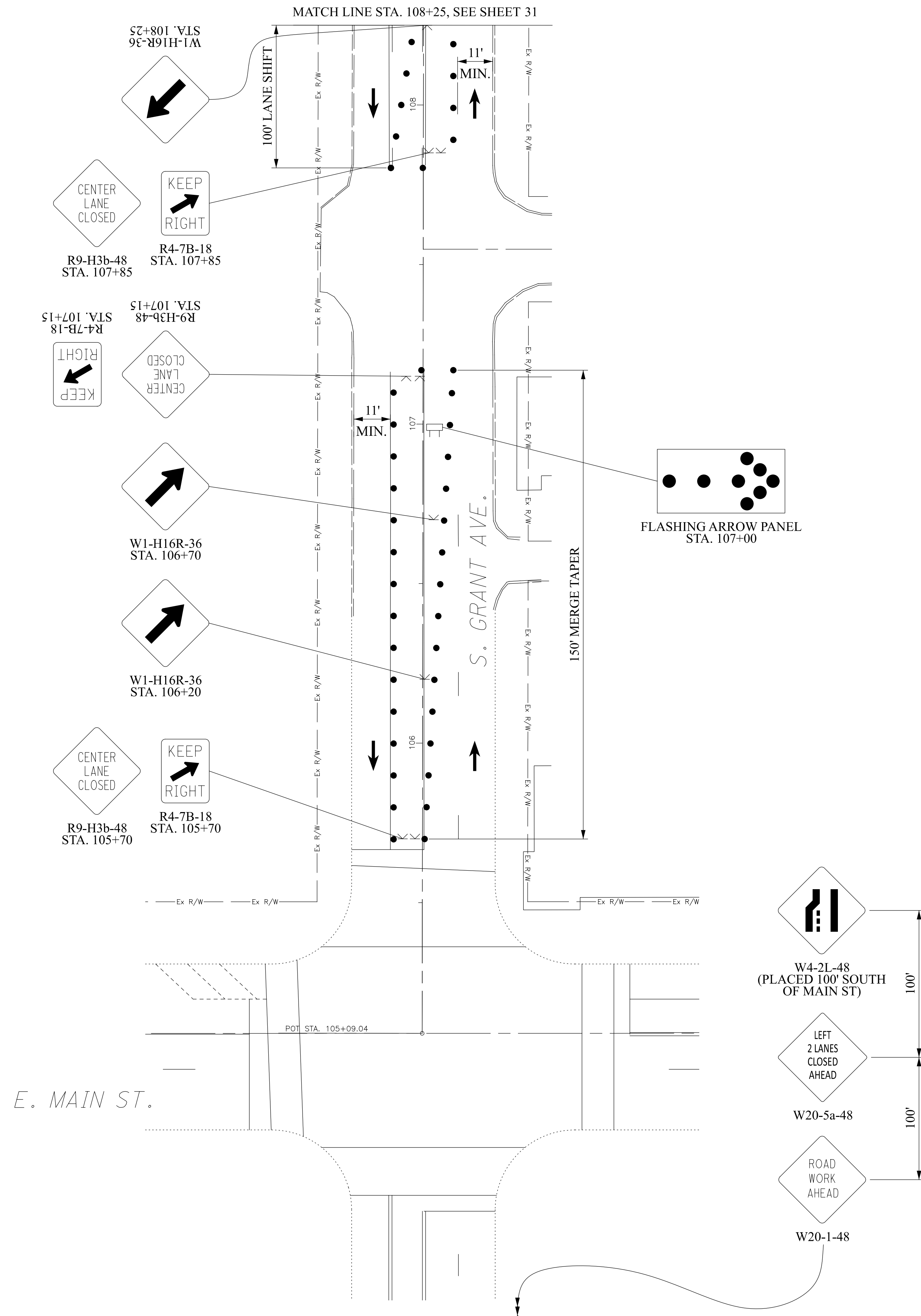
0 20 40
   
 Horiz 1 inch = 20 Feet

CALCULATED: JAR
   
 CHECKED: DKA
   
**MAINTENANCE OF TRAFFIC PLAN - SE CORNER CONST.**
  
**E RICH ST AT S GRANT ST**

**IMPROVEMENTS OF**
  
**E RICH STREET FROM S 3RD ST TO S GRANT AVE**
  
 FRA E RICH ST SIGNALS



LEGEND	
	TRAFFIC FLOW ARROW
	WORK ZONE
	W.Z. DRUM
	CHANNELIZER CONE (42" GRABBER)
	W.Z. TEMPORARY SIGN SUPPORT
	TEMPORARY WOOD POLE



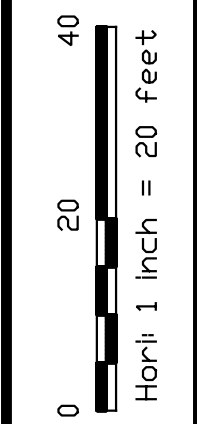
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JAR  
CHECKED  
DKA

**MAINTENANCE OF TRAFFIC PLAN - SW CORNER CONST.**  
E RICH ST AT S GRANT ST

**IMPROVEMENTS OF**  
E RICH STREET FROM S 3RD ST TO S GRANT AVE  
FRA E RICH ST SIGNALS

3921-E

30  
95



CALCULATED  
JAR  
CHECKED  
DKA

MAINTENANCE OF TRAFFIC PLAN - SW CORNER CONST.  
E RICH ST AT S GRANT ST

IMPROVEMENTS OF  
E RICH STREET FROM S 3RD ST TO S GRANT AVE  
FRA E RICH ST SIGNALS

3921-E

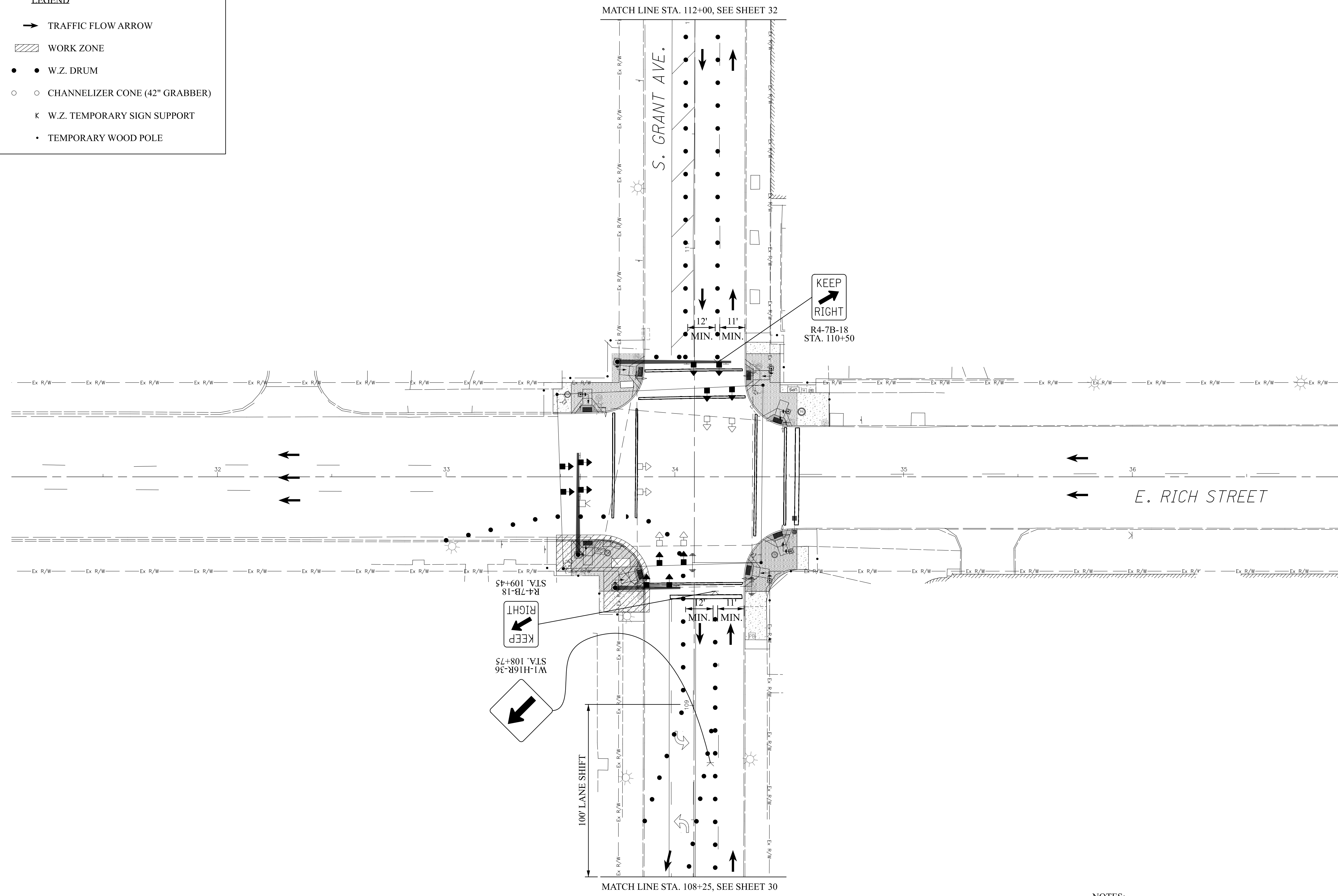
31  
95

**LEGEND**

- TRAFFIC FLOW ARROW
- ▨ WORK ZONE
- W.Z. DRUM
- CHANNELIZER CONE (42" GRABBER)
- K W.Z. TEMPORARY SIGN SUPPORT
- TEMPORARY WOOD POLE

MATCH LINE STA. 112+00, SEE SHEET 32

MATCH LINE STA. 108+25, SEE SHEET 30



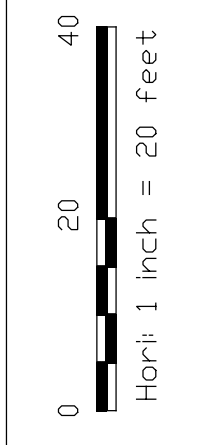
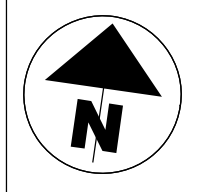
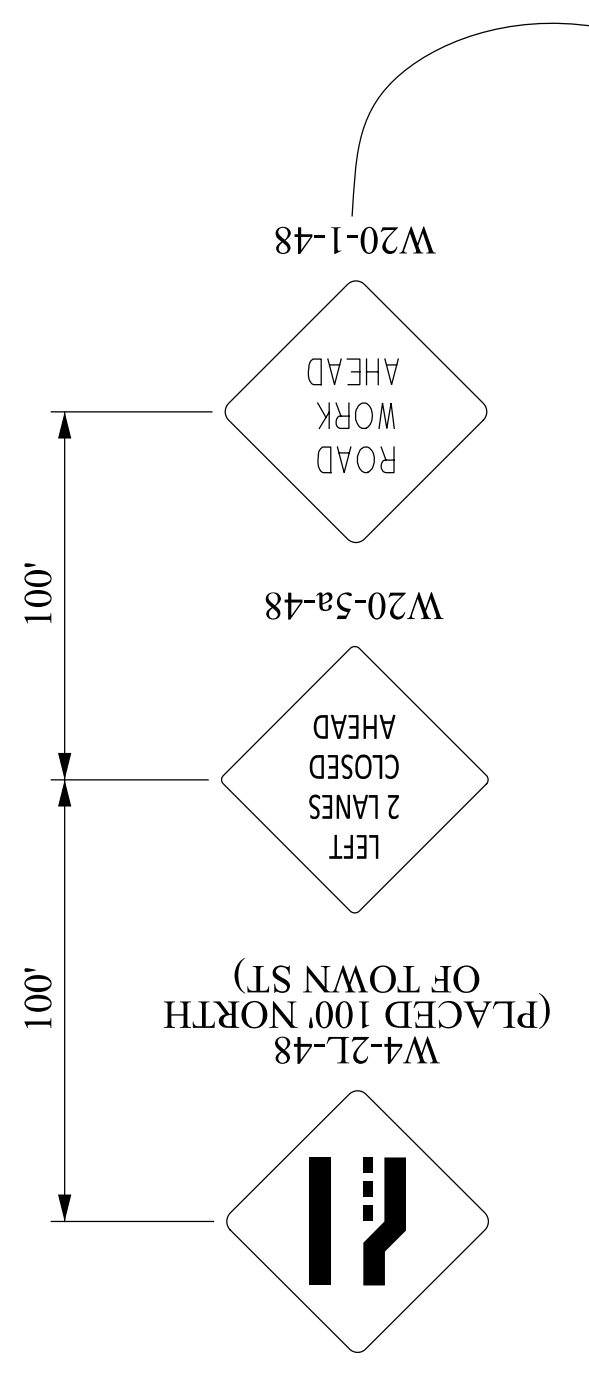
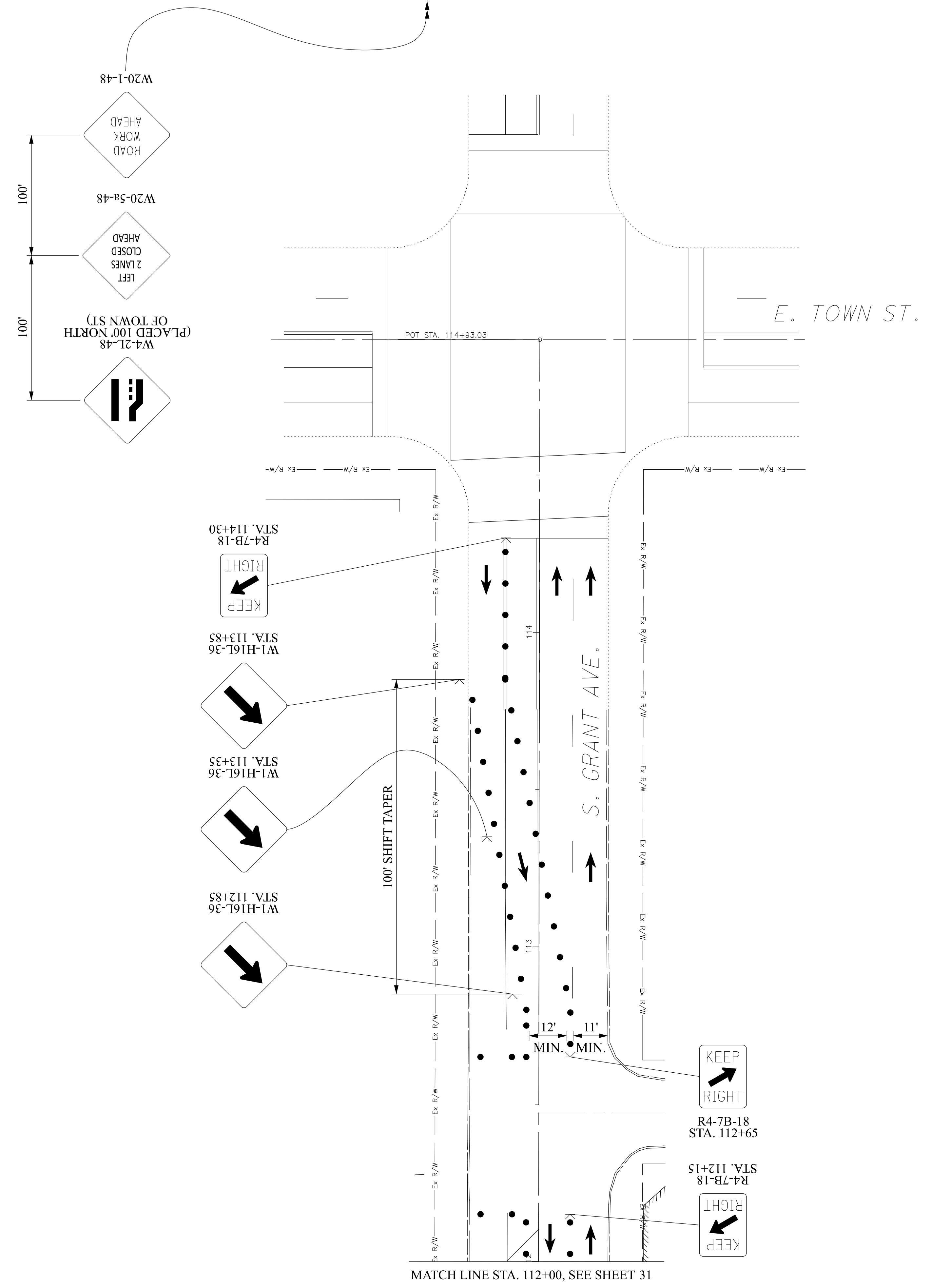
NOTES:  
1. FOR TEMPORARY SIGNAL DETAILS, SEE SHEET 25

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**LEGEND**

- TRAFFIC FLOW ARROW
- ▨ WORK ZONE
- W.Z. DRUM
- CHANNELIZER CONE (42" GRABBER)
- ⋈ W.Z. TEMPORARY SIGN SUPPORT
- TEMPORARY WOOD POLE



CALCULATED  
JAR  
CHECKED  
DKA

**MAINTENANCE OF TRAFFIC PLAN - SW CORNER CONST.  
E RICH ST AT S GRANT ST**

**IMPROVEMENTS OF  
E RICH STREET FROM S 3RD ST TO S GRANT AVE  
FRA E RICH ST SIGNALS**

3921-E

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SHEET NUM.											ITEM	GRAND	UNIT	DESCRIPTION	SEE SHEET NO.
5	7	8	37	39	41	43	50	59	81	TOTAL					
											<b>ROADWAY</b>				
			2,627	2,361	2,360	2,829					202	10,177	SF	WALK REMOVED	
			154	192		194					202	540	FT	CURB REMOVED	
			8	46	256	37					202	347	FT	CURB AND GUTTER REMOVED	
			1	3	3	2					202	9	EA	INLET REMOVED	
					184						202	184	FT	FENCE REMOVED	
			1,408	641	989	940					608	3,978	SF	CONCRETE WALK WITH BUFF WASH FINISH (4")	
			132	176	176	176					608	660	SF	CONCRETE WALK WITH BUFF WASH FINISH (8")	
			6	8	8	8					608	30	EA	CURB RAMP	
			48	64	64	64					608	240	SF	DETECTABLE WARNING, TYPE E CAST IRON	
			1,075	1,575	1,532	1,742					SPEC	5,924	SF	BRICK PAVERS INCLUDING 4" CONCRETE BASE (SCD 2301-NON-RESIDENTIAL), COMPLETE	3
			1								SPEC	1	EA	ABM PARKING SERVICES SIGN TO BE REMOVED	3
					1						SPEC	1	EA	REMOVE AND REERECT MAILBOX	3
											<b>PAVEMENT</b>				
			367	755	999	1,012					254	3,133	SY	PAVEMENT PLANING, ASPHALT CONCRETE (T=1.5")	
			20	42	49	38					259	149	CY	PERMANENT PAVEMENT, TYPE I	
			31	64	85	86					407	266	GAL	NON-TRACKING TACK COAT	
			15	31	42	42					441	130	CY	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (488), PG70-22M	
			162	238	262	231					609	893	FT	GRANITE CURB	
					21						609	21	FT	CURB WALL	
											<b>MAINTENANCE OF TRAFFIC</b>				
	144										614	144	HR	LAW ENFORCEMENT OFFICER WITH PATROL CAR, AS PER PLAN	7
		4									614	4	EA	WORK ZONE TRAFFIC SIGNAL, AS PER PLAN	8
											<b>EROSION CONTROL</b>				
22											207	22	EA	INLET PROTECTION	5
100											659	100	SY	SEEDING AND MULCHING, CLASS 1	4
12											659	12	CY	TOPSOIL	4
0.02											659	0.02	TON	COMMERCIAL FERTILIZER	4
1											659	1	MGAL	WATER	4
											<b>DRAINAGE</b>				
			60	40	50	40					603	190	FT	4" CONDUIT, TYPE F FOR UNDERDRAIN OUTLETS	
				1							604	1	EA	CURB INLET MANHOLE (AA-S121)	
			1	1	3	1					604	6	EA	STANDARD CURB AND GUTTER INLET (AA-S125A WITH AA-S128 GRATE FOR GRANITE CURB)	
				1		1					604	2	EA	DOUBLE CURB AND GUTTER INLET (AA-S125A WITH AA-S128 GRATE FOR GRANITE CURB)	
				1	1						604	2	EA	MANHOLE, TYPE C (AA-S102)	
			1	1	2	2					604	6	EA	MANHOLE, ADJUSTED TO GRADE	
			2								604	2	EA	INLET ADJUSTED TO GRADE	
			102	198	212	191					605	703	FT	4" PIPE UNDERDRAINS	
			4	32	17	4					901	57	LF	12" STORM PIPE, WITH TYPE 1 BEDDING, WITH ITEM 912 COMPACTED GRANULAR MATERIAL	
						4					901	4	LF	15" STORM PIPE, WITH TYPE 1 BEDDING, WITH ITEM 912 COMPACTED GRANULAR MATERIAL	
					8	4					901	12	LF	18" STORM PIPE, WITH TYPE 1 BEDDING, WITH ITEM 912 COMPACTED GRANULAR MATERIAL	
				8							901	8	LF	21" STORM PIPE, WITH TYPE 1 BEDDING, WITH ITEM 912 COMPACTED GRANULAR MATERIAL	
				32	45						SPEC	77	LF	FILL AND PLUG EXISTING CONDUIT (12")	5
											<b>WATER</b>				
			5	9	5	5					807	24	EA	VALVE BOXES ADJUSTED TO GRADE	
				1		2					807	3	EA	CURB BOXES ADJUSTED TO GRADE	
											<b>SANITARY</b>				
			1	3	1	4					604	9	EA	MANHOLE, ADJUSTED TO GRADE (SANITARY)	

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GENERAL SUMMARY

IMPROVEMENTS OF  
E RICH STREET FROM S 3RD ST TO S GRANT AVE  
FRA E RICH ST SIGNALS

3921-E



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SHEET NUM.											ITEM	GRAND	UNIT	DESCRIPTION	SEE SHEET NO.
5	7	8	37	39	41	43	50	59	81	TOTAL					
											<b>ELECTRICAL</b>				
							2				SPEC	2	EA	ELECTRIC PULL BOX ADJUSTED TO GRADE	3
							1				SPEC	1	EA	ELECTRIC VAULT GRATE ADJUSTED TO GRADE	3
			1								604	1	EA	MANHOLE, ADJUSTED TO GRADE (ELECTRIC)	
											<b>TRAFFIC CONTROL</b>				
				6							627	6	EA	REBOUNDABLE TRAFFIC POST - REMOVED, AS PER PLAN	5
								100.5			630	100.5	LF	GROUND MOUNTED SUPPORT, No. 3 POST	
								39.0			630	39.0	LF	STREET NAME SIGN SUPPORT, No. 3 POST	
								5			630	5	EA	SIGN SUPPORT ASSEMBLY, POLE MOUNTED, AS PER PLAN	56
								100.3			630	100.3	SF	SIGN, FLAT SHEET, AS PER PLAN	56
								13.5			630	13.5	SF	STREET NAME SIGN	
								11			630	11	EA	REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL	
								11			630	11	EA	REMOVAL OF POLE MOUNTED SIGN AND DISPOSAL	
								9			630	9	EA	REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL	
								2,219			641	2,219	LF	REMOVAL OF PAVEMENT MARKING	
								399			644	399	LF	STOP LINE	
								1,652			644	1,652	LF	CROSSWALK LINE, 12"	
								204			644	204	LF	PARKING STALL MARKING, WHITE, 4"	
								141			644	141	LF	DOTTED LINE, WHITE, 6"	
											<b>TRAFFIC SIGNALS</b>				
			1	1	1	1					625	4	EA	PULL BOX ADJUSTED TO GRADE	
								43			625	43	EA	GROUND ROD	
								3,354			625	3,354	FT	NO. 4 AWG 600 VOLT DISTRIBUTION CABLE, AS PER PLAN	56
								4			625	4	EA	PULL BOX, 725.06, 12"X18" (TRAFFIC)	
								11			625	11	EA	PULL BOX, 27"	
								4			625	4	EA	PULL BOX, 32"	
								1,520			625	1,520	FT	TRENCH, AS PER PLAN	56
								805			625	805	FT	CONDUIT, 2", 725.051	
								145			625	145	FT	CONDUIT, 3", 725.051	
								1,490			625	1,490	FT	CONDUIT, CONCRETE ENCASED, 2", 725.051	
								279			625	279	FT	CONDUIT, CONCRETE ENCASED, 3", 725.051	
								2			625	2	EA	BRACKET ARM 25 FT, AS PER PLAN	55
								8			625	8	EA	BRACKET ARM - LUMINAIRE, 8 FT, AS PER PLAN	55
								1,178			625	1,178	FT	NO. 6 AWG 600 VOLT DISTRIBUTION CABLE	
								486			625	486	FT	NO. 10 AWG POLE AND BRACKET CABLE	
								8			625	8	EA	CONNECTION, FUSED PULL-APART	
								8			625	8	EA	CONNECTION, UNFUSED PULL-APART	
								8			625	8	EA	LUMINAIRE, LED, 120 V, TEARDROP (BLACK), AS PER PLAN	56
								8			625	8	EA	LIGHTING, MISC.: PHOTO CELL	56
								20			630	20	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN	56
								22			630	22	EA	SIGN SUPPORT ASSEMBLY, POLE MOUNTED, AS PER PLAN	56
								164			630	164	SF	SIGN, FLAT SHEET, AS PER PLAN	56
								60			630	60	SF	STREET NAME SIGN	
								21			632	21	EA	VEHICULAR SIGNAL HEAD, L.E.D., 3-SECTION, 12" LENS, 1-WAY, POLYCARBONATE, AS PER PLAN	56
								32			632	32	EA	PEDESTRIAN SIGNAL HEAD	
								8			632	8	EA	SIGNALIZATION, MISC.: APS PUSHBUTTON STATION	56
								6			632	6	EA	SIGNAL SUPPORT FOUNDATION	
								4			632	4	EA	SIGNAL SUPPORT FOUNDATION (22'), AS PER PLAN	56
								21			632	21	EA	PEDESTAL FOUNDATION	
								31			632	31	EA	SIGNALIZATION, MISC.: FOUNDATION PRE-EXCAVATION	56
								1			632	1	EA	SIGNAL SUPPORT, TYPE 4121, DESIGN 12, AS PER PLAN	56

CALCULATED  
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**GENERAL SUMMARY**

IMPROVEMENTS OF  
E RICH STREET FROM S 3RD ST TO S GRANT AVE  
FRA E RICH ST SIGNALS

3921-E

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SHEET NUM.											ITEM	GRAND	UNIT	DESCRIPTION	SEE SHEET NO.
5	7	8	37	39	41	43	50	59	81	TOTAL					
											<b>TRAFFIC SIGNALS (CONT'D)</b>				
								4			632	4	EA	COMBINATION SIGNAL SUPPORT, TYPE 4121, DESIGN 12, AS PER PLAN	56
								5			632	5	EA	COMBINATION SIGNAL SUPPORT, TYPE 4121, DESIGN 13, AS PER PLAN	56
								21			632	21	EA	PEDESTAL SUPPORT, 10.7'	
								136			632	136	FT	SIGNAL CABLE, 4 CONDUCTOR, NO. 14 AWG	
								4,234			632	4,234	FT	SIGNAL CABLE, 7 CONDUCTOR, NO. 14 AWG	
								1,531			632	1,531	FT	SIGNAL CABLE, 9 CONDUCTOR, NO. 14 AWG	
								1,055			632	1,055	FT	LOOP DETECTOR LEAD-IN CABLE, IMSA 50-2	
								160			632	160	FT	POWER CABLE, 2 CONDUCTOR, NO. 6 AWG	
								449			632	449	FT	POWER CABLE, 3 CONDUCTOR, NO. 6 AWG	
								4			632	4	EA	POWER SERVICE, AS PER PLAN	56
								4			632	4	EA	SIGNALIZATION, MISC.: POWER METER CABINET TYPE 1 OR 2, BASE MOUNT, WITH FOUNDATION	56
								21			632	21	EA	COVERING OF VEHICULAR SIGNAL HEAD	
								32			632	32	EA	COVERING OF PEDESTRIAN SIGNAL HEAD	
								8			632	8	EA	COVERING OF PEDESTRIAN PUSHBUTTON	
								4			632	4	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION	
								2			632	2	EA	SIGNALIZATION, MISC.: CCTV IP-CAMERA SYSTEM	58
								4			633	4	EA	CONTROLLER UNIT TS2/A2, W/ P-UPS CABINET, 16 CH, SIZE 6, GROUND MOUNTED, AS PER PLAN	57
								4			633	4	EA	CABINET FOUNDATION	
								4			633	4	EA	UNINTERRUPTIBLE POWER SUPPLY (UPS), 1000 WATT, AS PER PLAN	57
											<b>TRAFFIC SIGNAL INTERCONNECT</b>				
								4			632	4	EA	INTERCONNECT, MISC.: RELOCATE EXISTING FIBER OPTIC CABLE, 24 STRAND	58
								559			632	559	FT	INTERCONNECT, MISC.: CAT 5E CABLE, OUTDOOR RATED	58
								7			633	7	EA	CONTROLLER ITEM, MISC.: FIBER OPTIC ETHERNET TRANSCEIVER, SHORT RANGE	58
								4			633	4	EA	CONTROLLER ITEM, MISC.: LAYER 2 ETHERNET SWITCH	58
								7			1620	7	EA	MISC.: TERMINATION PANEL, 24-FIBER	58
											<b>LIGHTING</b>				
								10			1001	10	EA	13 INCH X 24 INCH PULL BOX (MIS-54)	
								5			1001	5	EA	6' STREET LIGHT FOUNDATION, DOWNTOWN (MIS-203)	
								5			1001	5	EA	DOWNTOWN POLE (MIS-308)	
								755			1001	755	CK FT	2-WIRE UNDERGROUND CIRCUIT (MIS-403)	
								5			1001	5	EA	2-WIRE POLE TO BE WIRED (MIS-500)	
								1			1001	1	EA	2-WIRE 480V PEDESTAL MOUNT CONTROLLER (MIS-602)	
								425			1001	425	FT	2-INCH CONDUIT, CONCRETE ENCASED (MIS-700)	
								1			1001	1	EA	COBRA HEAD 480V LUMINAIRE (MIS-800)	
								5			1001	5	EA	TEARDROP 480V LED LUMINAIRE (MIS-801)	
								7			1001	7	EA	FOUNDATION REMOVAL (MIS-900)	
								LS			1001	LS	LS	EXISTING UNDERGROUND SYSTEM REMOVAL (MIS-902)	
								6			1001	6	EA	SMART NODE, AS PER PLAN	81
											<b>MISCELLANEOUS</b>				
											614	LS	LS	MAINTAINING TRAFFIC	7
											623	LS	LS	CONSTRUCTION LAYOUT STAKES	
											624	LS	LS	MOBILIZATION	

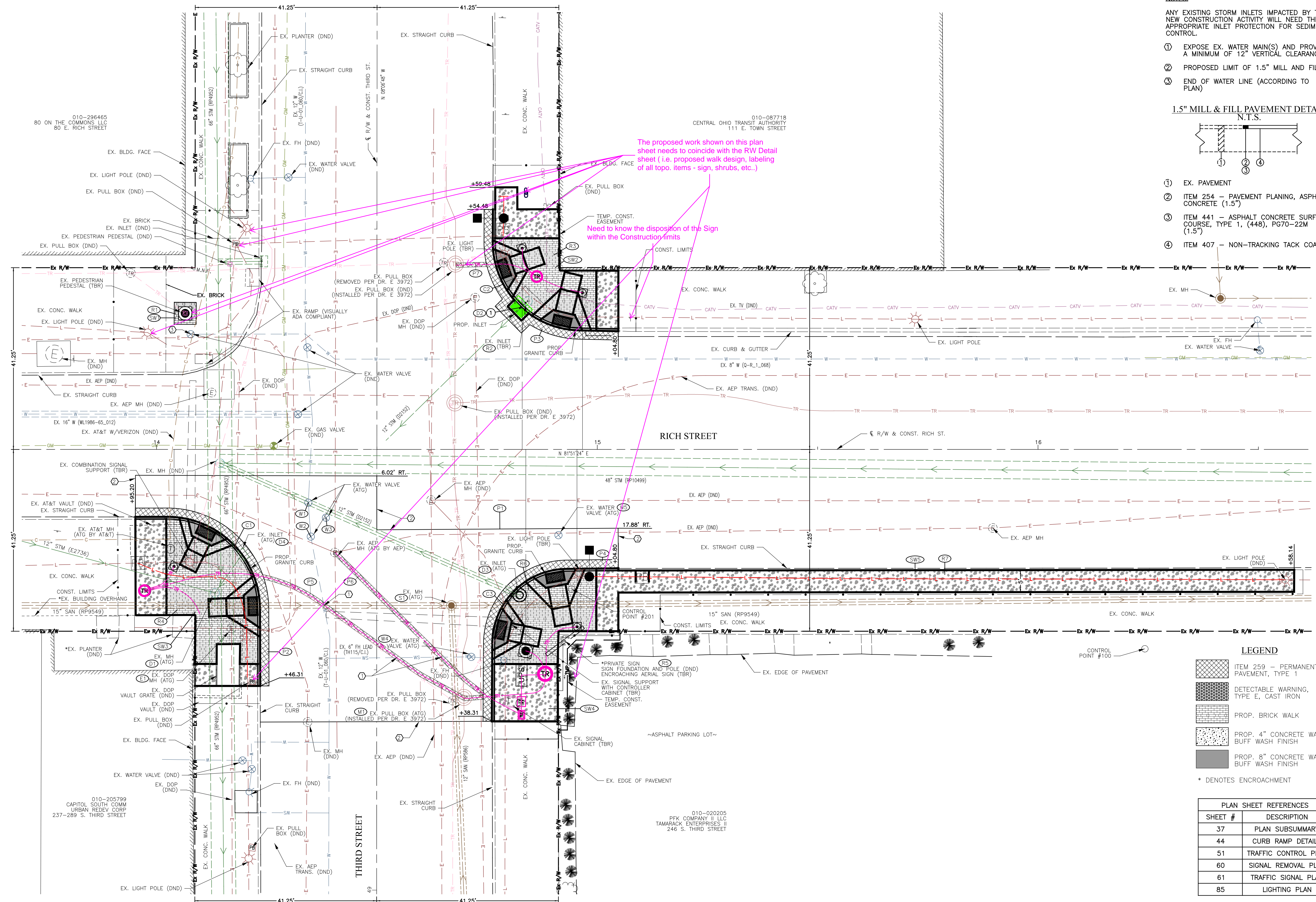
CALCULATED  
ANC  
CHECKED  
DKA

**GENERAL SUMMARY**

**IMPROVEMENTS OF  
E RICH STREET FROM S 3RD ST TO S GRANT AVE  
FRA E RICH ST SIGNALS**

3921-E





010-296465  
 80 ON THE COMMONS LLC  
 80 E. RICH STREET

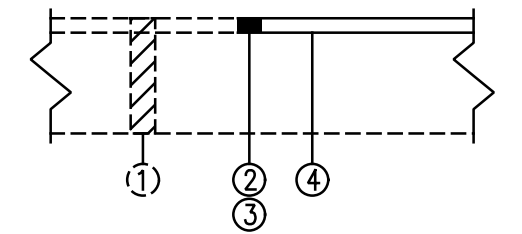
010-087718  
 CENTRAL OHIO TRANSIT AUTHORITY  
 111 E. TOWN STREET

010-205799  
 CAPITOL SOUTH COMM  
 URBAN REDEV CORP  
 237-289 S. THIRD STREET

010-020205  
 PFK COMPANY II LLC  
 TAMARACK ENTERPRISES II  
 246 S. THIRD STREET

- NOTES:**
- ANY EXISTING STORM INLETS IMPACTED BY THE NEW CONSTRUCTION ACTIVITY WILL NEED THE APPROPRIATE INLET PROTECTION FOR SEDIMENT CONTROL.
  - EXPOSE EX. WATER MAIN(S) AND PROVIDE A MINIMUM OF 12" VERTICAL CLEARANCE.
  - PROPOSED LIMIT OF 1.5" MILL AND FILL
  - END OF WATER LINE (ACCORDING TO PLAN)

**1.5" MILL & FILL PAVEMENT DETAIL**  
 N.T.S.



- EX. PAVEMENT
- ITEM 254 - PAVEMENT PLANING, ASPHALT CONCRETE (1.5")
- ITEM 441 - ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (448), PG70-22M (1.5")
- ITEM 407 - NON-TRACKING TACK COAT

The proposed work shown on this plan sheet needs to coincide with the RW Detail sheet (i.e. proposed walk design, labeling of all topo. items - sign, shrubs, etc.)

Need to know the disposition of the Sign within the Construction limits

0 10 20  
 Horizontal 1 inch = 10 feet

CALCULATED MSS  
 CHECKED LMO

**PLAN**  
**RICH STREET AT THIRD STREET**

**IMPROVEMENTS OF**  
**E RICH STREET FROM S 3RD ST TO S GRANT AVE**  
**FRA E RICH ST SIGNALS**

- LEGEND**
- ITEM 259 - PERMANENT PAVEMENT, TYPE 1
  - DETECTABLE WARNING, TYPE E, CAST IRON
  - PROP. BRICK WALK
  - PROP. 4" CONCRETE WALK, BUFF WASH FINISH
  - PROP. 8" CONCRETE WALK, BUFF WASH FINISH
- \* DENOTES ENCROACHMENT

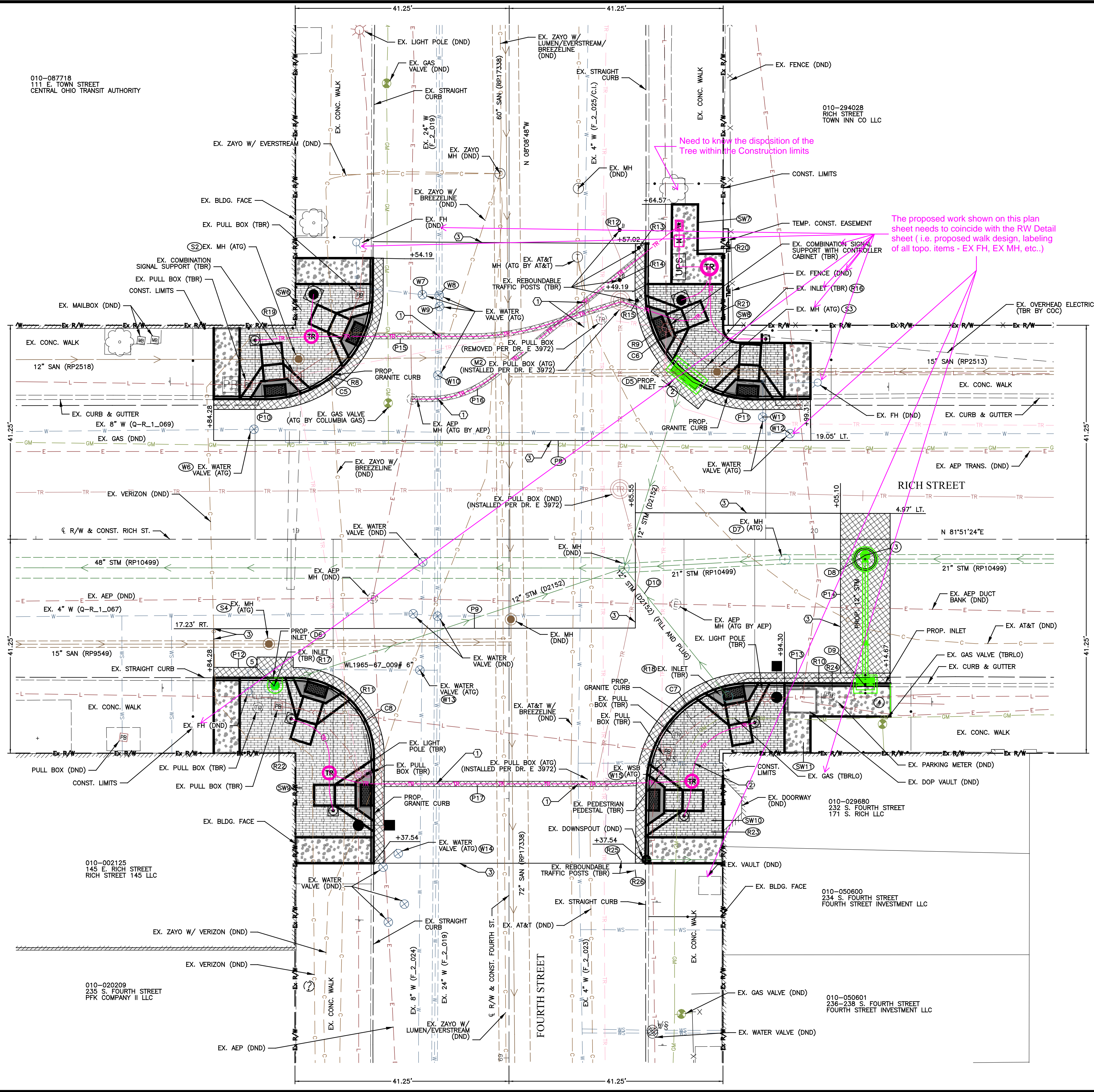
PLAN SHEET REFERENCES	
SHEET #	DESCRIPTION
37	PLAN SUBSUMMARY
44	CURB RAMP DETAILS
51	TRAFFIC CONTROL PLAN
60	SIGNAL REMOVAL PLAN
61	TRAFFIC SIGNAL PLAN
85	LIGHTING PLAN



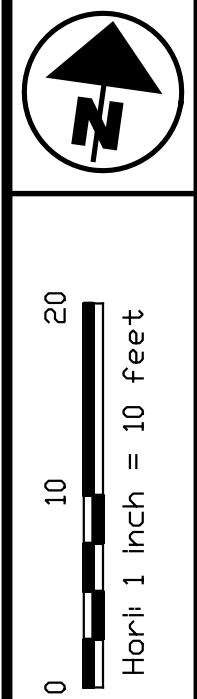




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 1 Xref: Dr E Border



- NOTES:**
- ANY EXISTING STORM INLETS IMPACTED BY THE NEW CONSTRUCTION ACTIVITY WILL NEED THE APPROPRIATE INLET PROTECTION FOR SEDIMENT CONTROL.
  - EXPOSE EX. WATER MAIN(S) AND PROVIDE A MINIMUM OF 12" VERTICAL CLEARANCE.
  - EXPOSE EX. WATER SERVICE AND PROVIDE A MINIMUM OF 12" VERTICAL CLEARANCE.
  - PROPOSED LIMIT OF 1.5" MILL AND FILL (SEE SHEET 36 FOR PAVEMENT DETAILS)



CALCULATED  
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**PLAN**  
**RICH STREET AT FOURTH STREET**

**IMPROVEMENTS OF**  
**E RICH STREET FROM S 3RD ST TO S GRANT AVE**  
**FRA E RICH ST SIGNALS**

3921-E  
 38  
 95

- LEGEND**
- ITEM 259 - PERMANENT PAVEMENT, TYPE 1
  - DETECTABLE WARNING, TYPE E, CAST IRON
  - PROP. BRICK WALK
  - PROP. 4" CONCRETE WALK, BUFF WASH FINISH
  - PROP. 8" CONCRETE WALK, BUFF WASH FINISH
  - \* DENOTES ENCROACHMENT

PLAN SHEET REFERENCES	
SHEET #	DESCRIPTION
39	PLAN SUBSUMMARY
45	CURB RAMP DETAILS
49	STORM SEWER PROFILE
52	TRAFFIC CONTROL PLAN
63	SIGNAL REMOVAL PLAN
64	TRAFFIC SIGNAL PLAN
87	LIGHTING PLAN



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REF. NO.	SHEET NO.	STATION		SIDE	202	202	202	202	254	259	407	441	603	604	604	604	604	604	605	608	608	608	608	609	625	627	807	807	901	901	SPECIAL	SPECIAL	
		FROM	TO		WALK REMOVED	CURB REMOVED	CURB AND GUTTER REMOVED	INLET REMOVED	PAVEMENT PLANING, ASPHALT CONCRETE (1.5')	PERMANENT PAVEMENT, TYPE 1	NON-TRACKING TACK COAT	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (448), PG70-22M	4" CONDUIT, TYPE F FOR UNDERDRAIN OUTLETS	CURB INLET MANHOLE (AA-S121)	STANDARD CURB AND GUTTER INLET (AA-S125A WITH AA-S128 GRATE FOR GRANITE CURB)	DOUBLE CURB AND GUTTER INLET (AA-S125B WITH AA-S128 GRATE FOR GRANITE CURB)	MANHOLE, TYPE C (AA-S102)	MANHOLE ADJUSTED TO GRADE	MANHOLE ADJUSTED TO GRADE (SANITARY)	4" PIPE UNDERDRAINS	CONCRETE WALK WITH BUFF WASH FINISH (4")	CONCRETE WALK WITH BUFF WASH FINISH (8")	CURB RAMP	DETECTABLE WARNING, TYPE E CAST IRON	GRANITE CURB	PULL BOX ADJUSTED TO GRADE	REBOUNDABLE TRAFFIC POST - REMOVED, AS PER PLAN	VALVE BOXES ADJUSTED TO GRADE	CURB BOXES ADJUSTED TO GRADE	12" STORM PIPE, WITH TYPE 1 BEDDING, WITH 912 COMPACTED GRANULAR MATERIAL	21" STORM PIPE, WITH TYPE 1 BEDDING, WITH 912 COMPACTED GRANULAR MATERIAL	BRICK PAVERS INCLUDING 4" CONCRETE BASE (SCD 2301-NON-RESIDENTIAL), COMPLETE	FILL AND PLUG EXISTING CONDUIT (12")
					SF	FT	FT	EA	SY	CY	GAL	CY	FT	EA	EA	EA	EA	EA	EA	SF	SF	EA	SF	FT	EA	EA	EA	EA	EA	EA	EA	EA	EA
C5	38	18+84.28	19+14.98	LT														50															
C6	38	19+67.55	19+99.31	LT									20					33															
C7	38	19+67.48	20+14.67	RT									10					64															
C8	38	18+84.28	19+15.11	RT									10					51															
R8	38	18+84.28	19+14.98	LT			41	9																									
R9	38	19+67.55	19+99.31	LT			46	7																									
R10	38	19+67.48	20+14.67	RT			44	30																									
R11	38	18+84.28	19+15.11	RT			61																										
R12	38	19+62.53		LT																													
R13	38	19+66.21		LT																													
R14	38	19+62.54		LT																													
R15	38	19+65.88		LT																													
R16	38	19+75.75		LT				1																									
R17	38	18+94.96		RT				1																									
R18	38	19+83.34		RT				1																									
R19	38	18+84.28	19+14.98	LT	506																												
R20	38	70+49.19	70+64.57	RT	106																												
R21	38	19+67.50	19+99.31	LT																													
R22	38	18+84.28	19+15.11	RT																													
R23	38	19+67.48	19+94.30	RT																													
R24	38	19+94.30	20+14.67	RT																													
R25	38	19+62.67		RT																													
R26	38	19+65.51		RT																													
D5	38	19+75.08		LT																													
D6	38	18+96.10		RT										1																			
D7	38	19+94.38		RT																													
D8	38	20+09.86		RT																													
D9	38	20+09.86		RT																													
D10	38	19+65.37	19+83.34	RT																													
P8	38	18+84.28	19+99.31	LT					299		25	12																					
P9	38	18+84.28	20+05.10	RT					456		39	19																					
P10	38	18+84.28	19+16.98	LT																													
P11	38	19+65.55	19+99.31	LT																													
P12	38	18+84.28	19+17.11	RT																													
P13	38	19+65.55	20+14.67	RT																													
P14	38	20+05.10	20+14.67	RT																													
P15	38	19+15.09	19+65.79	LT																													
P16	38	19+22.54	19+65.52	LT																													
P17	38	19+17.14	19+59.91	RT																													
S2	38	19+00.64		LT																													
S3	38	19+81.30		LT																													
S4	38	18+94.91		RT																													
SW6	38	18+84.28	19+14.98	LT																													
SW7	38	70+49.19	70+64.57	RT																													
SW8	38	19+67.50	19+99.31	LT																													
SW9	38	18+84.28	19+15.11	RT																													
SW10	38	19+67.48	19+94.30	RT																													
SW11	38	19+94.30	20+14.67	RT																													
W6	38	18+92.03		LT																													
W7	38	19+24.51		LT																													
W8	38	19+27.75		LT																													
W9	38	19+27.81		LT																													
W10	38	19+27.47		LT																													
W11	38	19+90.10		LT																													
W12	38	19+95.37		LT																													
W13	38	19+24.01		RT																													
W14	38	19+19.85		RT																													
W15	38	19+70.43		RT																													
M2	38	19+62.68		LT																													
TOTALS CARRIED TO GENERAL SUMMARY					2361	192	46	3	755	42	64	31	40	1	1	1	1	1	3	198	641	176	8	64	238	1	6	9	1	32	8	1575	32

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 MSS  
 CHECKED  
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SUBSUMMARY

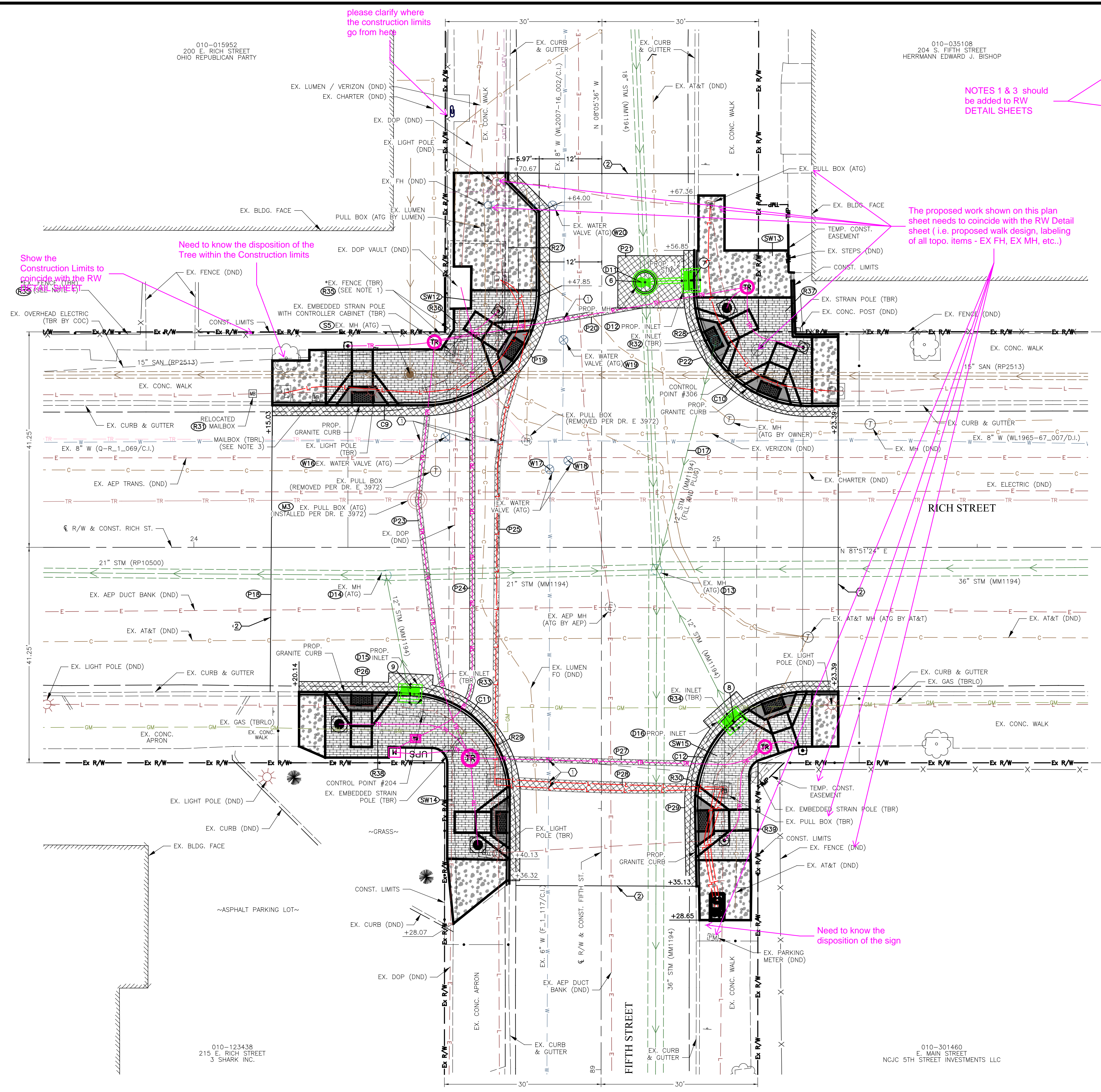
IMPROVEMENTS OF  
 E RICH STREET FROM S 3RD ST TO S GRANT AVE  
 FRA E RICH ST SIGNALS

3921-E

39  
95



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 1 Xref: Dr E Border



- NOTES:**
- CONTRACTOR SHALL REMOVE FENCE WITHIN EXISTING R/W TO NEAREST POST. FENCE SHALL NOT OTHERWISE BE DISTURBED.
  - ANY EXISTING STORM INLETS IMPACTED BY THE NEW CONSTRUCTION ACTIVITY WILL NEED THE APPROPRIATE INLET PROTECTION FOR SEDIMENT CONTROL.
  - CONTRACTOR SHALL REMOVE THE MAILBOX LOCATED AT STA. 24+23.45 AND REERECT IT AT STA. 24+11.00. CONTRACTOR SHALL TAKE GREAT CARE IN REMOVING THE MAILBOX AS IT IS THE INTENT OF THIS DESIGN TO REUSE THE MAILBOX IN THE NEW LOCATION.
- Ⓜ EXPOSE EX. WATER MAIN(S) AND PROVIDE A MINIMUM OF 12" VERTICAL CLEARANCE.
- Ⓜ PROPOSED LIMITS OF 1.5" MILL AND FILL (SEE SHEET 36 FOR PAVEMENT DETAILS)

Show the Construction Limits to coincide with the RW (SEE NOTE 1)

Need to know the disposition of the Tree within the Construction limits

NOTES 1 & 3 should be added to RW DETAIL SHEETS

The proposed work shown on this plan sheet needs to coincide with the RW Detail sheet (i.e. proposed walk design, labeling of all topo. items - EX FH, EX MH, etc.)

Need to know the disposition of the sign

**LEGEND**

- ITEM 259 - PERMANENT PAVEMENT, TYPE 1
- DETECTABLE WARNING, TYPE E, CAST IRON
- PROP. BRICK WALK
- PROP. 4" CONCRETE WALK, BUFF WASH FINISH
- PROP. 8" CONCRETE WALK, BUFF WASH FINISH

\* DENOTES ENCROACHMENT

**PLAN SHEET REFERENCES**

SHEET #	DESCRIPTION
41	PLAN SUBSUMMARY
46-47	CURB RAMP DETAILS
49	STORM SEWER PROFILE
53	TRAFFIC CONTROL PLAN
66	SIGNAL REMOVAL PLAN
67	TRAFFIC SIGNAL PLAN
89	LIGHTING PLAN

**PLAN**  
RICH STREET AT FIFTH STREET

IMPROVEMENTS OF  
E RICH STREET FROM S 3RD ST TO S GRANT AVE  
FRA E RICH ST SIGNALS

3921-E

40  
95

010-015952  
200 E RICH STREET  
OHIO REPUBLICAN PARTY

010-035108  
204 S. FIFTH STREET  
HERRMANN EDWARD J. BISHOP

010-123438  
215 E. RICH STREET  
3 SHARK INC.

010-301460  
E. MAIN STREET  
NCJC 5TH STREET INVESTMENTS LLC

N

20  
10  
0  
Horiz: 1 inch = 10 feet

CALCULATED  
MSS

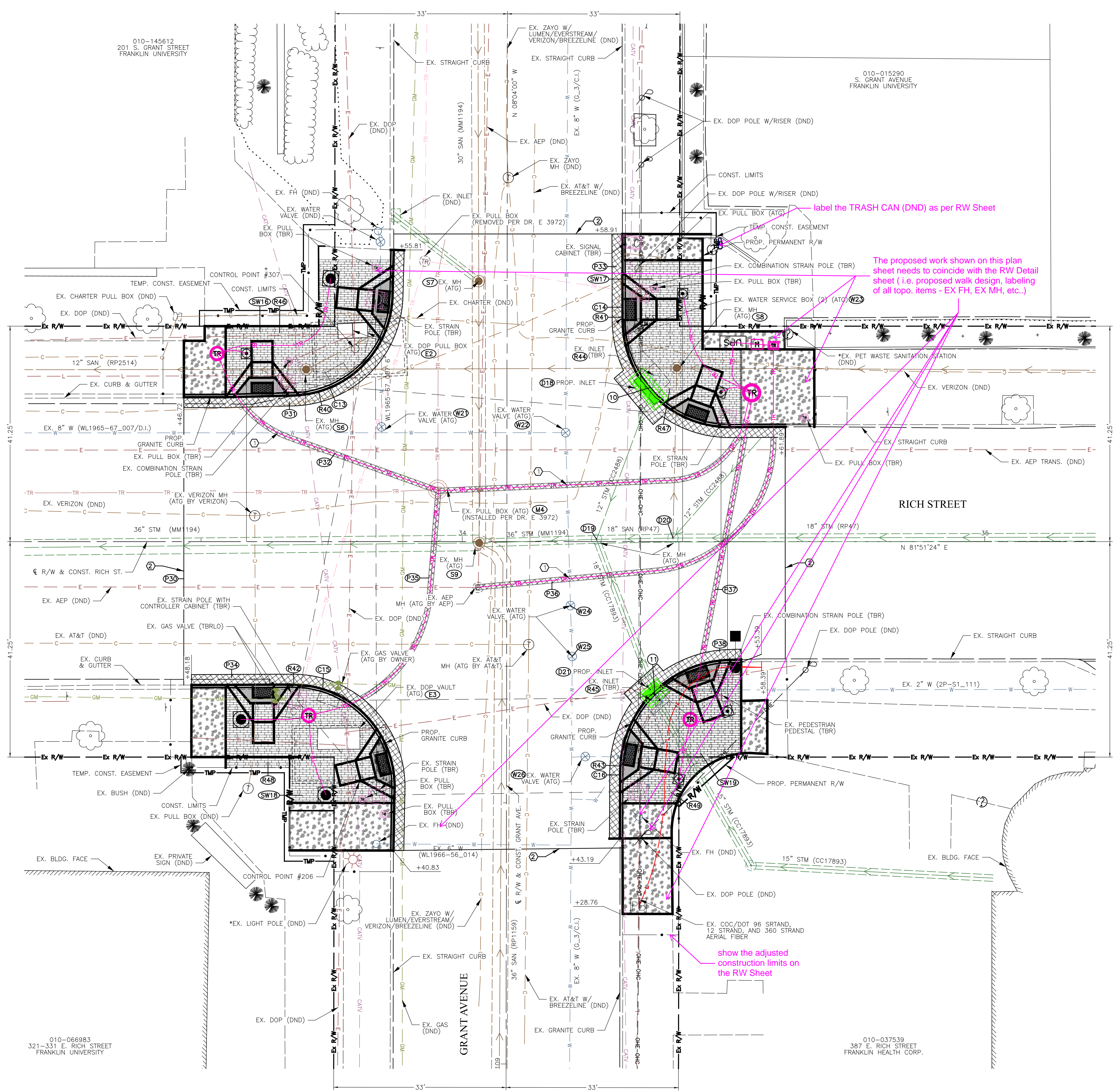
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 1 Xref: Dr E Border



- NOTES:
- ANY EXISTING STORM INLETS IMPACTED BY THE NEW CONSTRUCTION ACTIVITY WILL NEED THE APPROPRIATE INLET PROTECTION FOR SEDIMENT CONTROL.
  - EXPOSE EX. WATER MAIN(S) AND PROVIDE A MINIMUM OF 12" VERTICAL CLEARANCE.
  - PROPOSED LIMIT OF 1.5" MILL AND FILL (SEE SHEET 36 FOR PAVEMENT DETAILS)

010-145612  
201 S. GRANT STREET  
FRANKLIN UNIVERSITY

010-015290  
S. GRANT AVENUE  
FRANKLIN UNIVERSITY

010-066983  
321-331 E. RICH STREET  
FRANKLIN UNIVERSITY

010-037539  
387 E. RICH STREET  
FRANKLIN HEALTH CORP.

010-066983  
321-331 E. RICH STREET  
FRANKLIN UNIVERSITY

CALCULATED MSS  
CHECKED LMO

PLAN  
RICH STREET AT GRANT AVENUE

IMPROVEMENTS OF  
E RICH STREET FROM S 3RD ST TO S GRANT AVE  
FRA E RICH ST SIGNALS

3921-E

42  
95

- LEGEND
- ITEM 259 - PERMANENT PAVEMENT, TYPE 1
  - DETECTABLE WARNING, TYPE E, CAST IRON
  - PROP. BRICK WALK
  - PROP. 4" CONCRETE WALK, BUFF WASH FINISH
  - PROP. 8" CONCRETE WALK, BUFF WASH FINISH
- \* DENOTES ENCROACHMENT

PLAN SHEET REFERENCES	
SHEET #	DESCRIPTION
43	PLAN SUBSUMMARY
48	CURB RAMP DETAILS
54	TRAFFIC CONTROL PLAN
69	SIGNAL REMOVAL PLAN
70	TRAFFIC SIGNAL PLAN
91	LIGHTING PLAN



C:\2023\2022260\02 - Lanham CoC - DS Design Port 2\400-Engineering\Roadway\Sheets\10012960\_G5001.dgn GRANT ST AND RICH ST 2/19/2024 10:19:56 AM msummerville

REF. NO.	SHEET NO.	STATION		SIDE	ITEM DESCRIPTIONS																				SPECIAL	SPECIAL	SPECIAL								
		FROM	TO		202	202	202	202	254	259	407	441	603	604	604	604	604	605	608	608	608	608	609	625				807	807	901	901	901			
					SF	FT	FT	EA	SY	CY	GAL	CY	FT	EA	EA	EA	EA	EA	EA	EA	SF	FT	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	
C13	42	33+46.72	33+86.84	LT																															
C14	42	34+30.66	34+61.89	LT									20																						
C15	42	33+48.18	33+86.82	RT																															
C16	42	34+30.19	34+53.39	RT									20																						
R40	42	33+46.72	33+86.84	LT		38	22																												
R41	42	34+30.66	34+61.89	LT		60																													
R42	42	33+48.18	33+86.82	RT		48	15																												
R43	42	34+30.19	34+53.39	RT		48																													
R44	42	34+36.92		LT				1																											
R45	42	34+37.30		RT				1																											
R46	42	33+46.72	33+86.30	LT	600																														
R47	42	34+30.66	34+61.89	LT	816																														
R48	42	33+48.18	33+86.82	RT	777																														
R49	42	34+30.19	34+58.39	RT	636																														
D18	42	34+40.85		LT																															
D19	42	34+25.71		LT																															
D20	42	34+40.34		LT																															
D21	42	34+36.71		RT																															
E2	42	33+79.04		LT																															
E3	42	33+76.35		RT																															
P30	42	33+46.72	34+61.89	LT/RT					1012		86	42																							
P31	42	33+46.72	33+86.84	LT						5																									
P32	42	33+58.10	34+61.89	LT						8																									
P33	42	34+30.66	34+61.89	LT						5																									
P34	42	33+48.18	33+86.82	RT						5																									
P35	42	109+71.84	110+12.56	LT						3																									
P36	42	34+03.06	34+60.05	LT/RT						5																									
P37	42	109+78.52	110+19.98	RT						3																									
P38	42	34+30.19	34+53.39	RT						4																									
S6	42	33+70.14		LT																															
S7	42	34+03.32		LT																															
S8	42	34+41.06		LT																															
S9	42	34+03.22		RT																															
SW16	42	33+46.72	33+86.84	LT																															
SW17	42	34+30.66	34+61.89	LT																															
SW18	42	33+48.18	33+86.82	RT																															
SW19	42	34+30.19	34+58.39	RT																															
W21	42	33+84.54		LT																															
W22	42	34+19.79		LT																															
W23	42	34+33.67		LT																															
W24	42	34+20.71		RT																															
W25	42	34+21.05		RT																															
W26	42	34+23.56		RT																															
M4	42	33+95.32		LT																															
TOTALS CARRIED TO GENERAL SUMMARY					2829	194	37	2	1012	38	86	42	40	1	1	2	4	191	940	176	8	64	231	1	5	2	4	4	4	4	1742	2	1		

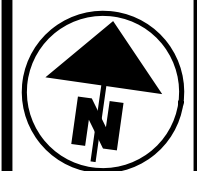
CALCULATED  
 MSS  
 CHECKED  
 LMO

SUBSUMMARY

IMPROVEMENTS OF  
 E RICH STREET FROM S 3RD ST TO S GRANT AVE  
 FRA E RICH ST SIGNALS

3921-E

43  
95



AS NOTED

SCALE:  
CALCULATED  
MSS  
CHECKED  
LMO

INTERSECTION AND CURB RAMP DETAILS  
RICH STREET AND 3RD STREET

IMPROVEMENTS OF  
E RICH STREET FROM S 3RD ST TO S GRANT AVE  
FRA E RICH ST SIGNALS

3921-E

44  
95

LEGEND

XXX.XX PROPOSED ELEVATIONS

EP = EDGE OF PAVEMENT  
EX = MATCH EXISTING  
TC = TOP OF CURB  
TG = TOP OF GRATE

\* TRANSITION CROSS SLOPE FROM 1.56% (MAXIMUM) TO MATCH EXISTING.

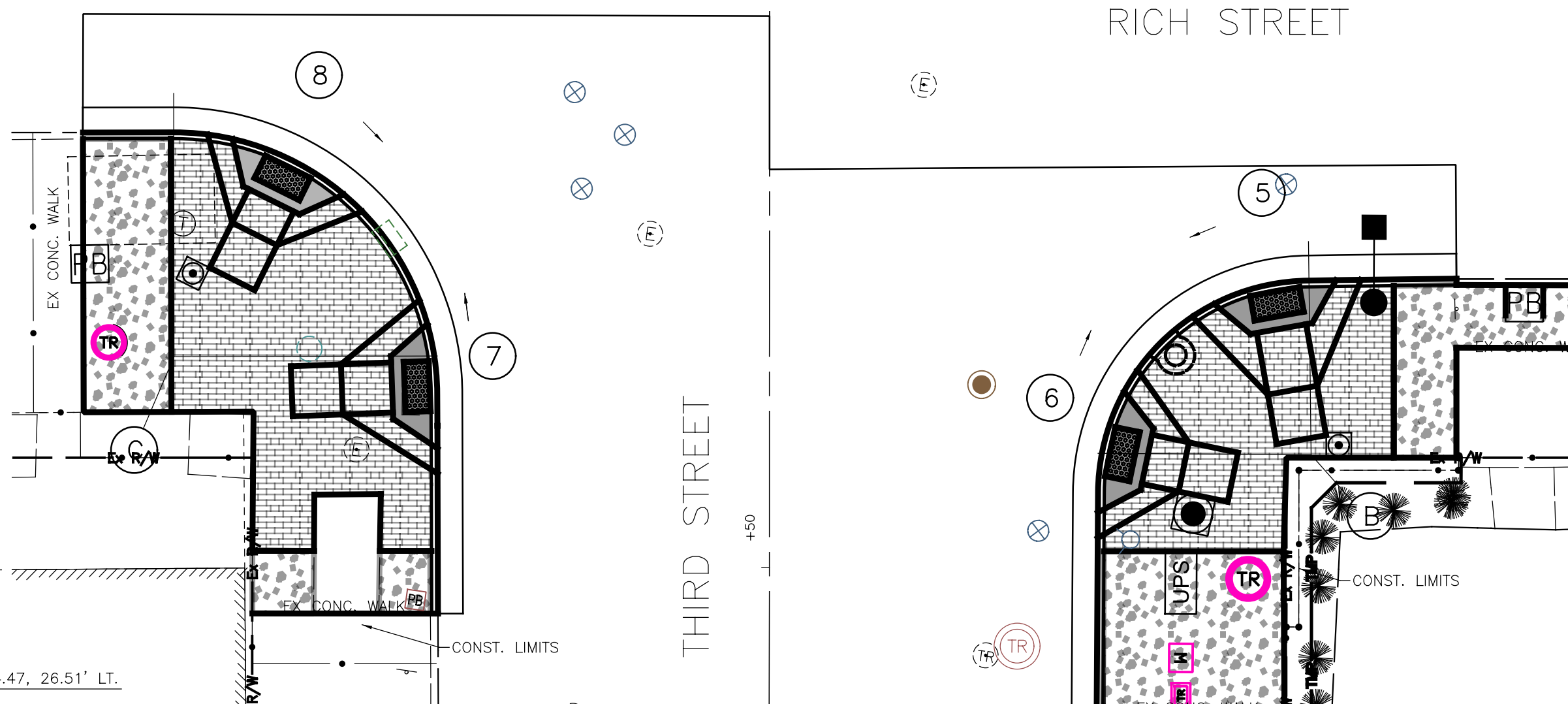
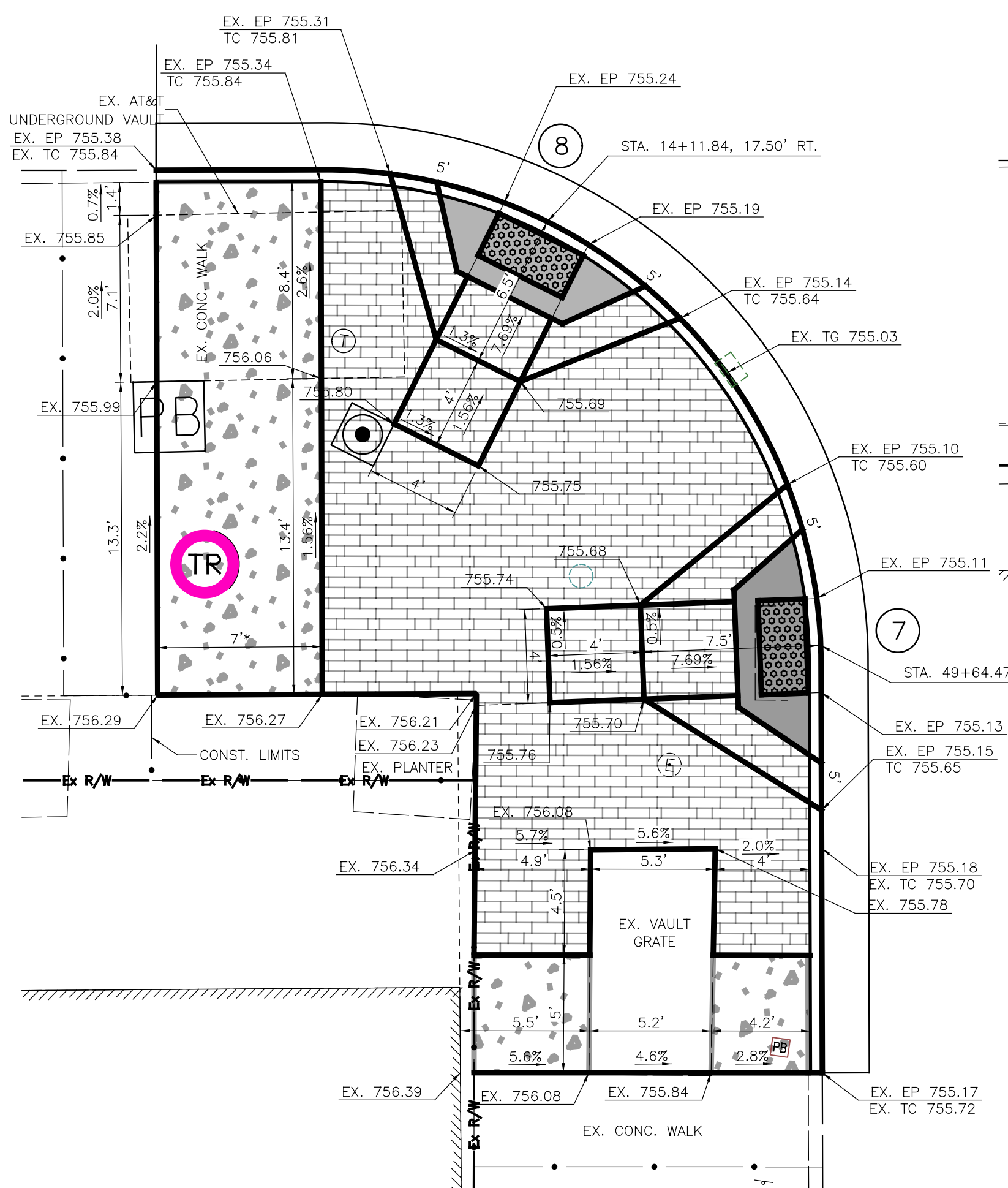
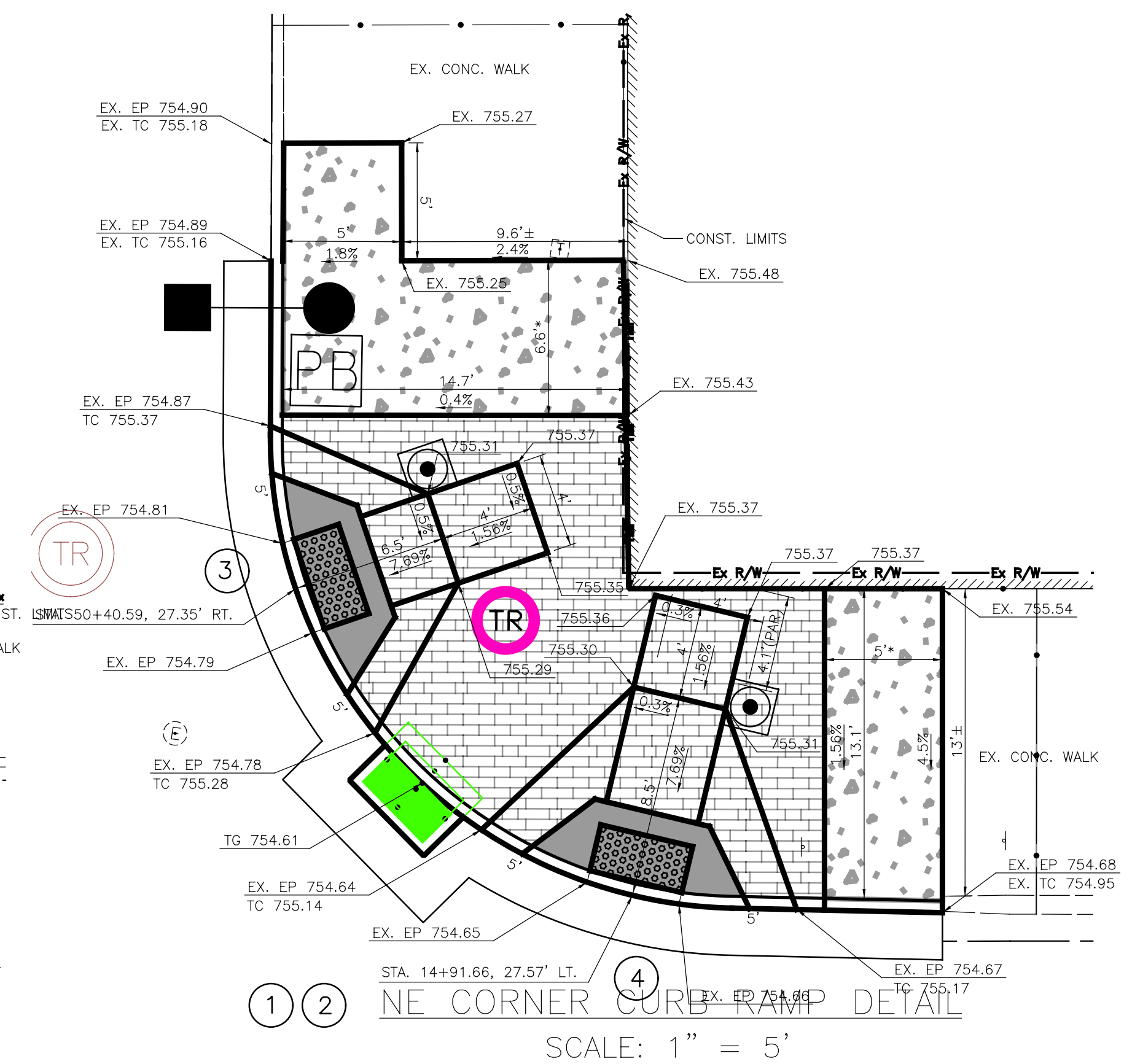
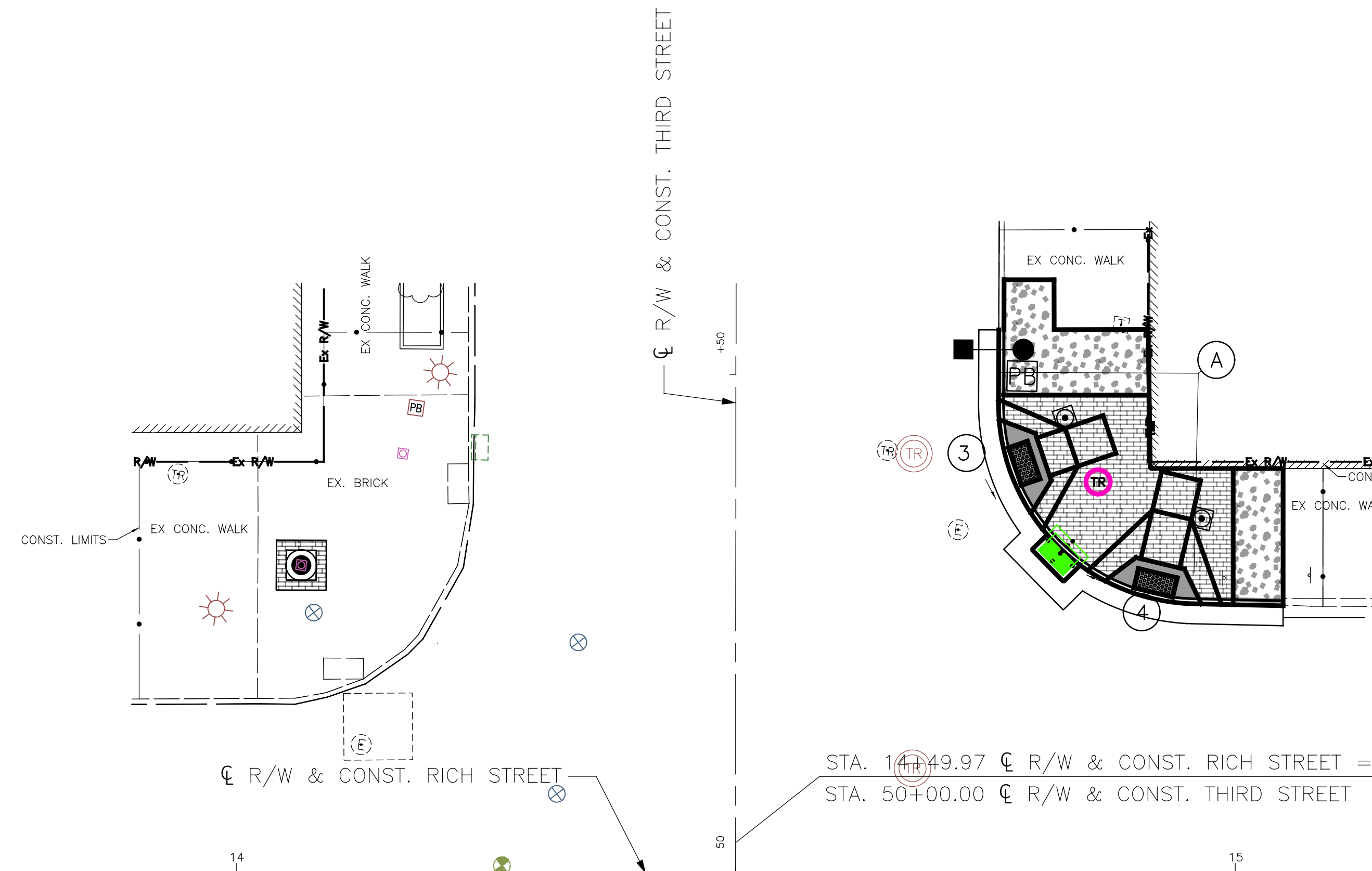
① CURB RAMP NUMBER

DETECTABLE WARNING, TYPE E, CAST IRON

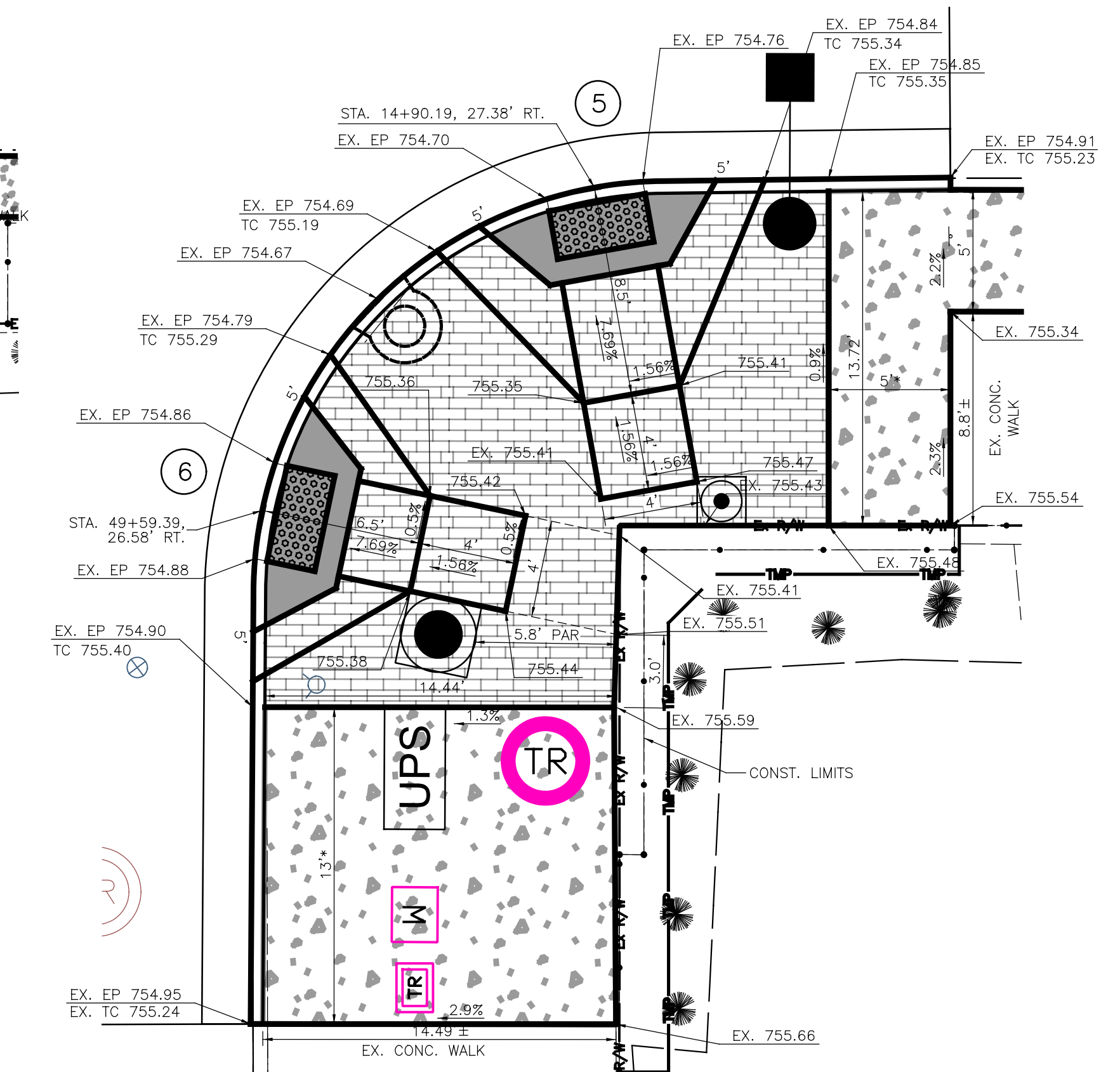
PROP. BRICK WALK

PROP. 4" CONCRETE WALK, BUFF WASH FINISH

PROP. 8" CONCRETE WALK, BUFF WASH FINISH



INTERSECTION DETAIL AT RICH STREET & 3RD STREET  
SCALE: 1" = 10'



SE CORNER CURB RAMP DETAIL  
SCALE: 1" = 5'

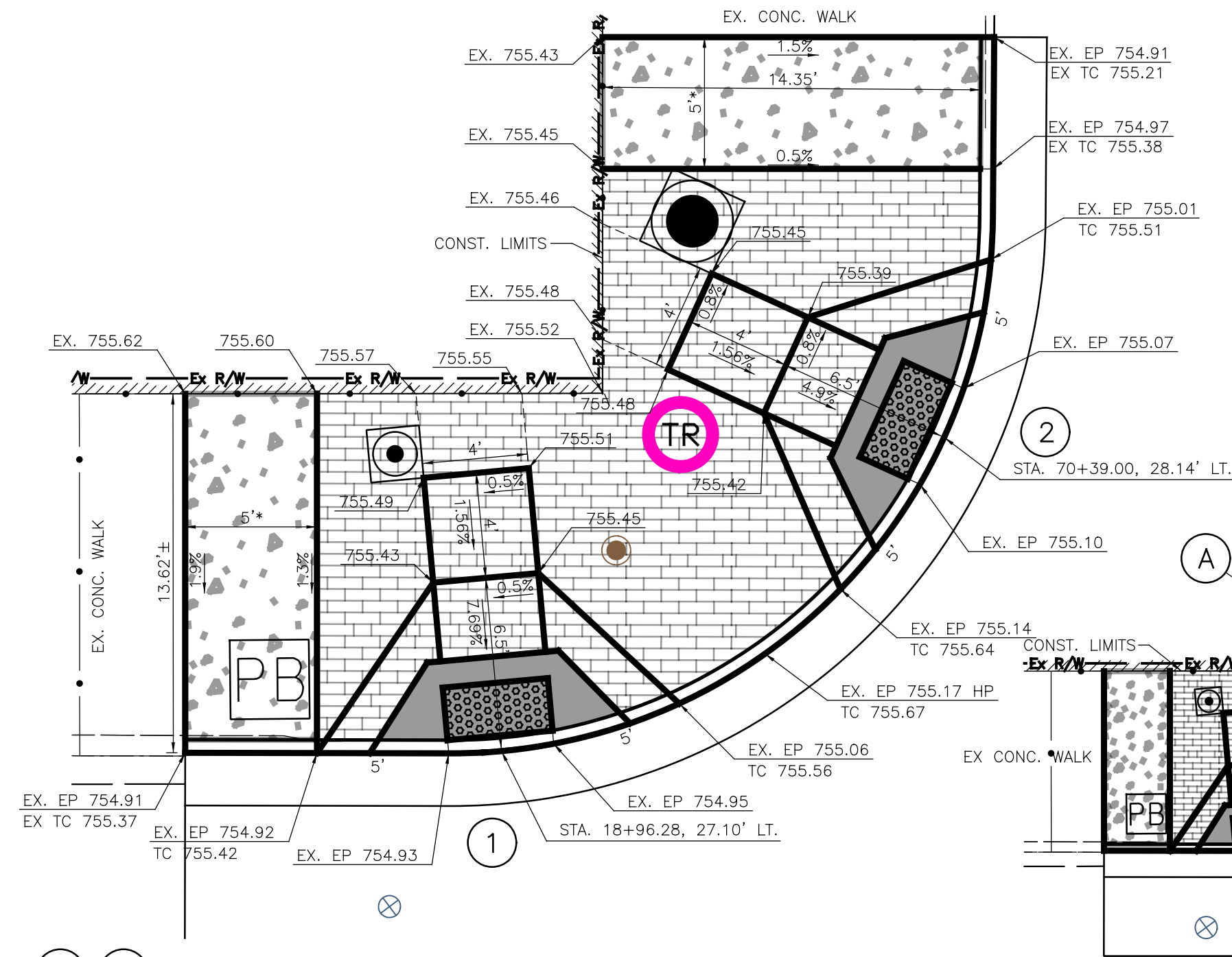
SW CORNER CURB RAMP DETAIL  
SCALE: 1" = 5'

CURVE DATA									
	DELTA	RADIUS	TANGENT	LENGTH	EXTERNAL	MIDDLE	FILLET AREA	CHORD DISTANCE	RADIUS POINT
A	88°59'04"	20.00'	19.65'	31.06'	8.04'	5.73'	82	28.03'	14+96.31, 47.02' LT.
B	88°55'28"	17.00'	16.68'	26.38'	6.82'	4.87'	59	23.82'	14+93.87, 44.11' RT.
C	89°55'05"	21.00'	20.97'	32.96'	8.68'	6.14'	94	29.68'	14+02.48, 36.30' RT.

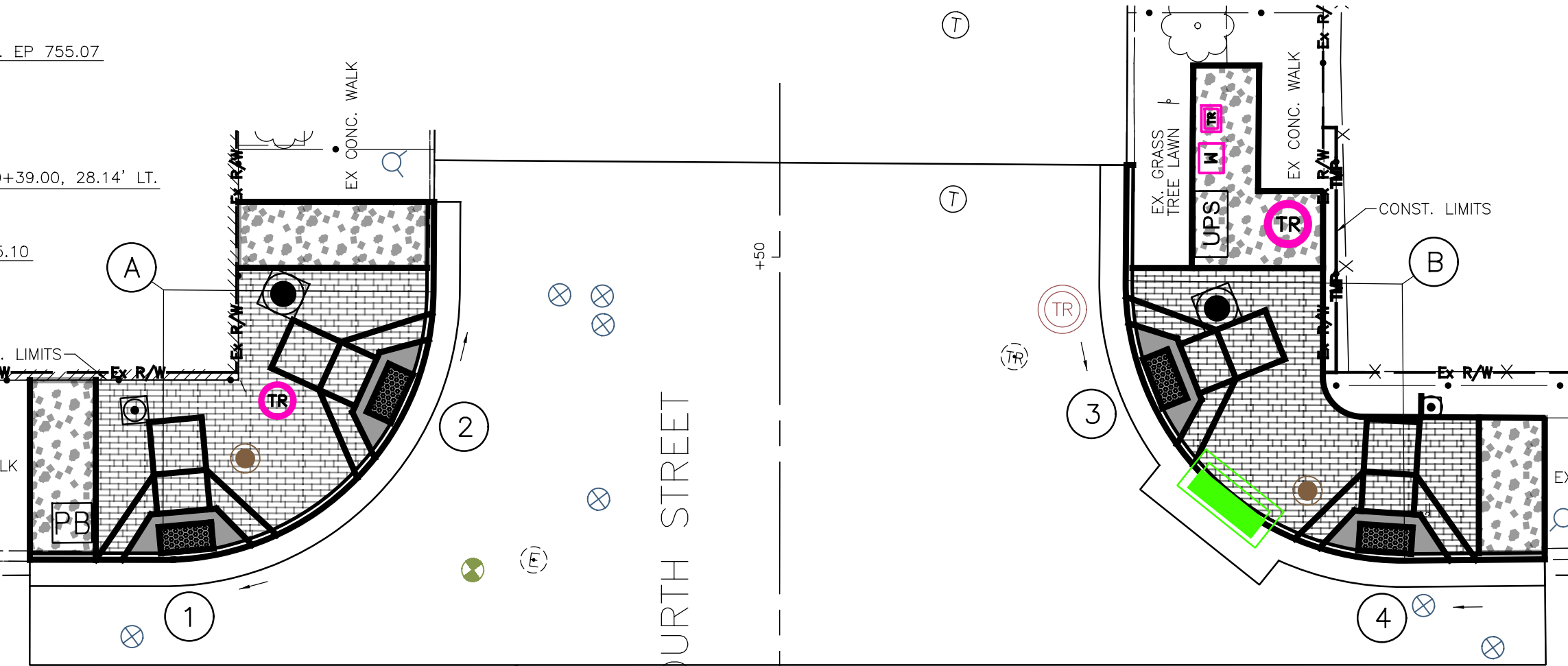
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1 Xref: Dr E Border



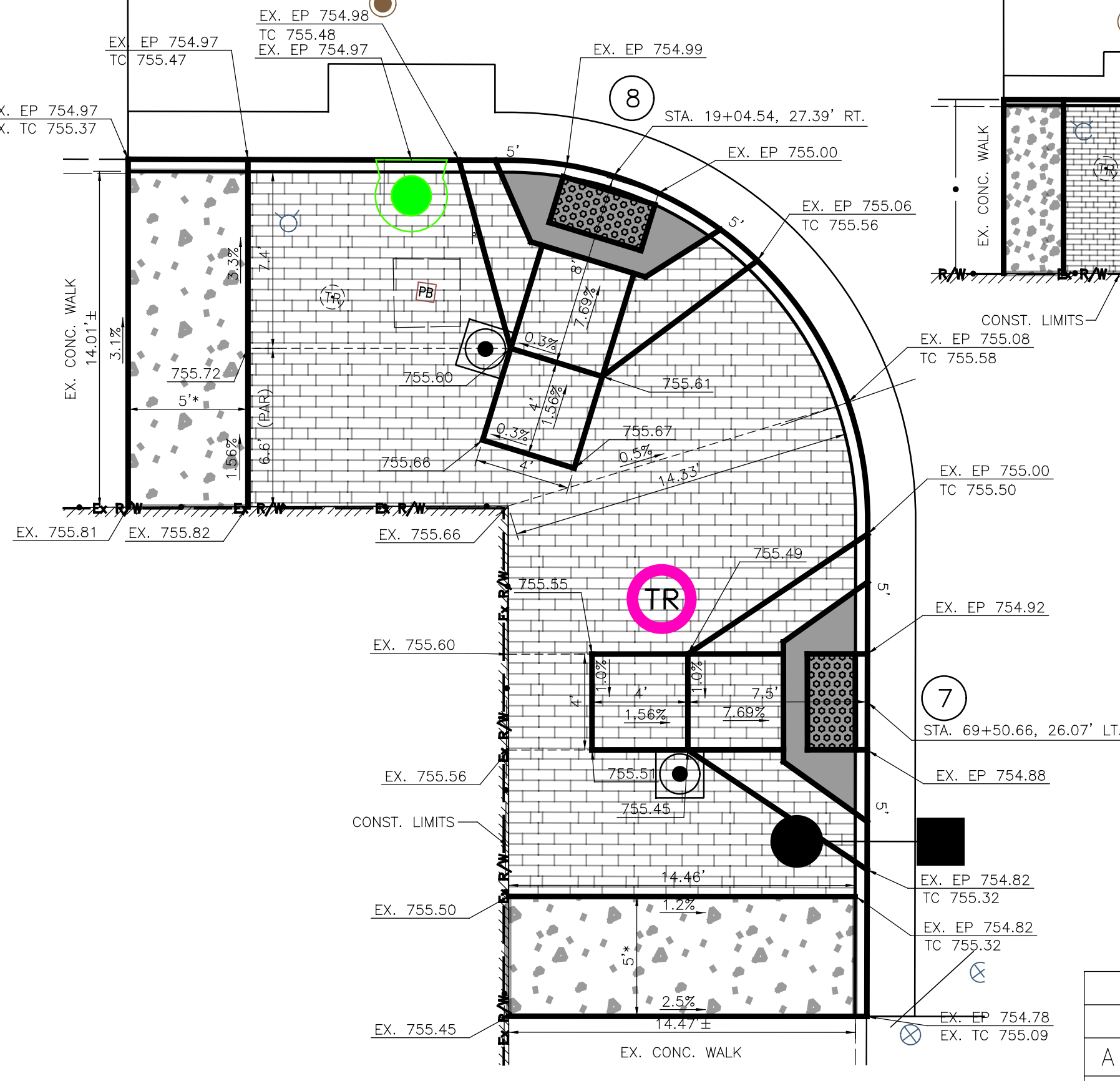
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 1 Xref: Dr E Border



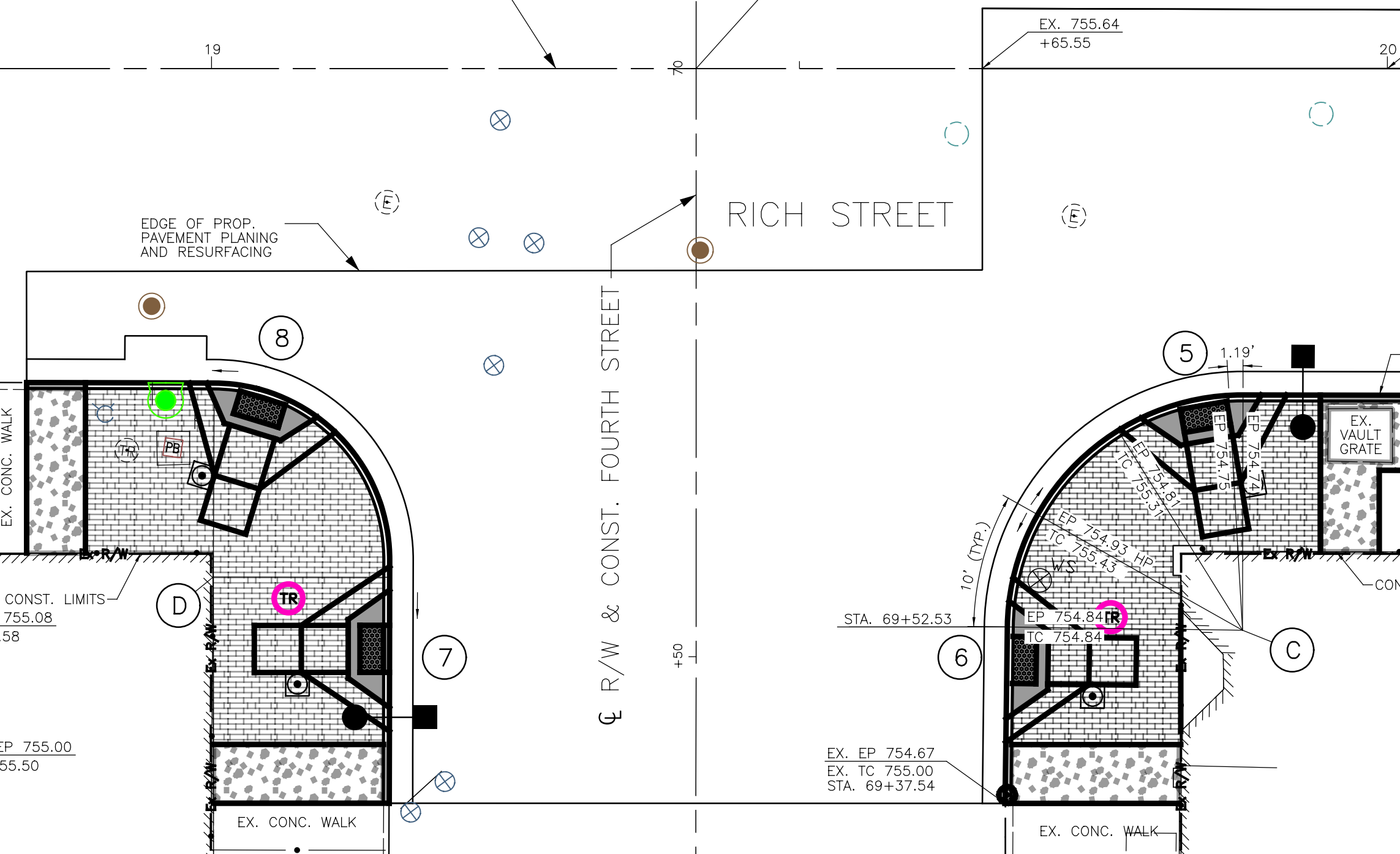
① ② NW CORNER CURB RAMP DETAIL  
SCALE: 1" = 5'



③ ④ NE CORNER CURB RAMP DETAIL  
SCALE: 1" = 5'



⑦ ⑧ SW CORNER CURB RAMP DETAIL  
SCALE: 1" = 5'



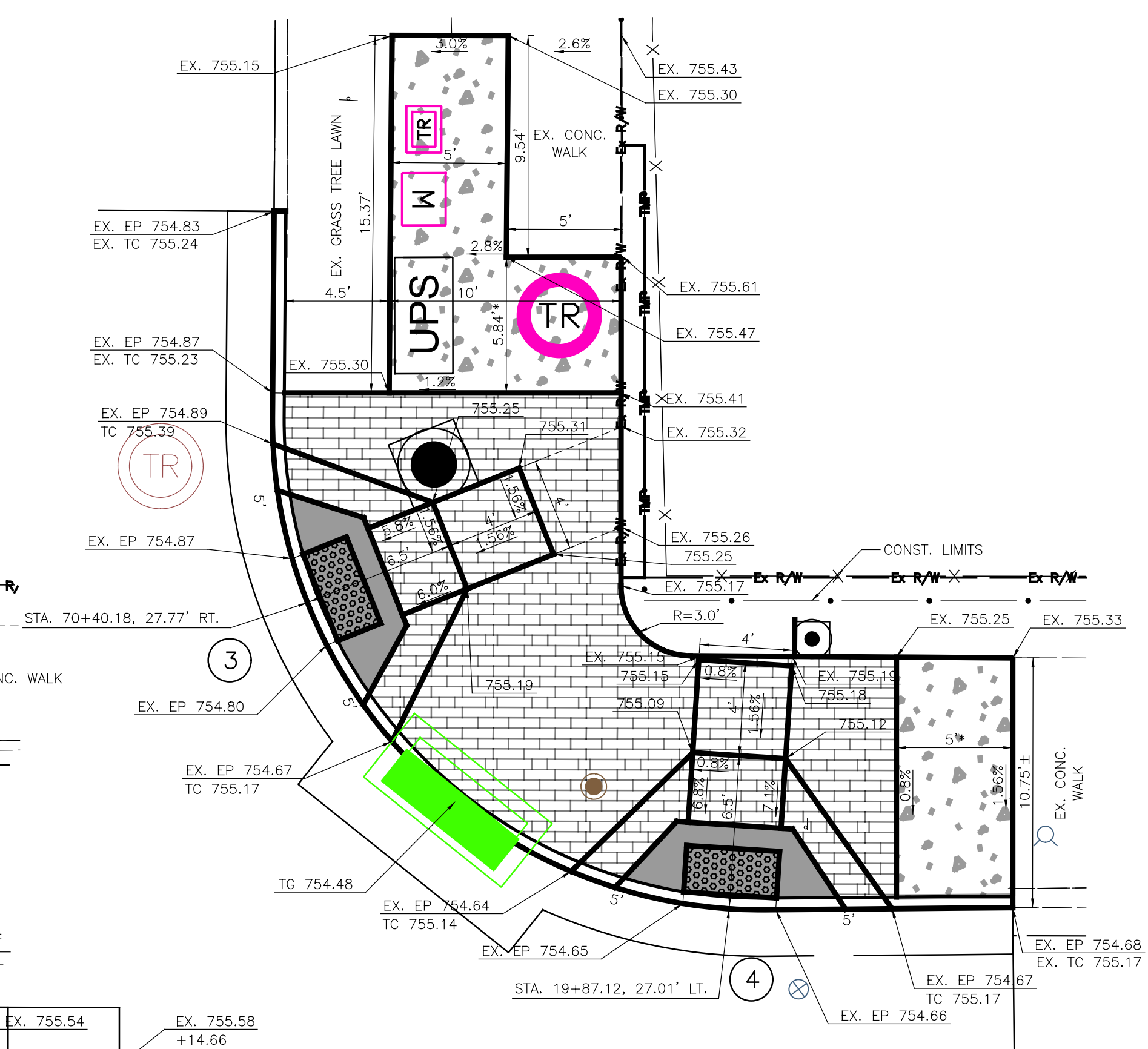
⑤ ⑥ SE CORNER CURB RAMP DETAIL  
SCALE: 1" = 5'

INTERSECTION DETAIL AT RICH STREET & 4TH STREET

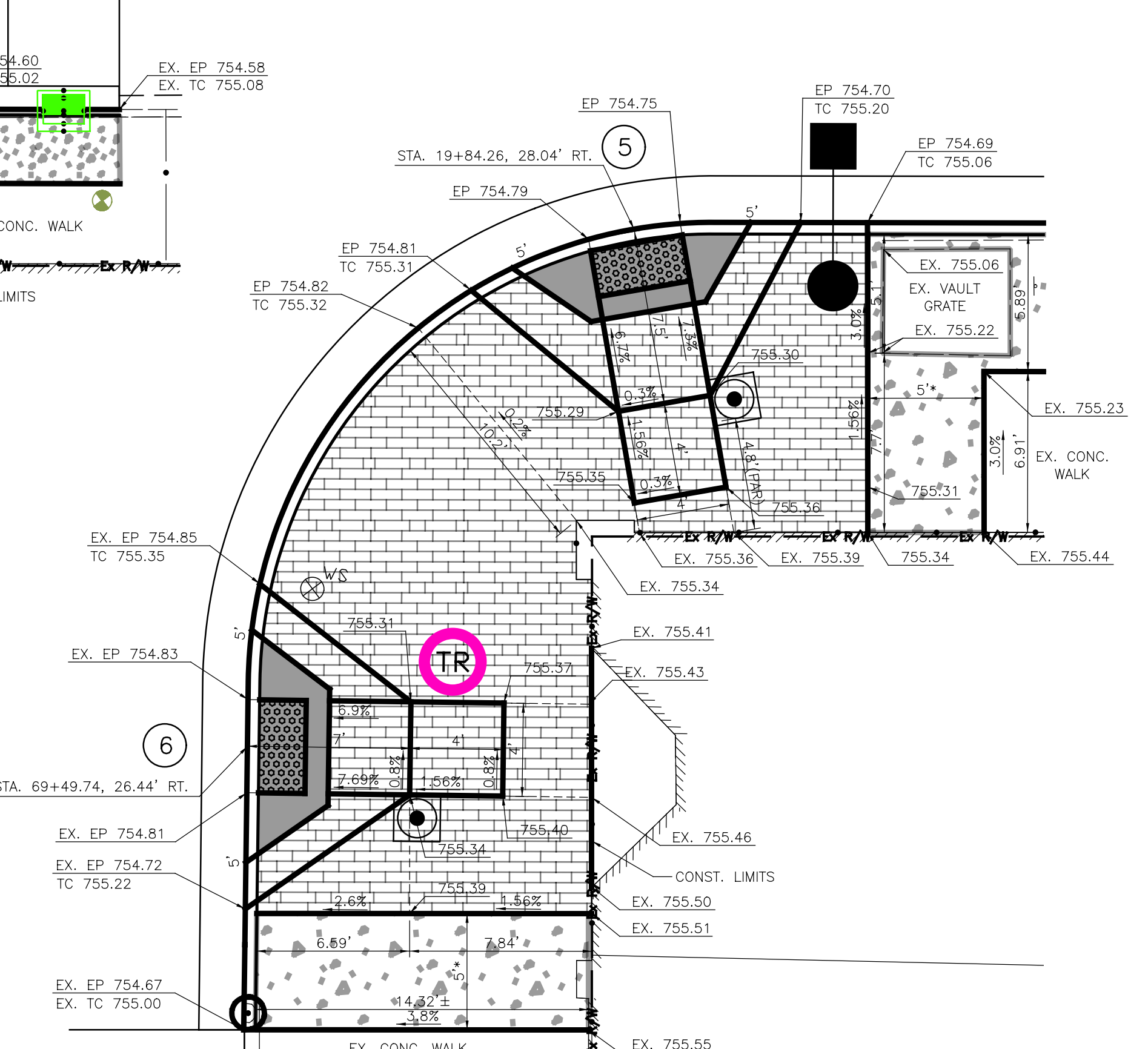
SCALE: 1" = 10'

- LEGEND
- XXX.XX PROPOSED ELEVATIONS
  - EP = EDGE OF PAVEMENT
  - EX = MATCH EXISTING
  - TC = TOP OF CURB
  - TG = TOP OF GRATE
  - \* TRANSITION CROSS SLOPE FROM 1.56% (MAXIMUM) TO MATCH EXISTING.
  - ① CURB RAMP NUMBER

	DELTA	RADIUS	TANGENT	LENGTH	EXTERNAL	MIDDLE	FILLET AREA	CHORD DISTANCE	RADIUS POINT
A	89°42'10"	20.50'	20.39'	32.10'	8.42'	5.97'	89	28.92'	18+94.43, 47.52' LT.
B	90°53'28"	21.00'	21.33'	33.31'	8.93'	6.27	98	29.93'	19+88.55, 47.97' LT.
C	89°21'20"	20.00'	19.78'	31.19'	8.13'	5.78'	84	28.13'	19+87.68, 47.74' RT.
D	89°57'58"	15.00'	14.99'	23.55'	6.21'	4.39'	48	21.21'	19+00.15, 41.73' RT.



⑦ ⑧ SW CORNER CURB RAMP DETAIL  
SCALE: 1" = 5'



⑤ ⑥ SE CORNER CURB RAMP DETAIL  
SCALE: 1" = 5'

AS NOTED

SCALE: CALCULATED MSS CHECKED LMO

INTERSECTION AND CURB RAMP DETAILS  
RICH STREET AND 4TH STREET

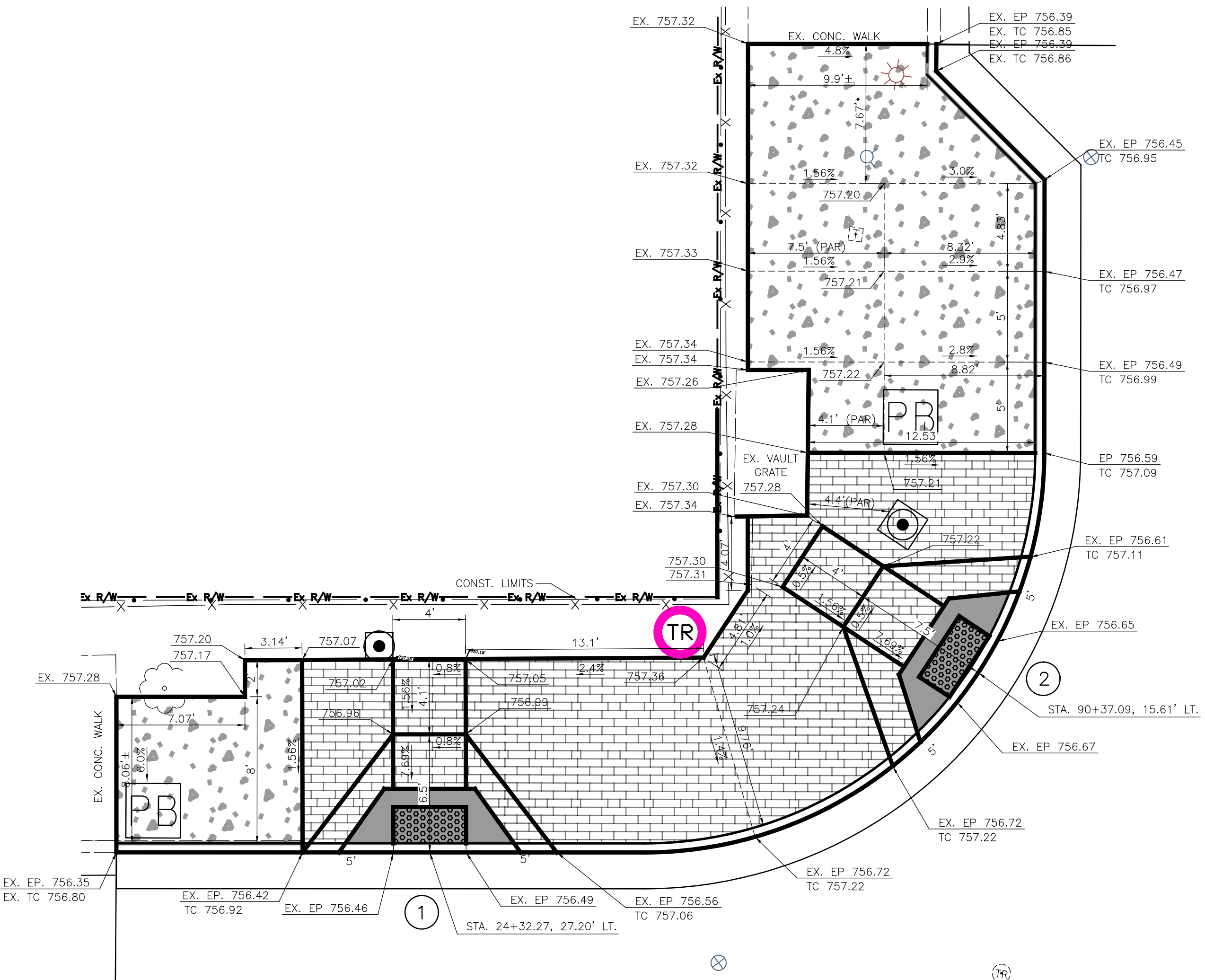
IMPROVEMENTS OF  
E RICH STREET FROM S 3RD ST TO S GRANT AVE  
FRA E RICH ST SIGNALS

3921-E

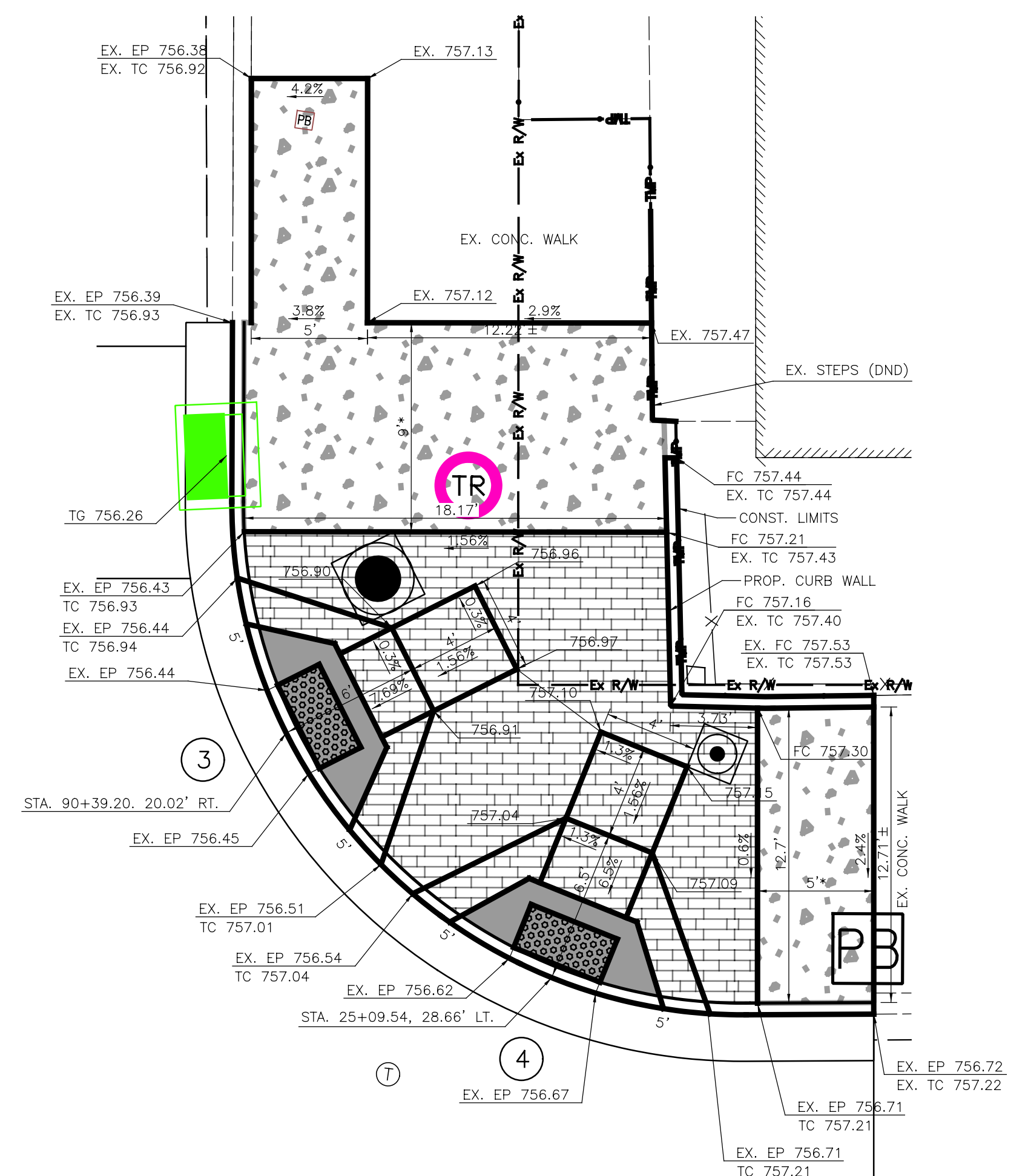
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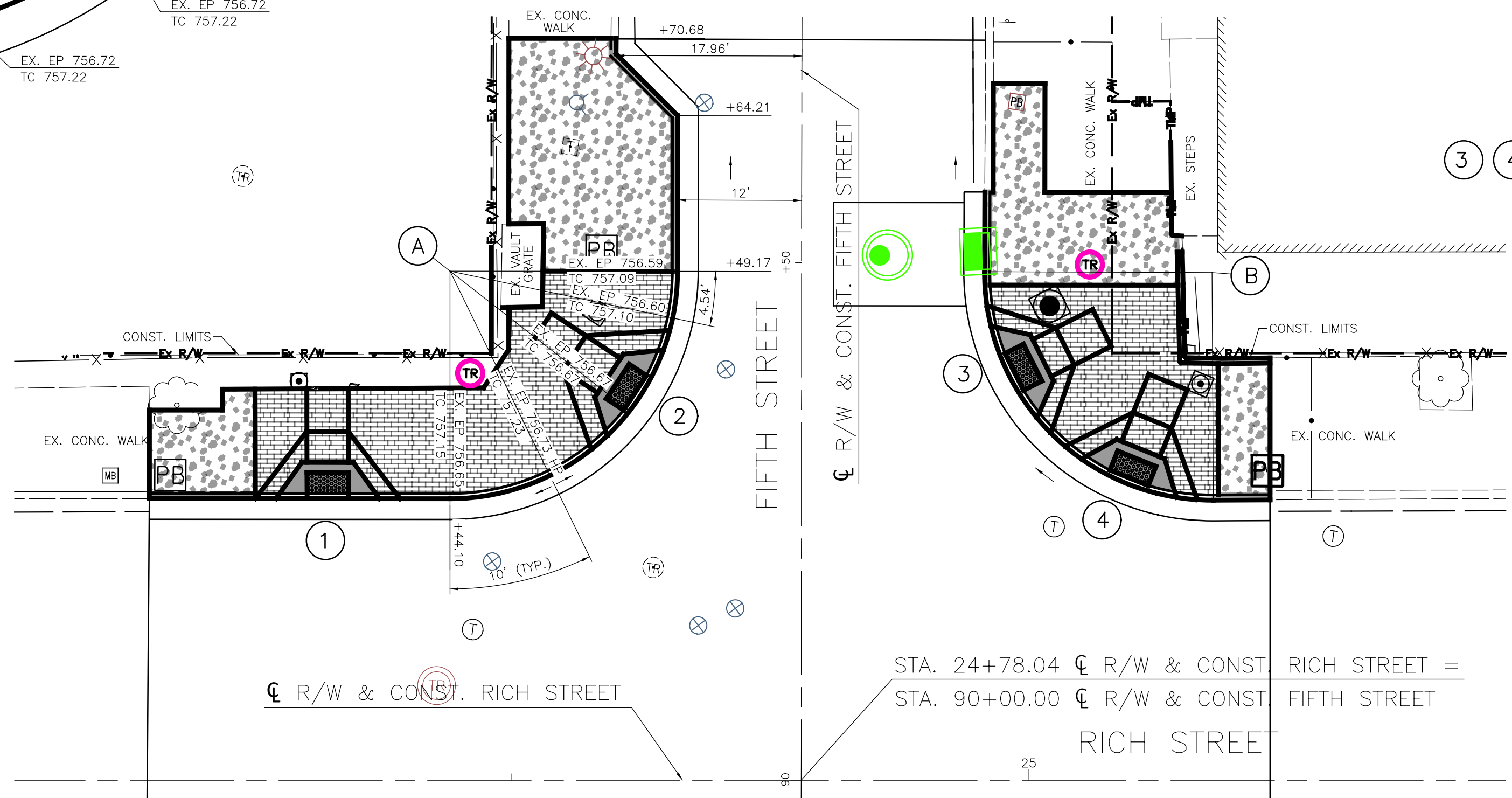
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 1 Xref: Dr E Border



① ② NW CORNER CURB RAMP DETAIL  
 SCALE: 1" = 5'



③ ④ NE CORNER CURB RAMP DETAIL  
 SCALE: 1" = 5'



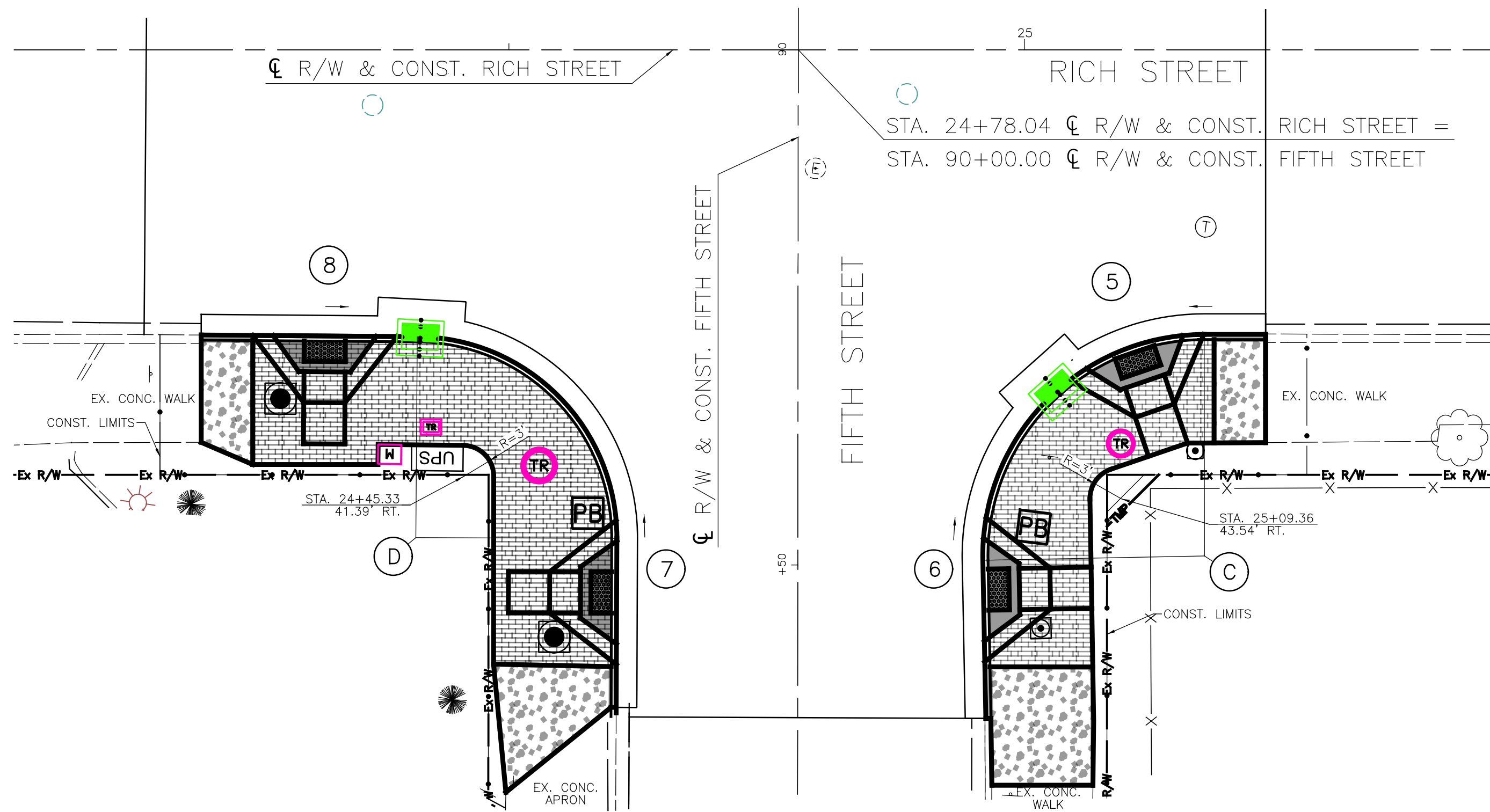
INTERSECTION DETAIL AT RICH STREET & 5TH STREET  
 SCALE: 1" = 10'

CURVE DATA									
	DELTA	RADIUS	TANGENT	LENGTH	EXTERNAL	MIDDLE	FILLET AREA	CHORD DISTANCE	RADIUS POINT
A	89°57'29"	22.00'	21.98'	34.54'	9.10'	6.44'	104	31.10'	24+44.11, 49.19' LT.
B	90°32'41"	22.00'	22.21'	34.77'	9.26'	6.52'	106	31.26'	25+17.78, 49.05' LT.

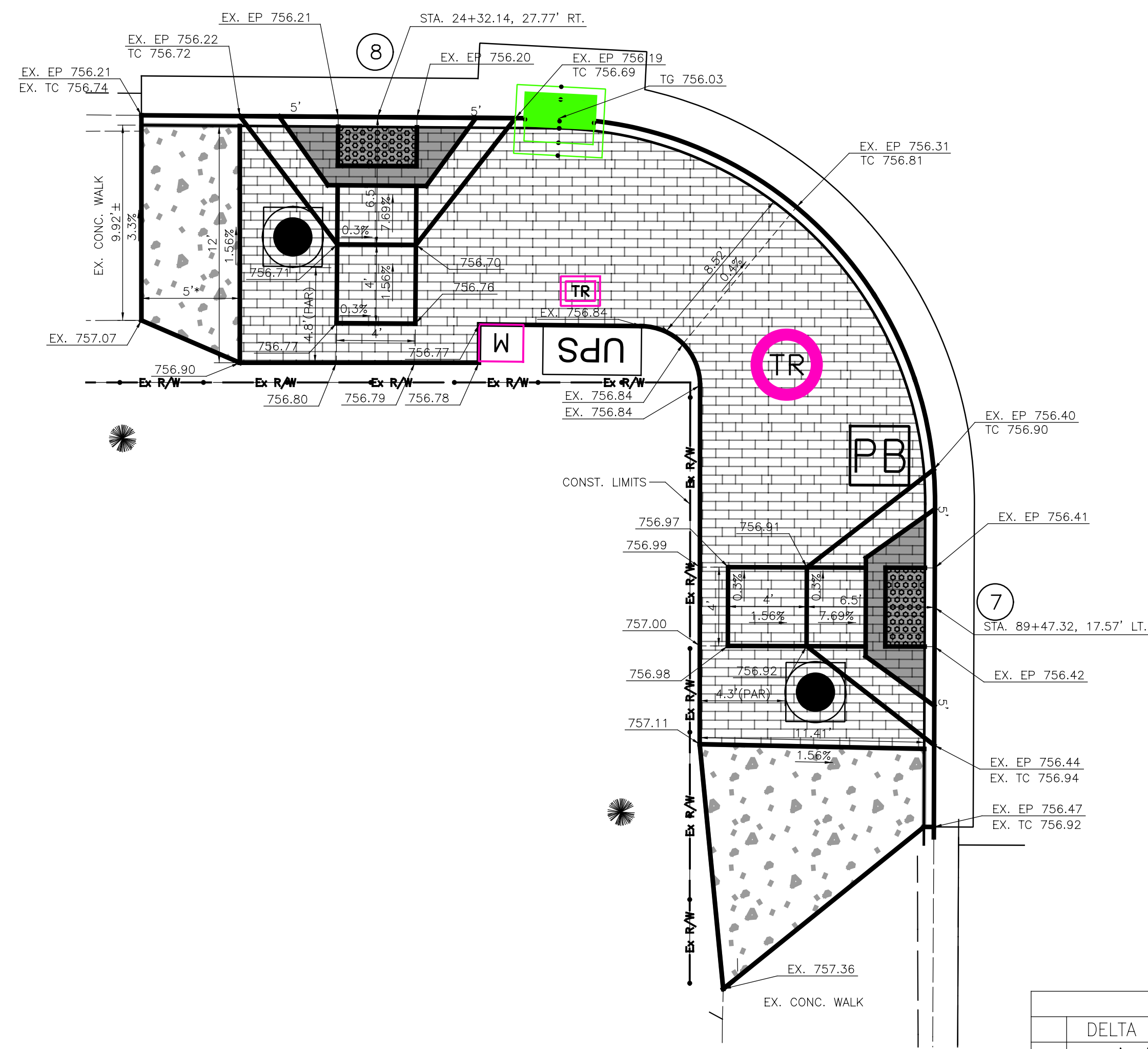
- LEGEND**
- XXX.XX PROPOSED ELEVATIONS
  - EP = EDGE OF PAVEMENT
  - EX = MATCH EXISTING
  - TC = TOP OF CURB
  - TG = TOP OF GRATE
  - \* TRANSITION CROSS SLOPE FROM 1.56% (MAXIMUM) TO MATCH EXISTING.
  - ① CURB RAMP NUMBER
  - [Pattern] DETECTABLE WARNING, TYPE E, CAST IRON
  - [Pattern] PROP. BRICK WALK
  - [Pattern] PROP. 4" CONCRETE WALK, BUFF WASH FINISH
  - [Pattern] PROP. 8" CONCRETE WALK, BUFF WASH FINISH



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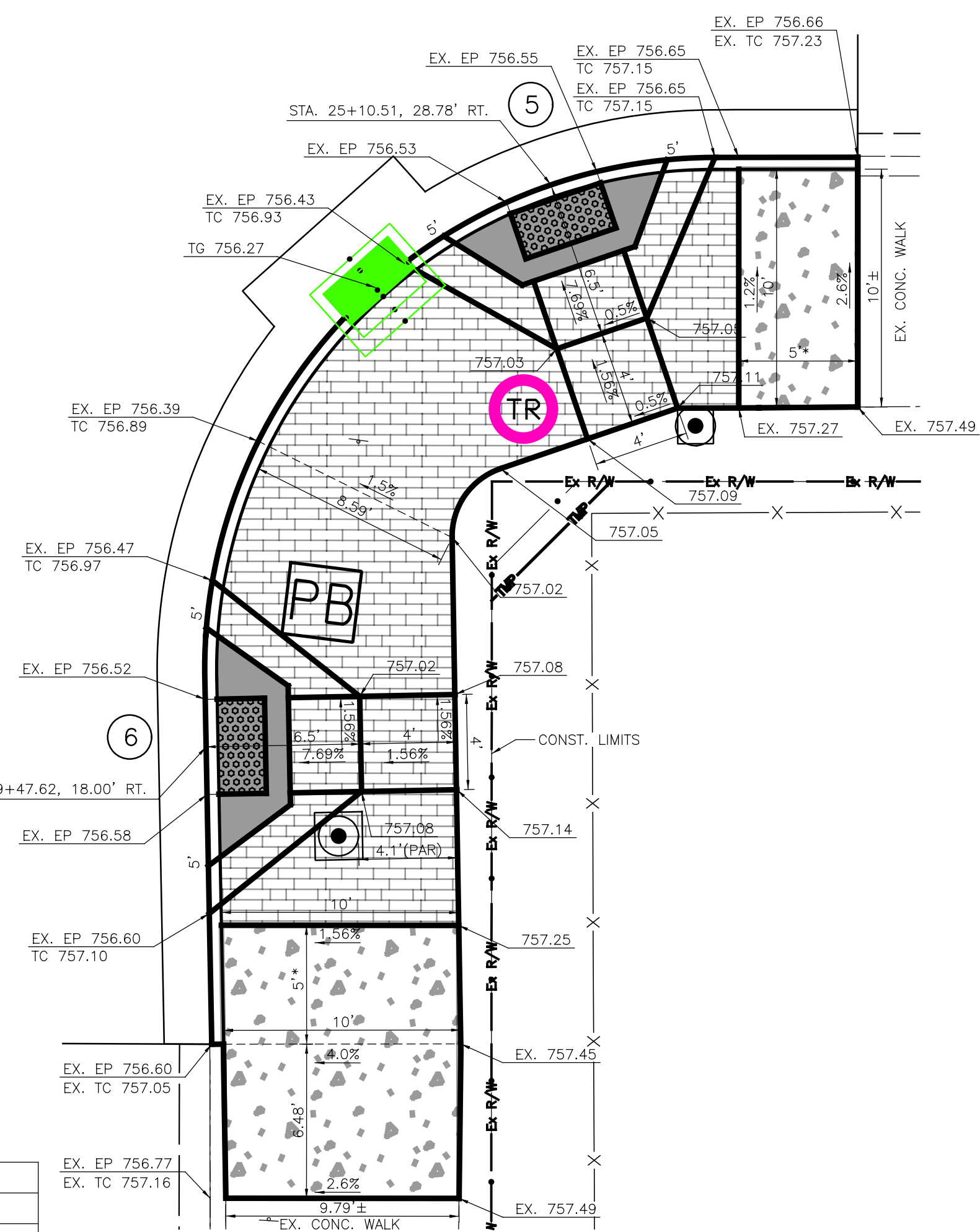
INTERSECTION DETAIL AT RICH STREET & 5TH STREET  
SCALE: 1" = 10'



7 8 SW CORNER CURB RAMP DETAIL  
SCALE: 1" = 5'

- LEGEND**
- XXX.XX PROPOSED ELEVATIONS
  - EP = EDGE OF PAVEMENT
  - EX = MATCH EXISTING
  - TC = TOP OF CURB
  - TG = TOP OF GRATE
  - \* TRANSITION CROSS SLOPE FROM 1.56% (MAXIMUM) TO MATCH EXISTING.
  - ① CURB RAMP NUMBER
  - DETECTABLE WARNING, TYPE E, CAST IRON
  - PROP. BRICK WALK
  - PROP. 4" CONCRETE WALK, BUFF WASH FINISH
  - PROP. 8" CONCRETE WALK, BUFF WASH FINISH

CURVE DATA									
	DELTA	RADIUS	TANGENT	LENGTH	EXTERNAL	MIDDLE	FILLET AREA	CHORD DISTANCE	RADIUS POINT
C	91°01'55"	21.50'	21.89'	34.16'	9.18'	6.43'	103	30.68'	25+17.46, 49.13', RT.
D	89°46'42"	19.50'	19.42'	30.56'	8.02'	5.68'	81	27.52'	24+40.97, 47.34' RT.



5 6 SE CORNER CURB RAMP DETAIL  
SCALE: 1" = 5'

AS NOTED

SCALE: AS NOTED

CHECKED: LMO

DESIGNED: MSS

CALCULATED: LMO

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**INTERSECTION AND CURB RAMP DETAILS**  
**RICH STREET AND 5TH STREET - SOUTH LEG**

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**IMPROVEMENTS OF**  
**E RICH STREET FROM S 3RD ST TO S GRANT AVE**  
**FRA E RICH ST SIGNALS**

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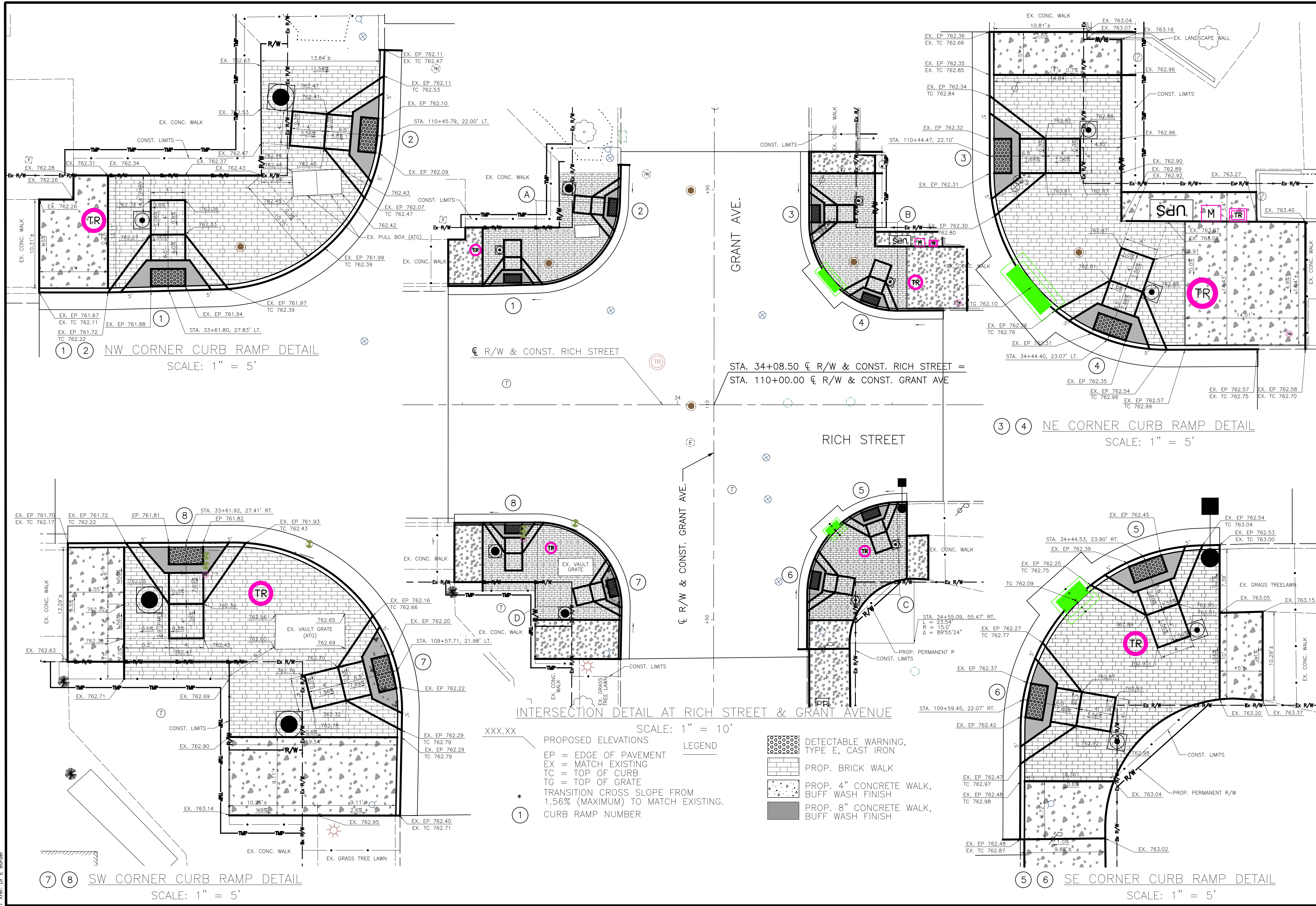
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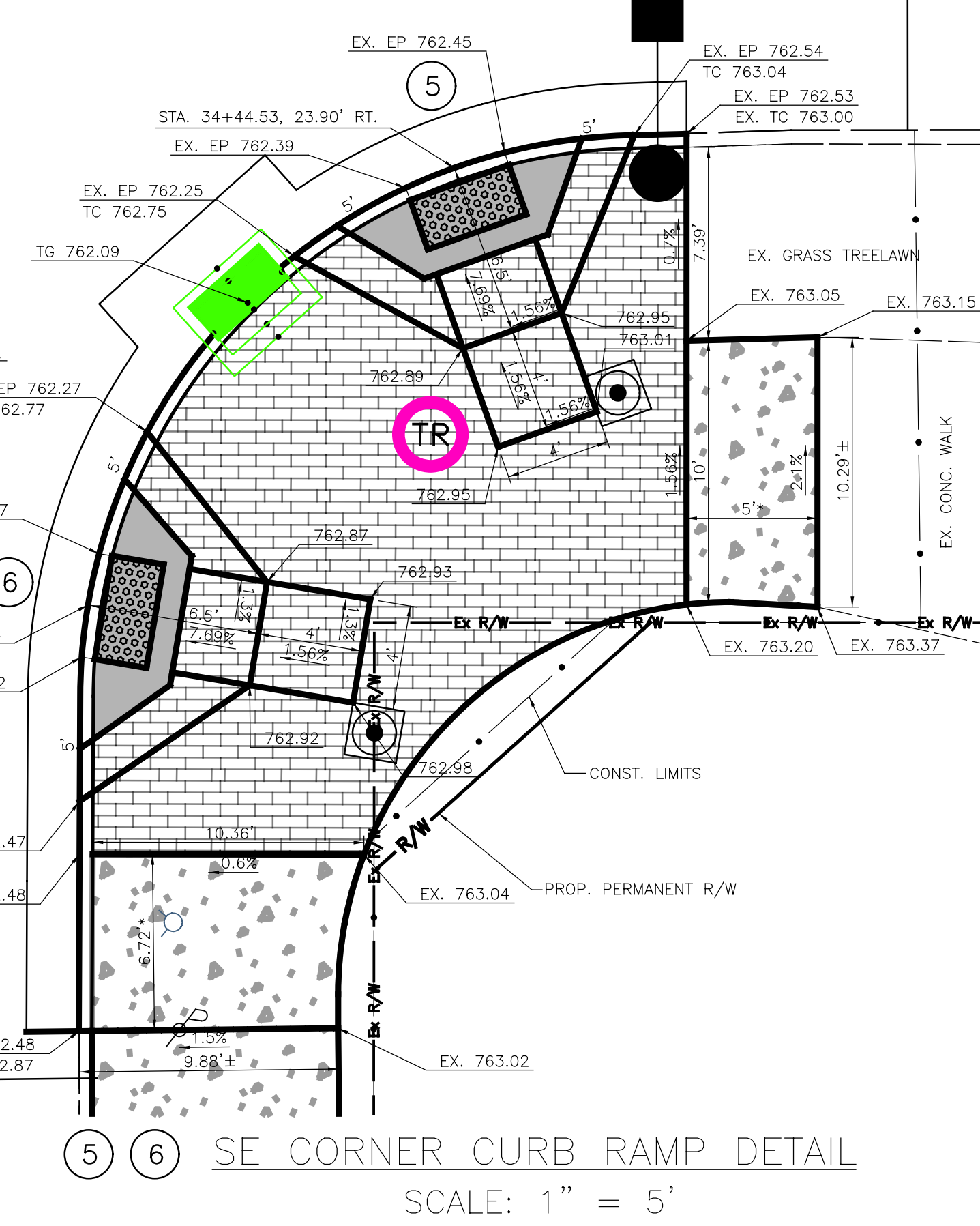
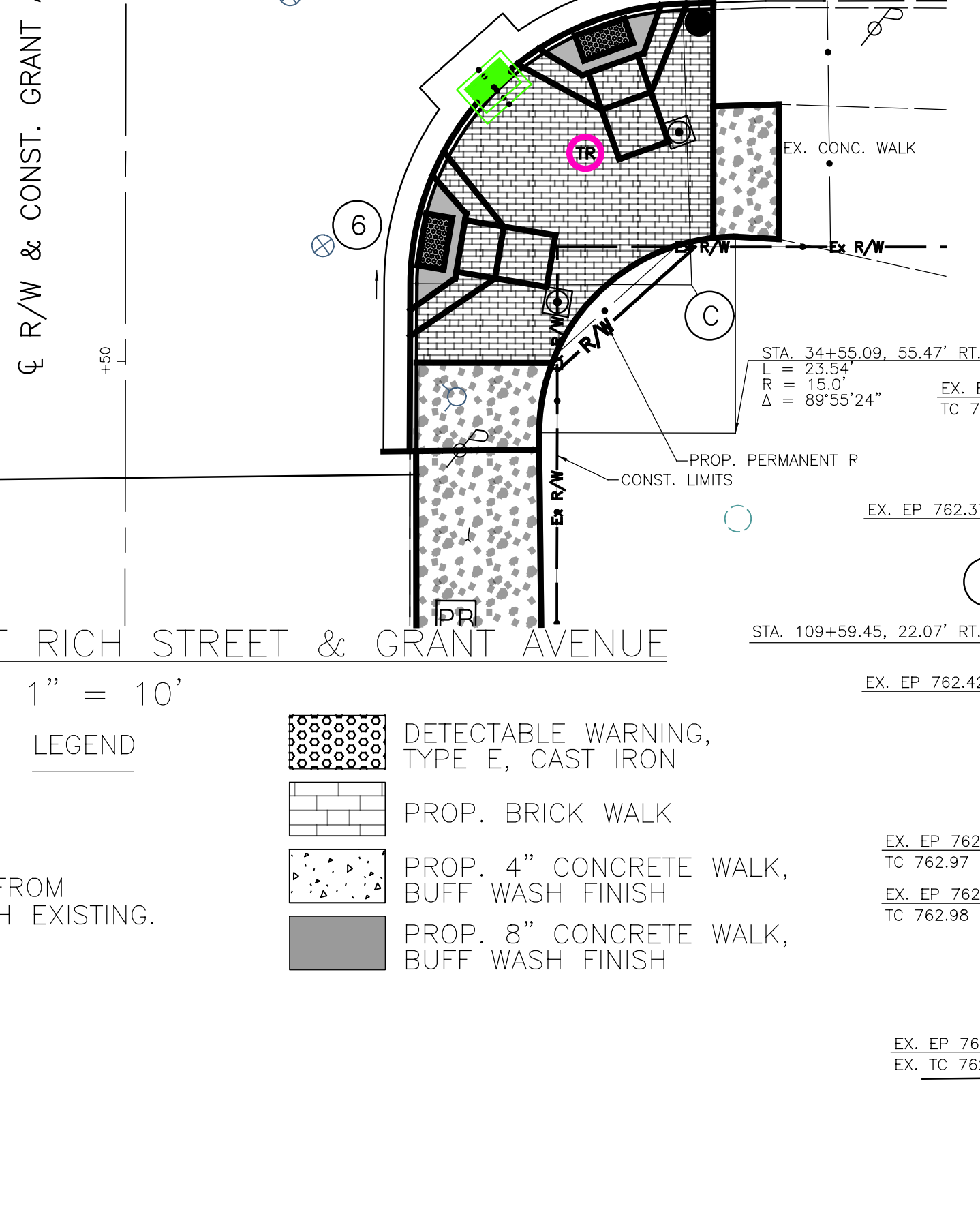
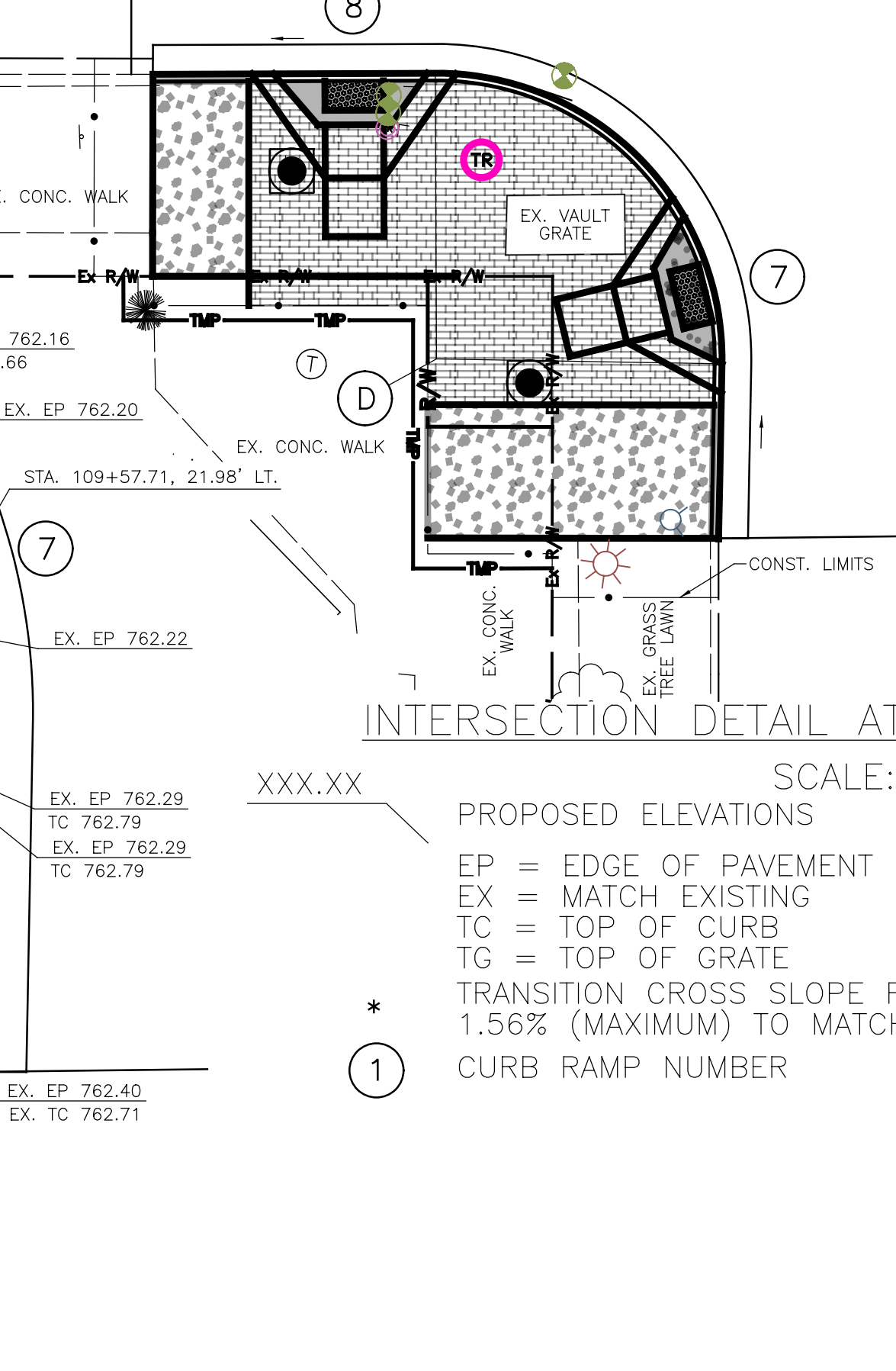
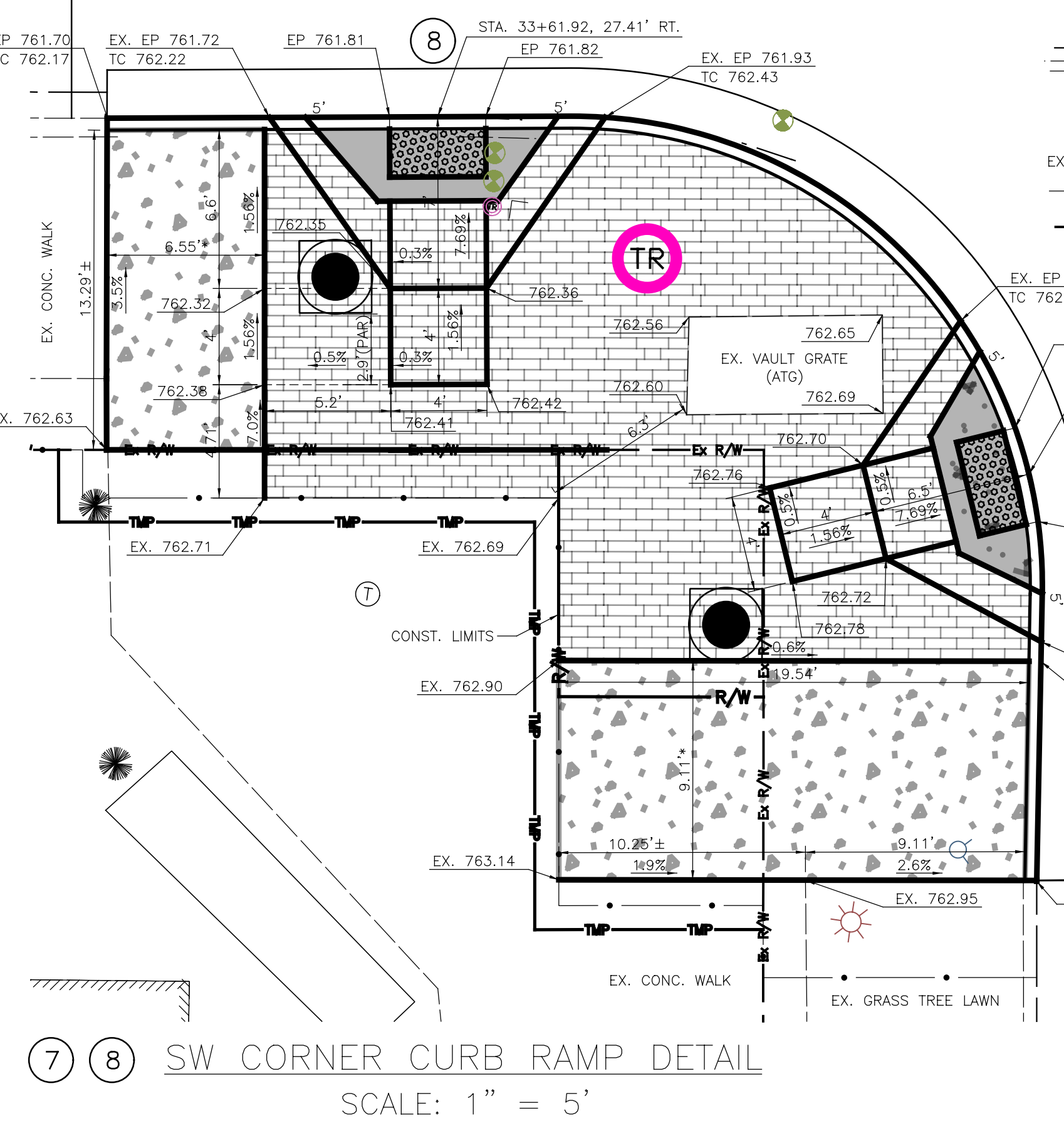


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 1 Xref: Dr E Border



① ② NW CORNER CURB RAMP DETAIL  
 SCALE: 1" = 5'

③ ④ NE CORNER CURB RAMP DETAIL  
 SCALE: 1" = 5'

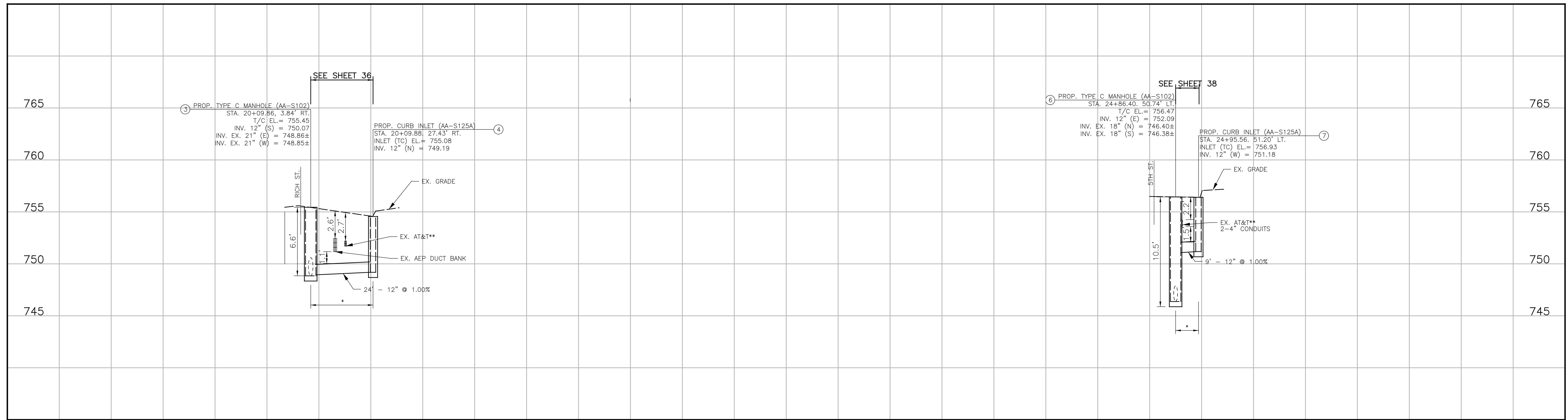


INTERSECTION DETAIL AT RICH STREET & GRANT AVENUE  
 SCALE: 1" = 10'

- XXX.XX PROPOSED ELEVATIONS  
 EP = EDGE OF PAVEMENT  
 EX = MATCH EXISTING  
 TC = TOP OF CURB  
 TG = TOP OF GRATE  
 \* TRANSITION CROSS SLOPE FROM 1.56% (MAXIMUM) TO MATCH EXISTING.  
 ① CURB RAMP NUMBER
- LEGEND**  
 DETECTABLE WARNING, TYPE E, CAST IRON  
 PROP. BRICK WALK  
 PROP. 4" CONCRETE WALK, BUFF WASH FINISH  
 PROP. 8" CONCRETE WALK, BUFF WASH FINISH

SCALE: AS NOTED  
 CALCULATED MSS  
 CHECKED LMO  
 INTERSECTION AND CURB RAMP DETAILS  
 RICH STREET & GRANT AVENUE  
 IMPROVEMENTS OF  
 E RICH STREET FROM S 3RD ST TO S GRANT AVE  
 FRA E RICH ST SIGNALS  
 3921-E  
 48  
 95





TC = TOP OF CURB  
 T/C = TOP OF CASTING  
 \* TYPE 1 BEDDING, WITH ITEM 912 COMPACTED GRANULAR MATERIAL  
 \*\* ASSUMED ELEVATIONS.

SHEET	STRUCTURE NO.	STORM STRUCTURE TABLE						
		PROPOSED		AS-BUILT				
		NORTHING	EASTING	NORTHING	EASTING			
				ELEVATION				
				INVERT	T/C			
34	1	713524.761	1829968.033	752.13	755.28			
36	2	713593.837	1829755.270	752.28	755.15			
36	3	713563.914	1829795.178	748.85	755.45			
36	4	713540.576	1829798.541	750.31	755.08			
36	5	713525.590	1829684.635	752.52	755.49			
38	6	713685.448	1830259.181	746.38	756.47			
38	7	713687.045	1830267.838	752.18	756.93			
38	8	713604.732	1830287.723	753.82	756.94			
38	9	713601.146	1830225.776	754.05	756.70			
40	10	713798.295	1831202.298	760.02	762.77			
40	11	713741.071	1831211.140	757.58	762.78			

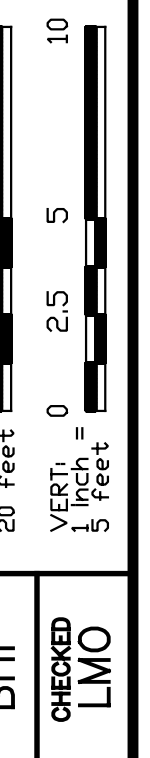
# BASED ON RECORD PLANS. CONTRACTOR TO FIELD VERIFY. EX. STRUCTURE FULL OF DEBRIS.

SHEET	SEWER COORDINATE TABLE			
	STRUCTURE NO. FROM	STRUCTURE NO. TO	BEARING	DISTANCE
36	4	3	N08°12'00"W	24'
38	7	6	S78°57'35"W	9'

STORM SEWER PROFILES  
 AND COORDINATE TABLES

IMPROVEMENTS OF  
 E RICH STREET FROM S 3RD ST TO S GRANT AVE  
 FRA E RICH ST SIGNALS


3921-E





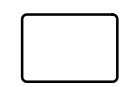
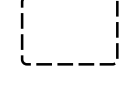

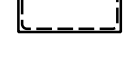


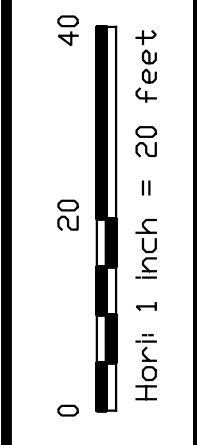
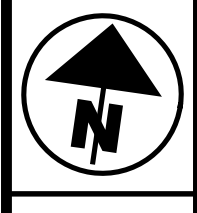
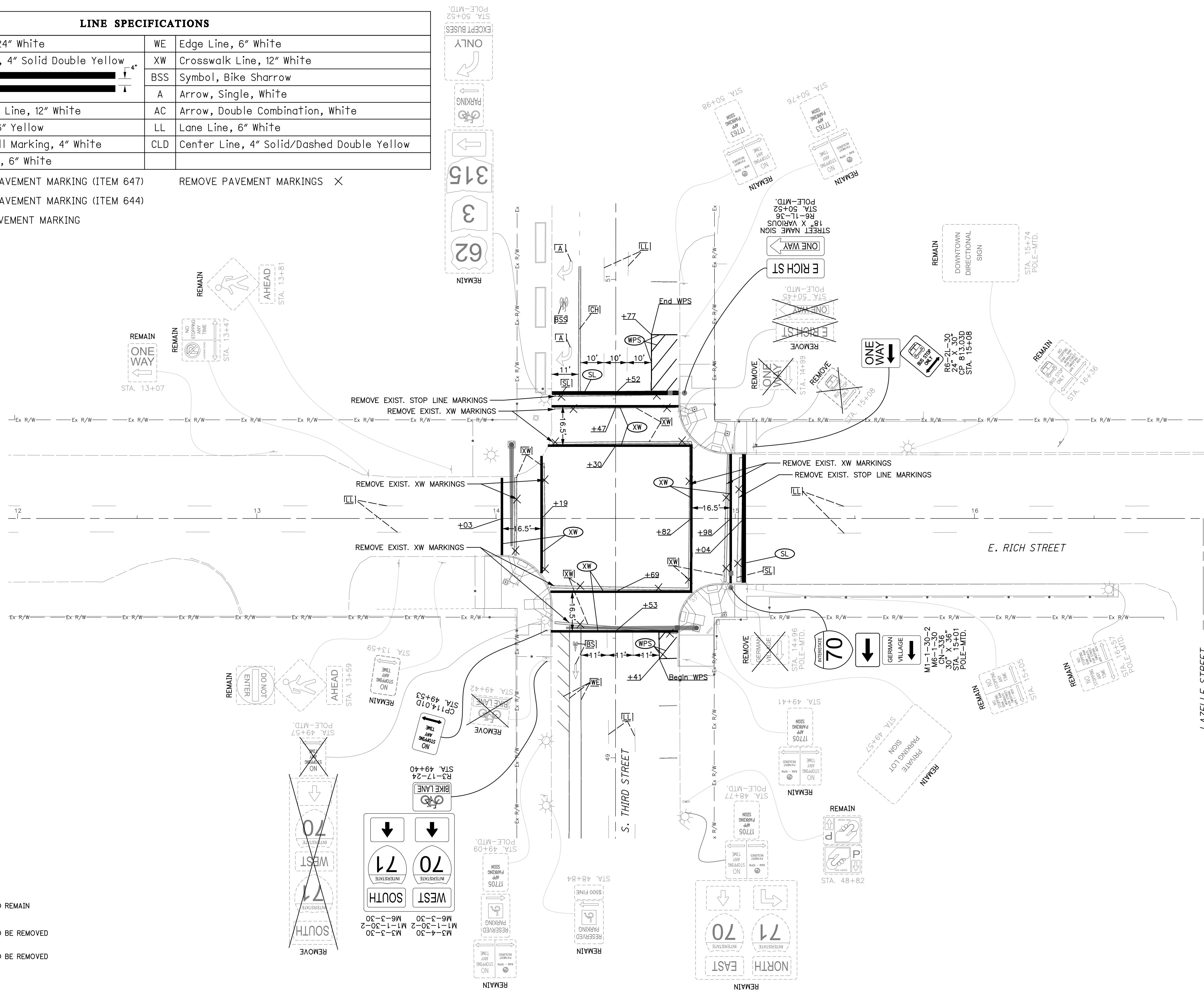
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LINE SPECIFICATIONS			
SL	Stop Line, 24" White	WE	Edge Line, 6" White
DY	Center Line, 4" Solid Double Yellow 	XW	Crosswalk Line, 12" White
		BSS	Symbol, Bike Sharrow
		A	Arrow, Single, White
CH	Channelizing Line, 12" White	AC	Arrow, Double Combination, White
YE	Edge Line, 6" Yellow	LL	Lane Line, 6" White
WPS	Parking Stall Marking, 4" White	CLD	Center Line, 4" Solid/Dashed Double Yellow
WD	Dotted Line, 6" White		

- (XX) PROPOSED PAVEMENT MARKING (ITEM 647) REMOVE PAVEMENT MARKINGS X
- (XW) PROPOSED PAVEMENT MARKING (ITEM 644)
- (XX) EXISTING PAVEMENT MARKING

**SIGNING LEGEND**

-  PROPOSED SIGN
-  EXISTING SIGN TO REMAIN
-  EXISTING SIGN TO BE REMOVED
-  EXISTING SIGN TO BE REMOVED AND REERECTED

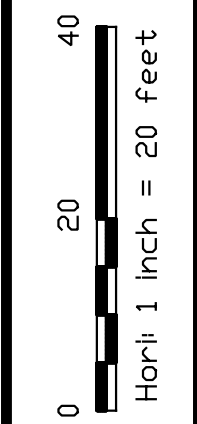
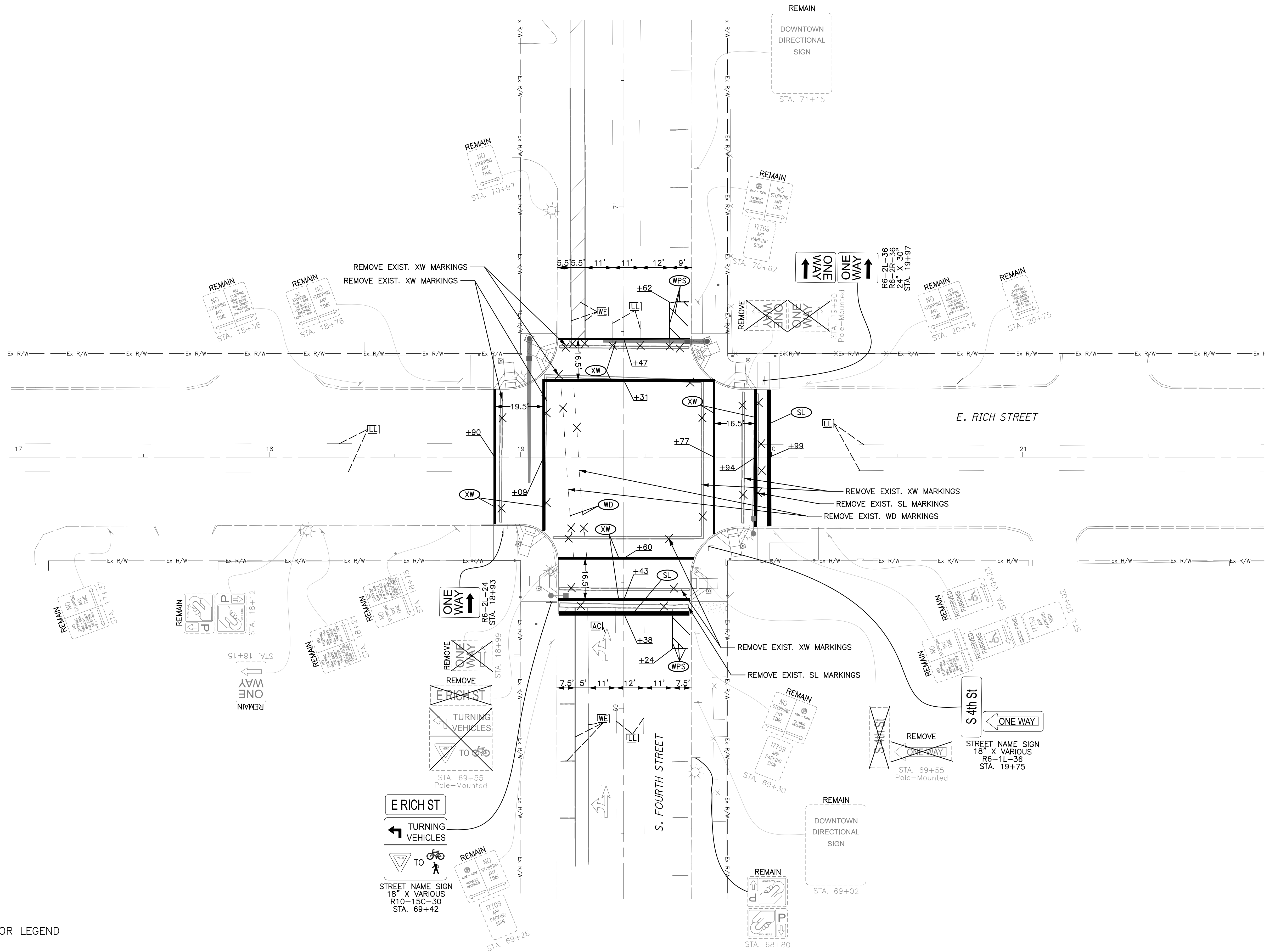


Calculated: ANC  
Checked: DKA

**TRAFFIC CONTROL PLAN**  
STA 11+00 TO STA 16+00

**IMPROVEMENTS OF**  
E RICH STREET FROM S 3RD ST TO S GRANT AVE  
FRA E RICH ST SIGNALS

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TRAFFIC CONTROL PLAN  
STA 17+00 TO STA 22+00

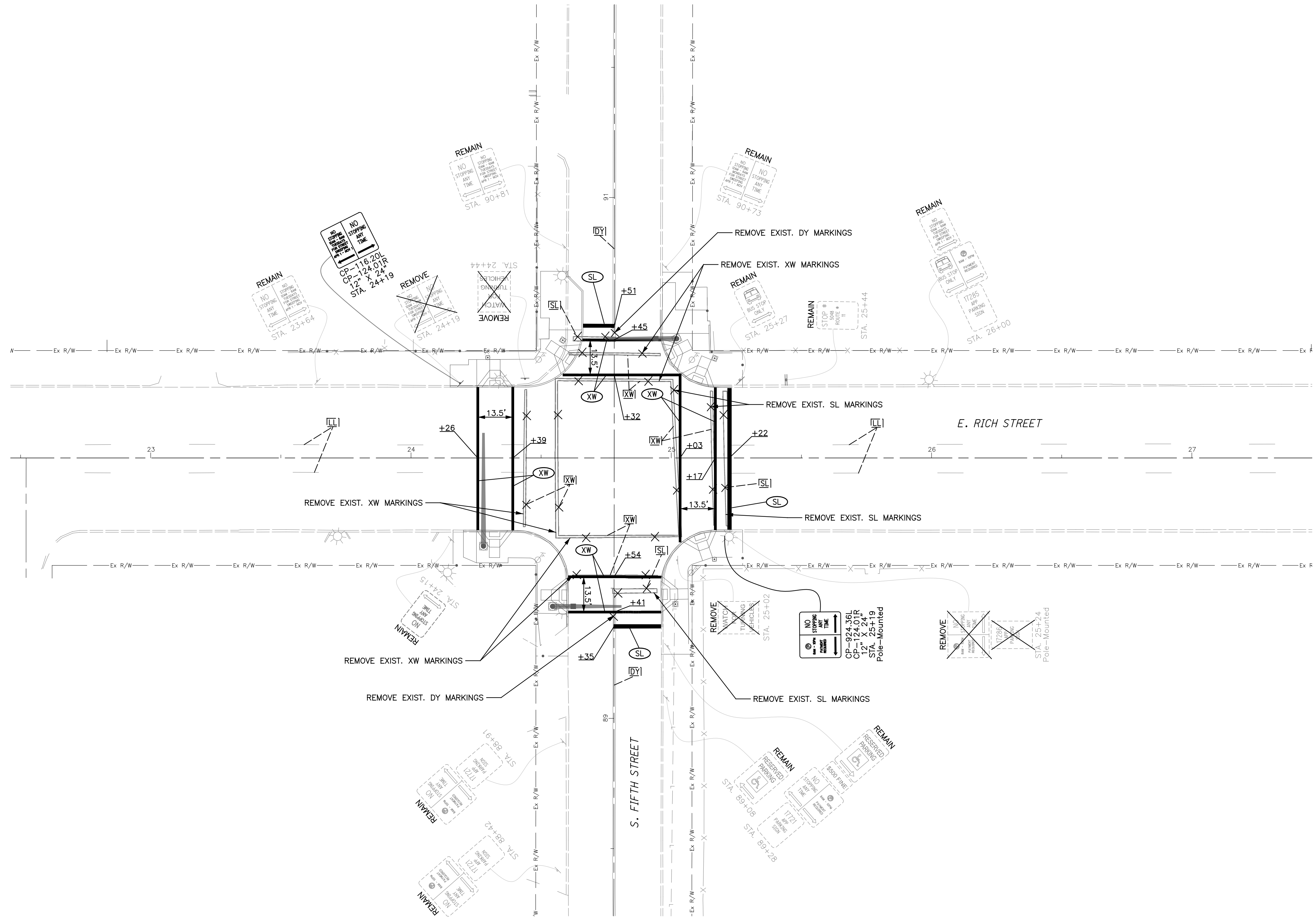
IMPROVEMENTS OF  
E RICH STREET FROM S 3RD ST TO S GRANT AVE  
FRA E RICH ST SIGNALS

3921-E

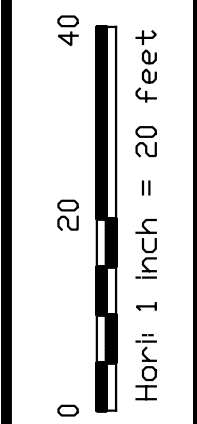
52  
95



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NOTES  
 1. SEE SHEET 51 FOR LEGEND



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ANC

CHECKED  
DKA

TRAFFIC CONTROL PLAN  
 STA 22+50 TO STA 27+50

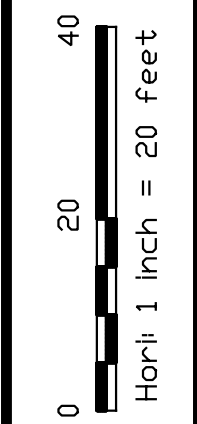
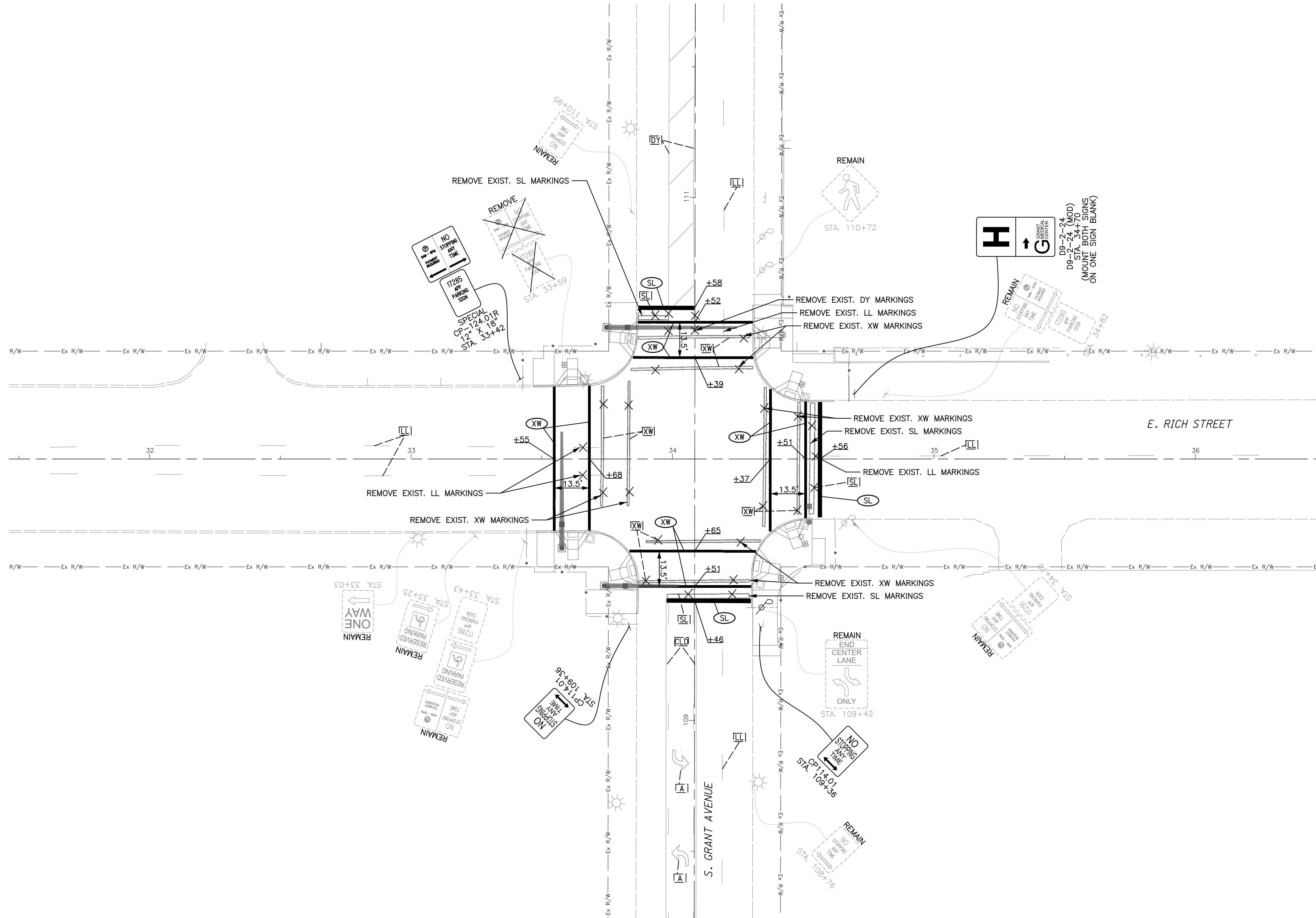
IMPROVEMENTS OF  
 E RICH STREET FROM S 3RD ST TO S GRANT AVE  
 FRA E RICH ST SIGNALS

3921-E

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95

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NOTES  
1. SEE SHEET 51 FOR LEGEND



CALCULATED ANC
CHECKED DKA

TRAFFIC CONTROL PLAN  
STA 31+50 TO STA 36+50

IMPROVEMENTS OF  
E RICH STREET FROM S 3RD ST TO S GRANT AVE  
FRA E RICH ST SIGNALS

3921-E

54
95



**GENERAL**

THE DIVISION OF DESIGN AND CONSTRUCTION IS A SUBUNIT OF THE CITY OF COLUMBUS DEPARTMENT OF PUBLIC SERVICE AND IS OWNER OF PART OR ALL OF THE FACILITIES COVERED BY THESE PLANS.

ALL INCIDENTAL WORK ITEMS CALLED FOR IN THESE PLANS FOR WHICH NO SPECIFIC METHOD OF PAYMENT IS PROVIDED SHALL BE PERFORMED BY THE CONTRACTOR AND THE TOTAL COST OF SAID ITEMS SHALL BE INCLUDED IN THE PRICE OF ITS ASSOCIATED BID ITEM.

- 3/6/18

**PLAN AND SPECIFICATION COMPLIANCE**

THE CONTRACTOR SHALL FURNISH AND INSTALL TRAFFIC SIGNAL DEVICES IN COMPLIANCE WITH THESE PLANS AND SPECIFICATIONS, THE 2018 CITY OF COLUMBUS CONSTRUCTION AND MATERIAL SPECIFICATIONS AND ITS SUPPLEMENTAL SPECIFICATIONS, OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS, AND THE STANDARD CONSTRUCTION DRAWINGS ISSUED BY THE CITY OF COLUMBUS. THE CITY OF COLUMBUS, SHALL DETERMINE WHETHER THE SUPPLIED ITEMS MEET OR EXCEED THESE SPECIFICATIONS.

TRAFFIC SIGNAL CONTROL EQUIPMENT SHALL MEET OR EXCEED THE STANDARDS SPECIFIED IN THE FOLLOWING DOCUMENTS:

- (A) SPECIFICATIONS LISTED IN THIS PLAN;
- (B) APPLICABLE SECTIONS OF NEMA STANDARDS PUBLICATION NO. TS2-1998 AND/OR TS1 1989;
- (C) 2018 CITY OF COLUMBUS CONSTRUCTION AND MATERIAL SPECIFICATIONS 625, 632, 633, 725, 732 & 733;
- (D) CITY OF COLUMBUS STANDARD CONSTRUCTION DRAWINGS

IN CASE OF A CONFLICTING SPECIFICATION STATEMENT, THE SPECIFICATION DOCUMENT HIERARCHY SHALL BE IN THE ORDER LISTED FROM (A) HIGHEST, TO (D) LOWEST.

- 3/6/18

**MAINTENANCE OF TRAFFIC SIGNAL INSTALLATIONS**

**(A) PROPOSED TRAFFIC SIGNAL INSTALLATION**

THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL PROPOSED TRAFFIC SIGNAL DEVICES UNDER THE FOLLOWING CONDITIONS FROM THE TIME OF INSTALLATION UNTIL THE DEVICE HAS BEEN ACCEPTED BY THE CITY.

THE CONTRACTOR SHALL PROVIDE 2 OR MORE CONTACTS WHO CAN RECEIVE ALL DEVICE OUT-OF-SERVICE CALLS THAT FALL UNDER THE CONTRACTOR'S RESPONSIBILITY. THE CONTRACTOR SHALL DISPATCH MAINTENANCE PERSONNEL TO CORRECT THE PROBLEM. THE CONTRACTOR SHALL PROVIDE THE CITY AND THE PROJECT ENGINEER WITH ADDRESSES AND PHONE NUMBERS OF THESE CONTACTS. MAINTENANCE PERSONNEL MAY BE USED TO PERFORM OTHER DUTIES AS LONG AS PROMPT ATTENTION IS GIVEN TO THESE CALLS AND A PERSON IS CONTINUOUSLY AVAILABLE 24 HOURS A DAY AND 7 DAYS A WEEK. THE CONTRACTOR SHALL PROVIDE MAINTENANCE SERVICE ENTIRELY WITH HIS PERSONNEL.

THE CONTRACTOR SHALL CORRECT ALL BULB OUTAGES, DEVICE MALFUNCTIONS OF ANY TYPE, INTERNAL CABINET POWER LOSSES, SPAN OR CABLE PROBLEMS AND MISALIGNED OR DAMAGED VEHICULAR OR PEDESTRIAN SIGNAL HEADS WITHIN 2 HOURS AFTER THE CONTRACTOR'S CONTACT PERSON HAS BEEN NOTIFIED OF ANY ONE OF THE ABOVE. IN THE EVENT A NEW SIGNAL DEVICE IS DAMAGED PRIOR TO ACCEPTANCE, THE DAMAGED DEVICE, EXCEPT POLES, SHALL BE REPLACED OR REPAIRED BY THE CONTRACTOR TO THE SATISFACTION OF THE CITY. ANY DAMAGED CABINET ASSEMBLY DEVICE IF REPAIRED SHALL BE TESTED ONCE AGAIN BY THE CITY BEFORE THE DEVICE CAN BE INSTALLED.

IN THE EVENT OF A LOSS OF POWER TO THE SIGNAL INDICATIONS OTHER THAN AN ELECTRIC COMPANY GENERAL POWER OUTAGE, THE CONTRACTOR, AT HIS EXPENSE, SHALL IMMEDIATELY TAKE ACTION (WITHIN 30 MINUTES) TO PROPERLY ERECT TEMPORARY STOP SIGN(S) AND PROVIDE POLICE OFFICER(S) TO DIRECT TRAFFIC UNTIL THE SIGNAL IS BACK ON "FLASH" OR OPERATING PROPERLY.

IF A TRAFFIC STRAIN, SUPPORT OR PEDESTAL POLE IS DAMAGED AND THAT DAMAGE CAUSES POLE INSTABILITY, THEN THE CONTRACTOR SHALL TAKE IMMEDIATE ACTION (WITHIN 2 HOURS) TO STABILIZE IT. THE CONTRACTOR SHALL STILL BE RESPONSIBLE FOR PROVIDING THE PROJECT WITH A NEW UNDAAGED POLE.

WHERE OUT-OF-SERVICE CALLS ARE THE DIRECT RESULT OF A VEHICULAR ACCIDENT, THE RESPONSE OF THE CONTRACTOR SHALL BE AS OUTLINED ABOVE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COLLECTION OF ANY COMPENSATION FROM THOSE PARTIES RESPONSIBLE FOR THE DAMAGE TO THE CONTRACTOR'S MATERIALS.

**MAINTENANCE OF TRAFFIC SIGNAL INSTALLATIONS (CONT'D)**

WHERE THE CONTRACTOR HAS FAILED TO RESPOND OR CANNOT RESPOND TO AN OUT-OF-SERVICE CALL WITHIN THE TIME PERIOD SPECIFIED ABOVE AT LOCATIONS UNDER HIS RESPONSIBILITY, THE CITY MAY TAKE ACTION AS IT DEEMS NECESSARY TO CORRECT THE SITUATION. THIS ACTION MAY INCLUDE CONTROLLING THE INTERSECTION USING COLUMBUS POLICE OFFICERS, COMPLETELY REMOVING OR REPLACING ANY MALFUNCTIONING TRAFFIC CONTROL DEVICE, AND/OR INSTALLING ANY DEVICE(S) REQUIRED TO RETURN THE INTERSECTION TO REGULAR SIGNAL OPERATION. ALL COSTS ASSOCIATED WITH THESE ACTIONS SHALL BE BILLED DIRECTLY TO THE CONTRACTOR AND NOT INCLUDED IN ITEM 614 MAINTAINING TRAFFIC, AS PER PLAN.

ANY NON-OPERATING VEHICULAR OR PEDESTRIAN SIGNAL HEAD OR PUSHBUTTON SHALL BE COVERED AS REFERENCED IN THESE PLANS. ALL SIGNAL HEADS, WHILE COVERED, SHALL BE DARK BY DISCONNECTING POWER TO THE SIGNAL INDICATIONS. NO COVERED HEAD SHALL BLOCK THE VIEW OF AN OPERATING HEAD. A MINIMUM OF 2 VEHICULAR SIGNAL HEADS PER TRAVELLED DIRECTION (SPACED 8 FT. APART MINIMUM AND 12 FT. MAXIMUM) SHALL BE OPERATING AT ALL TIMES.

**(B) TEMPORARY CONTROLLER OR TRAFFIC SIGNALS**

IN ADDITION TO 614.10, THE FOLLOWING SHALL APPLY:

IF THE CONTRACTOR IS REQUIRED TO ERECT AND/OR INSTALL ANY TEMPORARY TRAFFIC CONTROL DEVICE OR TEMPORARY SIGNAL/SUPPORT POLE THAT IS NOT SPECIFIED IN THESE PLANS, THEN THE CONTRACTOR SHALL SUBMIT THE DESIGN CHANGE TO THE CITY OF COLUMBUS, FOR APPROVAL PRIOR TO THE INSTALLATION. THE CITY ALSO RESERVES THE RIGHT TO MAKE, OR HAVE THE CONTRACTOR MAKE, CHANGES TO THE TRAFFIC SIGNAL OPERATION.

IF A TEMPORARY CONTROLLER AND/OR A TS1 CABINET ASSEMBLY IS REQUIRED AT ANY INTERSECTION, THEN THE EQUIPMENT SHALL MEET NEMA STANDARDS TS1-1989 OR TS2-1998 (TYPE 2) AND SHALL BE APPROVED BY THE CITY OF COLUMBUS.

**(C) EXISTING TRAFFIC SIGNAL DEVICES**

THE CITY OF COLUMBUS, (ELECTRONICS MAINTENANCE SHOP, 645-7933), SHALL PERFORM ROUTINE MAINTENANCE ON ALL EXISTING CABINET ASSEMBLY ITEMS ONLY. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF ALL OTHER EXISTING TRAFFIC SIGNAL DEVICES ONCE ANY PROJECT SIGNAL WORK HAS STARTED. IF, IN THE COURSE OF WORK, THE GENERAL CONTRACTOR OR ANY PROJECT SUB-CONTRACTOR CAUSES DAMAGE TO ANY EXISTING TRAFFIC SIGNAL DEVICE OTHER THAN THE CABINET ASSEMBLY, THEN THE CONTRACTOR, AT THE CONTRACTOR'S COST, SHALL REPAIR AND/OR REPLACE THE DAMAGED DEVICE TO THE SATISFACTION OF THE CITY. DAMAGE TO THE CABINET ASSEMBLY BY ANY PROJECT CONTRACTOR SHALL BE REPAIRED BY THE CITY AND BILLED TO THE GENERAL CONTRACTOR.

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

- 3/6/18

**GROUNDING AND BONDING**

REQUIREMENTS OF THE CURRENT EDITION OF THE CMSC AND THE CITY OF COLUMBUS STANDARD CONSTRUCTION DRAWINGS ARE MODIFIED AS FOLLOWS:

1. ALL NON-CURRENT CARRYING METALLIC PARTS CONTAINING ELECTRICAL CONDUCTORS SHALL BE PERMANENTLY JOINED TO FORM AN EFFECTIVE GROUND FAULT CURRENT PATH BACK TO THE GROUNDED CONDUCTOR AT THE TRAFFIC SIGNAL CONTROLLER CABINET OR POWER METER CABINET, AS NOTED BELOW.
  - A. PROVIDE AN EQUIPMENT GROUNDING CONDUCTOR IN METALLIC CONDUITS (725.04)/POLYVINYL CHLORIDE CONDUITS (725.051) AND POLYETHYLENE CONDUITS (725.052) IN ADDITION TO THE CONDUCTORS SPECIFIED.
  - B. METAL PULL BOX FRAMES SHALL BE BONDED BY ATTACHMENT OF THE EQUIPMENT GROUNDING CONDUCTOR TO THE FRAME AS ILLUSTRATED ON SCD 4021 THROUGH 4023.
  - C. IF MULTIPLE CONDUIT RUNS BEGIN AND END AT THE SAME POINTS, EQUIPMENT GROUNDING CONDUCTORS SHALL BE PROVIDED AS SHOWN IN THE DETAILS.
  - D. THE MESSENGER WIRE AT SIGNALIZED INTERSECTIONS SHALL 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 UNLESS OTHERWISE DIRECTED BY THE CITY.

**GROUNDING AND BONDING (CONT'D)**

**2. CONDUITS.**

- A. THE 725.04 CONDUIT SHALL HAVE HEAVY DUTY 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 METALLIC CONDUIT SHALL BE BONDED TO THE EQUIPMENT GROUNDING CONDUCTOR.

**3. WIRE 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 SHALL BE AS FOLLOWS:
  - I. USE 4 AWG BETWEEN THE POWER SERVICE AND SUPPORTS, POLES, PEDESTALS, CONTROLLER OR FLASHER CABINETS.
  - II. THE INSULATION SHALL BE GREEN WITH TWO (2) YELLOW STRIPES (TRACERS).
  - III. SPLICES IN THE GROUNDING AND BONDING CABLE SHALL NOT BE PERMITTED IN PULL BOXES.

**4. GROUND ROD**

- A. THE TYPICAL GROUNDING CONDUCTOR (GROUND WIRE) SHALL BE 4 AWG INSULATED COPPER.

**5. POWER SERVICE**

FOR LOCATIONS WITH A POWER METER CABINET:

- A. AT THE POWER METER CABINET, THE GROUNDING ELECTRODE CONDUCTOR (GROUND WIRE) FROM THE BREAKER BOX NEUTRAL (AC-) BAR TO THE GROUND ROD SHALL BE A CONTINUOUS UN-SPLICED CONDUCTOR.
- B. THE SERVICE NEUTRAL (AC-) SHALL ONLY BE CONNECTED TO GROUND AT THE MAIN POWER SERVICE IN THE POWER METER CABINET.
- C. POWER SERVICE DISCONNECT SWITCHES ARE NOT USED BETWEEN THE SECONDARY SIDE OF THE TRANSFORMER SUPPLYING POWER SERVICE AND THE CONTROLLER CABINET.
- D. A POWER SERVICE MAIN CIRCUIT BREAKER IS USED IN THE METER CABINET AND THE CONTROLLER CABINET BETWEEN THE SECONDARY SIDE OF THE TRANSFORMER SUPPLYING POWER SERVICE AND THE CONTROLLER CABINET.

GROUNDING AND BONDING SHALL BE CONSIDERED INCIDENTAL TO ITEM 625, NO. #4 AWG, 600 VOLT DISTRIBUTION CABLE, AS PER PLAN.

- 3/1/18

**ITEM 625 BRACKET ARM - LUMINAIRE, 8 FT, AS PER PLAN**

BRACKET ARMS SHALL BE AS DETAILED ON THE MAST ARM ORIENTATION AND POLE FABRICATION DETAILS SHEET AND SHALL MEET THE REQUIREMENTS SPECIFIED IN THE CITY OF COLUMBUS MIS-104 DRAWING EXCEPT AS MODIFIED WITHIN.

ALL PAINTED ITEMS SHALL BE COATED TO MATCH THE MAST ARM TRAFFIC SIGNAL SUPPORTS.

THE COATING COLOR ON BOTH STEEL AND ALUMINUM PRODUCTS SHALL MATCH EACH OTHER. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT BOTH THE PRODUCT MANUFACTURERS MATCH COATING COLORS SO THAT AN EXCELLENT LOOKING END PRODUCT IS ACHIEVED.

PAYMENT SHALL BE AS PER ITEM 625.

- 7/23/18

**ITEM 625 BRACKET ARM 25 FT, AS PER PLAN**

BRACKET ARM SHALL BE INSTALLED PER SCD 4110 ON SIGNAL POLES AT LOCATIONS AS SHOWN IN THE PLANS TO FACILITATE THE INSTALLATION OF VEHICULAR DETECTION, CCTV, AND WIRELESS RADIO EQUIPMENT IN AREAS CLEAR OF OBSTRUCTIONS.

BRACKET ARM SHALL BE MADE OF ALUMINUM ALLOY TUBING. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS OR VERIFY PLAN DETAILS TO DETERMINE THE SIZE AND CONFIGURATION OF REQUIRED CLAMPS PRIOR TO ORDERING - NO COMPENSATION WILL BE PROVIDED FOR MODIFICATIONS.

ALL STRUCTURAL STEEL PRODUCTS SHALL BE GALVANIZED ON THE INTERIOR AND THE EXTERIOR SURFACES AS PER ASTM A123. THE EXTERIOR SURFACE OF ALL STRUCTURAL STEEL AND ALUMINUM PRODUCTS SHALL BE PROPERLY PREPARED FOR THE APPLICATION OF AN EXTERIOR COATING. THE COATING COLOR ON BOTH STEEL AND ALUMINUM PRODUCTS SHALL MATCH EACH OTHER. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT BOTH PRODUCT MANUFACTURERS MATCH COATING COLORS SO THAT ACONSISTENT END PRODUCT IS ACHIEVED.

ALL EXTERIOR SURFACES, ALL ATTACHMENT HARDWARE, AND ALL CLEVIS HANGERS SHALL HAVE A COATING APPLIED TO THEM. EXTERIOR SURFACES OF ALL BOLT AND SCREW FASTENERS, WASHER NUTS, AND OTHER ATTACHMENT HARDWARE SHALL HAVE A COATING APPLIED TO THEM. FASTENER THREADS SHALL NOT BE CLOGGED WITH COATING MATERIAL.

THE EXTERIOR COATING FOR ALL ITEMS ABOVE SHALL:

1. MEET FEDERAL SPEC #595B, BE SEMI-GLOSS AND CONFORM TO COLORS AS SHOWN IN THE PLANS; AND
2. BE APPLIED OVER PROPERLY PREPARED GALVANIZING MATERIAL ON STEEL PRODUCTS AND OVER PROPERLY PREPARED ALUMINUM FOR ALUMINUM PRODUCTS; AND
3. HAVE A MINIMUM 5-YEAR REPAIR WARRANTY OF COATING DELAMINATION, BLISTERING, OR CORROSION.

ANY ALTERNATIVE PROCESSES FOR FINISH COATING OF BRACKET ARM PROPOSED BY THE CONTRACTOR MUST BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO STARTING WORK.

FOR ALUMINUM PARTS, EACH COATING LAYER SHALL BE PROPERLY CURED BEFORE THE APPLICATION OF THE NEXT COAT. THE APPLICATION PROCEDURE SHALL BE SUCH TO WARRANT A FINISH WITHOUT DELAMINATION, BLISTERING, OR CORROSION AS PER THE MINIMUM (5) YEAR REPAIR WARRANTY.

THE COATING PROCESS SHALL INVOLVE SUCH STEPS AS THE FOLLOWING:

1. MECHANICAL PREPARATION ? BRACKET ARM ASSEMBLY (BRACKET ARM AND ALL CONNECTION COMPONENTS) SHALL BE ROTARY-SANDED TO A SATIN-GROUND FINISH. BRACKETS SHALL BE ETCHED TO A MATTE FINISH. THIS TREATMENT WILL PLACE A ROUGH SURFACE ON THESE ITEMS SO THE BASE COATING LAYER WILL HAVE EXCELLENT ADHESION.
2. CLEANING - THE BRACKET ARM ASSEMBLY SHALL BE IMMERSSED IN AN ALCOHOLIC-PHOSPHORIC ACID SOLUTION THAT WILL CHEMICALLY CLEAN THESE ITEMS. THE CLEANING SOLUTIONS SHALL BE KEPT AT A NOMINAL 70 DEGREES FAHRENHEIT. THE BRACKET ARM ASSEMBLYSHALL BE IMMERSSED IN THE SOLVENT SOLUTION FOR 5 MINUTES AND THEN COLD-WATER RINSED UNTIL CHEMICALS ARE WASHED OFF.
3. CONVERSION COATING - THE BRACKET ARM ASSEMBLY SHALL THEN BE IMMERSSED IN AN AMORPHOUS CHROMATE CONVERSION COATING SOLUTION FOR 5 MINUTES. THE SOLUTION SHALL BE MAINTAINED AT 700 F. THIS TREATMENT WILL RESULT IN THE FORMATION OF A SURFACE FILM IN WHICH THE FILM CHEMICALLY BONDS ITSELF TO THE BASE METAL BY DIFFUSION AND BECOMES A PART OF THE BASE METAL. THE BRACKET AND PEDESTAL ASSEMBLY SHALL BE COLD-WATER RINSED. THIS SURFACE WILL PROVIDE OPTIMUM ADHESION AND GOOD STABILITY FOR THE COLOR FILM SO THAT IT DOES NOT CHIP, PEEL, OR FLAKE.
4. PRIMER COATING - AN ALUMINUM PRIMER SHALL BE APPLIED AS REQUIRED TO THE BRACKET ARM ASSEMBLY TO FURTHER IMPROVE COATING ADHESION.
5. FINAL COATING - EACH COAT SHALL BE PROPERLY DRIED BEFORE ADDITIONAL COATS ARE APPLIED. THE FINISH COAT OF PAINT SHALL MEET FEDERAL STANDARD #595B AND CONFORM TO COLOR: #27038 (SEMI-GLOSS BLACK). THE FINISH COAT SHALL HAVE A MINIMUM 5-YEAR REPAIR WARRANTY OF COATING DELAMINATION, BLISTERING, OR CORROSION.
6. DRYING - THE BRACKET ARM ASSEMBLY SHALL BE THOROUGHLY DRIED THEN PROTECTED FOR SHIPMENT AS OUTLINE BEFORE.

ALL COATED ITEMS SHALL BE SHIPPED IN A MANNER SELECTED BY THE MANUFACTURER, WHICH WILL PROTECT MATERIAL FROM DAMAGE DURING DELIVERY. MATERIALS DAMAGED IN TRANSIT SHALL BE REPAIRED OR REPLACED. ALL COSTS ASSOCIATED WITH CORRECTING DAMAGED MATERIAL SHALL BE BORNE BY THE CONTRACTOR.

THE WORK AS DESCRIBED WILL BE MEASURED AS THE NUMBER BRACKET ARMS FURNISHED AND INSTALLED, COMPLETE IN PLACE.

- 10/25/19

**ITEM 625 LIGHTING, MISC.: PHOTO CELL**

THE CONTRACTOR SHALL INSTALL PHOTO CELLS AS SHOWN IN THE PLANS AND PER CITY OF COLUMBUS ITEM 1001, MIS-600, MIS-601, AND MIS-602.

PAYMENT SHALL BE AT THE CONTRACT BID PRICE FOR EACH ITEM 625 LIGHTING, MISC.: PHOTO CELL AND SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS, CABLE, WIRING, CONNECTIONS, APPURTENANCES, TESTED AND ACCEPTED.

- 7/6/18

**ITEM 625 LUMINAIRE, LED, 120 V, TEARDROP (BLACK), AS PER PLAN**

LUMINAIRES INSTALLED ON COMBINATION TRAFFIC SIGNAL SUPPORTS SHALL BE PER CITY OF COLUMBUS MIS-801 EXCEPT THE VOLTAGE SOURCE SHALL BE 120 VAC. THE LUMINAIRE HOUSING SHALL BE COATED TO MATCH ITS RESPECTIVE COMBINATION SIGNAL SUPPORT.

PAYMENT SHALL BE AS PER ITEM 625.

- 7/23/18

**ITEM 625 NO. 4 AWG 600 VOLT DISTRIBUTION CABLE, AS PER PLAN**

INSULATED CABLE SHALL BE USED FOR THE GROUND WIRE (GND) WHERE INDICATED FOR SYSTEM GROUNDING AND BONDING. THE JACKET OF THE GND WIRE SHALL BE GREEN WITH TWO YELLOW STRIPES/TRACERS. THIS GND WIRE SHALL BE SEPARATE FROM THE GROUND ROD WIRE, BUT SHALL BE CONNECTED TO THE SAME GROUNDING BOLT USED FOR THE GROUND ROD WIRE ATTACHMENT AT THE POLE. THE GND WIRE SHALL BE TAGGED AS "GND SYS" AT ALL POLE LOCATIONS, PULL BOXES, AND & CONTROL CABINETS.

- 10/6/15

**ITEM 625 TRENCH, AS PER PLAN**

IN ADDITION TO THE REQUIREMENTS OF 625.13, THE INSTALLATION DEPTH OF THE PROPOSED CONDUIT SHALL CORRELATE TO THE DEPTH OF THE PULL BOX STRUCTURE SERVICING THE CONDUIT RUN. CONDUIT ENTERING 18 INCH PULL BOXES SHALL BE 24 INCHES DEEP. CONDUIT ENTERING 27 INCH PULL BOXES SHALL BE 30 INCHES DEEP. CONDUIT ENTERING 32 INCH PULL BOXES SHALL BE 30 TO 36 INCHES DEEP. CONDUIT ENTERING 48 INCH PULL BOXES SHALL BE 39 INCHES DEEP. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO MODIFY THE DEPTH OF THE CONDUIT TO ACCOMMODATE THE VARIOUS TERMINATION DEPTHS AND UTILITY CONFLICTS. SHARP CHANGES IN CONDUIT ELEVATION WILL NOT BE PERMITTED. IF BOTH ENDS OF A CONDUIT RUN ENTER THE SAME SIZE STRUCTURE, THEN THE ENTIRE LENGTH OF CONDUIT SHALL BE PLACED AT THAT DEPTH. IF THE TWO ENDS ENTER DIFFERENT DEPTH STRUCTURES, THE CHANGE IN ELEVATION SHALL BE MADE OVER THE ENTIRE LENGTH OF THE CONDUIT RUN. TRENCH UNDER PROPOSED ROADWAYS SHALL HAVE A MINIMUM OVERALL DEPTH OF 36 INCHES AND OR A MINIMUM DEPTH OF 24 INCHES UNDER THE FINAL PAVEMENT SUBGRADE, WHICHEVER IS DEEPEST. INCIDENTAL TO THIS ITEM IS THE REPAIR OF SIDEWALK, ROADWAY, BRICK, CURB, CURB RAMPS, AND LANDSCAPING.

- 5/17/16

**ITEM 630 SIGN SUPPORT ASSEMBLY, POLE MOUNTED, AS PER PLAN**

**ITEM 630 SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN**

**ITEM 630 SIGN, FLAT SHEET, AS PER PLAN**

ALL MOUNTING HARDWARE AND SUPPORT/HANGER ASSEMBLIES MOUNTED ON EITHER SIGNAL SUPPORTS, MAST ARMS, PEDESTAL SUPPORTS, LIGHT POLES, OR EXISTING POLES SHALL BE COATED TO MATCH ITS RESPECTIVE SUPPORT. FINISH REQUIREMENTS SHALL BE IN ACCORDANCE WITH THOSE LISTED FOR THE SUPPORT OR PEDESTAL USED FOR ATTACHMENT. NUTS AND BOLTS NEED NOT BE PAINTED.

ALL PAINTING SHALL BE PERFORMED UNDER CONTROLLED ENVIRONMENTAL CONDITIONS, AND IN ACCORDANCE WITH ALL MANUFACTURERS' RECOMMENDATIONS PERTAINING TO SURFACE PREPARATION, MATERIAL HANDLING, AND APPLICATION. PRIOR TO PAINTING, PAINT CHIPS SHALL BE SUBMITTED TO THE CITY FOR REVIEW.

ALL REGULATORY AND TRAFFIC CONTROL SIGNS SHALL COMPLY WITH THE LATEST VERSION OF THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS (OMUTCD) AND LOCAL REQUIREMENTS.

PAYMENT SHALL BE AS PER ITEM 630.

- 11/13/15

**ITEM 632 (COMBINATION) SIGNAL SUPPORT, TYPE 4121, (BY DESIGN), AS PER PLAN**

TRAFFIC SIGNAL POLES SHALL BE PER SCD 4121.

IN ADDITION TO THE REQUIREMENTS OF 732.11 AND 732.12, THE FOLLOWING SHALL ALSO APPLY:

THE TOP FINISH COAT OF PAINT SHALL HAVE A MINIMUM 5-YEAR REPAIR WARRANTY OF COATING DELAMINATION, BLISTERING, OR CORROSION.

UNION METAL STRUCTURES SHALL BE EITHER POWDER-COATED WITH THE THOMARIOS POWDER-COATING SYSTEM OR WET-COATED WITH THE SRT WET-COAT SYSTEM.

VALMONT STEEL STRUCTURES SHALL BE EITHER POWDER-COATED WITH FINISH SPECIFICATION F-573 DATED 4-11-07, WHICH INCLUDES EPOXY POWDER PRIME COAT AND PENTABOND POWDER FINISH COAT OR SHALL BE WET-COATED WITH MANUFACTURER RECOMMENDED EQUIVALENT WET-COAT PAINT SYSTEM.

MILLERBERND STRUCTURES SHALL BE WET-COATED WITH THE MILLERBOND PAINTING SYSTEM DESIGNED FOR USE ON CARBON, STAINLESS STEEL, ALUMINUM, AND GALVANIZED POLE PRODUCTS, WHICH INCLUDES A DUAL-CURE CHEMISTRY ORGANIC ZINC RICH URETHANE BASE PRIMER COAT AND DUAL-CURE CHEMISTRY I2 POLYASPARTIC ALIPHATIC POLYUREA FINISH COAT.

ALL COATING SYSTEMS SHALL MEET THE MINIMUM REQUIREMENTS OF ODOT SUPPLEMENTAL SPECIFICATION 916 - STANDARD PERFORMANCE BASED PAINT PROCESSES FOR LIGHT POLES, SIGN SUPPORTS AND TRAFFIC SUPPORTS FOR WET-COAT SYSTEMS.

THIS ITEM OF WORK SHALL BE MEASURED AS EACH COMPLETE SIGNAL SUPPORT OR STRAIN POLE IN PLACE IN ESSENTIALLY A VERTICAL POSITION UNDER FULL PLAN LOADING. ALL LABOR, EQUIPMENT, AND MATERIALS NECESSARY TO PURCHASE, TRANSPORT, STORE, ERECT, ADJUST, AND REPAIR THE SIGNAL SUPPORT OR STRAIN POLE SHALL BE INCLUDED FOR PAYMENT IN THE BID ITEM.

PAYMENT SHALL BE AS PER ITEM 632.

- 3/16/20

**ITEM 632 POWER SERVICE, AS PER PLAN**

IN ADDITION TO THE REQUIREMENTS OF 632.24, THE CONTRACTOR SHALL CONTACT THE SERVICE PROVIDER AND MAKE ARRANGEMENTS FOR THE CONNECTION OF POWER FOR THE TRAFFIC SIGNAL CONTROLLER CABINET. THE CONTRACTOR SHALL CONTACT THE POWER SERVICE PROVIDER A MINIMUM OF 120 CALENDAR DAYS IN ADVANCE OF THE NEED FOR POWER WITH THE ADDRESS(ES) OF THE TRAFFIC SIGNAL CONTROLLER CABINET(S) AS PROVIDED IN THE PLANS.

POWER SHALL BE SUPPLIED BY AMERICAN ELECTRIC POWER. POWER SHALL BE 120/240 VAC. POWER SERVICE SHALL BE FROM THE APPROXIMATE LOCATION(S) AS SHOWN ON THE PLANS. CONTACT AMERICAN ELECTRIC POWER CUSTOMER SOLUTION CENTER (1-800-672-2231).

- 6/1/20

INTERSECTION	INTERSECTION NUMBER	TRAFFIC SIGNAL CONTROLLER CABINET ADDRESS	POWER SERVICE PROVIDER
RICH ST AT THIRD ST	#0070	232 S THIRD ST	AEP
RICH ST AT FOURTH ST	#0071	218 S FOURTH ST	AEP
RICH ST AT FIFTH ST	#0094	227 E RICH ST	AEP
RICH ST AT GRANT AVE	#0072	364 E RICH ST	AEP

**ITEM 632 SIGNAL SUPPORT FOUNDATION (BY DEPTH), AS PER PLAN**

FOR SIGNAL POLES MOUNTED TO DEEP FOUNDATIONS CONSTRUCTED UNDER THIS ITEM, THE ALUMINUM POLE IDENTIFICATION TAG, AS REQUIRED AND IN ACCORDANCE WITH 732.11 AND 732.12, SHALL ALSO BE LABELED WITH "DEEP FOUNDATION" FOLLOWED BY THE DEPTH OF THE FOUNDATION (E.G. DEEP FOUNDATION, 18 FT) THE FOUNDATION SHALL BE CONSTRUCTED IN ACCORDANCE WITH 632.14, SCD 4160, AND SCD 4161.

- 5/15/18

**ITEM 632 SIGNALIZATION, MISC.: APS PUSHBUTTON STATION**

THE APS PUSHBUTTON STATION SHALL BE PER THE CITY'S QPL.

MOUNT THE CENTER OF THE PUSHBUTTON 42" ABOVE THE PEDESTRIAN PATHWAY SURFACE. A CLEAR BEAD OF SILICON SEALANT SHALL BE APPLIED BETWEEN THE POLE AND THE EDGE OF THE PUSHBUTTON HOUSING AGAINST THE POLE TO PREVENT WATER FROM ENTERING THE BACK OF THE PUSHBUTTON HOUSING.

ONE ALUMINUM SIGN, BLACK ON WHITE, SHALL BE INSTALLED WITH EACH PUSHBUTTON. THE BOTTOM OF THE SIGNS SHALL BE MOUNTED JUST ABOVE THE TOP OF THE PUSHBUTTON. THE SIGNS TO CROSS THE MAIN LINE SHALL BE PER SCD 4230. THE SIGNS TO CROSS THE SIDE STREET SHALL READ "PUSH BUTTON FOR AUDIBLE SIGNAL TO CROSS (STREET NAME)" (CMR-73C.03).

WHEN THE ACCESSIBLE PEDESTRIAN PUSHBUTTON SYSTEM IS CONFIGURED, DIVISION OF TRAFFIC MANAGEMENT PERSONNEL SHALL BE PRESENT TO DETERMINE THE SETTINGS TO BE USED. THE CONTRACTOR SHALL CONTACT THE DIVISION OF DESIGN AND CONSTRUCTION TRAFFIC SIGNAL CONSTRUCTION COORDINATOR 14 CALENDAR DAYS PRIOR TO INSTALLATION TO MAKE ARRANGEMENTS.

ALL CONNECTIONS, WIRING, MISCELLANEOUS MATERIALS, AND CONFIGURATION FOR FULL OPERATION OF EACH APS PUSHBUTTON SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THIS ITEM. PAYMENT SHALL BE PER ITEM 632 AND SHALL BE MADE AT THE UNIT PRICE BID PER EACH APS PUSHBUTTON, COMPLETE IN PLACE, TESTED, AND ACCEPTED.

- 3/13/20

**ITEM 632 SIGNALIZATION, MISC.: FOUNDATION PRE-EXCAVATION**

THE SIGNAL SUPPORT OR PEDESTAL FOUNDATIONS FOR ALL POLES AT THE FOLLOWING INTERSECTIONS SHALL BE EXCAVATED OR VACUUM EXCAVATED TO TEST FOR CONFLICTS PRIOR TO SHOP DRAWINGS APPROVAL:

- RICH STREET AT THIRD STREET
- RICH STREET AT FOURTH STREET
- RICH STREET AT FIFTH STREET
- RICH STREET AT GRANT AVENUE

PAYMENT FOR ITEM 632 SIGNALIZATION, MISC.: FOUNDATION PRE-EXCAVATION SHALL BE MADE AT THE CONTRACT UNIT PRICE FOR EACH FOUNDATION REQUIRING PRE-EXCAVATION.

- 3/16/18

**ITEM 632 SIGNALIZATION, MISC.: POWER METER CABINET TYPE I OR II, BASE MOUNT, WITH FOUNDATION**

THIS ITEM SHALL INCLUDE THE POWER METER CABINET, POWER METER SOCKET, LOAD CENTER PANEL, CONCRETE FOUNDATION, GROUNDING, AND INCIDENTALS AS DESCRIBED HEREIN.

THE CONDUIT AND FOUR (4) ANCHOR BOLTS AND REQUIRED CONDUIT ELLS AND THEIR INSTALLATION SHALL BE INCIDENTAL TO THE COST OF THIS ITEM.

FOR TYPE I POWER METER CABINETS:

THE POWER METER CABINET SUPPLIED SHALL BE A MILBANK SLIMLINE SERIES COMMERCIAL PEDESTAL (CATALOG NO. CP3A51C1VIA0SP3-CITY OF COLUMBUS).

FOR TYPE II POWER METER CABINETS:

THE POWER METER CABINET SUPPLIED SHALL BE APX TECHNOLOGIES, INC. BASE-MOUNTED ENCLOSURE (APX CATALOG NO. TC362015) WITH ALUMINUM PANEL KIT OPTION OR APPROVED EQUAL.

THE POWER METER SOCKET SUPPLIED SHALL BE A MILBANK CATALOG NO. U9551-RRRL, TALON CATALOG NO. 40405-02QG, OR APPROVED EQUAL. THE LOAD CENTER SHALL BE A SCHNEIDER ELECTRIC Q024L60NRNM, EATON CH2L70RP, OR APPROVED EQUIVALENT.

THE WORK AS DESCRIBED WILL BE MEASURED AS THE NUMBER OF POWER METER CABINETS FURNISHED AND INSTALLED AND SHALL INCLUDE FURNISHING ALL MATERIALS, EQUIPMENT, LABOR AND INCIDENTALS, INCLUDING HUBS, CONDUITS ELLS AND FLEXIBLE CONDUIT, AND WIRING IN THE POWER METER CABINET, NECESSARY TO COMPLETE THE WORK SPECIFIED, COMPLETE IN PLACE.

- 10/1/20

**ITEM 632 VEHICULAR SIGNAL HEAD, L.E.D., 3-SECTION, 12" LENS, 1-WAY, POLYCARBONATE, AS PER PLAN**

SIGNAL HEADS AND LED LAMP MODULES SHALL BE PER THE CITY'S TRAFFIC QPL.

FOR MAST ARM STRUCTURES, THE SIGNAL HEADS SHALL BE RIGIDLY MOUNTED TO THE ARM. THE BRACKETS SHALL BE COATED THE SAME COLOR AS THE MAST ARM STRUCTURE. 5-SECTION SIGNAL HEADS SHALL BE MOUNTED USING PELCO PART NUMBER SP-5977, 3-SECTION SIGNAL HEADS SHALL BE MOUNTED USING PELCO PART NUMBER 5980, AND HAWK SIGNAL/PEDESTRIAN HYBRID BEACON SIGNAL HEADS SHALL BE MOUNTED USING PELCO PART NUMBER SP-5986.

- 3/20/20

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TRAFFIC SIGNAL AND INTERCONNECT NOTES

IMPROVEMENTS OF E RICH STREET FROM S 3RD ST TO S GRANT AVE FRA E RICH ST SIGNALS

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**ITEM 633 CONTROLLER UNIT TS2/A2, W/ P-UPS CABINET, 16 CH, SIZE 6, GROUND MOUNTED, AS PER PLAN**

IN ADDITION TO THE OTHER REQUIREMENTS OF 633 & 733, THE CONTROLLER (TS2, TYPE 2/TS1 COMPATIBLE) SHALL BE PER THE CITY'S QPL AND INCLUDE AN ETHERNET MODULE. THE CABINET ASSEMBLY SHALL MEET ALL CITY STANDARDS AS SET FORTH BETWEEN THE SUPPLIERS AND THE DIVISION OF TRAFFIC MANAGEMENT.

THE CONTROLLER AND BATTERY BACK-UP CABINET FOUNDATION SHALL BE PER SCD 4162 AND THE CABINET SHALL BE A SINGLE CABINET UNIT WITH TWO INTERNAL COMPARTMENTS ACCESSED BY SEPARATE DOORS (P-UPS, TYPE 1 OR TYPE 2).

IN ADDITION TO THE OTHER SPECIFICATION DOCUMENTS, THE CABINET ASSEMBLY SHALL MEET THE FOLLOWING SPECIFICATIONS.

- A. ALL LABELS SHALL BE PERMANENTLY SECURED TO THE CABINET. PLASTIC LABEL MAKER TAPE IS NOT CONSIDERED TO BE PERMANENT. CROY TYPE LABELS ARE ACCEPTABLE.
- B. THE 120 VAC, CONVENIENCE OUTLET ASSEMBLY (GFI TYPE) SHALL BE MOUNTED ON THE RIGHT SIDE PANEL OF THE CABINET NEAR THE DOOR HINGE AREA OR THE CENTER PORTION OF THE DOOR. THE OUTLET SHALL NOT INTERFERE WITH THE REMOVAL OR INSTALLATION OF ANY EQUIPMENT.
- C. LOAD SWITCHES SHALL BE EDI MODEL 510 WITH LIGHTS PERMANENTLY LABELLED AS R, Y, G OR A, B, C. A LOAD SWITCH SHALL BE PROVIDED FOR EACH BACK PANEL LOAD SWITCH SOCKET POSITION WHETHER USED OR UNUSED. ALL LOAD SWITCHES SHALL REST IN A SUPPORT RACK. LOAD SWITCHES 9-12 SHALL BE USED FOR THE PEDESTRIAN SIGNAL HEADS AND LOAD SWITCHES 13-16 SHALL BE USED FOR OVERLAPS.
- D. LIGHTNING PROTECTION DEVICES SUCH AS ITT, SURRESTOR, GENERAL ELECTRIC, OR APPROVED EQUAL (AS DETERMINED BY THE DIVISION OF TRAFFIC MANAGEMENT) SHALL BE PROVIDED.
- E. THE NEMA TYPE 4 CABINET SHALL BE PER THE CITY'S QPL. ALL EXTERIOR CABINET SEAMS SHALL BE EITHER CONTINUOUSLY WELDED, TACK WELDED, SEALED WITH A 15 TO 20 YEAR SILICONE SEALER, AND/OR OVERLAPPED SUCH THAT WATER DOES NOT ENTER THE CABINET. ALL CABINET EDGES SHALL BE SMOOTH (FREE OF ANY SHARP EDGES). THE CABINET DOOR FRAME OPENINGS SHALL BE DOUBLE-FLANGED ON ALL FOUR SIDES. EACH CABINET DOOR SHALL BE HINGED USING A HEAVY GAUGE CONTINUOUS HINGE THAT HAS A STAINLESS STEEL HINGE PIN. THE HINGES SHALL BE BOLTED TO THE CABINET SO THE DOORS CAN BE REMOVED. THE BOLTS AND NUTS SHALL BE MADE OF STAINLESS STEEL, TAMPERPROOF AND SECURELY FASTENED TO PREVENT VIBRATIONS FROM LOOSENING THE NUTS. THE DOORS SHALL BE EQUIPPED WITH THREE (3) POINT LATCHING MECHANISMS AND HANDLES WHICH CAN BE PADLOCKED. IN ADDITION TO THE DOOR STOP POSITIONS LISTED IN NEMA TS-2, THE DOORS SHALL BE DESIGNED SUCH THAT EACH INCLUDES A DOOR STOP AT 135 DEGREES. THE POLICE DOOR, CONTROLLER ENCLOSURE DOOR, AND UPS ENCLOSURE DOOR SHALL HAVE A KEYHOLE COVER. BOLT PATTERN SHALL CONSIST OF AN ANCHOR BOLT POSITIONED IN EACH CABINET CORNER. (P-UPS CABINET SIZE - 55"H x 60"W x 26"D (TYPE 1), OR 57"H x 58"W x 29"D (TYPE 2))
- F. A THYRECTOR SURGE PROTECTOR WITH A RMS INPUT OF 150 VOLTS AND INPUT PEAK OF 210 VOLTS SHALL BE PROVIDED IN ADDITION TO ANY LIGHTNING PROTECTION DEVICE. THE THYRECTOR SHALL BE PLACED ACROSS THE INPUT AC POWER LINE.
- G. TWO (2) CIRCUIT SOLID STATE FLASHER, EDI MODEL 810, RATED AT 15 AMPS (MINIMUM) PER CIRCUIT SHALL BE PROVIDED (NEMA TYPE 3). CIRCUIT 1 SHALL CONTROL THE MAINLINE FLASHING SIGNAL INDICATIONS. CIRCUIT 2 SHALL CONTROL THE SIDE STREET FLASHING SIGNAL INDICATIONS.
- H. THE MAIN CIRCUIT BREAKER AND AUXILIARY CIRCUIT BREAKER, AS REQUIRED BY NEMA TS-2, SHALL BE LABELED AS "MAIN" AND "AUX", RESPECTIVELY.
- I. THE CABINET ASSEMBLY SHALL CONTAIN ALL PEDESTRIAN SIGNAL CIRCUITRY FOR EACH NEMA DEFINED THROUGH PHASE.
- J. A POLICE DOOR MOUNTED SIGNAL SHUTDOWN SWITCH WITH SWITCH POSITIONS LABELLED AS "SIG ON" AND "SIG OFF" SHALL BE INSTALLED.
- K. A POLICE DOOR MOUNTED SIGNAL FLASH SWITCH WITH SWITCH POSITIONS LABELLED AS "ON SIG" AND "ON FLASH" SHALL NOT ONLY PLACE THE SIGNALS ON FLASH BUT ALSO STOP-TIME THE CONTROLLER UNIT. A RUN/STOP-TIME SWITCH WITH SWITCH POSITIONS LABELLED AS "CONT. RUN" AND "STOP-TIME" SHALL BE INSTALLED ON THE INSIDE OF THE CONTROLLER ENCLOSURE DOOR. THE RUN/STOP-TIME SWITCH SHALL ALLOW THE CONTROLLER UNIT TO TIME NORMALLY BUT KEEP THE SIGNALS ON FLASH. THE SIGNAL FLASH SWITCH SHALL NOT RETURN THE SIGNALS TO NORMAL OPERATION UNLESS THE RUN/STOP-TIME SWITCH IS RESET TO THE STOP-TIME POSITION SO THE SIGNAL FLASH SWITCH CAN AGAIN STOP-TIME THE CONTROLLER UNIT. THE SIGNAL FLASH SWITCH SHALL NOT REMOVE POWER TO THE CONTROLLER UNIT OR ITS AUXILIARY EQUIPMENT.
- L. A POLICE DOOR MOUNTED AUTO MANUAL TRANSFER SWITCH WITH SWITCH POSITIONS LABELLED AS "AUTO" AND "MANUAL" SHALL BE INSTALLED. A MANUAL PUSH BUTTON CONTROL SHALL NOT BE INSTALLED UNLESS SPECIFIED, BUT WIRING FOR A PUSH BUTTON CONTROL SHALL BE PROVIDED UP TO THE POINT WHERE THE PUSH BUTTON WOULD HAVE BEEN CONNECTED.

**ITEM 633 CONTROLLER UNIT TS2/A2, W/ P-UPS CABINET, 16 CH, GROUND MOUNTED, AS PER PLAN (CONT'D)**

M. A CONTROLLER SHUTDOWN SWITCH WITH SWITCH POSITIONS LABELLED AS "CONT ON" AND "CONT OFF" AND A COORDINATED/FREE SWITCH WITH SWITCH POSITIONS LABELLED AS "COORD" AND "FREE" SHALL BE INSTALLED INSIDE THE CABINET NEXT TO THE RUN/STOP-TIME SWITCH. A COORDINATED/FREE SWITCH SHALL NOT BE REQUIRED IF THE CONTROLLER HAS A BUILT-IN COORD/FREE SWITCH.

- N. THE WATCH DOG TIMER SHALL CAUSE THE CONTROLLER TO GO INTO A FLASH OPERATION IF A MICROPROCESSOR FAILURE IS DETECTED.
- O. ALL BACK PANEL HARDWARE SHALL BE MOUNTED WITH SCREWS. ALL SCREWS SHALL BE COMPLETELY SCREWED DOWN. RIVETS OR OTHER NON REMOVABLE FASTENERS ARE NOT ACCEPTABLE. WIRE CONNECTIONS ON THE BACK PANEL SHALL BE MADE WITH CRIMP TERMINALS AND THREADED FASTENERS. TELEPHONE TYPE KNIFE CONNECTORS (SOLDERED OR OTHERWISE) ARE NOT ACCEPTABLE.
- P. ALL WIRES FASTENED TO THE LOAD SWITCH AND FLASHER PLUGS SHALL BE SOLDERED IN PLACE.
- Q. THE BACK PANEL AND POWER DISTRIBUTION PANEL SHALL HAVE SILK SCREENED TERMINAL/SOCKET FUNCTION IDENTIFICATION LABELS SUCH AS AC COM, PHASE 3 GREEN, 115 VAC, SIGNAL BUS, ETC. REFERENCE NUMBERS SHALL NOT BE ACCEPTABLE IN LIEU OF FUNCTION LABELS BUT THEY CAN SUPPLEMENT THEM. ADDITIONAL TERMINAL BLOCKS AND AUXILIARY PANELS SHALL USE SILK SCREENED REFERENCE NUMBERS TO IDENTIFY TERMINAL CONNECTIONS.
- R. ALL TERMINAL STRIPS IN CLOSE PROXIMITY OF SHELF MOUNTED CONTROL DEVICE EQUIPMENT SHALL BE COVERED WITH NON-CONDUCTIVE MATERIAL TO PREVENT ACCIDENTAL CONTACT WITH THE DEVICES. ALL TERMINAL STRIPS SHALL BE READILY ACCESSIBLE WITHOUT REMOVAL OF ANY EQUIPMENT.
- S. IN ADDITION TO THE ALUMINUM SHELF WITH INTERNAL STORAGE AS SPECIFIED BY 733 B.10, THE CONTROLLER ENCLOSURE SHALL HAVE ONE NON VENTED (SOLID) SHELF. THE SHELVES SHALL BE SPACED AT LEAST 9" APART. BOTH SHELVES SHALL HAVE A WIDTH OF 13" AND THE BACK EDGE OF THE SHELF SHALL BE LIPPED WITH THE LIP POINTING UP. THE FRONT EDGE OF THE SHELF SHALL BE LIPPED WITH THE LIP POINTING DOWN. ALL LIP EDGES SHALL BE ROUNDED. THE SHELVES SHALL BE ATTACHED TO THE CONTROLLER ENCLOSURE SIDE PANELS. THE SHELF ARRANGEMENT SHALL BE DESIGNED SO ALL SHELF DEVICES FIT ON THEM.
- T. THERE SHALL BE A MINIMUM OF ONE (1) INCH EMPTY SPACE BETWEEN ALL ITEMS ATTACHED TO THE DOOR AND ALL SHELF-MOUNTED DEVICES INCLUDING ITS CONNECTING HARNESS(ES), ALL LOAD SWITCHES, FLASHER AND ALL SIDE-PANEL-MOUNTED ITEMS.
- U. ALL CABINETS SHALL HAVE TWO VENTILATION FANS. THE THERMOSTAT CONTROLLING THE VENTILATING FAN CIRCUIT SHALL BE SET AT 95 DEGREES FAHRENHEIT.
- V. ALL FLASH TRANSFER RELAYS SHALL BE WIRED FOR FAIL SAFE OPERATION (ENERGIZED DURING NORMAL OPERATION) AND WIRED WITH A MAXIMUM OF TWO PHASES PER RELAY.
- W. THE POWER CABLE SHALL BE CONNECTED TO AN ACCESSIBLE TERMINAL STRIP THAT SHALL BE OF SUFFICIENT SIZE TO ACCEPT THE GAUGE OF THE SUPPLIED POWER CABLE. THE TERMINAL STRIP SHALL BE COVERED OR SHIELDED TO MINIMIZE ACCIDENTAL CONTACT DURING NORMAL SERVICING OPERATIONS. THE COVER SHALL BE SNAPPED ON/OFF OR SECURED BY STANDARD SCREWS. THE POWER CABLE LUG TERMINAL CONNECTION SHALL BE LOCATED IMMEDIATELY BELOW THE MAIN POWER DISTRIBUTION BREAKER. THERE SHALL BE A MINIMUM OF TWO (2) INCHES CLEARANCE BETWEEN THE POWER TERMINAL AND THE BOTTOM OF THE CONTROLLER ENCLOSURE.
- X. A #4 WIRE LUG SHALL BE PROVIDED FOR ATTACHING A GROUNDING WIRE FROM A GROUND ROD. THE GROUNDING WIRE SHALL BE ATTACHED TO THE POWER DISTRIBUTION PANEL GROUND BUS, ILSCO MODEL NBCE-1336-2. THE NEUTRAL BUS SHALL ONLY BE CONNECTED TO THE GROUND BUS IN THE POWER METER CABINET, NOT THE TRAFFIC SIGNAL CABINET.
- Y. A SOLID STATE RELAY, CRYDOM PART NO. CWA2450, SHALL BE INSTALLED WHICH WILL ALLOW POWER TO BE REMOVED FROM THE VEHICULAR POWER BUS. THE SOLID STATE RELAY SHALL BE RATED AT 50 AMPS AND 120 VOLTS AND SHALL BE EQUIPPED WITH A PLASTIC COVER.
- Z. ALL EXTERNAL RELAY COILS SHALL HAVE NOISE SUPPRESSION DEVICES.
- AA. THE DOOR FILTER (U.L. LISTED CLASS 2, STANDARD 900) SHALL CONSIST OF THREE DISTINCT LAYERS OF FILTERING MEDIA. THE FIRST AIR ENTERING LAYER SHALL BE COMPOSED OF A DUAL FIBER BLEND OF 100% NON-WOVEN POLYESTER TO TRAP LARGER SIZED PARTICLES. THE NEXT LAYER SHALL BE A DUAL PLY, DUAL DENIER, 100% NON-WOVEN POLYESTER OF SMALLER SIZE TO TRAP FINER PARTICLES PASSING THROUGH THE FIRST LAYER. A NON-TOXIC, NON-MIGRATORY, ODORLESS TACKIFIER SHALL BE APPLIED TO THESE LAYERS. ADHESIVES SPRAYED ON THE LAYERS ARE NOT ACCEPTABLE. THE TACKIFIER SHALL BE INCORPORATED INTO THE LAYER MEDIA DURING THE MANUFACTURING PROCESS OF THE RAW MATERIAL. A 10 GAUGE MESH SHALL BE INCORPORATED IN THE FILTER DESIGN FOR RIGIDITY. SUFFICIENT MEDIA OVERLAP SHALL BE PRESENT ABOUT THE WIRE PERIMETER TO INSURE POSITIVE SELF SEAL. THE DOOR FILTER HOLDER SHALL BE DESIGNED SO THE FILTER MAKES POSITIVE CONTACT WITH THE CABINET DOOR AT ALL TIMES AND UNDER ALL CONDITIONS AND SITUATIONS.

**ITEM 633 CONTROLLER UNIT TS2/A2, W/ P-UPS CABINET, 16 CH, GROUND MOUNTED, AS PER PLAN (CONT'D)**

BB. AN OUTLET RECEPTACLE AND BOX SHALL BE INSTALLED IN THE CONTROLLER ENCLOSURE TO PROTECT NETWORK EQUIPMENT FROM AN IMBALANCE FLOW OF CURRENT FROM THE HOT TO THE NEUTRAL. THE OUTLET SHALL BE A NEMA DUPLEX 5-15 RECEPTACLE, RATED AT 15 AMPS (MINIMUM) AT 120 VAC. THE OUTLET SHALL MEET OR EXCEED FEDERAL SPECIFICATIONS AND UL 498 STANDARDS AND SHALL BE RATED AS WEATHER-RESISTANT. THE RECEPTACLE SHALL BE INSTALLED WITHIN A METALLIC, SINGLE GANG ELECTRICAL BOX WITH A COVER PLATE. THE ELECTRICAL BOX SHALL BE STANDARD DEPTH (NOMINALLY 2 - 1/8 IN.) AND SHALL BE UL-LISTED. THE OUTLET SHALL BE INSTALLED INSIDE THE CONTROLLER ENCLOSURE ALONG ONE OF THE SIDE WALLS AND SHALL BE WIRED FROM THE SAME CIRCUIT BREAKER AS THE OTHER OUTLETS, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

CC. A SURGE SUPPRESSION DEVICE SHALL BE INSTALLED IN THE CONTROLLER ENCLOSURE TO PROVIDE PROTECTED POWER OUTLETS TO NETWORK EQUIPMENT. THE SURGE SUPPRESSION DEVICE SHALL BE SECURELY MOUNTED IN THE CABINET IN A METHOD APPROVED BY THE ENGINEER. THE SURGE SUPPRESSION DEVICE INSTALLED SHALL HAVE 6 NEMA 5-15 OUTLETS AND SHALL BE CAPABLE OF BEING PLUGGED INTO A STANDARD 5-15 OUTLET. THE OUTPUT CURRENT OF THE SURGE SUPPRESSION DEVICE SHALL BE 15 AMPS. THE SURGE SUPPRESSION DEVICE SHALL HAVE AN ENERGY HANDLING RATING OF 1280 JOULES, UL 1499 LET THROUGH RATING OF 330 VOLTS, AND SURGE CURRENT RATING OF 50,000 AMPS.

DD. THE UPS PORTION OF THE 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 CABINET. IT SHALL INCLUDE A RECESSED PLUG, AUTOMATIC TRANSFER SWITCH AND A DOOR THAT SECURELY CLOSES OVER THE POWER CORD.

PROVIDE AN ARC FLASH HAZARD WARNING SIGN ON THE OUTSIDE OF THE FRONT DOOR OF THE CABINET IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE PARAGRAPH 110.16.

FOR LOCATIONS WITHOUT A POWER METER CABINET, PROVIDE AN AVAILABLE FAULT CURRENT SIGN ON THE OUTSIDE OF THE FRONT DOOR OF THE TRAFFIC SIGNAL CONTROLLER CABINET IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE PARAGRAPH 110.24.

- 7/11/22

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

AS AN EXCEPTION TO THE REQUIREMENTS OF 633 AND 733, THIS ITEM SHALL NOT INCLUDE A SEPARATE ENCLOSURE. THE UPS EQUIPMENT SHALL BE HOUSED IN THE COMBINED SIGNAL CONTROLLER/UPS CABINET PAID FOR UNDER ITEM 633 CONTROLLER UNIT TS2/A2, W/ P-UPS CABINET, 16 CH, GROUND MOUNTED, AS PER PLAN.

ALL CONNECTIONS, WIRING, AND MISCELLANEOUS MATERIALS FOR FULL OPERATION OF THE UPS SYSTEM SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THIS ITEM. PAYMENT SHALL BE PER ITEM 633 AND SHALL BE MADE AT THE UNIT PRICE BID PER EACH, COMPLETE IN PLACE, TESTED, AND ACCEPTED.

- 2/1/19

**INTERCONNECT**

**ITEM 632 INTERCONNECT, MISC.: RELOCATE EXISTING FIBER OPTIC CABLE, 24 STRAND**

UNDER THIS ITEM, THE EXISTING UNDERGROUND FIBER OPTIC CABLE, 24 STRAND THAT WAS INSTALLED AND COILED BY PROJECT 3972-E SHALL BE RELOCATED FROM ITS' COILED POSITION IN A PULL BOX AT EACH INTERSECTION THE PROPOSED TRAFFIC SIGNAL CONTROLLER VIA PROPOSED CONDUITS AS DETAILED IN THE TRAFFIC SIGNAL INTERCONNECT PORTION OF THESE PLANS.

PRIOR TO RELOCATION, THE CONTRACTOR AND ENGINEER SHALL INSPECT THE CABLE AND SPLICE ENCLOSURE TO DOCUMENT ANY EXISTING DAMAGE. ANY DAMAGE IDENTIFIED AFTER THE RELOCATION PROCESS AND NOT PREVIOUSLY DOCUMENTED WILL BE PRESUMED TO HAVE BEEN CAUSED BY THE CONTRACTOR.

IF CABLES ARE DAMAGED, AS DETERMINED BY THE ENGINEER, THE CONTRACTOR SHALL REPLACE THE ENTIRE RUN OF CABLE BETWEEN EXISTING TERMINATION POINTS AT THE CONTRACTOR'S EXPENSE. NO SPLICES WILL BE PERMITTED UNLESS NOTED BY THE PLANS.

REESTABLISHING FULL COMMUNICATION CAPABILITIES FOR THE RELOCATED CABLE SHALL BE CONSIDERED INCIDENTAL TO THIS ITEM OF WORK. RELOCATED CABLE SHALL BE SUBJECT TO THE TESTING REQUIREMENTS LISTED IN SUPPLEMENTAL SPECIFICATION 1620.

PAYMENT SHALL BE PER EACH INTERSECTION FOR ALL CABLE RELOCATED, TESTED, AND ACCEPTED.

**ITEM 632 SIGNALIZATION MISC.: CCTV IP-CAMERA SYSTEM**

CLOSED CIRCUIT TELEVISION (CCTV) POLE CAMERA ASSEMBLY – THE CCTV POLE CAMERA ASSEMBLY SHALL INCLUDE THE CAMERA, UNPRESSURIZED DOME/HOUSING, PTZ UNIT, CAMERA CONTROLLER, LOCAL CAMERA CONTROL UNIT(RACK MOUNTED IN CCTV CABINETS AND SHELF MOUNTED IN SIGNAL CABINETS), AND ALL MATERIALS, LABOR, WORKMANSHIP, EQUIPMENT, TESTING, DOCUMENTATION, CABLES, CONNECTORS, AND OTHER ITEMS IDENTIFIED IN THIS BID ITEM, AND INCIDENTAL ITEMS REQUIRED TO DELIVER A FULLY OPERATIONAL CCTV POLE CAMERA ASSEMBLY IN ACCORDANCE WITH THESE SPECIAL PROVISIONS AND THE PLANS.

THIS ITEM SHALL BE FURNISHED PER ODOT SUPPLEMENTAL SPECIFICATION SECTION 809.05.

FURNISH ALL TOOLS, EQUIPMENT, MATERIALS, SUPPLIES, AND MANUFACTURED ARTICLES, AND PERFORM ALL OPERATIONS AND EQUIPMENT INTEGRATION NECESSARY TO PROVIDE A COMPLETE, FULLY OPERATIONAL IP-CAMERA SITE AS DEPICTED HEREIN, WITHIN THE PLAN SET, AND/OR IN THE CONTRACT.

PROVIDE THE CITY WITH A WRITTEN INVENTORY BY LOCATION INCLUDING SERIAL NUMBERS OF ITEMS RECEIVED AND THE CONDITION IN WHICH THEY WERE RECEIVED. ONCE RECEIVED, THE EQUIPMENT BECOMES THE CONTRACTOR'S RESPONSIBILITY. PROVIDE ALL LABOR AND EQUIPMENT NECESSARY TO MOVE INVENTORY OUT OF THE DESIGNATED STORAGE FACILITY AND TO TRANSPORT IT TO THE INSTALLATION LOCATION. ALL ITEMS WILL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS OR AS DIRECTED BY THE DEPARTMENT.

MESSANGER WIRE (IF REQUIRED) WILL BE USED FOR ALL OVERHEAD WIRING OF IP-CAMERA CABLE. CABLES WILL BE ATTACHED TO MESSANGER WIRE AS PER SCD 4331 AND AS DEPICTED IN THE PLANS.

IF IT IS DETERMINED THAT RADIO FREQUENCY INTERFERENCE (RFI) IS INDUCING NOISE AND DEGRADING THE QUALITY OF THE VIDEO IMAGES BEING TRANSMITTED BY THE IP-CAMERA ASSEMBLY OR ITS COMPONENTS, IF REQUIRED BY THE CITY, FURNISH AND INSTALL FERRITE COILS OR OTHER RADIO FREQUENCY (RF) SUPPRESSION DEVICES FOR RFI DAMPENING. THIS INSTALLATION AND THE PLACEMENT OF THESE RF SUPPRESSION DEVICES WILL BE AS RECOMMENDED BY THE MANUFACTURER. THE FURNISHING AND INSTALLATION OF THESE DEVICES WILL BE AN ANCILLARY COST TO THE IP-CAMERA ASSEMBLY PAY ITEM.

THE CONTRACTOR SHALL ENSURE THAT ALL FUNCTIONS OF THE NEWLY INSTALLED CCTV SITE ARE FULLY COMPATIBLE WITH THE HEAD END MILESTONE SYSTEM AT THE TMC. CONFIGURATION AND INTEGRATION LABOR COSTS FOR THE PROPOSED CCTV SITE ARE CONSIDERED INCIDENTAL TO THIS PAY ITEM.

ADDITIONALLY, THE CONTRACTOR SHALL PURCHASE THE FOLLOWING LICENSES IN ORDER TO FULLY INTEGRATE CCTV FUNCTIONALITY INTO THE HEAD END MILESTONE SYSTEM, AND BY COMPLETION OF THE PROJECT TRANSFER OWNERSHIP OF ALL LICENSES TO THE CITY.

1. ONE (1) – CCTV SITE LICENSE – TO INCORPORATE INTO HEAD END MILESTONE SYSTEM. THIS IS TO INCLUDE THE FIVE YEAR SOFTWARE/FIRMWARE UPGRADE SUPPORT.
2. ONE (1) – INTERCONNECT LICENSE TO ENABLE ODOT – CITY OF COLUMBUS TMC SHARED USE OF VIDEO FROM CCTV SITE

CONFIGURATION AND INTEGRATION LABOR COSTS FOR THE PROPOSED CCTV SITE, INCLUDING THE COST OF SOFTWARE LICENSES SPECIFIED ABOVE, ARE CONSIDERED INCIDENTAL TO THIS PAY ITEM.

THE VENDOR SHALL SUPPLY TO THE CITY COPIES OF THE COMPUTER SOFTWARE FOR SETUP, TESTING, AND CONTROL OF THE CCTV LOCALLY AND INTEGRATE INTO THE HEAD END MILESTONE SYSTEM WHEN NECESSARY.

EQUIPMENT FURNISHED UNDER THIS SPECIFICATION WILL BE GUARANTEED TO PERFORM ACCORDING TO THESE SPECIFICATIONS AND TO THE MANUFACTURER'S PUBLISHED SPECIFICATIONS. EQUIPMENT WILL BE WARRANTED FOR FIVE (5) YEARS EFFECTIVE ON THE DATE OF FINAL ACCEPTANCE OF THE PROJECT BY THE CITY. THE CCTV IP-CAMERA SYSTEM MANUFACTURER(S) WILL ASSIGN TO THE CITY ALL MANUFACTURER'S NORMAL WARRANTIES OR GUARANTEES, ON ALL SUCH ELECTRONIC, ELECTRICAL AND MECHANICAL EQUIPMENT, MATERIALS, TECHNICAL DATA, AND PRODUCTS FURNISHED FOR AND INSTALLED ON THE PROJECT. DEFECTIVE EQUIPMENT WILL BE REPAIRED OR REPLACED, AT THE MANUFACTURER'S OPTION, DURING THE WARRANTY PERIOD AT NO COST TO THE CITY. THE MANUFACTURER WILL PROVIDE REPLACEMENT PARTS AND/OR COMPLETE UNIT(S) WITHIN TEN (10) BUSINESS DAYS AFTER NOTIFICATION BY THE CITY.

1. INSTALL CCTV IP-CAMERA ASSEMBLY AND EQUIPMENT ON THE MOUNT/POLE, EXISTING AND NEW BRACKET ARMS, AND IN THE CABINET. THIS WORK INCLUDES ANY UPGRADES TO THE CONNECTIONS TO MOUNTS/POLES OR BRACKET ARMS THAT MAY BE REQUIRED TO MAKE THE CCTV IP-CAMERA SYSTEM FUNCTIONAL LOCALLY AND TO THE EXISTING CENTRAL CAMERA CONTROL SOFTWARE.
2. MAKE POWER AND COMMUNICATION CONNECTIONS.

THE WORK AS DESCRIBED WILL BE MEASURED AS ONE UNIT FOR EACH OF THE INSTALLATIONS SPECIFIED, AND SHALL INCLUDE ALL MATERIALS, EQUIPMENT AND INCIDENTALS, COMPLETE IN PLACE. TERMINATIONS, CONNECTIONS, AND OTHER MISCELLANEOUS ITEMS AND MATERIALS SHALL BE INCIDENTAL TO THIS WORK AND NO SEPARATE PAYMENT WILL BE MADE.

PAYMENT SHALL BE FOR COMPLETE CAMERA OPERATIONAL ASSEMBLY WITH CONNECTION TO THE TRAFFIC MANAGEMENT CENTER. SOFTWARE LICENSES FOR EACH CAMERA SHALL BE CONSIDERED INCIDENTAL TO THIS ITEM.

THE ENGINEER SHALL PROVIDE FINAL ACCEPTANCE OF THIS ITEM BEFORE PAYMENT TO CONTRACTOR IS PROCESSED.  
– 9/16/15

**ITEM 632 INTERCONNECT, MISC.: CAT 5E CABLE, OUTDOOR RATED**

THE CONTRACTOR SHALL INSTALL OUTDOOR RATED CATEGORY 5E CABLE FOR ALL OUTDOOR APPLICATIONS SUSCEPTIBLE TO WATER OR MOISTURE PENETRATION. OUTDOOR RATED CATEGORY 5E CABLE SHALL BE USED TO PROVIDE INTERCONNECTION BETWEEN THE ETHERNET SWITCHES, ITS DEVICES, AND NETWORK INTERFACES AS SHOWN ON THE PLANS.

THE SPECIFICATIONS FOR THE OUTDOOR RATED CATEGORY 5E CABLES SHALL MEET THE FOLLOWING SPECIFICATIONS:

- DOUBLE SHIELD
- ALUMINUM ARMORED
- BARE (AKA PURE) COPPER CONDUCTORS
- CM PVC JACKET
- BLACK COLOR
- 24 AWG
- SOLID CONDUCTOR
- TIA/EIA-568A,ISO/IEC11801,YD/T1019-2001

ALL COMPLETE CABLES (INCLUDING CABLE AND CONNECTORS) SHALL BE CAT 5E CERTIFIED AND TESTED. THE CONTRACTOR SHALL TEST AND CERTIFY EACH CAT 5E CABLE (EXCLUDING PATCH CABLES 10 FEET OR LESS).

ALL CABLING SHALL BE CUT TO PROPER LENGTH BEFORE ASSEMBLY. CABLES SHALL BE NEATLY LASHED TO THE MESSENGER WIRE CABLE WHERE SHOWN IN THE PLANS.

OUTDOOR RATED CATEGORY 5E CABLE WILL BE MEASURED TO THE CABINET, OR DEVICE, PLUS AN ALLOWANCE OF FIVE (5) FEET ON EACH END.

OUTDOOR RATED CATEGORY 5E CABLE WILL BE PAID FOR PER LINEAR FOOT, AND WILL INCLUDE FURNISHING ALL MATERIALS, EQUIPMENT, LABOR AND INCIDENTALS NECESSARY TO COMPLETE THE WORK SPECIFIED.

– 3/4/16

**ITEM 633 CONTROLLER ITEM, MISC.: FIBER OPTIC ETHERNET TRANSCEIVER, SHORT RANGE**

THE CONTRACTOR SHALL FURNISH AND INSTALL SINGLE MODE FIBER (SMF), SMALL FORM FACTOR PLUGGABLE (SFP) GIGABIT INTERFACE CONVERTER (GIC) MODULES AT LOCATIONS AS SHOWN ON THE PLANS.

THE GIC TRANSCEIVER SHALL BE 1000BASE LX/LH SFP-LC TRANSCEIVER (CISCO PART #GLC-LX-SM-RGD).

THE CONTRACTOR SHALL INSTALL THE SFP MODULE IN THE ETHERNET SWITCH SLOT AND CONFIGURE AS NECESSARY.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A COMPLETE, FUNCTIONAL SYSTEM INCLUDING ALL NECESSARY CABLES AND CONNECTORS IN ACCORDANCE TO THE SPECIFICATIONS AND AS SPECIFIED ON THE PLANS. ALL MISCELLANEOUS PATCH AND INTERCONNECT CABLES SHALL MEET THE PROPOSED EQUIPMENT SPECIFICATION REQUIREMENTS AND SHALL MEET EIA/TIA TELECOMMUNICATIONS STANDARDS.

THE WORK AS DESCRIBED WILL BE MEASURED AS ONE UNIT FOR EACH OF THE INSTALLATIONS SPECIFIED, AND SHALL INCLUDE ALL MATERIALS, EQUIPMENT AND INCIDENTALS, COMPLETE IN PLACE. PATCH CABLES, TERMINATIONS, CONNECTIONS, AND OTHER MISCELLANEOUS ITEMS AND MATERIALS SHALL BE CONSIDERED INCIDENTAL TO THIS WORK AND NO SEPARATE PAYMENT WILL BE MADE.

– 12/2/15

**ITEM 633 CONTROLLER ITEM MISC.: LAYER 2 ETHERNET SWITCH**

THE CONTRACTOR SHALL PURCHASE AND INSTALL ENVIRONMENTALLY HARDENED LAYER 2 ETHERNET SWITCHES AS SHOWN ON THE PLANS. LAYER 2 ETHERNET SWITCHES SHALL BE COMNET MODEL CNGE11FX3TX8MSPOEHO THIS WORK IS THE FURNISHING AND INSTALLATION OF A LAYER 2 SWITCH WITH THREE 100/1000BASE-FX SFP PORTS AND EIGHT SWITCHED 10/100/1000BASE-TX RJ45 PORTS.

ALL EQUIPMENT SHALL BE NEW AND IN STRICT ACCORDANCE WITH THE DETAILS SHOWN ON THE PLANS AND THE SPECIFICATIONS.

TRAFFIC MAINTENANCE SHALL BE CONTACTED AT 645-7393 14 CALENDAR DAYS PRIOR TO INSTALLATION TO PROGRAM THE SWITCH. THE CONTRACTOR SHALL INSTALL THE SWITCH IN THE CABINET BUT SHALL NOT MAKE ANY CONNECTIONS TO THE SWITCH.

THE TRAFFIC MAINTENANCE MANAGER SHALL INSPECT THE CONDITION OF ALL COMPONENTS UPON INSTALLATION. NO DAMAGED COMPONENT WILL BE ACCEPTED, AND NO COMPONENT SHALL BE CONSIDERED INSTALLED UNTIL THE TRAFFIC MAINTENANCE MANAGER APPROVES OF THE SWITCH INSTALLATION. LAYER 2 ETHERNET SWITCHES SHALL SUPPORT DIRECT CONNECTIVITY TO PROPOSED AND EXISTING NETWORKS CONFIGURED IN RING AND MESH FAULT TOLERANT TOPOLOGIES ENABLING APPLICATIONS TO OPERATE RELIABLY, AND WITH LOW LATENCY.

ALL EQUIPMENT SHALL INCLUDE LICENSES, WHERE REQUIRED, FOR ANY SOFTWARE OR HARDWARE IN THE SYSTEM.

LAYER 2 ETHERNET SWITCHES SHALL SUPPORT DIRECT CONNECTIVITY TO PROPOSED AND EXISTING NETWORKS CONFIGURED IN RING AND MESH FAULT TOLERANT TOPOLOGIES ENABLING APPLICATIONS TO OPERATE RELIABLY, AND WITH LOW LATENCY.

1. INSTALL POWER ADAPTER, POWER CABLES, CATEGORY 5E OR CATEGORY 6 PATCH CORDS, AND SINGLE MODE PATCH CABLES AS REQUIRED AND DEPICTED ON COMMUNICATIONS DIAGRAMS.
2. SECURELY MOUNT THE SWITCH AND POWER SUPPLY IN THE CABINET.
3. MAKE POWER CONNECTION TO AN AVAILABLE OUTLET ON THE INSTALLED SURGE SUPPRESSOR.
4. MAKE THE COMMUNICATION CONNECTIONS.
5. ESTABLISH AND VERIFY COMMUNICATIONS TO THE NETWORK PRIOR TO TRANSITIONING SIGNAL CONTROLLER TO NEW SYSTEM.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A COMPLETE, FUNCTIONAL SYSTEM INCLUDING ALL NECESSARY CABLES AND CONNECTORS IN ACCORDANCE TO THE SPECIFICATIONS AND AS SPECIFIED ON THE PLANS. ALL MISCELLANEOUS PATCH AND INTERCONNECT CABLES SHALL MEET THE PROPOSED EQUIPMENT SPECIFICATION REQUIREMENTS AND SHALL MEET EIA/TIA TELECOMMUNICATIONS STANDARDS. ADDITIONALLY, FIBER OPTIC PATCH CABLES SHALL CONFORM TO THE PLAN REQUIREMENTS FOR PATCH CABLES.

– 5/12/20

**ITEM 1620 MISC.: TERMINATION PANEL, 24 FIBER**

THE TERMINATION PANEL SHALL BE FURNISHED AND INSTALLED IN THE TRAFFIC SIGNAL CONTROLLER CABINET AT THE LOCATION SHOWN ON THE PLANS. THE TERMINATION PANEL HOUSING SHALL BE CORNING MODEL SPH-01P AND SHALL INCLUDE ONE CLOSET CONNECTOR HOUSING, CORNING MODEL CCH-CP24-A9-P03RH.

– 4/22/19

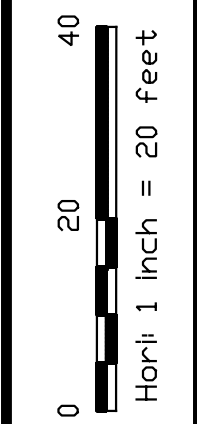
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	ITEM NO.	DESCRIPTION	UNIT	TOTAL	RICH AT THIRD	RICH AT FOURTH	RICH AT FIFTH	RICH AT GRANT
SIGNALS	625	GROUND ROD	EA	43	10	11	11	11
	625	NO. 4 AWG 600 VOLT DISTRIBUTION CABLE, AS PER PLAN	FT	3354	854	788	789	923
	625	PULL BOX, 725.06, 12"X18" (TRAFFIC)	EA	4	1	1	1	1
	625	PULL BOX, 27"	EA	11	2	3	3	3
	625	PULL BOX, 32"	EA	4	1	1	1	1
	625	TRENCH, AS PER PLAN	FT	1520	275	335	443	467
	625	CONDUIT, 2", 725.051	FT	805	146	204	232	223
	625	CONDUIT, 3", 725.051	FT	145	10	12	72	51
	625	CONDUIT, CONCRETE ENCASED, 2", 725.051	FT	1490	291	295	502	402
	625	CONDUIT, CONCRETE ENCASED, 3", 725.051	FT	279	23	82		174
	625	BRACKET ARM 25 FT, AS PER PLAN	EA	2	1			1
	625	BRACKET ARM - LUMINAIRE, 8 FT, AS PER PLAN	EA	8	1	2	2	3
	625	NO. 6 AWG 600 VOLT DISTRIBUTION CABLE	FT	1178	44	201	350	583
	625	NO. 10 AWG POLE AND BRACKET CABLE	FT	486	80	116	116	174
	625	CONNECTION, FUSED PULL-APART	EA	8	1	2	2	3
	625	CONNECTION, UNFUSED PULL-APART	EA	8	1	2	2	3
	625	LUMINAIRE, LED, 120 V, TEARDROP (BLACK), AS PER PLAN	EA	8	1	2	2	3
	625	LIGHTING, MISC.: PHOTO CELL	EA	8	1	2	2	3
	630	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN	EA	20	4	4	6	6
	630	SIGN SUPPORT ASSEMBLY, POLE MOUNTED, AS PER PLAN	EA	22	6	5	6	5
	630	SIGN, FLAT SHEET, AS PER PLAN	SF	164	34	41	46	43
	630	STREET NAME SIGN	SF	60	16	8	16	20
	632	VEHICULAR SIGNAL HEAD, L.E.D., 3-SECTION, 12" LENS, 1-WAY, POLYCARBONATE, AS PER PLAN	EA	21	5	4	6	6
	632	PEDESTRIAN SIGNAL HEAD	EA	32	8	8	8	8
	632	SIGNALIZATION, MISC.: APS PUSHBUTTON STATION	EA	8				8
	632	SIGNAL SUPPORT FOUNDATION	EA	6	1	2	2	1
	632	SIGNAL SUPPORT FOUNDATION (22'), AS PER PLAN	EA	4	1		1	2
	632	PEDESTAL FOUNDATION	EA	21	5	6	5	5
	632	SIGNALIZATION, MISC.: FOUNDATION PRE-EXCAVATION	EA	31	7	8	8	8
	632	SIGNAL SUPPORT, TYPE 4121, DESIGN 12, AS PER PLAN	EA	1			1	
	632	COMBINATION SIGNAL SUPPORT, TYPE 4121, DESIGN 12, AS PER PLAN	EA	4			2	2
	632	COMBINATION SIGNAL SUPPORT, TYPE 4121, DESIGN 13, AS PER PLAN	EA	5	2	2		1
	632	PEDESTAL SUPPORT, 10.7'	EA	21	5	6	5	5
	632	SIGNAL CABLE, 4 CONDUCTOR, NO. 14 AWG	FT	136				136
	632	SIGNAL CABLE, 7 CONDUCTOR, NO. 14 AWG	FT	4234	1091	871	515	1757
	632	SIGNAL CABLE, 9 CONDUCTOR, NO. 14 AWG	FT	1531	290	296	772	173
	632	LOOP DETECTOR LEAD-IN CABLE, IMSA 50-2	FT	1055				1055
	632	POWER CABLE, 2 CONDUCTOR, NO. 6 AWG	FT	160	41	39	39	41
	632	POWER CABLE, 3 CONDUCTOR, NO. 6 AWG	FT	449	93	100	129	127
	632	POWER SERVICE, AS PER PLAN	EA	4	1	1	1	1
632	SIGNALIZATION, MISC.: POWER METER CABINET TYPE 1 OR 2, BASE MOUNT, WITH FOUNDATION	EA	4	1	1	1	1	
632	COVERING OF VEHICULAR SIGNAL HEAD	EA	21	5	4	6	6	
632	COVERING OF PEDESTRIAN SIGNAL HEAD	EA	32	8	8	8	8	
632	COVERING OF PEDESTRIAN PUSHBUTTON	EA	8				8	
632	REMOVAL OF TRAFFIC SIGNAL INSTALLATION	EA	4	1	1	1	1	
632	SIGNALIZATION, MISC.: CCTV IP-CAMERA SYSTEM	EA	2	1			1	
633	CONTROLLER UNIT TS2/A2, W/ P-UPS CABINET, 16 CH, SIZE 6, GROUND MOUNTED, AS PER PLAN	EA	4	1	1	1	1	
633	CABINET FOUNDATION	EA	4	1	1	1	1	
633	UNINTERRUPTIBLE POWER SUPPLY (UPS), 1000 WATT, AS PER PLAN	EA	4	1	1	1	1	
INT	632	INTERCONNECT, MISC.: RELOCATE EXISTING FIBER OPTIC CABLE, 24 STRAND	EA	4	1	1	1	1
	632	INTERCONNECT, MISC.: CAT 5E CABLE, OUTDOOR RATED	FT	559	315			244
	633	CONTROLLER ITEM, MISC.: FIBER OPTIC ETHERNET TRANSCEIVER, SHORT RANGE	EA	7	2	3	1	1
	633	CONTROLLER ITEM, MISC.: LAYER 2 ETHERNET SWITCH	EA	4	1	1	1	1
1620	MISC.: TERMINATION PANEL, 24-FIBER	EA	7	2	2	1	2	

TRAFFIC SIGNAL AND INTERCONNECT SUBSUMMARY

IMPROVEMENTS OF  
E RICH STREET FROM S 3RD ST TO S GRANT AVE  
FRA E RICH ST SIGNALS



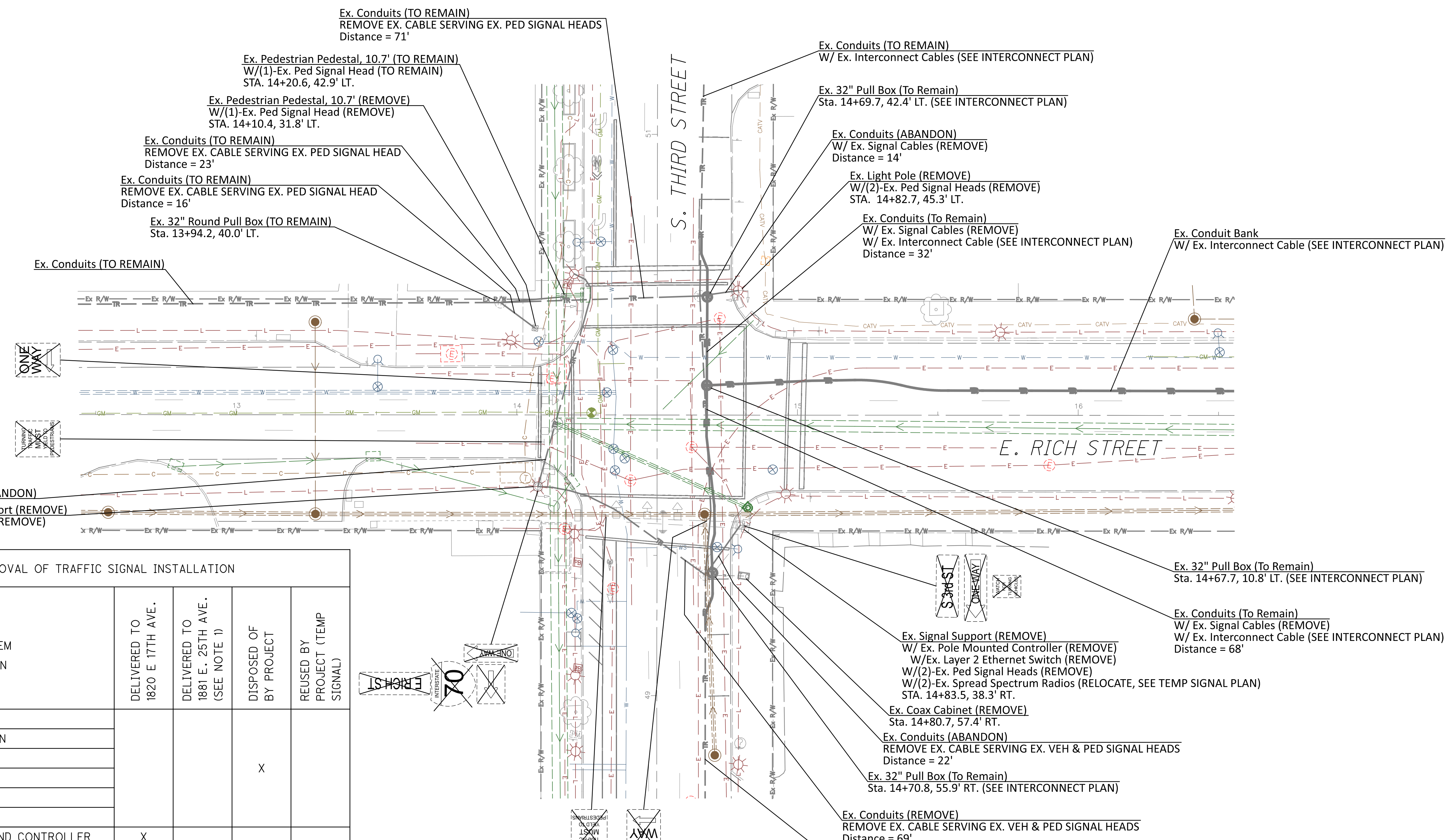
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TRAFFIC SIGNAL REMOVAL PLAN  
RICH STREET AT THIRD STREET

IMPROVEMENTS OF  
E RICH STREET FROM S 3RD ST TO S GRANT AVE  
FRA E RICH ST SIGNALS

3921-E

60  
95



ITEM 632 - REMOVAL OF TRAFFIC SIGNAL INSTALLATION

QUANTITY	REMOVED ITEM DESCRIPTION	DELIVERED TO 1820 E 17TH AVE.	DELIVERED TO 1881 E. 25TH AVE. (SEE NOTE 1)	DISPOSED OF BY PROJECT	REUSED BY PROJECT (TEMP SIGNAL)
LUMP	SIGNAL CABLE & CONDUIT				
LUMP	CABINET/POLE FOUNDATION				
LUMP	MAST ARM MOUNTED SIGNS			X	
LUMP	POLE MOUNTED SIGNS				
LUMP	VEHICULAR SIGNAL HEADS				
LUMP	PEDESTRIAN SIGNAL HEADS				
1	POLE MOUNTED CABINET AND CONTROLLER	X			
2	ANCHOR BASE POLE	X			
1	PEDESTRIAN PEDESTAL	X			
LUMP	STREET NAME SIGNS	X			
1	FIBER OPTIC TERMINATION PANEL		X		X
2	WIRELESS RADIO		X		X
1	LAYER 2 ETHERNET SWITCH		X		X
3	ETHERNET TRANSCEIVERS (GBIC MODULES)		X		X
1	GRND. MOUNTED COAX CABINET & EQUIPMENT		X		

NOTES:  
1. ITEMS LISTED AS REUSED BY PROJECT SHALL BE RELOCATED FROM THEIR EXISTING CONDITION TO A TEMPORARY CONDITION AS DETAILED BY THE MOT PLANS. ONCE THE NEW IS IN PLACE, TESTED, AND ACCEPTED, THE EXISTING ITEMS SHALL BE REMOVED AND DELIVERED TO THE ADDRESS INDICATED BY THIS CHART.

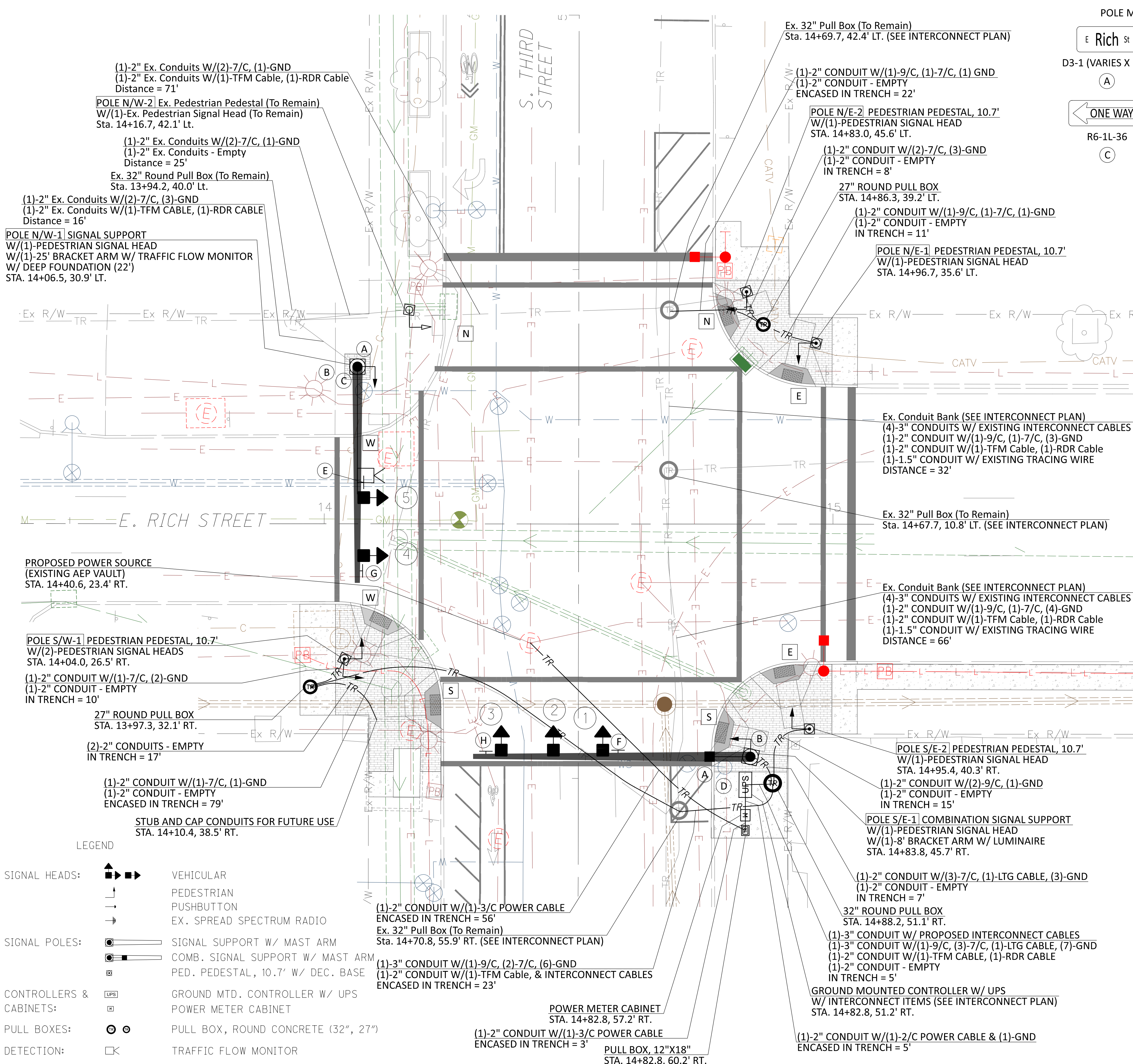
LEGEND

SIGNAL HEADS:		EX. VEHICULAR
		EX. PEDESTRIAN
		EX. PUSHBUTTON
		EX. SPREAD SPECTRUM RADIO
SIGNAL POLES:		EX. SIGNAL SUPPORT W/ MAST ARM
		EX. COMB. SIGNAL SUPPORT W/ MAST ARM
		EX. EMBEDDED POLE
CONTROLLERS & CABINETS:		EX. POLE MTD. CONTROLLER
PULL BOXES:		EX. PULL BOX

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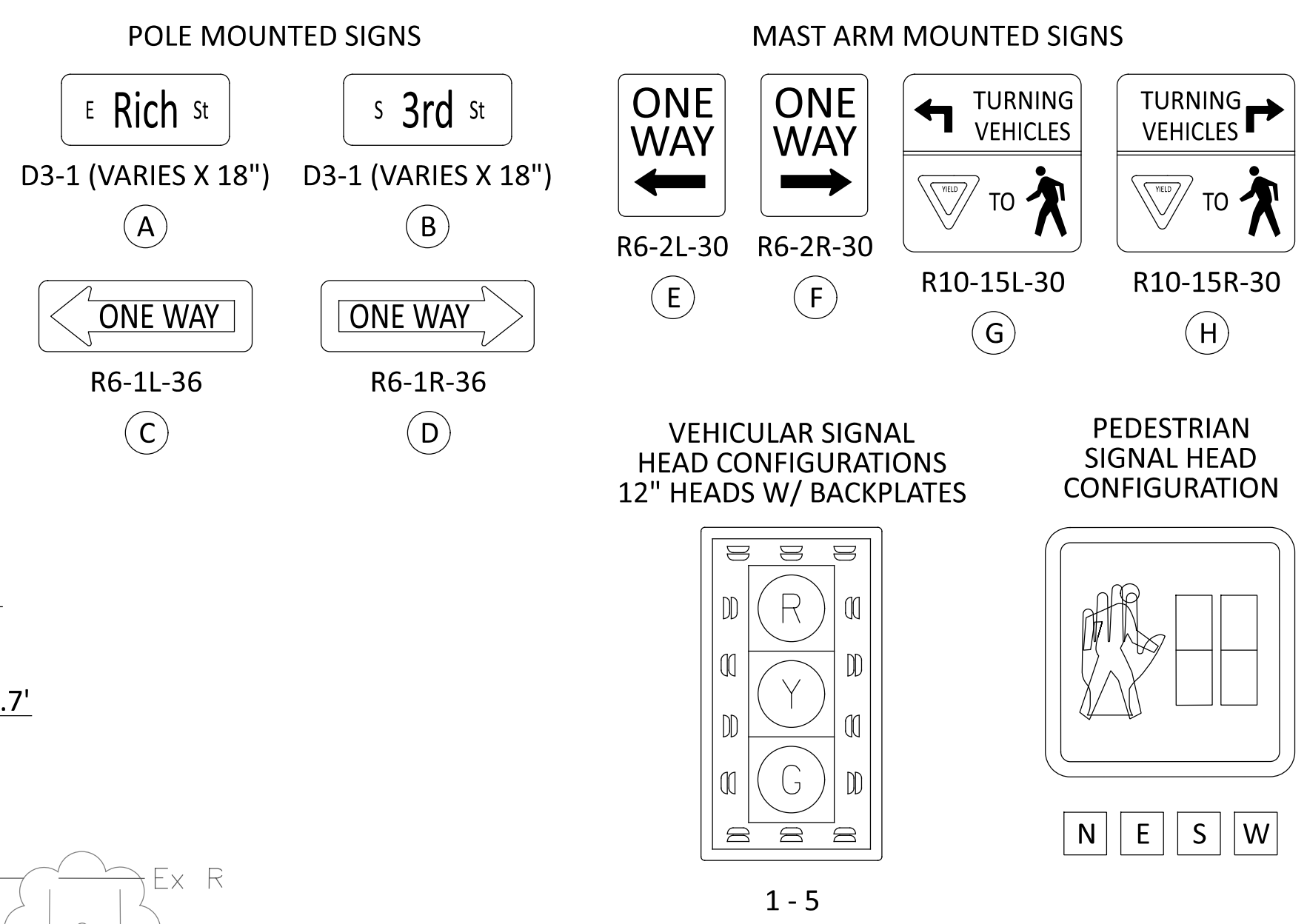


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**LEGEND**

SIGNAL HEADS:		VEHICULAR
		PEDESTRIAN
		PUSHBUTTON
		EX. SPREAD SPECTRUM RADIO
SIGNAL POLES:		SIGNAL SUPPORT W/ MAST ARM
		COMB. SIGNAL SUPPORT W/ MAST ARM
		PED. PEDESTAL, 10.7' W/ DEC. BASE
CONTROLLERS & CABINETS:		GROUND MTD. CONTROLLER W/ UPS
		POWER METER CABINET
PULL BOXES:		PULL BOX, ROUND CONCRETE (32", 27")
DETECTION:		TRAFFIC FLOW MONITOR



- THE CONTRACTOR SHALL ENSURE THAT ALL PROPOSED SIDEWALKS/ PATHWAYS MEET ADA GUIDELINES PER CITY SPECIFICATIONS.
- THE CONTRACTOR SHALL ENSURE THAT ALL EXISTING SIDEWALKS/ PATHWAYS WITHIN THE PROJECT WORK LIMITS MEET ADA GUIDELINES PER CITY SPECIFICATIONS.
- ALL CABLES, UNLESS SPECIFIED IN THE PLANS, ARE TO BE ROUTED INSIDE THE ANCHOR BASE SIGNAL SUPPORT POLE OR PEDESTAL. CABLES NOT SERVING A GIVEN POLE OR PEDESTAL SHALL NOT BE ROUTED THROUGH THE POLE.
- POWER, SERVICE AND INTERCONNECT CABLE SHALL BE CONTINUOUS WITH NO SPLICES, EXCEPT AS NOTED.
- FOR SIGNING AND PAVEMENT MARKINGS, SEE SHEET 51 .
- N/A.
- FOR POLE BASE FOUNDATIONS NOT WITHIN SIDEWALK AREA, THE TOP OF THE POLE BASE FOUNDATION SHALL BE EDGED USING A 1/2" SIDEWALK EDGER INSTEAD OF BEING CHAMFERED.
- THE CITY OF COLUMBUS SHALL APPROVE BOLT ALIGNMENT, POLE/PEDESTAL FOUNDATION LOCATION, AND ELEVATION PRIOR TO THE CONTRACTOR INSTALLING THE FOUNDATION.
- TAGGING OF CABLE IN THE PULL BOX IMMEDIATELY ADJACENT TO THE CONTROL CABINET IS NOT REQUIRED EXCEPT FOR TAGGING OF CERTAIN CABLE AS DIRECTED BY THE PROJECT ENGINEER, OR AS PER PLAN.
- DO NOT ENCASE THE GROUND ROD, THE GROUNDING WIRE, OR THE EMT CONDUIT ENDS IN CONCRETE THAT FALL OUTSIDE OF THE FOUNDATION. FULL ACCESS TO THESE ITEMS MUST BE MAINTAINED AT ALL TIMES. PERMANENTLY MARK THE TOP OF FOUNDATION CONCRETE, WITH A MARKER OR SYMBOL SO THE ROD LOCATION CAN BE IDENTIFIED BY OTHERS.
- ANY SIGNAL POLE BASE FOUNDATION ADJACENT TO A SIDEWALK AREA SHALL BE FLUSH WITH THE TOP OF THE SIDEWALK UNLESS OTHERWISE STATED. SIGNAL POLE FOUNDATIONS WITHIN SIDEWALK AREA SHALL BE PER STD DWG 4161.
- THE CONTRACTOR SHALL NOT INSTALL POLE FOUNDATIONS UNTIL THE POLE LOCATION AREA IS AT FINISHED GRADE.
- UNDERGROUND CONDUIT AND TRENCH THAT ARE UNDER PROPOSED SIDEWALK OR ROADWAY AREAS SHALL BE INSTALLED PRIOR TO THE PLACEMENT OF SIDEWALKS OR ANY ASPHALT OR CONCRETE ROADWAY COURSE.
- THE CONTRACTOR SHALL PROVIDE AND INSTALL POWER CABLE/CONDUIT FROM THE TRAFFIC SIGNAL CONTROLLER CABINET, THROUGH THE POWER METER CABINET, AND TO THE AEP POWER/VAULT AT STA 14+40.6, 23.4' RT. COIL ENOUGH CABLE IN THE VAULT TO REACH THE POWER HOOK-UP POINT IN THE VAULT.
- N/A.
- FOR INTERCONNECT ITEMS, SEE INTERCONNECT SCHEMATIC SHEET 73.
- N/A.
- THE CONTROL CABINET DOOR SHALL BE LOCATED ON THE EAST SIDE OF THE CABINET.
- THE CABINET FOUNDATION SHALL BE PLACED ADJACENT TO THE BACK OF THE SIDEWALK. THE TOP SURFACE OF A CABINET FOUNDATION LOCATED NEXT TO SIDEWALK AREAS SHALL BE 4" ABOVE THE SURROUNDING WALK. EXPANSION MATERIAL SHALL BE USED BETWEEN ALL FOUNDATIONS AND ADJACENT SIDEWALKS. WORK PAD SIZE SHALL BE 48" W X 36" D X 4" H.
- USE A SEPARATE CONDUIT FOR EACH GROUPING OF CABLES UNLESS OTHERWISE INDICATED: ONE CONDUIT FOR 120VAC SIGNAL CABLE (3/C, 7/C, 9/C); ONE CONDUIT FOR POWER; ONE CONDUIT FOR 2 CONDUCTOR CABLE (LOOP & PUSHBUTTON); AND ONE CONDUIT FOR INTERCONNECT/COMMUNICATIONS CABLE (TWISTED PAIR, FIBER OPTICS OR COAX). ANY OTHER LOW VOLTAGE CABLE NOT SPECIFIED ABOVE CAN BE PLACED IN THE 2 CONDUCTOR CABLE CONDUIT. POWER CABLE MUST BE PLACED IN ITS OWN CONDUIT.
- UNLESS OTHERWISE SPECIFIED THE FOLLOWING SHALL APPLY. A PREFORMED PVC CONDUIT ELBOW SHALL BE USED TO CHANGE THE PVC CONDUIT DIRECTION BEYOND WHAT ITS NATURAL BENDING FLEX WOULD YIELD. RIGID METAL CONDUIT CAN BE BENT TO FORM AN ELBOW OR ANY OTHER BENDING ANGLE REQUIRED ONLY IF A PROPER CONDUIT BENDING MACHINE IS USED. THE ELBOW RADIUS FOR ANY NON-INTERCONNECT CONDUIT SHALL BE 24" OR LARGER WHEN USED IN A HORIZONTAL OR VERTICAL MANNER. ANY TYPE OF ELBOW USED FOR INTERCONNECT CONDUIT SHALL HAVE A RADIUS OF 36" OR LARGER WHEN USED IN A HORIZONTAL DIRECTION OR IN A VERTICAL DIRECTION WHEN THE TRENCH IS 36" OR DEEPER. IF THE TRENCH IS LESS THAN 36" THEN THE VERTICAL ELBOW RADIUS SHALL BE 24".
- ALL CLAMPS AND BANDING MATERIAL SHALL BE PAINTED TO MATCH THE SIGNAL SUPPORTS.
- N/A.
- N/A.



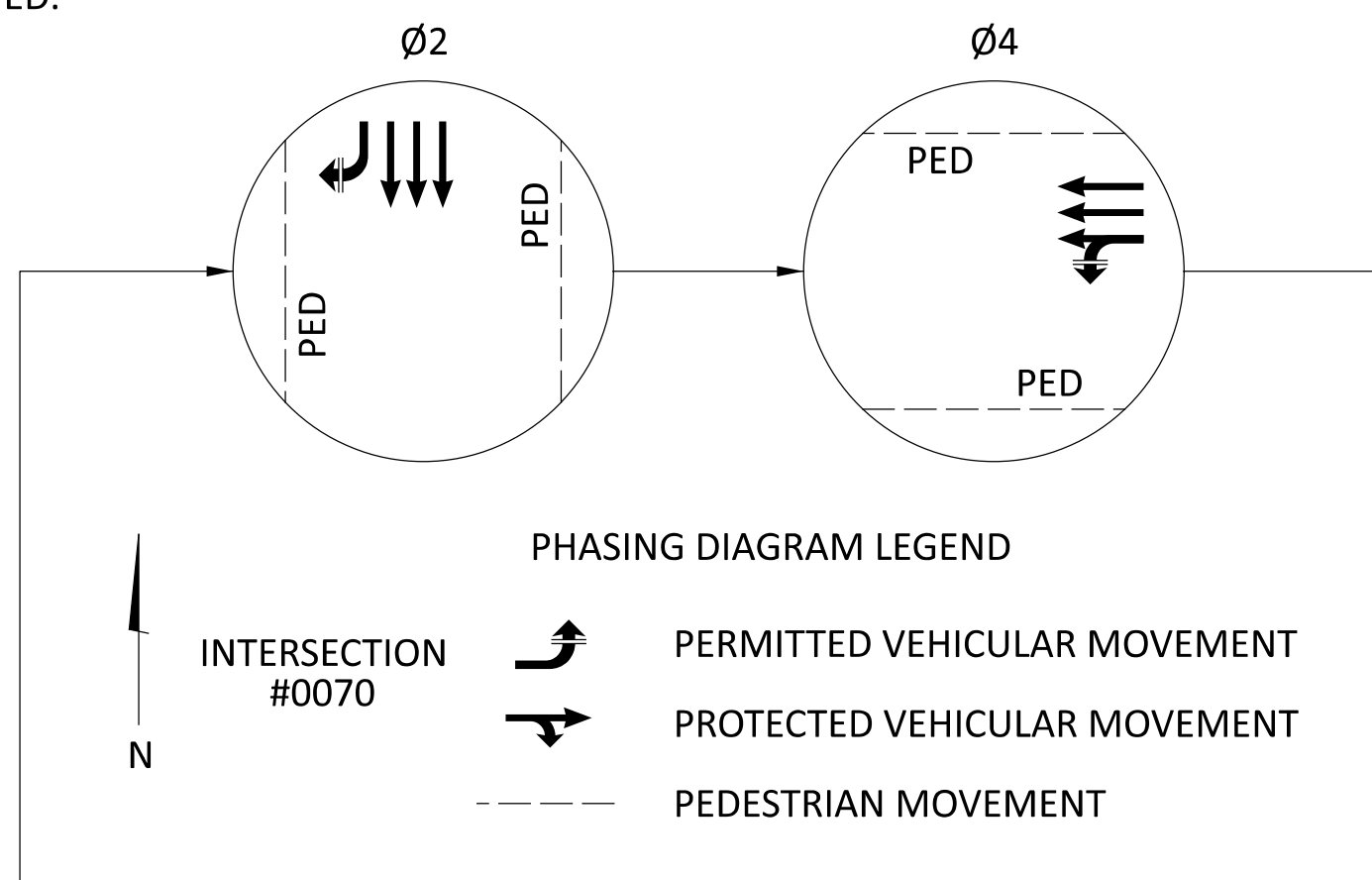
DETAIL SHEET NOTES

- SET CONFLICT MONITOR FOR 10 SEC FLASH.
- LOOP DETECTOR LEAD-IN CABLE SHALL BE USED FOR THE PEDESTRIAN PUSHBUTTONS. GROUND THE SHIELD ONLY AT THE CABINET.
- N/A.
- N/A.
- BACK PANEL WIRING (FRONT SIDE JUMPERS ONLY).
  - HARD WIRE 'PED RECYCLE' TO GROUND.
  - N/A.
  - N/A.
  - USE DIODES TO PREVENT FEEDBACK ON MULTI-USE TERMINALS.
  - N/A.
  - N/A.
  - N/A.
  - N/A.
- CONTROLLER SOFTWARE PROGRAMMING.
  - INITIALIZE IN Ø2 GREEN.
  - ENABLE ACTUATED REST-IN-WALK. ACTIVATE PHASE Ø2.
  - ENABLE DUAL ENTRY. ACTIVATE Ø4.
  - ENABLE SIMULTANEOUS GAP OUT. ACTIVATE Ø2 & Ø4.
  - N/A.
  - N/A.
  - N/A.
- INTERCONNECT CABLE SHALL BE CONTINUOUSLY RUN BETWEEN CONTROLLER CABINETS. NO SPLICES ARE PERMITTED EXCEPT WHERE NOTED.
- N/A.
- N/A.
- N/A.

FIELD WIRING HOOK-UP CHART

SIGNAL HEAD	INDICATION	FIELD TERMINAL	FLASH
1,2,3 SB	R	Ø2 R	R
	Y	Ø2 Y	
	G	Ø2 G	
4,5 WB	R	Ø4 R	R
	Y	Ø4 Y	
	G	Ø4 G	
PEDESTRIAN MOVEMENTS			
N-N	W	G Ø4-W	OFF
NORTH	DW	R Ø4-DW	
E-E	W	G Ø2-W	
EAST	DW	R Ø2-DW	OFF
S-S	W	G Ø4-W	
SOUTH	DW	R Ø4-DW	
W-W	W	G Ø2-W	OFF
WEST	DW	R Ø2-DW	

PHASING DIAGRAM



TIMING CHART

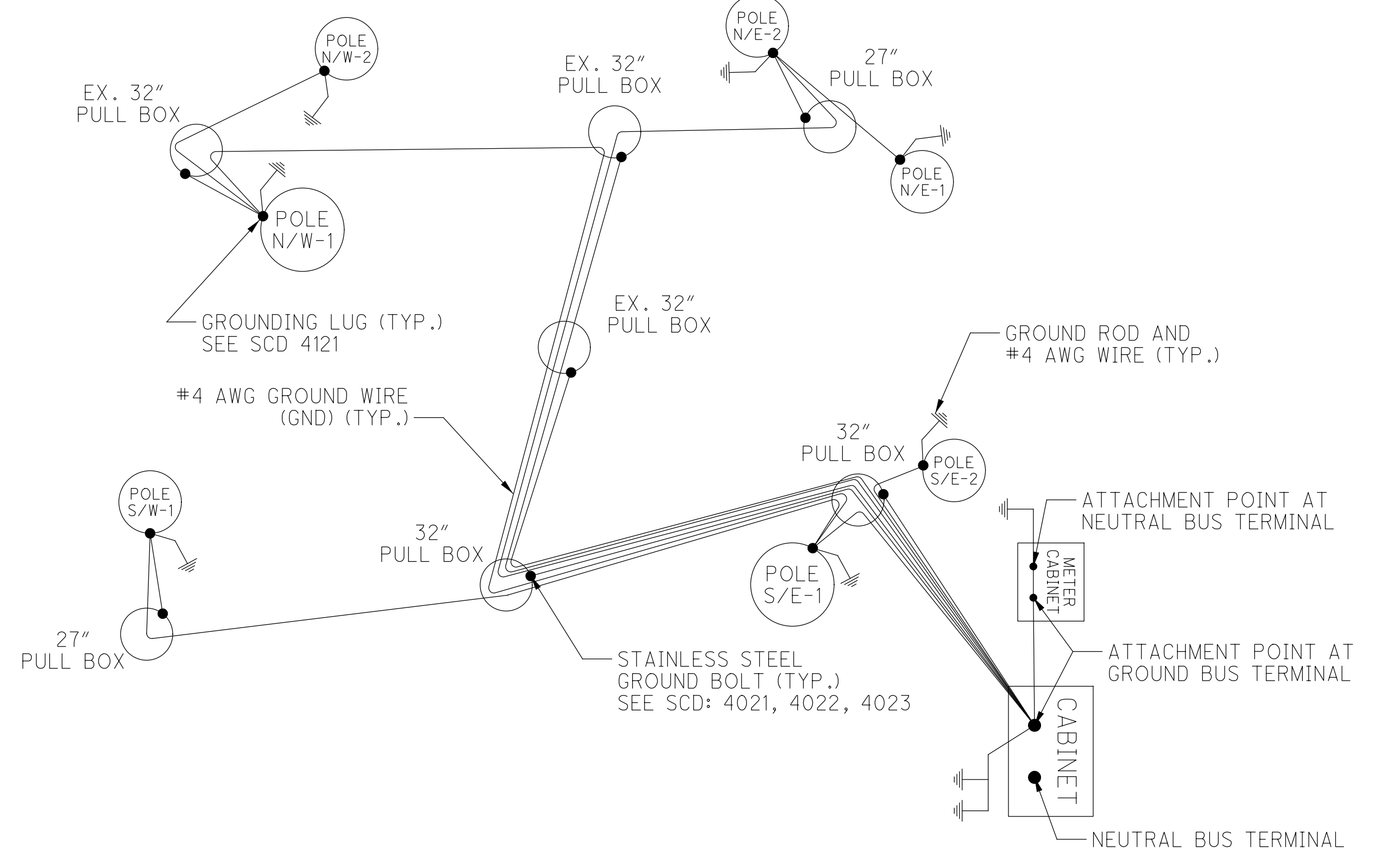
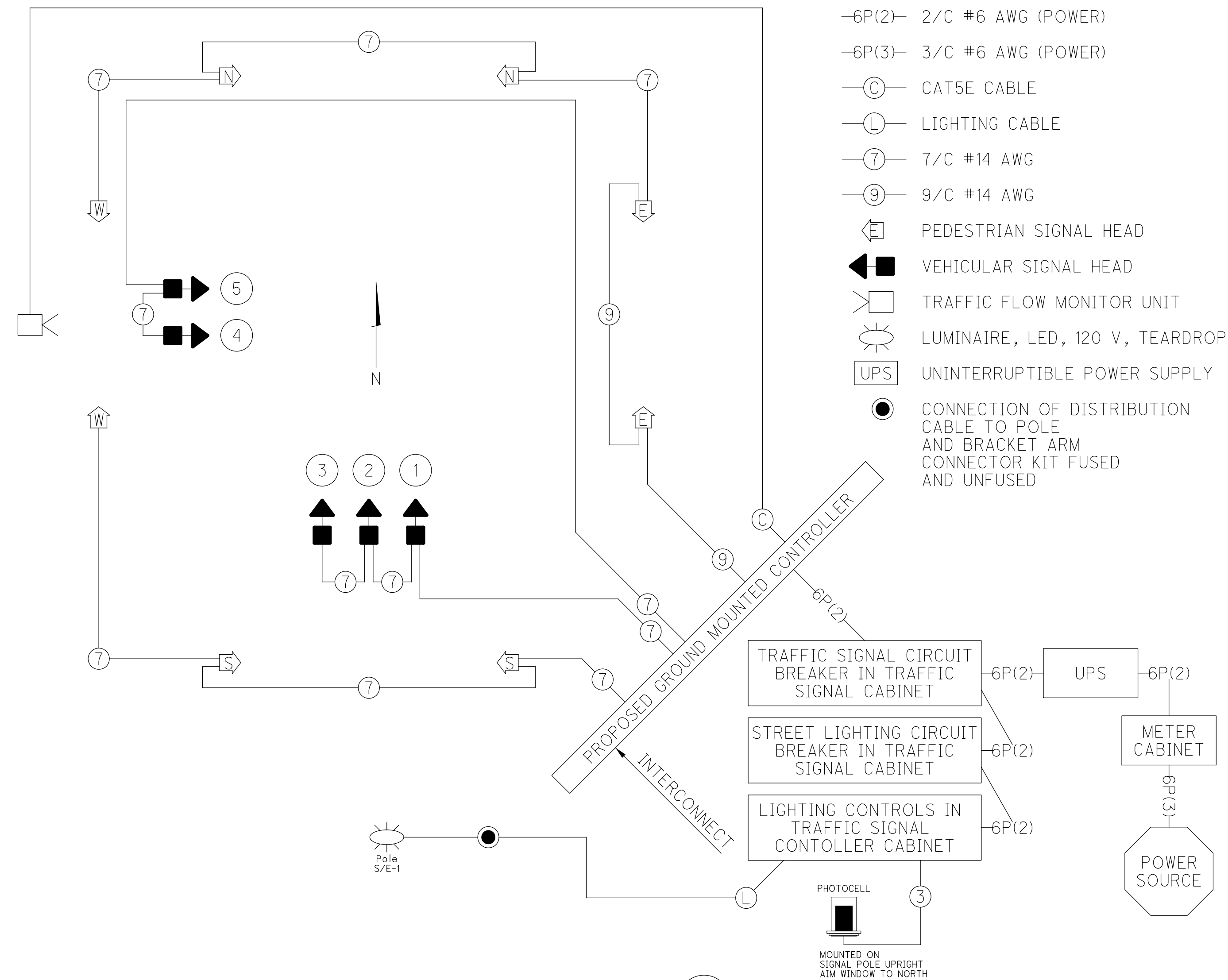
PHASE	1	2	3	4	5	6	7	8
MOVEMENT	-	SB	-	WB	-	-	-	-
MIN INITIAL	-	20	-	10	-	-	-	-
WALK	-	7	-	7	-	-	-	-
PED CHANGE	-	11	-	11	-	-	-	-
PASS/EXT	-	3.7	-	3.7	-	-	-	-
YELLOW	-	3.4	-	3.4	-	-	-	-
RED CLR	-	1.6	-	1.6	-	-	-	-
MAX GRN 1	-	55	-	55	-	-	-	-
MAX GRN 2	-	55	-	55	-	-	-	-
PED RECALL	-	ON	-	OFF	-	-	-	-
VEH RECALL	-	MIN	-	OFF	-	-	-	-
MEMORY	-	ON	-	OFF	-	-	-	-

GROUNDING & BONDING DIAGRAM LEGEND

- PULL BOX
- STRAIN POLE / PEDESTAL
- GROUND ROD AND #4 AWG WIRE
- ATTACHMENT POINT
- CONTROLLER CABINET
- CABINET GROUND TERMINAL

WIRING DIAGRAM LEGEND

- 6P(2)- 2/C #6 AWG (POWER)
- 6P(3)- 3/C #6 AWG (POWER)
- C CAT5E CABLE
- L LIGHTING CABLE
- 7 7/C #14 AWG
- 9 9/C #14 AWG
- PEDESTRIAN SIGNAL HEAD
- VEHICULAR SIGNAL HEAD
- TRAFFIC FLOW MONITOR UNIT
- LUMINAIRE, LED, 120 V, TEARDROP (BLACK)
- UPS UNINTERRUPTIBLE POWER SUPPLY
- CONNECTION OF DISTRIBUTION CABLE TO POLE AND BRACKET ARM CONNECTOR KIT FUSED AND UNFUSED



CALCULATED JAR  
CHECKED DKA

TRAFFIC SIGNAL DETAILS  
RICH STREET AT THIRD STREET

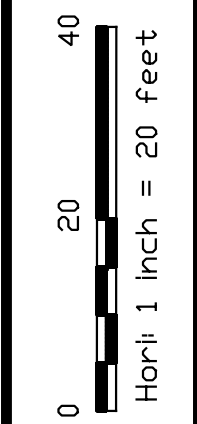
IMPROVEMENTS OF  
E RICH STREET FROM S 3RD ST TO S GRANT AVE  
FRA E RICH ST SIGNALS

3921-E

62  
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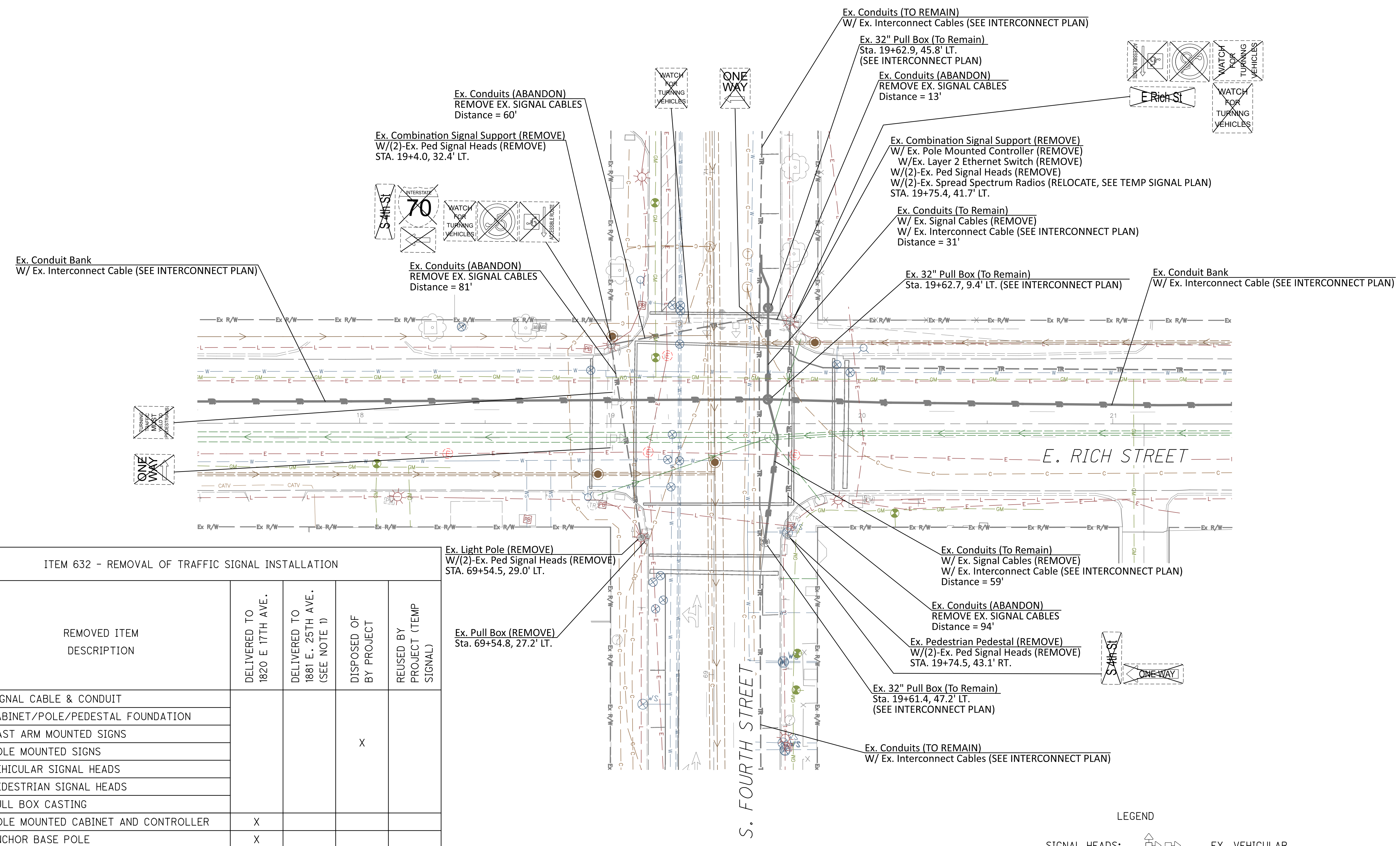
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TRAFFIC SIGNAL REMOVAL PLAN  
RICH STREET AT FOURTH STREET

IMPROVEMENTS OF  
E RICH STREET FROM S 3RD ST TO S GRANT AVE  
FRA E RICH ST SIGNALS

3921-E

63  
95



Ex. Conduit Bank  
W/ Ex. Interconnect Cable (SEE INTERCONNECT PLAN)

Ex. Combination Signal Support (REMOVE)  
W/(2)-Ex. Ped Signal Heads (REMOVE)  
STA. 19+4.0, 32.4' LT.

Ex. Conduits (ABANDON)  
REMOVE EX. SIGNAL CABLES  
Distance = 81'

Ex. Conduits (ABANDON)  
REMOVE EX. SIGNAL CABLES  
Distance = 60'

Ex. Conduits (TO REMAIN)  
W/ Ex. Interconnect Cables (SEE INTERCONNECT PLAN)

Ex. 32" Pull Box (To Remain)  
Sta. 19+62.9, 45.8' LT.  
(SEE INTERCONNECT PLAN)

Ex. Conduits (ABANDON)  
REMOVE EX. SIGNAL CABLES  
Distance = 13'

Ex. Combination Signal Support (REMOVE)  
W/ Ex. Pole Mounted Controller (REMOVE)  
W/ Ex. Layer 2 Ethernet Switch (REMOVE)  
W/(2)-Ex. Ped Signal Heads (REMOVE)  
W/(2)-Ex. Spread Spectrum Radios (RELOCATE, SEE TEMP SIGNAL PLAN)  
STA. 19+75.4, 41.7' LT.

Ex. Conduits (To Remain)  
W/ Ex. Signal Cables (REMOVE)  
W/ Ex. Interconnect Cable (SEE INTERCONNECT PLAN)  
Distance = 31'

Ex. 32" Pull Box (To Remain)  
Sta. 19+62.7, 9.4' LT. (SEE INTERCONNECT PLAN)

Ex. Conduit Bank  
W/ Ex. Interconnect Cable (SEE INTERCONNECT PLAN)

Ex. Conduits (To Remain)  
W/ Ex. Signal Cables (REMOVE)  
W/ Ex. Interconnect Cable (SEE INTERCONNECT PLAN)  
Distance = 59'

Ex. Conduits (ABANDON)  
REMOVE EX. SIGNAL CABLES  
Distance = 94'

Ex. Pedestrian Pedestal (REMOVE)  
W/(2)-Ex. Ped Signal Heads (REMOVE)  
STA. 19+74.5, 43.1' RT.

Ex. 32" Pull Box (To Remain)  
Sta. 19+61.4, 47.2' LT.  
(SEE INTERCONNECT PLAN)

Ex. Conduits (TO REMAIN)  
W/ Ex. Interconnect Cables (SEE INTERCONNECT PLAN)

Ex. Light Pole (REMOVE)  
W/(2)-Ex. Ped Signal Heads (REMOVE)  
STA. 69+54.5, 29.0' LT.

Ex. Pull Box (REMOVE)  
Sta. 69+54.8, 27.2' LT.

ITEM 632 - REMOVAL OF TRAFFIC SIGNAL INSTALLATION

QUANTITY	REMOVED ITEM DESCRIPTION	DELIVERED TO 1820 E 17TH AVE.	DELIVERED TO 1881 E. 25TH AVE. (SEE NOTE 1)	DISPOSED OF BY PROJECT	REUSED BY PROJECT (TEMP SIGNAL)
LUMP	SIGNAL CABLE & CONDUIT				
	CABINET/POLE/PEDESTAL FOUNDATION				
	MAST ARM MOUNTED SIGNS			X	
	POLE MOUNTED SIGNS				
	VEHICULAR SIGNAL HEADS				
	PEDESTRIAN SIGNAL HEADS				
	PULL BOX CASTING				
1	POLE MOUNTED CABINET AND CONTROLLER	X			
2	ANCHOR BASE POLE	X			
1	PEDESTRIAN PEDESTAL	X			
LUMP	STREET NAME SIGNS	X			
1	METAL PULL BOX LIDS AND FRAMES	X			X
2	WIRELESS RADIO		X		X
1	LAYER 2 ETHERNET SWITCH		X		X
2	ETHERNET TRANSCEIVERS (GBIC MODULES)		X		X

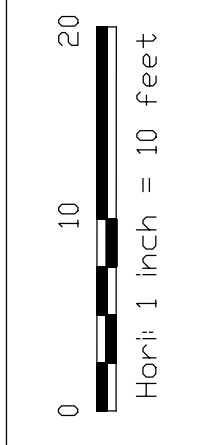
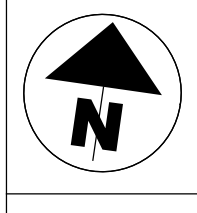
NOTES:  
1. ITEMS LISTED AS REUSED BY PROJECT SHALL BE RELOCATED FROM THEIR EXISTING CONDITION TO A TEMPORARY CONDITION AS DETAILED BY THE MOT PLANS. ONCE THE NEW IS IN PLACE, TESTED, AND ACCEPTED, THE EXISTING ITEMS SHALL BE REMOVED AND DELIVERED TO THE ADDRESS INDICATED BY THIS CHART.

LEGEND

SIGNAL HEADS:		EX. VEHICULAR
		EX. PEDESTRIAN
		EX. PUSHBUTTON
		EX. SPREAD SPECTRUM RADIO
SIGNAL POLES:		EX. SIGNAL SUPPORT W/ MAST ARM
		EX. COMB. SIGNAL SUPPORT W/ MAST ARM
		EX. EBMBEDDED POLE
CONTROLLERS & CABINETS:		EX. POLE MTD. CONTROLLER
PULL BOXES:		EX. PULL BOX

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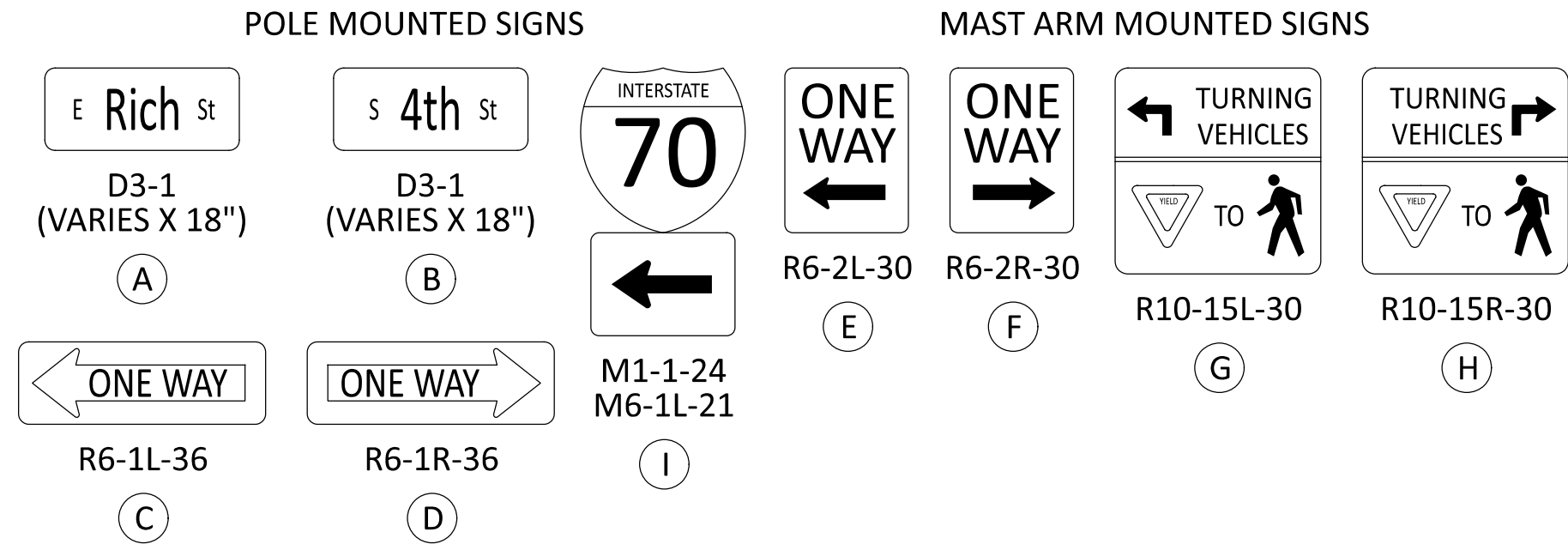
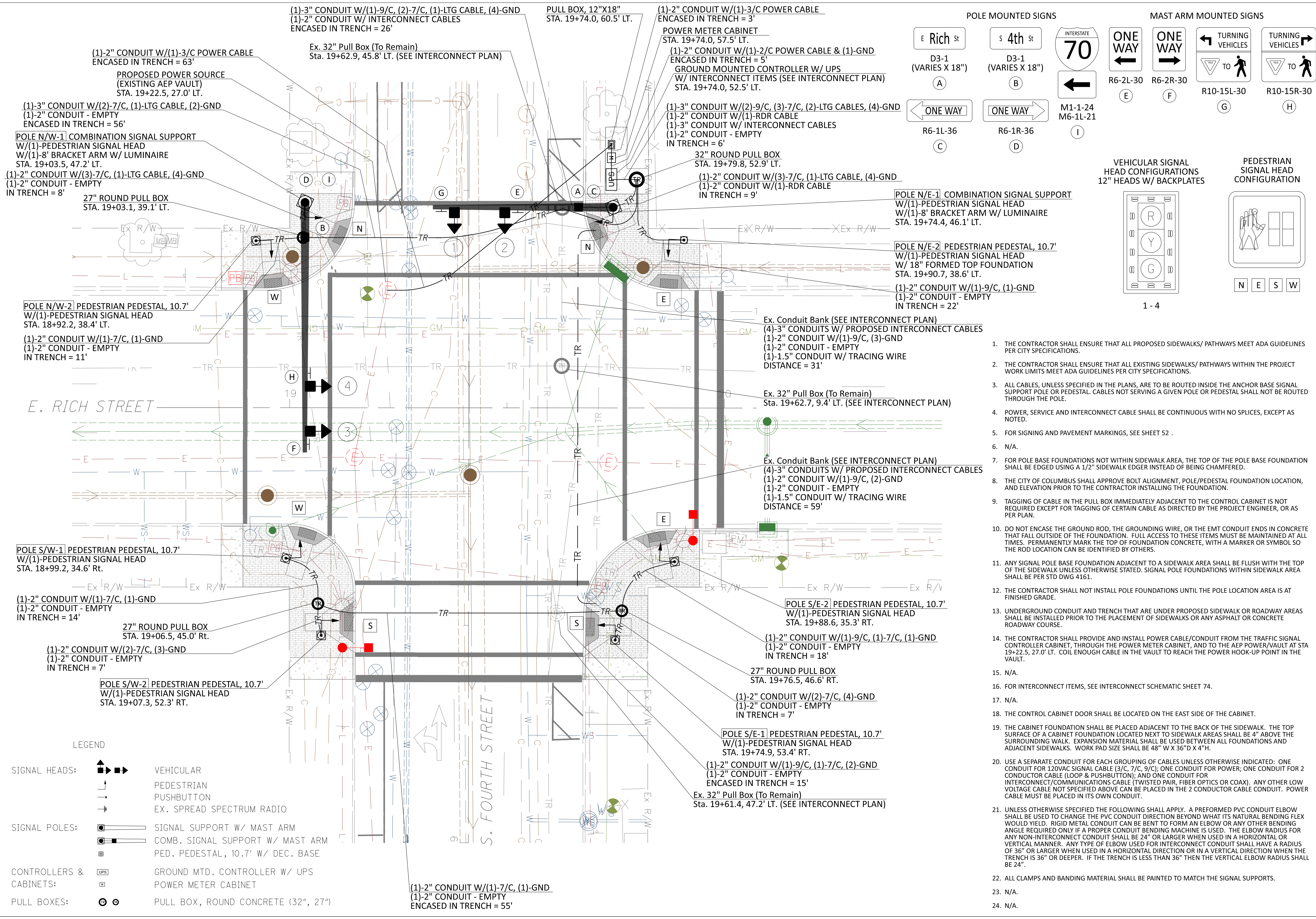
CALCULATED  
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CHECKED  
DKA

TRAFFIC SIGNAL INSTALLATION PLAN  
RICH STREET AT FOURTH STREET

IMPROVEMENTS OF  
E RICH STREET FROM S 3RD ST TO S GRANT AVE  
FRA E RICH ST SIGNALS

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1. THE CONTRACTOR SHALL ENSURE THAT ALL PROPOSED SIDEWALKS/ PATHWAYS MEET ADA GUIDELINES PER CITY SPECIFICATIONS.
2. THE CONTRACTOR SHALL ENSURE THAT ALL EXISTING SIDEWALKS/ PATHWAYS WITHIN THE PROJECT WORK LIMITS MEET ADA GUIDELINES PER CITY SPECIFICATIONS.
3. ALL CABLES, UNLESS SPECIFIED IN THE PLANS, ARE TO BE ROUTED INSIDE THE ANCHOR BASE SIGNAL SUPPORT POLE OR PEDESTAL. CABLES NOT SERVING A GIVEN POLE OR PEDESTAL SHALL NOT BE ROUTED THROUGH THE POLE.
4. POWER, SERVICE AND INTERCONNECT CABLE SHALL BE CONTINUOUS WITH NO SPLICES, EXCEPT AS NOTED.
5. FOR SIGNING AND PAVEMENT MARKINGS, SEE SHEET 52 .
6. N/A.
7. FOR POLE BASE FOUNDATIONS NOT WITHIN SIDEWALK AREA, THE TOP OF THE POLE BASE FOUNDATION SHALL BE EMBEDDED USING A 1/2" SIDEWALK EDGER INSTEAD OF BEING CHAMFERED.
8. THE CITY OF COLUMBUS SHALL APPROVE BOLT ALIGNMENT, POLE/PEDESTAL FOUNDATION LOCATION, AND ELEVATION PRIOR TO THE CONTRACTOR INSTALLING THE FOUNDATION.
9. TAGGING OF CABLE IN THE PULL BOX IMMEDIATELY ADJACENT TO THE CONTROL CABINET IS NOT REQUIRED EXCEPT FOR TAGGING OF CERTAIN CABLE AS DIRECTED BY THE PROJECT ENGINEER, OR AS PER PLAN.
10. DO NOT ENCASE THE GROUND ROD, THE GROUNDING WIRE, OR THE EMT CONDUIT ENDS IN CONCRETE THAT FALL OUTSIDE OF THE FOUNDATION. FULL ACCESS TO THESE ITEMS MUST BE MAINTAINED AT ALL TIMES. PERMANENTLY MARK THE TOP OF FOUNDATION CONCRETE, WITH A MARKER OR SYMBOL SO THE ROD LOCATION CAN BE IDENTIFIED BY OTHERS.
11. ANY SIGNAL POLE BASE FOUNDATION ADJACENT TO A SIDEWALK AREA SHALL BE FLUSH WITH THE TOP OF THE SIDEWALK UNLESS OTHERWISE STATED. SIGNAL POLE FOUNDATIONS WITHIN SIDEWALK AREA SHALL BE PER STD DWG 4161.
12. THE CONTRACTOR SHALL NOT INSTALL POLE FOUNDATIONS UNTIL THE POLE LOCATION AREA IS AT FINISHED GRADE.
13. UNDERGROUND CONDUIT AND TRENCH THAT ARE UNDER PROPOSED SIDEWALK OR ROADWAY AREAS SHALL BE INSTALLED PRIOR TO THE PLACEMENT OF SIDEWALKS OR ANY ASPHALT OR CONCRETE ROADWAY COURSE.
14. THE CONTRACTOR SHALL PROVIDE AND INSTALL POWER CABLE/CONDUIT FROM THE TRAFFIC SIGNAL CONTROLLER CABINET, THROUGH THE POWER METER CABINET, AND TO THE AEP POWER/VAULT AT STA 19+22.5, 27.0' LT. COIL ENOUGH CABLE IN THE VAULT TO REACH THE POWER HOOK-UP POINT IN THE VAULT.
15. N/A.
16. FOR INTERCONNECT ITEMS, SEE INTERCONNECT SCHEMATIC SHEET 74.
17. N/A.
18. THE CONTROL CABINET DOOR SHALL BE LOCATED ON THE EAST SIDE OF THE CABINET.
19. THE CABINET FOUNDATION SHALL BE PLACED ADJACENT TO THE BACK OF THE SIDEWALK. THE TOP SURFACE OF A CABINET FOUNDATION LOCATED NEXT TO SIDEWALK AREAS SHALL BE 4" ABOVE THE SURROUNDING WALK. EXPANSION MATERIAL SHALL BE USED BETWEEN ALL FOUNDATIONS AND ADJACENT SIDEWALKS. WORK PAD SIZE SHALL BE 48" W X 36" D X 4"H.
20. USE A SEPARATE CONDUIT FOR EACH GROUPING OF CABLES UNLESS OTHERWISE INDICATED: ONE CONDUIT FOR 120VAC SIGNAL CABLE (3/C, 7/C, 9/C); ONE CONDUIT FOR POWER; ONE CONDUIT FOR 2 CONDUCTOR CABLE (LOOP & PUSHBUTTON); AND ONE CONDUIT FOR INTERCONNECT/COMMUNICATIONS CABLE (TWISTED PAIR, FIBER OPTICS OR COAX). ANY OTHER LOW VOLTAGE CABLE NOT SPECIFIED ABOVE CAN BE PLACED IN THE 2 CONDUCTOR CABLE CONDUIT. POWER CABLE MUST BE PLACED IN ITS OWN CONDUIT.
21. UNLESS OTHERWISE SPECIFIED THE FOLLOWING SHALL APPLY. A PREFORMED PVC CONDUIT ELBOW SHALL BE USED TO CHANGE THE PVC CONDUIT DIRECTION BEYOND WHAT ITS NATURAL BENDING FLEX WOULD YIELD. RIGID METAL CONDUIT CAN BE BENT TO FORM AN ELBOW OR ANY OTHER BENDING ANGLE REQUIRED ONLY IF A PROPER CONDUIT BENDING MACHINE IS USED. THE ELBOW RADIUS FOR ANY NON-INTERCONNECT CONDUIT SHALL BE 24" OR LARGER WHEN USED IN A HORIZONTAL OR VERTICAL MANNER. ANY TYPE OF ELBOW USED FOR INTERCONNECT CONDUIT SHALL HAVE A RADIUS OF 36" OR LARGER WHEN USED IN A HORIZONTAL DIRECTION OR IN A VERTICAL DIRECTION WHEN THE TRENCH IS 36" OR DEEPER. IF THE TRENCH IS LESS THAN 36" THEN THE VERTICAL ELBOW RADIUS SHALL BE 24".
22. ALL CLAMPS AND BANDING MATERIAL SHALL BE PAINTED TO MATCH THE SIGNAL SUPPORTS.
23. N/A.
24. N/A.

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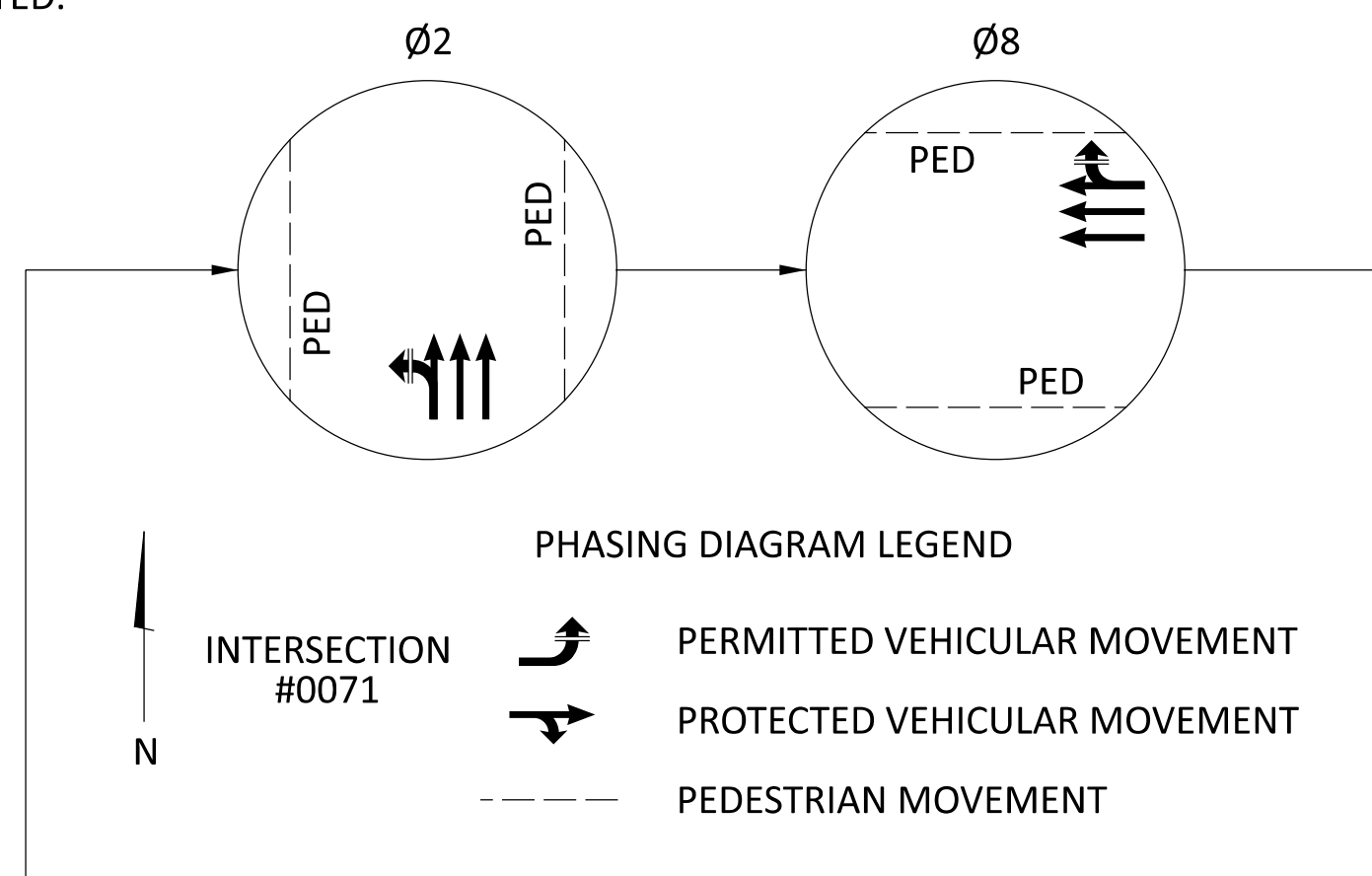
DETAIL SHEET NOTES

- SET CONFLICT MONITOR FOR 10 SEC FLASH.
- LOOP DETECTOR LEAD-IN CABLE SHALL BE USED FOR THE PEDESTRIAN PUSHBUTTONS. GROUND THE SHIELD ONLY AT THE CABINET.
- N/A.
- N/A.
- BACK PANEL WIRING (FRONT SIDE JUMPERS ONLY).
  - HARD WIRE 'PED RECYCLE' TO GROUND.
  - N/A.
  - N/A.
  - USE DIODES TO PREVENT FEEDBACK ON MULTI-USE TERMINALS.
- N/A.
- N/A.
- N/A.
- N/A.
- CONTROLLER SOFTWARE PROGRAMMING.
  - INITIALIZE IN Ø2 GREEN.
  - ENABLE ACTUATED REST-IN-WALK. ACTIVATE PHASE Ø2.
  - ENABLE DUAL ENTRY. ACTIVATE Ø8.
  - ENABLE SIMULTANEOUS GAP OUT. ACTIVATE Ø2 & Ø8.
- N/A.
- N/A.
- N/A.

FIELD WIRING HOOK-UP CHART

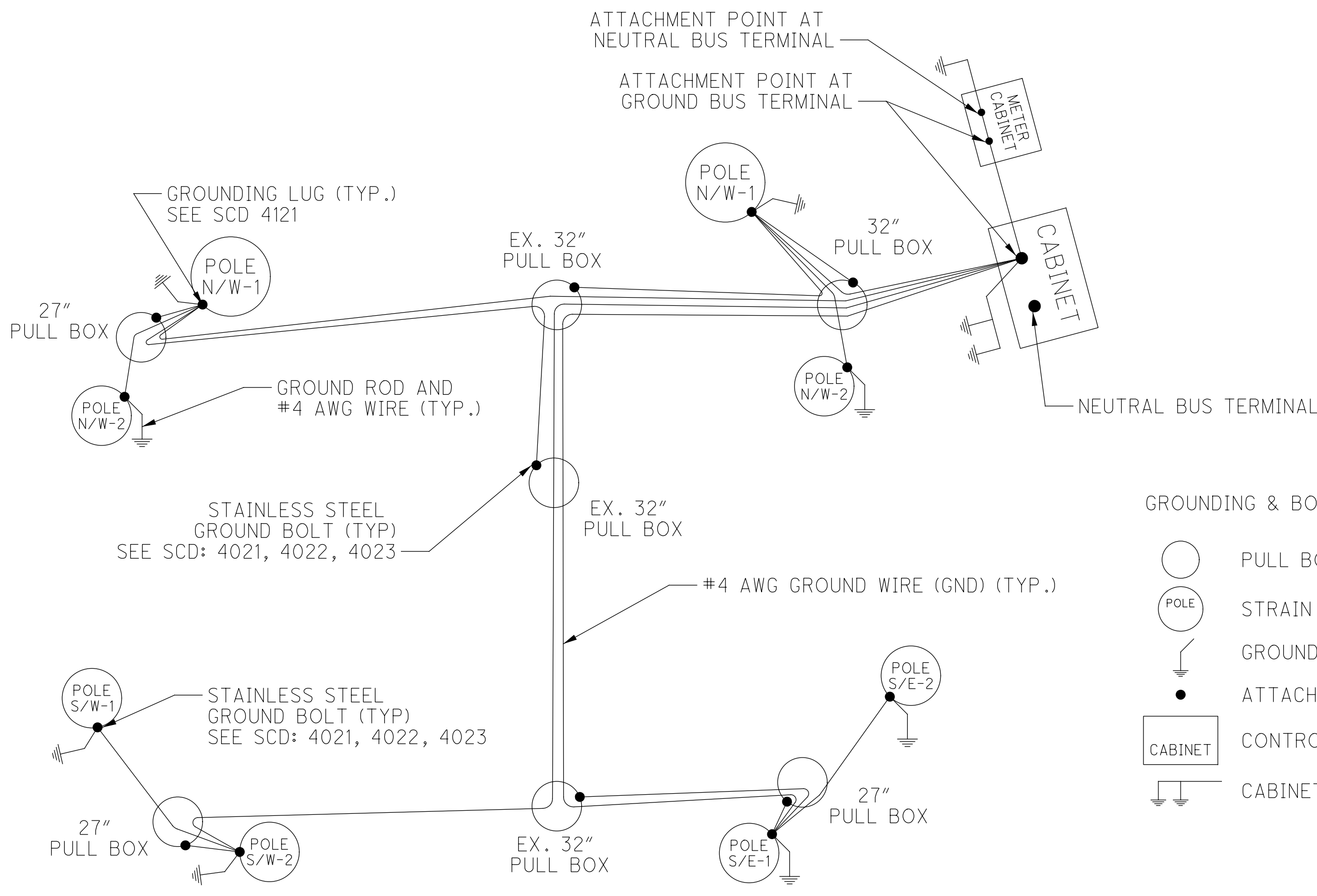
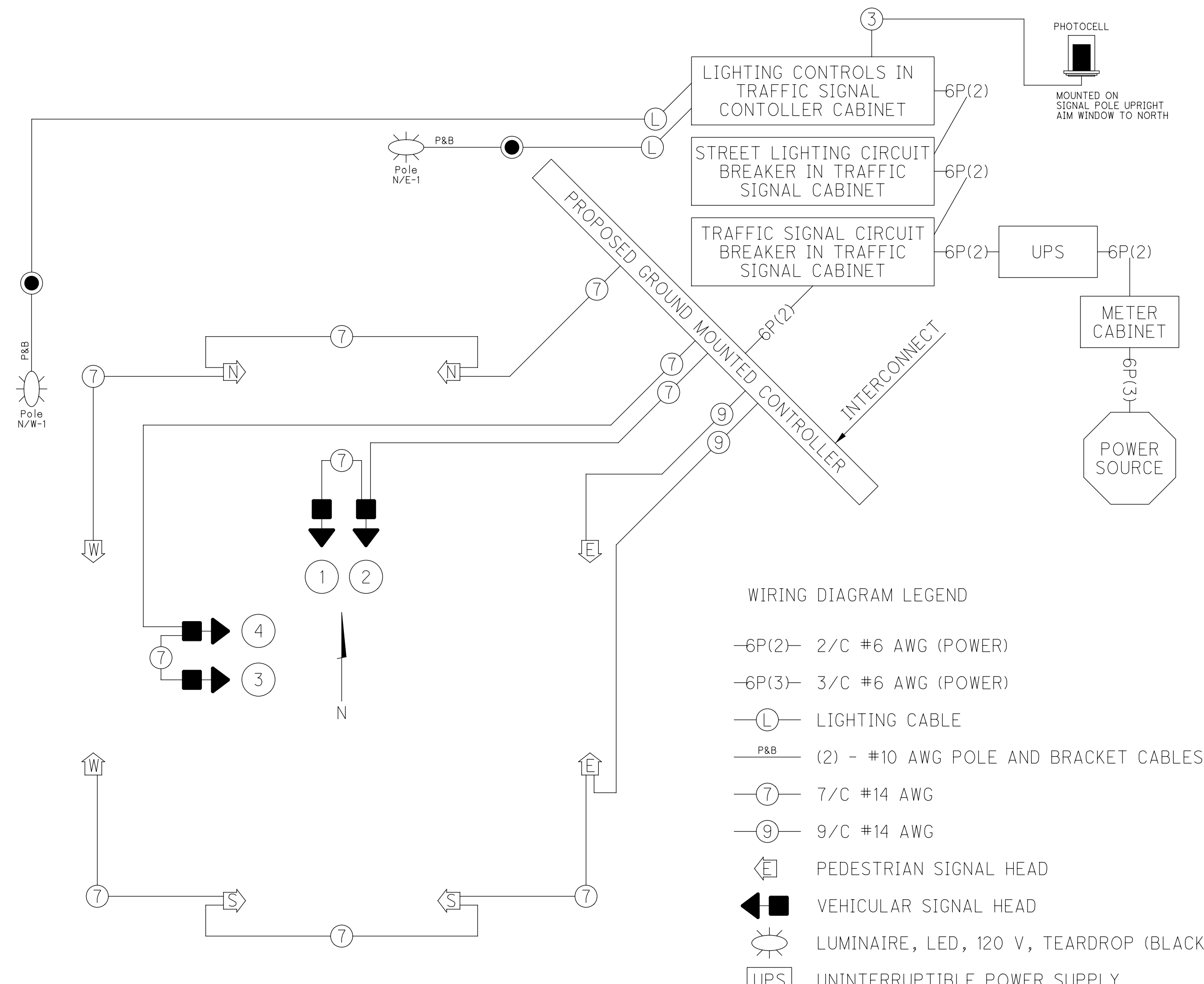
SIGNAL HEAD	INDICATION	FIELD TERMINAL	FLASH
1,2 NB	R	Ø2 R	R
	Y	Ø2 Y	
	G	Ø2 G	
3,4 WB	R	Ø8 R	R
	Y	Ø8 Y	
	G	Ø8 G	
PEDESTRIAN MOVEMENTS			
N-N	W	G Ø8-W	OFF
NORTH	DW	R Ø8-DW	
E-E	W	G Ø2-W	
EAST	DW	R Ø2-DW	
S-S	W	G Ø8-W	OFF
SOUTH	DW	R Ø8-DW	
W-W	W	G Ø2-W	OFF
WEST	DW	R Ø2-DW	

PHASING DIAGRAM

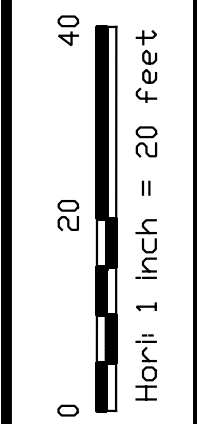


TIMING CHART

PHASE	1	2	3	4	5	6	7	8
MOVEMENT	-	NB	-	-	-	-	-	WB
MIN INITIAL	-	20	-	-	-	-	-	10
WALK	-	7	-	-	-	-	-	7
PED CHANGE	-	11	-	-	-	-	-	12
PASS/EXT	-	3.7	-	-	-	-	-	3.7
YELLOW	-	3.4	-	-	-	-	-	3.4
RED CLR	-	1.8	-	-	-	-	-	1.8
MAX GRN 1	-	55	-	-	-	-	-	55
MAX GRN 2	-	55	-	-	-	-	-	55
PED RECALL	-	ON	-	-	-	-	-	OFF
VEH RECALL	-	MIN	-	-	-	-	-	OFF
MEMORY	-	ON	-	-	-	-	-	OFF



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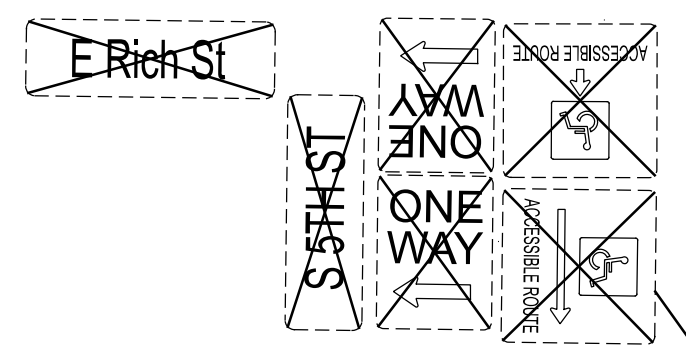
TRAFFIC SIGNAL REMOVAL PLAN  
RICH STREET AT FIFTH STREET

IMPROVEMENTS OF  
E RICH STREET FROM S 3RD ST TO S GRANT AVE  
FRA E RICH ST SIGNALS

3921-E

66  
95

Ex. Embedded Strain Pole (REMOVE)  
W/ Ex. Pole Mounted Controller (REMOVE)  
W/Ex. Layer 2 Ethernet Switch (REMOVE)  
W/(2)-Ex. Ped Signal Heads (REMOVE)  
W/(1)-Ex. Spread Spectrum Radio (RELOCATE, SEE TEMP SIGNAL PLAN)  
STA. 24+52.9, 38.7' LT.



Ex. Conduits (To Remain)

Ex. 32" Pull Box (To Remain)  
Sta. 24+63.7, 20.5' LT.

Ex. Pull Box (To Remain)  
Sta. 24+46.3, 14.6' LT.

Ex. Conduits (To Remain)

Ex. Conduit Bank  
W/ Ex. Interconnect Cable (SEE INTERCONNECT PLAN)

Ex. Strain Pole (REMOVE)  
W/(2)-Ex. Ped Signal Heads (REMOVE)  
STA. 25+11.8, 38.6' LT.

Ex. Conduit Bank  
W/ Ex. Interconnect Cable (SEE INTERCONNECT PLAN)

Ex. 32" Pull Box (To Remain)  
Sta. 24+42.9, 8.6' LT. (SEE INTERCONNECT PLAN)

Ex. Embedded Strain Pole (REMOVE)  
W/(2)-Ex. Ped Signal Heads (REMOVE)  
STA. 24+52.5, 38.2' RT.

Ex. Embedded Strain Pole (REMOVE)  
W/(2)-Ex. Ped Signal Heads (REMOVE)  
STA. 25+11.4, 43.2' RT.

ITEM 632 - REMOVAL OF TRAFFIC SIGNAL INSTALLATION					
QUANTITY	REMOVED ITEM DESCRIPTION	DELIVERED TO 1820 E 17TH AVE.	DELIVERED TO 1881 E. 25TH AVE. (SEE NOTE 1)	DISPOSED OF BY PROJECT	REUSED BY PROJECT (TEMP SIGNAL)
LUMP	SIGNAL CABLE, MESSENGER WIRE, & CONDUIT				
	CABINET/POLE FOUNDATION				
	MAST ARM MOUNTED SIGNS				
	POLE MOUNTED SIGNS			X	
	VEHICULAR SIGNAL HEADS				
	PEDESTRIAN SIGNAL HEADS				
	EMBEDDED POLES				
	SPAN MOUNTED SIGNS				
1	POLE MOUNTED CABINET AND CONTROLLER	X			
1	ANCHOR BASE POLE	X			
LUMP	STREET NAME SIGNS	X			
1	FIBER OPTIC TERMINATION PANEL		X		X
1	WIRELESS RADIO		X		X
1	LAYER 2 ETHERNET SWITCH		X		X
1	ETHERNET TRANSCEIVERS (GBIC MODULES)		X		X

NOTES:  
1. ITEMS LISTED AS REUSED BY PROJECT SHALL BE RELOCATED FROM THEIR EXISTING CONDITION TO A TEMPORARY CONDITION AS DETAILED BY THE MOT PLANS. ONCE THE NEW IS IN PLACE, TESTED, AND ACCEPTED, THE EXISTING ITEMS SHALL BE REMOVED AND DELIVERED TO THE ADDRESS INDICATED BY THIS CHART.

LEGEND

- SIGNAL HEADS:
  - EX. VEHICULAR
  - EX. PEDESTRIAN
  - EX. PUSHBUTTON
  - EX. SPREAD SPECTRUM RADIO
- SIGNAL POLES:
  - EX. SIGNAL SUPPORT W/ MAST ARM
  - EX. COMB. SIGNAL SUPPORT W/ MAST ARM
  - EX. EMBEDDED POLE
- CONTROLLERS & CABINETS:
  - EX. POLE MTD. CONTROLLER
- PULL BOXES:
  - EX. PULL BOX

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LEGEND

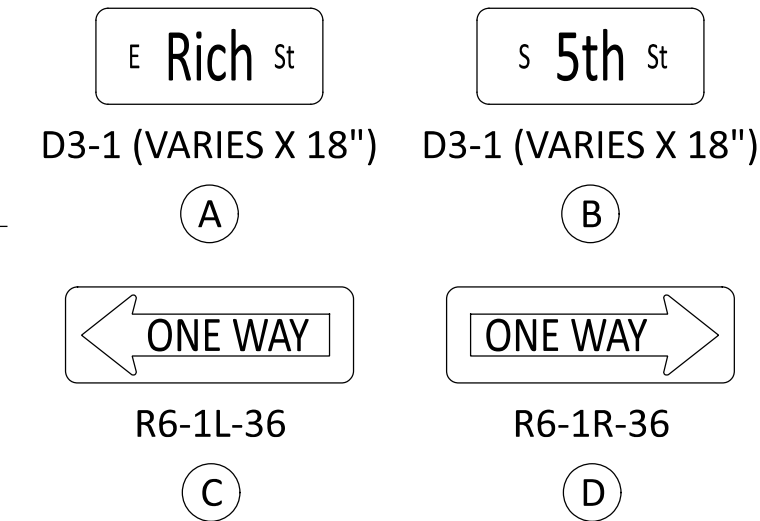
- SIGNAL HEADS:**
- VEHICULAR
  - PEDESTRIAN
  - PUSHBUTTON
  - EX. SPREAD SPECTRUM RADIO
- SIGNAL POLES:**
- SIGNAL SUPPORT W/ MAST ARM
  - COMB. SIGNAL SUPPORT W/ MAST ARM
  - PED. PEDESTAL, 10.7' W/ DEC. BASE
- CONTROLLERS & CABINETS:**
- GROUND MTD. CONTROLLER W/ UPS
  - POWER METER CABINET
- PULL BOXES:**
- PULL BOX, ROUND CONCRETE (32", 27")

PROPOSED POWER SOURCE  
(EXISTING AEP VAULT)  
STA. 24+51.2, 49.7' LT.

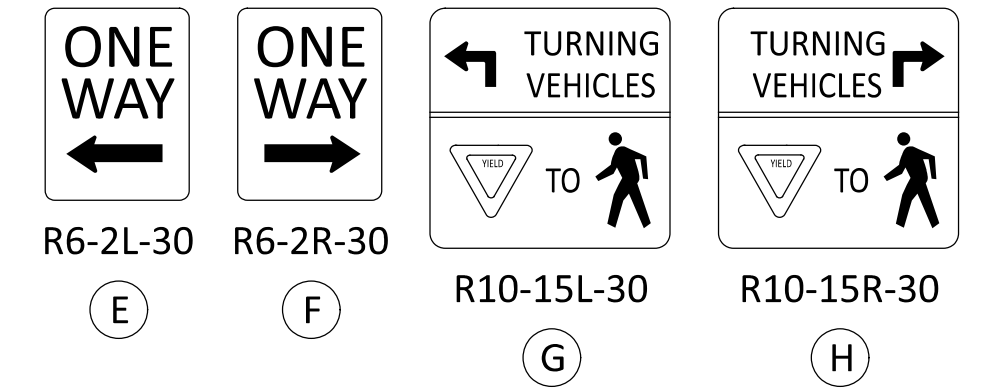
(1)-2" CONDUIT W/(2)-9/C, (1)-GND  
(1)-2" CONDUIT - EMPTY  
IN TRENCH = 14'

POLE N/W-2 PEDESTRIAN PEDESTAL, 10.7'  
W/(1)-PEDESTRIAN SIGNAL HEAD  
STA. 24+58.3, 45.2' LT.

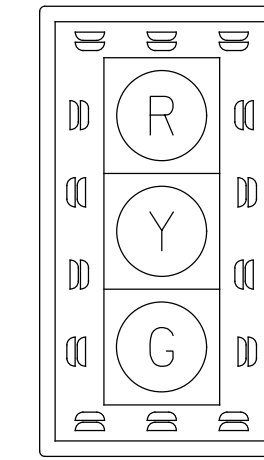
POLE MOUNTED SIGNS



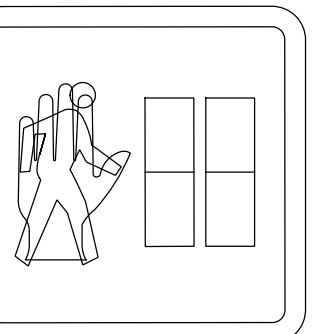
MAST ARM MOUNTED SIGNS



VEHICULAR SIGNAL HEAD CONFIGURATIONS  
12" HEADS W/ BACKPLATES

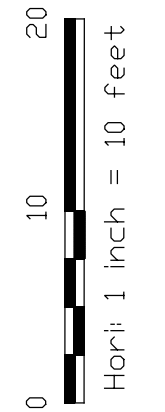
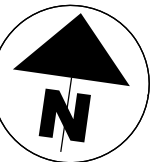


1 - 6



PEDESTRIAN SIGNAL HEAD CONFIGURATION

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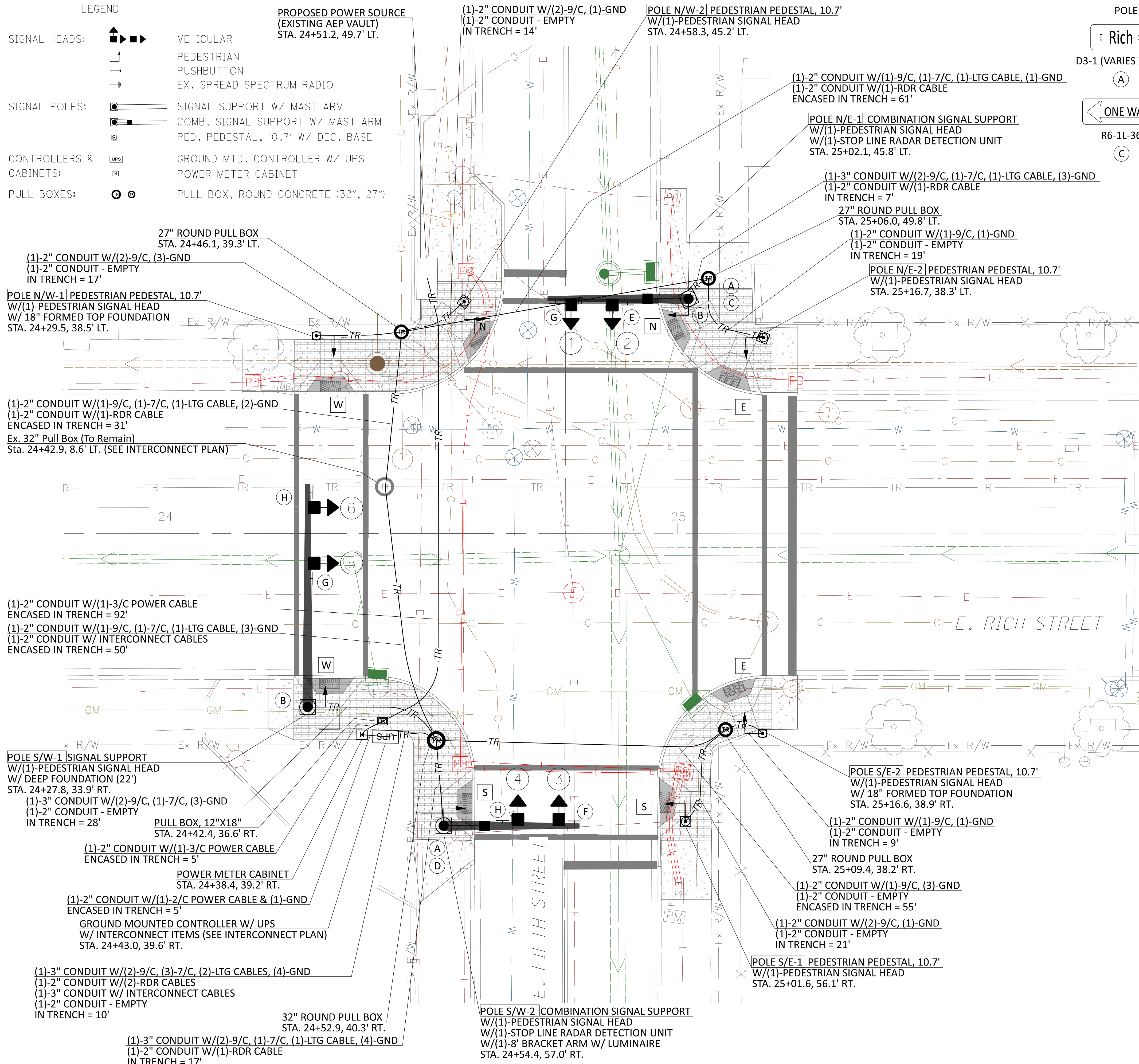
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DKA

TRAFFIC SIGNAL INSTALLATION PLAN  
RICH STREET AT FIFTH STREET

IMPROVEMENTS OF  
E RICH STREET FROM S 3RD ST TO S GRANT AVE  
FRA E RICH ST SIGNALS

3921-E

67  
95



1. THE CONTRACTOR SHALL ENSURE THAT ALL PROPOSED SIDEWALKS/ PATHWAYS MEET ADA GUIDELINES PER CITY SPECIFICATIONS.
2. THE CONTRACTOR SHALL ENSURE THAT ALL EXISTING SIDEWALKS/ PATHWAYS WITHIN THE PROJECT WORK LIMITS MEET ADA GUIDELINES PER CITY SPECIFICATIONS.
3. ALL CABLES, UNLESS SPECIFIED IN THE PLANS, ARE TO BE ROUTED INSIDE THE ANCHOR BASE SIGNAL SUPPORT POLE OR PEDESTAL. CABLES NOT SERVING A GIVEN POLE OR PEDESTAL SHALL NOT BE ROUTED THROUGH THE POLE.
4. POWER, SERVICE AND INTERCONNECT CABLE SHALL BE CONTINUOUS WITH NO SPLICES, EXCEPT AS NOTED.
5. FOR SIGNING AND PAVEMENT MARKINGS, SEE SHEET 53 .
6. N/A.
7. FOR POLE BASE FOUNDATIONS NOT WITHIN SIDEWALK AREA, THE TOP OF THE POLE BASE FOUNDATION SHALL BE EDGED USING A 1/2" SIDEWALK EDGER INSTEAD OF BEING CHAMFERED.
8. THE CITY OF COLUMBUS SHALL APPROVE BOLT ALIGNMENT, POLE/PEDESTAL FOUNDATION LOCATION, AND ELEVATION PRIOR TO THE CONTRACTOR INSTALLING THE FOUNDATION.
9. TAGGING OF CABLE IN THE PULL BOX IMMEDIATELY ADJACENT TO THE CONTROL CABINET IS NOT REQUIRED EXCEPT FOR TAGGING OF CERTAIN CABLE AS DIRECTED BY THE PROJECT ENGINEER, OR AS PER PLAN.
10. DO NOT ENCASE THE GROUND ROD, THE GROUNDING WIRE, OR THE EMT CONDUIT ENDS IN CONCRETE THAT FALL OUTSIDE OF THE FOUNDATION. FULL ACCESS TO THESE ITEMS MUST BE MAINTAINED AT ALL TIMES. PERMANENTLY MARK THE TOP OF FOUNDATION CONCRETE, WITH A MARKER OR SYMBOL SO THE ROD LOCATION CAN BE IDENTIFIED BY OTHERS.
11. ANY SIGNAL POLE BASE FOUNDATION ADJACENT TO A SIDEWALK AREA SHALL BE FLUSH WITH THE TOP OF THE SIDEWALK UNLESS OTHERWISE STATED. SIGNAL POLE FOUNDATIONS WITHIN SIDEWALK AREA SHALL BE PER STD DWG 4161.
12. THE CONTRACTOR SHALL NOT INSTALL POLE FOUNDATIONS UNTIL THE POLE LOCATION AREA IS AT FINISHED GRADE.
13. UNDERGROUND CONDUIT AND TRENCH THAT ARE UNDER PROPOSED SIDEWALK OR ROADWAY AREAS SHALL BE INSTALLED PRIOR TO THE PLACEMENT OF SIDEWALKS OR ANY ASPHALT OR CONCRETE ROADWAY COURSE.
14. THE CONTRACTOR SHALL PROVIDE AND INSTALL POWER CABLE/CONDUIT FROM THE TRAFFIC SIGNAL CONTROLLER CABINET, THROUGH THE POWER METER CABINET, AND TO THE AEP POWER/VAULT AT STA 24+63.7, 20.5' LT. COIL ENOUGH CABLE IN THE VAULT TO REACH THE POWER HOOK-UP POINT IN THE VAULT.
15. N/A.
16. FOR INTERCONNECT ITEMS, SEE INTERCONNECT SCHEMATIC SHEET 75.
17. N/A.
18. THE CONTROL CABINET DOOR SHALL BE LOCATED ON THE NORTH SIDE OF THE CABINET.
19. THE CABINET FOUNDATION SHALL BE PLACED ADJACENT TO THE BACK OF THE SIDEWALK. THE TOP SURFACE OF A CABINET FOUNDATION LOCATED NEXT TO SIDEWALK AREAS SHALL BE 4" ABOVE THE SURROUNDING WALK. EXPANSION MATERIAL SHALL BE USED BETWEEN ALL FOUNDATIONS AND ADJACENT SIDEWALKS. WORK PAD SIZE SHALL BE 48" W X 36" D X 4" H.
20. USE A SEPARATE CONDUIT FOR EACH GROUPING OF CABLES UNLESS OTHERWISE INDICATED: ONE CONDUIT FOR 120VAC SIGNAL CABLE (3/C, 7/C, 9/C); ONE CONDUIT FOR POWER; ONE CONDUIT FOR 2 CONDUCTOR CABLE (LOOP & PUSHBUTTON); AND ONE CONDUIT FOR INTERCONNECT/COMMUNICATIONS CABLE (TWISTED PAIR, FIBER OPTICS OR COAX). ANY OTHER LOW VOLTAGE CABLE NOT SPECIFIED ABOVE CAN BE PLACED IN THE 2 CONDUCTOR CABLE CONDUIT. POWER CABLE MUST BE PLACED IN ITS OWN CONDUIT.
21. UNLESS OTHERWISE SPECIFIED THE FOLLOWING SHALL APPLY. A PREFORMED PVC CONDUIT ELBOW SHALL BE USED TO CHANGE THE PVC CONDUIT DIRECTION BEYOND WHAT ITS NATURAL BENDING FLEX WOULD YIELD. RIGID METAL CONDUIT CAN BE BENT TO FORM AN ELBOW OR ANY OTHER BENDING ANGLE REQUIRED ONLY IF A PROPER CONDUIT BENDING MACHINE IS USED. THE ELBOW RADIUS FOR ANY NON-INTERCONNECT CONDUIT SHALL BE 24" OR LARGER WHEN USED IN A HORIZONTAL OR VERTICAL MANNER. ANY TYPE OF ELBOW USED FOR INTERCONNECT CONDUIT SHALL HAVE A RADIUS OF 36" OR LARGER WHEN USED IN A HORIZONTAL DIRECTION OR IN A VERTICAL DIRECTION WHEN THE TRENCH IS 36" OR DEEPER. IF THE TRENCH IS LESS THAN 36" THEN THE VERTICAL ELBOW RADIUS SHALL BE 24".
22. ALL CLAMPS AND BANDING MATERIAL SHALL BE PAINTED TO MATCH THE SIGNAL SUPPORTS.
23. N/A.
24. N/A.

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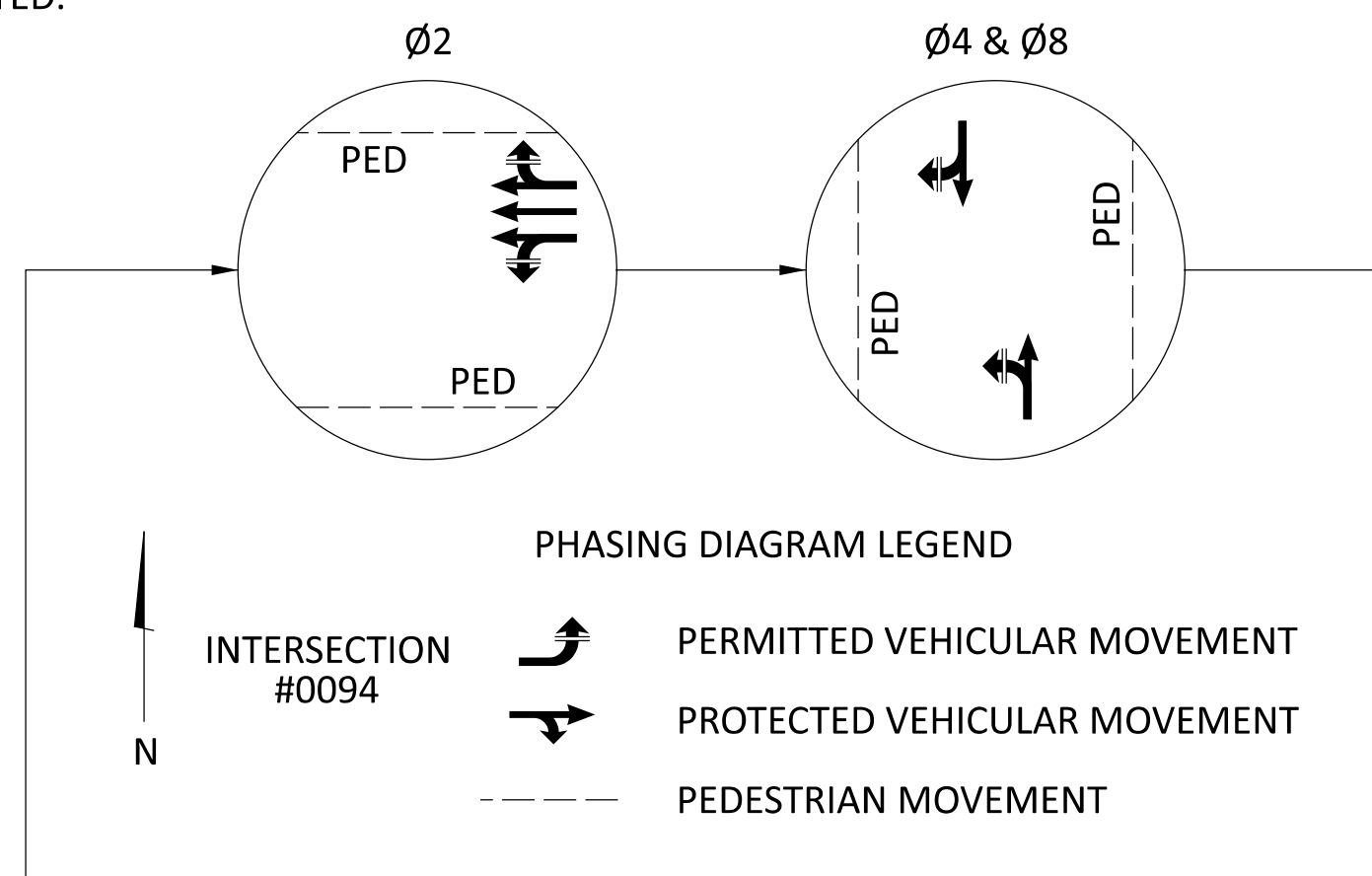
DETAIL SHEET NOTES

- SET CONFLICT MONITOR FOR 10 SEC FLASH.
- LOOP DETECTOR LEAD-IN CABLE SHALL BE USED FOR THE PEDESTRIAN PUSHBUTTONS. GROUND THE SHIELD ONLY AT THE CABINET.
- N/A.
- N/A.
- BACK PANEL WIRING (FRONT SIDE JUMPERS ONLY).
  - HARD WIRE 'PED RECYCLE' TO GROUND.
  - N/A.
  - N/A.
  - USE DIODES TO PREVENT FEEDBACK ON MULTI-USE TERMINALS.
  - N/A.
  - N/A.
  - N/A.
  - N/A.
- CONTROLLER SOFTWARE PROGRAMMING.
  - INITIALIZE IN Ø2 GREEN.
  - ENABLE ACTUATED REST-IN-WALK. ACTIVATE PHASE Ø2.
  - ENABLE DUAL ENTRY. ACTIVATE Ø4 & Ø8.
  - ENABLE SIMULTANEOUS GAP OUT. ACTIVATE Ø2, Ø4, & Ø8.
  - N/A.
  - N/A.
  - N/A.
- INTERCONNECT CABLE SHALL BE CONTINUOUSLY RUN BETWEEN CONTROLLER CABINETS. NO SPLICES ARE PERMITTED EXCEPT WHERE NOTED.
- N/A.
- N/A.
- N/A.

FIELD WIRING HOOK-UP CHART

SIGNAL HEAD	INDICATION	FIELD TERMINAL	FLASH
1,2 NB	R	Ø8 R	R
	Y	Ø8 Y	
	G	Ø8 G	
3,4 SB	R	Ø4 R	R
	Y	Ø4 Y	
	G	Ø4 G	
5,6 WB	R	Ø2 R	R
	Y	Ø2 Y	
	G	Ø2 G	
PEDESTRIAN MOVEMENTS			
N-N	W	G Ø2-W	OFF
NORTH	DW	R Ø2-DW	OFF
E-E	W	G Ø8-W	OFF
EAST	DW	R Ø8-DW	OFF
S-S	W	G Ø2-W	OFF
SOUTH	DW	R Ø2-DW	OFF
W-W	W	G Ø4-W	OFF
WEST	DW	R Ø4-DW	OFF

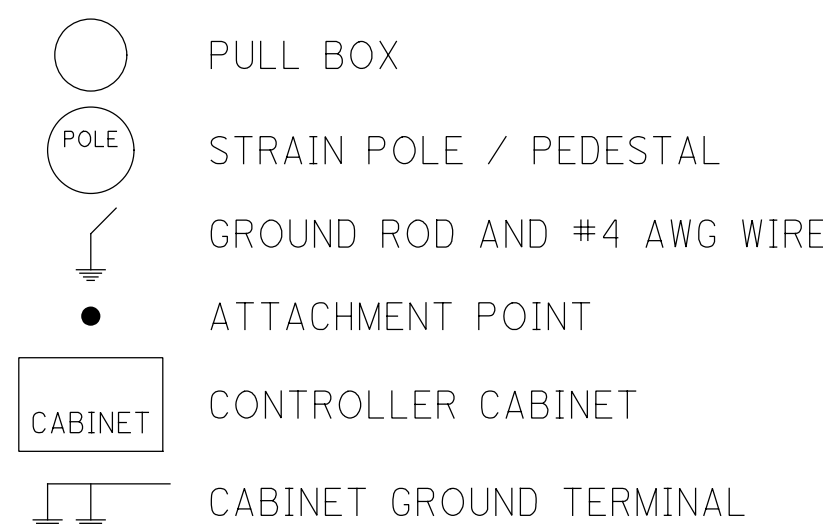
PHASING DIAGRAM



TIMING CHART

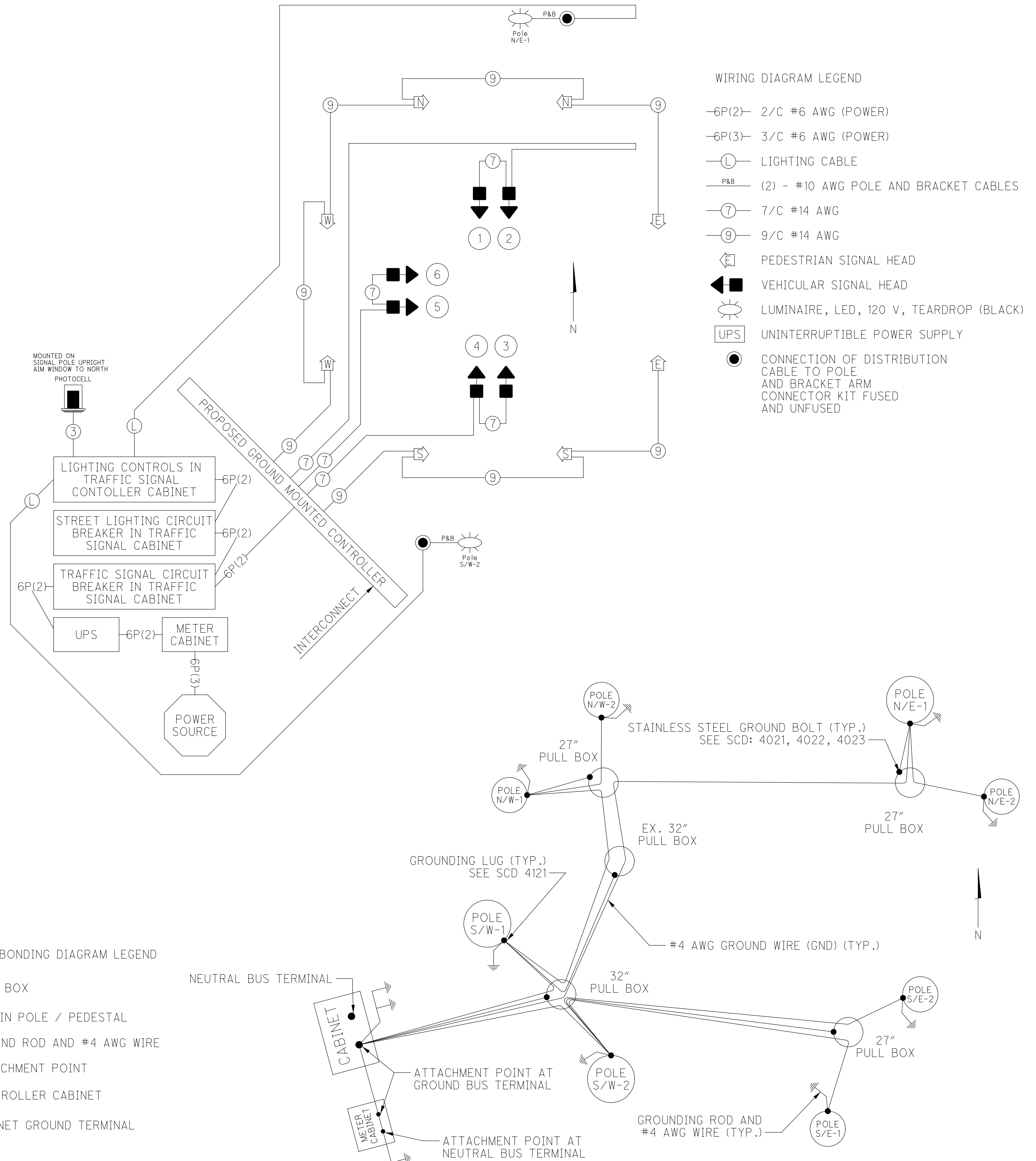
PHASE	1	2	3	4	5	6	7	8
MOVEMENT	-	WB	-	SB	-	-	-	NB
MIN INITIAL	-	20	-	10	-	-	-	10
WALK	-	7	-	7	-	-	-	7
PED CHANGE	-	6	-	12	-	-	-	12
PASS/EXT	-	3.7	-	3.7	-	-	-	3.7
YELLOW	-	3.4	-	3.4	-	-	-	3.4
RED CLR	-	1.5	-	1.8	-	-	-	1.8
MAX GRN 1	-	55	-	55	-	-	-	55
MAX GRN 2	-	55	-	55	-	-	-	55
PED RECALL	-	ON	-	OFF	-	-	-	OFF
VEH RECALL	-	MIN	-	OFF	-	-	-	OFF
MEMORY	-	ON	-	OFF	-	-	-	OFF

GROUNDING & BONDING DIAGRAM LEGEND



WIRING DIAGRAM LEGEND

- 6P(2)- 2/C #6 AWG (POWER)
- 6P(3)- 3/C #6 AWG (POWER)
- ⊖ LIGHTING CABLE
- P&B (2) - #10 AWG POLE AND BRACKET CABLES
- 7 7/C #14 AWG
- 9 9/C #14 AWG
- ⊖ PEDESTRIAN SIGNAL HEAD
- ⊖ VEHICULAR SIGNAL HEAD
- ⊖ LUMINAIRE, LED, 120 V, TEARDROP (BLACK)
- ⊖ UNINTERRUPTIBLE POWER SUPPLY
- CONNECTION OF DISTRIBUTION CABLE TO POLE AND BRACKET ARM CONNECTOR KIT FUSED AND UNFUSED



CALCULATED  
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TRAFFIC SIGNAL DETAILS  
RICH STREET AT FIFTH STREET

IMPROVEMENTS OF  
E RICH STREET FROM S 3RD ST TO S GRANT AVE  
FRA E RICH ST SIGNALS

3921-E

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0 20 40  
Horizontal 1 inch = 20 feet

CALCULATED JAR  
CHECKED DKA

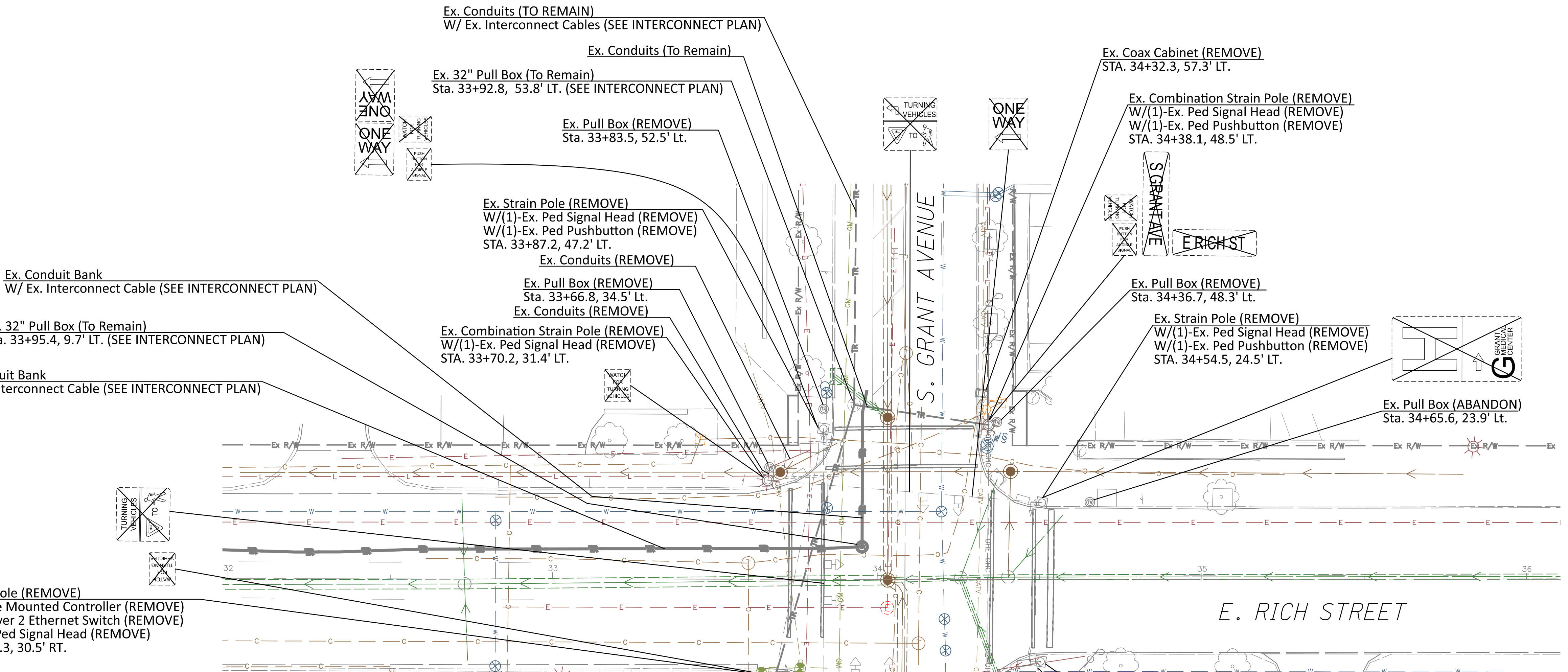
TRAFFIC SIGNAL REMOVAL PLAN  
RICH STREET AT GRANT AVENUE

IMPROVEMENTS OF  
E RICH STREET FROM S 3RD ST TO S GRANT AVE  
FRA E RICH ST SIGNALS

3921-E

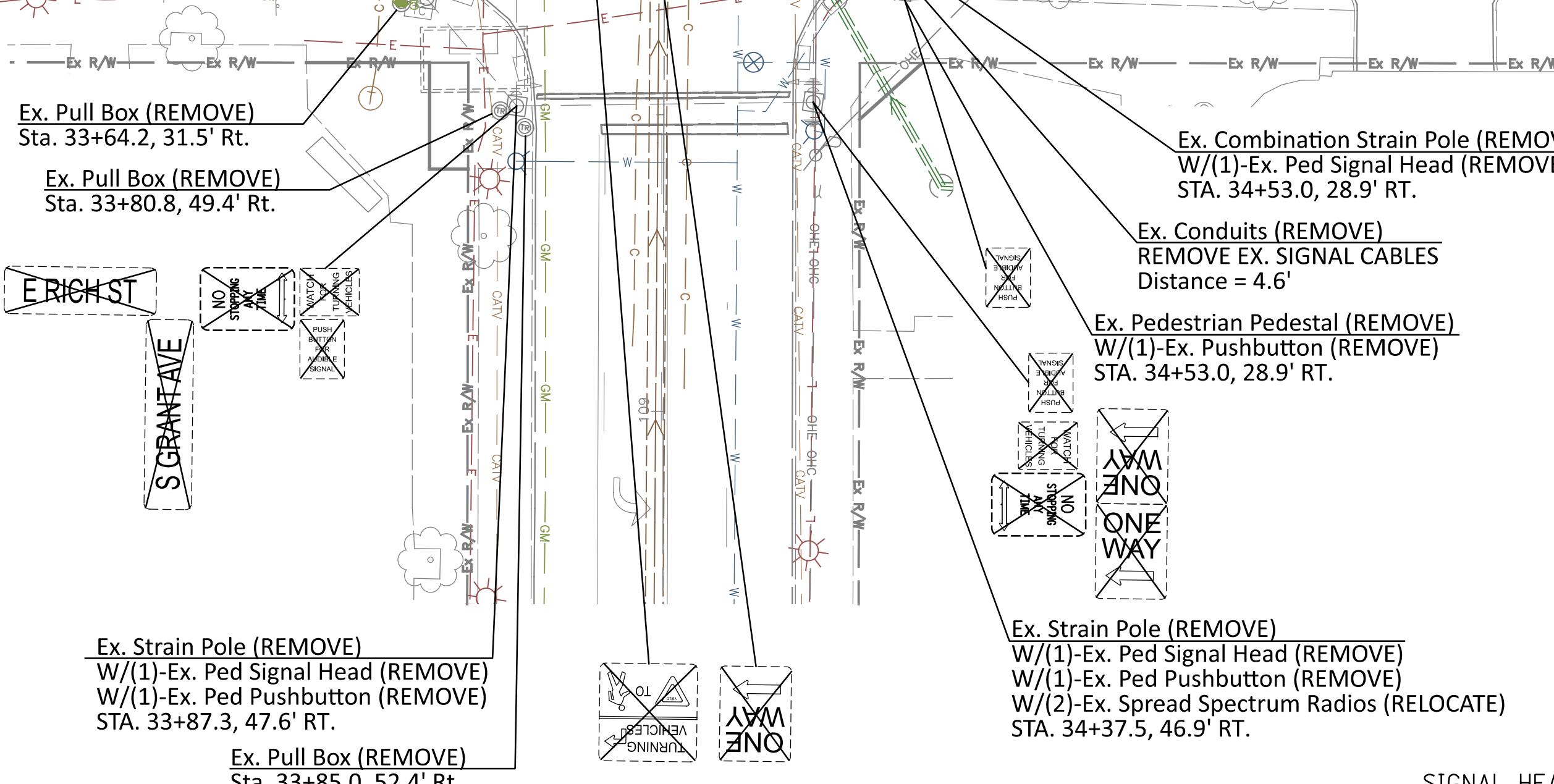
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ITEM 632 - REMOVAL OF TRAFFIC SIGNAL INSTALLATION

QUANTITY	REMOVED ITEM DESCRIPTION	DELIVERED TO 1820 E 17TH AVE.	DELIVERED TO 1881 E. 25TH AVE. (SEE NOTE 1)	DISPOSED OF BY PROJECT	REUSED BY PROJECT (TEMP SIGNAL)
LUMP	PULL BOX CASTING				
	SPAN MOUNTED SIGNS				
	SIGNAL CABLE, MESSENGER WIRE, & CONDUIT				
	CABINET/POLE/PEDESTAL FOUNDATION				
	PEDESTRIAN PUSHBUTTON			X	
	POLE MOUNTED SIGNS				
	VEHICULAR SIGNAL HEADS				
1	POLE MOUNTED CABINET AND CONTROLLER	X			
8	ANCHOR BASE POLE	X			
1	PEDESTRIAN PEDESTAL	X			
LUMP	STREET NAME SIGNS	X			
6	PULL BOX LIDS AND FRAMES	X			
2	WIRELESS RADIO		X		X
1	LAYER 2 ETHERNET SWITCH		X		X
2	ETHERNET TRANSCEIVERS (GBIC MODULES)		X		X
1	GRND. MOUNTED COAX CABINET & EQUIPMENT		X		



LEGEND

SIGNAL HEADS:		EX. VEHICULAR
		EX. PEDESTRIAN
		EX. PUSHBUTTON
		EX. SPREAD SPECTRUM RADIO
SIGNAL POLES:		EX. SIGNAL SUPPORT W/ MAST ARM
		EX. COMB. SIGNAL SUPPORT W/ MAST ARM
		EX. EMBEDDED POLE
CONTROLLERS & CABINETS:		EX. POLE MTD. CONTROLLER
PULL BOXES:		EX. PULL BOX

NOTES:  
1. ITEMS LISTED AS REUSED BY PROJECT SHALL BE RELOCATED FROM THEIR EXISTING CONDITION TO A TEMPORARY CONDITION AS DETAILED BY THE MOT PLANS. ONCE THE NEW IS IN PLACE, TESTED, AND ACCEPTED, THE EXISTING ITEMS SHALL BE REMOVED AND DELIVERED TO THE ADDRESS INDICATED BY THIS CHART.



LEGEND

- SIGNAL HEADS:**
- VEHICULAR
  - PEDESTRIAN
  - PUSHBUTTON
  - EX. SPREAD SPECTRUM RADIO
- SIGNAL POLES:**
- SIGNAL SUPPORT W/ MAST ARM
  - COMB. SIGNAL SUPPORT W/ MAST ARM
  - PED. PEDESTAL, 10.7' W/ DEC. BASE
- CONTROLLERS & CABINETS:**
- GROUND MTD. CONTROLLER W/ UPS
  - POWER METER CABINET
- PULL BOXES:**
- PULL BOX, ROUND CONCRETE (32", 27")
- DETECTION**
- TRAFFIC FLOW MONITOR

(1)-3" CONDUIT W/(2)-7/C, (1)-2/C, (1)-LTG CABLE, (4)-GND  
(1)-2" CONDUIT - EMPTY  
IN TRENCH = 31'

**POLE N/W-2** PEDESTRIAN PEDESTAL, 10.7'  
W/(1)-PEDESTRIAN SIGNAL HEAD  
W/(1)-APS PEDESTRIAN PUSHBUTTON  
STA. 33+58.7, 36.0' LT.

(1)-2" CONDUIT W/(1)-7/C, (1)-2/C, (1)-GND  
(1)-2" CONDUIT - EMPTY  
IN TRENCH = 6'

27" ROUND PULL BOX  
STA. 33+53.1, 36.0' LT.

(1)-3" CONDUIT W/(3)-7/C, (2)-2/C, (1)-LTG CABLE, (2)-GND  
(1)-2" CONDUIT - EMPTY  
ENCASED IN TRENCH = 50'

Ex. 32" Pull Box (To Remain)  
Sta. 33+95.4, 9.7' LT. (SEE INTERCONNECT PLAN)

**PROPOSED POWER SOURCE**  
(EXISTING AEP MANHOLE)  
STA. 34+03.1, 8.7' RT.

(1)-2" CONDUIT W/(4)-7/C, (2)-2/C, (2)-LTG CABLE, (3)-GND  
(1)-2" CONDUIT W/(1)-TFM CABLE  
ENCASED IN TRENCH = 55'

**POLE S/W-1** COMBINATION SIGNAL SUPPORT  
W/(1)-PEDESTRIAN SIGNAL HEAD  
W/(1)-APS PEDESTRIAN PUSHBUTTON  
W/(1)-25' BRACKET ARM W/ TRAFFIC FLOW MONITOR  
W/ DEEP FOUNDATION (22')  
STA. 33+57.7, 34.1' RT.

(1)-3" CONDUIT W/(2)-7/C, (1)-2/C, (1)-LTG CABLE, (3)-GND  
(1)-2" CONDUIT W/(1)-TFM CABLE  
IN TRENCH = 13'

27" ROUND PULL BOX  
STA. 33+70.6, 33.3 RT.

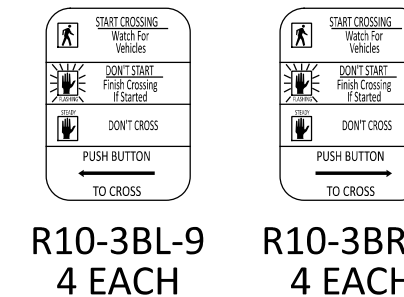
(1)-2" CONDUIT W/(2)-7/C, (1)-2/C, (1)-LTG CABLE, (3)-GND  
(1)-2" CONDUIT - EMPTY  
IN TRENCH = 16'

**POLE S/W-2** COMBINATION SIGNAL SUPPORT  
W/(1)-PEDESTRIAN SIGNAL HEAD  
W/(1)-APS PEDESTRIAN PUSHBUTTON  
W/(1)-8' BRACKET ARM W/ LUMINAIRE  
STA. 33+73.9, 48.5' RT.

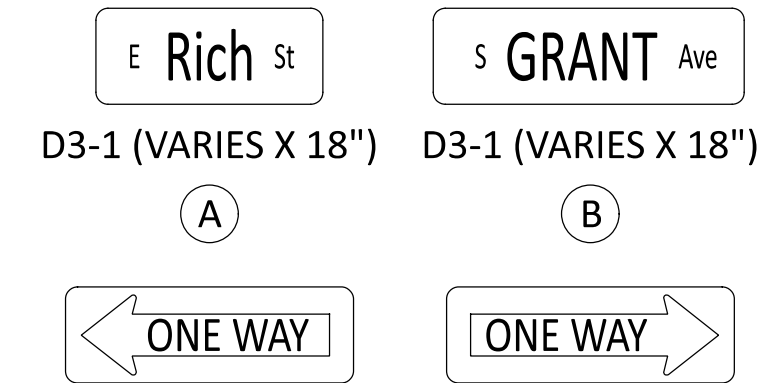
**POLE N/W-1** COMBINATION SIGNAL SUPPORT  
W/(1)-PEDESTRIAN SIGNAL HEAD  
W/(1)-APS PEDESTRIAN PUSHBUTTON  
W/(1)-8' BRACKET ARM W/ LUMINAIRE  
W/ DEEP FOUNDATION (22')  
STA. 33+74.8, 50.3' LT.

**POLE N/E-1** PEDESTRIAN PEDESTAL, 10.7'  
W/(1)-PEDESTRIAN SIGNAL HEAD  
W/(1)-APS PEDESTRIAN PUSHBUTTON  
STA. 34+42.2, 47.5' LT.

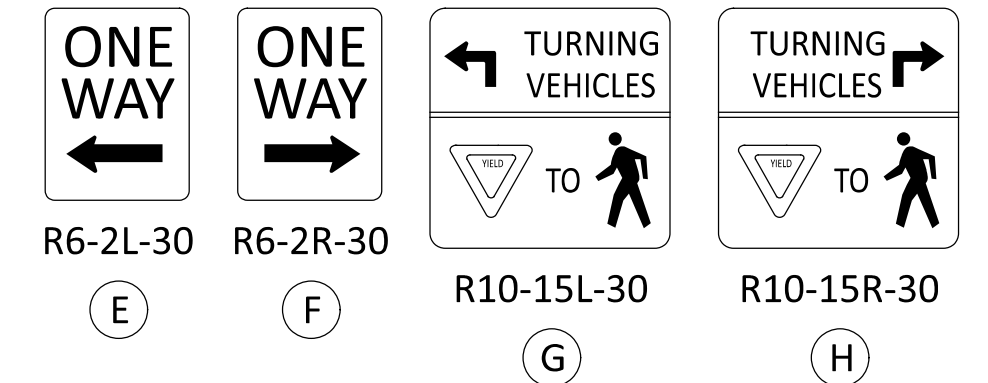
PEDESTRIAN SIGNS



POLE MOUNTED SIGNS



MAST ARM MOUNTED SIGNS



(1)-2" CONDUIT W/(1)-7/C, (1)-2/C, (1)-GND  
(1)-2" CONDUIT - EMPTY  
IN TRENCH = 25'

GROUND MOUNTED CONTROLLER W/ UPS  
W/ INTERCONNECT ITEMS (SEE INTERCONNECT PLAN)  
STA. 34+57.1, 38.4' LT.

(1)-2" CONDUIT W/(1)-2/C POWER CABLE & (1)-GND  
ENCASED IN TRENCH = 5'

POWER METER CABINET  
STA. 34+52.1, 38.4' LT.

(1)-2" CONDUIT W/(1)-3/C POWER CABLE  
ENCASED IN TRENCH = 3'

PULL BOX, 12"X18"  
STA. 34+59.6, 37.6' LT.

(1)-2" CONDUIT W/(1)-3/C POWER CABLE  
ENCASED IN TRENCH = 90'

(1)-3" CONDUIT W/(2)-9/C, (8)-2/C, (3)-LTG CABLES, (6)-GND  
(1)-3" CONDUIT W/(9)-7/C, (1)-TFM CABLE  
(1)-2" CONDUIT W/ INTERCONNECT CABLES  
(1)-2" CONDUIT - EMPTY  
IN TRENCH = 10'

32" ROUND PULL BOX  
STA. 34+55.4, 28.5' LT.

(1)-2" CONDUIT W/(1)-9/C, (1)-2/C, (1)-GND  
(1)-2" CONDUIT - EMPTY  
IN TRENCH = 6'

**POLE N/E-2** PEDESTRIAN PEDESTAL, 10.7'  
W/(1)-PEDESTRIAN SIGNAL HEAD  
W/(1)-APS PEDESTRIAN PUSHBUTTON  
STA. 34+49.5, 28.6' LT.

(1)-2" CONDUIT W/(1)-9/C, (1)-7/C, (2)-2/C, (3)-GND  
(1)-2" CONDUIT - EMPTY  
ENCASED IN TRENCH = 64'

(1)-3" CONDUIT W/(7)-7/C, (4)-2/C, (3)-LTG, (2)-GND  
(1)-2" CONDUIT W/(1)-TFM CABLE,  
& INTERCONNECT CABLES  
ENCASED IN TRENCH = 69'

**POLE S/E-2** PEDESTRIAN PEDESTAL, 10.7'  
W/(1)-PEDESTRIAN SIGNAL HEAD  
W/(1)-APS PEDESTRIAN PUSHBUTTON  
STA. 34+50.8, 32.5' RT.

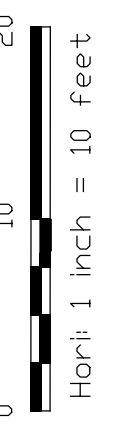
(1)-2" CONDUIT W/(1)-9/C, (1)-2/C, (1)-GND  
(1)-2" CONDUIT - EMPTY  
IN TRENCH = 8'

27" ROUND PULL BOX  
STA. 34+43.6, 34.1' RT.

(1)-2" CONDUIT W/(1)-7/C, (1)-2/C, (1)-GND  
(1)-2" CONDUIT - EMPTY  
IN TRENCH = 12'

**POLE S/E-1** PEDESTRIAN PEDESTAL, 10.7'  
W/(1)-PEDESTRIAN SIGNAL HEAD  
W/(1)-APS PEDESTRIAN PUSHBUTTON  
STA. 34+41.9, 45.5' RT.

- THE CONTRACTOR SHALL ENSURE THAT ALL PROPOSED SIDEWALKS/ PATHWAYS MEET ADA GUIDELINES PER CITY SPECIFICATIONS.
- THE CONTRACTOR SHALL ENSURE THAT ALL EXISTING SIDEWALKS/ PATHWAYS WITHIN THE PROJECT WORK LIMITS MEET ADA GUIDELINES PER CITY SPECIFICATIONS.
- ALL CABLES, UNLESS SPECIFIED IN THE PLANS, ARE TO BE ROUTED INSIDE THE ANCHOR BASE SIGNAL SUPPORT POLE OR PEDESTAL. CABLES NOT SERVING A GIVEN POLE OR PEDESTAL SHALL NOT BE ROUTED THROUGH THE POLE.
- POWER, SERVICE AND INTERCONNECT CABLE SHALL BE CONTINUOUS WITH NO SPLICES, EXCEPT AS NOTED.
- FOR SIGNING AND PAVEMENT MARKINGS, SEE SHEET 54 .
- N/A.
- FOR POLE BASE FOUNDATIONS NOT WITHIN SIDEWALK AREA, THE TOP OF THE POLE BASE FOUNDATION SHALL BE EDGED USING A 1/2" SIDEWALK EDGER INSTEAD OF BEING CHAMFERED.
- THE CITY OF COLUMBUS SHALL APPROVE BOLT ALIGNMENT, POLE/PEDESTAL FOUNDATION LOCATION, AND ELEVATION PRIOR TO THE CONTRACTOR INSTALLING THE FOUNDATION.
- TAGGING OF CABLE IN THE PULL BOX IMMEDIATELY ADJACENT TO THE CONTROL CABINET IS NOT REQUIRED EXCEPT FOR TAGGING OF CERTAIN CABLE AS DIRECTED BY THE PROJECT ENGINEER, OR AS PER PLAN.
- DO NOT ENCASE THE GROUND ROD, THE GROUNDING WIRE, OR THE EMT CONDUIT ENDS IN CONCRETE THAT FALL OUTSIDE OF THE FOUNDATION. FULL ACCESS TO THESE ITEMS MUST BE MAINTAINED AT ALL TIMES. PERMANENTLY MARK THE TOP OF FOUNDATION CONCRETE, WITH A MARKER OR SYMBOL SO THE ROD LOCATION CAN BE IDENTIFIED BY OTHERS.
- ANY SIGNAL POLE BASE FOUNDATION ADJACENT TO A SIDEWALK AREA SHALL BE FLUSH WITH THE TOP OF THE SIDEWALK UNLESS OTHERWISE STATED. SIGNAL POLE FOUNDATIONS WITHIN SIDEWALK AREA SHALL BE PER STD DWG 4161.
- THE CONTRACTOR SHALL NOT INSTALL POLE FOUNDATIONS UNTIL THE POLE LOCATION AREA IS AT FINISHED GRADE.
- UNDERGROUND CONDUIT AND TRENCH THAT ARE UNDER PROPOSED SIDEWALK OR ROADWAY AREAS SHALL BE INSTALLED PRIOR TO THE PLACEMENT OF SIDEWALKS OR ANY ASPHALT OR CONCRETE ROADWAY COURSE.
- THE CONTRACTOR SHALL PROVIDE AND INSTALL POWER CABLE/CONDUIT FROM THE TRAFFIC SIGNAL CONTROLLER CABINET, THROUGH THE POWER METER CABINET, AND TO THE AEP POWER/VAULT AT STA 34+03.1, 8.7' RT. COIL ENOUGH CABLE IN THE VAULT TO REACH THE POWER HOOK-UP POINT IN THE VAULT.
- N/A.
- FOR INTERCONNECT ITEMS, SEE INTERCONNECT SCHEMATIC SHEET 76.
- N/A.
- THE CONTROL CABINET DOOR SHALL BE LOCATED ON THE NORTH SIDE OF THE CABINET.
- THE CABINET FOUNDATION SHALL BE PLACED ADJACENT TO THE BACK OF THE SIDEWALK. THE TOP SURFACE OF A CABINET FOUNDATION LOCATED NEXT TO SIDEWALK AREAS SHALL BE 4" ABOVE THE SURROUNDING WALK. EXPANSION MATERIAL SHALL BE USED BETWEEN ALL FOUNDATIONS AND ADJACENT SIDEWALKS. WORK PAD SIZE SHALL BE 48" W X 36" D X 4"H.
- USE A SEPARATE CONDUIT FOR EACH GROUPING OF CABLES UNLESS OTHERWISE INDICATED: ONE CONDUIT FOR 120VAC SIGNAL CABLE (3/C, 7/C, 9/C); ONE CONDUIT FOR POWER; ONE CONDUIT FOR 2 CONDUCTOR CABLE (LOOP & PUSHBUTTON); AND ONE CONDUIT FOR INTERCONNECT/COMMUNICATIONS CABLE (TWISTED PAIR, FIBER OPTICS OR COAX). ANY OTHER LOW VOLTAGE CABLE NOT SPECIFIED ABOVE CAN BE PLACED IN THE 2 CONDUCTOR CABLE CONDUIT. POWER CABLE MUST BE PLACED IN ITS OWN CONDUIT.
- UNLESS OTHERWISE SPECIFIED THE FOLLOWING SHALL APPLY. A PREFORMED PVC CONDUIT ELBOW SHALL BE USED TO CHANGE THE PVC CONDUIT DIRECTION BEYOND WHAT ITS NATURAL BENDING FLEX WOULD YIELD. RIGID METAL CONDUIT CAN BE BENT TO FORM AN ELBOW OR ANY OTHER BENDING ANGLE REQUIRED ONLY IF A PROPER CONDUIT BENDING MACHINE IS USED. THE ELBOW RADIUS FOR ANY NON-INTERCONNECT CONDUIT SHALL BE 24" OR LARGER WHEN USED IN A HORIZONTAL OR VERTICAL MANNER. ANY TYPE OF ELBOW USED FOR INTERCONNECT CONDUIT SHALL HAVE A RADIUS OF 36" OR LARGER WHEN USED IN A HORIZONTAL DIRECTION OR IN A VERTICAL DIRECTION WHEN THE TRENCH IS 36" OR DEEPER. IF THE TRENCH IS LESS THAN 36" THEN THE VERTICAL ELBOW RADIUS SHALL BE 24".
- ALL CLAMPS AND BANDING MATERIAL SHALL BE PAINTED TO MATCH THE SIGNAL SUPPORTS.
- N/A.
- N/A.



CALCULATED: JAR  
CHECKED: DKA

TRAFFIC SIGNAL INSTALLATION PLAN  
RICH STREET AT GRANT AVENUE

IMPROVEMENTS OF  
E RICH STREET FROM S 3RD ST TO S GRANT AVE  
FRA E RICH ST SIGNALS

3921-E

70  
95

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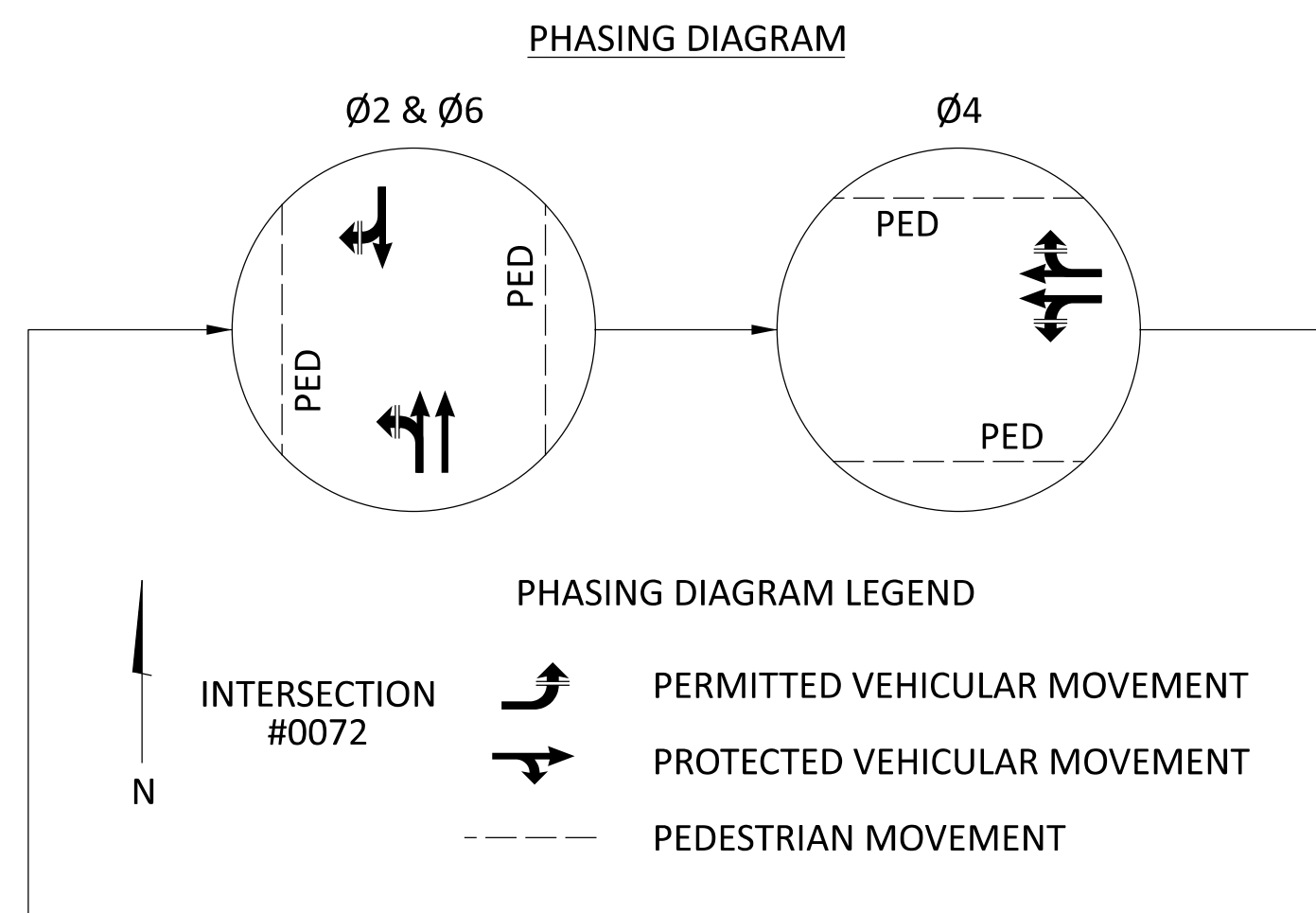


DETAIL SHEET NOTES

- SET CONFLICT MONITOR FOR 10 SEC FLASH.
- LOOP DETECTOR LEAD-IN CABLE SHALL BE USED FOR THE PEDESTRIAN PUSHBUTTONS. GROUND THE SHIELD ONLY AT THE CABINET.
- N/A.
- N/A.
- BACK PANEL WIRING (FRONT SIDE JUMPERS ONLY).
  - HARD WIRE 'PED RECYCLE' TO GROUND.
  - N/A.
  - N/A.
  - USE DIODES TO PREVENT FEEDBACK ON MULTI-USE TERMINALS.
  - N/A.
  - N/A.
  - N/A.
  - N/A.
- CONTROLLER SOFTWARE PROGRAMMING.
  - INITIALIZE IN Ø2 GREEN.
  - ENABLE ACTUATED REST-IN-WALK. ACTIVATE PHASE Ø2.
  - ENABLE DUAL ENTRY. ACTIVATE Ø4 & Ø8.
  - ENABLE SIMULTANEOUS GAP OUT. ACTIVATE Ø2, Ø4, & Ø8.
  - N/A.
  - N/A.
  - N/A.
- INTERCONNECT CABLE SHALL BE CONTINUOUSLY RUN BETWEEN CONTROLLER CABINETS. NO SPLICES ARE PERMITTED EXCEPT WHERE NOTED.
- N/A.
- N/A.
- N/A.

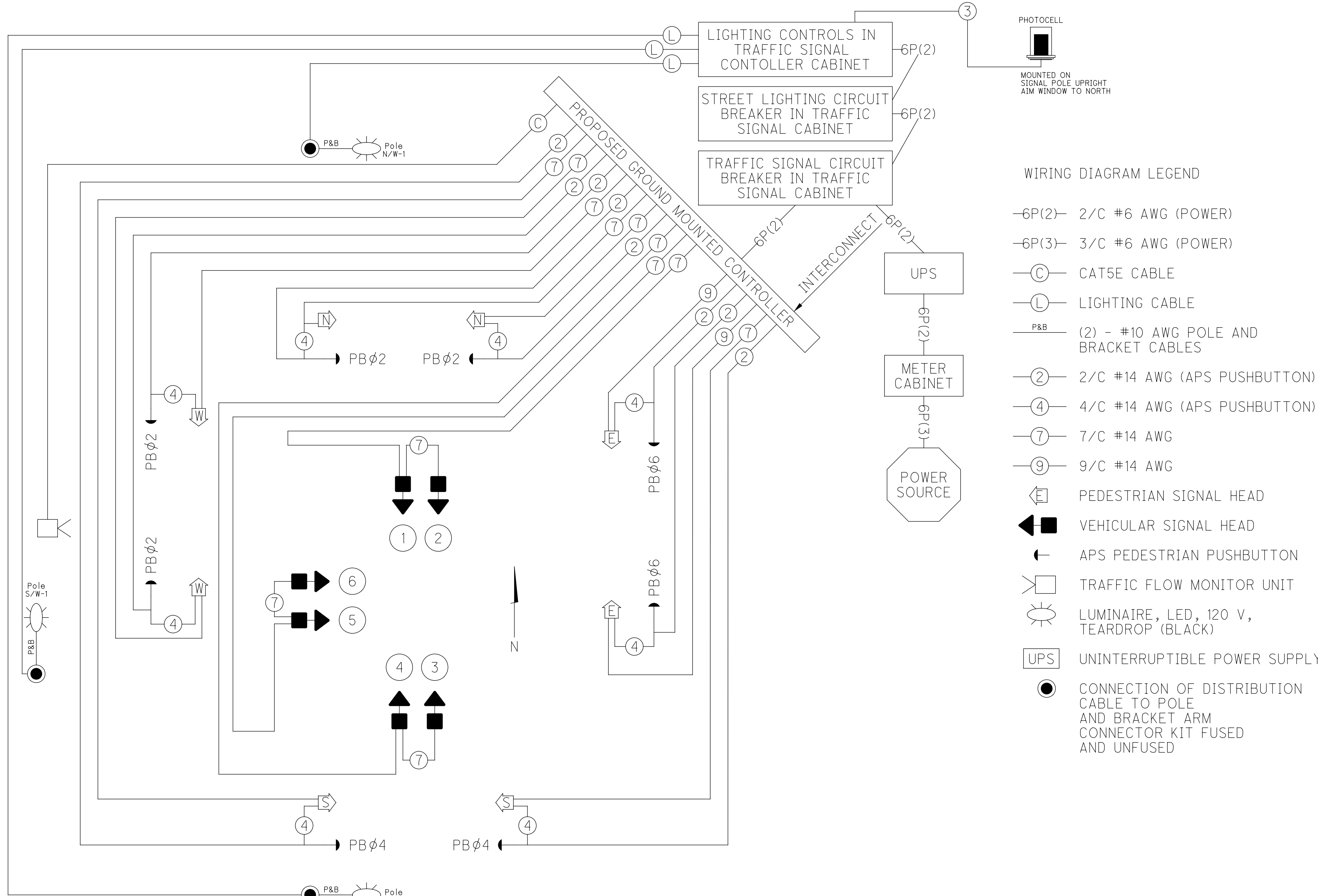
FIELD WIRING HOOK-UP CHART

SIGNAL HEAD	INDICATION	FIELD TERMINAL	FLASH
1,2 NB	R	Ø6 R	R
	Y	Ø6 Y	
	G	Ø6 G	
3,4 SB	R	Ø2 R	R
	Y	Ø2 Y	
	G	Ø2 G	
5,6 WB	R	Ø4 R	R
	Y	Ø4 Y	
	G	Ø4 G	
PEDESTRIAN MOVEMENTS			
N-N	W	G Ø4-W	OFF
NORTH	DW	R Ø4-DW	OFF
E-E	W	G Ø6-W	OFF
EAST	DW	R Ø6-DW	OFF
S-S	W	G Ø4-W	OFF
SOUTH	DW	R Ø4-DW	OFF
W-W	W	G Ø2-W	OFF
WEST	DW	R Ø2-DW	OFF



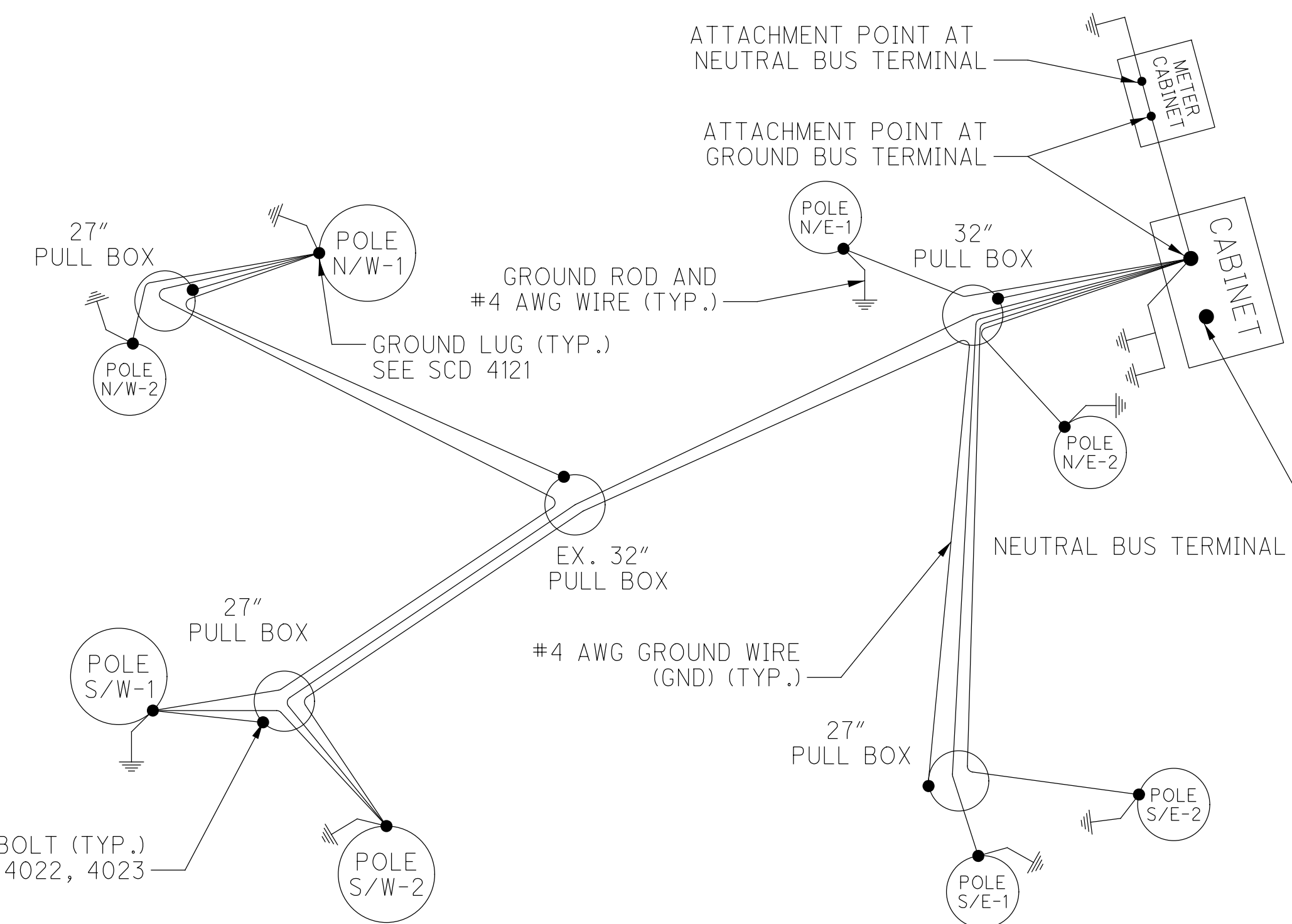
TIMING CHART

PHASE	1	2	3	4	5	6	7	8
MOVEMENT	-	SB	-	WB	-	NB	-	-
MIN INITIAL	-	20	-	20	-	10	-	-
WALK	-	7	-	7	-	7	-	-
PED CHANGE	-	11	-	8	-	11	-	-
PASS/EXT	-	3.7	-	3.7	-	3.7	-	-
YELLOW	-	3.4	-	3.4	-	3.4	-	-
RED CLR	-	1.7	-	1.6	-	1.7	-	-
MAX GRN 1	-	55	-	55	-	55	-	-
MAX GRN 2	-	55	-	55	-	55	-	-
PED RECALL	-	ON	-	ON	-	OFF	-	-
VEH RECALL	-	MIN	-	MIN	-	OFF	-	-
MEMORY	-	ON	-	ON	-	OFF	-	-



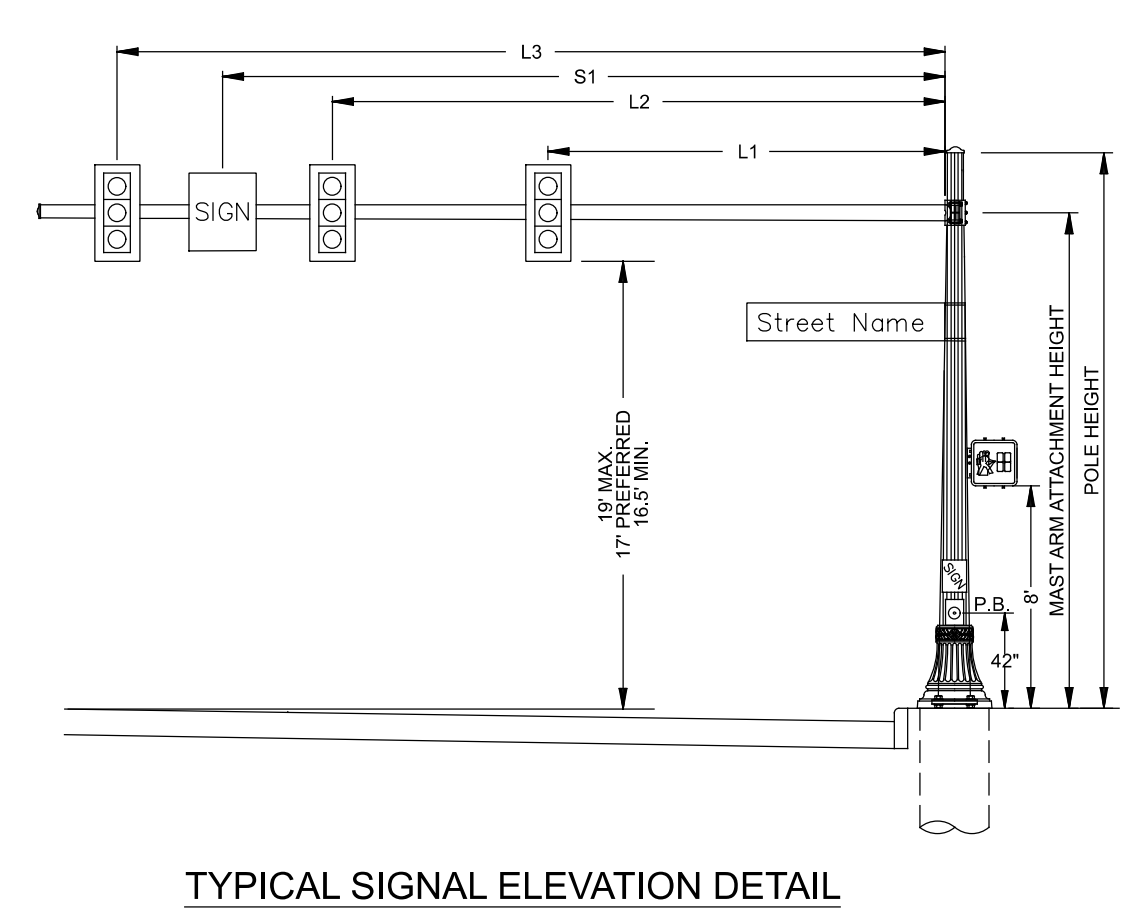
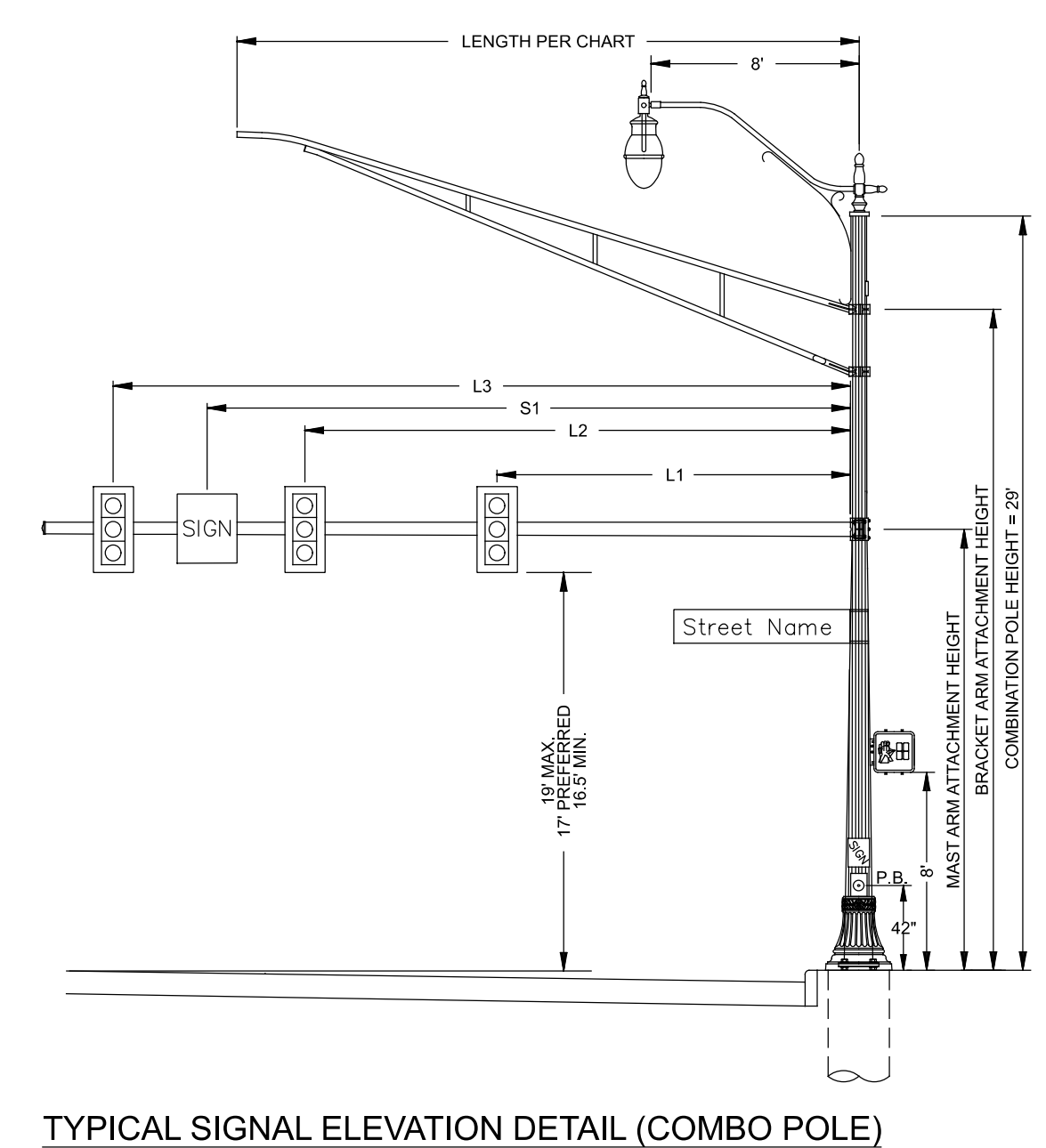
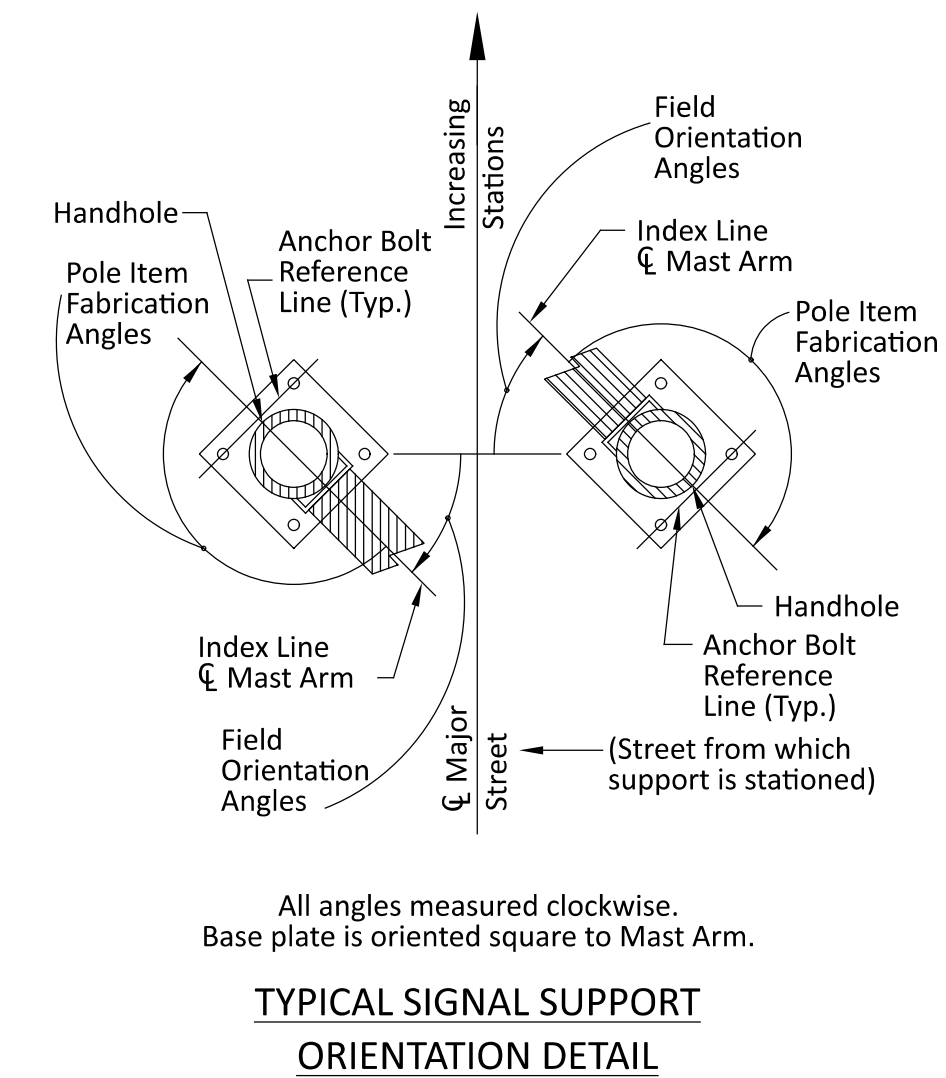
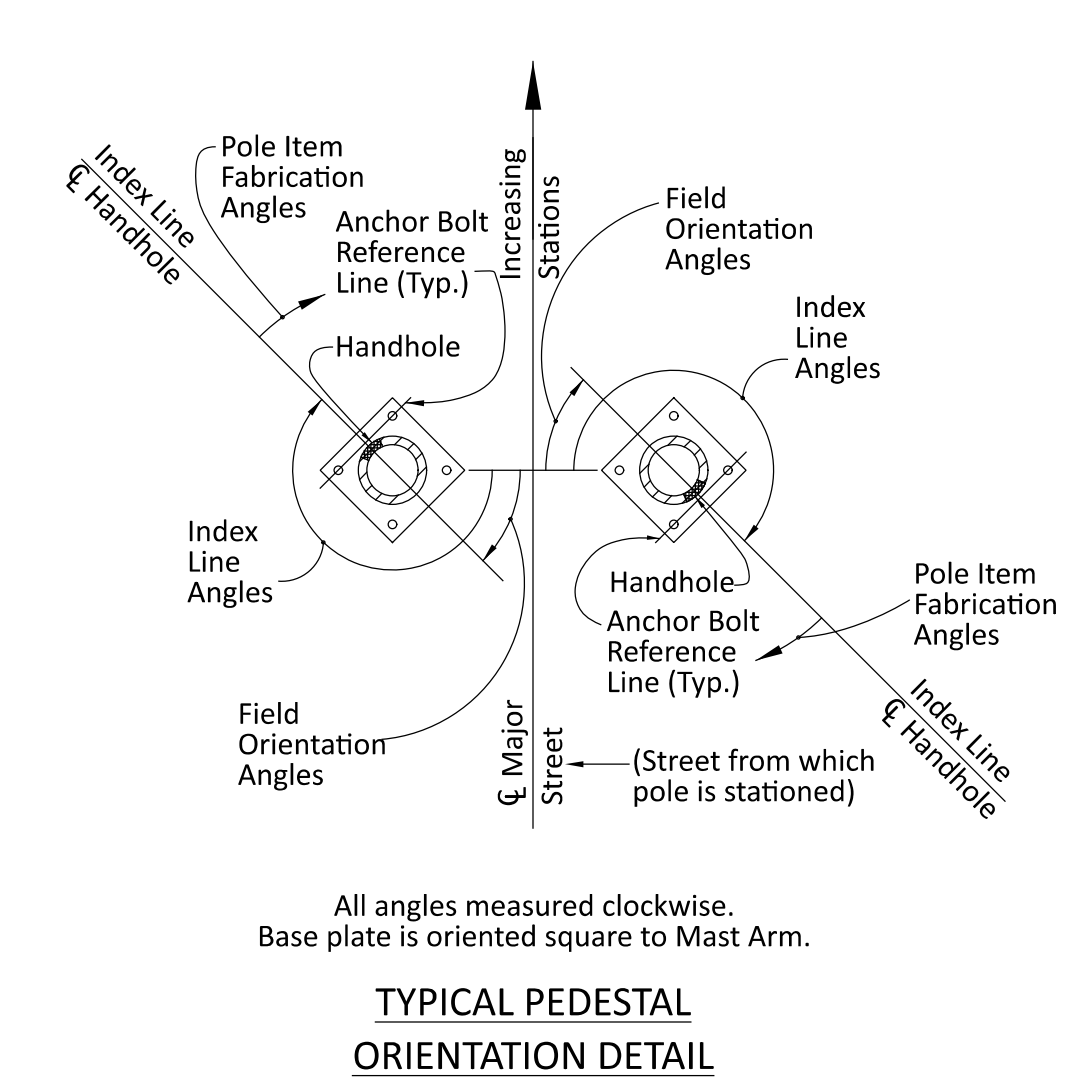
GROUNDING & BONDING DIAGRAM LEGEND

- ⊖ PULL BOX
- ⊖ STRAIN POLE / PEDESTAL
- ⊖ GROUND ROD AND #4 AWG WIRE
- ⊖ ATTACHMENT POINT
- ⊖ CONTROLLER CABINET
- ⊖ CABINET GROUND TERMINAL



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INTERSECTION	SHEET NO.	POLE NO.	POLE COLOR / FEDERAL STANDARD 595B	POLE DESIGN NO.	POLE HT. (FT.)	MAST ARM LENGTH (FT.)	TRAFFIC FLOW MONITOR BRACKET ARM LENGTH (FT.)	LUMINAIRE BRACKET ARM LENGTH (FT.)	OBJECT ATTACH. HEIGHT (FT.)			DISTANCE FROM BUTT PLATE (FT.)					POLE FABRICATION ANGLES CLOCKWISE FROM INDEX LINE (MAST ARM OR PEDESTAL HANDHOLE)					FIELD ORIENTATION									
									MAST ARM (FT.)	TRAFFIC FLOW MONITOR BRACKET ARM (FT.)	LUMINAIRE BRACKET ARM (FT.)	L1	L2	L3	S1	S2	ANCHOR BOLT REF. LINE (DEG)	PED. SIGNAL HEADS (DEG)	PED. PUSHBUTTON (DEG)	TRAFFIC FLOW MONITOR BRACKET ARM (DEG)	LUMINAIRE BRACKET ARM (DEG)	STREET NAME SIGN (DEG)	INDEX LINE ANGLE (HANDHOLE) (DEG)	ANCHOR BOLT REF. LINE (DEG)	FOUNDATION ELEVATION						
RICH ST AT 3RD ST	61	N/W-1	SEMI-GLOSS BLACK #27038	13	27	42	8	25	20.5	25.0	-	26.0	37.0	-	23.0	40.0	90	270	-	0	-	0 / 270	0	90	SEE SHEET 44						
		N/W-2		EXISTING																											
		N/E-1		PEDESTAL	10.7	-	-	-	-	-	-	-	-	-	-	-	-	-	90	203	-	-	-	-	193	103	SEE SHEET 44				
		N/E-2		PEDESTAL	10.7	-	-	-	-	-	-	-	-	-	-	-	-	-	90	108	-	-	-	-	251	161	SEE SHEET 44				
		S/E-1		13	29	54	-	-	20.5	-	29	29.0	39.0	49.0	26.0	52.0	90	90	-	-	0	0 / 90	270	180	SEE SHEET 44						
		S/E-2		PEDESTAL	10.7	-	-	-	-	-	-	-	-	-	-	-	-	-	90	180	-	-	-	-	90	0	SEE SHEET 44				
		S/W-1		PEDESTAL	10.7	-	-	-	-	-	-	-	-	-	-	-	-	-	90	234 / 339	-	-	-	-	207	117	SEE SHEET 44				
RICH ST AT 4TH ST	64	N/W-1	SEMI-GLOSS BLACK #27038	13	29	57	-	25	20.5	-	29	42.0	52.0	-	39.0	55.0	90	2	-	-	0	0	0	90	SEE SHEET 45						
		N/W-2		PEDESTAL	10.7	-	-	-	-	-	-	-	-	-	-	-	-	90	183	-	-	-	-	85	175	SEE SHEET 45					
		N/E-1		13	29	41	-	25	20.5	-	29	25.0	36.0	-	22.0	39.0	90	272	-	-	0	0	90	0	SEE SHEET 45						
		N/E-2		PEDESTAL	10.7	-	-	-	-	-	-	-	-	-	-	-	-	90	183	-	-	-	-	270	180	SEE SHEET 45					
		S/E-1		PEDESTAL	10.7	-	-	-	-	-	-	-	-	-	-	-	-	90	270	-	-	-	-	90	0	SEE SHEET 45					
		S/E-2		PEDESTAL	10.7	-	-	-	-	-	-	-	-	-	-	-	-	90	103	-	-	-	-	170	80	SEE SHEET 45					
		S/W-1		PEDESTAL	10.7	-	-	-	-	-	-	-	-	-	-	-	-	90	250	-	-	-	-	197	107	SEE SHEET 45					
		S/W-2		PEDESTAL	10.7	-	-	-	-	-	-	-	-	-	-	-	-	90	90	-	-	-	-	270	180	SEE SHEET 45					
RICH ST AT 5TH ST	67	N/W-1	SEMI-GLOSS BLACK #27038	PEDESTAL	10.7	-	-	-	-	-	-	-	-	-	-	-	90	180	-	-	-	-	90	0	SEE SHEET 46						
		N/W-2		PEDESTAL	10.7	-	-	-	-	-	-	-	-	-	-	-	90	237	-	-	-	-	123	33	SEE SHEET 46						
		N/E-1		12	29	28	-	25	19.5	-	29	15.0	23.0	-	12.0	26.0	90	270	-	-	0	0 / 270	90	0	SEE SHEET 46						
		N/E-2		PEDESTAL	10.7	-	-	-	-	-	-	-	-	-	-	-	-	90	247	-	-	-	-	202	112	SEE SHEET 46					
		S/E-1		PEDESTAL	10.7	-	-	-	-	-	-	-	-	-	-	-	-	90	272	-	-	-	-	89	179	SEE SHEET 47					
		S/E-2		PEDESTAL	10.7	-	-	-	-	-	-	-	-	-	-	-	-	90	179	-	-	-	-	90	0	SEE SHEET 47					
		S/W-1		12	22	44	-	-	20.5	-	-	28.0	39.0	-	25.0	42.0	90	90	-	-	-	0	0	90	0	SEE SHEET 47					
		S/W-2		12	29	27	-	25	19.5	-	29	14.5	22.5	-	11.5	25.5	90	270	-	-	0	0	90	0	SEE SHEET 47						
RICH ST AT GRANT AVE	70	N/W-1	SEMI-GLOSS BLACK #27038	13	29	49	-	25	20.5	-	29	33.5	44.5	-	30.5	47.5	90	90	90	-	0	0 / 90	270	180	SEE SHEET 48						
		N/W-2		PEDESTAL	10.7	-	-	-	-	-	-	-	-	-	-	-	90	90	90	-	-	-	-	180	90	SEE SHEET 48					
		N/E-1		PEDESTAL	10.7	-	-	-	-	-	-	-	-	-	-	-	90	90	90	-	-	-	-	270	180	SEE SHEET 48					
		N/E-2		PEDESTAL	10.7	-	-	-	-	-	-	-	-	-	-	-	90	250	250	-	-	-	-	200	110	SEE SHEET 48					
		S/E-1		PEDESTAL	10.7	-	-	-	-	-	-	-	-	-	-	-	90	260	260	-	-	-	-	100	10	SEE SHEET 48					
		S/E-2		PEDESTAL	10.7	-	-	-	-	-	-	-	-	-	-	-	90	110	110	-	-	-	-	160	70	SEE SHEET 48					
		S/W-1		12	29	45	8	25	19.5	25.0	29	28.5	40.5	-	25.5	43.5	90	90	90	0	0	-	0	90	0	SEE SHEET 48					
		S/W-2		12	29	28	-	25	19.5	-	29	13.5	23.5	-	10.5	26.5	90	270	270	-	0	0 / 270	90	0	SEE SHEET 48						



CALCULATED  
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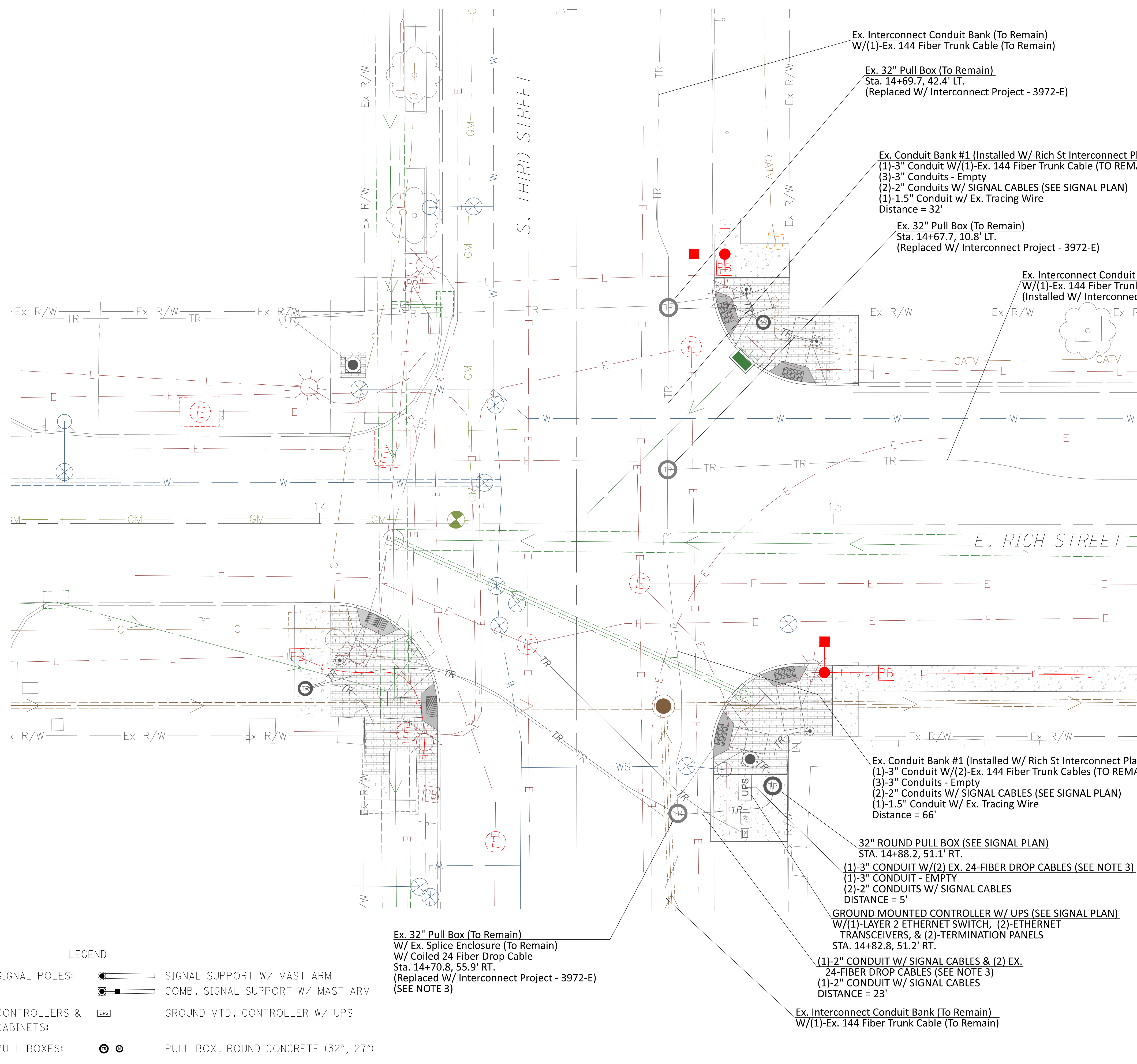
POLE ORIENTATION AND FABRICATION

IMPROVEMENTS OF  
E RICH STREET FROM S 3RD ST TO S GRANT AVE  
FRA E RICH ST SIGNALS

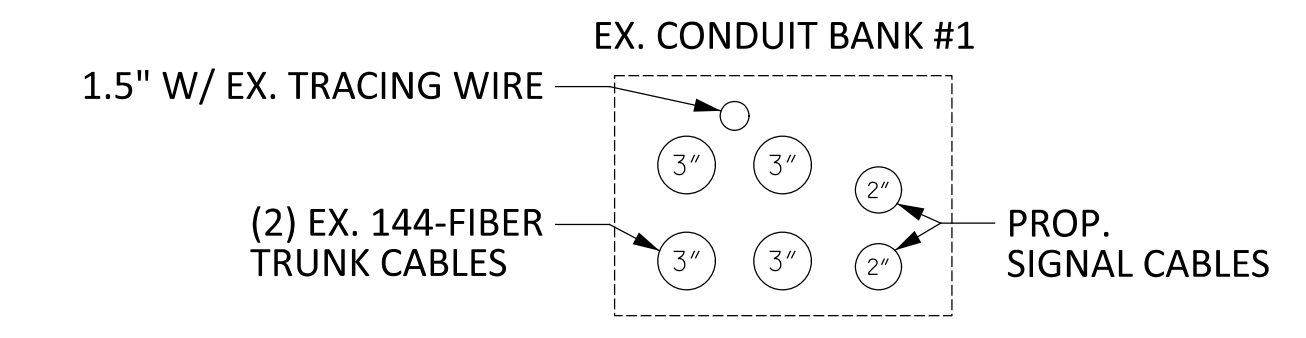
3921-E



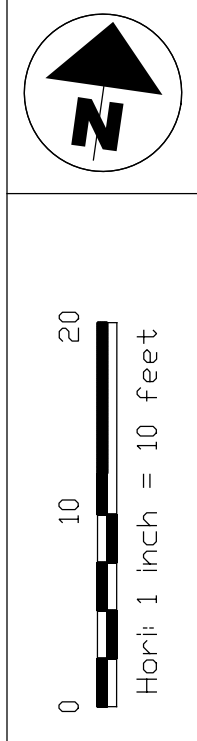
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CONDUIT BANK ARRANGEMENT DETAIL  
(SEE CITY OF COLUMBUS STANDARD  
CONSTRUCTION DRAWING 4001)



VIEW LOOKING NORTH  
NOTES  
1. CONDUITS ARE EMPTY UNLESS OTHERWISE SPECIFIED.



CALCULATED: JAR  
CHECKED: DKA

**TRAFFIC SIGNAL INTERCONNECT PLAN  
RICH STREET AT THIRD STREET**

**IMPROVEMENTS OF  
E RICH STREET FROM S 3RD ST TO S GRANT AVE  
FRA E RICH ST SIGNALS**

- LEGEND**
- SIGNAL POLES: SIGNAL SUPPORT W/ MAST ARM
  - COMB. SIGNAL SUPPORT W/ MAST ARM
  - CONTROLLERS & CABINETS: GROUND MTD. CONTROLLER W/ UPS
  - PULL BOXES: PULL BOX, ROUND CONCRETE (32", 27")

Ex. 32" Pull Box (To Remain)  
W/ Ex. Splice Enclosure (To Remain)  
W/ Coiled 24 Fiber Drop Cable  
Sta. 14+70.8, 55.9' RT.  
(Replaced W/ Interconnect Project - 3972-E)  
(SEE NOTE 3)

Ex. Interconnect Conduit Bank (To Remain)  
W/(1)-Ex. 144 Fiber Trunk Cable (To Remain)

Ex. 32" Pull Box (To Remain)  
Sta. 14+69.7, 42.4' LT.  
(Replaced W/ Interconnect Project - 3972-E)

Ex. Conduit Bank #1 (Installed W/ Rich St Interconnect Plan - DRE 3972)  
(1)-3" Conduit W/(1)-Ex. 144 Fiber Trunk Cable (TO REMAIN)  
(3)-3" Conduits - Empty  
(2)-2" Conduits W/ SIGNAL CABLES (SEE SIGNAL PLAN)  
(1)-1.5" Conduit w/ Ex. Tracing Wire  
Distance = 32'

Ex. 32" Pull Box (To Remain)  
Sta. 14+67.7, 10.8' LT.  
(Replaced W/ Interconnect Project - 3972-E)

Ex. Interconnect Conduit Bank (To Remain)  
W/(1)-Ex. 144 Fiber Trunk Cable (To Remain)  
(Installed W/ Interconnect Project - 3972-E)

Ex. Conduit Bank #1 (Installed W/ Rich St Interconnect Plan - DRE 3972)  
(1)-3" Conduit W/(2)-Ex. 144 Fiber Trunk Cables (TO REMAIN)  
(3)-3" Conduits - Empty  
(2)-2" Conduits W/ SIGNAL CABLES (SEE SIGNAL PLAN)  
(1)-1.5" Conduit W/ Ex. Tracing Wire  
Distance = 66'

32" ROUND PULL BOX (SEE SIGNAL PLAN)  
STA. 14+88.2, 51.1' RT.

(1)-3" CONDUIT W/(2) EX. 24-FIBER DROP CABLES (SEE NOTE 3)  
(1)-3" CONDUIT - EMPTY  
(2)-2" CONDUITS W/ SIGNAL CABLES  
DISTANCE = 5'

GROUND MOUNTED CONTROLLER W/ UPS (SEE SIGNAL PLAN)  
W/(1)-LAYER 2 ETHERNET SWITCH, (2)-ETHERNET  
TRANSCEIVERS, & (2)-TERMINATION PANELS  
STA. 14+82.8, 51.2' RT.

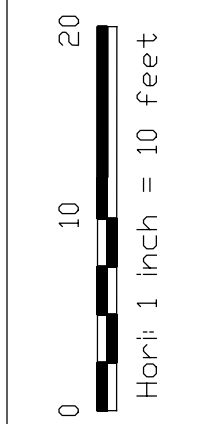
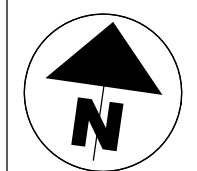
(1)-2" CONDUIT W/ SIGNAL CABLES & (2) EX.  
24-FIBER DROP CABLES (SEE NOTE 3)  
(1)-2" CONDUIT W/ SIGNAL CABLES  
DISTANCE = 23'

Ex. Interconnect Conduit Bank (To Remain)  
W/(1)-Ex. 144 Fiber Trunk Cable (To Remain)

1. FOR SIGNAL ITEMS, SEE SIGNAL INSTALLATION SHEET 61.
2. FOR SPLICING DETAILS, SEE THE RICH ST INTERCONNECT PROJECT - 3972-E.
3. RELOCATE THE (2)-EXISTING 24-FIBER DROP CABLES COILED BY INTERCONNECT PROJECT 3972-E TO THE PROPOSED CONTROLLER AS DETAILED BY THIS SHEET.

3921-E





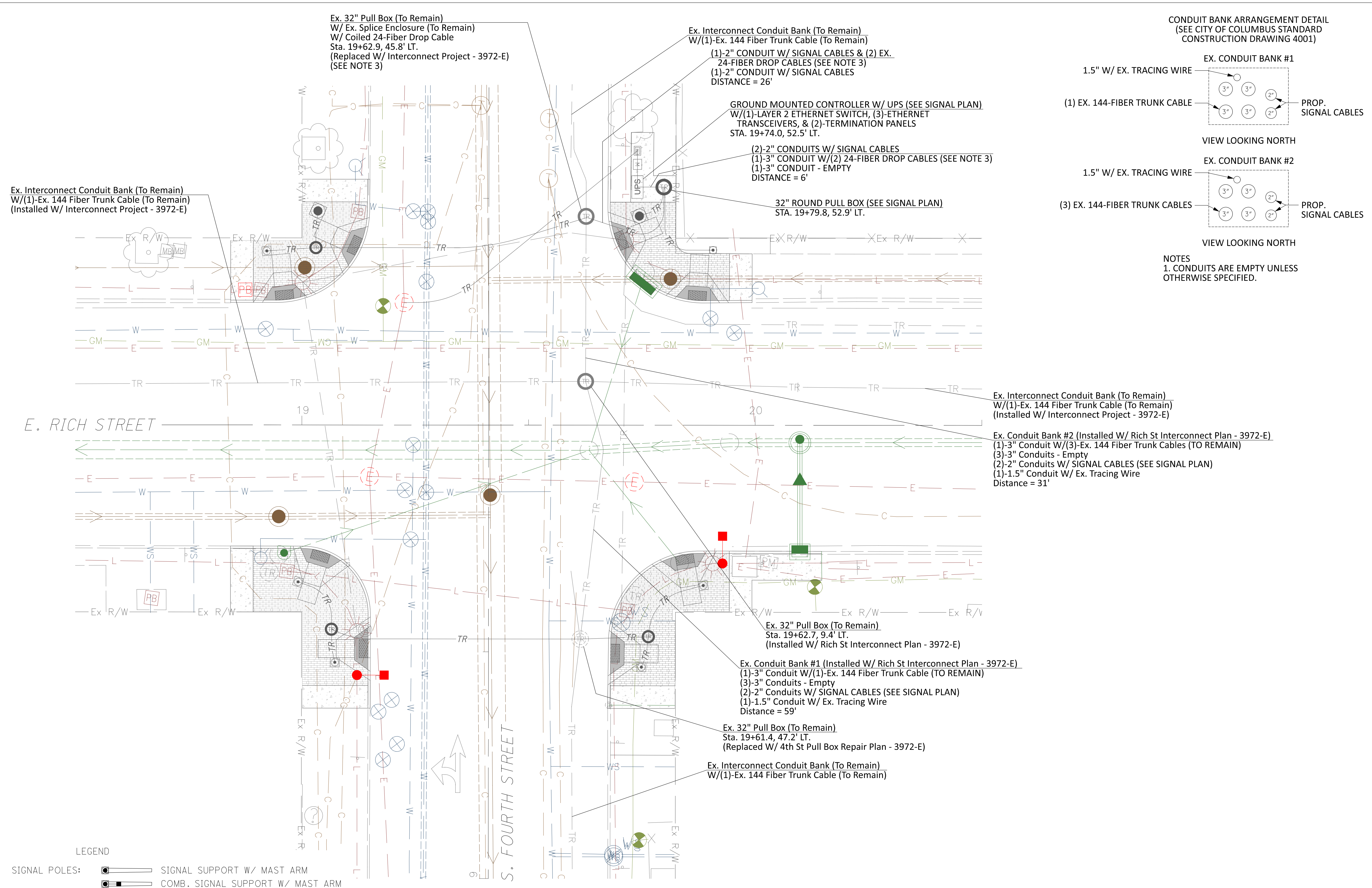
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TRAFFIC SIGNAL INTERCONNECT PLAN  
RICH STREET AT FOURTH STREET

IMPROVEMENTS OF  
E RICH STREET FROM S 3RD ST TO S GRANT AVE  
FRA E RICH ST SIGNALS

3921-E

74  
95



Ex. Interconnect Conduit Bank (To Remain)  
W/(1)-Ex. 144 Fiber Trunk Cable (To Remain)  
(Installed W/ Interconnect Project - 3972-E)

Ex. 32" Pull Box (To Remain)  
W/ Ex. Splice Enclosure (To Remain)  
W/ Coiled 24-Fiber Drop Cable  
Sta. 19+62.9, 45.8' LT.  
(Replaced W/ Interconnect Project - 3972-E)  
(SEE NOTE 3)

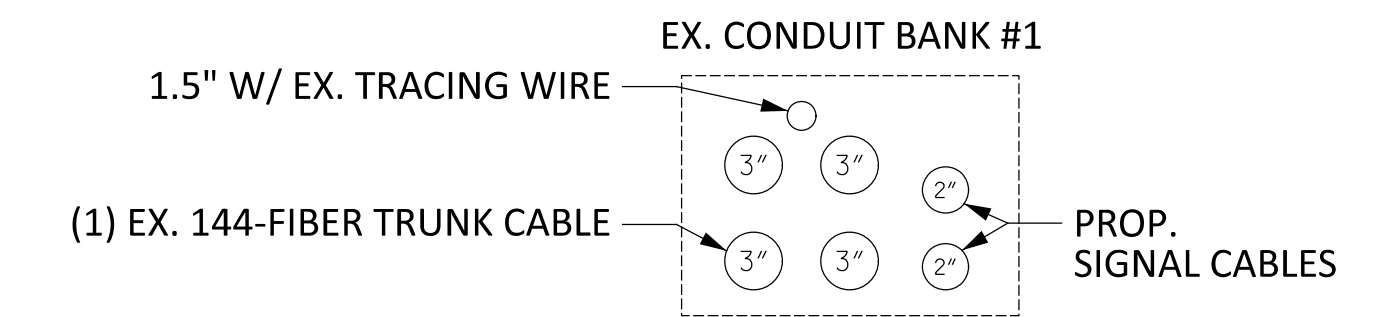
Ex. Interconnect Conduit Bank (To Remain)  
W/(1)-Ex. 144 Fiber Trunk Cable (To Remain)  
(1)-2" CONDUIT W/ SIGNAL CABLES & (2) EX.  
24-FIBER DROP CABLES (SEE NOTE 3)  
(1)-2" CONDUIT W/ SIGNAL CABLES  
DISTANCE = 26'

GROUND MOUNTED CONTROLLER W/ UPS (SEE SIGNAL PLAN)  
W/(1)-LAYER 2 ETHERNET SWITCH, (3)-ETHERNET  
TRANSCEIVERS, & (2)-TERMINATION PANELS  
STA. 19+74.0, 52.5' LT.

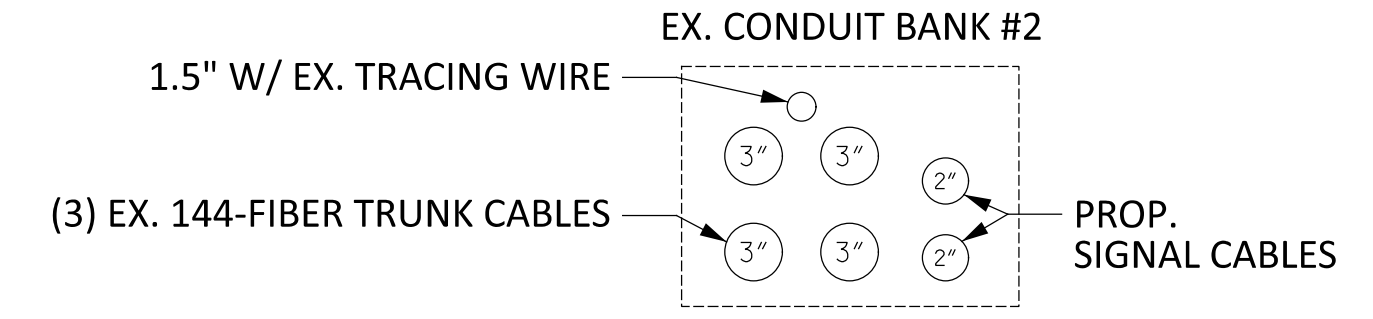
(2)-2" CONDUITS W/ SIGNAL CABLES  
(1)-3" CONDUIT W/(2) 24-FIBER DROP CABLES (SEE NOTE 3)  
(1)-3" CONDUIT - EMPTY  
DISTANCE = 6'

32" ROUND PULL BOX (SEE SIGNAL PLAN)  
STA. 19+79.8, 52.9' LT.

CONDUIT BANK ARRANGEMENT DETAIL  
(SEE CITY OF COLUMBUS STANDARD  
CONSTRUCTION DRAWING 4001)



VIEW LOOKING NORTH



VIEW LOOKING NORTH

NOTES  
1. CONDUITS ARE EMPTY UNLESS  
OTHERWISE SPECIFIED.

E. RICH STREET

S. FOURTH STREET

LEGEND

- SIGNAL POLES: SIGNAL SUPPORT W/ MAST ARM
- COMB. SIGNAL SUPPORT W/ MAST ARM
- CONTROLLERS & CABINETS: GROUND MTD. CONTROLLER W/ UPS
- PULL BOXES: PULL BOX, ROUND CONCRETE (32", 27")

Ex. Interconnect Conduit Bank (To Remain)  
W/(1)-Ex. 144 Fiber Trunk Cable (To Remain)  
(Installed W/ Interconnect Project - 3972-E)

Ex. Conduit Bank #2 (Installed W/ Rich St Interconnect Plan - 3972-E)  
(1)-3" Conduit W/(3)-Ex. 144 Fiber Trunk Cables (TO REMAIN)  
(3)-3" Conduits - Empty  
(2)-2" Conduits W/ SIGNAL CABLES (SEE SIGNAL PLAN)  
(1)-1.5" Conduit W/ Ex. Tracing Wire  
Distance = 31'

Ex. 32" Pull Box (To Remain)  
Sta. 19+62.7, 9.4' LT.  
(Installed W/ Rich St Interconnect Plan - 3972-E)

Ex. Conduit Bank #1 (Installed W/ Rich St Interconnect Plan - 3972-E)  
(1)-3" Conduit W/(1)-Ex. 144 Fiber Trunk Cable (TO REMAIN)  
(3)-3" Conduits - Empty  
(2)-2" Conduits W/ SIGNAL CABLES (SEE SIGNAL PLAN)  
(1)-1.5" Conduit W/ Ex. Tracing Wire  
Distance = 59'

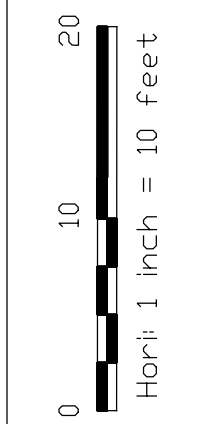
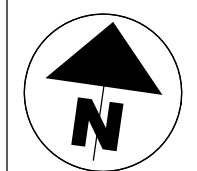
Ex. 32" Pull Box (To Remain)  
Sta. 19+61.4, 47.2' LT.  
(Replaced W/ 4th St Pull Box Repair Plan - 3972-E)

Ex. Interconnect Conduit Bank (To Remain)  
W/(1)-Ex. 144 Fiber Trunk Cable (To Remain)

1. FOR SIGNAL ITEMS, SEE SIGNAL INSTALLATION SHEET 64.
2. FOR SPLICING DETAILS, SEE THE RICH ST INTERCONNECT PROJECT - 3972-E.
3. RELOCATE THE (2)-EXISTING 24-FIBER DROP CABLES COILED BY INTERCONNECT PROJECT 3972-E TO THE PROPOSED CONTROLLER AS DETAILED BY THIS SHEET.

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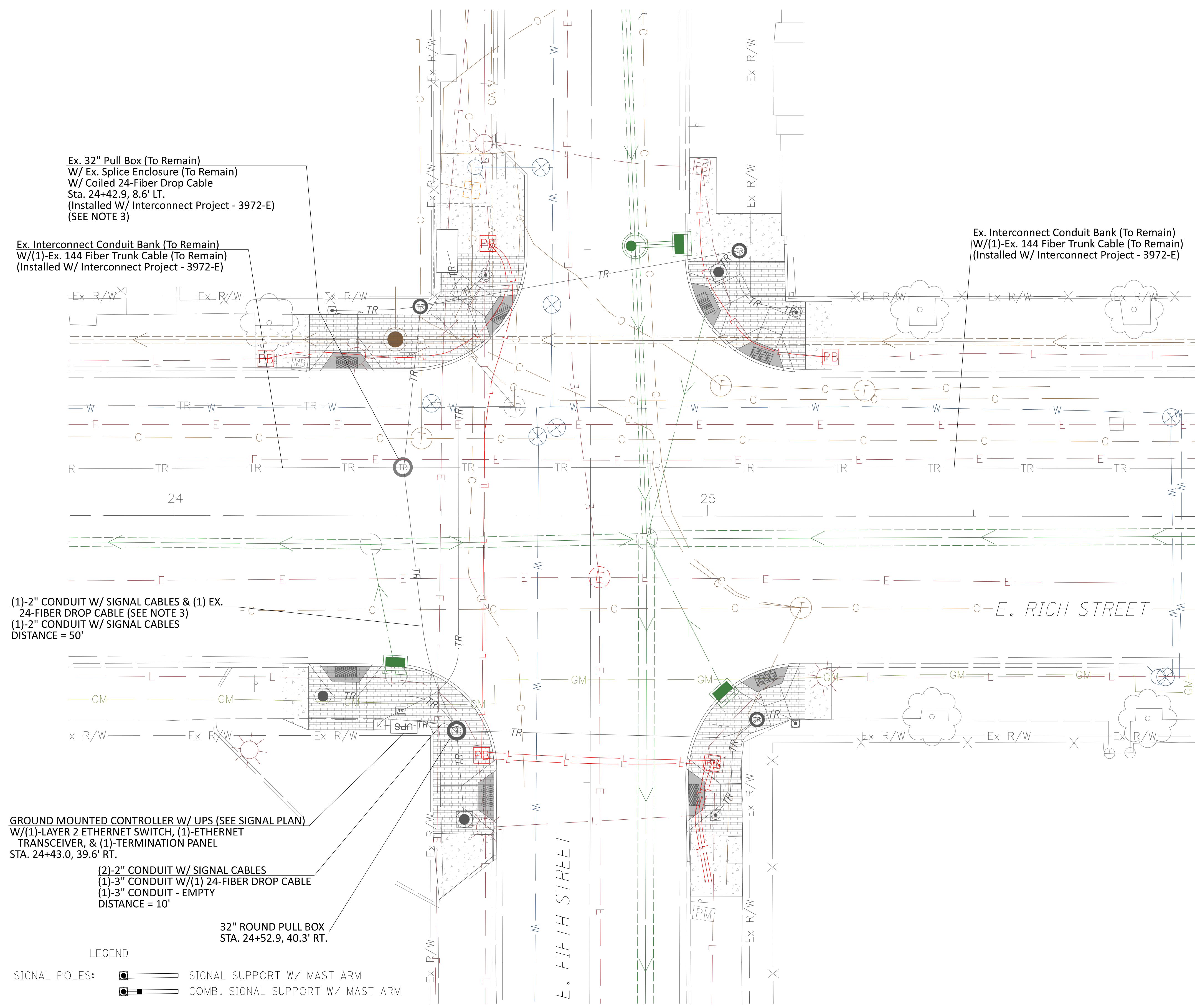
**TRAFFIC SIGNAL INTERCONNECT PLAN**  
**RICH STREET AT FIFTH STREET**

**IMPROVEMENTS OF**  
**E RICH STREET FROM S 3RD ST TO S GRANT AVE**  
**FRA E RICH ST SIGNALS**

3921-E

75  
95

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Ex. 32" Pull Box (To Remain)  
W/ Ex. Splice Enclosure (To Remain)  
W/ Coiled 24-Fiber Drop Cable  
Sta. 24+42.9, 8.6' LT.  
(Installed W/ Interconnect Project - 3972-E)  
(SEE NOTE 3)

Ex. Interconnect Conduit Bank (To Remain)  
W/(1)-Ex. 144 Fiber Trunk Cable (To Remain)  
(Installed W/ Interconnect Project - 3972-E)

Ex. Interconnect Conduit Bank (To Remain)  
W/(1)-Ex. 144 Fiber Trunk Cable (To Remain)  
(Installed W/ Interconnect Project - 3972-E)

(1)-2" CONDUIT W/ SIGNAL CABLES & (1) EX.  
24-FIBER DROP CABLE (SEE NOTE 3)  
(1)-2" CONDUIT W/ SIGNAL CABLES  
DISTANCE = 50'

GROUND MOUNTED CONTROLLER W/ UPS (SEE SIGNAL PLAN)  
W/(1)-LAYER 2 ETHERNET SWITCH, (1)-ETHERNET  
TRANSCEIVER, & (1)-TERMINATION PANEL  
STA. 24+43.0, 39.6' RT.

(2)-2" CONDUIT W/ SIGNAL CABLES  
(1)-3" CONDUIT W/(1) 24-FIBER DROP CABLE  
(1)-3" CONDUIT - EMPTY  
DISTANCE = 10'

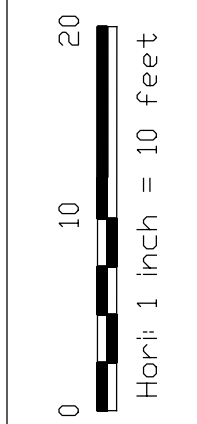
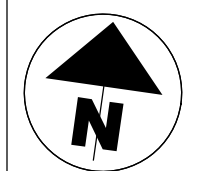
32" ROUND PULL BOX  
STA. 24+52.9, 40.3' RT.

**LEGEND**

- SIGNAL POLES: SIGNAL SUPPORT W/ MAST ARM
- COMB. SIGNAL SUPPORT W/ MAST ARM
- CONTROLLERS & CABINETS: GROUND MTD. CONTROLLER W/ UPS
- PULL BOXES: PULL BOX, ROUND CONCRETE (32", 27")

1. FOR SIGNAL ITEMS, SEE SIGNAL INSTALLATION SHEET 67.
2. FOR SPLICING DETAILS, SEE THE RICH ST INTERCONNECT PROJECT - 3972-E.
3. RELOCATE THE (1)-EXISTING 24-FIBER DROP CABLE COILED BY INTERCONNECT PROJECT 3972-E TO THE PROPOSED CONTROLLER AS DETAILED BY THIS SHEET.





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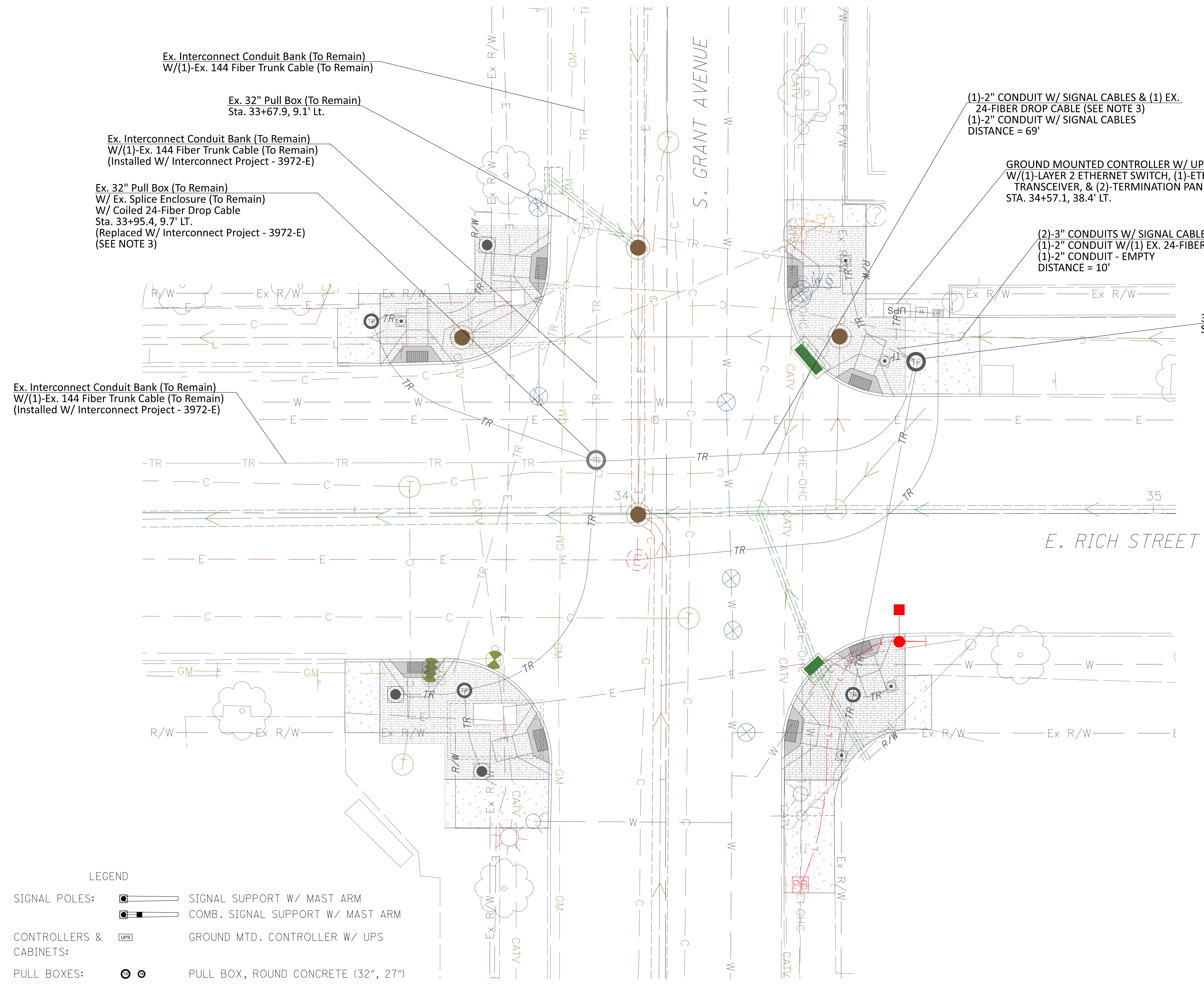
TRAFFIC SIGNAL INTERCONNECT PLAN  
RICH STREET AT GRANT AVENUE

IMPROVEMENTS OF  
E RICH STREET FROM S 3RD ST TO S GRANT AVE  
FRA E RICH ST SIGNALS

3921-E

76  
95

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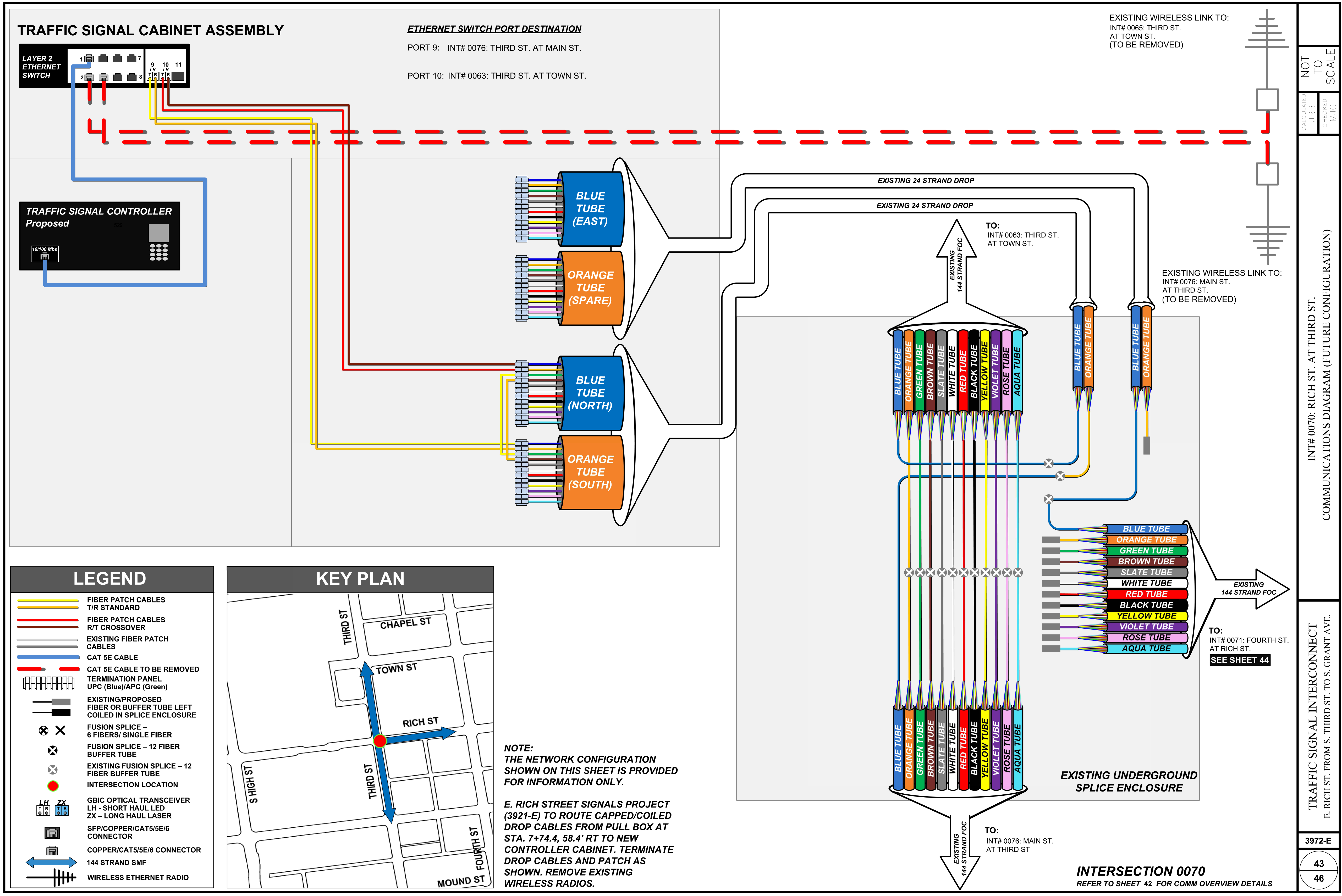
LEGEND

- SIGNAL POLES: SIGNAL SUPPORT W/ MAST ARM
- COMB. SIGNAL SUPPORT W/ MAST ARM
- CONTROLLERS & CABINETS: GROUND MTD. CONTROLLER W/ UPS
- PULL BOXES: PULL BOX, ROUND CONCRETE (32", 27")

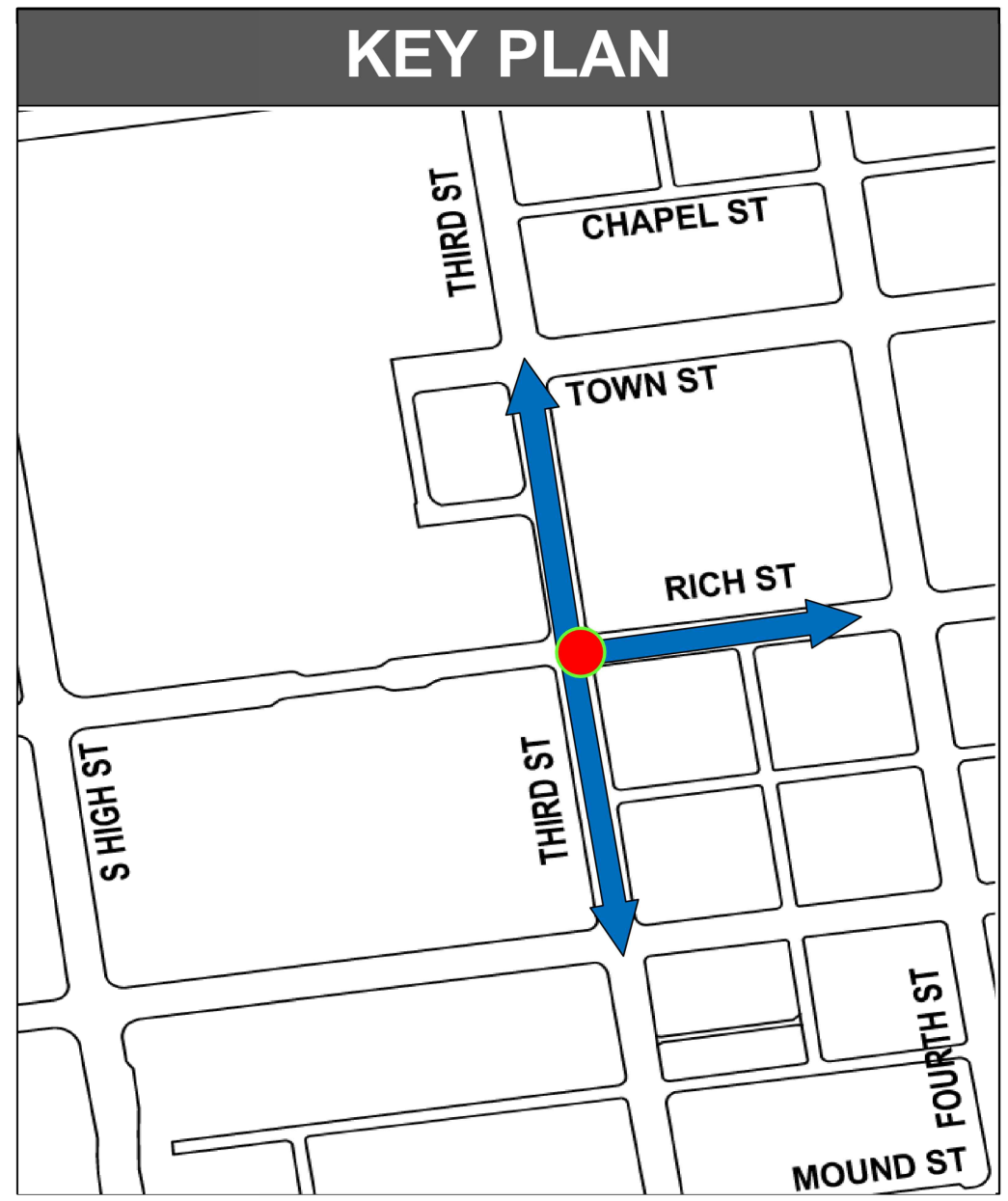
1. FOR SIGNAL ITEMS, SEE SIGNAL INSTALLATION SHEET 70.
2. FOR SPLICING DETAILS, SEE THE RICH ST INTERCONNECT PROJECT - 3972-E.
3. RELOCATE THE (1)-EXISTING 24-FIBER DROP CABLE COILED BY INTERCONNECT PROJECT 3972-E TO THE PROPOSED CONTROLLER AS DETAILED BY THIS SHEET.



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LEGEND	
	FIBER PATCH CABLES T/R STANDARD
	FIBER PATCH CABLES R/T CROSSOVER
	EXISTING FIBER PATCH CABLES
	CAT 5E CABLE
	CAT 5E CABLE TO BE REMOVED
	TERMINATION PANEL
	UPC (Blue)/APC (Green)
	EXISTING/PROPOSED FIBER OR BUFFER TUBE LEFT COILED IN SPLICE ENCLOSURE
	FUSION SPLICE - 6 FIBERS/ SINGLE FIBER
	FUSION SPLICE - 12 FIBER BUFFER TUBE
	EXISTING FUSION SPLICE - 12 FIBER BUFFER TUBE
	INTERSECTION LOCATION
	GBIC OPTICAL TRANSCEIVER LH - SHORT HAUL LED ZX - LONG HAUL LASER
	SFP/COPPER/CAT5/5E/6 CONNECTOR
	COPPER/CAT5/5E/6 CONNECTOR
	144 STRAND SMF
	WIRELESS ETHERNET RADIO



**NOTE:**  
THE NETWORK CONFIGURATION SHOWN ON THIS SHEET IS PROVIDED FOR INFORMATION ONLY.

**E. RICH STREET SIGNALS PROJECT (3921-E) TO ROUTE CAPPED/COILED DROP CABLES FROM PULL BOX AT STA. 7+74.4, 58.4' RT TO NEW CONTROLLER CABINET. TERMINATE DROP CABLES AND PATCH AS SHOWN. REMOVE EXISTING WIRELESS RADIOS.**

SPLICING DIAGRAM HAS BEEN PREPARED AS PART OF THE RICH STREET TRAFFIC SIGNAL INTERCONNECT PROJECT (PROJECT 3972-E). SPLICING DIAGRAM HAS BEEN INSERTED AT CITY OF COLUMBUS REQUEST TO THIS PROJECT FOR INFORMATIONAL AND CONTROLLER HOOK-UP PURPOSES.

NOT TO SCALE	
CALCULATED JAR	CHECKED MJJ
INT# 0070: RICH ST. AT THIRD ST.	
TRAFFIC SIGNAL INTERCONNECT E. RICH ST. FROM S. THIRD ST. TO S. GRANT AVE.	
3972-E	43
	46

**INTERSECTION 0070**  
REFER TO SHEET 42 FOR COMM OVERVIEW DETAILS

CALCULATED  
JAR  
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DKA

COMMUNICATIONS DIAGRAM  
INT# 0070: RICH STREET AT THIRD STREET

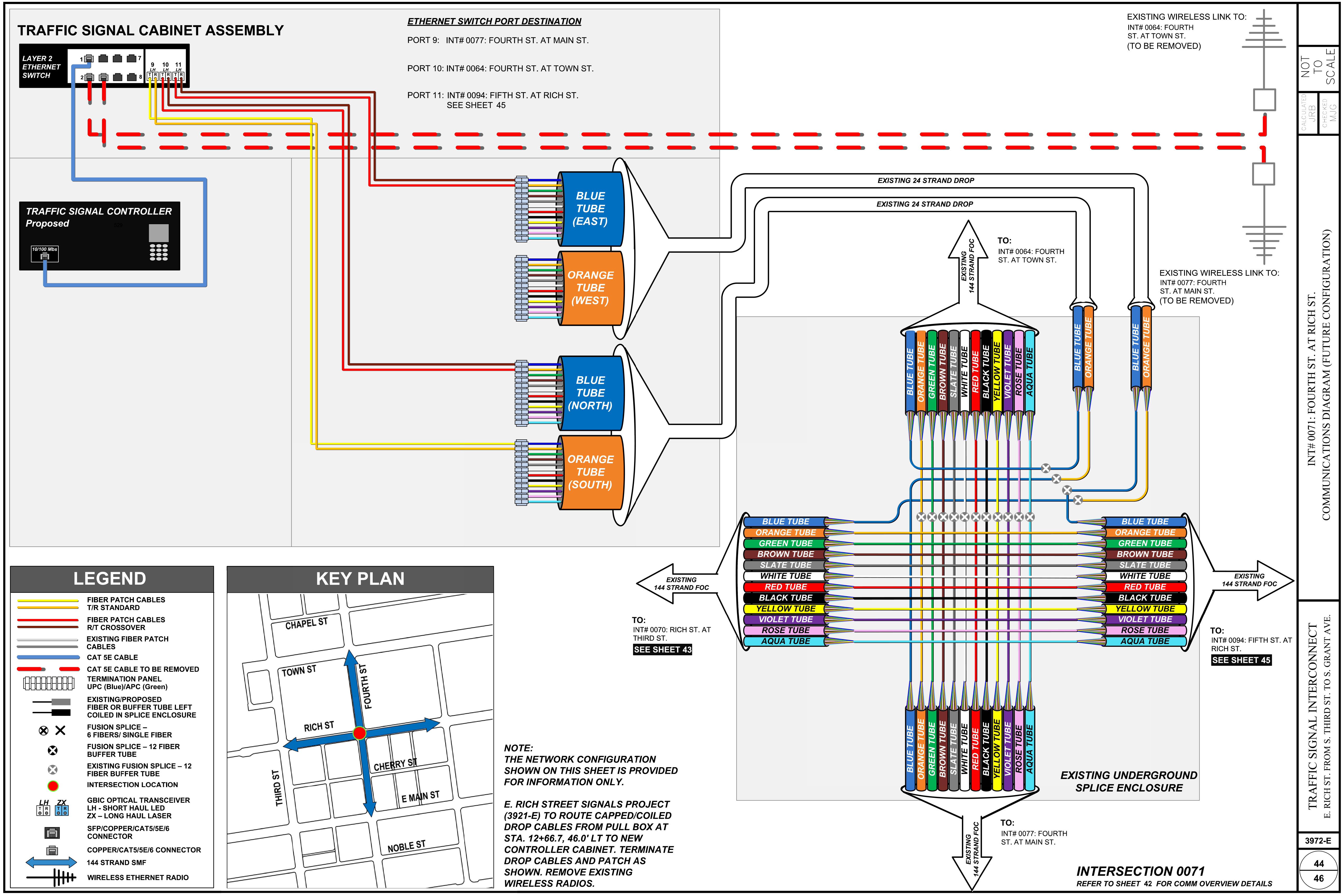
IMPROVEMENTS OF  
E RICH STREET FROM S 3RD ST TO S GRANT AVE  
FRA E RICH ST SIGNALS

3921-E

77  
95

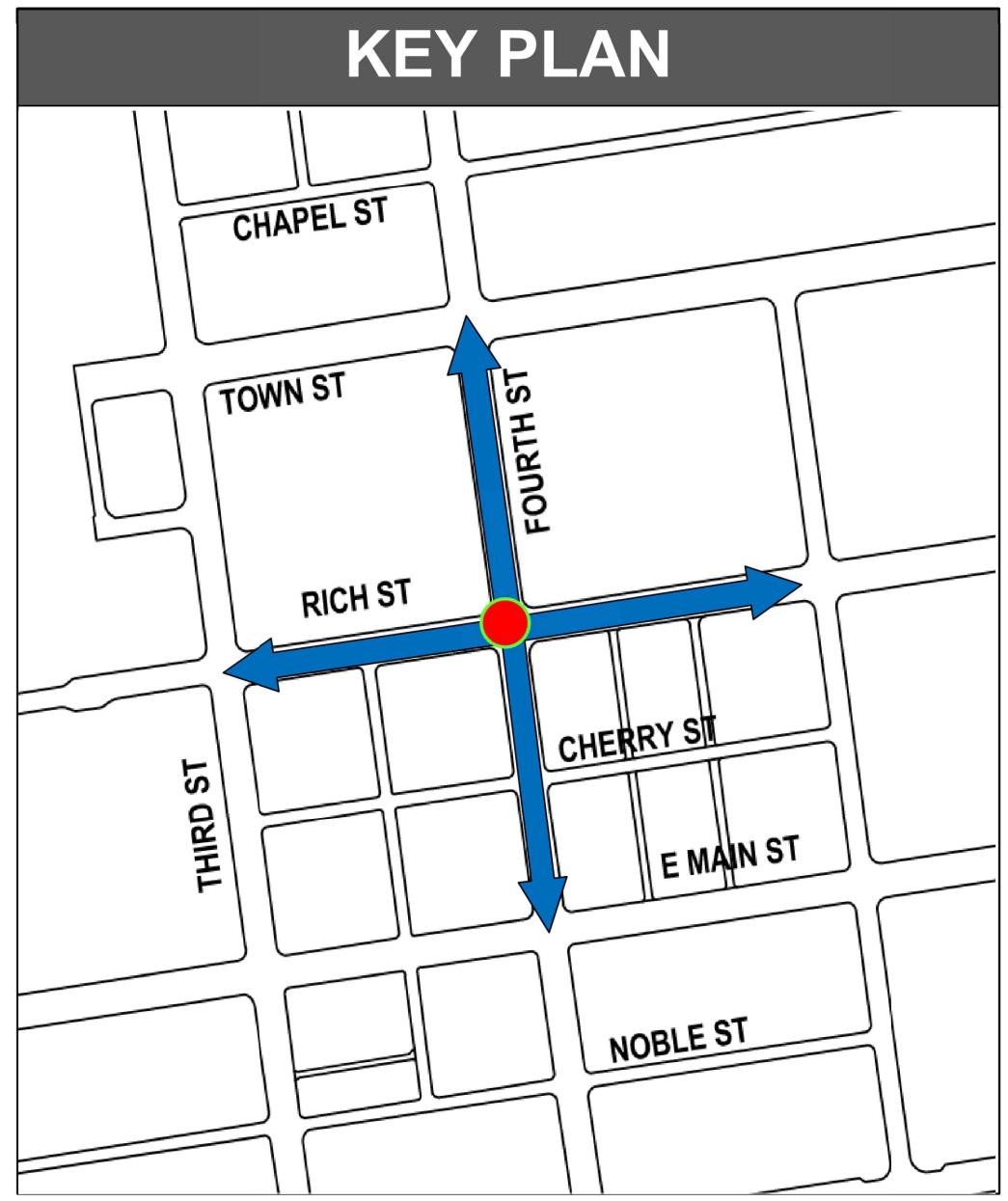


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**LEGEND**

	FIBER PATCH CABLES T/R STANDARD
	FIBER PATCH CABLES R/T CROSSOVER
	EXISTING FIBER PATCH CABLES
	CAT 5E CABLE
	CAT 5E CABLE TO BE REMOVED
	TERMINATION PANEL
	UPC (Blue)/APC (Green)
	EXISTING/PROPOSED FIBER OR BUFFER TUBE LEFT COILED IN SPLICE ENCLOSURE
	FUSION SPLICE - 6 FIBERS/ SINGLE FIBER
	FUSION SPLICE - 12 FIBER BUFFER TUBE
	EXISTING FUSION SPLICE - 12 FIBER BUFFER TUBE
	INTERSECTION LOCATION
	GBIC OPTICAL TRANSCEIVER LH - SHORT HAUL LED ZX - LONG HAUL LASER
	SFP/COPPER/CAT5/5E/6 CONNECTOR
	COPPER/CAT5/5E/6 CONNECTOR
	144 STRAND SMF
	WIRELESS ETHERNET RADIO



**NOTE:**  
 THE NETWORK CONFIGURATION SHOWN ON THIS SHEET IS PROVIDED FOR INFORMATION ONLY.

**E. RICH STREET SIGNALS PROJECT (3921-E) TO ROUTE CAPPED/COILED DROP CABLES FROM PULL BOX AT STA. 12+66.7, 46.0' LT TO NEW CONTROLLER CABINET. TERMINATE DROP CABLES AND PATCH AS SHOWN. REMOVE EXISTING WIRELESS RADIOS.**

SPLICING DIAGRAM HAS BEEN PREPARED AS PART OF THE RICH STREET TRAFFIC SIGNAL INTERCONNECT PROJECT (PROJECT 3972-E). SPLICING DIAGRAM HAS BEEN INSERTED AT CITY OF COLUMBUS REQUEST TO THIS PROJECT FOR INFORMATIONAL AND CONTROLLER HOOK-UP PURPOSES.

NOT TO SCALE	CHECKED MAJ
NOT TO SCALE	CHECKED MAJ
INT# 0071: FOURTH ST. AT RICH ST.	
COMMUNICATIONS DIAGRAM (FUTURE CONFIGURATION)	
TRAFFIC SIGNAL INTERCONNECT	
E. RICH ST. FROM S. THIRD ST. TO S. GRANT AVE.	
3972-E	
44 46	

CALCULATED JAR  
 CHECKED DKA

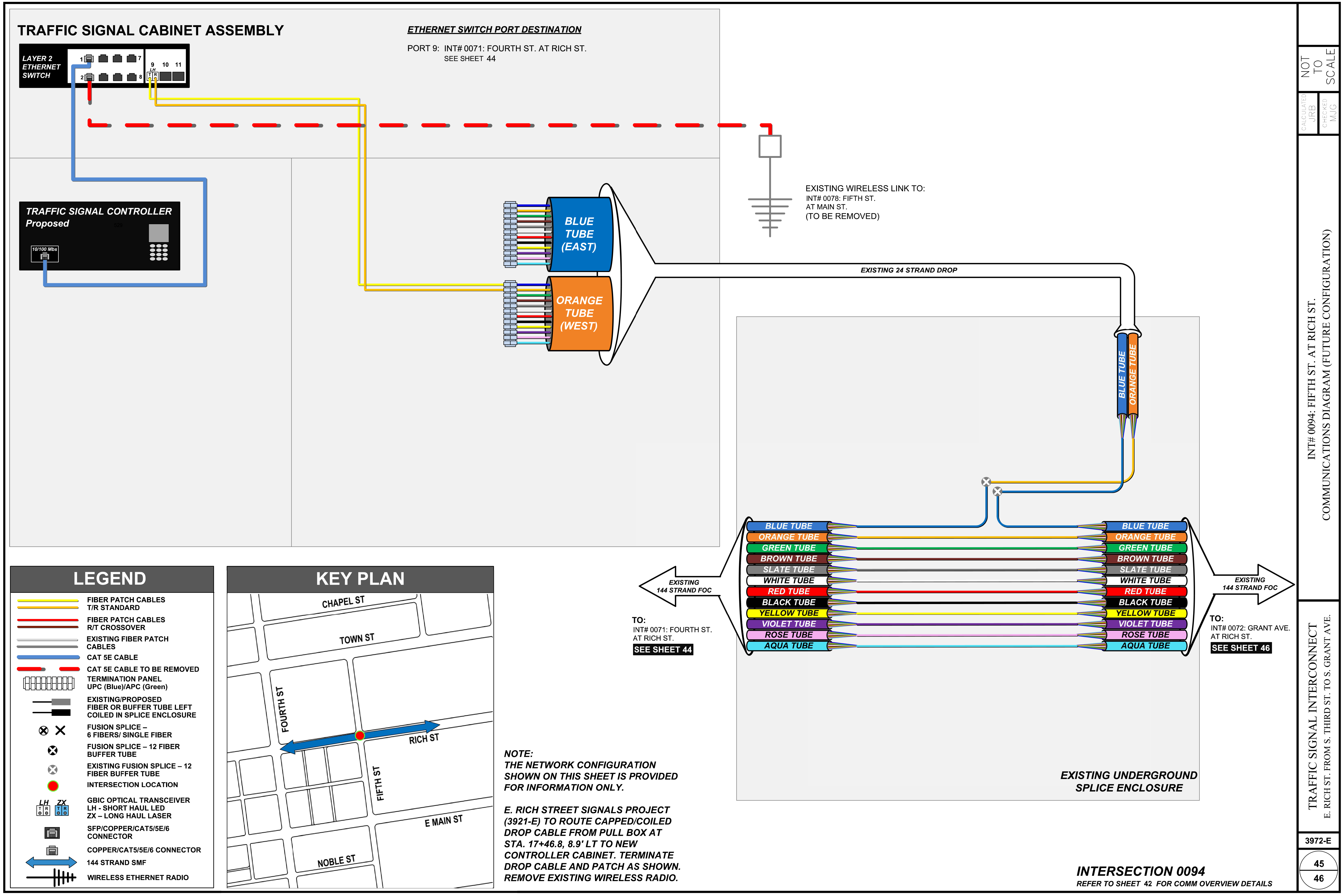
COMMUNICATIONS DIAGRAM  
 INT# 0071: RICH STREET AT FOURTH STREET

IMPROVEMENTS OF  
 E RICH STREET FROM S 3RD ST TO S GRANT AVE  
 FRA E RICH ST SIGNALS

3921-E



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SPLICING DIAGRAM HAS BEEN PREPARED AS PART OF THE RICH STREET TRAFFIC SIGNAL INTERCONNECT PROJECT (PROJECT 3972-E). SPLICING DIAGRAM HAS BEEN INSERTED AT CITY OF COLUMBUS REQUEST TO THIS PROJECT FOR INFORMATIONAL AND CONTROLLER HOOK-UP PURPOSES.

CALCULATED JAR	CHECKED DKA	NOT TO SCALE
		CHECKED MUG
INT# 0094: FIFTH ST. AT RICH ST.		
COMMUNICATIONS DIAGRAM (FUTURE CONFIGURATION)		
TRAFFIC SIGNAL INTERCONNECT E. RICH ST. FROM S. THIRD ST. TO S. GRANT AVE.		
3972-E		
45		
46		

CALCULATED  
JAR

CHECKED  
DKA

COMMUNICATIONS DIAGRAM  
INT# 0094: RICH STREET AT FIFTH STREET

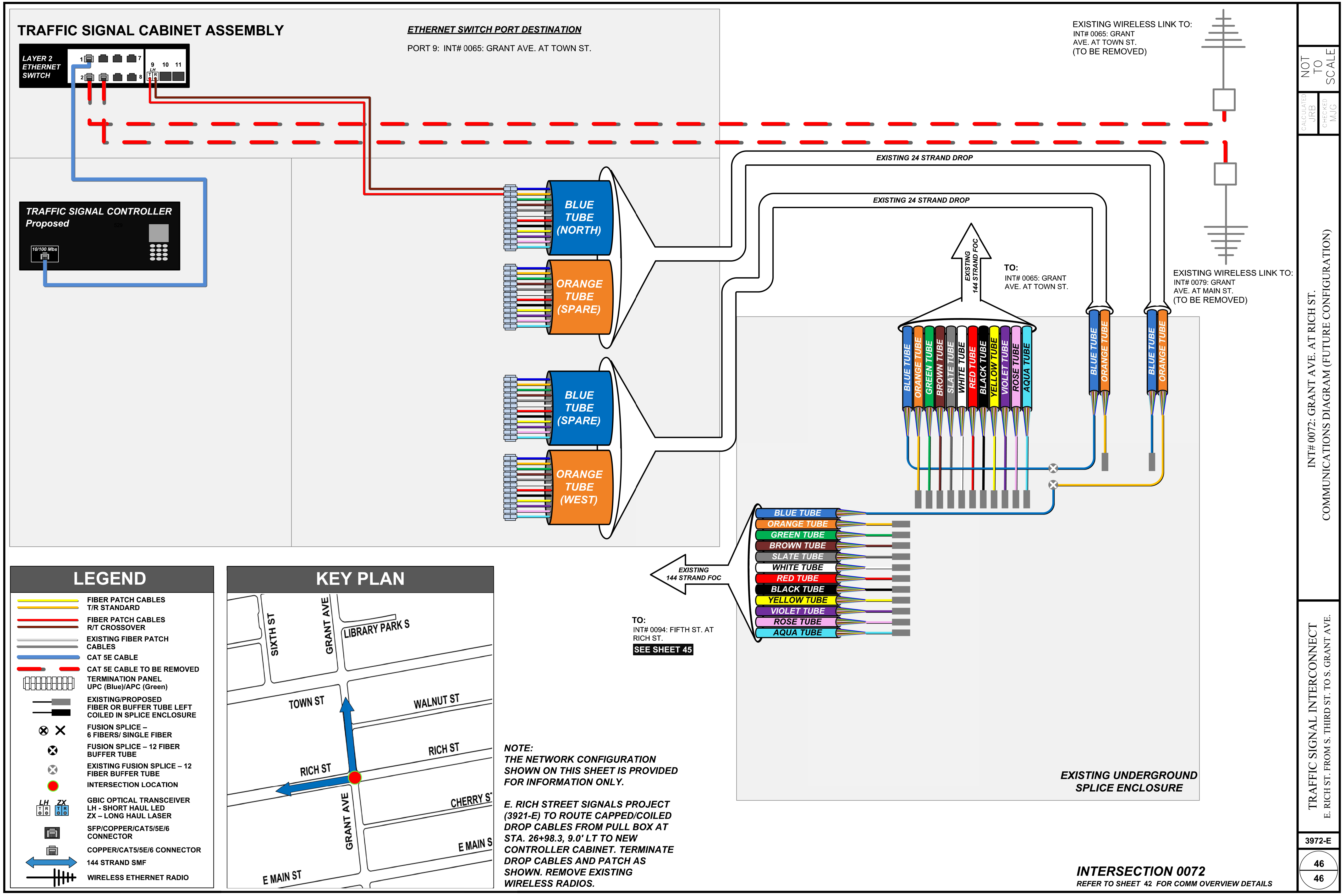
IMPROVEMENTS OF  
E RICH STREET FROM S 3RD ST TO S GRANT AVE  
FRA E RICH ST SIGNALS

3921-E

79  
95



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SPlicing DIAGRAM HAS BEEN PREPARED AS PART OF THE RICH STREET TRAFFIC SIGNAL INTERCONNECT PROJECT (PROJECT 3972-E). SPlicing DIAGRAM HAS BEEN INSERTED AT CITY OF COLUMBUS REQUEST TO THIS PROJECT FOR INFORMATIONAL AND CONTROLLER HOOK-UP PURPOSES.

CALCULATED JAR  
CHECKED DKA

COMMUNICATIONS DIAGRAM  
INT# 0072: RICH STREET AT GRANT AVENUE

IMPROVEMENTS OF  
E RICH STREET FROM S 3RD ST TO S GRANT AVE  
FRA E RICH ST SIGNALS

3921-E

80  
95



**STREET LIGHTING NOTES**

THE STREET LIGHTING SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CURRENT CITY OF COLUMBUS, OHIO "CONSTRUCTION AND MATERIAL SPECIFICATIONS" (2018 EDITION, SECTION 1001, TITLED "STREET LIGHTING"), INCLUDING ALL SUPPLEMENTS THERETO, IN FORCE ON THE DATE OF THE CONTRACT, SHALL GOVERN ALL MATERIALS AND WORKMANSHIP INVOLVED IN THE IMPROVEMENTS SHOWN ON THESE PLANS, EXCEPT AS SUCH SPECIFICATIONS ARE MODIFIED BY THE FOLLOWING SPECIFICATIONS OR BY THE CONSTRUCTION DETAILS SET FORTH HEREIN.

CIRCUIT VOLTAGE FOR ALL LUMINAIRE SHALL BE 480 VOLT, UNLESS OTHERWISE NOTED.

CENTERLINE OF LIGHT POLE FOUNDATION AND CONDUIT TRENCH TO BE PLACED IN ACCORDANCE WITH THE PLAN DETAILS.

ALL PROPOSED LUMINAIRE SHALL BE 3000K LED.

NO SPLICES SHALL BE MADE TO CIRCUIT CABLES EXCEPT IN POLES OR PULL BOXES AT NOTED LOCATIONS.

TRENCH LOCATION SHALL BE DEFLECTED AROUND OBSTACLES AS NOTED IN THIS PLAN.

WHERE THE TRENCH IS OFFSET FROM THE CENTERLINE OF THE FOUNDATIONS, THE CONDUIT SHALL BE DIRECTED TOWARD THE ELL OF THE FOUNDATION AT APPROXIMATELY 45 DEGREE ANGLE. THE FOUNDATION ELLS MAY BE AIMED OUT OF FOUNDATION AT APPROXIMATELY 45 DEGREE ANGLES TO FACILITATE CONNECTION TO CONDUIT WITH THE LEAST AMOUNT OF BENDS.

THE PLAN DETAILS SHALL BE CONSIDERED SUPPLEMENTAL TO MIS SPECIFICATIONS.

LIGHT POLE FOUNDATIONS SHALL BE LOCATED APPROXIMATELY WHERE SHOWN ON PLANS WITH EXACT LOCATIONS TO BE DETERMINED IN THE FIELD AFTER CONSIDERATION IS GIVEN TO THE LOCATION OF UNDERGROUND AND OVERHEAD UTILITIES, PAVEMENTS AND GRADES.

IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE THE ANCHOR BOLTS AND ENSURE THAT THE BOLT SIZE, ANCHOR BOLT CIRCLE AND PATTERN MATCH THE LIGHT POLE.

ALL ITEMS OF WORK CALLED FOR ON THE PLANS, FOR WHICH NO SPECIFIC METHOD OF PAYMENT IS PROVIDED, SHALL BE PERFORMED BY THE CONTRACTOR AND THE COST OF THESE ITEMS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE VARIOUS RELATED ITEMS. THIS INCLUDES, BUT IS NOT LIMITED TO, SUCH INCIDENTAL ITEMS AS RELOCATION OF MAIL BOXES, SAW CUTTING AND REMOVAL AND/OR RELOCATION OF SIGNS, RAILROAD TIES, SPRINKLERS, RELOCATING ROOF OR SUMP DRAINS AROUND LIGHT POLE FOUNDATIONS, HAND DIGGING AROUND UNDERGROUND UTILITIES OR OTHER MISCELLANEOUS ITEMS.

PRIOR TO ANY PAINTING, THE CONTRACTOR SHALL SUBMIT PAINT SAMPLES AND SHOP DRAWINGS TO THE CITY OF COLUMBUS. PAINT SAMPLES SHALL BE REPRESENTATIVE OF THE COLOR, TYPE AND MANUFACTURE THAT WILL BE USED FOR LIGHT POLE.

**ITEM 1001 SMART NODE, AS PER PLAN**

PROPOSED SMART NODES SHALL BE INSTALLED AT ALL PROPOSED LUMINAIRES AND EXISTING LED LUMINAIRES WHERE NOTED. THE NODE SHALL BE DIMONOFF RME-XDP-H3 WITH AN EXTENDED 10-YEAR WARRANTY AND NO GPS MODULE. ALTERNATIVES SHALL NOT BE PERMITTED FOR USE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING THE NODES PER THE NODE AND LUMINAIRE MANUFACTURER'S REQUIREMENTS. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR ENSURING THAT EACH PROPOSED NODE IS PROPERLY COMMUNICATING WITH THE CITY NETWORK AND CENTRAL CONTROL SYSTEM.

PAYMENT SHALL BE MADE AT THE CONTRACT BID PRICE FOR EACH SMART NODE THAT IS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR. CABLES, TERMINATIONS, CONNECTIONS, AND OTHER MISCELLANEOUS ITEMS AND MATERIALS SHALL BE INCIDENTAL TO THIS WORK AND NO SEPARATE PAYMENT WILL BE MADE.

**AS BUILD RECORD**

THE CONTRACTOR SHALL MAINTAIN A SET OF PROJECT RECORD DOCUMENTS. THESE DOCUMENTS SHALL INCLUDED REVIEWED SHOP DRAWINGS, CHANGE ORDERS, EQUIPMENT OPERATING INSTRUCTIONS, FIELD TEST RECORDS, AND AS BUILT DRAWINGS. THE AS BUILT DRAWING SHALL BE MARKED LEGIBLY IN RED, THE ACTUAL LOCATION OF EQUIPMENT AND CONDUITS AS CONSTRUCTED. ALL EQUIPMENT AND UNDERGROUND CONDUITS INSTALLED SHALL HAVE LOCATIONS MARKED IN DISTANCES OFF A LANDMARK AT LEAST EVERY 25 FEET AND AS NECESSARY AT BENDS FOR LOCATION AT A LATER DATE. ADDITIONALLY, THE CONTRACTOR SHALL FILL-IN THE AS-BUILT COORDINATE TABLE AS SHOWN BELOW.

AS-BUILT COORDINATE TABLE			
REFERENCE NO.	PROPOSED ITEM	AS-BUILT	
		NORTHING	EASTING
-	CONTROLLER		
A-137-1	STREET LIGHT POLE		
A-137-2	STREET LIGHT POLE		
A-137-3	STREET LIGHT POLE		
C-137-1	STREET LIGHT POLE		
B-50-1	STREET LIGHT POLE		
PB-SE 3RD	PULL BOX		
PB-NE 3RD	PULL BOX		
PB-NW 5TH	PULL BOX		
PB-NW 5TH	PULL BOX		
PB-SW 5TH	PULL BOX		
PB-SE 5TH	PULL BOX		
PB-SE GRANT	PULL BOX		
PB-SE GRANT	PULL BOX		

SUB-SUMMARY OF LIGHTING ITEMS			
ITEM NO.	QTY.	UNIT	ITEM DESCRIPTION
1001	10	EA	13 INCH X 24 INCH PULL BOX (MIS-54)
1001	5	EA	6' STREET LIGHT FOUNDATION, DOWNTOWN (MIS-203)
1001	5	EA	DOWNTOWN POLE (MIS-308)
1001	755	CKT FT	2-WIRE UNDERGROUND CIRCUIT (MIS-403)
1001	5	EA	2-WIRE POLE TO BE WIRED (MIS-500)
1001	1	EA	2-WIRE 480V PEDESTAL MOUNT CONTROLLER (MIS-602)
1001	425	LF	2-INCH CONDUIT, CONCRETE ENCASED (MIS-700)
1001	1	EA	COBRA HEAD 480V LUMINAIRE (MIS-800)
1001	5	EA	TEARDROP 480V LED LUMINAIRE (MIS-801)
1001	7	EA	FOUNDATION REMOVAL (MIS-900)
1001	1	LUMP	EXISTING UNDERGROUND SYSTEM REMOVAL (MIS-902)
1001	6	EA	SMART NODE, AS PER PLAN
TOTAL CARRIED TO GENERAL SUMMARY			

NON-PAYMENT MIS SPECIFICATIONS	
MIS	ITEM DESCRIPTION
1	STREET LIGHT LOCKOUT/TAGOUT (LOTO)
2	GUIDELINES FOR INSPECTION & ACCEPTANCE OF STREET LIGHTING SYSTEMS
3	GUIDELINES FOR STREET LIGHTING "MATERIALS FOR APPROVAL" SUBMITTAL PACKAGES
4	INSPECTION CHECKLIST
58	MINIMUM TREE CLEARANCE FOR DOWNTOWN, URBAN, & RURAL AREAS

**CITY OF COLUMBUS MIS**

MIS-1	MIS-403
MIS-2	MIS-500
MIS-3	MIS-602
MIS-4	MIS-700
MIS-54	MIS-800
MIS-58	MIS-801
MIS-203	MIS-900
MIS-308	MIS-902

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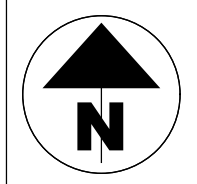
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**LIGHTING GENERAL NOTES**

**IMPROVEMENTS OF  
E RICH STREET FROM S 3RD ST TO S GRANT AVE  
FRA E RICH ST SIGNALS**

3921-E

81  
95



CALCULATED  
MJB  
CHECKED  
DKA

LIGHTING SINGLE LINE DIAGRAM

IMPROVEMENTS OF  
E RICH STREET FROM S 3RD ST TO S GRANT AVE  
FRA E RICH ST SIGNALS

3921-E

82  
95

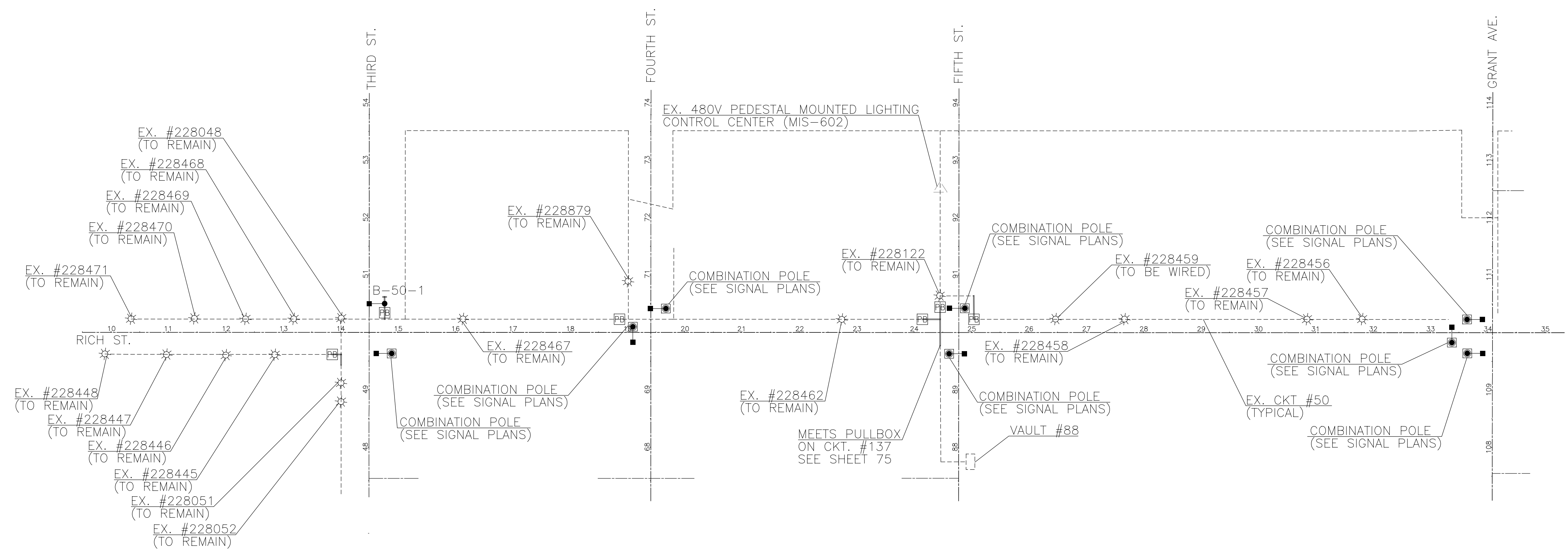
CIRCUIT SCHEMATIC LEGEND

- PB Proposed Pull Box
- Proposed 2-Wire Circuit
- Proposed Light Pole & Luminaire
- Proposed Combination Traffic/Light Pole
- Proposed Conduit Stub
- △ Existing Lighting Control Center
- - - Existing 2-Wire Circuit (To Remain)
- ☆ Existing Light Pole & Luminaire
- Existing Roadway Centerline

LIGHTING CONTROLLER SCHEDULE

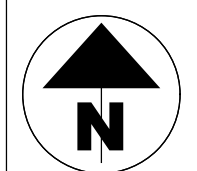
ELECTRICAL CIRCUIT LOAD CALCULATIONS			LIGHTING CONTROLLER SCHEDULE				MAINTAINING AGENCY			
QTY	DESCRIPTION	AMPS	CONTROL CENTER	LEG	LUMINAIRE QTY.	APPROX. LOAD WATTS    AMPS	CIRCUIT FUSE	CIRCUIT CABLE SIZE (AWG)	MAINTAINING AGENCY	
1	PROPOSED 92 W LED TEARDROP LUMINAIRE	= 0.19 AMPS	CONTROLLER # 50 480V PEDESTAL MOUNTED LIGHTING CONTROL CENTER (MIS-602)	B	1	92    0.19	EXIST.	EXIST.	CITY OF COLUMBUS	
59	EX. 250 W HPS COBRA HEAD LUMINAIRE	= 30.73 AMPS								
12	EX. 70 W HPS POST TOP LUMINAIRE	= 1.75 AMPS								
1	EX. 250 W HPS TEARDROP LUMINAIRE	= 0.52 AMPS								
NEW TOTAL LOAD = 33.19 AMPS @ 480 VOLTS										
TOTAL					1	92	0.19			

CIRCUIT SCHEMATIC - #50



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







LIGHTING SINGLE LINE DIAGRAM

IMPROVEMENTS OF  
E RICH STREET FROM S 3RD ST TO S GRANT AVE  
FRA E RICH ST SIGNALS

3921-E

83  
95

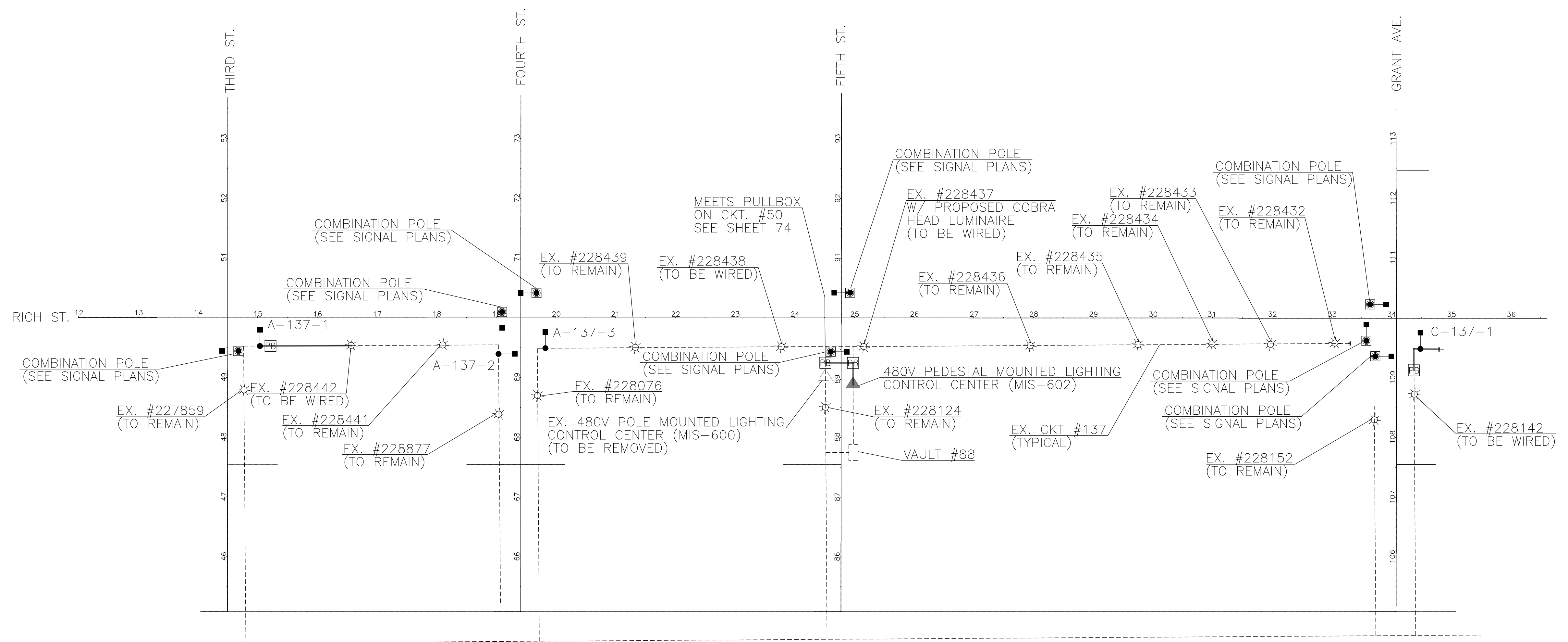
CIRCUIT SCHEMATIC LEGEND

-  Proposed Pull Box
-  Proposed 2-Wire Circuit
-  Proposed Light Pole & Luminaire
-  Proposed Combination Pole
-  Proposed Lighting Control Center
-  Existing Lighting Control Center
-  Existing 2-Wire Circuit (To Remain)
-  Existing Light Pole & Luminaire
-  Existing Roadway Centerline

LIGHTING CONTROLLER SCHEDULE

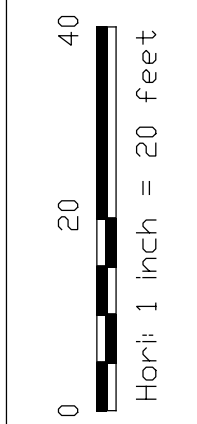
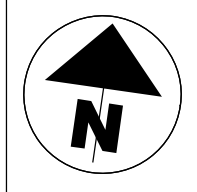
ELECTRICAL CIRCUIT LOAD CALCULATIONS		CONTROL CENTER	LEG	LUMINAIRE QTY.	APPROX. LOAD		CIRCUIT FUSE	CIRCUIT CABLE SIZE (AWG)	MAINTAINING AGENCY
					WATTS	AMPS			
4	PROPOSED 92 W LED TEARDROP LUMINAIRES = 0.77 AMPS	CONTROLLER # 137 480V PEDESTAL MOUNTED LIGHTING CONTROL CENTER (MIS-602)	A	3	276	0.58	15 A	4	CITY OF COLUMBUS
1	PROPOSED 250 W HPS COBRA HEAD LUMINAIRE = 0.52 AMPS								
32	EX. 250 W HPS COBRA HEAD LUMINAIRE = 16.67 AMPS								
3	EX. 115 W LED COBRA HEAD LUMINAIRE = 0.72 AMPS								
8	EX. 250 W HPS SHOE BOX LUMINAIRE = 4.17 AMPS	B	1	250	0.52	15 A	4		
	NEW TOTAL LOAD = 22.85 AMPS @ 480 VOLTS	C	1	92	0.19	15 A	4		
		TOTAL		5	618	1.29			

CIRCUIT SCHEMATIC - #137



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- LEGEND**
- ⊛ Existing Street Light Pole (AS NOTED)
  - Existing Lighting Conduit (AS NOTED)  
w/ Ex. 2-Wire Circuit Cable (AS NOTED)
  - x— Existing Lighting Item (TO BE REMOVED)



CALCULATED  
MJB  
CHECKED  
DKA

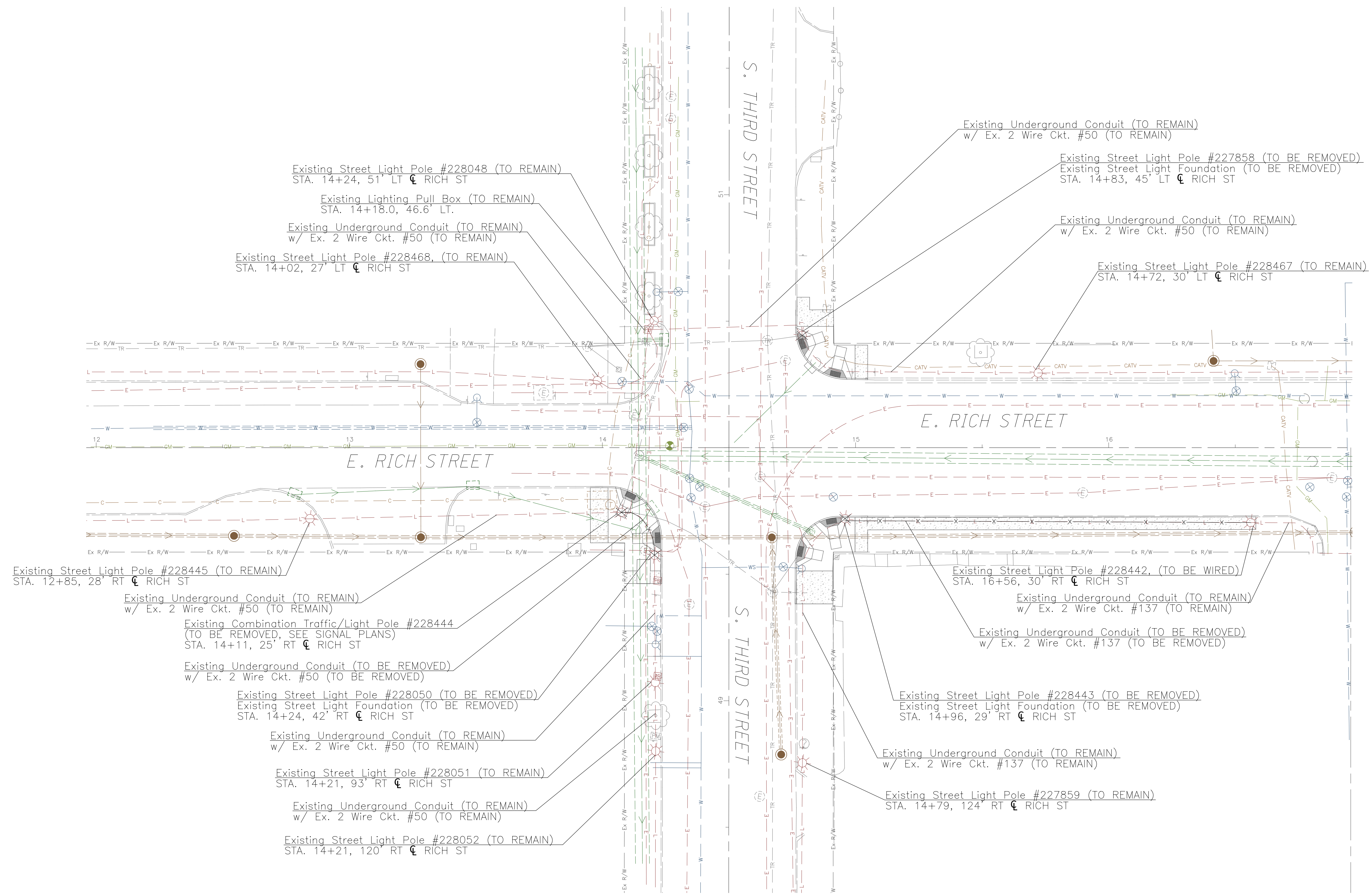
**LIGHTING DEMOLITION PLAN  
RICH STREET AT THIRD STREET**

**IMPROVEMENTS OF  
E RICH STREET FROM S 3RD ST TO S GRANT AVE  
FRA E RICH ST SIGNALS**

3921-E

84  
95

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Existing Street Light Pole #228048 (TO REMAIN)  
STA. 14+24, 51' LT  $\text{CL}$  RICH ST

Existing Lighting Pull Box (TO REMAIN)  
STA. 14+18.0, 46.6' LT.

Existing Underground Conduit (TO REMAIN)  
w/ Ex. 2 Wire Ckt. #50 (TO REMAIN)

Existing Street Light Pole #228468, (TO REMAIN)  
STA. 14+02, 27' LT  $\text{CL}$  RICH ST

Existing Underground Conduit (TO REMAIN)  
w/ Ex. 2 Wire Ckt. #50 (TO REMAIN)

Existing Street Light Pole #227858 (TO BE REMOVED)  
Existing Street Light Foundation (TO BE REMOVED)  
STA. 14+83, 45' LT  $\text{CL}$  RICH ST

Existing Underground Conduit (TO REMAIN)  
w/ Ex. 2 Wire Ckt. #50 (TO REMAIN)

Existing Street Light Pole #228467 (TO REMAIN)  
STA. 14+72, 30' LT  $\text{CL}$  RICH ST

Existing Street Light Pole #228445 (TO REMAIN)  
STA. 12+85, 28' RT  $\text{CL}$  RICH ST

Existing Underground Conduit (TO REMAIN)  
w/ Ex. 2 Wire Ckt. #50 (TO REMAIN)

Existing Combination Traffic/Light Pole #228444  
(TO BE REMOVED, SEE SIGNAL PLANS)  
STA. 14+11, 25' RT  $\text{CL}$  RICH ST

Existing Underground Conduit (TO BE REMOVED)  
w/ Ex. 2 Wire Ckt. #50 (TO BE REMOVED)

Existing Street Light Pole #228050 (TO BE REMOVED)  
Existing Street Light Foundation (TO BE REMOVED)  
STA. 14+24, 42' RT  $\text{CL}$  RICH ST

Existing Underground Conduit (TO REMAIN)  
w/ Ex. 2 Wire Ckt. #50 (TO REMAIN)

Existing Street Light Pole #228051 (TO REMAIN)  
STA. 14+21, 93' RT  $\text{CL}$  RICH ST

Existing Underground Conduit (TO REMAIN)  
w/ Ex. 2 Wire Ckt. #50 (TO REMAIN)

Existing Street Light Pole #228052 (TO REMAIN)  
STA. 14+21, 120' RT  $\text{CL}$  RICH ST

Existing Street Light Pole #228442, (TO BE WIRED)  
STA. 16+56, 30' RT  $\text{CL}$  RICH ST

Existing Underground Conduit (TO REMAIN)  
w/ Ex. 2 Wire Ckt. #137 (TO REMAIN)

Existing Underground Conduit (TO BE REMOVED)  
w/ Ex. 2 Wire Ckt. #137 (TO BE REMOVED)

Existing Street Light Pole #228443 (TO BE REMOVED)  
Existing Street Light Foundation (TO BE REMOVED)  
STA. 14+96, 29' RT  $\text{CL}$  RICH ST

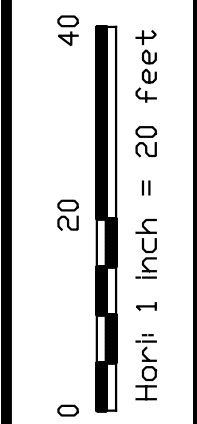
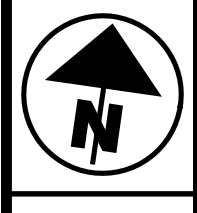
Existing Underground Conduit (TO REMAIN)  
w/ Ex. 2 Wire Ckt. #137 (TO REMAIN)

Existing Street Light Pole #227859 (TO REMAIN)  
STA. 14+79, 124' RT  $\text{CL}$  RICH ST



**STREET LIGHTING LEGEND**

- ⊛ Existing Street Light Pole (TO REMAIN)
- Proposed Downtown Pole (MIS-308)  
w/ LED Teardrop Luminaire (MIS-801)
- Proposed Combination Traffic/Light Pole  
w/ LED Teardrop Luminaire (MIS-801)
- Proposed Conduit Stub
- ▣ Proposed Pull Box (MIS-54, UNLESS OTHERWISE NOTED)
- ▣ Existing Pull Box
- D.N.D Do Not Disturb
- Existing Lighting Conduit  
w/ Ex. 2 Wire Circuit Cable
- Proposed Conduit (MIS-700)  
w/ 2 Wire Circuit Cable (MIS-403)



CALCULATED  
MJB  
CHECKED  
DKA

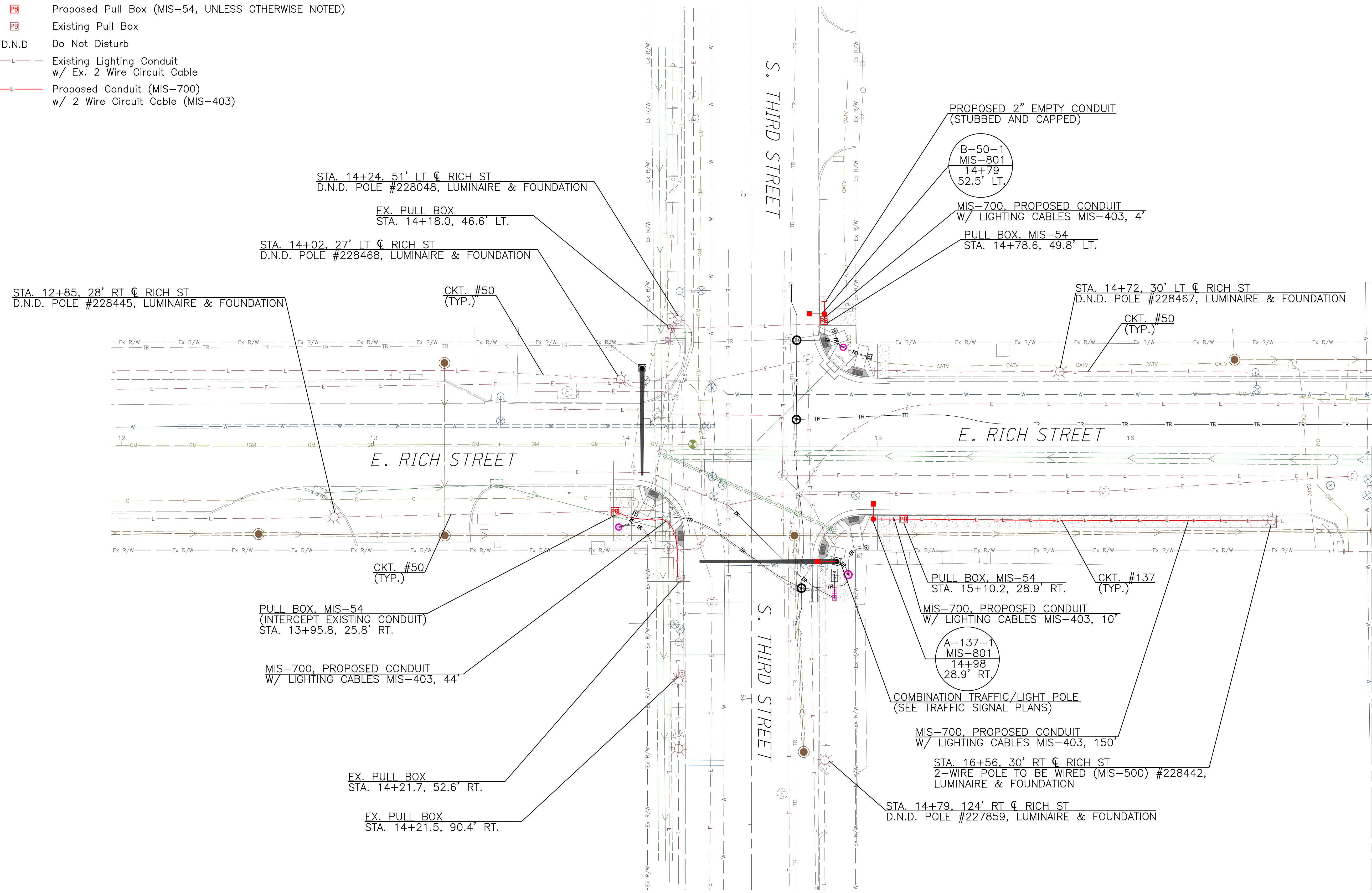
**LIGHTING PLAN  
RICH STREET AT THIRD STREET**

**IMPROVEMENTS OF  
E RICH STREET FROM S 3RD ST TO S GRANT AVE  
FRA E RICH ST SIGNALS**

3921-E

85  
95

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PROPOSED 2" EMPTY CONDUIT  
(STUBBED AND CAPPED)

B-50-1  
MIS-801  
14+79  
52.5' LT.

MIS-700, PROPOSED CONDUIT  
W/ LIGHTING CABLES MIS-403, 4'

PULL BOX, MIS-54  
STA. 14+78.6, 49.8' LT.

STA. 14+72, 30' LT C RICH ST  
D.N.D. POLE #228467, LUMINAIRE & FOUNDATION

CKT. #50  
(TYP.)

PULL BOX, MIS-54  
STA. 15+10.2, 28.9' RT.

MIS-700, PROPOSED CONDUIT  
W/ LIGHTING CABLES MIS-403, 10'

A-137-1  
MIS-801  
14+98  
28.9' RT.

COMBINATION TRAFFIC/LIGHT POLE  
(SEE TRAFFIC SIGNAL PLANS)

MIS-700, PROPOSED CONDUIT  
W/ LIGHTING CABLES MIS-403, 150'

STA. 16+56, 30' RT C RICH ST  
2-WIRE POLE TO BE WIRED (MIS-500) #228442,  
LUMINAIRE & FOUNDATION

STA. 14+79, 124' RT C RICH ST  
D.N.D. POLE #227859, LUMINAIRE & FOUNDATION

PULL BOX, MIS-54  
(INTERCEPT EXISTING CONDUIT)  
STA. 13+95.8, 25.8' RT.

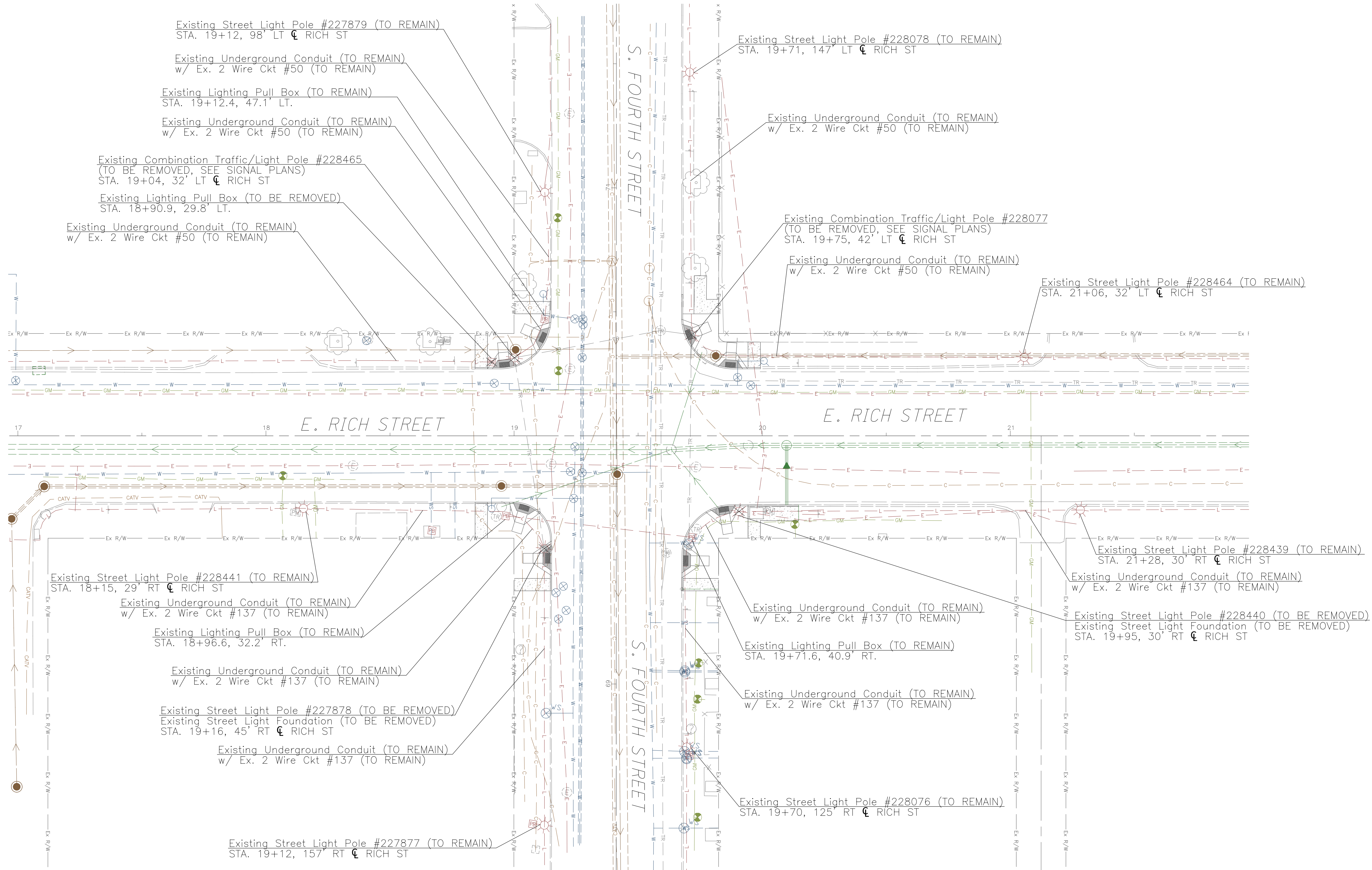
MIS-700, PROPOSED CONDUIT  
W/ LIGHTING CABLES MIS-403, 44'

EX. PULL BOX  
STA. 14+21.7, 52.6' RT.

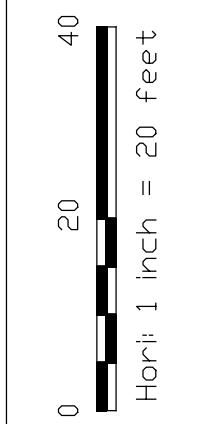
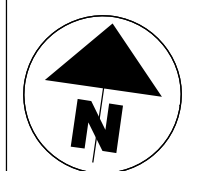
EX. PULL BOX  
STA. 14+21.5, 90.4' RT.



- LEGEND**
- ☼ Existing Street Light Pole (AS NOTED)
  - L— Existing Lighting Conduit (AS NOTED)  
w/ Ex. 2 Wire Circuit Cable (AS NOTED)
  - x— Existing Lighting Item (TO BE REMOVED)



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CALCULATED  
MJB  
CHECKED  
DKA








**LIGHTING DEMOLITION PLAN**  
**RICH STREET AT FOURTH STREET**

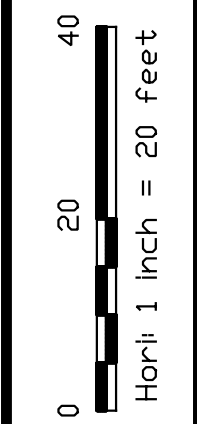
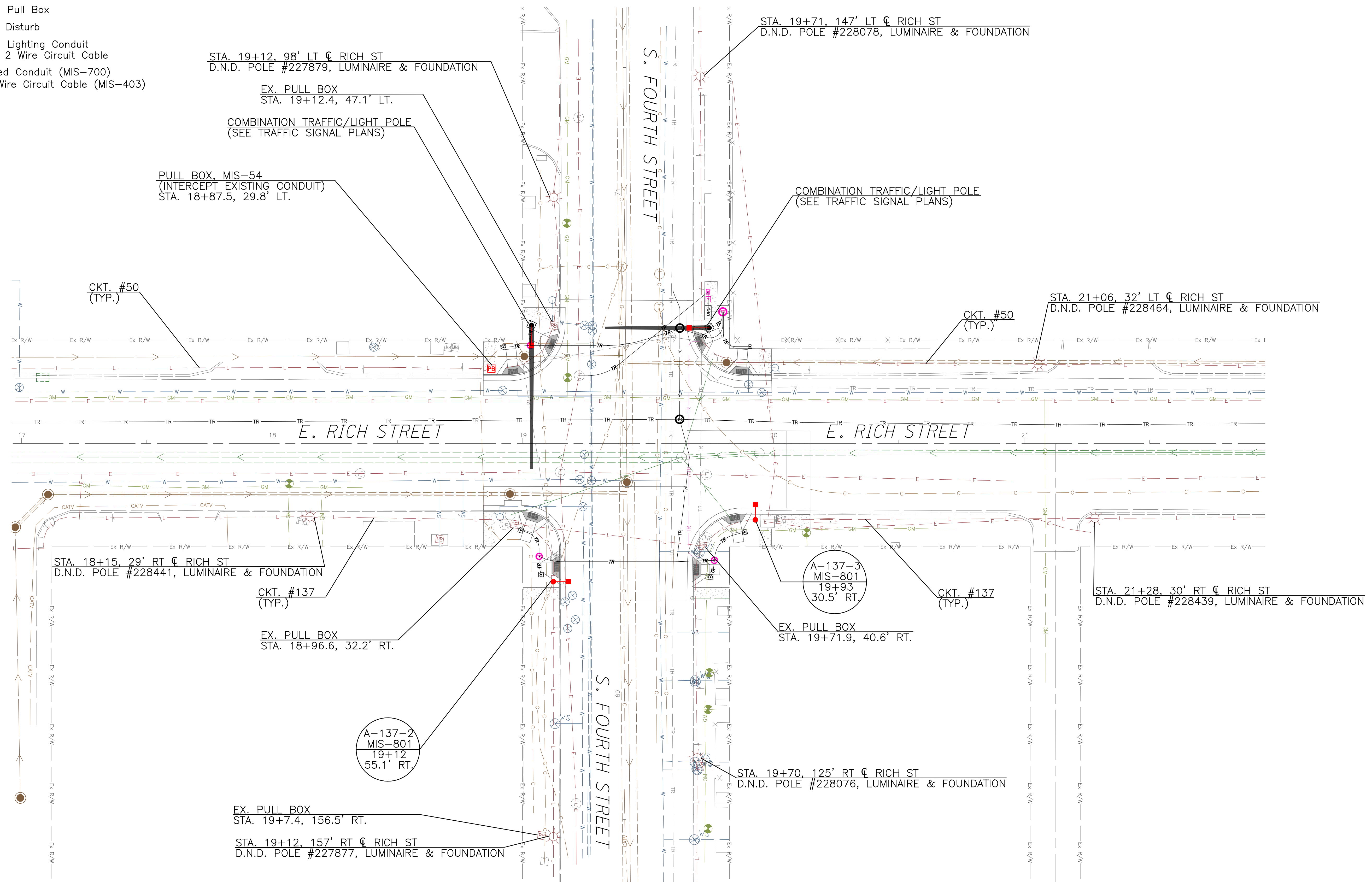
**IMPROVEMENTS OF**  
**E RICH STREET FROM S 3RD ST TO S GRANT AVE**  
**FRA E RICH ST SIGNALS**

3921-E



**STREET LIGHTING LEGEND**

-  Existing Street Light Pole (TO REMAIN)
-  Proposed Downtown Pole (MIS-308)  
w/ LED Teardrop Luminaire (MIS-801)
-  Proposed Combination Traffic/Light Pole  
w/ LED Teardrop Luminaire (MIS-801)
-  Proposed Pull Box (MIS-54, UNLESS OTHERWISE NOTED)
-  Existing Pull Box
- D.N.D Do Not Disturb
-  Existing Lighting Conduit  
w/ Ex. 2 Wire Circuit Cable
-  Proposed Conduit (MIS-700)  
w/ 2 Wire Circuit Cable (MIS-403)



CALCULATED  
MJB  
CHECKED  
DKA

**LIGHTING PLAN  
RICH STREET AT FOURTH STREET**

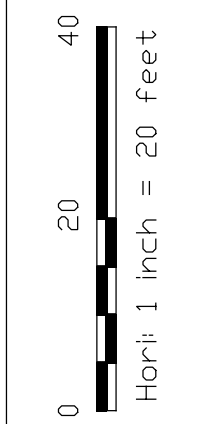
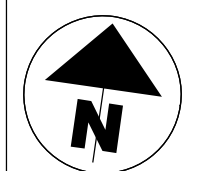
**IMPROVEMENTS OF  
E RICH STREET FROM S 3RD ST TO S GRANT AVE  
FRA E RICH ST SIGNALS**

3921-E

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- LEGEND**
- ☀ Existing Street Light Pole (AS NOTED)
  - L — Existing Lighting Conduit (AS NOTED)  
w/ Ex. 2 Wire Circuit Cable (AS NOTED)
  - ☒ Existing Lighting Item (TO BE REMOVED)



CALCULATED  
MJB  
CHECKED  
DKA

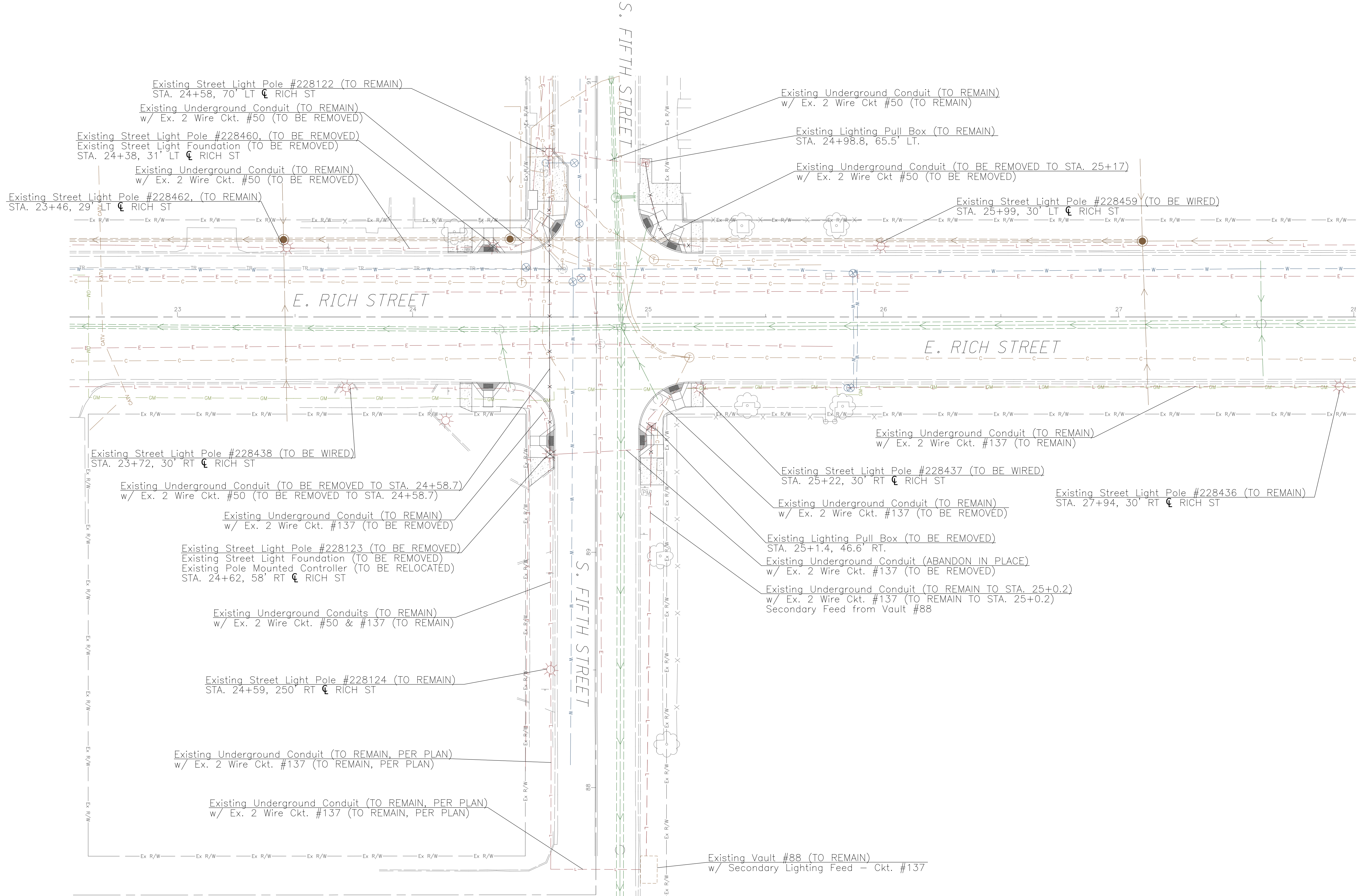
**LIGHTING DEMOLITION PLAN  
RICH STREET AT FIFTH STREET**

**IMPROVEMENTS OF  
E RICH STREET FROM S 3RD ST TO S GRANT AVE  
FRA E RICH ST SIGNALS**

3921-E

88  
95

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Existing Street Light Pole #228122 (TO REMAIN)  
STA. 24+58, 70' LT  $\text{CL}$  RICH ST

Existing Underground Conduit (TO REMAIN)  
w/ Ex. 2 Wire Ckt. #50 (TO BE REMOVED)

Existing Street Light Pole #228460 (TO BE REMOVED)  
Existing Street Light Foundation (TO BE REMOVED)  
STA. 24+38, 31' LT  $\text{CL}$  RICH ST

Existing Underground Conduit (TO REMAIN)  
w/ Ex. 2 Wire Ckt. #50 (TO BE REMOVED)

Existing Street Light Pole #228462 (TO REMAIN)  
STA. 23+46, 29' LT  $\text{CL}$  RICH ST

Existing Underground Conduit (TO REMAIN)  
w/ Ex. 2 Wire Ckt #50 (TO REMAIN)

Existing Lighting Pull Box (TO REMAIN)  
STA. 24+98.8, 65.5' LT.

Existing Underground Conduit (TO BE REMOVED TO STA. 25+17)  
w/ Ex. 2 Wire Ckt #50 (TO BE REMOVED)

Existing Street Light Pole #228459 (TO BE WIRED)  
STA. 25+99, 30' LT  $\text{CL}$  RICH ST

Existing Street Light Pole #228438 (TO BE WIRED)  
STA. 23+72, 30' RT  $\text{CL}$  RICH ST

Existing Underground Conduit (TO BE REMOVED TO STA. 24+58.7)  
w/ Ex. 2 Wire Ckt. #50 (TO BE REMOVED TO STA. 24+58.7)

Existing Underground Conduit (TO REMAIN)  
w/ Ex. 2 Wire Ckt. #137 (TO BE REMOVED)

Existing Street Light Pole #228123 (TO BE REMOVED)  
Existing Street Light Foundation (TO BE REMOVED)  
Existing Pole Mounted Controller (TO BE RELOCATED)  
STA. 24+62, 58' RT  $\text{CL}$  RICH ST

Existing Underground Conduits (TO REMAIN)  
w/ Ex. 2 Wire Ckt. #50 & #137 (TO REMAIN)

Existing Street Light Pole #228124 (TO REMAIN)  
STA. 24+59, 250' RT  $\text{CL}$  RICH ST

Existing Underground Conduit (TO REMAIN, PER PLAN)  
w/ Ex. 2 Wire Ckt. #137 (TO REMAIN, PER PLAN)

Existing Underground Conduit (TO REMAIN, PER PLAN)  
w/ Ex. 2 Wire Ckt. #137 (TO REMAIN, PER PLAN)

Existing Underground Conduit (TO REMAIN)  
w/ Ex. 2 Wire Ckt. #137 (TO REMAIN)

Existing Street Light Pole #228437 (TO BE WIRED)  
STA. 25+22, 30' RT  $\text{CL}$  RICH ST

Existing Underground Conduit (TO REMAIN)  
w/ Ex. 2 Wire Ckt. #137 (TO BE REMOVED)

Existing Lighting Pull Box (TO BE REMOVED)  
STA. 25+1.4, 46.6' RT.

Existing Underground Conduit (ABANDON IN PLACE)  
w/ Ex. 2 Wire Ckt. #137 (TO BE REMOVED)









Existing Underground Conduit (TO REMAIN TO STA. 25+0.2)  
w/ Ex. 2 Wire Ckt. #137 (TO REMAIN TO STA. 25+0.2)  
Secondary Feed from Vault #88

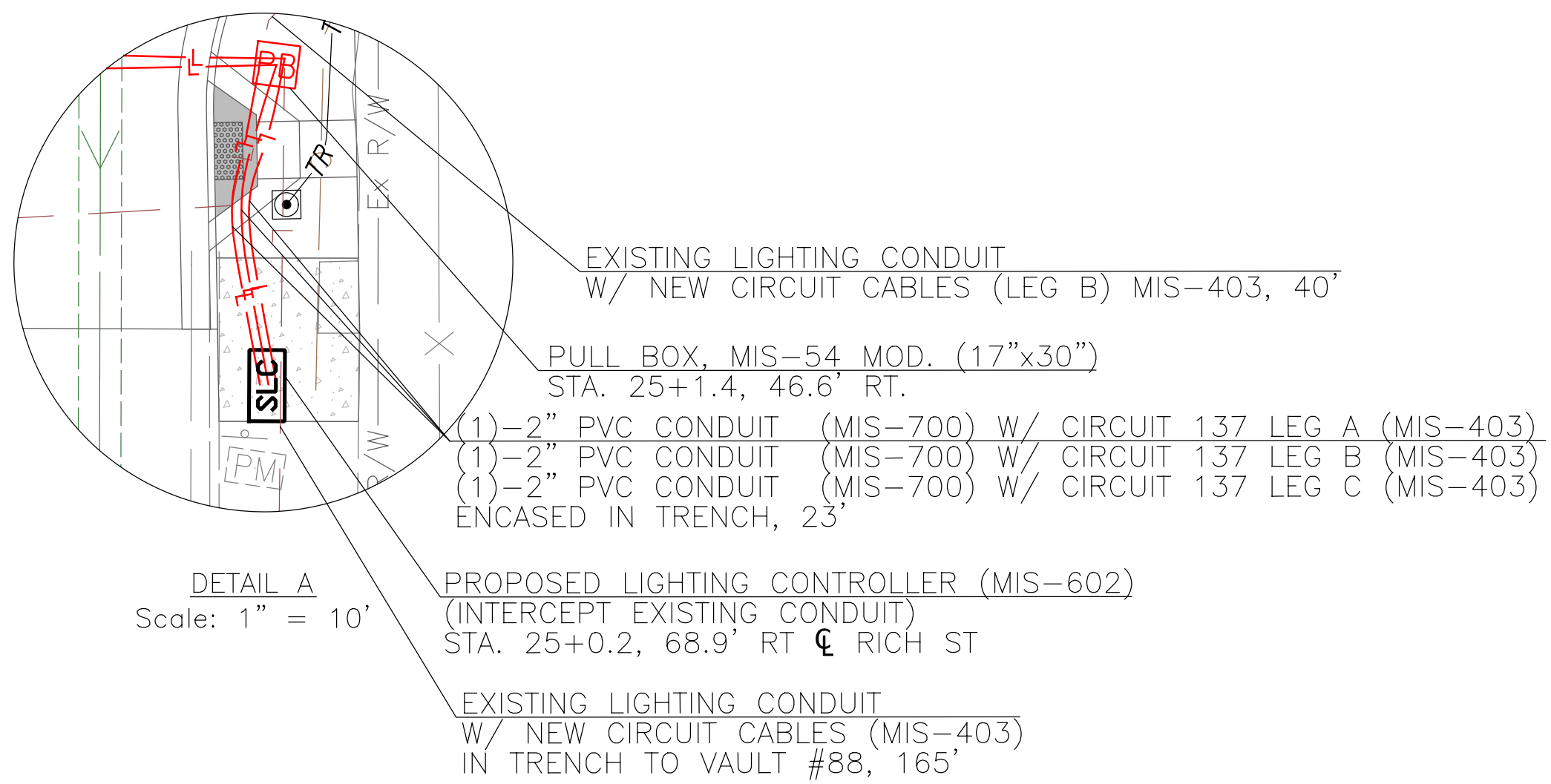
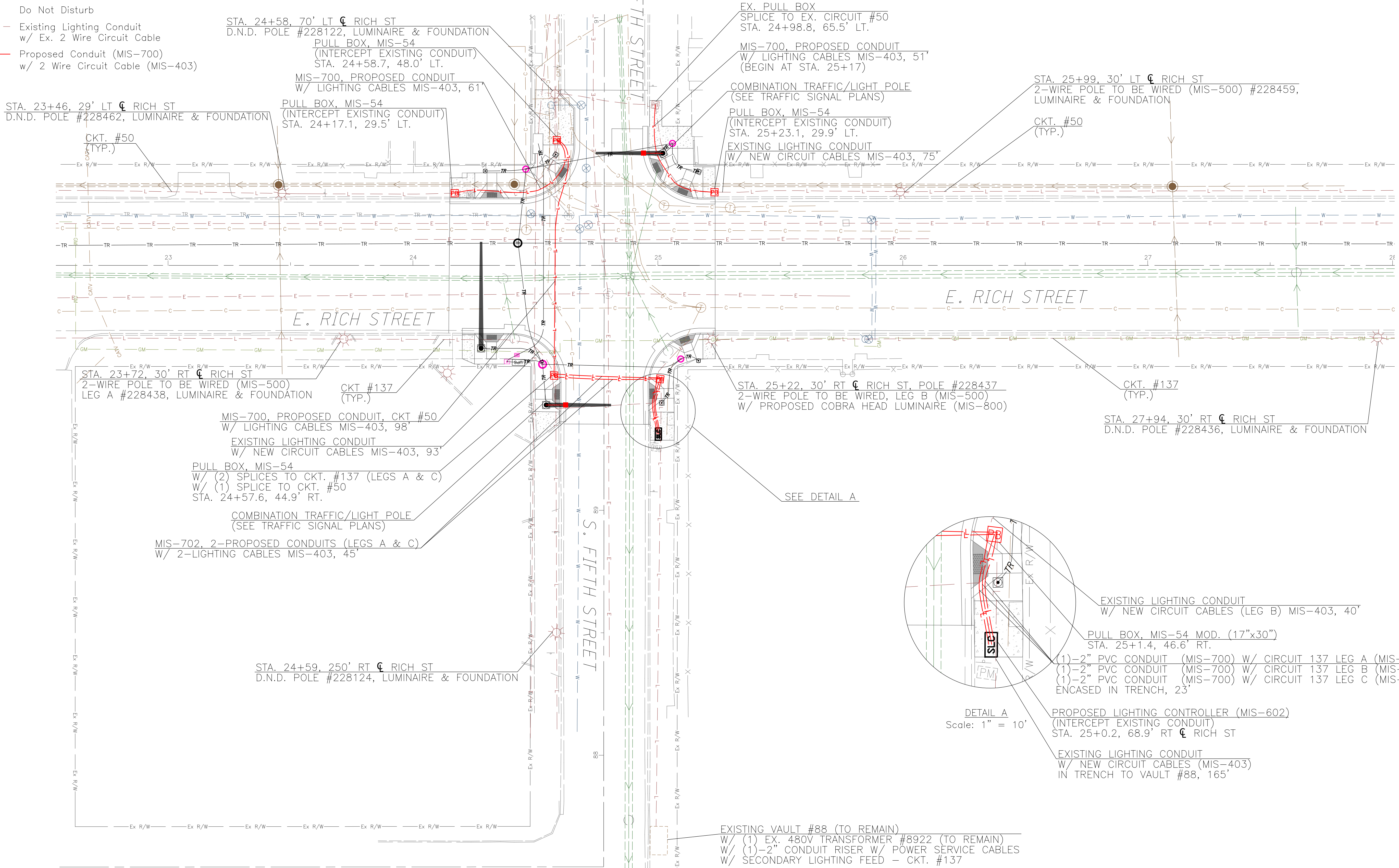
Existing Street Light Pole #228436 (TO REMAIN)  
STA. 27+94, 30' RT  $\text{CL}$  RICH ST

Existing Vault #88 (TO REMAIN)  
w/ Secondary Lighting Feed - Ckt. #137



STREET LIGHTING LEGEND

-  Existing Street Light Pole (TO REMAIN)
-  Proposed Downtown Pole (MIS-308)  
w/ LED Teardrop Luminaire (MIS-801)
-  Proposed Combination Traffic/Light Pole  
w/ LED Teardrop Luminaire (MIS-801)
-  Proposed Pull Box (MIS-54, UNLESS OTHERWISE NOTED)
-  Proposed Pedestal Mounted,  
2-Wire Control Center (MIS-602)
-  Existing Pull Box
- D.N.D Do Not Disturb
-  Existing Lighting Conduit  
w/ Ex. 2 Wire Circuit Cable
-  Proposed Conduit (MIS-700)  
w/ 2 Wire Circuit Cable (MIS-403)



0 20 40  
Horizontal 1 inch = 20 Feet

CALCULATED: MJUB  
CHECKED: DKA

IMPROVEMENTS OF  
E RICH STREET FROM S 3RD ST TO S GRANT AVE  
FRA E RICH ST SIGNALS

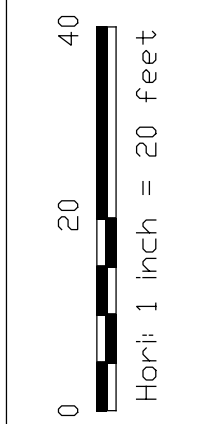
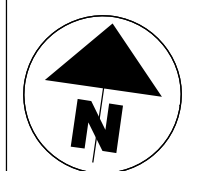
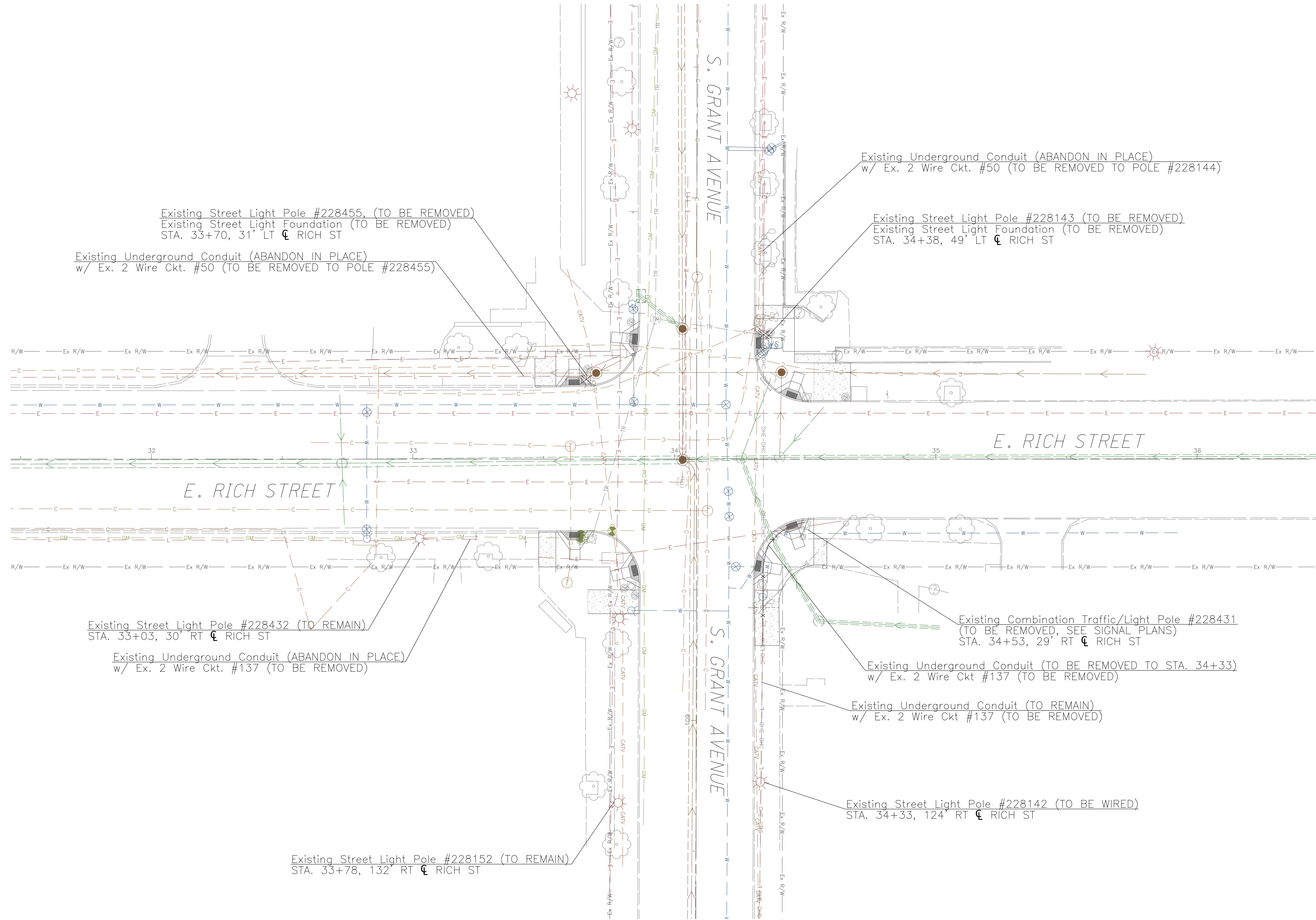
LIGHTING PLAN  
RICH STREET AT FIFTH STREET

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LEGEND

- Existing Street Light Pole (AS NOTED)
- Existing Lighting Conduit (AS NOTED)  
w/ Ex. 2 Wire Circuit Cable (AS NOTED)
- Existing Lighting Item (TO BE REMOVED)



CALCULATED  
MJB  
CHECKED  
DKA

LIGHTING DEMOLITION PLAN  
RICH STREET AT GRANT AVENUE

IMPROVEMENTS OF  
E RICH STREET FROM S 3RD ST TO S GRANT AVE  
FRA E RICH ST SIGNALS









3921-E

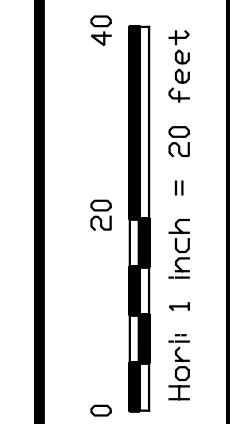
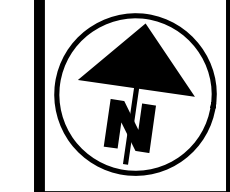
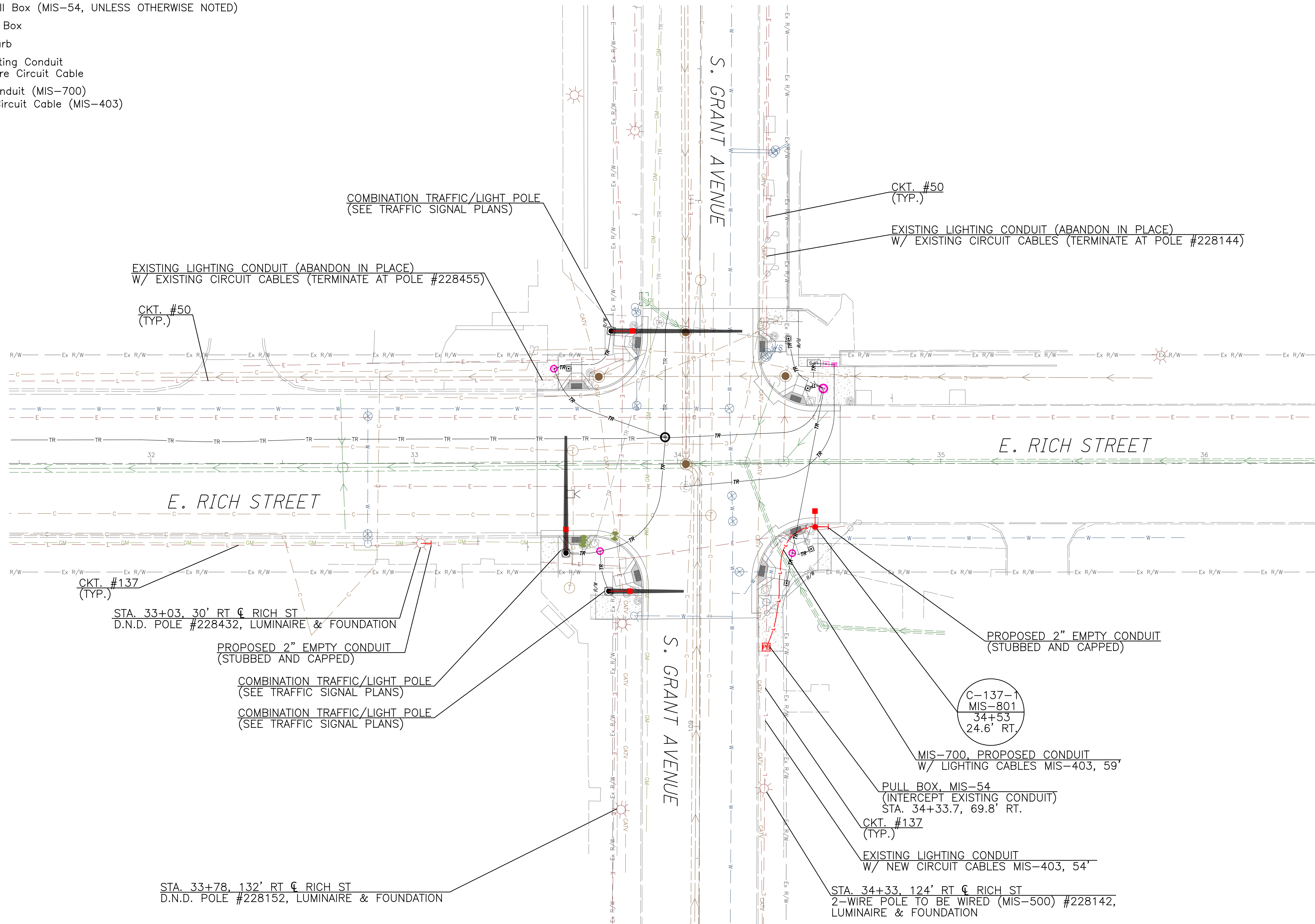
90  
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**STREET LIGHTING LEGEND**

-  Existing Street Light Pole (TO REMAIN)
-  Proposed Downtown Pole (MIS-308)  
w/ LED Teardrop Luminaire (MIS-801)
-  Proposed Combination Traffic/Light Pole  
w/ LED Teardrop Luminaire (MIS-801)
-  Proposed Conduit Stub
-  Proposed Pull Box (MIS-54, UNLESS OTHERWISE NOTED)
-  Existing Pull Box
- D.N.D Do Not Disturb
-  Existing Lighting Conduit  
w/ Ex. 2 Wire Circuit Cable
-  Proposed Conduit (MIS-700)  
w/ 2 Wire Circuit Cable (MIS-403)



CALCULATED  
MJB  
CHECKED  
DKA

**LIGHTING PLAN  
RICH STREET AT GRANT AVENUE**

**IMPROVEMENTS OF  
E RICH STREET FROM S 3RD ST TO S GRANT AVE  
FRA E RICH ST SIGNALS**

3921-E

91  
95

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LIGHTING STATISTICS							
Description	Roadway Classification	Pedestrian Classification	Average	Max	Min	Max/Min	Avg/Min
Target	Arterial, Downtown	-	2.6 fc	-	-	-	3.0:1
Rich St./Third St. Intersection	Arterial, Downtown	-	2.6 fc	3.6 fc	1.4 fc	2.6 fc	1.9:1
Third St.	Arterial, Downtown	Medium	1.3 fc	-	-	-	3.0:1
Rich St.	Arterial, Downtown	Medium	1.3 fc	-	-	-	3.0:1

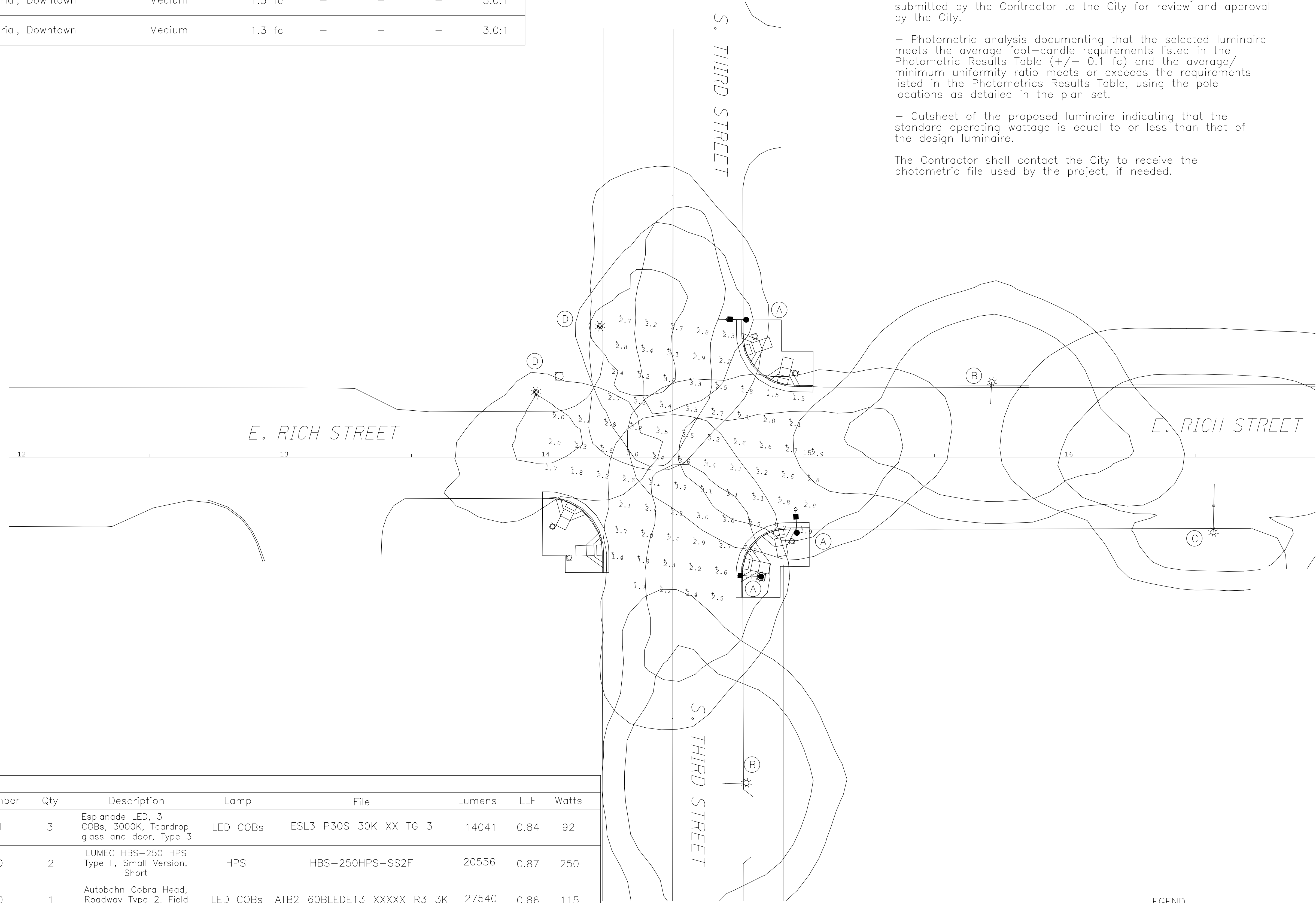
**PHOTOMETRIC REQUIREMENTS**

Street light pole placement for this project was based on a photometric analysis using Esplanade TG3. The results of this photometric analysis are detailed within on the included photometric plan sheets. If the specified design luminaires are used for the project, no additional documentation from the Contractor is needed. If one of the other manufacturers as permitted by the City of Columbus Standard MIS Specification is selected for use by the Contractor, the following shall be submitted by the Contractor to the City for review and approval by the City.

- Photometric analysis documenting that the selected luminaire meets the average foot-candle requirements listed in the Photometric Results Table (+/- 0.1 fc) and the average/minimum uniformity ratio meets or exceeds the requirements listed in the Photometrics Results Table, using the pole locations as detailed in the plan set.

- Cutsheet of the proposed luminaire indicating that the standard operating wattage is equal to or less than that of the design luminaire.

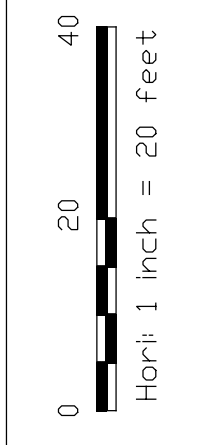
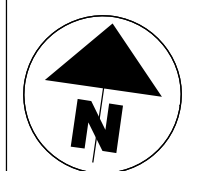
The Contractor shall contact the City to receive the photometric file used by the project, if needed.



LUMINAIRE SCHEDULE								
Label	Catalog Number	Qty	Description	Lamp	File	Lumens	LLF	Watts
A	MIS-801	3	Esplanade LED, 3 COBs, 3000K, Teardrop glass and door, Type 3	LED COBs	ESL3_P30S_30K_XX_TG_3	14041	0.84	92
B	MIS-800	2	LUMEC HBS-250 HPS Type II, Small Version, Short	HPS	HBS-250HPS-SS2F	20556	0.87	250
C	MIS-800	1	Autobahn Cobra Head, Roadway Type 2, Field Adjustable	LED COBs	ATB2_60BLEDE13_XXXXX_R3_3K	27540	0.86	115
D	MIS-801	2	Esplanade LED, 2 COBs, 3000K, Teardrop glass and door, Type 3	LED COBs	ESL2_P10S_30K_XX_TG_3	7100	0.84	57

**LEGEND**

	Existing Light Pole
	Proposed Downtown Pole (MIS-308) w/ LED Teardrop Luminaire (MIS-801)
	Proposed Combination Traffic/Light Pole



CALCULATED	MJB
CHECKED	DKA

**LIGHTING PLAN PHOTOMETRICS  
RICH STREET AT THIRD STREET**

**IMPROVEMENTS OF  
E RICH STREET FROM S 3RD ST TO S GRANT AVE  
FRA E RICH ST SIGNALS**

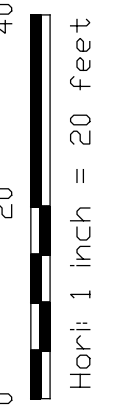
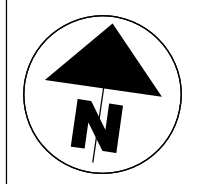
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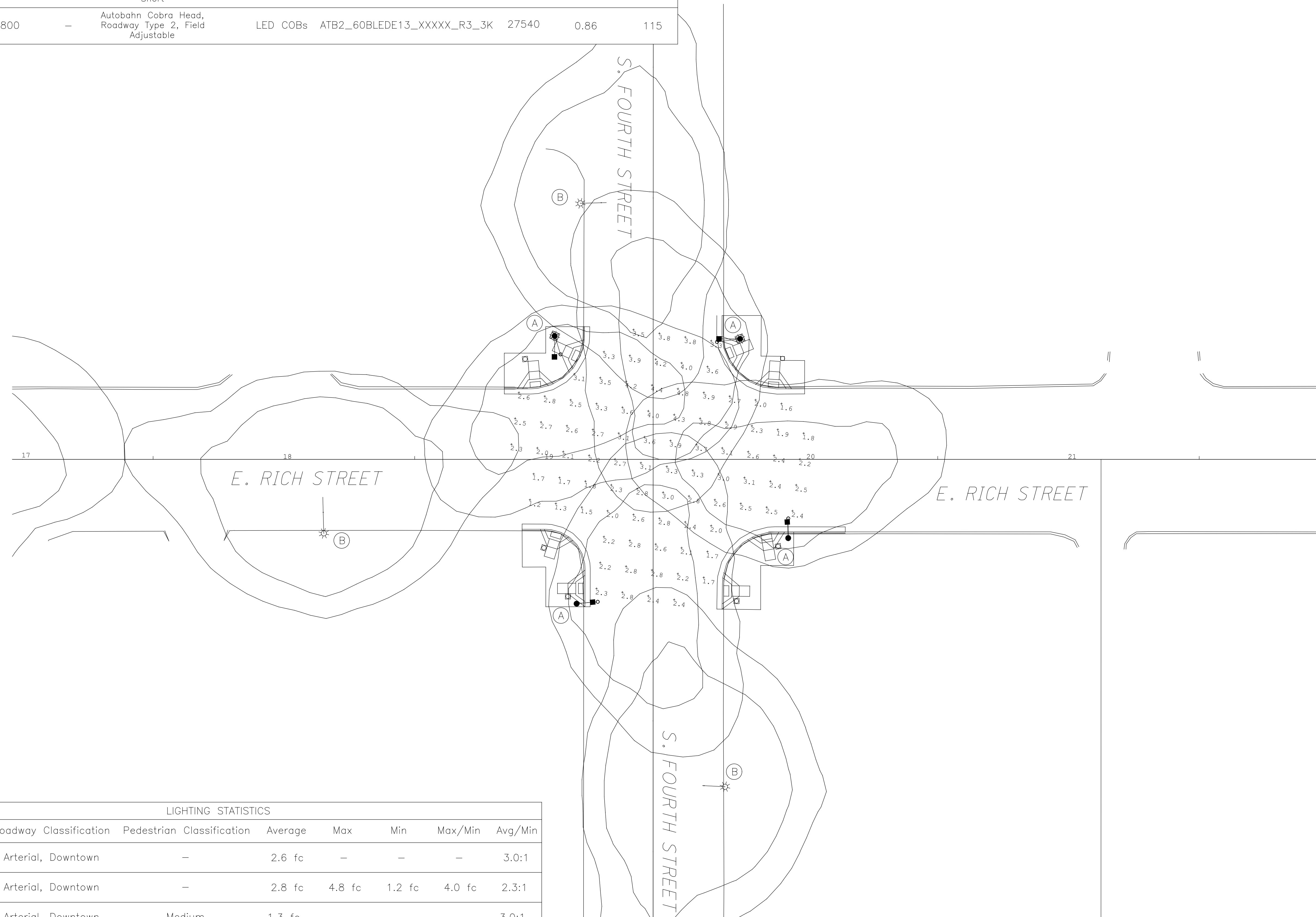
LUMINAIRE SCHEDULE								
Label	Catalog Number	Qty	Description	Lamp	File	Lumens	LLF	Watts
A	MIS-801	4	Esplanade LED, 3 COBs, 3000K, Teardrop glass and door, Type 3	LED COBs	ESL3_P30S_30K_XX_TG_3	14041	0.84	92
B	MIS-800	3	LUMEC HBS-250 HPS Type II, Small Version, Short	HPS	HBS-250HPS-SS2F	20556	0.87	250
C	MIS-800	-	Autobahn Cobra Head, Roadway Type 2, Field Adjustable	LED COBs	ATB2_60BLEDE13_XXXXX_R3_3K	27540	0.86	115

LEGEND	
	Existing Light Pole
	Proposed Downtown Pole (MIS-308) w/ LED Teardrop Luminaire (MIS-801)
	Proposed Combination Traffic/Light Pole



CALCULATED	MJB
CHECKED	DKA

**LIGHTING PLAN PHOTOMETRICS  
RICH STREET AT FOURTH STREET**



LIGHTING STATISTICS							
Description	Roadway Classification	Pedestrian Classification	Average	Max	Min	Max/Min	Avg/Min
Target	Arterial, Downtown	-	2.6 fc	-	-	-	3.0:1
Rich St./Fourth St. Intersection	Arterial, Downtown	-	2.8 fc	4.8 fc	1.2 fc	4.0 fc	2.3:1
Fourth St.	Arterial, Downtown	Medium	1.3 fc	-	-	-	3.0:1
Rich St.	Arterial, Downtown	Medium	1.3 fc	-	-	-	3.0:1

**IMPROVEMENTS OF  
E RICH STREET FROM S 3RD ST TO S GRANT AVE  
FRA E RICH ST SIGNALS**

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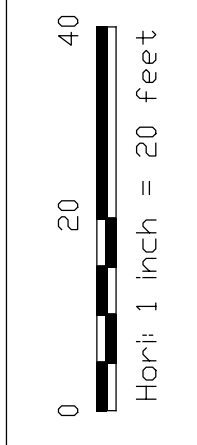
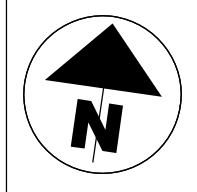
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LUMINAIRE SCHEDULE								
Label	Catalog Number	Qty	Description	Lamp	File	Lumens	LLF	Watts
A	MIS-801	2	Esplanade LED, 3 COBs, 3000K, Teardrop glass and door, Type 3	LED COBs	ESL3_P30S_30K_XX_TG_3	14041	0.84	92
B	MIS-800	1	LUMEC HBS-250 HPS Type II, Small Version, Short	HPS	HBS-250HPS-SS2F	20556	0.87	250
C	MIS-800	3	Autobahn Cobra Head, Roadway Type 2, Field Adjustable	LED COBs	ATB2_60BLEDE13_XXXXX_R3_3K	27540	0.86	115

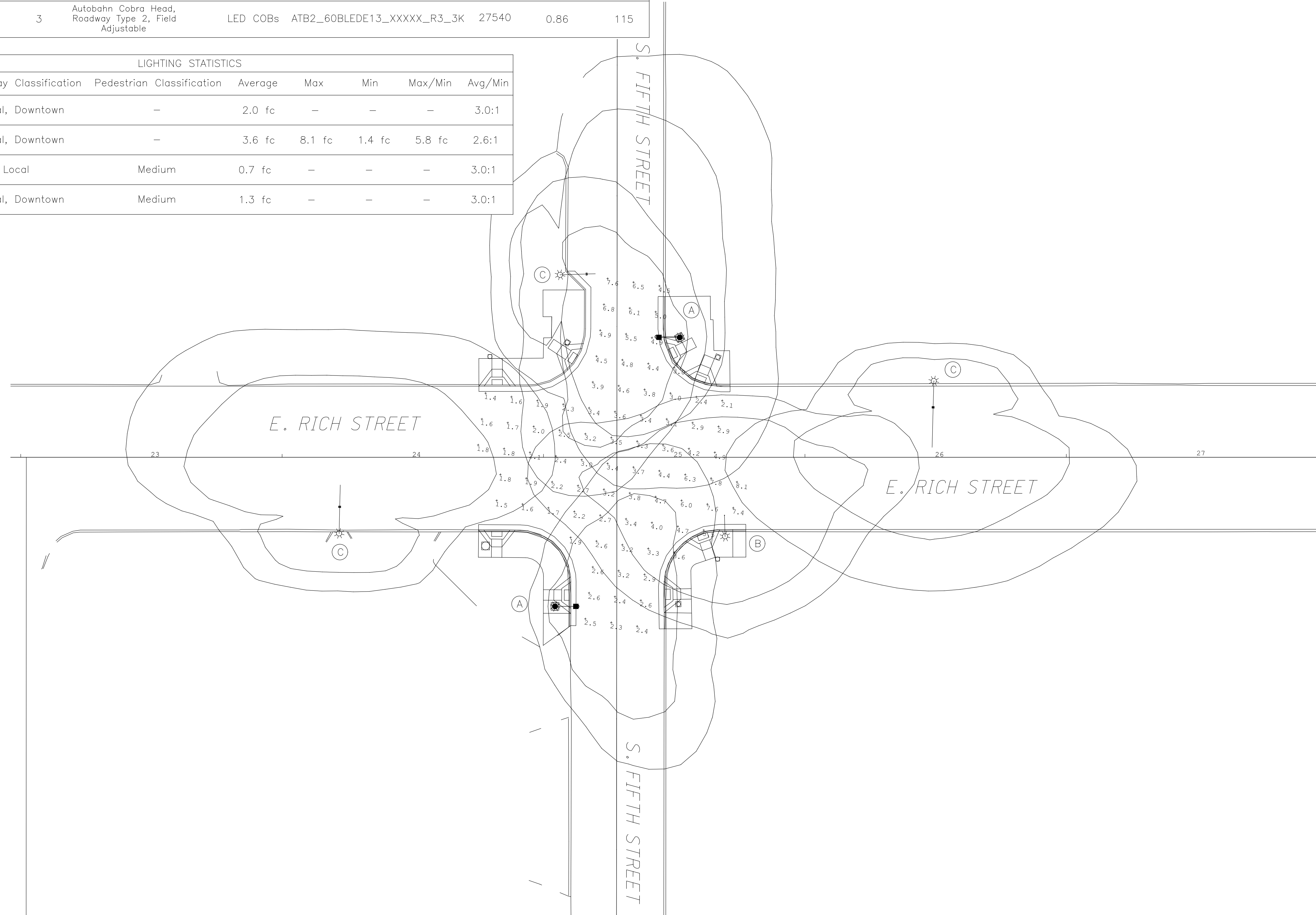
LIGHTING STATISTICS							
Description	Roadway Classification	Pedestrian Classification	Average	Max	Min	Max/Min	Avg/Min
Target	Arterial, Downtown	-	2.0 fc	-	-	-	3.0:1
Rich St./Fifth St. Intersection	Arterial, Downtown	-	3.6 fc	8.1 fc	1.4 fc	5.8 fc	2.6:1
Fifth St.	Local	Medium	0.7 fc	-	-	-	3.0:1
Rich St.	Arterial, Downtown	Medium	1.3 fc	-	-	-	3.0:1

**LEGEND**

- Existing Light Pole
- Proposed Downtown Pole (MIS-308) w/ LED Teardrop Luminaire (MIS-801)
- Proposed Combination Traffic/Light Pole



CALCULATED  
MJB  
CHECKED  
DKA



**LIGHTING PLAN PHOTOMETRICS  
RICH STREET AT FIFTH STREET**

**IMPROVEMENTS OF  
E RICH STREET FROM S 3RD ST TO S GRANT AVE  
FRA E RICH ST SIGNALS**

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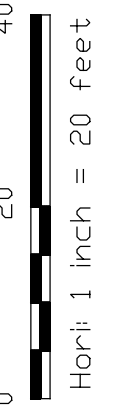
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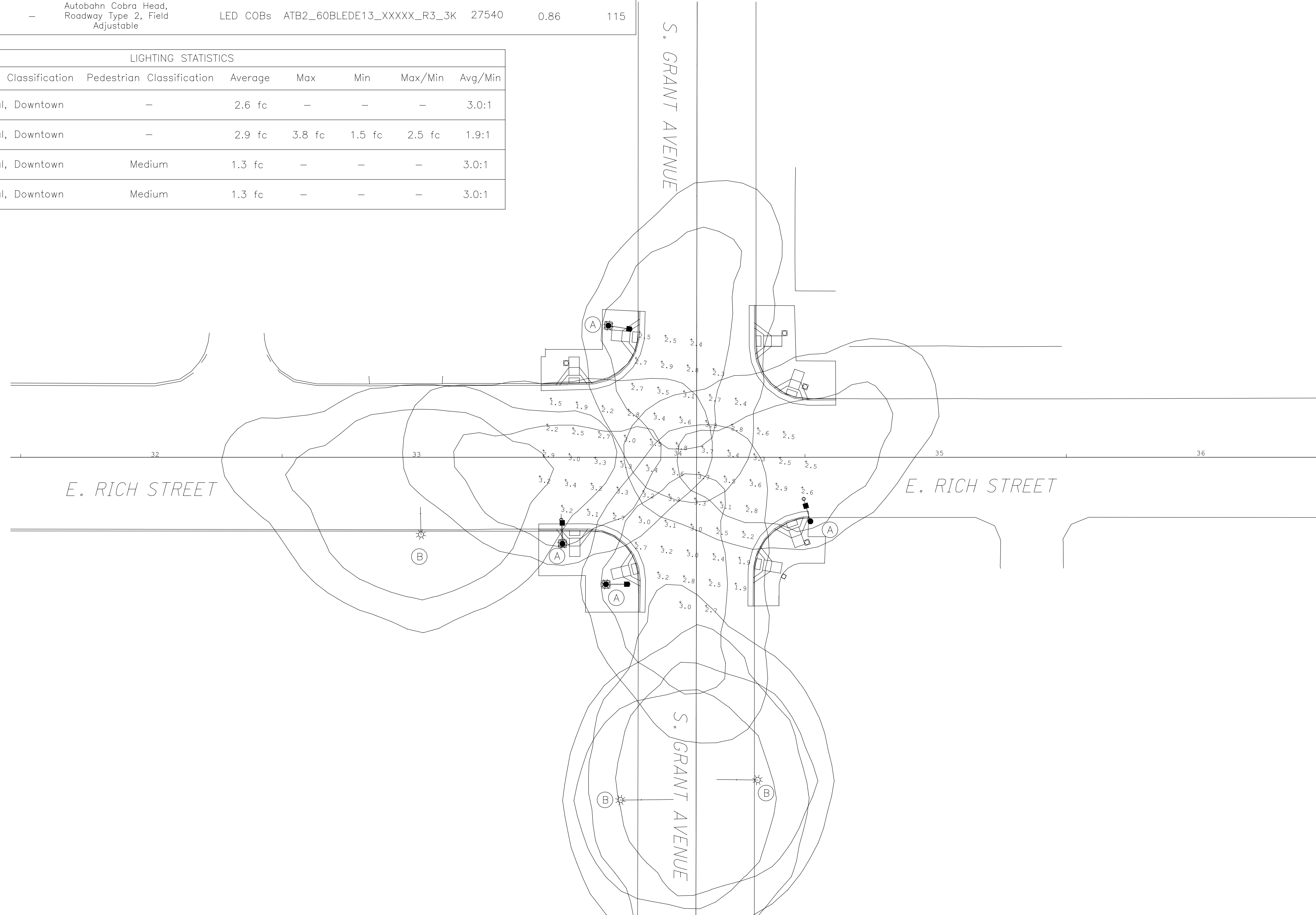
LUMINAIRE SCHEDULE								
Label	Catalog Number	Qty	Description	Lamp	File	Lumens	LLF	Watts
A	MIS-801	4	Esplanade LED, 3 COBs, 3000K, Teardrop glass and door, Type 3	LED COBs	ESL3_P30S_30K_XX_TG_3	14041	0.84	92
B	MIS-800	3	LUMEC HBS-250 HPS Type II, Small Version, Short	HPS	HBS-250HPS-SS2F	20556	0.87	250
C	MIS-800	-	Autobahn Cobra Head, Roadway Type 2, Field Adjustable	LED COBs	ATB2_60BLEDE13_XXXX_R3_3K	27540	0.86	115

LIGHTING STATISTICS							
Description	Roadway Classification	Pedestrian Classification	Average	Max	Min	Max/Min	Avg/Min
Target	Arterial, Downtown	-	2.6 fc	-	-	-	3.0:1
Rich St./Grant Ave. Intersection	Arterial, Downtown	-	2.9 fc	3.8 fc	1.5 fc	2.5 fc	1.9:1
Grant Ave.	Arterial, Downtown	Medium	1.3 fc	-	-	-	3.0:1
Rich St.	Arterial, Dqntwn	Medium	1.3 fc	-	-	-	3.0:1

- LEGEND
- Existing Light Pole
  - Proposed Downtown Pole (MIS-308) w/ LED Teardrop Luminaire (MIS-801)
  - Proposed Combination Traffic/Light Pole



CALCULATED  
MJB  
CHECKED  
DKA



LIGHTING PLAN PHOTOMETRICS  
RICH STREET AT GRANT AVENUE

IMPROVEMENTS OF  
E RICH STREET FROM S 3RD ST TO S GRANT AVE  
FRA E RICH ST SIGNALS

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