



CUY-90-14.90

PID 77332/85531

APPENDIX EX-88

**City of Cleveland Signal Plans
(Reference Document)**

State of Ohio
Department of Transportation
Jolene M. Molitoris, Director

**Innerbelt Bridge
Construction Contract Group 1 (CCG1)**

LEGEND			
	PROP. SIGNAL SUPPORT W/ VEHICULAR SIGNAL HEADS		CONTROLLER
	PROP. FIVE SECTION VEHICULAR SIGNAL HEAD		LOOP DETECTOR
	PEDESTRIAN SIGNAL HEADS		SYSTEM LOOP
	PEDESTRIAN PUSHBUTTON		PROPOSED SIGN
			PROPOSED PULL BOX

CENTRAL AVENUE RECONSTRUCTION CITY OF CLEVELAND

REMOVAL OF EXISTING SIGNS AND STORAGE

ALL SIGNS DESIGNATED FOR REMOVAL AND STORAGE SHALL BE DELIVERED BY THE CONTRACTOR TO THE CITY OF CLEVELAND SIGN SHOP 4150 EAST 49th STREET, BUILDING #4 (216) 420-8282. TWO WEEKS IN ADVANCE, NOTICE MUST BE GIVEN TO THE CITY SIGN SHOP OF DELIVERY AND WHEN PAVEMENT-MARKING OPERATIONS WILL BE COMPLETED.

TRAFFIC CONTROL WORK SCOPE

THE TRAFFIC CONTROL PORTION OF THIS PROJECT REQUIRES THE INSTALLATION OF NEW SIGNAL INSTALLATIONS AT FOUR (4) INTERSECTIONS, AS WELL AS NEW SIGNS AND PAVEMENT MARKINGS. THIS PROJECT ALSO INCLUDES INTERCONNECTING THE SIGNALS INCLUDED IN THIS PROJECT TO FORM A CLOSED LOOP SYSTEM. THE INTERCONNECT SHALL PROVIDE PULL BOXES AND CONDUIT FOR FUTURE CONNECTION OF THE INTERCONNECT SYSTEMS LOCATED ALONG E. 40th STREET AND E. 55th STREET. TRAFFIC SIGNAL INSTALLATIONS SHALL INCLUDE MAST ARMS, CONTROLLERS, SIGNAL HEADS, PEDESTRIAN SIGNAL HEADS, PUSHBUTTONS, WIRING, VEHICULAR DETECTORS, INTERCONNECT, AND ALL OTHER INCIDENTALS NECESSARY FOR A COMPLETE TRAFFIC CONTROL SYSTEM.

THESE NOTES AND SPECIFICATIONS SUPPLEMENT THE STATE OF OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS. THE WORK TO BE PERFORMED BY THE CONTRACTOR IN CONNECTION WITH FURNISHING LABOR, SUPPLIES, EQUIPMENT, MATERIALS, AND PERFORMING ALL OPERATIONS NECESSARY FOR THE ACCEPTABLE INSTALLATION OF THE TRAFFIC CONTROL DEVICES SHALL BE IN STRICT ACCORDANCE WITH THESE PLANS, NOTES, AND SPECIFICATIONS. THESE NOTES, DETAILS, AND DRAWINGS ARE INTENDED TO PROVIDE FOR ALL MATERIAL AND LABOR REQUIRED TO FURNISH AND INSTALL A COMPLETE TRAFFIC CONTROL SYSTEM.

ITEM 632 - REMOVAL OF TRAFFIC SIGNAL INSTALLATION

TRAFFIC SIGNAL INSTALLATION, INCLUDING SIGNAL HEADS, CABLE, MESSENGER WIRE, STRAIN POLES, CABINETS, CONTROLLERS, PULLBOXES ETC., SHALL BE REMOVED IN ACCORDANCE WITH 632.25.

REMOVED ITEMS SHALL BE DELIVERED TO THE CITY OF CLEVELAND. SIGNAL SHOP 4150 EAST 49th STREET, BUILDING #4, (216) 420-8273.

ITEMS TO BE DELIVERED SHALL INCLUDE TRAFFIC SIGNAL STRAIN POLES, TRAFFIC SIGNAL HEADS, CONTROLLERS, PEDESTRIAN PUSHBUTTONS, PEDESTRIAN SIGNAL HEADS, CABINETS, AND ANY OTHER ITEMS DESIGNATED BY THE ENGINEER.

ITEM 632 - POWER SERVICE

ELECTRIC POWER SHALL BE OBTAINED FROM CLEVELAND PUBLIC POWER COMPANY (CPP) OR FIRST ENERGY AT THE LOCATIONS INDICATED ON THE PLANS. POWER SUPPLIED SHALL BE 120 VOLTS. ALL POWER CABLES SHALL BE RATED FOR 600 VOLTS AND SHALL CONSIST OF No. 6 AWG COPPER. ALL CONNECTIONS OF POWER CABLE TO EQUIPMENT SHALL BE BY MEANS OF APPROVED SOLDERLESS TYPE CONNECTORS. THE SOLDERLESS CONNECTIONS ARE TO BE TAPED. POWER SERVICE SHALL ALSO INCLUDE 2" CONDUIT RISERS WHERE NECESSARY.

THE CONTRACTOR SHALL MEET ON SITE WITH A REPRESENTATIVE FROM BOTH CPP AND FIRST ENERGY THREE DAYS PRIOR TO CONSTRUCTION. CONTACT INFORMATION TO MAKE ARRANGEMENTS FOR THE SITE MEETING IS, FOR CPP, DALE TURKOVICH (216) 664-3922 EXT. 115, AND FOR FIRST ENERGY, FRANK DIBBS (440) 546-8748.

ITEM 632 - VEHICULAR SIGNAL HEAD. 3 AND 5 SECTION. 12" LENS. 1 WAY

SECTION 732.01 OF THE OHIO DEPARTMENT OF TRANSPORTATION SPECIFICATIONS IS MODIFIED FOR THIS PROJECT AS FOLLOWS:

- A.) SIGNAL HEADS AND VISORS SHALL BE CONSTRUCTED OF INJECTION MOLDED, UV STABILIZED, POLYCARBONATE PLASTIC AND MEET ITS SPECIFICATIONS.
- B.) PLASTIC LENSES SHALL BE USED.
- C.) PIPE, SPACERS AND FITTINGS CONSTRUCTED OF POLYCARBONATE PLASTIC MAY BE USED IN LIEU OF GALVANIZED STEEL OR ALUMINUM.

- D.) PROPER EXTERIOR COLORS SHALL BE OBTAINED BY USE OF COLORED PLASTIC MATERIAL RATHER THAN PAINTING.
- E.) TRAFFIC SIGNALS SHALL BE RIGID MOUNTED WITH CENTERLINE OF MAST ARM MATCHING CENTERLINE OF RED LENS. ASTROBRACS TYPE MOUNTING SHALL BE USED.

ITEM 632 - PEDESTRIAN SIGNAL HEAD. TYPE D2

SECTION 732.05 OF THE OHIO DEPARTMENT OF TRANSPORTATION SPECIFICATIONS IS MODIFIED FOR THIS PROJECT AS FOLLOWS:

- A.) SIGNAL HEADS AND VISORS MAY BE CONSTRUCTED OF POLYCARBONATE PLASTIC AND SHALL MEET ITS SPECIFICATIONS IF THEY ARE SO CONSTRUCTED.
- B.) PLASTIC LENSES SHALL BE USED.
- C.) PIPE, SPACERS AND FITTINGS CONSTRUCTED OF POLYCARBONATE PLASTIC MAY BE USED IN LIEU OF GALVANIZED STEEL OR ALUMINUM IF PLASTIC SIGNAL HEADS ARE FURNISHED.
- D.) INSTALLATION SHALL BE PER ODOT STANDARD CONSTRUCTION DRAWING TC-85.10 WITH THE EXCEPTION THAT "CLAM SHELLS" SHALL NOT BE USED.
- E.) THE INTERNATIONAL PALM AND PEDESTRIAN SYMBOLS SHALL BE USED.
- F.) STAINLESS STEEL BANDS AND POLE HUB PLATES SHALL BE USED TO MOUNT SIGNALS ON POLES.

ITEM 632 - INTERCONNECT CABLE. 6 PAIR. NO. 19 AWG SOLID REA (PE-39)

SPICES SHALL OCCUR ONLY AT THE TERMINAL ENDS OF THE HARDWARE INTERCONNECT PANEL. NO OTHER SPICE LOCATIONS SHALL BE PERMITTED.

PAYMENT FOR ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, AND OTHER INCIDENTALS SHALL BE INCLUDED IN THE UNIT BID FOR ITEM 632 INTERCONNECT CABLE, 6 PAIR, NO. 19 AWG, SOLID REA PE 39". MEASUREMENT WILL BE BASED UPON THE NUMBER OF LINEAR FEET IN PLACE.

THE INTERCONNECT CABLE WILL BE INSTALLED UNDERGROUND IN CONDUITS. TWO (2)-TWO INCH (2") CONDUITS SHALL BE INSTALLED WHEREVER INTERCONNECT CABLE IS INSTALLED UNDERGROUND.

THE PROJECT INCLUDES CONSTRUCTION OF UNDERGROUND INTERCONNECT IN LOCATIONS THAT CONTAIN NUMEROUS EXISTING UNDERGROUND UTILITIES. IF A UTILITY CONFLICT IS IDENTIFIED THE CONTRACTOR SHALL REPOSITION THE INTERCONNECT TO AVOID SAID CONFLICT WITH THE APPROVAL OF THE ENGINEER. NO ADDITIONAL COMPENSATION SHALL BE AWARDED FOR ADDITIONAL WORK REQUIRED TO AVOID UTILITIES.

ITEM 632 - LOOP DETECTOR UNITS. DELAY AND EXTENSION TYPE

IN ADDITION TO THE REQUIREMENTS OF 632 AND 732.07 OR 732.08, LOOP DETECTOR UNITS SHALL HAVE THE FOLLOWING REQUIREMENTS OR FEATURES:

THE OUTPUT DEVICE SHALL BE A RELAY AND ALL CONTACTS SHALL BE INCLUDED IN THE WIRING HARNESS.

THE UNIT SHALL BE SELF TUNING.

THE UNIT'S ELECTRICAL CONNECTION PLUGS OR WIRING HARNESS SHALL ALLOW READY REPLACEMENT WITH A SINGLE CHANNEL AMPLIFIER AS DESCRIBED IN THE FINAL PARAGRAPH OF 732.07 OF THE OHIO DEPARTMENT OF TRANSPORTATION'S CONSTRUCTION AND MATERIALS SPECIFICATIONS.

UNITS SHALL HAVE A DUAL OUTPUT FOR SYSTEM PURPOSES: A PRIMARY OUTPUT FOR PHASE CALLING AND A SECONDARY OUTPUT FOR TRAFFIC VOLUME COUNT PURPOSES.

ITEM 632 - PEDESTAL. 8' TRANSFORMER BASE

IN ADDITION TO THE REQUIREMENTS OF SECTION 632.02, PEDESTAL WITH TRANSFORMER BASE SHALL BE COATED WITH RUST RESISTANT PAINT RECOMMENDED BY THE MANUFACTURER. THE COLOR SHALL BE "CLEVELAND LIGHT POLE BROWN".

CONNECTION TO UNDERGROUND CONDUIT SHALL BE BY USE OF AN EXISTING CONDUIT ELL. AN ALTERNATE CONNECTION METHOD AS DETAILED IN THE PLANS SHALL BE USED IF A CONDUIT ELL IS NOT AVAILABLE.

THE CONTRACTOR SHALL PROVIDE ALL ADDITIONAL HARDWARE AND INCIDENTALS NECESSARY TO ALLOW REUSE OF AN EXISTING POLE.

TRAFFIC CONTROL AND MAINTENANCE OF TRAFFIC STANDARD CONSTRUCTION DRAWINGS

REFERENCES TO SUPPLEMENTAL SPECIFICATIONS 857, 959, 861, 957, 958, AND 961 ON THE STANDARD CONSTRUCTION DRAWINGS IN THE PLANS SHALL BE CONSIDERED TO READ AS RESPECTIVE REFERENCE TO ITEMS 630, 631, 633, 730, 731, AND 733.

ITEM 632 - SIGNAL SUPPORT TYPE TC-81.20. DESIGN 1, 2, 3, OR 11

IN ADDITION TO THE REQUIREMENTS OF SPECIFICATION 632, SIGNAL SUPPORTS SHALL BE PAINTED IN ACCORDANCE WITH THE FOLLOWING:

POWDER COATING - COLOR: DARK BRONZE

SURFACE PREPARATION - THE EXTERIOR STEEL SURFACE SHALL BE BLAST CLEANED TO STEEL STRUCTURES PAINTING COUNCIL SURFACE PREPARATION SPECIFICATION No. 6 (SSPC-SP6) REQUIREMENTS UTILIZING CAST STEEL ABRASIVES CONFORMING TO THE SOCIETY OF AUTOMOTIVE ENGINEERS (SAE) RECOMMENDED PRACTICE J827. THE BLAST METHOD USED IS A RECIRCULATING, CLOSED CYCLE CENTRIFUGAL WHEEL SYSTEM WITH ABRASIVE CONFORMING TO SAE SHOT NUMBER S280.

INTERIOR COATING - INTERIOR SURFACES (POLE SHAFTS ONLY) AT THE BASE END FOR A LENGTH OF APPROXIMATELY 2.0' SHALL BE MECHANICALLY CLEANED AND COATED WITH A ZINC RICH EPOXY POWDER. THE COATING SHALL BE ELECTROSTATICALLY APPLIED AND CURED IN A GAS FIRED CONVECTION OVEN BY HEATING THE STEEL SUBSTRATE TO A MINIMUM OF 350° F AND A MAXIMUM OF 400° F.

EXTERIOR COATING - ALL EXTERIOR SURFACES SHALL BE COATED WITH A URETHANE OR TRIGLYCIDYL ISOCYANURATE (TGIC) POLYESTER POWDER TO A MINIMUM FILM THICKNESS OF 2.0 MILS (0.002"). THE COATING SHALL BE ELECTROSTATICALLY APPLIED AND CURED IN A GAS FIRED CONVECTION OVEN BY HEATING THE STEEL SUBSTRATE TO A MINIMUM OF 350° F AND A MAXIMUM OF 400° F. THE THERMOSETTING POWDER RESIN SHALL PROVIDE BOTH INTERCOAT AS WELL AS SUBSTRATE FUSION ADHESION THAT MEETS 5A OR 5B CLASSIFICATIONS OF ASTM D3359.

COMBINATION COATING GALVANIZED-POWDER TOP COAT - COLOR: DARK BRONZE

SURFACE PREPARATION - PRIOR TO BEING INCORPORATED INTO AN ASSEMBLED PRODUCT, STEEL PLATES 3/4 INCHES OR MORE IN THICKNESS SHALL BE BLAST CLEANED WHEN REQUIRED TO REMOVE ROLLED-IN MILL SCALE, IMPURITIES AND NON-METALLIC FOREIGN MATERIALS. AFTER ASSEMBLY ALL WELD FLUX SHALL BE MECHANICALLY REMOVED. THE IRON OR STEEL PRODUCT SHALL BE DEGREASED BY IMMERSION IN AN AGITATED 4.5%-6% CONCENTRATED CAUSTIC SOLUTION ELEVATED TO A TEMPERATURE RANGING FROM 150° F TO 190° F. IT SHALL THEN BE PICKLED BY IMMERSION IN A HEATED SULFURIC ACID SOLUTION OF 6%-13% CONCENTRATION, WITH A CONTROLLED TEMPERATURE BETWEEN 150°F-190°F. IT SHALL NEXT BE RINSED CLEAN FROM ANY RESIDUAL EFFECTS OF THE CAUSTIC OR ACID SOLUTIONS BY IMMERSION IN A CIRCULATING FRESH WATER BATH. FINAL PREPARATION SHALL BE ACCOMPLISHED BY IMMERSION IN A CONCENTRATED ZINC AMMONIUM CHLORIDE FLUX SOLUTION HEATED TO 130 DEGREES FAHRENHEIT. THE SOLUTION'S ACIDITY CONTENT SHALL BE MAINTAINED BETWEEN 4.5 - 5.0 PH. THE ASSEMBLY SHALL BE AIR DRIED TO REMOVE ANY MOISTURE REMAINING IN THE FLUX COAT AND/OR TRAPPED WITHIN THE PRODUCT.

ZINC COATING - THE PRODUCT SHALL BE HOT-DIP GALVANIZED TO THE REQUIREMENTS OF EITHER ASTM A123 (FABRICATED PRODUCTS) OR ASTM A153 (HARDWARE ITEMS) BY IMMERSION IN A MOLTEN BATH OF PRIME WESTERN GRADE ZINC MAINTAINED BETWEEN 810° F - 850% F. THE ENTIRE PRODUCT SHALL BE TOTALLY IMMERSED WITH NO PART OF IT PROTRUDING OUT OF THE ZINC (NO DOUBLE DIPPING). THIS IS TO LIMIT A RISK OF APPENDANTAMINATES CONTAINING CHLORIDES AND REDUCE THE RISK OF BARE SPOTS (BARE SPOTS CAN OCCUR WHEN FLUX ON THE STEEL SURFACE IS BURNED AWAY BY HEAT OF THE FIRST DIP). MAXIMUM ALUMINUM CONTENT OF THE BATH SHALL BE 0.01%. FLUX ASH SHALL BE SKIMMED FROM THE BATH SURFACE PRIOR TO IMMERSION AND EXTRACTION OF THE PRODUCT TO ASSURE A DEBRIS FREE ZINC COATING.

ENGINEERS - ARCHITECTS - SCIENTISTS PLANNERS - SURVEYORS 1000 Rockefeller Bldg 614 West Superior Ave. Cleveland, Ohio 44113-1397			
CITY OF CLEVELAND DEPARTMENT OF PUBLIC SERVICE DIVISION OF ENGINEERING & CONSTRUCTION			
THE RECONSTRUCTION OF E22 - E37 CENTRAL AVENUE TRAFFIC CONTROL LEGEND & GENERAL NOTES			
SCALE: VERT. _____ NTS _____ HORIZ. _____ NTS _____			
DRAWN _____ VG _____		DATE _____ 05/09/02 _____	
CHECKED _____ CRP _____		DATE _____ 05/31/02 _____	
SHEET _____ 112 _____		FILE No. _____ M-892 _____	

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ITEM 632 - SIGNAL SUPPORT AND TYPE TC-B1.20.
DESIGN 1, 2, 3, QR 11 (CONTINUED)

EXTERIOR COATING - ALL GALVANIZED EXTERIOR SURFACES SHALL BE COATED WITH A URETHANE OR TRIGLYCIDYL ISOCYANURATE (TGIC) POLYESTER POWDER TO A MINIMUM FILM THICKNESS OF 2.0 MILS (0.002"). PRIOR TO APPLICATION, THE SURFACES TO BE POWDER COATED SHALL BE MECHANICALLY ETCHED BY BRUSH BLASTING (REF. SSPC-SP7) AND THE ZINC COATED SUBSTRATE PREHEATED TO 450 DEGREES FOR A MINIMUM OF ONE HOUR IN A GAS FIRED CONVECTION OVEN. THE COATING SHALL BE ELECTROSTATICALLY APPLIED AND CURED IN A GAS FIRED CONVECTION OVEN BY HEATING THE ZINC COATED SUBSTRATE TO A MINIMUM OF 350° F AND A MAXIMUM OF 400° F. THE THERMOSETTING POWER RESIN SHALL PROVIDE BOTH INTERCOAT AS WELL AS SUBSTRATE FUSION ADHESION, THAT MEETS 5A OR 5B CLASSIFICATION OF ASTM D3359.

SIGNAL SUPPORT WITH LIGHT POLE EXTENSION

THE HEIGHT OF THE PROPOSED LUMINAIRES ON THE SIGNAL SUPPORT LIGHT POLE EXTENSIONS SHALL MATCH THE HEIGHT OF EXISTING LIGHTING. THE CONTRACTOR SHALL MEASURE THE HEIGHT OF EXISTING OVERHEAD LIGHTING (NOT DECORATIVE STREET LIGHTING) TO ENSURE THE PROPOSED AND EXISTING LIGHTING HEIGHTS ARE THE SAME.

EXISTING UTILITY CONFLICTS

THIS PROJECT REQUIRES CONSTRUCTION OF SIGNAL SUPPORT FOUNDATIONS IN LOCATIONS THAT CONTAIN NUMEROUS EXISTING UNDERGROUND UTILITIES. THE CONTRACTOR SHALL NOT ORDER SIGNAL SUPPORT POLES AND MAST ARMS UNTIL AFTER THE ASSOCIATED SUPPORT FOUNDATIONS HAVE BEEN PROPERLY LOCATED AND CONSTRUCTED. A REPRESENTATIVE OF THE CITY OF CLEVELAND DIVISION OF TRAFFIC ENGINEERING MUST BE PRESENT DURING LOCATION AND CONSTRUCTION OF THE FOUNDATIONS. CONTACT REGINA LEVERETT AT (216) 664-3194, FORTY-EIGHT (48) HOURS PRIOR TO COMMENCING WORK.

IF A UTILITY OR OTHER CONFLICT EXISTS WHICH REQUIRES THAT A SIGNAL SUPPORT BE CONSTRUCTED IN A LOCATION OTHER THAN WHAT IS INDICATED ON THE PLANS, THE ENGINEER WILL DETERMINE WHETHER THE SPECIFIED MAST ARM LENGTH IS APPROPRIATE. SUPPORT FOUNDATION LOCATIONS SHALL BE ADJUSTED ONLY WITH THE PRIOR APPROVAL OF THE CITY OF CLEVELAND DIVISION OF TRAFFIC ENGINEERING.

THE CONTRACTOR IS ADVISED TO LOCATE AND CONSTRUCT THE SIGNAL SUPPORT FOUNDATIONS AS SOON AS POSSIBLE IN ORDER TO PROVIDE AMPLE LEAD-TIME TO ORDER SIGNAL SUPPORTS AND THEIR ASSOCIATED MAST ARMS. NO TIME EXTENSION SHALL BE GRANTED FOR DELAYS THAT ARE CAUSED BY THE CONTRACTOR'S FAILURE TO PLAN SIGNAL FOUNDATION WORK AS SOON AS POSSIBLE IN THE CONTRACTOR'S PROGRESS SCHEDULE.

ITEM 633 - CONTROLLER, MASTER, TRAFFIC RESPONSIVE, AS PER PLAN

1. THIS ITEM OF WORK SHALL CONSIST OF FURNISHING AND INSTALLING A SOLID STATE DIGITAL MICROPROCESSOR TYPE TRAFFIC RESPONSIVE MASTER CONTROLLER WITH MENU DRIVEN PROMPTS, INTERNAL TIME BASE COORDINATOR, TELEMETRY UNIT, IN THE LOCAL CONTROLLER CABINET, AND ALL OTHER ACCESSORIES THAT ARE NECESSARY TO MAKE THE MASTER COMPLETELY FUNCTIONAL AND OPERATIONAL AS SHOWN IN THE PLANS. THIS ITEM SHALL ALSO INCLUDE THE EXTRA CABINET SPACE NECESSARY TO BE LOCATED IN THE LOCAL CONTROLLER CABINETS WHERE INDICATED ON THE PLANS.
2. A TELEPHONE MODEM AT THE INTERSECTION SHALL BE COMPLETELY WIRED TO REPORT CABINET FAILURES, DETECTOR FAILURES AND TRAFFIC COUNTS. THE CONTROLLER SHALL BE COMPLETELY COMPATIBLE WITH ONE OF THE CITY OF CLEVELAND'S CLOSED LOOP SYSTEMS AND WITH THE CLOSED LOOP SYSTEM SOFTWARE TO BE FURNISHED IN THIS CONTRACT.
3. THE MASTER CONTROLLER LOCATION IS AS FOLLOWS:
EAST 30th STREET AND CENTRAL AVENUE
4. THE MASTER CONTROLLER SHALL BE LIMITED TO THE FOLLOWING MANUFACTURER AND SYSTEM ON THE ARTERIAL:
ECONOLITE "ARIES"

PAYMENT FOR "ITEM 633 - CONTROLLER, MASTER, TRAFFIC RESPONSIVE, AS PER PLAN" WILL BE MADE AT THE CONTRACT UNIT PRICE BID FOR EACH CONTROLLER IN PLACE, COMPLETELY INSTALLED WITH THE LOCAL CONTROLLER SHOWN IN THE PLANS, WIRED, TESTED AND ACCEPTED.

ITEM 633 - CONTROLLER, ACTUATED, 8 PHASE, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN

GENERAL REQUIREMENTS:

THE CONTROLLER SHALL MEET OR EXCEED ALL REQUIREMENTS SET FORTH BY THE INSTITUTE OF TRANSPORTATION ENGINEERS, THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION, AND THE NEMA TS1-1983 STANDARDS AND ALL ADOPTED REVISIONS.

ALL CONTROLLERS SHALL BE COMPLETELY COMPATIBLE WITH THE LATEST EDITION OF APPROVED CLOSED LOOP SOFTWARE FOR THE EXISTING CITY OF CLEVELAND'S CLOSED LOOP SYSTEM.

1. THE CABINETS SHALL BE BASE MOUNTED.

LOCAL CABINETS SHALL BE CONSTRUCTED TO APPROXIMATELY THE FOLLOWING DIMENSIONS:
30"Lx17"Wx57 1/2"H

CONDUITS SHALL BE ALIGNED HORIZONTALLY ACROSS THE CABINET BASE FOUNDATION.

ALL SIGNAL CABLE SHALL BE TIED, LABELED AND ROUTED NEATLY ALONG THE FOUNDATION AND TERMINATED ACCORDING TO FUNCTION, AS ACCEPTED BY THE CITY.

2. THE CABINET SHALL BE DELIVERED PREWIRED AND SHALL INCLUDE FOUR ADDITIONAL LOOP DETECTOR WIRING HARNESSSES FOR FUTURE USE.
3. THE CABINET SHALL BE DELIVERED PRE-PAINTED BRONZE (BROWN) IN COLOR, AS SPECIFIED IN "PAINTING."
4. THE FOLLOWING SWITCHES SHALL BE ACCESSIBLE VIA THE POLICE DOOR PANEL:
 - A. SIGNAL SHUTDOWN
 - B. FLASH CONTROL
 - C. AUTOMATIC/MANUAL TRANSFER
5. THE FOLLOWING SWITCHES SHALL BE MOUNTED ON THE SWITCH PANEL IN THE CABINET:
 - A. RUN/STOP TIMING
 - B. CONTROLLER TIMER POWER
 - C. DETECTOR TEST

6. OVERLAP PROGRAMMING SHALL BE BY USE OF A INTERCHANGEABLE PLUG-IN PRINTED CIRCUIT BOARD ASSEMBLY AS DESCRIBED IN PART 14 OF NEMA TS-1, 1983.
7. IN ADDITION TO NEMA REQUIREMENTS THE CONFLICT MONITOR SHALL ALSO HAVE EXTENDED MONITORING IN ACCORDANCE WITH 733.04, PART 3B. THE MONITOR SHALL ALSO HAVE AUTO LOGGING AND CENTRAL OFFICE COMPUTER DATA TRANSFER CAPABILITIES.
8. THE CONTROLLER SHALL BE COMPATIBLE WITH EXISTING CITY OF CLEVELAND CLOSED LOOP SYSTEMS AND SHALL INCLUDE ALL COMMUNICATION AND INTERFACE EQUIPMENT THAT WILL ENABLE TRANSMISSION AND RECEPTION OF ALL REQUIRED PATTERN AND COMMAND DATA TO AND FROM THE CENTRAL OFFICE COMPUTER, THE MASTER CONTROLLER AND THE LOCAL INTERSECTION CONTROLLERS.
9. THE CONTROLLER ON THE ARTERIAL SHALL BE FROM THE SAME MANUFACTURER AS THE MASTER CONTROLLER FURNISHED FOR THE RESPECTIVE ARTERIAL AND SHALL BE LIMITED TO THE FOLLOWING MANUFACTURER AND MODEL: ECONOLITE "ARIES"

PAYMENT FOR "ITEM 633 - CONTROLLER, ACTUATED, 8 PHASE, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN" WILL BE AT THE CONTRACT UNIT PRICE BID PER EACH COMPLETE AND IN PLACE INCLUDING ALL CONNECTIONS, TESTED AND ACCEPTED.

EXTERIOR CABINET PAINTING:

POWDER COATING - COLOR: DARK BRONZE

SURFACE PREPARATION - THE EXTERIOR STEEL SURFACE SHALL BE BLAST CLEANED TO STEEL STRUCTURES PAINTING COUNCIL SURFACE PREPARATION SPECIFICATION No. 6 (SSPC-SP6) REQUIREMENTS UTILIZING CAST STEEL ABRASIVES CONFORMING TO THE SOCIETY OF AUTOMOTIVE ENGINEERS (SAE) RECOMMENDED PRACTICE J827. THE BLAST METHOD USED IS A RECIRCULATING, CLOSED CYCLE CENTRIFUGAL WHEEL SYSTEM WITH ABRASIVE CONFORMING TO SAE SHOT NUMBER S280.

INTERIOR COATING - INTERIOR SURFACES (POLE SHAFTS ONLY) AT THE BASE END FOR A LENGTH OF APPROXIMATELY 2.0' SHALL BE MECHANICALLY CLEANED AND COATED WITH A ZINC RICH EPOXY POWDER. THE COATING SHALL BE ELECTROSTATICALLY APPLIED AND CURED IN A GAS FIRED CONVECTION OVEN BY HEATING THE STEEL SUBSTRATE TO A MINIMUM OF 350 DEGREES FAHRENHEIT AND A MAXIMUM OF 400 DEGREES FAHRENHEIT.

EXTERIOR COATING - ALL EXTERIOR SURFACES SHALL BE COATED WITH A URETHANE OR TRIGLYCIDYL ISOCYANURATE (TGIC) POLYESTER POWDER TO A MINIMUM FILM THICKNESS OF 2.0 MILS (0.002"). THE COATING SHALL BE ELECTROSTATICALLY APPLIED AND CURED IN A GAS FIRED CONVECTION OVEN BY HEATING THE STEEL SUBSTRATE TO A MINIMUM OF 350° F AND A MAXIMUM OF 400° F. THE THERMOSETTING POWDER RESIN SHALL PROVIDE BOTH INTERCOAT AS WELL AS SUBSTRATE FUSION ADHESION THAT MEETS 5A OR 5B CLASSIFICATIONS OF ASTM D3359.

COMBINATION COATING GALVANIZED-POWDER TOP COAT
 COLOR: DARK BRONZE

SURFACE PREPARATION - PRIOR TO BEING INCORPORATED INTO AN ASSEMBLED PRODUCT, STEEL PLATES 3/4 INCHES OR MORE IN THICKNESS SHALL BE BLAST CLEANED WHEN REQUIRED TO REMOVE ROLLED-IN MILL SCALE, IMPURITIES AND NON-METALLIC FOREIGN MATERIALS. AFTER ASSEMBLY ALL WELD FLUX SHALL BE MECHANICALLY REMOVED. THE IRON OR STEEL PRODUCT SHALL BE DEGREASED BY IMMERSION IN AN AGITATED 4.5%-6% CONCENTRATED CAUSTIC SOLUTION ELEVATED TO A TEMPERATURE RANGING FROM 150°F TO 190°F. IT SHALL THEN BE PICKLED BY IMMERSION IN A HEATED SULFURIC ACID SOLUTION OF 6%-13% CONCENTRATION, WITH A CONTROLLED TEMPERATURE BETWEEN 150°F AND 190°F. IT SHALL NEXT BE RINSED CLEAN FROM ANY RESIDUAL EFFECTS OF THE CAUSTIC OR ACID SOLUTIONS BY IMMERSION IN A CIRCULATING FRESH WATER BATH. FINAL PREPARATION SHALL BE ACCOMPLISHED BY IMMERSION IN CONCENTRATED ZINC AMMONIUM CHLORIDE FLUX SOLUTION HEATED TO 130°F. THE SOLUTION'S ACIDITY CONTENT SHALL BE MAINTAINED BETWEEN 4.5-5.0 PH. THE ASSEMBLY SHALL BE AIR DRIED TO REMOVE ANY MOISTURE REMAINING IN THE FLUX COAT AND/OR TRAPPED WITHIN THE PRODUCT.

ZINC COATING - THE PRODUCT SHALL BE HOT-DIP GALVANIZED TO THE REQUIREMENTS OF EITHER ASTM A123 (FABRICATED PRODUCTS) OR ASTM A153 (HARDWARE ITEMS) BY IMMERSION IN A MOLTEN BATH OF PRIME WESTERN GRADE ZINC MAINTAINED BETWEEN 810°F AND 850°F. THE ENTIRE PRODUCT SHALL BE TOTALLY IMMERSUED WITH NO PART OF IT PROTRUDING OUT OF THE ZINC (NO DOUBLE DIPPING). THIS IS TO LIMIT A RISK OF TRAPPED CONTAMINATES CONTAINING CHLORIDES AND REDUCE THE RISK OF BARE SPOTS (BARE SPOTS CAN OCCUR WHEN FLUX ON THE STEEL SURFACE IS BURNED AWAY BY HEAT OF THE FIRST DIP). MAXIMUM ALUMINUM CONTENT OF THE BATH SHALL BE 0.01% FLUX ASH SHALL BE SKIMMED FROM THE BATH SURFACE PRIOR TO IMMERSION AND EXTRACTION OF THE PRODUCT TO ASSURE A DEBRIS FREE ZINC COATING.

EXTERIOR COATING - ALL GALVANIZED EXTERIOR SURFACES SHALL BE COATED WITH A URETHANE OR TRIGLYCIDYL ISOCYANURATE (TGIC) POLYESTER POWDER TO A MINIMUM FILM THICKNESS OF 2.0 MILS (0.002"). PRIOR TO APPLICATION, THE SURFACES TO BE POWDER COATED SHALL BE MECHANICALLY ETCHED BY BRUSH BLASTING (REF. SSPC-SP7) AND THE ZINC COATED SUBSTRATE PREHEATED TO 450 DEGREES FOR A MINIMUM OF ONE HOUR IN A GAS FIRED CONVECTION OVEN. THE COATING SHALL BE ELECTROSTATICALLY APPLIED AND CURED IN A GAS FIRE CONVECTION OVEN BY HEATING THE ZINC COATED SUBSTRATE TO A MINIMUM OF 350° F AND A MAXIMUM OF 400° F. THE THERMOSETTING POWDER RESIN SHALL PROVIDE BOTH INTERCOAT AS WELL AS SUBSTRATE FUSION ADHESION THAT MEETS 5A OR 5B CLASSIFICATION OF ASTM D3359.

ITEM 625 - TRENCH, AS PER PLAN

TRENCHING SHALL CONFORM TO SECTIONS 625.12 AND 625.24 OF THE OHIO DEPARTMENT OF TRANSPORTATION'S CONSTRUCTION AND MATERIAL SPECIFICATION AND AS HEREIN MODIFIED. THE QUANTITIES TO REMOVE AND REPLACE THE PAVED SURFACES HAS BEEN COMBINED WITH THE QUANTITIES TO REMOVE AND REPLACE SIMILAR PAVED SURFACES.



ENGINEERS - ARCHITECTS - SCIENTISTS
 PLANNERS - SURVEYORS
 1000 Rockefeller Bldg.
 614 West Superior Ave. Cleveland, Ohio 44113-1197

No.	REVISION	BY	DATE

CITY OF CLEVELAND
 DEPARTMENT OF PUBLIC SERVICE
 DIVISION OF ENGINEERING & CONSTRUCTION

THE RECONSTRUCTION OF
 CENTRAL AVENUE
 TRAFFIC CONTROL
 GENERAL NOTES

SCALE:			
VERT.	NTS	HORIZ.	NTS
DRAWN	VG	DATE	05/09/02
CHECKED	CRP	DATE	05/31/02
SHEET	113	FILE No.	M-892

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ITEM 625 - CONDUIT 2" OR 3"

ALL CONDUIT INSTALLED IN THIS PROJECT UNDER PAVED SURFACES FOR TRAFFIC SIGNALS OR THE CLOSED LOOP INTERCONNECT SYSTEM SHALL BE CONCRETE ENCASED. CONDUIT SHALL BE SCHEDULE 40 AND CONFORM WITH OHIO DEPARTMENT OF TRANSPORTATION'S SPECIFICATION 713.07. ALL CONDUIT SHALL BE PLACED IN A MANNER IN WHICH CONDUIT DOES NOT LAY BENEATH PEDESTRIAN RAMPS, IF POSSIBLE.

ITEM 625 - PULL BOX

BOX SIZE: 13" X 24" X 18" DEEP (NOMINAL)
BOX TO TAPER OUTWARD FROM TOP TO THE OPEN BOTTOM
INSIDE BOTTOM DIMENSIONS
20" W X 29 1/2" L MINIMUM.
COVER SIZE: 13 3/4" X 23 1/4" X 2" OVERALL HEIGHT, 50 LBS.
LOAD CAPACITY: 15,000 LBS., ON A 10" X 10" AREA TESTED IN ACCORDANCE WITH WESTERN UNDERGROUND COMMITTEE GUIDE 3.6. COVER DEFLECTION TO BE LESS THAN 1/2" AT DESIGN LOAD AND SHOW NO SIGNS OF DAMAGE AFTER 10 CYCLES AT DESIGN LOAD.

MATERIAL AND CONSTRUCTION:

BOX: THE BODY SHALL BE MADE WITH FIBERGLASS REINFORCED POLYMER (FRP) WITH ISOPHTHALIT POLYESTER USING THE SPRAY-UP AND ROLL CONSTRUCTIONS METHOD. THE MATERIAL MUST HAVE STABILIZERS TO RESIST UV DEGRADATION IN ACCORDANCE WITH ASTM D-790 AND ASTM D-1501-71 SECTION 6, PROCEDURE B. THE TOP RING OF THE BOX WILL BE MADE OF POLYMER CONCRETE USING A POLYESTER BINDER WITH AGGREGATE FILLERS AND CHOPPED FIBERGLASS WITH A MINIMUM TENSILE STRENGTH OF 1900 PSI. THE RING MUST HAVE THE SAME UV RESISTANCE AS THE FRP MATERIAL. THE THREADED INSERTS (2) FOR THE COVER BOLTS MUST BE STAINLESS STEEL.

COVER: THE COVER SHALL BE MADE WITH A THICK MOLDING COMPOUND (TMC) USING THE COMPRESSION MOLDING METHOD. THE TMC SHALL CONSIST OF A MINIMUM 10% FIBERGLASS IN A CALCIUM CARBONATE AND POLYESTER RESIN MATRIX. THE COVER MUST BE MARKED "TRAFFIC" HAVE A NON-SKID SURFACE AND THE SAME UV RESISTANCE AS THE FRP MATERIAL. TWO RECESSED HEX HEAD STAINLESS STEEL BOLTS AND WASHERS WILL BE USED TO SECURE THE COVER TO THE BOX.

ITEM 631 - SCHOOL SPEED LIMIT SIGN ASSEMBLY, 24"X42", AS PER PLAN

WORK UNDER THIS ITEM SHALL INCLUDE ALL MATERIALS, EQUIPMENT AND LABOR NECESSARY TO FURNISH AND INSTALL THE SCHOOL SPEED LIMIT SIGN ASSEMBLIES AS SHOWN ON THE DETAIL IN THE PLAN SET.

THE CONTRACT UNIT PRICE BID FOR THIS ITEM SHALL INCLUDE ALL OF, BUT NOT BE LIMITED TO, THE FURNISHING AND INSTALLATION OF THE FOLLOWING ITEMS:

- A. ITEM 625, GROUND ROD.
- B. ITEM 630, CONCRETE FOR ANCHOR BASE FOUNDATION. THE DIMENSIONS OF THE FOUNDATION SHALL BE IN CONFORMANCE WITH STANDARD CONSTRUCTION DRAWING TC-21.20.
- C. ITEM 630, OVERHEAD SIGN SUPPORT, DESIGN 5, IN CONFORMANCE WITH STANDARD CONSTRUCTION DRAWING TC-16.20.
- D. ITEM 631, SCHOOL SPEED LIMIT SIGN ASSEMBLY, TYPE R-12B, 24' X 42'.
- E. ITEM 632, SIGNAL CABLE. THE SIZE OF CABLE AND NUMBER OF CONDUCTORS SHALL BE AS REQUIRED BY THE MANUFACTURER AND AS DIRECTED BY THE ENGINEER. THE LENGTH OF SIGNAL CABLE WILL BE AS REQUIRED. ANY SPLICING MAY BE ACCOMPLISHED ONLY WITHIN A DISCONNECT SWITCH ENCLOSURE.
- F. ITEM 632, 1-1/2" CONDUIT RISER WITH WEATHERHEAD, LENGTH AS REQUIRED.

ITEM 631 - TIMER WITH ENCLOSURE, AS PER PLAN

THE TIMER WITH ENCLOSURE SHALL BE FURNISHED AND INSTALLED TO PROVIDE MANUAL SCHOOL SPEED LIMIT OPERATION AND SHALL CONFORM TO THE FOLLOWING SPECIFICATIONS:

THE FLASHER SHALL FLASH THE SCHOOL SIGN BEACONS ALTERNATELY AT A RATE OF 50 TO 60 TIMES PER MINUTE. FLASHER SHALL HAVE ALL SOLID STATE COMPONENTS AND SHALL MEET NEMA TS-1 1989 SPECIFICATIONS.

WIRED TERMINAL FACILITIES SHALL INCLUDE A TERMINAL STRIP FOR CONTROL AND FIELD WIRING, A SIX POINT GROUND BUSS BAR, A CHASSIS GROUND LUG FOR #4 COPPER WIRE, A FLASHER BASE, A 15 AMP CIRCUIT BREAKER, AND TWO KEY SWITCHES, MODEL #2174-70 WITH KEY #2382. THE KEY SWITCHES, ONE FOR "ON" AND ONE FOR "OFF", SHALL BE MOUNTED IN THE BOTTOM OF THE CABINET IN SUCH A WAY THAT THE SWITCHES CAN BE OPERATED BY THE KEYS WITHOUT OPENING THE CABINET DOOR. THE KEY SWITCHES SHALL ACTIVATE (OR DE-ACTIVATE) A 60 MINUTE ADJUSTABLE TIMER WHICH SHALL CONTROL THE DURATION OF FLASH FOR THE SCHOOL SIGNS.

ALL COMPONENTS SHALL BE HOUSED IN A WEATHERPROOF SHEET ALUMINUM CABINET WITH NOMINAL DIMENSIONS OF 14"HX11"WX11"D AND SHEET THICKNESS OF 0.125". THE CABINET SHALL HAVE ADEQUATE MOUNTING PROVISIONS FOR BANDING TO STEEL POLE AND INCLUDE A 1/2" ENTRANCE HUB IN THE BOTTOM. THERE SHALL BE NO HOLES OF ANY KIND IN THE TOP OF THE CABINET.

MAINTENANCE OF TRAFFIC SIGNAL INSTALLATIONS

INCIDENTAL TO THE REQUIREMENTS FOR MAINTAINING TRAFFIC IN ACCORDANCE WITH 614.03, EXISTING TRAFFIC SIGNALS SHALL BE TEMPORARILY MAINTAINED UNTIL THE NEW TRAFFIC SIGNAL INSTALLATION IS IN OPERATION.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING TRAFFIC SIGNAL INSTALLATIONS UNDER THE FOLLOWING CONDITIONS:

A. EXISTING SIGNAL INSTALLATIONS THAT THE PLANS REQUIRE THE CONTRACTOR TO ADJUST, MODIFY, ADD ONTO, OR REMOVE, OR WHICH THE CONTRACTOR ACTUALLY ADJUSTS, MODIFIES, OR OTHERWISE DISTURBS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ENTIRE INSTALLATION (AT THE INTERSECTION) INCLUDING MAINTENANCE, TIMING AND DAMAGE FROM ACCIDENT, NEGLIGENCE OR NATURAL CAUSES. THIS RESPONSIBILITY WILL EXTEND FROM THE TIME HIS OPERATIONS FIRST DISTURB THE INSTALLATION UNTIL THE INSTALLATION HAS BEEN SUBSEQUENTLY REMOVED OR MODIFIED AND THE CITY OF CLEVELAND, DIVISION OF TRAFFIC ENGINEERING, ACCEPTS THE WORK.

B. NEW SIGNAL INSTALLATIONS OR DEVICES, INSTALLED BY THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE, TIMING, AND ANY DAMAGE OF THESE FROM THE TIME OF INSTALLATION UNTIL THE CITY OF CLEVELAND, DIVISION OF TRAFFIC ENGINEERING, ACCEPTS THE WORK.

THE CONTRACTOR SHALL CORRECT, AS QUICKLY AS POSSIBLE, ALL OUTAGES OR MALFUNCTIONS. HE SHALL PROVIDE THE CITY AND THE PROJECT ENGINEER SUCH ADDRESSES AND PHONE NUMBERS WHERE HIS MAINTENANCE FORCES CAN BE CONTACTED. THE CONTRACTOR SHALL PROVIDE ONE OR MORE PERSONS TO RECEIVE ALL CALLS AND DISPATCH THE NECESSARY MAINTENANCE FORCES TO CORRECT OUTAGES OR MALFUNCTIONS. SUCH A PERSON OR PERSONS MAY BE USED TO PERFORM OTHER DUTIES AS LONG AS PROMPT ATTENTION IS GIVEN TO THESE CALLS AND A PERSON IS READILY AVAILABLE CONTINUOUSLY 24 HOURS A DAY, SEVEN DAYS A WEEK. ALL LAMP OUTAGES, CABLE OUTAGES, ELECTRICAL FAILURES. EQUIPMENT MALFUNCTIONS AND MISALIGNED SIGNAL HEADS SHALL BE CORRECTED TO THE SATISFACTION OF THE ENGINEER WITH THE SIGNAL BACK IN SERVICE WITHIN FOUR (4) HOURS AFTER THE CONTRACTOR HAS BEEN NOTIFIED OF THE OUTAGES OR MALFUNCTIONS.

IN THE EVENT NEW SIGNALS ARE DAMAGED PRIOR TO ACCEPTANCE, ALL DAMAGED EQUIPMENT EXCEPT POLES AND CONTROL EQUIPMENT, SHALL BE REPLACED BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER WITH THE SIGNAL BACK IN SERVICE WITHIN EIGHT (8) HOURS AFTER THE CONTRACTOR'S NOTIFICATION OF DAMAGE

IF POLES AND/OR CONTROL EQUIPMENT ARE DAMAGED AND MUST BE REPLACED, THE CONTRACTOR SHALL MAKE TEMPORARY REPAIRS AS NECESSARY TO BRING THE SIGNAL BACK INTO FULL OPERATION WITHIN THE ALLOWED EIGHT HOUR PERIOD, AND SHALL MAKE PERMANENT REPAIRS OR REPLACEMENT AS SOON THEREAFTER AS POSSIBLE.

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

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

WHERE THE CONTRACTOR HAS FAILED TO OR CANNOT RESPOND TO AN OUTAGE OR SIGNAL EQUIPMENT MALFUNCTION, AT THESE LOCATIONS WITHIN HIS RESPONSIBILITY, WITHIN THE PERIOD AS SPECIFIED ABOVE, THE ENGINEER MAY INVOKE THE PROVISIONS OF SECTION 105.15. THIS ACTION MAY INCLUDE CONTROL OF THE INTERSECTION BY POLICE OFFICERS AND COMPLETE REMOVAL OF THE MALFUNCTIONING TRAFFIC CONTROL DEVICES AND INSTALLATION OF DEVICES TO RETURN THE INTERSECTION TO OPERATION. ANY SUBSEQUENT BILLINGS TO THE CITY OF CLEVELAND FOR POLICE SERVICES AND MAINTENANCE SERVICES BY CITY FORCES SHALL BE DEDUCTED FROM MONIES DUE OR TO BECOME DUE THE CONTRACTOR IN ACCORDANCE WITH PROVISIONS OF SECTION 105.15. THE ABOVE TIME LIMITS SUPERCEDE THE 24-HOUR TIME LIMIT IN SECTION 105.15

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

ANY VEHICULAR TRAFFIC SIGNAL HEAD, EITHER NEW OR EXISTING WHICH WILL BE OUT OF OPERATION SHALL BE COVERED IN THE MANNER DESCRIBED IN 632.24.

WHEN A TRAFFIC SIGNAL MUST BE TAKEN OUT OF SERVICE BY THE CONTRACTOR, DUE TO CONSTRUCTION PROCEDURES, THIS OUTAGE SHALL NOT INCLUDE THE HOURS OF 7:00 A.M. TO 9:00 A.M. AND 4:00 P.M. TO 6:00 P.M. MONDAY THROUGH FRIDAY. WHERE A TRAFFIC SIGNAL IS OUT OF SERVICE DUE TO CONSTRUCTION PROCEDURES OR DUE TO AN OUTAGE OR MALFUNCTION OF EQUIPMENT AS DESCRIBED ABOVE, TRAFFIC SHALL BE DIRECTED BY ONE OR MORE OFF-DUTY CITY OF CLEVELAND POLICE OFFICERS HIRED BY THE CONTRACTOR UNTIL SAID SIGNAL IS OPERATING AGAIN. ALL COSTS INCURRED IN USING POLICE OFFICERS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

THE CONTRACTOR SHALL MAINTAIN COMPLETE RECORDS OF MALFUNCTIONS INCLUDING:

- 1. TIME OF NOTIFICATION OF MALFUNCTION
- 2. TIME OF WORK CREW'S ARRIVAL TO CORRECT THE MALFUNCTION
- 3. ACTIONS TAKEN TO CORRECT THE MALFUNCTION, INCLUDING A LIST OF PARTS REPAIRED OR REPLACED
- 4. A DIAGNOSIS OF REASON FOR THE MALFUNCTION AND PROBABILITY.

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

CERTIFICATION AND APPROVAL OF TRAFFIC CONTROL ITEMS

SUBMISSIONS BY THE CONTRACTOR TO THE ENGINEER FOR APPROVAL SHALL CONFORM WITH 632.02 AND 633.03 AS APPROPRIATE.

GUARANTEE

THE CONTRACTOR SHALL GUARANTEE THAT THE TRAFFIC CONTROL SYSTEM INSTALLED AS PART OF THIS CONTRACT SHALL OPERATE SATISFACTORILY FOR A PERIOD OF 90 DAYS FOLLOWING COMPLETION OF THE 10-DAY PERFORMANCE TEST. IN THE EVENT OF UNSATISFACTORY OPERATION, THE CONTRACTOR SHALL CORRECT FAULTY INSTALLATIONS, MAKE REPAIRS AND REPLACE DEFECTIVE PARTS WITH NEW PARTS OF EQUAL OR BETTER QUALITY. EQUIPMENT, MATERIAL QUALITY EQUIPMENT, MATERIAL AND LABOR COSTS INCURRED IN CORRECTING AN UNSATISFACTORY OPERATION SHALL BE BORNE BY THE CONTRACTOR.

THE GUARANTEE SHALL COVER THE FOLLOWING ITEMS OF THE TRAFFIC CONTROL SYSTEM: CONTROLLERS AND ASSOCIATED EQUIPMENT, DETECTOR UNITS, INTERCONNECTION ITEMS AND MASTER CONTROL EQUIPMENT.

CUSTOMARY MANUFACTURERS GUARANTEES FOR THE FOREGOING ITEMS SHALL BE TURNED OVER TO THE CITY OF CLEVELAND FOLLOWING ACCEPTANCE OF THE EQUIPMENT.

THE COST OF GUARANTEEING THE TRAFFIC CONTROL SYSTEM WILL BE INCIDENTAL TO AND INCLUDED IN THE CONTRACT UNIT PRICE OF THE VARIOUS ITEMS MAKING UP THE SYSTEM.

ITEM 632 - PHONE DROP

THIS ITEM OF WORK SHALL CONSIST OF SUPPLYING A PHONE DROP TO THE CONTROLLER AT THE INTERSECTION OF E. 30th STREET AND CENTRAL AVENUE. IT SHALL INCLUDE CONDUIT RISER, TRENCH, CONDUIT, SHIELDED 2-CONDUCTOR CABLE, LIGHTNING ARRESTOR, AND TERMINALS TO COMPLETELY WIRE THE TELEPHONE MODEM SPECIFIED IN THE PLANS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAKE ARRANGEMENTS WITH THE LOCAL TELEPHONE COMPANY TO HAVE THE TELEPHONE SERVICE DROP INSTALLED AT THE LOCATION SHOWN IN THE PLANS.

PAYMENT FOR ITEM 632 - PHONE DROP WILL BE AT THE CONTRACT UNIT PRICE FOR EACH PHONE DROP IN PLACE, COMPLETELY INSTALLED IN THE CONTROLLER SHOWN IN THE PLANS, WIRED, TESTED, AND ACCEPTED.



No.	REVISION	BY	DATE
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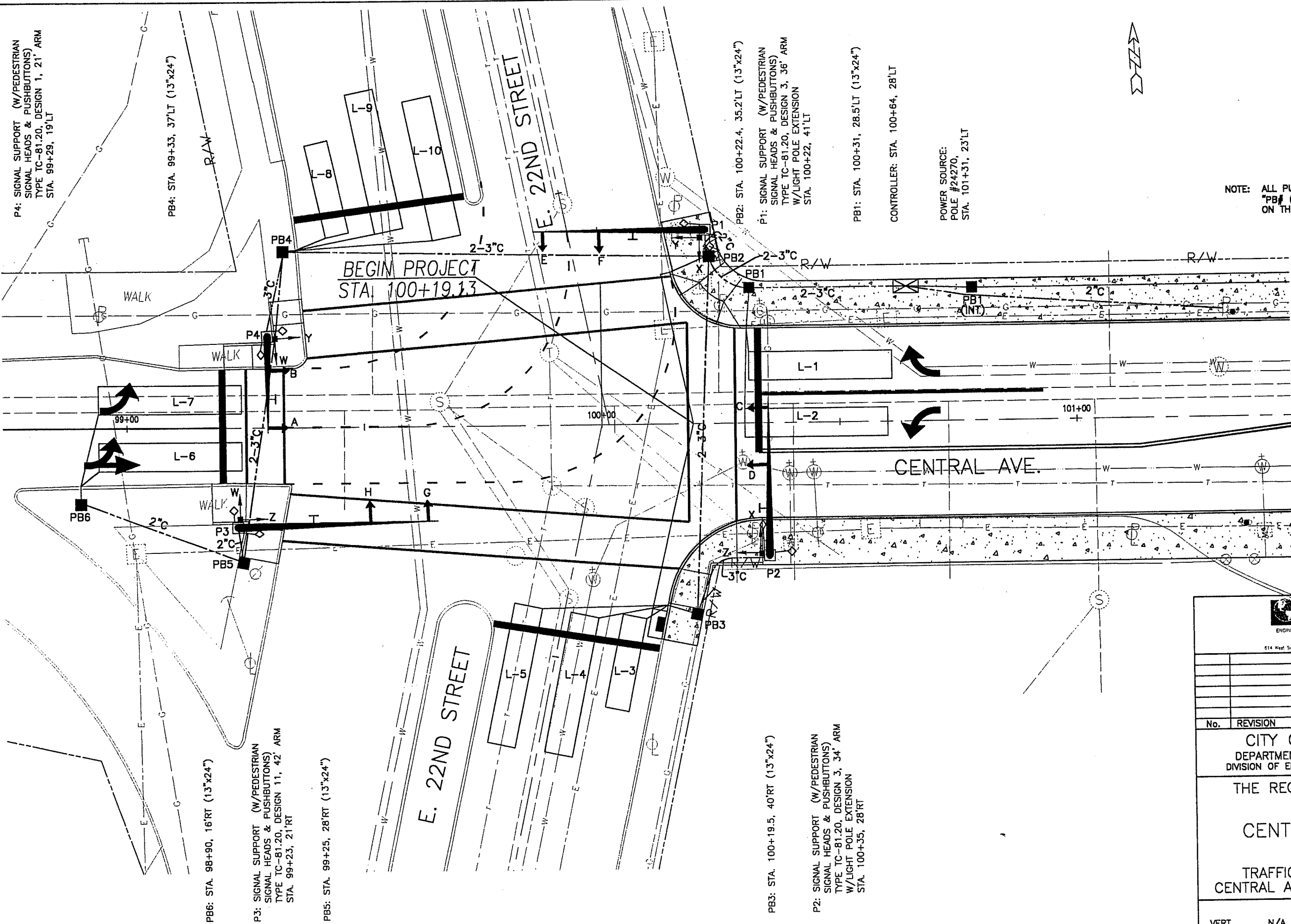
CITY OF CLEVELAND
DEPARTMENT OF PUBLIC SERVICE
DIVISION OF ENGINEERING & CONSTRUCTION

THE RECONSTRUCTION OF

CENTRAL AVENUE
TRAFFIC CONTROL
GENERAL NOTES

SCALE:			
VERT.	NTS	HORIZ.	NTS
DRAWN	VG	DATE	05/09/02
CHECKED	CRP	DATE	05/31/02
SHEET	114	FILE No.	M-892

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NOTE: ALL PULL BOXES LABELLED "PB# (INT)" ARE DETAILED ON THE INTERCONNECT PLANS.



No.	REVISION	BY	DATE

CITY OF CLEVELAND
 DEPARTMENT OF PUBLIC SERVICE
 DIVISION OF ENGINEERING & CONSTRUCTION

THE RECONSTRUCTION OF
 CENTRAL AVENUE

TRAFFIC CONTROL PLAN
 CENTRAL AVE AND E. 22ND ST

SCALE:
 VERT. N/A HORIZ. 1"=10'

DRAWN	VG	DATE	03/04/02
CHECKED	CRP	DATE	05/31/02

P4: SIGNAL SUPPORT (W/PEDESTRIAN SIGNAL HEADS & PUSHBUTTONS) TYPE TC-81.20, DESIGN 1, 21' ARM STA. 99+29, 19'LT

PB4: STA. 99+33, 37'LT (13"x24")

P3: SIGNAL SUPPORT (W/PEDESTRIAN SIGNAL HEADS & PUSHBUTTONS) TYPE TC-81.20, DESIGN 11, 42' ARM STA. 99+23, 21'RT

PB5: STA. 99+25, 28'RT (13"x24")

PB6: STA. 98+90, 16'RT (13"x24")

PB3: STA. 100+19.5, 40'RT (13"x24")

P2: SIGNAL SUPPORT (W/PEDESTRIAN SIGNAL HEADS & PUSHBUTTONS) TYPE TC-81.20, DESIGN 3, 34' ARM W/LIGHT POLE EXTENSION STA. 100+35, 28'RT

PB2: STA. 100+22.4, 35.2'LT (13"x24")

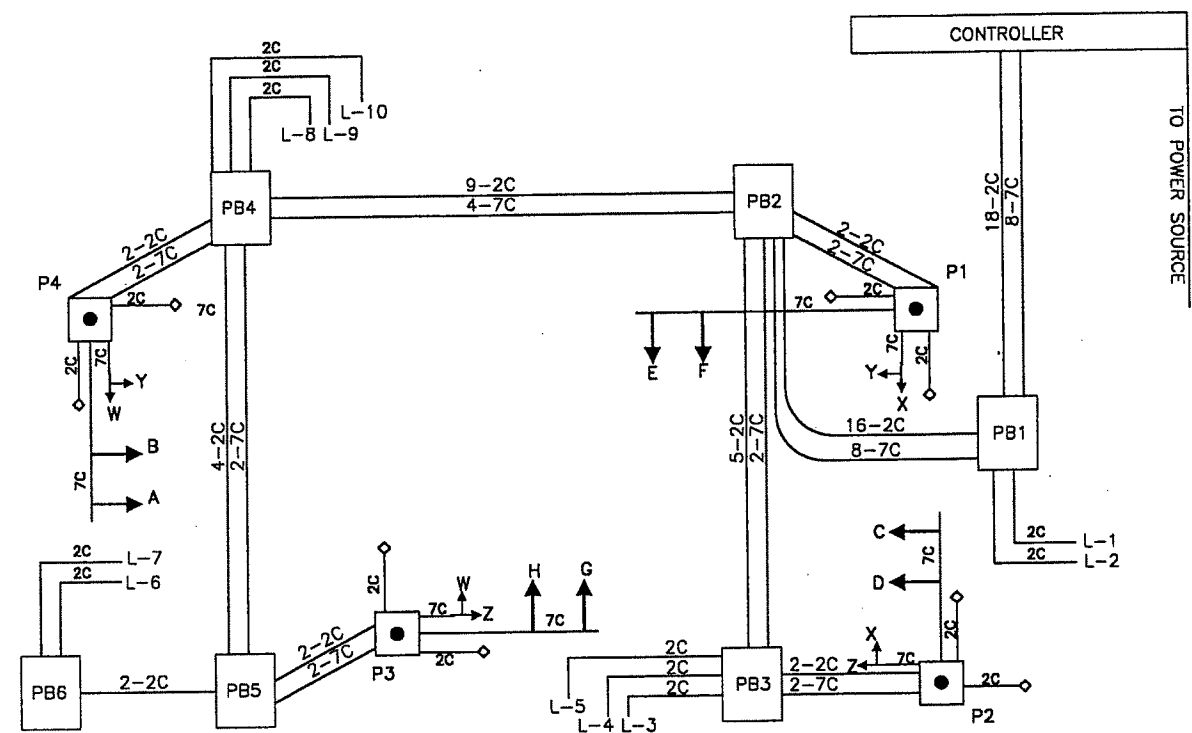
P1: SIGNAL SUPPORT (W/PEDESTRIAN SIGNAL HEADS & PUSHBUTTONS) TYPE TC-81.20, DESIGN 3, 36' ARM W/LIGHT POLE EXTENSION STA. 100+22, 41'LT

PB1: STA. 100+31, 28.5'LT (13"x24")

CONTROLLER: STA. 100+64, 28'LT

POWER SOURCE: POLE #24270, STA. 101+31, 23'LT

WIRING DIAGRAM



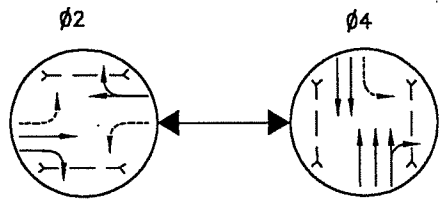
NOTE: ALL PUSHBUTTONS SHALL BE WIRED WITH 2 CONDUCTOR LOOP LEAD-IN CABLE.

SIGNAL DISPLAY CHART

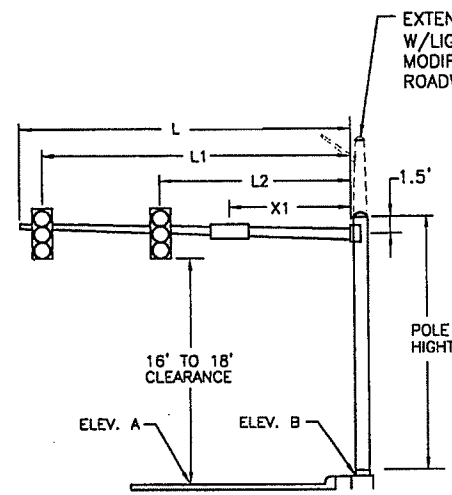
SIGNAL HEAD	Ø2			Ø4			FLASH
	R/W	CLEAR		R/W	CLEAR		
A	G	G	Y	R	R	R	Y
B	G	G	Y	R	R	R	Y
C	G	G	Y	R	R	R	Y
D	G	G	Y	R	R	R	Y
E	R	R	R	R	G	G	Y
F	R	R	R	R	G	G	Y
G	R	R	R	R	G	G	Y
H	R	R	R	R	G	G	Y
W-W	DW	DW	DW	DW	FDW	DW	DW
X-X	DW	DW	DW	DW	FDW	DW	DW
Y-Y	W	FDW	DW	DW	DW	DW	DW
Z-Z	W	FDW	DW	DW	DW	DW	DW

CONTROLLER TIMING CHART

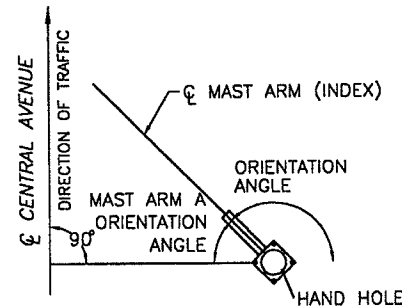
INTERVAL	Ø2	Ø4
GREEN TIME	26	22
YELLOW TIME	4	4
ALL RED	2	2
MINIMUM INITIAL	10	10
VEHICULAR EXTENSION	3	3
WALK	7	7
FLASHING DON'T WALK	18	8
MEMORY	NON	NON
RECALL	MAX	OFF



PHASING DIAGRAM



MAST ARM DETAIL



ORIENTATION ANGLES

- NOTES:
1. ALL ANGLES MEASURED CLOCKWISE
 2. BASE PLATE IS ORIENTED SQUARE TO MAST ARM A.
 3. POLE STATIONING AND ORIENTATION FROM C CENTRAL AVE.

12" POLYCARBONATE

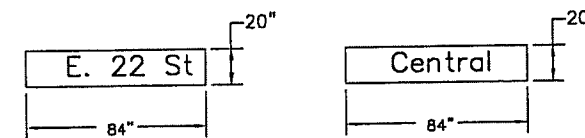


A, B, C, D,
E, F, G, H

TYPE D2



W-W
X-X
Y-Y
Z-Z



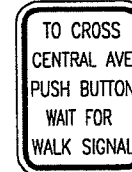
STREET NAME SIGNS

(MAST ARM MOUNTED, SEE SIGNING PLANS FOR DETAILS)

POLE NO.	DESIGN NO.	POLE HEIGHT (FT)	FOUNDATION		L	L1	L2	L3	L4	X1	ELEVATION		MAST ARM ANGLE (A)	MAST ARM ANGLE (B)	ORIENTATION ANGLES FROM MAST ARM (EXIST.)		
			STATION	OFFSET							FT.	FT.			PEDESTRIAN SIGNALS	PEDESTRIAN PUSH BUTTONS	HANDHOLE
			FT.	FT.							FT.	FT.			FT.	FT.	FT.
1	3	21	100+22	41'LT	36	34	22			15	669.48	670.23	90°		270°	0/270°	180°
2	3	21	100+35	28'RT	34	32	20			10	669.80	669.31	0°		270°	0/90°	180°
3	11	21	99+23	21'RT	42	40	28			16	669.53	670.13	90°		0°	0/270°	180°
4	1	21	99+29	19'LT	21	19	7			13	669.58	670.06	0°		0°	0/270°	180°

LOOP DETECTORS

DESIGNATION	SIZE	NO. OF TURNS	PULSE OR PRESENCE	DELAY	ASSOCIATED CONTROLLER PHASE	STATION 1ST FRONT CORNER	STATION 2ND FRONT CORNER
L-1	6 x 30	2	PRESENCE	7	2	100+30, 15' LT	100+30, 9' LT
L-2	6 x 30	2	PRESENCE	0	2	100+30, 3' LT	100+30, 3' RT
L-3	5 x 20	3	PRESENCE	7	4	100+04, 40' RT	100+09, 41' RT
L-4	6 x 30	2	PRESENCE	0	4	99+93, 38' RT	99+99, 40' RT
L-5	6 x 30	2	PRESENCE	0	4	99+81, 37' RT	99+87, 38' RT
L-6	6 x 30	2	PRESENCE	0	2	99+24, 3' RT	99+24, 9' RT
L-7	6 x 30	2	PRESENCE	0	2	99+24, 9' LT	99+24, 3' LT
L-8	5 x 20	3	PRESENCE	7	4	99+42, 40' LT	99+53, 41' LT
L-9	6 x 30	2	PRESENCE	0	4	99+53, 41' LT	99+47, 41' LT
L-10	6 x 30	2	PRESENCE	0	4	99+65, 39' LT	99+70, 40' LT



R-73A
9x12



No.	REVISION	BY	DATE

CITY OF CLEVELAND
DEPARTMENT OF PUBLIC SERVICE
DIVISION OF ENGINEERING & CONSTRUCTION

THE RECONSTRUCTION OF

CENTRAL AVENUE

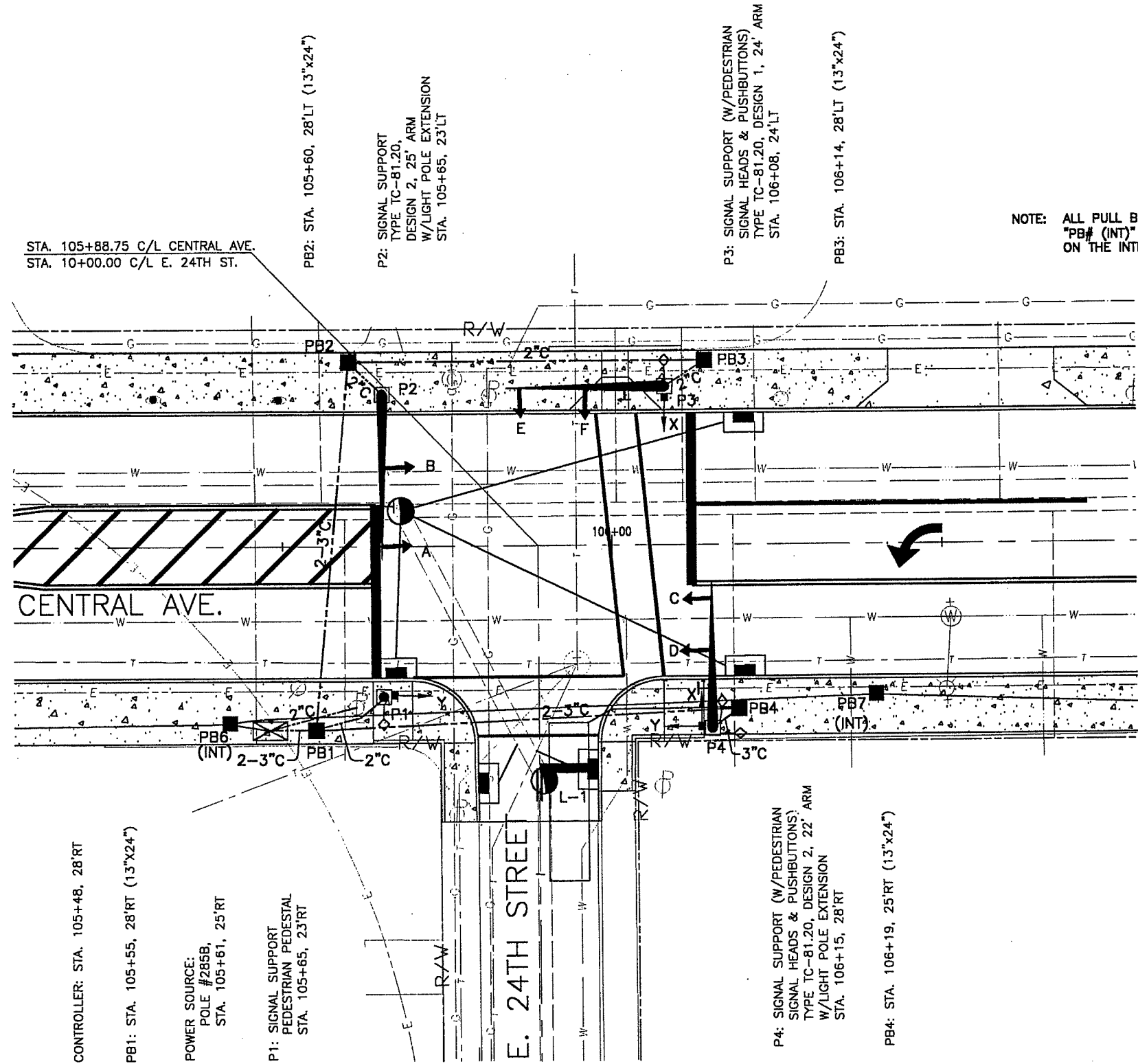
TRAFFIC CONTROL DETAIL
CENTRAL AVE AND E. 22ND ST

SCALE:
VERT. N.T.S. HORIZ. N.T.S.

DRAWN VG DATE 03/04/02
CHECKED CRP DATE 05/31/02

SHEET 116 FILE No. M-892

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STA. 105+88.75 C/L CENTRAL AVE.
STA. 10+00.00 C/L E. 24TH ST.

PB2: STA. 105+60, 28'LT (13"x24")

P2: SIGNAL SUPPORT
TYPE TC-81.20,
DESIGN 2, 25' ARM
W/LIGHT POLE EXTENSION
STA. 105+65, 23'LT

P3: SIGNAL SUPPORT (W/PEDESTRIAN
SIGNAL HEADS & PUSHBUTTONS)
TYPE TC-81.20, DESIGN 1, 24' ARM
STA. 106+08, 24'LT

PB3: STA. 106+14, 28'LT (13"x24")

NOTE: ALL PULL BOXES LABELLED
"PB# (INT)" ARE DETAILED
ON THE INTERCONNECT PLANS.

CONTROLLER: STA. 105+48, 28'RT

PB1: STA. 105+55, 28'RT (13"x24")

POWER SOURCE:
POLE #285B,
STA. 105+61, 25'RT

P1: SIGNAL SUPPORT
PEDESTRIAN PEDESTAL
STA. 105+65, 23'RT

P4: SIGNAL SUPPORT (W/PEDESTRIAN
SIGNAL HEADS & PUSHBUTTONS)
TYPE TC-81.20, DESIGN 2, 22' ARM
W/LIGHT POLE EXTENSION
STA. 106+15, 28'RT

PB4: STA. 106+19, 25'RT (13"x24")



ENGINEERS - ARCHITECTS - SCIENTISTS
PLANNERS - SURVEYORS
1000 Rockefeller Bldg.
514 West Superior Ave. Cleveland, Ohio 44113-1377

No.	REVISION	BY	DATE

CITY OF CLEVELAND
DEPARTMENT OF PUBLIC SERVICE
DIVISION OF ENGINEERING & CONSTRUCTION

THE RECONSTRUCTION OF
CENTRAL AVENUE

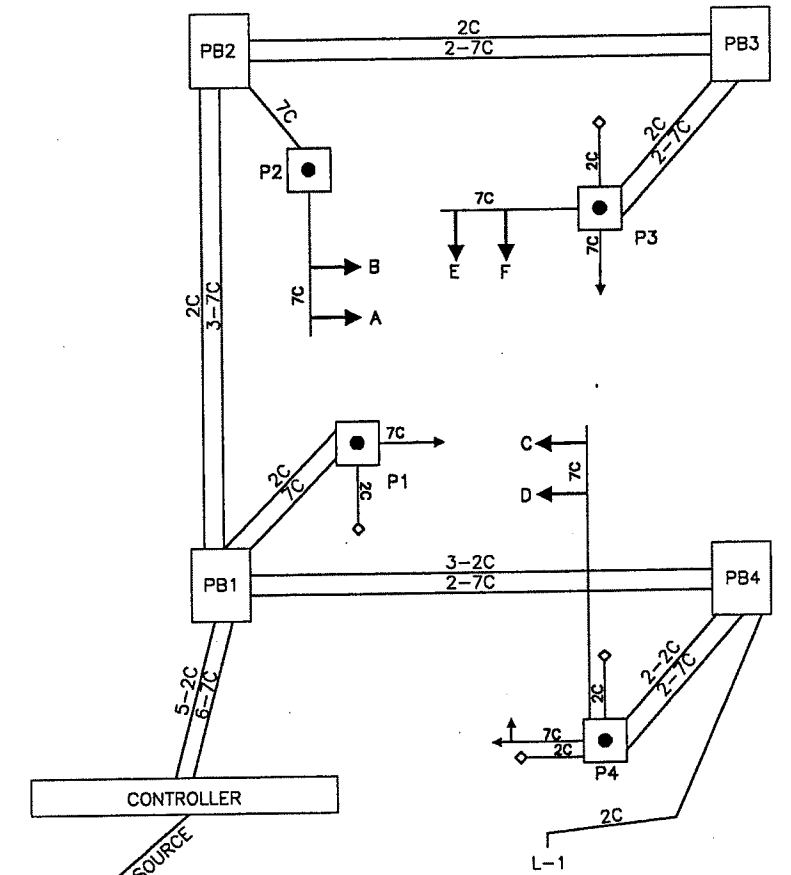
TRAFFIC CONTROL PLAN
CENTRAL AVE AND E. 24TH ST

SCALE:
VERT. N/A HORIZ. 1"=10'

DRAWN VG DATE 03/04/02
CHECKED CRP DATE 05/31/02

SHEET 117 FILE No. M-892

WIRING DIAGRAM



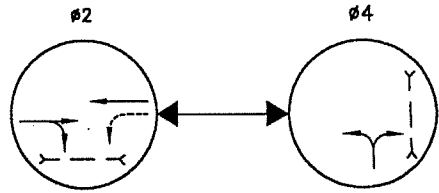
NOTE: ALL PUSHBUTTONS SHALL BE WIRED WITH 2 CONDUCTOR LOOP LEAD-IN CABLE.

CONTROLLER TIMING CHART

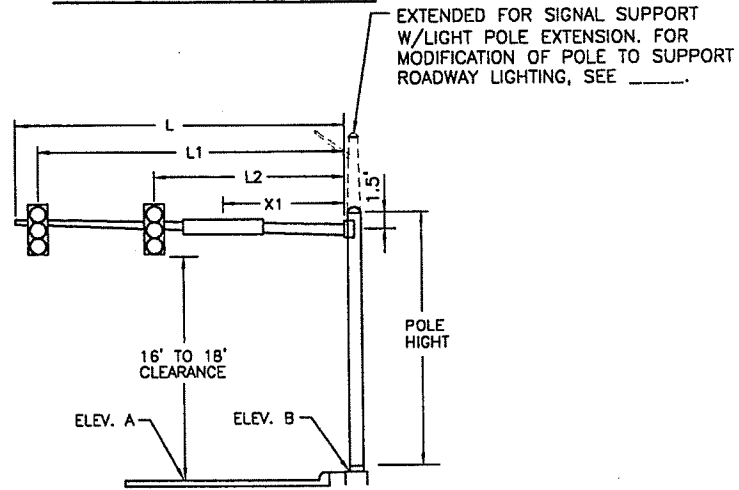
INTERVAL	#2	#4
GREEN TIME	23	25
YELLOW TIME	4	4
ALL RED	2	2
MINIMUM INITIAL	10	10
VEHICULAR EXTENSION	3	3
WALK	7	7
FLASHING DON'T WALK	10	7
MEMORY	NON	NON
RECALL	MAX	OFF

SIGNAL DISPLAY CHART

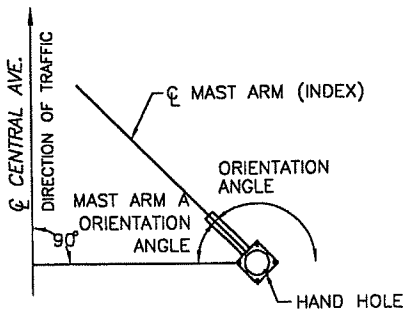
SIGNAL HEAD	#2				#4				FLASH
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	
A	G	G	Y	R	R	R	R	R	Y
B	G	G	Y	R	R	R	R	R	Y
C	G	G	Y	R	R	R	R	R	Y
D	G	G	Y	R	R	R	R	R	Y
E	R	R	R	R	G	G	Y	R	R
F	R	R	R	R	G	G	Y	R	R
X-X	DW	DW	DW	DW	FDW	DW	DW	DW	DARK
Y-Y	W	FDW	DW	DW	DW	DW	DW	DW	DARK



PHASING DIAGRAM

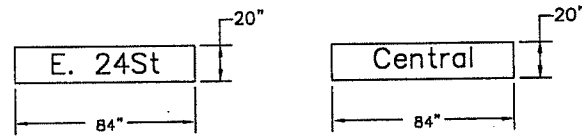


MAST ARM DETAIL



- NOTES:
1. ALL ANGLES MEASURED CLOCKWISE
 2. BASE PLATE IS ORIENTED SQUARE TO MAST ARM A.
 3. POLE STATIONING AND ORIENTATION FROM ϕ CENTRAL AVE.

ORIENTATION ANGLES



STREET NAME SIGNS

(MAST ARM MOUNTED, SEE SIGNING PLANS FOR DETAILS)

12" POLYCARBONATE

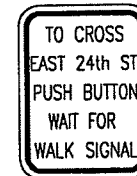


A, B, C, D, E, F

TYPE D2



X-X
Y-Y



R-73A
9x12

POLE NO.	DESIGN NO.	POLE HEIGHT (FT)	FOUNDATION				L	L1	L2	X1	ELEVATION		MAST ARM ANGLE (A)	MAST ARM ANGLE (B)	ORIENTATION ANGLES FROM MAST ARM		
			STATION	OFFSET	FT.	FT.					A	B			PEDESTRIAN SIGNALS	PEDESTRIAN PUSH BUTTONS	HANDHOLE
1	-	8	105+65	23'RT							668.89	668.89	0°	0°	270°	180°/270°	180°
2	2	21	105+65	23'LT	25	23	11	17			668.58	668.88	0°	0°	-	-	180°
3	1	21	106+08	24'RT	24	22	12	6			668.82*	668.77	90°	90°	180°	90°	180°
4	2	21	106+15	23'LT	22	20	12	6			668.46	668.96	0°	0°	270°	0°/90°	180°

* SIGNAL HEADS LOCATED OVER WALK

LOOP DETECTORS

DESIGNATION	SIZE	NO. OF TURNS	PULSE OR PRESENCE	DELAY	ASSOCIATED CONTROLLER PHASE	STATION 1ST FRONT CORNER	STATION 2ND FRONT CORNER
L-1	6x24	2	PRESENCE	7		99+91, 27' RT	99+97, 27' RT

DLZ
ENGINEERS - ARCHITECTS - SCIENTISTS
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1000 Rockefeller Bldg
614 West 26th St. Cleveland, Ohio 44113-1397

No.	REVISION	BY	DATE

CITY OF CLEVELAND
DEPARTMENT OF PUBLIC SERVICE
DIVISION OF ENGINEERING & CONSTRUCTION

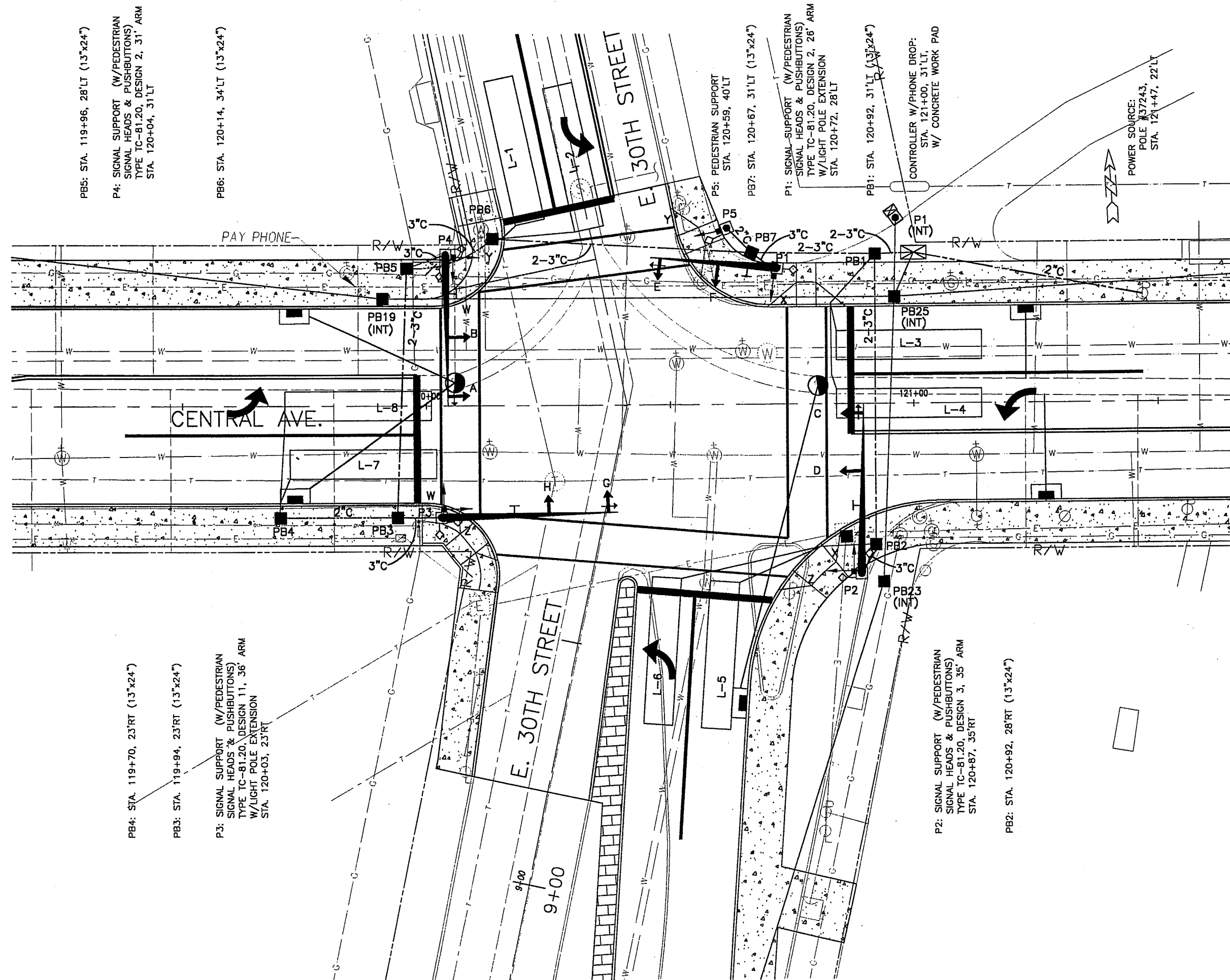
THE RECONSTRUCTION OF
CENTRAL AVENUE

TRAFFIC CONTROL DETAIL
CENTRAL AVE AND E. 24TH ST

SCALE:
VERT. N.T.S. HORIZ. N.T.S.

DRAWN VG DATE 03/04/02
CHECKED CRP DATE 05/31/02

SHEET 118 FILE No. M-892



NOTE: ALL PULL BOXES LABELLED "PB# (INT)" ARE DETAILED ON THE INTERCONNECT PLANS.



1020 Rockefeller Bldg.
614 West Superior Ave. Cleveland, Ohio 44113-1597

No.	REVISION	BY	DATE

CITY OF CLEVELAND
DEPARTMENT OF PUBLIC SERVICE
DIVISION OF ENGINEERING & CONSTRUCTION

THE RECONSTRUCTION OF

CENTRAL AVENUE

TRAFFIC CONTROL PLAN
CENTRAL AVE AND E. 30TH ST

SCALE:			
VERT.	N/A	HORIZ.	1"=10'
DRAWN	YG	DATE	03/04/02
CHECKED	CRP	DATE	05/31/02

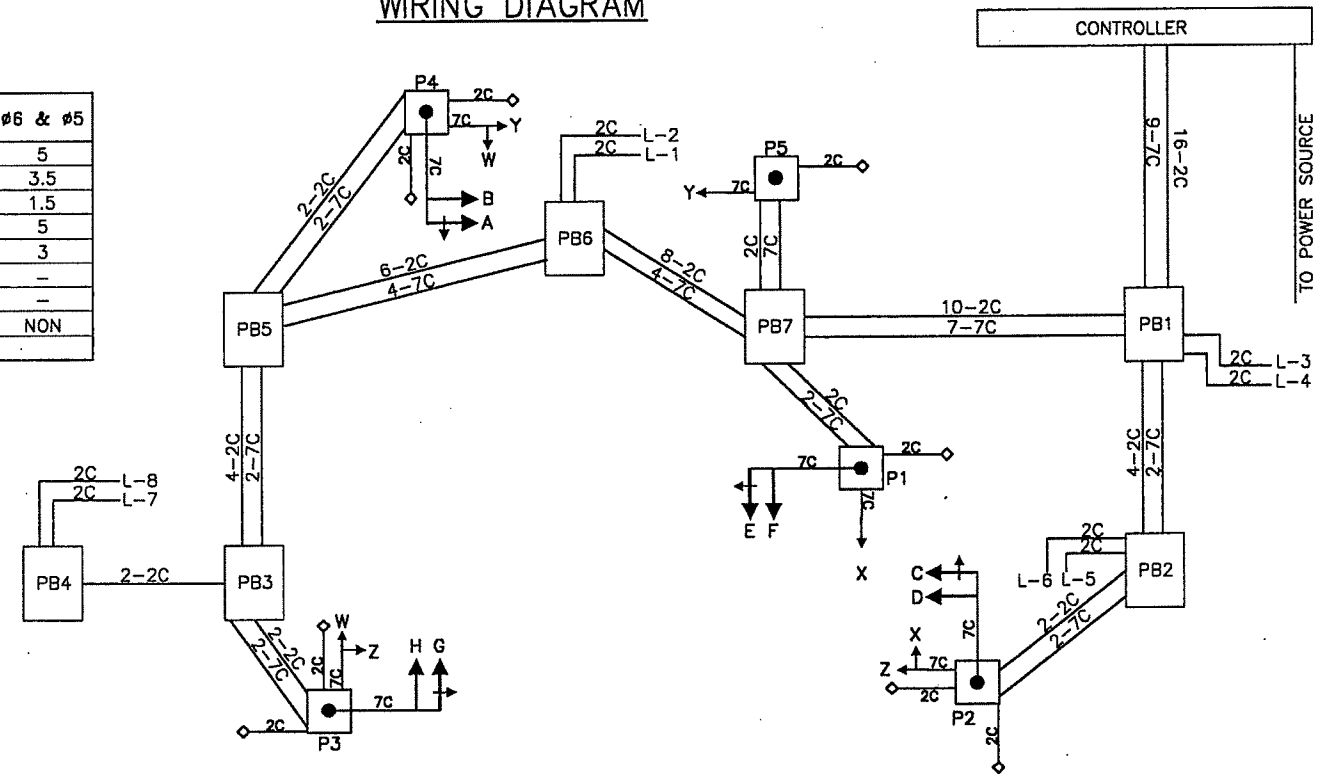
SIGNAL DISPLAY CHART

SIGNAL HEAD	#2 & #6		#3 & #7		#4 & #8		#1 & #5		FLASH
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	
A	G	Y	R	R	R	R	R	R	R
B	G	Y	R	R	R	R	R	R	R
C	G	Y	R	R	R	R	R	R	R
D	G	Y	R	R	R	R	R	R	R
E	R	R	R	R	R	R	R	R	Y
F	R	R	R	R	R	R	R	R	Y
G	R	R	R	R	R	R	R	R	Y
H	R	R	R	R	R	R	R	R	Y
W-W	DW	DW	DW	DW	DW	DW	DW	DW	DARK
X-X	DW	DW	DW	DW	DW	DW	DW	DW	DARK
Y-Y	W	FDW	DW	DW	DW	DW	DW	DW	DARK
Z-Z	W	FDW	DW	DW	DW	DW	DW	DW	DARK

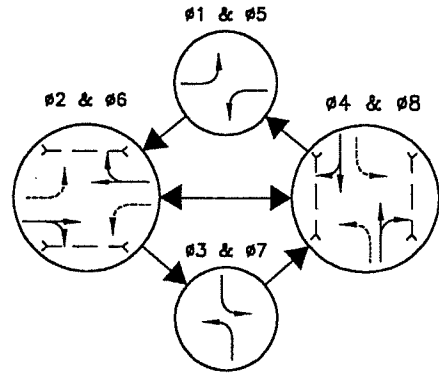
CONTROLLER TIMING CHART

INTERVAL	#2 & #6	#3 & #7	#4 & #8	#6 & #5
GREEN TIME	20	5	38	5
YELLOW TIME	4	3.5	4	3.5
ALL RED	2	1.5	2	1.5
MINIMUM INITIAL	10	5	10	5
VEHICULAR EXTENSION	3	3	3	3
WALK	7	-	7	-
FLASHING DON'T WALK	13	-	10	-
MEMORY	NON	NON	NON	NON
RECALL	OFF	-	MAX	-

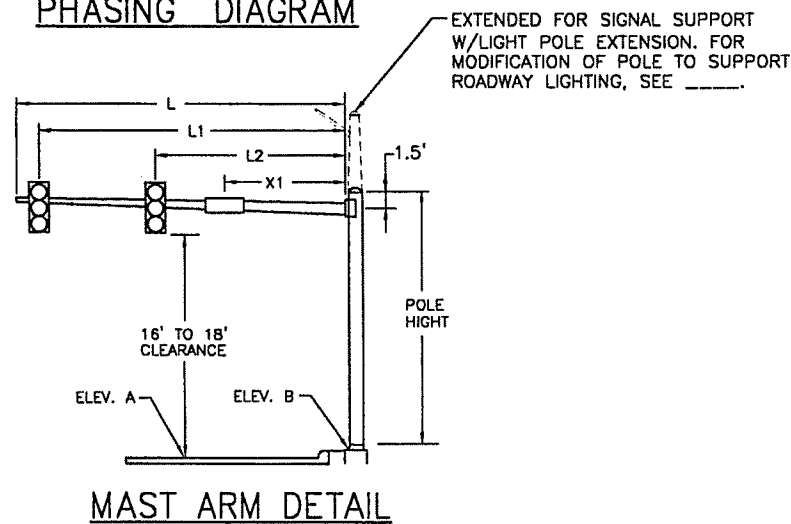
WIRING DIAGRAM



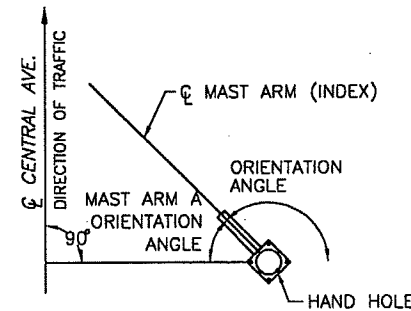
NOTE: ALL PUSHBUTTONS SHALL BE WIRED WITH 2 CONDUCTOR LOOP LEAD-IN CABLE.



PHASING DIAGRAM



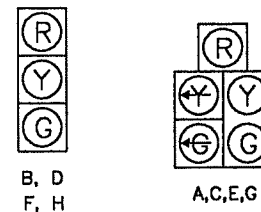
MAST ARM DETAIL



- NOTES:
1. ALL ANGLES MEASURED CLOCKWISE
 2. BASE PLATE IS ORIENTED SQUARE TO MAST ARM A.
 3. POLE STATIONING AND ORIENTATION FROM @ CENTRAL AVE.

ORIENTATION ANGLES

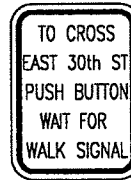
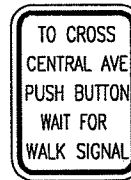
12" POLYCARBONATE



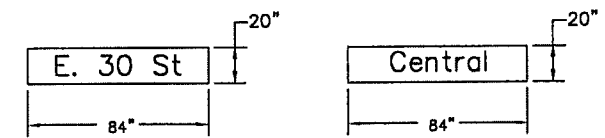
TYPE D2



W-W
X-X
Y-Y
Z-Z



R-73A
9x12



STREET NAME SIGNS

(MAST ARM MOUNTED, SEE SIGNING PLANS FOR DETAILS)

POLE NO.	DESIGN NO.	POLE HEIGHT (FT)	FOUNDATION		L	L1	L2	X1	ELEVATION		MAST ARM ANGLE (A)	MAST ARM ANGLE (B)	ORIENTATION ANGLES FROM MAST ARM			
			STATION	OFFSET					A	B			PEDESTRIAN SIGNALS	PEDESTRIAN PUSH BUTTONS	HANDHOLE	
			FT.	FT.					FT.	FT.						
1	2	21	120+72	28'LT	26	24	12	6	670.37	670.65	99°		261'	171'	180°	
2	3	21	120+87	35'RT	35	33	21	14	670.34	670.67	0°		270°	0°/270°	180°	
3	3	21	120+03	23'RT	36	34	22	15	670.17	670.38	90°		270°	180°/270°	180°	
4	2	21	120+04	31'LT	31	29	17	8	670.06	670.56	0°		270°	0°/270°	180°	
5	—	8	120+59	40'LT	—	—	—	—	—	670.95	—	—		80°	80°	

DESIGNATION	SIZE	NO. OF TURNS	PULSE OR PRESENCE	DELAY	ASSOCIATED CONTROLLER PHASE	STATION 1ST FRONT CORNER	STATION 2ND FRONT CORNER
L-1	6 x 30	2	PRESENCE	7	4	120+18. 37' LT	120+24. 38' LT
L-2	6 x 30	2	PRESENCE	0	4	120+30. 36' LT	120+36. 37' LT
L-3	6 x 30	2	PRESENCE	7	2	120+84. 15' LT	120+84. 9' LT
L-4	6 x 30	2	PRESENCE	0	2	120+84. 3' RT	120+84. 3' RT
L-5	6 x 30	2	PRESENCE	7	4	120+59. 36' RT	120+65. 37' RT
L-6	6 x 30	2	PRESENCE	0	4	120+47. 35' RT	120+53. 35' RT
L-7	6 x 30	2	PRESENCE	7	2	120+02. 9' RT	120+02. 15' RT
L-8	6 x 30	2	PRESENCE	0	2	120+01. 3' LT	120+01. 3' RT

DLZ
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PLANNERS - SURVEYORS
1000 Rockefeller Bldg
614 West Superior Ave. Cleveland, Ohio 44113-1327

No.	REVISION	BY	DATE

CITY OF CLEVELAND
DEPARTMENT OF PUBLIC SERVICE
DIVISION OF ENGINEERING & CONSTRUCTION

THE RECONSTRUCTION OF
CENTRAL AVENUE

TRAFFIC CONTROL DETAIL
CENTRAL AVE AND E. 30TH ST

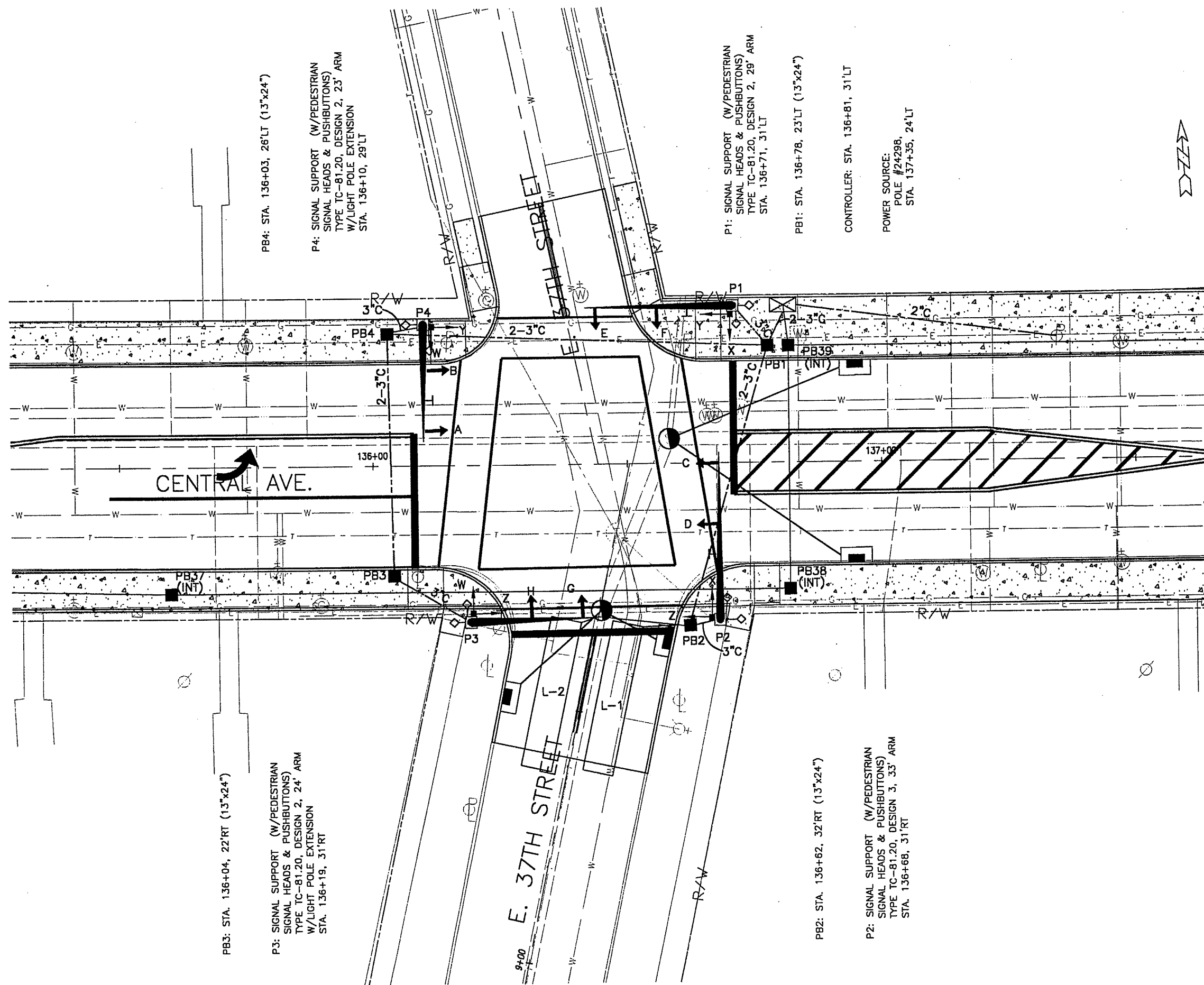
SCALE:
VERT. _____ N.T.S. _____ HORIZ. _____ N.T.S. _____

DRAWN _____ VG _____ DATE 03/03/02
CHECKED _____ CRP _____ DATE 03/03/02

SHEET 120 FILE No. M-892

[G:\PROJECTS\01221005\CIVIL\SIGNALS\1005SE_DET033.DWG - APR 02, 2002 - 13:34:26 - PLOT: 1=1

[\\vgj\j\PROJECTS\01221005\CIVIL\SIGNALS\1005SG_DET04.DWG - MAR 19, 2002 - 14:23:16 - PLOT: 1=1



PB4: STA. 136+03, 26'LT (13'x24")
 P4: SIGNAL SUPPORT (W/PEDESTRIAN
 SIGNAL HEADS & PUSHBUTTONS)
 TYPE TC-81.20, DESIGN 2, 23' ARM
 W/LIGHT POLE EXTENSION
 STA. 136+10, 29'LT

P1: SIGNAL SUPPORT (W/PEDESTRIAN
 SIGNAL HEADS & PUSHBUTTONS)
 TYPE TC-81.20, DESIGN 2, 29' ARM
 STA. 136+71, 31'LT
 PB1: STA. 136+78, 23'LT (13'x24")
 CONTROLLER: STA. 136+81, 31'LT
 POWER SOURCE:
 POLE #24298,
 STA. 137+35, 24'LT

PB3: STA. 136+04, 22'RT (13'x24")
 P3: SIGNAL SUPPORT (W/PEDESTRIAN
 SIGNAL HEADS & PUSHBUTTONS)
 TYPE TC-81.20, DESIGN 2, 24' ARM
 W/LIGHT POLE EXTENSION
 STA. 136+19, 31'RT

PB2: STA. 136+62, 32'RT (13'x24")
 P2: SIGNAL SUPPORT (W/PEDESTRIAN
 SIGNAL HEADS & PUSHBUTTONS)
 TYPE TC-81.20, DESIGN 3, 33' ARM
 STA. 136+68, 31'RT

NOTE: ALL PULL BOXES LABELLED
 "PB# (INT)" ARE DETAILED
 ON THE INTERCONNECT PLANS.



No.	REVISION	BY	DATE

CITY OF CLEVELAND
 DEPARTMENT OF PUBLIC SERVICE
 DIVISION OF ENGINEERING & CONSTRUCTION

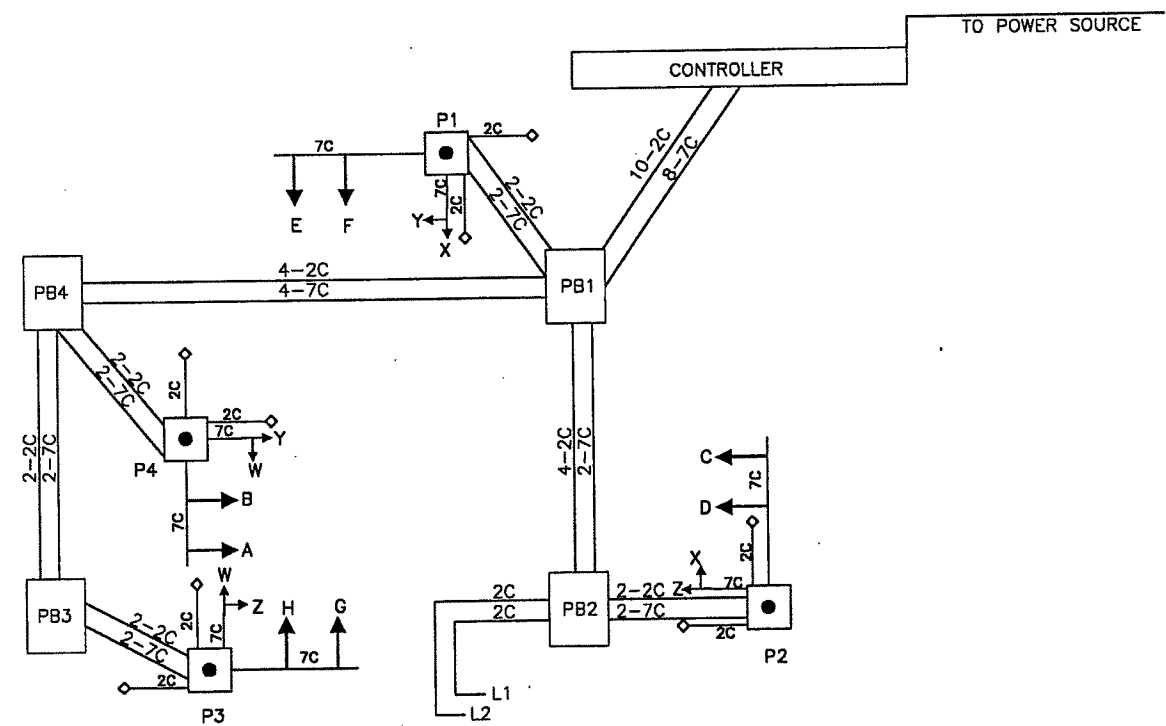
THE RECONSTRUCTION OF
 CENTRAL AVENUE

TRAFFIC CONTROL PLAN
 CENTRAL AVE AND E. 37TH ST

SCALE:
 VERT. _____ HORIZ. 1"=10'

DRAWN	VG	DATE	03/04/02
CHECKED	CRP	DATE	03/04/02
SHEET	121	FILE No.	M-892

WIRING DIAGRAM



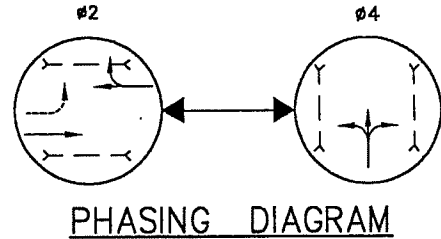
NOTE: ALL PUSHBUTTONS SHALL BE WIRED WITH 2 CONDUCTOR LOOP LEAD-IN CABLE.

SIGNAL DISPLAY CHART

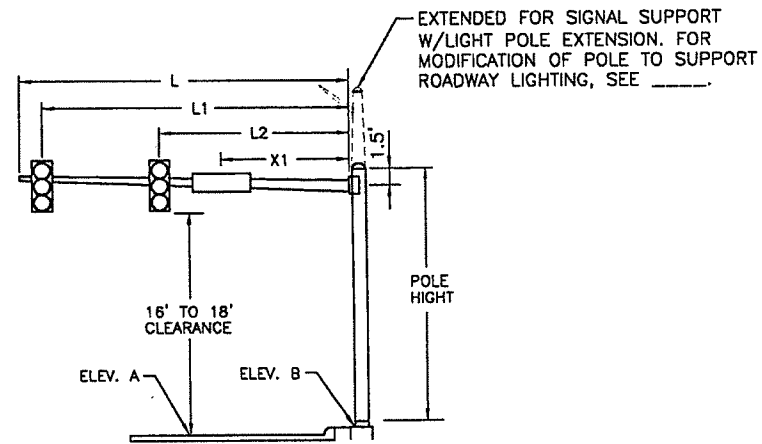
SIGNAL HEAD	ø2				ø4				FLASH
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	
A	G	G	Y	R	R	R	R	R	Y
B	G	G	Y	R	R	R	R	R	Y
C	G	G	Y	R	R	R	R	R	Y
D	G	G	Y	R	R	R	R	R	Y
E	R	R	R	R	G	G	Y	R	R
F	R	R	R	R	G	G	Y	R	R
G	R	R	R	R	G	G	Y	R	R
H	R	R	R	R	G	G	Y	R	R
W-W	DW	DW	DW	DW	W	FDW	DW	DW	DARK
X-X	DW	DW	DW	DW	W	FDW	DW	DW	DARK
Y-Y	W	FDW	DW	DW	DW	DW	DW	DW	DARK
Z-Z	W	FDW	DW	DW	DW	DW	DW	DW	DARK

CONTROLLER TIMING CHART

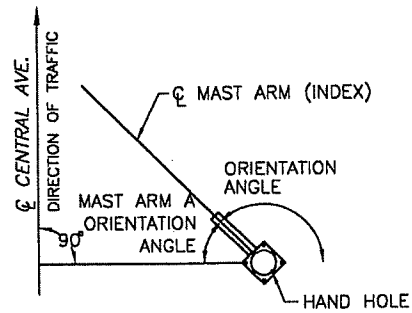
INTERVAL	ø2	ø4
GREEN TIME	23	25
YELLOW TIME	4	4
ALL RED	2	2
MINIMUM INITIAL	10	10
VEHICULAR EXTENSION	3	3
WALK	7	7
FLASHING DON'T WALK	7	8
MEMORY	NON	NON
RECALL	MAX	OFF



PHASING DIAGRAM



MAST ARM DETAIL



- NOTES:**
1. ALL ANGLES MEASURED CLOCKWISE
 2. BASE PLATE IS ORIENTED SQUARE TO MAST ARM A.
 3. POLE STATIONING AND ORIENTATION FROM ϕ CENTRAL AVE.

ORIENTATION ANGLES

12" POLYCARBONATE

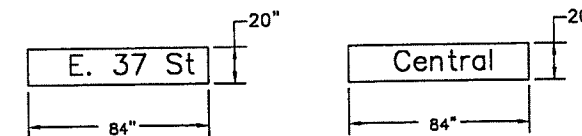


A, B, C, D,
E, F, G, H

TYPE D2

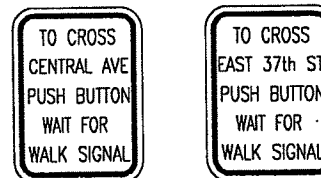


W-W
X-X
Y-Y
Z-Z



STREET NAME SIGNS

(MAST ARM MOUNTED, SEE SIGNING PLANS FOR DETAILS)



R-73A
9x12

SIGNAL SUPPORT

POLE NO.	DESIGN NO.	POLE HEIGHT (FT)	FOUNDATION				ELEVATION		MAST ARM ANGLE (A)	MAST ARM ANGLE (B)	ORIENTATION ANGLES FROM MAST ARM				
			STATION	OFFSET	L	X1	A	B			PEDESTRIAN SIGNALS	PEDESTRIAN PUSH BUTTONS	HANDHOLE		
														FT.	FT.
1	2	19	136+71	31'LT	29	27	15	9	671.90	672.47	90°		270°	180°/270°	180°
2	3	21	136+68	31'RT	33	31	19	13	671.82	672.21	0°		270°	0°/90°	180°
3	2	21	136+19	31'RT	24	22	12	6	671.75	672.07	90°		270°	180°/270°	180°
4	2	19	136+10	23'LT	23	21	10	15	671.80	672.70	0°		270°	180°/270°	180°

LOOP DETECTORS

DESIGNATION	SIZE	NO. OF TURNS	PULSE OR PRESENCE	DELAY	ASSOCIATED CONTROLLER PHASE	STATION 1ST FRONT CORNER	STATION 2ND FRONT CORNER
L-1	6x30	2	PRESENCE	7	4	136+47, 31'RT	136+53, 33'RT
L-2	6x30	2	PRESENCE	0	4	136+36, 30'RT	136+41, 31'RT



No.	REVISION	BY	DATE

CITY OF CLEVELAND
DEPARTMENT OF PUBLIC SERVICE
DIVISION OF ENGINEERING & CONSTRUCTION

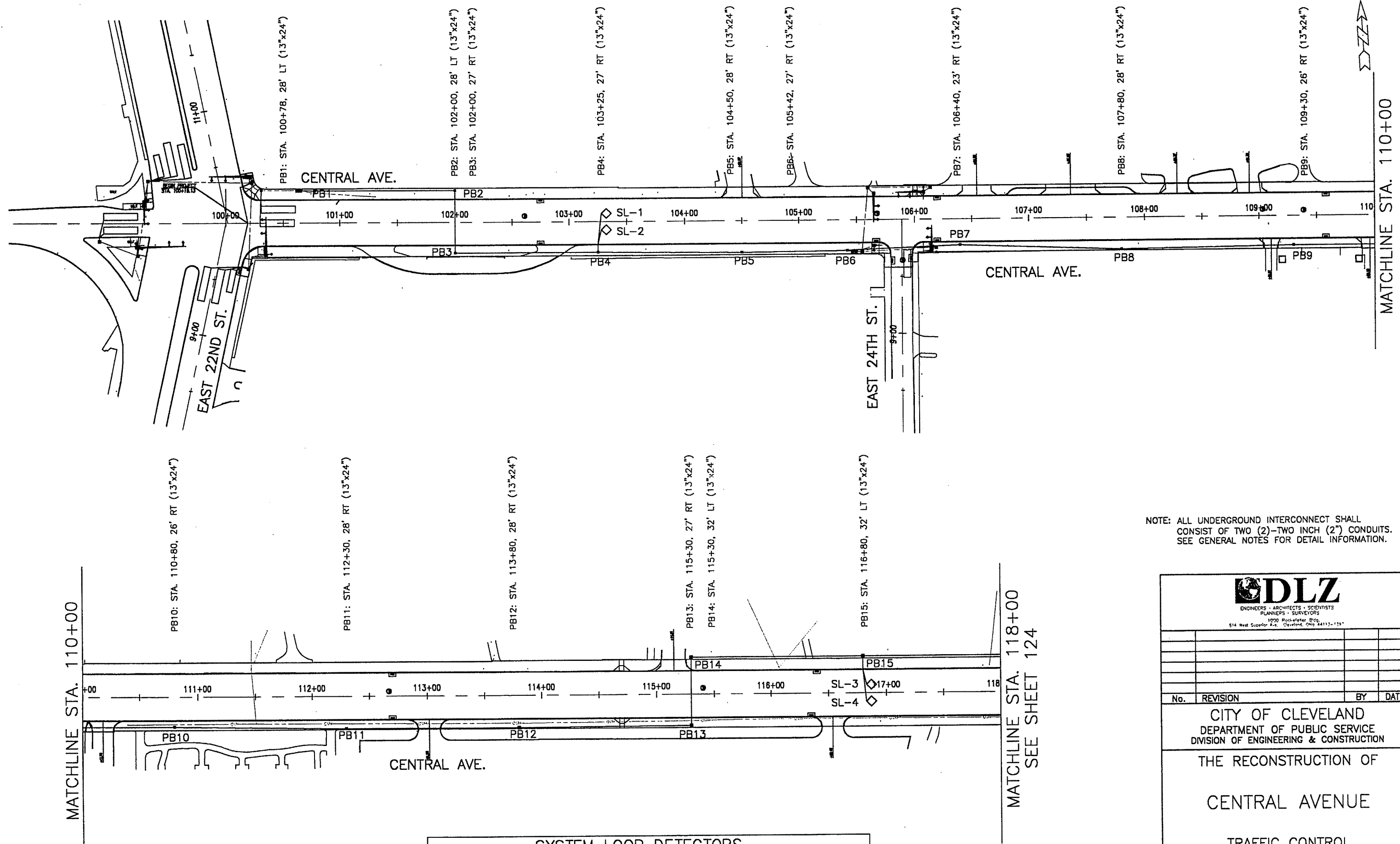
THE RECONSTRUCTION OF
CENTRAL AVENUE

TRAFFIC CONTROL DETAIL
CENTRAL AVE AND E. 37TH ST


SCALE:
VERT. N.T.S. HORIZ. N.T.S.

DRAWN VG DATE 03/04/02
CHECKED CRP DATE 03/04/02

SHEET 122 FILE No. M-892



NOTE: ALL UNDERGROUND INTERCONNECT SHALL CONSIST OF TWO (2)-TWO INCH (2") CONDUITS. SEE GENERAL NOTES FOR DETAIL INFORMATION.



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1000 Rockefeller Bldg.
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No.	REVISION	BY	DATE

CITY OF CLEVELAND
DEPARTMENT OF PUBLIC SERVICE
DIVISION OF ENGINEERING & CONSTRUCTION

THE RECONSTRUCTION OF

CENTRAL AVENUE

TRAFFIC CONTROL
INTERCONNECT PLAN

SCALE:
VERT. N/A HORIZ. 1"=40'

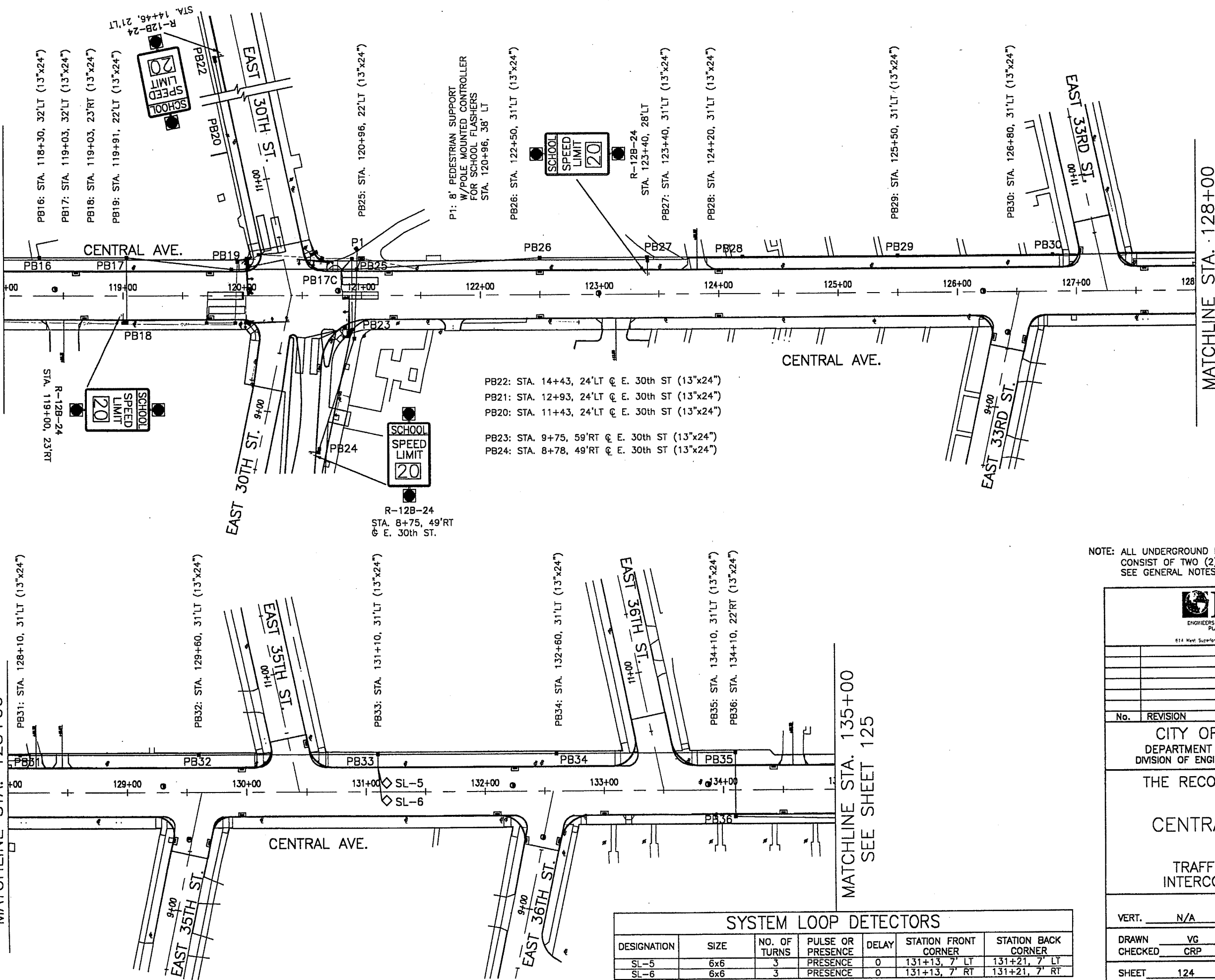
DRAWN VG DATE 03/04/02
CHECKED CRP DATE 03/04/02

SYSTEM LOOP DETECTORS						
DESIGNATION	SIZE	NO. OF TURNS	PULSE OR PRESENCE	DELAY	STATION FRONT CORNER	STATION BACK CORNER
SL-1	6x6	3	PRESENCE	0	103+28, 7' LT	103+36, 7' LT
SL-2	6x6	3	PRESENCE	0	103+28, 7' RT	103+36, 7' RT
SL-3	6x6	3	PRESENCE	0	116+83, 7' LT	116+91, 7' LT
SL-4	6x6	3	PRESENCE	0	116+83, 7' RT	116+91, 7' RT

MATCHLINE STA. 118+00
SEE SHEET 124

MATCHLINE STA. 118+00
SEE SHEET 123

MATCHLINE STA. 128+00



NOTE: ALL UNDERGROUND INTERCONNECT SHALL CONSIST OF TWO (2)-TWO INCH (2") CONDUITS. SEE GENERAL NOTES FOR DETAIL INFORMATION.

GDZ
ENGINEERS - ARCHITECTS - SCIENTISTS
PLANNERS - SURVEYORS
1000 Rockefeller Bldg
614 West Superior Ave. Cleveland, OH 44113-1397

No.	REVISION	BY	DATE

CITY OF CLEVELAND
DEPARTMENT OF PUBLIC SERVICE
DIVISION OF ENGINEERING & CONSTRUCTION

THE RECONSTRUCTION OF
CENTRAL AVENUE
TRAFFIC CONTROL
INTERCONNECT PLAN

SCALE:
VERT. N/A HORIZ. 1"=40'

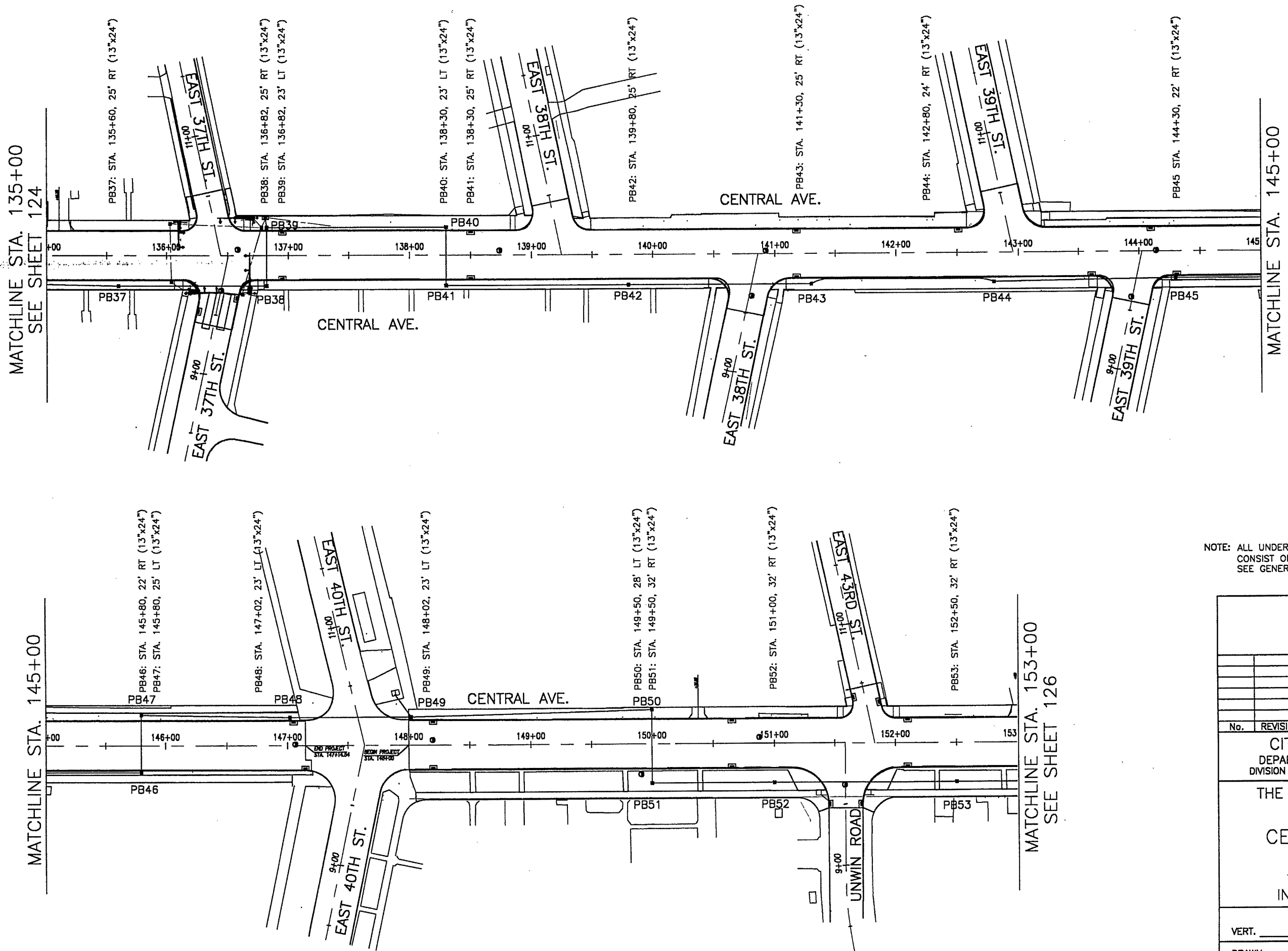
DRAWN VG DATE 03/04/02
CHECKED CRP DATE 03/04/02

SHEET 124 FILE No. M-892


SYSTEM LOOP DETECTORS

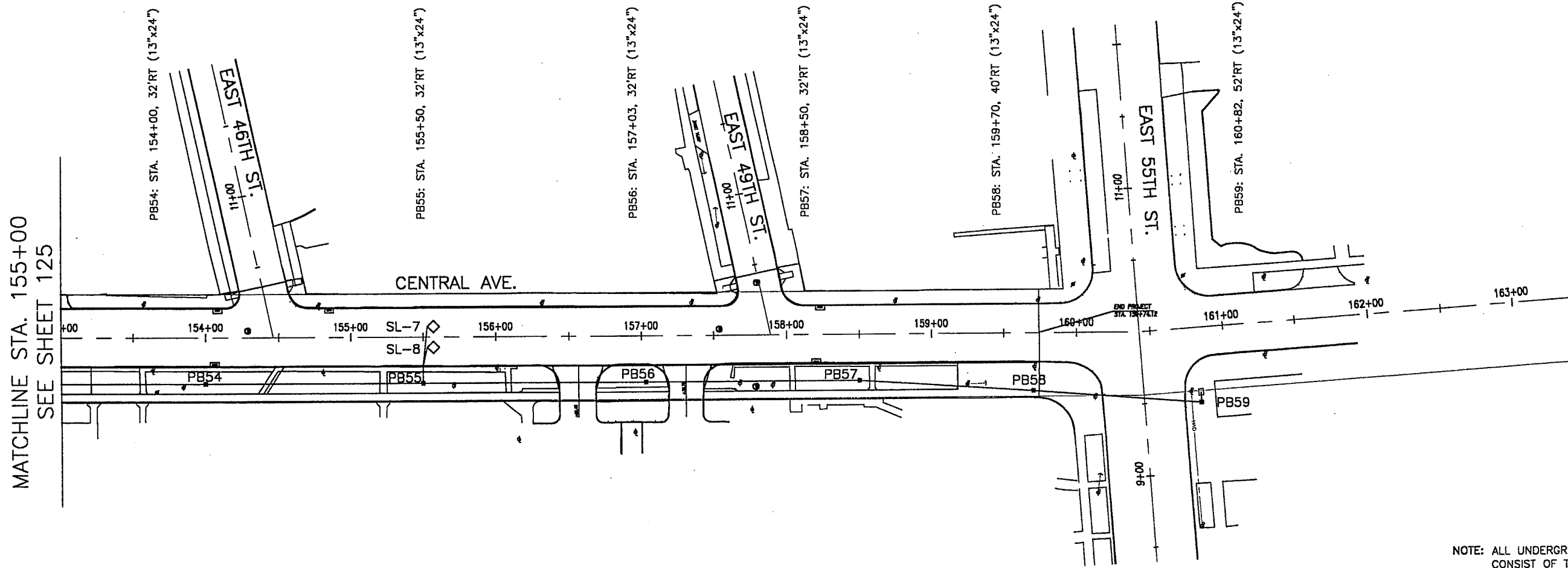
DESIGNATION	SIZE	NO. OF TURNS	PULSE OR PRESENCE	DELAY	STATION FRONT CORNER	STATION BACK CORNER
SL-5	6x6	3	PRESENCE	0	131+13, 7' LT	131+21, 7' LT
SL-6	6x6	3	PRESENCE	0	131+13, 7' RT	131+21, 7' RT





NOTE: ALL UNDERGROUND INTERCONNECT SHALL CONSIST OF TWO (2)-TWO INCH (2") CONDUITS. SEE GENERAL NOTES FOR DETAIL INFORMATION.


 DLZ <small>ENGINEERS - ARCHITECTS - SCIENTISTS PLANNERS - SUPERVISORS 1800 Rockefeller Blvd. 614 West Superior Ave., Cleveland, Ohio 44113-1397</small>			
No.	REVISION	BY	DATE
CITY OF CLEVELAND DEPARTMENT OF PUBLIC SERVICE DIVISION OF ENGINEERING & CONSTRUCTION			
THE RECONSTRUCTION OF CENTRAL AVENUE TRAFFIC CONTROL INTERCONNECT PLAN			
SCALE:			
VERT.	N/A	HORIZ.	1"=40'
DRAWN	VG	DATE	03/04/02
CHECKED	CRP	DATE	03/04/02
SHEET	125	FILE No.	M-892



MATCHLINE STA. 155+00
SEE SHEET 125

SYSTEM LOOP DETECTORS						
DESIGNATION	SIZE	NO. OF TURNS	PULSE OR PRESENCE	DELAY	STATION FRONT CORNER	STATION BACK CORNER
SL-7	6x6	3	PRESENCE	0	155+53, 7' LT	155+61, 7' LT
SL-8	6x6	3	PRESENCE	0	155+53, 7' RT	155+61, 7' RT

NOTE: ALL UNDERGROUND INTERCONNECT SHALL CONSIST OF TWO (2)-TWO INCH (2") CONDUITS. SEE GENERAL NOTES FOR DETAIL INFORMATION.



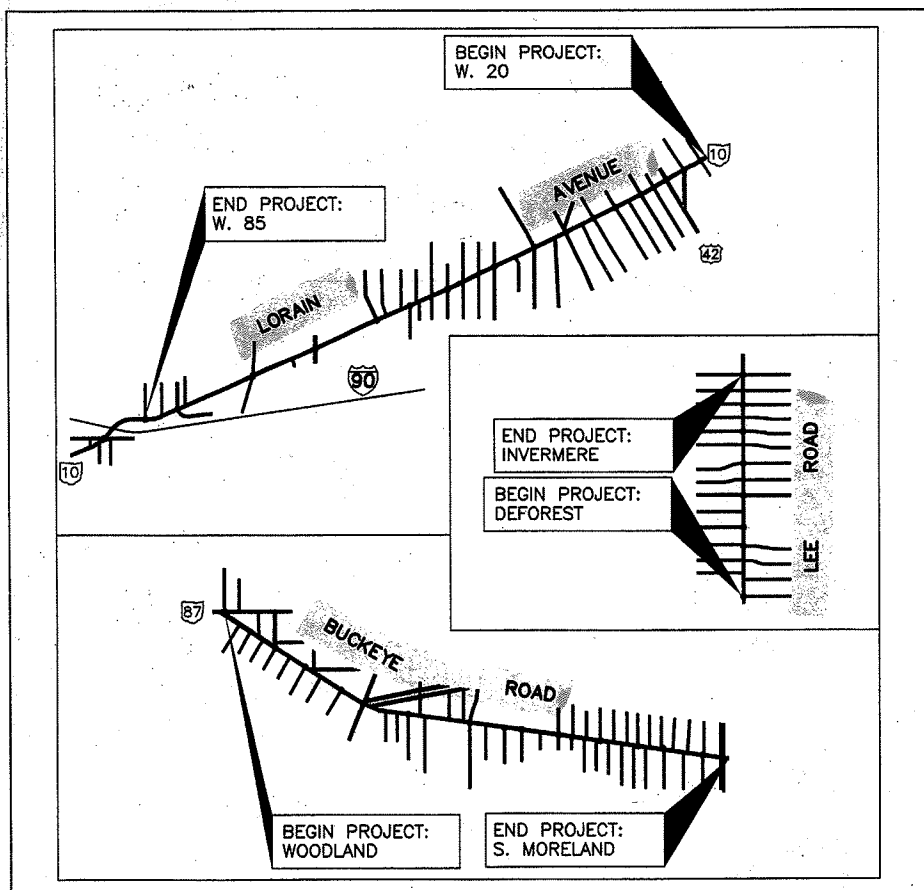
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1000 Rockefeller Bldg.
514 West Superior Ave., Cleveland, Ohio 44113-1327

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CITY OF CLEVELAND DEPARTMENT OF PUBLIC SERVICE DIVISION OF ENGINEERING & CONSTRUCTION			
THE RECONSTRUCTION OF CENTRAL AVENUE TRAFFIC CONTROL INTERCONNECT PLAN			
SCALE:			
VERT.	N/A	HORIZ.	1"=40'
DRAWN	VG	DATE	03/04/02
CHECKED	CRP	DATE	03/04/02
SHEET	126	FILE No.	M-802

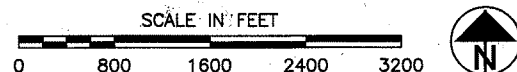
STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

CUY-10-8.96 & VARIOUS

CITY OF CLEVELAND
CUYAHOGA COUNTY



LOCATION MAP



LEGEND

- INTERSTATE ROUTE
- FEDERAL ROUTE
- STATE ROUTE

UNDERGROUND UTILITIES

TWO WORKING DAYS
BEFORE YOU DIG
Call 1-800-362-2764 (Toll Free)
OHIO UTILITIES PROTECTION SERVICE
NON-MEMBERS
MUST BE CALLED DIRECTLY

Plans Prepared By:

Pennoni Associates of Ohio
633 Huntington Building
925 Euclid Avenue
Cleveland, Ohio



INDEX OF SHEETS

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LORAIN AVENUE INTERCONNECT	62-64
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BUCKEYE ROAD POLE CHART	66
LORAIN AVENUE POLE CHART	67
SHEETS NOT USED	57

PROJECT INTERSECTIONS

Lee Road	Buckeye Road	Lorain Avenue
- Deforest Avenue	Woodland Avenue/84	W. 20 Street
Judson Drive	Grand Avenue	W. 24 Street
Westview Avenue	89 Street	W. 25 Street
Harvard Avenue	90 Street	W. 28 Street
Stockbridge Avenue	93 Street	W. 30 Street
Glendale Avenue	Steinway Blvd.	W. 32 Street
Walden Avenue	Ambler Avenue	Fulton Parkway
Invermere Avenue	Woodhill Rd./Shaker Blvd.	W. 41 Street
	E. 102 Street	W. 44 Street
	M.L.K. Blvd.	W. 48 Street
	114 St.	W. 53 Street
	116 St.	W. 58 Street
	119 St.	W. 65 Street
	123 St.	W. 73 Street
	126 St.	W. 81/-90
	130 St.	W. 85 Street
	S. Moreland Blvd.	

PROJECT DESCRIPTION:

THIS PROJECT SHALL CONSIST OF THE CONSTRUCTION OF REPLACEMENT TRAFFIC SIGNAL INSTALLATIONS AND PROVISION OF CLOSED LOOP SIGNAL SYSTEMS ALONG LEE ROAD, BUCKEYE ROAD AND LORAIN AVENUE IN THE CITY OF CLEVELAND.

1997 SPECIFICATIONS

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

I HEREBY APPROVE THESE PLANS AND DECLARE THAT THE MAKING OF THIS IMPROVEMENT WILL NOT REQUIRE THE CLOSING OF THE ROADWAY TO TRAFFIC AND THAT PROVISIONS FOR THE MAINTENANCE AND SAFETY OF TRAFFIC WILL BE AS SET FORTH ON THE PLANS AND ESTIMATES.

APPROVED DATE 2/17/00 DISTRICT DEPUTY DIRECTOR

APPROVED _____ DATE _____ DIRECTOR, DEPARTMENT OF TRANSPORTATION

SUPPLEMENTAL PRINTS OF STANDARD CONSTRUCTION DRAWINGS						SUPPLEMENTAL SPECIFICATIONS			
TC-16.20M	2-01-94	TC-81.10M	12-10-96	MT-95.31M	4-25-94	HL-10.11M	5-01-95	806	9-09-97
TC-17.10M	2-01-94	TC-81.20M	11-24-93	MT-95.32M	4-25-94	HL-10.12M	5-01-95	908	1-06-99
TC-21.20M	12-10-96	TC-82.10	1-19-99	MT-97.10M	4-25-94	HL-30.11M	3-31-95	906	5-05-98
		TC-82.11	1-19-99	MT-105.10M	4-25-94	HL-30.22M	3-31-95	830	10-21-98
TC-41.20M	7-01-94	TC-83.20M	11-24-93	MT-105.11M	4-25-94			842	1-06-99
TC-41.40M	3-31-94	TC-84.20M	11-24-93					899	10-21-98
TC-41.41M	3-31-94	TC-85.10M	11-24-93					863	10-12-99
TC-41.50M	7-01-94	TC-85.20M	11-24-93						
TC-42.20M	3-31-94	TC-41.10M	3-31-94						
TC-52.10M	7-29-94	TC-22.10M	3-13-97						
TC-52.20M	7-29-94								
TC-71.10M	9-01-93								

FEDERAL PROJECT NO.
TE21-G000(215)

PID NO.
14689

CONSTRUCTION PROJECT NO.

RAILROAD INVOLVEMENT
NONE

CUYAHOGA COUNTY
CUY-10-8.96 & VARIOUS

GENERAL NOTES

SCOPE

THE WORK TO BE PERFORMED BY THE CONTRACTOR SHALL CONSIST OF FURNISHING LABOR, SUPPLIES, EQUIPMENT, MATERIALS AND PERFORMING ALL OPERATIONS NECESSARY FOR THE ACCEPTABLE INSTALLATION OF THE TRAFFIC SIGNAL CONTROL DEVICES, IN STRICT ACCORDANCE WITH THESE PLANS, NOTES AND SPECIFICATIONS. THESE NOTES, SCHEDULES AND DRAWINGS ARE INTENDED TO PROVIDE FOR ALL MATERIAL AND LABOR REQUIRED TO FURNISH AND INSTALL A COMPLETE TRAFFIC CONTROL SYSTEM AT 34 INTERSECTIONS, AND A COMPLETE AND OPERATIONAL CLOSED LOOP SIGNAL SYSTEM. THE WORK TO BE PERFORMED SHALL ALSO INCLUDE REMOVING EXISTING SIGNAL INSTALLATIONS AT 5 INTERSECTIONS AND PROVIDING STOP SIGN CONTROL.

CONVERSION OF METRIC STANDARD DRAWINGS

THE METRIC STANDARD DRAWINGS REFERENCED IN THIS PLAN SHALL BE CONVERTED TO ENGLISH UNITS USING THE SI (METRIC) TO ENGLISH CONVERSION FACTORS PROVIDED IN SECTION 109.011 OF THE 1997 CONSTRUCTION AND MATERIALS SPECIFICATIONS. THE APPENDIX OF ASTM E 380 SHALL BE UTILIZED FOR ANY ADDITIONAL CONVERSION FACTORS REQUIRED. CONVERSIONS SHALL BE APPROXIMATELY PRECISE AND SHALL REFLECT REFLECT STANDARD INDUSTRY ENGLISH VALUES WHERE SUITABLE.

UTILITY OWNERSHIP

THE FOLLOWING UTILITIES AND OWNERS ARE LOCATED WITHIN THE LIMITS OF THIS PROJECT:

AMERITECH
13630 LORAIN AVENUE
CLEVELAND, OHIO 44111
(216) 476-6142
SHELLEY ARMSTRONG

EAST OHIO GAS COMPANY
1201 E. 55TH STREET
CLEVELAND, OHIO 44103
(216) 736-6675
SAM MERCURIO

THE ILLUMINATING COMPANY
4141 ROCK SIDE ROAD
SEVIN HILLS, OHIO 44131
(216) 520-9579
FRANK DIBBS

CITY OF CLEVELAND WATER DEPARTMENT
1201 LAKESIDE AVENUE
CLEVELAND, OHIO 44114
(216) 664-2444
DONALD TREBAR

GREATER CLEVELAND REGIONAL
TRANSIT AUTHORITY
615 SUPERIOR AVENUE
CLEVELAND, OHIO 44113
(216) 566-5100

CITY OF CLEVELAND
DIVISION OF TRAFFIC ENGINEERING
4150 EAST 49TH STREET
CLEVELAND, OHIO 44105
(216) 664-3194
ANTHONY TOTH

CLEVELAND PUBLIC POWER
CITY OF CLEVELAND
DIVISION OF UTILITIES
1300 LAKESIDE AVENUE
CLEVELAND, OHIO 44114
(216) 664-4245, EXT. 115
DALE TURKOVICH

NORTHCOAST CABLE LTD.
3300 LAKESIDE AVENUE
CLEVELAND, OHIO 44114
(216) 575-8016

CITY OF CLEVELAND
SIGNAL SAFETY SYSTEM
310 CARNEGIE AVENUE
CLEVELAND, OHIO 44115
(216) 664-3247
TOM SEGAL

NEORS
3826 EUCLID AVENUE
CLEVELAND, OHIO 44115
(216) 881-6600
RICHARD SWITALSKI

CITY OF CLEVELAND, DIVISION
OF WATER POLLUTION CONTROL
12302 KIRBY AVENUE
CLEVELAND, OHIO 44108
(216) 664-2786
RACHID ZOGHAIB

OVERHEAD UTILITIES

THE LOCATIONS OF OVERHEAD UTILITIES DEPICTED ON THE PLANS WERE OBTAINED FROM FIELD OBSERVATION AND SHALL BE CONFIRMED BY THE CONTRACTOR. THE CONTRACTOR SHALL CONTACT ALL UTILITY COMPANIES WITH OVERHEAD FACILITIES AT LEAST TWO (2) WEEKS PRIOR TO CONSTRUCTION AT EACH LOCATION TO RESOLVE POTENTIAL CONFLICTS BETWEEN EXISTING OVERHEAD FACILITIES AND PROPOSED SIGNAL EQUIPMENT.

THE CONTRACTOR SHALL REMOVE ABANDONED OVERHEAD SIGNAL AND INTERCONNECT WIRES AS DIRECTED BY THE ENGINEER WITH NO ADDITIONAL COMPENSATION.

UNDERGROUND UTILITIES

THE LOCATIONS OF THE UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE AS OBTAINED FROM THE OWNERS OF THE UTILITY AS REQUIRED BY SECTION 153.64 OF THE OHIO REVISED CODE AND REPRESENT THE BEST EFFORTS OF THE CONSULTANT TO IDENTIFY KNOWN UTILITIES AND APPURTENANCES. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING UTILITY LOCATIONS IN THE FIELD WITH THE UTILITY COMPANIES PRIOR TO STARTING ANY WORK. IN THE EVENT THAT UNFORESEEN CONDITIONS PREVENT THE CONTRACTOR FROM CONSTRUCTING A SECTION OF THE PROJECT AT A GIVEN LOCATION IN ACCORDANCE WITH THE PLANS, THE CONTRACTOR OR ENGINEER SHALL CONTACT THE CITY FOR THE PURPOSE OF DETERMINING AN ACCEPTABLE ALTERNATIVE TO PERMIT CONSTRUCTION.

THE CONTRACTOR SHALL REMOVE ABANDONED UNDERGROUND UTILITIES AS DIRECTED BY THE ENGINEER WITH NO ADDITIONAL COMPENSATION.

COOPERATION BETWEEN CONTRACTORS

THE CONTRACTOR FOR THIS CONTRACT SHALL COORDINATE HIS WORK WITH SUCH OTHER CONTRACTORS AS MAY BE WORKING IN THE IMMEDIATE AREAS OF ALL INTERSECTIONS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR FOR THIS CONTRACT TO COORDINATE HIS WORK SO AS NOT TO INTERFERE WITH EXISTING CONSTRUCTION PROJECTS AND MAKE SURE HIS TRAFFIC CONTROL IS COMPATIBLE WITH THE TRAFFIC CONTROL OF THESE PROJECTS. THE ENGINEER SHALL APPROVE ANY PROPOSED SOLUTIONS TO CONFLICTS BETWEEN VARIOUS TRAFFIC CONTROL SETUPS.

RESTORATION OF DISTURBED AREAS

THE CONTRACTOR SHALL RESTORE ALL DISTURBED LANDSCAPED AREAS, PAVEMENT SURFACES, SIDEWALKS AND DRIVEWAYS TO A CONDITION EQUAL TO OR BETTER THAN THAT EXISTING BEFORE THE WORK WAS STARTED. ALL RESTORATION SHALL BE PERFORMED WITH MATERIALS IDENTICAL TO THE EXISTING SURFACE INCLUDING BUT NOT LIMITED TO BITUMINOUS AND CONCRETE PAVEMENT, CONCRETE AND BRICK SIDEWALK, INTEGRAL CURB AND SPECIAL SURFACES (COLORED, TEXTURED) AS ENCOUNTERED. CONCRETE SIDEWALK AND DRIVEWAYS SHALL NOT BE PATCHED, BUT SHALL BE REPLACED IN ENTIRE SLAB SECTIONS TO THE NEAREST ADJACENT JOINTS UNLESS THE SECTION IS ALREADY PATCHED.

ALL RESTORATION WORK SHALL BE DONE IN ACCORDANCE WITH THE PERTINENT SPECIFICATION ITEMS AND AS DIRECTED BY THE ENGINEER. PAYMENT FOR ALL RESTORATION WORK, INCLUDING MATERIALS, EQUIPMENT, LABOR, INCIDENTALS AND DISPOSAL OF ALL SURPLUS MATERIALS SHALL BE INCLUDED IN THE VARIOUS ITEMS OF UNDERGROUND WORK AND, THEREFORE, NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK.

GUARANTEE

THE CONTRACTOR SHALL GUARANTEE THAT THE TRAFFIC CONTROL SYSTEMS INSTALLED IN THIS CONTRACT SHALL OPERATE SATISFACTORILY FOR A PERIOD OF 180 DAYS FOLLOWING COMPLETION OF THE 10-DAY PERFORMANCE TEST. IN THE EVENT OF UNSATISFACTORY OPERATION AT ANY INTERSECTION OR IN THE CLOSED LOOP SIGNAL SYSTEM, THE CONTRACTOR SHALL CORRECT THE FAULTY INSTALLATION OR OPERATION, MAKE REPAIRS AND REPLACE DEFECTIVE PARTS WITH NEW PARTS OF EQUAL OR BETTER QUALITY. EQUIPMENT, MATERIAL AND LABOR COSTS INCURRED IN CORRECTING AN UNSATISFACTORY OPERATION SHALL BE BORNE BY THE CONTRACTOR.

THE GUARANTEE SHALL COVER THE FOLLOWING ITEMS OF THE TRAFFIC CONTROL SYSTEM: CONTROLLERS AND ASSOCIATED EQUIPMENT, DETECTOR UNITS, PAVEMENT LOOPS, SIGNAL HEADS, INTERCONNECTION ITEMS AND MASTER CONTROL EQUIPMENT INCLUDING ALL CENTRAL OFFICE MONITORING EQUIPMENT AND SOFTWARE.

CUSTOMARY MANUFACTURER'S GUARANTEES FOR THE FOREGOING ITEMS SHALL BE TURNED OVER TO THE CITY OF CLEVELAND.

THE COST OF GUARANTEEING THE TRAFFIC CONTROL SYSTEMS WILL BE INCIDENTAL TO AND INCLUDED IN THE CONTRACT UNIT PRICE BID FOR THE VARIOUS ITEMS IN THE SYSTEMS.

SHOP DRAWING SUBMITTAL

SHOP DRAWING SUBMITTAL SHALL BE IN ACCORDANCE WITH OHIO DEPARTMENT OF TRANSPORTATION (ODOT) PROCEDURES. IN ADDITION, THREE SETS SHALL BE SUBMITTED TO THE CITY OF CLEVELAND, DIVISION OF TRAFFIC ENGINEERING AND PARKING (CITY), FOR REVIEW.

TRAFFIC SIGNAL REMOVAL

THE TRAFFIC SIGNAL INSTALLATIONS AT THE FOLLOWING INTERSECTIONS ARE TO BE REMOVED AND STOP SIGN CONTROL IS TO BE PROVIDED:

LEE ROAD AND DEFOREST AVENUE.
BUCKEYE ROAD AND GRAND AVENUE.
BUCKEYE ROAD AND EAST 102 STREET.
BUCKEYE ROAD AND EAST 123 STREET.
LORAN AVENUE AND WEST 48 STREET.

THE CONTRACTOR SHALL ERECT THE STOP SIGN CONTROL AT THE ABOVE LOCATIONS, REMOVE EXISTING PAVEMENT MARKINGS AS SHOWN ON THE PLANS AND SHALL PLACE THE EXISTING SIGNAL INSTALLATIONS IN THE FLASHING MODE THIRTY (30) DAYS PRIOR TO REMOVING THE SIGNAL INSTALLATIONS.

ITEM 614 - MAINTAINING TRAFFIC, AS PER PLAN

PEDESTRIAN SIDEWALK ACCESS MUST BE MAINTAINED AT ALL TIMES FOR EXISTING PEDESTRIAN CROSSINGS, RESIDENCES AND BUSINESSES ADJACENT TO WORK AREAS DURING CONSTRUCTION. CONES OR BARRICADES AND CAUTION TAPE SHALL BE USED TO PROTECT PEDESTRIANS FROM HAZARDS. DISTURBED AREAS MUST BE RESTORED WITHIN THREE WEEKS AFTER WORK IS COMPLETED.

THE CONTRACTOR SHALL HAVE ALL LANES OPEN TO TRAFFIC BETWEEN THE HOURS OF 7:00 TO 9:00 A.M. AND 3:00 TO 6:00 P.M. TRAFFIC SHALL BE MAINTAINED IN ACCORDANCE WITH STANDARD DRAWING MT-95.31 OR MT-95.32. LIQUIDATED DAMAGES AS DETERMINED FROM THE TABLE IN SECTION 108.07 OF THE SPECIFICATIONS SHALL BE ASSESSED FOR ANY VIOLATION OF THE PERMITTED LANE CLOSURE TIMES.

STRUCTURAL STEEL PLATES (3/4" THICK) IN ROADWAYS OR SECURED 3/4" PLYWOOD IN SIDEWALK SHALL BE PLACED OVER ALL TRENCHES NOT BACKFILLED AT THE END OF THE WORK DAY. THESE PLATES SHALL BE OF SUFFICIENT SIZE (4' X 8') SO AS NOT TO MOVE DUE TO VEHICULAR TRAFFIC. BITUMINOUS RAMPS SHALL BE PLACED, EXTENDING A MINIMUM OF ONE (1) FOOT AROUND ALL EDGES OF THE STEEL PLATES SO AS TO CREATE A RAMP FROM THE EXISTING PAVEMENT SURFACE TO THE STEEL PLATE SURFACE. FLAGGERS ARE REQUIRED DURING ALL TRENCHING OPERATIONS.

CONSTRUCTION SIGNS REQUIRED DURING TRENCHING OPERATIONS SHALL INCLUDE "ROAD CONSTRUCTION AHEAD" (OW-128-36) AND FLAGGER AHEAD (SYMBOLIC, OW-163-36). SIGN PLACEMENT SHALL BE AS DIRECTED BY THE ENGINEER.

LAW ENFORCEMENT OFFICERS (LEO'S) SHALL BE REQUIRED FOR TRAFFIC DIRECTION ONLY UNDER THE FOLLOWING CONDITIONS:

1. SIGNALS ARE NON-OPERATIONAL, OR
2. TRAFFIC MUST MOVE AGAINST THE SIGNAL PHASING, OR
3. TRAFFIC MUST CROSS A PAINTED CENTER LINE

NIGHT WORK CAN BE ALLOWED UNDER THE APPROVAL OF THE CITY OF CLEVELAND AS IT RELATES TO THE GUIDELINES SET FORTH IN CITY OF CLEVELAND ORDINANCE 1135-A-98.

ALL WORK ASSOCIATED WITH MAINTAINING TRAFFIC AS DESCRIBED HEREINABOVE, INCLUDING SIGNS, FLAGMEN AND LEO'S, SHALL BE CONSIDERED INCIDENTAL TO THE LUMP SUM BID FOR "ITEM 614 - MAINTAINING TRAFFIC"

GENERAL NOTES

CUYAHOGA COUNTY
CUY-10-8.96 & VARIOUS

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GENERAL NOTES

ITEM 614 - TEMPORARY MAINTENANCE OF TRAFFIC SIGNAL INSTALLATION

INCIDENTAL TO THE REQUIREMENTS FOR MAINTAINING TRAFFIC IN ACCORDANCE WITH 614.03, EXISTING TRAFFIC SIGNALS SHALL BE TEMPORARILY MAINTAINED UNTIL THE NEW TRAFFIC SIGNAL INSTALLATIONS ARE IN OPERATION.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING TRAFFIC SIGNAL INSTALLATIONS UNDER THE FOLLOWING CONDITIONS:

- A. EXISTING SIGNAL INSTALLATIONS WHICH THE PLANS REQUIRE THE CONTRACTOR TO ADJUST, MODIFY, ADD ONTO OR REMOVE, OR WHICH THE CONTRACTOR ACTUALLY ADJUSTS, MODIFIES OR OTHERWISE DISTURBS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ENTIRE INSTALLATION (AT THE INTERSECTION) INCLUDING MAINTENANCE, MODIFICATIONS, TIMING AND DAMAGE FROM ACCIDENT, NEGLIGENCE OR NATURAL CAUSES, OR TEMPORARY CONSTRUCTION FROM THE TIME HIS OPERATIONS FIRST DISTURB THE INSTALLATION UNTIL THE INSTALLATION HAS BEEN SUBSEQUENTLY REMOVED AND THE WORK IS ACCEPTED BY ODOT AND THE CITY.
- B. NEW SIGNAL INSTALLATIONS OR DEVICES, INSTALLED BY THE CONTRACTOR, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE, TIMING AND ANY DAMAGE OF THESE FROM THE TIME OF INSTALLATION UNTIL THE WORK IS ACCEPTED BY ODOT AND THE CITY.

AT LOCATIONS WHERE FOUNDATIONS USED IN THE EXISTING SIGNAL ARE ALSO PART OF THE NEW INSTALLATION THE CONTRACTOR SHALL PREPARE A SCHEME TO MAINTAIN TRAFFIC CONTROL FOR THE ENGINEER'S APPROVAL.

THE CONTRACTOR SHALL CORRECT AS QUICKLY AS POSSIBLE ALL OUTAGES OR MALFUNCTIONS. HE SHALL PROVIDE THE CITY AND THE PROJECT ENGINEER SUCH ADDRESSES AND PHONE NUMBERS WHERE HIS MAINTENANCE FORCES CAN BE CONTACTED. THE CONTRACTOR SHALL PROVIDE ONE OR MORE PERSONS TO RECEIVE ALL CALLS AND DISPATCH THE NECESSARY MAINTENANCE FORCES TO CORRECT OUTAGES OR MALFUNCTIONS. SUCH A PERSON OR PERSONS MAY BE USED TO PERFORM OTHER DUTIES AS LONG AS PROMPT ATTENTION IS GIVEN TO THESE CALLS AND A PERSON IS READILY AVAILABLE CONTINUOUSLY 24 HOURS A DAY SEVEN DAYS A WEEK. ALL LAMP OUTAGES, CABLE FAILURES, ELECTRICAL FAILURES, EQUIPMENT MALFUNCTIONS AND MISALIGNED SIGNAL HEADS SHALL BE CORRECTED TO THE SATISFACTION OF THE ENGINEER WITH THE SIGNAL BACK IN SERVICE WITHIN THREE (3) HOURS AFTER THE CONTRACTOR HAS BEEN NOTIFIED OF THE OUTAGES OR MALFUNCTIONS.

IN THE EVENT NEW SIGNALS ARE DAMAGED PRIOR TO ACCEPTANCE ALL DAMAGED EQUIPMENT EXCEPT POLES AND CONTROL EQUIPMENT SHALL BE REPLACED BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER WITH THE SIGNAL BACK IN SERVICE WITHIN EIGHT (8) HOURS AFTER THE CONTRACTOR HAS BEEN NOTIFIED OF DAMAGE.

IF POLES AND/OR CONTROL EQUIPMENT ARE DAMAGED AND MUST BE REPLACED, THE CONTRACTOR SHALL MAKE TEMPORARY REPAIRS AS NECESSARY TO BRING THE SIGNAL BACK INTO FULL OPERATION WITHIN THE ALLOWED EIGHT HOUR PERIOD. HE SHALL MAKE PERMANENT REPAIRS OR REPLACEMENT AS SOON THEREAFTER AS POSSIBLE.

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

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

WHERE THE CONTRACTOR HAS FAILED TO OR CANNOT RESPOND TO AN OUTAGE OR SIGNAL EQUIPMENT MALFUNCTION AT THOSE LOCATIONS WITHIN HIS RESPONSIBILITY OR WITHIN PERIODS AS SPECIFIED ABOVE, ODOT AND/OR THE CITY MAY TAKE ANY ACTION AS THEY MAY DEEM NECESSARY. THIS ACTION MAY INCLUDE CONTROL OF THE INTERSECTION BY POLICE OFFICERS AND COMPLETE REMOVAL OF THE MALFUNCTIONING TRAFFIC CONTROL DEVICES AND INSTALLATION OF DEVICES TO RETURN THE INTERSECTION TO OPERATION. ANY SUBSEQUENT BILLINGS BY ODOT AND/OR THE CITY FOR THE POLICE OFFICERS AND/OR MAINTENANCE BY ODOT AND/OR THE CITY SHALL BE DEDUCTED FROM MONIES DUE OR TO BECOME DUE TO THE CONTRACTOR IN ACCORDANCE WITH PROVISIONS OF SECTION 105.15.

WHEN A TRAFFIC SIGNAL MUST BE TAKEN OUT OF SERVICE BY THE CONTRACTOR, DUE TO CONSTRUCTION PROCEDURES, THIS OUTAGE SHALL NOT INCLUDE THE HOURS OF 7:00 TO 9:00 A.M. AND 3:00 TO 6:00 P.M. MONDAY THROUGH FRIDAY, WHERE A TRAFFIC SIGNAL IS OUT OF SERVICE DUE TO CONSTRUCTION PROCEDURES OR DUE TO AN OUTAGE OR MALFUNCTION OF EQUIPMENT AS DESCRIBED ABOVE. TRAFFIC SHALL BE DIRECTED BY TWO (2) OFF-DUTY CITY OF CLEVELAND POLICE OFFICERS HIRED BY THE CONTRACTOR UNTIL SAID SIGNAL IS OPERATING AGAIN. ALL COSTS INCURRED IN USING POLICE OFFICERS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

THE CONTRACTOR SHALL MAINTAIN COMPLETE RECORDS OF MALFUNCTIONS INCLUDING: 1. TIME OF NOTIFICATION OF MALFUNCTION; 2. TIME OF WORK CREW'S ARRIVAL TO CORRECT THE MALFUNCTION; 3. ACTIONS TAKEN TO CORRECT THE MALFUNCTION, INCLUDING A LIST OF PARTS REPAIRED OR REPLACES; 4. A DIAGNOSIS OF REASON FOR THE MALFUNCTION AND PROBABILITY OF REOCCURRENCE; AND 5. TIME OF COMPLETION OF REPAIR AND SYSTEM RESTORED TO FULL SERVICE. A COPY OF THESE RECORDS SHALL BE PROVIDED TO ODOT AND THE CITY WITHIN THREE (3) WORKING DAYS FOLLOWING COMPLETION OF EACH REPAIR.

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

ITEM 632 - INTERCONNECT CABLE, AS PER PLAN

INTERCONNECT CABLE SHALL BE 6 PAIR, NO. 19 AWG, SOLID, REA PE-39 (UNDERGROUND) OR PE-38 (SELF-SUPPORTING OVERHEAD). OVERHEAD CABLE SHALL BE INSTALLED ON EXISTING POLES OWNED BY CLEVELAND PUBLIC POWER AS FOLLOWS:

1. INTEGRAL MESSENGER TYPE INTERCONNECT CABLE SHALL MEET THE REQUIREMENTS OF 732.19 AND REA (PE-39). UNDER THIS METHOD ANY SECTION OF CABLE SHOWN ON THE PLANS TO BE CONTAINED IN CONTROLLERS, POLES, CONDUITS OR SUPPORTED ON MESSENGER WIRE INSTALLED FOR OTHER PURPOSES SHALL HAVE THE SUPPORTING MESSENGER AND JACKET WEB NEATLY REMOVED BY THE USE OF A TOOL SPECIFICALLY DESIGNED AND SIZED FOR THIS PURPOSE. DEVIATIONS FROM THE CABLE ROUTING SHOWN ON THE PLANS, FOR THE SOLE PURPOSE OF REDUCING THE AMOUNT OF MESSENGER TO BE REMOVED, WILL NOT BE PERMITTED. THE CABLE SHALL BE INSTALLED WITH APPROXIMATELY ONE TWIST FOR EACH 15 FEET OF SPAN LENGTH.

SPLICES SHALL OCCUR ONLY AT THE TERMINAL ENDS OF THE HARDWARE INTERCONNECT PANEL. NO OTHER SPLICE LOCATIONS SHALL BE PERMITTED.

2. PRUNING OF TREES IN ACCORDANCE WITH LA-1 TO PREVENT CONTACT WITH INTERCONNECT CABLE SHALL BE INCIDENTAL TO THE COST OF THE BID ITEM.

IN ADDITION TO THE REQUIREMENTS OF 632, WORK UNDER THIS ITEM INCLUDES THE INSTALLATION ON INTERCONNECT CABLE ON EXISTING UTILITY POLES JOINTLY OWNED BY THE CLEVELAND ELECTRIC ILLUMINATING COMPANY AND AMERITECH, OR SOLELY OWNED BY EITHER COMPANY. BEFORE THE INTERCONNECT CABLE CAN BE ATTACHED TO UTILITY OWNED POLES IT WILL BE NECESSARY FOR THE RESPECTIVE UTILITY COMPANY TO MAKE CERTAIN ALTERATIONS TO ITS EXISTING FACILITIES TO ENSURE THAT THE INTERCONNECT CABLE WILL BE ATTACHED IN A MANNER THAT MEETS THE PROVISIONS OF THE NATIONAL ELECTRIC SAFETY CODE (NEC).

EACH AFFECTED UTILITY HAS ESTIMATED THE COST TO MAKE THE NECESSARY ALTERATIONS TO ITS FACILITIES AS FOLLOWS:

CEI	\$
AMERITECH	\$

PRIOR TO INSTALLING THE INTERCONNECT CABLE ON THESE POLES IT WILL BE REQUIRED THAT THE CONTRACTOR MAKE ARRANGEMENTS WITH EACH AFFECTED UTILITY TO MAKE THE NECESSARY ADJUSTMENTS TO ITS FACILITIES. THE CONTRACTOR WILL BE REQUIRED TO PAY EACH UTILITY THE TOTAL ESTIMATED COST FOR MAKING THESE ALTERATIONS AS INDICATED ABOVE.

4. OVERHEAD INTERCONNECT CABLE SHALL BE INSTALLED AT A MINIMUM OF 18 FEET ABOVE ALL ROADWAY CROSSINGS, UNLESS OTHERWISE APPROVED BY THE ENGINEER.

5. WHERE INDICATED ON THE PLANS OR AS DIRECTED BY THE ENGINEER, THE CONTRACTOR SHALL REMOVE EXISTING INTERCONNECT CABLE PRIOR TO INSTALLING NEW CABLE.

PAYMENT FOR ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, AND OTHER INCIDENTALS, INCLUDING TREE PRUNING, REMOVING AND DISPOSING OF EXISTING INTERCONNECT CABLE, AND PAYING FOR EACH UTILITY AND ARRANGING FOR THE UTILITY ALTERATION WORK, SHALL BE INCLUDED IN THE CONTRACT LINEAR FOOT PRICE BID FOR "ITEM 632-INTERCONNECT CABLE, INTEGRAL MESSENGER WIRE TYPE, 6 PR, NO. 19 AWG, SOLID, REA (PE-38), AS PER PLAN" AND "ITEM 632-INTERCONNECT CABLE, WIRE TYPE, 6 PR, NO. 19 AWG, SOLID, REA (PE-39), AS PER PLAN".

6. INTERCONNECT ON BUCKEYE ROAD BETWEEN EAST 116 STREET AND S. MORELAND BOULEVARD IS TO BE INSTALLED IN EXISTING DUCT BANK.

ITEM 253 - PAVEMENT REPAIR, AS PER PLAN

THE CONTRACTOR SHALL REPAIR DETERIORATED PAVEMENT AS PER THE DETAIL ON SHEET 15. ALL REPAIR LOCATIONS SHALL BE AS DIRECTED BY THE ENGINEER. PAYMENT FOR ALL LABOR, MATERIALS, TOOLS, EQUIPMENT AND OTHER INCIDENTALS, INCLUDING ASPHALT CONCRETE AND TACK COAT, SHALL BE AT THE CONTRACT CUBIC YARD PRICE BID FOR "ITEM 253 - PAVEMENT REPAIR, AS PER PLAN". THE FOLLOWING QUANTITY IS ESTIMATED:

ITEM	TOTAL	UNIT	DESCRIPTION
253	120	CY	PAVEMENT REPAIR, AS PER PLAN

ITEM 632 - SIGNALIZATION, MISC.: FOUNDATION TEST HOLES

IF UNDERGROUND OBSTRUCTIONS ARE ENCOUNTERED THAT PRECLUDE USE OF THE STANDARD OR ALTERNATE FOUNDATION DESIGNS, THE CONTRACTOR SHALL PROVIDE THE ENGINEER WITH COMPLETE INFORMATION REGARDING THE OBSTRUCTION INCLUDING TYPE (I.E. UTILITY), SIZE, DEPTH AND LATERAL CLEARANCES TO THE SIDES OF THE FOUNDATION EXCAVATION. THE FOUNDATION HOLE SHALL BE COVERED WITH 3/4" SECURED PLYWOOD UNTIL THE ENGINEER DETERMINES IF A NEW FOUNDATION LOCATION WILL BE REQUIRED. IF SUBSEQUENTLY DIRECTED BY THE ENGINEER, THE CONTRACTOR SHALL BACKFILL AND COMPACT THE HOLE AND SHALL RESTORE THE SURFACE AS DESCRIBED IN "RESTORATION OF DISTURBED AREAS."

THE CONTRACTOR SHALL BE COMPENSATED FOR EACH FOUNDATION HOLE THAT MUST BE ABANDONED. PAYMENT FOR ALL LABOR, MATERIALS, TOOLS, EQUIPMENT AND OTHER INCIDENTALS, INCLUDING BACKFILL, COMPACTING AND SURFACE RESTORATION, SHALL BE AT THE CONTRACT UNIT PRICE BID FOR "ITEM 632 - SIGNALIZATION, MISC.: FOUNDATION TEST HOLES" FOR THE NUMBER EXCAVATED AND BACKFILLED. THE FOLLOWING QUANTITY IS ESTIMATED:

ITEM	TOTAL	UNIT	DESCRIPTION
632	20	EA	SIGNALIZATION, MISC.: FOUNDATION TEST HOLES

ITEM 630 - SIGN, FLAT SHEET, TYPE G

STREET NAME SIGNS SHALL HAVE TYPE G SHEETING. COLOR SHALL BE SILVER LETTERS. STREET NAME BACKGROUND TO BE BLUE. SIZE OF SIGNS SHALL BE WHERE SPECIFIED, DISTRICT NAME BACKGROUND TO BE VIOLET.

MAST ARM MOUNT: 20" OR 26" HIGH BLANK. LETTERS TO BE 12 CAP (UPPER/LOWER CASE), FOR STREET NAMES AND 4" CAP (UPPER/LOWER) FOR DISTRICT NAMES. UNIFORMS. 65 FONT. WHITE BORDER 1/4", INSET 1/2". WITH DISTRICT: 26" HIGH BLANK. DISTRICT NAME TO BE 4 CAP (UPPER/LOWER NAME).

PAYMENT FOR ALL LABOR, MATERIALS, TOOLS, EQUIPMENT AND OTHER INCIDENTALS, INCLUDING MOUNTING HARDWARE, SHALL BE AT THE CONTRACT SQUARE FOOT PRICE BID FOR "ITEM 630 - SIGN, FLAT SHEET, TYPE G."

ITEM 630 - GROUND MOUNTED SUPPORT, NO. XX POST

GROUND MOUNTED SIGN SUPPORT POSTS SHALL ALSO BE PROVIDED FOR EACH EXISTING SIGN REMOVED FROM AN EXISTING POLE OR MAST ARM AND RELOCATED AS A GROUND MOUNTED SIGN, AS SPECIFIED IN "ITEM 632 - REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN." THE FOLLOWING ADDITIONAL QUANTITY IS ESTIMATED:

ITEM	TOTAL	UNIT	DESCRIPTION
630	140	LF	GROUND MOUNTED SUPPORT, NO. 3 POST

PAYMENT FOR ALL LABOR, MATERIALS, TOOLS, EQUIPMENT AND OTHER INCIDENTALS, SHALL BE AT THE CONTRACT UNIT PRICE BID FOR "ITEM 630 - GROUND MOUNTED SIGN SUPPORT, NO. XX POST."

ITEM 630 - SIGN SUPPORT ASSEMBLY, POLE MOUNTED

A SIGN SUPPORT ASSEMBLY SHALL ALSO BE PROVIDED FOR EACH EXISTING SIGN REMOVED FROM AN EXISTING POLE AND RELOCATED TO A PROPOSED POLE, AS SPECIFIED IN "ITEM 632 - REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN." THE FOLLOWING ADDITIONAL QUANTITY IS ESTIMATED:

ITEM	TOTAL	UNIT	DESCRIPTION
630	50	EA	SIGN SUPPORT ASSEMBLY, POLE MOUNTED

PAYMENT FOR ALL LABOR, MATERIALS, TOOLS, EQUIPMENT AND OTHER INCIDENTALS, SHALL BE AT THE CONTRACT UNIT PRICE BID FOR "ITEM 630 - SIGN SUPPORT ASSEMBLY, POLE MOUNTED."

ITEM 608 - CURB RAMPS, AS PER PLAN

CURB RAMPS SHALL BE CONSTRUCTED ONLY AT LOCATIONS INDICATED ON THE PLANS OR AS DIRECTED BY THE ENGINEER. THE TYPE SHALL BE AS INDICATED ON THE PLANS OR AS DIRECTED BY THE ENGINEER, AND THE RAMPS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE DETAILS SHOWN ON SHEET 15. THE FOLLOWING ADDITIONAL QUANTITIES ARE ESTIMATED:

ITEM	TOTAL	UNIT	DESCRIPTION
608	900	SF	CURB RAMP, TYPE 1, A.P.P.
608	900	SF	CURB RAMP, TYPE 2, A.P.P.

ITEM 202 - WALK AND CURB REMOVED

THESE ITEMS SHALL INCLUDE ONLY WALK AND CURB REMOVED FOR CONSTRUCTING CURB RAMPS, AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER. THE FOLLOWING ADDITIONAL QUANTITIES ARE ESTIMATED:

ITEM	TOTAL	UNIT	DESCRIPTION
202	1800	SF	WALK REMOVED
202	500	LF	CURB REMOVED

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

ALL TRAFFIC REGULATION SIGNS ARE TO BE RIGID MOUNTED IN ACCORDANCE WITH STANDARD CONSTRUCTION DRAWING TC-16.20 OR AS APPROVED BY ODOT AND THE CITY. SIGNS ARE TO BE MOUNTED WHERE INDICATED ON THE POLE CHARTS OR AS DIRECTED BY THE ENGINEER. SIGNS SHALL BE MOUNTED LEVEL AND SHALL NOT BE SLOPED ALONG THE MAST ARM. NO INTERSECTION SHALL BE LEFT WITHOUT A STREET NAME SIGN DURING CONSTRUCTION. EXISTING SIGNS INSTALLED ON SIGNAL POLES TO BE REMOVED SHALL BE TEMPORARILY RELOCATED UNTIL THE NEW STREET NAME SIGNS ARE INSTALLED.

STREET NAME SIGNS ARE TO BE RIGID MOUNTED LEVEL USING CONTINUOUS SLOTTED SIGN SUPPORT SECTIONS, A UNIVERSAL CHANNEL CLAMP AND BANDING AS SPECIFIED BELOW:

CONTINUOUS SLOTTED SIGN SUPPORT SECTIONS

THERE SHALL BE FOUR (4) SLOTTED SIGN SUPPORT SECTIONS USED FOR EACH STREET NAME SIGN, MOUNTED VERTICALLY. SECTIONS SHALL BE FABRICATED FROM ALLOY 6061-T6 ALUMINUM IN STANDARD 16 FOOT LENGTHS. THE CONFIGURATION OF THIS SECTION SHALL BE:

THE BASE SHALL BE 1.41" OVERALL. THE WALL THICKNESS OF THE BASE SHALL BE 0.098". THE VERTICAL WALLS SHALL EXTEND UPWARDS 0.689", AT WHICH POINT THEY SHALL EXTEND 45 DEGREES INWARD. WALL THICKNESS FOR THE VERTICAL WALLS SHALL BE 0.083". A "U" SHAPED CHANNEL, 0.771" IN WIDTH OVERALL SHALL EXTEND VERTICALLY 0.470" FROM THE BOTTOM OF THE "U" TO FORM A CONTINUOUS INVERTED "T" SLOT. THE BOTTOM OF THE "T" SHALL HAVE A WALL THICKNESS OF 0.079". VERTICAL WALL THICKNESS SHALL BE 0.110". THE OPENING IN THE INVERTED "T" SHALL BE 0.335" WIDE. THE INVERTED "T" SHALL HAVE AN ANGLE OF 45 DEGREES TO CREATE A TRACK IN WHICH THE BOLTS WILL NOT ROTATE.

THE BASE SHALL HAVE ONE GROOVE 0.015" DEEP X 90 DEGREES IN THE CENTER OF THE BASE.

THIS SECTION SHALL BE FABRICATED AS TO ACCOMMODATE THE POSITIONABLE STAINLESS STEEL FITTINGS AND CLAMPS, PROVIDING COMPLETE FREEDOM OF ALIGNMENT WITHIN THE 0.335" SLOT TO CREATE AN INTEGRATED SUPPORT SYSTEM.

UNIVERSAL CHANNEL CLAMP

THERE SHALL BE ONE (1) CLAMP USED FOR EACH CHANNEL SECTION. THIS DEVICE SHALL BE FABRICATED FROM STAINLESS STEEL TYPE 304. EACH UNIVERSAL CHANNEL CLAMP SHALL BE 2-3/4" LONG; 1-3/16" HIGH; 1-1/8" DEEP AT EITHER END. THE "SADDLE" SHALL BE FORMED FROM 16 GAUGE STAINLESS STEEL TYPE 304 FORMED BY TAPERING UNIFORMLY TOWARD THE CENTER OF THE LARGER SIDE TO A DEPTH OF 1/2" FORMING A MODIFIED "V".

LOCKED WITHIN THE "SADDLE" SHALL BE A PORTION OF THE UNIT REFERRED TO AS THE INSERT PLATE WHICH SHALL BE FABRICATED FROM 14 GAUGE STAINLESS STEEL TYPE 304 AND FORM A SHALLOW "U". THE LEGS OF THE "U" SHALL BE 1" HIGH AND 1-1/16" WIDE WITH AN APERTURE DESIGNED TO PERMIT PASSAGE OF 3/16" VERTICALLY ON THE ONE INCH SADDLE DIMENSION AND SHALL BE IN FROM EDGE CLOSEST TO THE "V" OF THE SADDLE. THE BASE OF THE "U" SHALL BE 1/2" WIDE AND 2-1/2" LONG WHERE IT IS PREDESIGNED TO SLIDE IN A POSITIONABLE MANNER INTO THE 0.335" CONTINUOUS SLOTTED SIGN SUPPORT SECTION.

BANDING SPECIFICATIONS

THE BANDING WILL BE REGULAR TYPE BANDING, TYPE AISI 201 STAINLESS STEEL. THE THICKNESS OF THE BANDING SHALL BE 0.030". THE BANDING WIDTH SHALL BE 0.750".

THE STREET NAME SIGNS SHALL BE ATTACHED TO THE CHANNEL SECTIONS USING STANDARD POP RIVETS. ALL MATERIALS INCLUDING SLOTTED CHANNEL SUPPORT SECTIONS, CHANNEL CLAMPS AND BANDING REQUIRED TO INSTALL AN INDIVIDUAL STREET NAME SIGN SHALL BE MEASURED AS A SINGLE SIGN HANGER ASSEMBLY.

PAYMENT FOR ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, AND OTHER INCIDENTALS, INCLUDING SLOTTED SIGN SUPPORT SECTIONS, UNIVERSAL CHANNEL CLAMPS AND BANDING SHALL BE AT THE CONTRACT UNIT PRICE BID FOR "ITEM 630 - SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN."

ITEM 632 - SIGNAL SUPPORT, TYPE (X), DESIGN (X), AS PER PLAN

SIGNAL POLES AND MAST ARMS SHALL BE OF THE HEIGHT, STRENGTH AND/OR LENGTH INDICATED ON THE PLANS. POLES AND MAST ARMS SHALL BE A TRUE ROUND CONTINUOUS TAPER.

SIGNAL POLES AND MAST ARMS ARE TO BE DELIVERED WITH ALL GALVANIZED EXTERIOR SURFACES COATED WITH A URETHANE OR TRIGLYCIDYLE ISOCYANURATE (TGIC) POLYESTER POWDER TO A MINIMUM FILM THICKNESS OF 2.0 MILS (0.002 INCH). THE POWDER SHALL BE DARK BRONZE (ORION BROWN), COLOR A-52355. PRIOR TO APPLICATION, THE SURFACES TO BE POWDER COATED SHALL BE MECHANICALLY ETCHED BY BRUSH BLASTING (REF. SSPC-SP7) AND THE ZINC COATED SUBSTRATE PREHEATED TO 450 DEGREES FAHRENHEIT FOR A MINIMUM OF ONE HOUR IN A GAS FIRED CONVECTION OVEN. THE COATING SHALL BE ELECTROSTATICALLY APPLIED AND CURED IN A GAS FIRED CONVECTION OVEN BY HEATING THE ZINC COATED SUBSTRATE TO A MINIMUM OF 350 DEGREES FAHRENHEIT AND A MAXIMUM OF 400 DEGREES FAHRENHEIT. THE THERMOSETTING POWDER RESIN SHALL PROVIDE BOTH INTERCOAT AS WELL AS SUBSTRATE FUSION ADHESION THAT MEETS 5A OR 5B CLASSIFICATIONS OF ASTM D3359.

ORDERS FOR SIGNAL POLES AND MAST ARMS SHALL BE PLACED SYSTEMATICALLY AFTER THE RESPECTIVE FOUNDATIONS HAVE BEEN CONSTRUCTED. IN THE EVENT THAT UTILITY OR OTHER CONFLICT REQUIRES THAT A SIGNAL SUPPORT BE CONSTRUCTED IN A LOCATION OTHER THAN AS INDICATED ON THE PLAN, THE ENGINEER SHALL DETERMINE WHETHER THE SPECIFIED ARM LENGTH IS APPROPRIATE. IF A LONGER OR SHORTER ARM IS REQUIRED, THE CITY SHALL PROVIDE THE ENGINEER WITH DESIGN INFORMATION FOR THE REVISED POLE AND ARM. CHANGES IN POLE AND/OR ARM SIZE, STRENGTH AND/OR LENGTH DUE TO REVISED FOUNDATION LOCATIONS SHALL NOT RECEIVE ADDITIONAL COMPENSATION BEYOND THE CONTRACT UNIT PRICE BID FOR THE ITEM(S) ACTUALLY FURNISHED.

THE CONTRACTOR SHALL PROTECT PEDESTRIANS AND VEHICLES FROM EXPOSED ANCHOR BOLTS AT ALL TIMES UNTIL THE ASSOCIATED SIGNAL SUPPORT IS ERECTED. THE METHOD OF COVERING THE ANCHOR BOLTS SHALL BE APPROVED BY THE ENGINEER.

ITEM 625 - BRACKET ARM, 6', AS PER PLAN

IN ADDITION TO THE REQUIREMENTS AS OUTLINED IN SECTION 713.01, THE FOLLOWING SHALL APPLY FOR BRACKET ARMS: BRACKET ARMS SHALL BE GALVANIZED STEEL.

BRACKET ARMS ARE TO BE DELIVERED WITH ALL GALVANIZED EXTERIOR SURFACES COATED WITH A URETHANE OR TRIGLYCIDYLE ISOCYANURATE (TGIC) POLYESTER POWDER TO A MINIMUM FILM THICKNESS OF 2.0 MILS (0.002 INCH). THE POWDER SHALL BE DARK BRONZE (ORION BROWN), COLOR A-52355. PRIOR TO APPLICATION, THE SURFACES TO BE POWDER COATED SHALL BE MECHANICALLY ETCHED BY BRUSH BLASTING (REF. SSPC-SP7) AND THE ZINC COATED SUBSTRATE PREHEATED TO 450 DEGREES FAHRENHEIT FOR A MINIMUM OF ONE HOUR IN A GAS FIRED CONVECTION OVEN. THE COATING SHALL BE ELECTROSTATICALLY APPLIED AND CURED IN A GAS FIRED CONVECTION OVEN BY HEATING THE ZINC COATED SUBSTRATE TO A MINIMUM OF 350 DEGREES FAHRENHEIT AND A MAXIMUM OF 400 DEGREES FAHRENHEIT. THE THERMOSETTING POWDER RESIN SHALL PROVIDE BOTH INTERCOAT AS WELL AS SUBSTRATE FUSION ADHESION THAT MEETS 5A OR 5B CLASSIFICATIONS OF ASTM D3359.

ITEM 632 - COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN (X), AS PER PLAN

THE REQUIREMENTS AS OUTLINED UNDER "ITEM 632 - SIGNAL SUPPORT, AS PER PLAN", SHALL APPLY FOR FOR COMBINATION SUPPORTS.

ITEM 632 - PEDESTAL, 8', TRANSFORMER BASE, AS PER PLAN ITEM 632 - PEDESTAL, MISC.: 12', TRANSFORMER BASE

PEDESTALS SHALL BE GALVANIZED STEEL. PEDESTALS ARE TO BE DELIVERED WITH ALL GALVANIZED EXTERIOR SURFACES COATED WITH A URETHANE OR TRIGLYCIDYLE ISOCYANURATE (TGIC) POLYESTER POWDER TO A MINIMUM FILM THICKNESS OF 2.0 MILS (0.002 INCH). THE POWDER SHALL BE DARK BRONZE (ORION BROWN), COLOR A-52355. PRIOR TO APPLICATION, THE SURFACES TO BE POWDER COATED SHALL BE MECHANICALLY ETCHED BY BRUSH BLASTING (REF. SSPC-SP7) AND THE ZINC COATED SUBSTRATE PREHEATED TO 450 DEGREES FAHRENHEIT FOR A MINIMUM OF ONE HOUR IN A GAS FIRED CONVECTION OVEN. THE COATING SHALL BE ELECTROSTATICALLY APPLIED AND CURED IN A GAS FIRED CONVECTION OVEN BY HEATING THE ZINC COATED SUBSTRATE TO A MINIMUM OF 350 DEGREES FAHRENHEIT AND A MAXIMUM OF 400 DEGREES FAHRENHEIT. THE THERMOSETTING POWDER RESIN SHALL PROVIDE BOTH INTERCOAT AS WELL AS SUBSTRATE FUSION ADHESION THAT MEETS 5A OR 5B CLASSIFICATIONS OF ASTM D3359.

ITEM 630 - OVERHEAD SIGN SUPPORT, TYPE 16.20, DESIGN (X), AS PER PLAN

IN ADDITION TO THE REQUIREMENTS AS OUTLINED IN SECTION 730.03, THE FOLLOWING SHALL APPLY FOR OVERHEAD SIGN SUPPORTS:

OVERHEAD SIGN SUPPORTS AND MAST ARMS SHALL BE OF THE HEIGHT, STRENGTH AND/OR LENGTH INDICATED ON THE PLANS. POLES AND MAST ARMS SHALL BE A TRUE ROUND CONTINUOUS TAPER.

OVERHEAD SIGN SUPPORTS AND MAST ARMS ARE TO BE DELIVERED WITH ALL GALVANIZED EXTERIOR SURFACES COATED WITH A URETHANE OR TRIGLYCIDYLE ISOCYANURATE (TGIC) POLYESTER POWDER TO A MINIMUM FILM THICKNESS OF 2.0 MILS (0.002 INCH). THE POWDER SHALL BE DARK BRONZE (ORION BROWN), COLOR A-52355. PRIOR TO APPLICATION, THE SURFACES TO BE POWDER COATED SHALL BE MECHANICALLY ETCHED BY BRUSH BLASTING (REF. SSPC-SP7) AND THE ZINC COATED SUBSTRATE PREHEATED TO 450 DEGREES FAHRENHEIT FOR A MINIMUM OF ONE HOUR IN A GAS FIRED CONVECTION OVEN. THE COATING SHALL BE ELECTROSTATICALLY APPLIED AND CURED IN A GAS FIRED CONVECTION OVEN BY HEATING THE ZINC COATED SUBSTRATE TO A MINIMUM OF 350 DEGREES FAHRENHEIT AND A MAXIMUM OF 400 DEGREES FAHRENHEIT. THE THERMOSETTING POWDER RESIN SHALL PROVIDE BOTH INTERCOAT AS WELL AS SUBSTRATE FUSION ADHESION THAT MEETS 5A OR 5B CLASSIFICATIONS OF ASTM D3359.

ITEM 631 - REMOVAL MISC.: SCHOOL SPEED LIMIT SIGN ASSEMBLY

THE WORK UNDER THIS ITEM SHALL INCLUDE REMOVING ELECTRIC SCHOOL SPEED LIMIT SIGNS FROM EXISTING MAST ARMS AND RE-ERECTING THE SIGNS ON NEW POLE AND MAST ARM INSTALLATIONS AT NEW LOCATIONS. NEW OVERHEAD ELECTRIC SERVICE SHALL BE PROVIDED FROM THE EXISTING POWER SOURCE LOCATIONS AND SHALL INCLUDE ALL WIRE, CONNECTIONS AND SUPPORTING DEVICES REQUIRED. EXISTING POLES, MAST ARMS AND FOUNDATIONS SHALL BE REMOVED IN ACCORDANCE WITH 202 REQUIREMENTS AND ITEM 632 - REMOVAL OF TRAFFIC SIGNAL INSTALLATIONS, AS PER PLAN. NEW POLES, MAST ARMS AND FOUNDATIONS SHALL BE AS SPECIFIED ON THE PLAN.

PAYMENT FOR ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, AND OTHER INCIDENTALS, INCLUDING OVERHEAD ELECTRIC SERVICE AND ALL MOUNTING HARDWARE, SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR "ITEM 631 - REMOVAL MISC.: SCHOOL SPEED LIMIT SIGN ASSEMBLY".

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ITEM 625 - TRENCH IN PAVED AREA, TYPE A, AS PER PLAN

TRENCH, TYPE A SHALL BE USED IN ALL UNPAVED AREAS AND UNDER ALL WALK THAT IS TO BE REMOVED AND REPLACED. THIS ITEM SHALL INCLUDE REMOVAL OF ALL MATERIALS ENCOUNTERED, SURFACE RESTORATION SHALL BE AS SPECIFIED IN "RESTORATION OF DISTURBED AREAS" AS NOTED ON SHEET 2, IN LIEU OF THE MINIMUM SIX INCH EXTENSION.

PAYMENT FOR ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, AND OTHER INCIDENTALS, INCLUDING MATERIAL REMOVAL AND SURFACE RESTORATION, SHALL BE INCLUDED IN THE CONTRACT LINEAR FOOT PRICE BID FOR "ITEM 625 - TRENCH IN PAVED AREA, TYPE A, AS PER PLAN."

ITEM 625 - TRENCH IN PAVED AREA, TYPE B, AS PER PLAN

TRENCH, TYPE B SHALL BE USED UNDER ALL ROADWAYS AND DRIVEWAYS. THIS ITEM SHALL INCLUDE REMOVAL OF ALL MATERIALS ENCOUNTERED INCLUDING PAVING BLOCKS AND TROLLEY TRACKS, CROSSWALK AND STOP LINES DISTURBED BY TRENCHING OPERATIONS SHALL BE REPLACED IN THEIR ENTIRETY AT NO ADDITIONAL COMPENSATION. CENTER LINES DISTURBED BY TRENCHING OPERATIONS SHALL BE REPLACED IN THE DISTURBED AREA, AT NO ADDITIONAL COMPENSATION.

PAYMENT FOR ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, AND OTHER INCIDENTALS, INCLUDING MATERIAL REMOVAL, SURFACE RESTORATION AND PAVEMENT MARKING REPLACEMENT/REPAIR, SHALL BE INCLUDED IN THE CONTRACT LINEAR FOOT PRICE BID FOR "ITEM 625 - TRENCH IN PAVED AREA, TYPE B, AS PER PLAN."

ITEM 625 - CONDUIT

CONDUIT SHALL BE PVC, SCHEDULE 40 (MINIMUM). CONDUIT BENEATH ROADS SHALL BE CONCRETE-ENCASED. MULTIPLE CONDUITS SHALL BE STACKED VERTICALLY OR HORIZONTALLY AND MAY BE SECURED WITH TAPE DURING INSTALLATION. BENDS SHALL BE MADE WITH AN APPROVED, INDUSTRY-ACCEPTED FLAMELESS HEATER DESIGNED TO DISTRIBUTE HEAT EVENLY OVER THE SECTION OF THE CONDUIT BEING BENT. THE MAXIMUM BEND ALLOWABLE SHALL BE 45 DEGREES.

AT LOCATIONS WHERE PULL BOXES ARE TO BE CONNECTED TO EXISTING DUCT BANKS, CONTRACTOR SHALL PROVIDE TWO CONDUIT SWEEPS FROM AN EMPTY DUCT INTO THE PULL BOX.

CONDUIT BENEATH THE FIREHOUSE DRIVEWAY AT THE INTERSECTION OF LORAIN AVENUE AND WEST 32 STREET SHALL BE RIGID METALLIC AND SHALL BE JACKED OR DRILLED. NO DISTURBANCE OF THE FIREHOUSE DRIVEWAY SHALL BE PERMITTED UNLESS AUTHORIZED IN WRITING BY THE CLEVELAND FIRE DEPARTMENT.

THE CONTRACTOR SHALL INSTALL SIGNAL WIRES FOR 120 VOLT SIGNALS AND ELECTRIC SIGNS IN SEPARATE CONDUIT RUNS FROM WIRE AND CABLE UTILIZED FOR LOW VOLTAGE APPLICATIONS INCLUDING PEDESTRIAN PUSH BUTTONS, LOOP DETECTOR LEAD-IN CABLE, MICROWAVE DETECTOR LEAD-IN CABLE AND INTERCONNECT.

CONDUIT CONSTRUCTED THROUGH GRANITE CURB MAY BE DRILLED OR INSTALLED BELOW THE CURB, AT THE CONTRACTOR'S OPTION, AS APPROVED BY THE ENGINEER. IF CONDUIT IS CONSTRUCTED BELOW GRANITE BLOCK CURB AND THE CURB MUST BE DISTURBED, AN ENTIRE SECTION SHALL BE REMOVED. THE CONTRACTOR SHALL REPLACE THE ENTIRE SECTION OF GRANITE BLOCK CURB IF DAMAGED DURING DRILLING, REMOVAL OR RESETING OPERATIONS, AT NO ADDITIONAL COMPENSATION.

PAYMENT FOR ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, AND OTHER INCIDENTALS, INCLUDING DRILLING, REMOVAL AND RESETING GRANITE BLOCK CURB, AND CONCRETE ENCASUREMENT BENEATH ROADS, AND CONDUIT SWEEPS, SHALL BE INCLUDED IN THE CONTRACT LINEAR FOOT PRICE BID FOR THE FOLLOWING ITEMS:

- ITEM 625 - CONDUIT, 2", 713.07, AS PER PLAN
- ITEM 625 - CONDUIT, 3", 713.07, AS PER PLAN
- ITEM 625 - CONDUIT, CONCRETE ENCASED, 3", 713.07
- ITEM 625 - CONDUIT, JACKED OR DRILLED, 2"

ITEM SPECIAL - PLASTIC CAUTION TAPE

THE LOCATION OF THE CONDUIT IN THE TRENCH SHALL BE MARKED BY THE USE OF A CONTINUOUS IDENTIFYING TAPE BURIED IN THE TRENCH ABOVE THE LINE. THE IDENTIFYING TAPE SHALL BE AN INERT MATERIAL APPROXIMATELY 6" WIDE COMPOSED OF POLYETHYLENE PLASTIC AND SHALL BE HIGHLY RESISTANT TO ALKALIS, ACIDS OR OTHER CHEMICAL COMPONENTS LIKELY TO BE ENCOUNTERED IN SOILS. THE TAPE SHALL BE RED WITH WORDS "ELECTRIC LINE BURIED BELOW" PRINTED IN BLACK LETTERS ON ONE SIDE ONLY. IT SHALL BE SUPPLIED IN CONTINUOUS ROLLS WITH THE IDENTIFYING LETTERS REPEATED FOR THE FULL LENGTH OF THE TAPE. THE CONTRACTOR SHALL BURY THE TAPE IN THE TRENCH WITH ONE STRIP PLACED APPROXIMATELY DOWN THE CENTER LINE AND 8" TO 12" BELOW THE FINAL GRADE. IT SHALL BE PLACED IN THE TRENCH WITH THE PRINTED SIDE UP AND SHALL BE ESSENTIALLY PARALLEL TO THE FINISHED SURFACE. THE CONTRACTOR SHALL TAKE ANY NECESSARY PRECAUTIONS TO INSURE THAT THE TAPE IS NOT PULLED, DISTORTED OR OTHERWISE MISPLACED IN COMPLETING THE TRENCH BACKFILLING. THE TAPE SHALL BE TERRA TAPE, ALLEN SYSTEM'S OR AN EQUAL AS APPROVED BY THE ENGINEER IN ADVANCE.

THE TAPE SHALL BE INSTALLED INCIDENTAL TO THE TRENCH BACKFILL. THEREFORE, NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK.

ITEM 631 - CHANGEABLE MESSAGE SIGN, ELECTRIC TYPE, LIMITED MESSAGE, AS PER PLAN

THE CHANGEABLE MESSAGE SIGN SHALL BE SINGLE FACED, FIBER OPTIC AND SHALL DISPLAY THE "NO RIGHT TURN" SYMBOL (R-120) OR THE "NO LEFT TURN" SYMBOL (R-121) OR A NO TURN SYMBOL. A SUPPLEMENTARY MESSAGE SHALL PROVIDED IF INDICATED ON THE PLANS. THE SIGN LEGEND SHALL NOT BE VISIBLE WHEN SIGN IS DE-ENERGIZED. THE CHANGEABLE MESSAGE SIGN SHALL BE RIGID MOUNTED AT THE LOCATION INDICATED ON THE POLE CHARTS.

THE SIGN SHALL BE FURNISHED BY ONE OF THE FOLLOWING MANUFACTURERS OR AN ACCEPTED EQUIVALENT:

NATIONAL SIGN AND SIGNAL COMPANY
301 S. ARMSTRONG ROAD
BATTLE CREEK, MI 49051
PHONE: (616) 963-2817

MATEC FIBER OPTICS
56 HUDSON STREET
NORTHBORO, MA 01532
PHONE: (508) 393-3753

PAYMENT FOR ALL LABOR, MATERIALS, TOOLS, EQUIPMENT AND OTHER INCIDENTALS, INCLUDING MOUNTING BRACKETS AND MISCELLANEOUS HARDWARE, SHALL BE AT THE CONTRACT UNIT PRICE BID FOR ITEM 631 - CHANGEABLE MESSAGE SIGN, ELECTRIC TYPE, LIMITED MESSAGE, AS PER PLAN.

ITEM 632 - FOUNDATIONS

IN ADDITION TO THE REQUIREMENTS OUTLINED IN SECTION 632.13, THE FOLLOWING SHALL APPLY TO FOUNDATIONS:

MAST ARM FOUNDATIONS SHALL BE PROVIDED WITH A SPARE 2 INCH DIAMETER CONDUIT SWEEP FOR FUTURE USE. THE CONDUIT SWEEP SHALL BE CAPPED AT BOTH ENDS. THE DIRECTION OF THE SWEEP SHALL BE OPPOSITE THE SIGNAL CONDUIT UNLESS OTHERWISE DIRECTED BY THE ENGINEER. AT POLES DESIGNATED WITH LUMINAIRE EXTENSIONS, THE CONTRACTOR SHALL CONTACT THE APPROPRIATE UTILITY COMPANY TO VERIFY THE SIZE AND THE DIRECTION OF THE CONDUIT SWEEP.

IF UNDERGROUND OBSTRUCTIONS ARE ENCOUNTERED THAT PRECLUDE THE USE OF THE STANDARD FOUNDATION DESIGN, THE CONTRACTOR MAY SUBSTITUTE THE ALTERNATE FOUNDATION AS SHOWN ON THE DETAIL FOR DESIGN 1,2 OR 3, ON SHEET 16, IF DIRECTED BY THE ENGINEER. IF THIS ALTERNATE FOUNDATION ALSO CAN NOT BE CONSTRUCTED, THE REQUIREMENT OF "ITEM SPECIAL - FOUNDATION TEST HOLES" SHALL APPLY.

ITEM 632 - PEDESTRIAN PUSHBUTTON, AS PER PLAN

PEDESTRIAN PUSHBUTTONS SHALL BE FURNISHED WITH A RUBBER DUST COVER OVER THE EXPOSED BUTTON.

PAYMENT FOR ALL LABOR, MATERIALS, TOOLS, EQUIPMENT AND OTHER INCIDENTALS, INCLUDING RUBBER DUST COVER, SHALL BE AT THE CONTRACT UNIT PRICE BID FOR "ITEM 632 - PEDESTRIAN PUSHBUTTON, AS PER PLAN."

ITEM 632 - LOOP DETECTOR UNIT, 2 CHANNEL, DELAY AND EXTENSION TYPE, AS PER PLAN

LOOP DETECTOR UNITS SHALL BE A DELAY AND EXTENSION TYPE WITH TWO CHANNELS WITH TIMING FUNCTION AND COUNT OUTPUTS. IN ADDITION TO THE REQUIREMENTS OF 632.09 AND 732.07 OR 732.08, LOOP DETECTOR UNITS SHALL HAVE THE FOLLOWING REQUIREMENTS OR FEATURES:

THE OUTPUT DEVICE SHALL BE A RELAY AND ALL CONTACT SHALL BE INCLUDED IN THE WIRING HARNESS.

THE UNIT SHALL BE SELF TUNING.

THE UNIT'S ELECTRICAL CONNECTION PLUGS OR WIRING HARNESS SHALL ALLOW READY REPLACEMENT WITH A SINGLE CHANNEL AMPLIFIER AS DESCRIBED IN THE FINAL PARAGRAPH OF 732.07.

UNITS SHALL HAVE A DUAL OUTPUT FOR SYSTEM PURPOSES AND PULSE/PRESENCE PHASE CALLING PURPOSES.

PAYMENT FOR EACH TWO CHANNEL DETECTOR UNIT, ALL LABOR, MATERIALS, TOOLS, EQUIPMENT AND OTHER INCIDENTALS, INCLUDING WIRING HARNESS, SHALL BE AT THE CONTRACT UNIT PRICE BID FOR "ITEM 632 - LOOP DETECTOR UNIT, 2 CHANNEL, DELAY AND EXTENSION TYPE, AS PER PLAN."

ITEM 632 - SIGNALIZATION, MISC.: MICROWAVE DETECTOR

MICROWAVE DETECTORS SHALL BE SPECIFICALLY DESIGNED AND CONSTRUCTED FOR PRESENCE DETECTION OF VEHICLES IN AN OUTDOOR ENVIRONMENT. THE UNIT SHALL BE CAPABLE OF EITHER SIDE MOUNTING ON SIGNAL POLES OR PEDESTALS OR OVERHEAD MOUNTING ON SIGNAL MAST ARMS. THE UNITS SHALL HAVE AN ADJUSTABLE DETECTION PATTERN AND SHALL BE CAPABLE OF CONTINUOUS PRESENCE DETECTION. EACH DETECTOR SHALL BE FURNISHED COMPLETE WITH ALL REQUIRED MOUNTING HARDWARE, CABLE CONNECTORS, RELAYS AND WIRING HARNESSES NECESSARY FOR A COMPLETE AND FUNCTIONING INSTALLATION.

DETECTORS INSTALLED ON MAST ARMS SHALL BE ATTACHED TO THE ARM USING STAINLESS STEEL BANDS AND POLE HUB CLAMPS. THE DETECTOR LEAD-IN CABLE SHALL UTILIZE THE WIRE OUTLET HOLE OF THE NEAREST VEHICULAR SIGNAL. DETECTORS INSTALLED ON POLES SHALL BE ATTACHED TO THE POLE AT THE HEIGHT SPECIFIED ON THE PLANS, USING STAINLESS STEEL BANDS AND POLE HUB CLAMPS.

DETECTORS SHALL BE AIMED BY THE CONTRACTOR FOR MAXIMUM PRESENCE COVERAGE OF THE REQUIRED LANE(S) AND MINIMUM SPILL-OVER INTO ADJACENT UN-DETECTED LANES, TO THE SATISFACTION OF THE ENGINEER.

PAYMENT FOR ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, AND OTHER INCIDENTALS, INCLUDING ALL MOUNTING HARDWARE AND DETECTOR AIMING, SHALL BE AT THE CONTRACT UNIT PRICE BID FOR "ITEM 632 - SIGNALIZATION, MISC.: MICROWAVE DETECTOR."

ITEM 632 - VEHICULAR SIGNAL HEAD, 3,4 OR 5 SECTION, 12" LENS, 1 WAY, AS PER PLAN

SECTION 732.01 OF THE SPECIFICATIONS IS MODIFIED FOR THIS PROJECT AS FOLLOWS:

- A) SIGNAL HEADS AND VISORS SHALL BE CONSTRUCTED OF INJECTION MOLDED, UV STABILIZED, POLYCARBONATE PLASTIC AND MEET ITE SPECIFICATIONS.
- B) PLASTIC LENSES SHALL BE USED.
- C) PIPE, SPACERS AND FITTINGS CONSTRUCTED OF POLYCARBONATE PLASTIC MAY BE USED IN LIEU OF GALVANIZED STEEL OR ALUMINUM.
- D) PROPER EXTERIOR COLORS SHALL BE OBTAINED BY USE OF COLORED PLASTIC MATERIAL RATHER THAN PAINTING.
- E) CENTERLINE OF RED LENS SHALL MATCH CENTERLINE OF MAST ARM, RIGID MOUNTED.
- F) STAINLESS STEEL BANDS AND POLE HUB PLATES SHALL BE USED, WHERE REQUIRED, TO MOUNT SIGNALS ON POLES.

ITEM 632 - PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN

SECTION 732.05 OF THE SPECIFICATIONS IS MODIFIED FOR THIS PROJECT AS FOLLOWS:

- A) SIGNAL HEADS AND VISORS MAY BE CONSTRUCTED OF POLYCARBONATE PLASTIC AND MEET ITE SPECIFICATION. OTHERWISE SIGNAL HEADS SHALL BE ALUMINUM. SIGNAL HEADS SHALL BE TYPE D2.
- B) PLASTIC LENSES SHALL BE USED.
- C) PIPE, SPACERS AND FITTINGS CONSTRUCTED OF POLYCARBONATE PLASTIC MAY BE USED IN LIEU OF GALVANIZED STEEL OR ALUMINUM IF PLASTIC SIGNAL HEADS ARE FURNISHED.
- D) INSTALLATION SHALL BE PER ODOT STANDARD CONSTRUCTION DRAWING TC-85.10 WITH THE EXCEPTION THAT "CLAM SHELLS" SHALL NOT BE USED.
- E) THE INTERNATIONAL PALM AND PEDESTRIAN SYMBOLS SHALL BE USED.
- F) STAINLESS STEEL BANDS AND POLE HUB PLATES SHALL BE USED TO MOUNT SIGNALS ON POLES.

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ITEM 625 - PULL BOX, MISC.: 13"x24"

ALL PULL BOXES SHALL BE AS SPECIFIED AS FOLLOWS:

SIZE:

- BOX - 13" X 24" X 18" DEEP (NOMINAL)
BOX TO TAPERED OUTWARD FROM TOP TO THE OPEN BOTTOM
INSIDE BOX DIMENSIONS 20"W X 29 1/2"L MINIMUM
- COVER - 13 3/4" X 23 1/4" X 2", OVERALL WEIGHT 50 LBS.

LOAD CAPACITY:

15,000 LBS. ON A 10" X 10" AREA TESTED IN ACCORDANCE WITH WESTERN UNDERGROUND COMMITTEE GUIDE 3.6. COVER DEFLECTION TO BE LESS THAN 1/2" AT DESIGN LOAD AND SHOW NO SIGNS OF DAMAGE AFTER 10 CYCLES AT DESIGN LOAD.

MATERIAL AND CONSTRUCTION:

- BOX - THE BODY SHALL BE MADE OF FIBER GLASS REINFORCED POLYMER (FRP) WITH ISOPHTHALIC POLYESTER USING THE SPRAY-UP AND ROLL CONSTRUCTION METHOD. THE MATERIAL MUST HAVE STABILIZERS TO RESIST UV DEGRADATION IN ACCORDANCE WITH ASTM D-790 AND ASTM D-1501-71 SECTION 6, PROCEDURE B. THE TOP RING OF THE BOX WILL BE MADE OF POLYMER CONCRETE USING A POLYESTER BINDER WITH AGGREGATE FILLERS AND CHOPPED FIBER GLASS WITH A MINIMUM TENSILE STRENGTH OF 1,900 PSI. THE RING MUST HAVE THE SAME UV RESISTANCE AS THE FRP MATERIAL. THE THREADED INSERTS (2) FOR THE COVER BOLTS MUST BE STAINLESS STEEL.
- COVER - THE COVER SHALL BE MADE WITH A THICK MOLDING COMPOUND (TMC) USING THE COMPRESSION MOLDING METHOD. THE TMC SHALL CONSIST OF A MINIMUM 10% FIBER GLASS IN A CALCIUM CARBONATE AND POLYESTER RESIN MATRIX. THE COVER MUST BE MARKED "TRAFFIC" HAVE A NON-SKID SURFACE AND THE SAME UV RESISTANCE AS THE FRP MATERIAL. TWO RECESSED HEX HEAD STAINLESS STEEL BOLTS AND WASHERS WILL BE USED TO SECURE THE COVER TO THE BOX.

PAYMENT FOR ALL LABOR, MATERIALS, TOOLS, EQUIPMENT AND OTHER INCIDENTALS SHALL BE AT THE CONTRACT UNIT PRICE BID FOR ITEM 625 - PULL BOX, MISC.: 13"x24".

ITEM 623 - CONSTRUCTION LAYOUT STAKES, AS PER PLAN

THE CONTRACTOR SHALL ESTABLISH CENTER LINES AND/OR BASE LINES AND STATIONING FOR BOTH THE MAIN STREET AND THE CROSS STREET USING INFORMATION CONTAINED ON THE PLANS. THE ESTABLISHED LINES AND STATIONING SHALL BE MAINTAINED THROUGHOUT THE DURATION OF THE PROJECT BY THE CONTRACTOR.

PAYMENT FOR ALL LABOR, MATERIALS AND OTHER INCIDENTALS, INCLUDING SURVEYING SERVICES, SHALL BE INCLUDED IN THE CONTRACT LUMP SUM PRICE BID FOR ITEM 623 - CONSTRUCTION LAYOUT STAKES, AS PER PLAN.

ITEM 632-LOOP DETECTOR PAVEMENT CUTTING

THE SPACING FOR SAWCUTS FOR LOOP DETECTOR WIRE TO THE ADJACENT PULLBOX SHALL BE 6 INCHES MINIMUM. NO MORE THAN TWO (2) PAIRS OF LOOP WIRE SHALL BE INSTALLED IN EACH 3/4 INCH CONDUIT.

ITEM 632-LOOP DETECTOR LEAD-IN CABLE

LOOP DETECTOR LEAD-IN CABLE SHALL BE USED FOR LOOP DETECTORS, PEDESTRIAN PUSHBUTTONS AND CHANGEABLE MESSAGE SIGNS.

ITEM 632 - SIGNALIZATION, MISC.: MICROWAVE DETECTOR LEAD-IN CABLE

THE MICROWAVE DETECTOR LEAD-IN CABLE SHALL BE FOUR CONDUCTOR CABLE, OF A TYPE AND SIZE SPECIFICALLY DESIGNED FOR MICROWAVE DETECTOR USE AS RECOMMENDED BY THE DETECTOR MANUFACTURER.

PAYMENT FOR ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, AND OTHER INCIDENTALS, INCLUDING SPECIAL SPLICE KITS AND CONNECTIONS AS REQUIRED, SHALL BE INCLUDED IN THE CONTRACT LINEAR FOOT PRICE BID FOR "ITEM 632 - SIGNALIZATION, MISC.: MICROWAVE DETECTOR LEAD-IN CABLE."

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

TRAFFIC SIGNAL INSTALLATIONS, INCLUDING SIGNAL HEADS, PEDESTRIAN HEADS, CABLE, SPAN WIRE, STRAIN POLES, CABINET, CONTROLLER, ETC. SHALL BE REMOVED IN ACCORDANCE WITH 632.25 AND AS INDICATED ON THE PLANS. THE CONTROLLER AND SPAN WIRE ASSEMBLIES ARE TO BE REMOVED AT EVERY INTERSECTION IN THE PROJECT. POLES AT EACH SPECIFIC INTERSECTION, ARE TO BE REMOVED AS INDICATED ON THE PLAN, OR AS DIRECTED BY THE ENGINEER. ALL POLE MOUNTED SIGNAL HEADS ARE TO BE REMOVED. TRAFFIC SIGNAL HEADS AND CONTROLLERS SHALL BE STORED IN A SECURE LOCATION AND SHALL BE PICKED-UP BY CITY FORCES. ALL OTHER REMOVED EQUIPMENT INCLUDING POLES, SPAN WIRE, SIGNAL WIRE AND STREET NAME SIGNS SHALL BE DISPOSED OF BY THE CONTRACTOR, UNLESS OTHERWISE NOTED ON THE PLANS.

THIS ITEM SHALL ALSO INCLUDE REMOVING EXISTING PAVEMENT MARKINGS AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

EXISTING TRAFFIC REGULATION SIGNS MOUNTED ON POLES TO BE REMOVED SHALL BE RELOCATED TO PROPOSED SIGNAL POLES OR NEW SIGN POSTS. THE LOCATION OF ALL RELOCATED SIGNS SHALL BE APPROVED BY THE ENGINEER.

PAYMENT FOR ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, AND OTHER INCIDENTALS, INCLUDING REMOVING, STORING SIGNS AND RE-MOUNTING SIGNS AND REMOVING PAVEMENT MARKINGS SHALL BE AT THE CONTRACT UNIT PRICE BID FOR "ITEM 632 - REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN." THE COST OF SIGN SUPPORT ASSEMBLIES AND GROUND MOUNTED SIGN SUPPORTS SHALL BE AS SPECIFIED HEREINBEFORE FOR THOSE ITEMS.

ITEM 806-FIELD OFFICE, TYPE B, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF 806, THE FIELD OFFICE SHALL HAVE THE FOLLOWING:

1. FOR EACH TELEPHONE SPECIFIED, THERE SHALL BE INCLUDED THE TELEPHONE ITSELF, ALL WIRING NECESSARY TO CONNECT THE PHONE AND COMPUTER OR FAX MACHINES TO THE PHONE COMPANY SYSTEM AND A WORKING SEPARATE PHONE NUMBER FOR EACH TELEPHONE.
2. ONE (1) CELLULAR PHONE

ALL COSTS FOR THE ITEMS LISTED ABOVE SHALL BE INCLUDED IN THE UNIT BID PRICE FOR ITEM 806-FIELD OFFICE, TYPE B, AS PER PLAN.

ITEM 632 - POWER SUPPLY

ELECTRIC POWER SHALL BE OBTAINED FROM THE APPROPRIATE UTILITY COMPANY AT THE LOCATIONS INDICATED ON THE PLANS, AS VERIFIED WITH THE UTILITY COMPANY. POWER SUPPLY SHALL BE 120 VOLT, UNMETERED, AS FURNISHED BY THE UTILITY COMPANY. PAYMENT SHALL BE FOR THE VARIOUS ITEMS CONDUIT, CONDUIT RISER AND POWER CABLE.

ITEM 632 - PHONE DROP, AS PER PLAN

THIS ITEM OF WORK SHALL CONSIST OF SUPPLYING A PHONE DROP TO THE MASTER CONTROLLERS AT THE FOLLOWING INTERSECTIONS:

- LEE ROAD AND JUDSON DRIVE
- BUCKEYE ROAD AND WOODLAND AVENUE
- LORAIN AVENUE AND WEST 24 STREET
- LORAIN AVENUE AND FULTON ROAD

IT SHALL INCLUDE CONDUIT RISER (WHERE REQUIRED), SHIELDED 2 CONDUCTOR CABLE, LIGHTNING ARRESTOR AND CABINET TERMINALS TO COMPLETELY WIRE TO THE TELEPHONE MODEM. CONDUIT AND TRENCH BETWEEN THE CONTROLLER AND THE TELEPHONE SERVICE LOCATION SHALL BE INCLUDED IN THIS ITEM. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAKE ARRANGEMENTS WITH THE LOCAL TELEPHONE COMPANY TO VERIFY THE LOCATION SHOWN ON THE PLANS AND HAVE TELEPHONE SERVICE DROP INSTALLED.

TELEPHONE SERVICE SHALL BE PAID BY THE CONTRACTOR UNTIL THE SYSTEM IS ACCEPTED, AT WHICH TIME PAYMENT RESPONSIBILITY WILL BE TRANSFERRED TO THE CITY OF CLEVELAND TELEPHONE DEPARTMENT.

PAYMENT FOR ALL LABOR, MATERIALS, TOOLS, EQUIPMENT AND OTHER INCIDENTALS, INCLUDING TEMPORARY TELEPHONE SERVICE, CONDUIT AND TRENCH, SHALL BE AT THE CONTRACT UNIT PRICE BID FOR "ITEM 632 - PHONE DROP, AS PER PLAN."

ITEM 642 - LANE LINES AND CENTER LINES

LANE LINES AND CENTER LINES SHALL BE PLACED WHERE INDICATED ON THE PLANS OR AS DIRECTED BY THE ENGINEER USING TYPE 2 TRAFFIC PAINT. THE FOLLOWING ADDITIONAL QUANTITIES ARE ESTIMATED:

ITEM	TOTAL	UNIT	DESCRIPTION
642	0.10	MI	LANE LINE, TYPE 2
642	0.20	MI	CENTER LINE, TYPE 2

ITEM 644 - STOP LINES, CROSSWALK LINES, DOTTED LINES, ARROWS, WORDS

STOP LINES, CROSSWALK LINES, ARROWS AND WORDS SHALL BE PLACED WHERE INDICATED ON THE PLANS OR AS DIRECTED BY THE ENGINEER USING THERMOPLASTIC. THE FOLLOWING ADDITIONAL QUANTITIES ARE ESTIMATED:

ITEM	TOTAL	UNIT	DESCRIPTION
644	500	LF	STOP LINE
644	500	LF	CROSSWALK LINE
644	10	EA	LANE ARROW
644	5	EA	WORD ON PAVEMENT, 72"
644	50	LF	DOTTED LINE

ITEM 642 - REMOVAL OF PAVEMENT MARKING

PAVEMENT MARKING LINES, ARROWS AND WORDS SHALL BE REMOVED WHERE INDICATED ON THE PLANS OR AS DIRECTED BY THE ENGINEER. THE FOLLOWING ADDITIONAL QUANTITIES ARE ESTIMATED:

ITEM	TOTAL	UNIT	DESCRIPTION
642	500	LF	REMOVAL OF PAVEMENT MARKING
642	10	EA	REMOVAL OF PAVEMENT MARKING

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ITEM 633 - CONTROLLER, MASTER, TRAFFIC RESPONSIVE, AS PER PLAN

1. THIS ITEM OF WORK SHALL CONSIST OF FURNISHING AND INSTALLING A SOLID STATE DIGITAL MICROPROCESSOR TYPE TRAFFIC RESPONSIVE MASTER CONTROLLER WITH MENU DRIVEN PROMPTS, INTERNAL TIME BASE COORDINATOR, TELEMETRY UNIT, IN THE LOCAL CONTROLLER CABINET, AND ALL OTHER ACCESSORIES THAT ARE NECESSARY TO MAKE THE MASTER COMPLETELY FUNCTIONAL AND OPERATIONAL AS SHOWN IN THE PLANS. THIS ITEM SHALL ALSO INCLUDE THE EXTRA CABINET SPACE NECESSARY TO BE LOCATED IN THE LOCAL CONTROLLER CABINETS WHERE INDICATED ON THE PLANS.
2. A TELEPHONE MODEM AT THE INTERSECTION SHALL BE COMPLETELY WIRED TO REPORT CABINET FAILURES, DETECTOR FAILURES AND TRAFFIC COUNTS. THE CONTROLLER SHALL BE COMPLETELY COMPATIBLE WITH ONE OF THE CITY OF CLEVELAND'S CLOSED LOOP SYSTEMS AND WITH THE CLOSED LOOP SYSTEM SOFTWARE TO BE FURNISHED IN THIS CONTRACT.
3. THE MASTER CONTROLLER LOCATIONS ARE AS FOLLOWS:
 1. LEE ROAD AND JUDSON AVENUE
 2. BUCKEYE ROAD AND WOODLAND AVENUE
 3. LORAIN AVENUE AND WEST 24 STREET
 4. LORAIN AVENUE AND FULTON ROAD.
4. THE MASTER CONTROLLERS SHALL BE LIMITED TO ONE OF THE FOLLOWING TWO MANUFACTURERS AND SYSTEMS ON EACH ARTERIAL:
 1. TRANSYT "SMARTWAYS"
 2. EAGLE/AUTOMATIC SIGNAL "MARC"

PAYMENT FOR "ITEM 633 - CONTROLLER, MASTER, TRAFFIC RESPONSIVE, AS PER PLAN" WILL BE MADE AT THE CONTRACT UNIT PRICE BID FOR EACH CONTROLLER IN PLACE, COMPLETELY INSTALLED WITH THE LOCAL CONTROLLER SHOWN IN THE PLANS, WIRED, TESTED AND ACCEPTED.

ITEM 633 - CONTROLLER, ACTUATED, 8 PHASE, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN

PAYMENT FOR "ITEM 633 - CONTROLLER, ACTUATED, 8 PHASE, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN" WILL BE AT THE CONTRACT UNIT PRICE BID PER EACH COMPLETE AND IN PLACE INCLUDING ALL CONNECTIONS, TESTED AND ACCEPTED.

1. THE CABINET SHALL BE BASE MOUNTED.
 LOCAL CABINETS SHALL BE CONSTRUCTED TO APPROXIMATELY THE FOLLOWING DIMENSIONS:
 30" L X 17" W X 57 1/2" H.
 CONDUITS SHALL BE ALIGNED HORIZONTALLY ACROSS THE CABINET BASE FOUNDATION.
 ALL SIGNAL CABLE SHALL BE TIED, LABELED AND ROUTED NEATLY ALONG THE FOUNDATION AND TERMINATED ACCORDING TO FUNCTION, AS ACCEPTED BY ODOT AND THE CITY.
2. THE CABINET SHALL BE DELIVERED PREWIRED AND SHALL INCLUDE FOUR ADDITIONAL LOOP DETECTOR WIRING HARNESSSES FOR FUTURE USE.
3. THE CABINET SHALL BE DELIVERED PRE-PAINTED BRONZE (BROWN) IN COLOR, AS SPECIFIED IN "PAINTING."
4. THE FOLLOWING SWITCHES SHALL BE ACCESSIBLE VIA THE POLICE DOOR PANEL:
 - A. SIGNAL SHUTDOWN
 - B. FLASH CONTROL
 - C. AUTOMATIC/MANUAL TRANSFER
5. THE FOLLOWING SWITCHES SHALL BE MOUNTED ON THE SWITCH PANEL IN THE CABINET:
 - A. RUN/STOP TIMING
 - B. CONTROLLER TIMER POWER
 - C. DETECTOR TEST
6. OVERLAP PROGRAMMING SHALL BE BY USE OF A INTERCHANGEABLE PLUG-IN PRINTED CIRCUIT BOARD ASSEMBLY AS DESCRIBED IN PART 14 OF NEMA TS-1, 1983.
7. IN ADDITION TO NEMA REQUIREMENTS THE CONFLICT MONITOR SHALL ALSO HAVE EXTENDED MONITORING IN ACCORDANCE WITH 733.04, PART 3B. THE MONITOR SHALL ALSO HAVE AUTO LOGGING AND CENTRAL OFFICE COMPUTER DATA TRANSFER CAPABILITIES.
8. THE CONTROLLER SHALL BE COMPATIBLE WITH THE EXISTING CITY OF CLEVELAND'S DOWNTOWN CLOSED LOOP SYSTEM AND SHALL INCLUDE ALL COMMUNICATION AND INTERFACE EQUIPMENT THAT WILL ENABLE TRANSMISSION AND RECEPTION OF ALL REQUIRED PATTERN AND COMMAND DATA TO AND FROM THE CENTRAL OFFICE COMPUTER, THE MASTER CONTROLLER AND THE LOCAL INTERSECTION CONTROLLERS.
9. THE CONTROLLERS ON EACH ARTERIAL SHALL BE FROM THE SAME MANUFACTURER AS THE MASTER CONTROLLER FURNISHED FOR THE RESPECTIVE ARTERIAL AND SHALL BE LIMITED TO ONE OF THE FOLLOWING TWO MANUFACTURERS AND MODELS:
 1. PEEK CORPORATION, TRANSYT 1880EL "SMARTWAYS" CLOSED LOOP
 2. EPAC 300 SERIES EAGLE/AUTOMATIC SIGNAL "MARC" CLOSED LOOP

PAYMENT FOR "ITEM 633 - CONTROLLER, ACTUATED, 8 PHASE, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN" WILL BE AT THE CONTRACT UNIT PRICE BID PER EACH COMPLETE AND IN PLACE INCLUDING ALL CONNECTIONS, TESTED AND ACCEPTED.

ITEM 633 - CONTROLLER, MISC.: ANALYZE AND IMPLEMENT A TRAFFIC RESPONSIVE SIGNAL SYSTEM

SYSTEM TIMING AND ANALYSIS

A. GENERAL DESCRIPTION

THE PURPOSE OF THIS WORK IS TO FURNISH ALL MATERIALS, LABOR, TOOLS, AND EQUIPMENT NECESSARY TO PLACE INTO FULL OPERATION TRAFFIC RESPONSIVE, CLOSED LOOP TRAFFIC SIGNAL COORDINATION SYSTEMS ON THE THREE ARTERIALS.

THIS WORK SHALL CONSIST OF PREPARING SIGNAL TIMING AND TRAFFIC PROGRESSION PROGRAMS, LOADING THE PROGRAMS INTO THE SIGNAL SYSTEMS, EVALUATING THE PERFORMANCE OF THE SYSTEMS, AND REFINING THE PROGRAMS AS NECESSARY TO OPTIMIZE TRAFFIC FLOW AND OPERATION ON THE ARTERIALS. THE WORK SHALL INCLUDE TRAFFIC DATA COLLECTION AND EVALUATION, TRAFFIC SIGNAL PROGRESSION AND TIMING ANALYSES, DEVELOPMENT OF TRAFFIC ADJUSTED PATTERN SELECTION PARAMETERS, PERFORMING THE SYSTEM EVALUATIONS AND REFINEMENT OF THE SYSTEM OPERATIONS AND PREPARING AND SUBMITTING A SUMMARY REPORT FOR REVIEW AND APPROVAL BY THE ENGINEER. THE TRAFFIC ANALYSIS SHALL INCLUDE ALL INTERSECTIONS LOCATED WITHIN THE LIMITS OF THE CONTRACT.

IT IS THE INTENT OF THIS ITEM OF WORK TO REDUCE THE TOTAL AMOUNT OF DELAY AND THE TOTAL NUMBER OF STOPS OCCURRING TO ALL TRAFFIC ON EACH ARTERIAL. PEDESTRIAN TRAFFIC SHOULD BE CONSIDERED WHEN ANALYZING AND DEVELOPING SIGNAL TIMING PLANS.

IT IS THE INTENT OF THIS ITEM OF WORK TO OPTIMIZE ONLY CYCLE LENGTHS, PHASE SPLITS, PERMISSIVES AND OFFSETS AND NOT TO CHANGE THE ACTUAL PHASING (AS DEPICTED IN THE PHASE DIAGRAM) THAT IS PROVIDED IN THE PLAN.

AS PART OF THIS ITEM OF WORK, TRAFFIC COUNTS AND TURNING MOVEMENT COUNTS SHALL BE REQUIRED AT EACH INTERSECTION FOR THE FOUR (4) TIME PERIODS LISTED UNDER PART D - "SYSTEM TRAVEL STUDIES". THIS INFORMATION SHALL BE INCLUDED IN THE REPORT.

B. SYSTEMS ENGINEER OR TECHNICIAN:

THE WORK SHALL BE PERFORMED BY A PERSON EXPERIENCED IN TRAFFIC ENGINEERING OR TRAFFIC ENGINEERING TECHNOLOGY. THE SYSTEMS ENGINEER OR TECHNICIAN SHALL HAVE A MINIMUM OF FIVE (5) YEARS EXPERIENCE IN TRAFFIC ENGINEERING OR TRAFFIC ENGINEERING TECHNOLOGY AND SHALL BE KNOWLEDGEABLE WITH THE DESIGN AND OPERATION OF "CLOSED LOOP" TRAFFIC CONTROL AND SURVEILLANCE SYSTEMS. THE SYSTEMS ENGINEER OR TECHNICIAN SHALL BE FAMILIAR WITH THE TYPE OF "CLOSED LOOP" SYSTEM INSTALLED ON THIS PROJECT AND SHALL HAVE PREVIOUSLY SET-UP AND FINED-TUNED A SYSTEM OF THIS TYPE.

THREE (3) COPIES OF A RESUME DOCUMENTING THE FOLLOWING SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL:

THE SYSTEM ENGINEER OR TECHNICIAN'S EDUCATION INCLUDING TRAINING IN TRAFFIC ENGINEERING TECHNOLOGY AND SIGNAL SYSTEM DESIGN.

THE SYSTEM ENGINEER OR TECHNICIAN'S FAMILIARITY WITH THE "CLOSED LOOP" TYPE SYSTEM USED ON THIS PROJECT AND EXPERIENCE IN SETTING UP AND FINE TUNING A SYSTEM OF THIS TYPE. A LISTING OF OTHER CLOSED LOOP SYSTEMS THAT THE SYSTEM ENGINEER OR TECHNICIAN HAS PROGRAMMED INTO THE TRAFFIC RESPONSIVE MODE SHALL BE PROVIDED TO THE ENGINEER FOR DOCUMENTATION PURPOSES.

A BRIEF DESCRIPTION OF PROPOSED METHODOLOGY OF DATA COLLECTION AND ANALYSIS, OF SYSTEM PARAMETER USAGE IN SYSTEM EVALUATION, OF FREQUENCY AND MEASUREMENT OF TRAVEL TIME AND DELAY, AND COMPARING ACTUAL VERSES SYSTEM MEASUREMENTS OF DELAYS - LEVEL OF SERVICE.

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THE SYSTEMS ENGINEER OR TECHNICIAN UNDER AUTHORITY OF THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE OPERATION OF THE SYSTEM, FROM THE START OF THE 180 DAY PERFORMANCE GUARANTEE (AS NOTED IN THE "GUARANTEE" PLAN NOTE SHOWN ON SHEET 2) UNTIL COMPLETION AND ACCEPTANCE OF THE FINAL SUMMARY REPORT BY THE ENGINEER. THE SYSTEMS ENGINEER OR TECHNICIAN SHALL PROVIDE A TWENTY FOUR (24) HOUR EMERGENCY PHONE NUMBER AND SHALL RESPOND TO SYSTEM RELATED PROBLEMS AS DEEMED NECESSARY BY THE ENGINEER TWENTY FOUR (24) HOURS A DAY, SEVEN DAYS A WEEK. THE ENGINEER RESERVES THE RIGHT TO REQUEST A SYSTEMS ANALYSIS THROUGHOUT THE ENTIRE DURATION OF THE 180 DAY GUARANTEE PERIOD, SHOULD NEW OR CONTINUING PROBLEMS OCCUR WITH THE OPERATION OF THE TRAFFIC RESPONSIVE SYSTEM.

THE ENGINEER RESERVES THE RIGHT TO REQUEST THAT THE CONTRACTOR PROVIDE A NEW SYSTEMS ENGINEER OR TECHNICIAN SHOULD THE CURRENT SYSTEMS ENGINEER OR TECHNICIAN FAIL TO PERFORM THE REQUIRED DUTIES IN A TIMELY AND PROFESSIONAL MANNER OR FAIL TO HAVE A FIRM UNDERSTANDING OF THE OPERATION AND PROGRAMMING OF THE CLOSED LOOP SYSTEM CONSTRUCTED UNDER THIS PROJECT.

THE SYSTEMS ENGINEER OR TECHNICIAN MAY DELEGATE NONTECHNICAL TASKS (I.E. TRAVEL TIME RUNS, INTERSECTION TRAFFIC COUNTS, ETC.) TO PERSONNEL UNDER HIS/HER DIRECT SUPERVISION, PROVIDED THAT APPROVAL IS RECEIVED BY THE ENGINEER PRIOR TO COMMENCING THIS WORK. THE SYSTEMS ENGINEER OR TECHNICIAN SHALL SUBMIT TO THE ENGINEER IN WRITING A LIST OF THOSE TASKS, WHICH ARE TO BE PERFORMED BY OTHER PERSONNEL. THE ENGINEER RESERVES THE RIGHT TO DENY PART OR ALL OF THE REQUEST FOR WORK TO BE PERFORMED BY PERSONNEL OTHER THAN THE SYSTEMS ENGINEER OR TECHNICIAN.

C. TRAFFIC PROGRAMS:

SIGNAL PROGRESSION AND TIMING PROGRAMS SHALL BE DEVELOPED BY THE SYSTEMS ENGINEER OR TECHNICIAN FROM COUNT AND OCCUPANCY DATA OBTAINED FROM THE LOCAL INTERSECTION AND SYSTEM LOOP DETECTORS, SUPPLEMENTED BY FIELD COUNTS AND MEASUREMENTS AS REQUIRED. THE SIGNAL PROGRESSION PROGRAMS TO BE DEVELOPED FOR EACH ARTERIAL SHALL BE AS FOLLOWS:

THREE (3) INBOUND PREFERENTIAL (AM PEAK)

THREE (3) OUTBOUND PREFERENTIAL (PM PEAK)

THREE (3) AVERAGE (OFF PEAK) NOTE: THE THREE AVERAGE PROGRAMS SHOULD UTILIZE VARYING CYCLE LENGTHS BASED ON TRAFFIC VOLUME, DENSITY AND OCCUPANCY TO MINIMIZE OVERALL INTERSECTION APPROACH DELAY TIME.

TWO (2) SPECIAL PROGRAMS FOR EITHER HIGH CONGESTION OR QUEUE BACKUP. ONE PROGRAM WILL BE FOR THE AM PEAK PERIOD (INBOUND FLOW). THE OTHER PROGRAM WILL BE FOR THE PM PEAK PERIOD (OUTBOUND FLOW).

A MINIMUM OF THREE (3) TIMING PLANS FOR A BACK UP TIME BASE COORDINATED SYSTEM SHALL BE DEVELOPED AND PROGRAMMED INTO THE SYSTEM, TO REPLACE OR SUPPLEMENT THE TIMING PLANS SHOWN IN THE PLANS.

DEFINE SYSTEM PARAMETERS WHICH WILL ENABLE THE SYSTEMS TO AUTOMATICALLY TRANSFER INTO A "FREE OPERATION" MODE DURING LIGHT TRAFFIC VOLUME PERIODS AND TO AUTOMATICALLY TRANSFER TO A COMPUTER SELECTED COORDINATED MODE DURING HEAVY TRAFFIC VOLUME PERIODS.

THE FOLLOWING SYSTEM PARAMETERS SHALL BE ESTABLISHED:

VOLUME, OCCUPANCY, AND DIRECTIONALITY THRESHOLDS

TRANSITION SMOOTHING FACTORS

SYSTEM DETECTOR ASSIGNMENT

SYSTEM DETECTOR WEIGHING

THE SYSTEMS ENGINEER OR TECHNICIAN MAY USE THE SOFTWARE PROVIDED WITH THE CENTRAL OFFICE MONITOR TO HELP ASSIST IN HIS/HER ANALYSIS OF THE OPERATION OF THE CLOSED LOOP SYSTEM.

D. SYSTEM TRAVEL TIME STUDIES:

THE SYSTEMS ENGINEER OR TECHNICIAN SHALL CONDUCT A SERIES OF TRAVEL TIME STUDIES FOR EACH OF THE THREE ARTERIALS TO MEASURE THE TIME IT TAKES TO TRAVEL FROM THE BEGINNING OF EACH ARTERIAL SYSTEM TO THE END OF THAT ARTERIAL SYSTEM, IN EACH DIRECTION. THE TRAVEL TIME STUDY PARAMETERS SHOULD BE BASED ON THE POSTED SPEED LIMIT, HOWEVER, DURING PEAK PERIODS IT MAY NOT BE POSSIBLE TO OBTAIN THE POSTED SPEED DUE TO LARGER TRAFFIC VOLUMES.

EACH SET OF TRAVEL TIME STUDIES SHALL INCLUDE A MINIMUM OF FIVE (5) RUNS THROUGH THE SYSTEM PER DIRECTION. TRAVEL TIME STUDIES SHALL BE CONDUCTED DURING "IDEAL" WEATHER CONDITIONS (I.E. NO SNOW, RAIN OR FOG, ETC.).

THE FOUR (4) SEPARATE SETS OF TRAVEL TIME STUDIES SHALL INCLUDE THE FOLLOWING:

1. THE FIRST SET OF TRAVEL TIME STUDIES SHALL BE CONDUCTED BETWEEN THE HOURS OF 7 AM AND 9 AM ON WEEKDAYS.

2. THE SECOND SET OF TRAVEL TIME STUDIES SHALL BE CONDUCTED BETWEEN THE HOURS OF 11:30 AM AND 1 PM WEEKDAYS.

3. THE THIRD SET OF TRAVEL TIME STUDIES SHALL BE CONDUCTED BETWEEN THE HOURS OF 4 PM AND 6 PM WEEKDAYS.

4. THE FOURTH SET OF TRAVEL TIME STUDIES SHALL BE CONDUCTED DURING ANY OF THE FOLLOWING NON-PEAK HOUR PERIODS.

- 9 AM TO 11 AM MONDAY THROUGH SATURDAY
- 7 PM TO 10 PM MONDAY THROUGH SATURDAY
- 7 AM TO 10 PM SUNDAY

A WRITTEN REPORT SHALL BE PROVIDED DOCUMENTING, AT A MINIMUM, THE DATE OF TRAVEL TIME STUDY, DAY OF WEEK, TIME OF DAY, TOTAL TIME OF TRAVEL AND TOTAL TIME THE VEHICLE WAS STOPPED FOR EACH TRIP.

IN ADDITION, THE SYSTEMS ENGINEER OR TECHNICIAN SHALL CONDUCT THESE FOUR (4) SETS OF TRAVEL TIME STUDIES FOR EACH OF THE FOLLOWING FIELD CONDITIONS:

I. PRIOR TO THE BEGINNING OF CONSTRUCTION, WITH THE EXISTING SIGNAL SYSTEMS IN OPERATION (NO LANE CLOSURES SHALL BE IN EFFECT DURING THIS ANALYSIS).

II. PRIOR TO IMPLEMENTING THE TRAFFIC RESPONSIVE MODE, WHILE THE NEW TRAFFIC SIGNAL SYSTEMS ARE OPERATING UNDER THE "TIME OF DAY" MODE (AS IS SHOWN IN THE PLANS).

III. AFTER THE SYSTEMS ARE PLACED IN THE TRAFFIC RESPONSIVE MODE.

IV. AFTER THE SYSTEM OPERATION MEETING AND FINAL SYSTEM ADJUSTMENTS ARE MADE.

THE REPORTS PROVIDED FROM EACH OF THE FOUR FIELD CONDITIONS FOR WHICH SYSTEM TRAVEL TIME STUDIES ARE PREPARED SHALL BE USED AS ONE MEANS OF MEASURING THE EFFICIENCY OF THE NEW SYSTEM.

E. DRAFT SYSTEM SUMMARY REPORT:

A DRAFT SYSTEM SUMMARY REPORT SHALL BE PREPARED AFTER TRAVEL TIME STUDIES FOR THE FIRST THREE FIELD CONDITIONS ARE PERFORMED (ITEMS I, II, AND III OUTLINED IN PART D) AND TWO (2) COPIES EACH SHALL BE SUBMITTED TO THE ENGINEER AND THE MAINTAINING AGENCY(S) OF THE SIGNAL SYSTEM FOR THE EVALUATION AND REVIEW OF THE SYSTEM PROGRAMMING, OPERATION, AND EFFICIENCY.

THE REPORT SHALL SUMMARIZE THE SIGNAL PROGRESSION AND TIMING PROGRAMS THAT WERE ENTERED INTO THE SYSTEM. THE REPORT SHALL ALSO INCLUDE A COPY OF THE SYSTEMS LOG AFTER OPERATING IN THE TRAFFIC RESPONSIVE MODE TO VERIFY THE NUMBER OF PROGRAMS USED THROUGHOUT THE DAY AS WELL AS THE FREQUENCY OF PROGRAM CHANGES. A MINIMUM OF AT LEAST FOUR DAYS OF SYSTEMS LOGS SHALL BE PROVIDED AND THREE OF THE FOUR LOGS SHALL BE LIMITED TO THE WEEKDAYS OF MONDAY THROUGH FRIDAY. THE FOURTH LOG SHALL BE ON A SATURDAY OR SUNDAY. COPIES OF ALL DATA AND ANALYSIS CALCULATIONS FOR THE SYSTEM TIMING SHALL BE INCLUDED IN THE REPORT. THE DRAFT SYSTEM SUMMARY REPORT SHALL INCLUDE AN EVALUATION OF THE SYSTEM OPERATION, EFFICIENCY AND PERFORMANCE AND COPIES OF ALL TRAVEL TIME STUDY DATA.

F. SYSTEM OPERATION MEETING AND FINAL SYSTEM SUMMARY REPORT:

AFTER THE DRAFT SYSTEM SUMMARY REPORT HAS BEEN SUBMITTED, THE ENGINEER WILL SCHEDULE A MEETING WHICH WILL INCLUDE THE SYSTEMS ENGINEER OR TECHNICIAN, THE CONTRACTOR, THE ENGINEER AND REPRESENTATIVES(S) FROM THE MAINTAINING AGENCY(S) TO DISCUSS THE OPERATION OF THE TRAFFIC RESPONSIVE "CLOSED LOOP" SIGNAL SYSTEM. THIS MEETING WILL OCCUR WITHIN FOUR (4) WEEKS AFTER THE DRAFT SYSTEM SUMMARY REPORT HAS BEEN SUBMITTED TO THE ENGINEER AND MAINTAINING AGENCY(S).

THE PURPOSE OF THIS MEETING IS TO DISCUSS THE OPERATION OF THE TRAFFIC RESPONSIVE CLOSED LOOP SIGNAL SYSTEM CONSTRUCTED AND PROGRAMMED UNDER THIS PROJECT AND TO RECEIVE COMMENTS AND RECOMMENDATIONS FROM THE ENGINEER AND/OR THE MAINTAINING AGENCY(S) REGARDING POTENTIAL MODIFICATIONS TO THE OPERATION OF THE SYSTEM. THE SYSTEMS ENGINEER OR TECHNICIAN WILL ANSWER QUESTIONS REGARDING THE SYSTEM SUMMARY REPORT AS WELL AS THE OPERATION OF THE CLOSED LOOP SYSTEM.

FINAL ADJUSTMENTS TO THE SYSTEM SHALL BE MADE AS DIRECTED BY THE ENGINEER TO ADDRESS ANY CONCERNS WHICH ARE DISCUSSED AT THIS MEETING. THE FINAL TRAVEL TIME STUDY SHALL BE PERFORMED PRIOR TO SUBMITTING THE FINAL REPORT. ONE (1) COPY OF A FINAL SYSTEM SUMMARY REPORT SHALL BE SUBMITTED TO THE ENGINEER AND ONE (1) ADDITIONAL COPY SHALL BE SUBMITTED FOR EACH MAINTAINING AGENCY FOR REVIEW AND APPROVAL. THE FINAL REPORT SHALL INCLUDE ANY REVISIONS TO THE DRAFT REPORT THAT ARE REQUIRED AS A RESULT OF THE SYSTEM OPERATION MEETING.

G. PAYMENT:

THE COST OF THIS WORK, INCLUDING ALL LABOR, MATERIALS, EQUIPMENT, TOOLS, AND OTHER INCIDENTALS NECESSARY TO PERFORM THE WORK AS OUTLINED ABOVE SHALL BE INCLUDED IN THE LUMP SUM UNIT PRICE BID FOR ITEM 633 - CONTROLLER, MISC.: ANALYZE AND IMPLEMENT A TRAFFIC RESPONSIVE SIGNAL SYSTEM.

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GENERAL SUMMARY

COST PARTICIPATION I - NORMAL PROJECT PARTICIPATION

COST PARTICIPATION II - 100% CITY

SHEET NUMBER				ESTIMATE QUANTITIES FOR USE AS DIRECTED BY ENGINEER		PARTICIPATION		ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	FOR APP DETAIL SEE SHT.	
9		11		13		I	II							
I	II	I	II	I	II	I	II							
		168		1400		1800		3368		202	30000	3368	SQ. FT. WALK REMOVED	3
		42		350		500		892		202	32000	892	LIN. FT. CURB REMOVED	3
						120		120		253	02001	120	CU. YD. PAVEMENT REPAIR, AS PER PLAN	3,15
		168		1400		900		2468		608	53001	2468	SQ. FT. CURB RAMP, TYPE 1, AS PER PLAN	3,15
						900				608	54001	900	SQ. FT. CURB RAMP, TYPE 2, AS PER PLAN	3,15
		2		8		1		10		1	625	17951	EACH BRACKET ARM, 6', AS PER PLAN	3a
1863	779	2317	219	4803	258	6964	1256	625	25403	8220	LIN. FT.	CONDUIT, 2", 713.07, AS PER PLAN	4	
314	148	1516	47	2181	122	4011	317	625	25503	4328	LIN. FT.	CONDUIT, 3", 713.07, AS PER PLAN	4	
1290	580	2272		3971	337	7533	917	625	25802	8450	LIN. FT.	CONDUIT, CONCRETE ENCASED, 3", 713.07		
				140		140		625	25900	140	LIN. FT.	CONDUIT, JACKED OR DRILLED, 2"		
1222	328	2354	160	3728	172	7304	660	625	29501	7964	LIN. FT.	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN	4	
833	321	1326	11	2240	195	4399	527	625	29601	4926	LIN. FT.	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN	4	
30	12	45	1	88	5	159	18	625	31600	177	EACH	FULLBOX, MISC.: 13"x24"	5	
31	10	73	12	88	6	192	28	625	32000	220	EACH	GROUND ROD		
13		84	14	84		321	14	630	03100	335	LIN. FT.	GROUND MOUNTED SUPPORT, NO. 3 POST		
		168		154		322		630	04100	322	LIN. FT.	GROUND MOUNTED SUPPORT, NO. 4 POST		
		1				1		630	10201	1	EACH	OVERHEAD SIGN SUPPORT, TYPE TC-16.20 DESIGN 2, AS PER PLAN	3a	
		1				1		630	10301	1	EACH	OVERHEAD SIGN SUPPORT, TYPE TC-16.20 DESIGN 3, AS PER PLAN	3a	
		2				2		630	10501	2	EACH	OVERHEAD SIGN SUPPORT, TYPE TC-16.20 DESIGN 5, AS PER PLAN	3a	
20	8	58	8	71	4	149	20	630	79101	169	EACH	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN	3a	
		5		6	4	61	4	630	79500	65	EACH	SIGN SUPPORT ASSEMBLY, POLE MOUNTED		
199.25	84	789.75	112	891.5	51	1881	247	630	80102	2128	SQ. FT.	SIGN, FLAT SHEET, TYPE G		
		4				4		630	84511	4	EACH	RIGID OVERHEAD SIGN SUPPORT FOUNDATION, AS PER PLAN	4	
		2				2		631	90101	2	EACH	CHANGEABLE MESSAGE SIGN, ELECTRIC TYPE, LIMITED MESSAGE, AS PER PLAN	4	
		2				2		631	94420	2	EACH	REMOVAL, MISC.: SCHOOL SPEED LIMIT SIGN ASSEMBLY	3a	
36	16	85	14	111	8	232	38	632	00301	270	EACH	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1 WAY, AS PER PLAN	4	
				2		2		632	00401	2	EACH	VEHICULAR SIGNAL HEAD, 4-SECTION, 12" LENS, 1 WAY, AS PER PLAN	4	
4		2		5		11		632	00501	11	EACH	VEHICULAR SIGNAL HEAD, 5-SECTION, 12" LENS, 1 WAY, AS PER PLAN	4	
40	16	86	10	112	6	238	32	632	20601	270	EACH	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN	4	
20	8	36	4	58	2	114	14	632	26001	128	EACH	PEDESTRIAN PUSHBUTTON, AS PER PLAN	4	
17	4	41	2	58		116	6	632	26500	122	EACH	DETECTOR LOOP		
9	2	23	1	31		63	3	632	27105	66	EACH	LOOP DETECTOR UNIT, 2 CHANNEL, DELAY AND EXTENSION TYPE, AS PER PLAN	4	
18	8	34	4	51	3	103	15	632	64011	118	EACH	SIGNAL SUPPORT FOUNDATION, AS PER PLAN	4	
8		25	6	22	2	55	8	632	64020	63	EACH	PEDESTAL FOUNDATION		
7	4	1	2	18	2	26	8	632	90400	34	EACH	SIGNALIZATION, MISC.: MICROWAVE DETECTOR	4	
						20		632	90400	20	EACH	SIGNALIZATION, MISC.: FOUNDATION TEST HOLES	3	

GENERAL SUMMARY

CUYAHOGA COUNTY
CUI-10-8.96 & VARIOUS

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GENERAL SUMMARY

COST PARTICIPATION I - NORMAL PROJECT PARTICIPATION

COST PARTICIPATION II - 100% CITY

SHEET NUMBER								PARTICIPATION		ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	FOR APP DETAIL SEE SHT.
10		12		14		I	II								
I	II	I	II	I	II										
	40	16	87	14	118	8	245	38	632	25000	283	EACH	COVERING OF VEHICULAR SIGNAL HEAD		
	3155	889	9057	914	9570	745	21782	2548	632	40500	24330	LIN. FT.	SIGNAL CABLE, 5-CONDUCTOR, NO. 14 AWG		
	3114	1172	9390	1111	11079	774	23583	3057	632	40700	26640	LIN. FT.	SIGNAL CABLE, 7-CONDUCTOR, NO. 14 AWG		
	3973						3973		632	53203	3973	LIN. FT.	INTERCONNECT CABLE, 6 PR, NO. 19 AWG, SOLID, REA (PE-39), AS PER PLAN	3	
	29356	482					29356	482	632	62803	29838	LIN. FT.	INTERCONNECT CABLE, INTEGRAL MESSENGER WIRE TYPE, 6 PR, NO. 19 AWG, SOLID, REA (PE-38), AS PER PLAN	3	
	1		1		2		4		632	63001	4	EACH	PHONE DROP, AS PER PLAN	5	
	4590	1705	9936	478	16159	140	30685	2323	632	65200	33008	LIN. FT.	LOOP DETECTOR LEAD-IN CABLE		
	194	70	530	101	619	45	1343	216	632	67300	1559	LIN. FT.	POWER CABLE, 3-CONDUCTOR, NO. 8 AWG		
	14	6	24	2	42	3	80	11	632	70400	91	EACH	CONDUIT RISER, 2" DIAMETER		
	1		4	3	2		7	3	632	75001	10	EACH	SIGNAL SUPPORT, TYPE TC-81.20 DESIGN 3 POLE, WITH MAST ARMS TC-81.20 DESIGN 1 AND DESIGN 1, AS PER PLAN	3a	
					1		1		632	75011	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20 DESIGN 3 POLE, WITH MAST ARMS TC-81.20 DESIGN 2 AND DESIGN 1, AS PER PLAN	3a	
	1		1				2		632	75031	2	EACH	SIGNAL SUPPORT, TYPE TC-81.20 DESIGN 4 POLE, WITH MAST ARMS TC-81.20 DESIGN 3 AND DESIGN 1, AS PER PLAN	3a	
			1				1		632	75041	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20 DESIGN 4 POLE, WITH MAST ARMS TC-81.20 DESIGN 3 AND DESIGN 2, AS PER PLAN	3a	
			1				1		632	75141	1	EACH	SIGNAL SUPPORT, TYPE TC-12.30 DESIGN 5 POLE, WITH MAST ARMS TC-81.20 DESIGN 12 AND DESIGN 1, AS PER PLAN	3a	
					1		1		632	77031	1	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20 DESIGN 4 POLE, WITH MAST ARMS TC-81.20 DESIGN 3 AND DESIGN 1, AS PER PLAN	3a	
	11	5	16	1	22		49	6	632	80101	55	EACH	SIGNAL SUPPORT, TYPE TC-81.20 DESIGN 1, AS PER PLAN	3a	
	3	2	3		4		10	2	632	80201	12	EACH	SIGNAL SUPPORT, TYPE TC-81.20 DESIGN 2, AS PER PLAN	3a	
		1	3		7	1	10	2	632	80301	12	EACH	SIGNAL SUPPORT, TYPE TC-81.20 DESIGN 3, AS PER PLAN	3a	
	2		1		3		6		632	80401	6	EACH	SIGNAL SUPPORT, TYPE TC-81.20 DESIGN 4, AS PER PLAN	3a	
			1		2	1	3	1	632	80501	4	EACH	SIGNAL SUPPORT, TYPE TC-81.20 DESIGN 11, AS PER PLAN	3a	
			1		3		4		632	80601	4	EACH	SIGNAL SUPPORT, TYPE TC-81.20 DESIGN 12, AS PER PLAN	3a	
			1		5		6		632	81101	5	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20 DESIGN 1, AS PER PLAN	3a	
						1		1	632	81301	1	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20 DESIGN 3, AS PER PLAN	3a	
			1		1		1		632	81401	1	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20 DESIGN 4, AS PER PLAN	3a	
			1				1		632	81501	1	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20 DESIGN 11, AS PER PLAN	3a	
	6		25	5	20	1	51	6	632	89901	57	EACH	PIDESTAL, 8', TRANSFORMER BASE, AS PER PLAN	3a	
	2			1	3	1	5	2	632	90010	7	EACH	PIDESTAL, MISC.: 12', TRANSFORMER BASE	3a	
	6	2	14	2	16	1	36	5	632	90101	41	EACH	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN	5	
	994	580	51	262	3211	316	4256	1158	632	90500	5414	LIN. FT.	SIGNALIZATION, MISC.: MICROWAVE DETECTOR LEAD-IN CABLE	5	

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GENERAL SUMMARY

CUYAHOGA COUNTY
CUI-10-8.96 & VARIOUS

GENERAL SUMMARY

COST PARTICIPATION I - NORMAL PROJECT PARTICIPATION

COST PARTICIPATION II - 100% CITY

SHEET NUMBER				ESTIMATE QUANTITIES FOR USE AS DIRECTED BY ENGINEER				PARTICIPATION		ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	FOR APP DETAIL SEE SHT.
								I	II						
10		12		14		I	II								
I	II	I	II	I	II	I	II								
	5		2	11	2	14	1			633	38001	35	EACH	CONTROLLER, ACTUATED, 8-PHASE, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN	5a
	1			1		1				633	39001	4	EACH	CONTROLLER, MASTER, TRAFFIC RESPONSIVE, AS PER PLAN	5a
	5		2	11.9	2	15.8	1			633	70000	37.7	CU. YD.	CONCRETE FOR CABINET FOUNDATION	
				24.9		8.3				633	70500	33	SQ. FT.	CONTROLLER WORK PAD	
										633	99300		LUMP	CONTROLLER ITEM, MISC.: ANALYZE AND IMPLEMENT A TRAFFIC RESPONSIVE SIGNAL SYSTEM	5a
				0.01						642	00202	.01	MILES	LANE LINE, TYPE 2	
	0.08		0.08	0.09		0.58	0.06	0.20		642	00302	1.09	MILES	CENTER LINE, TYPE 2	
				140		100	160	240		642	00402	400	LIN. FT.	CHANNELIZING LINE, TYPE 2	
				681		404	310	500		642	30000	1895	LIN. FT.	REMOVAL OF PAVEMENT MARKING	
						50		50		642	30020	50	EACH	REMOVAL OF PAVEMENT MARKING	
	14		14	79		66	58	500		644	00500	731	LIN. FT.	STOP LINE	
			68	203		96		500		644	00600	867	LIN. FT.	CROSSWALK LINE	
				2		3	2	5		644	01300	12	EACH	LANE ARROW	
								5		644	01400	5	EACH	WORD ON PAVEMENT, 72"	
	85			790				50		644	01502	925	LIN. FT.	DOTTED LINE, 4"	
										614	11001		LUMP	MAINTAINING TRAFFIC, AS PER PLAN	2
										806	16011	12	MONTH	FIELD OFFICE, TYPE B, AS PER PLAN	5
										623	10001		LUMP	CONSTRUCTION LAYOUT STAKES, AS PER PLAN	5
										624	10000		LUMP	MOBILIZATION	

GENERAL SUMMARY

CUYAHOGA COUNTY
CUI-10-8.96 & VARIOUS

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SUBSUMMARY

COST PARTICIPATION I - NORMAL PROJECT PARTICIPATION

COST PARTICIPATION II - 100% CITY

SHEET NUMBER														PARTICIPATION		ITEM	SUB TOTAL	UNIT	DESCRIPTION
17	18	19	20	21	22	23	24	I	II										
1	1	1	1	II	1	II	1												
	7	7	6	5	5	5	6	31	10	625	41	EACH	GROUND ROD						
	7	5	9	5	4	7	5	30	12	625	42	EACH	PULLBOX, MISC.: 13"x24"						
	332	222	406	61	121	267	141	1222	328	625	1550	LIN. FT.	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN						
	194	129	230	167	136	154	144	833	321	625	1154	LIN. FT.	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN						
	512	405	556	92	156	687	234	1863	779	625	2642	LIN. FT.	CONDUIT, 2", 713.07, AS PER PLAN						
	18	94	24	90	78	58	100	314	148	625	462	LIN. FT.	CONDUIT, 3", 713.07, AS PER PLAN						
	282	168	334	270	270	310	236	1290	580	625	1870	LIN. FT.	CONDUIT, CONCRETE ENCASED, 3", 713.07						
	6.25	34	41	34	50	40	34	44	199.25	84	630	283.25	SQ. FT.	SIGN, FLAT SHEET, TYPE G					
	4	4	4	4	4	4	4	20	8	630	28	EACH	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN						
	13							13		630	13	LIN. FT.	GROUND MOUNTED SUPPORT, NO. 3 POST						
	8	8	4	8	8	8	8	36	16	632	52	EACH	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1 WAY, AS PER PLAN						
			4					4		632	4	EACH	VEHICULAR SIGNAL HEAD, 5-SECTION, 12" LENS, 1 WAY, AS PER PLAN						
	8	8	8	8	8	8	8	40	16	632	56	EACH	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN						
	4	4	4	4	4	4	4	20	8	632	28	EACH	PEDESTRIAN PUSHBUTTON, AS PER PLAN						
	3		2			2		9	2	632	11	EACH	LOOP DETECTOR UNIT, 2 CHANNEL, DELAY AND EXTENSION TYPE, AS PER PLAN						
	1	2		2	2	2	2	7	4	632	11	EACH	SIGNALIZATION, MISC.: MICROWAVE DETECTOR						
	5		12			4		17	4	632	21	EACH	DETECTOR LOOP						
	3	3	4	4	4	4	4	18	8	632	26	EACH	SIGNAL SUPPORT FOUNDATION, AS PER PLAN						
	3	3	1				1	8		632	8	EACH	PEDESTAL FOUNDATION						

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SUBSUMMARY

CUYAHOGA COUNTY
CUI-10-8.96 & VARIOUS

DLWG PLOT SCALE= 1:1

SUBSUMMARY

COST PARTICIPATION I - NORMAL PROJECT PARTICIPATION

COST PARTICIPATION II - 100% CITY

SHEET NUMBER														PARTICIPATION		ITEM	SUB TOTAL	UNIT	DESCRIPTION		
59	60	61		62	63	64		17	18	19	20	21	22	23	24					I	II
I	II	I	II	I	I	I	II	I	I	I	I	II	I	II	I						
									2	2		3	4	2	3	11	5	632	16	EACH	SIGNAL SUPPORT, TYPE TC-81.20M, DESIGN 1, AS PER PLAN
											2			2	1	3	2	632	5	EACH	SIGNAL SUPPORT, TYPE TC-81.20M, DESIGN 2, AS PER PLAN
												1					1	632	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20M, DESIGN 3, AS PER PLAN
											2					2		632	2	EACH	SIGNAL SUPPORT, TYPE TC-81.20M, DESIGN 4, AS PER PLAN
								1								1		632	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20M, DESIGN 3 POLE, WITH MAST ARMS TC-81.20 DESIGN 1 AND DESIGN 1, AS PER PLAN
									1							1		632	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20M, DESIGN 4 POLE, WITH MAST ARMS TC-81.20 DESIGN 3 AND DESIGN 1, AS PER PLAN
									3	1	1				1	6		632	6	EACH	PEDESTAL, 8', TRANSFORMER BASE, AS PER PLAN
										2					2			632	2	EACH	PEDESTAL, MISC.: 12', TRANSFORMER BASE
									2	3	3	3	3	3	3	14	6	632	20	EACH	CONDUIT RISER, 2" DIAMETER
									749	777	684	431	515	458	430	3155	889	632	4044	LIN. FT.	SIGNAL CABLE, 5-CONDUCTOR, NO. 14 AWG
									629	551	686	572	651	600	597	3114	1172	632	4286	LIN. FT.	SIGNAL CABLE, 7-CONDUCTOR, NO. 14 AWG
4273	284	6582	2767	164	4717	6521	4496	34								29356	482	632	29838	LIN. FT.	INTERCONNECT CABLE, INTEGRAL MESSENGER WIRE TYPE, 6 PR, NO. 19 AWG, SOLID, REA (PE-38), AS PER PLAN
			3973													3973		632	3973	LIN. FT.	INTERCONNECT CABLE, 6 PR, NO. 19 AWG, SOLID, REA (PE-39), AS PER PLAN
									1295	433	2028	329	427	1376	407	4590	1705	632	6295	LIN. FT.	LOOP DETECTOR LEAD-IN CABLE
									100	277		288	320	292	297	994	580	632	1574	LIN. FT.	SIGNALIZATION, MISC.: MICROWAVE DETECTOR LEAD-IN CABLE
									30	41	38	34	25	36	60	194	70	632	264	LIN. FT.	POWER CABLE, 3-CONDUCTOR, NO. 8 AWG
									1							1		632	1	EACH	PHONE DROP, AS PER PLAN
									8	8	8	8	8	8	8	40	16	632	56	EACH	COVERING OF VEHICULAR SIGNAL HEAD
								1	1	1	1	1	1	1	1	6	2	632	8	EACH	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
									1							1		633	1	EACH	CONTROLLER, MASTER, TRAFFIC RESPONSIVE, AS PER PLAN
									1	1	1	1	1	1	1	5	2	633	7	EACH	CONTROLLER, ACTUATED, 8 PHASE, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN
									1	1	1	1	1	1	1	5	2	633	7	CU. YD.	CONCRETE FOR CABINET FOUNDATION
											0.04	0.04	0.04	0.04	0.08	0.08		642	0.16	MILES	CENTER LINE, TYPE 2
											14	14				14	14	644	28	LIN. FT.	STOP LINE
											68					68	68	644	68	LIN. FT.	CROSSWALK LINE
								85								85	85	644	85	LIN. FT.	DOTTED LINE, 4"

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SUBSUMMARY

CUYAHOGA COUNTY
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SUBSUMMARY

COST PARTICIPATION I - NORMAL PROJECT PARTICIPATION

COST PARTICIPATION II - 100% CITY

SHEET NUMBER																	PARTICIPATION		ITEM	SUB TOTAL	UNIT	DESCRIPTION
25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	I	II					
/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	168		202	168	SQ. FT.	WALK REMOVED	
					56											42		202	42	LIN. FT.	CURB REMOVED	
					14											168		608	168	SQ. FT.	CURB RAMP, TYPE 1, AS PER PLAN	
					56																	
6		6	5	5	4	15		6	5	8	5		7	5	8	73	12	625	85	EACH	GROUND ROD	
6		6	4	3	4	12		5	3		1			1	1	45	1	625	46	EACH	PULLBOX, MISC.: 13"x24"	
248		206	230	145	95	618		351	133	125	89		71	68	135	2354	160	625	2514	LIN. FT.	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN	
170		149	81	100	85	410		163	80		11				88	1326	11	625	1337	LIN. FT.	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN	
279		181	346	228	156	160		385	194	164	159		60	90	134	2317	219	625	2536	LIN. FT.	CONDUIT, 2", 713.07, AS PER PLAN	
149		147	82	66	28	717		88	56	67	11		36	59	57	1516	47	625	1563	LIN. FT.	CONDUIT, 3", 713.07, AS PER PLAN	
316		292	160	196	166	492		328	156						166	2272		625	2272	LIN. FT.	CONDUIT, CONCRETE ENCASED, 3", 713.07	
				1															2	2	EACH	BRACKET ARM, 6", AS PER PLAN
						2				2						4		630	4	EACH	RIGID OVERHEAD SIGN SUPPORT FOUNDATION, AS PER PLAN	
58	6.25	55	71	48	68	140	6.25	50	87	84	47	6.25	65	50	60	789.75	112	630	901.75	SQ. FT.	SIGN, FLAT SHEET, TYPE G	
4		6	3	4	3	15		4	3	7	4		4	3	6	58	8	630	66	EACH	SIGN HANGER ASSEMBLY, MAST ARM AS PER PLAN	
4					1											5		630	5	EACH	SIGN SUPPORT ASSEMBLY, POLE MOUNTED	
										2						2		631	2	EACH	CHANGEABLE MESSAGE SIGN, ELECTRIC TYPE, LIMITED MESSAGE, AS PER PLAN	
	14					42	14				14	14				84	14	630	98	LIN. FT.	GROUND MOUNTED SUPPORT, NO. 3 POST	
			56	14	42				56							168		630	168	LIN. FT.	GROUND MOUNTED SUPPORT, NO. 4 POST	
						1										1		630	1	EACH	OVERHEAD SIGN SUPPORT, TYPE TC-16.20M, DESIGN 2, AS PER PLAN	
						1										1		630	1	EACH	OVERHEAD SIGN SUPPORT, TYPE TC-16.20M, DESIGN 3, AS PER PLAN	
										2						2		630	2	EACH	OVERHEAD SIGN SUPPORT, TYPE TC-16.20M, DESIGN 5, AS PER PLAN	
										2						2		631	2	EACH	REMOVAL, MISC.: SCHOOL SPEED LIMIT SIGN ASSEMBLY	
7		8	6	6	6	14		8	6	8	6		8	6	10	85	14	632	99	EACH	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1 WAY, AS PER PLAN	
1						1										2		632	2	EACH	VEHICULAR SIGNAL HEAD, 5-SECTION, 12" LENS, 1 WAY, AS PER PLAN	
6		8	6	6	4	14		8	6	8	4		6	8	12	86	10	632	96	EACH	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN	
2		4	4	4	2			4	4	4	2		2	4	4	36	4	632	40	EACH	PEDESTRIAN PUSHBUTTON, AS PER PLAN	
3		4	1	1	1			4		2			1	3	4	23	1	632	24	EACH	LOOP DETECTOR UNIT, 2 CHANNEL, DELAY AND EXTENSION TYPE, AS PER PLAN	
									1		2					1	2	632	3	EACH	SIGNALIZATION, MISC.: MICROWAVE DETECTOR	
5		8	1	2	1			8		4	2		2	5	7	41	2	632	43	EACH	DETECTOR LOOP	
4		3	2	3	2	5		4	2	4	2		2	2	2	34	4	632	38	EACH	SIGNAL SUPPORT FOUNDATION, AS PER PLAN	
1		1	2	1	1	7		1	2	2	2		4	2	5	25	6	632	31	EACH	PEDESTAL FOUNDATION	

SUBSUMMARY

CUYAHOGA COUNTY
CUY-10-8.96 & VARIOUS

G02.DWG PLOT SCALE= 1:1

SUBSUMMARY

COST PARTICIPATION I - NORMAL PROJECT PARTICIPATION

COST PARTICIPATION II - 100% CITY

SHEET NUMBER																PARTICIPATION		ITEM	SUB TOTAL	UNIT	DESCRIPTION
25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	I	II				
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	16	1	632	17	EACH	SIGNAL SUPPORT, TYPE TC-81.20M, DESIGN 1, AS PER PLAN
1		4	1	2	1	1		2	1	2	1			1		3		632	3	EACH	SIGNAL SUPPORT, TYPE TC-81.20M, DESIGN 2, AS PER PLAN
						1															
1						1		1								3		632	3	EACH	SIGNAL SUPPORT, TYPE TC-81.20M, DESIGN 3, AS PER PLAN
								1								1		632	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20M, DESIGN 4, AS PER PLAN
1																1		632	1	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20M, DESIGN 11, AS PER PLAN
1																1		632	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20M, DESIGN 12, AS PER PLAN
						1										1		632	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20M, DESIGN 11, AS PER PLAN
			1		1				1		1		2	1		4	3	632	7	EACH	SIGNAL SUPPORT, TYPE TC-81.20M, DESIGN 3 POLE, WITH MAST ARMS TC-81.20 DESIGN 1 AND DESIGN 1, AS PER PLAN
																1		632	1	EACH	SIGNAL SUPPORT, TYPE TC-12.30M, DESIGN 5 POLE, WITH MAST ARMS TC-81.20 DESIGN 12 AND DESIGN 1, AS PER PLAN
						1										1		632	1	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20M, DESIGN 1, AS PER PLAN
																1	1	632	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20M, DESIGN 4, WITH MAST ARMS TC-81.20, DESIGN 3 AND TC-81.20, DESIGN 1, AS PER PLAN
															1	1	632	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20M, DESIGN 4, WITH MAST ARMS TC-81.20, DESIGN 3 AND TC-81.20, DESIGN 2, AS PER PLAN	
1		1	2	1	1	7		1	2	2	1		4	2	5	25	5	632	30	EACH	PEDESTAL, 8', TRANSFORMER BASE, AS PER PLAN
											1					1		632	1	EACH	PEDESTAL, MISC.: 12', TRANSFORMER BASE
2		3	2	2	3	3		3	2	2	1		1	1	1	24	2	632	26	EACH	CONDUIT RISER, 2" DIAMETER
875		499	448	424	302	3025		578	458	764	350		564	512	1172	9057	914	632	9971	LIN. FT.	SIGNAL CABLE, 5-CONDUCTOR, NO. 14 AWG
903		753	515	445	447	2540		608	518	655	459		652	453	1553	9390	1111	632	10501	LIN. FT.	SIGNAL CABLE, 7-CONDUCTOR, NO. 14 AWG
1950		1350	371	600	220			1314	348	1100	171		307	1297	1386	9936	478	632	10414	LIN. FT.	LOOP DETECTOR LEAD-IN CABLE
									51		262					51	262	632	313	LIN. FT.	SIGNALIZATION, MISC.: MICROWAVE DETECTOR LEAD-IN CABLE
61		46	44	47	61	38		65	55	35	49		52	33	45	530	101	632	631	LIN. FT.	POWER CABLE, 3-CONDUCTOR, NO. 8 AWG
1																1		632	1	EACH	PHONE DROP, AS PER PLAN
8		8	6	6	6	15		8	6	8	6		8	6	10	87	14	632	101	EACH	COVERING OF VEHICULAR SIGNAL HEAD
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	2	632	16	EACH	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
1																1		633	1	EACH	CONTROLLER, MASTER, TRAFFIC RESPONSIVE, AS PER PLAN
1		1	1	1	1	1		1	1	1	1		1	1	1	11	2	633	13	EACH	CONTROLLER, ACTUATED, 8 PHASE, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN
1.9		1	1	1	1	1		1	1	1	1		1	1	1	11.9	2	633	13.9	CU. YD.	CONCRETE FOR CABINET FOUNDATION
			8.3					8.3	8.3							24.9		633	24.9	SQ. FT.	CONTROLLER WORK PAD
						0.01										0.01		642	0.01	MILES	LANE LINE, TYPE 2
			0.02			0.01		0.04	0.02							0.09		642	0.09	MILES	CENTER LINE, TYPE 2
	300					146	120									681		642	681	LIN. FT.	REMOVAL OF PAVEMENT MARKING
						140										140		642	140	LIN. FT.	CHANNELIZING LINE, TYPE 2
						79										79		644	79	LIN. FT.	STOP LINE
						203										203		644	203	LIN. FT.	CROSSWALK LINE
						2										2		644	2	EACH	LANE ARROW
525						265										790		644	790	LIN. FT.	DOTTED LINE, 4"

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SUBSUMMARY

CUYAHOGA COUNTY
CUY-10-8.96 & VARIOUS

SUBSUMMARY

COST PARTICIPATION I - NORMAL PROJECT PARTICIPATION

COST PARTICIPATION II - 100% CITY

SHEET NUMBER																PARTICIPATION		ITEM	ITEM EXT.	SUB TOTAL	UNIT	DESCRIPTION				
41	42a	43	44	45	46	47	48	49	50	51	52	53	54	55	56	I	II									
II	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I											
	56							280		280	112				392	280	1400		202		1400	SQ. FT.	WALK REMOVED			
	14							70		70	28				98	70	350		202		350	LIN. FT.	CURB REMOVED			
	56							280		280	112				392	280	1400		608		1400	SQ. FT.	CURB RAMP, TYPE 1, AS PER PLAN			
6	9	6	5	5	7	7	5	5		5	5	7	9	7	6		88	6	625		94	EACH	GROUND ROD			
5	12	5	5	4	8	7	7	5		6	3	7	7	5	7		88	5	625		93	EACH	PULLBOX, MISC.: 13"x24"			
172	473	162	306	135	216	165	274	133		373	154	512	258	235	332		3728		625		3900	LIN. FT.	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN			
195	273	199	133	81	109	261	227	139		87	92	142	171	161	165		2240		625		2435	LIN. FT.	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN			
258	688	262	299	172	288	192	434	168		507	134	576	432	266	385		4803		625		5061	LIN. FT.	CONDUIT, 2", 713.07, AS PER PLAN			
122	219	46	94	224	137	258	95	376		206	62	131	110	115	108		2181		625		2303	LIN. FT.	CONDUIT, 3", 713.07, AS PER PLAN			
337	394	396	268	160	216	402	273	275		175	187	284	288	322	331		3971		625		4308	LIN. FT.	CONDUIT, CONCRETE ENCASED, 3", 713.07			
					140												140		625		140	LIN. FT.	CONDUIT, JACKED OR DRILLED UNDER PAVEMENT, 2"			
1	2		1		1	1	1	1		1							8		625		9	EACH	BRACKET ARM, 6', AS PER PLAN			
51	124	64	74	63	71	78	81	51	12.5	43	34	50	39	63	44		891.5		630		942.5	SQ. FT.	SIGN, FLAT SHEET, TYPE G			
4	11	6	4	3	5	5	7	5		3	3	5	3	7	4		71		630		75	EACH	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN			
4	1				1	4											6		630		10	EACH	SIGN SUPPORT ASSEMBLY, POLE MOUNTED			
	56																84		630		84	LIN. FT.	GROUND MOUNTED SUPPORT, NO. 3 POST			
			56	56	14	28											154		630		154	LIN. FT.	GROUND MOUNTED SUPPORT, NO. 4 POST			
8	11	8	8	6	11	14	6	5		6	6	8	8	7	7		111		632		119	EACH	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1 WAY, AS PER PLAN			
																		2		632			EACH	VEHICULAR SIGNAL HEAD, 4-SECTION, 12" LENS, 1 WAY, AS PER PLAN		
	3																									
6	12	8	8	6	8	12	8	8		6	4	8	8	8	8		112		632		118	EACH	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN			
2	8	4	4	4	4	4	4	4		4	2	4	4	4	4		58		632		60	EACH	PEDESTRIAN PUSHBUTTON, AS PER PLAN			
	6	3	2				4	2		3		4		3	4		31		632		31	EACH	LOOP DETECTOR UNIT, 2 CHANNELS, DELAY AND EXTENSION TYPE, AS PER PLAN			
2	1		2	1	2	6					1		2	1	2		18		632		18	EACH	SIGNALIZATION, MISC.: MICROWAVE DETECTOR			
	12	5	4				7	4		6		8		5	7		58		632		58	EACH	DETECTOR LOOP			
3	6	4	4	2	5	6	3	2		3	2	4	2	4	4		51		632		54	EACH	SIGNAL SUPPORT FOUNDATION, AS PER PLAN			
2	2	1		2	1		1	2		1	2	1	6	2	1		22		632		24	EACH	PEDESTAL FOUNDATION			

SUBSUMMARY

CUYAHOGA COUNTY
CUI-10-8.96 & VARIOUS

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SUBSUMMARY

COST PARTICIPATION I - NORMAL PROJECT PARTICIPATION

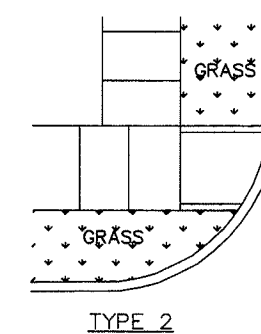
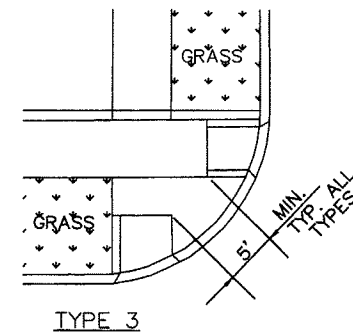
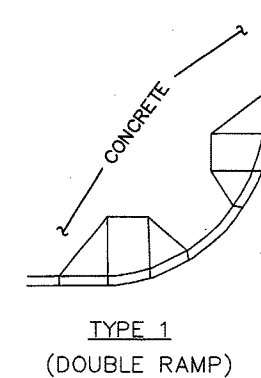
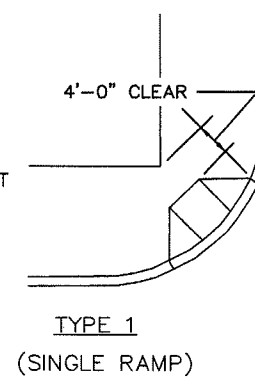
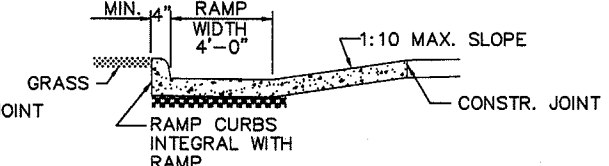
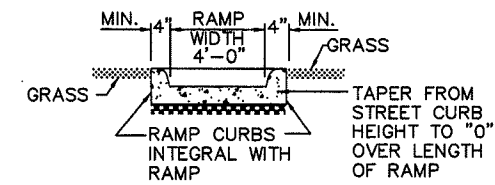
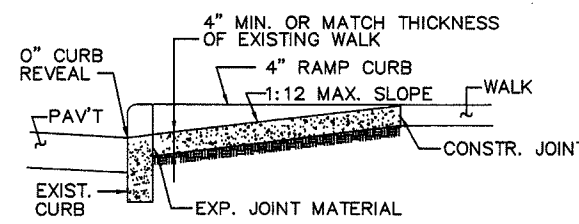
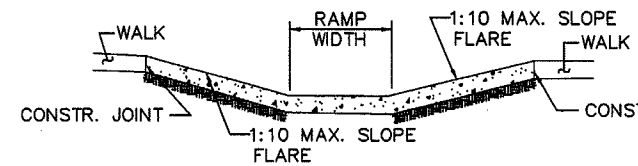
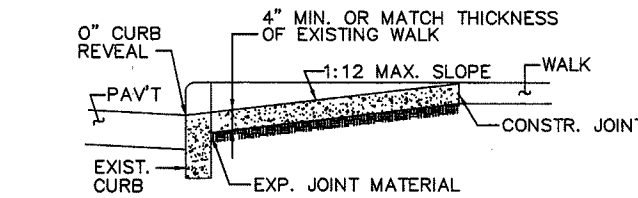
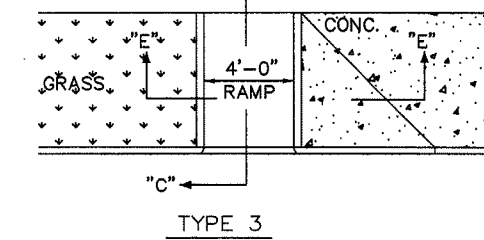
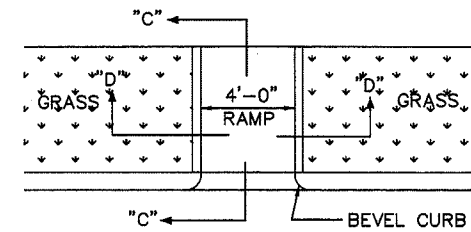
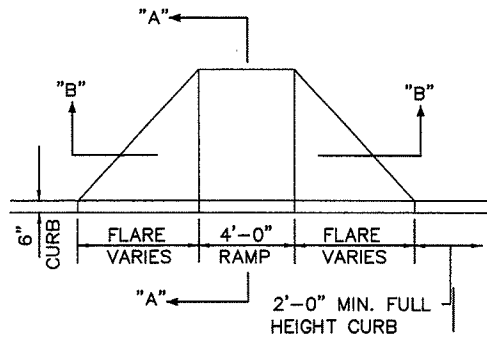
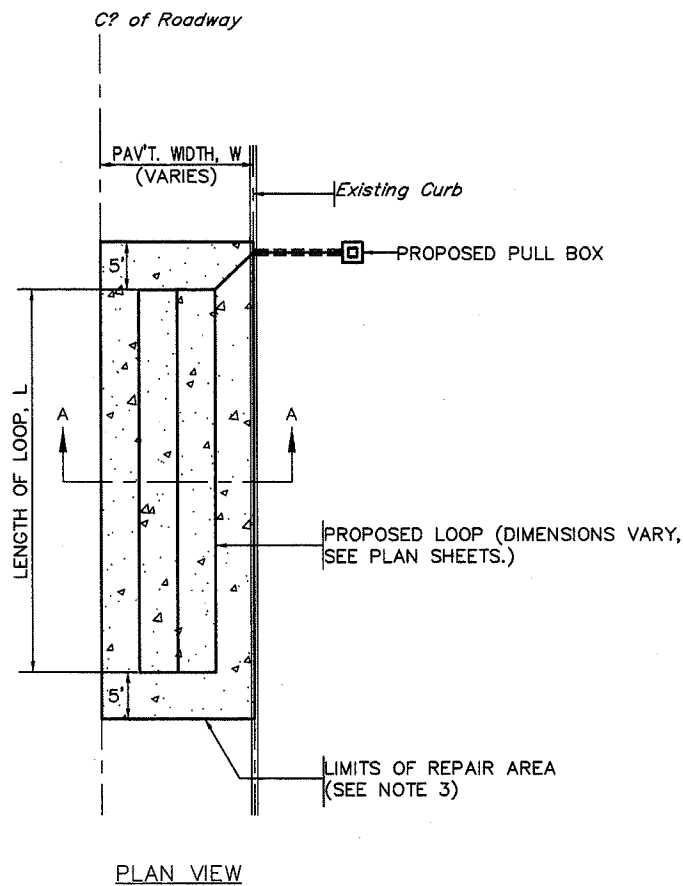
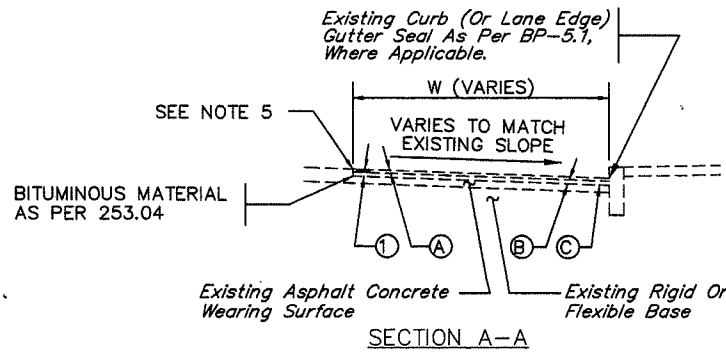
COST PARTICIPATION II - 100% CITY

SHEET NUMBER																	PARTICIPATION		ITEM	ITEM EXT.	SUB TOTAL	UNIT	DESCRIPTION
41	42a	43	44	45	46	47	48	49	50	51	52	53	54	55	56	I	II						
11	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	22	1	632	22	EACH	SIGNAL SUPPORT, TYPE TC-81.20M, DESIGN 1, AS PER PLAN		
	2	2	3	1	4	1	1			2	1	3				4	1	632	4	EACH	SIGNAL SUPPORT, TYPE TC-81.20M, DESIGN 2, AS PER PLAN		
1					1	3							2	1		7	1	632	8	EACH	SIGNAL SUPPORT, TYPE TC-81.20M, DESIGN 3, AS PER PLAN		
1			1			1	1	1		1						5	1	632	1	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20M, DESIGN 1, AS PER PLAN		
	1															1	1	632	1	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20M, DESIGN 3, AS PER PLAN		
						1						1				3	1	632	3	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20M, DESIGN 4, AS PER PLAN		
1		1														2	1	632	3	EACH	SIGNAL SUPPORT, TYPE TC-81.20M, DESIGN 11, AS PER PLAN		
	2	1														3	1	632	3	EACH	SIGNAL SUPPORT, TYPE TC-81.20M, DESIGN 12, AS PER PLAN		
				1							1					2	1	632	2	EACH	SIGNAL SUPPORT, TYPE TC-81.20M, DESIGN 3 POLE, WITH MAST ARMS TC-81.20 DESIGN 1 AND DESIGN 1, AS PER PLAN		
								1								1	1	632	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20M, DESIGN 3 POLE, WITH MAST ARMS TC-81.20 DESIGN 2 AND DESIGN 1, AS PER PLAN		
	1															1	1	632	1	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20M, DESIGN 4 POLE, WITH MAST ARMS TC-81.20 DESIGN 3 AND DESIGN 1, AS PER PLAN		
1	2	1		2	1		1	2		1	1	2	4	2	1	20	1	632	21	EACH	PEDESTAL, 8', TRANSFORMER BASE, AS PER PLAN		
1													2			3	1	632	4	EACH	PEDESTAL, MISC.: 12', TRANSFORMER BASE		
3	3	3	3	3	3	3	3	3		3	3	3	3	3	3	42	3	632	45	EACH	CONDUIT RISER, 2" DIAMETER		
745	1244	800	425	379	563	1048	481	495		447	303	636	943	1000	806	9570	745	632	10315	LIN. FT.	SIGNAL CABLE, 5-CONDUCTOR, NO. 14 AWG		
774	1502	723	555	445	958	1589	468	504		424	509	711	807	1072	812	11079	774	632	11853	LIN. FT.	SIGNAL CABLE, 7-CONDUCTOR, NO. 14 AWG		
140	2690	945	1363	285	612	341	1425	851		1050	234	2106	515	1340	2402	16159	140	632	16299	LIN. FT.	LOOP DETECTOR LEAD-IN CABLE		
316	340		271	90	298	1406					38		339	157	272	3211	316	632	3527	LIN. FT.	SIGNALIZATION, MISC.: MICROWAVE DETECTOR LEAD-IN CABLE		
45	42	51	38	33	41	52	44	49		40	34	47	38	72	38	619	45	632	664	LIN. FT.	POWER CABLE, 3-CONDUCTOR, NO. 8 AWG		
		1					1										2	1	632	2	EACH	PHONE DROP, AS PER PLAN	
8	14	8	8	6	11	14	6	6		6	6	8	8	9	8	118	8	632	126	EACH	COVERING OF VEHICULAR SIGNAL HEAD		
1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	16	1	632	17	EACH	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN		
		1															1	1	633	1	EACH	CONTROLLER, MASTER, TRAFFIC RESPONSIVE, AS PER PLAN	
1	1	1	1	1	1	1	1	1		1	1	1	1	1	1	14	1	633	15	EACH	CONTROLLER, ACTUATED, 8 PHASE, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN		
1	1	1.9	1	1	1	1.9	1	1		1	1	1	1	1	1	15.8	1	633	16.8	CU. YD.	CONCRETE FOR CABINET FOUNDATION		
																	8.3	1	633	8.3	SQ. FT.	CONTROLLER WORK PAD	
160												100					100	160	642	260	LIN. FT.	CHANNELIZING LINE, TYPE 2	
0.06		0.02	0.08	0.06	0.04	0.10	0.04	0.04	0.04	0.04		0.04	0.06	0.02		0.58	0.06	642	0.64	MILES	CENTER LINE, TYPE 2		
310					23							404	310			404	310	642	714	LIN. FT.	REMOVAL OF PAVEMENT MARKING		
58					22	20				24						66	58	644	124	LIN. FT.	STOP LINE		
2	3															3	2	644	5	EACH	LANE ARROW		
										96						96	1	642	96	LIN. FT.	CROSSWALK LINE		

CALCULATED
REVIEW
CHECKED
KAN

SUBSUMMARY

CUYAHOGA COUNTY
CUY-10-8.96 & VARIOUS



SUBSUMMARY FOR PAVEMENT REPAIR			
ITEM	TOTAL	UNIT	DESCRIPTION
253	120	CY	PAVEMENT REPAIR, AS PER PLAN

NOTES: FOR ITEM 253 - PAVEMENT REPAIR, AS PER PLAN

- THIS DETAIL IS INTENDED FOR USE ON PAVEMENTS WITH ASPHALT (FLEXIBLE) WEARING SURFACES WHICH EXHIBIT SEVERE SURFACE DISTRESS, SUCH AS "ALLIGATOR CRACKING," "RAVELLING" OR "RUTTING."
- THE ENGINEER SHALL DETERMINE WHICH EXISTING ASPHALT PAVEMENT SURFACES ARE UNSUITABLE FOR LOOP DETECTOR PLACEMENT. ALL PAVEMENT REPAIR LOCATIONS SHALL BE AS DIRECTED BY THE ENGINEER.
- THE DIMENSIONS OF THE REPAIR AREA SHALL BE AS FOLLOWS:
W x (L+10 FT.); WHERE W = PAV'T WIDTH (C? ROADWAY TO CURB)
L = LENGTH OF PROPOSED LOOP
- ALL REPAIRS SHALL BE PERFORMED DURING THE HOURS OF 9:00 AM TO 3:00 PM. REPAIR AREAS SHALL BE COMPLETED PRIOR TO OPENING THE LANE TO TRAFFIC. ALL LANES SHALL BE OPEN TO TRAFFIC AT THE END OF EACH WORK DAY.
- THE CONTRACTOR SHALL PROVIDE A NEAT VERTICAL EDGE ALONG ALL EDGES OF THE REPAIR AREA AS PER 253.02.
- THE CONTRACTOR SHALL REPLACE ALL PAVEMENT MARKINGS ON EACH LEG OF THE INTERSECTION AS A RESULT OF WORK PERFORMED.
- FINISH SHALL BE AS PER 402.13 & 404.13
SURFACE TOLERANCE SHALL BE AS PER 404.16.

LOCATION:

CURB RAMPS TO BE CONSTRUCTED ONLY WHERE SHOWN ON THE PLANS OR WHERE DIRECTED BY THE ENGINEER.

SURFACE:

SURFACE TEXTURE SHALL BE OBTAINED BY COARSE BROOMING TRANSVERSE TO THE RAMP SLOPES AS DIRECTED BY THE ENGINEER AND SHALL BE ROUGHER THAN ADJACENT WORK.

SLOPE:

WHERE SPACE LIMITATIONS PROHIBIT THE USE OF 1:12 SLOPE OR LESS, RAMPS MAY HAVE SLOPES AS FOLLOWS IF APPROVED BY THE ENGINEER.

- A SLOPE BETWEEN 1:10 AND 1:12 IS ALLOWED FOR A MAX RISE OF 6".
- A SLOPE BETWEEN 1:8 AND 1:10 IS ALLOWED FOR A RISE OF 3".

WIDTH:

A MINIMUM WIDTH OF 3 FEET MAY BE USED, IF APPROVED BY THE ENGINEER.

TYPE:

THE TYPE OF CURB RAMP SHALL BE THE TYPE SHOWN ON THE PLANS OR DIRECTED BY THE ENGINEER.

JOINTS:

A 1/2 INCH 705.03 EXPANSION JOINT FILLER SHALL BE PROVIDED AROUND THE EDGE OF THE RAMP.

PAYMENT:

PAYMENT FOR THE CURB RAMP SHALL BE MADE AS SPECIFIED IN ITEM 608.

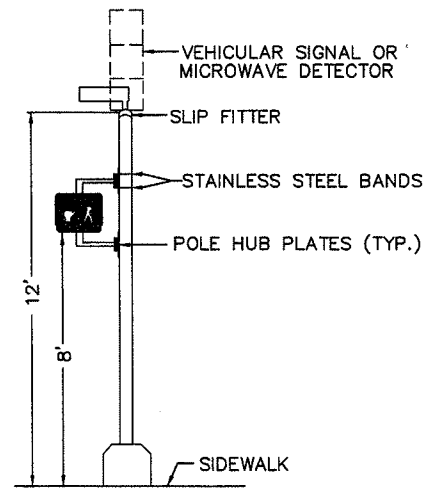
ITEM 253 - PAVEMENT REPAIR, AS PER PLAN FOR LOOP DETECTOR INSTALLATION

- ① ITEM 253 - PAVEMENT REPAIR, AS PER PLAN (3" MINIMUM DEPTH **)
 - Ⓐ ITEM 448 - 1 1/4" ASPHALT CONCRETE, SURFACE COURSE, TYPE 1, PG 64-22
 - Ⓑ ITEM 448 - 1 3/4" ASPHALT CONCRETE, INTERMEDIATE COURSE, TYPE 2, PG 64-22 **
 - Ⓒ ITEM 407 - TACK COAT
- ** - THIS THICKNESS MAY BE INCREASED TO MEET THE TOP OF THE EXISTING RIGID BASE, AS DIRECTED BY THE ENGINEER.

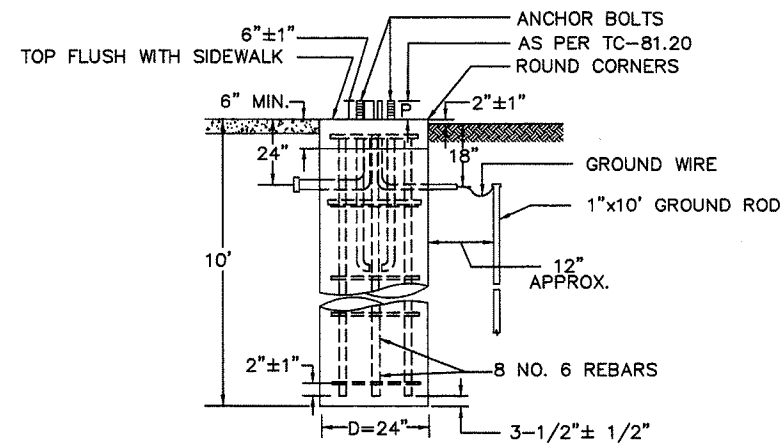
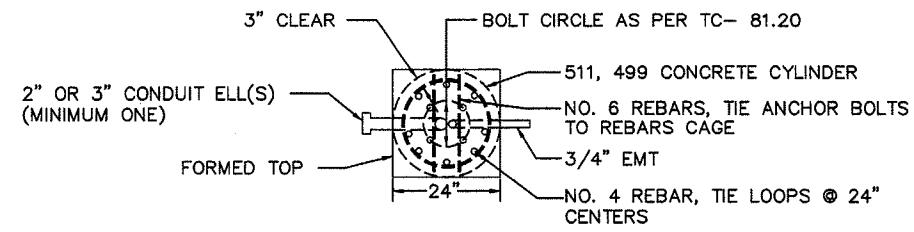
CALCULATED
G.G.B.
CHECKED
K.A.N.

DETAILS

CUYAHOGA COUNTY
CUI-10-8.96 & VARIOUS



PEDESTRIAN SIGNAL MOUNTED
ON 12' PEDESTAL
(SIGNAL MOUNTING DETAILS AS PER TC-85.10)



ALTERNATE FOUNDATION
DESIGN 1, 2, OR 3

ALTERNATE FOUNDATION MAY BE USED WHERE UNDERGROUND
UTILITY CONFLICTS PRECLUDE USE OF STANDARD FOUNDATION,
AS APPROVED BY THE ENGINEER.

CALCULATED G.G.B.	CHECKED K.A.N.
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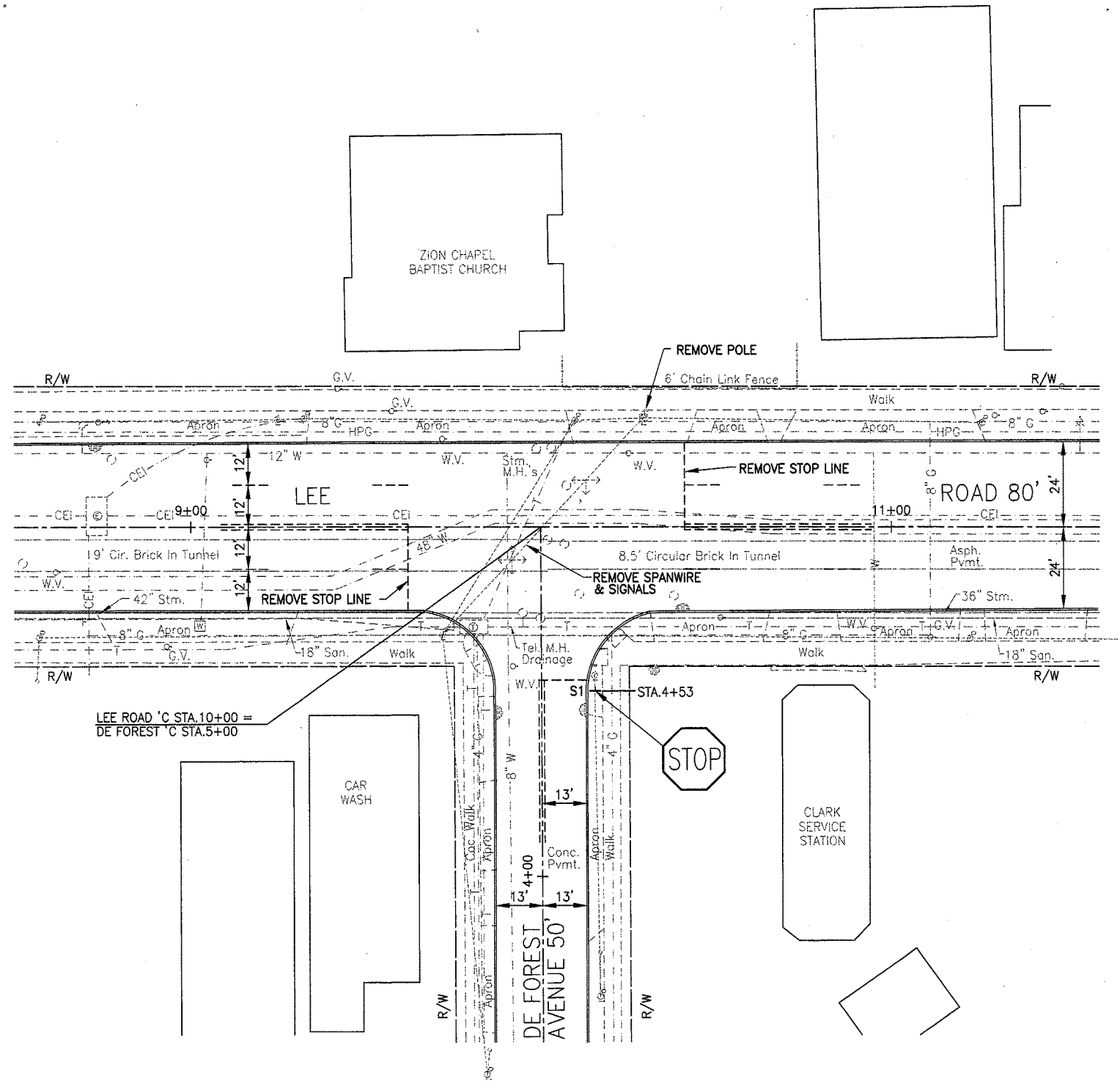
DETAILS

CUYAHOGA COUNTY
CUY-10-8.96 & VARIOUS

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES TO REMAIN.
 PROPOSED MODIFICATIONS AND/OR ADDITIONS ARE SHOWN AS SOLID LINES.

DATE: 08-12-99

9326TD33.DWG, PLOT SCALE: 1=20



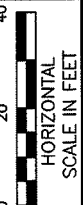
LEE ROAD 'C' STA.10+00 =
 DE FOREST 'C' STA.5+00

**EXISTING SIGNAL TO BE REMOVED
 (SEE NOTE ON SHEET 2)**



SIGN LEGEND

ITEM	TOTAL	UNIT	DESCRIPTION
630	6.25	SF	SIGN, FLAT SHEET, TYPE G
630	13	LF	GROUND MOUNTED SUPPORT, NO. 3 POST
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN



CALCULATED
 REW
 CHECKED
 KAN

INTERSECTION OF LEE RD. AND DE FOREST AVE.

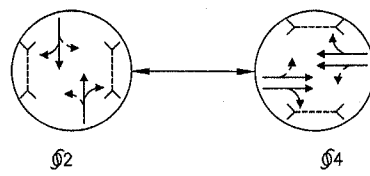
CUYAHOGA COUNTY
 CUY-10-8.96 & VARIOUS

17
 67

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 58.

FOR POLE CHART SEE SHEET 65.

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES TO REMAIN. PROPOSED MODIFICATIONS AND/OR ADDITIONS ARE SHOWN AS SOLID LINES.



PHASING DIAGRAM

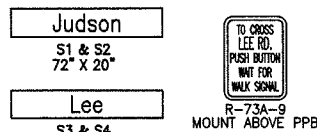
SIGNAL HEAD	φ1		φ2		φ3		φ4		FLASH	DWELL	
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR			
A			R	R			G	Y	R	Y	G
B			R	R			G	Y	R	Y	G
C			R	R			G	Y	R	Y	G
D			R	R			G	Y	R	Y	G
E			G	Y			R	R	R	R	R
F			G	Y			R	R	R	R	R
G			G	Y			R	R	R	R	R
H			G	Y			R	R	R	R	R
I			DW	DW			W/(DW)	DW	DW	D	W
J			DW	DW			W/(DW)	DW	DW	D	W
K			DW	DW			W/(DW)	DW	DW	D	W
L			DW	DW			W/(DW)	DW	DW	D	W
M			W/(DW)	DW			DW	DW	DW	D	DW
N			W/(DW)	DW			DW	DW	DW	D	DW
O			W/(DW)	DW			DW	DW	DW	D	DW
P			W/(DW)	DW			DW	DW	DW	D	DW

W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK

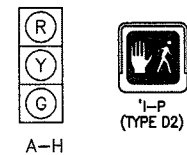
SIGNAL SEQUENCE CHART

FUNCTION	φ1	φ2	φ3	φ4
INITIAL GREEN		8		-
MINIMUM GREEN		-		20
VEHICLE EXTENSION		3		-
MAXIMUM GREEN		20		-
PEDESTRIAN WALK		7		-
PEDESTRIAN CLEAR.		12		10
VEH. YELLOW CLEAR.		3		3
VEHICLE RED CLEAR.		2.5		2
RECALL		NO		PED
MEMORY		NO		NO

SIGNAL TIMING CHART



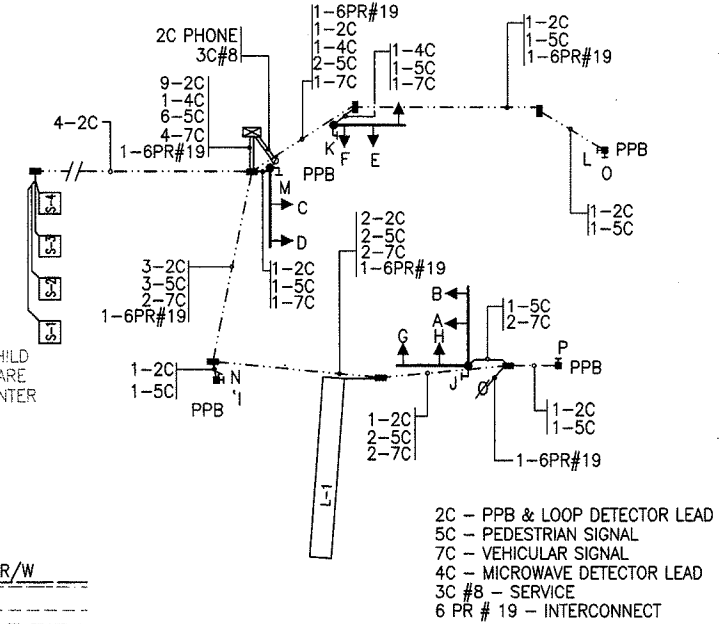
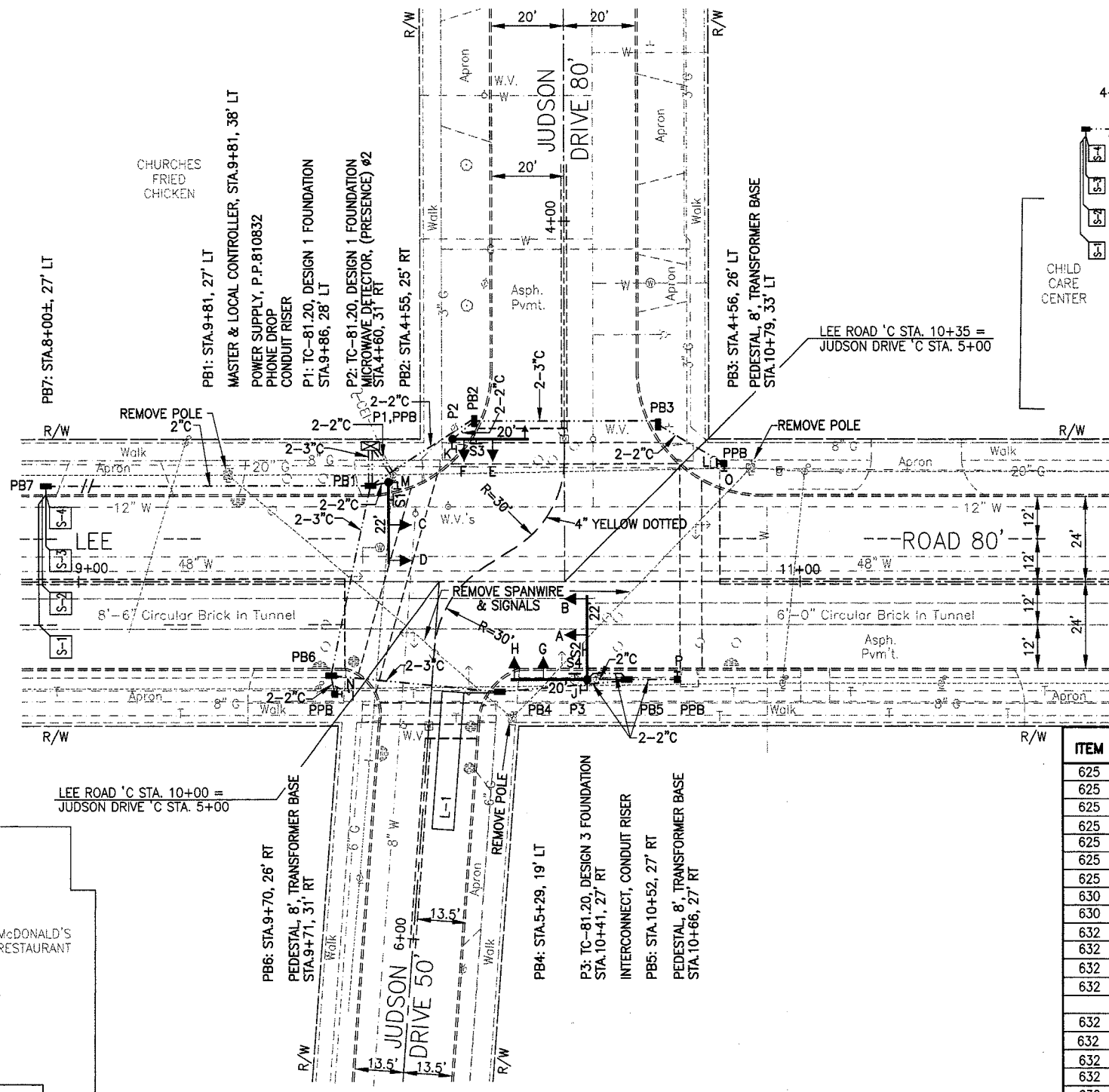
SIGN LEGEND



12" SIGNAL HEADS
RIGID MOUNTED

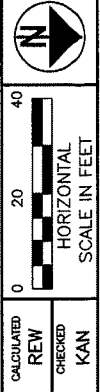
LOOP	SIZE	TURNS	MODE	DELAY	PHASE	REMARK	INHIBITED DELAY	LOCATION 1ST FRONT CORNER	LOCATION 2ND FRONT CORNER
L-1	6'X40'	2	PRESENCE	8	2		NO	STA. 5+29, 3.5'L	STA. 5+29, 9.5'L
S-1	6'X6'	3	BOTH			SYSTEM		STA. 8+06, 21'R	STA. 8+06, 15'R
S-2	6'X6'	3	BOTH			SYSTEM		STA. 8+06, 9'R	STA. 8+06, 3'R
S-3	6'X6'	3	BOTH			SYSTEM		STA. 8+06, 3'L	STA. 8+06, 9'L
S-4	6'X6'	3	BOTH			SYSTEM		STA. 8+06, 15'L	STA. 8+06, 21'L

LOOP DETECTOR CHART



WIRE DIAGRAM

ITEM	TOTAL	UNIT	DESCRIPTION
625	7	EA	GROUND ROD
625	7	EA	PULLBOX, MISC.: 13"x24"
625	332	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	194	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	512	LF	CONDUIT, 2", 713.07, AS PER PLAN
625	18	LF	CONDUIT, 3", 713.07, AS PER PLAN
625	282	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
630	34	SF	SIGN, FLAT SHEET, TYPE G
630	4	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
632	8	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	8	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	4	EA	PEDESTRIAN PUSHBUTTON, AS PER PLAN
632	3	EA	LOOP DETECTOR UNIT, 2 CHANNEL, DELAY AND EXTENSION TYPE, AS PER PLAN
632	1	EA	SIGNALIZATION, MISC.: MICROWAVE DETECTOR
632	5	EA	DETECTOR LOOP
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 20' ARM, AS PER PLAN
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 22' ARM, AS PER PLAN
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20 DESIGN 3 POLE, WITH MAST ARMS TC-81.20 DESIGN 1, 20 FEET AND TC-81.20 DESIGN 1, 22 FEET, AS PER PLAN
632	3	EA	SIGNAL SUPPORT FOUNDATION, AS PER PLAN
632	3	EA	PEDESTAL FOUNDATION
632	3	EA	PEDESTAL, 8', TRANSFORMER BASE, AS PER PLAN
632	2	EA	CONDUIT RISER, 2" DIAMETER
632	749	LF	SIGNAL CABLE, 5-CONDUCTOR, NO. 14 AWG
632	629	LF	SIGNAL CABLE, 7-CONDUCTOR, NO. 14 AWG
632	1295	LF	LOOP DETECTOR LEAD-IN CABLE
632	100	LF	SIGNALIZATION, MISC.: MICROWAVE DETECTOR LEAD-IN CABLE
632	30	LF	POWER CABLE, 3-CONDUCTOR, NO. 8 AWG
632	1	EA	PHONE DROP, AS PER PLAN
632	8	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER, MASTER, TRAFFIC RESPONSIVE, AS PER PLAN
633	1	EA	CONTROLLER, ACTUATED, 8 PHASE, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN
633	1	CY	CONCRETE FOR CABINET FOUNDATION
644	85	LF	DOTTED LINE, 4" (YELLOW)



CALCULATED
REVIEWED
CHECKED
KAN

INTERSECTION OF LEE RD. AND JUDSON DR.

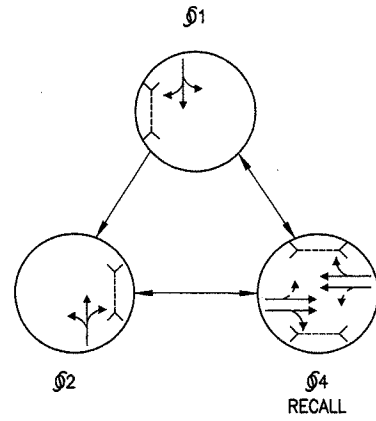
CUYAHOGA COUNTY
CUY-10-8.96 & VARIOUS

9/3/2010 10:34 AM, PLOT SCALE: 1"=20'

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 58.

FOR POLE CHART SEE SHEET 65.

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES TO REMAIN. PROPOSED MODIFICATIONS AND/OR ADDITIONS ARE SHOWN AS SOLID LINES.



PHASING DIAGRAM

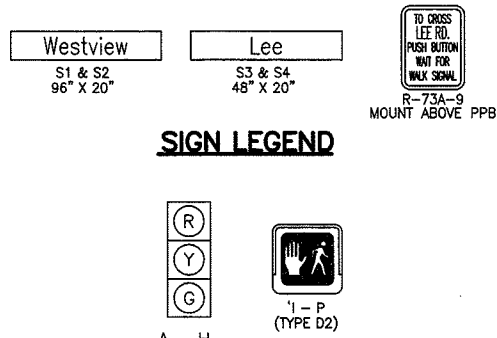
SIGNAL HEAD	phi 1		phi 2		phi 3		phi 4		FLASH	DWELL	
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR			
A	R	R	R	R			G	Y	R	Y	G
B	R	R	R	R			G	Y	R	Y	G
C	R	R	R	R			G	Y	R	Y	G
D	R	R	R	R			G	Y	R	Y	G
E	R	R	R	G	Y	R					
F	R	R	R	G	Y	R					
G	G	Y	R	R	R	R					
H	G	Y	R	R	R	R					
I	DW	DW	DW	DW	DW	DW	W/(DW)	DW	DW	D	W
J	DW	DW	DW	DW	DW	DW	W/(DW)	DW	DW	D	W
K	DW	DW	DW	DW	DW	DW	W/(DW)	DW	DW	D	W
L	DW	DW	DW	DW	DW	DW	W/(DW)	DW	DW	D	W
M	W/(DW)	DW	DW	DW	DW	DW		DW	DW	D	DW
N	W/(DW)	DW	DW	DW	DW	DW		DW	DW	D	DW
O	DW	DW	DW	W/(DW)	DW	DW		DW	DW	D	DW
P	DW	DW	DW	W/(DW)	DW	DW		DW	DW	D	DW

W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK

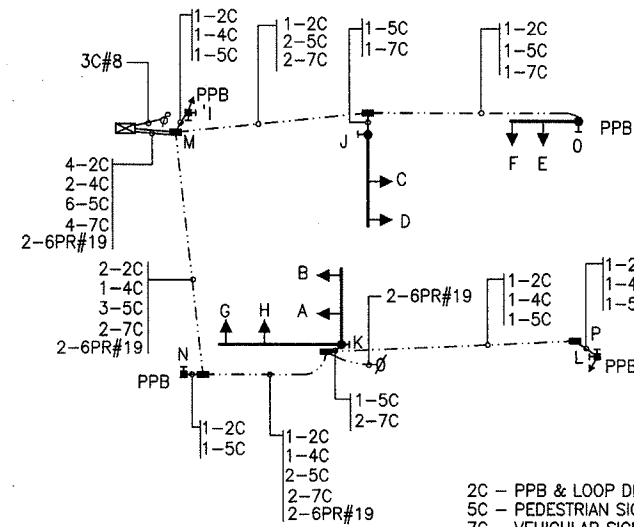
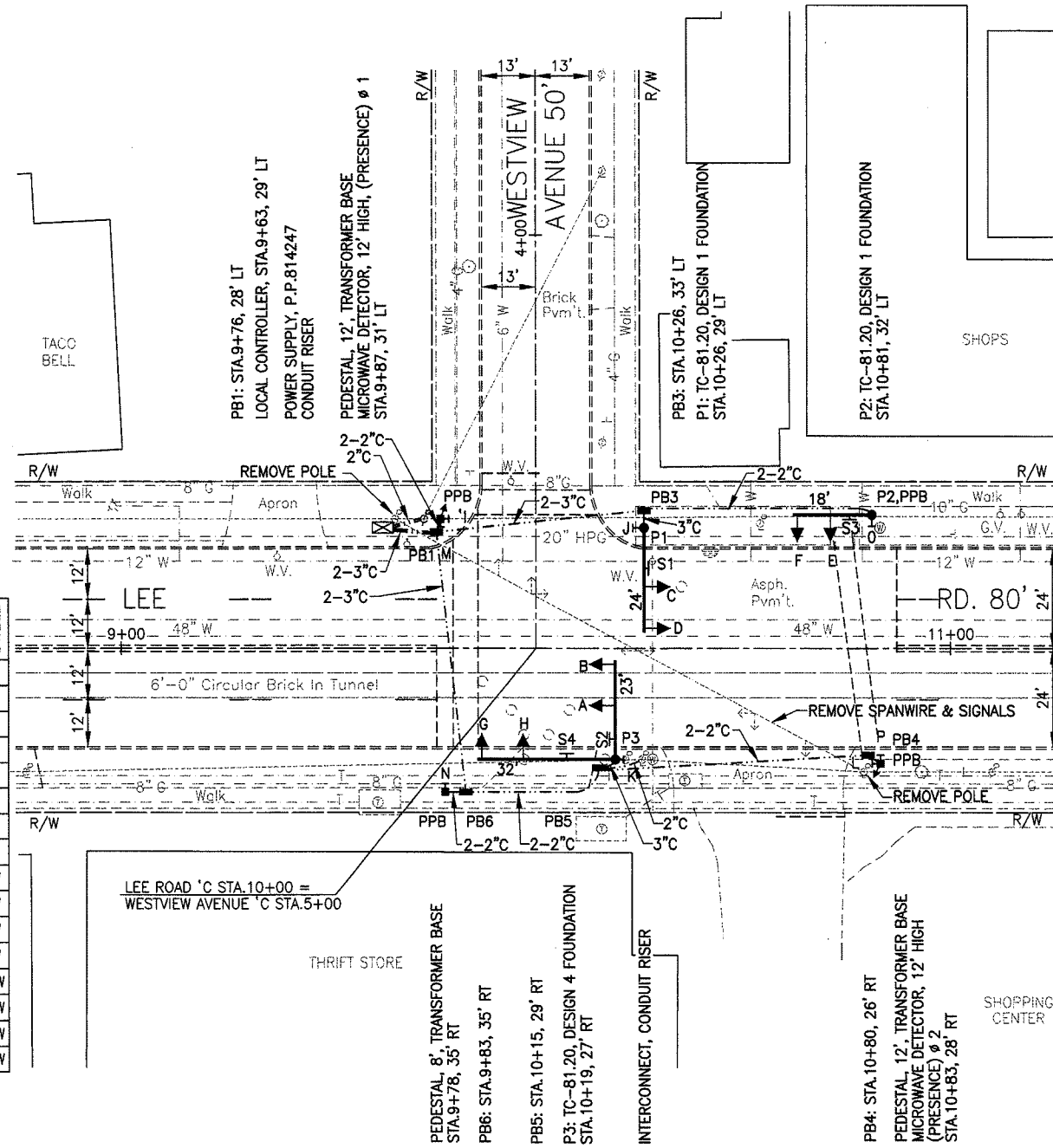
SIGNAL SEQUENCE CHART

FUNCTION	phi 1	phi 2	phi 3	phi 4
INITIAL GREEN	8	8	-	-
MINIMUM GREEN	-	-	20	-
VEHICLE EXTENSION	3	3	-	-
MAXIMUM GREEN	20	20	-	-
PEDESTRIAN WALK	7	7	-	-
PEDESTRIAN CLEAR.	12	12	9	-
VEH. YELLOW CLEAR.	3	3	3	-
VEHICLE RED CLEAR.	2	2	3	-
RECALL	NO	NO	-	PED
MEMORY	NO	NO	-	NO

SIGNAL TIMING CHART



12" SIGNAL HEADS
RIGID MOUNTED



WIRE DIAGRAM

2C - PPB & LOOP DETECTOR LEAD
5C - PEDESTRIAN SIGNAL
7C - VEHICULAR SIGNAL
4C - MICROWAVE DETECTOR LEAD
3C #8 - SERVICE
6 PR # 19 - INTERCONNECT

ITEM	TOTAL	UNIT	DESCRIPTION
625	7	EA	GROUND ROD
625	5	EA	PULLBOX, MISC.: 13"x24"
625	222	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	129	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	405	LF	CONDUIT, 2", 713.07, AS PER PLAN
625	94	LF	CONDUIT, 3", 713.07, AS PER PLAN
625	168	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
630	41	SF	SIGN, FLAT SHEET, TYPE G
630	4	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
632	8	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	8	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	4	EA	PEDESTRIAN PUSHBUTTON, AS PER PLAN
632	1	EA	PEDESTAL, 8", TRANSFORMER BASE, AS PER PLAN
632	2	EA	PEDESTAL, MISC.: 12", TRANSFORMER BASE
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 18" ARM, AS PER PLAN
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 24" ARM, AS PER PLAN
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20 DESIGN 4 POLE, WITH MAST ARMS TC-81.20 DESIGN 1, 23 FEET AND TC-81.20 DESIGN 3, 32 FEET, AS PER PLAN
632	3	EA	SIGNAL SUPPORT FOUNDATION, AS PER PLAN
632	3	EA	PEDESTAL FOUNDATION
632	3	EA	CONDUIT RISER, 2" DIAMETER
632	777	LF	SIGNAL CABLE, 5-CONDUCTOR, NO. 14 AWG
632	551	LF	SIGNAL CABLE, 7-CONDUCTOR, NO. 14 AWG
632	2	EA	SIGNALIZATION, MISC.: MICROWAVE DETECTOR
632	433	LF	LOOP DETECTOR LEAD-IN CABLE
632	277	LF	SIGNALIZATION, MISC.: MICROWAVE DETECTOR LEAD-IN CABLE
632	41	LF	POWER CABLE, 3-CONDUCTOR, NO. 8 AWG
632	8	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER, ACTUATED, 8 PHASE, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN
633	1	CY	CONCRETE FOR CABINET FOUNDATION

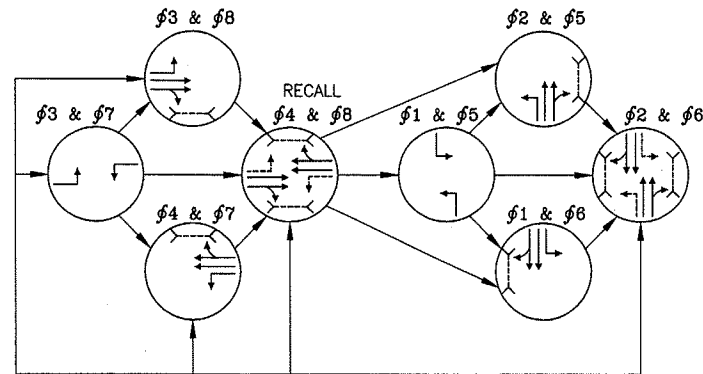
INTERSECTION OF LEE RD. AND WESTVIEW AVE.

CUYAHOGA COUNTY
CUY-10-8.96 & VARIOUS

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 58.

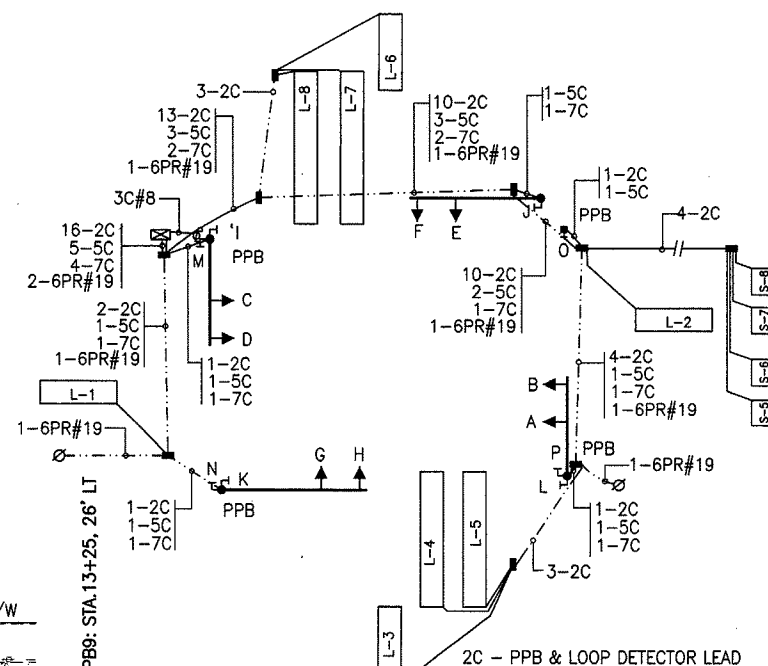
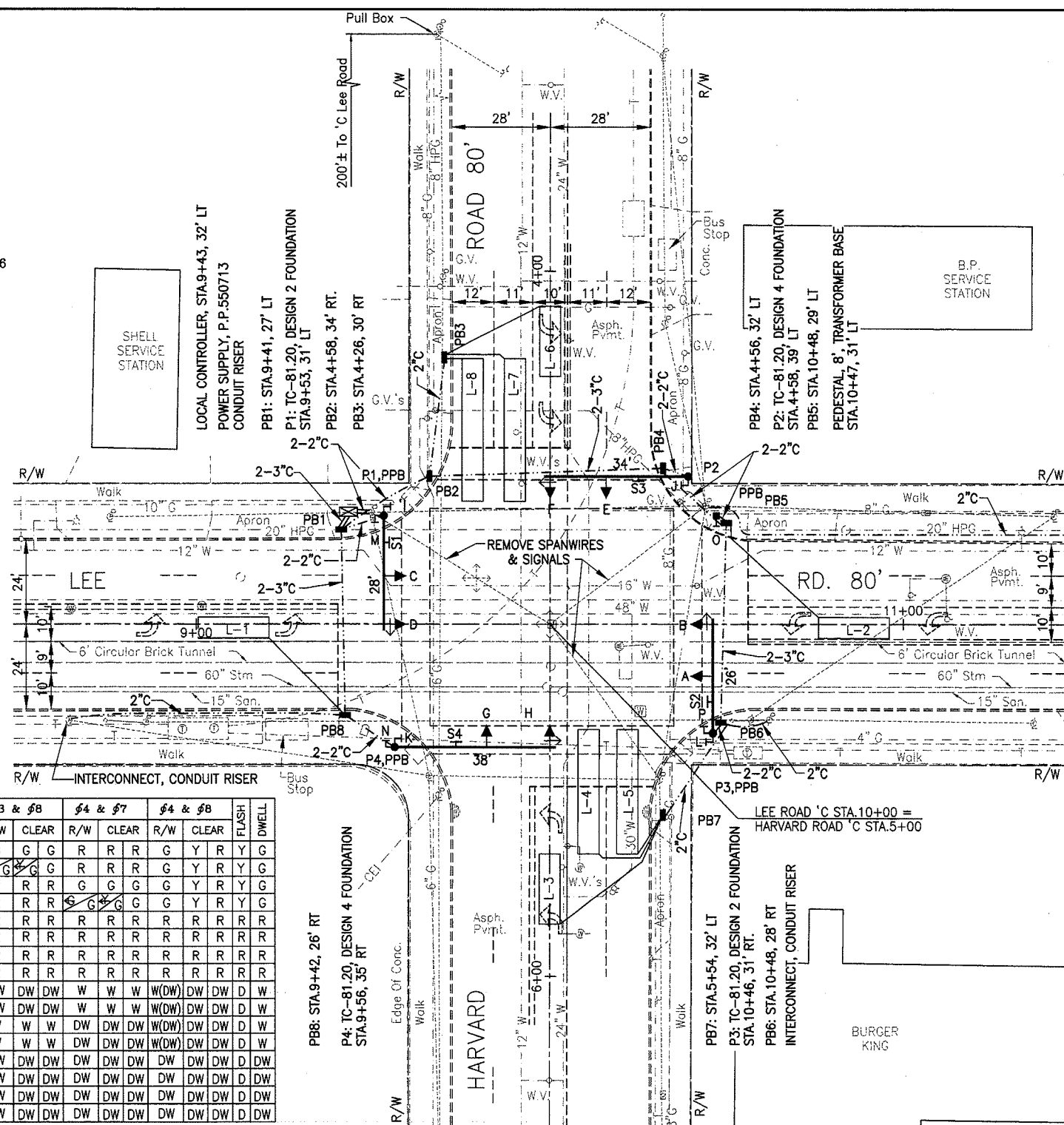
FOR POLE CHART SEE SHEET 65.

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES TO REMAIN. PROPOSED MODIFICATIONS AND/OR ADDITIONS ARE SHOWN AS SOLID LINES.



OMIT φ1 WHEN φ2 IS TIMING
OMIT φ5 WHEN φ6 IS TIMING
OMIT φ3 WHEN φ4 IS TIMING
OMIT φ7 WHEN φ8 IS TIMING

PHASING DIAGRAM



WIRE DIAGRAM

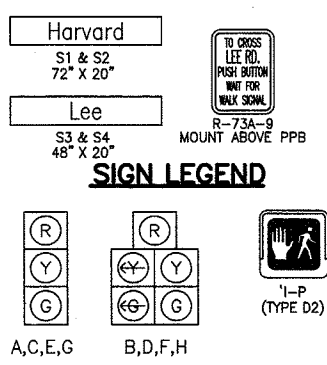
SIGNAL SEQUENCE CHART

SIGNAL HEAD	φ1 & φ5		φ1 & φ6		φ2 & φ5		φ2 & φ6		φ3 & φ7		φ3 & φ8		φ4 & φ7		φ4 & φ8		FLASH	DWELL			
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR					
A	R	R	R	R	R	R	R	R	R	R	R	G	G	R	R	R	G	Y	R	Y	G
B	R	R	R	R	R	R	R	R	R	R	R	G	G	R	R	R	G	Y	R	Y	G
C	R	R	R	R	R	R	R	R	R	R	R	G	G	R	R	R	G	Y	R	Y	G
D	R	R	R	R	R	R	R	R	R	R	R	G	G	R	R	R	G	Y	R	Y	G
E	R	R	R	R	R	R	R	R	R	R	R	G	G	R	R	R	G	Y	R	Y	G
F	R	R	R	R	R	R	R	R	R	R	R	G	G	R	R	R	G	Y	R	Y	G
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P	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW

W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK

FUNCTION	φ1 & φ5	φ2 & φ6	φ3 & φ7	φ4 & φ8
INITIAL GREEN	5	8	5	-
MINIMUM GREEN	-	-	-	24
VEHICLE EXTENSION	3	3	3	-
MAXIMUM GREEN	8	28	8	-
PEDESTRIAN WALK		7		
PEDESTRIAN CLEAR		13		15
VEH. YELLOW CLEAR	3	3	3	3
VEHICLE RED CLEAR	1.5	2	1.5	2.5
RECALL	NO	NO	NO	PED
MEMORY	NO	NO	NO	NO
MAX.2 MAXIMUM GREEN (3:00-6:00 PM, M-F)	8	24	17	-

SIGNAL TIMING CHART



12" SIGNAL HEADS RIGID MOUNTED

LOOP	SIZE	TURNS	MODE	DELAY	PHASE	REMARK	INHIBITED DELAY	LOCATION 1ST FRONT CORNER	LOCATION 2ND FRONT CORNER
L-1	6'X20'	2	PRESENCE	3	3		YES	STA.9+20, 2' L	STA.9+20, 4' R
L-2	6'X20'	2	PRESENCE	3	7		YES	STA.10+76, 2' L	STA.10+76, 4' R
L-3	6'X20'	2	PRESENCE	3	5		YES	STA.5+68, 3' R	STA.5+68, 3' L
L-4	6'X35'	2	PRESENCE	3	2			STA.5+33, 8' L	STA.5+33, 14' L
L-5	6'X35'	2	PRESENCE	8	2		YES	STA.5+33, 19' L	STA.5+33, 25' L
L-6	6'X20'	2	PRESENCE	3	1		YES	STA.4+30, 3' L	STA.4+30, 3' R
L-7	6'X40'	2	PRESENCE	3	6			STA.4+65, 8' R	STA.4+65, 14' R
L-8	6'X40'	2	PRESENCE	8	6		YES	STA.4+65, 19' R	STA.4+65, 25' R
S-5	6'X6'	3	BOTH			SYSTEM		STA.13+30, 19' R	STA.13+30, 13' R
S-6	6'X6'	3	BOTH			SYSTEM		STA.13+30, 9' R	STA.13+30, 3' R
S-7	6'X6'	3	BOTH			SYSTEM		STA.13+30, 3' L	STA.13+30, 9' L
S-8	6'X6'	3	BOTH			SYSTEM		STA.13+30, 13' L	STA.13+30, 19' L

LOOP DETECTOR CHART

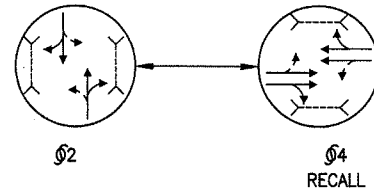
ITEM	TOTAL	UNIT	DESCRIPTION
625	6	EA	GROUND ROD
625	9	EA	PULLBOX, MISC.: 13"x24"
625	406	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	230	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	556	LF	CONDUIT, 2", 713.07, AS PER PLAN
625	24	LF	CONDUIT, 3", 713.07, AS PER PLAN
625	334	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
630	34	SF	SIGN, FLAT SHEET, TYPE G
630	4	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
632	4	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	4	EA	VEHICULAR SIGNAL HEAD, 5-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	8	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	4	EA	PEDESTRIAN PUSHBUTTON, AS PER PLAN
632	1	EA	PEDESTAL, 8", TRANSFORMER BASE, AS PER PLAN
632	6	EA	LOOP DETECTOR UNIT, 2 CHANNEL, DELAY AND EXTENSION TYPE, AS PER PLAN
632	12	EA	DETECTOR LOOP
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 2, WITH 26" ARM, AS PER PLAN
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 2, WITH 28" ARM, AS PER PLAN
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 34" ARM, AS PER PLAN
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 38" ARM, AS PER PLAN
632	4	EA	SIGNAL SUPPORT FOUNDATION, AS PER PLAN
632	1	EA	PEDESTAL FOUNDATION
632	3	EA	CONDUIT RISER, 2" DIAMETER
632	684	LF	SIGNAL CABLE, 5-CONDUCTOR, NO. 14 AWG
632	686	LF	SIGNAL CABLE, 7-CONDUCTOR, NO. 14 AWG
632	2028	LF	LOOP DETECTOR LEAD-IN CABLE
632	38	LF	POWER CABLE, 3-CONDUCTOR, NO. 8 AWG
632	8	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER, ACTUATED, 8 PHASE, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN
633	1	CY	CONCRETE FOR CABINET FOUNDATION

INTERSECTION OF LEE RD. AND HARVARD RD.
 CUYAHOGA COUNTY
 CUY-10-8.96 & VARIOUS
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FOR SIGNAL COORDINATION INFORMATION SEE SHEET 58.

FOR POLE CHART SEE SHEET 65.

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES TO REMAIN. PROPOSED MODIFICATIONS AND/OR ADDITIONS ARE SHOWN AS SOLID LINES.



PHASING DIAGRAM

SIGNAL HEAD	φ1		φ2		φ3		φ4		FLASH	DWELL	
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR			
A			R	R			G	Y	R	Y	G
B			R	R			G	Y	R	Y	G
C			R	R			G	Y	R	Y	G
D			R	R			G	Y	R	Y	G
E			G	Y	R		R	R	R	R	R
F			G	Y	R		R	R	R	R	R
G			G	Y	R		R	R	R	R	R
H			G	Y	R		R	R	R	R	R
I			DW	DW	DW		W/(DW)	DW	DW	D	W
J			DW	DW	DW		W/(DW)	DW	DW	D	W
K			DW	DW	DW		W/(DW)	DW	DW	D	W
L			DW	DW	DW		W/(DW)	DW	DW	D	W
M			W/(DW)	DW	DW		DW	DW	DW	D	DW
N			W/(DW)	DW	DW		DW	DW	DW	D	DW
O			W/(DW)	DW	DW		DW	DW	DW	D	DW
P			W/(DW)	DW	DW		DW	DW	DW	D	DW

W-WALK (DW)-FLASHING DONT WALK DW-DONT WALK D-DARK

SIGNAL SEQUENCE CHART

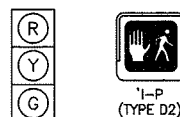
FUNCTION	φ1	φ2	φ3	φ4
INITIAL GREEN		8		
MINIMUM GREEN				20
VEHICLE EXTENSION		3		
MAXIMUM GREEN		20		
PEDESTRIAN WALK		7		
PEDESTRIAN CLEAR.		12		7
VEH. YELLOW CLEAR.		3		3
VEHICLE RED CLEAR.		2.0		1.5
RECALL		NO		PED
MEMORY		NO		NO

SIGNAL TIMING CHART

Stockbridge
S1 & S2
108" X 20"

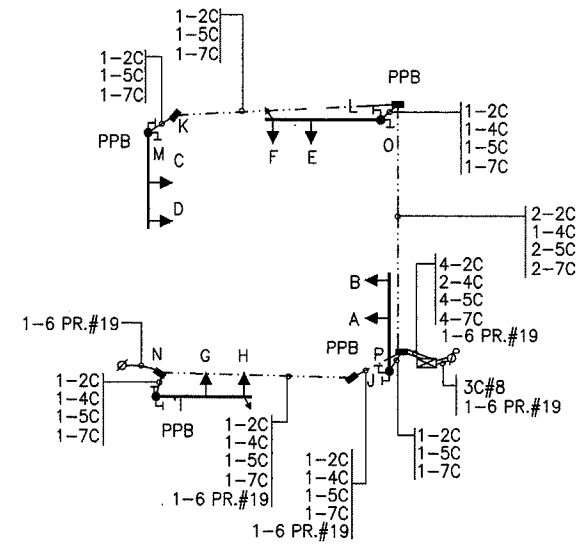
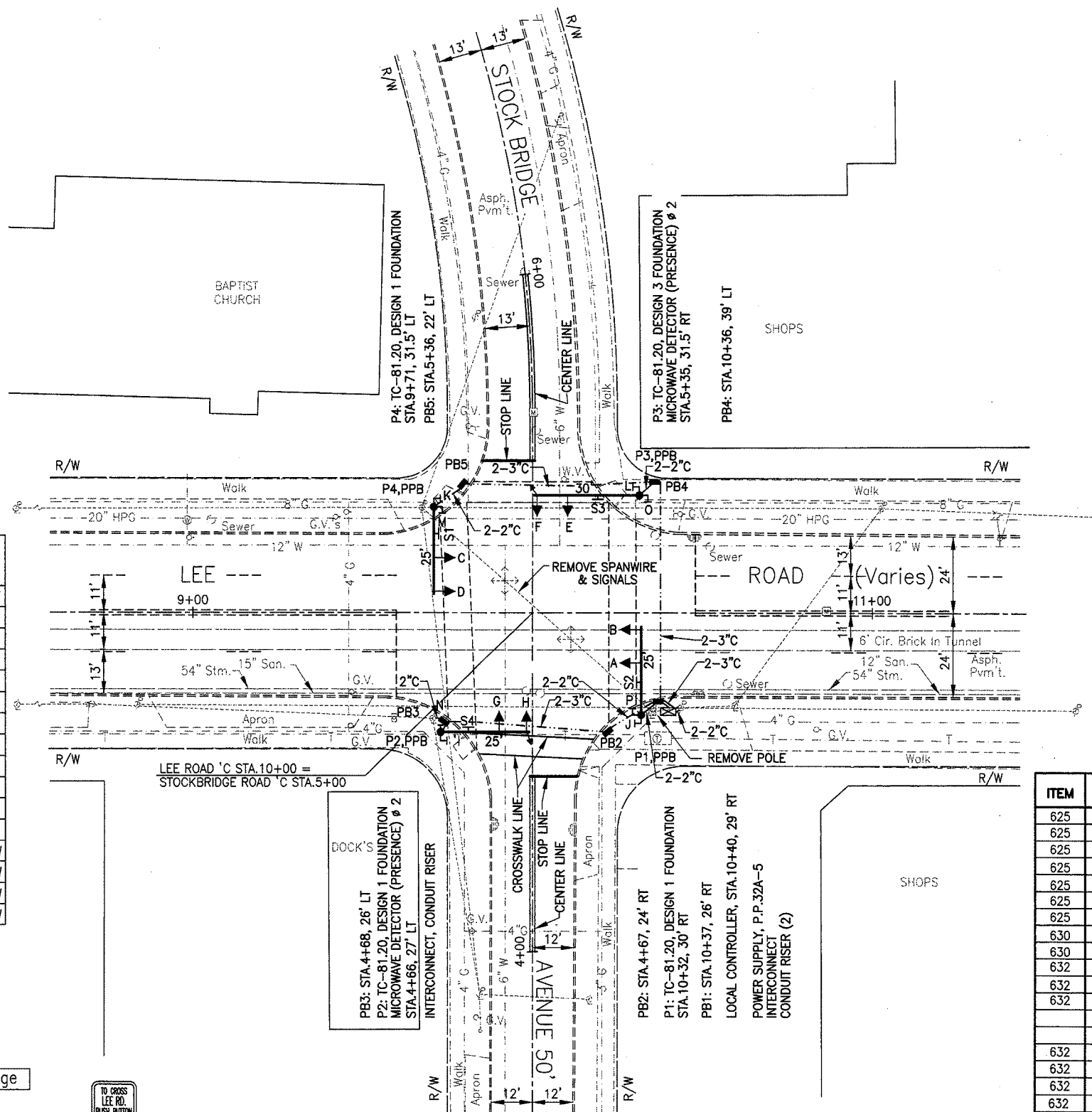
Lee
S3 & S4
72" X 20"

SIGN LEGEND



A - H

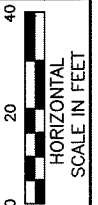
12" SIGNAL HEADS
RIGID MOUNTED



WIRE DIAGRAM

100% CITY PARTICIPATION

ITEM	TOTAL	UNIT	DESCRIPTION
625	5	EA	GROUND ROD
625	5	EA	PULLBOX, MISC.: 13"x24"
625	61	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	167	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	92	LF	CONDUIT, 2", 713.07, AS PER PLAN
625	90	LF	CONDUIT, 3", 713.07, AS PER PLAN
625	270	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
630	50	SF	SIGN, FLAT SHEET, TYPE G
630	4	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
632	8	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	8	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	4	EA	PEDESTRIAN PUSHBUTTON, AS PER PLAN
632	2	EA	SIGNALIZATION, MISC.: MICROWAVE DETECTOR
632	3	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 25' ARM, AS PER PLAN
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, WITH 30' ARM, AS PER PLAN
632	4	EA	SIGNAL SUPPORT FOUNDATION, AS PER PLAN
632	3	EA	CONDUIT RISER, 2" DIAMETER
632	431	LF	SIGNAL CABLE, 5-CONDUCTOR, NO. 14 AWG
632	572	LF	SIGNAL CABLE, 7-CONDUCTOR, NO. 14 AWG
632	329	LF	LOOP DETECTOR LEAD-IN CABLE
632	288	LF	SIGNALIZATION, MISC.: MICROWAVE DETECTOR LEAD-IN CABLE
632	34	LF	POWER CABLE, 3-CONDUCTOR, NO. 8 AWG
632	8	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER, ACTUATED, 8 PHASE, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN
633	1	CY	CONCRETE FOR CABINET FOUNDATION
642	.04	MI	CENTER LINE, TYPE 2
644	14	LF	STOP LINE
644	68	LF	CROSSWALK LINE



CALCULATED
REW
CHECKED
KAN

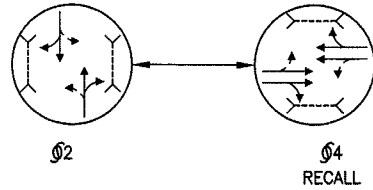
INTERSECTION OF LEE RD. AND STOCKBRIDGE AVE.

CUYAHOGA COUNTY
CUY-10-8.96 & VARIOUS

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 58.

FOR POLE CHART SEE SHEET 65.

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES TO REMAIN. PROPOSED MODIFICATIONS AND/OR ADDITIONS ARE SHOWN AS SOLID LINES.



PHASING DIAGRAM

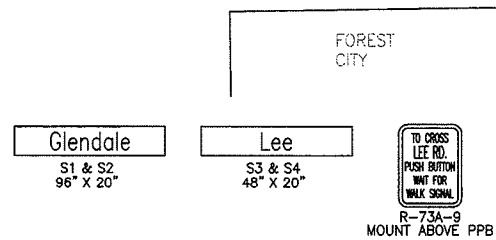
SIGNAL HEAD	φ1		φ2		φ3		φ4		FLASH	DWELL	
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR			
A			R	R			G	Y	R	Y	G
B			R	R			G	Y	R	Y	G
C			R	R			G	Y	R	Y	G
D			R	R			G	Y	R	Y	G
E			G	Y	R		R	R	R	R	R
F			G	Y	R		R	R	R	R	R
G			G	Y	R		R	R	R	R	R
H			G	Y	R		R	R	R	R	R
I			DW	DW	DW		W/(DW)	DW	DW	D	W
J			DW	DW	DW		W/(DW)	DW	DW	D	W
K			DW	DW	DW		W/(DW)	DW	DW	D	W
L			DW	DW	DW		W/(DW)	DW	DW	D	W
M			W/(DW)	DW	DW		DW	DW	DW	D	DW
N			W/(DW)	DW	DW		DW	DW	DW	D	DW
O			W/(DW)	DW	DW		DW	DW	DW	D	DW
P			W/(DW)	DW	DW		DW	DW	DW	D	DW

W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK

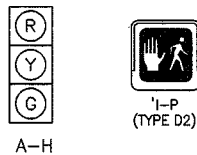
SIGNAL SEQUENCE CHART

FUNCTION	φ1	φ2	φ3	φ4
INITIAL GREEN		8		-
MINIMUM GREEN		-		20
VEHICLE EXTENSION		3		-
MAXIMUM GREEN		20		-
PEDESTRIAN WALK		7		-
PEDESTRIAN CLEAR.		13		7
VEH. YELLOW CLEAR.		3		3
VEHICLE RED CLEAR.		2		1.5
RECALL		NO		PED
MEMORY		NO		NO

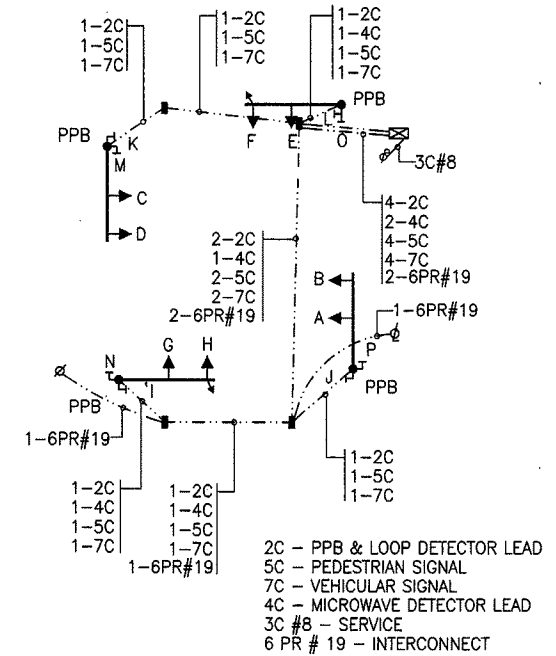
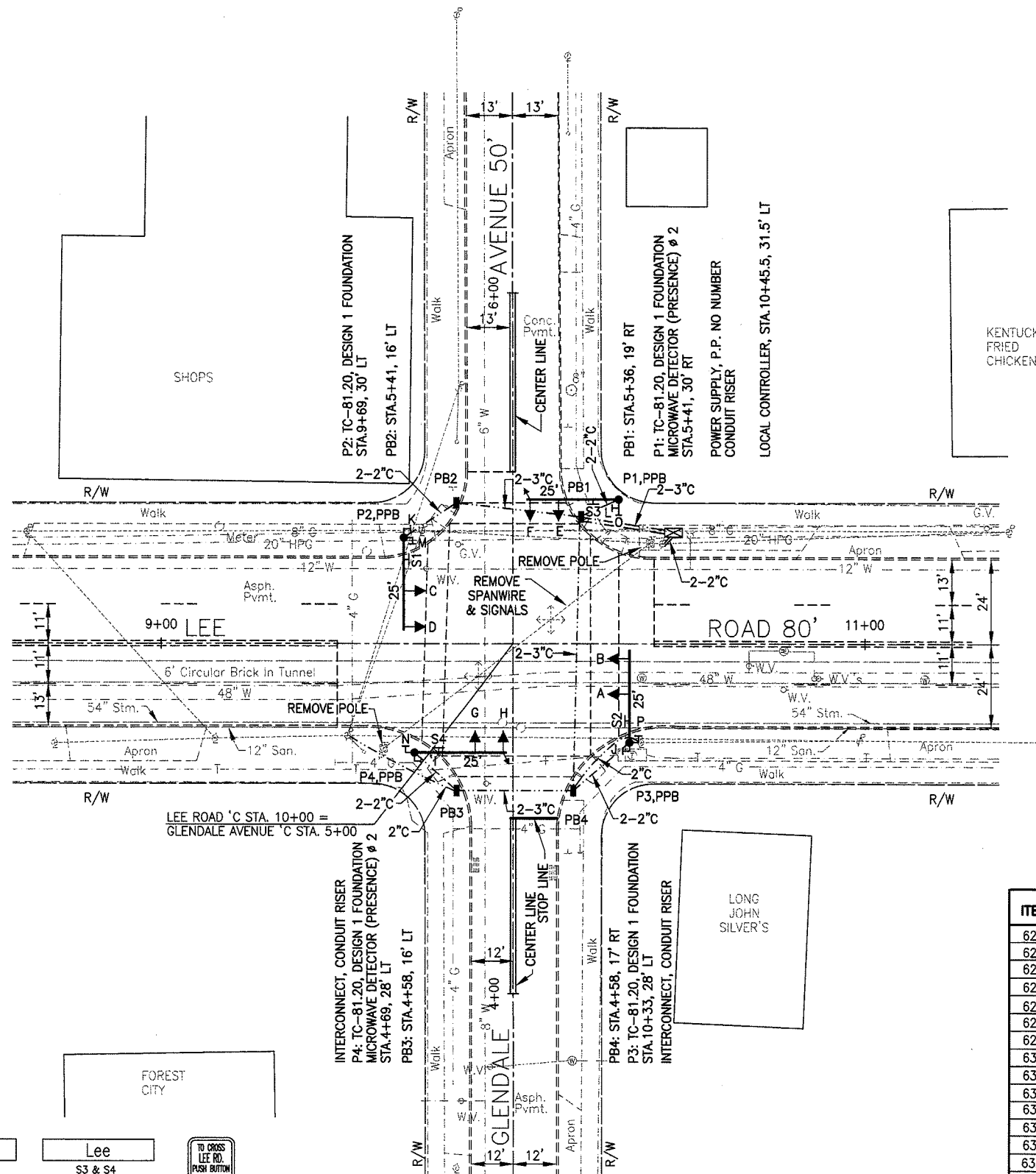
SIGNAL TIMING CHART



SIGN LEGEND



12" SIGNAL HEADS
RIGID MOUNTED



WIRE DIAGRAM

ITEM	TOTAL	UNIT	DESCRIPTION
625	5	EA	GROUND ROD
625	4	EA	PULLBOX, MISC.: 13"x24"
625	121	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	136	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	156	LF	CONDUIT, 2", 713.07, AS PER PLAN
625	78	LF	CONDUIT, 3", 713.07, AS PER PLAN
625	270	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
630	41	SF	SIGN, FLAT SHEET, TYPE G
630	4	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
632	8	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	8	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	4	EA	PEDESTRIAN PUSHBUTTON, AS PER PLAN
632	4	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 25' ARM, AS PER PLAN
632	4	EA	SIGNAL SUPPORT FOUNDATION, AS PER PLAN
632	3	EA	CONDUIT RISER, 2" DIAMETER
632	515	LF	SIGNAL CABLE, 5-CONDUCTOR, NO. 14 AWG
632	651	LF	SIGNAL CABLE, 7-CONDUCTOR, NO. 14 AWG
632	2	EA	SIGNALIZATION, MISC.: MICROWAVE DETECTOR
632	427	LF	LOOP DETECTOR LEAD-IN CABLE
632	320	LF	SIGNALIZATION, MISC.: MICROWAVE DETECTOR LEAD-IN CABLE
632	25	LF	POWER CABLE, 3-CONDUCTOR, NO. 8 AWG
632	8	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER, ACTUATED, 8 PHASE, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN
633	1	CY	CONCRETE FOR CABINET FOUNDATION
642	.04	MI	CENTER LINE, TYPE 2
642	14	LF	STOP LINE

INTERSECTION OF LEE RD. AND GLENDALE AVE.

CUYAHOGA COUNTY
CUY-10-8.96 & VARIOUS

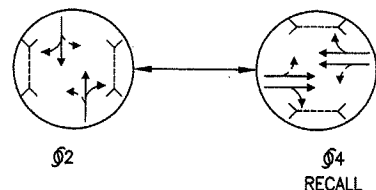
22
67

9/32/03 DWG. PLOT SCALE: 1=20

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 58.

FOR POLE CHART SEE SHEET 65.

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES TO REMAIN. PROPOSED MODIFICATIONS AND/OR ADDITIONS ARE SHOWN AS SOLID LINES.



PHASING DIAGRAM

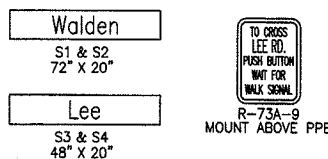
SIGNAL HEAD	φ1		φ2		φ3		φ4		FLASH	DWELL		
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR				
A			R	R			G	Y	R	Y	G	
B			R	R			G	Y	R	Y	G	
C			R	R			G	Y	R	Y	G	
D			R	R			G	Y	R	Y	G	
E			G	Y	R			R	R	R	R	
F			G	Y	R			R	R	R	R	
G			G	Y	R			R	R	R	R	
H			G	Y	R			R	R	R	R	
I			DW	DW	DW			W/(DW)	DW	DW	D	W
J			DW	DW	DW			W/(DW)	DW	DW	D	W
K			DW	DW	DW			W/(DW)	DW	DW	D	W
L			DW	DW	DW			W/(DW)	DW	DW	D	W
M			W/(DW)	DW	DW			DW	DW	DW	D	DW
N			W/(DW)	DW	DW			DW	DW	DW	D	DW
O			W/(DW)	DW	DW			DW	DW	DW	D	DW
P			W/(DW)	DW	DW			DW	DW	DW	D	DW

W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK

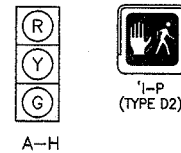
SIGNAL SEQUENCE CHART

FUNCTION	φ1	φ2	φ3	φ4
INITIAL GREEN		8		
MINIMUM GREEN				20
VEHICLE EXTENSION		3		
MAXIMUM GREEN		20		
PEDESTRIAN WALK		7		
PEDESTRIAN CLEAR.		13		8
VEH. YELLOW CLEAR.		3		3
VEHICLE RED CLEAR.		2		1.5
RECALL		NO		PED
MEMORY		NO		NO

SIGNAL TIMING CHART



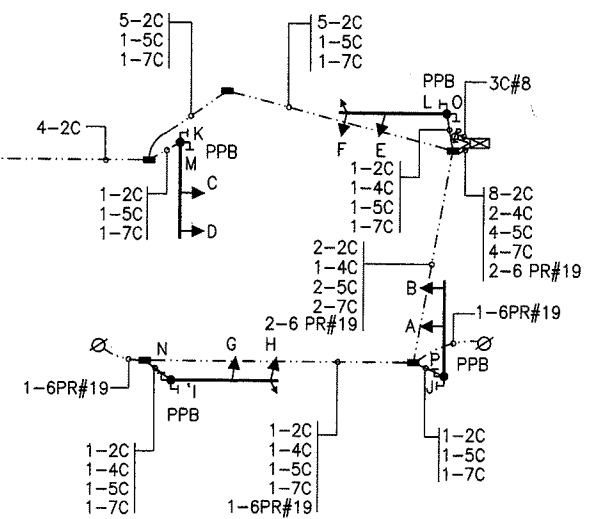
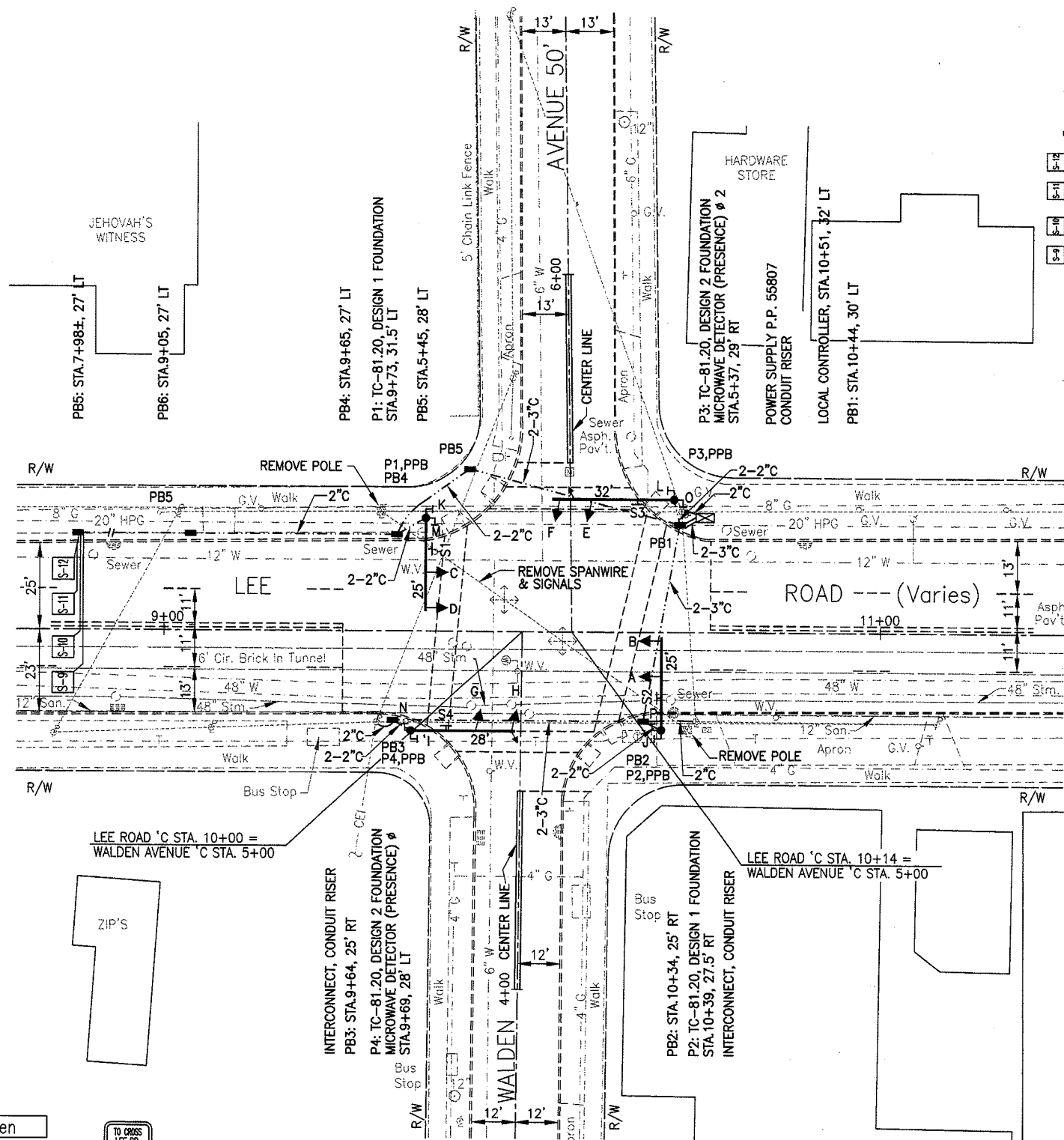
SIGN LEGEND



12" SIGNAL HEADS
RIGID MOUNTED

LOOP	SIZE	TURNS	MODE	DELAY	PHASE	REMARK	INHIBITED DELAY	LOCATION 1ST FRONT CORNER	LOCATION 2ND FRONT CORNER
S-9	6'x6'	3	BOTH			SYSTEM		STA.7+97, 18' R	STA.7+97, 12' R
S-10	6'x6'	3	BOTH			SYSTEM		STA.7+97, 8' R	STA.7+97, 2' R
S-11	6'x6'	3	BOTH			SYSTEM		STA.7+97, 4' L	STA.7+97, 10' L
S-12	6'x6'	3	BOTH			SYSTEM		STA.7+97, 14' L	STA.7+97, 20' L

LOOP DETECTOR CHART



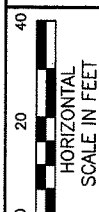
WIRE DIAGRAM

2C - PPB & LOOP DETECTOR LEAD
5C - PEDESTRIAN SIGNAL
7C - VEHICULAR SIGNAL
4C - MICROWAVE DETECTOR LEAD
3C #8 - SERVICE
6 PR # 19 - INTERCONNECT

100% CITY PARTICIPATION

ITEM	TOTAL	UNIT	DESCRIPTION
625	5	EA	GROUND ROD
625	7	EA	PULLBOX, MISC.: 13"x24"
625	267	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	154	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	687	LF	CONDUIT, 2", 713.07, AS PER PLAN
625	58	LF	CONDUIT, 3", 713.07, AS PER PLAN
625	310	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
630	34	SF	SIGN, FLAT SHEET, TYPE G
630	4	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
632	8	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	8	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	4	EA	PEDESTRIAN PUSHBUTTON, AS PER PLAN
632	2	EA	LOOP DETECTOR UNIT, 2 CHANNEL, DELAY AND EXTENSION TYPE, AS PER PLAN
632	4	EA	DETECTOR LOOP
632	2	EA	SIGNALIZATION, MISC.: MICROWAVE DETECTOR
632	2	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 25' ARM, AS PER PLAN
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 2, WITH 28' ARM, AS PER PLAN
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 2, WITH 32' ARM, AS PER PLAN
632	4	EA	SIGNAL SUPPORT FOUNDATION, AS PER PLAN
632	3	EA	CONDUIT RISER, 2" DIAMETER
632	458	LF	SIGNAL CABLE, 5-CONDUCTOR, NO. 14 AWG
632	600	LF	SIGNAL CABLE, 7-CONDUCTOR, NO. 14 AWG
632	1376	LF	LOOP DETECTOR LEAD-IN CABLE
632	292	LF	SIGNALIZATION, MISC.: MICROWAVE DETECTOR LEAD-IN CABLE
632	36	LF	POWER CABLE, 3-CONDUCTOR, NO. 8 AWG
632	8	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER, ACTUATED, 8 PHASE, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN
633	1	CY	CONCRETE FOR CABINET FOUNDATION
642	.04	MI	CENTER LINE, TYPE 2

CUYAHOGA COUNTY
 INTERSECTION OF LEE RD. AND WALDEN AVE.
 CUY-10-8.96 & VARIOUS
 23
 67

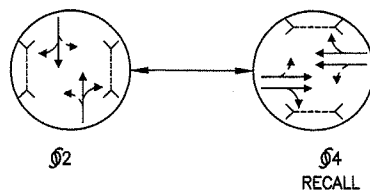


CALCULATED
REVIEW
CHECKED
KAN

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 58.

FOR POLE CHART SEE SHEET 65.

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES TO REMAIN. PROPOSED MODIFICATIONS AND/OR ADDITIONS ARE SHOWN AS SOLID LINES.



PHASING DIAGRAM

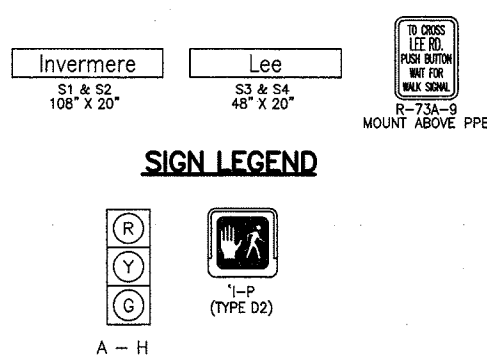
SIGNAL HEAD	phi 1		phi 2		phi 3		phi 4		FLASH	DWELL	
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR			
A			R	R			G	Y	R	Y	G
B			R	R			G	Y	R	Y	G
C			R	R			G	Y	R	Y	G
D			R	R			G	Y	R	Y	G
E			G	Y	R		R	R	R	R	R
F			G	Y	R		R	R	R	R	R
G			G	Y	R		R	R	R	R	R
H			G	Y	R		R	R	R	R	R
I			DW	DW	DW		W/(DW)	DW	DW	D	W
J			DW	DW	DW		W/(DW)	DW	DW	D	W
K			DW	DW	DW		W/(DW)	DW	DW	D	W
L			DW	DW	DW		W/(DW)	DW	DW	D	W
M			W/(DW)	DW	DW		DW	DW	DW	D	DW
N			W/(DW)	DW	DW		DW	DW	DW	D	DW
O			W/(DW)	DW	DW		DW	DW	DW	D	DW
P			W/(DW)	DW	DW		DW	DW	DW	D	DW

W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK

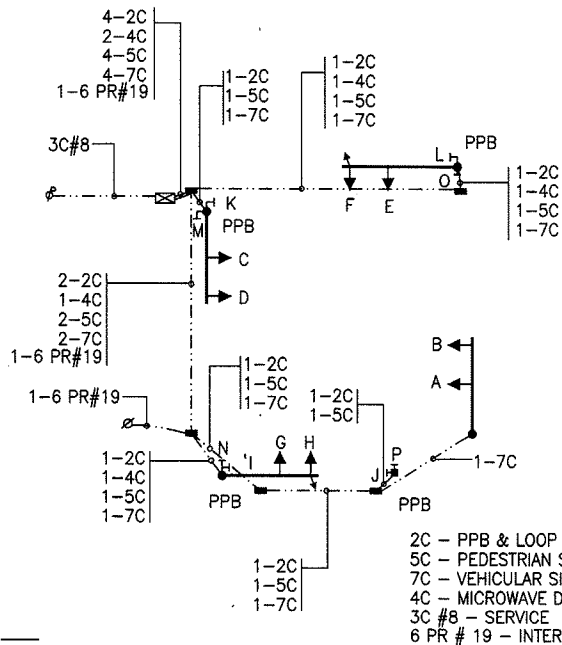
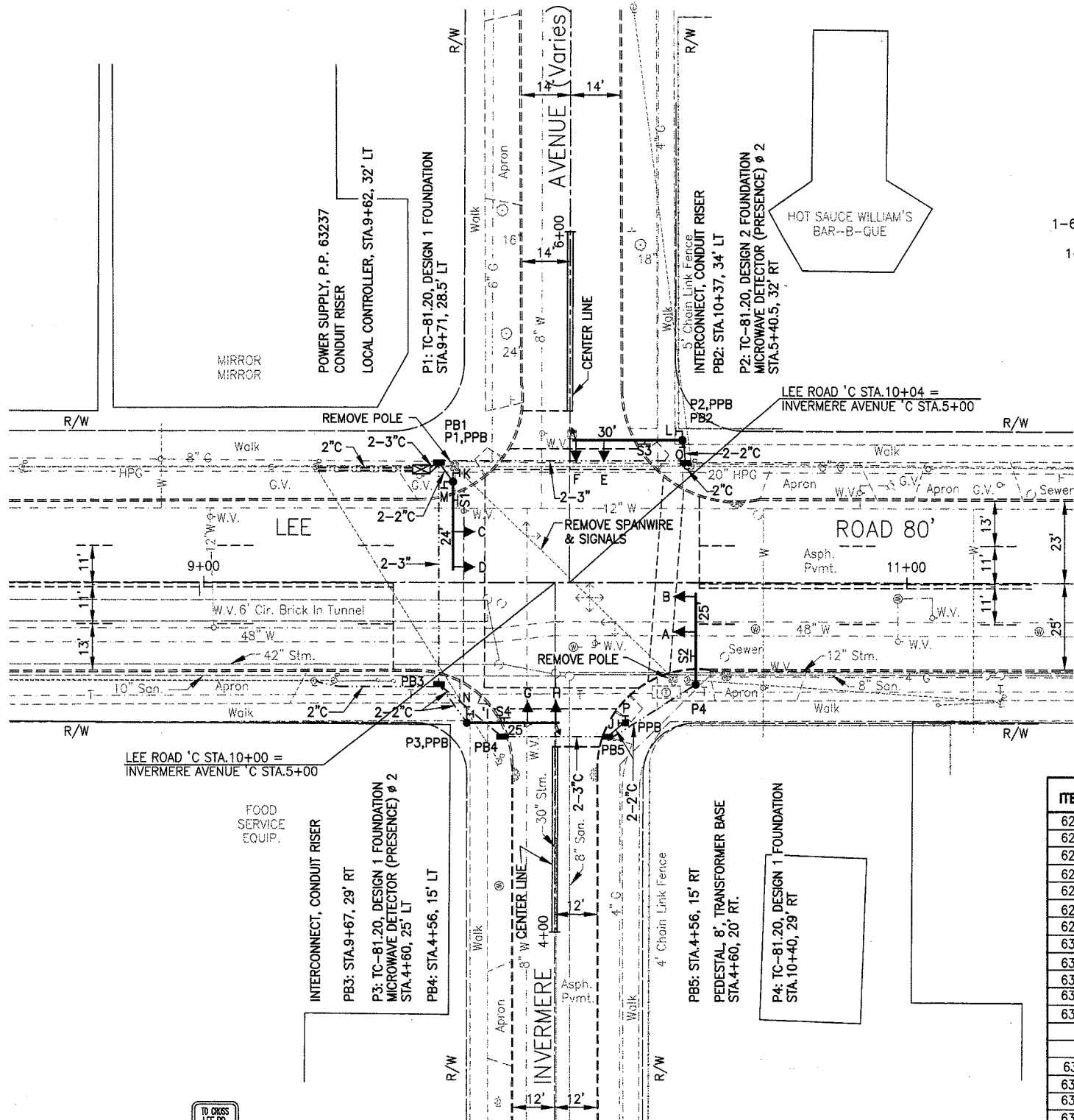
SIGNAL SEQUENCE CHART

FUNCTION	phi 1	phi 2	phi 3	phi 4
INITIAL GREEN		8		
MINIMUM GREEN				20
VEHICLE EXTENSION		3		
MAXIMUM GREEN		22		
PEDESTRIAN WALK		7		
PEDESTRIAN CLEAR		13		7
VEH. YELLOW CLEAR		3		3
VEHICLE RED CLEAR		2		1.5
RECALL		NO		PED
MEMORY		NO		NO

SIGNAL TIMING CHART

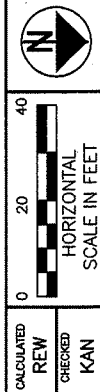


12" SIGNAL HEADS
RIGID MOUNTED



WIRE DIAGRAM

ITEM	TOTAL	UNIT	DESCRIPTION
625	6	EA	GROUND ROD
625	5	EA	PULLBOX, MISC.: 13"x24"
625	141	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	144	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	234	LF	CONDUIT, 2", 713.07, AS PER PLAN
625	100	LF	CONDUIT, 3", 713.07, AS PER PLAN
625	236	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
630	44	SF	SIGN, FLAT SHEET, TYPE G
630	4	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
632	8	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	8	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	4	EA	PEDESTRIAN PUSHBUTTON, AS PER PLAN
632	2	EA	SIGNALIZATION, MISC.: MICROWAVE DETECTOR
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 24' ARM, AS PER PLAN
632	2	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 25' ARM, AS PER PLAN
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 2, WITH 30' ARM, AS PER PLAN
632	4	EA	SIGNAL SUPPORT FOUNDATION, AS PER PLAN
632	1	EA	PEDESTAL FOUNDATION
632	1	EA	PEDESTAL, 8", TRANSFORMER BASE
632	3	EA	CONDUIT RISER, 2" DIAMETER
632	430	LF	SIGNAL CABLE, 5-CONDUCTOR, NO. 14 AWG
632	597	LF	SIGNAL CABLE, 7-CONDUCTOR, NO. 14 AWG
632	407	LF	LOOP DETECTOR LEAD-IN CABLE
632	297	LF	SIGNALIZATION, MISC.: MICROWAVE DETECTOR LEAD-IN CABLE
632	60	LF	POWER CABLE, 3-CONDUCTOR, NO. 8 AWG
632	8	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER, ACTUATED, 8 PHASE, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN
633	1	CY	CONCRETE FOR CABINET FOUNDATION
642	.04	MI	CENTER LINE, TYPE 2



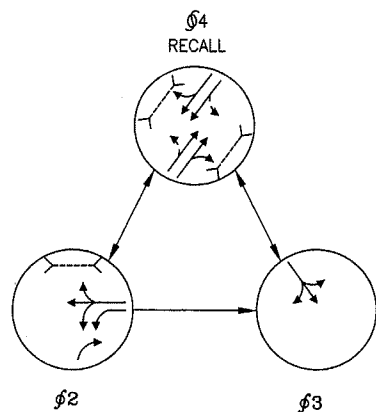
INTERSECTION OF LEE RD. AND INVERMERE AVE.

CUYAHOGA COUNTY
CUY-10-8-96 & VARIOUS

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 58.

FOR POLE CHART SEE SHEET 66.

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES TO REMAIN. PROPOSED MODIFICATIONS AND/OR ADDITIONS ARE SHOWN AS SOLID LINES.



PHASING DIAGRAM

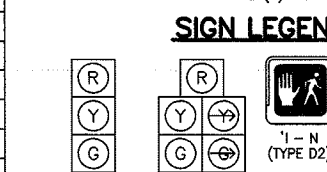
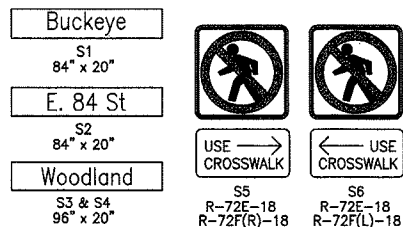
SIGNAL HEAD	phi 1		phi 2		phi 3		phi 4		FLASH	DWELL		
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR				
A			R	R	R	R	G	Y	R	Y	G	
B			R	R	R	R	G	Y	R	Y	G	
C			R	R	R	R	G	Y	R	Y	G	
D			R	R	R	R	G	Y	R	Y	G	
E			G	Y	R	R	R	R	R	R	R	
F			G	Y	R	R	R	R	R	R	R	
G			R	R	R	G	Y	R	R	R	R	
H			R	R	R	G	Y	R	R	R	R	
I			DW	DW	DW	DW	DW	W/(DW)	DW	DW	D	W
J			DW	DW	DW	DW	DW	W/(DW)	DW	DW	D	W
K			DW	DW	DW	DW	DW	W/(DW)	DW	DW	D	W
L			DW	DW	DW	DW	DW	W/(DW)	DW	DW	D	W
M			W/(DW)	DW	DW	DW	DW	DW	DW	DW	D	DW
N			W/(DW)	DW	DW	DW	DW	DW	DW	DW	D	DW

W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK

SIGNAL SEQUENCE CHART

FUNCTION	phi 1	phi 2	phi 3	phi 4
INITIAL GREEN		8	6	-
MINIMUM GREEN		-	-	25
VEHICLE EXTENSION		3	3	-
MAXIMUM GREEN		30	10	-
PEDESTRIAN WALK		7	-	-
PEDESTRIAN CLEAR.		13	-	23
VEH. YELLOW CLEAR.		3	3	3
VEHICLE RED CLEAR.		2.5	1	2.5
RECALL		NO	NO	PED
MEMORY		NO	NO	NO
FUNCTION		35	10	-
FUNCTION				

SIGNAL TIMING CHART

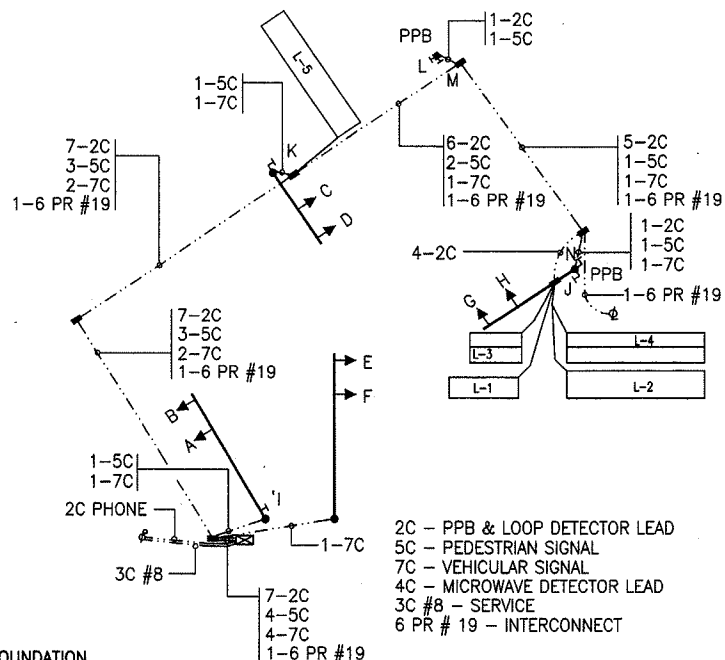
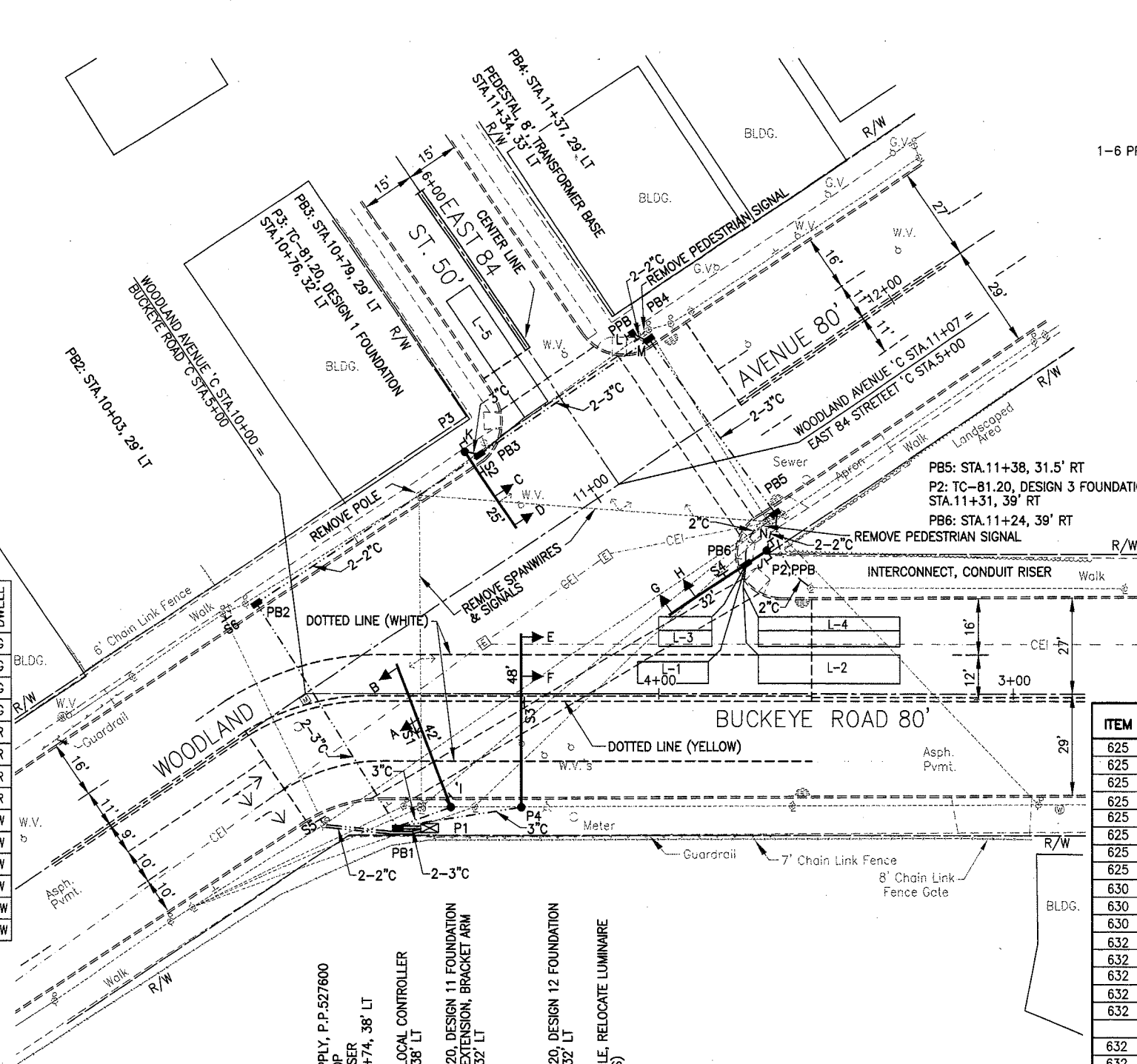


ROTATE VISORS 90° ON HEADS C,D,E & F

12" SIGNAL HEADS RIGID MOUNTED

LOOP	SIZE	TURNS	MODE	DELAY	PHASE	REMARK	INHIBITED DELAY	LOCATION 1ST FRONT CORNER	LOCATION 2ND FRONT CORNER
L-1	8'X20'	2	PRESENCE	-	2		-	STA.4+06, 3' R	STA.4+06, 9' R
L-2	6'X40'	2	PRESENCE	-	2		-	STA.3+72, 3' R	STA.3+72, 9' R
L-3	8'X15'	2-4-2	PRESENCE	-	2	QUADRPOLE	-	STA.4+00, 14' R	STA.4+00, 22' R
L-4	8'X40'	2-4-2	PRESENCE	-	2	QUADRPOLE	-	STA.3+72, 14' R	STA.3+72, 22' R
L-5	8'X40'	2-4-2	PRESENCE	8	3	QUADRPOLE	NO	STA.5+30, 3.5' L	STA.5+30, 11.5' L

LOOP DETECTOR CHART

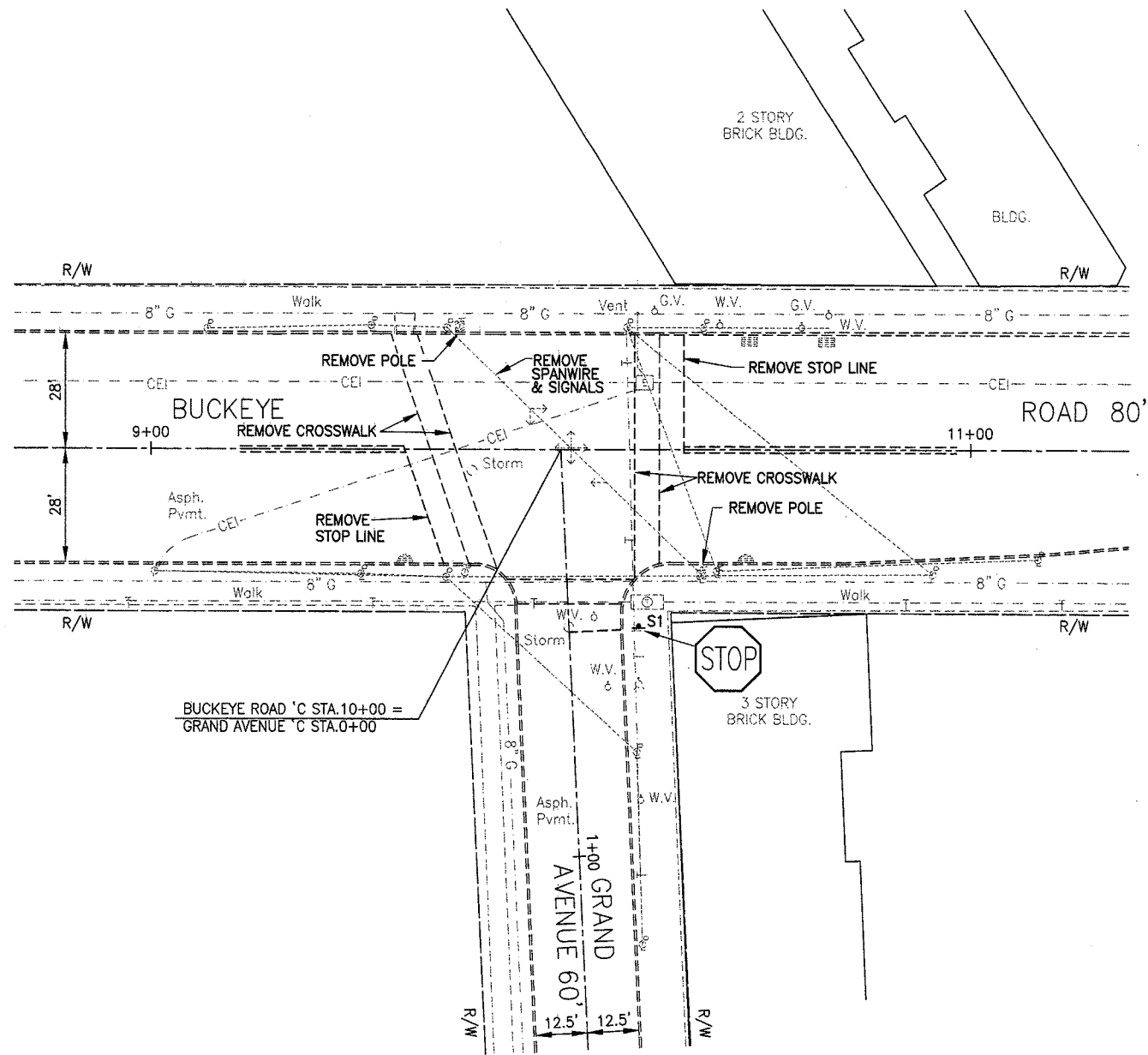


WIRE DIAGRAM

ITEM	TOTAL	UNIT	DESCRIPTION
625	6	EA	GROUND ROD
625	6	EA	PULLBOX, MISC.: 13"x24"
625	248	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	170	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	279	LF	CONDUIT, 2", 713.07, AS PER PLAN
625	149	LF	CONDUIT, 3", 713.07, AS PER PLAN
625	316	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
625	1	LF	BRACKET ARM, 6', AS PER PLAN
630	58	SF	SIGN, FLAT SHEET, TYPE G
630	4	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
630	4	EA	SIGN SUPPORT ASSEMBLY, POLE MOUNTED
632	7	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	1	EA	VEHICULAR SIGNAL HEAD, 5-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	6	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	2	EA	PEDESTRIAN PUSHBUTTON, AS PER PLAN
632	3	EA	LOOP DETECTOR UNIT, 2 CHANNEL, DELAY AND EXTENSION TYPE, AS PER PLAN
632	5	EA	DETECTOR LOOP
632	4	EA	SIGNAL SUPPORT FOUNDATION, AS PER PLAN
632	1	EA	PEDESTAL FOUNDATION
632	1	EA	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 11, WITH 42' ARM, AS PER PLAN
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 25' ARM, AS PER PLAN
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 12, WITH 48' ARM, AS PER PLAN
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, WITH 32' ARM, AS PER PLAN
632	1	EA	PEDESTAL, 8", TRANSFORMER BASE
632	2	EA	CONDUIT RISER, 2" DIAMETER
632	875	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	903	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	1950	LF	LOOP DETECTOR LEAD-IN CABLE
632	61	LF	POWER CABLE, 3-CONDUCTOR, NO.8 AWG
632	1	EA	PHONE DROP, AS PER PLAN
632	8	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER, ACTUATED, 8 PHASE, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN
633	1	EA	CONTROLLER, MASTER, TRAFFIC RESPONSIVE, AS PER PLAN
633	1.9	CY	CONCRETE FOR CABINET FOUNDATION
644	525	LF	DOTTED LINE, 4"

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES TO REMAIN.
 PROPOSED MODIFICATIONS AND/OR ADDITIONS ARE SHOWN AS SOLID LINES.

DATE: 08-12-99



BUCKEYE ROAD 'C' STA. 10+00 =
 GRAND AVENUE 'C' STA. 0+00

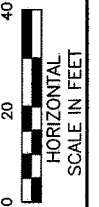
EXISTING SIGNAL TO BE REMOVED
 (SEE NOTE ON SHEET 2)



S1
 R-1-30

SIGN LEGEND

ITEM	TOTAL	UNIT	DESCRIPTION
630	6.25	SF	SIGN, FLAT SHEET, TYPE G
632	14	LF	GROUND MOUNTED SUPPORT, NO. 3 POST
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
642	300	LF	REMOVAL OF PAVEMENT MARKING



CALCULATED
 REW
 CHECKED
 KAN

INTERSECTION OF BUCKEYE RD. AND GRAND AVE.

CUYAHOGA COUNTY
 CUY-10-8.96 & VARIOUS

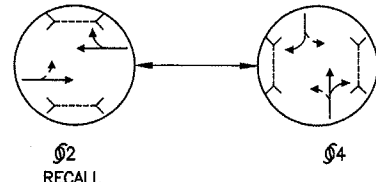
26
 67

9326T18.DWG, PLOT SCALE: 1"=20'

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 58.

FOR POLE CHART SEE SHEET 66.

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES TO REMAIN. PROPOSED MODIFICATIONS AND/OR ADDITIONS ARE SHOWN AS SOLID LINES.



PHASING DIAGRAM

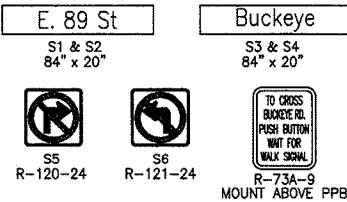
SIGNAL HEAD	φ1		φ2		φ3		φ4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A			G	Y	R		R	R	Y	G
B			G	Y	R		R	R	Y	G
C			G	Y	R		R	R	Y	G
D			G	Y	R		R	R	Y	G
E			R	R	R		G	Y	R	R
F			R	R	R		G	Y	R	R
G			R	R	R		G	Y	R	R
H			R	R	R		G	Y	R	R
I			W/(DW)	DW	DW		DW	DW	DW	D
J			W/(DW)	DW	DW		DW	DW	DW	D
K			W/(DW)	DW	DW		DW	DW	DW	D
L			W/(DW)	DW	DW		DW	DW	DW	D
M			DW	DW	DW		W/(DW)	DW	DW	D
N			DW	DW	DW		W/(DW)	DW	DW	D
O			DW	DW	DW		W/(DW)	DW	DW	D
P			DW	DW	DW		W/(DW)	DW	DW	D

W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK

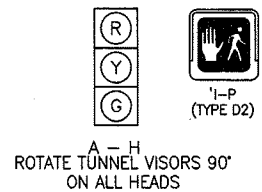
SIGNAL SEQUENCE CHART

FUNCTION	φ1	φ2	φ3	φ4
INITIAL GREEN		-		8
MINIMUM GREEN		20		-
VEHICLE EXTENSION		-	3	
MAXIMUM GREEN		-	20	
PEDESTRIAN WALK		-		7
PEDESTRIAN CLEAR.		11		13
VEH. YELLOW CLEAR.		3		3
VEHICLE RED CLEAR.		2		2
RECALL		PED		NO
MEMORY		NO		NO

SIGNAL TIMING CHART



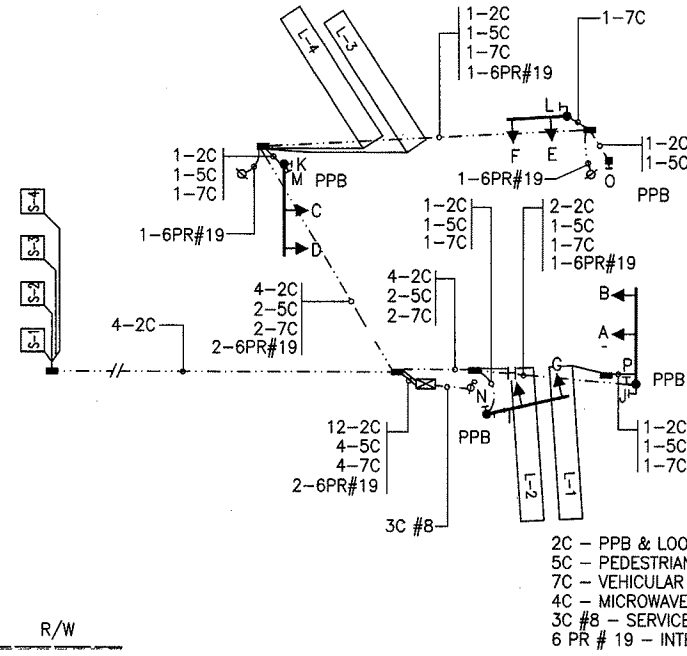
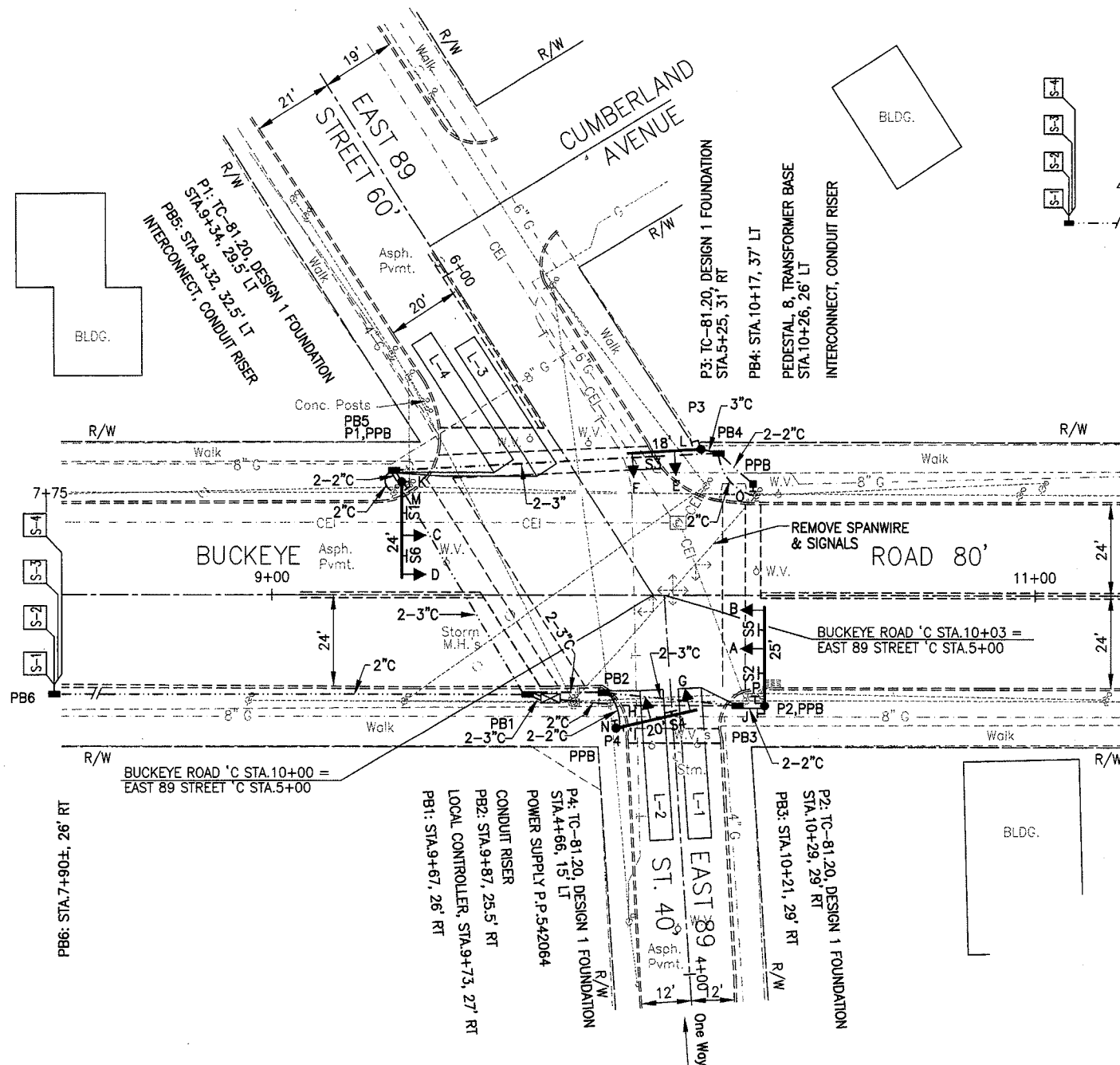
SIGN LEGEND



12" SIGNAL HEADS
RIGID MOUNTED

LOOP	SIZE	TURNS	MODE	DELAY	PHASE	REMARK	INHIBITED DELAY	LOCATION 1ST FRONT CORNER	LOCATION 2ND FRONT CORNER
L-1	6'X40'	2	PRESENCE	8	4		NO	STA.4+75, 8' R	STA.4+75, 2' R
L-2	6'X40'	2	PRESENCE	8	4		NO	STA.4+75, 2' L	STA.4+75, 8' L
L-3	6'X40'	2	PRESENCE	8	4		NO	STA.5+42, 2.5' L	STA.5+42, 8.5' L
L-4	6'X40'	2	PRESENCE	8	4		NO	STA.5+50, 11.5' L	STA.5+50, 17.5' L
S-1	6'X6'	3	BOTH			SYSTEM		STA.7+75, 21' R	STA.7+75, 15' R
S-2	6'X6'	3	BOTH			SYSTEM		STA.7+75, 9' R	STA.7+75, 3' R
S-3	6'X6'	3	BOTH			SYSTEM		STA.7+75, 3' L	STA.7+75, 9' L
S-4	6'X6'	3	BOTH			SYSTEM		STA.7+75, 15' L	STA.7+75, 21' L

LOOP DETECTOR CHART



WIRE DIAGRAM

2C - PPB & LOOP DETECTOR LEAD
5C - PEDESTRIAN SIGNAL
7C - VEHICULAR SIGNAL
4C - MICROWAVE DETECTOR LEAD
3C #8 - SERVICE
6 PR # 19 - INTERCONNECT

ITEM	TOTAL	UNIT	DESCRIPTION
625	6	EA	GROUND ROD
625	6	EA	PULLBOX, MISC.; 13"x24"
625	206	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	149	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	181	LF	CONDUIT, 2", 713.07, AS PER PLAN
625	147	LF	CONDUIT, 3", 713.07, AS PER PLAN
625	292	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
630	55	SF	SIGN, FLAT SHEET, TYPE G
630	6	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
632	8	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	8	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	4	EA	PEDESTRIAN PUSHBUTTON, AS PER PLAN
632	4	EA	LOOP DETECTOR UNIT, 2 CHANNEL, DELAY AND EXTENSION TYPE, AS PER PLAN
632	8	EA	DETECTOR LOOP
632	4	EA	SIGNAL SUPPORT FOUNDATION, AS PER PLAN
632	1	EA	PEDESTAL FOUNDATION
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 18" ARM, AS PER PLAN
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 20" ARM, AS PER PLAN
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 24" ARM, AS PER PLAN
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 25" ARM, AS PER PLAN
632	1	EA	PEDESTAL, 8", TRANSFORMER BASE, AS PER PLAN
632	3	EA	CONDUIT RISER, 2" DIAMETER
632	499	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	753	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	1350	LF	LOOP DETECTOR LEAD-IN CABLE
632	46	LF	POWER CABLE, 3-CONDUCTOR, NO.8 AWG
632	8	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER, ACTUATED, 8 PHASE, SOLID STATE DIGITAL
633	1	EA	MICROPROCESSOR, AS PER PLAN
633	1	CY	CONCRETE FOR CABINET FOUNDATION

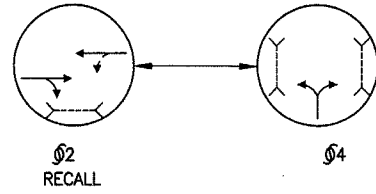
INTERSECTION BUCKEYE RD. AND EAST 89 ST.
 CUYAHOGA COUNTY
 CUY-10-8.96 & VARIOUS
 27
 67

9:326TD19.DWG, PLOT SCALE: 1"=20'

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 58.

FOR POLE CHART SEE SHEET 66.

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES TO REMAIN. PROPOSED MODIFICATIONS AND/OR ADDITIONS ARE SHOWN AS SOLID LINES.

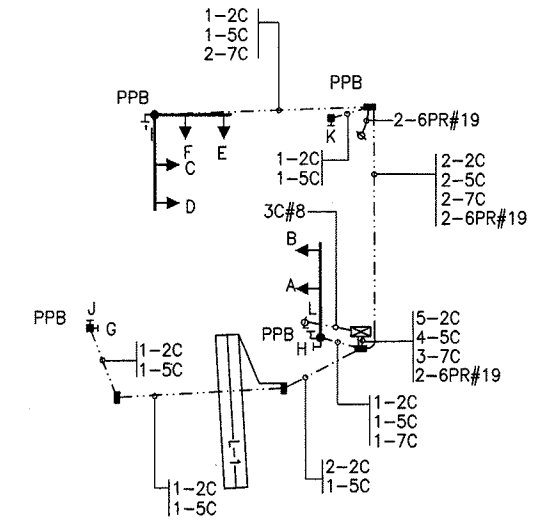
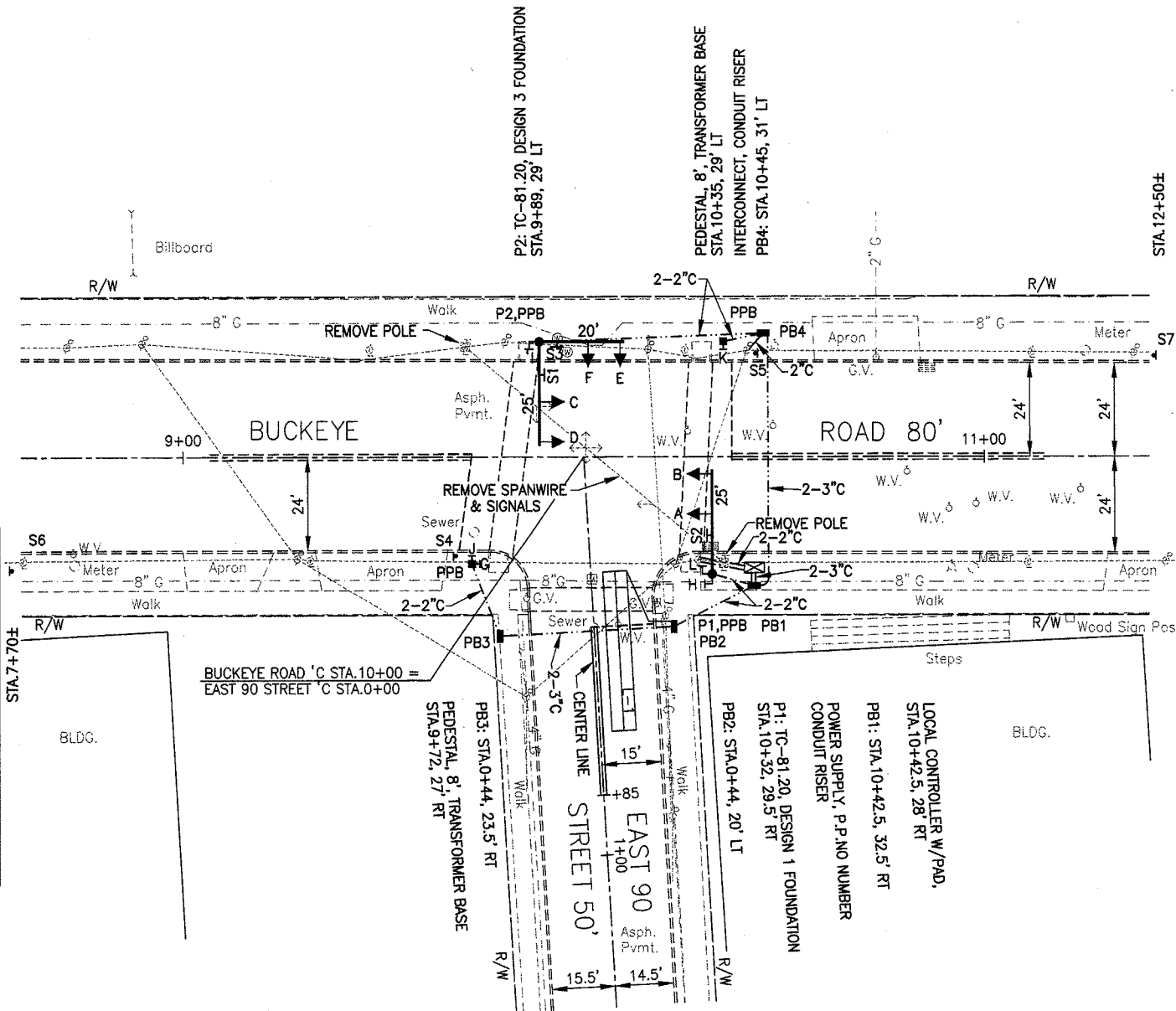


PHASING DIAGRAM

SIGNAL HEAD	φ1		φ2		φ3		φ4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A			G	Y R			R	R R	Y	G
B			G	Y R			R	R R	Y	G
C			G	Y R			R	R R	Y	G
D			G	Y R			R	R R	Y	G
E			R	R R			G	Y R	R	R
F			R	R R			G	Y R	R	R
G			W/(DW)	DW DW			DW	DW DW	D	W
H			W/(DW)	DW DW			DW	DW DW	D	W
I			DW	DW DW			W/(DW)	DW DW	D	DW
J			DW	DW DW			W/(DW)	DW DW	D	DW
K			DW	DW DW			W/(DW)	DW DW	D	DW
L			DW	DW DW			W/(DW)	DW DW	D	DW

W-WALK (DW)-FLASHING DONT WALK DW-DONT WALK D-DARK

SIGNAL SEQUENCE CHART



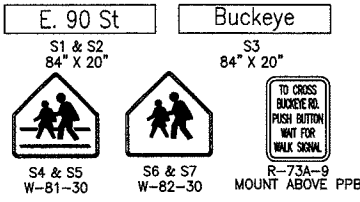
WIRE DIAGRAM

2C - PPB & LOOP DETECTOR LEAD
 5C - PEDESTRIAN SIGNAL
 7C - VEHICULAR SIGNAL
 4C - MICROWAVE DETECTOR LEAD
 3C #8 - SERVICE
 6 PR # 19 - INTERCONNECT

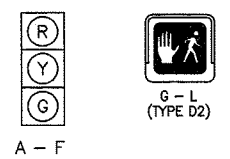
ITEM	TOTAL	UNIT	DESCRIPTION
625	5	EA	GROUND ROD
625	4	EA	PULLBOX, MISC.: 13"x24"
625	230	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	81	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	346	LF	CONDUIT, 2", 713.07, AS PER PLAN
625	82	LF	CONDUIT, 3", 713.07, AS PER PLAN
625	160	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
630	71	SF	SIGN, FLAT SHEET, TYPE G
630	3	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
630	56	LF	GROUND MOUNTED SUPPORT, NO. 4 POST
632	6	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	6	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	4	EA	PEDESTRIAN PUSHBUTTON, AS PER PLAN
632	1	EA	LOOP DETECTOR UNIT, 2 CHANNEL, DELAY AND EXTENSION TYPE, AS PER PLAN
632	1	EA	DETECTOR LOOP
632	2	EA	SIGNAL SUPPORT FOUNDATION, AS PER PLAN
632	2	EA	PEDESTAL FOUNDATION
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 25' ARM, AS PER PLAN
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20 DESIGN 3 POLE, WITH MAST ARMS TC-81.20 DESIGN 1, 20 FEET AND TC-81.20 DESIGN 1, 25 FEET, AS PER PLAN
632	2	EA	PEDESTAL, 8", TRANSFORMER BASE, AS PER PLAN
632	2	EA	CONDUIT RISER, 2" DIAMETER
632	448	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	515	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	371	LF	LOOP DETECTOR LEAD-IN CABLE
632	44	LF	POWER CABLE, 3-CONDUCTOR, NO.8 AWG
632	6	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER, ACTUATED, 8 PHASE, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN
633	1	CY	CONCRETE FOR CABINET FOUNDATION
633	8.3	SF	CONTROLLER WORK PAD
642	.02	MI	CENTER LINE, TYPE 2

FUNCTION	φ1	φ2	φ3	φ4
INITIAL GREEN		-		8
MINIMUM GREEN		20		-
VEHICLE EXTENSION		-		3
MAXIMUM GREEN		-		20
PEDESTRIAN WALK		-		7
PEDESTRIAN CLEAR.		10		16
VEH. YELLOW CLEAR.		3		3
VEHICLE RED CLEAR.		1.5		2
RECALL		PED		NO
MEMORY		NO		NO

SIGNAL TIMING CHART



SIGN LEGEND



12" SIGNAL HEADS RIGID MOUNTED

LOOP	SIZE	TURNS	MODE	DELAY	PHASE	REMARK	INHIBITED DELAY	LOCATION 1ST FRONT CORNER	LOCATION 2ND FRONT CORNER
L-1	8'X40'	2-4-2	PRESENCE	8	4	QUADRAPOLE	NO	STA.0+29, 3' L	STA.0+29, 11' L

LOOP DETECTOR CHART

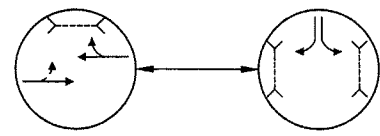
INTERSECTION OF BUCKEYE RD. AND EAST 90 ST.
 CUYAHOGA COUNTY
 CUY-10-8.96 & VARIOUS
 28
 67

9/26/10:20.DWG, PLOT SCALE: 1=20

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 58.

FOR POLE CHART SEE SHEET 66.

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES TO REMAIN. PROPOSED MODIFICATIONS AND/OR ADDITIONS ARE SHOWN AS SOLID LINES.



PHASING DIAGRAM

SIGNAL HEAD	φ1		φ2		φ3		φ4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A			G	Y R			R	R R Y G		
B			G	Y R			R	R R Y G		
C			G	Y R			R	R R Y G		
D			G	Y R			R	R R Y G		
E			R	R R			G	Y R R R		
F			R	R R			G	Y R R R		
G			W/(DW)	DW DW			DW	DW DW D W		
H			W/(DW)	DW DW			DW	DW DW D W		
I			DW	DW DW			W/(DW)	DW DW D DW		
J			DW	DW DW			W/(DW)	DW DW D DW		
K			DW	DW DW			W/(DW)	DW DW D DW		
L			DW	DW DW			W/(DW)	DW DW D DW		

W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK

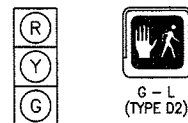
SIGNAL SEQUENCE CHART

FUNCTION	φ1	φ2	φ3	φ4
INITIAL GREEN		-		8
MINIMUM GREEN		20		-
VEHICLE EXTENSION		-		3
MAXIMUM GREEN		-		20
PEDESTRIAN WALK		-		7
PEDESTRIAN CLEAR.		11		10
VEH. YELLOW CLEAR.		3		3
VEHICLE RED CLEAR.		.2		2
RECALL		PED		NO
MEMORY		NO		NO

SIGNAL TIMING CHART



SIGN LEGEND

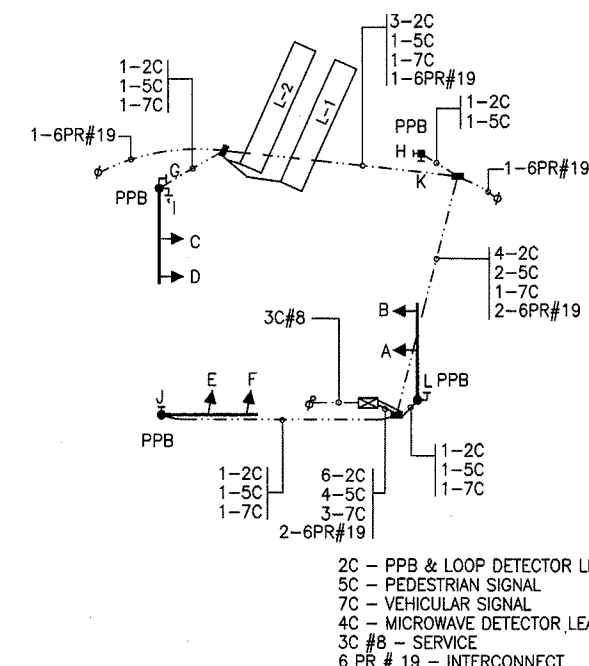
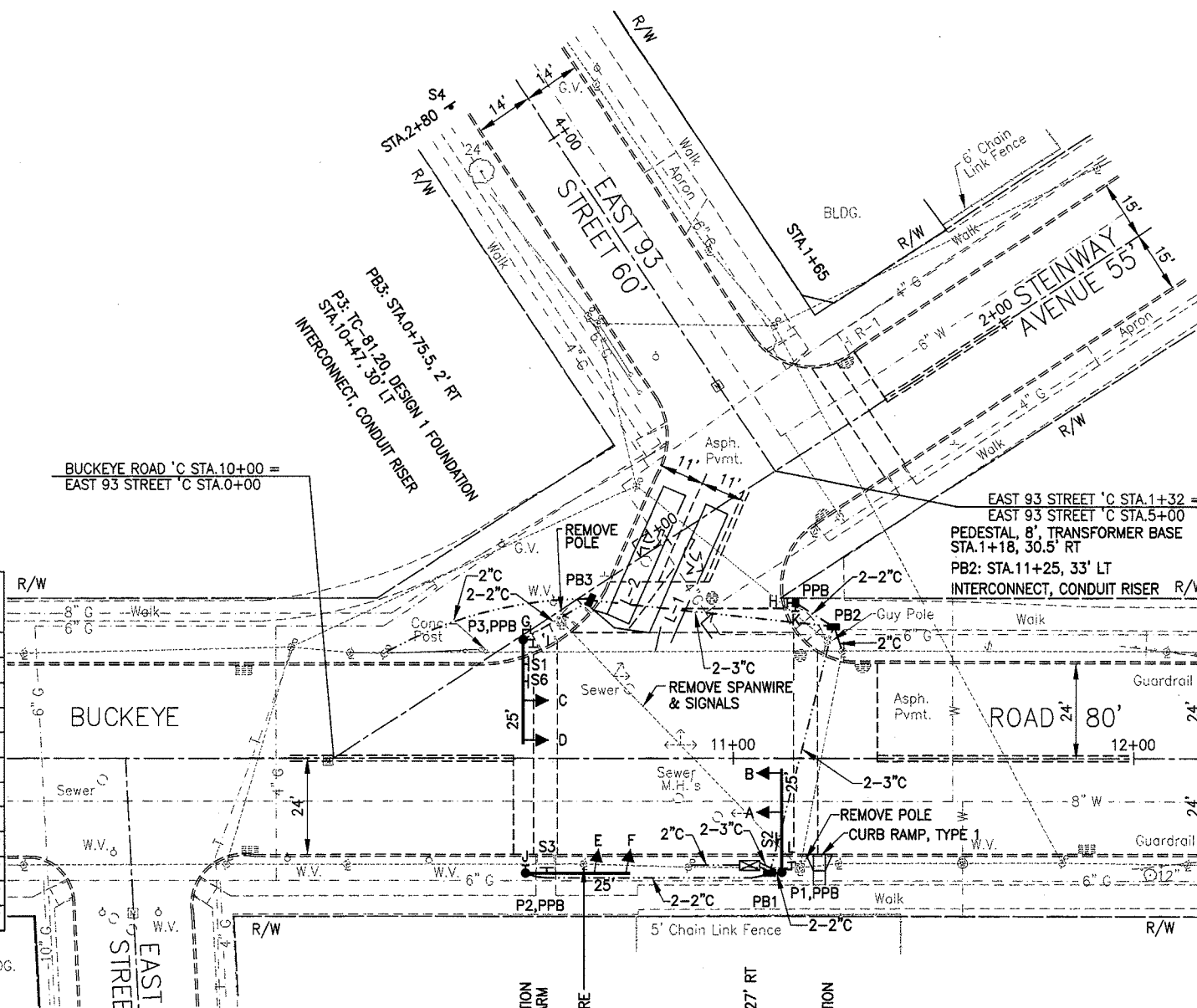


A - F ROTATE VISORS 90° ON HEADS C & D

12" SIGNAL HEADS RIGID MOUNTED

LOOP	SIZE	TURNS	MODE	DELAY	PHASE	REMARK	INHIBITED DELAY	LOCATION 1ST FRONT CORNER	LOCATION 2ND FRONT CORNER
L-1	6'X35'	2	PRESENCE	8'	4		NO	STA.0+77, 8' R	STA.0+80, 13' R
L-2	6'X35'	2	PRESENCE	8'	4		NO	STA.0+82, 16' R	STA.0+85, 20' R

LOOP DETECTOR CHART



WIRE DIAGRAM

2C - PPB & LOOP DETECTOR LEAD
 5C - PEDESTRIAN SIGNAL
 7C - VEHICULAR SIGNAL
 4C - MICROWAVE DETECTOR LEAD
 3C #8 - SERVICE
 6 PR # 19 - INTERCONNECT

ITEM	TOTAL	UNIT	DESCRIPTION
202	56	SF	WALK REMOVED
202	14	LF	CURB REMOVED
608	56	SF	CURB RAMP, TYPE 1
625	5	EA	GROUND ROD
625	3	EA	PULLBOX, MISC.: 13"x24"
625	145	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	100	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	228	LF	CONDUIT, 2", 713.07, AS PER PLAN
625	66	LF	CONDUIT, 3", 713.07, AS PER PLAN
625	196	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
625	1	EA	BRACKET ARM, 6", AS PER PLAN
630	48	SF	SIGN, FLAT SHEET, TYPE G
630	4	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
630	14	LF	GROUND MOUNTED SUPPORT, NO. 4 POST
632	6	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	6	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	4	EA	PEDESTRIAN PUSHBUTTON, AS PER PLAN
632	1	EA	LOOP DETECTOR UNIT, 2 CHANNEL, DELAY AND EXTENSION TYPE, AS PER PLAN
632	2	EA	DETECTOR LOOP
632	3	EA	SIGNAL SUPPORT FOUNDATION, AS PER PLAN
632	1	EA	PEDESTAL FOUNDATION
632	2	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 25' ARM, AS PER PLAN
632	1	EA	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 25' ARM, AS PER PLAN
632	1	EA	PEDESTAL, 8', TRANSFORMER BASE, AS PER PLAN
632	3	EA	CONDUIT RISER, 2" DIAMETER
632	424	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	445	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	600	LF	LOOP DETECTOR LEAD-IN CABLE
632	47	LF	POWER CABLE, 3-CONDUCTOR, NO.8 AWG
632	6	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER, ACTUATED, 8 PHASE, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN
633	1	CY	CONCRETE FOR CABINET FOUNDATION

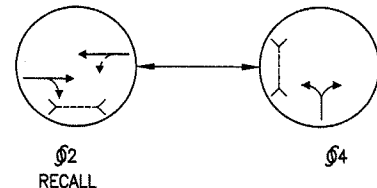
INTERSECTION OF BUCKEYE RD., E. 93 ST. & STEINWAY AVE.
 CUYAHOGA COUNTY
 CUY-10-8.96 & VARIOUS
 29
 67

9:3261021.DWG, PLOT SCALE: 1"=20'

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 58.

FOR POLE CHART SEE SHEET 66.

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES TO REMAIN. PROPOSED MODIFICATIONS AND/OR ADDITIONS ARE SHOWN AS SOLID LINES.

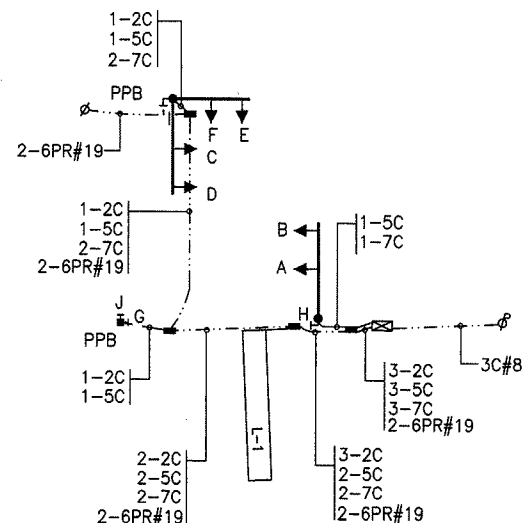
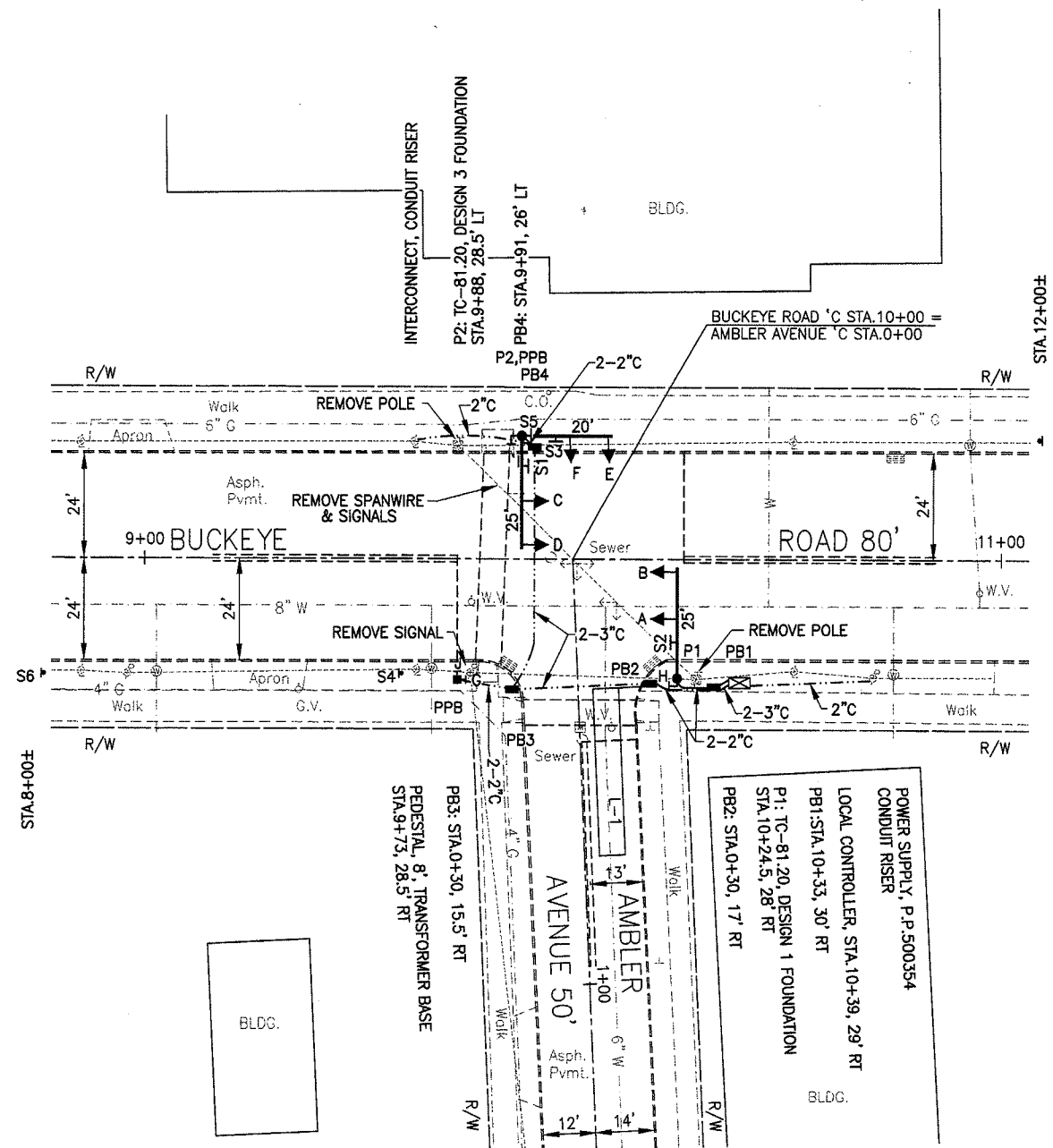


PHASING DIAGRAM

SIGNAL HEAD	φ1		φ2		φ3		φ4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A			G	Y R			R	R R	Y	G
B			G	Y R			R	R R	Y	G
C			G	Y R			R	R R	Y	G
D			G	Y R			R	R R	Y	G
E			R	R R			G	Y R	R	R
F			R	R R			G	Y R	R	R
G			W/(DW)	DW DW			DW	DW DW	D	W
H			W/(DW)	DW DW			DW	DW DW	D	W
I			DW	DW DW			W/(DW)	DW DW	D	DW
J			DW	DW DW			W/(DW)	DW DW	D	DW

W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK

SIGNAL SEQUENCE CHART



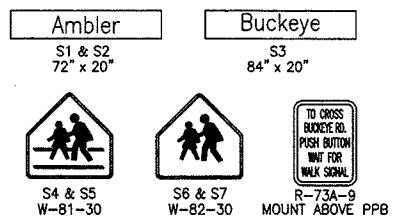
2C - PPB & LOOP DETECTOR LEAD
 5C - PEDESTRIAN SIGNAL
 7C - VEHICULAR SIGNAL
 4C - MICROWAVE DETECTOR LEAD
 3C #8 - SERVICE
 6 PR # 19 - INTERCONNECT

WIRE DIAGRAM

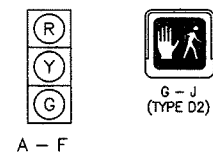
ITEM	TOTAL	UNIT	DESCRIPTION
625	4	EA	GROUND ROD
625	4	EA	PULLBOX, MISC.: 13"x24"
625	95	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	85	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	156	LF	CONDUIT, 2", 713.07, AS PER PLAN
625	28	LF	CONDUIT, 3", 713.07, AS PER PLAN
625	166	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
630	68	SF	SIGN, FLAT SHEET, TYPE G
630	3	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
630	1	EA	SIGN SUPPORT ASSEMBLY, POLE MOUNTED
630	42	LF	GROUND MOUNTED SUPPORT, NO. 4 POST
632	6	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	4	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	2	EA	PEDESTRIAN PUSHBUTTON, AS PER PLAN
632	1	EA	LOOP DETECTOR UNIT, 2 CHANNEL, DELAY AND EXTENSION TYPE, AS PER PLAN
632	1	EA	DETECTOR LOOP
632	2	EA	SIGNAL SUPPORT FOUNDATION, AS PER PLAN
632	1	EA	PEDESTAL FOUNDATION
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 25' ARM, AS PER PLAN
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3 POLE, WITH MAST ARMS TC-81.20 DESIGN 1, 20 FEET AND TC-81.20 DESIGN 1, 25 FEET, AS PER PLAN
632	1	EA	PEDESTAL, 8", TRANSFORMER BASE, AS PER PLAN
632	2	EA	CONDUIT RISER, 2" DIAMETER
632	302	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	447	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	220	LF	LOOP DETECTOR LEAD-IN CABLE
632	61	LF	POWER CABLE, 3-CONDUCTOR, NO.8 AWG
632	6	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER, ACTUATED, 8 PHASE, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN
633	1	CY	CONCRETE FOR CABINET FOUNDATION

LOOP	SIZE	TURNS	MODE	DELAY	PHASE	REMARK	INHIBITED DELAY	LOCATION 1ST FRONT CORNER	LOCATION 2ND FRONT CORNER
L-1	6'x40'	2	PRESENCE	8	4		NO	STA.0+28, 4.5' L	STA.0+28, 10.5' L

LOOP DETECTOR CHART



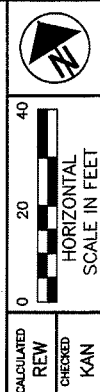
SIGN LEGEND



12" SIGNAL HEADS RIGID MOUNTED

FUNCTION	φ1	φ2	φ3	φ4
INITIAL GREEN				8
MINIMUM GREEN		20		
VEHICLE EXTENSION				3
MAXIMUM GREEN				20
PEDESTRIAN WALK				7
PEDESTRIAN CLEAR.		9		16
VEH. YELLOW CLEAR.		3		3
VEHICLE RED CLEAR.		1.5		2
RECALL		PED		NO
MEMORY		NO		NO

SIGNAL TIMING CHART



INTERSECTION OF BUCKEY RD. AND AMBLER AVE.

CUYAHOGA COUNTY
 CUY-10-8.96 & VARIOUS

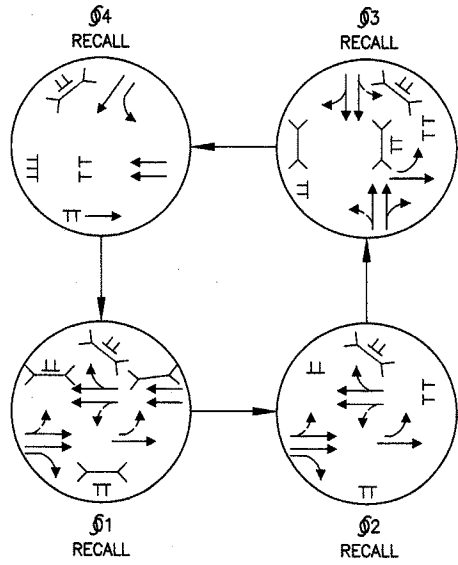
30
 67

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 58.

FOR POLE CHART SEE SHEET 66.

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES TO REMAIN. PROPOSED MODIFICATIONS AND/OR ADDITIONS ARE SHOWN AS SOLID LINES.

PEDESTAL, 8', TRANSFORMER BASE
STA.6+34, 25' LT
PB1: STA.6+29, 38' LT
LOCAL CONTROLLER, STA.6+20, 25' LT
POWER SUPPLY, P.P.524486
CONDUIT RISER



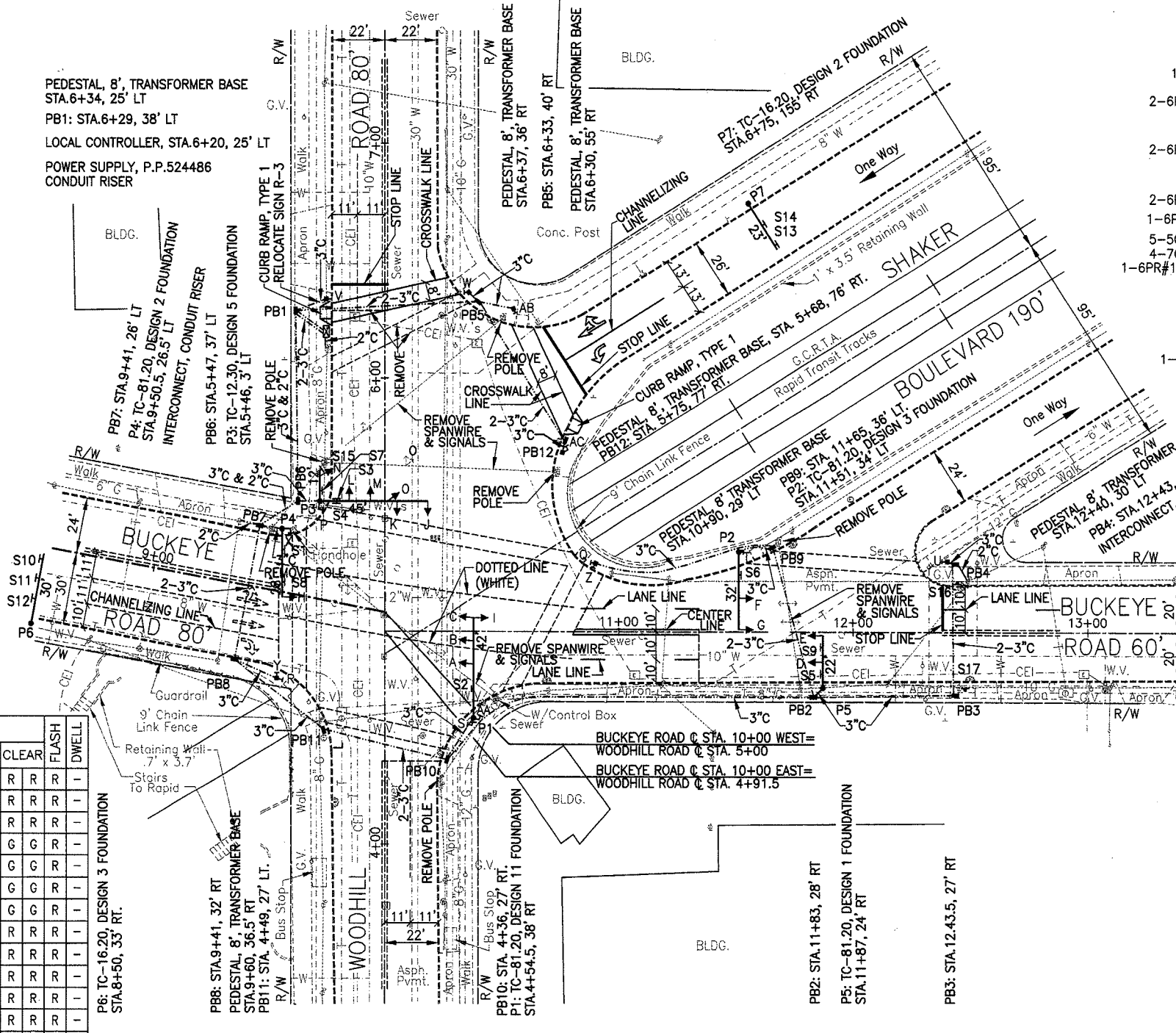
PHASING DIAGRAM

SIGNAL HEAD	phi 1		phi 2		phi 3		phi 4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A	G	G	G	Y	R	R	R	R	R	R
B	G	G	G	Y	R	R	R	R	R	R
C	G	G	G	Y	R	R	R	R	R	R
D	G	G	G	G	G	G	G	G	G	R
E	G	G	G	G	G	G	G	G	G	R
F	G	Y	R	R	R	R	R	G	G	R
G	G	Y	R	R	R	R	R	G	G	R
H	G	G	G	Y	R	R	R	R	R	R
I	G	G	G	Y	R	R	R	R	R	R
J	R	R	R	R	R	G	Y	R	R	R
K	R	R	R	R	R	G	Y	R	R	R
L	R	R	R	R	R	G	Y	R	R	R
M	R	R	R	R	R	G	Y	R	R	R
N	R	R	R	R	R	R	R	G	Y	R
O	R	R	R	R	R	R	R	G	Y	R
P	W/(DW)	(DW)	(DW)	(DW)	DW	DW	DW	DW	DW	D
Q	W/(DW)	(DW)	(DW)	(DW)	DW	DW	DW	DW	DW	D
R	W/(DW)	(DW)	(DW)	(DW)	DW	DW	DW	DW	DW	D
S	W/(DW)	(DW)	(DW)	(DW)	DW	DW	DW	DW	DW	D
T	W/(DW)	DW	DW	DW	DW	DW	DW	W	W	D
U	W/(DW)	DW	DW	DW	DW	DW	DW	W	W	D
V	DW	DW	DW	DW	DW	DW	DW	W/(DW)	DW	D
W	DW	DW	DW	DW	DW	DW	DW	W/(DW)	DW	D
X	DW	DW	DW	DW	DW	W/(DW)	DW	DW	DW	D
Y	DW	DW	DW	DW	DW	W/(DW)	DW	DW	DW	D
Z	DW	DW	DW	DW	DW	W/(DW)	DW	DW	DW	D
AA	DW	DW	DW	DW	DW	W/(DW)	DW	DW	DW	D
AB	W	W	W	W	W	W/(DW)	DW	DW	DW	D
AC	W	W	W	W	W	W/(DW)	DW	DW	DW	D

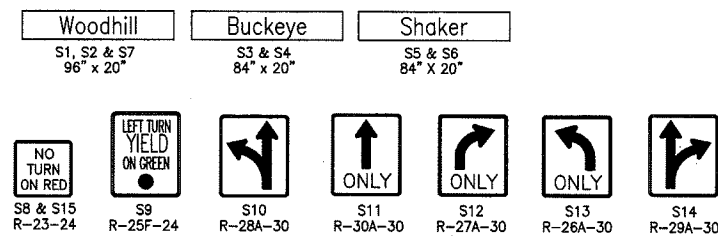
SIGNAL SEQUENCE CHART

FUNCTION	phi 1	phi 2	phi 3	phi 4
MAXIMUM GREEN	15	12	23	17
PEDESTRIAN WALK	6	-	10	6
PEDESTRIAN CLEAR.	9	12	13	11
VEH. YELLOW CLEAR.	3	3	3	3
VEHICLE RED CLEAR.	2.5	1	4	3.5
RECALL	PED	PED	PED	PED

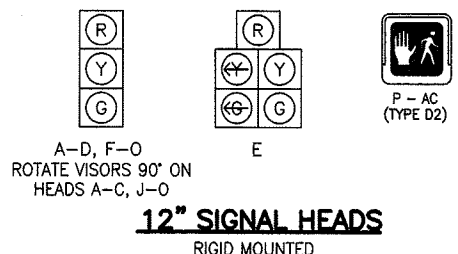
SIGNAL TIMING CHART



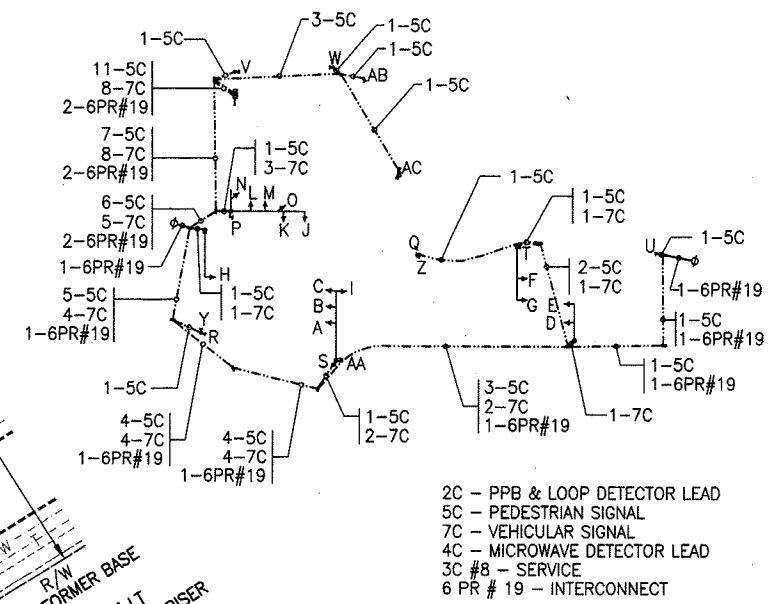
1" = 30' SCALE



SIGN LEGEND



12" SIGNAL HEADS RIGID MOUNTED



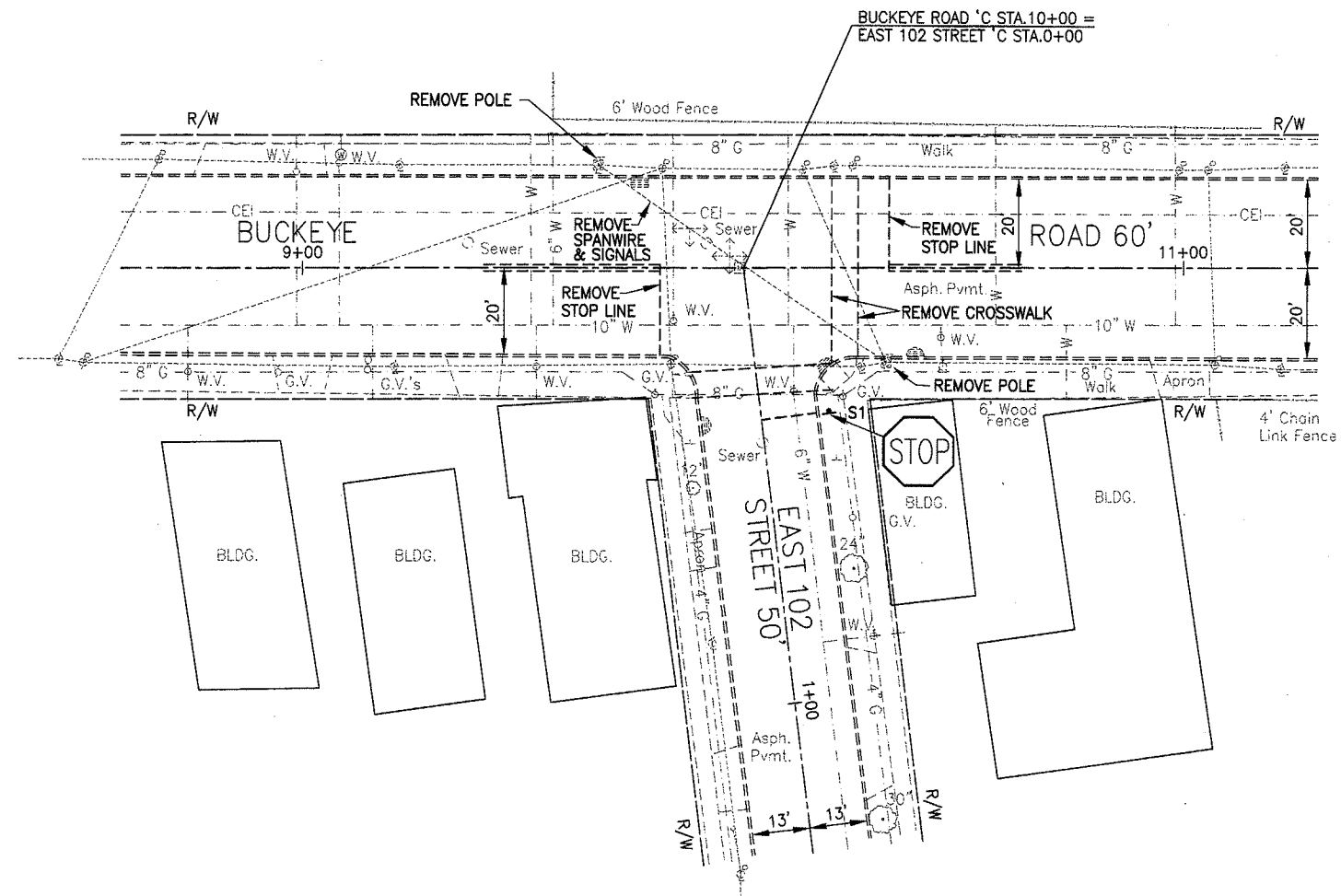
WIRE DIAGRAM

ITEM	TOTAL	UNIT	DESCRIPTION
202	112	SF	WALK REMOVED
202	28	LF	CURB REMOVED
608	112	SF	CURB RAMP, TYPE 1, AS PER PLAN
625	15	EA	GROUND ROD
625	12	EA	PULLBOX, MISC.: 13"x24"
625	618	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	410	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	160	LF	CONDUIT, 2", 713.07, AS PER PLAN
625	717	LF	CONDUIT, 3", 713.07, AS PER PLAN
625	492	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
630	2	EA	RIGID OVERHEAD SIGN SUPPORT FOUNDATION, AS PER PLAN
630	140	SF	SIGN, FLAT SHEET, TYPE G
630	15	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
630	42	LF	GROUND MOUNTED SUPPORT, NO. 3 POST
630	1	EA	OVERHEAD SIGN SUPPORT, TYPE TC-16.20, DESIGN 2, WITH 23' ARM, APP
630	1	EA	OVERHEAD SIGN SUPPORT, TYPE TC-16.20, DESIGN 3, WITH 30' ARM, APP
632	14	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	1	EA	VEHICULAR SIGNAL HEAD, 5-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	14	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	7	EA	SIGNAL SUPPORT FOUNDATION, AS PER PLAN
632	7	EA	PEDESTAL, 8', TRANSFORMER BASE, AS PER PLAN
632	3	EA	CONDUIT RISER, 2" DIAMETER
632	5	EA	PEDESTAL FOUNDATION
632	3025	LF	SIGNAL CABLE, 5-CONDUCTOR, NO. 14 AWG
632	2540	LF	SIGNAL CABLE, 7-CONDUCTOR, NO. 14 AWG
632	38	LF	POWER CABLE, 3-CONDUCTOR, NO. 8 AWG
632	15	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 22' ARM, A.P.P.
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 2, WITH 28' ARM, A.P.P.
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, WITH 32' ARM, A.P.P.
632	1	EA	SIGNAL SUPPORT, TYPE TC-12.30, DESIGN 5 POLE, WITH MAST ARMS
632	1	EA	TC-81.20 DESIGN 1, 12' AND TC-81.20 DESIGN 12, 45', AS PER PLAN
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 11, WITH 42' ARM, A.P.P.
633	1	EA	CONTROLLER, ACTUATED, 8 PHASE, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN
633	1	CY	CONCRETE FOR CABINET FOUNDATION
642	.01	MI	LANE LINE, TYPE 2
642	146	LF	REMOVAL OF PAVEMENT MARKING
642	.01	MI	CENTER LINE, TYPE 2
642	140	LF	CHANNELIZING LINE, TYPE 2
644	79	LF	STOP LINE
644	203	LF	CROSSWALK LINE
644	2	EA	LANE ARROW
644	265	LF	DOTTED LINE, 4"

INTERSECTION OF BUCKEYE AND WOODHILL/SHAKER BLVD.
 CUYAHOGA COUNTY
 CUY-10-8.96 & VARIOUS
 31
 67

93261023.DWG, PLOT SCALE: 1"=30'

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES TO REMAIN.
 PROPOSED MODIFICATIONS AND/OR ADDITIONS ARE SHOWN AS SOLID LINES.



EXISTING SIGNAL TO BE REMOVED
 (SEE NOTE ON SHEET 2)



SIGN LEGEND

ITEM	TOTAL	UNIT	DESCRIPTION
630	6.25	SF	SIGN, FLAT SHEET, TYPE G
630	14	LF	GROUND MOUNTED SUPPORT, NO. 3 POST
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
642	120	LF	REMOVAL OF PAVEMENT MARKING



CALCULATED
 REW
 CHECKED
 KAN

INTERSECTION OF BUCKEYE RD. AND EAST 102 ST.

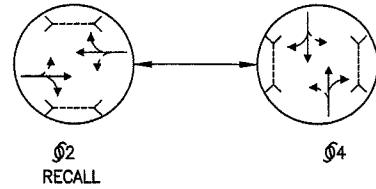
CUYAHOGA COUNTY
 CUY-10-8.96 & VARIOUS

32
 67

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 58.

FOR POLE CHART SEE SHEET 66.

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES TO REMAIN. PROPOSED MODIFICATIONS AND/OR ADDITIONS ARE SHOWN AS SOLID LINES.



PHASING DIAGRAM

SIGNAL HEAD	φ1		φ2		φ3		φ4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A			G	Y	R		R	R	Y	G
B			G	Y	R		R	R	Y	G
C			G	Y	R		R	R	Y	G
D			G	Y	R		R	R	Y	G
E			R	R	R		G	Y	R	R
F			R	R	R		G	Y	R	R
G			R	R	R		G	Y	R	R
H			R	R	R		G	Y	R	R
I			W/(DW)	DW	DW		DW	DW	DW	DW
J			W/(DW)	DW	DW		DW	DW	DW	DW
K			W/(DW)	DW	DW		DW	DW	DW	DW
L			W/(DW)	DW	DW		DW	DW	DW	DW
M			DW	DW	DW		W/(DW)	DW	DW	DW
N			DW	DW	DW		W/(DW)	DW	DW	DW
O			DW	DW	DW		W/(DW)	DW	DW	DW
P			DW	DW	DW		W/(DW)	DW	DW	DW

W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK

SIGNAL SEQUENCE CHART

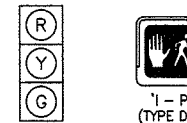
FUNCTION	φ1	φ2	φ3	φ4
INITIAL GREEN				12
MINIMUM GREEN		20		
VEHICLE EXTENSION				3
MAXIMUM GREEN				30
PEDESTRIAN WALK				7
PEDESTRIAN CLEAR.		14		11
VEH. YELLOW CLEAR.		3		3
VEHICLE RED CLEAR.		2		1.5
RECALL		PED		MIN
MEMORY		NO		NO
MAX.2 MAXIMUM GREEN (3:00-6:00 PM, M-F)				35

SIGNAL TIMING CHART

Buckeye
S3 & S4
84" X 20"

M.L.King
S1 & S2
96" X 20"

SIGN LEGEND

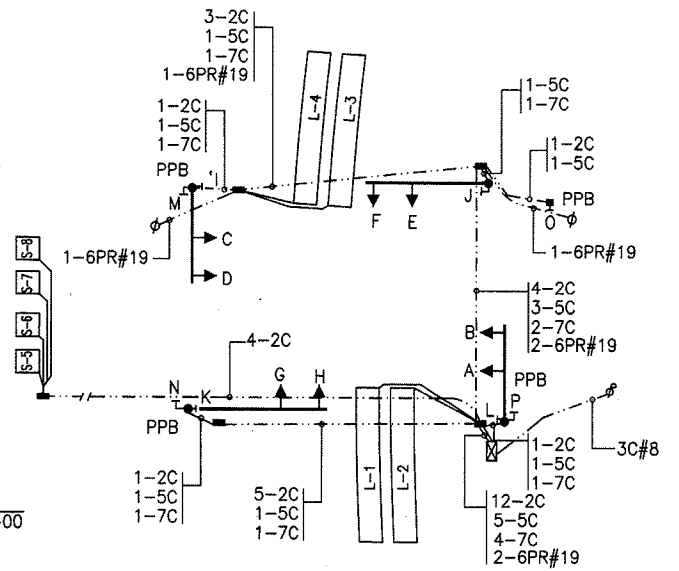
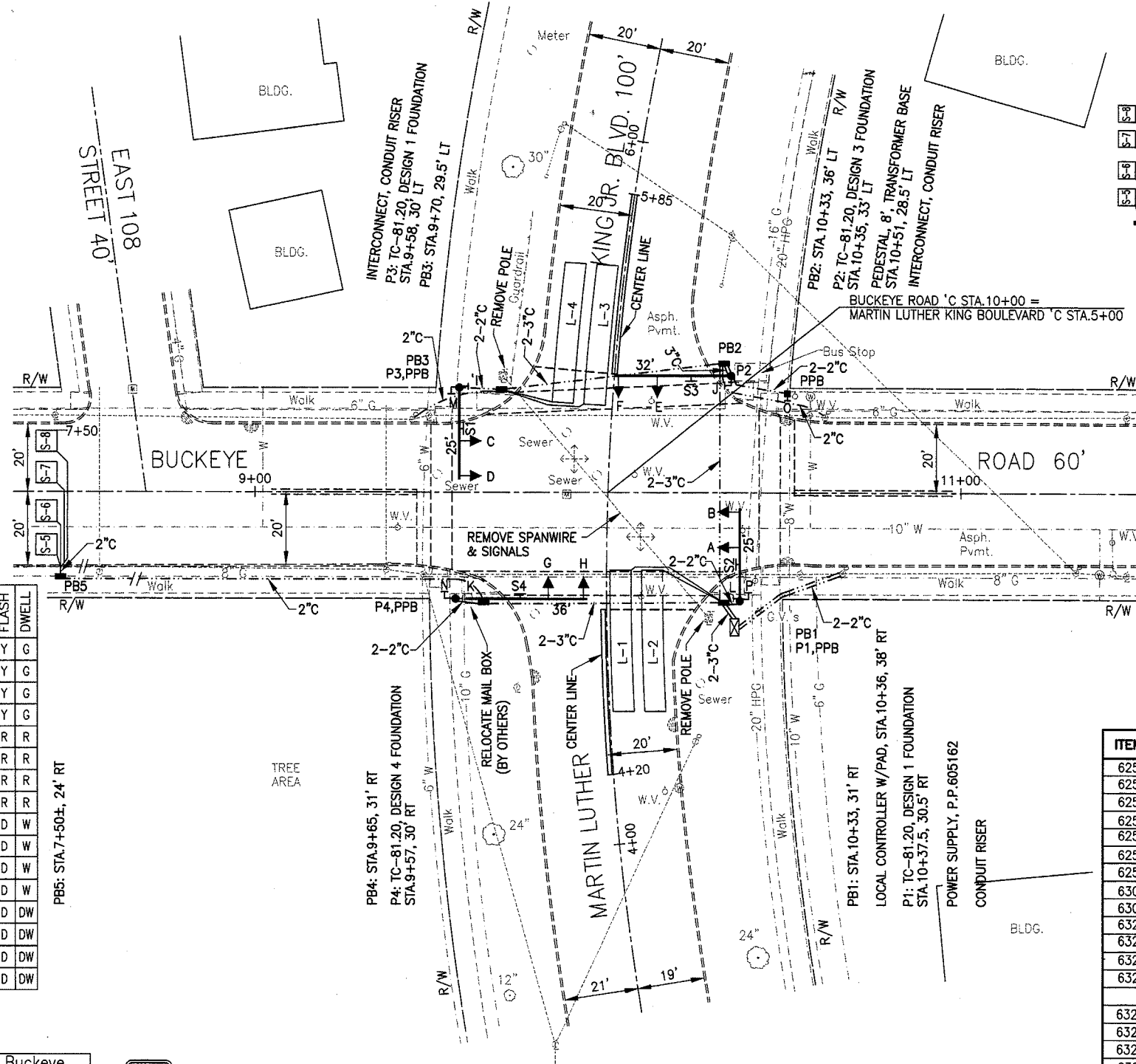


A - H

12" SIGNAL HEADS
RIGID MOUNTED

LOOP	SIZE	TURNS	MODE	DELAY	PHASE	REMARK	INHIBITED DELAY	LOCATION 1ST FRONT CORNER	LOCATION 2ND FRONT CORNER
L-1	6'X40'	2	PRESENCE		4			STA.4+22, 1.5' R	STA.4+22, 7.5' R
L-2	6'X40'	2	PRESENCE		4			STA.4+22, 10.5' R	STA.4+22, 16.5' R
L-3	6'X40'	2	PRESENCE		4			STA.5+25, 2.5' L	STA.5+25, 8.5' L
L-4	6'X40'	2	PRESENCE		4			STA.5+25, 11.5' L	STA.5+25, 17.5' L
S-5	6'X6'	3	BOTH			SYSTEM		STA.7+50, 17.5' R	STA.7+50, 11.5' R
S-6	6'X6'	3	BOTH			SYSTEM		STA.7+50, 8.5' R	STA.7+50, 2.5' R
S-7	6'X6'	3	BOTH			SYSTEM		STA.7+50, 2.5' L	STA.7+50, 8.5' L
S-8	6'X6'	3	BOTH			SYSTEM		STA.7+50, 11.5' L	STA.7+50, 17.5' L

LOOP DETECTOR CHART



WIRE DIAGRAM

2C - PPB & LOOP DETECTOR LEAD
5C - PEDESTRIAN SIGNAL
7C - VEHICULAR SIGNAL
4C - MICROWAVE DETECTOR LEAD
3C #8 - SERVICE
6 PR # 19 - INTERCONNECT

ITEM	TOTAL	UNIT	DESCRIPTION
625	6	EA	GROUND ROD
625	5	EA	PULLBOX, MISC.: 13"x24"
625	351	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	163	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	385	LF	CONDUIT, 2", 713.07, AS PER PLAN
625	88	LF	CONDUIT, 3", 713.07, AS PER PLAN
625	328	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
630	50	LF	SIGN, FLAT SHEET, TYPE G
630	4	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
632	8	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	8	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	4	EA	PEDESTRIAN PUSHBUTTON, AS PER PLAN
632	4	EA	LOOP DETECTOR UNIT, 2 CHANNEL, DELAY AND EXTENSION TYPE, AS PER PLAN
632	8	EA	DETECTOR LOOP
632	4	EA	SIGNAL SUPPORT FOUNDATION, AS PER PLAN
632	1	EA	PEDESTAL FOUNDATION
632	2	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 25' ARM, AS PER PLAN
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, WITH 32' ARM, AS PER PLAN
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 36' ARM, AS PER PLAN
632	1	EA	PEDESTAL, 8', TRANSFORMER BASE, AS PER PLAN
632	3	EA	CONDUIT RISER, 2" DIAMETER
632	578	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	608	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	1314	LF	LOOP DETECTOR LEAD-IN CABLE
632	65	LF	POWER CABLE, 3-CONDUCTOR, NO.8 AWG
632	8	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER, ACTUATED, 8 PHASE, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN
633	1	CY	CONCRETE FOR CABINET FOUNDATION
633	8.3	SF	CONTROLLER WORK PAD
642	.04	MI	CENTER LINE, TYPE 2

INTERSECTION OF BUCKEYE RD. AND M.L.K. BLVD.

CUYAHOGA COUNTY
CUY-10-8.96 & VARIOUS

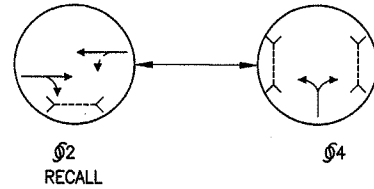


CALCULATED
REVIEW
CHECKED
KAN

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 58.

FOR POLE CHART SEE SHEET 66.

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES TO REMAIN. PROPOSED MODIFICATIONS AND/OR ADDITIONS ARE SHOWN AS SOLID LINES.

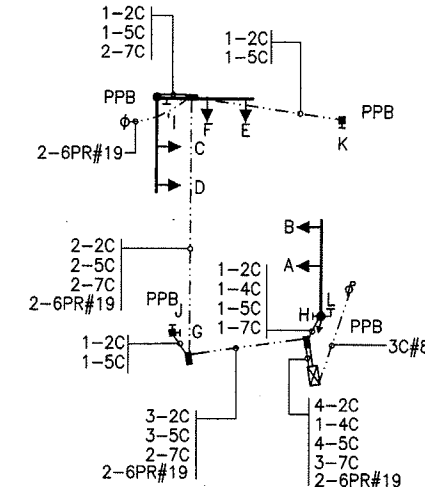
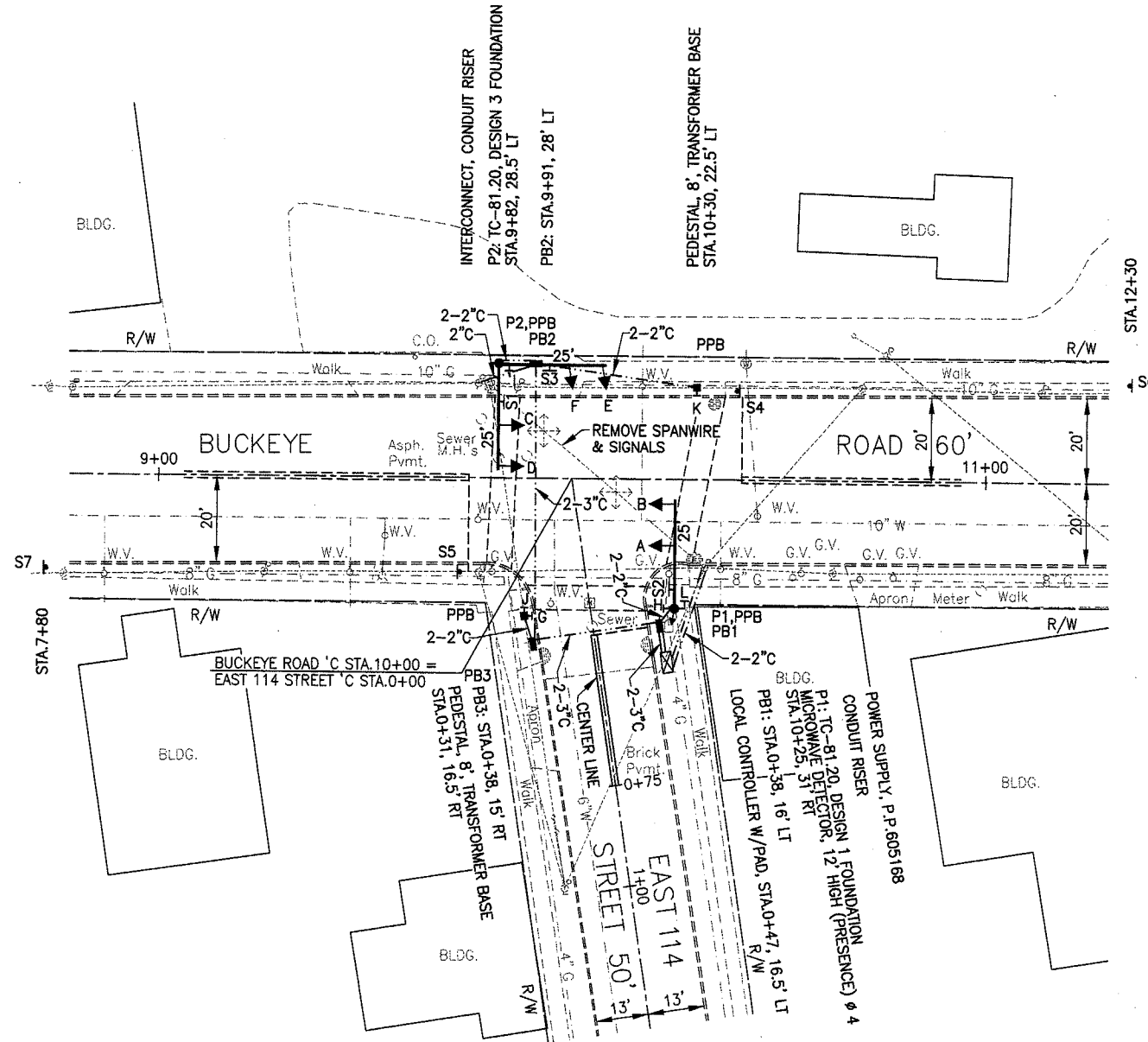


PHASING DIAGRAM

SIGNAL HEAD	ϕ1		ϕ2		ϕ3		ϕ4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A			G	Y R			R	R R	Y	G
B			G	Y R			R	R R	Y	G
C			G	Y R			R	R R	Y	G
D			G	Y R			R	R R	Y	G
E			R	R R			G	Y R	R	R
F			R	R R			G	Y R	R	R
G			W/(DW)	DW DW			DW	DW DW	D	W
H			W/(DW)	DW DW			DW	DW DW	D	W
I			DW	DW DW			W/(DW)	DW DW	D	DW
J			DW	DW DW			W/(DW)	DW DW	D	DW
K			DW	DW DW			W/(DW)	DW DW	D	DW
L			DW	DW DW			W/(DW)	DW DW	D	DW

W-WALK (DW)-FLASHING DONT WALK DW-DONT WALK D-DARK

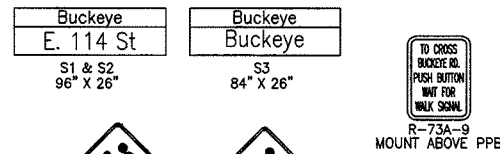
SIGNAL SEQUENCE CHART



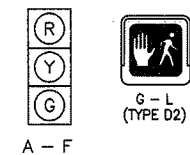
WIRE DIAGRAM

2C - PPB & LOOP DETECTOR LEAD
 5C - PEDESTRIAN SIGNAL
 7C - VEHICULAR SIGNAL
 4C - MICROWAVE DETECTOR LEAD
 3C #8 - SERVICE
 6 PR # 19 - INTERCONNECT

ITEM	TOTAL	UNIT	DESCRIPTION
625	5	EA	GROUND ROD
625	3	EA	PULLBOX, MISC.: 13"x24"
625	133	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	80	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	194	LF	CONDUIT, 2", 713.07, AS PER PLAN
625	56	LF	CONDUIT, 3", 713.07, AS PER PLAN
625	156	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
630	87	SF	SIGN, FLAT SHEET, TYPE G
630	3	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
630	56	LF	GROUND MOUNTED SUPPORT, NO. 4 POST
632	6	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	6	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	4	EA	PEDESTRIAN PUSHBUTTON, AS PER PLAN
632	1	EA	SIGNALIZATION, MISC: MICROWAVE DETECTOR
632	2	EA	SIGNAL SUPPORT FOUNDATION, AS PER PLAN
632	2	EA	PEDESTAL FOUNDATION
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 25' ARM, AS PER PLAN
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20 DESIGN 3 POLE, WITH MAST ARMS TC-81.20 DESIGN 1, 25 FEET AND TC-81.20, DESIGN 1, 25 FEET, AS PER PLAN
632	2	EA	PEDESTAL, 8', TRANSFORMER BASE, AS PER PLAN
632	2	EA	CONDUIT RISER, 2" DIAMETER
632	458	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	518	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	348	LF	LOOP DETECTOR LEAD-IN CABLE
632	51	LF	SIGNALIZATION, MISC: MICROWAVE DETECTOR LEAD-IN CABLE
632	55	LF	POWER CABLE, 3-CONDUCTOR, NO.8 AWG
632	6	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER, ACTUATED, 8 PHASE, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN
633	1	CY	CONCRETE FOR CABINET FOUNDATION
633	8.3	SF	CONTROLLER WORK PAD
642	.02	MI	CENTER LINE, TYPE 2



SIGN LEGEND



12" SIGNAL HEADS RIGID MOUNTED

FUNCTION	ϕ1	ϕ2	ϕ3	ϕ4
INITIAL GREEN				8
MINIMUM GREEN		20		
VEHICLE EXTENSION				3
MAXIMUM GREEN				20
PEDESTRIAN WALK				7
PEDESTRIAN CLEAR.		7		14
VEH. YELLOW CLEAR.		3		3
VEHICLE RED CLEAR.		1		1.5
RECALL		PED		NO
MEMORY		NO		NO

SIGNAL TIMING CHART



INTERSECTION OF BUCKEYE RD. AND EAST 114 ST.

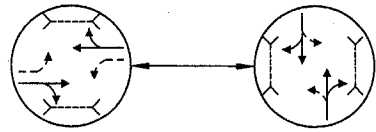
CUYAHOGA COUNTY
 CUY-10-8.96 & VARIOUS

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 58.

FOR POLE CHART SEE SHEET 66.

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES TO REMAIN. PROPOSED MODIFICATIONS AND/OR ADDITIONS ARE SHOWN AS SOLID LINES.

LOCATIONS OF EXISTING TRAFFIC SIGNAL PULL BOXES, CONDUIT, AND DUCT BANKS ARE APPROXIMATE AND MUST BE VERIFIED.



PHASING DIAGRAM

SIGNAL HEAD	phi 1		phi 2		phi 3		phi 4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A			G	Y	R		R	R	Y	G
B			G	Y	R		R	R	Y	G
C			G	Y	R		R	R	Y	G
D			G	Y	R		R	R	Y	G
E			R	R	R		G	Y	R	R
F			R	R	R		G	Y	R	R
G			R	R	R		G	Y	R	R
H			R	R	R		G	Y	R	R
I			W/(DW)	DW	DW		DW	DW	DW	D
J			W/(DW)	DW	DW		DW	DW	DW	D
K			W/(DW)	DW	DW		DW	DW	DW	D
L			W/(DW)	DW	DW		DW	DW	DW	D
M			DW	DW	DW		W/(DW)	DW	DW	D
N			DW	DW	DW		W/(DW)	DW	DW	D
O			DW	DW	DW		W/(DW)	DW	DW	D
P			DW	DW	DW		W/(DW)	DW	DW	D

W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK

SIGNAL SEQUENCE CHART

FUNCTION	phi 1	phi 2	phi 3	phi 4
INITIAL GREEN				20
MINIMUM GREEN		30		
VEHICLE EXTENSION				3
MAXIMUM GREEN				50
PEDESTRIAN WALK				7
PEDESTRIAN CLEAR.		10		10
VEH. YELLOW CLEAR.	3			3
VEHICLE RED CLEAR.		2		2
RECALL		PED		MIN
MEMORY		NO		NO
MAX.2 MAXIMUM GREEN (3:00-6:00 PM, M-F)				38

SIGNS S5 & S6 TO BE ILLUMINATED 6:00 AM - 6:00 PM

SIGNAL TIMING CHART

Buckeye
S3 & S4
84" X 26"

Buckeye
E. 116 St
S1 & S2
96" X 26"



S5 & S6
R-121

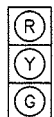


R-73A-9
MOUNT ABOVE PPB



S7, S8 & S9
R-23
RP-23

SIGN LEGEND



A-4

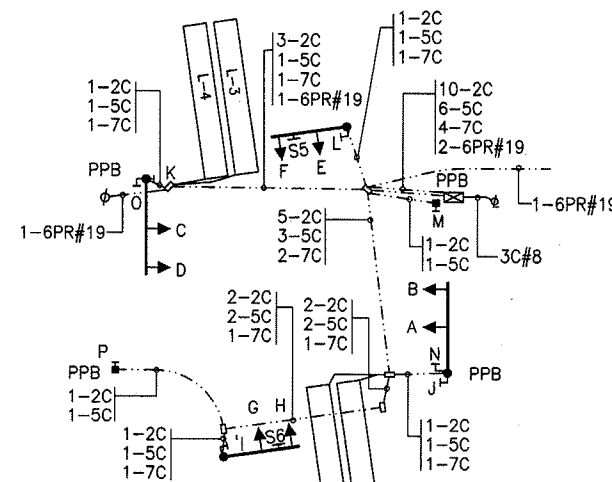
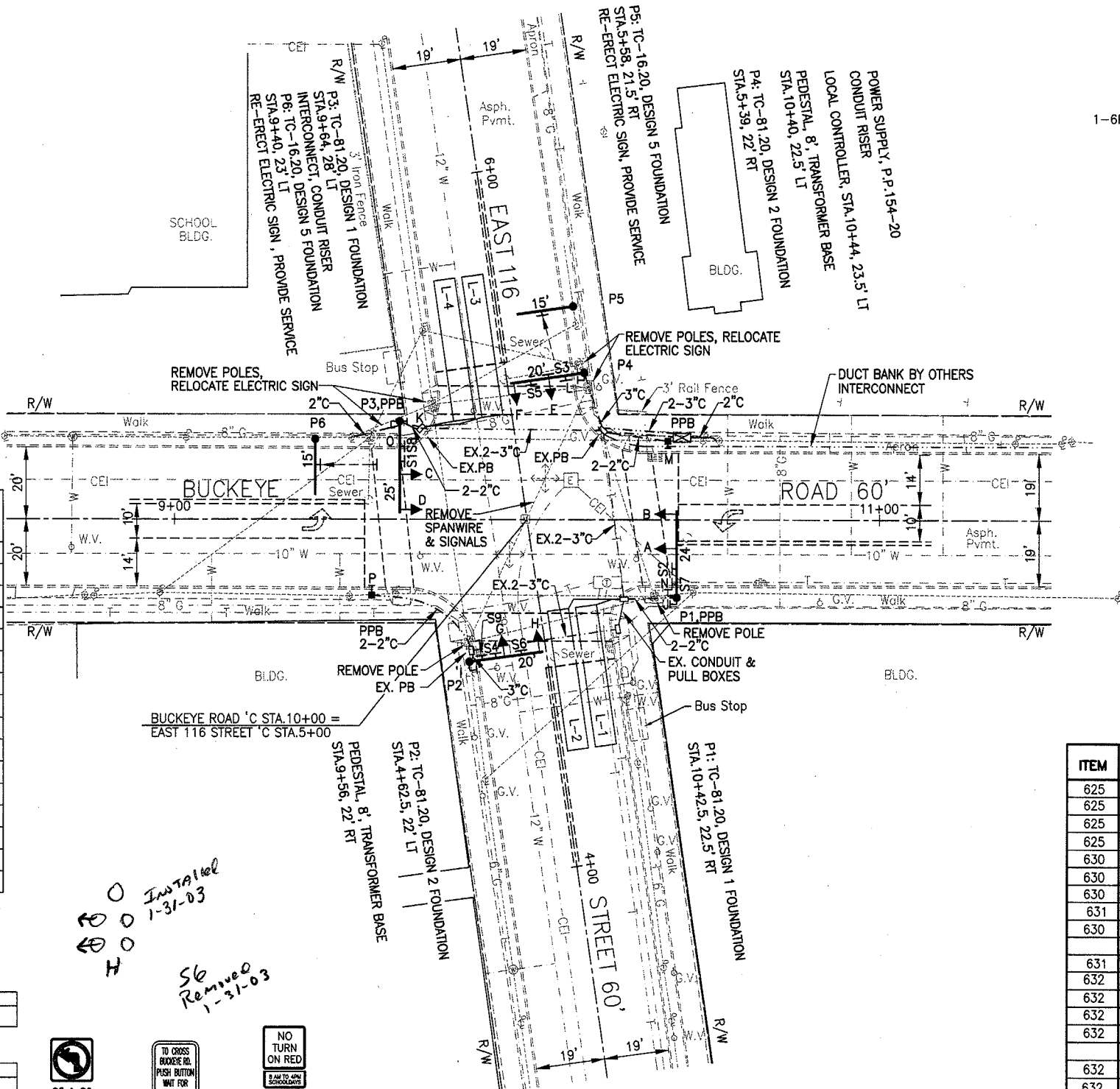


1-P (TYPE D2)

12" SIGNAL HEADS RIGID MOUNTED

LOOP	SIZE	TURNS	MODE	DELAY	PHASE	REMARK	INHIBITED DELAY	LOCATION 1ST FRONT CORNER	LOCATION 2ND FRONT CORNER
L-1	6'X40'	2	PRESENCE	8	4		NO	STA.4+73, 10.5' R	STA.4+73, 16.5' R
L-2	6'X40'	2	PRESENCE	3	4		NO	STA.4+73, 2.5' R	STA.4+73, 8.5' R
L-3	6'X40'	2	PRESENCE	3	4		NO	STA.5+30, 2.5' L	STA.5+30, 8.5' L
L-4	6'X40'	2	PRESENCE	8	4		NO	STA.5+30, 10.5' L	STA.5+30, 16.5' L

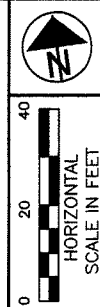
LOOP DETECTOR CHART



WIRE DIAGRAM

2C - PPB & LOOP DETECTOR LEAD
5C - PEDESTRIAN SIGNAL
7C - VEHICULAR SIGNAL
4C - MICROWAVE DETECTOR LEAD
3C #8 - SERVICE
6 PR # 19 - INTERCONNECT

ITEM	TOTAL	UNIT	DESCRIPTION
625	8	EA	GROUND ROD
625	125	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	164	LF	CONDUIT, 2", 713.07, AS PER PLAN
625	67	LF	CONDUIT, 3", 713.07, AS PER PLAN
630	2	EA	RIGID OVERHEAD SIGN SUPPORT FOUNDATION, AS PER PLAN
630	84	SF	SIGN, FLAT SHEET, TYPE G
630	7	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
631	2	EA	CHANGEABLE MESSAGE SIGN, ELECTRIC TYPE, LIMITED MESSAGE, AS PER PLAN
630	2	EA	OVERHEAD SIGN SUPPORT, TYPE TC-16.20, DESIGN 5, WITH 15' ARM, AS PER PLAN
631	2	EA	REMOVAL, MISC.: SCHOOL SPEED LIMIT SIGN ASSEMBLY
632	8	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	8	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	4	EA	PEDESTRIAN PUSHBUTTON, AS PER PLAN
632	2	EA	LOOP DETECTOR UNIT, 2 CHANNEL, DELAY AND EXTENSION TYPE, AS PER PLAN
632	4	EA	DETECTOR LOOP
632	4	EA	SIGNAL SUPPORT FOUNDATION, AS PER PLAN
632	2	EA	PEDESTAL FOUNDATION
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 24' ARM, AS PER PLAN
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 25' ARM, AS PER PLAN
632	2	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 2, WITH 20' ARM, AS PER PLAN
632	2	EA	PEDESTAL, 8", TRANSFORMER BASE, AS PER PLAN
632	2	EA	CONDUIT RISER, 2" DIAMETER
632	764	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	655	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	1100	LF	LOOP DETECTOR LEAD-IN CABLE
632	35	LF	POWER CABLE, 3-CONDUCTOR, NO.8 AWG
632	8	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER, ACTUATED, 8 PHASE, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN
633	1	CY	CONCRETE FOR CABINET FOUNDATION



CALCULATED
REVIEW
CHECKED
KAN

INTERSECTION OF BUCKEYE RD. AND EAST 116 ST.

CUYAHOGA COUNTY
CUY-10-8.96 & VARIOUS

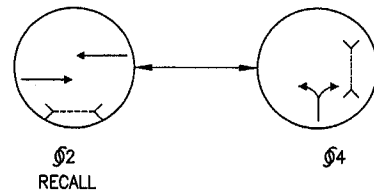
91261027.DWG, PLOT SCALE: 1"=20'

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 58.

FOR POLE CHART SEE SHEET 66.

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES TO REMAIN. PROPOSED MODIFICATIONS AND/OR ADDITIONS ARE SHOWN AS SOLID LINES.

LOCATIONS OF EXISTING TRAFFIC SIGNAL PULL BOXES, CONDUIT AND DUCT BANKS ARE APPROXIMATE AND MUST BE VERIFIED.



PHASING DIAGRAM

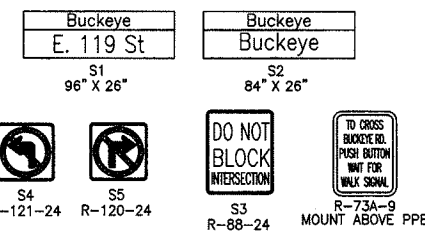
SIGNAL HEAD	φ1		φ2		φ3		φ4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A			G	Y R			R	R R Y G		
B			G	Y R			R	R R Y G		
C			G	Y R			R	R R Y G		
D			G	Y R			R	R R Y G		
E			R	R R			G	Y R R R		
F			R	R R			G	Y R R R		
G			W/(DW)	DW DW			DW	DW DW D W		
H			W/(DW)	DW DW			DW	DW DW D W		
I			DW	DW DW			W/(DW)	DW DW D DW		
J			DW	DW DW			W/(DW)	DW DW D DW		

W-WALK (DW)-FLASHING DONT WALK DW-DONT WALK D-DARK

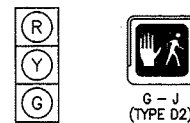
SIGNAL SEQUENCE CHART

FUNCTION	φ1	φ2	φ3	φ4
INITIAL GREEN		-		8
MINIMUM GREEN		20		-
VEHICLE EXTENSION		-		3
MAXIMUM GREEN		-		20
PEDESTRIAN WALK		-		7
PEDESTRIAN CLEAR.		9		13
VEH. YELLOW CLEAR.		3		3
VEHICLE RED CLEAR.		2		2.5
RECALL		PED		NO
MEMORY		NO		NO

SIGNAL TIMING CHART

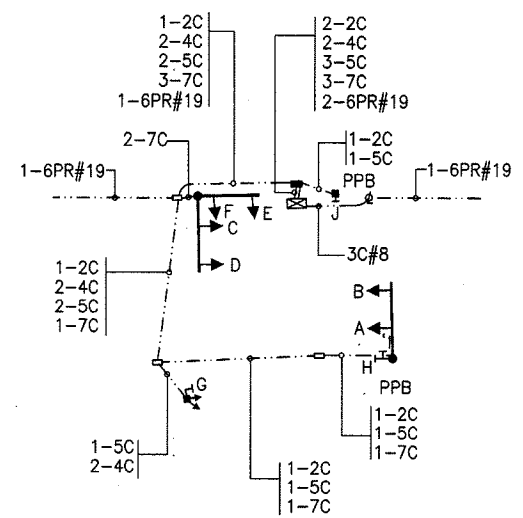
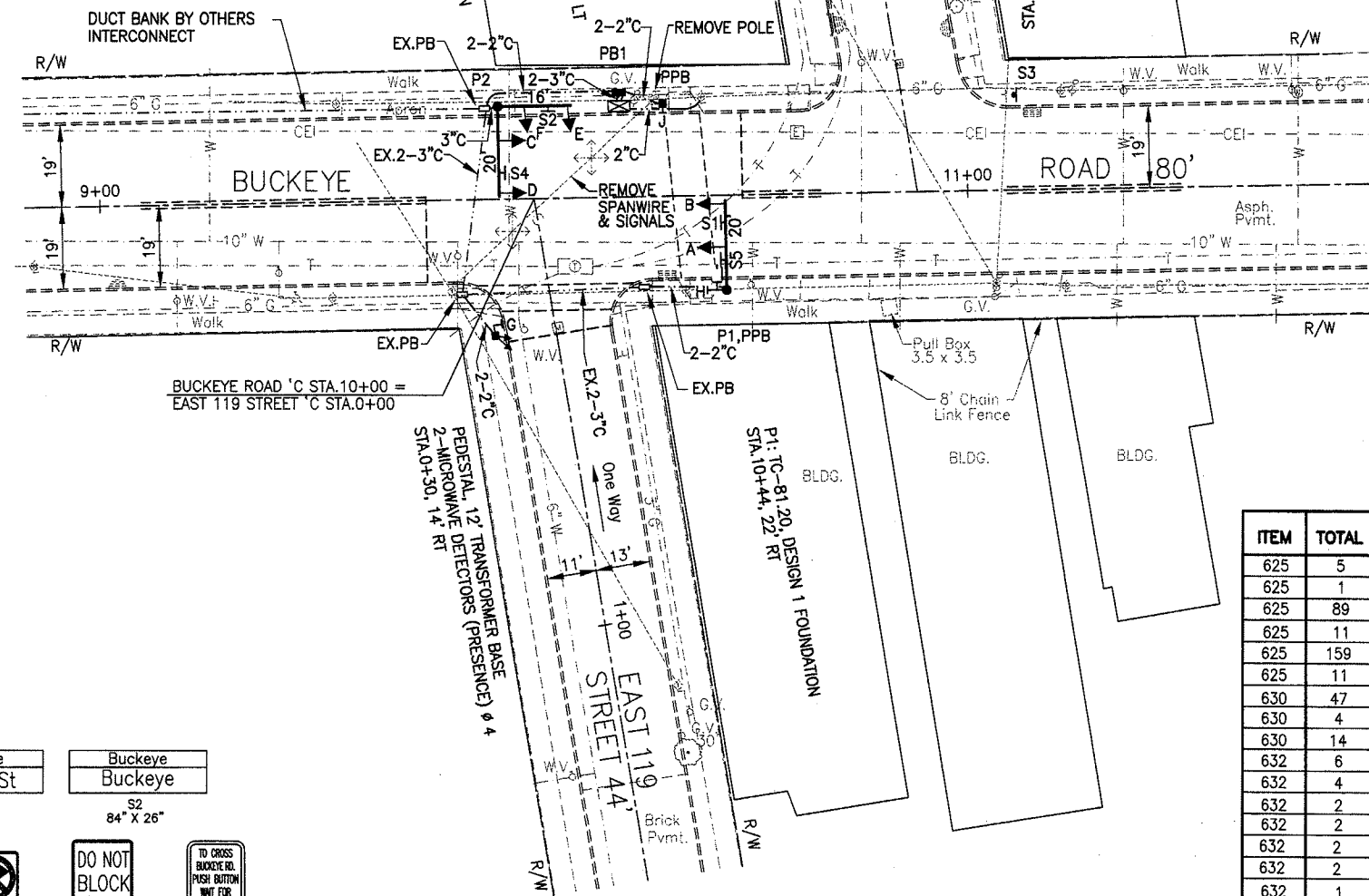


SIGN LEGEND



12" SIGNAL HEADS

RIGID MOUNTED



WIRE DIAGRAM

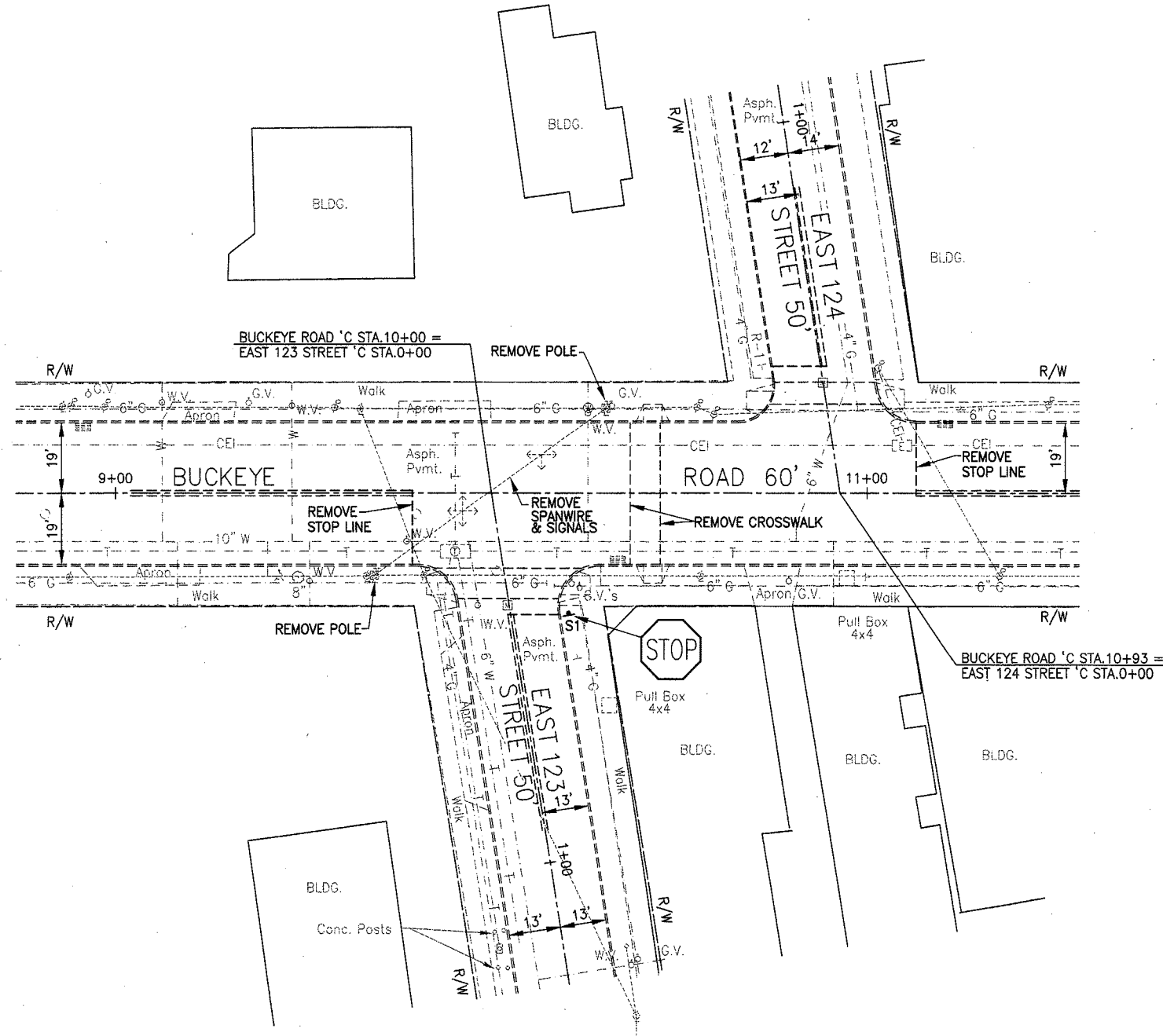
2C - PPB & LOOP DETECTOR LEAD
5C - PEDESTRIAN SIGNAL
7C - VEHICULAR SIGNAL
4C - MICROWAVE DETECTOR LEAD
3C #8 - SERVICE
6 PR # 19 - INTERCONNECT

100% CITY PARTICIPATION

ITEM	TOTAL	UNIT	DESCRIPTION
625	5	EA	GROUND ROD
625	1	EA	PULLBOX, MISC.: 13"x24"
625	89	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	11	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	159	LF	CONDUIT, 2", 713.07, AS PER PLAN
625	11	LF	CONDUIT, 3", 713.07, AS PER PLAN
630	47	SF	SIGN. FLAT SHEET, TYPE G
630	4	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
630	14	LF	GROUND MOUNTED SUPPORT, NO. 3 POST
632	6	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	4	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	2	EA	PEDESTRIAN PUSHBUTTON, AS PER PLAN
632	2	EA	SIGNALIZATION, MISC.: MICROWAVE DETECTOR
632	2	EA	SIGNAL SUPPORT FOUNDATION, AS PER PLAN
632	2	EA	PEDESTAL FOUNDATION
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 20' ARM, AS PER PLAN
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20 DESIGN 3 POLE, WITH MAST ARMS TC-81.20 DESIGN 1, 16 FEET AND TC-81.20 DESIGN 1, 20 FEET, AS PER PLAN
632	1	EA	PEDESTAL, 8', TRANSFORMER BASE, AS PER PLAN
632	1	EA	PEDESTAL, MISC.: 12', TRANSFORMER BASE
632	1	EA	CONDUIT RISER, 2" DIAMETER
632	350	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	459	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	171	LF	LOOP DETECTOR LEAD-IN CABLE
632	262	LF	SIGNALIZATION, MISC.: MICROWAVE DETECTOR LEAD-IN CABLE
632	49	LF	POWER CABLE, 3-CONDUCTOR, NO.8 AWG
632	6	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER, ACTUATED, 8 PHASE, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN
633	1	CY	CONCRETE FOR CABINET FOUNDATION

INTERSECTION OF BUCKEYE RD. AND EAST 119 ST.
 CUYAHOGA COUNTY
 CUY-10-8.96 & VARIOUS
 36
 67

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES TO REMAIN.
 PROPOSED MODIFICATIONS AND/OR ADDITIONS ARE SHOWN AS SOLID LINES.



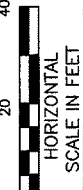
EXISTING SIGNAL TO BE REMOVED
 (SEE NOTE ON SHEET 2)



S1
R-1-30

SIGN LEGEND

ITEM	TOTAL	UNIT	DESCRIPTION
630	6.25	SF	SIGN, FLAT SHEET, TYPE G
630	14	LF	GROUND MOUNTED SUPPORT, NO. 3 POST
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
642	115	LF	REMOVAL OF PAVEMENT MARKING



CALCULATED
REW
CHECKED
KAN

INTERSECTION OF BUCKEYE RD. AND EAST 123 ST.

CUYAHOGA COUNTY
 CUY-10-8.96 & VARIOUS

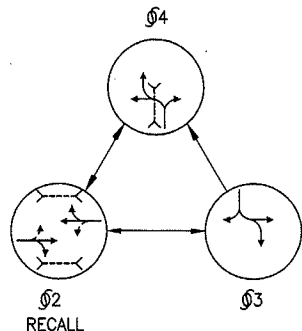
37
67

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 58.

FOR POLE CHART SEE SHEET 66.

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES TO REMAIN. PROPOSED MODIFICATIONS AND/OR ADDITIONS ARE SHOWN AS SOLID LINES.

LOCATIONS OF EXISTING TRAFFIC SIGNAL PULL BOXES, CONDUIT AND DUCT BANKS ARE APPROXIMATE AND MUST BE VERIFIED.



PHASING DIAGRAM

SIGNAL HEAD	phi 1		phi 2		phi 3		phi 4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A			G	Y R	R	R R	R	R R	R	Y G
B			G	Y R	R	R R	R	R R	R	Y G
C			G	Y R	R	R R	R	R R	R	Y G
D			G	Y R	R	R R	R	R R	R	Y G
E			R	R R	G	Y R	R	R R	R	R R
F			R	R R	G	Y R	R	R R	R	R R
G			R	R R	R	R R	G	Y R	R	R R
H			R	R R	R	R R	G	Y R	R	R R
I			W/(DW)	DW DW	DW	DW DW	DW	DW DW	D	D W
J			W/(DW)	DW DW	DW	DW DW	DW	DW DW	D	D W
K			W/(DW)	DW DW	DW	DW DW	DW	DW DW	D	D W
L			W/(DW)	DW DW	DW	DW DW	DW	DW DW	D	D W
M			DW	DW DW	DW	DW DW	W/(DW)	DW DW	D	D W
N			DW	DW DW	DW	DW DW	W/(DW)	DW DW	D	D W

W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK

SIGNAL SEQUENCE CHART

FUNCTION	phi 1	phi 2	phi 3	phi 4
INITIAL GREEN		-	6	8
MINIMUM GREEN		20	-	-
VEHICLE EXTENSION		-	2	3
MAXIMUM GREEN		-	10	16
PEDESTRIAN WALK		-	-	7
PEDESTRIAN CLEAR.		7	-	7
VEH. YELLOW CLEAR.		3	3	3
VEHICLE RED CLEAR.		2.5	1	1
RECALL		PED	NO	NO
MEMORY		NO	NO	NO

SIGNAL TIMING CHART

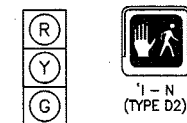
Buckeye
Buckeye

S3 & S4
84" X 26"

Buckeye
E. 126 St

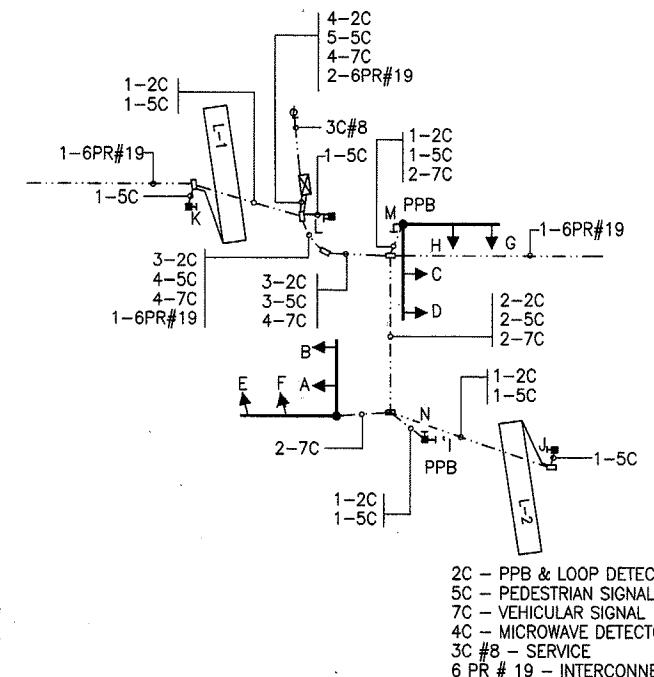
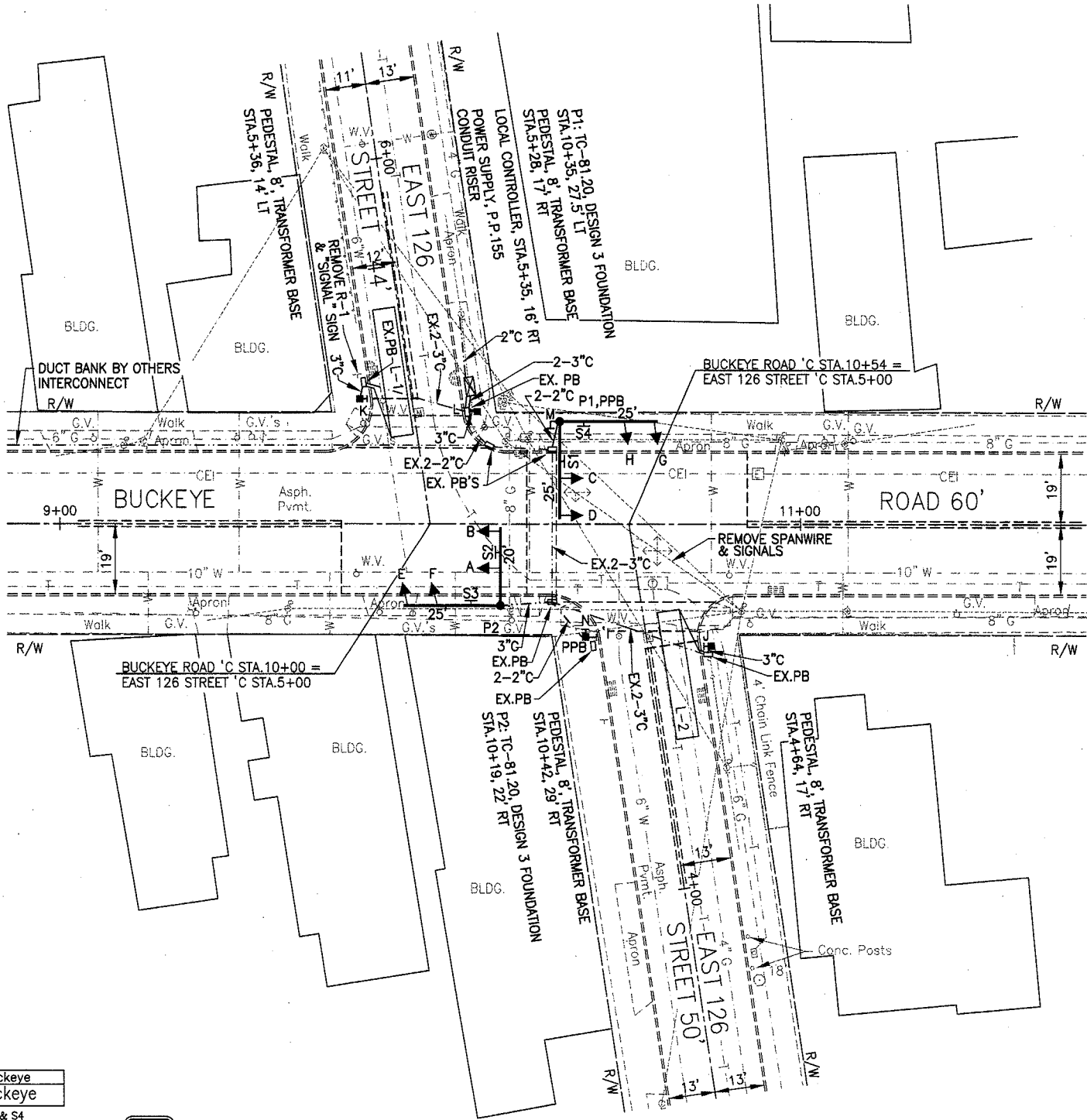
S1 & S2
96" X 26"

SIGN LEGEND



A - H

12" SIGNAL HEADS
RIGID MOUNTED



WIRE DIAGRAM

- 2C - PPB & LOOP DETECTOR LEAD
- 5C - PEDESTRIAN SIGNAL
- 7C - VEHICULAR SIGNAL
- 4C - MICROWAVE DETECTOR LEAD
- 3C #8 - SERVICE
- 6 PR # 19 - INTERCONNECT

100% CITY PARTICIPATION

ITEM	TOTAL	UNIT	DESCRIPTION
625	7	EA	GROUND ROD
625	71	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	60	LF	CONDUIT, 2", 713.07, AS PER PLAN
625	36	LF	CONDUIT, 3", 713.07, AS PER PLAN
630	65	SF	SIGN, FLAT SHEET, TYPE G
630	4	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
632	8	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	6	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	2	EA	PEDESTRIAN PUSHBUTTON, AS PER PLAN
632	1	EA	LOOP DETECTOR UNIT, 2 CHANNEL, DELAY AND EXTENSION TYPE, AS PER PLAN
632	2	EA	DETECTOR LOOP
632	2	EA	SIGNAL SUPPORT FOUNDATION, AS PER PLAN
632	4	EA	PEDESTAL FOUNDATION
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20 DESIGN 3 POLE, WITH MAST ARMS TC-81.20 DESIGN 1, 20 FEET AND TC-81.20 DESIGN 1, 25 FEET, AS PER PLAN
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20 DESIGN 3 POLE, WITH MAST ARMS TC-81.20 DESIGN 1, 25 FEET AND TC-81.20 DESIGN 1, 25 FEET, AS PER PLAN
632	4	EA	PEDESTAL, 8', TRANSFORMER BASE, AS PER PLAN
632	1	EA	CONDUIT RISER, 2" DIAMETER
632	564	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	652	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	307	LF	LOOP DETECTOR LEAD-IN CABLE
632	52	LF	POWER CABLE, 3-CONDUCTOR, NO.8 AWG
632	8	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER, ACTUATED, 8 PHASE, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN
633	1	CY	CONCRETE FOR CABINET FOUNDATION

LOOP	SIZE	TURNS	MODE	DELAY	PHASE	REMARK	INHIBITED DELAY	LOCATION 1ST FRONT CORNER	LOCATION 2ND FRONT CORNER
L-1	6'X35'	2	PRESENCE	8	3		NO	STA.5+24, 1' L	STA.5+24, 7' L
L-2	6'X35'	2	PRESENCE	8	4		NO	STA.4+76, 3.5' R	STA.4+76, 9.5' R

LOOP DETECTOR CHART

INTERSECTION OF BUCKEYE RD. AND EAST 126 ST.
 CUYAHOGA COUNTY
 CUY-10-8.96 & VARIOUS
 40
 20
 0
 HORIZONTAL SCALE IN FEET
 CALCULATED
 REW
 CHECKED
 KAN
 38
 67

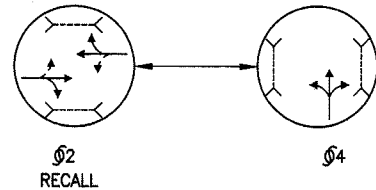
93261030.DWG, PLOT SCALE: 1"=20'

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 58.

FOR POLE CHART SEE SHEET 66.

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES TO REMAIN. PROPOSED MODIFICATIONS AND/OR ADDITIONS ARE SHOWN AS SOLID LINES.

LOCATIONS OF EXISTING TRAFFIC SIGNAL PULL BOXES, CONDUIT AND DUCT BANKS ARE APPROXIMATE AND MUST BE VERIFIED.



PHASING DIAGRAM

SIGNAL HEAD	φ1		φ2		φ3		φ4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A			G	Y R			R	R R Y	Y	G
B			G	Y R			R	R R Y	Y	G
C			G	Y R			R	R R Y	Y	G
D			G	Y R			R	R R Y	Y	G
E			R	R R			G	Y R R	R	R
F			R	R R			G	Y R R	R	R
G			W/(DW)	DW DW			DW	DW DW	D	W
H			W/(DW)	DW DW			DW	DW DW	D	W
I			W/(DW)	DW DW			DW	DW DW	D	W
J			W/(DW)	DW DW			DW	DW DW	D	W
K			DW	DW DW			W/(DW)	DW DW	D	W
L			DW	DW DW			W/(DW)	DW DW	D	W
M			DW	DW DW			W/(DW)	DW DW	D	W
N			DW	DW DW			W/(DW)	DW DW	D	W

W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK

SIGNAL SEQUENCE CHART

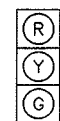
FUNCTION	φ1	φ2	φ3	φ4
INITIAL GREEN		-		8
MINIMUM GREEN		20		-
VEHICLE EXTENSION		-		3
MAXIMUM GREEN		-		20
PEDESTRIAN WALK		-		7
PEDESTRIAN CLEAR.		8		7
VEH. YELLOW CLEAR.		3		3
VEHICLE RED CLEAR.		1		1
RECALL		PED		NO
MEMORY		NO		NO

SIGNAL TIMING CHART

Buckeye
S3
84" x 26"

Buckeye
E. 130 St
S1 & S2
96" x 26"

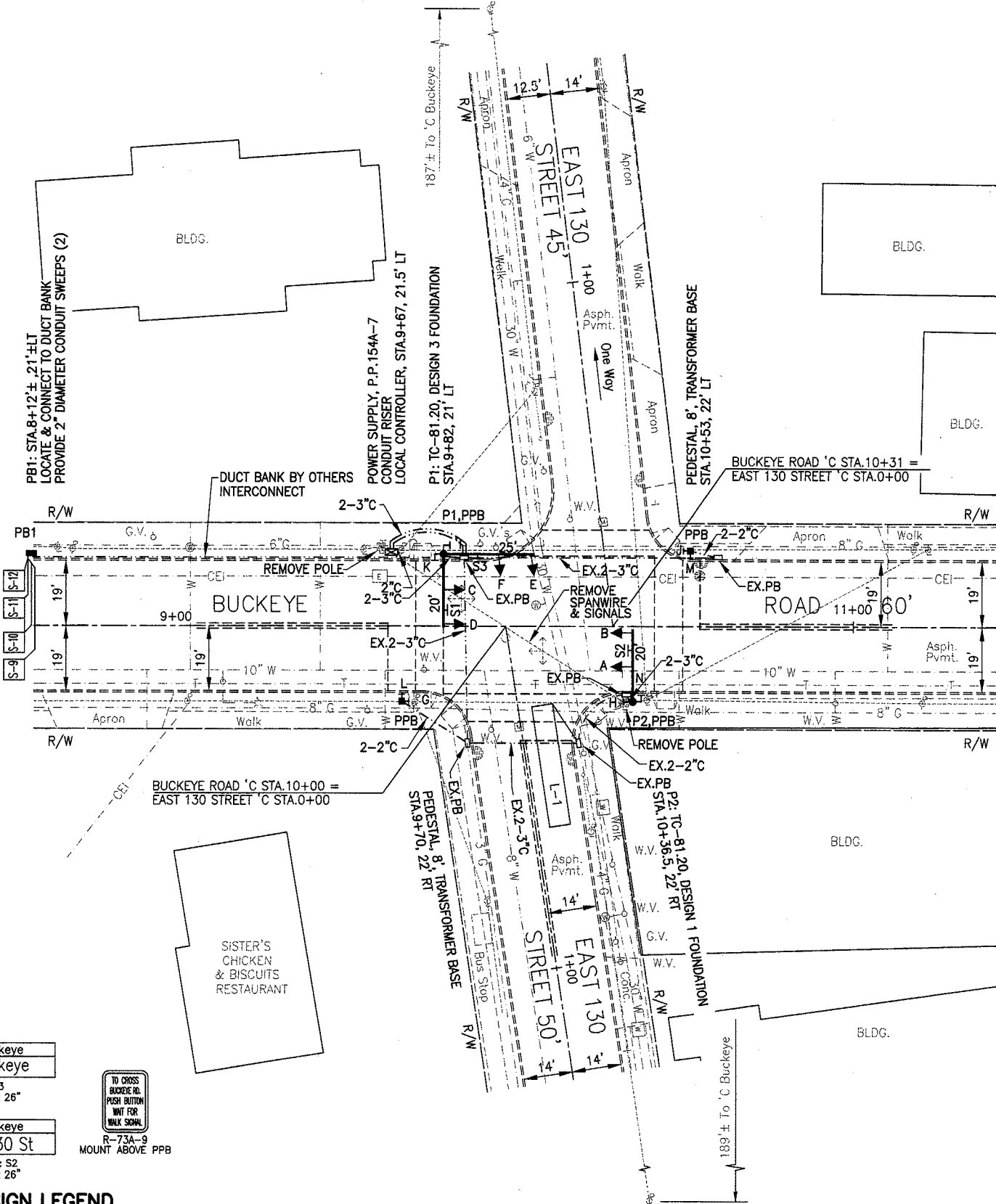
SIGN LEGEND



A - F

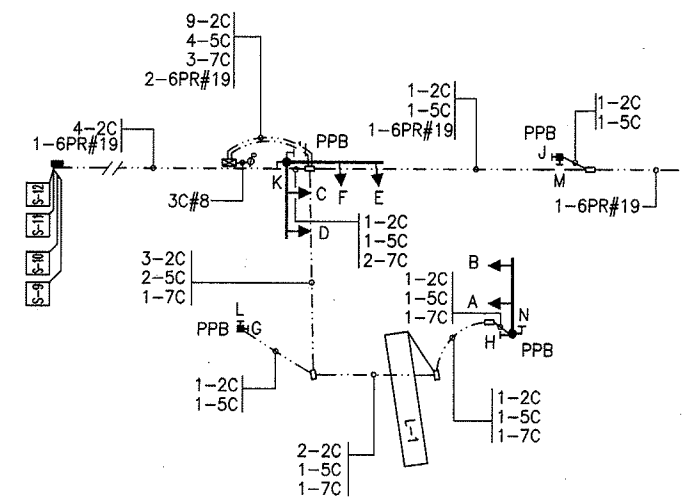


12" SIGNAL HEADS
RIGID MOUNTED



LOOP	SIZE	TURNS	MODE	DELAY	PHASE	REMARK	INHIBITED DELAY	LOCATION 1ST FRONT CORNER	LOCATION 2ND FRONT CORNER
L-1	6'X35'	2	PRESENCE	8	4		NO	STA.0+24, 4' L	STA.0+24, 10' R
S-9	6'X6'	3	BOTH			SYSTEM		STA.9+00, 10' R	STA.9+00, 12' R
S-10	6'X6'	3	BOTH			SYSTEM		STA.9+00, 2' R	STA.9+00, 8' R
S-11	6'X6'	3	BOTH			SYSTEM		STA.9+00, 8' L	STA.9+00, 2' L
S-12	6'X6'	3	BOTH			SYSTEM		STA.9+00, 16' L	STA.9+00, 10' L

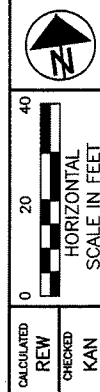
LOOP DETECTOR CHART



WIRE DIAGRAM

2C - PPB & LOOP DETECTOR LEAD
5C - PEDESTRIAN SIGNAL
7C - VEHICULAR SIGNAL
4C - MICROWAVE DETECTOR LEAD
3C #8 - SERVICE
6 PR # 19 - INTERCONNECT

ITEM	TOTAL	UNIT	DESCRIPTION
625	5	EA	GROUND ROD
625	1	EA	PULLBOX, MISC.: 13"x24"
625	68	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	90	LF	CONDUIT, 2", 713.07, AS PER PLAN
625	59	LF	CONDUIT, 3", 713.07, AS PER PLAN
630	50	SF	SIGN, FLAT SHEET, TYPE G
630	3	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
632	6	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	8	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	4	EA	PEDESTRIAN PUSHBUTTON, AS PER PLAN
632	2	EA	SIGNAL SUPPORT FOUNDATION, AS PER PLAN
632	2	EA	PEDESTAL FOUNDATION
632	3	EA	LOOP DETECTOR UNIT, 2 CHANNEL, DELAY AND EXTENSION TYPE, AS PER PLAN
632	5	EA	DETECTOR LOOP
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 20' ARM, AS PER PLAN
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20 DESIGN 3 POLE, WITH MAST ARMS TC-81.20 DESIGN 1, 20 FEET AND TC-81.20 DESIGN 1, 25 FEET, AS PER PLAN
632	2	EA	PEDESTAL, 8", TRANSFORMER BASE, AS PER PLAN
632	1	EA	CONDUIT RISER, 2" DIAMETER
632	512	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	453	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	1297	LF	LOOP DETECTOR LEAD-IN CABLE
632	33	LF	POWER CABLE, 3-CONDUCTOR, NO.8 AWG
632	6	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER, ACTUATED, 8 PHASE, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN
633	1	CY	CONCRETE FOR CABINET FOUNDATION



INTERSECTION OF BUCKEYE RD. AND EAST 130 ST.

CUYAHOGA COUNTY
CUY-10-8.96 & VARIOUS

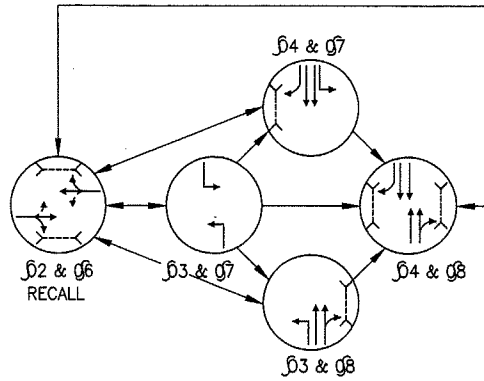
9.3261D31.DWG, PLOT SCALE: 1"=20'

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 58.

FOR POLE CHART SEE SHEET 66.

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES TO REMAIN. PROPOSED MODIFICATIONS AND/OR ADDITIONS ARE SHOWN AS SOLID LINES.

LOCATIONS OF EXISTING TRAFFIC SIGNAL PULL BOXES, CONDUIT AND DUCT BANKS ARE APPROXIMATE AND MUST BE VERIFIED.



PHASING DIAGRAM

SIGNAL HEAD	φ2 & φ6		φ3 & φ7		φ3 & φ8		φ4 & φ7		φ4 & φ8		FLASH	DWELL			
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR					
A	G	Y	R	R	R	R	R	R	R	R	R	Y	G		
B	G	Y	R	R	R	R	R	R	R	R	R	Y	G		
C	G	Y	R	R	R	R	R	R	R	R	R	Y	G		
D	G	Y	R	R	R	R	R	R	R	R	R	Y	G		
E	R	R	R	R	R	R	R	R	G	G	G	Y	R	R	R
F	R	R	R	R	R	R	R	R	G	G	G	Y	R	R	R
G	R	R	R	R	R	R	R	R	G	G	G	Y	R	R	R
H	R	R	R	R	R	R	R	R	G	G	G	Y	R	R	R
I	R	R	R	R	R	R	R	R	G	G	G	Y	R	R	R
J	R	R	R	R	R	R	R	R	G	G	G	Y	R	R	R
K	W/(DW)	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	D	W	
L	W/(DW)	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	D	W	
M	W/(DW)	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	D	W	
N	W/(DW)	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	D	W	
O	W/(DW)	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	D	W	
P	W/(DW)	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	D	W	
Q	W/(DW)	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	D	W	
R	W/(DW)	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	D	W	
S	DW	DW	DW	DW	DW	DW	DW	DW	W	W	W	W/(DW)	DW	D	DW
T	DW	DW	DW	DW	DW	DW	DW	DW	W	W	W	W/(DW)	DW	D	DW
U	DW	DW	DW	DW	DW	DW	DW	DW	W	W	W	W/(DW)	DW	D	DW
V	DW	DW	DW	DW	DW	DW	DW	DW	W	W	W	W/(DW)	DW	D	DW

W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK

SIGNAL SEQUENCE CHART

FUNCTION	φ2 & φ6	φ3 & φ7	φ4 & φ8
INITIAL GREEN	-	6	12
MINIMUM GREEN	30	-	-
VEHICLE EXTENSION	-	3	3
MAXIMUM GREEN	-	12	30
PEDESTRIAN WALK	-	-	7
PEDESTRIAN CLEAR	12	-	10
VEH. YELLOW CLEAR	3	3	3
VEHICLE RED CLEAR	3.5	1.5	1.5
RECALL	PED	NO	MIN
MEMORY	NO	NO	NO

SIGNAL TIMING CHART

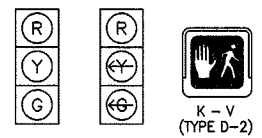
S. Moreland
S1 & S2
96" x 20"

Buckeye
S3 & S4
84" x 20"

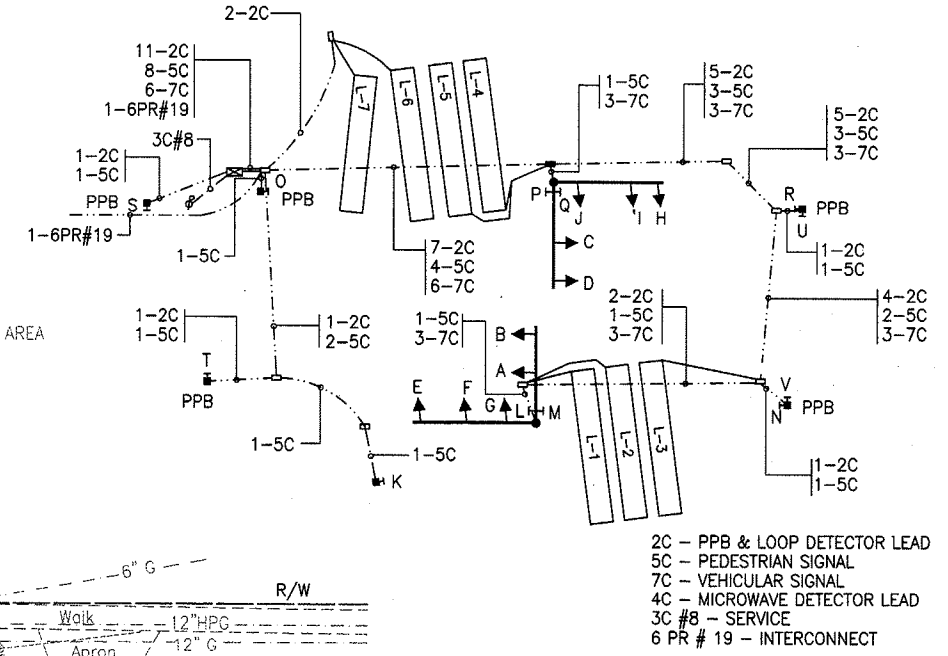
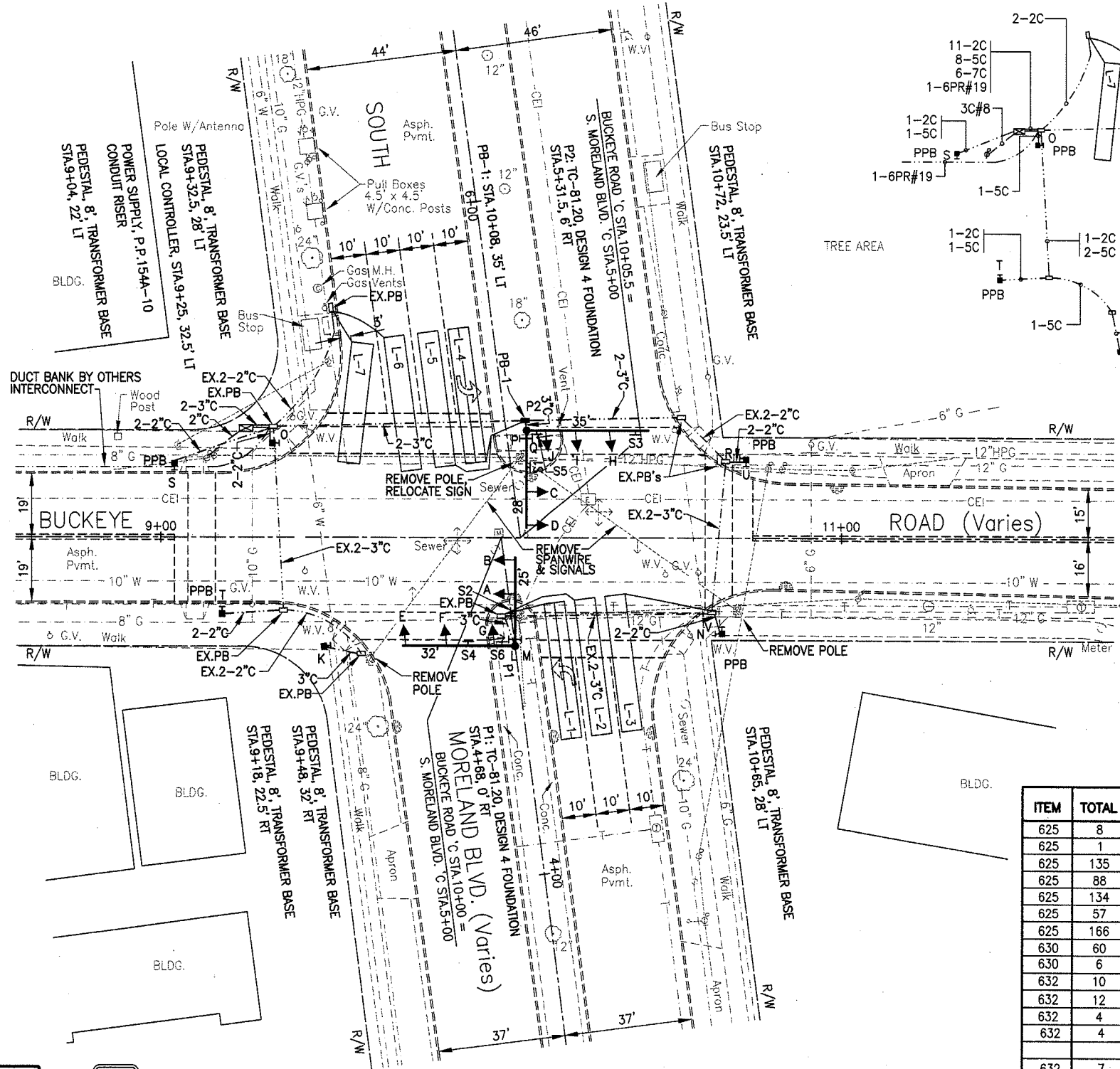
LEFT TURN SIGNAL
S5 & S6
R-25E(L)-24

TO CROSS BUCKEYE RD. PUSH BUTTON UNIT FOR WALK SIGNAL
R-73A-9
MOUNT ABOVE PPB

SIGN LEGEND



12" SIGNAL HEADS
RIGID MOUNTED



WIRE DIAGRAM

ITEM	TOTAL	UNIT	DESCRIPTION
625	8	EA	GROUND ROD
625	1	EA	PULLBOX, MISC.: 13"x24"
625	135	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	88	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	134	LF	CONDUIT, 2", 713.07, AS PER PLAN
625	57	LF	CONDUIT, 3", 713.07, AS PER PLAN
625	166	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
630	60	SF	SIGN, FLAT SHEET, TYPE G
630	6	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
632	10	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	12	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	4	EA	PEDESTRIAN PUSHBUTTON, AS PER PLAN
632	4	EA	LOOP DETECTOR UNIT, 2 CHANNEL, DELAY AND EXTENSION TYPE, AS PER PLAN
632	7	EA	DETECTOR LOOP
632	2	EA	SIGNAL SUPPORT FOUNDATION
632	5	EA	PEDESTAL FOUNDATION
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH MAST ARMS TC-81.20 DESIGN 1, 25 FEET AND TC-81.20, DESIGN 3, 32 FEET, AS PER PLAN
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH MAST ARMS TC-81.20, DESIGN 2, 28 FEET AND TC-81.20, DESIGN 3, 35 FEET, AS PER PLAN
632	5	EA	PEDESTAL, 8', TRANSFORMER BASE, AS PER PLAN
632	1	EA	CONDUIT RISER, 2" DIAMETER
632	1172	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	1553	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	1386	LF	LOOP DETECTOR LEAD-IN CABLE
632	45	LF	POWER CABLE, 3-CONDUCTOR, NO.8 AWG
632	10	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER, ACTUATED, 8 PHASE, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN
633	1	CY	CONCRETE FOR CABINET FOUNDATION

LOOP DETECTOR CHART

LOOP	SIZE	TURNS	MODE	DELAY	PHASE	REMARK	INHIBITED DELAY	LOCATION 1ST FRONT CORNER	LOCATION 2ND FRONT CORNER
L-1	6'X40'	2-4-2	PRESENCE	3	QUADRAPOLE			STA.4+79, 10' R	STA.4+79, 16' R
L-2	6'X40'	2	PRESENCE	8				STA.4+78, 19' R	STA.4+78, 25' R
L-3	6'X40'	2	PRESENCE	8		NO		STA.4+77, 28' R	STA.4+78, 34' R
L-4	6'X40'	2-4-2	PRESENCE	7	QUADRAPOLE			STA.5+24, 7' L	STA.5+24, 13' L
L-5	6'X40'	2	PRESENCE	4				STA.5+25, 16' L	STA.5+25, 22' L
L-6	6'X40'	2	PRESENCE	4				STA.5+26, 26' L	STA.5+26, 32' L
L-7	6'X40'	2	PRESENCE	8		NO		STA.5+30, 50' L	STA.5+26, 46' L



CALCULATED
REVIEWED
CHECKED
KAN

INTERSECTION OF BUCKEYE RD. AND S. MORELAND BLVD.

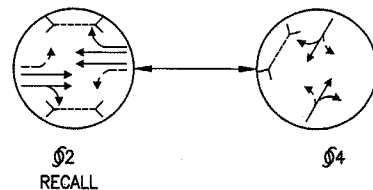
CUYAHOGA COUNTY
CUI-10-8.96 & VARIOUS

9.3261032.DWG, PLOT SCALE: 1=20

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 58.

FOR POLE CHART SEE SHEET 67.

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES TO REMAIN. PROPOSED MODIFICATIONS AND/OR ADDITIONS ARE SHOWN AS SOLID LINES.



PHASING DIAGRAM

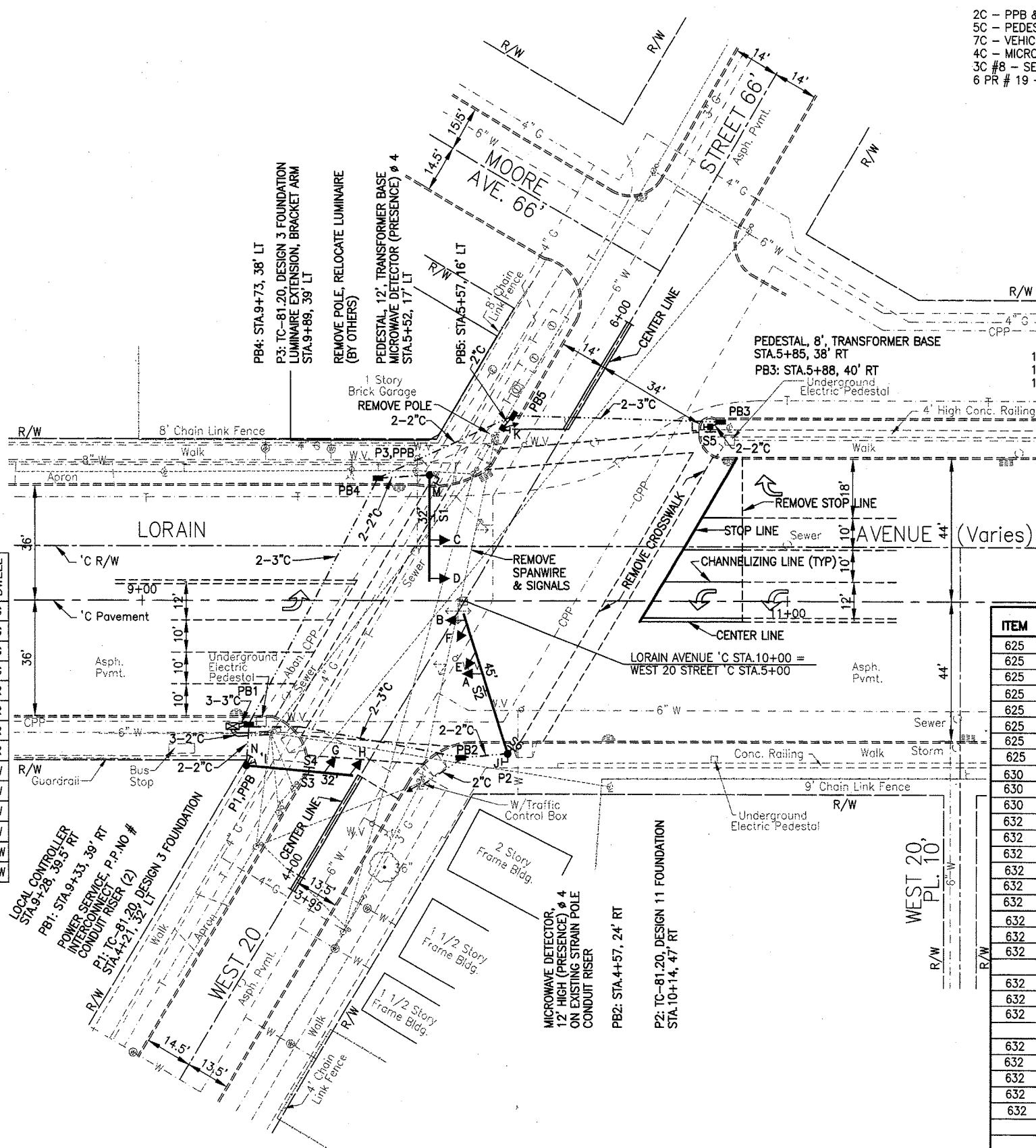
SIGNAL HEAD	φ1		φ2		φ3		φ4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A			G	Y	R		R	R	Y	G
B			G	Y	R		R	R	Y	G
C			G	Y	R		R	R	Y	G
D			G	Y	R		R	R	Y	G
E			R	R	R		G	Y	R	R
F			R	R	R		G	Y	R	R
G			R	R	R		G	Y	R	R
H			R	R	R		G	Y	R	R
I			W/(DW)	DW	DW		DW	DW	DW	D
J			W/(DW)	DW	DW		DW	DW	DW	D
K			W/(DW)	DW	DW		DW	DW	DW	D
L			W/(DW)	DW	DW		DW	DW	DW	D
M			DW	DW	DW		W/(DW)	DW	DW	D
N			DW	DW	DW		W/(DW)	DW	DW	D

W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK

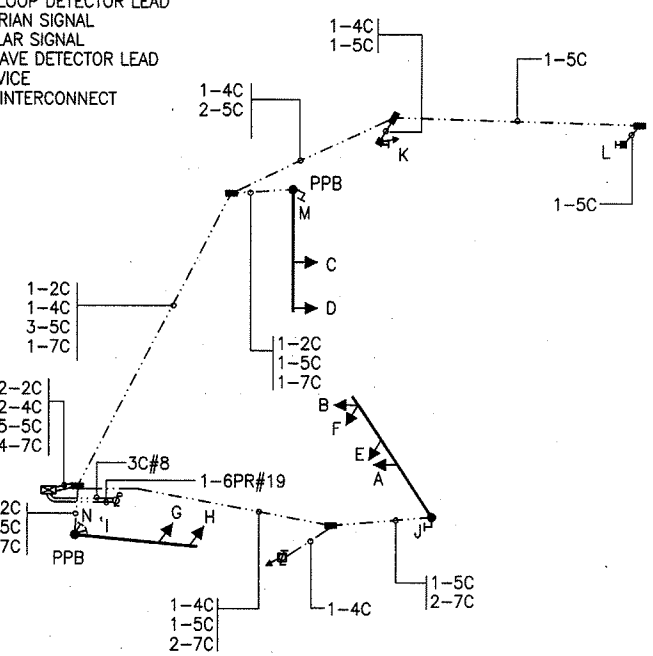
SIGNAL SEQUENCE CHART

FUNCTION	φ1	φ2	φ3	φ4
INITIAL GREEN		-		8
MINIMUM GREEN		30		-
VEHICLE EXTENSION		-		3
MAXIMUM GREEN		-		30
PEDESTRIAN WALK		-		7
PEDESTRIAN CLEAR.		13		19
VEH. YELLOW CLEAR.		3		3
VEHICLE RED CLEAR.		1.5		2.5
RECALL		PED		NO
MEMORY		NO		NO

SIGNAL TIMING CHART



- 2C - PPB & LOOP DETECTOR LEAD
- 5C - PEDESTRIAN SIGNAL
- 7C - VEHICULAR SIGNAL
- 4C - MICROWAVE DETECTOR LEAD
- 3C #8 - SERVICE
- 6 PR # 19 - INTERCONNECT



WIRE DIAGRAM

100% CITY PARTICIPATION

ITEM	TOTAL	UNIT	DESCRIPTION
625	6	EA	GROUND ROD
625	5	EA	PULLBOX, MISC.: 13"x24"
625	172	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	195	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	258	LF	CONDUIT, 2", 713.07, AS PER PLAN
625	122	LF	CONDUIT, 3", 713.07, AS PER PLAN
625	337	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
625	1	EA	BRACKET ARM, 6", AS PER PLAN
630	51	SF	SIGN, FLAT SHEET, TYPE G
630	4	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
630	4	EA	SIGN SUPPORT ASSEMBLY, POLE MOUNTED
632	8	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	6	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	2	EA	PEDESTRIAN PUSHBUTTON, AS PER PLAN
632	2	EA	SIGNALIZATION, MISC.: MICROWAVE DETECTOR
632	3	EA	SIGNAL SUPPORT FOUNDATION, AS PER PLAN
632	2	EA	PEDESTAL FOUNDATION
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, WITH 32' ARM, AS PER PLAN
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 11, WITH 45' ARM, AS PER PLAN
632	1	EA	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, WITH 32' ARM, AS PER PLAN
632	1	EA	PEDESTAL, 8', TRANSFORMER BASE, AS PER PLAN
632	1	EA	PEDESTAL, MISC.: 12', TRANSFORMER BASE
632	3	EA	CONDUIT RISER, 2" DIAMETER
632	745	LF	SIGNAL CABLE, 5-CONDUCTOR, NO. 14 AWG
632	774	LF	SIGNAL CABLE, 7-CONDUCTOR, NO. 14 AWG
632	140	LF	LOOP DETECTOR LEAD-IN CABLE
632	316	LF	SIGNALIZATION, MISC.: MICROWAVE DETECTOR LEAD-IN CABLE
632	45	LF	POWER CABLE, 3-CONDUCTOR, NO. 8 AWG
632	8	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
632	1	EA	CONTROLLER, ACTUATED, 8 PHASE, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN
633	1	CY	CONCRETE FOR CABINET FOUNDATION
642	160	LF	CHANNELIZING LINE, TYPE 2
642	0.06	MI	CENTER LINE, TYPE 2
642	310	LF	REMOVAL OF PAVEMENT MARKING
644	58	LF	STOP LINE
644	2	EA	LANE ARROW

A - H
ROTATE TUNNEL VISORS 90°
ON HEADS A, B, C & D

12" SIGNAL HEADS
RIGID MOUNTED

W. 20 St
S1 & S2
84" x 20"

Lorain
S3 & S4
72" x 20"

SIGN LEGEND

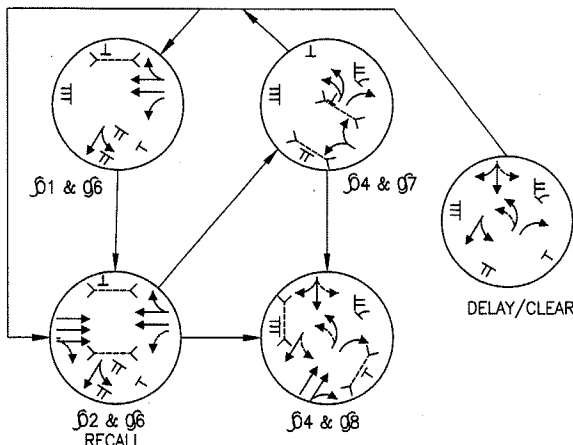
R-73A-9
MOUNT ABOVE PPB

S5
R-72E-18
R-72F(L)-18

S6
R-72E-18
R-72F(R)-18

9326101.DWG, PLOT SCALE: 1"=20'

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 58.
 FOR POLE CHART SEE SHEET 67.
 EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES
 TO REMAIN. PROPOSED MODIFICATIONS AND/OR ADDITIONS
 ARE SHOWN AS SOLID LINES.
 LOOP DETECTOR CHART AND QUANTITIES BOX ON SHEET 42g.



SIGNAL HEAD	#1 & #6		#2 & #6		#4 & #7		#4 & #8		DELAY/CLEAR		FLASH	DWELL		
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR				
A	R	R	R	G	Y	R	R	R	R	R	R	Y	G	
B	R	R	R	G	Y	R	R	R	R	R	R	R	Y	G
C	G	G	G	Y	R	R	R	R	R	R	R	R	Y	G
D	G	G	G	Y	R	R	R	R	R	R	R	R	Y	G
E	R	R	R	R	R	R	R	R	R	R	R	R	Y	G
F	R	R	R	R	R	R	R	R	R	R	R	R	Y	G
H	R	R	R	R	R	R	R	R	R	R	R	R	Y	G
I	R	R	R	R	R	R	R	R	R	R	R	R	Y	G
J	R	R	R	R	R	R	R	R	R	R	R	R	Y	G
K	R	R	R	R	R	R	R	R	R	R	R	R	Y	G
L	G	G	G	Y	R	R	R	R	R	R	R	R	Y	G
M	G	G	G	Y	R	R	R	R	R	R	R	R	Y	G
N	R	R	R	R	R	R	R	R	R	R	R	R	Y	G
O	R	R	R	R	R	R	R	R	R	R	R	R	Y	G
P	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	D	W
Q	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	D	W
R	W	W	W	W	W	W	W	W	W	W	W	W	D	W
S	W	W	W	W	W	W	W	W	W	W	W	W	D	W
T	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	D	W
U	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	D	W
V	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	D	W
W	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	D	W
X	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	D	W
Y	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	D	W
Z	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	D	W
AZ	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	D	W

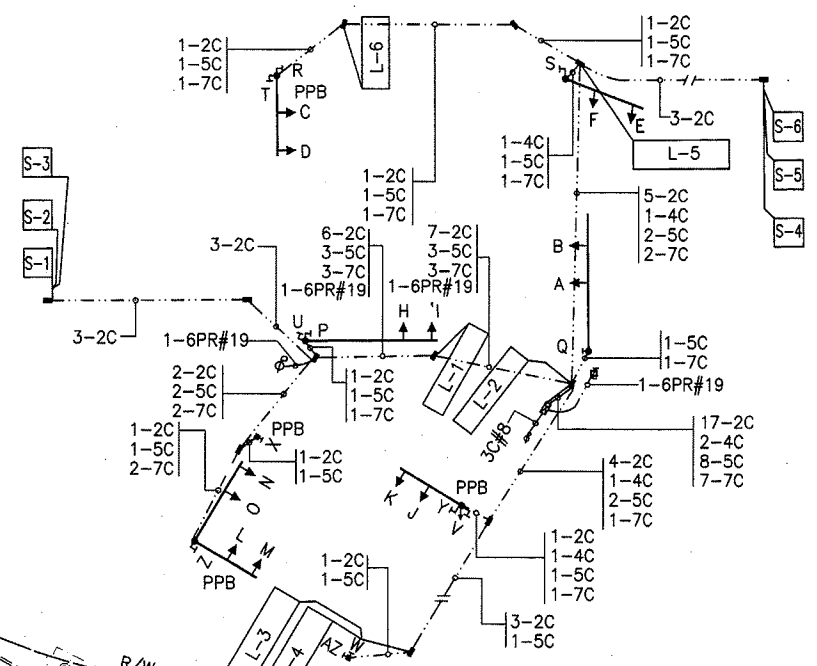
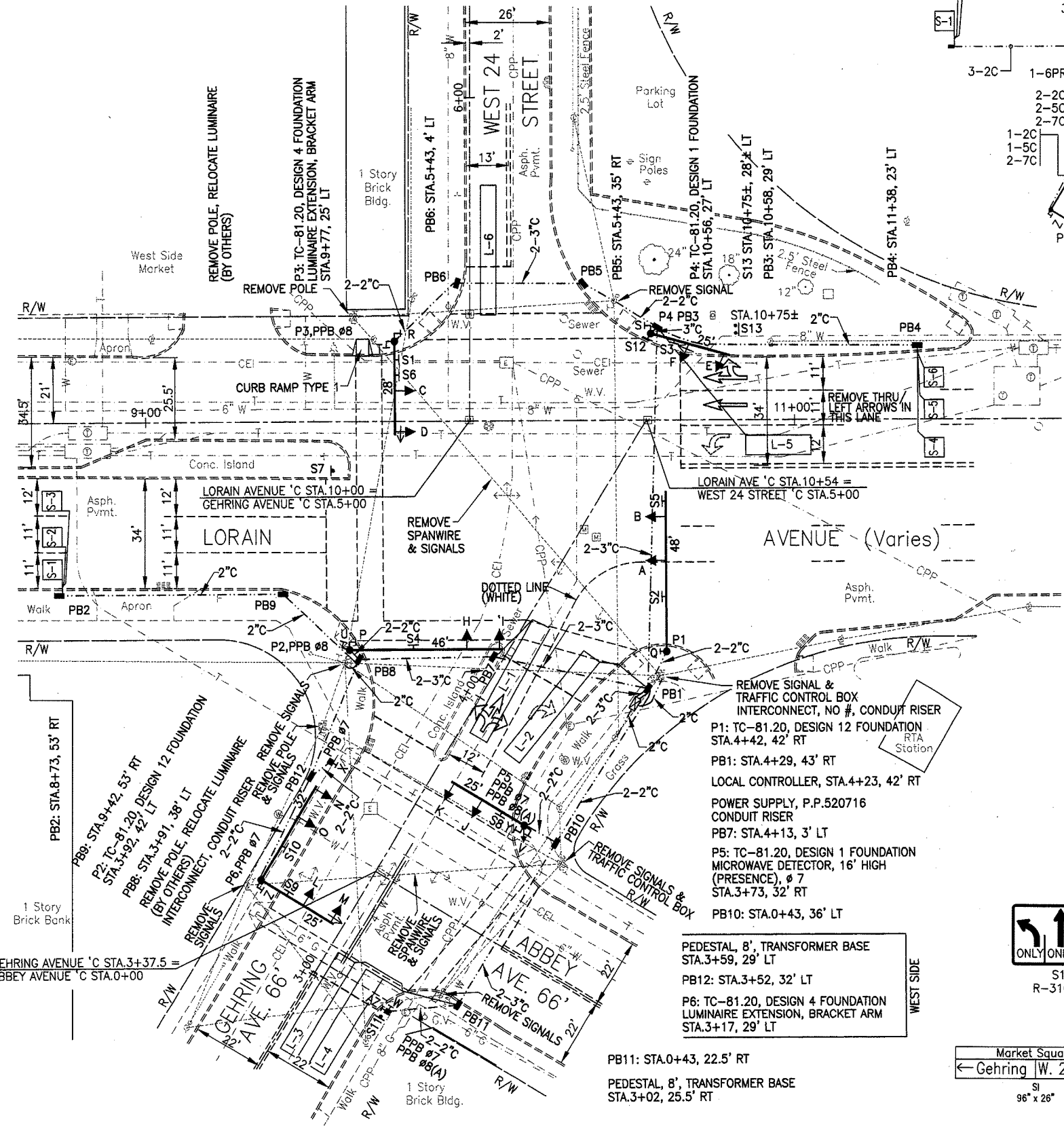
W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK
 NOTE: HEAD G OMITTED

- ① Y IF #4 & #8 IS SKIPPED
- ② R IF #4 & #8 IS SKIPPED
- ③ G IF #4 & #7 IS SKIPPED
- ④ #/G IF #4 & #7 IS SKIPPED

SIGNAL SEQUENCE CHART

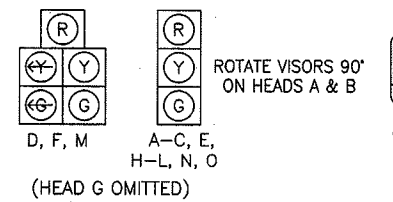
FUNCTION	#1 & #6	#2 & #6	#4 & #7	#4 & #8	DELAY CLEAR
INITIAL GREEN	6	-	6	8	4
MINIMUM GREEN	-	20	-	-	-
VEHICLE EXTENSION	2	-	3	3	-
MAXIMUM GREEN	8	-	10	34	-
PEDESTRIAN WALK	-	-	7	5	-
PEDESTRIAN CLEAR	-	18	10	20	-
VEH. YELLOW CLEAR	3	3	3	3	3
VEHICLE RED CLEAR	1	2.5	1.5	1.5	2.5
RECALL	NO	PED	NO	NO	NO
MEMORY	NO	NO	NO	NO	NO

SIGNAL TIMING CHART

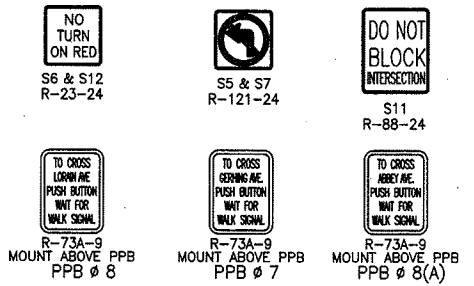


2C - PPB & LOOP DETECTOR LEAD
 5C - PEDESTRIAN SIGNAL
 7C - VEHICULAR SIGNAL
 4C - MICROWAVE DETECTOR LEAD
 3C #8 - SERVICE
 6 PR # 19 - INTERCONNECT

WIRE DIAGRAM



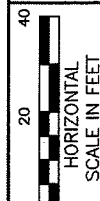
12" SIGNAL HEADS
RIGID MOUNTED



SIGN LEGEND

INTERSECTION OF LORAIN AVE. AND WEST 24 STREET
 CUYAHOGA COUNTY
 CUY-10-8.96 & VARIOUS
 42
 67

9/32/02 DWG. PLOT SCALE: 1"=20'



CALCULATED
REW
CHECKED
KAN

INTERSECTION OF LORAIN AVE. AND WEST 24 STREET

CUYAHOGA COUNTY
CUY-10-8.96 & VARIOUS

42A
67

LOOP	SIZE	TURNS	MODE	DELAY	PHASE	REMARK	INHIBITED DELAY	LOCATION 1ST FRONT CORNER	LOCATION 2ND FRONT CORNER
L-1	6'X40'	2	PRESENCE	-	4			STA.4+29, 1.5' R	STA.4+29.5, 7' R
L-2	6'X40'	2	PRESENCE	-	4			STA.4+29, 20' R	STA.4+28.5, 26' R
L-3	6'X35'	2	PRESENCE	-	4			STA.3+10, 3' R	STA.3+10, 9' R
L-4	6'X35'	2	PRESENCE	-	4			STA.3+10, 13' R	STA.3+10, 19' R
L-5	6'X20'	2	PRESENCE	-	1			STA.10+85, 5' R	STA.10+85, 11' R
L-6	6'X40'	2	PRESENCE	-	8			STA.5+32, 8.5' R	STA.5+32, 2.5' R
S-1	6'X6'	3	BOTH			SYSTEM		STA.8+74, 21' R	STA.8+74, 27' R
S-2	6'X6'	3	BOTH			SYSTEM		STA.8+74, 32' R	STA.8+74, 38' R
S-3	6'X6'	3	BOTH			SYSTEM		STA.8+74, 42' R	STA.8+74, 48' R
S-4	6'X6'	3	BOTH			SYSTEM		STA.11+40, 12' R	STA.11+40, 6' R
S-5	6'X6'	3	BOTH			SYSTEM		STA.11+40, 0' R	STA.11+40, 6' L
S-6	6'X6'	3	BOTH			SYSTEM		STA.11+40, 10' L	STA.11+40, 16' L

LOOP DETECTOR CHART

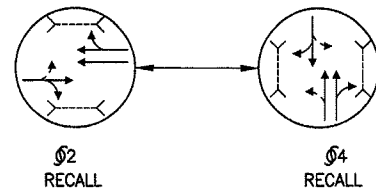
ITEM	TOTAL	UNIT	DESCRIPTION
202	56	SF	WALK REMOVED
202	14	LF	CURB REMOVED
608	56	SF	CURB RAMP TYPE 1, AS PER PLAN
625	9	EA	GROUND ROD
625	12	EA	PULLBOX, MISC.: 13"x24"
625	473	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	273	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	688	LF	CONDUIT, 2", 713.07, AS PER PLAN
625	219	LF	CONDUIT, 3", 713.07, AS PER PLAN
625	394	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
625	2	EA	BRACKET ARM, 6", AS PER PLAN
630	124	SF	SIGN, FLAT SHEET, TYPE G
630	11	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
630	1	EA	SIGN SUPPORT ASSEMBLY, POLE MOUNTED
632	56	LF	GROUND MOUNTED SUPPORT, NO. 3 POST
632	11	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	3	EA	VEHICULAR SIGNAL HEAD, 5 SECTION, 12" LENS, 1 WAY, AS PER PLAN
632	12	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	8	EA	PEDESTRIAN PUSHBUTTON, AS PER PLAN
632	6	EA	LOOP DETECTOR UNIT, 2 CHANNEL, DELAY AND EXTENSION TYPE, AS PER PLAN
632	1	EA	SIGNALIZATION, MISC.: MICROWAVE DETECTOR
632	12	EA	DETECTOR LOOP
632	6	EA	SIGNAL SUPPORT FOUNDATION, AS PER PLAN
632	2	EA	PEDESTAL FOUNDATION
632	2	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 25' ARM, AS PER PLAN
632	1	EA	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20 DESIGN 4 POLE, WITH MAST ARMS TC-81.20 DESIGN 1, 25 FEET AND TC-81.20 DESIGN 3, 32 FEET, AS PER PLAN
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 12, WITH 48' ARM, AS PER PLAN
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 12, WITH 46' ARM, AS PER PLAN
632	1	EA	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 28' ARM, AS PER PLAN
632	2	EA	PEDESTAL, 8", TRANSFORMER BASE, AS PER PLAN
632	3	EA	CONDUIT RISER, 2" DIAMETER
632	1244	LF	SIGNAL CABLE, 5-CONDUCTOR, NO. 14 AWG
632	1502	LF	SIGNAL CABLE, 7-CONDUCTOR, NO. 14 AWG
632	2690	LF	LOOP DETECTOR LEAD-IN CABLE
632	340	EA	SIGNALIZATION, MISC.: MICROWAVE DETECTOR LEAD-IN CABLE
632	42	LF	POWER CABLE, 3-CONDUCTOR, NO. 8 AWG
632	14	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	2	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER, ACTUATED, 8 PHASE, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN
633	1	CY	CONCRETE FOR CABINET FOUNDATION
642	4	EA	REMOVAL OF PAVEMENT MARKING
644	60	LF	DOTTED LINE, 4" (WHITE)
644	3	EA	LANE ARROW

93261DZA.DWG, PLOT SCALE: 1=20

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 58.

FOR POLE CHART SEE SHEET 67.

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES TO REMAIN. PROPOSED MODIFICATIONS AND/OR ADDITIONS ARE SHOWN AS SOLID LINES.



PHASING DIAGRAM

SIGNAL HEAD	φ1		φ2		φ3		φ4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A			G	Y R			R	R R Y G		
B			G	Y R			R	R R Y G		
C			G	Y R			R	R R Y G		
D			G	Y R			R	R R Y G		
E			R	R R			G	Y R R R		
G			R	R R			G	Y R R R		
H			R	R R			G	Y R R R		
I			W/(DW)	DW DW			DW	DW DW D W		
J			W/(DW)	DW DW			DW	DW DW D W		
K			W/(DW)	DW DW			DW	DW DW D W		
L			W/(DW)	DW DW			DW	DW DW D W		
M			DW	DW DW			W/(DW)	DW DW D DW		
N			DW	DW DW			W/(DW)	DW DW D DW		
O			DW	DW DW			W/(DW)	DW DW D DW		
P			DW	DW DW			W/(DW)	DW DW D DW		

W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK

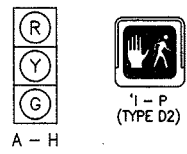
SIGNAL SEQUENCE CHART

FUNCTION	φ1	φ2	φ3	φ4
INITIAL GREEN		-		15
MINIMUM GREEN		30		-
VEHICLE EXTENSION		-		3
MAXIMUM GREEN		-		30
PEDESTRIAN WALK		-		7
PEDESTRIAN CLEAR.		13		17
VEH. YELLOW CLEAR.		3		3
VEHICLE RED CLEAR.		2		3
RECALL		PED		MIN
MEMORY		NO		NO

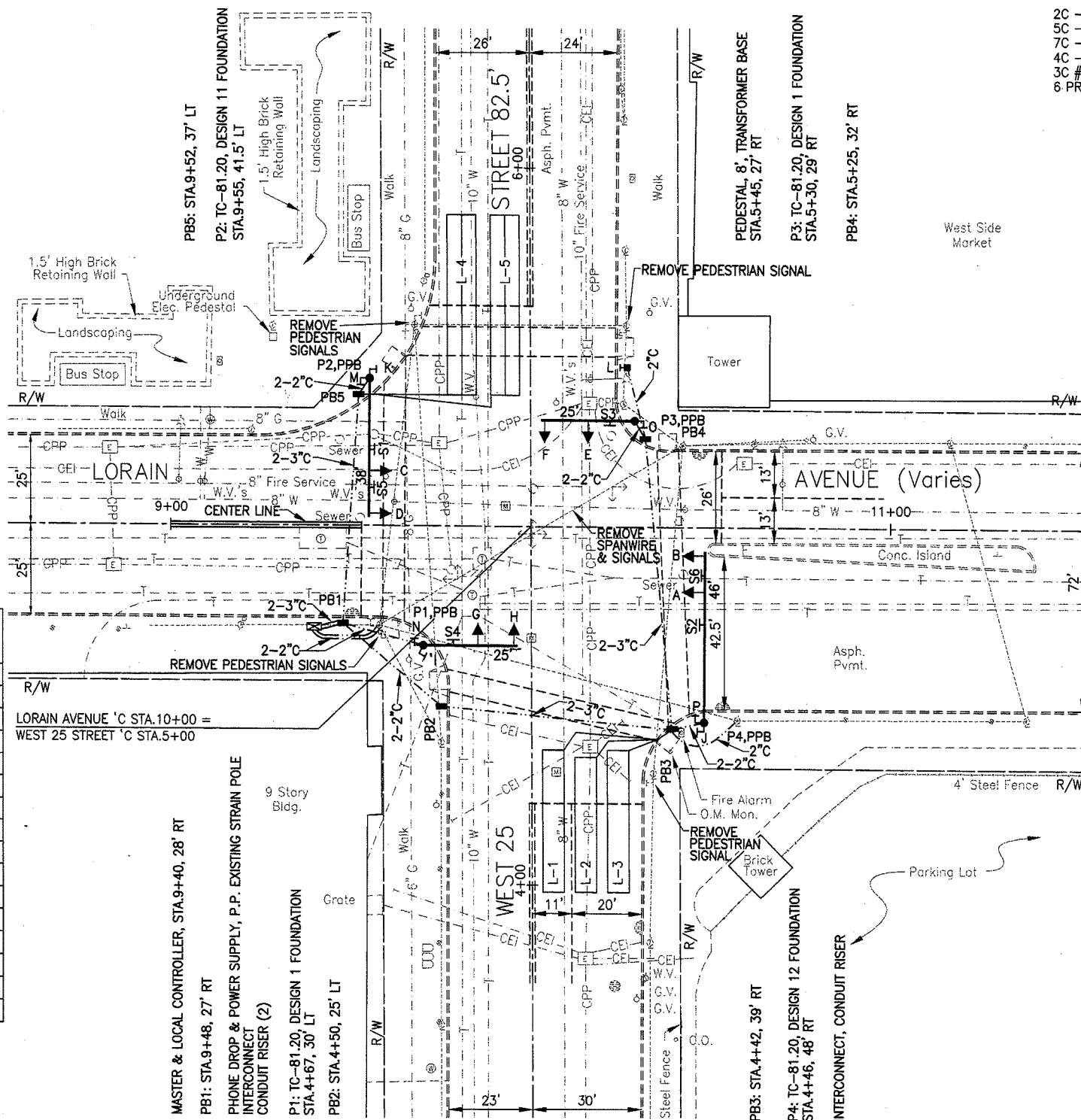
SIGNAL TIMING CHART

Market Square W. 25 St S1 & S2 84' x 26'
Market Square Lorain S3 & S4 72' x 26'

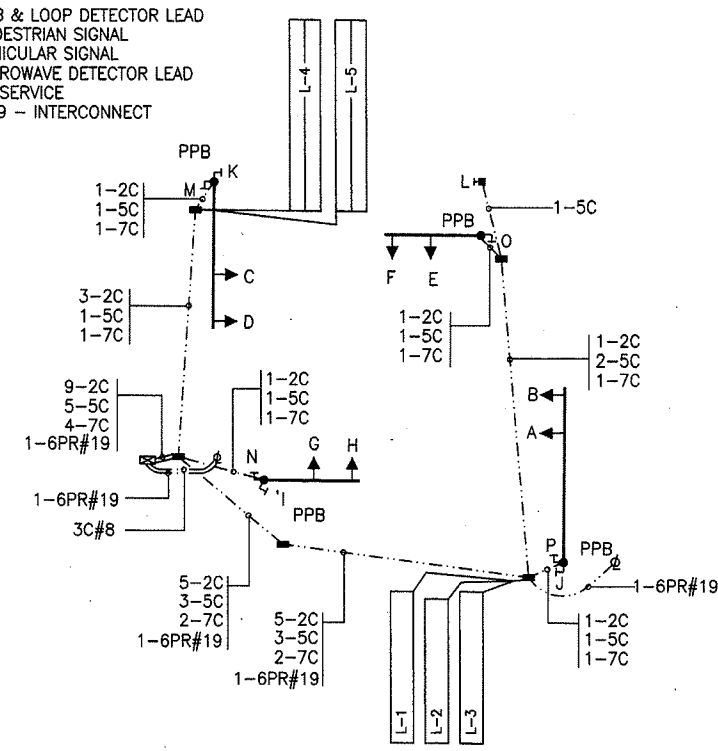
SIGN LEGEND



12" SIGNAL HEADS RIGID MOUNTED



- 2C - PPB & LOOP DETECTOR LEAD
- 5C - PEDESTRIAN SIGNAL
- 7C - VEHICULAR SIGNAL
- 4C - MICROWAVE DETECTOR LEAD
- 3C #8 - SERVICE
- 6 PR # 19 - INTERCONNECT



WIRE DIAGRAM

ITEM	TOTAL	UNIT	DESCRIPTION
625	6	EA	GROUND ROD
625	5	EA	PULLBOX, MISC.: 13"x24"
625	162	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	199	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	262	LF	CONDUIT, 2", 713.07, AS PER PLAN
625	46	LF	CONDUIT, 3", 713.07, AS PER PLAN
625	396	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
630	64	SF	SIGN, FLAT SHEET, TYPE G
630	6	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
632	8	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	8	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	4	EA	PEDESTRIAN PUSHBUTTON, AS PER PLAN
632	3	EA	LOOP DETECTOR UNIT, 2 CHANNEL, DELAY AND EXTENSION TYPE, AS PER PLAN
632	5	EA	DETECTOR LOOP
632	4	EA	SIGNAL SUPPORT FOUNDATION, AS PER PLAN
632	1	EA	PEDESTAL FOUNDATION
632	2	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 25' ARM, AS PER PLAN
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 11, WITH 38' ARM, AS PER PLAN
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 12, WITH 46' ARM, AS PER PLAN
632	1	EA	PEDESTAL, 8", TRANSFORMER BASE, AS PER PLAN
632	3	EA	CONDUIT RISER, 2" DIAMETER
632	800	LF	SIGNAL CABLE, 5-CONDUCTOR, NO. 14 AWG
632	723	LF	SIGNAL CABLE, 7-CONDUCTOR, NO. 14 AWG
632	945	LF	LOOP DETECTOR LEAD-IN CABLE
632	51	LF	POWER CABLE, 3-CONDUCTOR, NO. 8 AWG
632	1	EA	PHONE DROP, AS PER PLAN
632	8	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER, ACTUATED, 8 PHASE, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN
633	1	EA	CONTROLLER, MASTER, TRAFFIC RESPONSIVE, AS PER PLAN
633	1.9	CY	CONCRETE FOR CABINET FOUNDATION
644	0.02	MI	CENTER LINE, TYPE 2

LOOP	SIZE	TURNS	MODE	DELAY	PHASE	REMARK	INHIBITED DELAY	LOCATION 1ST FRONT CORNER	LOCATION 2ND FRONT CORNER
L-1	6'X40'	2	PRESENCE		4			STA.4+38, 3' R	STA.4+38, 9' R
L-2	6'X38'	2	PRESENCE		4			STA.4+36, 12' R	STA.4+36, 18' R
L-3	6'X40'	2	PRESENCE	8	4		YES	STA.4+38, 21' R	STA.4+38, 27' R
L-4	8'X50'	2-4-2	PRESENCE	8	4	QUADRAPOLE	YES	STA.5+37, 3' L	STA.5+37, 11' L
L-5	8'X50'	2-4-2	PRESENCE		4	QUADRAPOLE		STA.5+37, 15' L	STA.5+37, 23' L

LOOP DETECTOR CHART

INTERSECTION OF LORAIN AVE. AND WEST 25 STREET

CUYAHOGA COUNTY CUY-10-8.96 & VARIOUS



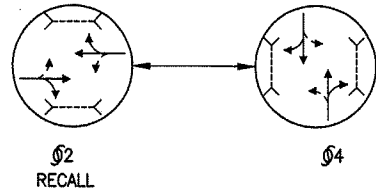
CALCULATED
REW
CHECKED
KAN

9.26FD3.DWG, PLOT SCALE: 1=20

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 58.

FOR POLE CHART SEE SHEET 67.

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES TO REMAIN. PROPOSED MODIFICATIONS AND/OR ADDITIONS ARE SHOWN AS SOLID LINES.



PHASING DIAGRAM

SIGNAL HEAD	φ1		φ2		φ3		φ4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A			G	Y	R		R	R	Y	G
B			G	Y	R		R	R	Y	G
C			G	Y	R		R	R	Y	G
D			G	Y	R		R	R	Y	G
E			R	R	R		G	Y	R	R
F			R	R	R		G	Y	R	R
G			R	R	R		G	Y	R	R
H			R	R	R		G	Y	R	R
I			W/(DW)	DW	DW		DW	DW	D	W
J			W/(DW)	DW	DW		DW	DW	D	W
K			W/(DW)	DW	DW		DW	DW	D	W
L			W/(DW)	DW	DW		DW	DW	D	W
M			DW	DW	DW		W/(DW)	DW	D	DW
N			DW	DW	DW		W/(DW)	DW	D	DW
O			DW	DW	DW		W/(DW)	DW	D	DW
P			DW	DW	DW		W/(DW)	DW	D	DW

W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK

SIGNAL SEQUENCE CHART

FUNCTION	φ1	φ2	φ3	φ4
INITIAL GREEN		-		8
MINIMUM GREEN		30		-
VEHICLE EXTENSION		-		3
MAXIMUM GREEN		-		20
PEDESTRIAN WALK		-		7
PEDESTRIAN CLEAR.		13		15
VEH. YELLOW CLEAR.		3		3
VEHICLE RED CLEAR.		1.5		2
RECALL		PED		NO
MEMORY		NO		NO

SIGNAL TIMING CHART

Market Square
W. 28 St
S1 & S2
84' x 26"

Market Square
Lorain
S3 & S4
72' x 26"

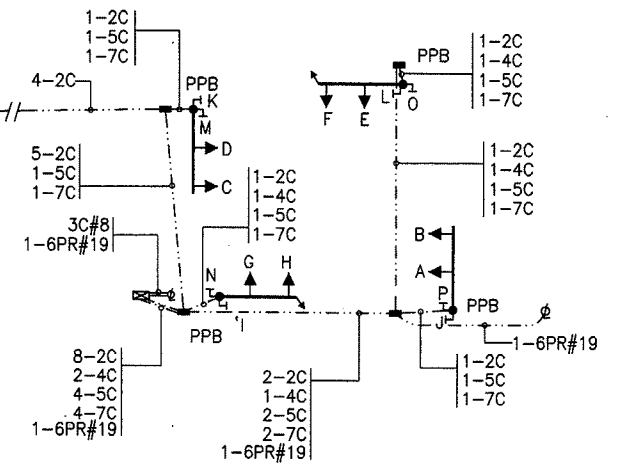
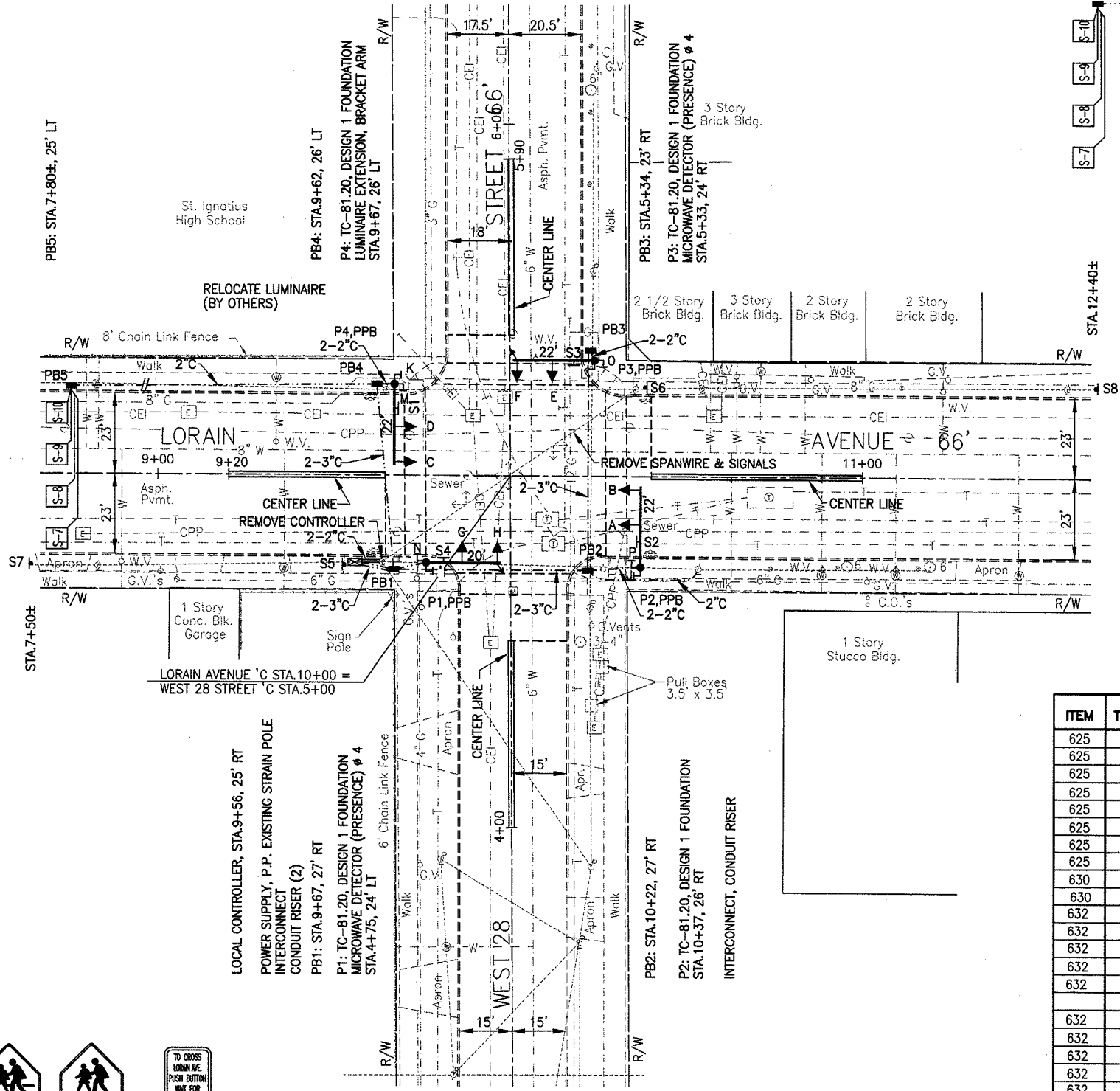


SIGN LEGEND



A - H

12" SIGNAL HEADS
RIGID MOUNTED



WIRE DIAGRAM

ITEM	TOTAL	UNIT	DESCRIPTION
625	5	EA	GROUND ROD
625	5	EA	PULLBOX, MISC.: 13"x14"
625	306	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	133	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	299	LF	CONDUIT, 2", 713.07, AS PER PLAN
625	94	LF	CONDUIT, 3", 713.07, AS PER PLAN
625	268	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
625	1	EA	BRACKET ARM, 6', AS PER PLAN
630	74	SF	SIGN, FLAT SHEET, TYPE G
630	4	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
632	56	LF	GROUND MOUNTED SUPPORT, NO. 4 POST
632	8	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	8	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	4	EA	PEDESTRIAN PUSHBUTTON, AS PER PLAN
632	2	EA	LOOP DETECTOR UNIT, 2 CHANNEL, DELAY AND EXTENSION TYPE, AS PER PLAN
632	2	EA	SIGNALIZATION, MISC.: MICROWAVE DETECTOR
632	4	EA	DETECTOR LOOP
632	4	EA	SIGNAL SUPPORT FOUNDATION, AS PER PLAN
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 20' ARM, AS PER PLAN
632	2	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 22' ARM, AS PER PLAN
632	1	EA	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 22' ARM, AS PER PLAN
632	3	EA	CONDUIT RISER, 2" DIAMETER
632	425	LF	SIGNAL CABLE, 5-CONDUCTOR, NO. 14 AWG
632	555	LF	SIGNAL CABLE, 7-CONDUCTOR, NO. 14 AWG
632	1363	LF	LOOP DETECTOR LEAD-IN CABLE
632	271	LF	SIGNALIZATION, MISC.: MICROWAVE DETECTOR LEAD-IN CABLE
632	38	LF	POWER CABLE, 3-CONDUCTOR, NO. 8 AWG
632	8	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER, ACTUATED, 8 PHASE, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN
633	1	CY	CONCRETE FOR CABINET FOUNDATION
642	0.08	MI	CENTER LINE, TYPE 2

LOOP	SIZE	TURNS	MODE	DELAY	PHASE	REMARK	INHIBITED DELAY	LOCATION 1ST FRONT CORNER	LOCATION 2ND FRONT CORNER
S-7	6'X6'	3	BOTH			SYSTEM		STA.7+75, 19' R	STA.7+75, 13' R
S-8	6'X6'	3	BOTH			SYSTEM		STA.7+75, 9' R	STA.7+75, 3' R
S-9	6'X6'	3	BOTH			SYSTEM		STA.7+75, 3' L	STA.7+75, 9' L
S-10	6'X6'	3	BOTH			SYSTEM		STA.7+75, 13' L	STA.7+75, 19' L

LOOP DETECTOR CHART

INTERSECTION OF LORAIN AVE. AND WEST 28 STREET

CUYAHOGA COUNTY
CUI-10-8.96 & VARIOUS

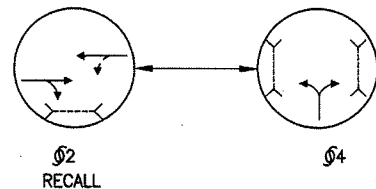
44
67

9326TD4.DWG, PLOT SCALE: 1"=20'

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 58.

FOR POLE CHART SEE SHEET 67.

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES TO REMAIN. PROPOSED MODIFICATIONS AND/OR ADDITIONS ARE SHOWN AS SOLID LINES.



PHASING DIAGRAM

SIGNAL HEAD	φ1		φ2		φ3		φ4		FLASH	DWELL		
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR				
A			G	Y	R			R	R	Y	G	
B			G	Y	R			R	R	Y	G	
C			G	Y	R			R	R	Y	G	
D			G	Y	R			R	R	Y	G	
E			R	R	R			G	Y	R	R	
F			R	R	R			G	Y	R	R	
G			W/(DW)	DW	DW			DW	DW	DW	D	W
H			W/(DW)	DW	DW			DW	DW	DW	D	W
I			DW	DW	DW			W/(DW)	DW	DW	D	DW
J			DW	DW	DW			W/(DW)	DW	DW	D	DW
K			DW	DW	DW			W/(DW)	DW	DW	D	DW
L			DW	DW	DW			W/(DW)	DW	DW	D	DW

W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK

SIGNAL SEQUENCE CHART

FUNCTION	φ1	φ2	φ3	φ4
INITIAL GREEN				8
MINIMUM GREEN		30		
VEHICLE EXTENSION				3
MAXIMUM GREEN				20
PEDESTRIAN WALK				7
PEDESTRIAN CLEAR.		12		15
VEH. YELLOW CLEAR.		3		3
VEHICLE RED CLEAR.		1.5		1.5
RECALL		PED		NO
MEMORY		NO		NO

SIGNAL TIMING CHART

Ohio City
W. 30 St
S1 & S2
84" x 26"

Ohio City
Lorain
S3
72" x 26"

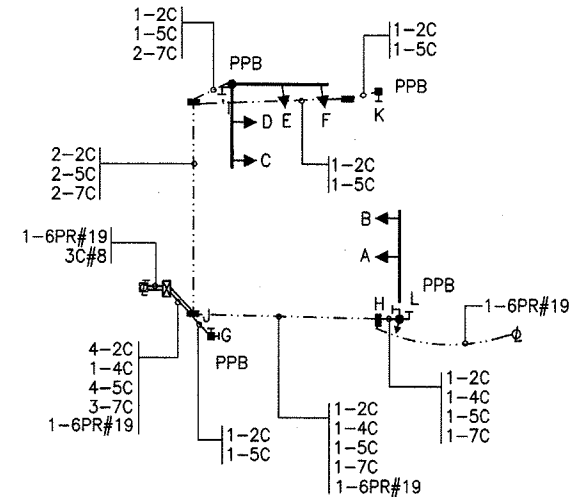
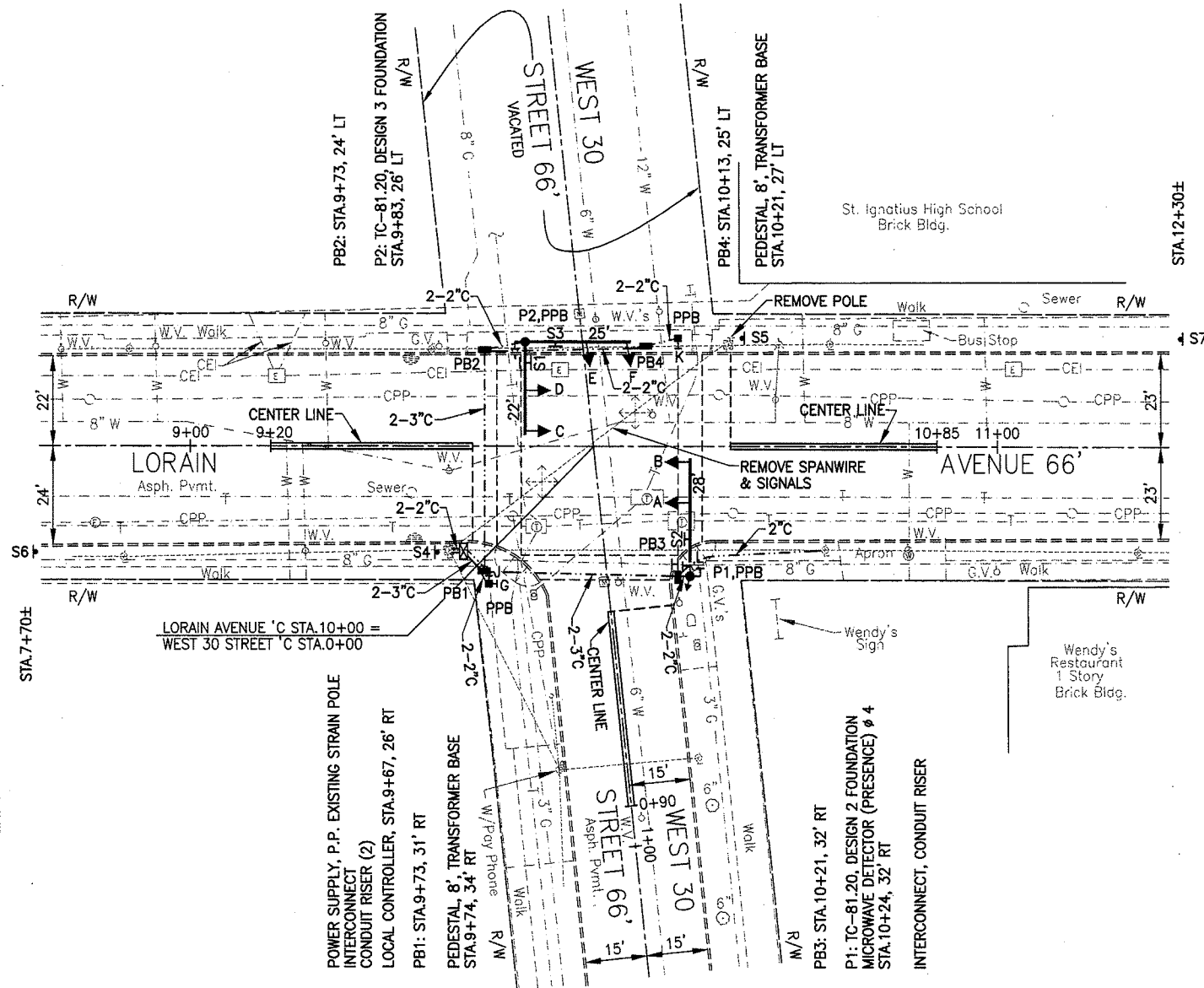


SIGN LEGEND



A - F

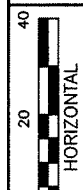
12" SIGNAL HEADS
RIGID MOUNTED



WIRE DIAGRAM

2C - PPB & LOOP DETECTOR LEAD
5C - PEDESTRIAN SIGNAL
7C - VEHICULAR SIGNAL
4C - MICROWAVE DETECTOR LEAD
3C #8 - SERVICE
6 PR # 19 - INTERCONNECT

ITEM	TOTAL	UNIT	DESCRIPTION
625	5	EA	GROUND ROD
625	4	EA	PULLBOX, MISC.: 13"x24"
625	135	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	81	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	172	LF	CONDUIT, 2", 713.07, AS PER PLAN
625	224	LF	CONDUIT, 3", 713.07, AS PER PLAN
625	160	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
630	65	SF	SIGN, FLAT SHEET, TYPE G
630	3	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
630	56	LF	GROUND MOUNTED SUPPORT, NO. 4 POST
632	6	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	6	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	4	EA	PEDESTRIAN PUSHBUTTON, AS PER PLAN
SPEC.	1	EA	SIGNALIZATION, MISC.: MICROWAVE DETECTOR
632	2	EA	SIGNAL SUPPORT FOUNDATION, AS PER PLAN
632	2	EA	PEDESTAL FOUNDATION
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 2, WITH 28" ARM, AS PER PLAN
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20 DESIGN 3 POLE, WITH MAST ARMS TC-81.20 DESIGN 1, 22 FEET AND TC-81.20 DESIGN 1, 25 FEET, AS PER PLAN
632	2	EA	PEDESTAL, 8', TRANSFORMER BASE, AS PER PLAN
632	3	EA	CONDUIT RISER, 2" DIAMETER
632	379	LF	SIGNAL CABLE, 5-CONDUCTOR, NO. 14 AWG
632	445	LF	SIGNAL CABLE, 7-CONDUCTOR, NO. 14 AWG
632	285	LF	LOOP DETECTOR LEAD-IN CABLE
632	90	LF	SIGNALIZATION, MISC.: MICROWAVE DETECTOR LEAD-IN CABLE
632	33	LF	POWER CABLE, 3-CONDUCTOR, NO. 8 AWG
632	6	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER, ACTUATED, 8 PHASE, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN
633	1	CY	CONCRETE FOR CABINET FOUNDATION
642	0.06	MI	CENTER LINE, TYPE 2



CALCULATED
REVIEWED
CHECKED
KAN

INTERSECTION OF LORAIN AVE. AND WEST 30 STREET

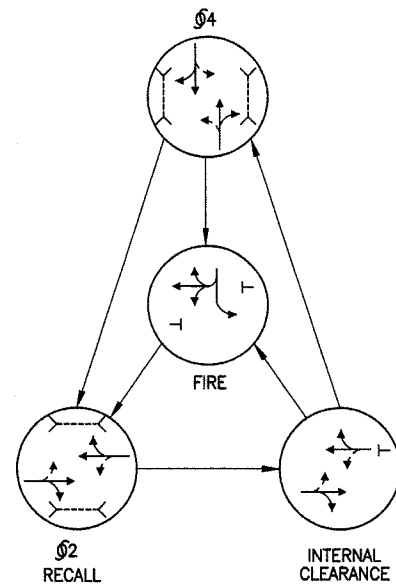
CUYAHOGA COUNTY
CUY-10-8.96 & VARIOUS

45
67

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 58.

FOR POLE CHART SEE SHEET 67.

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES TO REMAIN. PROPOSED MODIFICATIONS AND/OR ADDITIONS ARE SHOWN AS SOLID LINES.



FIRE PREEMPTION ACTUATION SHALL INITIATE 8 SECOND HOLD FOR PHASE TIMING. PEDESTRIAN SIGNALS THAT ARE W WHEN PREEMPTION IS ACTUATED TO BE (DW) DURING HOLD. PEDESTRIAN SIGNALS THAT ARE DW WHEN PREEMPTION IS ACTUATED TO REMAIN DW DURING HOLD.

SIGNAL HEAD	φ2		INTERNAL CLEAR		φ4		FIRE		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A	G	G G	G	Y R	R	R R	R	R R	Y	G
B	G	G G	G	Y R	R	R R	R	R R	Y	G
C	G	G G	G	Y R	R	R R	G	G G	Y	G
D	G	G G	G	Y R	R	R R	G	G G	Y	G
E	G	Y R	R	R R	R	R R	R	R R	Y	G
F	G	Y R	R	R R	R	R R	R	R R	Y	G
G	R	R R	R	R R	G	Y R	R	R R	R	R
H	R	R R	R	R R	G	Y R	R	R R	R	R
I	R	R R	R	R R	G	Y R	R	R R	R	R
J	R	R R	R	R R	G	Y R	R	R R	R	R
K	W/(DW)	DW	DW	DW	DW	DW	DW	DW	DW	D W
L	W/(DW)	DW	DW	DW	DW	DW	DW	DW	DW	D W
M	W/(DW)	DW	DW	DW	DW	DW	DW	DW	DW	D W
N	W/(DW)	DW	DW	DW	DW	DW	DW	DW	DW	D W
O	DW	DW	DW	DW	DW	W/(DW)	DW	DW	DW	D DW
P	DW	DW	DW	DW	DW	W/(DW)	DW	DW	DW	D DW
Q	DW	DW	DW	DW	DW	W/(DW)	DW	DW	DW	D DW
R	DW	DW	DW	DW	DW	W/(DW)	DW	DW	DW	D DW
S	R	R R	R	R R	R	R R	G	Y R	R	R

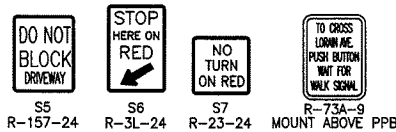
W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK

SIGNAL SEQUENCE CHART

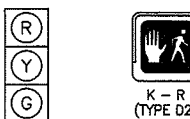
FUNCTION	φ2	INT. CLR.	φ4	FIRE
INITIAL GREEN	-	-	8	8
MINIMUM GREEN	30	-	-	-
VEHICLE EXTENSION	-	-	3	-
MAXIMUM GREEN	-	4	20	30
PEDESTRIAN WALK	-	-	7	-
PEDESTRIAN CLEAR.	7	-	10	-
VEH. YELLOW CLEAR.	3	3	3	3
VEHICLE RED CLEAR.	0	1.5	1.5	1.5
RECALL	PED	YES	NO	NO
MEMORY	NO	NO	NO	NO

SIGNAL TIMING CHART

Ohio City
W. 32 St
S1 & S2
84" x 26"
Ohio City
Lorain
S3 & S4
72" x 26"

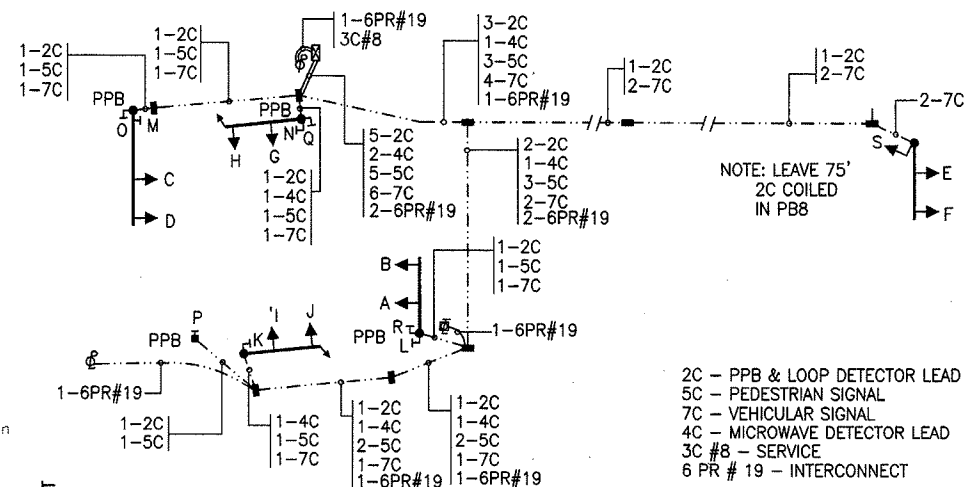
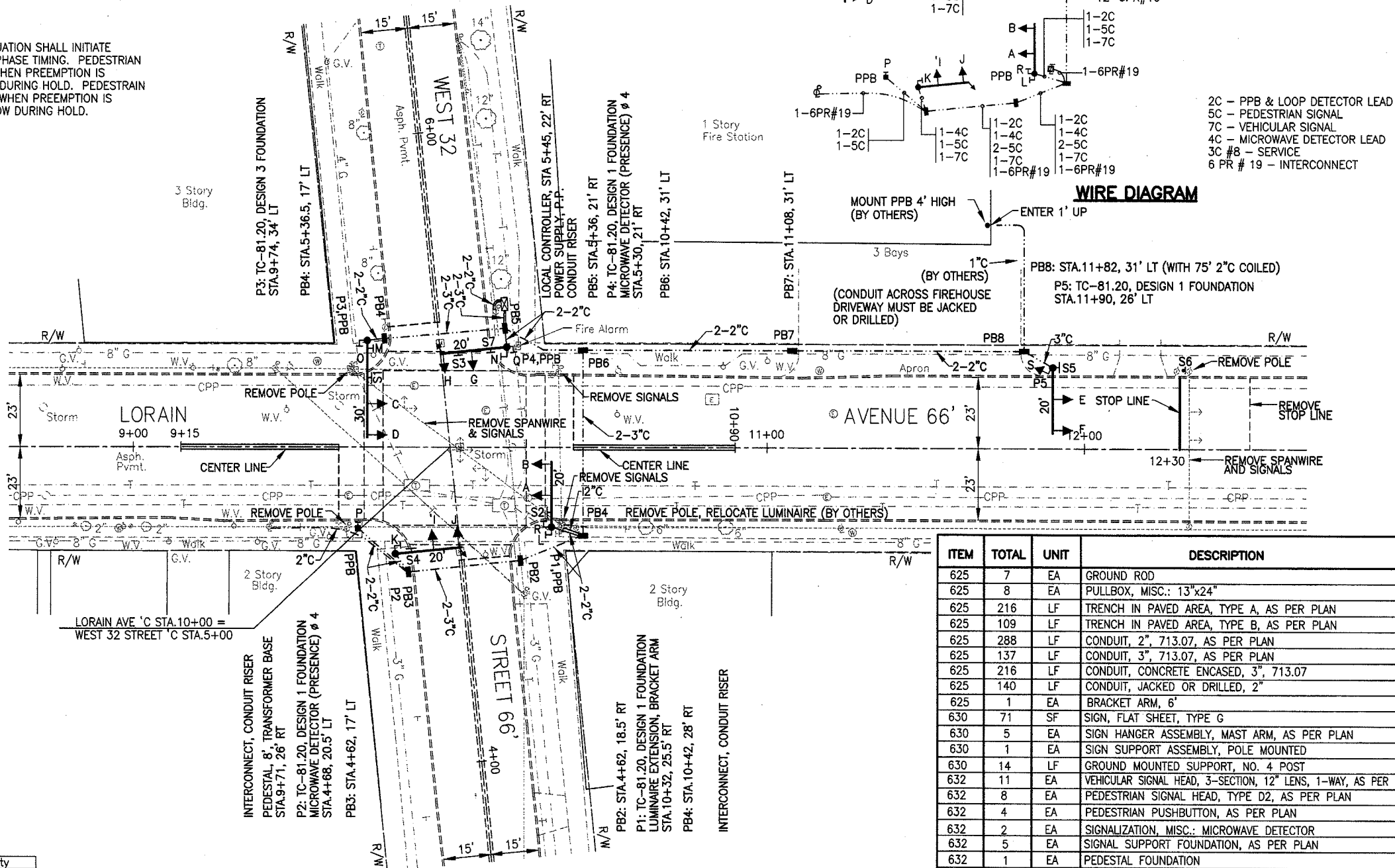


SIGN LEGEND



A - J, S

12" SIGNAL HEADS
RIGID MOUNTED



ITEM	TOTAL	UNIT	DESCRIPTION
625	7	EA	GROUND ROD
625	8	EA	PULLBOX, MISC.: 13"x24"
625	216	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	109	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	288	LF	CONDUIT, 2", 713.07, AS PER PLAN
625	137	LF	CONDUIT, 3", 713.07, AS PER PLAN
625	216	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
625	140	LF	CONDUIT, JACKED OR DRILLED, 2"
625	1	EA	BRACKET ARM, 6"
630	71	SF	SIGN, FLAT SHEET, TYPE G
630	5	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
630	1	EA	SIGN SUPPORT ASSEMBLY, POLE MOUNTED
630	14	LF	GROUND MOUNTED SUPPORT, NO. 4 POST
632	11	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	8	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	4	EA	PEDESTRIAN PUSHBUTTON, AS PER PLAN
632	2	EA	SIGNALIZATION, MISC.: MICROWAVE DETECTOR
632	5	EA	SIGNAL SUPPORT FOUNDATION, AS PER PLAN
632	1	EA	PEDESTAL FOUNDATION
632	4	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 20' ARM, AS PER PLAN
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, WITH 30' ARM, AS PER PLAN
632	1	EA	PEDESTAL, 8', TRANSFORMER BASE, AS PER PLAN
632	3	EA	CONDUIT RISER, 2" DIAMETER
632	563	LF	SIGNAL CABLE, 5-CONDUCTOR, NO. 14 AWG
632	958	LF	SIGNAL CABLE, 7-CONDUCTOR, NO. 14 AWG
632	612	LF	LOOP DETECTOR LEAD-IN CABLE
632	298	LF	SIGNALIZATION MISC.: MICROWAVE DETECTOR LEAD-IN CABLE
632	41	LF	POWER CABLE, 3-CONDUCTOR, NO. 8 AWG
632	11	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER, ACTUATED, 8 PHASE, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN
633	1	CY	CONCRETE FOR CABINET FOUNDATION
642	23	LF	REMOVAL OF PAVEMENT MARKING
642	0.04	MI	CENTER LINE, TYPE 2
644	22	LF	STOP LINE

INTERSECTION OF LORAIN AVE. AND WEST 32 STREET

CUYAHOGA COUNTY
CUY-10-8.96 & VARIOUS

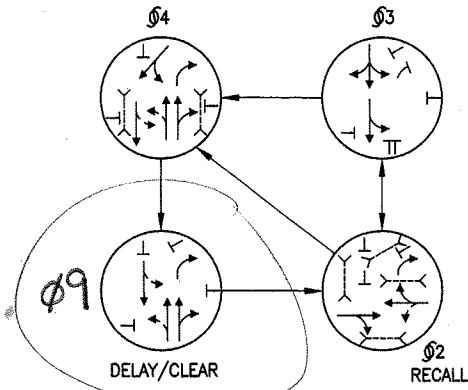
46
67

9/32/15D5A.DWG, PLOT SCALE: 1"=20'

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 58.

FOR POLE CHART SEE SHEET 67.

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES TO REMAIN. PROPOSED MODIFICATIONS AND/OR ADDITIONS ARE SHOWN AS SOLID LINES.



PHASING DIAGRAM

SIGNAL HEAD	phi 2		phi 3		phi 4		DELAY/CLEAR		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A	G	Y R	R	R R	R	R R	R	R R	Y	G
B	G	Y R	R	R R	R	R R	R	R R	Y	G
C	G	Y R	R	R R	R	R R	R	R R	Y	G
D	G	Y R	R	R R	R	R R	R	R R	Y	G
E	R	R R	R	R R	G	G G	G	Y R	R	R
F	R	R R	R	R R	G	G G	G	Y R	R	R
G	R	R R	G	G G	G	G G	G	Y R	R	R
H	R	R R	G	G G	G	G G	G	Y R	R	R
I	R	R R	R	R R	G	Y R	R	R R	R	R
J	R	R R	R	R R	G	Y R	R	R R	R	R
K	⊕	⊕	R	R R	⊕	⊕	⊕	⊕	⊕	⊕
L	⊕	⊕	R	R R	⊕	⊕	⊕	⊕	⊕	⊕
M	R	R R	G	Y R	R	R R	R	R R	R	R
N	R	R R	G	Y R	R	R R	R	R R	R	R
O	W/(DW)	DW	DW	DW	DW	DW	DW	DW	DW	D W
P	W/(DW)	DW	DW	DW	DW	DW	DW	DW	DW	D W
Q	W/(DW)	DW	DW	DW	DW	DW	DW	DW	DW	D W
R	W/(DW)	DW	DW	DW	DW	DW	DW	DW	DW	D W
S	DW	DW	DW	DW	W/(DW)	DW	DW	DW	DW	D DW
T	DW	DW	DW	DW	W/(DW)	DW	DW	DW	DW	D DW
U	DW	DW	DW	DW	W/(DW)	DW	DW	DW	DW	D DW
V	DW	DW	DW	DW	W/(DW)	DW	DW	DW	DW	D DW
W	W/(DW)	DW	DW	DW	DW	DW	DW	DW	DW	D W
X	W/(DW)	DW	DW	DW	DW	DW	DW	DW	DW	D W
Y	W/(DW)	DW	DW	DW	DW	DW	DW	DW	DW	D W
Z	W/(DW)	DW	DW	DW	DW	DW	DW	DW	DW	D W

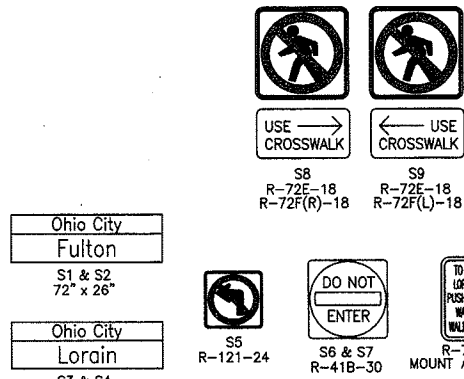
W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK

Ⓛ Y IF phi 2 IS NEXT Ⓜ R IF phi 2 IS NEXT Ⓨ IF phi 2 IS NEXT

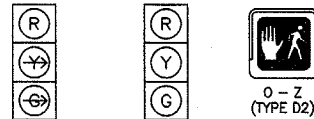
SIGNAL SEQUENCE CHART

FUNCTION	phi 2	phi 3	phi 4	DELAY CLEAR
INITIAL GREEN	6	8	8	-
MINIMUM GREEN	25	-	-	-
VEHICLE EXTENSION	-	3	3	-
MAXIMUM GREEN	-	12	28	6
PEDESTRIAN WALK	-	-	7	-
PEDESTRIAN CLEAR.	14	-	11	-
VEH. YELLOW CLEAR.	3	3	3	3
VEHICLE RED CLEAR.	1.5	2	0	2
RECALL		PED	NO	NO
MEMORY		NO	NO	NO

SIGNAL TIMING CHART

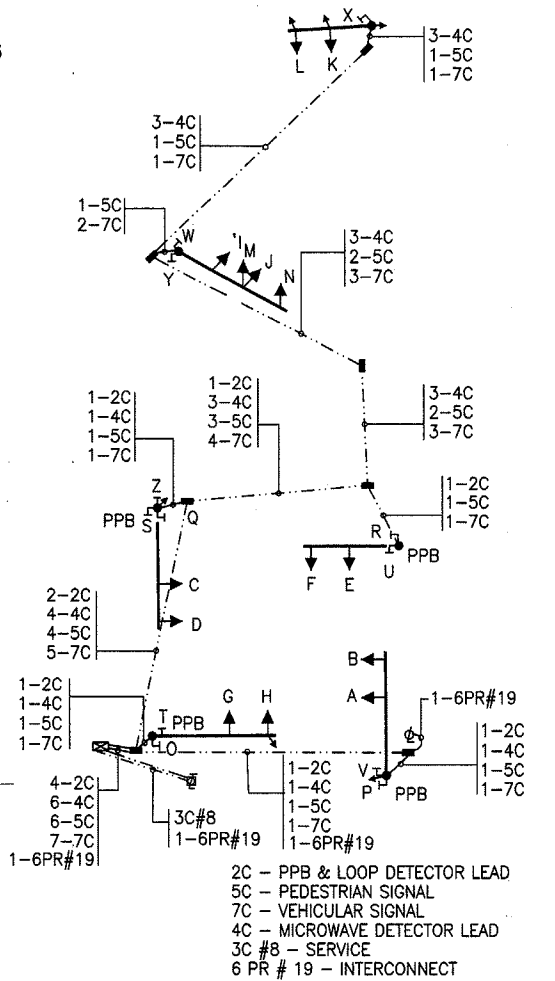
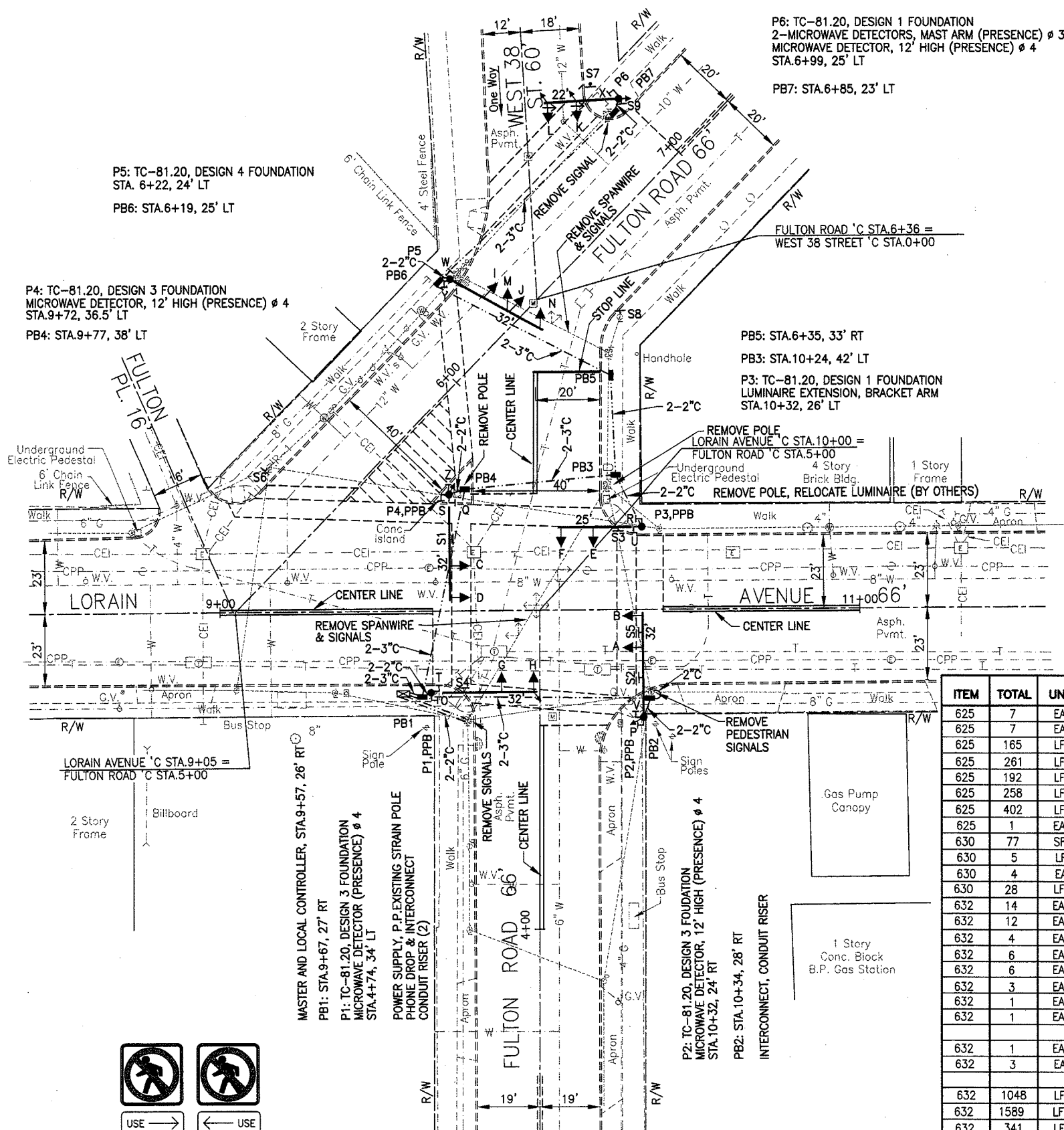


SIGN LEGEND



ROTATE VISORS 90° ON HEADS 'I, J, M, N'

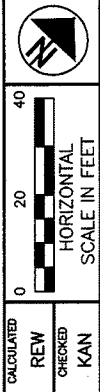
12\"/>



WIRE DIAGRAM

ITEM	TOTAL	UNIT	DESCRIPTION
625	7	EA	GROUND ROD
625	7	EA	PULLBOX, MISC.: 13"x24"
625	165	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	261	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	192	LF	CONDUIT, 2", 713.07, AS PER PLAN
625	258	LF	CONDUIT, 3", 713.07, AS PER PLAN
625	402	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
625	1	EA	BRACKET ARM, 6", AS PER PLAN
630	77	SF	SIGN, FLAT SHEET, TYPE G
630	5	LF	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
630	4	EA	SIGN SUPPORT ASSEMBLY, POLE MOUNTED
630	28	LF	GROUND MOUNTED SUPPORT, NO. 4 POST
632	14	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	12	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	4	EA	PEDESTRIAN PUSHBUTTON, AS PER PLAN
632	6	EA	SIGNALIZATION, MISC.: MICROWAVE DETECTOR
632	6	EA	SIGNAL SUPPORT FOUNDATIONS, AS PER PLAN
632	3	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, WITH 32' ARM, AS PER PLAN
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 32' ARM, AS PER PLAN
632	1	EA	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 25' ARM, AS PER PLAN
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 22' ARM, AS PER PLAN
632	3	EA	CONDUIT RISER, 2" DIAMETER
632	1048	LF	SIGNAL CABLE, 5-CONDUCTOR, NO. 14 AWG
632	1589	LF	SIGNAL CABLE, 7-CONDUCTOR, NO. 14 AWG
632	341	LF	LOOP DETECTOR LEAD-IN CABLE
632	1406	LF	MICROWAVE DETECTOR LEAD-IN CABLE
632	52	LF	POWER CABLE, 3-CONDUCTOR, NO. 8 AWG
632	1	EA	PHONE DROP, AS PER PLAN
632	14	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER, ACTUATED, 8 PHASE, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN
633	1	EA	CONTROLLER, MASTER, TRAFFIC RESPONSIVE, AS PER PLAN
633	1.9	CY	CONCRETE FOR CABINET FOUNDATION
642	0.10	MI	CENTER LINE, TYPE 2
644	20	LF	STOP LINE

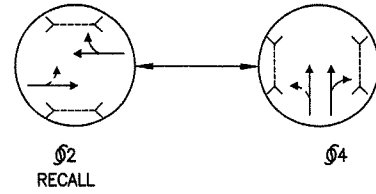
INTERSECTION OF LORAIN AVE. AND FULTON ROAD
 CUYAHOGA COUNTY
 CUY-10-8.96 & VARIOUS
 47
 67



FOR SIGNAL COORDINATION INFORMATION SEE SHEET 58.

FOR POLE CHART SEE SHEET 67.

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES TO REMAIN. PROPOSED MODIFICATIONS AND/OR ADDITIONS ARE SHOWN AS SOLID LINES.



PHASING DIAGRAM

SIGNAL HEAD	φ1		φ2		φ3		φ4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A			G	Y R			R	R R Y G		
B			G	Y R			R	R R Y G		
C			G	Y R			R	R R Y G		
D			G	Y R			R	R R Y G		
E			R	R R			G	Y R R R		
F			R	R R			G	Y R R R		
G			W/(DW)	DW DW			DW	DW DW D W		
H			W/(DW)	DW DW			DW	DW DW D W		
I			W/(DW)	DW DW			DW	DW DW D W		
J			W/(DW)	DW DW			DW	DW DW D W		
K			DW	DW DW			W/(DW)	DW DW D DW		
L			DW	DW DW			W/(DW)	DW DW D DW		
M			DW	DW DW			W/(DW)	DW DW D DW		
N			DW	DW DW			W/(DW)	DW DW D DW		

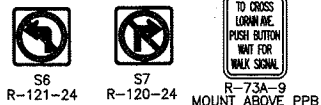
W-WALK (DW)-FLASHING DONT WALK DW-DONT WALK D-DARK

SIGNAL SEQUENCE CHART

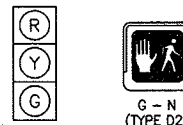
FUNCTION	φ1	φ2	φ3	φ4
INITIAL GREEN		-		8
MINIMUM GREEN		25		-
VEHICLE EXTENSION		-		3
MAXIMUM GREEN		-		22
PEDESTRIAN WALK		-		7
PEDESTRIAN CLEAR.		9		13
VEH. YELLOW CLEAR.		3		3
VEHICLE RED CLEAR.		1.5		2
RECALL		PED		NO
MEMORY		NO		NO
MAX.2 MAXIMUM GREEN		-		40
6:00-9:00 AM, M-F				

SIGNAL TIMING CHART

Ohio City	Ohio City	Ohio City
Randall	W. 41 St	Lorain
S1 & S2 84" x 26"	S3 & S4 84" x 26"	S5 72" x 26"



SIGN LEGEND

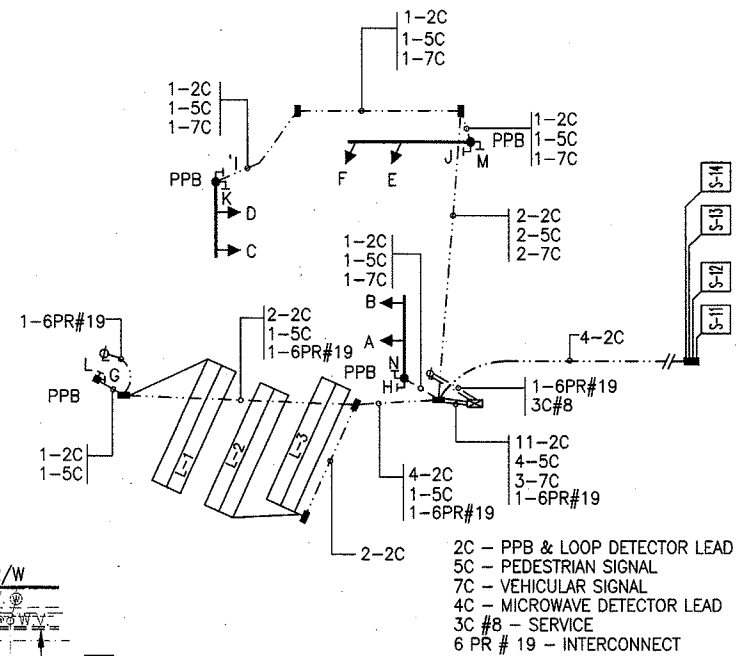
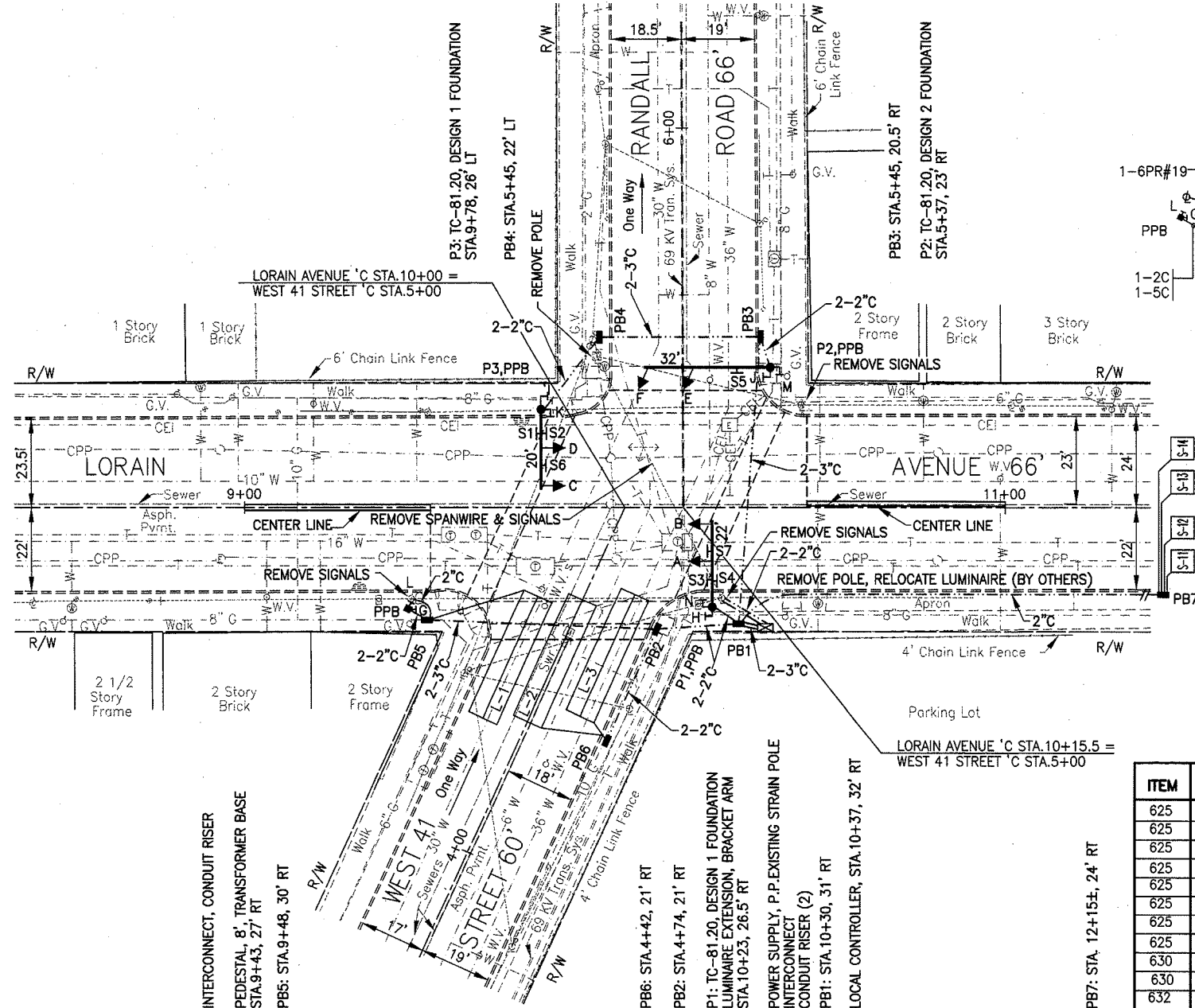


A - F
ROTATE VISORS 90°
ON ALL HEADS

12" SIGNAL HEADS
RIGID MOUNTED

LOOP	SIZE	TURNS	MODE	DELAY	PHASE	REMARK	INHIBITED DELAY	LOCATION 1ST FRONT CORNER	LOCATION 2ND FRONT CORNER
L-1	8'X35'	2-4-2	PRESENCE	8	4	QUADRAPOLE	NO	STA.4+69, 15' L	STA.4+69, 7' L
L-2	8'X35'	2-4-2	PRESENCE	8	4	QUADRAPOLE	NO	STA.4+73, 4' L	STA.4+73, 4' R
L-3	8'X35'	2-4-2	PRESENCE	8	4	QUADRAPOLE	NO	STA.4+80, 8' R	STA.4+80, 16' R
S-11	6'X6'	3	BOTH			SYSTEM		STA. 12+19, 18' R	STA. 12+19, 12' R
S-12	6'X6'	3	BOTH			SYSTEM		STA. 12+19, 9' R	STA. 12+19, 3' R
S-13	6'X6'	3	BOTH			SYSTEM		STA. 12+19, 3' L	STA. 12+19, 9' L
S-14	6'X6'	3	BOTH			SYSTEM		STA. 12+19, 12' L	STA. 12+19, 18' L

LOOP DETECTOR CHART

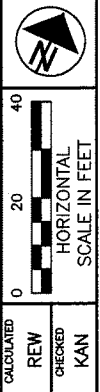


WIRE DIAGRAM

ITEM	TOTAL	UNIT	DESCRIPTION
625	5	EA	GROUND ROD
625	7	EA	PULLBOX, MISC.: 13"x24"
625	274	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	227	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	434	LF	CONDUIT, 2", 713.07, AS PER PLAN
625	95	LF	CONDUIT, 3", 713.07, AS PER PLAN
625	273	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
625	1	EA	BRACKET ARM, 6", AS PER PLAN
630	81	SF	SIGN, FLAT SHEET, TYPE G
630	7	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
632	6	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	8	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	4	EA	PEDESTRIAN PUSHBUTTON, AS PER PLAN
632	4	EA	LOOP DETECTOR UNIT, 2 CHANNEL, DELAY AND EXTENSION TYPE, AS PER PLAN
632	7	EA	DETECTOR LOOP
632	3	EA	SIGNAL SUPPORT FOUNDATION, AS PER PLAN
632	1	EA	PEDESTAL FOUNDATION
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 20' ARM, AS PER PLAN
632	1	EA	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 22' ARM, AS PER PLAN
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 2, WITH 32' ARM, AS PER PLAN
632	1	EA	PEDESTAL, 8", TRANSFORMER BASE, AS PER PLAN
632	3	EA	CONDUIT RISER, 2" DIAMETER
632	481	LF	SIGNAL CABLE, 5-CONDUCTOR, NO. 14 AWG
632	468	LF	SIGNAL CABLE, 7-CONDUCTOR, NO. 14 AWG
632	1425	LF	LOOP DETECTOR LEAD-IN CABLE
632	44	LF	POWER CABLE, 3-CONDUCTOR, NO. 8 AWG
632	6	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER, ACTUATED, 8 PHASE, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN
633	1	CY	CONCRETE FOR CABINET FOUNDATION
642	0.04	MI	CENTER LINE, TYPE 2

INTERSECTION OF LORAIN AVE. AND WEST 41 STREET

CUYAHOGA COUNTY
CUY-10-8.96 & VARIOUS



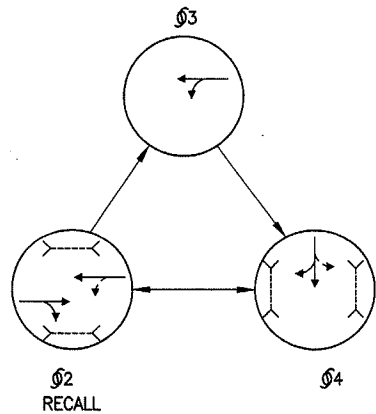
CALCULATED
REVIEWED
CHECKED
KAN

9:3261D7.DWG, PLOT SCALE: 1"=20'

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 58.

FOR POLE CHART SEE SHEET 67.

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES TO REMAIN. PROPOSED MODIFICATIONS AND/OR ADDITIONS ARE SHOWN AS SOLID LINES.



PHASING DIAGRAM

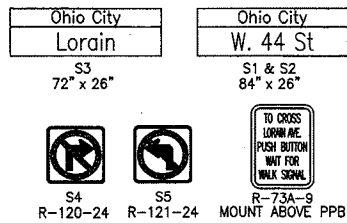
SIGNAL HEAD	phi 1		phi 2		phi 3		phi 4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A			G	Y R	R	R R	R	R R	Y	G
B			G	Y R	R	R R	R	R R	Y	G
C			G	Y R	G	Y R	R	R R	Y	G
D			G	Y R	G	Y R	R	R R	Y	G
E			R	R R	R	R R	G	Y R	R	R
F			R	R R	R	R R	G	Y R	R	R
G			W/(DW)	DW	DW	DW	DW	DW	D	W
H			W/(DW)	DW	DW	DW	DW	DW	D	W
I			W/(DW)	DW	DW	DW	DW	DW	D	W
J			W/(DW)	DW	DW	DW	DW	DW	D	W
K			DW	DW	DW	DW	W/(DW)	DW	D	DW
L			DW	DW	DW	DW	W/(DW)	DW	D	DW
M			DW	DW	DW	DW	W/(DW)	DW	D	DW
N			DW	DW	DW	DW	W/(DW)	DW	D	DW

W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK

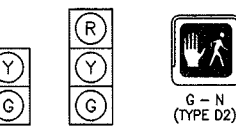
SIGNAL SEQUENCE CHART

FUNCTION	phi 1	phi 2	phi 3	phi 4
INITIAL GREEN		-	6	8
MINIMUM GREEN		30		
VEHICLE EXTENSION		-	2	3
MAXIMUM GREEN		-	10	24
PEDESTRIAN WALK		-		7
PEDESTRIAN CLEAR.		10		12
VEH. YELLOW CLEAR.		3	3	3
VEHICLE RED CLEAR.		1.5	1.5	1.5
RECALL			NO	NO
MEMORY			NO	NO

SIGNAL TIMING CHART



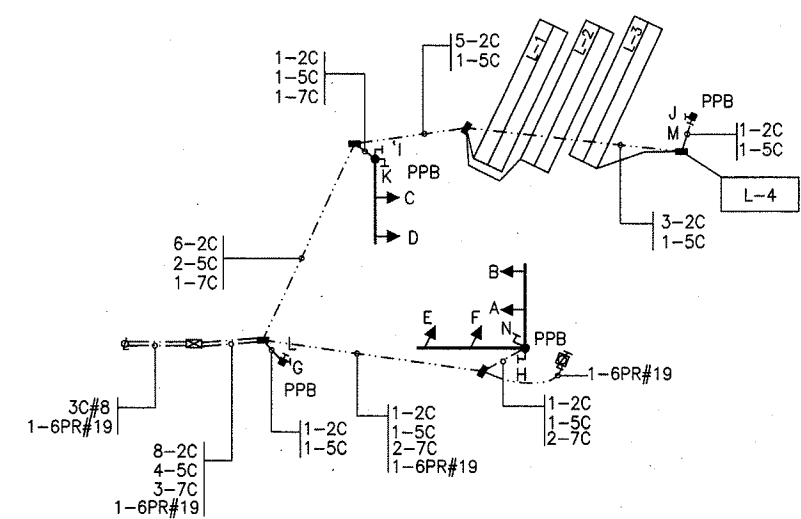
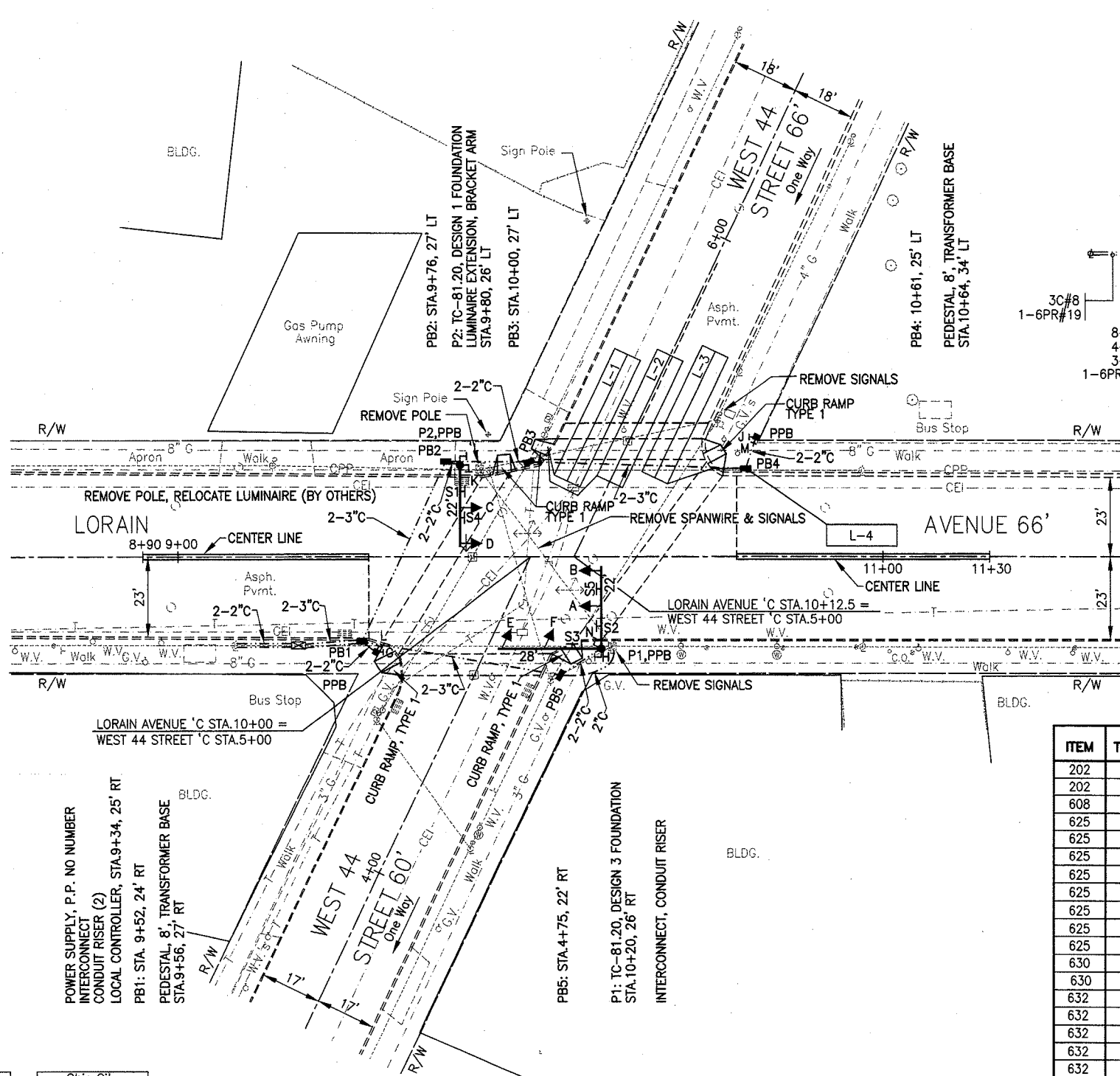
SIGN LEGEND



12\"/>

LOOP	SIZE	TURNS	MODE	DELAY	PHASE	REMARK	INHIBITED DELAY	LOCATION 1ST FRONT CORNER	LOCATION 2ND FRONT CORNER
L-1	8'x40'	2-4-2	PRESENCE	8	4	QUADRAPOLE	NO	STA.5+18.5, 7' L	STA.5+18.5, 15' L
L-2	8'x40'	2-4-2	PRESENCE	8	4	QUADRAPOLE	NO	STA.5+23.5, 4' R	STA.5+23.5, 4' L
L-3	8'x40'	2-4-2	PRESENCE	8	4	QUADRAPOLE	NO	STA.5+30, 7' R	STA.5+30, 15' R
L-4	6'x20'	2	PRESENCE	3	3	LOCK	NO	STA. 10+84, 3'L	STA. 10+84, 9'L

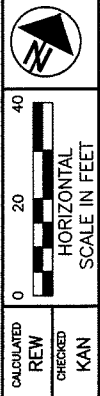
LOOP DETECTOR CHART



WIRE DIAGRAM

2C - PPB & LOOP DETECTOR LEAD
 5C - PEDESTRIAN SIGNAL
 7C - VEHICULAR SIGNAL
 4C - MICROWAVE DETECTOR LEAD
 3C #8 - SERVICE
 6 PR #19 - INTERCONNECT

ITEM	TOTAL	UNIT	DESCRIPTION
202	280	SF	WALK REMOVED
202	70	LF	CURB REMOVED
608	280	SF	CURB RAMP, TYPE 1, AS PER PLAN
625	5	EA	GROUND ROD
625	5	EA	PULLBOX, MISC.: 13"x24"
625	133	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	139	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	168	LF	CONDUIT, 2", 713.07, AS PER PLAN
625	376	LF	CONDUIT, 3", 713.07, AS PER PLAN
625	275	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
625	1	EA	BRACKET ARM, 6", AS PER PLAN
630	51	SF	SIGN, FLAT SHEET, TYPE G
630	5	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
632	5	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	1	EA	VEHICULAR SIGNAL HEAD, 5-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	8	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	4	EA	PEDESTRIAN PUSHBUTTON, AS PER PLAN
632	2	EA	LOOP DETECTOR UNIT, 2 CHANNEL, DELAY AND EXTENSION TYPE, AS PER PLAN
632	4	EA	DETECTOR LOOP
632	2	EA	SIGNAL SUPPORT FOUNDATION, AS PER PLAN
632	2	EA	PEDESTAL FOUNDATION
632	1	EA	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 22' ARM, AS PER PLAN
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20 DESIGN 3 POLE, WITH MAST ARMS TC-81.20 DESIGN 1, 22 FEET AND TC-81.20 DESIGN 2, 28 FEET, AS PER PLAN
632	2	EA	PEDESTAL, 8", TRANSFORMER BASE, AS PER PLAN
632	3	EA	CONDUIT RISER, 2" DIAMETER
632	495	LF	SIGNAL CABLE, 5-CONDUCTOR, NO. 14 AWG
632	504	LF	SIGNAL CABLE, 7-CONDUCTOR, NO. 14 AWG
632	851	LF	LOOP DETECTOR LEAD-IN CABLE
632	49	LF	POWER CABLE, 3-CONDUCTOR, NO. 8 AWG
632	6	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER, ACTUATED, 8 PHASE, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN
633	1	CY	CONCRETE FOR CABINET FOUNDATION
642	0.04	MI	CENTER LINE, TYPE 2

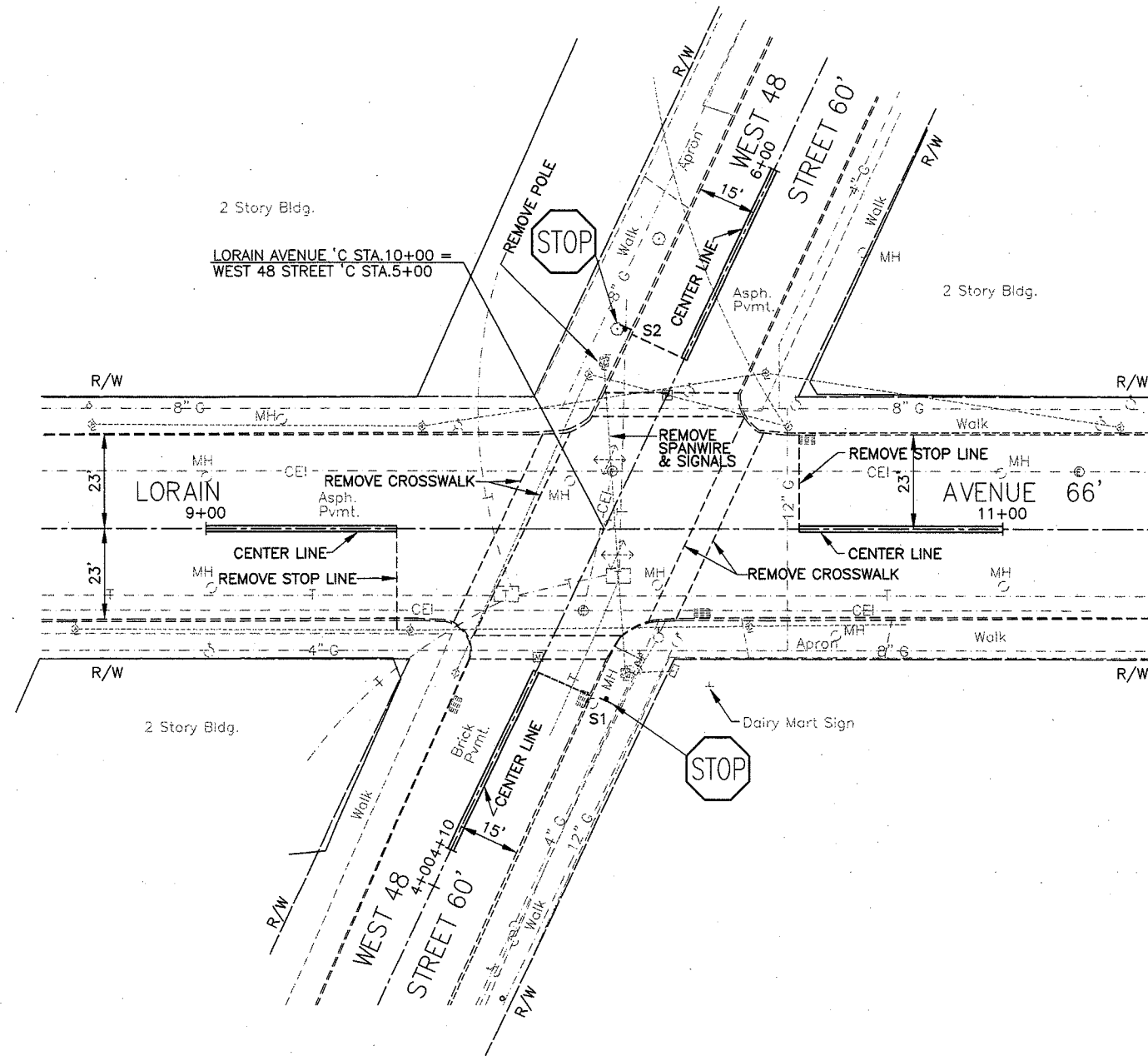


INTERSECTION OF LORAIN AVE. AND WEST 44 ST.

CUYAHOGA COUNTY
 CUY-10-8.96 & VARIOUS

9328TDB.DWG, PLOT SCALE: 1"=20'

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES TO REMAIN.
 PROPOSED MODIFICATIONS AND/OR ADDITIONS ARE SHOWN AS SOLID LINES.



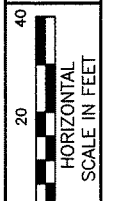
EXISTING SIGNAL TO BE REMOVED
 (SEE NOTE ON SHEET 2)



S1 & S2
 R-1-30

SIGN LEGEND

ITEM	TOTAL	UNIT	DESCRIPTION
630	12.5	SF	SIGN, FLAT SHEET, TYPE G
630	28	LF	GROUND MOUNTED SUPPORT, NO. 3 POST
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
642	0.04	MI	CENTER LINE, TYPE 2
642	265	LF	REMOVAL OF PAVEMENT MARKING



CALCULATED
 REW
 CHECKED
 KAN

INTERSECTION OF LORAIN AVE. AND WEST 48 ST.

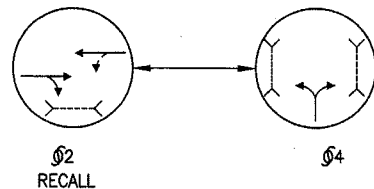
CUYAHOGA COUNTY
 CUY-10-8.96 & VARIOUS

93261D9.DWG, PLOT SCALE: 1=20

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 58.

FOR POLE CHART SEE SHEET 67.

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES TO REMAIN. PROPOSED MODIFICATIONS AND/OR ADDITIONS ARE SHOWN AS SOLID LINES.



PHASING DIAGRAM

SIGNAL HEAD	φ1		φ2		φ3		φ4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A			G	Y R			R	R R	Y	G
B			G	Y R			R	R R	Y	G
C			G	Y R			R	R R	Y	G
D			G	Y R			R	R R	Y	G
E			R	R R			G	Y R R	R	R
F			R	R R			G	Y R R	R	R
G			W/(DW)	DW DW			DW	DW DW	D	W
H			W/(DW)	DW DW			DW	DW DW	D	W
I			DW	DW DW			W/(DW)	DW DW	D	DW
J			DW	DW DW			W/(DW)	DW DW	D	DW
K			DW	DW DW			W/(DW)	DW DW	D	DW
L			DW	DW DW			W/(DW)	DW DW	D	DW

W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK

SIGNAL SEQUENCE CHART

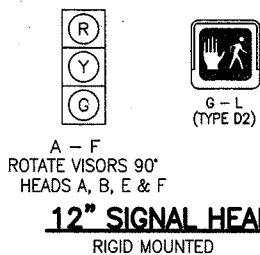
FUNCTION	φ1	φ2	φ3	φ4
INITIAL GREEN		-		8
MINIMUM GREEN		30		-
VEHICLE EXTENSION				3
MAXIMUM GREEN				20
PEDESTRIAN WALK				7
PEDESTRIAN CLEAR.	11			11
VEH. YELLOW CLEAR.	3			3
VEHICLE RED CLEAR.	1.5			1.5
RECALL		PED		NO
MEMORY		NO		NO

SIGNAL TIMING CHART

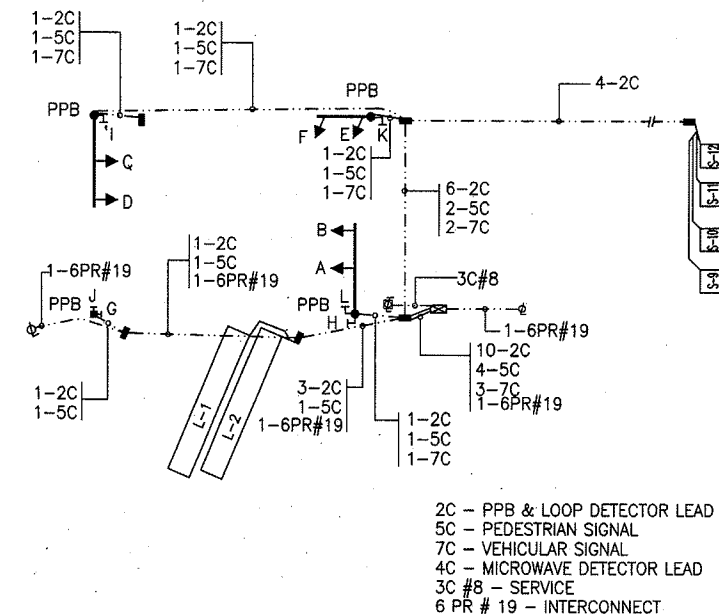
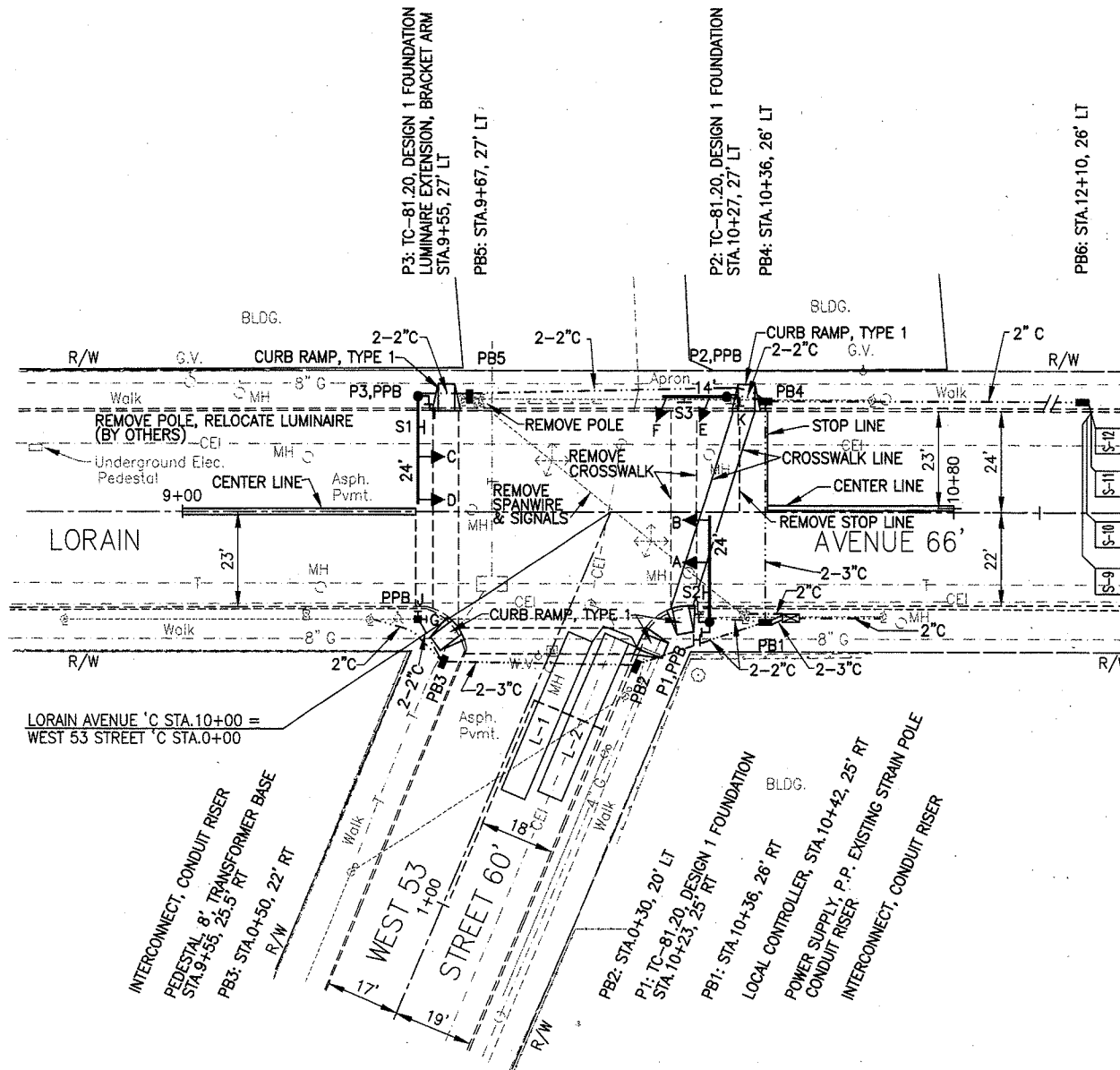
Ohio City
W. 53 St
S1 & S2
84" x 26"

Ohio City
Lorain
S3
72" x 26"

SIGN LEGEND



12" SIGNAL HEADS
RIGID MOUNTED

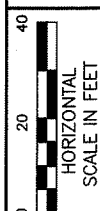


WIRE DIAGRAM

ITEM	TOTAL	UNIT	DESCRIPTION
202	280	SF	WALK REMOVED
202	70	LF	CURB REMOVED
608	280	SF	CURB RAMP, TYPE 1, AS PER PLAN
625	5	EA	GROUND ROD
625	6	EA	PULLBOX, MISC.: 13"x24"
625	373	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	87	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	507	LF	CONDUIT, 2", 713.07, AS PER PLAN
625	206	LF	CONDUIT, 3", 713.07, AS PER PLAN
625	175	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
625	1	EA	BRACKET ARM, 6', AS PER PLAN
630	43	SF	SIGN, FLAT SHEET, TYPE G
630	3	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
632	6	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	6	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	4	EA	PEDESTRIAN PUSHBUTTON, AS PER PLAN
632	3	EA	LOOP DETECTOR UNIT, 2 CHANNEL, DELAY AND EXTENSION TYPE, AS PER PLAN
632	6	EA	DETECTOR LOOP
632	3	EA	SIGNAL SUPPORT FOUNDATION, AS PER PLAN
632	1	EA	PEDESTAL FOUNDATION
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 24' ARM, AS PER PLAN
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 14' ARM, AS PER PLAN
632	1	EA	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 24' ARM, AS PER PLAN
632	1	EA	PEDESTAL, 8", TRANSFORMER BASE, AS PER PLAN
632	3	EA	CONDUIT RISER, 2" DIAMETER
632	447	LF	SIGNAL CABLE, 5-CONDUCTOR, NO. 14 AWG
632	424	LF	SIGNAL CABLE, 7-CONDUCTOR, NO. 14 AWG
632	1050	LF	LOOP DETECTOR LEAD-IN CABLE
632	40	LF	POWER CABLE, 3-CONDUCTOR, NO. 8 AWG
632	6	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER, ACTUATED, 8 PHASE, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN
633	1	CY	CONCRETE FOR CABINET FOUNDATION
642	0.04	MI	CENTER LINE, TYPE 2
642	116	LF	REMOVAL OF PAVEMENT MARKING
644	24	LF	STOP LINE
644	96	LF	CROSSWALK LINE

LOOP DETECTOR CHART

LOOP	SIZE	TURNS	MODE	DELAY	PHASE	REMARK	INHIBITED DELAY	LOCATION 1ST FRONT CORNER	LOCATION 2ND FRONT CORNER
L-1	6'X40'	2	PRESENCE	8	4		NO	STA.0+30, 2' L	STA.0+30, 8' L
L-2	6'X40'	2	PRESENCE	8	4		NO	STA.0+27, 10' L	STA.0+27, 16' L
S-9	6'X6'	3	BOTH				SYSTEM	STA.12+13, 18' R	STA.12+13, 12' R
S-10	6'X6'	3	BOTH				SYSTEM	STA.12+13, 8' R	STA.12+13, 2' R
S-11	6'X6'	3	BOTH				SYSTEM	STA.12+13, 4' L	STA.12+13, 10' L
S-12	6'X6'	3	BOTH				SYSTEM	STA.12+13, 14' L	STA.12+13, 20' L



CALCULATED
REVIEW
CHECKED
KAN

INTERSECTION OF LORAIN AVE. AND WEST 53 ST.

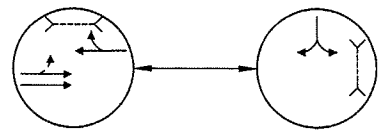
CUYAHOGA COUNTY
CUY-10-8.96 & VARIOUS

9326TD10.DWG, PLOT SCALE: 1"=20'

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 58.

FOR POLE CHART SEE SHEET 67.

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES TO REMAIN. PROPOSED MODIFICATIONS AND/OR ADDITIONS ARE SHOWN AS SOLID LINES.



PHASING DIAGRAM

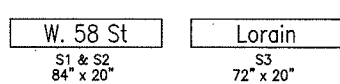
SIGNAL HEAD	φ1		φ2		φ3		φ4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A			G	Y R			R	R R	Y	G
B			G	Y R			R	R R	Y	G
C			G	Y R			R	R R	Y	G
D			G	Y R			R	R R	Y	G
E			R	R R			G	Y R	R	R
F			R	R R			G	Y R	R	R
G			W/(DW)	DW DW			DW	DW DW	D	W
H			W/(DW)	DW DW			DW	DW DW	D	W
I			DW	DW DW			W/(DW)	DW DW	D	DW
J			DW	DW DW			W/(DW)	DW DW	D	DW

W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK

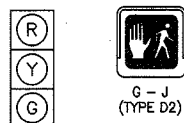
SIGNAL SEQUENCE CHART

FUNCTION	φ1	φ2	φ3	φ4
INITIAL GREEN				8
MINIMUM GREEN		20		
VEHICLE EXTENSION				3
MAXIMUM GREEN				20
PEDESTRIAN WALK				7
PEDESTRIAN CLEAR.		10		11
VEH. YELLOW CLEAR.		3		3
VEHICLE RED CLEAR.		1.5		1.5
RECALL		PED		NO
MEMORY		NO		NO

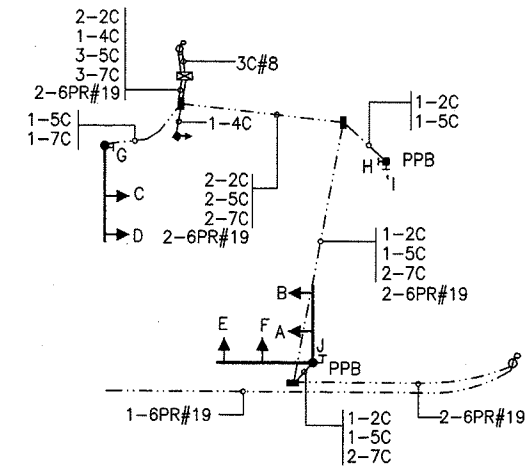
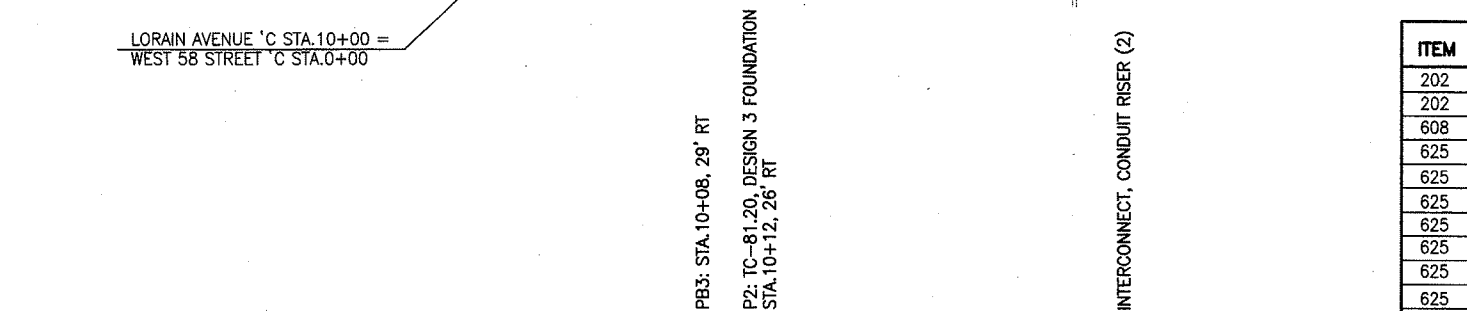
SIGNAL TIMING CHART



SIGN LEGEND



12" SIGNAL HEADS
RIGID MOUNTED



WIRE DIAGRAM

2C - PPB & LOOP DETECTOR LEAD
5C - PEDESTRIAN SIGNAL
7C - VEHICULAR SIGNAL
4C - MICROWAVE DETECTOR LEAD
3C #8 - SERVICE
6 PR #19 - INTERCONNECT

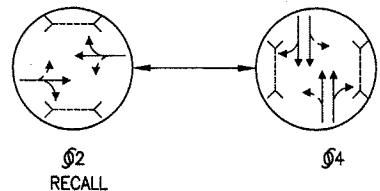
ITEM	TOTAL	UNIT	DESCRIPTION
202	112	SF	WALK REMOVED
202	28	LF	CURB REMOVED
608	112	SF	CURB RAMP, TYPE 1, AS PER PLAN
625	5	EA	GROUND ROD
625	3	EA	PULLBOX, MISC.: 13"x24"
625	154	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	92	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	134	LF	CONDUIT, 2", 713.07, AS PER PLAN
625	62	LF	CONDUIT, 3", 713.07, AS PER PLAN
625	187	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
630	34	SF	SIGN, FLAT SHEET, TYPE G
632	3	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
632	6	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	4	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	2	EA	PEDESTRIAN PUSHBUTTON, AS PER PLAN
632	1	EA	SIGNALIZATION, MISC.: MICROWAVE DETECTOR
632	2	EA	SIGNAL SUPPORT FOUNDATION, AS PER PLAN
632	2	EA	PEDESTAL FOUNDATION
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 25' ARM, AS PER PLAN
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3 POLE, WITH MAST ARMS TC-81.20, DESIGN 1, 20 FEET AND TC-81.20, DESIGN 1, 25 FEET, AS PER PLAN
632	1	EA	PEDESTAL, 8', TRANSFORMER BASE, AS PER PLAN
632	1	EA	PEDESTAL, MISC.: 12', TRANSFORMER BASE
632	3	EA	CONDUIT RISER, 2" DIAMETER
632	303	LF	SIGNAL CABLE, 5-CONDUCTOR, NO. 14 AWG
632	509	LF	SIGNAL CABLE, 7-CONDUCTOR, NO. 14 AWG
632	234	LF	LOOP DETECTOR LEAD-IN CABLE
632	38	LF	SIGNALIZATION, MISC.: MICROWAVE DETECTOR LEAD-IN CABLE
632	34	LF	POWER CABLE, 3-CONDUCTOR, NO. 8 AWG
632	6	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER, ACTUATED, 8 PHASE, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN
633	1	CY	CONCRETE FOR CABINET FOUNDATION

INTERSECTION OF LORAIN AVE. AND WEST 58 ST.
 CUYAHOGA COUNTY
 CUY-10-8.96 & VARIOUS
 52
 67

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 58.

FOR POLE CHART SEE SHEET 67.

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES TO REMAIN. PROPOSED MODIFICATIONS AND/OR ADDITIONS ARE SHOWN AS SOLID LINES.



PHASING DIAGRAM

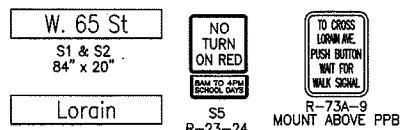
SIGNAL HEAD	phi 1		phi 2		phi 3		phi 4		FLASH	DWELL	
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR			
A			G	Y	R		R	R	R	Y	G
B			G	Y	R		R	R	R	Y	G
C			G	Y	R		R	R	R	Y	G
D			G	Y	R		R	R	R	Y	G
E			R	R	R		G	Y	R	R	R
F			R	R	R		G	Y	R	R	R
G			R	R	R		G	Y	R	R	R
H			R	R	R		G	Y	R	R	R
I			W/(DW)	DW	DW		DW	DW	DW	D	W
J			W/(DW)	DW	DW		DW	DW	DW	D	W
K			W/(DW)	DW	DW		DW	DW	DW	D	W
L			W/(DW)	DW	DW		DW	DW	DW	D	W
M			DW	DW	DW		W/(DW)	DW	DW	D	DW
N			DW	DW	DW		W/(DW)	DW	DW	D	DW
O			DW	DW	DW		W/(DW)	DW	DW	D	DW
P			DW	DW	DW		W/(DW)	DW	DW	D	DW

W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK

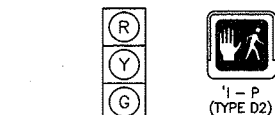
SIGNAL SEQUENCE CHART

FUNCTION	phi 1	phi 2	phi 3	phi 4
INITIAL GREEN		-		8
MINIMUM GREEN		30		-
VEHICLE EXTENSION		-		3
MAXIMUM GREEN		-		32
PEDESTRIAN WALK		-		7
PEDESTRIAN CLEAR		12		12
VEH. YELLOW CLEAR		3		3
VEHICLE RED CLEAR		2		2
RECALL		PED		NO
MEMORY		NO		NO

SIGNAL TIMING CHART

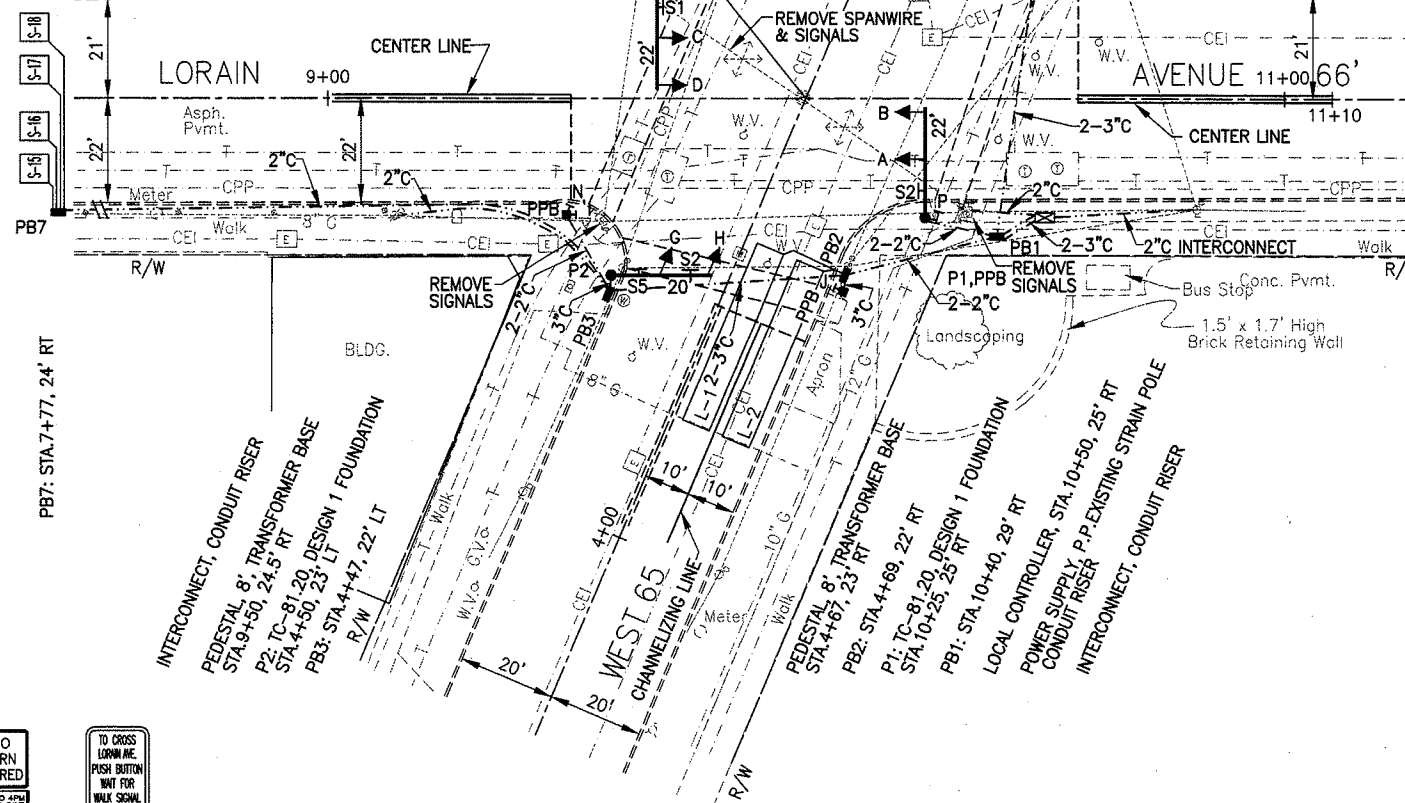


SIGN LEGEND



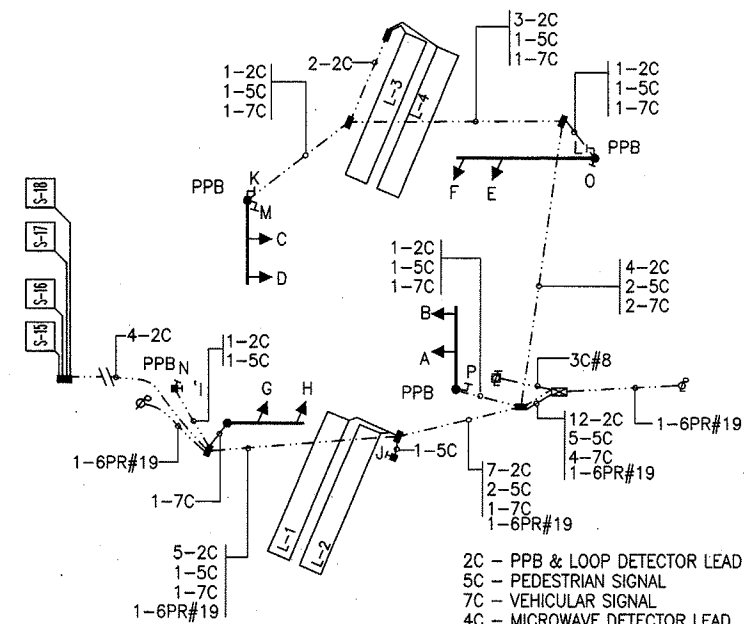
ROTATE TUNNEL VISORS 90° ON ALL HEADS

12" SIGNAL HEADS
RIGID MOUNTED



LOOP	SIZE	TURNS	MODE	DELAY	PHASE	REMARK	INHIBITED DELAY	LOCATION 1ST FRONT CORNER	LOCATION 2ND FRONT CORNER
L-1	6'x40'	2	PRESENCE	-	4		-	STA.4+68, 2.5' R	STA.4+68, 8.5' R
L-2	6'x40'	2	PRESENCE	-	4		-	STA.4+68, 11.5' R	STA.4+68, 17.5' R
L-3	6'x40'	2	PRESENCE	-	4		-	STA.5+27, 2.5' L	STA.5+27, 8.5' L
L-4	6'x40'	2	PRESENCE	-	4		-	STA.5+27, 11.5' L	STA.5+27, 17.5' L
S-15	6'x6'	3	BOTH	-	-	SYSTEM	-	STA. 7+75, 18' R	STA. 7+75, 12' R
S-16	6'x6'	3	BOTH	-	-	SYSTEM	-	STA. 7+75, 9' R	STA. 7+75, 3' R
S-17	6'x6'	3	BOTH	-	-	SYSTEM	-	STA. 7+75, 3' L	STA. 7+75, 9' L
S-18	6'x6'	3	BOTH	-	-	SYSTEM	-	STA. 7+75, 12' L	STA. 7+75, 18' L

LOOP DETECTOR CHART



WIRE DIAGRAM

2C - PPB & LOOP DETECTOR LEAD
5C - PEDESTRIAN SIGNAL
7C - VEHICULAR SIGNAL
4C - MICROWAVE DETECTOR LEAD
3C #8 - SERVICE
6 PR # 19 - INTERCONNECT

ITEM	TOTAL	UNIT	DESCRIPTION
625	7	EA	GROUND ROD
625	7	EA	PULLBOX, MISC.: 13"x24"
625	512	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	142	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	576	LF	CONDUIT, 2", 713.07, AS PER PLAN
625	131	LF	CONDUIT, 3", 713.07, AS PER PLAN
625	284	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07.
630	50	SF	SIGN, FLAT SHEET, TYPE G
630	5	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
632	8	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	8	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	4	EA	PEDESTRIAN PUSHBUTTON, AS PER PLAN
632	4	EA	LOOP DETECTOR UNIT, 2 CHANNEL, DELAY AND EXTENSION TYPE, AS PER PLAN
632	8	EA	DETECTOR LOOP
632	4	EA	SIGNAL SUPPORT FOUNDATION, AS PER PLAN
632	1	EA	PEDESTAL FOUNDATION
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 20' ARM, AS PER PLAN
632	2	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 22' ARM, AS PER PLAN
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 36' ARM, AS PER PLAN
632	2	EA	PEDESTAL, 8', TRANSFORMER BASE, AS PER PLAN
632	3	EA	CONDUIT RISER, 2" DIAMETER
632	4	EA	CABLE SUPPORT ASSEMBLY
632	636	LF	SIGNAL CABLE, 5-CONDUCTOR, NO. 14 AWG
632	711	LF	SIGNAL CABLE, 7-CONDUCTOR, NO. 14 AWG
632	928	LF	LOOP DETECTOR WIRE, TYPE E
632	2106	LF	LOOP DETECTOR LEAD-IN CABLE
632	47	LF	POWER CABLE, 3-CONDUCTOR, NO. 8 AWG
632	1	EA	POWER SERVICE
632	8	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER, ACTUATED, 8 PHASE, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN
633	1	CY	CONCRETE FOR CABINET FOUNDATION
642	100	LF	CHANNELIZING LINE, TYPE 2
642	0.04	MI	CENTER LINE, TYPE 2

INTERSECTION OF LORAIN AVE. AND WEST 65 ST.

CUYAHOGA COUNTY
CUY-10-8.96 & VARIOUS

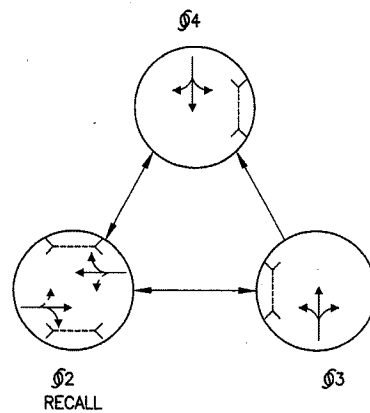
53
67

93261012.DWG, PLOT SCALE: 1"=20'

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 58.

FOR POLE CHART SEE SHEET 67.

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES TO REMAIN. PROPOSED MODIFICATIONS AND/OR ADDITIONS ARE SHOWN AS SOLID LINES.



PHASING DIAGRAM

SIGNAL HEAD	phi 1		phi 2		phi 3		phi 4		FLASH	DWELL		
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR				
A			G	Y	R	R	R	R	R	Y	G	
B			G	Y	R	R	R	R	R	Y	G	
C			G	Y	R	R	R	R	R	Y	G	
D			G	Y	R	R	R	R	R	Y	G	
E			R	R	R	G	Y	R	R	R	R	
F			R	R	R	G	Y	R	R	R	R	
G			R	R	R	R	R	G	Y	R	R	
H			R	R	R	R	R	G	Y	R	R	
I												
J			W/(DW)	DW	DW	DW	DW	DW	DW	DW	D	W
K			W/(DW)	DW	DW	DW	DW	DW	DW	DW	D	W
L			W/(DW)	DW	DW	DW	DW	DW	DW	DW	D	W
M			DW	DW	DW	W/(DW)	DW	DW	DW	DW	D	DW
N			DW	DW	DW	W/(DW)	DW	DW	DW	DW	D	DW
O			DW	DW	DW	DW	DW	W/(DW)	DW	DW	D	DW
P			DW	DW	DW	DW	DW	W/(DW)	DW	DW	D	DW

W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK

SIGNAL SEQUENCE CHART

FUNCTION	phi 1	phi 2	phi 3	phi 4
INITIAL GREEN		-	8	8
MINIMUM GREEN		25	-	-
VEHICLE EXTENSION		-	3	3
MAXIMUM GREEN		-	17	17
PEDESTRIAN WALK		-	5	5
PEDESTRIAN CLEAR		12	12	12
VEH. YELLOW CLEAR		3	3	3
VEHICLE RED CLEAR		2	2	2
RECALL		PED	NO	NO
MEMORY		NO	NO	NO

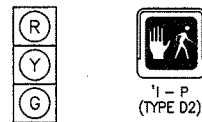
SIGNAL TIMING CHART

W. 73 St
S1 & S2
84" x 20"

NO TURN ON RED
53
R-23-24

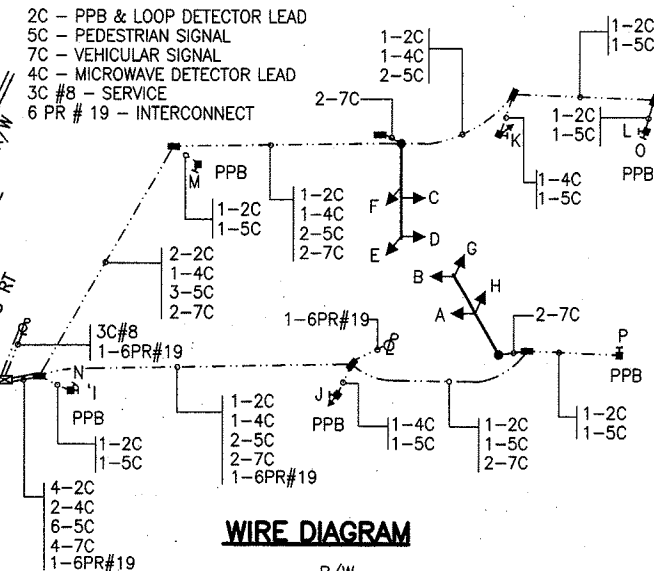
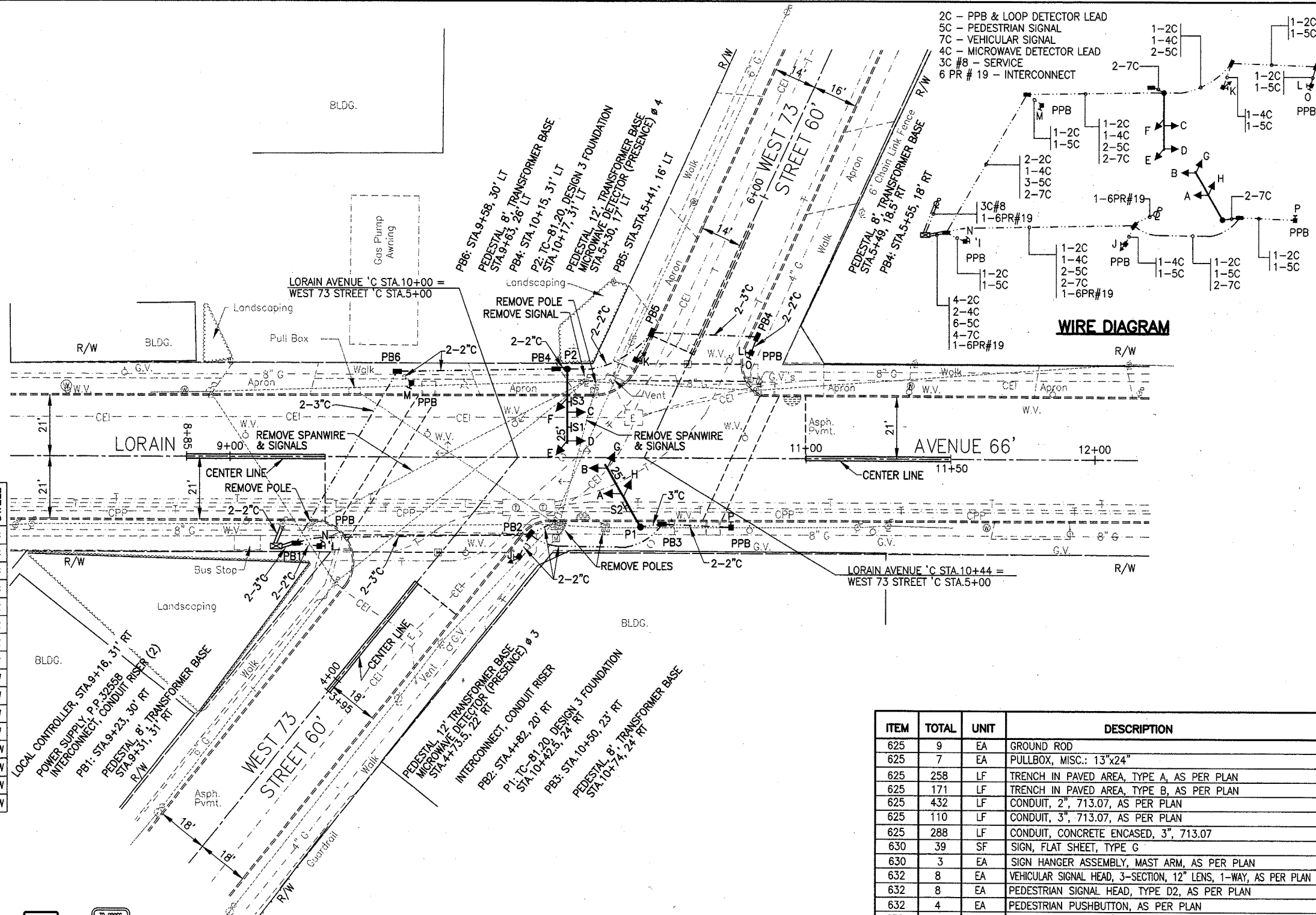
TO CROSS LORAIN AVE. PUSH BUTTON WAIT FOR WALK SIGNAL.
R-73A-9
MOUNT ABOVE PPB

SIGN LEGEND



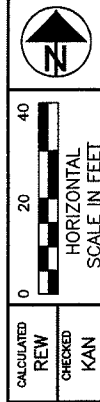
A - H
ROTATE TUNNEL VISORS 90° ON ALL HEADS

12" SIGNAL HEADS
RIGID MOUNTED



WIRE DIAGRAM

ITEM	TOTAL	UNIT	DESCRIPTION
625	9	EA	GROUND ROD
625	7	EA	PULLBOX, MISC.: 13"x24"
625	258	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	171	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	432	LF	CONDUIT, 2", 713.07, AS PER PLAN
625	110	LF	CONDUIT, 3", 713.07, AS PER PLAN
625	288	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
630	39	SF	SIGN, FLAT SHEET, TYPE G
630	3	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
632	8	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	8	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	4	EA	PEDESTRIAN PUSHBUTTON, AS PER PLAN
632	2	EA	SIGNALIZATION, MISC.: MICROWAVE DETECTOR
632	2	EA	SIGNAL SUPPORT FOUNDATION, AS PER PLAN
632	6	EA	PEDESTAL FOUNDATION
632	6	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, WITH 25' ARM, AS PER PLAN
632	4	EA	PEDESTAL, 8', TRANSFORMER BASE, AS PER PLAN
632	2	EA	PEDESTAL, MISC.: 12', TRANSFORMER BASE
632	3	EA	CONDUIT RISER, 2" DIAMETER
632	943	LF	SIGNAL CABLE, 5-CONDUCTOR, NO. 14 AWG
632	807	LF	SIGNAL CABLE, 7-CONDUCTOR, NO. 14 AWG
632	515	LF	LOOP DETECTOR LEAD-IN CABLE
632	339	LF	SIGNALIZATION, MISC.: MICROWAVE DETECTOR LEAD-IN CABLE
632	38	LF	POWER CABLE, 3-CONDUCTOR, NO. 8 AWG
632	8	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER, ACTUATED, 8 PHASE, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN
633	1	CY	CONCRETE FOR CABINET FOUNDATION
642	0.06	MI	CENTER LINE, TYPE 2



INTERSECTION OF LORAIN AVE. AND WEST 73 ST.

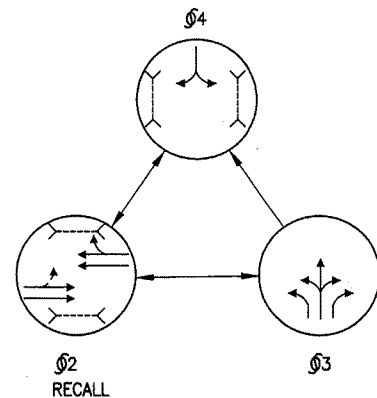
CUYAHOGA COUNTY
CUY-10-8.96 & VARIOUS

9326TD13.DWG, PLOT SCALE: 1"=30'

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 58.

FOR POLE CHART SEE SHEET 67.

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES TO REMAIN. PROPOSED MODIFICATIONS AND/OR ADDITIONS ARE SHOWN AS SOLID LINES.



PHASING DIAGRAM

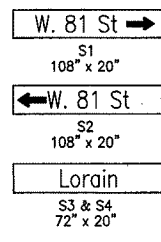
SIGNAL HEAD	phi 1		phi 2		phi 3		phi 4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A			G	Y R	R	R R	R	R R	Y	G
B			G	Y R	R	R R	R	R R	Y	G
C			G	Y R	R	R R	R	R R	Y	G
D			G	Y R	R	R R	R	R R	Y	G
E			R	R R	G	Y R	R	R R	R	R
F			R	R R	G	Y R	R	R R	R	R
G			R	R R	G	Y R	R	R R	R	R
H			R	R R	R	R R	G	Y R	R	R
I			R	R R	R	R R	G	Y R	R	R
J			W/(DW)	DW	DW	DW	DW	DW	DW	D W
K			W/(DW)	DW	DW	DW	DW	DW	DW	D W
L			W/(DW)	DW	DW	DW	DW	DW	DW	D W
M			W/(DW)	DW	DW	DW	DW	DW	DW	D W
N			DW	DW	DW	DW	W/(DW)	DW	DW	D DW
O			DW	DW	DW	DW	W/(DW)	DW	DW	D DW
P			DW	DW	DW	DW	W/(DW)	DW	DW	D DW
Q			DW	DW	DW	DW	W/(DW)	DW	DW	D DW

W-WALK (DW)-FLASHING DONT WALK DW-DONT WALK D-DARK

SIGNAL SEQUENCE CHART

FUNCTION	phi 1	phi 2	phi 3	phi 4
INITIAL GREEN		-	8	6
MINIMUM GREEN		30	-	-
VEHICLE EXTENSION		-	3	2
MAXIMUM GREEN		-	22	12
PEDESTRIAN WALK		-	-	7
PEDESTRIAN CLEAR.		17	-	12
VEH. YELLOW CLEAR.		3	3	3
VEHICLE RED CLEAR.		2.5	2	1
RECALL		PED	NO	NO
MEMORY		NO	NO	NO

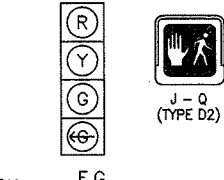
SIGNAL TIMING CHART



ROTATE VISORS 90° ON HEADS C, D, H & I

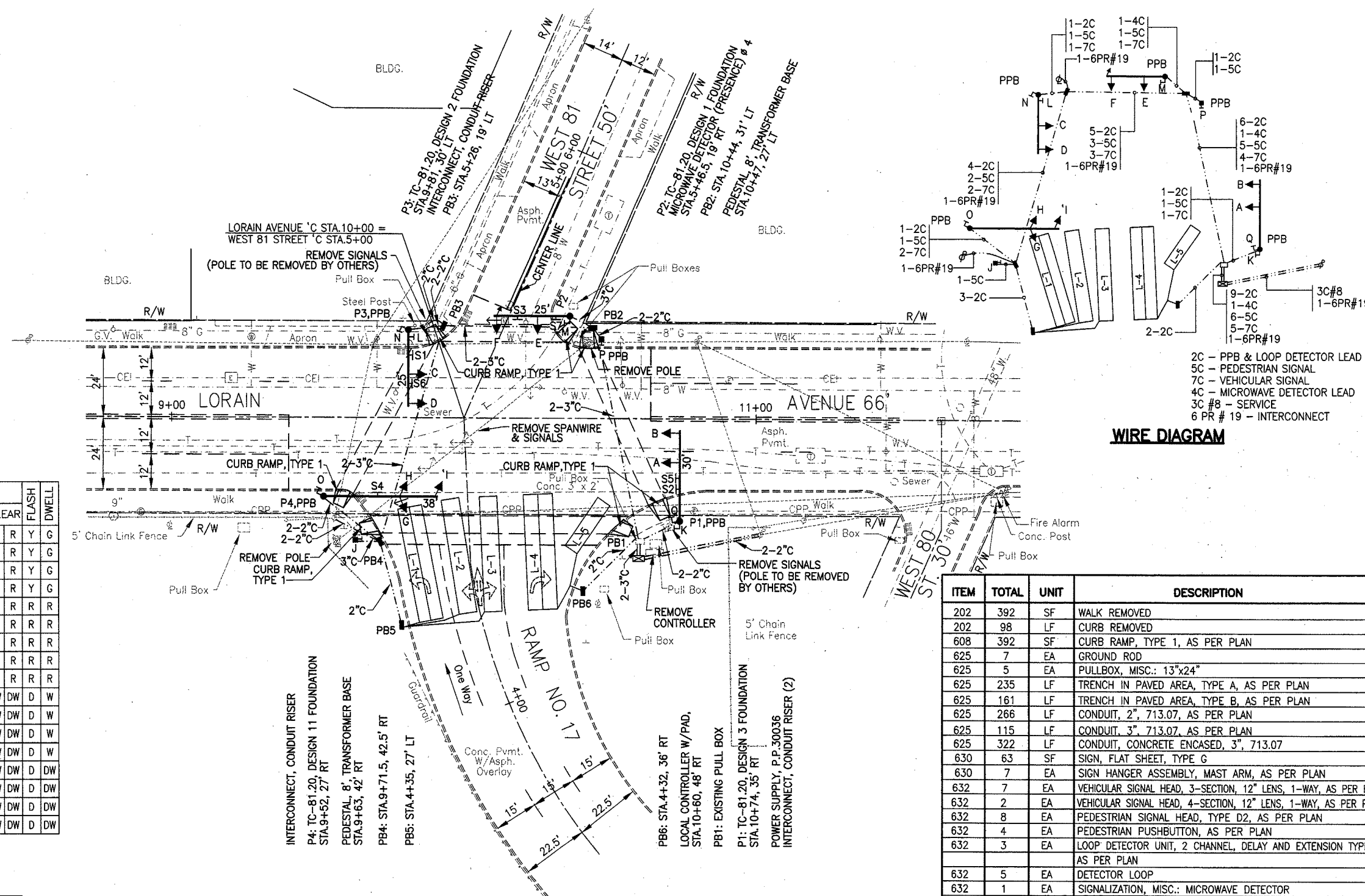
12" SIGNAL HEADS RIGID MOUNTED

SIGN LEGEND



LOOP	SIZE	TURNS	MODE	DELAY	PHASE	REMARK	INHIBITED DELAY	LOCATION 1ST FRONT CORNER	LOCATION 2ND FRONT CORNER
L-1	8'X40'	2-4-2	PRESENCE		3	QUADRAPOLE		STA.4+70, 24' L	STA.4+72, 16' L
L-2	6'X40'	2	PRESENCE		3			STA.4+72, 9' L	STA.4+73, 3' L
L-3	6'X40'	2	PRESENCE		3			STA.4+73, 10' R	STA.4+73, 4' R
L-4	10'X40'	2-4-2	PRESENCE		3	QUADRAPOLE		STA.4+73, 29' R	STA.4+73, 19' R
L-5	6'X20'	2	PRESENCE		3			STA.4+70, 49' R	STA.4+73, 45' R

LOOP DETECTOR CHART



WIRE DIAGRAM

ITEM	TOTAL	UNIT	DESCRIPTION
202	392	SF	WALK REMOVED
202	98	LF	CURB REMOVED
608	392	SF	CURB RAMP, TYPE 1, AS PER PLAN
625	7	EA	GROUND ROD
625	5	EA	PULLBOX, MISC.: 13"x24"
625	235	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	161	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	266	LF	CONDUIT, 2", 713.07, AS PER PLAN
625	115	LF	CONDUIT, 3", 713.07, AS PER PLAN
625	322	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
630	63	SF	SIGN, FLAT SHEET, TYPE G
630	7	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
632	7	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	2	EA	VEHICULAR SIGNAL HEAD, 4-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	8	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	4	EA	PEDESTRIAN PUSHBUTTON, AS PER PLAN
632	3	EA	LOOP DETECTOR UNIT, 2 CHANNEL, DELAY AND EXTENSION TYPE, AS PER PLAN
632	5	EA	DETECTOR LOOP
632	1	EA	SIGNALIZATION, MISC.: MICROWAVE DETECTOR
632	4	EA	SIGNAL SUPPORT FOUNDATION, AS PER PLAN
632	2	EA	PEDESTAL FOUNDATION
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 25' ARM, AS PER PLAN
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 2, WITH 25' ARM, AS PER PLAN
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, WITH 30' ARM, AS PER PLAN
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 11, WITH 38' ARM, AS PER PLAN
632	2	EA	PEDESTAL, 8', TRANSFORMER BASE, AS PER PLAN
632	3	EA	CONDUIT RISER, 2" DIAMETER
632	1000	LF	SIGNAL CABLE, 5-CONDUCTOR, NO. 14 AWG
632	1072	LF	SIGNAL CABLE, 7-CONDUCTOR, NO. 14 AWG
632	1340	LF	LOOP DETECTOR LEAD-IN CABLE
632	157	LF	SIGNALIZATION, MISC.: MICROWAVE DETECTOR LEAD-IN CABLE
632	72	LF	POWER CABLE, 3-CONDUCTOR, NO. 8 AWG
632	9	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER, ACTUATED, 8 PHASE, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN
633	8.3	SF	CONTROLLER WORK PAD
633	1	CY	CONCRETE FOR CABINET FOUNDATION
642	0.02	MI	CENTER LINE, TYPE 2

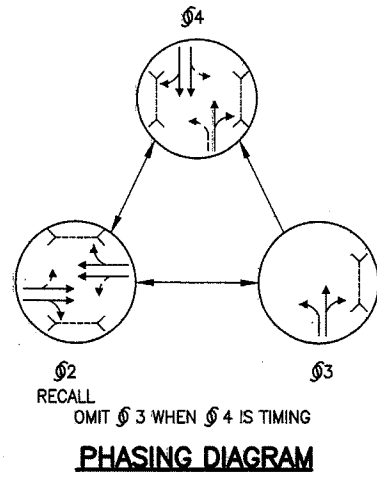
CUYAHOGA COUNTY
 INTERSECTION OF LORAIN AVE., WEST 81 ST. AND I-90 RAMP
 CUY-10-8.96 & VARIOUS
 55
 67

9.3261014.DWG, PLOT SCALE: 1"=20'

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 58.

FOR POLE CHART SEE SHEET 67.

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES TO REMAIN.
PROPOSED MODIFICATIONS AND/OR ADDITIONS ARE SHOWN AS SOLID LINES.



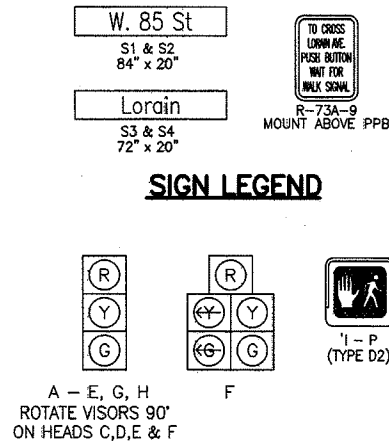
SIGNAL	phi 1		phi 2		phi 3		phi 4		FLASH	DWELL		
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR				
A			G	Y	R	R	R	R	R	Y	G	
B			G	Y	R	R	R	R	R	Y	G	
C			G	Y	R	R	R	R	R	Y	G	
D			G	Y	R	R	R	R	R	Y	G	
E			R	R	R	G	G	G	G	Y	R	R
F			R	R	R	G	G	G	G	Y	R	R
G			R	R	R	R	R	R	R	Y	R	R
H			R	R	R	R	R	R	R	Y	R	R
I			W/(DW)	DW	DW	DW	DW	DW	DW	DW	D	W
J			W/(DW)	DW	DW	DW	DW	DW	DW	DW	D	W
K			W/(DW)	DW	DW	DW	DW	DW	DW	DW	D	W
L			W/(DW)	DW	DW	DW	DW	DW	DW	DW	D	W
M			DW	DW	DW	DW	DW	W/(DW)	DW	DW	D	W
N			DW	DW	DW	DW	DW	W/(DW)	DW	DW	D	W
O			DW	DW	DW	W	W	W/(DW)	DW	DW	D	W
P			DW	DW	DW	W	W	W/(DW)	DW	DW	D	W

W-WALK (DW)-FLASHING DONT WALK DW-DONT WALK D-DARK

SIGNAL SEQUENCE CHART

FUNCTION	phi 1	phi 2	phi 3	phi 4
INITIAL GREEN		-	6	8
MINIMUM GREEN		25	-	-
VEHICLE EXTENSION		-	-	3
MAXIMUM GREEN		-	6	25
PEDESTRIAN WALK		-	-	7
PEDESTRIAN CLEAR		15	-	18
VEH. YELLOW CLEAR		3	3	3
VEHICLE RED CLEAR		3	2	2
RECALL		PED	NO	NO
MEMORY		NO	NO	NO

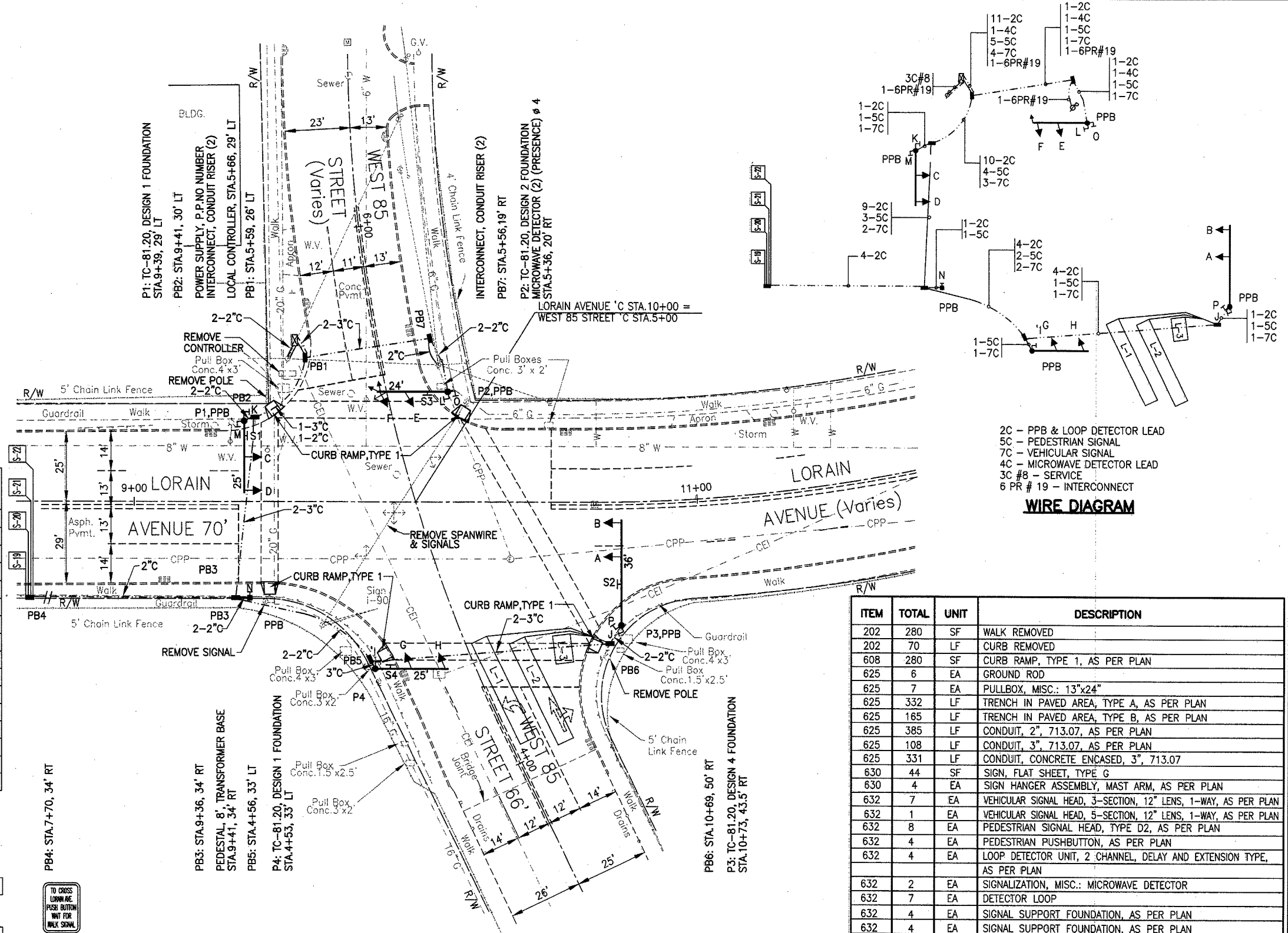
SIGNAL TIMING CHART



12" SIGNAL HEADS
RIGID MOUNTED

LOOP	SIZE	TURNS	MODE	DELAY	PHASE	REMARK	INHIBITED DELAY	LOCATION 1ST FRONT CORNER	LOCATION 2ND FRONT CORNER
L-1	6'x40'	2	PRESENCE		3			STA.4+46, 3' R	STA.4+46, 9' R
L-2	6'x40'	2	PRESENCE	8	4		NO	STA.4+40, 15' R	STA.4+40, 21' R
L-3	6'x10'	3	PRESENCE	8	4		NO	STA.4+36, 30' R	STA.4+34, 36' R
S-19	6'x6'	3	BOTH			SYSTEM		STA.7+70, 24' R	STA.7+70, 18' R
S-20	6'x6'	3	BOTH			SYSTEM		STA.7+70, 10' R	STA.7+70, 4' R
S-21	6'x6'	3	BOTH			SYSTEM		STA.7+70, 2' L	STA.7+70, 8' L
S-22	6'x6'	3	BOTH			SYSTEM		STA.7+70, 14' L	STA.7+70, 20' L

LOOP DETECTOR CHART



2C - PPB & LOOP DETECTOR LEAD
5C - PEDESTRIAN SIGNAL
7C - VEHICULAR SIGNAL
4C - MICROWAVE DETECTOR LEAD
3C #8 - SERVICE
6 PR # 19 - INTERCONNECT

WIRE DIAGRAM

ITEM	TOTAL	UNIT	DESCRIPTION
202	280	SF	WALK REMOVED
202	70	LF	CURB REMOVED
608	280	SF	CURB RAMP, TYPE 1, AS PER PLAN
625	6	EA	GROUND ROD
625	7	EA	PULLBOX, MISC.: 13"x24"
625	332	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	165	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	385	LF	CONDUIT, 2", 713.07, AS PER PLAN
625	108	LF	CONDUIT, 3", 713.07, AS PER PLAN
625	331	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
630	44	SF	SIGN, FLAT SHEET, TYPE G
630	4	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
632	7	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	1	EA	VEHICULAR SIGNAL HEAD, 5-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	8	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	4	EA	PEDESTRIAN PUSHBUTTON, AS PER PLAN
632	4	EA	LOOP DETECTOR UNIT, 2 CHANNEL, DELAY AND EXTENSION TYPE, AS PER PLAN
632	2	EA	SIGNALIZATION, MISC.: MICROWAVE DETECTOR
632	7	EA	DETECTOR LOOP
632	4	EA	SIGNAL SUPPORT FOUNDATION, AS PER PLAN
632	4	EA	SIGNAL SUPPORT FOUNDATION, AS PER PLAN
632	1	EA	PEDESTAL FOUNDATION
632	2	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 2, WITH 24' ARM, AS PER PLAN
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 36' ARM, AS PER PLAN
632	1	EA	PEDESTAL, 8", TRANSFORMER BASE, AS PER PLAN
632	3	EA	CONDUIT RISER, 2" DIAMETER
632	806	LF	SIGNAL CABLE, 5-CONDUCTOR, NO. 14 AWG
632	812	LF	SIGNAL CABLE, 7-CONDUCTOR, NO. 14 AWG
632	2402	LF	LOOP DETECTOR LEAD-IN CABLE
632	272	LF	SIGNALIZATION, MISC.: MICROWAVE DETECTOR LEAD-IN CABLE
632	38	LF	POWER CABLE, 3-CONDUCTOR, NO. 8 AWG
632	8	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER, ACTUATED, 8 PHASE, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN
633	1	CY	CONCRETE FOR CABINET FOUNDATION

LORAIN AVENUE COORDINATION TIMING				
INTERSECTION	TIMING PROGRAM 1 90 SECOND CYCLE 6:00 - 9:00 A.M., M-F	TIMING PROGRAM 2 90 SECOND CYCLE 9:00 A.M.-3:00 P.M. 6:00 P.M.-12MID., M-F 6:00 A.M.-12MID., SA&SU	TIMING PROGRAM 3 90 SECOND CYCLE 3:00 - 6:00 P.M., M-F	
	OFFSET SECONDS/PERCENT	OFFSET SECONDS/PERCENT	OFFSET SECONDS/PERCENT	
W. 20 STREET	53/57	72/80	11/12	
W. 24 STREET	17/19	4/4	83/92	
W. 25 STREET	0*	0*	0*	
W. 28 STREET	1/1	18/20	50/56	
W. 30 STREET	74/82	67/74	44/47	
W. 32 STREET	59/66	49/54	46/49	
FULTON ROAD	0**	0**	0**	
W. 41 STREET	54/60	47/52	3/3	
W. 44 STREET	56/62	50/56	79/88	
W. 53 STREET	84/93	50/56	87/97	
W. 58 STREET	69/77	50/56	12/13	
W. 65 STREET	16/18	87/97	44/49	
W. 73 STREET	62/69	39/43	84/93	
W. 81 STREET/I-90	11/12	84/93	37/41	
W. 85 STREET	83/92	85/94	45/50	
CLARK/S. MARGINAL	70/78	36/40	20/22	

EAST SECTION

WEST SECTION

*EAST SECTION SYSTEM REFERENCE ** WEST SECTION SYSTEM REFERENCE
 OFFSETS REFERENCED TO BEGINNING OF
 ARTERY YELLOW (PHASE 2) AT EACH INTERSECTION.
 SIGNALS TO OPERATE IN FREE MODE DURING ALL TIMES NOT LISTED.

LEE ROAD COORDINATION TIMING				
INTERSECTION	TIMING PROGRAM 1 90 SECOND CYCLE 6:00 - 9:00 A.M., M-F	TIMING PROGRAM 2 90 SECOND CYCLE 9:00 A.M.-3:00 P.M. 6:00 P.M.-12MID., M-F 6:00 A.M.-12MID., SA&SU	TIMING PROGRAM 3 90 SECOND CYCLE 3:00 - 6:00 P.M., M-F	
	OFFSET SECONDS/PERCENT	OFFSET SECONDS/PERCENT	OFFSET SECONDS/PERCENT	
JUDSON DRIVE	0*	0*	0*	
WESTVIEW AVENUE	46/51	13/15	43/48	
HARVARD AVENUE	29/32	86/95	26/28	
STOCKBRIDGE AVE.	43/48	9/10	43/48	
GLENDALE AVENUE	86/96	48/53	77/86	
WALDEN AVENUE	81/90	46/51	80/89	
INVERMERE AVENUE	46/51	12/13	45/50	

* SYSTEM REFERENCE
 OFFSETS REFERENCED TO BEGINNING OF
 ARTERY YELLOW (PHASE 4) AT EACH INTERSECTION.
 SIGNALS TO OPERATE IN FREE MODE DURING ALL TIMES NOT LISTED.

BUCKEYE ROAD COORDINATION TIMING				
INTERSECTION	TIMING PROGRAM 1 90 SECOND CYCLE 6:00 - 9:00 A.M., M-F	TIMING PROGRAM 2 90 SECOND CYCLE 9:00 A.M.-3:00 P.M. 6:00 P.M.-12MID., M-F 6:00 A.M.-12MID., SA&SU	TIMING PROGRAM 3 90 SECOND CYCLE 3:00 - 6:00 P.M., M-F	
	OFFSET SECONDS/PERCENT	OFFSET SECONDS/PERCENT	OFFSET SECONDS/PERCENT	
WOODLAND AVENUE	0*	0*	0*	
E. 89 STREET	49/54	62/69	60/66	
E. 90 STREET	41/46	67/74	73/81	
E. 93 STREET	36/40	77/86	67/75	
AMBLER AVENUE	15/17	5/5	11/12	
WOODHILL/SHAKER	74/82	0/0	87/97	
M.L.K. BOULEVARD	89/99	7/7	50/55	
E. 114 STREET	84/93	64/71	18/20	
E. 116 STREET	34/38	44/49	12/13	
E. 119 STREET	43/48	19/21	52/58	
E. 126 STREET	86/96	6/7	57/63	
E. 130 STREET	35/39	50/55	15/16	
S. MORELAND BLVD.	32/36	57/63	20/22	

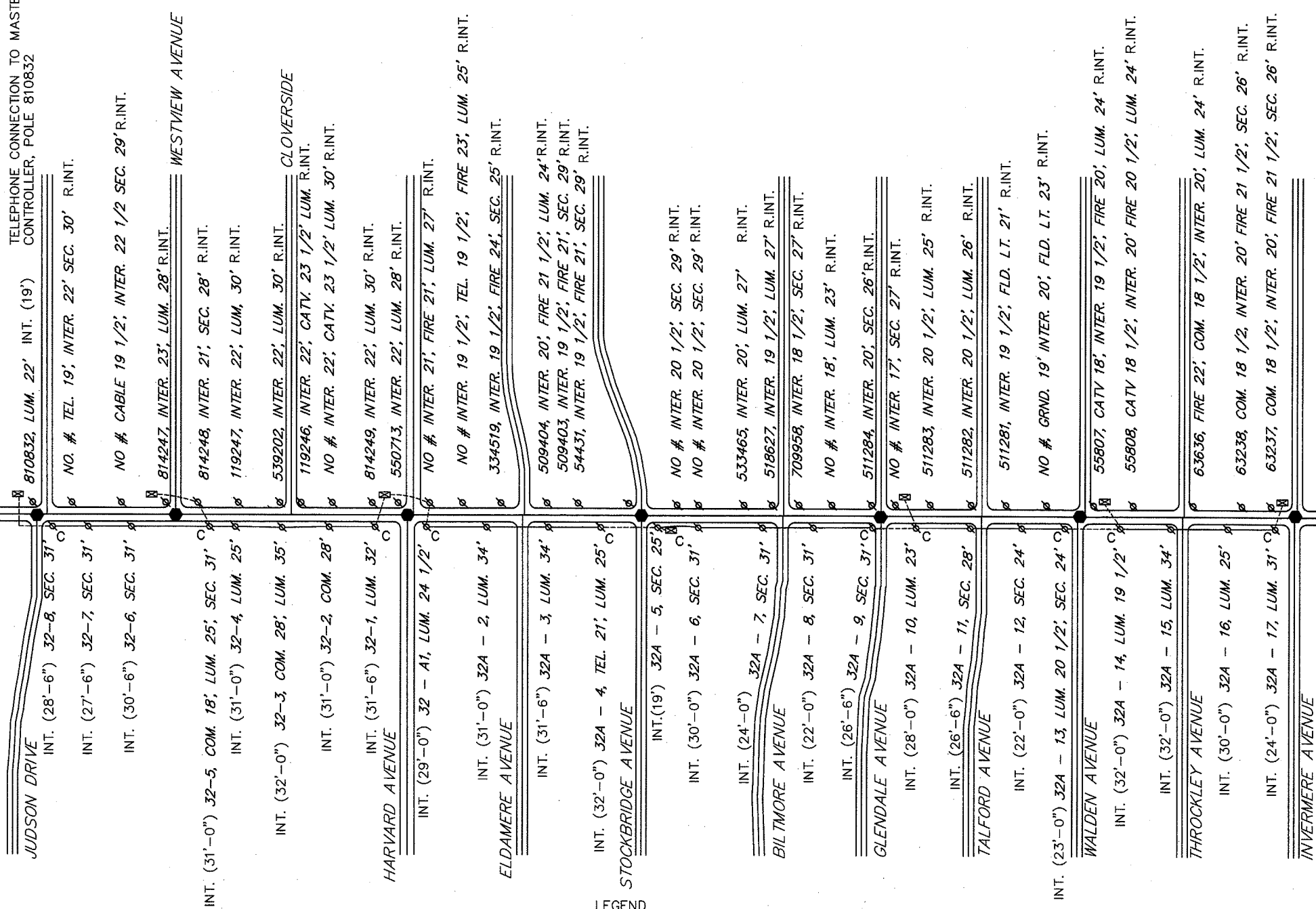
* SYSTEM REFERENCE
 OFFSETS REFERENCED TO BEGINNING OF
 ARTERY YELLOW (PHASE 2) AT EACH INTERSECTION.
 SIGNALS TO OPERATE IN FREE MODE DURING ALL TIMES NOT LISTED.

CALCULATED
G.G.B.
CHECKED
K.A.N.

COORDINATION TIMING

CUYAHOGA COUNTY
CUY-10-8.96 & VARIOUS

TELEPHONE CONNECTION TO MASTER CONTROLLER, POLE 810832



NOTES

1. INTERCONNECT CABLE TO BE IN CONDUIT ACROSS SIGNALIZED INTERSECTIONS.
2. CONDUIT AND CONDUIT RISER QUANTITIES ON SIGNAL PLANS.
3. NO SPLICES ARE PERMITTED IN INTERCONNECT CABLE.
4. NEW MOUNTING HARDWARE TO BE USED ON ALL POLES.
5. EXISTING AND PROPOSED MOUNTING HEIGHTS ARE NOMINAL. CONTRACTOR TO CONFIRM IN ACCORDANCE WITH FIELD CONDITIONS.

ITEM	TOTAL	UNIT	DESCRIPTION
632	4752	LF	INTERCONNECT CABLE, INTEGRAL MESSENGER WIRE TYPE, 6 PR, NO. 19 AWG, SOLID, REA (PE-38)

LEGEND

- SIGNALIZED INTERSECTION
- ⊗ XXXX WOOD POLE AND NUMBER
- XXXX STEEL POLE AND NUMBER
- R. INT. REMOVE EXISTING SIGNAL INTERCONNECT
- INT. (XX') INSTALL INTERCONNECT (HEIGHT)
- C CONDUIT RISER (SEE SIGNAL PLANS)
- PULL BOX (SEE SIGNAL PLANS)
- ⊞ CONTROLLER (SEE SIGNAL PLANS)
- PROPOSED AERIAL INTERCONNECT
- PROPOSED INTERCONNECT IN PROPOSED CONDUIT (SEE SIGNAL PLANS)

EXISTING FACILITIES ON POLES

- INTER. XX' SIGNAL INTERCONNECT (MOUNTING HEIGHT, TYP.)
- TEL. TELEPHONE
- CATV. CABLE TELEVISION
- FIRE FIRE ALARM WIRE
- COM. COMMUNICATIONS
- SEC. SECONDARY ELECTRIC
- H.V. HIGH VOLTAGE ELECTRIC
- LUM. LUMINAIRE ARM OR LIGHTING WIRE
- FLD. LT. FLOOD LIGHT
- L. P. LIGHT POLE

CUYAHOGA COUNTY
CUY-10-8.96 & VARIOUS

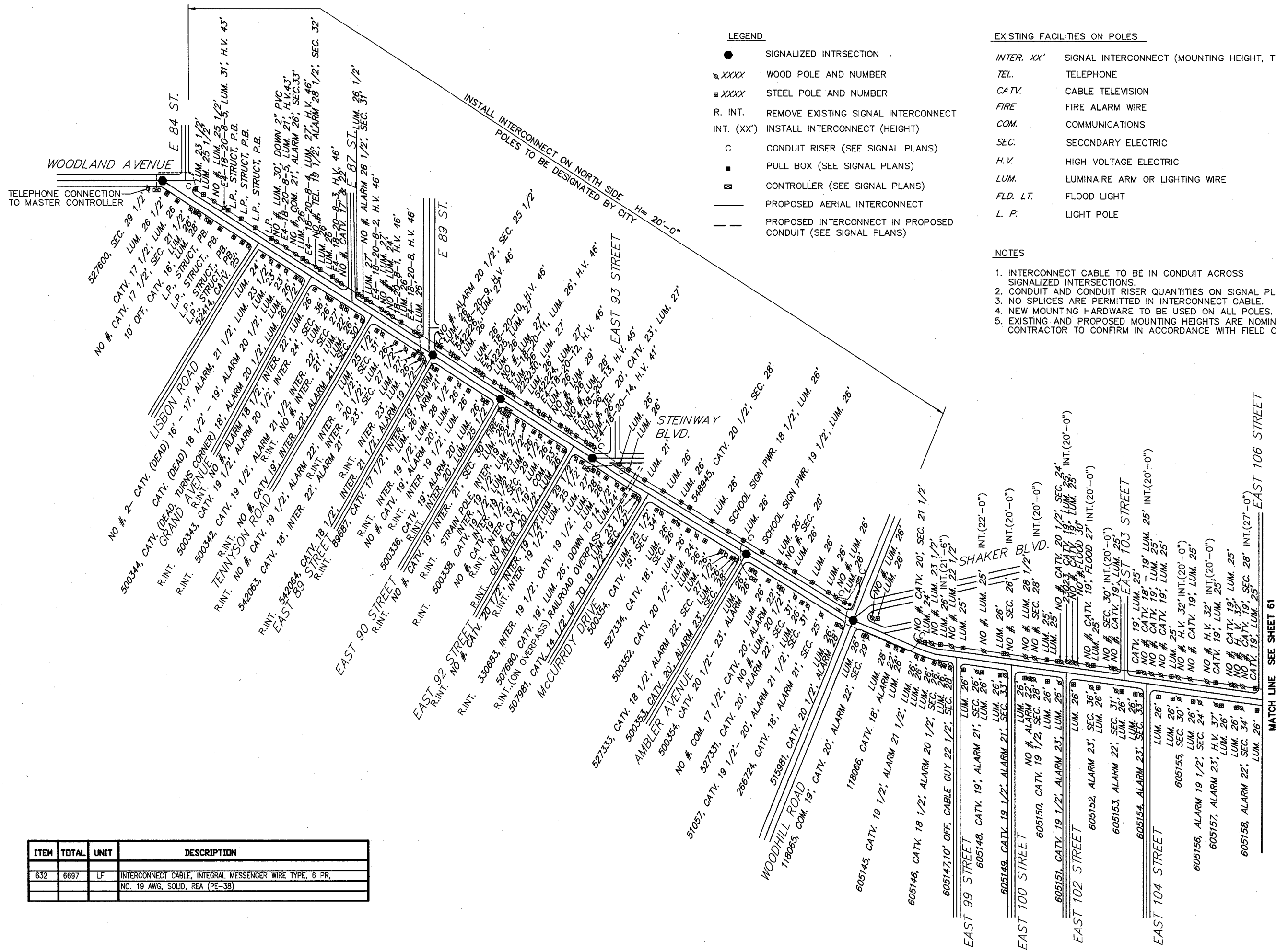
LEE ROAD INTERCONNECT

CALCULATED
G.G.B.
CHECKED
K.A.N.

0 200' 400'

HORIZONTAL SCALE IN FEET

ITEM	TOTAL	UNIT	DESCRIPTION
632	6697	LF	INTERCONNECT CABLE, INTEGRAL MESSENGER WIRE TYPE, 6 PR, NO. 19 AWG, SOLID, REA (PE-38)



- LEGEND**
- SIGNALIZED INTERSECTION
 - ⊠ XXXX WOOD POLE AND NUMBER
 - ⊠ XXXX STEEL POLE AND NUMBER
 - R. INT. REMOVE EXISTING SIGNAL INTERCONNECT
 - INT. (XX') INSTALL INTERCONNECT (HEIGHT)
 - C CONDUIT RISER (SEE SIGNAL PLANS)
 - PULL BOX (SEE SIGNAL PLANS)
 - CONTROLLER (SEE SIGNAL PLANS)
 - PROPOSED AERIAL INTERCONNECT
 - - - PROPOSED INTERCONNECT IN PROPOSED CONDUIT (SEE SIGNAL PLANS)

- EXISTING FACILITIES ON POLES**
- INTER. XX' SIGNAL INTERCONNECT (MOUNTING HEIGHT, TYP.)
 - TEL. TELEPHONE
 - CATV. CABLE TELEVISION
 - FIRE FIRE ALARM WIRE
 - COM. COMMUNICATIONS
 - SEC. SECONDARY ELECTRIC
 - H.V. HIGH VOLTAGE ELECTRIC
 - LUM. LUMINAIRE ARM OR LIGHTING WIRE
 - FLD. LT. FLOOD LIGHT
 - L. P. LIGHT POLE

- NOTES**
1. INTERCONNECT CABLE TO BE IN CONDUIT ACROSS SIGNALIZED INTERSECTIONS.
 2. CONDUIT AND CONDUIT RISER QUANTITIES ON SIGNAL PLANS.
 3. NO SPLICES ARE PERMITTED IN INTERCONNECT CABLE.
 4. NEW MOUNTING HARDWARE TO BE USED ON ALL POLES.
 5. EXISTING AND PROPOSED MOUNTING HEIGHTS ARE NOMINAL. CONTRACTOR TO CONFIRM IN ACCORDANCE WITH FIELD CONDITIONS.

MATCH LINE SEE SHEET 61

MATCH LINE SEE SHEET 60

EAST 106 STREET

605159, ALARM 22', H.V. 37' LUM. 26'
 605160, CATV. 19', ALARM 22', H.V. 37' LUM. 26'
 605161, ALARM 22', H.V. 37' LUM. 26'
 NO # SEC. 28' INT.(19'-0") EAST 108 STREET
 NO # CATV. 19', LUM. 25'

MARTIN LUTHER KING BLVD. NO # ALARM 22', H.V. 37' LUM. 26'

EAST 108 STREET

605162, ALARM 22', SEC. 31' LUM. 26'
 605172, ALARM 22', SEC. 31' LUM. 26'
 605172, ALARM 22', SEC. 31' LUM. 26'
 605171, CATV. 19 1/2', ALARM 22', SEC. 32' LUM. 26'

EAST 111 STREET

605169, ALARM 22', SEC. 35' LUM. 26'
 602340, ALARM 22', SEC. 32' LUM. 26'

EAST 112 STREET

NO # ALARM 22', SEC. 30' LUM. 26'
 118096, ALARM 22', SEC. 37' LUM. 26'
 706213, ALARM 23', SEC. 38' LUM. 26'
 602341, ALARM 23', SEC. 38' LUM. 26'

EAST 114 STREET

ALARM & LUM. 28', SEC. 28' LUM. 26'
 605168, CATV. 19', ALARM 23', SEC. 35' LUM. 26'

EAST 115 STREET

NO # CATV. 16' - 19', ALARM 23' LUM. 26'
 NO # CATV. 18' - 19', ALARM 21' LUM. 26'
 NO # CATV. 17', SCHOOL SIGN PWR. LUM. 26'
 542056, SCHOOL SIGN PWR. 20 1/2', LUM. 26'

EAST 116 STREET

NO # SCHOOL SIGN PWR. LUM. 26'
 NO # ALARM 21' LUM. 26'

EAST 117 STREET

NO # TEL. & ALARM 20' LUM. 26'
 510511, TEL. & ALARM 19 1/2', COM. 23' LUM. 26'
 502311, TEL. 21' LUM. 26'

EAST 118 STREET

NO # CATV. 21 1/2', ALARM 23' LUM. 26'

EAST 119 STREET

NO # CATV. 19 1/2', ALARM 21' LUM. 26'

EAST 120 STREET

NO # CATV. 20 1/2', ALARM 26' LUM. 26'
 NO # CATV. 20 1/2', ALARM 23' LUM. 26'

EAST 121 STREET

64225, CATV 20 1/2', ALARM 23' LUM. 26'
 51066, CATV. 20 1/2', ALARM 23' LUM. 26'

EAST 123 STREET

NO # CATV. 20 1/2', ALARM 23' LUM. 26'
 TEL. 17', NO # SEC. 28' LUM. 26'
 NO # CATV. 20 1/2', ALARM 21' LUM. 26'

EAST 125 STREET

NO # CATV. 20 1/2', ALARM 23' LUM. 26'
 NO # CATV. 20 1/2', ALARM 23' LUM. 26'
 NO # CATV. 20 1/2', ALARM 23' LUM. 26'

EAST 126 STREET

NO # CATV. 20 1/2', ALARM 23' LUM. 26'
 512313, CATV. 20 1/2', ALARM 23' LUM. 26'

EAST 128 STREET

NO # CATV. 20 1/2', ALARM 23' LUM. 26'
 NO # CATV. 20 1/2', ALARM 23' LUM. 26'
 NO # CATV. 20 1/2', ALARM 23' LUM. 26'

EAST 130 STREET

NO # CATV. & TEL. 18 1/2', ALARM 25' LUM. 26'
 302135, CATV. & TEL. 18 1/2', ALARM 23' LUM. 26'
 NO # CATV. 19', TEL. & ALARM 23' LUM. 26'

EAST 127 STREET

50179, CATV. 19 1/2', ALARM 21' LUM. 26'
 NO # CATV. 19', TEL. & ALARM 23' LUM. 26'

EAST 124 STREET

NO # H.V. 540590, LUM. 25'
 NO # H.V. 647952, INTER. 22', LUM. 24' R.INT.
 NO # H.V. 540590, LUM. 25'
 NO # H.V. 647952, INTER. 20' R.INT.

EAST 122 STREET

NO # H.V. 540590, LUM. 25'
 NO # H.V. 647952, INTER. 20' R.INT.

NOTES

1. INTERCONNECT CABLE TO BE IN CONDUIT ACROSS SIGNALIZED INTERSECTIONS.
2. CONDUIT AND CONDUIT RISER QUANTITIES ON SIGNAL PLANS.
3. NO SPLICES ARE PERMITTED IN INTERCONNECT CABLE.
4. NEW MOUNTING HARDWARE TO BE USED ON ALL POLES.
5. EXISTING AND PROPOSED MOUNTING HEIGHTS ARE NOMINAL. CONTRACTOR TO CONFIRM IN ACCORDANCE WITH FIELD CONDITIONS.

LEGEND

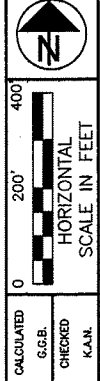
- SIGNALIZED INTRSECTION
- ⊠ XXXX WOOD POLE AND NUMBER
- ⊠ XXXX STEEL POLE AND NUMBER
- R. INT. REMOVE EXISTING SIGNAL INTERCONNECT
- INT. (XX') INSTALL INTERCONNECT (HEIGHT)
- C CONDUIT RISER (SEE SIGNAL PLANS)
- PULL BOX (SEE SIGNAL PLANS)
- ⊠ CONTROLLER (SEE SIGNAL PLANS)
- PROPOSED AERIAL INTERCONNECT
- PROPOSED INTERCONNECT IN PROPOSED CONDUIT (SEE SIGNAL PLANS)
- PROPOSED INTERCONNECT IN EXISTING CONDUIT

EXISTING FACILITIES ON POLES

- INTER. XX' SIGNAL INTERCONNECT (MOUNTING HEIGHT, TYP.)
- TEL. TELEPHONE
- CATV. CABLE TELEVISION
- FIRE FIRE ALARM WIRE
- COM. COMMUNICATIONS
- SEC. SECONDARY ELECTRIC
- H.V. HIGH VOLTAGE ELECTRIC
- LUM. LUMINAIRE ARM OR LIGHTING WIRE
- FLD. LT. FLOOD LIGHT
- L. P. LIGHT POLE

ITEM	TOTAL	UNIT	DESCRIPTION
632	2851	LF	INTERCONNECT CABLE, INTEGRAL MESSENGER WIRE TYPE, 6 PR. NO. 19 AWG, SOLID, REA (PE-38)
632	3973	LF	INTERCONNECT CABLE, 6 PR. NO. 19 AWG, SOLID, REA (PE-39)

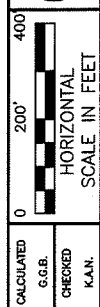
INTERCONNECT TO BE INSTALLED IN EXISTING DUCT BANK
 REMOVE EXISTING AERIAL INTERCONNECT WIRE



BUCKEYE ROAD INTERCONNECT

CUYAHOGA COUNTY
 CUY-10-8.96 & VARIOUS

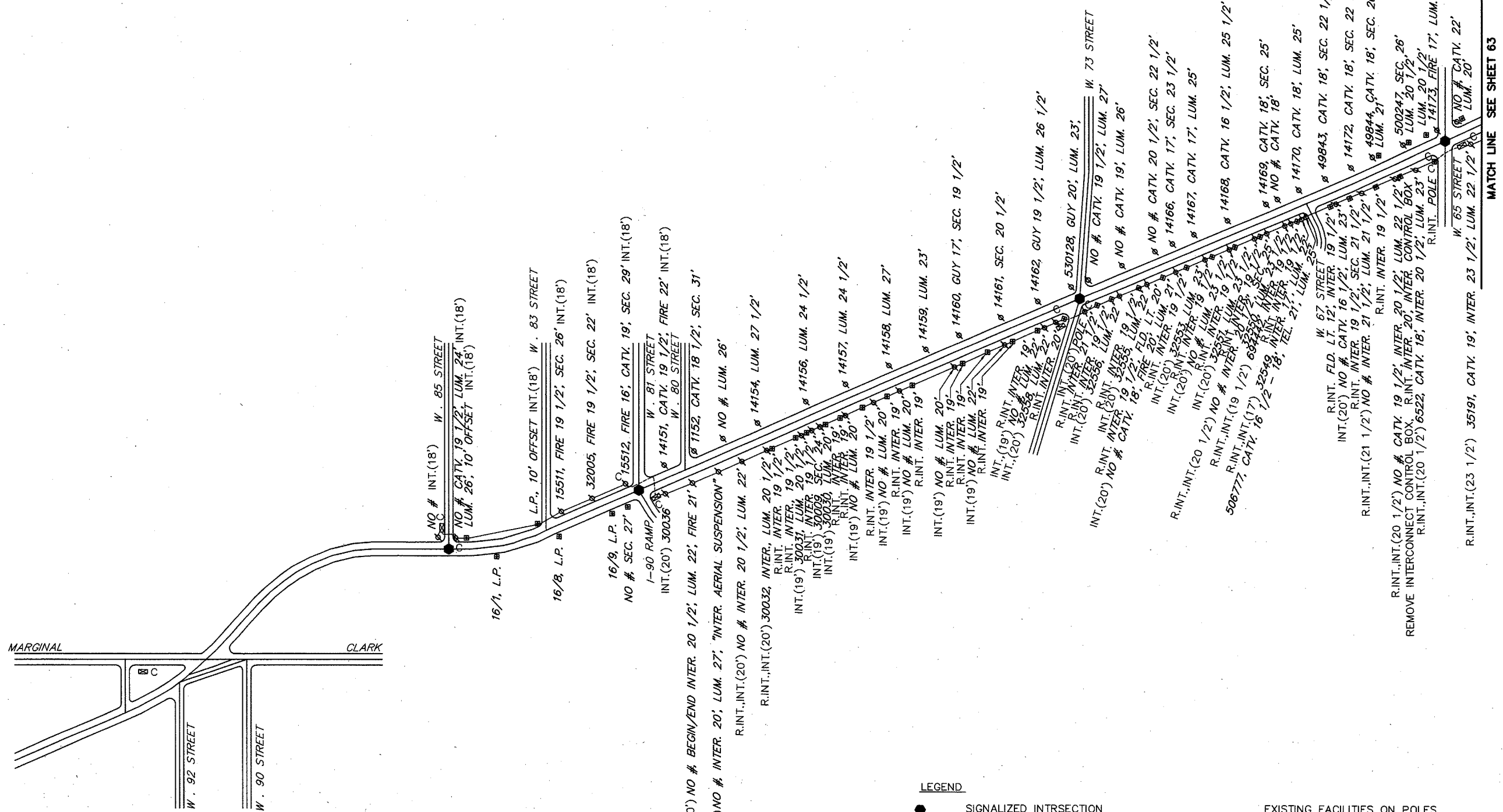
REMOVE ABANDONED UTILITY POLES
AS DIRECTED BY ENGINEER-BY POWER COMPANY



CALCULATED
C.G.B.
CHECKED
K.A.N.

LORAIN AVENUE INTERCONNECT

CUYAHOGA COUNTY
CUY-10-8.96 & VARIOUS



MATCH LINE SEE SHEET 63

NOTES

- INTERCONNECT CABLE TO BE IN CONDUIT ACROSS SIGNALIZED INTERSECTIONS.
- CONDUIT AND CONDUIT RISER QUANTITIES ON SIGNAL PLANS.
- NO SPLICES ARE PERMITTED IN INTERCONNECT CABLE.
- NEW MOUNTING HARDWARE TO BE USED ON ALL POLES.
- EXISTING AND PROPOSED MOUNTING HEIGHTS ARE NOMINAL. CONTRACTOR TO CONFIRM IN ACCORDANCE WITH FIELD CONDITIONS.
- REMOVE EXISTING CONDUIT FROM EXISTING STEEL POLES.
- INSTALL PROPOSED INTERCONNECT ON EXISTING WOOD POLES.

LEGEND

- SIGNALIZED INTERSECTION
- XXXX WOOD POLE AND NUMBER
- XXXX STEEL POLE AND NUMBER
- R. INT. REMOVE EXISTING SIGNAL INTERCONNECT
- INT. (XX') INSTALL INTERCONNECT (HEIGHT)
- C CONDUIT RISER (SEE SIGNAL PLANS)
- PULL BOX (SEE SIGNAL PLANS)
- ⊠ CONTROLLER (SEE SIGNAL PLANS)
- PROPOSED AERIAL INTERCONNECT
- PROPOSED INTERCONNECT IN PROPOSED CONDUIT (SEE SIGNAL PLANS)

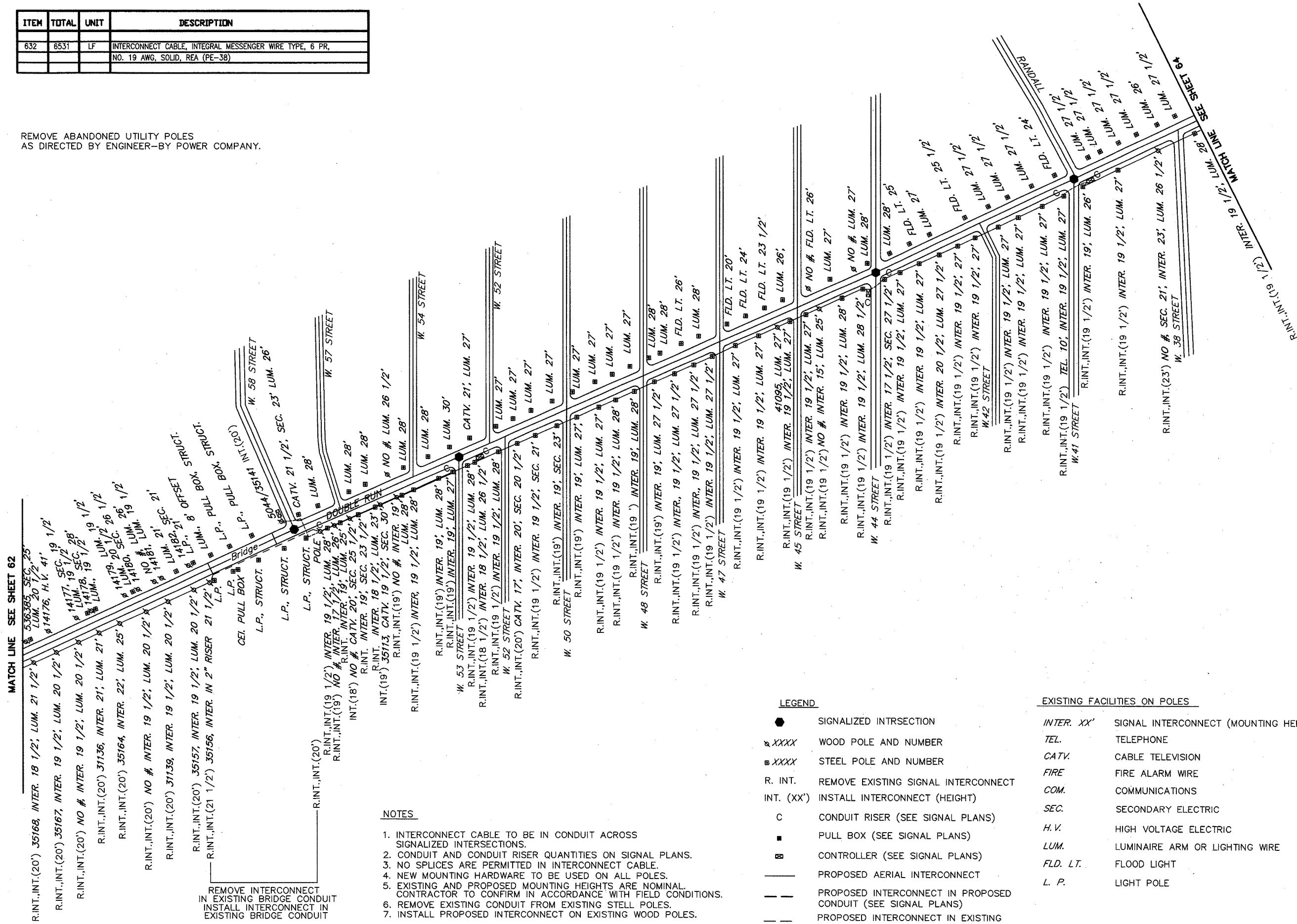
EXISTING FACILITIES ON POLES

- INTER. XX' SIGNAL INTERCONNECT (MOUNTING HEIGHT, TYP.)
- TEL. TELEPHONE
- CATV. CABLE TELEVISION
- FIRE FIRE ALARM WIRE
- COM. COMMUNICATIONS
- SEC. SECONDARY ELECTRIC
- H.V. HIGH VOLTAGE ELECTRIC
- LUM. LUMINAIRE ARM OR LIGHTING WIRE
- FLD. LT. FLOOD LIGHT
- L. P. LIGHT POLE

ITEM	TOTAL	UNIT	DESCRIPTION
632	4662	LF	INTERCONNECT CABLE, INTEGRAL MESSENGER WIRE TYPE, 6 PR, NO. 19 AWG, SOLID, REA (PE-38)

ITEM	TOTAL	UNIT	DESCRIPTION
632	6531	LF	INTERCONNECT CABLE, INTEGRAL MESSENGER WIRE TYPE, 6 PR, NO. 19 AWG, SOLID, REA (PE-38)

REMOVE ABANDONED UTILITY POLES AS DIRECTED BY ENGINEER-BY POWER COMPANY.



MATCH LINE SEE SHEET 62

R.INT.,INT.(20') 35168, INTER. 18 1/2; LUM. 21 1/2
 R.INT.,INT.(20') 35167, INTER. 19 1/2; LUM. 20 1/2
 R.INT.,INT.(20') NO # INTER. 19 1/2; LUM. 20 1/2
 R.INT.,INT.(20') 31136, INTER. 21; LUM. 21
 R.INT.,INT.(20') 35164, INTER. 22; LUM. 25
 R.INT.,INT.(20') NO # INTER. 19 1/2; LUM. 20 1/2
 R.INT.,INT.(20') 31139, INTER. 19 1/2; LUM. 20 1/2
 R.INT.,INT.(20') 35157, INTER. 19 1/2; LUM. 20 1/2
 R.INT.,INT.(21 1/2) 35156, INTER. IN 2" RISER IN 2" STRUCT.

NOTES

- INTERCONNECT CABLE TO BE IN CONDUIT ACROSS SIGNALIZED INTERSECTIONS.
- CONDUIT AND CONDUIT RISER QUANTITIES ON SIGNAL PLANS.
- NO SPLICES ARE PERMITTED IN INTERCONNECT CABLE.
- NEW MOUNTING HARDWARE TO BE USED ON ALL POLES.
- EXISTING AND PROPOSED MOUNTING HEIGHTS ARE NOMINAL. CONTRACTOR TO CONFIRM IN ACCORDANCE WITH FIELD CONDITIONS.
- REMOVE EXISTING CONDUIT FROM EXISTING STEEL POLES.
- INSTALL PROPOSED INTERCONNECT ON EXISTING WOOD POLES.

LEGEND

- SIGNALIZED INTERSECTION
- XXXX WOOD POLE AND NUMBER
- XXXX STEEL POLE AND NUMBER
- R. INT. REMOVE EXISTING SIGNAL INTERCONNECT
- INT. (XX') INSTALL INTERCONNECT (HEIGHT)
- C CONDUIT RISER (SEE SIGNAL PLANS)
- PULL BOX (SEE SIGNAL PLANS)
- CONTROLLER (SEE SIGNAL PLANS)
- PROPOSED AERIAL INTERCONNECT
- PROPOSED INTERCONNECT IN PROPOSED CONDUIT (SEE SIGNAL PLANS)
- PROPOSED INTERCONNECT IN EXISTING CONDUIT

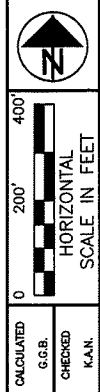
EXISTING FACILITIES ON POLES

- INTER. XX' SIGNAL INTERCONNECT (MOUNTING HEIGHT, TYP.)
- TEL. TELEPHONE
- CATV. CABLE TELEVISION
- FIRE FIRE ALARM WIRE
- COM. COMMUNICATIONS
- SEC. SECONDARY ELECTRIC
- H.V. HIGH VOLTAGE ELECTRIC
- LUM. LUMINAIRE ARM OR LIGHTING WIRE
- FLD. LT. FLOOD LIGHT
- L.P. LIGHT POLE

400
200'
0
CALCULATED G.G.B. CHECKED K.A.N.
HORIZONTAL SCALE IN FEET

LORAIN AVENUE INTERCONNECT

CUYAHOGA COUNTY
 CUY-10-8.96 & VARIOUS

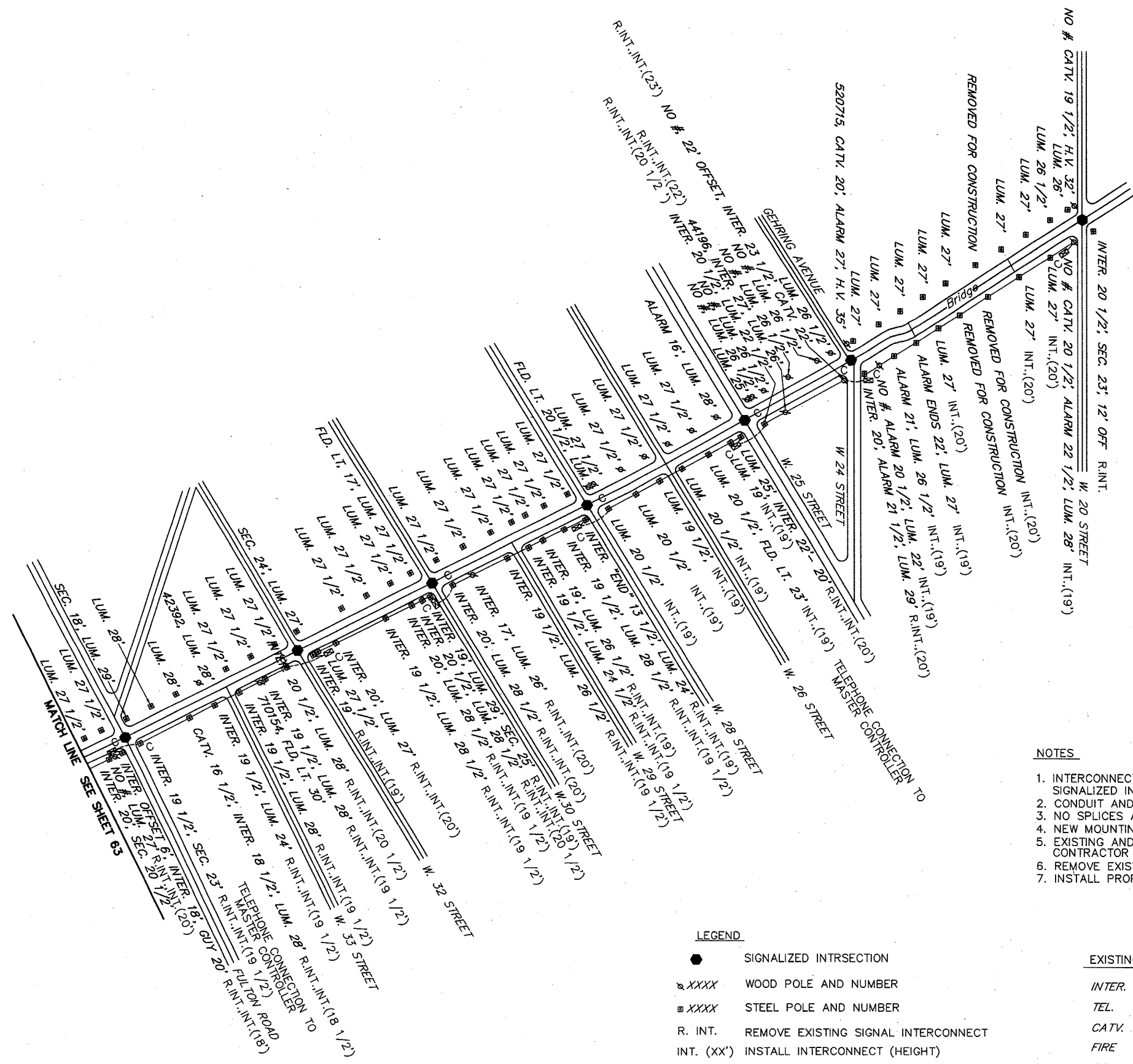


0 200' 400'
HORIZONTAL SCALE IN FEET

CALCULATED G.S.B. CHECKED K.A.N.

LORAIN AVENUE INTERCONNECT

CUYAHOGA COUNTY
CUY-10-8.96 & VARIOUS



NOTES

1. INTERCONNECT CABLE TO BE IN CONDUIT ACROSS SIGNALIZED INTERSECTIONS.
2. CONDUIT AND CONDUIT RISER QUANTITIES ON SIGNAL PLANS.
3. NO SPLICES ARE PERMITTED IN INTERCONNECT CABLE.
4. NEW MOUNTING HARDWARE TO BE USED ON ALL POLES.
5. EXISTING AND PROPOSED MOUNTING HEIGHTS ARE NOMINAL. CONTRACTOR TO CONFIRM IN ACCORDANCE WITH FIELD CONDITIONS.
6. REMOVE EXISTING CONDUIT FROM EXISTING STEEL POLES.
7. INSTALL PROPOSED INTERCONNECT ON EXISTING WOOD POLES.

LEGEND

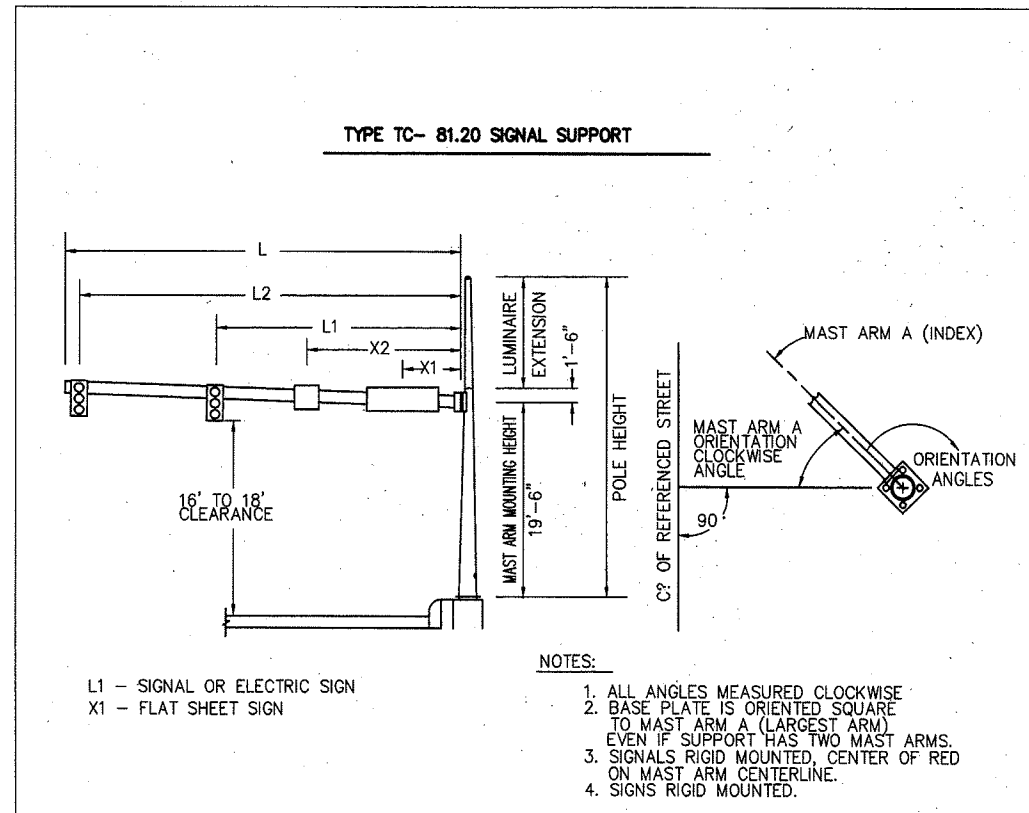
- SIGNALIZED INTERSECTION
- ⊠ XXXX WOOD POLE AND NUMBER
- ⊠ XXXX STEEL POLE AND NUMBER
- R. INT. REMOVE EXISTING SIGNAL INTERCONNECT
- INT. (XX') INSTALL INTERCONNECT (HEIGHT)
- C CONDUIT RISER (SEE SIGNAL PLANS)
- PULL BOX (SEE SIGNAL PLANS)
- ⊠ CONTROLLER (SEE SIGNAL PLANS)
- PROPOSED AERIAL INTERCONNECT
- PROPOSED INTERCONNECT IN PROPOSED CONDUIT (SEE SIGNAL PLANS)

EXISTING FACILITIES ON POLES

- INTER. XX' SIGNAL INTERCONNECT (MOUNTING HEIGHT, TYP.)
- TEL. TELEPHONE
- CATV. CABLE TELEVISION
- FIRE FIRE ALARM WIRE
- COM. COMMUNICATIONS
- SEC. SECONDARY ELECTRIC
- H.V. HIGH VOLTAGE ELECTRIC
- LUM. LUMINAIRE ARM OR LIGHTING WIRE
- FLD. LT. FLOOD LIGHT
- L. P. LIGHT POLE

ITEM	TOTAL	UNIT	DESCRIPTION
632	4787	LF	INTERCONNECT CABLE, INTEGRAL MESSENGER WIRE TYPE, 6 PR, NO. 19 AWG, SOLID, REA (PE-36)

SIGNAL SUPPORT TYPE TC-81.20																			
INTERSECTION	SUPPORT NO.	FROM SHEET	REFERENCE STREET	POLE DESIGN NO.	MAST ARM REF.	MAST ARM DESIGN NO.	POLE HEIGHT (FT.)	L (FT.)	L1 (FT.)	L2 (FT.)	X2 (FT.)	X1 (FT.)	MAST ARM A ANGLE (DEG.)	PEDESTRAIN SIGNAL 1	PEDESTRAIN SIGNAL 2	PUSHBUTTON	CONTROLLER	HAND HOLE	MAST ARM B
JUDSON																			
P1	18	LEE	1	A	1	21	22	11	21	-	6	0	270	-	250	-	90	-	
P2		JUDSON	1	A	1	21	20	3	12	-	8	0	90	-	-	-	-	180	-
P3		LEE	3	A	1	21	22	10	21	-	6	0	180	-	-	-	-	180	-
				B	1	-	20	10	18	-	5								270
WESTVIEW																			
P1	19	LEE	1	A	1	21	24	12	23	-	6	0	180	-	-	-	-	180	-
P2		LEE	1	A	1	21	18	9	17	-	5	90	0	-	0	-	-	90	-
P3		LEE	4	A	3	21	32	22	31	-	15	270	270	-	-	-	-	-	-
				B	1	-	23	11	22	-	5								90
HARVARD																			
P1	20	LEE	2	A	2	21	28	16	27	-	10	0	90	180	225	-	180	-	
P2		HARVARD	4	A	4	21	34	22	33	-	15	0	270	-	-	-	-	90	-
P3		LEE	2	A	2	21	26	15	25	-	10	0	90	180	225	-	180	-	
P4		LEE	4	A	4	21	38	26	37	-	16	90	180	270	45	-	180	-	
STOCKBRIDGE																			
P1	21	LEE	1	A	1	21	25	14	24	-	7	0	180	270	225	-	180	-	
P2		STOCKBRIDGE	1	A	1	21	25	16	24	-	11	0	0	90	45	-	180	-	
P3		LEE	3	A	3	21	30	20	29	-	15	90	0	90	45	-	180	-	
P4		LEE	1	A	1	21	25	14	24	-	7	0	90	180	135	-	180	-	
GLENDALE																			
P1	22	GLENDALE	1	A	1	21	25	16	24	-	10	0	0	270	270	-	270	-	
P2		LEE	1	A	1	21	25	14	24	-	9	0	180	270	225	-	90	-	
P3		LEE	1	A	1	21	25	13	23	-	6	0	90	180	225	-	180	-	
P4		GLENDALE	1	A	1	21	25	16	24	-	10	0	90	180	90	-	180	-	
WALDEN																			
P1	23	LEE	1	A	1	21	25	14	24	-	9	0	180	270	225	-	180	-	
P2		LEE	1	A	1	21	25	14	24	-	9	0	180	270	270	-	180	-	
P3		WALDEN	2	A	2	21	28	18	27	-	14	0	0	90	45	-	180	-	
P4		LEE	2	A	2	21	28	18	27	-	14	90	0	90	45	-	180	-	
INVERMERE																			
P1	24	LEE	1	A	1	21	24	12	23	-	5	0	90	180	225	-	180	-	
P2		INVERMERE	2	A	2	21	30	21	29	-	17	0	0	270	315	-	180	-	
P3		INVERMERE	1	A	1	21	25	16	24	-	12	0	0	270	270	-	270	-	
P4		LEE	1	A	1	21	25	14	24	-	7	0	-	-	-	-	180	-	



CALCULATED G.G.B.
CHECKED K.A.N.

LEE ROAD POLE CHART

CUYAHOGA COUNTY
CUY-10-8.96 & VARIOUS

SIGNAL SUPPORT TYPE TC-81.20																			
INTERSECTION	SUPPORT NO.	FROM SHEET	REFERENCE STREET	POLE DESIGN NO.	MAST ARM REF.	MAST ARM DESIGN NO.	POLE HEIGHT (FT.)	L (FT.)	L1 (FT.)	L2 (FT.)	X2 (FT.)	X1 (FT.)	MAST ARM A ANGLE (DEG.)	ORIENTATION ANGLE (DEG.) FROM MAST ARM A					
														PEDESTRAIN SIGNAL 1	PEDESTRAIN SIGNAL 2	MAST ARM B			
WOODLAND	P1	25	BUCKEYE	11	A	11	30*	42	28	41	-	22	348	335	-	90	-		
	P2		WOODLAND	3	A	3	21	32	23	31	-	15	270	180	270	90	-		
	P3		WOODLAND	1	A	1	21	25	14	24	-	8	0	180	-	-	90	-	
	P4		BUCKEYE	12	A	12	21	48	37	47	-	29	0	-	-	-	180	-	
E. 89	P1	27	BUCKEYE	1	A	1	21	24	13	23	19	7	0	180	235	225	-	180	-
	P2		BUCKEYE	1	A	1	21	25	14	24	18	7	0	180	270	225	-	90	-
	P3		E.89	1	A	1	21	18	4	16	-	10	30	270	-	-	-	180	-
	P4		E.89	1	A	1	21	20	9	19	-	14	349	180	285	270	-	90	-
E. 90	P1	28	BUCKEYE	1	A	1	21	25	14	24	-	8	0	180	270	225	-	180	-
	P2		BUCKEYE	3	A	1	21	25	14	24	-	8	0	90	-	90	-	90	-
E. 93	P1	29	BUCKEYE	1	A	1	21	25	14	24	-	8	0	90	-	135	-	180	-
	P2		BUCKEYE	1	A	1	30**	25	15	24	-	5	90	0	-	45	-	90	-
	P3		BUCKEYE	1	A	1	21	25	14	24	11	5	0	180	270	180	-	180	-
AMBLER	P1	30	BUCKEYE	1	A	1	21	25	14	24	-	8	0	180	-	-	-	180	-
	P2		BUCKEYE	3	A	1	21	25	14	24	-	8	0	90	-	135	-	180	-
M.L.K.	P1	33	BUCKEYE	1	A	1	21	25	14	24	-	9	0	0	90	45	-	180	-
	P2		BUCKEYE	3	A	3	21	32	21	31	-	15	90	270	-	-	-	180	-
	P3		BUCKEYE	1	A	1	21	25	14	24	-	9	0	0	90	45	-	180	-
	P4		BUCKEYE	4	A	4	21	36	25	35	-	18	90	270	180	180	-	90	-
E. 114	P1	34	BUCKEYE	1	A	1	21	25	14	24	-	7	0	0	90	90	-	180	-
	P2		BUCKEYE	3	A	1	21	25	14	24	-	7	0	270	-	0	-	90	-

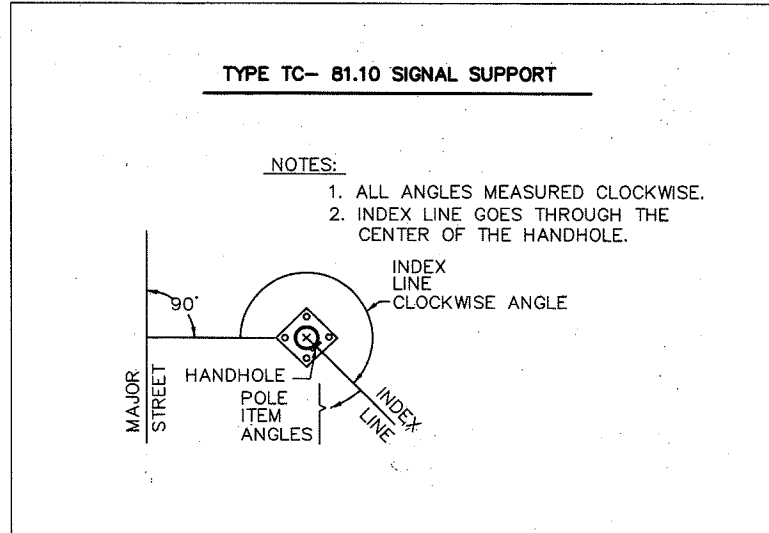
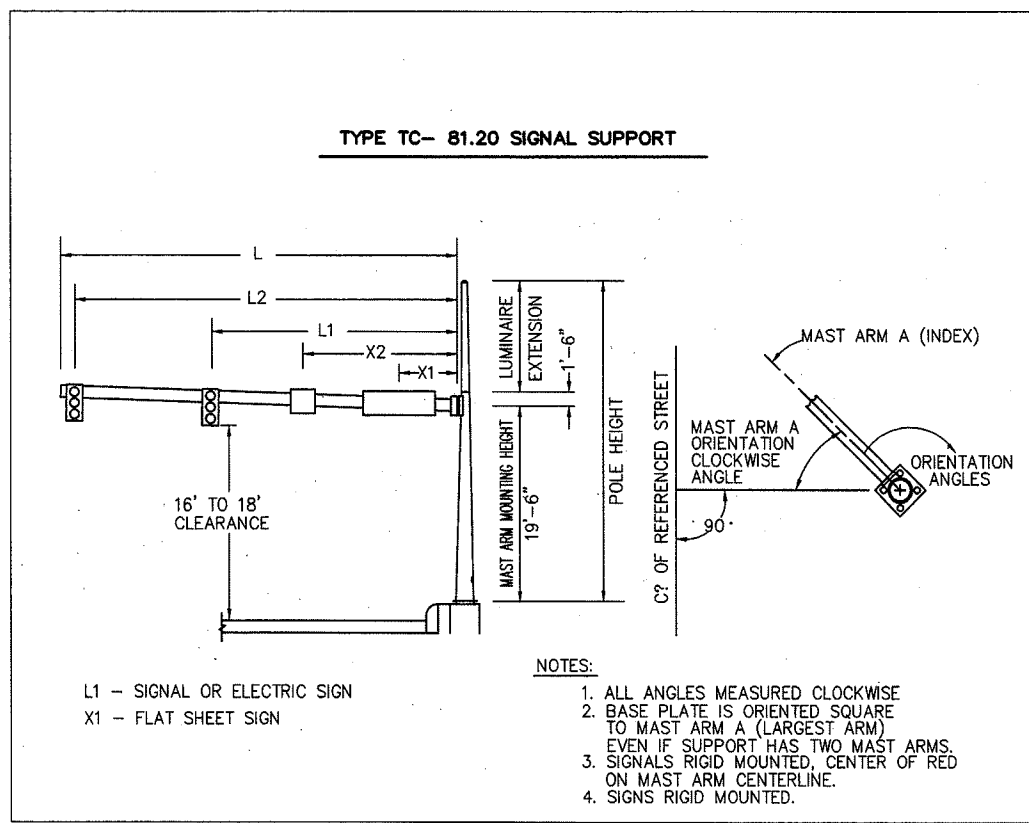
* LUMINAIRE EXTENSION TC-22.10, 0 DEGREES
 ** LUMINAIRE EXTENSION TC-22.10, 270 DEGREES

OVERHEAD SIGN SUPPORT TYPE TC-16.20											
INTERSECTION	SUPPORT NO.	FROM SHEET	REFERENCE STREET	DESIGN NO.	MAST ARM REFERENCE	POLE HEIGHT (FT.)	L (FT.)	X1 (FT.)	X2 (FT.)	X3 (FT.)	MAST ARM ANGLE (DEG.)
WOODHILL/SHAKER	P7		BUCKEYE	3	A	20	30	8	19	29	0
	P8		WOODHILL	2	A	20	23	10	22	-	235
	P5		EAST 116	2	A	21	15	12	-	0	
	P6		BUCKEYE	2	A	21	15	12	-	0	

NOTES:
 1. CLEARANCE 17'-0"
 2. EACH FOUNDATION SHALL CONTAIN ONE 2" CAPPED CONDUIT ELL; DIRECTION 180° FROM ARM.

SIGNAL SUPPORT TYPE TC-81.20																							
INTERSECTION	SUPPORT NO.	FROM SHEET	REFERENCE STREET	POLE DESIGN NO.	MAST ARM REF.	MAST ARM DESIGN NO.	POLE HEIGHT (FT.)	L (FT.)	L1 (FT.)	L2 (FT.)	L3 (FT.)	X3 (FT.)	X2 (FT.)	X1 (FT.)	MAST ARM A ANGLE (DEG.)	ORIENTATION ANGLE (DEG.) FROM MAST ARM A							
																PEDESTRAIN SIGNAL 1	PEDESTRAIN SIGNAL 2	MAST ARM B					
E. 116	P1	35	BUCKEYE	1	A	1	21	24	12	23	-	-	7	2	0	180	270	225	-	180	-		
	P2		EAST116	2	A	2	21	20	10	19	-	15	5	2	0	270	-	-	-	180	-		
	P3		BUCKEYE	1	A	1	21	25	14	24	-	-	8	2	0	90	270	45	-	0	-		
	P4		EAST116	2	A	2	21	20	10	19	-	-	15	4	0	270	-	-	-	180	-		
E. 119	P1	36	BUCKEYE	1	A	1	21	20	9	19	-	-	14	6	0	180	270	225	-	180	-		
	P2		BUCKEYE	3	A	1	21	20	8	19	-	-	17	12	0	-	-	-	-	180	-		
E. 126	P1	38	BUCKEYE	3	A	1	21	25	14	24	-	-	8	0	90	-	0	-	90	-	-		
	P2		BUCKEYE	3	A	1	21	25	16	24	-	-	10	270	-	-	-	-	270	-	-		
E. 130	P1	39	BUCKEYE	3	A	1	21	25	14	24	-	-	8	270	180	270	225	-	270	-	-		
	P2		BUCKEYE	1	A	1	21	20	7	19	-	-	13	0	90	180	135	-	180	-	-		
S. MORELAND	P1	40	BUCKEYE	4	A	1	21	25	14	24	-	-	8	0	90	180	315	-	180	-	-		
	P3	2	BUCKEYE	4	A	2	21	28	16	27	-	-	10	0	180	-	-	-	0	-	-		
				A	3	21	35	2	13	23	-	28	5								270	-	
WOODHILL/SHAKER	P1	31	BUCKEYE	11	A	11	21	42	22	32	41	-	-	11	0	25	205	-	-	90	-		
	P2		BUCKEYE	3	A	3	21	32	18	31	-	-	9	0	270	-	-	-	90	-	-		
	P3		WOODHILL	5	A	12	21	45	11	20	28	-	-	6	0	100	-	-	-	90	-		
				B	1			12	10	-	-	-	5	270								270	-
	P4		BUCKEYE	2	A	2	21	28	26	-	-	-	22	8	350	260	-	-	-	170	-	-	
P5		BUCKEYE	1	A	1	21	22	10	21	-	-	16	5	0	-	-	-	-	90	-	-		

*L4 32 **L5 44

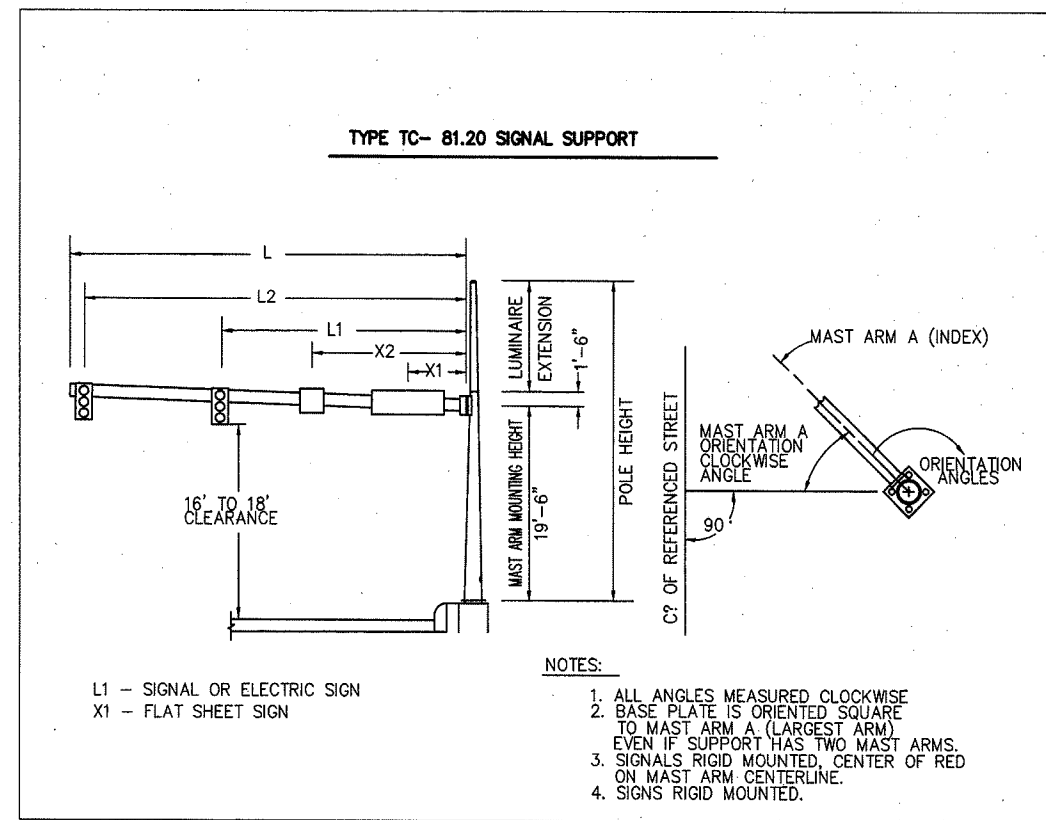


SIGNAL SUPPORT TYPE TC-81.20																					
INTERSECTION	SUPPORT NO.	FROM SHEET	REFERENCE STREET	POLE DESIGN NO.	MAST ARM REF.	MAST ARM DESIGN NO.	POLE HEIGHT (FT.)	L (FT.)	L1 (FT.)	L2 (FT.)	L3 (FT.)	L4 (FT.)	X2 (FT.)	X1 (FT.)	MAST ARM A ANGLE (DEG.)	ORIENTATION ANGLE (DEG.) FROM MAST ARM A					
																PEDESTRIAN SIGNAL 1	PEDESTRIAN SIGNAL 2	PUSHBUTTON	CONTROLLER	HAND HOLE	MAST ARM B
W. 20	P1	41	WEST 20	3	A	3	21	32	21	31	-	-	-	16	345	270	15	290	-	0	-
	P2		LORAIN	11	A	11	21	45	27	31	42	44	-	20	343	200	-	180	-	180	-
	P3		LORAIN	3	A	3	30*	32	17	31	-	-	-	11	0	285	-	225	-	180	-
W. 24	P1	42	GEHRING	12	A	12	21	48	27	41	-	-	46	18	60	270	-	-	-	180	-
	P2		GEHRING	12	A	12	21	46	35	45	-	-	-	20	330	90	180	180	-	180	-
	P3		LORAIN	4	A	4	30*	28	14	27	-	-	10	4	0	90	180	90	-	180	-
	P4		LORAIN	1	A	1	21	25	14	24	-	-	-	7	285	255	-	-	-	0	-
	P5		GEHRING	1	A	1	21	25	14	24	-	-	-	9	0	270	225	225/135	-	180	-
	P6		GEHRING	4	A	3	30**	32	21	31	-	-	-	14	270	180	-	180	-	270	-
				B	1		25	14	24	-	-	-	-	9						90	-
W. 25	P1	43	WEST 25	1	A	1	21	25	14	24	-	-	-	9	0	90	180	180	-	180	-
	P2		LORAIN	11	A	11	21	38	25	37	-	-	34	19	0	90	180	200	-	180	-
	P3		WEST 25	1	A	1	21	25	11	24	-	-	-	6	0	180	-	180	-	180	-
	P4		LORAIN	12	A	12	21	46	35	45	-	-	41	28	180	270	-	225	-	180	-
W. 28	P1	44	WEST 28	1	A	1	21	20	9	19	-	-	-	4	0	90	180	135	-	90	-
	P2		LORAIN	1	A	1	21	22	11	21	-	-	-	5	0	180	270	225	-	180	-
	P3		WEST 28	1	A	1	21	22	11	21	-	-	-	6	0	180	270	225	-	180	-
	P4		LORAIN	1	A	1	30*	22	11	21	-	-	-	5	0	180	270	180	-	180	-
W. 30	P1	45	LORAIN	2	A	2	21	28	17	27	-	-	-	11	0	0	90	45	-	180	-
	P2		LORAIN	3	A	1	21	25	15	24	-	-	-	10	270	180	-	225	-	270	-
				B	1		22	11	21	-	-	-	-	5						90	-
W. 32	P1	46	LORAIN	1	A	1	30*	20	9	19	-	-	-	4	0	180	270	225	-	180	-
	P2		WEST 32	1	A	1	21	20	11	19	-	-	-	5	0	270	-	-	-	180	-
	P3		LORAIN	3	A	3	21	30	19	29	-	-	-	13	0	0	90	45	-	180	-
	P4		WEST 32	1	A	1	21	20	11	19	-	-	-	7	0	180	270	225	-	180	-
	P5		LORAIN	1	A	1	21	20	9	19	-	-	-	0	-	-	-	-	-	180	+
FULTON	P1	47	FULTON	3	A	3	21	32	20	30	-	-	-	14	0	0	90	45	-	90	-
	P2		LORAIN	3	A	3	21	32	20	31	-	-	27	15	0	0	270	315	-	0	-
	P3		LORAIN	1	A	1	30***	25	14	24	-	-	-	9	90	0	90	45	-	90	-
	P4		LORAIN	3	A	3	21	32	21	31	-	-	-	16	0	90	180	270	270++	0	-
	P5		FULTON	4	A	4	21	32	11	20	21	31	-	-	345	130	190	-	-	180	-
	P6		FULTON	1	A	1	21	22	13	21	-	-	-	130	60	-	-	-	-	60	-
W. 41	P1	48	LORAIN	1	A	1	30*	22	11	21	-	-	14	5	0	180	270	225	-	180	-
	P2		RANDALL	2	A	2	21	32	18	31	-	-	-	10	0	180	270	225	-	180	-
	P3		LORAIN	1	A	1	21	20	9	19	-	-	15	4	0	180	90	225	-	180	-

* LUMINAIRE EXTENSION TC-22.10, ANGLE 0 DEGREES
 ** LUM EXT., TC-22.10, ANGLE 90 DEGREES
 *** LUM EX., TC-22.10, ANGLE 270 DEGREES
 +1 1/2" BLIND COUPLING ANGLE 90 DEGREES FOR CLAMP SIGNAL
 ++PEDESTRIAN SIGNAL 3

SIGNAL SUPPORT TYPE TC-81.20																					
INTERSECTION	SUPPORT NO.	FROM SHEET	REFERENCE STREET	POLE DESIGN NO.	MAST ARM REF.	MAST ARM DESIGN NO.	POLE HEIGHT (FT.)	L (FT.)	L1 (FT.)	L2 (FT.)	L3 (FT.)	X2 (FT.)	X1 (FT.)	MAST ARM A ANGLE (DEG.)	ORIENTATION ANGLE (DEG.) FROM MAST ARM A						
															PEDESTRIAN SIGNAL 1	PEDESTRIAN SIGNAL 2	PUSHBUTTON	CONTROLLER	HAND HOLE	MAST ARM B	
W. 44	P1	49	LORAIN	3	A	2	21	28	15	27	-	-	7	270	0	270	315	-	270	-	90
	P2		LORAIN	1	A	1	30*	22	11	21	-	13	7	0	180	270	225	-	180	-	-
W. 53	P1	51	LORAIN	1	A	1	21	24	12	23	-	-	6	0	180	270	225	-	180	-	-
	P2		LORAIN	1	A	1	21	14	2	13	-	-	7	90	0	-	45	-	90	-	-
	P3		LORAIN	1	A	1	30*	24	12	23	-	-	6	0	0	-	225	-	180	-	-
W. 58	P1	52	LORAIN	1	A	1	21	25	12	24	-	-	6	0	0	-	-	-	90	-	-
	P2		LORAIN	3	A	1	21	25	15	24	-	-	9	270	180	-	135	-	270	-	-
				B	1		20	9	19	-	-	-	4							90	-
W. 65	P1	53	LORAIN	1	A	1	21	22	11	21	-	-	5	0	90	-	90	-	180	-	-
	P2		WEST 65	1	A	1	21	20	9	19	-	14	5	335	-	-	-	-	180	-	-
	P3		LORAIN	1	A	1	21	22	11	21	-	-	5	0	180	270	225	-	180	-	-
	P4		WEST 65	4	A	4	21	36	24	35	-	-	18	335	0	295	325	-	0	-	-
W. 73	P1	54	LORAIN	3	A	3	21	25	12	13	24	-	8	325	-	-	-	-	225	-	-
	P2		LORAIN	3	A	3	21	25	10	14	24	18	11	0	-	-	-	-	90	-	-
W. 81	P1	55	LORAIN	3	A	3	21	30	19	29	-	15	7	0	180	250	315	-	180	-	-
	P2		WEST 81	1	A	1	21	25	10	24	-	16	5	335	270	-	-	-	180	-	-
	P3		LORAIN	2	A	2	21	25	13	24	-	20	6	0	0	270	315	-	0	-	-
	P4		LORAIN	11	A	11	21	38	26	37	-	-	17	90	0	-	0	-	90	-	-
W. 85	P1	56	LORAIN	1	A	1	21	25	12	24	-	-	6	0	90	180	225	-	180	-	-
	P2		WEST 85	2	A	2	21	24	13	23	-	-	8	15	180	270	225	-	180	-	-
	P3		LORAIN	4	A	4	21	36	22	35	-	-	16	0	180	250	270	-	0	-	-
	P4		WEST 85	1	A	1	21	25	12	24	-	-	6	20	270	-	-	-	270	-	-

* LUMINAIRE EXTENSION TC-22.10, ANGLE 0 DEGREES



CALCULATED
C.G.B.

CHECKED
K.A.N.

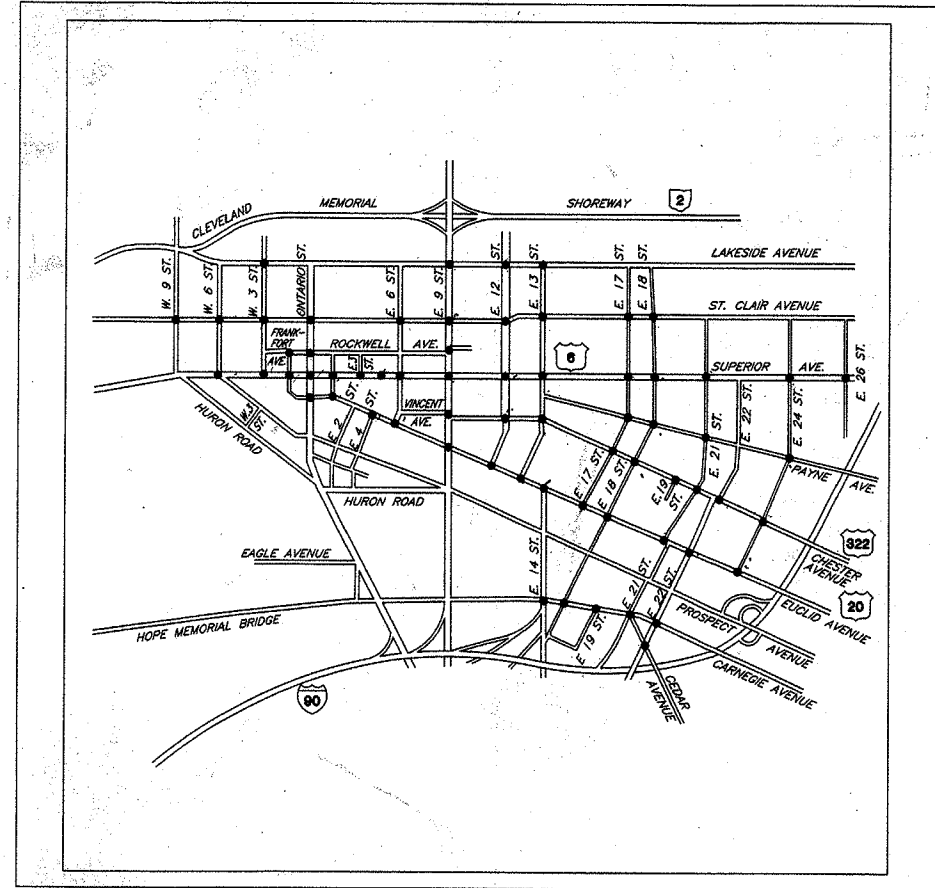
LORAIN AVENUE POLE CHART

CUYAHOGA COUNTY
CUY-10-8.96 & VARIOUS

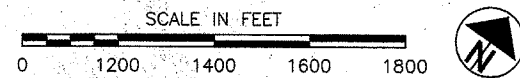
STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

CUY-6-15.55 & VARIOUS

CITY OF CLEVELAND CUYAHOGA COUNTY



LOCATION MAP



INDEX OF SHEETS

TITLE SHEET	1
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PROJECT DESCRIPTION:

THIS PROJECT SHALL CONSIST OF THE CONSTRUCTION OF REPLACEMENT TRAFFIC SIGNAL INSTALLATIONS AND MODIFICATION OF CLOSED LOOP SIGNAL SYSTEMS IN THE DOWNTOWN DISTRICT OF THE CITY OF CLEVELAND.

1997 SPECIFICATIONS

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

I HEREBY APPROVE THESE PLANS AND DECLARE THAT THE MAKING OF THIS IMPROVEMENT WILL NOT REQUIRE THE CLOSING OF THE ROADWAY TO TRAFFIC AND THAT PROVISIONS FOR THE MAINTENANCE AND SAFETY OF TRAFFIC WILL BE AS SET FORTH ON THE PLANS AND ESTIMATES.

PROJECT INTERSECTIONS

Lakeside Ave. West 3 St. East 9 St. East 12 St. East 13 St.	Payne Ave. East 17 St. East 18 St. East 21 St. East 24 St.	Rockwell Ave. Ontario St. East 9 St.	Carnegie Ave. East 14 St. East 18 St. East 19 St. East 21 St. East 22 St.
Chester Ave. East 12 St. East 13 St. East 17 St. East 18 St. East 19 St. East 21 St. East 22 St. East 24 St.	Frankfort St. West Roadway	Superior Ave. West 6 St. West 3 St. West Roadway Ontario St. East Roadway East 3 St. Pedestrian X-ing East 6 St. East 9 St. East 12 St. East 13 St. East 17 St. East 18 St. East 21 St. East 24 St. East 26 St.	Chester Ave./ Vincent Ave. East 9 St.
St. Clair Ave. West 9 St. West 6 St. West 3 St. Ontario St. East 6 St. East 9 St. East 12 St. East 3 St. East 7 St. East 8 St.	Euclid Ave. Ontario St. East Roadway East 4 St. East 6 St. East 9 St. East 12 St. East 13 St./ Huron Rd. East 14 St. East 17 St. East 18 St. East 21 St. East 22 St. East 24 St.		Cedar Ave. East 22 St.

UNDERGROUND UTILITIES

TWO WORKING DAYS
BEFORE YOU DIG
Call 1-800-362-2764 (Toll Free)
OHIO UTILITIES PROTECTION SERVICE
NON-MEMBERS
MUST BE CALLED DIRECTLY

SUPPLEMENTAL PRINTS OF STANDARD CONSTRUCTION DRAWINGS

TC-16.20	1-20-84	TC-81.20	1-20-84	MT-95.31	10-10-88	HL-10.11	5-01-87
TC-17.10	1-20-84	TC-82.10	8-29-84	MT-95.32	8-25-89	HL-10.12	5-01-87
TC-21.20	9-01-92	TC-83.20	1-20-84	MT-105.10	7-01-92	HL-30.11	5-01-87
TC-35.10	8-29-84	TC-84.20	1-20-84	MT-105.11	7-01-92	HL-30.22	5-01-87
TC-41.20	6-21-94	TC-85.10	1-20-84				
TC-41.40	6-18-79	TC-85.20	1-20-84				
TC-41.41	8-02-79	TC-12.30	1-20-84				
TC-41.50	6-21-94	TC-22.10	9-01-92				
TC-42.20	3-26-79	TC-22.20	9-01-92				
TC-52.10	4-03-79	TC-41.10	8-29-84				
TC-52.20	4-03-79						
TC-71.10	9-10-91						

Plans Prepared By:

Travers Associates, Inc. G & T Associates Inc.
Transportation and Consulting Engineers
Traffic Engineering Strongsville, Ohio
Clifton, New Jersey

FEDERAL PROJECT NO. NONE
PID NO. 14688
CONSTRUCTION PROJECT NO.
RAILROAD INVOLVEMENT NONE
CUYAHOGA COUNTY CUY-6-15.55 & VARIOUS
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GENERAL NOTES

SCOPE

THE WORK TO BE PERFORMED BY THE CONTRACTOR SHALL CONSIST OF FURNISHING LABOR, SUPPLIES, EQUIPMENT, MATERIALS AND PERFORMING ALL OPERATIONS NECESSARY FOR THE ACCEPTABLE INSTALLATION OF THE TRAFFIC SIGNAL CONTROL DEVICES, IN STRICT ACCORDANCE WITH THESE PLANS, NOTES AND SPECIFICATIONS. THESE NOTES, SCHEDULES AND DRAWINGS ARE INTENDED TO PROVIDE FOR ALL MATERIAL AND LABOR REQUIRED TO FURNISH AND INSTALL A COMPLETE TRAFFIC CONTROL SYSTEM AT 65 INTERSECTIONS, AND OPERATIONAL MODIFICATIONS TO EXISTING CONTROLLERS AND THE PHASE I CLOSED LOOP SIGNAL SYSTEM (PID NO. 5154). THE WORK TO BE PERFORMED SHALL ALSO INCLUDE REMOVING THE EXISTING SIGNAL INSTALLATION AT 1 INTERSECTION AND PROVIDING STOP SIGN CONTROL.

TRAFFIC CONTROL STANDARD CONSTRUCTION DRAWINGS

REFERENCES TO SUPPLEMENTAL SPECIFICATIONS 857, 858, 861, 957, 958 AND 961 ON THE TRAFFIC CONTROL STANDARD CONSTRUCTION DRAWINGS IN THESE PLANS SHALL BE CONSIDERED TO READ AS RESPECTIVE REFERENCES TO ITEM 630, 631, 633, 730, 731 AND 733. REFERENCES TO CONCRETE CONTROLLER PAD SHALL BE CONSIDERED TO READ AS REFERENCES TO ITEM 633, CONTROLLER WORK PAD.

UTILITY OWNERSHIP

THE FOLLOWING UTILITIES AND OWNERS ARE LOCATED WITHIN THE LIMITS OF THIS PROJECT:

AMERITECH
13630 LORAIN AVENUE
CLEVELAND, OHIO 44111
(216) 476-6136
SHELLEY ARMSTRONG

EAST OHIO GAS COMPANY
1201 E. 55TH STREET
CLEVELAND, OHIO 44103
(216) 736-6675
MILT RADOVIC

CLEVELAND ELECTRIC
ILLUMINATING COMPANY
3601 RIDGE ROAD
CLEVELAND, OHIO 44102
(216) 634-7232
FRANK DIBBS

CITY OF CLEVELAND WATER DEPARTMENT
1201 LAKESIDE AVENUE
CLEVELAND, OHIO 44114
(216) 664-2444
DONALD TREBAR

GREATER CLEVELAND REGIONAL
TRANSIT AUTHORITY
615 SUPERIOR AVENUE
CLEVELAND, OHIO 44113
(216) 566-5100

CITY OF CLEVELAND
DIVISION OF TRAFFIC ENGINEERING
2001 PAYNE AVENUE
CLEVELAND, OHIO 44114
(216) 664-3194
DAVID RITZ

CLEVELAND PUBLIC POWER
CITY OF CLEVELAND
DIVISION OF UTILITIES
1201 LAKESIDE AVENUE
CLEVELAND, OHIO 44114
(216) 664-4245
DALE TURKOVICH

NORTHCOAST CABLE LTD.
3300 LAKESIDE AVENUE
CLEVELAND, OHIO 44114
(216) 575-8016

CITY OF CLEVELAND
SIGNAL SAFETY SYSTEM
310 CARNEGIE AVENUE
CLEVELAND, OHIO 44115
(216) 664-3247
LEROY BEGIN

NEORS
3826 EUCLID AVENUE
CLEVELAND, OHIO 44115
(216) 881-6600
RICHARD SWITALSKI

AMERICAN TELEPHONE & TELEGRAPH
3833 WEYMOUTH ROAD
MEDINA, OHIO 44258
(216) 723-9138
PATRICIA HARRIS

CITY OF CLEVELAND, DIVISION
OF WATER POLLUTION CONTROL
12302 KIRBY AVENUE
CLEVELAND, OHIO 44108
(216) 664-3785
RACHID ZOGHAIB

CLEVELAND THERMAL
ENERGY CORPORATION
1801 E. 12TH STREET
CLEVELAND, OHIO 44114
(216) 241-3636
RICHARD PUCAK

OVERHEAD UTILITIES

THE LOCATIONS OF OVERHEAD UTILITIES DEPICTED ON THE PLANS WERE OBTAINED FROM FIELD OBSERVATION AND SHALL BE CONFIRMED BY THE CONTRACTOR. THE CONTRACTOR SHALL CONTACT ALL UTILITY COMPANIES WITH OVERHEAD FACILITIES AT LEAST TWO (2) WEEKS PRIOR TO CONSTRUCTION AT EACH LOCATION TO RESOLVE POTENTIAL CONFLICTS BETWEEN EXISTING OVERHEAD FACILITIES AND PROPOSED SIGNAL EQUIPMENT.

THE CONTRACTOR SHALL REMOVE ABANDONED OVERHEAD SIGNAL WIRES AS DIRECTED BY THE ENGINEER WITH NO ADDITIONAL COMPENSATION.

UNDERGROUND UTILITIES

THE LOCATIONS OF THE UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE AS OBTAINED FROM THE OWNERS OF THE UTILITY AS REQUIRED BY SECTION 153.64 OF THE OHIO REVISED CODE AND REPRESENT THE BEST EFFORTS OF THE CONSULTANT TO IDENTIFY KNOWN UTILITIES AND APPURTENANCES. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING UTILITY LOCATIONS IN THE FIELD WITH THE UTILITY COMPANIES PRIOR TO STARTING ANY WORK. IN THE EVENT THAT UNFORESEEN CONDITIONS PREVENT THE CONTRACTOR FROM CONSTRUCTING A SECTION OF THE PROJECT AT A GIVEN LOCATION IN ACCORDANCE WITH THE PLANS, THE CONTRACTOR OR ENGINEER SHALL CONTACT THE CITY FOR THE PURPOSE OF DETERMINING AN ACCEPTABLE ALTERNATIVE TO PERMIT CONSTRUCTION.

THE CONTRACTOR SHALL REMOVE ABANDONED UNDERGROUND UTILITIES AS DIRECTED BY THE ENGINEER WITH NO ADDITIONAL COMPENSATION.

COOPERATION BETWEEN CONTRACTORS

THE CONTRACTOR FOR THIS CONTRACT SHALL COORDINATE HIS WORK WITH SUCH OTHER CONTRACTORS AS MAY BE WORKING IN THE IMMEDIATE AREAS OF ALL INTERSECTIONS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR FOR THIS CONTRACT TO COORDINATE HIS WORK SO AS NOT TO INTERFERE WITH EXISTING CONSTRUCTION PROJECTS AND MAKE SURE HIS TRAFFIC CONTROL IS COMPATIBLE WITH THE TRAFFIC CONTROL OF THESE PROJECTS. THE ENGINEER SHALL APPROVE ANY PROPOSED SOLUTIONS TO CONFLICTS BETWEEN VARIOUS TRAFFIC CONTROL SETUPS.

RESTORATION OF DISTURBED AREAS

THE CONTRACTOR SHALL RESTORE ALL DISTURBED LANDSCAPED AREAS, PAVEMENT SURFACES, SIDEWALKS AND DRIVEWAYS TO A CONDITION EQUAL TO OR BETTER THAN THAT EXISTING BEFORE THE WORK WAS STARTED. ALL RESTORATION SHALL BE PERFORMED WITH MATERIALS IDENTICAL TO THE EXISTING SURFACE INCLUDING BUT NOT LIMITED TO BITUMINOUS AND CONCRETE PAVEMENT, CONCRETE AND BRICK SIDEWALK, INTEGRAL CURB AND SPECIAL SURFACES (COLORED, TEXTURED) AS ENCOUNTERED. CONCRETE SIDEWALK AND DRIVEWAYS SHALL NOT BE PATCHED, BUT SHALL BE REPLACED IN ENTIRE SLAB SECTIONS TO THE NEAREST ADJACENT JOINTS.

ALL RESTORATION WORK SHALL BE DONE IN ACCORDANCE WITH THE PERTINENT SPECIFICATION ITEMS AND AS DIRECTED BY THE ENGINEER. PAYMENT FOR ALL RESTORATION WORK, INCLUDING MATERIALS, EQUIPMENT, LABOR, INCIDENTALS AND DISPOSAL OF ALL SURPLUS MATERIALS SHALL BE INCLUDED IN THE VARIOUS ITEMS OF UNDERGROUND WORK AND, THEREFORE, NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK.

GUARANTEE

THE CONTRACTOR SHALL GUARANTEE THAT THE TRAFFIC CONTROL SYSTEMS INSTALLED IN THIS CONTRACT SHALL OPERATE SATISFACTORILY FOR A PERIOD OF 90 DAYS FOLLOWING COMPLETION OF THE 10-DAY PERFORMANCE TEST. IN THE EVENT OF UNSATISFACTORY OPERATION AT ANY INTERSECTION OR IN THE CLOSED LOOP SIGNAL SYSTEM, THE CONTRACTOR SHALL CORRECT THE FAULTY INSTALLATION OR OPERATION, MAKE REPAIRS AND REPLACE DEFECTIVE PARTS WITH NEW PARTS OF EQUAL OR BETTER QUALITY. EQUIPMENT, MATERIAL AND LABOR COSTS INCURRED IN CORRECTING AN UNSATISFACTORY OPERATION SHALL BE BORNE BY THE CONTRACTOR.

THE GUARANTEE SHALL COVER THE FOLLOWING ITEMS OF THE TRAFFIC CONTROL SYSTEM: NEW CONTROLLERS AND ASSOCIATED EQUIPMENT, DETECTOR UNITS, PAVEMENT LOOPS AND SIGNAL HEADS.

CUSTOMARY MANUFACTURER'S GUARANTEES FOR THE FOREGOING ITEMS SHALL BE TURNED OVER TO THE CITY OF CLEVELAND.

THE COST OF GUARANTEEING THE TRAFFIC CONTROL SYSTEMS WILL BE INCIDENTAL TO AND INCLUDED IN THE CONTRACT UNIT PRICE BID FOR THE VARIOUS ITEMS IN THE SYSTEMS.

SHOP DRAWING SUBMITTAL

SHOP DRAWING SUBMITTAL SHALL BE IN ACCORDANCE WITH OHIO DEPARTMENT OF TRANSPORTATION (ODOT) PROCEDURES. IN ADDITION, THREE SETS SHALL BE SUBMITTED TO THE CITY OF CLEVELAND, DIVISION OF TRAFFIC ENGINEERING AND PARKING (CITY), FOR REVIEW.

TRAFFIC SIGNAL REMOVAL

THE TRAFFIC SIGNAL INSTALLATIONS AT THE FOLLOWING INTERSECTION IS TO BE REMOVED AND STOP SIGN CONTROL IS TO BE PROVIDED:

CHESTER AVENUE AND EAST 19 STREET

THE CONTRACTOR SHALL ERECT THE STOP SIGN CONTROL AT THE ABOVE LOCATION, REMOVE EXISTING PAVEMENT MARKINGS AS SHOWN ON THE PLAN AND SHALL PLACE THE EXISTING SIGNAL INSTALLATION IN THE FLASHING MODE THIRTY (30) DAYS PRIOR TO REMOVING THE SIGNAL INSTALLATION.

ITEM 614 - MAINTAINING TRAFFIC

PEDESTRIAN SIDEWALK ACCESS MUST BE MAINTAINED AT ALL TIMES FOR EXISTING PEDESTRIAN CROSSINGS, RESIDENCES AND BUSINESSES ADJACENT TO WORK AREAS, DURING CONSTRUCTION. CONES OR BARRICADES AND CAUTION TAPE SHALL BE USED TO PROTECT PEDESTRIANS FROM HAZARDS. DISTURBED AREAS MUST BE RESTORED WITHIN THREE WEEKS AFTER WORK IS COMPLETED.

THE CONTRACTOR SHALL HAVE ALL LANES OPEN TO TRAFFIC BETWEEN THE HOURS OF 7:00 TO 9:00 A.M. AND 3:00 TO 6:00 P.M. TRAFFIC SHALL BE MAINTAINED IN ACCORDANCE WITH STANDARD DRAWING MT-95.31 OR MT-95.32. LIQUIDATED DAMAGES AS DETERMINED FROM THE TABLE IN SECTION 108.07 OF THE SPECIFICATIONS SHALL BE ASSESSED FOR ANY VIOLATION OF THE PERMITTED LANE CLOSURE TIMES.

STRUCTURAL STEEL PLATES (1 1/2" THICK) SHALL BE PLACED OVER ALL TRENCHES NOT BACKFILLED AT THE END OF THE WORK DAY. THESE PLATES SHALL BE OF SUFFICIENT SIZE (4' X 8') SO AS NOT TO MOVE DUE TO VEHICULAR TRAFFIC. BITUMINOUS RAMPS SHALL BE PLACED, EXTENDING A MINIMUM OF ONE (1) FOOT AROUND ALL EDGES OF THE STEEL PLATES, SO AS TO CREATE A RAMP FROM THE EXISTING PAVEMENT SURFACE TO THE STEEL PLATE SURFACE. FLAGGERS ARE REQUIRED DURING ALL TRENCHING OPERATIONS.

CONSTRUCTION SIGNS REQUIRED DURING TRENCHING OPERATIONS SHALL INCLUDE "ROAD CONSTRUCTION AHEAD" (OW-128-36) AND FLAGGER AHEAD (SYMBOLIC, OW-163-36). SIGN PLACEMENT SHALL BE AS DIRECTED BY THE ENGINEER.

LAW ENFORCEMENT OFFICERS (LEO'S) SHALL BE REQUIRED FOR TRAFFIC DIRECTION ONLY UNDER THE FOLLOWING CONDITIONS:

1. SIGNALS ARE NON-OPERATIONAL, OR
2. TRAFFIC MUST MOVE AGAINST THE SIGNAL PHASING, OR
3. TRAFFIC MUST CROSS A PAINTED CENTER LINE

ALL WORK ASSOCIATED WITH MAINTAINING TRAFFIC AS DESCRIBED HEREIN ABOVE, INCLUDING SIGNS, FLAGMEN AND LEO'S, SHALL BE CONSIDERED INCIDENTAL TO THE LUMP SUM BID FOR "ITEM 614 - MAINTAINING TRAFFIC".

GENERAL NOTES

CUYAHOGA COUNTY
CUY-6-15.55 & VARIOUS

GENERAL NOTES

ITEM 614 - TEMPORARY MAINTENANCE OF TRAFFIC SIGNAL INSTALLATION

INCIDENTAL TO THE REQUIREMENTS FOR MAINTAINING TRAFFIC IN ACCORDANCE WITH 614.03, EXISTING TRAFFIC SIGNALS SHALL BE TEMPORARILY MAINTAINED UNTIL THE NEW TRAFFIC SIGNAL INSTALLATIONS ARE IN OPERATION.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING TRAFFIC SIGNAL INSTALLATIONS UNDER THE FOLLOWING CONDITIONS:

- A. EXISTING SIGNAL INSTALLATIONS WHICH THE PLANS REQUIRE THE CONTRACTOR TO ADJUST, MODIFY, ADD ONTO OR REMOVE OR WHICH THE CONTRACTOR ACTUALLY ADJUSTS, MODIFIES OR OTHERWISE DISTURBS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ENTIRE INSTALLATION (AT THE INTERSECTION) INCLUDING MAINTENANCE, MODIFICATIONS, TIMING AND DAMAGE FROM ACCIDENT, NEGLIGENCE OR NATURAL CAUSES, OR TEMPORARY CONSTRUCTION FROM THE TIME HIS OPERATIONS FIRST DISTURB THE INSTALLATION UNTIL THE INSTALLATION HAS BEEN SUBSEQUENTLY REMOVED AND THE WORK IS ACCEPTED BY ODOT AND THE CITY.
- B. NEW SIGNAL INSTALLATIONS OR DEVICES INSTALLED BY THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE, TIMING AND ANY DAMAGE OF THESE FROM THE TIME OF INSTALLATION UNTIL THE WORK IS ACCEPTED BY ODOT AND THE CITY.

AT LOCATIONS WHERE FOUNDATIONS USED IN THE EXISTING SIGNAL ARE ALSO PART OF THE NEW INSTALLATION THE CONTRACTOR SHALL PREPARE A SCHEME TO MAINTAIN TRAFFIC CONTROL FOR THE ENGINEER'S APPROVAL.

THE CONTRACTOR SHALL CORRECT AS QUICKLY AS POSSIBLE ALL OUTAGES OR MALFUNCTIONS. HE SHALL PROVIDE THE CITY AND THE PROJECT ENGINEER SUCH ADDRESSES AND PHONE NUMBERS WHERE HIS MAINTENANCE FORCES CAN BE CONTACTED. THE CONTRACTOR SHALL PROVIDE ONE OR MORE PERSONS TO RECEIVE ALL CALLS AND DISPATCH THE NECESSARY MAINTENANCE FORCES TO CORRECT OUTAGES OR MALFUNCTIONS. SUCH A PERSON OR PERSONS MAY BE USED TO PERFORM OTHER DUTIES AS LONG AS PROMPT ATTENTION IS GIVEN TO THESE CALLS AND A PERSON IS READILY AVAILABLE CONTINUOUSLY 24 HOURS A DAY, SEVEN DAYS A WEEK. ALL LAMP OUTAGES, CABLE FAILURES, ELECTRICAL FAILURES, EQUIPMENT MALFUNCTIONS AND MISALIGNED SIGNAL HEADS SHALL BE CORRECTED TO THE SATISFACTION OF THE ENGINEER WITH THE SIGNAL BACK IN SERVICE WITHIN THREE (3) HOURS AFTER THE CONTRACTOR HAS BEEN NOTIFIED OF THE OUTAGES OR MALFUNCTIONS.

IN THE EVENT NEW SIGNALS ARE DAMAGED PRIOR TO ACCEPTANCE, ALL DAMAGED EQUIPMENT EXCEPT POLES AND CONTROL EQUIPMENT SHALL BE REPLACED BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER WITH THE SIGNAL BACK IN SERVICE WITHIN EIGHT (8) HOURS AFTER THE CONTRACTOR HAS BEEN NOTIFIED OF DAMAGE.

IF POLES AND/OR CONTROL EQUIPMENT ARE DAMAGED AND MUST BE REPLACED THE CONTRACTOR SHALL MAKE TEMPORARY REPAIRS AS NECESSARY TO BRING THE SIGNAL BACK INTO FULL OPERATION WITHIN THE ALLOWED EIGHT HOUR PERIOD. HE SHALL MAKE PERMANENT REPAIRS OR REPLACEMENT AS SOON THEREAFTER AS POSSIBLE.

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

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

WHERE THE CONTRACTOR HAS FAILED TO OR CANNOT RESPOND TO AN OUTAGE OR SIGNAL EQUIPMENT MALFUNCTION AT THOSE LOCATIONS WITHIN HIS RESPONSIBILITY OR WITHIN PERIODS AS SPECIFIED ABOVE, ODOT AND/OR THE CITY MAY TAKE ANY ACTION AS THEY MAY DEEM NECESSARY. THIS ACTION MAY INCLUDE CONTROL OF THE INTERSECTION BY POLICE OFFICERS AND COMPLETE REMOVAL OF THE MALFUNCTIONING TRAFFIC CONTROL DEVICES AND INSTALLATION OF DEVICES TO RETURN THE INTERSECTION TO OPERATION. ANY SUBSEQUENT BILLINGS BY ODOT AND/OR THE CITY FOR THE POLICE OFFICERS AND/OR MAINTENANCE BY ODOT AND/OR THE CITY SHALL BE DEDUCTED FROM MONIES DUE OR TO BECOME DUE TO THE CONTRACTOR IN ACCORDANCE WITH PROVISIONS OF SECTION 105.15.

WHEN A TRAFFIC SIGNAL MUST BE TAKEN OUT OF SERVICE BY THE CONTRACTOR, DUE TO CONSTRUCTION PROCEDURES, THIS OUTAGE SHALL NOT INCLUDE THE HOURS OF 7:00 TO 9:00 A.M. AND 3:00 TO 6:00 P.M. MONDAY THROUGH FRIDAY. WHERE A TRAFFIC SIGNAL IS OUT OF SERVICE DUE TO CONSTRUCTION PROCEDURES OR DUE TO AN OUTAGE OR MALFUNCTION OF EQUIPMENT AS DESCRIBED ABOVE, TRAFFIC SHALL BE DIRECTED BY TWO(2) OFF-DUTY CITY OF CLEVELAND POLICE OFFICERS HIRED BY THE CONTRACTOR UNTIL SAID SIGNAL IS OPERATING AGAIN. ALL COSTS INCURRED IN USING POLICE OFFICERS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

THE CONTRACTOR SHALL MAINTAIN COMPLETE RECORDS OF MALFUNCTIONS INCLUDING: 1. TIME OF NOTIFICATION OF MALFUNCTION; 2. TIME OF WORK CREW'S ARRIVAL TO CORRECT THE MALFUNCTION; 3. ACTIONS TAKEN TO CORRECT THE MALFUNCTION, INCLUDING A LIST OF PARTS REPAIRED OR REPLACED; 4. DIAGNOSIS OF REASON FOR THE MALFUNCTION AND PROBABILITY OF REOCCURRENCE; AND 5. TIME OF COMPLETION OF REPAIR AND SYSTEM RESTORED TO FULL SERVICE. A COPY OF THESE RECORDS SHALL BE PROVIDED TO ODOT AND THE CITY WITHIN THREE (3) WORKING DAYS FOLLOWING COMPLETION OF EACH REPAIR.

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

ITEM 202 - WALK AND CURB REMOVED

THESE ITEMS SHALL INCLUDE ONLY WALK AND CURB REMOVED FOR CONSTRUCTING CURB RAMPS, AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER. THE FOLLOWING ADDITIONAL QUANTITIES ARE ESTIMATED:

ITEM	TOTAL	UNIT	DESCRIPTION
202	1200	SF	WALK REMOVED
202	350	LF	CURB REMOVED

ITEM 608 - CURB RAMPS, AS PER PLAN

CURB RAMPS SHALL BE CONSTRUCTED ONLY AT LOCATIONS INDICATED ON THE PLANS OR AS DIRECTED BY THE ENGINEER. THE TYPE SHALL BE AS INDICATED ON THE PLANS OR AS DIRECTED BY THE ENGINEER, AND THE RAMPS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE DETAILS SHOWN ON SHEET 20. THE FOLLOWING ADDITIONAL QUANTITIES ARE ESTIMATED:

ITEM	TOTAL	UNIT	DESCRIPTION
608	600	SF	CURB RAMP, TYPE 1, A.P.P.
608	600	SF	CURB RAMP, TYPE 2, A.P.P.

ITEM 623 - CONSTRUCTION LAYOUT STAKES, AS PER PLAN

THE CONTRACTOR SHALL ESTABLISH CENTER LINES AND/OR BASE LINES AND STATIONING FOR BOTH THE MAIN STREET AND THE CROSS STREET, USING INFORMATION CONTAINED ON THE PLANS. THE ESTABLISHED LINES AND STATIONING SHALL BE MAINTAINED THROUGHOUT THE DURATION OF THE PROJECT BY THE CONTRACTOR.

PAYMENT FOR ALL LABOR, MATERIALS AND OTHER INCIDENTALS, INCLUDING SURVEYING SERVICES, SHALL BE INCLUDED IN THE CONTRACT LUMP SUM PRICE BID FOR "ITEM 623 - CONSTRUCTION LAYOUT STAKES, AS PER PLAN."

ITEM 625 - PULL BOX, AS PER PLAN

ALL PULL BOXES SHALL BE AS SHOWN ON SHEET 19 AND AS SPECIFIED AS FOLLOWS:

SIZE:

BOX - 13" X 24" X 18" DEEP (NOMINAL)
BOX TO TAPERED OUTWARD FROM TOP TO THE OPEN BOTTOM
INSIDE BOX DIMENSIONS 20"W X 29 1/2"L MINIMUM

COVER - 13 3/4" X 23 1/4" X 2", OVERALL WEIGHT 50 LBS.

LOAD CAPACITY:

15,000 LBS. ON A 10" X 10" AREA TESTED IN ACCORDANCE WITH WESTERN UNDERGROUND COMMITTEE GUIDE 3.6. COVER DEFLECTION TO BE LESS THAN 1/2" AT DESIGN LOAD AND SHOW NO SIGNS OF DAMAGE AFTER 10 CYCLES AT DESIGN LOAD.

MATERIAL AND CONSTRUCTION:

BOX - THE BODY SHALL BE MADE OF FIBER GLASS REINFORCED POLYMER (FRP) WITH ISOPHTHALIC POLYESTER USING THE SPRAY-UP AND ROLL CONSTRUCTION METHOD. THE MATERIAL MUST HAVE STABILIZERS TO RESIST UV DEGRADATION IN ACCORDANCE WITH ASTM D-790 AND ASTM D-1501-71 SECTION 6, PROCEDURE B. THE TOP RING OF THE BOX WILL BE MADE OF POLYMER CONCRETE USING A POLYESTER BINDER WITH AGGREGATE FILLERS AND CHOPPED FIBER GLASS WITH A MINIMUM TENSILE STRENGTH OF 1,900 PSI. THE RING MUST HAVE THE SAME UV RESISTANCE AS THE FRP MATERIAL. THE THREADED INSERTS (2) FOR THE COVER BOLTS MUST BE STAINLESS STEEL.

COVER - THE COVER SHALL BE MADE WITH A THICK MOLDING COMPOUND (TMC) USING THE COMPRESSION MOLDING METHOD. THE TMC SHALL CONSIST OF A MINIMUM 10% FIBER GLASS IN A CALCIUM CARBONATE AND POLYESTER RESIN MATRIX. THE COVER MUST BE MARKED "TRAFFIC", HAVE A NON-SKID SURFACE AND THE SAME UV RESISTANCE AS THE FRP MATERIAL. TWO RECESSED HEX HEAD STAINLESS STEEL BOLTS AND WASHERS WILL BE USED TO SECURE THE COVER TO THE BOX.

THE CONTRACTOR SHALL REMOVE AND REPLACE EXISTING INTERCONNECT PULL BOXES WHERE DIRECTED BY THE ENGINEER. THE FOLLOWING QUANTITY IS ESTIMATED:

ITEM	TOTAL	UNIT	DESCRIPTION
625	100	EA	PULL BOX, AS PER PLAN

PAYMENT FOR ALL LABOR, MATERIALS, TOOLS, EQUIPMENT AND OTHER INCIDENTALS, INCLUDING REMOVING EXISTING PULL BOXES, SHALL BE AT THE CONTRACT UNIT PRICE BID FOR "ITEM 625 - PULL BOX, AS PER PLAN."

ITEM 630 - SIGN SUPPORT ASSEMBLY, POLE MOUNTED

A SIGN SUPPORT ASSEMBLY SHALL ALSO BE PROVIDED FOR EACH EXISTING SIGN REMOVED FROM AN EXISTING POLE AND RELOCATED TO A PROPOSED POLE, AS SPECIFIED IN "ITEM 632 - REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN." THE FOLLOWING ADDITIONAL QUANTITY IS ESTIMATED:

ITEM	TOTAL	UNIT	DESCRIPTION
630	200	EA	SIGN SUPPORT ASSEMBLY, POLE MOUNTED

ITEM 253 - PAVEMENT REPAIR, AS PER PLAN

THE CONTRACTOR SHALL REPAIR DETERIORATED PAVEMENT AS PER THE DETAIL ON SHEET 20. ALL REPAIR LOCATIONS SHALL BE AS DIRECTED BY THE ENGINEER. PAYMENT FOR ALL LABOR, MATERIALS, TOOLS, EQUIPMENT AND OTHER INCIDENTALS, INCLUDING ASPHALT CONCRETE AND TACK COAT, SHALL BE AT THE CONTRACT CUBIC YARD PRICE BID FOR "ITEM 253 - PAVEMENT REPAIR, AS PER PLAN." THE FOLLOWING QUANTITY IS ESTIMATED:

ITEM	TOTAL	UNIT	DESCRIPTION
253	30	CY	PAVEMENT REPAIR, AS PER PLAN

ITEM SPECIAL - FOUNDATION TEST HOLES

IF UNDERGROUND OBSTRUCTIONS ARE ENCOUNTERED THAT PRECLUDE USE OF THE STANDARD OR ALTERNATE FOUNDATION DESIGNS, THE CONTRACTOR SHALL PROVIDE THE ENGINEER WITH COMPLETE INFORMATION REGARDING THE OBSTRUCTION INCLUDING TYPE (I.E. UTILITY), SIZE, DEPTH AND LATERAL CLEARANCES TO THE SIDES OF THE FOUNDATION EXCAVATION. THE FOUNDATION HOLE SHALL BE COVERED WITH A STEEL PLATE UNTIL THE ENGINEER DETERMINES IF A NEW FOUNDATION LOCATION WILL BE REQUIRED. IF SUBSEQUENTLY DIRECTED BY THE ENGINEER, THE CONTRACTOR SHALL BACKFILL AND COMPACT THE HOLE AND SHALL RESTORE THE SURFACE AS DESCRIBED IN "RESTORATION OF DISTURBED AREAS."

THE CONTRACTOR SHALL BE COMPENSATED FOR EACH FOUNDATION HOLE THAT MUST BE ABANDONED. PAYMENT FOR ALL LABOR, MATERIALS, TOOLS, EQUIPMENT AND OTHER INCIDENTALS, INCLUDING BACKFILL, COMPACTING AND SURFACE RESTORATION, SHALL BE AT THE CONTRACT UNIT PRICE BID FOR "ITEM SPECIAL - FOUNDATION TEST HOLES" FOR THE NUMBER EXCAVATED AND BACKFILLED. THE FOLLOWING QUANTITY IS ESTIMATED:

ITEM	TOTAL	UNIT	DESCRIPTION
SPECIAL	200	EA	FOUNDATION TEST HOLES

ITEM 630 - SIGN, FLAT SHEET, TYPE G

STREET NAME SIGNS SHALL HAVE TYPE G SHEETING. COLOR SHALL BE SILVER LETTERS. STREET NAME BACKGROUND TO BE BLUE AND DISTRICT NAME BACKGROUND TO BE VIOLET. SIZE OF SIGNS SHALL BE:

MAST ARM MOUNT: 26" HIGH BLANK. LETTERS TO BE 12 CAP (UPPER/LOWER CASE) FOR STREET NAMES AND 4 CAP (UPPER/LOWER) FOR DISTRICT NAMES. UNIFORMS. 65 FONT. WHITE BORDER 1/4", INSET 1/2".

PAYMENT FOR ALL LABOR, MATERIALS, TOOLS, EQUIPMENT AND OTHER INCIDENTALS, INCLUDING MOUNTING HARDWARE SHALL BE AT THE CONTRACT SQUARE FOOT PRICE BID FOR "ITEM 630 - SIGN, FLAT SHEET, TYPE G."

ITEM 630 - GROUND MOUNTED SUPPORT, NO. XX POST

GROUND MOUNTED SIGN SUPPORT POSTS SHALL ALSO BE PROVIDED FOR EACH EXISTING SIGN REMOVED FROM AN EXISTING POLE OR MAST ARM AND RELOCATED AS A GROUND MOUNTED SIGN, AS SPECIFIED IN "ITEM 632 - REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN." THE FOLLOWING ADDITIONAL QUANTITY IS ESTIMATED:

ITEM	TOTAL	UNIT	DESCRIPTION
630	200	LF	GROUND MOUNTED SUPPORT, NO. 3 POST

ITEM 632 - INTERCONNECT CABLE, AS PER PLAN

INTERCONNECT CABLE SHALL BE 6 PAIR, NO. 19 AWG, SOLID, REA PE-39 (UNDERGROUND). SPLICES SHALL OCCUR ONLY AT THE TERMINAL ENDS OF THE HARDWARE INTERCONNECT PANEL. NO OTHER SPLICE LOCATIONS SHALL BE PERMITTED EXCEPT AS NOTED ON THE PLANS.

PAYMENT FOR ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, AND OTHER INCIDENTALS, INCLUDING REMOVING AND DISPOSING OF EXISTING INTERCONNECT CABLE, SHALL BE INCLUDED IN THE CONTRACT LINEAR FOOT PRICE BID FOR "ITEM 632 - INTERCONNECT CABLE, 6 PR, NO. 19 AWG, SOLID, REA (PE-39), AS PER PLAN." THE FOLLOWING QUANTITY MAY BE REQUIRED AS DIRECTED BY THE ENGINEER.

ITEM	TOTAL	UNIT	DESCRIPTION
632	2000	LF	INTERCONNECT CABLE, 6 PR, NO. 19 AWG, SOLID, REA (PE-39), AS PER PLAN

ITEM 632 - POWER SUPPLY

THE EXISTING POWER SUPPLY SHALL BE MAINTAINED AT EACH INTERSECTION UNLESS OTHERWISE NOTED ON THE PLANS OR AS DIRECTED BY THE ENGINEER. IF IT IS NECESSARY TO RELOCATE THE POWER SUPPLY AT SELECTED INTERSECTIONS, THE FOLLOWING ADDITIONAL QUANTITIES ARE ESTIMATED:

ITEM	TOTAL	UNIT	DESCRIPTION
632	10	EA	CONDUIT RISER, 2" DIAMETER
632	100	LF	CONDUIT, 2", 713.07
632	100	LF	POWER CABLE, 3-CONDUCTOR, NO. 8 AWG.

GENERAL NOTES

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

ALL TRAFFIC REGULATION SIGNS ARE TO BE RIGID MOUNTED IN ACCORDANCE WITH STANDARD CONSTRUCTION DRAWING TC-16.20 OR AS APPROVED BY ODOT AND THE CITY. SIGNS ARE TO BE MOUNTED WHERE INDICATED ON THE POLE CHARTS OR AS DIRECTED BY THE ENGINEER. SIGNS SHALL BE MOUNTED LEVEL AND SHALL NOT BE SLOPED ALONG THE MAST ARM. NO INTERSECTION SHALL BE LEFT WITHOUT A STREET NAME SIGN DURING CONSTRUCTION. EXISTING SIGNS INSTALLED ON SIGNAL POLES TO BE REMOVED SHALL BE TEMPORARILY RELOCATED UNTIL THE NEW STREET NAME SIGNS ARE INSTALLED.

STREET NAME SIGNS ARE TO BE RIGID MOUNTED LEVEL USING CONTINUOUS SLOTTED SIGN SUPPORT SECTIONS, A UNIVERSAL CHANNEL CLAMP AND BANDING AS SPECIFIED BELOW:

CONTINUOUS SLOTTED SIGN SUPPORT SECTIONS

THERE SHALL BE FOUR (4) SLOTTED SIGN SUPPORT SECTIONS USED FOR EACH STREET NAME SIGN, MOUNTED VERTICALLY. SECTIONS SHALL BE FABRICATED FROM ALLOY 6061-T6 ALUMINUM IN STANDARD 16 FOOT LENGTHS. THE CONFIGURATION OF THIS SECTION SHALL BE:

THE BASE SHALL BE 1.41" OVERALL. THE WALL THICKNESS OF THE BASE SHALL BE 0.098". THE VERTICAL WALLS SHALL EXTEND UPWARDS 0.689", AT WHICH POINT THEY SHALL EXTEND 45 DEGREES INWARD. WALL THICKNESS FOR THE VERTICAL WALLS SHALL BE 0.083". A "U" SHAPED CHANNEL, 0.771" IN WIDTH OVERALL SHALL EXTEND VERTICALLY 0.470" FROM THE BOTTOM OF THE "U" TO FORM A CONTINUOUS INVERTED "T" SLOT. THE BOTTOM OF THE "T" SHALL HAVE A WALL THICKNESS OF 0.079". VERTICAL WALL THICKNESS SHALL BE 0.110". THE OPENING IN THE INVERTED "T" SHALL BE 0.335" WIDE. THE INVERTED "T" SHALL HAVE AN ANGLE OF 45 DEGREES TO CREATE A TRACK IN WHICH THE BOLTS WILL NOT ROTATE.

THE BASE SHALL HAVE ONE GROOVE 0.015" DEEP X 90 DEGREES IN THE CENTER OF THE BASE.

THIS SECTION SHALL BE FABRICATED AS TO ACCOMMODATE THE POSITIONABLE STAINLESS STEEL FITTINGS AND CLAMPS, PROVIDING COMPLETE FREEDOM OF ALIGNMENT WITHIN THE 0.335" SLOT TO CREATE AN INTEGRATED SUPPORT SYSTEM.

UNIVERSAL CHANNEL CLAMP

THERE SHALL BE ONE (1) CLAMP USED FOR EACH CHANNEL SECTION. THIS DEVICE SHALL BE FABRICATED FROM STAINLESS STEEL TYPE 304. EACH UNIVERSAL CHANNEL CLAMP SHALL BE 2-3/4" LONG; 1-3/16" HIGH; 1-1/8" DEEP AT EITHER END. THE "SADDLE" SHALL BE FORMED FROM 16 GAUGE STAINLESS STEEL TYPE 304 FORMED BY TAPERING UNIFORMLY TOWARD THE CENTER OF THE LARGER SIDE TO A DEPTH OF 1/2" FORMING A MODIFIED "V".

LOCKED WITHIN THE "SADDLE" SHALL BE A PORTION OF THE UNIT REFERRED TO AS THE INSERT PLATE WHICH SHALL BE FABRICATED FROM 14 GAUGE STAINLESS STEEL TYPE 304 AND FORM A SHALLOW "U". THE LEGS OF THE "U" SHALL BE 1" HIGH AND 1-1/16" WIDE WITH AN APERTURE DESIGNED TO PERMIT PASSAGE OF 3/16" VERTICALLY ON THE ONE INCH SADDLE DIMENSION AND SHALL BE IN FROM EDGE CLOSEST TO THE "V" OF THE SADDLE. THE BASE OF THE "U" SHALL BE 1/2" WIDE AND 2-1/2" LONG WHERE IT IS PREDESIGNED TO SLIDE IN A POSITIONABLE MANNER INTO THE 0.335" CONTINUOUS SLOTTED SIGN SUPPORT SECTION.

BANDING SPECIFICATIONS

THE BANDING WILL BE REGULAR TYPE BANDING, TYPE AISI 201 STAINLESS STEEL. THE THICKNESS OF THE BANDING SHALL BE 0.030". THE BANDING WIDTH SHALL BE 0.750".

THE STREET NAME SIGNS SHALL BE ATTACHED TO THE CHANNEL SECTIONS USING STANDARD POP RIVETS. ALL MATERIALS INCLUDING SLOTTED CHANNEL SUPPORT SECTIONS, CHANNEL CLAMPS AND BANDING REQUIRED TO INSTALL AN INDIVIDUAL STREET NAME SIGN SHALL BE MEASURED AS A SINGLE SIGN HANGER ASSEMBLY.

PAYMENT FOR ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, AND OTHER INCIDENTALS, INCLUDING SLOTTED SIGN SUPPORT SECTIONS, UNIVERSAL CHANNEL CLAMPS AND BANDING SHALL BE AT THE CONTRACT UNIT PRICE BID FOR "ITEM 630 - SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN."

ITEM 632 - SIGNAL SUPPORT, TYPE (X), DESIGN (X), AS PER PLAN

SIGNAL POLES AND MAST ARMS SHALL BE OF THE HEIGHT, STRENGTH AND/OR LENGTH INDICATED ON THE PLANS. POLES AND MAST ARMS SHALL BE A TRUE ROUND CONTINUOUS TAPER.

SIGNAL POLES AND MAST ARMS ARE TO BE DELIVERED WITH ALL GALVANIZED EXTERIOR SURFACES COATED WITH A URETHANE OR TRIGLYCIDYLE ISOCYANURATE (TGIC) POLYESTER POWDER TO A MINIMUM FILM THICKNESS OF 2.0 MILS (0.002 INCH). THE POWDER SHALL BE DARK BRONZE (ORION BROWN), COLOR A-52355. PRIOR TO APPLICATION, THE SURFACES TO BE POWDER COATED SHALL BE MECHANICALLY ETCHED BY BRUSH BLASTING (REF. SSPC-SP7) AND THE ZINC COATED SUBSTRATE PREHEATED TO 450 DEGREES FAHRENHEIT FOR A MINIMUM OF ONE HOUR IN A GAS FIRED CONVECTION OVEN. THE COATING SHALL BE ELECTROSTATICALLY APPLIED AND CURED IN A GAS FIRED CONVECTION OVEN BY HEATING THE ZINC COATED SUBSTRATE TO A MINIMUM OF 350 DEGREES FAHRENHEIT AND A MAXIMUM OF 400 DEGREES FAHRENHEIT. THE THERMOSETTING POWDER RESIN SHALL PROVIDE BOTH INTERCOAT AS WELL AS SUBSTRATE FUSION ADHESION THAT MEETS 5A OR 5B CLASSIFICATIONS OF ASTM D3359.

ORDERS FOR SIGNAL POLES AND MAST ARMS SHALL BE PLACED SYSTEMATICALLY AFTER THE RESPECTIVE FOUNDATIONS HAVE BEEN CONSTRUCTED. IN THE EVENT THAT UTILITY OR OTHER CONFLICT REQUIRES THAT A SIGNAL SUPPORT BE CONSTRUCTED IN A LOCATION OTHER THAN AS INDICATED ON THE PLAN, THE ENGINEER SHALL DETERMINE WHETHER THE SPECIFIED ARM LENGTH IS APPROPRIATE. IF A LONGER OR SHORTER ARM IS REQUIRED, THE CITY SHALL PROVIDE THE ENGINEER WITH DESIGN INFORMATION FOR THE REVISED POLE AND ARM. CHANGES IN POLE AND/OR ARM SIZE, STRENGTH AND/OR LENGTH DUE TO REVISED FOUNDATION LOCATIONS SHALL NOT RECEIVE ADDITIONAL COMPENSATION BEYOND THE CONTRACT UNIT PRICE BID FOR THE ITEM(S) ACTUALLY FURNISHED.

ITEM 632 - BRACKET ARM, 6', AS PER PLAN

IN ADDITION TO THE REQUIREMENTS AS OUTLINED IN SECTION 713.01, THE FOLLOWING SHALL APPLY FOR BRACKET ARMS:

BRACKET ARMS ARE TO BE DELIVERED WITH ALL GALVANIZED EXTERIOR SURFACES COATED WITH A URETHANE OR TRIGLYCIDYLE ISOCYANURATE (TGIC) POLYESTER POWDER TO A MINIMUM FILM THICKNESS OF 2.0 MILS (0.002 INCH). THE POWDER SHALL BE DARK BRONZE (ORION BROWN), COLOR A-52355. PRIOR TO APPLICATION, THE SURFACES TO BE POWDER COATED SHALL BE MECHANICALLY ETCHED BY BRUSH BLASTING (REF. SSPC-SP7) AND THE ZINC COATED SUBSTRATE PREHEATED TO 450 DEGREES FAHRENHEIT FOR A MINIMUM OF ONE HOUR IN A GAS FIRED CONVECTION OVEN. THE COATING SHALL BE ELECTROSTATICALLY APPLIED AND CURED IN A GAS FIRED CONVECTION OVEN BY HEATING THE ZINC COATED SUBSTRATE TO A MINIMUM OF 350 DEGREES FAHRENHEIT AND A MAXIMUM OF 400 DEGREES FAHRENHEIT. THE THERMOSETTING POWDER RESIN SHALL PROVIDE BOTH INTERCOAT AS WELL AS SUBSTRATE FUSION ADHESION THAT MEETS 5A OR 5B CLASSIFICATIONS OF ASTM D3359.

ITEM 632 - COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN (X), AS PER PLAN

IN ADDITION TO THE REQUIREMENTS AS OUTLINED UNDER "ITEM 632 - SIGNAL SUPPORT, AS PER PLAN", THE FOLLOWING SHALL APPLY FOR COMBINATION SUPPORTS:

COMBINATION SIGNAL SUPPORTS DESIGNATED AS LUMINAIRE EXTENSION, TYPE "A" SHALL BE PROVIDED WITH A 3" OUTSIDE DIAMETER X 3-3/4" LONG STEEL TENON ON TOP FOR INSTALLING A SHOEBOX-TYPE LUMINAIRE.

ITEM 632 - PEDESTAL, 8', TRANSFORMER BASE

ITEM 632 - PEDESTAL, MISC.: 12', TRANSFORMER BASE

PEDESTALS ARE TO BE DELIVERED WITH ALL GALVANIZED EXTERIOR SURFACES COATED WITH A URETHANE OR TRIGLYCIDYLE ISOCYANURATE (TGIC) POLYESTER POWDER TO A MINIMUM FILM THICKNESS OF 2.0 MILS (0.002 INCH). THE POWDER SHALL BE DARK BRONZE (ORION BROWN), COLOR A-52355. PRIOR TO APPLICATION, THE SURFACES TO BE POWDER COATED SHALL BE MECHANICALLY ETCHED BY BRUSH BLASTING (REF. SSPC-SP7) AND THE ZINC COATED SUBSTRATE PREHEATED TO 450 DEGREES FAHRENHEIT FOR A MINIMUM OF ONE HOUR IN A GAS FIRED CONVECTION OVEN. THE COATING SHALL BE ELECTROSTATICALLY APPLIED AND CURED IN A GAS FIRED CONVECTION OVEN BY HEATING THE ZINC COATED SUBSTRATE TO A MINIMUM OF 350 DEGREES FAHRENHEIT AND A MAXIMUM OF 400 DEGREES FAHRENHEIT. THE THERMOSETTING POWDER RESIN SHALL PROVIDE BOTH INTERCOAT AS WELL AS SUBSTRATE FUSION ADHESION THAT MEETS 5A OR 5B CLASSIFICATIONS OF ASTM D3359.

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ITEM 625 - TRENCH IN PAVED AREA, TYPE A, AS PER PLAN

TRENCH, TYPE A SHALL BE USED IN ALL UNPAVED AREAS AND UNDER ALL WALK THAT IS TO BE REMOVED AND REPLACED. SURFACE RESTORATION SHALL BE AS SPECIFIED IN "RESTORATION OF DISTURBED AREAS" AS NOTED ON SHEET 2, IN LIEU OF THE MINIMUM SIX INCH EXTENSION.

PAYMENT FOR ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, AND OTHER INCIDENTALS, INCLUDING SURFACE RESTORATION, SHALL BE INCLUDED IN THE CONTRACT LINEAR FOOT PRICE BID FOR "ITEM 625 - TRENCH IN PAVED AREA, TYPE A, AS PER PLAN."

ITEM 625 - TRENCH IN PAVED AREA, TYPE B, AS PER PLAN

TRENCH, TYPE B SHALL BE USED UNDER ALL ROADWAYS AND DRIVEWAYS. THIS ITEM SHALL INCLUDE REMOVAL OF ALL MATERIALS ENCOUNTERED INCLUDING PAVING BLOCKS AND TROLLEY TRACKS. CROSSWALK AND STOP LINES DISTURBED BY TRENCHING OPERATIONS SHALL BE REPLACED IN THEIR ENTIRETY AT NO ADDITIONAL COMPENSATION. CENTER LINES DISTURBED BY TRENCHING OPERATIONS SHALL BE REPLACED IN THE DISTURBED AREA, AT NO ADDITIONAL COMPENSATION.

PAYMENT FOR ALL LABOR, MATERIALS, TOOLS, EQUIPMENT AND OTHER INCIDENTALS, INCLUDING MATERIAL REMOVAL, SURFACE RESTORATION AND PAVEMENT MARKING REPLACEMENT/REPAIR, SHALL BE INCLUDED IN THE CONTRACT LINEAR FOOT PRICE BID FOR "ITEM 625 - TRENCH IN PAVED AREA, TYPE B, AS PER PLAN."

ITEM 625 - CONDUIT

CONDUIT SHALL BE PVC, SCHEDULE 40 (MINIMUM). CONDUIT BENEATH ROADS SHALL BE CONCRETE-ENCASED. MULTIPLE CONDUITS SHALL BE STACKED VERTICALLY AND MAY BE SECURED WITH TAPE DURING INSTALLATION. BENDS SHALL BE MADE WITH AN APPROVED, INDUSTRY-ACCEPTED FLAMELESS HEATER DESIGNED TO DISTRIBUTE HEAT EVENLY OVER THE SECTION OF THE CONDUIT BEING BENT. THE MAXIMUM BEND ALLOWABLE SHALL BE 45 DEGREES.

THE CONTRACTOR SHALL INSTALL SIGNAL WIRES FOR 120 VOLT SIGNALS AND ELECTRIC SIGNS IN SEPARATE CONDUIT RUNS FROM WIRE AND CABLE UTILIZED FOR LOW VOLTAGE APPLICATIONS INCLUDING PEDESTRIAN PUSH BUTTONS, LOOP DETECTOR LEAD-IN CABLE, MICROWAVE DETECTOR LEAD-IN CABLE AND INTERCONNECT.

CONDUIT CONSTRUCTED THROUGH GRANITE CURB MAY BE DRILLED OR INSTALLED BELOW THE CURB, AT THE CONTRACTOR'S OPTION, AS APPROVED BY THE ENGINEER. IF CONDUIT IS CONSTRUCTED BELOW GRANITE BLOCK CURB AND THE CURB MUST BE DISTURBED, AN ENTIRE SECTION SHALL BE REMOVED. THE CONTRACTOR SHALL REPLACE THE ENTIRE SECTION OF GRANITE BLOCK CURB IF DAMAGED DURING DRILLING, REMOVAL OR RESETTING OPERATIONS, AT NO ADDITIONAL COMPENSATION.

PAYMENT FOR ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, AND OTHER INCIDENTALS, INCLUDING DRILLING, REMOVAL AND RESETTING GRANITE BLOCK CURB, AND CONCRETE ENCASUREMENT BENEATH ROADS, SHALL BE INCLUDED IN THE CONTRACT LINEAR FOOT PRICE BID FOR THE FOLLOWING ITEMS:

ITEM 625 - CONDUIT, 1", 713.07
 ITEM 625 - CONDUIT, 1 1/2", 713.07
 ITEM 625 - CONDUIT, 2", 713.07
 ITEM 625 - CONDUIT, 3", 713.07
 ITEM 625 - CONDUIT, CONCRETE ENCASED, 3", 713.07

ITEM 631 - CHANGEABLE MESSAGE SIGN, ELECTRIC TYPE, LIMITED MESSAGE, AS PER PLAN

THE CHANGEABLE MESSAGE SIGN SHALL BE SINGLE FACED, FIBER OPTIC AND SHALL DISPLAY THE "NO RIGHT TURN" SYMBOL (R-120) OR THE "NO LEFT TURN" SYMBOL (R-121) OR A NO TURN SYMBOL. A SUPPLEMENTARY MESSAGE SHALL PROVIDED IF INDICATED ON THE PLANS. THE SIGN LEGEND SHALL NOT BE VISIBLE WHEN SIGN IS DE-ENERGIZED. THE CHANGEABLE MESSAGE SIGN SHALL BE RIGID MOUNTED AT THE LOCATION INDICATED ON THE POLE CHARTS.

THE SIGN SHALL BE FURNISHED BY ONE OF THE FOLLOWING MANUFACTURERS OR AN ACCEPTED EQUIVALENT:

NATIONAL SIGN AND SIGNAL COMPANY
 301 S. ARMSTRONG ROAD
 BATTLE CREEK, MI 49031
 PHONE: (616) 963-2817

MATEC FIBER OPTICS
 56 HUDSON STREET
 NORTHBORO, MA 01532
 PHONE: (508) 393-3753

PAYMENT FOR ALL LABOR, MATERIALS, TOOLS, EQUIPMENT AND OTHER INCIDENTALS, INCLUDING MOUNTING BRACKETS AND MISCELLANEOUS HARDWARE, SHALL BE AT THE CONTRACT UNIT PRICE BID FOR "ITEM 631 - CHANGEABLE MESSAGE SIGN, ELECTRIC TYPE, LIMITED MESSAGE, AS PER PLAN."

ITEM 632 - FOUNDATIONS

MAST ARM FOUNDATIONS SHALL BE PROVIDED WITH A SPARE 2 INCH DIAMETER CONDUIT SWEEP FOR FUTURE USE. THE CONDUIT SWEEP SHALL BE CAPPED AT BOTH ENDS. THE DIRECTION OF THE SWEEP SHALL BE OPPOSITE THE SIGNAL CONDUIT UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

IF UNDERGROUND OBSTRUCTIONS ARE ENCOUNTERED THAT PRECLUDE THE USE OF THE STANDARD FOUNDATION DESIGN, THE CONTRACTOR MAY SUBSTITUTE THE ALTERNATE FOUNDATION AS SHOWN ON THE DETAIL FOR DESIGN 1,2 OR 3, ON SHEET 19, IF DIRECTED BY THE ENGINEER. IF THIS ALTERNATE FOUNDATION ALSO CAN NOT BE CONSTRUCTED, THE REQUIREMENT OF "ITEM SPECIAL - FOUNDATION TEST HOLES" SHALL APPLY.

SELECTED EXISTING CONTROLLER FOUNDATIONS MUST BE RECONSTRUCTED TO ACCOMMODATE NEW CONDUIT, WHERE SHOWN ON THE PLANS. THE CONTRACTOR SHALL FOLLOW THE PROCEDURE SHOWN ON SHEET 19. PAYMENT SHALL BE AT THE CUBIC YARD PRICE BID FOR "ITEM 633 - CONCRETE FOR CABINET FOUNDATION."

ITEM 632 - PEDESTRIAN PUSHBUTTON, AS PER PLAN

PEDESTRIAN PUSHBUTTONS SHALL BE FURNISHED WITH A RUBBER DUST COVER OVER THE EXPOSED BUTTON.

PAYMENT FOR ALL LABOR, MATERIALS, TOOLS, EQUIPMENT AND OTHER INCIDENTALS, INCLUDING RUBBER DUST COVER, SHALL BE AT THE CONTRACT UNIT PRICE BID FOR "ITEM 632 - PEDESTRIAN PUSHBUTTON, AS PER PLAN."

ITEM 632 - LOOP DETECTOR UNIT, DELAY AND EXTENSION TYPE, AS PER PLAN

LOOP DETECTOR UNITS SHALL BE A DELAY AND EXTENSION TYPE WITH FOUR CHANNELS WITH TIMING FUNCTION AND COUNT OUTPUTS. IN ADDITION TO THE REQUIREMENTS OF 632.09 AND 732.07 OR 732.08, LOOP DETECTOR UNITS SHALL HAVE THE FOLLOWING REQUIREMENTS OR FEATURES:

THE OUTPUT DEVICE SHALL BE A RELAY AND ALL CONTACT SHALL BE INCLUDED IN THE WIRING HARNESS.

THE UNIT SHALL BE SELF TUNING.

THE UNIT'S ELECTRICAL CONNECTION PLUGS OR WIRING HARNESS SHALL ALLOW READY REPLACEMENT WITH A SINGLE CHANNEL AMPLIFIER AS DESCRIBED IN THE FINAL PARAGRAPH OF 732.07.

UNITS SHALL HAVE A DUAL OUTPUT FOR SYSTEM PURPOSES AND PULSE/PRESENCE PHASE CALLING PURPOSES.

PAYMENT FOR EACH FOUR CHANNEL DETECTOR UNIT, ALL LABOR, MATERIALS, TOOLS, EQUIPMENT AND OTHER INCIDENTALS, INCLUDING WIRING HARNESS, SHALL BE AT THE CONTRACT UNIT PRICE BID FOR "ITEM 632 - LOOP DETECTOR UNIT, DELAY AND EXTENSION TYPE, AS PER PLAN."

ITEM 632 - SIGNALIZATION, MISC.: MICROWAVE DETECTOR

MICROWAVE DETECTORS SHALL BE SPECIFICALLY DESIGNED AND CONSTRUCTED FOR PRESENCE DETECTION OF VEHICLES IN AN OUTDOOR ENVIRONMENT. THE UNIT SHALL BE CAPABLE OF EITHER SIDE MOUNTING ON SIGNAL POLES OR PEDESTALS OR OVERHEAD MOUNTING ON SIGNAL MAST ARMS. THE UNITS SHALL HAVE AN ADJUSTABLE DETECTION PATTERN AND SHALL BE CAPABLE OF CONTINUOUS PRESENCE DETECTION. EACH DETECTOR SHALL BE FURNISHED COMPLETE WITH ALL REQUIRED MOUNTING HARDWARE, CABLE CONNECTORS, RELAYS AND WIRING HARNESSES NECESSARY FOR A COMPLETE AND FUNCTIONING INSTALLATION.

DETECTORS INSTALLED ON MAST ARMS SHALL BE ATTACHED TO THE ARM USING STAINLESS STEEL BANDS AND POLE HUB CLAMPS. THE DETECTOR LEAD-IN CABLE SHALL UTILIZE THE WIRE OUTLET HOLE OF THE NEAREST VEHICULAR SIGNAL. DETECTORS INSTALLED ON POLES SHALL BE ATTACHED TO THE POLE AT THE HEIGHT SPECIFIED ON THE PLANS, USING STAINLESS STEEL BANDS AND POLE HUB CLAMPS.

DETECTORS SHALL BE AIMED BY THE CONTRACTOR FOR MAXIMUM PRESENCE COVERAGE OF THE REQUIRED LANE(S) AND MINIMUM SPILL-OVER INTO ADJACENT UN-DETECTED LANES, TO THE SATISFACTION OF THE ENGINEER.

PAYMENT FOR ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, AND OTHER INCIDENTALS, INCLUDING ALL MOUNTING HARDWARE AND DETECTOR AIMING, SHALL BE AT THE CONTRACT UNIT PRICE BID FOR "ITEM 632 - SIGNALIZATION, MISC.: MICROWAVE DETECTOR."

ITEM 632 - VEHICULAR SIGNAL HEAD, 3.4 OR 5 SECTION, 12" LENS, 1 WAY, AS PER PLAN

SECTION 732.01 OF THE SPECIFICATIONS IS MODIFIED FOR THIS PROJECT AS FOLLOWS:

- SIGNAL HEADS AND VISORS SHALL BE CONSTRUCTED OF INJECTION MOLDED, UV STABILIZED, POLYCARBONATE PLASTIC AND MEET ITE SPECIFICATIONS.
- PLASTIC LENSES SHALL BE USED.
- PIPE SPACERS AND FITTINGS CONSTRUCTED OF POLYCARBONATE PLASTIC MAY BE USED IN LIEU OF GALVANIZED STEEL OR ALUMINUM.
- PROPER EXTERIOR COLORS SHALL BE OBTAINED BY USE OF COLORED PLASTIC MATERIAL RATHER THAN PAINTING.
- CENTERLINE OF RED LENS SHALL MATCH CENTERLINE OF MAST ARM, RIGID MOUNTED.
- STAINLESS STEEL BANDS AND POLE HUB PLATES SHALL BE USED, WHERE REQUIRED, TO MOUNT SIGNALS ON POLES.

ITEM 632 - PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN

SECTION 732.05 OF THE SPECIFICATIONS IS MODIFIED FOR THIS PROJECT AS FOLLOWS:

- SIGNAL HEADS AND VISORS MAY BE CONSTRUCTED OF POLYCARBONATE PLASTIC AND MEET ITE SPECIFICATION. OTHERWISE SIGNAL HEADS SHALL BE ALUMINUM. SIGNAL HEADS SHALL BE TYPE D2.
- PLASTIC LENSES SHALL BE USED.
- PIPE SPACERS AND FITTINGS CONSTRUCTED OF POLYCARBONATE PLASTIC MAY BE USED IN LIEU OF GALVANIZED STEEL OR ALUMINUM IF PLASTIC SIGNAL HEADS ARE FURNISHED.
- INSTALLATION SHALL BE PER ODOT STANDARD CONSTRUCTION DRAWING TC-85.10 WITH THE EXCEPTION THAT CLAM SHELLS SHALL NOT BE USED.
- THE INTERNATIONAL PALM AND PEDESTRIAN SYMBOLS SHALL BE USED.
- STAINLESS STEEL BANDS AND POLE HUB PLATES SHALL BE USED TO MOUNT SIGNALS ON POLES.

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ITEM 632 - COMBINATION SIGNAL SUPPORT, TYPE TC-12.30, AND SIGN SUPPORT, TC-12.30, AS PER PLAN

THIS SUPPORT SHALL CONSIST OF A TC-12.30 DESIGN 5 POLE WITH A TC-81.20 DESIGN 4 SIGNAL ARM, 36 FEET AND A TC-12.30 DESIGN 5 SIGN SUPPORT ARM, 14 FEET. ALL SIGNAL SUPPORT ITEMS REQUIRED BY 632 AND ALL SIGN SUPPORT ITEMS REQUIRED BY 630 SHALL BE INCLUDED AS PART OF THIS SUPPORT.

PAYMENT FOR ALL LABOR, MATERIALS, TOOLS, EQUIPMENT AND OTHER INCIDENTALS SHALL BE AT THE CONTRACT UNIT PRICE BID FOR "ITEM 632 - COMBINATION SIGNAL SUPPORT, TYPE TC-12.30 DESIGN 5 POLE, WITH TC-81.20 DESIGN 4 SIGNAL ARM, 36 FEET AND TC-12.30 DESIGN 5 SIGN SUPPORT ARM, 14 FEET, AS PER PLAN."

ITEM 632-LOOP DETECTOR PAVEMENT CUTTING

THE SPACING FOR SAWCUTS FOR LOOP DETECTOR WIRE TO THE ADJACENT PULLBOX SHALL BE 6 INCHES MINIMUM. NO MORE THAN TWO (2) PAIRS OF LOOP WIRE SHALL BE INSTALLED IN EACH 3/4 INCH CONDUIT.

ITEM 632-LOOP DETECTOR LEAD-IN CABLE

LOOP DETECTOR LEAD-IN CABLE SHALL BE USED FOR LOOP DETECTORS, PEDESTRIAN PUSHBUTTONS AND CHANGEABLE MESSAGE SIGNS.

ITEM 632 - SIGNALIZATION, MISC.: MICROWAVE DETECTOR LEAD-IN CABLE

THE MICROWAVE DETECTOR LEAD-IN CABLE SHALL BE FOUR CONDUCTOR CABLE, OF A TYPE AND SIZE SPECIFICALLY DESIGNED FOR MICROWAVE DETECTOR USE AS RECOMMENDED BY THE DETECTOR MANUFACTURER.

PAYMENT FOR ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, AND OTHER INCIDENTALS, INCLUDING SPECIAL SPLICE KITS AND CONNECTIONS AS REQUIRED, SHALL BE INCLUDED IN THE CONTRACT LINEAR FOOT PRICE BID FOR "ITEM 632 - SIGNALIZATION, MISC.: MICROWAVE DETECTOR LEAD-IN CABLE."

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

TRAFFIC SIGNAL INSTALLATIONS, INCLUDING SIGNAL HEADS, CABLE, SPAN WIRE, STRAIN POLES, CABINET, CONTROLLER, ETC. SHALL BE REMOVED IN ACCORDANCE WITH 632.25 AND AS INDICATED ON THE PLANS. THE CONTROLLER AND SPAN WIRE ASSEMBLIES ARE TO BE REMOVED AT EVERY INTERSECTION IN THE PROJECT. POLES AT EACH SPECIFIC INTERSECTION, ARE TO BE REMOVED AS INDICATED ON THE PLAN, OR AS DIRECTED BY THE ENGINEER. ALL POLE MOUNTED SIGNAL HEADS ARE TO BE REMOVED. TRAFFIC SIGNAL HEADS AND CONTROLLERS SHALL BE STORED IN A SECURE LOCATION AND SHALL BE PICKED-UP BY CITY FORCES. ALL OTHER REMOVED EQUIPMENT INCLUDING POLES, SPAN WIRE, SIGNAL WIRE AND STREET NAME SIGNS SHALL BE DISPOSED OF BY THE CONTRACTOR, UNLESS OTHERWISE NOTED ON THE PLANS.

THIS ITEM SHALL ALSO INCLUDE REMOVING EXISTING PAVEMENT MARKINGS AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

EXISTING TRAFFIC REGULATION SIGNS MOUNTED ON POLES TO BE REMOVED SHALL BE RELOCATED TO PROPOSED SIGNAL POLES OR NEW SIGN POSTS. THE LOCATION OF ALL RELOCATED SIGNS SHALL BE APPROVED BY THE ENGINEER.

PAYMENT FOR ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, AND OTHER INCIDENTALS, INCLUDING REMOVING, STORING SIGNS AND RE-MOUNTING SIGNS AND REMOVING PAVEMENT MARKINGS SHALL BE AT THE CONTRACT UNIT PRICE BID FOR "ITEM 632 - REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN." THE COST OF SIGN SUPPORT ASSEMBLIES AND GROUND MOUNTED SIGN SUPPORTS SHALL BE AS SPECIFIED HEREINBEFORE FOR THOSE ITEMS.

ITEM 633 - CONTROLLER, ACTUATED, 8 PHASE, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN

PAYMENT FOR "ITEM 633 - CONTROLLER, ACTUATED, 8 PHASE, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN" WILL BE AT THE CONTRACT UNIT PRICE BID PER EACH COMPLETE AND IN PLACE INCLUDING ALL CONNECTIONS, TESTED AND ACCEPTED.

IT IS THE INTENT OF THIS PROJECT TO UTILIZE THE EXISTING CONTROLLER AT EACH INTERSECTION. AT CERTAIN INTERSECTIONS INDICATED ON THE PLANS THE EXISTING CONTROLLER IS NOT CAPABLE OF PROVIDING THE SPECIFIED MULTI-PHASE SIGNAL OPERATIONS. A NEW CONTROLLER ASSEMBLY SHALL BE INSTALLED IN A NEW CABINET, IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS:

1. THE CABINET SHALL BE BASE MOUNTED.
LOCAL CABINETS SHALL BE CONSTRUCTED TO APPROXIMATELY THE FOLLOWING DIMENSIONS: 30" L X 17" W X 57 1/2" H.
CONDUITS SHALL BE ALIGNED HORIZONTALLY ACROSS THE CABINET BASE FOUNDATION.
ALL SIGNAL CABLE SHALL BE TIED, LABELED AND ROUTED NEATLY ALONG THE FOUNDATION AND TERMINATED ACCORDING TO FUNCTION, AS ACCEPTED BY ODOT AND THE CITY.
2. THE CABINET SHALL BE DELIVERED PREWIRED AND SHALL INCLUDE FOUR ADDITIONAL LOOP DETECTOR WIRING HARNESSSES FOR FUTURE USE.
3. THE CABINET SHALL BE DELIVERED PRE-PAINTED BRONZE (BROWN) IN COLOR, AS SPECIFIED IN "PAINTING."
4. THE FOLLOWING SWITCHES SHALL BE ACCESSIBLE VIA THE POLICE DOOR PANEL:
 - A. SIGNAL SHUTDOWN
 - B. FLASH CONTROL
 - C. AUTOMATIC/MANUAL TRANSFER
5. THE FOLLOWING SWITCHES SHALL BE MOUNTED ON THE SWITCH PANEL IN THE CABINET:
 - A. RUN/STOP TIMING
 - B. CONTROLLER TIMER POWER
 - C. DETECTOR TEST
6. OVERLAP PROGRAMMING SHALL BE BY USE OF A INTERCHANGEABLE PLUG-IN PRINTED CIRCUIT BOARD ASSEMBLY AS DESCRIBED IN PART 14 OF NEMA TS-1, 1983.
7. IN ADDITION TO NEMA REQUIREMENTS THE CONFLICT MONITOR SHALL ALSO HAVE EXTENDED MONITORING IN ACCORDANCE WITH 733.04, PART 3B. THE MONITOR SHALL ALSO HAVE AUTO LOGGING AND CENTRAL OFFICE COMPUTER DATA TRANSFER CAPABILITIES.
8. THE CONTROLLER SHALL BE COMPATIBLE WITH THE EXISTING CITY OF CLEVELAND'S DOWNTOWN CLOSED LOOP SYSTEM AND SHALL INCLUDE ALL COMMUNICATION AND INTERFACE EQUIPMENT THAT WILL ENABLE TRANSMISSION AND RECEPTION OF ALL REQUIRED PATTERN AND COMMAND DATA TO AND FROM THE CENTRAL OFFICE COMPUTER, THE MASTER CONTROLLER AND THE LOCAL INTERSECTION CONTROLLERS.
9. THE CONTROLLER SHALL BE THE SAME MANUFACTURER AS THE EXISTING DOWNTOWN CLOSED LOOP SYSTEM:
PEEK CORPORATION
TRANSYT 1880EL "SMARTWAYS" CLOSED LOOP

PAVEMENT MARKINGS

ALL PAVEMENT MARKING ADDITIONS, REVISIONS AND/OR REMOVALS SHALL BE ACCOMPLISHED BY THE CITY OF CLEVELAND EXCEPT AS NOTED ON THE PLANS. PAVEMENT MARKING NOTES ON THE PLANS ARE FOR INFORMATIONAL PURPOSES ONLY.

ITEM 633 - CONTROLLER ITEM, MISC.: MODIFY EXISTING CONTROLLER OPERATIONS

MODIFYING EXISTING CONTROLLER OPERATIONS SHALL INCLUDE ADDING OR DELETING PHASES, REVISING PHASE SEQUENCES OR INSTALLING ACTUATION WHERE SHOWN ON THE PLANS. PAYMENT FOR ALL LABOR, EQUIPMENT AND OTHER INCIDENTALS, INCLUDING MISCELLANEOUS WIRING HARNESSSES AND RELAYS, SHALL BE AT THE CONTRACT UNIT PRICE BID FOR "ITEM 633 - CONTROLLER ITEM, MISC.: MODIFY EXISTING CONTROLLER OPERATIONS."

ITEM 633 - CONTROLLER ITEM, MISC.: FIELD CONNECTIONS TO EXISTING CONTROLLER

NEW SIGNAL AND DETECTOR WIRES SHALL BE CONNECTED TO THE EXISTING CONTROLLERS IN ACCORDANCE WITH THE REQUIREMENTS OF 633.08. ALL WIRING SHALL BE NEATLY ROUTED ALONG THE CONTROLLER FOUNDATION, GATHERED, LABELED, TIED AND TERMINATED IN A MANNER ACCEPTABLE TO ODOT AND THE CITY OF CLEVELAND. PAYMENT FOR FIELD CONNECTIONS TO EXISTING CONTROLLERS SHALL BE AT THE UNIT PRICE BID FOR "ITEM 633 - CONTROLLER ITEM, MISC.: FIELD CONNECTIONS TO EXISTING CONTROLLER."

ITEM 633 - CONTROLLER ITEM, MISC.: RELOCATE EXISTING CONTROLLER

SELECTED EXISTING CONTROLLERS AND CONTROLLER CABINETS SHALL BE RELOCATED TO NEW FOUNDATIONS WHERE INDICATED ON THE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONSTRUCTING A FOUNDATION CAPABLE OF ACCOMMODATING THE EXISTING CABINET. THE CONTROLLER AND CABINET SHALL BE RELOCATED AS A UNIT AND SHALL NOT BE DIS-ASSEMBLED DURING THE RELOCATION. SPLICING OF INTERCONNECT WIRE IN THE PULLBOX ADJACENT TO THE EXISTING CONTROLLER SHALL NOT BE PERMITTED IF THE EXISTING INTERCONNECT WIRE IS NOT LONG ENOUGH TO REACH THE RELOCATED CONTROLLER AND NEW INTERCONNECT WIRE SHALL BE INSTALLED TO EACH ADJACENT SIGNAL. THIS ITEM SHALL ALSO INCLUDE CONNECTING ALL NEW SIGNAL AND DETECTOR WIRES IN ACCORDANCE WITH THE REQUIREMENTS OF 633.08. PAYMENT FOR RELOCATING EXISTING CONTROLLERS SHALL BE AT THE UNIT PRICE BID FOR "ITEM 633 - CONTROLLER ITEM, MISC.: RELOCATE EXISTING CONTROLLER."

ITEM 633 - CONTROLLER ITEM, MISC.: RECONSTRUCT EXISTING CABINET FOUNDATION

RECONSTRUCTING EXISTING CABINET FOUNDATIONS WHERE SHOWN ON THE PLANS SHALL INCLUDE UNFASTENING THE CABINET FROM THE FOUNDATION AND SUPPORTING IT ON RAILROAD TIES AS SHOWN ON SHEET 19. THE FOUNDATION SHALL BE DEMOLISHED SUFFICIENTLY TO ALLOW INSTALLATION OF THE REQUIRED NUMBER OF CONDUITS. ABANDONED EXISTING CONDUIT SHALL BE REMOVED TO BELOW THE TOP OF FOUNDATION AFTER NEW WIRING IS ENERGIZED. THE FOUNDATION SHALL BE REPAIRED IN ACCORDANCE WITH ITEM 633 - CONCRETE FOR CABINET FOUNDATION.

PAYMENT FOR ALL LABOR, MATERIAL, TOOLS, EQUIPMENT AND OTHER INCIDENTALS INCLUDING CONCRETE FOR FOUNDATION RECONSTRUCTION SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR "ITEM 633 - CONTROLLER ITEM, MISC.: RECONSTRUCT EXISTING CABINET FOUNDATION."

ITEM 633 - CONTROLLER ITEM, MISC.: MODIFY EXISTING CONTROLLER TIMING

MODIFYING EXISTING CONTROLLER SIGNAL TIMINGS AND OFFSETS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL PROVIDE FOR THE SERVICES OF AN AUTHORIZED REPRESENTATIVE OF THE TRANSYT COMPANY TO PERFORM THE NECESSARY MODIFICATIONS THROUGHOUT THE DURATION OF THE CONTRACT. THE REPRESENTATIVE SHALL BE AVAILABLE ON 48 HOURS NOTICE AT THE DIRECTION OF THE ENGINEER. PAYMENT FOR ALL LABOR, EQUIPMENT AND RELATED CHARGES AND EXPENSES OF THE FACTORY REPRESENTATIVE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. PAYMENT FOR MODIFICATIONS TO SIGNAL TIMING SHALL BE AT THE CONTRACT LUMP SUM PRICE BID FOR "ITEM 633 - CONTROLLER ITEM, MISC.: MODIFY EXISTING CONTROLLER TIMING"

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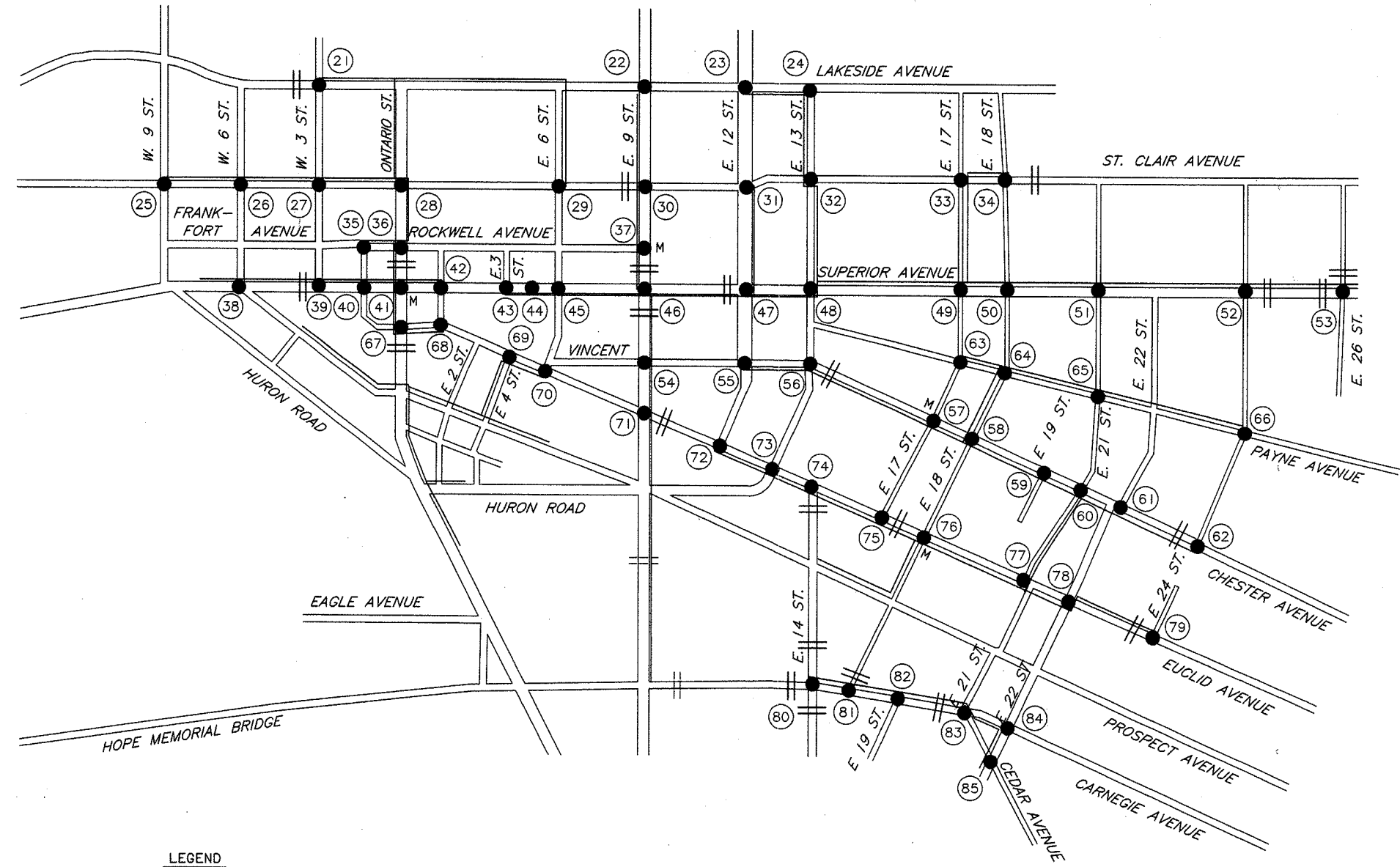
GENERAL NOTES

CUYAHOGA COUNTY
CUI-6-15.55 & VARIOUS

PROJECT INTERSECTIONS

<p>Lakeside Avenue</p> <p>West 3 St. East 9 St. East 12 St. East 13 St.</p>	<p>Chester Ave.</p> <p>East 12 St. East 13 St. East 17 St.(M) East 18 St. East 19 St. East 21 St. East 22 St. East 24 St.</p>
<p>St. Clair Ave.</p> <p>West 9 St. West 6 St. West 3 St. Ontario St. East 6 St. East 9 St. East 12 St. East 13 St. East 17 St. East 18 St.</p>	<p>Payne Ave.</p> <p>East 17 St. East 18 St. East 21 St. East 24 St.</p>
<p>Frankfort St.</p> <p>West Roadway</p>	<p>Euclid Ave.</p> <p>Ontario St. East Roadway East 4 St. East 6 St. East 9 St. East 12 St. East 13 St./Huron Rd. East 14 St. East 17 St. East 18 St.(M) East 21 St. East 22 St. East 24 St.</p>
<p>Rockwell Ave.</p> <p>Ontario St. East 9 St.(M)</p>	<p>Carnegie Ave.</p> <p>East 14 St. East 18 St. East 19 St. East 21 St. East 22 St.</p>
<p>Superior Ave.</p> <p>West 6 St. West 3 St. West Roadway Ontario St.(M) East Roadway East 3 St. Pedestrian Crossing East 6 St. East 9 St.(M) East 12 St. East 13 St. East 17 St. East 18 St. East 21 St. East 24 St. East 26 St.</p>	<p>Cedar Ave.</p> <p>East 22 St.</p>
<p>Chester Ave./Vincent Ave.</p> <p>East 9 St.</p>	

(M) - MASTER CONTROLLER LOCATION



- LEGEND**
- SIGNAL REPLACEMENT
 - || SYSTEM LOOPS (SEE PLANS)
 - EXISTING SYSTEM LOOPS
 - EXISTING SYSTEM INTERCONNECT
 - ⊙ XX PLAN SHEET NUMBER

GENERAL SUMMARY

COST PARTICIPATION I - NORMAL PROJECT PARTICIPATION

COST PARTICIPATION II - 100% CITY

CALCULATED
CAP
CHECKED
CAG

SHEET NUMBER						PARTICIPATION		ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	FOR APP DETAIL SEE SHI.				
3		11		13		15								17		I	II
I	II	I	II	I	II	I	II	I	II								
1200		144				144		180		1668		202	30000	1668	SQ. FT.	WALK REMOVED	
350		16				16		28		410		202	32000	410	LIN. FT.	CURB REMOVED	
20	10									20	10	253	02000	30	CU. YD.	PAVEMENT REPAIR, AS PER PLAN	3
600		144				144		180		1068		608	53001	1068	SQ. FT.	CURB RAMP, TYPE 1, AS PER PLAN	3
600										600		608	54001	600	SQ. FT.	CURB RAMP, TYPE 2, AS PER PLAN	3
150	50									150	50	SPECIAL	-	200	EACH	FOUNDATION TEST HOLES	
				3		1		4		625		01500	4		EACH	CABLE SPLICING KIT	
		69	16	90		58	16	57	8	274	40	625	32000	314	EACH	GROUND ROD	
75	25	60	11	66		47	12	48	8	296	56	625	-	352	EACH	PULL BOX, AS PER PLAN	
		2218	506	3250		2372	461	2223	344	10063	1311	625	29501	11374	LIN. FT.	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN	4
		2705	455	3264		1940	545	2182	267	10091	1267	625	29601	11358	LIN. FT.	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN	4
75	25	1074	178	1888		1866	518	1539	129	6442	850	625	25402	7292	LIN. FT.	CONDUIT, 2", 713.07	
		2197	547	3307		1690	361	1769	297	8963	1205	625	25502	10168	LIN. FT.	CONDUIT, 3", 713.07	
				170						170		625	25802	170	LIN. FT.	CONDUIT, CONCRETE ENCASED, 2", 713.07	
		5336	910	6100		3816	1090	4144	490	19396	2490	625	25802	21886	LIN. FT.	CONDUIT, CONCRETE ENCASED, 3", 713.07	
		4		7		3		14		625		17951	14		EACH	BRACKET ARM, 6', AS PER PLAN	4
		840	134	1042		631.25	221	659	80	3172.25	435	630	80102	3607.25	SQ. FT.	SIGN, FLAT SHEET, TYPE G	
		68	10	84		50	16	58	6	264	28	630	79101	292	EACH	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN	4
150	50	2		5		4		161	50	630	79500	211	630	79500	EACH	SIGN SUPPORT ASSEMBLY, POLE MOUNTED	
150	50			38		14		202	50	630	03100	252	630	03100	LIN. FT.	GROUND MOUNTED SUPPORT, NO. 3 POST	
				2				2		630	87100	2	630	87100	EACH	REMOVAL OF OVERHEAD MOUNTED SIGN AND REERECTION	
				1				1		630	89706	1	630	89706	EACH	REMOVAL OF OVERHEAD SIGN SUPPORT AND DISPOSAL, TYPE TC-12.30	
		3		4		10		19		631	90101	19	631	90101	EACH	CHANGEABLE MESSAGE SIGN, ELECTRIC TYPE, LIMITED MESSAGE, AS PER PLAN	4
				1				1		631	84000	1	631	84000	EACH	SIGN SERVICE	
				2				2		631	84300	2	631	84300	EACH	SIGN WIRED	
				1				1		631	85100	1	631	85100	EACH	DISCONNECT SWITCH WITH ENCLOSURE, TYPE X	
				2				2		631	94100	2	631	94100	EACH	REMOVAL OF LUMINAIRE AND REERECTION	
				2				2		631	94402	2	631	94402	EACH	REMOVAL OF BALLAST AND REERECTION	
		105	20	113		78	32	79	13	375	65	632	00301	440	EACH	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1 WAY, AS PER PLAN	4
			1	3				3	1	632	00401	4	632	00401	EACH	VEHICULAR SIGNAL HEAD, 4-SECTION, 12" LENS, 1 WAY, AS PER PLAN	4
		7		16		3		9		35		632	00501	35	EACH	VEHICULAR SIGNAL HEAD, 5-SECTION, 12" LENS, 1 WAY, AS PER PLAN	4
		120	24	126		86	32	84	10	416	66	632	20601	482	EACH	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN	4
		18	4	26		22	16	16	2	82	22	632	26001	104	EACH	PEDESTRIAN PUSHBUTTON, AS PER PLAN	4

GENERAL SUMMARY

CUYAHOGA COUNTY
CUY-6-15.55 & VARIOUS

GENERAL SUMMARY

COST PARTICIPATION I - NORMAL PROJECT PARTICIPATION COST PARTICIPATION II - 100% CITY

SHEET NUMBER								PARTICIPATION		ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	FOR APP DETAIL SEE SHI.
11		13		15		17		I	II						
I	II	I	II	I	II	I	II								
16	1	20		13	2	20	2	69	5	632	27009	74	EACH	LOOP DETECTOR UNIT, DELAY AND EXTENSION TYPE, AS PER PLAN	4
6	2	12		3	4	2		23	6	632	90400	29	EACH	SIGNALIZATION, MISC.: MICROWAVE DETECTOR	4
2697	209	4413		3389	424	4189	466	14688	1099	632	27500	15787	LIN. FT.	LOOP DETECTOR PAVEMENT CUTTING	
97.5	19.6	142.1		81.9	23.9	86.4	11.9	407.9	55.4	632	72000	463.3	CU. YD.	CONCRETE FOR ANCHOR BASE FOUNDATION	
						1		1		632	80101	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 15' ARM, AS PER PLAN	3A
						2		2		632	80101	2	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 16' ARM, AS PER PLAN	3A
	1								1	632	80101	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 18' ARM, AS PER PLAN	3A
	2	7		2	1	1		10	3	632	80101	13	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 20' ARM, AS PER PLAN	3A
2				3		1		6		632	80101	6	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 22' ARM, AS PER PLAN	3A
						1		1		632	80101	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 24' ARM, AS PER PLAN	3A
2	1	1		1	2	1		5	3	632	80101	8	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 25' ARM, AS PER PLAN	3A
1		1						2		632	80201	2	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 2, WITH 25' ARM, AS PER PLAN	3A
3		1		1	2	1	1	6	3	632	80201	9	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 2, WITH 28' ARM, AS PER PLAN	3A
1		1			1	1		3	1	632	80201	4	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 2, WITH 30' ARM, AS PER PLAN	3A
						1		1		632	80201	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 2, WITH 32' ARM, AS PER PLAN	3A
1								1		632	80301	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, WITH 25' ARM, AS PER PLAN	3A
	1			2				2	1	632	80301	3	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, WITH 28' ARM, AS PER PLAN	3A
5	2	3				2		10	2	632	80301	12	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, WITH 30' ARM, AS PER PLAN	3A
2	1	5		3	3	3		13	4	632	80301	17	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, WITH 32' ARM, AS PER PLAN	3A
				1	1			1	1	632	80301	2	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, WITH 34' ARM, AS PER PLAN	3A
						1		1		632	80301	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20 DESIGN 3 POLE, WITH MAST ARMS TC-81.20 DESIGN 1, 25 FEET AND TC-81.20 DESIGN 2, 25 FEET, AS PER PLAN	3A
				1				1		632	80301	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20 DESIGN 3 POLE, WITH MAST ARMS TC-81.20 DESIGN 1, 25 FEET AND TC-81.20 DESIGN 2, 30 FEET, AS PER PLAN	3A
1				6				7		632	80401	7	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 28' ARM, AS PER PLAN	3A
				1				1		632	80401	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 30' ARM, AS PER PLAN	3A
2		1		2	1	1		6	1	632	80401	7	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 32' ARM, AS PER PLAN	3A
1		1		1				3		632	80401	3	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 34' ARM, AS PER PLAN	3A
1		5				1		7		632	80401	7	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 36' ARM, AS PER PLAN	3A
		5		1	1	1	1	7	2	632	80401	9	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 38' ARM, AS PER PLAN	3A
1								1		632	80401	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20 DESIGN 4 POLE, WITH MAST ARMS TC-81.20 DESIGN 1, 22 FEET AND TC-81.20 DESIGN 3, 30 FEET, AS PER PLAN	3A
1								1		632	80011	1	EACH	SIGNAL SUPPORT, TYPE TC-12.30 DESIGN 5 POLE, WITH MAST ARMS TC-81.20 DESIGN 4, 36 FEET AND TC-81.20 DESIGN 4, 36 FEET, AS PER PLAN	3A
		1						1		632	80011	1	EACH	SIGNAL SUPPORT, TYPE TC-12.30 DESIGN 5 POLE, WITH MAST ARMS TC-81.20 DESIGN 4, 36 FEET AND TC-81.20 DESIGN 11, 48 FEET, AS PER PLAN	3A
							1		1	632	80011	1	EACH	SIGNAL SUPPORT, TYPE TC-12.30 DESIGN 5 POLE, WITH MAST ARMS TC-81.20 DESIGN 4, 38 FEET AND TC-81.20 DESIGN 11, 45 FEET, AS PER PLAN	3A
1		1			1	1		3	1	632	80501	4	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 11, WITH 32' ARM, AS PER PLAN	3A
		1						1		632	80501	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 11, WITH 36' ARM, AS PER PLAN	3A
		3				1		4		632	80501	4	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 11, WITH 38' ARM, AS PER PLAN	3A
		1				2		3		632	80501	3	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 11, WITH 40' ARM, AS PER PLAN	3A
		1				1		2		632	80501	2	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 11, WITH 42' ARM, AS PER PLAN	3A
		1				1		2		632	80501	2	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 11, WITH 45' ARM, AS PER PLAN	3A
1		1						2		632	80501	2	EACH	SIGNAL SUPPORT, TYPE TC-81.20 DESIGN 11 POLE, WITH MAST ARMS TC-81.20 DESIGN 1, 20 FEET AND TC-81.20 DESIGN 4, 38 FEET, AS PER PLAN	3A
				1				1		632	80501	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20 DESIGN 11 POLE, WITH MAST ARMS TC-81.20 DESIGN 1, 25 FEET AND TC-81.20 DESIGN 4, 38 FEET, AS PER PLAN	3A
2								2		632	80601	2	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 12, WITH 36' ARM, AS PER PLAN	3A
		1		1		1		3		632	80601	3	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 12, WITH 48' ARM, AS PER PLAN	3A
2								2		632	80601	2	EACH	SIGNAL SUPPORT, TYPE TC-81.20 DESIGN 12 POLE, WITH MAST ARMS TC-81.20 DESIGN 1, 25 FEET AND TC-81.20 DESIGN 11, 45 FEET, AS PER PLAN	3A
1								1		632	80601	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20 DESIGN 12 POLE, WITH MAST ARMS TC-81.20 DESIGN 3, 30 FEET AND TC-81.20 DESIGN 4, 38 FEET, AS PER PLAN	3A
		1		1				2		632	80601	2	EACH	SIGNAL SUPPORT, TYPE TC-81.20 DESIGN 12 POLE, WITH MAST ARMS TC-81.20 DESIGN 3, 32 FEET AND TC-81.20 DESIGN 4, 40 FEET, AS PER PLAN	3A

GENSUM2.DWG PLOT SCALE= 1:1

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GENERAL SUMMARY

CUYAHOGA COUNTY
CUI-6-15.55 & VARIOUS

GENERAL SUMMARY

COST PARTICIPATION I - NORMAL PROJECT PARTICIPATION COST PARTICIPATION II - 100% CITY

SHEET NUMBER								PARTICIPATION		ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	FOR APP DETAIL SEE SHT.
12		14		16		18		I	II						
I	II	I	II	I	II	I	II								
				1				1		632	81101	1	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 20' ARM, AS PER PLAN	3A
1					1	1	1	2	2	632	81101	4	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 22' ARM, AS PER PLAN	3A
3		1			1	1		5	1	632	81101	6	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 25' ARM, AS PER PLAN	3A
							1	1		632	81201	1	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 2, WITH 24' ARM, AS PER PLAN	3A
							1	1		632	81201	1	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 2, WITH 25' ARM, AS PER PLAN	3A
3		1		1	1	3	1	8	2	632	81201	10	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 2, WITH 28' ARM, AS PER PLAN	3A
1								1		632	81201	1	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 2, WITH 30' ARM, AS PER PLAN	3A
2								2		632	81201	2	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 2, WITH 32' ARM, AS PER PLAN	3A
				1	1	3		4	1	632	81301	5	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, WITH 28' ARM, AS PER PLAN	3A
							1	1		632	81301	1	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, WITH 30' ARM, AS PER PLAN	3A
1	1	3						4	1	632	81301	5	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, WITH 32' ARM, AS PER PLAN	3A
				1				1		632	81301	1	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20 DESIGN 3 POLE, WITH MAST ARMS TC-81.20 DESIGN 1, 25 FEET AND TC-81.20 DESIGN 2, 28 FEET, AS PER PLAN	3A
							1	1		632	81401	1	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 25' ARM, AS PER PLAN	3A
		1		1		1		3		632	81401	3	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 32' ARM, AS PER PLAN	3A
		3						3		632	81401	3	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 34' ARM, AS PER PLAN	3A
	1	1						1	1	632	81401	2	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 36' ARM, AS PER PLAN	3A
1								1		632	81401	1	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20 DESIGN 4 POLE, WITH MAST ARMS TC-81.20 DESIGN 1, 25 FEET AND TC-81.20 DESIGN 3, 30 FEET, AS PER PLAN	3A
1								1		632	81011	1	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-12.30 DESIGN 5 POLE, WITH MAST ARMS TC-81.20 DESIGN 4, 36 FEET AND TC-81.20 DESIGN 4, 36 FEET, AS PER PLAN	3A
		1						1		632	81011	1	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-12.30 DESIGN 5 POLE, WITH TC-81.20 DESIGN 4 SIGNAL ARM, 36 FEET AND TC-12.30 DESIGN 5 SIGN SUPPORT ARM, 14 FEET, AS PER PLAN	5

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GENERAL SUMMARY

CUYAHOGA COUNTY
CUY-6-15.55 & VARIOUS

GENERAL SUMMARY

COST PARTICIPATION I - NORMAL PROJECT PARTICIPATION COST PARTICIPATION II - 100% CITY

SHEET NUMBER				PARTICIPATION		ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	FOR APP DETAIL SEE SHT.										
				I	II							I	II								
3		12		14		16		18													
I	II	I	II	I	II	I	II	I	II												
								1		632	81501	1	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 11, WITH 36' ARM, AS PER PLAN	3A						
				3				3		632	81501	3	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 11, WITH 38' ARM, AS PER PLAN	3A						
				1		1		2		632	81501	2	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 11, WITH 40' ARM, AS PER PLAN	3A						
				1				1		632	81501	1	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 11, WITH 42' ARM, AS PER PLAN	3A						
								1		632	81501	1	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 11, WITH 45' ARM, AS PER PLAN	3A						
				1				1		632	81501	1	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20 DESIGN 11 POLE, WITH MAST ARMS TC-81.20 DESIGN 1, 25 FEET AND TC-81.20 DESIGN 4, 38 FEET, AS PER PLAN	3A						
				1				1		632	81601	1	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 12, WITH 45' ARM, AS PER PLAN	3A						
								1		632	81601	1	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 12, WITH 48' ARM, AS PER PLAN	3A						
				24	6	25	19	17	4	85	10	632	89900	95	EACH	PEDESTAL, 8', TRANSFORMER BASE					
								1		632	90010	1	EACH	PEDESTAL, MISC.: 12', TRANSFORMER BASE	3A						
7	3	1		1			3	12	3	632	70400	15	EACH	CONDUIT RISER, 2" DIAMETER							
				9487	2351	12301	8189	1724	6861	852	36838	4927	632	40500	41765	LIN. FT.	SIGNAL CABLE, 5-CONDUCTOR, NO. 14 AWG				
				9903	1689	13117	7345	2459	8148	939	38513	5087	632	40700	43600	LIN. FT.	SIGNAL CABLE, 7-CONDUCTOR, NO. 14 AWG				
				6492	418	10688	8022	1422	10228	1188	35430	3028	632	64900	38458	LIN. FT.	LOOP DETECTOR WIRE, TYPE E				
				10041	795	13089	10698	1177	9100	881	42928	2853	632	65200	45781	LIN. FT.	LOOP DETECTOR LEAD-IN CABLE				
				1015	293	1707	475	584	235		3432	877	632	90500	4309	LIN. FT.	SIGNALIZATION, MISC.: MICROWAVE DETECTOR LEAD-IN CABLE	5			
1500	500					300					1800	500	632	53202	2300	LIN. FT.	INTERCONNECT CABLE, 6 PR., NO. 19 AWG, SOLID, REA(PE-39), AS PER PLAN	3			
75	25					36					146	25	632	67300	171	LIN. FT.	POWER CABLE, 3-CONDUCTOR, NO. 8 AWG				
						300					300		632	68300	300	LIN. FT.	POWER CABLE, 3-CONDUCTOR, NO. 6 AWG				
				112	21	134	81	32	88	13	415	66	632	25000	481	EACH	COVERING OF VEHICULAR SIGNAL HEAD				
				14	3	17	13	4	12	2	56	9	632	90100	65	EACH	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN	5			
				1		2								3		633	38001	3	EACH	CONTROLLER, ACTUATED, 8-PHASE, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN	5
						1								2		633	70000	2	CU. YD.	CONCRETE FOR CABINET FOUNDATION	
						1								2		633	99000	2	EACH	CONTROLLER ITEM, MISC.: RELOCATE EXISTING CONTROLLER	5
				13	3	14	11	4	12	2	50	9	633	99000	59	EACH	CONTROLLER ITEM, MISC.: FIELD CONNECTIONS TO EXISTING CONTROLLER	5			
				10	2	11	8	4	11	2	40	8	633	99000	48	EACH	CONTROLLER ITEM, MISC.: MODIFY EXISTING CONTROLLER OPERATIONS	5			
							2				2	1	633	99000	5	EACH	CONTROLLER ITEM, MISC.: RECONSTRUCT EXISTING CABINET FOUNDATION	5			
																633	99300	LUMP	LUMP SUM	CONTROLLER ITEM, MISC.: MODIFY EXISTING CONTROLLER TIMING	5
																614	11001	LUMP	LUMP SUM	MAINTAINING TRAFFIC, AS PER PLAN	2
																619	25010	LUMP	LUMP SUM	COMPUTER EQUIPMENT FOR TYPE B OR C OFFICE	
																619	15010	LUMP	LUMP SUM	FIELD OFFICE, TYPE B	
																623	10001	LUMP	LUMP SUM	CONSTRUCTION LAYOUT STAKES, AS PER PLAN	3
																624	10000	LUMP	LUMP SUM	MOBILIZATION	

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CHECKED
CAG

GENERAL SUMMARY

CUYAHOGA COUNTY
CUY-6-15.55 & VARIOUS

SUBSUMMARY

COST PARTICIPATION I - NORMAL PROJECT PARTICIPATION

COST PARTICIPATION II - 100% CITY

CALCULATED
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SHEET NUMBER																	PARTICIPATION		ITEM	ITEM EXT.	SUB TOTAL	UNIT	DESCRIPTION
38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	I	II					
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			625	01500	3	EACH	CABLE SPLICING KIT
																			625	32000	90	EACH	GROUND ROD
5	4	5	4	4	5	4	4	4	6	4	6	6	6	8	7	8	90		625	-	66	EACH	PULLBOX, AS PER PLAN
6	2	5	2	3	2	1	3	4	6	4	4	4	3	4	7	6	66		625	29501	3250	LIN. FT.	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
201	231	244	86	81	111	63	133	232	212	159	150	115	133	184	327	588	3250		625	29601	3264	LIN. FT.	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
262	173	194	243	177	128	76	158	232	230	195	162	192	157	153	190	342	3264		625				
158	122				6		5	117		94	96	115	80	56	381	658	1888		625	25402	1888	LIN. FT.	CONDUIT, 2", 713.07
203	155	439	239	208	123	93	203	180	365	184	132	85	134	224	100	240	3307		625	25502	3307	LIN. FT.	CONDUIT, 3", 713.07
524	300	388	486	354	256	152	316	464	460	390	324	384	314	306	338	344	6100		625	25802	170	LIN. FT.	CONDUIT, CONCRETE ENCASED, 2", 713.07
							1	1		1					1	3	7		625	25802	6100	LIN. FT.	CONDUIT, CONCRETE ENCASED, 3", 713.07
94	56	50	77	71	42		77	72	75	54	61	61	61	61	63	67	1042		625	17951	7	EACH	BRACKET ARM, 6', AS PER PLAN
6	4	5	8	6	3		6	8	6	5	4	4	4	4	5	6	84		630	80102	1042	SQ. FT.	SIGN, FLAT SHEET, TYPE G
2							1								2		5		630	79101	84	EACH	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
13							13										38		630	79500	5	EACH	SIGN SUPPORT ASSEMBLY, POLE MOUNTED
																2			630	03100	38	LIN. FT.	GROUND MOUNTED SUPPORT, NO.3 POST
																2			630	87100	2	EACH	REMOVAL OF OVERHEAD MOUNTED SIGN AND REERECTION
																1			630	89706	1	EACH	REMOVAL OF OVERHEAD SIGN SUPPORT AND DISPOSAL, TYPE TC-12.30
		1		1				2									4		631	90101	4	EACH	CHANGEABLE MESSAGE SIGN, ELECTRIC TYPE, LIMITED MESSAGE, AS PER PLAN
																	1		631	84000	1	EACH	SIGN SERVICE
																	2		631	84300	2	EACH	SIGN WIRED
																	1		631	85100	1	EACH	DISCONNECT SWITCH WITH ENCLOSURE, TYPE X
																	2		631	94100	2	EACH	REMOVAL OF LUMINAIRE AND REERECTION
																	2		631	94402	2	EACH	REMOVAL OF BALLAST AND REERECTION
6	8	6	8	8	6	4	7	7	10	4	6	6	6	6	7	8	113		632	00301	113	EACH	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1 WAY, AS PER PLAN
2							1										3		632	00401	3	EACH	VEHICULAR SIGNAL HEAD, 4-SECTION, 12" LENS, 1 WAY, AS PER PLAN
1										2	2	2	2	2	1	4	16		632	00501	16	EACH	VEHICULAR SIGNAL HEAD, 5-SECTION, 12" LENS, 1 WAY, AS PER PLAN
6	8	8	8	8	4	2	8	8	12	8	8	8	8	8	6	8	126		632	20601	126	EACH	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
1	1		2					2	3	4	4	4	4	4	2	4	26		632	26001	26	EACH	PEDESTRIAN PUSHBUTTON, AS PER PLAN
	2											2	4	2	2		12		632	27009	20	EACH	LOOP DETECTOR UNIT, DELAY AND EXTENSION TYPE, AS PER PLAN
173	524		227					423	662	364	195	199	188	480	773	205	4413		632	90400	12	EACH	SIGNALIZATION, MISC.: MICROWAVE DETECTOR
8.6	8.5	6.9	10.6	6.9	4.5	2.1	5.6	10.6	9.1	7.2	10.3	10.5	9.1	10.2	11.0	10.4	142.1		632	27500	4413	LIN. FT.	LOOP DETECTOR PAVEMENT CUTTING
				1			1				1		2	1		1	7		632	72000	142.1	CU. YD.	CONCRETE FOR ANCHOR BASE FOUNDATION
																	1		632	80101	7	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 20' ARM, AS PER PLAN
																	1		632	80101	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 25' ARM, AS PER PLAN
																	1		632	80201	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 2, WITH 25' ARM, AS PER PLAN
							1										1		632	80201	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 2, WITH 28' ARM, AS PER PLAN
										1							1		632	80201	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 2, WITH 30' ARM, AS PER PLAN
	1										1			1			3		632	80301	3	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, WITH 30' ARM, AS PER PLAN
		2				2	1										5		632	80301	5	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, WITH 32' ARM, AS PER PLAN
											1						1		632	80401	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 32' ARM, AS PER PLAN
															1		1		632	80401	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 34' ARM, AS PER PLAN
			3	1										1			5		632	80401	5	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 36' ARM, AS PER PLAN
1	1		1	1									1				5		632	80401	5	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 38' ARM, AS PER PLAN
									1								1		632	80011	1	EACH	SIGNAL SUPPORT, TYPE TC-12.30 DESIGN 5 POLE, WITH MAST ARMS TC-81.20 DESIGN 4, 36 FEET AND TC-81.20 DESIGN 11, 48 FEET, AS PER PLAN
												1					1		632	80501	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 11, WITH 32' ARM, AS PER PLAN
				1													1		632	80501	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 11, WITH 36' ARM, AS PER PLAN
								3									3		632	80501	3	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 11, WITH 38' ARM, AS PER PLAN
											1						1		632	80501	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 11, WITH 40' ARM, AS PER PLAN
		1															1		632	80501	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 11, WITH 42' ARM, AS PER PLAN
	1																1		632	80501	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 11, WITH 45' ARM, AS PER PLAN
					1												1		632	80501	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20 DESIGN 11 POLE, WITH MAST ARMS TC-81.20 DESIGN 1, 20 FEET AND TC-81.20 DESIGN 4, 38 FEET, AS PER PLAN
1																	1		632	80601	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 12, WITH 48' ARM, AS PER PLAN
									1								1		632	80601	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20 DESIGN 12 POLE, WITH MAST ARMS TC-81.20 DESIGN 3, 32 FEET AND TC-81.20 DESIGN 4, 40 FEET, AS PER PLAN

SUBSUM2.DWG PLOT SCALE= 1"

SUBSUMMARY

CUYAHOGA COUNTY
CUY-6-15.55 & VARIOUS

SUBSUMMARY

COST PARTICIPATION I - NORMAL PROJECT PARTICIPATION

COST PARTICIPATION II - 100% CITY

SHEET NUMBER																	PARTICIPATION		ITEM	ITEM EXT.	SUB TOTAL	UNIT	DESCRIPTION
38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	I	II					
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1							
	1																1		632	81101	1	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 25' ARM, AS PER PLAN
1																	1		632	81201	1	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 2, WITH 28' ARM, AS PER PLAN
					1							2					3		632	81301	3	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, WITH 32' ARM, AS PER PLAN
													1				1		632	81401	1	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 32' ARM, AS PER PLAN
						1	1				1						3		632	81401	3	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 34' ARM, AS PER PLAN
													1				1		632	81401	1	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 36' ARM, AS PER PLAN
															1		1		632	81011	1	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-12.30 DESIGN 5 POLE, WITH TC-81.20 DESIGN 4 SIGNAL ARM, 36 FEET AND TC-12.30 DESIGN 5 SIGN SUPPORT ARM, 14 FEET, AS PER PLAN
												2			1		3		632	81401	3	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 11, WITH 38' ARM, AS PER PLAN
										1							1		632	81501	1	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 11, WITH 40' ARM, AS PER PLAN
										1							1		632	81501	1	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 11, WITH 42' ARM, AS PER PLAN
																1	1		632	81501	1	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20 DESIGN 11 POLE, WITH MAST ARMS TC-81.20 DESIGN 1, 25 FEET AND TC-81.20 DESIGN 4, 38 FEET, AS PER PLAN
1																	1		632	81601	1	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 12, WITH 45' ARM, AS PER PLAN
		2			1	2			4	1	2	2	2	4	3	2	25		632	89900	25	EACH	PEDESTAL, 8', TRANSFORMER BASE
						1											1		632	70400	1	EACH	CONDUIT RISER, 2" DIAMETER
500	502	1344	839	881	452	189	509	578	1155	597	614	782	682	959	772	946	12301		632	40500	12301	LIN. FT.	SIGNAL CABLE, 5-CONDUCTOR, NO. 14 AWG
587	700	945	1173	1050	409	283	680	778	1429	526	672	717	623	650	746	1149	13117		632	40700	13117	LIN. FT.	SIGNAL CABLE, 7-CONDUCTOR, NO. 14 AWG
366	1286		742					1074	1582	962	420	436	432	1256	1662	470	10688		632	64900	10688	LIN. FT.	LOOP DETECTOR WIRE, TYPE E
406	1428	291	50	348				1250	3407	1089	623	700	521	628	1167	1181	13089		632	65200	13089	LIN. FT.	LOOP DETECTOR LEAD-IN CABLE
	246										254	659	239	309			1707		632	90500	1707	LIN. FT.	SIGNALIZATION, MISC.: MICROWAVE DETECTOR LEAD-IN CABLE
																	300		632	53202	300	LIN. FT.	INTERCONNECT CABLE, 6 PR., NO. 19 AWG, SOLID, REA(PE-39)
							36										36		632	67300	36	LIN. FT.	POWER CABLE, 3-CONDUCTOR, NO. 8 AWG
																	300		632	68300	300	LIN. FT.	POWER CABLE, 3-CONDUCTOR, NO. 6 AWG
10	8	6	8	8	6	4	8	8	10	6	8	8	8	8	8		12		632	25000	134	EACH	COVERING OF VEHICULAR SIGNAL HEAD
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		17		632	90101	17	EACH	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
							1										2		633	38001	2	EACH	CONTROLLER, ACTUATED, 8-PHASE, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN
																	1		633	70000	1	CU. YD.	CONCRETE FOR CABINET FOUNDATION
																	1		633	99000	1	EACH	CONTROLLER ITEM, MISC.: RELOCATE EXISTING CONTROLLER
	1	1	1	1	1		1	1	1	1	1	1	1	1	1		14		633	99000	14	EACH	CONTROLLER ITEM, MISC.: FIELD CONNECTIONS TO EXISTING CONTROLLER
	1						1	1	1	1	1	1	1	1	1		11		633	99000	11	EACH	CONTROLLER ITEM, MISC.: MODIFY EXISTING CONTROLLER OPERATIONS

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SUBSUMMARY

CUYAHOGA COUNTY
CUY-6-15.55 & VARIOUS

SUBSUM2.DWG PLOT SCALE= 1:1

SUBSUMMARY

COST PARTICIPATION I - NORMAL PROJECT PARTICIPATION

COST PARTICIPATION II - 100% CITY

SHEET NUMBER																	PARTICIPATION		ITEM	ITEM EXT.	SUB TOTAL	UNIT	DESCRIPTION
55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	I	II					
1	1	1	1	1	1	1	1	144	11	11	11	1	1	1	1	1	144		202	30000	144	SQ. FT.	WALK REMOVED
								16									16		202	32000	16	LIN. FT.	CURB REMOVED
								144									144		608	53001	144	SQ. FT.	CURB RAMP, TYPE 1, AS PER PLAN
				1													1		625	01500	1	EACH	CABLE SPLICING KIT
6	6	4	4		5	4	4	4	4	4	4	6	6	4	4	5	58	16	625	32000	74	EACH	GROUND ROD
3	6	4	3		4	4	5	3	2	3	4	5	3	2	3	5	47	12	625	-	59	EACH	PULLBOX, AS PER PLAN
111	325	124	81		141	156	250	96	112	134	119	509	207	105	57	306	2372	461	625	29501	2833	LIN. FT.	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
250	202	127	160		157	144	161	132	157	133	123	219	123	90	94	213	1940	545	625	29601	2485	LIN. FT.	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
6	325	170	64		209	146	380	84	87	189	158	267	132	10	4	153	1866	518	625	25402	2384	LIN. FT.	CONDUIT, 2", 713.07
149	147	78	98		54	141	52	108	128	52	73	398	212	110	71	180	1690	361	625	25502	2051	LIN. FT.	CONDUIT, 3", 713.07
500	340	254	320		314	288	322	264	314	266	246	438	246	180	188	426	3816	1090	625	25802	4906	LIN. FT.	CONDUIT, CONCRETE ENCASED, 3", 713.07
1	2																3		625	17951	3	EACH	BRACKET ARM, 6', AS PER PLAN
57	65	51	66	6.25	48	67	46	53	56	56	56	69	37	47	20	52	631.25	221	630	80102	852.25	SQ. FT.	SIGN, FLAT SHEET, TYPE G
5	5	4	4		3	5	3	4	4	4	4	7	4	4	2	4	50	16	630	79101	66	EACH	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
						4											4		630	79500	4	EACH	SIGN SUPPORT ASSEMBLY, POLE MOUNTED
				14													14		630	03100	14	LIN. FT.	GROUND-MOUNTED SUPPORT, NO. 3 POST
			2									3				5	10		631	90101	10	EACH	CHANGEABLE MESSAGE SIGN, ELECTRIC TYPE, LIMITED MESSAGE, AS PER PLAN
7	9	8	8		5	7	4	8	8	8	8	8	4	6	4	8	78	32	632	00301	110	EACH	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1 WAY, AS PER PLAN
					1		2										3		632	00501	3	EACH	VEHICULAR SIGNAL HEAD, 5-SECTION, 12" LENS, 1 WAY, AS PER PLAN
8	8	8	8		8	6	6	8	8	8	8	8	6	6	6	8	86	32	632	20601	118	EACH	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
	4	4	4		4	2	4	4	4	4	4						22	16	632	26001	38	EACH	PEDESTRIAN PUSHBUTTON, AS PER PLAN
1	2		1		1	1	3		1		1	2				2	13	2	632	27009	15	EACH	LOOP DETECTOR UNIT, DELAY AND EXTENSION TYPE, AS PER PLAN
		2			1			2		2							3	4	632	90400	7	EACH	SIGNALIZATION, MISC.: MICROWAVE DETECTOR
198	582		609		80	446	700		424			446				328	3389	424	632	27500	3813	LIN. FT.	LOOP DETECTOR PAVEMENT CUTTING
6.9	8.0	8.3	8.5		4.0	5.5	5.5	7.5	4.9	4.4	7.1	11.8	5.1	3.5	3.8	11.0	81.9	23.9	632	72000	105.8	CU. YD.	CONCRETE FOR ANCHOR BASE FOUNDATION
		2										1					2	1	632	80101	3	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 20' ARM, AS PER PLAN
1			1		1												3		632	80101	3	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 22' ARM, AS PER PLAN
	1										2						1	2	632	80101	3	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 25' ARM, AS PER PLAN
1							1			1							1	2	632	80201	3	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 2, WITH 28' ARM, AS PER PLAN
			1			1	1	2	1				1		1		2	3	632	80301	2	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, WITH 28' ARM, AS PER PLAN
																	3	3	632	80301	6	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, WITH 32' ARM, AS PER PLAN
	1								1								1	1	632	80301	2	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, WITH 34' ARM, AS PER PLAN
					1												1		632	80301	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20 DESIGN 3 POLE, WITH MAST ARMS TC-81.20 DESIGN 1, 25 FEET AND TC-81.20 DESIGN 2, 30 FEET, AS PER PLAN
		1	2									1				2	6		632	80401	6	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 28' ARM, AS PER PLAN
																1	1		632	80401	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 30' ARM, AS PER PLAN
									1			1				1	2	1	632	80401	3	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 32' ARM, AS PER PLAN
		1														1	1		632	80401	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 34' ARM, AS PER PLAN
										1		1				1	1	1	632	80401	2	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 38' ARM, AS PER PLAN
																		1	632	80501	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 11, WITH 32' ARM, AS PER PLAN
					1												1		632	80501	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20 DESIGN 11 POLE, WITH MAST ARMS TC-81.20 DESIGN 1, 25 FEET AND TC-81.20 DESIGN 4, 38 FEET, AS PER PLAN
												1					1		632	80601	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 12, WITH 48' ARM, AS PER PLAN
							1										1		632	80601	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20 DESIGN 12 POLE, WITH MAST ARMS TC-81.20 DESIGN 3, 32 FEET AND TC-81.20 DESIGN 4, 40 FEET, AS PER PLAN

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SUBSUMMARY

**CUYAHOGA COUNTY
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SUBSUMMARY

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COST PARTICIPATION I - NORMAL PROJECT PARTICIPATION

COST PARTICIPATION II - 100% CITY

SHEET NUMBER																	PARTICIPATION		ITEM	ITEM EXT.	SUB TOTAL	UNIT	DESCRIPTION
55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	I	II					
																	1		632	81101	1	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 20' ARM, AS PER PLAN
																		1	632	81101	1	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 22' ARM, AS PER PLAN
																		1	632	81101	1	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 25' ARM, AS PER PLAN
																		1	632	81201	2	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 2, WITH 28' ARM, AS PER PLAN
																		1	632	81301	2	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, WITH 28' ARM, AS PER PLAN
																		1	632	80601	1	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20 DESIGN 3 POLE, WITH MAST ARMS TC-81.20 DESIGN 1, 25 FEET AND TC-81.20 DESIGN 2, 28 FEET, AS PER PLAN
																		1	632	81401	1	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 32' ARM, AS PER PLAN
																		1	632	81501	1	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 11, WITH 40' ARM, AS PER PLAN
																		1	632	81601	1	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 12, WITH 48' ARM, AS PER PLAN
																	3		632	89900	19	EACH	PEDESTAL, 8', TRANSFORMER BASE
																			632	70400	3	EACH	CONDUIT RISER, 2" DIAMETER
																	806		632	40500	9913	LIN. FT.	SIGNAL CABLE, 5-CONDUCTOR, NO. 14 AWG
																	648		632	40700	9804	LIN. FT.	SIGNAL CABLE, 7-CONDUCTOR, NO. 14 AWG
																	426		632	64900	9444	LIN. FT.	LOOP DETECTOR WIRE, TYPE E
																	217		632	65200	11875	LIN. FT.	LOOP DETECTOR LEAD-IN CABLE
																			632	90500	1059	LIN. FT.	SIGNALIZATION, MISC.: MICROWAVE DETECTOR LEAD-IN CABLE
																			632	67300	35	LIN. FT.	POWER CABLE, 3-CONDUCTOR, NO. 8 AWG
																	7		632	25000	113	EACH	COVERING OF VEHICULAR SIGNAL HEAD
																	1		632	90101	17	EACH	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
																			633	70000	1	CU. YD.	CONCRETE FOR CABINET FOUNDATION
																			633	99000	1	EACH	CONTROLLER ITEM, MISC.: RELOCATE EXISTING CONTROLLER
																	1		633	99000	15	EACH	CONTROLLER ITEM, MISC.: FIELD CONNECTIONS TO EXISTING CONTROLLER
																	1		633	99000	12	EACH	CONTROLLER ITEM, MISC.: MODIFY EXISTING CONTROLLER OPERATIONS
																			633	99000	2	EACH	CONTROLLER ITEM, MISC.: RECONSTRUCT EXISTING CABINET FOUNDATION

SUBSUMMARY

CUYAHOGA COUNTY
CUY-6-15.55 & VARIOUS

SUBSUM.DWG PLOT SCALE= 1:1

SUBSUMMARY

COST PARTICIPATION I - NORMAL PROJECT PARTICIPATION

COST PARTICIPATION II - 100% CITY

SHEET NUMBER														PARTICIPATION		ITEM	ITEM EXT.	SUB TOTAL	UNIT	DESCRIPTION		
72	73	74	75	76	77	78	79	80	81	82	83	84	85	I	II							
1	1	1	1	1	1	1	1	1	1	1	1	1	1			180	202	30000	180	SQ. FT.	WALK REMOVED	
	90									90						28	202	32000	28	LIN. FT.	CURB REMOVED	
	14									14						180	608	53001	180	SQ. FT.	CURB RAMP, TYPE 1, AS PER PLAN	
4	2	4	4	5	5	6	5	6	4	3	7	5	5			57	8	625	32000	65	EACH	GROUND ROD
2	2	5	4	3	4	4	5	6	4	3	7	4	3			48	8	625	-	56	EACH	PULLBOX, AS PER PLAN
149	45	246	205	120	221	144	241	395	189	103	258	140	111			2223	344	625	29501	2567	LIN. FT.	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
115	94	145	134	179	159	166	123	318	217	144	302	177	176			2182	267	625	29601	2449	LIN. FT.	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
17		100	322	125	145	4	99	293	96	30	209	170	58			1539	129	625	25402	1668	LIN. FT.	CONDUIT, 2", 713.07
226	82	170	26	123	180	202	198	220	153	99	168	82	137			1769	297	625	25502	2066	LIN. FT.	CONDUIT, 3", 713.07
230	188	290	236	328	318	332	202	494	418	288	604	354	352			4144	490	625	25802	4634	LIN. FT.	CONDUIT, CONCRETE ENCASED, 3", 713.07
63	57	43	43	56	51	55	43	64	76	37	49	55	47			659	80	630	80102	739	SQ. FT.	SIGN, FLAT SHEET, TYPE G
8	4	3	3	4	5	6	3	6	6	3	4	5	4			58	6	630	79101	64	EACH	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
8	6	5	7	8	5	5	6	8	9	7	7	5	6			79	13	632	00301	92	EACH	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1 WAY, AS PER PLAN
	2	1	1		1	1			1		1	1				9		632	00501	9	EACH	VEHICULAR SIGNAL HEAD, 5-SECTION, 12" LENS, 1 WAY, AS PER PLAN
8	6	4	8	8	8	6	6	6	8	4	8	8	6			84	10	632	20601	94	EACH	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
			4	4						2	2	4	2			16	2	632	26001	18	EACH	PEDESTRIAN PUSHBUTTON, AS PER PLAN
		2	2	2	1	1	1	4	2	1	4	1	1			20	2	632	27009	22	EACH	LOOP DETECTOR UNIT, DELAY AND EXTENSION TYPE, AS PER PLAN
			2													2		632	90400	2	EACH	SIGNALIZATION, MISC.: MICROWAVE DETECTOR
6.3	3.0	6.2	8.4	8.7	4.6	6.1	5.3	10.6	10.6	6.6	8.7	5.5	7.7			4189	466	632	27500	4655	LIN. FT.	LOOP DETECTOR PAVEMENT CUTTING
																86.4	11.9	632	72000	98.3	CU. YD.	CONCRETE FOR ANCHOR BASE FOUNDATION
1																1		632	80101	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 15' ARM, AS PER PLAN
	1												1			2		632	80101	2	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 16' ARM, AS PER PLAN
			1													1		632	80101	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 20' ARM, AS PER PLAN
	1															1		632	80101	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 22' ARM, AS PER PLAN
	1															1		632	80101	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 24' ARM, AS PER PLAN
								1								1		632	80101	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 25' ARM, AS PER PLAN
																1		632	80201	2	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 2, WITH 28' ARM, AS PER PLAN
													1			1		632	80201	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 2, WITH 30' ARM, AS PER PLAN
													1			1		632	80201	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 2, WITH 32' ARM, AS PER PLAN
																2		632	80301	2	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, WITH 30' ARM, AS PER PLAN
1	1					1										3		632	80301	3	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, WITH 32' ARM, AS PER PLAN
		1														1		632	80301	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20 DESIGN 3 POLE, WITH MAST ARMS TC-81.20 DESIGN 1, 25 FEET AND TC-81.20 DESIGN 2, 25 FEET, AS PER PLAN
																1		632	80401	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 32' ARM, AS PER PLAN
													1			1		632	80401	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 36' ARM, AS PER PLAN
													1			1	1	632	80401	2	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 38' ARM, AS PER PLAN
																1		632	80011	1	EACH	SIGNAL SUPPORT, TYPE TC-12.30 DESIGN 5 POLE, WITH MAST ARMS TC-81.20 DESIGN 4, 38 FEET AND TC-81.20 DESIGN 11, 45 FEET, AS PER PLAN
																1		632	80501	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 11, WITH 32' ARM, AS PER PLAN
																1		632	80501	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 11, WITH 38' ARM, AS PER PLAN
																2		632	80501	2	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 11, WITH 40' ARM, AS PER PLAN
																1		632	80501	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 11, WITH 42' ARM, AS PER PLAN
																1		632	80501	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 11, WITH 45' ARM, AS PER PLAN
																1		632	80601	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 12, WITH 48' ARM, AS PER PLAN

CALCULATED
CAP
CHECKED
CAG

SUBSUMMARY

CUYAHOGA COUNTY
CUY-6-15.55 & VARIOUS

SUBSUMMARY

COST PARTICIPATION I - NORMAL PROJECT PARTICIPATION

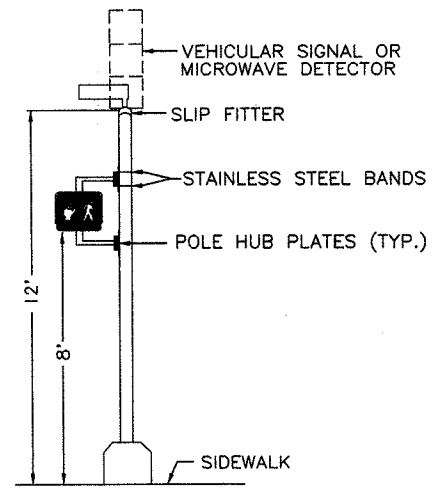
COST PARTICIPATION II - 100% CITY

SHEET NUMBER														PARTICIPATION		ITEM	ITEM EXT.	SUB TOTAL	UNIT	DESCRIPTION		
72	73	74	75	76	77	78	79	80	81	82	83	84	85	I	II							
1							1								1	1	632	81101	2	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 22' ARM, AS PER PLAN	
					1										1		632	81101	1	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 25' ARM, AS PER PLAN	
						1									1		632	81201	1	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 2, WITH 24' ARM, AS PER PLAN	
			1												1		632	81201	1	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 2, WITH 25' ARM, AS PER PLAN	
				2	1		1								3	1	632	81201	4	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 2, WITH 28' ARM, AS PER PLAN	
													1		3		632	81301	3	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, WITH 28' ARM, AS PER PLAN	
1															1		632	81301	1	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, WITH 30' ARM, AS PER PLAN	
															1		632	81401	1	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 25' ARM, AS PER PLAN	
														1		632	81401	1	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 32' ARM, AS PER PLAN		
															1		632	81501	1	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 11, WITH 36' ARM, AS PER PLAN	
															1		632	81501	1	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 11, WITH 45' ARM, AS PER PLAN	
				2		1	2	3	2	1		2	4	2	2		632	89900	21	EACH	PEDESTAL, 8', TRANSFORMER BASE	
										1						1	632	90010	1	EACH	PEDESTAL, MISC.: 12', TRANSFORMER BASE	
432	518	350	433	450	721	466	437	601	545	415	1147	665	533			6861	852	632	40500	7713	LIN. FT.	SIGNAL CABLE, 5-CONDUCTOR, NO. 14 AWG
603	657	882	615	631	412	515	441	1119	906	498	634	565	609			8148	939	632	40700	9087	LIN. FT.	SIGNAL CABLE, 7-CONDUCTOR, NO. 14 AWG
		592	1042	1046	190	202	768	2320	796	420	2160	974	906			10228	1188	632	64900	11416	LIN. FT.	LOOP DETECTOR WIRE, TYPE E
		1041	1461	1022	219	76	352	2118	561	529	1373	625	604			9100	881	632	65200	9981	LIN. FT.	LOOP DETECTOR LEAD-IN CABLE
			235													235		632	90500	235	LIN. FT.	SIGNALIZATION, MISC.: MICROWAVE DETECTOR LEAD-IN CABLE
8	8	6	8	8	6	6	6	8	10	7	8	6	6			88	13	632	25000	101	EACH	COVERING OF VEHICULAR SIGNAL HEAD
1	1	1	1	1	1	1	1	1	1	1	1	1	1			12	2	632	90101	14	EACH	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
1	1	1	1	1	1	1	1	1	1	1	1	1	1			12	2	633	99000	14	EACH	CONTROLLER ITEM, MISC.: FIELD CONNECTIONS TO EXISTING CONTROLLER
1																11	2	633	99000	13	EACH	CONTROLLER ITEM, MISC.: MODIFY EXISTING CONTROLLER OPERATIONS
1							1	1								2	1	633	99000	3	EACH	CONTROLLER ITEM, MISC.: RECONSTRUCT EXISTING CABINET FOUNDATION

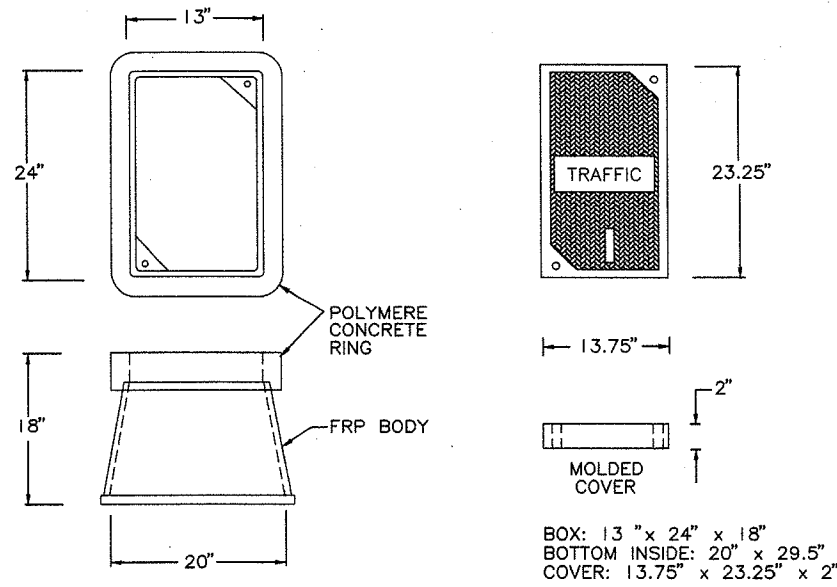
CALCULATED
CAP
CHECKED
CAG

SUBSUMMARY

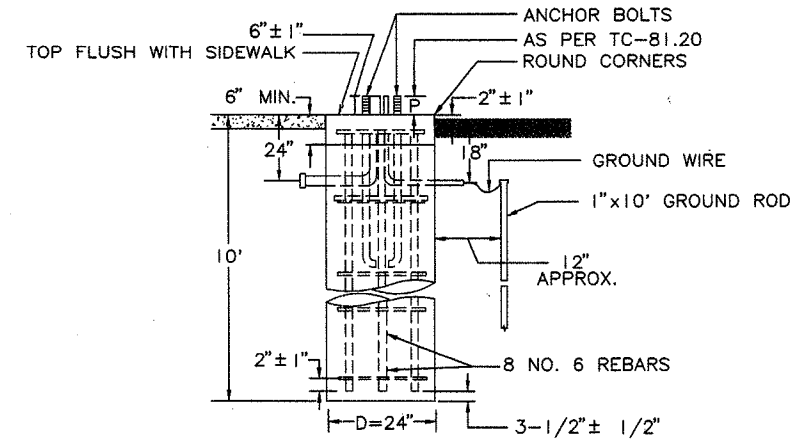
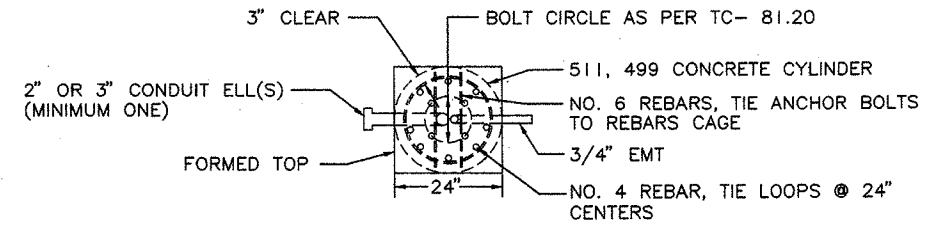
CUYAHOGA COUNTY
CUY-6-15.55 & VARIOUS



PEDESTRIAN SIGNAL MOUNTED ON 12" PEDESTAL (SIGNAL MOUNTING DETAILS AS PER TC-85.10)

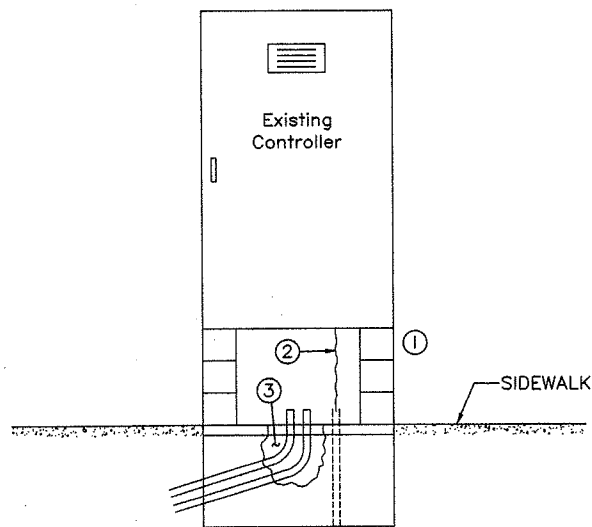


ITEM 625- PULL BOX, AS PER PLAN (SEE GENERAL NOTES)



ALTERNATE FOUNDATION DESIGN 1, 2, OR 3

ALTERNATE FOUNDATION MAY BE USED WHERE UNDERGROUND UTILITY CONFLICTS PRECLUDE USE OF STANDARD FOUNDATION, AS APPROVED BY THE ENGINEER.



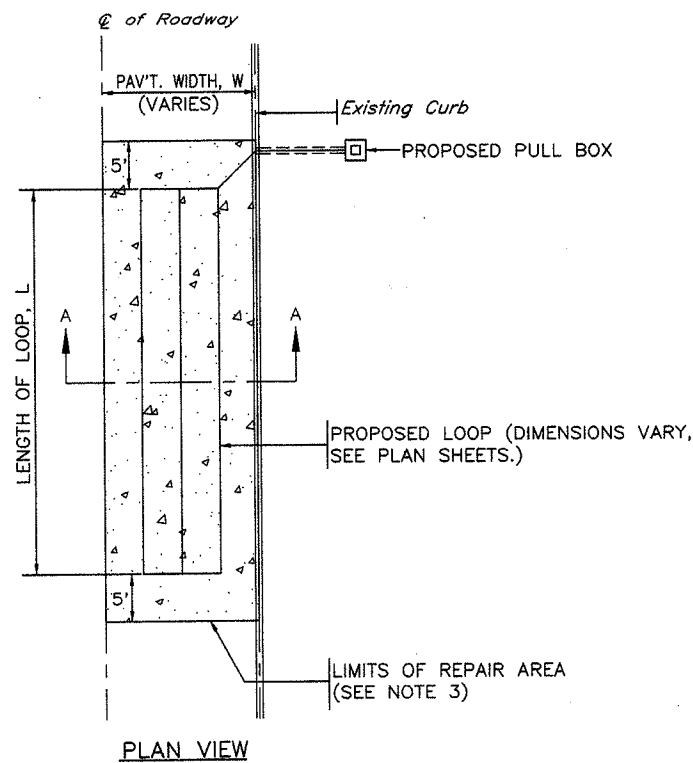
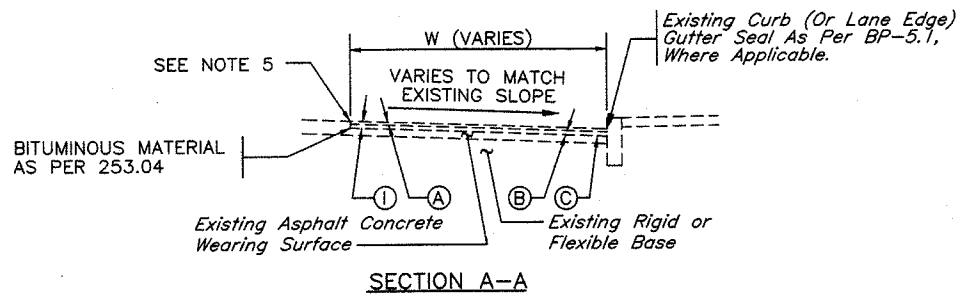
- ① RAISE EXISTING CONTROLLER AND SUPPORT ON RAILROAD TIES. HEIGHT AS NECESSARY TO INSTALL NEW CONDUITS. LAG BOLT CABINET TO TIES FOR STABILITY.
- ② MAINTAIN AND PROTECT EXISTING CONDUITS AND WIRING. IF EXISTING WIRE SLACK IS NOT SUFFICIENT TO MAINTAIN SIGNAL OPERATION, DISCONNECT AND REMOVE CABINET. MAINTAIN TRAFFIC AS PER ITEM 614 - MAINTAINING TRAFFIC, AS PER PLAN.
- ③ DEMOLISH EXISTING FOUNDATION AS REQUIRED TO INSTALL PROPOSED CONDUITS. NUMBER AND LOCATIONS AS PER PLANS. RECONSTRUCT FOUNDATION AS PER ITEM 633 - CONCRETE FOR CABINET FOUNDATION. REPLACE ANCHOR BOLTS IF REQUIRED. RECONSTRUCTION TO BE COMPLETED AND CONTROLLER PERMANENTLY RE-MOUNTED IN ONE DAY. ALL COSTS TO BE INCLUDED IN ITEM 633 - CONTROLLER ITEM, MISC.: RECONSTRUCT EXISTING CABINET FOUNDATION.

ITEM 633 - CONTROLLER ITEM, MISC.: CONTROLLER FOUNDATION RECONSTRUCTION

CALCULATED
G.G.B.
CHECKED
K.A.N.

MISCELLANEOUS DETAILS

CUYAHOGA COUNTY
CUY-6-15.55 & VARIOUS



- ① ITEM 253 - PAVEMENT REPAIR, AS PER PLAN (3" MINIMUM DEPTH **)
- Ⓐ ITEM 404 - 1 1/4" ASPHALT CONCRETE, AC-20
- Ⓑ ITEM 402 - 1 3/4" ASPHALT CONCRETE, AC-20**
- Ⓒ ITEM 407 - TACK COAT

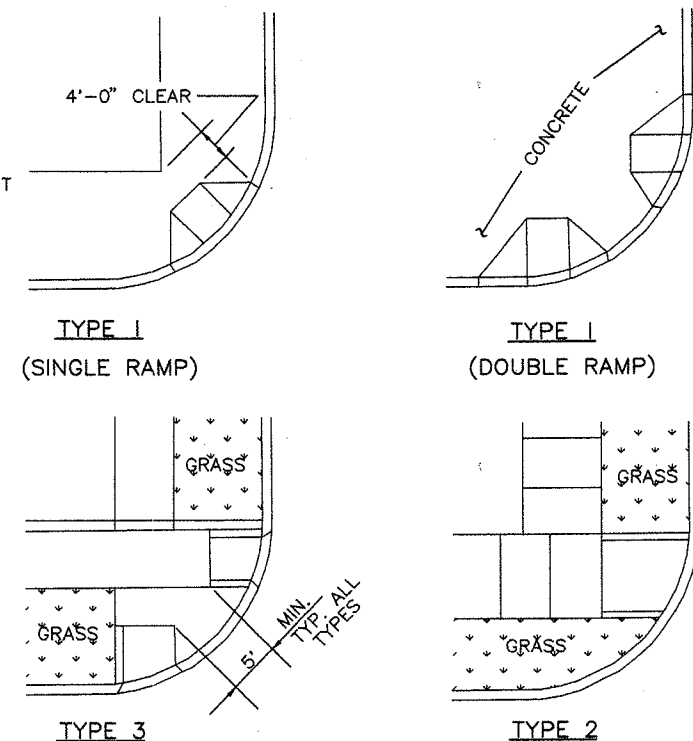
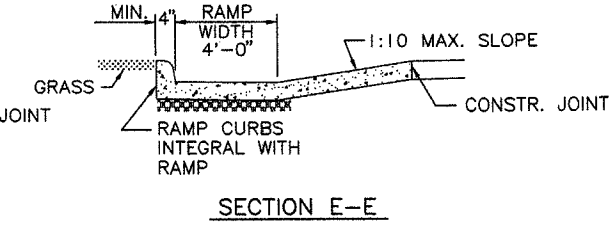
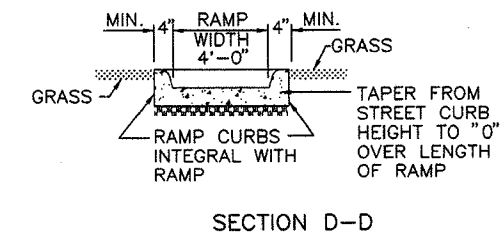
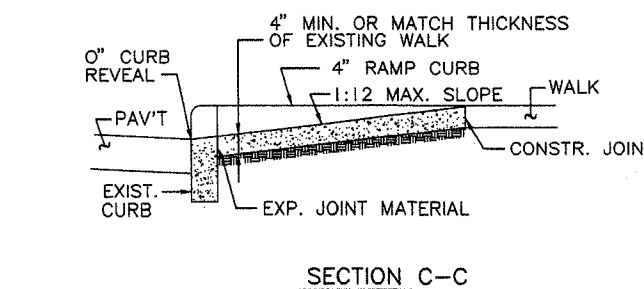
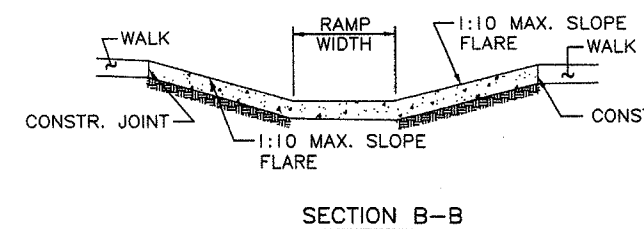
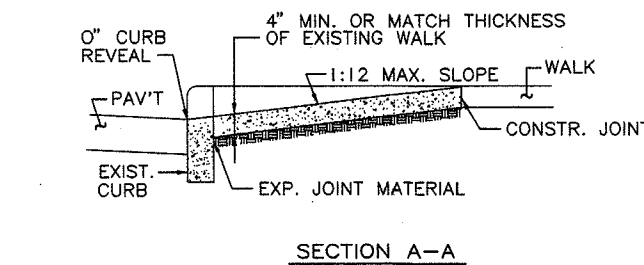
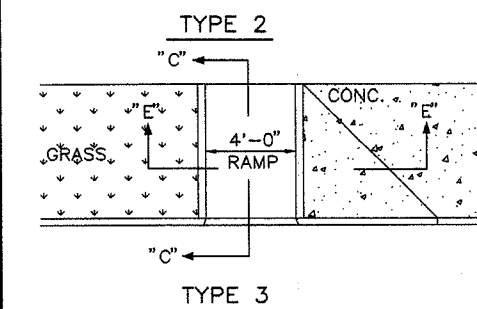
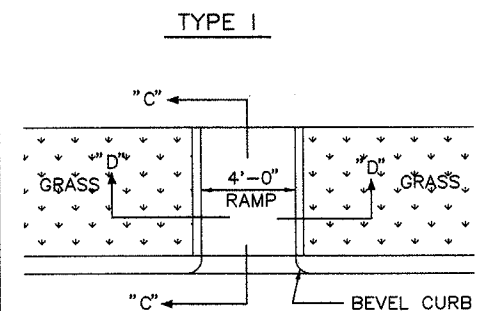
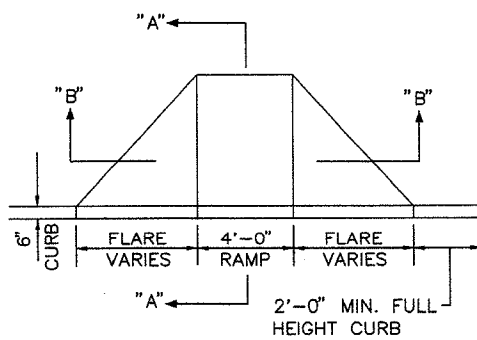
** - THIS THICKNESS MAY BE INCREASED TO MEET THE TOP OF THE EXISTING RIGID BASE, AS DIRECTED BY THE ENGINEER.

FINISH SHALL BE AS PER 402.13 & 404.13
SURFACE TOLERANCE SHALL BE AS PER 404.16.

NOTES: FOR ITEM 253 - PAVEMENT REPAIR, AS PER PLAN

- 1) THIS DETAIL IS INTENDED FOR USE ON PAVEMENTS WITH ASPHALT (FLEXIBLE) WEARING SURFACES WHICH EXHIBIT SEVERE SURFACE DISTRESS, SUCH AS "ALLIGATOR CRACKING," "RAVELLING" OR "RUTTING."
- 2) THE ENGINEER SHALL DETERMINE WHICH EXISTING ASPHALT PAVEMENT SURFACES ARE UNSUITABLE FOR LOOP DETECTOR PLACEMENT. ALL PAVEMENT REPAIR LOCATIONS SHALL BE AS DIRECTED BY THE ENGINEER.
- 3) THE DIMENSIONS OF THE REPAIR AREA SHALL BE AS FOLLOWS:
W x (L+10 FT.): WHERE W = PAV'T WIDTH (Q ROADWAY TO CURB)
L = LENGTH OF PROPOSED LOOP
- 4) ALL REPAIRS SHALL BE PERFORMED DURING THE HOURS OF 9:00 AM TO 3:00 PM. REPAIR AREAS SHALL BE COMPLETED PRIOR TO OPENING THE LANE TO TRAFFIC. ALL LANES SHALL BE OPEN TO TRAFFIC AT THE END OF EACH WORK DAY.
- 5) THE CONTRACTOR SHALL PROVIDE A NEAT VERTICAL EDGE ALONG ALL EDGES OF THE REPAIR AREA AS PER 253.02.
- 6) THE CONTRACTOR SHALL REPLACE ALL PAVEMENT MARKINGS ON EACH LEG OF THE INTERSECTION AS A RESULT OF WORK PERFORMED.
- 7) FINISH SHALL BE AS PER 402.13 & 404.13
SURFACE TOLERANCE SHALL BE AS PER 404.16.

**ITEM 253 - PAVEMENT REPAIR, AS PER PLAN
FOR LOOP DETECTOR INSTALLATION**



NOTES FOR CURB RAMPS

LOCATION:

CURB RAMPS TO BE CONSTRUCTED ONLY WHERE SHOWN ON THE PLANS OR WHERE DIRECTED BY THE ENGINEER.

SLOPE:

WHERE SPACE LIMITATIONS PROHIBIT THE USE OF 1:12 SLOPE OR LESS, RAMPS MAY HAVE SLOPES AS FOLLOWS IF APPROVED BY THE ENGINEER.
- A SLOPE BETWEEN 1:10 AND 1:12 IS ALLOWED FOR A MAX RISE OF 6".
- A SLOPE BETWEEN 1:8 AND 1:10 IS ALLOWED FOR A RISE OF 3".

WIDTH:

A MINIMUM WIDTH OF 3 FEET MAY BE USED, IF APPROVED BY THE ENGINEER.

TYPE:

THE TYPE OF CURB RAMP SHALL BE THE TYPE SHOWN ON THE PLANS OR DIRECTED BY THE ENGINEER.

A 1/2 INCH 705.03 EXPANSION JOINT FILLER SHALL BE PROVIDED AROUND THE EDGE OF THE RAMP.

PAYMENT:

PAYMENT FOR THE CURB RAMP SHALL BE MADE AS SPECIFIED IN ITEM 608.

CALCULATED
C.G.B.
CHECKED
K.A.N.

MISCELLANEOUS DETAILS

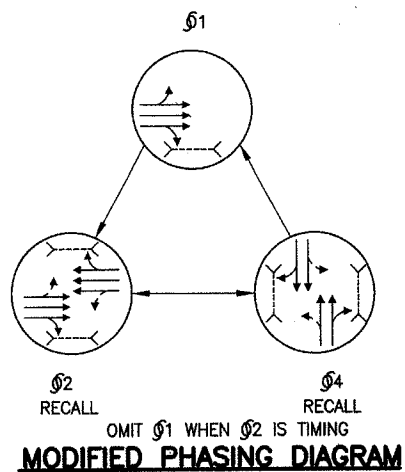
CUYAHOGA COUNTY
CUY-6-15.55 & VARIOUS

DATE: 01-21-1997 TIME: 09:18:59

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 86.

FOR POLE CHART SEE SHEET 87.

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES.



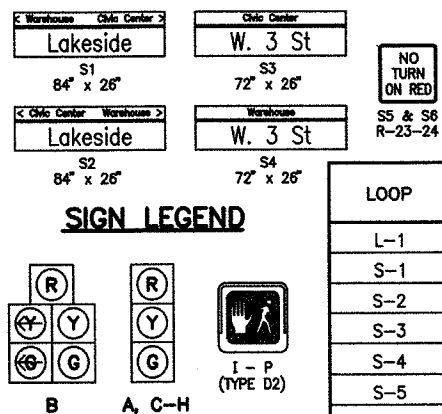
SIGNAL HEAD	1		2		3		4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A	G	G	G	Y	R		R	R	Y	
B	G	G	G	Y	R		R	R	Y	
C	R	R	G	Y	R		R	R	Y	
D	R	R	G	Y	R		R	R	Y	
E	R	R	R	R	R		G	Y	R	R
F	R	R	R	R	R		G	Y	R	R
G	R	R	R	R	R		G	Y	R	R
H	R	R	R	R	R		G	Y	R	R
I	W	W	W/(DW)	DW	DW		DW	DW	DW	D
J	W	W	W/(DW)	DW	DW		DW	DW	DW	D
K	DW	DW	W/(DW)	DW	DW		DW	DW	DW	D
L	DW	DW	W/(DW)	DW	DW		DW	DW	DW	D
M	DW	DW	DW	DW	DW		W/(DW)	DW	DW	D
N	DW	DW	DW	DW	DW		W/(DW)	DW	DW	D
O	DW	DW	DW	DW	DW		W/(DW)	DW	DW	D
P	DW	DW	DW	DW	DW		W/(DW)	DW	DW	D

W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK

SIGNAL SEQUENCE CHART

FUNCTION	1	2	3	4
INITIAL GREEN	6	-	-	-
MINIMUM GREEN	-	30	-	-
VEHICLE EXTENSION	2	-	-	-
MAXIMUM GREEN	8	-	-	30
PEDESTRIAN WALK	-	7	-	16
PEDESTRIAN CLEAR.	-	13	-	14
VEH. YELLOW CLEAR.	3	3	-	3
VEHICLE RED CLEAR.	1.5	2	-	2
RECALL	NO	PED	-	PED
MEMORY	NO	NO	-	NO
MAX.II PEDESTRIAN WALK	-	17	-	7
MAX.II MAXIMUM GREEN	26	30	-	21
MAX.II 6:00-9:00 AM,M-F	-	-	-	-

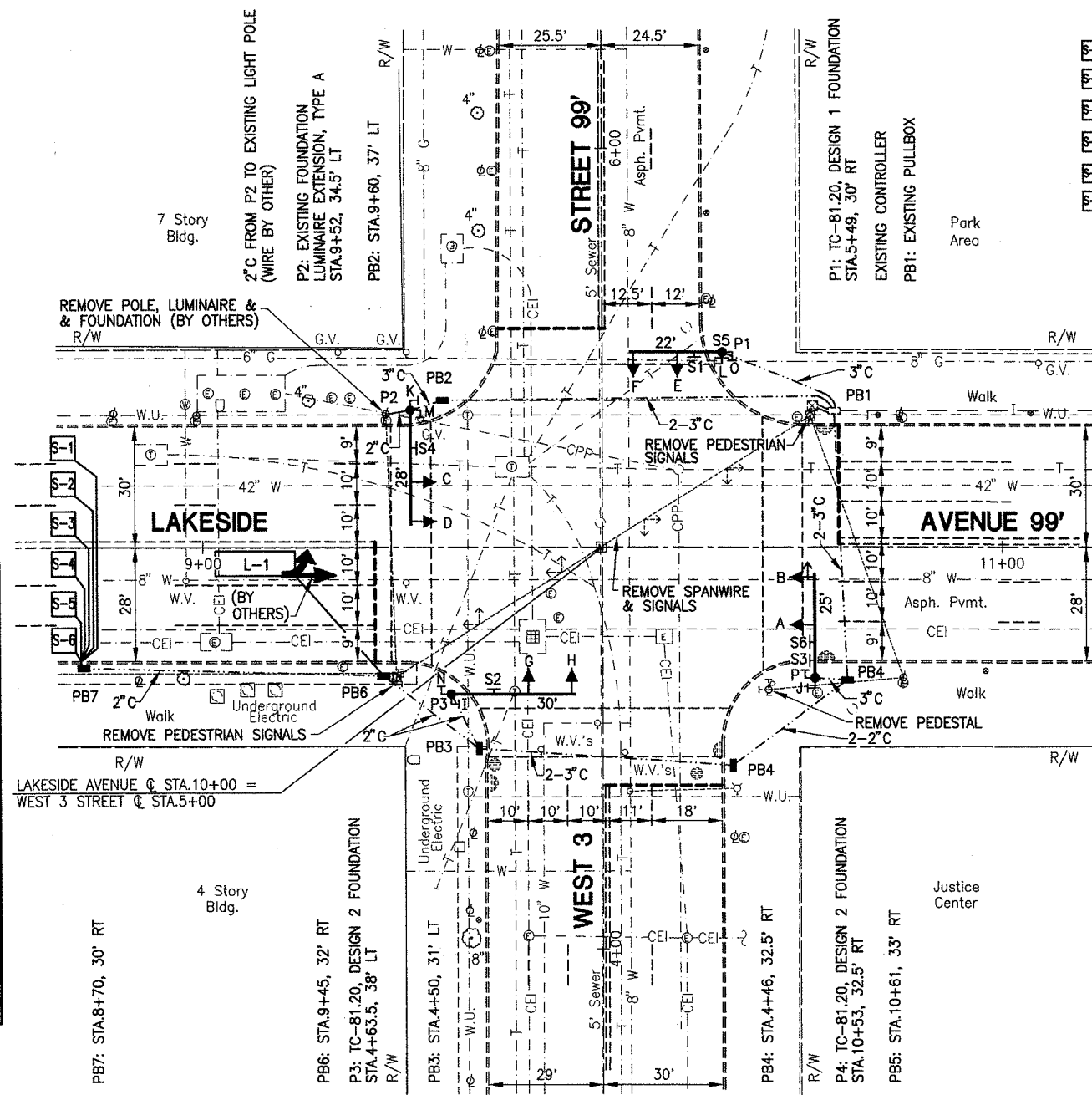
SIGNAL TIMING CHART



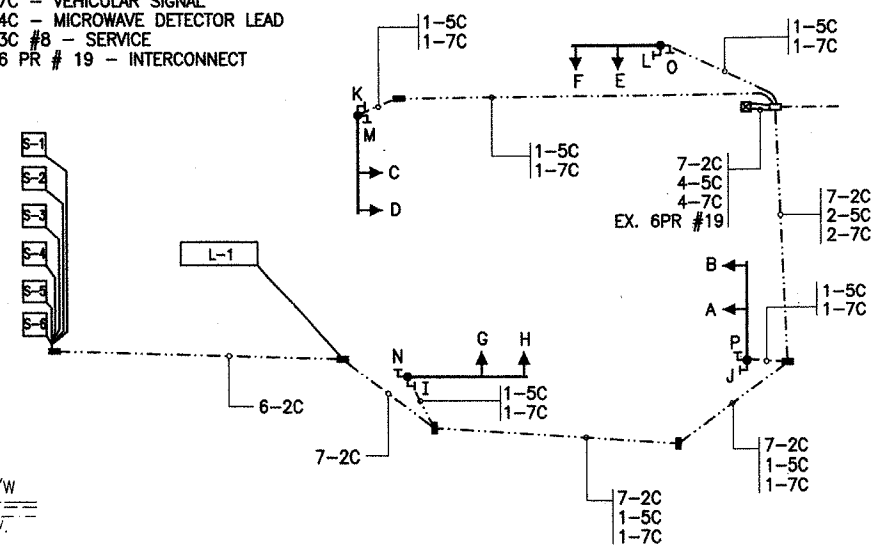
12" SIGNAL HEADS RIGID MOUNTED

LOOP	SIZE	TURNS	MODE	DELAY	PHASE	REMARK	INHIBITED DELAY	LOCATION 1ST FRONT CORNER	LOCATION 2ND FRONT CORNER
L-1	6'X20'	2	PRESENCE	3	1		YES	STA.9+23, 1' R	STA.9+23, 7' R
S-1	6'X6'	3	BOTH			SYSTEM		STA.8+68, 26' R	STA.8+68, 20' R
S-2	6'X6'	3	BOTH			SYSTEM		STA.8+68, 17' R	STA.8+68, 11' R
S-3	6'X6'	3	BOTH			SYSTEM		STA.8+68, 7' R	STA.8+68, 1' R
S-4	6'X6'	3	BOTH			SYSTEM		STA.8+68, 3' L	STA.8+68, 9' L
S-5	6'X6'	3	BOTH			SYSTEM		STA.8+68, 13' L	STA.8+68, 19' L
S-6	6'X6'	3	BOTH			SYSTEM		STA.8+68, 22' L	STA.8+68, 28' L

LOOP DETECTOR CHART



- 2C - PPB & LOOP DETECTOR LEAD
- 5C - PEDESTRIAN SIGNAL
- 7C - VEHICULAR SIGNAL
- 4C - MICROWAVE DETECTOR LEAD
- 3C #8 - SERVICE
- 6 PR # 19 - INTERCONNECT

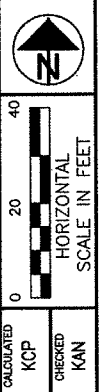


WIRE DIAGRAM

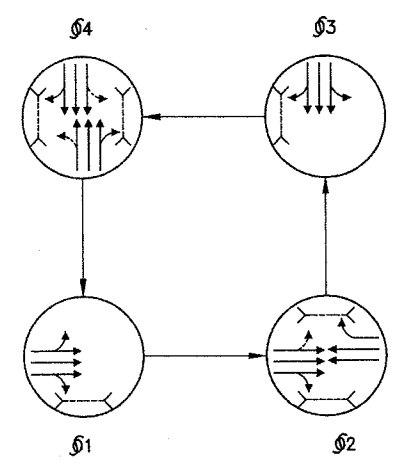
ITEM	TOTAL	UNIT	DESCRIPTION
625	4	EA	GROUND ROD
625	6	EA	PULLBOX, AS PER PLAN
625	268	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	184	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	203	LF	CONDUIT, 2", 713.07
625	140	LF	CONDUIT, 3", 713.07
625	368	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
630	64	SF	SIGN, FLAT SHEET, TYPE G
630	5	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
630	1	EA	SIGN SUPPORT ASSEMBLY, POLE MOUNTED
632	7	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	1	EA	VEHICULAR SIGNAL HEAD, 5-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	8	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	3	EA	LOOP DETECTOR UNIT, DELAY AND EXTENSION TYPE, AS PER PLAN
632	410	LF	LOOP DETECTOR PAVEMENT CUTTING
632	4.4	CY	CONCRETE FOR ANCHOR BASE FOUNDATION
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 22' ARM, A.P.P.
632	1	EA	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 2, WITH 28' ARM, AS PER PLAN
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 2, WITH 25' ARM, A.P.P.
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 2, WITH 30' ARM, A.P.P.
632	517	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	678	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	1034	LF	LOOP DETECTOR WIRE, TYPE E
632	2077	LF	LOOP DETECTOR LEAD-IN CABLE
632	8	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER ITEM, MISC.: FIELD CONNECTIONS TO EXISTING CONTROLLER
633	1	EA	CONTROLLER ITEM, MISC.: MODIFY EXISTING CONTROLLER OPERATIONS

INTERSECTION OF LAKESIDE AVENUE AND WEST 3 STREET

CUYAHOGA COUNTY CUY-6-15.55 & VARIOUS



FOR SIGNAL COORDINATION INFORMATION SEE SHEET 86.
 FOR POLE CHART SEE SHEET 87.
 EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES.



MODIFIED PHASING DIAGRAM

SIGNAL HEAD	φ1		φ2		φ3		φ4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A	G	G	G	Y	R	R	R	R	R	Y
B	G	G	G	Y	R	R	R	R	R	Y
C	R	R	R	Y	R	R	R	R	R	Y
D	R	R	R	Y	R	R	R	R	R	Y
E	R	R	R	Y	R	R	R	R	R	Y
F	R	R	R	Y	R	R	R	R	R	Y
G	R	R	R	Y	R	R	R	R	R	Y
H	R	R	R	Y	R	R	R	R	R	Y
I	R	R	R	Y	R	R	R	R	R	Y
J	W	W	W	W/(DW)	DW	DW	DW	DW	DW	D
K	W	W	W	W/(DW)	DW	DW	DW	DW	DW	D
L	DW	DW	DW	W/(DW)	DW	DW	DW	DW	DW	D
M	DW	DW	DW	W/(DW)	DW	DW	DW	DW	DW	D
N	DW	DW	DW	DW	DW	W	W	W	W/(DW)	D
O	DW	DW	DW	DW	DW	W	W	W	W/(DW)	D
P	DW	DW	DW	DW	DW	DW	DW	DW	W/(DW)	D
Q	DW	DW	DW	DW	DW	DW	DW	DW	W/(DW)	D

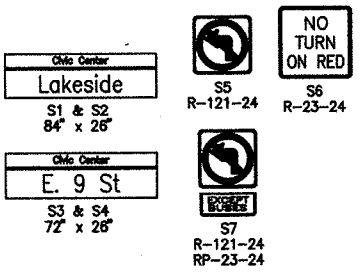
W-WALK (DW)-FLASHING DONT WALK DW-DONT WALK D-DARK

SIGNAL SEQUENCE CHART

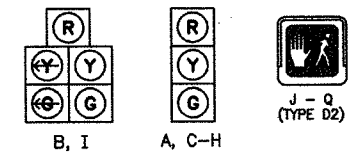
FUNCTION	φ1	φ2	φ3	φ4
INITIAL GREEN	-	-	-	-
MINIMUM GREEN	-	-	-	-
VEHICLE EXTENSION	-	-	-	-
MAXIMUM GREEN	11	21	19	19
PEDESTRIAN WALK	-	4	-	4
PEDESTRIAN CLEAR	-	17	-	15
VEH. YELLOW CLEAR	3	3	3	3
VEHICLE RED CLEAR	1.5	2.5	1.5	2.5
RECALL	VEH.	PED.	VEH.	PED.
MEMORY	NO	NO	NO	NO
MAX II MAXIMUM GREEN	28	21	-	21
MAX II 3:00-6:00PM, M-F				

OMIT φ3 3:00-6:00 PM, M-F

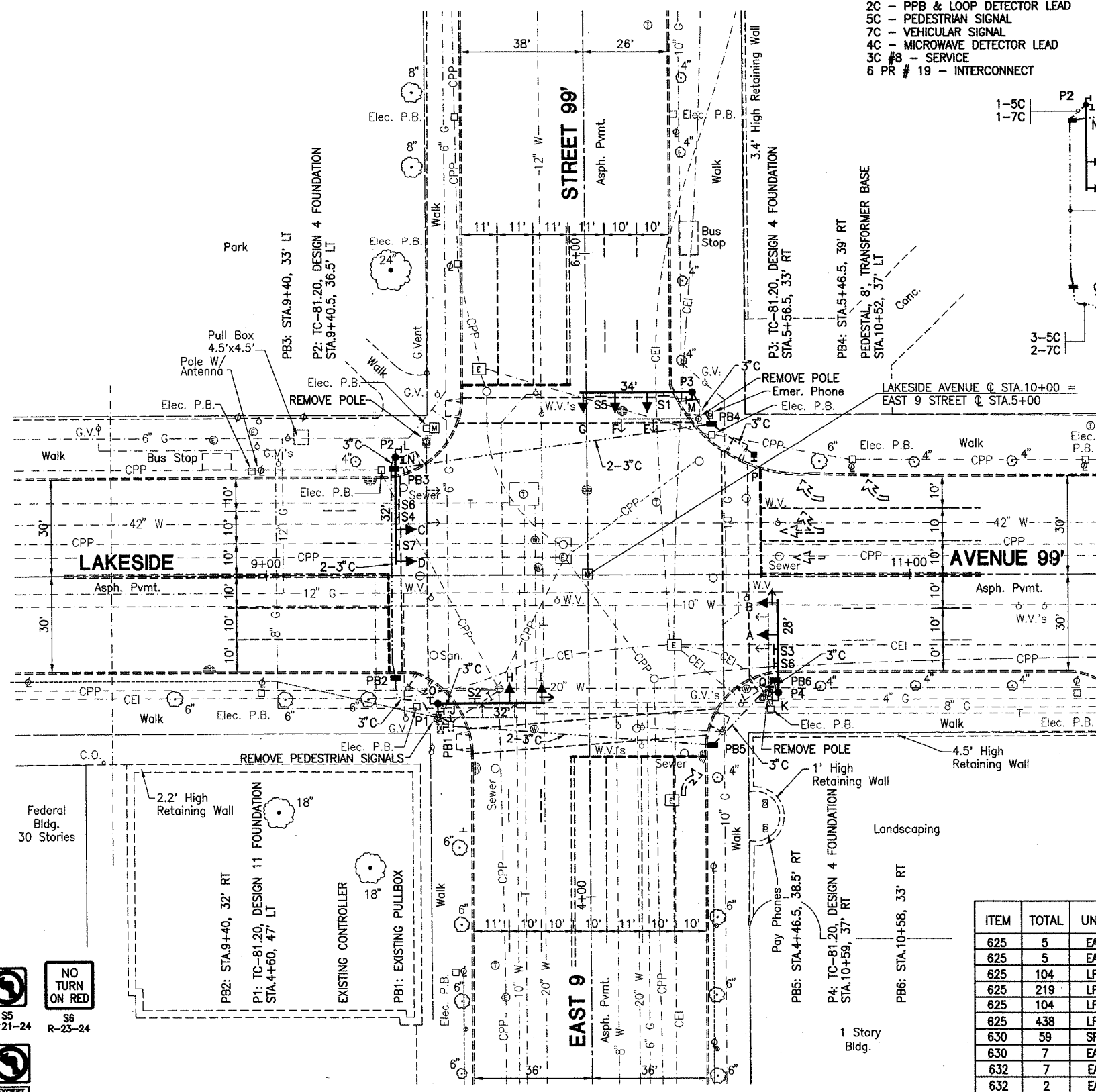
SIGNAL TIMING CHART



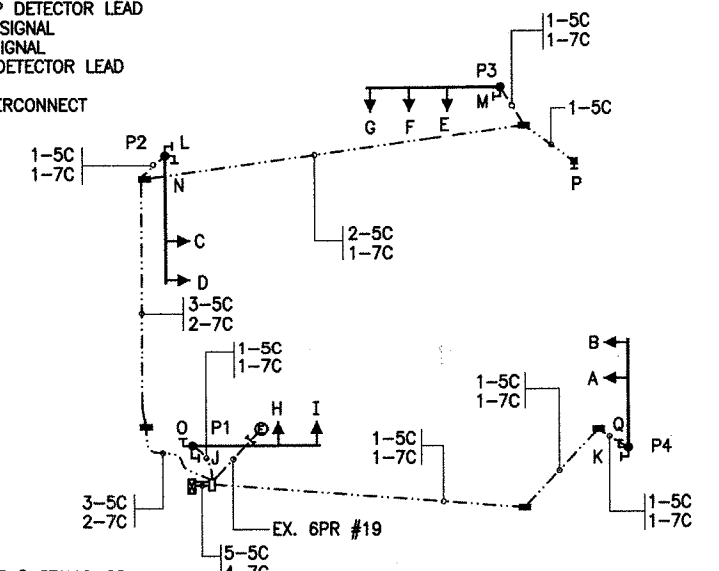
SIGN LEGEND



12" SIGNAL HEADS
RIGID MOUNTED



WIRE DIAGRAM



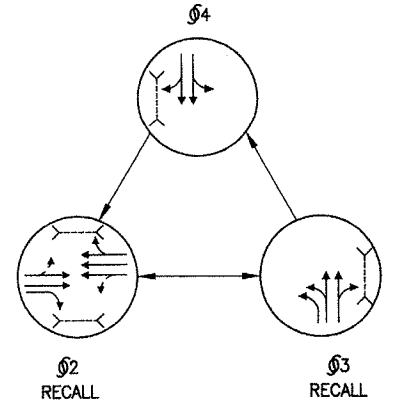
ITEM	TOTAL	UNIT	DESCRIPTION
625	5	EA	GROUND ROD
625	5	EA	PULLBOX, AS PER PLAN
625	104	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	219	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	104	LF	CONDUIT, 3", 713.07
625	438	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
630	59	SF	SIGN, FLAT SHEET, TYPE G
630	7	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
632	7	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	2	EA	VEHICULAR SIGNAL HEAD, 5-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	8	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	11.0	CY	CONCRETE FOR ANCHOR BASE FOUNDATION
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 28' ARM, A.P.P.
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 32' ARM, A.P.P.
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 34' ARM, A.P.P.
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 11, WITH 32' ARM, A.P.P.
632	1	EA	PEDESTAL, 8", TRANSFORMER BASE
632	687	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	670	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	9	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER ITEM, MISC.: FIELD CONNECTIONS TO EXISTING CONTROLLER
633	1	EA	CONTROLLER ITEM, MISC.: MODIFY EXISTING CONTROLLER OPERATIONS

DATE: 01-21-1997 TIME: 11:02:42

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 86.

FOR POLE CHART SEE SHEET 87.

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES.



EXISTING PHASING DIAGRAM

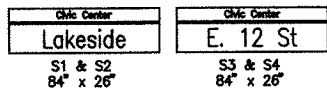
SIGNAL HEAD	phi 1		phi 2		phi 3		phi 4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A			G	Y	R	R	R	R	Y	
B			G	Y	R	R	R	R	Y	
C			G	Y	R	R	R	R	Y	
D			G	Y	R	R	R	R	Y	
E			R	R	R	G	Y	R	R	R
F			R	R	R	G	Y	R	R	R
G			R	R	R	R	R	R	Y	R
H			R	R	R	R	R	G	Y	R
I			W/(DW)	DW	DW	DW	DW	DW	DW	D
J			W/(DW)	DW	DW	DW	DW	DW	DW	D
K			W/(DW)	DW	DW	DW	DW	DW	DW	D
L			W/(DW)	DW	DW	DW	DW	DW	DW	D
M			W/(DW)	DW	DW	DW	DW	DW	DW	D
N			W/(DW)	DW	DW	DW	DW	DW	DW	D
O			W/(DW)	DW	DW	DW	DW	DW	DW	D
P			W/(DW)	DW	DW	DW	DW	DW	DW	D
Q			DW	DW	DW	W/(DW)	DW	DW	DW	D
R			DW	DW	DW	W/(DW)	DW	DW	DW	D
S			DW	DW	DW	W/(DW)	DW	DW	DW	D
T			DW	DW	DW	W/(DW)	DW	DW	DW	D

W-WALK (DW)-FLASHING DONT WALK DW-DONT WALK D-DARK

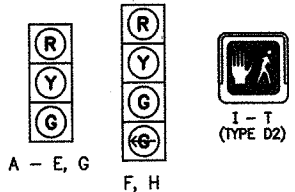
SIGNAL SEQUENCE CHART

FUNCTION	phi 1	phi 2	phi 3	phi 4
INITIAL GREEN	-	-	-	8
MINIMUM GREEN	-	30	-	-
VEHICLE EXTENSION	-	-	-	2
MAXIMUM GREEN	-	-	19	15
PEDESTRIAN WALK	-	7	5	5
PEDESTRIAN CLEAR	-	8	14	14
VEH. YELLOW CLEAR	-	3	3	3
VEHICLE RED CLEAR	-	3.5	2	2
RECALL	-	PED	PED	NO
MEMORY	-	NO	NO	NO

SIGNAL TIMING CHART



SIGN LEGEND

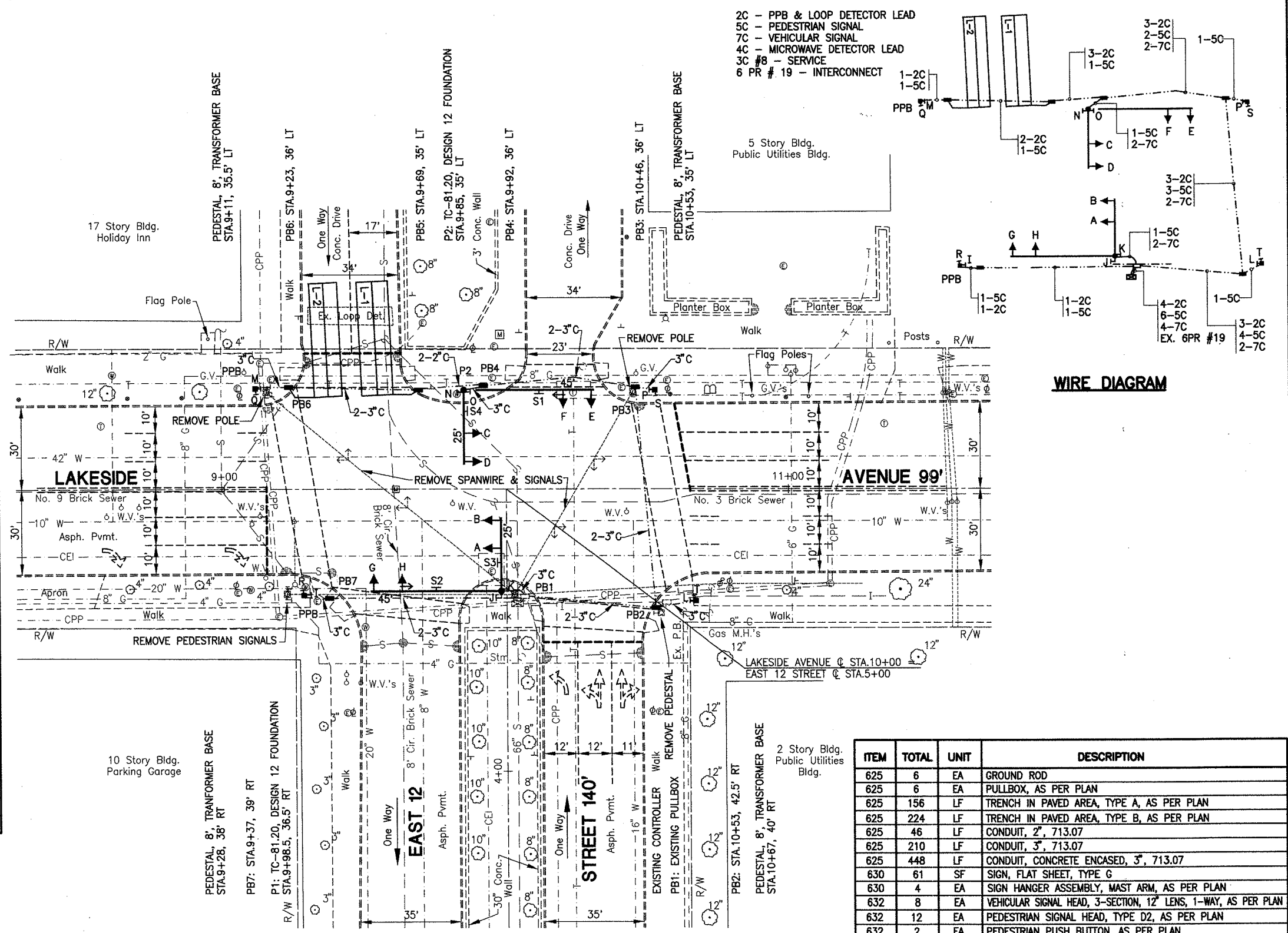


12\"/>

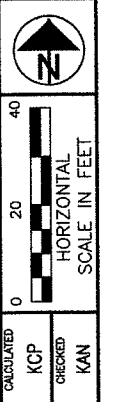
	SIZE	TURNS	MODE	DELAY	PHASE	REMARK	INHIBITED DELAY	LOCATION 1ST FRONT CORNER	LOCATION 2ND FRONT CORNER
L-1	10'X40'	2-4-2	PRESENCE	8	4	QUADRAPOLE	NO	STA.9+60, 33.5' L	STA.9+49.5, 33' L
L-2	10'X40'	2-4-2	PRESENCE	8	4	QUADRAPOLE	NO	STA.9+42.5, 33' L	STA.9+32, 32.5' L

LOOP DETECTOR CHART

ITEM	TOTAL	UNIT	DESCRIPTION
625	6	EA	GROUND ROD
625	6	EA	PULLBOX, AS PER PLAN
625	156	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	224	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	46	LF	CONDUIT, 2\", 713.07
625	210	LF	CONDUIT, 3\", 713.07
625	448	LF	CONDUIT, CONCRETE ENCASED, 3\", 713.07
630	61	SF	SIGN, FLAT SHEET, TYPE G
630	4	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
632	8	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12\"/>



WIRE DIAGRAM



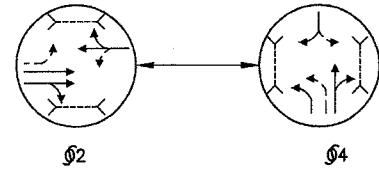
INTERSECTION OF LAKESIDE AVENUE AND EAST 12 STREET
CUYAHOGA COUNTY
CUY-6-15.55 & VARIOUS

DATE: 01-21-1997 TIME: 11:42:06

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 86.

FOR POLE CHART SEE SHEET 87.

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES.



EXISTING PHASING DIAGRAM

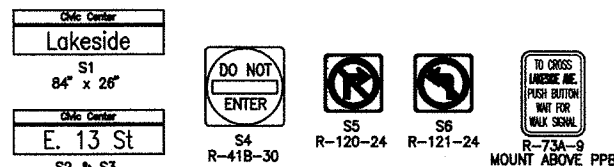
SIGNAL HEAD	φ1		φ2		φ3		φ4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A			G	Y R			R	R R	Y	G
B			G	Y R			R	R R	Y	G
C			G	Y R			R	R R	Y	G
D			G	Y R			R	R R	Y	G
E			R	R R			G	Y R	R	R
F			R	R R			G	Y R	R	R
G			R	R R			G	Y R	R	R
H			R	R R			G	Y R	R	R
I			W/(DW)	DW DW			DW	DW DW	D	W
J			W/(DW)	DW DW			DW	DW DW	D	W
K			W/(DW)	DW DW			DW	DW DW	D	W
L			W/(DW)	DW DW			DW	DW DW	D	W
M			DW	DW DW			W/(DW)	DW DW	D	DW
N			DW	DW DW			W/(DW)	DW DW	D	DW
O			DW	DW DW			W/(DW)	DW DW	D	DW
P			DW	DW DW			W/(DW)	DW DW	D	DW

W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK

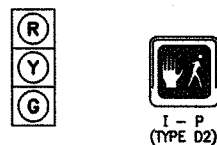
SIGNAL SEQUENCE CHART

FUNCTION	φ1	φ2	φ3	φ4
INITIAL GREEN				8
MINIMUM GREEN		30		
VEHICLE EXTENSION				2
MAXIMUM GREEN				26
PEDESTRIAN WALK		7		7
PEDESTRIAN CLEAR		10		15
VEH. YELLOW CLEAR		3		3
VEHICLE RED CLEAR		1.5		2
RECALL		PED		NO
MEMORY		NO		NO

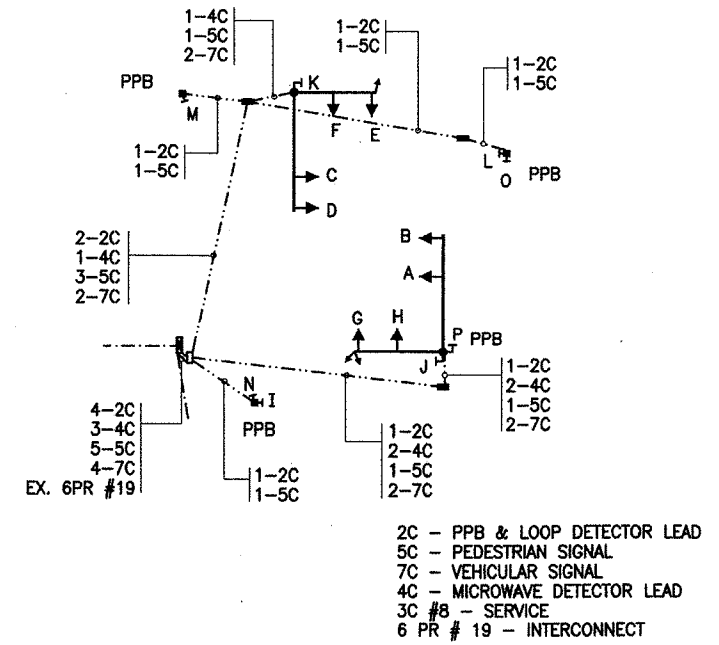
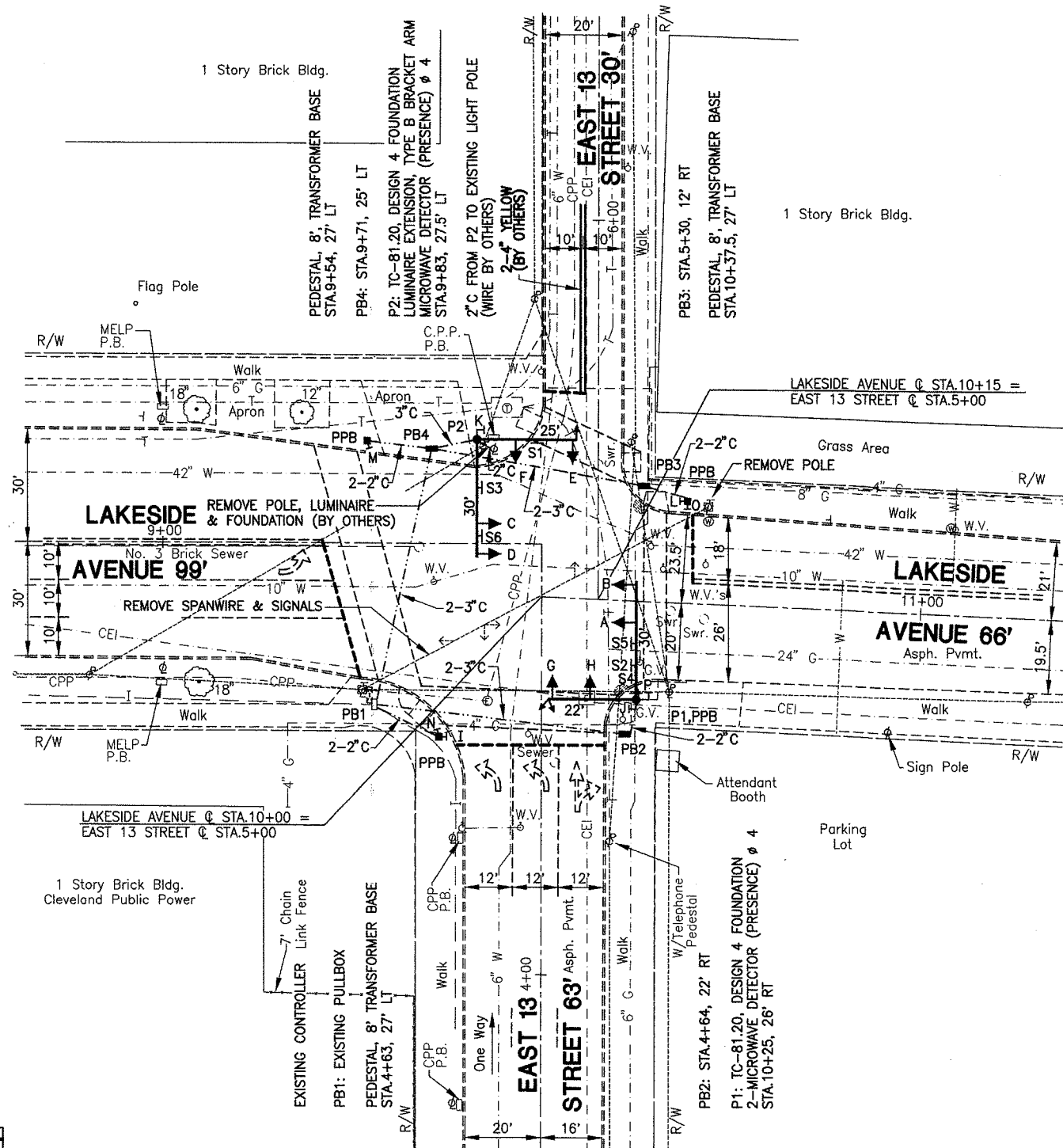
SIGNAL TIMING CHART



SIGN LEGEND



A - H
ROTATE VISORS 90° ON HEADS C & D
12" SIGNAL HEADS
RIGID MOUNTED

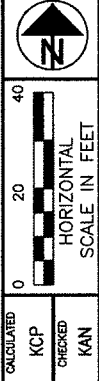


WIRE DIAGRAM

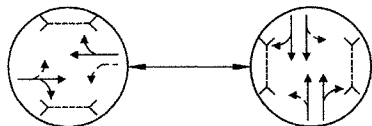
ITEM	TOTAL	UNIT	DESCRIPTION
625	5	EA	GROUND ROD
625	3	EA	PULLBOX, AS PER PLAN
625	104	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	164	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	123	LF	CONDUIT, 2", 713.07
625	116	LF	CONDUIT, 3", 713.07
625	280	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
625	1	EA	BRACKET ARM, 6', AS PER PLAN
630	64	SF	SIGN, FLAT SHEET, TYPE G
630	5	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
630	1	EA	SIGN SUPPORT ASSEMBLY, POLE MOUNTED
632	8	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	8	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	4	EA	PEDESTRIAN PUSHBUTTON, AS PER PLAN
632	3	EA	SIGNALIZATION, MISC.: MICROWAVE DETECTOR
632	6.6	CY	CONCRETE FOR ANCHOR BASE FOUNDATION
632	1	EA	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20 DESIGN 4 POLE, WITH MAST ARMS TC-81.20 DESIGN 1, 25 FEET AND TC-81.20 DESIGN 3, 30 FEET, AS PER PLAN
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20 DESIGN 4 POLE, WITH MAST ARMS TYPE TC-81.20 DESIGN 1, 22 FEET AND TC-81.20 DESIGN 3, 30 FEET, AS PER PLAN
632	3	EA	PEDESTAL, 8', TRANSFORMER BASE
632	526	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	584	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	408	LF	LOOP DETECTOR LEAD-IN CABLE
SPEC	419	LF	MICROWAVE DETECTOR LEAD-IN CABLE
632	8	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER ITEM, MISC.: FIELD CONNECTIONS TO EXISTING CONTROLLER
633	1	EA	CONTROLLER ITEM, MISC.: MODIFY EXISTING CONTROLLER OPERATIONS

INTERSECTION OF LAKESIDE AVENUE AND EAST 13 STREET

CUYAHOGA COUNTY
CUY-6-15.55 & VARIOUS



FOR SIGNAL COORDINATION INFORMATION SEE SHEET 86.
 FOR POLE CHART SEE SHEET 87.
 EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES.



EXISTING PHASING DIAGRAM

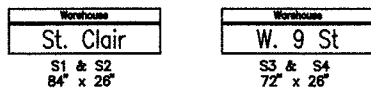
SIGNAL HEAD	phi 1		phi 2		phi 3		phi 4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A			G	Y R			R	R R Y		
B			G	Y R			R	R R Y		
C			G	Y R			R	R R Y		
D			G	Y R			R	R R Y		
E			R	R R			G	Y R R		
F			R	R R			G	Y R R		
G			R	R R			G	Y R R		
H			R	R R			G	Y R R		
I			W/(DW)	DW DW			DW	DW DW D		
J			W/(DW)	DW DW			DW	DW DW D		
K			W/(DW)	DW DW			DW	DW DW D		
L			W/(DW)	DW DW			DW	DW DW D		
M			DW	DW DW			W/(DW)	DW DW D		
N			DW	DW DW			W/(DW)	DW DW D		
O			DW	DW DW			W/(DW)	DW DW D		
P			DW	DW DW			W/(DW)	DW DW D		
Q			G	Y R			R	R R Y		

W-WALK (DW)-FLASHING DONT WALK DW-DONT WALK D-DARK

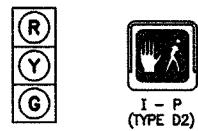
SIGNAL SEQUENCE CHART

FUNCTION	phi 1	phi 2	phi 3	phi 4
INITIAL GREEN		-		
MINIMUM GREEN		30		
VEHICLE EXTENSION		-		
MAXIMUM GREEN				35
PEDESTRIAN WALK		7		9
PEDESTRIAN CLEAR.		13		16
VEH. YELLOW CLEAR.		3		3
VEHICLE RED CLEAR.		2.5		2
RECALL		PED		PED
MEMORY		NO		NO

SIGNAL TIMING CHART

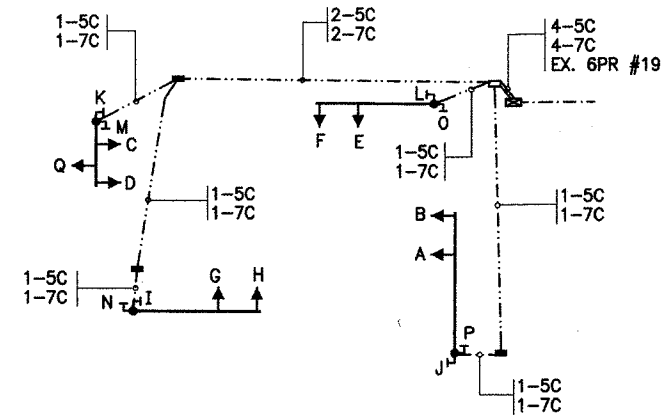
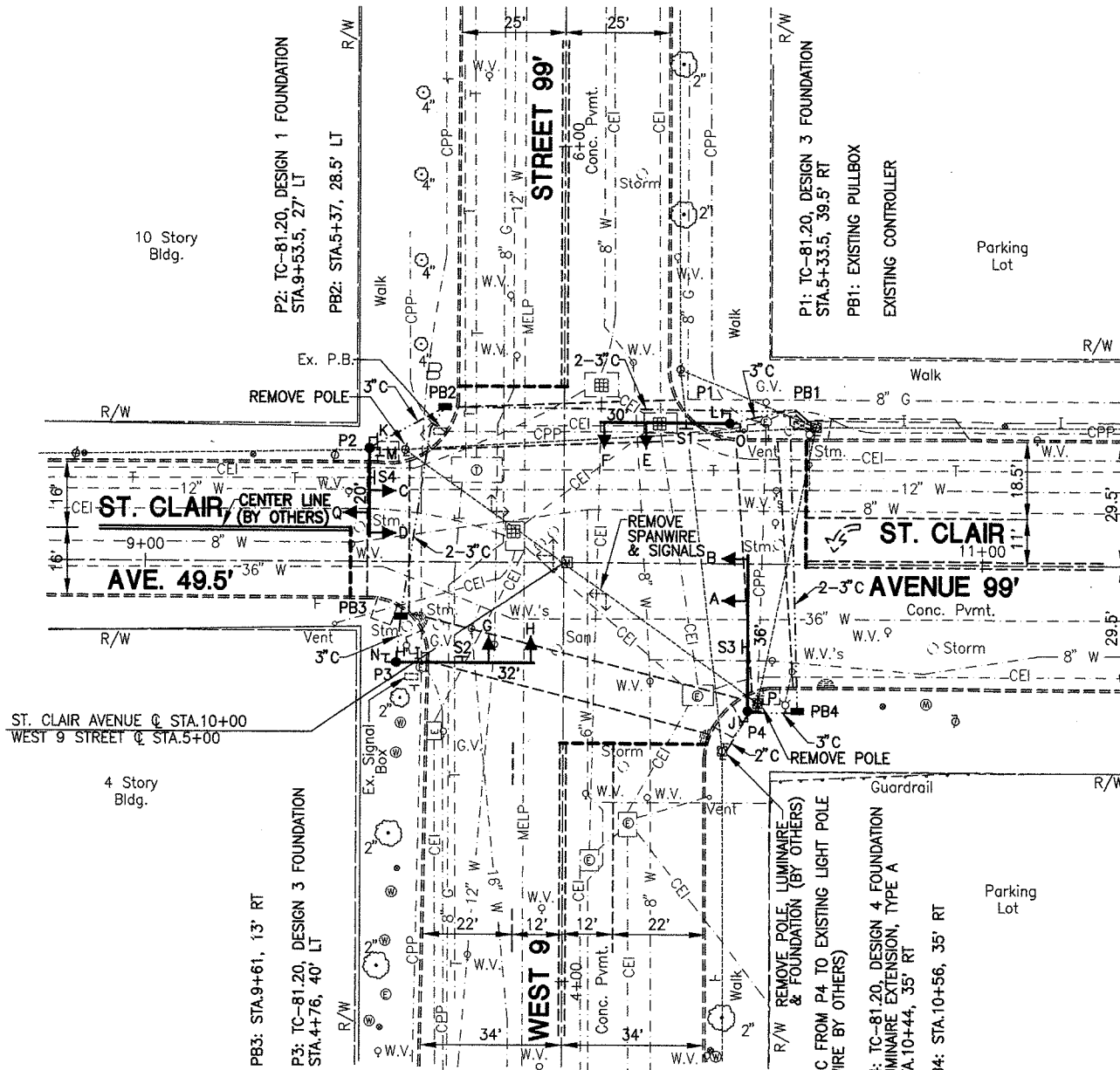


SIGN LEGEND



A - H, Q

12" SIGNAL HEADS RIGID MOUNTED

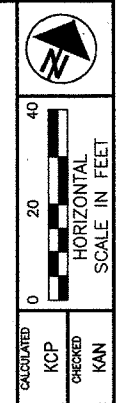


2C - PPB & LOOP DETECTOR LEAD
 5C - PEDESTRIAN SIGNAL
 7C - VEHICULAR SIGNAL
 4C - MICROWAVE DETECTOR LEAD
 3C #8 - SERVICE
 6 PR # 19 - INTERCONNECT

WIRE DIAGRAM

100% CITY PARTICIPATION

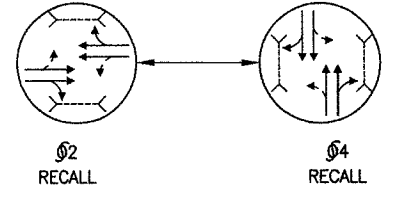
ITEM	TOTAL	UNIT	DESCRIPTION
625	4	EA	GROUND ROD
625	3	EA	PULLBOX, AS PER PLAN
625	123	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	150	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	10	LF	CONDUIT, 2", 713.07
625	167	LF	CONDUIT, 3", 713.07
625	300	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
630	56	SF	SIGN, FLAT SHEET, TYPE G
630	4	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
632	9	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	8	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	7.5	CY	CONCRETE FOR ANCHOR BASE FOUNDATION
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 20' ARM, A.P.P.
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, WITH 30' ARM, A.P.P.
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, WITH 32' ARM, A.P.P.
632	1	EA	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 36' ARM, AS PER PLAN
632	494	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	680	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	9	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER ITEM, MISC.: FIELD CONNECTIONS TO EXISTING CONTROLLER



INTERSECTION OF ST. CLAIR AND WEST 9 STREET

CUYAHOGA COUNTY
 CUY-6-15.55 & VARIOUS

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 86.
 FOR POLE CHART SEE SHEET 87.
 EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES.



EXISTING PHASING DIAGRAM

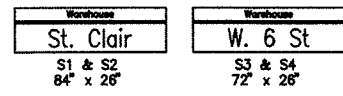
SIGNAL HEAD	φ1		φ2		φ3		φ4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A			G	Y	R		R	R	Y	
B			G	Y	R		R	R	Y	
C			G	Y	R		R	R	Y	
D			G	Y	R		R	R	Y	
E			R	R	R		G	Y	R	R
F			R	R	R		G	Y	R	R
G			R	R	R		G	Y	R	R
H			R	R	R		G	Y	R	R
I			W/(DW)	DW	DW		DW	DW	DW	D
J			W/(DW)	DW	DW		DW	DW	DW	D
K			W/(DW)	DW	DW		DW	DW	DW	D
L			W/(DW)	DW	DW		DW	DW	DW	D
M			DW	DW	DW		W/(DW)	DW	DW	D
N			DW	DW	DW		W/(DW)	DW	DW	D
O			DW	DW	DW		W/(DW)	DW	DW	D
P			DW	DW	DW		W/(DW)	DW	DW	D

W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK

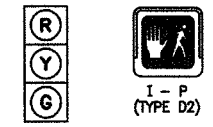
SIGNAL SEQUENCE CHART

FUNCTION	φ1	φ2	φ3	φ4
INITIAL GREEN		-	-	-
MINIMUM GREEN		30	-	-
VEHICLE EXTENSION		-	-	-
MAXIMUM GREEN		-	-	35
PEDESTRIAN WALK		7	-	22
PEDESTRIAN CLEAR.		13	-	13
VEH. YELLOW CLEAR.		3	-	3
VEHICLE RED CLEAR.		2	-	2
RECALL		PED	-	PED
MEMORY		NO	-	NO

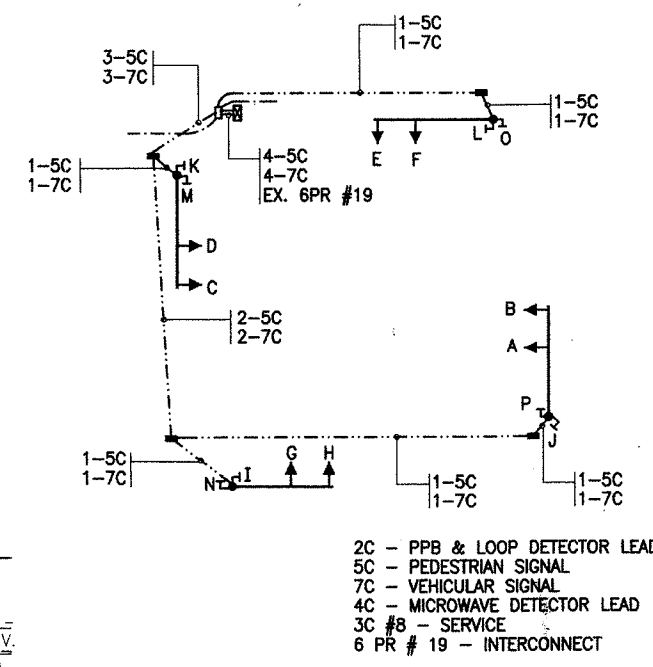
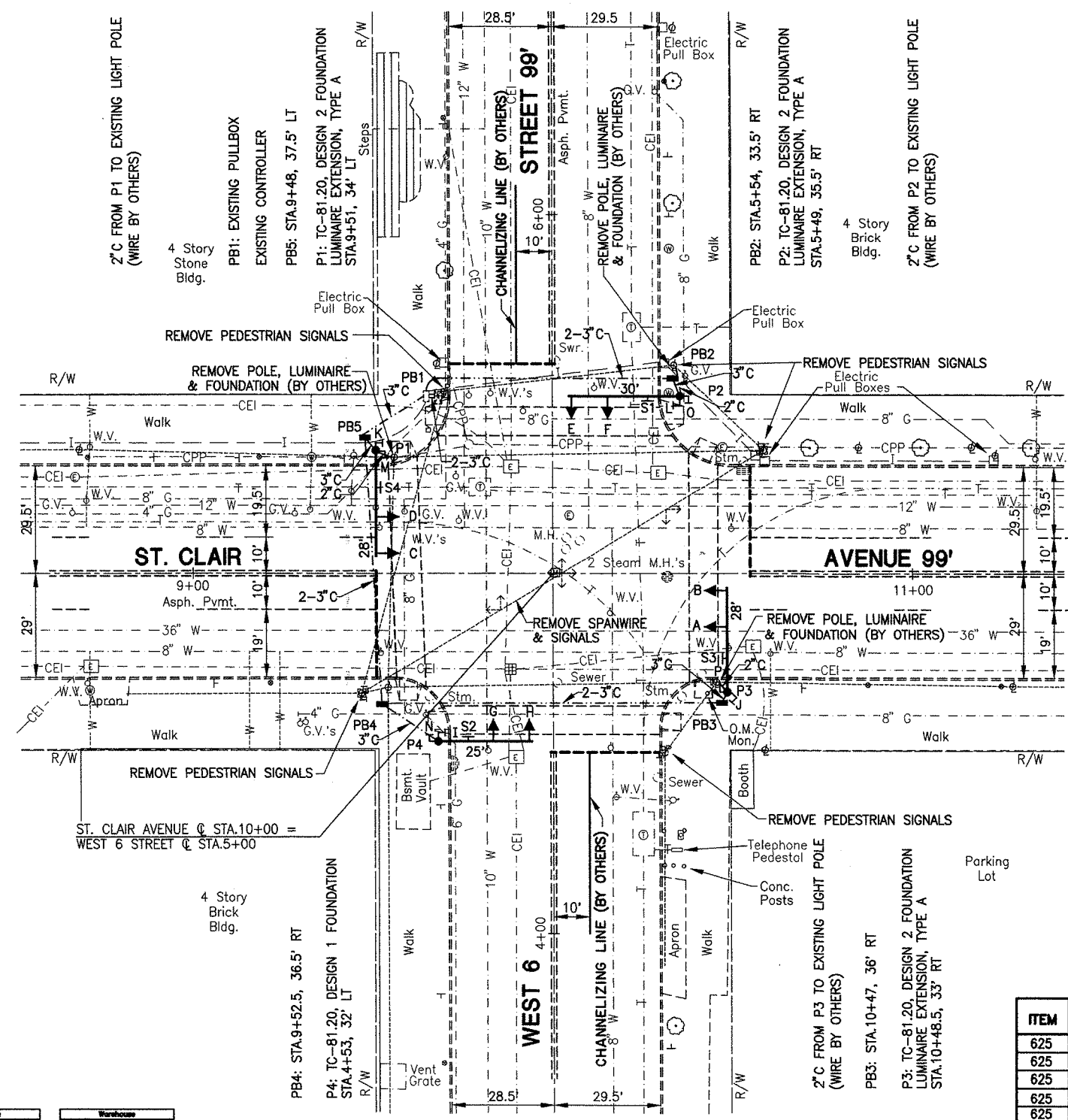
SIGNAL TIMING CHART



SIGN LEGEND



12" SIGNAL HEADS
RIGID MOUNTED



WIRE DIAGRAM

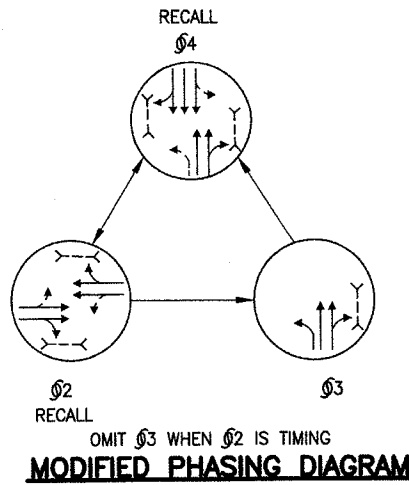
2C - PPB & LOOP DETECTOR LEAD
 5C - PEDESTRIAN SIGNAL
 7C - VEHICULAR SIGNAL
 4C - MICROWAVE DETECTOR LEAD
 3C #8 - SERVICE
 6 PR # 19 - INTERCONNECT

ITEM	TOTAL	UNIT	DESCRIPTION
625	4	EA	GROUND ROD
625	4	EA	PULLBOX, AS PER PLAN
625	133	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	180	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	18	LF	CONDUIT, 2", 713.07
625	177	LF	CONDUIT, 3", 713.07
625	360	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
630	56	SF	SIGN, FLAT SHEET, TYPE G
630	4	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
632	8	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	8	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	5.9	CY	CONCRETE FOR ANCHOR BASE FOUNDATION
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 25' ARM, A.P.P.
632	2	EA	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 2, WITH 28' ARM, AS PER PLAN
632	1	EA	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 2, WITH 30' ARM, AS PER PLAN
632	548	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	727	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	8	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER ITEM, MISC.: FIELD CONNECTIONS TO EXISTING CONTROLLER

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 86

FOR POLE CHART SEE SHEET 87.

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES.



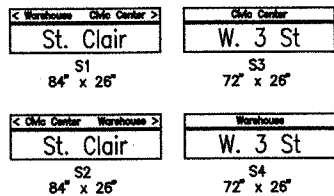
SIGNAL HEAD	phi 1		phi 2		phi 3		phi 4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A			G	Y R	R	R R	R	R R	Y	
B			G	Y R	R	R R	R	R R	Y	
C			G	Y R	R	R R	R	R R	Y	
D			G	Y R	R	R R	R	R R	Y	
E			R	R R	G	G G	G	Y R R		
F			R	R R	G	G G	G	Y R R		
G			R	R R	R	R R	G	Y R R		
H			R	R R	R	R R	G	Y R R		
I			W/(DW)	DW DW	DW	DW DW	DW	DW DW	D	
J			W/(DW)	DW DW	DW	DW DW	DW	DW DW	D	
K			W/(DW)	DW DW	DW	DW DW	DW	DW DW	D	
L			W/(DW)	DW DW	DW	DW DW	DW	DW DW	D	
M			DW	DW DW	DW	DW DW	W/(DW)	DW DW	D	
N			DW	DW DW	DW	DW DW	W/(DW)	DW DW	D	
O			DW	DW DW	W	W W	W/(DW)	DW DW	D	
P			DW	DW DW	W	W W	W/(DW)	DW DW	D	

W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK

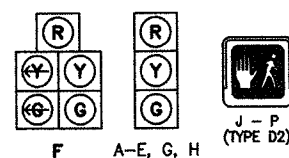
SIGNAL SEQUENCE CHART

FUNCTION	phi 1	phi 2	phi 3	phi 4
INITIAL GREEN		-	6	-
MINIMUM GREEN		20	-	-
VEHICLE EXTENSION		-	-	-
MAXIMUM GREEN		-	6	30
PEDESTRIAN WALK		7	-	9
PEDESTRIAN CLEAR.		14	-	13
VEH. YELLOW CLEAR.		3	3	3
VEHICLE RED CLEAR.		2	1.5	2
RECALL		PED	NO	PED
MEMORY		NO	NO	NO

SIGNAL TIMING CHART



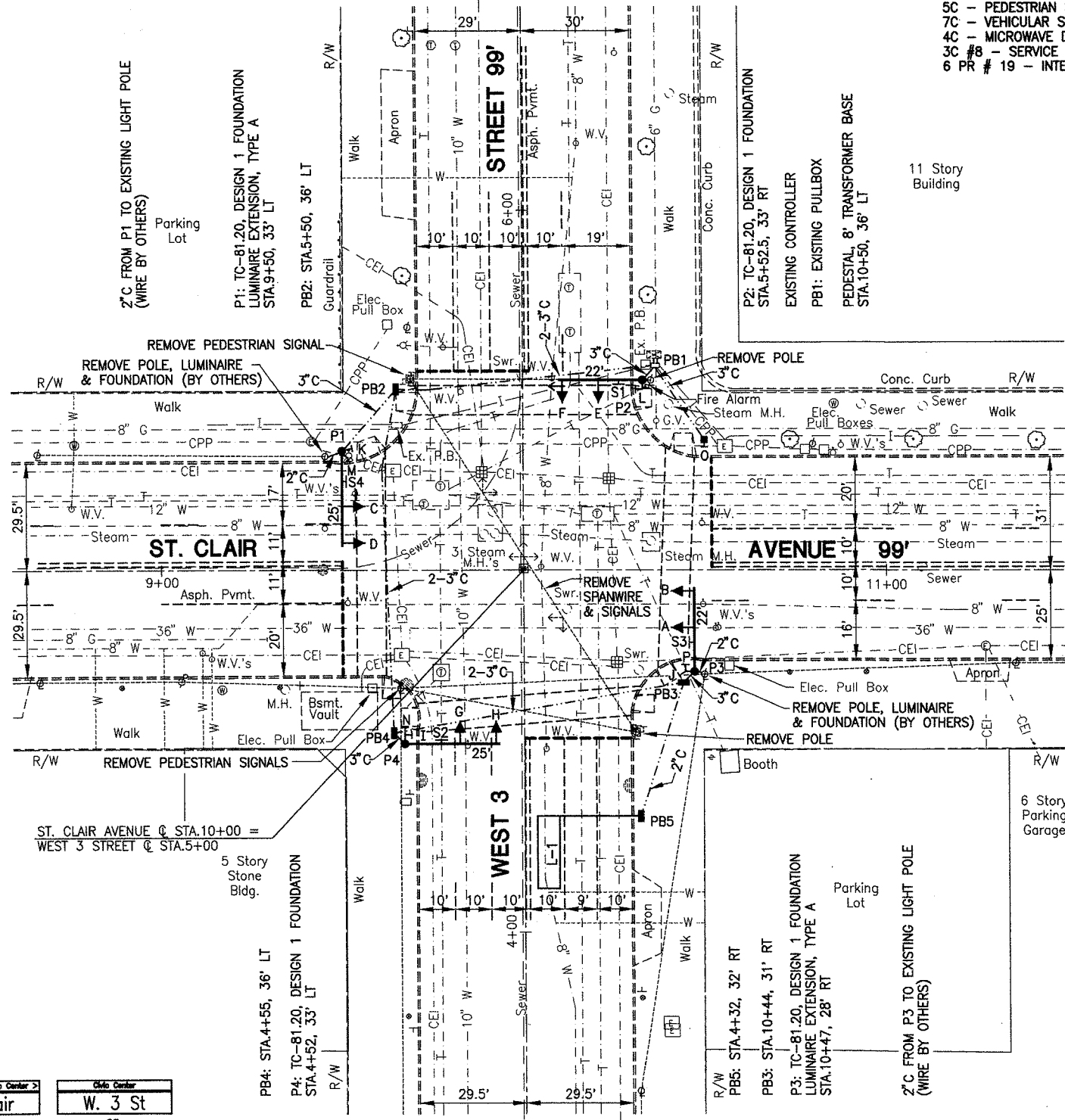
SIGN LEGEND



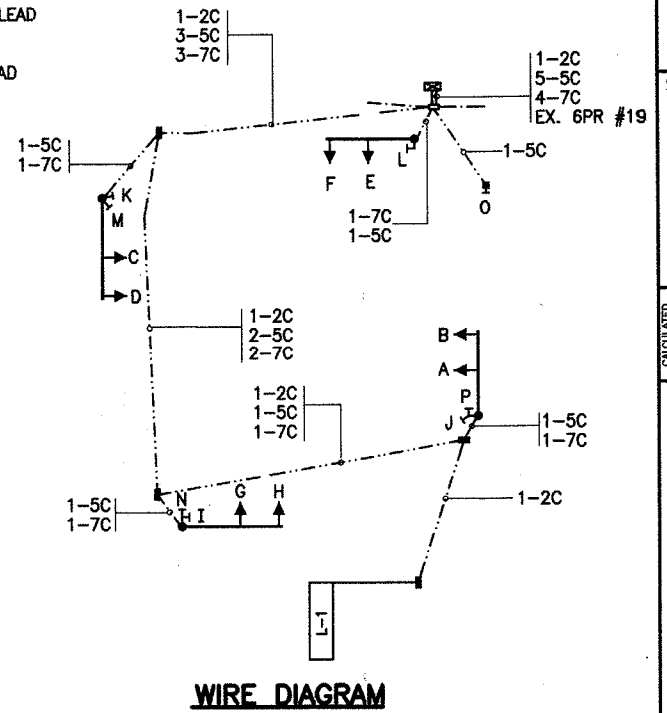
12" SIGNAL HEADS
RIGID MOUNTED

LOOP	SIZE	TURNS	MODE	DELAY	PHASE	REMARK	INHIBITED DELAY	LOCATION 1ST FRONT CORNER	LOCATION 2ND FRONT CORNER
L-1	6'X20'	2	PRESENCE	3	3		NO	STA.4+32, 9.5' R	STA.4+32, 3.5' R

LOOP DETECTOR CHART



- 2C - PPB & LOOP DETECTOR LEAD
- 5C - PEDESTRIAN SIGNAL
- 7C - VEHICULAR SIGNAL
- 4C - MICROWAVE DETECTOR LEAD
- 3C #8 - SERVICE
- 6 PR # 19 - INTERCONNECT



WIRE DIAGRAM

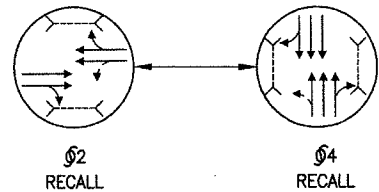
ITEM	TOTAL	UNIT	DESCRIPTION
625	5	EA	GROUND ROD
625	4	EA	PULLBOX, AS PER PLAN
625	171	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	185	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	45	LF	CONDUIT, 2", 713.07
625	191	LF	CONDUIT, 3", 713.07
625	370	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
630	56	SF	SIGN, FLAT SHEET, TYPE G
630	4	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
632	7	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	1	EA	VEHICULAR SIGNAL HEAD, 5-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	8	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	1	EA	LOOP DETECTOR UNIT, DELAY AND EXTENSION TYPE, AS PER PLAN
632	74	LF	LOOP DETECTOR PAVEMENT CUTTING
632	6.4	CY	CONCRETE FOR ANCHOR BASE FOUNDATION
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 22' ARM, A.P.P.
632	1	EA	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 22' ARM, AS PER PLAN
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 25' ARM, A.P.P.
632	1	EA	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 25' ARM, AS PER PLAN
632	1	EA	PEDESTAL, 8", TRANSFORMER BASE
632	680	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	773	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	158	LF	LOOP DETECTOR WIRE, TYPE E
632	321	LF	LOOP DETECTOR LEAD-IN CABLE
632	8	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER ITEM, MISC.: FIELD CONNECTIONS TO EXISTING CONTROLLER
633	1	EA	CONTROLLER ITEM, MISC.: MODIFY EXISTING CONTROLLER OPERATIONS

DATE: 01-21-1997 TIME: 12:51:56

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 86.

FOR POLE CHART SEE SHEET 87.

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES.



EXISTING PHASING DIAGRAM

SIGNAL HEAD	φ1		φ2		φ3		φ4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A			G	Y	R		R	R	Y	
B			G	Y	R		R	R	Y	
C			G	Y	R		R	R	Y	
D			G	Y	R		R	R	Y	
E			R	R	R		G	Y	R	R
F			R	R	R		G	Y	R	R
G			R	R	R		G	Y	R	R
H			R	R	R		G	Y	R	R
I			W/(DW)	DW	DW		DW	DW	DW	D
J			W/(DW)	DW	DW		DW	DW	DW	D
K			W/(DW)	DW	DW		DW	DW	DW	D
L			W/(DW)	DW	DW		DW	DW	DW	D
M			DW	DW	DW		W/(DW)	DW	DW	D
N			DW	DW	DW		W/(DW)	DW	DW	D
O			DW	DW	DW		W/(DW)	DW	DW	D
P			DW	DW	DW		W/(DW)	DW	DW	D

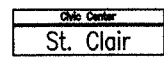
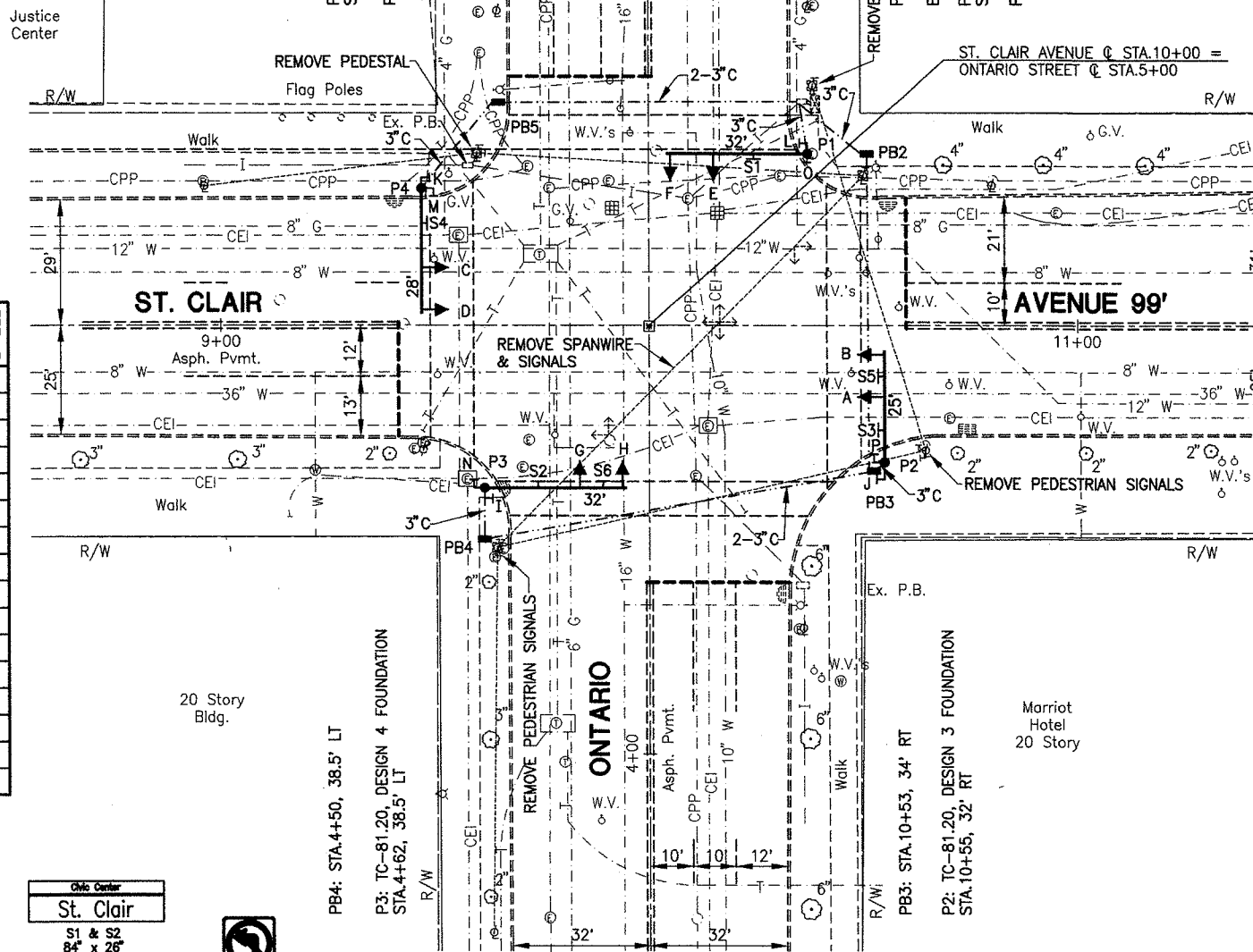
W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK

SIGNAL SEQUENCE CHART

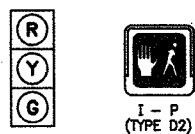
FUNCTION	φ1	φ2	φ3	φ4
INITIAL GREEN		-	-	-
MINIMUM GREEN		30	-	-
VEHICLE EXTENSION		-	-	-
MAXIMUM GREEN		-	-	35
PEDESTRIAN WALK		7	-	22
PEDESTRIAN CLEAR.		15	-	13
VEH. YELLOW CLEAR.		3	-	3
VEHICLE RED CLEAR.		2.5	-	2
RECALL		PED	-	PED
MEMORY		NO	-	NO

SIGNS S5 & S6 TO BE ILLUMINATED 6:30 - 9:30 AM AND 3:30 - 6:30 PM, M-F

SIGNAL TIMING CHART



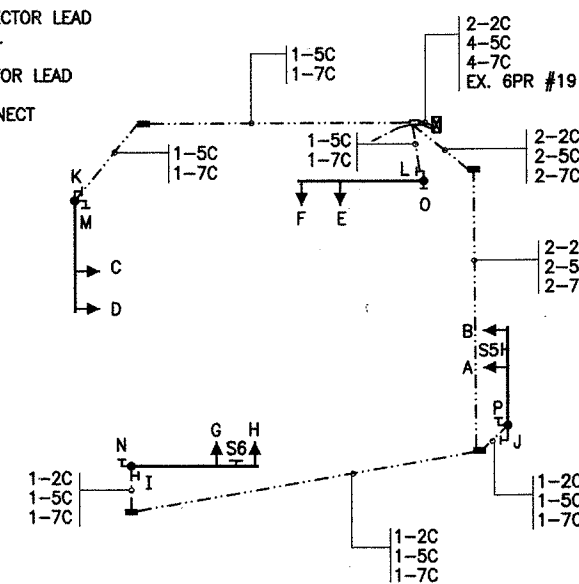
SIGN LEGEND



12" SIGNAL HEADS

RIGID MOUNTED

- 2C - PPB & LOOP DETECTOR LEAD
- 5C - PEDESTRIAN SIGNAL
- 7C - VEHICULAR SIGNAL
- 4C - MICROWAVE DETECTOR LEAD
- 3C #8 - SERVICE
- 6 PR # 19 - INTERCONNECT



WIRE DIAGRAM

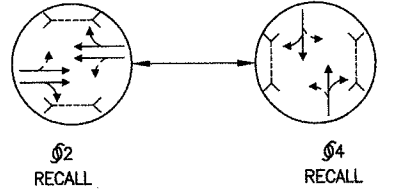
ITEM	TOTAL	UNIT	DESCRIPTION
625	4	EA	GROUND ROD
625	4	EA	PULLBOX, AS PER PLAN
625	113	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	202	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	150	LF	CONDUIT, 3", 713.07
625	404	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
630	69	SF	SIGN, FLAT SHEET, TYPE G
630	4	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
631	2	EA	CHANGEABLE MESSAGE SIGN, ELECTRIC TYPE, LIMITED MESSAGE, AS PER PLAN
632	8	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	8	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	7.5	CY	CONCRETE FOR ANCHOR BASE FOUNDATION
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 2, WITH 28" ARM, A.P.P.
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, WITH 25" ARM, A.P.P.
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, WITH 32" ARM, A.P.P.
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 32" ARM, A.P.P.
632	542	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	711	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	372	LF	LOOP DETECTOR LEAD-IN CABLE
632	8	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER ITEM, MISC.: FIELD CONNECTIONS TO EXISTING CONTROLLER

DATE: 01-21-1997 TIME: 13:09:21

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 86.

FOR POLE CHART SEE SHEET 87.

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES.



EXISTING PHASING DIAGRAM

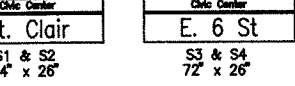
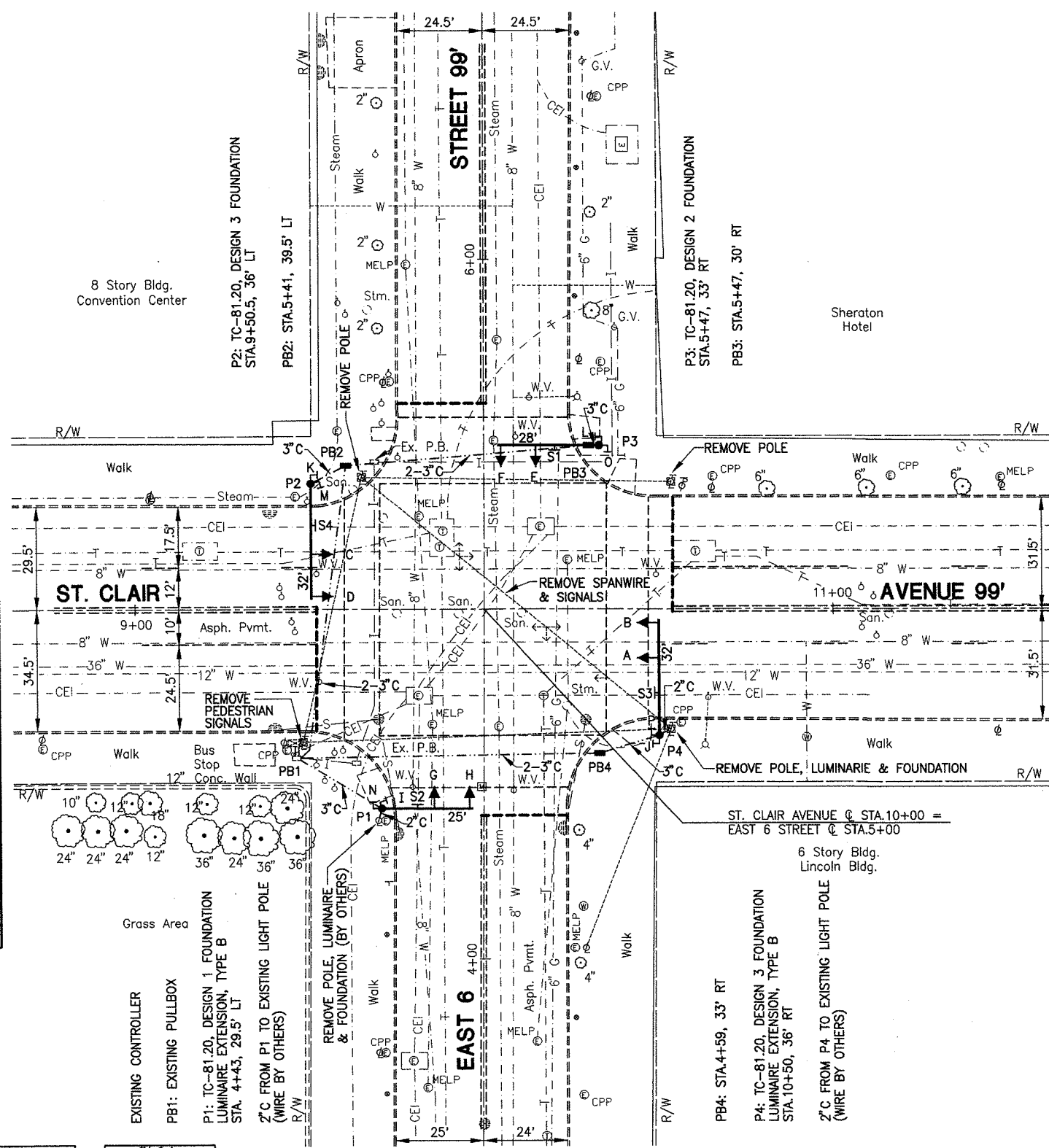
SIGNAL HEAD	φ1		φ2		φ3		φ4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A			G	Y	R		R	R	R	Y
B			G	Y	R		R	R	R	Y
C			G	Y	R		R	R	R	Y
D			G	Y	R		R	R	R	Y
E			R	R	R		G	Y	R	R
F			R	R	R		G	Y	R	R
G			R	R	R		G	Y	R	R
H			R	R	R		G	Y	R	R
I			W/(DW)	DW	DW		DW	DW	DW	D
J			W/(DW)	DW	DW		DW	DW	DW	D
K			W/(DW)	DW	DW		DW	DW	DW	D
L			W/(DW)	DW	DW		DW	DW	DW	D
M			DW	DW	DW		W/(DW)	DW	DW	D
N			DW	DW	DW		W/(DW)	DW	DW	D
O			DW	DW	DW		W/(DW)	DW	DW	D
P			DW	DW	DW		W/(DW)	DW	DW	D

W-WALK (DW)-FLASHING DONT WALK DW-DONT WALK D-DARK

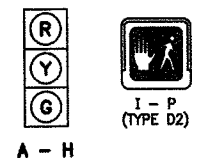
SIGNAL SEQUENCE CHART

FUNCTION	φ1	φ2	φ3	φ4
INITIAL GREEN		-		-
MINIMUM GREEN		30		-
VEHICLE EXTENSION		-		-
MAXIMUM GREEN		-		35
PEDESTRIAN WALK		7		20
PEDESTRIAN CLEAR.		12		15
VEH. YELLOW CLEAR.		3		3
VEHICLE RED CLEAR.		2		2.5
RECALL		PED		PED
MEMORY		NO		NO

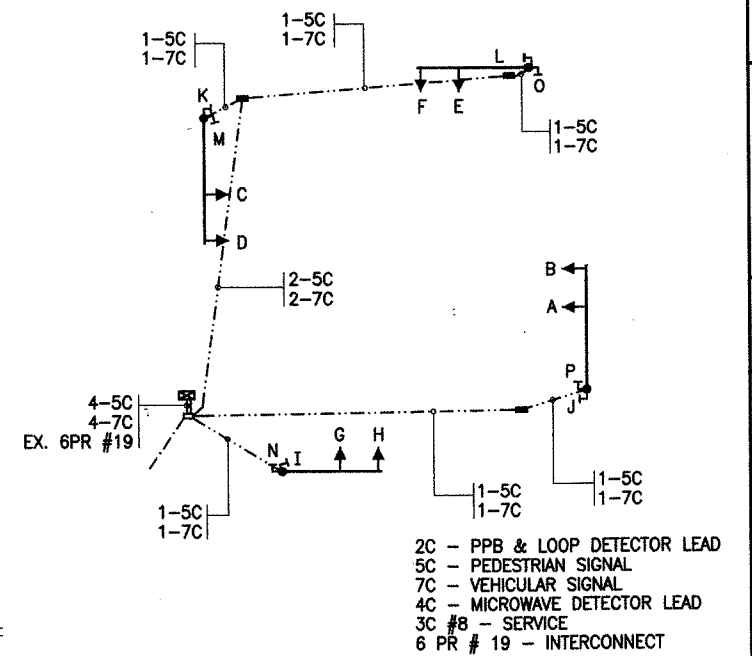
SIGNAL TIMING CHART



SIGN LEGEND



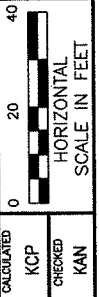
12" SIGNAL HEADS RIGID MOUNTED



WIRE DIAGRAM

- 2C - PPB & LOOP DETECTOR LEAD
- 5C - PEDESTRIAN SIGNAL
- 7C - VEHICULAR SIGNAL
- 4C - MICROWAVE DETECTOR LEAD
- 3C #8 - SERVICE
- 6 PR # 19 - INTERCONNECT

ITEM	TOTAL	UNIT	DESCRIPTION
625	4	EA	GROUND ROD
625	3	EA	PULLBOX, AS PER PLAN
625	132	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	180	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	8	LF	CONDUIT, 2", 713.07
625	186	LF	CONDUIT, 3", 713.07
625	360	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
625	2	EA	BRACKET ARM, 6", AS PER PLAN
630	56	SF	SIGN, FLAT SHEET, TYPE G
630	4	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
632	8	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	8	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	6.3	CY	CONCRETE FOR ANCHOR BASE FOUNDATION
632	1	EA	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 25' ARM, AS PER PLAN
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 2, WITH 28' ARM, A.P.P.
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, WITH 32' ARM, A.P.P.
632	1	EA	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, WITH 32' ARM, AS PER PLAN
632	521	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	705	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	8	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER ITEM, MISC.: FIELD CONNECTIONS TO EXISTING CONTROLLER



INTERSECTION OF ST. CLAIR AVENUE AND EAST 6 STREET

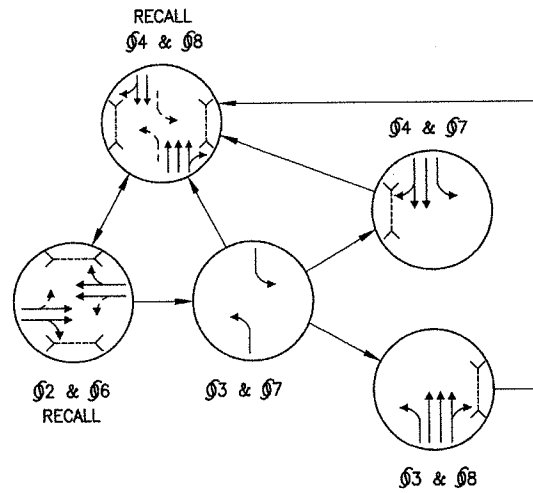
CUYAHOGA COUNTY
CUY-6-15.55 & VARIOUS

DATE: 01-21-1997 TIME: 13:27:50

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 86.

FOR POLE CHART SEE SHEET 87.

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES.



NEW PHASING DIAGRAM

SIGNAL HEAD	2 & 6		3 & 7		3 & 8		4 & 7		4 & 8		FLASH	DWELL	
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR			
A	G	Y	R	R	R	R	R	R	R	R	Y	D	
B	G	Y	R	R	R	R	R	R	R	R	Y	D	
C	G	Y	R	R	R	R	R	R	R	R	Y	D	
D	G	Y	R	R	R	R	R	R	R	R	Y	D	
E	R	R	R	R	R	R	R	G	G	G	Y	R	
F	R	R	R	R	R	R	R	G	G	G	Y	R	
G	R	R	R	R	R	R	R	G	G	G	Y	R	
H	R	R	R	R	R	R	R	G	G	G	Y	R	
I	R	R	R	R	R	R	R	G	G	G	Y	R	
J	W/(DW)	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	D	
K	W/(DW)	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	D	
L	W/(DW)	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	D	
M	W/(DW)	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	D	
N	DW	DW	DW	DW	DW	DW	DW	W	W	W	W/(DW)	DW	D
O	DW	DW	DW	DW	DW	DW	DW	W	W	W	W/(DW)	DW	D
P	DW	DW	DW	DW	DW	DW	DW	W	W	W	W/(DW)	DW	D
Q	DW	DW	DW	DW	DW	DW	DW	W	W	W	W/(DW)	DW	D

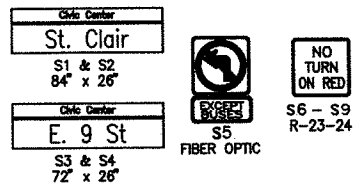
W-WALK (DW)-FLASHING DONT WALK DW-DONT WALK D-DARK

SIGNAL SEQUENCE CHART

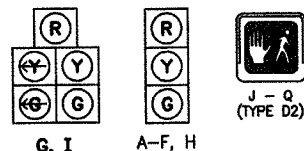
FUNCTION	2 & 6	3 & 7	4 & 8
INITIAL GREEN	-	4	-
MINIMUM GREEN	30	-	-
VEHICLE EXTENSION	-	2	-
MAXIMUM GREEN	-	10	30
PEDESTRIAN WALK	7	-	14
PEDESTRIAN CLEAR.	17	-	16
VEH. YELLOW CLEAR.	3	3	3
VEHICLE RED CLEAR.	2.5	1.5	2.5
RECALL	PED	NO	PED
MEMORY	NO	NO	NO
MAX.II PEDESTRIAN WALK			24
MAX.II MAXIMUM GREEN			40
MAX.II 6:00-9:00AM,M-F			

S6 TO BE ILLUMINATED 6:30 - 9:30 AM, M - F

SIGNAL TIMING CHART



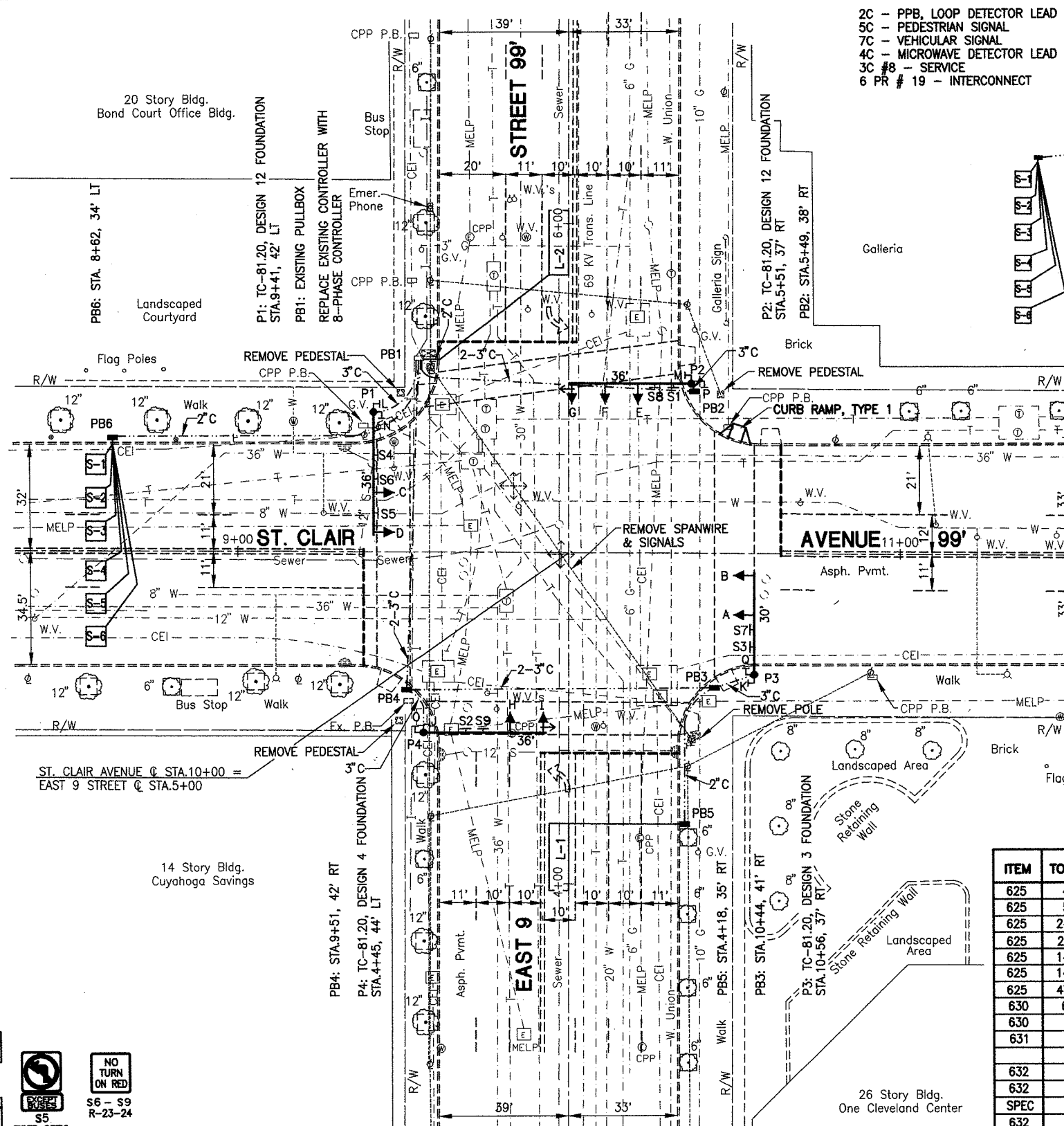
SIGN LEGEND



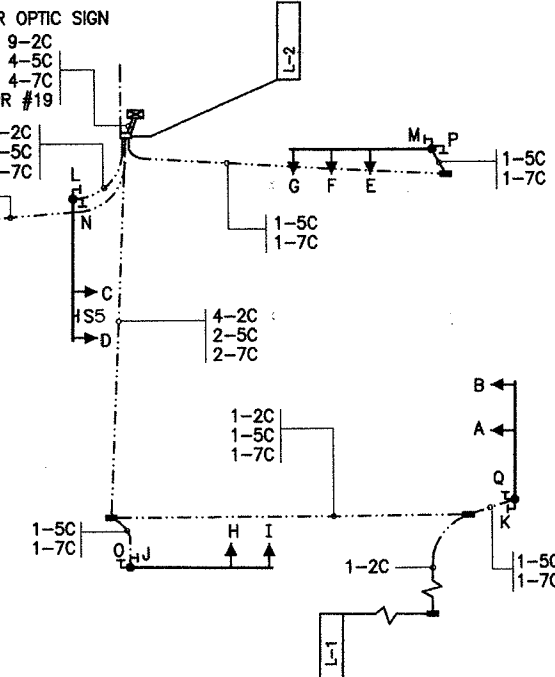
12\"/>

LOOP	SIZE	TURNS	MODE	DELAY	PHASE	REMARK	INHIBITED DELAY	LOCATION 1ST FRONT CORNER	LOCATION 2ND FRONT CORNER
L-1	6'X20'	2	PRESENCE	3	3		YES	STA.4+18, 6' L	STA.4+18, 0' L
L-2	6'X20'	2	PRESENCE	3	7		YES	STA.5+84, 0' L	STA.5+84, 6' L
S-1	6'X6'	3	BOTH			SYSTEM		STA.8+60, 29' L	STA.8+60, 23' L
S-2	6'X6'	3	BOTH			SYSTEM		STA.8+60, 19' L	STA.8+60, 13' L
S-3	6'X6'	3	BOTH			SYSTEM		STA.8+60, 9' L	STA.8+60, 3' L
S-4	6'X6'	3	BOTH			SYSTEM		STA.8+60, 3' R	STA.8+60, 9' R
S-5	6'X6'	3	BOTH			SYSTEM		STA.8+60, 13' R	STA.8+60, 19' R
S-6	6'X6'	3	BOTH			SYSTEM		STA.8+60, 23' R	STA.8+60, 29' R

LOOP DETECTOR CHART



- 2C - PPB, LOOP DETECTOR LEAD & FIBER OPTIC SIGN
- 5C - PEDESTRIAN SIGNAL
- 7C - VEHICULAR SIGNAL
- 4C - MICROWAVE DETECTOR LEAD
- 3C #8 - SERVICE
- 6 PR # 19 - INTERCONNECT



WIRE DIAGRAM

ITEM	TOTAL	UNIT	DESCRIPTION
625	4	EA	GROUND ROD
625	5	EA	PULLBOX, AS PER PLAN
625	249	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	241	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	149	LF	CONDUIT, 2", 713.07
625	147	LF	CONDUIT, 3", 713.07
625	472	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
630	69	SF	SIGN, FLAT SHEET, TYPE G
630	8	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
631	1	EA	CHANGEABLE MESSAGE SIGN, ELECTRIC TYPE, LIMITED MESSAGE, AS PER PLAN
632	7	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	2	EA	VEHICULAR SIGNAL HEAD, 5-SECTION, 12" LENS, 1-WAY, AS PER PLAN
SPEC	2	EA	FIBER OPTIC BLANK-OUT SIGN
632	8	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	3	EA	LOOP DETECTOR UNIT, DELAY AND EXTENSION TYPE, AS PER PLAN
632	542	LF	LOOP DETECTOR PAVEMENT CUTTING
632	10.2	CY	CONCRETE FOR ANCHOR BASE FOUNDATION
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, WITH 30' ARM, A.P.P.
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 36' ARM, A.P.P.
632	2	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 12, WITH 36' ARM, A.P.P.
632	546	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	736	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	1308	LF	LOOP DETECTOR WIRE, TYPE E
632	960	LF	LOOP DETECTOR LEAD-IN CABLE
632	9	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER, ACTUATED, 8 PHASE, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN

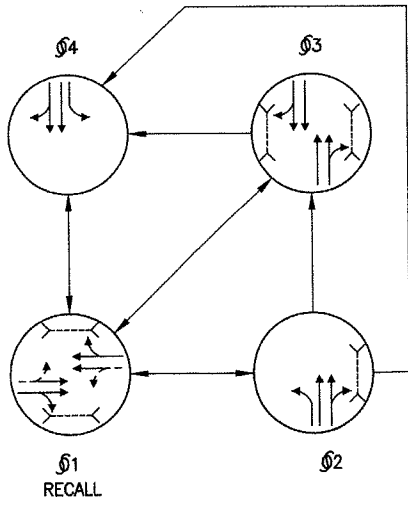
INTERSECTION OF ST. CLAIR AVENUE AND EAST 9 STREET
 CUYAHOGA COUNTY
 CUY-6-15.55 & VARIOUS
 SCALE IN FEET
 HORIZONTAL
 0 20 40
 CALCULATED KCP CHECKED KAN
 30 89

DATE: 01-21-1997 TIME: 13:59:55

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 86.

FOR POLE CHART SEE SHEET 87.

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES.



MODIFIED PHASING DIAGRAM

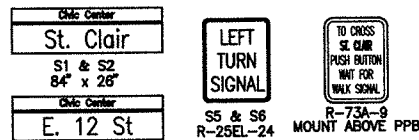
SIGNAL HEAD	S1		S2		S3		S4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A	G	Y R	R	R R	R	R R	R	R R	Y	G
B	G	Y R	R	R R	R	R R	R	R R	Y	G
C	G	Y R	R	R R	R	R R	R	R R	Y	G
D	G	Y R	R	R R	R	R R	R	R R	Y	G
E	R	R R	R	R R	R	R R	G	G G	Y	R R
F	R	R R	R	R R	G	G G	G	G G	Y	R R
G	R	R R	R	R R	R	R R	←G	←G	R	R R
H	R	R R	G	G G	G	Y R	G	Y R	R	R R
I	R	R R	G	G G	G	Y R	G	Y R	R	R R
J	R	R R	←G	←G	R	R R	R	R R	R	R R
K	W/(DW)	DW	DW	DW	DW	DW	DW	DW	DW	D W
L	W/(DW)	DW	DW	DW	DW	DW	DW	DW	DW	D W
M	W/(DW)	DW	DW	DW	DW	DW	DW	DW	DW	D W
N	W/(DW)	DW	DW	DW	DW	DW	DW	DW	DW	D W
O	W/(DW)	DW	DW	DW	DW	DW	DW	DW	DW	D W
P	W/(DW)	DW	DW	DW	DW	DW	DW	DW	DW	D W
Q	W/(DW)	DW	DW	DW	DW	DW	DW	DW	DW	D W
R	W/(DW)	DW	DW	DW	DW	DW	DW	DW	DW	D W
S	DW	DW	DW	DW	DW	W/(DW)	DW	DW	DW	D DW
T	DW	DW	DW	DW	DW	W/(DW)	DW	DW	DW	D DW
U	DW	DW	DW	W	W	W/(DW)	DW	DW	DW	D DW
V	DW	DW	DW	W	W	W/(DW)	DW	DW	DW	D DW

W-WALK (DW)-FLASHING DONT WALK DW-DONT WALK D-DARK

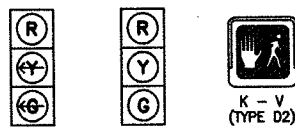
SIGNAL SEQUENCE CHART

FUNCTION	S1	S2	S3	S4
INITIAL GREEN	-	4	8	4
MINIMUM GREEN	24	-	-	-
VEHICLE EXTENSION	-	2	3	2
MAXIMUM GREEN	-	8	24	8
PEDESTRIAN WALK	7	-	7	-
PEDESTRIAN CLEAR.	10	-	14	-
VEH. YELLOW CLEAR.	3	3	3	3
VEHICLE RED CLEAR.	3	2.5	2.5	2.5
RECALL	PED	NO	NO	NO
MEMORY	NO	NO	NO	NO

SIGNAL TIMING CHART



SIGN LEGEND

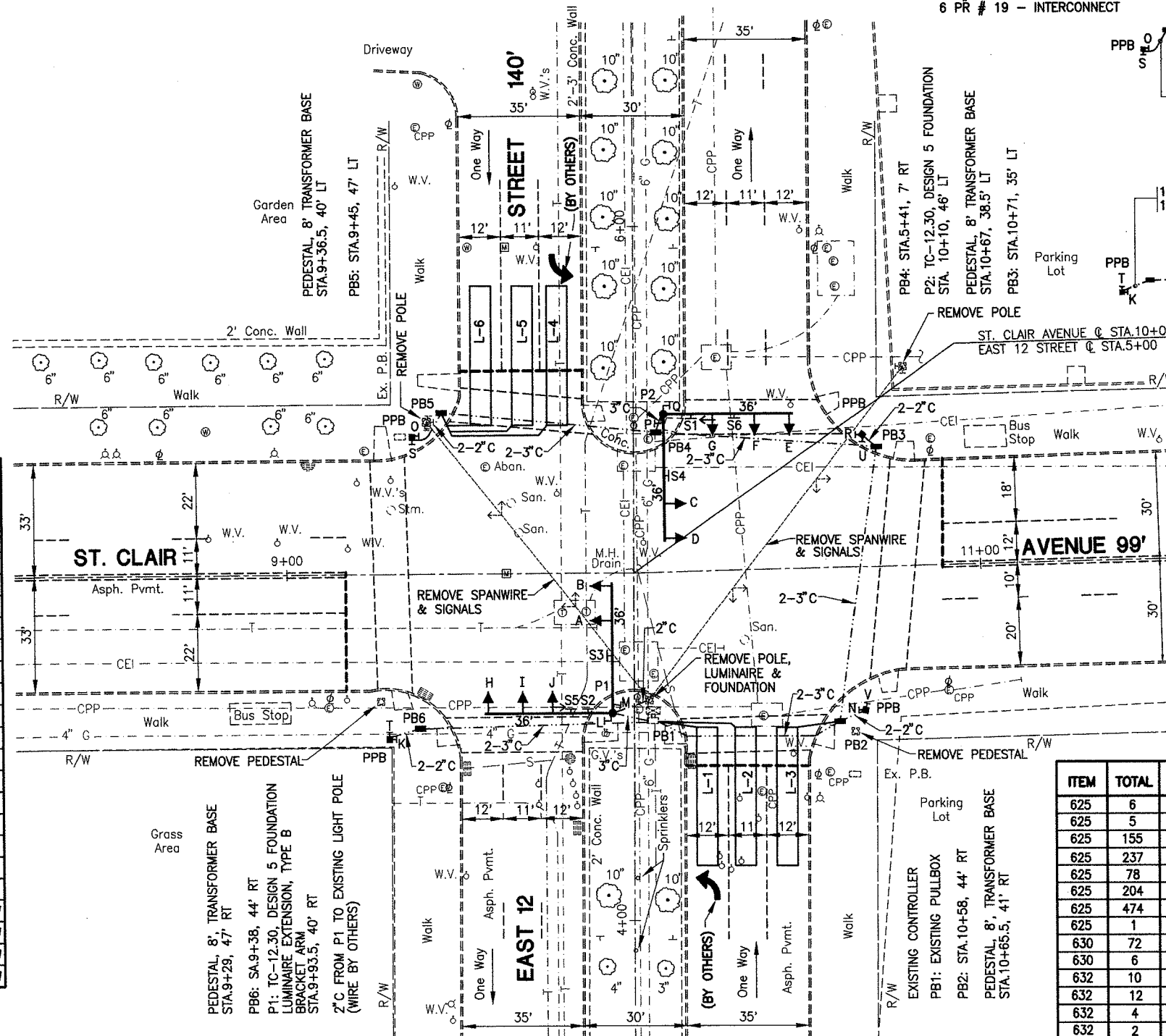


12" SIGNAL HEADS

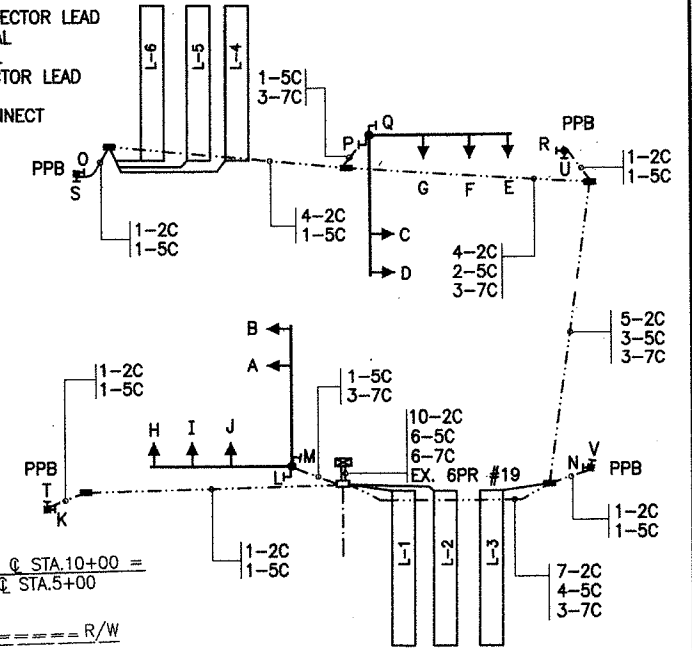
RIGID MOUNTED

LOOP	SIZE	TURNS	MODE	DELAY	PHASE	REMARK	INHIBITED DELAY	LOCATION 1ST FRONT CORNER	LOCATION 2ND FRONT CORNER
L-1	6'X40'	2	PRESENCE		2			STA.4+56, 18' R	STA.4+56, 24' R
L-2	6'X40'	2	PRESENCE		3			STA.4+56, 29' R	STA.4+56, 35' R
L-3	6'X40'	2	PRESENCE	8	3		NO	STA.4+56, 41' R	STA.4+56, 47' R
L-4	6'X40'	2	PRESENCE		4			STA.5+43, 19' L	STA.5+43, 25' L
L-5	6'X40'	2	PRESENCE		3			STA.5+43, 29' L	STA.5+43, 35' L
L-6	6'X40'	2	PRESENCE	8	3		NO	STA.5+43, 41' L	STA.5+43, 47' L

LOOP DETECTOR CHART



- 2C - PPB & LOOP DETECTOR LEAD
- 5C - PEDESTRIAN SIGNAL
- 7C - VEHICULAR SIGNAL
- 4C - MICROWAVE DETECTOR LEAD
- 3C - SERVICE
- PR # 19 - INTERCONNECT



WIRE DIAGRAM

ITEM	TOTAL	UNIT	DESCRIPTION
625	6	EA	GROUND ROD
625	5	EA	PULLBOX, AS PER PLAN
625	155	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	237	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	78	LF	CONDUIT, 2", 713.07
625	204	LF	CONDUIT, 3", 713.07
625	474	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
625	1	EA	BRACKET ARM, 6", AS PER PLAN
630	72	SF	SIGN, FLAT SHEET, TYPE G
630	6	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
632	10	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	12	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	4	EA	PEDESTRIAN PUSHBUTTON, AS PER PLAN
632	2	EA	LOOP DETECTOR UNIT, DELAY AND EXTENSION TYPE, AS PER PLAN
632	675	LF	LOOP DETECTOR PAVEMENT CUTTING
632	7.2	CY	CONCRETE FOR ANCHOR BASE FOUNDATION
632	1	EA	SIGNAL SUPPORT, TYPE TC-12.30 DESIGN 5 POLE, WITH MAST ARMS TC-81.20 DESIGN 4, 36 FEET AND TC-81.20 DESIGN 4, 36 FEET, AS PER PLAN
632	1	EA	COMBINATION SIGNAL SUPPORT, TYPE TC-12.30 DESIGN 5 POLE, WITH MAST ARMS TC-81.20 DESIGN 4, 36 FEET AND TC-81.20 DESIGN 4, 36 FEET, AS PER PLAN
632	4	EA	PEDESTAL, 8", TRANSFORMER BASE
632	953	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	1140	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	1410	LF	LOOP DETECTOR WIRE, TYPE E
632	1636	LF	LOOP DETECTOR LEAD-IN CABLE
632	10	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER ITEM, MISC.: FIELD CONNECTIONS TO EXISTING CONTROLLER
633	1	EA	CONTROLLER ITEM, MISC.: MODIFY EXISTING CONTROLLER OPERATIONS

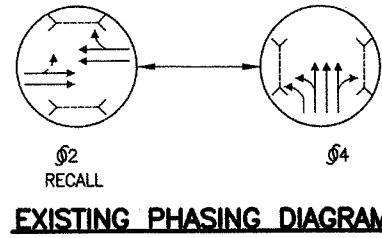
INTERSECTION OF ST. CLAIR AVENUE AND EAST 12 STREET

CUYAHOGA COUNTY
CUY-6-15.55 & VARIOUS

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 86.

FOR POLE CHART SEE SHEET 87.

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES.



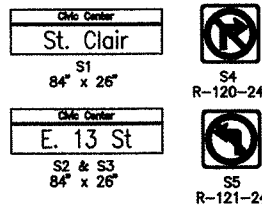
SIGNAL HEAD	φ1		φ2		φ3		φ4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A			G	Y R			R	R R Y	G	G
B			G	Y R			R	R R Y	G	G
C			G	Y R			R	R R Y	G	G
D			G	Y R			R	R R Y	G	G
E			R	R R			G	Y R R R	R	R
F			R	R R			G	Y R R R	R	R
G			R	R R			G	Y R R R	R	R
H			W/(DW)	DW DW			DW	DW DW D	W	W
I			W/(DW)	DW DW			DW	DW DW D	W	W
J			W/(DW)	DW DW			DW	DW DW D	W	W
K			W/(DW)	DW DW			DW	DW DW D	W	W
L			DW	DW DW			W/(DW)	DW DW D	DW	DW
M			DW	DW DW			W/(DW)	DW DW D	DW	DW
N			DW	DW DW			W/(DW)	DW DW D	DW	DW
O			DW	DW DW			W/(DW)	DW DW D	DW	DW

W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK

SIGNAL SEQUENCE CHART

FUNCTION	φ1	φ2	φ3	φ4
INITIAL GREEN		-		8
MINIMUM GREEN		30		-
VEHICLE EXTENSION		-		2
MAXIMUM GREEN		-		35
PEDESTRIAN WALK		7		21
PEDESTRIAN CLEAR.		11		14
VEH. YELLOW CLEAR.		3		3
VEHICLE RED CLEAR.		2.5		2.5
RECALL		PED		NO
MEMORY		NO		YES

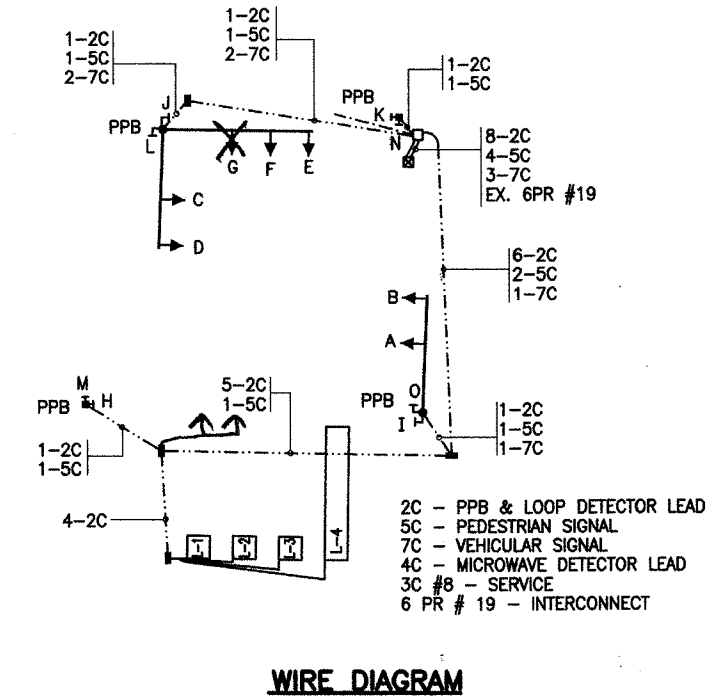
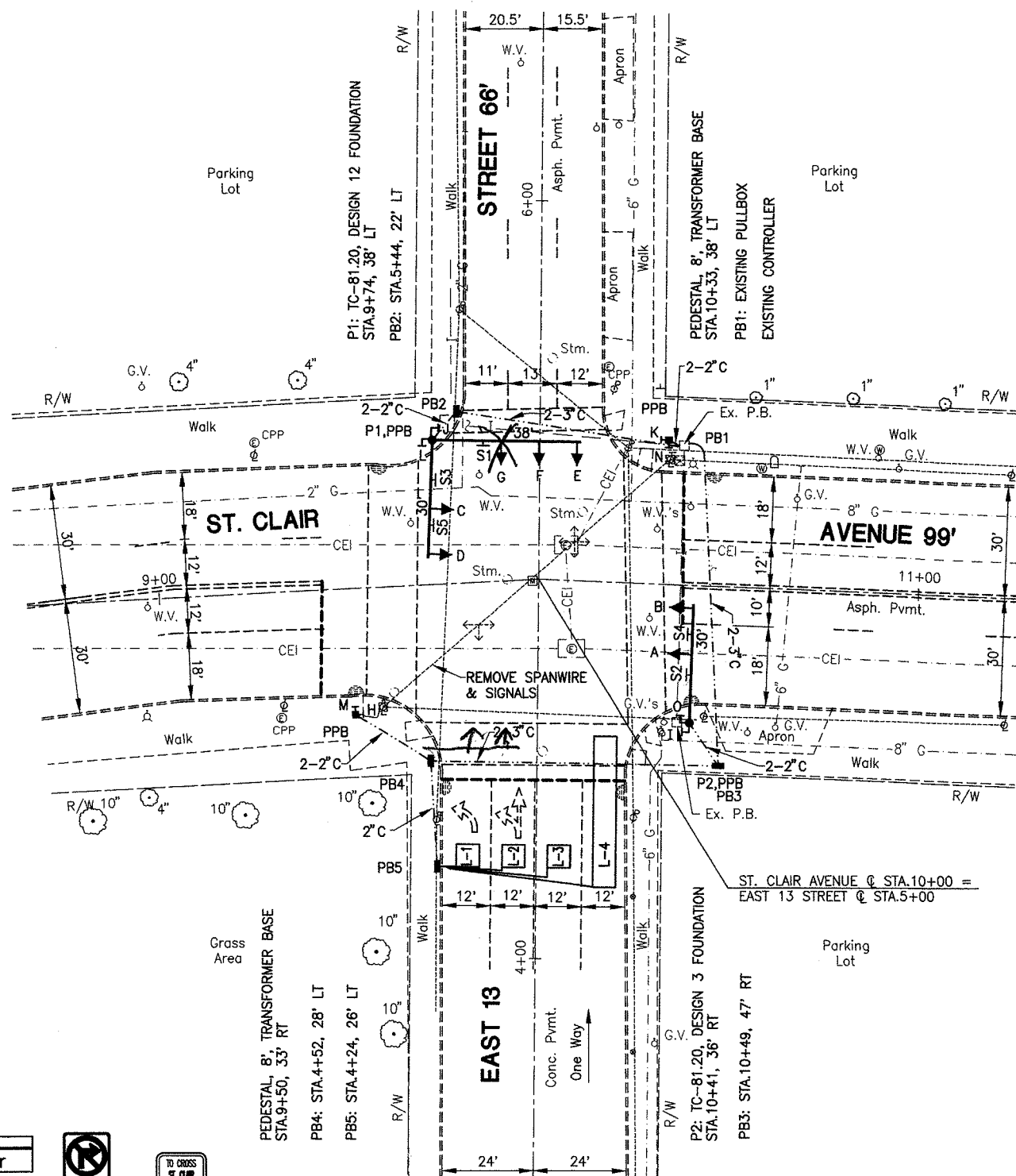
SIGNAL TIMING CHART



12" SIGNAL HEADS
RIGID MOUNTED

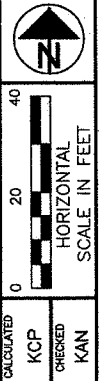
LOOP	SIZE	TURNS	MODE	DELAY	PHASE	REMARK	INHIBITED DELAY	LOCATION 1ST FRONT CORNER	LOCATION 2ND FRONT CORNER
L-1	6'X6'	2			4	LOCK		STA.4+30, 21' L	STA.4+30, 15' L
L-2	6'X6'	2			4	LOCK		STA.4+30, 9' L	STA.4+30, 3' L
L-3	6'X6'	2			4	LOCK		STA.4+30, 3' R	STA.4+30, 9' R
L-4	6'X40'	2	PRESENCE	8	4		NO	STA.4+60, 15' R	STA.4+60, 21' R

LOOP DETECTOR CHART



ITEM	TOTAL	UNIT	DESCRIPTION
625	4	EA	GROUND ROD
625	4	EA	PULLBOX, AS PER PLAN
625	156	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	154	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	142	LF	CONDUIT, 2", 713.07
625	158	LF	CONDUIT, 3", 713.07
625	292	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
630	56	SF	SIGN, FLAT SHEET, TYPE G
630	5	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
632	7	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	8	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	4	EA	PEDESTRIAN PUSHBUTTON, AS PER PLAN
632	1	EA	LOOP DETECTOR UNIT, DELAY AND EXTENSION TYPE, AS PER PLAN
632	258	LF	LOOP DETECTOR PAVEMENT CUTTING
632	5.5	CY	CONCRETE FOR ANCHOR BASE FOUNDATION
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, WITH 30' ARM
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20 DESIGN 12 POLE, WITH MAST ARMS TC-81.20 DESIGN 3, 30 FEET AND TC-81.20 DESIGN 4, 38 FEET, AS PER PLAN
632	2	EA	PEDESTAL, 8", TRANSFORMER BASE
632	518	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	481	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	588	LF	LOOP DETECTOR WIRE, TYPE E
632	1362	LF	LOOP DETECTOR LEAD-IN CABLE
632	7	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER ITEM, MISC.: FIELD CONNECTIONS TO EXISTING CONTROLLER
633	1	EA	CONTROLLER ITEM, MISC.: MODIFY EXISTING CONTROLLER OPERATIONS

INTERSECTION OF ST. CLAIR AVENUE AND EAST 13 STREET
 CUYAHOGA COUNTY
 CUY-6-15.55 & VARIOUS

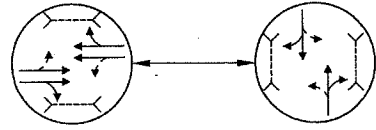


DATE: 01-21-1987 TIME: 14:31:50

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 86.

FOR POLE CHART SEE SHEET 87.

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES.



EXISTING PHASING DIAGRAM

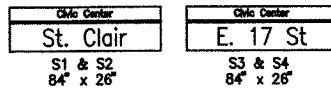
SIGNAL HEAD	φ1		φ2		φ3		φ4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A			G	Y	R		R	R	Y	G
B			G	Y	R		R	R	Y	G
C			G	Y	R		R	R	Y	G
D			G	Y	R		R	R	Y	G
E			R	R	R		G	Y	R	R
F			R	R	R		G	Y	R	R
G			R	R	R		G	Y	R	R
H			R	R	R		G	Y	R	R
I			W/(DW)	DW	DW		DW	DW	DW	DW
J			W/(DW)	DW	DW		DW	DW	DW	DW
K			W/(DW)	DW	DW		DW	DW	DW	DW
L			W/(DW)	DW	DW		DW	DW	DW	DW
M			DW	DW	DW		W/(DW)	DW	DW	DW
N			DW	DW	DW		W/(DW)	DW	DW	DW
O			DW	DW	DW		W/(DW)	DW	DW	DW
P			DW	DW	DW		W/(DW)	DW	DW	DW

W-WALK (DW)-FLASHING DONT WALK DW-DONT WALK D-DARK

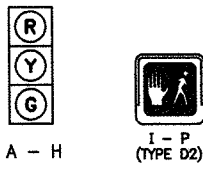
SIGNAL SEQUENCE CHART

FUNCTION	φ1	φ2	φ3	φ4
INITIAL GREEN		-		8
MINIMUM GREEN		30		-
VEHICLE EXTENSION		-		3
MAXIMUM GREEN		-		25
PEDESTRIAN WALK		7		7
PEDESTRIAN CLEAR.		8		13
VEH. YELLOW CLEAR.		3		3
VEHICLE RED CLEAR.		1.5		2
RECALL		PED		NO
MEMORY		NO		NO

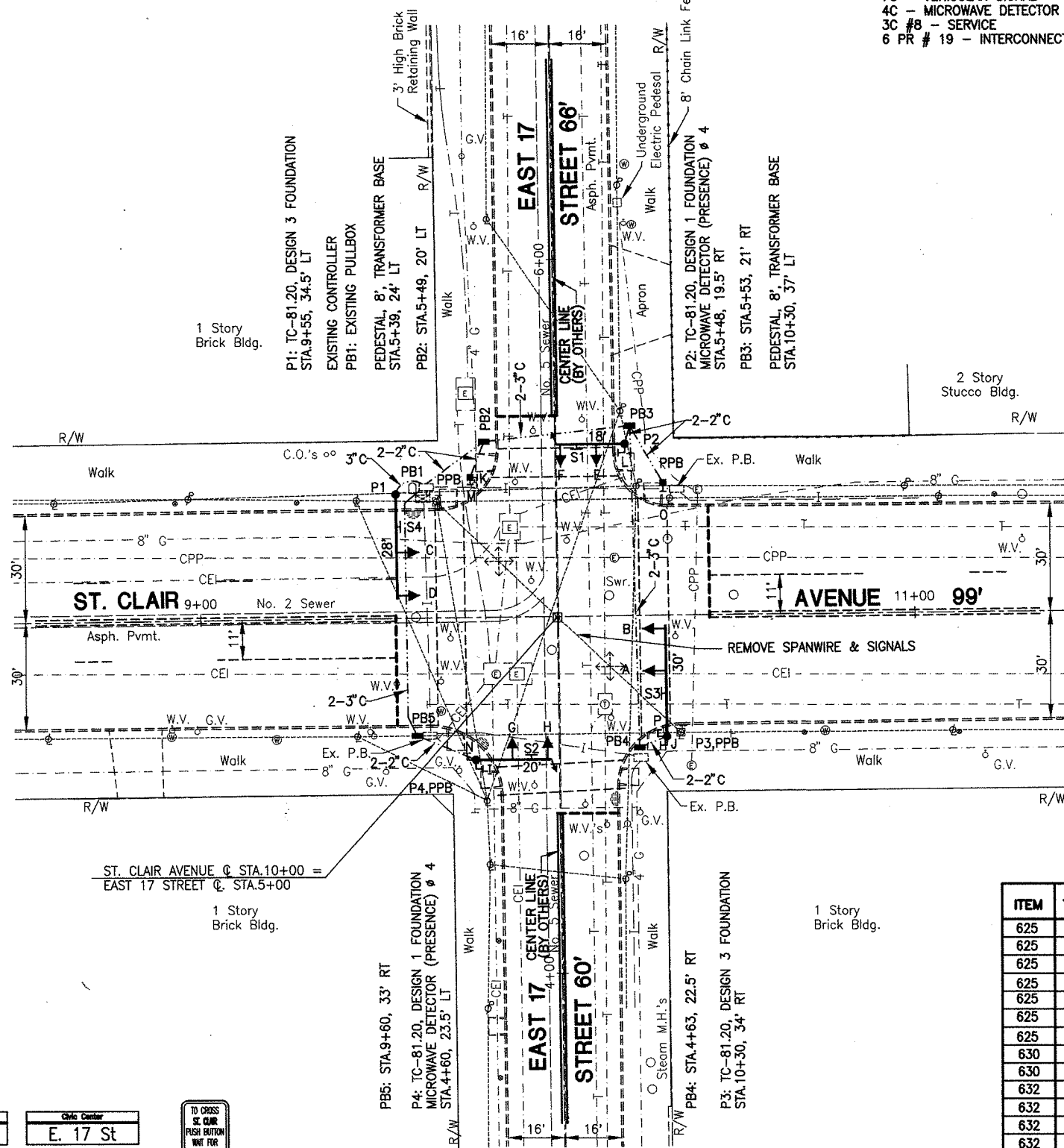
SIGNAL TIMING CHART



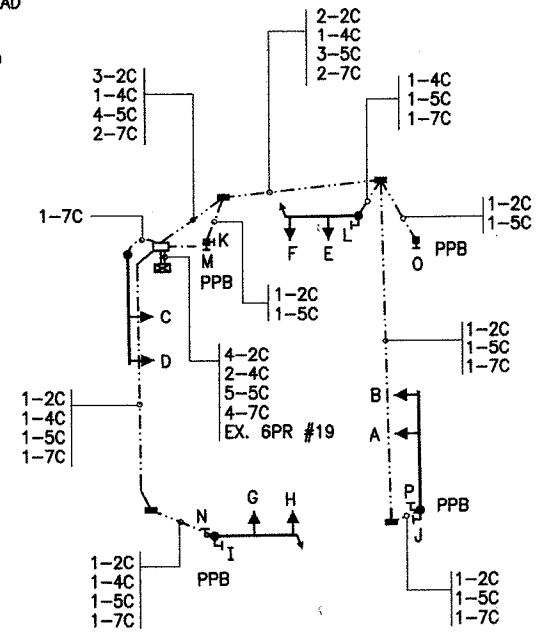
SIGN LEGEND



12" SIGNAL HEADS RIGID MOUNTED



- 2C - PPB & LOOP DETECTOR LEAD
- 5C - PEDESTRIAN SIGNAL
- 7C - VEHICULAR SIGNAL
- 4C - MICROWAVE DETECTOR LEAD
- 3C #8 - SERVICE
- 6 PR # 19 - INTERCONNECT



WIRE DIAGRAM

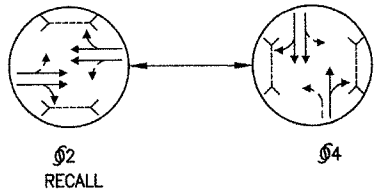
100% CITY PARTICIPATION

ITEM	TOTAL	UNIT	DESCRIPTION
625	6	EA	GROUND ROD
625	4	EA	PULLBOX, AS PER PLAN
625	135	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	161	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	162	LF	CONDUIT, 2", 713.07
625	98	LF	CONDUIT, 3", 713.07
625	322	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
630	59	SF	SIGN, FLAT SHEET, TYPE G
630	4	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
632	8	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	8	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	4	EA	PEDESTRIAN PUSHBUTTON, AS PER PLAN
632	2	EA	SIGNALIZATION, MISC.: MICROWAVE DETECTOR
632	7.2	CY	CONCRETE FOR ANCHOR BASE FOUNDATION
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 18' ARM, A.P.P.
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 20' ARM, A.P.P.
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, WITH 28' ARM, A.P.P.
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, WITH 30' ARM, A.P.P.
632	2	EA	PEDESTAL, 8', TRANSFORMER BASE
632	619	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	615	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	509	LF	LOOP DETECTOR LEAD-IN CABLE
632	293	LF	SIGNALIZATION, MISC.: MICROWAVE DETECTOR LEAD-IN CABLE
632	8	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER ITEM, MISC.: FIELD CONNECTIONS TO EXISTING CONTROLLER
633	1	EA	CONTROLLER ITEM, MISC.: MODIFY EXISTING CONTROLLER OPERATIONS

INTERSECTION OF ST. CLAIR AVENUE AND EAST 17 STREET

CUYAHOGA COUNTY CUY-6-15.55 & VARIOUS

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 86.
 FOR POLE CHART SEE SHEET 87.
 EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES.



EXISTING PHASING DIAGRAM

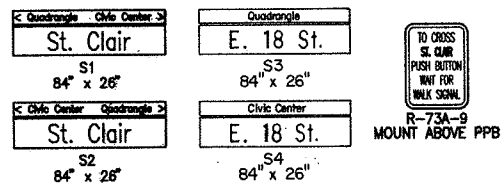
SIGNAL HEAD	φ1		φ2		φ3		φ4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A			G	Y R			R	R R Y G		
B			G	Y R			R	R R Y G		
C			G	Y R			R	R R Y G		
D			G	Y R			R	R R Y G		
E			R	R R			G	Y R R R		
F			R	R R			G	Y R R R		
G			R	R R			G	Y R R R		
H			R	R R			G	Y R R R		
I			W/(DW)	DW DW			DW	DW DW D W		
J			W/(DW)	DW DW			DW	DW DW D W		
K			W/(DW)	DW DW			DW	DW DW D W		
L			W/(DW)	DW DW			DW	DW DW D W		
M			DW	DW DW			W/(DW)	DW DW D DW		
N			DW	DW DW			W/(DW)	DW DW D DW		
O			DW	DW DW			W/(DW)	DW DW D DW		
P			DW	DW DW			W/(DW)	DW DW D DW		

W-WALK (DW)-FLASHING DONT WALK DW-DONT WALK D-DARK

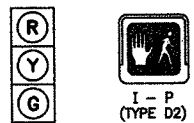
SIGNAL SEQUENCE CHART

FUNCTION	φ1	φ2	φ3	φ4
INITIAL GREEN		-		8
MINIMUM GREEN		30		-
VEHICLE EXTENSION		-		3
MAXIMUM GREEN		-		35
PEDESTRIAN WALK		7		19
PEDESTRIAN CLEAR.		15		16
VEH. YELLOW CLEAR.		3		3
VEHICLE RED CLEAR.		3		2
RECALL		PED		NO
MEMORY		NO		NO

SIGNAL TIMING CHART



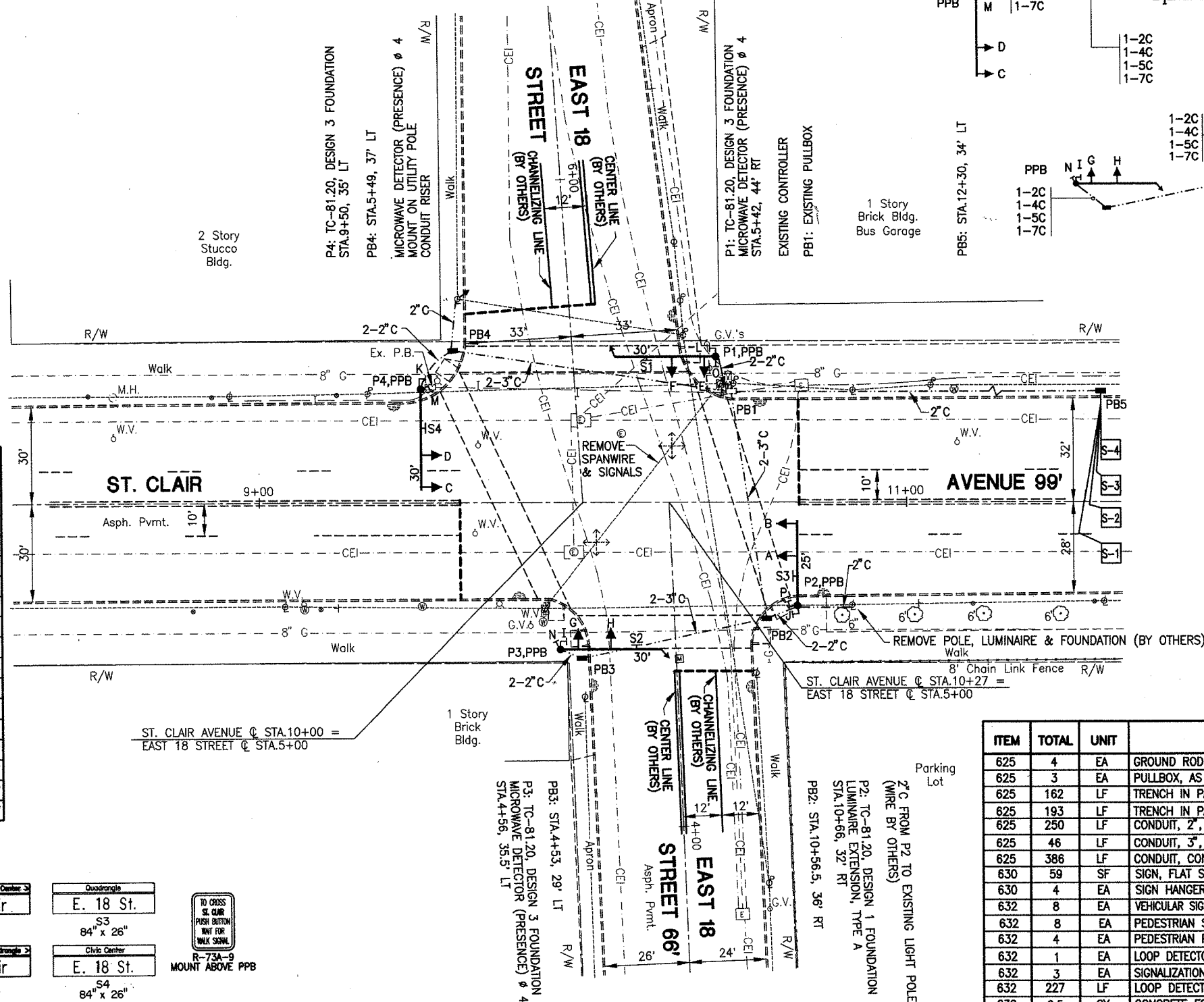
SIGN LEGEND



12" SIGNAL HEADS RIGID MOUNTED

LOOP	SIZE	TURNS	MODE	DELAY	PHASE	REMARK	INHIBITED DELAY	LOCATION 1ST FRONT CORNER	LOCATION 2ND FRONT CORNER
S-1	6'X6'	3	BOTH			SYSTEM		STA.12+30, 19' R	STA.12+30, 13' R
S-2	6'X6'	3	BOTH			SYSTEM		STA.12+30, 8' R	STA.12+30, 2' R
S-3	6'X6'	3	BOTH			SYSTEM		STA.12+30, 2' L	STA.12+30, 8' L
S-4	6'X6'	3	BOTH			SYSTEM		STA.12+30, 13' L	STA.12+30, 19' L

LOOP DETECTOR CHART



WIRE DIAGRAM

2C - PPB & LOOP DETECTOR LEAD
 5C - PEDESTRIAN SIGNAL
 7C - VEHICULAR SIGNAL
 4C - MICROWAVE DETECTOR LEAD
 3C #8 - SERVICE
 6 PR # 19 - INTERCONNECT

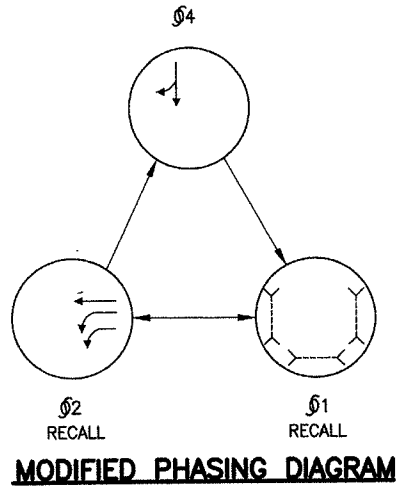
ITEM	TOTAL	UNIT	DESCRIPTION
625	4	EA	GROUND ROD
625	3	EA	PULLBOX, AS PER PLAN
625	162	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	193	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	250	LF	CONDUIT, 2", 713.07
625	46	LF	CONDUIT, 3", 713.07
625	386	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
630	59	SF	SIGN, FLAT SHEET, TYPE G
630	4	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
632	8	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	8	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	4	EA	PEDESTRIAN PUSHBUTTON, AS PER PLAN
632	1	EA	LOOP DETECTOR UNIT, DELAY AND EXTENSION TYPE, AS PER PLAN
632	3	EA	SIGNALIZATION, MISC.: MICROWAVE DETECTOR
632	227	LF	LOOP DETECTOR PAVEMENT CUTTING
632	6.5	CY	CONCRETE FOR ANCHOR BASE FOUNDATION
632	1	EA	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 25' ARM, AS PER PLAN
632	3	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, WITH 30' ARM, A.P.P.
632	1	EA	CONDUIT RISER, 2" DIAMETER
632	466	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	641	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	590	LF	LOOP DETECTOR WIRE, TYPE E
632	1251	LF	LOOP DETECTOR LEAD-IN CABLE
632	596	LF	SIGNALIZATION, MISC.: MICROWAVE DETECTOR LEAD-IN CABLE
632	8	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER ITEM, MISC.: FIELD CONNECTIONS TO EXISTING CONTROLLER
633	1	EA	CONTROLLER ITEM, MISC.: MODIFY EXISTING CONTROLLER OPERATIONS

INTERSECTION OF ST. CLAIR AVENUE AND EAST 18 STREET

CUYAHOGA COUNTY
 CUY-6-15.55 & VARIOUS

DATE: 01-22-1997 TIME: 10:43:16

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 86.
 FOR POLE CHART SEE SHEET 87.
 EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES.

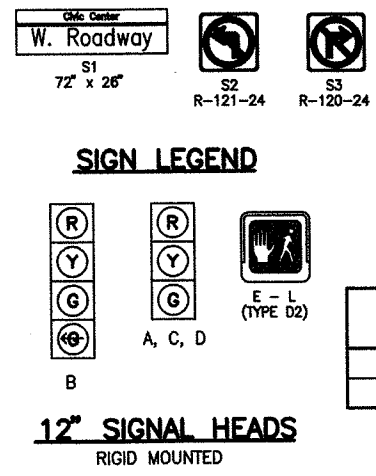


SIGNAL HEAD	S1		S2		S3		S4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A	R	R	R	G	Y	R	R	R	R	
B	R	R	R	G	Y	R	R	R	R	
C	R	R	R	R	R	R	G	Y	R	R
D	R	R	R	R	R	R	G	Y	R	R
E	W/(DW)	DW	DW	DW	DW	DW	DW	DW	DW	D
F	W/(DW)	DW	DW	DW	DW	DW	DW	DW	DW	D
G	W/(DW)	DW	DW	DW	DW	DW	DW	DW	DW	D
H	W/(DW)	DW	DW	DW	DW	DW	DW	DW	DW	D
I	W/(DW)	DW	DW	DW	DW	DW	DW	DW	DW	D
J	W/(DW)	DW	DW	DW	DW	DW	DW	DW	DW	D
K	W/(DW)	DW	DW	DW	DW	DW	DW	DW	DW	D
L	W/(DW)	DW	DW	DW	DW	DW	DW	DW	DW	D

W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK
SIGNAL SEQUENCE CHART

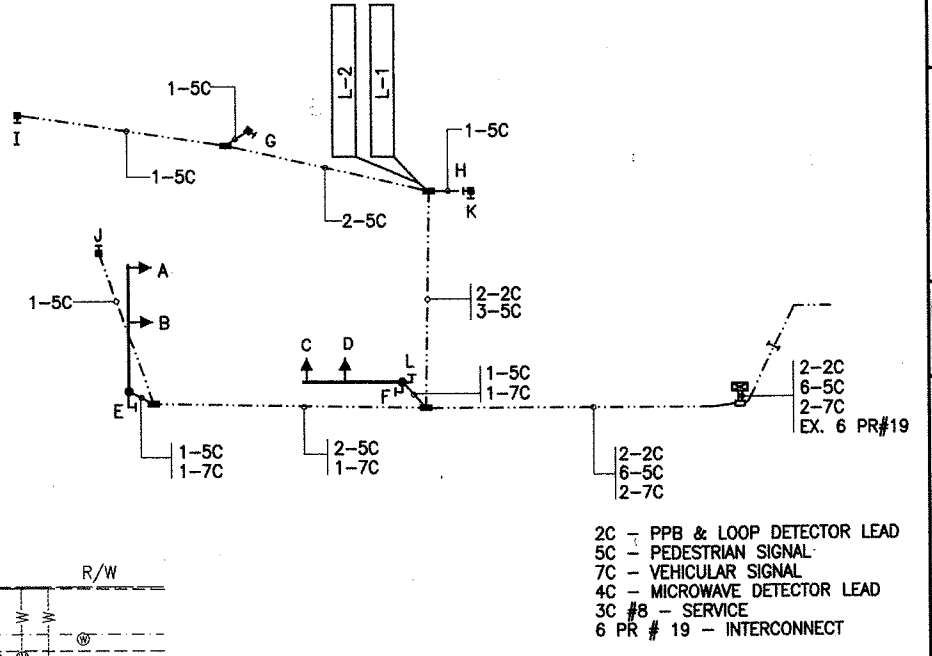
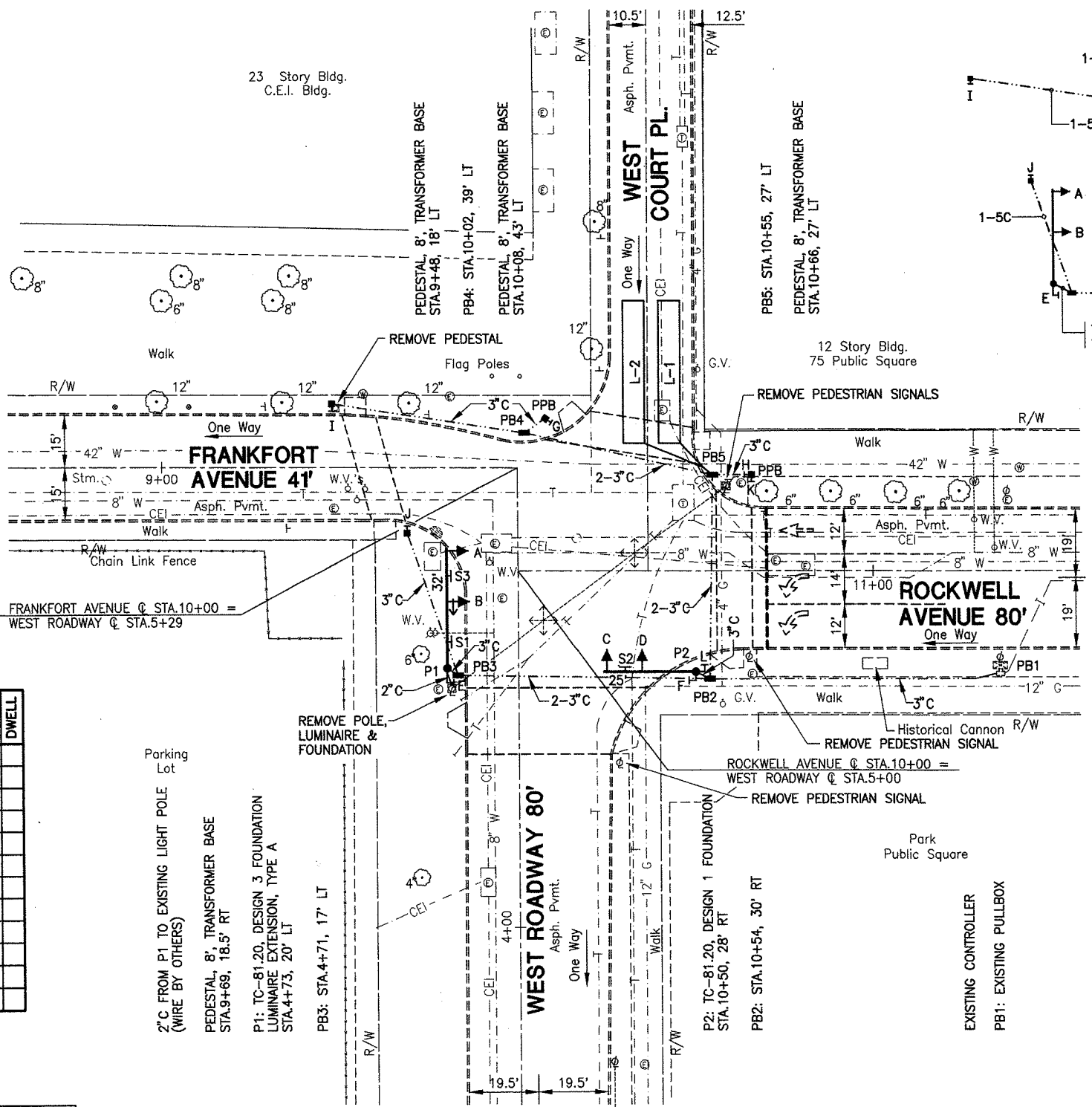
FUNCTION	S1	S2	S3	S4
INITIAL GREEN	11	-	-	6
MINIMUM GREEN	-	30	-	-
VEHICLE EXTENSION	-	-	-	2
MAXIMUM GREEN	-	-	-	10
PEDESTRIAN WALK	11	-	-	-
PEDESTRIAN CLEAR.	9	-	-	-
VEH. YELLOW CLEAR.	-	3	-	3
VEHICLE RED CLEAR.	-	2.5	-	1.5
RECALL	PED	MIN.	-	NO
MEMORY	NO	NO	-	NO

SIGNAL TIMING CHART



LOOP	SIZE	TURNS	MODE	DELAY	PHASE	REMARK	INHIBITED DELAY	LOCATION 1ST FRONT CORNER	LOCATION 2ND FRONT CORNER
L-1	6'X40'	2	PRESENCE		4			STA.10+30, 36' L	STA.10+36, 36' L
L-2	6'X40'	2	PRESENCE		4			STA.10+40, 36' L	STA.10+46, 36' L

LOOP DETECTOR CHART

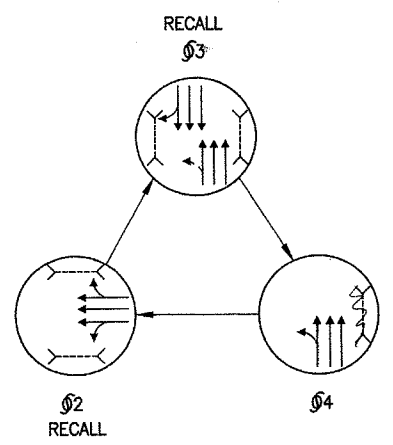


100% CITY PARTICIPATION

ITEM	TOTAL	UNIT	DESCRIPTION
625	6	EA	GROUND ROD
625	4	EA	PULLBOX, AS PER PLAN
625	248	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	144	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	6	LF	CONDUIT, 2", 713.07
625	282	LF	CONDUIT, 3", 713.07
625	288	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
630	19	SF	SIGN, FLAT SHEET, TYPE G
630	2	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
632	3	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	1	EA	VEHICULAR SIGNAL HEAD, 4-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	1	EA	LOOP DETECTOR UNIT, DELAY AND EXTENSION TYPE, AS PER PLAN
632	209	LF	LOOP DETECTOR PAVEMENT CUTTING
632	8	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	4.9	CY	CONCRETE FOR ANCHOR BASE FOUNDATION
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 25' ARM, A.P.P.
632	1	EA	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, WITH 32' ARM, AS PER PLAN
632	4	EA	PEDESTAL, 8", TRANSFORMER BASE
632	1238	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	394	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	418	LF	LOOP DETECTOR WIRE, TYPE E
632	286	LF	LOOP DETECTOR LEAD-IN CABLE
632	4	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER ITEM, MISC.: FIELD CONNECTIONS TO EXISTING CONTROLLER
633	1	EA	CONTROLLER ITEM, MISC.: MODIFY EXISTING CONTROLLER OPERATIONS

DATE: 01-22-1997 TIME: 10:56:51

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 86.
FOR POLE CHART SEE SHEET 87.
EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES.



EXISTING PHASING DIAGRAM

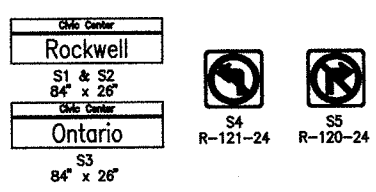
SIGNAL HEAD	phi 1		phi 2		phi 3		phi 4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A			G	Y R	R	R R	R	R R	R	R
B			G	Y R	R	R R	R	R R	R	R
C			R	R R	G	Y R	G	G G	G	G
D			R	R R	G	Y R	G	G G	G	G
E			R	R R	G	Y R	R	R R	Y	Y
F			R	R R	G	Y R	R	R R	Y	Y
G			W/(DW)	DW	DW	DW	DW	DW	DW	D
H			W/(DW)	DW	DW	DW	DW	DW	DW	D
I			W/(DW)	DW	DW	DW	DW	DW	DW	D
J			W/(DW)	DW	DW	DW	DW	DW	DW	D
K			DW	DW	DW	W/(DW)	DW	DW	DW	D
L			DW	DW	DW	W/(DW)	DW	DW	DW	D
M			DW	DW	DW	W/(DW)	DW	DW	DW	D
N			DW	DW	DW	W/(DW)	DW	DW	DW	D

W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK

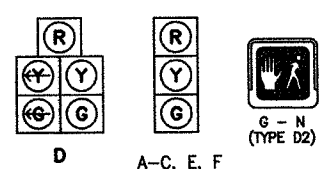
SIGNAL SEQUENCE CHART

FUNCTION	phi 1	phi 2	phi 3	phi 4
INITIAL GREEN		-	-	6
MINIMUM GREEN		30	-	-
VEHICLE EXTENSION		-	-	2
MAXIMUM GREEN		-	34	10
PEDESTRIAN WALK		7	25	-
PEDESTRIAN CLEAR.		16	9	-
VEH. YELLOW CLEAR.		3	3	3
VEHICLE RED CLEAR.		2.5	1.5	1.5
RECALL		PED	PED	NO
MEMORY		NO	NO	NO
MAX. II PEDESTRIAN WALK		7	36	-
MAX. II MAXIMUM GREEN		23	45	8
MAX. II 6:00-9:00AM, M-F				

SIGNAL TIMING CHART



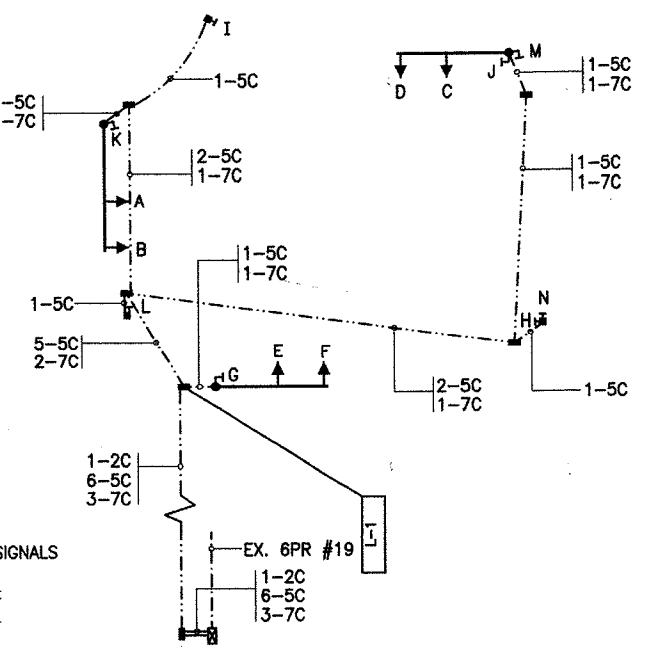
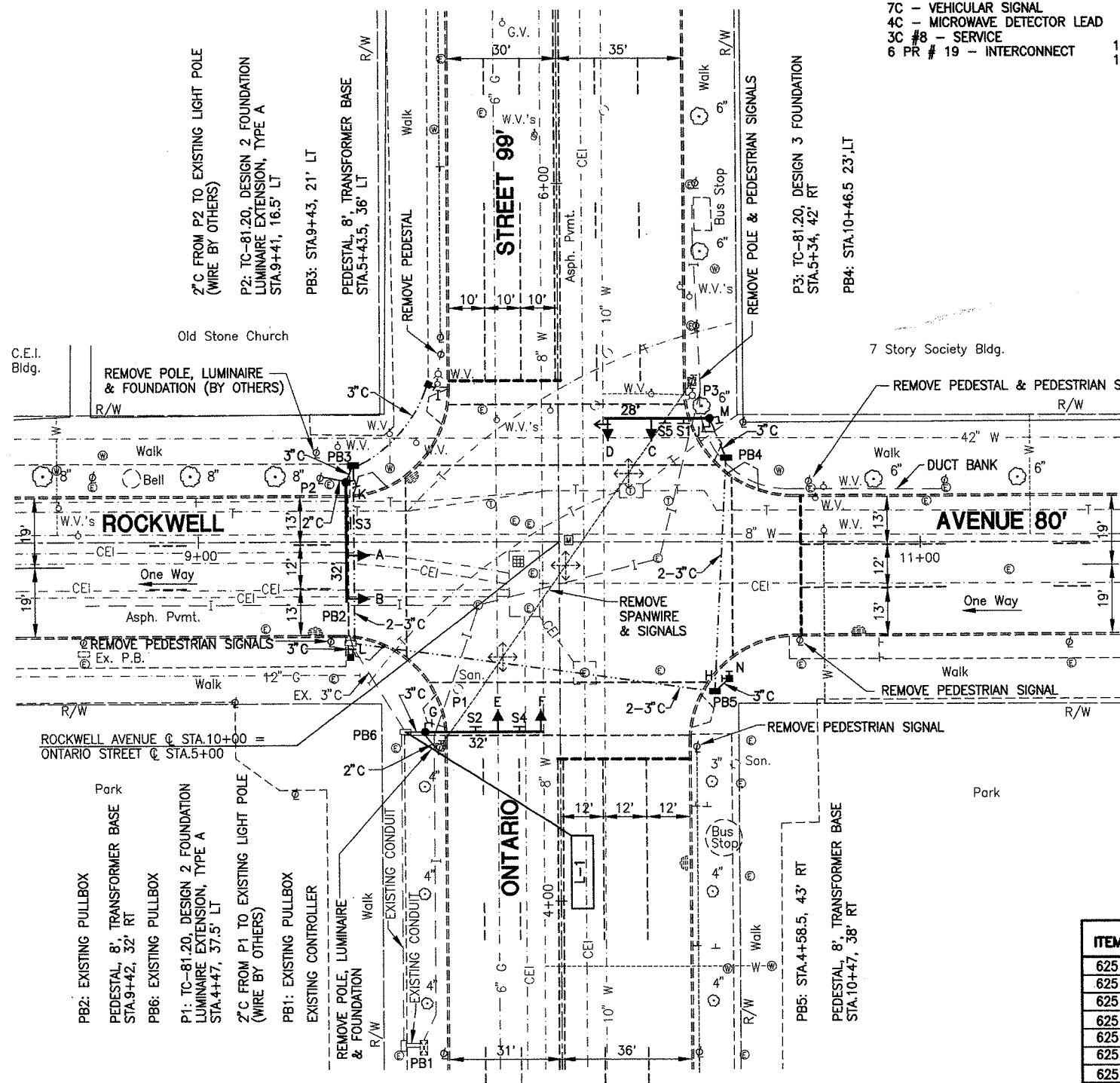
SIGN LEGEND



12" SIGNAL HEADS RIGID MOUNTED

LOOP	SIZE	TURNS	MODE	DELAY	PHASE	REMARK	INHIBITED DELAY	LOCATION 1ST FRONT CORNER	LOCATION 2ND FRONT CORNER
L-1	6'X20'	2	PRESENCE	3	3		NO	STA.4+18, 3' R	STA.4+18, 9' R

LOOP DETECTOR CHART

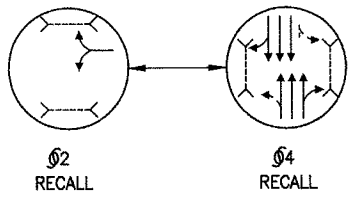


WIRE DIAGRAM

ITEM	TOTAL	UNIT	DESCRIPTION
625	6	EA	GROUND ROD
625	3	EA	PULLBOX, AS PER PLAN
625	117	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	177	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	12	LF	CONDUIT, 2", 713.07
625	143	LF	CONDUIT, 3", 713.07
625	354	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
630	56	SF	SIGN, FLAT SHEET, TYPE G
630	5	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
632	5	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	1	EA	VEHICULAR SIGNAL HEAD, 5-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	8	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	1	EA	LOOP DETECTOR UNIT, DELAY AND EXTENSION TYPE, AS PER PLAN
632	5.9	CY	CONCRETE FOR ANCHOR BASE FOUNDATION
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 2, WITH 28" ARM, A.P.P.
632	2	EA	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 2, WITH 32" ARM, AS PER PLAN
632	3	EA	PEDESTAL, 8", TRANSFORMER BASE
632	1352	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	811	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	214	LF	LOOP DETECTOR WIRE, TYPE E
632	103	LF	LOOP DETECTOR LEAD-IN CABLE
632	6	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER ITEM, MISC.: FIELD CONNECTIONS TO EXISTING CONTROLLER
633	1	EA	CONTROLLER ITEM, MISC.: MODIFY EXISTING CONTROLLER OPERATIONS

DATE: 01-22-1997 TIME: 11:20:10

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 86.
FOR POLE CHART SEE SHEET 87.
EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES.



MODIFIED PHASING DIAGRAM

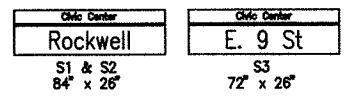
SIGNAL HEAD	φ1		φ2		φ3		φ4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A			R	R R			G	Y R Y		
B			R	R R			G	Y R Y		
C			R	R R			G	Y R Y		
D			R	R R			G	Y R Y		
E			R	R R			G	Y R Y		
F			G	Y R			R	R R R		
G			G	Y R			R	R R R		
H			W/(DW)	DW DW			DW	DW DW D		
I			W/(DW)	DW DW			DW	DW DW D		
J			W/(DW)	DW DW			DW	DW DW D		
K			W/(DW)	DW DW			DW	DW DW D		
L			DW	DW DW			W/(DW)	DW DW D		
M			DW	DW DW			W/(DW)	DW DW D		
N			DW	DW DW			W/(DW)	DW DW D		
O			DW	DW DW			W/(DW)	DW DW D		

W-WALK (DW)-FLASHING DONT WALK DW-DONT WALK D-DARK

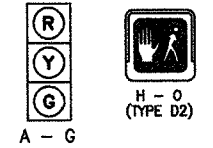
SIGNAL SEQUENCE CHART

FUNCTION	φ1	φ2	φ3	φ4
INITIAL GREEN		-		
MINIMUM GREEN		-	-	20
VEHICLE EXTENSION		-		
MAXIMUM GREEN		21		
PEDESTRIAN WALK		4		7
PEDESTRIAN CLEAR.		17		9
VEH. YELLOW CLEAR.		3		3
VEHICLE RED CLEAR.		3		3.5
RECALL		PED		PED
MEMORY		NO		NO
MAX. II PEDESTRIAN WALK		13		
MAX. II MAXIMUM GREEN		30		
MAX. II 3:00-6:00PM, M-F				

SIGNAL TIMING CHART



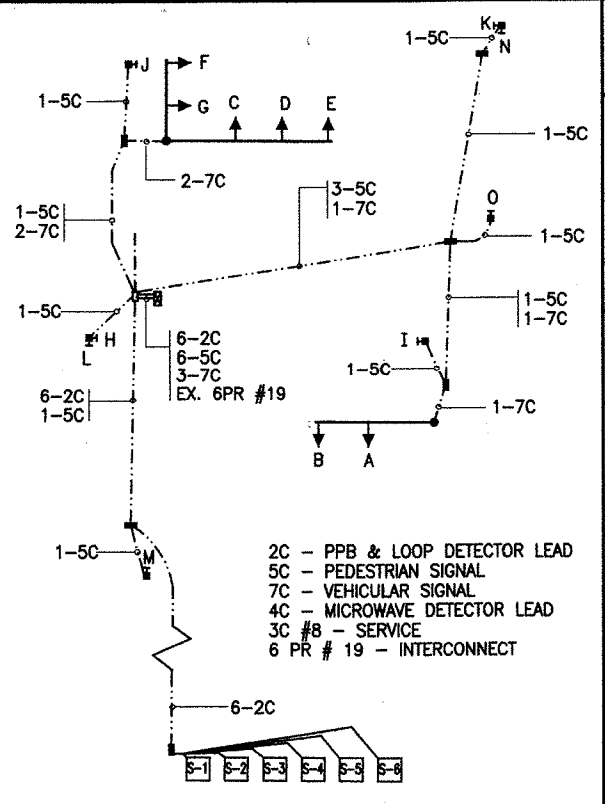
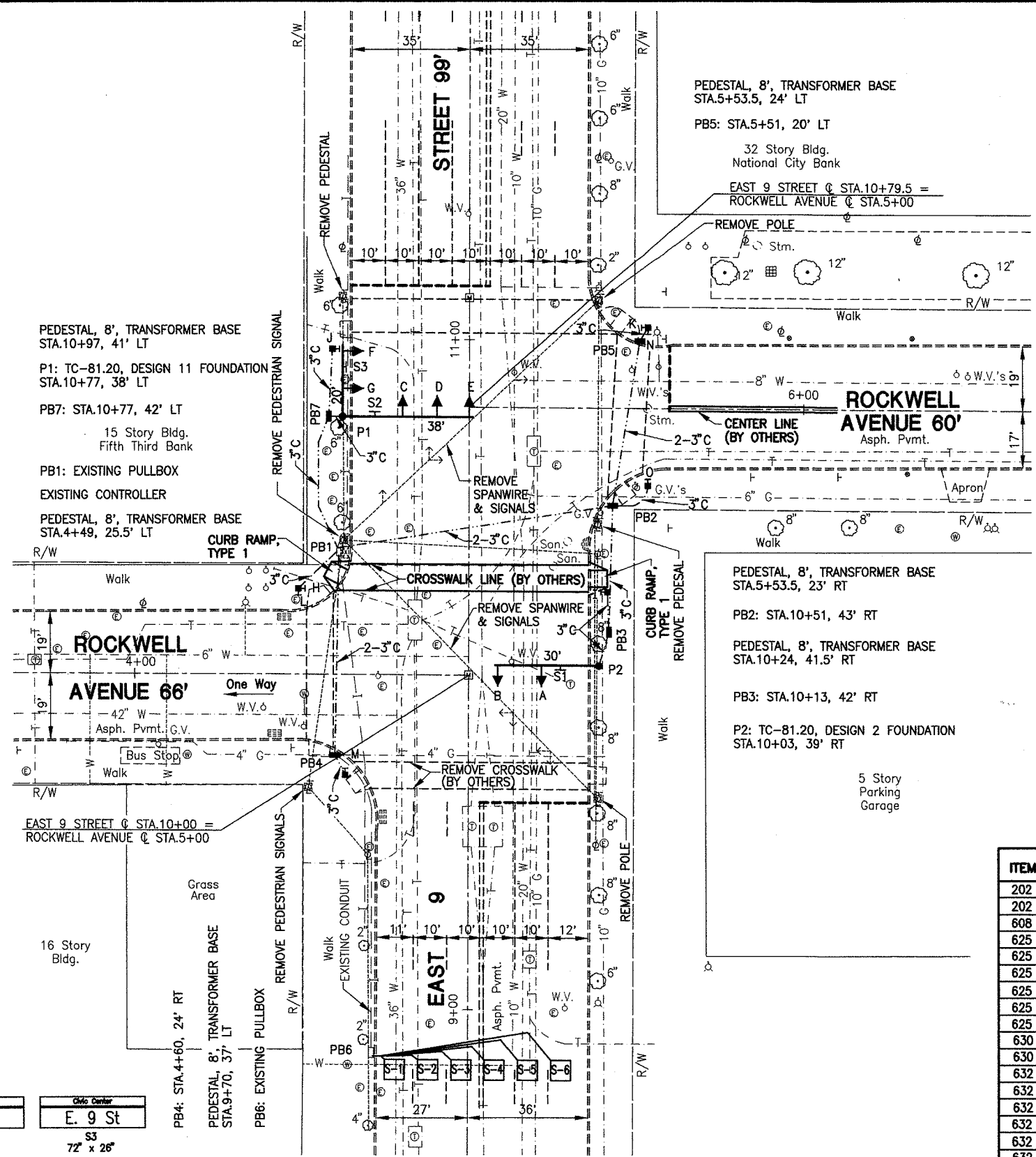
SIGN LEGEND



12" SIGNAL HEADS RIGID MOUNTED

LOOP	SIZE	TURNS	MODE	DELAY	PHASE	REMARK	INHIBITED DELAY	LOCATION 1ST FRONT CORNER	LOCATION 2ND FRONT CORNER
S-1	6'X6'	3	BOTH			SYSTEM		STA.8+85, 25' L	STA.8+85, 19' L
S-2	6'X6'	3	BOTH			SYSTEM		STA.8+85, 15' L	STA.8+85, 9' L
S-3	6'X6'	3	BOTH			SYSTEM		STA.8+85, 5' L	STA.8+85, 1' R
S-4	6'X6'	3	BOTH			SYSTEM		STA.8+85, 5' R	STA.8+85, 11' R
S-5	6'X6'	3	BOTH			SYSTEM		STA.8+85, 15' R	STA.8+85, 21' R
S-6	6'X6'	3	BOTH			SYSTEM		STA.8+85, 25' R	STA.8+85, 31' R

LOOP DETECTOR CHART



WIRE DIAGRAM

ITEM	TOTAL	UNIT	DESCRIPTION
202	144	SF	WALK REMOVED
202	16	LF	CURB REMOVED
608	144	SF	CURB RAMP, TYPE 1, AS PER PLAN
625	8	EA	GROUND ROD
625	5	EA	PULLBOX, AS PER PLAN
625	198	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	165	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	225	LF	CONDUIT, 3", 713.07
625	330	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
630	43	SF	SIGN, FLAT SHEET, TYPE G
630	3	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
632	7	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	8	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	2	EA	LOOP DETECTOR UNIT, DELAY AND EXTENSION TYPE, AS PER PLAN
632	210	LF	LOOP DETECTOR PAVEMENT CUTTING
632	6.5	CY	CONCRETE FOR ANCHOR BASE FOUNDATION
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 2, WITH 30' ARM, A.P.P.
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20 DESIGN 11 POLE, WITH MAST ARMS TC-81.20 DESIGN 1, 20 FEET AND TC-81.20 DESIGN 4, 38 FEET, AS PER PLAN
632	6	EA	PEDESTAL, 8", TRANSFORMER BASE
632	705	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	470	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	568	LF	LOOP DETECTOR WIRE, TYPE E
632	1048	LF	LOOP DETECTOR LEAD-IN CABLE
632	7	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER ITEM, MISC.: FIELD CONNECTIONS TO EXISTING CONTROLLER
633	1	EA	CONTROLLER ITEM, MISC.: MODIFY EXISTING CONTROLLER OPERATIONS

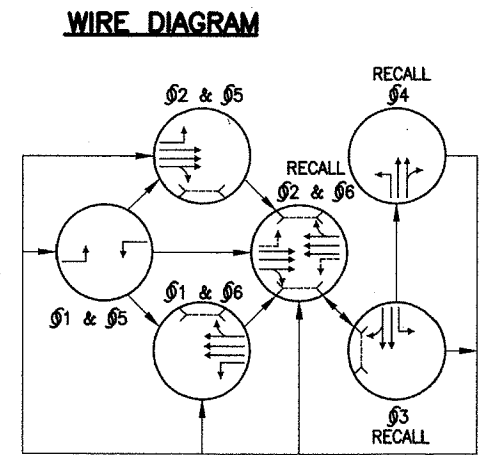
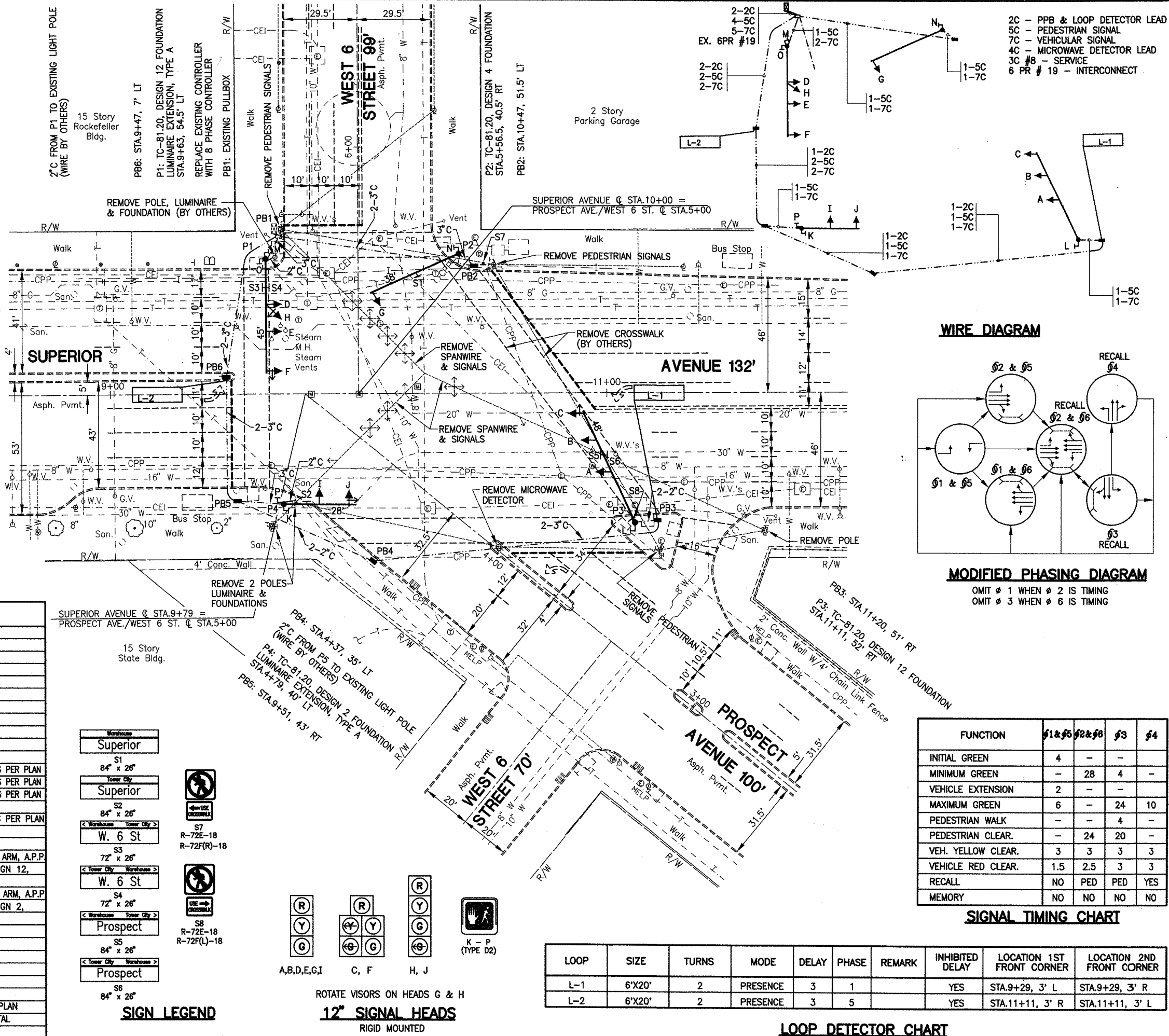
INTERSECTION OF ROCKWELL AVENUE AND EAST 9 STREET
 CUYAHOGA COUNTY
 CUY-6-15.55 & VARIOUS
 37
 89

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 86.
FOR POLE CHART SEE SHEET 87.
EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES.

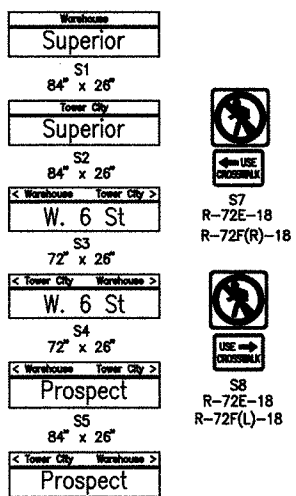
Signal Sequence Chart table with columns for signal heads A through P and rows for phase combinations like #1 & #5, #2 & #6, #3, #4.

SIGNAL SEQUENCE CHART

Main project table with columns: ITEM, TOTAL, UNIT, DESCRIPTION. Lists materials like Ground Rod, Conduit, Signal Support, and Cable.



MODIFIED PHASING DIAGRAM



12" SIGNAL HEADS RIGID MOUNTED

Loop Detector Chart table with columns: LOOP, SIZE, TURNS, MODE, DELAY, PHASE, REMARK, INHIBITED DELAY, LOCATION 1ST FRONT CORNER, LOCATION 2ND FRONT CORNER.

LOOP DETECTOR CHART

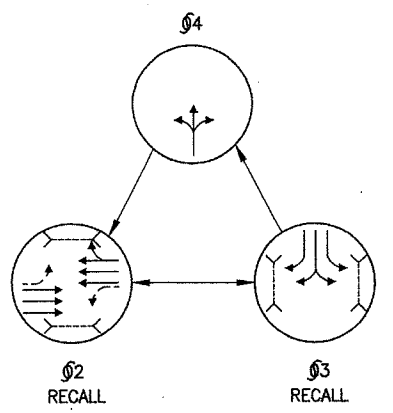
Signal Timing Chart table with columns: FUNCTION, #1, #2, #3, #4. Lists timing parameters like Initial Green, Minimum Green, etc.

SIGNAL TIMING CHART

Project title block: INTERSECTION OF SUPERIOR AVE., WEST 6 ST. & PROSPECT AVE., CUYAHOGA COUNTY, CUY-6-15.55 & VARIOUS. Includes scale and drawing number.

DATE: 02-24-1997 TIME: 10:14:18

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 86.
 FOR POLE CHART SEE SHEET 87.
 EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES.



MODIFIED PHASING DIAGRAM

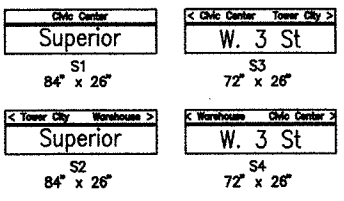
SIGNAL HEAD	φ1		φ2		φ3		φ4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A			G	Y R	R	R R	R	R R	Y	
B			G	Y R	R	R R	R	R R	Y	
C			G	Y R	R	R R	R	R R	Y	
D			G	Y R	R	R R	R	R R	Y	
E			R	R R	R	R R	G	Y R	R	
F			R	R R	R	R R	G	Y R	R	
G			R	R R	G	Y R	R	R R		
H			R	R R	G	Y R	R	R R		
I			W/(DW)	DW	DW	DW	DW	DW	DW	D
J			W/(DW)	DW	DW	DW	DW	DW	DW	D
K			W/(DW)	DW	DW	DW	DW	DW	DW	D
L			W/(DW)	DW	DW	DW	DW	DW	DW	D
M			DW	DW	DW	W/(DW)	DW	DW	DW	D
N			DW	DW	DW	W/(DW)	DW	DW	DW	D
O			DW	DW	DW	W/(DW)	DW	DW	DW	D
P			DW	DW	DW	W/(DW)	DW	DW	DW	D

W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK

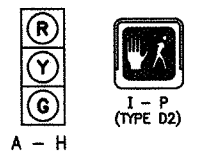
SIGNAL SEQUENCE CHART

FUNCTION	φ1	φ2	φ3	φ4
INITIAL GREEN		-	-	6
MINIMUM GREEN		-	20	-
VEHICLE EXTENSION		-	-	2
MAXIMUM GREEN		34	-	10
PEDESTRIAN WALK		20	7	-
PEDESTRIAN CLEAR.		14	21	-
VEH. YELLOW CLEAR.		3	3	3
VEHICLE RED CLEAR.		2	3	3
RECALL		PED	PED	NO
MEMORY		NO	NO	NO

SIGNAL TIMING CHART



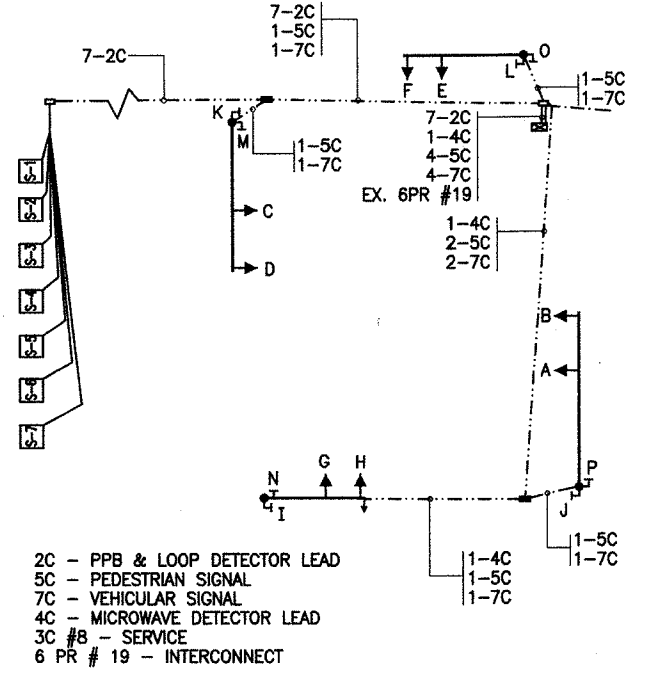
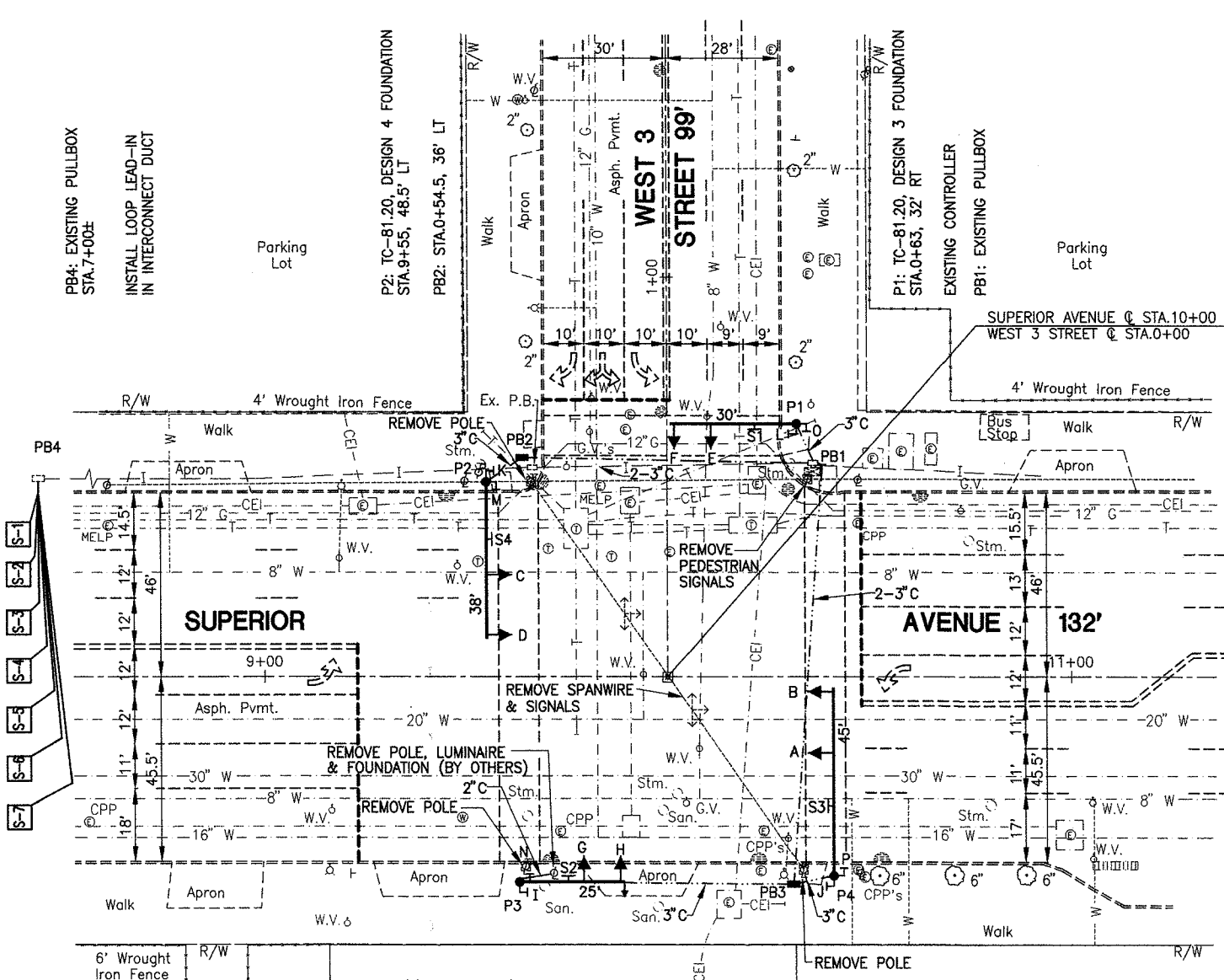
SIGN LEGEND



12" SIGNAL HEADS RIGID MOUNTED

LOOP	SIZE	TURNS	MODE	DELAY	PHASE	REMARK	INHIBITED DELAY	LOCATION 1ST FRONT CORNER	LOCATION 2ND FRONT CORNER
S-1	6'X6'	3	BOTH			SYSTEM		STA.7+00±,38.5' L	STA.7+00±,32.5' L
S-2	6'X6'	3	BOTH			SYSTEM		STA.7+00±,28.5' L	STA.7+00±,22.5' L
S-3	6'X6'	3	BOTH			SYSTEM		STA.7+00±,16.5' L	STA.7+00±,10.5' L
S-4	6'X6'	3	BOTH			SYSTEM		STA.7+00±,4.5' L	STA.7+00±,1.5' R
S-5	6'X6'	3	BOTH			SYSTEM		STA.7+00±,7.5' R	STA.7+00±,13.5' R
S-6	6'X6'	3	BOTH			SYSTEM		STA.7+00±,19.5' R	STA.7+00±,25.5' R
S-7	6'X6'	3	BOTH			SYSTEM		STA.7+00±,31.5' R	STA.7+00±,37.5' R

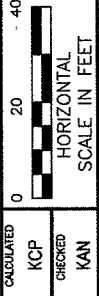
LOOP DETECTOR CHART



2C - PPB & LOOP DETECTOR LEAD
 5C - PEDESTRIAN SIGNAL
 7C - VEHICULAR SIGNAL
 4C - MICROWAVE DETECTOR LEAD
 3C #B - SERVICE
 6 PR # 19 - INTERCONNECT

WIRE DIAGRAM

ITEM	TOTAL	UNIT	DESCRIPTION
625	4	EA	GROUND ROD
625	2	EA	PULLBOX, AS PER PLAN
625	231	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	173	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	122	LF	CONDUIT, 2", 713.07
625	155	LF	CONDUIT, 3", 713.07
625	300	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
630	56	SF	SIGN, FLAT SHEET, TYPE G
630	4	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
632	8	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	8	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	1	EA	LOOP DETECTOR UNIT, DELAY AND EXTENSION TYPE, AS PER PLAN
632	2	EA	SIGNALIZATION, MISC.: MICROWAVE DETECTOR
632	524	LF	LOOP DETECTOR PAVEMENT CUTTING
632	8.5	CY	CONCRETE FOR ANCHOR BASE FOUNDATION
632	1	EA	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 25' ARM, AS PER PLAN
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, WITH 30' ARM, A.P.P.
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 38' ARM, A.P.P.
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 11, WITH 45' ARM, A.P.P.
632	502	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	700	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	1286	LF	LOOP DETECTOR WIRE, TYPE E
632	1428	LF	LOOP DETECTOR LEAD-IN CABLE
632	246	LF	SIGNALIZATION, MISC.: MICROWAVE DETECTOR LEAD-IN CABLE
632	8	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER ITEM, MISC.: FIELD CONNECTIONS TO EXISTING CONTROLLER
633	1	EA	CONTROLLER ITEM, MISC.: MODIFY EXISTING CONTROLLER OPERATIONS

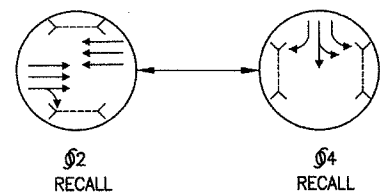


INTERSECTION OF SUPERIOR AVENUE AND WEST 3 STREET
 CUYAHOGA COUNTY
 CUY-6-15.55 & VARIOUS
 CALCULATED KCP CHECKED KAN

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 86.

FOR POLE CHART SEE SHEET 87.

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES.



EXISTING PHASING DIAGRAM

SIGNAL HEAD	φ1		φ2		φ3		φ4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A			G	Y	R			R	R	Y
B			G	Y	R			R	R	Y
C			G	Y	R			R	R	Y
D			G	Y	R			R	R	Y
E			R	R	R			G	Y	R
F			R	R	R			G	Y	R
G			W/(DW)	DW	DW			DW	DW	D
H			W/(DW)	DW	DW			DW	DW	D
I			W/(DW)	DW	DW			DW	DW	D
J			W/(DW)	DW	DW			DW	DW	D
K			DW	DW	DW			W/(DW)	DW	D
L			DW	DW	DW			W/(DW)	DW	D
M			DW	DW	DW			W/(DW)	DW	D
N			DW	DW	DW			W/(DW)	DW	D

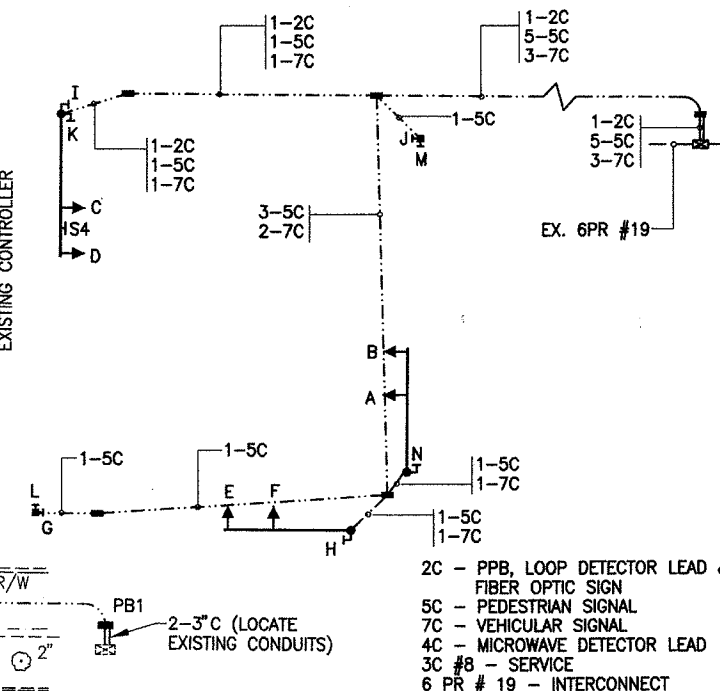
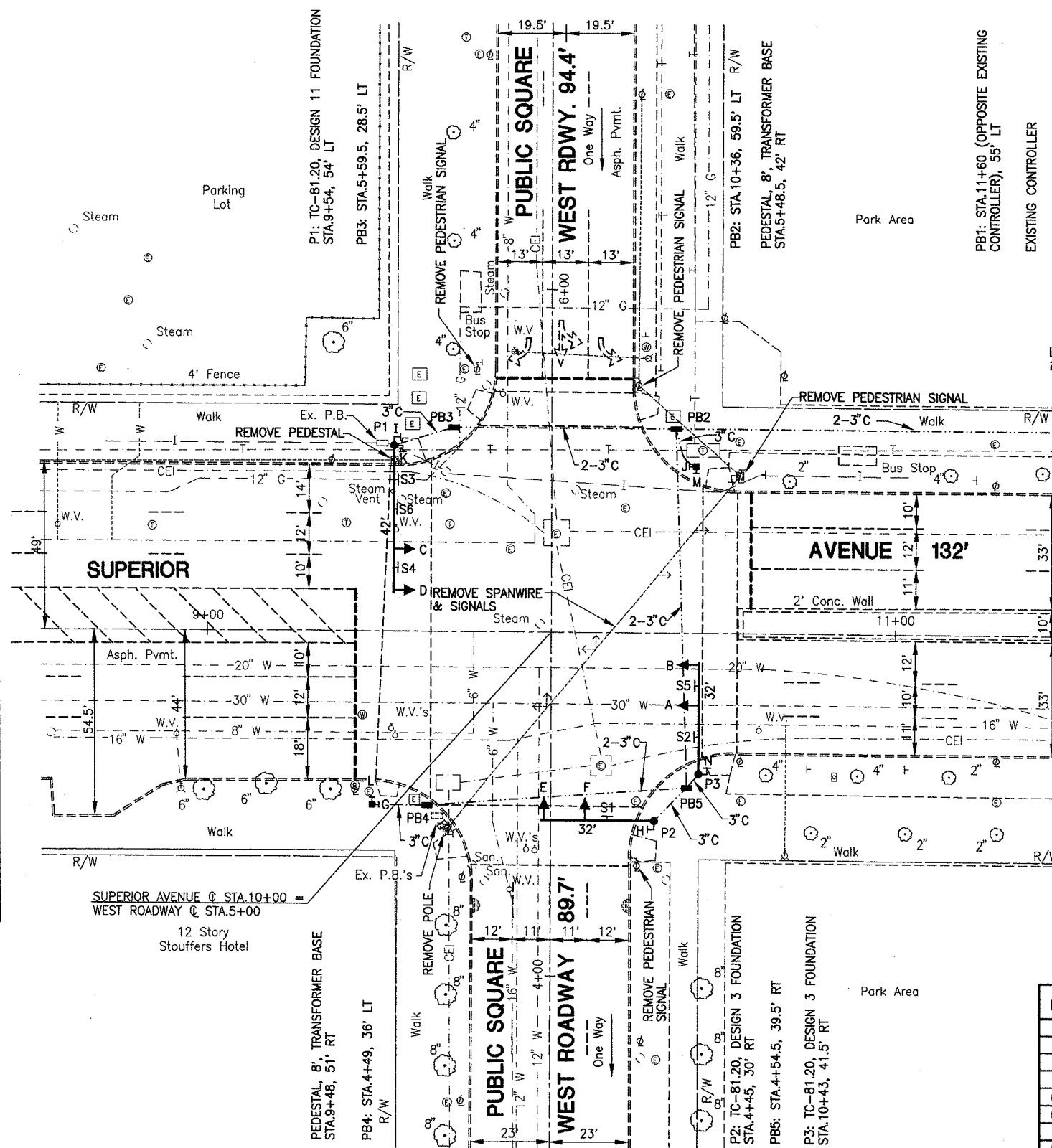
W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK

SIGNAL SEQUENCE CHART

FUNCTION	φ1	φ2	φ3	φ4
INITIAL GREEN		-		-
MINIMUM GREEN		30		-
VEHICLE EXTENSION		-		-
MAXIMUM GREEN		-		28
PEDESTRIAN WALK		7		7
PEDESTRIAN CLEAR		11		21
VEH. YELLOW CLEAR		3		3
VEHICLE RED CLEAR		2		3
RECALL		PED		PED
MEMORY		NO		NO

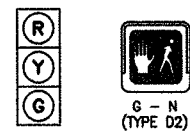
SIGN S4 TO BE ILLUMINATED 6:00 AM - 6:00 PM

SIGNAL TIMING CHART

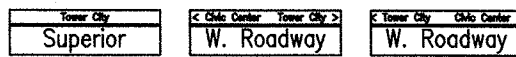


WIRE DIAGRAM

- 2C - PPB, LOOP DETECTOR LEAD & FIBER OPTIC SIGN
- 5C - PEDESTRIAN SIGNAL
- 7C - VEHICULAR SIGNAL
- 4C - MICROWAVE DETECTOR LEAD
- 3C #8 - SERVICE
- 6 PR # 19 - INTERCONNECT



12" SIGNAL HEADS RIGID MOUNTED



84" x 26" 72" x 26" 72" x 26"



SIGN LEGEND

ITEM	TOTAL	UNIT	DESCRIPTION
625	5	EA	GROUND ROD
625	5	EA	PULLBOX, AS PER PLAN
625	244	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	194	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	439	LF	CONDUIT, 3", 713.07
625	388	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
630	50	SF	SIGN, FLAT SHEET, TYPE G
630	5	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
631	1	EA	CHANGEABLE MESSAGE SIGN, ELECTRIC TYPE, LIMITED MESSAGE, AS PER PLAN
632	6	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	8	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	6.9	CY	CONCRETE FOR ANCHOR BASE FOUNDATION
632	2	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, WITH 32' ARM, A.P.P.
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 11, WITH 42' ARM, A.P.P.
632	2	EA	PEDESTAL, 8", TRANSFORMER BASE
632	1344	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	945	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	291	LF	LOOP DETECTOR LEAD-IN CABLE
632	6	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER ITEM, MISC.: FIELD CONNECTIONS TO EXISTING CONTROLLER

INTERSECTION OF SUPERIOR AVENUE AND WEST ROADWAY

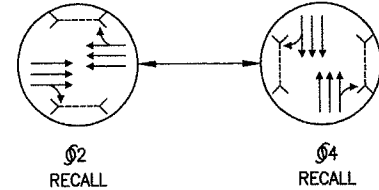
CUYAHOGA COUNTY CUY-6-15.55 & VARIOUS

DATE: 02-27-1997 TIME: 09:01:29

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 86.

FOR POLE CHART SEE SHEET 87.

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES.



EXISTING PHASING DIAGRAM

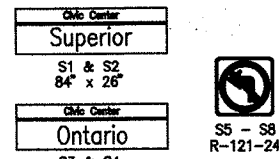
SIGNAL HEAD	φ1		φ2		φ3		φ4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A			G	Y R			R	R R Y		
B			G	Y R			R	R R Y		
C			G	Y R			R	R R Y		
D			G	Y R			R	R R Y		
E			R	R R			G	Y R R		
F			R	R R			G	Y R R		
G			R	R R			G	Y R R		
H			R	R R			G	Y R R		
I			W/(DW)	DW DW			DW	DW DW D		
J			W/(DW)	DW DW			DW	DW DW D		
K			W/(DW)	DW DW			DW	DW DW D		
L			W/(DW)	DW DW			DW	DW DW D		
M			DW	DW DW			W/(DW)	DW DW D		
N			DW	DW DW			W/(DW)	DW DW D		
O			DW	DW DW			W/(DW)	DW DW D		
P			DW	DW DW			W/(DW)	DW DW D		

W-WALK (DW)-FLASHING DONT WALK DW-DONT WALK D-DARK

SIGNAL SEQUENCE CHART

FUNCTION	φ1	φ2	φ3	φ4
INITIAL GREEN		-	-	-
MINIMUM GREEN		30	-	-
VEHICLE EXTENSION		-	-	-
MAXIMUM GREEN		-	-	37
PEDESTRIAN WALK		7	-	18
PEDESTRIAN CLEAR.		16	-	19
VEH. YELLOW CLEAR.		3	-	3
VEHICLE RED CLEAR.		2.5	-	2.5
RECALL		PED	-	PED
MEMORY		NO	-	NO

SIGNAL TIMING CHART

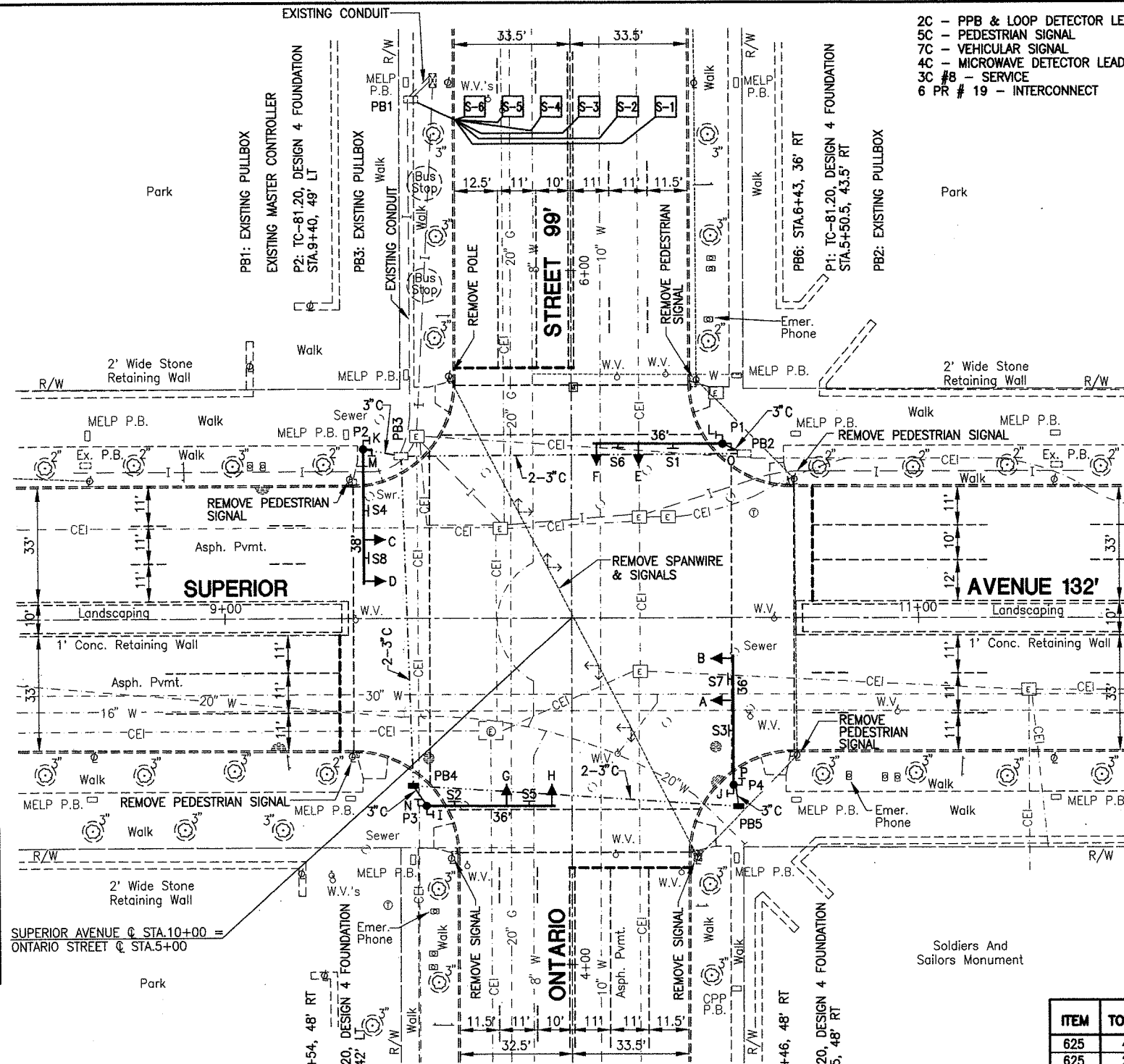


SIGN LEGEND

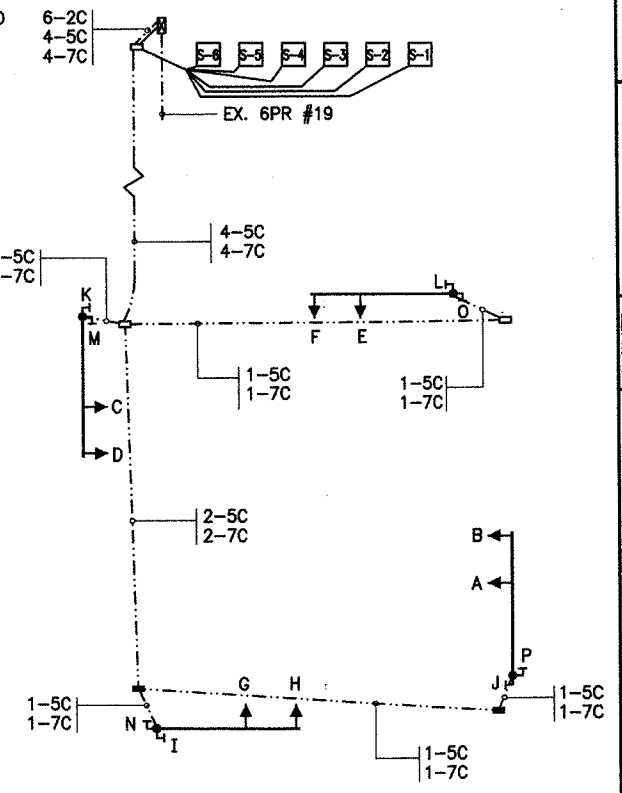
12" SIGNAL HEADS RIGID MOUNTED

LOOP	SIZE	TURNS	MODE	DELAY	PHASE	REMARK	INHIBITED DELAY	LOCATION 1ST FRONT CORNER	LOCATION 2ND FRONT CORNER
S-1	6'X6'	3	BOTH			SYSTEM		STA.6+45, 30.5' R	STA.6+45, 24.5' R
S-2	6'X6'	3	BOTH			SYSTEM		STA.6+45, 19.5' R	STA.6+45, 13.5' R
S-3	6'X6'	3	BOTH			SYSTEM		STA.6+45, 8.5' R	STA.6+45, 2.5' R
S-4	6'X6'	3	BOTH			SYSTEM		STA.6+45, 2.5' L	STA.6+45, 8.5' L
S-5	6'X6'	3	BOTH			SYSTEM		STA.6+45, 13.5' L	STA.6+45, 19.5' L
S-6	6'X6'	3	BOTH			SYSTEM		STA.6+45, 24.5' L	STA.6+45, 30.5' L

LOOP DETECTOR CHART



- 2C - PPB & LOOP DETECTOR LEAD
- 5C - PEDESTRIAN SIGNAL
- 7C - VEHICULAR SIGNAL
- 4C - MICROWAVE DETECTOR LEAD
- 3C #8 - SERVICE
- 6 PR # 19 - INTERCONNECT

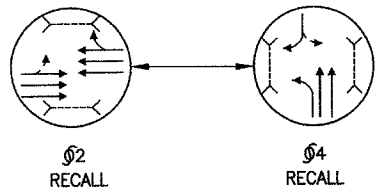


WIRE DIAGRAM

ITEM	TOTAL	UNIT	DESCRIPTION
625	4	EA	GROUND ROD
625	2	EA	PULLBOX, AS PER PLAN
625	86	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	243	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	239	LF	CONDUIT, 3", 713.07
625	486	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
630	77	SF	SIGN, FLAT SHEET, TYPE G
630	8	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
632	8	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	8	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	2	EA	LOOP DETECTOR UNIT, DELAY AND EXTENSION TYPE, AS PER PLAN
632	227	LF	LOOP DETECTOR PAVEMENT CUTTING
632	10.6	CY	CONCRETE FOR ANCHOR BASE FOUNDATION
632	3	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 36" ARM, A.P.P.
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 38" ARM, A.P.P.
632	839	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	1173	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	742	LF	LOOP DETECTOR WIRE, TYPE E
632	50	LF	LOOP DETECTOR LEAD-IN CABLE
632	8	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER ITEM, MISC.: FIELD CONNECTIONS TO EXISTING CONTROLLER

DATE: 02-27-1997 TIME: 08:44:36

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 86.
FOR POLE CHART SEE SHEET 88.
EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES.



EXISTING PHASING DIAGRAM

SIGNAL HEAD	phi 1		phi 2		phi 3		phi 4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A			G	Y R			R	R R Y		
B			G	Y R			R	R R Y		
C			G	Y R			R	R R Y		
D			G	Y R			R	R R Y		
E			R	R R			G	Y R R		
F			R	R R			G	Y R R		
G			R	R R			G	Y R R		
H			R	R R			G	Y R R		
I			W/(DW)	DW DW			DW	DW DW D		
J			W/(DW)	DW DW			DW	DW DW D		
K			W/(DW)	DW DW			DW	DW DW D		
L			W/(DW)	DW DW			DW	DW DW D		
M			DW	DW DW			W/(DW)	DW DW D		
N			DW	DW DW			W/(DW)	DW DW D		
O			DW	DW DW			W/(DW)	DW DW D		
P			DW	DW DW			W/(DW)	DW DW D		

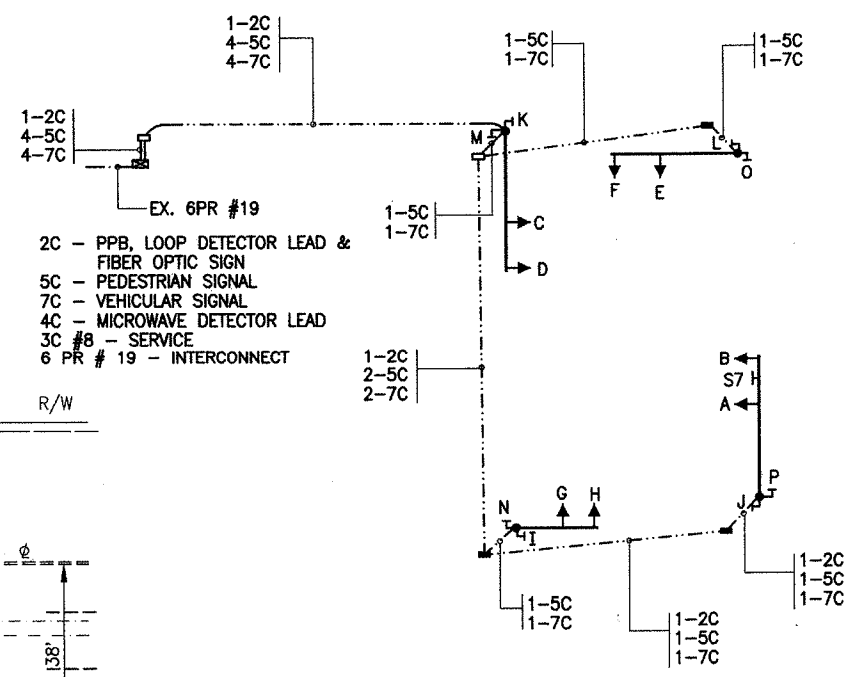
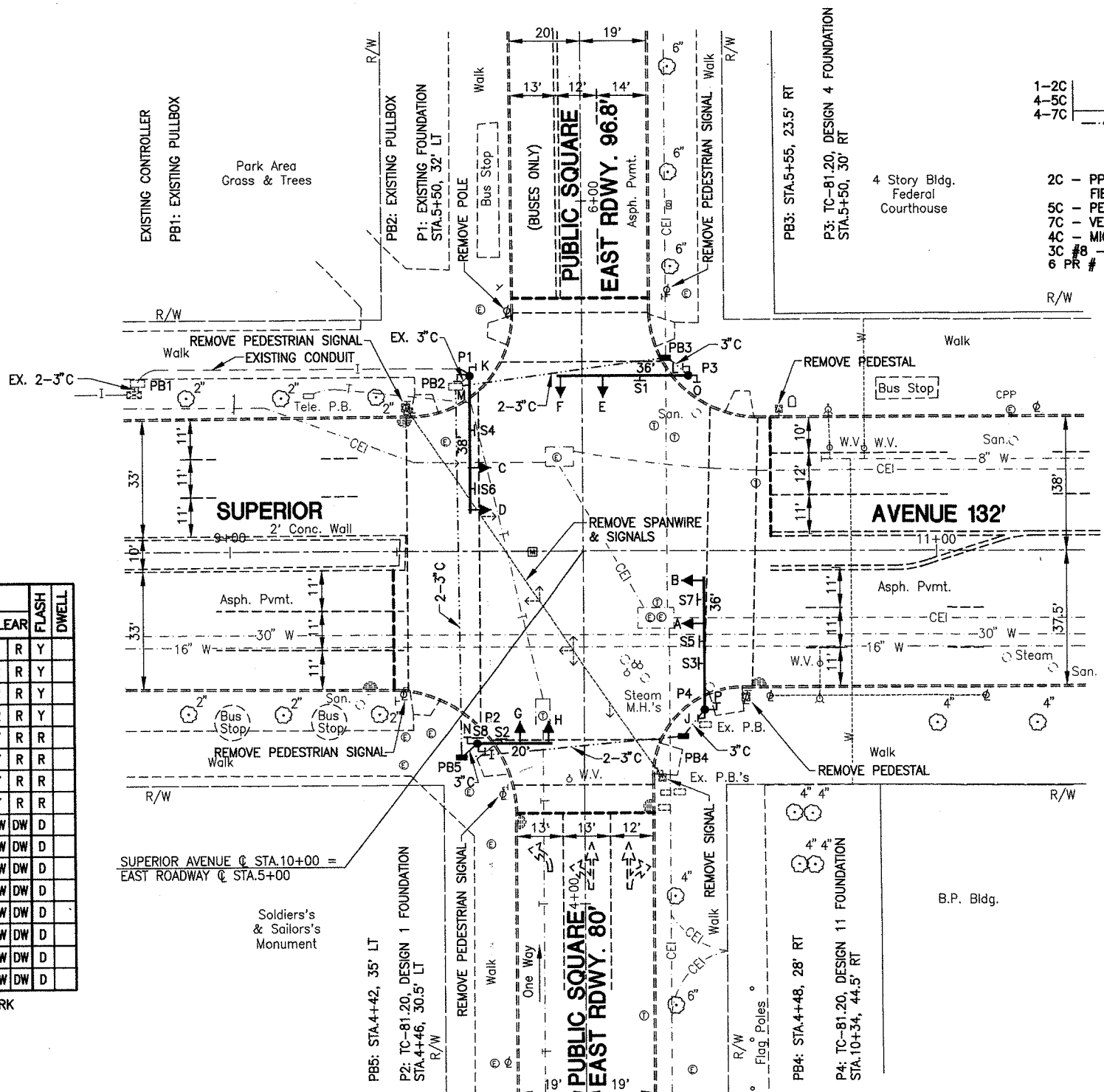
W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK

SIGNAL SEQUENCE CHART

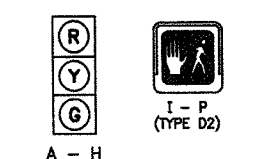
FUNCTION	phi 1	phi 2	phi 3	phi 4
INITIAL GREEN		-		-
MINIMUM GREEN		30		-
VEHICLE EXTENSION		-		-
MAXIMUM GREEN		-		29
PEDESTRIAN WALK		7		10
PEDESTRIAN CLEAR.		10		19
VEH. YELLOW CLEAR.		3		3
VEHICLE RED CLEAR.		1.5		2.5
RECALL		PED		PED
MEMORY		NO		NO

SIGN S7 TO BE ILLUMINATED 6:30-9:30 AM AND 3:30-6:30 PM, M-F

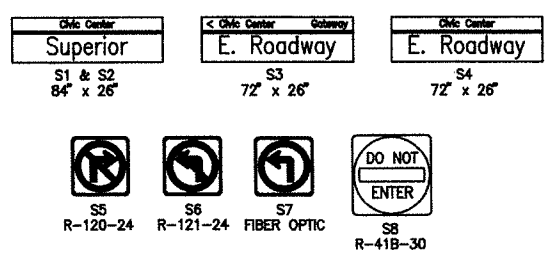
SIGNAL TIMING CHART



WIRE DIAGRAM



12" SIGNAL HEADS RIGID MOUNTED



SIGN LEGEND

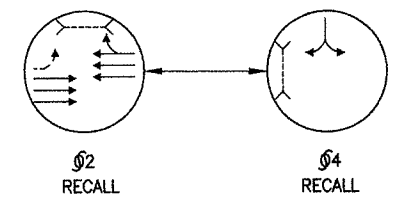
ITEM	TOTAL	UNIT	DESCRIPTION
625	4	EA	GROUND ROD
625	3	EA	PULLBOX, AS PER PLAN
625	81	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	177	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	228	LF	CONDUIT, 3", 713.07
625	354	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
630	71	SF	SIGN, FLAT SHEET, TYPE G
630	6	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
630	1	EA	SIGN SUPPORT ASSEMBLY, POLE MOUNTED
631	1	EA	CHANGEABLE MESSAGE SIGN, ELECTRIC TYPE, LIMITED MESSAGE, AS PER PLAN
632	8	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	8	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	6.9	CY	CONCRETE FOR ANCHOR BASE FOUNDATION
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 20' ARM, A.P.P.
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 36' ARM, A.P.P.
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 38' ARM, A.P.P.
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 11, WITH 36' ARM, A.P.P.
632	881	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	1050	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	348	LF	LOOP DETECTOR LEAD-IN CABLE
632	8	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER ITEM, MISC.: FIELD CONNECTIONS TO EXISTING CONTROLLER

DATE: 02-25-1997 TIME: 08:54:07

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 86.

FOR POLE CHART SEE SHEET 88.

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES.



EXISTING PHASING DIAGRAM

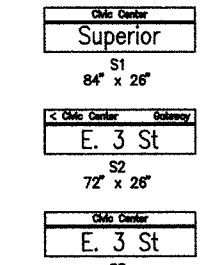
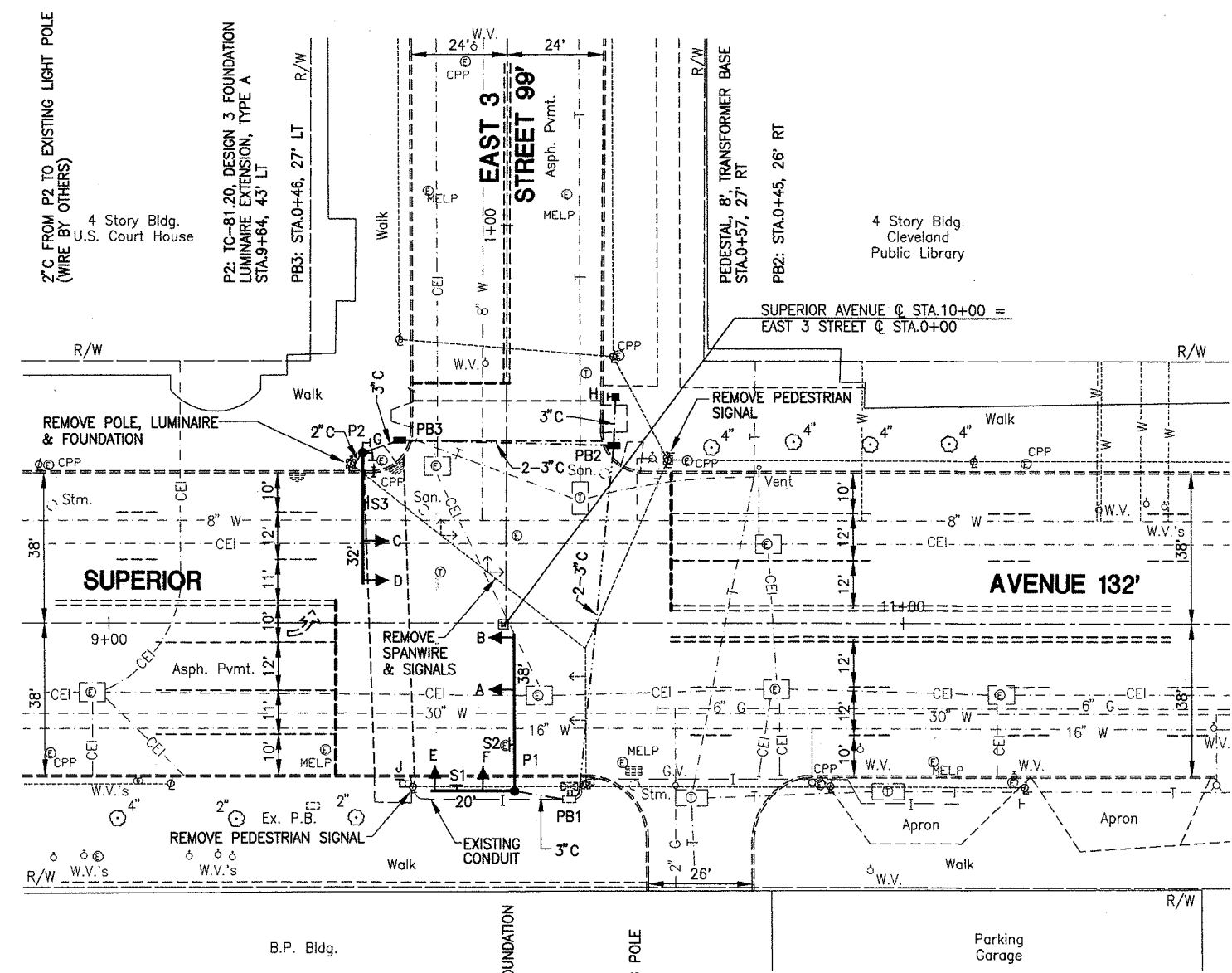
SIGNAL HEAD	φ1		φ2		φ3		φ4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A			G	Y R			R	R R Y		
B			G	Y R			R	R R Y		
C			G	Y R			R	R R Y		
D			G	Y R			R	R R Y		
E			R	R R			G	Y R R		
F			R	R R			G	Y R R		
G			W/(DW)	DW DW			DW	DW DW D		
H			W/(DW)	DW DW			DW	DW DW D		
I			DW	DW DW			W/(DW)	DW DW D		
J			DW	DW DW			W/(DW)	DW DW D		

W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK

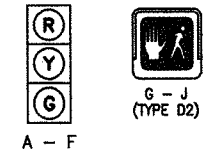
SIGNAL SEQUENCE CHART

FUNCTION	φ1	φ2	φ3	φ4
INITIAL GREEN		-		-
MINIMUM GREEN		30		-
VEHICLE EXTENSION		-		-
MAXIMUM GREEN		-		25
PEDESTRIAN WALK		7		7
PEDESTRIAN CLEAR.		9		18
VEH. YELLOW CLEAR.		3		3
VEHICLE RED CLEAR.		2		2.5
RECALL		PED		PED
MEMORY		NO		NO

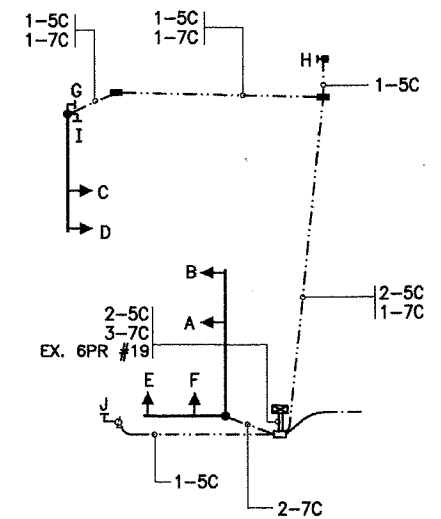
SIGNAL TIMING CHART



SIGN LEGEND



12" SIGNAL HEADS RIGID MOUNTED



2C - PPB & LOOP DETECTOR LEAD
 5C - PEDESTRIAN SIGNAL
 7C - VEHICULAR SIGNAL
 4C - MICROWAVE DETECTOR LEAD
 3C #8 - SERVICE
 6 PR # 19 - INTERCONNECT

WIRE DIAGRAM

ITEM	TOTAL	UNIT	DESCRIPTION
625	5	EA	GROUND ROD
625	2	EA	PULLBOX, AS PER PLAN
625	111	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	128	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	6	LF	CONDUIT, 2", 713.07
625	123	LF	CONDUIT, 3", 713.07
625	256	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
630	42	SF	SIGN, FLAT SHEET, TYPE G
630	3	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
632	6	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	4	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	4.5	CY	CONCRETE FOR ANCHOR BASE FOUNDATION
632	1	EA	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, WITH 32' ARM, AS PER PLAN
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 11 POLE, WITH MAST ARMS TC-81.20 DESIGN 1, 20 FEET AND TC-81.20 DESIGN 4, 38 FEET, AS PER PLAN
632	1	EA	PEDESTAL, 8', TRANSFORMER BASE
632	452	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	409	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	6	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER ITEM, MISC.: FIELD CONNECTIONS TO EXISTING CONTROLLER

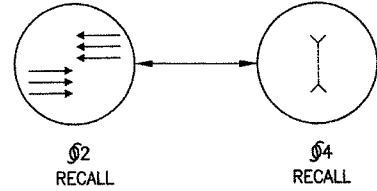
INTERSECTION OF SUPERIOR AVENUE AND EAST 3 STREET
 CUYAHOGA COUNTY
 CUY-6-15.55 & VARIOUS
 SCALE: 1"=20'
 HORIZONTAL SCALE IN FEET
 0 20 40
 CALCULATED: KCP
 CHECKED: KAN

DATE: 02-27-1997 TIME: 08:29:38

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 86.

FOR POLE CHART SEE SHEET 88.

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES.



EXISTING PHASING DIAGRAM

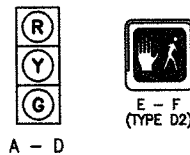
SIGNAL HEAD	φ1		φ2		φ3		φ4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A			G	Y R			R		Y	
B			G	Y R			R		Y	
C			G	Y R			R		Y	
D			G	Y R			R		Y	
E			DW	DW			W/(DW)	DW	DW	D
F			DW	DW			W/(DW)	DW	DW	D

W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK

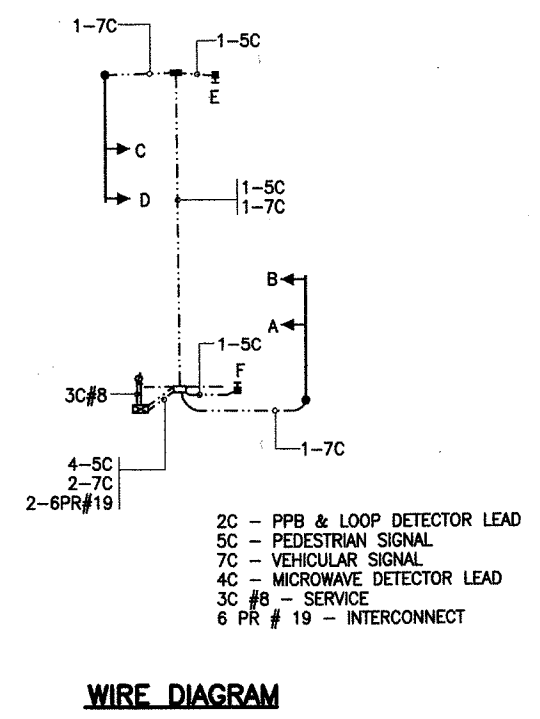
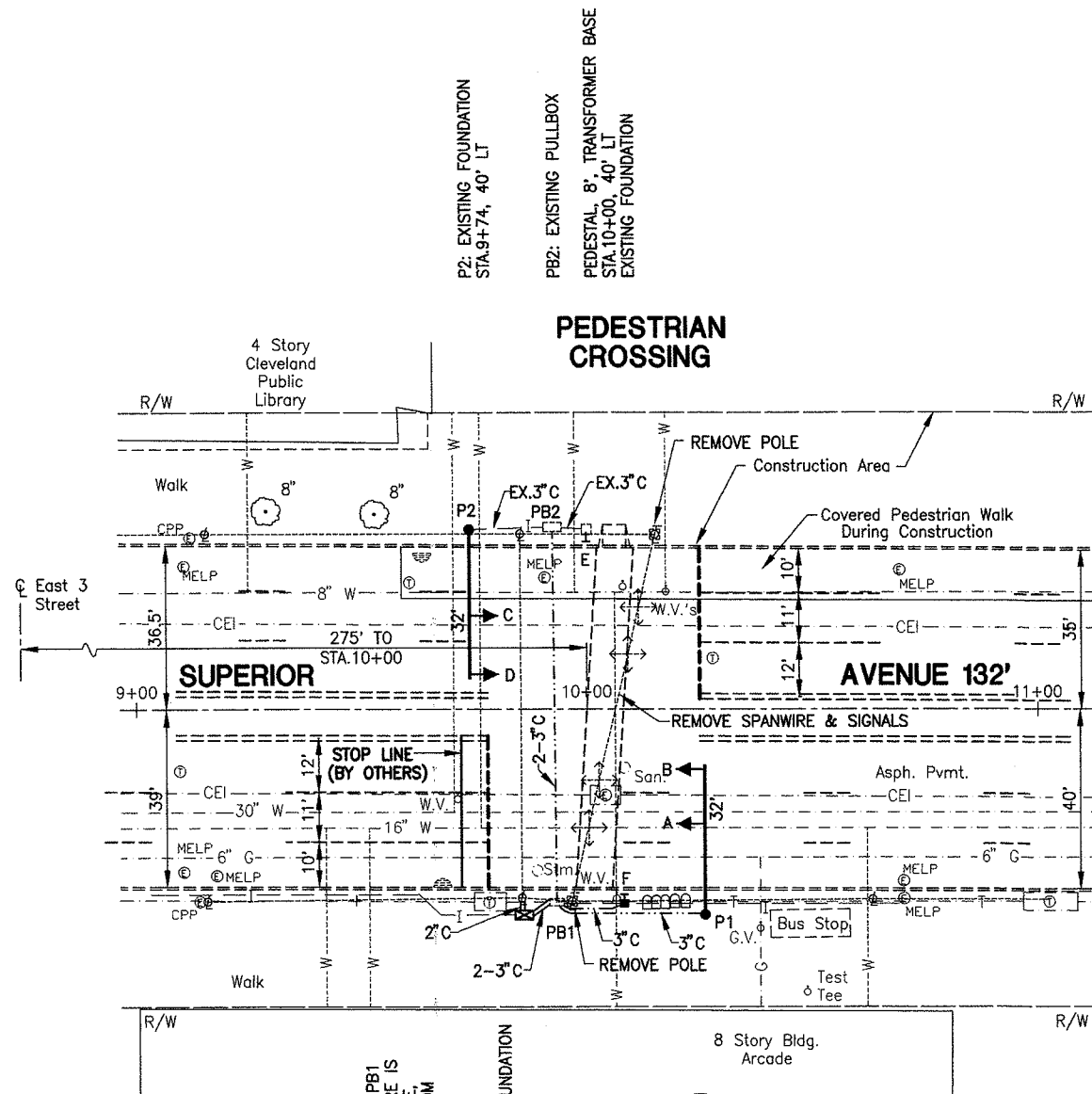
SIGNAL SEQUENCE CHART

FUNCTION	φ1	φ2	φ3	φ4
INITIAL GREEN		-		
MINIMUM GREEN		30		
VEHICLE EXTENSION		-		
MAXIMUM GREEN		-		
PEDESTRIAN WALK		-		15
PEDESTRIAN CLEAR.		-		18
VEH. YELLOW CLEAR.		3		
VEHICLE RED CLEAR.		1.5		
RECALL		VEH		PED
MEMORY		NO		NO

SIGNAL TIMING CHART



12" SIGNAL HEADS RIGID MOUNTED



WIRE DIAGRAM

2C - PPB & LOOP DETECTOR LEAD
 5C - PEDESTRIAN SIGNAL
 7C - VEHICULAR SIGNAL
 4C - MICROWAVE DETECTOR LEAD
 3C #8 - SERVICE
 6 PR # 19 - INTERCONNECT

ITEM	TOTAL	UNIT	DESCRIPTION
625	4	EA	GROUND ROD
625	1	EA	PULLBOX, AS PER PLAN
625	63	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	76	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	93	LF	CONDUIT, 3", 713.07
625	152	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
632	4	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	2	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	2.1	CY	CONCRETE FOR ANCHOR BASE FOUNDATION
632	2	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, WITH 32' ARM, A.P.P.
632	2	EA	PEDESTAL, 8', TRANSFORMER BASE
632	1	EA	CONDUIT RISER
632	189	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	283	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	36	LF	POWER CABLE, 3-CONDUCTOR, NO.8 AWG
632	4	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER, ACTUATED, 8-PHASE, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN

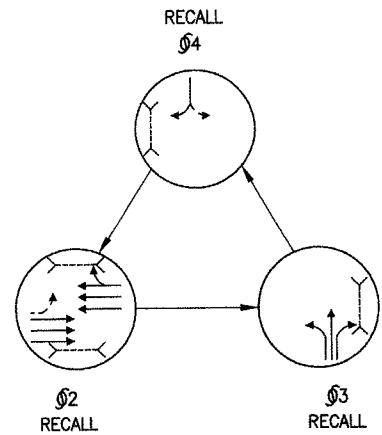
INTERSECTION OF SUPERIOR AVE. AND PEDESTRIAN CROSSING
 CUYAHOGA COUNTY
 CUY-6-15.55 & VARIOUS
 SCALE IN FEET
 HORIZONTAL
 0 20 40
 CALCULATED KCP CHECKED KAN
 44
 89

DATE: 02-25-1997 TIME: 09:14:28

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 86.

FOR POLE CHART SEE SHEET 88.

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES.



MODIFIED PHASING DIAGRAM

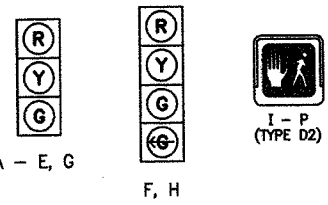
SIGNAL HEAD	phi 1		phi 2		phi 3		phi 4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A			G	Y	R	R	R	R	R	Y
B			G	Y	R	R	R	R	R	Y
C			G	Y	R	R	R	R	R	Y
D			G	Y	R	R	R	R	R	Y
E			R	R	R	G	Y	R	R	R
F			R	R	R	G	Y	R	R	R
G			R	R	R	R	R	G	Y	R
H			R	R	R	R	R	G	Y	R
I			W/(DW)	DW	DW	DW	DW	DW	DW	D
J			W/(DW)	DW	DW	DW	DW	DW	DW	D
K			W/(DW)	DW	DW	DW	DW	DW	DW	D
L			W/(DW)	DW	DW	DW	DW	DW	DW	D
M			DW	DW	DW	DW	DW	W/(DW)	DW	D
N			DW	DW	DW	DW	DW	W/(DW)	DW	D
O			DW	DW	DW	W/(DW)	DW	DW	DW	D
P			DW	DW	DW	W/(DW)	DW	DW	DW	D

W-WALK (DW)-FLASHING DONT WALK DW-DONT WALK D-DARK

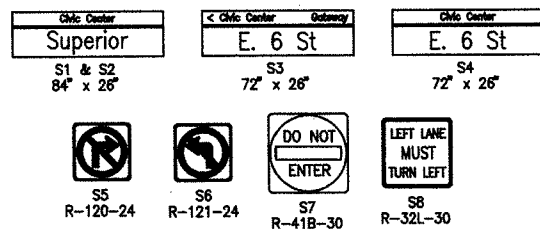
SIGNAL SEQUENCE CHART

FUNCTION	phi 1	phi 2	phi 3	phi 4
INITIAL GREEN		-	-	-
MINIMUM GREEN		30	-	-
VEHICLE EXTENSION		-	-	-
MAXIMUM GREEN		-	-	26
PEDESTRIAN WALK		7	7	7
PEDESTRIAN CLEAR.		11	19	19
VEH. YELLOW CLEAR.		3	3	3
VEHICLE RED CLEAR.		2	2.5	2.5
RECALL		PED	PED	
MEMORY		NO	NO	

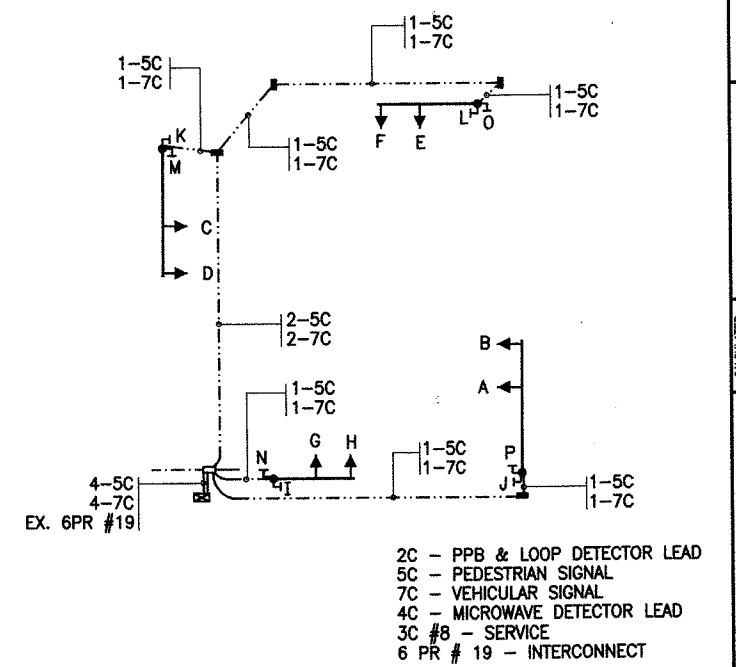
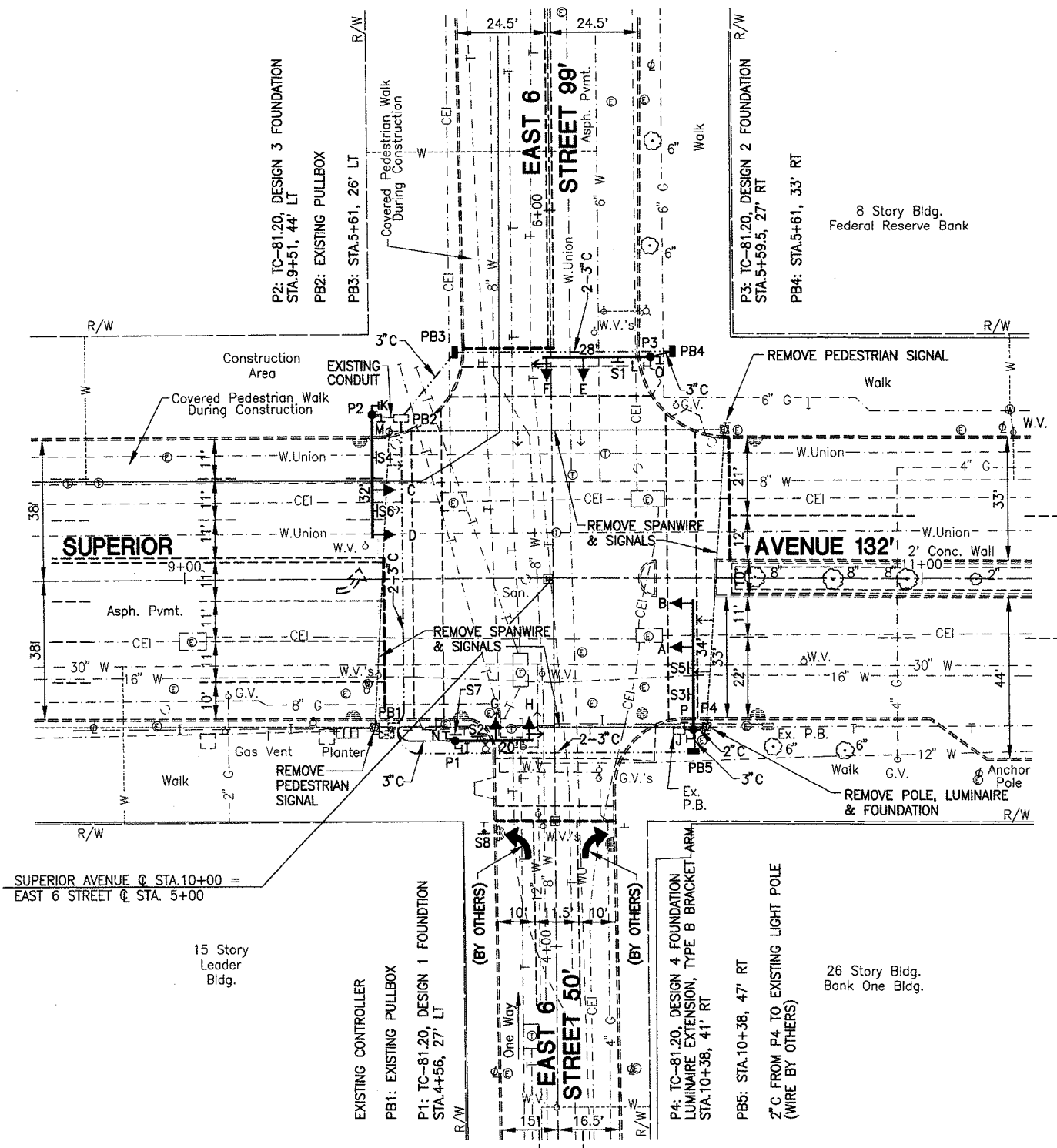
SIGNAL TIMING CHART



12\"/>



SIGN LEGEND



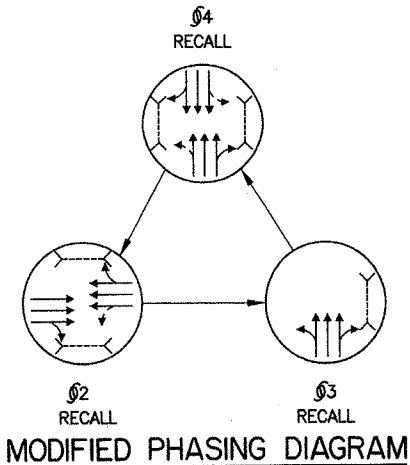
WIRE DIAGRAM

ITEM	TOTAL	UNIT	DESCRIPTION
625	4	EA	GROUND ROD
625	3	EA	PULLBOX, AS PER PLAN
625	133	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	158	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	5	LF	CONDUIT, 2", 713.07
625	203	LF	CONDUIT, 3", 713.07
625	316	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
625	1	EA	BRACKET ARM, 6", AS PER PLAN
630	77	SF	SIGN, FLAT SHEET, TYPE G
630	6	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
630	1	EA	SIGN SUPPORT ASSEMBLY, POLE MOUNTED
630	13	LF	GROUND MOUNTED SUPPORT, NO.3 POST
632	7	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	2	EA	VEHICULAR SIGNAL HEAD, 4-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	8	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	5.6	CY	CONCRETE FOR ANCHOR BASE FOUNDATION
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 20' ARM, A.P.P.
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 2, WITH 28' ARM, A.P.P.
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, WITH 32' ARM, A.P.P.
632	1	EA	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 34' ARM, AS PER PLAN
632	509	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	680	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	8	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER ITEM, MISC.: FIELD CONNECTIONS TO EXISTING CONTROLLER
633	1	EA	CONTROLLER ITEM, MISC.: MODIFY EXISTING CONTROLLER OPERATIONS

INTERSECTION OF SUPERIOR AVENUE AND EAST 6 STREET
 CUYAHOGA COUNTY
 CUY-6-15.55 & VARIOUS
 CALCULATED KCP CHECKED KAN
 HORIZONTAL SCALE IN FEET
 45
 89

DATE: 02-26-1997 TIME: 09:52:33

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 86.
FOR POLE CHART SEE SHEET 88.
EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES.

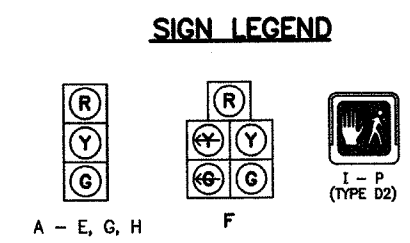
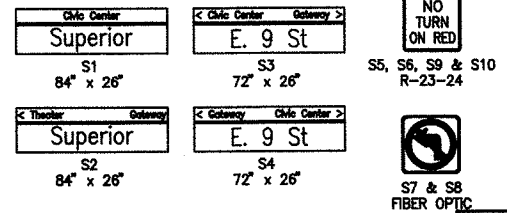


SIGNAL HEAD	S1		S2		S3		S4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A			G	Y	R	R	R	R	Y	
B			G	Y	R	R	R	R	Y	
C			G	Y	R	R	R	R	Y	
D			G	Y	R	R	R	R	Y	
E			R	R	G	G	G	G	Y	R
F			R	R	G	G	G	G	Y	R
G			R	R	R	R	G	Y	R	R
H			R	R	R	R	G	Y	R	R
I			W/(DW)	DW	DW	DW	DW	DW	DW	D
J			W/(DW)	DW	DW	DW	DW	DW	DW	D
K			W/(DW)	DW	DW	DW	DW	DW	DW	D
L			W/(DW)	DW	DW	DW	DW	DW	DW	D
M			DW	DW	DW	DW	DW	W/(DW)	DW	D
N			DW	DW	DW	DW	DW	W/(DW)	DW	D
O			DW	DW	DW	DW	DW	W/(DW)	DW	D
P			DW	DW	DW	DW	DW	W/(DW)	DW	D

W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK
SIGNAL SEQUENCE CHART

FUNCTION	S1	S2	S3	S4
INITIAL GREEN		-	-	-
MINIMUM GREEN		30	-	-
VEHICLE EXTENSION		-	-	-
MAXIMUM GREEN		-	8	35
PEDESTRIAN WALK		7	8	16
PEDESTRIAN CLEAR.		17	-	19
VEH. YELLOW CLEAR.		3	3	3
VEHICLE RED CLEAR.		2.5	1	3
RECALL		PED	VEH	PED
MEMORY		NO	NO	NO

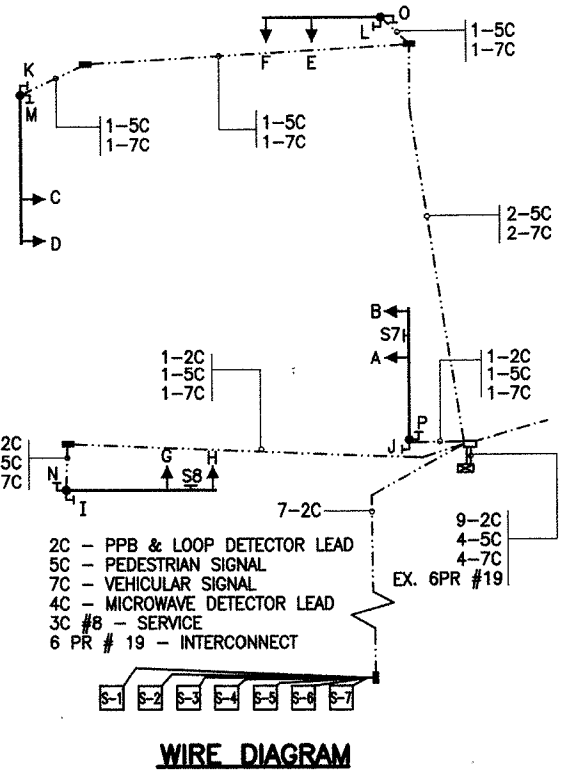
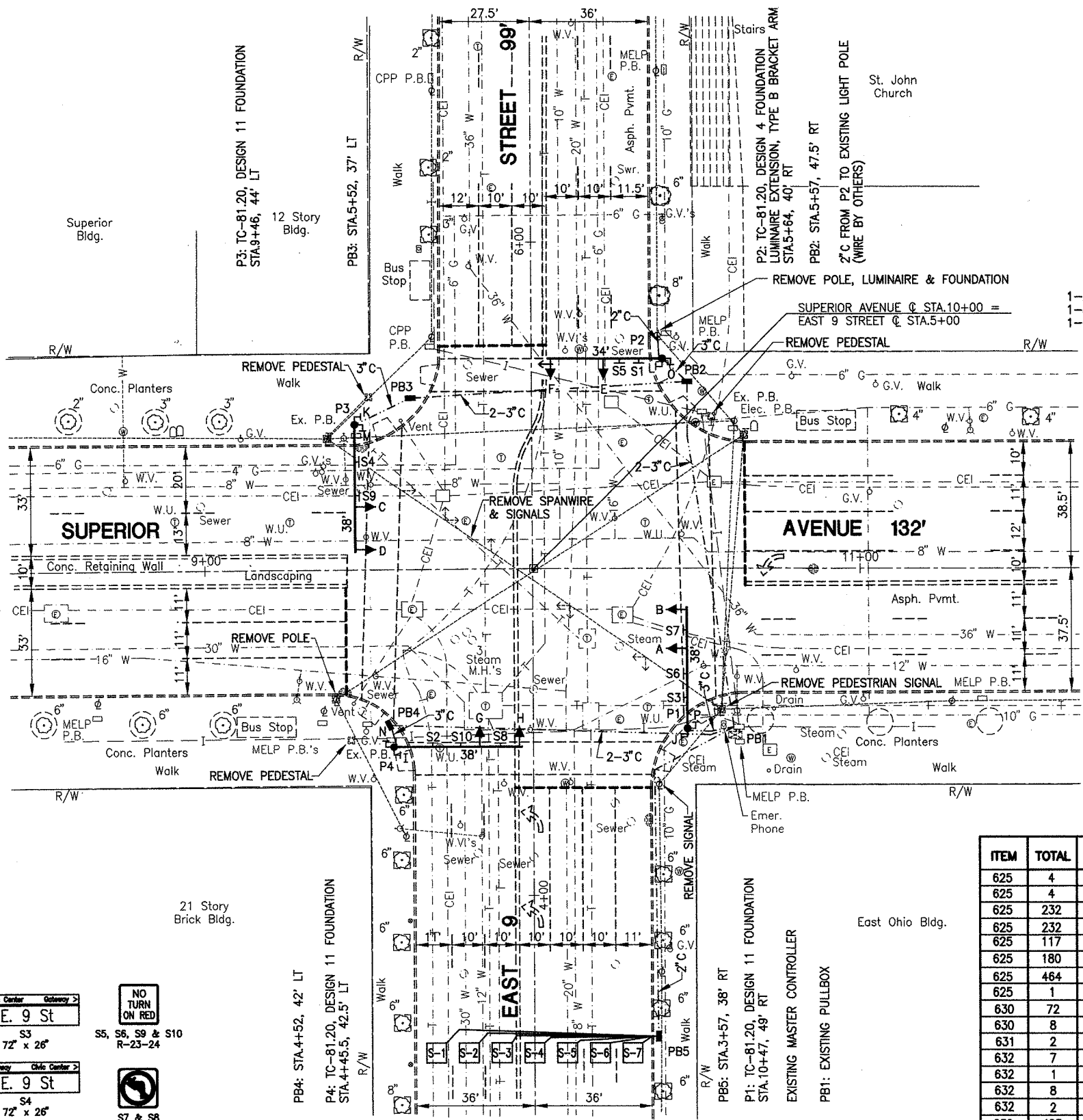
SIGNS S7 & S8 TO BE ILLUMINATED 6:00 AM - 6:00 PM, M-F
SIGNAL TIMING CHART



12" SIGNAL HEADS
RIGID MOUNTED

LOOP	SIZE	TURNS	MODE	DELAY	PHASE	REMARK	INHIBITED DELAY	LOCATION 1ST FRONT CORNER	LOCATION 2ND FRONT CORNER
S-1	6'X6'	3	BOTH			SYSTEM		STA.3+55, 33' L	STA.3+55, 27' L
S-2	6'X6'	3	BOTH			SYSTEM		STA.3+55, 23' L	STA.3+55, 17' L
S-3	6'X6'	3	BOTH			SYSTEM		STA.3+55, 13' L	STA.3+55, 7' L
S-4	6'X6'	3	BOTH			SYSTEM		STA.3+55, 3' L	STA.3+55, 3' R
S-5	6'X6'	3	BOTH			SYSTEM		STA.3+55, 7' R	STA.3+55, 13' R
S-6	6'X6'	3	BOTH			SYSTEM		STA.3+55, 17' R	STA.3+55, 23' R
S-7	6'X6'	3	BOTH			SYSTEM		STA.3+55, 27' R	STA.3+55, 33' R

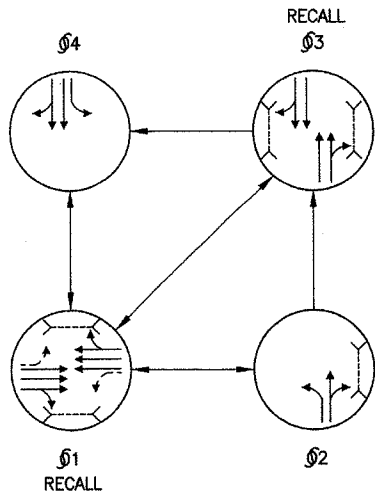
LOOP DETECTOR CHART



ITEM	TOTAL	UNIT	DESCRIPTION
625	4	EA	GROUND ROD
625	4	EA	PULLBOX, AS PER PLAN
625	232	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	232	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	117	LF	CONDUIT, 2", 713.07
625	180	LF	CONDUIT, 3", 713.07
625	464	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
625	1	EA	BRACKET ARM, 6", AS PER PLAN
630	72	SF	SIGN, FLAT SHEET, TYPE G
630	8	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
631	2	EA	CHANGEABLE MESSAGE SIGN, ELECTRIC TYPE, LIMITED MESSAGE, A.P.P.
632	7	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	1	EA	VEHICULAR SIGNAL HEAD, 5-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	8	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	2	EA	LOOP DETECTOR UNIT, DELAY AND EXTENSION TYPE, AS PER PLAN
632	423	LF	LOOP DETECTOR PAVEMENT CUTTING
632	10.6	CY	CONCRETE FOR ANCHOR BASE FOUNDATION
632	1	EA	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 34" ARM, AS PER PLAN
632	3	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 11, WITH 38" ARM, A.P.P.
632	578	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	778	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	1074	LF	LOOP DETECTOR WIRE, TYPE E
632	1250	LF	LOOP DETECTOR LEAD-IN CABLE
632	8	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER ITEM, MISC.: FIELD CONNECTIONS TO EXISTING CONTROLLER
633	1	EA	CONTROLLER ITEM, MISC.: MODIFY EXISTING CONTROLLER OPERATIONS

CUYAHOGA COUNTY
 INTERSECTION OF SUPERIOR AVENUE AND EAST 9 STREET
 CUY-6-15.55 & VARIOUS
 46
 89

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 86.
 FOR POLE CHART SEE SHEET 88.
 EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES.



MODIFIED PHASING DIAGRAM

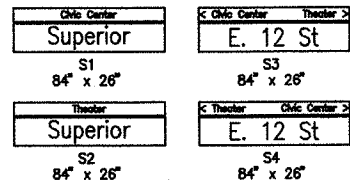
SIGNAL HEAD	phi 1		phi 2		phi 3		phi 4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A	G	Y R	R	R R	R	R R	R	R R	R	R Y G
B	G	Y R	R	R R	R	R R	R	R R	R	R Y G
C	G	Y R	R	R R	R	R R	R	R R	R	R Y G
D	G	Y R	R	R R	R	R R	R	R R	R	R Y G
E	R	R R	R	R R	G	G G	G	G G	Y	R R R
F	R	R R	R	R R	G	G G	G	G G	Y	R R R
G	R	R R	R	R R	R	R R	R	R R	R	R R R
H	R	R R	G	G G	G	Y R	G	Y R	R	R R R
I	R	R R	G	G G	G	Y R	G	Y R	R	R R R
J	R	R R	R	R R	R	R R	R	R R	R	R R R
K	W/(DW)	DW	DW	DW	DW	DW	DW	DW	DW	D W
L	W/(DW)	DW	DW	DW	DW	DW	DW	DW	DW	D W
M	W/(DW)	DW	DW	DW	DW	DW	DW	DW	DW	D W
N	W/(DW)	DW	DW	DW	DW	DW	DW	DW	DW	D W
O	W/(DW)	DW	DW	DW	DW	DW	DW	DW	DW	D W
P	W/(DW)	DW	DW	DW	DW	DW	DW	DW	DW	D W
Q	W/(DW)	DW	DW	DW	DW	DW	DW	DW	DW	D W
R	W/(DW)	DW	DW	DW	DW	DW	DW	DW	DW	D W
S	DW	DW	DW	DW	W/(DW)	DW	DW	DW	DW	D DW
T	DW	DW	DW	DW	W/(DW)	DW	DW	DW	DW	D DW
U	DW	DW	W	W	W/(DW)	DW	DW	DW	DW	D DW
V	DW	DW	W	W	W/(DW)	DW	DW	DW	DW	D DW

W-WALK (DW)-FLASHING DONT WALK DW-DONT WALK D-DARK

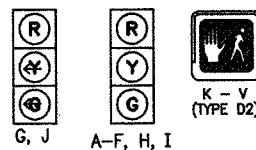
SIGNAL SEQUENCE CHART

FUNCTION	phi 1	phi 2	phi 3	phi 4
INITIAL GREEN	-	4	-	4
MINIMUM GREEN	20	-	-	-
VEHICLE EXTENSION	-	2	-	2
MAXIMUM GREEN	-	10	25	10
PEDESTRIAN WALK	7	-	7	-
PEDESTRIAN CLEAR.	9	-	18	-
VEH. YELLOW CLEAR.	3	3	3	3
VEHICLE RED CLEAR.	3.5	1.5	3	3
RECALL	PED	NO	PED	NO
MEMORY	NO	NO	NO	NO

SIGNAL TIMING CHART



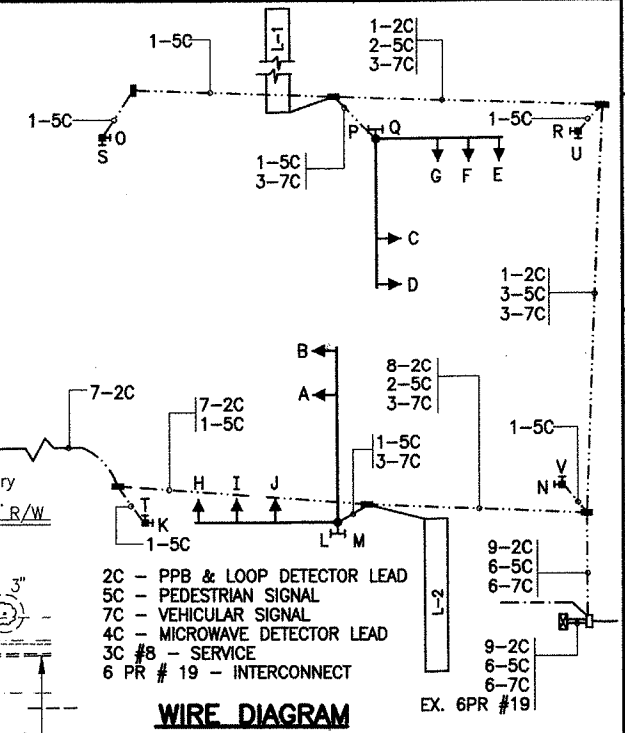
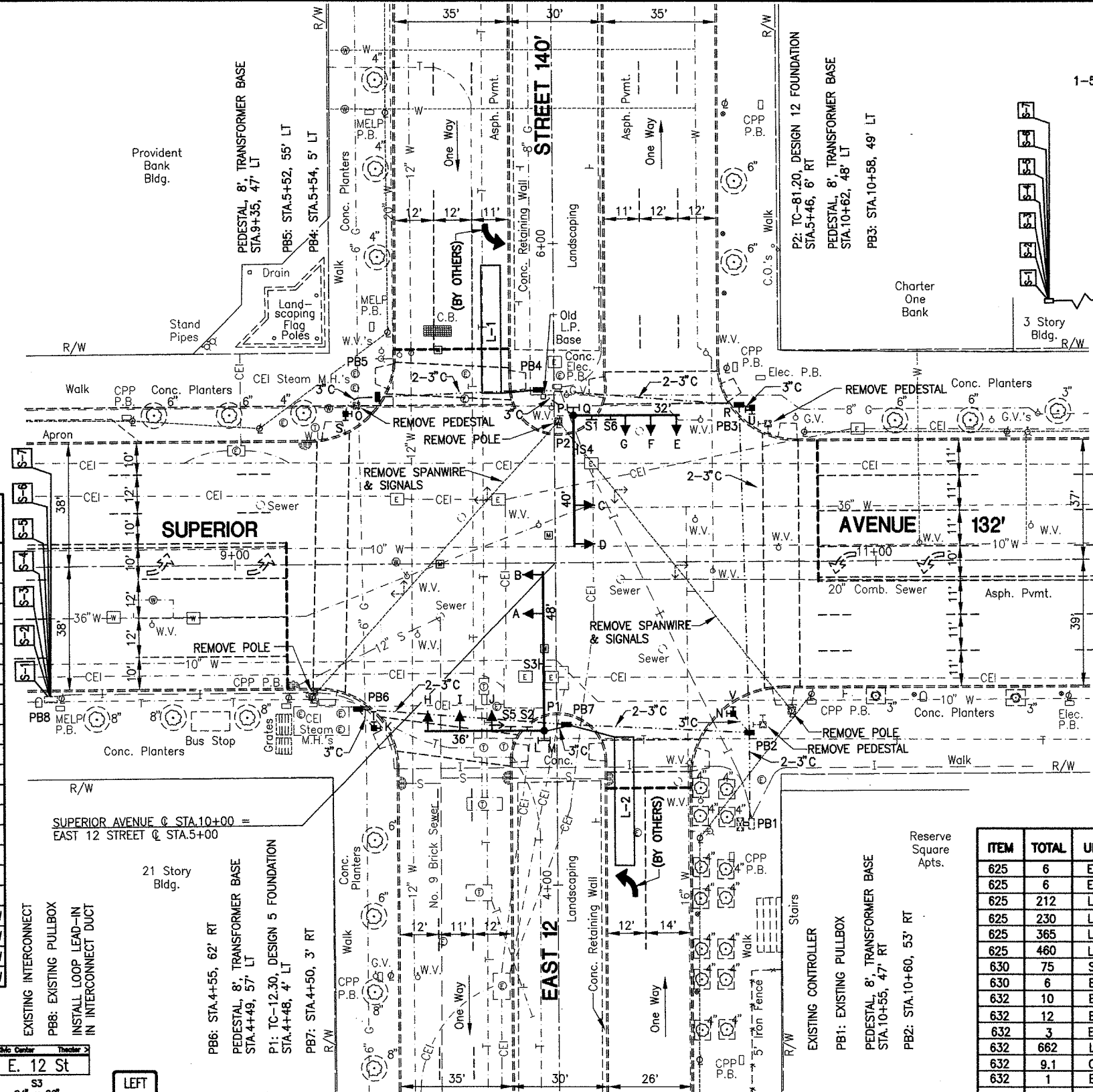
SIGN LEGEND



12" SIGNAL HEADS RIGID MOUNTED

LOOP	SIZE	TURNS	MODE	DELAY	PHASE	REMARK	INHIBITED DELAY	LOCATION 1ST FRONT CORNER	LOCATION 2ND FRONT CORNER
L-1	6'X40'	2	PRESENCE		4			STA.5+53, 16.5' L	STA.5+53, 22.5' L
L-2	6'X40'	2	PRESENCE		2			STA.4+46, 18' R	STA.4+46, 24' R
S-1	6'X6'	3	BOTH			SYSTEM		STA.6+75±, 35' R	STA.6+75±, 29' R
S-2	6'X6'	3	BOTH			SYSTEM		STA.6+75±, 24' R	STA.6+75±, 18' R
S-3	6'X6'	3	BOTH			SYSTEM		STA.6+75±, 12' R	STA.6+75±, 6' R
S-4	6'X6'	3	BOTH			SYSTEM		STA.6+75±, 1' R	STA.6+75±, 5' L
S-5	6'X6'	3	BOTH			SYSTEM		STA.6+75±, 9' L	STA.6+75±, 15' L
S-6	6'X6'	3	BOTH			SYSTEM		STA.6+75±, 20' L	STA.6+75±, 26' L
S-7	6'X6'	3	BOTH			SYSTEM		STA.6+75±, 31' L	STA.6+75±, 37' L

LOOP DETECTOR CHART



WIRE DIAGRAM

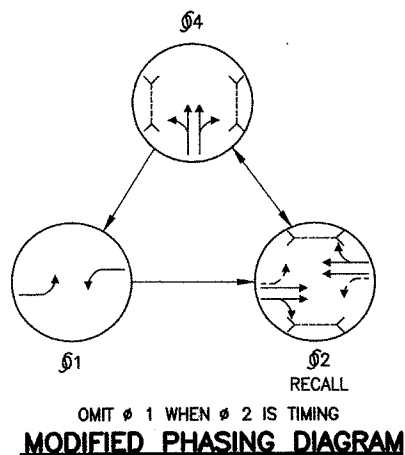
ITEM	TOTAL	UNIT	DESCRIPTION
625	6	EA	GROUND ROD
625	6	EA	PULLBOX, AS PER PLAN
625	212	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	230	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	365	LF	CONDUIT, 3", 713.07
625	460	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
630	75	SF	SIGN, FLAT SHEET, TYPE G
630	6	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
632	10	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	12	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	3	EA	LOOP DETECTOR UNIT, DELAY AND EXTENSION TYPE, AS PER PLAN
632	662	LF	LOOP DETECTOR PAVEMENT CUTTING
632	9.1	CY	CONCRETE FOR ANCHOR BASE FOUNDATION
632	1	EA	SIGNAL SUPPORT, TYPE TC-12.30 DESIGN 5 POLE, WITH MAST ARMS TC-81.20 DESIGN 4, 36 FEET AND TC-81.20 DESIGN 11, 48 FEET, AS PER PLAN
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20 DESIGN 12 POLE, WITH MAST ARMS TC-81.20 DESIGN 3, 32 FEET AND TC-81.20 DESIGN 4, 40 FEET, AS PER PLAN
632	4	EA	PEDESTAL, 8', TRANSFORMER BASE
632	1155	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	1429	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	1582	LF	LOOP DETECTOR WIRE, TYPE E
632	3407	LF	LOOP DETECTOR LEAD-IN CABLE
632	10	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER ITEM, MISC.: FIELD CONNECTIONS TO EXISTING CONTROLLER
633	1	EA	CONTROLLER ITEM, MISC.: MODIFY EXISTING CONTROLLER OPERATIONS

DATE: 02-25-1997 TIME: 10:27:48

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 86.

FOR POLE CHART SEE SHEET 88.

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES.



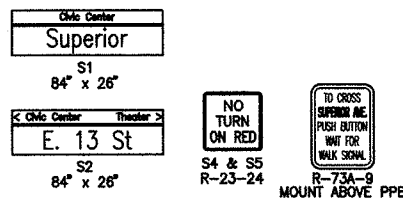
SIGNAL HEAD	phi 1		phi 2		phi 3		phi 4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A	R	R	G	Y			R	R	Y	G
B	R	R	G	Y			R	R	Y	G
C	R	R	G	Y			R	R	Y	G
D	R	R	G	Y			R	R	Y	G
E	R	R	R	R			G	Y	R	R
F	R	R	R	R			G	Y	R	R
G	DW	DW	W/(DW)	DW	DW		DW	DW	DW	DW
H	DW	DW	W/(DW)	DW	DW		DW	DW	DW	DW
I	DW	DW	W/(DW)	DW	DW		DW	DW	DW	DW
J	DW	DW	W/(DW)	DW	DW		DW	DW	DW	DW
K	DW	DW	DW	DW	DW		W/(DW)	DW	DW	DW
L	DW	DW	DW	DW	DW		W/(DW)	DW	DW	DW
M	DW	DW	DW	DW	DW		W/(DW)	DW	DW	DW
N	DW	DW	DW	DW	DW		W/(DW)	DW	DW	DW

W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK

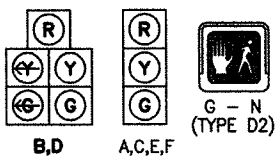
SIGNAL SEQUENCE CHART

FUNCTION	phi 1	phi 2	phi 3	phi 4
INITIAL GREEN	4	-	-	8
MINIMUM GREEN	-	32	-	-
VEHICLE EXTENSION	2	-	-	2
MAXIMUM GREEN	6	-	-	36
PEDESTRIAN WALK	-	7	-	7
PEDESTRIAN CLEAR.	-	12	-	17
VEH. YELLOW CLEAR.	3	3	-	3
VEHICLE RED CLEAR.	1.5	2	-	2.5
RECALL	NO	PED	-	NO
MEMORY	NO	NO	-	NO

SIGNAL TIMING CHART



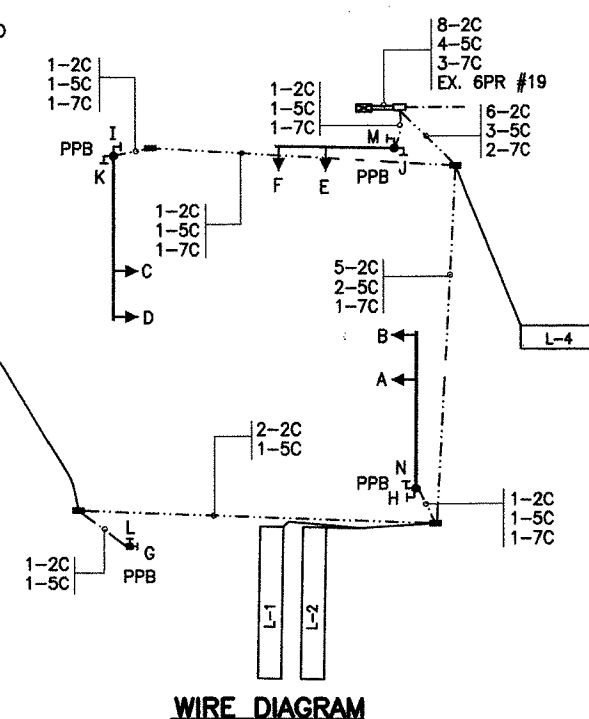
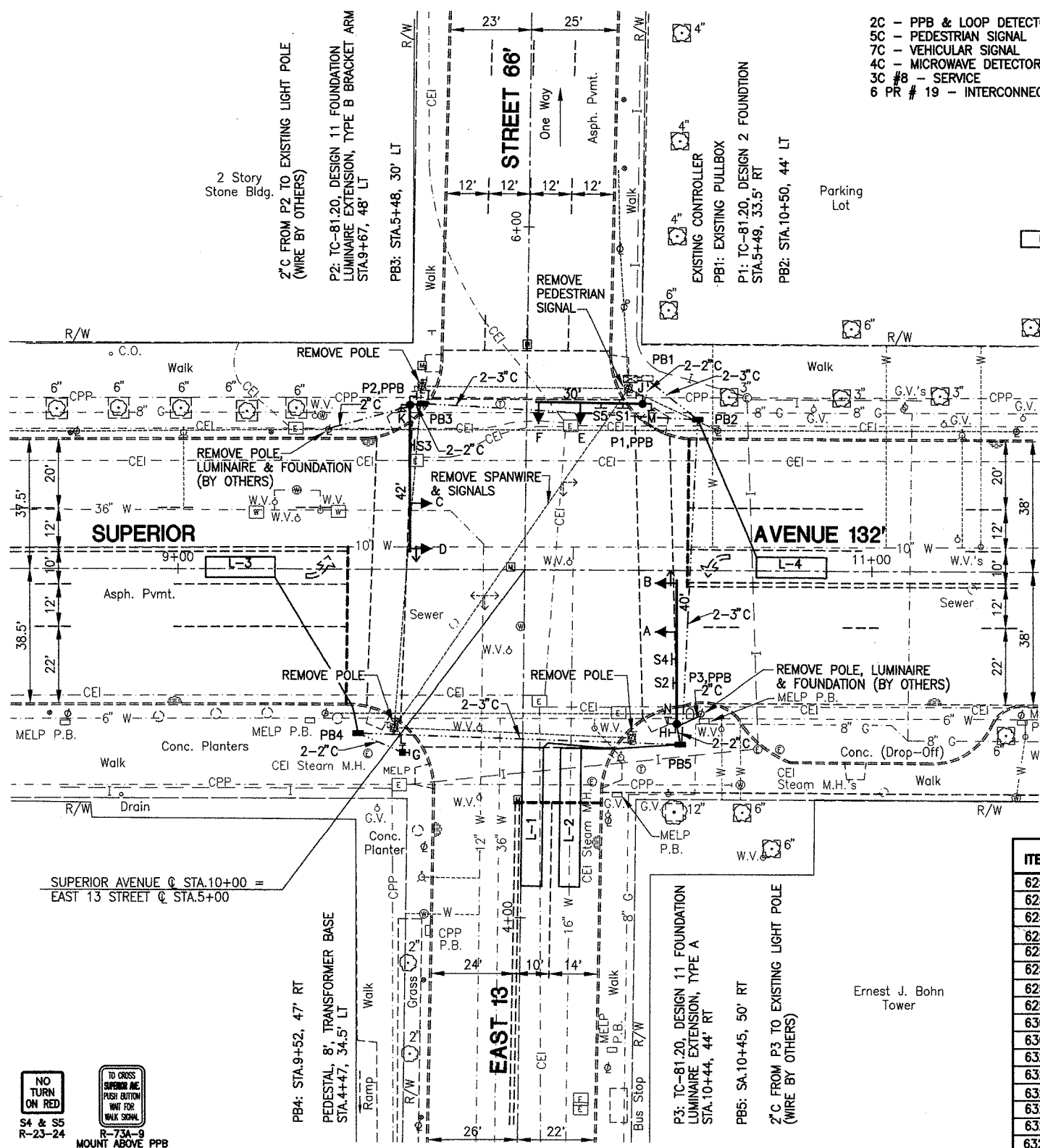
SIGN LEGEND



12" SIGNAL HEADS
RIGID MOUNTED

LOOP	SIZE	TURNS	MODE	DELAY	PHASE	REMARK	INHIBITED DELAY	LOCATION 1ST FRONT CORNER	LOCATION 2ND FRONT CORNER
L-1	6'X40'	2	PRESENCE	3	4		NO	STA.4+49, 0' R	STA.4+49, 6' R
L-2	6'X40'	2	PRESENCE	3	4		NO	STA.4+49, 11' R	STA.4+49, 17' R
L-3	6'X20'	2	PRESENCE	3	1		YES	STA.9+28, 3.5' L	STA.9+28, 2.5' R
L-4	6'X20'	2	PRESENCE	3	1		YES	STA.10+67, 4' L	STA.10+67, 2' R

LOOP DETECTOR CHART

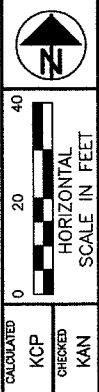


WIRE DIAGRAM

ITEM	TOTAL	UNIT	DESCRIPTION
625	4	EA	GROUND ROD
625	4	EA	PULLBOX, AS PER PLAN
625	159	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	195	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	94	LF	CONDUIT, 2", 713.07
625	184	LF	CONDUIT, 3", 713.07
625	390	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
625	1	EA	BRACKET ARM, 6', AS PER PLAN
630	54	SF	SIGN, FLAT SHEET, TYPE G
630	5	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
632	4	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	2	EA	VEHICULAR SIGNAL HEAD, 5-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	8	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	4	EA	PEDESTRIAN PUSHBUTTON, AS PER PLAN
632	1	EA	LOOP DETECTOR UNIT, DELAY AND EXTENSION TYPE, AS PER PLAN
632	364	LF	LOOP DETECTOR PAVEMENT CUTTING
632	7.2	CY	CONCRETE FOR ANCHOR BASE FOUNDATION
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 2, WITH 30' ARM, A.P.P.
632	1	EA	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 11, WITH 40' ARM, AS PER PLAN
632	1	EA	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 11, WITH 42' ARM, AS PER PLAN
632	1	EA	PEDESTAL, 8', TRANSFORMER BASE
632	597	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	526	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	962	LF	LOOP DETECTOR WIRE, TYPE E
632	1089	LF	LOOP DETECTOR LEAD-IN CABLE
632	6	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER ITEM, MISC.: FIELD CONNECTIONS TO EXISTING CONTROLLER
633	1	EA	CONTROLLER ITEM, MISC.: MODIFY EXISTING CONTROLLER OPERATIONS

INTERSECTION OF SUPERIOR AVENUE AND EAST 13 STREET

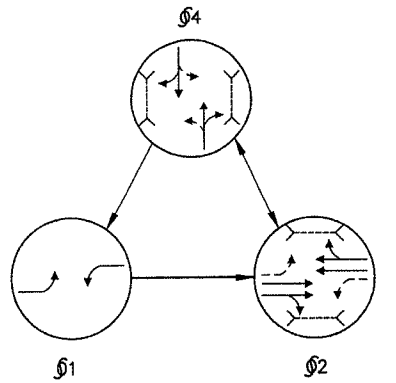
CUYAHOGA COUNTY
CUY-6-15.55 & VARIOUS



FOR SIGNAL COORDINATION INFORMATION SEE SHEET 86.

FOR POLE CHART SEE SHEET 88.

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES.



OMIT phi 1 WHEN phi 2 IS TIMING
MODIFIED PHASING DIAGRAM

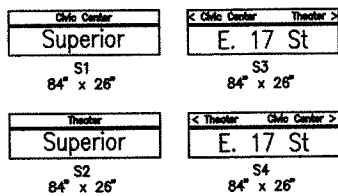
SIGNAL HEAD	phi 1		phi 2		phi 3		phi 4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A	R	R	R	G	Y	R				
B	R	R	R	G	Y	R				
C	R	R	R	G	Y	R				
D	R	R	R	G	Y	R				
E	R	R	R	R	R	R				
F	R	R	R	R	R	R				
G	R	R	R	R	R	R				
H	R	R	R	R	R	R				
I	DW	DW	DW	W/(DW)	DW	DW				
J	DW	DW	DW	W/(DW)	DW	DW				
K	DW	DW	DW	W/(DW)	DW	DW				
L	DW	DW	DW	W/(DW)	DW	DW				
M	DW	DW	DW	DW	DW	DW				
N	DW	DW	DW	DW	DW	DW				
O	DW	DW	DW	DW	DW	DW				
P	DW	DW	DW	DW	DW	DW				

W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK

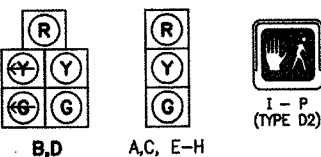
SIGNAL SEQUENCE CHART

FUNCTION	phi 1	phi 2	phi 3	phi 4
INITIAL GREEN	4	-	-	8
MINIMUM GREEN	-	30	-	-
VEHICLE EXTENSION	2	-	-	2
MAXIMUM GREEN	10	-	-	25
PEDESTRIAN WALK	-	7	-	7
PEDESTRIAN CLEAR	-	7	-	18
VEH. YELLOW CLEAR	3	3	-	3
VEHICLE RED CLEAR	1.2	1.5	-	2.5
RECALL	NO	PED	-	NO
MEMORY	NO	NO	-	NO

SIGNAL TIMING CHART



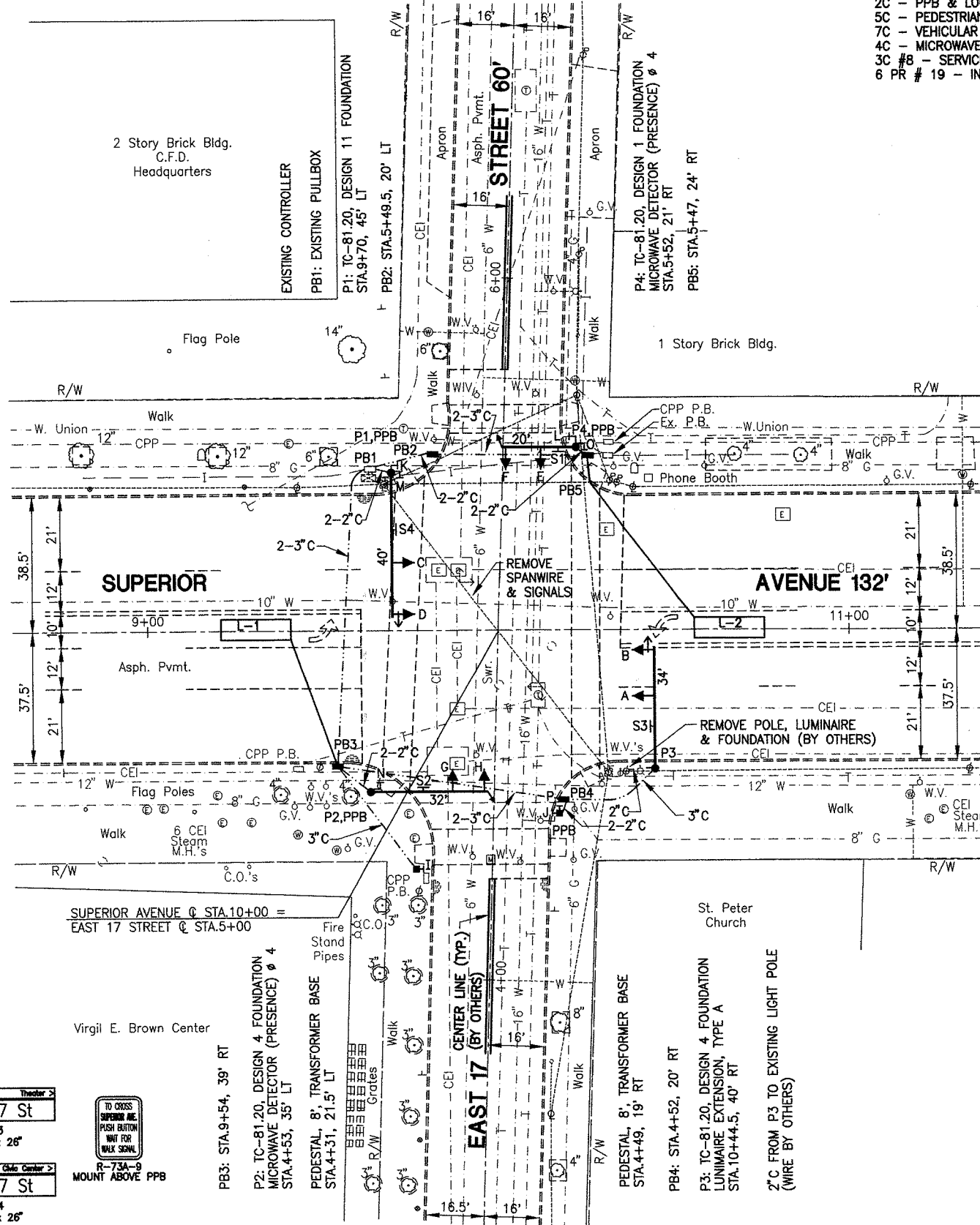
SIGN LEGEND



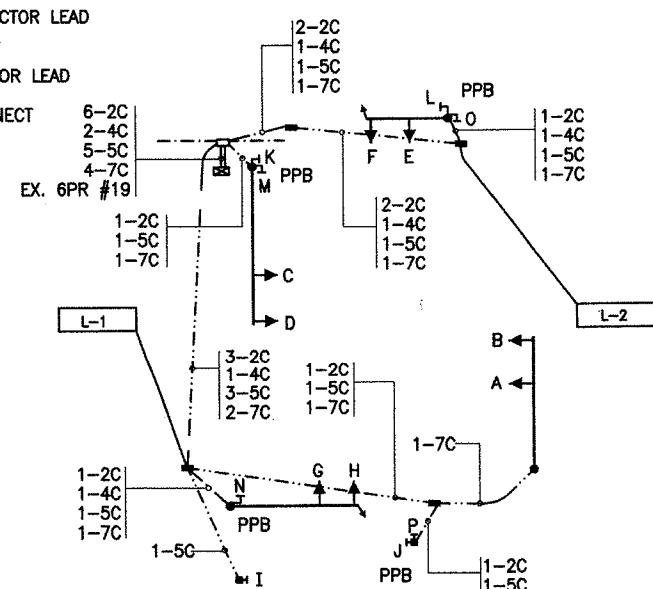
12" SIGNAL HEADS
RIGID MOUNTED

LOOP	SIZE	TURNS	MODE	DELAY	PHASE	REMARK	INHIBITED DELAY	LOCATION 1ST FRONT CORNER	LOCATION 2ND FRONT CORNER
L-1	6'X20'	2	PRESENCE	3	1		YES	STA.9+41, 3.5' L	STA.9+41, 2.5' R
L-2	6'X20'	2	PRESENCE	3	1		YES	STA.10+56, 2.5' R	STA.10+56, 3.5' L

LOOP DETECTOR CHART



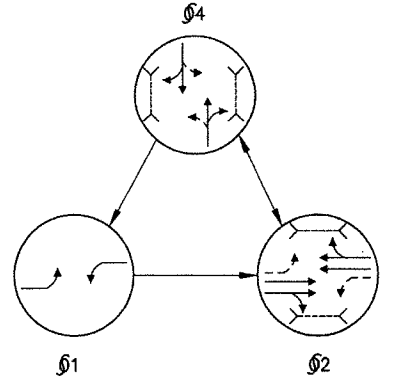
- 2C - PPB & LOOP DETECTOR LEAD
- 5C - PEDESTRIAN SIGNAL
- 7C - VEHICULAR SIGNAL
- 4C - MICROWAVE DETECTOR LEAD
- 3C #8 - SERVICE
- 6 PR # 19 - INTERCONNECT



WIRE DIAGRAM

ITEM	TOTAL	UNIT	DESCRIPTION
625	6	EA	GROUND ROD
625	4	EA	PULLBOX, AS PER PLAN
625	150	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	162	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	96	LF	CONDUIT, 2", 713.07
625	132	LF	CONDUIT, 3", 713.07
625	324	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
630	61	SF	SIGN, FLAT SHEET, TYPE G
630	4	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
632	6	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	2	EA	VEHICULAR SIGNAL HEAD, 5-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	8	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	4	EA	PEDESTRIAN PUSHBUTTON, AS PER PLAN
632	1	EA	LOOP DETECTOR UNIT, DELAY AND EXTENSION TYPE, AS PER PLAN
632	2	EA	SIGNALIZATION, MISC.: MICROWAVE DETECTOR
632	195	LF	LOOP DETECTOR PAVEMENT CUTTING
632	10.3	CY	CONCRETE FOR ANCHOR BASE FOUNDATION
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 20' ARM, A.P.P.
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 32' ARM, A.P.P.
632	1	EA	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 34' ARM, AS PER PLAN
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 11, WITH 40' ARM, A.P.P.
632	2	EA	PEDESTAL, 8", TRANSFORMER BASE
632	614	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	672	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	420	LF	LOOP DETECTOR WIRE, TYPE E
632	623	LF	LOOP DETECTOR LEAD-IN CABLE
632	254	LF	SIGNALIZATION, MISC.: MICROWAVE DETECTOR LEAD-IN CABLE
632	8	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER ITEM, MISC.: FIELD CONNECTIONS TO EXISTING CONTROLLER
633	1	EA	CONTROLLER ITEM, MISC.: MODIFY EXISTING CONTROLLER OPERATIONS

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 86.
 FOR POLE CHART SEE SHEET 88.
 EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES.



MODIFIED PHASING DIAGRAM

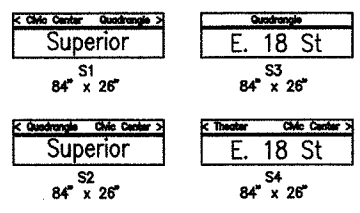
SIGNAL HEAD	phi 1		phi 2		phi 3		phi 4		FLASH	DWELL	
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR			
A	R	R	R	G	Y	R		R	R	Y	G
B	R	R	R	G	Y	R		R	R	Y	G
C	R	R	R	G	Y	R		R	R	Y	G
D	R	R	R	G	Y	R		R	R	Y	G
E	R	R	R	R	R	R		G	Y	R	R
F	R	R	R	R	R	R		G	Y	R	R
G	R	R	R	R	R	R		G	Y	R	R
H	R	R	R	R	R	R		G	Y	R	R
I	DW	DW	DW	W/(DW)	DW	DW		DW	DW	DW	D
J	DW	DW	DW	W/(DW)	DW	DW		DW	DW	DW	D
K	DW	DW	DW	W/(DW)	DW	DW		DW	DW	DW	D
L	DW	DW	DW	W/(DW)	DW	DW		DW	DW	DW	D
M	DW	DW	DW	DW	DW	DW		W/(DW)	DW	DW	D
N	DW	DW	DW	DW	DW	DW		W/(DW)	DW	DW	D
O	DW	DW	DW	DW	DW	DW		W/(DW)	DW	DW	D
P	DW	DW	DW	DW	DW	DW		W/(DW)	DW	DW	D

W-WALK (DW)-FLASHING DONT WALK DW-DONT WALK D-DARK

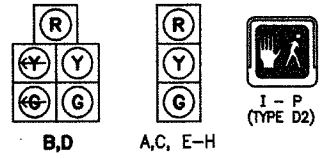
SIGNAL SEQUENCE CHART

FUNCTION	phi 1	phi 2	phi 3	phi 4
INITIAL GREEN	4	-	-	8
MINIMUM GREEN	-	30	-	-
VEHICLE EXTENSION	2	-	-	2
MAXIMUM GREEN	10	-	-	25
PEDESTRIAN WALK	-	-	-	7
PEDESTRIAN CLEAR.	-	12	-	18
VEH. YELLOW CLEAR.	3	3	-	3
VEHICLE RED CLEAR.	1.5	2	-	2.5
RECALL	NO	PED	-	NO
MEMORY	NO	NO	-	NO

SIGNAL TIMING CHART



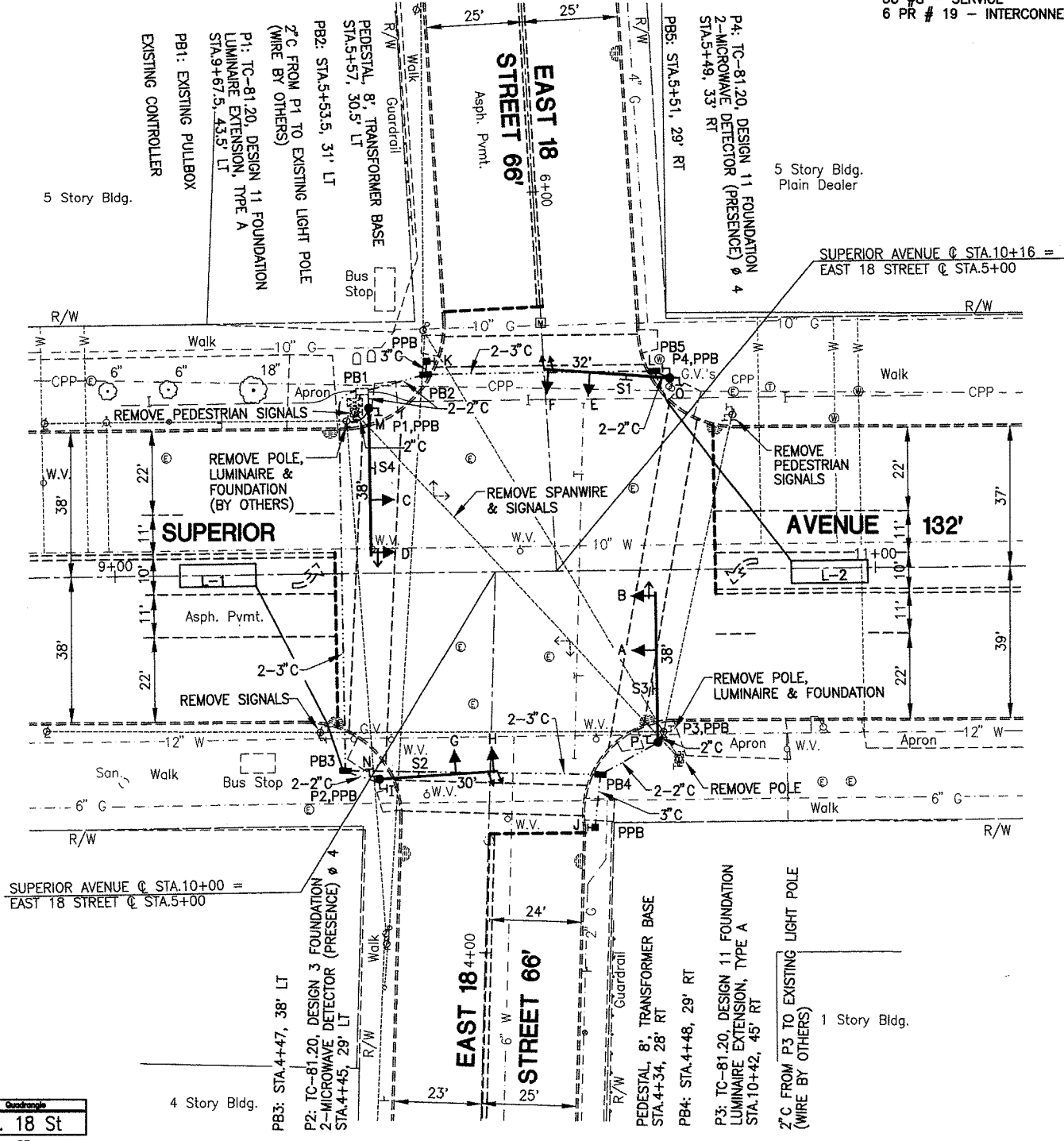
SIGN LEGEND



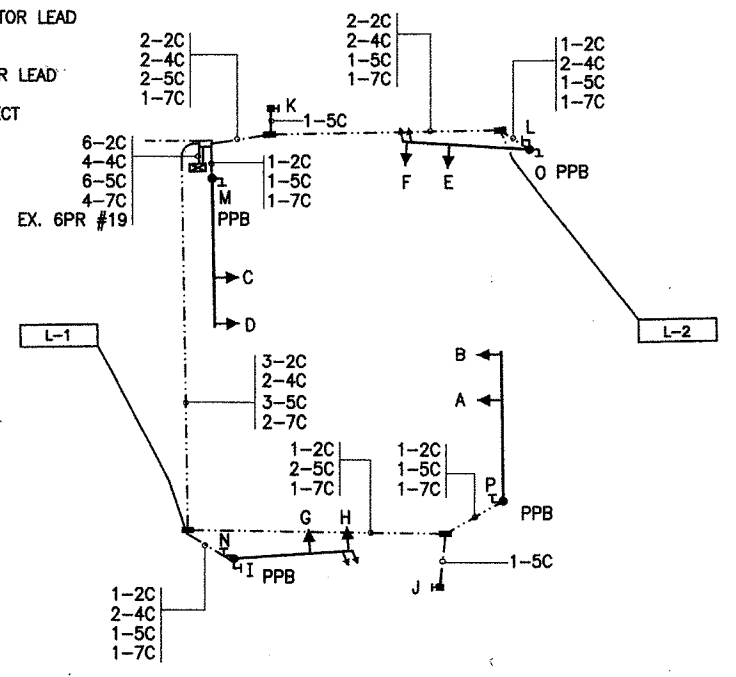
12" SIGNAL HEADS
RIGID MOUNTED

LOOP	SIZE	TURNS	MODE	DELAY	PHASE	REMARK	INHIBITED DELAY	LOCATION 1ST FRONT CORNER	LOCATION 2ND FRONT CORNER
L-1	6'X20'	2	PRESENCE	3	1		YES	STA.9+37, 3' L	STA.9+37, 3' R
L-2	6'X20'	2	PRESENCE	3	1		YES	STA.10+78, 4' R	STA.10+78, 2' L

LOOP DETECTOR CHART



- 2C - PPB & LOOP DETECTOR LEAD
- 5C - PEDESTRIAN SIGNAL
- 7C - VEHICULAR SIGNAL
- 4C - MICROWAVE DETECTOR LEAD
- 3C #8 - SERVICE
- 6 PR # 19 - INTERCONNECT



WIRE DIAGRAM

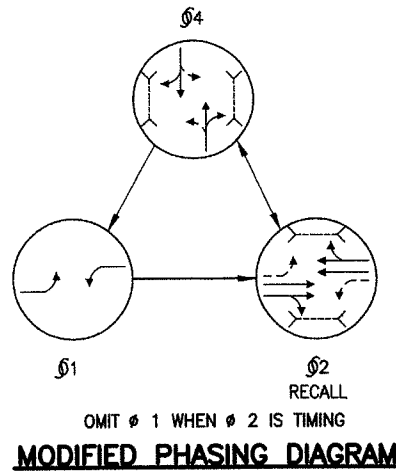
ITEM	TOTAL	UNIT	DESCRIPTION
625	6	EA	GROUND ROD
625	4	EA	PULLBOX, AS PER PLAN
625	115	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	192	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	115	LF	CONDUIT, 2", 713.07
625	85	LF	CONDUIT, 3", 713.07
625	384	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
630	61	SF	SIGN, FLAT SHEET, TYPE G
630	4	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
632	6	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	2	EA	VEHICULAR SIGNAL HEAD, 5-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	8	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	4	EA	PEDESTRIAN PUSHBUTTON, AS PER PLAN
632	1	EA	LOOP DETECTOR UNIT, DELAY AND EXTENSION TYPE, AS PER PLAN
632	4	EA	SIGNALIZATION, MISC.: MICROWAVE DETECTOR
632	199	LF	LOOP DETECTOR PAVEMENT CUTTING
632	10.5	CY	CONCRETE FOR ANCHOR BASE FOUNDATION
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, WITH 30' ARM, A.P.P.
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 11, WITH 32' ARM, A.P.P.
632	2	EA	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 11, WITH 38' ARM, AS PER PLAN
632	2	EA	PEDESTAL, 8', TRANSFORMER BASE
632	782	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	717	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	436	LF	LOOP DETECTOR WIRE, TYPE E
632	700	LF	LOOP DETECTOR LEAD-IN CABLE
632	659	LF	SIGNALIZATION, MISC.: MICROWAVE DETECTOR LEAD-IN CABLE
632	8	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER ITEM, MISC.: FIELD CONNECTIONS TO EXISTING CONTROLLER
633	1	EA	CONTROLLER ITEM, MISC.: MODIFY EXISTING CONTROLLER OPERATIONS

INTERSECTION OF SUPERIOR AVENUE AND EAST 18 STREET
 CUYAHOGA COUNTY
 CUY-6-15.55 & VARIOUS
 SCALE IN FEET
 HORIZONTAL
 0 20 40
 CALCULATED KCP CHECKED KAN
 50 89

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 86.

FOR POLE CHART SEE SHEET 88.

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES.



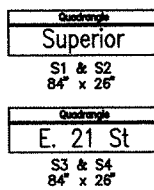
SIGNAL HEAD	1		2		3		4		FLASH	DWELL			
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR					
A	R	R	R	G	Y	R			R	R	Y	G	
B	R	R	R	G	Y	R			R	R	Y	G	
C	R	R	R	G	Y	R			R	R	Y	G	
D	R	R	R	G	Y	R			R	R	Y	G	
E	R	R	R	R	R	R			G	Y	R	R	
F	R	R	R	R	R	R			G	Y	R	R	
G	R	R	R	R	R	R			G	Y	R	R	
H	R	R	R	R	R	R			G	Y	R	R	
I	DW	DW	DW	W/(DW)	DW	DW			DW	DW	DW	D	W
J	DW	DW	DW	W/(DW)	DW	DW			DW	DW	DW	D	W
K	DW	DW	DW	W/(DW)	DW	DW			DW	DW	DW	D	W
L	DW	DW	DW	W/(DW)	DW	DW			DW	DW	DW	D	W
M	DW	DW	DW	DW	DW	DW			W/(DW)	DW	DW	D	DW
N	DW	DW	DW	DW	DW	DW			W/(DW)	DW	DW	D	DW
O	DW	DW	DW	DW	DW	DW			W/(DW)	DW	DW	D	DW
P	DW	DW	DW	DW	DW	DW			W/(DW)	DW	DW	D	DW

W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK

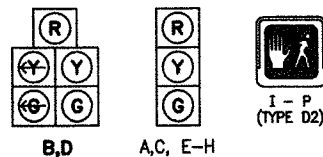
SIGNAL SEQUENCE CHART

FUNCTION	1	2	3	4
INITIAL GREEN	4	-	-	8
MINIMUM GREEN	-	30	-	-
VEHICLE EXTENSION	2	-	-	2
MAXIMUM GREEN	10	-	-	25
PEDESTRIAN WALK	-	7	-	7
PEDESTRIAN CLEAR	-	6	-	18
VEH. YELLOW CLEAR	3.6	3.6	-	3
VEHICLE RED CLEAR	1.5	1.5	-	2.5
RECALL	NO	PED	-	NO
MEMORY	NO	NO	-	NO

SIGNAL TIMING CHART



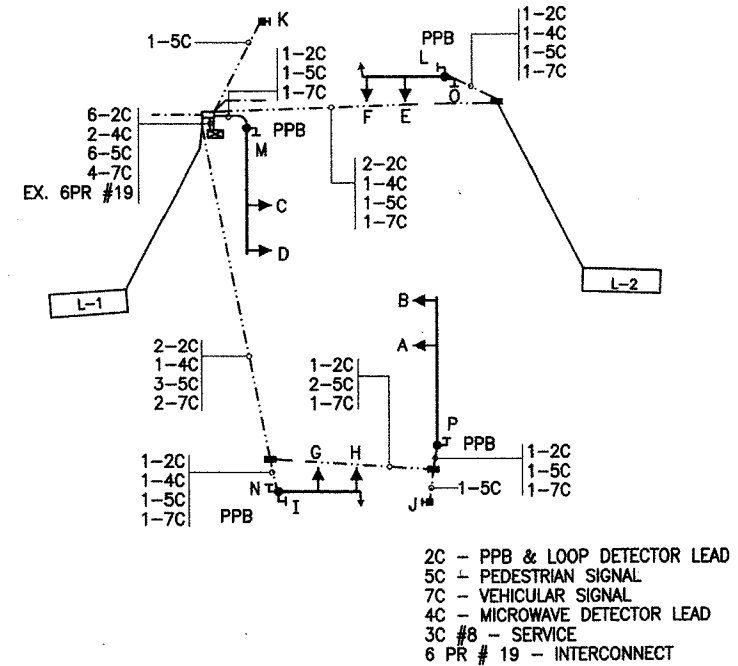
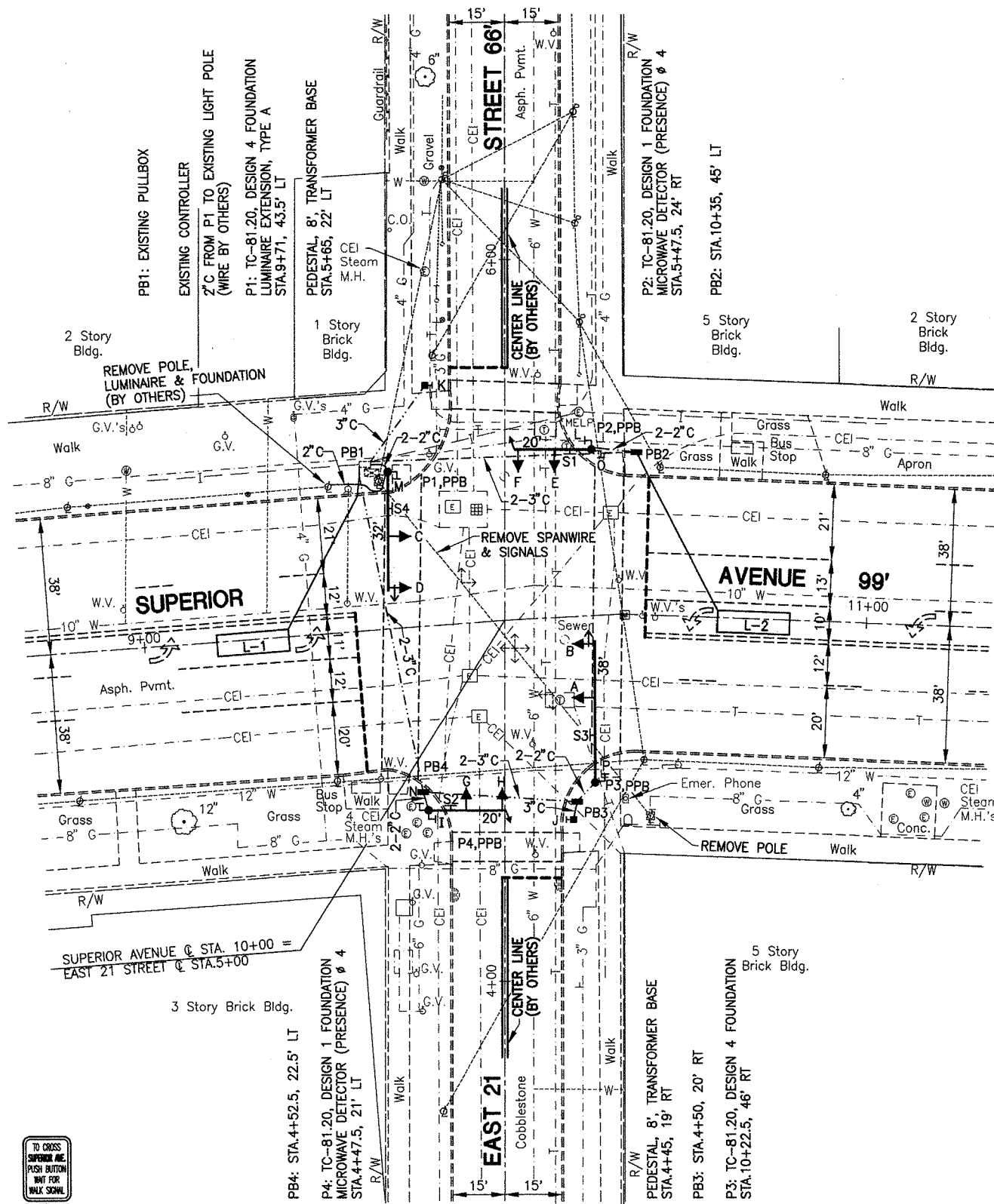
SIGN LEGEND



12" SIGNAL HEADS RIGID MOUNTED

LOOP	SIZE	TURNS	MODE	DELAY	PHASE	REMARK	INHIBITED DELAY	LOCATION 1ST FRONT CORNER	LOCATION 2ND FRONT CORNER
L-1	6'X20'	2	PRESENCE	3	1		YES	STA.9+40, 2' L	STA.9+40, 4' R
L-2	6'X20'	2	PRESENCE	3	1		YES	STA.10+59, 2' L	STA.10+59, 4' R

LOOP DETECTOR CHART



WIRE DIAGRAM

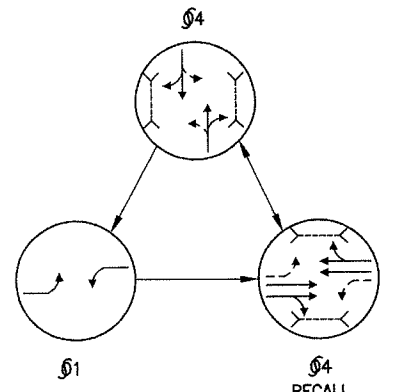
ITEM	TOTAL	UNIT	DESCRIPTION
625	6	EA	GROUND ROD
625	3	EA	PULLBOX, AS PER PLAN
625	133	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	157	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	80	LF	CONDUIT, 2", 713.07
625	134	LF	CONDUIT, 3", 713.07
625	314	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
630	61	SF	SIGN, FLAT SHEET, TYPE G
630	4	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
632	6	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	2	EA	VEHICULAR SIGNAL HEAD, 5-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	8	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	4	EA	PEDESTRIAN PUSHBUTTON, AS PER PLAN
632	1	EA	LOOP DETECTOR UNIT, DELAY AND EXTENSION TYPE, AS PER PLAN
632	2	EA	SIGNALIZATION, MISC.: MICROWAVE DETECTOR
632	188	LF	LOOP DETECTOR PAVEMENT CUTTING
632	9.1	CY	CONCRETE FOR ANCHOR BASE FOUNDATION
632	2	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 20' ARM, A.P.P.
632	1	EA	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 32' ARM, AS PER PLAN
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 38' ARM, A.P.P.
632	2	EA	PEDESTAL, 8", TRANSFORMER BASE
632	682	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	623	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	432	LF	LOOP DETECTOR WIRE, TYPE E
632	521	LF	LOOP DETECTOR LEAD-IN CABLE
632	239	LF	SIGNALIZATION, MISC.: MICROWAVE DETECTOR LEAD-IN CABLE
632	8	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER ITEM, MISC.: FIELD CONNECTIONS TO EXISTING CONTROLLER
633	1	EA	CONTROLLER ITEM, MISC.: MODIFY EXISTING CONTROLLER OPERATIONS

DATE: 02-25-1997 TIME: 11:25:53

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 86.

FOR POLE CHART SEE SHEET 88.

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES.



OMIT # 1 WHEN # 2 IS TIMING
MODIFIED PHASING DIAGRAM

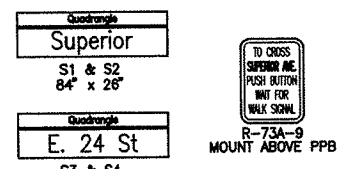
SIGNAL HEAD	φ1		φ2		φ3		φ4		FLASH	DWELL		
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR				
A	R	R	R	G	Y	R			R	R	Y	G
B	R	R	R	G	Y	R			R	R	Y	G
C	R	R	R	G	Y	R			R	R	Y	G
D	R	R	R	G	Y	R			R	R	Y	G
E	R	R	R	R	R	R			G	Y	R	R
F	R	R	R	R	R	R			G	Y	R	R
G	R	R	R	R	R	R			G	Y	R	R
H	R	R	R	R	R	R			G	Y	R	R
I	DW	DW	DW	W/(DW)	DW	DW			DW	DW	DW	DW
J	DW	DW	DW	W/(DW)	DW	DW			DW	DW	DW	DW
K	DW	DW	DW	W/(DW)	DW	DW			DW	DW	DW	DW
L	DW	DW	DW	W/(DW)	DW	DW			DW	DW	DW	DW
M	DW	DW	DW	DW	DW	DW			W/(DW)	DW	DW	DW
N	DW	DW	DW	DW	DW	DW			W/(DW)	DW	DW	DW
O	DW	DW	DW	DW	DW	DW			W/(DW)	DW	DW	DW
P	DW	DW	DW	DW	DW	DW			W/(DW)	DW	DW	DW

W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK

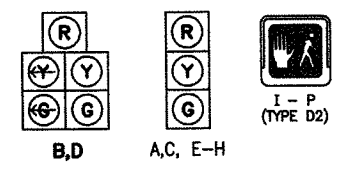
SIGNAL SEQUENCE CHART

FUNCTION	φ1	φ2	φ3	φ4
INITIAL GREEN	4	-	-	8
MINIMUM GREEN	-	42	-	-
VEHICLE EXTENSION	2	-	-	2
MAXIMUM GREEN	6	-	-	25
PEDESTRIAN WALK	-	-	-	7
PEDESTRIAN CLEAR.	-	7	-	18
VEH. YELLOW CLEAR.	3.6	3.6	-	3
VEHICLE RED CLEAR.	1.5	1.5	-	2.5
RECALL	NO	PED	-	NO
MEMORY	NO	NO	-	NO

SIGNAL TIMING CHART



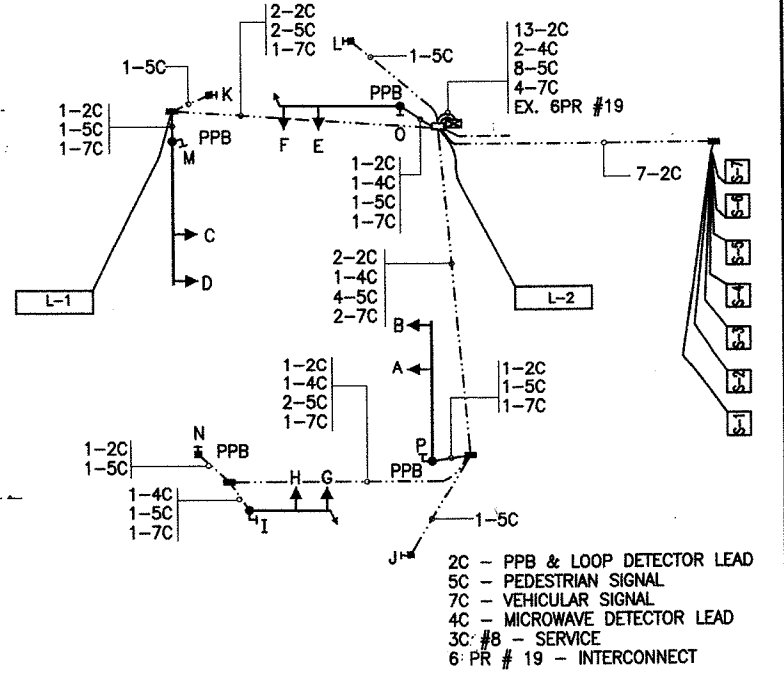
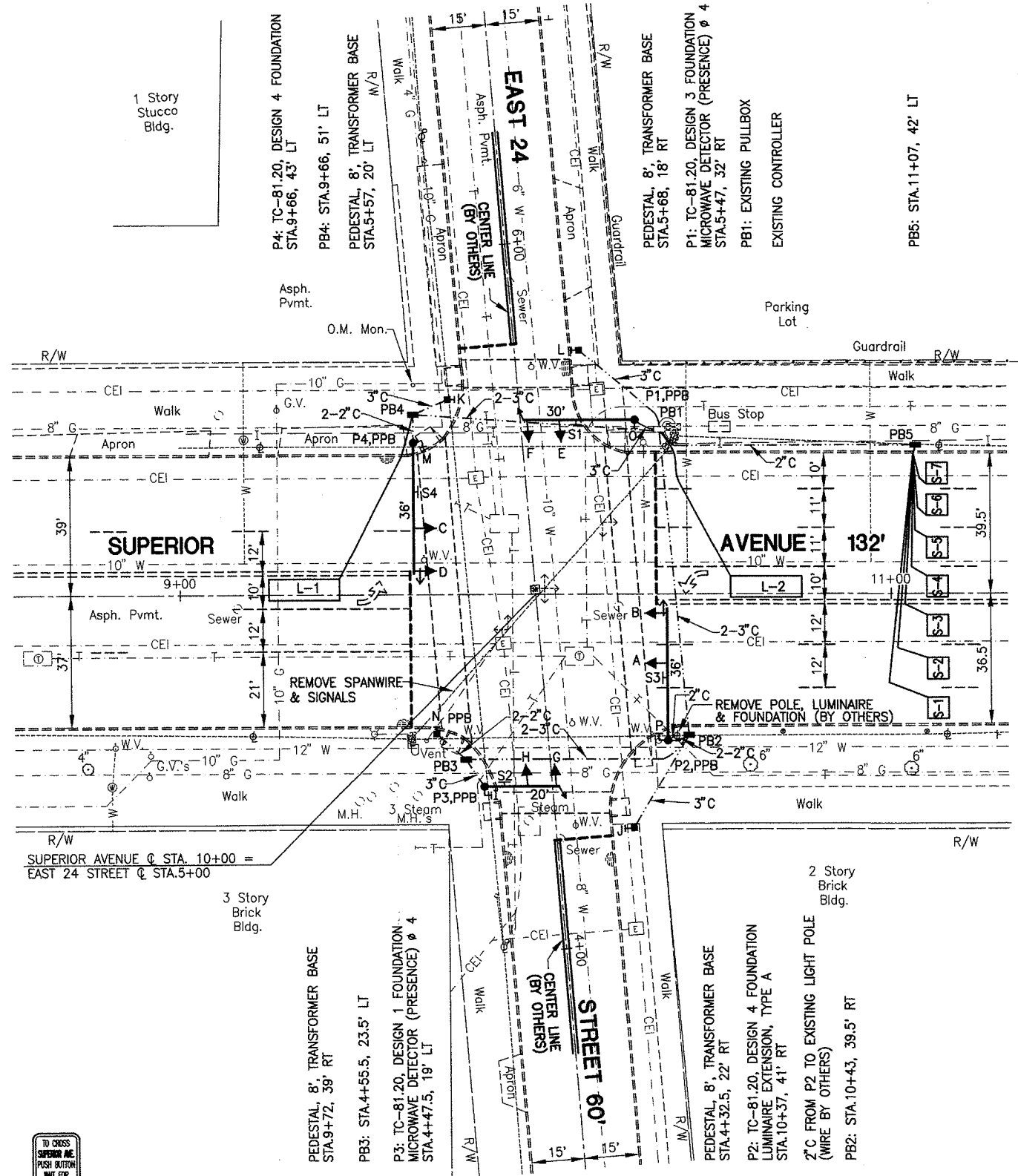
SIGN LEGEND



12" SIGNAL HEADS
RIGID MOUNTED

LOOP	SIZE	TURNS	MODE	DELAY	PHASE	REMARK	INHIBITED DELAY	LOCATION 1ST FRONT CORNER	LOCATION 2ND FRONT CORNER
L-1	6'X20'	2	PRESENCE	3	1		YES	STA.9+45, 4.5' L	STA.9+45, 1.5' R
L-2	6'X20'	2	PRESENCE	3	1		YES	STA.10+55, 1' R	STA.10+55, 5' L
S-1	6'X6'	3	BOTH			SYSTEM		STA.11+10, 35' R	STA.11+10, 29' R
S-2	6'X6'	3	BOTH			SYSTEM		STA.11+10, 24' R	STA.11+10, 18' R
S-3	6'X6'	3	BOTH			SYSTEM		STA.11+10, 12' R	STA.11+10, 6' R
S-4	6'X6'	3	BOTH			SYSTEM		STA.11+10, 1' R	STA.11+10, 5' L
S-5	6'X6'	3	BOTH			SYSTEM		STA.11+10, 10' L	STA.11+10, 16' L
S-6	6'X6'	3	BOTH			SYSTEM		STA.11+10, 22' L	STA.11+10, 28' L
S-7	6'X6'	3	BOTH			SYSTEM		STA.11+10, 31' L	STA.11+10, 37' L

LOOP DETECTOR CHART

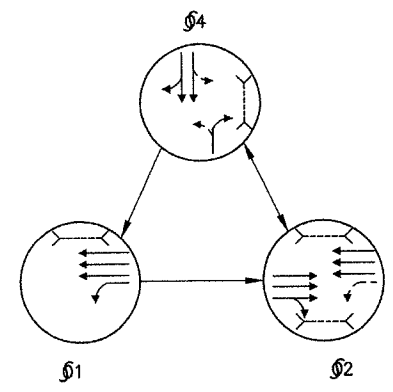


WIRE DIAGRAM

ITEM	TOTAL	UNIT	DESCRIPTION
625	8	EA	GROUND ROD
625	4	EA	PULLBOX, AS PER PLAN
625	184	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	153	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	56	LF	CONDUIT, 2", 713.07
625	224	LF	CONDUIT, 3", 713.07
625	306	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
630	61	SF	SIGN, FLAT SHEET, TYPE G
630	4	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
632	6	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	2	EA	VEHICULAR SIGNAL HEAD, 5-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	8	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	4	EA	PEDESTRIAN PUSHBUTTON, AS PER PLAN
632	3	EA	LOOP DETECTOR UNIT, DELAY AND EXTENSION TYPE, AS PER PLAN
632	2	EA	SIGNALIZATION, MISC.: MICROWAVE DETECTOR
632	480	LF	LOOP DETECTOR PAVEMENT CUTTING
632	10.2	CY	CONCRETE FOR ANCHOR BASE FOUNDATION
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 20' ARM, A.P.P.
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, WITH 30' ARM, A.P.P.
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 36' ARM, A.P.P.
632	1	EA	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 36' ARM, AS PER PLAN
632	4	EA	PEDESTAL, 8', TRANSFORMER BASE
632	959	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	650	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	1256	LF	LOOP DETECTOR WIRE, TYPE E
632	628	LF	LOOP DETECTOR LEAD-IN CABLE
632	309	LF	SIGNALIZATION, MISC.: MICROWAVE DETECTOR LEAD-IN CABLE
632	8	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER ITEM, MISC.: FIELD CONNECTIONS TO EXISTING CONTROLLER
633	1	EA	CONTROLLER ITEM, MISC.: MODIFY EXISTING CONTROLLER OPERATIONS

DATE: 02-25-1997 TIME: 12:04:01
 8401DT35.DWG, PLOT SCALE: 1"=20'

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 86.
 FOR POLE CHART SEE SHEET 88.
 EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES.



OMIT phi 1 WHEN phi 2 IS TIMING
MODIFIED PHASING DIAGRAM

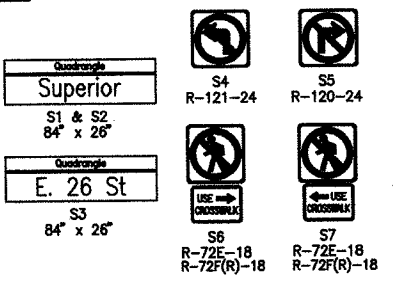
SIGNAL HEAD	phi 1		phi 2		phi 3		phi 4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A	R	R	R	G	Y	R	R	R	Y	G
B	R	R	R	G	Y	R	R	R	Y	G
C	G	G	G	G	Y	R	R	R	Y	G
D	G	G	G	G	Y	R	R	R	Y	G
E	R	R	R	R	R	R	G	Y	R	R
F	R	R	R	R	R	R	G	Y	R	R
G	R	R	R	R	R	R	G	Y	R	R
H	R	R	R	R	R	R	G	Y	R	R
I	DW	DW	DW	W/(DW)	DW	DW	DW	DW	D	W
J	DW	DW	DW	W/(DW)	DW	DW	DW	DW	D	W
K	W	W	W	W/(DW)	DW	DW	DW	DW	D	W
L	W	W	W	W/(DW)	DW	DW	DW	DW	D	W
M	DW	DW	DW	DW	DW	DW	W/(DW)	DW	DW	D
N	DW	DW	DW	DW	DW	DW	W/(DW)	DW	DW	D

W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK

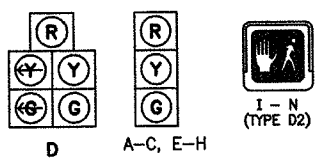
SIGNAL SEQUENCE CHART

FUNCTION	phi 1	phi 2	phi 3	phi 4
INITIAL GREEN	4	-	-	8
MINIMUM GREEN	-	30	-	-
VEHICLE EXTENSION	2	-	-	2
MAXIMUM GREEN	10	-	-	34
PEDESTRIAN WALK	-	7	-	7
PEDESTRIAN CLEAR.	-	9	-	18
VEH. YELLOW CLEAR.	3.6	3.6	-	3.6
VEHICLE RED CLEAR.	1.5	2	-	2.5
RECALL	NO	PED	-	NO
MEMORY	NO	NO	-	NO

SIGNAL TIMING CHART



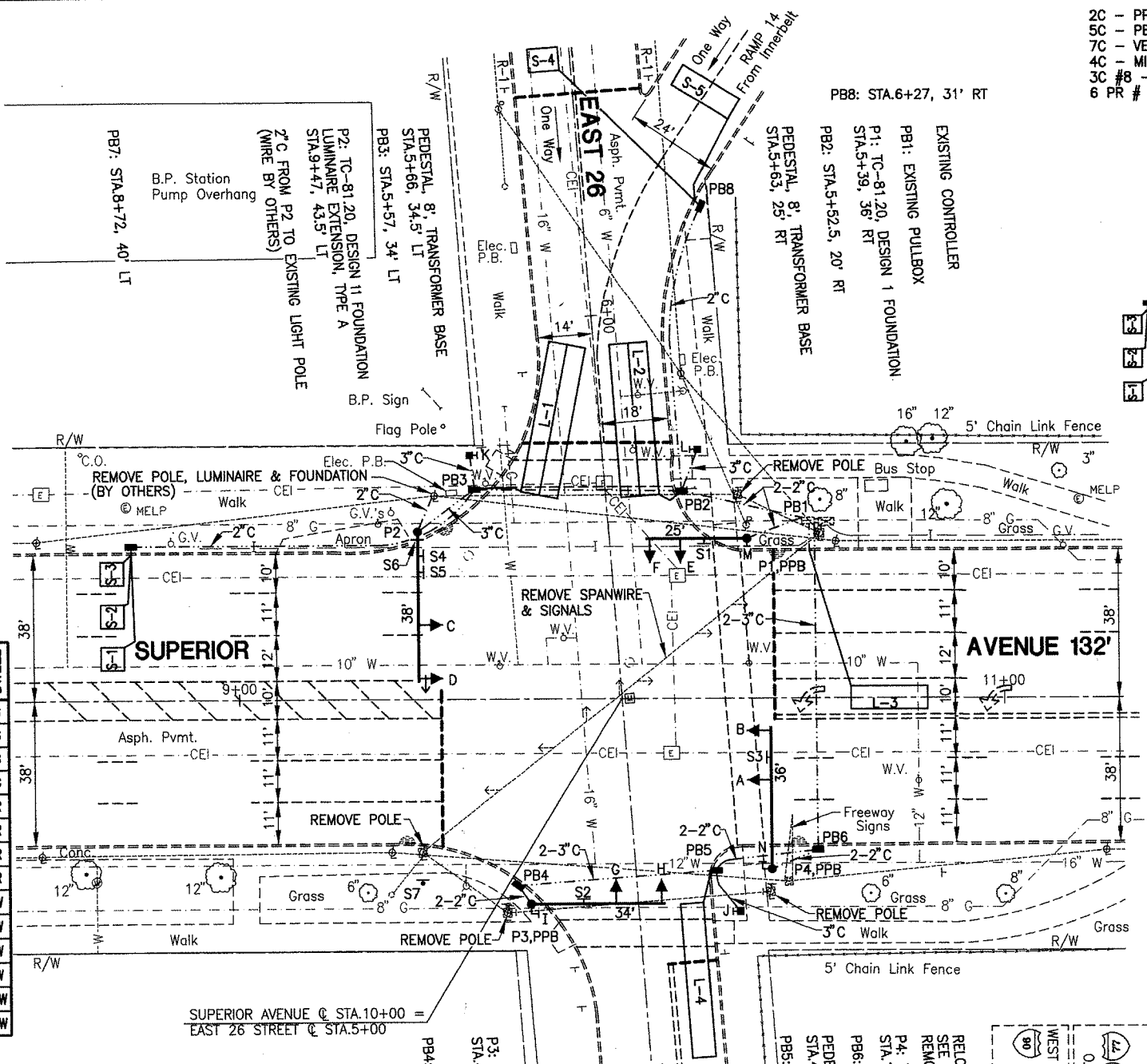
SIGN LEGEND



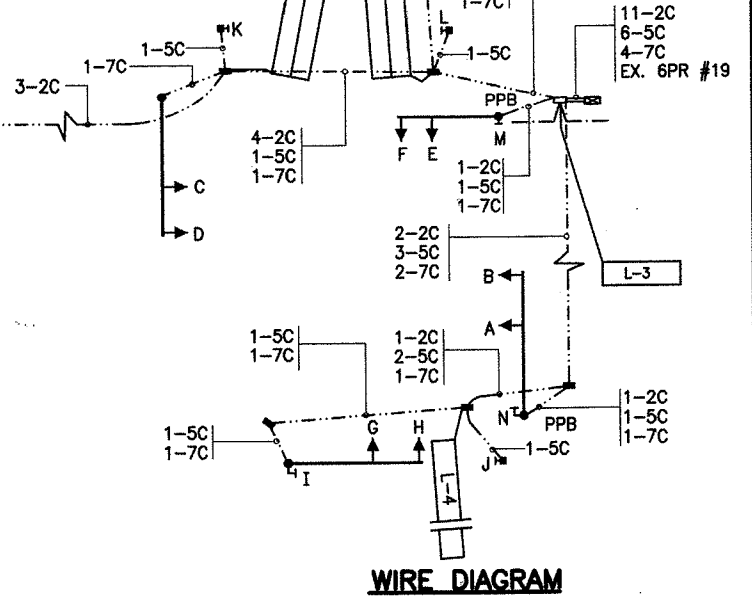
12" SIGNAL HEADS
RIGID MOUNTED

LOOP	SIZE	TURNS	MODE	DELAY	PHASE	REMARK	INHIBITED DELAY	LOCATION 1ST FRONT CORNER	LOCATION 2ND FRONT CORNER
L-1	10'X40'	2-4-2	PRESENCE		4	QUADRAPOLE		STA.5+53, 12.5' L	STA.5+55.5, 22' L
L-2	10'X40'	2-4-2	PRESENCE		4	QUADRAPOLE		STA.5+52, 4' R	STA.5+52, 14' R
L-3	6'X20'	2	PRESENCE	3	1		YES	STA.10+60, 3' R	STA.10+60, 3' L
L-4	6'X40'	2	PRESENCE	8	4		YES	STA.4+45, 11' R	STA.4+45, 17' R
S-1	6'X6'	3	BOTH			SYSTEM		STA.8+70, 8' L	STA.8+70, 14' L
S-2	6'X6'	3	BOTH			SYSTEM		STA.8+70, 19' L	STA.8+70, 25' L
S-3	6'X6'	3	BOTH			SYSTEM		STA.8+70, 30' L	STA.8+70, 36' L
S-4	6'X6'	3	BOTH			SYSTEM		STA.6+65, 3' L	STA.6+65, 11' L
S-5	6'X6'	3	BOTH			SYSTEM		STA.6+59, 26' R	STA.6+49, 40' R

LOOP DETECTOR CHART



- 2C - PPB & LOOP DETECTOR LEAD
- 5C - PEDESTRIAN SIGNAL
- 7C - VEHICULAR SIGNAL
- 4C - MICROWAVE DETECTOR LEAD
- 3C #8 - SERVICE
- 6 PR # 19 - INTERCONNECT



WIRE DIAGRAM

ITEM	TOTAL	UNIT	DESCRIPTION
625	3	EA	CABLE SPlicing KIT
625	7	EA	GROUND ROD
625	7	EA	PULLBOX, AS PER PLAN
625	327	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	190	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	381	LF	CONDUIT, 2", 713.07
625	100	LF	CONDUIT, 3", 713.07
625	338	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
625	1	EA	BRACKET ARM, 6"
630	63	SF	SIGN, FLAT SHEET, TYPE G
630	5	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
630	2	EA	SIGN SUPPORT ASSEMBLY, POLE MOUNTED
630	12	LF	GROUND MOUNTED SUPPORT, NO.3 POST
630	2	EA	REMOVAL OF OVERHEAD MOUNTED SIGN AND REERECTION
630	1	EA	REMOVAL OF OVERHEAD SIGN SUPPORT AND DISPOSAL, TYPE TC-12.30
631	1	EA	SIGN SERVICE
631	2	EA	SIGN WIRED
631	1	EA	DISCONNECT SWITCH WITH ENCLOSURE, TYPE X
631	2	EA	REMOVAL OF LUMINAIRE AND REERECTION
631	2	EA	REMOVAL OF BALLAST AND REERECTION
632	7	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	1	EA	VEHICULAR SIGNAL HEAD, 5-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	6	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	2	EA	PEDESTRIAN PUSHBUTTON, AS PER PLAN
632	3	EA	LOOP DETECTOR UNIT, DELAY AND EXTENSION TYPE, AS PER PLAN
632	773	LF	LOOP DETECTOR PAVEMENT CUTTING
632	11.0	CY	CONCRETE FOR ANCHOR BASE FOUNDATION
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 25' ARM, A.P.P.
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 34' ARM, A.P.P.
632	1	EA	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 11, WITH 38' ARM, AS PER PLAN
632	1	EA	COMBINATION SIGNAL SUPPORT, TYPE TC-12.30 DESIGN 5 POLE, WITH TC-81.20 DESIGN 4 SIGNAL ARM, 36 FEET AND TC-12.30 DESIGN 5 SIGNAL SUPPORT ARM, 14 FEET, AS PER PLAN
632	3	EA	PEDESTAL, 8", TRANSFORMER BASE
632	772	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	746	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	1662	LF	LOOP DETECTOR WIRE, TYPE E
632	1167	LF	LOOP DETECTOR LEAD-IN CABLE
632	8	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER ITEM, MISC.: FIELD CONNECTIONS TO EXISTING CONTROLLER
633	1	EA	CONTROLLER ITEM, MISC.: MODIFY EXISTING CONTROLLER OPERATIONS

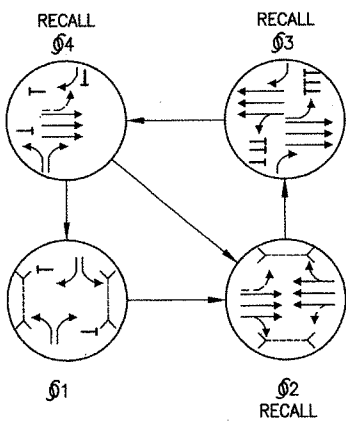
FOR SIGNAL COORDINATION INFORMATION SEE SHEET 86.

FOR POLE CHART SEE SHEET 88.

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES.

FUNCTION	§1	§2	§3	§4
INITIAL GREEN	8	-	-	-
MINIMUM GREEN	-	35	-	-
VEHICLE EXTENSION	2	-	-	-
MAXIMUM GREEN	25	-	6	9
PEDESTRIAN WALK	6	-	-	-
PEDESTRIAN CLEAR.	18	12	-	-
VEH. YELLOW CLEAR.	3	3	3	3
VEHICLE RED CLEAR.	2	2	2	2
RECALL	NO	PED	VEH	VEH
MEMORY	NO	NO	NO	NO
MAX. II MAXIMUM GREEN	25	41	OMIT	19

SIGN S7 TO BE ILLUMINATED
7-9 AM & 3-6:30 PM, M-F
SIGNAL TIMING CHART



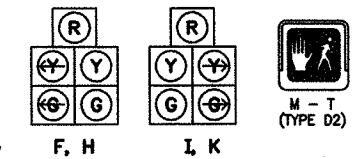
MODIFIED PHASING DIAGRAM

SIGNAL HEAD	§1		§2		§3		§4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A	R	R	R	R	R	R	R	R	Y	Y
B	R	R	R	R	R	R	R	R	Y	Y
C	R	R	R	R	R	R	R	R	Y	Y
D	R	R	R	R	R	R	R	R	Y	Y
E	R	R	R	R	R	R	R	R	Y	Y
F	R	R	R	R	R	R	R	R	Y	Y
G	R	R	R	R	R	R	R	R	Y	Y
H	R	R	R	R	R	R	R	R	Y	Y
I	G	Y	R	R	R	R	R	R	Y	Y
J	G	Y	R	R	R	R	R	R	Y	Y
K	G	Y	R	R	R	R	R	R	Y	Y
L	G	Y	R	R	R	R	R	R	Y	Y
M	DW	DW	DW	W/(DW)	DW	DW	DW	DW	DW	D
N	DW	DW	DW	W/(DW)	DW	DW	DW	DW	DW	D
O	DW	DW	DW	W/(DW)	DW	DW	DW	DW	DW	D
P	DW	DW	DW	W/(DW)	DW	DW	DW	DW	DW	D
Q	W/(DW)	DW	DW	DW	DW	DW	DW	DW	DW	D
R	W/(DW)	DW	DW	DW	DW	DW	DW	DW	DW	D
S	W/(DW)	DW	DW	DW	DW	DW	DW	DW	DW	D
T	W/(DW)	DW	DW	DW	DW	DW	DW	DW	DW	D

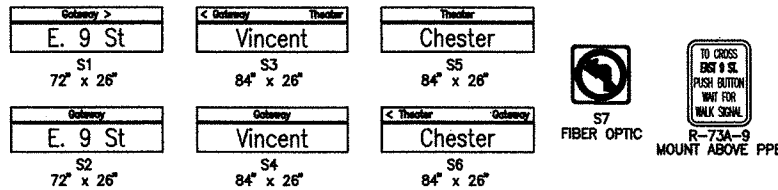
W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK

- ① TO BE "G" IF § 2 FOLLOWS
- ② TO BE "Y/G" IF § 2 FOLLOWS
- ③ TO BE "Y" IF § 2 FOLLOWS
- ④ TO BE "R" IF § 2 FOLLOWS

SIGNAL SEQUENCE CHART



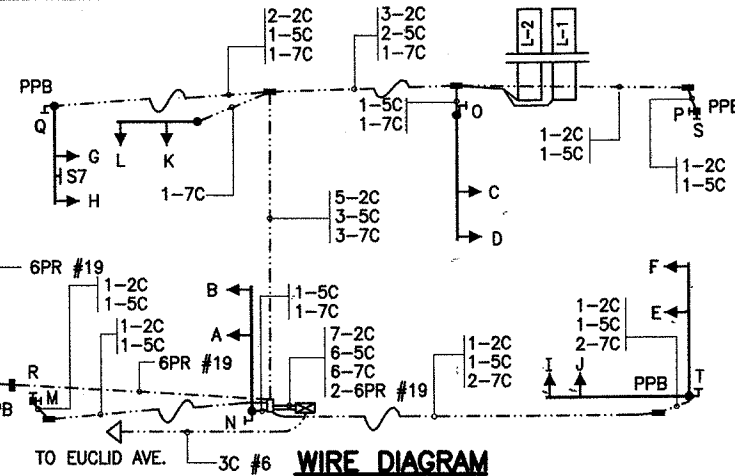
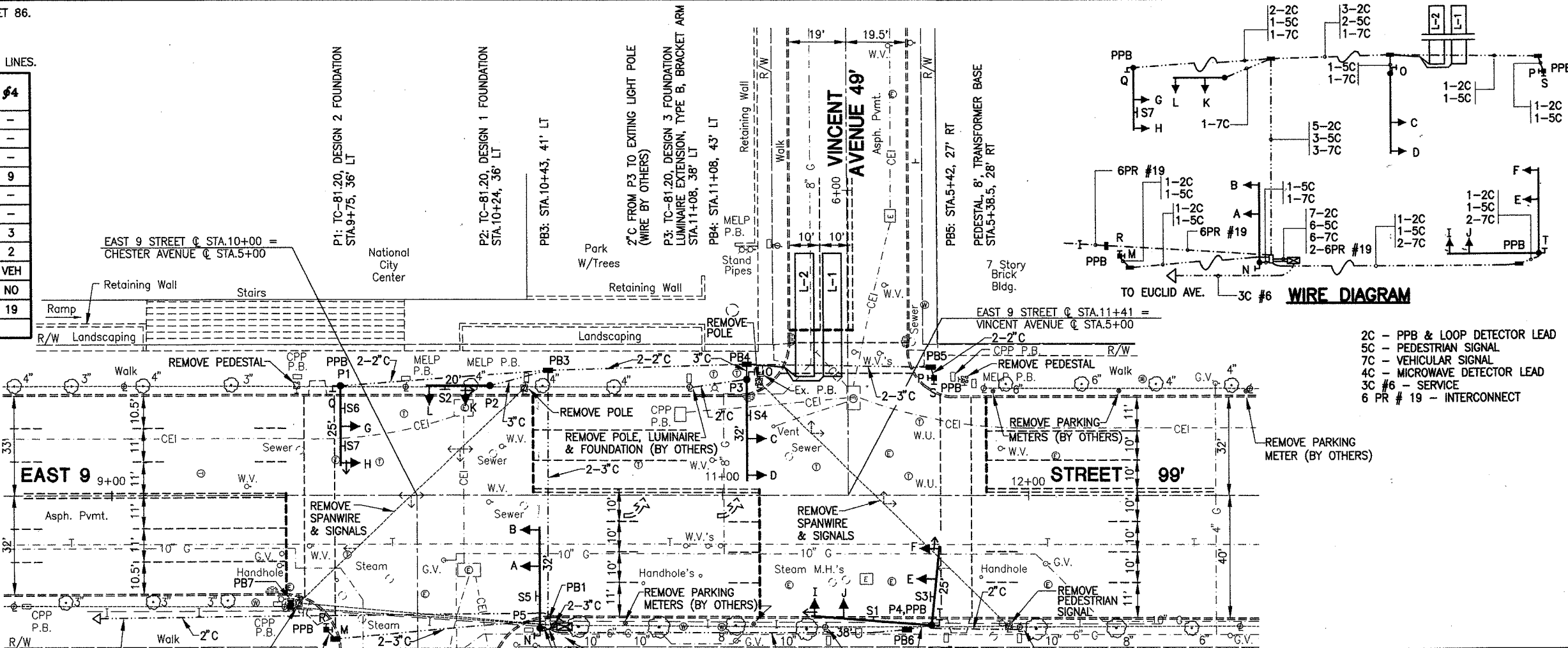
12" SIGNAL HEADS
RIGID MOUNTED



SIGN LEGEND

LOOP	SIZE	TURNS	MODE	DELAY	PHASE	REMARK	INHIBITED DELAY	LOCATION 1ST FRONT CORNER	LOCATION 2ND FRONT CORNER
L-1	6'X40'	2	PRESENCE	8	2		NO	STA.5+39, 2' L	STA.5+39, 8' L
L-2	6'X40'	2	PRESENCE	8	2		NO	STA.5+39, 11' L	STA.5+39, 17' L

LOOP DETECTOR CHART

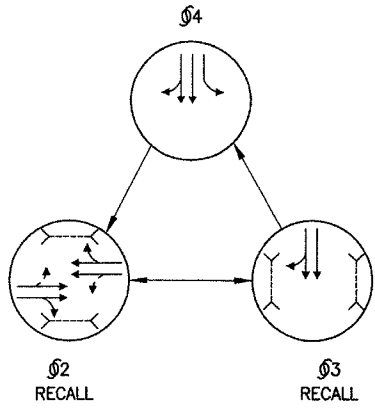


2C - PPB & LOOP DETECTOR LEAD
5C - PEDESTRIAN SIGNAL
7C - VEHICULAR SIGNAL
4C - MICROWAVE DETECTOR LEAD
3C #6 - SERVICE
6 PR #19 - INTERCONNECT

ITEM	TOTAL	UNIT	DESCRIPTION
625	8	EA	GROUND ROD
625	6	EA	PULLBOX, AS PER PLAN
625	588	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	342	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	658	LF	CONDUIT, 2", 713.07
625	240	LF	CONDUIT, 3", 713.07
625	170	LF	CONDUIT, CONCRETE ENCASED, 2", 713.07
625	344	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
625	3	EA	BRACKET ARM, 6"
630	67	SF	SIGN, FLAT SHEET, TYPE G
630	6	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
631	1	EA	CHANGEABLE MESSAGE SIGN, ELECTRIC TYPE, LIMITED MESSAGE
632	8	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	4	EA	VEHICULAR SIGNAL HEAD, 5-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	8	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	4	EA	PEDESTRIAN PUSHBUTTON, AS PER PLAN
632	1	EA	LOOP DETECTOR UNIT, DELAY AND EXTENSION TYPE, AS PER PLAN
632	205	LF	LOOP DETECTOR PAVEMENT CUTTING
632	10.4	CY	CONCRETE FOR ANCHOR BASE FOUNDATION
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 20' ARM, A.P.P.
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 2, WITH 25' ARM, A.P.P.
632	2	EA	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, WITH 32' ARM, AS PER PLAN
632	1	EA	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20 DESIGN 11 POLE, WITH MAST ARMS TC-81.20 DESIGN 1, 25 FEET AND TC-81.20 DESIGN 4, 38 FEET, AS PER PLAN
632	2	EA	PEDESTAL, 8' TRANSFORMER BASE
632	946	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	1149	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	470	LF	LOOP DETECTOR WIRE, TYPE E
632	1181	LF	LOOP DETECTOR LEAD-IN CABLE
632	300	LF	POWER CABLE, 3C #6 AWG
632	300	LF	INTERCONNECT CABLE, 6PR, NO.19 AWG, SOLID, REA (PE-39), A.P.P.
632	12	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	CY	CONCRETE FOR CABINET FOUNDATION
633	1	EA	CONTROLLER ITEM, MISC.: RELOCATE EXISTING CONTROLLER
633	1	EA	CONTROLLER ITEM, MISC.: MODIFY EXISTING CONTROLLER OPERATIONS

GUYAHOGA COUNTY
 INTERSECTION OF CHESTER AVE., VINCENT AVE. & EAST 9 ST.
 CUY-6-15.55 & VARIOUS
 54
 89

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 86.
 FOR POLE CHART SEE SHEET 88.
 EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES.



EXISTING PHASING DIAGRAM

SIGNAL HEAD	φ1		φ2		φ3		φ4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A			G	Y	R	R	R	R	R	Y
B			G	Y	R	R	R	R	R	Y
C			G	Y	R	R	R	R	R	Y
D			G	Y	R	R	R	R	R	Y
E			R	R	R	G	G	G	Y	R
F			R	R	R	G	G	G	Y	R
G			R	R	R	R	R	6	Y	R
H			W/(DW)	DW	DW	DW	DW	DW	DW	D
I			W/(DW)	DW	DW	DW	DW	DW	DW	D
J			W/(DW)	DW	DW	DW	DW	DW	DW	D
K			W/(DW)	DW	DW	DW	DW	DW	DW	D
L			DW	DW	DW	W/(DW)	DW	DW	DW	D
M			DW	DW	DW	W/(DW)	DW	DW	DW	D
N			DW	DW	DW	W/(DW)	DW	DW	DW	D
O			DW	DW	DW	W/(DW)	DW	DW	DW	D

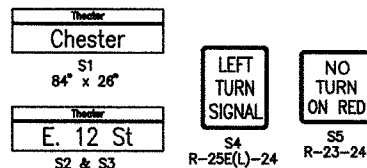
W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK

SIGNAL SEQUENCE CHART

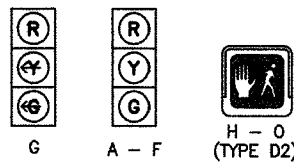
⊙ TO BE "Y" IF φ 2 FOLLOWS
 ⊙ TO BE "R" IF φ 2 FOLLOWS

FUNCTION	φ1	φ2	φ3	φ4
INITIAL GREEN		-	-	4
MINIMUM GREEN		24	-	-
VEHICLE EXTENSION		-	-	2
MAXIMUM GREEN		-	22	30
PEDESTRIAN WALK		7	7	-
PEDESTRIAN CLEAR		17	15	-
VEH. YELLOW CLEAR		3	3	3
VEHICLE RED CLEAR		2.5	2	2
RECALL		PED	PED	NO
MEMORY		NO	NO	NO

SIGNAL TIMING CHART



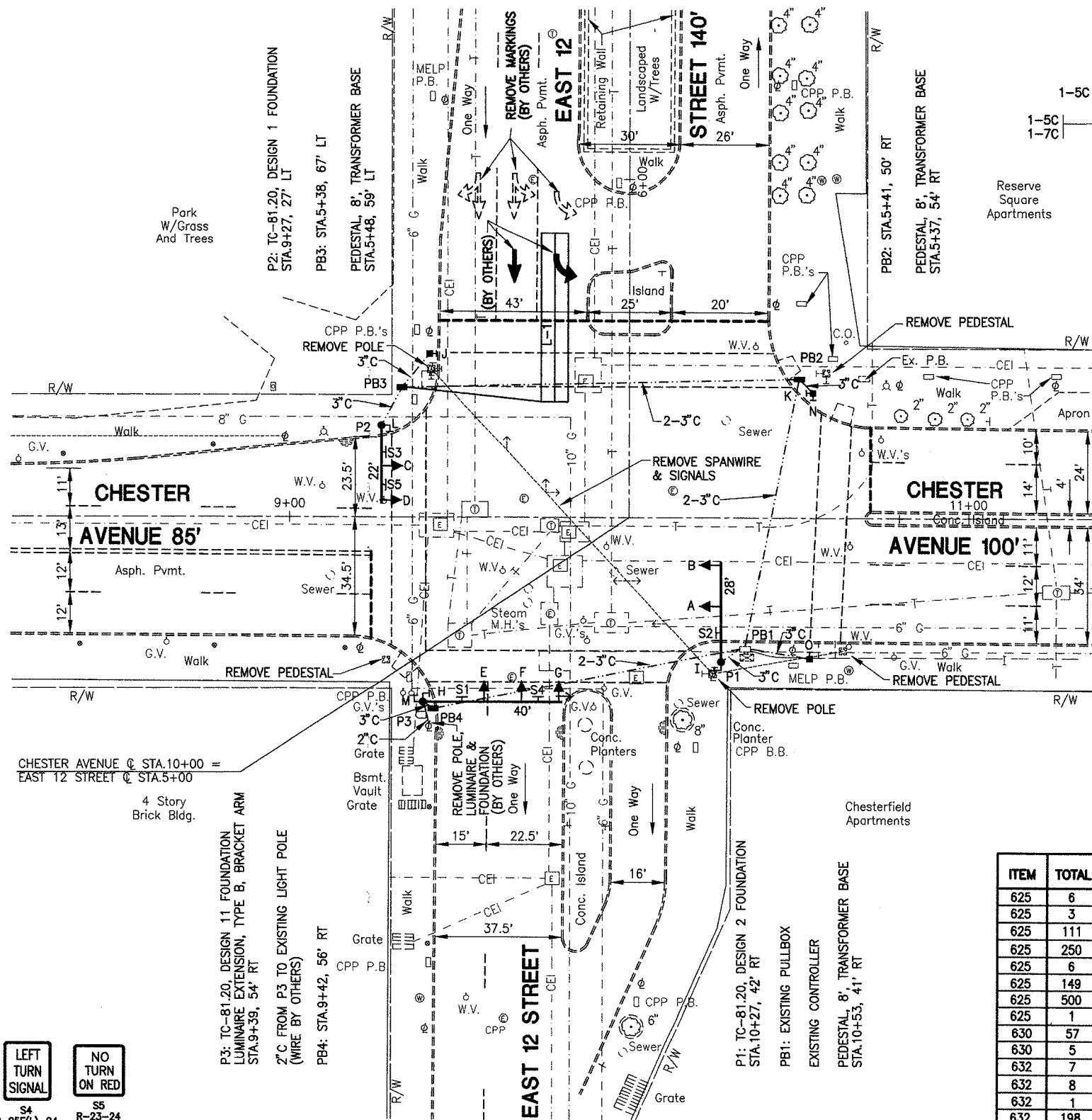
SIGN LEGEND



12" SIGNAL HEADS RIGID MOUNTED

LOOP	SIZE	TURNS	MODE	DELAY	PHASE	REMARK	INHIBITED DELAY	LOCATION 1ST FRONT CORNER	LOCATION 2ND FRONT CORNER
L-1	8'X50'	2	PRESENCE		4	QUADRAPOLE		STA.5+34, 18' L	STA.5+34, 26' L

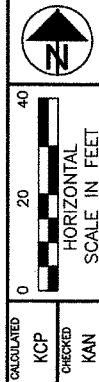
LOOP DETECTOR CHART



ITEM	TOTAL	UNIT	DESCRIPTION
625	6	EA	GROUND ROD
625	3	EA	PULLBOX, AS PER PLAN
625	111	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	250	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	6	LF	CONDUIT, 2", 713.07
625	149	LF	CONDUIT, 3", 713.07
625	500	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
625	1	EA	BRACKET ARM, 6", AS PER PLAN
630	57	SF	SIGN, FLAT SHEET, TYPE G
630	5	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
632	7	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	8	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	1	EA	LOOP DETECTOR PAVEMENT CUTTING
632	198	LF	LOOP DETECTOR UNIT, DELAY AND EXTENSION TYPE, AS PER PLAN
632	6.9	CY	CONCRETE FOR ANCHOR BASE FOUNDATION
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 22' ARM, A.P.P.
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 2, WITH 28' ARM, A.P.P.
632	1	EA	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 11, WITH 40' ARM, AS PER PLAN
632	3	EA	PEDESTAL, 8', TRANSFORMER BASE
632	806	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	648	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	426	LF	LOOP DETECTOR WIRE, TYPE E
632	217	LF	LOOP DETECTOR LEAD-IN CABLE
632	7	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER ITEM, MISC.: FIELD CONNECTIONS TO EXISTING CONTROLLER
633	1	EA	CONTROLLER ITEM, MISC.: MODIFY EXISTING CONTROLLER OPERATIONS

WIRE DIAGRAM

2C - PPB & LOOP DETECTOR LEAD
 5C - PEDESTRIAN SIGNAL
 7C - VEHICULAR SIGNAL
 4C - MICROWAVE DETECTOR LEAD
 3C #8 - SERVICE
 6 PR # 19 - INTERCONNECT

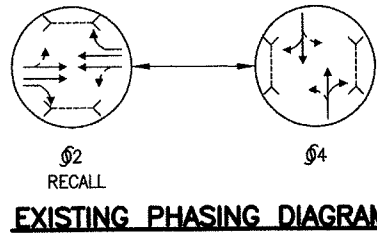


INTERSECTION OF CHESTER AVENUE AND EAST 12 STREET

CUYAHOGA COUNTY
 CUY-6-15.55 & VARIOUS

DATE: 02-25-1997 TIME: 13:35:11

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 86.
 FOR POLE CHART SEE SHEET 88.
 EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES.

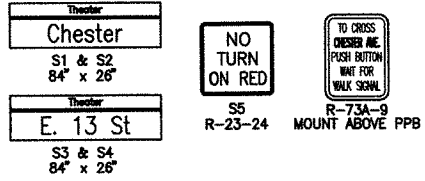


SIGNAL HEAD	phi 1		phi 2		phi 3		phi 4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A			G	Y	R		R	R	Y	G
B			G	Y	R		R	R	Y	G
C			G	Y	R		R	R	Y	G
D			G	Y	R		R	R	Y	G
E			G	Y	R		R	R	Y	G
F			R	R	R		G	Y	R	R
G			R	R	R		G	Y	R	R
H			R	R	R		G	Y	R	R
I			R	R	R		G	Y	R	R
J			W/(DW)	DW	DW		DW	DW	DW	D
K			W/(DW)	DW	DW		DW	DW	DW	D
L			W/(DW)	DW	DW		DW	DW	DW	D
M			W/(DW)	DW	DW		DW	DW	DW	D
N			DW	DW	DW		W/(DW)	DW	DW	D
O			DW	DW	DW		W/(DW)	DW	DW	D
P			DW	DW	DW		W/(DW)	DW	DW	D
Q			DW	DW	DW		W/(DW)	DW	DW	D

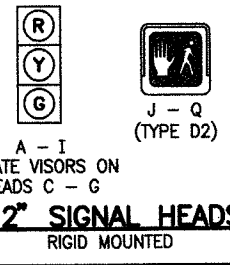
W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK
SIGNAL SEQUENCE CHART

FUNCTION	phi 1	phi 2	phi 3	phi 4
INITIAL GREEN		-		8
MINIMUM GREEN		30		-
VEHICLE EXTENSION		-		2
MAXIMUM GREEN		-		42
PEDESTRIAN WALK		7		7
PEDESTRIAN CLEAR.		17		19
VEH. YELLOW CLEAR.		3		3
VEHICLE RED CLEAR.		2		2
RECALL		PED		NO
MEMORY		NO		NO

SIGNAL TIMING CHART



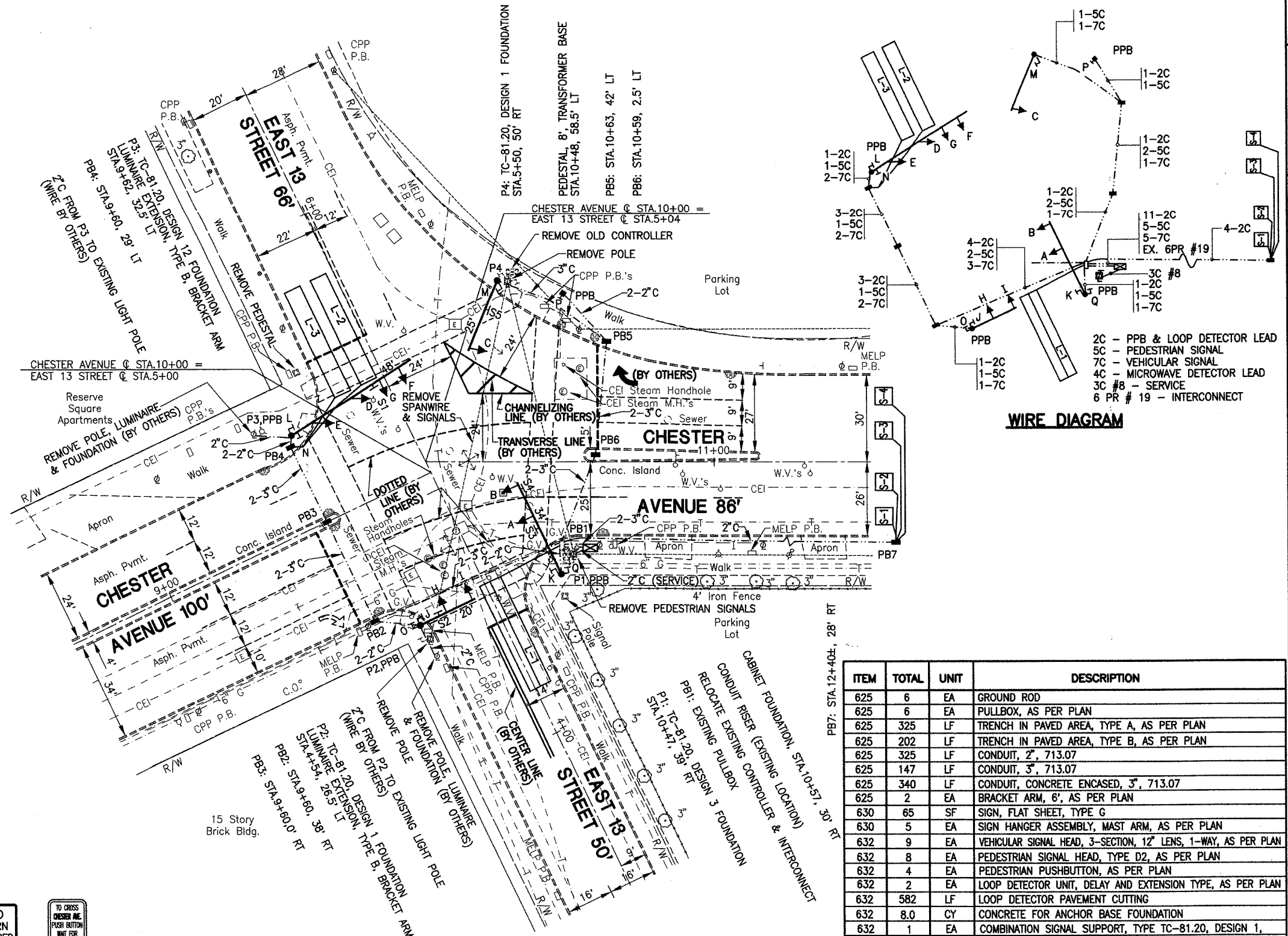
SIGN LEGEND



12" SIGNAL HEADS
RIGID MOUNTED

LOOP	SIZE	TURNS	MODE	DELAY	PHASE	REMARK	INHIBITED DELAY	LOCATION 1ST FRONT CORNER	LOCATION 2ND FRONT CORNER
L-1	8'X40'	2-4-2	PRESENCE		4	QUADRAPOLE		STA.4+57, 2' L	STA.4+57, 6' R
L-2	6'X40'	2	PRESENCE		4			STA.5+38, 2.5' L	STA.5+38, 8.5' L
L-3	6'X40'	2	PRESENCE		4			STA.5+38, 12.5' L	STA.5+38, 18.5' L
S-1	6'X6'	3	BOTH			SYSTEM		STA.12+40±, 22' R	STA.12+40±, 16' R
S-2	6'X6'	3	BOTH			SYSTEM		STA.12+40±, 10' R	STA.12+40±, 4' R
S-3	6'X6'	3	BOTH			SYSTEM		STA.12+40±, 8' L	STA.12+40±, 14' L
S-4	6'X6'	3	BOTH			SYSTEM		STA.12+40±, 20' L	STA.12+40±, 26' L

LOOP DETECTOR CHART



WIRE DIAGRAM

ITEM	TOTAL	UNIT	DESCRIPTION
625	6	EA	GROUND ROD
625	6	EA	PULLBOX, AS PER PLAN
625	325	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	202	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	325	LF	CONDUIT, 2", 713.07
625	147	LF	CONDUIT, 3", 713.07
625	340	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
625	2	EA	BRACKET ARM, 6', AS PER PLAN
630	65	SF	SIGN, FLAT SHEET, TYPE G
630	5	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
632	9	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	8	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	4	EA	PEDESTRIAN PUSHBUTTON, AS PER PLAN
632	2	EA	LOOP DETECTOR UNIT, DELAY AND EXTENSION TYPE, AS PER PLAN
632	582	LF	LOOP DETECTOR PAVEMENT CUTTING
632	8.0	CY	CONCRETE FOR ANCHOR BASE FOUNDATION
632	1	EA	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 20' ARM, AS PER PLAN
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 25' ARM, A.P.P.
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, WITH 34' ARM, A.P.P.
632	1	EA	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 12, WITH 48' ARM, AS PER PLAN
632	1	EA	PEDESTAL, 8', TRANSFORMER BASE
632	1	EA	CONDUIT RISER
632	652	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	955	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	1382	LF	LOOP DETECTOR WIRE, TYPE E
632	1314	LF	LOOP DETECTOR LEAD-IN CABLE
632	15	LF	POWER CABLE, 3 CONDUCTOR #8
632	9	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	CY	CONCRETE FOR CABINET FOUNDATION
633	1	EA	CONTROLLER ITEM, MISC.: RELOCATE EXISTING CONTROLLER
633	1	EA	CONTROLLER ITEM, MISC.: MODIFY EXISTING CONTROLLER OPERATIONS

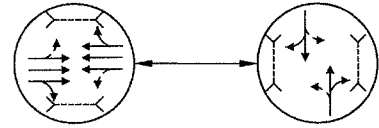
DATE: 02-25-1997 TIME: 13:56:04

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 86.

FOR POLE CHART SEE SHEET 88.

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES.

2C - PPB & LOOP DETECTOR LEAD
 5C - PEDESTRIAN SIGNAL
 7C - VEHICULAR SIGNAL
 4C - MICROWAVE DETECTOR LEAD
 3C #8 - SERVICE
 6 PR # 19 - INTERCONNECT



EXISTING PHASING DIAGRAM

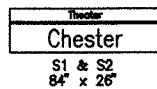
SIGNAL HEAD	φ1		φ2		φ3		φ4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A			G	Y R			R	R R	Y	G
B			G	Y R			R	R R	Y	G
C			G	Y R			R	R R	Y	G
D			G	Y R			R	R R	Y	G
E			R	R R			G	Y R	R	R
F			R	R R			G	Y R	R	R
G			R	R R			G	Y R	R	R
H			R	R R			G	Y R	R	R
I			W/(DW)	DW DW			DW	DW DW	D	W
J			W/(DW)	DW DW			DW	DW DW	D	W
K			W/(DW)	DW DW			DW	DW DW	D	W
L			W/(DW)	DW DW			DW	DW DW	D	W
M			DW	DW DW			W/(DW)	DW DW	D	DW
N			DW	DW DW			W/(DW)	DW DW	D	DW
O			DW	DW DW			W/(DW)	DW DW	D	DW
P			DW	DW DW			W/(DW)	DW DW	D	DW

W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK

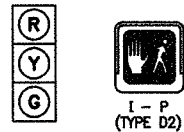
SIGNAL SEQUENCE CHART

FUNCTION	φ1	φ2	φ3	φ4
INITIAL GREEN		-		8
MINIMUM GREEN		30		-
VEHICLE EXTENSION		-		2
MAXIMUM GREEN		-		30
PEDESTRIAN WALK		7		7
PEDESTRIAN CLEAR.		8		14
VEH. YELLOW CLEAR.		3		3
VEHICLE RED CLEAR.		1.5		2
RECALL		PED		NO
MEMORY		NO		NO

SIGNAL TIMING CHART



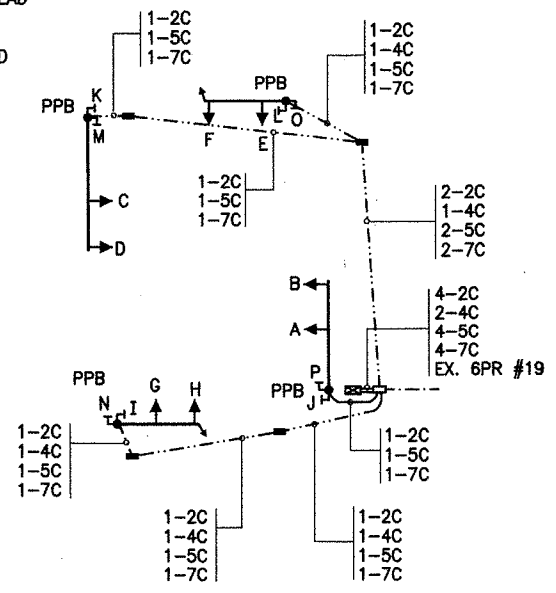
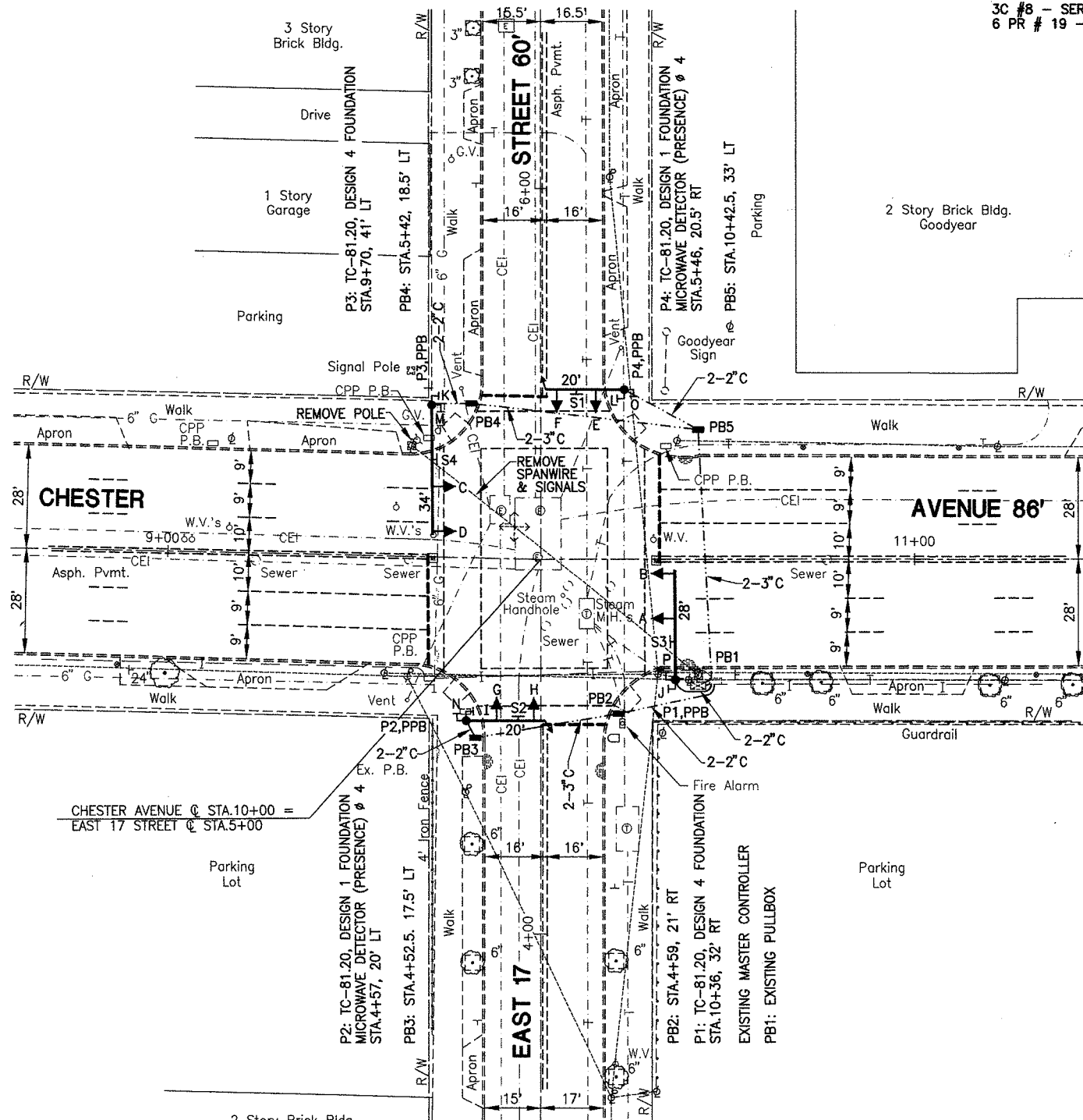
SIGNAL LEGEND



A - H

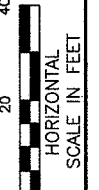
12" SIGNAL HEADS

RIGID MOUNTED



WIRE DIAGRAM

ITEM	TOTAL	UNIT	DESCRIPTION
625	4	EA	GROUND ROD
625	4	EA	PULLBOX, AS PER PLAN
625	124	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	127	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	170	LF	CONDUIT, 2", 713.07
625	78	LF	CONDUIT, 3", 713.07
625	254	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
630	51	SF	SIGN, FLAT SHEET, TYPE G
630	4	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
632	8	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	8	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	4	EA	PEDESTRIAN PUSHBUTTON, AS PER PLAN
632	2	EA	SIGNALIZATION, MISC.: MICROWAVE DETECTOR
632	8.3	CY	CONCRETE FOR ANCHOR BASE FOUNDATION
632	2	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 20' ARM, A.P.P.
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 28' ARM, A.P.P.
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 34' ARM, A.P.P.
632	450	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	608	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	485	LF	LOOP DETECTOR LEAD-IN CABLE
632	299	LF	SIGNALIZATION, MISC.: MICROWAVE DETECTOR LEAD-IN CABLE
632	8	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER ITEM, MISC.: FIELD CONNECTIONS TO EXISTING CONTROLLER
633	1	EA	CONTROLLER ITEM, MISC.: MODIFY EXISTING CONTROLLER OPERATIONS



CHECKED: KAN
 CALCULATED: KCP

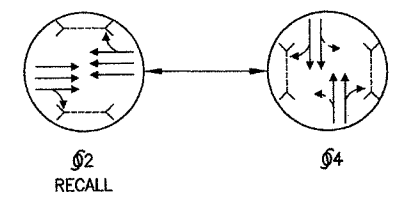
INTERSECTION OF CHESTER AVENUE AND EAST 17 STREET

CUYAHOGA COUNTY
 CUY-6-15.55 & VARIOUS

DATE: 02-25-1997 TIME: 14:05:18

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 86.
FOR POLE CHART SEE SHEET 88.
EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES.

2C - PPB & LOOP DETECTOR LEAD
5C - PEDESTRIAN SIGNAL
7C - VEHICULAR SIGNAL
4C - MICROWAVE DETECTOR LEAD
3C #8 - SERVICE
6 PR # 19 - INTERCONNECT



EXISTING PHASING DIAGRAM

SIGNAL HEAD	φ1		φ2		φ3		φ4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A			G	Y	R		R	R	Y	G
B			G	Y	R		R	R	Y	G
C			G	Y	R		R	R	Y	G
D			G	Y	R		R	R	Y	G
E			R	R	R		G	Y	R	R
F			R	R	R		G	Y	R	R
G			R	R	R		G	Y	R	R
H			R	R	R		G	Y	R	R
I			W/(DW)	DW	DW		DW	DW	DW	D
J			W/(DW)	DW	DW		DW	DW	DW	D
K			W/(DW)	DW	DW		DW	DW	DW	D
L			W/(DW)	DW	DW		DW	DW	DW	D
M			DW	DW	DW		W/(DW)	DW	DW	D
N			DW	DW	DW		W/(DW)	DW	DW	D
O			DW	DW	DW		W/(DW)	DW	DW	D
P			DW	DW	DW		W/(DW)	DW	DW	D

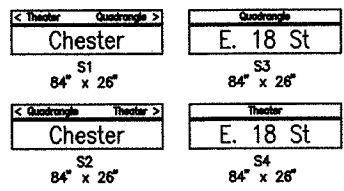
W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK

SIGNAL SEQUENCE CHART

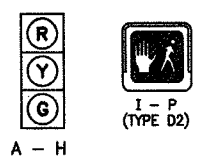
FUNCTION	φ1	φ2	φ3	φ4
INITIAL GREEN		-		8
MINIMUM GREEN		30		-
VEHICLE EXTENSION		-		2
MAXIMUM GREEN		-		35
PEDESTRIAN WALK		7		7
PEDESTRIAN CLEAR.		12		14
VEH. YELLOW CLEAR.		3		3
VEHICLE RED CLEAR.		2		2
RECALL		PED		NO
MEMORY		NO		NO

SIGNS S5 & S6 TO BE ILLUMINATED 6:30 - 9:30 AM & 3:30 - 6:30 PM, M - F.

SIGNAL TIMING CHART



SIGN LEGEND



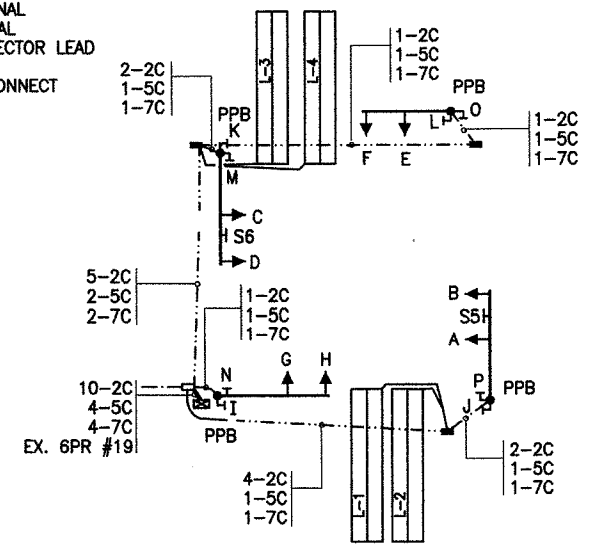
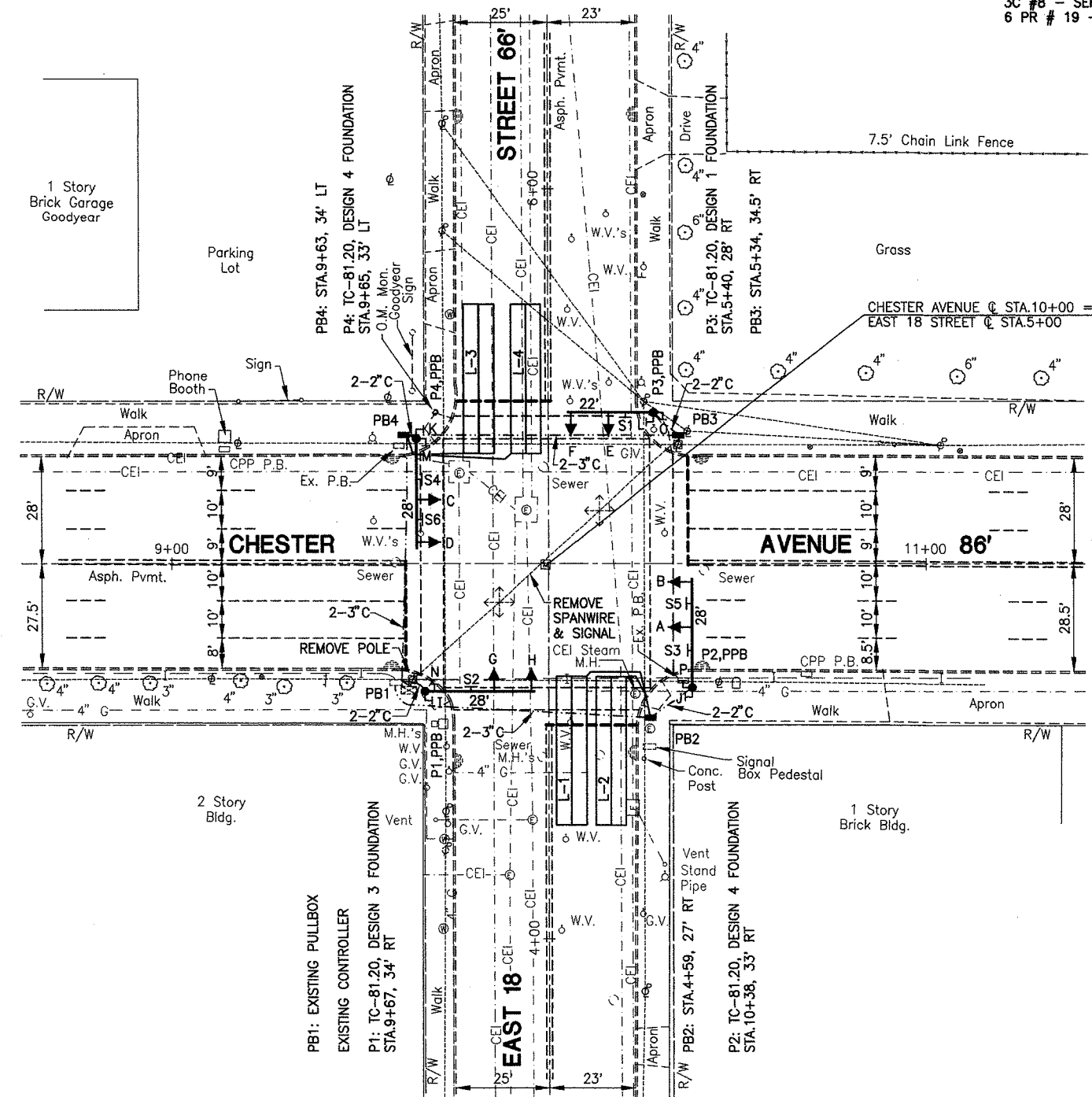
12" SIGNAL HEADS RIGID MOUNTED



S5 & S6 FIBER OPTIC

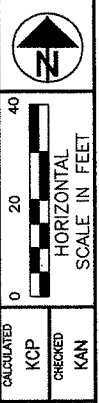
LOOP	SIZE	TURNS	MODE	DELAY	PHASE	REMARK	INHIBITED DELAY	LOCATION 1ST FRONT CORNER	LOCATION 2ND FRONT CORNER
L-1	8'X40'	2-4-2	PRESENCE		4	QUADRAPOLE		STA.4+70, 2' R	STA.4+70, 10' R
L-2	8'X40'	2-4-2	PRESENCE		4	QUADRAPOLE		STA.4+70, 12.5' R	STA.4+70, 20.5' R
L-3	8'X40'	2-4-2	PRESENCE		4	QUADRAPOLE		STA.5+29, 2' L	STA.5+29, 10' L
L-4	8'X40'	2-4-2	PRESENCE		4	QUADRAPOLE		STA.5+29, 14.5' L	STA.5+29, 22.5' L

LOOP DETECTOR CHART



WIRE DIAGRAM

ITEM	TOTAL	UNIT	DESCRIPTION
625	4	EA	GROUND ROD
625	3	EA	PULLBOX, AS PER PLAN
625	81	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	160	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	64	LF	CONDUIT, 2", 713.07
625	98	LF	CONDUIT, 3", 713.07
625	320	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
630	66	SF	SIGN, FLAT SHEET, TYPE G
630	4	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
631	2	EA	CHANGEABLE MESSAGE SIGN, ELECTRIC TYPE, LIMITED MESSAGE, AS PER PLAN
632	8	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	8	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	4	EA	PEDESTRIAN PUSHBUTTON, AS PER PLAN
632	1	EA	LOOP DETECTOR UNIT, DELAY AND EXTENSION TYPE, AS PER PLAN
632	609	LF	LOOP DETECTOR PAVEMENT CUTTING
632	8.5	CY	CONCRETE FOR ANCHOR BASE FOUNDATION
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 22' ARM, A.P.P.
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, WITH 28' ARM, A.P.P.
632	2	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 28' ARM, A.P.P.
632	431	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	594	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	1306	LF	LOOP DETECTOR WIRE, TYPE E
632	1046	LF	LOOP DETECTOR LEAD-IN CABLE
632	8	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER ITEM, MISC.: FIELD CONNECTIONS TO EXISTING CONTROLLER
633	1	EA	CONTROLLER ITEM, MISC.: MODIFY EXISTING CONTROLLER OPERATIONS

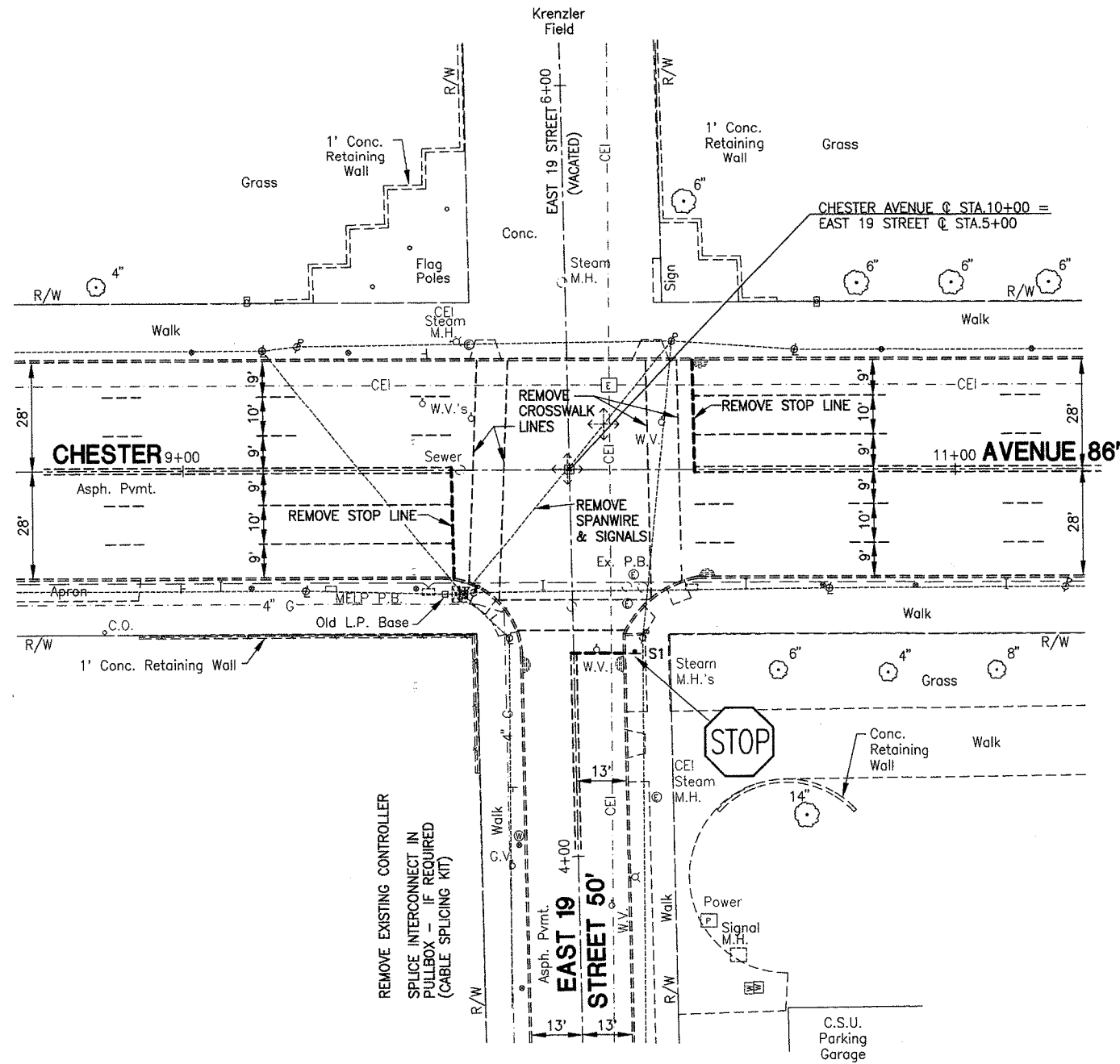


INTERSECTION OF CHESTER AVENUE AND EAST 18 STREET

CUYAHOGA COUNTY CUY-6-15.55 & VARIOUS

DATE: 02-25-1997 TIME: 14:16:11

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES.



EXISTING SIGNAL TO BE REMOVED
(SEE NOTE ON SHEET 2)



S1
R-1-30

SIGN LEGEND

ITEM	TOTAL	UNIT	DESCRIPTION
625	1	EA	CABLE SPlicing KIT
630	6.25	SF	SIGN, FLAT SHEET, TYPE G
630	14	LF	GROUND-MOUNTED SUPPORT, NO. 3 POST
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN



CALCULATED
KCP
CHECKED
KAN

INTERSECTION OF CHESTER AVENUE AND EAST 19 STREET

**CUYAHOGA COUNTY
CUY-6-15.55 & VARIOUS**

59
89

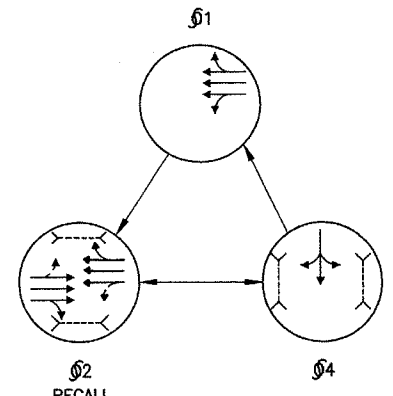
9401D141.DWG, PLOT SCALE, 1=20

DATE: 02-25-1997 TIME: 14:38:59

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 86.

FOR POLE CHART SEE SHEET 88.

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES.



OMIT phi 1 WHEN phi 2 IS TIMING
MODIFIED PHASING DIAGRAM

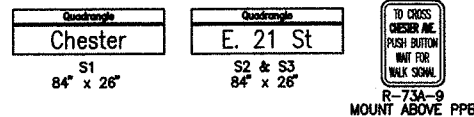
SIGNAL HEAD	phi 1		phi 2		phi 3		phi 4		FLASH	DWELL			
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR					
A	R	R	R	G	Y	R			R	R	Y	G	
B	R	R	R	G	Y	R			R	R	Y	G	
C	G	G	G	G	Y	R			R	R	Y	G	
D	G	G	G	G	Y	R			R	R	Y	G	
E	R	R	R	R	R	R			G	Y	R	R	
F	R	R	R	R	R	R			G	Y	R	R	
G	DW	DW	DW	W/(DW)	DW	DW			DW	DW	DW	D	W
H	DW	DW	DW	W/(DW)	DW	DW			DW	DW	DW	D	W
I	W	W	W	W/(DW)	DW	DW			DW	DW	DW	D	W
J	W	W	W	W/(DW)	DW	DW			DW	DW	DW	D	W
K	DW	DW	DW	DW	DW	DW			W/(DW)	DW	DW	D	DW
L	DW	DW	DW	DW	DW	DW			W/(DW)	DW	DW	D	DW
M	DW	DW	DW	DW	DW	DW			W/(DW)	DW	DW	D	DW
N	DW	DW	DW	DW	DW	DW			W/(DW)	DW	DW	D	DW

W-WALK (DW)-FLASHING DONT WALK DW-DONT WALK D-DARK

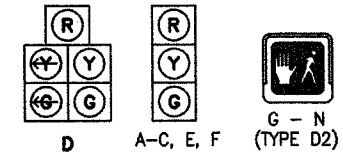
SIGNAL SEQUENCE CHART

FUNCTION	phi 1	phi 2	phi 3	phi 4
INITIAL GREEN	6	-	-	8
MINIMUM GREEN	-	28	-	-
VEHICLE EXTENSION	2	-	-	2
MAXIMUM GREEN	10	-	-	36
PEDESTRIAN WALK	-	7	-	7
PEDESTRIAN CLEAR.	-	11	-	17
VEH. YELLOW CLEAR.	3	3	-	3
VEHICLE RED CLEAR.	1.5	2.5	-	2
RECALL	NO	PED	-	NO
MEMORY	NO	NO	-	NO

SIGNAL TIMING CHART



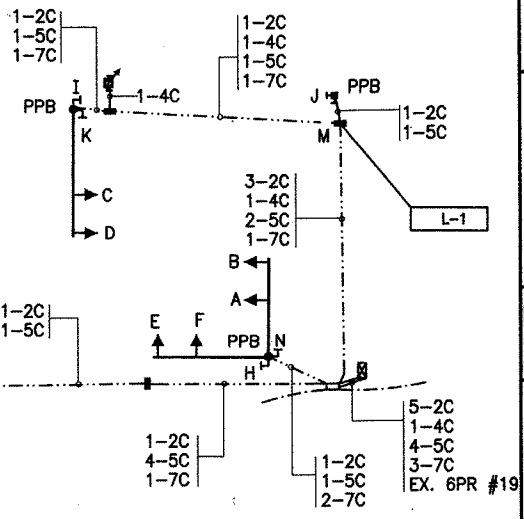
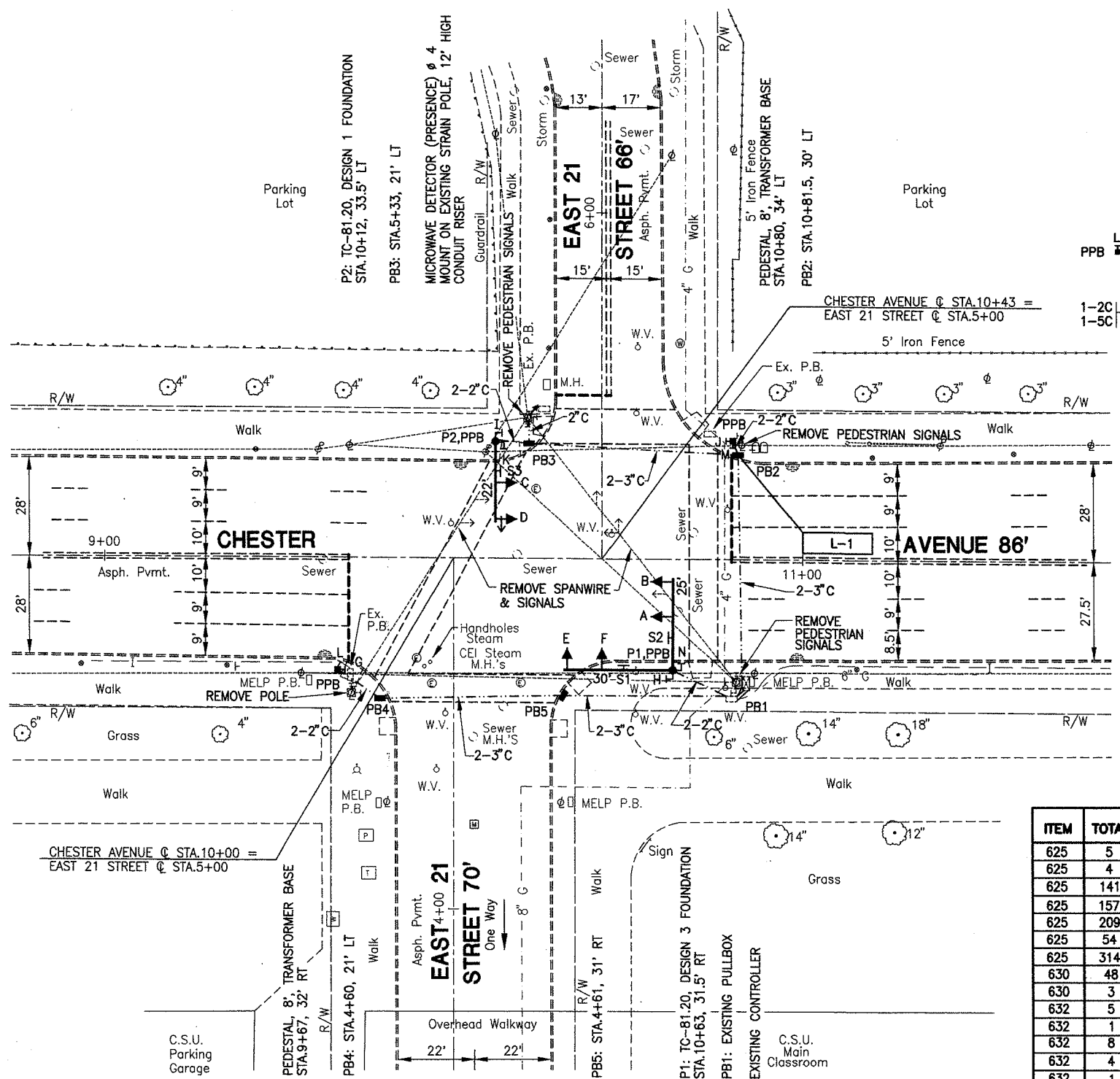
SIGN LEGEND



12" SIGNAL HEADS RIGID MOUNTED

LOOP	SIZE	TURNS	MODE	DELAY	PHASE	REMARK	INHIBITED DELAY	LOCATION 1ST FRONT CORNER	LOCATION 2ND FRONT CORNER
L-1	6'X20'	2	PRESENCE	3	1		YES	STA.11+00, 2' L	STA.11+00, 8' L

LOOP DETECTOR CHART



2C - PPB & LOOP DETECTOR LEAD
5C - PEDESTRIAN SIGNAL
7C - VEHICULAR SIGNAL
4C - MICROWAVE DETECTOR LEAD
3C #8 - SERVICE
6 PR # 19 - INTERCONNECT

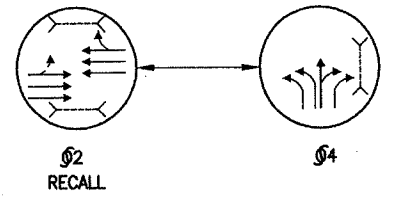
WIRE DIAGRAM

ITEM	TOTAL	UNIT	DESCRIPTION
625	5	EA	GROUND ROD
625	4	EA	PULLBOX, AS PER PLAN
625	141	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	157	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	209	LF	CONDUIT, 2", 713.07
625	54	LF	CONDUIT, 3", 713.07
625	314	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
630	48	SF	SIGN, FLAT SHEET, TYPE G
630	3	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
632	5	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	1	EA	VEHICULAR SIGNAL HEAD, 5-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	8	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	4	EA	PEDESTRIAN PUSHBUTTON, AS PER PLAN
632	1	EA	LOOP DETECTOR UNIT, DELAY AND EXTENSION TYPE, AS PER PLAN
632	1	EA	SIGNALIZATION, MISC.: MICROWAVE DETECTOR
632	80	LF	LOOP DETECTOR PAVEMENT CUTTING
632	4.0	CY	CONCRETE FOR ANCHOR BASE FOUNDATION
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 22' ARM, A.P.P.
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20 DESIGN 3 POLE, WITH MAST ARMS TC-81.20 DESIGN 1, 25 FEET AND TC-81.20 DESIGN 2, 30 FEET, AS PER PLAN
632	2	EA	PEDESTAL, 8", TRANSFORMER BASE
632	1	EA	CONDUIT RISER, 2" DIAMETER
632	549	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	407	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	174	LF	LOOP DETECTOR WIRE, TYPE E
632	544	LF	LOOP DETECTOR LEAD-IN CABLE
632	176	LF	SIGNALIZATION, MISC.: MICROWAVE DETECTOR LEAD-IN CABLE
632	6	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER ITEM, MISC.: FIELD CONNECTIONS TO EXISTING CONTROLLER
633	1	EA	CONTROLLER ITEM, MISC.: MODIFY EXISTING CONTROLLER OPERATIONS

CUYAHOGA COUNTY
 CUY-6-15.55 & VARIOUS
 INTERSECTION OF CHESTER AVENUE AND EAST 21 STREET
 SCALE IN FEET
 0 20 40
 HORIZONTAL
 CALCULATED KCP CHECKED KAN
 60
 89

DATE: 02-25-1997 TIME: 14:50:14
401D743.DWG, PLOT SCALE: 1"=20'

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 86.
FOR POLE CHART SEE SHEET 88.
EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES.



EXISTING PHASING DIAGRAM

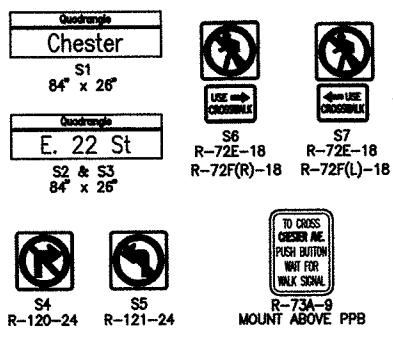
SIGNAL HEAD	φ1		φ2		φ3		φ4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A			G	Y R			R	R R Y G		
B			G	Y R			R	R R Y G		
C			G	Y R			R	R R Y G		
D			G	Y R			R	R R Y G		
E			R	R R			G	Y R R R		
F			R	R R			G	Y R R R		
G			R	R R			G	Y R R R		
H			W/(DW)	DW DW			DW	DW DW D W		
I			W/(DW)	DW DW			DW	DW DW D W		
J			W/(DW)	DW DW			DW	DW DW D W		
K			W/(DW)	DW DW			DW	DW DW D W		
L			DW	DW DW			W/(DW)	DW DW D DW		
M			DW	DW DW			W/(DW)	DW DW D DW		

W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK

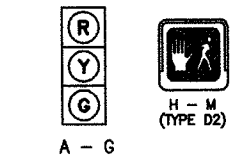
SIGNAL SEQUENCE CHART

FUNCTION	φ1	φ2	φ3	φ4
INITIAL GREEN		-		8
MINIMUM GREEN		30		-
VEHICLE EXTENSION		-		2
MAXIMUM GREEN		-		25
PEDESTRIAN WALK		7		7
PEDESTRIAN CLEAR.		12		14
VEH. YELLOW CLEAR.		3.6		3
VEHICLE RED CLEAR.		2		2
RECALL		PED		NO
MEMORY		NO		NO

SIGNAL TIMING CHART



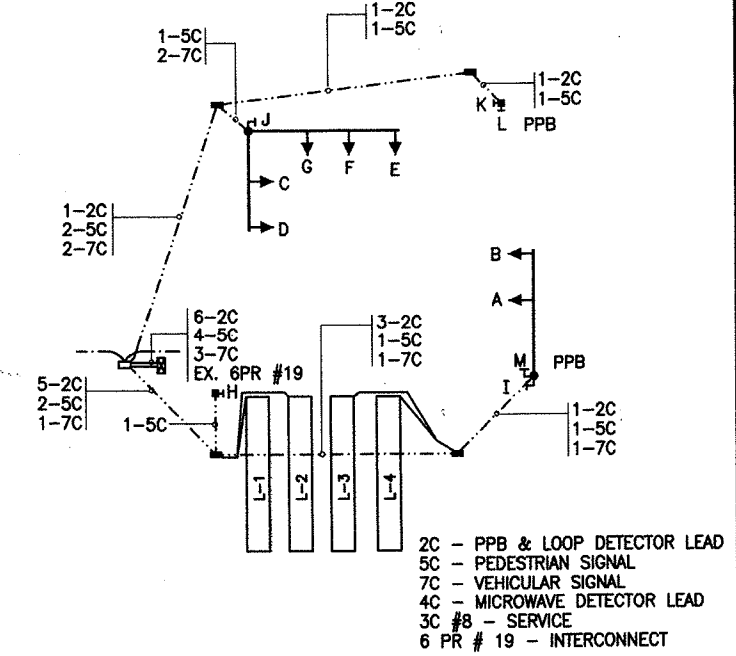
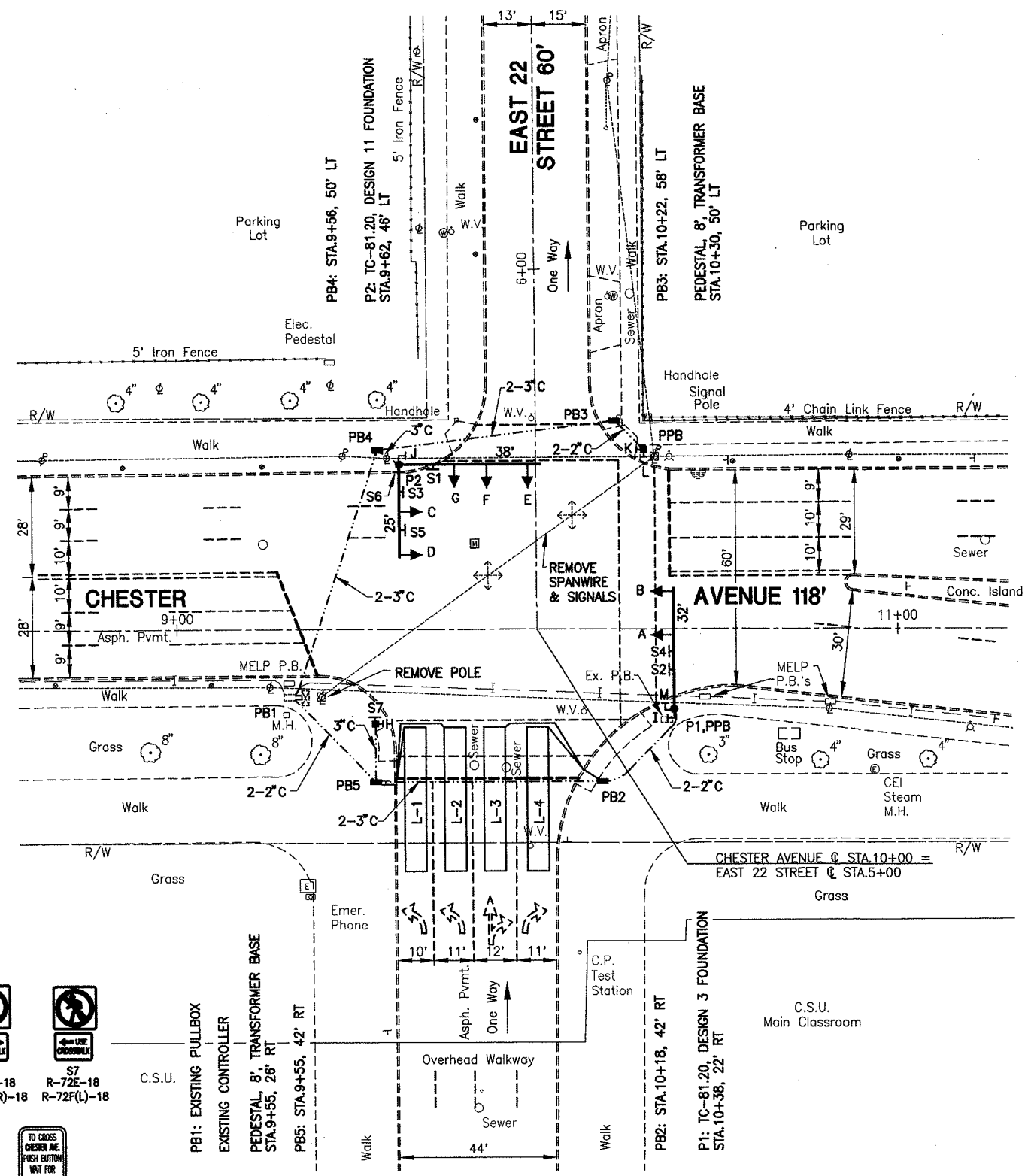
SIGN LEGEND



12" SIGNAL HEADS
RIGID MOUNTED

LOOP	SIZE	TURNS	MODE	DELAY	PHASE	REMARK	INHIBITED DELAY	LOCATION 1ST FRONT CORNER	LOCATION 2ND FRONT CORNER
L-1	6'X40'	2	PRESENCE	3	4		NO	STA.9+63, 27' R	STA.9+69, 27' R
L-2	6'X40'	2	PRESENCE	3	4		NO	STA.9+74, 27' R	STA.9+80, 27' R
L-3	6'X40'	2	PRESENCE	3	4		NO	STA.9+85, 27' R	STA.9+91, 27' R
L-4	6'X40'	2	PRESENCE	8	4		NO	STA.9+97, 27' R	STA.10+03, 27' R

LOOP DETECTOR CHART



WIRE DIAGRAM

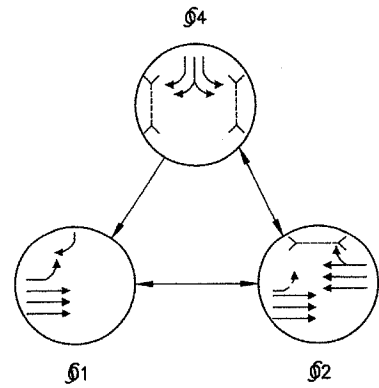
ITEM	TOTAL	UNIT	DESCRIPTION
625	4	EA	GROUND ROD
625	4	EA	PULLBOX, AS PER PLAN
625	156	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	144	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	146	LF	CONDUIT, 2", 713.07
625	141	LF	CONDUIT, 3", 713.07
625	288	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
630	67	SF	SIGN, FLAT SHEET, TYPE G
630	5	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
630	4	EA	SIGN SUPPORT ASSEMBLY, POLE MOUNTED
632	7	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	6	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	2	EA	PEDESTRIAN PUSHBUTTON, AS PER PLAN
632	1	EA	LOOP DETECTOR UNIT, DELAY AND EXTENSION TYPE, AS PER PLAN
632	446	LF	LOOP DETECTOR PAVEMENT CUTTING
632	5.5	CY	CONCRETE FOR ANCHOR BASE FOUNDATION
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, WITH 32' ARM, A.P.P.
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20 DESIGN 11 POLE, WITH MAST ARMS TC-81.20 DESIGN 1, 25 FEET AND TC-81.20 DESIGN 4, 38 FEET, AS PER PLAN
632	2	EA	PEDESTAL, 8", TRANSFORMER BASE
632	528	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	518	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	988	LF	LOOP DETECTOR WIRE, TYPE E
632	661	LF	LOOP DETECTOR LEAD-IN CABLE
632	7	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER ITEM, MISC.: FIELD CONNECTIONS TO EXISTING CONTROLLER
633	1	EA	CONTROLLER ITEM, MISC.: MODIFY EXISTING CONTROLLER OPERATIONS

DATE: 02-25-1997 TIME: 15:04:02

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 86.

FOR POLE CHART SEE SHEET 88.

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES.



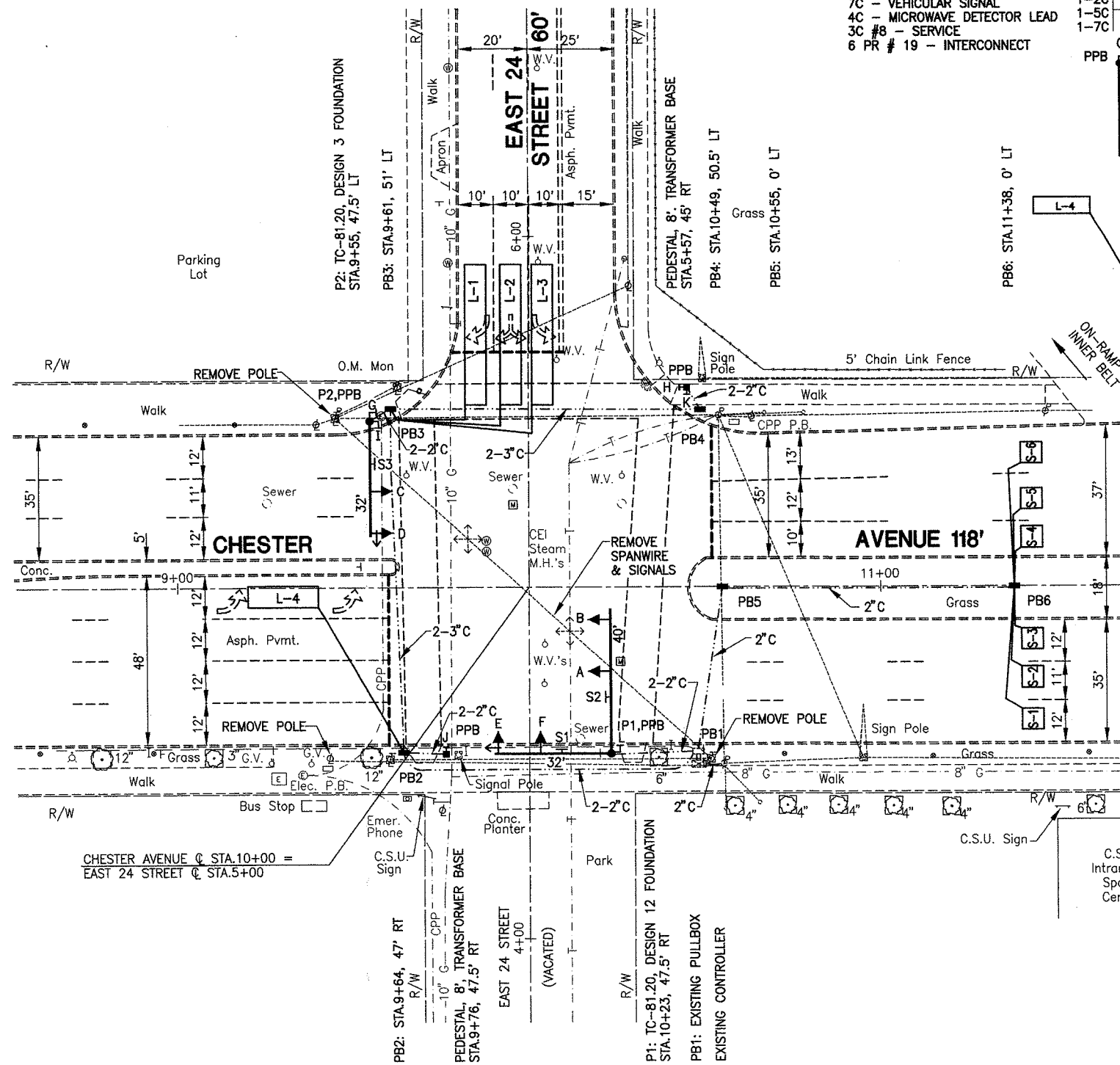
OMIT phi 1 WHEN phi 2 IS TIMING
MODIFIED PHASING DIAGRAM

SIGNAL HEAD	phi 1		phi 2		phi 3		phi 4		FLASH	DWELL		
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR				
A	G	G	G	Y	R			R	R	Y	G	
B	G	G	G	Y	R			R	R	Y	G	
C	R	R	R	G	Y	R		R	R	Y	G	
D	R	R	R	G	Y	R		R	R	Y	G	
E	R	R	R	R	R			G	Y	R	R	
F	R	R	R	R	R			G	Y	R	R	
G	DW	DW	DW	W/(DW)	DW	DW		DW	DW	DW	D	W
H	DW	DW	DW	W/(DW)	DW	DW		DW	DW	DW	D	W
I	DW	DW	DW	DW	DW	DW		W/(DW)	DW	DW	D	W
J	DW	DW	DW	DW	DW	DW		W/(DW)	DW	DW	D	W
K	DW	DW	DW	DW	DW	DW		W/(DW)	DW	DW	D	W
L	DW	DW	DW	DW	DW	DW		W/(DW)	DW	DW	D	W

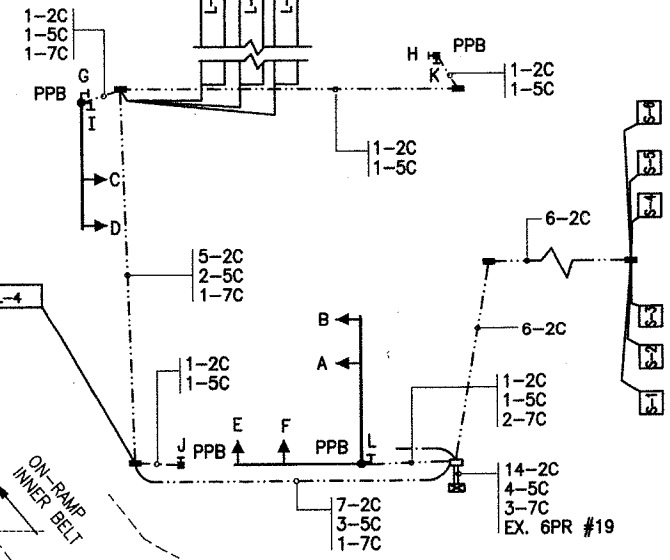
W-WALK (DW)-FLASHING DONT WALK DW-DONT WALK D-DARK

SIGNAL SEQUENCE CHART

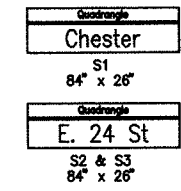
ITEM	TOTAL	UNIT	DESCRIPTION
625	4	EA	GROUND ROD
625	5	EA	PULLBOX, AS PER PLAN
625	250	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	161	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	380	LF	CONDUIT, 2", 713.07
625	52	LF	CONDUIT, 3", 713.07
625	35	LF	CONDUIT, CONCRETE ENCASED, 2", 713.07
625	322	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
630	46	SF	SIGN, FLAT SHEET, TYPE G
630	3	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
632	4	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	2	EA	VEHICULAR SIGNAL HEAD, 5-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	6	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	4	EA	PEDESTRIAN PUSHBUTTON, AS PER PLAN
632	3	EA	LOOP DETECTOR UNIT, DELAY AND EXTENSION TYPE, AS PER PLAN
632	700	LF	LOOP DETECTOR PAVEMENT CUTTING
632	5.5	CY	CONCRETE FOR ANCHOR BASE FOUNDATION
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, WITH 32' ARM, A.P.P.
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20 DESIGN 12 POLE, WITH MAST ARMS TC-81.20 DESIGN 3, 32 FEET AND TC-81.20 DESIGN 4, 40 FEET, AS PER PLAN
632	2	EA	PEDESTAL, 8", TRANSFORMER BASE
632	1	EA	CONDUIT RISER
632	737	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	472	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	1742	LF	LOOP DETECTOR WIRE, TYPE E
632	2436	LF	LOOP DETECTOR LEAD-IN CABLE
632	20	LF	POWER CABLE, 3-CONDUCTOR, NO. 8 AWG
632	6	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER ITEM, MISC.: FIELD CONNECTIONS TO EXISTING CONTROLLER
633	1	EA	CONTROLLER ITEM, MISC.: MODIFY EXISTING CONTROLLER OPERATIONS



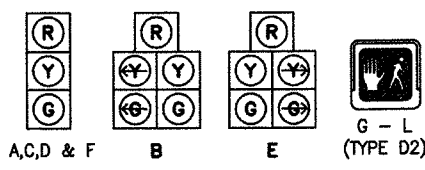
- 2C - PPB & LOOP DETECTOR LEAD
- 5C - PEDESTRIAN SIGNAL
- 7C - VEHICULAR SIGNAL
- 4C - MICROWAVE DETECTOR LEAD
- 3C #8 - SERVICE
- 6 PR # 19 - INTERCONNECT



WIRE DIAGRAM



SIGN LEGEND



12" SIGNAL HEADS RIGID MOUNTED

LOOP	SIZE	TURNS	MODE	DELAY	PHASE	REMARK	INHIBITED DELAY	LOCATION 1ST FRONT CORNER	LOCATION 2ND FRONT CORNER
L-1	6'X40	2	PRESENCE		4			STA.5+52, 12' L	STA.5+52, 18' L
L-2	6'X40	2	PRESENCE		4			STA.5+52, 2' L	STA.5+52, 8' L
L-3	6'X40	2	PRESENCE		4			STA.5+52, 1' R	STA.5+52, 7' R
L-4	6'X20	2	PRESENCE	3	1		YES	STA.9+40, 0.5' L	STA.9+40, 5.5' R
S-1	6'X6'	3	BOTH			SYSTEM		STA.11+40, 41' R	STA.11+40, 35' R
S-2	6'X6'	3	BOTH			SYSTEM		STA.11+40, 29' R	STA.11+40, 23' R
S-3	6'X6'	3	BOTH			SYSTEM		STA.11+40, 18' R	STA.11+40, 12' R
S-4	6'X6'	3	BOTH			SYSTEM		STA.11+40, 11' L	STA.11+40, 17' L
S-5	6'X6'	3	BOTH			SYSTEM		STA.11+40, 22' L	STA.11+40, 28' L
S-6	6'X6'	3	BOTH			SYSTEM		STA.11+40, 35' L	STA.11+40, 41' L

LOOP DETECTOR CHART

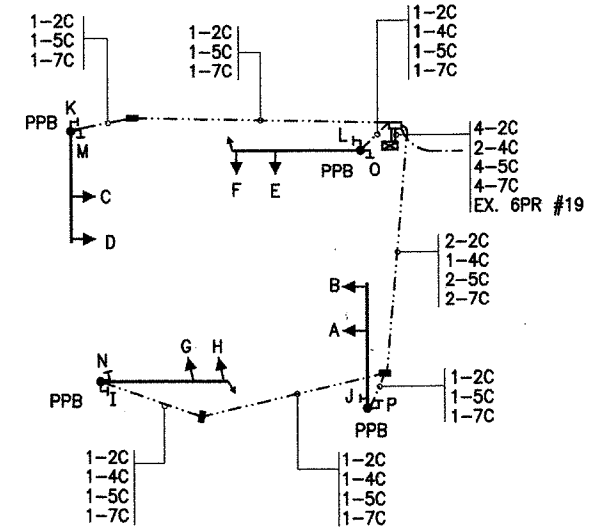
FUNCTION	phi 1	phi 2	phi 3	phi 4
INITIAL GREEN	4	-	-	8
MINIMUM GREEN	-	30	-	-
VEHICLE EXTENSION	2	-	-	2
MAXIMUM GREEN	6	-	-	30
PEDESTRIAN WALK	-	7	-	7
PEDESTRIAN CLEAR.	-	14	-	23
VEH. YELLOW CLEAR.	3.6	3.6	-	3.6
VEHICLE RED CLEAR.	1.5	1.5	-	2
RECALL	NO	PED	-	NO
MEMORY	NO	NO	-	NO

SIGNAL TIMING CHART

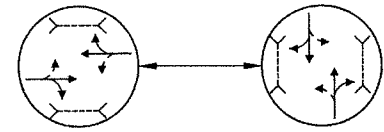
INTERSECTION OF CHESTER AVENUE AND EAST 24 STREET
 CUYAHOGA COUNTY
 CUY-6-15.55 & VARIOUS
 CALCULATED KCP CHECKED KAN
 HORIZONTAL SCALE IN FEET
 62 89

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 86.
 FOR POLE CHART SEE SHEET 88.
 EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES.

2C - PPB & LOOP DETECTOR LEAD
 5C - PEDESTRIAN SIGNAL
 7C - VEHICULAR SIGNAL
 4C - MICROWAVE DETECTOR LEAD
 3C #8 - SERVICE
 6 PR # 19 - INTERCONNECT



WIRE DIAGRAM



EXISTING PHASING DIAGRAM

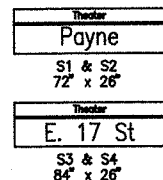
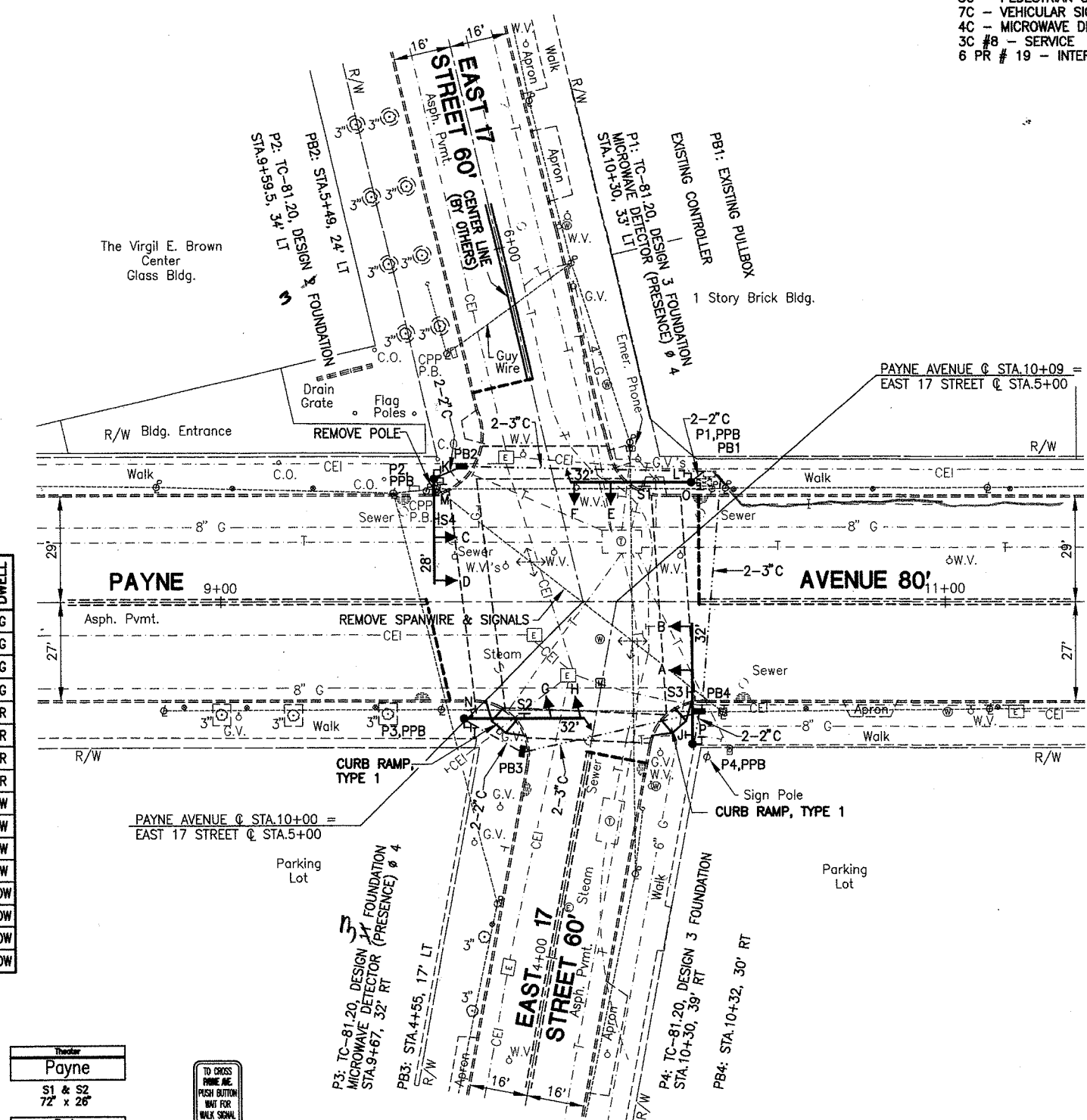
SIGNAL HEAD	φ1		φ2		φ3		φ4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A			G	Y	R		R	R	Y	G
B			G	Y	R		R	R	Y	G
C			G	Y	R		R	R	Y	G
D			G	Y	R		R	R	Y	G
E			R	R	R		G	Y	R	R
F			R	R	R		G	Y	R	R
G			R	R	R		G	Y	R	R
H			R	R	R		G	Y	R	R
I			W/(DW)	DW	DW		DW	DW	DW	DW
J			W/(DW)	DW	DW		DW	DW	DW	DW
K			W/(DW)	DW	DW		DW	DW	DW	DW
L			W/(DW)	DW	DW		DW	DW	DW	DW
M			DW	DW	DW		W/(DW)	DW	DW	DW
N			DW	DW	DW		W/(DW)	DW	DW	DW
O			DW	DW	DW		W/(DW)	DW	DW	DW
P			DW	DW	DW		W/(DW)	DW	DW	DW

W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK

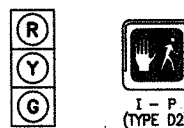
SIGNAL SEQUENCE CHART

FUNCTION	φ1	φ2	φ3	φ4
INITIAL GREEN		-		8
MINIMUM GREEN		30		-
VEHICLE EXTENSION		-		2
MAXIMUM GREEN		-		40
PEDESTRIAN WALK		7		7
PEDESTRIAN CLEAR.		8		13
VEH. YELLOW CLEAR.		3		3
VEHICLE RED CLEAR.		1.5		2
RECALL		PED		NO
MEMORY		NO		NO

SIGNAL TIMING CHART



SIGN LEGEND



A - H
 ROTATE VISORS 90° ON HEADS A & B

12" SIGNAL HEADS

RIGID MOUNTED

100% CITY PARTICIPATION

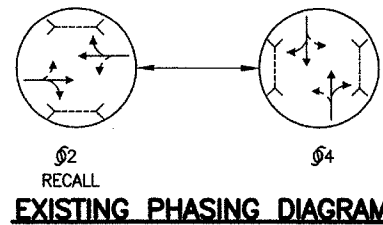
ITEM	TOTAL	UNIT	DESCRIPTION
202	144	SF	WALK REMOVED
202	16	LF	CURB REMOVED
608	144	SF	CURB RAMP, TYPE 1, AS PER PLAN
625	4	EA	GROUND ROD
625	3	EA	PULLBOX, AS PER PLAN
625	96	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	132	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	84	LF	CONDUIT, 2", 713.07
625	108	LF	CONDUIT, 3", 713.07
625	264	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
630	53	SF	SIGN, FLAT SHEET, TYPE G
630	4	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
632	8	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	8	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	4	EA	PEDESTRIAN PUSHBUTTON, AS PER PLAN
632	2	EA	SIGNALIZATION, MISC.: MICROWAVE DETECTOR
632	7.5	CY	CONCRETE FOR ANCHOR BASE FOUNDATION
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 2, WITH 28' ARM, A.P.P.
632	2	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, WITH 32' ARM, A.P.P.
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 11, WITH 32' ARM, A.P.P.
632	398	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	580	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	382	LF	LOOP DETECTOR LEAD-IN CABLE
632	286	LF	SIGNALIZATION, MISC.: MICROWAVE DETECTOR LEAD-IN CABLE
632	8	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
632	1	EA	CONTROLLER ITEM, MISC.: FIELD CONNECTIONS TO EXISTING CONTROLLER
632	1	EA	CONTROLLER ITEM, MISC.: MODIFY EXISTING CONTROLLER OPERATIONS

INTERSECTION OF PAYNE AVENUE AND EAST 17 STREET

CUYAHOGA COUNTY
 CUY-6-15.55 & VARIOUS

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 86.
 FOR POLE CHART SEE SHEET 88.
 EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES.

2C - PPB & LOOP DETECTOR LEAD
 5C - PEDESTRIAN SIGNAL
 7C - VEHICULAR SIGNAL
 4C - MICROWAVE DETECTOR LEAD
 3C #8 - SERVICE
 6 PR # 19 - INTERCONNECT



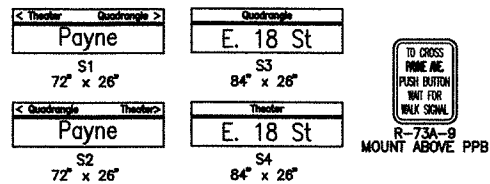
SIGNAL HEAD	phi 1		phi 2		phi 3		phi 4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A			G	Y	R		R	R	Y	G
B			G	Y	R		R	R	Y	G
C			G	Y	R		R	R	Y	G
D			G	Y	R		R	R	Y	G
E			R	R	R		G	Y	R	R
F			R	R	R		G	Y	R	R
G			R	R	R		G	Y	R	R
H			R	R	R		G	Y	R	R
I			W/(DW)	DW	DW		DW	DW	DW	DW
J			W/(DW)	DW	DW		DW	DW	DW	DW
K			W/(DW)	DW	DW		DW	DW	DW	DW
L			W/(DW)	DW	DW		DW	DW	DW	DW
M			DW	DW	DW		W/(DW)	DW	DW	DW
N			DW	DW	DW		W/(DW)	DW	DW	DW
O			DW	DW	DW		W/(DW)	DW	DW	DW
P			DW	DW	DW		W/(DW)	DW	DW	DW

W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK

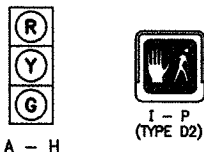
SIGNAL SEQUENCE CHART

FUNCTION	phi 1	phi 2	phi 3	phi 4
INITIAL GREEN	-	-	-	8
MINIMUM GREEN	-	30	-	-
VEHICLE EXTENSION	-	-	-	2
MAXIMUM GREEN	-	-	-	40
PEDESTRIAN WALK	-	7	-	7
PEDESTRIAN CLEAR.	-	11	-	13
VEH. YELLOW CLEAR.	-	3	-	3
VEHICLE RED CLEAR.	-	1.5	-	2
RECALL	-	PED	-	NO
MEMORY	-	NO	-	NO
MAX. II MINIMUM GREEN	-	20	-	-
MAX. II MAXIMUM GREEN	-	-	-	55
MAX. II 6:00-9:00AM, M-F	-	-	-	-

SIGNAL TIMING CHART



SIGN LEGEND



ROTATE VISORS 90° ON HEADS A & B

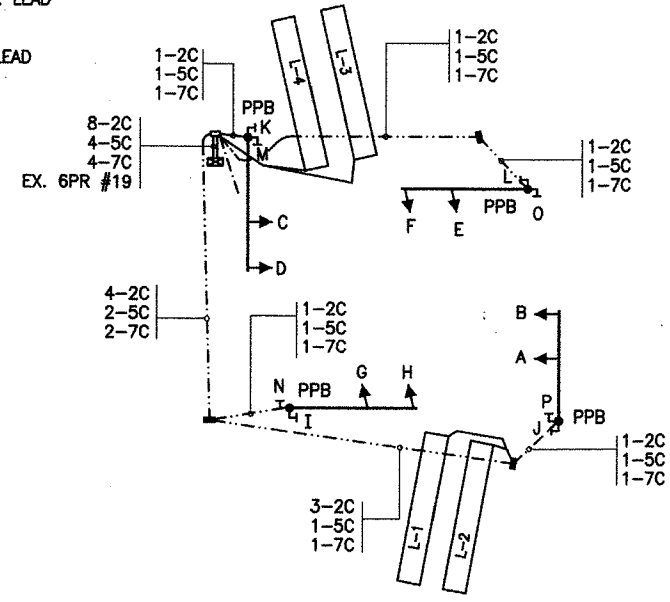
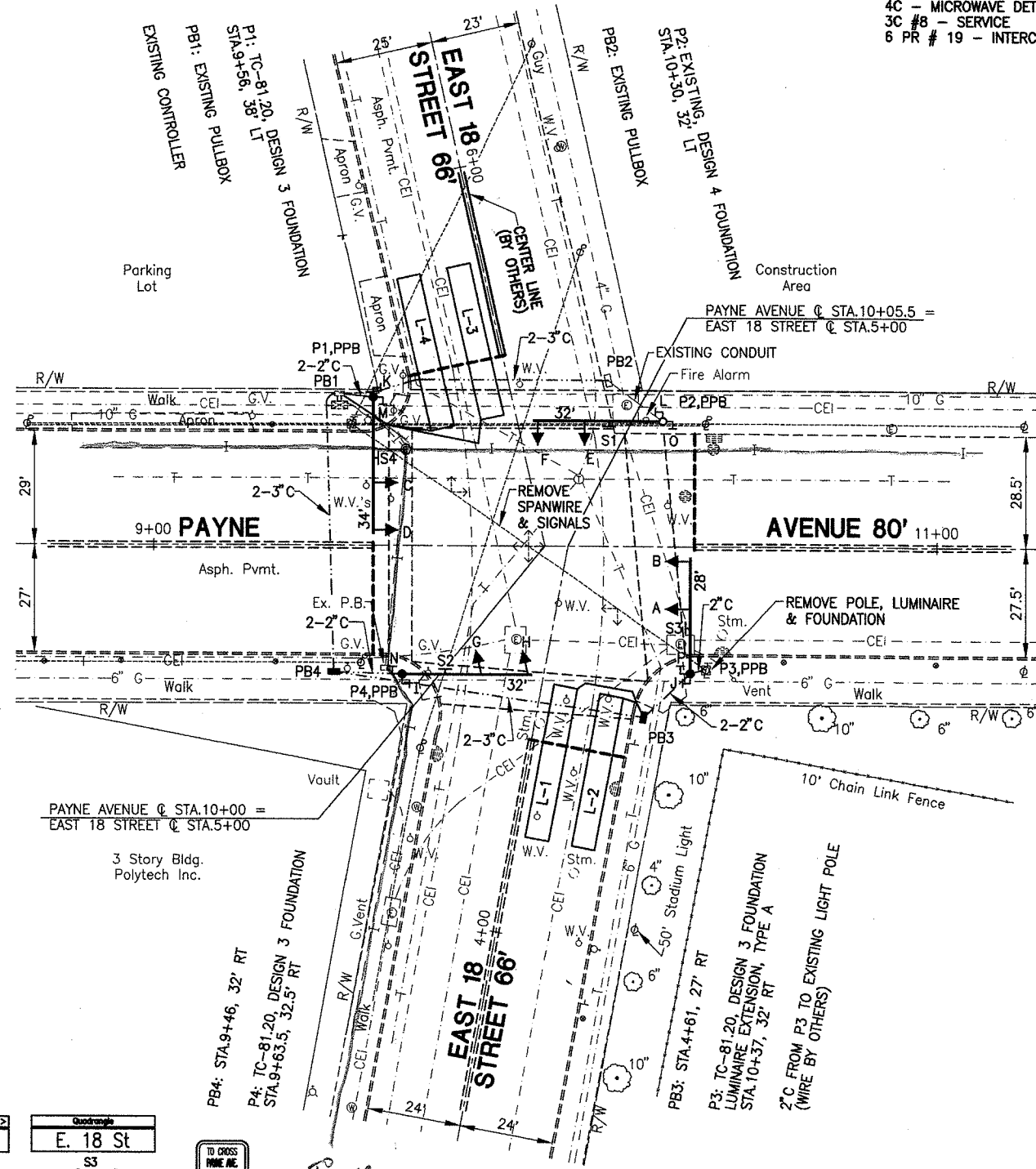
12" SIGNAL HEADS

RIGID MOUNTED



LOOP	SIZE	TURNS	MODE	DELAY	PHASE	REMARK	INHIBITED DELAY	LOCATION 1ST FRONT CORNER	LOCATION 2ND FRONT CORNER
L-1	6'X40'	2	PRESENCE		4			STA.4+65, 3' R	STA.4+65, 9' R
L-2	6'X40'	2	PRESENCE	8	4		NO	STA.4+65, 15' R	STA.4+65, 21' R
L-3	6'X40'	2	PRESENCE		4			STA.5+35, 3' L	STA.5+35, 9' L
L-4	6'X40'	2	PRESENCE	8	4		NO	STA.5+35, 16' L	STA.5+35, 22' L

LOOP DETECTOR CHART



WIRE DIAGRAM

100% CITY PARTICIPATION

ITEM	TOTAL	UNIT	DESCRIPTION
625	4	EA	GROUND ROD
625	2	EA	PULLBOX, AS PER PLAN
625	112	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	157	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	87	LF	CONDUIT, 2", 713.07
625	128	LF	CONDUIT, 3", 713.07
625	314	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
630	56	SF	SIGN, FLAT SHEET, TYPE G
630	4	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
632	8	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	8	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	4	EA	PEDESTRIAN PUSHBUTTON, AS PER PLAN
632	1	EA	LOOP DETECTOR UNIT, DELAY AND EXTENSION TYPE, AS PER PLAN
632	424	LF	LOOP DETECTOR PAVEMENT CUTTING
632	4.9	CY	CONCRETE FOR ANCHOR BASE FOUNDATION
632	1	EA	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, WITH 28' ARM, AS PER PLAN
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, WITH 32' ARM, A.P.P.
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, WITH 34' ARM, A.P.P.
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 32' ARM, A.P.P.
632	450	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	642	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	828	LF	LOOP DETECTOR WIRE, TYPE E
632	326	LF	LOOP DETECTOR LEAD-IN CABLE
632	8	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER ITEM, MISC.: FIELD CONNECTIONS TO EXISTING CONTROLLER
633	1	EA	CONTROLLER ITEM, MISC.: MODIFY EXISTING CONTROLLER OPERATIONS



SCALE IN FEET

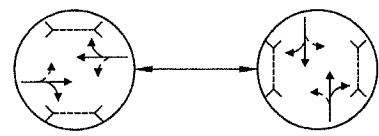
INTERSECTION OF PAYNE AVENUE AND EAST 18 STREET

CUYAHOGA COUNTY
 CUY-6-15.55 & VARIOUS

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 86.

FOR POLE CHART SEE SHEET 88.

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES.



EXISTING PHASING DIAGRAM

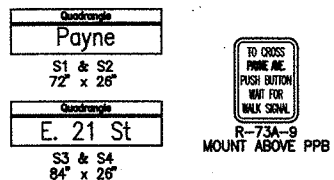
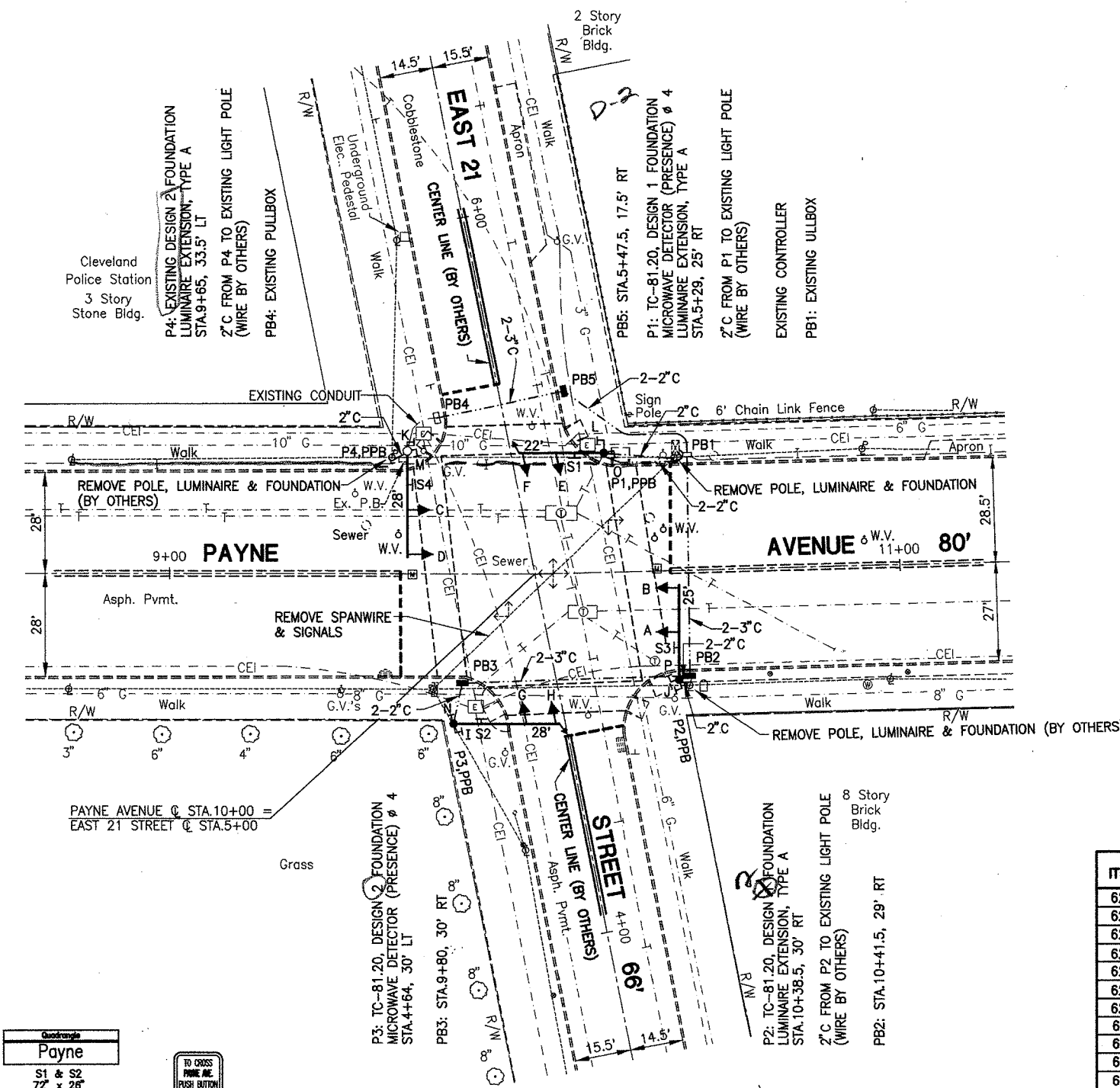
SIGNAL HEAD	φ1		φ2		φ3		φ4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A			G	Y	R		R	R	Y	G
B			G	Y	R		R	R	Y	G
C			G	Y	R		R	R	Y	G
D			G	Y	R		R	R	Y	G
E			R	R	R		G	Y	R	R
F			R	R	R		G	Y	R	R
G			R	R	R		G	Y	R	R
H			R	R	R		G	Y	R	R
I			W/(DW)	DW	DW		DW	DW	DW	DW
J			W/(DW)	DW	DW		DW	DW	DW	DW
K			W/(DW)	DW	DW		DW	DW	DW	DW
L			W/(DW)	DW	DW		DW	DW	DW	DW
M			DW	DW	DW		W/(DW)	DW	DW	DW
N			DW	DW	DW		W/(DW)	DW	DW	DW
O			DW	DW	DW		W/(DW)	DW	DW	DW
P			DW	DW	DW		W/(DW)	DW	DW	DW

W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK

SIGNAL SEQUENCE CHART

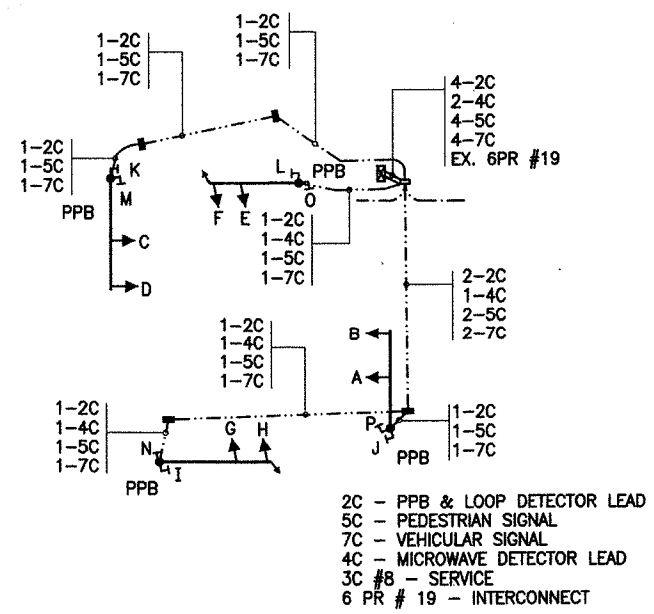
FUNCTION	φ1	φ2	φ3	φ4
INITIAL GREEN		-		8
MINIMUM GREEN		30		-
VEHICLE EXTENSION		-		2
MAXIMUM GREEN		-		33
PEDESTRIAN WALK		7		7
PEDESTRIAN CLEAR.		7		12
VEH. YELLOW CLEAR.		3		3
VEHICLE RED CLEAR.		1.5		2
RECALL		PED		NO
MEMORY		NO		NO

SIGNAL TIMING CHART



SIGN LEGEND

12" SIGNAL HEADS RIGID MOUNTED



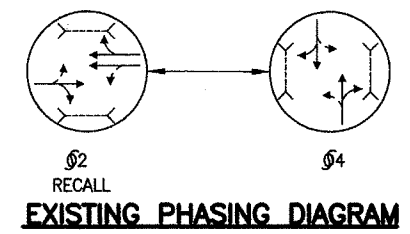
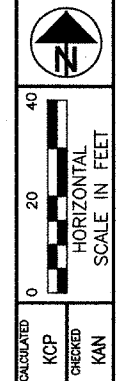
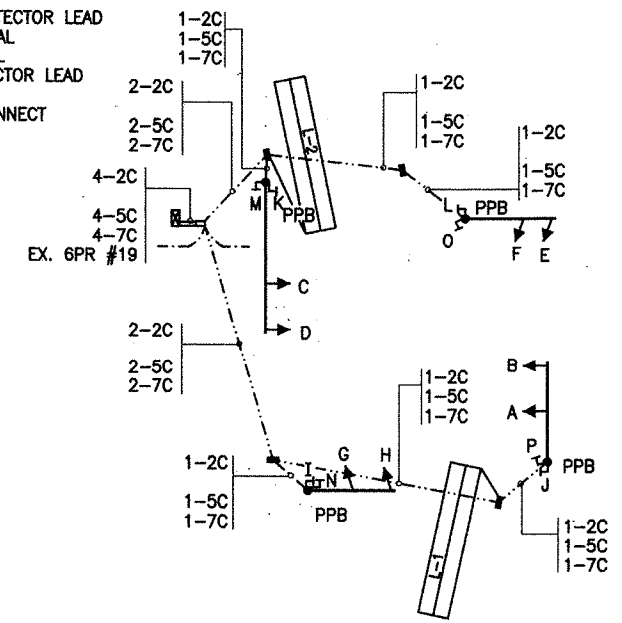
WIRE DIAGRAM

100% CITY PARTICIPATION

ITEM	TOTAL	UNIT	DESCRIPTION
625	4	EA	GROUND ROD
625	3	EA	PULLBOX, AS PER PLAN
625	134	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	133	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	189	LF	CONDUIT, 2", 713.07
625	52	LF	CONDUIT, 3", 713.07
625	266	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
630	56	SF	SIGN, FLAT SHEET, TYPE G
630	4	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
632	8	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	8	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	4	EA	PEDESTRIAN PUSHBUTTON, AS PER PLAN
632	2	EA	SIGNALIZATION, MISC.: MICROWAVE DETECTOR
632	4.4	CY	CONCRETE FOR ANCHOR BASE FOUNDATION
632	1	EA	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 22' ARM, AS PER PLAN
632	1	EA	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 25' ARM, AS PER PLAN
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 2, WITH 28' ARM, A.P.P.
632	1	EA	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 2, WITH 28' ARM, AS PER PLAN
632	426	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	610	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	410	LF	LOOP DETECTOR LEAD-IN CABLE
632	298	LF	SIGNALIZATION, MISC.: MICROWAVE DETECTOR LEAD-IN CABLE
632	8	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER ITEM, MISC.: FIELD CONNECTIONS TO EXISTING CONTROLLER
633	1	EA	CONTROLLER ITEM, MISC.: MODIFY EXISTING CONTROLLER OPERATIONS

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 86.
 FOR POLE CHART SEE SHEET 88.
 EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES.

2C - PPB & LOOP DETECTOR LEAD
 5C - PEDESTRIAN SIGNAL
 7C - VEHICULAR SIGNAL
 4C - MICROWAVE DETECTOR LEAD
 3C #8 - SERVICE
 6 PR # 19 - INTERCONNECT

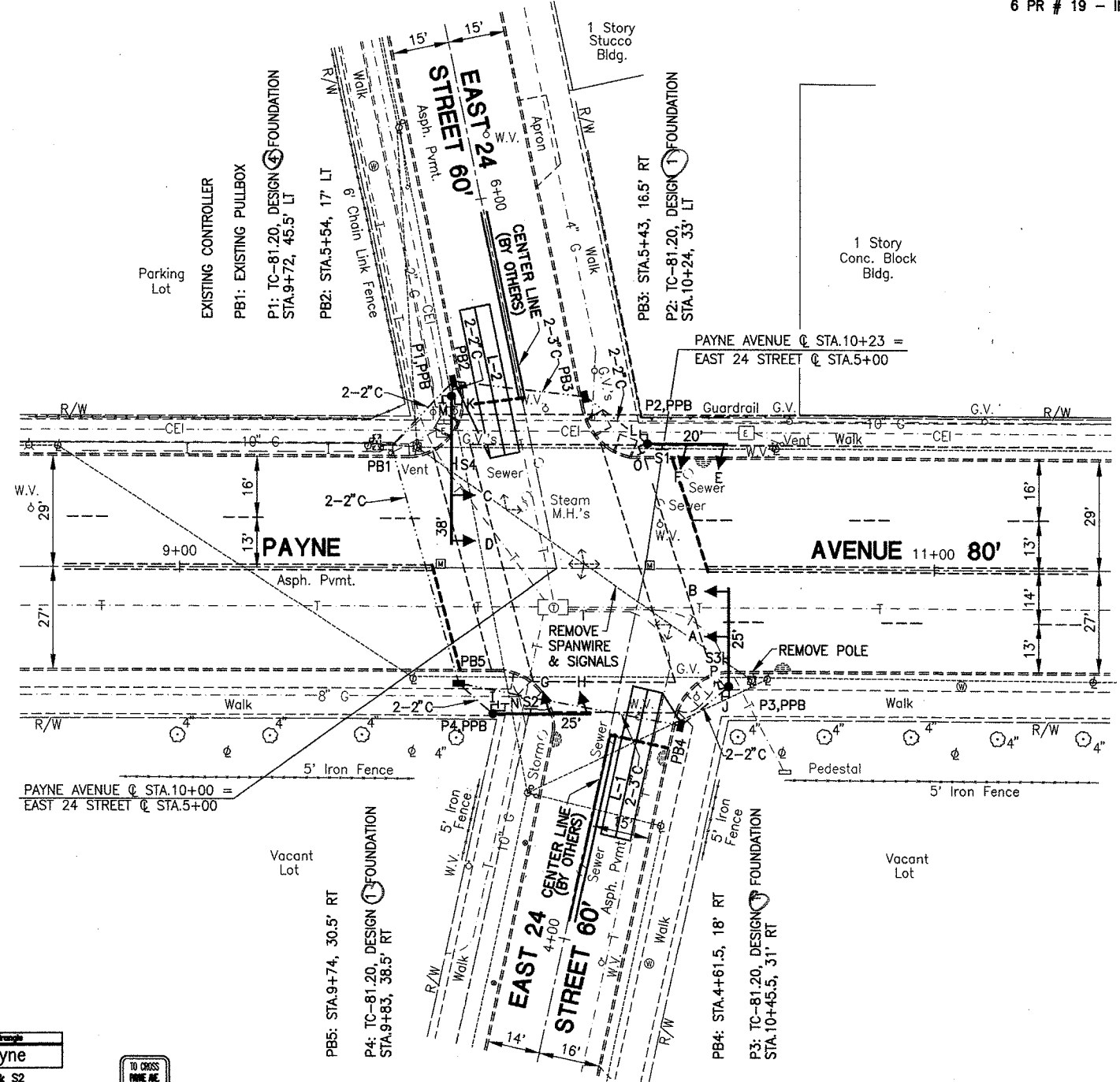


EXISTING PHASING DIAGRAM

SIGNAL HEAD	φ1		φ2		φ3		φ4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A			G	Y R			R	R R Y G		
B			G	Y R			R	R R Y G		
C			G	Y R			R	R R Y G		
D			G	Y R			R	R R Y G		
E			R	R R			G	Y R R R		
F			R	R R			G	Y R R R		
G			R	R R			G	Y R R R		
H			R	R R			G	Y R R R		
I			W/(DW)	DW DW			DW	DW DW D W		
J			W/(DW)	DW DW			DW	DW DW D W		
K			W/(DW)	DW DW			DW	DW DW D W		
L			W/(DW)	DW DW			DW	DW DW D W		
M			DW	DW DW			W/(DW)	DW DW D DW		
N			DW	DW DW			W/(DW)	DW DW D DW		
O			DW	DW DW			W/(DW)	DW DW D DW		
P			DW	DW DW			W/(DW)	DW DW D DW		

W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK

SIGNAL SEQUENCE CHART



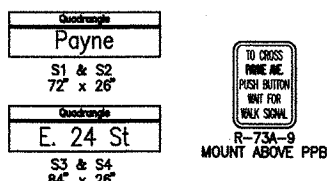
WIRE DIAGRAM

100% CITY PARTICIPATION

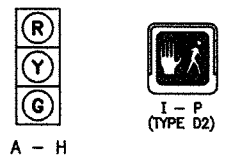
ITEM	TOTAL	UNIT	DESCRIPTION
625	4	EA	GROUND ROD
625	4	EA	PULLBOX, AS PER PLAN
625	119	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	123	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	158	LF	CONDUIT, 2", 713.07
625	73	LF	CONDUIT, 3", 713.07
625	246	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
630	56	SF	SIGN, FLAT SHEET, TYPE G
630	4	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
632	8	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	8	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	4	EA	PEDESTRIAN PUSHBUTTON, AS PER PLAN
632	1	EA	LOOP DETECTOR, DELAY AND EXTENSION TYPE, AS PER PLAN
632	7.1	CY	CONCRETE FOR ANCHOR BASE FOUNDATION
632	2	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 25' ARM, A.P.P.
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 20' ARM, A.P.P.
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 38' ARM, A.P.P.
632	450	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	627	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	594	LF	LOOP DETECTOR WIRE, TYPE E
632	598	LF	LOOP DETECTOR LEAD-IN CABLE
632	8	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER ITEM, MISC.: FIELD CONNECTIONS TO EXISTING CONTROLLER
633	1	EA	CONTROLLER ITEM, MISC.: MODIFY EXISTING CONTROLLER OPERATIONS

LOOP	SIZE	TURNS	MODE	DELAY	PHASE	REMARK	INHIBITED DELAY	LOCATION 1ST FRONT CORNER	LOCATION 2ND FRONT CORNER
L-1	8'X40'	2-4-2	PRESENCE		4	QUADRAPOLE		STA.4+69, 3.5' R	STA.4+69, 11.5' R
L-2	8'X40'	2-4-2	PRESENCE		4	QUADRAPOLE		STA.5+32, 3.5' L	STA.5+32, 11.5' L

LOOP DETECTOR CHART



SIGN LEGEND



12" SIGNAL HEADS RIGID MOUNTED

FUNCTION	φ1	φ2	φ3	φ4
INITIAL GREEN		-		8
MINIMUM GREEN		30		-
VEHICLE EXTENSION		-		2
MAXIMUM GREEN		-		30
PEDESTRIAN WALK		7		7
PEDESTRIAN CLEAR.		8		14
VEH. YELLOW CLEAR.		3		3
VEHICLE RED CLEAR.		1.5		2
RECALL		PED		NO
MEMORY		NO		NO

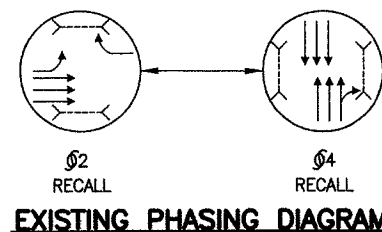
SIGNAL TIMING CHART

INTERSECTION OF PAYNE AVENUE AND EAST 24 STREET
 CUYAHOGA COUNTY
 CUY-6-15.55 & VARIOUS

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 86.

FOR POLE CHART SEE SHEET 89.

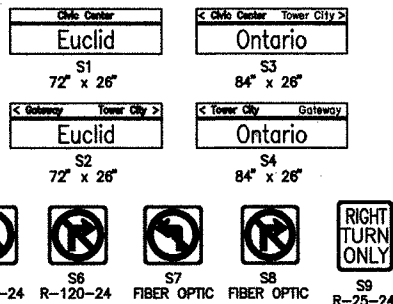
EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES.



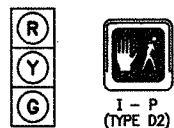
SIGNAL HEAD	φ1		φ2		φ3		φ4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A			G	Y R			R	R R R		
B			G	Y R			R	R R R		
C			G	Y R			R	R R R		
D			G	Y R			R	R R R		
E			R	R R			G	Y R Y		
F			R	R R			G	Y R Y		
G			R	R R			G	Y R Y		
H			R	R R			G	Y R Y		
I			W/(DW)	DW DW			DW	DW DW D		
J			W/(DW)	DW DW			DW	DW DW D		
K			W/(DW)	DW DW			DW	DW DW D		
L			W/(DW)	DW DW			DW	DW DW D		
M			DW	DW DW			W/(DW)	DW DW D		
N			DW	DW DW			W/(DW)	DW DW D		
O			DW	DW DW			W/(DW)	DW DW D		
P			DW	DW DW			W/(DW)	DW DW D		

W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK

SIGNAL SEQUENCE CHART



SIGN LEGEND



12" SIGNAL HEADS

RIGID MOUNTED

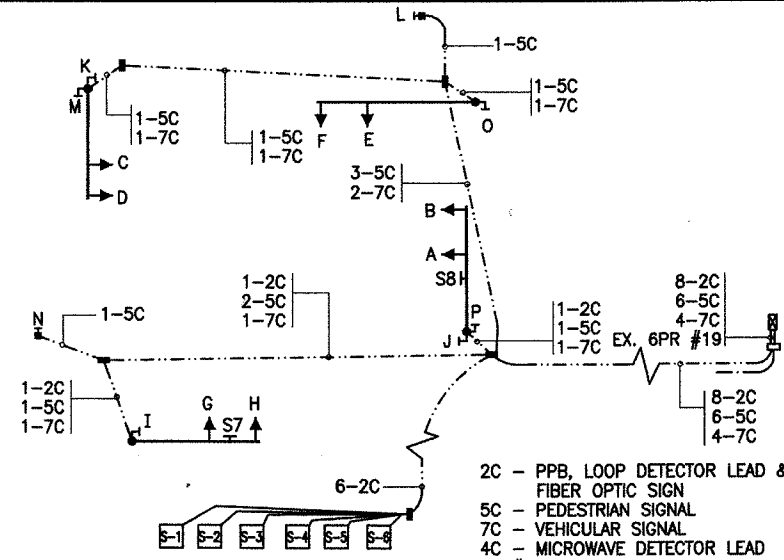
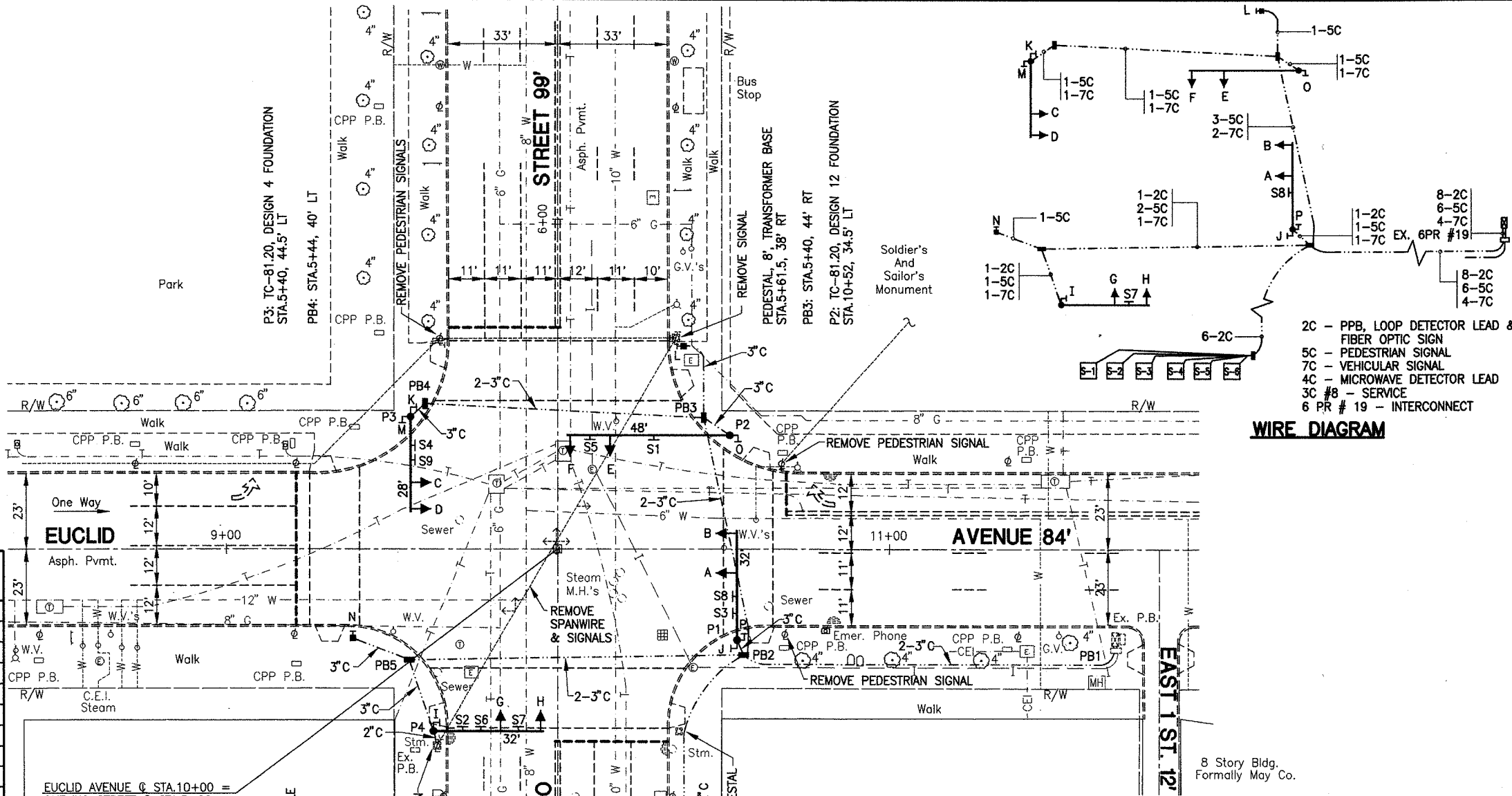
FUNCTION	φ1	φ2	φ3	φ4
INITIAL GREEN	-	-	-	-
MINIMUM GREEN	-	30	-	-
VEHICLE EXTENSION	-	-	-	-
MAXIMUM GREEN	-	-	-	45
PEDESTRIAN WALK	-	7	-	35
PEDESTRIAN CLEAR.	-	15	-	10
VEH. YELLOW CLEAR.	-	3	-	3
VEHICLE RED CLEAR.	-	2.5	-	1.5
RECALL	-	PED	-	PED
MEMORY	-	NO	-	NO

SIGN S7 TO BE ILLUMINATED 6:30-9:30 AM AND 3:30-6:30 PM, M-F
SIGN S8 TO BE ILLUMINATED 11:00 AM - 1:00 PM, M-F

SIGNAL TIMING CHART

LOOP	SIZE	TURNS	MODE	DELAY	PHASE	REMARK	INHIBITED DELAY	LOCATION 1ST FRONT CORNER	LOCATION 2ND FRONT CORNER
S-1	6'X6'	3	BOTH			SYSTEM		STA.3+70, 30' L	STA.3+70, 24' L
S-2	6'X6'	3	BOTH			SYSTEM		STA.3+70, 20' L	STA.3+70, 14' L
S-3	6'X6'	3	BOTH			SYSTEM		STA.3+70, 9' L	STA.3+70, 3' L
S-4	6'X6'	3	BOTH			SYSTEM		STA.3+70, 3' R	STA.3+70, 9' R
S-5	6'X6'	3	BOTH			SYSTEM		STA.3+70, 13' R	STA.3+70, 19' R
S-6	6'X6'	3	BOTH			SYSTEM		STA.3+70, 24' R	STA.3+70, 30' R

LOOP DETECTOR CHART



WIRE DIAGRAM

- 2C - PPB, LOOP DETECTOR LEAD & FIBER OPTIC SIGN
- 5C - PEDESTRIAN SIGNAL
- 7C - VEHICULAR SIGNAL
- 4C - MICROWAVE DETECTOR LEAD
- 3C #8 - SERVICE
- 6 PR #19 - INTERCONNECT

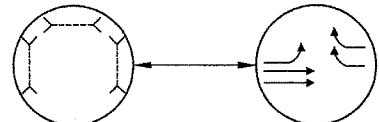
ITEM	TOTAL	UNIT	DESCRIPTION
625	6	EA	GROUND ROD
625	5	EA	PULLBOX, AS PER PLAN
625	509	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	219	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	267	LF	CONDUIT, 2", 713.07
625	398	LF	CONDUIT, 3", 713.07
625	438	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
630	69	SF	SIGN, FLAT SHEET, TYPE G
630	7	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
631	3	EA	CHANGEABLE MESSAGE SIGN, ELECTRIC TYPE, LIMITED MESSAGE, AS PER PLAN
632	8	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	8	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	2	EA	LOOP DETECTOR UNIT, DELAY AND EXTENSION TYPE, AS PER PLAN
632	446	LF	LOOP DETECTOR PAVEMENT CUTTING
632	11.8	CY	CONCRETE FOR ANCHOR BASE FOUNDATION
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 28" ARM, A.P.P.
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 32" ARM, A.P.P.
632	1	EA	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 32" ARM, AS PER PLAN
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 12, WITH 48" ARM, A.P.P.
632	2	EA	PEDESTAL, 8', TRANSFORMER BASE
632	1476	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	1162	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	1120	LF	LOOP DETECTOR WIRE, TYPE E
632	1732	LF	LOOP DETECTOR LEAD-IN CABLE
632	8	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER ITEM, MISC.: FIELD CONNECTIONS TO EXISTING CONTROLLER
633	1	EA	CONTROLLER ITEM, MISC.: MODIFY EXISTING CONTROLLER OPERATIONS

DATE: 02-26-1997 TIME: 11:19:32

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 86.

FOR POLE CHART SEE SHEET 89.

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES.



EXISTING PHASING DIAGRAM

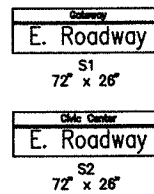
SIGNAL HEAD	φ1		φ2		φ3		φ4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A	R		G	Y R						Y
B	R		G	Y R						Y
C	R		⊕	Y R						Y
D	R		⊕	Y R						Y
E	W/(DW)	DW DW	DW DW	DW DW						D
F	W/(DW)	DW DW	DW DW	DW DW						D
G	W/(DW)	DW DW	DW DW	DW DW						D
H	W/(DW)	DW DW	DW DW	DW DW						D
I	W/(DW)	DW DW	DW DW	DW DW						D
J	W/(DW)	DW DW	DW DW	DW DW						D

W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK

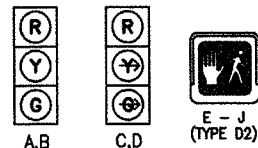
SIGNAL SEQUENCE CHART

FUNCTION	φ1	φ2	φ3	φ4
INITIAL GREEN	-	-		
MINIMUM GREEN	-	-		
VEHICLE EXTENSION	-	-		
MAXIMUM GREEN	-	53		
PEDESTRIAN WALK	16	-		
PEDESTRIAN CLEAR.	16	-		
VEH. YELLOW CLEAR.	-	3		
VEHICLE RED CLEAR.	-	2		
RECALL	PED	VEH		
MEMORY	NO	NO		

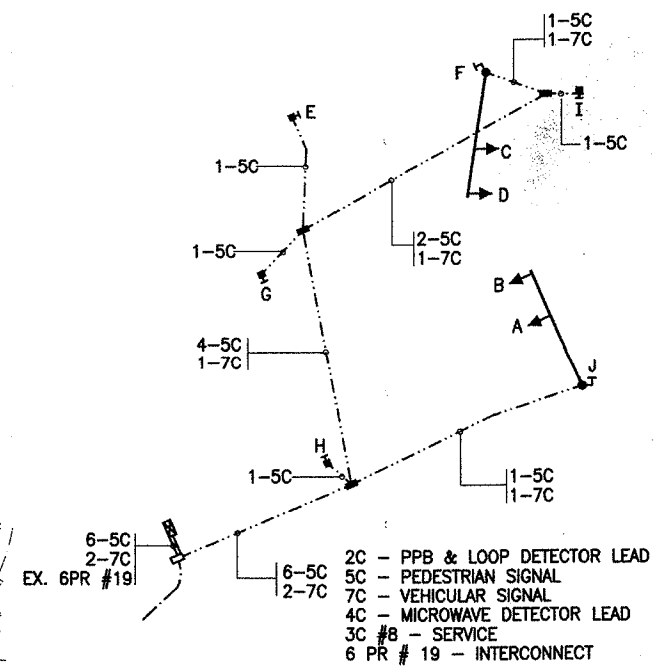
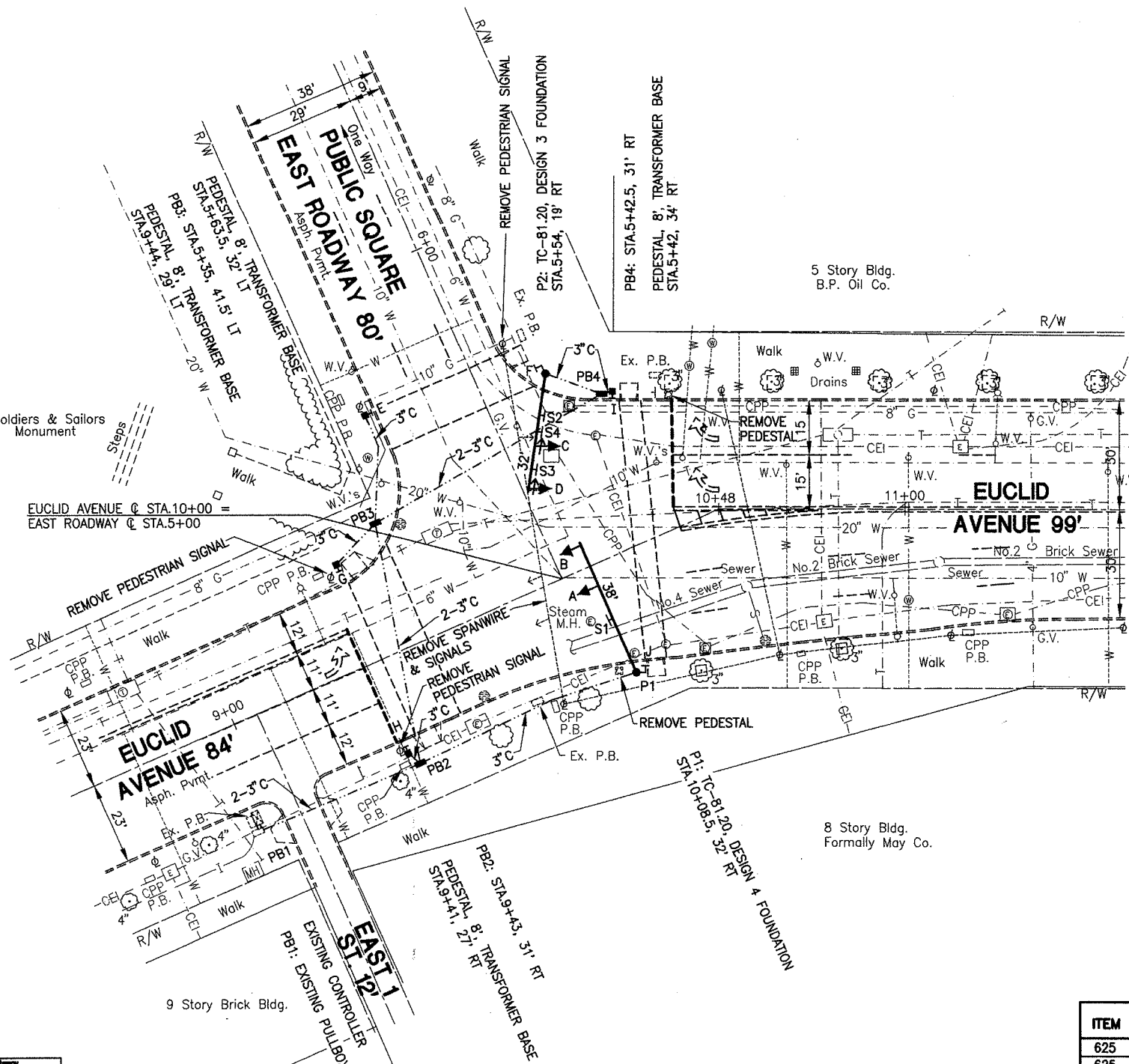
SIGNAL TIMING CHART



SIGN LEGEND



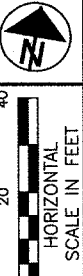
12" SIGNAL HEADS RIGID MOUNTED



WIRE DIAGRAM

- 2C - PPB & LOOP DETECTOR LEAD
- 5C - PEDESTRIAN SIGNAL
- 7C - VEHICULAR SIGNAL
- 4C - MICROWAVE DETECTOR LEAD
- 3C #8 - SERVICE
- 6 PR #19 - INTERCONNECT

ITEM	TOTAL	UNIT	DESCRIPTION
625	6	EA	GROUND ROD
625	3	EA	PULLBOX, AS PER PLAN
625	207	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	123	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	132	LF	CONDUIT, 2", 713.07
625	212	LF	CONDUIT, 3", 713.07
625	246	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
630	37	SF	SIGN, FLAT SHEET, TYPE G
630	4	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
632	4	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	6	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	5.1	CY	CONCRETE FOR ANCHOR BASE FOUNDATION
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, WITH 32' ARM, A.P.P.
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 38' ARM, A.P.P.
632	4	EA	PEDESTAL, 8', TRANSFORMER BASE
632	1041	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	480	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	4	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER ITEM, MISC.: FIELD CONNECTIONS TO EXISTING CONTROLLER



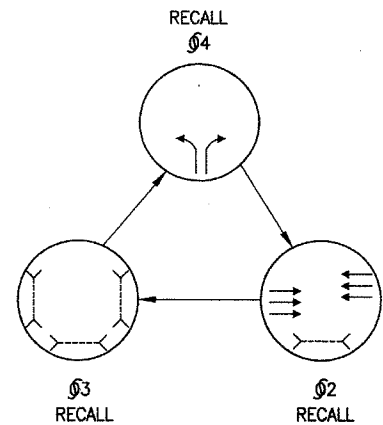
INTERSECTION OF EUCLID AVENUE AND EAST ROADWAY

CUYAHOGA COUNTY
CUY-6-15.55 & VARIOUS

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 86.

FOR POLE CHART SEE SHEET 89.

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES.



EXISTING PHASING DIAGRAM

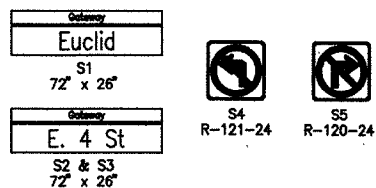
SIGNAL HEAD	phi 1		phi 2		phi 3		phi 4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A			G	Y	R	R	R	R	R	Y
B			G	Y	R	R	R	R	R	Y
C			G	Y	R	R	R	R	R	Y
D			G	Y	R	R	R	R	R	Y
E			R	R	R	R	R	G	Y	R
F			R	R	R	R	R	G	Y	R
G			W	DW	DW	W/(DW)	DW	DW	DW	D
H			W	DW	DW	W/(DW)	DW	DW	DW	D
I			DW	DW	DW	W/(DW)	DW	DW	DW	D
J			DW	DW	DW	W/(DW)	DW	DW	DW	D
K			DW	DW	DW	W/(DW)	DW	DW	DW	D
L			DW	DW	DW	W/(DW)	DW	DW	DW	D

W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK

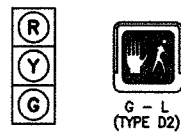
SIGNAL SEQUENCE CHART

FUNCTION	phi 1	phi 2	phi 3	phi 4
INITIAL GREEN				
MINIMUM GREEN				
VEHICLE EXTENSION				
MAXIMUM GREEN		34		25
PEDESTRIAN WALK			7	
PEDESTRIAN CLEAR.			14	
VEH. YELLOW CLEAR.		3		3
VEHICLE RED CLEAR.		1.5		2.0
RECALL			PED	VEH
MEMORY			NO	NO

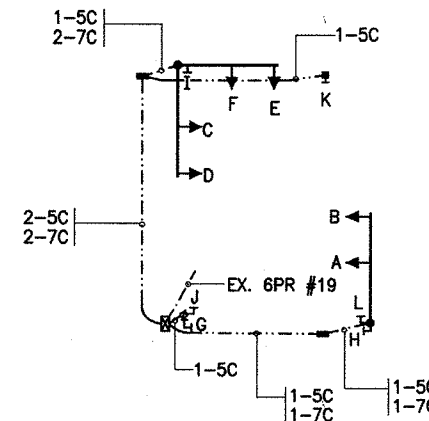
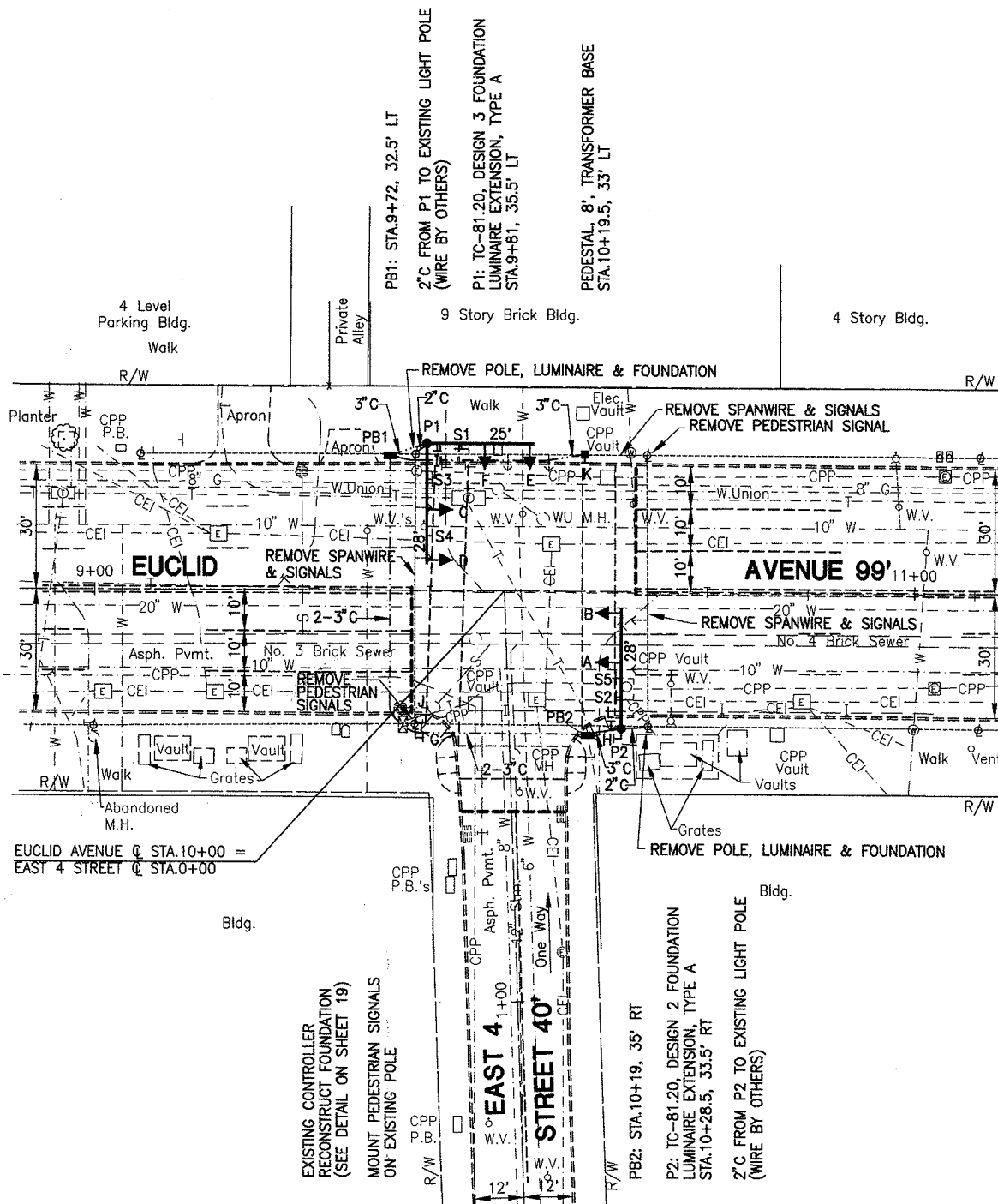
SIGNAL TIMING CHART



SIGN LEGEND



12" SIGNAL HEADS RIGID MOUNTED



WIRE DIAGRAM

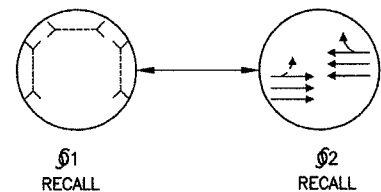
2C - PPB & LOOP DETECTOR LEAD
 5C - PEDESTRIAN SIGNAL
 7C - VEHICULAR SIGNAL
 4C - MICROWAVE DETECTOR LEAD
 3C # - SERVICE
 6 PR # 19 - INTERCONNECT

ITEM	TOTAL	UNIT	DESCRIPTION
625	4	EA	GROUND ROD
625	2	EA	PULLBOX, AS PER PLAN
625	105	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	90	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	10	LF	CONDUIT, 2", 713.07
625	110	LF	CONDUIT, 3", 713.07
625	180	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
630	47	SF	SIGN, FLAT SHEET, TYPE G
630	4	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
632	6	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	6	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	3.5	CY	CONCRETE FOR ANCHOR BASE FOUNDATION
632	1	EA	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 2, WITH 28' ARM, AS PER PLAN
632	1	EA	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20 DESIGN 3 POLE, WITH MAST ARMS TC-81.20 DESIGN 1, 25 FEET AND TC-81.20 DESIGN 2, 28 FEET, AS PER PLAN
632	1	EA	PEDESTAL, 8', TRANSFORMER BASE
632	350	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	430	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	6	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER ITEM, MISC.: FIELD CONNECTIONS TO EXISTING CONTROLLER
633	1	EA	CONTROLLER ITEM, MISC.: RECONSTRUCT EXISTING CABINET FOUNDATION

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 86.

FOR POLE CHART SEE SHEET 89.

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES.



EXISTING PHASING DIAGRAM

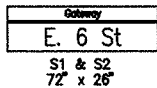
SIGNAL HEAD	φ1		φ2		φ3		φ4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A	R	R R	G	Y R						Y
B	R	R R	G	Y R						Y
C	R	R R	G	Y R						Y
D	R	R R	G	Y R						Y
E	W/(DW)	DW DW	DW	DW DW						D
F	W/(DW)	DW DW	DW	DW DW						D
G	W/(DW)	DW DW	DW	DW DW						D
H	W/(DW)	DW DW	DW	DW DW						D
I	W/(DW)	DW DW	DW	DW DW						D
J	W/(DW)	DW DW	DW	DW DW						D

W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK

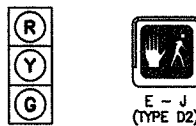
SIGNAL SEQUENCE CHART

FUNCTION	φ1	φ2	φ3	φ4
INITIAL GREEN	-	-		
MINIMUM GREEN	-	30		
VEHICLE EXTENSION	-	-		
MAXIMUM GREEN	-	-		
PEDESTRIAN WALK	16	-		
PEDESTRIAN CLEAR.	14	-		
VEH. YELLOW CLEAR.	-	3		
VEHICLE RED CLEAR.	-	1.5		
RECALL		PED	VEH	
MEMORY		NO	NO	

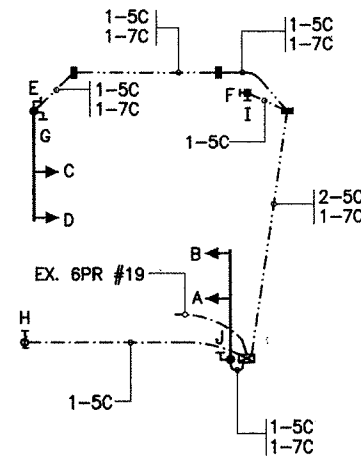
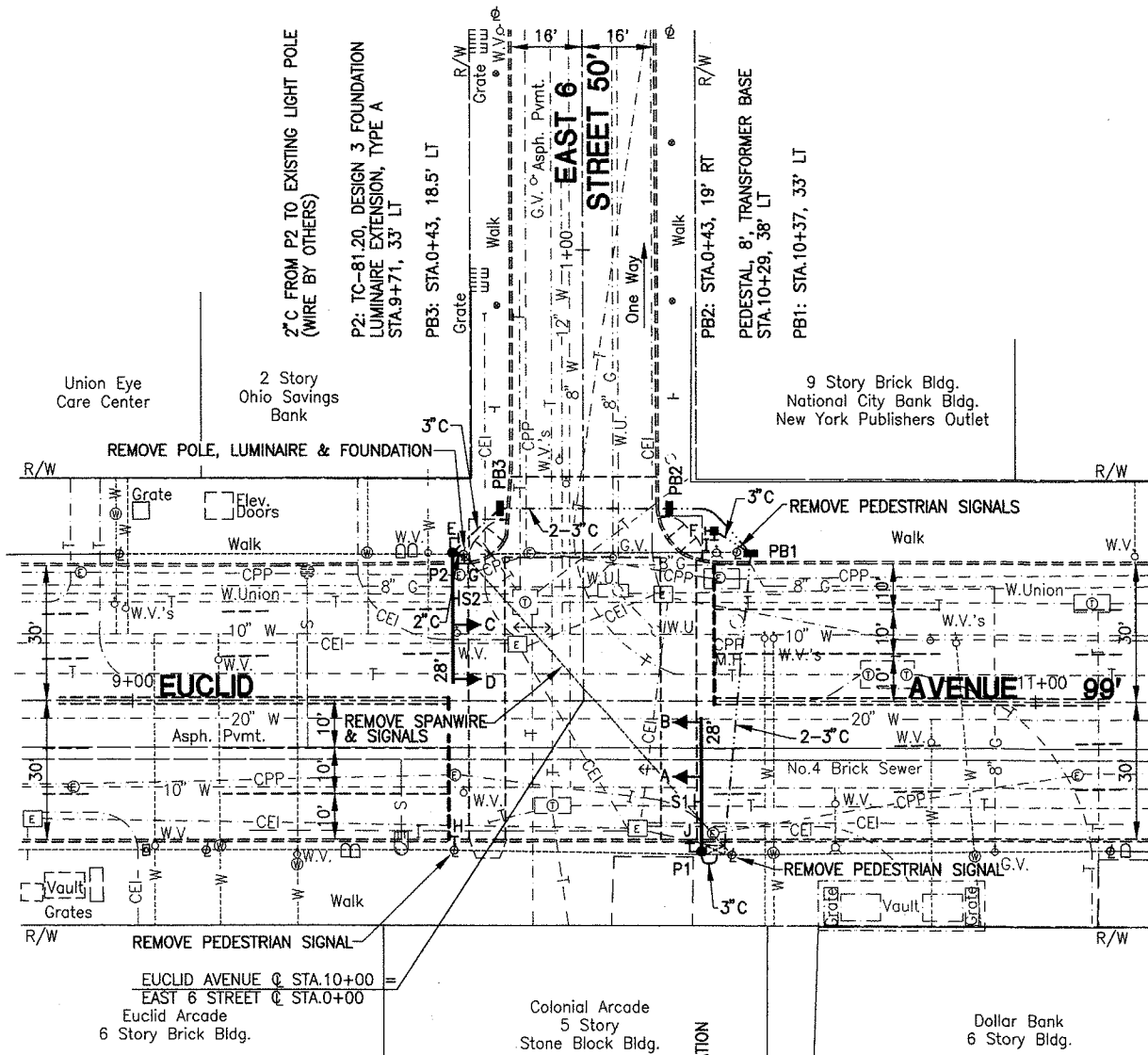
SIGNAL TIMING CHART



SIGN LEGEND



12" SIGNAL HEADS RIGID MOUNTED



2C - PPB & LOOP DETECTOR LEAD
 5C - PEDESTRIAN SIGNAL
 7C - VEHICULAR SIGNAL
 4C - MICROWAVE DETECTOR LEAD
 3C #8 - SERVICE
 6 PR # 19 - INTERCONNECT

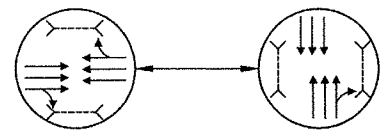
WIRE DIAGRAM

ITEM	TOTAL	UNIT	DESCRIPTION
625	4	EA	GROUND ROD
625	3	EA	PULLBOX, AS PER PLAN
625	57	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	94	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	4	LF	CONDUIT, 2", 713.07
625	77	LF	CONDUIT, 3", 713.07
625	188	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
630	20	SF	SIGN, FLAT SHEET, TYPE G
630	2	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
632	4	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	6	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	3.8	CY	CONCRETE FOR ANCHOR BASE FOUNDATION
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, WITH 28" ARM, A.P.P.
632	1	EA	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, WITH 28" ARM, AS PER PLAN
632	1	EA	PEDESTAL, 8', TRANSFORMER BASE
632	406	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	321	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	4	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER ITEM, MISC.: FIELD CONNECTIONS TO EXISTING CONTROLLER
633	1	EA	CONTROLLER ITEM, MISC.: RECONSTRUCT EXISTING CABINET FOUNDATION

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 86.

FOR POLE CHART SEE SHEET 89.

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES.



EXISTING PHASING DIAGRAM

SIGNAL HEAD	φ1		φ2		φ3		φ4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A			G	Y	R		R	R	R	R
B			G	Y	R		R	R	R	R
C			G	Y	R		R	R	R	R
D			G	Y	R		R	R	R	R
E			R	R	R		G	Y	R	Y
F			R	R	R		G	Y	R	Y
G			R	R	R		G	Y	R	Y
H			R	R	R		G	Y	R	Y
I			W/(DW)	DW	DW		DW	DW	DW	D
J			W/(DW)	DW	DW		DW	DW	DW	D
K			W/(DW)	DW	DW		DW	DW	DW	D
L			W/(DW)	DW	DW		DW	DW	DW	D
M			DW	DW	DW		W/(DW)	DW	DW	D
N			DW	DW	DW		W/(DW)	DW	DW	D
O			DW	DW	DW		W/(DW)	DW	DW	D
P			DW	DW	DW		W/(DW)	DW	DW	D

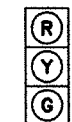
W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK

SIGNAL SEQUENCE CHART

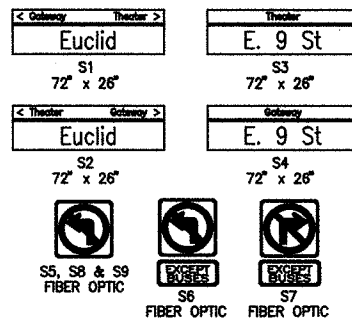
FUNCTION	φ1	φ2	φ3	φ4
INITIAL GREEN		-	-	-
MINIMUM GREEN		-	-	-
VEHICLE EXTENSION		-	-	-
MAXIMUM GREEN		54	35	
PEDESTRIAN WALK		37	18	
PEDESTRIAN CLEAR		17	17	
VEH. YELLOW CLEAR		3	3	
VEHICLE RED CLEAR		3	3	
RECALL		PED	PED	
MEMORY		NO	NO	

SIGNS S5, S6, S7, S8 & S9 TO BE ILLUMINATED
6:00 AM - 6:00 PM

SIGNAL TIMING CHART



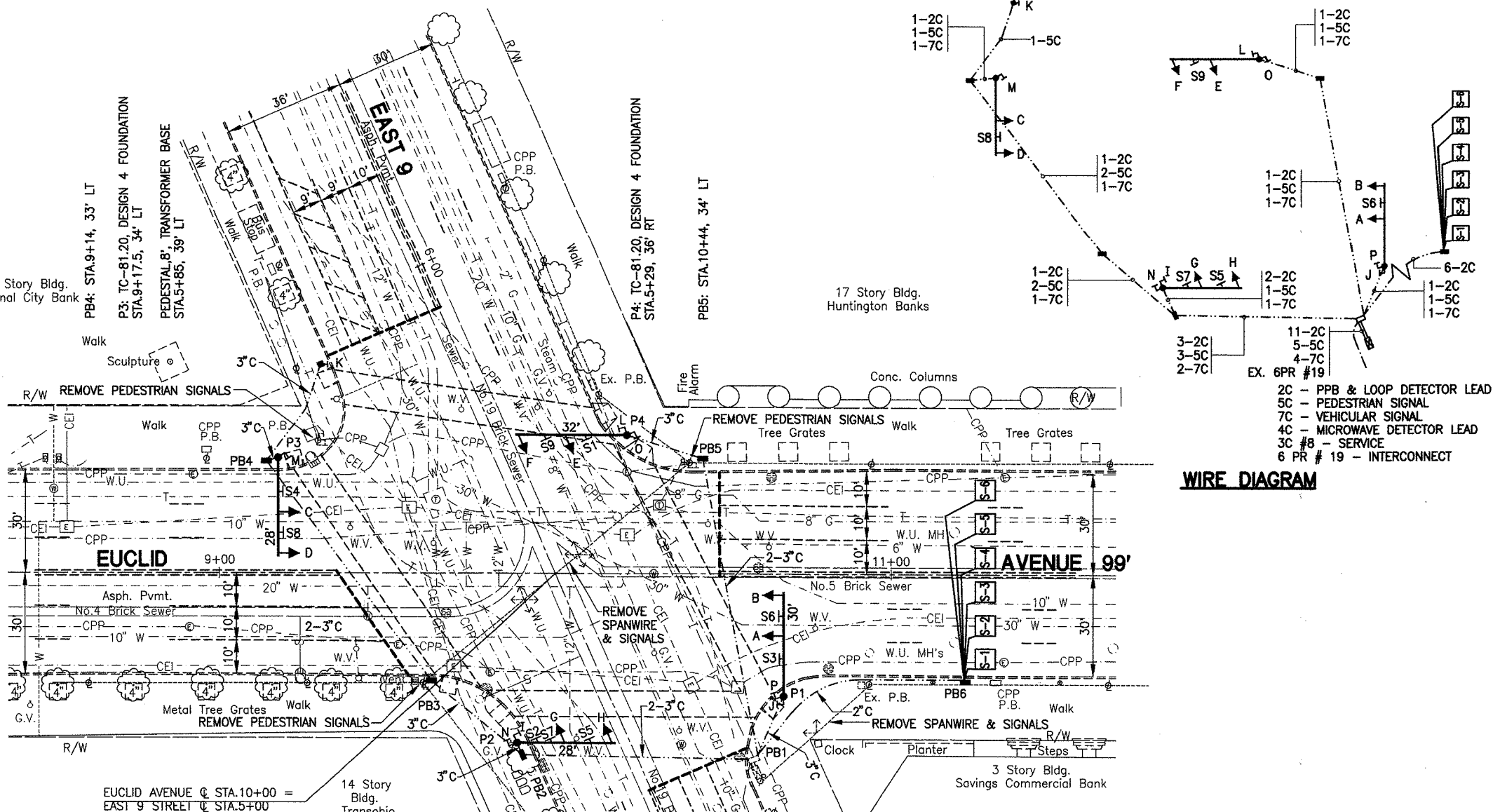
12" SIGNAL HEADS
RIGID MOUNTED



SIGN LEGEND

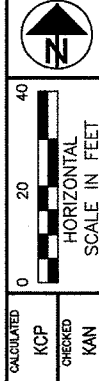
LOOP	SIZE	TURNS	MODE	DELAY	PHASE	REMARK	INHIBITED DELAY	LOCATION 1ST FRONT CORNER	LOCATION 2ND FRONT CORNER
S-1	6'X6'	3	BOTH			SYSTEM		STA.11+25, 28' R	STA.11+25, 22' R
S-2	6'X6'	3	BOTH			SYSTEM		STA.11+25, 18' R	STA.11+25, 12' R
S-3	6'X6'	3	BOTH			SYSTEM		STA.11+25, 8' R	STA.11+25, 2' R
S-4	6'X6'	3	BOTH			SYSTEM		STA.11+25, 2' L	STA.11+25, 8' L
S-5	6'X6'	3	BOTH			SYSTEM		STA.11+25, 12' L	STA.11+25, 18' L
S-6	6'X6'	3	BOTH			SYSTEM		STA.11+25, 22' L	STA.11+25, 28' L

LOOP DETECTOR CHART



WIRE DIAGRAM

ITEM	TOTAL	UNIT	DESCRIPTION
625	5	EA	GROUND ROD
625	5	EA	PULLBOX, AS PER PLAN
625	306	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	213	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	153	LF	CONDUIT, 2", 713.07
625	180	LF	CONDUIT, 3", 713.07
625	426	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
630	52	SF	SIGN, FLAT SHEET, TYPE G
630	4	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
631	5	EA	CHANGEABLE MESSAGE SIGN, ELECTRIC TYPE, LIMITED MESSAGE, AS PER PLAN
632	8	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	8	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	2	EA	LOOP DETECTOR UNIT, DELAY AND EXTENSION TYPE, AS PER PLAN
632	328	LF	LOOP DETECTOR PAVEMENT CUTTING
632	11.0	CY	CONCRETE FOR ANCHOR BASE FOUNDATION
632	2	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 28' ARM, A.P.P.
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 30' ARM, A.P.P.
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 32' ARM, A.P.P.
632	1	EA	PEDESTAL, 8', TRANSFORMER BASE
632	763	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	750	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	884	LF	LOOP DETECTOR WIRE, TYPE E
632	1724	LF	LOOP DETECTOR LEAD-IN CABLE
632	8	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER ITEM, MISC.: FIELD CONNECTIONS TO EXISTING CONTROLLER



INTERSECTION OF EUCLID AVENUE AND EAST 9 STREET

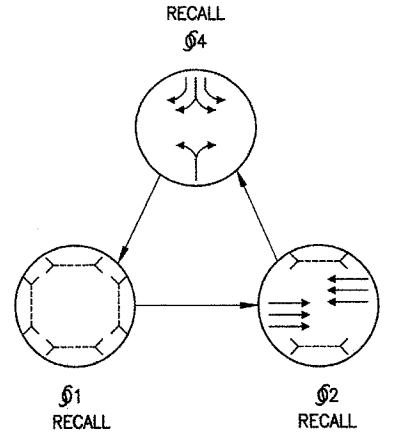
CUYAHOGA COUNTY
CUY-6-15.55 & VARIOUS

DATE: 02-26-1997 TIME: 11:57:12

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 86.

FOR POLE CHART SEE SHEET 89.

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES.



MODIFIED PHASING DIAGRAM

SIGNAL HEAD	phi 1		phi 2		phi 3		phi 4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A	R	R R	G	Y R			R	R R	Y	
B	R	R R	G	Y R			R	R R	Y	
C	R	R R	G	Y R			R	R R	Y	
D	R	R R	G	Y R			R	R R	Y	
E	R	R R	R	R R			G	Y R R		
F	R	R R	R	R R			G	Y R R		
G	R	R R	R	R R			G	Y R R		
H	R	R R	R	R R			G	Y R R		
I	W	W W	W/(DW)	DW DW			DW	DW DW	D	
J	W	W W	W/(DW)	DW DW			DW	DW DW	D	
K	W	W W	W/(DW)	DW DW			DW	DW DW	D	
L	W	W W	W/(DW)	DW DW			DW	DW DW	D	
M	W/(DW)	DW DW	DW	DW DW			DW	DW DW	D	
N	W/(DW)	DW DW	DW	DW DW			DW	DW DW	D	
O	W/(DW)	DW DW	DW	DW DW			DW	DW DW	D	
P	W/(DW)	DW DW	DW	DW DW			DW	DW DW	D	

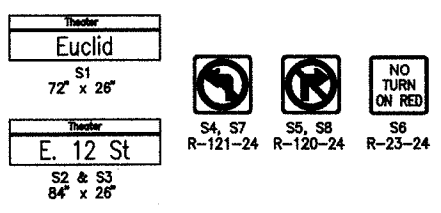
W-WALK (DW)-FLASHING DONT WALK DW-DONT WALK D-DARK

SIGNAL SEQUENCE CHART

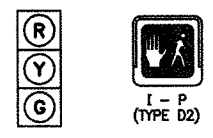
FUNCTION	phi 1	phi 2	phi 3	phi 4
INITIAL GREEN	-	-	-	-
MINIMUM GREEN	-	30	-	-
VEHICLE EXTENSION	-	-	-	-
MAXIMUM GREEN	-	-	-	20
PEDESTRIAN WALK	16	7	-	-
PEDESTRIAN CLEAR.	16	7	-	-
VEH. YELLOW CLEAR.	-	3	-	3
VEHICLE RED CLEAR.	-	1.5	-	2
RECALL	PED	PED	-	VEH
MEMORY	NO	NO	-	NO
MAX. II WALK	-	7	-	7
MAX. II PED. CLEAR	-	7	-	16
MAX. II 6 PM-6 AM, M-F & SA & SU (ALL DAY)				

phi 1 TO TIME 6:00 AM - 6:00 PM M - F, TO BE OMITTED ALL OTHER TIMES WITH phi 4 ON PED. RECALL

SIGNAL TIMING CHART

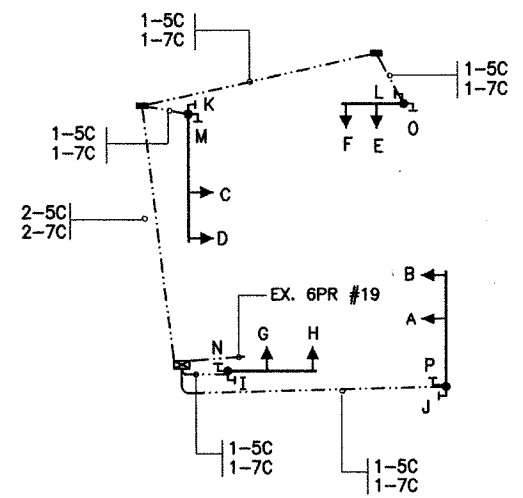
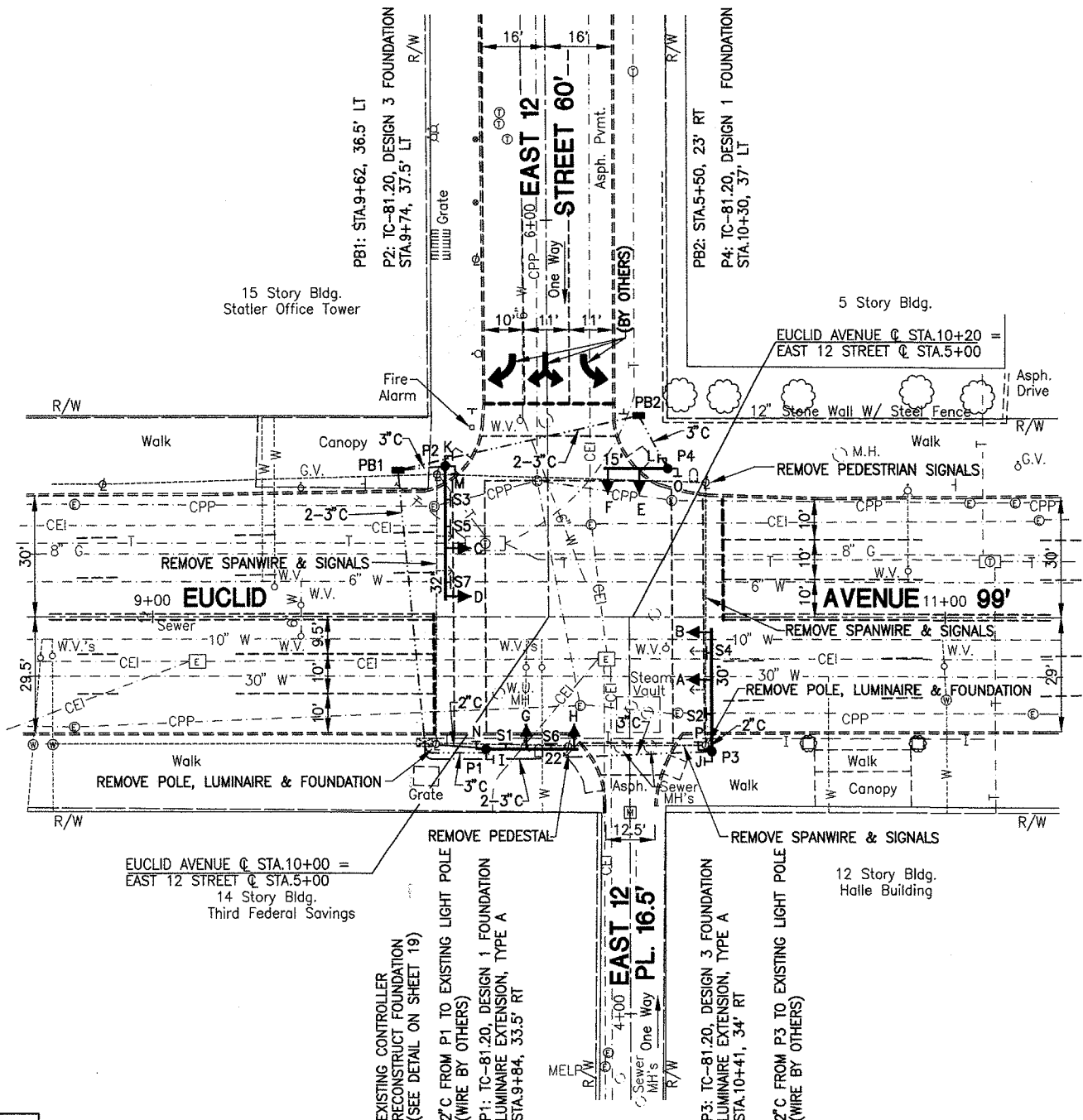


SIGN LEGEND



12" SIGNAL HEADS

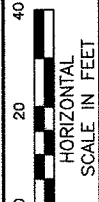
RIGID MOUNTED



WIRE DIAGRAM

- 2C - PPB & LOOP DETECTOR LEAD
- 5C - PEDESTRIAN SIGNAL
- 7C - VEHICULAR SIGNAL
- 4C - MICROWAVE DETECTOR LEAD
- 3C #8 - SERVICE
- 6 PR # 19 - INTERCONNECT

ITEM	TOTAL	UNIT	DESCRIPTION
625	4	EA	GROUND ROD
625	2	EA	PULLBOX, AS PER PLAN
625	149	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	115	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	17	LF	CONDUIT, 2", 713.07
625	226	LF	CONDUIT, 3", 713.07
625	230	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
630	63	SF	SIGN, FLAT SHEET, TYPE G
630	8	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
632	8	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	8	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	6.3	CY	CONCRETE FOR ANCHOR BASE FOUNDATION
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 15' ARM, A.P.P.
632	1	EA	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 22' ARM, AS PER PLAN
632	1	EA	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, WITH 30' ARM, AS PER PLAN
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, WITH 32' ARM, A.P.P.
632	432	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	603	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	8	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER ITEM, MISC.: FIELD CONNECTIONS TO EXISTING CONTROLLER
633	1	EA	CONTROLLER ITEM, MISC.: MODIFY EXISTING CONTROLLER OPERATIONS
633	1	EA	CONTROLLER ITEM, MISC.: RECONSTRUCT EXISTING CABINET FOUNDATION



CALCULATED KCP CHECKED KAN

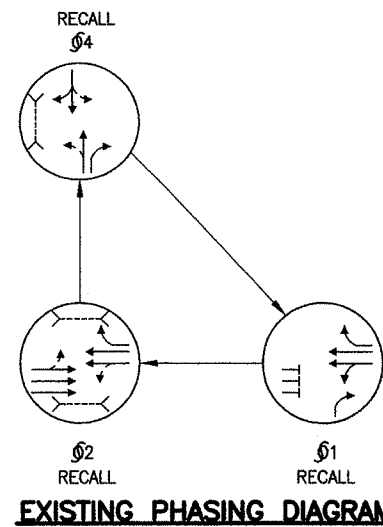
INTERSECTION OF EUCLID AVENUE AND EAST 12 STREET

CUYAHOGA COUNTY CUY-6-15.55 & VARIOUS

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 86.

FOR POLE CHART SEE SHEET 89.

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES.



EXISTING PHASING DIAGRAM

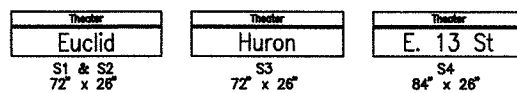
SIGNAL HEAD	phi 1		phi 2		phi 3		phi 4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A	R	R	R	G	Y	R		R	R	Y
B	R	R	R	G	Y	R		R	R	Y
C	G	G	G	G	G	G		R	R	Y
D	G	G	G	G	G	G		R	R	Y
E	R	R	R	R	R	R		G	Y	R
F	R	R	R	R	R	R		G	Y	R
G	R	R	R	R	R	R		G	Y	R
H	R	R	R	R	R	R		G	Y	R
I	DW	DW	DW	W/(DW)	DW	DW		DW	DW	D
J	DW	DW	DW	W/(DW)	DW	DW		DW	DW	D
K	DW	DW	DW	W/(DW)	DW	DW		DW	DW	D
L	DW	DW	DW	W/(DW)	DW	DW		DW	DW	D
M	DW	DW	DW	DW	DW	DW		W/(DW)	DW	D
N	DW	DW	DW	DW	DW	DW		W/(DW)	DW	D

W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK

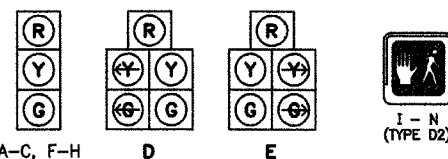
SIGNAL SEQUENCE CHART

FUNCTION	phi 1	phi 2	phi 3	phi 4
INITIAL GREEN	-	-	-	-
MINIMUM GREEN	-	30	-	-
VEHICLE EXTENSION	-	-	-	-
MAXIMUM GREEN	6	-	-	27
PEDESTRIAN WALK	-	7	-	12
PEDESTRIAN CLEAR.	-	15	-	15
VEH. YELLOW CLEAR.	3	3	-	3
VEHICLE RED CLEAR.	1.5	1.5	-	2
RECALL	VEH	PED	-	PED
MEMORY	NO	NO	-	NO
MAX. II MAXIMUM GREEN	-	-	-	23
MAX. II 6-9:00AM, M-F	-	-	-	23

SIGNAL TIMING CHART

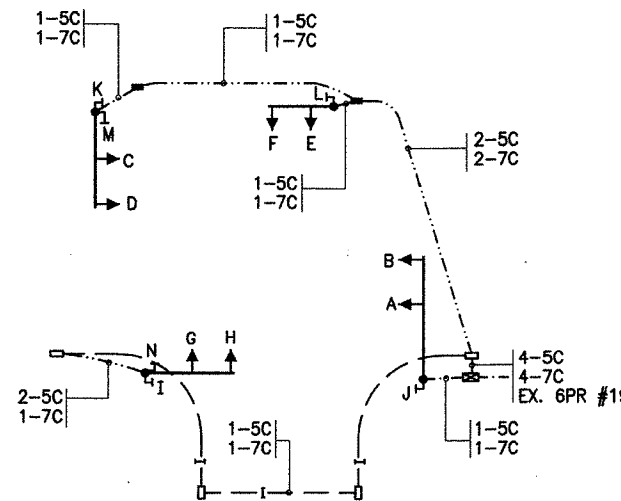
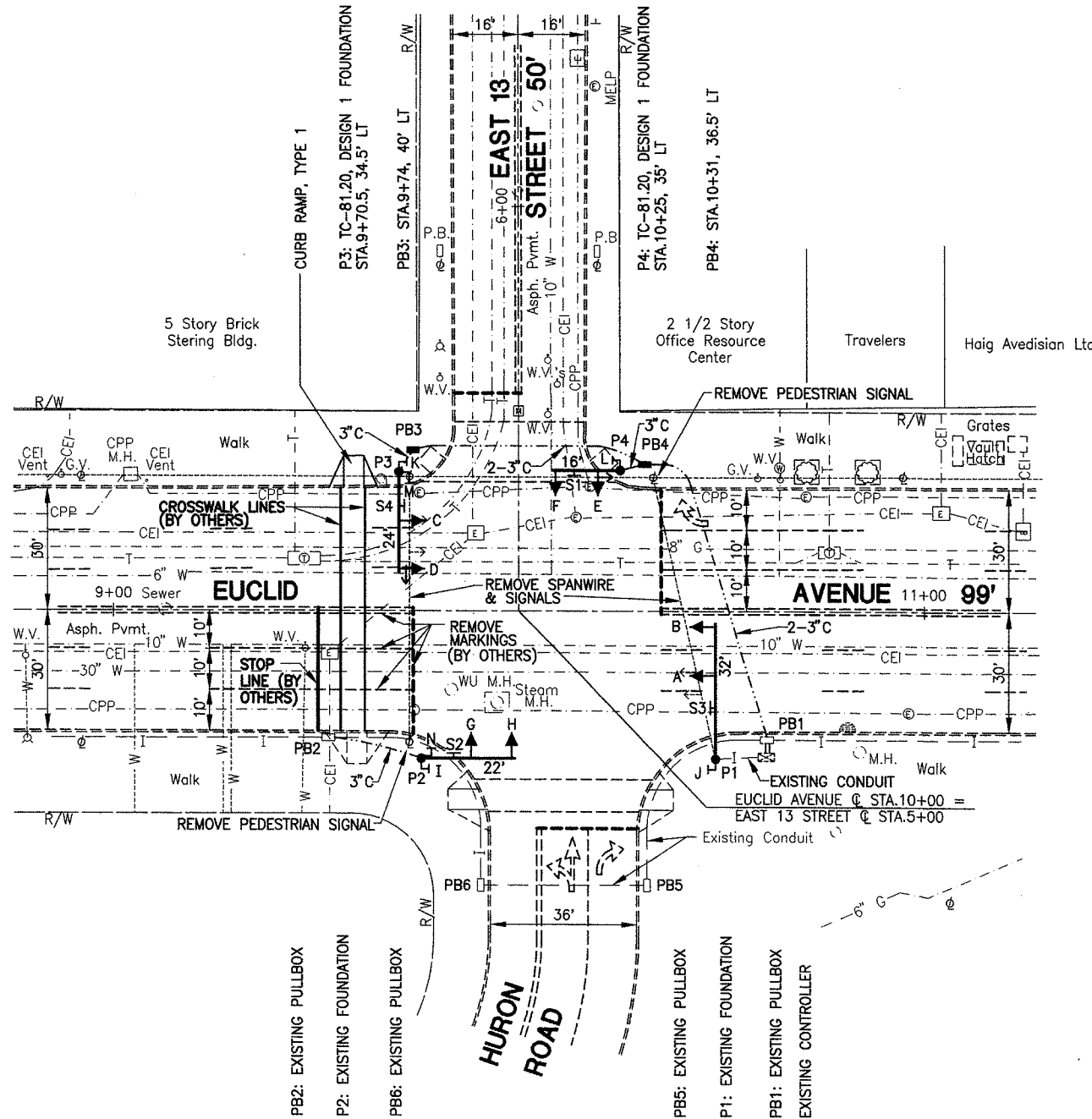


SIGN LEGEND



12\"/>

RIGID MOUNTED



- 2C - PPB & LOOP DETECTOR LEAD
- 5C - PEDESTRIAN SIGNAL
- 7C - VEHICULAR SIGNAL
- 4C - MICROWAVE DETECTOR LEAD
- 3C #8 - SERVICE
- 6 PR # 19 - INTERCONNECT

WIRE DIAGRAM

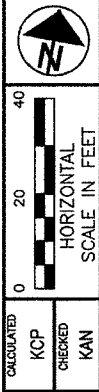
ITEM	TOTAL	UNIT	DESCRIPTION
202	90	SF	WALK REMOVED
202	14	LF	CURB REMOVED
608	90	SF	CURB RAMP, TYPE 1, AS PER PLAN
625	2	EA	GROUND ROD
625	2	EA	PULLBOX, AS PER PLAN
625	45	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	94	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	82	LF	CONDUIT, 3", 713.07
625	188	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
630	57	SF	SIGN, FLAT SHEET, TYPE G
630	4	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
632	6	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	2	EA	VEHICULAR SIGNAL HEAD, 5-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	6	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	3.0	CY	CONCRETE FOR ANCHOR BASE FOUNDATION
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 16" ARM, A.P.P.
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 22" ARM, A.P.P.
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 24" ARM, A.P.P.
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, WITH 32" ARM, A.P.P.
632	518	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	657	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	8	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER ITEM, MISC.: FIELD CONNECTIONS TO EXISTING CONTROLLER

INTERSECTION OF EUCLID AVE., EAST 13 ST. AND HURON RD.

CUYAHOGA COUNTY
CUY-6-15.55 & VARIOUS

DATE: 02-26-1997 TIME: 12:50:32

34C10155.DWG, PLOT SCALE: 1=20

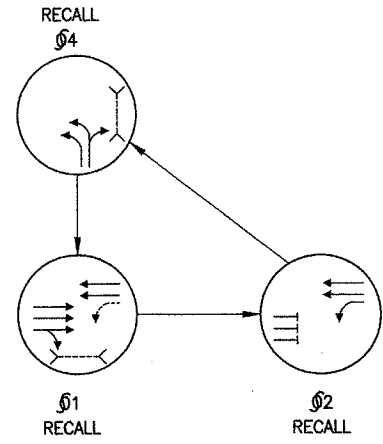


DATE: 02-28-1997 TIME: 1:10:43

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 86.

FOR POLE CHART SEE SHEET 89.

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES.



EXISTING PHASING DIAGRAM

SIGNAL HEAD	φ1		φ2		φ3		φ4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A	G	Y R	R	R R			R	R R Y		
B	G	Y R	R	R R			R	R R Y		
C	G	G G	G	Y R			R	R R Y		
D	R	R R	R	R R			R	R R Y		
E	R	R R	R	R R			G	Y R R		
F	R	R R	R	R R			G	Y R R		
G	DW	DW DW	W/(DW)	DW DW			DW	DW DW D		
H	DW	DW DW	W/(DW)	DW DW			DW	DW DW D		
I	DW	DW DW	DW	DW DW			W/(DW)	DW DW D		
J	DW	DW DW	DW	DW DW			W/(DW)	DW DW D		

W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK

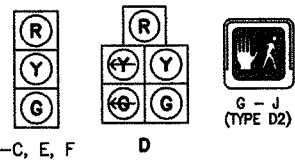
SIGNAL SEQUENCE CHART

FUNCTION	φ1	φ2	φ3	φ4
INITIAL GREEN	-	-	-	-
MINIMUM GREEN	-	-	-	-
VEHICLE EXTENSION	-	-	-	-
MAXIMUM GREEN	-	10	-	17
PEDESTRIAN WALK	7	-	-	8
PEDESTRIAN CLEAR.	17	-	-	14
VEH. YELLOW CLEAR.	3	3	-	3
VEHICLE RED CLEAR.	2	1.5	-	2
RECALL	PED	VEH	-	PED
MEMORY	NO	NO	-	NO
MAX. II MAXIMUM GREEN	-	7	-	39
MAX. II 6-9:00AM, M-F	-	-	-	-

SIGNAL TIMING CHART



SIGN LEGEND



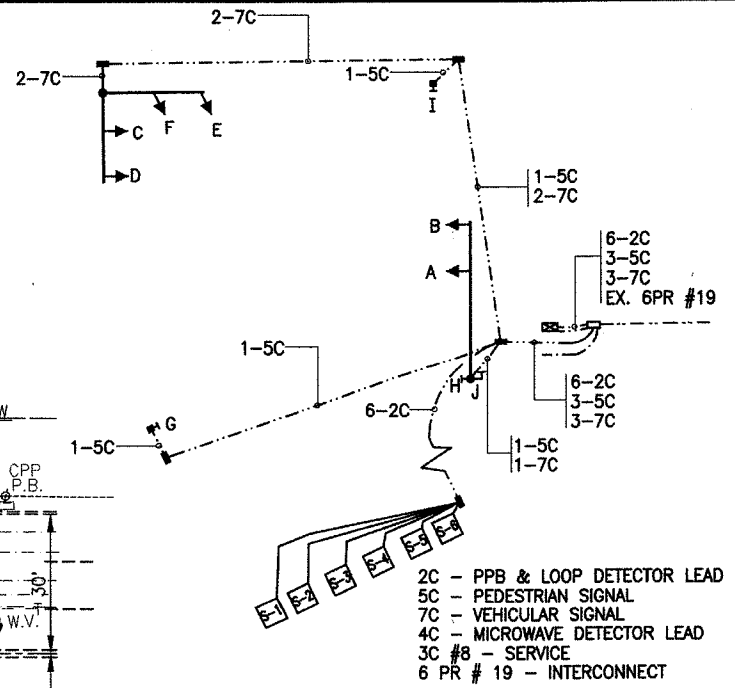
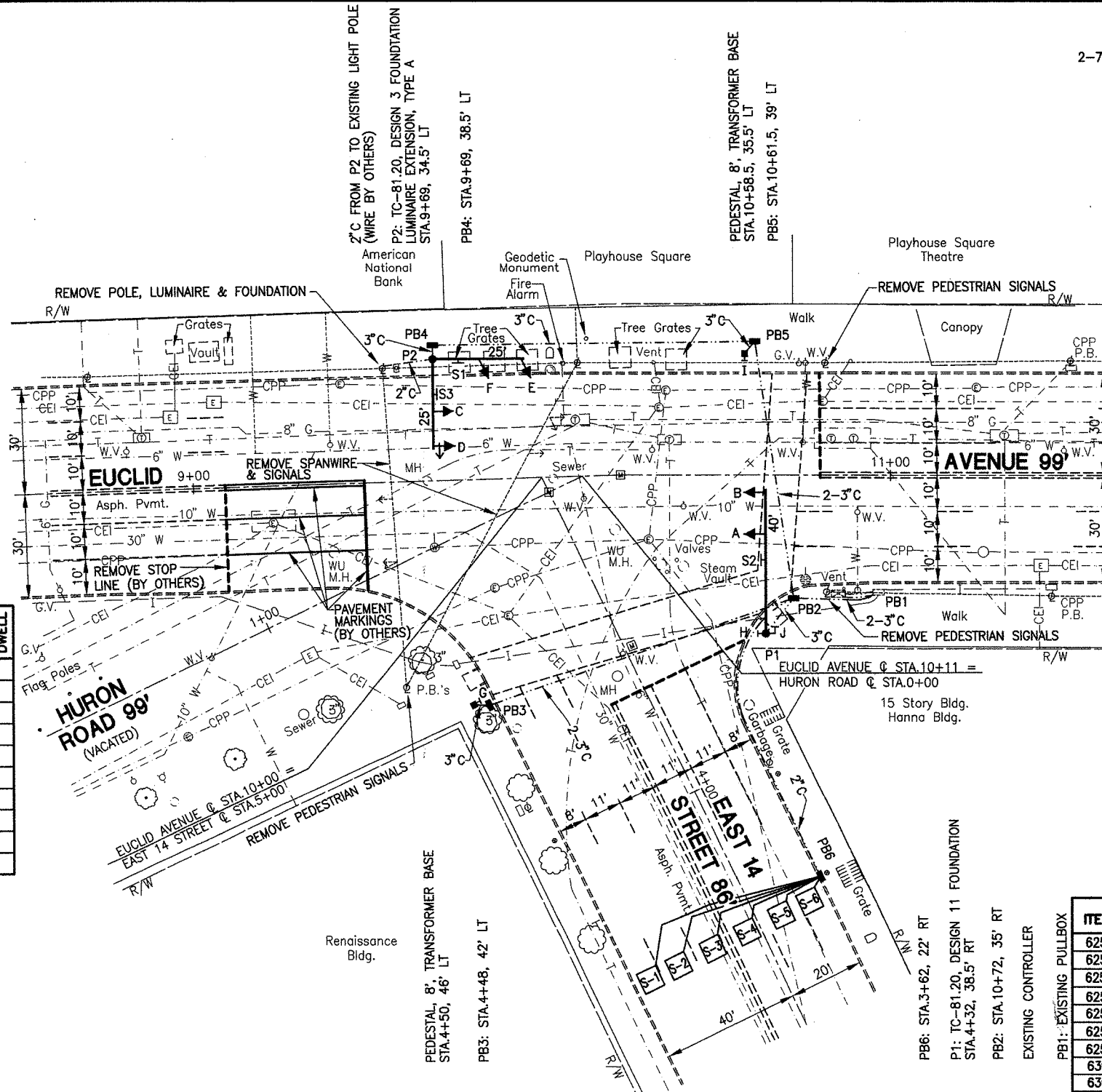
ROTATE VISORS ON HEADS C-F

12" SIGNAL HEADS

RIGID MOUNTED

LOOP	SIZE	TURNS	MODE	DELAY	PHASE	REMARK	INHIBITED DELAY	LOCATION 1ST FRONT CORNER	LOCATION 2ND FRONT CORNER
S-1	6'X6'	3	BOTH			SYSTEM		STA.3+60, 38' L	STA.3+60, 32' L
S-2	6'X6'	3	BOTH			SYSTEM		STA.3+60, 29' L	STA.3+60, 23' L
S-3	6'X6'	3	BOTH			SYSTEM		STA.3+60, 18' L	STA.3+60, 12' L
S-4	6'X6'	3	BOTH			SYSTEM		STA.3+60, 7' L	STA.3+60, 1' L
S-5	6'X6'	3	BOTH			SYSTEM		STA.3+60, 4' R	STA.3+60, 10' R
S-6	6'X6'	3	BOTH			SYSTEM		STA.3+60, 13' R	STA.3+60, 19' R

LOOP DETECTOR CHART



WIRE DIAGRAM

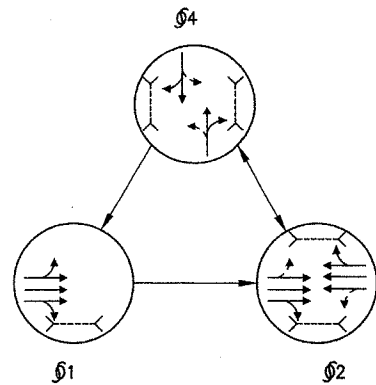
ITEM	TOTAL	UNIT	DESCRIPTION
625	4	EA	GROUND ROD
625	5	EA	PULLBOX, AS PER PLAN
625	246	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	145	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	100	LF	CONDUIT, 2", 713.07
625	170	LF	CONDUIT, 3", 713.07
625	290	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
630	43	SF	SIGN, FLAT SHEET, TYPE G
630	3	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
632	5	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	1	EA	VEHICULAR SIGNAL HEAD, 5-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	4	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	2	EA	LOOP DETECTOR UNIT, DELAY AND EXTENSION TYPE, AS PER PLAN
632	224	LF	LOOP DETECTOR PAVEMENT CUTTING
632	6.2	CY	CONCRETE FOR ANCHOR BASE FOUNDATION
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 11, WITH 40" ARM, A.P.P.
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20 DESIGN 3 POLE, WITH MAST ARMS TC-81.20 DESIGN 1, 25 FEET AND TC-81.20 DESIGN 2, 25 FEET, AS PER PLAN
632	2	EA	PEDESTAL, 8', TRANSFORMER BASE
632	350	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	882	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	592	LF	LOOP DETECTOR WIRE, TYPE E
632	1041	LF	LOOP DETECTOR LEAD-IN CABLE
632	6	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER ITEM, MISC.: FIELD CONNECTIONS TO EXISTING CONTROLLER
633	1	EA	CONTROLLER ITEM, MISC.: MODIFY EXISTING CONTROLLER OPERATIONS

DATE: 02-26-1987 TIME: 13:26:43

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 86.

FOR POLE CHART SEE SHEET 89.

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES.



OMIT # 1 WHEN # 2 IS TIMING
MODIFIED PHASING DIAGRAM

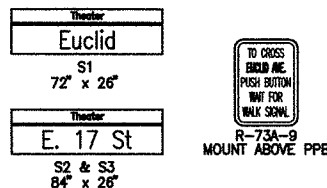
SIGNAL HEAD	phi 1		phi 2		phi 3		phi 4		FLASH	DWELL		
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR				
A	G	G	G	Y	R		R	R	Y	G		
B	G	G	G	Y	R		R	R	Y	G		
C	R	R	R	G	Y	R		R	R	Y	G	
D	R	R	R	G	Y	R		R	R	Y	G	
E	R	R	R	R	R		G	Y	R	R	R	
F	R	R	R	R	R		G	Y	R	R	R	
G	R	R	R	R	R		G	Y	R	R	R	
H	R	R	R	R	R		G	Y	R	R	R	
I	W	W	W	W/(DW)	DW	DW		DW	DW	DW	D	W
J	W	W	W	W/(DW)	DW	DW		DW	DW	DW	D	W
K	DW	DW	DW	W/(DW)	DW	DW		DW	DW	DW	D	W
L	DW	DW	DW	W/(DW)	DW	DW		DW	DW	DW	D	W
M	DW	DW	DW	DW	DW	DW		W/(DW)	DW	DW	D	DW
N	DW	DW	DW	DW	DW	DW		W/(DW)	DW	DW	D	DW
O	DW	DW	DW	DW	DW	DW		W/(DW)	DW	DW	D	DW
P	DW	DW	DW	DW	DW	DW		W/(DW)	DW	DW	D	DW

W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK

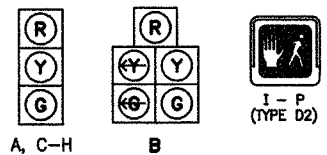
SIGNAL SEQUENCE CHART

FUNCTION	phi 1	phi 2	phi 3	phi 4
INITIAL GREEN	4	-	-	8
MINIMUM GREEN	-	30	-	-
VEHICLE EXTENSION	2	-	-	2
MAXIMUM GREEN	10	-	-	25
PEDESTRIAN WALK	-	7	-	7
PEDESTRIAN CLEAR.	-	8	-	14
VEH. YELLOW CLEAR.	3	3	-	3
VEHICLE RED CLEAR.	1.5	1.5	-	2
RECALL	NO	PED	-	NO
MEMORY	NO	NO	-	NO
OMIT #1 3-6 PM, M-F	-	-	-	-
MAX II MAXIMUM GREEN	-	-	-	40
MAX II 3:00-6:00 PM, M-F	-	-	-	-

SIGNAL TIMING CHART



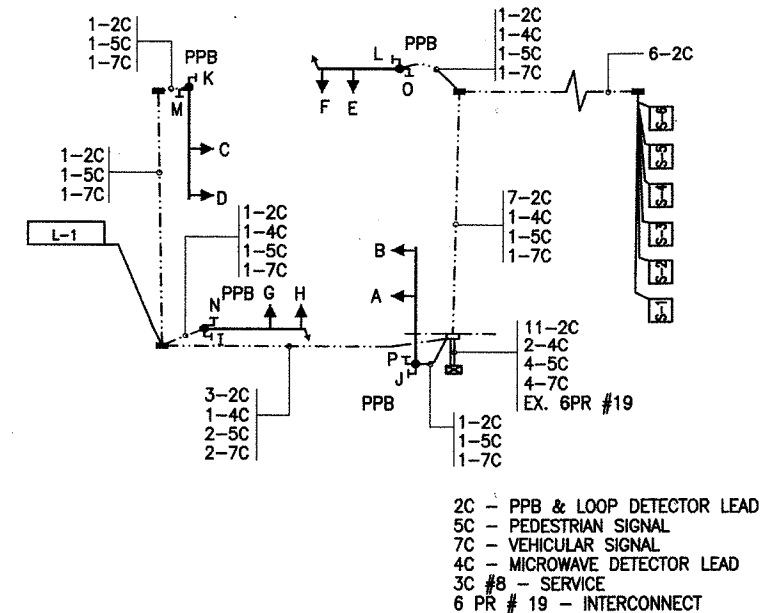
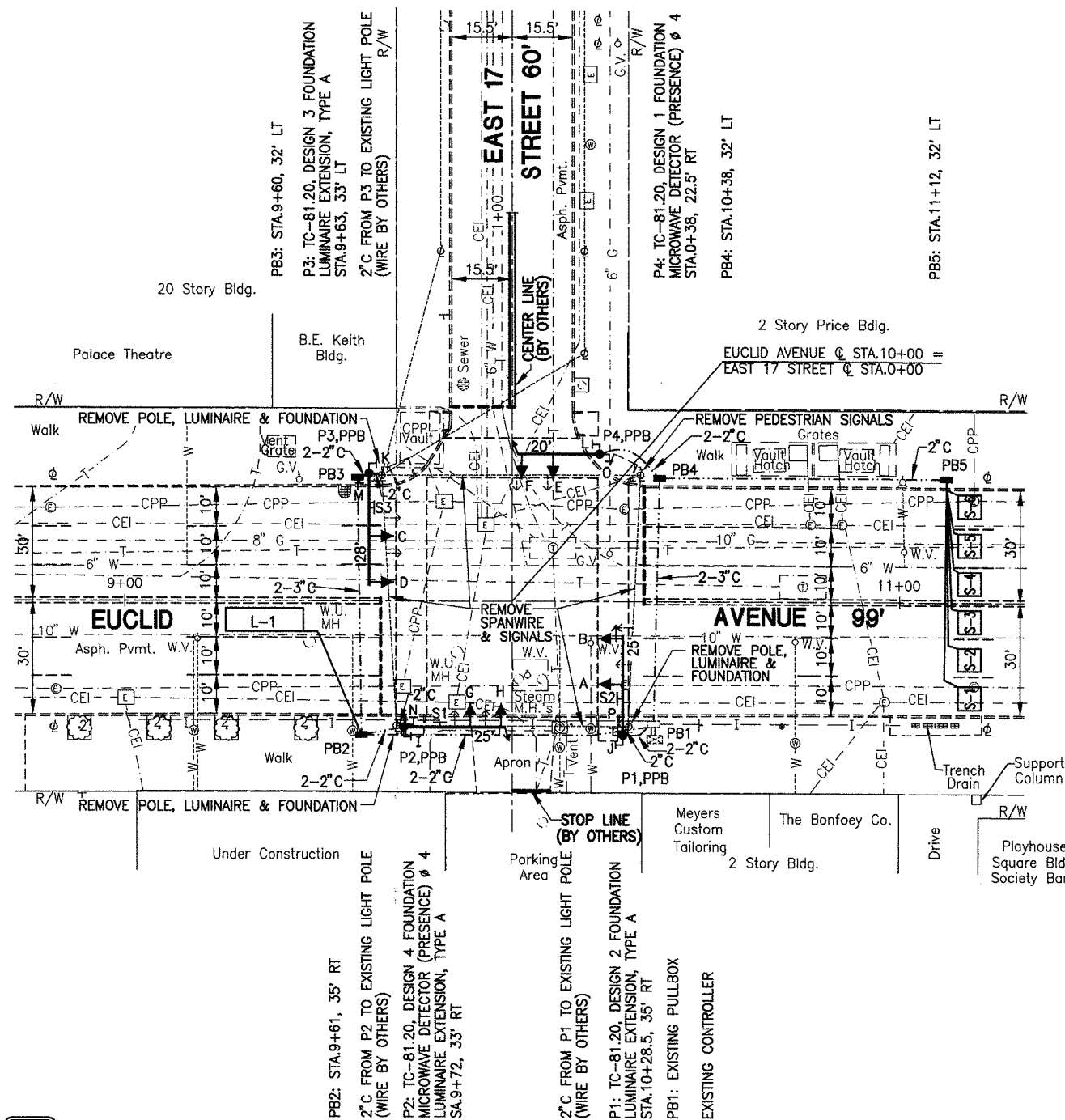
SIGN LEGEND



12" SIGNAL HEADS
RIGID MOUNTED

LOOP	SIZE	TURNS	MODE	DELAY	PHASE	REMARK	INHIBITED DELAY	LOCATION 1ST FRONT CORNER	LOCATION 2ND FRONT CORNER
L-1	6'X20'	2	PRESENCE	3	1		YES	STA.9+46, 2' R	STA.9+46, 8' R
S-1	6'X6'	3	BOTH			SYSTEM		STA.11+15, 28' R	STA.11+15, 22' R
S-2	6'X6'	3	BOTH			SYSTEM		STA.11+15, 18' R	STA.11+15, 12' R
S-3	6'X6'	3	BOTH			SYSTEM		STA.11+15, 8' R	STA.11+15, 2' R
S-4	6'X6'	3	BOTH			SYSTEM		STA.11+15, 2' L	STA.11+15, 8' L
S-5	6'X6'	3	BOTH			SYSTEM		STA.11+15, 12' L	STA.11+15, 18' L
S-6	6'X6'	3	BOTH			SYSTEM		STA.11+15, 22' L	STA.11+15, 28' L

LOOP DETECTOR CHART



WIRE DIAGRAM

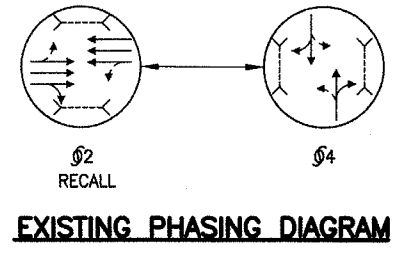
2C - PPB & LOOP DETECTOR LEAD
5C - PEDESTRIAN SIGNAL
7C - MICROWAVE SIGNAL
4C - MICROWAVE DETECTOR LEAD
3C #8 - SERVICE
6 PR # 19 - INTERCONNECT

ITEM	TOTAL	UNIT	DESCRIPTION
625	4	EA	GROUND ROD
625	4	EA	PULLBOX, AS PER PLAN
625	205	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	134	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	322	LF	CONDUIT, 2", 713.07
625	26	LF	CONDUIT, 3", 713.07
625	236	LF	CONDUIT, 3", CONCRETE ENCASED, 713.07
630	43	SF	SIGN, FLAT SHEET, TYPE G
630	3	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
632	7	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	1	EA	VEHICULAR SIGNAL HEAD, 5-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	8	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	4	EA	PEDESTRIAN PUSHBUTTON, AS PER PLAN
632	2	EA	LOOP DETECTOR UNIT, DELAY AND EXTENSION TYPE, AS PER PLAN
632	2	EA	SIGNALIZATION, MISC.: MICROWAVE DETECTOR
632	391	LF	LOOP DETECTOR PAVEMENT CUTTING
632	8.4	CY	CONCRETE FOR ANCHOR BASE FOUNDATION
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 20' ARM, A.P.P.
632	1	EA	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 2, WITH 25' ARM, AS PER PLAN
632	1	EA	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, WITH 28' ARM, AS PER PLAN
632	1	EA	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 25' ARM, AS PER PLAN
632	433	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	615	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	1042	LF	LOOP DETECTOR WIRE, TYPE E
632	1461	LF	LOOP DETECTOR LEAD-IN CABLE
632	235	LF	SIGNALIZATION, MISC.: MICROWAVE DETECTOR LEAD-IN CABLE
632	8	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER ITEM, MISC.: FIELD CONNECTIONS TO EXISTING CONTROLLER
633	1	EA	CONTROLLER ITEM, MISC.: MODIFY EXISTING CONTROLLER OPERATIONS

INTERSECTION OF EUCLID AVENUE AND EAST 17 STREET
 CUYAHOGA COUNTY
 CUY-6-15.55 & VARIOUS
 SCALE IN FEET
 HORIZONTAL
 0 20 40
 CALCULATED KCP
 CHECKED KAN
 75
 89

DATE: 02-26-1997 TIME: 13:35:48

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 86.
 FOR POLE CHART SEE SHEET 89.
 EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES.



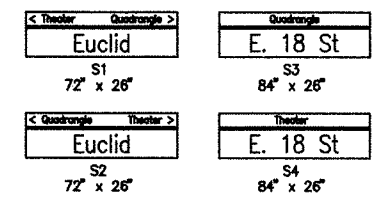
SIGNAL HEAD	\$1		\$2		\$3		\$4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A			G	Y R			R	R R Y G		
B			G	Y R			R	R R Y G		
C			G	Y R			R	R R Y G		
D			G	Y R			R	R R Y G		
E			R	R R			G	Y R R R		
F			R	R R			G	Y R R R		
G			R	R R			G	Y R R R		
H			R	R R			G	Y R R R		
I			W/(DW)	DW DW			DW	DW DW D W		
J			W/(DW)	DW DW			DW	DW DW D W		
K			W/(DW)	DW DW			DW	DW DW D W		
L			W/(DW)	DW DW			DW	DW DW D W		
M			DW	DW DW			W/(DW)	DW DW D DW		
N			DW	DW DW			W/(DW)	DW DW D DW		
O			DW	DW DW			W/(DW)	DW DW D DW		
P			DW	DW DW			W/(DW)	DW DW D DW		

W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK

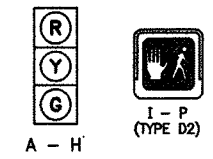
SIGNAL SEQUENCE CHART

FUNCTION	\$1	\$2	\$3	\$4
INITIAL GREEN		-		8
MINIMUM GREEN		30		-
VEHICLE EXTENSION		-		2
MAXIMUM GREEN		-		40
PEDESTRIAN WALK		7		7
PEDESTRIAN CLEAR.		11		15
VEH. YELLOW CLEAR.		3		3
VEHICLE RED CLEAR.		2		2
RECALL		-		NO
MEMORY		PED		NO
MAX.II MINIMUM GREEN		20		-
MAX.II MAXIMUM GREEN		-		57
MAX.II 6:00-9:00 AM,M-F				

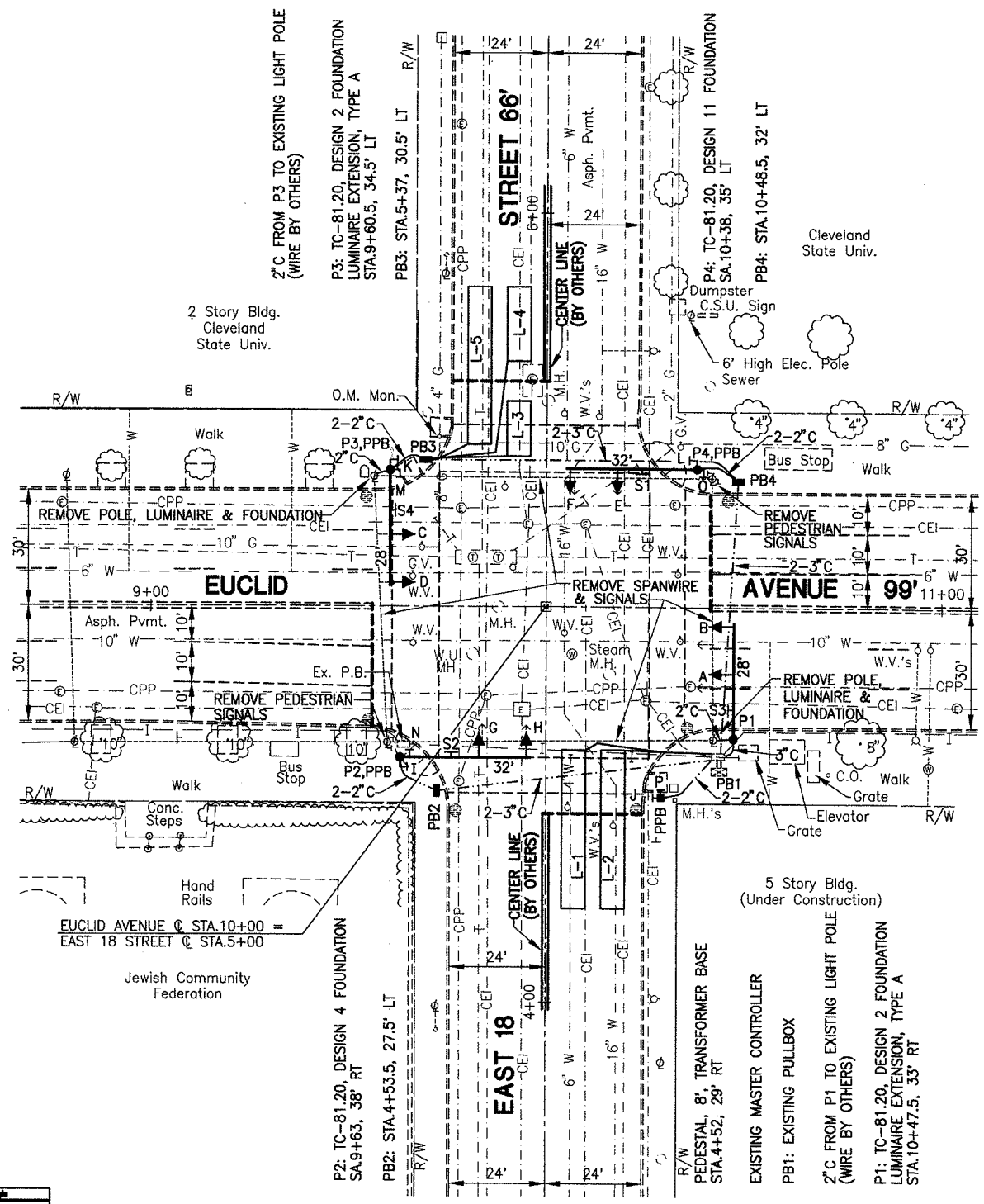
SIGNAL TIMING CHART



SIGN LEGEND



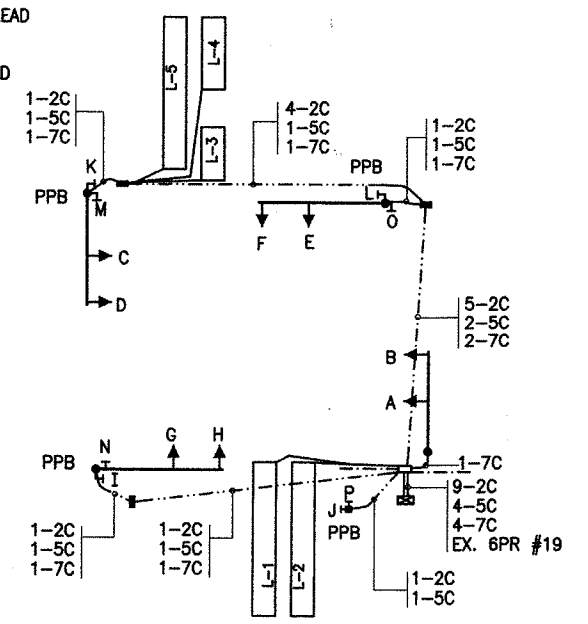
12" SIGNAL HEADS
RIGID MOUNTED



LOOP	SIZE	TURNS	MODE	DELAY	PHASE	REMARK	INHIBITED DELAY	LOCATION 1ST FRONT CORNER	LOCATION 2ND FRONT CORNER
L-1	6'X40'	2	PRESENCE	8	4		NO	STA.4+64, 4' R	STA.4+64, 10' R
L-2	6'X40'	2	PRESENCE	8	4		NO	STA.4+64, 14' R	STA.4+64, 20' R
L-3	6'X14'	3	PRESENCE	8	4		NO	STA.5+38, 4' L	STA.5+38, 10' L
L-4	6'X19'	2	PRESENCE	8	4		NO	STA.5+62, 4' L	STA.5+62, 10' L
L-5	6'X40'	2	PRESENCE	8	4		NO	STA.5+41, 14' L	STA.5+41, 20' L

LOOP DETECTOR CHART

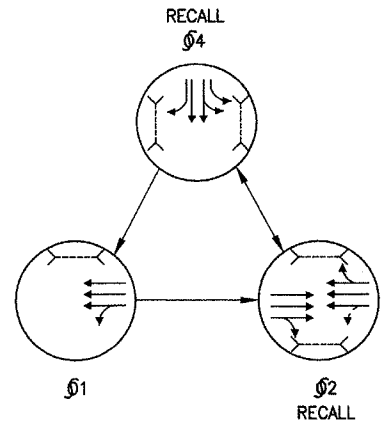
- 2C - PPB & LOOP DETECTOR LEAD
- 5C - PEDESTRIAN SIGNAL
- 7C - VEHICULAR SIGNAL
- 4C - MICROWAVE DETECTOR LEAD
- 3C #8 - SERVICE
- 6 PR # 19 - INTERCONNECT



WIRE DIAGRAM

ITEM	TOTAL	UNIT	DESCRIPTION
625	5	EA	GROUND ROD
625	3	EA	PULLBOX, AS PER PLAN
625	120	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	179	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	125	LF	CONDUIT, 2", 713.07
625	123	LF	CONDUIT, 3", 713.07
625	328	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
630	56	SF	SIGN, FLAT SHEET, TYPE G
630	4	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
632	8	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	8	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	4	EA	PEDESTRIAN PUSHBUTTON, AS PER PLAN
632	2	EA	LOOP DETECTOR UNIT, DELAY AND EXTENSION TYPE, AS PER PLAN
632	454	LF	LOOP DETECTOR PAVEMENT CUTTING
632	8.7	CY	CONCRETE FOR ANCHOR BASE FOUNDATION
632	2	EA	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 2, WITH 28' ARM, AS PER PLAN
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 32' ARM, A.P.P.
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 11, WITH 32' ARM, A.P.P.
632	1	EA	PEDESTAL, 8', TRANSFORMER BASE
632	450	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	631	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	1046	LF	LOOP DETECTOR WIRE, TYPE E
632	1022	LF	LOOP DETECTOR LEAD-IN CABLE
632	8	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER ITEM, MISC.: FIELD CONNECTIONS TO EXISTING CONTROLLER
633	1	EA	CONTROLLER ITEM, MISC.: MODIFY EXISTING CONTROLLER OPERATIONS

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 86.
 FOR POLE CHART SEE SHEET 89.
 EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES.



MODIFIED PHASING DIAGRAM

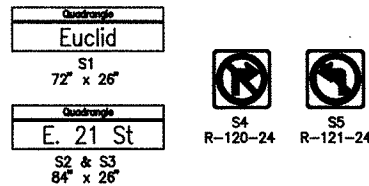
SIGNAL HEAD	φ1		φ2		φ3		φ4		FLASH	DWELL		
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR				
A	R	R	R	G	Y	R			R	R	R	Y
B	R	R	R	G	Y	R			R	R	R	Y
C	G	G	G	G	Y	R			R	R	R	Y
D	G	G	G	G	Y	R			R	R	R	Y
E	R	R	R	R	R	R			G	Y	R	R
F	R	R	R	R	R	R			G	Y	R	R
G	DW	DW	DW	W/(DW)	DW	DW			DW	DW	DW	D
H	DW	DW	DW	W/(DW)	DW	DW			DW	DW	DW	D
I	W	W	W	W/(DW)	DW	DW			DW	DW	DW	D
J	W	W	W	W/(DW)	DW	DW			DW	DW	DW	D
K	DW	DW	DW	DW	DW	DW			W/(DW)	DW	DW	D
L	DW	DW	DW	DW	DW	DW			W/(DW)	DW	DW	D
M	DW	DW	DW	DW	DW	DW			W/(DW)	DW	DW	D
N	DW	DW	DW	DW	DW	DW			W/(DW)	DW	DW	D

W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK

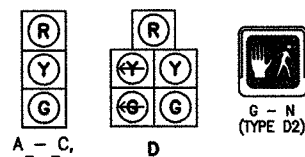
SIGNAL SEQUENCE CHART

FUNCTION	φ1	φ2	φ3	φ4
INITIAL GREEN	4	-	-	-
MINIMUM GREEN	-	30	-	-
VEHICLE EXTENSION	2	-	-	-
MAXIMUM GREEN	9	-	-	30
PEDESTRIAN WALK	-	7	-	15
PEDESTRIAN CLEAR.	-	10	-	15
VEH. YELLOW CLEAR.	3	3	-	3
VEHICLE RED CLEAR.	1.5	2.5	-	2
RECALL	NO	PED	-	PED
MEMORY	NO	NO	-	NO

SIGNAL TIMING CHART



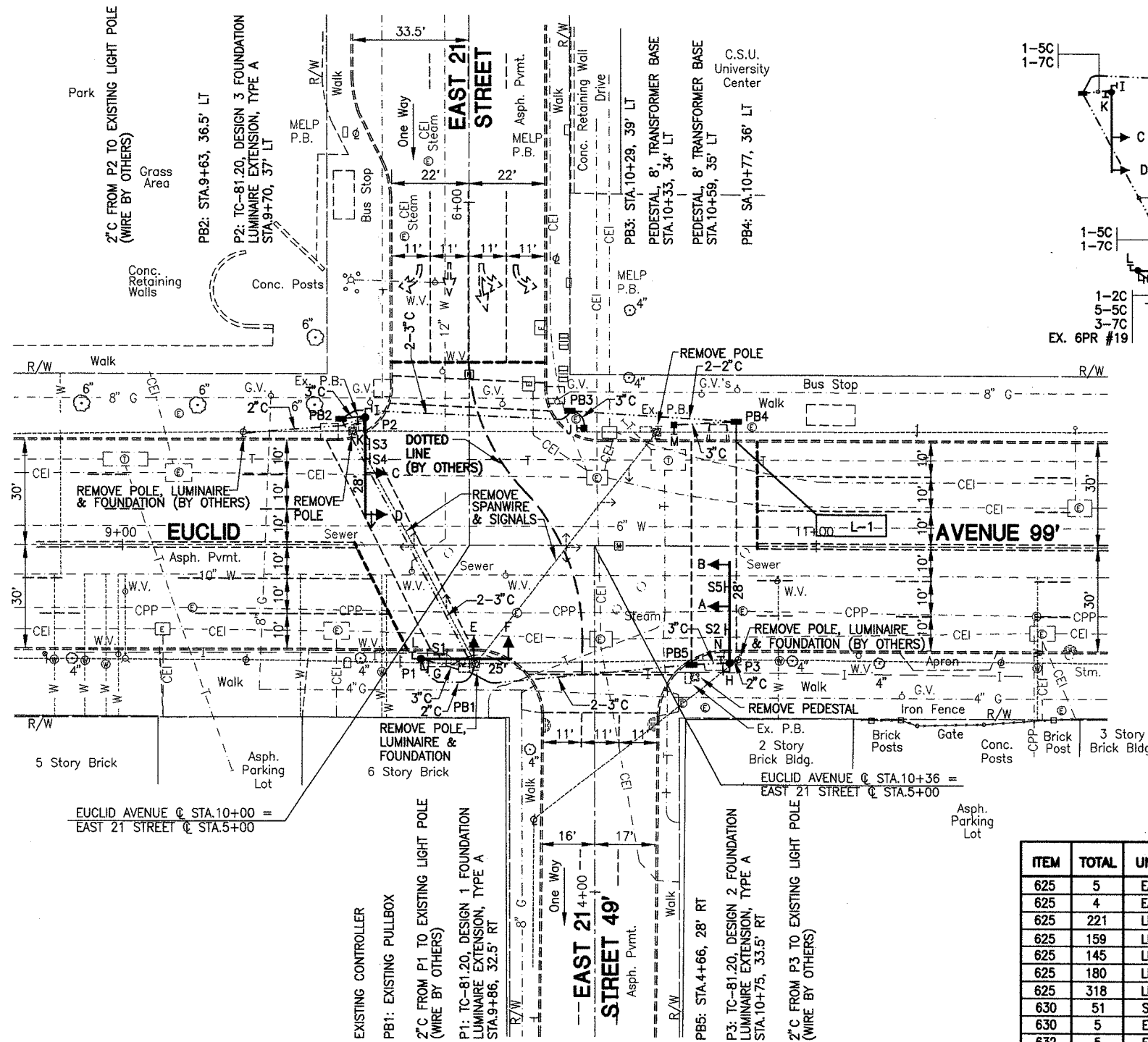
SIGN LEGEND



12" SIGNAL HEADS
RIGID MOUNTED

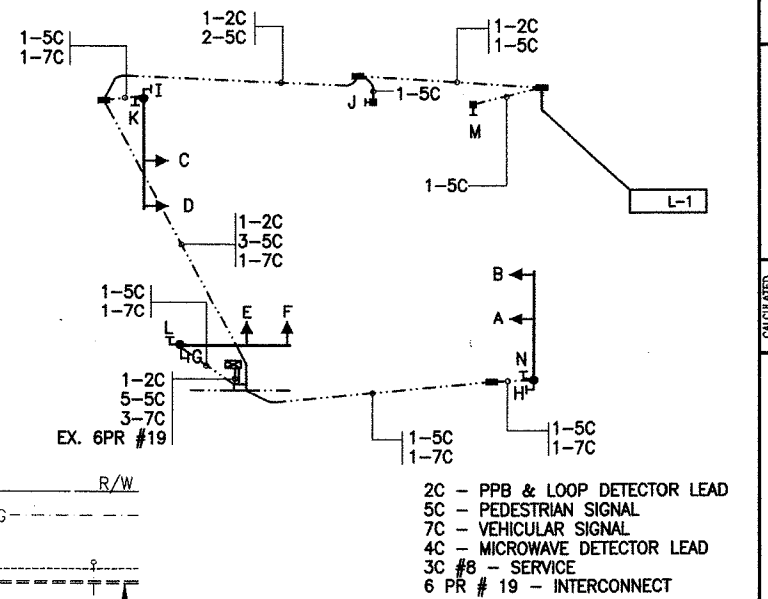
LOOP	SIZE	TURNS	MODE	DELAY	PHASE	REMARK	INHIBITED DELAY	LOCATION 1ST FRONT CORNER	LOCATION 2ND FRONT CORNER
L-1	6'X20'	2	PRESENCE	3	1		YES	STA.11+00, 3' L	STA.11+00, 9' L

LOOP DETECTOR CHART



ITEM	TOTAL	UNIT	DESCRIPTION
625	5	EA	GROUND ROD
625	4	EA	PULLBOX, AS PER PLAN
625	221	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	159	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	145	LF	CONDUIT, 2", 713.07
625	180	LF	CONDUIT, 3", 713.07
625	318	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
630	51	SF	SIGN, FLAT SHEET, TYPE G
630	5	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
632	5	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	1	EA	VEHICULAR SIGNAL HEAD, 5-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	8	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	1	EA	LOOP DETECTOR UNIT, DELAY AND EXTENSION TYPE, AS PER PLAN
632	84	LF	LOOP DETECTOR PAVEMENT CUTTING
632	4.6	CY	CONCRETE FOR ANCHOR BASE FOUNDATION
632	1	EA	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 2, WITH 28' ARM, AS PER PLAN
632	1	EA	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, WITH 28' ARM, AS PER PLAN
632	1	EA	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 25' ARM, AS PER PLAN
632	2	EA	PEDESTAL, 8", TRANSFORMER BASE
632	721	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	412	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	190	LF	LOOP DETECTOR WIRE, TYPE E
632	219	LF	LOOP DETECTOR LEAD-IN CABLE
632	6	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL, INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER ITEM, MISC.: FIELD CONNECTIONS TO EXISTING CONTROLLER
633	1	EA	CONTROLLER ITEM, MISC.: MODIFY EXISTING CONTROLLER OPERATIONS

WIRE DIAGRAM



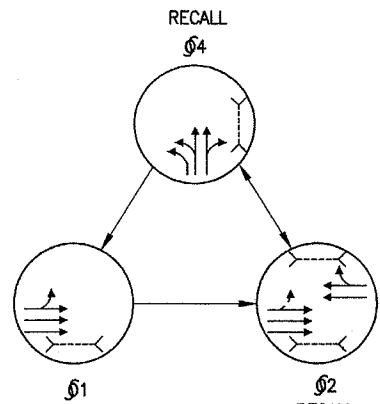
INTERSECTION OF EUCLID AVENUE AND EAST 21 STREET

CUYAHOGA COUNTY
CUY-6-15.55 & VARIOUS

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 86.

FOR POLE CHART SEE SHEET 89.

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES.



MODIFIED PHASING DIAGRAM

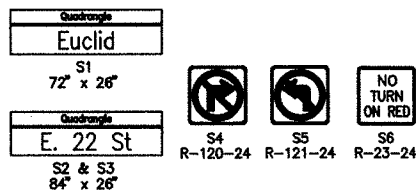
SIGNAL HEAD	φ1		φ2		φ3		φ4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A	G	G	G	Y	R		R	R	R	Y
B	G	G	G	Y	R		R	R	R	Y
C	R	R	R	G	Y	R		R	R	Y
D	R	R	R	G	Y	R		R	R	Y
E	R	R	R	R	R		G	Y	R	R
F	R	R	R	R	R		G	Y	R	R
G	W	W	W	W/(DW)	DW	DW		DW	DW	D
H	W	W	W	W/(DW)	DW	DW		DW	DW	D
I	DW	DW	DW	W/(DW)	DW	DW		DW	DW	D
J	DW	DW	DW	W/(DW)	DW	DW		DW	DW	D
K	DW	DW	DW	DW	DW		W/(DW)	DW	DW	D
L	DW	DW	DW	DW	DW		W/(DW)	DW	DW	D

W-WALK (DW)-FLASHING DONT WALK DW-DONT WALK D-DARK

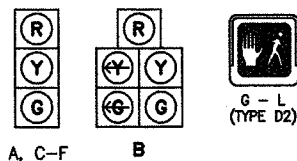
SIGNAL SEQUENCE CHART

FUNCTION	φ1	φ2	φ3	φ4
INITIAL GREEN	4	-	-	-
MINIMUM GREEN	-	30	-	-
VEHICLE EXTENSION	2	-	-	-
MAXIMUM GREEN	10	-	-	31
PEDESTRIAN WALK	-	7	-	14
PEDESTRIAN CLEAR.	-	9	-	17
VEH. YELLOW CLEAR.	3	3	-	3
VEHICLE RED CLEAR.	1.5	2	-	2
RECALL	NO	PED	-	PED
MEMORY	NO	NO	-	NO
MAX. II MINIMUM GREEN	-	20	-	-
MAX. II 6:00-9:00 AM, M-F	-	-	-	28

SIGNAL TIMING CHART



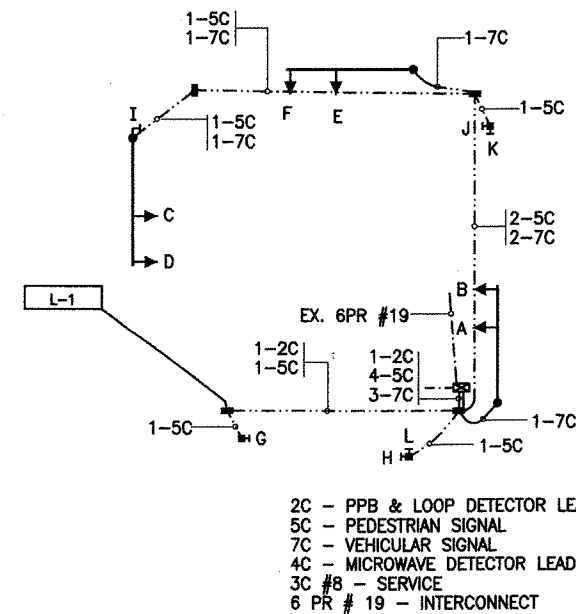
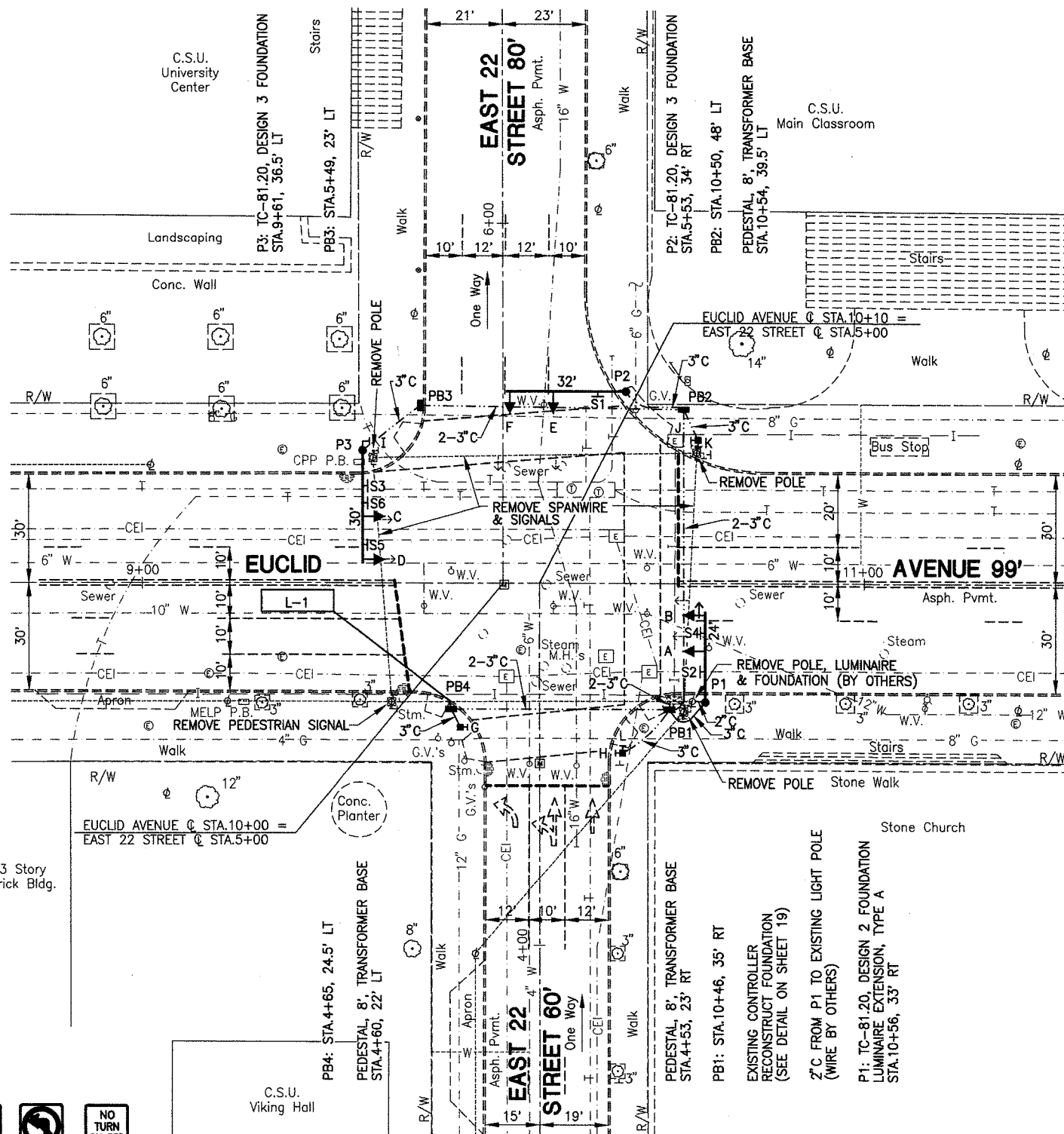
SIGN LEGEND



12" SIGNAL HEADS RIGID MOUNTED

LOOP	SIZE	TURNS	MODE	DELAY	PHASE	REMARK	INHIBITED DELAY	LOCATION 1ST FRONT CORNER	LOCATION 2ND FRONT CORNER
L-1	6'X20'	2	PRESENCE	3	1		YES	STA.9+53, 2' R	STA.9+53, 8' R

LOOP DETECTOR CHART



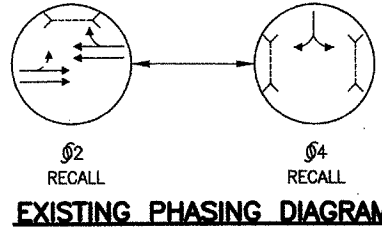
2C - PPB & LOOP DETECTOR LEAD
 5C - PEDESTRIAN SIGNAL
 7C - VEHICULAR SIGNAL
 4C - MICROWAVE DETECTOR LEAD
 3C #8 - SERVICE
 6 PR # 19 - INTERCONNECT

WIRE DIAGRAM

ITEM	TOTAL	UNIT	DESCRIPTION
625	6	EA	GROUND ROD
625	4	EA	PULLBOX, AS PER PLAN
625	144	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	166	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	4	LF	CONDUIT, 2", 713.07
625	202	LF	CONDUIT, 3", 713.07
625	332	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
630	55	SF	SIGN, FLAT SHEET, TYPE G
630	6	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
632	5	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	1	EA	VEHICULAR SIGNAL HEAD, 5-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	6	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	1	EA	LOOP DETECTOR UNIT, DELAY AND EXTENSION TYPE, AS PER PLAN
632	93	LF	LOOP DETECTOR PAVEMENT CUTTING
632	6.1	CY	CONCRETE FOR ANCHOR BASE FOUNDATION
632	1	EA	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 2, WITH 24' ARM, AS PER PLAN
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, WITH 30' ARM, A.P.P.
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, WITH 32' ARM, A.P.P.
632	3	EA	PEDESTAL, 8", TRANSFORMER BASE
632	466	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	515	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	202	LF	LOOP DETECTOR WIRE, TYPE E
632	76	LF	LOOP DETECTOR LEAD-IN CABLE
632	6	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER ITEM, MISC.: FIELD CONNECTIONS TO EXISTING CONTROLLER
633	1	EA	CONTROLLER ITEM, MISC.: MODIFY EXISTING CONTROLLER OPERATIONS
633	1	EA	CONTROLLER ITEM, MISC.: RECONSTRUCT EXISTING CABINET FOUNDATION

INTERSECTION OF EUCLID AVENUE AND EAST 22 STREET
 CUYAHOGA COUNTY
 CUY-6-15.55 & VARIOUS
 78
 89

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 86.
 FOR POLE CHART SEE SHEET 89.
 EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES.



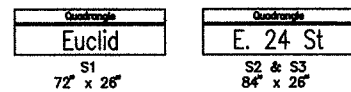
SIGNAL HEAD	φ1		φ2		φ3		φ4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A			G	Y R			R	R R Y		
B			G	Y R			R	R R Y		
C			G	Y R			R	R R Y		
D			G	Y R			R	R R Y		
E			R	R R			G	Y R R		
F			R	R R			G	Y R R		
G			W/(DW)	DW DW			DW	DW DW D		
H			W/(DW)	DW DW			DW	DW DW D		
I			DW	DW DW			W/(DW)	DW DW D		
J			DW	DW DW			W/(DW)	DW DW D		
K			DW	DW DW			W/(DW)	DW DW D		
L			DW	DW DW			W/(DW)	DW DW D		

W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK

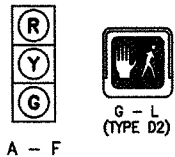
SIGNAL SEQUENCE CHART

FUNCTION	φ1	φ2	φ3	φ4
INITIAL GREEN		-		8
MINIMUM GREEN		30		-
VEHICLE EXTENSION		-		-
MAXIMUM GREEN		-		35
PEDESTRIAN WALK		7		12
PEDESTRIAN CLEAR.		8		13
VEH. YELLOW CLEAR.		3		3
VEHICLE RED CLEAR.		1.5		2
RECALL		PED		PED
MEMORY		NO		NO

SIGNAL TIMING CHART



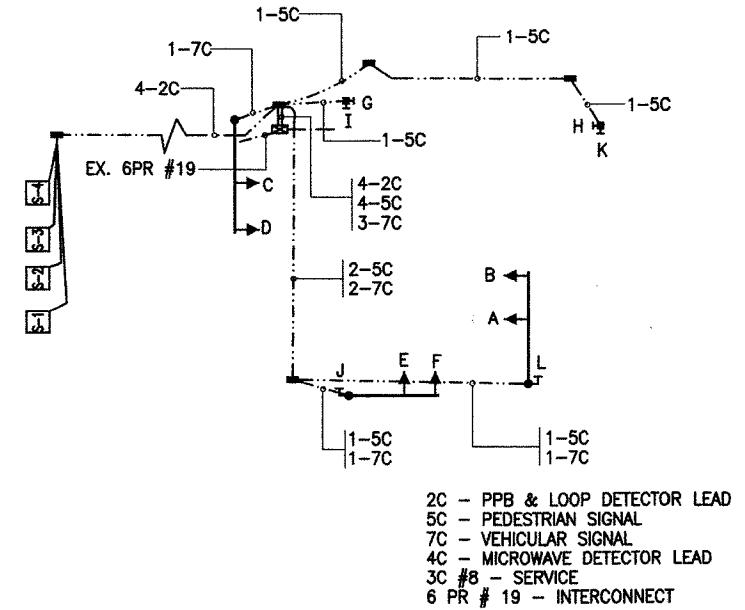
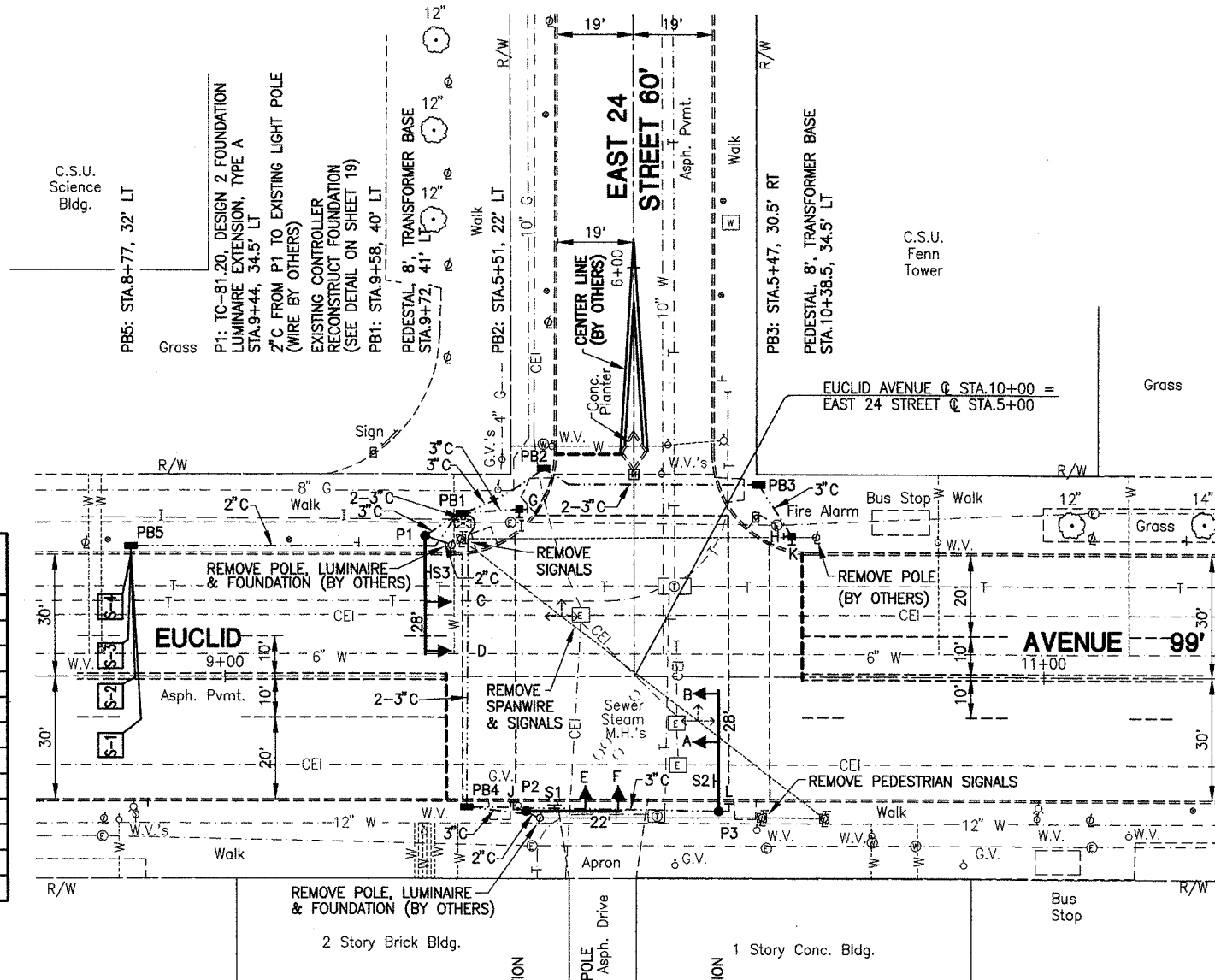
SIGN LEGEND



12" SIGNAL HEADS
RIGID MOUNTED

LOOP	SIZE	TURNS	MODE	DELAY	PHASE	REMARK	INHIBITED DELAY	LOCATION 1ST FRONT CORNER	LOCATION 2ND FRONT CORNER
S-1	6'X6'	3	BOTH			SYSTEM		STA.8+75, 20' R	STA.8+75, 14' R
S-2	6'X6'	3	BOTH			SYSTEM		STA.8+75, 8' R	STA.8+75, 2' R
S-3	6'X6'	3	BOTH			SYSTEM		STA.8+75, 2' L	STA.8+75, 8' L
S-4	6'X6'	3	BOTH			SYSTEM		STA.8+75, 14' L	STA.8+75, 20' L

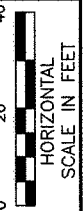
LOOP DETECTOR CHART



WIRE DIAGRAM

100% CITY PARTICIPATION

ITEM	TOTAL	UNIT	DESCRIPTION
625	5	EA	GROUND ROD
625	5	EA	PULLBOX, AS PER PLAN
625	241	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	123	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	99	LF	CONDUIT, 2", 713.07
625	198	LF	CONDUIT, 3", 713.07
625	202	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
630	43	SF	SIGN, FLAT SHEET, TYPE G
630	3	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
632	6	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	6	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	1	EA	LOOP DETECTOR UNIT, DELAY AND EXTENSION TYPE, AS PER PLAN
632	261	LF	LOOP DETECTOR PAVEMENT CUTTING
632	5.3	CY	CONCRETE FOR ANCHOR BASE FOUNDATION
632	1	EA	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 22' ARM, AS PER PLAN
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 2, WITH 28' ARM, A.P.P.
632	1	EA	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 2, WITH 28' ARM, AS PER PLAN
632	2	EA	PEDESTAL, 8', TRANSFORMER BASE
632	437	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	441	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	768	LF	LOOP DETECTOR WIRE, TYPE E
632	352	LF	LOOP DETECTOR LEAD-IN CABLE
632	6	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER ITEM, MISC.: FIELD CONNECTIONS TO EXISTING CONTROLLER
633	1	EA	CONTROLLER ITEM, MISC.: MODIFY EXISTING CONTROLLER OPERATIONS
633	1	EA	CONTROLLER ITEM, MISC.: RECONSTRUCT EXISTING CABINET FOUNDATION



HORIZONTAL SCALE IN FEET

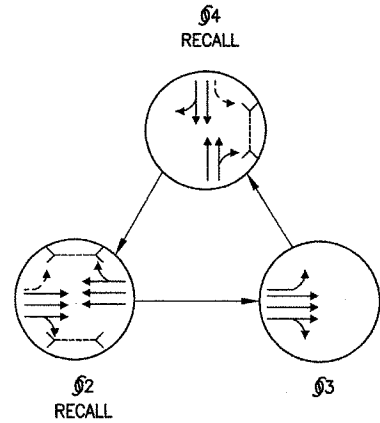
INTERSECTION OF EUCLID AVENUE AND EAST 24 STREET

CUYAHOGA COUNTY
 CUY-6-15.55 & VARIOUS

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 86.

FOR POLE CHART SEE SHEET 89.

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES.



EXISTING PHASING DIAGRAM

SIGNAL HEAD	phi 1		phi 2		phi 3		phi 4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A			G	G	G	Y R	R	R R Y		
B			G	G	G	Y R	R	R R Y		
C			G	G	G	Y R	R	R R Y		
D			G	Y R	R	R R	R	R R Y		
E			G	Y R	R	R R	R	R R Y		
F			G	Y G	R	R R	R	R R Y		
G			R	R R	R	R R	G	Y R R		
H			R	R R	R	R R	G	Y R R		
I			R	R R	R	R R	G	Y R R		
J			R	R R	R	R R	G	Y R R		
K			W/(DW)	DW	DW	DW	DW	DW	D	
L			W/(DW)	DW	DW	DW	DW	DW	D	
M			W/(DW)	DW	DW	DW	DW	DW	D	
N			W/(DW)	DW	DW	DW	DW	DW	D	
O			DW	DW	DW	DW	W/(DW)	DW	D	
P			DW	DW	DW	DW	W/(DW)	DW	D	

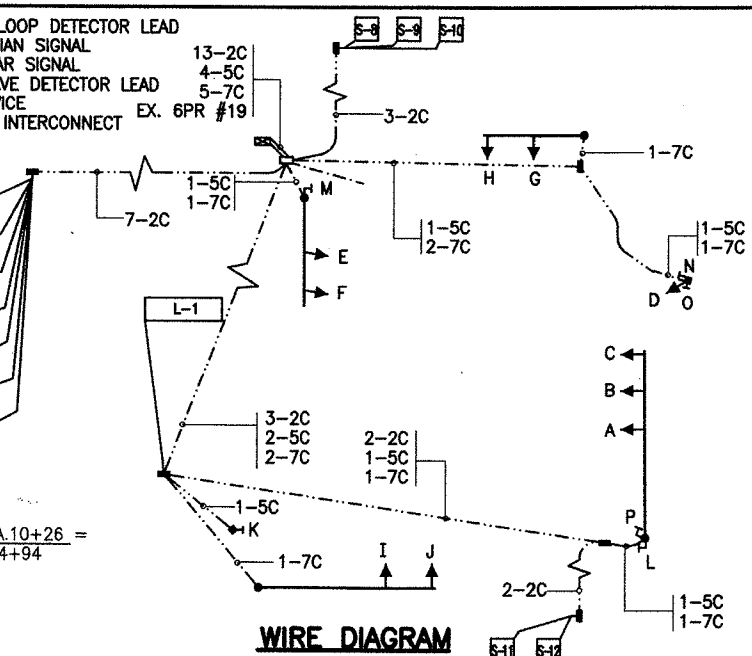
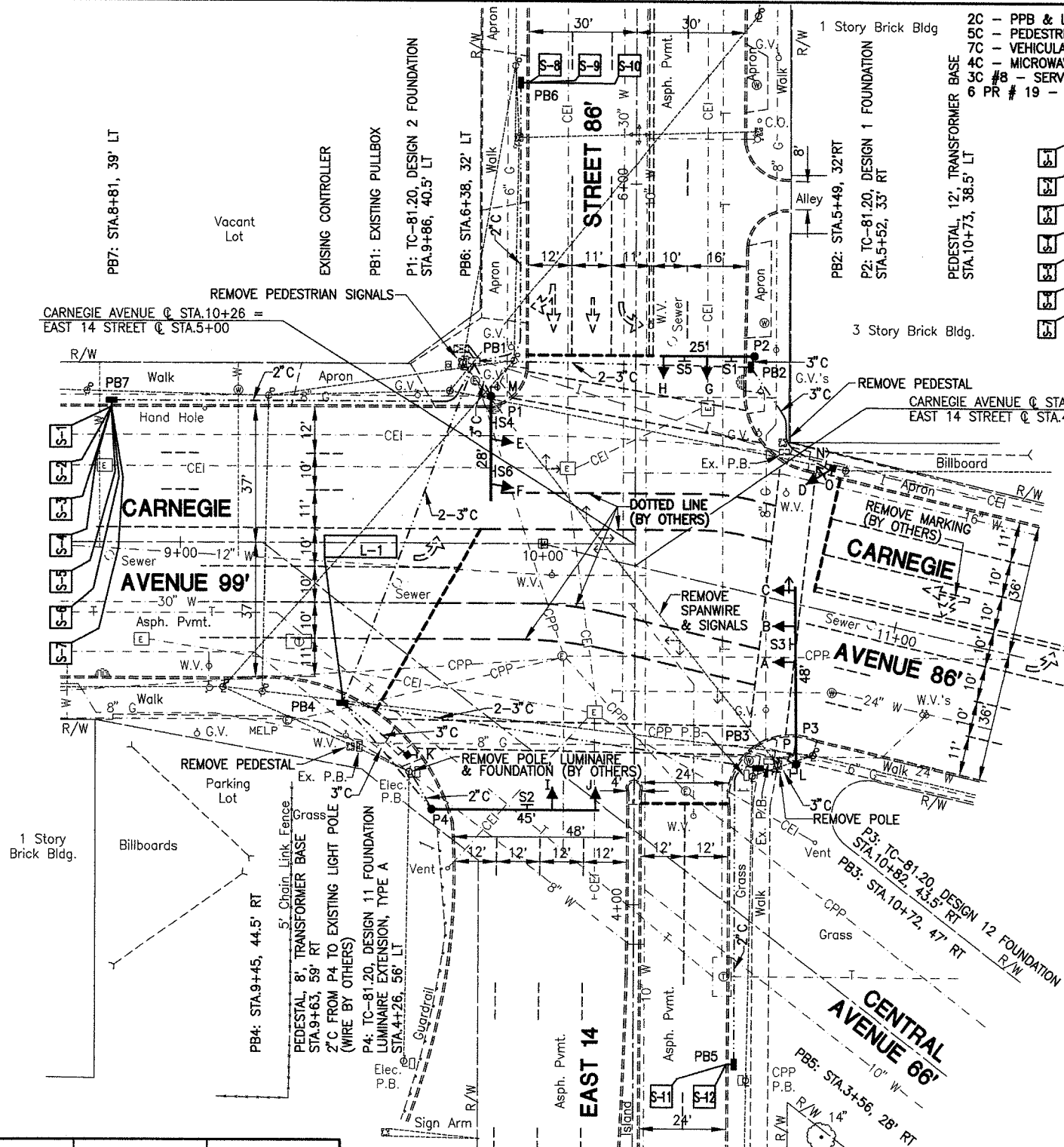
W-WALK (DW)-FLASHING DONT WALK DW-DONT WALK D-DARK

⊙ TO BE "Y" IF phi 4 FOLLOWS
⊙ TO BE "R" IF phi 4 FOLLOWS

SIGNAL SEQUENCE CHART

LOOP	SIZE	TURNS	MODE	DELAY	PHASE	REMARK	INHIBITED DELAY	LOCATION 1ST FRONT CORNER	LOCATION 2ND FRONT CORNER
L-1	6'X20'	2	PRESENCE	3	3	LOCK	YES	STA.9+60, 2' L	STA.9+60, 4' R
S-1	6'X6'	3	BOTH			SYSTEM		STA.8+70, 32' L	STA.8+70, 26' L
S-2	6'X6'	3	BOTH			SYSTEM		STA.8+70, 22' L	STA.8+70, 16' L
S-3	6'X6'	3	BOTH			SYSTEM		STA.8+70, 12' L	STA.8+70, 6' L
S-4	6'X6'	3	BOTH			SYSTEM		STA.8+70, 2' L	STA.8+70, 4' R
S-5	6'X6'	3	BOTH			SYSTEM		STA.8+70, 8' R	STA.8+70, 14' R
S-6	6'X6'	3	BOTH			SYSTEM		STA.8+70, 18' R	STA.8+70, 24' R
S-7	6'X6'	3	BOTH			SYSTEM		STA.8+70, 28' R	STA.8+70, 34' R
S-8	6'X6'	3	BOTH			SYSTEM		STA.6+30, 27' L	STA.6+30, 21' L
S-9	6'X6'	3	BOTH			SYSTEM		STA.6+30, 16' L	STA.6+30, 10' L
S-10	6'X6'	3	BOTH			SYSTEM		STA.6+30, 5' L	STA.6+30, 1' R
S-11	6'X6'	3	BOTH			SYSTEM		STA.3+50, 5' R	STA.3+50, 11' R
S-12	6'X6'	3	BOTH			SYSTEM		STA.3+50, 17' R	STA.3+50, 23' R

LOOP DETECTOR CHART

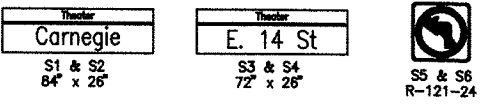


WIRE DIAGRAM

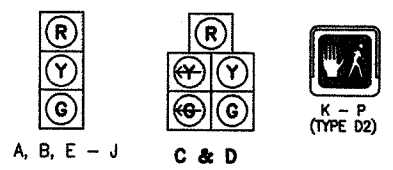
FUNCTION	phi 1	phi 2	phi 3	phi 4
INITIAL GREEN			6	
MINIMUM GREEN		30		
VEHICLE EXTENSION			2	
MAXIMUM GREEN			8	33
PEDESTRIAN WALK		7		7
PEDESTRIAN CLEAR.		21		18
VEH. YELLOW CLEAR.		3	3	3
VEHICLE RED CLEAR.		2.5	1.5	2.5
RECALL			PED	NO PED
MEMORY			NO	LOCK
MAX. II MAXIMUM GREEN				30
MAX. II 6-9:00 AM, M-F				
MAX. III MAXIMUM GREEN				37
MAX. III 3-6:00 PM, M-F				

SIGNAL TIMING CHART

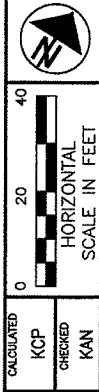
ITEM	TOTAL	UNIT	DESCRIPTION
625	6	EA	GROUND ROD
625	6	EA	PULLBOX, AS PER PLAN
625	395	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	318	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	293	LF	CONDUIT, 2", 713.07
625	220	LF	CONDUIT, 3", 713.07
625	494	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
630	64	SF	SIGN, FLAT SHEET, TYPE G
630	6	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
632	2	EA	VEHICULAR SIGNAL HEAD, 5-SECTION, 1-WAY, AS PER PLAN
632	8	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	6	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	4	EA	LOOP DETECTOR UNIT, DELAY AND EXTENSION TYPE, AS PER PLAN
632	914	LF	LOOP DETECTOR PAVEMENT CUTTING
632	10.6	CY	CONCRETE FOR ANCHOR BASE FOUNDATION
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 25' ARM, A.P.P.
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 2, WITH 28' ARM, A.P.P.
632	1	EA	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 11, WITH 45' ARM, AS PER PLAN
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 12, WITH 48' ARM, A.P.P.
632	1	EA	PEDESTAL, 8", TRANSFORMER BASE
632	1	EA	PEDESTAL, MISC.: 12", TRANSFORMER BASE
632	601	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	1119	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	2320	LF	LOOP DETECTOR WIRE, TYPE E
632	2118	LF	LOOP DETECTOR LEAD-IN CABLE
632	8	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER ITEM, MISC.: FIELD CONNECTIONS TO EXISTING CONTROLLER
633	1	EA	CONTROLLER ITEM, MISC.: MODIFY EXISTING CONTROLLER OPERATIONS



SIGN LEGEND



12" SIGNAL HEADS RIGID MOUNTED



INTERSECTION OF CARNEGIE AVENUE AND EAST 14 STREET

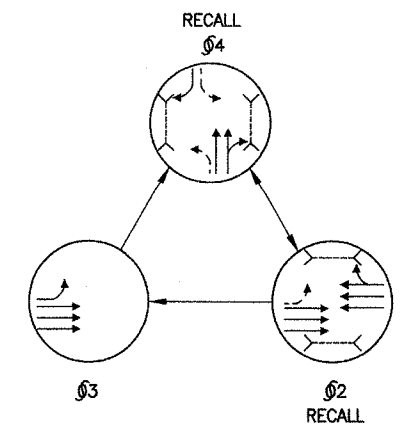
CUYAHOGA COUNTY CUY-6-15.55 & VARIOUS

DATE: 02-26-1997 TIME: 14:47:51

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 86.

FOR POLE CHART SEE SHEET 89.

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES.



EXISTING PHASING DIAGRAM

SIGNAL HEAD	Ø1		Ø2		Ø3		Ø4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A			G		G	Y	R	R	R	Y
B			G		G	Y	R	R	R	Y
C			G		G	Y	R	R	R	Y
D			G	Y	R	R	R	R	R	Y
E			G	Y	R	R	R	R	R	Y
F			R	R	R	R	R	G	Y	R
G			R	R	R	R	R	G	Y	R
H			R	R	R	R	R	G	Y	R
I			R	R	R	R	R	G	Y	R
J			R	R	R	R	R	G	Y	R
K			W/(DW)	DW	DW	DW	DW	DW	DW	D
L			W/(DW)	DW	DW	DW	DW	DW	DW	D
M			W/(DW)	DW	DW	DW	DW	DW	DW	D
N			W/(DW)	DW	DW	DW	DW	DW	DW	D
O			DW	DW	DW	DW	DW	W/(DW)	DW	D
P			DW	DW	DW	DW	DW	W/(DW)	DW	D
Q			DW	DW	DW	DW	DW	W/(DW)	DW	D
R			DW	DW	DW	DW	DW	W/(DW)	DW	D

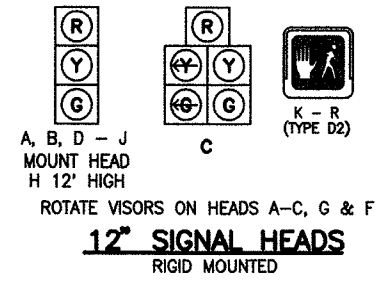
W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK

⊙ TO BE "Y" IF Ø4 FOLLOWS
⊙ TO BE "R" IF Ø4 FOLLOWS

SIGNAL SEQUENCE CHART

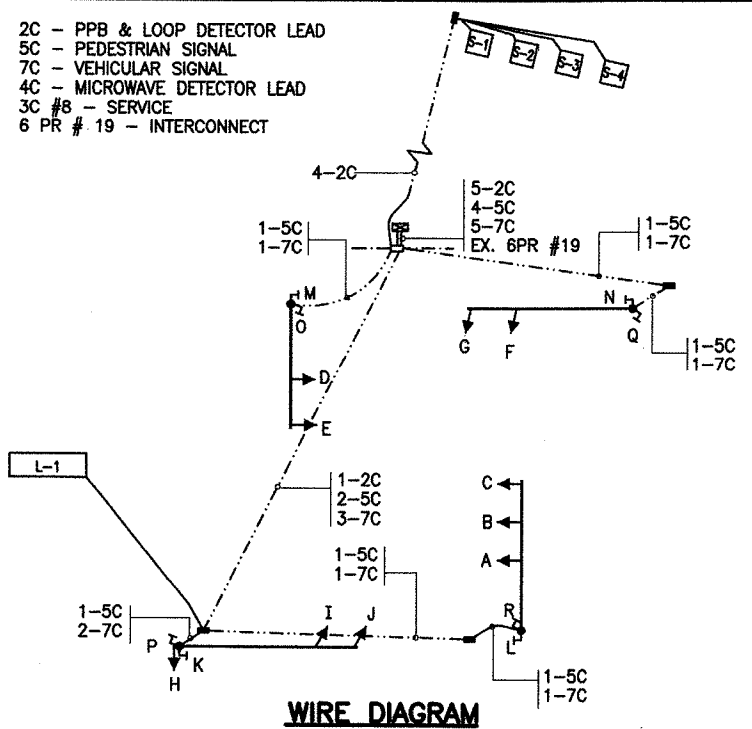
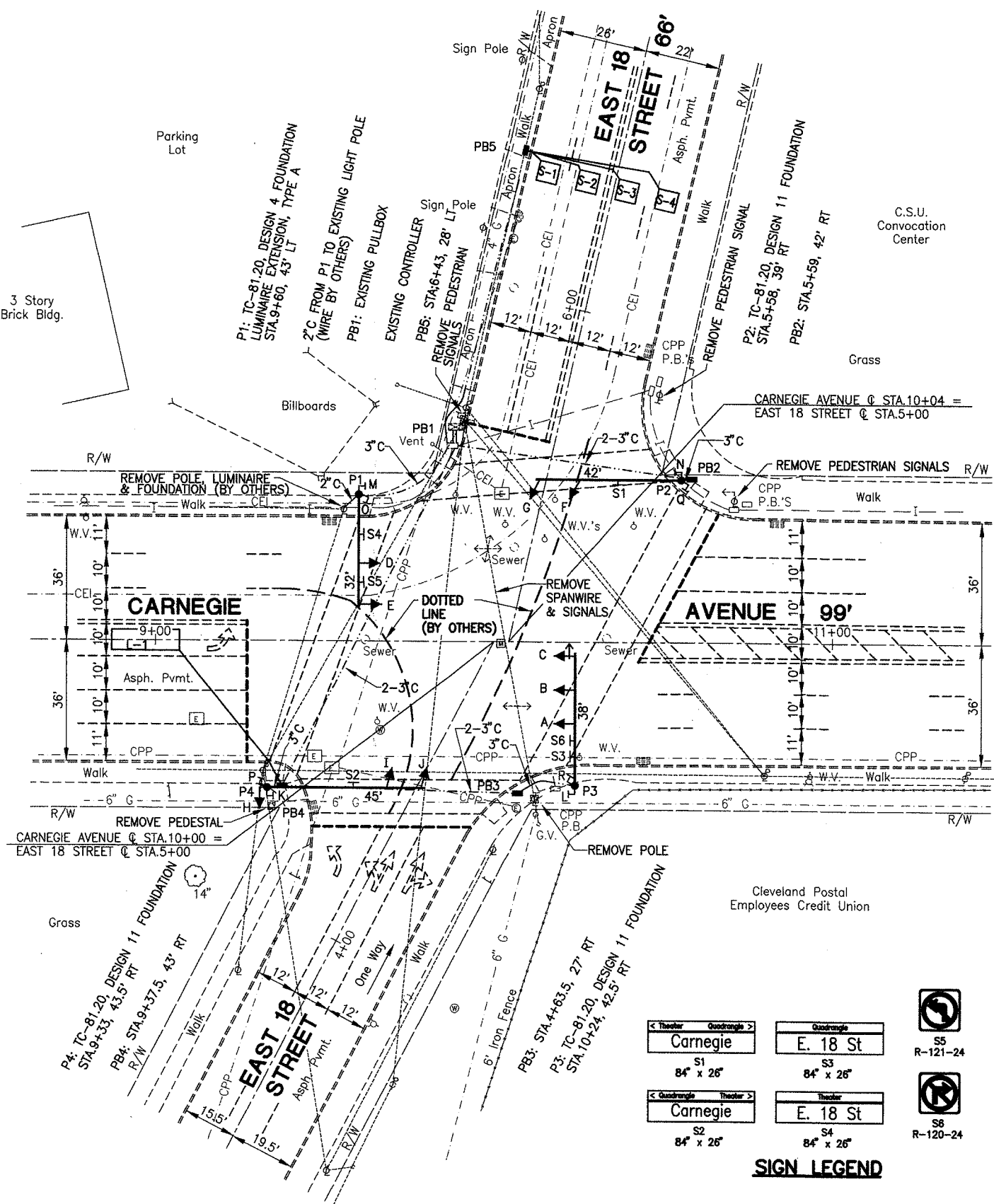
FUNCTION	Ø1	Ø2	Ø3	Ø4
INITIAL GREEN		-	4	-
MINIMUM GREEN		30	-	-
VEHICLE EXTENSION		-	2	-
MAXIMUM GREEN		-	8	33
PEDESTRIAN WALK		7	-	7
PEDESTRIAN CLEAR.		11	-	20
VEH. YELLOW CLEAR.		3	3	3
VEHICLE RED CLEAR.		2	1.5	2.5
RECALL		PED	NO	PED
MEMORY		NO	LOCK	NO
MAX.II MAXIMUM GREEN		-	-	30
MAX.II 6-9:00AM, M-F		-	-	-
MAX.III MAXIMUM GREEN		-	-	37
MAX.III 3-6:00PM, M-F		-	-	-

SIGNAL TIMING CHART

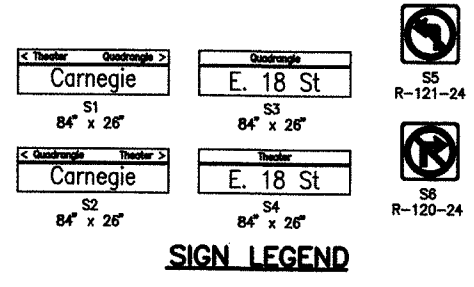


A, B, D - J MOUNT HEAD H 12" HIGH
ROTATE VISORS ON HEADS A-C, G & F

12" SIGNAL HEADS RIGID MOUNTED



WIRE DIAGRAM

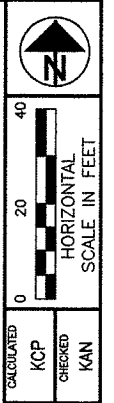


SIGN LEGEND

LOOP	SIZE	TURNS	MODE	DELAY	PHASE	REMARK	INHIBITED DELAY	LOCATION 1ST FRONT CORNER	LOCATION 2ND FRONT CORNER
L-1	6'X20'	2	PRESENCE	3	3	LOCK	YES	STA.9+07, 3' L	STA.9+07, 3' R
S-1	6'X6'	3	BOTH			SYSTEM		STA.6+35, 23' L	STA.6+35, 17' L
S-2	6'X6'	3	BOTH			SYSTEM		STA.6+35, 11' L	STA.6+35, 5' L
S-3	6'X6'	3	BOTH			SYSTEM		STA.6+35, 1' R	STA.6+35, 7' R
S-4	6'X6'	3	BOTH			SYSTEM		STA.6+35, 13' R	STA.6+35, 19' R

LOOP DETECTOR CHART

ITEM	TOTAL	UNIT	DESCRIPTION
625	4	EA	GROUND ROD
625	4	EA	PULLBOX, AS PER PLAN
625	189	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	217	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	96	LF	CONDUIT, 2", 713.07
625	153	LF	CONDUIT, 3", 713.07
625	418	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
630	76	SF	SIGN, FLAT SHEET, TYPE G
630	6	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
632	9	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	1	EA	VEHICULAR SIGNAL HEAD, 5-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	8	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	2	EA	LOOP DETECTOR UNIT, DELAY AND EXTENSION TYPE, AS PER PLAN
632	279	LF	LOOP DETECTOR PAVEMENT CUTTING
632	10.6	CY	CONCRETE FOR ANCHOR BASE FOUNDATION
632	1	EA	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 32' ARM, AS PER PLAN
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 11, WITH 38' ARM, A.P.P.
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 11, WITH 42' ARM, A.P.P.
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 11, WITH 45' ARM, A.P.P.
632	545	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	906	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	796	LF	LOOP DETECTOR WIRE, TYPE E
632	561	LF	LOOP DETECTOR LEAD-IN CABLE
632	10	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER ITEM, MISC.: FIELD CONNECTIONS TO EXISTING CONTROLLER
633	1	EA	CONTROLLER ITEM, MISC.: MODIFY EXISTING CONTROLLER OPERATIONS



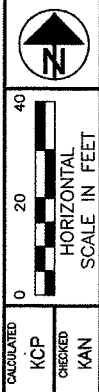
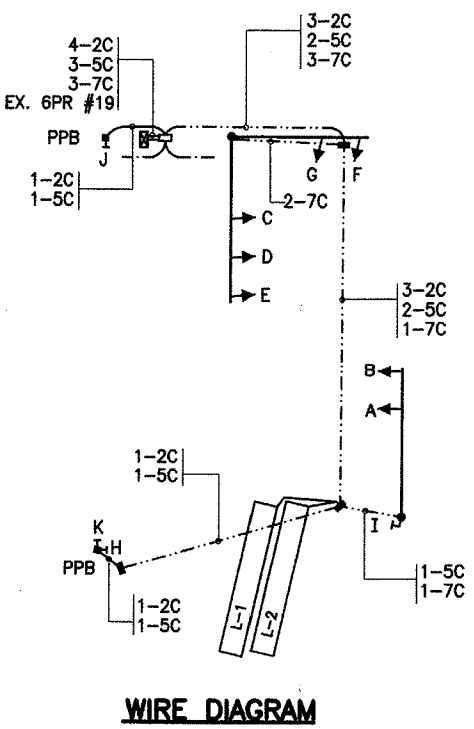
INTERSECTION OF CARNEGIE AVENUE AND EAST 18 STREET

CUYAHOGA COUNTY CUY-6-15.55 & VARIOUS

DATE: 02-26-1997 TIME: 15:01:25

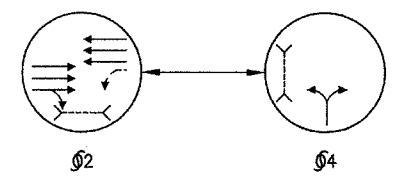
FOR SIGNAL COORDINATION INFORMATION SEE SHEET 86.
FOR POLE CHART SEE SHEET 89.
EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES.

2C - PPB & LOOP DETECTOR LEAD
5C - PEDESTRIAN SIGNAL
7C - VEHICULAR SIGNAL
4C - MICROWAVE DETECTOR LEAD
3C #B - SERVICE
6 PR # 19 - INTERCONNECT



INTERSECTION OF CARNEGIE AVENUE AND EAST 19 STREET

CUYAHOGA COUNTY
CUY-6-15.55 & VARIOUS

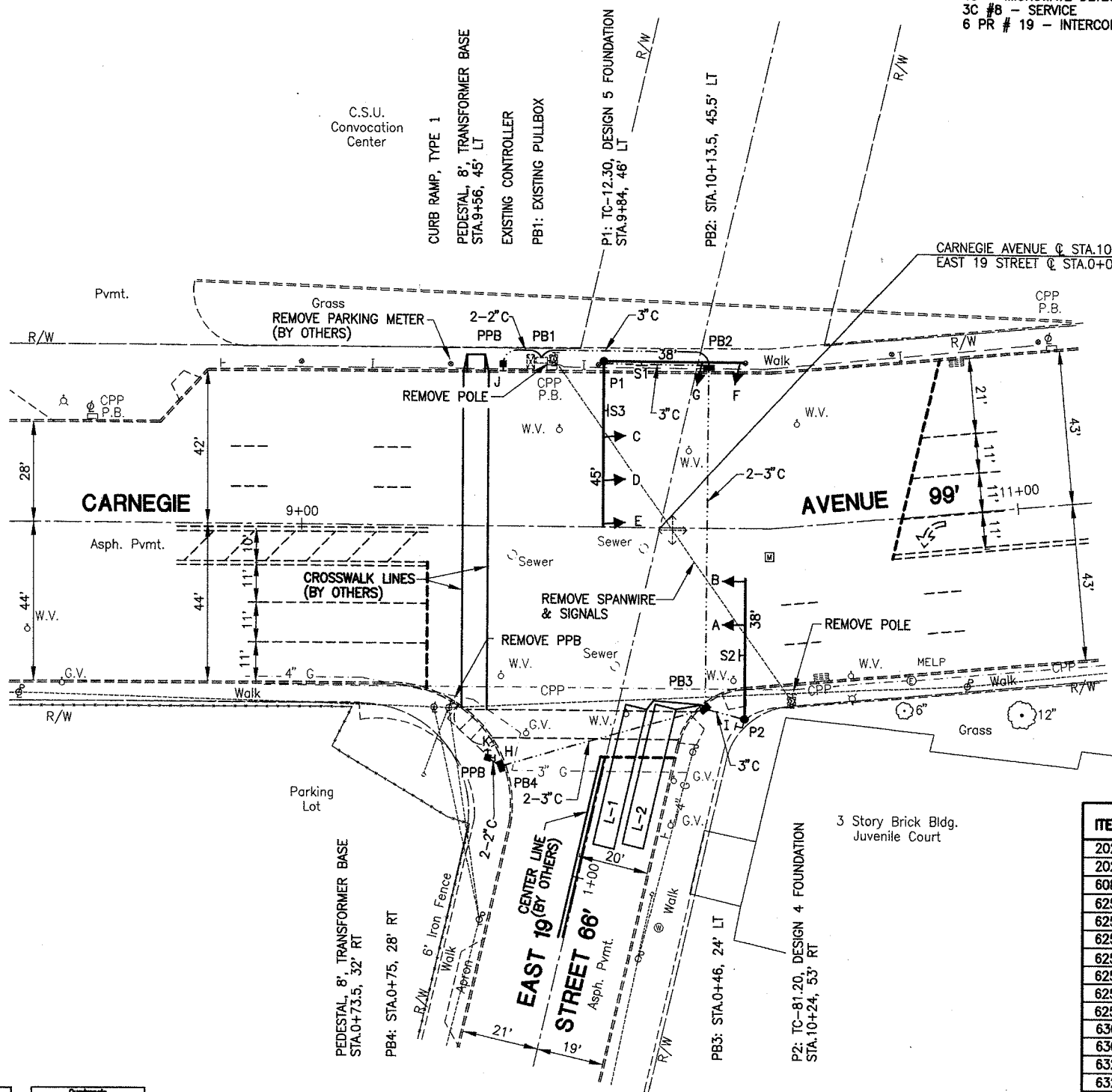


EXISTING PHASING DIAGRAM

SIGNAL HEAD	phi 1		phi 2		phi 3		phi 4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A			G	Y R			R	R R Y G		
B			G	Y R			R	R R Y G		
C			G	Y R			R	R R Y G		
D			G	Y R			R	R R Y G		
E			G	Y R			R	R R Y G		
F			R	R R			G	Y R R R		
G			R	R R			G	Y R R R		
H			W/(DW)	DW DW			DW	DW DW D W		
I			W/(DW)	DW DW			DW	DW DW D W		
J			DW	DW DW			W/(DW)	DW DW D DW		
K			DW	DW DW			W/(DW)	DW DW D DW		

W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK

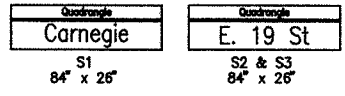
SIGNAL SEQUENCE CHART



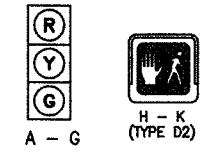
100% CITY PARTICIPATION

FUNCTION	phi 1	phi 2	phi 3	phi 4
INITIAL GREEN		-		8
MINIMUM GREEN		30		-
VEHICLE EXTENSION		-		2
MAXIMUM GREEN		-		20
PEDESTRIAN WALK		-		7
PEDESTRIAN CLEAR.		12		20
VEH. YELLOW CLEAR.		3		3
VEH. RED CLEAR.		2		2
RECALL		PED		NO
MEMORY		NO		NO

SIGNAL TIMING CHART



SIGN LEGEND



**12" SIGNAL HEADS
RIGID MOUNTED**

LOOP	SIZE	TURNS	MODE	DELAY	PHASE	REMARK	INHIBITED DELAY	LOCATION 1ST FRONT CORNER	LOCATION 2ND FRONT CORNER
L-1	6'X40'	2	PRESENCE	8	4		NO	STA.0+50, 2' L	STA.0+50, 8' L
L-2	6'X40'	2	PRESENCE	8	4		NO	STA.0+48, 10' L	STA.0+48, 16' L

LOOP DETECTOR CHART

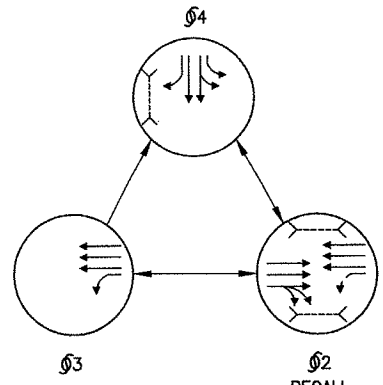
ITEM	TOTAL	UNIT	DESCRIPTION
202	90	SF	WALK REMOVED
202	14	LF	CURB REMOVED
608	90	SF	CURB RAMP, TYPE 1
625	3	EA	GROUND ROD
625	3	EA	PULLBOX, AS PER PLAN
625	103	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	144	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	30	LF	CONDUIT, 2", 713.07
625	99	LF	CONDUIT, 3", 713.07
625	288	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
630	37	SF	SIGN, FLAT SHEET, TYPE G
630	3	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
632	7	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	4	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	1	EA	LOOP DETECTOR UNIT, DELAY AND EXTENSION TYPE, AS PER PLAN
632	205	LF	LOOP DETECTOR PAVEMENT CUTTING
632	6.6	CY	CONCRETE FOR ANCHOR BASE FOUNDATION
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 38' ARM, A.P.P.
632	1	EA	SIGNAL SUPPORT, TYPE TC-12.30 DESIGN 5 POLE, WITH MAST ARMS TC-81.20 DESIGN 4, 38 FEET AND TC-81.20 DESIGN 11, 45 FEET, AS PER PLAN
632	2	EA	PEDESTAL, 8', TRANSFORMER BASE
632	2	EA	PEDESTRIAN PUSH BUTTON, AS PER PLAN
632	415	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	498	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	420	LF	LOOP DETECTOR WIRE, TYPE E
632	529	LF	LOOP DETECTOR LEAD-IN CABLE
632	7	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER ITEM, MISC.: FIELD CONNECTIONS TO EXISTING CONTROLLER
633	1	EA	CONTROLLER ITEM, MISC.: MODIFY EXISTING CONTROLLER OPERATIONS

34010782.DWG, PLOT SCALE: 1/4"=20'

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 86.

FOR POLE CHART SEE SHEET 89.

EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES.



OMIT φ 3 UNLESS φ 4 HAS BE ACTUATED
MODIFIED PHASING DIAGRAM

FUNCTION	φ1	φ2	φ3	φ4
INITIAL GREEN		-	6	8
MINIMUM GREEN		30	-	-
VEHICLE EXTENSION		-	2	2
MAXIMUM GREEN		-	15	27
PEDESTRIAN WALK		7	-	7
PEDESTRIAN CLEAR.		15	-	18
VEH. YELLOW CLEAR.		3	3	3
VEHICLE RED CLEAR.		2.5	1.5	2.5
RECALL		PED	NO	NO
MEMORY		NO	LOCK	NO

SIGNAL TIMING CHART

ITEM	TOTAL	UNIT	DESCRIPTION
625	7	EA	GROUND ROD
625	7	EA	PULLBOX, AS PER PLAN
625	258	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	302	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	209	LF	CONDUIT, 2", 713.07
625	168	LF	CONDUIT, 3", 713.07
625	604	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
630	49	SF	SIGN, FLAT SHEET, TYPE G
630	4	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
630	2	EA	SIGN BRACKET ASSEMBLY, POLE MOUNTED
630	12	LF	GROUND MOUNTED SUPPORT, NO.3 POST
632	7	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	1	EA	VEHICULAR SIGNAL HEAD, 5-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	8	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	2	EA	PEDESTRIAN PUSHBUTTON, AS PER PLAN
632	4	EA	LOOP DETECTOR UNIT, DELAY AND EXTENSION TYPE, AS PER PLAN
632	916	LF	LOOP DETECTOR PAVEMENT CUTTING
632	8.7	CY	CONCRETE FOR ANCHOR BASE FOUNDATION
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, WITH 30' ARM, A.P.P.
632	1	EA	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 11, WITH 36' ARM, AS PER PLAN
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 11, WITH 40' ARM, A.P.P.
632	4	EA	PEDESTAL, 8", TRANSFORMER BASE
632	1147	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	634	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	2160	LF	LOOP DETECTOR WIRE, TYPE E
632	1373	LF	LOOP DETECTOR LEAD-IN CABLE
632	8	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER ITEM, MISC.: FIELD CONNECTIONS TO EXISTING CONTROLLER
633	1	EA	CONTROLLER ITEM, MISC.: MODIFY EXISTING CONTROLLER OPERATIONS

LOOP	SIZE	TURNS	MODE	DELAY	PHASE	REMARK	INHIBITED DELAY	LOCATION 1ST FRONT CORNER	LOCATION 2ND FRONT CORNER
L-1	6'X40'	2	PRESENCE		4			STA.5+45, 13' R	STA.5+45, 7' R
L-2	6'X40'	2	PRESENCE		4			STA.5+43, 3' R	STA.5+43, 3' L
L-3	6'X40'	2	PRESENCE		4			STA.5+39, 8' L	STA.5+39, 14' L
L-4	6'X40'	2	PRESENCE	8	4		NO	STA.5+36, 20' L	STA.5+36, 26' L
L-5	6'X40'	2	PRESENCE	3	3	LOCK	YES	STA.11+06, 3' R	STA.11+06, 3' L
S-1	6'X6'	3	BOTH			SYSTEM		STA.8+50, 34' R	STA.8+50, 28' R
S-2	6'X6'	3	BOTH			SYSTEM		STA.8+50, 23' R	STA.8+50, 17' R
S-3	6'X6'	3	BOTH			SYSTEM		STA.8+50, 13' R	STA.8+50, 7' R
S-4	6'X6'	3	BOTH			SYSTEM		STA.8+50, 6' L	STA.8+50, 12' L
S-5	6'X6'	3	BOTH			SYSTEM		STA.8+50, 16' L	STA.8+50, 22' L
S-6	6'X6'	3	BOTH			SYSTEM		STA.8+50, 26' L	STA.8+50, 32' L

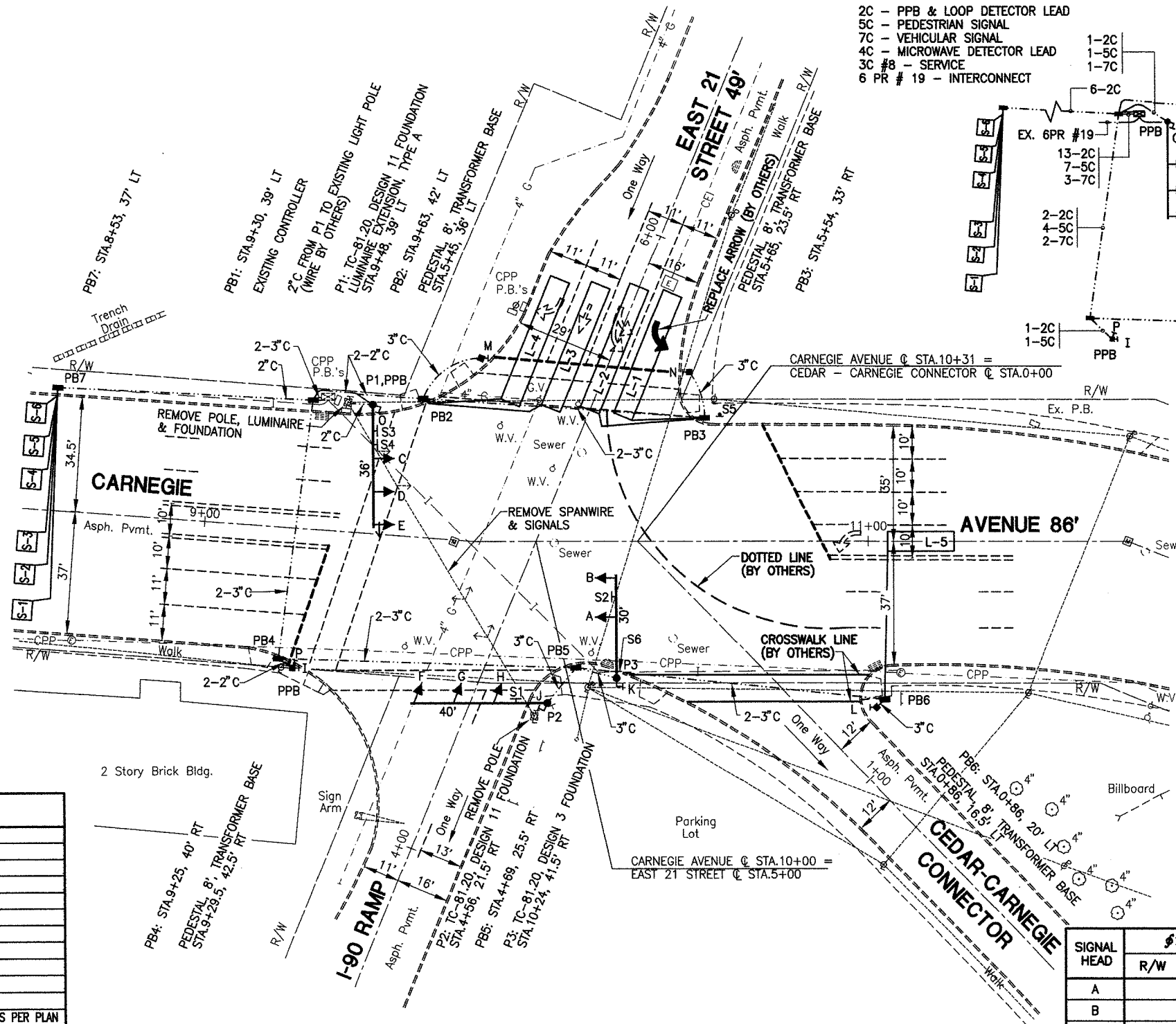
LOOP DETECTOR CHART

SIGNAL HEAD	φ1		φ2		φ3		φ4		FLASH	DWELL		
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR				
A			G	Y	R	R	R	R	R	Y	G	
B			G	Y	R	R	R	R	R	R	Y	G
C			G	G	G	G	G	R	R	R	Y	G
D			G	G	G	G	G	R	R	R	Y	G
E			G	G	G	G	G	R	R	R	Y	G
F			R	R	R	R	R	G	Y	R	R	R
G			R	R	R	R	R	G	Y	R	R	R
H			R	R	R	R	R	G	Y	R	R	R
I			W/(DW)	DW	DW	DW	DW	DW	DW	DW	D	W
J			W/(DW)	DW	DW	DW	DW	DW	DW	DW	D	W
K			W/(DW)	DW	DW	DW	DW	DW	DW	DW	D	W
L			W/(DW)	DW	DW	DW	DW	DW	DW	DW	D	W
M			W/(DW)	DW	DW	DW	DW	DW	DW	DW	D	W
N			W/(DW)	DW	DW	DW	DW	DW	DW	DW	D	W
O			DW	DW	DW	DW	DW	W/(DW)	DW	DW	D	DW
P			DW	DW	DW	DW	DW	W/(DW)	DW	DW	D	DW

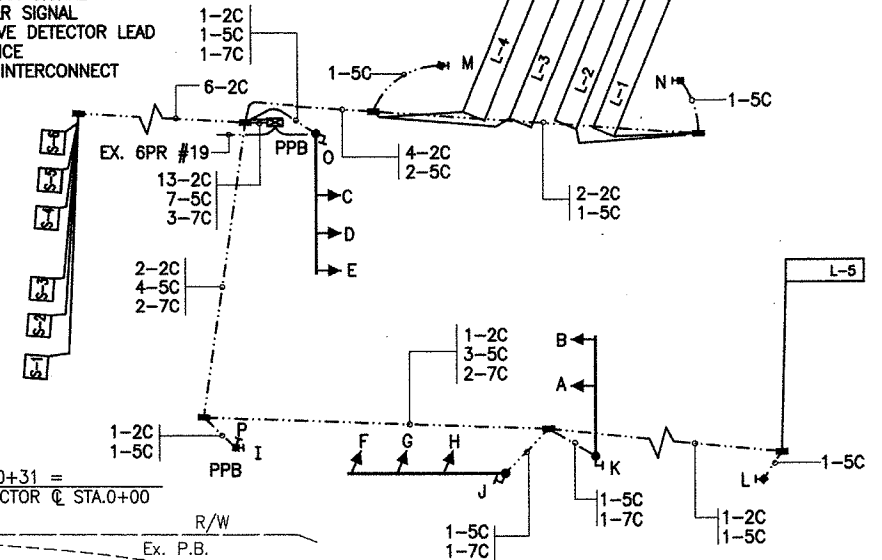
W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK

⊙ TO BE "Y" IF φ 4 FOLLOWS
⊙ TO BE "R" IF φ 4 FOLLOWS

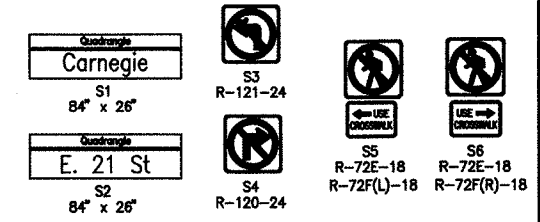
SIGNAL SEQUENCE CHART



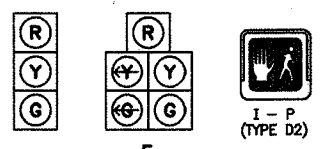
- 2C - PPB & LOOP DETECTOR LEAD
- 5C - PEDESTRIAN SIGNAL
- 7C - VEHICULAR SIGNAL
- 4C - MICROWAVE DETECTOR LEAD
- 3C #8 - SERVICE
- 6 PR # 19 - INTERCONNECT



WIRE DIAGRAM



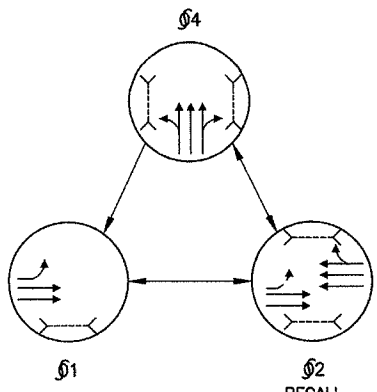
SIGN LEGEND



12" SIGNAL HEADS
RIGID MOUNTED

DATE: 02-26-1997 TIME: 15:23:13

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 86.
FOR POLE CHART SEE SHEET 89.
EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES.



OMIT phi 1 WHEN phi 2 IS TIMING
MODIFIED PHASING DIAGRAM

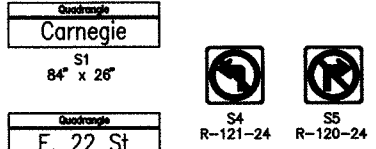
SIGNAL HEAD	phi 1		phi 2		phi 3		phi 4		FLASH	DWELL	
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR			
A	G	G	G	Y	R		R	R	Y	G	
B	G	G	G	Y	R		R	R	Y	G	
C	R	R	R	G	Y	R		R	R	Y	G
D	R	R	R	G	Y	R		R	R	Y	G
E	R	R	R	R	R		G	Y	R	R	R
F	R	R	R	R	R		G	Y	R	R	R
G	W	W	W	W/(DW)	DW	DW		DW	DW	DW	DW
H	W	W	W	W/(DW)	DW	DW		DW	DW	DW	DW
I	DW	DW	DW	W/(DW)	DW	DW		DW	DW	DW	DW
J	DW	DW	DW	W/(DW)	DW	DW		DW	DW	DW	DW
K	DW	DW	DW	DW	DW	DW		W/(DW)	DW	DW	DW
L	DW	DW	DW	DW	DW	DW		W/(DW)	DW	DW	DW
M	DW	DW	DW	DW	DW	DW		W/(DW)	DW	DW	DW
N	DW	DW	DW	DW	DW	DW		W/(DW)	DW	DW	DW

W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK

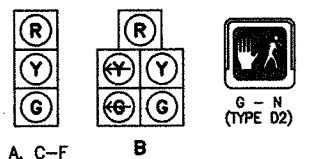
SIGNAL SEQUENCE CHART

FUNCTION	phi 1	phi 2	phi 3	phi 4
INITIAL GREEN	4	-	-	8
MINIMUM GREEN	-	30	-	-
VEHICLE EXTENSION	2	-	-	2
MAXIMUM GREEN	8	-	-	32
PEDESTRIAN WALK	-	7	-	7
PEDESTRIAN CLEAR.	-	10	-	15
VEH. YELLOW CLEAR.	3	3	-	3
VEHICLE RED CLEAR.	1.5	1.5	-	2
RECALL	NO	PED	-	NO
MEMORY	NO	NO	-	NO

SIGNAL TIMING CHART



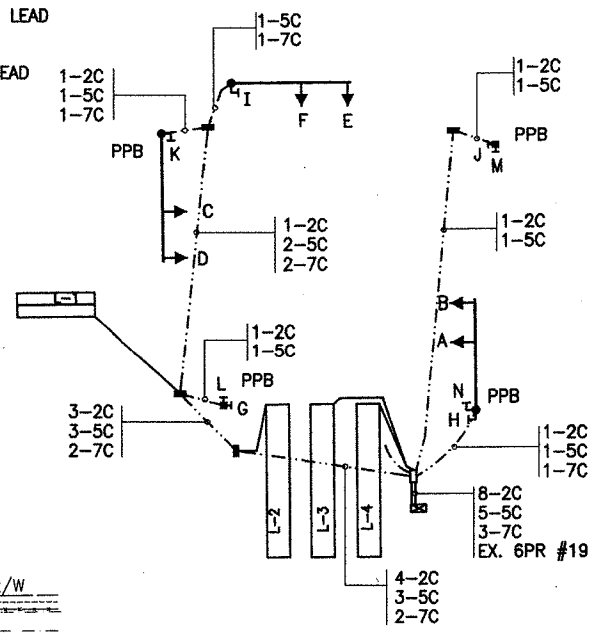
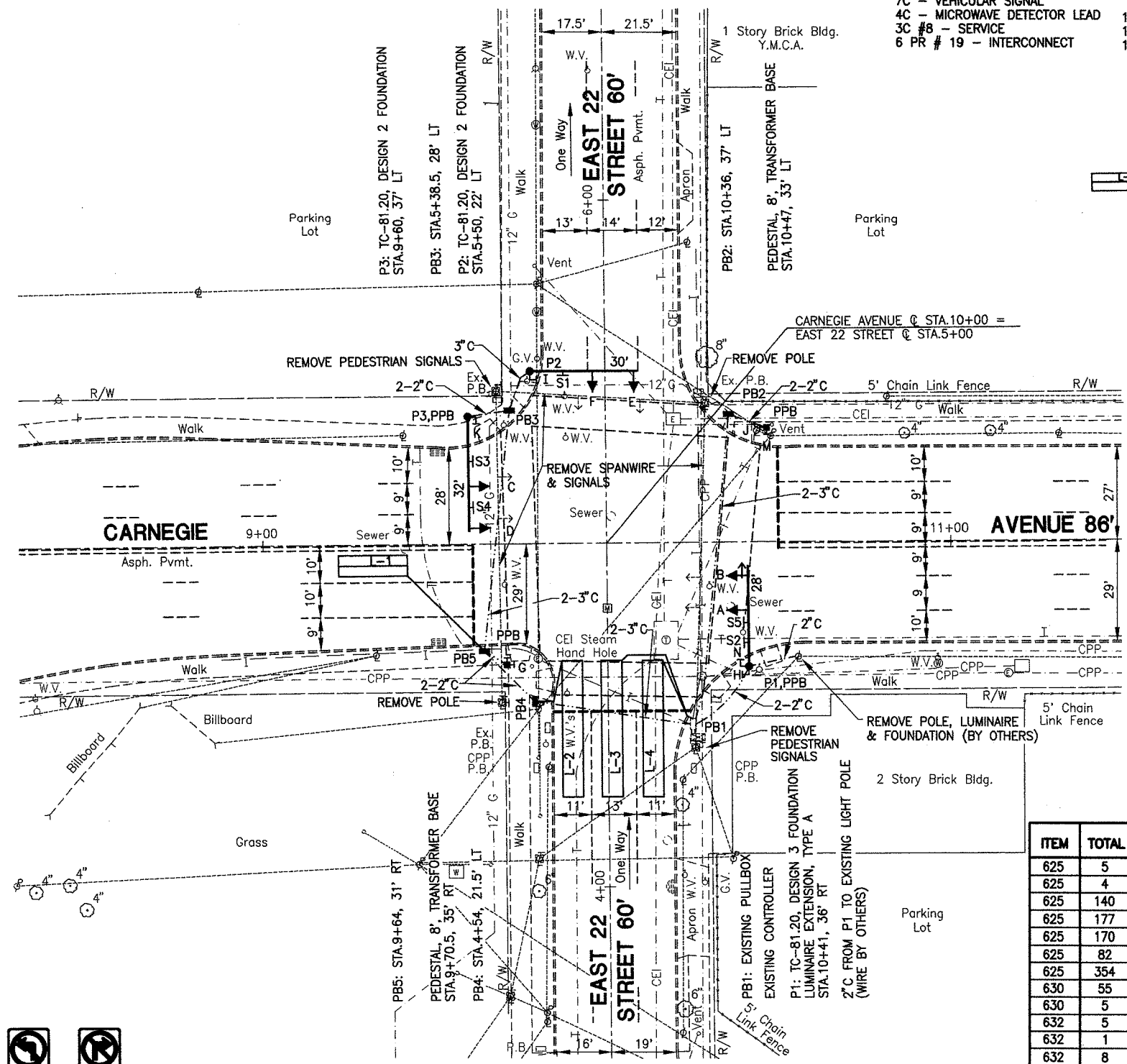
SIGN LEGEND



12" SIGNAL HEADS RIGID MOUNTED

LOOP	SIZE	TURNS	MODE	DELAY	PHASE	REMARK	INHIBITED DELAY	LOCATION 1ST FRONT CORNER	LOCATION 2ND FRONT CORNER
L-1	6'X20'	2-4-2	PRESENCE	3	1	QUADRAPOLE	YES	STA.9+42, 3' R	STA.9+42, 9' R
L-2	6'X40'	2	PRESENCE		4			STA.4+66, 13.5' L	STA.4+66, 4.5' L
L-3	6'X40'	2	PRESENCE		4			STA.4+66, 2' L	STA.4+66, 4' R
L-4	6'X40'	2	PRESENCE		4			STA.4+66, 10' R	STA.4+66, 16' R

LOOP DETECTOR CHART

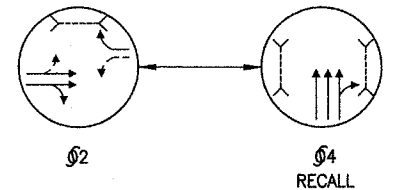


WIRE DIAGRAM

ITEM	TOTAL	UNIT	DESCRIPTION
625	5	EA	GROUND ROD
625	4	EA	PULLBOX, AS PER PLAN
625	140	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	177	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	170	LF	CONDUIT, 2", 713.07
625	82	LF	CONDUIT, 3", 713.07
625	354	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
630	55	SF	SIGN, FLAT SHEET, TYPE G
630	5	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
632	5	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	1	EA	VEHICULAR SIGNAL HEAD, 5-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	8	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	4	EA	PEDESTRIAN PUSHBUTTON, AS PER PLAN
632	1	EA	LOOP DETECTOR UNIT, DELAY AND EXTENSION TYPE, AS PER PLAN
632	428	LF	LOOP DETECTOR PAVEMENT CUTTING
632	5.5	CY	CONCRETE FOR ANCHOR BASE FOUNDATION
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 2, WITH 30" ARM, A.P.P.
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 2, WITH 32" ARM, A.P.P.
632	1	EA	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, WITH 28" ARM, AS PER PLAN
632	2	EA	PEDESTAL, 8', TRANSFORMER BASE
632	665	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	565	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	974	LF	LOOP DETECTOR WIRE, TYPE E
632	625	LF	LOOP DETECTOR LEAD-IN CABLE
632	6	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER ITEM, MISC.: FIELD CONNECTIONS TO EXISTING CONTROLLER
633	1	EA	CONTROLLER ITEM, MISC.: MODIFY EXISTING CONTROLLER OPERATIONS

DATE: 02-27-1997 TIME: 08:13:38

FOR SIGNAL COORDINATION INFORMATION SEE SHEET 86.
 FOR POLE CHART SEE SHEET 89.
 EXISTING PAVEMENT MARKINGS SHOWN AS DASHED LINES.



EXISTING PHASING DIAGRAM

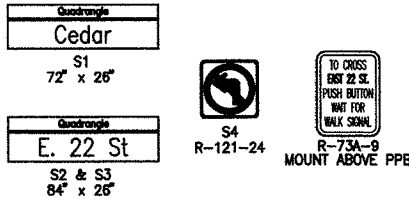
SIGNAL HEAD	φ1		φ2		φ3		φ4		FLASH	DWELL
	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR	R/W	CLEAR		
A			G	Y R			R	R R R R		
B			G	Y R			R	R R R R		
C			G	Y R			R	R R R R		
D			G	Y R			R	R R R R		
E			R	R R			G	Y R Y G		
F			R	R R			G	Y R Y G		
G			W/(DW)	DW DW			DW	DW DW D DW		
H			W/(DW)	DW DW			DW	DW DW D DW		
I			DW	DW DW			W/(DW)	DW DW D W		
J			DW	DW DW			W/(DW)	DW DW D W		
K			DW	DW DW			W/(DW)	DW DW D W		
L			DW	DW DW			W/(DW)	DW DW D W		

W-WALK (DW)-Flashing DONT WALK DW-DONT WALK D-DARK

SIGNAL SEQUENCE CHART

FUNCTION	φ1	φ2	φ3	φ4
INITIAL GREEN		8		
MINIMUM GREEN				40
VEHICLE EXTENSION		2		
MAXIMUM GREEN		33		
PEDESTRIAN WALK		7		
PEDESTRIAN CLEAR.		8		18
VEH. YELLOW CLEAR.		3		3
VEHICLE RED CLEAR.		2.5		2
RECALL		NO		PED
MEMORY		NO		NO

SIGNAL TIMING CHART



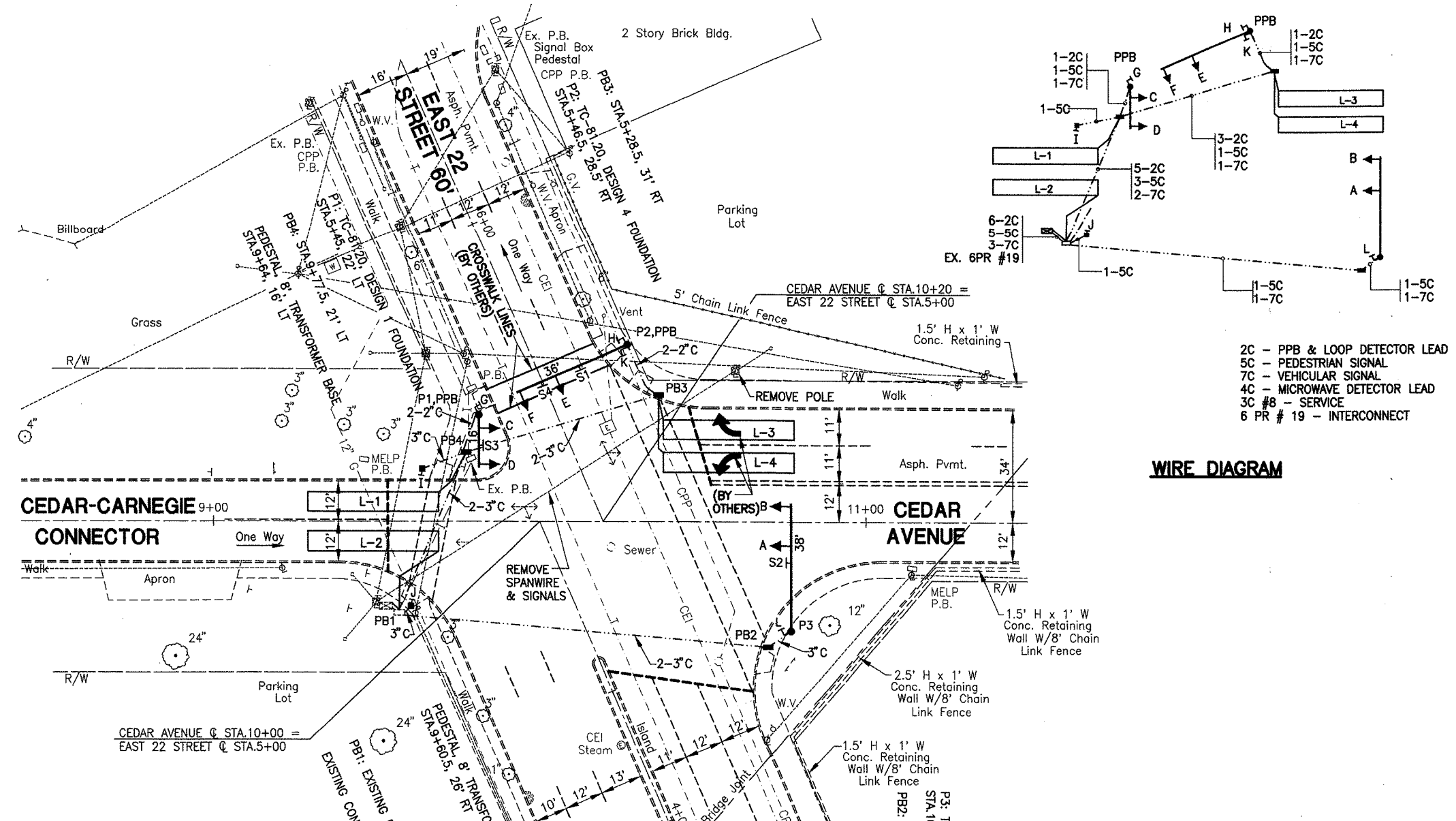
SIGN LEGEND

ROTATE VISORS ON HEADS E & F

12" SIGNAL HEADS RIGID MOUNTED

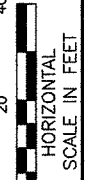
LOOP	SIZE	TURNS	MODE	DELAY	PHASE	REMARK	INHIBITED DELAY	LOCATION 1ST FRONT CORNER	LOCATION 2ND FRONT CORNER
L-1	6'X40'	2	PRESENCE	8	2		NO	STA.9+69, 9' L	STA.9+69, 3' L
L-2	6'X40'	2	PRESENCE	8	2		NO	STA.9+69, 3' R	STA.9+69, 9' R
L-3	6'X40'	2	PRESENCE	8	2		NO	STA.10+38, 15' L	STA.10+38, 21' L
L-4	6'X40'	2	PRESENCE	8	2		NO	STA.10+38, 25' L	STA.10+38, 31' L

LOOP DETECTOR CHART



WIRE DIAGRAM

ITEM	TOTAL	UNIT	DESCRIPTION
625	5	EA	GROUND ROD
625	3	EA	PULLBOX, AS PER PLAN
625	111	LF	TRENCH IN PAVED AREA, TYPE A, AS PER PLAN
625	176	LF	TRENCH IN PAVED AREA, TYPE B, AS PER PLAN
625	58	LF	CONDUIT, 2", 713.07
625	137	LF	CONDUIT, 3", 713.07
625	352	LF	CONDUIT, CONCRETE ENCASED, 3", 713.07
630	47	SF	SIGN, FLAT SHEET, TYPE G
630	4	EA	SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN
632	6	EA	VEHICULAR SIGNAL HEAD, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN
632	6	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	2	EA	PEDESTRIAN PUSHBUTTON, AS PER PLAN
632	1	EA	LOOP DETECTOR UNIT, DELAY AND EXTENSION TYPE, AS PER PLAN
632	406	LF	LOOP DETECTOR PAVEMENT CUTTING
632	7.7	CY	CONCRETE FOR ANCHOR BASE FOUNDATION
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, WITH 16' ARM, A.P.P.
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 36' ARM, A.P.P.
632	1	EA	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4, WITH 36' ARM, A.P.P.
632	2	EA	PEDESTAL, 8', TRANSFORMER BASE
632	533	LF	SIGNAL CABLE, 5-CONDUCTOR, NO.14 AWG
632	609	LF	SIGNAL CABLE, 7-CONDUCTOR, NO.14 AWG
632	906	LF	LOOP DETECTOR WIRE, TYPE E
632	604	LF	LOOP DETECTOR LEAD-IN CABLE
632	6	EA	COVERING OF VEHICULAR SIGNAL HEAD
632	1	EA	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN
633	1	EA	CONTROLLER ITEM, MISC.: FIELD CONNECTIONS TO EXISTING CONTROLLER
633	1	EA	CONTROLLER ITEM, MISC.: MODIFY EXISTING CONTROLLER OPERATIONS



CALCULATED KCP CHECKED KAN

INTERSECTION OF CEDAR AVENUE AND EAST 22 STREET

CUYAHOGA COUNTY CUY-6-15.55 & VARIOUS



40
20
0
HORIZONTAL
SCALE IN FEET

CALCULATED
G.G.B.
CHECKED
K.A.H.

COORDINATION TIMING

DOWNTOWN SIGNALS

86
89

INTERSECTIONS NOT IN THIS CONSTRUCTION CONTRACT

COORDINATION TIMING			
INTERSECTION	TIMING PROGRAM 1 90 SECOND CYCLE 6:00 - 9:00 A.M., M-F	TIMING PROGRAM 2 90 SECOND CYCLE 9:00 A.M.-3:00 P.M. 6:00 P.M.-12MID., M-F 6:00 A.M.-12MID., SA&SU	TIMING PROGRAM 3 90 SECOND CYCLE 3:00 - 6:00 P.M., M-F
	OFFSET SECONDS/PERCENT	OFFSET SECONDS/PERCENT	OFFSET SECONDS/PERCENT
LAKESIDE AVE. & :			
W. 3 STREET	35/39	43/48	48/53
E. 9 STREET	44/49	39/43	32/36
E. 12 STREET	81/90	25/28	85/94
E. 13 STREET	83/92	67/74	88/98
ST. CLAIR AVE. & :	OFFSET SECONDS/PERCENT	OFFSET SECONDS/PERCENT	OFFSET SECONDS/PERCENT
W. 9 STREET	78/87	50/56	72/80
W. 6 STREET	8/9	59/66	7/8
W. 3 STREET	8/9	13/14	9/10
ONTARIO STREET	6/7	12/13	7/8
E. 6 STREET	50/56	56/62	52/58
E. 9 STREET	57/63	54/60	59/66
E. 12 STREET	2/2	4/4	12/13
E. 13 STREET	8/9	20/22	18/20
E. 17 STREET	85/94	49/54	71/79
E. 18 STREET	58/64	41/46	64/71
FRANKFORT ST. & :	OFFSET SECONDS/PERCENT	OFFSET SECONDS/PERCENT	OFFSET SECONDS/PERCENT
W. ROADWAY	86/96	40/44	29/32
ROCKWELL AVE. & :	OFFSET SECONDS/PERCENT	OFFSET SECONDS/PERCENT	OFFSET SECONDS/PERCENT
ONTARIO STREET	1/1	84/93	83/92
E. 9 STREET	78/87	73/81	73/81
SUPERIOR AVE. & :	OFFSET SECONDS/PERCENT	OFFSET SECONDS/PERCENT	OFFSET SECONDS/PERCENT
W. 6 STREET	56/62	32/36	21/23
W. 3 STREET	71/79	49/54	31/34
W. ROADWAY	85/94	5/6	8/9
ONTARIO STREET	0/0*	0/0*	0/0*
E. ROADWAY	88/98	85/94	9/10
E. 3 STREET	6/7	1/1	73/81
PED. X-ING	12/13	86/96	62/69
E. 6 STREET	6/7	78/87	57/63
E. 9 STREET	60/67	74/82	68/76
E. 12 STREET	31/34	55/61	47/52
E. 13 STREET	24/27	65/72	48/53
E. 17 STREET	68/76	18/20	28/31
E. 18 STREET	67/74	11/12	22/24
E. 21 STREET	65/72	12/13	20/22
E. 24 STREET	35/39	51/57	77/85
E. 26 STREET	15/17	52/58	8/9
CHESTER/VINCENT & :	OFFSET SECONDS/PERCENT	OFFSET SECONDS/PERCENT	OFFSET SECONDS/PERCENT
E. 9 STREET	63/70	82/91	52/58

* SYSTEM REFERENCE
OFFSETS REFERENCED TO BEGINNING OF
ARTERY YELLOW (PHASE 2) AT EACH INTERSECTION. (PHASE 1 AT SUPERIOR/E. 12 STREET).

COORDINATION TIMING			
INTERSECTION	TIMING PROGRAM 1 90 SECOND CYCLE 6:00 - 9:00 A.M., M-F	TIMING PROGRAM 2 90 SECOND CYCLE 9:00 A.M.-3:00 P.M. 6:00 P.M.-12MID., M-F 6:00 A.M.-12MID., SA&SU	TIMING PROGRAM 3 90 SECOND CYCLE 3:00 - 6:00 P.M., M-F
	OFFSET SECONDS/PERCENT	OFFSET SECONDS/PERCENT	OFFSET SECONDS/PERCENT
CHESTER AVE. & :			
E. 12 STREET	14/16	88/98	18/20
E. 13 STREET	36/40	75/83	24/27
E. 17 STREET	75/83	49/54	74/82
E. 18 STREET	67/74	41/46	67/74
E. 21 STREET	88/98	64/71	65/72
E. 22 STREET	15/17	66/73	63/70
E. 24 STREET	24/27	86/96	53/59
PAYNE AVE. & :	OFFSET SECONDS/PERCENT	OFFSET SECONDS/PERCENT	OFFSET SECONDS/PERCENT
E. 17 STREET	68/76	78/87	63/70
E. 18 STREET	60/67	70/78	73/81
E. 21 STREET	24/27	85/94	78/86
E. 24 STREET	89/99	24/27	29/32
EUCLID AVE. & :	OFFSET SECONDS/PERCENT	OFFSET SECONDS/PERCENT	OFFSET SECONDS/PERCENT
ONTARIO STREET	1/1	89/99	7/8
E. ROADWAY	33/37	33/37	21/23
E. 4 STREET	12/13	25/28	72/80
E. 6 STREET	55/61	66/73	27/30
E. 9 STREET	53/59	47/52	61/68
E. 12 STREET	41/46	83/92	58/64
E. 13 ST./HURON RD.	43/48	87/97	71/78
E. 14 STREET	25/28	42/47	53/59
E. 17 STREET	17/19	44/49	81/90
E. 18 STREET	7/8	41/46	63/70
E. 21 STREET	55/61	85/94	23/26
E. 22 STREET	51/57	82/91	21/23
E. 24 STREET	52/58	11/12	26/29
CARNEGIE AVE. & :	OFFSET SECONDS/PERCENT	OFFSET SECONDS/PERCENT	OFFSET SECONDS/PERCENT
E. 14 STREET	22/24	78/87	66/73
E. 18 STREET	25/28	56/62	66/73
E. 19 STREET	42/47	87/97	82/91
E. 21 STREET	89/99	37/41	74/82
E. 22 STREET	30/33	71/79	48/53
CEDAR AVE. & :	OFFSET SECONDS/PERCENT	OFFSET SECONDS/PERCENT	OFFSET SECONDS/PERCENT
E. 22 STREET	32/36	73/81	58/64

OFFSETS REFERENCED TO BEGINNING OF
ARTERY YELLOW (PHASE 2) AT EACH INTERSECTION.

COORDINATION TIMING			
INTERSECTION	TIMING PROGRAM 1 90 SECOND CYCLE 6:00 - 9:00 A.M., M-F	TIMING PROGRAM 2 90 SECOND CYCLE 9:00 A.M.-3:00 P.M. 6:00 P.M.-12MID., M-F 6:00 A.M.-12MID., SA&SU	TIMING PROGRAM 3 90 SECOND CYCLE 3:00 - 6:00 P.M., M-F
	OFFSET SECONDS/PERCENT	OFFSET SECONDS/PERCENT	OFFSET SECONDS/PERCENT
LAKESIDE AVE. & :			
ONTARIO STREET	26/29	45/50	30/33
E. 6 STREET	47/52	33/37	60/67
SUPERIOR AVE. & :	OFFSET SECONDS/PERCENT	OFFSET SECONDS/PERCENT	OFFSET SECONDS/PERCENT
W. 9 STREET	43/48	83/92	81/90
PROSPECT AVE. & :	OFFSET SECONDS/PERCENT	OFFSET SECONDS/PERCENT	OFFSET SECONDS/PERCENT
W. 3 STREET	5/6	74/82	72/80
ONTARIO STREET	68/76	52/58	50/56
E. 2 STREET	79/88	69/77	67/74
E. 4 STREET	52/58	67/74	70/78
E. 9 STREET	16/18	19/21	19/21
E. 14/BOLIVAR	59/66	53/59	39/43
E. 18 STREET	50/56	58/64	51/57
E. 21 STREET	6/7	20/22	7/8
E. 22 STREET	10/11	25/28	25/28
HURON ROAD & :	OFFSET SECONDS/PERCENT	OFFSET SECONDS/PERCENT	OFFSET SECONDS/PERCENT
ONTARIO STREET	44/49	12/13	59/66
BOLIVAR ROAD & :	OFFSET SECONDS/PERCENT	OFFSET SECONDS/PERCENT	OFFSET SECONDS/PERCENT
E. 9 STREET	72/80	15/77	9/10
EAGLE/SCRANTON	OFFSET SECONDS/PERCENT	OFFSET SECONDS/PERCENT	OFFSET SECONDS/PERCENT
ONTARIO STREET	27/30	73/81	17/18
CARNEGIE AVE. & :	OFFSET SECONDS/PERCENT	OFFSET SECONDS/PERCENT	OFFSET SECONDS/PERCENT
BROADWAY	28/31	0/0	37/41
ONTARIO/COMMER.	29/32	9/10	42/47
E. 9 STREET	69/77	71/79	75/83
HURON RD. WEST	19/21	35/39	15/17
HURON RD. EAST	47/52	26/29	37/41

OFFSETS REFERENCED TO BEGINNING OF
ARTERY YELLOW (PHASE 2) AT EACH INTERSECTION.

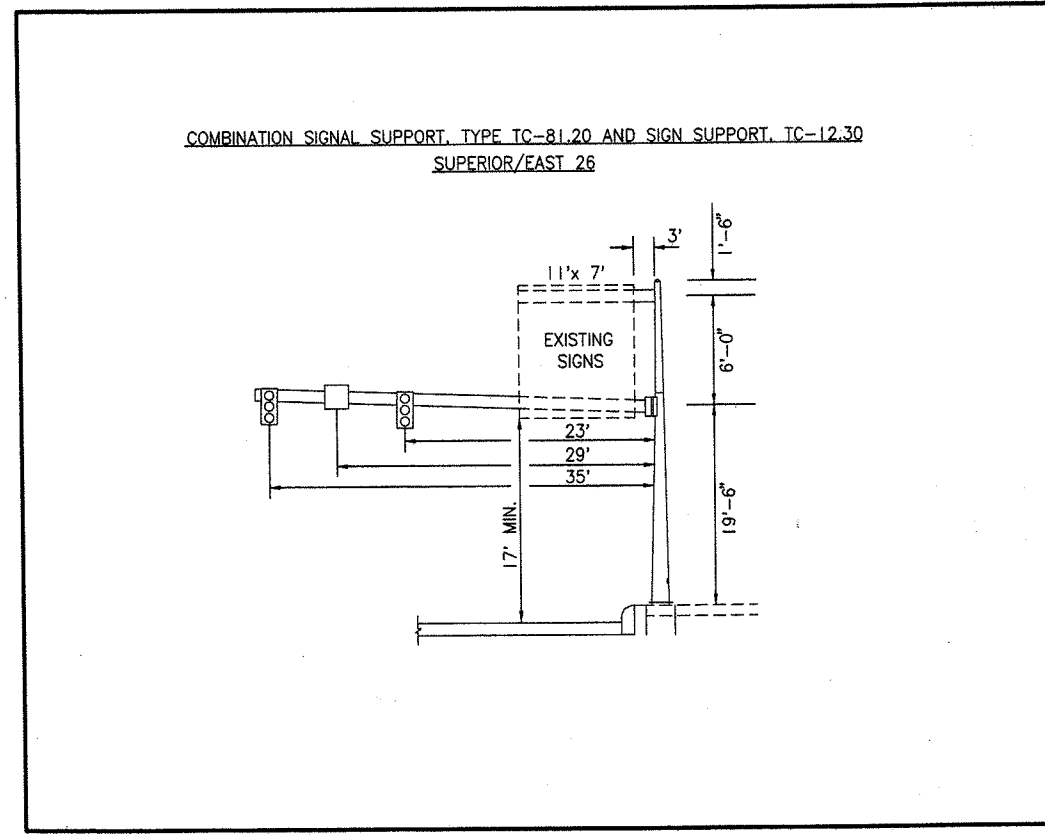
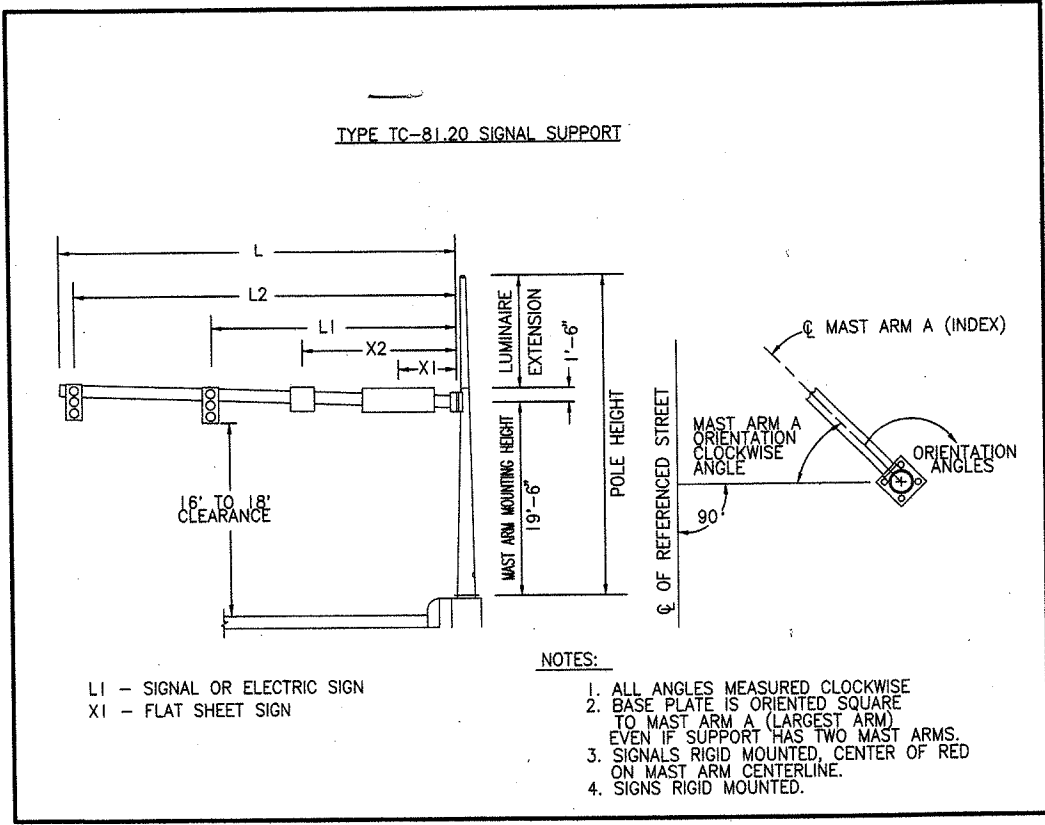
COORDINATION TIMING
SCALE: 1"=100'

SIGNAL SUPPORT TYPE TC-81.20																	
INTERSECTION	SUPPORT NO.	FROM SHEET	REFERENCE STREET	POLE DESIGN NO.	MAST ARM REF.	MAST ARM DESIGN NO.	POLE HEIGHT (FT.)	L (FT.)	L1 (FT.)	L2 (FT.)	L3 (FT.)	L4 (FT.)	X2 (FT.)	X1 (FT.)	MAST ARM A ANGLE (DEG.)	ORIENTATION ANGLE (DEG.) FROM MAST ARM A	
																PEDESTRIAN SIGNAL 1	PEDESTRIAN SIGNAL 2
LAKESIDE/WEST 3	P1	21	W.3	1	A	1	21	22	10	21				5	0	180	270
	P2		LAKESIDE	1	A	1	30*	28	15	27				8	0	180	270
	P3		W.3	2	A	2	21	30	19	29				11	0	90	180
	P4		LAKESIDE	2	A	2	21	25	14	24				10	4	0	180
LAKESIDE/EAST 9	P1	22	E.9	11	A	11	30**	32	19	31				12	0	90	180
	P2		LAKESIDE	4	A	4	30**	32	21	31				27	8	0	180
	P3		E.9	4	A	4	30**	34	13	23	33			31	8	0	270
	P4		LAKESIDE	4	A	4	30**	28	17	27				13	9	0	180
LAKESIDE/EAST 12	P1	23	LAKESIDE	12	A	11	21	45	34	44				24	270	0	180
					B	1	25	14	24					8			
	P2		LAKESIDE	12	A	11	21	45	34	44				28	270	0	180
LAKESIDE/EAST 13	P1	24	LAKESIDE	4	A	3	21	30	19	29				15	9	0	90
					B	1	22	11	21								
	P2		LAKESIDE	4	A	3	30**	30	19	29				26	14	0	180
					B	1	25	9	24					14			
ST. CLAIR/WEST 9	P1	25	W.9	3	A	3	21	30	19	29				13	0	90	180
	P2		ST. CLAIR	1	A	1	21	20	9	15	19			5	0	180	270
	P3		W.9	3	A	3	21	32	21	31				15	0	180	270
	P4		ST. CLAIR	4	A	4	30*	36	25	35				18	0	90	180
ST. CLAIR/WEST 6	P1	26	ST. CLAIR	2	A	2	30*	28	17	27				12	0	180	270
	P2		W.6	2	A	2	30*	30	19	29				12	0	180	270
	P3		ST. CLAIR	2	A	2	30*	28	17	27				12	0	180	270
	P4		W.6	1	A	1	21	25	14	24				8	0	180	270
ST. CLAIR/WEST 3	P1	27	ST. CLAIR	1	A	1	30*	25	14	24				8	0	180	270
	P2		W.3	1	A	1	21	22	11	21				6	0	270	-
	P3		ST. CLAIR	1	A	1	30*	22	11	21				6	0	180	270
	P4		W.3	1	A	1	21	25	14	24				8	0	180	270
ST. CLAIR/ONTARIO	P1	28	ONTARIO	3	A	3	21	32	21	31				12	0	90	180
	P2		ST. CLAIR	3	A	3	21	25	14	20	24			8	0	180	270
	P3		ONTARIO	4	A	4	21	32	21	27	31			12	0	90	180
	P4		ST. CLAIR	2	A	2	21	28	17	27				10	0	180	270
ST. CLAIR/EAST 6	P1	29	E.6	1	A	1	30**	25	14	24				8	0	180	270
	P2		ST. CLAIR	3	A	3	21	32	21	31				10	0	180	270
	P3		E.6	2	A	2	21	28	17	27				10	0	90	180
	P4		ST. CLAIR	3	A	3	30**	32	21	31				10	0	180	270

* LUMINAIRE EXTENSION TYPE A: 3" O.D. x 3-3/4" LONG STEEL TENON ON TOP OF POLE
 ** LUMINAIRE EXTENSION TYPE B, TC-22.10, ANGLE 0 DEGREES

SIGNAL SUPPORT TYPE TC-81.20																	
INTERSECTION	SUPPORT NO.	FROM SHEET	REFERENCE STREET	POLE DESIGN NO.	MAST ARM REF.	MAST ARM DESIGN NO.	POLE HEIGHT (FT.)	L (FT.)	L1 (FT.)	L2 (FT.)	L3 (FT.)	L4 (FT.)	X2 (FT.)	X1 (FT.)	MAST ARM A ANGLE (DEG.)	ORIENTATION ANGLE (DEG.) FROM MAST ARM A	
																PEDESTRIAN SIGNAL 1	PEDESTRIAN SIGNAL 2
ST. CLAIR/EAST 9	P1	30	ST. CLAIR	12	A	12	21	36	23	31	35			19	12	0	180
	P2		E.9	12	A	12	21	36	15	25	35			11	4	0	90
	P3		ST. CLAIR	3	A	3	21	30	17	29				13	7	0	180
	P4		E.9	4	A	4	21	36	22	34				11	4	0	180
ST. CLAIR/EAST 12	P1	31	ST. CLAIR	5+	A	4	30**	36	15	25	35			11	4	270	90
					B	4		36	23	35				12			
	P2		ST. CLAIR	5+	A	4	21	36	13	25	35			16	6	270	90
					B	4		36	23	35				12			
ST. CLAIR/EAST 13	P1	32	E.13	12	A	4	21	38	17	27	37			10	0	180	270
					B	3		30	17	29				22	10		
	P2		ST. CLAIR	3	A	3	21	30	17	29				22	10	0	180
ST. CLAIR/EAST 17	P1	33	ST. CLAIR	3	A	3	21	28	15	27				8	0	-	180
	P2		E.17	1	A	1	21	18	7	17				12	0	270	-
	P3		ST. CLAIR	3	A	3	21	30	17	29				10	0	180	270
	P4		E.17	1	A	1	21	20	9	19				14	0	90	135
ST. CLAIR/EAST 18	P1	34	E.18	3	A	3	21	30	2	12				16	0	180	270
	P2		ST. CLAIR	1	A	1	30*	25	14	24				8	0	180	250
	P3		E.18	3	A	3	21	30	3	13				17	0	170	270
	P4		ST. CLAIR	3	A	3	21	30	19	29				10	0	180	250
RAMBOUR/W. ROADWAY	P1	35	W.ROAD	3	A	3	30*	32	17	31				27	10	270	180
	P2		W.ROAD	1	A	1	21	25	14	24				19	0	180	270
ROCKWELL/ONTARIO	P1	36	ONTARIO	2	A	2	30*	32	15	31				27	9	0	180
	P2		ROCKWELL	2	A	2	30*	32	19	31				10	0	270	-
	P3		ONTARIO	3	A	3	21	28	15	27				11	4	0	180
ROCKWELL/EAST 9	P1	37	E.9	11	A	4	21	38	17	27	37			12	0	-	180
					B	1		20	7	17				12			
	P2		E.9	2	A	2	21	30	17	29				10	0	-	180
SUPERIOR/PROSPECT	P1	38	SUPERIOR	11	A	11	30*	45	17	18	28	44		12	12	0	90
	P2		W.6	4	A	4	21	38	37					17	340	110	-
	P3		SUPERIOR	12	A	12	21	48	21	34	47			27	27	335	200
	P4		SUPERIOR	2	A	2	30*	28	13	25				7	90	90	180
SUPERIOR/WEST 3	P1	39	W.3	3	A	3	21	30	21	29				12	0	180	270
	P2		SUPERIOR	4	A	4	21	38	22	37				10	0	180	270
	P3		SUPERIOR	1	A	1	30*	25	14	24				8	90	0	90
	P4		SUPERIOR	11	A	11	21	45	29	44				14	0	90	180
SUPERIOR/W.ROADWAY	P1	40	SUPERIOR	11	A	11	21	42	29	37	41			16	10	0	180
	P2		W.ROAD	3	A	3	21	32	19	31				12	0	270	-
	P3		SUPERIOR	3	A	3	21	32	19	31				27	12	0	90
SUPERIOR/ONTARIO	P1	41	ONTARIO	4	A	4	21	36	23	35				30	14	0	90
	P2		SUPERIOR	4	A	4	21	38	25	37				30	14	0	180
	P3		ONTARIO	4	A	4	21	36	23	35				30	14	0	90
	P4		SUPERIOR	4	A	4	21	36	23	35				30	14	0	90

* LUMINAIRE EXTENSION TYPE A: 3" O.D. x 3-3/4" LONG STEEL TENON ON TOP OF POLE
 ** LUMINAIRE EXTENSION TYPE B, TC-22.10, ANGLE 0 DEGREES
 + SIGNAL SUPPORT TYPE TC-12.30



CALCULATED
G.G.B.
CHECKED
K.A.N.

POLE CHART

CUYAHOGA COUNTY
 CUY-6-15.55 & VARIOUS

DESIGN DESIGNATION

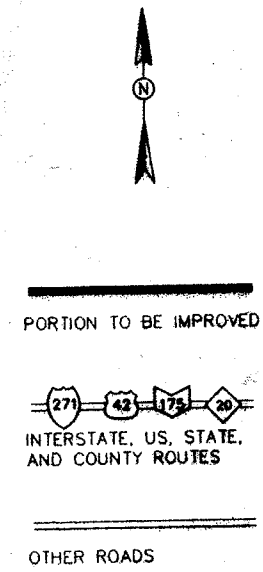
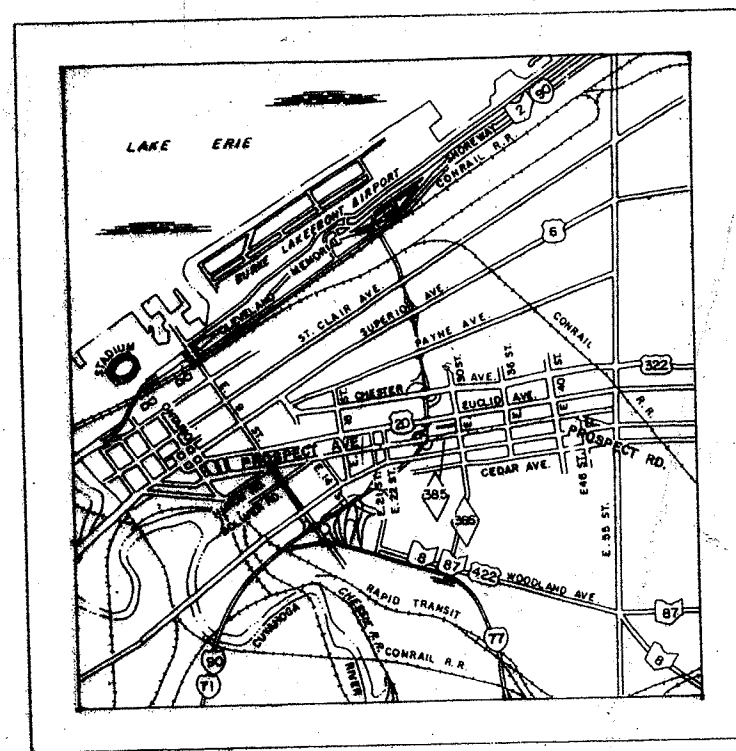
CURRENT A.D.T. 1993 19,400
 DESIGN YEAR 2013 21,340
 D.H.V. 2,100
 D. 60%
 T. 9%
 DESIGN SPEED 35 M.P.H.
 LEGAL SPEED 25 M.P.H.
 FUNCTION CLASSIFICATION URBAN ARTERIAL
 DESIGN EXCEPTION NONE

EAST 9th STREET IMPROVEMENTS FROM CARNEGIE AVENUE TO PROSPECT AVENUE

CONVENTIONAL SIGNS

CORPORATION LINE	-----	EXISTING MANHOLE	○
EXISTING CENTERLINE	-----	EXISTING MANHOLE ADJUSTED TO GRADE	○
PROPOSED CENTERLINE	-----	PROPOSED MANHOLE	○
EXISTING R/W	-----	EXISTING CATCH BASIN	○
PROPOSED R/W	-----	EXISTING CATCH BASIN ADJUSTED TO GRADE	○
EXISTING PROPERTY LINE	-----	PROPOSED CATCH BASIN	○
PROPOSED PROPERTY LINE	-----	EXISTING MONUMENT BOX	○
EXISTING FENCE LINE	-----	EXISTING MONUMENT BOX ADJUSTED TO GRADE	○
PROPOSED FENCE LINE	-----	EXISTING GAS VALVE	○
EXISTING WATER LINE	-----	EXISTING GAS VALVE ADJUSTED TO GRADE	○
PROPOSED WATER LINE	-----	EXISTING WATER VALVE	○
EXISTING SANITARY SEWER LINE	-----	EXISTING WATER VALVE ADJUSTED TO GRADE	○
PROPOSED SANITARY SEWER LINE	-----	PROPOSED WATER VALVE	○
EXISTING STORM SEWER LINE	-----	EXISTING HYDRANT	○
PROPOSED STORM SEWER LINE	-----	EXISTING HYDRANT ADJUSTED TO GRADE	○
RAILROAD TRACKS		PROPOSED HYDRANT	○
EXISTING TELEPHONE LINE	-----	POWER POLE	○
EXISTING GAS LINE	-----	LIGHT POLE	○
EXISTING GUARDRAIL	-----	TELEPHONE POLE	○
PROPOSED GUARDRAIL	-----	TREE TO BE REMOVED	○
EXISTING ELECTRIC LINE	-----	EXISTING SIGN	○
EXISTING STEAM LINE	-----	EXISTING ELECTRIC PULL BOX	○
VERIFY DEPTH IN FIELD	V.D.I.F.	EXISTING VENT (TO BE REMOVED BY OTHERS)	○
		EXISTING STEAM VALVE	○
		EXISTING STEAM VALVE ADJUSTED TO GRADE	○

CITY OF CLEVELAND (CUYAHOGA COUNTY)



THE STANDARD 1993 SPECIFICATIONS OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, INCLUDING CHANGES AND SUPPLEMENTAL SPECIFICATIONS LISTED IN THE PLANS SHALL GOVERN THIS IMPROVEMENT.

APPROVED DATE 6-22-13
 DIRECTOR OF PUBLIC SERVICE
 CITY OF CLEVELAND

APPROVED DATE 6-21-13
 CITY ENGINEER, CITY OF CLEVELAND

APPROVED DATE
 COMMISSIONER OF TRAFFIC ENGINEERING
 CITY OF CLEVELAND

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LINE DATA

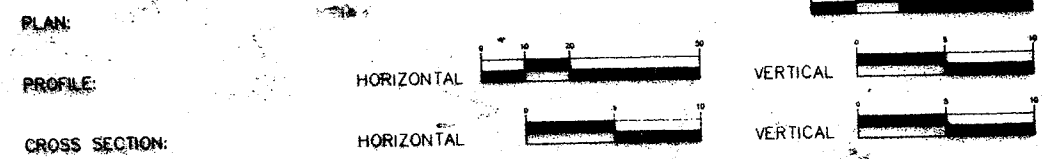
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 END PROJECT STA. 184+92.70
 BEGIN WORK STA. 169+38.00
 END WORK STA. 184+92.70
 LENGTH 1554.70 L.F.

UNDERGROUND UTILITIES
 2 WORKING DAYS
BEFORE YOU DIG
 CALL 800-362-2764 (TOLL FREE)
 OHIO UTILITIES PROTECTION SERVICE
 NON-MEMBERS
 MUST BE CALLED DIRECTLY

PREPARED BY:
Sasaki Associates, Inc.
 Planning / Architecture / Landscape Architecture / Interior Design
 Urban Design / Civil Engineering / Environmental Services
 84 Rossost Street, Waterbury, MA 02472
 817/926-1300 FAX 817/934-2748

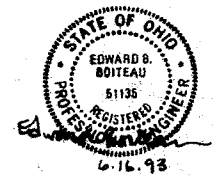
LOCATION PLAN

SCALES



NOTE: ALL STANDARD CONSTRUCTION DRAWINGS ARE BOUND WITH THE SPECIFICATION DOCUMENT

ODOT						COUNTY				CITY OF CLEVELAND					
NUMBER	DATE	NUMBER	DATE	NUMBER	DATE	NUMBER	DATE	NUMBER	DATE	NUMBER	DATE	NUMBER	DATE	NUMBER	DATE
BP-1.1	2-21-92	HL-39.22	2-21-92	MT-101.60		TC-52.20		TC-85.20		MD-1C		A-694	9-29-66	SCU-24-C	
BP-1.2	2-21-92	MC-1		MT-106.10		TC-65.10				MD-2C		274M	4-14-92	SCU-24-D	
BP-2.1	2-21-92	MC-1		MT-106.11		TC-65.12						CB-1		SCU-24-E	
BP-2.2	2-21-92	MC-2	7-26-76	TC-35.10		TC-65.13									
BP-2.3C	2-21-92	MC-1	12-18-84	TC-41.50		TC-71.10									
BP-2.2	2-21-92	MC-1		TC-42.20		TC-81.20									
BP-3.1	2-21-92	MC-1	12-18-84	TC-51.10		TC-83.10									
BP-4.1C	2-21-92	MT-99.10		TC-51.11		TC-83.20									
BP-7.1		MT-99.10		TC-52.10		TC-85.10									
HL-39.11		MT-99.20													



TITLE SHEET

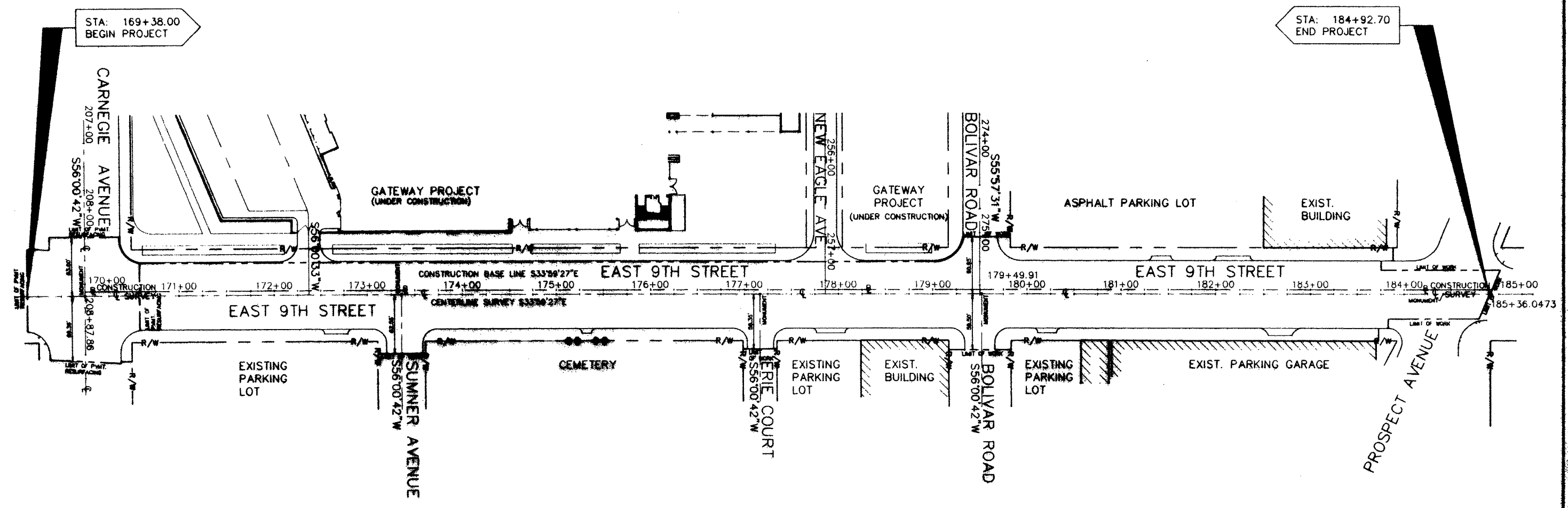
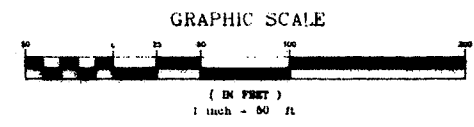
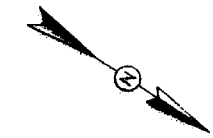
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 Sasaki Associates, Inc.

CUY - EAST 9TH STREET

SCHEMATIC PLAN

CALC.	CUY-EAST 9TH STREET	OHIO
DATE	CUYAHOGA COUNTY	F.H.W.A. 5
CHKD.		REGION
DATE		

2



STA: 169+38.00
BEGIN PROJECT

STA: 184+92.70
END PROJECT

DRAWING NAME: SCHEM
CREATED BY: DRB
LAST REV DATE: 6/16/83

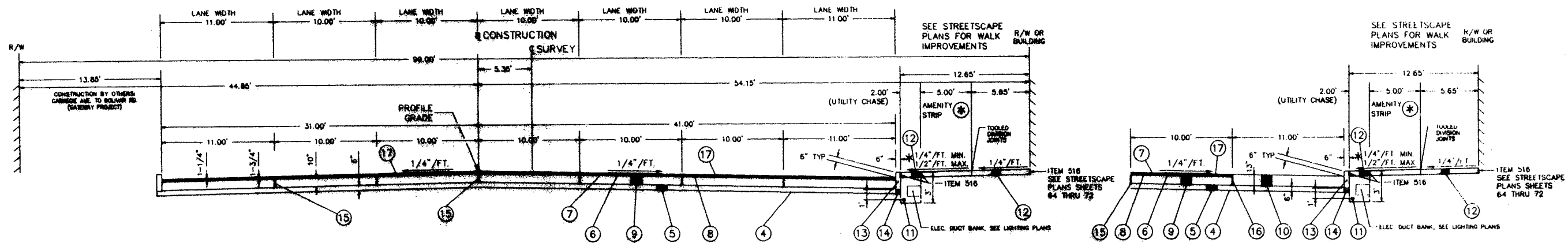
Sasaki Associates, Inc.

SCHEMATIC PLAN

CUY - EAST 9TH STREET

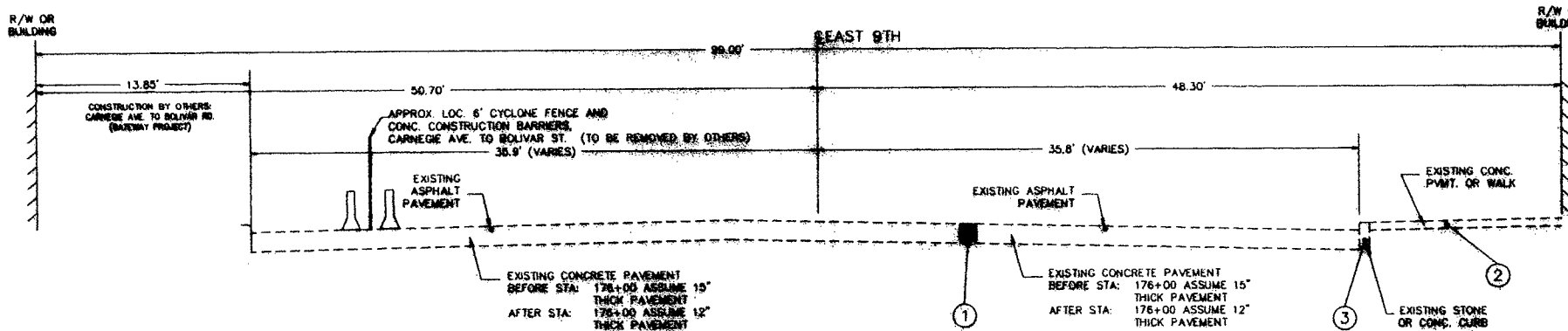
TYPICAL SECTION (TYPE 404 ON 451)

PROPOSED



TYPICAL SECTION PROPOSED

EXISTING



BUS STOP PAD SECTION

LEGEND:

- ① 202 - PAVEMENT REMOVED
- ② 202 - WALK REMOVED
- ③ 202 - CURB REMOVED
- ④ 203 - SUBGRADE COMPACTION
- ⑤ 310 - 6" AGGREGATE BASE, TYPE 2
- ⑥ 402 - 1-3/4" ASPHALT CONCRETE, AC-20
- ⑦ 404 - 1-1/4" ASPHALT CONCRETE, AC-20
- ⑧ 407 - TACK COAT
- ⑨ 451 - 10" REINFORCED CONCRETE PAVEMENT
- ⑩ 451 - 13" REINFORCED CONCRETE PAVEMENT (BUS PAD)
- ⑪ 605 - 6" SHALLOW PIPE UNDERDRAIN WITH FABRIC WRAP
- ⑫ 608 - 6" OR 8" CONCRETE WALK
- ⑬ 609 - GRANITE CURB, 6" X 20" - INSTALLED (NEW)
- ⑭ CLASS "C" CONCRETE
- ⑮ LONGITUDINAL JOINTS (PER BP-2.1) - TYPICAL
- ⑯ LONGITUDINAL JOINTS UNITED AT JOINT BETWEEN BUS PAD AND TYPICAL PROPOSED ROADWAY SECTION
- ⑰ SPECIAL - ASPHALT REJUVENATING AGENT
- ⊛ VARIES AS PER STREETSCAPE PLANS
- * VARIES AS PER X-SECTION PLANS

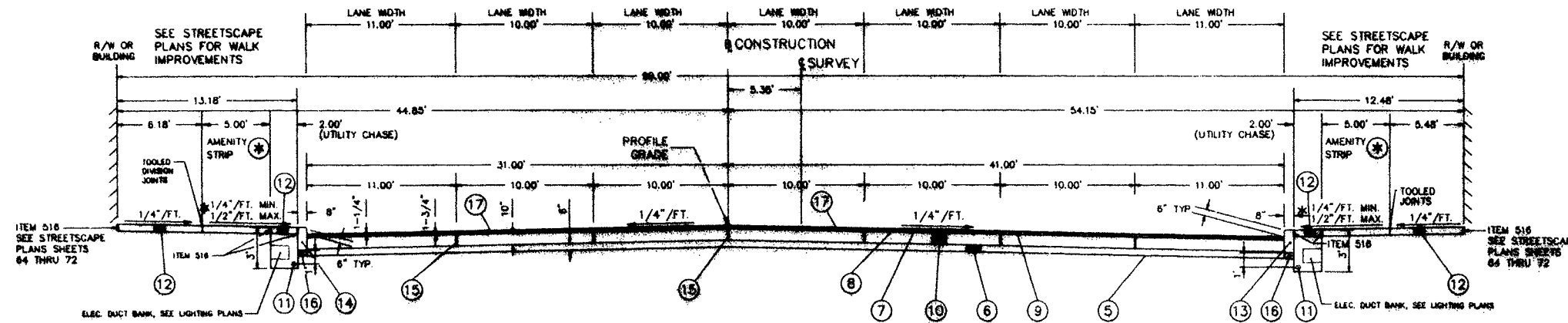
EAST 9TH STREET

STA: 170+58.0 TO STA: 179+49.9 = 891.9 L.F.

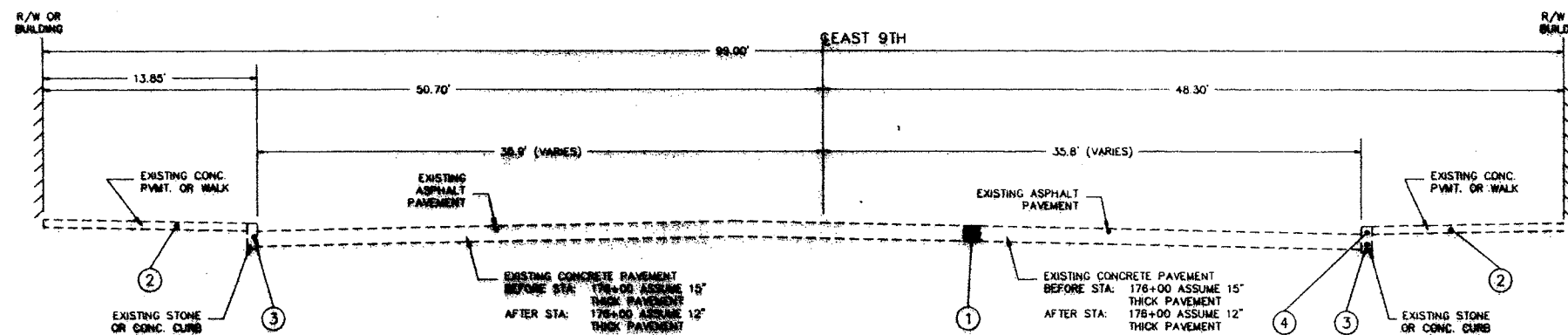
TYPICAL SECTION

(TYPE 404 ON 451)

PROPOSED



EXISTING



LEGEND:

- ① 202 - PAVEMENT REMOVED
- ② 202 - WALK REMOVED
- ③ 202 - CURB REMOVED
- ④ 202 - GRANITE CURB REMOVED
STA: 180+35 TO PT PROSPECT AVE., RIGHT
- ⑤ 203 - SUBGRADE COMPACTION
- ⑥ 310 - 6" AGGREGATE BASE, TYPE 2
- ⑦ 402 - 1-3/4" ASPHALT CONCRETE, AC-20
- ⑧ 404 - 1-1/4" ASPHALT CONCRETE, AC-20
- ⑨ 407 - TACK COAT
- ⑩ 451 - 10" REINFORCED CONCRETE PAVEMENT
- ⑪ 605 - 6" SHALLOW PIPE UNDERDRAIN WITH FRABIC WRAP
- ⑫ 608 - 6" OR 8" CONCRETE WALK
- ⑬ 609 - GRANITE CURB, RESET
- ⑭ 609 - GRANITE CURB, 8" X 20" - INSTALLED (NEW)
- ⑮ LONGITUDINAL JOINTS (PER BP-2.1)- TYPICAL
- ⑯ CLASS "C" CONCRETE
- ⑰ SPECIAL - ASPHALT REJUVENATING AGENT
- * VARIES AS PER STREETSCAPE PLANS
- * VARIES AS PER X-SECTION PLANS

EAST 9TH STREET

STA: 179+49.9 TO STA: 184+92.7 = 542.8 L.F.

GENERAL NOTES

GENERAL

SCOPE OF WORK

THE SCOPE OF WORK FOR THE ROADWAY LIMITS OF THIS PROJECT IS THE REMOVAL AND RECONSTRUCTION OF EAST 9TH STREET FROM CARNEGIE AVENUE TO PROSPECT AVENUE, INCLUDING THE EAST 9TH STREET - PROSPECT AVENUE - HURON ROAD INTERSECTION. THE WORK ITEMS SHALL INCLUDE PAVEMENT, CURB AND SIDEWALK REMOVAL, RECONSTRUCTION OF PAVEMENT WITH REINFORCED CONCRETE BASE WITH AN ASPHALT OVERLAY, INSTALLATION OF CURBS, AND UNDERDRAINS, BUS PAD INSTALLATION, INSTALLATION OF CATCH BASINS AND CONNECTIONS, ADJUSTMENT OF CASTINGS, INSTALLATION OF TRAFFIC SIGNALS, MAINTAINING TRAFFIC, AND OTHER RELATED ITEMS AS SHOWN ON THE PLANS. WORK IS SHOWN ON CONTRACT DRAWINGS TITLED EAST 9TH STREET IMPROVEMENTS - CARNEGIE AVENUE TO PROSPECT AVENUE, PAGES 1 THROUGH 41.

COORDINATION WITH GATEWAY CONTRACT

CONTRACTOR SHALL COORDINATE THE INSTALLATION OF DRAINAGE PIPE AND MANHOLE FROM CATCH BASIN TO MANHOLE ALONG THE WEST CURB, ADJACENT TO THE BALLPARK, WITH GATEWAY CONTRACTOR (INDEPENDENCE EXCAVATING). PIPE MUST BE INSTALLED PRIOR TO CURB INSTALLATION BY INDEPENDENCE EXCAVATION, TO PREVENT UNDERMINING OF THE CURB, AND IN PROPER COORDINATION WITH CATCH BASIN INSTALLATION BY INDEPENDENCE EXCAVATING. THIS WORK IS TO START ON AUGUST 2, 1993 AND SHALL BE COMPLETED BY AUGUST 6, 1993.

CONSTRUCTION AND MATERIAL SPECIFICATIONS

THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, CONSTRUCTION AND MATERIAL SPECIFICATIONS DATED JANUARY 1, 1993, AS MAY BE MODIFIED ON THE CONSTRUCTION PLANS OR IN THE SPECIFICATIONS SHALL GOVERN THIS PROJECT. ALL OF THESE MODIFICATIONS ARE IN THESE SPECIFICATIONS OR ARE SHOWN ON THE PLANS.

ITEM #19 - FIELD OFFICE, TYPE C

THE WORK OF THIS ITEM SHALL CONFORM TO ODOT ITEM #19, TYPE C, WITH THE FOLLOWING MODIFICATIONS:

COMMERCIAL GRADE BASE RADIO AND TWO COMMERCIAL GRADE HAND HELD RADIO UNITS SHALL NOT BE REQUIRED.

FIELD OFFICE SHALL BE EQUIPPED WITH A FULLY FUNCTIONAL FAX MACHINE THAT WILL BECOME THE PROPERTY OF THE CONTRACTOR AFTER THE CONTRACT IS COMPLETED.

PAYMENT FOR THIS ITEM OF WORK SHALL BE BY LUMP SUM ITEM FOR FIELD OFFICE.

CONTINGENCY QUANTITIES

THE CONTRACTOR SHALL NOT ORDER MATERIALS OR PERFORM WORK LISTED IN THE GENERAL SUMMARY FOR ITEMS DESIGNATED BY PLAN NOTE TO BE USED "AS DIRECTED BY THE ENGINEER" UNLESS AUTHORIZED BY THE ENGINEER. THE ACTUAL WORK LOCATIONS AND QUANTITIES USED AT THE ENGINEER'S DISCRETION.

ROUNDING OF CORNERS

THE ROUNDED CORNERS SHOWN ON THE TYPICAL SECTIONS APPLY TO ALL CROSS SECTIONS EVEN THOUGH OTHERWISE SHOWN ON THESE PLANS.

ELEVATION DATUM

ELEVATIONS SHOWN ARE BASED ON CLEVELAND REGIONAL AND GEODETIC SURVEY DATA. MONUMENTS ARE DESCRIBED ON THE PLANS.

UNDERGROUND UTILITIES

THE LOCATIONS OF THE UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE AS OBTAINED FROM THE OWNERS OF THE UTILITIES AS REQUIRED BY SECTION 153.64 ORC.

UTILITIES

THE FOLLOWING LIST OF UTILITIES AND OWNERS ARE LOCATED WITHIN THE WORK LIMITS OF THIS PROJECT.

CLEVELAND ELECTRIC ILLUMINATING CO ILLUMINATING BUILDING 55 PUBLIC SQUARE CLEVELAND, OH 44101 ATTN: JAMES J. JOCKE PHONE: (216) 479-3452	CLEVELAND PUBLIC POWER 1201 LAKESIDE AVENUE CLEVELAND, OH 44114 ATTN: DALE TURKOVICH PHONE: (216) 664-3832
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OHIO BELL TELEPHONE COMPANY
1020 BOLIVAR ROAD, ROOM 332
CLEVELAND, OH 44115
ATTN: JERRY ROGERS
PHONE: (216) 822-8713

REGIONAL TRANSIT AUTHORITY
ENGINEERING & CONSTRUCTION DIV.
615 SUPERIOR AVENUE, NW
CLEVELAND, OH 44113-1877
PHONE: (216) 546-5100

THE EAST OHIO GAS COMPANY
1201 EAST 85TH STREET
CLEVELAND, OH 44101-0759
ATTN: MAMIE REED
PHONE: (216) 432-3232

MERICAN TELEPHONE & TELEGRAPH
3833 WEYMOUTH ROAD
SUITE 100
MEDINA, OH 44256
ATTN: TOM SUMMERFIELD
PHONE: (216) 723-9110

CLEVELAND WATER POLLUTION CONTROL
1825 LAKESIDE AVENUE
CLEVELAND, OH 44114
ATTN: FRANCIS TOLDY
PHONE: (216) 644-2513

CITY OF CLEVELAND SAFETY SIGNAL SYSTEM
310 CARNEGIE AVENUE
CLEVELAND, OH 44115
ATTN: LEROY L. BEGIN, CHIEF
PHONE: (216) 684-3247

NOTE:

CONTRACTOR MUST NOTIFY THE OHIO UTILITIES PROTECT SERVICE (O.U.P.S.) 1-800-382-2764 AT LEAST SEVENTY-TWO (72) HOURS BEFORE WORK BEGINS. CONTRACTOR WILL HAVE TO FURNISH TO THE ENGINEER THE REFERENCE NUMBER.

REPLACEMENT

THE CONTRACTOR SHALL REPLACE, AT HIS OWN EXPENSE, ANY ITEM NOT SPECIFICALLY LISTED FOR REMOVAL THAT IS DAMAGED OR DESTROYED BY HIS OPERATIONS.

CONNECTION TO EXISTING PIPE - FOR INFORMATION ONLY

WHERE THE PLANS PROVIDE FOR PROPOSED CONDUIT TO BE CONNECTED TO, OR CROSS EITHER OVER OR UNDER AN EXISTING SEWER OR UTILITY IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE THE EXISTING SEWER AND/OR UTILITY BOTH AS TO LINE AND GRADE BEFORE HE STARTS TO LAY THE PROPOSED CONDUIT.

WHERE TYPE B CONDUIT IS REQUIRED, THE CONTRACTOR SHALL HAVE THE OPTION OF USING EITHER REINFORCED CONCRETE PIPE (706.02) OR VITRIFIED CLAY PIPE (706.08).

SHOULD A CONFLICT EXIST BETWEEN THE EXISTING SEWERS/UTILITIES AND THE PROPOSED SEWER, THE CONTRACTOR SHALL IMMEDIATELY INFORM THE CITY ENGINEER AND SUPPLY HIM ALL PERTINENT DATA TO LOCATE THE EXISTING FACILITIES. THE CITY ENGINEER WILL PROVIDE REVISED PROFILES AS NECESSARY.

PAYMENT FOR ALL OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE PERTINENT 603 CONDUIT ITEMS.

REMOVAL OF MISCELLANEOUS ITEMS - FOR INFORMATION ONLY

IT SHALL NOT BE CONSTRUED THAT ALL ITEMS REQUIRED TO BE REMOVED HAVE BEEN INDICATED ON THE DRAWINGS.

ANY MISCELLANEOUS ITEM NOT PAID FOR ELSEWHERE NOR SPECIFICALLY MARKED ON THE PLANS FOR REMOVAL WITHIN THE CONSTRUCTION LIMITS OF THIS PROJECT SHALL BE THE CONTRACTOR'S RESPONSIBILITY.

REVIEW OF DRAINAGE FACILITIES - FOR INFORMATION ONLY

BEFORE ANY WORK IS STARTED ON THE PROJECT, AND AGAIN BEFORE FINAL ACCEPTANCE BY THE CITY, REPRESENTATIVES OF THE CITY AND THE CONTRACTOR SHALL MAKE AN INSPECTION OF THE EXISTING SEWERS WITHIN THE WORK LIMITS WHICH ARE TO REMAIN IN SERVICE AND WHICH MAY BE AFFECTED BY THE WORK. THE CONDITION OF THE EXISTING CONDUITS AND THEIR APPURTENANCES SHALL BE DETERMINED FROM FIELD OBSERVATIONS. RECORDS OF THE INSPECTIONS SHALL BE KEPT IN WRITING BY THE CITY.

WESTERN UNION ATS, INC.
2400 N. GLENVILLE DRIVE
RICHARDSON, TX 75082
PHONE: (214) 918-8750

CLEVELAND WATER DEPT.
1201 LAKESIDE AVENUE
CLEVELAND, OH 44114
ATTN: DON L. TREBAR
PHONE: (216) 664-2444

CLEVELAND ENERGY RESOURCES, INC.
1801 EAST 12TH STREET
CLEVELAND, OH 44114
ATTN: BOB SABEL
PHONE: (216) 241-3636

WILIEL BUSINESS NETWORKS
1468 WEST 9TH STREET
CLEVELAND, OH 44113
ATTN: AL GUEST
PHONE: (216) 579-1010

NORTHCOST CABLE
3300 LAKESIDE AVENUE
CLEVELAND, OH 44114
ATTN: BILL BISHOP
PHONE: (216) 575-8016

NORTHEAST OHIO REGIONAL SEWER DIST.
3826 EUCLID AVENUE
ATTN: LEE CAGE
CLEVELAND, OH 44115
PHONE: (216) 641-6000

ALL NEW CONDUITS, INLETS, CATCH BASINS AND MANHOLES CONSTRUCTED AS A PART OF THE PROJECT SHALL BE FREE OF ALL FOREIGN MATTER AND IN A CLEAN CONDITION BEFORE THE PROJECT WILL BE ACCEPTED BY THE CITY.

ALL EXISTING SEWERS INSPECTED INITIALLY BY THE ABOVE MENTIONED PARTIES SHALL BE MAINTAINED AND LEFT IN A CONDITION REASONABLY COMPARABLE TO THAT DETERMINED BY THE ORIGINAL INSPECTION. ANY CHANGE IN THE CONDITION RESULTING FROM THE CONTRACTOR'S OPERATIONS SHALL BE CORRECTED BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER. PAYMENT FOR ALL OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE PERTINENT 603 CONDUIT ITEMS OF THE CONTRACT.

ROADWAY

ITEM 202 - PAVEMENT REMOVAL

THE REMOVAL AND DISPOSAL OF EXISTING PAVEMENT, INCLUDING DRIVES, SHALL BE INCLUDED FOR PAYMENT IN THIS ITEM 202 "PAVEMENT REMOVAL". PAYMENT FOR PAVEMENT REMOVAL SHALL BE MADE AT THE CONTRACT UNIT PRICE BID PER SQUARE YARD FOR THE ACTUAL COMPLETED AND ACCEPTED QUANTITIES FOR ITEM 202 - PAVEMENT REMOVAL.

ITEM 202 - REMOVAL OF PARKING METER AND SUPPORT

ALL REQUIREMENTS OF ODOT ITEM 202 SHALL APPLY EXCEPT THAT THE CONTRACTOR SHALL CAREFULLY REMOVE EXISTING PARKING METERS AND THEIR SUPPORTS AND STORE ON SITE. CONTRACTOR SHALL COORDINATE WITH THE CITY OF CLEVELAND, DIVISION OF PARKING FACILITIES (RODNEY CAJKA, 684-3791) TO PROVIDE FOR THE SALVAGE OF PARKING METERS.

THE CONTRACTOR SHALL NOTIFY THE CITY OF CLEVELAND DIVISION OF PARKING FACILITIES TWO (2) WORKING DAYS PRIOR TO THE SCHEDULED REMOVAL OF METERS.

PAYMENT FOR REMOVAL AND SALVAGE OF PARKING METERS AND SUPPORTS SHALL BE MADE AT THE CONTRACT UNIT PRICE BID PER EACH PARKING METER AND SUPPORT REMOVED AND SALVAGED.

ITEM 202 - REMOVAL OF PARKING METER AND SUPPORT EACH

ITEM 202 - REMOVAL OF TROLLEY TRACKS

ALL REQUIREMENTS OF ODOT ITEM 202 SHALL APPLY. THE CONTRACTOR SHALL CAREFULLY REMOVE ANY EXISTING TROLLEY TRACKS AND RELATED TIES, AND LEGALLY DISPOSE OF THESE ITEMS OFF-SITE.

PAYMENT FOR REMOVAL OF TROLLEY TRACKS AND TIES, SHALL BE MADE AT THE CONTRACT UNIT PRICE BID PER LINEAR FOOT OF DOUBLE RAIL TRACK FOR THE ACTUAL COMPLETED AND ACCEPTED QUANTITIES FOR ITEM 202 - REMOVAL OF TROLLEY TRACKS.

ITEM 202 - REMOVAL OF TROLLEY TRACKS L.F.

ITEM 202 - REMOVE AND SALVAGE TREE GRATES

CONTRACTOR SHALL REMOVE, CLEAN, PROTECT, AND SALVAGE EXISTING TREE GRATES, AND DELIVER TO A LOCATION DESIGNATED BY THE CITY ENGINEER FOR REUSE ON THIS PROJECT. WORK SHALL INCLUDE ALL LABOR, MATERIALS AND EQUIPMENT AS REQUIRED TO COMPLETE THE WORK.

PAYMENT FOR TREE GRATE REMOVAL AND SALVAGE SHALL BE MADE AT THE CONTRACT UNIT PRICE BID FOR EACH TREE GRATE ACTUALLY REMOVED AND SALVAGED.

ITEM 202 - MANHOLES, CATCH BASINS AND INLETS REMOVED

THE CASTINGS SHALL BE CAREFULLY REMOVED AND STORED WITHIN THE RIGHT-OF-WAY FOR SALVAGE BY CITY OF CLEVELAND FORCES.

PAYMENT FOR ALL OF THE ABOVE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE PERTINENT 202 ITEM.

ITEM 202 - PIPE SEALED WITH PRECAST VITRIFIED OR CONCRETE STOPPERS

WHEN EXISTING PIPE IS TO BE CAPPED OFF AND ABANDONED, CONTRACTOR SHALL MORTAR A PRECAST STOPPER IN CLEAN PIPE END.

ITEM 203 - EXCAVATION OF VAULTS

CONTRACTOR MAY ENCOUNTER EXISTING VAULTS IF VAULTS ARE ENCOUNTERED, CONTRACTOR MAY HAVE TO REMOVE CONSTRUCTION DEBRIS FROM VAULT. PRICE SHALL INCLUDE REMOVAL, DISPOSAL, AND BREAKING OF FLOOR SLAB IF NEEDED.

ITEM 203 EXCAVATION OF VAULTS EACH

DRAWING NAME: GENERAL NOTES
CREATED BY: DATE: 6/16/93
LAST REV. DATE: 6/16/93

Sesaldi Associates, Inc.

CUY - EAST 9TH STREET

GENERAL NOTES

ITEM 254 - PAVEMENT PLANING

WORK OF THIS ITEM SHALL BE PERFORMED IN ACCORDANCE WITH ODOT ITEM 254, EXCEPT AS MODIFIED HEREIN:

DEPTH OF PAVEMENT SHALL BE 2 INCHES AS A STANDARD, BUT MAY VARY AS DIRECTED BY THE ENGINEER.

TRANSVERSE PLANING SHALL BE DONE AT THE BEGINNING AND END OF EACH BLOCK OR AS DIRECTED BY THE ENGINEER.

THESE TRANSVERSE VERTICAL FACES SHALL BE RAMPED A MINIMUM OF 10 FEET IN LENGTH, FOR TRAFFIC, WITH ASPHALT PAYMENT FOR THE RAMP, ASPHALT AND THE LABOR AND MACHINERY TO PLACE IT SHALL BE INCLUDED IN THE PRICE FOR THE PLANING.

THE COST FOR ALL BUTT JOINTS SHALL BE INCLUDED IN THE PRICE BID FOR PAVEMENT PLANING, NO ADDITIONAL PAYMENT SHALL BE MADE FOR THE BUTT JOINTS.

ANY NECESSARY CLEANING OF THE ROADWAY BEFORE, DURING OR AFTER THE PLANING OPERATION, OR AT THE CURB LINE INCLUDING DEBRIS REMOVAL, SHALL BE INCLUDED IN THE COST OF THE PAVEMENT PLANING.

ITEM 255 - FULL DEPTH RIGID PAVEMENT REMOVAL AND RIGID REPLACEMENT, CLASS FS

ALL REPAIR AREAS WILL BE MARKED BY THE ENGINEER AFTER PAVEMENT PLANING HAS BEEN COMPLETED AND RIGID PAVEMENT IS EXPOSED FOR INSPECTION.

WHEN THIS ITEM IS CALLED FOR ON THE PLANS OR IN THE PROPOSAL, ALL APPLICABLE PROVISIONS OF ITEM 255, AS SET FORTH IN THE CONSTRUCTION AND MATERIAL SPECIFICATIONS, SHALL APPLY EXCEPT AS MODIFIED HEREIN AND AS OTHERWISE DETAILED OR SPECIFIED ON CONSTRUCTION DRAWING BP-2.8C.

PAVEMENT

ITEM 310 - 6 INCH SUBBASE, TYPE 11

MATERIAL FURNISHED FOR THIS ITEM SHALL BE LIMITED TO "GRADING B".

BITUMINOUS MATERIAL FOR ITEMS 301, 402 AND 404

THE BITUMINOUS MATERIAL SHALL BE AC-20 MEETING AASHTO M228, TABLE 2. THE COARSE AGGREGATE FOR ANY ASPHALT CONCRETE COURSE SHALL BE CRUSHED CARBONATED STONE OR CRUSHED AIR - COOLED SLAG.

ITEM 407 - TACK COAT

THIS ITEM OF WORK SHALL BE PERFORMED AS PER ODOT ITEM 407, TACK COAT, EXCEPT AS MODIFIED HEREIN:

- THE RATE OF APPLICATION FOR TACK COAT SHALL BE 0.10 GALLONS PER SQUARE YARD OR AS DIRECTED BY THE ENGINEER.

ITEM 451 - 10 INCH AND 13 INCH REINFORCED CONCRETE PAVEMENT (BUS PAD)

WHEN THE ABOVE ITEMS ARE CALLED FOR ON THE PLANS OR IN THE PROPOSAL, ALL APPLICABLE PROVISIONS OF ITEM 451, AS SET FORTH IN THE CONSTRUCTION AND MATERIAL SPECIFICATIONS, SHALL APPLY EXCEPT AS MODIFIED HEREIN.

451.02 - MATERIAL:

CURING MATERIAL SHALL BE 705.07, TYPE 2, CLASS B, APPLIED AT THE RATE SPECIFIED UNDER 305.01 (B). SURFACE TEXTURE AND SMOOTHNESS SHALL BE IN ACCORDANCE WITH 305.01 (D) AND (E). REINFORCING MESH FABRIC SHALL BE 6" X 12" (WB. 5XW4), CONFORMING TO 709.10 AND BP-1.1.

451.08 - JOINTS:

LOAD TRANSFER DEVICES, ALL DOWEL AND DOWEL BASKET ASSEMBLIES SHALL BE EPOXY COATED AS PER 709.13.

CONTRACTION JOINT: UNLESS OTHERWISE SHOWN ON THE PLANS, CONTRACTION JOINTS SHALL BE TYPICALLY CONSTRUCTED AT 20'-0" CENTERS. IN NO CASE SHALL THE SPACINGS EXCEED 21'-0". THE WIDTH OF CONTRACTION JOINTS SHALL BE 5/16" +/- 1/16" AND THE MINIMUM DEPTH SHALL BE THE SLAB THICKNESS DIVIDED BY 4. SEALING SHALL BE PER 305.01(C).

451.101 - PROTECTION AGAINST RAIN:

IN ORDER THAT THE CONCRETE MAY BE PROPERLY PROTECTED AGAINST THE EFFECTS OF RAIN BEFORE THE CONCRETE IS SUFFICIENTLY HARDENED, THE CONTRACTOR WILL BE REQUIRED TO HAVE AVAILABLE AT ALL TIMES MATERIALS FOR THE PROTECTION OF THE UNHARDENED CONCRETE SURFACE. SUCH PROTECTIVE MATERIALS SHALL CONSIST OF STANDARD COVERING MATERIAL SUCH AS BURLAP OR COTTON MATS, CURING PAPER, OR PLASTIC SHEETING MATERIAL FOR THE PROTECTION OF THE PAVEMENT SURFACE. WHEN RAIN APPEARS IMMINENT, ALL PAVING OPERATIONS SHALL STOP, AND ALL AVAILABLE PERSONNEL SHALL BEGIN COVERING THE SURFACE OF UNHARDENED CONCRETE WITH THE PROTECTIVE COVERING.

DRAINAGE

ITEM 603 - GRANULAR BACKFILL FOR CATCH BASIN CONNECTIONS

GRANULAR MATERIAL FURNISHED FOR BACKFILL OPERATIONS SHALL BE LIMITED TO AIR-COOLED BLAST FURNACE SLAG, GRANULATED SLAG, OR CRUSHED STONE. THE METHOD OF BACKFILLING SHALL BE PER 603.08.

ITEM 603 - CONDUIT, TYPE B

WHERE THE PLANS CALL FOR A NEW CATCH BASIN TO BE INSTALLED AND CONNECTED TO AN EXISTING OUTLET PIPE, THE CONTRACTOR SHALL CLEAN AND VERIFY THE PHYSICAL CONDITION OF THE EXISTING PIPE PRIOR TO INSTALLING THE CATCH BASIN. SHOULD THE PIPE BE BROKEN OR CLOGGED BEYOND CLEANING, THE ENGINEER MAY DIRECT THE CONTRACTOR TO REPLACE THE OUTLET PIPE.

THE FOLLOWING CONTINGENCY QUANTITIES ARE CARRIED TO THE GENERAL SUMMARY FOR USE AS DIRECTED:

ITEM 603 12" CONDUIT, TYPE B 100 L.F.

NONE OF THE ABOVE MATERIALS SHALL BE ORDERED UNLESS SPECIFICALLY DIRECTED BY THE ENGINEER. NO ADDITIONAL PAYMENT WILL BE MADE FOR CLEANING AND INSPECTING EXISTING PIPE AS THIS WILL BE CONSIDERED INCIDENTAL TO OTHER 603 WORK ITEMS.

ITEM 603 - HOUSE CONNECTIONS

ANY UNRECORDED ACTIVE CONNECTION TO A SANITARY SEWER ENCOUNTERED DURING CONSTRUCTION SHALL BE RECONNECTED TO THE EXISTING SEWER, AS DIRECTED BY THE ENGINEER. THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR THE WORK NOTED ABOVE:

ITEM 603 6" CONDUIT, TYPE B, 707.19 (PS 45 MIN)	100 L.F.
ITEM 603 8" CONDUIT, TYPE C, 707.19 (PS 45 MIN)	100 L.F.
ITEM 603 8" CONDUIT, TYPE B, 707.19 (PS 45 MIN)	100 L.F.
ITEM 603 8" CONDUIT, TYPE C, 707.19 (PS 45 MIN)	100 L.F.
ITEM 603 10" CONDUIT, TYPE B, 707.19 (PS 45 MIN)	100 L.F.
ITEM 603 10" CONDUIT, TYPE C, 707.19 (PS 45 MIN)	100 L.F.

NONE OF THE ABOVE MATERIALS SHALL BE ORDERED BY THE CONTRACTOR UNTIL AUTHORIZED BY THE ENGINEER.

ITEM 604 - STRUCTURES ADJUSTED TO GRADE

QUANTITIES FOR THE FOLLOWING ARE SHOWN ON THE PLAN AND PROFILE SHEETS, AND HAVE BEEN CARRIED TO THE GENERAL SUMMARY TO PERFORM THIS WORK:

ITEM 604 CATCH BASIN ADJUSTED TO GRADE	EACH
ITEM 604 MANHOLE ADJUSTED TO GRADE	EACH
ITEM 604 MONUMENT BOX ADJUSTED TO GRADE	EACH
ITEM 638 VALVE BOX ADJUSTED TO GRADE	EACH
ITEM 638 GATE VALVE ADJUSTED TO GRADE	EACH
ITEM 638 METER BOX ADJUSTED TO GRADE	EACH
ITEM 638 HYDRANT ADJUSTED TO GRADE	EACH
ITEM 638 WATER SERVICE STOP BOX ADJUSTED TO GRADE	EACH

REFERENCING OF MONUMENT BOXES SHALL BE CONDUCTED BY THE CITY OF CLEVELAND FOR ONE TIME ONLY.

THE COST OF ANY REPLACEMENT SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE PERTINENT ITEM 604 AND ITEM 638 OF THE CONTRACT. SEE "D" SPECIFICATIONS, MISCELLANEOUS METALS.

ITEM 609 - GRANITE CURB - INSTALLED (NEW)

WHEN THIS ITEM IS CALLED FOR ON THE PLANS OR IN THE PROPOSAL, ALL APPLICABLE PROVISIONS OF ITEM 609, CURBING AS SET FORTH IN THE CONSTRUCTION AND MATERIAL SPECIFICATIONS, SHALL APPLY EXCEPT AS MODIFIED HEREIN AND AS OTHERWISE DETAILED OR SPECIFIED ON CONSTRUCTION DRAWINGS.

GRANITE SHALL BE A STRUCTURAL GRANITE CONFORMING TO ASTM C 815, CLASS I ENGINEERING GRADE, SUITABLE FOR CURBSTONE USE. CURB SHALL BE LIGHT GREY, FREE FROM SEAMS WHICH IMPAIR STRUCTURAL INTEGRITY, AND WITH PERCENTAGE OF WEAR LESS THAN 32%, AS DETERMINED BY ASTM C 131.

VERTICAL GRANITE CURB AND FLUSH GRANITE CURB LOCATED OPPOSITE THE GATEWAY SITE, (CARNEGIE AVENUE TO BOLIVAR ROAD), SHALL BE CITY OF CLEVELAND STANDARD FOR GRANITE CURB, 8 IN. WIDE AT THE TOP, SPLIT FACED, OF TYPE, SIZE, AND DIMENSIONS INDICATED ON THE DRAWINGS.

VERTICAL GRANITE CURB AND FLUSH GRANITE CURB (BOLIVAR ROAD TO PROSPECT AVENUE), SHALL BE CITY OF CLEVELAND STANDARD FOR GRANITE CURB, 8 IN. WIDE AT THE TOP, OF TYPE, SIZE, AND DIMENSIONS INDICATED ON THE DRAWINGS.

UNLESS OTHERWISE INDICATED ON THE DRAWINGS, ALL EXPANSION JOINTS SHALL BE FILLED WITH PREFORMED, NON-BITUMINOUS TYPE JOINT FILLER CONFORMING TO ASTM D 1752, TYPE 2.

PREFORMED FILLER SHALL BE ONE PIECE FOR THE FULL DEPTH AND WIDTH OF THE JOINT LEAVING A SEALANT RECESS AS INDICATED. USE OF MULTIPLE PIECES OF LESSER DIMENSIONS TO MAKE UP REQUIRED DEPTH AND WIDTH OF JOINT WILL NOT BE PERMITTED.

EXCEPT AS OTHERWISE NOTED ON THE DRAWINGS, JOINT FILLER SHALL BE 1/2 IN. THICK.

JOINTS SHALL RECEIVE JOINT BACKER ROD AND SHALL BE SEALED WITH JOINT SEALANT. PROVIDE TWO OR MORE PART, SELF-LEVELING, POLYURETHANE BASED ELASTOMERIC SEALANT, COMPLYING WITH ASTM C 920, FED. SPEC. TT-S-00227E TYPE 1 CLASS A, HAVING A SHORE HARDNESS OF NOT LESS THAN 30 WHEN TESTED IN ACCORDANCE WITH ASTM C920, CURED MODULUS OF ELASTICITY AT 100% ELONGATION OF NOT MORE THAN 150 PSI WHEN TESTED IN ACCORDANCE WITH ASTM D 412, AND TEAR RESISTANCE OF NOT LESS THAN 50 LBS./INCH WHEN TESTED IN ACCORDANCE WITH TO ASTM D 624. COLOR OF SEALANT SHALL MATCH COLOR OF GRANITE CURB. COLOR SHALL BE APPROVED BY THE ENGINEER.

CONTRACTOR SHALL PROVIDE PROTECTION AND CARE FOR GRANITE AT ALL TIMES TO PREVENT CHIPPING, BREAKAGE, AND STAINING. PARTICULAR ATTENTION SHALL BE GIVEN TO PREVENT OIL, SAP, ASPHALT, AND SALT FROM STAINING SURFACES.

NO DRILLING OR CUTTING SHALL BE DONE IN THE FIELD UNLESS REQUESTED IN WRITING BY THE CONTRACTOR AND APPROVED BY THE ENGINEER.

CONTRACTOR SHALL USE KNOWLEDGEABLE AND EXPERIENCED STONE MASONS FOR SETTING CURB. PROPER SUPERVISION, MATERIAL AND EQUIPMENT SHALL BE PROVIDED TO SET GRANITE IN ACCORDANCE WITH THE FOLLOWING:

HANDLING DEVICES OR LIFTING CLAMPS SHALL BE OF AN ACCEPTABLE NATURE FOR HANDLING GRANITE. GRANITE SHALL BE KEPT CLEAN AND FREE FROM ICE AND FROST. EXPOSED SURFACES SHALL BE KEPT FREE FROM MORTAR AT ALL TIMES.

IF, DUE TO THE LACK OF AVAILABILITY OF NEW GRANITE CURB, THE COMPLETION OF THE CURB WORK PORTION OF THIS PROJECT IS NOT POSSIBLE BEFORE COMPLETION DATE, THE CONTRACTOR, WITH THE APPROVAL OF THE ENGINEER, IS TO MAKE PROVISION AND PREPARE THE SITE FOR THE INSTALLATION OF THAT CURB AT A LATER DATE. THE CONTRACTOR SHALL MAINTAIN THE SITE IN A SAFE AND ACCEPTABLE CONDITION UNTIL SUCH TIME THAT THE NEW GRANITE CURB CAN BE SET. NO ADDITIONAL COMPENSATION WILL BE PAID FOR ANY EXTRA WORK MADE NECESSARY DUE TO THIS DELAY.

GENERAL NOTES

ITEM 609 - GRANITE CURB RESET

ALL REQUIREMENTS OF ODOT ITEM 609 SHALL APPLY. GRANITE CURB REMOVED UNDER ITEM 202 SHALL BE RESET AT LOCATIONS DESIGNATED BY THE ENGINEER.

GRANITE UNITS WHICH ARE TO BE RESET SHALL BE SANDBLASTED TO THE ENGINEER'S SATISFACTION. IF TRIMMING OF THE GRANITE UNITS IS DIRECTED BY THE ENGINEER, THAT TRIMMING SHALL BE DONE BY AN APPROVED METHOD SUBMITTED TO THE ENGINEER IN WRITING PRIOR TO THE START OF THE TRIMMING WORK. THE COST OF ANY SANDBLASTING OR TRIMMING SHALL BE INCLUDED IN THE COST OF RESETTING THE GRANITE CURBING.

ANY GRANITE CURB WHICH, IN THE OPINION OF THE ENGINEER, IS UNSUITABLE FOR RESETTING OR REUSE SHALL BE REMOVED FROM THE CONSTRUCTION SITE AND DISPOSED OF BY THE CONTRACTOR AT NO COST TO THE CITY.

THE COST OF ANY NECESSARY TRANSPORTING AND /OR STORAGE OF GRANITE UNITS REQUIRED DURING THE COURSE OF THIS WORK SHALL BE INCLUDED IN THE COST OF RESETTING THE GRANITE CURBING.

MAINTENANCE OF TRAFFIC

FOR MAINTENANCE OF TRAFFIC NOTES AND DETAILS SEE SHEET NO'S. 42 TO 56.

LIGHTING

ITEM 713 - LIGHT POLE BASES AND ELECTRICAL MATERIALS

ALL REQUIREMENTS OF ODOT ITEM 713 SHALL APPLY. CONTRACTOR SHALL FURNISH AND INSTALL CAST-IN-PLACE LIGHT POLE BASES AND CONDUIT AT LOCATIONS DESIGNATED ON THE DRAWINGS.

THE CONTRACTOR ON THIS PROJECT SHALL REMOVE THE EXISTING LIGHT POLES AND BASES (ALONG THE EAST SIDE OF EAST 9TH STREET UP TO BOLIVAR ROAD AND ON BOTH SIDES OF EAST 9TH STREET NORTH OF BOLIVAR ROAD), AND INSTALL NEW LIGHT POLE BASES AND CONDUIT AND ACCESSORIES ALONG SAME LIMITS. THE CONTRACTOR SHALL STAGE HIS WORK TO EACH SIDE OF THE ROAD IN ACCORDANCE WITH THE PHASED CONSTRUCTION AS DETAILED IN THE MAINTENANCE OF TRAFFIC PLANS SHEET NOS. 42 TO 56, WHILE MAINTAINING SERVICE VIA THE EXISTING OR THE PROPOSED LIGHTS.

LIGHT POLES AND BASES ALONG WEST SIDE OF EAST 9TH STREET UP TO BOLIVAR ROAD SHALL BE COMPLETED UNDER WORK OF GATEWAY CONTRACT.

THE CONTRACTOR SHALL PROVIDE ALL MATERIAL, LABOR, AND EQUIPMENT TO COMPLETE THE WORK AS PER THE PLAN OR AS DIRECTED BY THE ENGINEER EXCEPT FOR THE FURNISHING OF THE LIGHT POLES, FIXTURES, WIRING AND CONNECTOR KITS WHICH WILL BE COMPLETED BY THE CITY OF CLEVELAND. THE CONTRACTOR SHALL BE RESPONSIBLE TO WORK CLOSELY WITH THE CITY TO MINIMIZE THE DOWN TIME FOR ANY ONE CIRCUIT.

THE CITY OF CLEVELAND STANDARD DRAWINGS AND SPECIFICATIONS SHALL APPLY FOR THIS PROJECT THE FOLLOWING LIST OF DRAWINGS ARE APPLICABLE TO THIS PROJECT:

SCU-24	PULLBOX DETAILS PLAN VIEW
SCU-118	CPP STANDARD STREET LIGHTING DUCT LINE
SCU-24-A	LIGHT POLE BASE, PULL BOX DETAIL
SCU-24-B	CORNER POLE BASE DETAILS
SCU-24-C	POWER PULLBOX
SCU-24-D	STREET LIGHTING POLE FOUNDATION DETAILS
SCU-24-E	STREET LIGHTING POLE FOUNDATION DETAILS

COMBINATION POLES ARE TO BE PROVIDED AT THE SIGNALIZED INTERSECTIONS. THESE POLES WILL BE OF STEEL CONSTRUCTION MEETING THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, CONSTRUCTION AND MATERIAL SPECIFICATIONS 825 AND 832. VARIOUS LENGTHS OF BRACKET ARMS SHALL BE PROVIDED TO PROPERLY LOCATE THE LUMINAIRE OVER THE CURB. BRACKET ARMS SHALL BE FINISHED WITH A DARK BRONZE BAKED ENAMEL AND CONSTRUCTED TO FIT THE LUMINAIRE AND THE POLE.

CONDUITS CONNECTING PULLBOXES, POLES AND CONTROLLERS MAY VARY IN LENGTH AND ALIGNMENT. PAYMENT WILL BE MADE ON THE ACTUAL LENGTH INSTALLED AND ACCEPTED BY THE ENGINEER. AT THE SIGNALIZED INTERSECTION FOUR (4) LIGHTING CONDUITS WILL BE EXTENDED FROM THE NEAREST PULLBOX TO THE COMBINATION POLE AS SHOWN ON THE PLANS.

6 - CONDUIT DUCT BANK

FOR THIS PROJECT A 6-CONDUIT DUCT BANK AS PER THE STANDARD DETAILS SHALL BE CONSTRUCTED BEHIND EACH CURB.

ALL DEVIATIONS AS TO ALIGNMENT OR DEPTH AROUND EXISTING MANHOLES OR OTHER UTILITY LINES SHALL BE NOTED AND SHOWN ON AN AS-BUILT PLAN.

GENERAL NOTES

ITEM 609 - GRANITE CURB RESET

ALL REQUIREMENTS OF ODOT ITEM 609 SHALL APPLY. GRANITE CURB REMOVED UNDER ITEM 202 SHALL BE RESET AT LOCATIONS DESIGNATED BY THE ENGINEER.

GRANITE UNITS WHICH ARE TO BE RESET SHALL BE SANDBLASTED TO THE ENGINEER'S SATISFACTION. IF TRIMMING OF THE GRANITE UNITS IS DIRECTED BY THE ENGINEER, THAT TRIMMING SHALL BE DONE BY AN APPROVED METHOD SUBMITTED TO THE ENGINEER IN WRITING PRIOR TO THE START OF THE TRIMMING WORK. THE COST OF ANY SANDBLASTING OR TRIMMING SHALL BE INCLUDED IN THE COST OF RESETTING THE GRANITE CURBING.

ANY GRANITE CURB WHICH, IN THE OPINION OF THE ENGINEER, IS UNSUITABLE FOR RESETTING OR REUSE SHALL BE REMOVED FROM THE CONSTRUCTION SITE AND DISPOSED OF BY THE CONTRACTOR AT NO COST TO THE CITY.

THE COST OF ANY NECESSARY TRANSPORTING AND /OR STORAGE OF GRANITE UNITS REQUIRED DURING THE COURSE OF THIS WORK SHALL BE INCLUDED IN THE COST OF RESETTING THE GRANITE CURBING.

MAINTENANCE OF TRAFFIC

FOR MAINTENANCE OF TRAFFIC NOTES AND DETAILS SEE SHEET NO'S. 42 TO 58.

LIGHTING

ITEM 713 - LIGHT POLE BASES AND ELECTRICAL MATERIALS

ALL REQUIREMENTS OF ODOT ITEM 713 SHALL APPLY. CONTRACTOR SHALL FURNISH AND INSTALL CAST-IN-PLACE LIGHT POLE BASES AND CONDUIT AT LOCATIONS DESIGNATED ON THE DRAWINGS.

THE CONTRACTOR ON THIS PROJECT SHALL REMOVE THE EXISTING LIGHT POLES AND BASES (ALONG THE EAST SIDE OF EAST 9TH STREET UP TO BOLIVAR ROAD AND ON BOTH SIDES OF EAST 9TH STREET NORTH OF BOLIVAR ROAD), AND INSTALL NEW LIGHT POLE BASES AND CONDUIT AND ACCESSORIES ALONG SAME LIMITS. THE CONTRACTOR SHALL STAGE HIS WORK TO EACH SIDE OF THE ROAD IN ACCORDANCE WITH THE PHASED CONSTRUCTION AS DETAILED IN THE MAINTENANCE OF TRAFFIC PLANS SHEET NOS. 42 TO 58, WHILE MAINTAINING SERVICE VIA THE EXISTING OR THE PROPOSED LIGHTS.

LIGHT POLES AND BASES ALONG WEST SIDE OF EAST 9TH STREET UP TO BOLIVAR ROAD SHALL BE COMPLETED UNDER WORK OF GATEWAY CONTRACT.

THE CONTRACTOR SHALL PROVIDE ALL MATERIAL, LABOR, AND EQUIPMENT TO COMPLETE THE WORK AS PER THE PLAN OR AS DIRECTED BY THE ENGINEER EXCEPT FOR THE FURNISHING OF THE LIGHT POLES, FIXTURES, WIRING AND CONNECTOR KITS WHICH WILL BE COMPLETED BY THE CITY OF CLEVELAND. THE CONTRACTOR SHALL BE RESPONSIBLE TO WORK CLOSELY WITH THE CITY TO MINIMIZE THE DOWN TIME FOR ANY ONE CIRCUIT.

THE CITY OF CLEVELAND STANDARD DRAWINGS AND SPECIFICATIONS SHALL APPLY FOR THIS PROJECT. THE FOLLOWING LIST OF DRAWINGS ARE APPLICABLE TO THIS PROJECT:

SCU-24	PULLBOX DETAILS PLAN VIEW
SCU-11B	CPP STANDARD STREET LIGHTING DUCT LINE
SCU-24-A	LIGHT POLE BASE, PULL BOX DETAIL
SCU-24-B	CORNER POLE BASE DETAILS
SCU-24-C	POWER PULLBOX
SCU-24-D	STREET LIGHTING POLE FOUNDATION DETAILS
SCU-24-E	STREET LIGHTING POLE FOUNDATION DETAILS

COMBINATION POLES ARE TO BE PROVIDED AT THE SIGNALIZED INTERSECTIONS. THESE POLES WILL BE OF STEEL CONSTRUCTION MEETING THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, CONSTRUCTION AND MATERIAL SPECIFICATIONS 625 AND 632. VARIOUS LENGTHS OF BRACKET ARMS SHALL BE PROVIDED TO PROPERLY LOCATE THE LUMINAIRE OVER THE CURB. BRACKET ARMS SHALL BE FINISHED WITH A DARK BRONZE BAKED ENAMEL AND CONSTRUCTED TO FIT THE LUMINAIRE AND THE POLE.

CONDUITS CONNECTING PULLBOXES, POLES AND CONTROLLERS MAY VARY IN LENGTH AND ALIGNMENT. PAYMENT WILL BE MADE ON THE ACTUAL LENGTH INSTALLED AND ACCEPTED BY THE ENGINEER. AT THE SIGNALIZED INTERSECTION FOUR (4) LIGHTING CONDUITS WILL BE EXTENDED FROM THE NEAREST PULLBOX TO THE COMBINATION POLE AS SHOWN ON THE PLANS.

6 - CONDUIT DUCT BANK

FOR THIS PROJECT A 6-CONDUIT DUCT BANK AS PER THE STANDARD DETAILS SHALL BE CONSTRUCTED BEHIND EACH CURB.

ALL DEVIATIONS AS TO ALIGNMENT OR DEPTH AROUND EXISTING MANHOLES OR OTHER UTILITY LINES SHALL BE NOTED AND SHOWN ON AN AS-BUILT PLAN.

WATERWORK NOTES

GENERAL

SCOPE OF WORK

THE WORK CONTEMPLATED UNDER THIS CONTRACT COMPRISES THE FURNISHING AND INSTALLING COMPLETE WITH GATE VALVES AND OTHER APPURTENANCES, ADJUSTING EXISTING FIRE HYDRANTS TO GRADE, AND INSTALLATION OF NEW FIRE HYDRANT AND RELATED DUCTILE IRON PIPING AND VALVES, AND PERFORMING OTHER INCIDENTAL WORK NECESSARY AS SHOWN ON SHEET NO. 14 THRU 21.

GENERAL NOTES

THE EXACT LOCATION OF EXISTING WATER LINES AND UNDERGROUND STRUCTURES IS NOT KNOWN. INFORMATION SHOWN ON THE PLANS WAS OBTAINED FROM CLEVELAND WATER DEPARTMENT DRAWINGS.

THE FIELD TESTING HEAD SHALL BE 75 PSI PLUS THAT DUE TO THE STATIC HEAD, BUT IN NO CASE LESS THAN 150 PSI.

THE CONTRACTOR SHALL NOTIFY THE CLEVELAND WATER DEPARTMENT INSPECTION AND ENFORCEMENT THREE WEEKS PRIOR TO STARTING ANY WATER WORKS CONSTRUCTION. CALL (216) 664-2274.

AFTER AWARD OF CONTRACT, THE CONTRACTOR THROUGH THE PROJECT ENGINEER SHALL SUBMIT TO THE CITY OF CLEVELAND WATER DEPARTMENT, INSPECTION AND ENFORCEMENT SECTION, A CONSTRUCTION SCHEDULE RELATING TO WATERWORK.

DEFINITIONS

WHEREVER IN THESE SPECIFICATIONS OR IN OTHER CONTRACT DOCUMENTS THE FOLLOWING TERMS OR PRONOUNS IN PLACE OF THEM ARE USED, THE INTENT AND MEANING SHALL BE INTERPRETED AS FOLLOWS:

THE STATE - THE STATE IS THE STATE OF OHIO ACTING THROUGH ITS AUTHORIZED REPRESENTATIVE.

ENGINEER - THE ENGINEER IS DISTRICT DEPUTY DIRECTOR OR DISTRICT ENGINEER, THE DISTRICT CONSTRUCTION ENGINEER OR THE DISTRICT MAINTENANCE ENGINEER OR THE PROJECT ENGINEER ASSIGNED TO ADMINISTER THE CONTRACT, OR THEIR DULY DESIGNATED DEPUTIES, AGENTS, OR REPRESENTATIVES.

THE CITY - THE CITY IS THE DIRECTOR, DEPARTMENT OF PUBLIC UTILITIES OF THE CITY OF CLEVELAND OR THEIR DULY DESIGNATED DEPUTIES, AGENTS OR REPRESENTATIVES.

STATUS OF CITY INSPECTORS

INSPECTORS AS DESIGNATED BY THE DIRECTOR OF PUBLIC WORKS ARE AUTHORIZED TO INSPECT ALL WORK DONE AND MATERIALS FURNISHED, SUCH INSPECTION MAY EXTEND TO ALL OR ANY PART OF THE WATERWORK, AND TO

THE PREPARATION OR MANUFACTURE OF THE MATERIALS TO BE USED IN THE WATERWORK. THE CITY INSPECTOR AS DESIGNATED BY THE DIRECTOR OF PUBLIC WORKS WILL MAKE WORK INSTRUCTIONS THROUGH THE PROJECT ENGINEER.

ARRANGEMENTS FOR CITY INSPECTORS ARE TO BE MADE BY NOTIFYING INSPECTION AND ENFORCEMENT DIVISION OF WATER, (216) 271-4264, WITHIN THE TIME SPECIFIED. NO WORK SHALL BE ACCEPTED UNLESS INSPECTED.

ACCESS TO WORK AND PLACE OF MANUFACTURE

THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND DIRECTOR OF PUBLIC UTILITIES, AT LEAST SEVEN DAYS PRIOR TO THE COMMENCEMENT OF THE MANUFACTURE OF ANY MATERIALS, AND THE TIME AND PLACE WHERE THE MANUFACTURE IS TO COMMENCE. IN ORDER THAT A REPRESENTATIVE OF THE ENGINEER AND DIRECTOR MAY BE PRESENT TO INSPECT THE MANUFACTURE, THE CONTRACTOR SHALL PROVIDE WITHOUT CHARGE OR EXPENSE TO THE STATE AND CITY ALL NECESSARY ASSISTANCE TO THE ENGINEER AND DIRECTOR WHEN REQUIRED FOR INSPECTION OR VERIFICATION OF WORK DONE.

DIMENSIONS, DETAILED DRAWINGS AND ELEVATIONS

FIGURED DIMENSIONS ON DRAWINGS SHALL TAKE PRECEDENCE OVER MEASUREMENTS BY SCALE, AND DETAILED DRAWINGS ARE TO TAKE PRECEDENCE OVER GENERAL DRAWINGS AND SHALL BE CONSIDERED AS EXPLANATORY OF THEM AND NOT AS INDICATING EXTRA WORK IF, HOWEVER, ANY OF THE DETAILED DRAWINGS SHOW MORE ELABORATE OR EXPENSIVE WORK THAN IS NORMALLY SPECIFIED AND INDICATED BY THE CONTRACT DRAWINGS. NOTICE THEREOF MUST BE GIVEN TO THE ENGINEER BY THE CONTRACTOR WITHIN TEN DAYS AFTER RECEIPT OF SUCH DETAILED DRAWINGS IN ORDER THAT THE DRAWINGS MAY BE AMENDED OR THE ADDITIONAL EXPENSE ON ACCOUNT OF SUCH WORK MAY BE ADJUSTED AND AUTHORIZED. IF THE ENGINEER DOES NOT RECEIVE SUCH NOTICE FROM THE CONTRACTOR WITHIN TEN DAYS AFTER THE DETAILED DRAWINGS HAVE BEEN RECEIVED BY HIM, IT IS HEREBY AGREED THAT THE CONTRACTOR ACCEPTS THE DRAWINGS AND WILL EXECUTE THEM WITHOUT CLAIM FOR EXTRA COMPENSATION.

ERRORS AND DISCREPANCIES

IF THE CONTRACTOR, IN THE COURSE OF HIS WORK, FINDS ANY DISCREPANCY BETWEEN THE PLANS, DESCRIPTION AND LOCATION OF WORK AND ESTIMATE OF QUANTITIES, THE PHYSICAL CONDITION OR THE LOCALITY, OR ANY ERRORS IN PLANS OR IN THE LAYOUT AS GIVEN BY THE DRAWINGS AND INSTRUCTIONS WHICH MAKE IT IMPOSSIBLE FOR HIM TO COMPLETE THE WORK REQUIRED UNDER THE PLANS AND SPECIFICATIONS, IT SHALL BE HIS DUTY TO IMMEDIATELY INFORM THE ENGINEER IN WRITING AND THE ENGINEER SHALL VERIFY THE SAME. ANY WORK DONE AFTER SUCH DISCOVERY, UNTIL AUTHORIZED, SHALL BE DONE AT THE CONTRACTOR'S RISK.

PROPER FACILITIES SHALL BE PROVIDED FOR PROTECTING THE WORK FROM DAMAGE BY FLOOD RAIN OR FROST, AND WORK DONE IN FREEZING WEATHER SHALL BE DONE IN SUCH MANNER AS THE ENGINEER MAY APPROVE. VALVES SHALL BE PROTECTED FROM FREEZING UNTIL BACKFILLED IN THE COMPLETED WORK.

ADDITIONAL WORK

ATTENTION IS CALLED TO THE FACT THAT THE WORK OF THIS CONTRACT INCLUDED CERTAIN PERFORMANCE AS INCIDENTAL TO THE ITEMIZED REQUIREMENTS HEREOF, THOUGH NOT EXCLUSIVE AS FOLLOWS, TO PERFORM ALL EXCAVATION, BACKFILLING, SHEETING, SHORING, AND TO TEST AND CHLORINATE THE INSTALLATION. THE STATE WILL MAKE NO SPECIFIC OR SEPARATE PAYMENT OR ALLOWANCE, BUT THE COST THERE SHALL BE INCLUDED IN THE PRICES STIPULATED TO BE PAID FOR UNDER THE VARIOUS WATERWORK ITEMS OF WORK TO BE DONE UNDER THIS CONTRACT.

PRELIMINARY FLUSHING BEFORE BEING PLACED IN SERVICE, ALL DIRT AND FOREIGN MATTER SHALL BE REMOVED FROM THE NEW WATER MAIN OR EXTENSIONS TO EXISTING MAINS BY A THOROUGH FLUSHING THROUGH THE HYDRANTS OR BY OTHER APPROVED MEANS. EACH VALVED SECTION OF NEWLY LAID PIPE SHALL BE FLUSHED INDEPENDENTLY. THIS SHALL BE DONE AFTER THE PRESSURE TEST AND MAY BE DONE BEFORE OR AFTER THE TRENCH HAS BEEN BACKFILLED.

TESTING

ALL PIPES, VALVES, FITTINGS, ETC., AS TO LEAVE ALL JOINTS WATERTIGHT AFTER THE PIPE IS LAID, SUCH LENGTHS OF THE WATER MAIN AS THE DIRECTOR OR HIS DESIGNATE MAY DETERMINE, SHALL BE TESTED UNDER HYDROSTATIC PRESSURE INDICATED IN GENERAL NOTES.

THE HYDROSTATIC TEST SHALL BE UNDER THE DIRECTION OF THE DIRECTOR OF PUBLIC UTILITIES OR HIS DESIGNATE. THE CONTRACTOR MAY OBTAIN WATER FOR TESTING BY OBSERVING THE RULES AND REGULATIONS ENFORCED IN THE MUNICIPALITIES OR TOWNSHIPS IN WHICH THE WORK IS BEING DONE. THE CITY WILL FURNISH A PRESSURE GAUGE FOR MEASURING THE PRESSURE ON THE WATER MAIN, BUT THE CONTRACTOR SHALL FURNISH A SUITABLE PUMP, PIPES, TEST HEADS AND ALL APPLIANCES, LABOR, FUEL AND OTHER APPURTENANCES NECESSARY TO MAKE THESE TESTS.

GENERAL NOTES

THE HYDROSTATIC TEST PRESSURE SHALL BE FOR A DURATION OF A MINIMUM OF TWO HOURS WITH ALL VALVES CLOSED DURING WHICH TIME THE INTERNAL PRESSURE SHALL REMAIN WITHIN 5 PSI OF THE SPECIFIED TEST PRESSURE. SHOULD THE TEST PRESSURE DROP MORE THAN 5 PSI, THE CONTRACTOR SHALL RECHARGE THE WATER MAIN TO THE SPECIFIED TEST PRESSURE AND LOCATE AND REPAIR THE LEAK TO THE SATISFACTION OF THE CITY. ANY DAMAGED OR DEFECTIVE PIPE, PIPE JOINTS, FITTINGS, VALVES, HYDRANTS OR APPURTENANCES SHALL BE REPAIRED OR REPLACED WITH SOUND MATERIAL AND THE HYDROSTATIC TEST REPEATED.

AFTER A SECTION OF THE WATER MAIN HAS BEEN TESTED, THE CONTRACTOR SHALL FLUSH THE SAME IN THE CASE OF SUPPLY MAINS WHERE DRAINS ARE CONNECTED TO VALVE OR DRAIN VALVES. THE CONTRACTOR SHALL WITHIN A REASONABLE TIME AFTER THE TEST HAS BEEN COMPLETED, PUMP ALL WATER OUT OF THE VAULTS. FLUSHING SHALL BE DONE IN ACCORDANCE WITH THESE SPECIFICATIONS.

IN COLD WEATHER IMMEDIATELY AFTER TESTING A SECTION OF THE WATER MAIN, THE CONTRACTOR SHALL OPEN ALL VALVES AND PROPERLY DRAIN BONNETS OF ALL WATER MAINS OF THE SECTION OF THE WATER MAIN AND TAKE ALL OTHER PRECAUTIONS NECESSARY TO PREVENT INJURY TO WATER MAIN AND APPURTENANCES DUE TO FREEZING.

IN ORDER TO BE ABLE TO MAKE PROPER ALLOWANCE FOR LEAKAGE AT VALVES, ONLY SECTIONS OF WATER MAIN TO BE TESTED SHALL HAVE SUCH VALVES, TEST PLUGS AND CAPS ACCESSIBLE.

(A) DISINFECTION

DISINFECTION SHALL CONSIST OF: FLUSHING NEW PIPE CONNECTIONS AFTER THE HYDROSTATIC TEST. THE FINAL FLUSHING AND SAMPLING TAPS, TAPPING SADDLES, SERVICE PIPES, COMBINATION BLOWOFFS, AND EXISTING WATER MAINS WITH READILY ACCESSIBLE CONTROL VALVES, AND ALL PIPES, APPLIANCES, LABOR AND OTHER APPURTENANCES SHALL BE FURNISHED OR PROVIDED AND INSTALLED BY THE CONTRACTOR. THEY SHALL BE USED FOR INTRODUCING DISINFECTING AGENT AND WATER FOR FLUSHING INTO THE NEW OR EXTENDED WATER MAINS TAPS OR SERVICE PIPES SHALL BE A MINIMUM 1 INCH SIZE OF COPPER TO IRON PIPE THREAD CONFIGURATION. ADDITIONAL TAPS SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR IF NECESSARY. COMBINATION BLOWOFFS SAMPLING TAPS SHALL BE: EITHER TAPPED OUTLET OR REGULAR BRANCH OUTLET TEES; AND/OR TAPPED PLUGS OR PIPE ENDS WHICH SHALL BE PLUGGED; OR HAVE ENDS CONNECTED TO WATER SYSTEM AFTER SATISFACTORY DISINFECTION AND FLUSHING.

(B) FLUSHING

1. ALL DIRT AND FOREIGN MATTER SHALL BE REMOVED FROM THE NEW EXTENSIONS TO EXISTING MAINS BY A THOROUGH FLUSHING THROUGH THE HYDRANTS OR BY OTHER APPROVED MEANS. EACH VALVE SECTION OF THE NEWLY LAID PIPE SHALL BE FLUSHED INDEPENDENTLY. THIS SHALL BE DONE AFTER THE PRESSURE TEST. FLUSHING SHALL BE IN ACCORDANCE WITH ANSI/AWWA C-851 STANDARD FOR DISINFECTING WATER MAINS. WHERE THE FLUSHING VELOCITY SPECIFIED THEREIN CANNOT BE ATTAINED, FLUSHING RATES AS DETERMINED BY THE DIRECTOR TO BE SUFFICIENT SHALL BE PERMITTED. IF IN THE OPINION OF THE DIRECTOR THE FLUSHING DOES NOT REMOVE DIRT OR OTHER ACCUMULATIONS IN THE PIPE, THE PIPE SHALL BE CLEANED BY MECHANICAL MEANS BY THE CONTRACTOR AND THE FLUSHING SHALL BE REPEATED.

(C) SAMPLING

1. A TIME PERIOD AS DETERMINED BY THE CITY SHALL ELAPSE BEFORE WATER SAMPLES ARE TAKEN FROM THE WATER MAIN(S) AND BRANCH(ES) TO DETERMINE THE BACTERIOLOGICAL QUALITY OF THE WATER THEREIN. IN NO CASE SHALL THE TIME PERIOD BE LESS THAN 24 HOURS. NO SAMPLES SHALL BE TAKEN FROM FIRE HYDRANT. THE CONTRACTOR SHALL ASSIST THE CITY'S CHLORINATION CREW IN OBTAINING SAMPLES. THE CITY WILL FURNISH ALL CONTAINERS AND CONTROL PROCEDURES FOR OBTAINING SAMPLES. THE CITY WILL DETERMINE THE NUMBER AND LOCATIONS OF SAMPLES TO BE TAKEN FROM THE DISINFECTED SECTIONS. THE CITY WILL DETERMINE THE BACTERIOLOGICAL QUALITY OF THE WATER SAMPLES. IF SAMPLING RESULTS IN TWO CONSECUTIVE POSITIVE SAMPLES, THE PROCEDURE OF CHLORINATION, FLUSHING AND SAMPLING SHALL BE REPEATED. FIGURE 1, SUGGESTED COMBINATION AND SAMPLING TAP, TAKEN FROM AWWA C-851, IS HEREIN MADE A PART OF THESE SPECIFICATIONS.

2. IN CASES WHERE THE LENGTH OF WATER MAIN IS LESS THAN 350 FEET, AFTER HYDROSTATIC TESTING ONLY, PRELIMINARY FLUSHING AND SAMPLING WILL BE DONE. HOWEVER, IF THERE ARE TWO POSITIVE SAMPLES AFTER FLUSHING, THE ENTIRE PROCEDURE OF PRELIMINARY FLUSHING, CHLORINATION, FLUSHING AND SAMPLING SHALL BE REQUIRED. THE CITY'S CHLORINATION CREW WILL COMPLETE AND DISTRIBUTE THE CHLORINATION APPROVAL FORM.

CONTRACTOR'S LABOR

THE CONTRACTOR SHALL FURNISH AT LEAST TWO TRAINED WORKMEN TO PERFORM ALL LABOR UNDER THE SUPERVISION AND DIRECTION OF THE CITY'S CHLORINATION CREW. THE CONTRACTOR'S LABORERS SHALL PERFORM ALL DUTIES SPECIFIED IN WATER MAIN DISINFECTION GENERAL NOTES. THE CONTRACTOR SHALL PROVIDE PROPER EQUIPMENT AND PROTECTIVE CLOTHING AS MAY BE REQUIRED BY THE LABORERS IN PERFORMING THE NEEDED TASK. THE CITY WILL MIX THE CHLORINATION SOLUTION TO BE USED BY THE CONTRACTOR FOR DISINFECTING.

PAINTING

IT IS THE INTENTION OF THESE SPECIFICATIONS TO PROVIDE THAT ALL METAL WORK SUBJECT TO CORROSION SHALL BE SATISFACTORILY PROTECTED BY A DURABLE COATING OF PAINT OR OTHER APPROVED MATERIAL AND THAT ALL METAL SURFACES NOT BURIED IN EARTH, OR IN CONCRETE SHALL BE LEFT CLEAN AND WELL PAINTED AT THE COMPLETION OF THE CONTRACT UNLESS OTHERWISE SPECIFIED. THE PROTECTION SHALL BE AT LEAST THAT GIVEN BY THREE COATS OF APPROVED PAINT. THE FIRST COAT IS TO BE APPLIED AT THE SHOP BEFORE THE METAL HAS RUSTED AND AFTER ALL GREASE, DIRT AND SCALE HAS BEEN REMOVED. BOLTS AND NUTS SHALL NOT BE SHOP COATED, BUT SHALL RECEIVE THREE COATS OF APPROVED PAINT AFTER INSTALLATION.

ALL METAL WORK WHICH HAS NOT BEEN COATED BEFORE THE ARRIVAL ON THE JOB SHALL BE GIVEN A TEMPORARY

PROTECTIVE COATING OF SUCH A NATURE AS TO PERMIT THE READY ADHERENCE OF FUTURE COATINGS. THE TEMPORARY COATING SHALL BE A GOOD GRADE ASPHALTIC PAINT OR OTHER APPROVED MATERIAL. THE TEMPORARY PROTECTION SHALL APPLY PARTICULARLY TO THE VALVE BOXES AND COVERS, MANHOLE RINGS AND COVERS, LADDERS AND LADDER RUNGS, DRESSER TYPE COUPLINGS AND ELSEWHERE WHEN IN THE OPINION OF THE CITY, SUCH PROTECTION IS NECESSARY.

ALL SURFACES OF METAL WHICH WILL BE IN CONTACT AFTER ASSEMBLING SHALL BE PAINTED, AT LEAST ONE COAT, BEFORE ASSEMBLING. THE FINAL COAT OF PAINT ON ALL EXPOSED WORK SHALL BE GIVEN SHORTLY BEFORE THE COMPLETION OF THE CONTRACT.

WHERE PAINTING CLAUSES APPEAR HEREINAFTER, THEY SHALL TAKE PRECEDENCE OVER THIS SECTION, EXCEPT THAT TEMPORARY PROTECTION HEREIN DESCRIBED MAY BE REQUIRED.

ALL OF THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR THE PARTICULAR ITEM REQUIRING THE PAINTING.

TESTS, INSPECTION AND REPORTS

NOTWITHSTANDING THE REQUIREMENTS OF ANY OTHER PROVISIONS OF THESE SPECIFICATIONS, THE CONTRACTOR SHALL ARRANGE FOR AND PAY ALL COSTS INVOLVED FOR SHOP INSPECTION OF ALL MATERIALS FURNISHED, MANUFACTURE OF ALL PIPE, VALVES, FITTINGS, ETC., FIELD AND SHOP WELDS AND WELDING, AND FURNISH TO THE STATE AND THE CITY OF CLEVELAND COPIES OF ALL SHOP, FABRICATION, MANUFACTURE AND OTHER RELATED INSPECTION REPORTS OF MATERIALS FURNISHED. THIS INSPECTION SHALL BE DONE BY A RECOGNIZED INSPECTION LABORATORY APPROVED BY THE CITY OF CLEVELAND. IN THE CASE OF ANY ITEM NOT SPECIFICALLY MENTIONED IN THE "WATERWORK NOTES" OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS - JANUARY 1, 1993 SHALL GOVERN.

HANDLING PIPE AND ACCESSORIES

(A) UNLOADING PIPE, FITTINGS, VALVES, HYDRANTS, AND OTHER ACCESSORIES SHALL, UNLESS OTHERWISE DIRECTED, BE UNLOADED AT THE POINT OF DELIVERY, HAULED TO AND DISTRIBUTED AT THE SITE OF THE PROJECT BY THE CONTRACTOR. THEY SHALL AT ALL TIMES BE HANDLED WITH CARE TO AVOID DAMAGE. IN LOADING AND UNLOADING, THEY SHALL BE LIFTED BY HOISTS OR SLID, OR ROLLED ON SKIDWAYS IN SUCH A MANNER AS TO AVOID SHOCK. UNDER NO CIRCUMSTANCES SHALL THEY BE DROPPED. PIPE HANDLED ON SKIDWAYS MUST NOT BE SKIDDED OR ROLLED AGAINST PIPE ALREADY ONTO THE GROUND.

(B) AT SITE OF WORK: IN DISTRIBUTING THE MATERIAL AT THE SITE OF THE WORK, EACH PIECE SHALL BE UNLOADED OPPOSITE OR NEAR THE PLACE WHERE IT IS TO BE LAID IN THE TRENCH.

(C) PROTECTION OF PIPE COATING: PIPE SHALL BE HANDLED IN SUCH A MANNER THAT A MINIMUM AMOUNT OF DAMAGE TO THE COATING WILL RESULT. ANY PIPE OR FITTING, THE COATING OF WHICH HAS BEEN DAMAGED IN SHIPPING OR HANDLING, SHALL HAVE THE DAMAGED PORTION WELL CLEANED AND COVERED WITH AN ASPHALT PAINT, APPROVED BY THE CITY BEFORE BEING PLACED IN THE WORK. THE CONTRACTOR SHALL THOROUGHLY COAT ALL EXPOSED PART OF BOLTS AND NUTS WITH AN APPROVED ASPHALT PAINT, AFTER ALL PIPE HAS BEEN LAID AND BEFORE BACKFILLING HAS BEEN PLACED. ALL FIELD COATINGS SHALL BE FURNISHED BY THE CONTRACTOR.

(D) PIPE KEPT CLEAN: THE INTERIOR OF THE PIPE, FITTINGS, AND OTHER ACCESSORIES SHALL BE KEPT FREE FROM DIRT AND FOREIGN MATTER AT ALL TIMES.

(E) FROST PROTECTION: VALVES AND HYDRANTS BEFORE INSTALLATION SHALL BE DRAINED AND STORED IN A MANNER THAT WILL PROTECT THEM FROM DAMAGE BY FREEZING.

CHANGES IN WATER MAINS

(A) WHEREVER IT BECOMES NECESSARY, IN THE OPINION OF THE ENGINEER OR CITY TO CHANGE THE LOCATION OR ELEVATION OF WATER MAINS AND HYDRANTS AND WHERE CONNECTIONS ARE TO BE MADE BETWEEN EXISTING DISTRIBUTION MAINS AND WATER MAINS UNDER THIS CONTRACT, THE CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL EXISTING WATER LINE MATERIALS REQUIRED TO MAKE THE CONNECTION, AND SHALL FURNISH AND INSTALL COMPLETE ALL THE DUCTILE IRON PIPE, FITTINGS, AND VALVES TO MAKE THE CONNECTIONS INDICATED, EXCEPT TAPPING SLEEVES AND VALVES WHICH SHALL BE FURNISHED BY THE CONTRACTOR AND INSTALLED BY THE CITY. PRESSURE TAPS FOR DISTRIBUTION MAINS SHALL BE MADE BY THE CITY OF CLEVELAND DIVISION OF WATER. THE CONTRACTOR SHALL ALSO FURNISH ALL NECESSARY LABOR, MATERIALS, TOOLS, AND EQUIPMENT AND MAKE THE EXCAVATION, BACKFILL, AND REPAVING FOR SUCH CONNECTIONS. PAYMENT FOR THIS WILL BE INCLUDED IN PRICE BID UNDER APPROPRIATE ITEM FOR SIZE OF WATER MAIN OR CONNECTION TO BE INSTALLED. ALL PIPES, VALVES, AND APPURTENANCES REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR (SEE WORK TO BE DONE BY THE CITY).

EXCAVATION

(A) THE CONTRACTOR SHALL REMOVE ALL EXISTING STRUCTURES, ROADWAYS, DRIVEWAYS AND OTHER SIMILAR MATERIALS AND MAKE ALL EXCAVATION NECESSARY FOR THE PROPER CONSTRUCTION OF THE HYDRANT INSTALLATION AND PIPE CONNECTIONS AND APPURTENANT STRUCTURES, INCLUDING TUNNEL AND SHAFT EXCAVATION. THE EXCAVATION SHALL INCLUDE THE REMOVAL, HANDLING, REHANDLING AND DISPOSAL OF MATERIALS ENCOUNTERED IN THE WORK AND SHALL INCLUDE ALL PUMPING, BAILING, DRAINAGE, SHEETING AND BRACING. MOREOVER, THE CONTRACTOR MUST ASSUME ALL RESPONSIBILITY FOR ANY ADDED EXPENSE OR OTHER LIABILITY WHICH MAY ARISE BY MEANS OF QUICKSAND, OBSTACLES OR CONDITIONS FORESEEN AND UNFORESEEN OR ENCOUNTERED IN THE WORK OF THIS CONTRACT.

(B) TRENCHES SHALL IN EVERY CASE BE OF SUFFICIENT WIDTH TO PERMIT SOLID PACKING OF BACKFILL UNDER AND AROUND PIPES, AND SATISFACTORY CONSTRUCTION OF ALL APPURTENANCES AND FOR SUCH SHEETING AND SHORING, PUMPING AND DRAINING AS MAY BE NECESSARY.

GENERAL NOTES

(C) THE TRENCH SHALL BE DUG TO THE ALIGNMENT AND DEPTH REQUIRED AND ONLY SO FAR IN ADVANCE OF PIPE LAYING AS THE ENGINEER SHALL PERMIT. THE TRENCH SHALL BE SO BRACED AND DRAINED THAT WORKMEN MAY WORK THEREIN SAFELY AND EFFICIENTLY. IT IS ESSENTIAL THAT THE DISCHARGE FROM PUMPS BE LED TO NATURAL DRAINAGE CHANNELS, TO DRAINS, OR TO SEWERS.

(D) THE TRENCH WIDTH MAY VARY WITH AND DEPEND UPON THE DEPTH OF TRENCH AND THE NATURE OF THE EXCAVATED MATERIAL ENCOUNTERED, BUT IN ANY CASE SHALL BE OF AMPLE WIDTH TO PERMIT THE PIPE TO BE LAID AND JOINTED PROPERLY AND OF THE BACKFILL TO BE PLACED AND COMPACTED PROPERLY. THE MINIMUM WIDTH OF UNSHEEDED TRENCH SHALL BE 18 INCHES AND FOR PIPE 10 INCHES OR LARGER, AT LEAST 18 INCHES LARGER THAN THE OUTSIDE DIAMETER OF THE PIPE FOR IRON AND STEEL PIPE, EXCEPT BY CONSENT OF THE ENGINEER. THE MAXIMUM CLEAR WIDTH OF TRENCH SHALL BE NOT MORE THAN 2 FEET GREATER THAN THE OUTSIDE PIPE DIAMETER. WHEN SHEETING AND BRACING IS USED, THE TRENCH WIDTH SHALL BE INCREASED ACCORDINGLY.

(E) THE TRENCH, UNLESS OTHERWISE SPECIFIED, SHALL HAVE A FLAT BOTTOM CONFORMING TO THE GRADE TO WHICH THE PIPE IS TO BE LAID. THE PIPE SHALL BE LAID UPON SOUND SOIL CUT TRUE AND EVEN, SO THAT THE BARREL OF THE PIPE WILL HAVE A BEARING FOR ITS FULL LENGTH.

(F) ANY PART OF THE TRENCH EXCAVATED BELOW GRADE SHALL BE CORRECTED WITH APPROVED MATERIAL, THOROUGHLY COMPACTED.

(G) WHEN THE UNCOVERED TRENCH BOTTOM AT SUBGRADE IS SOFT AND IN THE OPINION OF THE ENGINEER CANNOT SUPPORT THE PIPE, A FURTHER DEPTH AND OR WIDTH SHALL BE EXCAVATED AND BACKFILLED TO PIPE FOUNDATION GRADE AS REQUIRED UNDER (F), OR OTHER APPROVED MEANS SHALL BE ADOPTED TO ENSURE A FIRM FOUNDATION FOR THE PIPE.

(H) LEDGE ROCK, BOULDERS, LARGE STONES, AND SHALE SHALL BE REMOVED TO PROVIDE A CLEARANCE OF AT LEAST 6 INCHES BELOW ALL PARTS OF THE PIPE, VALVES, OR FITTINGS AND A CLEAR WIDTH OF 9 INCHES ON EACH SIDE ALL CAST IRON AND STEEL PIPE SHALL BE PROVIDED.

(I) EXCAVATION BELOW SUBGRADE IN ROCK, SHALE OR IN BOULDERS SHALL BE BACKFILLED TO SUBGRADE WITH APPROVED MATERIAL, THOROUGHLY COMPACTED.

(J) BELL HOLES OF AMPLE DIMENSIONS SHALL BE DUG IN EARTH TRENCHES AT EACH JOINT TO PERMIT THE JOINTING TO BE MADE PROPERLY. ADEQUATE CLEARANCE FOR PROPER JOINTING PIPE LAID IN ROCK SHALL BE PROVIDED AT BELL HOLES.

(K) THE USE OF EXCAVATING MACHINERY WILL BE PERMITTED EXCEPT IN PLACES WHERE ITS OPERATION WILL CAUSE DAMAGE TO TREES, BUILDINGS, OR EXISTING STRUCTURES ABOVE OR BELOW GROUND, IN WHICH CASE HAND METHODS SHALL BE EMPLOYED.

(L) TREES, FENCES, POLES AND ALL OTHER PROPERTY SHALL BE PROTECTED UNLESS THEIR REMOVAL IS AUTHORIZED. ANY PROPERTY DAMAGED SHALL BE SATISFACTORILY RESTORED BY THE CONTRACTOR.

(M) HYDRANTS UNDER PRESSURE, VALVE PIT COVERS, VALVE BOXES, CURB STOP BOXES, FIRE OR POLICE CALL BOXES, OR OTHER UTILITY CONTROLS SHALL BE LEFT UNOBSTRUCTED AND ACCESSIBLE DURING THE CONSTRUCTION PERIOD.

(N) THE CONTRACTOR SHALL MAINTAIN ALL EXCAVATIONS IN GOOD ORDER DURING THE CONSTRUCTION, SO AS NOT TO HINDER OR INJURE THE PIPE LAYING, MASONRY OR OTHER WORK. HE SHALL TAKE ALL REASONABLE PRECAUTIONS TO PREVENT MOVEMENT OF THE SIDES OF SUCH EXCAVATION, AND SHALL REMOVE AT HIS OWN EXPENSE ANY MATERIAL SLIDING INTO THE EXCAVATION.

SHEETING AND BRACING

(A) THE CONTRACTOR SHALL FURNISH AND PUT IN PLACE SUCH SHEETING AND BRACING AS MAY BE REQUIRED TO SUPPORT THE SIDES OF TRENCHES OR OTHER EXCAVATION AND SHALL REMOVE SUCH SHEETING AND BRACING AS THE TRENCH OR EXCAVATION IS FILLED UP.

(B) FOR ALL EXCAVATIONS FOR THE WORK DESCRIBED HEREIN, THE CONTRACTOR SHALL FURNISH AND PLACE SHEETING AND BRACING SO AS TO REDUCE TO A MINIMUM THE POSSIBILITY OF INJURY OR DAMAGE TO THE SAME.

(C) IF THE ENGINEER IS OF THE OPINION THAT AT ANY POINT SUFFICIENT OR PROPER SUPPORTS, SHEETING, OR BRACINGS HAVE NOT BEEN PROVIDED, HE MAY ORDER ADDITIONAL SUPPORTS, SHEETING OR BRACING, AT THE EXPENSE OF THE CONTRACTOR, AND THE COMPLIANCE WITH SUCH ORDERS BY THE CONTRACTOR SHALL NOT RELIEVE OR RELEASE HIM FROM HIS RESPONSIBILITY FOR SUFFICIENCY OF SUCH SUPPORTS.

(D) SHEETING AND BRACING SHALL BE PROVIDED IN ACCORDANCE WITH RULE 1C-3-11 OF THE SAFETY REQUIREMENTS OF THE INDUSTRIAL COMMISSION OF OHIO.

REMOVAL OF EXCAVATED MATERIAL

(A) ALL SURPLUS MATERIAL AND SUCH OTHER MATERIAL AS THE ENGINEER MAY DEEM UNFIT FOR USE AS BACKFILL SHALL BE DISPOSED OF BY THE CONTRACTOR SO AS TO GIVE A MINIMUM OF INCONVENIENCE TO THE PUBLIC. IN CASE OF SETTLEMENT AFTER A BACKFILL, THE CONTRACTOR SHALL SUPPLY SUFFICIENT MATERIAL SATISFACTORY TO THE ENGINEER TO MAKE UP FOR THE DEFICIENCY.

(B) IN THE STORING OF EXCAVATED MATERIAL, WHICH IS TO BE USED AS BACKFILL, THE CONTRACTOR SHALL EXERCISE CARE SO AS TO AVOID INCONVENIENCING THE PUBLIC. IF IN THE OPINION OF THE ENGINEER IT IS NECESSARY TO REMOVE THIS EXCAVATED MATERIAL FROM THE STREET OR LOTS, THE CONTRACTOR SHALL BE REQUIRED TO DO SO.

(C) ANY MATERIAL WHICH MAY SPILL OR DRIP FROM VEHICLES BY HAULING IN THE STREETS SHALL BE REMOVED AND THE STREETS CLEANED BY THE CONTRACTOR, TO THE SATISFACTION OF THE ENGINEER.

(D) WHEN SO DIRECTED BY THE ENGINEER, THE CONTRACTOR SHALL IMMEDIATELY REMOVE ALL EXCAVATED MATERIALS FROM THE SITE.

LAYING PIPE

(A) PROPER IMPLEMENTS, TOOLS, AND FACILITIES, SATISFACTORY TO THE ENGINEER, SHALL BE PROVIDED AND USED BY THE CONTRACTOR FOR THE SAFE AND CONVENIENT PROSECUTION OF THE WORK. ALL PIPE, FITTINGS, AND VALVES SHALL BE CAREFULLY LOWERED INTO THE TRENCH, PIECE BY PIECE, BY MEANS OF DERRICK, PROPER SLINGS, AND OTHER SUITABLE TOOLS OR EQUIPMENT, IN SUCH A MANNER AS TO PREVENT DAMAGE TO PIPE OR COATING. UNDER NO CIRCUMSTANCES SHALL PIPE OR ACCESSORIES BE DROPPED OR DUMPED INTO THE TRENCH. IF ANY DEFECTIVE PIECE IS DISCOVERED WHILE PIPE IS SUSPENDED OR AFTER BEING LAID, A NEW PIECE SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR.

(B) ALL FOREIGN MATTER OR DIRT SHALL BE REMOVED FROM THE INSIDE OF THE PIPE BEFORE IT IS LOWERED INTO ITS POSITION IN THE TRENCH, AND IT SHALL BE KEPT CLEAN BY APPROVED MEANS DURING AND AFTER LAYING. AT TIMES WHEN PIPE LAYING IS NOT IN PROGRESS, THE OPEN ENDS OF PIPE SHALL BE CLOSED BY APPROVED MEANS AND NO TRENCH WATER SHALL BE PERMITTED TO ENTER THE PIPE. NO PIPE SHALL BE LAID IN WATER, OR WHEN THE TRENCH CONDITIONS OR THE WEATHER IS UNSUITABLE FOR SUCH WORK, EXCEPT BY PERMISSION OF THE ENGINEER.

(C) WHEREVER NECESSARY TO DEFLECT PIPE FROM A STRAIGHT LINE, EITHER IN THE VERTICAL HORIZONTAL PLANE TO AVOID OBSTRUCTIONS, TO PLUMB STEMS, OR FOR OTHER REASONS, THE DEGREE OF DEFLECTION SHALL BE APPROVED BY THE ENGINEER.

(D) BEFORE LAYING DUCTILE IRON PIPE, ALL LUMPS, BLISTERS AND EXCESS COAL TAR COATING SHALL BE REMOVED FROM THE BELL AND SPIGOT ENDS OF EACH PIPE. THE PIPE ENDS SHALL THEN BE KEPT CLEAN UNTIL JOINTS ARE MADE.

FLOATING

THE CONTRACTOR SHALL TAKE EVERY PRECAUTION AGAINST THE FLOATING OF THE PIPE DUE TO WATER COMING INTO THE TRENCH, OR THROUGH CAVING IN, FLUSHING OR PUDDLING. IN CASE OF SUCH FLOATING THE CONTRACTOR SHALL REPLACE THE PIPE AT HIS OWN EXPENSE AND MAKE WHOLLY GOOD ANY INJURY OR DAMAGE WHICH MAY HAVE RESULTED.

PLUGGING DEAD ENDS

STANDARD RESTRAINED PLUGS WITH CLAMPS SHALL BE INSERTED INTO THE BELLS OF ALL DEAD ENDS OF PIPES, TEES, OR CROSSES, AND SPIGOT ENDS SHALL HAVE RESTRAINED CAPS AND CLAMPS INSTALLED BY THE CONTRACTOR OF ALL MAINS CONSTRUCTED BY HIM AND ON EXISTING WATER MAINS WHERE INDICATED IN THE CONTRACT DRAWINGS. CONCRETE PIERS SHALL BE PLACED WHEN CALLED FOR ON THE CONTRACT DRAWINGS, OR ORDERED BY THE CITY. THE COST OF FURNISHING AND INSTALLING THE PLUGS IN NEW WATER MAINS SHALL BE INCLUDED IN THE PER LINEAL FOOT PRICE BID FOR THE VARIOUS SIZES OF NEW WATER MAINS PAYMENT FOR TEMPORARY PLUGS OR CAPS FOR TESTING AND CHLORINATION SHALL BE INCLUDED IN THE UNIT PRICE BID PER LINEAL FOOT OF WATER MAIN TO BE TESTED AND CHLORINATED.

BACKFILLING

(A) BACKFILL, UNLESS OTHERWISE SPECIFIED, MAY BE MADE WITH MATERIAL EXCAVATED FROM TRENCHES, PROVIDING IT IS SATISFACTORY TO THE CITY. IF, IN THE OPINION OF THE CITY, THE MATERIAL EXCAVATED IS UNSATISFACTORY, THEN THE CONTRACTOR SHALL FURNISH AT HIS OWN EXPENSE OTHER MATERIAL SUITABLE FOR BACKFILL. ALL BACKFILL SHALL BE FREE FROM SLAG, CINDERS, RUBBISH AND OTHER OBJECTIONABLE MATERIAL.

(B) BEFORE LAYING THE PIPE, THE BOTTOM OF THE TRENCH SHALL BE BROUGHT TO THE GRADE OF THE BOTTOM OF THE PIPE, EXCEPT AT FIELD JOINTS WHEREVER THE BOTTOM OF THE TRENCH HAS BEEN EXCAVATED BELOW THE BOTTOM OF THE PIPE, THE CONTRACTOR SHALL PLACE SAND, OR OTHER MATERIAL SATISFACTORY TO THE ENGINEER TO BRING THE BOTTOM OF THE TRENCH TO THE GRADE OF THE BOTTOM OF THE PIPE. THIS BED SHALL BE THOROUGHLY TAMPED BEFORE THE PIPE IS LAID.

(C) UNLESS OTHERWISE SPECIFIED, THE BACKFILL UNDER, AROUND AND TO A DEPTH OF 1 FOOT ABOVE THE TOP OF ALL PIPE SHALL BE MADE WITH -AND IN ACCORDANCE WITH 703.02, WHICH MATERIAL SHALL BE FREE FROM OBJECTIONABLE MATERIAL NOTED ABOVE. THE CONTRACTOR MUST USE SPECIAL CARE IN PLACING THIS PORTION OF BACKFILL, SO AS TO AVOID INJURING, DISTORTING OR MOVING THE PIPE DURING COMPACTION ABOVE THIS LEVEL. THE BACKFILL SHALL BE MADE WITH MATERIAL SATISFACTORY TO THE CITY.

(D) BACKFILLING AS NOTED IN PARAGRAPH (C) SHALL BE TAMPED IN THIN LAYERS, SIMULTANEOUSLY ON EACH SIDE OF THE PIPE, AND THOROUGHLY COMPACTED, SO AS TO PROVIDE A SOLID BACKING AGAINST THE EXTERNAL SURFACE OF THE PIPE.

(E) ONLY AFTER THE BACKFILL PREVIOUSLY MENTIONED HAS BEEN SATISFACTORILY COMPACTED, MAY WORK PROCEED IN PLACING THE REMAINING BACKFILL WHICH MUST BE CAREFULLY PLACED AND COMPACTED IN 4 INCH LAYERS BY TAMPING WITH MECHANICAL TAMPERS OR ROLLING. ALL PRECAUTIONS MUST BE TAKEN TO ELIMINATE FUTURE SETTLEMENT. THE NUMBER OF MEN TAMPING SHALL BE NOT LESS THAN THE NUMBER BACKFILLING, AND ADDITIONAL MEN SHALL BE KEPT IN THE TRENCH TO SPREAD THE MATERIAL.

(F) BACKFILLING SHALL NOT BE DONE IN FREEZING WEATHER, EXCEPT BY PERMISSION OF THE ENGINEER, AND IT SHALL NOT BE MADE WITH FROZEN MATERIAL, NOR SHALL ANY FILL BE MADE WHERE THE MATERIAL ALREADY IN THE DITCH IS FROZEN.

(G) ALL BACKFILL SHALL BE MADE WITH LIMESTONE SCREENINGS, ITEM 304 OF ODOT SPECIFICATIONS WHERE PERMANENT PAVEMENTS, CURBS, DRIVEWAYS, OR SIDEWALKS HAVE BEEN OPENED FOR OR UNDER CUT BY THE EXCAVATION, WHERE ORDERED BY THE ENGINEER.

(H) SPECIAL TREATMENT OF THE TRENCH WILL BE REQUIRED WHERE CINDER OR ACTIVE SULFUR BEARING SHALE OR CLAYS EXCAVATION EXCEEDING ONE FOOT MEASURED FROM THE TOP SURFACE IS ENCOUNTERED. BEFORE LAYING THE PIPE, THE BOTTOM OF THE TRENCH SHALL BE DUG BELOW GRADE AND THEN BROUGHT TO THE GRADE OF THE PIPE IN THE FOLLOWING MANNER: A 4 INCH LAYER OF CRUSHED LIMESTONE SHALL BE PLACED ON THE ENTIRE WIDTH TO THE BOTTOM OF THE TRENCH FOLLOWED BY A FILLER OF HYDRATED LIME AND A LAYER OF 3 INCHES OF SAND. THE CRUSHED LIMESTONE SHALL BE WELL GRADED FROM THE FINE TO COARSE AND FREE FROM SLAG, CINDERS, ASHES, RUBBISH, OR OTHER OBJECTIONABLE MATERIAL. ALL LIMESTONE MUST BE CAPABLE OF BEING PASSED THROUGH A 3/4 INCH SIEVE. ON TOP OF THIS LAYER OF CRUSHED STONE, HYDRATED LIME SHALL BE

GENERAL NOTES

SUPPLIED IN THE AMOUNT OF 3/8 OF A POUND PER SQUARE FOOT OF TRENCH THIS BED OF CRUSHED LIMESTONE SHALL BE THOROUGHLY TAMPED BEFORE THE 3 INCH LAYER OF SAND IS PLACED. THE BACKFILL AROUND AND TO THE DEPTH OF 3 INCHES ABOVE THE TOP OF PIPE SHALL BE MADE WITH SAND. THE CONTRACTOR MUST USE SPECIAL CARE IN PLACING THIS PORTION OF THE BACKFILL SO AS TO AVOID INJURING OR MOVING THE PIPE WHEN COMPACTING SAME. ON TOP OF THE SAND THE CONTRACTOR SHALL PLACE ANOTHER LAYER OF CRUSHED LIMESTONE 3 INCHES THICK ON THE ENTIRE WIDTH OF THE TRENCH. ON TOP OF THE COMPACTED LAYER OF LIMESTONE HYDRATED LIME SHALL THEN BE APPLIED IN THE AMOUNT OF 3/4 OF A POUND PER SQUARE FOOT OF TRENCH. THE REMAINING BACKFILL SHALL BE MADE WITH SAND CAREFULLY PLACED AND COMPACTING BY TAMPING, OR ROLLING. ALL PRECAUTIONS SHALL BE TAKEN TO ELIMINATE FUTURE SETTLEMENT. THE TREATMENT OF THE TRENCH BOTTOM, PREVIOUSLY DESCRIBED, MAY BE OMITTED WHERE THE CINDER DEPTH MEASURED FROM THE TOP SURFACE DOES NOT EXCEED 2'-0".

PROVISIONS FOR PROTECTING THE WORK

THE CONTRACTOR SHALL FURNISH ALL THE NECESSARY EQUIPMENT. SHALL TAKE ALL NECESSARY PRECAUTIONS AND SHALL ASSUME THE ENTIRE COST OF HANDLING ANY SEWAGE, SEEPAGE, STORM SURFACE AND FLOOD FLOWS OR ICE, WHICH MAY BE ENCOUNTERED AT ANY TIME DURING THE CONSTRUCTION OF THE WORK. THE MANNER OF PROVIDING FOR THESE OCCURRENCES SHALL MEET WITH THE APPROVAL OF THE ENGINEER. AFTER INSTALLATION, THE CONTRACTOR SHALL FURNISH AND MAINTAIN SATISFACTORY PROTECTION TO ALL EQUIPMENT WHETHER OF THIS OR OTHER CONTRACT AGAINST INJURY BY WEATHER, FLOODING OR BY DIRECT OR INCIDENTAL DAMAGE FROM HIS OWN OPERATIONS, LEAVING ALL WORK IN A PERFECT CONDITION AT THE COMPLETION OF THE CONTRACT. NO EXTRA PAYMENT WILL BE MADE FOR THIS WORK BUT THE ENTIRE COST OF THE SAME SHALL BE INCLUDED IN THE WORK TO BE DONE IN THIS CONTRACT.

DRAWINGS

(A) THE CONTRACTOR SHALL SUBMIT TO THE DIRECTOR FOR APPROVAL, FOUR (4) SETS OF PRINTS OF ALL SHOP DRAWINGS AS DEVELOPED BY THE FABRICATOR FOR PIPE FITTINGS AND SPECIALS, AND MISCELLANEOUS DETAILS SUCH AS VALVES, DRAIN FOREGOINGS, PRECAST VALVES, CASTINGS, ETC. DRAWINGS SHALL INCLUDE DETAILS, LAYOUTS AND LAYING SCHEDULE FOR ALL PIECES FURNISHED REQUIRING DRAWING SUBMITTAL.

(B) ONE PRINT OF EACH OF THE DRAWINGS SUBMITTED WILL BE RETURNED WITH THE CRITICISMS OR APPROVAL OF THE DIRECTOR. IN CASE THE DRAWINGS ARE NOT APPROVED, THE CONTRACTOR SHALL AGAIN SEND FOR APPROVAL FOUR (4) SETS OF REVISED PRINTS OF THE DRAWINGS TO TAKE CARE OF THE CRITICISMS NOTED. NO WORK SHALL BE DONE IN THE SHOP UNTIL AFTER THE DRAWINGS HAVE BEEN FINALLY APPROVED.

(C) THE APPROVAL OF THE DRAWINGS BY THE DIRECTOR SHALL NOT RELIEVE THE CONTRACTOR OF ANY OF HIS OBLIGATIONS IN CONNECTION WITH THIS CONTRACT.

LISTS AND INVOICES

THE CONTRACTOR SHALL FURNISH THE CITY WITH THE LIST IN DUPLICATE OF PIECES IN EACH SHIPMENT OF PIPE AND SPECIALS, GIVING THE SERIAL NUMBER AND DESIGNATION OF EACH PIPE AND SPECIAL SENT AT THAT TIME. THE MATERIAL SHALL BE SHIPPED IN SUCH SECTIONS AS THE CITY MAY ORDER.

REMOVED ITEMS

ALL MATERIALS CONSISTING OF PIPE AND FITTINGS, VALVES, VALVE BOXES AND COVERS WHICH ARE INDICATED FOR REMOVAL BY THE CONTRACTOR SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND BE REMOVED AND DISPOSED OF BY HIM.

WORK PERMITS

THE CONTRACTOR SHALL OBTAIN ALL PERMITS AND PAY ALL APPLICABLE FEES TO THE CITY OF CLEVELAND. THE COST OF SAID FEES SHALL BE INCLUDED IN THE APPLICABLE UNIT PRICES BID BY THE CONTRACTOR.

ITEM SPECIAL - DUCTILE IRON PIPE AND FITTINGS

WORK INCLUDED

THE CONTRACTOR SHALL FURNISH ALL THE MATERIALS FOR AND SHALL PROPERLY CONSTRUCT AND CONNECT IN PLACE AT THE LOCATIONS SHOWN ON THE DRAWINGS OR AS DIRECTED, ALL DUCTILE IRON PIPE AND FITTINGS, INCLUDING ALL EXCAVATION WORK, THE CUTTING INTO AND REMOVAL OF EXISTING PIPE, BACKFILLING, SAND BACKFILL, AND REPAVING ALL AS REQUIRED FOR THE PROPER COMPLETION OF THE WORK INCLUDED UNDER THIS CONTRACT. IN GENERAL THIS WORK SHALL INCLUDE THE FURNISHING, LAYING, CONNECTING, PAINTING AND TESTING OF PIPE AND FITTINGS; THE EXCAVATION, SHEETING AND SHORING; BACKFILLING, SAND BACKFILL, SEEDING AND SODDING; THE PERMANENT REPAVING, IF SO NOTED ON THE CONTRACT DRAWINGS, THE CUTTING INTO, REMOVAL AND STORAGE OF EXISTING MAINS; AND THE FURNISHING OF ALL LABOR, MATERIALS, TOOLS AND EQUIPMENT TO COMPLETE THE WORK AS SPECIFIED, SHOWN, OR ORDERED.

DUCTILE-IRON PIPE AND FITTINGS

(A) ALL PIPE AND FITTINGS SHALL BE MANUFACTURED IN ALL RESPECTS TO MEET THE REQUIREMENTS OF THE LATEST ANSI SPECIFICATIONS FOR DUCTILE-IRON PIPE CENTRIFUGALLY CAST IN METAL MOLDS OR SAND LINED MOLDS, AND DUCTILE IRON FITTINGS FOR WATER AND OTHER LIQUIDS ADOPTED BY THE AWWA, EXCEPT WHERE MODIFIED HEREIN. PIPE UP TO AND INCLUDING 16 INCHES SHALL HAVE RETAINED MECHANICAL JOINT PIPE AND FITTINGS. BOLTLESS RESTRAINED PIPE AND FITTINGS SHALL BE USED WHERE CALLED FOR ON THE CONTRACT DRAWINGS.

(B) ALL PIPE AND FITTINGS SHALL BE CEMENT LINED AND OF THE SIZE AND THICKNESS AND PRESSURE CLASSES NOTED ON THE RESPECTIVE CONTRACT DRAWING OR DIRECTLY SPECIFIED. FITTINGS ON PIPE SIZES UP TO AND INCLUDING 12 INCHES MAY BE OF THE SHORT BODIED TYPE.

(C) THE CONTRACTOR SHALL FURNISH CENTRIFUGAL CAST/DUCTILE IRON CEMENT LINED PIPE. DUCTILE-IRON METAL SHALL HAVE A MINIMUM TENSILE STRENGTH OF 60,000 PSI, MINIMUM YIELD STRENGTH OF 42,000 PSI, AND MINIMUM ELONGATION OF 10 PERCENT AND SHALL BE FOR THE THICKNESS CLASS NOTED ON THE CONTRACT DRAWINGS OR DIRECTLY SPECIFIED. PIPE MAY BE FURNISHED IN 18 OR 20 FOOT NOMINAL LAYING LENGTHS. THE CENTRIFUGALLY CAST DUCTILE SHALL CONFORM TO THE ANSI A21.51-1978/AWWA C151-76 AND ALL SUBSEQUENT AMENDMENTS THERETO. PIPE ON STRAIGHT RUNS SHALL HAVE PUSH-ON SINGLE RUBBER-GASKET COMPRESSION JOINTS, ALL IN ACCORDANCE WITH ANSI A21.11-80/AWWA C111-80 RUBBER GASKET JOINTS FOR DUCTILE-IRON PRESSURE PIPE AND FITTINGS. ALL PIPE SHALL BE CEMENT LINED. RETAINED MECHANICAL JOINTS SHALL BE FURNISHED AT BENDS, TEES, CROSSES, SPECIAL FITTINGS AND BETWEEN VERTICAL OFFSETS OR BENDS ON HYDRANT BRANCHES AND SHALL BE RETAINED AS SPECIFIED IN PARAGRAPH (D) "RETAINED MECHANICAL JOINTS".

(D) THE CONTRACTOR SHALL FURNISH DUCTILE-IRON CEMENT LINED FITTINGS. ALL DUCTILE-IRON FITTINGS SHALL BE MANUFACTURED IN ACCORDANCE WITH ANSI A21.10-82/AWWA C110-82 AND ALL SUBSEQUENT AMENDMENTS THERETO. METAL FOR FITTINGS SHALL CONFORM TO ANSI A21.10-82. FITTINGS MAY BE OF THE SHORT BODIED TYPE IN ACCORDANCE WITH ANSI/AWWA C153/A21.53-84 AND ALL SUBSEQUENT AMENDMENTS THERETO.

(E) THE THICKNESS OF THE CENTRIFUGALLY CAST DUCTILE IRON PIPE SHALL CONFORM TO THE FOLLOWING STANDARD THICKNESS AND PIPE CLASS TABLE:

STANDARD THICKNESS OF CENTRIFUGALLY CAST, DUCTILE IRON PIPE

WORKING SIZE	PRESSURE	STANDARD THICKNESS CLASSES				FITTINGS CLASS PSI
		52	53	54	56	
6"	350	.31	.34	.37	.43	350
8"	350	.33	.36	.39	.45	350
12"	350	.37	.40	.43	.49	350

(F) ALL FITTINGS, UNLESS OTHERWISE NOTED IN THE CONTRACT DRAWINGS, SUCH AS BENDS, TEES, CROSSES, HYDRANT BRANCHES, ETC., SHALL HAVE BELL AND BELL, BELL AND PLAIN ENDS OR THE MECHANICAL BOLTED STUFFING BOX TYPE WITH PIPE OR FITTING PLAIN END SEALING GASKET AND BOLTED FOLLOWER GLAND. MECHANICAL JOINT FITTINGS SHALL BE THE MECHANICAL JOINTED BOLTED STUFFING BOX TYPE IN ACCORDANCE WITH ANSI A21.1180/AWWA C111-80 RUBBER GASKET JOINTS FOR DUCTILE IRON AND GRAY IRON PRESSURE PIPE AND FITTINGS. ALL FITTINGS SHALL BE CEMENT LINED. MECHANICAL JOINTS SHALL BE RETAINED AS SPECIFIED IN PARAGRAPH (D) "RETAINED MECHANICAL JOINTS".

(G) WHERE "RESTRAINED DISTANCES" ARE SHOWN ON THE PLANS OR DIRECTLY SPECIFIED, PIPE AND FITTINGS HAVING APPROVED SLIP ON SINGLE RUBBER GASKET BOLTLESS RESTRAINED TYPE JOINTS SHALL BE FURNISHED. BOLTLESS RESTRAINED TYPE JOINTS SHALL BE AS SPECIFIED UNDER "BOLTLESS RESTRAINED SLIP-ON JOINTS".

(H) GLANDS FOR ALL MECHANICAL JOINT PIPE AND FITTINGS SHALL BE DUCTILE-IRON. BOLTS AND NUTS SHALL BE CORROSION RESISTANT, HIGH-STRENGTH, LOW ALLOY STEEL IN ACCORDANCE WITH ANSI A21.11-80/AWWA C111-80 RUBBER GASKET JOINTS FOR DUCTILE-IRON PRESSURE PIPE AND FITTINGS.

(I) GASKETS SHALL BE OF RUBBER OR OTHER EQUALLY EFFECTIVE PROTECTION AGAINST UNEVEN DISTORTION OF GASKET.

(J) WHERE FITTINGS ARE SHOWN WHICH ARE NOT COVERED BY THE ABOVE SPECIFICATIONS, THEY SHALL CONFORM TO THE DIMENSIONS AND OTHERWISE MEET THE SPECIFICATIONS FOR THE RESPECTIVE TYPE WHICH ARE CARRIED IN THE LATEST REVISIONS TO THE CURRENT EDITION OF THE DUCTILE IRON PIPE RESEARCH ASSOCIATION "HANDBOOK OF DUCTILE IRON PIPE" OR WHICH ARE OTHERWISE SHOWN ON THE CONTRACT DRAWINGS.

(K) WHEREVER CHANGES IN LINE AND GRADES OF THE MAIN AS SHOWN ON THE DRAWINGS ARE NOT STANDARD FITTING DEFLECTIONS, THE CONTRACTOR WILL BE PERMITTED TO SUBMIT DETAILS USING COMBINATIONS OF STANDARD FITTINGS AND SMALL DEFLECTIONS (NOT TO EXCEED THE MANUFACTURER'S MAXIMUM SUGGESTED JOINT OPENING) IN THE ADJOINING LENGTHS OF PIPE.

(L) WHERE WATER MAINS END OR TERMINATE AND ARE NOT CONNECTED TO EXISTING MAINS, RETAINED MECHANICAL BELL JOINT PLUGS ARE TO BE INSTALLED. PLUGS SHALL BE FURNISHED WITH TWO PLUGGED 2-INCH TAPS FOR DRAIN AND AIR RELIEF CONNECTIONS.

(M) CLOSURE PIECES SHALL BE ACCURATELY MEASURED AND CUT IN THE FIELD AND INSTALLED USING SOLID SHORT PATTERN SLEEVES HAVING MECHANICAL BELL JOINTS. MECHANICAL BELL JOINT SLEEVES SHALL BE OF THE RETAINED TYPE AS SPECIFIED IN SECTION (D) "RETAINED MECHANICAL JOINTS".

(N) TESTS, INSPECTION, REPORTS AND ANALYSES OF TESTS OF SAMPLES FOR ALL MATERIALS SHALL BE FURNISHED IN ACCORDANCE WITH THESE SPECIFICATIONS.

(O) BITUMASTIC COATING SHALL BE APPLIED ON THE EXTERIOR OF ALL DUCTILE IRON PIPE AND FITTINGS IN ACCORDANCE WITH AWWA SPECIFICATIONS.

CEMENT LINING

ALL PIPE FITTINGS SHALL BE GIVEN A CEMENT MORTAR LINING AT THE POINT OF MANUFACTURE. THE LINING SHALL CONFORM TO THE ANSI A21.4-1980 (AWWA C104-80) AND ALL SUBSEQUENT AMENDMENTS THERETO.

MARKING

ALL PIPE AND FITTINGS SHALL BE SUITABLY MARKED TO DENOTE THE MANUFACTURER, CLASS, DATE, WEIGHT, AND OTHER ELEMENTS OF IDENTIFICATION.

FACING AND DRILLING

ALL FLANGES SHALL BE CAST SOLID AND FACED ACCURATELY AT RIGHT ANGLES TO THE AXIS OF THE PIPE. ALL FLANGES SHALL BE COATED WITH WHITE LEAD IMMEDIATELY AFTER THEY HAVE BEEN FACED AND DRILLED. ALL FLANGED PIPE AND FITTINGS SHALL BE FACED AND DRILLED TO ANSI B16-1, 125 LB. DRILLING UNLESS SPECIAL DRILLING IS CALLED FOR. WHERE TAP OR STUD BOLTS ARE REQUIRED, FLANGES SHALL ALSO BE TAPPED.

GENERAL NOTES

LAYING

PROPER AND SUITABLE TOOLS AND APPLIANCES FOR THE SAFE AND CONVENIENT HANDLING AND LAYING OF THE PIPE AND FITTINGS SHALL BE USED. GREAT CARE SHALL BE TAKEN TO PREVENT THE PIPE COATING AND FITTINGS FROM BEING DAMAGED PARTICULARLY ON THE INSIDE OF THE PIPES AND FITTINGS AND ANY SUCH DAMAGE SHALL BE REMEDIATED AS DIRECTED. ALL PIPES AND FITTINGS SHALL BE CAREFULLY EXAMINED BY THE CONTRACTOR FOR DEFECTS JUST BEFORE LAYING AND NO PIPE OR FITTINGS SHALL BE LAID WHICH IS KNOWN TO BE DEFECTIVE.

IF ANY DEFECTIVE PIPE IS DISCOVERED AFTER HAVING BEEN LAID, IT SHALL BE REMOVED AND REPLACED WITH A SOUND PIPE OR FITTING IN A SATISFACTORY MANNER BY THE CONTRACTOR AT HIS OWN EXPENSE. ALL PIPES AND FITTINGS SHALL BE KEPT CLEAN UNTIL THEY ARE USED IN THE COMPLETED WORK; AND WHEN LAID, SHALL CONFORM TO THE LINES AND GRADES. OPEN ENDS OF PIPES SHALL BE KEPT PLUGGED WITH A BULKHEAD DURING CONSTRUCTION.

PIPE LAID IN TRENCH SHALL BE LAID TO A FIRM AND EVEN BEARING FOR ITS FULL LENGTH. PRECAUTIONS SHALL BE TAKEN AGAINST FLOATING.

IT IS THE INTENTION OF THESE SPECIFICATIONS TO SECURE FIRST CLASS WORKMANSHIP IN THE PLACING OF PIPE AND ACCESSORIES. IN SUCH DETAILS AS ARE NOT SPECIFICALLY MENTIONED HEREIN OR CALLED FOR ON THE DRAWINGS, THE CONTRACTOR WILL BE REQUIRED TO CONFORM WITH THE APPLICABLE SECTIONS OF THE LATEST ANSI/AWWA C800-77, INSTALLATION OF GRAY AND DUCTILE CAST IRON WATER MAINS AND APPURTENANCES, AS ADOPTED BY THE AMERICAN WATER WORKS ASSOCIATION.

CUTTING PIPE

WHENEVER THE PIPES REQUIRE CUTTING TO FIT INTO THE LINES, THE WORK SHALL BE DONE IN A SATISFACTORY MANNER SO AS TO LEAVE A SMOOTH END AT RIGHT ANGLES TO THE AXIS OF THE PIPE. WHEN A PIECE OF PIPE IS CUT TO FIT INTO THE LINE, NO PAYMENT WILL BE MADE FOR THE PORTION CUT OFF AND NOT USED IN THE LINE.

JOINTS

(A) FLANGED JOINTS

1. FLANGED JOINTS SHALL BE INSTALLED AS SHOWN ON THE DRAWINGS. FLANGES SHALL BE EITHER CAST STEEL, FORGED OR ROLLED STEEL, OR PROPERLY WELDED AND MACHINED FABRICATED STEEL PLATES, WELDED TO PIPE WITH TWO CONTINUOUS WELDS. THEY SHALL HAVE PLAIN FACES AND SHALL BE FACED TRUE AND SMOOTH AT RIGHT ANGLES TO THE AXIS OF THE PIPE AND SHALL BE SPOT FACED ON THE BACK. DRILLING SHALL CONFORM TO ANSI B18.1, 125 LBS. EACH BLIND FLANGE SHALL BE CAST IRON AND HAVE BOSSES TAPPED AT TOP AND BOTTOM FOR 2-INCH STANDARD PIPE AND FURNISHED WITH PLUGS.

ALL BOLTS AND NUTS USED IN THE FINISHED WORK FOR FLANGES SHALL BE MADE OF SILICON BRONZE (ASTM B 9874A, ALLOY A) OR STAINLESS STEEL (ASTM A 276-75 TYPE 302). THE ENDS OF ALL BOLTS MUST BE FINISHED TO STANDARD RADIUS IN ACCEPTABLE MANNER. ALL SCREW THREADS SHALL BE AMERICAN STANDARD COARSE THREAD (NC). STUD BOLTS DOUBLE END (ROD) SHALL BE USED TO MAKE THE FLANGED JOINTS ON PIPE. ALL DIMENSIONS TO BE ACCORDING TO AMERICAN STANDARD HEAVY. BOLTS AND NUTS SHALL BE DELIVERED TO THE FIELD FREE FROM GREASE, RUST, AND DIRT AND SHALL BE PROPERLY PROTECTED FROM MOISTURE AND DIRT IN THE FIELD. GASKETS FOR FLANGED PIPE SHALL BE 5X MANILA ROPE PATTERN OR OTHER APPROVED TYPE.

(B) MECHANICAL JOINTS

ALL FITTINGS AND PIPE BELL ENDS CONNECTED TO FITTINGS, UNLESS OTHERWISE REQUIRED, SHOWN ON CONTRACT DRAWINGS, OR DIRECTLY SPECIFIED, SHALL HAVE BELL OR PLAIN END JOINTS OF THE MECHANICAL BOLTED STUFFING-BOX TYPE WITH SEALING GASKET AND BOLTED DUCTILE-IRON FOLLOWER GLAND AND WHERE REQUIRED OR CALLED FOR ON THE CONTRACT DRAWINGS, BE OF THE SPECIFIED RETAINED TYPE. BOLTS AND NUTS FOR MECHANICAL JOINTS SHALL BE CORROSION RESISTANT, HIGH STRENGTH, LOW ALLOY STEEL. MECHANICAL JOINTS SHALL CONFORM TO THE REGULAR AND SPECIAL REQUIREMENT THAT ALL GLANDS SHALL BE DUCTILE-IRON WITH JOINT DIMENSIONS AND TOLERANCES, BOLT HOLES AND SLOTS, GASKETS, RUBBER, QUALITY CONTROL, BOLTS AND NUTS AND MARKING CONFORM WITH ANSI/AWWA C111/A21.11-80 FOR RUBBER-GASKET JOINTS FOR DUCTILE-IRON AND GRAY-IRON PRESSURE PIPE AND

FITTINGS, WHERE REQUIRED OR CALLED FOR ON THE CONTRACT DRAWINGS, MECHANICAL JOINTS SHALL BE RETAINED AS SPECIFIED IN PARAGRAPH (D). "RETAINED MECHANICAL JOINTS." ALL MECHANICAL JOINTS SHALL BE POLYETHYLENE ENCASED AS SPECIFIED IN PARAGRAPH (E). "POLYETHYLENE ENCASEMENTS OF JOINTS."

(C) RETAINED MECHANICAL JOINTS

ON ALL PIPE AND FITTINGS AT BENDS, TEES, CROSSES, SPECIAL FITTINGS, BETWEEN VERTICAL OFFSETS OR BENDS, ON HYDRANT BRANCHES, ON VALVES AND HYDRANT BASE ELBOWS THE CONTRACTOR SHALL FURNISH AND INSTALL RETAINED TYPE MECHANICAL JOINTS

PIPE AND FITTING BELL JOINT AND GASKETS SHALL BE FURNISHED AS SPECIFIED. GLANDS FOR RETAINED MECHANICAL JOINTS SHALL BE BOLTED TYPE OF DUCTILE-IRON MATERIAL CONFORMING TO ANSI/AWWA C111/A21.11-80 FOR RUBBER-GASKET JOINTS FOR DUCTILE-IRON AND GRAY-IRON PRESSURE PIPE AND FITTINGS AND/OR CONFORMING WITH ASTM A 536-80 WITH THE ADDITIONAL REQUIREMENT THAT ALL SUCH GLANDS SHALL BE OF THE DUCTILE-IRON GRADE 60-42-10 MINIMUM REQUIREMENTS OF CENTRIFUGALLY CAST DUCTILE-IRON PIPE. RETAINED MECHANICAL JOINTS SHALL BE EQUIPPED WITH CUPPED END SQUARE HEAD CORROSION RESISTANT ALLOY STEEL OR COPPER-BEARING DUCTILE IRON SET SCREWS THREADED THROUGH TAPPED AND THREADED HOLES IN THE GLAND LIP. GLAND FLANGE SHALL BE THICKENED AND GLAND LIP SHALL BE EXTENDED TO PROVIDE FOR GLAND STRENGTH AND SET SCREW SIZE. NO SPLIT RETAINER GLANDS SHALL BE USED. LONGER BOLTS FOR JOINT ASSEMBLY SHALL BE FURNISHED WITH RETAINER GLANDS. SET SCREWS SHALL BE MINIMUM 5/8-INCH SIZE. NUMBER OF PERPENDICULAR SET SCREWS PER RETAINED JOINT SHALL BE: 4 FOR 4" PIPE, 6 FOR 6" PIPE, MINIMUM OF 8 FOR 8" PIPE, MINIMUM OF 12 FOR 10" PIPE, 16 FOR 12" PIPE.

WEDGE ACTION TYPE RETAINED MECHANICAL JOINTS HAVING TWIST-OFF NUTS MAY BE USED IF APPROVED BY THE WATER SUPERINTENDENT AS TO SIZE, NUMBER AND BOLT SIZE. WHERE JOINT DEFLECTION IS NECESSARY FOR ALIGNMENT SUCH DEFLECTION SHALL BE LIMITED TO 3 DEGREES. SET SCREWS SHALL BE TIGHTENED AFTER JOINT IS MADE TO 75 FOOT-POUNDS TORQUE. SET-SCREW TIGHTENING SHALL BE DONE AFTER THE JOINT BOLTS HAVE BEEN TIGHTENED. SET SCREWS SHALL ALL BE MADE FINGER-TIGHT AND TIGHTENED TO MAXIMUM TORQUE BY ALTERNATING TO OPPOSITE SIDES. ALL RETAINED MECHANICAL JOINT RETAINER GLANDS SHALL BE OF A DESIGN APPROVED BY THE COMMISSIONER OF WATER. ALL RETAINED JOINTS SHALL BE RATED FOR 250 PSI PRESSURE. ALL RETAINED JOINTS SHALL BE POLYETHYLENE ENCASED AS SPECIFIED IN PARAGRAPH (F).

(D) POLYETHYLENE ENCASEMENT

ALL MECHANICAL JOINTS, ALL RETAINED MECHANICAL JOINTS AND ALL PIPE AND FITTINGS WHERE SHOWN ON THE DRAWING OR WHERE REQUIRED SHALL BE POLYETHYLENE ENCASED. POLYETHYLENE ENCASEMENT FOR MECHANICAL JOINTS, RETAINED MECHANICAL JOINTS OR ANY JOINT REQUIRING BOLTS SHALL BE GENERALLY IN ACCORDANCE WITH AMERICAN NATIONAL STANDARD ANSI/AWWA C105/A21.582 FOR POLYETHYLENE ENCASEMENT FOR DUCTILE-IRON PIPING FOR WATER. MECHANICAL JOINTS, RETAINED MECHANICAL JOINTS AND ALL BOLTED JOINTS SHALL HAVE DOUBLE POLYETHYLENE ENCASEMENT OF CLASS "C" (BLACK) FILM, METHOD "C" DOUBLING SHEET AND PROVIDING 1-FOOT MINIMUM OVERLAP ON PIPE OR FITTING ON BOTH SIDES OF JOINT. ALL PIPE AND FITTINGS WHERE SHOWN ON THE DRAWINGS OR WHERE OTHERWISE REQUIRED TO BE POLYETHYLENE ENCASED SHALL BE ENCASED USING CLASS "C" FILM, METHOD "B". POLYETHYLENE ENCASEMENT SHALL BE SECURELY TAPED AROUND PIPE AND FITTINGS.

(E) ALL BOLTS AND NUTS ON ALL MECHANICAL JOINTS AND RETAINED MECHANICAL JOINTS SHALL HAVE FIELD APPLIED ONE (1) COAT OF BITUMASTIC COATING PRIOR TO POLYETHYLENE ENCASEMENT.

AFTER ERECTION AND BEFORE POLYETHYLENE ENCASEMENT, ALL EXPOSED OR DAMAGED COATING AND ALL BOLTS FOR MECHANICAL JOINTS, RETAINED MECHANICAL JOINTS, FLANGES AND VICTAULIC OR COMPRESSION TYPE BOLTED SLEEVED COUPLINGS SHALL BE CLEANED AND PAINTED WITH THREE (3) FIELD COATS OF KOPPERS BITUMASTIC SUPER TANK SOLUTION OR EQUIVALENT.

DRAWINGS

(A) THE CONTRACTOR SHALL SUBMIT TO THE DIRECTOR FOR APPROVAL FOUR (4) SETS OF PRINTS OF ALL SHOP DRAWINGS FOR PIPE AND FITTINGS AND MISCELLANEOUS OR SPECIAL DETAILS OF PIPE AND FITTING JOINTS WHICH ARE NOT STANDARD CONSTRUCTION OR FULLY DETAILED IN THE REGULAR CATALOG OF THE COMPANY. FURNISHING THE PIPE, FITTINGS AND SPECIALS, NO WORK SHALL BE DONE IN THE SHOP UNTIL AFTER THE DRAWINGS HAVE BEEN APPROVED.

(B) THE APPROVAL OF THE DRAWINGS BY THE DIRECTOR SHALL NOT RELIEVE THE CONTRACTOR OF ANY OF HIS OBLIGATIONS IN CONNECTION WITH THIS CONTRACT.

MEASUREMENT

THE NUMBER OF NEW HYDRANT INSTALLATIONS/CONNECTIONS TO BE PAID FOR SHALL BE THE ACTUAL NUMBER OF COMPLETE ASSEMBLIES FURNISHED AND PLACED IN ACCORDANCE WITH THESE SPECIFICATIONS.

PAYMENT

EACH COMPLETE ASSEMBLY OR ADJUSTMENT ABOVE SHALL BE PAID FOR AT THE CONTRACT PRICE BID PER THE FOLLOWING:

"ITEM SPECIAL - FURNISHING AND SETTING 6 IN. HYDRANT, COMPLETE"

PRICE AND PAYMENT SHALL CONSTITUTE FULL COMPENSATION FOR EXCAVATING AND FOR FURNISHING, HAULING, PLACING, CUTTING INTO AND CONNECTING THE HYDRANT, PIPE, PIPE BENDS, PLUG AND CLAMPS AT DEAD ENDS, SHEETING AND BRACING, SAND BACKFILL, WATER USED FOR COMPACTION, INCIDENTAL CONCRETE, THE REMOVAL OF ALL SURPLUS EXCAVATION AND DISCARDED MATERIAL, AND FOR ALL LABOR, EQUIPMENT, TOOLS AND INCIDENTALS NECESSARY TO COMPLETE THESE ITEMS EXCEPT FOR THE ITEMS SPECIFICALLY LISTED AS SEPARATE PAY ITEMS.

VALVES

WORK INCLUDED

THE CONTRACTOR SHALL, UNDER THIS ITEM, FURNISH ALL THE MATERIALS FOR AND SHALL PROPERLY SET IN PLACE AND CONNECT AT THE LOCATIONS SHOWN ON THE DRAWINGS OR AS DIRECTED, ALL VALVES OF THE VARIOUS SIZES AND TYPES SPECIFIED OR ORDERED, ALL AS REQUIRED FOR THE PROPER COMPLETION OF THE WORK INCLUDED UNDER THIS CONTRACT IN GENERAL. THIS WORK SHALL INCLUDE THE FURNISHING, PLACING, TESTING, AND PAINTING OF THE VALVES, OPERATING NUTS AND OTHER ACCESSORIES AND APPURTENANCES AND THE FURNISHING OF ALL LABOR, TOOLS, AND APPLIANCES NECESSARY TO COMPLETE THE WORK AS SPECIFIED OR AS SHOWN.

GATE VALVES

(A) STRENGTH OF VALVES - THE GATE AND CHECK VALVES 3" TO 12" SHALL BE DESIGNED FOR 200 PSI WORKING PRESSURE. CHECK VALVES 18" AND ABOVE FOR 150 PSI AND SHALL WITHSTAND AN INTERNALLY APPLIED HYDROSTATIC PRESSURE AT ALL POINTS OF AT LEAST 300 PSI, EXCEPT AS SPECIFIED IN MATERIAL SPECIFICATION. "HYDROSTATIC TESTS AT SHOP". A FACTOR OF SAFETY OF NOT LESS THAN 10 SHALL BE USED ON THE DESIGN. THE BUTTERFLY VALVES SHALL BE CLASS 150B AND SHALL BE HYDROSTATICALLY TESTED IN THE SHOP IN ACCORDANCE WITH ANSI/AWWA C-504-80, OR LATEST REVISION THEREOF. SHOULD TESTS REVEAL ANY WEAKNESS, THE VALVES FROM THAT DESIGN SHALL BE REJECTED AND A NEW DESIGN MADE.

(B) PARTS TO BE INTERCHANGEABLE - ALL PARTS OF VALVES OF THE SAME SIZE AND MAKE MUST BE PERFECTLY INTERCHANGEABLE AND ALL WORK DONE IN A THOROUGH AND WORKMANLIKE MANNER.

(C) VALVE BODY - THE VALVE BODY SHALL BE OF SHORT BODY DESIGN. THE VALVE BODY SHALL HAVE CAST THEREON IN A CONSPICUOUS PLACE THE MANUFACTURER'S NAME OR INITIALS, RATED WORKING PRESSURE AND THE YEAR OF MANUFACTURE. THESE LETTERS SHALL BE 1/8-INCH IN RELIEF AND OF AN APPROVED HEIGHT.

GENERAL NOTES

CASTINGS - ALL CASTING, WHETHER OF BRONZE, IRON OR STEEL, SHALL BE SOUND AND SMOOTH WITHOUT COLD SHUTS, SWELLS, LUMPS, SCABS, BLISTERS, SAND HOLES OR OTHER IMPERFECTIONS, AND SHALL BE MADE IN ACCORDANCE WITH THE BEST MODERN FOUNDRY PRACTICE TO OBTAIN CASTINGS OF THE BEST QUALITY AND OF UNIFORM THICKNESS. NO WELDING, PLUGGING OR FILLING OF HOLES OR OTHER DEFECT WILL BE PERMITTED FOR PARTS WHOSE THICKNESS IS LESS THAN 1-INCH. CASTINGS BEING THINNER THAN THE SPECIFIED THICKNESS BY .06 INCH OR MORE SHALL BE REJECTED, AND FOR PARTS FOR WHOSE THICKNESS IS 1-INCH OR MORE, CASTINGS BEING THINNER THAN SPECIFIED BY .08 INCH OR MORE SHALL BE REJECTED.

MECHANICAL JOINT ENDS - ALL VALVES REQUIRING MECHANICAL JOINT ENDS SHALL BE FURNISHED WITH MECHANICAL JOINT ENDS COMPLETE WITH GASKETS AND RETAINER TYPE GLANDS AND SHALL FIT THE PLAIN-END OF ALL DUCTILE IRON PIPE, CLASSES 150, 200 AND 250 MANUFACTURED TO SPECIFICATIONS ASA A21.8, OF LATEST REVISION INCLUDING THE PLAIN-END OF ALL MAKES OF DUCTILE IRON PIPE OF SLIP CONNECTION TYPE.

FLANGED ENDS - WHEN FLANGED VALVES ARE REQUIRED, THE FLANGES SHALL BE FACED AND DRILLED. BOLT HOLES SHALL BE SPOT FACED ON THE BACK WHEN NECESSARY TO SECURE AN EVEN BEARING. ALL BOLT HOLES SHALL BE OF THE SIZE SHOWN ON THE DRAWINGS TO BE SUBMITTED AND APPROVED, AND SHALL BE ACCURATELY DRILLED FROM TEMPLATES, SPACED EQUAL DISTANCES APART AND SHALL STRADDLE HORIZONTAL AND VERTICAL AXIS, ALL AS SHOWN ON THE DRAWINGS. THE DIMENSIONS AND DRILLING OF ALL END FLANGES SHALL CONFORM TO THE SPACING INDICATED ON THE DRAWINGS, WHICH SHALL BE THE AMERICAN 125 LB. CAST IRON FLANGE STANDARD. FLANGES SHALL BE PLAIN FACE WITH A SMOOTH FINISH.

SCREW ENDS - ALL 2-INCH GATE VALVES AND UNDER, SHALL BE MADE WITH SCREW ENDS, UNLESS OTHERWISE SPECIFIED. THE 3-INCH AND 4 INCH HANDWHEEL GATE VALVES SHALL BE FURNISHED WITH SCREW ENDS WHENEVER REQUIRED BY THE DIRECTOR. THREADS TO BE INSIDE STANDARD IRON PIPE THREADS.

SOLDER JOINT ENDS - THE END CONNECTION SOCKETS OF SOLDER-JOINT GATE VALVES SHALL BE MADE TO CLOSE TOLERANCES AND SNUGLY FIT TYPE K AND L COPPER TUBING TO PERMIT MAKING SWEAT JOINTS. DEPTH OF JOINTS ON 1-1/2" VALVES SHALL NOT BE LESS THAN 1-3/16" AND ON 2-INCH VALVES NOT LESS THAN 1-3/8".

GATE VALVES - GENERAL

TYPE OF VALVES - THE GATE VALVES SHALL BE MANUFACTURED IN FULL COMPLIANCE WITH THE STANDARD SPECIFICATIONS FOR GATE VALVES FOR WATER AND SEWERAGE SYSTEM OF THE ANNA C-500-88 OR LATEST REVISION THEREOF AND IN ADDITION SHALL COMPLY WITH THE FOLLOWING SUPPLEMENTARY REQUIREMENTS. ALL GATE VALVES SHALL BE OF THE DOUBLE DISC PARALLEL SEAT BOTTOM WEDGE OR SIDE WEDGE TYPE. ALL GATE VALVES 20 INCHES AND OVER IN SIZE SHALL INCLUDE BYPASS VALVES ATTACHED THERETO. IN OPENING OR CLOSING THE VALVE, THE GATES SHALL BE FORCED TO ASCENT OR DESCENT BY REASON OF THE THRUST EXERTED UPON THE GATES DIRECTLY BY THE VALVE STEM NUT. THIS THRUST BEING GENERATED BY THE ROTATION OF THE VALVE STEM. IN CLOSING THE VALVE THE SIDES, WHEN OPPOSITE THE PORTS, SHALL BE PRESSED FIRMLY AGAINST THE BODY SEATS BY WEDGES OR SOME OTHER DEVICE EQUALLY SUITABLE TO THE COMMISSIONER OF WATER. THE DESIGN OF THE MECHANICAL WEDGING ACTION SHALL BE SUCH THAT SEATING FORCE IS APPLIED EQUALLY TO TWO OR MORE CONTACT POINTS NEAR THE OUTER EDGE OF EACH DISC AT OR ABOVE AND BELOW THE HORIZONTAL CENTERLINE OF DISC. THE MECHANISM SHALL BE DESIGNED SO THAT ALL WEDGING MEMBERS ARE ACTIVATED AT ONE TIME. IT SHOULD BE OF THE TYPE WHICH WILL ELIMINATE UNBALANCED SEATING PRESSURE AND MINIMIZE DISTORTION OF THE DISCS.

(A) VALVES TO OPEN CLOCKWISE EXCEPT 2-INCH AND UNDER - ALL GATE VALVES 3 INCH AND OVER, INCLUDING BYPASS VALVES, SHALL BE MADE TO OPEN BY TURNING IN A CLOCKWISE DIRECTION. VALVES 2 INCH AND UNDER SHALL BE MADE TO OPEN BY TURNING IN A COUNTER-CLOCKWISE DIRECTION. ALL VALVES TO BE MADE SO THAT THEY CAN BE EASILY OPERATED.

(B) FACING OF GATES - ALL DISCS OF GATES AND THREADS FOR SEAT RINGS IN THE BODY SHALL BE MACHINED TRUE AND A GROOVE OR GROOVES SHALL BE MACHINED IN EACH DISC OR GATE FOR THE RECEPTION OF THE FACE RING. THE DISC AND SEAT RINGS SHALL BE SECURELY AND RIGIDLY ATTACHED TO THE DISCS OR BODY SEATS IN A MANNER APPROVED BY THE DIRECTOR, AND THE RINGS ARE TO BE FINISHED TO A TRUE SURFACE.

(C) VALVES WITH STATIONARY STEMS - ALL GATE VALVES, UNLESS OTHERWISE ORDERED, SHALL BE MADE WITH SINGLE, NON-RISING STEMS.

(D) OUTSIDE SCREW AND YOKE VALVES - GATE VALVES WITH OUTSIDE SCREW AND YOKES, SHALL BE MADE WITH RISING STEMS. ALL OUTSIDE SCREW AND YOKE VALVES SHALL BE EQUIPPED WITH WHEELS FOR OPERATING SAME. WHEELS ARE TO BE OF CAST IRON OR DUCTILE IRON. WHEELS SHALL HAVE CAST ON THEM, AN ARROW INDICATING THE DIRECTION OF TURNING FOR OPENING THE VALVE.

(E) OUTSIDE SCREW AND YOKE GATE VALVES 6 INCHES AND LARGER IN SIZE SHALL BE PROVIDED WITH TWO BOSSES ON ONE SIDE OF THE BODY, LOCATED ON THE HORIZONTAL CENTERLINE OF GATE VALVES TO PERMIT THE INSTALLATION OF BYPASS AROUND THE GATE. BOSSES ARE TO BE LEFT SOLID AND OF AMPLE SIZE TO PERMIT DRILLING AND TAPPING FOR BYPASSES.

(F) VERTICAL AND HORIZONTAL VALVES - ALL GATE VALVES, 16 INCHES AND UNDER SHALL BE CONSTRUCTED TO WORK VERTICALLY. VALVES OVER 16 INCHES WATERWAY SHALL BE CONSTRUCTED TO WORK HORIZONTALLY.

(G) WATERWAY OPENING - WITH THE VALVE OPEN, AN UNOBSTRUCTED WATERWAY SHALL BE AFFORDED, THE DIAMETER OF WHICH IS NOT TO BE LESS THAN THE FULL NORMAL DIAMETER OF THE VALVE, EXCEPT THAT IF LUGS ARE PROVIDED FOR INSERTING OR REMOVING THE BODY-SEAT RINGS, THE LUGS NEED NOT BE REMOVED AFTER THE VALVE IS ASSEMBLED.

(H) CAST IRON PARTS - THE BODIES, COVERS, DISCS, FLANGES, ETC., OF ALL GATE VALVES 3 INCHES AND OVER SHALL BE CAST IRON.

(I) WRENCH CAPS - THE WRENCH CAPS AND RETAINING NUTS ON HEADS OF VALVE STEMS AND PINION SHAFTS SHALL BE OF BRONZE OR DUCTILE IRON SPECIFICATION A 536. ON VALVES 24 INCHES AND OVER, WRENCH CAPS SHALL BE 2-INCH SQUARE AND 2-INCH DEEP. ON VALVES 3 INCHES TO 20 INCHES INCLUSIVE, THEY SHALL BE 1-3/4" SQUARE ON TOP, 1-7/8" SQUARE AT BASE, AND 1-3/4" DEEP. ON 2-INCH VALVES AND UNDER THEY SHALL BE 1-1/4" SQUARE ON TOP, 1-3/8" SQUARE AT BASE AND 1-1/2" DEEP. MACHINED WRENCH CAPS FOR VALVES 3 INCHES TO 48 INCHES INCLUSIVE SHALL BE FITTED TO A MACHINED SQUARE STEM OR PINION SHAFT AND HELD IN PLACE BY A RETAINING NUT OF BRONZE ASTM 584 C.A. 987. ON 1-1/2" AND 2-INCH VALVES THE WRENCH CAP SHALL BE SECURED TO THE SHAFT WITH A BRASS PIN. WRENCH CAPS SHALL HAVE A CUT-AWAY SKIRT TO PERMIT EASY ACCESS TO GLAND BOLTS.

(J) VALVE STEM - THE STEM SHALL BE OF SUFFICIENT LENGTH TO ALLOW THE REMOVAL OF PACKING WITHOUT NECESSITATING THE REMOVAL OF THE OPERATING NUT. THE STEM OPENING AND THRUST BEARING RECESS SHALL BE BRONZE BUSHED WITH TWO "O" RINGS LOCATED ABOVE THE THRUST COLLAR AND ONE BELOW FORMING A LUBRICANT CHAMBER. THE NUMBER OF THREADS PER INCH SHALL BE AS SHOWN IN ANNA C-500.

MATERIAL SPECIFICATIONS

BOLTS AND NUTS - ALL BOLTS AND NUTS SHALL BE MADE OF SILICON BRONZE (ASTM B-98-65, ALLOY A) STAINLESS STEEL ASTM A 276-85, TYPE 302; DUCTILE IRON ASTM A-536, GRADE 65-45-12; KORETEN A OR AN ACCEPTABLE EQUIVALENT.

BRONZE PARTS - ALL GRADES OF BRONZE SHALL BE IN ACCORDANCE WITH ANNA C-500 UNLESS OTHERWISE SPECIFIED HEREIN.

CAST IRON - CAST IRON SHALL CONFORM TO ASTM SPECIFICATION A 126, CLASS B, OR LATEST REVISION THEREOF. ALL IRON CASTINGS SHALL BE TOUGH AND WITHOUT BRITTLINESS, SUCH AS MAY BE CUT, DRILLED AND CHIPPED BY HAND WITH DUE EASE. A BLOW FROM A HAMMER SHALL PRODUCE AN INDENTATION ON THE EDGE OF THE CASTING WITHOUT FLAKING THE METAL.

SILICON BRONZE - THIS BRONZE SHALL CONFORM TO ASTM SPECIFICATION B 98, ALLOY 655.

STAINLESS STEEL - THE STAINLESS STEEL SHALL CONFORM TO ASTM SPECIFICATION A 276, TYPE 304 AND TYPE 316 ACCORDING TO REQUIREMENTS.

OTHER MATERIALS - ALL OTHER MATERIALS USED IN THE MANUFACTURE OF THESE VALVES AND NOT SPECIFIED IN THE SPECIFICATIONS, SHALL BE OF THE BEST QUALITY OF THEIR RESPECTIVE KINDS, AND SUBJECT TO INSPECTION, TESTS, AND APPROVAL BY THE ENGINEER.

CHEMICAL ANALYSIS - CHEMICAL ANALYSIS OF THE MATERIAL USED SHALL BE FURNISHED BY THE CONTRACTOR WHENEVER REQUIRED BY THE ENGINEER.

CLEANING OF CASTINGS - ALL IRON CASTINGS SHALL BE THOROUGHLY CLEANED ON THE OUTSIDE AND INSIDE SURFACES AND PROTECTED FROM RAIN OR MOISTURE UNTIL THEY ARE PAINTED.

HYDROSTATIC TESTS AT SHOP - ALL GATE VALVES SHALL BE TESTED IN THE SHOP BY HYDROSTATIC PRESSURE, BY CLOSING THE VALVE AND APPLYING THE REQUIRED TEST PRESSURE IN THE BODY AND DOME OF THE VALVE AS SPECIFIED BELOW:

3" AND UNDER 300 PSI - NO TIME REQUIREMENT
4" THROUGH 12" 400 PSI - NO TIME REQUIREMENT

THIS IS MODIFICATION OF SECTION 5.1 OF THE "STANDARD SPECIFICATIONS ANNA DESIGNATION C 500-88". ALL LEAKS, FLAWS, OR OTHER DEFECTS DEVELOPED IN MAKING THESE TESTS SHALL BE CORRECTED TO THE SATISFACTION OF THE DIRECTOR OR THE ENTIRE PIECE SHALL BE REJECTED AFTER TESTING. ALL VALVES SHALL BE THOROUGHLY DRAINED. ALL EQUIPMENT FOR TESTING AND ALL TESTS SHALL BE MADE AT THE CONTRACTOR'S EXPENSE.

THE CONTRACTOR SHALL INCLUDE WITH EACH VALVE THREE (3) CERTIFIED COPIES OF REPORTS SHOWING THE RESULTS OF ALL SHOP TESTS, AND A BRIEF DESCRIPTION OF HOW THE TESTS WERE PERFORMED.

PERFORMANCE TESTS - EACH VALVE SHALL BE OPERATED IN THE POSITION THAT IT WILL ASSUME IN SERVICE AND FOR THE FULL LENGTH OF GATE TRAVEL IN BOTH DIRECTION TO DEMONSTRATE THE FREE AND PERFECT FUNCTIONING OF ALL PARTS IN THE INTENDED MANNER. ANY DEFECTS OF WORKMANSHIP SHALL BE CORRECTED AND THE TEST REPEATED UNTIL SATISFACTORY PERFORMANCE IS DEMONSTRATED.

PLACING AND TESTING

(A) ALL VALVES SHALL BE TESTED ACCURATELY AND CAREFULLY TO THE LINES AND GRADES GIVEN. ALL CONNECTIONS TO PIPE SHALL HAVE THE NECESSARY MECHANICAL JOINT FLANGED, SCREWED, VICTAULIC OR SOLDERED ENDS AS REQUIRED.

(B) AFTER THE VALVES ARE SET IN PLACE AND READY TO OPERATE, THE CONTRACTOR SHALL TEST THEM UNDER WORKING PRESSURE AND CONDITIONS SPECIFIED IN THE WATERWORKS NOTES AND ANY VALVE FOUND TO LEAK SHALL BE MADE WATERTIGHT AND IF FOUND TO BE OF FAULTY DESIGN, SHALL BE SATISFACTORILY REPAIRED OR REPLACED BY THE CONTRACTOR.

PAINTING

(A) IRON BODY VALVES SHALL EITHER BE DIPPED IN ASPHALT PAINT AND ALL BRONZE AND PLASTIC COATED INTERNAL PARTS CLEANED, OR AFTER PASSING THE HYDRAULIC TEST, SHALL BE GIVEN AT LEAST TWO COATS OF APPROVED PAINT OUTSIDE.

(B) ALL INTERIOR OR EXTERIOR FERROUS METAL SURFACES, EXCEPT MACHINE SURFACES, SHALL BE THOROUGHLY CLEANED OF ALL RUST, WIRE BRUSHED AND WASHED WITH BENZENE BEFORE PAINTING OR COATING.

(C) AFTER ERECTION, ALL EXPOSED METAL SURFACES OF VALVES EXCEPT BRASS OR BRONZE SHALL BE PAINTED WITH TWO FIELD COATS OF COAL TAR PITCH PAINT EQUAL TO KOPPERS BITUMASTIC SUPER TANK SOLUTION.

INSPECTION

THE ENGINEER, OR HIS AUTHORIZED DESIGNATE, WILL INSPECT THE MATERIAL AND WORK DONE AS THE INTEREST OF THE CITY MAY REQUIRE. SUCH OFFICER SHALL HAVE UNRESTRICTED ACCESS TO THE CONTRACTOR'S PLANT, AND TO ALL PARTS OF THE WORK AND OTHER PLACES AT WHICH THE PREPARATION OF THE MATERIAL AND THE CONSTRUCTION OF THE DIFFERENT PARTS OF THE WORK TO BE DONE UNDER THESE SPECIFICATIONS ARE CARRIED ON AND HE SHALL RECEIVE ALL FACILITIES AND ASSISTANCE TO CARRY OUT HIS WORK OF INSPECTION AND TESTING IN A MANNER SATISFACTORY TO THE DIRECTOR. SUCH INSPECTION SHALL NOT RELIEVE THE CONTRACTOR FROM ANY OBLIGATION TO PERFORM SAID WORK STRICTLY IN ACCORDANCE WITH THE SPECIFICATIONS, OR ANY MODIFICATIONS THEREOF, AS HEREIN PROVIDED. WORK NOT SO CONSTRUCTED SHALL BE REMOVED AND MADE GOOD BY THE CONTRACTOR AT HIS OWN EXPENSE.

GENERAL NOTES

DRAWINGS

(A) PRIOR TO THE MANUFACTURE OF ANY VALVES, THE CONTRACTOR SHALL SUBMIT FOR THE APPROVAL OF THE DIRECTOR, FOUR (4) SETS OF COMPLETE WORKING DETAIL AND DIMENSION DRAWINGS SHOWING THICKNESSES AND KINDS OF MATERIAL AND SIMILAR INFORMATION.

ONE PRINT OF EACH OF THE DRAWINGS SUBMITTED WILL BE RETURNED WITH THE CRITICISMS OR APPROVAL OF THE ENGINEER. IN CASE THE DRAWINGS ARE NOT APPROVED, THE CONTRACTOR SHALL AGAIN SEND FOR APPROVAL, FOUR (4) SETS OF REVISED PRINTS OF THE DRAWINGS TO TAKE CARE OF THE CRITICISMS NOTED. NOT WORK SHALL BE DONE IN THE SHOP UNTIL AFTER THE DRAWINGS HAVE BEEN FINALLY APPROVED.

IF THE VALVE FURNISHED IS ONE PREVIOUSLY APPROVED FOR WHICH DRAWINGS ARE PRESENTLY ON FILE WITH THE DEPARTMENT OF PUBLIC UTILITIES, THE DRAWING REQUIREMENT WILL BE WAIVED.

ITEM SPECIAL - HYDRANT ADJUSTED TO GRADE

WORK INCLUDED

THE WORK INCLUDED UNDER THIS ITEM SHALL CONSIST OF EXTENDING AND ADJUSTING EXISTING HYDRANTS TO GRADE AT THE LOCATIONS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER, INCLUDING EXCAVATING, REMOVING, AND RESETTING OF EXISTING HYDRANTS AND APPURTENANCES, SHEETING AND BRACING, BACKFILL, LABOR, MATERIALS, EQUIPMENT, TOOLS AND INCIDENTALS NECESSARY TO MAKE THIS A COMPLETE ITEM OF WORK.

PAYMENT

THE UNIT PRICE STIPULATED FOR EACH "ITEM SPECIAL HYDRANT ADJUSTED TO GRADE" SHALL INCLUDE ALL EXCAVATION, SHEETING, REMOVING AND RESETTING HYDRANT, EXTENDING BRANCH, TESTING, PAINTING, BACKFILLING AND FURNISHING ALL LABOR, TOOLS, MATERIALS, AND INCIDENTALS NECESSARY TO COMPLETE THE WORK IN PLACE.

(A) WHERE THE EXISTING HYDRANT IS TO BE EXTENDED AND THE EXTENSION CAN BE ACHIEVED BY CUTTING THE EXISTING PIPE BETWEEN THE EXISTING HYDRANT SHOE AND BRANCH VALVE, THE ADDITIONAL PIPING AND/OR HORIZONTAL OFFSET SHALL BE SLEEVED-IN THE EXISTING BRANCH USING RETAINED MECHANICAL JOINT SOLID SLEEVES OR APPROVED COMPRESSION COUPLINGS.

(B) THE EXISTING BRANCH PIPE SHALL BE CUT NOT LESS THAN 18 INCHES FROM THE FACE OF THE EXISTING HYDRANT SHOE. THE EXISTING HYDRANT WITH THE 18-INCH PIPE INTACT, SHALL BE RELOCATED AND RESET AT ITS PLACE OF RELOCATION AND RECONNECTED TO THE NEW HYDRANT BRANCH PIPING WITH RETAINED MECHANICAL JOINT SOLID SLEEVES OR APPROVED COMPRESSION COUPLINGS AND REQUIRED RETAINED MECHANICAL JOINT FITTINGS OR OFFSETS TO SET RELOCATED HYDRANT TO PROPER LINE AND GRADE.

(C) THE EXISTING BRANCH VALVE CASTING MAY BE REUSED IF IN GOOD CONDITION. VALVE BOX CASTINGS FOUND TO BE DAMAGED OR UNSUITABLE FOR REUSE SHALL BE REPLACED WITH NEW AND UNUSED MATERIAL.

(D) WHERE VERTICAL DEFLECTION BY USE OF VERTICAL BENDS OR OFFSETS CANNOT BE ACHIEVED DUE TO OBSTRUCTION, THE NEW HYDRANT BRANCH TEE MAY BE ROTATED DOWNWARD TO ALLOW PROPER DEFLECTION AND CLEARANCE OF OBSTRUCTION. RETAINED MECHANICAL JOINT FITTINGS SHALL BE USED TO BRING RELOCATED HYDRANT TO PROPER GRADE AFTER CROSSING OBSTRUCTION.

ITEM SPECIAL - CUTTING-IN VALVE WITH VALVE BOX COMPLETE

WORK INCLUDED

THE DIVISION OF WATER WILL SET THE TIME OF INSTALLATION AND THE CONTRACTOR WILL DO ALL PIPE CUTTING AND INSTALLING UNDER THE SUPERVISION OF THE DIVISION OF WATER. THE CONTRACTOR SHALL FURNISH AND HAUL TO THE PROPER LOCATION THE VALVE AND VALVE BOX COMPLETE STANDARD NO. 38 DRESSER COUPLING OR APPROVED SMITH BLAIR COUPLING OR APPROVED EQUAL. IRON PIPE FOR THE INSTALLATION. THE CONTRACTOR SHALL EXCAVATE, PROVIDE SHEETING AND BRACING AS NECESSARY, BACKFILL AND REPAVE AS NECESSARY.

QUALITY OF VALVES

THE VALVES SHALL COMPLY WITH THE REQUIREMENTS OF THE "ITEM SPECIAL VALVES" OF THESE SPECIFICATIONS, INsofar AS THEY APPLY.

PAYMENT

THE WORK INCLUDED IN THIS ITEM SHALL BE PAID FOR AT THE UNIT PRICE BID FOR EACH "ITEM SPECIAL - CUTTING-IN VALVE WITH VALVE BOX COMPLETE", CLASSIFIED AS TO SIZE THE PRICE AND PAYMENT SHALL CONSTITUTE FULL COMPENSATION FOR PERFORMING ALL EXCAVATION, SHEETING, BRACING, BACKFILLING, FURNISHING AND INSTALLING THE CUTTING-IN VALVE AND THE FURNISHING OF ALL MATERIALS, LABOR, EQUIPMENT, TOOLS AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM OF WORK.

INSPECTION

THE ENGINEER OR HIS AUTHORIZED REPRESENTATIVE SHALL HAVE THE RIGHT TO INSPECT THE MATERIAL AND WORK DONE, AS THE INTERESTS OF THE CITY OR STATE MAY REQUIRE. SUCH INSPECTION SHALL NOT RELIEVE THE CONTRACTOR FROM ANY OBLIGATION TO PERFORM SAID WORK STRICTLY IN ACCORDANCE WITH THE SPECIFICATIONS, AND ANY MODIFICATION THEREOF, AS HEREIN PROVIDED, AND WORK NOT SO CONSTRUCTED SHALL BE REMOVED AND MADE GOOD BY THE CONTRACTOR AT HIS OWN EXPENSE. ALL MANHOLE RINGS AND COVERS MUST BE SOUND AND SHALL CONFORM TO THESE SPECIFICATIONS, AND ANY DEFECTIVE CASTINGS WHICH MAY HAVE PASSED THE INSPECTOR AT THE WORKS, OR ELSEWHERE, SHALL BE AT ALL TIMES LIABLE TO REJECTION WHEN DISCOVERED, UNTIL THE DATE OF FINAL PAYMENT UNDER THIS CONTRACT.

PAINTING

ALL MISCELLANEOUS METAL WORK NOT GALVANIZED SHALL BE THOROUGHLY CLEANED AND GIVEN THREE (3) COATS OF COAL TAR PITCH, USING INTERTOL 50 OR BITUMASTIC 50, OR APPROVED EQUAL.

ITEM SPECIAL - TAPPING SLEEVE, VALVE WITH VALVE BOX, COMPLETE

WORK INCLUDED

THE CONTRACTOR SHALL FURNISH AND INSTALL THE TAPPING SLEEVE AND VALVE AND VALVE BOX, AND THE CITY OF CLEVELAND DIVISION OF WATER WILL MAKE THE TAP AT THE LOCATION SHOWN IN THESE PLANS OR AS DIRECTED BY THE ENGINEER. THE WORK SHALL INCLUDE ALL NECESSARY EXCAVATING, BACKFILLING, AND FOR FURNISHING MATERIAL FOR THESE ITEMS AND ALL THAT IS NECESSARY FOR THE PROPER COMPLETION OF THE WORK.

TAPPING SLEEVES

THE TAPPING SLEEVES SHALL BE PROPERLY SIZED TO FIT THE EXISTING CAST/DUCTILE IRON PIPE/TO BE TAPPED. THE OUTSIDE DIAMETER OF THE EXISTING PIPE SHALL BE DETERMINED BY THE FIELD MEASUREMENTS MADE BY THE CONTRACTOR.

COMPRESSION TYPE TAPPING SLEEVE: TAPPING SLEEVES FOR CAST/DUCTILE IRON PIPE SIZES TO 18 INCHES SHALL BE OF A TWO PART DUCTILE-IRON BOLTED COMPRESSION SEAL TYPE WITH SEALING GASKET /OF RUBBER COMPRESSED BY OUTLET HALF OF BOLTED SLEEVE AND INTERNAL PIPE PRESSURE. MAXIMUM OUTLET SIZE SHALL BE ONE NOMINAL PIPE DIAMETER LESS THAN PIPE TO BE TAPPED. BACK HALF OF BOLTED TAPPING SLEEVE SHALL BE ONE PIECE SECTION AND HAVE PROVISIONS FOR SUPPORT AND LOCKING ACTION.

MECHANICAL JOINT TYPE TAPPING SLEEVE: TAPPING SLEEVES FOR CAST/DUCTILE PIPE SHALL BE OF GRAY DUCTILE CAST IRON TWO PART BOLTED TYPE/HAVING DUCTILE-IRON SPLIT-GLAND MECHANICAL JOINT ENDS.

TAPPING SLEEVE OUTLET: OUTLET OF TAPPING SLEEVE SHALL BE OF FLANGED TO RECEIVE FLANGE END OF TAPPING VALVE AND SHALL BE DESIGNED TO SAFELY WITHSTAND A WORKING PRESSURE OF 150 PSI. OUTLET OF TAPPING SLEEVE SHALL BE FURNISHED WITH A DRILLED AND TAPPED IRON PIPE THREAD AND PLUGGED IN THE SHOP WITH GRAY OR DUCTILE-IRON THREADED PLUG BEFORE SHIPMENT. IRON PIPE THREADED OUTLET SHALL BE FOR TAPPING SLEEVE INSTALLATION PRESSURE TEST BEFORE TAPPING. BOLTING MATERIAL FOR TAPPING SLEEVE SHALL MEET THE REQUIREMENTS FOR VALVES.

TAPPING VALVES

THE TAPPING VALVES SHALL MEET THE SPECIFICATIONS FOR GATE VALVES EXCEPT THAT OVERSIZED SEAT RINGS SHALL BE PROVIDED TO PERMIT THE USE OF FULL-SIZE CUTTERS THROUGH THE VALVE. ONE END OF THE TAPPING VALVE SHALL BE FLANGED OR HAVE LUGGED SPIGOT TO MATE WITH THE TAPPING SLEEVE. THE OUTLET END OF THE TAPPING VALVE SHALL BE A STANDARD ANWA HUB WITH SPECIAL PROVISIONS FOR BOLTING ON THE TAPPING MACHINE. OUTLET END OF TAPPING VALVE SHALL HAVE A RETAINED MECHANICAL JOINT. TAPPING VALVES FOR USE IN BURIED LOCATIONS SHALL BE NOT OPERATED WITH NUTS AND SHALL OPEN BY CLOCKWISE ROTATION OF THE OPERATING NUT BOLTS FOR FLANGED JOINTS. SHALL BE MADE OF SILICON BRONZE (ASTM B98-75 ALLOY A), STAINLESS STEEL (ASTM A276-35 TYPE 302), DUCTILE IRON (ASTM A536, SQUARE GRAD 65-45-12), KORETEN "A" OR AN ACCEPTABLE EQUIVALENT.

INSTALLATION

(A) THE EXISTING CAST/DUCTILE IRON PIPE TO BE TAPPED SHALL BE THOROUGHLY CLEANED IN THE AREA TO BE COVERED BY THE TAPPING SLEEVE. THE SLEEVE SHALL BE PROPERLY INSTALLED IN POSITION AND THE BOLTS TIGHTENED.

(B) ALL EXPOSED FERROUS METAL SURFACES OF BURIED TAPPING SLEEVES AND VALVES SHALL, AFTER ERECTION, BE CLEANED AND PAINTED WITH TWO (2) FIELD COATS OF COAL TAR PITCH PAINT EQUAL TO INTERTOL 50 OR HOPPER'S BITUMASTIC 50. PAINTING SHALL BE ACCORDING TO PAINTING OF VALVES MECHANICAL JOINT TYPE TAPPING SLEEVE AND VALVE SHALL BE POLYETHYLENE ENCASED.

(C) THE ACTUAL TAPPING OF THE MAIN SHALL BE PERFORMED BY THE DIVISION OF WATER AT NO EXTRA COST TO THE CONTRACTOR.

PAYMENT

THE WORK INCLUDED IN THESE ITEMS SHALL BE PAID FOR AT CONTRACT UNIT PRICE BID FOR EACH "ITEM SPECIAL - TAPPING SLEEVE, VALVE WITH VALVE BOX, COMPLETE", CLASSIFIED AS TO SIZE WHICH PRICE AND PAYMENT SHALL CONSTITUTE FULL COMPENSATION FOR FURNISHING, DELIVERY TO THE PROPER LOCATION, INSTALLING, EXCAVATING, SHEETING, SHORING, BACKFILLING, SAND BACKFILLING, AND FOR FURNISHING ALL LABOR, MATERIALS, EQUIPMENT, TOOLS, AND INCIDENTALS NECESSARY TO COMPLETE THE WORK AS SPECIFIED OR AS SHOWN. NO CHARGE WILL BE ASSESSED THE CONTRACTOR FOR THE ACTUAL TAPPING OF THE MAIN. THIS WORK WILL BE PERFORMED BY THE DIVISION OF WATER.

GENERAL SUMMARY

CALC. _____ DATE _____
 CHKD. _____ DATE _____
 CUY-EAST 9TH STREET
 CUYAHOGA COUNTY

OHIO
 F.H.W.A.
 REGION 5

9

SHEET NUMBERS

ITEM	NOTES	14	15	16	17	18	19	20	21	37	38	39	40	ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION
202	2	1												202		3	EACH	REMOVAL MISC.: CURB STOP BOX REMOVED, COMPLETE
638	1													638		1	EACH	FIRE HYDRANT REMOVED AND DISPOSED OF
638						3	10	15	13					638		41	EACH	VALVE BOX OR CURB STOP BOX ADJUSTED TO GRADE
638						1								638		1	EACH	INSTALL NEW 6" FIRE HYDRANT ASSEMBLY, COMPLETE
638						1	1	2						638		4	EACH	EXTEND AND ADJUST HYDRANT TO GRADE
638									1					638		1	EACH	HYDRANT ADJUSTED TO GRADE
SPECIAL	1													SPECIAL		1	EACH	PLUGGING EXISTING SERVICE CONNECTION
638						1	1	1	1					638		4	EACH	WATERWORK MISC.: REMOVE AND RESET METER SETTING, COMPLETE
603														603		100	LN.FT.	6" CONDUIT, TYPE B, 706.08 E.S. OR 706.02 (PS 45 MIN.)
603														603		100	LN.FT.	6" CONDUIT, TYPE C, 706.08 E.S. OR 706.02 (PS 45 MIN.)
603														603		100	LN.FT.	8" CONDUIT, TYPE B, 706.08 E.S. OR 706.02 (PS 45 MIN.)
603														603		100	LN.FT.	8" CONDUIT, TYPE C, 706.08 E.S. OR 706.02 (PS 45 MIN.)
603														603		100	LN.FT.	10" CONDUIT, TYPE B, 706.08 E.S. OR 706.02 (PS 45 MIN.)
603														603		100	LN.FT.	10" CONDUIT, TYPE C, 706.08 E.S. OR 706.19 (PS 45 MIN.)
202										3	8	8	2	202		21	EACH	LIGHT POLE / POWER POLE REMOVED, AS PER PLAN, COMPLETE
625										3	6	8	5	625		22	EACH	LIGHT POLE FOUNDATION, 2' X 4'-9"
625										280	543	788	310.5	625		1901.5	LN.FT.	6 - DUCT TRENCH
713										280	543	788	310.5	713		1901.5	LN.FT.	6 - DUCT BANK
713										4	10	11	5	713		30	EACH	PULL BOX
713										3	6	8	5	713		22	EACH	GROUND ROD

FOR TRAFFIC GENERAL SUMMARY, SEE SHEET NO. 44
 FOR STREETSCAPE GENERAL SUMMARY, SEE SHEET NO. 66

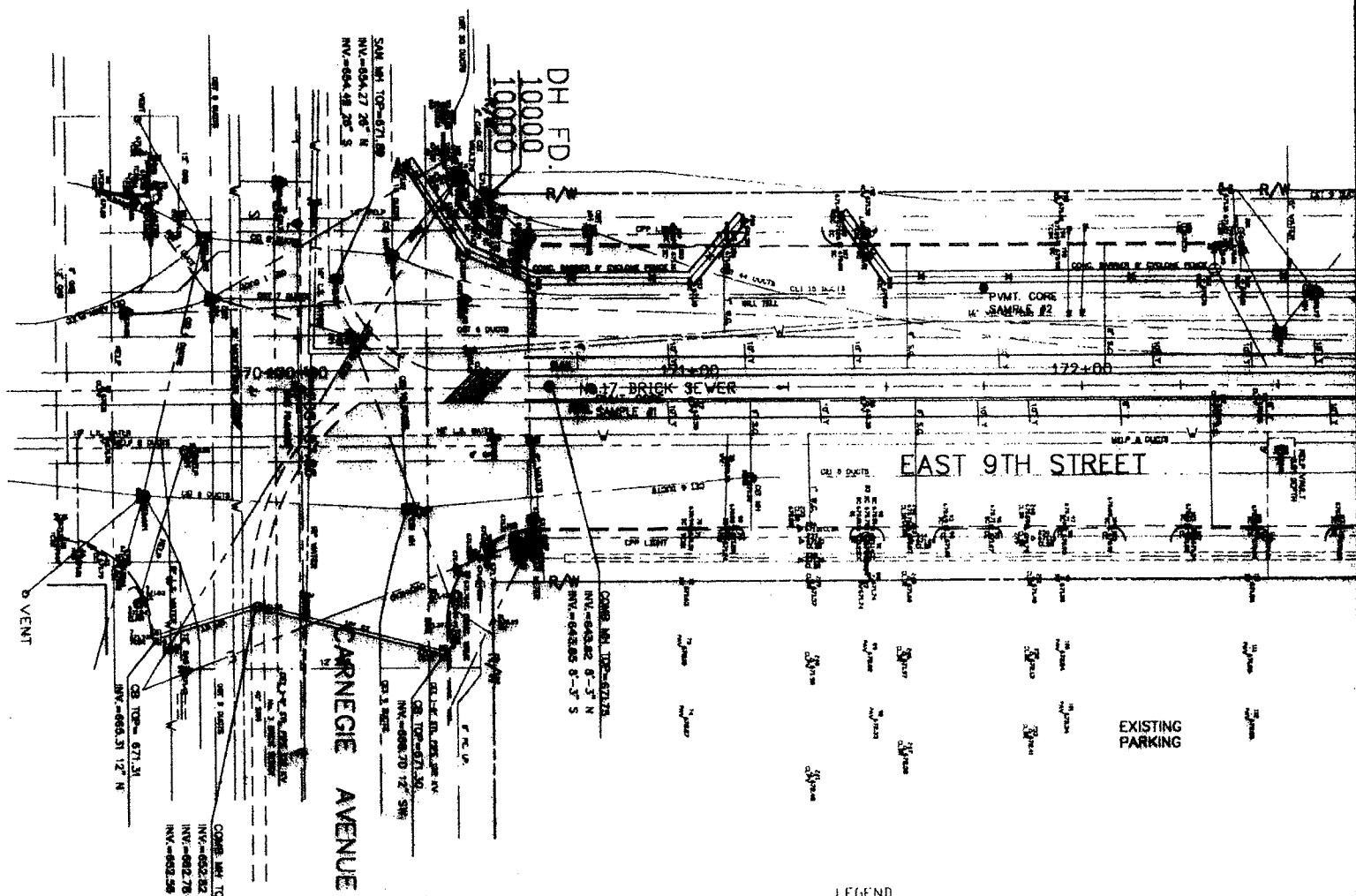
DRAWING NAME: CS-7
 CREATED BY: JDR
 LAST REV. DATE: 6/16/93

Sasaki Associates, Inc.

CUY - EAST 9TH STREET

GENERAL SUMMARY

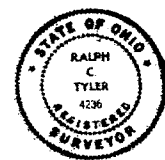
FOR INFORMATION ONLY



DH. FD.
10000
10000

LEGEND

- PROPERTY LINE
- COMMON OWNERSHIP LINE
- CENTER LINE
- RIGHT OF WAY LINE
- EXISTING UTILITIES
- GAS LINE
- WATER LINE EXISTING
- SEWER LINE
- FENCE LINE
- GUARD RAIL
- EXISTING STRUCTURES
- FIRE HYDRANT
- SEWER MANHOLE
- ELECTRICAL MANHOLE
- TELEPHONE MANHOLE
- WESTERN UNION MANHOLE
- WATER MANHOLE
- STEAM MANHOLE
- MONUMENT
- CATCH BASIN
- WATER METER
- WATER VALVE
- GAS VALVE
- STEAM VALVE
- COMBINED UTILITY POLE
- UTILITY POLE
- TREE
- IRON PIN FOUND
- PARKING METER
- SIGN
- ELECTRICAL BOX
- TRAFFIC CONTROL BOX

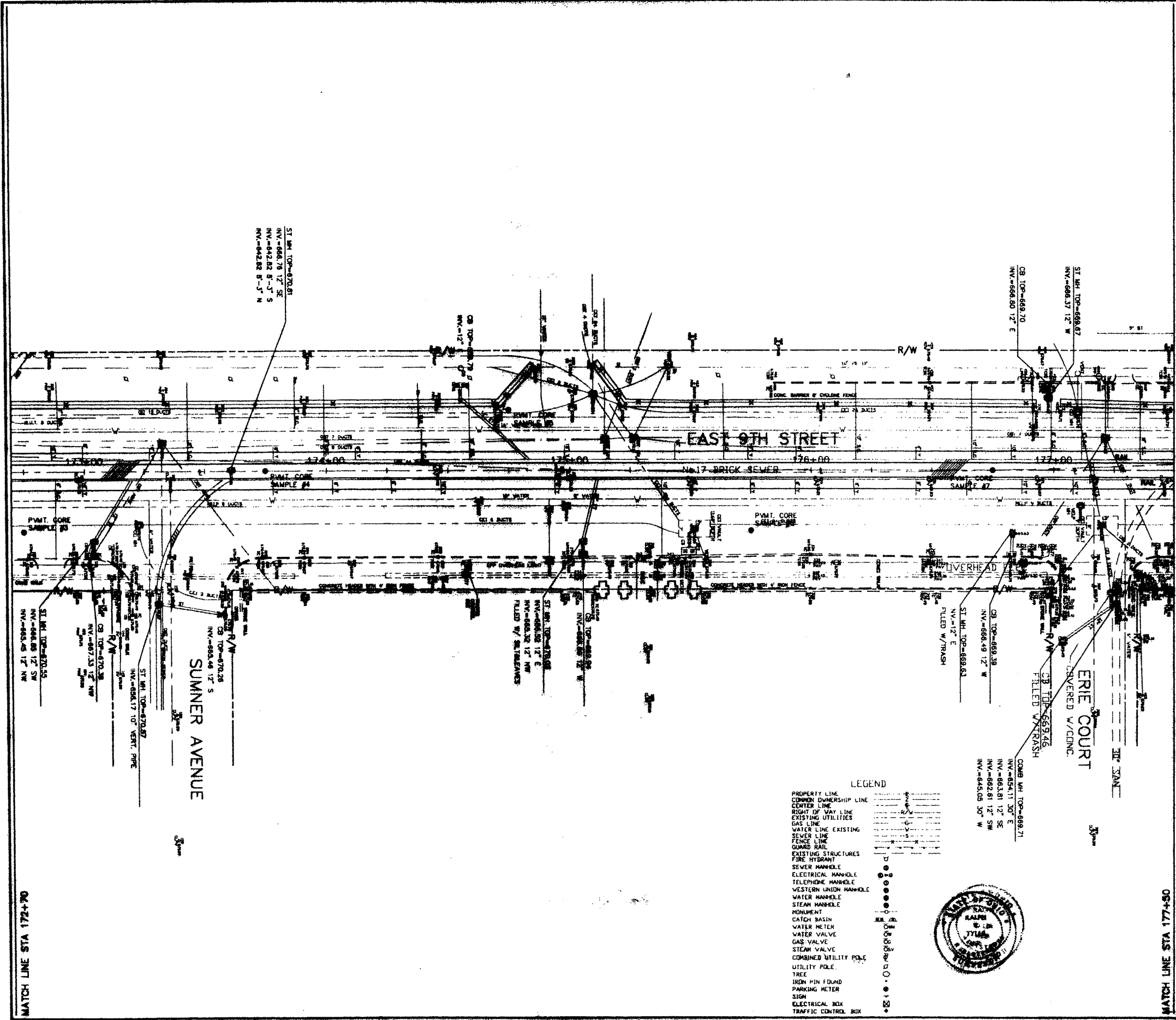


MATCH LINE STA 172+70

DRAWING NAME:
CREATED BY:
LAST REV. DATE:

EXISTING CONDITIONS STA 170+00 TO STA 172+70

CUY - EAST 9TH STREET



LEGEND

- PROPERTY LINE
- COMMON OWNERSHIP LINE
- CENTER LINE
- RIGHT OF WAY LINE
- EXISTING UTILITIES
- GAS LINE
- WATER LINE EXISTING
- SEWER LINE
- FENCE LINE
- GUARD RAIL
- EXISTING STRUCTURES
- FIRE HYDRANT
- SEWER MANHOLE
- ELECTRICAL MANHOLE
- TELEPHONE MANHOLE
- WESTERN UNION MANHOLE
- WATER MANHOLE
- STEAM MANHOLE
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- WATER VALVE
- GAS VALVE
- STEAM VALVE
- COMBINED UTILITY POLE
- UTILITY POLE
- TREE
- IRON PIN FOUND
- PARKING METER
- SIGN
- ELECTRICAL BOX
- TRAFFIC CONTROL BOX



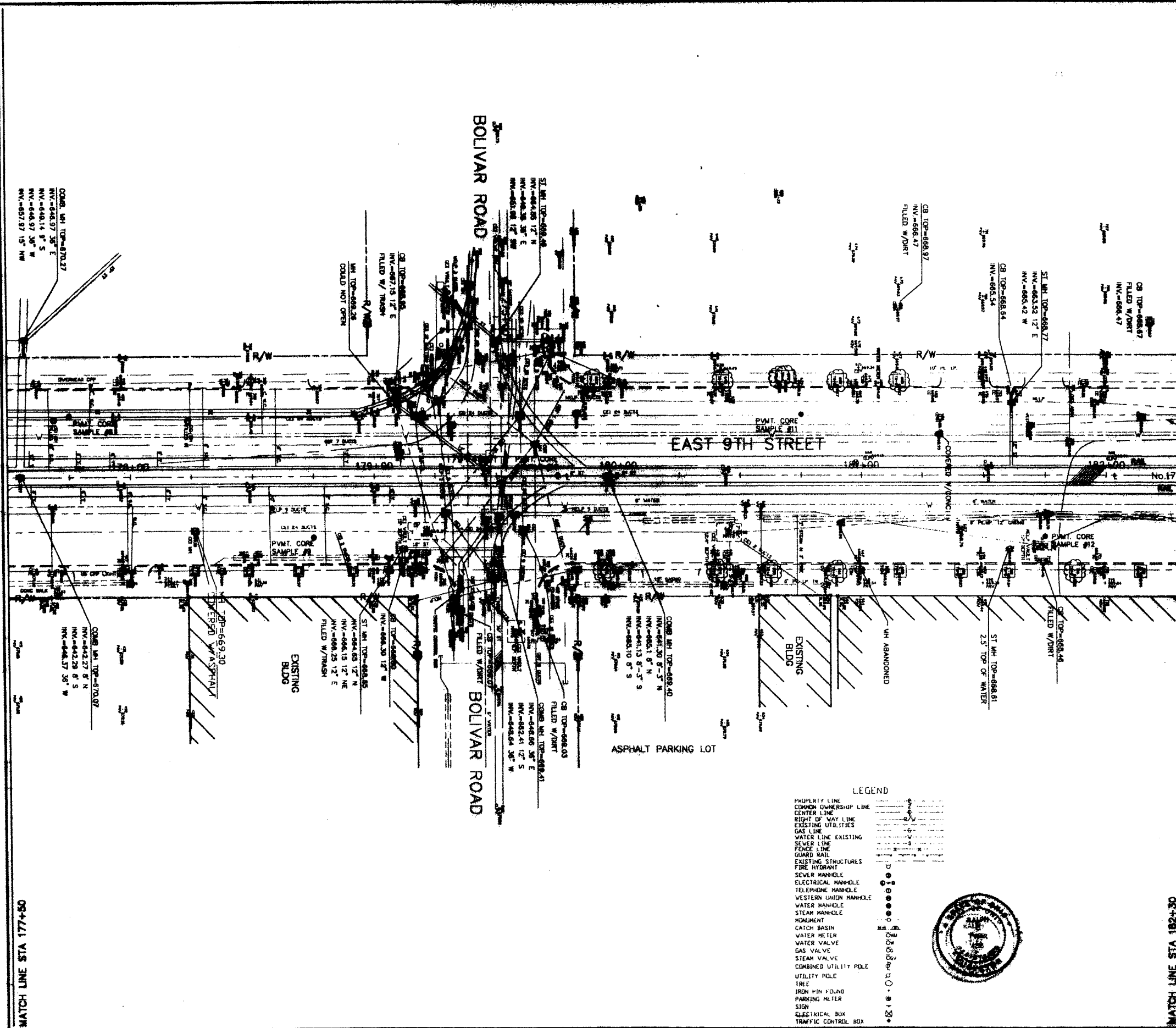
DRAWING NAME
 CREATED BY
 LAST REV. DATE

MATCH LINE STA 172+70

MATCH LINE STA 177+50

EXISTING CONDITIONS STA 172+70 TO STA 177+50

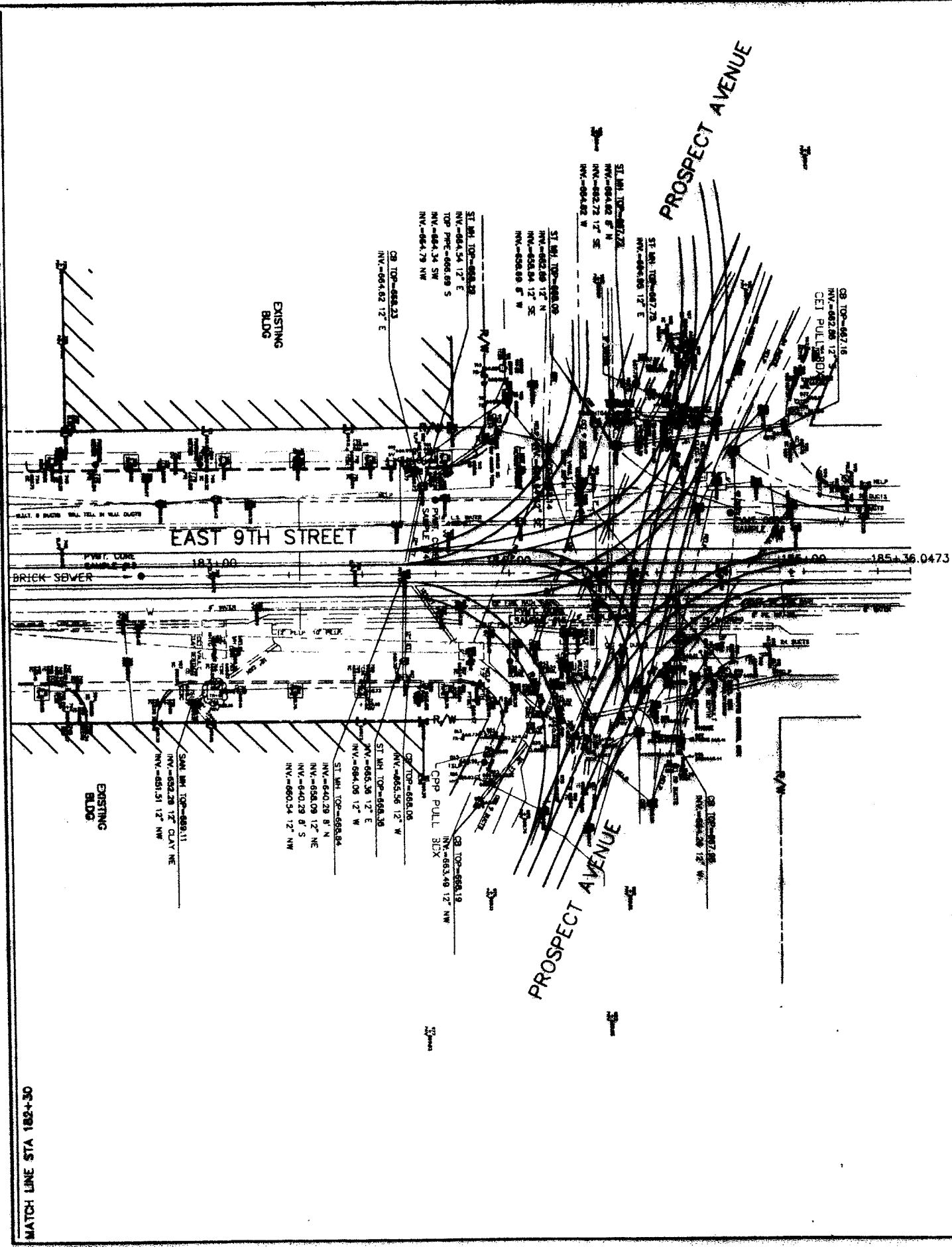
CUY - EAST 9TH STREET



- LEGEND**
- PROPERTY LINE
 - COMMON OWNERSHIP LINE
 - CENTER LINE
 - RIGHT OF WAY LINE
 - EXISTING UTILITIES
 - GAS LINE
 - WATER LINE EXISTING
 - SEWER LINE
 - FENCE LINE
 - GUARD RAIL
 - EXISTING STRUCTURES
 - FIRE HYDRANT
 - SEWER MANHOLE
 - ELECTRICAL MANHOLE
 - TELEPHONE MANHOLE
 - VESTERY UNION MANHOLE
 - WATER MANHOLE
 - STEAM MANHOLE
 - MONUMENT
 - CATCH BASIN
 - WATER METER
 - WATER VALVE
 - GAS VALVE
 - STEAM VALVE
 - COMBINED UTILITY POLE
 - UTILITY POLE
 - TREE
 - IRON PIN FOUND
 - PARKING METER
 - SIGN
 - ELECTRICAL BOX
 - TRAFFIC CONTROL BOX



DRAWING NAME:
 CREATED BY:
 LAST REV. DATE:



LEGEND

PROPERTY LINE	---
COMMON OWNERSHIP LINE	---
CENTER LINE	---
RIGHT OF WAY LINE	---
EXISTING UTILITIES	---
GAS LINE	---
WATER LINE EXISTING	---
SEWER LINE	---
FENCE LINE	---
GUARD RAIL	---
EXISTING STRUCTURES	---
FIRE HYDRANT	⊕
SEWER MANHOLE	⊙
ELECTRICAL MANHOLE	⊙
TELEPHONE MANHOLE	⊙
WESTERN UNION MANHOLE	⊙
WATER MANHOLE	⊙
STEAM MANHOLE	⊙
MONUMENT	⊙
CATCH BASIN	⊙
WATER METER	⊙
WATER VALVE	⊙
GAS VALVE	⊙
STEAM VALVE	⊙
COMBINED UTILITY PILE	⊙
UTILITY POLE	⊙
TREE	⊙
IRON PIN FOUND	⊙
PARKING METER	⊙
SIGN	⊙
ELECTRICAL BOX	⊙
TRAFFIC CONTROL BOX	⊙



DRAWING NAME:
CREATED BY:
LAST REV. DATE:

MATCH LINE STA 182+30

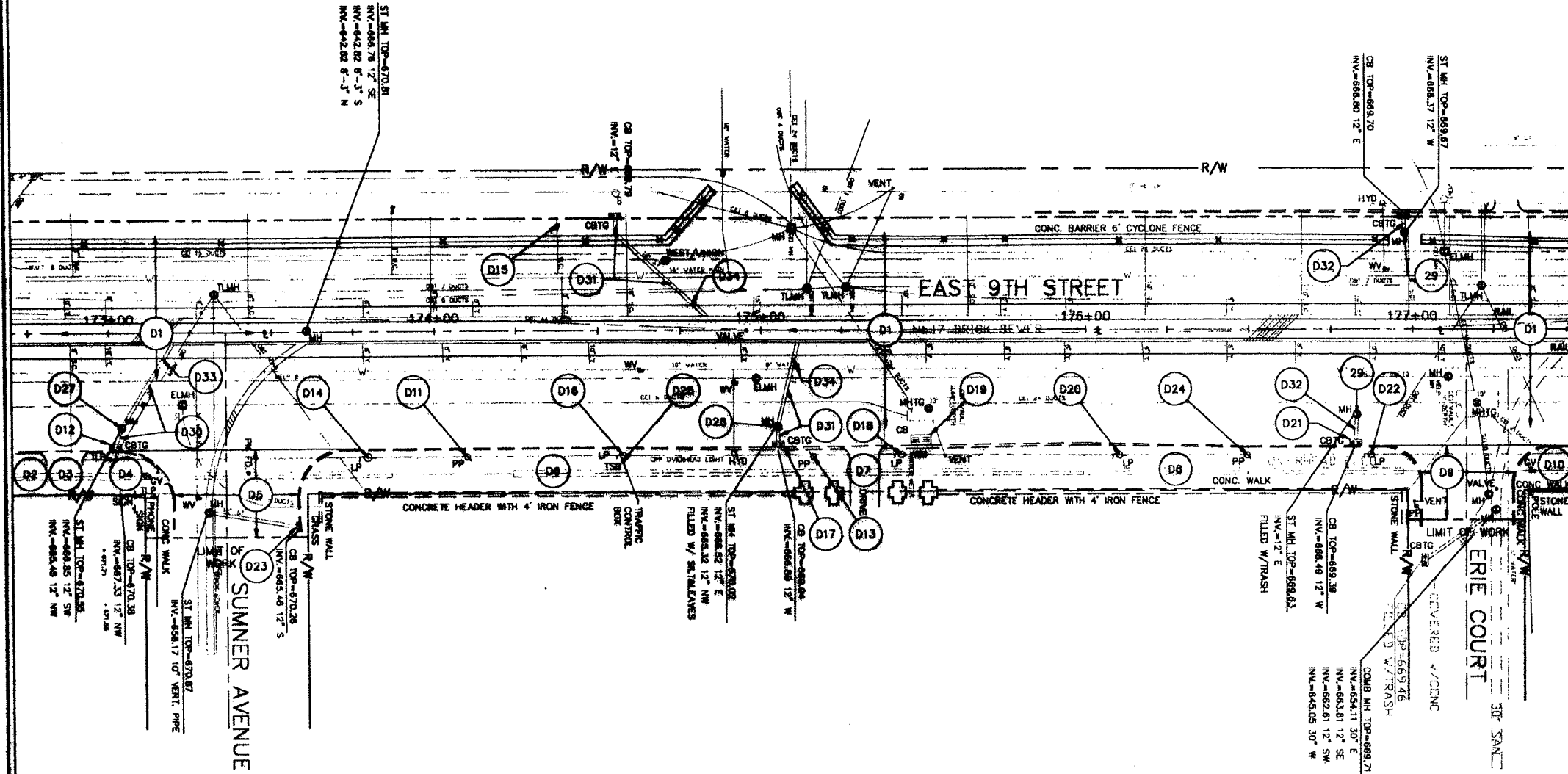
EXISTING CONDITIONS STA 182+30 TO STA 185+36

CUY - EAST 9TH STREET

DRAWING NAME: SITE PREP
 CREATED BY: DBE
 LAST REV. DATE: 6/16/93

Sasaki Associates, Inc.

MATCH LINE STA 172+70



MATCH LINE STA 177+50

REF. NO.	STATION TO STATION	SIDE	ESTIMATED QUANTITIES																																
			202.05	202.05	202.05	202.05	202.05	202.05	202.05	202.05	202.05	202.05	202.05	202.05																					
D1	172+70 TO 177+50	BOTH	ROAD PAVEMENT REMOVED/ DRIVE	SY	3640	SIDWALK REMOVED	SY	15.7	CURB REMOVED	LF	8	TROLLEY TRACKS REMOVED	LF	960	LIGHT POST REMOVED/ POWER POLE	EA	1	LIGHT POST FOUNDATION REMOVED	EA	1	TRAFFIC CONTROL BOX REMOVED	EA	1	TRAFFIC CONTROL BOX FNDT. REMOVED	EA	1	MANHOLE REMOVED	EA	4	PIPE REMOVED	LF	29	PIPE SEALED WITH PRECAST STOPPER	EA	4
D2	172+70 TO 172+81	RT																																	
D3	172+81 TO 172+92	RT																																	
D4	172+92 TO 173+20	RT																																	
D5	173+06 TO 173+69	RT																																	
D6	173+68 TO 175+27	RT																																	
D7	175+27 TO 175+35	RT																																	
D8	175+35 TO 177+03	RT																																	
D9	176+92 TO 177+41	RT																																	
D10	177+31 TO 177+50	RT																																	
D11	174+10	RT																																	
D12	173+02	RT																																	
D13	173+16	RT																																	
D14	173+81	RT																																	
D15	174+38	RT																																	
D16	174+58	RT																																	
D17	175+06	RT																																	
D18	175+43	RT																																	
D19	175+49	RT																																	
D20	176+10	RT																																	
D21	176+83	RT																																	
D22	176+87	RT																																	
D23	176+87	RT																																	
D24	176+49	RT																																	
D25	176+58	RT																																	
D26	174+58	RT																																	
D27	173+04	RT																																	
D28	175+05	RT																																	
D29	176+83 RT/176+97 LT	RT/LT																																	
D30	173+00 TO 175+11	RT																																	
D31	174+55 TO 175+11	RT/L																																	
D32	176+83 TO 176+97	RT/L																																	
D33	173+18 RT/174+82 LT	RT/L																																	
D34	175+11 RT/174+97 LT	RT/L																																	
TOTALS					4075	567	476	960	8	5	5	1	5	1	1	1	1	1	1	1	1	1	1	1	4	4	108	2	2	4	4	4	4		

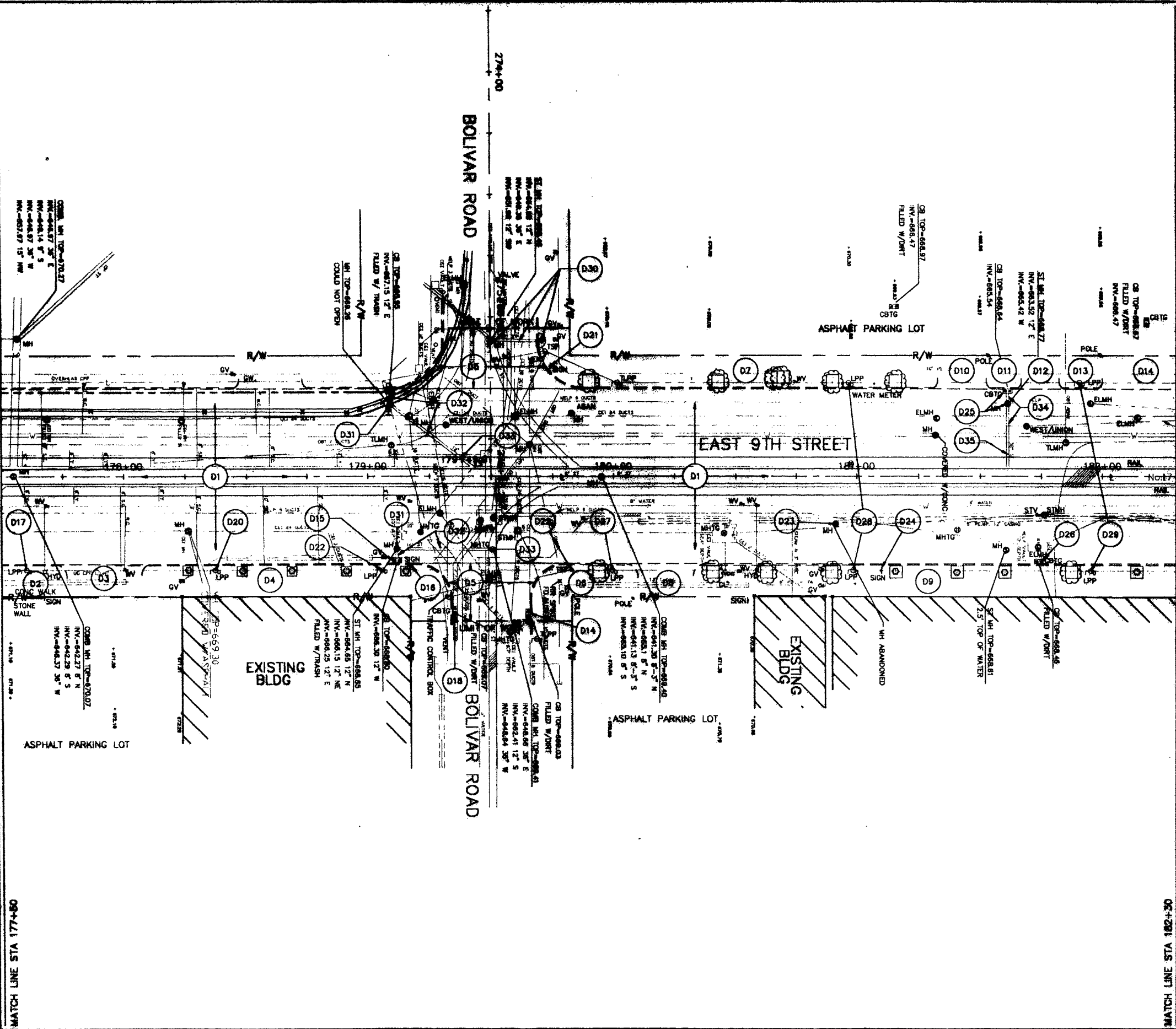
SITE PREPARATION STA 172+70 TO STA 177+50

CUY - EAST 9TH STREET

DRAWING NAME: SITE PREP
 CREATED BY: DRB
 LAST REV. DATE: 8/16/93

Sasaki Associates, Inc.

MATCH LINE STA 177+50



MATCH LINE STA 182+30

CALC. DATE: CUY-EAST 9TH STREET OHIO
 CHKD. DATE: CUYAHOGA COUNTY F.H.W.A. REGION 5
 DATE: _____

16

ESTIMATED QUANTITIES

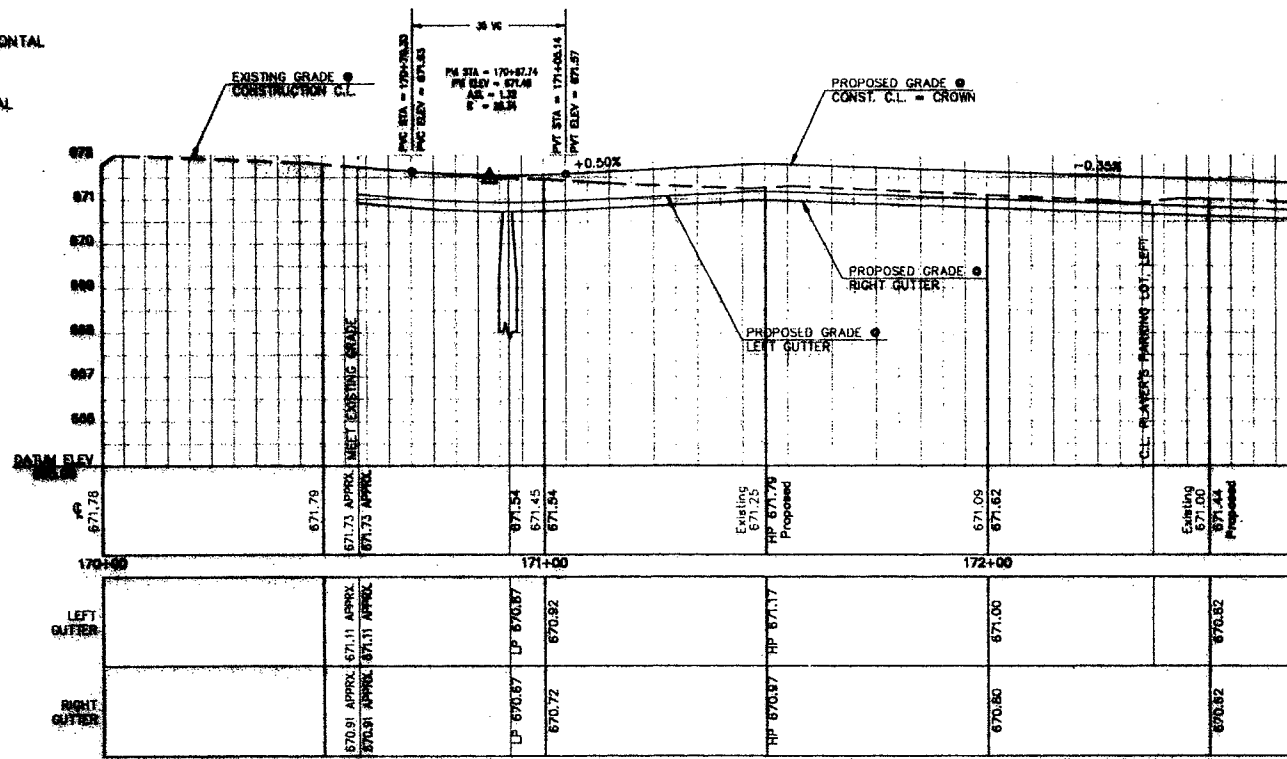
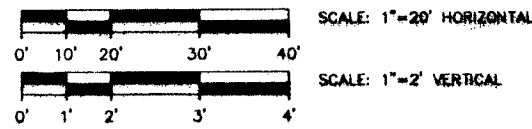
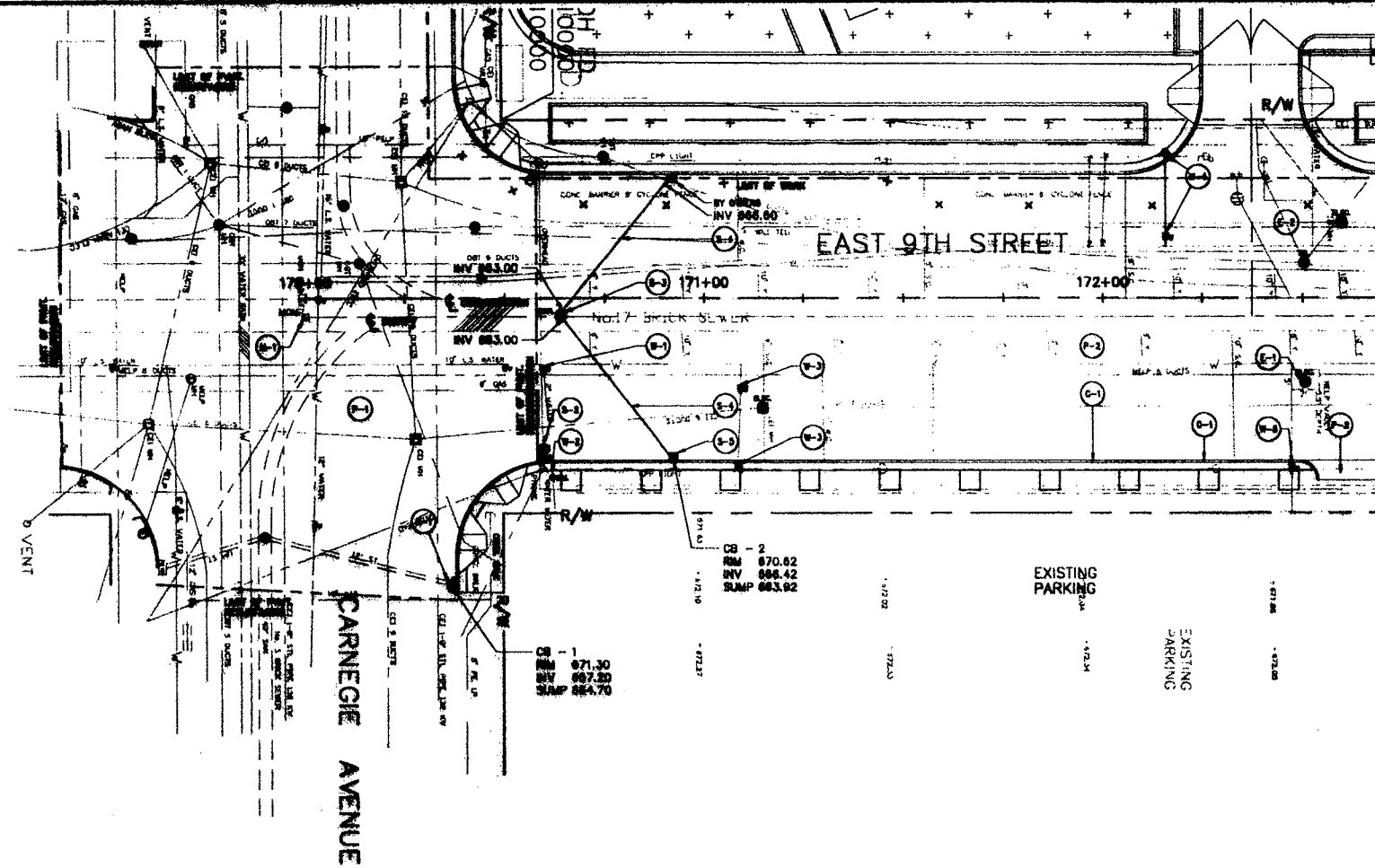
REF. NO.	STATION TO STATION	SIDE	202.05 ROAD PAVEMENT REMOVED/ DRIVE REMOVED	202.05 SIDEWALK REMOVED	202.05 CURB REMOVED	202.05 TROLLEY TRACKS REMOVED	202.05 LIGHT POST FOUNDATION REMOVED	202.05 STOP BOX REMOVED	202.05 SALVAGE 8 INCH GRANITE CURB	202.05 CATCH BASIN REMOVED	202.02 SIGN REMOVED	202.02 REMOVE AND SALVAGE TREE GRATE	202.01 TREE REMOVED AND GROUBING	202.02 MANHOLE REMOVED	202.02 PAVEMENT REMOVED	202.02 PAVEMENT SEALED WITH PRECAST STOPPER	SEE SHT. NO.
D1	177+50 TO 182+30	BOTH	3840														
D2	177+50 TO 177+77	RT	46	31	23												
D3	177+77 TO 178+07	RT															
D4	178+07 TO 178+32	RT		167	145												
D5	178+32 TO 178+60	RT/L	205														
D6	178+60 TO 180+11	RT		58	55												
D7	178+60 TO 181+33	LT		212	180												
D8	180+10 TO 180+32	RT	34														
D9	180+32 TO 182+30	RT		268													
D10	181+33 TO 181+53	LT	31														
D11	181+53 TO 181+67	LT		20	12												
D12	181+67 TO 181+82	LT															
D13	181+82 TO 182+00	LT	23														
D14	182+00 TO 182+30	LT	45														
D15	178+08	RT															
D16	178+18	RT															
D17	177+60	RT															
D18	179+33	RT															
D19	179+66	RT															
D20	178+37	RT															
D21	179+75	LT															
D22	179+06	RT															
D23	180+91	RT															
D24	181+10	RT															
D25	181+61	LT															
D26	181+74	LT															
D27	179+99	RT															
C28	180+99	RT/L															
D29	181+96	RT/L															
D30	179+53 TO 179+72	LT															
D31	179+10	RT/L															
D32	179+10 TO 179+49	RT/L															
C33	179+49 RT/179+38 LT	RT/L															
D34	181+61	LT															
D35	181+61	LT															
TOTALS			4224	792	431	960	8	8	195	0	6	3	15	20	4	124	4

SITE PREPARATION STA 177+50 TO STA 182+30

CUY - EAST 9TH STREET

DRAWING NAME: EG-PP-DWG
 CREATED BY: TSmith
 LAST REV. DATE: 16 JUNE 93

Sasaki Associates, Inc.



CALC: _____
 DATE: _____
 CHKD: _____
 DATE: _____

CUY-EAST 9TH STREET
 CUYAHOGA COUNTY

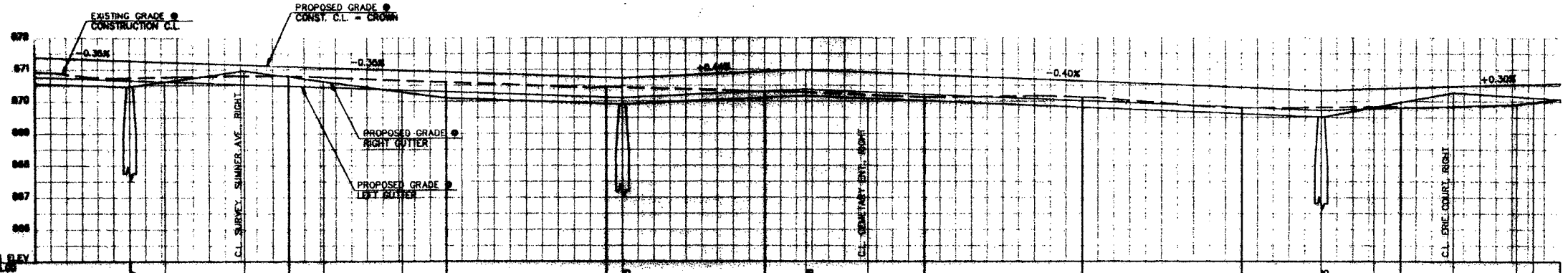
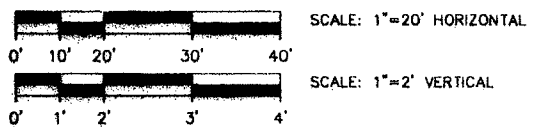
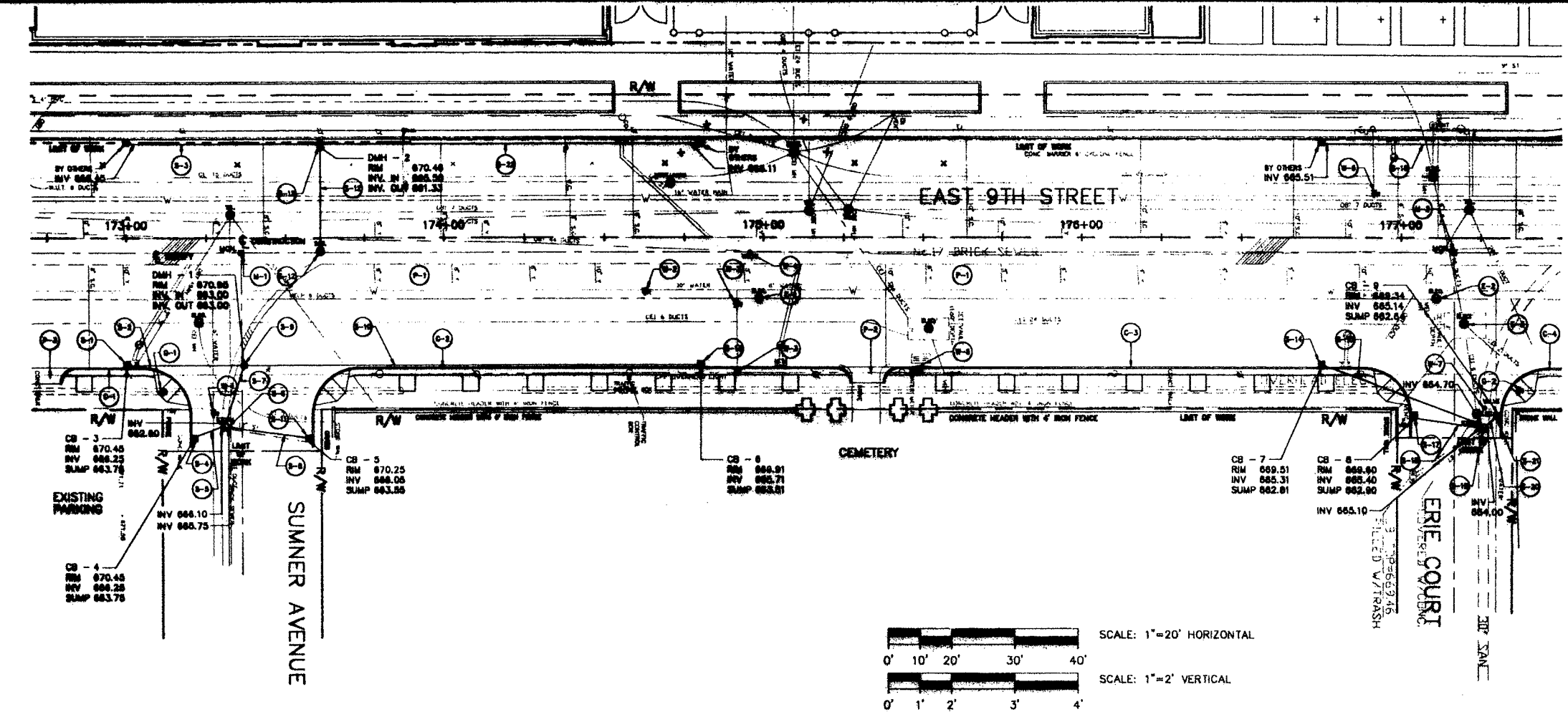
OHIO
 F.H.W.A. REGION 5

18

REF. NO.	STATION TO STATION SIDE	ESTIMATED QUANTITIES										SEE SH. NO.						
		300	400	451	611.05	803	804	804	804	804	804							
		ADVERTISE BASE	1 3/4 INCH ASPHALT CONCRETE	1 1/4 INCH REINFORCED CONCRETE PAVEMENT	10 INCH REINFORCED CONCRETE PAVEMENT	8 INCH REINFORCED CONCRETE PAVEMENT	12 INCH CONCRETE TYPE B	13 INCH CONCRETE TYPE B	MONUMENT BOX ADJUSTED TO GRADE	MANHOLE FRAME ADJUSTED TO GRADE	MANHOLE FRAME ADJUSTED TO GRADE	CATCH BASIN COC NO. 1	6 INCH CONCRETE CURB	WALK BOX ADJUSTED TO GRADE	EXTEND & ADJUST HYDRANT TO GRADE	FLUSHING AND SETTING HYDRANT COMPLETE	ASB WATER METER ADJUSTED TO GRADE	
		EA	SY	SY	SY	SY	LF	EA	EA	EA	EA	EA	EA	EA	EA	EA	EA	
TOTALS		288	1700	3087	1700	10	72		3	3	2	48	280	3				

PLAN AND PROFILE STA: 170+00 TO STA: 172+70

CUY - EAST 9TH STREET



STATION	RIGHT CUTTER	LEFT CUTTER
173+00	670.45	670.74
173+10	670.61	671.27
173+20	670.85	671.23
173+30	670.77	671.14
173+40	670.82	670.90
173+50	670.75	671.08
174+00	670.30	671.05
174+10	669.92	670.37
174+20	669.81	670.60
174+30	669.51	670.82
174+40	669.12	670.44
174+50	670.01	670.79
175+00	669.61	670.13
175+10	669.51	670.63
175+20	669.81	670.43
175+30	669.51	670.33
175+40	669.81	670.38
175+50	669.50	669.82
176+00	670.27	670.41
176+10	669.84	670.46
176+20	669.90	670.82
176+30	670.12	670.58

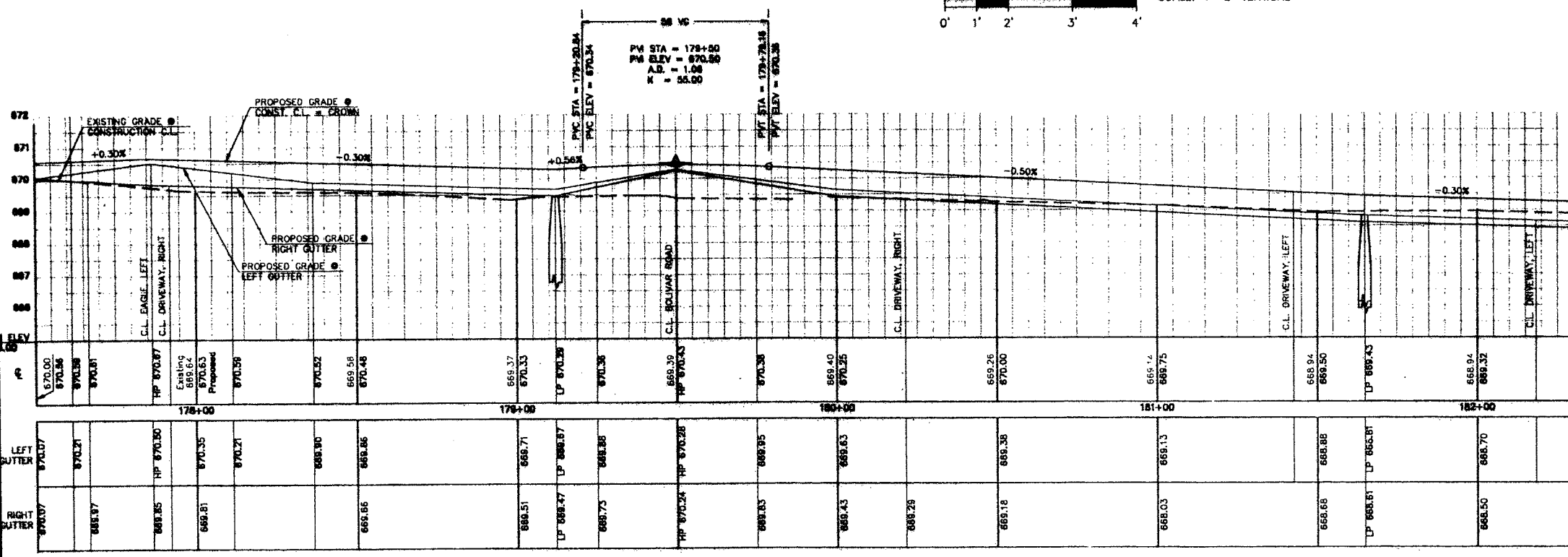
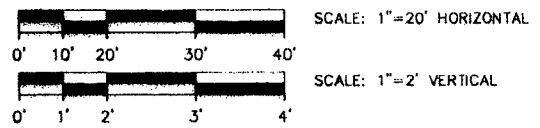
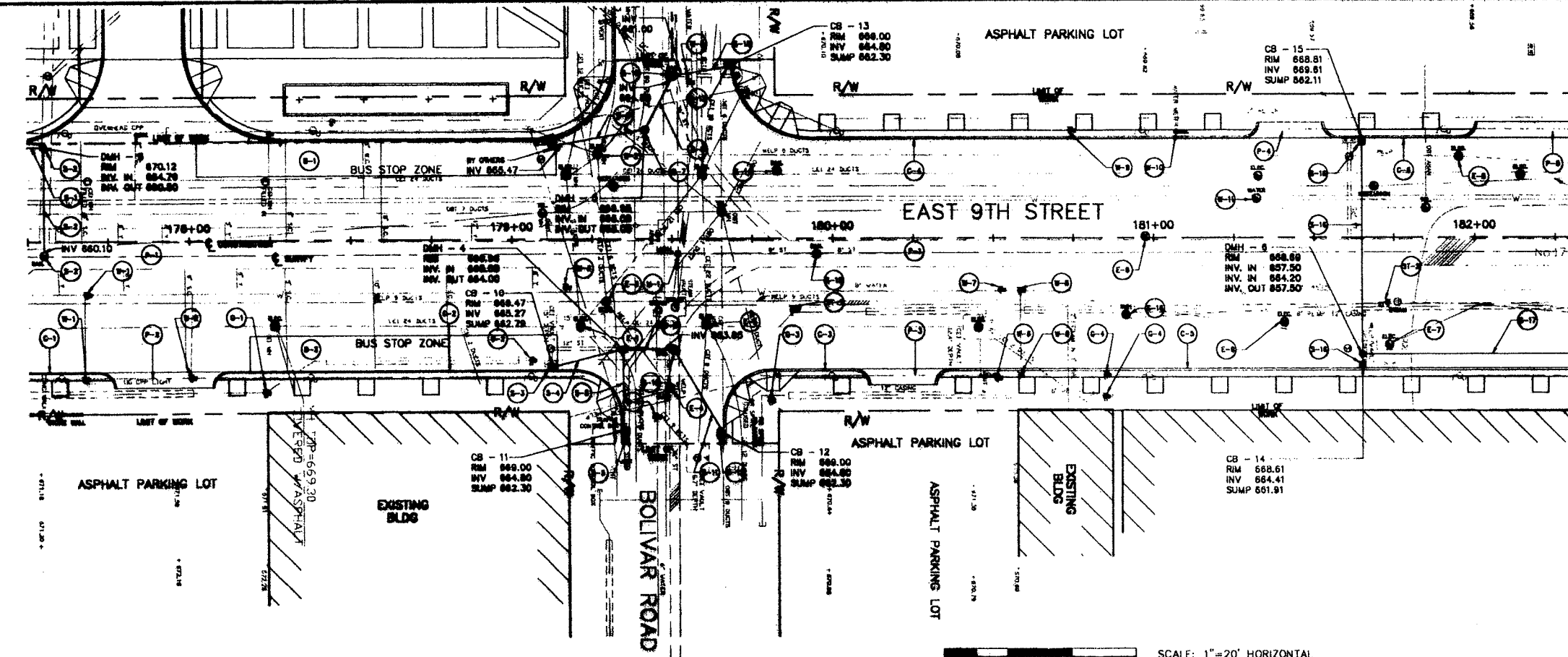
REF. NO.	STATION TO STATION SIDE	ESTIMATED QUANTITIES	SEE SHT. NO.
310	AGGREGATE BASE	11 876	
402	3/4 INCH ASPHALT CONCRETE	11 4042	
404	1 1/4 INCH ASPHALT CONCRETE	11 4042	
405	10 INCH REINFORCED CONCRETE PAVEMENT	11 4042	
511.05	8 INCH REINFORCED CONCRETE PAVEMENT	11 876	
603	12 INCH CONDUIT TYPE B	2 10	
604	MONUMENT BOX ADJUSTED TO GRADE	2 10	
604	MARKER FRAME ADJUSTED TO GRADE	2 10	
604	CATCH BASIN WITH TRAP	2 10	
604	DRAIN MANHOLE	2 10	
600	6 INCH GRANITE CURB	2 120 35	
630	VALVE BOX ADJUSTED TO GRADE	2 10	
630	HYDRANT ADJUSTED TO GRADE	2 10	
630	WATER METER ADJUSTED TO GRADE	2 10	
TOTALS		11 876	

DRAWING NAME: E9-PP-DWG
 CREATED BY: TSmith
 LAST REV. DATE: 16 JUNE 93

Sasaki Associates, Inc.

PLAN AND PROFILE STA: 172+70 TO STA: 177+50

CUY - EAST 9TH STREET

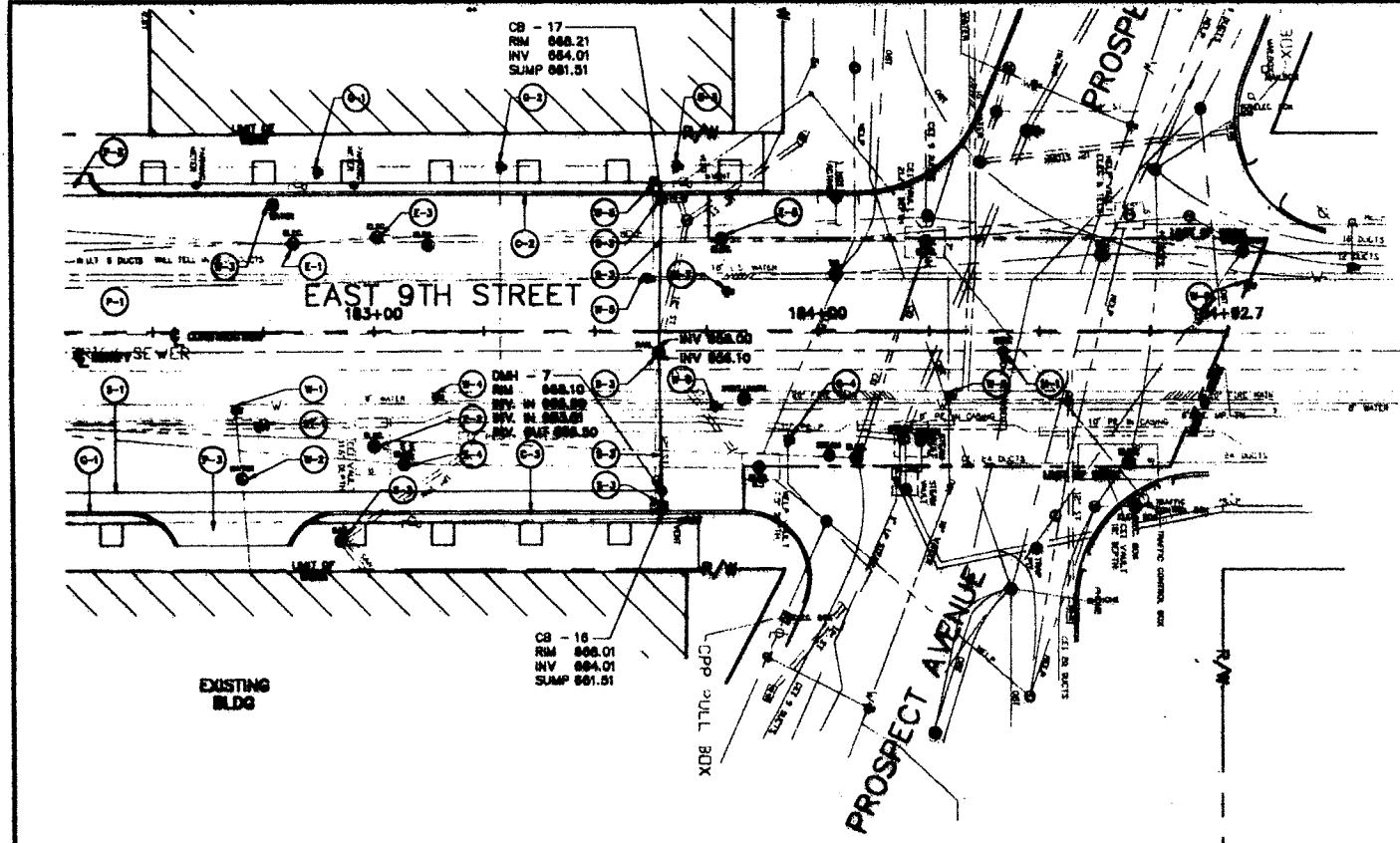
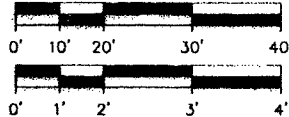
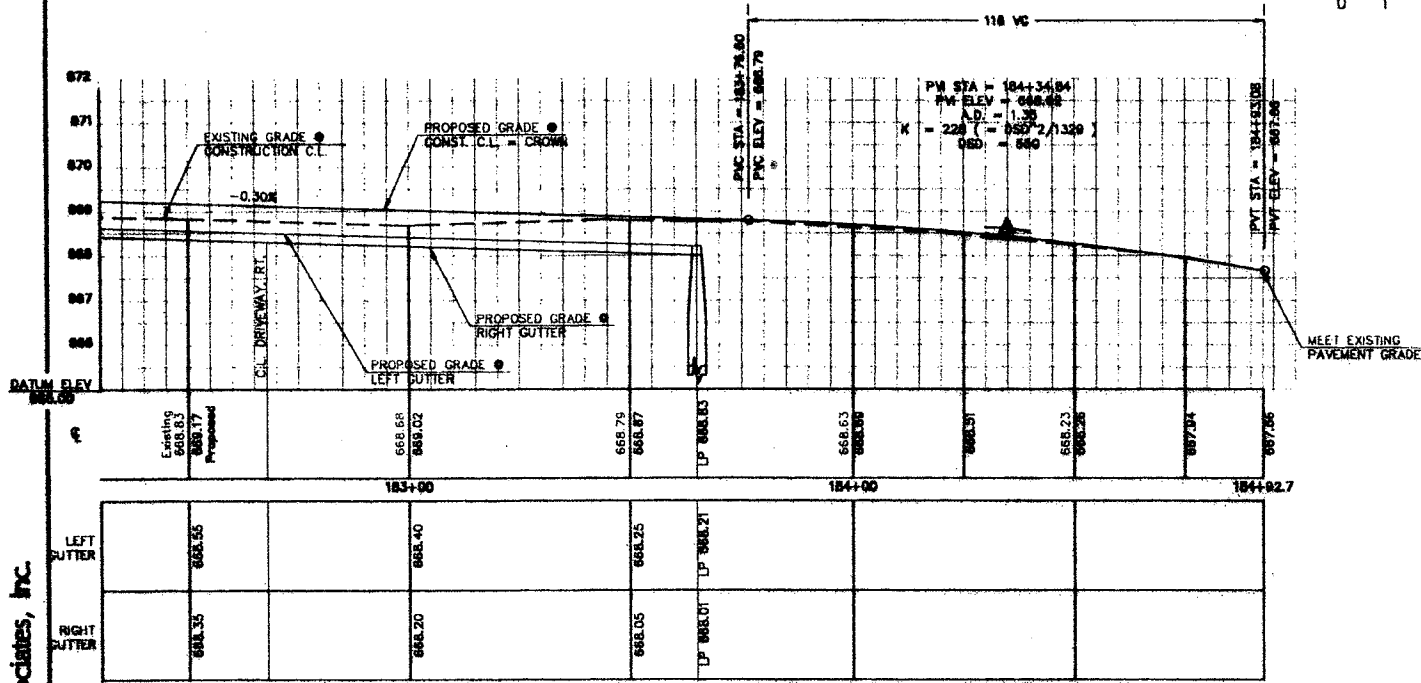


REF. NO.	STATION TO STATION SIDE	ESTIMATED QUANTITIES
		310 AGGREGATE BASE CY 2
		402 1 3/4 INCH ASPHALT CONCRETE SY 286
		404 1 1/4 INCH ASPHALT CONCRETE SY 286
		451 10 INCH REINFORCED CONCRETE PAVEMENT SY 286
		451 8 INCH REINFORCED CONCRETE PAVEMENT SY 286
		451 13 INCH REINFORCED CONCRETE PAVEMENT SY 138
		603 12 INCH CONDUIT TYPE B LF 3
		604 MOULDED BOX ADJUSTED TO GRADE EA 15
		604 MANHOLE FRAME ADJUSTED TO GRADE WITH TRAP EA 15
		604 CATCH BASIN C/C NO. 1 WITH TRAP EA 6
		604 DRAIN MANHOLE EA 5
		609 8 INCH GRANITE CURB LF 40
		609 8 INCH GRANITE CURB LF 104
		609 8 INCH GRANITE CURB LF 181
		609 8 INCH GRANITE CURB RESET LF 215
		638 VALVE BOX ADJUSTED TO GRADE EA 15
		638 HYDRANT ADJUSTED TO GRADE EA 2
		638 WATER METER ADJUSTED TO GRADE EA 2
		SEE SHT. NO. EA
TOTALS		282 3005 3005 3505 3505 268 257 310 15 15 6 5 40 177 104 181 215 15 2

PLAN AND PROFILE STA: 177+50 TO STA: 182+30

DRAWING NAME: EB-PP.DWG
CREATED BY: TSM:rh
LAST REV. DATE: 16 JUNE 93

Sasaki Associates, Inc.



REF. STATION TO STATION SIDE	STATION TO STATION SIDE	SEE SHT. NO.	VALVE	HYDRANT	WATER METER	8 INCH GRANITE CURBS	8 INCH GRANITE CURB RESET	CATCH BASIN	DRAIN MANHOLE	MANHOLE FRAME	C.O.C. ROADWAY MONUMENT ASSEMBLY	12 INCH CONDUIT	8 INCH REINFORCED CONCRETE PAVEMENT	10 INCH REINFORCED CONCRETE PAVEMENT	3/4 INCH ASPHALT CONCRETE	1 3/4 INCH ASPHALT CONCRETE	AGGREGATE BASE	TOTALS																	
																		311	1830	1830	200	21	106	15	1	1									21

PLAN AND PROFILE STA: 182+30 TO STA: 184+92.7

CUY - EAST 9TH STREET

CALC. CUY-EAST 9TH STREET OHIO
 DATE CUYAHOGA COUNTY F.H.W.A.
 CHKD REGION
 DATE

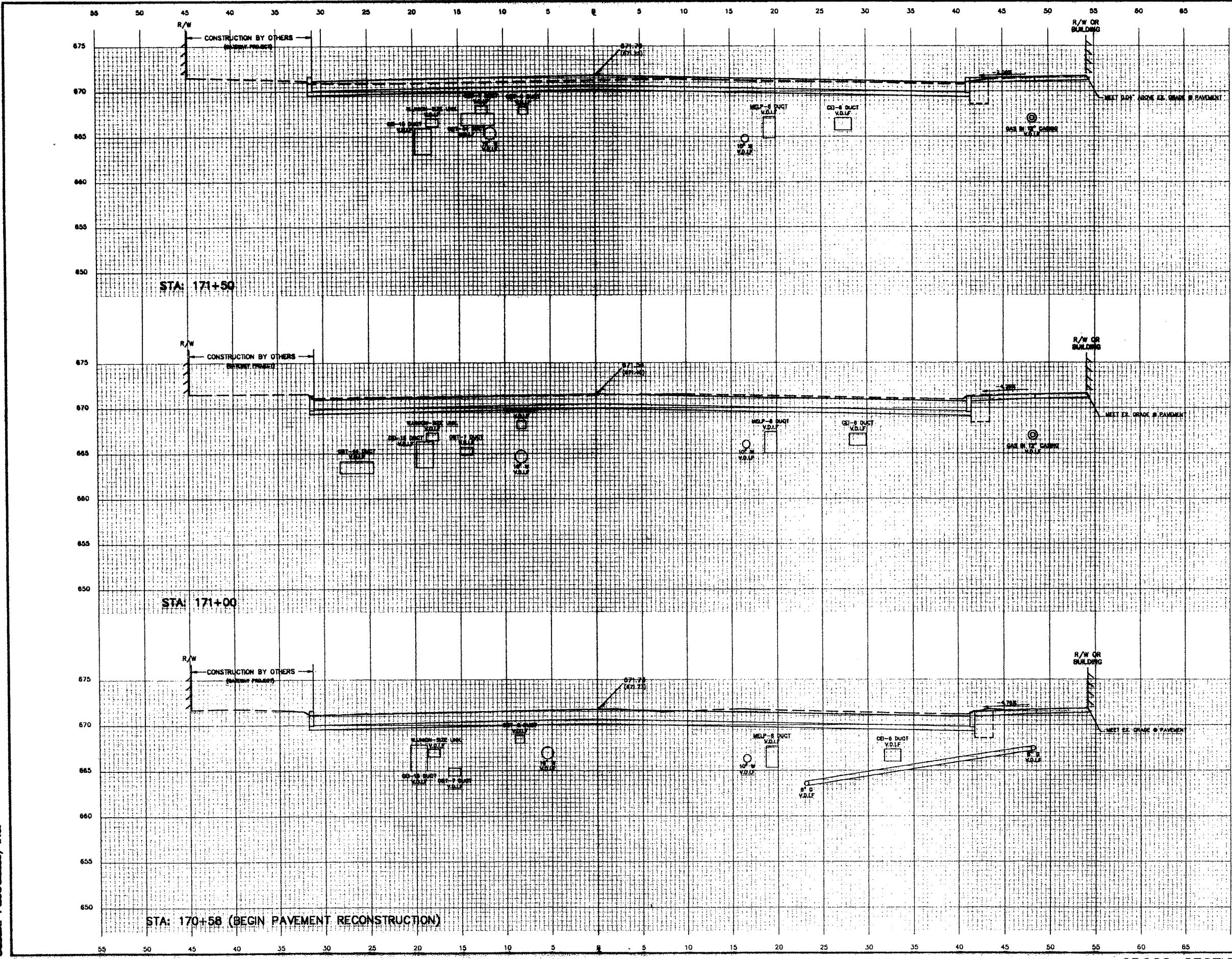
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DRAWING NAME: EB-XSEC.DWG
 CREATED BY: TSmith
 LAST REV. DATE: 4 JUNE 93

Sasaki Associates, Inc.

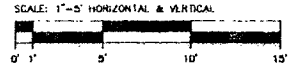
CALC. _____ CUY-EAST 9TH STREET OHIO
 DATE _____ CUYAHOGA COUNTY F.H.W.A. REGION 5
 CHKD _____
 DATE _____

22



END AREAS CALCULATED BETWEEN BOTTOM OF EX. SECTION AND BASE OF PROPOSED SECTION. EX. ROADWAY PAVEMENT DEPTH ASSUMED TO BE 15\"/>

CEI INFORMATION TAKEN FROM EAST 8TH ST PLANS (SHEETS 1 & 2) PROVIDED BY CLEVELAND ELECTRIC ILLUMINATING COMPANY 5/93
 CRT INFORMATION TAKEN FROM EAST 8TH ST PLANS (SHEETS 105 THROUGH 108) PROVIDED BY DND BELL TELEPHONE 5/93



TOTAL	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
96	42	0	66	0
5	12	5	116	5
182	42	0	66	0
5	12	5	116	5

CROSS-SECTIONS STA: 170+58 TO STA: 171+50

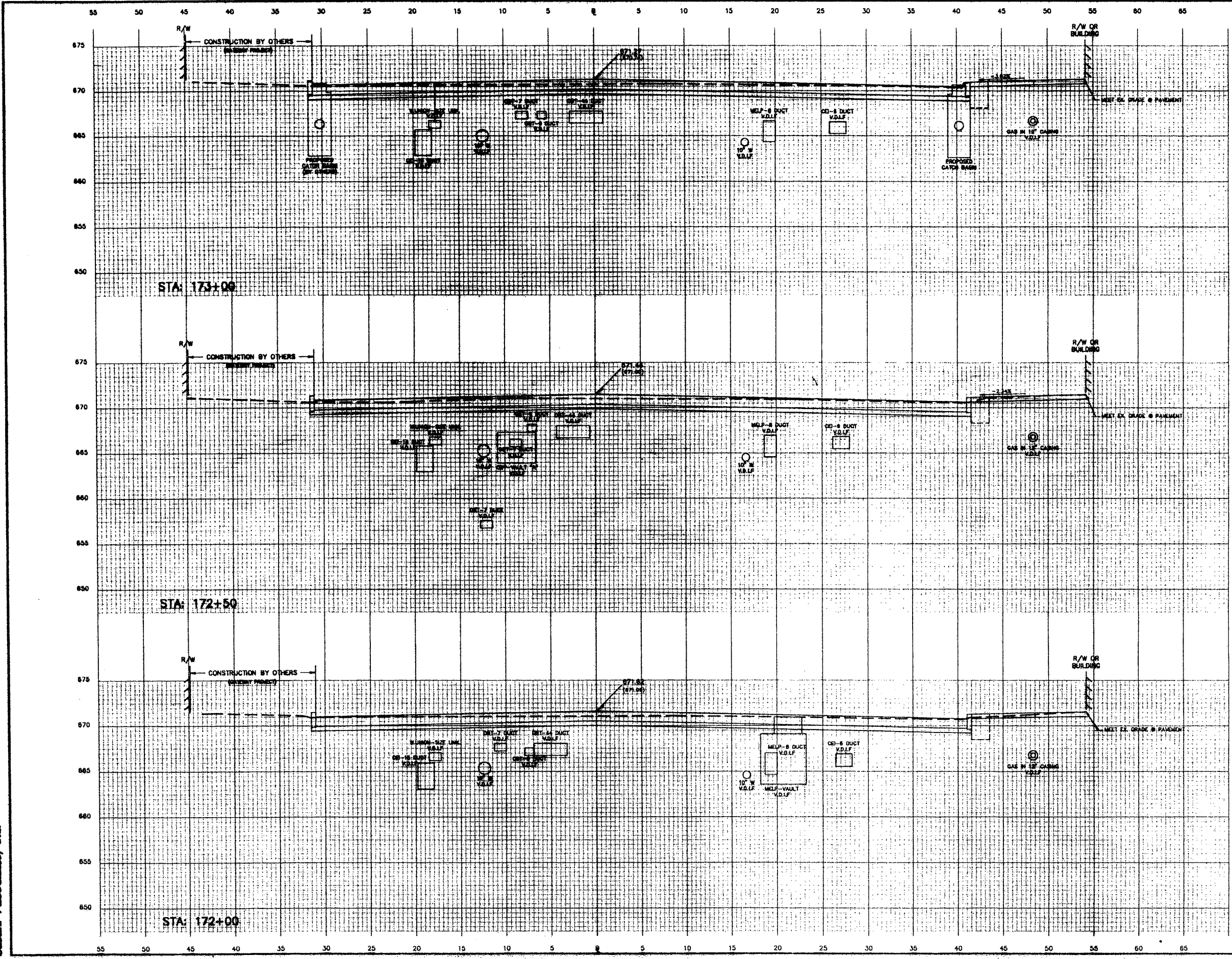
CUY - EAST 9TH STREET

DRAWING NAME: EP-KSEC.DWG
 CREATED BY: TSMITH
 LAST REV. DATE: 4 JUNE 93

Sasaki Associates, Inc.

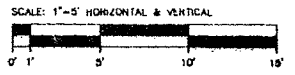
CALC. DATE: CUY-EAST 9TH STREET OHIO
 CHKD. DATE: CUYAHOGA COUNTY F.H.W.A. REGION 5
 DATE: 5

23



END AREAS CALCULATED BETWEEN BOTTOM OF EX. SECTION AND BASE OF PROPOSED SECTION. EX. ROADWAY PAVEMENT DEPTH ASSUMED TO BE 15" BEFORE STA. 176+00 AND 12" THEREAFTER. EX. SIDEWALK DEPTH ASSUMED TO BE 4"

CE INFORMATION TAKEN FROM EAST 9TH ST. PLANS (SHEETS 1 & 2) PROVIDED BY CLEVELAND ELECTRIC ILLUMINATING COMPANY 5/93
 DBT INFORMATION TAKEN FROM EAST 9TH ST. PLANS (SHEETS 150 THROUGH 158) PROVIDED BY DMO BELL TELEPHONE 5/93



END AREA	VOLUME	
	CUT	FILL
17	2	191
15	0	161
11	2	137
TOTAL	43	489
	4	41

CROSS-SECTIONS STA: 172+00 TO STA: 173+00

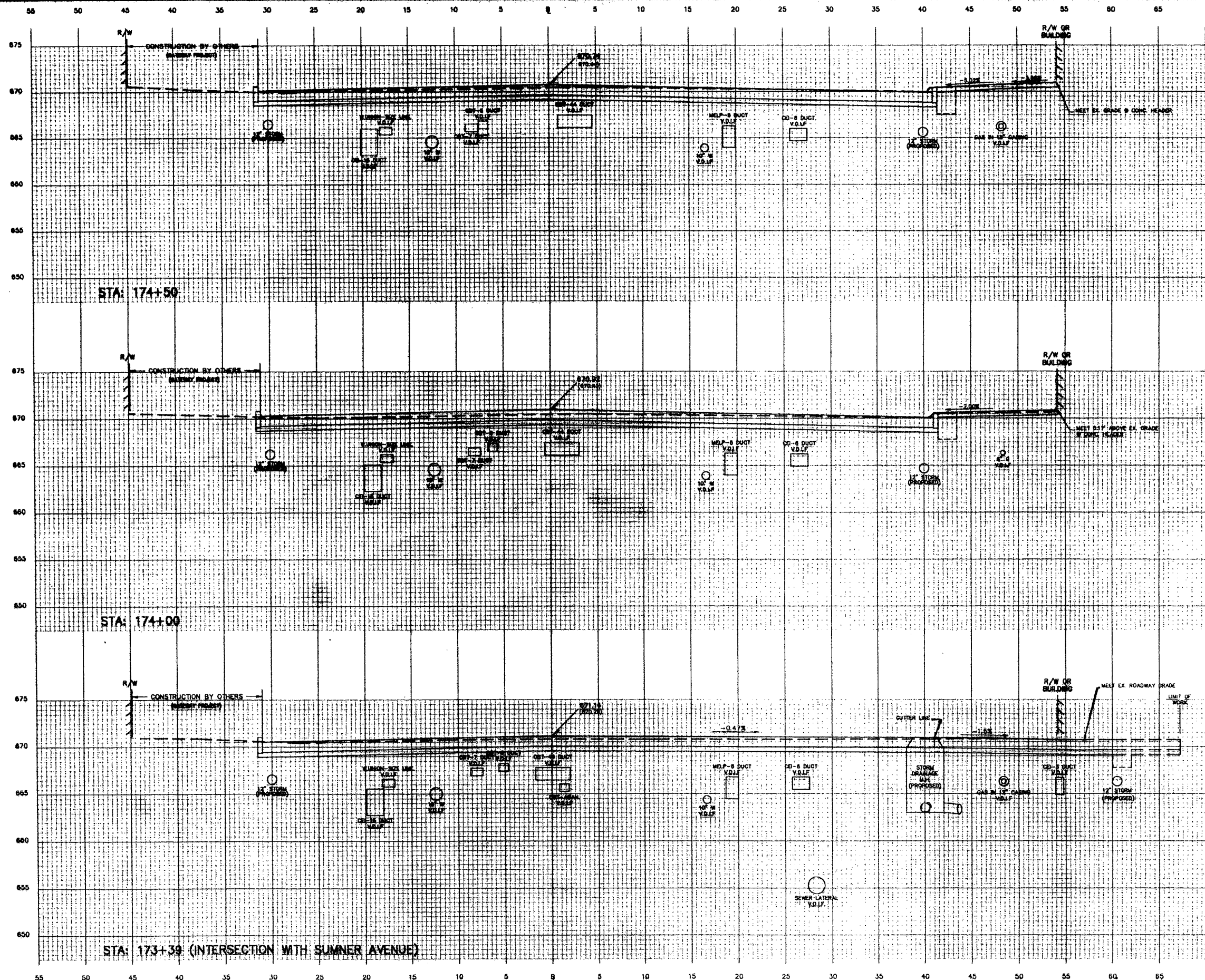
CUY - EAST 9TH STREET

DRAWING NAME: E9-MSEC.DWG
 CREATED BY: TSM:rh
 LAST REV. DATE: 4 JUNE 93

Sasaki Associates, Inc.

CALC. DATE: CUY-EAST 9TH STREET OHIO
 CHKD. DATE: CUYAHOGA COUNTY F.H.W.A. REGION
 DATE: _____

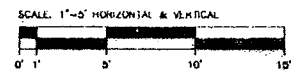
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END AREAS CALCULATED BETWEEN BOTTOM OF EX. SECTION AND BASE OF PROPOSED SECTION. EX. ROADWAY PAVEMENT DEPTH ASSUMED TO BE 15" BEFORE STA: 176+00 AND 12" THEREAFTER. EX. SIDEWALK DEPTH ASSUMED TO BE 4".

DE INFORMATION TAKEN FROM EAST 9TH ST PLANS (SHEETS 1 & 2) PROVIDED BY CLEVELAND ELECTRIC ILLUMINATING COMPANY 5/93
 DE INFORMATION TAKEN FROM EAST 9TH ST PLANS (SHEETS 155 THROUGH 158) PROVIDED BY OHIO BELL TELEPHONE 5/93

TOTAL	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
49	12	0	726	60
3	13	3	240	20
726	24	0	274	23



CROSS-SECTIONS STA: 173+39 TO STA: 174+50

CUY - EAST 9TH STREET

DRAWING NAME: E9-XSEC.DWG
 CREATED BY: TSM:lr
 LAST REV. DATE: 4 JUNE 83

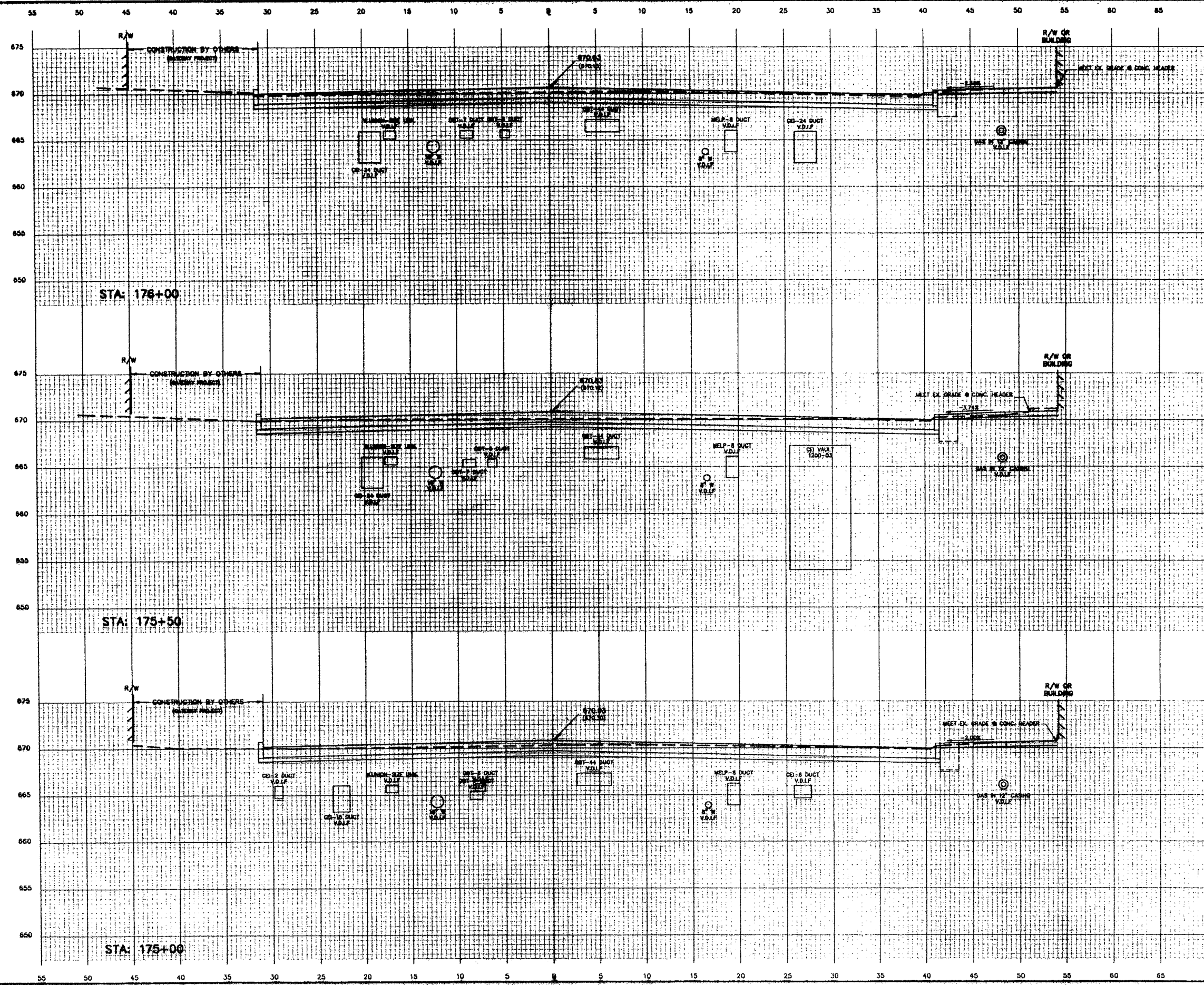
Sasaki Associates, Inc.

CALC. _____
 DATE _____
 CHKD _____
 DATE _____

CUY-EAST 9TH STREET
 CUYAHOGA COUNTY

OHIO
 F.H.W.A.
 REGION 5

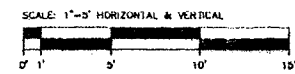
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END AREAS CALCULATED BETWEEN BOTTOM OF EX. SECTION AND BASE OF PROPOSED SECTION. EX. ROADWAY PAVEMENT DEPTH ASSUMED TO BE 15" BEFORE STA: 176+00 AND 12" THEREAFTER. EX. SIDEWALK DEPTH ASSUMED TO BE 4".

CG INFORMATION TAKEN FROM EAST 8TH ST PLANS (SHEETS 1 & 2) PROVIDED BY CLEVELAND ELECTRIC ILLUMINATING COMPANY 5/73
 DBF INFORMATION TAKEN FROM EAST 8TH ST PLANS (SHEETS 135 THROUGH 138) PROVIDED BY OHIO BELL TELEPHONE 5/73

END AREA	VOLUME	
	CUT	FILL
11	4	354
10	8	332
14	3	310
TOTAL	15	106
	996	45



CROSS-SECTIONS STA: 175+00 TO STA: 176+00

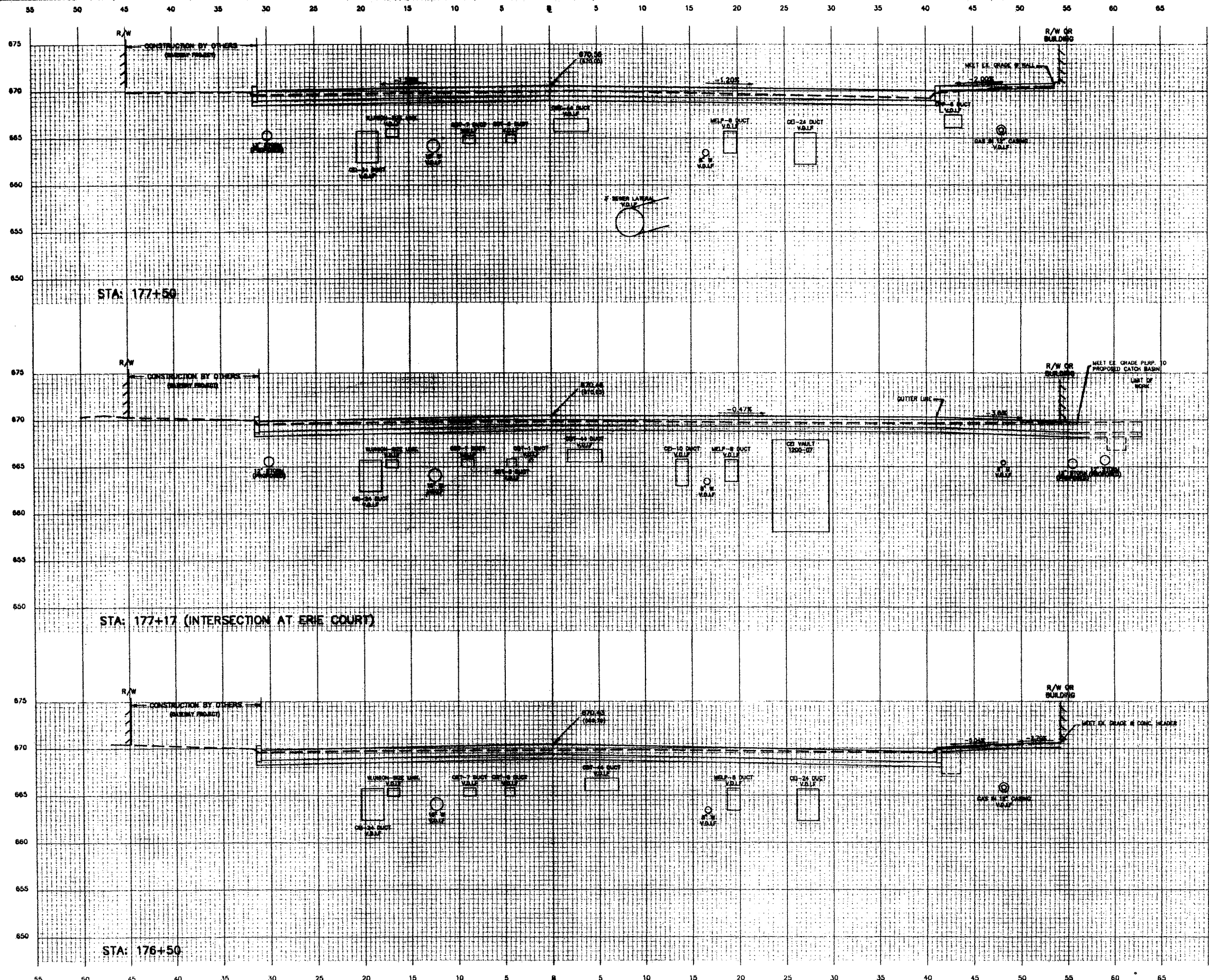
CUY - EAST 9TH STREET

DRAWING NAME: E9-XSEC.DWG
 CREATED BY: TSM:lpd
 LAST REV. DATE: 4 JUNE 93

Sasaki Associates, Inc.

CALC. _____ CUY-EAST 9TH STREET OHIO
 DATE _____ CUYAHOGA COUNTY F.H.W.A. REGION 5
 CHKD _____
 DATE _____

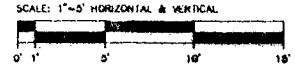
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END AREAS CALCULATED BETWEEN BOTTOM OF EX. SECTION AND BASE OF PROPOSED SECTION. EX. ROADWAY PAVEMENT DEPTH ASSUMED TO BE 15" BEFORE STA. 176+00 AND 12" THEREAFTER. EX. SIDEWALK DEPTH ASSUMED TO BE 4".

CE INFORMATION TAKEN FROM EAST 9TH ST PLANS (SHEETS 1 & 2) PROVIDED BY CLEVELAND ELECTRIC ILLUMINATING COMPANY 5/93
 CRT INFORMATION TAKEN FROM EAST 9TH ST PLANS (SHEETS 155 THROUGH 158) PROVIDED BY OHIO BELL TELEPHONE 5/93

END AREA	VOLUME	
	OUT	IN
11	4	459
17	0	442
25	1	380
TOTAL	5	1291
		159



CROSS-SECTIONS STA: 176+50 TO STA: 177+50

CUY - EAST 9TH STREET

DRAWING NAME: EB-MS-SEC-DWG
 CREATED BY: TSmith
 LAST REV. DATE: 4 JUNE 93

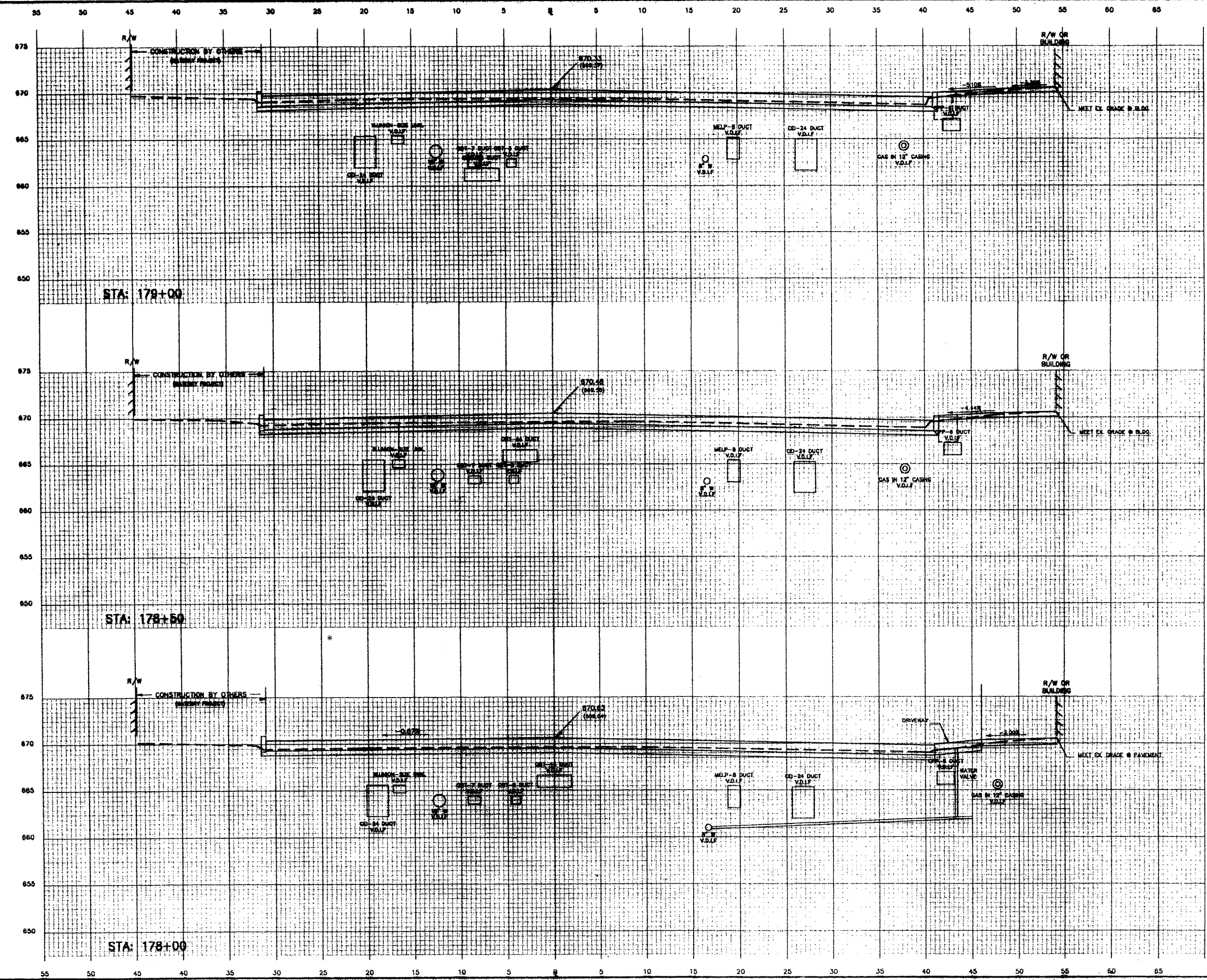
Sasaki Associates, Inc.

CALC. _____
 DATE _____
 CHKO. _____
 DATE _____

CUY-EAST 9TH STREET
 CUYAHOGA COUNTY

OHIO
 F.H.W.A.
 REGION 5

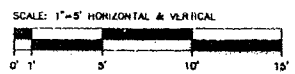
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END AREAS CALCULATED BETWEEN BOTTOM OF EX. SECTION AND BASE OF PROPOSED SECTION. EX. ROADWAY PAVEMENT DEPTH ASSUMED TO BE 15" BEFORE STA. 176+00 AND 12" THEREAFTER. EX. SIDEWALK DEPTH ASSUMED TO BE 4".

CE INFORMATION TAKEN FROM EAST 9TH ST. PLANS (SHEETS 1 & 2) PROVIDED BY CLEVELAND ELECTRIC ILLUMINATING COMPANY 5/93.
 OE INFORMATION TAKEN FROM EAST 9TH ST. PLANS (SHEETS 125 THROUGH 128) PROVIDED BY OHIO BELL TELEPHONE 5/93.

END AREA	VOLUME	
	CUT	FILL
7	13	504
7	10	491
8	19	477
TOTAL	42	293
	1472	293



CROSS-SECTIONS STA: 178+00 TO STA: 179+00

CUY - EAST 9TH STREET

DRAWING NAME: EB-XSEC.DWG
 CREATED BY: TSM:tr
 LAST REV. DATE: 4 JUNE 93

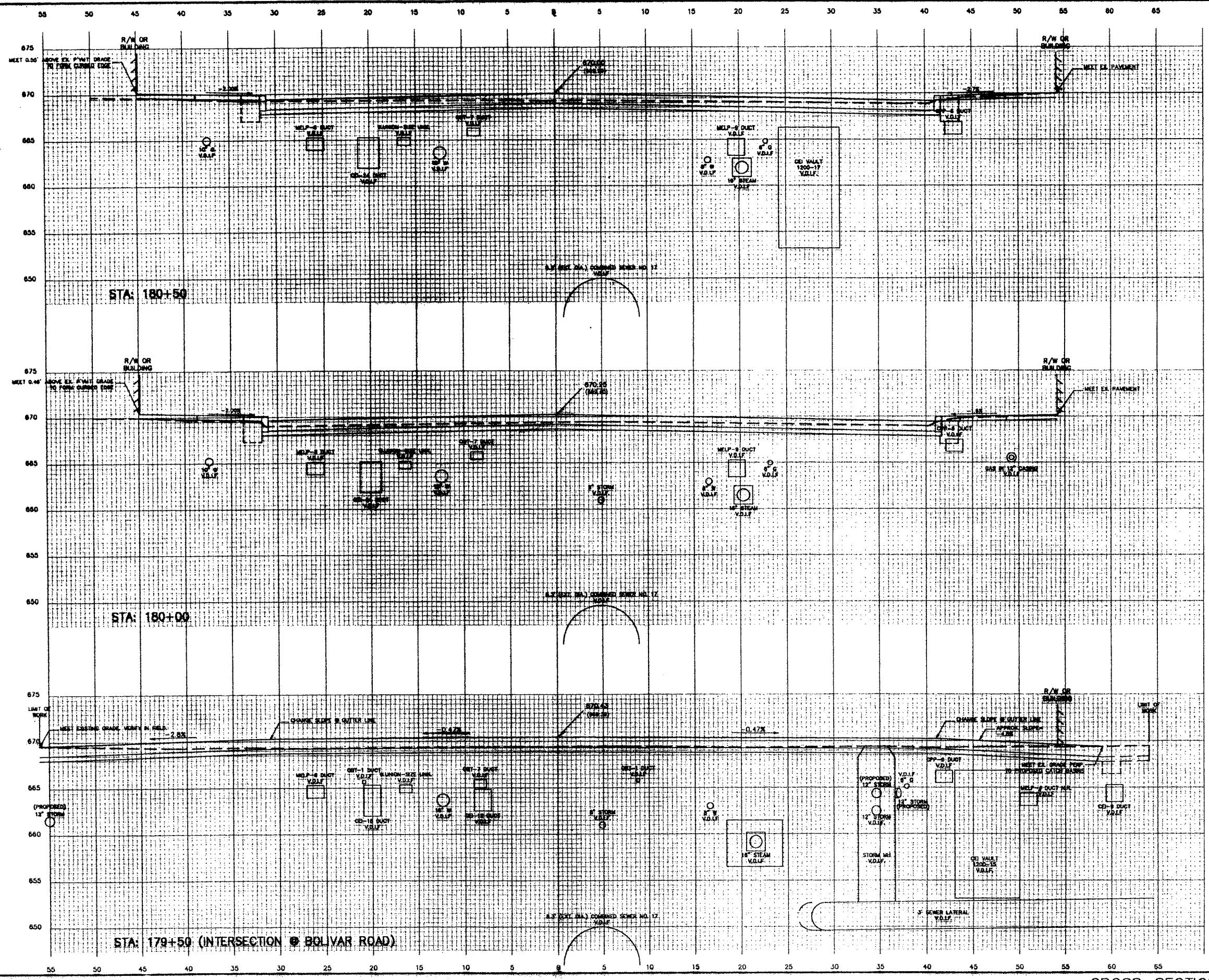
Sasaki Associates, Inc.

CALC. DATE: _____
 DATE: _____
 CHKD. DATE: _____
 DATE: _____

CUY-EAST 9TH STREET
 CUYAHOGA COUNTY

OHIO
 F.H.W.A. REGION 5

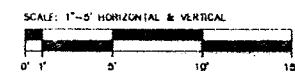
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END AREAS CALCULATED BETWEEN BOTTOM OF EX. SECTION AND BASE OF PROPOSED SECTION. EX. ROADWAY PAVEMENT DEPTH ASSUMED TO BE 15\"/>

CD INFORMATION TAKEN FROM EAST 9TH ST PLANS (SHEETS 1 & 2) PROVIDED BY CLEVELAND ELECTRIC ILLUMINATING COMPANY 5/93
 DBT INFORMATION TAKEN FROM EAST 9TH ST PLANS (SHEETS 150 THROUGH 156) PROVIDED BY OHIO BELL TELEPHONE 5/93

END AREA	VOLUME	
	CUT	FILL
17	5	600
12	10	573
28	13	536
TOTAL	28	1709
		491



CROSS-SECTIONS STA: 179+50 TO STA: 180+50

CUY - EAST 9TH STREET

DRAWING NAME: EP-MSEC/DWC
 CREATED BY: TSM/HP
 LAST REV. DATE: 4 JUNE 93

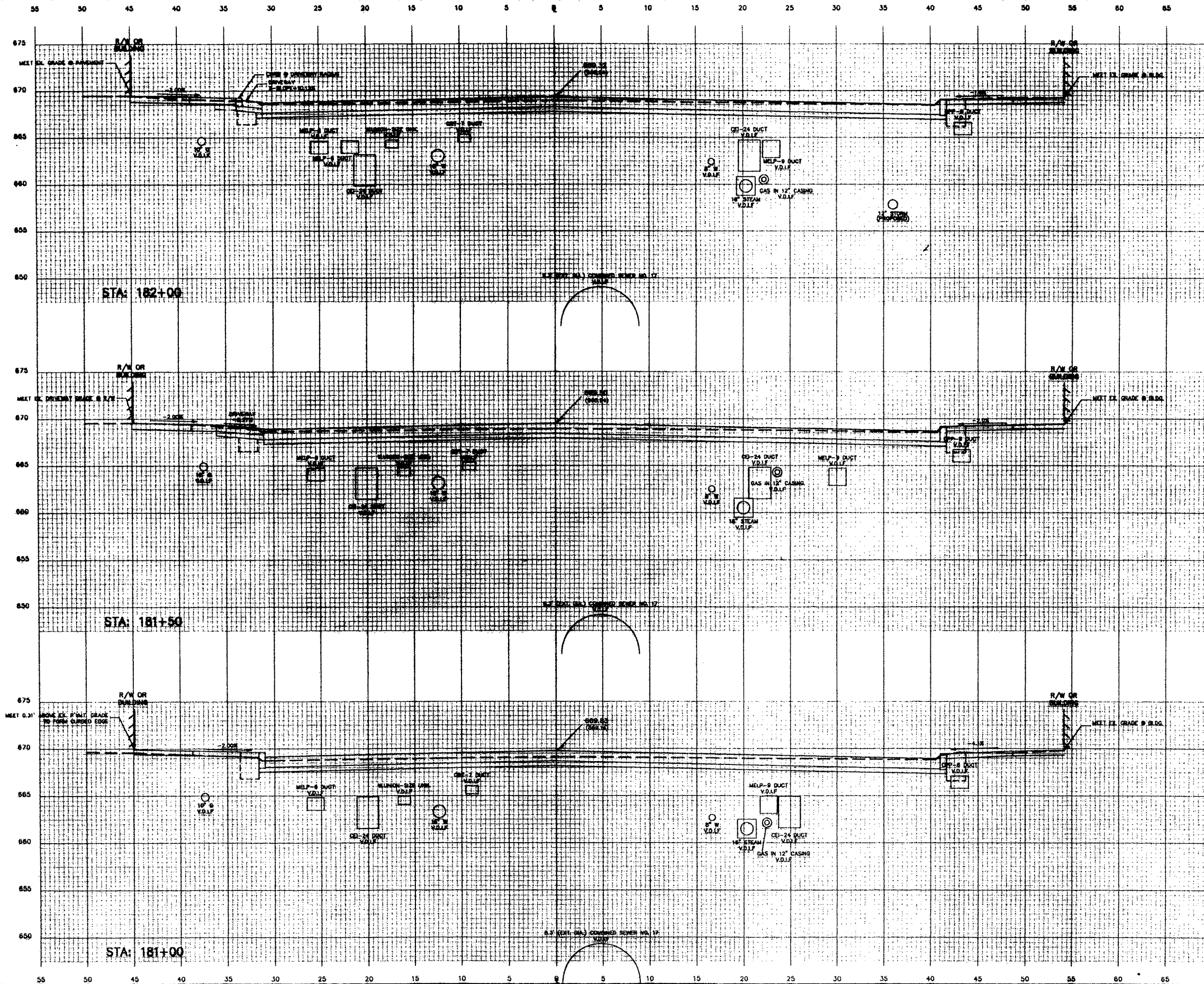
Sasaki Associates, Inc.

CALC. _____
 DATE _____
 CHKD. _____
 DATE _____

CUY-EAST 9TH STREET
 CUYAHOGA COUNTY

OHIO
 F.H.W.A. REGION 5

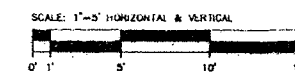
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END AREAS CALCULATED BETWEEN BOTTOM OF EX. SECTION AND BASE OF PROPOSED SECTION. EX. ROADWAY PAVEMENT DEPTH ASSUMED TO BE 15" BEFORE STA: 176+00 AND 12" THEREAFTER. EX. SIDEWALK DEPTH ASSUMED TO BE 4".

CEI INFORMATION TAKEN FROM EAST 9TH ST PLANS (SHEETS 1 & 2) PROVIDED BY CLEVELAND ELECTRIC ILLUMINATING COMPANY 5/93.
 CRT INFORMATION TAKEN FROM EAST 9TH ST PLANS (SHEETS 105 THROUGH 108) PROVIDED BY OHIO BELL TELEPHONE 5/93.

TOTAL	END AREA		VOLUME	
	OUT	EX.	OUT	EX.
111	40	0	784	187
1	47	0	704	187
2126	24	1	638	186
560				



CROSS-SECTIONS STA: 181+00 TO STA: 182+00

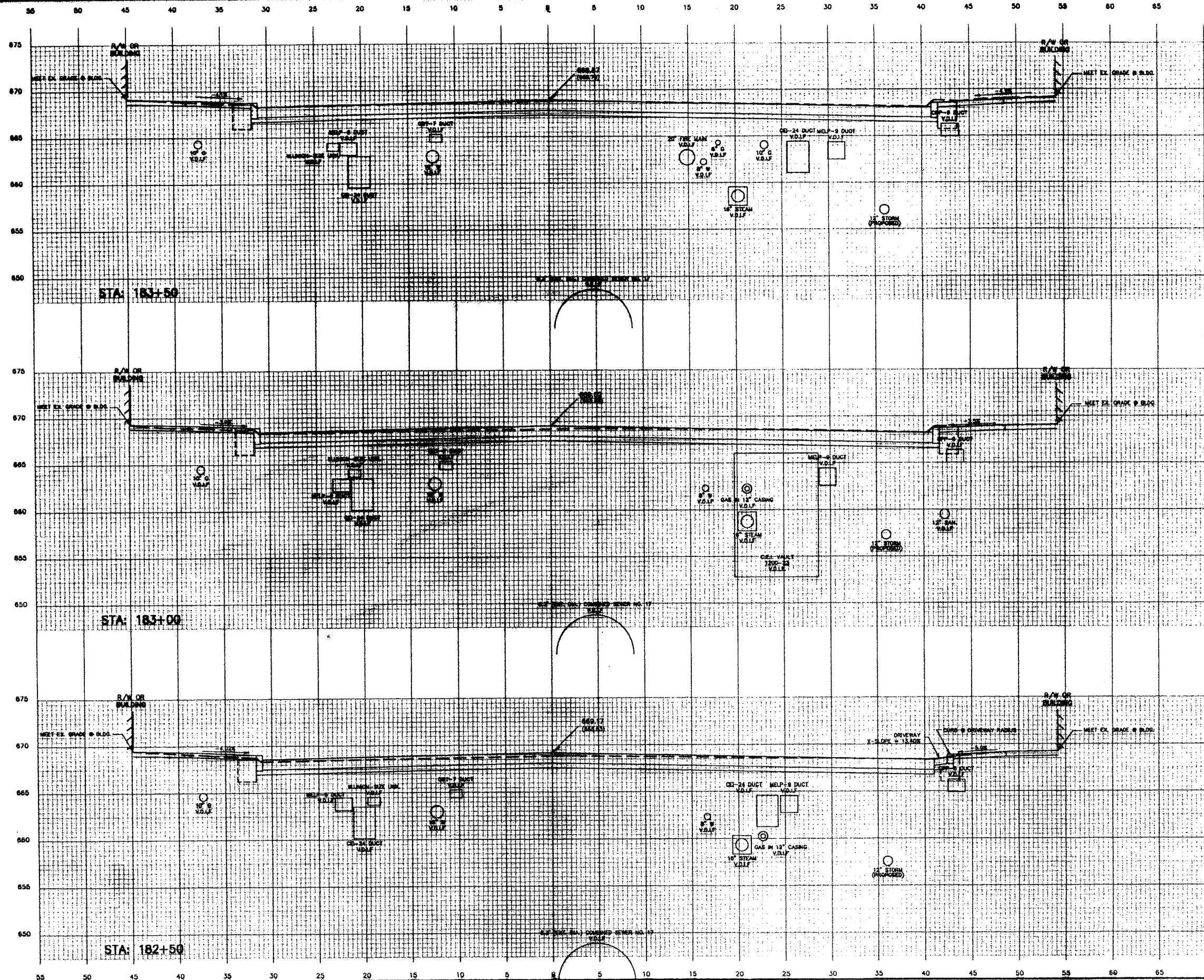
CUY - EAST 9TH STREET

DRAWING NAME: EP-XSC.DWG
 CREATED BY: Tsmith
 LAST REV. DATE: 4 JUNE 83

Sasaki Associates, Inc.

CALC. DATE: CUY-EAST 9TH STREET OHIO
 CHKD. DATE: CUYAHOGA COUNTY F.H.W.A. REGION 5
 DATE: 5

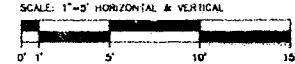
30



END AREAS CALCULATED BETWEEN BOTTOM OF EX. SECTION AND BASE OF PROPOSED SECTION. EX. ROADWAY PAVEMENT DEPTH ASSUMED TO BE 15\"/>

SEE INFORMATION TAKEN FROM EAST 9TH ST. PLANS (SHEETS 1 & 2) PROVIDED BY CLEVELAND ELECTRIC ILLUMINATING COMPANY 5/73.
 SEE INFORMATION TAKEN FROM EAST 9TH ST. PLANS (SHEETS 108 THROUGH 109) PROVIDED BY OHIO BELL TELEPHONE 5/73.

END AREA	VOLUME	
	CUT	FILL
62	0	1038
51	0	933
35	0	854
TOTAL	148	2825
	0	561



CROSS-SECTIONS STA: 182+50 TO STA: 183+50

CUY - EAST 9TH STREET

DRAWING NAME: E9-XSEC.DWG
 CREATED BY: TSmith
 LAST REV. DATE: 4 JUNE 93

Sasaki Associates, Inc.

CALC. _____
 DATE _____
 CHKD. _____
 DATE _____

CUY-EAST 9TH STREET
 CUYAHOGA COUNTY

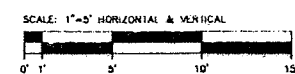
OHIO
 F.H.W.A.
 REGION 5

31

END AREAS CALCULATED BETWEEN BOTTOM OF EX. SECTION AND BASE OF PROPOSED SECTION. EX. ROADWAY PAVEMENT DEPTH ASSUMED TO BE 15" BEFORE STA: 176+00 AND 12" THEREAFTER. EX. SIDEWALK DEPTH ASSUMED TO BE 4".

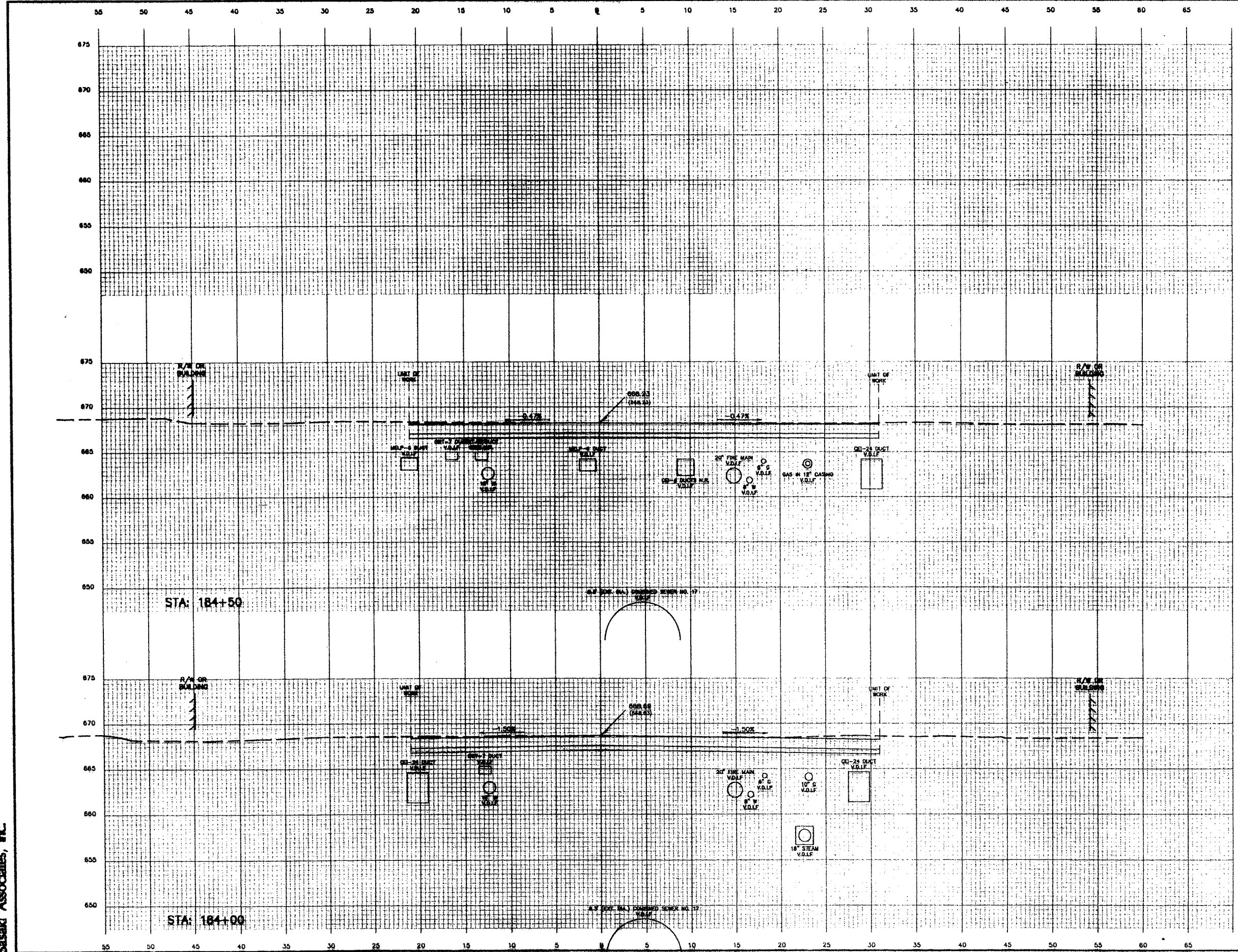
CE INFORMATION TAKEN FROM EAST 9TH ST PLANS (SHEETS 1 & 2) PROVIDED BY CLEVELAND ELECTRIC ILLUMINATING COMPANY 5/93
 ORF INFORMATION TAKEN FROM EAST 9TH ST PLANS (SHEETS 155 THROUGH 159) PROVIDED BY OHIO BELL TELEPHONE 5/93.

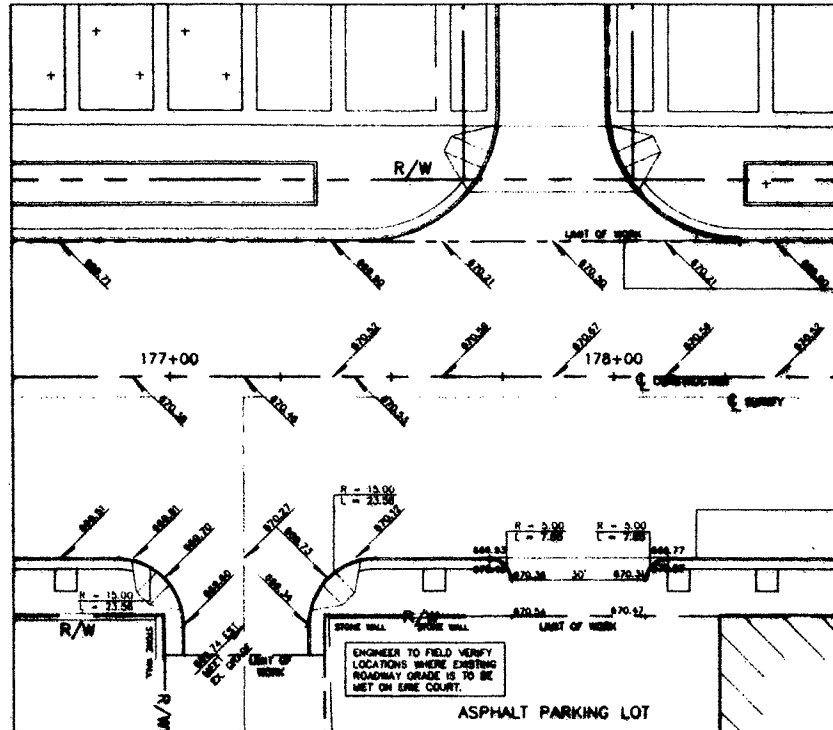
TOTAL	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
70	34	0	1193	187
0	0	0	1225	187
3546	36	0	1128	187
561				



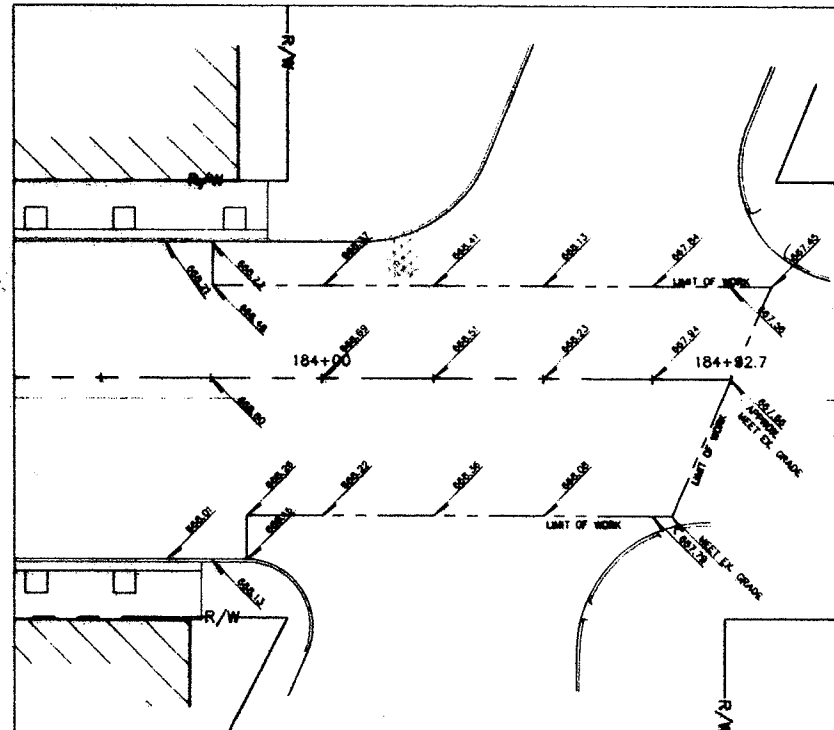
CROSS-SECTIONS STA: 184+00 TO STA: 184+50

CUY - EAST 9TH STREET

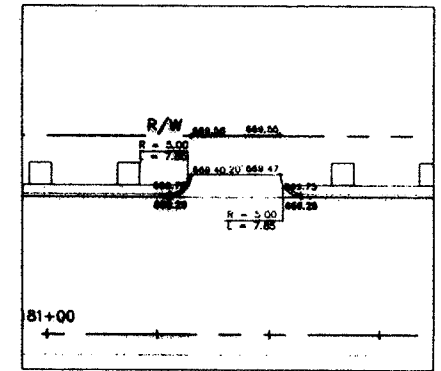




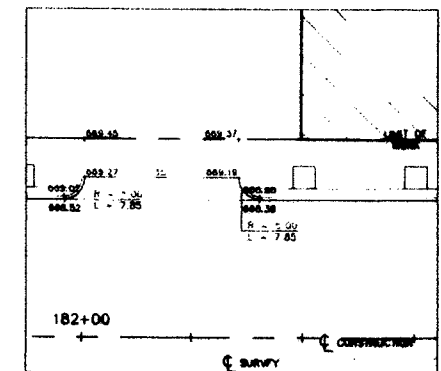
INTERSECTION WITH ERIE COURT
INTERSECTION WITH NEW EAGLE
& PARKING LOT DRIVEWAY



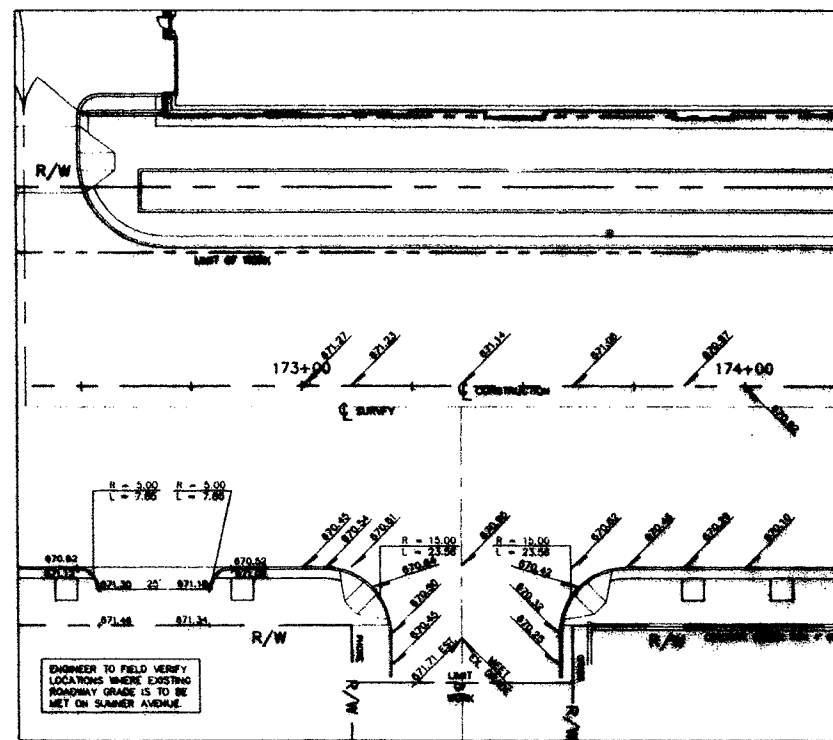
INTERSECTION WITH PROSPECT STREET



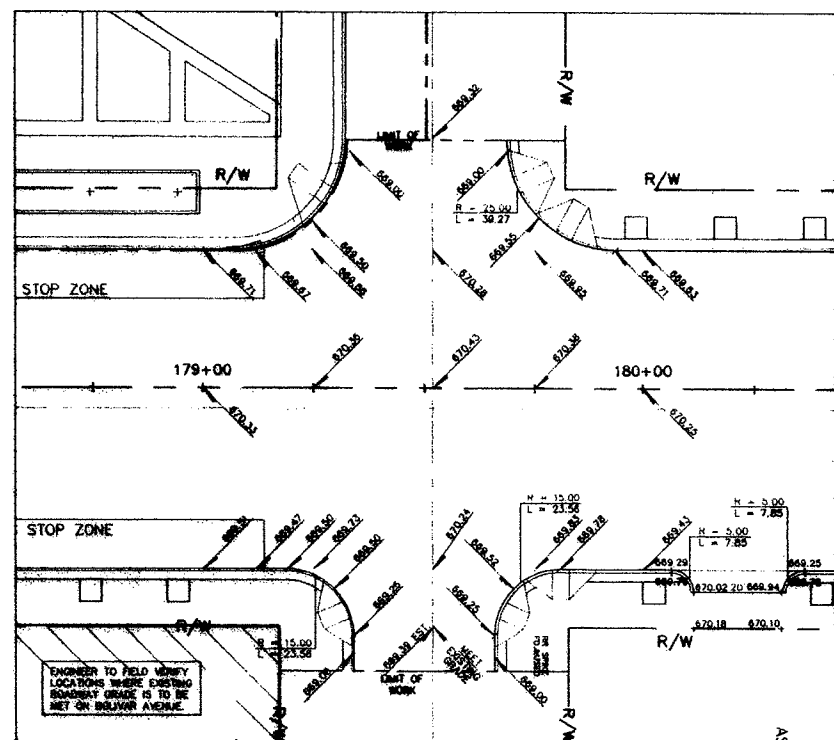
PARKING LOT DRIVEWAY
N. OF BOLIVAR ROAD



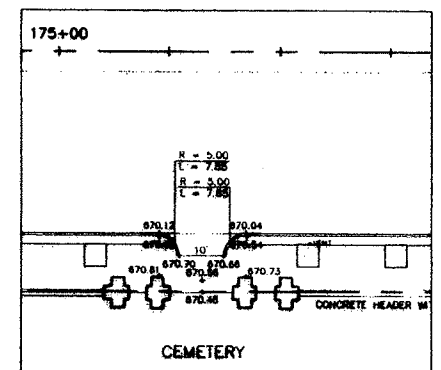
PARKING LOT DRIVEWAY
N. OF BOLIVAR ROAD



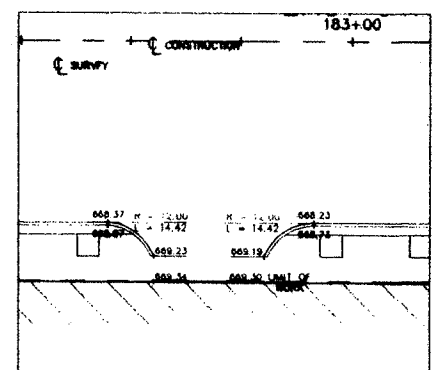
INTERSECTION WITH SUMNER AVENUE
& PARKING LOT DRIVEWAY



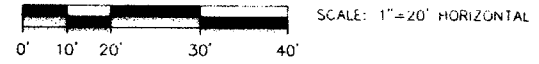
INTERSECTION WITH BOLIVAR ROAD
& PARKING LOT DRIVEWAY



CEMETERY ENTRANCE



GARAGE DRIVEWAY
NEAR PROSPECT STREET



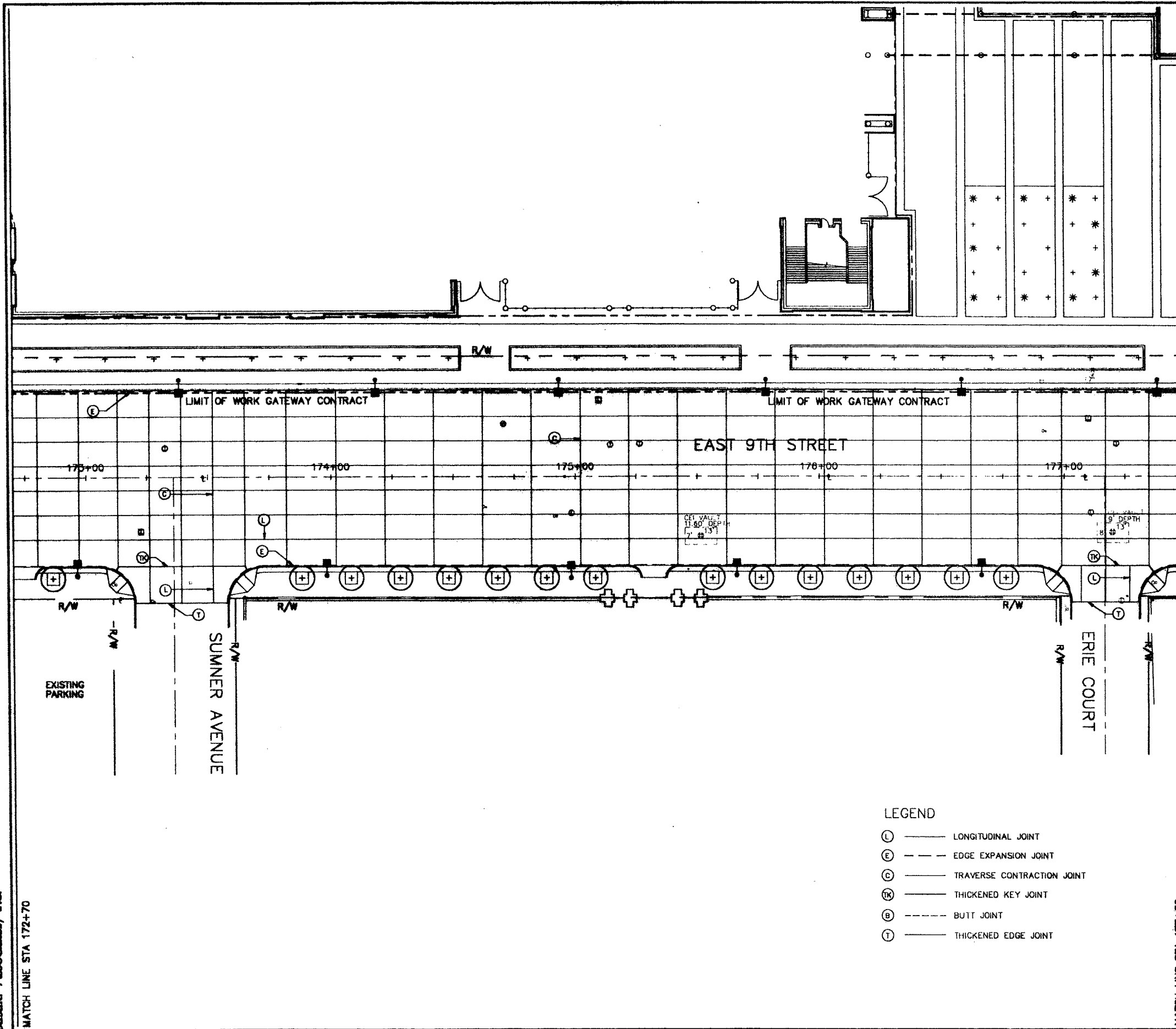
INTERSECTION DETAILS

DRAWING NAME: E9-PP.DWG
CREATED BY: TSmith
LAST REV. DATE: 16 JUNE 93

Sasaki Associates, Inc.

CUY - EAST 9TH STREET

MATCH LINE STA 172+70



MATCH LINE STA 177+50

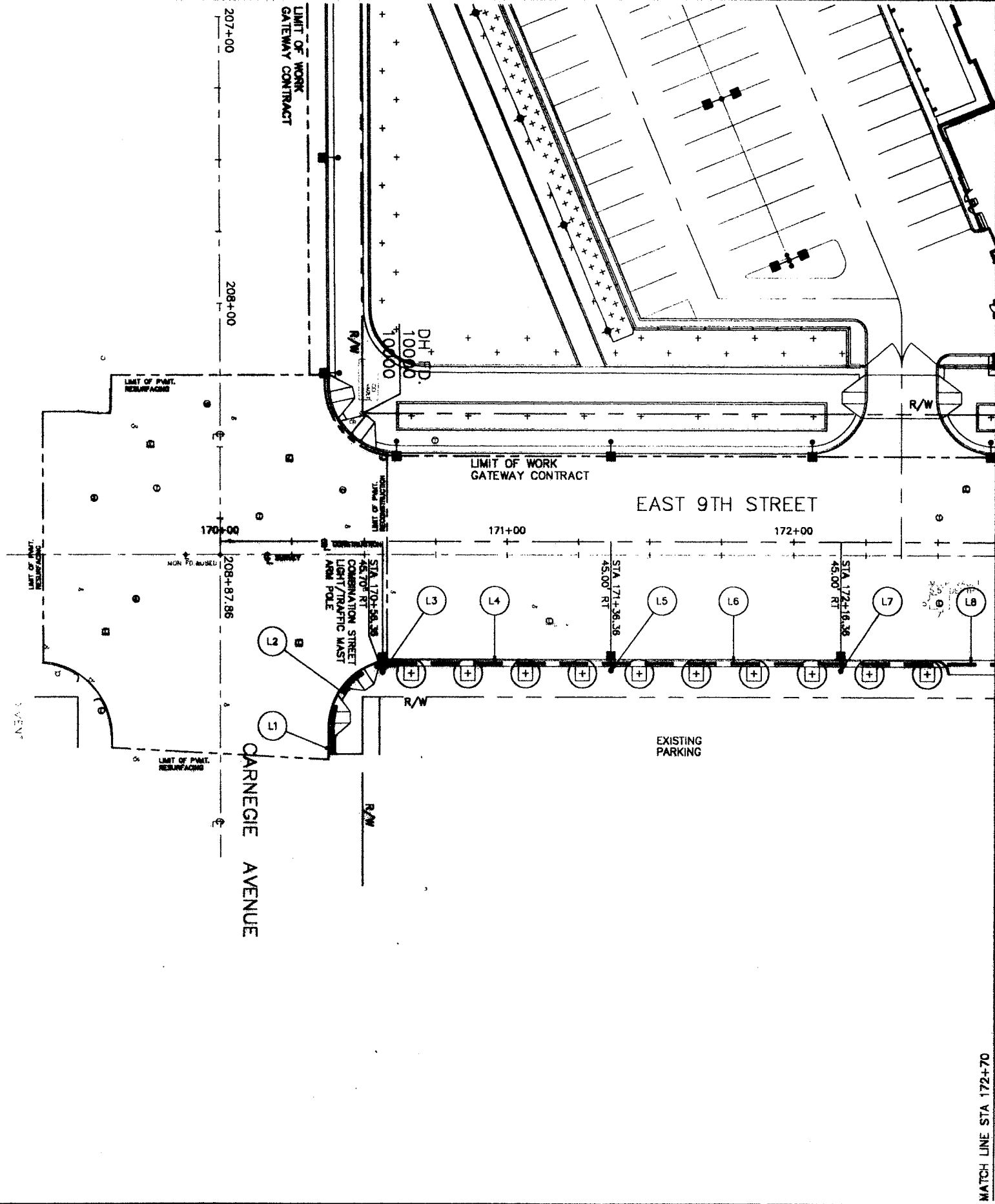
LEGEND

- (L) — LONGITUDINAL JOINT
- (E) - - - EDGE EXPANSION JOINT
- (C) — TRAVERSE CONTRACTION JOINT
- (TK) — THICKENED KEY JOINT
- (B) - - - BUTT JOINT
- (T) — THICKENED EDGE JOINT

ESTIMATED QUANTITIES

SEE SHT. NO.	CALC. _____ CUY-EAST 9TH STREET OHIO DATE _____ CUYAHOGA COUNTY F.H.W.A. REGION 5 CHKD _____ DATE _____			(34)
	REF. NO.	STATION TO STATION SIDE	TOTALS	

CUY - EAST 9TH STREET



MATCH LINE STA 172+70

ESTIMATED QUANTITIES

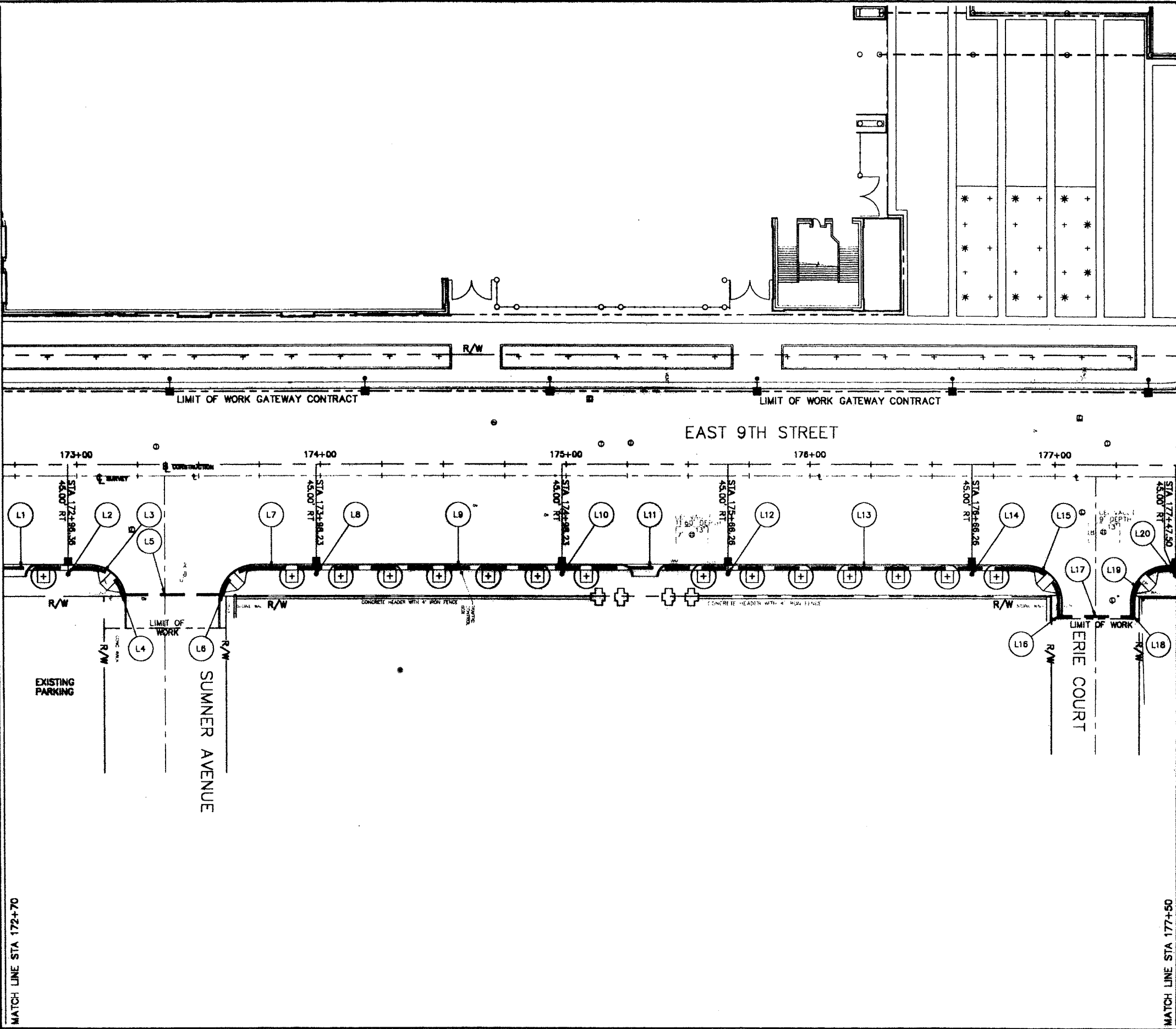
REF. NO.	STATION TO STATION SIDE	825 6 DUCT TRENCH				825 LIGHT POLE FOUNDATION		713 6 DUCT BANK		713 PULL BOX		713 GROUND ROD	
		LF	EA	EA	EA	EA	EA	EA	EA	EA	EA		
L1	170+40												
L2	170+40 TO 170+56.36	46			46								
L3	170+56.36												
L4	170+56.36 TO 171+36.36	80			80								
L5	171+36.36												
L6	171+36.36 TO 172+16.36	80			80								
L7	172+16.36												
L8	172+16.36 TO 172+70	54			54								
TOTALS		260	3	260	4	3							

LIGHTING PLAN STA 170+00 TO STA 172+70

DRAWING NAME: ELEC
 CREATED BY: DRB
 LAST REV DATE: 6/16/83

Sasaki Associates, Inc.

MATCH LINE STA 172+70



MATCH LINE STA 177+50

CALC.	CUY-EAST 9TH STREET	OHIO	38
DATE	CUYAHOGA COUNTY	F.H.W.A. 5	
CHKD.		REGION	
DATE			

ESTIMATED QUANTITIES

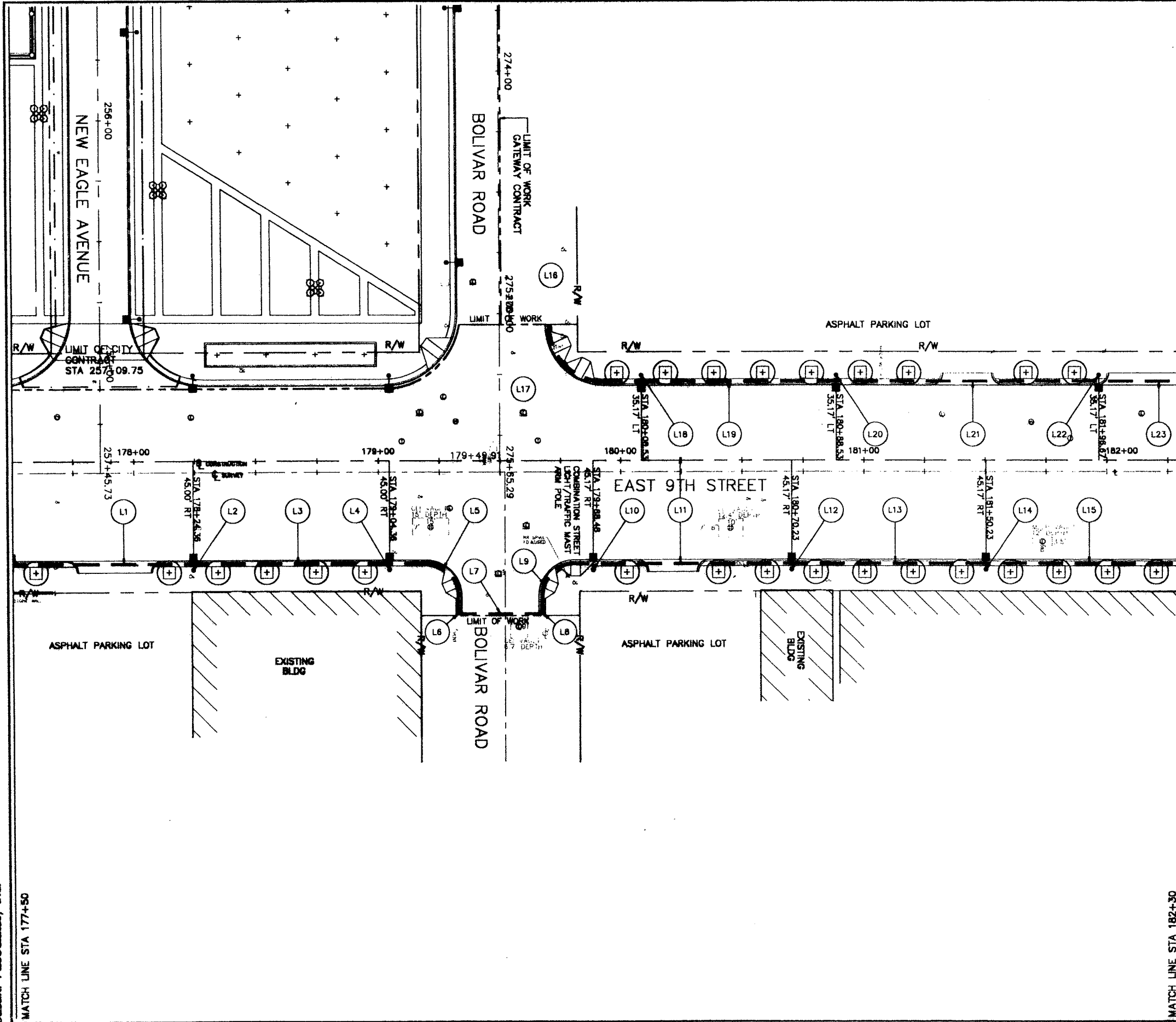
REF. NO.	STATION TO STATION	SIDE	625 6 DUCT TRENCH	625 LIGHT POLE FOUNDATION	713 6 DUCT BANK	713 PULL BOX	713 GROUND ROD	SEE SHT. NO.
L1	172+70 TO 172+96.36	RT	LF 26	EA 26	LF 26	EA 26	EA 26	
L2	172+96.36 TO 173+17	RT	LF 37	EA 37	LF 37	EA 37	EA 37	
L3	173+17 TO 173+62	RT	LF 45	EA 45	LF 45	EA 45	EA 45	
L4	173+62 TO 173+98.23	RT	LF 54	EA 54	LF 54	EA 54	EA 54	
L5	173+98.23 TO 174+98.23	RT	LF 100	EA 100	LF 100	EA 100	EA 100	
L6	174+98.23 TO 175+66.26	RT	LF 66	EA 66	LF 66	EA 66	EA 66	
L7	175+66.26 TO 176+66.26	RT	LF 100	EA 100	LF 100	EA 100	EA 100	
L8	176+66.26 TO 177+00	RT	LF 50	EA 50	LF 50	EA 50	EA 50	
L9	177+00 TO 177+33	RT	LF 32	EA 32	LF 32	EA 32	EA 32	
L10	177+33 TO 177+47.50	RT	LF 31	EA 31	LF 31	EA 31	EA 31	
L11	177+47.50 TO 177+50	RT	LF 3	EA 3	LF 3	EA 3	EA 3	
TOTALS			543	6	543	10	6	

LIGHTING PLAN STA 172+70 TO STA 177+50

CUY - EAST 9TH STREET

DRAWING NAME: ELEC
 CREATED BY: DRB
 LAST REV. DATE: 6/16/93

Sasaki Associates, Inc.



MATCH LINE STA 182+30

ESTIMATED QUANTITIES

REF. NO.	STATION TO STATION SIDE	625				713			713		SEE SHT. NO.
		6 DUCT TRENCH	LIGHT POLE FOUNDATION	6 DUCT BANK	PULL BOX	FULL BOX	GROUND ROD	EA	EA		
L1	177+50 TO 178+24.36	RT									
L2	178+24.36	RT									
L3	178+24.36 TO 179+04.36	RT									
L4	179+04.36	RT									
L5	179+04.36 TO 179+33	RT									
L6	179+33	RT									
L7	179+33 TO 179+67	RT									
L8	179+67	RT									
L9	179+67 TO 179+88.48	RT									
L10	179+88.48	RT									
L11	179+88.48 TO 180+70.23	RT									
L12	180+70.23	RT									
L13	180+70.23 TO 181+50.23	RT									
L14	181+50.23	RT									
L15	181+50.23 TO 182+30	RT									
L16	179+70	LT									
L17	179+70 TO 180+08.53	LT									
L18	180+08.53	LT									
L19	180+08.53 TO 180+88.53	LT									
L20	180+88.53	LT									
L21	180+88.53 TO 181+96.67	LT									
L22	181+96.67	LT									
L23	181+96.67 TO 182+30	LT									
TOTALS			788	8	788	11	8				

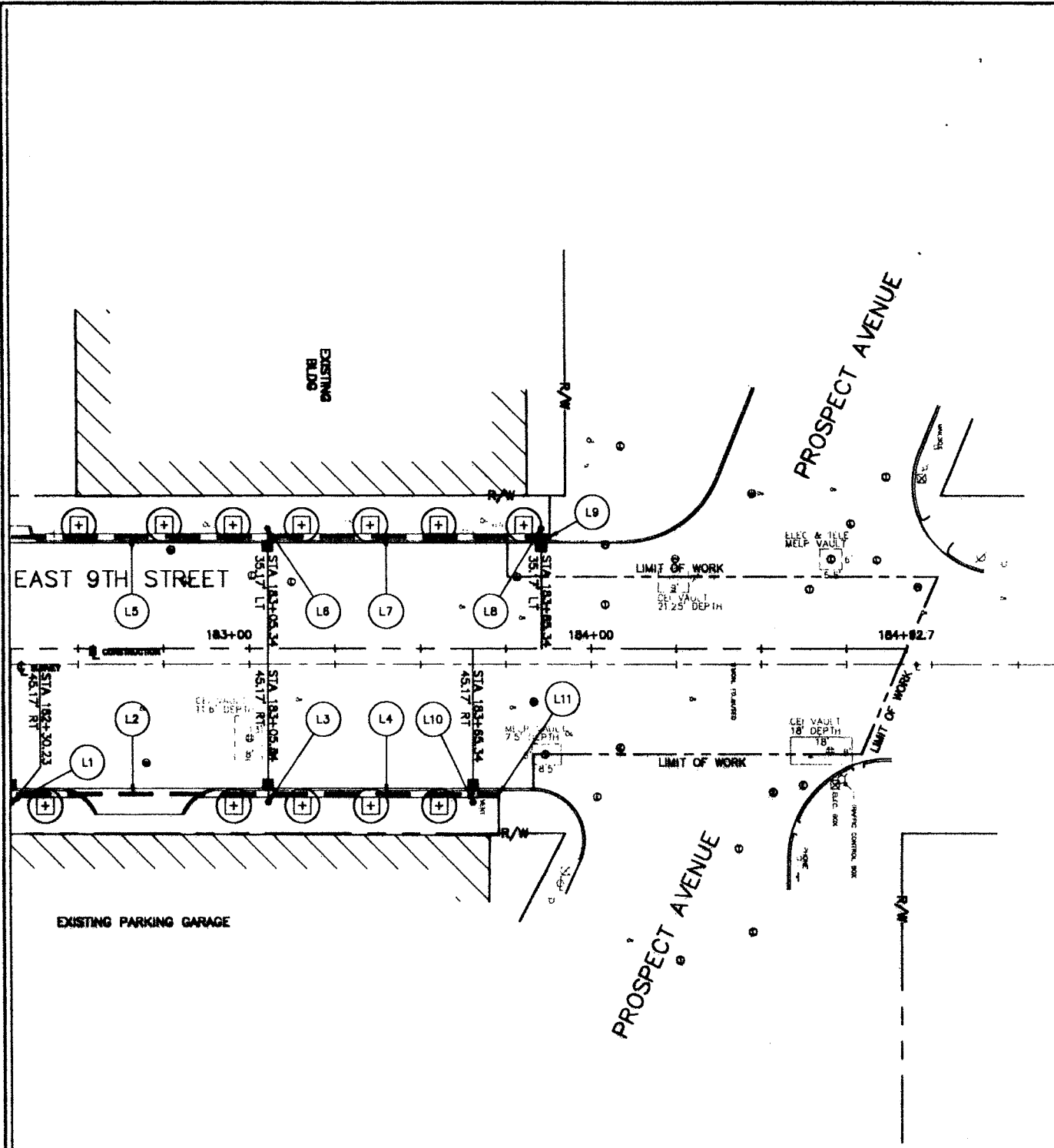
LIGHTING PLAN STA 177+50 TO STA 182+30

CUY - EAST 9TH STREET

DRAWING NAME: ELEC
 CREATED BY: DRE
 LAST REV. DATE: 6/16/83

Sasaki Associates, Inc.

MATCH LINE STA 182+30



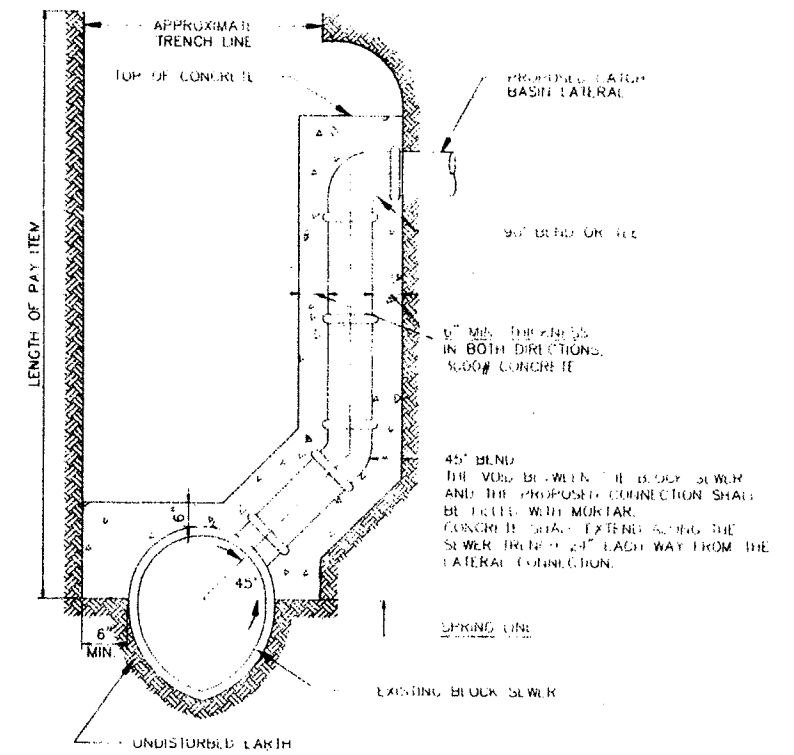
CALC. DATE _____
 CHKD. DATE _____
 CUY-EAST 9TH STREET
 CUYAHOGA COUNTY
 OHIO
 F.H.W.A. REGION 5
 (40)

ESTIMATED QUANTITIES

REF. NO.	STATION TO STATION	SIDE	625 6 DUCT TRENCH					713 6 DUCT BANK			713 FULL BOX		713 GROUND ROD			
			LF	EA	RT	EA	RT	EA	RT	EA	RT	EA	RT			
L1	182+30.23	RT														
L2	182+30.23 TO 183+05.34	RT	75	1			75									
L3	183+05.34	RT														
L4	183+05.34 TO 183+74	RT	69	1			69									
L5	182+30 TO 183+05.34	LT	76	1			76									
L6	183+05.34	LT														
L7	183+05.34 TO 183+85.34	LT	80	1			80									
L8	183+85.34	LT														
L9	183+85.34 TO 183+88	LT	3	1			3									
L10	183+65.34	RT														
L11	183+65.34 TO 183+72.84	RT	7.5	1			7.5									
TOTALS			310.5	5			310.5	5								

LIGHTING PLAN STA 182+30 TO STA 185+36

CUY - EAST 9TH STREET



1 TYPICAL LATERAL RISER DETAIL
N.T.S.

DRAWING NAME: OIL-3
CREATED BY: IS/MS
LAST REV. DATE: 6/16/83

Sasaki Associates, Inc.

TRAFFIC GENERAL NOTES

TRAFFIC GENERAL NOTES

GENERAL

ALL WORK SHALL CONFORM TO THE STATE OF OHIO DEPARTMENT OF TRANSPORTATION, CONSTRUCTION AND MATERIAL SPECIFICATIONS DATED JANUARY 1, 1993 OR AS NOTED ON THE CONSTRUCTION PLANS OR AT THE DIRECTION OF THE CITY OF CLEVELAND TRAFFIC ENGINEERING DIVISION. IN PARTICULAR THE CONTRACTOR SHALL CONFORM TO APPLICABLE SECTION 600, IN PARTICULAR 614, 615, 616, 625, 630, 632, 633 SECTION 640, AND SECTION 700, OF THE STANDARD SPECIFICATIONS. THE CONTRACTOR SHALL CONFORM TO APPLICABLE SECTIONS OF THE OHIO DEPARTMENT OF TRANSPORTATION STANDARD DRAWINGS NO'S HL-30, 11, MC-30, 22, TC-35, 10, TC-41, 50, TC-42, 20, TC-51, 10, TC-51, 11, TC-52, 10, TC-52, 20, TC-65, 10, TC-65, 12, TC-65, 13, TC-71, 10, TC-81, 20, TC-83, 10, TC-83, 20, TC-85, 10, TC-85, 20, BP-7, 1, MK-9, 1, MT-96, 10, MT-99, 10, MT-99, 20, MT-101, 60, MT-105, 10, MT-105, 11. THE CONTRACTOR SHALL ALSO CONFORM TO APPLICABLE SECTIONS OF THE CUYAHOGA COUNTY ENGINEER STANDARD DRAWINGS NO MKG-2C AND MKG-1C.

THE CITY OF CLEVELAND TRAFFIC ENGINEER DEPARTMENT IS IN THE PROCESS OF DESIGNING A LOOP DETECTION SYSTEM FOR THE INTERSECTIONS OF EAST 9TH STREET AND CARNEGIE AND EAST 9TH STREET AND BOLIVAR ROAD. THE TRAFFIC GENERAL SUMMARY SHEET LISTS THOSE BID ITEMS APPLICABLE TO THE DESIGN WITH TAKEN AMOUNTS OBTAINED FROM THE CITY TRAFFIC ENGINEERING DEPARTMENT.

MAINTENANCE OF TRAFFIC

THE CONTRACTOR SHALL MAINTAIN SAFE AND SATISFACTORY ACCESS TO ADJUTING PROPERTY. THE CONTRACTOR SHALL MAINTAIN ADEQUATE PEDESTRIAN WALKS AT ALL INTERSECTIONS, INCLUDING TEMPORARY BITUMINOUS WALKS, WHERE DIRECTED BY THE ENGINEER.

THE CONTRACTOR SHALL DIVERT TRAFFIC FROM NORMAL CHANNELS BY PLASTIC SIGNS, FLASHING ARROW PANELS COMPLYING WITH IC-35, 10, AND TRAFFIC DRUMS AND PAVEMENT MARKINGS, AS SHOWN ON SHEET NOS. 45-56.

ALL CONSTRUCTION TRAFFIC CONTROL DEVICES USED FOR THIS PROJECT SHALL CONFORM TO THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS (THE MANUAL), AND SHALL BE FURNISHED, ERECTED, MAINTAINED, AND REMOVED BY THE CONTRACTOR, EXCEPT AS NOTED BELOW.

THE CONTRACTOR SHALL FURNISH AND MAINTAIN ALL NECESSARY SAFEGUARDS, SUCH AS BARRICADES, LIGHTING, FLAGGERS, AND SUCH OTHER TRAFFIC CONTROL DEVICES AS PROVIDED IN ITEM 614 - MAINTAINING TRAFFIC, SO AS TO AVOID DAMAGE AND/OR INJURY TO VEHICLES AND PERSONS USING THE ROADWAY DURING CONSTRUCTION.

EXISTING TRAFFIC CONTROL DEVICES LOCATED WITHIN THE WORK AREA, WHICH ARE REQUIRED FOR INTERIM OR PERMANENT TRAFFIC CONTROL, SHALL BE RELOCATED TO POINTS APPROVED BY THE ENGINEER. APPROPRIATE TRAFFIC CONTROL DEVICES SHALL BE MAINTAINED, IN COMPLIANCE WITH THE MANUAL, AT ALL TIMES WHILE TRAFFIC IS MAINTAINED. THE COST OF RELOCATION, IF REQUIRED, SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 614 - MAINTAINING TRAFFIC.

PAYMENT FOR LABOR AND EQUIPMENT REQUIRED FOR THE CONSTRUCTION, MAINTENANCE AND SUBSEQUENT REMOVAL OF APPROACHES, DRIVEWAYS, BARRICADES, LIGHTS, DRUMS, FLASHING ARROW PANELS, SIGNS AND SIGN SUPPORTS, AND OTHER MISCELLANEOUS TRAFFIC CONTROL DEVICES, EXCEPT WHERE SPECIFIC ITEMS AND QUANTITIES ARE PROVIDED FOR ELSEWHERE IN THE PLANS, SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 614 - MAINTAINING TRAFFIC.

NOTIFICATIONS

THE CONTRACTOR SHALL NOTIFY, IN WRITING, THE CITY OF CLEVELAND POLICE, FIRE, SCHOOL DISTRICT, CITY OF CLEVELAND AND RTA AT LEAST SEVENTY-TWO (72) HOURS BEFORE RESTRICTION OR CLOSING TO TRAFFIC ANY STREET OR IMPLEMENTING ANY OF THE PROPOSED CONSTRUCTION PHASES OR DETOURS.

CITY OF CLEVELAND POLICE DEPARTMENT
THIRD DISTRICT
2001 PAYNE AVENUE
CLEVELAND, OH 44114
PHONE: (216) 623-5300

CITY OF CLEVELAND FIRE DEPARTMENT
1645 SUPERIOR AVENUE
CLEVELAND, OH 44114
PHONE: (216) 664-6800

CITY OF CLEVELAND SCHOOL DISTRICT
1380 EAST 6TH STREET
CLEVELAND, OH 44114
PHONE: (216) 574-8255

REGIONAL TRANSIT AUTHORITY
615 WEST SUPERIOR AVENUE
CLEVELAND, OH 44113
PHONE: (216) 566-5100

CITY OF CLEVELAND DPT. OF TRAFFIC ENGINEERING
2001 PAYNE AVENUE
CLEVELAND, OH 44114

CONSTRUCTION TRAFFIC

ALL CONSTRUCTION TRAFFIC SHALL USE ACCEPTABLE TRUCK ROUTES TO ACCESS THE CONSTRUCTION AREA. USE OF LOCAL RESIDENTIAL STREETS IS STRICTLY PROHIBITED UNLESS ALLOWED IN WRITING BY THE LOCAL ENFORCEMENT AUTHORITY.

TEMPORARY RAMPING OF VERTICAL SURFACES

IN ORDER TO PROVIDE FOR LOCAL ACCESS, LONGITUDINAL VERTICAL FACES ADJUTING DRIVES SHALL BE TEMPORARILY RAMPED. TRANSVERSE VERTICAL FACES SHALL BE TEMPORARILY RAMPED A MINIMUM OF TEN (10) FEET IN LENGTH AND TRAFFIC SHALL BE WARNED WITH OM-62 "BUMP" SIGNS IN ADVANCE OF THE RAMPED AREAS.

ALL CASTINGS ENCOUNTERED SHALL BE SET TO GRADE AND PAID FOR UNDER VARIOUS ITEMS DESCRIBED ELSEWHERE IN THE GENERAL NOTES OR SPECIFICATIONS. THE CASTING ELEVATION DIFFERENTIAL SHALL NOT BE GREATER THAN ONE (1) INCH WHEN EXPOSED TO TRAFFIC.

ALL TEMPORARY RAMPING SHALL BE INSTALLED, AT THE DIRECTION OF THE ENGINEER, USING ITEM 404 - BITUMINOUS CONCRETE FOR MAINTAINING TRAFFIC.

DETOUR LIMITATION

IT IS THE INTENT OF THE FOLLOWING CONSTRUCTION SEQUENCE FOR EAST 9TH STREET RECONSTRUCTION NOT TO DETOUR THE EAST 9TH STREET NORTHBOUND AND SOUTHBOUND TRAFFIC FLOW AT LEAST ONE LANE OF TRAFFIC PER DIRECTION SHALL BE MAINTAINED AT ALL TIMES.

CONSTRUCTION SEQUENCE

GENERAL:

THE INTENT OF THE CONSTRUCTION PHASING IS TO PRESENT TO THE CONTRACTOR A SUGGESTED SEQUENCE OF CONSTRUCTION. IF THE CONTRACTOR WISHES TO MODIFY OR CHANGE THE SUGGESTED SEQUENCE HE MUST SUBMIT HIS PLANS IN WRITING FOR APPROVAL OF THE CITY TRAFFIC ENGINEERING DIVISION 14 DAYS IN ADVANCE OF ANY CONSTRUCTION ACTIVITIES.

THE CONSTRUCTION PHASING IS BROKEN INTO TWO SETS OF DRAWINGS, ONE REFLECTING THE RECONSTRUCTION OF EAST 9TH STREET, THE OTHER REFLECTING THE RECONSTRUCTION OF THE PROSPECT/HURON INTERSECTION.

THE RECONSTRUCTION OF EAST 9TH STREET IS PRESENTED IN FOUR MAJOR CONSTRUCTION PHASES. THE RECONSTRUCTION OF THE EAST 9TH STREET INTERSECTION IS PRESENTED IN FOUR CONSTRUCTION PHASES UNDER A SUBPHASE OF EAST 9TH STREET PHASE I, AND PRESENTED AS PHASE I A, B, C, AND D. THE INTENT OF ALL EAST 9TH STREET CONSTRUCTION PHASING IS TO BEGIN CONSTRUCTION ACTIVITIES AT THE SOUTH END AT CARNEGIE AND WORK NORTH TOWARD PROSPECT.

PEDESTRIAN ACCESS MUST BE MAINTAINED ALONG THE EAST SIDE OF EAST 9TH STREET. THE CONTRACTOR MUST SUBMIT IN WRITING TO THE CITY TRAFFIC ENGINEERING DIVISION FOR APPROVAL 14 DAYS PRIOR TO AND CONSTRUCTION, HOW HE INTENDS TO MAINTAIN PEDESTRIAN ACCESS ALONG EAST 9TH STREET DURING ALL PHASES OF THE WORK.

BOLIVAR ROAD MUST MAINTAIN ACCESS TO EAST 9TH STREET. THE CONTRACTOR MUST CONSTRUCT ONE HALF OF THE BOLIVAR ROAD INTERSECTION AT A TIME USING HIGH EARLY STRENGTH CONCRETE. IN ORDER TO MAINTAIN THE TRAFFIC FLOW THE CONTRACTOR MUST SUBMIT IN WRITING TO THE CITY TRAFFIC ENGINEERING DIVISION FOR APPROVAL 14 DAYS PRIOR TO CONSTRUCTION HOW HE INTENDS TO MAINTAIN BOLIVAR ROAD ACCESS ALONG EAST 9TH STREET DURING ALL PHASES OF THE WORK.

APPROPRIATE SIGNAGE AS APPROVED BY THE CITY TRAFFIC ENGINEERING DIVISION SHALL BE PLACED AT THE INTERSECTIONS OF EAST 14TH STREET AND SUMNER ROAD, AND EAST 14TH STREET AND ERIE COURT, AND EAST 14TH STREET AND BOLIVAR ROAD, IDENTIFYING THAT THE ROAD IS CLOSED TO THROUGH TRAFFIC AND THAT ONLY LOCAL ACCESS IS PROVIDED.

ALL DRIVEWAYS INDICATED IN THE CONSTRUCTION DOCUMENTS TO BE RECONSTRUCTED SHALL BE PLATED DURING CONSTRUCTION IN ORDER TO MAINTAIN VEHICULAR ACCESS.

THE CONTRACTOR SHALL ERECT APPROPRIATE SIGNAGE AS APPROVED BY THE CITY TRAFFIC ENGINEERING DIVISION THAT EAST 9TH STREET IS CLOSED TO ALL WESTBOUND CARNEGIE AVE TRUCK TRAFFIC AND THAT THE TRAFFIC IS DETOURED TO EAST 14TH STREET. THE CONTRACTOR MUST SUBMIT FOR APPROVAL AS PROPOSED SIGNAGE PLAN TO THE CITY TRAFFIC ENGINEERING DIVISION 14 DAYS PRIOR TO INITIATION ANY DETOUR.

THE TEMPORARY RIGHT TURN ONLY LANE ON THE WESTBOUND APPROACH OF CARNEGIE AVENUE TO EAST 9TH STREET SHALL BE MAINTAINED DURING CONSTRUCTION ACTIVITIES.

IT IS THE INTENT OF THE CONSTRUCTION PHASING TO SEPARATE THE CONSTRUCTION ACTIVITIES FROM THE TRAVELED ROADWAY THROUGH THE USE OF JERSEY CONCRETE BARRIER. THIS BARRIER MUST CONFORM TO OHIO DEPARTMENT OF TRANSPORTATION (ODOT) SPECIFICATIONS, AND PLACED IN ACCORDANCE WITH FEDERAL, STATE, COUNTY, AND LOCAL STANDARDS. THE LAST SECTIONS OF SUCH BARRIER SHALL BE OFFSET PER ODOT STANDARDS SO AS NOT TO PRESENT A BLUNT ENDED OBSTRUCTION.

IT IS THE INTENT OF THE CONSTRUCTION PHASING TO SEPARATE OPPOSING LANES OF TRAFFIC WITH THE USE OF CONSTRUCTION SAFETY DRUMS WITH FLASHING LIGHTS. THESE DRUMS WILL REQUIRE SHIFTING DURING PEAK PERIODS OF TRAFFIC FLOW AS DESCRIBED IN THE PLANS AND AS DIRECTED BY THE CITY RESIDENT ENGINEER.

ITEM SPECIAL - PHONE DROP

THIS ITEM OF WORK SHALL CONSIST OF SUPPLYING A PHONE DROP TO THE CONTROLLER AT THE ENTERPRISE DRIVE INTERSECTION. IT SHALL INCLUDE CONDUIT RISER, TRENCH, CONDUIT, SHIELDED TWO CONDUCTOR CABLE, LIGHTNING ARRESTOR AND CABINET TERMINALS TO COMPLETELY WIRE TO THE TELEPHONE MODEM SPECIFIED IN PLANS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAKE ARRANGEMENTS WITH LOCAL TELEPHONE COMPANY TO HAVE TELEPHONE SERVICE DROP INSTALLED AT THE LOCATION SHOWN IN THE PLANS.

PAYMENT FOR ITEM SPECIAL-PHONE DROP WILL BE AT THE CONTRACT UNIT PRICE FOR EACH PHONE DROP IN PLACE, COMPLETELY INSTALLED IN THE CONTROLLER SHOWN IN THE PLANS, WIRED, TESTED, AND ACCEPTED.

PHASE I

IT IS THE INTENT OF PHASE I TO CONSTRUCT THE SIDEWALK AREA AND THE FIRST 24 FEET OF ROADWAY SURFACE ALONG THE EAST SIDE OF EAST 9TH STREET FROM THE EAST 9TH STREET/CARNEGIE AVENUE INTERSECTION NORTH TO APPROXIMATELY 200 FEET JUST SOUTH OF THE EAST 9TH STREET/PROSPECT STREET INTERSECTION.

THE CONTRACTOR SHALL MAINTAIN TWO LANES OF TRAFFIC NORTHBOUND AND ONE LANE OF TRAFFIC SOUTHBOUND FOR ALL TIME PERIODS EXCEPT DURING THE TWO HOUR PM PEAK COMMUTER TIME PERIOD OR ANY OTHER TIME PERIOD AS DIRECTED BY THE CITY RESIDENT ENGINEER.

DETOUR LIMITATION

IT IS THE INTENT OF THE FOLLOWING CONSTRUCTION SEQUENCE FOR EAST 9TH STREET RECONSTRUCTION NOT TO DETOUR THE EAST 9TH STREET NORTHBOUND AND SOUTHBOUND TRAFFIC FLOW AT LEAST ONE LANE OF TRAFFIC PER DIRECTION SHALL BE MAINTAINED AT ALL TIMES.

DURING THE PEAK PM (EVENING) COMMUTER TIME PERIOD THE CONTRACTOR SHALL MAINTAIN TWO LANES OF TRAFFIC SOUTHBOUND AND ONE LANE OF TRAFFIC NORTHBOUND OR ANY OTHER TIME PERIOD AS DIRECTED BY THE CITY RESIDENT ENGINEER.

PHASE I A

IT IS THE INTENT OF PHASE I A THAT THE CONTRACTOR CONSTRUCT THE SOUTHWEST QUADRANT OF THE EAST 9TH STREET/PROSPECT AVENUE INTERSECTION.

THE CONTRACTOR SHALL BE REQUIRED TO SHIFT TRAFFIC DRUMS TO ACCOMMODATE STANDARD DAILY AM OR PM TRAFFIC FLOW AND WILL BE REQUIRED TO COVER, SHIFT, OR ADD ADDITIONAL CONSTRUCTION SIGNAGE AS DIRECTED BY THE CITY RESIDENT ENGINEER.

PHASE I B

IT IS THE INTENT OF PHASE I B THAT THE CONTRACTOR CONSTRUCT THE NORTHWEST QUADRANT OF THE EAST 9TH STREET/PROSPECT AVENUE INTERSECTION.

THE CONTRACTOR SHALL BE REQUIRED TO SHIFT TRAFFIC DRUMS TO ACCOMMODATE STANDARD DAILY AM OR PM TRAFFIC FLOW AND WILL BE REQUIRED TO COVER, SHIFT, OR ADD ADDITIONAL CONSTRUCTION SIGNAGE AS DIRECTED BY THE CITY RESIDENT ENGINEER.

PHASE I C

IT IS THE INTENT OF PHASE I C THAT THE CONTRACTOR CONSTRUCT THE NORTHEAST QUADRANT OF THE EAST 9TH STREET/PROSPECT AVENUE INTERSECTION AND CONTINUE CONSTRUCTION ALONG THE EAST SIDE OF EAST 9TH STREET TOWARD THE EAST 9TH STREET/PROSPECT AVENUE INTERSECTION.

THE CONTRACTOR SHALL BE REQUIRED TO SHIFT TRAFFIC DRUMS TO ACCOMMODATE STANDARD DAILY AM OR PM TRAFFIC FLOW AND WILL BE REQUIRED TO COVER, SHIFT, OR ADD ADDITIONAL CONSTRUCTION SIGNAGE AS DIRECTED BY THE CITY RESIDENT ENGINEER.

PHASE I D

IT IS THE INTENT OF PHASE I D THAT THE CONTRACTOR CONSTRUCT THE SOUTHEAST QUADRANT OF THE EAST 9TH STREET/PROSPECT AVENUE INTERSECTION AND FINISH CONSTRUCTION OF THE EAST SIDE OF EAST 9TH STREET AT THE EAST 9TH STREET/PROSPECT AVENUE INTERSECTION.

THE CONTRACTOR SHALL BE REQUIRED TO SHIFT TRAFFIC DRUMS TO ACCOMMODATE STANDARD DAILY AM OR PM TRAFFIC FLOW AND WILL BE REQUIRED TO COVER, SHIFT, OR ADD ADDITIONAL CONSTRUCTION SIGNAGE AS DIRECTED BY THE CITY RESIDENT ENGINEER.

PHASE II

IT IS THE INTENT OF PHASE II TO CONSTRUCT THE MIDDLE 21 FEET OF ROADWAY SURFACE ALONG EAST 9TH STREET.

THE CONTRACTOR SHALL BE REQUIRED TO SHIFT TRAFFIC DRUMS TO ACCOMMODATE STANDARD DAILY AM OR PM TRAFFIC FLOW AND WILL BE REQUIRED TO COVER, SHIFT, OR ADD ADDITIONAL CONSTRUCTION SIGNAGE AS DIRECTED BY THE CITY RESIDENT ENGINEER.

PHASE III

IT IS THE INTENT OF PHASE III TO CONSTRUCT AN ADDITIONAL 18 FEET OF ROADWAY SURFACE ALONG EAST 9TH STREET.

PHASE IV

IT IS THE INTENT OF PHASE IV TO CONSTRUCT THE REMAINING 9 FEET OF ROADWAY SURFACE ALONG EAST 9TH STREET.

UTILITIES CONSTRUCTION

FLAGGERS SHALL BE USED TO MAINTAIN TWO-WAY TRAFFIC AT ALL TIMES AS PER STANDARD CONSTRUCTION DRAWING MT-97.10. AT LEAST ONE (1) TEN (10) FOOT LANE OF PAVEMENT IN EACH DIRECTION SHALL REMAIN OPEN TO TRAFFIC AT ALL TIMES.

ANY PAVED AREAS DISTURBED BY THE UTILITY TRENCH EXCAVATION SHALL BE REPAIRED IN ACCORDANCE WITH ITEM 603.

WHERE UTILITY TRENCHES TRAVERSE ROADWAYS, THE ITEM SHALL BE PARTIALLY CONSTRUCTED TO MAINTAIN AT LEAST ONE OPEN LANE FOR TRAFFIC AS STATED ABOVE. PAVEMENT FOR THESE TRENCH REPAIRS SHALL BE INCLUDED IN THE PERTINENT UTILITY ITEM.

TRAFFIC GENERAL NOTES

WHERE EXISTING UTILITIES ARE IN CONFLICT WITH ANY PHASE OF CONSTRUCTION OF THIS PROJECT, THE CONTRACTOR SHALL COORDINATE WITH THE UTILITY COMPANY TO RELOCATE THEIR FACILITY.

THE COST OF PROVIDING THE ITEMS DESCRIBED ABOVE ARE EITHER INCLUDED AS INCIDENTAL TO THE UTILITY ITEM OR ARE INCLUDED IN THE LUMP SUM ITEM 614 - MAINTAINING TRAFFIC COST, AS NO ADDITIONAL PAYMENT WILL BE MADE.

ESTIMATED QUANTITY FOR MAINTAINING VEHICULAR TRAFFIC

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY TO BE USED AS DIRECTED BY THE ENGINEER FOR THE MAINTENANCE OF TRAFFIC.

ITEM 404 BITUMINOUS CONCRETE FOR MAINTAINING TRAFFIC	200 C.Y.
ITEM 410 TRAFFIC COMPACTED SURFACE TYPE A OR B	200 C.Y.
ITEM 616 WATER	200 M.GAL.
ITEM 616 CALCIUM CHLORIDE	20 TON

SEPARATE PAYMENT SHALL BE MADE FOR ITEMS 404, 410, AND 616 NOTED ABOVE AND ITEM 614 - TEMPORARY PAVEMENT MARKINGS ITEMS ON SHEET NO. ____ ALL OTHER WORK REQUIRED FOR TRAFFIC MAINTENANCE SHALL BE INCLUDED WITH PAYMENT FOR ITEM 614 - MAINTAINING TRAFFIC.

INSTALLATION OF PAVEMENT MARKINGS AND SIGNS

ALL TEMPORARY PAVEMENT MARKINGS AND SIGNS REQUIRED FOR A PARTICULAR LANE CLOSURE OR TRAFFIC PATTERN SHALL BE INSTALLED ON A SINGLE WORK DAY AND THE CORRESPONDING TRAFFIC PATTERN, AS DETAILED ON THE TRAFFIC CONTROL SHEETS SHALL BE IMPLEMENTED IMMEDIATELY. ALL TEMPORARY PAVEMENT MARKINGS INSTALLED SHALL BE MAINTAINED UNTIL THE COMPLETION OF ALL CONSTRUCTION PHASES. ALL FINAL PAVEMENT MARKINGS SHALL BE PLACED UPON THE COMPLETION OF THE ENTIRE PROJECT. ALL PERMANENT SIGNS AS DETAILED IN THE TRAFFIC CONTROL PLANS SHALL BE INSTALLED DURING THE PHASED CONSTRUCTION.

DUST CONTROL

THE CONTRACTOR SHALL FURNISH AND APPLY WATER AND CALCIUM CHLORIDE FOR DUST CONTROL PURPOSES AS DIRECTED BY THE ENGINEER.

THE FOLLOWING QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR DUST CONTROL PURPOSES:

ITEM 616 WATER	200 M. GAL.
ITEM 616 CALCIUM CHLORIDE	20 TON

ITEM 614 - TEMPORARY MAINTENANCE OF TRAFFIC SIGNAL INSTALLATION

INCIDENTAL TO THE REQUIREMENTS FOR MAINTAINING TRAFFIC IN ACCORDANCE WITH 614.03, EXISTING TRAFFIC SIGNALS SHALL BE TEMPORARILY MAINTAINED UNTIL REVISED TRAFFIC SIGNAL INSTALLATION IS IN OPERATION.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING TRAFFIC SIGNAL INSTALLATIONS UNDER THE FOLLOWING CONDITIONS:

A. EXISTING SIGNAL INSTALLATIONS WHICH THE PLANS REQUIRE THE CONTRACTOR TO ADJUST, MODIFY, ADD ONTO, OR REMOVE, OR WHICH THE CONTRACTOR ACTUALLY ADJUSTS, MODIFIES, OR OTHERWISE DISTURBS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ENTIRE INSTALLATION (AT AN INTERSECTION), INCLUDING MAINTENANCE, TIMING, AND DAMAGE FROM ACCIDENT, NEGLIGENCE, OR NATURAL CAUSES, FROM THE TIME HIS OPERATIONS FIRST DISTURB THE INSTALLATION UNTIL THE INSTALLATION HAS BEEN SUBSEQUENTLY REMOVED OR MODIFIED AND THE WORK IS ACCEPTED BY THE CITY OF CLEVELAND, DIVISION OF TRAFFIC ENGINEERING.

B. NEW SIGNAL INSTALLATIONS OR DEVICES, INSTALLED BY THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE, TIMING, AND ANY DAMAGE OF THESE FROM THE TIME OF INSTALLATION UNTIL THE WORK IS ACCEPTED BY THE CITY OF CLEVELAND, DIVISION OF TRAFFIC ENGINEERING.

THE CONTRACTOR SHALL CORRECT AS QUICKLY AS POSSIBLE ALL OUTAGES OR MALFUNCTIONS. THE CONTRACTOR SHALL PROVIDE THE CITY AND THE PROJECT ENGINEER SUCH ADDRESSES AND PHONE NUMBERS WHERE HIS MAINTENANCE FORCES CAN BE CONTACTED. THE CONTRACTOR SHALL PROVIDE ONE OR MORE PERSONS TO RECEIVE ALL CALLS AND DISPATCH THE NECESSARY MAINTENANCE FORCES TO CORRECT OUTAGES OR MALFUNCTIONS. SUCH A PERSON OR PERSONS MAY BE USED TO PERFORM OTHER DUTIES AS LONG AS PROMPT ATTENTION IS GIVEN TO THESE CALLS AND A PERSON IS READILY AVAILABLE CONTINUOUSLY 24 HOURS A DAY, SEVEN DAYS A WEEK. ALL LAMP OUTAGES, CABLE FAILURES, ELECTRICAL FAILURES, EQUIPMENT MALFUNCTIONS, AND MISALIGNED SIGNAL HEADS SHALL BE CORRECTED TO THE SATISFACTION OF THE ENGINEER WITH THE SIGNAL BACK IN SERVICE WITHIN THREE (3) HOURS AFTER THE CONTRACTOR HAS BEEN NOTIFIED OF THE OUTAGES OR MALFUNCTIONS.

IN THE EVENT NEW SIGNALS ARE DAMAGED PRIOR TO ACCEPTANCE, ALL DAMAGED EQUIPMENT EXCEPT POLES AND CONTROL EQUIPMENT SHALL BE REPLACED BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER WITH THE SIGNAL BACK IN SERVICE WITHIN EIGHT (8) HOURS AFTER THE CONTRACTOR'S NOTIFICATION OF THE DAMAGE.

IF POLES AND/OR CONTROL EQUIPMENT ARE DAMAGED AND MUST BE REPLACED, THE CONTRACTOR SHALL MAKE TEMPORARY REPAIRS AS NECESSARY TO BRING THE SIGNAL BACK INTO FULL OPERATION WITHIN THE ALLOWED EIGHT HOUR PERIOD. THE CONTRACTOR SHALL MAKE PERMANENT REPAIRS OR REPLACEMENT AS SOON THEREAFTER AS POSSIBLE.

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

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

WHERE THE CONTRACTOR HAS FAILED TO OR CANNOT RESPOND TO AN OUTAGE OR SIGNAL EQUIPMENT MALFUNCTION, AT THESE LOCATIONS WITHIN HIS RESPONSIBILITY OR WITH PERIODS AS SPECIFIED ABOVE, THE CITY MAY TAKE ANY ACTION AS IT MAY DEEM NECESSARY. THIS ACTION MAY INCLUDE CONTROL OF THE INTERSECTION BY POLICE OFFICERS AND COMPLETE REMOVAL OF THE MALFUNCTIONING TRAFFIC CONTROL DEVICES AND INSTALLATION OF DEVICES TO RETURN THE INTERSECTION TO OPERATION. ANY SUBSEQUENT BILLINGS BY THE STATE OR THE CITY FOR THESE POLICE AND/OR MAINTENANCE BY THE CITY SHALL BE DEDUCTED FROM MONIES DUE OR TO BECOME DUE TO THE CONTRACTOR IN ACCORDANCE WITH PROVISIONS OF SECTION 105.15.

WHEN A TRAFFIC SIGNAL MUST BE TAKEN OUT OF SERVICE BY THE CONTRACTOR, DUE TO CONSTRUCTION PROCEDURES, THIS OUTAGE SHALL NOT INCLUDE THE HOURS OF 7 A.M. TO 9 A.M. AND 4 P.M. TO 6 P.M. MONDAY THROUGH FRIDAY. WHERE A TRAFFIC SIGNAL IS OUT OF SERVICE DUE TO CONSTRUCTION PROCEDURES OR DUE TO AN OUTAGE OR MALFUNCTION OF EQUIPMENT AS DESCRIBED ABOVE, TRAFFIC SHALL BE DIRECTED BY AN OFF-DUTY CITY OF CLEVELAND POLICE OFFICER HIRED BY THE CONTRACTOR UNTIL SAID SIGNAL IS OPERATING AGAIN. ALL COSTS INCURRED IN USING POLICE OFFICERS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

THE CONTRACTOR SHALL MAINTAIN COMPLETE RECORDS OF MALFUNCTIONS INCLUDING: 1. TIME OF NOTIFICATION OF MALFUNCTION; 2. TIME OF WORK CREW'S ARRIVAL TO CORRECT THE MALFUNCTION; 3. ACTIONS TAKEN TO CORRECT THE MALFUNCTION, INCLUDING A LIST OF PARTS REPAIRED OR REPLACED; 4. DIAGNOSIS OF REASON FOR THE MALFUNCTION AND PROBABILITY OF REOCCURRENCE, AND 5. TIME OF COMPLETION OF REPAIR AND SYSTEM RESTORED TO FULL SERVICE. A COPY OF THESE RECORDS SHALL BE PROVIDED TO THE CITY OF CLEVELAND SYSTEMS ENGINEER WITHIN THREE (3) WORKING DAYS FOLLOWING COMPLETION OF EACH REPAIR.

ANY VEHICULAR TRAFFIC SIGNAL HEAD, EITHER NEW OR EXISTING, WHICH WILL BE OUT OF OPERATION SHALL BE COVERED IN THE MANNER DESCRIBED IN 632.24.

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

TRAFFIC CONTROL STANDARD CONSTRUCTION DRAWINGS

REFERENCES TO SUPPLEMENTAL SPECIFICATIONS 857, 858, 861, 957, AND 961 ON THE TRAFFIC CONTROL STANDARD CONSTRUCTION DRAWINGS IN THESE PLANS SHALL BE CONSIDERED TO READ AS RESPECTIVE REFERENCES TO ITEMS 630, 631, 633, 730, 731, AND 733.

ITEM 625 - POWER SUPPLY FOR TRAFFIC SIGNALS

ELECTRIC POWER SHALL BE OBTAINED FROM THE CLEVELAND PUBLIC POWER COMPANY AT THE LOCATIONS INDICATED ON THE PLANS. POWER SUPPLY SHALL BE 120 VOLTS.

ITEM 632 - SIGNAL SUPPORT POLE AND PEDESTAL POLES

ALL POLES, PIPE, AND FITTINGS SHALL BE PAINTED DARK BRONZE TO MATCH THE LIGHT POLES.

ITEM 632 - VEHICULAR SIGNAL HEAD, () SECTION, () INCH LENS, () WAY, POLYCARBONATE, AS PER PLAN

SECTION 732.01 OF THE SPECIFICATIONS IS MODIFIED FOR THIS PROJECT AS FOLLOWS:

A. SIGNAL HEADS AND VISORS SHALL BE CONSTRUCTED OF POLYCARBONATE PLASTIC AND MEET I.T.E. SPECIFICATIONS.

B. PLASTIC LENSES SHALL BE USED

C. PIPE, SPACERS AND FITTINGS CONSTRUCTED OF POLYCARBONATE PLASTIC MAY BE USED IN LIEU OF GALVANIZED STEEL OR ALUMINUM.

D. SIGNALS SHALL BE ATTACHED TO MAST ARMS USING RIGID MOUNTING FIXTURES AS SHOWN ON TC-85.20. WITH THE EXCEPTION THAT CL OF RED LENSES MUST MATCH CL OF MAST ARM

ITEM 632 - INTERCONNECT CABLE, 6 PAIR, NO. 19 AWG, SOLID REA (PE-39), AS PER PLAN

SPLICES SHALL OCCUR ONLY AT THE TERMINAL END OF THE HARDWARE INTERCONNECT PANEL. NO OTHER SPLICE LOCATIONS WILL BE PERMITTED.

PAYMENT FOR ALL LABOR, MATERIALS, TOOLS, EQUIPMENT AND OTHER INCIDENTALS SHALL BE INCLUDED IN THE UNIT BID FOR "ITEM 632 - INTERCONNECT CABLE, 6 PAIR, NO. 19 AWG, SOLID REA (PE-39), AS PER PLAN." MEASUREMENT WILL BE BASED UPON THE NUMBER OF LINEAR FEET IN PLACE.

ITEM 632 - PEDESTRIAN SIGNAL HEADS, TYPE D2, AS PER PLAN

SECTION 732.05 OF THE SPECIFICATIONS IS MODIFIED FOR THIS PROJECT AS FOLLOWS:

A. SIGNAL HEADS AND VISORS SHALL BE CONSTRUCTED OF POLYCARBONATE PLASTIC AND MEET I.T.E. SPECIFICATION.

B. PLASTIC LENSES SHALL BE USED

C. PIPE, SPACERS AND FITTINGS CONSTRUCTED OF POLYCARBONATE PLASTIC MAY BE USED IN LIEU OF GALVANIZED STEEL OR ALUMINUM.

D. INSTALLATION SHALL BE PER ODDI STANDARD CONSTRUCTION DRAWING TC-85.10 WITH THE EXCEPTION THAT "CLAM SHELLS" SHALL NOT BE USED.

E. EXTENSIONS & FITTINGS SHALL BE PAINTED DARK BRONZE

ITEM 632 - REMOVAL OF EXISTING TRAFFIC SIGNAL INSTALLATION

TRAFFIC SIGNAL INSTALLATIONS, INCLUDING SIGNAL HEADS, CABLE, MESSENGER WIRE, STRAIN POLES, CABINET, CONTROLLER, ETC., SHALL BE REMOVED IN ACCORDANCE WITH 632.25 AND AS INDICATED ON THE PLANS. REMOVED ITEMS SHALL BE STORED ON THE PROJECT FOR SALVAGE BY THE CITY OF CLEVELAND, IN ACCORDANCE WITH THE LISTING GIVEN HEREIN.

ITEMS TO BE STORED: VEHICULAR SIGNAL HEADS, PEDESTRIAN SIGNAL HEADS, SIGNAL CABLE AND MESSENGER WIRE.

ITEM 713.081-PLASTIC PULL BOX

SECTION 713.081 OF THE SPECIFICATIONS IS MODIFIED FOR THIS PROJECT AS FOLLOWS:

PLASTIC PULL BOX SHALL BE "PC" STYLE (STACKABLE) COMPOSOLITE SERVICE BOX ASSEMBLY, 12 IN. x 12 IN., MANUFACTURED BY QUAZITE, DIVISION OF MMFG, OR APPROVED EQUAL.

PULL BOX SHALL BE CONSTRUCTED OF HEAVY-WAVE FIBERGLASS REINFORCED POLYMER CONCRETE. DESIGN LOAD SHALL BE EQUAL TO 8000 LB OVER A 10 IN. SQUARE.

TRAFFIC GENERAL SUMMARY

S H E E T N U M B E R S

ITEM	NOTES	45	46	47	48	49	50	51	52	53	54	55	56	57	58	60	62	ITEM	ITEM EXT	GRAND TOTAL	UNIT	DESCRIPTION
T R A F F I C																						
632	051																	632	051	14	EACH	VEHICULAR SIGNAL HEAD, 3 - SECTION, 12 INCH LENS, 1 - WAY POLYCARBONATE
632	055																	632	055	6	EACH	VEHICULAR SIGNAL HEAD, 5 - SECTION, 12 INCH LENS, 1 - WAY POLYCARBONATE
632	07																	632	07	14	EACH	PEDESTRIAN SIGNAL HEAD, TYPE D-2
632	13																	632	13	19	CU YD	CONCRETE FOR ANCHOR BASE FOUNDATIONS
632	141																	632	141	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, 20' ARM
632	142																	632	142	1	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, 38' ARM
632	143																	632	143	1	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, 25' ARM
632	144																	632	144	1	EACH	SIGNAL SUPPORT TYPE TC-81.20, DESIGN 1, 19' ARM
632	145																	632	145	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 12, 23' ARM
632	146																	632	146	1	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 2, 24' ARM
632	147																	632	147	1	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 2, 33' ARM
632	148																	632	148	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, 38' ARM
632	22S																	632	22S	1273	LIN.FT.	SIGNAL CABLE, 19-CONDUCTOR NO. 14 AWG
632	22P																	632	22P	864	LIN.FT.	PEDESTRIAN CABLE, 5-CONDUCTOR NO. 14 AWG
632	25																	632	25	2	EACH	REMOVAL OF TRAFFIC SIGNAL INSTALLATION
625	11																	625	11	4	EACH	PULL BOX, CONCRETE, 24"x24" 713.08
625	12																	625	12	613	LIN.FT.	TRENCH IN PAVED AREAS, TYPE B
625	13																	625	13	813	LIN.FT.	CONDUIT, PVC, TYPE 3 INCH 713.07
625	13																	625	13	617	LIN.FT.	CONDUIT, PVC, TYPE 2 INCH 713.07
625	CPP																	625	CPP	16	EACH	CPP PULL BOX 713.081
632	18																	632	18	4	EACH	PEDESTAL, 10 FEET TRANSFORMER BASE
632	20																	632	20	12	EACH	CABLE SUPPORT ASSEMBLY
632	22																	632	22		LIN.FT.	INTERCONNECT CABLE, 6 PAIR NO. 19 AWG SOLID REA (PE-39)
632	24																	632	24		EACH	COVER VEHICULAR SIGNAL HEADS
630																		630		131.00	SQ.FT.	SIGN FLAT SHEET TYPE G
630																		630		4	EACH	SIGN DOUBLE FACED STREET NAME
630																		630		12	EACH	GROUND MOUNTED SUPPORT NO.2 POST
641	10																	641	10	400	LIN.FT.	REMOVAL OF PAVEMENT MARKING
644																		644		2782	LIN.FT.	LANE LINE CLASS
644																		644		2750	LIN.FT.	CENTER LINE
644																		644		285	LIN.FT.	STOP LINE
644																		644		1015	LIN.FT.	CROSSWALK LINE
644																		644		26	LIN.FT.	LANE ARROW
LOOP DETECTION SYSTEM																						
632																		632		1155	LIN.FT.	LOOP DETECTOR LEADIN CABLE
632																		632		24	EACH	LOOP DETECTOR UNITS, DELAY & EXTENSION TYPE, WITH HARNESS
632																		632		4968	LIN.FT.	LOOP DETECTOR WIRE, TYPE E
632																		632		2484	LIN.FT.	LOOP DETECTOR PAVEMENT CUTTING
632																		632		8	EACH	PULL BOXES, 713.0811
625																		625		280	LIN.FT.	TRENCH (PAVED AREAS), TYPE B
625																		625		280	LIN.FT.	CONDUIT 2" 713.07
TRAFFIC MANAGEMENT DURING CONSTRUCTION																						
642		15	0	13	0	7	0	0	6	12	0	4	0					642		59	EACH	LANE ARROW, TYPE II
642		320	360	120	0	100	0	160	180	635	730	635	670					642		3910	LIN.FT.	CENTER LINE, TYPE II
642		360	0	460	140	100	130	0	100	1125	455	510	1160					642		4540	LIN.FT.	LANE LINE, TYPE II
642		0	280	260	150	0	135	0	140	0	0	0	335					642		1290	LIN.FT.	CROSSWALK LINE, TYPE II
642		0	35	40	0	0	0	0	0	63	35	0	70					642		243	LIN.FT.	STOP LINE, TYPE II
642		0	0	0	0	0	0	0	0	80	40	0	0					642		120	LIN.FT.	CHANNELIZING LINE, TYPE II
642		0	100	375	0	0	0	0	0	0	0	0	0					642		475	LIN.FT.	EDGE LINE
641	10	0	0	0	495	120	80	363	120	160	335	1155	1215					641	10	4043	LIN.FT.	REMOVAL OF PAVEMENT MARKING
630		33	22.25	35.0	6.25	12.5	9	22	24.25	0	0	0	0					630		164.25	SQ.FT.	SIGN FLAT SHEET TYPE G
630		1	3	6	0	0	0	3	0	0	0	0	0					630		13	EACH	GROUND MOUNTED SUPPORT NO.2 POST
622		675	540	60	0	0	0	585	960	0	0	0	0					622		2820	LIN.FT.	PORTABLE CONCRETE BARRIER
614		26	53	56	8	0	0	19	16	0	0	0	0					614		178	EACH	MAINTAINING TRAFFIC (DRUMS)
614																		614		2	EACH	MAINTAINING TRAFFIC (CHANGABLE LANE USAGE ARROW BOARD)

DRAWING NAME
CREATED BY:
LAST REV. DATE 6/16/98

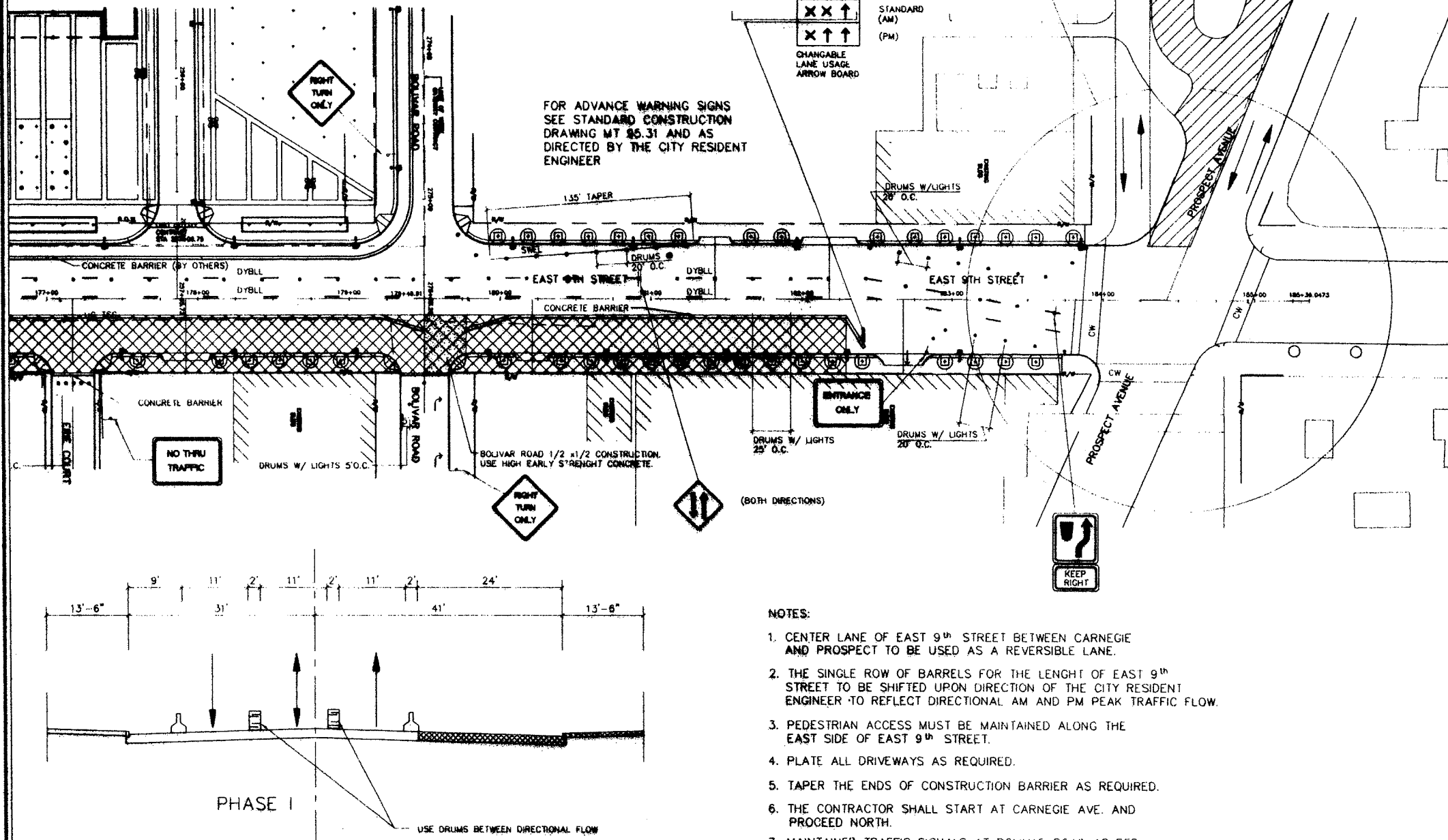
Sasaki Associates, Inc.

CUY - EAST 9TH STREET

FOR INFORMATION ONLY

SEE MAINTENANCE OF TRAFFIC PHASE I
FOR HURON ROAD/PROSPECT AVE

THE RECONSTRUCTION OF THIS INTERSECTION
OCCURS IN SEQUENTIAL PHASING WITH THE
RECONSTRUCTION OF EAST 9TH STREET AND THE
RECONSTRUCTION OF HURON ROAD SEE DRAWINGS
X,Y,Z AND XY



- NOTES:
- CENTER LANE OF EAST 9th STREET BETWEEN CARNEGIE AND PROSPECT TO BE USED AS A REVERSIBLE LANE.
 - THE SINGLE ROW OF BARRELS FOR THE LENGTH OF EAST 9th STREET TO BE SHIFTED UPON DIRECTION OF THE CITY RESIDENT ENGINEER TO REFLECT DIRECTIONAL AM AND PM PEAK TRAFFIC FLOW.
 - PEDESTRIAN ACCESS MUST BE MAINTAINED ALONG THE EAST SIDE OF EAST 9th STREET.
 - PLATE ALL DRIVEWAYS AS REQUIRED.
 - TAPER THE ENDS OF CONSTRUCTION BARRIER AS REQUIRED.
 - THE CONTRACTOR SHALL START AT CARNEGIE AVE. AND PROCEED NORTH.
 - MAINTAINED TRAFFIC SIGNALS AT BOLIVAR ROAD AS PER CITY TRAFFIC DEPARTMENT.

ESTIMATED QUANTITIES

SEE SHT. NO.	ITEM	UNIT	AMOUNT	STATION
	EDGE LINE	L.F.	100	100
	STOP LINE TYPE II 642	L.F.	35	35
	PORTABLE CONCRETE BARRIER 622	L.F.	540	540
	CROSS WALK TYPE II 642	L.F.	155	280
	LANE LINE TYPE II 642	L.F.	125	280
	CENTER LINE TYPE II 642	L.F.	360	360
	LANE ARROW TYPE II 642	L.F.	360	360
	MAINTAINING TRAFFIC (CHANGABLE LANE USAGE ARROW BOARD) 614	EACH	1	1
	GROUND MOUNTED SUPPORT NO.-2 630	EACH	3	3
	SIGN FLAT SHEET TYPE G 630	SQ.FT.	22.25	22.25
	MAINTAINING TRAFFIC (DRUMS) 614	EACH	53	53
REF. NO.	STATION TO STATION (SIDE)			
	176+75-184+00	RT		
	184+50			
	180+00-181+00	RT	3(1)	
	177+30 APPROX.	LT	4(1)	
	179+60 APPROX.	RT	4(1)	
	181+00 APPROX.		625(1)	
	183+70		5(1)	
TOTALS			53	22.25

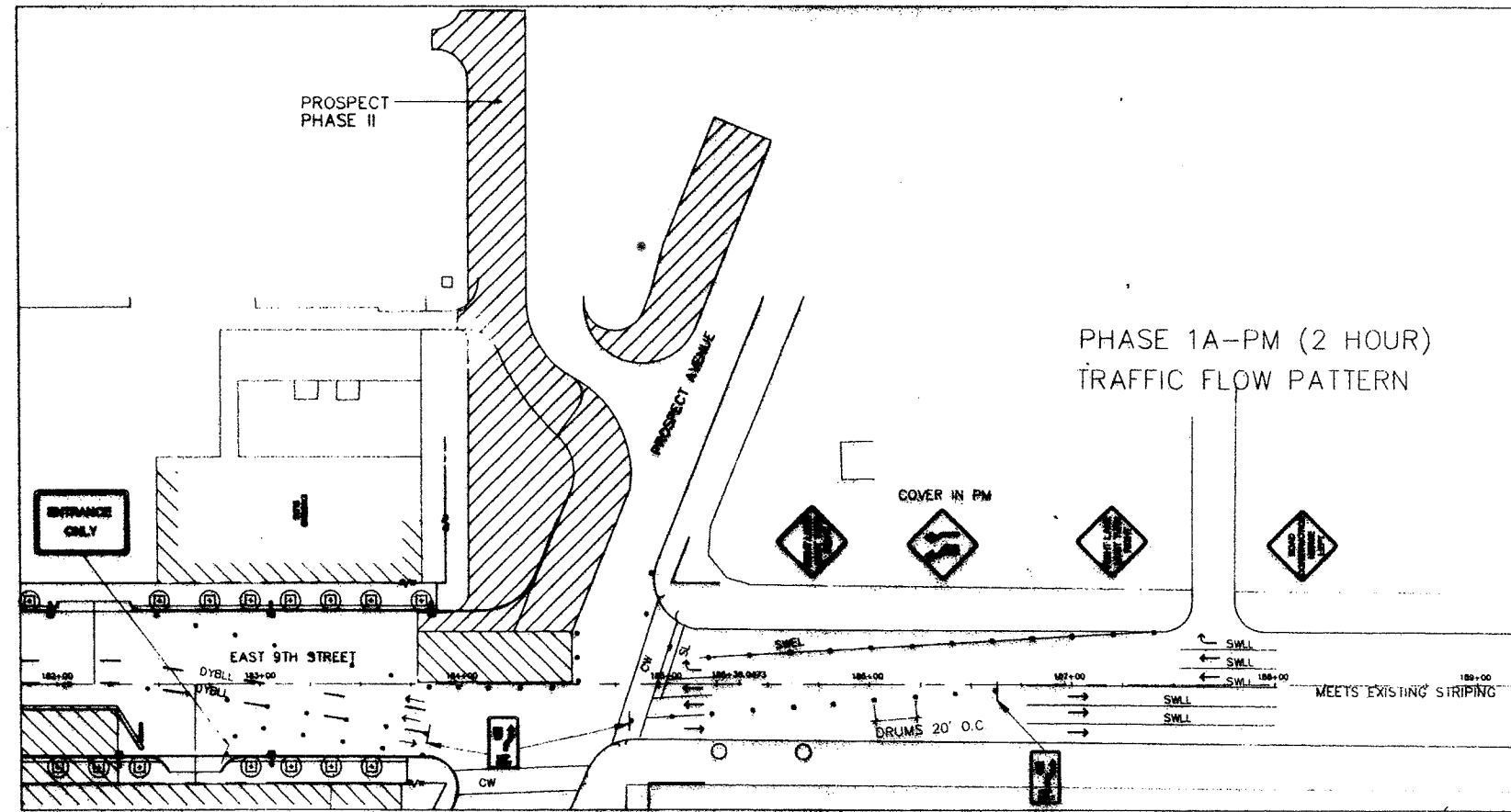
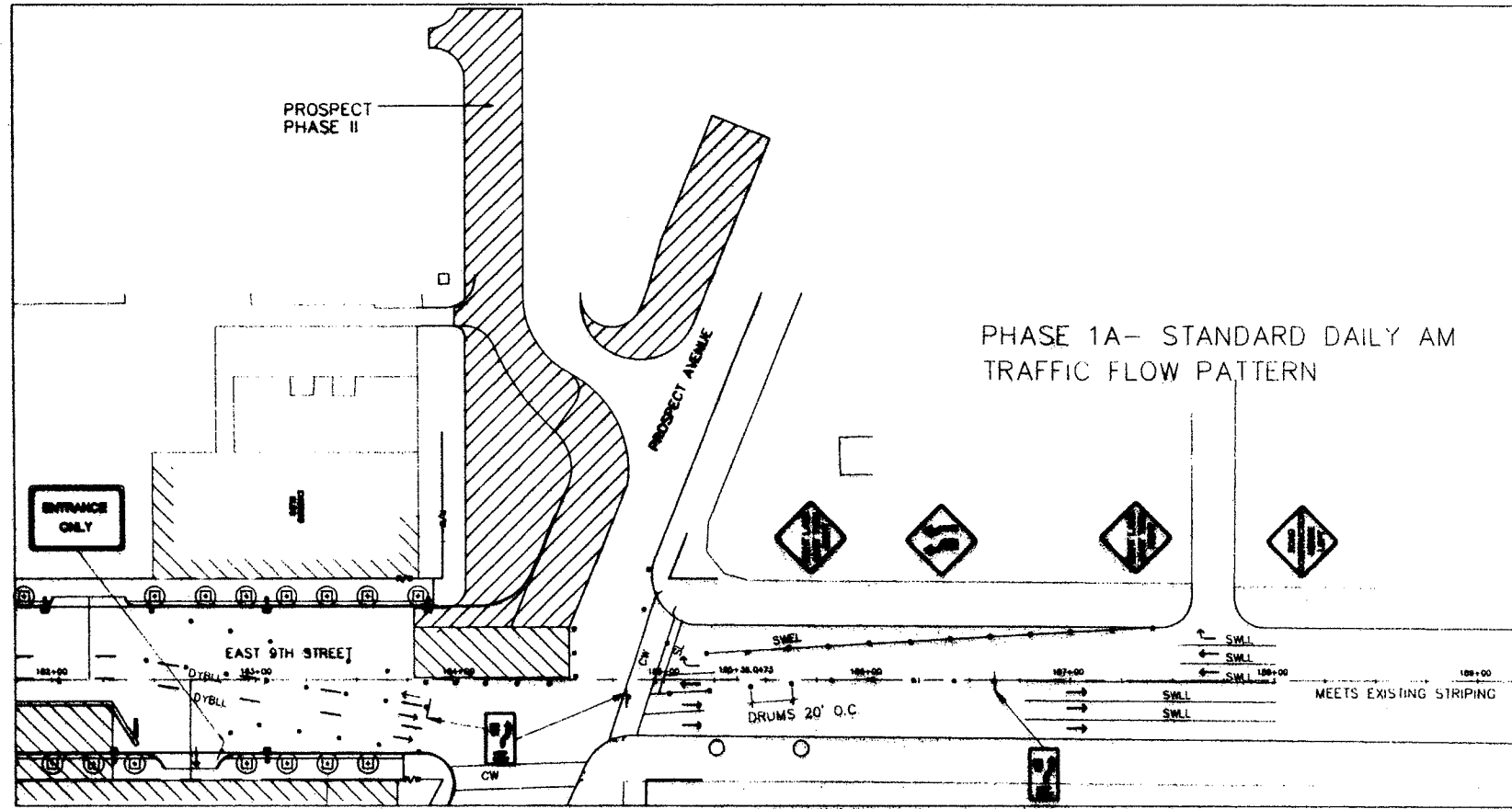
DRAWING NAME: T-46
CREATED BY:
LAST REV. DATE: 6/16/83
SCALE: 1"=40'

Sasaki Associates, Inc.

MATCH LINE STA 176+75

DRAWING NAME PH1A-INS.DWG
 CREATED BY:
 LAST REV DATE 6/16/83
 SCALE 1"=40'

Sasaki Associates, Inc.



CALC. DATE: CUY-EAST 9TH STREET OHIO
 CHKD. DATE: CUYAHOGA COUNTY F.H.W.A. REGION 5
 DATI

47

ESTIMATED QUANTITIES

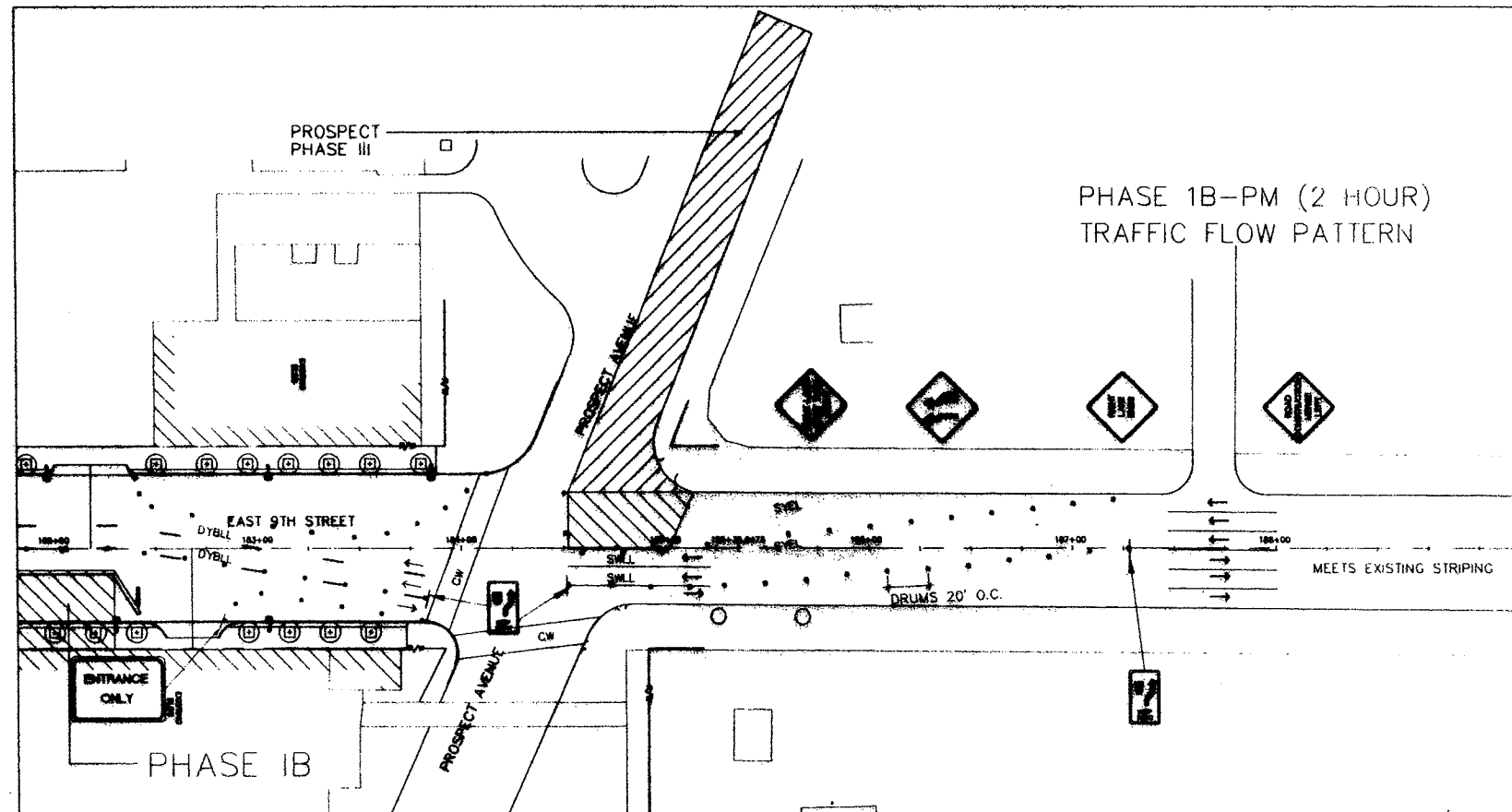
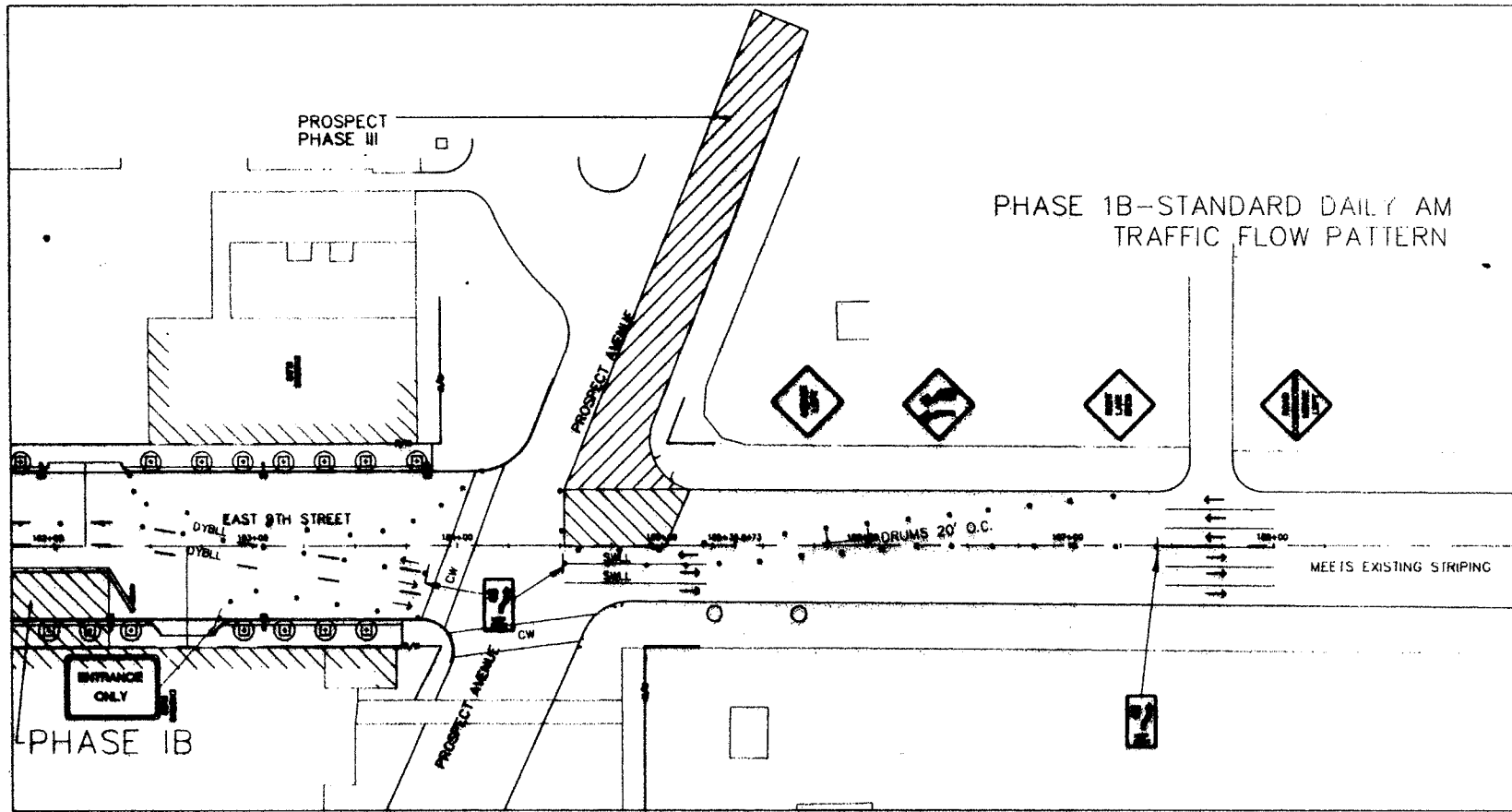
SEE SHT. NO.	ITEM	UNIT	QTY	STATION	QTY	STATION
	GROUND MOUNTED SIGN 2 POST	EACH	630			6
	SIGN FLAT SHEET MOUNTED SIGN G	SQ.FT.	630		6,250(1) 5(1) 5(1) 6,250(1) 6,250(1) 6,250(1)	35
	LANE ARROW	EACH	642			13
	LANE LINE	L.F.	642		380 100	460
	STOP LINE	L.F.	642		40	40
	CROSSWALK	L.F.	642		335 125	260
	PORTABLE CONCRETE CURB	L.F.	642		60	60
	MAINTAINING TRAFFIC (BARRIERS)	EACH	614		56	56
	EDGE LINE	L.F.	642		155 220	375
	CENTER LINE	L.F.	642		120	120
	TOTALS					
REF. NO.	STATION TO STATION	SIDE				
	181+82-184+00					
	182+30-183+85					
	185+00					
	186+75-188+00					
	187+50-188+00					
	181+82-188+00					
	184+25					
	181+82-182+50					
	182+50 APPROX.					
	183+75					
	184+80					
	186+25 APPROX.					
	187+25 APPROX.					
	188+00 APPROX.					

TRAFFIC MANAGEMENT PLAN PHASE 1A-AM,1A-PM

CUY - EAST 9TH STREET

DRAWING NAME PH1B-INS
 CREATED BY:
 LAST REV DATE: 6/16/93
 SCALE: 1"=40'

Sasaki Associates, Inc.



ESTIMATED QUANTITIES

REF. NO.	STATION TO STATION SIDE	MAINTAINING TRAFFIC (DRUMS)	CROSSWALK LINE TYPE II	REMOVAL OF PAVEMENT MARKING	LANE LINE TYPE II	SIGN FLAT SHEET TYPE C	
		EACH	L.F.	L.F.	L.F.		
	181+52-188+00	8	150				
	184+00			220	140		
	186+75-188+00			225		6.25	
	184+50-185+20			50			
	186+75-187+50						
	185+00						
TOTALS		8	150	495	140	6.25	



CALC. _____
 DATE _____
 CHKD. _____
 DATE _____

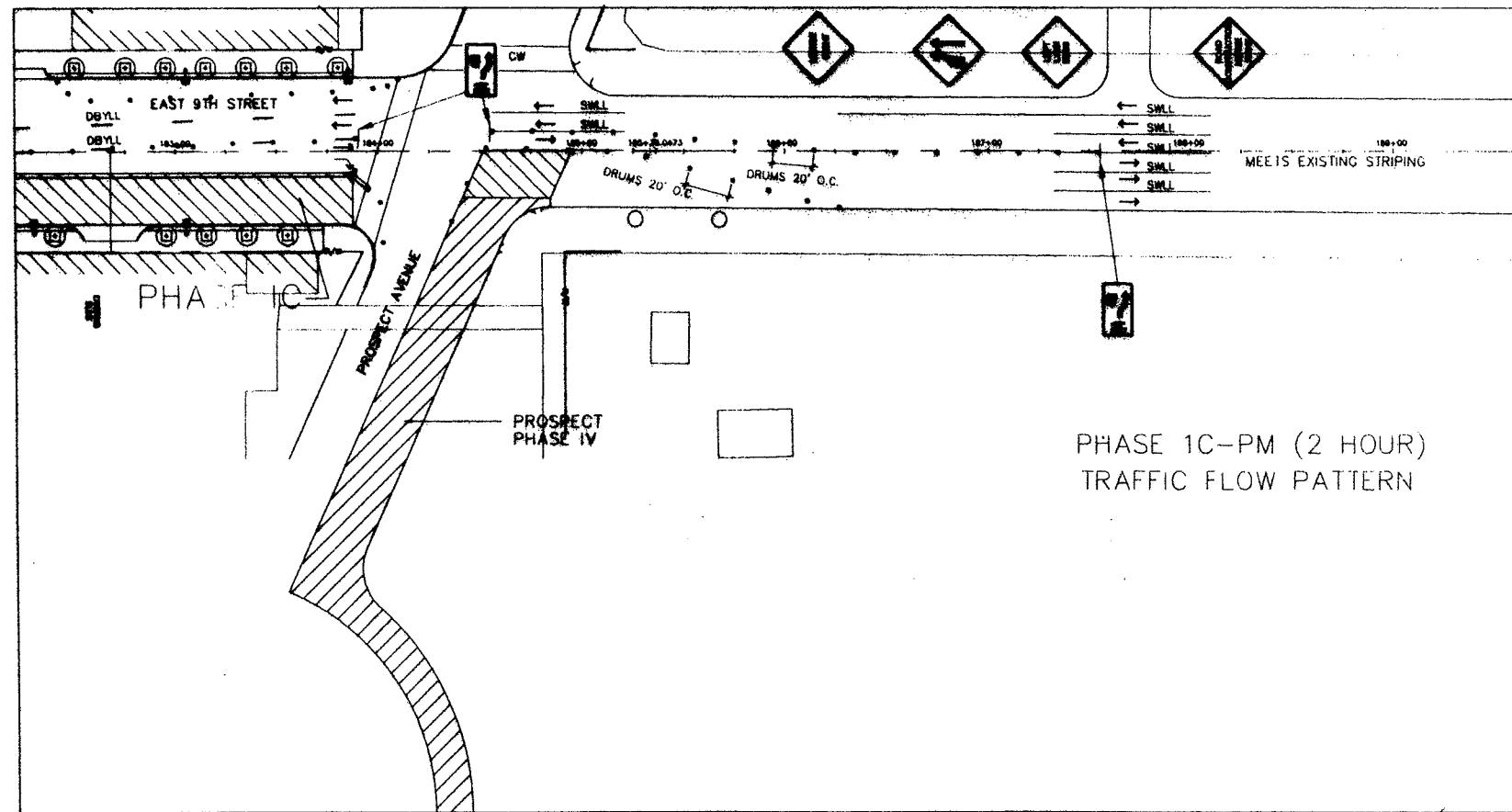
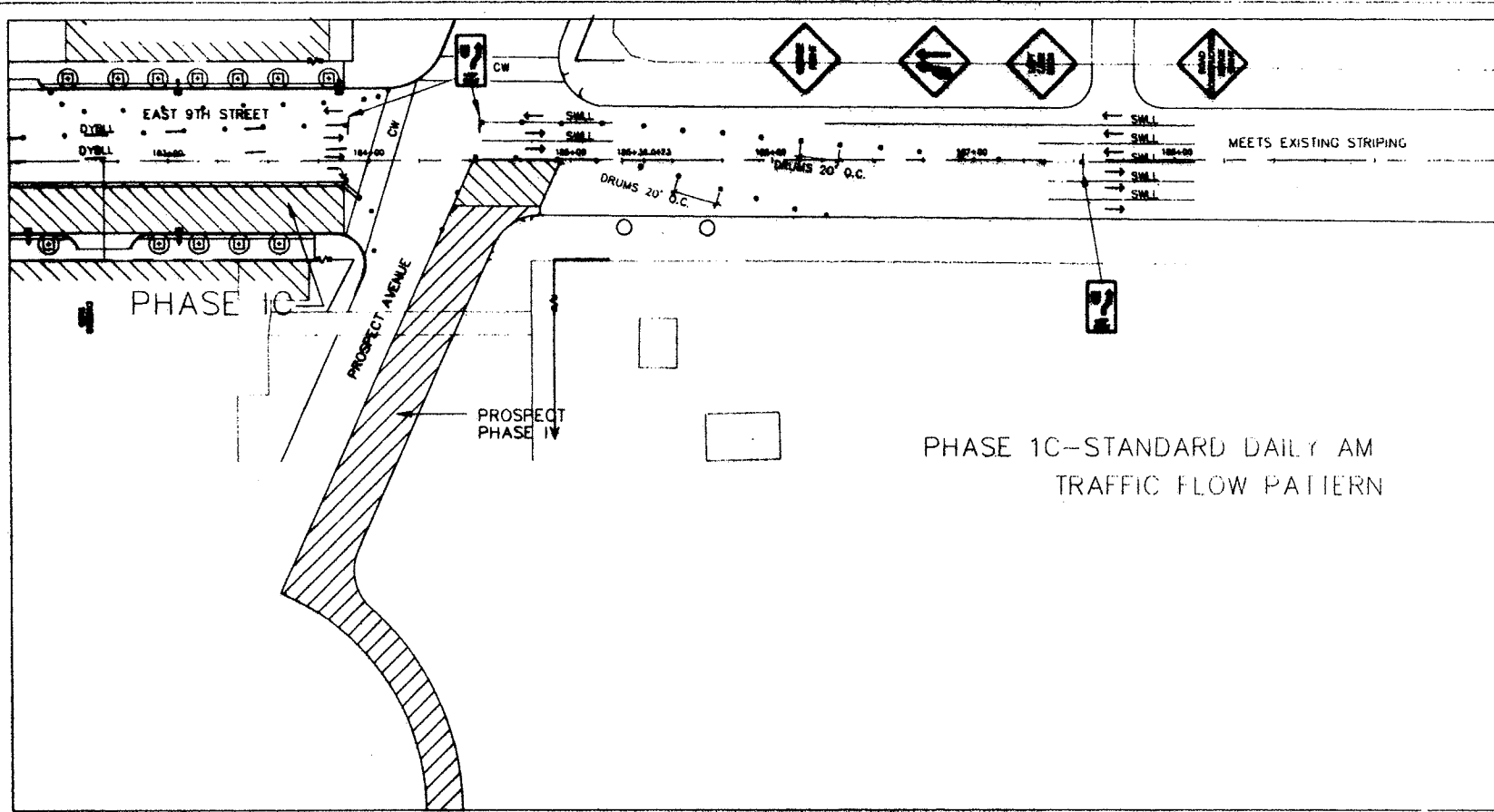
CUY-EAST 9TH STREET
 CUYAHOGA COUNTY

OHIO
 F.H.W.A. REGION 5

48

DRAWING NAME PH1C-INS DWG
 DATE 6/16/93
 LAST REV. DATE 6/16/93
 SCALE: 1"=40'

Sasaki Associates, Inc.



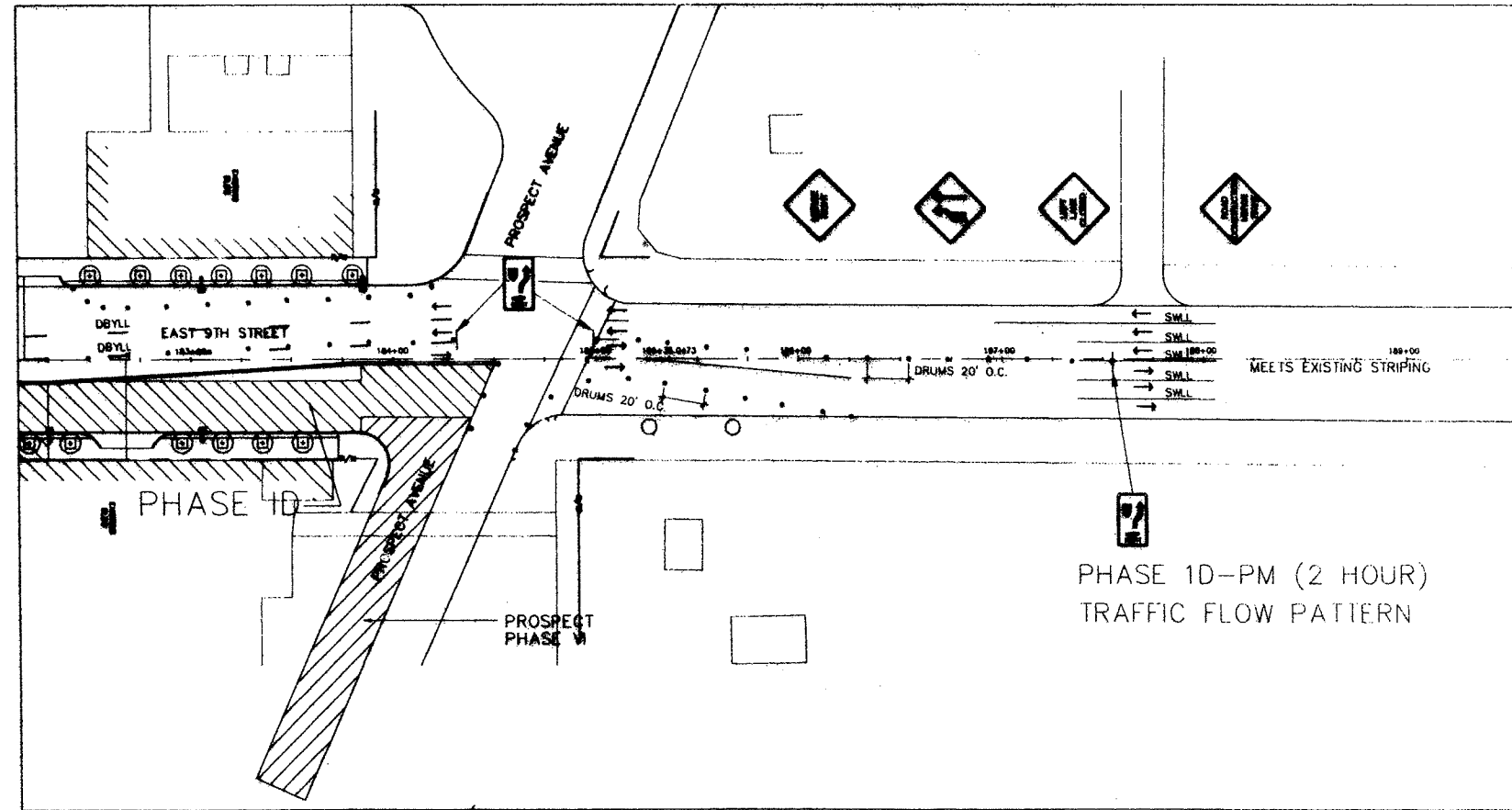
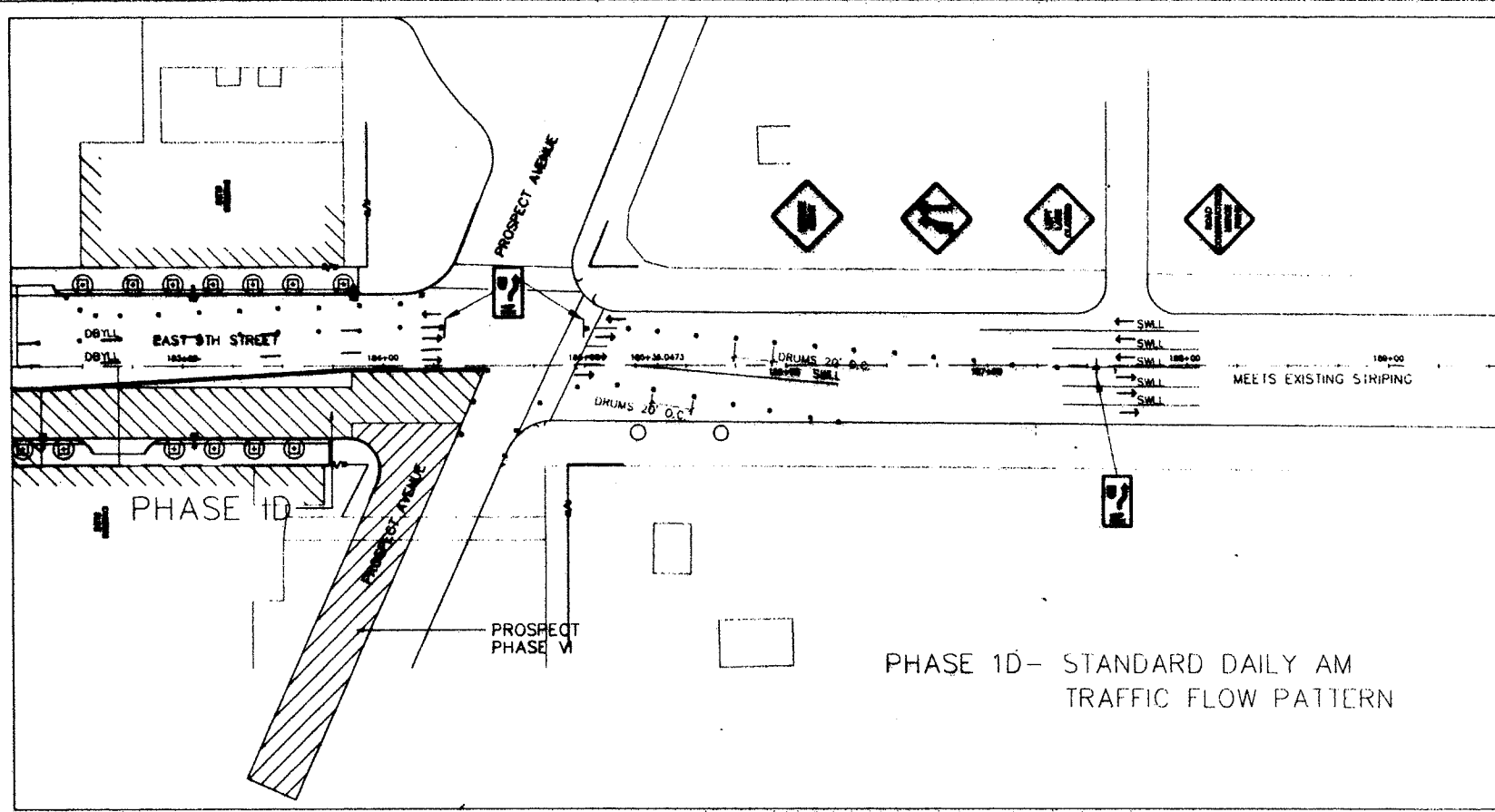
MATCH LINE STA 176+75

ESTIMATED QUANTITIES

REF. NO.	STATION TO STATION	SIDE	REMOVAL OF PAVEMENT MARKING TYPE II 641.10	CENTER LINE MARKING TYPE II 642	SURF. PLANT SHEET TYPE G 630	LANE TYPE II 642	LANE TYPE II 642	SEE SHT. NO.	
	182+85-184+00								
	183+00-187+00								
	186+25-187+25				6.25(1)				
	186+00 APPROX.				6.25(1)				
	186+50 APPROX.								
			LF 120	LF 100		LF 7	LF 100		
TOTALS									

DRAWING NAME: PH1D-INS.DWG
 CREATED BY:
 LAST REV DATE: 6/16/93
 SCALE: 1"=40'

Sasaki Associates, Inc.

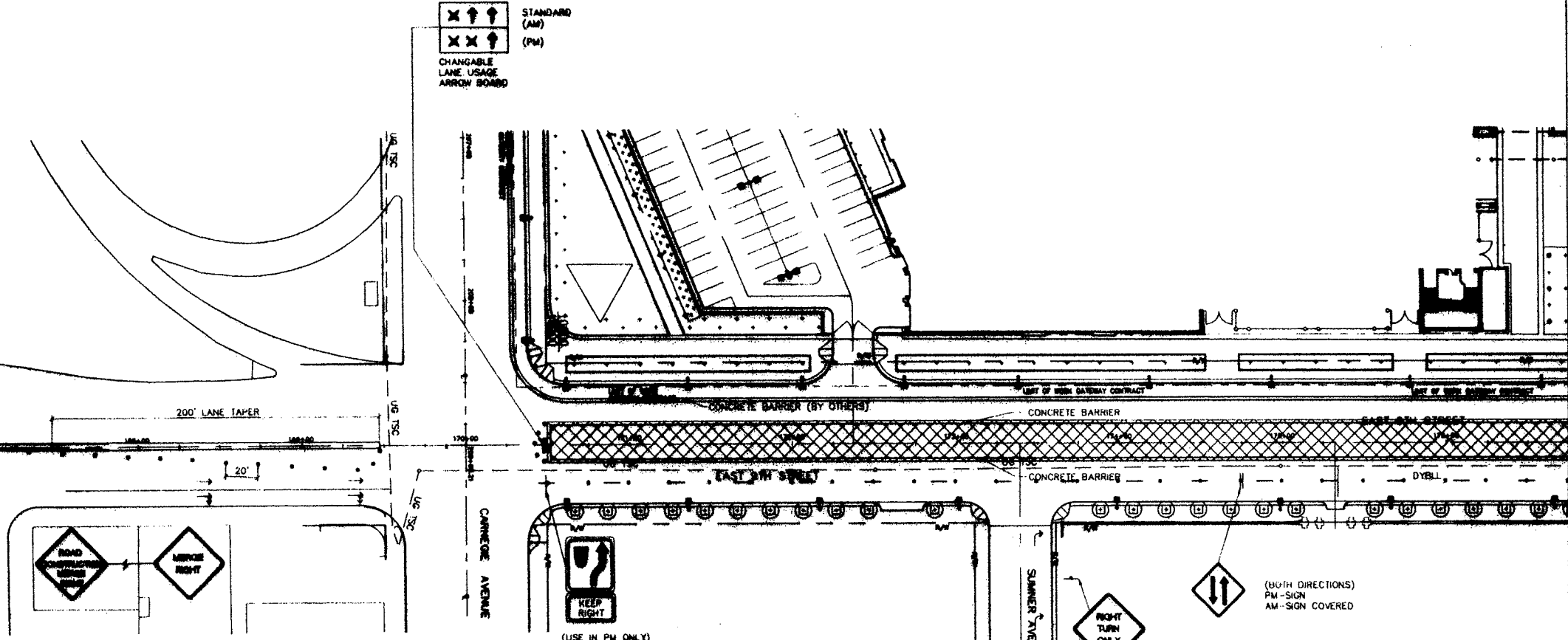


MATCH LINE STA 176+75





ESTIMATED QUANTITIES

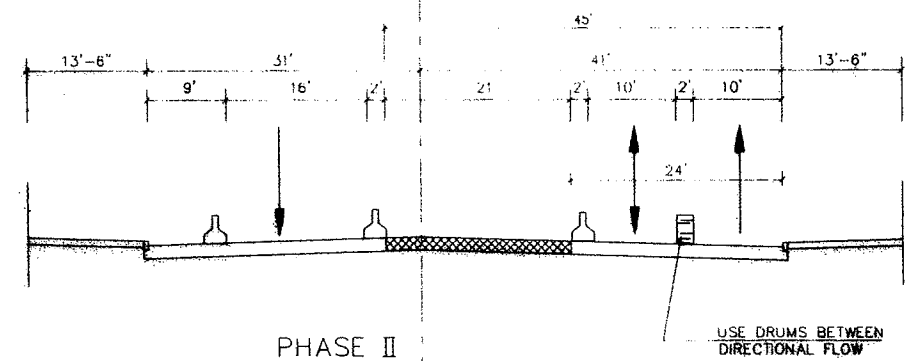
REF. NO.	STATION TO STATION SIDE	REMOVAL OF MARKING	CROSS MARK	SIGN	LANE LINE
		TYPE II 841.10	TYPE II 842	SLAB TYPE C 6.30	TYPE II 842
		LF	LF	SQ. FT.	LF
	184+00	80	135	9	130
	185+00				
	187+00				
	187+30				
	188+30				
TOTALS		80	135	9	130

CALC. DATE: CUY-EAST 9TH STREET OHIO
 CHKD. DATE: CUYAHOGA COUNTY F.H.W.A. REGION 5
 DATE: 50



PHASE II

-  EAST 9th STREET CONSTRUCTION AREA
-  DRUM
-  CONCRETE BARRIER
-  PHASE CONSTRUCTED LANES



ESTIMATED QUANTITIES

REF. NO.	STATION TO STATION	SIDE	MAINTAINING TRAFFIC (DRUMS) 614	SIGN FLAT SHEET TYPE G 630	CENTER LINE TYPE II 642	PORTABLE CONCRETE BARRIERS 614	REMOVAL OF PAVEMENT MARKING 614	SEE SHT. NO.
	170+45-176+75		19		160	585	160 203	
	167+40-169+40							
	170+50-176+75							
	173+50							
	167+60 APPROX	RT.		9(1)				
	168+25 APPROX	RT.		9(1)				
	173+50	RT.		4(1)				
T O T A L S								
							363	
							585	
							160	
							22	
							19	

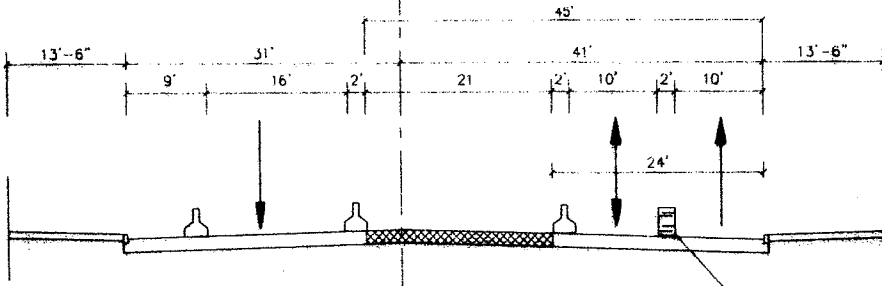
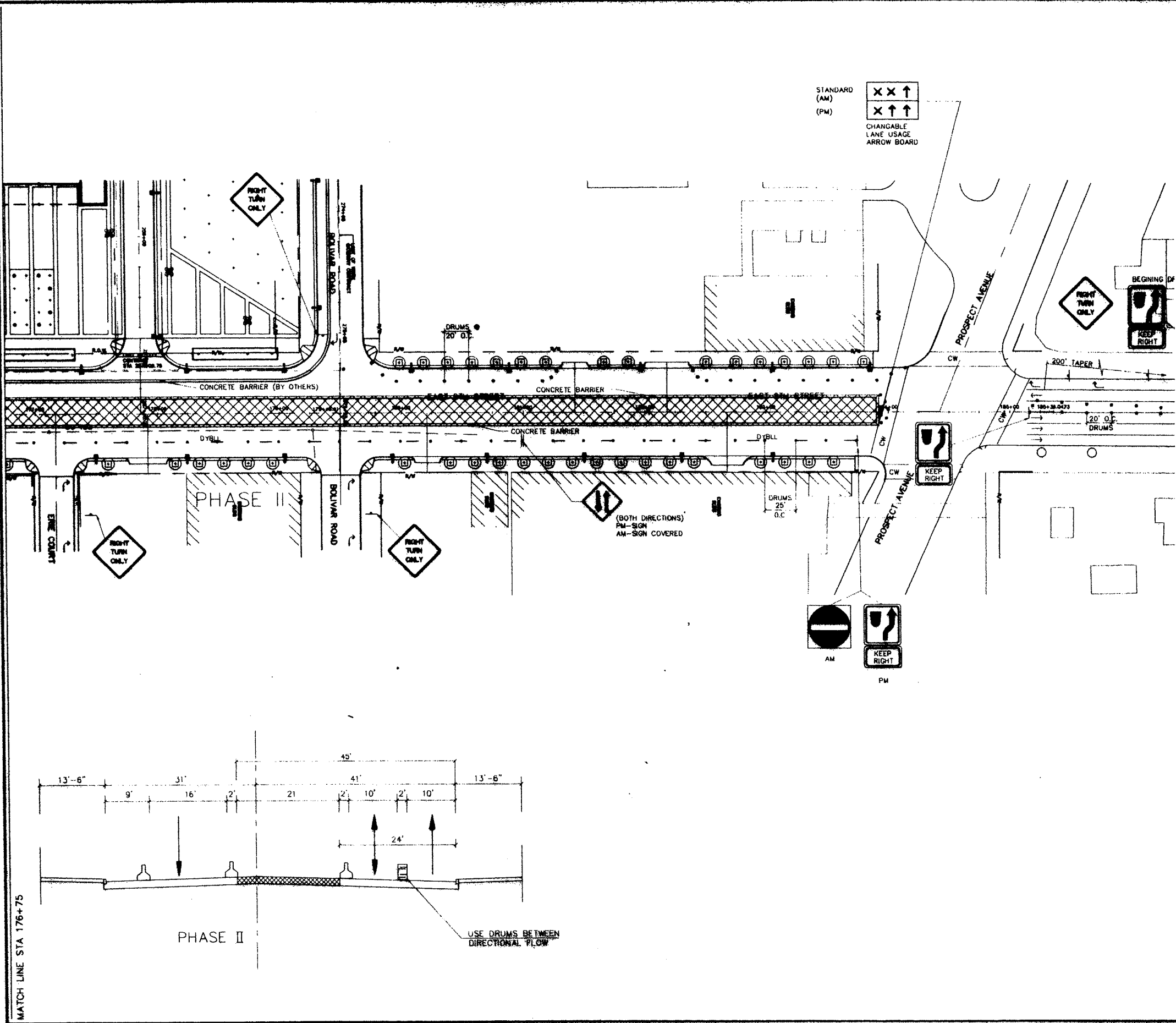
MATCH LINE STA 176+75

CUY - EAST 9TH STREET

DRAWING NAME: T-52
 CREATED BY:
 LAST REV DATE: 6/16/93
 SCALE: 1"=40'

Sasaki Associates, Inc.

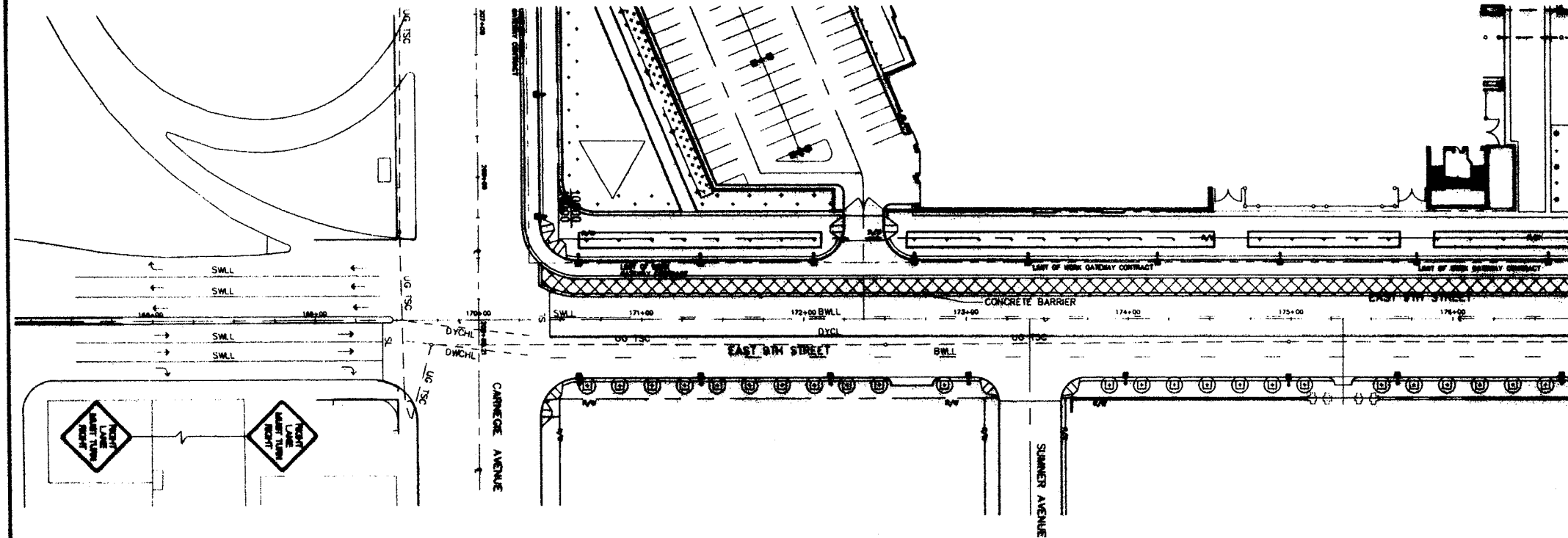
MATCH LINE STA 176+75







REF. NO.	STATION TO STATION SIDE	MAINTAINING TRAFFIC (DRUMS)	SIGN FLAT SHEET TYPE C	GROUND MOUNTED SUPPORT NO.-2	REMOVAL OF PAVEMENT MARKING	LANE ARROW TYPE II	CENTER LINE TYPE II	LANE LINE TYPE II	CROSS WALK TYPE II	PORTABLE CONCRETE BARRIER	SEE SHIT. NO.
176+75-184+00		EACH 16	SQ.FT.	EACH	L.F.	EACH	L.F.	L.F.	L.F.	L.F.	
184+00					20	6	180	100	140	960	
183+00-184+00			4(1)								
185+00-187+00			6.25(1)								
184+50			5(1)								
180+00-181+00			4(1)		100						
177+30											
163+50			5(1)								
185+18			4(1)								
185+25 APPROX.			5(1)								
186+00 APPROX.											
TOTALS		16	24.25	3	120	6	180	100	140	960	

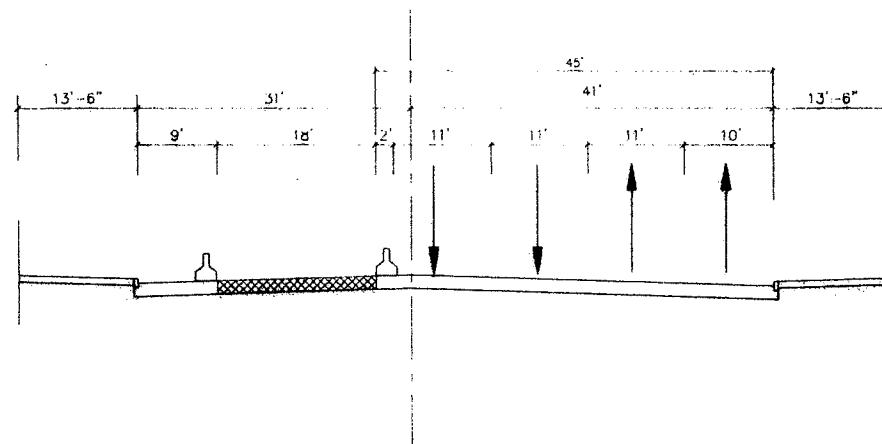
DRAWING NAME 1-53.DWG
 CREATED BY
 LAST REV. DATE 6/16/93
 SCALE: 1"=40'

Sasaki Associates, Inc.



PHASE III

-  EAST 9TH STREET CONSTRUCTION AREA
-  DRUM
-  CONCRETE BARRIER
-  PHASE UNDER CONSTRUCTION



PHASE III CARNEGIE TO BOLIVAR

MATCH LINE STA 176+75

ESTIMATED QUANTITIES

REF. NO.	STATION TO STATION	SIDE	CENTER LINE TYPE II 642	REMOVAL OF PAVEMENT MARKING 641.10	LANE LINE TYPE II 642	STOP LINE TYPE II 642	CHANNELIZATION LINE TYPE II 642	LANE ARROW TYPE II 642	ESTIMATED QUANTITIES
	170+45-176+75		LF. 635	LF. 160	LF. 300		LF. 80	EACH 12	
	167+40-169+45				LF. 760				
	169+45-170+45					LF. 35			
	170+45	RT				LF. 28			
	170+45-171+10	RT			LF. 65				
TOTALS			635	160	1125	63	80	12	



CALC. _____
 DATE _____
 CHKD. _____
 DATE _____
 CUY-EAST 9TH STREET
 CUYAHOGA COUNTY
 OHIO
 F.H.W.A. REGION 9

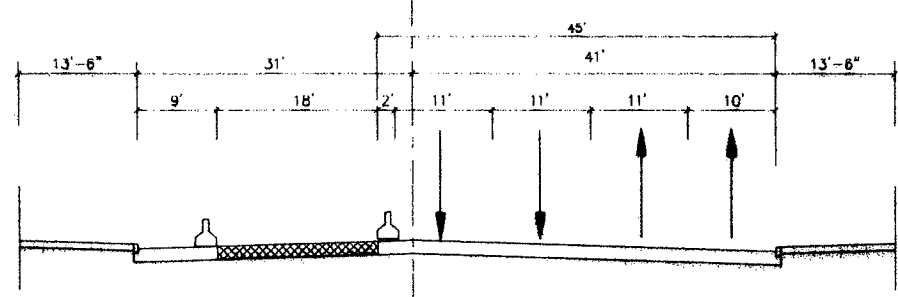
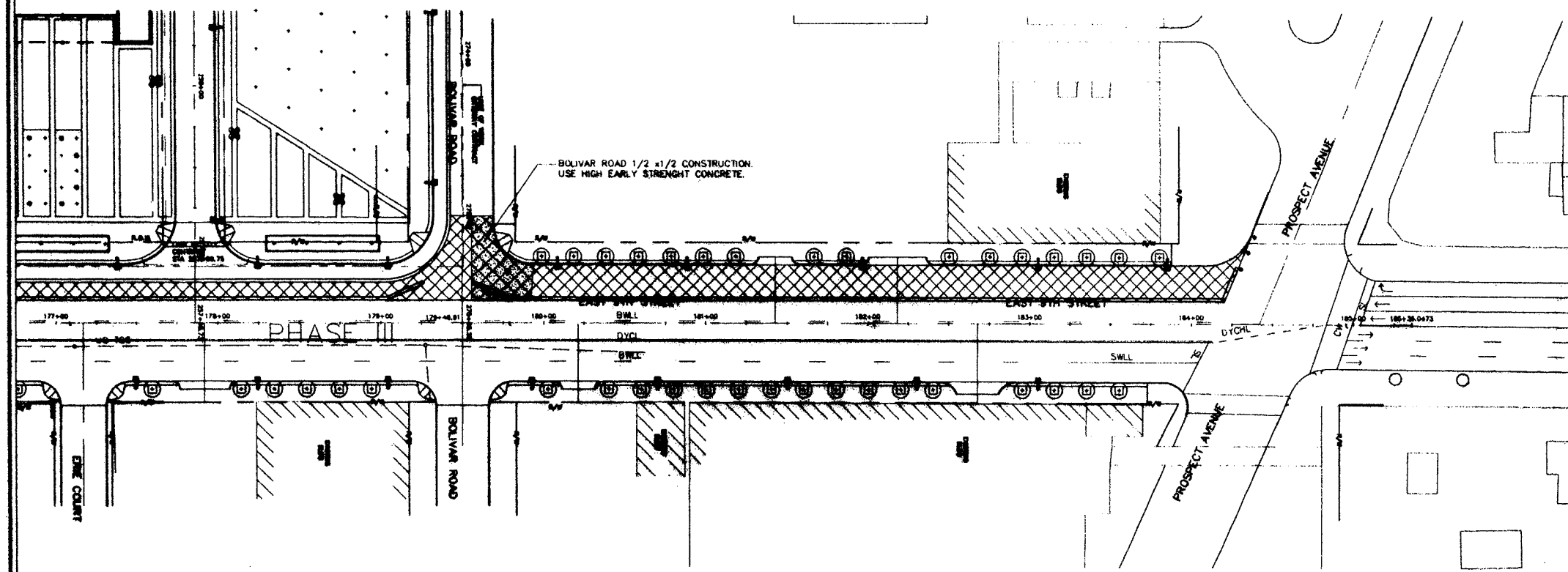
53

CUY - EAST 9TH STREET

DRAWING NAME: T-54
 CREATED BY:
 LAST REV. DATE: 6/16/83
 SCALE: 1"=40'

Sasaki Associates, Inc.

MATCH LINE STA 176+75



PHASE III CARNEGIE TO BOLIVAR



CALC. _____ DATE _____
 CHKD. _____ DATE _____
 CUY-EAST 9TH STREET CUYAHOGA COUNTY
 OHIO F.H.W.A. REGION 5

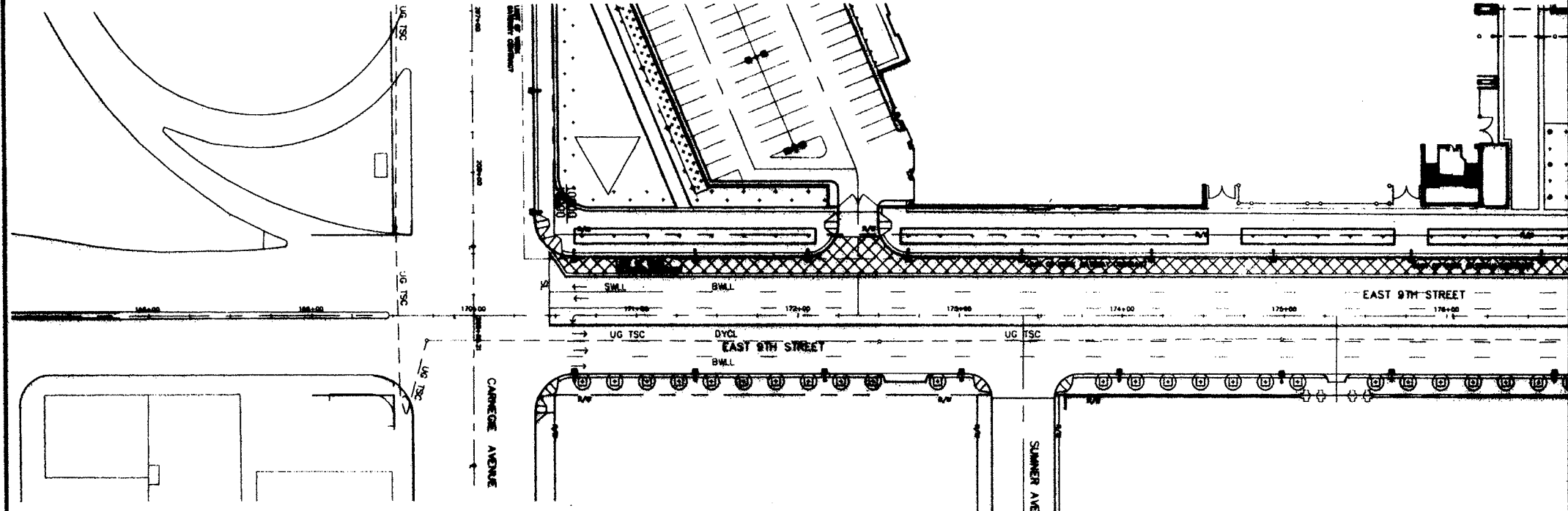
54

ESTIMATED QUANTITIES

REF. NO.	STATION TO STATION	REMOVAL OF PAVEMENT MARKING 641.10	LANE LINE TYPE II 642	CENTER LINE TYPE II 642	STOP LINE TYPE II 642	CHANNELIZING LINE TYPE II 642	SEE SHT. NO.
	176+75-184+10	L.F. 180	L.F. 350	L.F. 730	L.F. 35	L.F.	
	184+10-184+20		105			40	
	184+20-184+75	L.F. 155					
	184+00						
	184+20-184+80						
TOTALS		335	455	730	35	40	

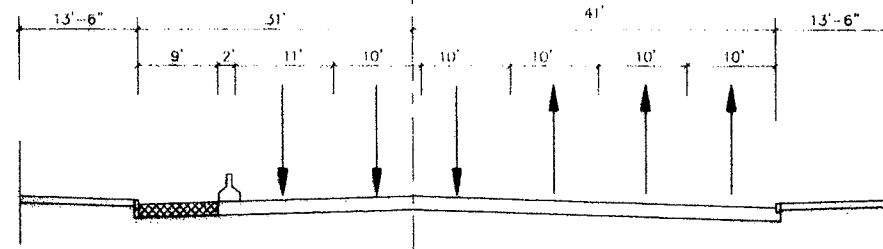
DRAWING NAME: T-55.DWG
 CREATED BY:
 LAST REV. DATE: 6/16/83
 SCALE: 1"=40'

Sasaki Associates, Inc.



PHASE IV

- EAST 9TH STREET CONSTRUCTION AREA
- DRUM
- CONCRETE BARRIER
- PHASE UNDER CONSTRUCTION



PHASE IV

MATCH LINE STA 176+75



CALC. _____ CUY-EAST 9TH STREET OHIO
 DATE _____ CUYAHOGA COUNTY F.H.W.A. 5
 CHKD _____ REGION
 DATE _____

55

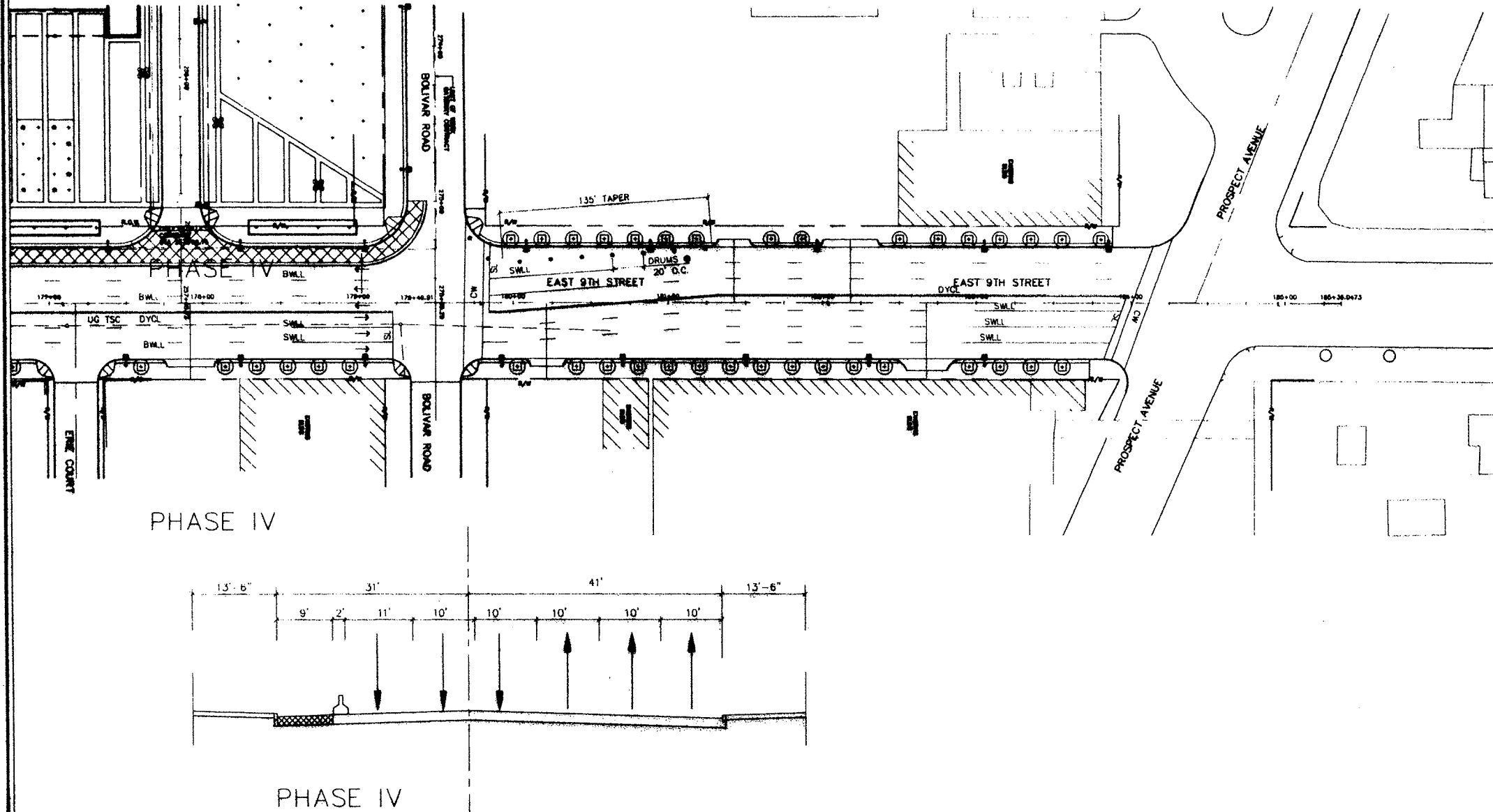
ESTIMATED QUANTITIES

REF. NO.	STATION TO STATION	SIDE	CENTER LINE TYPE II 642	REMOVAL OF PAVEMENT MARKING 641.10	LANE LINE TYPE II 642	LANE ARROW TYPE II 642	TOTALS
	170+45-176+75		L.F. 635	L.F. 1075	L.F. 440	EACH	
	170+45			80	70	6	
	170+45-171+15						
	170+45						
	TOTALS		635	1175	510	6	

DRAWING NAME: 1-56
 CREATED BY:
 LAST REV. DATE: 6/16/93
 SCALE: 1"=40'

Sasaki Associates, Inc.

MATCH LINE STA 176+75



ESTIMATED QUANTITIES

REF. NO.	STATION TO STATION	REMOVAL OF PAVEMENT MARKING	LANE LINE	CENTER LINE	CROSS WALK	STOP LINE	SEE SHT. NO.
		641.10	TYPE II 642	TYPE II 642	TYPE II 642	TYPE II 642	
		L.F.	L.F.	L.F.	L.F.	L.F.	
	176+75-184+10	1080	480	670			
	176+75-184+00				170	40	
	176+75-184+10				165		
	179+75						
	184+00		220				
	179+60-180+70		270				
	183+00-183+90	135					
	185+00		190				
	178+50-179+45					30	
	179+25						
T O T A L S		1215	1160	670	335	70	

CALC. DATE: CUY-EAST 9TH STREET
 CHKD. DATE: CUYAHOGA COUNTY
 OHIO F.H.W.A. REGION 5

56

DRAWING NAME T-57.DWG
 CREATED BY:
 LAST REV. DATE 6/16/93
 SCALE 1"=40'

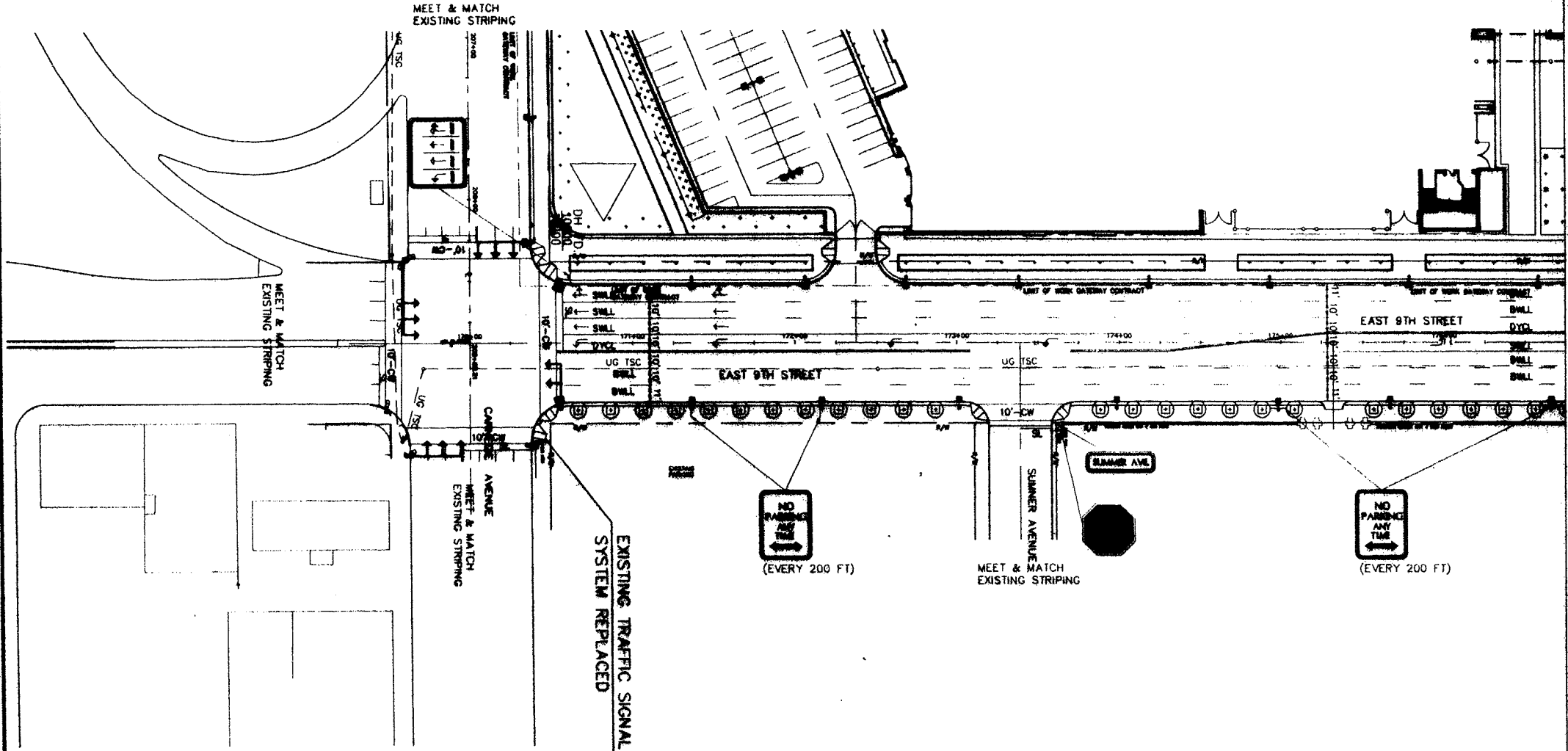
Sasaki Associates, Inc.

NOTE:

1. AT THE INTERSECTION OF EAST 9 TH STREET AND CARNEGIE THE EXISTING CROSS WALKS AND STOP LINES ARE TO BE REPLACED WITH NEW, AS SHOWN ON THE PLANS. THIS MAY REQUIRE SOME REMOVAL OF EXISTING MARKINGS.

LEGEND

- BWL BROKEN WHITE LANE LINE
- SWL SOLID WHITE LANE LINE
- DYCL DOUBLE YELLOW CENTER LINE
- CW CROSS WALK
- SL STOP LINE, 24"
- PTF PROPOSED TRAFFIC SIGNAL
- PI PROPOSED PEDESTRIAN INDICATOR
- PTS PROPOSED TRAFFIC SIGN
- PAV DIR DIRECTIONAL PAVEMENT ARROWS



MATCH LINE STA 176+75

ESTIMATED QUANTITIES

REF. NO.	STATION TO STATION	SIDE	LANE LINE SWLL 644	LANE LINE BWLL 644	CENTER LINE DYCL 644	STOP LINE SL 644	CROSS WALK CL 644	LANE ARROW 644	REMOVAL OF PAVEMENT MARKINGS 641.10	SIGN FLAT SHEET TYPE G 630	SIGN DOUBLE FACED STREET NAME 630	GROUND MOUNTED SUPPORT NO.2 POST 630	SEE SHIT. NO.
	170+57 - 171+65		210										
	170+53 - 176+75			320									
	171+65 - 176+75			180									
	171+65 - 175+00				1240								
	170+54 - 176+75						162						
	170+50						85						
	173+40	RT											
	170+55					41							
	170+65 - 176+75					22							
	170+60												
	173+40												
	170+57 - 174+20		360										
	173+40 - 176+75	RT	135										
	173+60	RT											
	169+38												
	170+50												
	173+00												
	170+60												
	173+60												
	TOTALS		705	360	1240	63	247	11	400	45.25(15)	1	4	

CALC. CUY-EAST 9TH STREET OHIO
 DATE CUYAHOGA COUNTY F.H.W.A. REGION 5
 CHKD.
 DATE

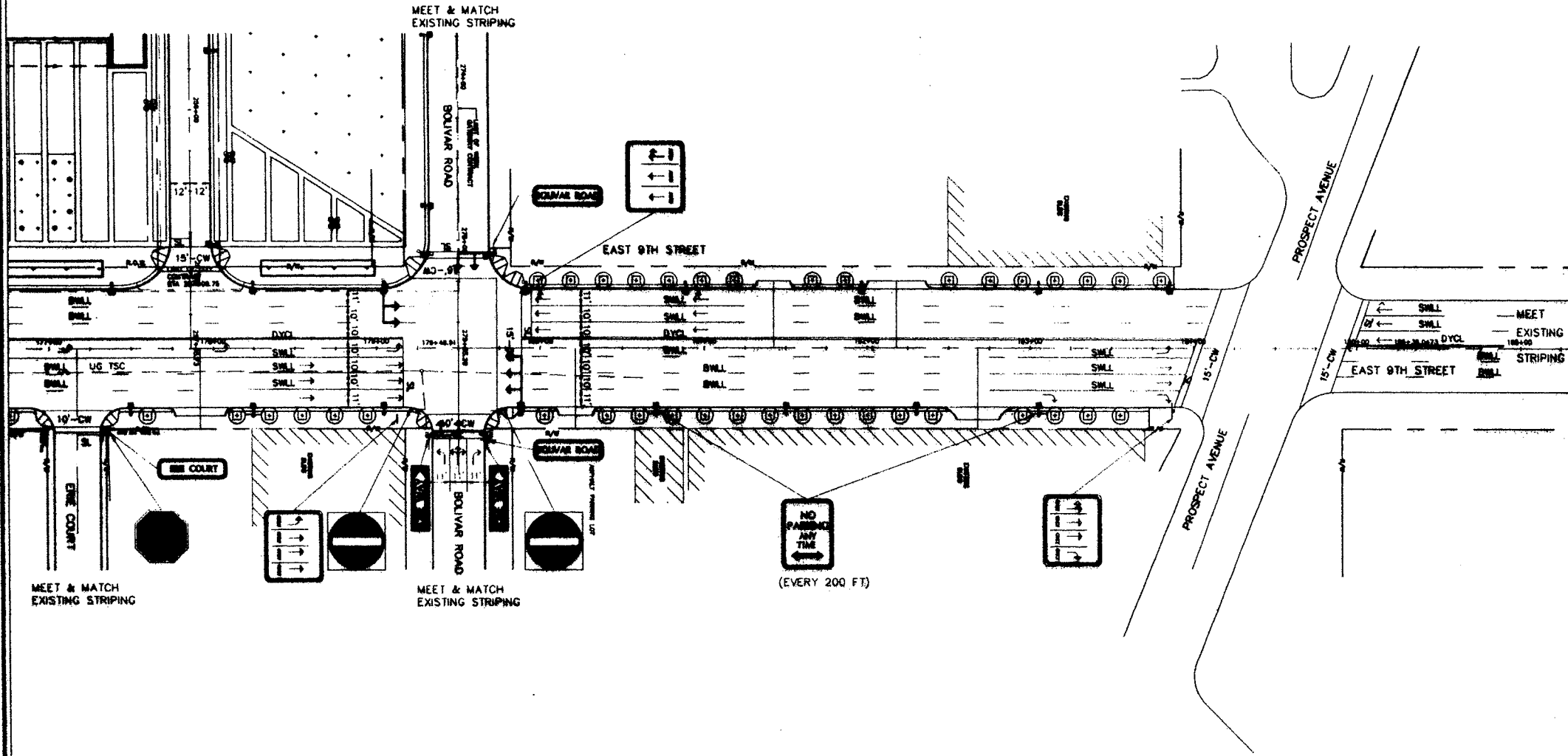


CUY - EAST 9TH STREET

DRAWING NAME: T-58.DWG
 CREATED BY:
 LAST REV. DATE: 6/16/83
 SCALE: 1"=40'

Sasaki Associates, Inc.

MATCH LINE STA 176+75



NOTE:
 1. PAVEMENT MARKING FOR PROSPECT AVE. AT INTERSECTION, ON OTHER TRAFFIC SHEETS.

LEGEND

- BWLL BROKEN WHITE LANE LINE
- SWLL SOLID WHITE LANE LINE
- DYCL DOUBLE YELLOW CENTER LINE
- CW CROSS WALK
- SL STOP LINE, 24"
- PT PROPOSED TRAFFIC SIGNAL
- PI PROPOSED PEDESTRIAN INDICATOR
- TS PROPOSED TRAFFIC SIGN
- PA DIRECTIONAL PAVEMENT ARROWS

CALC. _____ CUY-EAST 9TH STREET OHIO
 DATE _____ CUYAHOGA COUNTY F.H.W.A. REGION 5
 CHKD. _____
 DATE _____

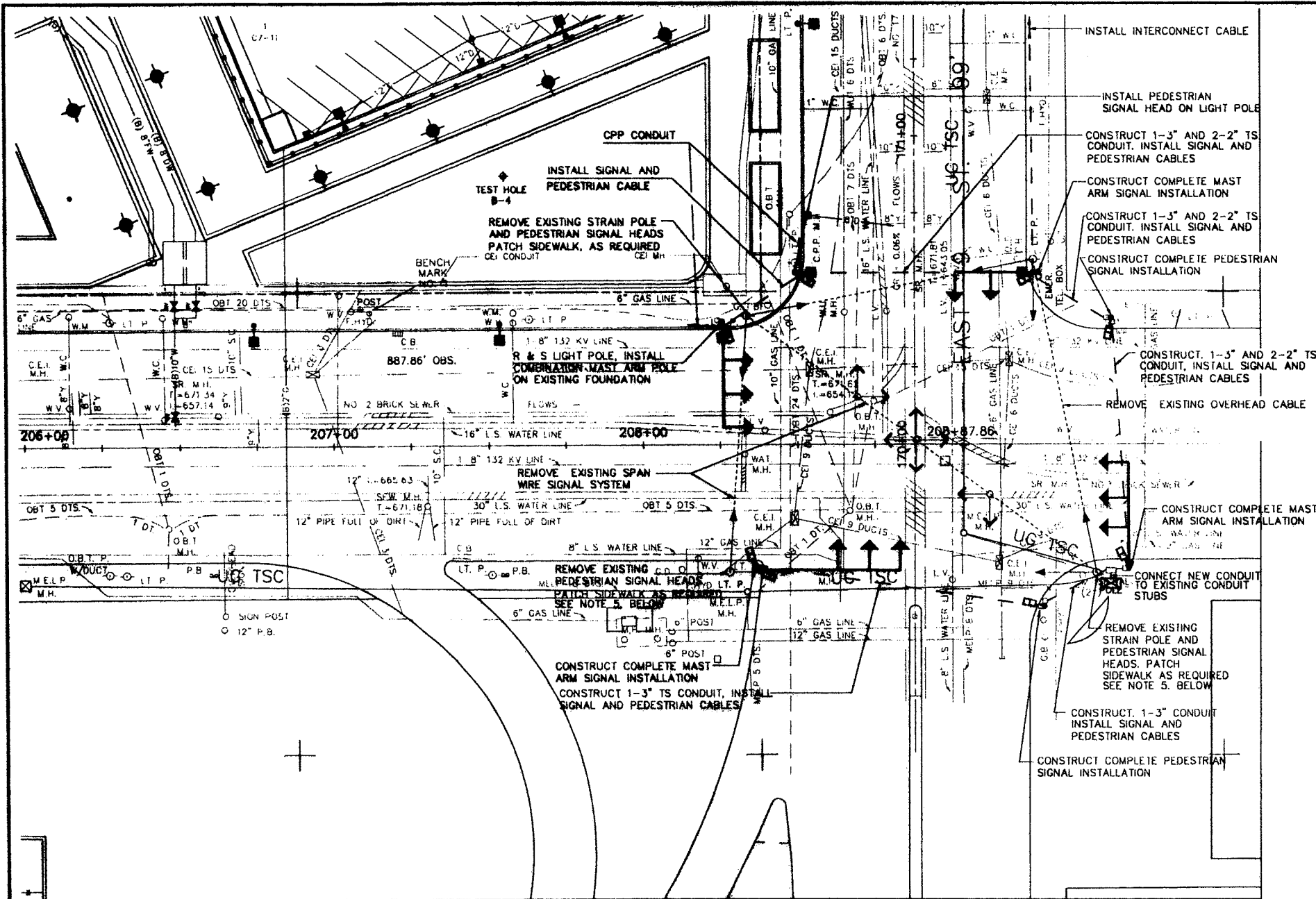
58

ESTIMATED QUANTITIES

REF. NO.	STATION TO STATION	SIDE	LANE LINE SWLL 644	LANE LINE BWLL 644	CENTER LINE DYCL 644	STOP LINE SL 644	CROSS WALK CL 644	LANE ARROW 644	SIGN FLAT SHEET TYPE G 630	SIGN DOUBLE FACED STREET NAME 630	GROUND MOUNTED SUPPORT NO.2 POST 630	SEE SHIT. NO.
	184+98	RT				28	73		7.75(2)			
	177+15	LT					65		1.5(1)			
	179+49.91	RT					97					
	179+49.91	LT					160					
	179+80						166					
	184+04											
	178+21 - 179+15		188									
	176+75 - 179+15		235									
	179+95 - 181+25		260									
	182+75 - 183+80		115									
	182+90 - 183+95		105									
	182+90 - 183+95		105									
	176+50 - 187+25			70								
	179+50 - 185+00			80								
	179+50 - 185+00			70					3.00(2)			
	181+25 - 184+05			70								
	181+25 - 184+05			70								
	177+75 - 179+15			480								
	177+90 - 184+05			930								
	179+15	RT				41			15.75(6)			
	179+49.91	LT				32			14.0(3)			
	179+49.91	RT				32			9.25(2)			
	177+88	LT				12			7.5(3)			
	179+95	LT				31			13.0(2)			
	184+00					45			14.0(1)			
	178+00 - 181+05			80			135					
	185+00 - 186+00			100								
	185+00 - 185+50			1510		222	788	15	95.75(22)	2		
	TOTALS		1108	450	1510	222	788	15	95.75(22)	2	8	

TRAFFIC SIGNAGE + STRIPING STA 176+75 TO STA 186+25

CUY - EAST 9TH STREET

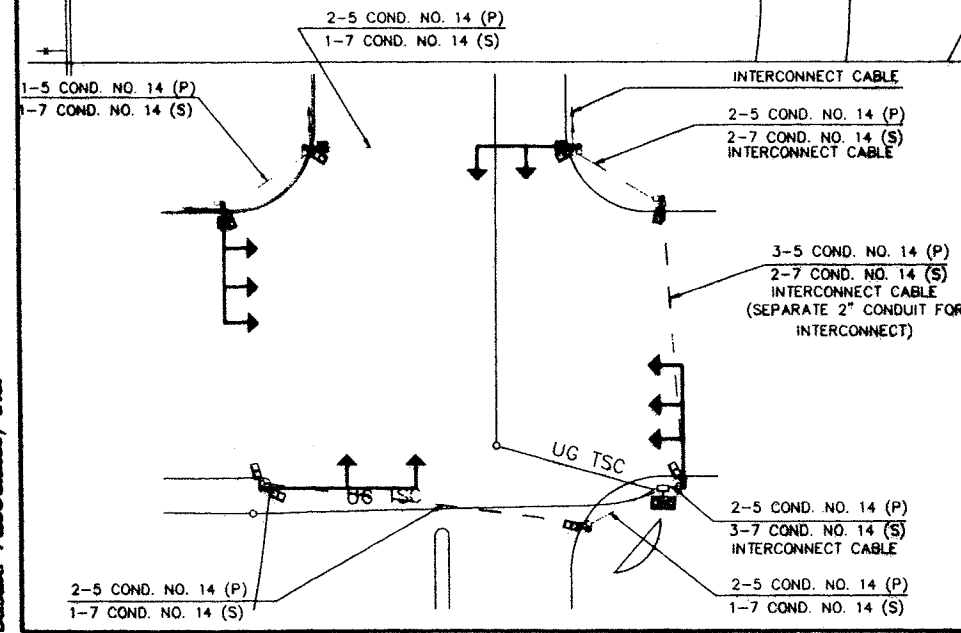
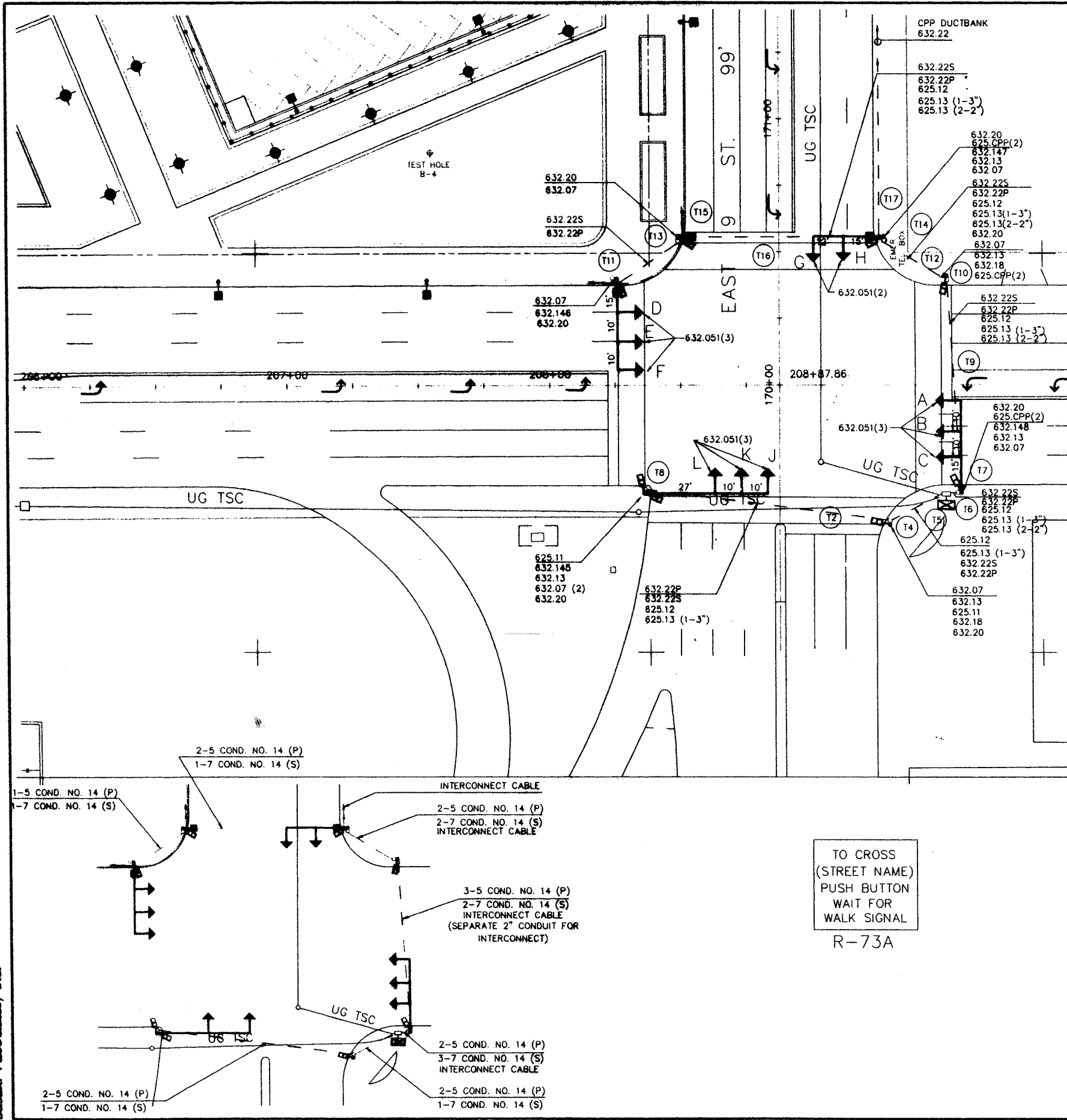


NOTES:

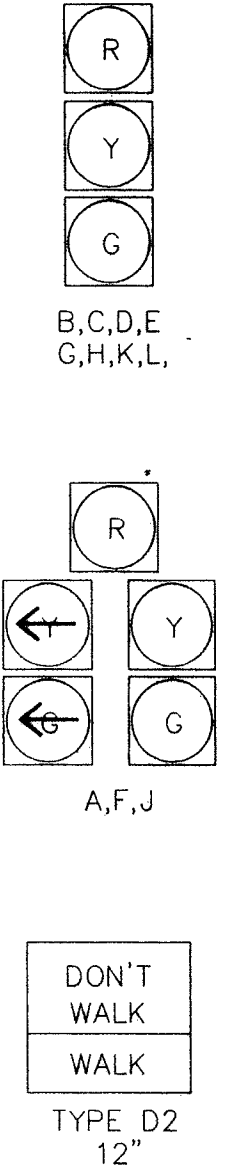
1. THE INTENT OF THIS DESIGN IS TO INSTALL A MAST ARM SIGNAL SYSTEM.
2. THE PROPOSED STREET LIGHTING CONDUIT SYSTEM IS DESIGNED TO ACCOMMODATE TWO - 2 INCH TRAFFIC SIGNAL CONDUITS. SEE CLEVELAND PUBLIC POWER (CPP) ENGINEERING DEPARTMENT DRAWINGS.
3. CONDUIT AND PULLBOX DETAILS REFLECT REVISED CLEVELAND PUBLIC POWER (CPP) ENGINEERING DRAWINGS. SEE SHEET NO. 63.
4. THE SIGNALS SHALL BE RIGID MOUNTED WITH THE CENTER LINE OF THE RED SIGNAL INDICATION MATCHING THE CENTERLINE OF THE MAST ARM.
5. CONSTRUCT COMPLETE SIDEWALK SLAB TO MATCH EXISTING ON THE SOUTH SIDE OF CARNEGIE.
6. FOR CONDUIT CROSSING THE ROADWAY REFER TO ODOT DETAIL HC-30.22
7. FOR LOOP DETECTOR INSTALLATION THE CONTRACTOR MAY HAVE TO CORE DRILL FOR A CONDUIT RUN, AS PER DIRECTION OF THE CITY RESIDENT ENGINEER.

DRAWING NAME: CS-405.DWG
CREATED BY:
LAST REV. DATE: 6/16/93
SCALE: 1"=20'

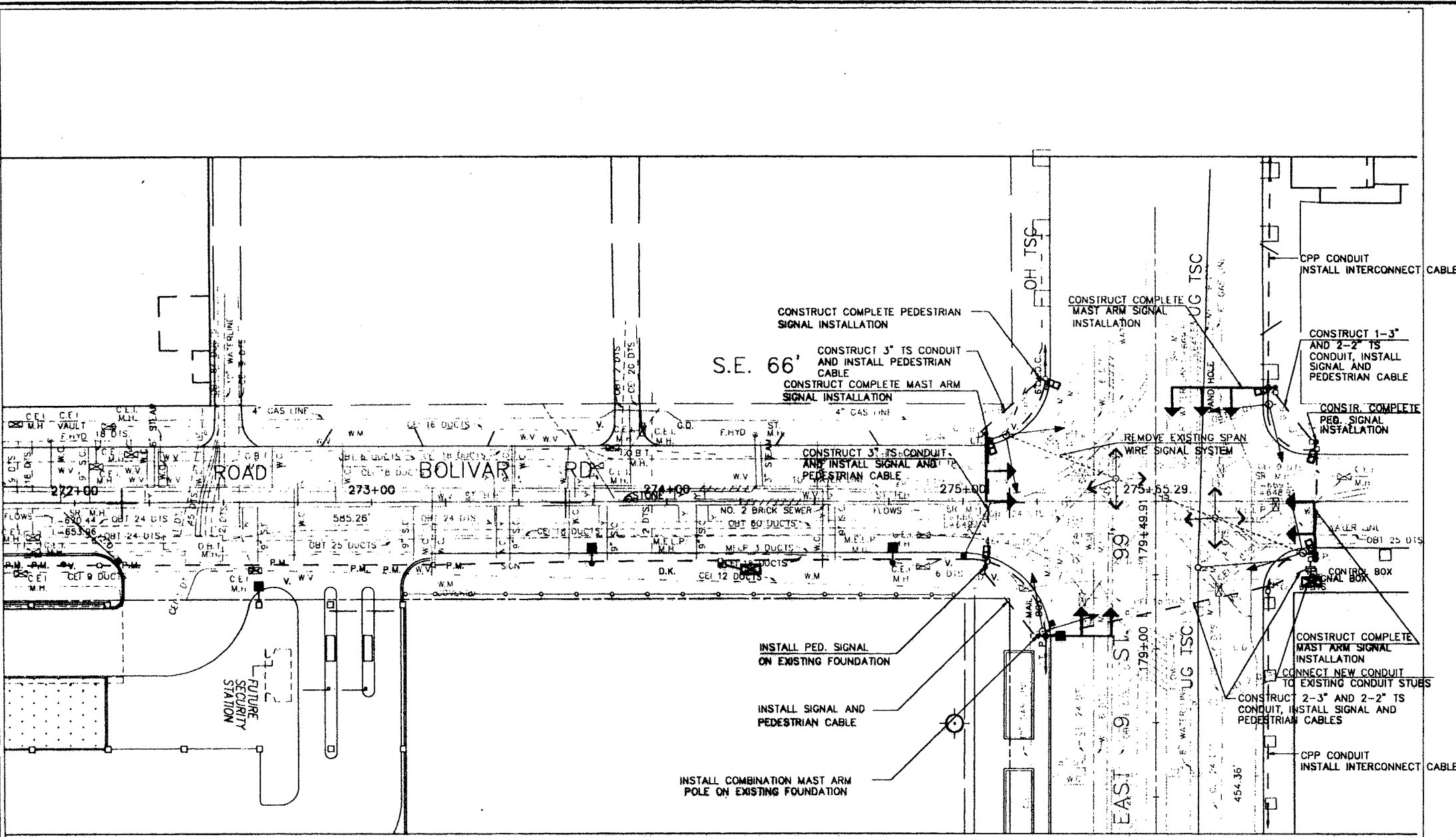
Sasaki Associates, Inc.



TO CROSS
 (STREET NAME)
 PUSH BUTTON
 WAIT FOR
 WALK SIGNAL
 R-73A



ITEM NO.	DESCRIPTION	UNIT	QTY	AMOUNT	STATION	REF. NO.	SIDE
625.CPP	CPP PULL BOX 713.081	EA	6				
625.11	PULL BOX, CONCRETE, 24"x24" 713.08	EA	3				
625.12	TRENCH IN PAVED AREAS, TYPE B	LF	42	55			
625.13	CONDUIT, PVC, TYPE . 3 INCH 713.07	LF	28	82			
625.13	CONDUIT, PVC, TYPE . 2 INCH 713.07	LF	26	30			
632.051	VEHICULAR SIGNAL HEAD, 3-SECTION, 12 INCH LENS, 1-WAY POLYCARBONATE PLASTIC AS PER PLAN	EA	2				
632.055	VEHICULAR SIGNAL HEAD, 5-SECTION, 12 INCH LENS, 1-WAY POLYCARBONATE PLASTIC AS PER PLAN	EA	2				
632.07	PEDESTRIAN SIGNAL HEAD, TYPE D-2 AS PER PLAN	EA	8				
632.13	CONCRETE FOR ANCHOR BASE FOUNDATIONS	CT	9				
632.145	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 12, 47' ARM	EA	1				
632.146	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, 35' ARM	EA	1				
632.147	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 2, 27' ARM	EA	1				
632.148	SIGNAL SUPPORT TYPE TC-81.20 DESIGN 3, 35' ARM	EA	1				
632.18	PEDESTAL, 10 FEET TRANSFORMER BASE	EA	2				
632.20	CABLE SUPPORT ASSEMBLY	EA	6				
632.22	INTER CONNECT CABLE , 6 PAIR NO. 19 AWG. SOLID REA (PE-39)	LF	690	455			
632.22P	PEDESTRIAN CABLE, 5-CONDUCTOR NO. 14 AWG	LF	1				
632.22S	SIGNAL CABLE, 7-CONDUCTOR NO. 14 AWG	LF	1				
632.24	COVERING OF VEHICULAR SIGNAL HEAD	EA	1				
632.25	REMOVAL OF TRAFFIC SIGNAL INSTALLATION		1				
632.08	PEDESTRIAN PUSHBUTTON AND SIGN		1				
TOTALS			60				

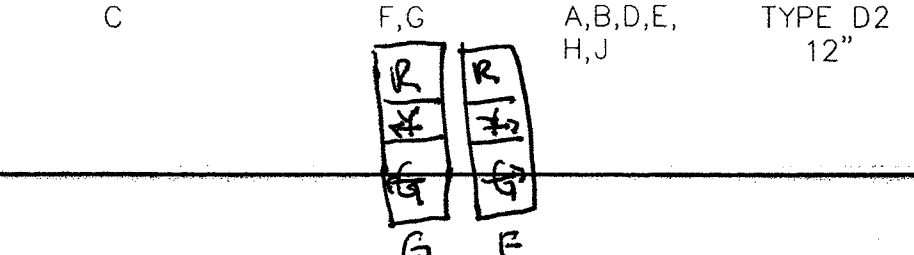
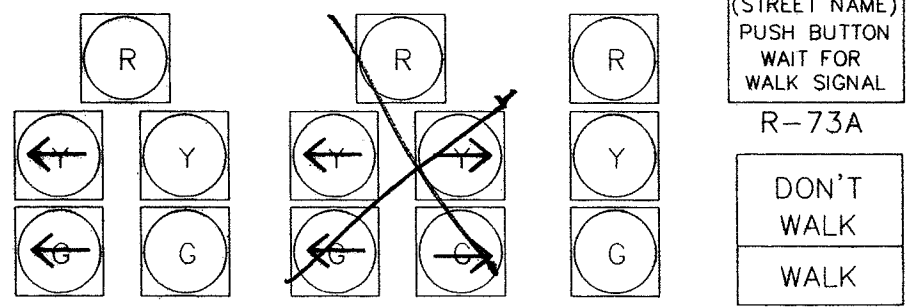
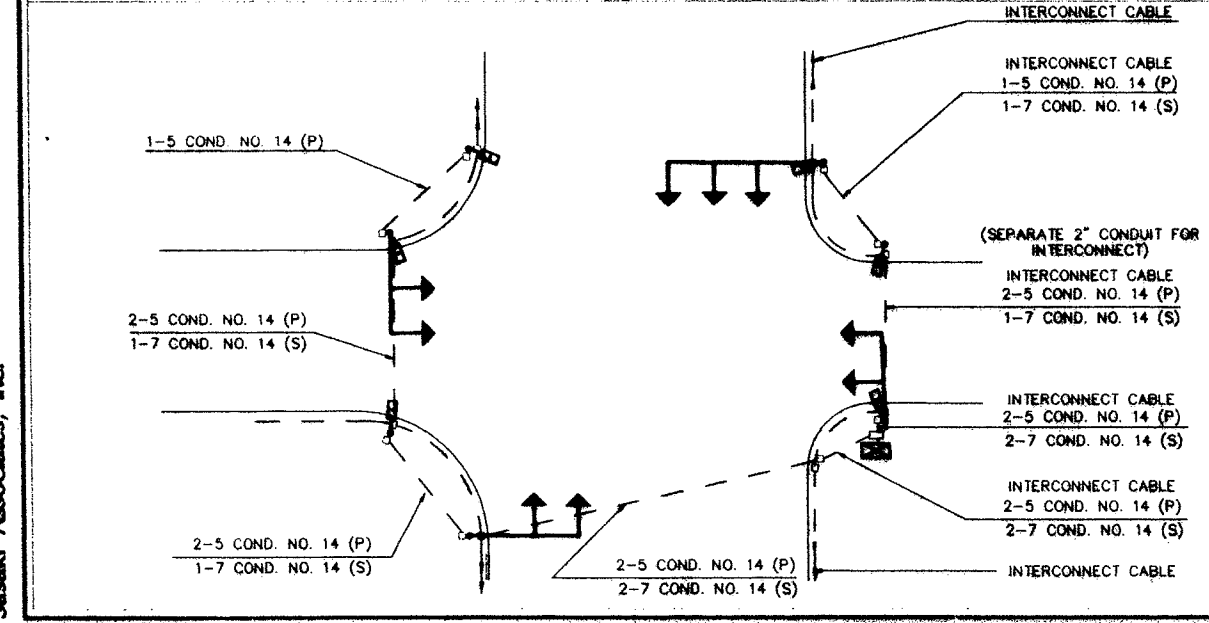
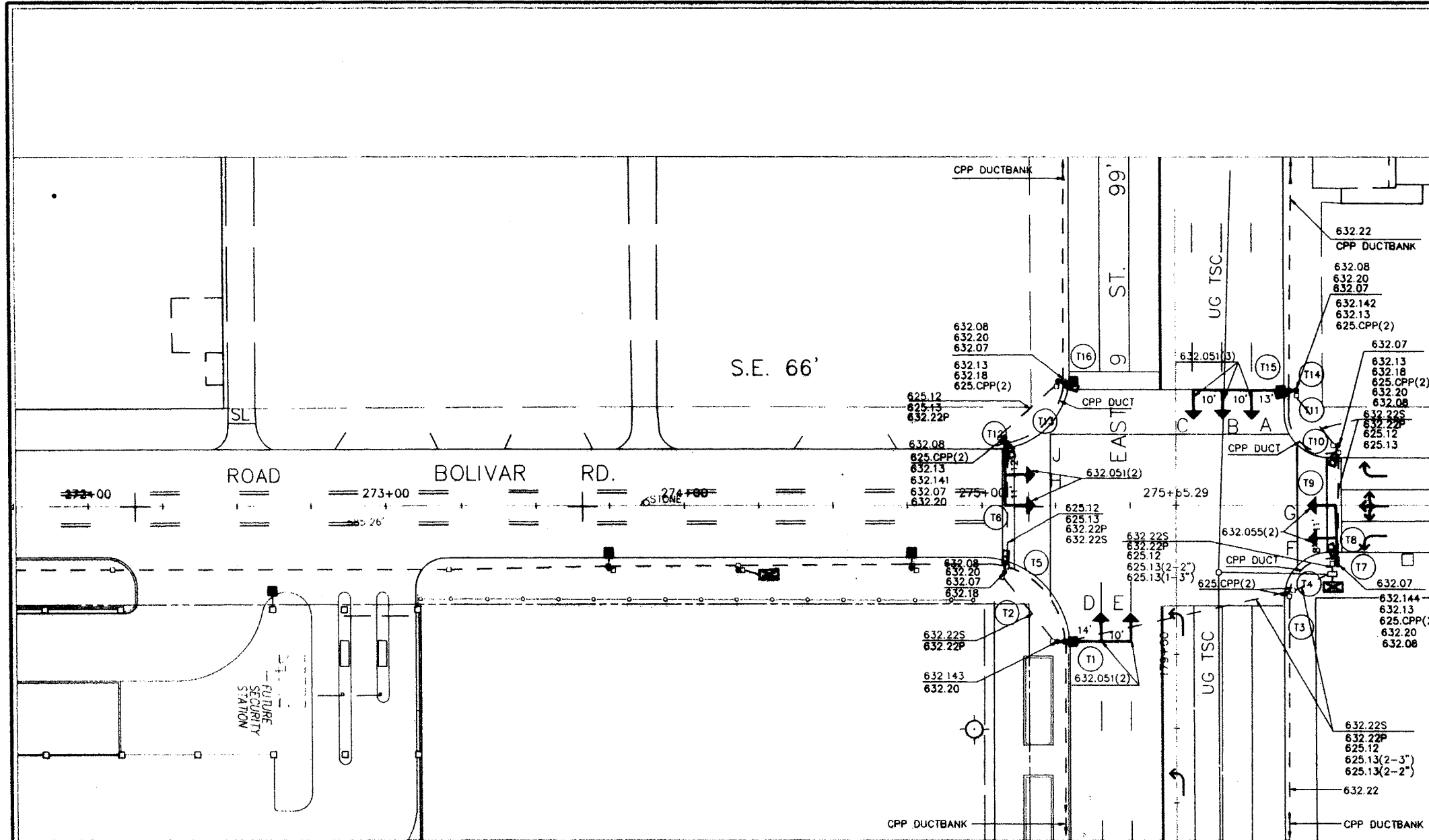


NOTES:

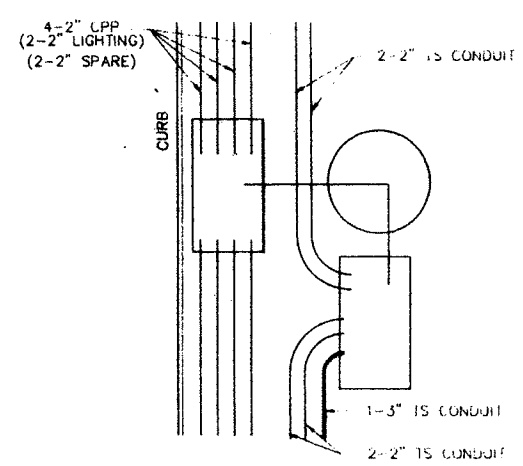
1. THE INTENT OF THIS DESIGN IS TO INSTALL A MAST ARM SIGNAL SYSTEM.
2. IT IS ASSUMED THAT THE BOLIVAR ROAD OVERHEAD REVERSIBLE LANE SIGNAL SYSTEM HAS NOT BEEN CONSTRUCTED.
3. THE PROPOSED STREET LIGHTING CONDUIT SYSTEM IS DESIGNED TO ACCOMMODATE TWO - 2 INCH TRAFFIC SIGNAL CONDUITS. SEE CLEVELAND PUBLIC POWER (CPP) ENGINEERING DEPARTMENT DRAWINGS.
4. CONDUIT AND PULLBOX DETAILS REFLECT REVISED CLEVELAND PUBLIC POWER (CPP) ENGINEERING DRAWINGS. SEE SHEET NO. 63.
5. THE SIGNALS SHALL BE RIGID MOUNTED WITH THE CENTER LINE OF THE RED SIGNAL INDICATION MATCHING THE CENTERLINE OF THE MAST ARM.
6. CONSTRUCT COMPLETE SIDEWALK SLAB TO MATCH EXISTING ON THE SOUTH SIDE OF CARNEGIE.
7. FOR CONDUIT CROSSING THE ROADWAY REFER TO ODOT DETAIL HC-30.22
8. FOR LOOP DETECTOR INSTALLATION THE CONTRACTOR MAY HAVE TO CORE DRILL FOR A CONDUIT RUN, AS PER DIRECTION OF THE CITY RESIDENT ENGINEER.

DRAWING NAME: CE-402.DWG
CREATED BY:
LAST REV. DATE: 6/16/93
SCALE: 1"=20'

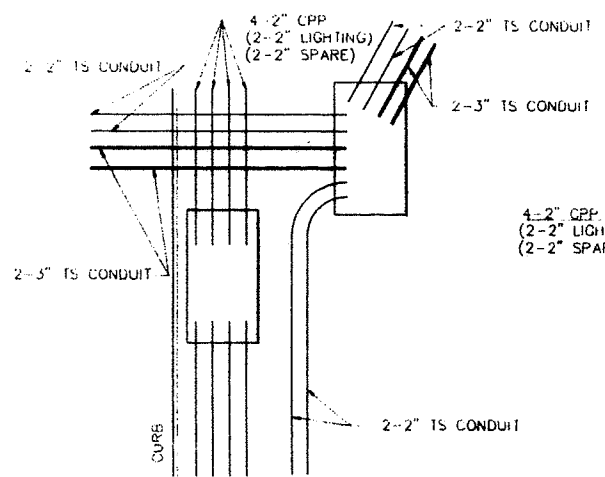
Sasaki Associates, Inc.



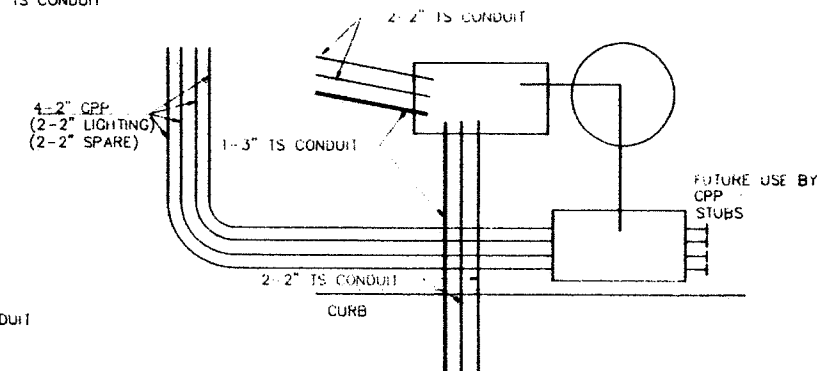
SEE SHT. NO.	QUANTITY	UNIT	CITY - EAST 9TH STREET SIDE	CITY - WEST 9TH STREET SIDE	TOTALS
625.CPP	CPP PULL BOX 713.081	EA			10
625.11	BOX CONCRETE 24"x24" 713.08	EA			1
625.12	TRENCH IN PAVED AREAS, TYPE B	LF			270
625.13	CONDUIT, PVC, TYPE, 2 INCH 713.07	LF			192
625.13	CONDUIT, PVC, TYPE, 3 INCH 713.07	LF			270
625.13	CONDUIT, PVC, TYPE, 3 INCH 713.07	LF			270
632.051	VEHICULAR SIGNAL HEAD, 3-SECTION, 12 INCH LENS, 1-WAY POLYCARBONATE PLASTIC AS PER PLAN	EA			6
632.055	VEHICULAR SIGNAL HEAD, 5-SECTION, 12 INCH LENS, 1-WAY POLYCARBONATE PLASTIC AS PER PLAN	EA			3
632.07	PEDESTRIAN SIGNAL HEAD, TYPE D-2	EA			6
632.13	CONCRETE FOR ANCHOR BASE FOUNDATIONS	CY	1.5		8
632.141	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, 23' ARM	EA			1
632.142	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3, 33' ARM	EA			1
632.143	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, 24' ARM	EA			1
632.144	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 1, 19' ARM	EA			1
632.18	PEDESTAL, 10 FEET TRANSFORMER BASE	EA			3
632.20	CABLE SUPPORT ASSEMBLY	EA			3
632.22	INTERCONNECT CABLE, 6 PAIR NO. 19 AWG. SOLID REA (PE-39) AS PER PLAN	LF			583
632.225	SIGNAL CABLE, 19-CONDUCTOR NO. 14 AWG	LF			409
632.22P	PEDESTRIAN CABLE, 5-CONDUCTOR NO. 14 AWG	LF			6
632.24	COVERING OF VEHICULAR SIGNAL HEAD	EA			1
632.25	REMOVAL OF TRAFFIC SIGNAL INSTALLATION	EA			1
632.08	PEDESTRIAN PUSHBUTTON AND SIGN	EA			6
T1	179+04 LT				
T2	179+04 TO 179+21 BOTH				
T3	179+21 RT				
T4	179+21 TO 179+31 LT				
T5	179+25 TO 179+31 LT				
T6	179+25 TO 179+70 LT				
T7	179+29 RT				
T8	179+31 TO 179+67 RT				
T9	179+31 TO 179+67 RT				
T10	179+67 TO 179+89 RT				
T11	179+67 TO 179+92 RT				
T12	179+70 LT				
T13	179+70 TO 179+92 RT				
T14	179+83 LT				
T15	179+89 LT				
T16	179+92 RT				



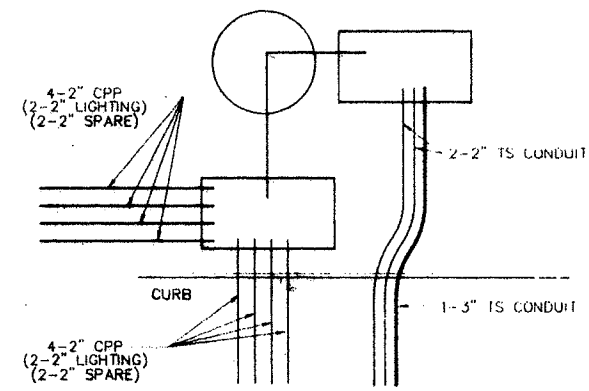
7 BOLIVAR ROAD/EAST 9TH STREET
NE CORNER - EAST 9TH ST. CURB
N.T.S.



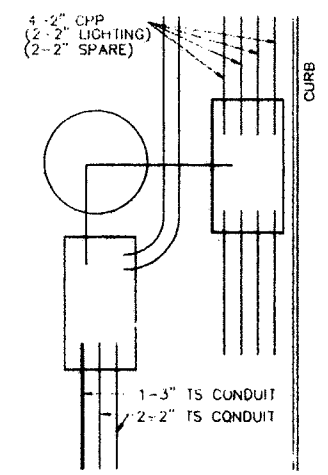
4 BOLIVAR ROAD/EAST 9TH STREET
SE CORNER - EAST 9TH ST. CURB
N.T.S.



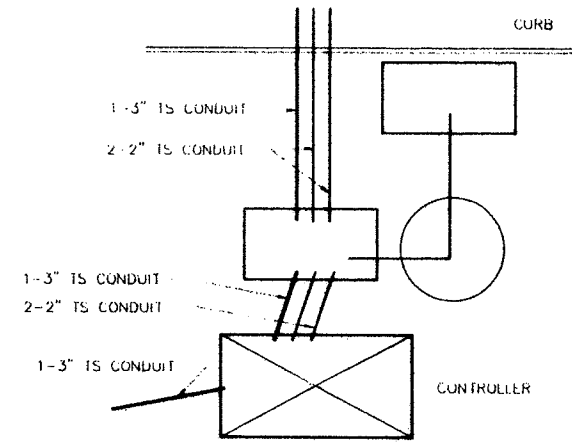
1 CARNEGIE AVE/EAST 9 TH STREET
NE CORNER-CARNEGIE AVE CURB
N.T.S.



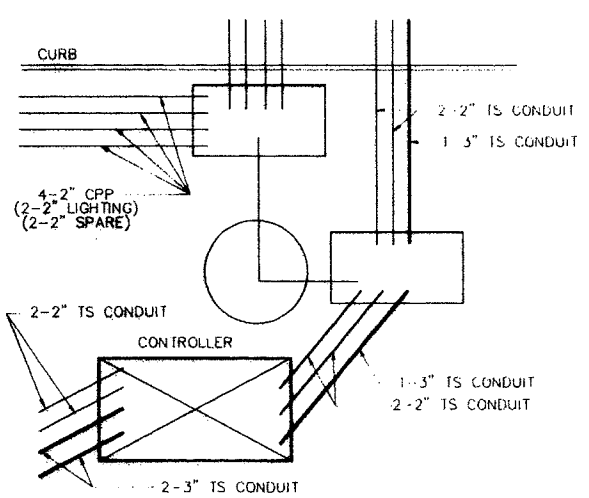
8 BOLIVAR ROAD/EAST 9TH STREET
NE CORNER - BOLIVAR RD. CURB
N.T.S.



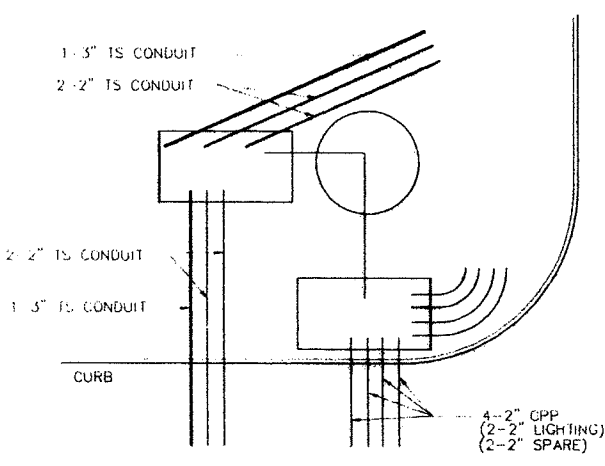
5 BOLIVAR ROAD/EAST 9TH STREET
NW CORNER - EAST 9TH ST. CURB
N.T.S.



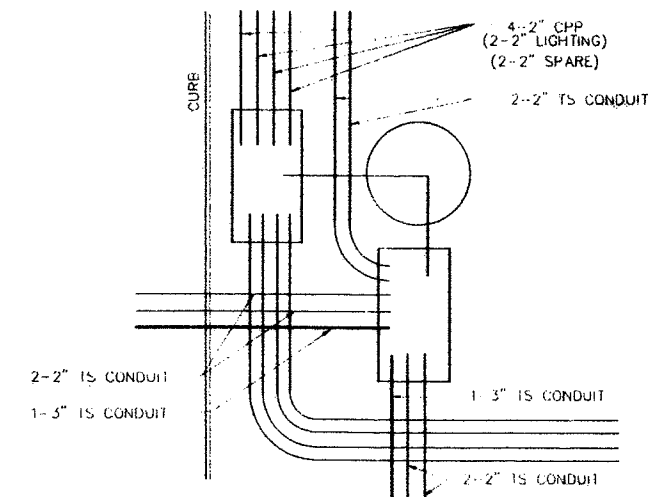
2 CARNEGIE AVE/EAST 9 TH STREET
SE CORNER-CARNEGIE AVE CURB
N.T.S.



9 BOLIVAR ROAD/EAST 9TH STREET
SE CORNER - BOLIVAR RD. CURB
N.T.S.



6 BOLIVAR ROAD/EAST 9TH STREET
NW CORNER - BOLIVAR RD. CURB
N.T.S.



3 CARNEGIE AVE/EAST 9 TH STREET
NE CORNER - EAST 9TH ST. CURB
N.T.S.

DRAWING NAME: 06-407
CREATED BY:
LAST REV. DATE: 6/16/93
SCALE: AS NOTED

Sasaki Associates, Inc.

CITY - EAST 9TH STREET

STREETSCAPE GENERAL NOTES

GENERAL

SCOPE OF WORK

THE SCOPE OF WORK FOR THE STREETSCAPE LIMITS OF THIS PROJECT IS THE REMOVAL AND RECONSTRUCTION OF EAST 9TH STREET FROM CARNEGIE AVENUE TO PROSPECT AVENUE, INCLUDING THE EAST 9TH STREET - PROSPECT AVENUE - HURON ROAD INTERSECTION. THE WORK ITEMS SHALL INCLUDE INSTALLATION OF SIDEWALKS, INSTALLATION OF TREES WITH FRAMES, GRATES, AND FOUNDATIONS, MAINTAINING TRAFFIC AND OTHER RELATED ITEMS AS SHOWN ON THE PLANS. WORK IS SHOWN ON CONTRACT DRAWINGS TITLED EAST 9TH STREET IMPROVEMENTS - CARNEGIE AVENUE TO PROSPECT AVENUE, PAGES 64 THROUGH 72.

CONSTRUCTION AND MATERIAL SPECIFICATIONS

THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, CONSTRUCTION AND MATERIAL SPECIFICATIONS DATED JANUARY 1, 1993, AS MAY BE MODIFIED ON THE CONSTRUCTION PLANS OR IN THESE SPECIFICATIONS SHALL GOVERN THIS PROJECT. ALL OF THESE MODIFICATIONS ARE IN THESE SPECIFICATIONS OR ARE SHOWN ON THE PLANS.

CONTINGENCY QUANTITIES

THE CONTRACTOR SHALL NOT ORDER MATERIALS OR PERFORM WORK LISTED IN THE GENERAL SUMMARY FOR ITEMS DESIGNATED BY PLAN NOTE TO BE USED "AS DIRECTED BY THE ENGINEER" UNLESS AUTHORIZED BY THE ENGINEER. THE ACTUAL WORK LOCATIONS AND QUANTITIES USED AT THE ENGINEER'S DISCRETION.

ELEVATION DATUM

ELEVATIONS SHOWN ARE BASED ON CLEVELAND REGIONAL AND GEODETIC SURVEY DATA. MONUMENTS ARE DESCRIBED ON THE PLANS.

UNDERGROUND UTILITIES

THE LOCATIONS OF THE UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE AS OBTAINED FROM THE OWNERS OF THE UTILITIES AS REQUIRED BY SECTION 153.64 ORC.

UTILITIES

THE FOLLOWING LIST OF UTILITIES AND OWNERS ARE LOCATED WITHIN THE WORK LIMITS OF THIS PROJECT.

CLEVELAND ELECTRIC ILLUMINATING CO. ILLUMINATING BUILDING 55 PUBLIC SQUARE CLEVELAND, OH 44101 ATTN: JAMES J. JOCKE PHONE: (216) 479-3452	CLEVELAND PUBLIC POWER 1201 LAKESIDE AVENUE CLEVELAND, OH 44114 ATTN: DALE TURKOVICH PHONE: (216) 684-3922
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OHIO BELL TELEPHONE COMPANY 1020 BOLIVAR ROAD, ROOM 332 CLEVELAND, OH 44115 ATTN: JERRY ROGERS PHONE: (216) 822-8713	WESTERN UNION ATS, INC. 2400 N. GLENVILLE DRIVE RICHARDSON, TX 75082 PHONE: (214) 918-6750
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REGIONAL TRANSIT AUTHORITY ENGINEERING & CONSTRUCTION DIV. 815 SUPERIOR AVENUE, NW CLEVELAND, OH 44113-1877 PHONE: (216) 566-5100	CLEVELAND WATER DEPT. 1201 LAKESIDE AVENUE CLEVELAND, OH 44114 ATTN: DON L. TREBAR PHONE: (216) 684-2444
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THE EAST OHIO GAS COMPANY 1201 EAST 55TH STREET CLEVELAND, OH 44101-0759 ATTN: MAMIE REED PHONE: (216) 432-3232	CLEVELAND ENERGY RESOURCES, INC. 1801 EAST 12TH STREET CLEVELAND, OH 44114 ATTN: PAUL WHITAKER PHONE: (216) 241-3636
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AMERICAN TELEPHONE & TELEGRAPH 3833 WEYMOUTH ROAD SUITE 100 MEDINA, OH 44256 ATTN: TOM SUMMERFIELD PHONE: (216) 723-9110	WITTEL BUSINESS NETWORKS 1468 WEST 9TH STREET CLEVELAND, OH 44113 ATTN: AL GUEST PHONE: (216) 579-1010
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CLEVELAND WATER POLLUTION CONTROL 1825 LAKESIDE AVENUE CLEVELAND, OH 44114 ATTN: FRANCIS TOLDY PHONE: (216) 644-2513	NORTHCOAST CABLE 3300 LAKESIDE AVENUE CLEVELAND, OH 44114 ATTN: BILL BISHOP PHONE: (216) 575-8016
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CITY OF CLEVELAND SAFETY SIGNAL SYSTEM 310 CARNEGIE AVENUE CLEVELAND, OH 44115 ATTN: LEROY L. BEGIN, CHIEF PHONE: (216) 664-3247	NORTHEAST OHIO REGIONAL SEWER DIST. 3826 EUCLID AVENUE CLEVELAND, OH 44115 ATTN: LEE CAGE PHONE: (216) 641-6000
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NOTE:

THE CONTRACTOR MUST NOTIFY THE OHIO UTILITIES PROTECTION SERVICE (O.U.P.S.) 1-800-362-2764 AT LEAST SEVENTY-TWO (72) HOURS BEFORE WORK BEGINS. CONTRACTOR WILL HAVE TO FURNISH TO THE ENGINEER THE REFERENCE NUMBER.

REPLACEMENT

THE CONTRACTOR SHALL REPLACE, AT HIS OWN EXPENSE, ANY ITEM NOT SPECIFICALLY LISTED FOR REMOVAL THAT IS DAMAGED OR DESTROYED BY HIS OPERATIONS.

STREETSCAPE

ITEM 516 - EXPANSION JOINTS

SECTION 516 OF THE SPECIFICATIONS IS MODIFIED FOR THIS PROJECT AS FOLLOWS:

EXPANSION JOINTS SHALL CONSIST OF 1/2" WIDE, PREFORMED, NON-BITUMINOUS TYPE JOINT FILLER CONFORMING TO ASTM D 1752, TYPE 2.

PREMOLDED FILLER SHALL BE ONE PIECE FOR THE FULL DEPTH AND WIDTH OF THE JOINT LEAVING A SEALANT RECESS AS INDICATED. USE OF MULTIPLE PIECES OF LESSER DIMENSIONS TO MAKE UP REQUIRED DEPTH AND WIDTH OF JOINT WILL NOT BE PERMITTED.

JOINTS SHALL RECEIVE JOINT BACKER ROD AND SHALL BE SEALED WITH JOINT SEALANT. PROVIDE TWO OR MORE PART, SELF-LEVELING, POLYURETHANE BASED ELASTOMERIC SEALANT, COMPLYING WITH ASTM C 920, FED. SPEC. TT-S-00227E TYPE 1 CLASS A, HAVING A SHORE HARDNESS OF NOT LESS THAN 30 WHEN TESTED IN ACCORDANCE WITH ASTM C 920, CURED MODULUS OF ELASTICITY AT 100% ELONGATION OF NOT MORE THAN 150 PSI WHEN TESTED IN ACCORDANCE WITH ASTM D 412, AND TEAR RESISTANCE OF NOT LESS THAN 50 LBS./INCH WHEN TESTED IN ACCORDANCE WITH ASTM D 624. COLOR OF SEALANT SHALL MATCH THE COLOR OF THE CONCRETE WALK PAVEMENT. COLOR SHALL BE APPROVED BY THE ENGINEER.

EXPANSION JOINTS SHALL BE CONSTRUCTED AT INTERVALS OF NOT MORE THAN 25 FEET UNLESS OTHERWISE DIRECTED BY THE ENGINEER. THEY SHALL BE PLACED AT THE GROOVED DIVISION LINES AND SHALL BE TRULY NORMAL TO THE GRADE. THE COST OF THE MATERIAL AND LABOR ASSOCIATED WITH THIS WORK IS INCLUDED IN THE CONTRACT UNIT PRICE BID ITEM 516 - EXPANSION JOINTS.

ITEM 608 - 6" OR 8" CONCRETE WALK

ALL CONCRETE WALK SHALL BE A MINIMUM OF 6" OR 8" THICK AND SHALL HAVE A 2" (COMPACTED) SCREENINGS BED WHICH MEETS THE REQUIREMENTS OF 703.10. EXCEPT THAT THE MINIMUM TOTAL PERCENT PASSING THE NO. 100 SIEVE SHALL BE FIVE (5) PERCENT, WHERE THE WALK CROSSES A DRIVEWAY, THE THICKNESS SHALL BE INCREASED FROM SIX (6) INCHES TO EIGHT (8) INCHES. THE COST FOR FURNISHINGS AND PLACING THE 2" COMPACTED SCREENINGS BED SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR ITEM 608 - 6" OR 8" CONCRETE WALK.

ITEM SPECIAL - HANDICAP RAMP, AS PER PLAN

WHEN THIS ITEM IS CALLED FOR ON THE PLANS OR IN THE PROPOSAL, ALL APPLICABLE PROVISIONS OF ITEM 608, AS SET FORTH IN THE CONSTRUCTION AND MATERIAL SPECIFICATIONS, SHALL APPLY EXCEPT AS MODIFIED HEREIN AND AS OTHERWISE DETAILED OR SPECIFIED ON CONSTRUCTION DRAWINGS.

IMPRINTING TOOL FOR CONSTRUCTING DETECTABLE WARNING SURFACES AT HANDICAP RAMP LOCATIONS SHALL BE MANUFACTURED AND SUPPLIED BY THE BOMANITE CORPORATION, 81 ENCINA AVENUE, PALO ALTO, CA 94301; TEL. 800-854-2094; STAMPCRETE, 17 BLACKWOOD DRIVE, LEVERPOOL, NY 13090; TEL. 800-233-3298, OR APPROVED EQUAL.

PATTERN SHALL CONSIST OF RAISED TRUNCATED DOMES OF HEIGHT AND DIAMETER AS SPECIFIED IN ADA GUIDELINE 4.29.2.

COLOR ADMIXTURE SHALL BE SUITABLE FOR FLATWORK CONCRETE AND SHALL MEET OR EXCEED THE REQUIREMENTS SET BY PORTLAND CEMENT ASSOCIATION (PCA) AND ASTM C 494.

COLOR ADMIXTURE SHALL BE OF A TYPE AND QUALITY WHICH WILL NOT ADVERSELY AFFECT WORKABILITY, SETTING, OR STRENGTH OF CONCRETE. COLOR PIGMENTS SHALL CONSIST OF CHEMICALLY INERT, NON-FADING, ALKALI-FAST MINERAL OXIDES, FINELY GROUND AND SPECIALLY PREPARED FOR USE IN BOTH CEMENT AND MORTAR. ADMIXTURE SHALL NOT CONTAIN CALCIUM CHLORIDE.

COLOR ADMIXTURE SHALL BE CHROMIX ADMIXTURE, MANUFACTURED BY L.M. SCOFIELD COMPANY, LOS ANGELES, CA 90040, OR APPROVED EQUAL.

COLOR FOR CONCRETE SHALL HAVE VISUAL CONTRAST WITH SURROUNDING PAVING IN ACCORDANCE WITH ADA GUIDELINE A4.29.2 "DETECTABLE WARNINGS ON WALKING SURFACES".

MIX DESIGN SHALL CONFORM TO MANUFACTURER'S RECOMMENDATIONS, AND DIRECTIONS OF THE ENGINEER TO ACHIEVE PROPOSED COLOR. STRICTLY MONITOR ADDITIVE/CEMENT RATIO THROUGHOUT JOB TO ENSURE UNIFORM COLOR.

CONCRETE COLORED WITH COLOR ADMIXTURE SHALL BE CURED WITH "LITHOCROME" COLORWAX IN THE MATCHING COLOR, DEPENDING ON APPEARANCE, AND DEGREE OF MAINTENANCE DESIRED. PRODUCT OF EQUAL QUALITY AND PERFORMANCE SHALL BE SUBJECT TO APPROVAL.

PAVING MIX, EQUIPMENT, METHODS OF MIXING AND PLACING, AND PRECAUTIONS TO BE OBSERVED AS TO WEATHER, CONDITION OF BASE ETC. SHALL MEET THE REQUIREMENTS OF ACI 316 FOR ANY CONCRETE PAVING IN SIMILAR CONDITIONS. HANDICAP RAMPS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE DRAWINGS, AND ADA GUIDELINES 4.7.10, AND 4.29.2.

THE ENGINEER SHALL BE NOTIFIED OF IMPRINTED CONCRETE PLACEMENT SUFFICIENTLY IN ADVANCE OF START OF OPERATION TO ALLOW HIS REPRESENTATIVE TO COMPLETE PRELIMINARY INSPECTION OF THE WORK, INCLUDING SUBGRADE, FORMS, AND REINFORCING STEEL, IF USED.

NORMAL CONCRETE PLACEMENT PROCEDURES SHALL BE FOLLOWED. CONCRETE SHALL ARRIVE AT THE JOBSITE SO THAT NO ADDITIONAL WATER WILL BE REQUIRED TO PRODUCE THE DESIRED SLUMP. WHEN CONDITIONS DEVELOP THAT REQUIRED ADDITION OF WATER TO PRODUCE THE DESIRED SLUMP, PERMISSION OF THE ENGINEER MUST BE OBTAINED. THE CONCRETE SHALL BE TRANSPORTED FROM THE MIXER TO ITS PLACE OF DEPOSIT BY A METHOD THAT WILL PREVENT SEGREGATION OR LOSS OF MATERIAL.

STAMPING PROCEDURES, APPLICATION OF COLOR CURING COMPOUND, AND FINISHING PROCEDURES SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND ADA GUIDELINES FOR DIAGONAL CURB RAMPS, AND DETECTABLE WARNINGS ON WALKING SURFACES.

MAINTENANCE OF TRAFFIC

FOR MAINTENANCE OF TRAFFIC NOTES AND DETAILS SEE SHEET NO'S. 42 THROUGH 56.

ITEM 658 - TREE ROOT AERATION

WHEN THIS ITEM IS CALLED FOR ON THE PLANS OR IN THE PROPOSAL, ALL APPLICABLE PROVISIONS OF ITEM 658, AS SET FORTH IN THE CONSTRUCTION AND MATERIAL SPECIFICATIONS, SHALL APPLY EXCEPT AS MODIFIED HEREIN AND AS OTHERWISE DETAILED OR SPECIFIED ON CONSTRUCTION DRAWINGS.

AERATION PIPE SHALL BE PVC PIPE MEETING THE REQUIREMENTS OF ASTM D 2729, OF THE SIZE AND LENGTH INDICATED ON THE DRAWINGS. FILL PIPE WITH #57 WASHED STONE. BRING TOP OF PIPE TO BOTTOM OF TREE GRATE.

ITEM 658 TREE ROOT AERATION

EACH

STREETSCAPE GENERAL NOTES

ITEM 663 - PLANTING TREES

WHEN THIS ITEM IS CALLED FOR ON THE PLANS OR IN THE PROPOSAL, ALL APPLICABLE PROVISIONS OF ITEM 663, AS SET FORTH IN THE CONSTRUCTION AND MATERIAL SPECIFICATIONS, SHALL APPLY EXCEPT AS MODIFIED HEREIN AND AS OTHERWISE DETAILED OR SPECIFIED ON CONSTRUCTION DRAWINGS.

SOIL MIXTURE SHALL BE A MIX OF 2/3 TOPSOIL AND 1/3 PEAT MOSS BY VOLUME. PLANTING SOIL SHALL HAVE PH VALUE RANGE OF 5.5 TO 7.0. IF PLANTING SOIL MIXTURE DOES NOT FALL WITHIN THE REQUIRED PH RANGE, LIMESTONE OR ALUMINUM SULFATE SHALL BE ADDED TO BRING THE PH WITHIN THE SPECIFIED LIMIT.

TOPSOIL SHALL BE A SANDY LOAM AS DEFINED BY THE USDA SOIL CONSERVATION SERVICE, SOIL CLASSIFICATION SYSTEM, AND SHALL HAVE THE FOLLOWING MECHANICAL ANALYSIS:

TEXTURAL CLASS	% OF TOTAL WEIGHT	AVERAGE %
SAND (0.05-2.0 MM DIA. RANGE)	45 TO 75	60
SILT (0.002-0.05 MM DIA. RANGE)	15 TO 35	25
CLAY (LESS THAN 0.002 MM DIA. RANGE)	5 TO 25	15

1. 95% OF TOPSOIL SHALL PASS A 2.0 MM SIEVE.

2. TOPSOIL SHALL BE FREE OF STONES 1 IN. IN LONGEST DIMENSION, EARTH CLODS, PLANT PARTS, AND DEBRIS.

3. ORGANIC MATTER CONTENT SHALL BE 4 TO 12% OF TOTAL DRY WEIGHT.

PEAT MOSS SHALL BE A HORTICULTURAL GRADE, SPHAGNUM PEAT MOSS CONTAINING PARTIALLY DECOMPOSED FIBROUS OR CELLULAR STEMS AND LEAVES OF ANY OF THE MANY SPECIES OF SPHAGNUM MOSSES FROM FRESH WATER SOURCES CONFORMING TO THE FOLLOWING REQUIREMENTS:

1. PEAT MOSS SHALL BE A HOMOGENEOUS MATERIAL FREE OF DECOMPOSED COLLOIDAL RESIDUE LUMPS, ROOTS, STONES AND OTHER FOREIGN MATTER, AND OF SUCH CONSISTENCY THAT PEAT CAN PASS A 1/2 IN. MESH AND CAN BE READILY INCORPORATED WITH THE TOPSOIL.

2. THE PH SHALL NOT BE LESS THAN 3.5 NOR GREATER THAN 6.0 AT 250 C.

3. ORGANIC MATTER CONTENT SHALL BE NOT LESS THAN 90%, BY WEIGHT, ON AN OVEN-DRY BASIS.

4. ASH CONTENT SHALL NOT BE MORE THAN 10%, BY WEIGHT, ON AN OVEN-DRY BASIS.

5. MOISTURE ABSORPTION CAPACITY SHALL NOT BE LESS THAN 800%, BY WEIGHT, ON AN OVEN-DRY BASIS.

EXPANDED SHALE FOR MULCH AT TREE GRATES SHALL BE LIGHTWEIGHT AGGREGATE SIZE 3/8 IN. - 0, EQUAL TO "SOLITE", MANUFACTURED BY NORTHEAST SOLITE CORPORATION, MOUNT MARION, NY 12458; "HAYDITE", MANUFACTURED BY HYDRAULIC PRESS BRICK COMPANY, CLEVELAND, OH, OR APPROVED EQUAL.

COORDINATE INSTALLATION OF AERATION PIPE WITHIN TREE PIT AS INDICATED ON THE DRAWINGS. PAYMENT FOR AERATION PIPE SHALL BE INCLUDED UNDER ITEM 658 TREE ROOT AERATION.

ITEM 663 PLANTING TREES EACH

ITEM SPECIAL - TREE GRATES (NEW)

WHEN THIS ITEM IS CALLED FOR ON THE PLANS OR IN THE PROPOSAL, ALL APPLICABLE PROVISIONS SHALL APPLY EXCEPT AS DETAILED OR SPECIFIED ON CONSTRUCTION DRAWINGS.

CAST IRON SHALL BE ASTM A 48, CLASS 35 OR BETTER.

CASTINGS SHALL BE MANUFACTURED TRUE TO PATTERN WITH COMPONENT PARTS FITTED TOGETHER IN A SATISFACTORY MANNER. CASTINGS SHALL BE UNIFORM QUALITY FREE FROM BLOWHOLES, POROSITY, HARD SPOTS, SHRINKAGE DISTORTION, OR OTHER DEFECTS. CASTINGS SHALL BE SMOOTH AND CLEANED BY SHOT BLASTING.

TREE FRAME AND GRATE SHALL BE MODEL #6008 WITH VANDAL-PROOF GRATE, MANUFACTURED BY IRONSMITH, INC.; LOCAL DISTRIBUTOR DAVIS & ASSOCIATES, CLEVELAND, OH 44116; TEL. 216-888-9877, OR APPROVED EQUAL.

FRAME INSTALLATION: FRAME SECTIONS SHALL BE BOLTED TOGETHER AND CAST INTO THE ADJACENT CONCRETE TREE PIT FOUNDATION AT REQUIRED LOCATION AND ELEVATION. FRAME SHALL BE SET LEVEL PROVIDING A TRUE, FLAT PLANE FOR SEATING OF THE GRATE. PLACE TEMPLATE OR WHEN PERMITTED BY THE ENGINEER TREE GRATE MAY BE USED) IN GRATE FRAME PRIOR TO PLACING CONCRETE. AFTER CONCRETE PLACEMENT CLEAN FRAME TO PROVIDE A CLEAN SEAT FOR SETTING OF GRATE.

GRATE INSTALLATION: GRATES SHALL BE CLEANED OF FOREIGN MATTER PRIOR TO SETTING. GRATES SHALL BE SET IN FLUSH WITH THE TOP OF THE FRAME. WHERE GRATE IS FURNISHED IN HALVES OR QUARTERS, BOLT SECTIONS TOGETHER ON THE UNDERSIDE.

SECURITY BOLTING: TREE GRATES SHALL BE SECURELY BOLTED TO FRAME TO PROVIDE A VANDAL RESISTANT INSTALLATION. BOLTS SHALL BE TAMPERPROOF TYPE SUITABLE FOR FLUSH FASTENING.

THE ITEM SPECIAL - TREE GRATES (NEW) SHALL BE PAID FOR AT THE PRICE BID FOR EACH TREE GRATE FURNISHED AND INSTALLED COMPLETE, INCLUDING FRAME AND CONCRETE TREE PIT FOUNDATION.

ITEM SPECIAL - TREE GRATES (RESET)

WHEN THIS ITEM IS CALLED FOR ON THE PLANS OR IN THE PROPOSAL, ALL APPLICABLE PROVISIONS SHALL APPLY EXCEPT AS DETAILED OR SPECIFIED ON CONSTRUCTION DRAWINGS.

TREE GRATES SHALL BE SALVAGED TREE GRATES, REMOVED AND SALVAGED UNDER WORK OF "ROADWAY GENERAL NOTES", ITEM 202, REMOVE AND SALVAGE TREE GRATES. TREE GRATES SHALL BE RESET TO THE EXTENT AVAILABLE.

CASTING SHALL BE CLEANED, TO MATCH NEW TREE GRATES SPECIFIED ABOVE. CASTINGS SHALL BE SMOOTH AND CLEANED BY SHOT BLASTING. FINISH SHALL CONFORM TO NEW TREE GRATE MANUFACTURE'S RECOMMENDATION. COLOR SHALL MATCH NEW TREE GRATES.

PROVIDE NEW FRAMES: TREE GRATE FRAME SHALL BE MODEL #6006 WITH VANDAL-PROOF GRATE, MANUFACTURED BY IRONSMITH, INC.; LOCAL DISTRIBUTOR DAVIS & ASSOCIATES, CLEVELAND, OH 44116; TEL. 216-888-9877, OR APPROVED EQUAL.

FRAME INSTALLATION: FRAME SECTIONS SHALL BE BOLTED TOGETHER AND CAST INTO THE ADJACENT CONCRETE TREE PIT FOUNDATION AT REQUIRED LOCATION AND ELEVATION. FRAME SHALL BE SET LEVEL PROVIDING A TRUE, FLAT PLANE FOR SEATING OF THE GRATE. PLACE TEMPLATE OR WHEN PERMITTED BY THE ENGINEER TREE GRATE MAY BE USED) IN GRATE FRAME PRIOR TO PLACING CONCRETE. AFTER CONCRETE PLACEMENT CLEAN FRAME TO PROVIDE A CLEAN SEAT FOR SETTING OF GRATE.

GRATE INSTALLATION: GRATES SHALL BE CLEANED OF FOREIGN MATTER PRIOR TO SETTING. GRATES SHALL BE SET IN FLUSH WITH THE TOP OF THE FRAME. WHERE GRATE IS FURNISHED IN HALVES OR QUARTERS, BOLT SECTIONS TOGETHER ON THE UNDERSIDE.

SECURITY BOLTING: TREE GRATES SHALL BE SECURELY BOLTED TO FRAME TO PROVIDE A VANDAL RESISTANT INSTALLATION. BOLTS SHALL BE TAMPERPROOF TYPE SUITABLE FOR FLUSH FASTENING.

THE ITEM SPECIAL - TREE GRATES (RESET) SHALL BE PAID FOR AT THE PRICE BID FOR EACH TREE GRATE FURNISHED AND INSTALLED COMPLETE, INCLUDING NEW FRAME AND CONCRETE TREE PIT FOUNDATION.

ITEM SPECIAL - TRASH RECEPTACLES

WHEN THIS ITEM IS CALLED FOR ON THE PLANS OR IN THE PROPOSAL, ALL APPLICABLE PROVISIONS SHALL APPLY EXCEPT AS DETAILED OR SPECIFIED ON CONSTRUCTION DRAWINGS.

TRASH RECEPTACLE SHALL BE MODEL #T-01, WITH LIGHT SAND BLAST FINISH, MANUFACTURED BY POMPLI PRECAST CONCRETE, GARFIELD HEIGHTS, OH 44125 216-581-8080, OR APPROVED EQUAL.

TRASH RECEPTACLE SHALL BE A FABRICATED PRECAST CONCRETE TRASH RECEPTACLE CAPABLE OF HOLDING A 30 GALLON ALUMINUM CAN AS INDICATED ON THE DRAWINGS. TRASH RECEPTACLES SHALL BE MANUFACTURED BY DUMOR, INC.; QUICK CRETE PRODUCTS CORP.; DURA ART STONE; OR APPROVED EQUAL.

1. FABRICATE UNITS STRAIGHT, SMOOTH, AND TRUE TO SIZE AND SHAPE, WITH EXPOSED EDGES AND CORNERS PRECISE AND SQUARE UNLESS OTHERWISE INDICATED.

2. BUILT-IN ITEMS: PROVIDE ACCESSORIES IN UNITS TO RECEIVE NECESSARY CAST IN EMBEDS AND ANCHORS.

3. ANCHORAGES: PROVIDE STEEL ITEMS NECESSARY FOR FABRICATING PRECAST TRASH RECEPTACLES AS INDICATED ON THE DRAWINGS.

SUBMIT PROPOSED CONCRETE MIX PROPORTIONS TO ENGINEER FOR APPROVAL PRIOR TO FABRICATION. SHOW BATCH WEIGHTS, GRADATIONS, SPECIFIC GRAVITY, ABSORPTION OF AGGREGATES, SLUMP, FRESH UNIT WEIGHT AND AIR CONTENT. VERIFY MIX DESIGN AND PROVIDE FOUR COMPRESSION TESTS, TWO AT 7-DAYS, AND TWO AT 28 DAYS, ON 6 IN. DIAMETER X 12 IN. HIGH CYLINDERS FILLED WITH PROPOSED MIX MATERIALS IN PROPOSED PROPORTIONS.

1. COLOR SHALL BE AS SELECTED BY ENGINEER FROM APPROVED SAMPLES.

PROPORTION MIXES BY EITHER LABORATORY TRIAL BATCH OR FIELD EXPERIENCE METHODS, USING MATERIALS TO BE EMPLOYED ON THE PROJECT FOR EACH TYPE OF CONCRETE REQUIRED, COMPLYING WITH ACI 318.

CONCRETE MIX: STANDARD WEIGHT CONCRETE CONSISTING OF SPECIFIED PORTLAND CEMENT, AGGREGATES, ADMIXTURES, AND WATER TO PRODUCE THE FOLLOWING PROPERTIES:

1. COMPRESSIVE STRENGTH: 5,000 PSI MINIMUM AT 28 DAYS.

2. TOTAL AIR CONTENT: NOT LESS THAN 4% NOR MORE THAN 6%.

3. SLUMP: 3 IN. MINIMUM, 5 IN. MAXIMUM.

SUBMIT WRITTEN REPORTS TO ENGINEER OF PROPOSED MIX FOR EACH TYPE OF CONCRETE AT LEAST 15 DAYS PRIOR TO START OF PRECAST UNIT PRODUCTION. DO NOT BEGIN CONCRETE PRODUCTION UNTIL MIXES AND EVALUATIONS HAVE BEEN REVIEWED BY ENGINEER.

ADJUSTMENT TO CONCRETE MIXES: MIX DESIGN ADJUSTMENTS MAY BE REQUESTED WHEN CHARACTERISTICS OF MATERIALS, JOB CONDITIONS, WEATHER, TEST RESULT, OR OTHER CIRCUMSTANCES WARRANT. LABORATORY TEST DATA FOR REVISED MIX DESIGNS AND STRENGTH RESULTS MUST BE SUBMITTED TO AND ACCEPTED BY ENGINEER BEFORE USING IN THE WORK.

ADMIXTURES: USE ADMIXTURES IN STRICT COMPLIANCE WITH MANUFACTURER'S INSTRUCTIONS. ADJUST ADMIXTURE QUANTITIES AS REQUIRED TO MAINTAIN QUALITY CONTROL.

UNITS SHALL MEET SPECIFICATIONS NO STRUCTURAL DEFICIENCIES, CRACKS, LOOSE INSERTS OR ANCHORS, EXPOSED STEEL, STEEL WITH LESS THAN 1 IN. MINIMUM COVER, OR OTHER DEFECTS SHALL BE PERMITTED.

APPEARANCE ACCEPTANCE CRITERIA: WHEN VIEWED AT A DISTANCE OF 10 FT. IN NATURAL DAYLIGHT, EXPOSED SURFACES SHALL BE UNIFORM IN COLOR, TEXTURE, AND FINISH SHALL BE WITHIN THE RANGE OF APPROVED MOCK-UP SAMPLES WHEN COMPARED SIDE BY SIDE. EDGES SHALL BE WELL DEFINED AND TRUE TO LINE.

TRASH RECEPTACLE SHALL BE LOCATED AS INDICATED ON THE DRAWINGS. EACH RECEPTACLE SHALL BE FASTENED TO THE BASE WITH ONE BOLT, OR AS INDICATED ON THE DRAWINGS.

TRASH RECEPTACLE SHALL BE POSITIONED IN THE REQUIRED LOCATION AND FIRMLY SECURED TO THE BASE.

THE ITEM SPECIAL - TRASH RECEPTACLE SHALL BE PAID FOR AT THE PRICE BID FOR EACH TRASH RECEPTACLE FURNISHED AND INSTALLED COMPLETE.

STREETSCAPE GENERAL SUMMARY

CALC.	CUY-EAST 9TH STREET	OHIO
DATE	CUYAHOGA COUNTY	F.H.W.A. 5
CHKD.		REGION
DATE		

66

ITEM		NOTES		S H E E T N U M B E R S												ITEM	ITEM EXT.	GRAND TOTAL	UNIT	FOR AS PER PLAN ITEMS OR ITEM SPECIAL SEE SHEET NUMBERS			
				D E S C R I P T I O N																			
																			S T R E E T S C A P E				
203																330	554	939	404	203	2227	SQ.YD.	SUBGRADE COMPACTION
310																20	30	54	22	310	126	CU.YD.	AGGREGATE BASE
511.05																0	10	83	22	511.05	115	SQ.FT.	8" CONCRETE WALK
516																848	1802	2551	1260	516	6461	LN.FT.	EXPANSION JOINT
608																289	517	764	349	608	1919	SQ.FT.	6" CONCRETE WALK
SPECIAL																2	4	5	0	SPECIAL	11	EACH	HANDICAP RAMP
SPECIAL																1	5	8	3	SPECIAL	14	EACH	PRECAST CONCRETE TRASH RECEPTACLE
SPECIAL																10	15	5	12	SPECIAL	42	EACH	TREE GRATES, NEW, COMPLETE
SPECIAL																0	0	21	0	SPECIAL	21	EACH	TREE GRATES, RESET, COMPLETE
658																10	15	26	12	658	63	EACH	TREE ROOT AERATION
663																10	15	26	12	663	63	EACH	GT, 3-3 1/2" CAL. Gleditsia triacanthos var. inermis HALKA, THORNLESS HALKA HONEYLOCUST, TREE
663																10	15	26	12	663	63	CY	PLANTING SOIL

DRAWING NAME: SSGS
 CREATED BY: DRB
 LAST REV. DATE: 5/16/83

Sasaki Associates, Inc.

CUY - EAST 9TH STREET

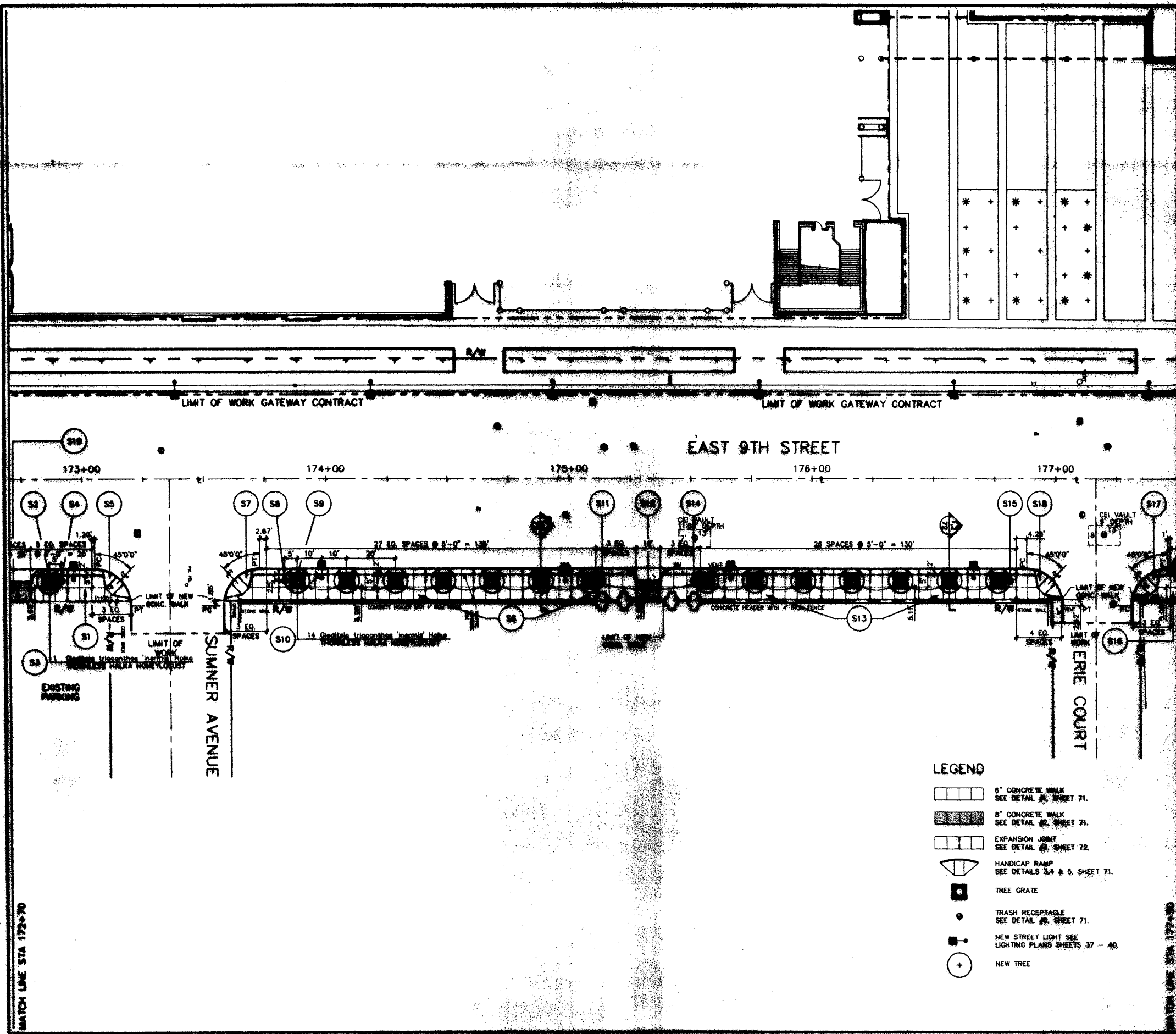
FOR INFORMATION ONLY

STREETSCAPE GENERAL SUMMARY

DRAWING NAME: LNK-9TH
 CREATED BY: DRB
 LAST REV. DATE: 6/16/83

Sasold Associates, Inc.

MATCH LINE STA 172+70



LEGEND

- 6" CONCRETE WALK
SEE DETAIL #1, SHEET 71.
- 8" CONCRETE WALK
SEE DETAIL #2, SHEET 71.
- EXPANSION JOINT
SEE DETAIL #3, SHEET 72.
- HANDICAP RAMP
SEE DETAILS 3, 4 & 5, SHEET 71.
- TREE GRATE
- TRASH RECEPTACLE
SEE DETAIL #4, SHEET 71.
- NEW STREET LIGHT
SEE LIGHTING PLANS SHEETS 37 - 40.
- NEW TREE

ESTIMATED QUANTITIES

REF. NO.	STATION TO STATION	QUANTITY	UNIT	DESCRIPTION	EST. QUANTITY	UNIT	DESCRIPTION
S1	172+70 TO 173+20	RT	1	NEW TREE			
S2	172+87	RT	1	NEW TREE			
S3	172+87	RT	1	NEW TREE			
S4	172+92	RT	1	NEW TREE			
S5	173+14	RT	1	NEW TREE			
S6	173+59 TO 175+27	RT	252	NEW TREE			
S7	173+53	RT	1	NEW TREE			
S8	173+83	RT	1	NEW TREE			
S9	173+88 TO 177+76	RT	10	NEW TREE			
S10	175+27 TO 177+37	RT	227	NEW TREE			
S11	175+27 TO 177+40	RT	25	NEW TREE			
S12	175+27 TO 177+40	RT	25	NEW TREE			
S13	175+27 TO 177+40	RT	25	NEW TREE			
S14	175+27 TO 177+40	RT	25	NEW TREE			
S15	175+27 TO 177+40	RT	25	NEW TREE			
S16	175+27 TO 177+40	RT	25	NEW TREE			
S17	175+27 TO 177+40	RT	25	NEW TREE			
S18	175+27 TO 177+40	RT	25	NEW TREE			
S19	175+27 TO 177+40	RT	25	NEW TREE			
S20	175+27 TO 177+40	RT	25	NEW TREE			
TOTALS							

STREETSCAPE PLAN STA 172+70 TO STA 177+50

CALC. DATE: CUY-EAST 9TH STREET
 CHKD. DATE: CUYAHOGA COUNTY
 DATE: OHIO REGION 8

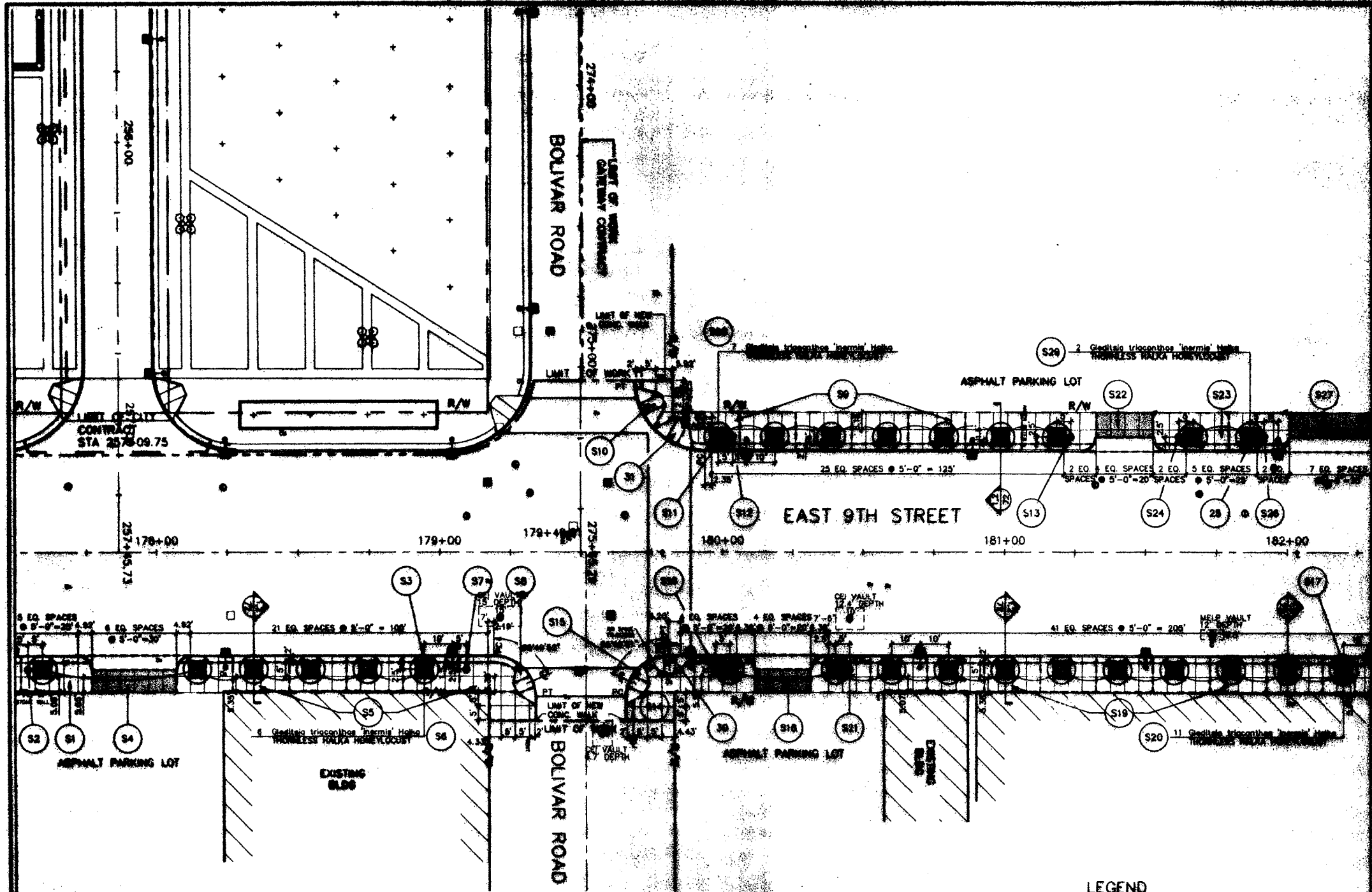
68

CUY - EAST 9TH STREET

DRAWING NAME: LHM-9TH
 CREATED BY: DMB
 LAST REV. DATE: 6/16/83

Sasaki Associates, Inc.

MATCH LINE STA 177+00



LEGEND

- 6" CONCRETE WALK
SEE DETAIL #1, SHEET 71.
- 8" CONCRETE WALK
SEE DETAIL #2, SHEET 71.
- EXPANSION JOINT
SEE DETAIL #3, SHEET 72.
- HANDICAP RAMP
SEE DETAILS #4 & 5, SHEET 71.
- TREE GRATE
- TRASH RECEPTACLE
SEE DETAIL #6, SHEET 71.
- NEW STREET LIGHT SEE
LIGHTING PLANS SHEETS 37 - 40.
- NEW TREE

DATE: CUY-EAST 9TH STREET
 CHKD: CUYAHOGA COUNTY
 DATE: OHIO
 F.H.W.A. REGION
 89

ESTIMATED QUANTITIES

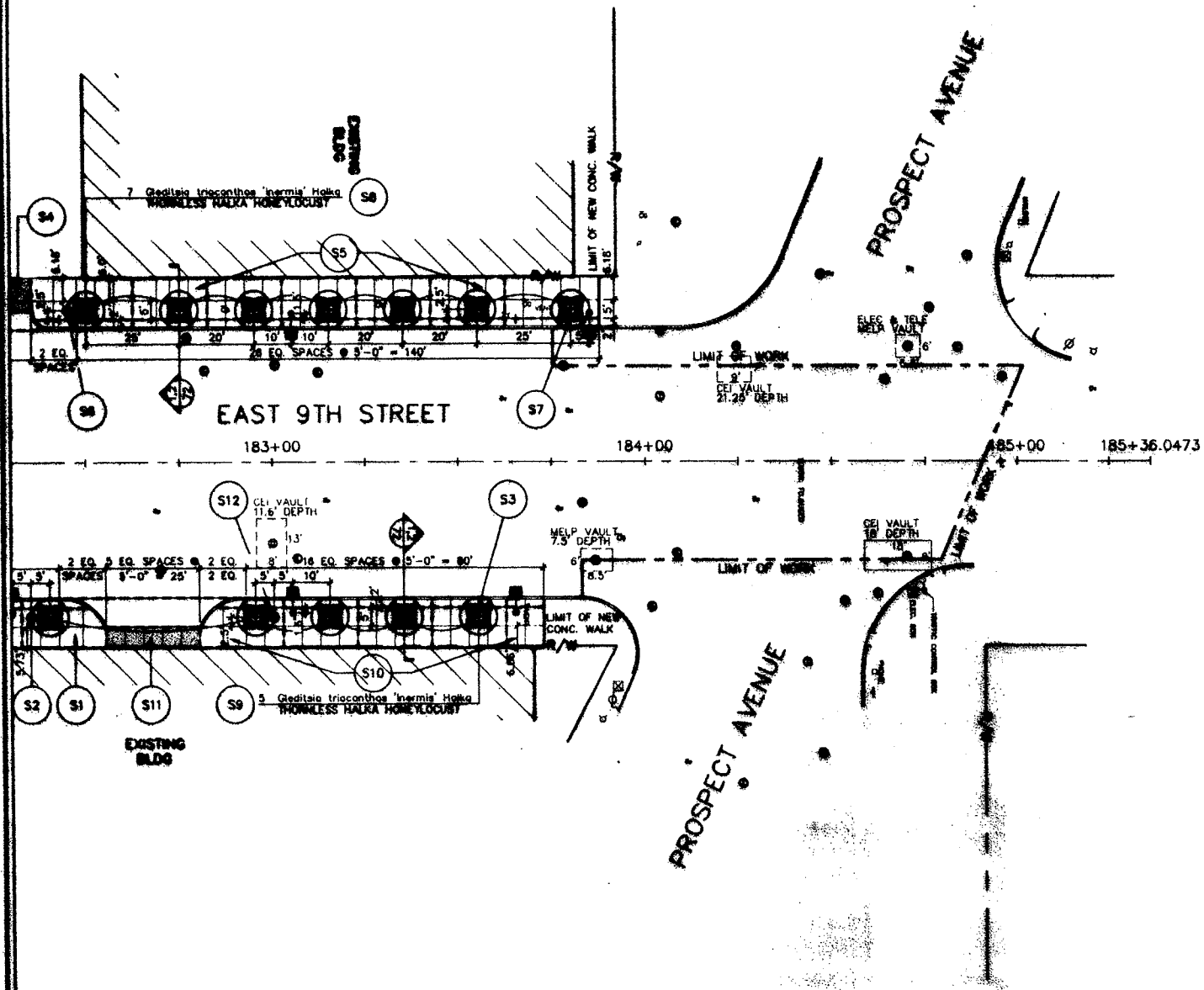
ITEM NO.	STATION TO STATION	QUANTITY	UNIT	DESCRIPTION	QUANTITY	UNIT	DESCRIPTION
S1	177+50 TO 177+77	RT		6" CONCRETE WALK	13	36	236
S2	177+50 TO 177+56	RT		6" CONCRETE WALK	1	36	36
S3	177+60 TO 178+04	RT		6" CONCRETE WALK	1.5	27	40.5
S4	177+77 TO 178+07	RT		6" CONCRETE WALK	9	175	1575
S5	178+07 TO 178+34	RT		6" CONCRETE WALK	3	80	240
S6	177+60 TO 178+04	RT		6" CONCRETE WALK	1	18	18
S7	178+04	RT		6" CONCRETE WALK	4	69	276
S8	178+27	RT		6" CONCRETE WALK	1.5	26	39
S9	178+70 TO 181+32	LT		6" CONCRETE WALK	3	80	240
S10	178+77	LT		6" CONCRETE WALK	1	18	18
S11	178+99 TO 181+19	LT		6" CONCRETE WALK	1	18	18
S12	180+04	LT		6" CONCRETE WALK	1	18	18
S13	181+24	LT		6" CONCRETE WALK	1	18	18
S14	178+67 TO 180+11	RT		6" CONCRETE WALK	1	18	18
S15	178+73	RT		6" CONCRETE WALK	1	18	18
S16	180+97	RT		6" CONCRETE WALK	1	18	18
S17	179+97 TO 182+30	RT		6" CONCRETE WALK	1	18	18
S18	180+11 TO 180+31	RT		6" CONCRETE WALK	1	18	18
S19	180+31 TO 182+30	RT		6" CONCRETE WALK	1	18	18
S20	178+67 TO 180+11	RT		6" CONCRETE WALK	1	18	18
S21	180+45	RT		6" CONCRETE WALK	1	18	18
S22	181+32 TO 181+52	LT		6" CONCRETE WALK	1	18	18
S23	181+52 TO 182+01	LT		6" CONCRETE WALK	1	18	18
S24	181+82	LT		6" CONCRETE WALK	1	18	18
S25	181+67 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S26	181+87	LT		6" CONCRETE WALK	1	18	18
S27	182+01 TO 182+30	LT		6" CONCRETE WALK	1	18	18
S28	178+99 TO 181+19	LT		6" CONCRETE WALK	1	18	18
S29	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S30	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S31	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S32	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S33	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S34	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S35	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S36	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S37	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S38	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S39	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S40	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S41	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S42	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S43	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S44	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S45	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S46	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S47	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S48	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S49	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S50	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S51	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S52	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S53	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S54	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S55	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S56	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S57	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S58	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S59	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S60	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S61	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S62	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S63	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S64	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S65	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S66	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S67	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S68	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S69	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S70	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S71	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S72	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S73	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S74	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S75	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S76	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S77	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S78	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S79	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S80	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S81	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S82	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S83	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S84	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S85	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S86	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S87	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S88	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S89	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S90	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S91	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S92	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S93	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S94	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S95	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S96	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S97	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S98	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S99	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
S100	181+87 TO 181+87	LT		6" CONCRETE WALK	1	18	18
TOTALS					339		784

STREETSCAPE PLAN STA 177+50 TO STA 182+30

DRAWING NAME: LNWK-9TH
 CREATED BY: DMS
 LAST REV DATE: 4/16/93

Sasald Associates, Inc.

MATCH LINE STA 182+30



LEGEND

- 6" CONCRETE WALK
SEE DETAIL #1, SHEET 71.
- 8" CONCRETE WALK
SEE DETAIL #2, SHEET 71.
- EXPANSION JOINT
SEE DETAIL #3, SHEET 72.
- HANDICAP RAMP
SEE DETAILS 3, 4 & 5, SHEET 71.
- TREE GRATE
- TRASH RECEPTACLE
SEE DETAIL #4, SHEET 71.
- NEW STREET LIGHT SEE
LIGHTING PLANS SHEETS 37 - 40.
- NEW TREE

CALC. DATE: CUY-EAST 9TH STREET OHIO
 CHKD. DATE: CUYAHOGA COUNTY F.H.W.A. REGION
 DATE: REGION 5

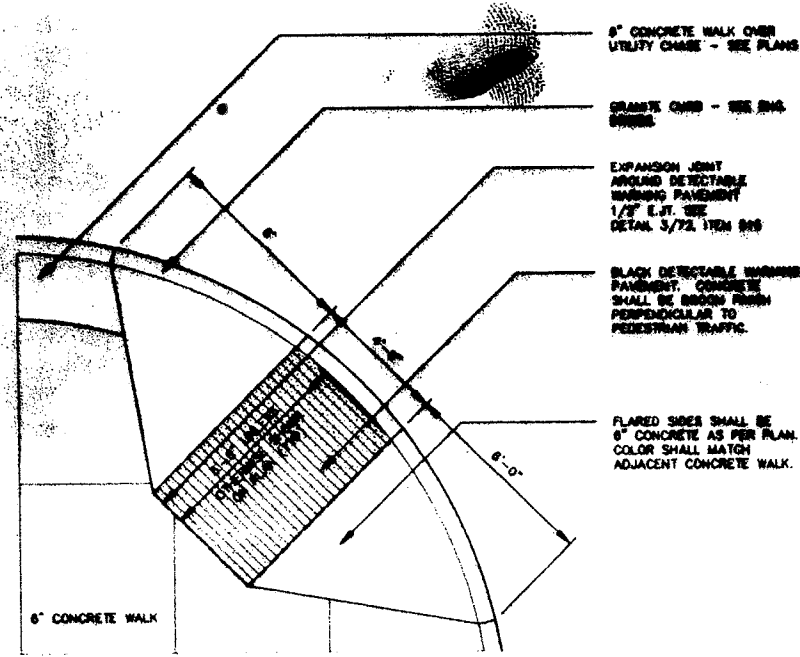
70

ESTIMATED QUANTITIES

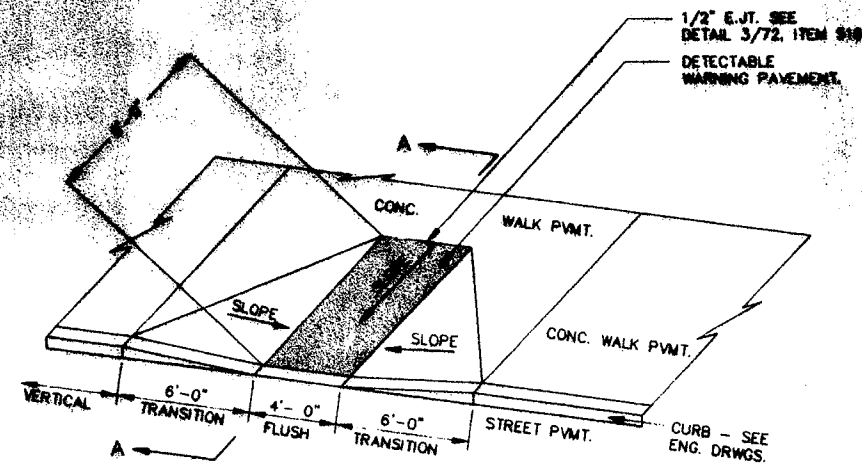
REF. NO.	STATION TO STATION SIDE	SUBGRADE COMPACT-ION	6" CONC. WALK	EXPANSION JOINT	6" CONC. WALK	HANDICAP RAMP	PRECAST CONCRETE TRASH RECEPT-ACLE	TREE GRATE NEW	TREE ROOT AERATION	TREE THORNLESS HALKA HONEY-LOCUST	PLANTING SOIL	SEE SHT. NO.													
S1	182+30 TO 182+35	SY	2																						
S2	182+35 TO 182+40	RT																							
S3	182+40 TO 183+55	RT																							
S4	182+30 TO 182+35	LT	6		200																				
S5	182+35 TO 183+88	LT	11.5																						
S6	182+45 TO 182+50	LT																							
S7	182+50 TO 183+80	LT																							
S8	182+50 TO 183+80	LT																							
S9	182+40 TO 183+55	RT			118																				
S10	182+55 TO 182+80	RT																							
S11	182+80 TO 183+75	RT																							
S12	183+40 TO 183+40	RT																							
S13	182+30 TO 183+88	RT/L		1280																					
TOTALS											404	22	22	1280	340	0	3	5	7	7	5	5	12	12	12

STREETSCAPE PLAN STA 182+30 TO STA 185+36

CUY - EAST 9TH STREET

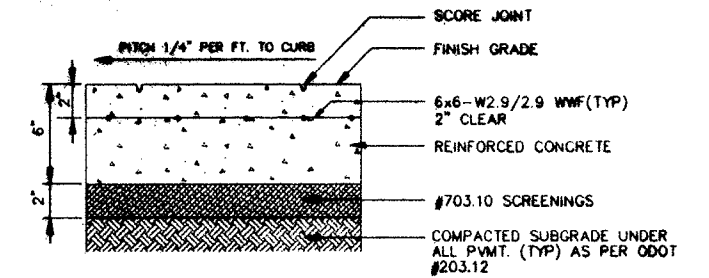


5 HANDICAP RAMP (PLAN ENLARGEMENT)
3/8" = 1'-0"



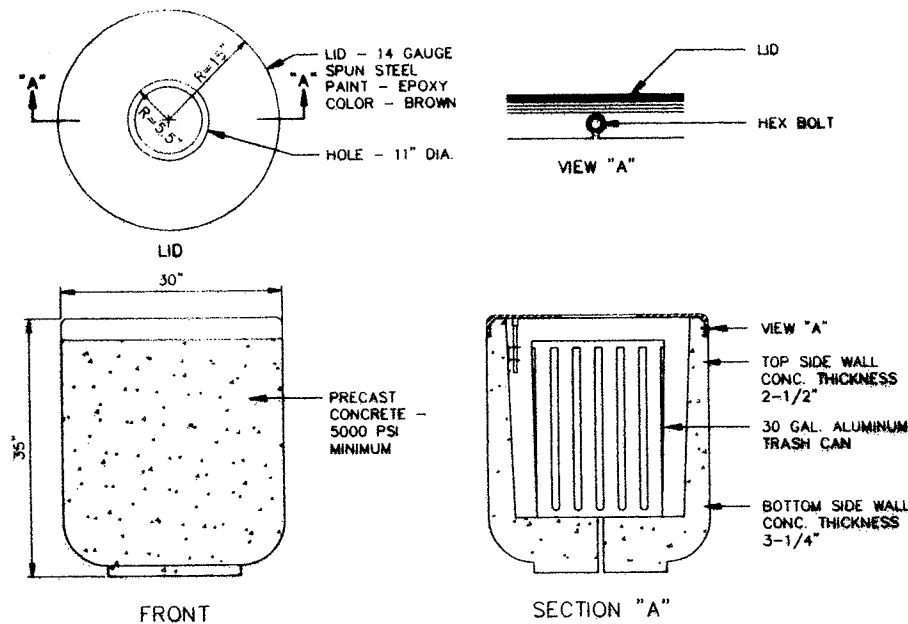
3 HANDICAP RAMP
1/4" = 1'-0"

NOTES:
 -EXPANSION JOINTS SHALL BE AS SHOWN ON PLANS; IF NOT SHOWN IN PLAN, EXPANSION JOINTS SHALL BE 30'-0" O.C. MAXIMUM.
 -ALL SCORING SHALL BE 1/4" DEPTH OF CONCRETE (TOOLED). SEE STREETSCAPE PLANS FOR JOINT SPACING.
 -RUB OUT ALL SURFACE TOOL MARKS. BROOM FINISH ALL CONCRETE PERPENDICULAR TO PEDESTRIAN TRAFFIC.
 -SEE STREETSCAPE PLANS FOR PAVEMENT WIDTH.



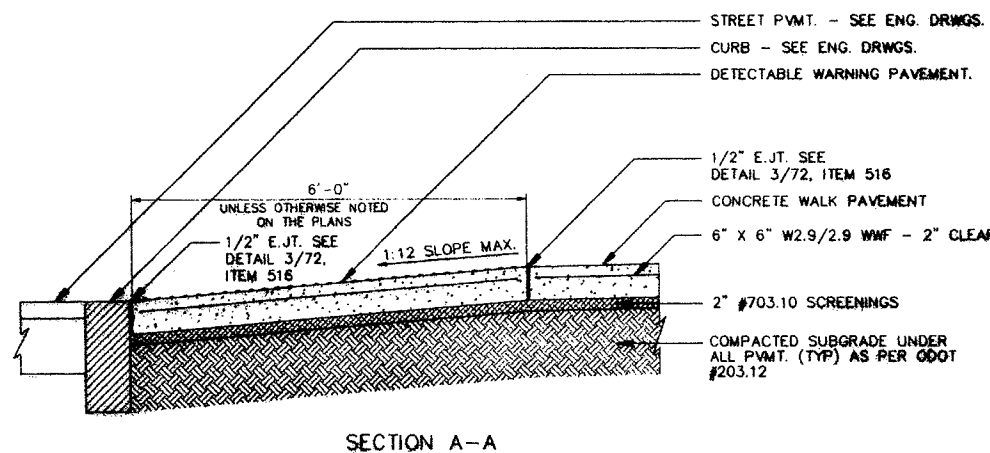
1 6" CONCRETE WALK, AS PER PLAN
N.T.S.

NOTES:
 -30" X 35" PRECAST CONCRETE TRASH RECEPTACLE



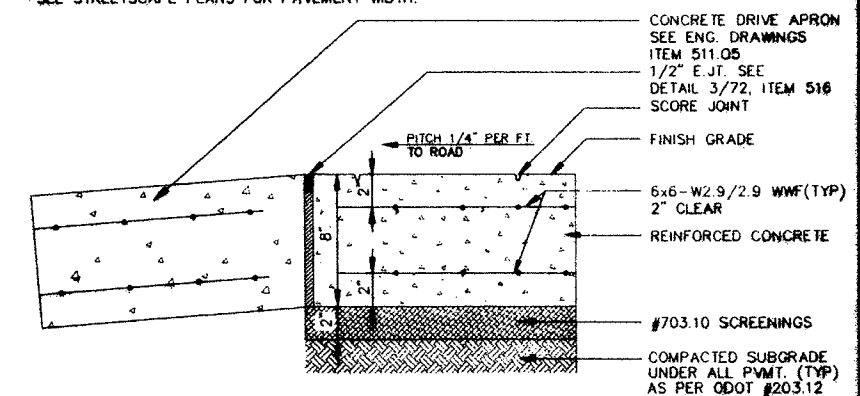
6 TRASH RECEPTACLE
1" = 1'-0"

NOTES:
 -SEE ENG. DRWGS. FOR CURB SUBDRAINAGE INFORMATION.
 -THE COLOR OF THE DETECTABLE WARNING PAVEMENT SHALL BE DARK BLACK. SUBMIT SAMPLE OF THE COLOR FOR APPROVAL.



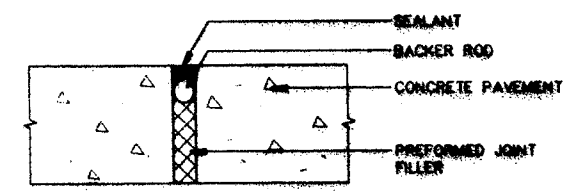
4 HANDICAP RAMP (SECTION)
3/4" = 1'-0"

NOTES:
 -EXPANSION JOINTS SHALL BE AS SHOWN ON PLANS; IF NOT SHOWN IN PLAN, EXPANSION JOINTS SHALL BE 30'-0" O.C. MAXIMUM.
 -ALL SCORING SHALL BE 1/4" DEPTH OF CONCRETE (TOOLED). SEE STREETSCAPE PLANS FOR JOINT SPACING.
 -RUB OUT ALL SURFACE TOOL MARKS. BROOM FINISH ALL CONCRETE PERPENDICULAR TO PEDESTRIAN TRAFFIC.
 -SEE STREETSCAPE PLANS FOR PAVEMENT WIDTH.

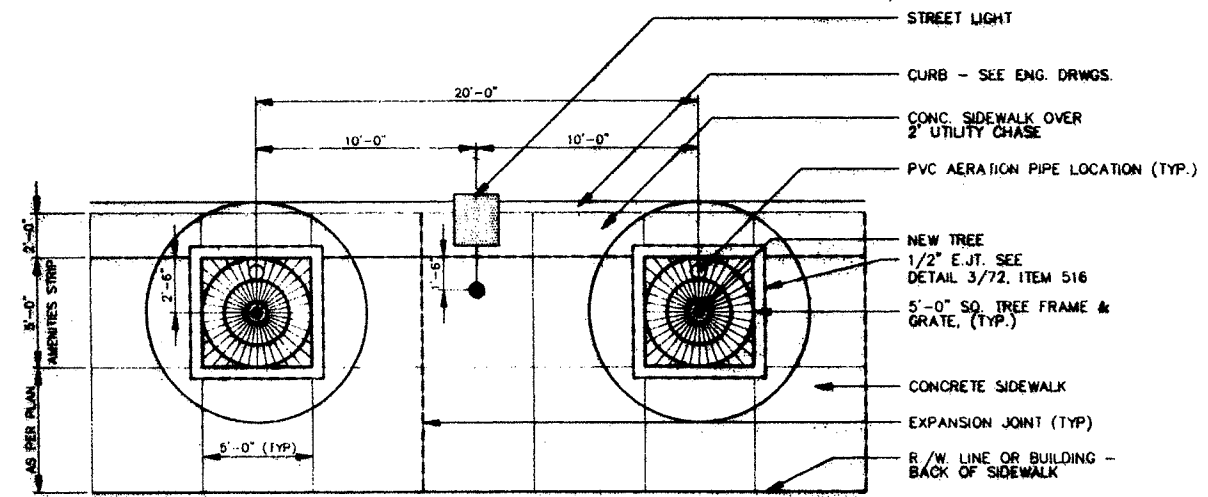


2 8" CONCRETE WALK, AS PER PLAN
N.T.S.

NOTES:
 - POUR CONCRETE SIDEWALK TO R./W. LINE UNLESS OTHERWISE INDICATED ON PLANS.
 - 5'-0" CONCRETE SIDEWALK SCORING SHALL ALIGN WITH TREE GRATES AS SHOWN.

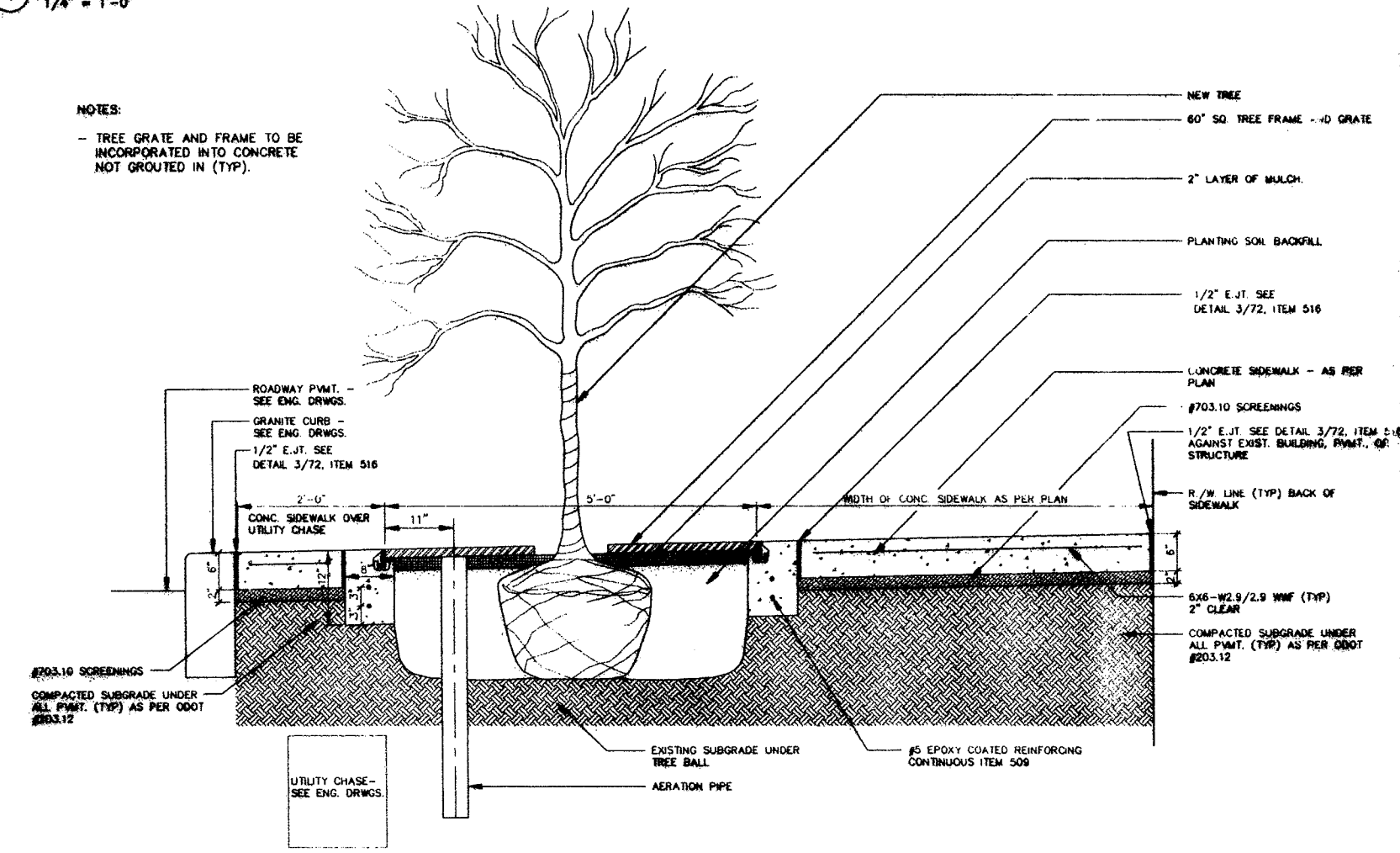


3 EXPANSION JOINT - CONCRETE WALK
 N.T.S.



1 PLAN ENLARGEMENT OF SIDEWALK IMPROVEMENTS
 1/4" = 1'-0"

NOTES:
 - TREE GRATE AND FRAME TO BE INCORPORATED INTO CONCRETE NOT GROUTED IN (TYP).

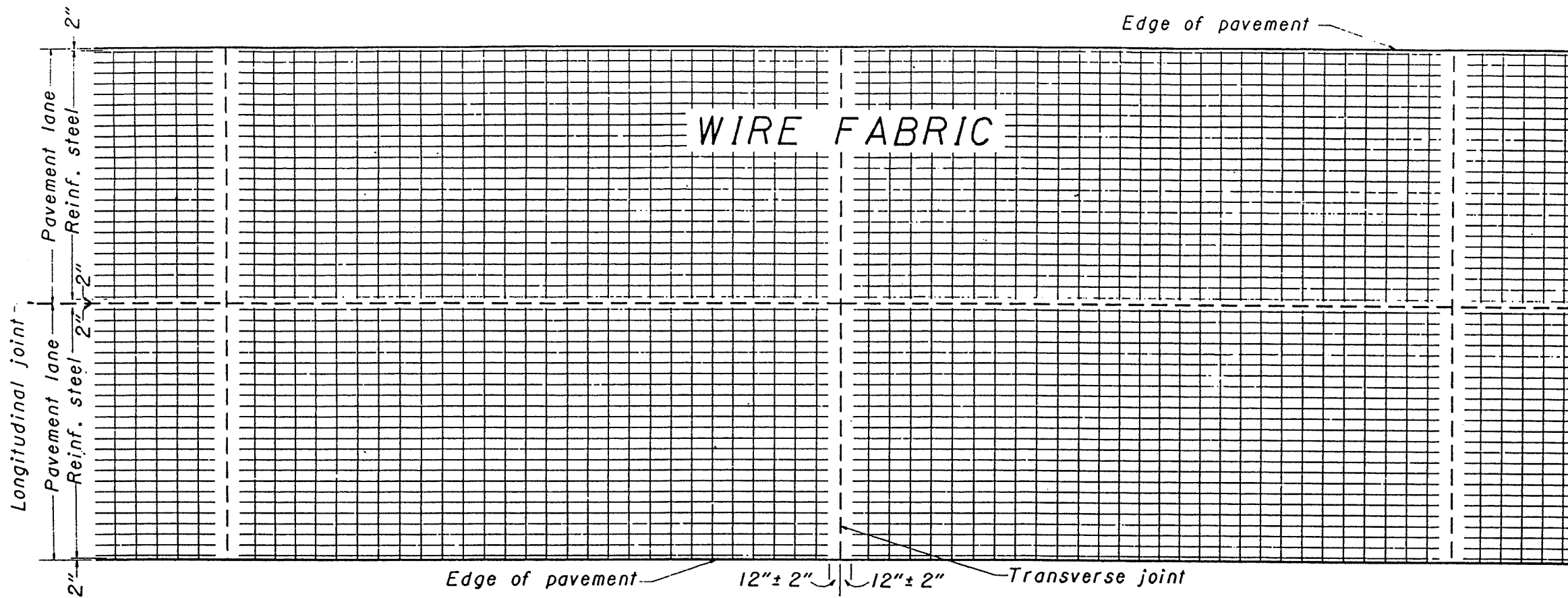


2 SECTION THROUGH SIDEWALK IMPROVEMENTS WITH TREE GRATES
 1" = 1'-0"

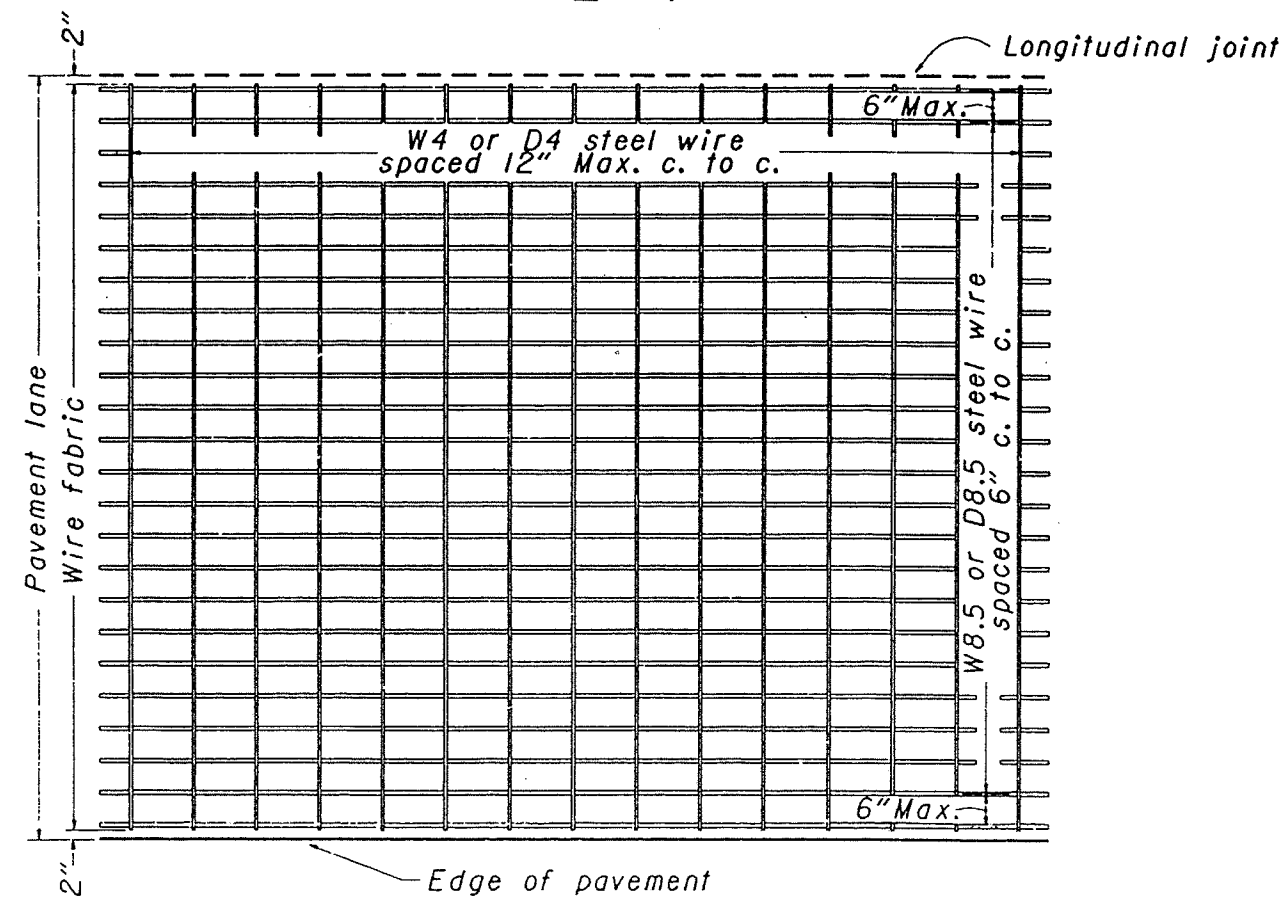
DRAWING NAME DT-2
 CREATED BY: DRB
 LAST REV. DATE 6/16/93

Sasaki Associates, Inc.

CITY - EAST 9TH STREET



PLAN

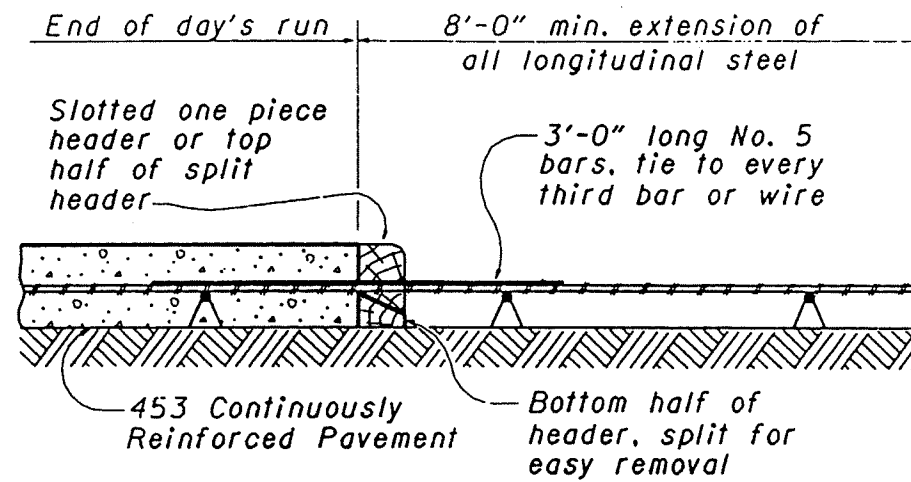
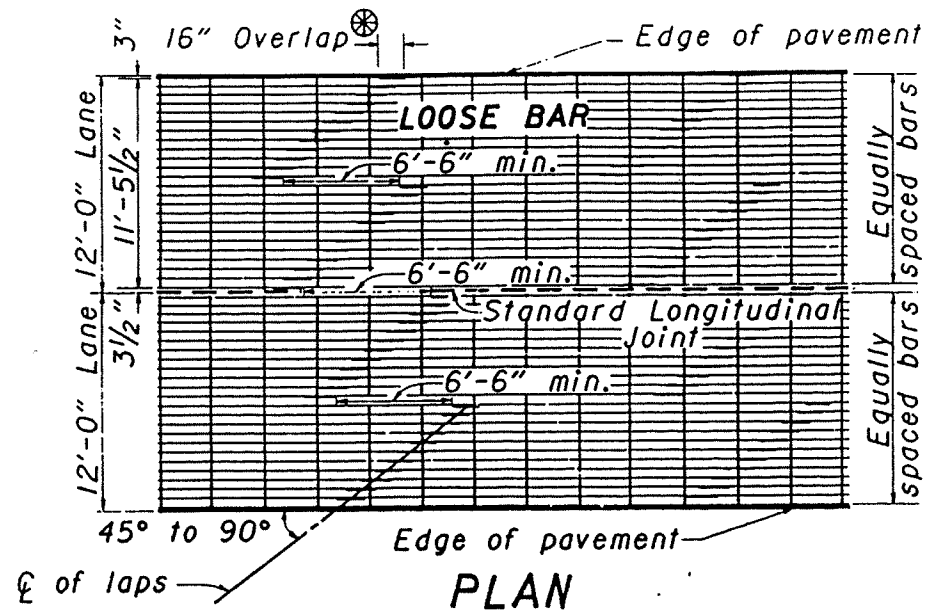


WIRE FABRIC DETAIL

NOTES

STEEL REINFORCING in normal or wider lane widths may consist of two units with an approved longitudinal hinge. The hinge shall consist of W4 or D4 steel wires connecting the two units such that the longitudinal members on either side of the hinge will be properly spaced when the reinforcing is in final position. The distance from the top of the concrete pavement to the reinforcing steel may vary from $2\frac{1}{2}$ inches to $T/3 + 1$ inch, where T=thickness of the concrete pavement.

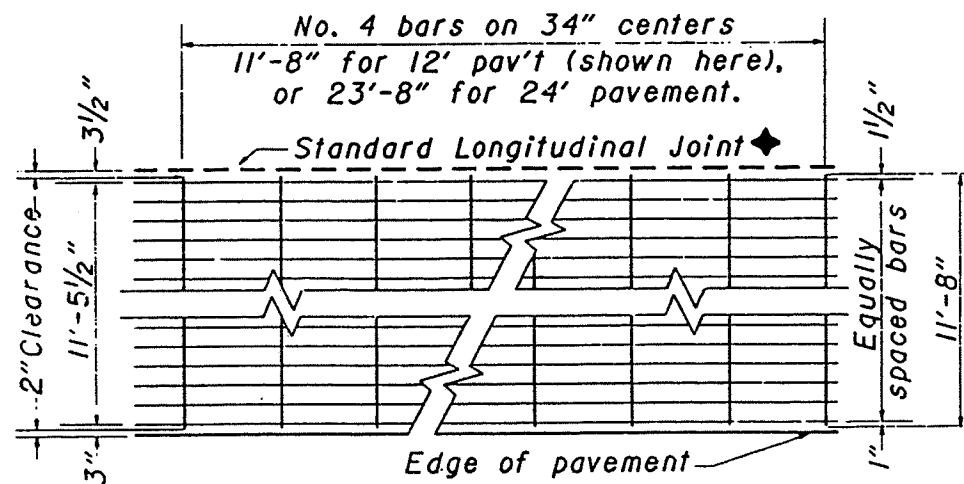
BUREAU OF LOCATION AND DESIGN OHIO DEPARTMENT OF TRANSPORTATION	
CONCRETE PAVEMENT REINFORCING	
STANDARD CONSTRUCTION DRAWING	BP-1.1
APPROVED <i>D.K. Hulman</i>	DATE 2-21-92



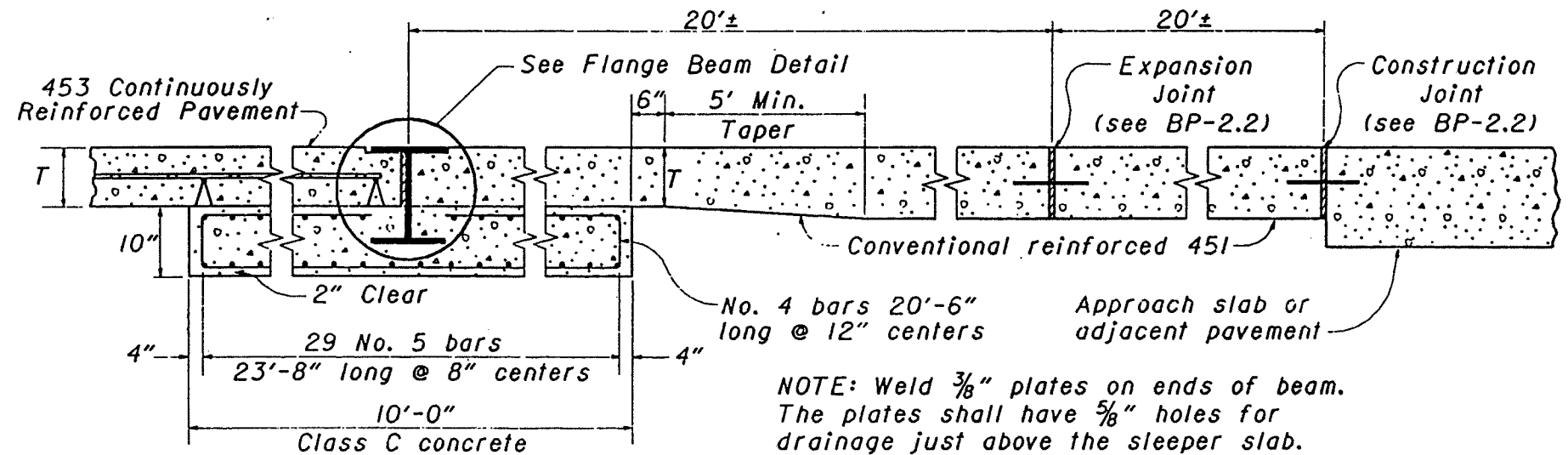
CONSTRUCTION JOINT

NOTES

- ALL REINFORCING STEEL shall be placed in the concrete so that the longitudinal steel is located between a minimum cover of 2 1/2" and a maximum depth of T/2.
- ALL LONGITUDINAL LAPS shall be tied so as to provide continuous longitudinal reinforcing.
- ALL 709.03 BARS shall be epoxy coated as per 709.00 and shall be set on chairs ahead of paving operation. Minimum bar length 40'.
- ⊗ No lap shall occur within 8' ahead or 3' behind a construction joint in the direction of paving.
- ◆ If 23'-8" bars are used, omit tie bars.

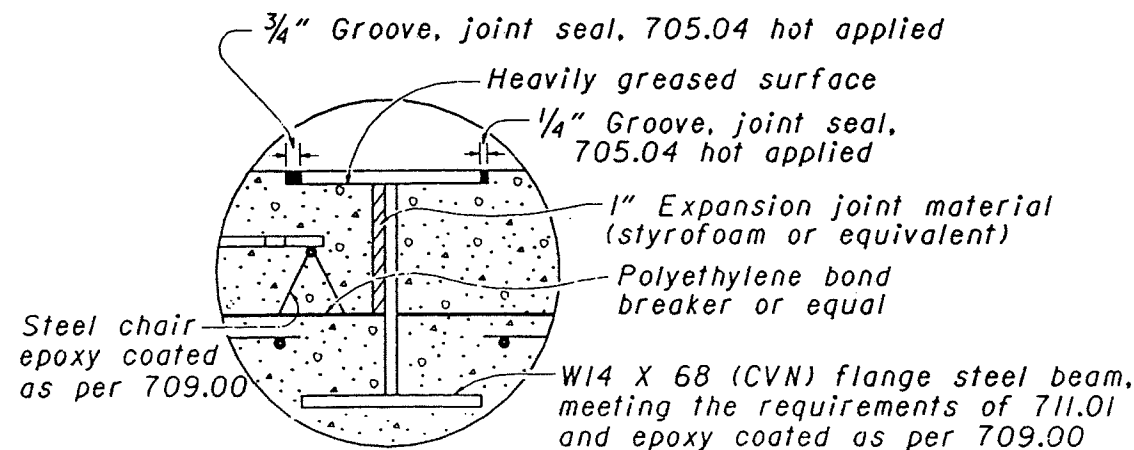


LOOSE BAR DETAIL



FLANGE BEAM JOINT

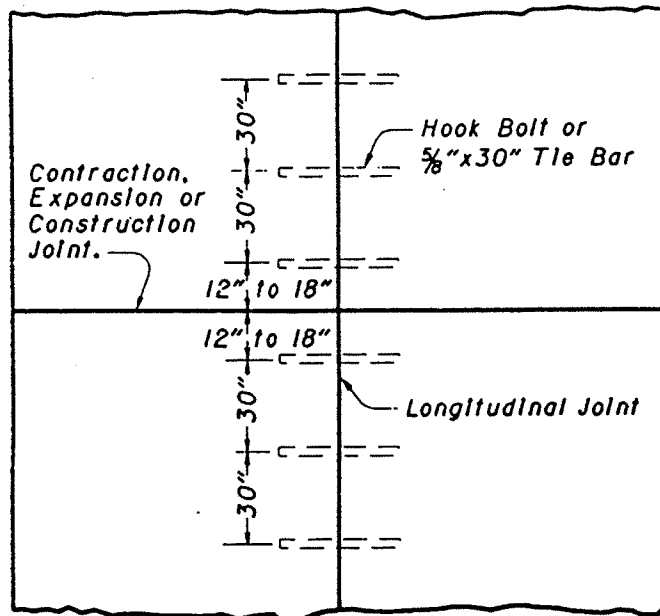
STEEL REQUIREMENTS		
T (in.)	Bar Size	No. Bars/12' Lane
8	5	23
9	6	18
10	6	20
11	6	22
12	7	18
13	7	20
14	7	21



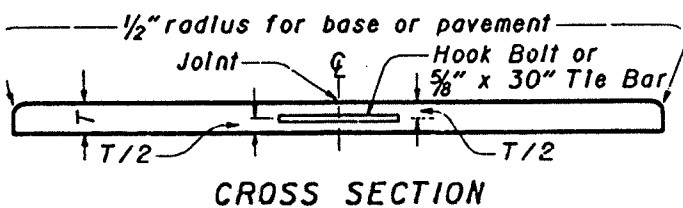
FLANGE BEAM DETAIL

BUREAU OF LOCATION AND DESIGN OHIO DEPARTMENT OF TRANSPORTATION	
CONTINUOUSLY REINFORCED PAVEMENT	DATE 2-21-92
STANDARD CONSTRUCTION DRAWING	BP-1.2
APPROVED <i>D.K. Helman</i> ENGR. I & C	

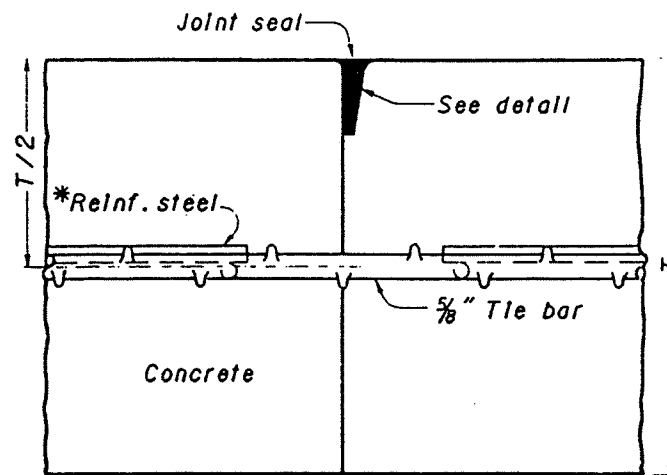
TIE BAR OR HOOK BOLT SPACING



PLAN

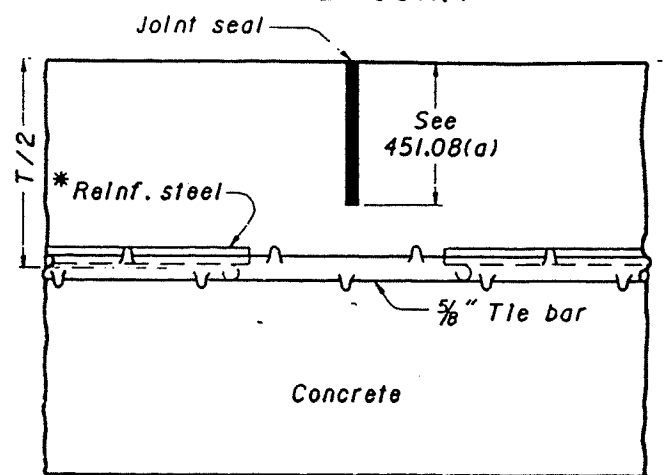


BUTT JOINT



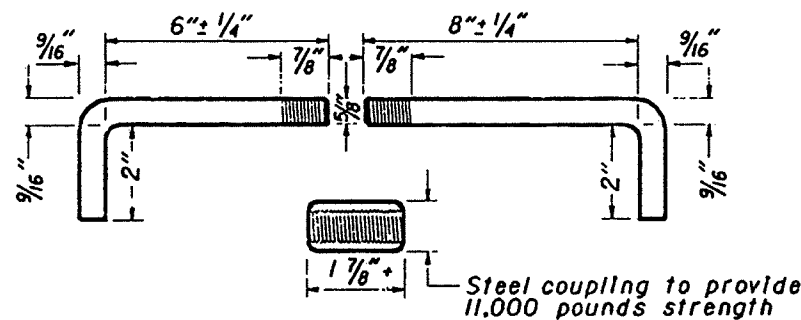
DETAIL OF JOINT *For 451 only

SAWED JOINT

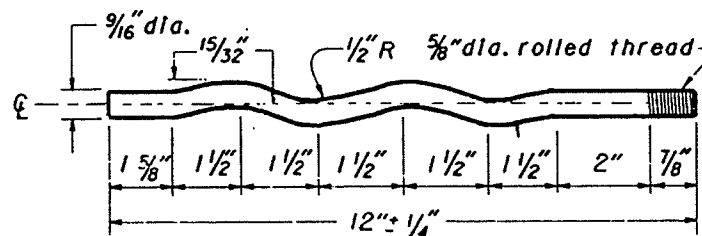


DETAIL OF JOINT

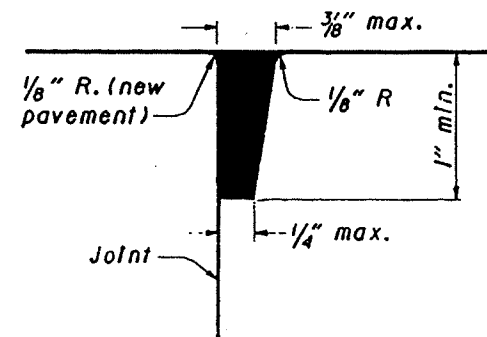
HOOK BOLT



HOOK BOLT ALTERNATE



GROOVE AND SEAL DETAIL



NOTES

GENERAL: Longitudinal joints shall be used when called for on the typical section and shall be constructed as shown on this drawing in 451 and 452 pavement and 305 base. The joint shall be on the centerline of the pavement unless otherwise shown on the plans. Tie bars shall be 5/8 inch round, deformed bars. A satisfactory device shall be used to hold the tie bars in proper position or they may be installed by a mechanical installing device.

BUTT JOINT: The longitudinal joint between adjoining slabs poured in separate operations shall be a butt joint with hook bolts or tie bars, unless otherwise shown on plans. Bent tie bar construction shall not be permitted.

TYPE D (DRILLED TIED LONGITUDINAL) JOINT: Type D joints shall be constructed in accordance with 255.05. Grout shall meet the requirements of 255.02. The use of 3/8 inch expansion anchors, FF-S-325, Group VIII, Type I or Group II, Type 4, Class I may be used in lieu of the #5 x 24 inch deformed bar and shall be installed according to the manufacturer's recommendations. The use of self drilling expansion shield anchors, FF-S-325, Group III, Type I(a) and (c) shall not be permitted.

GROOVES: Grooves for sealing expansion bolt or butt joints in 451 or 452 pavements shall be formed by impressing a device or bar into the newly deposited concrete adjacent to the existing or previously poured lane. The device or bar shall be removed as soon as the concrete is in such condition as to preclude distortion of the concrete.

Adjoining slabs adjacent to grooved joints shall be edged with a thin metal edger having a radius of 1/8 inch. Any impression left in the surface of the pavement by the flat part of the edging tool shall be eliminated.

In lieu of the above method the longitudinal joint may be constructed in accordance with 451.08(a).

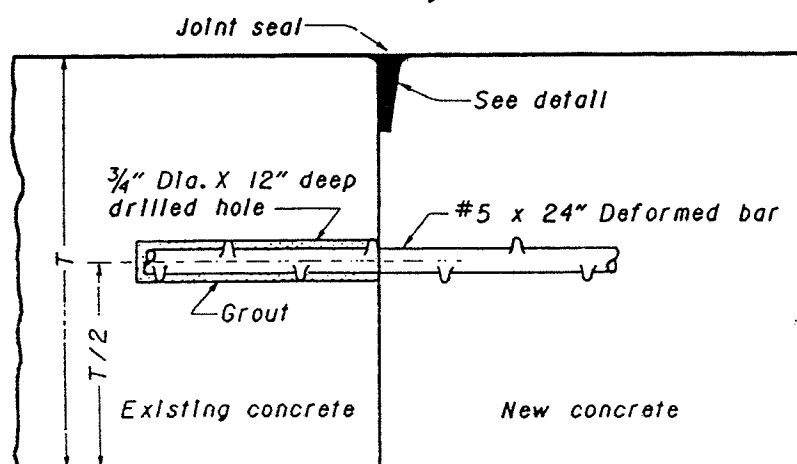
After the joint is formed it shall be protected from dirt and foreign matter until the joint seal is placed.

SEALING JOINTS: Sawed or hand-formed joints may be sealed with 705.04 or 705.11 joint sealer.

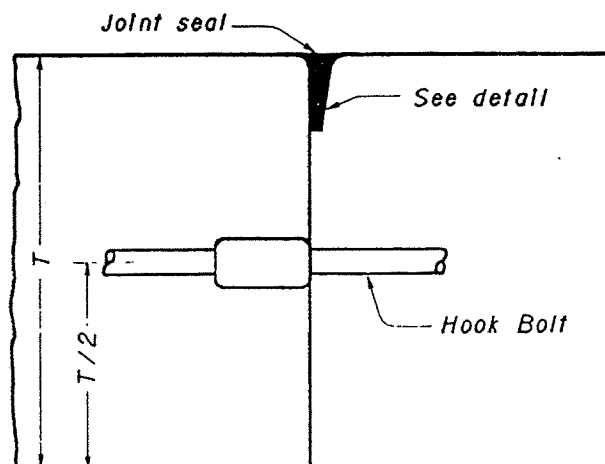
HOOK BOLTS: Hook bolt inserts shall be turned to a tight fit when installed in threaded hook bolts or couplings.

METAL STRENGTH: Tie bars, hook bolt assemblies and hook bolt alternate shall have a minimum strength of 11,000 pounds.

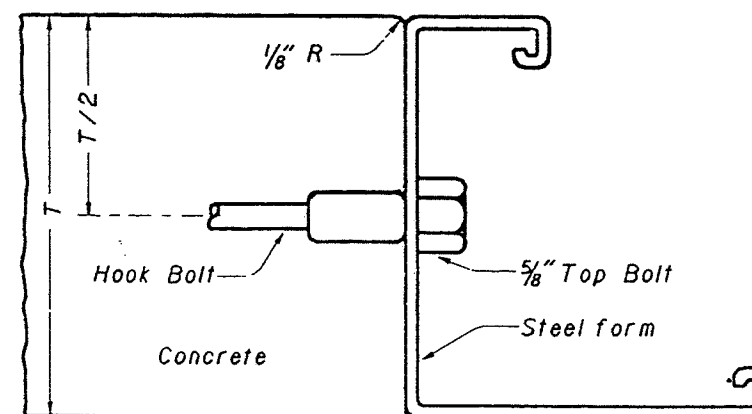
TYPE D (DRILLED TIED LONGITUDINAL) JOINT



BUTT JOINT



ACCEPTABLE METHOD OF FORMING JOINT



BUREAU OF LOCATION AND DESIGN
OHIO DEPARTMENT OF TRANSPORTATION

LONGITUDINAL PAVEMENT JOINTS

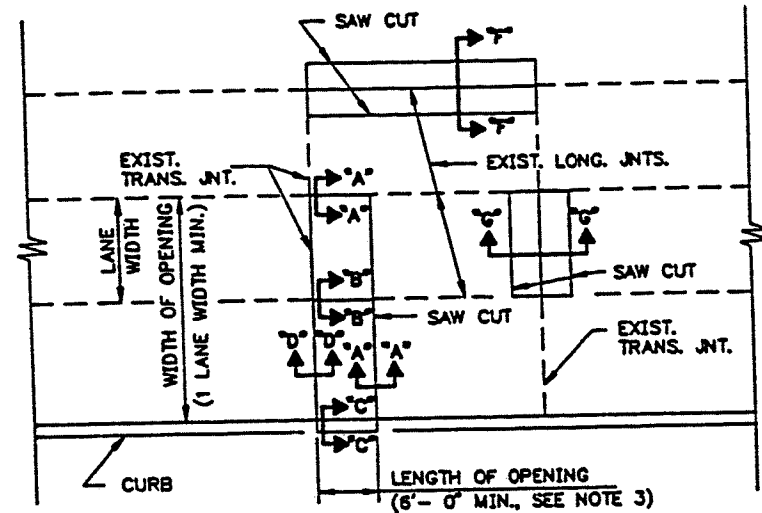
DATE
2-21-92

STANDARD
CONSTRUCTION
DRAWING

BP-2.1

APPROVED: *D.K. Hulman* ENGR., L & D

STRUCTURAL REPAIR OF RIGID PAVEMENT OR BASE



SECTION A-A: THIS JOINT, WHEN CONSTRUCTED/RECONSTRUCTED LONGITUDINALLY, SHALL BE A "TYPE D JOINT" PER O.D.O.T. BP-2.1. WHEN CONSTRUCTED TRANSVERSELY, THIS JOINT SHALL BE A "SECTION-TYPE T" JOINT AS DETAILED ON THIS SHEET. THE DEFORMED BARS SHALL BE SPACED AT 12" CENTERS ALONG TRANSVERSE JOINTS EXCEPT THAT A 6" TO 12" SPACE SHALL BE PROVIDED ADJACENT TO A LONGITUDINAL JOINT OR THE EDGE OF PAVEMENT. THE DEFORMED BARS SHALL BE SPACED AT UNIFORM 24" TO 30" CENTERS ALONG LONGITUDINAL JOINTS AND BEGIN OR END 12" TO 18" FROM TRANSVERSE JOINTS.

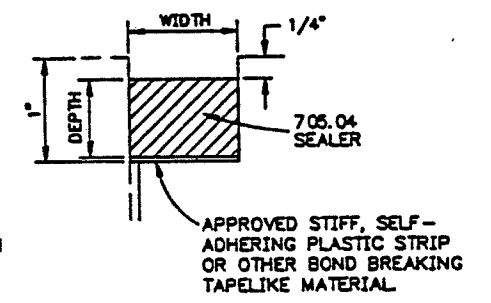
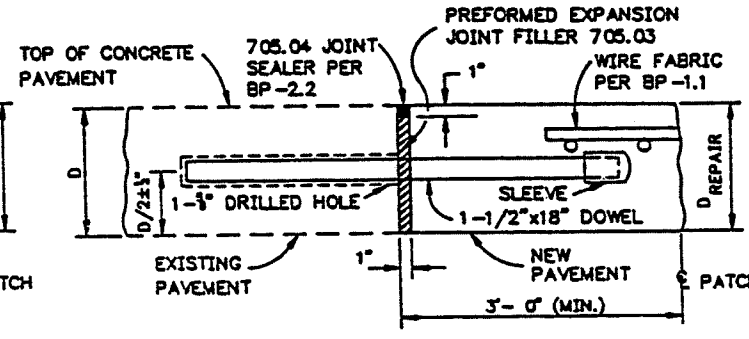
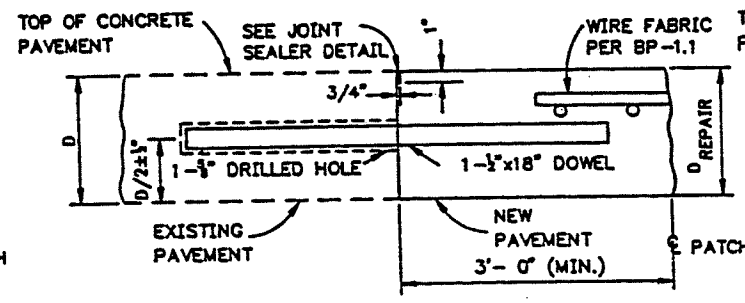
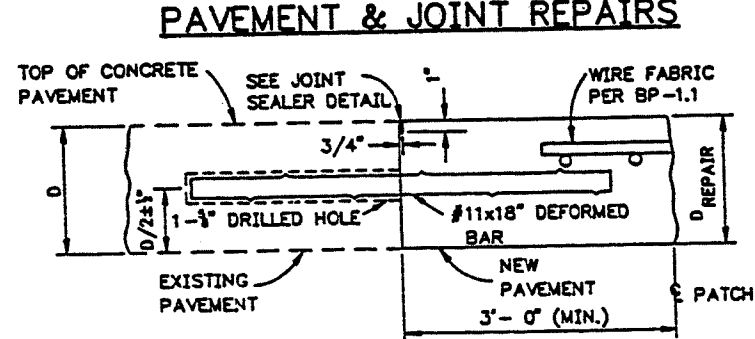
SECTION B-B: THIS JOINT SHALL BE CONSTRUCTED AS A STANDARD LONGITUDINAL JOINT IN ACCORDANCE WITH O.D.O.T. BP-2.1.

SECTION C-C: SEE CUYAHOGA COUNTY CONSTRUCTION DRAWING MD-1C "INTEGRAL CONCRETE CURB REPLACEMENT DETAIL, METHOD B."

SECTION D-D: EXISTING CONTRACTION OR HINGE JOINTS SHALL BE RECONSTRUCTED AS A "SECTION-TYPE Y" JOINT. EXPANSION JOINTS SHALL BE RECONSTRUCTED AS A "SECTION-TYPE X" JOINT. BOTH ARE DETAILED ON THIS DRAWING. DOWELS SHALL BE INSTALLED AT 12" CENTERS EXCEPT THAT A 6" TO 12" SPACE SHALL BE PROVIDED ADJACENT TO LONGITUDINAL JOINTS OR PAVEMENT EDGES.

NOTES

- THIS DRAWING IS USED IN CONJUNCTION WITH O.D.O.T. STANDARD CONSTRUCTION DRAWINGS BP-1.1, BP-2.1 AND BP-2.2; AND CUYAHOGA COUNTY CONSTRUCTION DRAWING MD-1C.
- ALL WORK SHALL CONFORM TO "ITEM 255-FULL DEPTH RIGID PAVEMENT REMOVAL AND REPLACEMENT, CLASS _____ AS PER PLAN." (SEE PLAN NOTE AND ALL THE DETAILS, NOTES, SPECIFICATIONS AND SUPPLEMENTAL SPECIFICATIONS REFERENCED THEREIN.)
- REMOVE ENTIRE SLAB WHEN LESS THAN TWENTY-FIVE (25) PERCENT SALVAGABLE UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
- WHERE THE THICKNESS OF THE "ITEM 304-AGGREGATE BASE, AS PER PLAN" SUBBASE REPLACEMENT MATERIAL IS THREE (3) INCHES OR LESS, USE SCREENINGS GRADED IN ACCORDANCE WITH 703.10 EXCEPT THAT THE MINIMUM PERCENT PASSING THE No. 100 SIEVE SHALL BE FIVE (5) PERCENT.



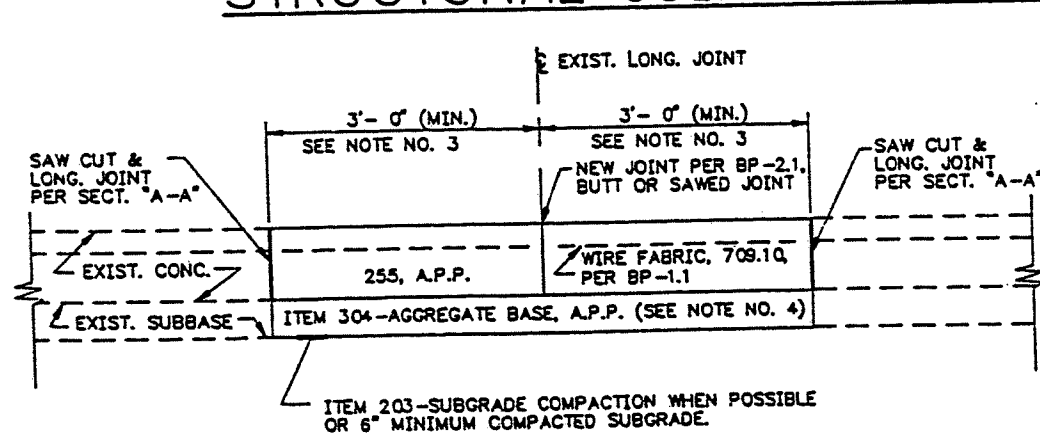
SECTION-TYPE T (TIED)

SECTION-TYPE Y (CONTRACTION)

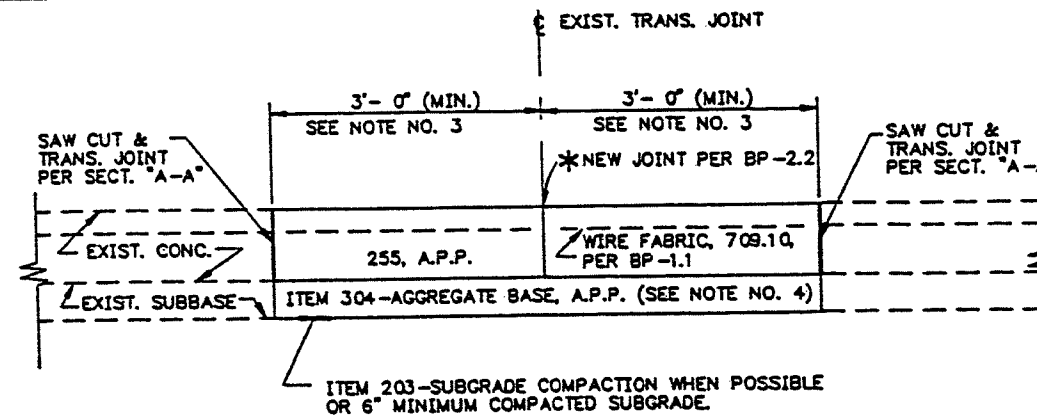
SECTION-TYPE X (EXPANSION)

JOINT SEALER DETAIL

STRUCTURAL JOINT REPAIR IN RIGID PAVEMENT OR BASE



SECTION "F-F" LONGITUDINAL JOINT REPAIR
(LENGTH AS DESIGNATED BY THE ENGINEER, WHEN 5'-0" OR LESS TO THE NEAREST TRANSVERSE JOINT, REPLACE TO JOINT.)



SECTION "G-G" TRANSVERSE JOINT REPAIR
(FULL LANE WIDTH)

TRANSVERSE JOINT LEGEND

- (C) - CONTRACTION JOINT (PER BP-2.2)
- (E) - EXPANSION JOINT (PER BP-2.2)
- (H) - EXISTING HINGE (WARPING) JOINT
- * REPLACE (C) OR (E) IN KIND. REPLACE (H) WITH (C).

THIS DRAWING PREVIOUSLY BP-14C.

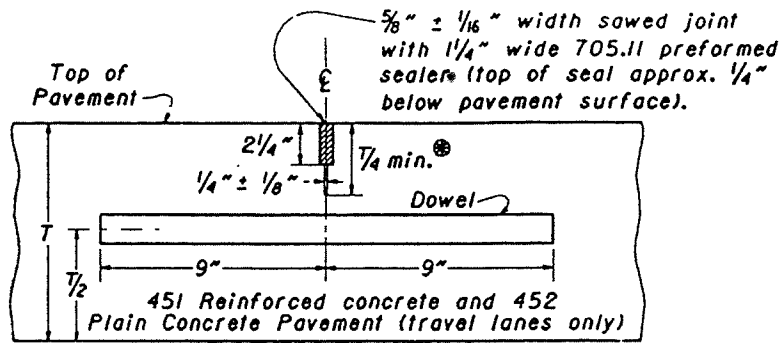
CUYAHOGA COUNTY ENGINEER

STRUCTURAL RIGID PAVEMENT & JOINT REPAIRS

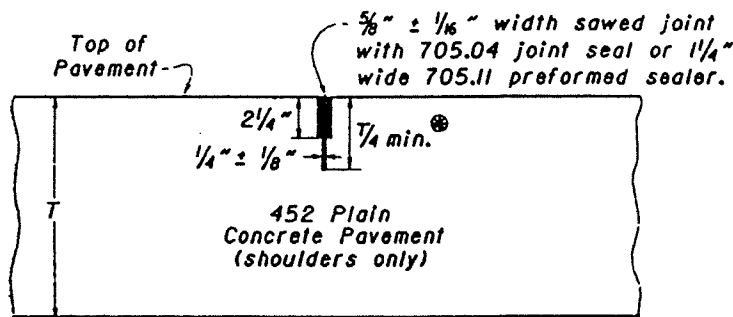
CONSTRUCTION DRAWING BP-2.5C

DATE
6-1-81
3-1-86
5-5-87
2-8-88
3-9-92

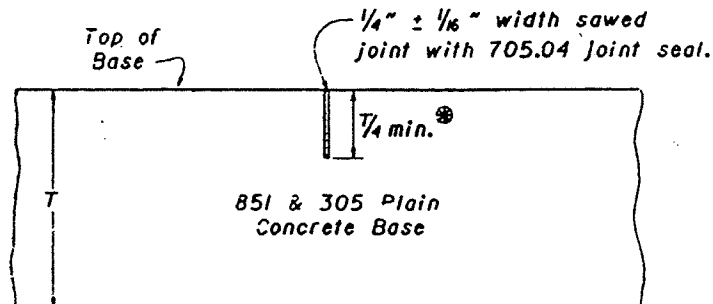
CONTRACTION JOINTS



SECTION - 451 & 452 PAVEMENT



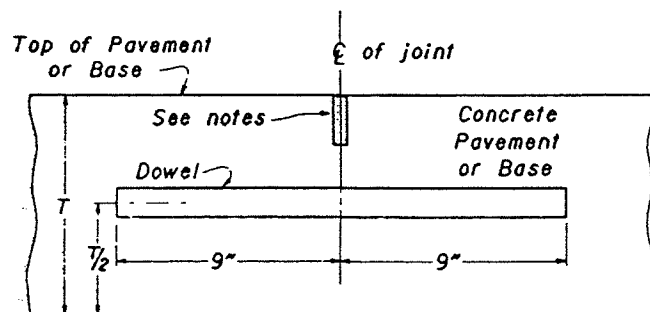
SECTION - 452 SHOULDER



SECTION - 851 & 305 BASE

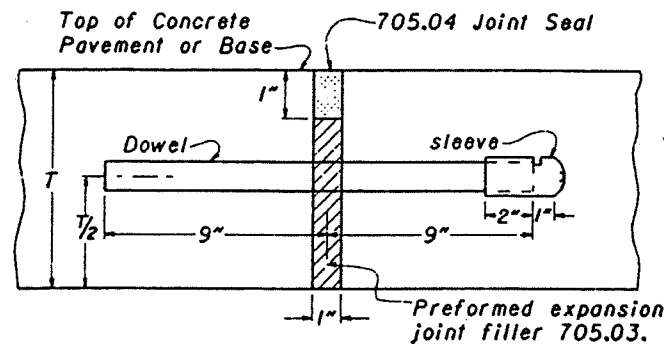
⊕ Where $T > 10"$, the sawcut depth shall be $T/3$.

CONSTRUCTION JOINT

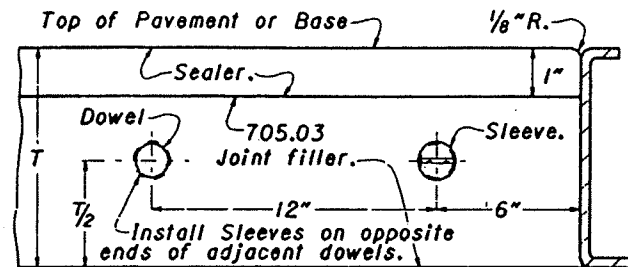


SECTION THROUGH CONSTRUCTION JOINT

EXPANSION JOINT



SECTION THROUGH EXPANSION JOINT



SIDE ELEVATION OF EXPANSION JOINT

GENERAL: Notes and details shown on this drawing shall be considered in conjunction with and supplemental to the pertinent specifications for portland cement concrete pavements and bases, and incidentals related thereto.

All joints shall be constructed normal to the centerline of the pavement lane unless otherwise directed.

Where dowels are specified, they shall be round, straight steel bars of the size indicated in the following table, and shall be coated in accordance with the requirements of specification 709.13. Dowel basket assemblies shall also be coated in accordance with 709.13. Dowels shall be spaced at 12" centers, beginning 6" from the longitudinal joint.

DOWEL SIZE	
(T) THICKNESS OF PAVEMENT	DIAMETER OF DOWEL
8.5" or less	1"
8.6" to 10"	1 1/4"
over 10"	1 1/2" or as shown on plan

ASSEMBLY: Each joint assembly used to hold dowels in position shall be continuous between longitudinal joints or between longitudinal joint and pavement edge. The assembly shall be firmly held in proper position by at least eight 1/2" steel pins driven at

an angle to brace the assembly from lateral and vertical displacement during the placing of the concrete. These pins shall be at least 18" in length. Two of these pins shall be driven opposite each other at each end of the assembly and the remaining pins shall be driven in staggered positions on each side of the assembly. In exceptional cases where it is impractical to use the 18" length pins, such as where hardpan or rock is encountered, the Engineer may authorize use of shorter pins provided the assembly is held firmly. Where the assembly is placed on granular material which may allow settlement or distortion, the assembly shall be anchored to prevent settlement or distortion with some combination of pins and/or steel plates, or by some other means to the satisfaction of the Engineer.

When concrete pavement is placed on an existing concrete pavement or a stabilized base, the joint assemblies (baskets) shall be held firmly in position by the use of a power driven fastener and an appropriate clip at 6 locations along the assembly (3 each side of the assembly) to secure the basket from lateral and vertical displacement during concrete placement.

Dowel spacing is shown for pavement lanes of even foot widths. Where other widths are specified, standard cages may be used with dowel spacings adjusted as follows:

The 6" dowel spacing shall be maintained at the longitudinal joint. The spacing at the outer edge of the lane may be increased up to 12". Where an odd width of lane occurs, a dowel shall be placed 6" from the outer edge of the lane if the standard cage would provide for a space exceeding 12". Such a dowel shall be held rigidly in proper position by a method satisfactory to the Engineer or a dowel cage of greater length than required may be used by cutting the assembly and splicing to attain the required length.

This drawing is intended for use with a uniform depth pavement. When the project involves the placing of variable depth pavement, the joint components shall be held in place in accordance with the method shown in the plan or as approved by the Engineer.

EXPANSION JOINTS: Expansion joint filler shall be held rigidly in position and shall be continuous for the full width of each lane. The face of the expansion joint shall be perpendicular to the concrete surface and shall not be skewed horizontally except when abutting a skewed bridge approach slab.

Smooth dowels shall be used, and free movement shall be provided by applying a coating of a thin layer of oil or other "bond-breaking" material just prior to placing the concrete. One free end of each dowel shall be equipped, after coating, with a sleeve of metal or other approved material approximately 3" long, designed with crimped end and overlapping seams, fitting closely around the dowel. Each sleeve shall be provided with a depression or interior projection to act as a stop for the dowel, sufficiently distant from the crimped end to allow 1" for longitudinal dowel movement with pavement expansion. In lieu of this requirement, any other means may be used if approved by the Director.

Proper size dowel holes shall be punched or drilled into the preformed expansion joint filler in order to insure tight fitting dowels.

CONTRACTION JOINTS: All contraction joints in 451 reinforced concrete and 452 plain concrete pavements shall be dowelled. Contraction joints in 305 plain concrete base or shoulders shall be dowelled if within 500' of a pressure relief joint.

To provide for longitudinal movement of the joint, dowels shall be smooth and coated with a bond breaking material such as a thin layer of oil just prior to placing the concrete.

Contraction joints of the type specified shall be spaced in accordance with the following table:

CONTRACTION JOINT SPACING	
TYPES OF PAVEMENT OR BASE	MAXIMUM SPACING BETWEEN JOINTS
451 Reinforced Concrete Pavement	21 lin. ft.
452 Plain * Concrete Pavement	17 lin. ft.
851 & 305 Plain Concrete Base	20 lin. ft.

* Where Item 452 Plain Concrete Pavement is being placed next to Item 451 Reinforced Concrete Pavement, the joint spacing in the 452 shall be 21 feet and match the joints in the mainline pavement. Where Item 452 Plain Concrete Pavement is being used as shoulder, rumble strips shall be placed as per BP-8.1.

CONSTRUCTION JOINTS: Smooth dowels shall be used in transverse construction joints in all portland cement concrete pavements, shoulders and base. The joint shall be formed by using an adequate bulkhead that will provide a straight joint. The bulkhead shall have openings provided for dowel bars spaced as outlined under "ASSEMBLY." The bulkhead shall be shaped to fit the typical section of the pavement or base. Dowels shall be held rigidly in position during the placing of the concrete.

Construction joints in reinforced concrete pavement may be located at a contraction joint or between contraction joints, provided they are not closer than 10 feet to another parallel joint. In plain concrete pavement or concrete base a construction joint shall not be located closer than 6 feet to another parallel joint.

Kerf and seal conforming in all respects to details shown for contraction joints shall be provided at each construction joint in concrete pavement and base.

SEALING BASE CONTRACTION JOINTS: All contraction joints for plain concrete bases shall be sealed as detailed hereon and the cost included in the unit price bid for Item 305 or 851.

BUREAU OF LOCATION AND DESIGN
OHIO DEPARTMENT OF TRANSPORTATION

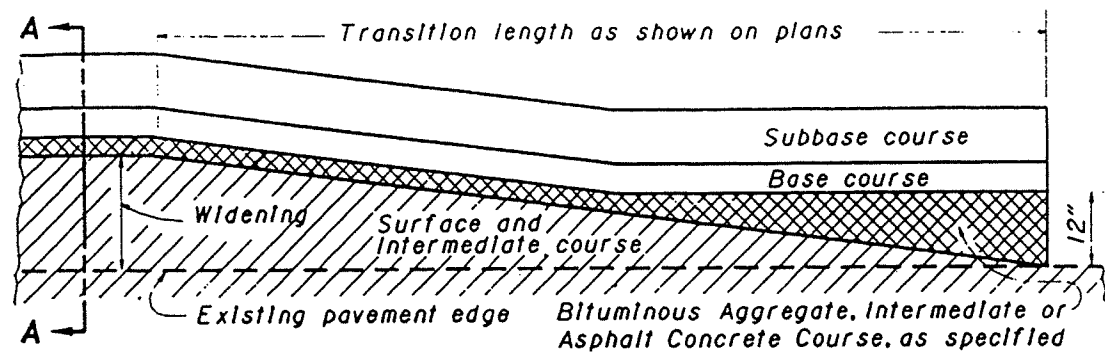
TRANSVERSE PAVEMENT JOINTS

DATE
2-21-92

STANDARD CONSTRUCTION DRAWING

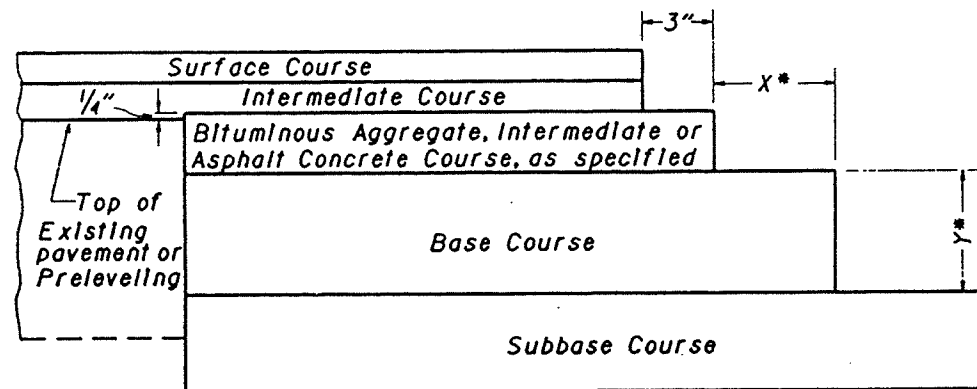
BP-2.2

APPROVED *R.K. Hulman* ENGR., L & D



PLAN

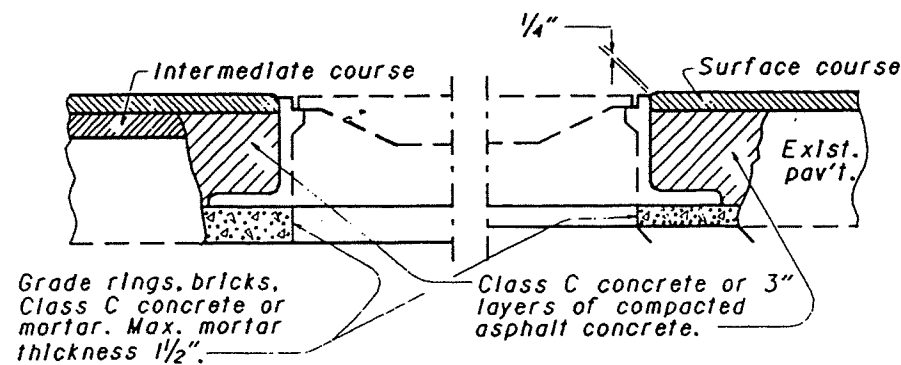
MERGING EDGE OF PAVEMENT WIDENING WITH EDGE OF EXISTING PAVEMENT



The Bituminous Aggregate in the upper part of the base widening shall finish approximately 1/4" above the edge of the existing pavement where no prelevelling is used. Where a prelevelling (using intermediate course material) is specified it shall be placed prior to excavation of the widening trench and the upper course of the base widening shall finish approximately 1/4" above the prelevelling.

*The extended width (X) of a base or subbase course shall be equal to the depth (Y) of that particular course, unless otherwise specified in the plans.

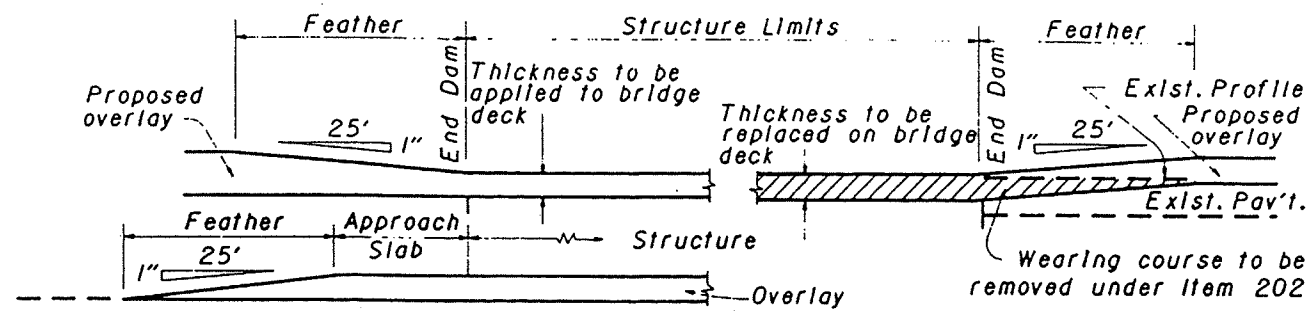
**SECTION A-A
COURSE DETAIL FOR WIDENING**



USING CONCRETE OR MORTAR

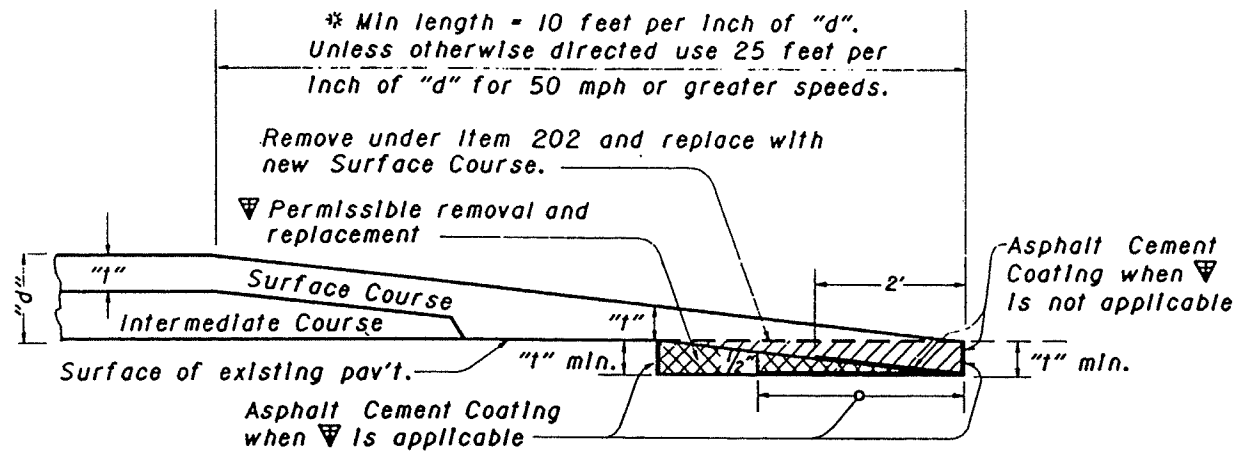
Metal adjusting rings shall: (a) attach securely to the existing frame by welding or mechanical devices; (b) consist either of cast metal having an integral rim and seat, or be fabricated metal with a sturdy connection between the seat and rim; and (c) provide an even seat for the manhole cover. In addition, the adjusting ring type shall be a design acceptable to the local governmental agency responsible for street and sewer maintenance. Any installation unacceptable to the Engineer shall be replaced by the Contractor at his expense.

MANHOLES ADJUSTED TO GRADE

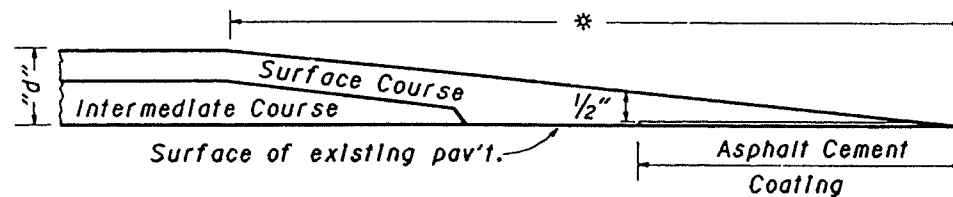


Details assume non-settled approach slabs. Smoothing of the profile for settlement is required per plan grades or as directed by the Engineer.

FEATHERING AT STRUCTURES



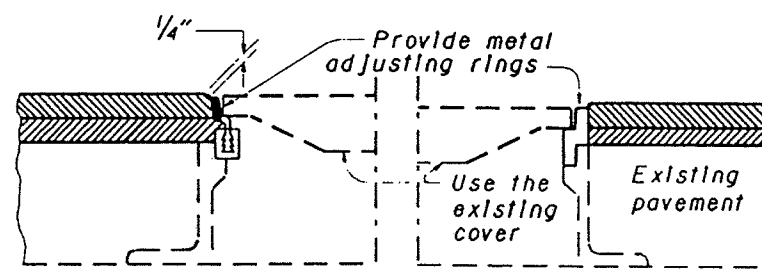
BUTT JOINT TYPE



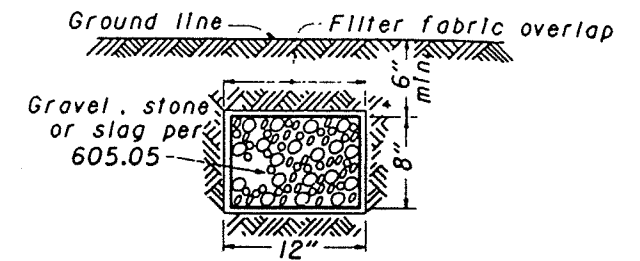
TAPER EDGE TYPE

NOTE: Either butt or taper type may be used unless type is specified by the plan.

PLACING FEATHERED AREAS

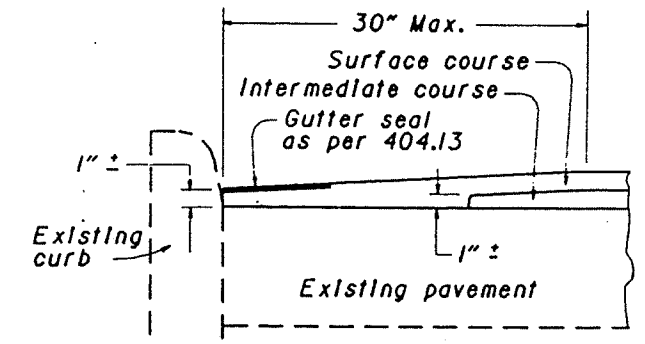


USING METAL ADJUSTING RINGS



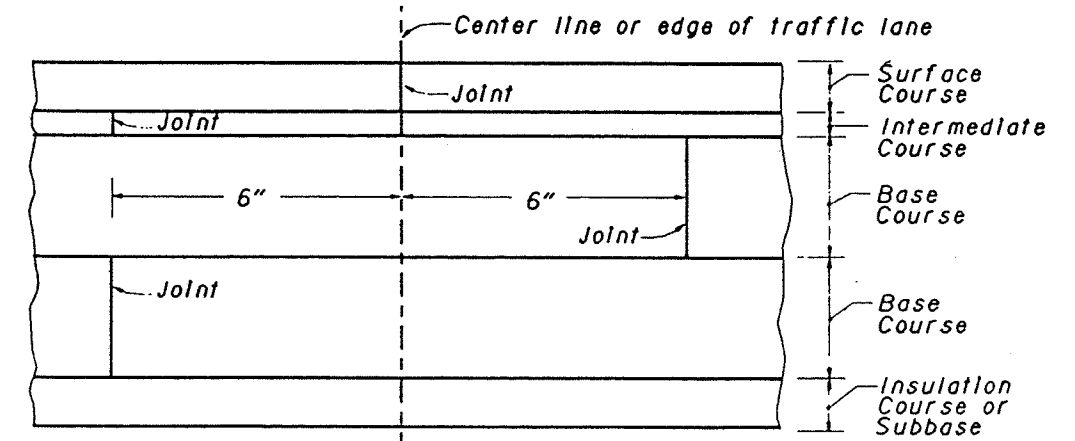
Aggregate drains to be placed where and as directed by Engineer. Provide filter fabric when specified as a separate pay item.

AGGREGATE DRAIN



Special care shall be taken during construction to obtain maximum compaction of bituminous concrete in gutters.

GUTTER FINISH



LAPPING LONGITUDINAL JOINTS

BUREAU OF LOCATION AND DESIGN
OHIO DEPARTMENT OF TRANSPORTATION

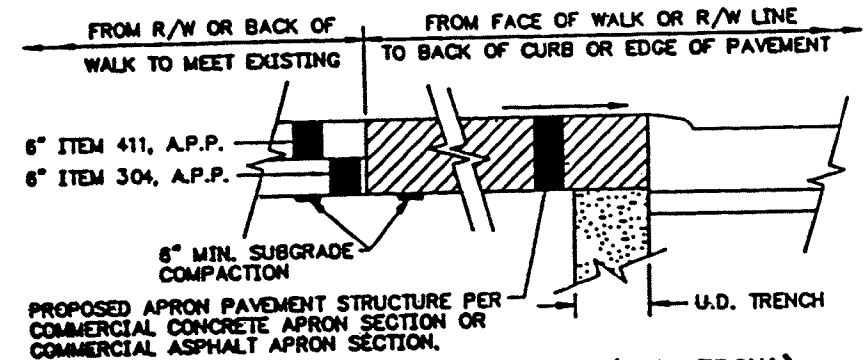
RESURFACING

DATE
2-21-92

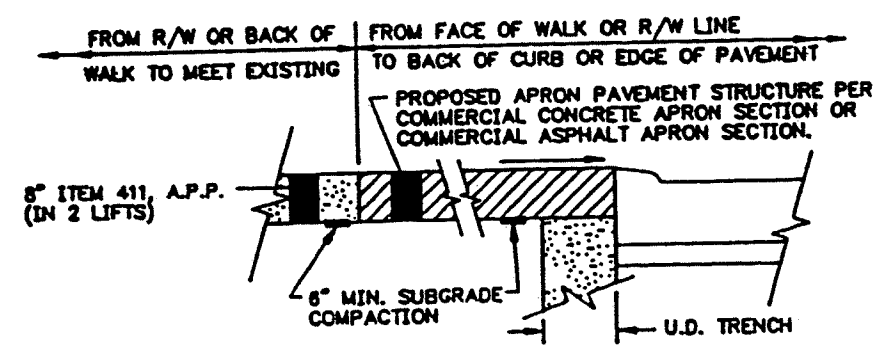
STANDARD
CONSTRUCTION
DRAWING

BP-3.1

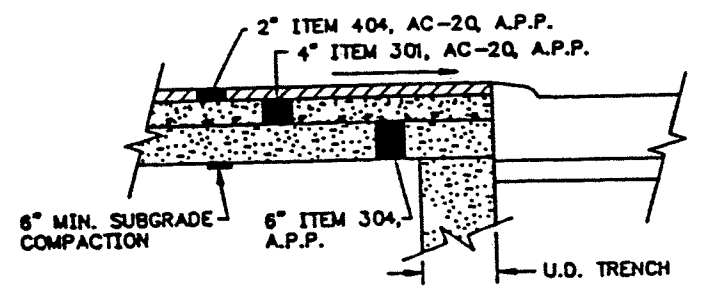
APPROVED *D.K. Hubman* ENGR., L. S. D.



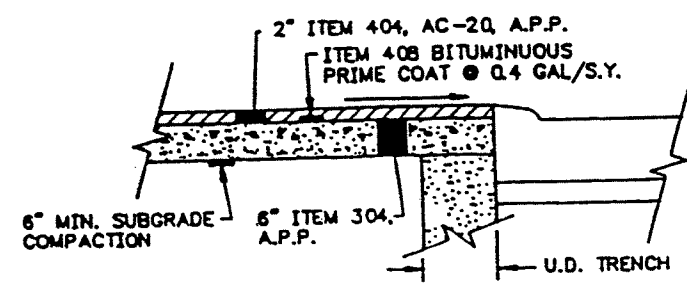
**AGGREGATE DRIVE (COMMERCIAL)
W/ASPH. OR CONC. APRON
SECTION***



**AGGREGATE DRIVE (COMMERCIAL)
W/ASPH. OR CONC. APRON
SECTION***

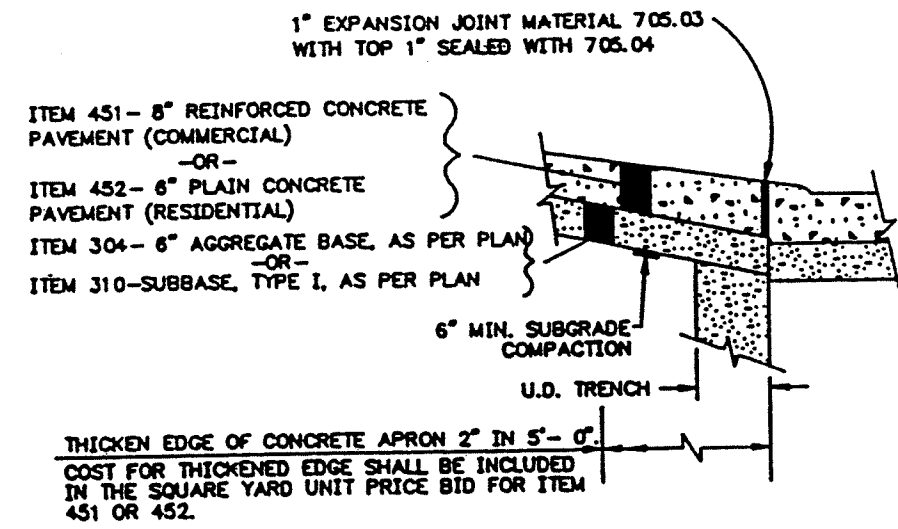


**ASPHALT DRIVE & APRON
(COMMERCIAL)
SECTION***



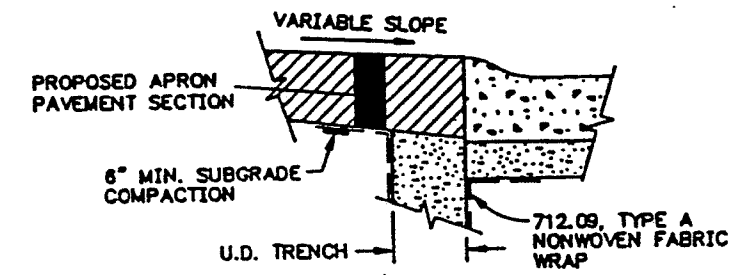
**ASPHALT DRIVE & APRON
(RESIDENTIAL)
SECTION***

FLEXIBLE DRIVES

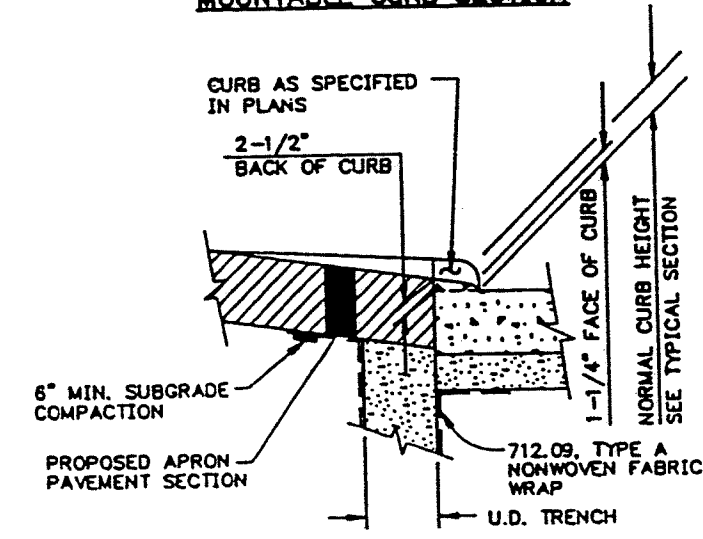


**CONCRETE DRIVE &
APRON SECTION
(WITH DROPPED CURB)**

CONCRETE DRIVES



MOUNTABLE CURB SECTION



DROPPED CURB SECTION

CURB DETAILS

NOTES:

(*) UNLESS OTHERWISE SHOWN ON THE PLAN TO MEET AN EXISTING HIGHER GRADE OF COMPOSITION.

DROPPED CURB HEIGHT SHALL BE ONE AND ONE FOURTH (1-1/4) INCHES AT FACE OF CURB AND TWO AND ONE - HALF (2-1/2) INCHES AT BACK OF CURB. SEE "DROPPED CURB SECTION." SATISFACTORY TRANSITION FROM NORMAL CURB HEIGHT TO DROPPED CURB HEIGHT SHALL BE AS DETAILED ON SHEET No. _____ AND INCLUDED IN THE CONTRACT UNIT PRICES BID FOR THE DRIVE APRON PAVEMENT AND ROADWAY CURB.

IMPRESSED (TOOLED) LONGITUDINAL JOINTS WITHOUT TIE BARS SHALL BE CONSTRUCTED AT THE CENTER LINE OF ALL CONCRETE DRIVES AND SHALL BE SEALED WITH 705.04 JOINT SEALER. ADDITIONAL JOINTS SHALL BE CONSTRUCTED AT TWELVE (12) FOOT MAXIMUM CENTERS AS DIRECTED BY THE ENGINEER. IN LIEU OF IMPRESSED JOINT CONSTRUCTION, LONGITUDINAL JOINTS MAY BE SAWS IN ACCORDANCE WITH 451.08 AND SEALED WITH 705.04 JOINT SEALER. LONGITUDINAL JOINTS SHALL BE A MINIMUM OF ONE - QUARTER (1/4) INCH WIDE BY ONE - FOURTH (1/4) TO ONE - THIRD (1/3) THE SLAB THICKNESS DEEP.

IMPRESSED (TOOLED) TRANSVERSE JOINTS WITHOUT DOWELS SHALL BE CONSTRUCTED AT TWELVE (12) FOOT MAXIMUM CENTERS FOR ALL CONCRETE DRIVES AND SEALED WITH 705.04 JOINT SEALER. ALL AT THE DIRECTION OF THE ENGINEER. IN LIEU OF THE IMPRESSED JOINT CONSTRUCTION, TRANSVERSE JOINTS MAY BE SAWS IN ACCORDANCE WITH 451.08 AND SEALED WITH 705.04 JOINT SEALER. TRANSVERSE JOINTS SHALL BE A MINIMUM ONE - QUARTER (1/4) INCH WIDE BY ONE - FOURTH (1/4) THE SLAB THICKNESS DEEP.

WIRE FABRIC MESH CONFORMING TO 708.10 SHALL BE 6"x 6" (W4 x W4) INSTALLED PER STANDARD CONSTRUCTION DRAWING BP-1.1 FOR ALL REINFORCED CONCRETE DRIVES.

CONCRETE DRIVES SHALL BE CONSTRUCTED THROUGH NEW OR EXISTING CONCRETE WALKS. ONE - HALF (1/2) INCH EXPANSION JOINT MATERIAL 705.03 SHALL BE PROVIDED WHERE DRIVES ABUT CONCRETE WALKS. WITHIN THE LIMITS THAT THE CONCRETE DRIVES CROSS THROUGH SIDEWALK, THE DRIVE PROFILES SHALL MATCH THE WALK CROSS SLOPE.

CONCRETE WALKS SHALL BE CONSTRUCTED THROUGH FLEXIBLE DRIVES BY PROVIDING A SIX (6) INCH THICKENED WALK SECTION WITH A TWO (2) INCH SCREENINGS BED ON A SIX (6) INCH MINIMUM COMPACTED SUBGRADE THROUGH AND A MINIMUM OF ONE (1) FOOT EITHER SIDE OF A RESIDENTIAL DRIVE; AND AN EIGHT (8) INCH THICKENED WALK SECTION WITH FOUR (4) INCHES OF AGGREGATE BASE COURSE (ITEM 304, AS PER PLAN) ON A (6) INCH MINIMUM COMPACTED SUBGRADE THROUGH AND A MINIMUM OF ONE (1) FOOT EITHER SIDE OF A COMMERCIAL DRIVE. THE ABOVE WORK SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR ITEM 608 4-1/2" CONCRETE WALK, AS PER PLAN.

FOR SHOULDER AND DITCH SECTIONS SEE TYPICAL DRIVE PIPE AND DITCH INLET DETAILS ON CONSTRUCTION DRAWING MD-5C.

FOR TYPICAL DRIVE AND DRIVE APRON GEOMETRICS, SEE DETAILS ON SHEET No. _____ AND THE CORRELATING DRIVE TABLE DIMENSIONS ON SHEET No. _____. THE DRIVE AND DRIVE APRON DETAILS ILLUSTRATE TYPICAL DRIVE/APRON GEOMETRY, CURB CUT TRANSITIONS, DRIVE CURB DETAILS, ETC., AND ARE CORRELATED WITH THE DRIVE TABLE DIMENSIONS. FOR DRIVE PROFILES SEE SHEET No.(s) _____.

NOTE TO DESIGNER: REFERENCE IS MADE TO THE APPROPRIATE SUB-SECTIONS AND FIGURES OF SECTION 800 OF THE O.D.O.T. L & D. MANUAL.

THIS DRAWING REPLACES PREVIOUS DRAWINGS No. CD-1 & FD-3.

CUYAHOGA COUNTY ENGINEER	
DRIVE & DRIVE APRON PAVEMENT COMPOSITIONS	DATE
	3-1-86
	5-5-87
	2-8-88
	3-9-92
CONSTRUCTION DRAWING BP-4.1C	

NOTES

PAYMENT: Walk and curb, items 608 and 609, shall be measured through the curb ramp area and paid for under their respective items. Item "608, each, Curb ramp" constructed in new curb and walk shall include the cost of any additional materials, grading, forming and finishing. Item "608, square foot, Curb ramp", constructed in existing curb and walk shall include the total cost of furnishing all materials and constructing the curb and walk of the curb ramp. Removal of existing curb and walk shall be paid for under item 202.

SURFACE TEXTURE shall be obtained by coarse brooming transverse to the ramp slopes and shall be rougher than adjacent walk.

JOINTS shall be provided in the curb ramp as extensions of walk joints and constant with 608.03 requirements for a new concrete walk. A 1/2" 705.03 expansion joint filler shall be provided around the edge of ramps built in existing concrete walk. Lines shown on this drawing to indicate the ramp edge and slope changes are not necessarily joint lines.

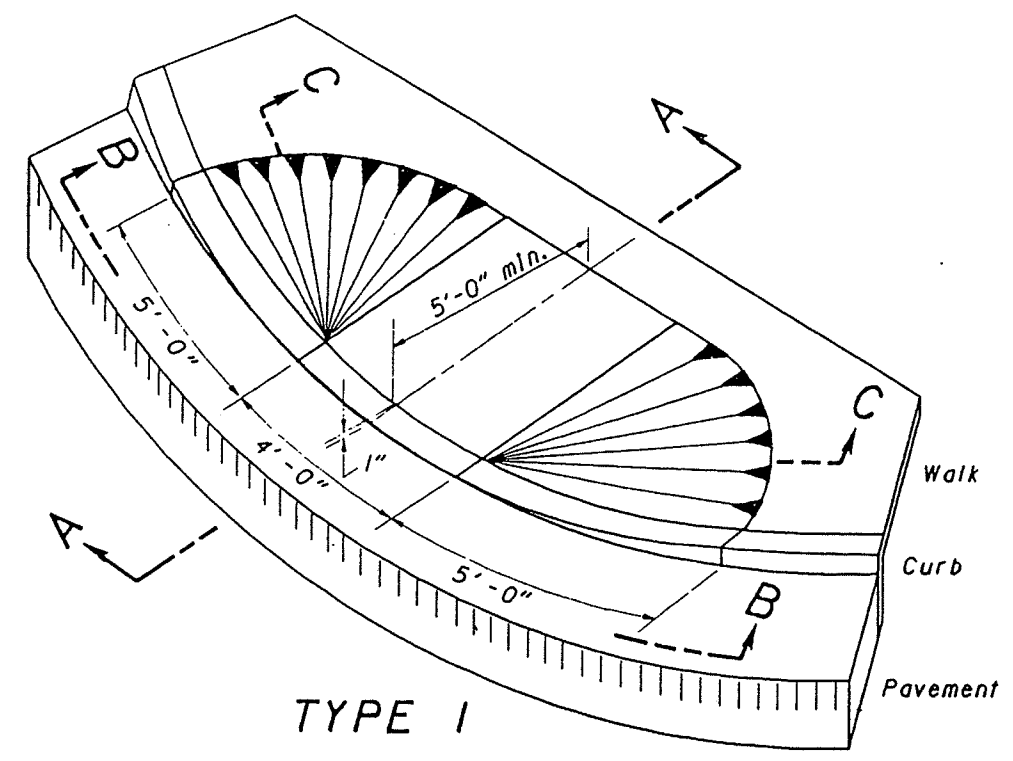
DIMENSIONS, LOCATION AND TYPE of curb ramp may be modified as directed by the engineer in accordance with the following:

TYPE of curb ramp built shall be the type that best fits the location unless a specific type is specified. Type 1 is preferred because of the flatter side slopes. Any combination of Type 1 and 2 side slopes on opposite sides of a ramp may be used to best fit the site conditions.

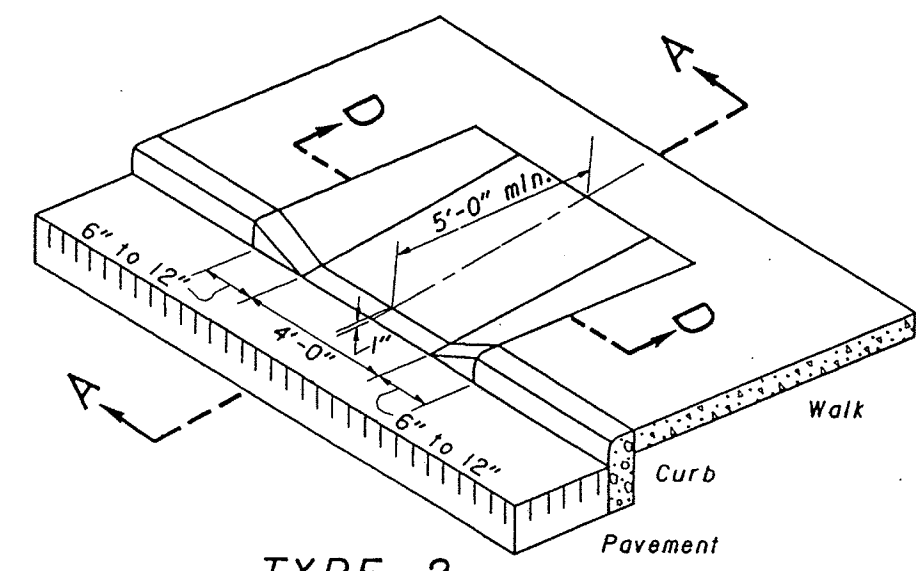
SLOPE of the ramp toward the curb is preferred to be 12:1 or flatter related to the horizontal but the maximum slope shall be 12:1 related to the existing or proposed walk slope. The minimum ramp length is 5' from the back of a 6' curb and may be increased where feasible to obtain a flatter ramp slope or to better blend with the walk configuration.

WIDTH of ramp shall normally be 4' but a minimum width of 36" may be used to better fit the walk configuration or where site conditions are restricted by narrow walks, pole foundations, drainage inlets, etc. The width may be tapered.

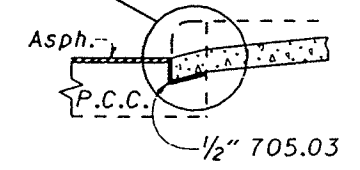
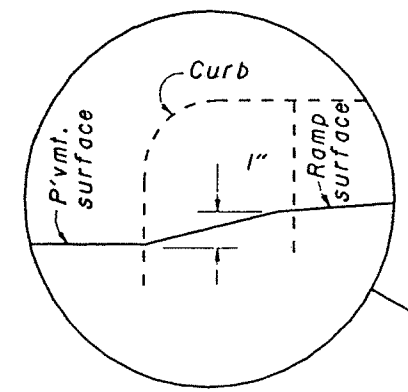
WALK THICKNESS in the ramp slopes shall be 4" minimum or thicker as necessary to match adjacent walk thickness.



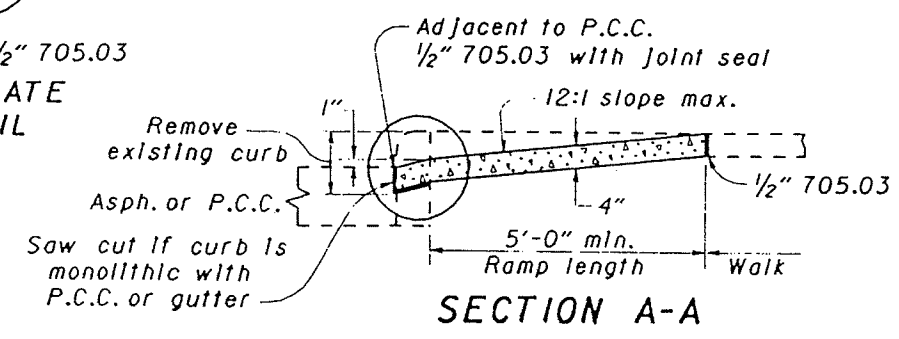
TYPE 1



TYPE 2

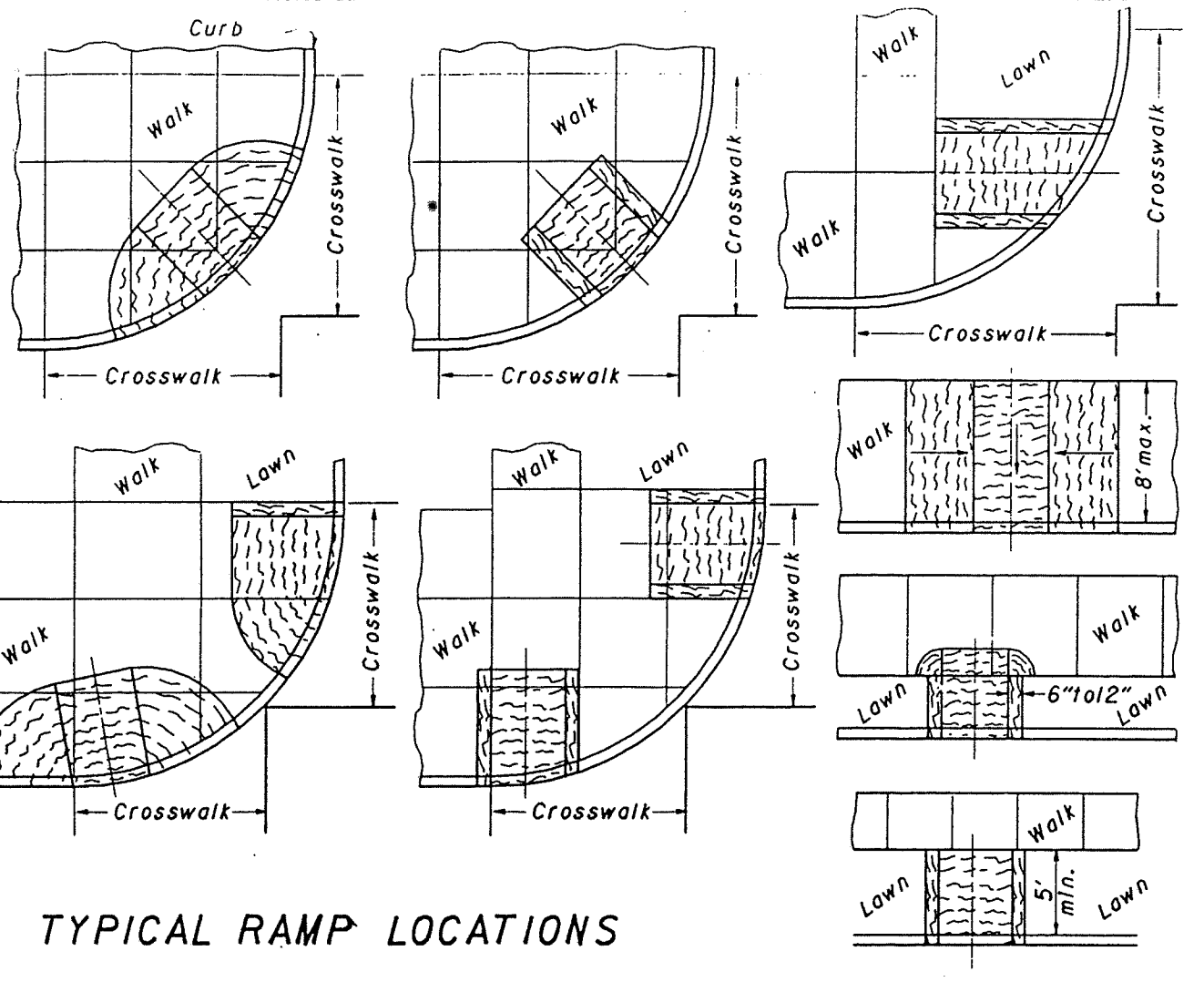


ALTERNATE DETAIL

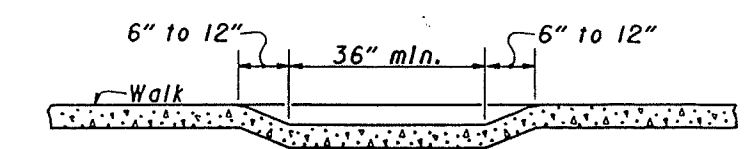


SECTION A-A

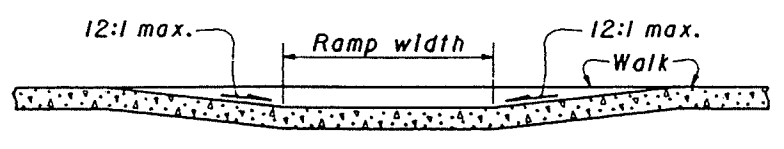
IN EXISTING WALK



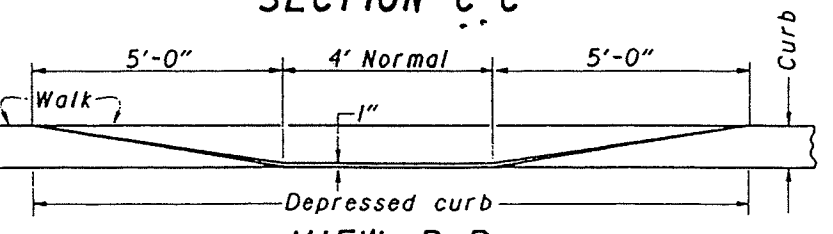
TYPICAL RAMP LOCATIONS



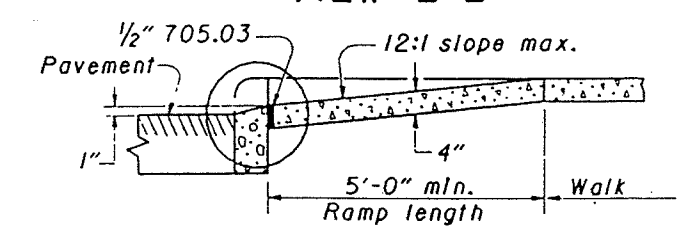
SECTION D-D



SECTION C-C

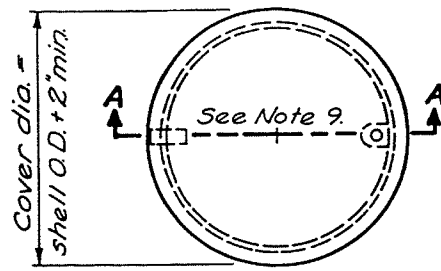


VIEW B-B

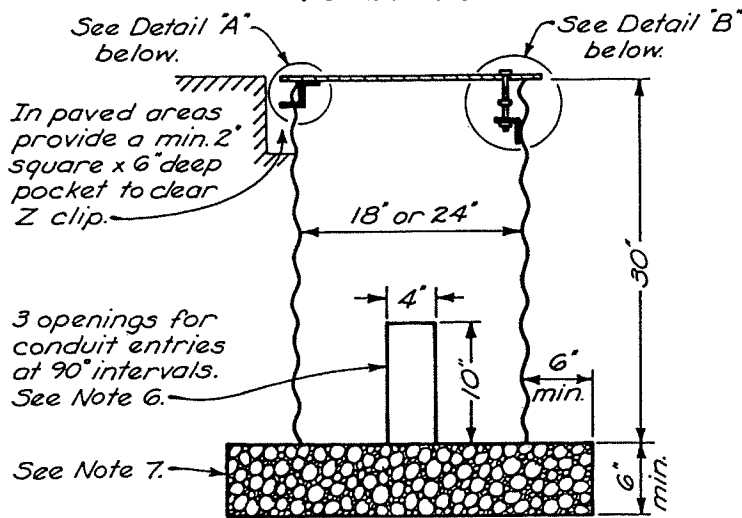


SECTION A-A

BUREAU OF LOCATION AND DESIGN OHIO DEPARTMENT OF TRANSPORTATION	
CURB RAMPS	
STANDARD CONSTRUCTION DRAWING	BP-7.1
APPROVED: <i>D.K. Hehman</i> ENGR. 1 & 2	DATE 2-21-92

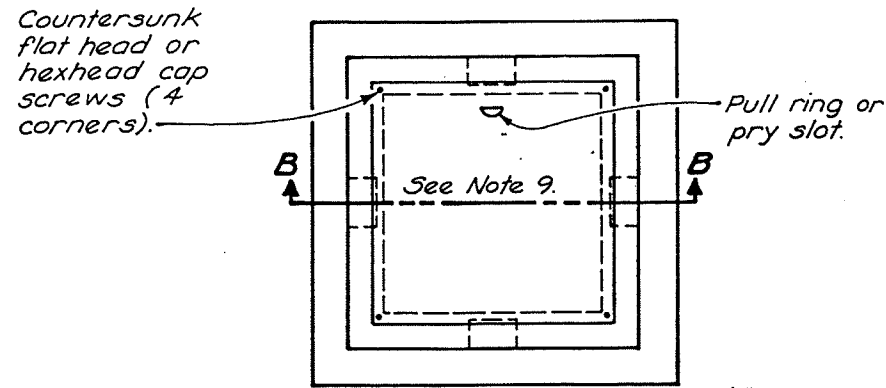


PLAN VIEW

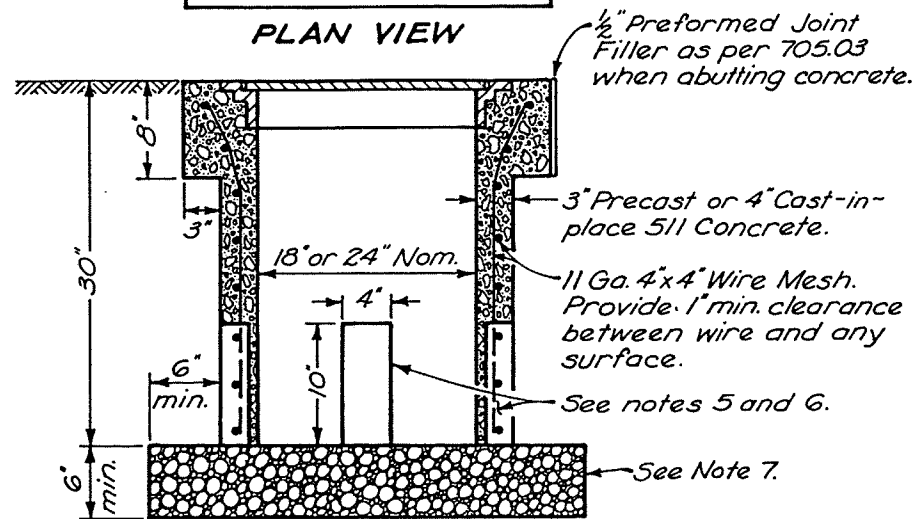


SECTION A-A

CORRUGATED STEEL PULL BOX

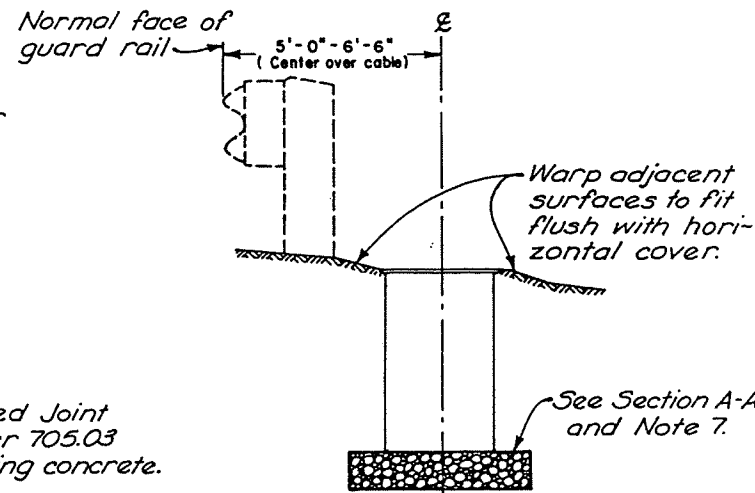


PLAN VIEW

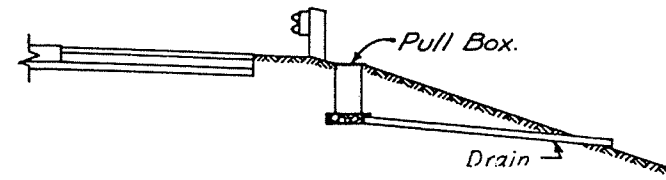


SECTION B-B

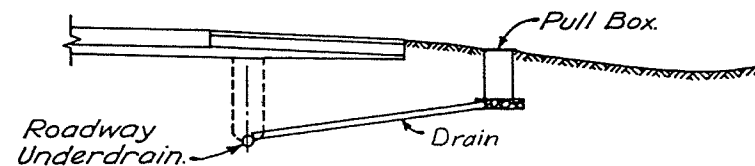
CONCRETE PULL BOX



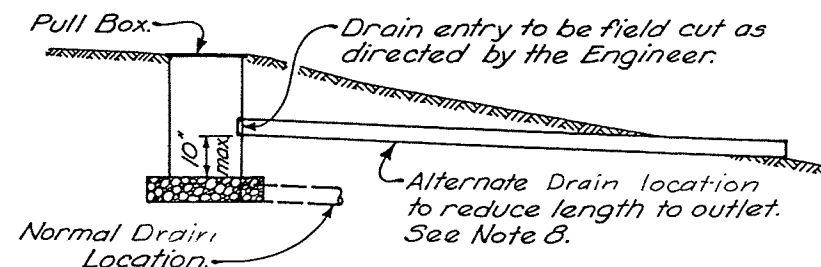
NORMAL INSTALLATION



INSTALLATION IN ROADWAY FILL SECTION



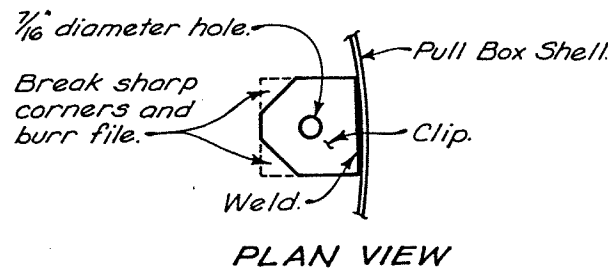
INSTALLATION IN ROADWAY CUT SECTION



ALTERNATE UNDERDRAIN LOCATION UNDERDRAINS FOR PULL BOXES

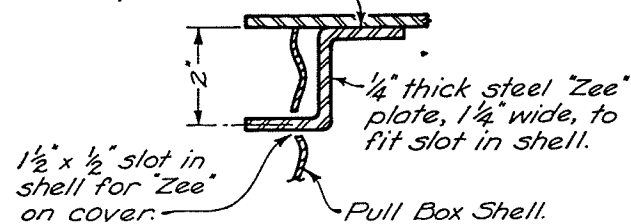
NOTES

1. Pull boxes shall conform with 625.11, 713.08, 713.081 and 713.09
2. Concrete pull boxes shall have ferrous metal covers and matching frames by Neenah, Josam or Zurn Foundries, or approved equal. Covers may be 1/2" minimum galvanized plate steel or cast iron with reinforcing ribs.
3. Tapered thickness concrete pull box walls may be used; however, minimum wall thickness shall be as indicated.
4. Lifting rings or wire pulling rings may be incorporated into precast concrete pull box walls.
5. Conduit entries for cast-in-place concrete pull boxes shall be cast as required. Precast pull boxes may have blocked out sections of the wall as knockouts in the quantity of one per wall.
6. Unused opening areas surrounding conduits shall be blocked after conduit installation.
7. Aggregate used for pull boxes shall be No. 7 or 8, at least 6" deep. Costs for aggregate shall be included with the unit price bid for each pull box.
8. Pull box drains in accordance with 603 shall be installed when specified, or as directed by the Engineer. Alternate drain location may be used when normal run would exceed 20 feet.
9. See 713.09 for cover marking requirements.

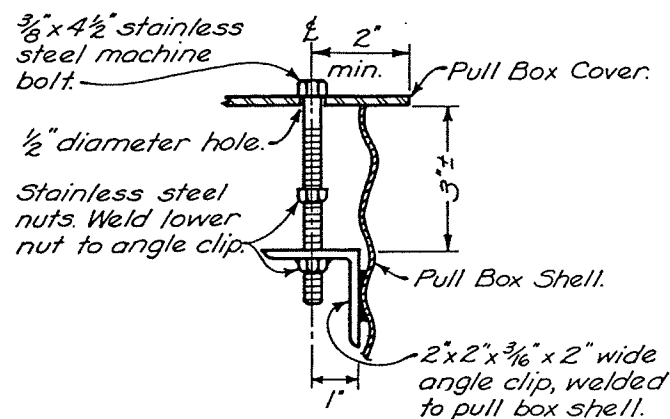


PLAN VIEW

If cover is 1/4" thick steel plate per 713.09, 3(a), weld "Zee" clip to cover. If cover is 3/8" cast iron per 713.09, 3(b), rivet "Zee" clip to cover.

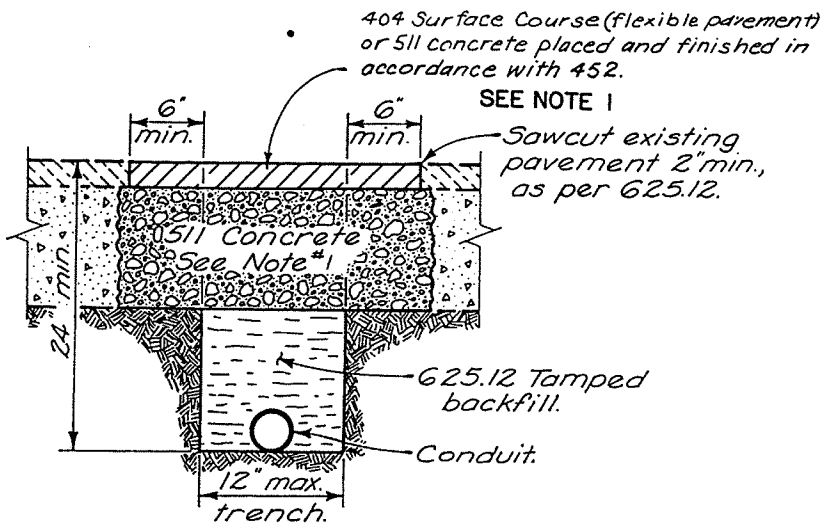


ELEVATION
DETAIL A

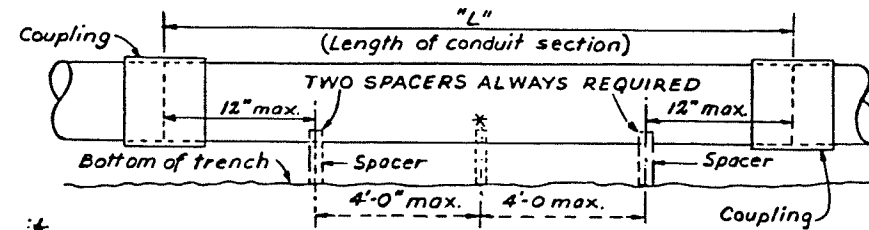
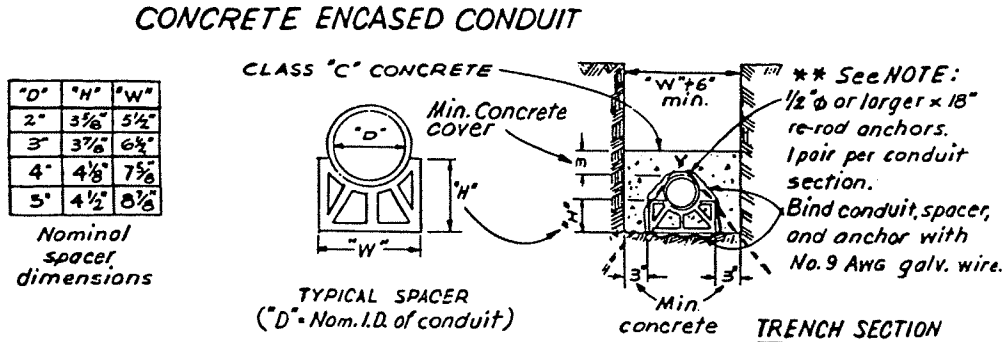


ELEVATION
DETAIL B

BUREAU OF DESIGN SERVICES DIVISION OF HIGHWAYS	
OHIO DEPARTMENT OF TRANSPORTATION	
HIGHWAY LIGHTING	DATE
PULL BOX DETAILS I	5-1-87
STANDARD CONSTRUCTION DRAWING	HL-30.11
APPROVED [Signature]	Engineer of Design Services



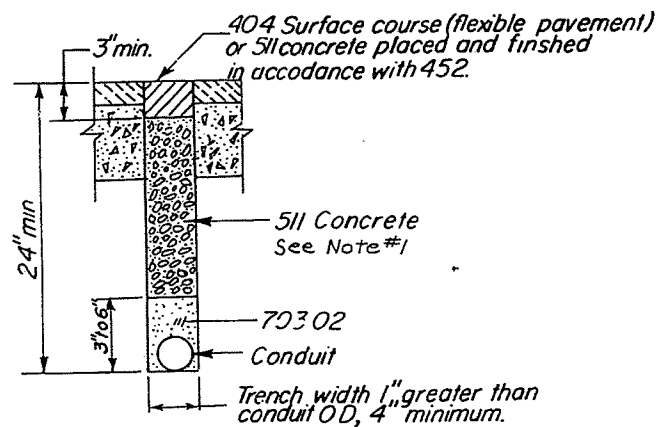
TRENCH IN PAVED AREAS



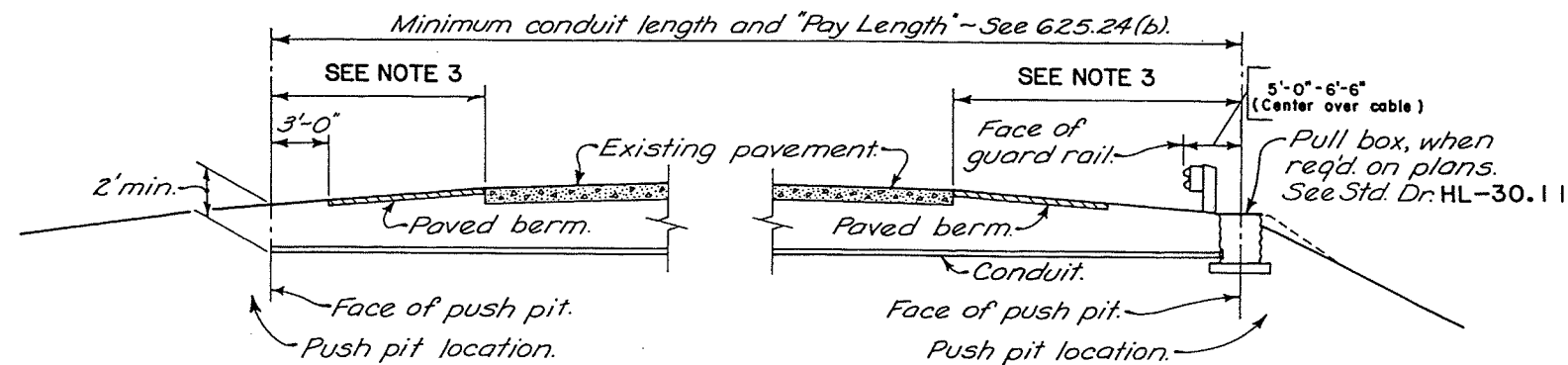
* Intermediate spacer required when "L" equals 10'-0"
Additional spacers shall be required when "L" exceeds 10'-0"

SIDE ELEVATION

** NOTE: DELETE ANCHORS AND BINDING WIRE WHEN USING STEEL CONDUIT.



NARROW SLIT TYPE TRENCH



CONDUIT JACKED UNDER PAVEMENT

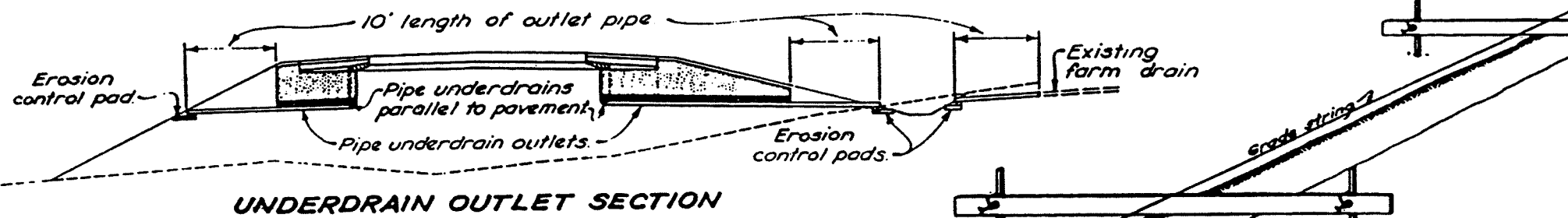
NOTES

1. At trench locations in paved areas, replacement of disturbed flexible pavement shall consist of 511 Concrete placed to within 2" of the surface and a 404 Surface course matching the existing surface. Replacement of disturbed rigid pavement shall consist of 511 Concrete with surface placed and finished in accordance with 452.
2. Site clearing and restoration shall be in accordance with 603.09.
3. When undermining shoulder areas that do not have paved berms provide 3/4" thick steel surface plates, corrugated pipe sleeves, shoring or other approved means to prevent cave-in.
4. When conduit is jacked or drilled under divided pavements cable may be installed in a trench through the median area when specified in the plans.

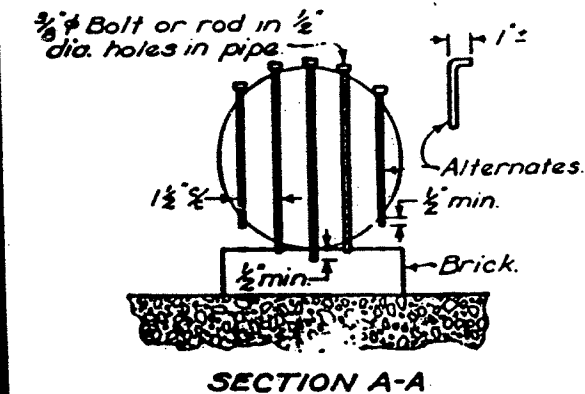
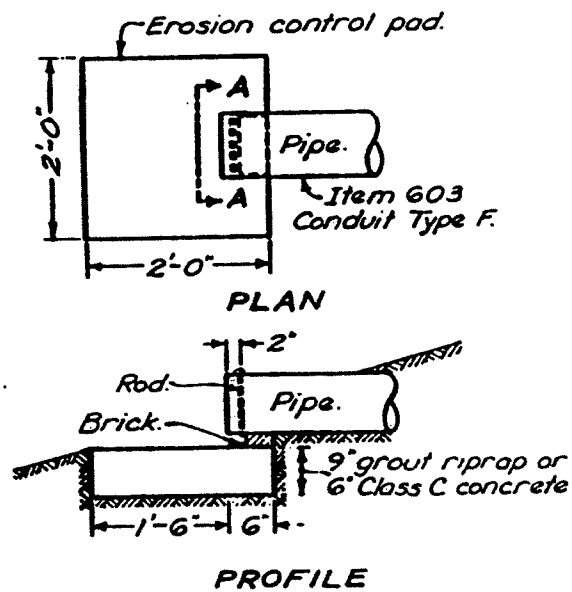
BUREAU OF DESIGN SERVICES DIVISION OF HIGHWAYS OHIO DEPARTMENT OF TRANSPORTATION	
HIGHWAY LIGHTING	DATE
ROADWAY CONDUIT DETAILS II	5-1-87
STANDARD CONSTRUCTION DRAWING	HL-30.22
APPROVED <i>[Signature]</i> Engr. of Design Services	

CONSTRUCTION METHODS

NOTES

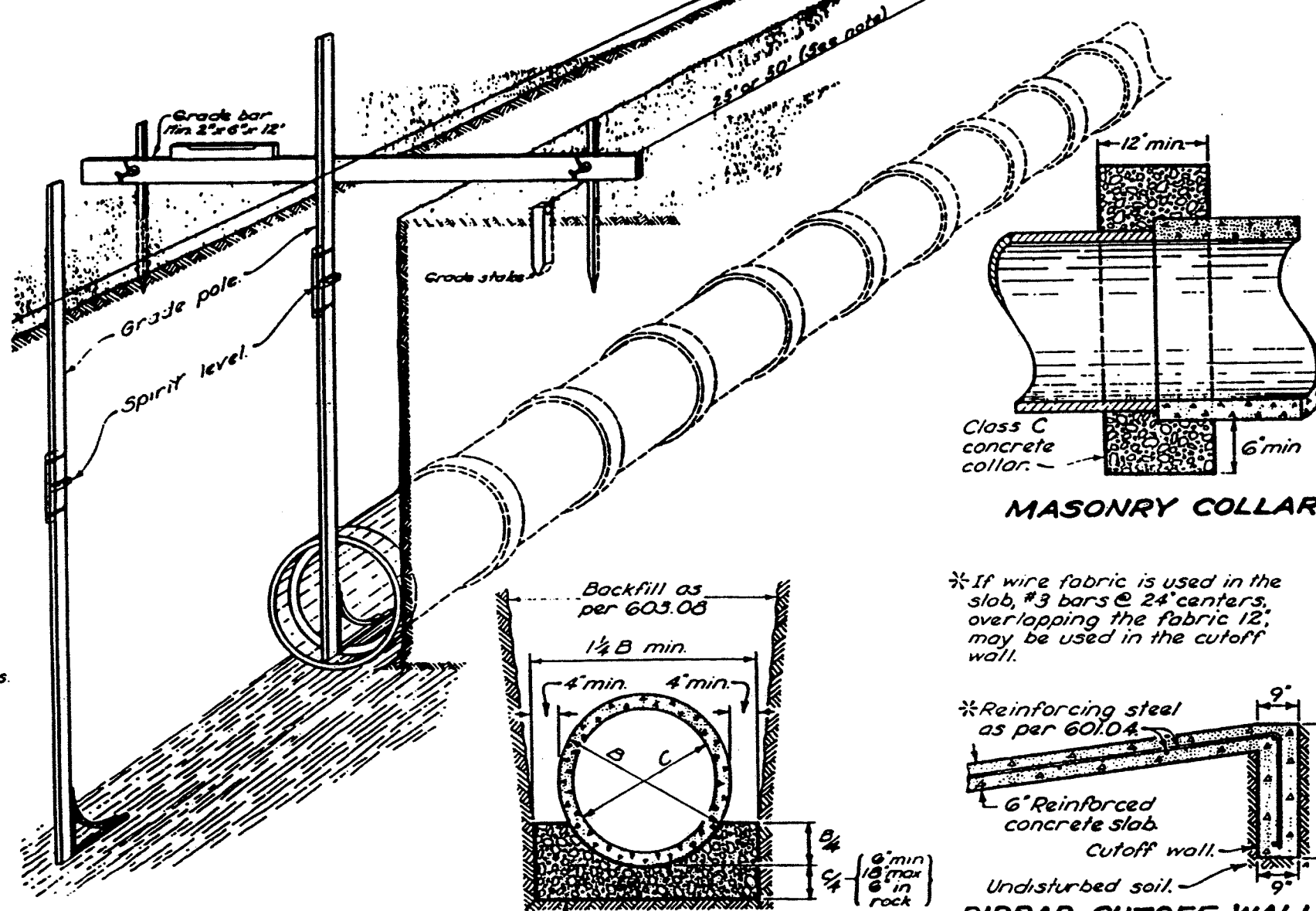


UNDERDRAIN OUTLET SECTION



Conduit Size	4"	6"	8"	10"	12"	15"	18"
No. of Bolts	2	3	5	6	7	9	11

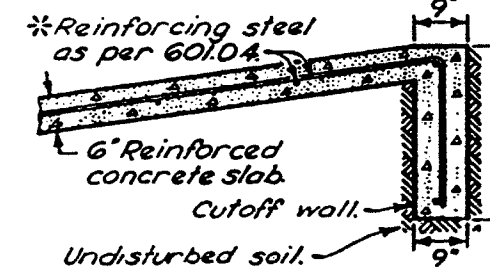
ANIMAL GUARD AND EROSION CONTROL PAD FOR OUTLET PIPE



LAYING PIPE

CONCRETE CRADLE CLASS A BEDDING

*If wire fabric is used in the slab, #3 bars @ 24" centers, overlapping the fabric 12", may be used in the cutoff wall.



RIPRAP CUTOFF WALL
Cutoff wall shall be included in the price bid for Item 601 Riprap-6" Reinforced Concrete Slab.

GRADE STAKES shall be set at the following intervals:
For grades less than 0.70% - 25 ft.
For grades of 0.70% and over - 50 ft.

GRADE POLE shall be a straight pole dressed with corners rounded, size depending on length but approximately 1" x 2". The pole shall be equipped with a metal bracket on the bottom with a projecting length of 12" Notches shall be cut on the pole for the depth of the flowline below the grade string and for the depth of trench. A spirit level shall be used on the pole to determine when the pole is vertical.

ALTERNATE METHODS: The Engineer may approve other methods of determining alignment and gradient of pipe lines if the Contractor can demonstrate that the same degree of accuracy can be obtained as can be obtained by use of the method shown on this drawing.

MASONRY COLLARS: Where plans require that a pipe extension be joined to the end of an existing pipe with a butt joint, a collar shall be provided and the cost shall be included in the price bid for new conduit.

EROSION CONTROL PADS AND ANIMAL GUARDS shall be provided at the outlet end of all pipe underdrains and farm drains except when they outlet into a drainage structure. The steel bolts or rods for the animal guard shall be galvanized per 710.10. In lieu of drilling or punching the 1/2" diameter holes into the pipe, a metal collar meeting all of the above requirements, may be clamped on the end of the pipe, if approved by the Engineer. Payment for the erosion control pads and the animal guards shall be included in the price bid for Item 603 - Conduit, Type F.

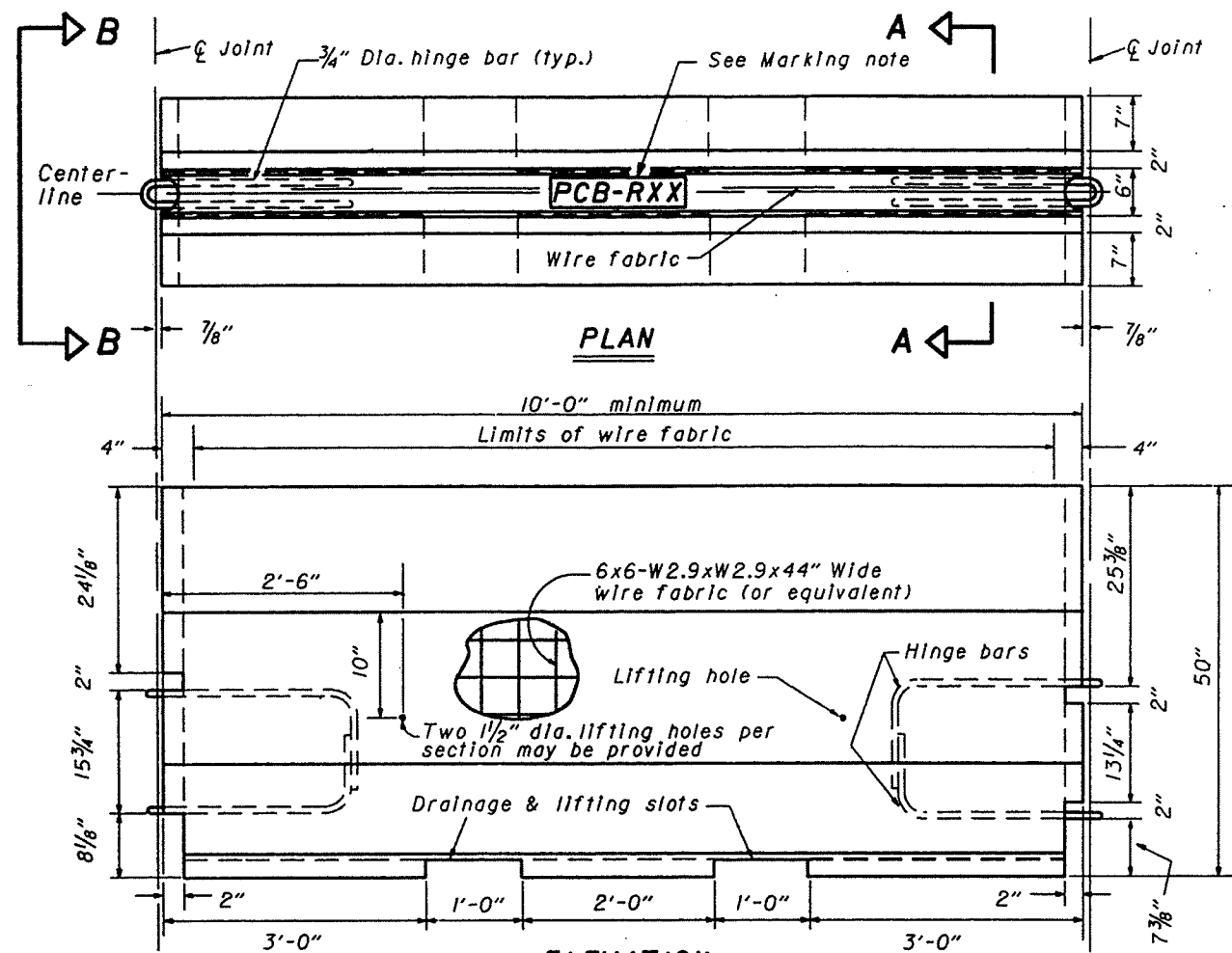
BUREAU OF ROADWAY DESIGN
OHIO DEPARTMENT OF TRANSPORTATION

DRAINS AND SEWERS

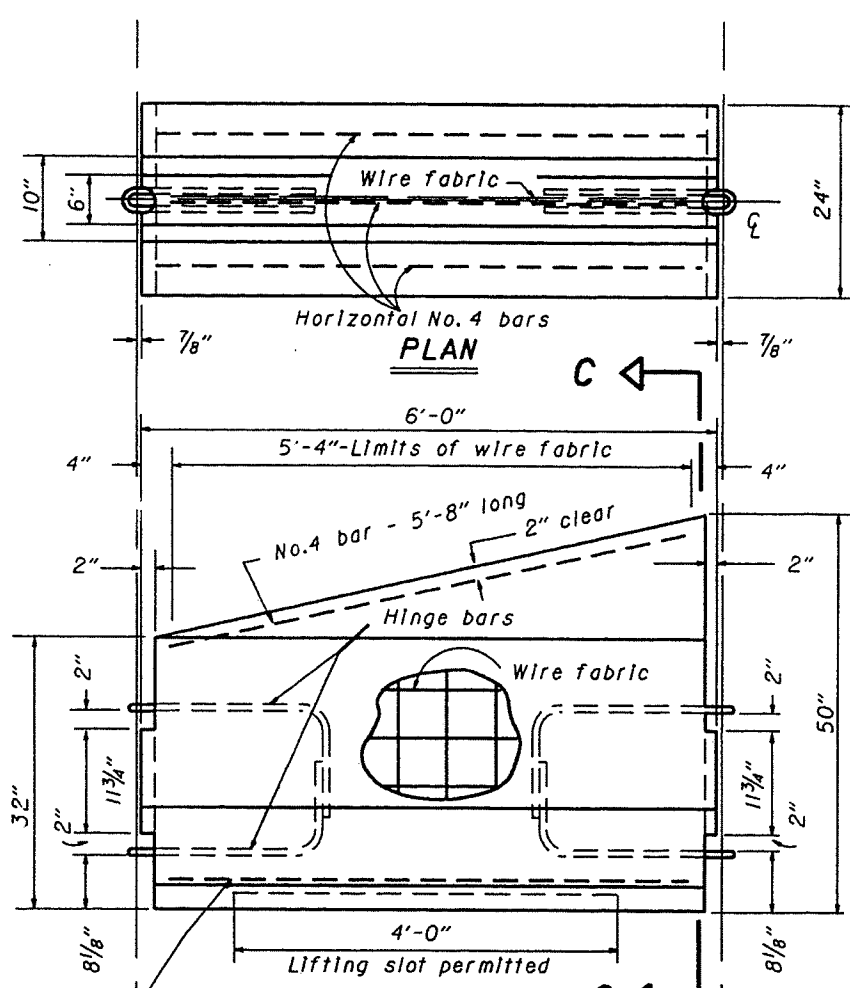
STANDARD CONSTRUCTION DRAWING
APPROVED *[Signature]* ENGR., R.D.

DATE
6-1-65
8-13-69
7-26-76

MC-4



BARRIER DETAILS



50" TRANSITION SECTION

NOTES

PORTABLE CONCRETE BARRIER (PCB), as shown shall not be used on bridge deck edges. PCB, Bridge Mounted shall be used at such locations in accordance with the Bureau of Bridges Standard Construction Drawing PCB-91.

PCB shall be constructed of Class "C" concrete and in conformance with 706.13.

50" PCB: Shall be constructed with the upper 18" integral with the bottom, where the wire fabric extends as shown throughout, or separately with No. 4 rebar dowels at maximum 3'-0" spacing. Start and end dowels 6 inches from barrier segment ends.

50" TRANSITION SECTION: A 32" tapered end section or 32" Portable Concrete Barrier section (Std. Dwg. MC-9.2) must be connected to the 32" end of the 50" transition section.

WIRE FABRIC shall meet the requirements of 709.10.

CONNECTING BOLTS, washers and hex nuts shall meet the requirements of 711.09 and be galvanized after fabrication per 711.02.

THE 3/4" DIA. HINGE BARS and No. 4 reinforcing bars shall meet the requirements of 509.02.

HINGE BAR PLACEMENT See Hinged Connection Detail on Std. Dwg. MC-9.2. For open and closed joint connections of adjacent barriers, see Joint Connection Detail on Std. Dwg. MC-9.2.

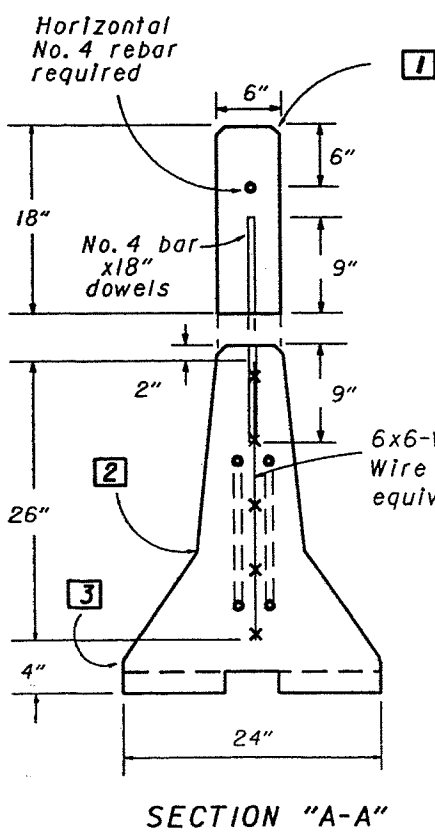
HANDLING DEVICES may be used in lieu of the lifting slot for moving the barrier. They may be of any design sufficient to handle the weight of the section being lifted. No handling devices shall protrude from the surface of the barrier when in place.

MARKING: All barrier segments shall be marked as shown, where XX indicates the year cast. These markings shall be permanently impressed in the barrier using a minimum of 2" high lettering.

Each segment shall have, on its top, a unique identification as to its manufacturer and, somewhere on the barrier, the day and month the barrier was manufactured.

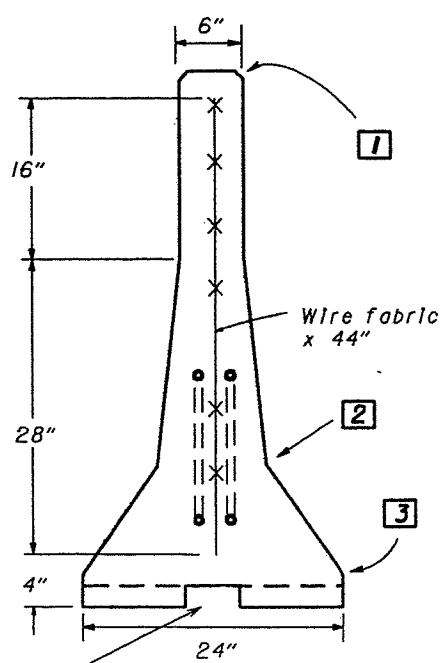
LEGEND

- 1 1" Radius or 3/4" Chamfer, all top and end corners.
- 2 Permissible 10" radius.
- 3 Permissible 1" radius.



SECTION "A-A"

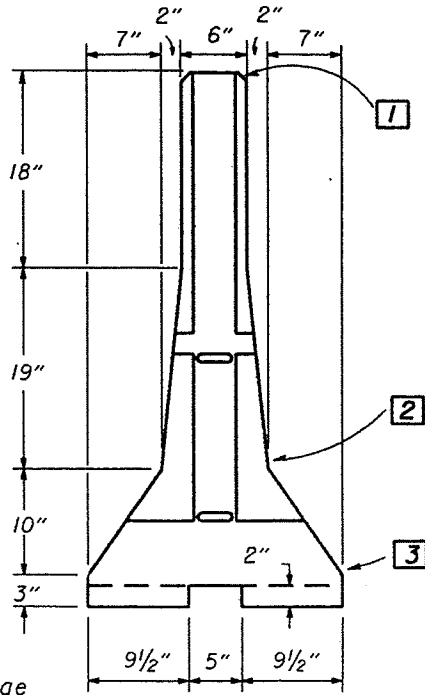
Separate Top



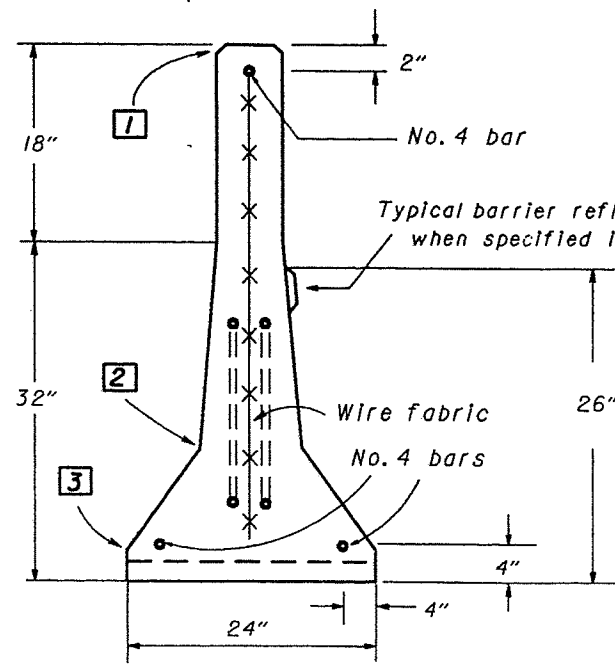
SECTION "A-A"

Integral Top

KEYWAYS: Vertical edges on keyway & drainage slots may be battered. Depth 2" ± 1/4".



VIEW "B-B"



SECTION "C-C"

BUREAU OF LOCATION AND DESIGN
OHIO DEPARTMENT OF TRANSPORTATION

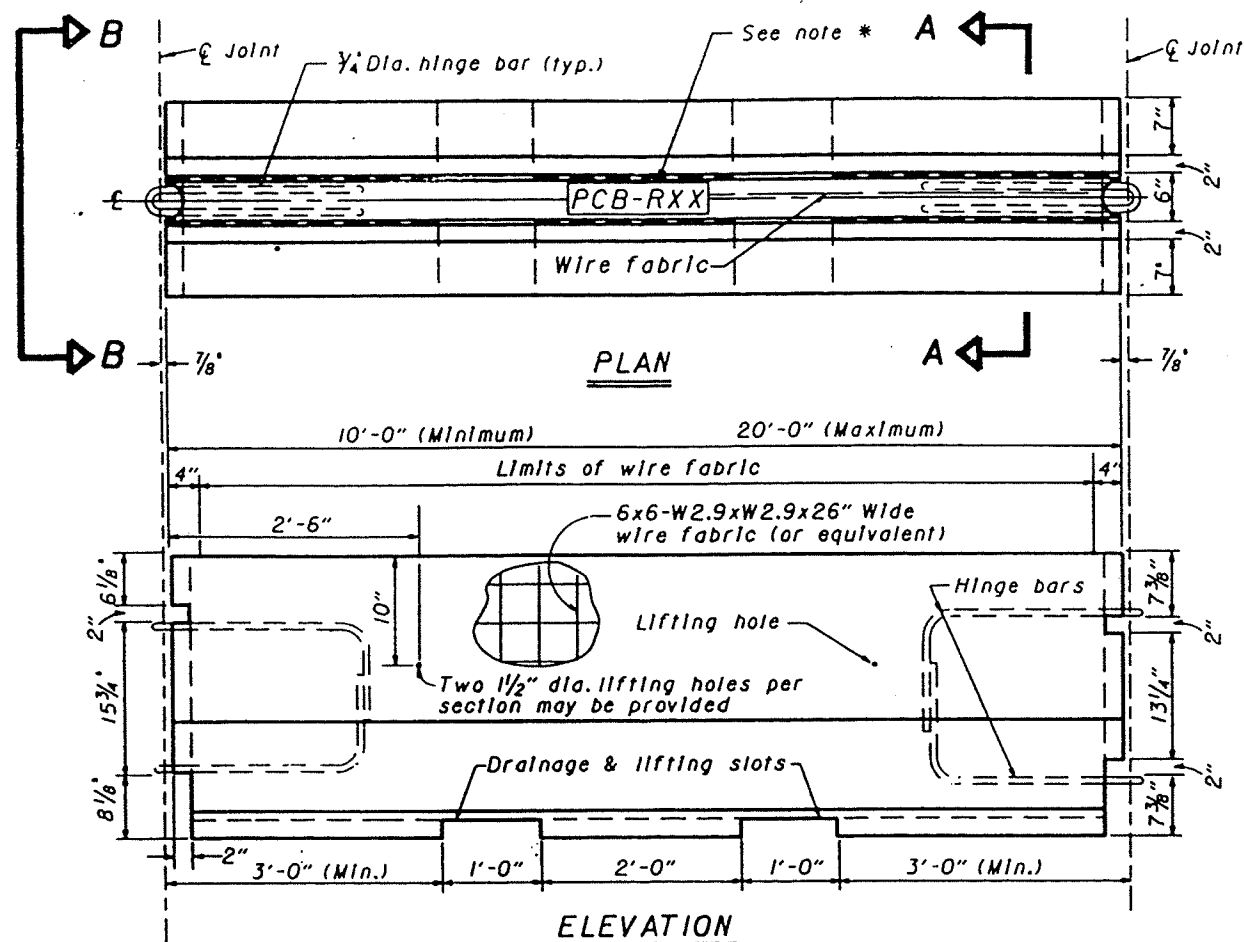
**50 INCH PORTABLE
CONCRETE BARRIER**

STANDARD
CONSTRUCTION
DRAWING

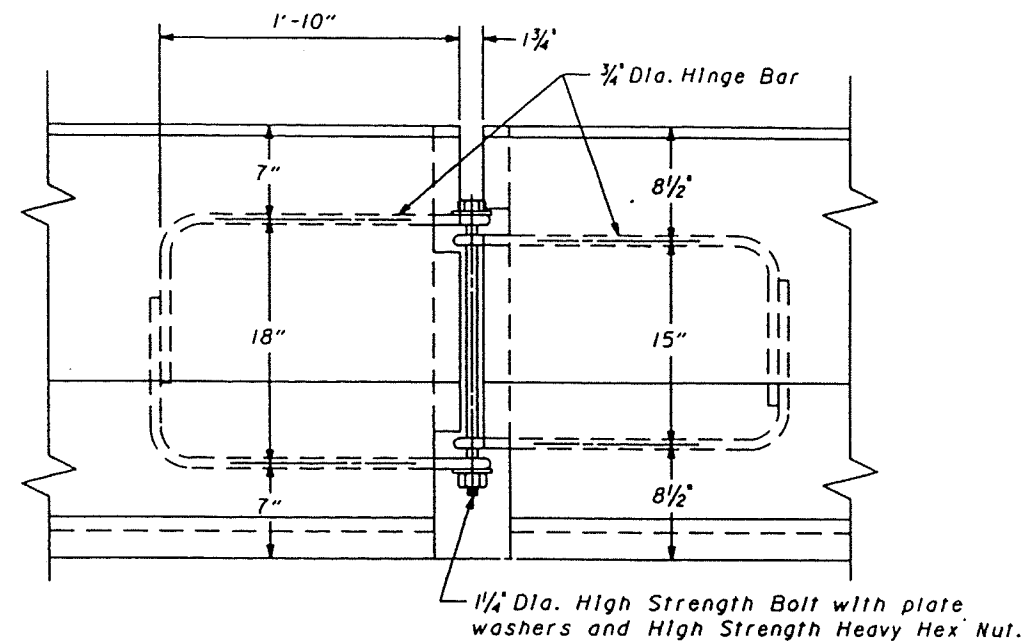
MC-9.1

DATE
10-30-92

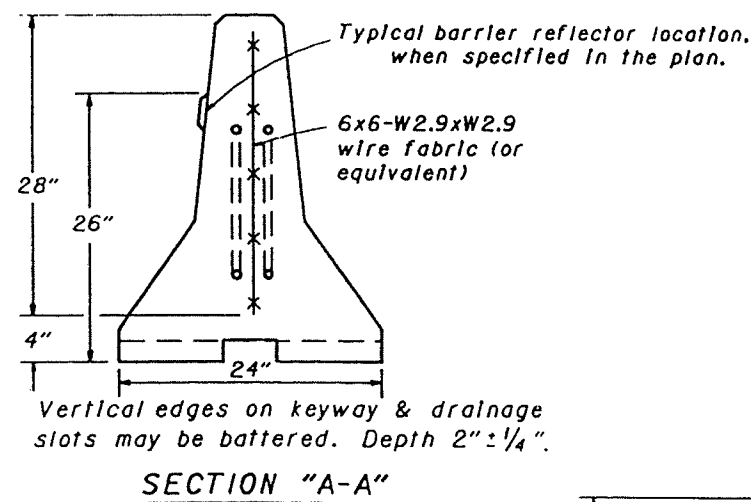
APPROVED *R.K. Hickman* ENGR., L & D



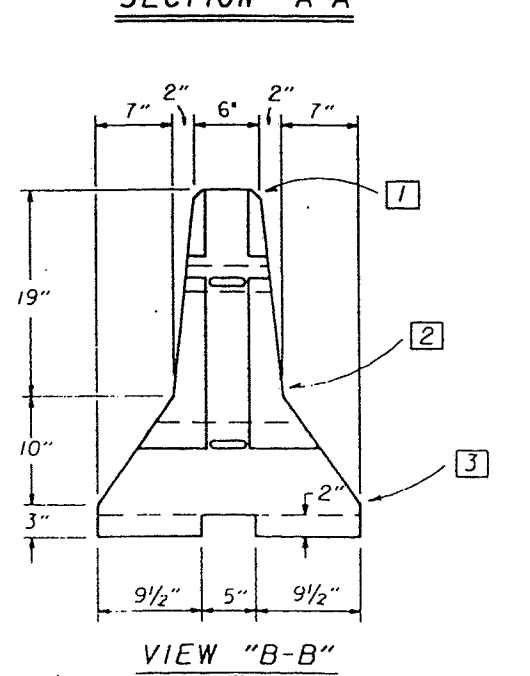
ELEVATION
BARRIER DETAILS



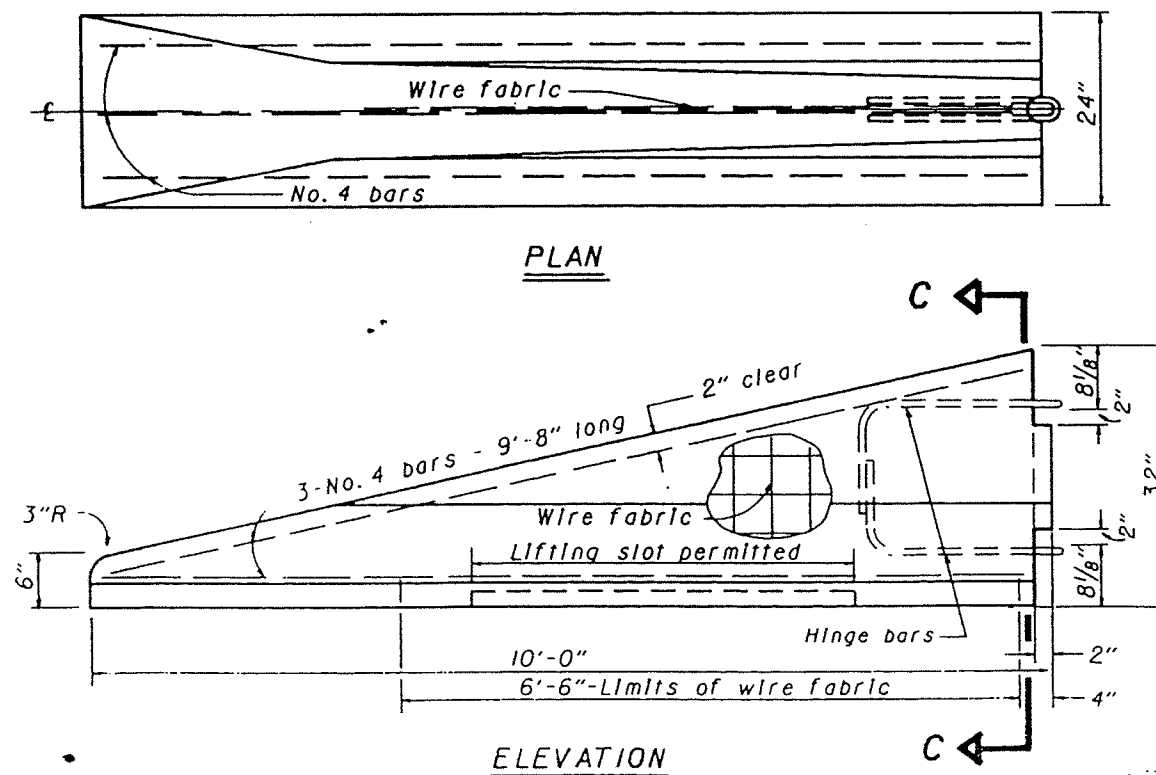
DETAIL AT HINGED CONNECTION



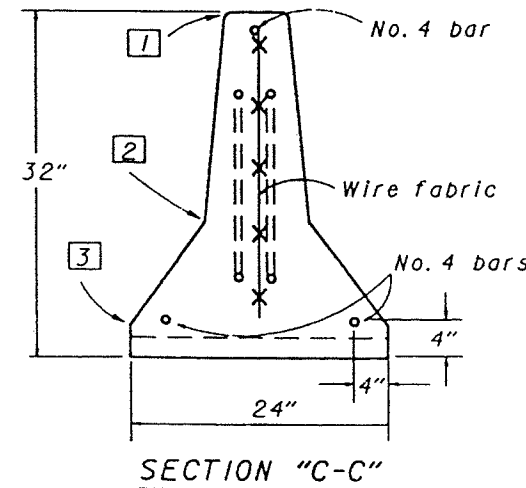
SECTION "A-A"



VIEW "B-B"



ELEVATION
TAPERED END SECTION DETAILS



SECTION "C-C"

- 1 1" Radius or 3/4" Chamfer, all top and end corners.
- 2 Permissible 10" radius.
- 3 Permissible 1" radius.

NOTES

PORTABLE CONCRETE BARRIER (PCB), as shown shall not be used on bridge decks. PCB, Bridge Mounted shall be used on structures in accordance with barrier design and guidelines provided by the Bureau of Bridges. The PCB, Bridge Mounted design may also be used for roadway applications if the contractor chooses to do so.

CONNECTING BOLTS, washers and hex nuts shall meet the requirements of 711.09 and be galvanized after fabrication per 711.02.

THE 3/4" DIA. HINGE BARS and No. 4 reinforcing bars shall meet the requirements of 509.02.

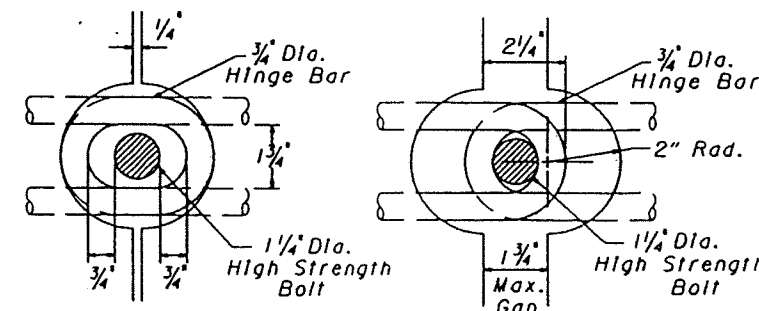
WIRE FABRIC shall meet the requirements of 709.10.

* ALL BARRIER SEGMENTS shall be clearly marked as shown, where XX indicates the year cast. Each segment shall also have, on its top, a unique identification as to its manufacturer and, somewhere on the barrier, the day and month the barrier was manufactured.

All markings shall be permanently imprinted on the barrier using a minimum of 2" high lettering.

PCB shall be constructed of Class "C" concrete and in conformance with 706.13.

HANDLING DEVICES may be used in lieu of the lifting slot for moving the barrier. They may be of any design sufficient to handle the weight of the section being lifted. No handling devices shall protrude from the surface of the barrier when in place.



① CLOSED JOINT ② OPEN JOINT

JOINT CONNECTION DETAILS

- ① Barriers shall initially be placed close together so that bolts can be easily inserted through hinge bar loop.
- ② Barrier joints shall be fully open before the nut is tightened onto bolt.

BUREAU OF LOCATION AND DESIGN
OHIO DEPARTMENT OF TRANSPORTATION

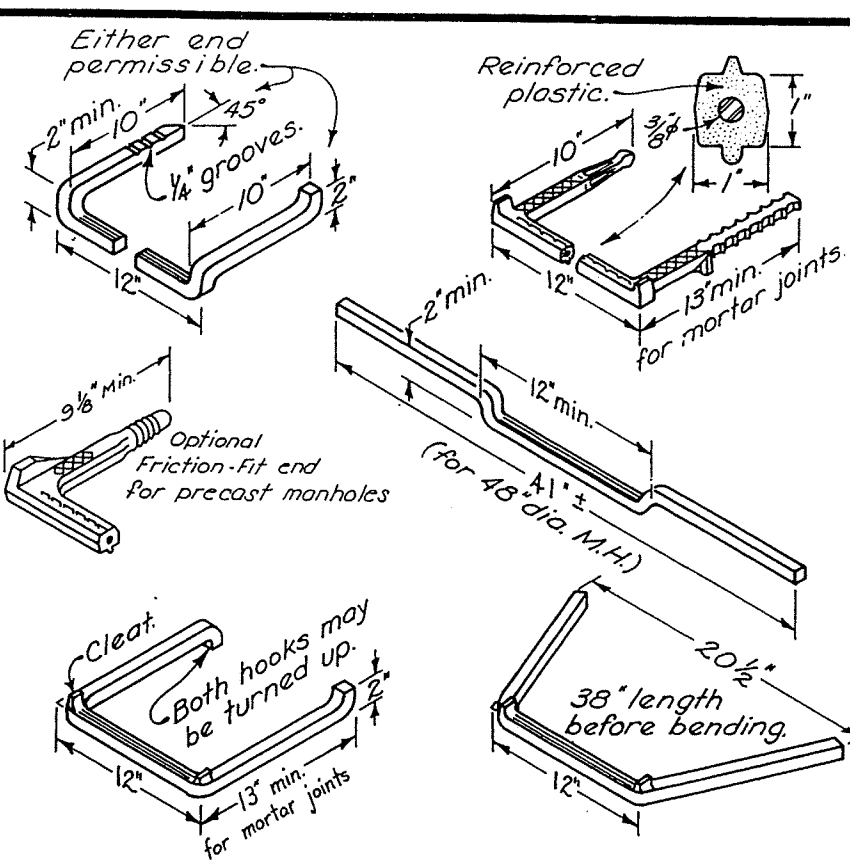
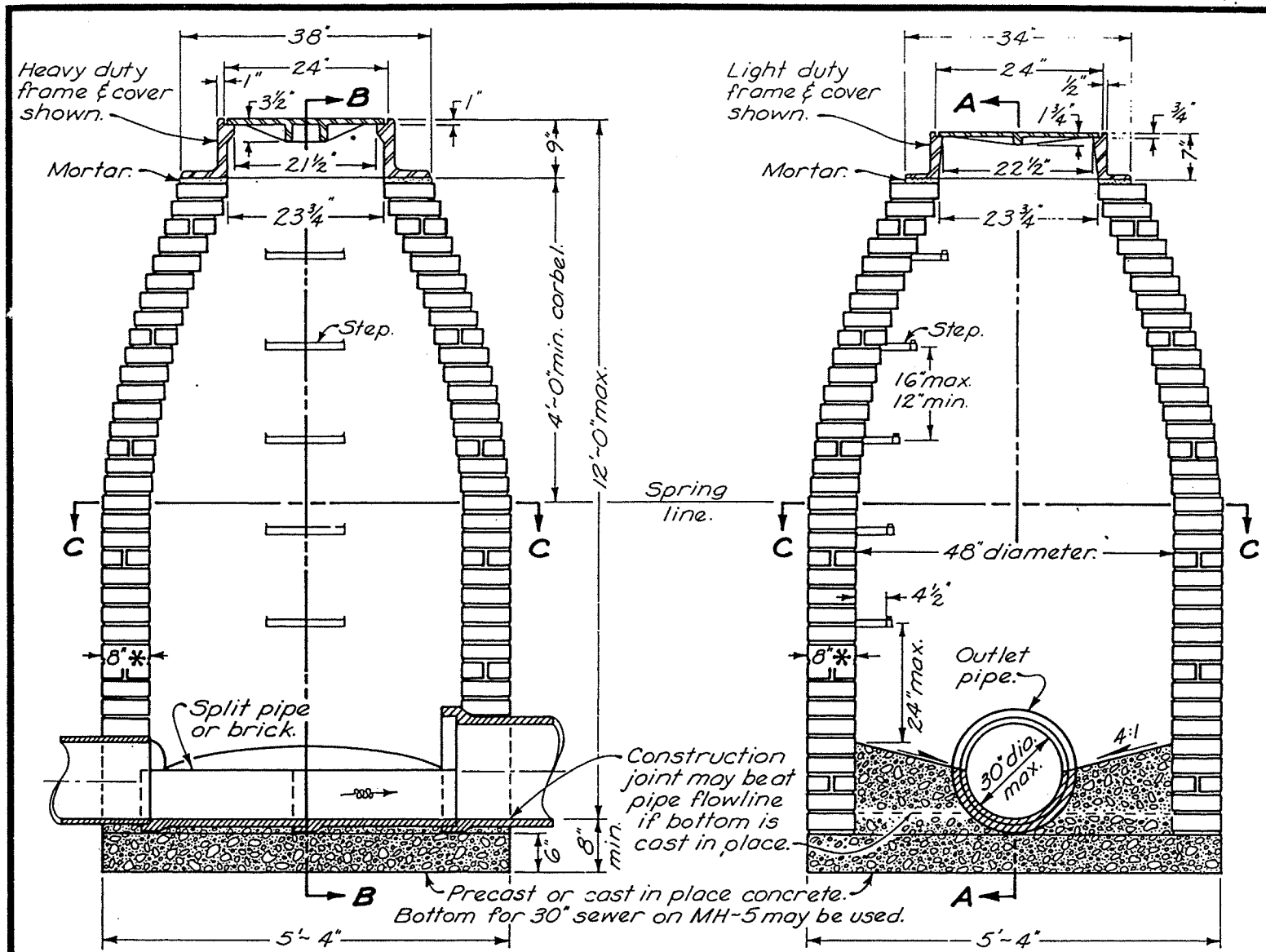
**32" PORTABLE
CONCRETE BARRIER**

STANDARD
CONSTRUCTION
DRAWING

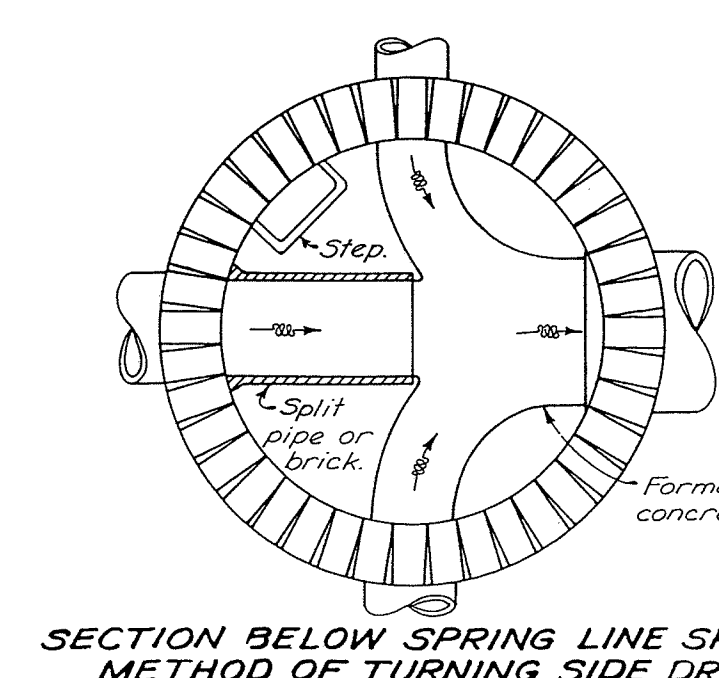
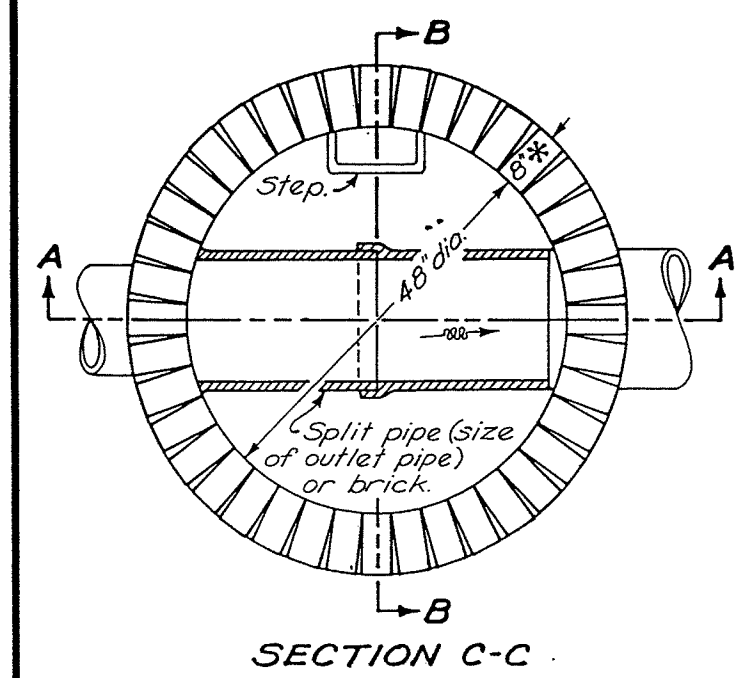
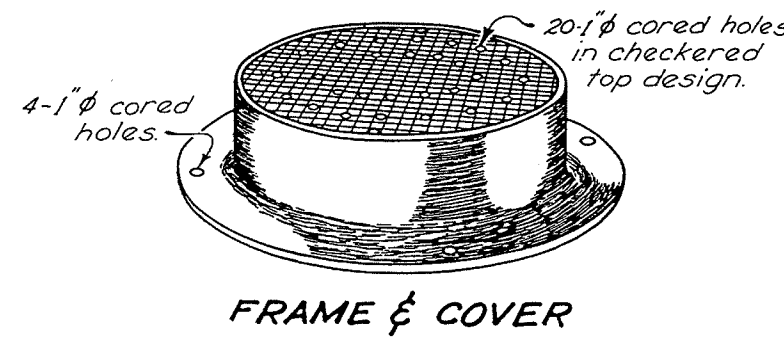
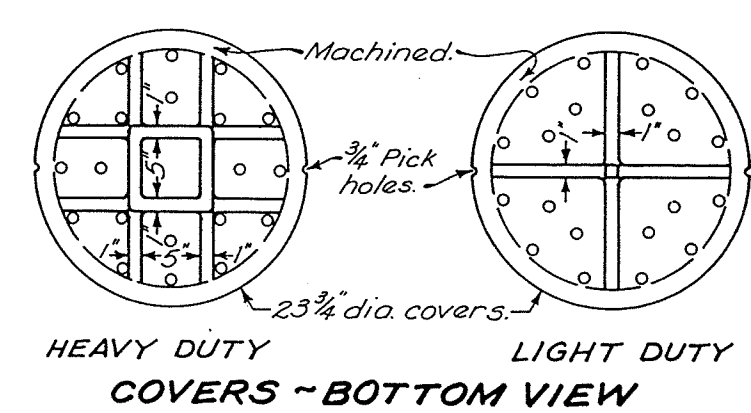
MC-9.2

APPROVED *D.K. Hulman* ENGR., L. & D.

DATE
5-6-91



STEP DETAILS
Steps shall have a minimum cross sectional dimension of one inch for ferrous metal and 3/4 inch for aluminum.



NOTES

CONSTRUCTION: Number 1 manhole is for sewers 30" diameter or less. The design shown is for brick construction with every sixth course a stretcher course. The 6" bottom may be precast or cast in place concrete. The bottom channel sections shall be built with concrete and lined with split pipe or brick except curved channels may be formed in the concrete.

Precast solid concrete radial blocks or cast in place concrete reinforced with No. 4 bars on 12" centers both vertically and horizontally, may be used with a wall thickness of 6" or greater. Precast manholes detailed on MH-3 or MH-5 may be used in lieu of the design shown hereon unless otherwise required by the plans.

FRAME AND COVER shall be of heavy design (475 lbs. min. total weight) when the manhole is placed within the limits of the pavement or shoulder; otherwise the light design (275 lbs. min.) may be used. Bearing areas shall be finished smooth and fitted so as to provide a firm and even seat for all portions of the cover in the frame. Each cover shall seat in its frame without rocking and shall be marked as a matched frame and cover before delivery to the project. The base of the frame shall be set in a full bed of Portland cement mortar, and so adjusted to conform to the finished pavement or shoulder elevation and slope. Castings meeting Item 604 requirements and designed essentially the same and equally as strong as those shown hereon shall be provided.

STEPS shall conform to the material requirements of specification 604. All steps shall have a depressed tread or a 1/2" minimum cleat height at the ends.

Steps installed in fresh concrete shall be embedded to minimum depth of 4". Steps installed in mortar joints shall be embedded to a minimum depth of 7".

Friction-fit steps meeting the requirements of 711.31 with a 1/2" diameter rebar may be used in precast manholes. The receiving holes for friction-fit steps shall not penetrate the manhole wall.

The Engineer may require the contractor to test load a maximum of one step per manhole to a proof load of 400 lbs. in direct pull. The equipment and method used shall meet the approval of the Engineer.

If the selected step fails the pullout test, the remaining steps in that manhole shall also be tested. All steps not passing the pullout test shall be removed and a new step installed and tested to the satisfaction of the Engineer. Cost of testing shall be incidental to the unit price bid for the manhole.

DROP PIPE, when specified on the plans, shall be constructed as shown on MH-2.

SANITARY SEWER COVERS shall be without the pick and vent holes shown hereon and shall include a sealing gasket affixed to the bearing surface. Bolt-down covers shall not be used unless specified in the plans.

BUREAU OF LOCATION AND DESIGN OHIO DEPARTMENT OF TRANSPORTATION	
No. 1 MANHOLE	
STANDARD CONSTRUCTION DRAWING	
MH-1	
APPROVED	ENGR., L.S.D.
DATE 6-1-65 10-1-65 6-12-75 12-18-84	

NOTES

GENERAL: With normal soil and site conditions this standard precast manhole may be used for any required manhole depth.

Sections of the precast manhole shall be cast and assembled with either all tongue or all groove ends up. Lift holes may be provided in each section for handling.

TOP AND TRANSITION (or reducer) sections may be either eccentric cone or flat slab.

BASES for Number 3 Manholes are shown with monolithic floor and riser which may be cast in one or two operations. A permissible alternate is to cast and ship the floor and barrel separately. Openings for inlet and outlet pipes shall be provided, either when the unit is cast or later, to meet project requirements. Bottom channels may be formed of concrete precast in the base or by field construction as shown on MH-1 and MH-2.

OPENINGS IN RISER SECTIONS for 18" and smaller inlet pipes may be prefabricated or cut in the field provided the sides of the pipe at the springline do not project into the manhole.

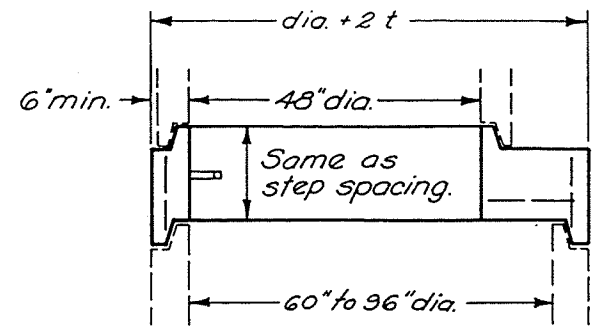
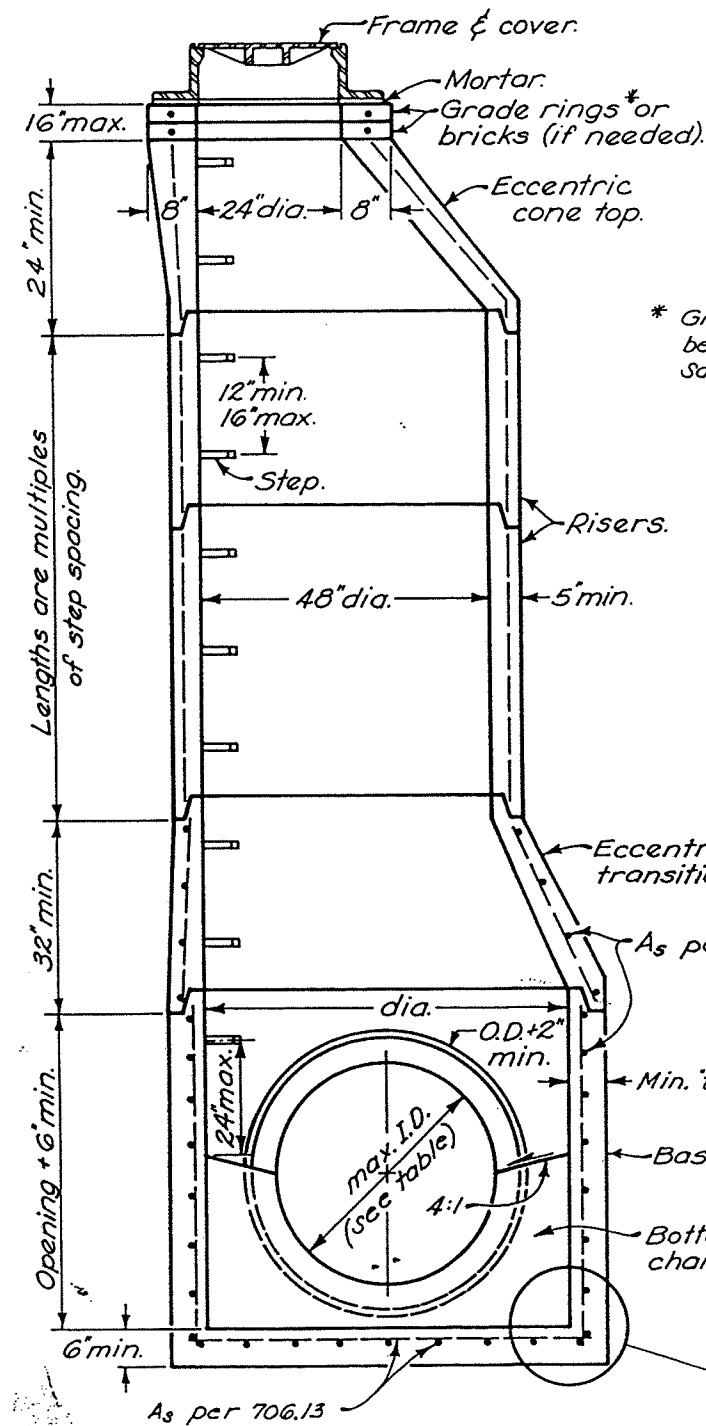
CONNECTIONS between precast manhole sections and pipes on sanitary sewers may be sealed with resilient connectors conforming to ASTM C923.

JOINT SEAL between precast manhole sections on sanitary sewers shall be resilient and flexible gasket joints per 706.11.

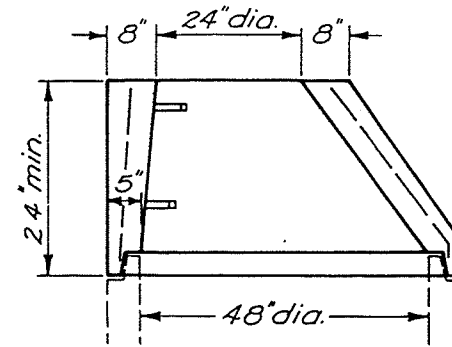
MATERIALS for bases and other precast sections, including reinforcement not specified hereon, shall comply with the requirements of 706.13.

DROP PIPE, when specified on the plans, shall be constructed as shown on MH-2.

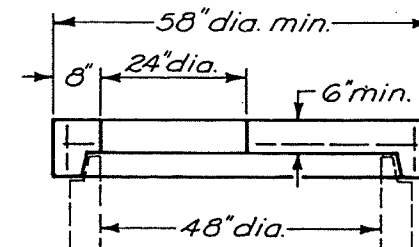
STEPS, FRAMES AND COVERS shall conform with the requirements set forth on MH-1.



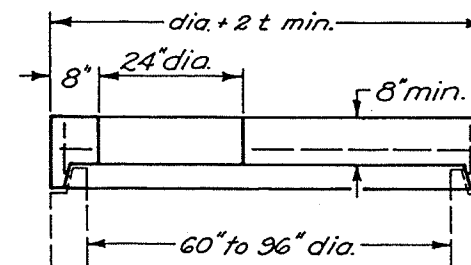
FLAT SLAB TRANSITION



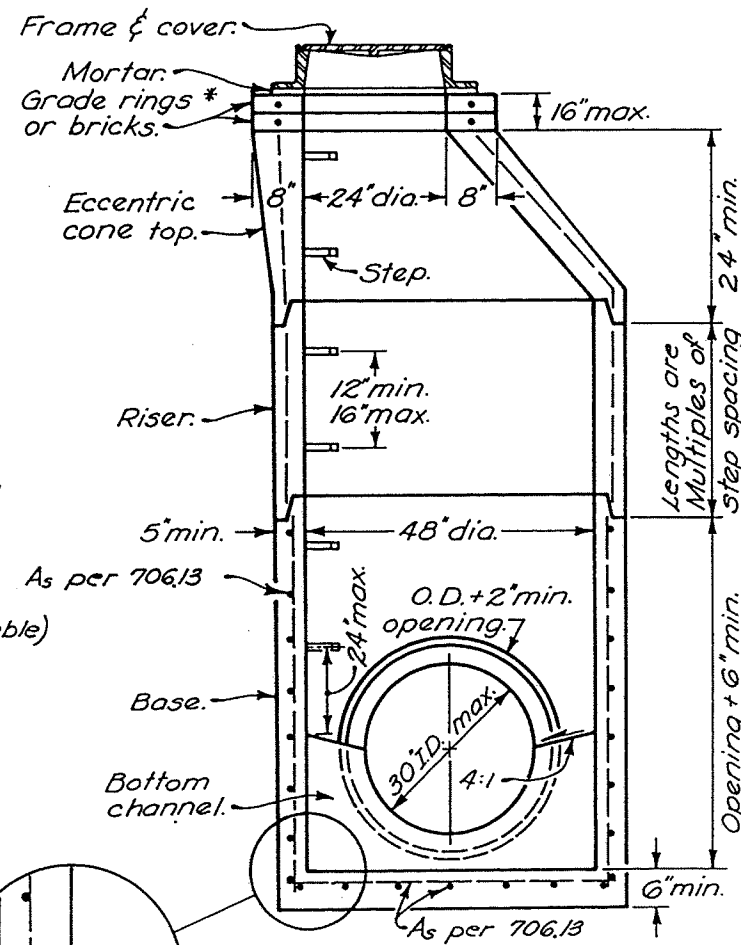
ALTERNATE ECCENTRIC CONE TOP



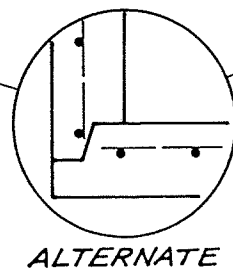
FLAT SLAB TOP



FLAT SLAB TOP



48" PRECAST BASE FOR 30" AND SMALLER PIPE



ALTERNATE

60" to 96" PRECAST BASE
SEE TABLE FOR MAXIMUM PIPE SIZES

Base I.D.	Min. "t"	Max. Pipe Size
60"	5"	36"
72"	6"	48"
84"	7"	54"
90"	7 1/2"	60"
96"	8"	60"

SECTION VIEWS OF REINFORCED PRECAST MANHOLES

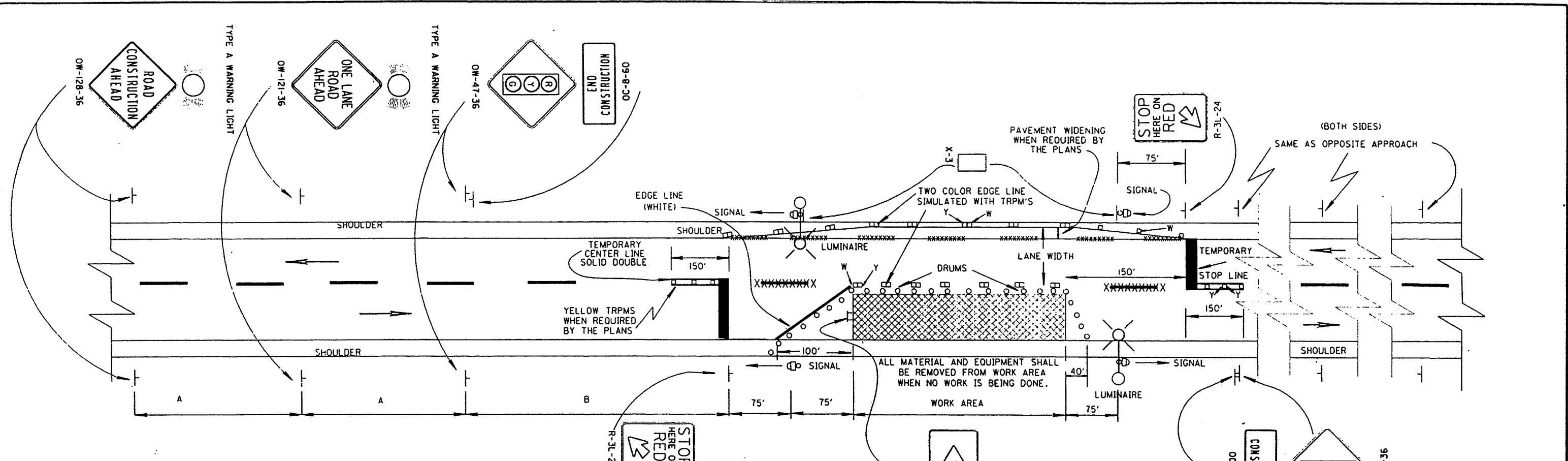
BUREAU OF LOCATION AND DESIGN
OHIO DEPARTMENT OF TRANSPORTATION

**No. 3
MANHOLE**

DATE
6-12-75
12-18-84

STANDARD
CONSTRUCTION
DRAWING
MH-3

APPROVED *E. L. Lough* ENGR., L. & D.



GENERAL NOTES:

- INITIAL SIGNAL TIMING SHALL BE AS SHOWN IN THE PLANS. SIGNAL TIMING CHANGES SHALL BE APPROVED BY THE ENGINEER.
- SIGNALS SHALL BE INSTALLED AND OPERATED IN ACCORDANCE WITH THE REQUIREMENTS OF PART 6 OF THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
- DRUMS SHALL BE SPACED AT 50' CENTER TO CENTER WITHIN THE WORK AREA. DRUMS ON THE ADVANCE AND RETURN TAPERS SHALL BE SPACED AT 10' CENTER TO CENTER.
- ADEQUATE AREA ILLUMINATION TO CLEARLY IDENTIFY BOTH ENDS OF THE WORK AREA AT NIGHT SHALL BE PROVIDED BY USING 150 WATT MINIMUM HIGH PRESSURE SODIUM LUMINAIRE OR 250 WATT MINIMUM MERCURY LUMINAIRE. LUMINAIRE SHALL BE LOCATED ADJACENT TO THE SIGNAL LOCATIONS AS SHOWN ABOVE. THE MOUNTING HEIGHT FOR LUMINAIRE SHALL BE A MINIMUM OF 27 FEET ABOVE THE PAVEMENT BUT IN NO CASE LESS THAN 15 FEET ABOVE THE TOP OF THE SIGNAL AND MOUNTED ON A SUPPORT OF ADEQUATE STRENGTH TO PROVIDE A SATISFACTORY INSTALLATION. THE OVERHEAD CONDUCTOR CLEARANCE SHALL BE A MINIMUM OF 18 FEET ABOVE THE PAVEMENT. THE LUMINAIRE ARM SHALL BE OF SUFFICIENT LENGTH TO EXTEND TO THE EDGE OF THE PAVEMENT. POLES SHALL BE ERRECTED A MINIMUM OF 5.5 FEET BEHIND FACE OF GUARDRAIL WHERE EXISTING, OR 12 FEET FROM THE EDGE OF PAVEMENT. WHERE POSSIBLE LOCATE BEHIND DITCH.
- TEMPORARY CENTER LINE: SOLID, DOUBLE, AS SHOWN, SHALL BE INSTALLED AND MAINTAINED WHERE NO PASSING LINES ARE NOT ALREADY IN PLACE. 12' STOP LINES SHALL ALSO BE INSTALLED. TEMPORARY RAISED PAVEMENT MARKERS, (TRPM'S) TO SIMULATE A TWO COLOR EDGE LINE SHALL BE PROVIDED. EXISTING CONFLICTING PAVEMENT MARKINGS OR RAISED PAVEMENT MARKER REFLECTORS BETWEEN THE WORK AREA AND THE STOP LINES OR WITHIN THE ONE WAY LANE WIDTH SHALL BE REMOVED. AFTER COMPLETION OF THE WORK, TEMPORARY MARKINGS AND TRPM'S SHALL BE REMOVED IN ACCORDANCE WITH 621.134 AND THE ORIGINAL MARKINGS AND RAISED PAVEMENT MARKER REFLECTORS SHALL BE RESTORED.
- TYPE C STEADY BURNING WARNING LIGHTS SHALL BE ERRECTED ON EACH DRUM FOR NIGHT LANE CLOSURES.
- THE HORIZONTAL OR VERTICAL ALIGNMENT OF THE ROADWAY MAY REQUIRE ADJUSTMENTS IN THE LOCATION OF THE ADVANCE WARNING SIGNS OR THE SIGNAL HEADS. TREE OR BRUSH TRIMMING TO PROVIDE ADEQUATE SIGHT DISTANCE TO SIGN AND SIGNALS SHALL BE PROVIDED AS DIRECTED BY THE ENGINEER. THE DISTANCES SHOWN FOR ADVANCE WARNING SIGN SPACINGS ARE MINIMUM.
- THE SPACING BETWEEN PROPOSED SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A MINIMUM OF 200 FEET CLEARANCE TO EXISTING SIGNS.
- ALL TRAFFIC SIGNAL AND LIGHTING EQUIPMENT USED IN THIS INSTALLATION, SUCH AS SIGNAL OR LIGHTING CABLE, SIGNAL HEADS, LUMINAIRE OR SIGNAL CONTROLLER SHALL BE IN CONFORMANCE WITH SPECIFICATION ITEMS 625, 632, 633, 713, 732 AND 733. HOWEVER, THE PERFORMANCE TESTS OF 625.22E AND 632.27(6). THE WORKING DRAWING REQUIREMENTS OF 625.04, 632.03 AND 633.03. THE WIRING DIAGRAM AND SERVICE MANUAL REQUIREMENT OF 633.04 AND THE TESTING AND PREQUALIFICATION REQUIREMENT OF 633.05 ARE WAIVED. ALSO THE REQUIREMENTS OF 733.01 CONCERNING EXPANSIBLE 3-DIAL UNITS AND TWELVE SIGNAL CIRCUITS ARE WAIVED. USED EQUIPMENT IS ACCEPTABLE. CONFLICT MONITORS SHALL BE USED EXCEPT WITH ELECTROMECHANICAL PRETIMED CONTROLLERS WITH CAM SHAFT.
- IF THE SIGNAL IS CHANGED TO FLASHING OPERATION, RED SHALL BE FLASHED TO BOTH APPROACHES ON ALL SIGNAL HEADS.

DISTANCE	A	B
URBAN	200'	350'
RURAL	500'	750'

XXXXXXXXXX — EXISTING MARKINGS REMOVED

□ — W — TRPM, WHITE, 1-WAY

□ — Y — TRPM, YELLOW, 1-WAY

Y — □ — TRPM, YELLOW, 2-WAY

Y — □ — W — TWO TRPM'S BACK TO BACK

ALL WORK AND TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH 614 AND OTHER APPLICABLE PORTIONS OF THE C & M SPECIFICATIONS AS WELL AS IN ACCORDANCE WITH PART 7 OF OMUTCD. PAYMENT FOR ALL LABOR, EQUIPMENT AND MATERIALS TO PROVIDE THIS METHOD OF TRAFFIC CONTROL SHALL BE INCIDENTAL TO THE LUMP SUM BID FOR 614 MAINTAINING TRAFFIC, UNLESS SEPARATELY ITEMIZED IN THE PLAN.

BUREAU OF DESIGN SERVICES DIVISION OF HIGHWAYS OHIO DEPARTMENT OF TRANSPORTATION	
MAINTENANCE OF TRAFFIC	DATE 09/09/88
SIGNALIZED CLOSING 1 LANE OF A 2 LANE HIGHWAY WITH DRUMS	
STANDARD CONSTRUCTION DRAWING MT-96.10	
APPROVED <i>[Signature]</i> ENGR. OF DESIGN SERVICES	

WORK ZONE PAVEMENT MARKINGS AND SIGNS

614 WORK ZONE PAVEMENT MARKINGS

GENERAL

THE CONTRACTOR SHALL FURNISH, INSTALL, MAINTAIN AND WHEN NECESSARY, REMOVE WORK ZONE RETROREFLECTIVE PAVEMENT MARKINGS ON EXISTING, RECONSTRUCTED, RESURFACED OR TEMPORARY ROADS WITHIN THE WORK LIMITS, IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS.

THE MARKINGS SHALL BE EVALUATED BY THE ENGINEER IN ACCORDANCE WITH THE THREE PERFORMANCE PARAMETERS CONTAINED IN SUPPLEMENT 1047. THE MARKINGS SHALL BE REPAIRED OR REPLACED WHEN THE NUMERICAL RATING OF A PARAMETER IS (a) SIX OR LOWER FOR DURABILITY, (b) FOUR OR LOWER FOR VISUAL EFFECTIVENESS AND (c) FOUR OR LOWER FOR NIGHT VISIBILITY. THE CONTRACTOR SHALL REPAIR OR REPLACE UNSATISFACTORY MARKINGS IMMEDIATELY AND AT NO ADDITIONAL COST TO THE STATE.

TEMPORARY PAVEMENT MARKING MATERIALS

UNLESS OTHERWISE INDICATED ON THE PLANS, TEMPORARY PAVEMENT MARKINGS MAY BE EITHER 621.02 PAINT OR 947.03 TYPE B OR TYPE C PREFORMED MATERIAL.

PAINT

PAINTED MARKINGS SHALL BE IN ACCORDANCE WITH 621 EXCEPT THAT (a) PARAGRAPH 621.14 SHALL NOT APPLY, (b) WHERE THE MARKINGS ARE NOT LIABLE TO BE TRACKED, EITHER CONVENTIONAL OR FAST DRY PAINT MAY BE USED FOR 621.02, AND (c) WHEN APPLIED TO NEW ASPHALT PAVEMENT SURFACES OR PLANED ASPHALT PAVEMENT SURFACES, THE SPECIFIED APPLICATION RATE SHALL BE AS FOLLOWS:

GALLONS PER MILE OF LINE					
WIDTH OF LINE, IN.	4	6	8	12	24
SOLID LINE	24	36	48	72	144
DASHED LINE	6	9	-	-	-
DOTTED LINE	8	12	-	-	-

TYPE B AND TYPE C PREFORMED MATERIAL

PREFORMED MATERIAL SHALL COMPLY WITH 947.03 EXCEPT THAT NO PREFORMED MATERIAL CONTAINING METAL SHALL BE PLACED ON ANY SURFACE UNLESS IT WILL BE REMOVED LATER BY THE CONTRACTOR. TEMPORARY PAVEMENT MARKINGS OF 947.03 PREFORMED MATERIAL SHALL BE REMOVED PRIOR TO PLACEMENT OF 621 OR 847 SURFACE COURSE MARKINGS AT THAT LOCATION. PREFORMED MATERIAL SHALL BE APPLIED IN ACCORDANCE WITH 847 EXCEPT AS MODIFIED HEREIN.

PLACEMENT

TEMPORARY MARKINGS SHALL BE COMPLETE AND IN PLACE ON ALL PAVEMENT, INCLUDING RAMPS, PRIOR TO EXPOSING IT TO TRAFFIC. WHEN TEMPORARY MARKINGS CONFLICT WITH THE TRAFFIC PATTERN, THEY SHALL BE REMOVED BY THE CONTRACTOR IN ACCORDANCE WITH 621.134.

LINE PLACEMENT TOLERANCE FOR FINAL SURFACES SHALL BE IN ACCORDANCE WITH 621.052. ON SURFACES OTHER THAN THE FINAL, THE TOLERANCE PERMITTED SHALL BE TWICE THAT IN 621.052. LAYOUT AND PREMARKING SHALL BE IN ACCORDANCE WITH 621.051.

TEMPORARY MARKING CLASSES

CLASS I MARKINGS

CLASS I MARKINGS SHALL BE APPLIED TO THE FULL DIMENSIONS AS DEFINED IN 621 WITH THE FOLLOWING ADDITIONS OR EXCEPTIONS:

1. TRANSVERSE LINES SHALL BE 8-INCHES IN WIDTH.
2. STOP LINES SHALL BE 12-INCHES IN WIDTH.
3. CROSS WALK LINES SHALL BE 8-INCHES IN WIDTH.

TEMPORARY MARKING CLASSES (CONTINUED)

CLASS II MARKINGS

CLASS II MARKINGS (ABBREVIATED) SHALL BE DEFINED AS FOLLOWS:

CENTER LINES SHALL CONSIST OF SINGLE, YELLOW 4-INCH WIDE BY A MINIMUM OF 48-INCH LONG DASHES SPACED AT A MAXIMUM OF 40-FOOT INTERVALS.

LANE LINES SHALL CONSIST OF WHITE 4-INCH WIDE BY A MINIMUM OF 48-INCH LONG DASHES SPACED AT A MAXIMUM OF 40-FOOT INTERVALS.

GORE MARKINGS SHALL BE CONTINUOUS, WHITE 4-INCH LINES PLACED AT THE THEORETICAL GORE OF AN EXIT RAMP OR DIVERGING ROADWAYS.

THE PAINT APPLICATION RATE SHALL BE NOT LESS THAN 2.4 GALLONS PER MILE FOR LANE LINE AND CENTER LINE AND 24 GALLONS PER MILE FOR GORE MARKINGS.

CONFLICTING EXISTING MARKINGS

THE CONTRACTOR SHALL, PRIOR TO PLACING TEMPORARY MARKINGS, REMOVE ALL CONFLICTING EXISTING MARKINGS VISIBLE TO THE TRAVELING PUBLIC DURING DAYLIGHT OR NIGHTTIME HOURS IN ACCORDANCE WITH 621.134. THE COST FOR REMOVAL OF CONFLICTING MARKINGS SHALL BE INCLUDED IN 614 MAINTAINING TRAFFIC UNLESS SPECIFICALLY ITEMIZED.

THE CONTRACTOR SHALL ALSO REMOVE THE PRISMATIC RETRO-REFLECTOR WITHIN ANY RAISED PAVEMENT MARKER (RPM) WHICH IS IN CONFLICT WITH THE TEMPORARY PAVEMENT MARKINGS. WHEN THE TEMPORARY PAVEMENT MARKINGS ARE REMOVED AND THE RPM IS NO LONGER IN CONFLICT, THE CONTRACTOR SHALL THOROUGHLY CLEAN THE RECESSED REFLECTOR ATTACHMENT AREA OF THE CASTING AND INSTALL A NEW PRISMATIC RETRO-REFLECTOR OF THE SAME KIND AND COLOR. THE COST FOR THIS WORK SHALL BE INCIDENTAL TO THE VARIOUS PAY ITEMS.

INTERIM MARKINGS

WITHIN 21 CALENDAR DAYS AFTER OPENING ANY LENGTH OF PAVEMENT TO TRAFFIC, THE 621 OR 847 PAVEMENT MARKINGS CALLED FOR IN THE PLANS SHALL BE APPLIED. EQUIVALENT 614 CLASS I, PAINT MARKINGS MAY BE USED IN LIEU OF FINAL MARKINGS. IN THIS EVENT, THE CONTRACTOR SHALL FURNISH ALL LABOR, EQUIPMENT AND MATERIAL NECESSARY TO PLACE AND MAINTAIN 614 CLASS I PAINT MARKINGS AS PART OF THE LUMP SUM BID FOR 614 MAINTAINING TRAFFIC.

FOR EACH CALENDAR DAY BEYOND 21 DAYS THAT THIS WORK SHALL REMAIN UNCOMPLETED, THE SUM OF \$200 PER CALENDAR DAY WILL BE DEDUCTED FROM ANY MONEY DUE THE CONTRACTOR, NOT AS A PENALTY BUT AS LIQUIDATED DAMAGES.

METHOD OF MEASUREMENT

TEMPORARY PAVEMENT MARKINGS WILL BE MEASURED COMPLETE IN PLACE, BY CLASS AND MATERIAL, IN THE UNITS DESIGNATED. LINE QUANTITIES WILL BE THE LENGTH OF THE COMPLETED STRIPE, INCLUDING GAPS, INTERSECTIONS, AND OTHER SECTIONS OF PAVEMENT NOT NORMALLY MARKED.

TEMPORARY PAVEMENT MARKINGS WILL INCLUDE THE LAYOUT, APPLICATION AND REMOVAL OF THE MARKINGS, WHEN REQUIRED.

BASIS OF PAYMENT

PAYMENT FOR ACCEPTED QUANTITIES COMPLETE IN PLACE WILL BE MADE AT THE CONTRACT UNIT PRICE. PAYMENT SHALL BE FULL COMPENSATION FOR ALL MATERIALS, LABOR, INCIDENTALS AND EQUIPMENT FOR PLACEMENT, MAINTENANCE AND NECESSARY REMOVAL OF MARKINGS.

BASIS OF PAYMENT (CONTINUED)

ITEM	UNIT	DESCRIPTION
614	MILES	TEMPORARY LANE LINES, CLASS _____, _____
614	MILES	TEMPORARY CENTER LINES, CLASS _____, _____
614	LIN. FT.	TEMPORARY CHANNELIZING LINES, CLASS I, _____
614	MILES	TEMPORARY EDGE LINES, CLASS I, _____
614	LIN. FT.	TEMPORARY GORE MARKINGS, CLASS II, _____
614	LIN. FT.	TEMPORARY STOP LINES, CLASS I, _____
614	LIN. FT.	TEMPORARY CROSSWALK LINES, CLASS I, _____
614	EACH	TEMPORARY LANE ARROWS, CLASS I, _____
614	EACH	TEMPORARY RAILROAD SYMBOL MARKINGS, CLASS I, _____
614	EACH	TEMPORARY WORD "ONLY" ON PAVEMENT, 72 INCH, CLASS I, _____
614	LIN. FT.	TEMPORARY TRANSVERSE LINES, CLASS I, _____
614	LIN. FT.	TEMPORARY DOTTED LINES, CLASS I, _____

* TYPE MATERIAL (621 PAINT, 947.03 TYPE B OR 947.03 TYPE C OR LEFT BLANK TO PERMIT ANY OF THE THREE)

614 WORK ZONE MARKING SIGNS

THE CONTRACTOR SHALL FURNISH, INSTALL, MAINTAIN AND SUBSEQUENTLY REMOVE WORK ZONE MARKING SIGNS (OW-167 AND OW-168) WITHIN THE WORK LIMITS IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS.

THE CONTRACTOR SHALL, IN ADVANCE OF ANY SECTION OF ROADWAY LACKING OMITTED FULL PATTERN STANDARD DIMENSION EDGE LINE OR CENTER LINE MARKINGS, ERECT A "NO EDGE LINES" (OW-167-36) SIGN OR "UNMARKED NO PASSING ZONES" (OW-168-36) SIGN OR BOTH AS MAY BE APPROPRIATE. ON FREEWAYS AND EXPRESSWAYS AN OW-167-48 SIGN SHALL BE USED. THESE SIGNS SHALL BE IN PLACE PRIOR TO EXPOSING THE ROADWAY TO TRAFFIC. THESE SIGNS SHALL ALSO BE ERECTED ON EACH ENTRANCE RAMP, AT INTERSECTIONS OF THROUGH ROADS TO WARN ENTERING OR TURNING TRAFFIC OF THE CONDITION AND AT LEAST ONCE EVERY TWO MILES ALONG THE ROADWAY. THESE SIGNS SHALL BE REMOVED WHEN THEY NO LONGER APPLY.

THE CONTRACTOR MAY USE SIGNS AND SUPPORTS IN USED BUT GOOD CONDITION PROVIDED THE SIGNS MEET CURRENT DEPARTMENT SPECIFICATIONS. SIGN FACES SHALL BE REFLECTORIZED WITH TYPE G SHEETING COMPLYING WITH THE REQUIREMENTS OF 730.19. WORK ZONE MARKING SIGNS SHALL BE PROVIDED WITH SUITABLE YIELDING SUPPORTS OF SUFFICIENT STRENGTH AND STABILITY.

WORK ZONE MARKING SIGNS WILL BE MEASURED AS THE NUMBER OF SIGN INSTALLATIONS, INCLUDING THE SIGN AND NECESSARY SUPPORTS. ALL OTHER WORK ZONE SIGNS SHALL BE INCLUDED IN 614 MAINTAINING TRAFFIC UNLESS SEPARATELY ITEMIZED.

PAYMENT FOR ACCEPTED QUANTITIES, COMPLETE, IN PLACE WILL BE MADE AT THE CONTRACT UNIT PRICE. PAYMENT SHALL BE FULL COMPENSATION FOR ALL MATERIALS, LABOR, INCIDENTALS AND EQUIPMENT FOR PLACEMENT, MAINTENANCE AND REMOVAL OF THE SIGNS.

ITEM	UNIT	DESCRIPTION
614	EACH	WORK ZONE MARKING SIGNS

BUREAU OF DESIGN SERVICES DIVISION OF HIGHWAYS OHIO DEPARTMENT OF TRANSPORTATION		DATE 11/14/86
MAINTENANCE OF TRAFFIC		
WORK ZONE PAVEMENT MARKINGS AND SIGNS		
STANDARD CONSTRUCTION DRAWING		MT-99.10
APPROVED <i>[Signature]</i> ENGR. OF DESIGN SERVICES		

GENERAL

IN ADDITION TO 614, TRAFFIC SHALL BE MAINTAINED IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS.

THE PURPOSE OF THE FOLLOWING REQUIREMENTS FOR TRAFFIC CONTROL FOR PAVEMENT MARKING OPERATIONS IS TO PROVIDE SAFETY FOR HIGHWAY USERS, WORKERS AND EQUIPMENT AND TO PROTECT THE MARKINGS FROM DAMAGE DURING APPLICATION. THESE REQUIREMENTS ARE THE REQUIRED MINIMUMS. IF AT ANY TIME DURING THE APPLICATION OF MARKINGS IT IS FOUND BY THE ENGINEER THAT THESE MINIMUM TRAFFIC CONTROL REQUIREMENTS ARE NOT ACHIEVING THE NECESSARY SAFETY AND MARKING PROTECTION, ADDITIONAL TRAFFIC CONTROL SHALL BE IMPLEMENTED IN ACCORDANCE WITH ITEM 104.02.

THE ENGINEER MAY SUSPEND WORK IN ORDER TO RELIEVE TRAFFIC CONGESTION AT ANY TIME. NO WORK SHALL BE DONE DURING PEAK HOURS, AS DETERMINED BY THE ENGINEER.

VEHICLES TRANSPORTING FLAMMABLE PAVEMENT MARKING MATERIALS (MATERIAL SUPPLY VEHICLES) SHALL NOT BE UTILIZED FOR LEAD OR TRAIL VEHICLES OR FOR POWER BROOM EQUIPMENT. ALL PAVEMENT MARKING APPLICATION, PROTECTION AND SUPPORT EQUIPMENT FOLLOWING THE LINE MARKING MACHINE SHALL HAVE THE TRAFFIC CONTROL EQUIPMENT OF A TRAIL VEHICLE.

LINE MARKING MACHINES SHALL NOT BE USED FOR SIGN AND CONE PLACEMENT.

LEAD VEHICLE

A LEAD VEHICLE IS TO BE USED TO WARN OPPOSING TRAFFIC OF THE APPROACH OF CENTER LINE AND OTHER MARKING EQUIPMENT WHEN THIS EQUIPMENT EXTENDS INTO THE ADJACENT OPPOSING TRAFFIC LANE. THE LEAD VEHICLE SHALL PRECEDE THE "LEFT OF CENTER" MARKING EQUIPMENT A DISTANCE THAT WILL PROVIDE ADVANCE SAFE WARNING TO APPROACHING TRAFFIC. THE OPERATOR OF THIS UNIT SHALL DRIVE AHEAD OF THE CREST OF A VERTICAL CURVE OR AROUND A HORIZONTAL CURVE AND WAIT UNTIL THE "LEFT OF CENTER" MARKING EQUIPMENT NEARS AND THEN PROCEED, MAINTAINING AN ADVANCE LOCATION OF 400' TO 600'.

A LEAD VEHICLE SHALL BE EQUIPPED AND OPERATED WITH THE FOLLOWING TRAFFIC CONTROL DEVICES:

1. A 360° ROTATING OR FLASHING AMBER BEACON CLEARLY VISIBLE IN ALL DIRECTIONS A MINIMUM OF ONE-QUARTER MILE.
2. LIGHTED HEADLIGHTS AND TAILLIGHTS, AND
3. A KEEP RIGHT SIGN (OC-31R-48) AND WET PAINT SIGN (OC-52-48) MOUNTED A MINIMUM OF 5' ABOVE THE ROAD SURFACE, MEASURED TO THE BOTTOM OF THE SIGN, AND VISIBLE TO OPPOSING TRAFFIC.

POWER BROOM EQUIPMENT

POWER BROOM EQUIPMENT SHALL BE EQUIPPED AND OPERATED DURING PAVEMENT PREPARATIONS WITH THE FOLLOWING TRAFFIC CONTROL DEVICES:

1. A 360° ROTATING OR FLASHING AMBER BEACON CLEARLY VISIBLE IN ALL DIRECTIONS A MINIMUM OF ONE-QUARTER MILE.
2. LIGHTED HEADLIGHTS AND TAILLIGHTS, AND
- * 3. A FLASHING ARROW PANEL 54" X 30" (TYPE B) VISIBLE TO THE REAR MOUNTED A MINIMUM OF 7' ABOVE THE ROAD SURFACE, MEASURED TO THE BOTTOM OF THE PANEL, AND USED ONLY ON MULTI-LANE HIGHWAYS.

LINE MARKING MACHINE

ALL TRAFFIC LINE MARKING MACHINES SHALL BE EQUIPPED AND OPERATED WITH THE FOLLOWING TRAFFIC CONTROL EQUIPMENT:

1. THREE 360° ROTATING OR FLASHING AMBER BEACONS CLEARLY VISIBLE IN ALL DIRECTIONS A MINIMUM OF ONE-QUARTER MILE MOUNTED A MINIMUM OF 7' ABOVE THE ROAD SURFACE, ONE FORWARD, ONE ON THE RIGHT REAR AND ONE ON THE LEFT REAR OF THE VEHICLE.
- * 2. (A) A FLASHING ARROW PANEL 54" X 30" (TYPE B) DISPLAYED TO THE REAR MOUNTED A MINIMUM OF 7' ABOVE THE ROAD SURFACE, MEASURED TO THE BOTTOM OF THE PANEL, AND USED ONLY ON MULTI-LANE HIGHWAYS, OR (B) A DO NOT PASS SIGN (R-33A-48) VISIBLE TO THE REAR DURING CENTER LINE MARKING ON TWO-LANE, TWO-WAY ROADWAYS AND MOUNTED A MINIMUM OF 7' ABOVE THE ROAD SURFACE, MEASURED TO THE BOTTOM OF THE SIGN, THIS SIGN MAY BE USED TO COVER THE ARROW PANEL, WHICH SHALL NOT BE USED ON TWO-LANE, TWO-WAY ROADWAYS.
3. A WET PAINT WITH ARROW SIGN (OC-50-24 OR OC-51-48) SHALL FACE THE REAR. THE SIGN SHALL BE POSITIONED WITH THE ARROW POINTING TO THE WET LINE. WHEN USED, OC-50-24 SHALL BE MOUNTED ON THE SIDE OF THE VEHICLE NEAREST THE WET MARKING MATERIAL. OC-50-24 AND OC-51-48 SIGNS SHALL BE MOUNTED A MINIMUM OF 1' ABOVE THE ROAD SURFACE.
4. A KEEP RIGHT SIGN (OC-31R-48) AND WET PAINT SIGN (OC-52-48) MOUNTED A MINIMUM OF 5' ABOVE THE ROAD SURFACE, MEASURED TO THE BOTTOM OF THE SIGN, AND FACING OPPOSING TRAFFIC WHEN THIS UNIT EXTENDS INTO THE ADJACENT OPPOSING TRAFFIC LANE.
5. THE GUIDE AND SIDE MOUNTED MARKING CARRIAGES SHALL EACH BE EQUIPPED WITH A CLEAN RED FLAG NOT LESS THAN 16" SQUARE AND FASTENED TO A STAFF OF SUFFICIENT LENGTH SO AS TO PERMIT THE FLAG TO MOVE FREELY OF ANY OBSTRUCTION.

TRAIL VEHICLE

WHEN REQUIRED, A TRAIL VEHICLE SHALL BE POSITIONED AT THE TRACK FREE END OF THE WET LINE.

TRAIL VEHICLES SHALL BE EQUIPPED AND OPERATED WITH THE FOLLOWING TRAFFIC CONTROL EQUIPMENT:

1. A 360° ROTATING OR FLASHING AMBER BEACON CLEARLY VISIBLE IN ALL DIRECTIONS A MINIMUM OF ONE-QUARTER MILE.
- * 2. (A) A FLASHING ARROW PANEL 54" X 30" (TYPE B) VISIBLE TO THE REAR MOUNTED AT A MINIMUM HEIGHT OF 7' ABOVE THE ROAD SURFACE, MEASURED TO THE BOTTOM OF THE PANEL, AND USED ONLY ON MULTI-LANE HIGHWAYS, OR (B) A DO NOT PASS SIGN (R-33A-48) VISIBLE TO THE REAR DURING CENTER LINE MARKING ON TWO-LANE, TWO-WAY ROADWAYS AND MOUNTED A MINIMUM OF 7' ABOVE THE ROAD SURFACE, MEASURED TO THE BOTTOM OF THE SIGN, THIS SIGN MAY BE USED TO COVER THE ARROW PANEL, WHICH SHALL NOT BE USED ON TWO-LANE, TWO-WAY ROADWAYS.
3. A WET PAINT WITH ARROW SIGN (OC-50-24 OR OC-51-48) SHALL FACE THE REAR. THE SIGN SHALL BE POSITIONED WITH THE ARROW POINTING TO THE WET LINE. WHEN USED, OC-50-24 SHALL BE MOUNTED ON THE SIDE OF THE VEHICLE NEAREST THE WET MARKING MATERIAL. OC-50-24 SHALL BE MOUNTED A MINIMUM OF 4'6" ABOVE THE ROAD SURFACE AND OC-51-48 SHALL BE MOUNTED A MINIMUM OF 5'0" ABOVE THE ROAD SURFACE, BOTH MEASURED TO THE BOTTOM OF THE SIGN.

* WHEN A VEHICLE IS OPERATING ON A TWO-LANE TWO-WAY ROADWAY THE FLASHING ARROW PANEL SHALL BE TILTED HORIZONTALLY OR COVERED.

CONES AND WET PAINT-KEEP OFF SIGNS

CONES AND WET PAINT-KEEP OFF SIGNS (R-87-24) SHALL BE PLACED TO PROTECT THE LINE WHENEVER THE TRACK FREE TIME EXCEEDS 2 MINUTES. THESE DEVICES SHALL NOT BE REMOVED UNTIL THE LINE HAS DRIED TO A TRACK FREE CONDITION. RETRIEVAL EQUIPMENT SHALL HAVE THE TRAFFIC CONTROL EQUIPMENT OF A TRAIL VEHICLE. CONES SHALL HAVE A MINIMUM HEIGHT OF 18". THEY SHALL BE SPACED TO PROTECT THE WET LINE, NORMALLY BETWEEN 120' AND 200'. IN AREAS OF TRAFFIC CONGESTION, ON CURVES AND AT OTHER LOCATIONS WHERE TRACKING OF THE WET LINE IS EXPECTED SPACINGS AS CLOSE AS 20' MAY BE REQUIRED. THE WET PAINT-KEEP OFF SIGNS (R-87-24) SHALL BE PLACED FACING TRAFFIC AT:

- A. THE BEGINNING AND END OF LINE APPLICATION.
- B. ALL SIDE AND CROSS ROADS, AND
- C. MAXIMUM INTERVALS OF ONE MILE.

WHEN LANE LINE MARKINGS REQUIRE GREATER THAN A TWO MINUTE DRYING TIME, THE LANE FROM WHICH THE LINE MARKING MACHINE APPLIES LANE LINE MARKINGS SHALL BE CLOSED UNTIL THE LINE HAS DRIED TO A TOTALLY TRACK FREE CONDITION.

IMMOBILE OPERATIONS

WHEN LOADING MATERIAL, CLEANING OR PERFORMING OTHER OPERATIONS IN THE FIELD, EVERY EFFORT SHALL BE MADE TO HAVE ALL EQUIPMENT COMPLETELY OFF OF THE TRAVELED WAY. WHEN IT BECOMES NECESSARY TO ENTER UPON PRIVATE PROPERTY, PERMISSION SHALL BE OBTAINED IN ADVANCE. WHEN THE CONTRACTOR CANNOT REMOVE HIS EQUIPMENT FROM THE TRAVELED WAY ALL TRAFFIC CONTROL DEVICES ON THE VEHICLES SHALL BE IN OPERATION AND FLAGGERS AND VEHICLES SHALL BE STATIONED TO PROTECT THE WORK SITE AND THE TRAVELING PUBLIC.

TWO-WAY TRAFFIC SHALL BE MAINTAINED. FLAGGERS SHALL BE EQUIPPED IN ACCORDANCE WITH ITEM 614.03.

AUXILIARY MARKINGS

PAVEMENT PREPARATION AND PLACING OF AUXILIARY MARKINGS (SEE ③) ARE CONSIDERED TO BE STATIONARY OPERATIONS AND TRAFFIC CONTROL SHALL BE IN ACCORDANCE WITH PLAN DETAILS, STANDARD CONSTRUCTION DRAWINGS AND THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (OMUTCD).

LAYOUT AND PREMARKING

THE VEHICLE USED IN LAYOUT AND PREMARKING SHALL BE EQUIPPED AND OPERATED WITH THE FOLLOWING EQUIPMENT:

1. A 360° ROTATING OR FLASHING AMBER BEACON CLEARLY VISIBLE IN ALL DIRECTIONS A MINIMUM OF ONE-QUARTER MILE.
2. LIGHTED HEADLIGHTS AND TAILLIGHTS, AND
3. A KEEP RIGHT SIGN (OC-31R-48) MOUNTED A MINIMUM OF 5' ABOVE THE ROAD SURFACE, MEASURED TO THE BOTTOM OF THE SIGN, AND VISIBLE TO OPPOSING TRAFFIC.

NIGHTTIME OPERATION

NIGHTTIME OPERATION IS DEFINED TO INCLUDE THE TIME FROM ONE-HALF HOUR AFTER SUNSET TO ONE-HALF HOUR BEFORE SUNRISE, AND AT ANY OTHER TIME WHEN THERE ARE UNFAVORABLE ATMOSPHERIC CONDITIONS OR WHEN THERE IS NOT SUFFICIENT NATURAL LIGHT TO RENDER DISCERNIBLE PERSONS, VEHICLES, AND SUBSTANTIAL OBJECTS ON THE HIGHWAY AT A DISTANCE OF 1000'.

DURING NIGHTTIME CONDITIONS THE FOLLOWING TRAFFIC CONTROL SHALL BE PROVIDED:

1. CONES SHALL BE REFLECTORIZED OR EQUIPPED WITH LIGHTING DEVICES FOR MAXIMUM VISIBILITY (SEE 7F-5, OMUTCD), AND
2. THE GUIDE AND SIDE-MOUNTED CARRIAGES SHALL BE ILLUMINATED.

THE PRESENCE OF HIGHWAY LIGHTING DOES NOT WAIVE THESE REQUIREMENTS.

MINIMUM PAVEMENT MARKING TRAFFIC CONTROL EQUIPMENT REQUIREMENTS

THIS TABLE INDICATES THE TRAFFIC CONTROL EQUIPMENT WHICH SHALL BE FURNISHED FOR EACH TYPE OF LONG LINE PAVEMENT MARKING OPERATION. IN ADDITION, THE TYPE OF TRAFFIC CONTROL EQUIPMENT WHICH SHALL BE FURNISHED WHEN DIRECTED BY THE ENGINEER IS INDICATED.

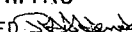
EQUIPMENT	PAVEMENT MARKING LINE TYPE ①					
	CENTER LINE		EDGE LINE		LANE LINE ② CHANNELIZING LINE ③	
	LONGER THAN 2 MIN. DRY	2 MIN. OR LESS DRY	LONGER THAN 2 MIN. DRY	2 MIN. OR LESS DRY	LONGER THAN 2 MIN. DRY	2 MIN. OR LESS DRY
LEAD VEHICLE	A	A	C	C	C	C
POWER BROOM EQUIPMENT	B	B	A	A	B	B
LINE MARKING MACHINE	A	A	A	A	A	A
TRAIL VEHICLE	D	A	D	A	LANE CLOSURE REQUIRED (28" CONES REQUIRED)	A
TRAIL VEHICLE (ADDITIONAL)	C	B	C	B		A
TRAIL VEHICLE (SIGN & CONE RETRIEVAL)	A	C	A	C		C
TRAIL VEHICLE (SHADOW FOR RETRIEVAL)	A	C	A	C		C

① FOR EQUIPMENT REQUIREMENTS FOR AUXILIARY MARKING OPERATIONS SEE THE PLANS AND PART 7, OMUTCD.

② INCLUDES BOTH DASHED AND SOLID LANE LINES.

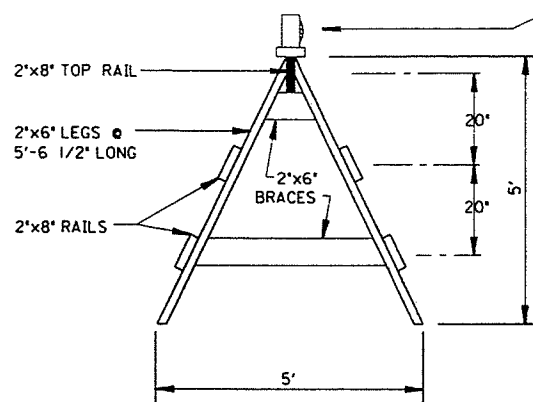
③ CHANNELIZING LINE SEGMENTS OF 200 FEET OR LESS SHALL BE CONSIDERED AUXILIARY MARKINGS. EXCEPT WHEN APPLIED AS COMPONENTS OF GORE MARKINGS SPRAYED IN MOVING OPERATIONS SEPARATE FROM THE APPLICATION OF TRANSVERSE LINES.

- A REQUIRED EQUIPMENT
- B EQUIPMENT REQUIRED WHEN DIRECTED BY THE ENGINEER
- C NOT REQUIRED
- D REQUIRED EQUIPMENT FOR SIGN & CONE PLACEMENT

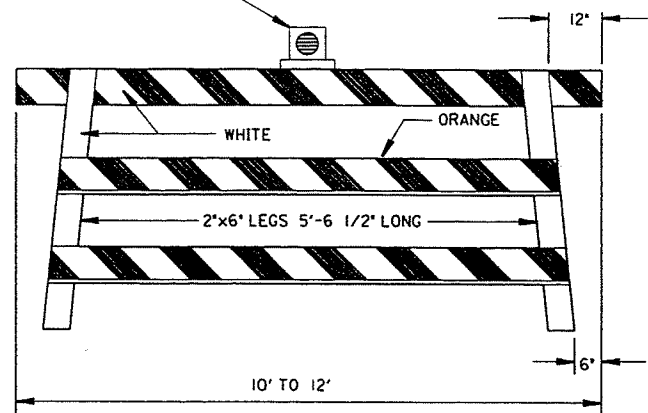
BUREAU OF DESIGN SERVICES DIVISION OF HIGHWAYS OHIO DEPARTMENT OF TRANSPORTATION	
MAINTENANCE OF TRAFFIC	DATE
TRAFFIC CONTROL FOR LONG LINE PAVEMENT MARKING OPERATIONS	11/14/86 04/29/88
STANDARD CONSTRUCTION DRAWING	MT-99.20
APPROVED  ENGR. OF DESIGN SERVICES	

GATE

(A-FRAME STYLE)



TYPE B FLASHING (YELLOW) WARNING LIGHT



GENERAL NOTES

- BARRICADES:** BARRICADES SHALL BE CONSTRUCTED ACCORDING TO DETAILS SHOWN. WHEN THE ROAD IS CLOSED TO TRAFFIC, BARRICADES AND GATES SHALL BE USED TO EFFECTIVELY CLOSE THE ENTIRE ROADWAY INCLUDING THE MEDIAN OF DIVIDED HIGHWAYS. IN URBAN AREAS AND AT LOCATIONS WHERE IT IS IMPRACTICAL TO EXTEND THE BARRICADE TO THE RIGHT-OF-WAY LINE BECAUSE OF A SIDEWALK WHICH IS TO REMAIN OPEN OR OTHER OBSTRUCTION, THE ENDS OF THE BARRICADE SHALL BE LOCATED AS DIRECTED BY THE ENGINEER TO EFFECT THE DESIRED CLOSING OF THE HIGHWAY.
- PAINTING AND REFLECTORIZATION:** IN CONSTRUCTION OR MAINTENANCE AREAS ALL RAILS OF THE BARRICADES AND GATES SHALL BE REFLECTORIZED WITH ORANGE AND WHITE REFLECTORIZED TYPE G SHEETING IN 6" WIDE ALTERNATE STRIPES WHICH SLOPE DOWNWARD TOWARD THE CENTER LINE OF THE ROAD AT AN ANGLE OF 45°. THE TOP RAIL OF THE A-FRAME AND ALL THREE RAILS OF THE HINGED GATE SHALL BE STRIPED ON BOTH SIDES. ALL POST, BRACES, GATE LEGS, AND ANY UNSTRIPED RAILS SHALL BE PAINTED WHITE. (GATES AND BARRICADES USED IN PERMANENT OR SEMIPERMANENT APPLICATION SHALL DIFFER ONLY IN THAT THEY SHALL USE RED AND WHITE STRIPES).
- GATES:** ONE GATE SHALL BE ERECTED FOR EACH TRAFFIC LANE. GATES SHALL BE CHAINED AND PADLOCKED TO ONE ANOTHER AND TO ADJACENT POST OF THE BARRICADES. CHAINS SHALL BE 1/4" STOCK OR LARGER WITH WELDED LINKS. A HINGED GATE MAY BE USED AND SHALL BE SUPPORTED AT THE CENTER IN AN APPROVED MANNER.
- TYPE A FLASHING WARNING LIGHTS:** TYPE A FLASHING WARNING LIGHTS ARE REQUIRED ON THE ROAD CONSTRUCTION AHEAD (OW-128-36) AND THE FIRST ROAD CLOSED AHEAD (OW-120-36) SIGNS.
- TYPE B FLASHING WARNING LIGHTS:** EACH GATE SHALL BE EQUIPPED WITH A TYPE B FLASHING WARNING LIGHT, CONSPICUOUSLY VISABLE AT ALL DISTANCES UP TO 1000' UNDER NORMAL ATMOSPHERIC CONDITIONS. THE LIGHT SHALL BE IN OPERATION AT ALL TIMES DURING THE PERIOD THE HIGHWAY IS CLOSED.
- SIGNS:** WHERE THE ROAD IS CLOSED TO TRAFFIC BY THE ERECTION OF GATES AND BARRICADES, ROAD CLOSED SIGNS (R-75) SHALL BE MOUNTED ON THE GATES AS SHOWN. THE ADVANCE WARNING SIGNS SHOWN ON THIS DRAWING WILL NOT BE REQUIRED WHEN ALL TRAFFIC HAS BEEN DIRECTED FROM THE ROADWAY AT OR JUST IN ADVANCE OF THE GATES AND BARRICADES SUCH AS ON A LIMITED ACCESS HIGHWAY OR WHEN A TEMPORARY RUNAROUND SIMILAR TO FIGURE C-24 OF THE OHIO MANUAL IS USED. ADVANCE WARNING SIGNS SHALL BE REQUIRED IN ALL OTHER SITUATIONS AND WHEN REQUIRED IN THE PLANS. ADVANCE WARNING SIGNS ON AN APPROACH SHALL CONSIST OF TWO ROAD CLOSED AHEAD (OW-120-36) SIGNS WITH DISTANCE PLAQUES PLACED ABOUT 500 FT. AND 1000 FT. FROM THE CLOSURE AND A ROAD CONSTRUCTION AHEAD (OW-128-36) PLACED ABOUT 1500 FT. FROM CLOSURE. THE SIGNS SHALL BE PLACED ON BOTH SIDES OF THE ROAD (DUALLED) FOR 4-LANE DIVIDED HIGHWAYS OR WHEN REQUIRED BY THE PLANS.

7 **OPERATION:** ON A 2-LANE 2-WAY ROADWAY THE CONTRACTOR WILL NORMALLY OPEN ONLY THE LEFT HAND GATE AS NECESSARY TO ALLOW VEHICLES TO ENTER AND IMMEDIATELY CLOSE IT. BOTH GATES WILL NOT NORMALLY BE OPENED AT THE SAME TIME. THE CONTRACTOR SHALL ASSIGN AN EMPLOYEE TO ASSURE THAT GATES ARE CLOSED AND CHAINED SHUT AT THE END OF EACH WORKDAY.

8 **MATERIALS:** GATES OR BARRICADES SHALL BE FABRICATED OF THE FOLLOWING MATERIALS:

- FIXED BARRICADE:**
 POST: - 4" X 4" SQUARE OR 5" DIA. (MAXIMUM) WOOD (MAY BE TREATED)
 - NO. 3, DRIVE POST (712.20)
 - UP TO 2" SQUARE, 14 GAUGE PUNCHED STEEL TUBING
 RAILS: - 1" X 8" OR 2" X 8" COMMON LUMBER
 - 8" X (5/8" TO 1") THICK EXTERIOR PLYWOOD
 - EXTRUDED PLASTIC OR FORMED SHEET METAL WITH AN 8" WIDE SURFACE AND OF SUFFICIENT STIFFNESS TO RESIST TYPICAL WIND LOADS OF UP TO 30 POUNDS PER SQUARE FOOT, BUT HAVING A WEIGHT OF NOT MORE THAN 5.0 POUNDS PER FOOT.

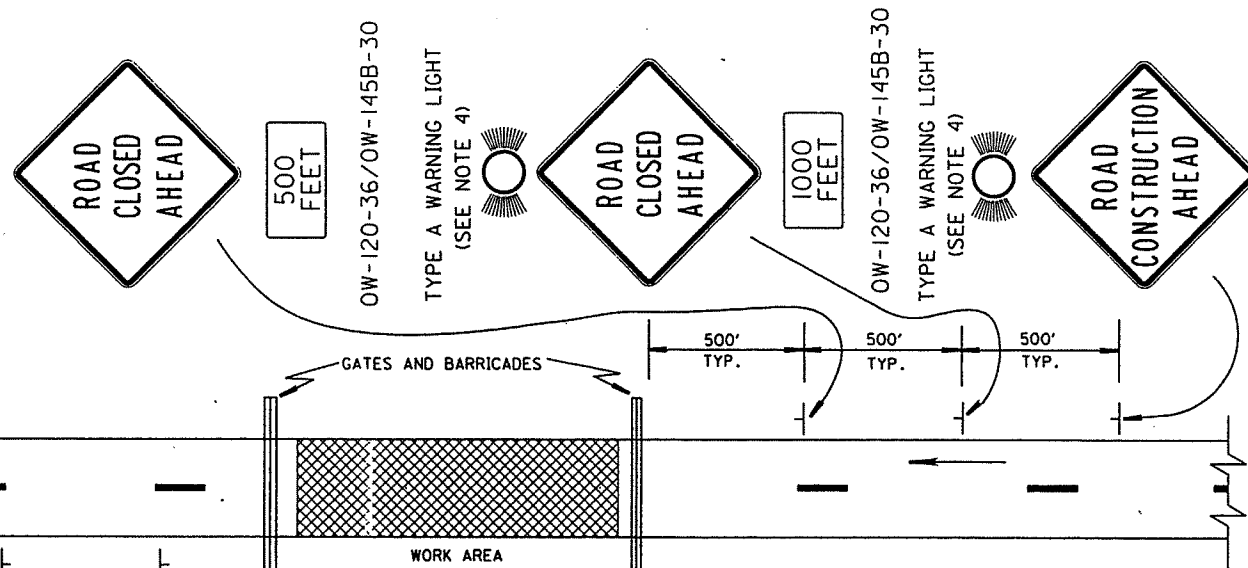
- FASTENERS:** - SPIKES (OF SUFFICIENT LENGTH TO CLINCH)
 - SCREWS/BOLTS (5/16" MIN. DIA.) METAL GUSSETT PLATES AND FORMED OR WELDED METAL JOINTS OF SUFFICIENT SIZE AND QUANTITY TO RESIST THE WIND LOAD SPECIFIED ABOVE. ALL SLIPFIT CONNECTIONS SHALL ALSO BE BOLTED TO PREVENT UNAUTHORIZED DISASSEMBLY

- GATES:**
 LEGS: - 2" X 6" COMMON LUMBER ('A' FRAME' ONLY)
 - 4" X 4" WOOD
 - UP TO 2" SQUARE, 14 GAUGE PUNCHED STEEL TUBING
 - NO. 3 DRIVE POST (712.20)
 RAILS: - 2" X 8" COMMON LUMBER
 FASTENERS: (SAME AS BARRICADES ABOVE)
 FEET: - 6" X 6" WOOD
 - NO. 3 DRIVE POST (712.20)
 - UP TO 2-1/4" SQUARE, 12 GAUGE PUNCHED STEEL TUBING
 BRACES: - 2" X 6" (MAXIMUM) COMMON LUMBER
 - 4" WIDE X 3/4" THICK PLYWOOD STRIPS
 - NO. 2 DRIVE POST (712.20)

- HINGED GATE:**
 GATE: - 12" X 4" STEEL FRAME, FARM GATE
 RAILS: (SAME AS FIXED BARRICADES ABOVE)
 HARDWARE: - HINGED SCREWHOOKS FOR HANGING GATE TO POST

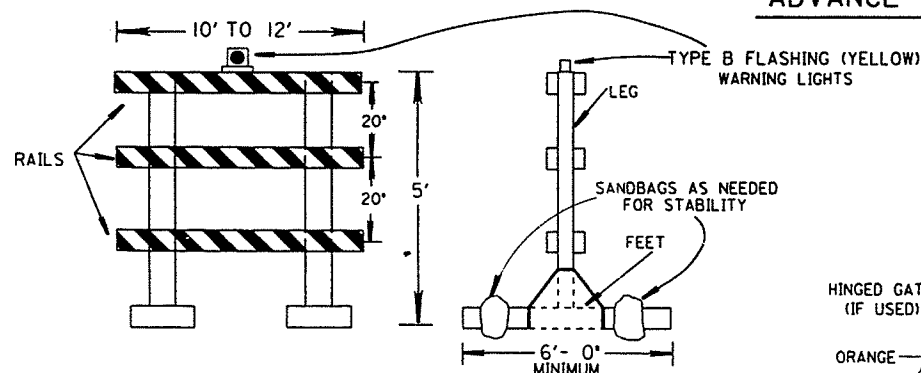
9 **LUMBER:** LUMBER USED IN THE CONSTRUCTION OF GATES AND BARRICADES SHALL BE COMMON YELLOW PINE OR COMMON DOUGLAS FIR, SURFACED ON FOUR SIDES STANDARD, ALL SIZES ARE NOMINAL.

ALL WORK AND TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH 614 AND OTHER APPLICABLE PORTIONS OF THE C & M SPECIFICATIONS AS WELL AS IN ACCORDANCE WITH PART 7 OF OMTCD. PAYMENT FOR ALL LABOR, EQUIPMENT AND MATERIALS TO PROVIDE THIS METHOD OF TRAFFIC CONTROL SHALL BE INCLUDED IN THE LUMP SUM BID FOR 614 MAINTAINING TRAFFIC, UNLESS SEPARATELY ITEMIZED IN THE PLAN.

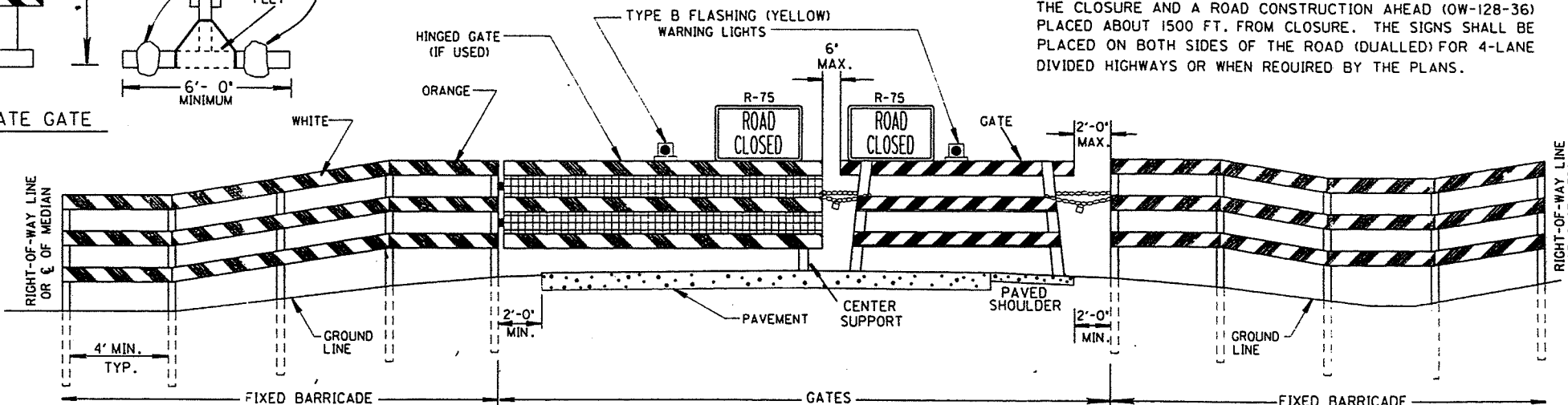


ADVANCE WARNING SIGNS FOR CLOSURE

(SEE NOTE 6)



ALTERNATE GATE



BUREAU OF DESIGN SERVICES DIVISION OF HIGHWAYS OHIO DEPARTMENT OF TRANSPORTATION	
MAINTENANCE OF TRAFFIC GATES AND BARRICADES IN POSITION	DATE 04/01/90 12/12/90 07/01/92
STANDARD CONSTRUCTION DRAWING	
MT-101.60	
APPROVED <i>[Signature]</i> ENGR. OF DESIGN SERVICES	

TEMPORARY SIGN SUPPORT REQUIREMENTS

A. PLACEMENT OF SIGNS WHICH WILL REMAIN MORE THAN ONE DAY:

- 1) LATERAL PLACEMENT TO NEAREST EDGE OF SIGNS SHALL BE AS FOLLOWS:
 - a) ON THE RIGHT SIDE OF THE ROAD FOR APPROACHING TRAFFIC (EXCEPT FOR DUAL MOUNTED SIGNS AND SIGNS DESIGNATED IN THE PLANS FOR LEFT SIDE MOUNTING).
 - b) CURBED ROADWAY - MINIMUM 2 FT. BEHIND FACE OF CURB.
 - c) UNCURBED ROADWAY - 12 FT. FROM EDGE OF TRAFFIC LANE OR 6 FT. FROM EDGE OF PAVED OR USEABLE SHOULDER, WHICHEVER IS GREATER.
 - d) BEHIND GUARDRAIL OR BARRIER - PREFERABLY 2 FT. BEHIND FACE OF GUARDRAIL (MINIMUM 1 FT.) FOR SIGNS ON CLASS A SUPPORTS; 4 FT. FOR CLASS B OR C SUPPORTS; 1 FT. BEHIND FACE OF CONCRETE BARRIER UNLESS BARRIER TOP MOUNTING IS REQUIRED BY THE PLAN.
- 2) VERTICAL CLEARANCE OF SIGNS, MEASURED ABOVE ROADWAY ELEVATION; SHALL BE AS FOLLOWS:
 - a) RURAL - 5 FT. WHEN PARKED CARS, CONSTRUCTION EQUIPMENT, ETC WILL NOT OBSCURE SIGN VISIBILITY.
 - b) RURAL AREAS WITH PARKED CARS OR CONSTRUCTION EQUIPMENT - 7 FT.
 - c) URBAN - 7 FT.
 - d) CARE SHALL BE TAKEN TO ASSURE THAT SIGNS WILL NOT BE OBSCURED BY CONSTRUCTION EQUIPMENT, TREES, WEEDS OR OTHER OBSTACLES. BRUSH, WEEDS OR GRASS WITHIN THE RIGHT OF WAY SHALL BE TRIMMED AS NECESSARY. SIGNS SHALL NORMALLY BE VISIBLE TO TRAFFIC 400 TO 600 FT. IN ADVANCE OF THE SIGN.
- 3) SUPPORTS FOR SIGNS WHICH WILL REMAIN IN PLACE MORE THAN ONE DAY SHALL BE FIXED RATHER THAN PORTABLE EXCEPT IN SITUATIONS WHERE THE SIGN MUST REST ON PERMANENT PAVEMENT OR OTHER SURFACE WHICH WOULD BE DAMAGED BY INSERTION OF POST TYPE SUPPORTS.

B. PLACEMENT OF SIGNS WHICH WILL REMAIN FOR ONE DAY OR LESS:

- 1) SAME AS A-1 ABOVE EXCEPT THAT SIGNS MAY BE PLACED ON THE ROADWAY ONLY IF THEY DO NOT INTRUDE INTO A TRAFFIC LANE IN USE.
- 2) MINIMUM OF 1 FT. ABOVE ROADWAY

C. CLASSES OF SUPPORTS:

ALL TEMPORARY SIGN SUPPORTS SHALL BE OF THE FOLLOWING TYPES:

1) CLASS A:

SUPPORTS SHALL BE USED FOR EXPOSED LOCATIONS ON HIGHWAYS WHERE TRAFFIC APPROACH SPEEDS OF 40 MPH AND HIGHER ARE ENCOUNTERED. THEY ARE ALSO SUITABLE FOR USE IN ALL OTHER LOCATIONS.

2) CLASS B:

SUPPORTS SHALL BE USED FOR EXPOSED LOCATIONS ON HIGHWAYS WHERE TRAFFIC APPROACH SPEEDS OF LESS THAN 40 MPH ARE ENCOUNTERED. THEY ARE ALSO SUITABLE FOR USE IN ALL APPLICATIONS DEFINED FOR CLASS C SUPPORTS.

3) CLASS C:

SUPPORTS MAY ONLY BE USED WHERE FULLY PROTECTED BY GUARDRAIL, CONCRETE BARRIER AND IN LOCATIONS POSITIVELY PROTECTED FROM TRAFFIC SUCH AS ON RETAINING WALLS OR WHERE TRAFFIC APPROACH SPEEDS ARE LESS THAN 25 MPH.

D. TRAFFIC APPROACH SPEEDS:

TRAFFIC APPROACH SPEEDS SHALL BE THE LOCALLY POSTED SPEED (NOT ADVISORY SPEED SIGNS) OR THE MEASURED ACTUAL (85TH PERCENTILE) SPEED (IF AVAILABLE) OF APPROACHING TRAFFIC, WHICHEVER IS HIGHER, ADJACENT TO THE SIGN LOCATION.

TABLE

APPROACH SPEED (MPH)	COMPLETELY PROTECTED BY GUARDRAIL OR BARRIER	PARTLY PROTECTED BY GUARDRAIL OR BARRIER *	GREATER THAN 30' FROM EDGE OF PAVEMENT	WITHIN 30' FROM EDGE OF PAVEMENT
40 AND HIGHER	A, B OR C	A OR B	A OR B **	A ONLY
26 TO 39	A, B OR C	A OR B	A OR B	A OR B
0 TO 25	A, B OR C	A, B OR C	A, B OR C	A, B OR C

* IF SUPPORTS ARE BEHIND GUARDRAIL BUT NOT FULLY 5.5' BEHIND FACE OF RAIL OR IF SIGN IS NOT 1' BEHIND FACE OF CONCRETE BARRIER.

** 30' CRITERION IS BASED UPON STRAIGHT ROADWAY AND A SLOPE OF 6:1 OR FLATTER. SUPPORTS ON THE OUTSIDE OF CURVES OR LOCATED DOWN A SLOPE (STEEPER THAN 6:1) WILL REQUIRE USE OF CLASS A SUPPORTS.

E. BALLASTING

BALLASTING OF PORTABLE SUPPORTS SHALL BE WITH SANDBAGS PLACED WITHIN 1 FT. OF THE GROUND. IN NO CASE SHALL HARD OBJECTS BE USED FOR BALLAST.

F. STRENGTH OF SIGN SUPPORTS

THE CONTRACTOR SHALL CHOOSE SIGN SUPPORTS OF ADEQUATE STRENGTH AND WITH ADEQUATE FOUNDATIONS AND ANCHORAGE TO SUPPORT THE SIGN SIZES ERECTED. PROPRIETARY DEVICES SHALL NOT BE LOADED BEYOND THE LIMITS RECOMMENDED BY THE MANUFACTURER. SLIP BASE TYPE BREAKAWAY BEAM CONNECTIONS SHALL BE AT LEAST PARTIALLY EMBEDDED IN CONCRETE CONSISTING OF A 1 FT. DEEP BY 12" DIAMETER COLLAR. SIGN SUPPORTS WHICH FAIL UNDER TYPICAL WIND LOAD CONDITIONS SHALL BE IMMEDIATELY MODIFIED OR REPLACED WITH A SUPPORT OF ADEQUATE STRENGTH.

G. PROHIBITED SUPPORTS

THE FOLLOWING SUPPORT TYPES SHALL NOT BE PERMITTED ON PROJECTS:

- 1) SUPPORTS FABRICATED FROM AUTOMOTIVE AXLE DIFFERENTIAL ASSEMBLIES AND SIMILARLY HEAVY ASSEMBLIES WHICH CANNOT BE CONSIDERED BREAKAWAY TYPE.
- 2) SUPPORTS CONSISTING OF VERTICAL POSTS WITH ANGLED BRACES MADE FROM DRIVEPOST OR OTHER RIGID ELEMENTS.

CLASS A SUPPORTS

FIXED SUPPORTS

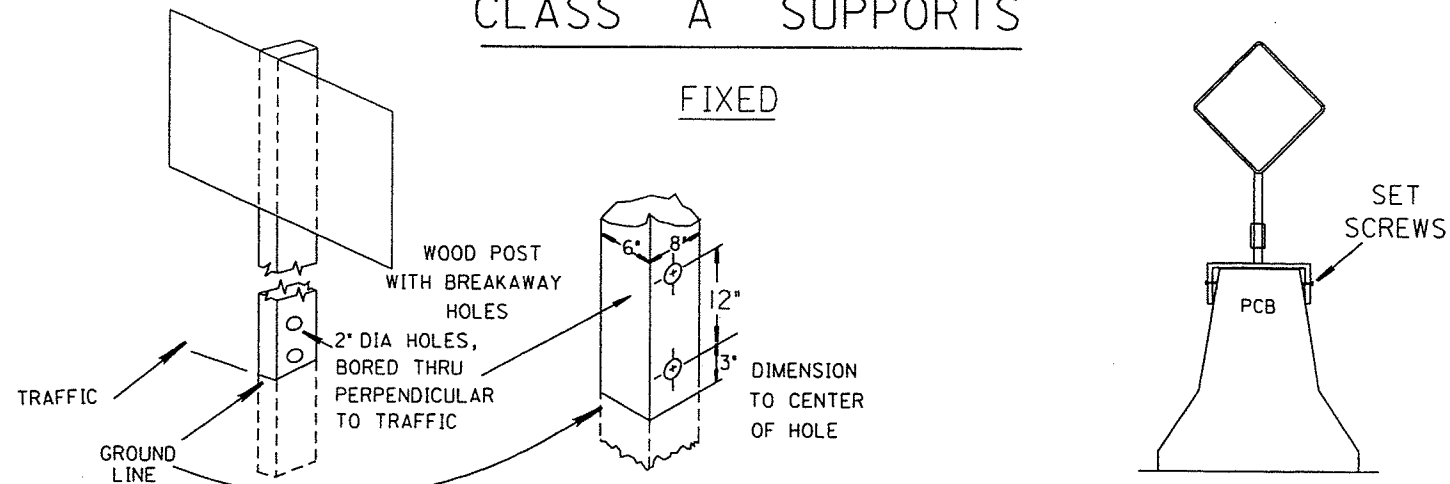
- 1) ALL #2 AND #3 POSTS WHEN INSTALLED SINGLY OR IN PAIRS (SIDE BY SIDE) ACCORDING TO THE DETAILS OF TC-41.20. THE NUMBER OF SUPPORTS SHALL BE AS SHOWN ON TC-52.10 AND TC-52.20.
- 2) THE FOLLOWING POST TYPES, WHEN INSTALLED SINGLY, BY IMBEDMENT OR DRIVING INTO EARTH TO A DEPTH OF ABOUT 42 INCHES:
 - a) - UP TO 4" X 4" WOOD
 - b) - UP TO 2 INCH DIAMETER SCHEDULE 40 STEEL PIPE
 - c) - UP TO 3 INCH DIAMETER SCHEDULE 40 ALUMINUM PIPE
 - d) - UP TO 2 1/4 INCH SQUARE, 12 GAUGE WALL, PUNCHED STEEL POST
 - e) - UP TO 6" X 8" WOOD WITH BREAKAWAY HOLES SHOWN BELOW
- 3) THE FOLLOWING POST TYPES WHEN INSTALLED IN PAIRS (SIDE BY SIDE) WITH LESS THAN 7 FT. BETWEEN POSTS, BY IMBEDMENT OR DRIVING INTO EARTH TO A DEPTH OF ABOUT 42 INCHES:
 - a) - UP TO 4" X 4" WOOD
 - b) - UP TO 2 INCH DIAMETER SCHEDULE 40 STEEL PIPE
 - c) - UP TO 3 INCH DIAMETER SCHEDULE 40 ALUMINUM PIPE
 - d) - UP TO 2 INCH SQUARE, 14 GAUGE WALL, PUNCHED STEEL POST
- 4) FIXED TYPE III BARRICADES:
- 5) ALL BREAKAWAY CONNECTION BEAM SUPPORTS, WHEN INSTALLED ACCORDING TO THE PROPER DETAILS SHOWN ON TC-41.10 WITH A MINIMUM CLEAR DISTANCE BETWEEN SUPPORTS OF 7 FT. FOR SUPPORTS LARGER THAN W6 X 9.
- 6) ANY BREAKAWAY POST OR POST AND CONNECTION WHICH HAS BEEN CRASH TESTED AND APPROVED BY THE FHWA AS SATISFYING THE BREAKAWAY CRITERIA DESCRIBED IN 630.06.

(CONTINUED ON MT-105.11)

ALL WORK AND TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH 614 AND OTHER APPLICABLE PORTIONS OF THE C & M SPECIFICATIONS AS WELL AS IN ACCORDANCE WITH PART 7 OF THE OMTCD. PAYMENT FOR ALL LABOR, EQUIPMENT AND MATERIALS TO PROVIDE THIS METHOD OF TRAFFIC CONTROL SHALL BE INCLUDED IN THE LUMP SUM BID FOR 614 MAINTAINING TRAFFIC, UNLESS SEPARATELY ITEMIZED IN THE PLAN.

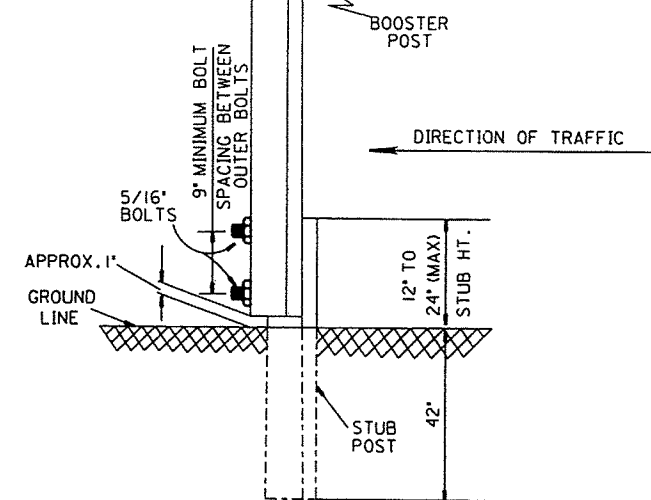
BUREAU OF DESIGN SERVICES	
DIVISION OF HIGHWAYS	
OHIO DEPARTMENT OF TRANSPORTATION	
MAINTENANCE OF TRAFFIC	DATE 05/07/90 07/01/92
TEMPORARY SIGN SUPPORT	
STANDARD CONSTRUCTION DRAWING	MT-105.10
APPROVED <i>[Signature]</i> ENGR. OF DESIGN SERVICES	

CLASS A SUPPORTS



CLASS A SUPPORTS

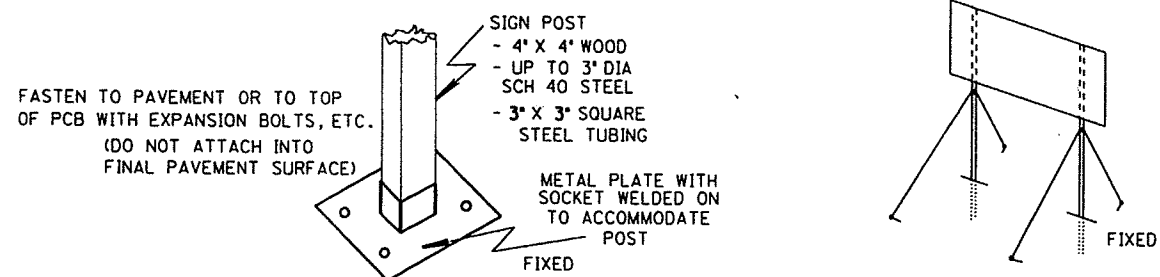
STUBBING STANDARD



NOTES

1. FOR USE WITH #3 POST OR SMALLER ONLY
2. BOLTS SHALL BE STEEL OR ALUMINUM
3. A MINIMUM OF TWO FASTENERS SHALL BE USED PER ASSEMBLY
4. BOOSTER POST SHALL BE MOUNTED BEHIND STUB POST
5. BOOSTER POST SHALL BE THE SAME OR 1 LB./FT. LESS THAN STUB POST

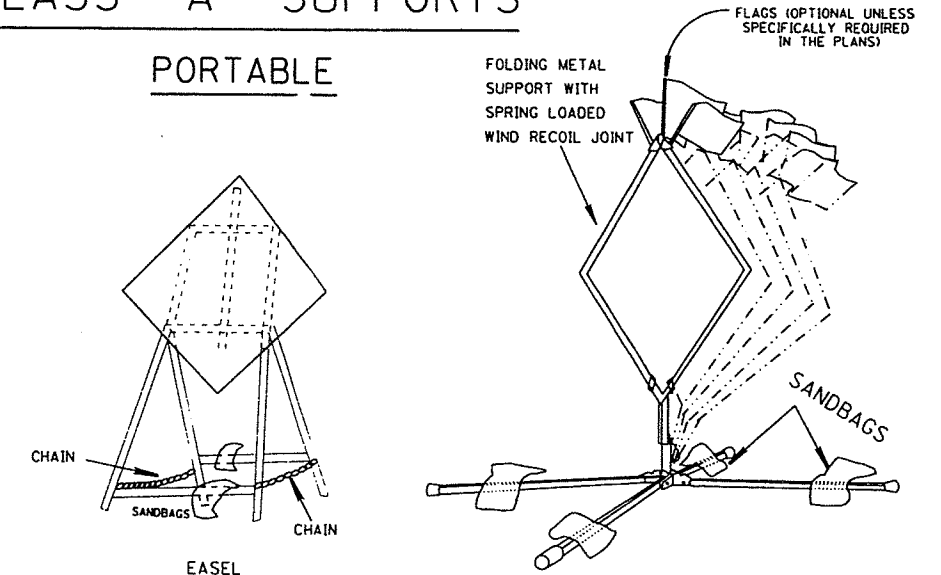
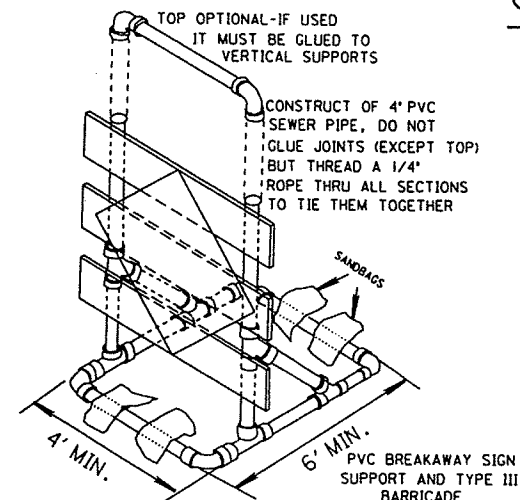
CLASS B SUPPORTS



ANY CLASS A SIGN POST WITH GUY WIRES ADDED TO INCREASE SIGN CARRYING ABILITY. (GUY WIRES SHALL NOT BE HEAVIER THAN 1/8" DIA. BRAIDED CABLE. GUY ANCHORS SHALL NOT EXTEND MORE THAN 6" ABOVE GROUND SURFACE).

CLASS A SUPPORTS

PORTABLE



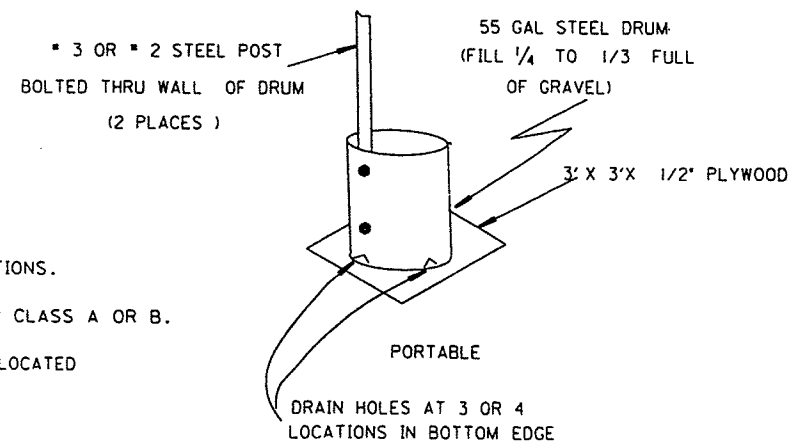
NOTES

RAIL MATERIALS:

- 1" X 8" OR 2" X 8" COMMON LUMBER
- 8" X (5/8" TO 1") THICK EXTERIOR PLYWOOD
- EXTRUDED PLASTIC OR FORMED SHEET METAL WITH AN 8" WIDE SURFACE AND OF SUFFICIENT STIFFNESS TO RESIST TYPICAL WIND LOADS OF UP TO 30 POUNDS PER SQUARE FOOT, BUT HAVING A WEIGHT OF NOT MORE THAN 5.0 POUNDS PER FOOT.

ALL WORK AND TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH 614 AND OTHER APPLICABLE PORTIONS OF THE C & M SPECIFICATIONS AS WELL AS IN ACCORDANCE WITH PART 7 OF THE OMUTCD. PAYMENT FOR ALL LABOR, EQUIPMENT AND MATERIALS TO PROVIDE THIS METHOD OF TRAFFIC CONTROL SHALL BE INCLUDED IN THE LUMP SUM BID FOR 614 MAINTAINING TRAFFIC, UNLESS SEPARATELY ITEMIZED IN THE PLAN.

CLASS C SUPPORTS



1. ALL BEAM TYPE SUPPORTS WITHOUT BREAKAWAY CONNECTIONS.
2. SUPPORTS SIMILAR TO BUT LARGER THAN PERMITTED FOR CLASS A OR B.
3. THE STEEL DRUM(S) SHOWN BELOW MAY BE USED ONLY WHEN LOCATED BEHIND GUARDRAIL OR BARRIER.

BUREAU OF DESIGN SERVICES
DIVISION OF HIGHWAYS
OHIO DEPARTMENT OF TRANSPORTATION

MAINTENANCE OF TRAFFIC DATE 05/07/90

TEMPORARY SIGN SUPPORT 07/01/92

STANDARD CONSTRUCTION DRAWING MT-105.11

APPROVED *[Signature]* ENGR. OF DESIGN SERVICES

THE FLASHING ARROW PANEL SHALL CONSIST OF THE FOLLOWING COMPONENTS:

- A. FLASHER PANEL
- B. LAMPS
- C. CONTROLS
- D. POWER SUPPLY
- E. MOUNTING

A. FLASHER PANEL

THE FLASHER PANEL SHALL BE OF EXTERIOR TYPE PLYWOOD OR CORROSION RESISTANT METAL CONSTRUCTION OF ADEQUATE DESIGN AND STRENGTH. THE PANEL FINISH SHALL BE FLAT BLACK.

A FLASHER PANEL SHALL BE ONE OF THREE SIZES. THE TYPE A PANEL SHALL BE A NOMINAL 24 INCHES HIGH BY 48 INCHES WIDE. TYPE B SHALL BE A NOMINAL 30 INCHES HIGH BY 54 INCHES WIDE. TYPE C SHALL BE A NOMINAL 48 INCHES HIGH BY 96 INCHES WIDE.

B. LAMPS

LAMPS SHALL BE ANSI NUMBER 4412A FOR TYPES B AND C AND 4415A FOR TYPE A. THE LAMPS SHALL BE FITTED WITH AN UPPER HOOD OF NOT LESS THAN 180° AT LEAST FIVE INCHES LONG. THE LAMPS SHALL BE SECURELY MOUNTED AND POSITIONED IN THE PANEL PERPENDICULAR TO THE PANEL FACE AND ORIENTED SO THAT THE LAMP LOCATION LUG (ON BACK OF THE LAMP) IS ON THE HORIZONTAL CENTER LINE THROUGH THE LENS. THE LUG WILL BE ON THE RIGHT SIDE OF THE LAMP AS VIEWED FROM THE FRONT.

THE LAMPS SHALL BE WIRED IN CIRCUITS THAT CAN BE SWITCHED TO DISPLAY ANY ONE OF THE FOLLOWING MESSAGES: LEFT ARROW, RIGHT ARROW, LEFT AND RIGHT ARROW, AND CAUTION BAR. A MINIMUM OF THREE INDICATOR LIGHTS SHALL BE PLACED ON THE BACK OF THE PANEL TO INDICATE WHICH MESSAGE MODE IS IN OPERATION.

EACH PANEL SHALL CONTAIN THE FOLLOWING NUMBER OF LAMPS AS A MINIMUM: TYPE A-12 LAMPS, TYPE B-13 LAMPS, TYPE C-15 LAMPS.

C. CONTROLS

EACH FLASHING ARROW PANEL SHALL CONTAIN A FLASHER CONTROL AND A DIMMER CONTROL UNIT HOUSED IN A CABINET WHICH CAN BE LOCKED.

1. FLASHER CONTROL

THE FLASH RATE FOR THE SIGN PANEL SHALL BE 25 TO 40 FLASHES PER MINUTE. THE FLASHER SHALL NOT CAUSE ELECTROMAGNETIC INTERFERENCE. THE LAMPS SHALL HAVE A MINIMUM "ON TIME" OF 50% AND A MAXIMUM OF 66%.

2. DIMMER CONTROL

LAMP INTENSITY SHALL BE VARIABLE BY MEANS OF A PHOTOELECTRICALLY CONTROLLED CIRCUIT WHICH SHALL REDUCE LAMP OUTPUT DURING LOW AMBIENT LIGHT CONDITIONS. THE PHOTOELECTRIC CONTROL SHALL BE CALIBRATED TO ACTUATE A LAMP DIMMING CIRCUIT AT 2' TO 5' AMBIENT FOOT CANDLES AND TO RESTORE THE LIGHTS TO NORMAL AT 5 TO 10 AMBIENT FOOT CANDLES. A TIME DELAY SHALL BE BUILT INTO THE CONTROL TO PREVENT FALSE OPERATION DUE TO LIGHT FLASHES. THE PHOTOELECTRIC CONTROL SHALL CONTAIN A SWITCH WHICH SHALL OVERRIDE THE PHOTOELECTRIC CONTROL. THE DIMMING CIRCUIT SHALL BE EXTERNALLY ADJUSTABLE SUCH THAT THE LIGHT OUTPUT MAY BE ADJUSTED WITHIN THE RANGE OF 50% TO 100% OF THE NORMAL LAMP OUTPUT.

D. POWER SUPPLY

THE FLASHING ARROW PANEL SHALL OPERATE FROM POWER SOURCES CAPABLE OF CONTINUOUSLY FURNISHING 12 VOLTS DC AT THE LAMPS A MINIMUM OF 24 HOURS WITHOUT ATTENDANCE.

MOTOR GENERATORS, IF USED, SHALL BE OF MODERN DESIGN TO PROVIDE LOW EMISSION OF POLLUTANTS AND SHALL BE PROPERLY MUFFLED. THE MOTOR GENERATOR SHALL BE ENCLOSED IN A MESH ENCLOSURE WHICH CAN BE LOCKED. THE FUEL TANK SHALL HAVE A CAP WHICH CAN BE LOCKED. MOTOR GENERATORS SUPPLYING POWER TO A FLASHING ARROW SIGN SHALL NOT BE USED TO SUPPLY POWER TO OTHER EQUIPMENT.

E. MOUNTING

THE FLASHING ARROW PANEL MAY BE TRAILER OR VEHICLE MOUNTED OR MOUNTED ON A RIGID SUPPORTING DEVICE SUITABLE FOR MAINTAINING IT IN THE DESIGNATED POSITION. EACH OF THE MOUNTING METHODS SHALL BE SUITABLY STABLE SUCH AS TO PREVENT MOVEMENT DUE TO HIGH WINDS OR PASSAGE OF LARGE VEHICLES.

WHEN A TRAILER IS USED, CONSTRUCTION SHALL BE SUCH AS TO TRANSPORT THE FLASHING ARROW PANEL AND APPURTANCES ADEQUATELY AND LEGALLY AS WELL AS SUPPORT THEM PROPERLY DURING OPERATION. THE TRAILER SHALL BE EQUIPPED WITH DEVICES WHICH SHALL PROVIDE LEVELING AND STABILITY DURING OPERATION.

MINIMUM ARROW PANEL MOUNTING HEIGHT SHALL BE 7 FEET ABOVE THE PAVEMENT SURFACE (MEASURED TO THE BOTTOM OF THE PANEL).

USE AND OPERATION

THE FLASHING ARROW PANEL SHALL BE LOCATED AS SHOWN IN THE MAINTENANCE OF TRAFFIC DRAWINGS OR AS DIRECTED BY THE ENGINEER AND OPERATED CONTINUOUSLY DURING TRAFFIC MAINTAINED PERIODS. THE CONTRACTOR SHALL SUPPLY ALL FUEL, LUBRICANTS AND PARTS NECESSARY TO OBTAIN CONTINUOUS OPERATION AND SHALL

PROVIDE ALL SERVICE. THE CONTRACTOR SHALL ARRANGE WITH THE ENGINEER, AN ACCEPTABLE METHOD OF OBTAINING SERVICE FOR A MALFUNCTIONING PANEL WITHIN 30 MINUTES OF A REPORTED MALFUNCTION. LAMP INTENSITY SHALL BE ADJUSTED TO PROVIDE MINIMUM LEGIBILITY DISTANCES OF 1/2 MILE (TYPE A), 3/4 MILES (TYPE B) AND 1 MILE (TYPE C).

TYPE C PANELS SHALL BE USED FOR STATIONARY OPERATIONS ON HIGH SPEED (55 MPH), HIGH VOLUME ROADWAYS. TYPE B SHALL BE USED FOR STATIONARY OPERATIONS ON INTERMEDIATE SPEED (40-50 MPH) FACILITIES, AND TYPE A ON LOW SPEED (20-35 MPH) FACILITIES.

IN ADDITION, TYPE B PANELS SHALL BE USED FOR MOVING OPERATIONS ON FREEWAYS AND EXPRESSWAYS AND TYPE A FOR MOVING OPERATIONS ON OTHER FACILITIES.

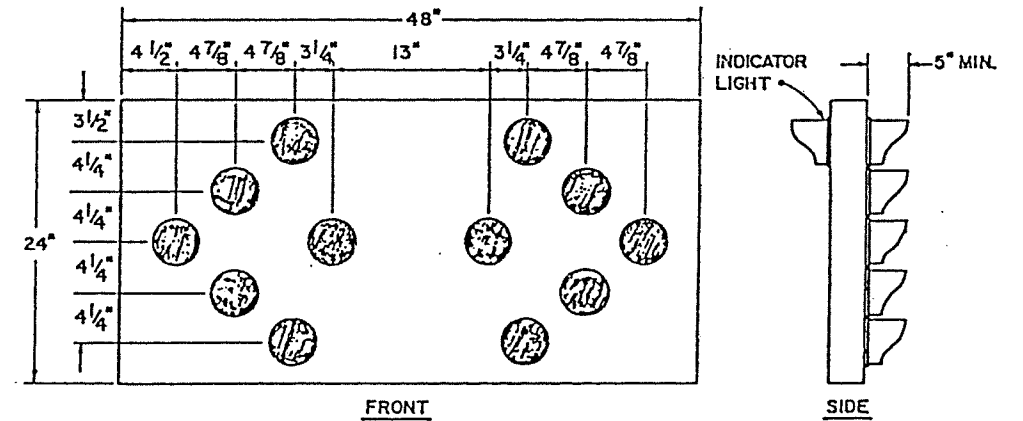
FLASHING ARROW PANELS ARE NOT TO BE USED ON 2 LANE-2 WAY ROADWAYS.

WHEN LEFT UNATTENDED THE CONTROL CABINET, MOTOR GENERATOR ENCLOSURE AND FUEL TANK SHALL BE LOCKED.

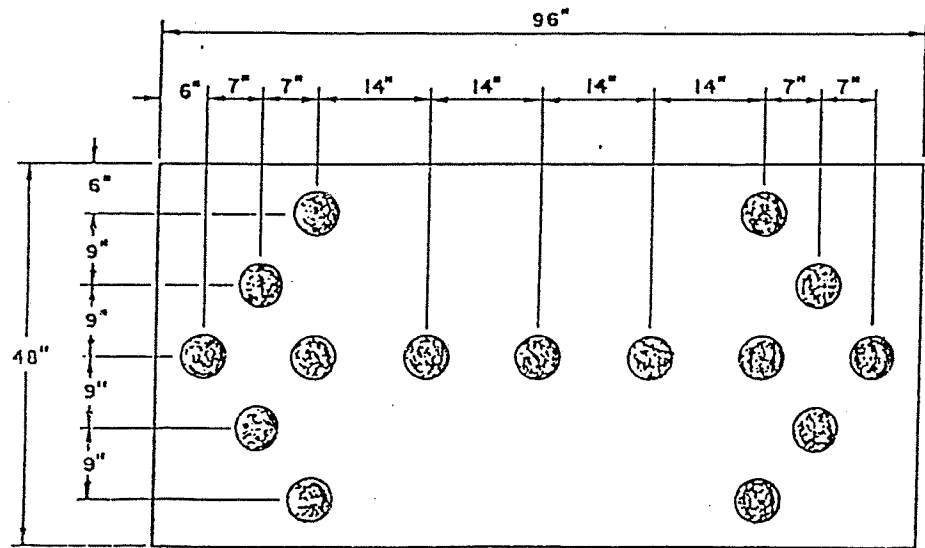
TYPE A PANELS AND TYPE B PANELS USED IN MOVING OPERATIONS MAY BE POWERED BY THE VEHICLE'S ELECTRICAL SYSTEM BUT SHALL NOT BE LEFT UNATTENDED WHEN SO POWERED.

WHEN NOT IN USE, THE FLASHING ARROW PANEL SHALL BE STORED AT A LOCATION WHICH WILL NOT BE HAZARDOUS TO TRAFFIC OR PEDESTRIANS.

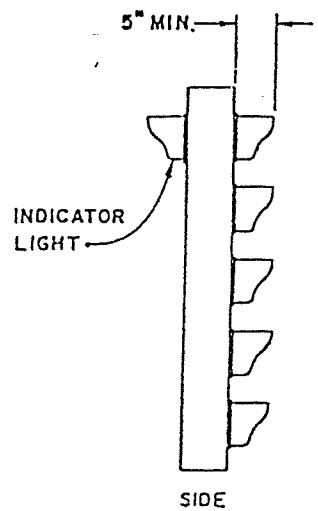
THE PANELS SHALL BE DESIGNED FOR OPERATION IN 100% HUMIDITY AND TEMPERATURES FROM -20 TO +130 DEGREES FAHRENHEIT.



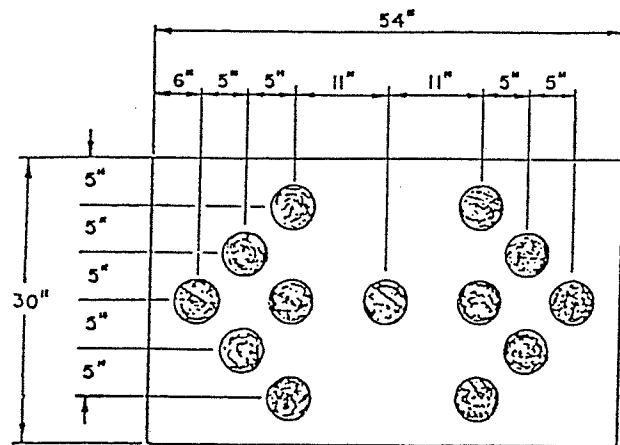
FRONT
TYPE A PANEL
SIDE



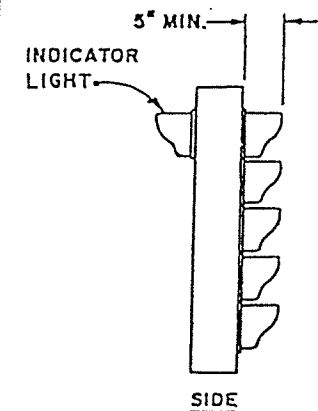
FRONT
TYPE C PANEL



SIDE



FRONT
TYPE B PANEL

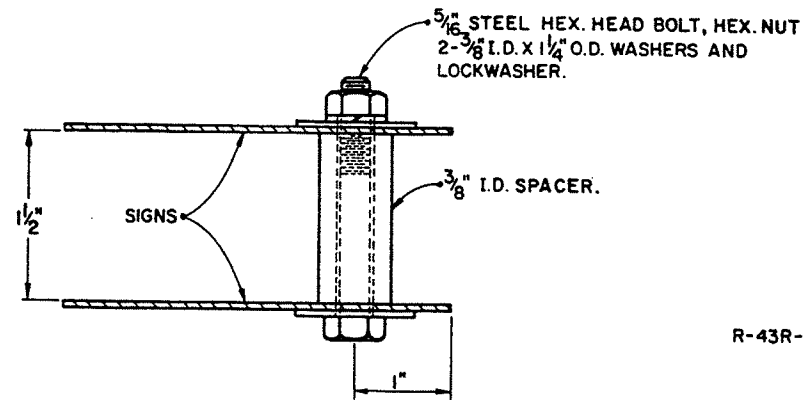
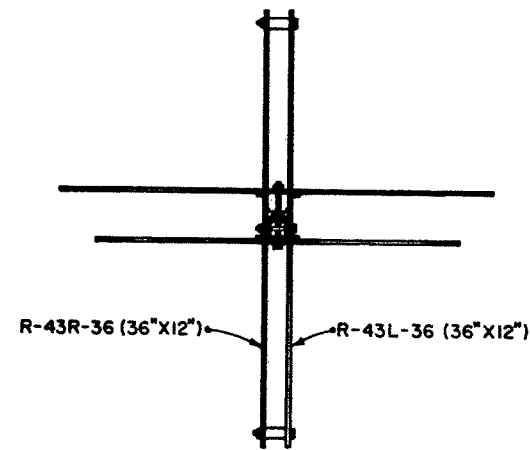


SIDE

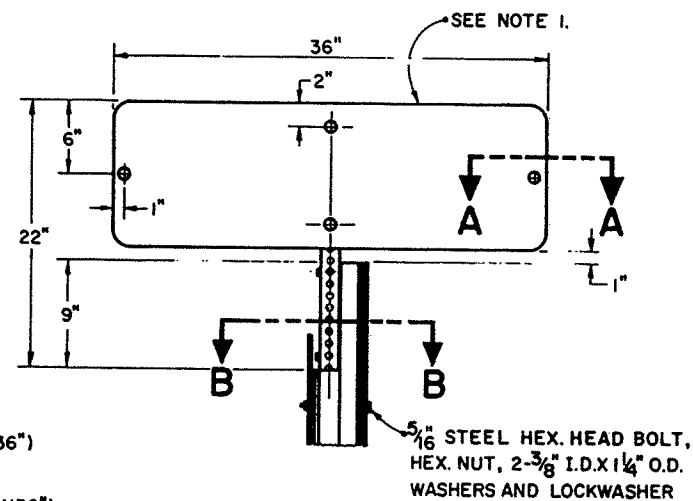
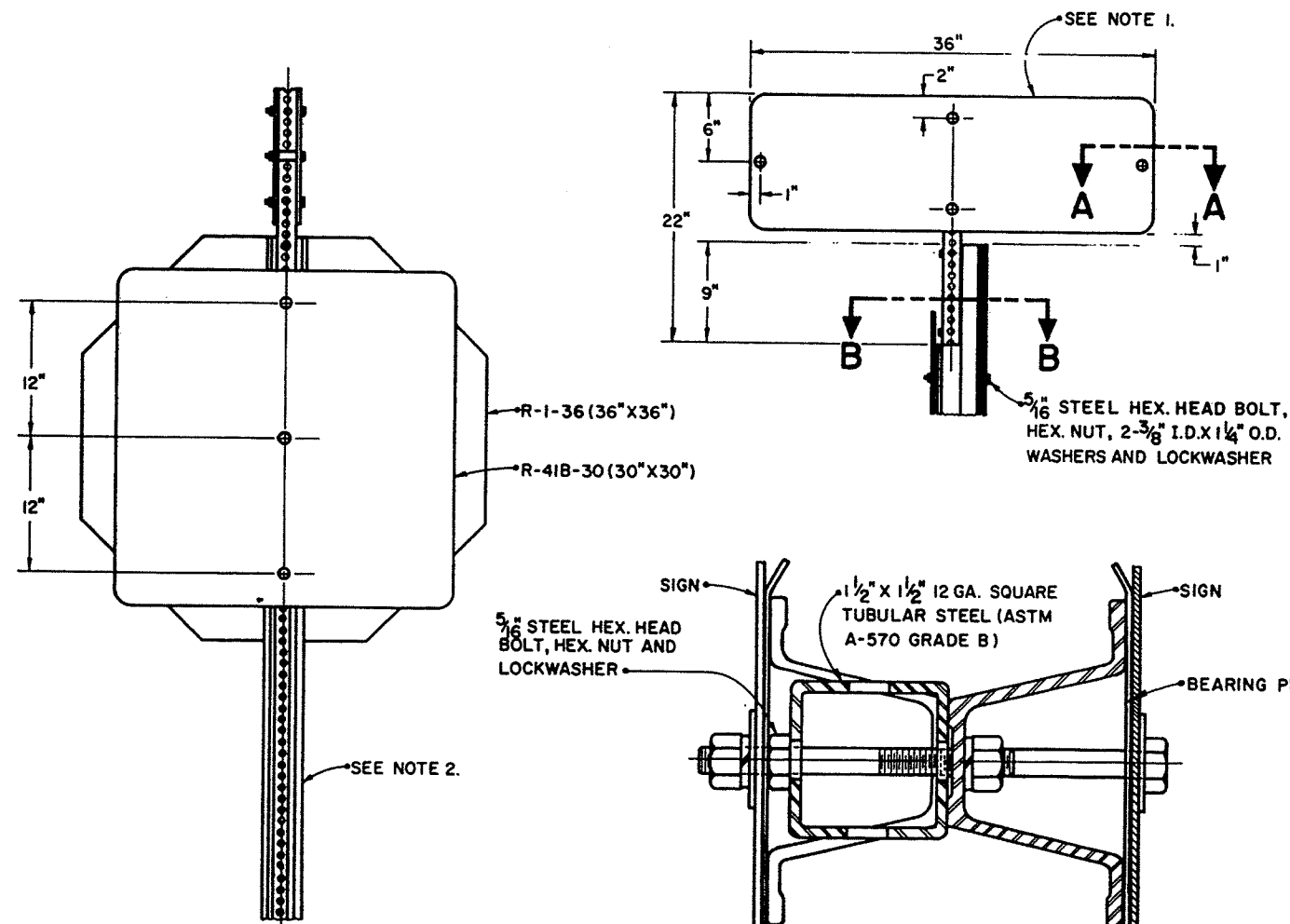
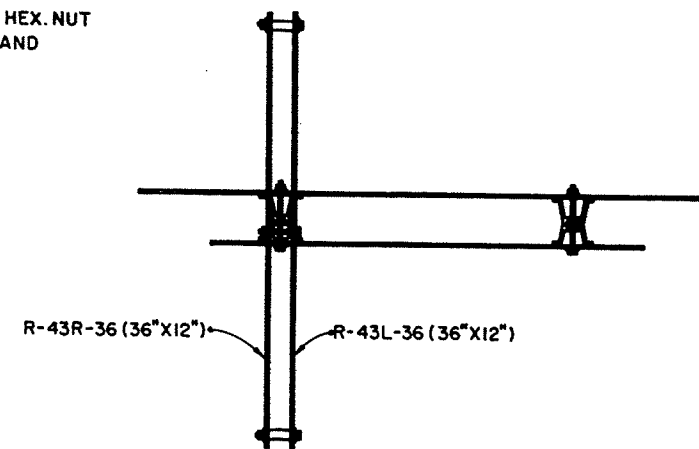
BUREAU OF DESIGN SERVICES DIVISION OF HIGHWAYS OHIO DEPARTMENT OF TRANSPORTATION	
TRAFFIC CONTROL	DATE 10/5/77 8/29/84
FLASHING ARROW PANEL	
STANDARD CONSTRUCTION DRAWING	TC-35.10
APPROVED: _____ Engineer of Design Services	

NOTES

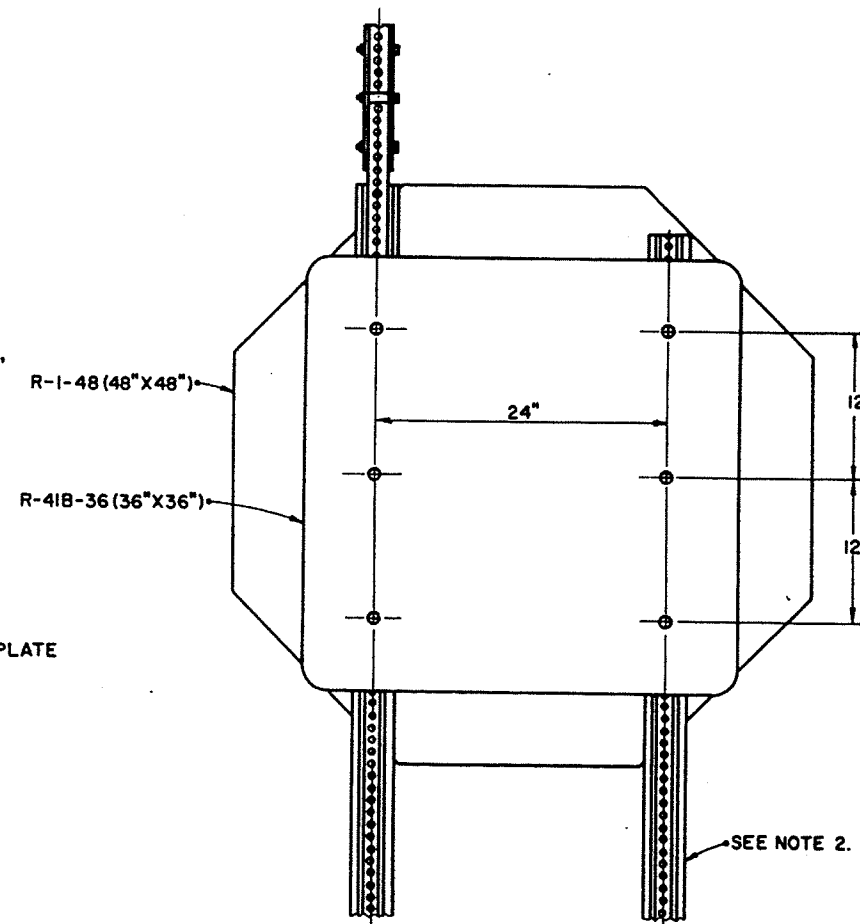
1. IN SPECIAL SITUATIONS A R-43L(R)-48 SIGN MAY BE USED IN LIEU OF THE R-43L(R)-36 SIGN.
2. FOR POST(S) INSTALLATION DETAILS, SEE STANDARD DRAWING TC-41.20.



SECTION A-A



SECTION B-B

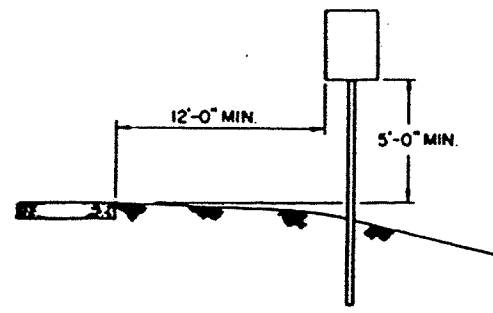


TWO POST

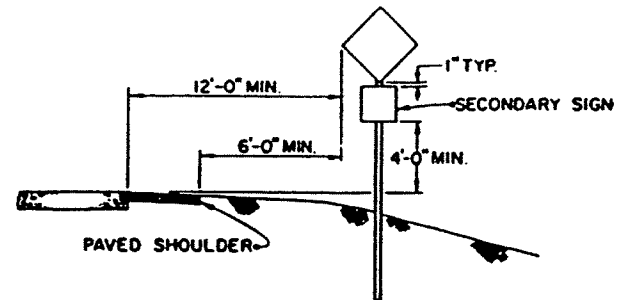
SINGLE POST

ALL ITEMS SHALL CONFORM TO SUPPLEMENTAL SPECIFICATIONS 857 AND 957, UNLESS OTHERWISE SPECIFIED.

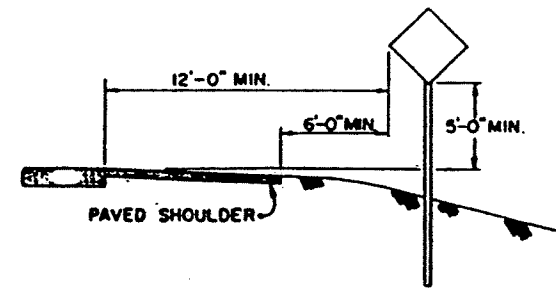
BUREAU OF DESIGN SERVICES DIVISION OF HIGHWAYS OHIO DEPARTMENT OF TRANSPORTATION	
TRAFFIC CONTROL	DATE 4/1/77 3/26/79
SPECIAL "ONE WAY" SIGN SUPPORT DETAILS	
STANDARD CONSTRUCTION DRAWING TC-41.50	
APPROVED: <i>E. J. [Signature]</i> Engineer of Design Services	



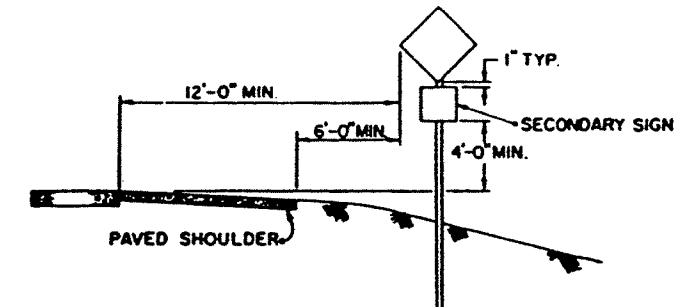
RURAL UNDIVIDED



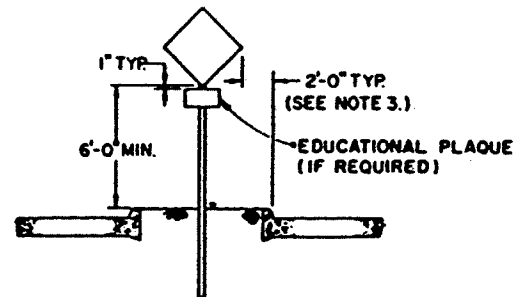
**RURAL UNDIVIDED
(W / SECONDARY SIGN)**



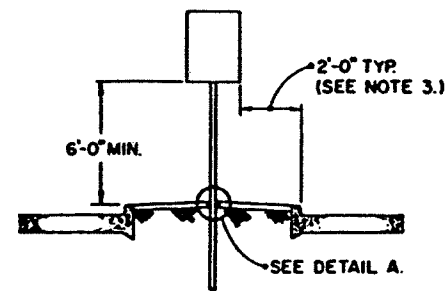
RURAL DIVIDED



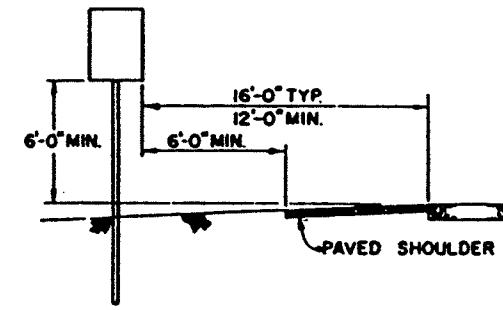
**RURAL DIVIDED
(W / SECONDARY SIGN)**



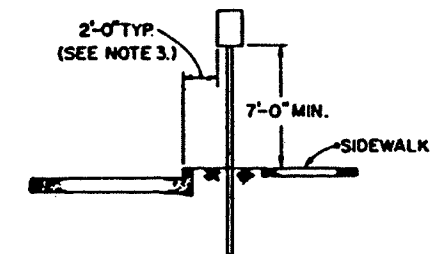
MEDIAN



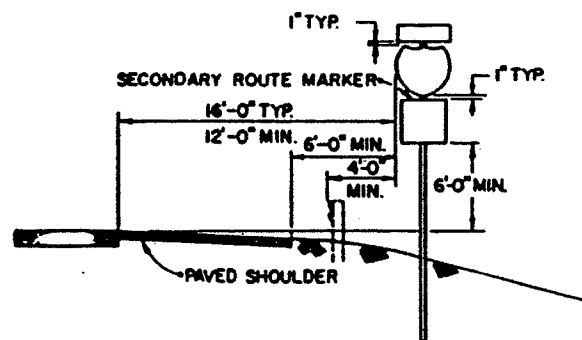
PAVED MEDIAN



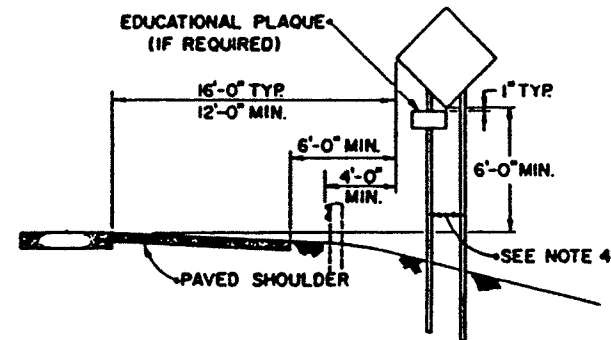
MEDIAN-EXPRESSWAY OR FREEWAY



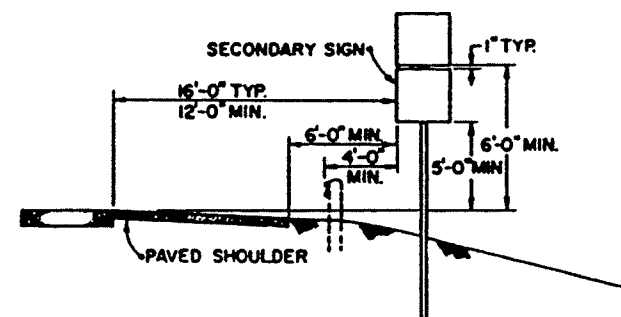
URBAN-RESIDENTIAL AND BUSINESS



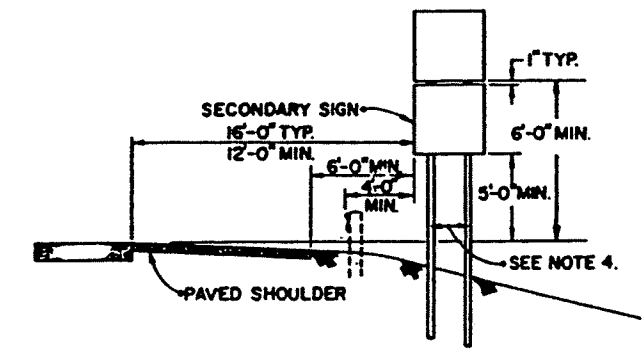
**EXPRESSWAY OR FREEWAY
(W / SECONDARY SIGN)**



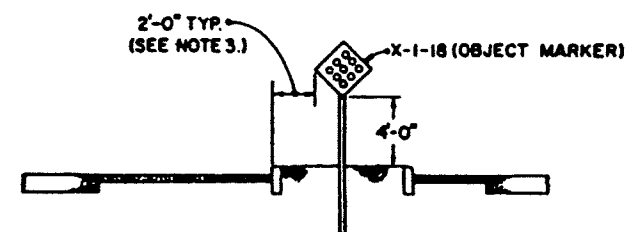
EXPRESSWAY OR FREEWAY



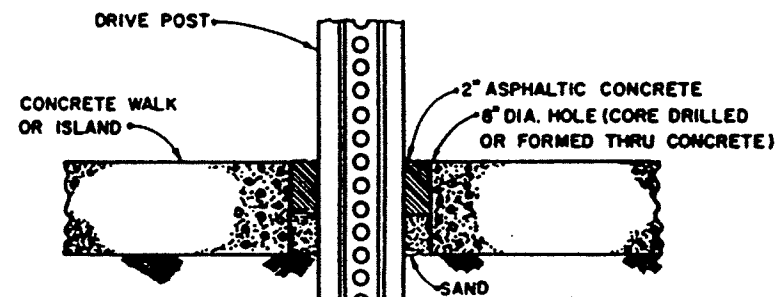
**EXPRESSWAY OR FREEWAY
(W / SECONDARY SIGN)**



**EXPRESSWAY OR FREEWAY
(W / SECONDARY SIGN)**



EXPRESSWAY OR FREEWAY



DETAIL A.

NOTES

1. SEE STANDARD CONSTRUCTION DRAWING TC-41.20 FOR DETAILS ON YIELDING SUPPORTS.
2. ALL SIGNS SHALL BE PLACED 90° TO THE ROADWAY, EXCEPT PARKING SIGNS. WITH ARROW SHALL BE SET AT AN ANGLE OF NOT LESS THAN 30° NOR MORE THAN 45° WITH A LINE PARALLEL TO THE FLOW OF TRAFFIC.
3. A CLEARANCE OF ONE FOOT IS PERMISSIBLE WHERE SIDEWALK WIDTH IS LIMITED OR WHERE EXISTING POLES ARE CLOSE TO THE CURB.
4. SEE STANDARD CONSTRUCTION DRAWINGS TC-52.10 AND TC-52.20 FOR DIMENSIONS BETWEEN SUPPORTS.

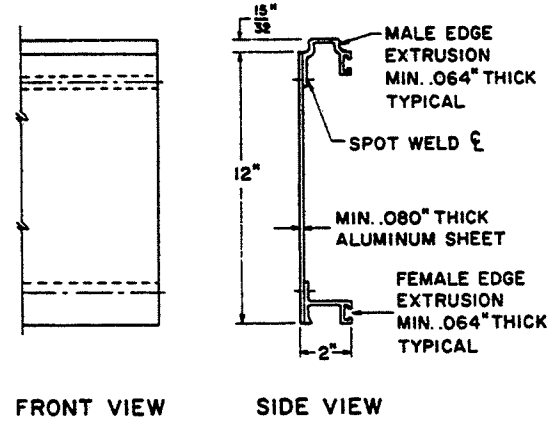
ALL ITEMS SHALL CONFORM TO SUPPLEMENTAL SPECIFICATIONS 857 AND 957, UNLESS OTHERWISE SPECIFIED

BUREAU OF DESIGN SERVICES DIVISION OF HIGHWAYS OHIO DEPARTMENT OF TRANSPORTATION	
TRAFFIC CONTROL	DATE 4/1/77 3/28/79
TYPICAL SIGN PLACEMENT REGULATORY, WARNING AND ROUTE MARKER SIGNS	
STANDARD CONSTRUCTION DRAWING TC-42.20	
APPROVED: <i>[Signature]</i> Engineer of Design Services	

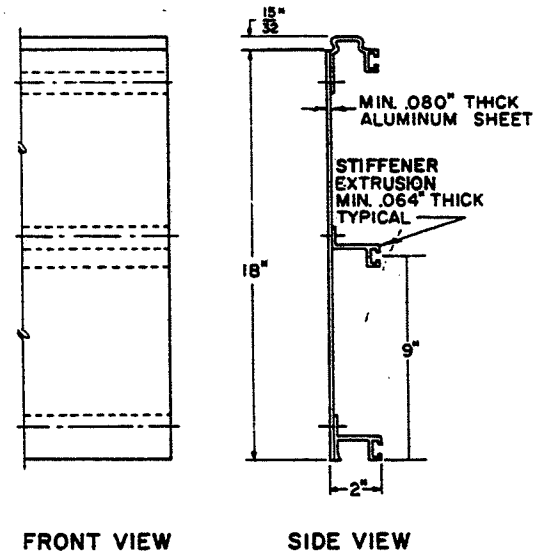
NOTES

1. COMBINATIONS OF 12", 18" AND 24" PANELS ARE USED TO ATTAIN REQUIRED SIGN HEIGHT.
2. EXTRUSHEET PANELS SHALL BE FASTENED TO EACH VERTICAL SUPPORT MEMBER WITH MOUNTING CLIPS; ALTERNATELY AT EACH HORIZONTAL EXTRUSION; BOTH SIDES AT EACH JOINT, AND ON BOTH SIDES AT TOP AND BOTTOM EDGE OF SIGN.

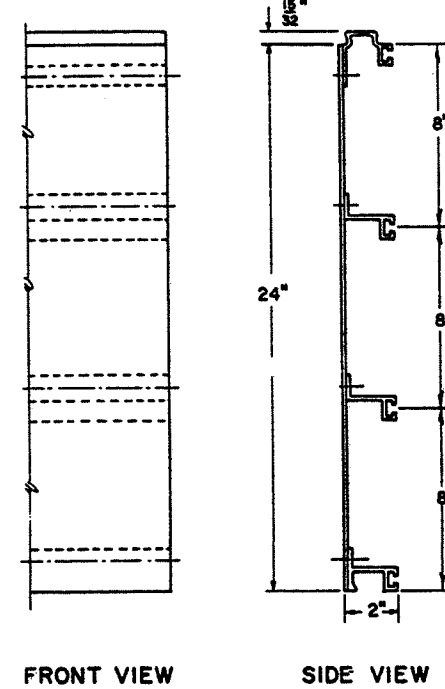
12" EXTRUSHEET PANEL



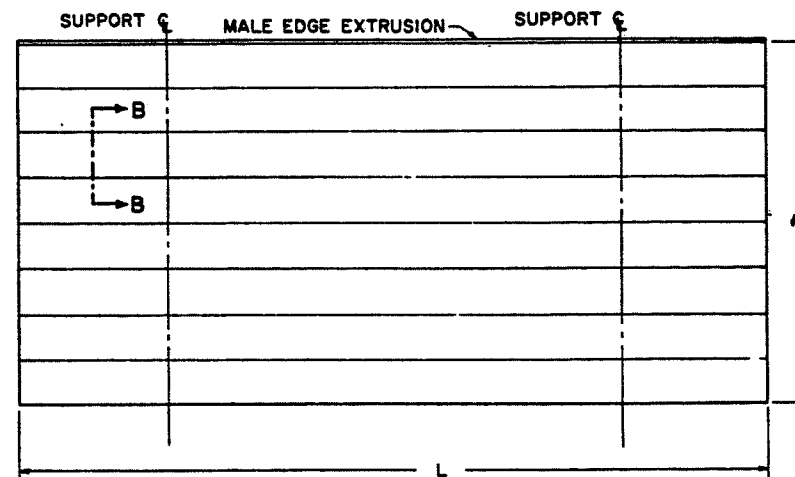
18" EXTRUSHEET PANEL



24" EXTRUSHEET PANEL



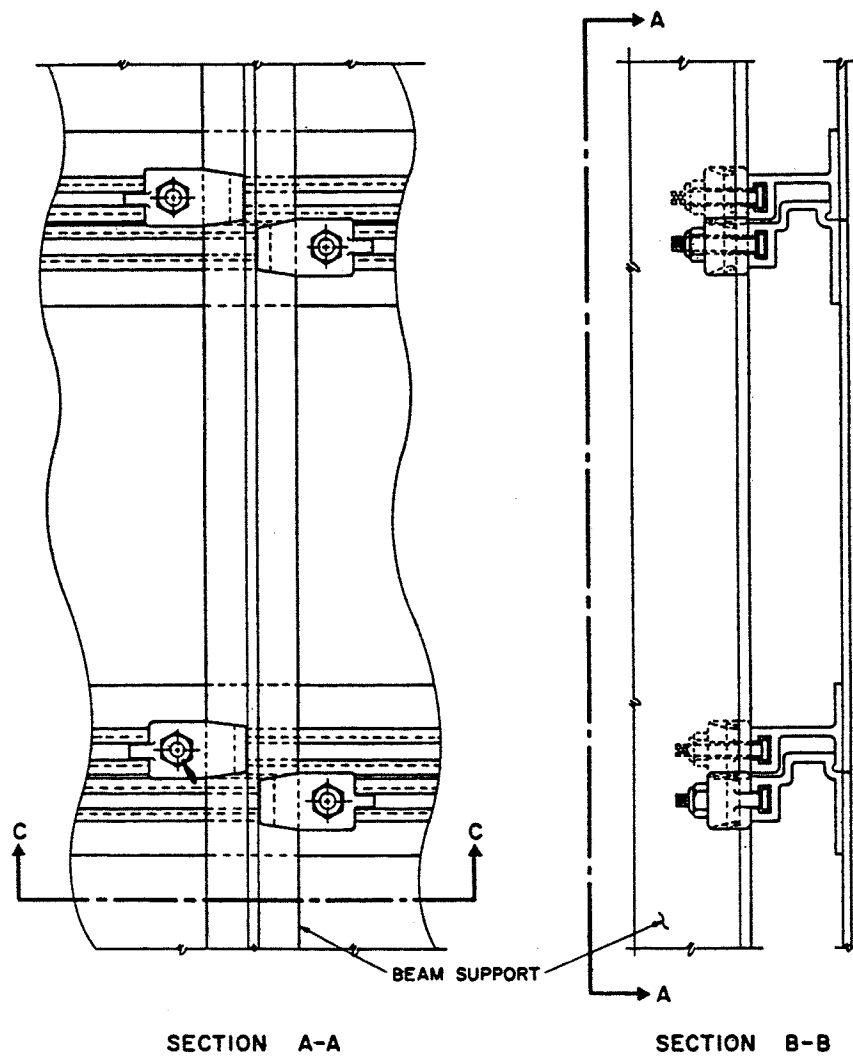
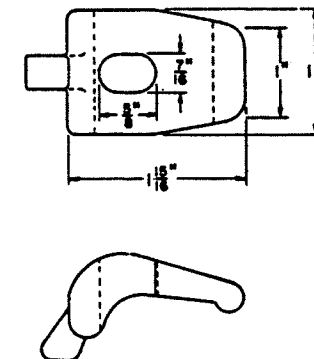
GENERAL ARRANGEMENT



SPOT WELDS

PANEL SIZE	MAXIMUM SPOT WELD SPACING	
	CENTER TO CENTER	BETWN ROWS
12 INCH	4 INCH	10 INCH
18 & 24 INCH	4 INCH	8 INCH

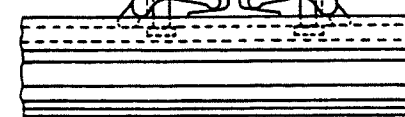
CLIP DETAIL



3/8" - 16 X 1 3/4" LONG ALUM. BOLT
 SQUARE HEAD 5/8" X 3/8" X 3/8"
 OR RECTANGULAR HD. 1" X 5/8" X 3/16"

3/8" - 16 STAINLESS STEEL
 HEX STOP NUT

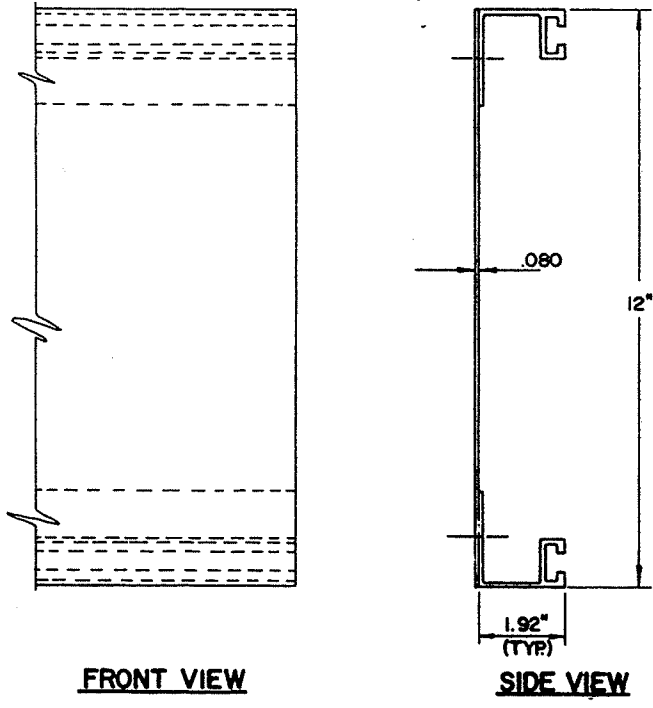
SELF-ALIGNING ALUMINUM
 MOUNTING CLIP 7/16" X 3/8" SLOT.



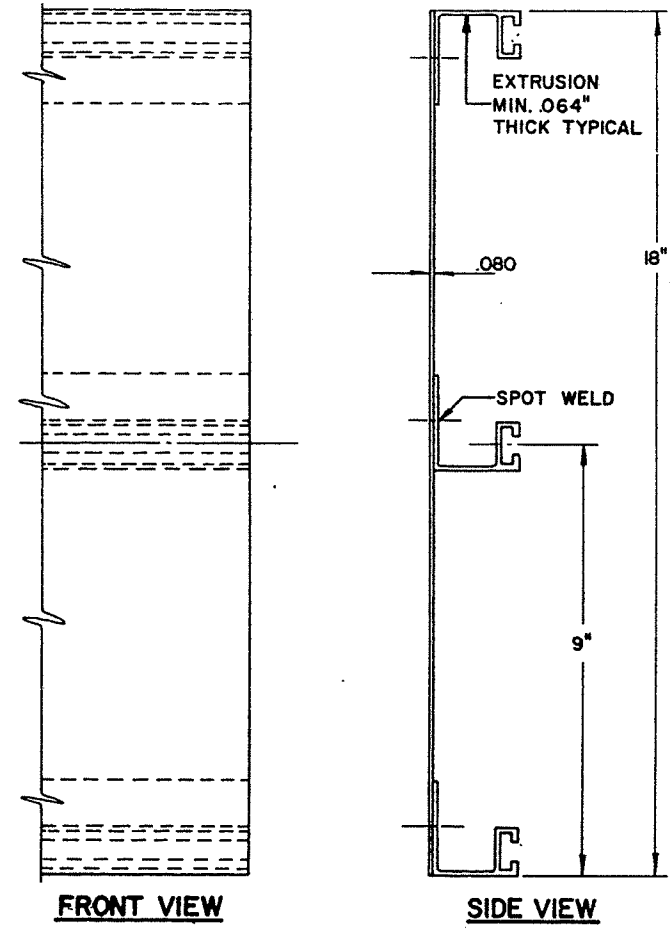
ALL ITEMS SHALL CONFORM TO C & M SPECIFICATIONS 630 AND 730, UNLESS OTHERWISE SPECIFIED.

BUREAU OF DESIGN SERVICES DIVISION OF HIGHWAYS OHIO DEPARTMENT OF TRANSPORTATION	
TRAFFIC CONTROL	DATE 6/2/77 3/30/ 1/20/8
ALUMINUM EXTRUSHEET PANEL SIGN	
STANDARD CONSTRUCTION DRAWING	TC-51.10
APPROVED: _____ Engineer of Design Services	

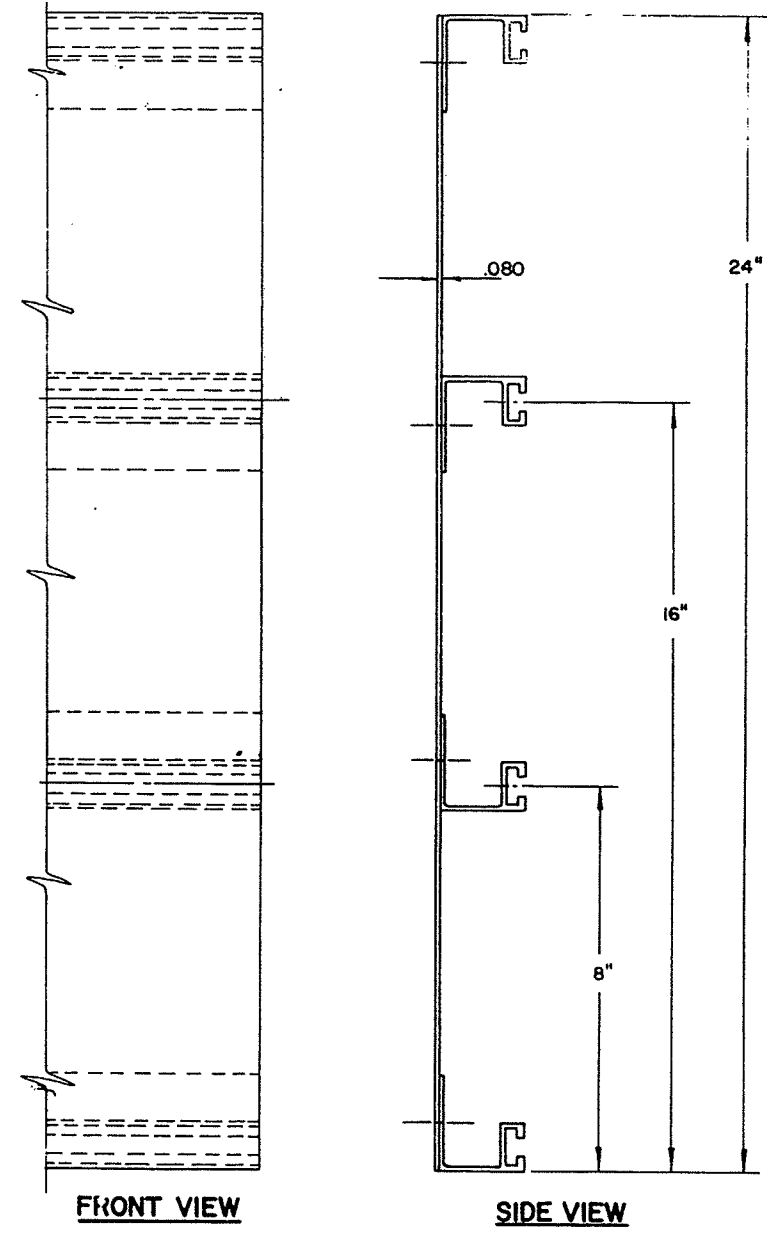
12" BOLTED-EXTRUSHEET PANEL



18" BOLTED-EXTRUSHEET PANEL



24" BOLTED-EXTRUSHEET PANEL

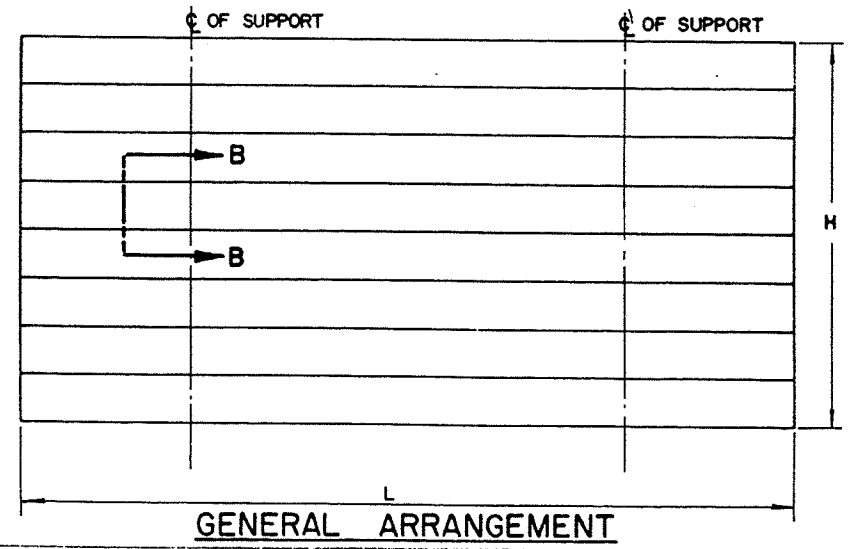
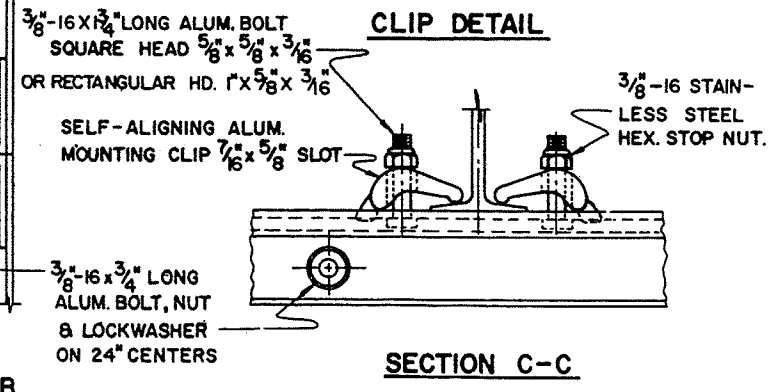
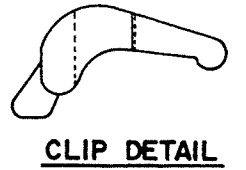
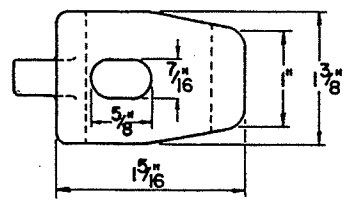
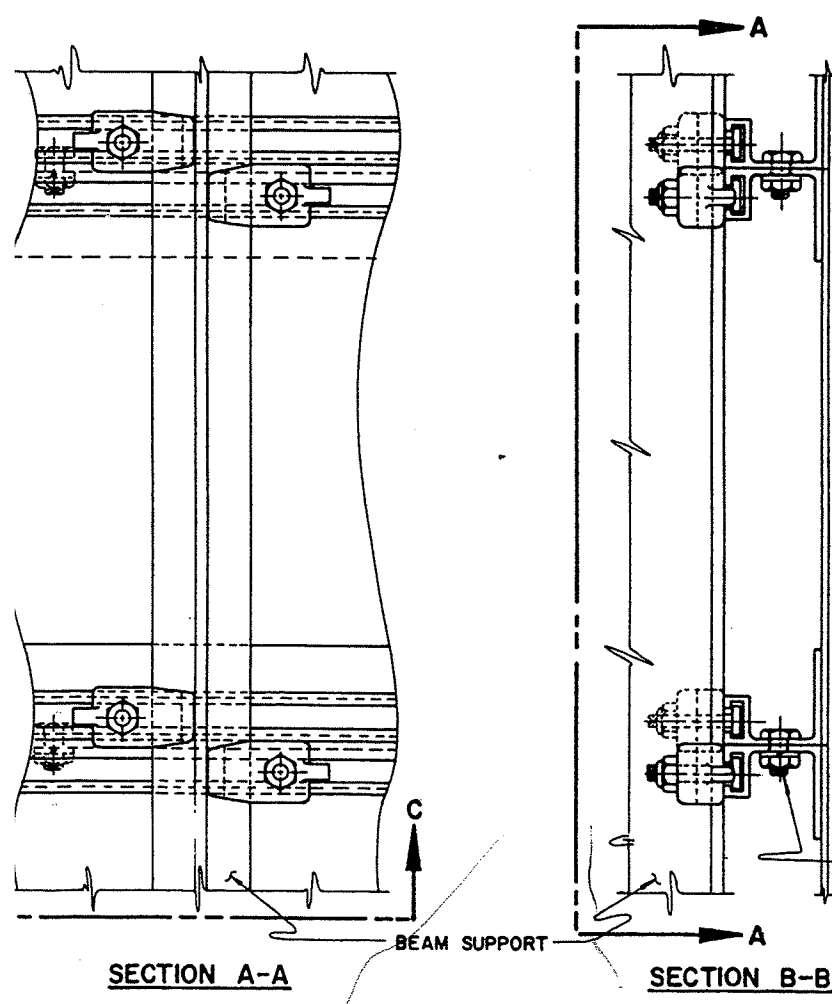


NOTES

1. COMBINATIONS OF 12", 18", AND 24" PANELS ARE TO BE USED TO ATTAIN REQUIRED SIGN HEIGHT.
2. THE PANELS SHALL BE ERECTED HORIZONTALLY AND BOLTED ON 24" CENTERS.
3. THE PANELS SHALL BE FASTENED TO EACH VERTICAL SUPPORT MEMBER WITH MOUNTING CLIPS; ALTERNATELY AT EACH HORIZONTAL EXTRUSION; BOTH SIDES AT EACH JOINT, AND BOTH SIDES AT TOP AND BOTTOM EDGES OF SIGNS.

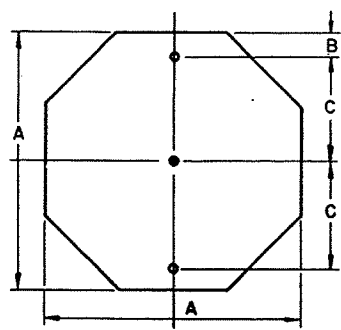
SPOT WELDS

PANEL SIZE	MAXIMUM SPOT WELD SPACING	
	CENTER TO CENTER	BETWN ROWS
12 INCH	4 INCH	10 INCH
18 & 24 INCH	4 INCH	8 INCH



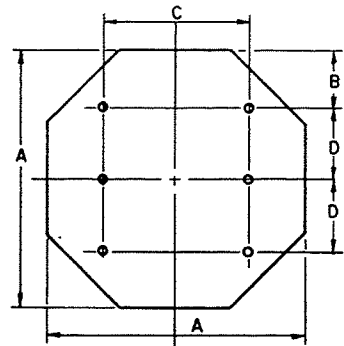
ALL ITEMS SHALL CONFORM TO C & M SPECIFICATIONS 630 AND 730, UNLESS OTHERWISE SPECIFIED.

BUREAU OF DESIGN SERVICES DIVISION OF HIGHWAYS OHIO DEPARTMENT OF TRANSPORTATION	
TRAFFIC CONTROL	DATE 6/2/75 4/3/79 1/20/84
ALUMINUM BOLTED-EXTRUSHEET PANEL SIGN	
STANDARD CONSTRUCTION DRAWING TC-51.11	
APPROVED: <i>[Signature]</i> Engineer of Design Services	



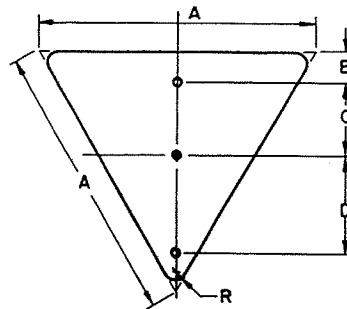
OCTA-1-3

A	B	C	GAUGE	SQ. FT.
30	3	12	.080	6.25
36	6	12	.080	9.00



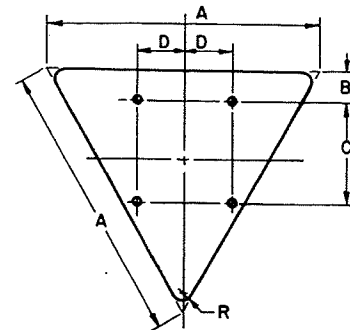
OCTA-2-6

A	B	C	D	GAUGE	SQ. FT.
48	12	24	12	.100	16.00



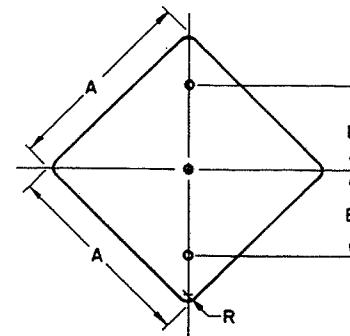
TRI-1-3

A	B	C	D	R	GAUGE	SQ. FT.
36	3	10	11	2.00	.100	3.90



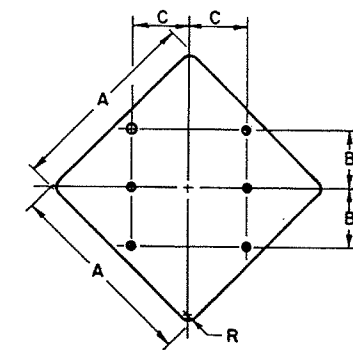
TRI-2-4

A	B	C	D	R	GAUGE	SQ. FT.
48	3	12	12	3	.100	6.93
60	3	18	15	4	.100	10.83



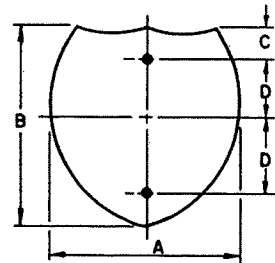
DIA-1-3

A	B	R	GAUGE	SQ. FT.
24	12	1.50	.063	4.00
30	15	1.88	.080	6.25
36	18	2.25	.080	9.00



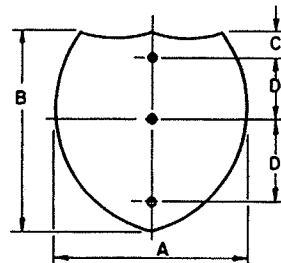
DIA-2-6

A	B	C	R	GAUGE	SQ. FT.
48	15	15	3	.100	16.00
60	18	18	3.75	.100	25.00



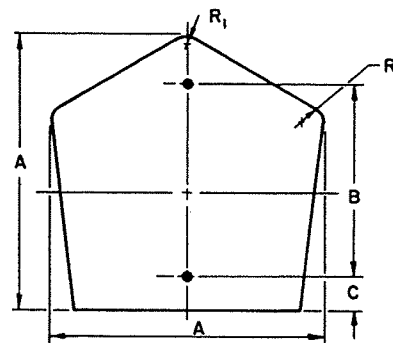
I.S.-1-2

A	B	C	D	GAUGE	SQ. FT.
24	24	3	9	.063	4.00
30	24	3	9	.080	5.00
30	30	3	12	.080	6.25
40	30	3	12	.080	8.33



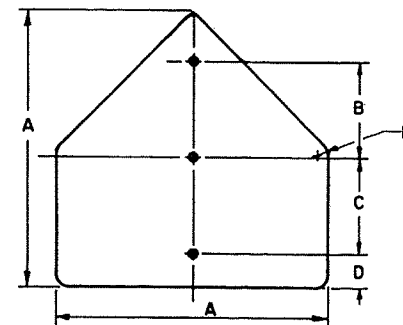
I.S.-1-3

A	B	C	D	GAUGE	SQ. FT.
36	36	6	12	.080	9.00
48	36	6	12	.100	12.00



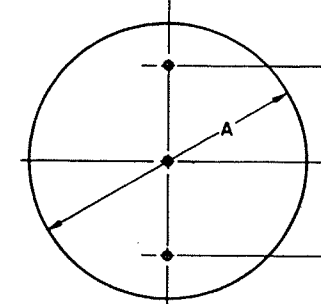
CO-1-2

A	B	C	R ₁	R	GAUGE	SQ. FT.
18	15	1	5	2	.063	2.25
24	18	2	5.31	2.69	.063	4.00
30	24	2	6.63	3.38	.080	6.25



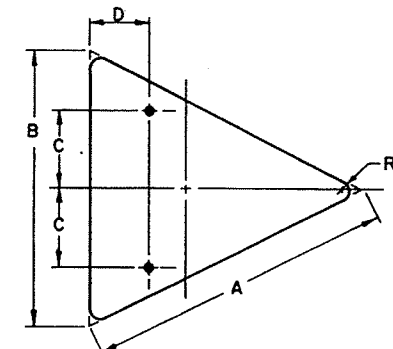
PENT-1-3

A	B	C	D	R	GAUGE	SQ. FT.
30	10	11	3	1.88	.080	6.25
36	12	12	3	2.25	.080	9.00
42	14	13	4	2.50	.100	12.25



CIR-1-3

A	B	GAUGE	SQ. FT.
30	12	.063	6.25
36	15	.080	9.00

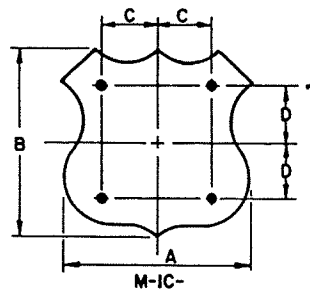


ISOS-1-2

A	B	C	D	R	GAUGE	SQ. FT.
40	30	7.50	12	1.88	.080	3.86
48	36	9	15	2.25	.100	5.56

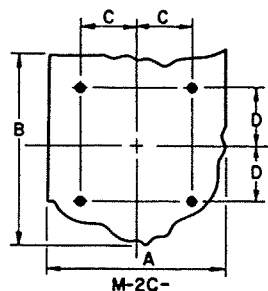
ROUTE SHIELDS

(FOR GUIDE SIGNS ONLY)



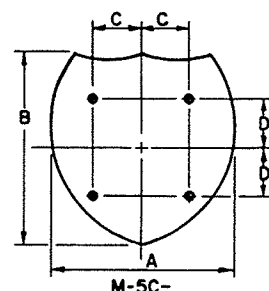
M-1C-

A	B	C	D
24	24	7	7
30	24	8	8
30	30	9	9
37.5	30	9	9
36	36	10	10
45	36	15	10



M-2C-

A	B	C	D
24	24	7	7
30	24	8	8
30	30	9	9
37.5	30	9	9
36	36	10	10
45	36	15	10



M-5C-

A	B	C	D
24	24	7	7
30	24	8	8
30	30	9	9
40	30	9	9
36	36	10	10
48	36	15	10

ALL SHIELDS SHALL BE .063 GAUGE

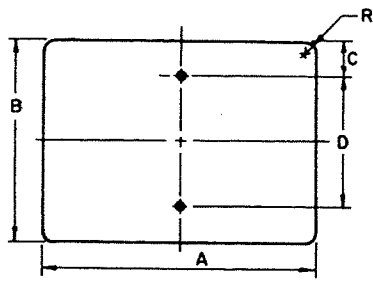
NOTES

1. ALL DIMENSIONS ARE IN INCHES, UNLESS OTHERWISE NOTED.
2. ALL BOLT HOLES SHALL BE 3/8" DIAMETER, AND MAY BE DRILLED OR PUNCHED TO FINISHED SIZE.
3. DIMENSIONS BETWEEN BOLT HOLES SHALL BE TO TOLERANCE OF ± 1/32 INCH.
4. FOR ADDITIONAL BLANK DETAILS SEE SIGN LAYOUT DRAWINGS.

SHAPE **OCTA-2-6** NO. BOLTS REQUIRED
 NO. SUPPORT REQUIRED

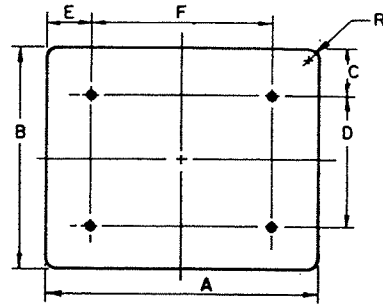
ALL ITEMS SHALL CONFORM TO SUPPLEMENTAL SPECIFICATIONS 857 AND 957, UNLESS OTHERWISE SPECIFIED.

BUREAU OF DESIGN SERVICES DIVISION OF HIGHWAYS OHIO DEPARTMENT OF TRANSPORTATION	
TRAFFIC CONTROL	DATE 4/1/77 4/3/79
SIGN BLANK DETAILS I	
STANDARD CONSTRUCTION DRAWING	TC-52.10
APPROVED: <i>[Signature]</i> Engineer of Design Services	



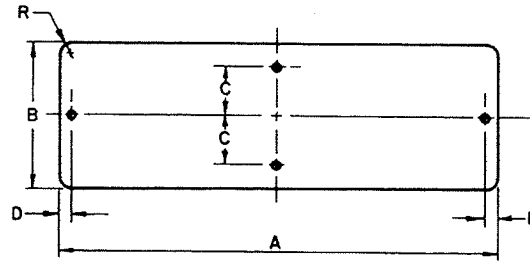
H-REC-1-2

A	B	C	D	R	GAUGE	SQ. FT.
12	6	1.50	3	1.50	.063	.50
18	6	1.50	3	1.50	.063	.75
18	12	1.50	9	1.50	.063	1.50
21	15	1.50	12	1.50	.063	2.19
21	18	3	12	1.50	.063	2.63
24	6	1.50	3	1.50	.063	1.00
24	8	1.50	5	1.50	.063	1.33
24	10	1.50	7	1.50	.063	1.67
24	12	1.50	9	1.50	.063	2.00
24	18	3	12	1.50	.063	3.00
30	8	1.50	5	1.50	.063	1.67
30	10	1.50	7	1.50	.063	2.08
30	12	1.50	9	1.50	.080	2.50
30	15	1.50	12	1.50	.080	3.13
30	16	1.50	13	1.50	.080	3.33
30	18	3	12	1.50	.080	3.75
30	24	3	18	1.50	.080	5.00
36	6	1.50	3	1.50	.080	1.50
36	12	1.50	9	1.50	.080	3.00
36	15	1.50	12	1.50	.080	3.75
36	18	3	12	1.50	.080	4.50
36	24	3	18	1.50	.080	6.00
37.5	30	3	24	1.50	.080	7.81
42	15	1.50	12	1.50	.080	4.38
48	20	3	14	1.50	.080	6.67



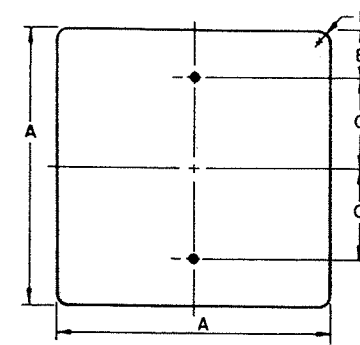
H-REC-2-4

A	B	C	D	E	F	R	GAUGE	SQ. FT.
36	24	3	18	6	24	1.50	.080	6.00
36	30	3	24	6	24	1.88	.080	7.50
40	20	3	14	6	28	1.50	.080	5.56
42	36	6	24	9	24	2.25	.100	10.50
45	36	6	24	9	27	2.25	.100	11.25
48	8	1.50	5	9	30	1.50	.080	2.67
48	8.50	1.50	5.50	9	30	1.50	.080	2.83
48	14	1.50	11	9	30	1.50	.080	4.67
48	16	1.50	13	9	30	1.50	.080	5.33
48	18	3	12	9	30	1.50	.080	6.00
48	24	3	18	9	30	1.88	.100	8.00
48	30	3	24	9	30	1.88	.100	10.00
48	36	6	24	9	30	2.25	.100	12.00
48	42	6	30	9	30	2.25	.100	14.00
56	8	1.50	5	12	32	1.50	.100	3.11
60	12	1.50	9	12	36	1.50	.080	5.00
60	24	3	18	12	36	1.50	.100	10.00
60	30	3	24	12	36	1.88	.100	12.50
60	36	6	24	12	36	2.25	.100	15.00
60	40	6	28	12	36	2.25	.100	16.67
64	8	1.50	5	12	40	1.50	.100	3.56
66	24	3	18	12	42	1.50	.100	11.00
66	36	6	24	12	42	2.25	.100	16.50
72	12	1.50	9	12	48	1.50	.100	6.00
72	18	3	12	12	48	1.50	.100	9.00
72	24	3	18	12	48	1.50	.100	12.00
72	36	6	24	12	48	1.50	.100	18.00



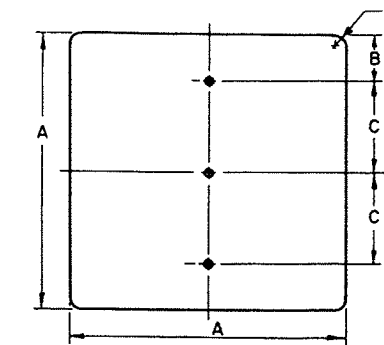
H-REC-1-4 (ONE WAY)

A	B	C	D	R	GAUGE	SQ. FT.
36	12	4	1	1.50	.080	3.00
48	18	6	1.50	1.50	.100	6.00



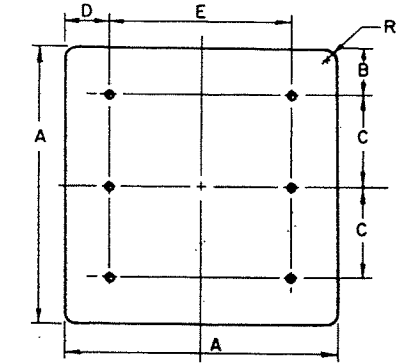
SQ-1-2

A	B	C	R	GAUGE	SQ. FT.
15	3	4 1/2	1.50	.063	1.56
18	3	6	1.50	.063	2.25
24	3	9	1.50	.063	4.00



SQ-1-3

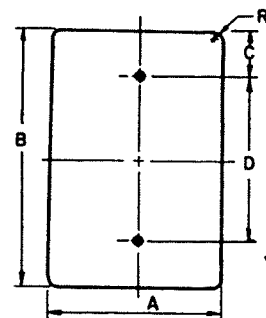
A	B	C	R	GAUGE	SQ. FT.
30	3	12	1.88	.080	6.25
36	6	12	2.25	.080	9.00



SQ-2-6

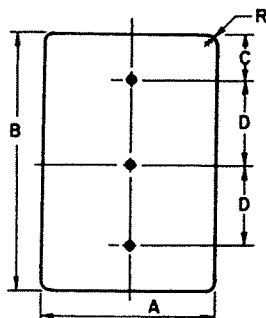
A	B	C	D	E	R	GAUGE	SQ. FT.
36	6	12	6	24	2.25	.080	9.00
48	6	18	9	30	3.00	.100	16.00

* "DO NOT ENTER" SIGN.



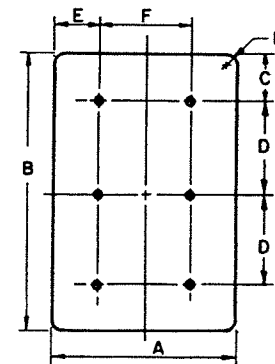
V-REC-1-2

A	B	C	D	R	GAUGE	SQ. FT.
8	26	5	16	1.50	.063	1.44
9	12	1.50	9	1.50	.063	.75
12	18	1.50	15	1.50	.063	1.50
12	24	3	18	1.50	.063	2.00
18	24	3	18	1.50	.063	3.00



V-REC-1-3

A	B	C	D	R	GAUGE	SQ. FT.
6	54	9	18	1.50	.080	2.25
12	36	3	15	1.50	.063	3.00
12	48	6	18	1.50	.080	4.00
24	30	3	12	1.50	.080	5.00
24	36	3	15	1.50	.080	6.00
24	48	9	15	1.50	.100	8.00
30	36	3	15	1.88	.080	7.50
30	38	3	16	1.50	.080	7.92
30	42	9	12	1.50	.080	8.75
36	42	9	12	2.25	.100	10.50



V-REC-2-6

A	B	C	D	E	F	R	GAUGE	SQ. FT.
36	48	6	18	6	24	2.25	.080	12.00
36	54	6	21	6	24	2.25	.100	13.50
36	60	6	24	6	24	2.25	.100	15.00
36	72	9	27	6	24	2.25	.100	18.00
48	54	6	21	9	30	3.00	.100	18.00
48	60	6	24	9	30	3.00	.100	20.00
48	96	12	36	9	30	3.00	.100	32.00

NOTES

1. ALL DIMENSIONS ARE IN INCHES, UNLESS OTHERWISE NOTED.
2. ALL BOLT HOLES SHALL BE 3/8" DIAMETER, AND MAY BEDRILLED OR PUNCHED TO FINISHED SIZE.
3. DIMENSIONS BETWEEN BOLT HOLES SHALL BE TO TOLERANCE OF ± 1/32 INCH.
4. FOR ADDITIONAL BLANK DETAILS SEE SIGN LAYOUT DRAWINGS.

SHAPE NO. BOLTS REQUIRED
H-REC-2-4
 NO. SUPPORTS REQUIRED

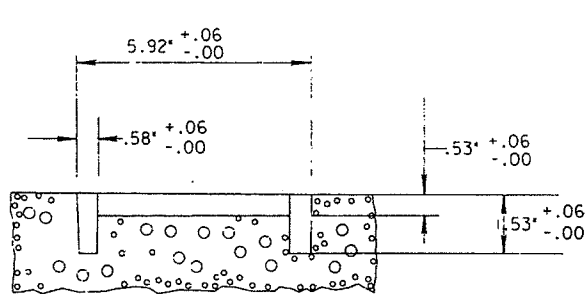
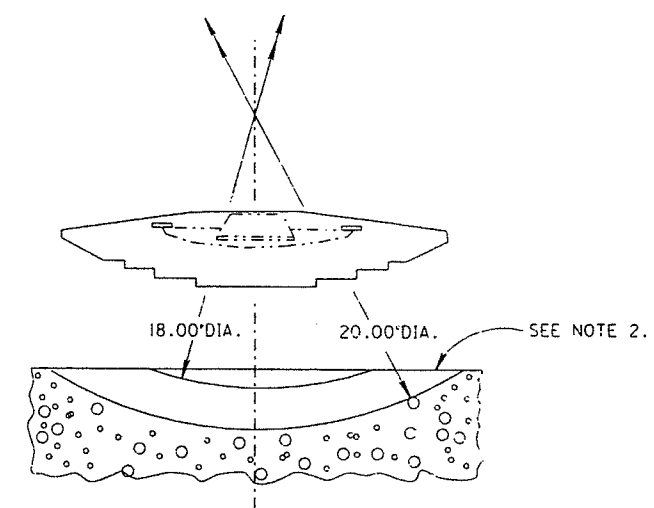
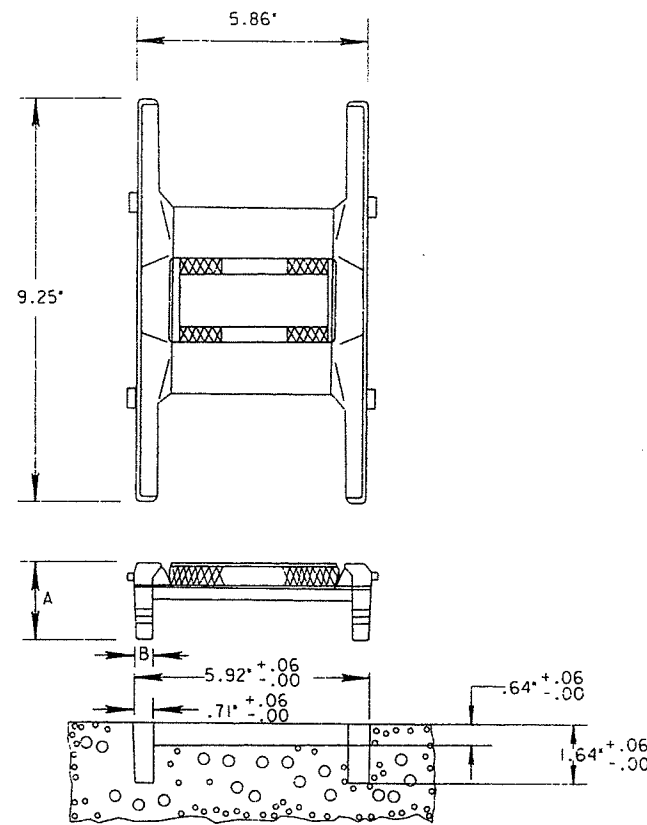
ALL ITEMS SHALL CONFORM TO SUPPLEMENTAL SPECIFICATIONS 857 AND 957, UNLESS OTHERWISE SPECIFIED.

BUREAU OF DESIGN SERVICES DIVISION OF HIGHWAYS OHIO DEPARTMENT OF TRANSPORTATION	
TRAFFIC CONTROL	DATE
SIGN BLANK DETAILS II	4/1/77 4/3/79
STANDARD CONSTRUCTION DRAWING TC-52.20	
APPROVED: <i>[Signature]</i> Engineer of Design Services	

NOTES

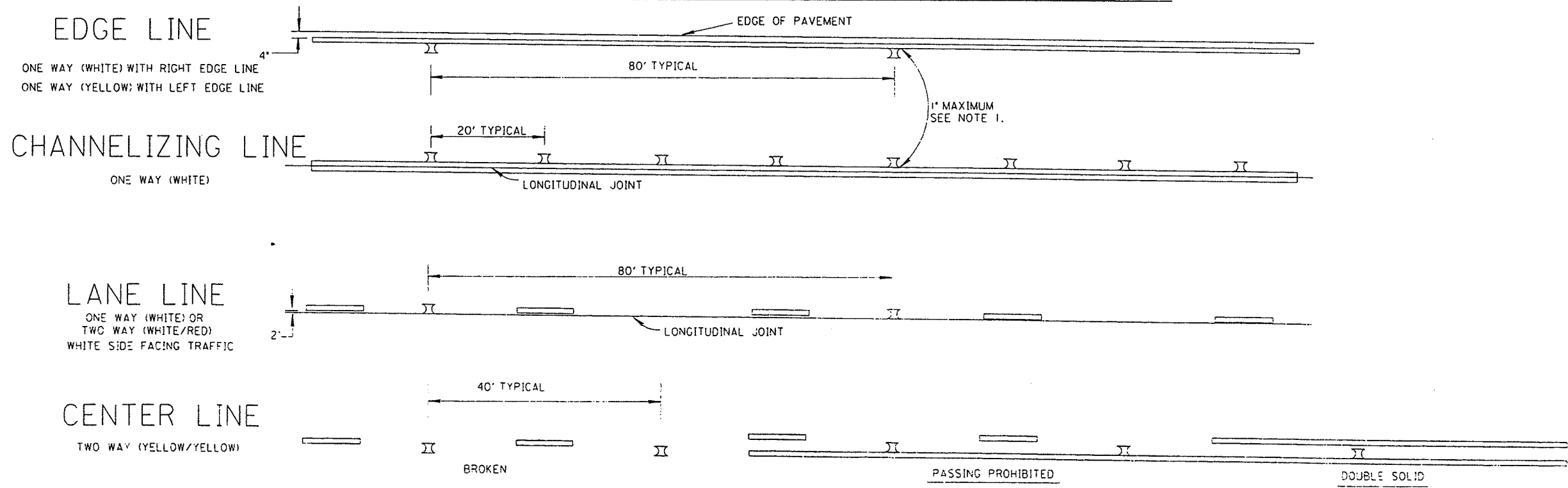
1. MARKERS INSTALLED AT DOUBLE YELLOW CENTERLINES SHALL BE PLACED BETWEEN THE TWO LINES. MARKERS INSTALLED ALONG AN EDGE LINE OR CHANNELIZING LINE SHALL BE PLACED SO THAT THE CASTING IS NO MORE THAN 1" FROM THE NEAR EDGE OF THE LINE. MARKERS INSTALLED ALONG A LANE LINE OR DASHED YELLOW CENTERLINE SHALL BE PLACED BETWEEN AND IN LINE WITH THE DASHES. MARKERS SHALL NOT BE PLACED OVER THE LINES EXCEPT WHERE THE LINES DEVIATE VISIBLY FROM THEIR CORRECT ALIGNMENT, AND THEN ONLY WITH THE APPROVAL OF THE ENGINEER.
2. TO FACILITATE THE CUTTING OF THE TWO PARALLEL SLOTS AND INTERVENING CONCAVED SURFACE SIMULTANEOUSLY, IT IS RECOMMENDED THAT AN ARBOR AND SAW BLADES ASSEMBLY BE USED. FOR ADDITIONAL DETAILS AND TOLERANCES OF THE CASTING AND ARBOR-SAW ASSEMBLY CONTACT THE CASTING MANUFACTURE.
3. WHEN THE DISTANCE BETWEEN TWO SEPARATE RPM INSTALLATIONS IS SUCH THAT A GAP OF ONE-HALF MILE OR LESS WOULD EXIST WITHOUT ANY RPM'S, CENTERLINE RPM SHALL BE PLACED IN THE GAP AT 80 FOOT TYPICAL SPACING.

	CONVENTIONAL TYPE	LOW PROFILE TYPE
A	1.74'	1.69'
B	.46'	.59'



OPTIONAL FOR CONVENTIONAL TYPE

CASTING AND SAW CUT DETAILS



TYPICAL RAISED PAVEMENT MARKER PLACEMENT WITH LONGITUDINAL PAVEMENT MARKINGS

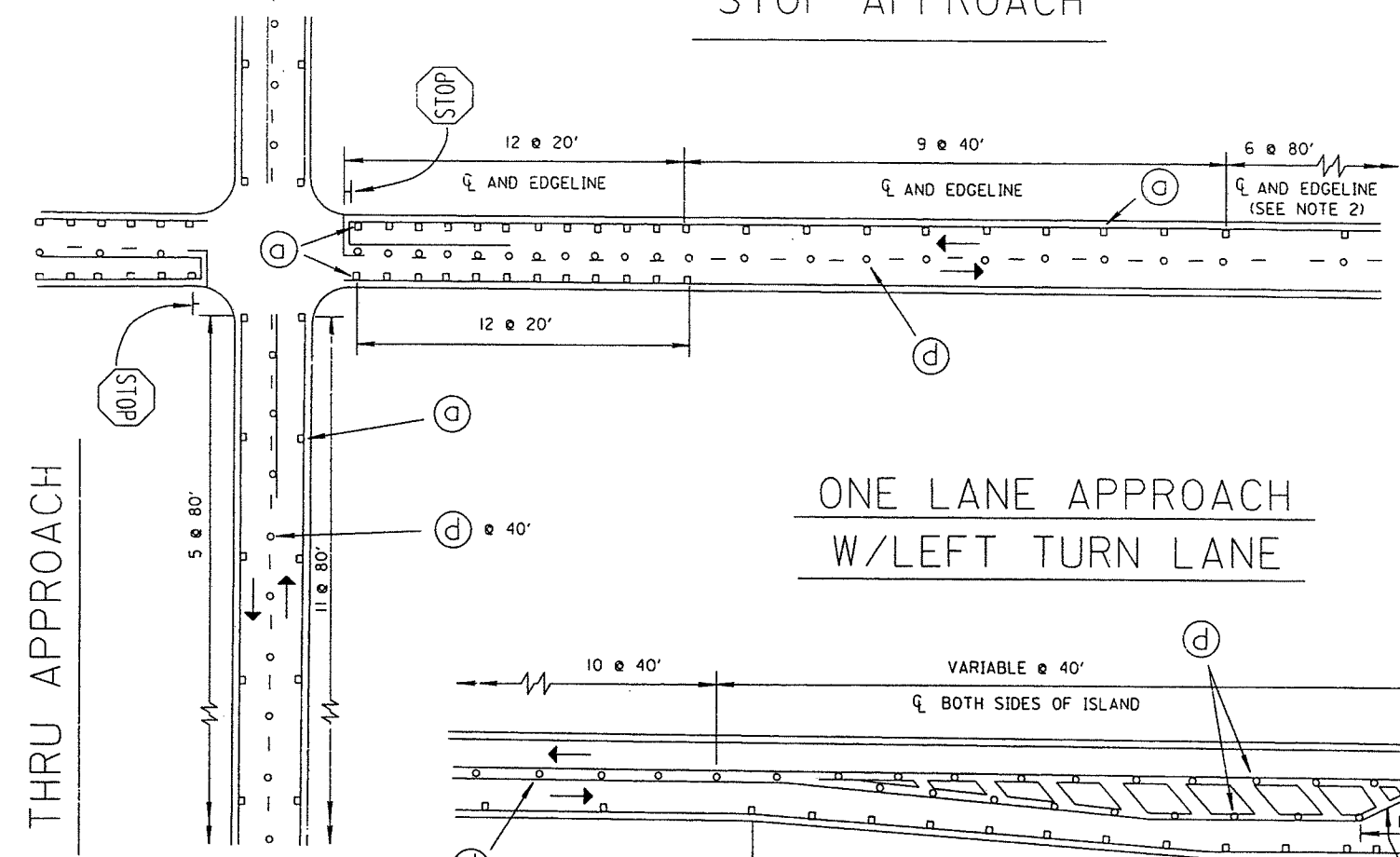
ALL ITEMS SHALL CONFORM TO C & M SPECIFICATIONS AND SUPPLEMENTAL SPECIFICATIONS 862 AND 962 UNLESS OTHERWISE SPECIFIED.

BUREAU OF DESIGN SERVICES DIVISION OF HIGHWAYS OHIO DEPARTMENT OF TRANSPORTATION	
TRAFFIC CONTROL	DATE 02/01/90
RAISED PAVEMENT MARKERS INSTALLATION DETAILS	
STANDARD CONSTRUCTION DRAWING	TC - 65.10
APPROVED <i>Wayne C. ...</i>	ENGR. OF DESIGN SERVICES

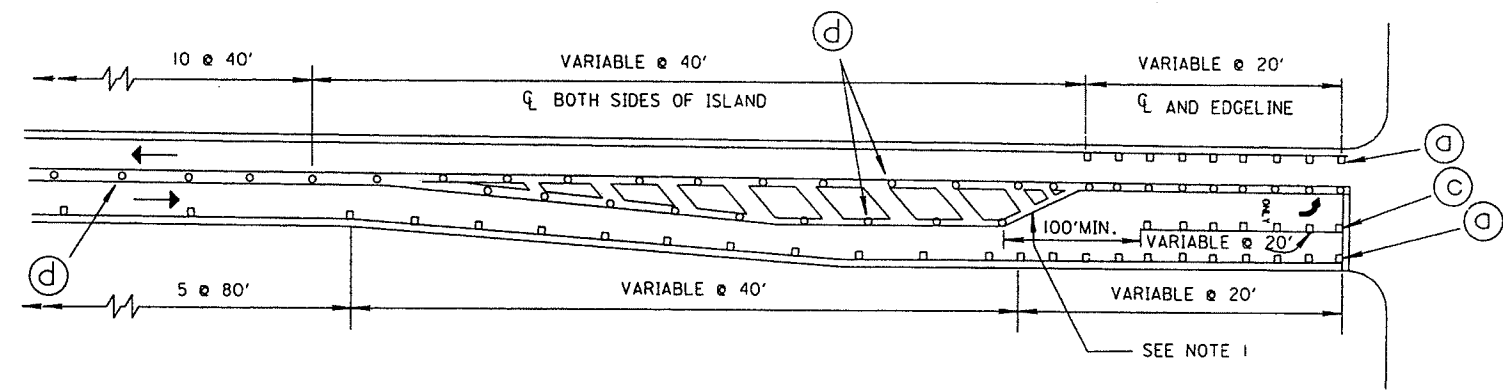
STOP APPROACH

NOTES

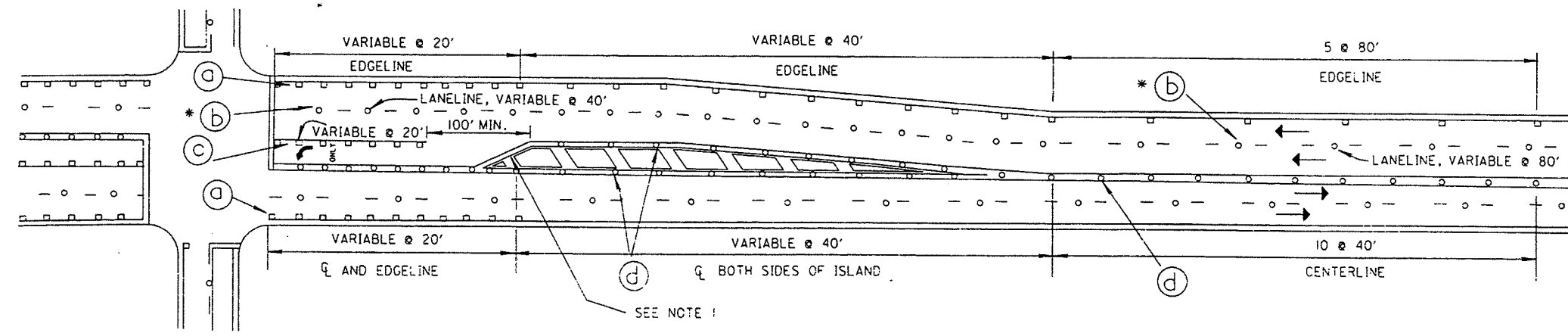
1. IF BACK TAPER LENGTH IS 200' OR GREATER, RPM'S SHALL BE INSTALLED ON THE TAPER AT 20' SPACING WITH MARKERS PARALLEL TO THE MAIN ROADWAY.
2. WHEN A SECTION OF ROADWAY ADJACENT TO THE STOP APPROACH HAS RAISED PAVEMENT MARKERS SPACED AT 40' ON THE CENTERLINE, THE MAXIMUM SPACING OF CENTERLINE RPM'S ON THAT STOP APPROACH SHALL BE 40' IN LIEU OF 80' SPACING SHOWN.



ONE LANE APPROACH W/LEFT TURN LANE



TWO LANE APPROACH W/LEFT TURN LANE

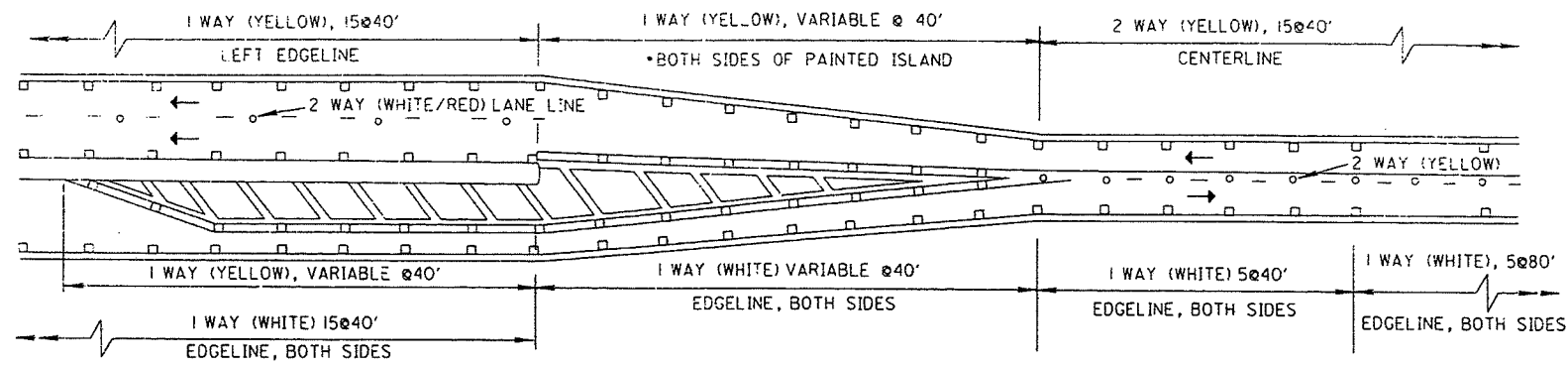


LEGEND

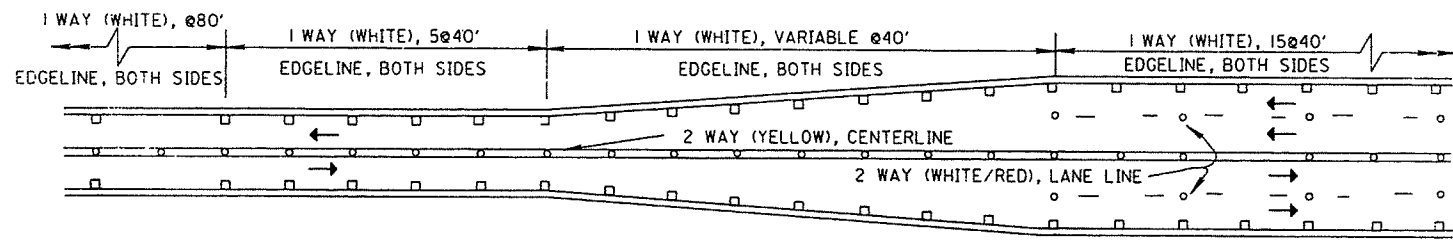
- 1-WAY REFLECTORS
- 2-WAY REFLECTORS
- ⓐ EDGELINE, 1-WAY (WHITE)
- ⓑ LANELINE, 2-WAY (WHITE/RED)
- ⓒ CHANNELIZING LINE, 1-WAY (WHITE)
- ⓓ CENTERLINE, 2-WAY (YELLOW/YELLOW)
- * WHITE SIDE SHALL FACE TRAFFIC

ALL ITEMS SHALL CONFORM TO C & M SPECIFICATIONS AND SUPPLEMENTAL SPECIFICATIONS 862 AND 962 UNLESS OTHERWISE SPECIFIED.

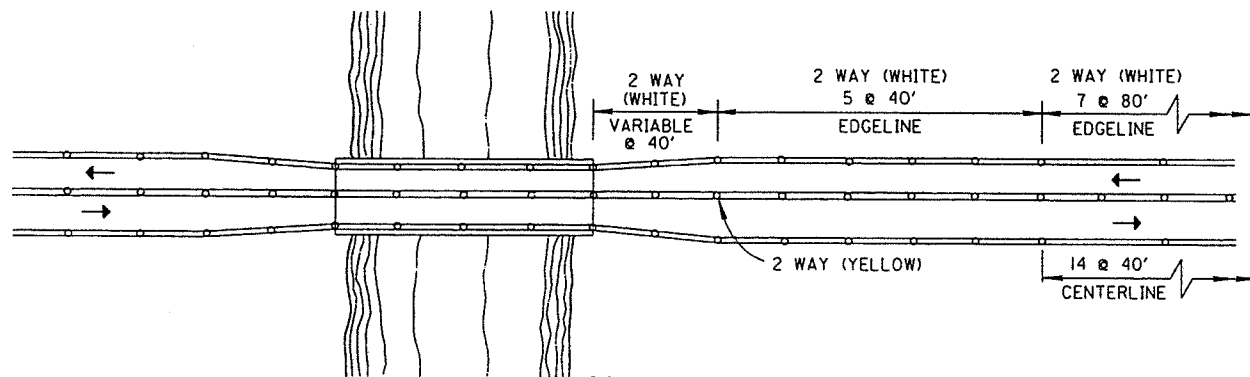
BUREAU OF DESIGN SERVICES DIVISION OF HIGHWAYS OHIO DEPARTMENT OF TRANSPORTATION	
TRAFFIC CONTROL	DATE 02/01/90
RAISED PAVEMENT MARKERS INTERSECTION DETAILS	
STANDARD CONSTRUCTION DRAWING	TC-65.12
APPROVED: <i>Ray L. Cooper</i> ENGR. OF DESIGN SERVICES	



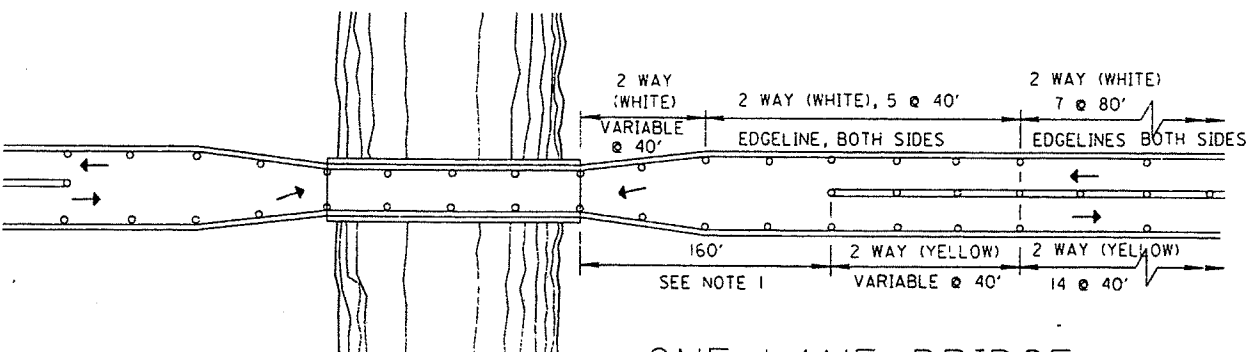
4 LANE DIVIDED TO 2 LANE TRANSITION



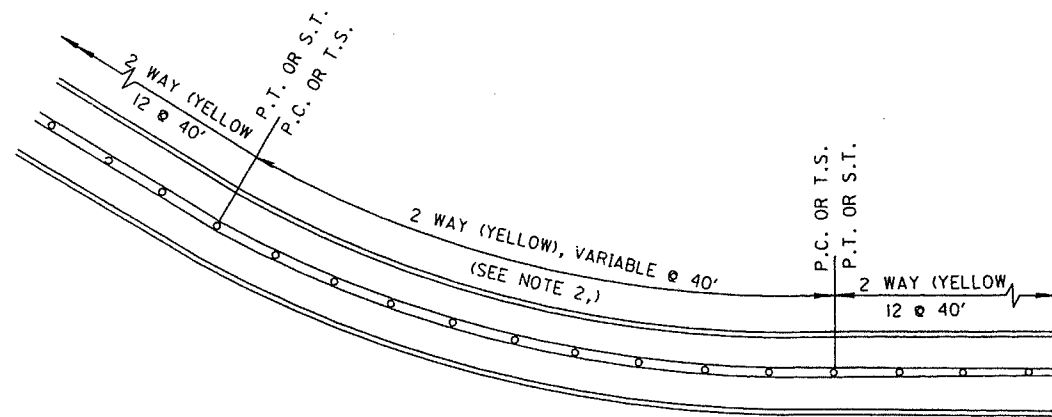
4 LANE UNDIVIDED TO 2 LANE TRANSITION



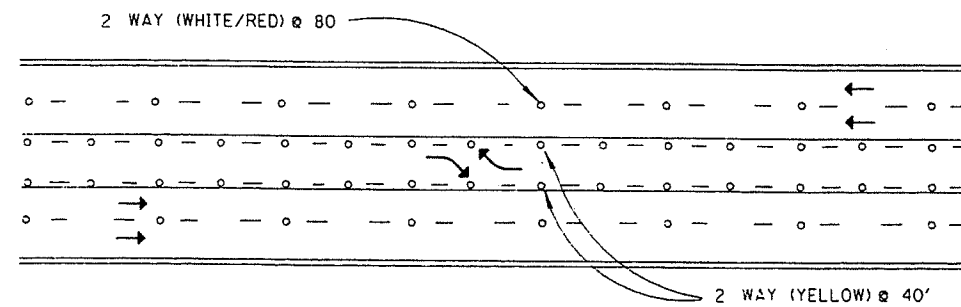
TWO LANE NARROW BRIDGE



ONE LANE BRIDGE



HORIZONTAL CURVE



TWO WAY LEFT TURN LANE

NOTES

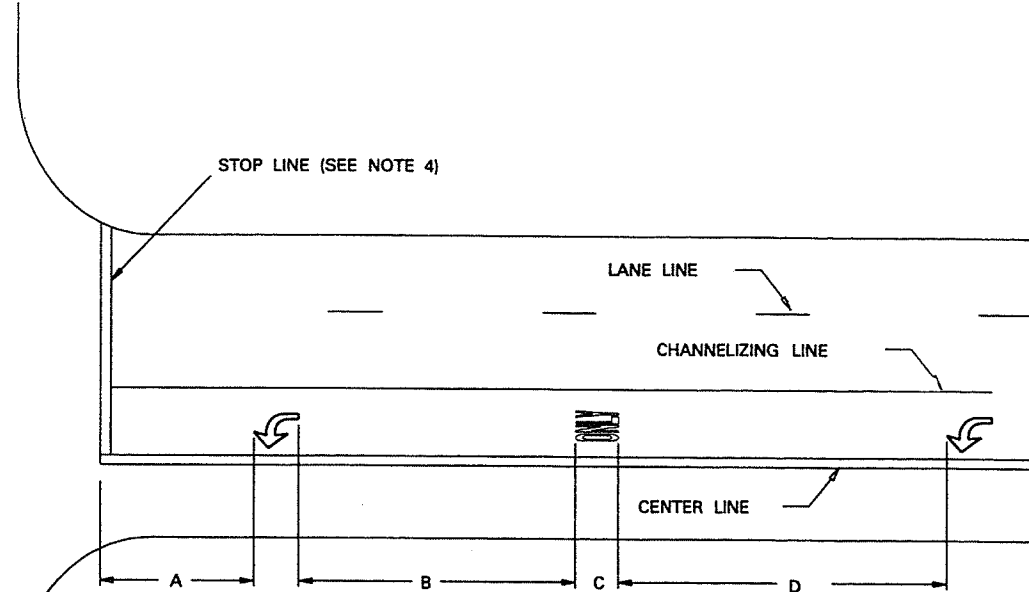
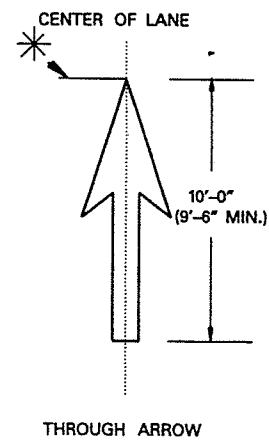
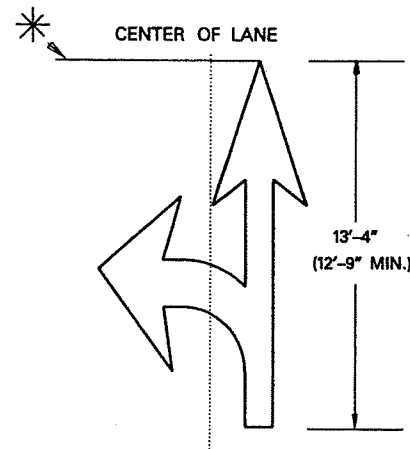
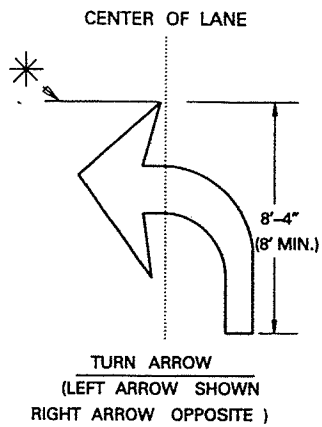
1. FOR ONE LANE BRIDGES, PAINTED CENTERLINE AND CENTERLINE MARKERS SHALL BE OMITTED 160 FEET ON EACH SIDE AND ACROSS THE BRIDGE.
2. FOR HORIZONTAL CURVES OF 5° OR GREATER, WHEN THE LENGTH OF CURVE IS 500 FEET OR LESS, THE SPACING OF THE CENTERLINE MARKERS SHALL BE REDUCED TO 20 FEET BETWEEN P.C. OR T.S. AND P.T. OR S.T.

LEGEND

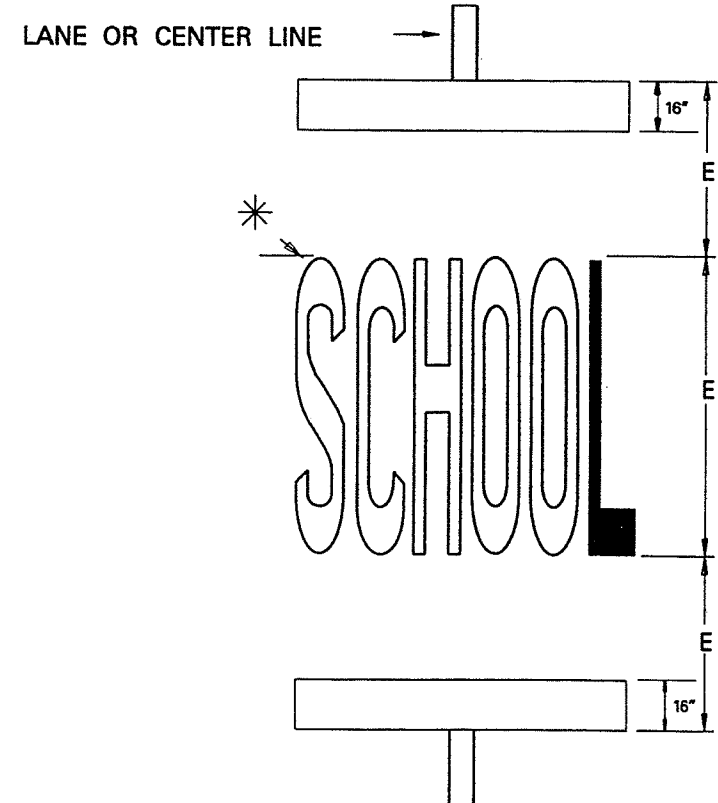
- 1 WAY REFLECTORS
- 2 WAY REFLECTORS

ALL ITEMS SHALL CONFORM TO C & M SPECIFICATIONS AND SUPPLEMENTAL SPECIFICATIONS 862 AND 962 UNLESS OTHERWISE SPECIFIED.

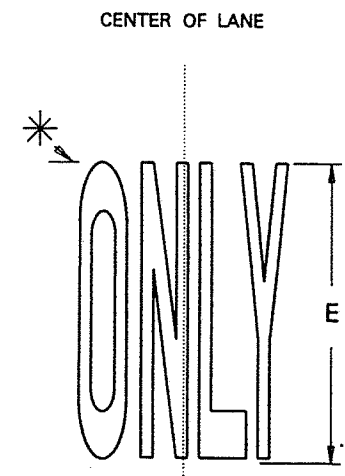
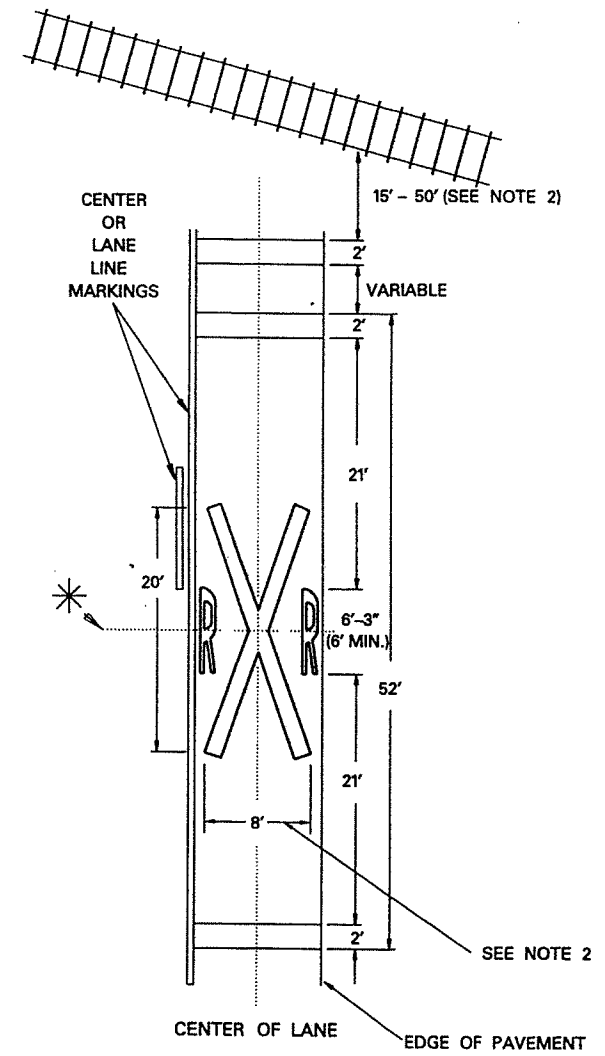
BUREAU OF DESIGN SERVICES DIVISION OF HIGHWAYS OHIO DEPARTMENT OF TRANSPORTATION	
TRAFFIC CONTROL	DATE 02/01/90
RAISED PAVEMENT MARKERS MISCELLANEOUS DETAILS	
STANDARD CONSTRUCTION DRAWING	TC-65.13
APPROVED <i>Way & Cooper</i> ENGR. OF DESIGN SERVICES	



TYPE	DIMENSIONS (FEET)			
	A	B	C	D
RURAL	30 MIN.	32-80	8	32-80
URBAN	10 MIN.	24-60	6	24-60



TYPE	E (INCHES)	
	STANDARD	OPTIONAL
RURAL	96	100
URBAN	72	75



NOTES:

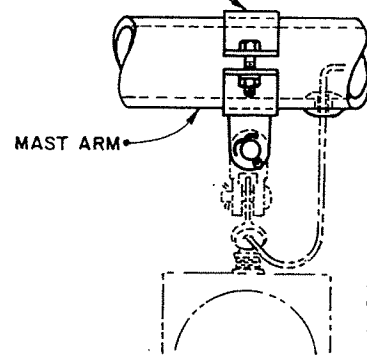
- ON MULTI-LANE APPROACHES, THE TRANSVERSE LINES USED WITH THE RAILROAD SYMBOLS SHALL EXTEND ACROSS ALL APPROACH LANES AND SYMBOLS SHALL BE PLACED IN EACH APPROACH LANE.
- THE RAILROAD SYMBOL SHALL BE LOCATED SO THAT THE W-94, 'RAILROAD ADVANCE WARNING SIGN', IS WITHIN THE TWO TRANSVERSE BOUNDARY LINES OF THE RAILROAD SYMBOL. THE STOP LINE SHALL BE LOCATED FOR BEST SIGHT DISTANCE WITHIN 15 FEET TO 50 FEET OF THE NEAR EDGE OF THE TRACKS. WIDTH OF 'X' MAY VARY ACCORDING TO LANE WIDTH.
- PREFERABLY, THE WORD 'SCHOOL' SHOULD BE CONTAINED IN A SINGLE LANE. ON ONE LANE APPLICATIONS, THE TRANSVERSE LINES SHALL EXTEND ACROSS THE LANE WHICH APPROACHES THE ZONE WITH THE WORD 'SCHOOL' CENTERED ACROSS THAT LANE. FOR TWO APPROACH LANES, EACH LANE SHOULD HAVE A SEPARATE WORD 'SCHOOL' CENTERED ACROSS IT. ON TWO LANE, TWO WAY ROADWAYS WITH INSUFFICIENT PAVEMENT WIDTH, THE WORD AND TRANSVERSE LINES SHALL EXTEND ACROSS BOTH LANES OF TRAFFIC. ON FOUR LANE, TWO WAY ROADWAYS WITH INSUFFICIENT PAVEMENT WIDTH, THE WORD AND TRANSVERSE LINES SHALL EXTEND ACROSS BOTH LANES ENTERING THE SCHOOL ZONE. CENTER OR LANE LINES SHALL NOT PASS THROUGH THE 'SCHOOL' MARKING.
- THE STOP LINE SHOULD BE PLACED WHERE CROSS-CORNER VISION IS MAXIMUM, IN NO CASE MORE THAN 30 FEET OR LESS THAN 4 FEET FROM THE NEAREST EDGE OF THE INTERSECTING ROADWAY. FOR NORMAL INTERSECTIONS A MAXIMUM DISTANCE OF 10 FEET IS RECOMMENDED.

IF A MARKED CROSSWALK IS PRESENT, THE STOP LINE SHOULD BE PLACED 4 FEET IN ADVANCE OF AND PARALLEL TO THE NEAREST CROSSWALK LINE.
- FOR TRAFFIC PAINT AND POLYESTER APPLICATION, TEMPLATE GAPS SHALL BE FILLED WITH MARKING MATERIAL IN ACCORDANCE WITH 641.03. FOR EXTRUDED THERMOPLASTIC MATERIAL, THESE GAPS MAY REMAIN UNFILLED IN ACCORDANCE WITH 644.03.
- USE STANDARD DIMENSIONS CONFORMING TO REQUIREMENTS OF OMUTCD SECTIONS 3B-40, 3B-41 AND 3B-43 WHICH CONFORMS TO THE 1977 METRIC EDITION STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKING WITH ERRATA.

* - INDICATES STATION REFERENCE POINT

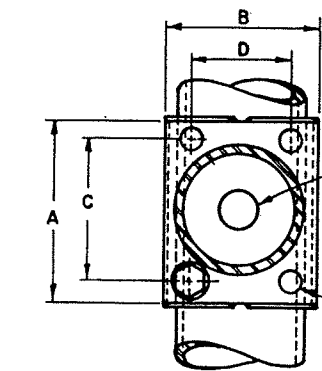
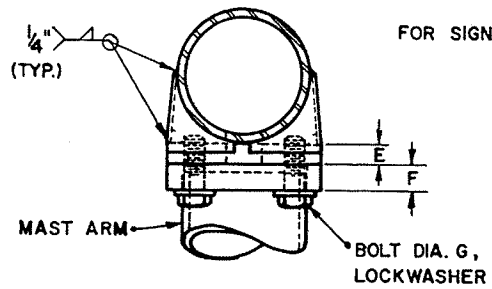
BUREAU OF DESIGN SERVICES DIVISION OF HIGHWAYS OHIO DEPARTMENT OF TRANSPORTATION	
TRAFFIC CONTROL	DATE 09/10/91
WORDS, SYMBOLS AND ARROWS	
STANDARD CONSTRUCTION DRAWING	TC - 71.10
APPROVED <i>Jay C. Cramer</i> ENGR. OF DESIGN SERVICES	

TWO PART CLAMP OR U-BOLT AND CLAMP, SEE NOTE 5.

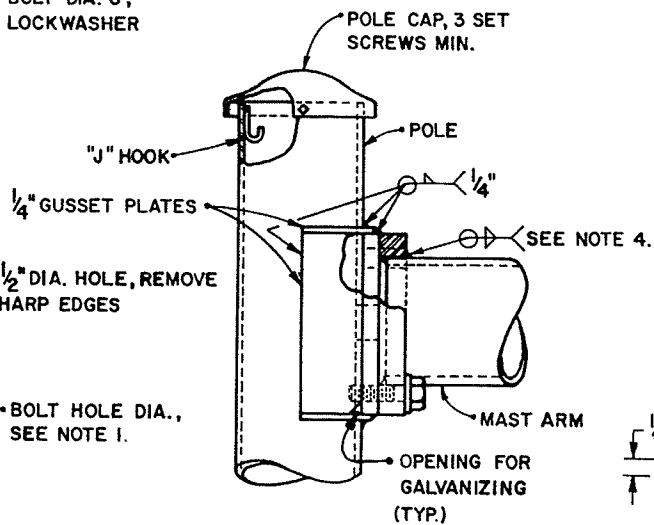


CLAMP

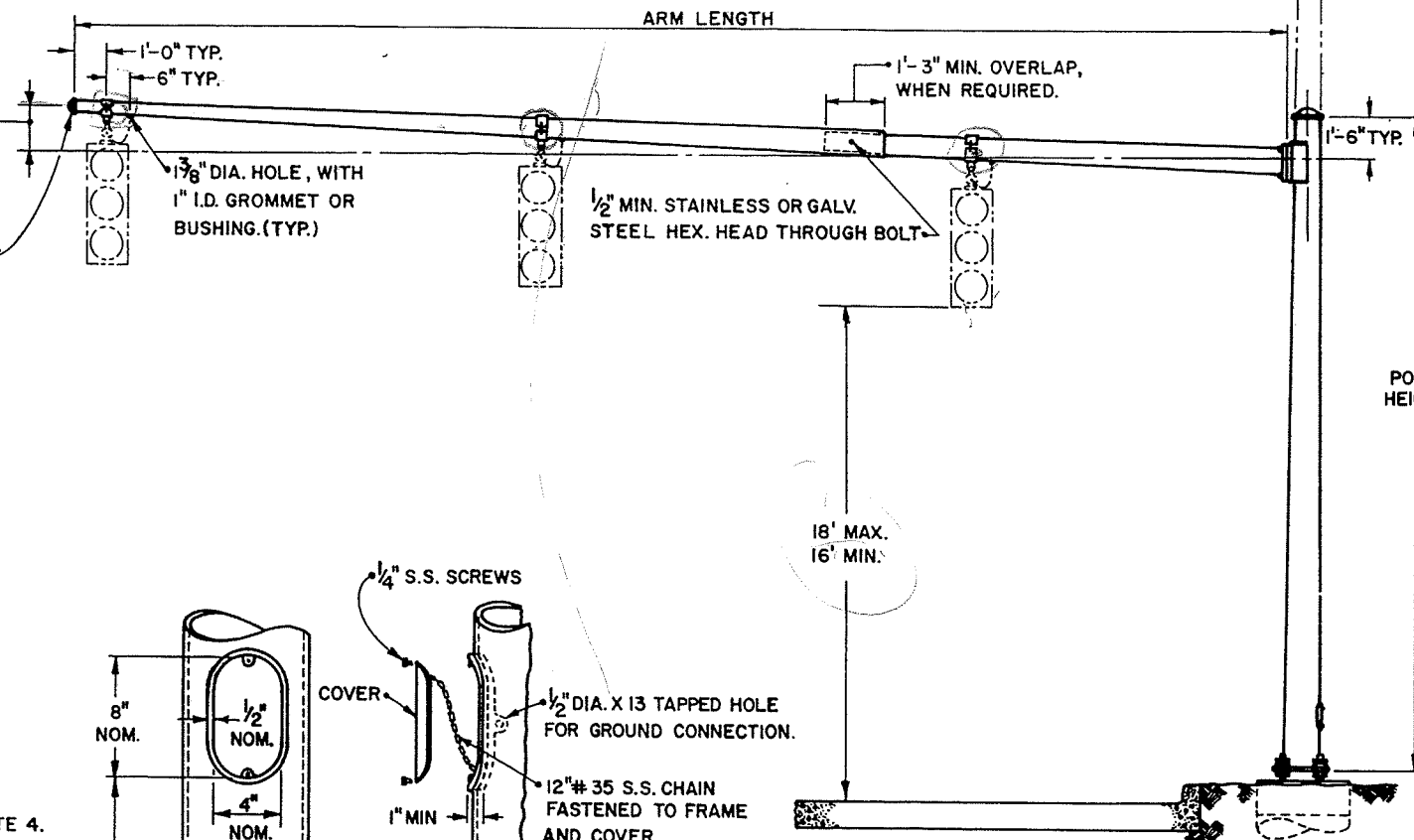
FOR SIGNAL ATTACHMENT DETAILS, SEE TC-85.20



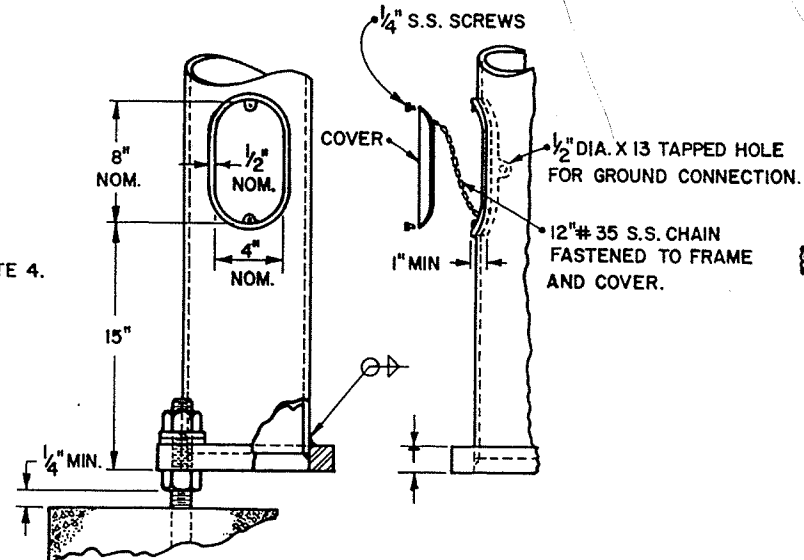
ARM ATTACHMENT



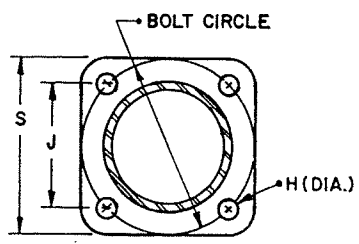
RISE, 3" MIN., 12" MAX. AFTER ERECTION OF SIGNALS



EXTENDED FOR COMBINATION POLE, WHEN REQUIRED. (FOR DETAILS SEE STANDARD DRAWINGS TC-22.10 AND HL-2)



POLE DETAILS



BASE PLATE

NOTES

1. ARM PLATE HOLE DIAMETER SHALL BE BOLT DIAMETER PLUS 1/8 INCH. POLE PLATE TAPPED HOLE SHALL HAVE THREADS WITH 75% (MIN.) FULL PROFILE HEIGHT. THREADS MAY BE RETAPPED AFTER GALVANIZING.
2. FOR SIGN MOUNTING DETAILS SEE STANDARD DRAWINGS TC-16.20 AND TC-41.41.
3. FOR FOUNDATION DETAILS, SEE STANDARD DRAWING TC-21.20.
4. THE ARM ATTACHMENT PLATE SHALL BE WELDED INSIDE AND OUTSIDE WITH FILLET WELDS. EACH FILLET WELD SHALL BE EQUAL TO THE WALL THICKNESS OF THE RESPECTIVE TUBING.
5. THE MAST ARM CLAMP SHALL HAVE A MINIMUM STRENGTH AT YIELD TO SUPPORT A 2000 POUND LOAD.

DESIGN NO.	POLE		ARM		TWO PIECE ARM		ARM ATTACHMENT							ANCHOR BASE				ANCHOR BOLT		
	WALL THICK	SIZE	WALL THICK	SIZE	WALL THICK	SIZE	A	B	C	D	E	F	G	BOLT CIRCLE	S	J	T	H	DIA.	L
1	.179	10X6.78 X 23'	.179	7 X 3.50 X 25'			14 1/2	12	10 1/2	8	1 1/4	1 1/4	1 1/4	13 1/2	14 1/8	9 9/16	1 1/2	1 3/4	1 1/2	54
2	.179	11 X 7.78 X 23'	.179	8 X 3.52 X 32'			14 1/2	12	10 1/2	8	1 1/4	1 1/2	1 1/4	15	15 5/8	10 5/8	1 1/2	1 3/4	1 1/2	54
3	.179	12 X 8.78 X 23'	.179	9 X 3.68 X 38'			14 1/2	12	10 1/2	8	1 1/4	1 1/2	1 1/4	16	17	11 5/16	1 1/2	1 3/4	1 1/2	54
4	.239	13 X 9.78 X 23'	.239	10.32 X 5.00 X 38'			16 1/2	14 1/2	12 1/2	9 1/2	1 1/4	2	1 1/4	18	18 1/2	12 3/4	2	2 1/8	1 3/4	84
11	.239	14 X 10.78 X 23'	TOT. LENGTH = 45'		.239	11 X 8.62 X 17' +	16 1/2	14 1/2	12 1/2	9 1/2	1 1/4	2	1 1/4	20	20 1/2	14 1/8	2	2 1/8	1 3/4	84
					.179	9.19 X 5.10 X 29'-3"	16 1/2	14 1/2	12 1/2	9 1/2	1 1/4	2	1 1/4	20	20 1/2	14 1/8	2	2 1/8	1 3/4	84
12	.299	14 X 10.78 X 23'	TOT. LENGTH = 48'		.299	11 X 8.62 X 17' +	16 1/2	14 1/2	12 1/2	9 1/2	1 1/4	2	1 3/8	20	20 1/2	14 1/8	2	2 3/8	2	90
					.179	9.19 X 4.68 X 32'-3"	16 1/2	14 1/2	12 1/2	9 1/2	1 1/4	2	1 3/8	20	20 1/2	14 1/8	2	2 3/8	2	90

ALL DIMENSIONS ARE IN INCHES, UNLESS OTHERWISE NOTED.

ALL ITEMS SHALL CONFORM TO C & M SPECIFICATIONS 632 AND 732, UNLESS OTHERWISE SPECIFIED.

BUREAU OF DESIGN SERVICES
DIVISION OF HIGHWAYS
OHIO DEPARTMENT OF TRANSPORTATION

TRAFFIC SIGNALS

SINGLE ARM OVERHEAD SIGNAL SUPPORT

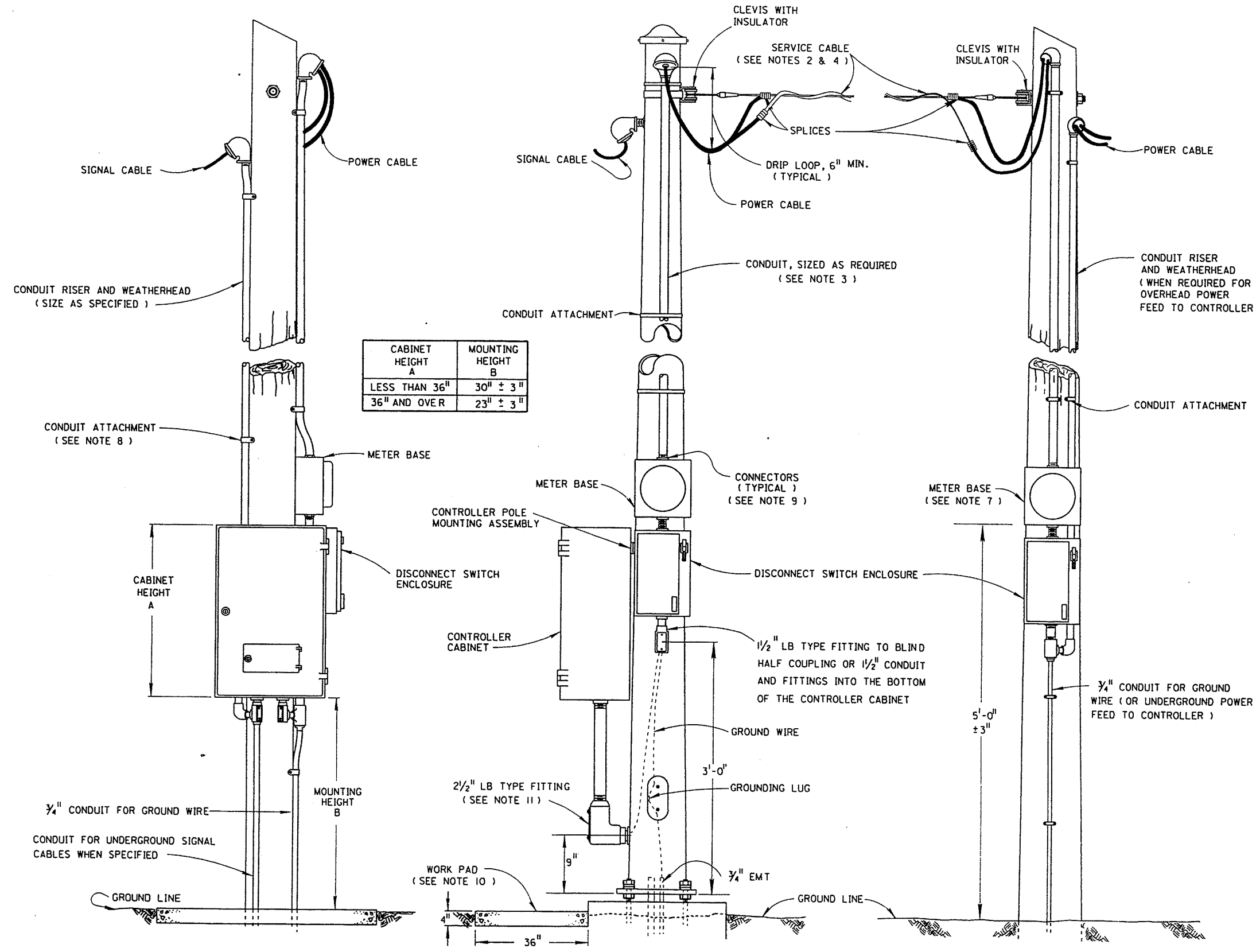
STANDARD CONSTRUCTION DRAWING TC-81.20

APPROVED: *[Signature]* Engineer of Design Services

DATE: 4-8-80
1-20-84

NOTES

1. ALL CONDUIT FITTING ENTRIES FOR CONTROLLERS AND POWER SERVICE EQUIPMENT IN PROPOSED STEEL POLES SHALL BE ATTACHED BY A BLIND HALF COUPLING WELDED INTO THE POLE PRIOR TO GALVANIZING.
2. SERVICE CABLE ATTACHMENT ON WOOD POLES SHALL BE BY A 5/8" THRU-BOLT AND CLEVIS; ON STEEL POLES BY A BANDED CLEVIS.
3. IF BOTH THE METER AND DISCONNECT SWITCH ARE NOT REQUIRED ON A STEEL POLE, THE POWER CABLE SHALL ENTER THE CONTROLLER THROUGH A CONDUIT RISER, EXTERNAL TO THE POLE.
4. THE SERVICE CABLE AND CABLE SPLICES TO THE POWER CABLE FOR THE INCOMING POWER SUPPLY SHALL BE INSTALLED BY THE POWER SUPPLYING AGENCY UNLESS OTHERWISE SPECIFIED. THE POLE ATTACHMENT HARDWARE SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR.
5. ORIENTATION OF THE CABINET, METER AND DISCONNECT SWITCH ENCLOSURE SHALL BE ARRANGED TO MINIMIZE EXPOSURE TO THE STREET SIDE AND ALSO MINIMIZE ENCROACHMENT ON SIDEWALKS, UNLESS OTHERWISE SHOWN ON THE PLANS.
6. POWER AND CONTROLLER SERVICE ADDED TO EXISTING STEEL POLES SHALL BE SIMILAR TO THAT SHOWN FOR THE WOOD POLE WITH THE EXCEPTION OF THE ATTACHMENT HARDWARE.
7. THE METER BASE SHALL BE FURNISHED BY THE POWER SUPPLYING AGENCY AND SHALL BE INSTALLED BY THE CONTRACTOR WHEN METERING IS REQUIRED. THE TOP OF THE METER BASE SHALL NOT EXCEED SIX (6) FEET ABOVE THE GROUND.
8. CONDUIT ATTACHMENT SHALL BE BY MEANS OF TWO HOLE CONDUIT STRAPS WITH A MAXIMUM SPACING OF FIVE (5) FEET. MINIMUM FASTENER REQUIREMENTS ARE AS FOLLOWS: WOOD POLES-1/4"x3" LONG LAG SCREWS, #14x3" LONG ROUND HEAD SCREWS, OR 20d SPIKES; STEEL POLES-1/4" SCREWS, SELF TAPPING OR WITH DRILLED AND TAPPED HOLE. IN LIEU OF CONDUIT CLAMPS, 3/4" WIDE PASSIVATED STAINLESS STEEL BANDING MAY BE USED ON STEEL POLES.
9. CONDUIT CONNECTIONS AT THE TOP AND BOTTOM OF THE DISCONNECT SWITCH ENCLOSURE AND METER BASE SHALL BE WATERTIGHT AND SHALL USE THE HUBS LISTED ON THE ENCLOSURE AND METER BASE U. L. LABELS. CONDUIT SHALL BE BENT TO ALLOW THE CONDUIT TO ENTER STRAIGHT INTO THE ENCLOSURE OR METER BASE, AND TO PROVIDE SPACE FOR THE WEATHERHEAD WHEN THE RISER IS PULLED TIGHT AGAINST THE POLE.
10. A 48"x36"x4" WORK PAD SHALL BE LOCATED BELOW EACH POLE MOUNTED CONTROLLER CABINET UNLESS LOCATED IN AN OTHERWISE PAVED AREA. WHEN REQUIRED, THIS ITEM SHALL BE PAID FOR UNDER ITEM 633, CONTROLLER WORK PAD. IN LEVEL AREAS, THE TOP OF THE PAD SHALL BE 1" ABOVE THE GROUND LINE. IN STEEPLY SLOPED AREAS, THE PAD'S LOCATION SHALL BE ADJUSTED TO PROVIDE ACCESS AND DRAINAGE WHILE COMPLYING WITH THE REQUIRED CONTROLLER CABINET MOUNTING HEIGHT.
11. THE HORIZONTAL ORIENTATION OF THE HANDHOLE RELATIVE TO THE 2 1/2" BLIND HALF COUPLING FOR THE CONTROLLER SHALL BE AS REQUIRED BY THE PLANS, EXCEPT THEY SHALL NOT BE CLOSER THAN 90°. INSTALL LB FITTING BEFORE ERECTING POLE.
12. WHEN CONDUIT RISERS ARE REQUIRED TO BE ATTACHED TO UTILITY COMPANY WOOD POLES, AND THE UTILITY COMPANY'S POLICY REQUIRES NON-METALLIC CONDUIT, THE CONDUIT RISERS SHALL CONFORM WITH NEMA STANDARDS PUBLICATION NO. TC-2 FOR PVC CONDUIT TYPE EPC-40.



POWER SERVICE AND CONTROLLER MOUNTING ON WOOD POLES

POWER SERVICE AND CONTROLLER MOUNTING ON NEW STEEL POLES

POWER SERVICE

(SEE NOTE 6)

BUREAU OF DESIGN SERVICES DIVISION OF HIGHWAYS OHIO DEPARTMENT OF TRANSPORTATION	
TRAFFIC SIGNALS POLE MOUNTINGS FOR CONTROLLERS AND POWER SERVICE	DATE 01/20/84 03/18/92
STANDARD CONSTRUCTION DRAWING	
TC-83.10	
APPROVED <i>[Signature]</i> ENGR. OF DESIGN SERVICES	

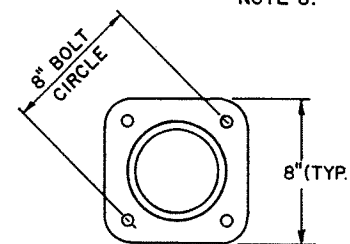
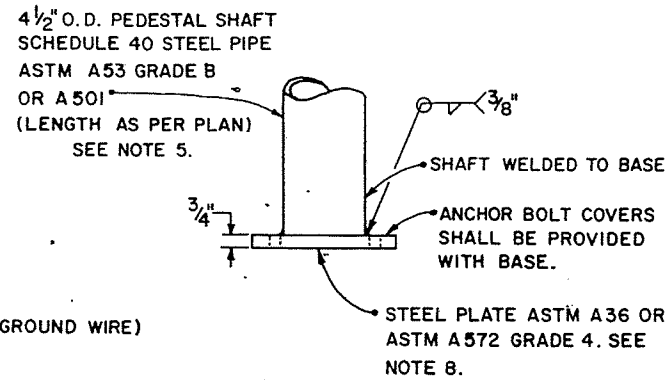
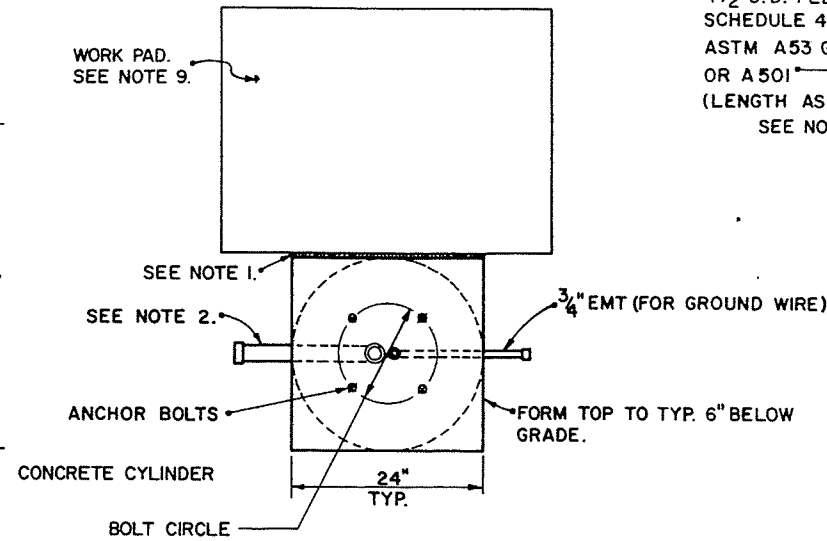
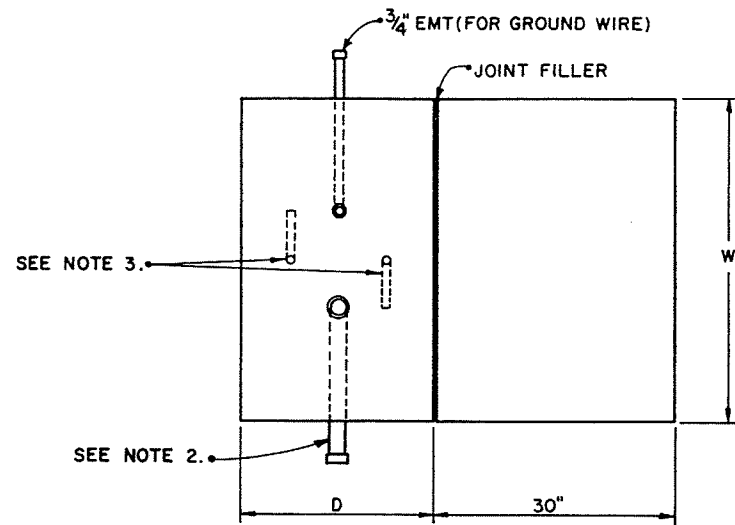
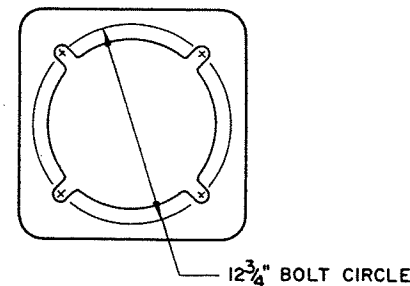
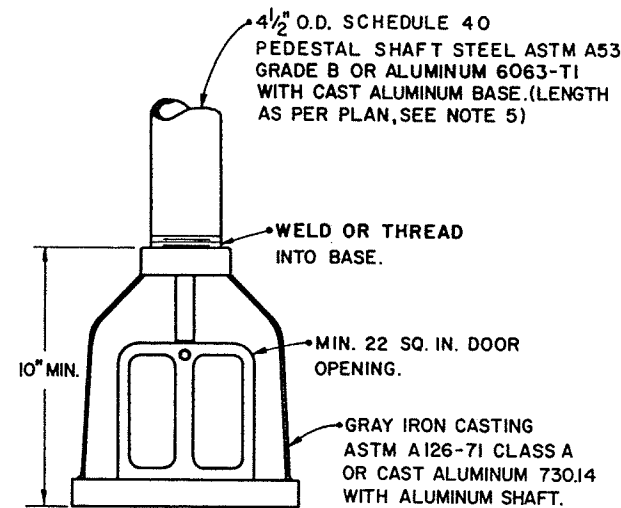
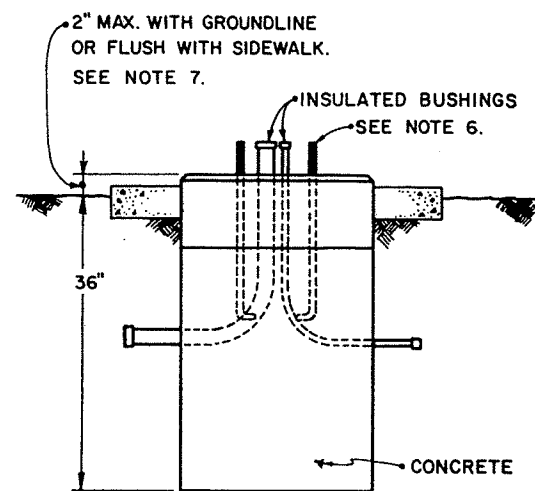
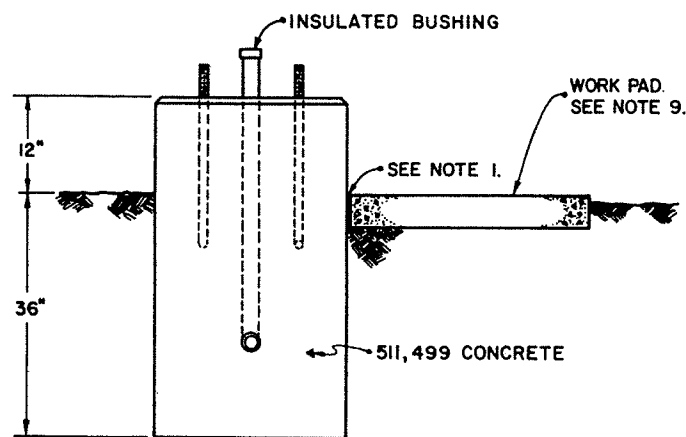


PLATE PEDESTAL BASE



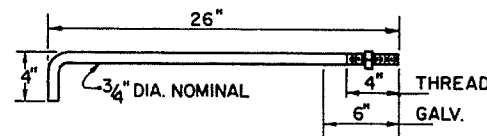
**TRANSFORMER TYPE
PEDESTAL BASE**



PEDESTAL FOUNDATION

TYPE	W	D	FOUNDATION CONCRETE
1	40"	24"	.99 C.Y.
2	50"	36"	1.85 C.Y.

**GROUND MOUNTED
CONTROLLER FOUNDATION**



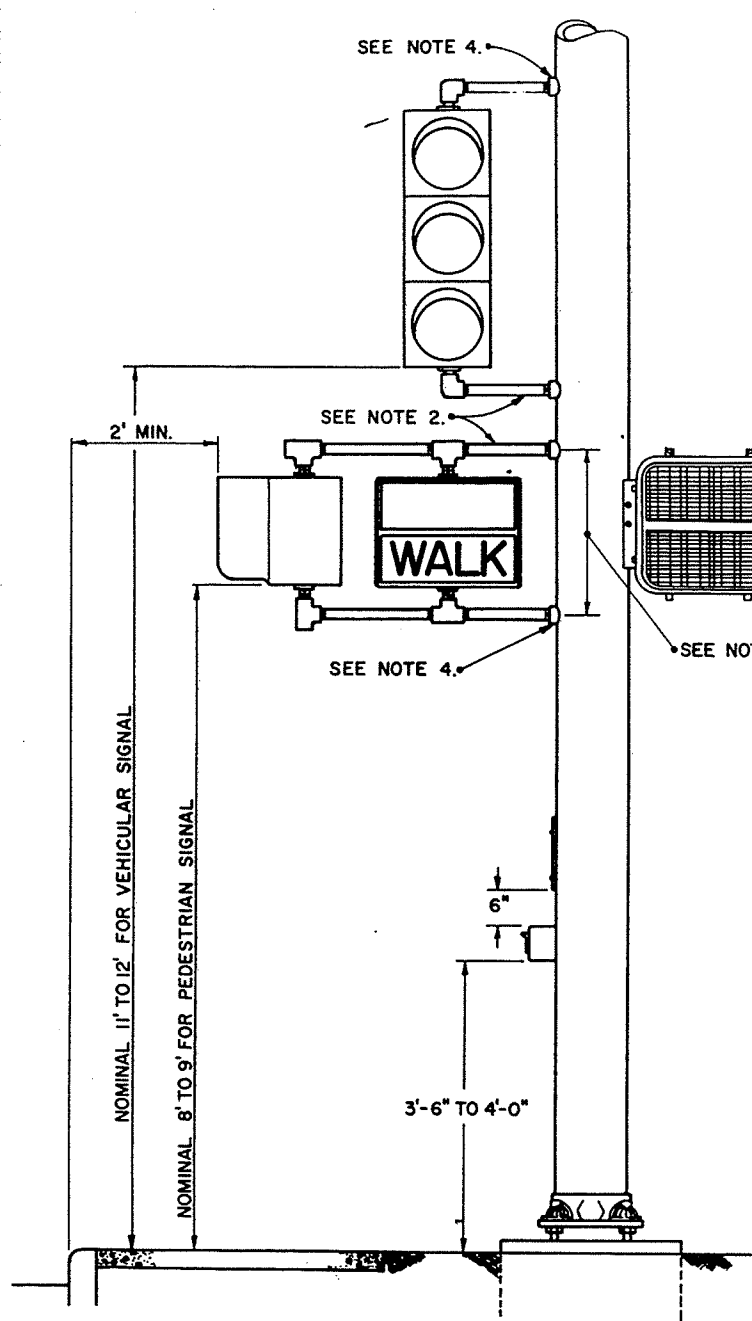
**PEDESTAL ANCHOR BOLT
ASTM A307 STEEL**

NOTES

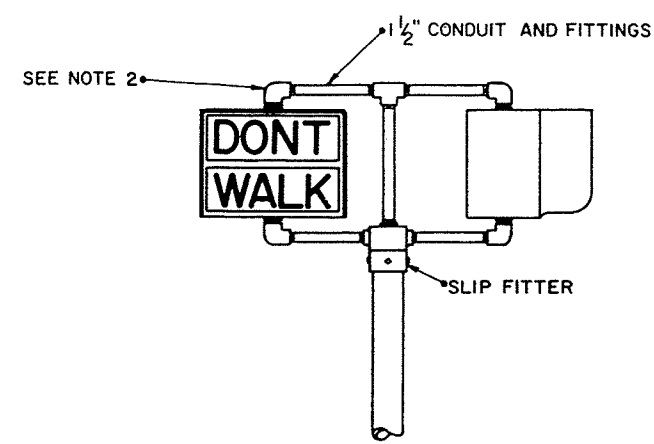
- 1/2" PREFORMED JOINT FILLER AS PER 705.03 SHALL BE USED BETWEEN FOUNDATIONS AND ADJACENT PAVED AREAS.
- THE SIZE, NUMBER AND ORIENTATION OF CONDUIT ELLS SHALL BE AS SHOWN IN THE PLANS, EXCEPT THAT ONE 3/4" EMT SHALL BE INSTALLED IN EACH FOUNDATION.
- THE SIZE, NUMBER AND LOCATION OF ANCHOR BOLTS SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
- ALL PEDESTALS SHALL BE PROVIDED WITH A METHOD OF SECURELY ATTACHING A NO. 4 AWG INSULATED COPPER GROUNDING CABLE TO THE PEDESTAL OR ANCHOR BOLT. NO CABLES OR CONNECTIONS SHALL BE EXTERNAL TO THE PEDESTAL.
- THE PEDESTAL SHAFT LENGTH AS SHOWN IN THE PLANS INCLUDES THE PEDESTAL BASE HEIGHT FOR EITHER BASE DESIGN.
- THE PEDESTAL BASE SHALL SET ON THE FOUNDATION TOP WITHOUT GROUTING, PREFORMED FILLERS OR LEVELING NUTS UNDER THE BASE. STEEL SHIMS MAY BE USED UNDER THE BASE FOR LEVELING THE INSTALLATION.
- THE FOUNDATION AREA OF CONTACT WITH THE PEDESTAL BASE SHALL BE LEVEL. IF ADJACENT PAVED AREAS SLOPE, THE REMAINDER OF THE FOUNDATION TOP SHALL BE BEVELED TO MEET THE ADJACENT ELEVATIONS.
- A CAST STEEL ANCHOR BASE OF EQUIVALENT STRENGTH MAY BE USED IN LIEU OF THE PLATE BASE.
- A 40"x30"x4" WORK PAD SHALL BE LOCATED IN FRONT OF EACH PEDESTAL MOUNTED CONTROLLER CABINET UNLESS IN AN OTHERWISE PAVED AREA. THE WORK PAD FOR THE GROUND MOUNTED CONTROLLER SHALL BE SIZED AS SHOWN IN THE TABLE. WHEN REQUIRED THIS ITEM SHALL BE PAID FOR UNDER ITEM 608, 4" CONCRETE WALK. IN LEVEL AREAS THE TOP OF THE PAD SHALL BE 1" ABOVE THE GROUND LINE. IN STEEPLY SLOPED AREAS THE PAD'S LOCATION SHALL BE ADJUSTED TO PROVIDE ACCESS AND DRAINAGE.
- GROUND MOUNTED CONTROLLER CABINETS SHALL BE SEALED TO THE FOUNDATION WITH A FLEXIBLE WEATHERPROOF CAULKING COMPOUND.

ALL ITEMS SHALL CONFORM TO SUPPLEMENTAL SPECIFICATIONS 86I AND 96I AND C & M SPECIFICATIONS 608,632 AND 732 UNLESS OTHERWISE SPECIFIED.

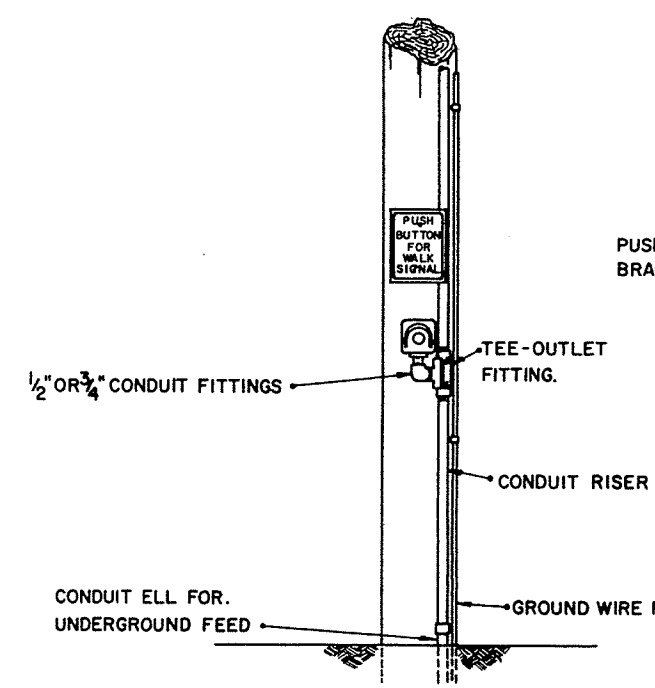
BUREAU OF DESIGN SERVICES DIVISION OF HIGHWAYS OHIO DEPARTMENT OF TRANSPORTATION	
TRAFFIC SIGNALS	DATE 9/5/75 4/17/79 1/20/84
CONTROLLER FOUNDATION AND PEDESTALS	
STANDARD CONSTRUCTION DRAWING TC-83.20	
APPROVED: <i>[Signature]</i> Engineer of Design Services	



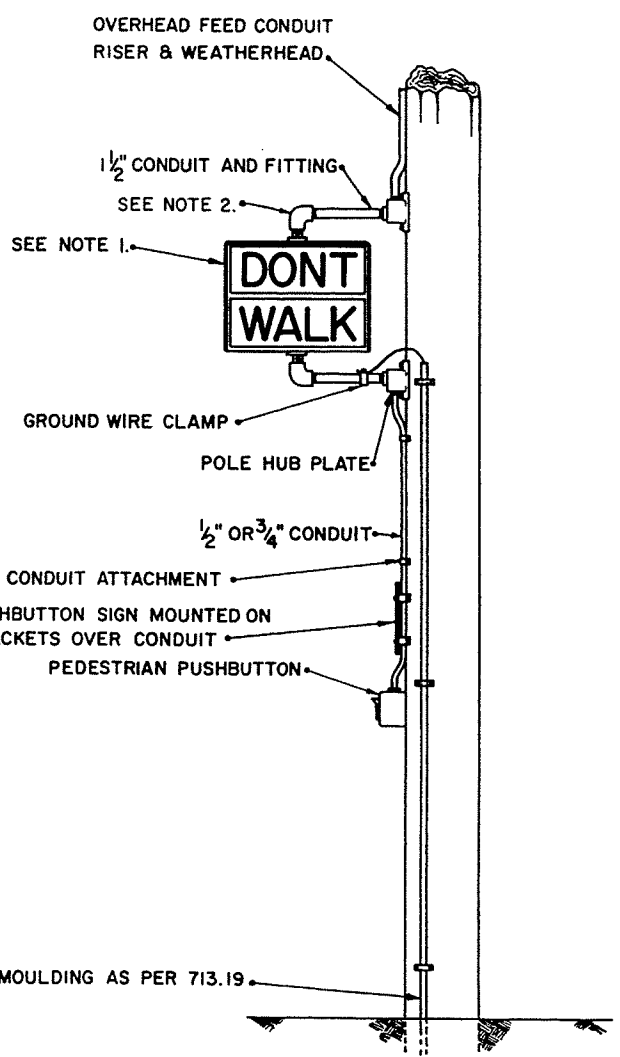
STEEL POLE DETAIL
SEE NOTE 3.



PEDESTAL MOUNTED SIGNAL HEAD



UNDERGROUND FEED



OVERHEAD FEED

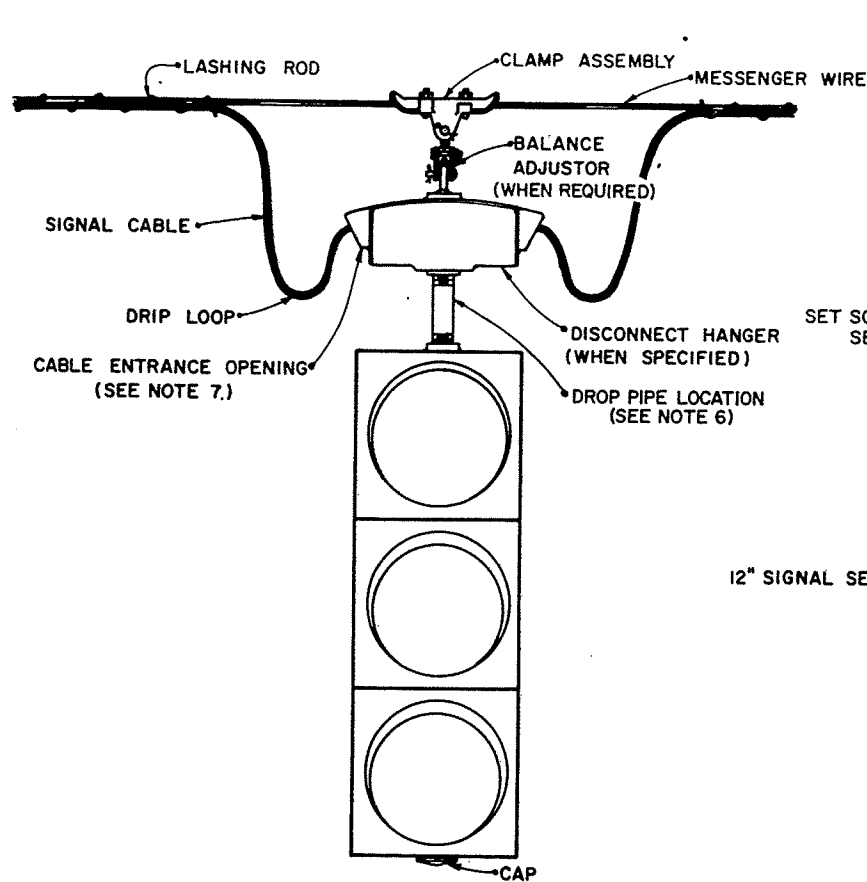
WOOD POLE DETAIL

NOTES

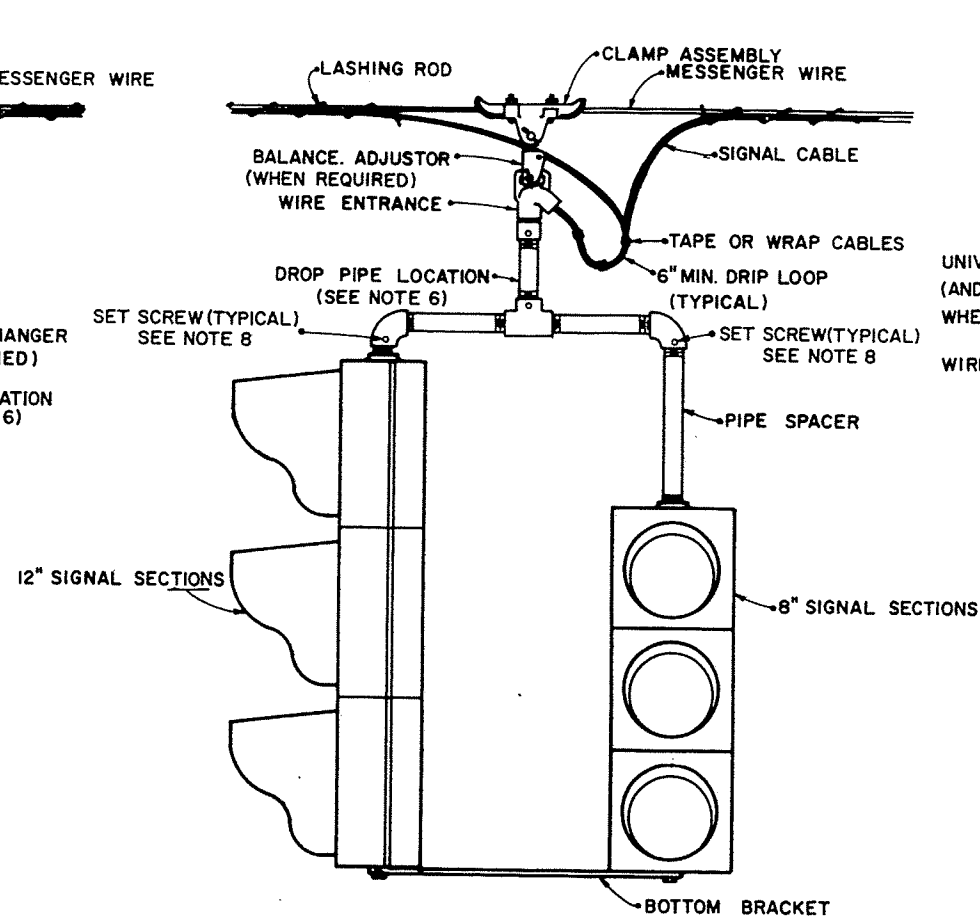
1. VEHICULAR SIGNAL HEADS SHALL UTILIZE MOUNTING BRACKETS SIMILAR TO THOSE SHOWN FOR PEDESTRIAN SIGNAL HEADS.
 2. SIGNAL HEAD CONDUIT BRACKETS AND CONDUIT FITTINGS SHALL BE GALVANIZED AND PAINTED (EXCEPT POLE CLAMPS OR BANDS) TO MATCH THE BODY OF THE SIGNAL HEAD.
 3. FOR EMBEDDED STEEL POLES, EXTERNAL CONDUIT SHALL BE SIMILAR TO THAT SHOWN IN WOOD POLE DETAIL. EXTERNAL GROUNDING WILL NOT BE REQUIRED UNLESS SPECIFICALLY NOTED ON THE PLANS.
 4. THE SIGNAL HEAD BRACKET ARMS SHALL BE ATTACHED TO STEEL POLES BY ONE OF THE FOLLOWING METHODS:
 - a. 1 1/2" BLIND HALF COUPLING WELDED INTO THE POLE PRIOR TO GALVANIZING.
 - b. BRACKET ARM HUB PLATES ATTACHED TO THE POLE AS PER NOTE #7.
 - c. POLE CLAMP WITH THREADED HUB.
 - FIELD INSTALLATION OF THE WIRING HOLES FOR SIGNAL HEADS AND PUSH-BUTTONS WILL BE PERMITTED PROVIDED THAT THE HOLES ARE DRILLED OR HOLE SAWN. NO TORCH CUTTING OR FIELD WELDING WILL BE PERMITTED. CUT SURFACES SHALL BE FILED SMOOTH AND COVERED WITH TWO COATS OF ZINC RICH PAINT. GROMMETS OR WIRING GUIDES SHALL BE INSTALLED IN THE HOLES.
 5. VERTICAL SPACING BETWEEN BRACKET FITTINGS SHALL BE DETERMINED BY THE CONTRACTOR, AND SHALL BE THE DIMENSION FROM CENTERLINE TO CENTERLINE OF THE BRACKET ARMS NECESSARY TO ACCOMMODATE THE VERTICAL HEIGHT OF THE SIGNAL HEAD PLUS NOT MORE THAN 10".
 6. THE FOLLOWING MINIMUM SIZE FASTENERS SHALL BE USED FOR THE ATTACHMENT OF THE INDICATED HARDWARE TO WOOD POLES:
 - a. CONDUIT BRACKET ARM HUB PLATES: 1/2" DIAM. x 5" LONG LAG SCREWS (TWO SCREWS PER HUB PLATE).
 - b. CONDUIT STRAPS (TWO HOLE): 1/4" x 3" LONG LAG SCREWS, #14 x 3" LONG ROUND HEAD WOOD SCREWS, OR 20d SPIKES.
 - c. PUSHBUTTON SIGN: WITH BRACKETS - 3/8" x 3" LONG LAG SCREWS (TWO PER BRACKET); WITHOUT BRACKETS - 3/8" x 3" LONG LAG SCREWS WITH 7/16" I.D. x 1" O.D. FLAT WASHER BETWEEN THE SIGN AND POLE (TWO PER SIGN).
 - d. PUSHBUTTON - #14 x 3" LONG ROUND HEAD WOOD SCREWS OR 1/4" x 3" LONG LAG SCREWS (TWO PER PUSHBUTTON).
 7. THE FOLLOWING MINIMUM SIZE FASTENERS SHALL BE USED FOR THE ATTACHMENT OF THE INDICATED HARDWARE TO STEEL POLES:
 - a. CONDUIT BRACKET ARM HUB PLATES: 1/2" DIAM. SCREW OR 3/4" WIDE PASSIVATED STAINLESS STEEL BAND (TWO FASTENERS OR BANDS PER HUB PLATE).
 - b. CONDUIT: TWO HOLE CONDUIT STRAPS WITH 1/4" DIAM. SCREWS OR 3/4" WIDE PASSIVATED STAINLESS STEEL BANDS.
 - c. PUSHBUTTON SIGN: 3/8" DIAM. SCREWS (TWO PER SIGN).
 - d. PUSHBUTTON: 1/4" DIAM. SCREWS (TWO PER PUSHBUTTON).
- THE SCREWS SHALL UTILIZE A DRILLED AND TAPPED HOLE OR BE THE SELF-TAPPING TYPE.

ALL ITEMS SHALL CONFORM TO C & M SPECIFICATIONS 632 AND 732 UNLESS OTHERWISE SPECIFIED.

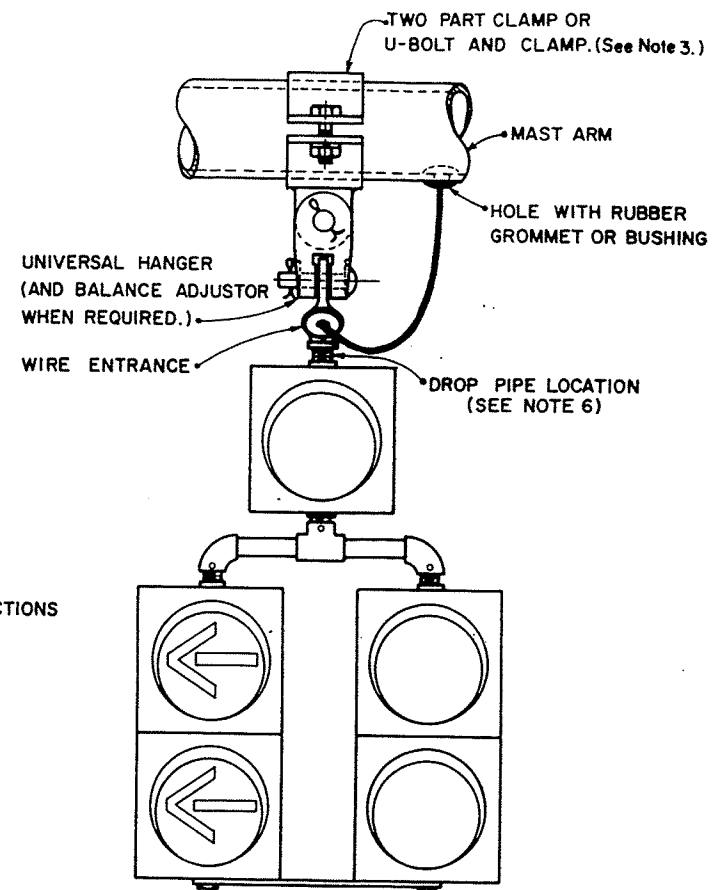
BUREAU OF DESIGN SERVICES DIVISION OF HIGHWAYS OHIO DEPARTMENT OF TRANSPORTATION	
TRAFFIC SIGNALS	DATE
POLE MOUNTINGS FOR SIGNAL HEADS	9/5/75 4/18/79 1/20/84
STANDARD CONSTRUCTION DRAWING	TC-85.10
APPROVED: <i>[Signature]</i> Engineer of Design Services	



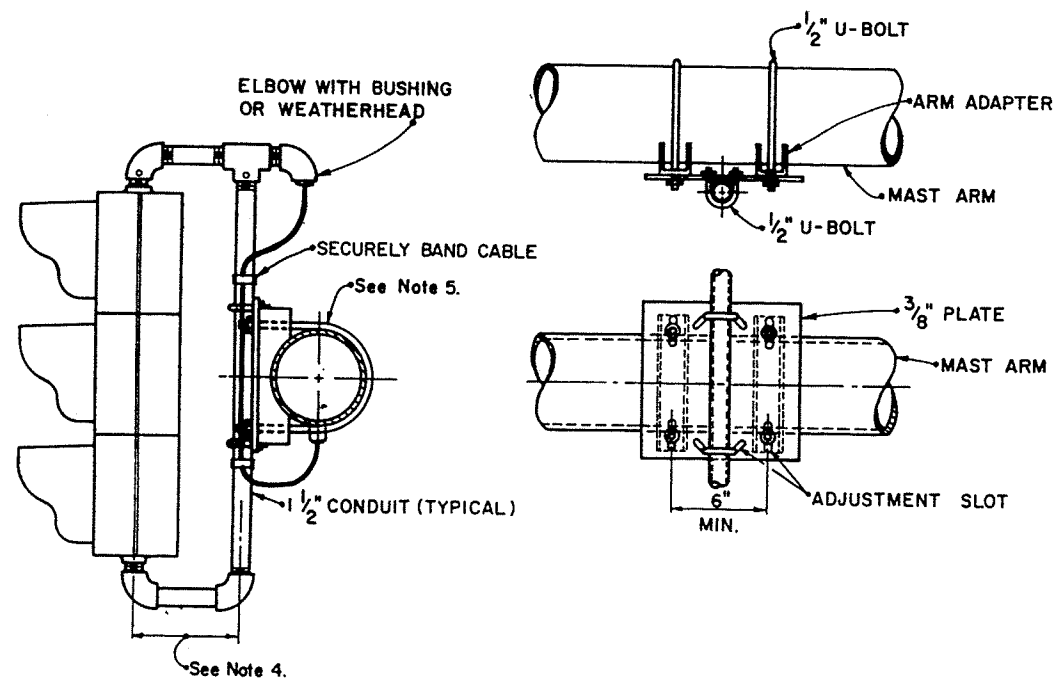
**SIGNAL HEAD SUSPENSION
WITH DISCONNECT**



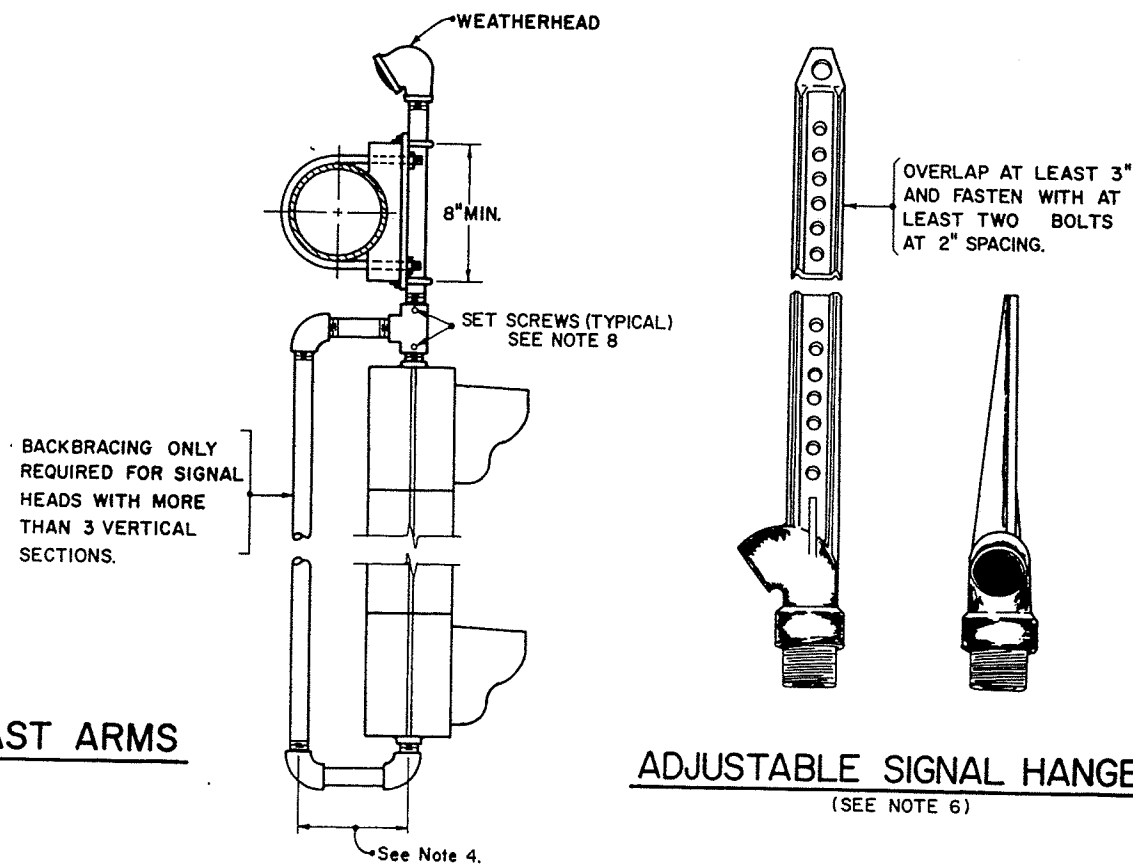
SIGNAL HEAD SUSPENSION



MAST ARM SIGNAL HEAD MOUNTING



RIGID SIGNAL HEAD MOUNTING FOR MAST ARMS



**ADJUSTABLE SIGNAL HANGER
(SEE NOTE 6)**

NOTE:

1. SIGNAL HEAD CONDUIT BRACKETS AND CONDUIT FITTINGS SHALL BE GALVANIZED AND PAINTED TO MATCH THE BODY OF THE SIGNAL HEAD.
2. ALL SIGNAL HEAD ASSEMBLIES SHALL BE INSTALLED IN A PLUMB POSITION. BALANCE ADJUSTORS OR OTHER APPROVED METHODS MAY BE USED IF NECESSARY.
3. THE MAST ARM CLAMP SHALL HAVE A MINIMUM STRENGTH AT YIELD TO SUPPORT A 2000 POUND LOAD.
4. A MINIMUM OF 17 INCHES IS REQUIRED FOR OPTICALLY PROGRAMMED SIGNAL HEADS AND A MINIMUM OF 6 INCHES FOR STANDARD SIGNAL HEADS.
5. ALTERNATE RIGID SIGNAL HEAD MOUNTING DEVICES FOR MAST ARMS MAY BE APPROVED BY THE ENGINEER UPON DEMONSTRATION THAT THEY PROVIDE ADEQUATE RIGIDITY, EQUAL RANGE OF ADJUSTMENT AND CAN BE TIGHTENED SUFFICIENTLY TO PREVENT MOVEMENT AND LOOSENING UNDER VIBRATION.
6. SIGNAL HEADS SHALL BE INSTALLED WITH A CLEARANCE ABOVE PAVEMENT ELEVATION AT THE CENTER OF THE ROADWAY OF 16 FOOT MINIMUM, 18 FOOT MAXIMUM. IT IS INTENDED THAT THIS CLEARANCE BE OBTAINED WITHOUT THE USE OF DROP PIPES, BUT RATHER BY THE CAREFUL SELECTION OF FOUNDATION HEIGHTS, ATTACHMENT HEIGHTS, ARM RISE, SPAN WIRE SAG AND OTHER FACTORS DURING THE CONSTRUCTION OF THE INSTALLATION. IF THE INSTALLATION CANNOT BE ADJUSTED TO THE PROPER CLEARANCE THE CONTRACTOR SHALL ADVISE THE ENGINEER OF ALL SIGNALS WHICH EXCEED THE MAXIMUM. THE ENGINEER WILL, IN CONSULTATION WITH THE MAINTAINING AGENCY, DIRECT THE USE OF DROP PIPES OR WAIVE THE MAXIMUM CLEARANCE REQUIREMENT FOR EACH HEAD. IF DROP PIPES ARE NECESSARY, ADJUSTABLE SIGNAL HANGERS AS DETAILED MAY BE USED.
7. CABLE ENTRANCE OPENINGS ON DISCONNECT HANGERS SHALL RIGIDLY CLAMP CABLE TO PREVENT MOVEMENT OF THE CABLE WITHIN THE ENCLOSURE.
8. SIGNAL HEAD ROTATION SHALL BE PREVENTED BY THE USE OF SERRATED RINGS, SET SCREWS OR OTHER POSITIVE DEVICES INCORPORATED IN THE SIGNAL HOUSING AND AT CRITICAL LOCATIONS IN THE SUPPORTING HARDWARE.

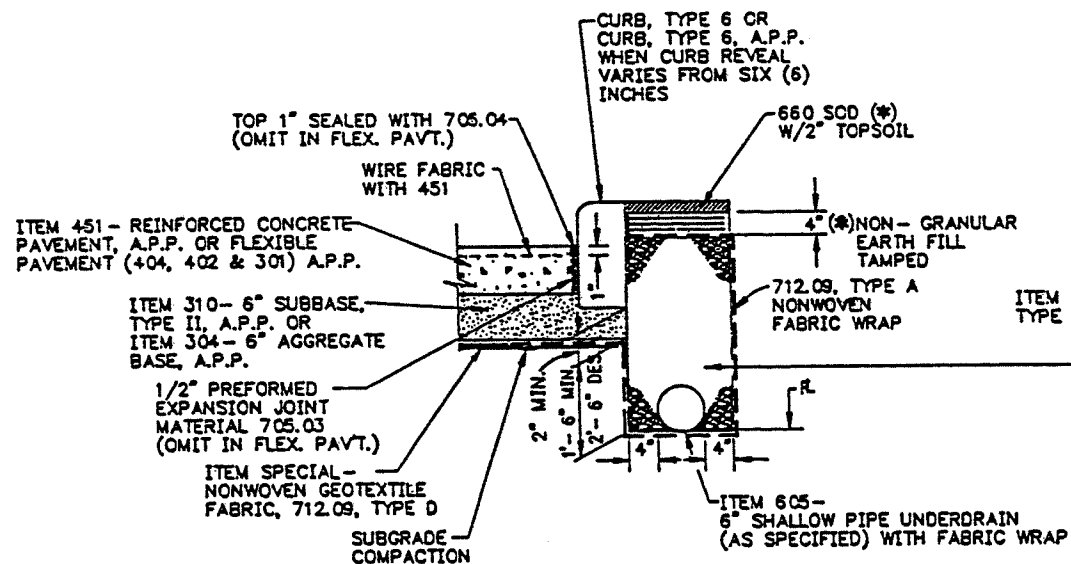
ALL ITEMS SHALL CONFORM TO C & M SPECIFICATIONS 632 AND 732 UNLESS OTHERWISE SPECIFIED.

BUREAU OF DESIGN SERVICES DIVISION OF HIGHWAYS OHIO DEPARTMENT OF TRANSPORTATION	
TRAFFIC SIGNALS	DATE
OVERHEAD SIGNAL ATTACHMENTS	9/5/75 4/18/79 1/20/84
STANDARD CONSTRUCTION DRAWING	
TC-85.20	
APPROVED: <i>[Signature]</i> Engineer of Design Services	

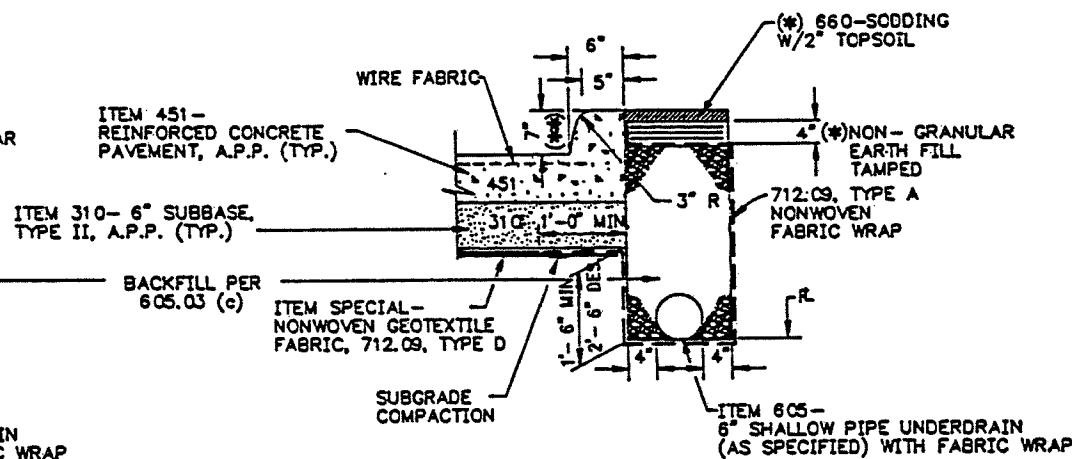
MISCELLANEOUS DETAILS

CALC BY		OHIO
DATE		
CHK'D BY		FHWA REGION 5
DATE		

CUYAHOGA COUNTY
COUNTY RD. No.



CURB, TYPE 6 AND 6" SHALLOW PIPE UNDERDRAIN WITH FABRIC WRAP



CURB, TYPE 2-A, A.P.P. () AND 6" SHALLOW PIPE UNDERDRAIN WITH FABRIC WRAP**

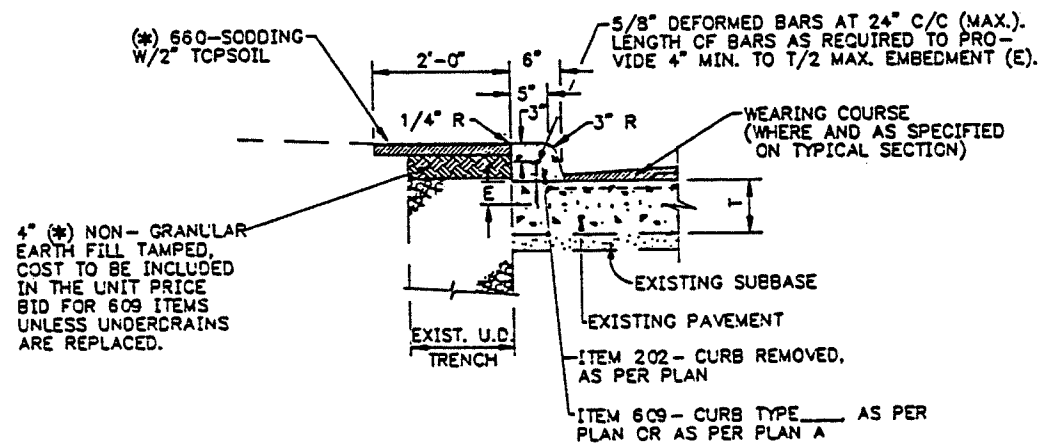
NOTES:

WHEN ITEM 605 CALLS FOR 706.08 CONDUIT, THE CONDUIT SHALL BE PERFORATED BELL AND SPIGOT VITRIFIED CLAY PIPE WITH PERFORATIONS IN ACCORDANCE WITH A.A.S.H.T.O. M-65, WITH THREE (3) LUGS PROVIDED IN THE BELL END TO CENTER AND ALIGN THE PIPE AND PROVIDE A THREE-EIGHTH (3/8) INCH GAP BETWEEN PIPE LENGTHS. PERFORATIONS ARE PLACED DOWN.

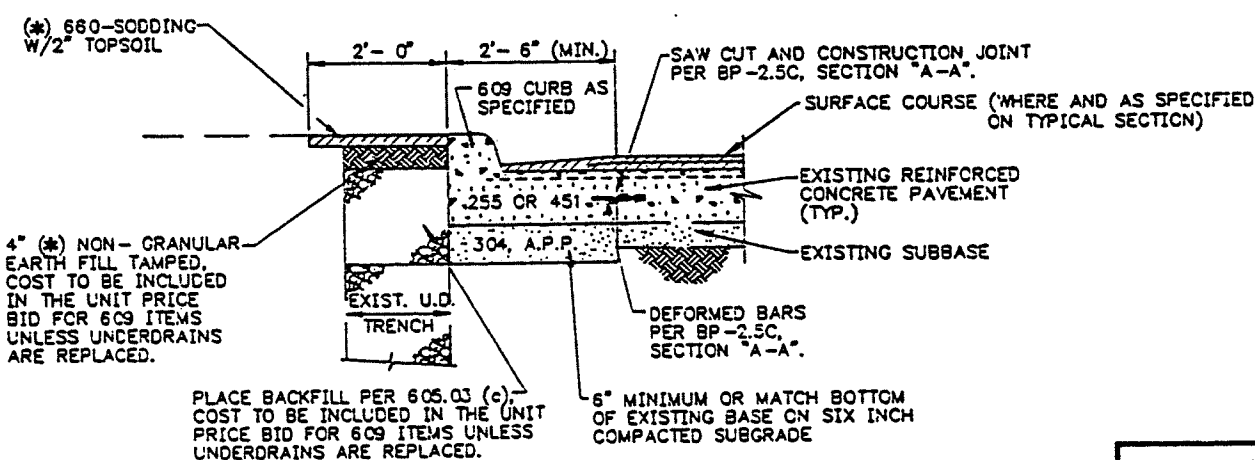
(*) WHEN USING 659-SEEDING AND MULCHING IN LIEU OF SOD WITH TOPSOIL, THE UNDERDRAIN TRENCH SHALL SIMPLY BE TOPPED WITH SIX (6) INCHES OF NON-GRANULAR EARTH FILL TAMPED.

(**) SIMPLY SPECIFY CURB, TYPE 2-A WHEN UTILIZING A SIX (6) INCH REVEAL PER O.D.O.T. STANDARD CONSTRUCTION DRAWING BP-5.1. SPECIFY CURB, TYPE 2-A, AS PER PLAN WHEN REVEAL VARIES FROM SIX (6) INCHES. SPECIFY CURB, TYPE 2-B WHEN UTILIZING WEARING COURSE AND SIX (6) INCH REVEAL PER BP-5.1 AND CURB, TYPE 2-B, AS PER PLAN WHEN REVEAL VARIES FROM SIX (6) INCHES.

THIS DRAWING IS USED IN CONJUNCTION WITH O.D.O.T. S.C.D. BP-5.1 AND CUYAHOGA COUNTY C.D. BP-2.5C.



INTEGRAL CONCRETE CURB REPLACEMENT DETAIL METHOD "A"

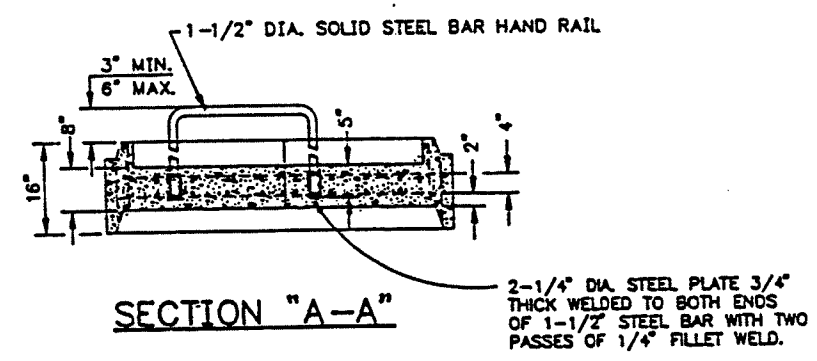


INTEGRAL CONCRETE CURB REPLACEMENT DETAIL METHOD "B" (SEE BP-2.5C)

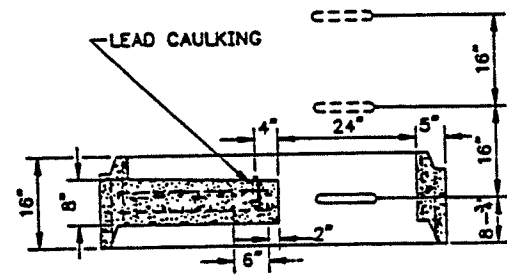
CUYAHOGA COUNTY ENGINEER	
CONCRETE CURB AND UNDERDRAIN DETAILS	DATE
	6-1-81
	6-23-83
	3-1-86
	5-5-87
CONSTRUCTION DRAWING MD-1C	2-8-88
	3-9-92

CALC BY	DATE	OHIO	○
CHKD BY	DATE	FHWA	
BY	DATE	REGION 5	

CUYAHOGA COUNTY
COUNTY RD. No.

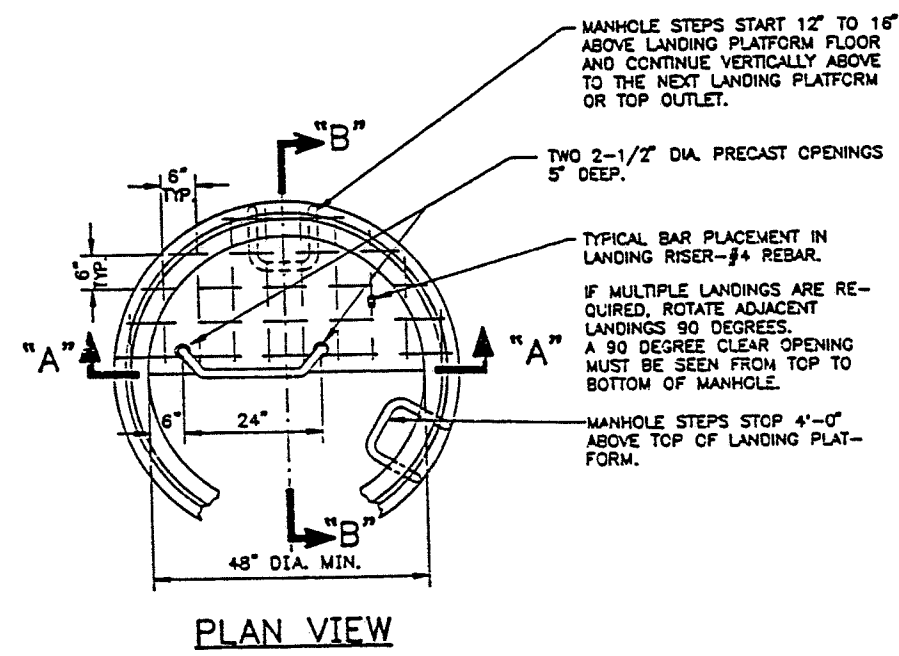


SECTION "A-A"



SECTION "B-B"

NOTE:
LANDING PLATFORMS AS SHOWN ON THE LANDING DETAILS SHALL BE INSTALLED IN MANHOLES THAT ARE OVER TWENTY-EIGHT (28) FEET DEEP TO THE INVERT WITH A MAXIMUM VERTICAL SPACING OF TWENTY (20) FEET.



PLAN VIEW

16" LANDING RISER DETAIL FOR PRECAST MANHOLE

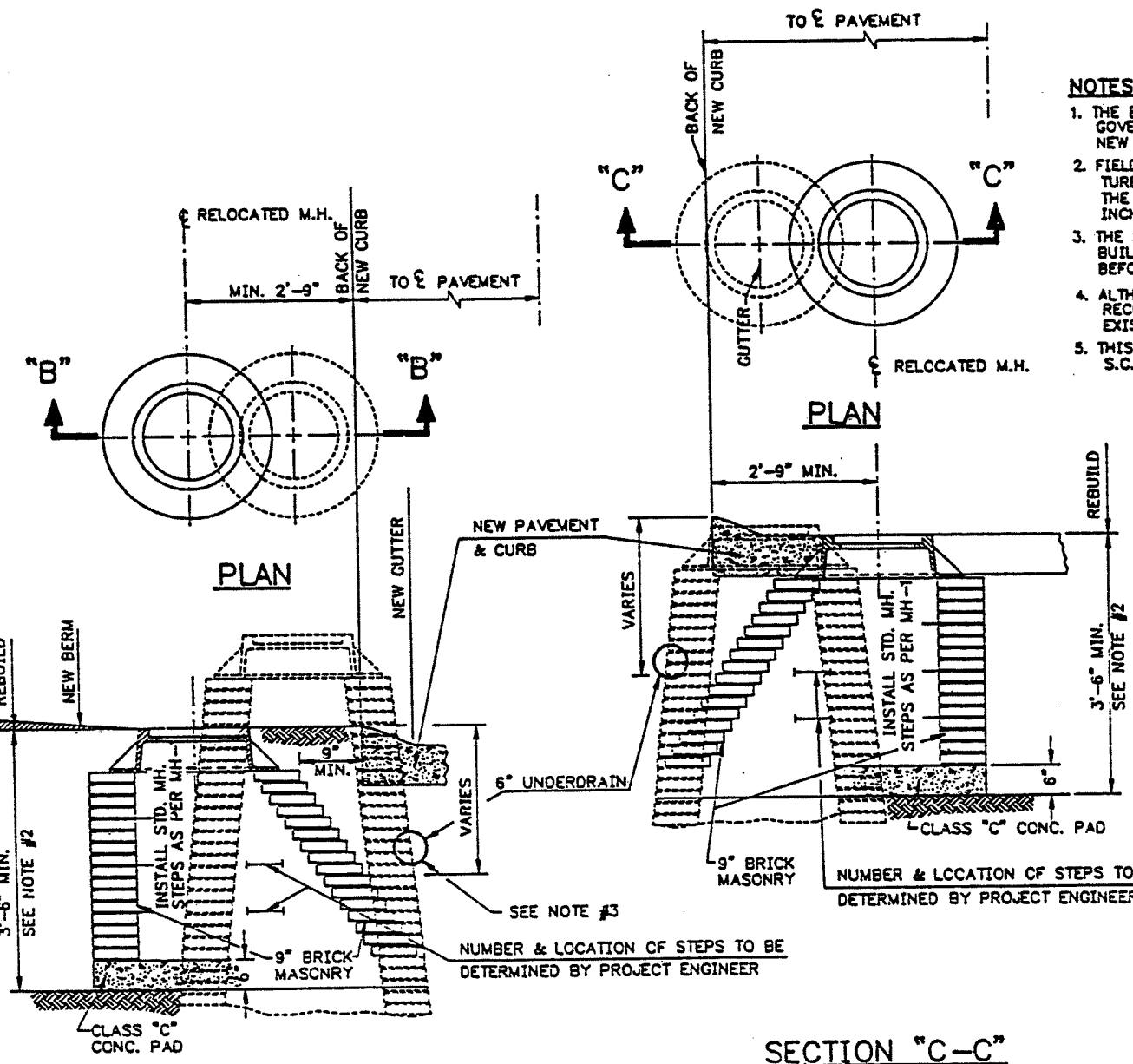
MANHOLE STEPS START 12" TO 16" ABOVE LANDING PLATFORM FLOOR AND CONTINUE VERTICALLY ABOVE TO THE NEXT LANDING PLATFORM OR TOP OUTLET.

TWO 2-1/2" DIA. PRECAST OPENINGS 5" DEEP.

TYPICAL BAR PLACEMENT IN LANDING RISER—#4 REBAR.

IF MULTIPLE LANDINGS ARE REQUIRED, ROTATE ADJACENT LANDINGS 90 DEGREES. A 90 DEGREE CLEAR OPENING MUST BE SEEN FROM TOP TO BOTTOM OF MANHOLE.

MANHOLE STEPS STOP 4'-0" ABOVE TOP OF LANDING PLATFORM.



SECTION "B-B"
METHOD-1
IN BERM

SECTION "C-C"
METHOD-2
IN PAVEMENT

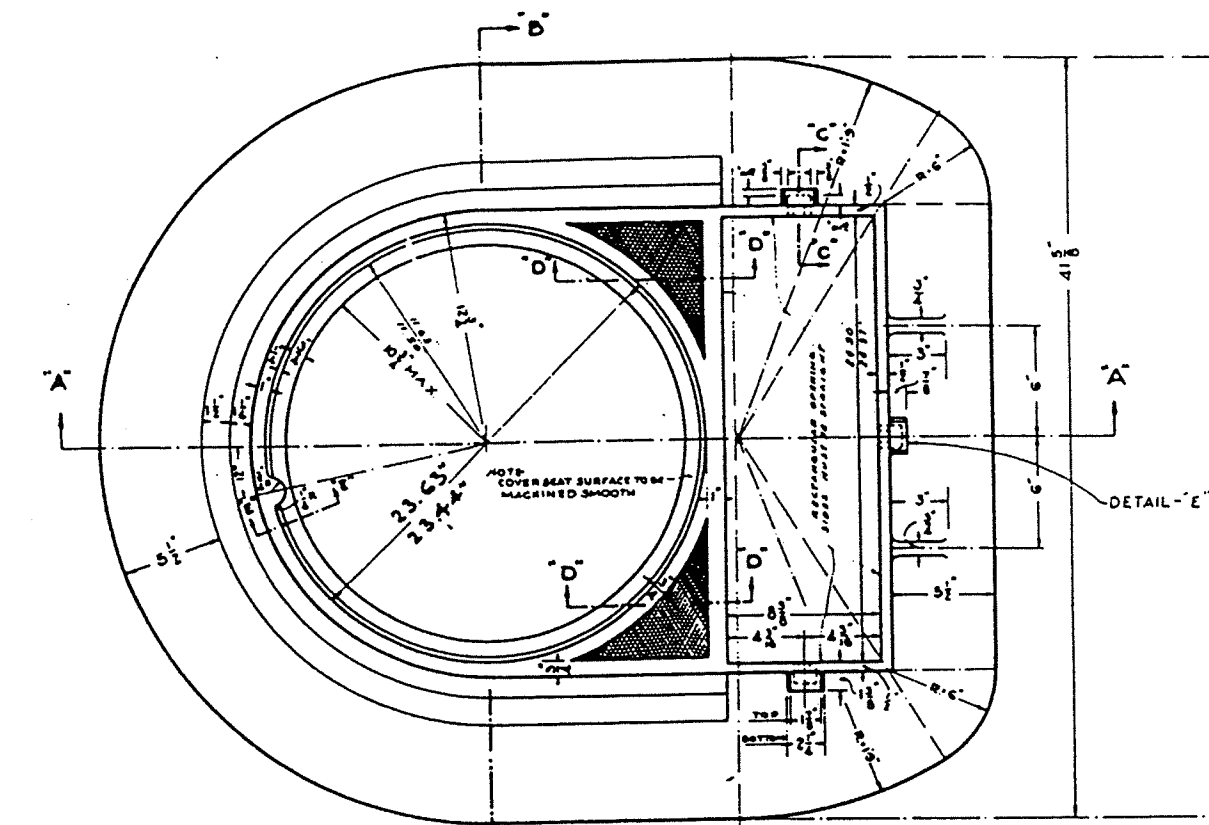
NOTES:

1. THE ENGINEER SHALL INVESTIGATE THE FIELD CONDITIONS GOVERNING THE EXISTING MANHOLE WITH RESPECT TO THE NEW LINE AND ELEVATION OF PAVEMENT AT CURB.
2. FIELD CONDITIONS WILL GOVERN THE AMOUNT OF STRUCTURE TO BE DEMOLISHED AND REBUILT. CORBELLING OF THE BRICK SHALL NOT EXCEED ONE AND ONE-HALF (1-1/2) INCHES FOR EACH COURSE.
3. THE BY-PASSING SIX (6) INCH UNDERDRAINS SHALL BE BUILT IN PLACE AROUND THE REBUILT (CORBELLED) WALL BEFORE THE CONSTRUCTION OF PAVEMENT IS STARTED.
4. ALTHOUGH SHOWN AS EXISTING BRICK, THIS METHOD OF RECONSTRUCTION MAY BE UTILIZED FOR ALL TYPES OF EXISTING MANHOLE WALLS.
5. THIS DRAWING IS USED IN CONJUNCTION WITH O.D.O.T. S.C.D. MH-1.

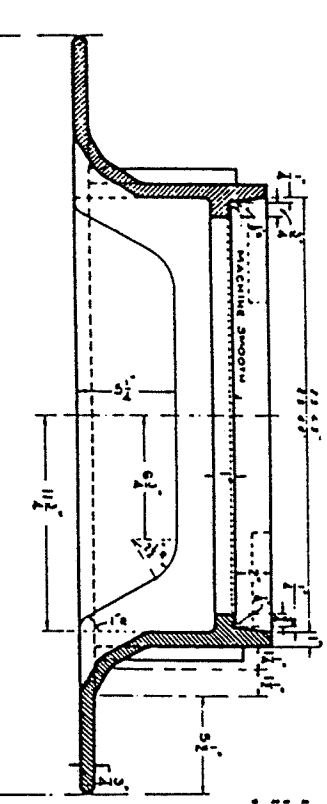
RECONSTRUCTION OF EXISTING MANHOLE WHICH OBSTRUCTS NEW CURB LOCATION

CUYAHOGA COUNTY ENGINEER		DATE
MISCELLANEOUS DETAILS		6-1-81
		2-8-88
		3-9-92
CONSTRUCTION DRAWING	MD-2C	

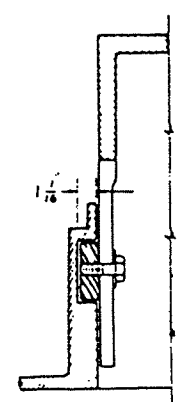
MINIMUM WEIGHT OF FRAME - 445 POUNDS
 MINIMUM WEIGHT OF CURB BOX - 135 POUNDS



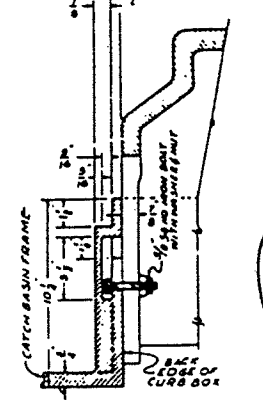
DETAIL PLAN
 STANDARD CATCH BASIN FRAME



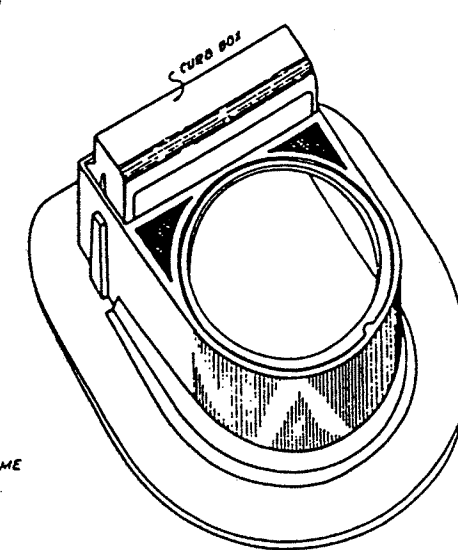
SECTION THRU B-B



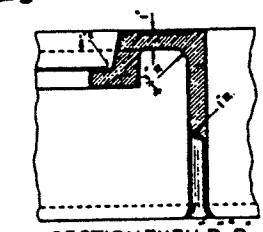
SECTION C-C
 WITH CURB BOX, BOLT
 & BLOCK IN PLACE



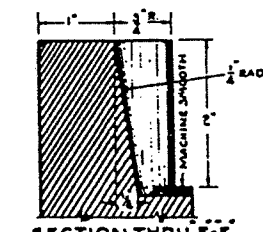
DETAIL-E
 SHOWING CURB BOX &
 BOLT IN T-SLOT IN FRAME



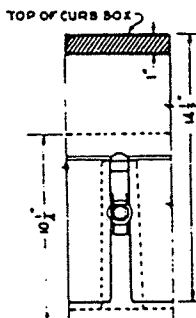
SKETCH OF STD. CATCH BASIN FRAME
 SHOWING CURB BOX IN PLACE



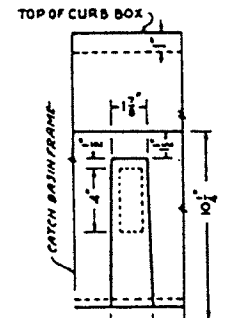
SECTION THRU D-D



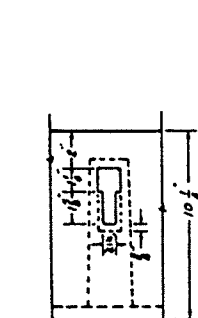
SECTION THRU E-E



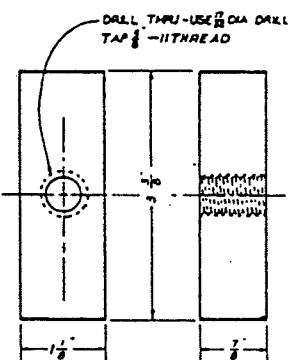
INSIDE VIEW AT C-C
 SHOWING CURB BOX



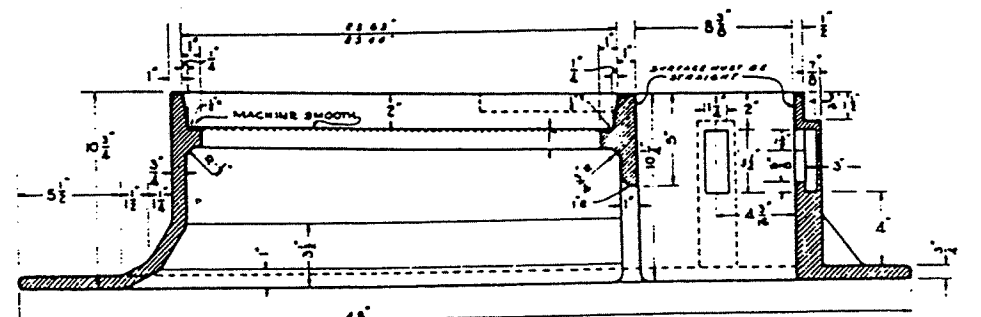
OUTSIDE VIEW AT C-C



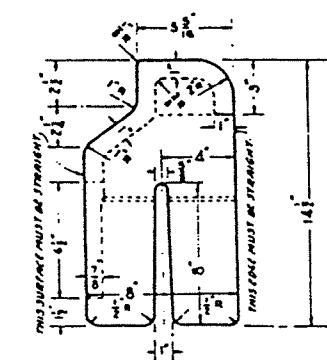
INSIDE VIEW
 AT DETAIL-E
 SHOWING T-SLOT



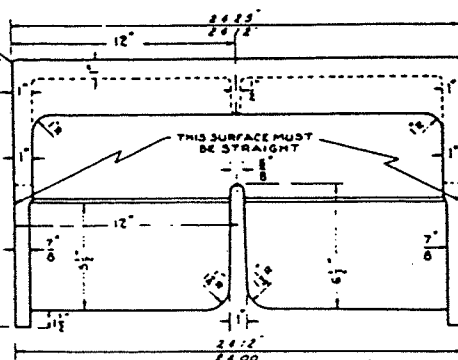
CURB BOX SUPPORT
 MATERIAL STEEL



SECTION THRU A-A



END VIEW
 CURB BOX



FRONT VIEW OF CURB BOX

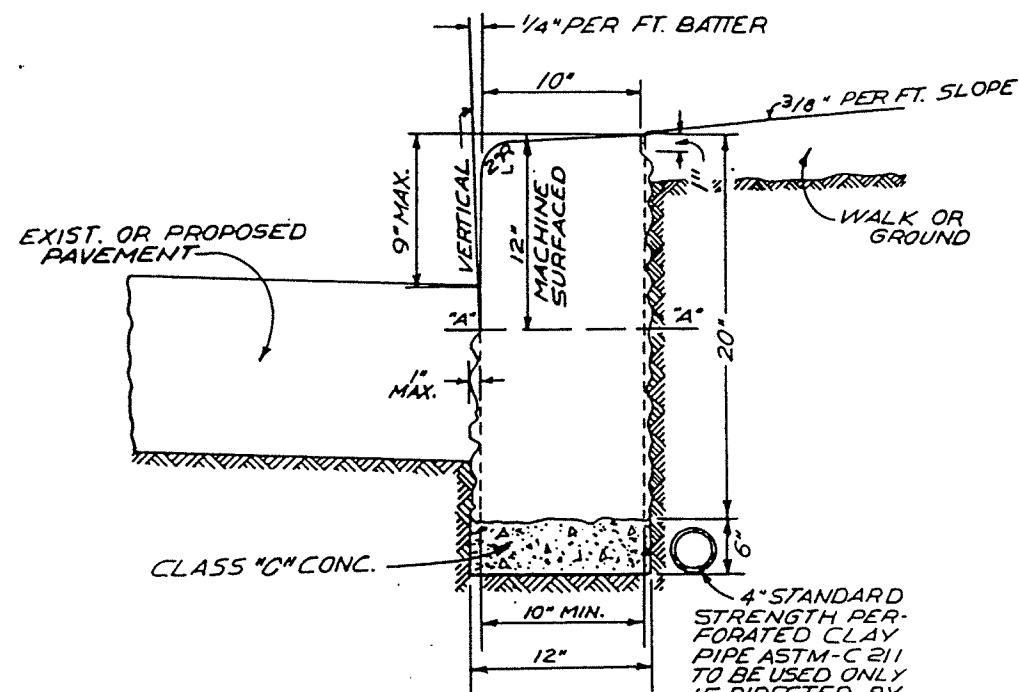
CONTRACTOR TO RAISE CURB PIECE TO MAKE IT LEVEL WITH
 SIDEWALK. IF EXISTING BOLTS CAN NOT BE ADJUSTED REMOVE
 AND REPLACE. SIDEWALK REMOVED TO RAISE THE CURB
 PIECE IS TO BE REPLACED. PAYMENT FOR THE ITEM OF
 WORK SHALL BE BY ITEM SPECIAL - CATCH BASIN CURB
 PIECE RAISED.

EXCEPT WHERE LIMITS ARE NOTED - A CASTING VARIATION
 OF 1/16" PER FOOT PERMITTED

CITY OF CLEVELAND
 ENGINEERING DIVISION
 RALPH C. TYLER - DIRECTOR OF PUBLIC SERVICE
 PLAN OF STANDARD
 CATCH BASIN FRAME &
 CAST IRON CURB BOX

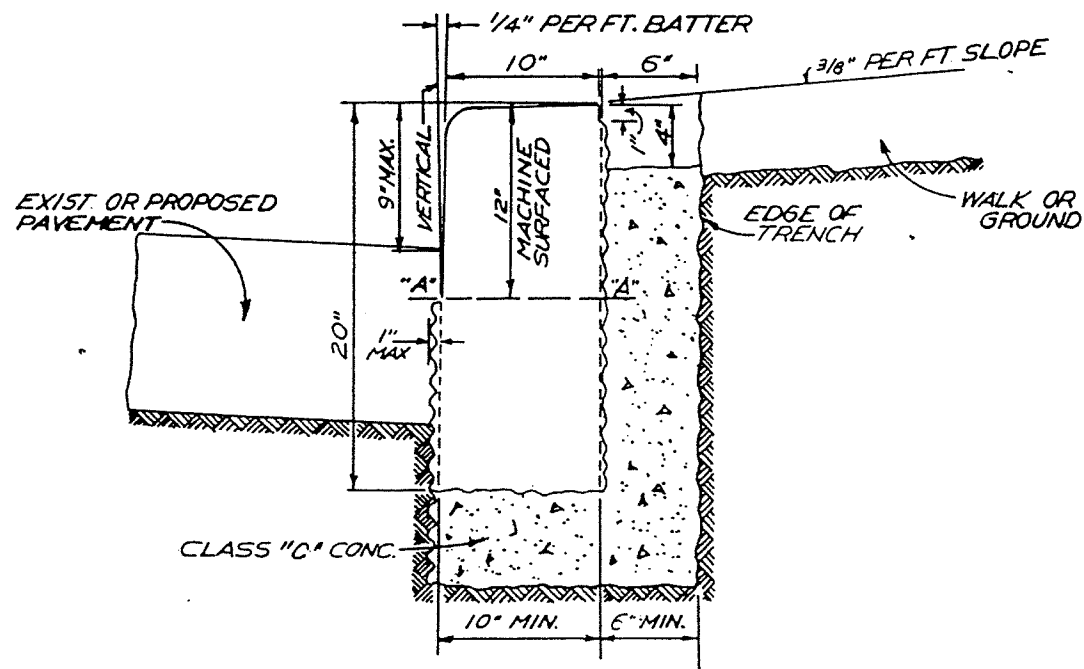
No Scale
 DRAWN BY: BARHOFF DATE
 SUBMITTED BY: J. L. Storer DATE 9-1-66
 OF DESIGN
 APPROVED: [Signature] DATE 9-29-66
 ASST. CHIEF OF ENG.
 APPROVED: [Signature] DATE 9-29-66
 CHIEF OF ENG.

FILE NO A-694

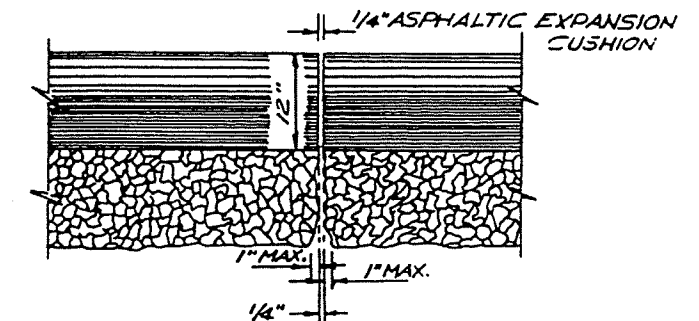


CURB TO BE USED ON STRAIGHT SECTION

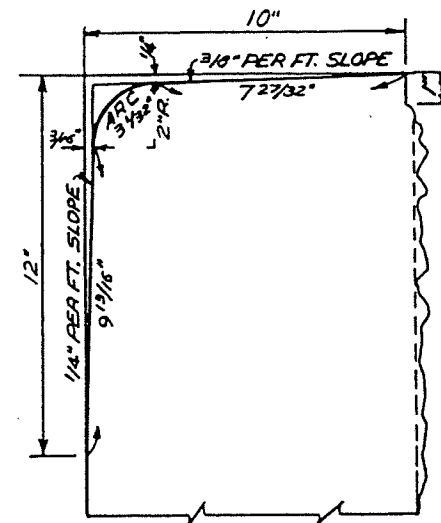
TOP FACE AND ENDS OF CURB ABOVE LINE "A" - "A" ARE TO BE MACHINED. ALSO BACK OF CURB 1" FROM TOP AS SHOWN.



CURB TO BE USED ON CURVED SECTION



ELEVATION SHOWING CURB JOINT



DETAIL OF CURB CUTTING

NOTES

CURB SHALL BE SET IN AND BACKED WITH A MINIMUM OF CLASS "C" CONCRETE AS SHOWN. THE ENTIRE CURB TRENCH IS TO BE COMPLETELY FILLED WITH CONCRETE UP TO THE LEVEL SHOWN ON THE SECTION. SEE STANDARD SPECIFICATIONS.

CURB TO BE LIGHT GREY GRANITE TO MATCH EXISTING CURBING. LENGTH TO BE 4'-6" WITH CLOSURE STONE NOT LESS THAN 3' LONG.

NOTE:

1. THE CONTRACTOR SHALL SEAL EVERY JOINT BETWEEN GRANITE CURB PIECES WITH SIKAFLEX -1A, TREMCO-DYMONIC OR AN APPROVED EQUAL.
2. TAR PAPER SHALL NOT BE USED IN PLACE OF THE 1/4" ASPHALTIC EXPANSION CUSHION.
3. THE CONTRACTOR SHALL ADHERE, FOR THE SETTING OF NEW OR RESETTING EXISTING GRANITE CURBING, TO D.D.T. ITEM 609 AS CLOSELY AS POSSIBLE OR AS DIRECTED BY THE ENGINEER.

CITY OF CLEVELAND
ENGINEERING DIVISION
RALPH C. TYLER - DIRECTOR OF PUBLIC SERVICE

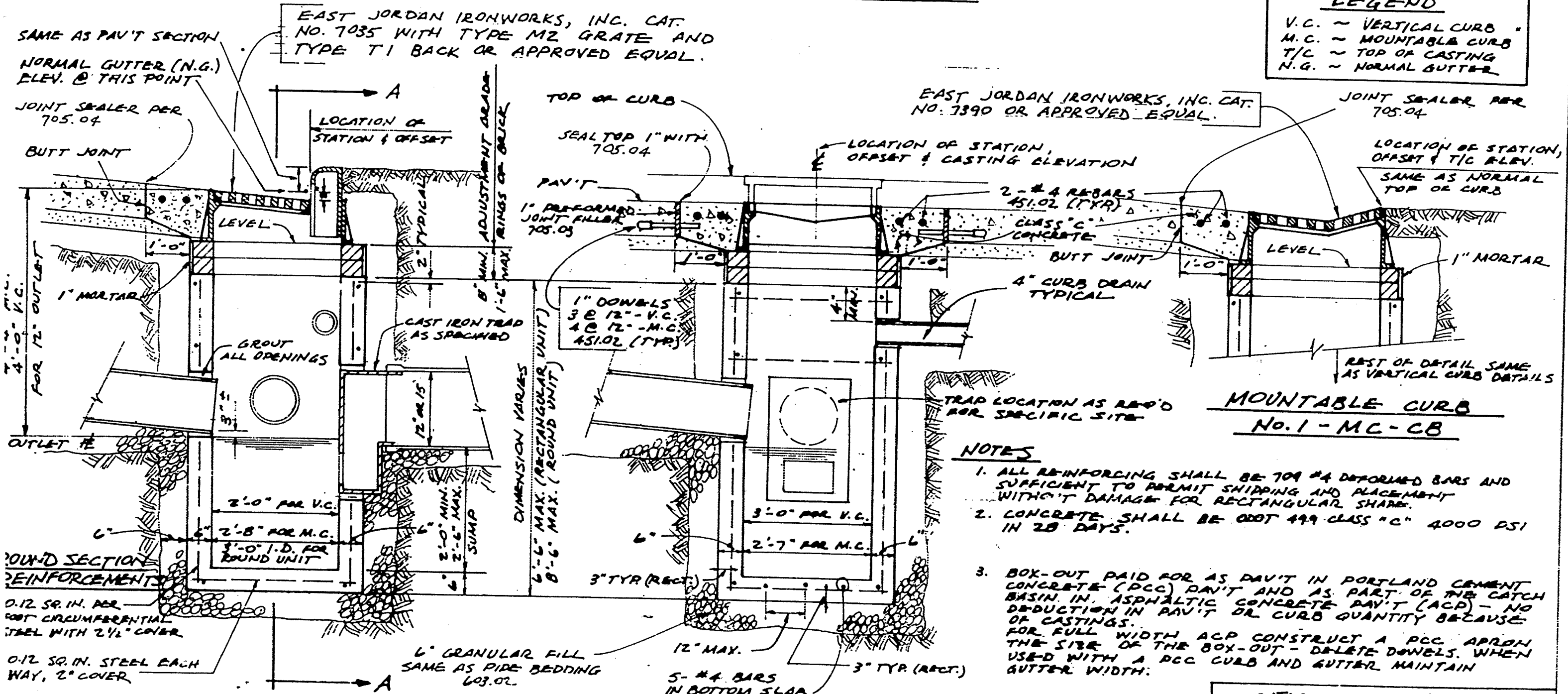
STANDARD DETAILS
GRANITE
CURBING
NO SCALE

DRAWN BY: *Salabrese* DATE: 11/8/66
SUBMITTED BY: *G. L. Stamer* DATE: 11/8/66
APPROVED: *[Signature]* DATE: 11-18-66
APPROVED: *[Signature]* DATE: 11-21-66

REV. 5/9/67 REV. 11/8/66 FILE NO. 274 M
REV. 4/14/92

No. 1 CATCH BASIN

LEGEND
 V.C. ~ VERTICAL CURB
 M.C. ~ MOUNTABLE CURB
 T/C ~ TOP OF CASTING
 N.G. ~ NORMAL GUTTER



VERTICAL CURB
No. 1 - VC - CB

SECTION "A-A"

MOUNTABLE CURB
No. 1 - MC - CB

NOTES

1. ALL REINFORCING SHALL BE 709 #4 DEFORMED BARS AND SUFFICIENT TO PERMIT SHIPPING AND PLACEMENT WITHOUT DAMAGE FOR RECTANGULAR SHAPE.
2. CONCRETE SHALL BE 4000 PSI CLASS "C" 4000 PSI IN 28 DAYS.
3. BOX-OUT PAID FOR AS PAV'T IN PORTLAND CEMENT CONCRETE (PCC) PAV'T AND AS PART OF THE CATCH BASIN IN ASPHALTIC CONCRETE PAV'T (ACP) - NO DEDUCTION IN PAV'T OR CURB QUANTITY BECAUSE OF CASTINGS. FOR FULL WIDTH ACP CONSTRUCT A PCC APRON THE SIZE OF THE BOX-OUT - DELETE DONNELLS WHEN USED WITH A PCC CURB AND GUTTER MAINTAIN GUTTER WIDTH.

ALTERNATE BASIN SHAPE

A ROUND PRECAST CONCRETE UNIT MAY BE USED IN LIEU OF RECTANGULAR UNIT. THE ROUND SECTION SHALL BE A 36" I.D. UNIT WITH INTEGRAL BASE AND PRECAST TOP TRANSITION (ROUND TO RECTANGULAR) SECTION TO FIT CASTING BEING USED. TRANSITION UNIT REQUIRES A #5 REBAR AT CORNERS OF RECTANGULAR SHAPED SECTION AND 3 X 8 W 6 X 8 W 5 WELDED WIRE FABR. IN VERTICAL SECTION.

ALTERNATE

IF APPROVED BY THE ENGINEER 8" THICK MASONRY WALLS MAY BE USED IN LIEU OF PRE-CAST UNITS.

TRAP

EAST JORDAN IRONWORKS, INC. CAT. NO. 5964-12 OR 15, NEENAH FOUNDRY CO. CAT. NO. R-3707-12 OR 15 OR APPROVED EQUAL.

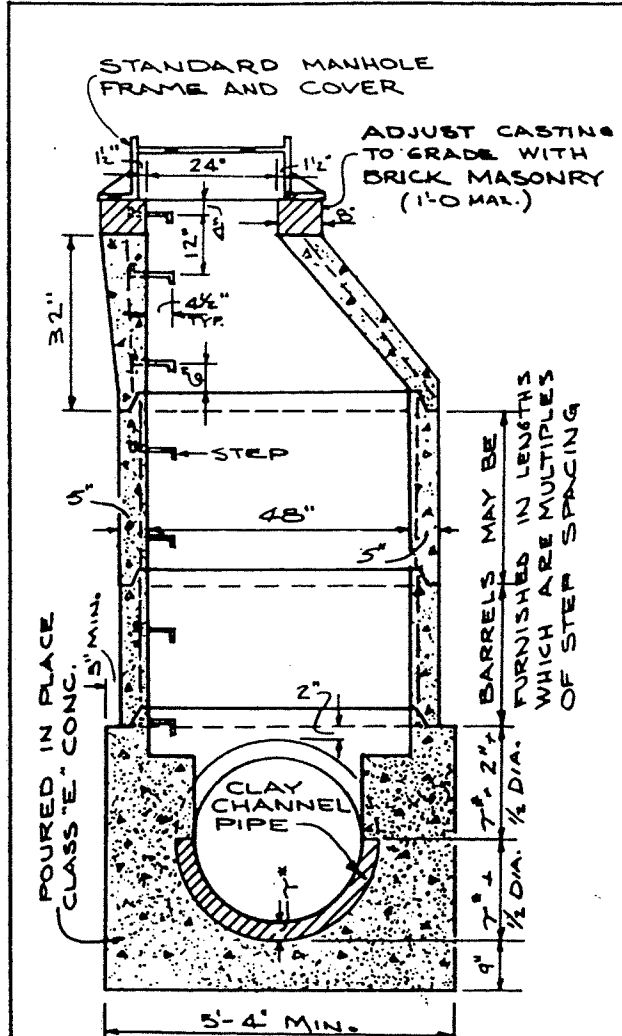
CITY OF CLEVELAND
 ENGINEERING DIVISION
 JOSEPH L. STAMPS - DIRECTOR OF PUBLIC SERVICE

RECTANGULAR PRECAST CONCRETE No. 1 CATCH BASIN
 NO SCALE

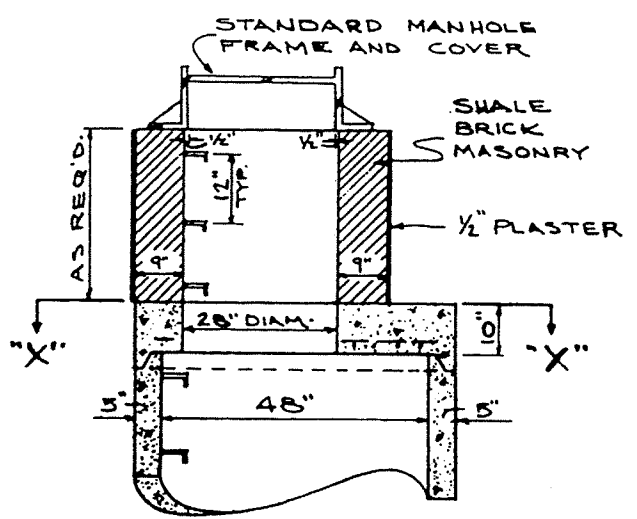
DRAWN BY: DATE:
 SUBMITTED BY: DATE:
 APPROVED: DATE:
 COMM. OF ENGR.

REVISIONS	DATE

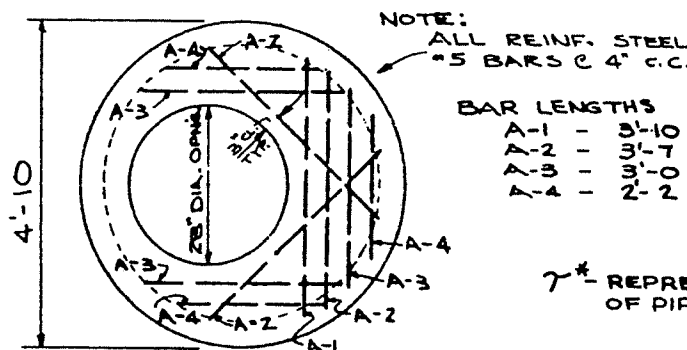
CONSTR. DRWG. CB-1



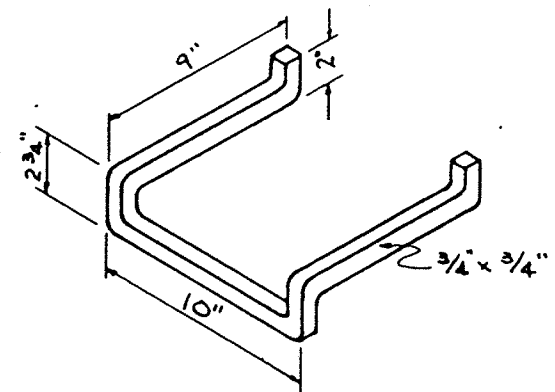
SEWERS 42" AND UNDER



ALTERNATE DOME

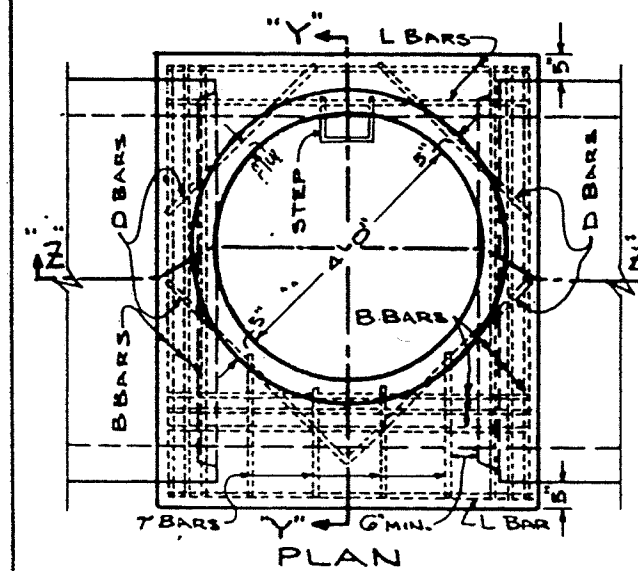


SECTION "X" - "X"

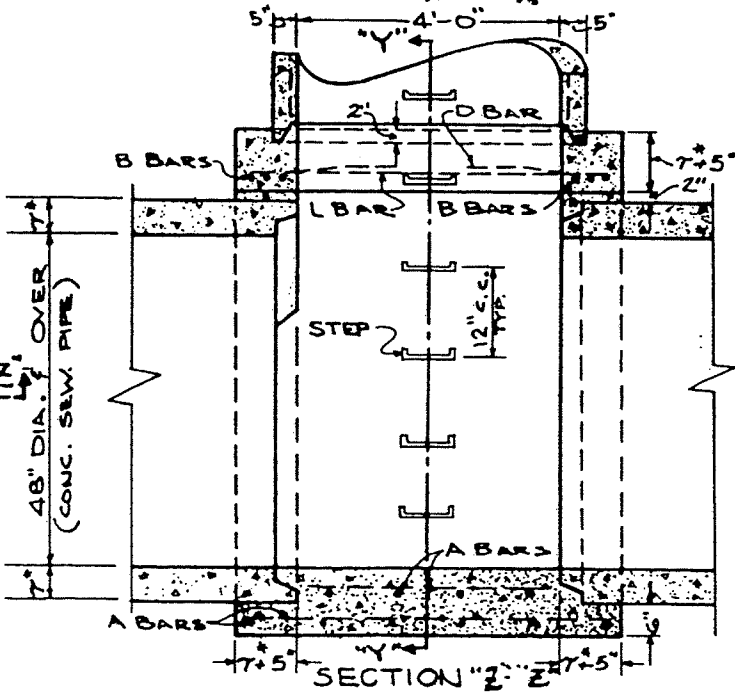


STEP DETAIL

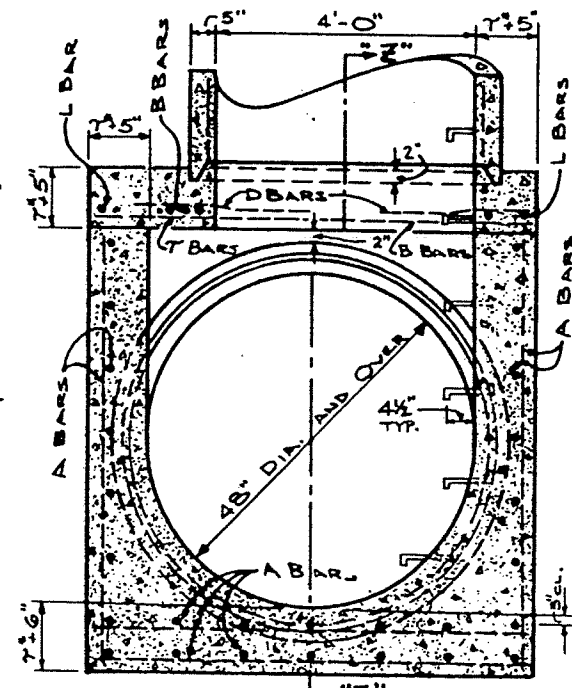
NOTE:
 STEPS SHALL BE CAST IRON
 AS PER ASTM A 48 CLASS
 30 GRAY IRON OR ALUMINUM
 AS PER ASTM B 221,6061-T6



CONNECTION BOX FOR PRECAST MANHOLES ON SEWERS 48" AND OVER



SECTION "Z" - "Z"



SECTION "Y" - "Y"

NOTES

NO HOLES FOR 12" INLET OR CATCH BASIN CONNECTIONS SHALL BE CUT IN 1 OR 2 FOOT SECTIONS OF MANHOLE BARREL. NOT MORE THAN 2 INLET CONNECTIONS SPACED 2 FEET APART HORIZONTALLY PERMITTED IN 3 OR 4 FOOT MANHOLE SECTIONS.

ALL JOINTS AND PIPE OPENINGS IN THE MANHOLE SHALL BE THOROUGHLY CALKED WITH 1:3 CEMENT MORTAR HAVING A 1/2" MINIMUM THICKNESS.

PRECAST REINFORCED CONCRETE MANHOLE SECTIONS SHALL COMPLY WITH THE REQUIREMENTS OF ASTM DESIGNATION C 478 - 70. MINIMUM WALL THICKNESS SHALL BE 5 INCHES.

CONNECTION BOXES FOR SEWERS 48" AND OVER IN DIAMETER SHALL BE REINFORCED AS SHOWN AND AS SPECIFIED BELOW:

A BARS SHALL BE SPACED AT 12" CENTERS IN BOTH DIRECTIONS.

B BARS SHALL BE SPACED AT 3" CENTERS IN BOTH DIRECTIONS

A, B AND L BAR SIZES:

5/8" DIAM. FOR 48" TO 60" SEWERS.

3/4" DIAM. FOR 66" TO 78" SEWERS.

7/8" DIAM. FOR 84" TO 96" SEWERS.

T BARS SHALL BE 5/8" DIAM. SPACED AT 12" CENTERS.

D BARS SHALL BE 5/8" DIAM.

REINFORCING STEEL SHALL HAVE 2" CLEARANCE EXCEPT WHERE OTHERWISE SPECIFIED.

STANDARD MANHOLE FRAME AS PER A-503 (SHEET G-1) AND COVER AS PER A-605 (SHEET G-2) OR A-695 (SHEET G-3)

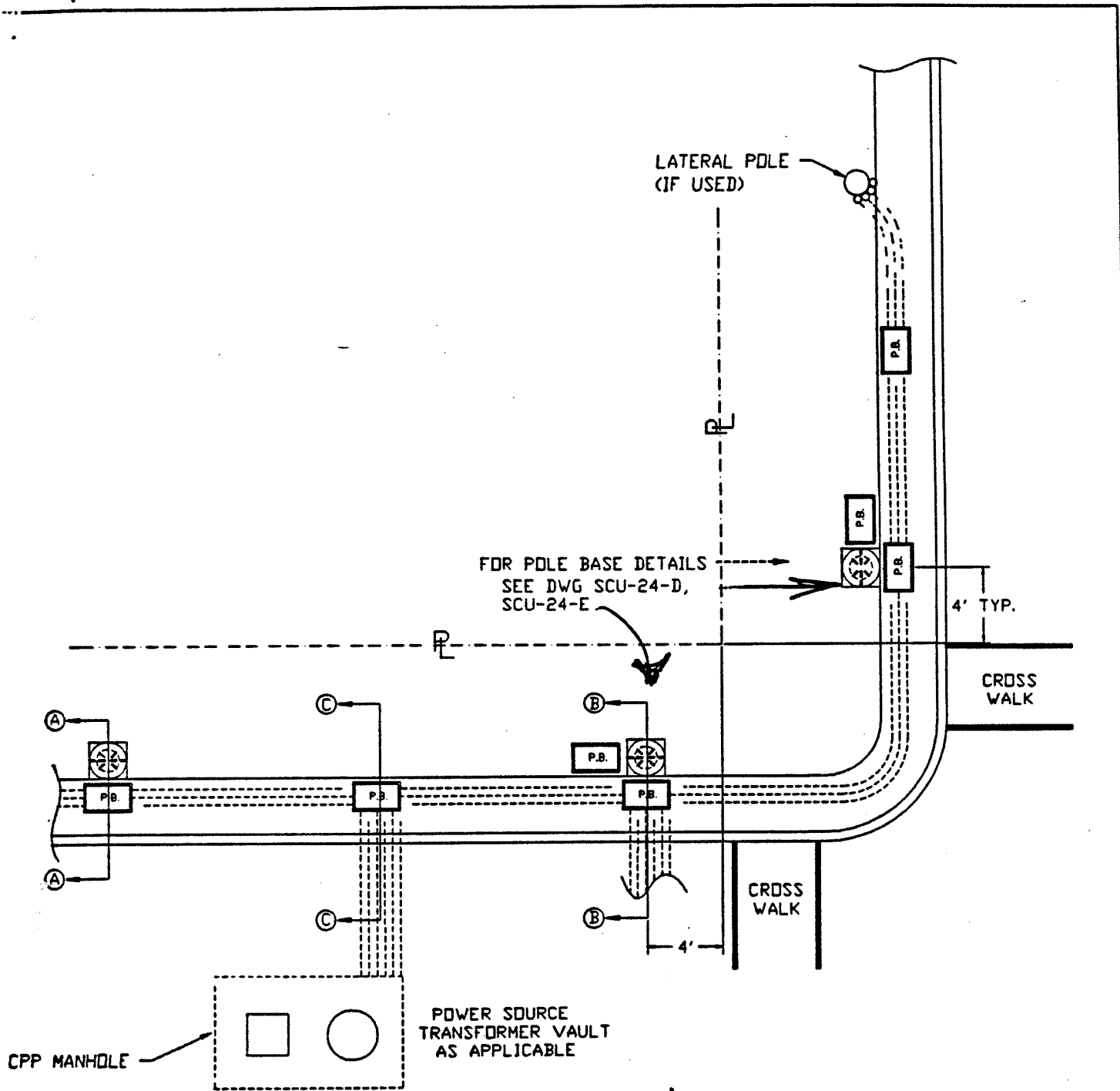
CITY OF CLEVELAND
 ENGINEERING DIVISION
 RALPH C. TYLER DIRECTOR OF PUBLIC SERVICE

**DETAIL PLAN OF
 PRECAST CONCRETE
 MANHOLE**

NO SCALE

DRAWN BY: BARRISH DATE 9/8/66
 SUBMITTED BY: J. L. Stanger DATE 2/8/66
 APPROVED: [Signature] DATE 11-11-66
 APPROVED: [Signature] DATE 11-11-66

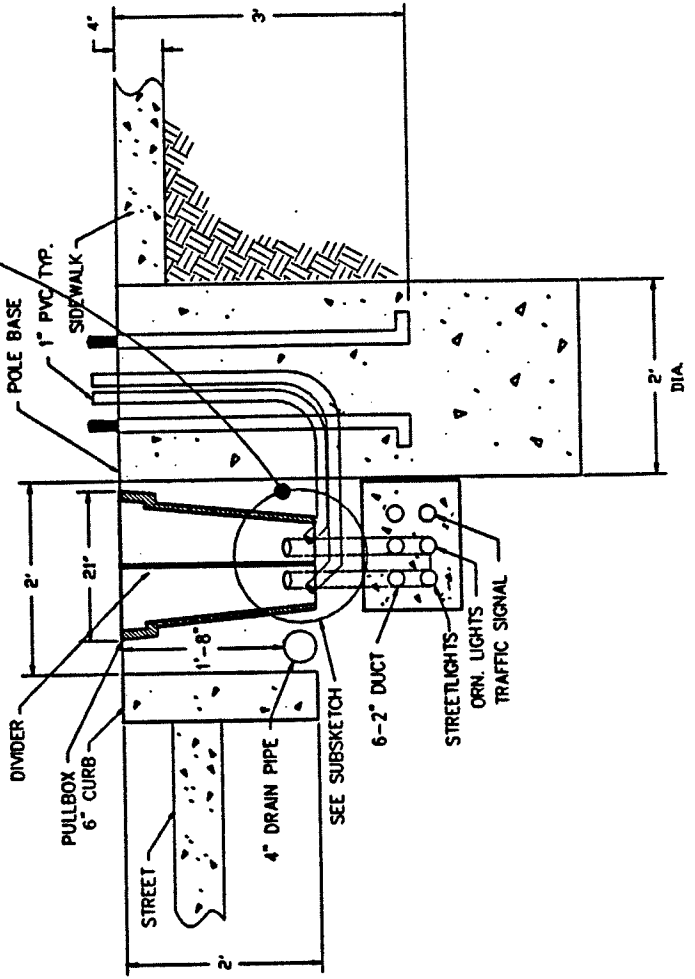
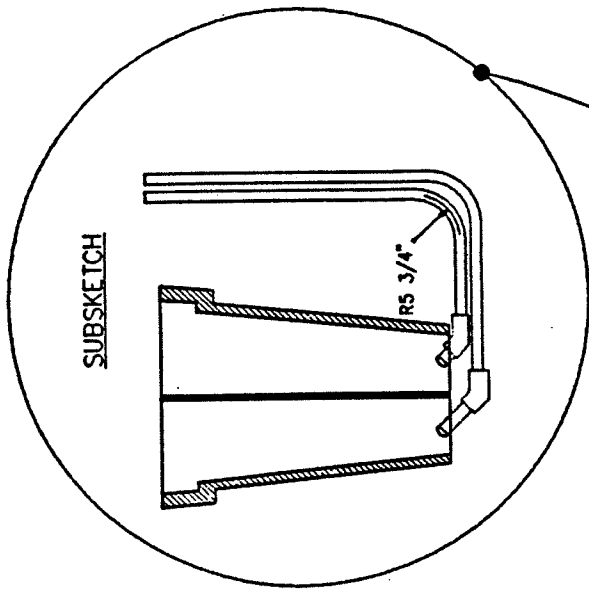
REV. 5/10/67 FILE NO. D-60



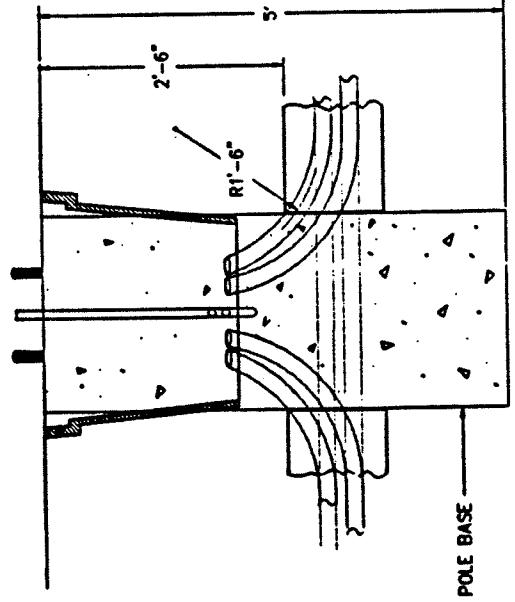
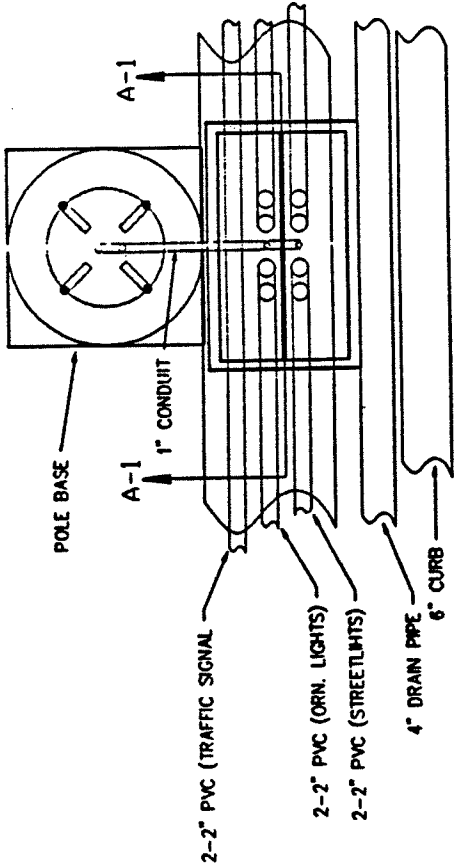
- A-A ON SCU-24-A - MID BLOCK STREETLIGHT POLE.
- B-B ON SCU-24-B - CORNER LIGHTING POLE BASE AND PULLBOX DETAILS
- C-C ON SCU-24-C - POWER PULLBOX
- D-D ON SCU-24-D - POLE FOUNDATION
- E-E ON SCU-24-E - POLE FOUNDATION

SHEET 1 OF 6

CLEVELAND PUBLIC POWER ENGINEERING DEPARTMENT		
PULLBOX DETAILS PLAN VIEW		
DRAWN BY: WALLINIS	SCALE 1/8"=1'	DRAWING NUMBER SCU-24
DATE	DATE	DATE




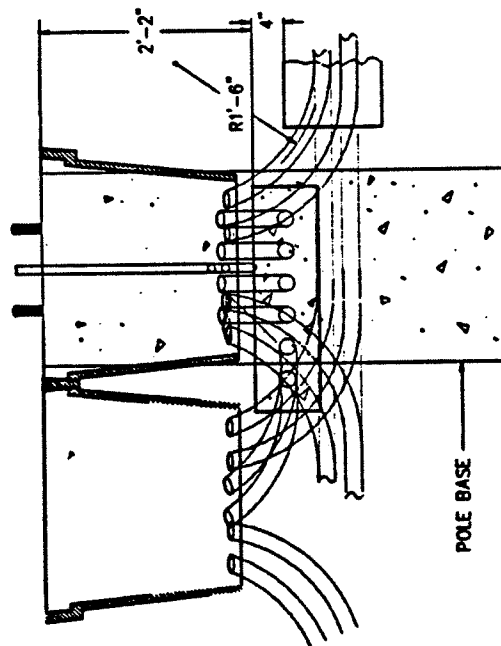
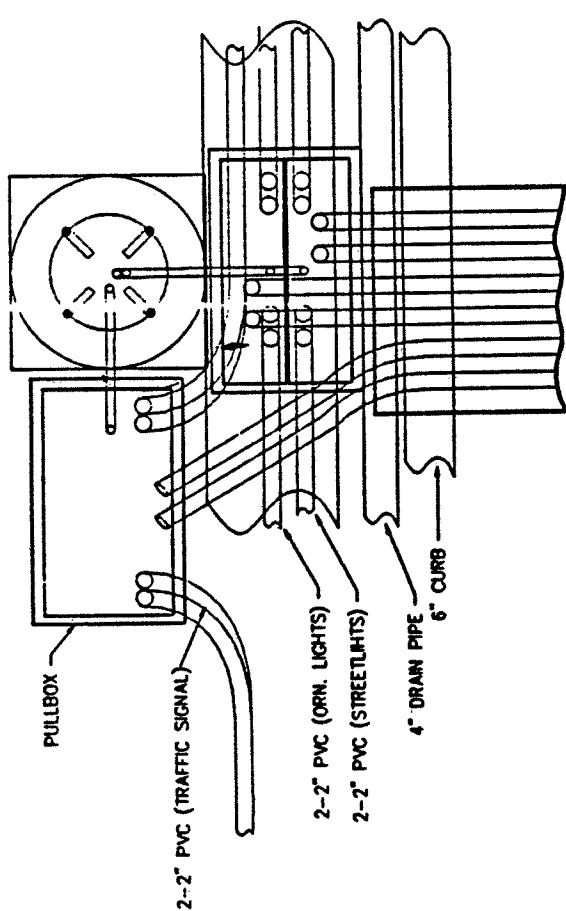
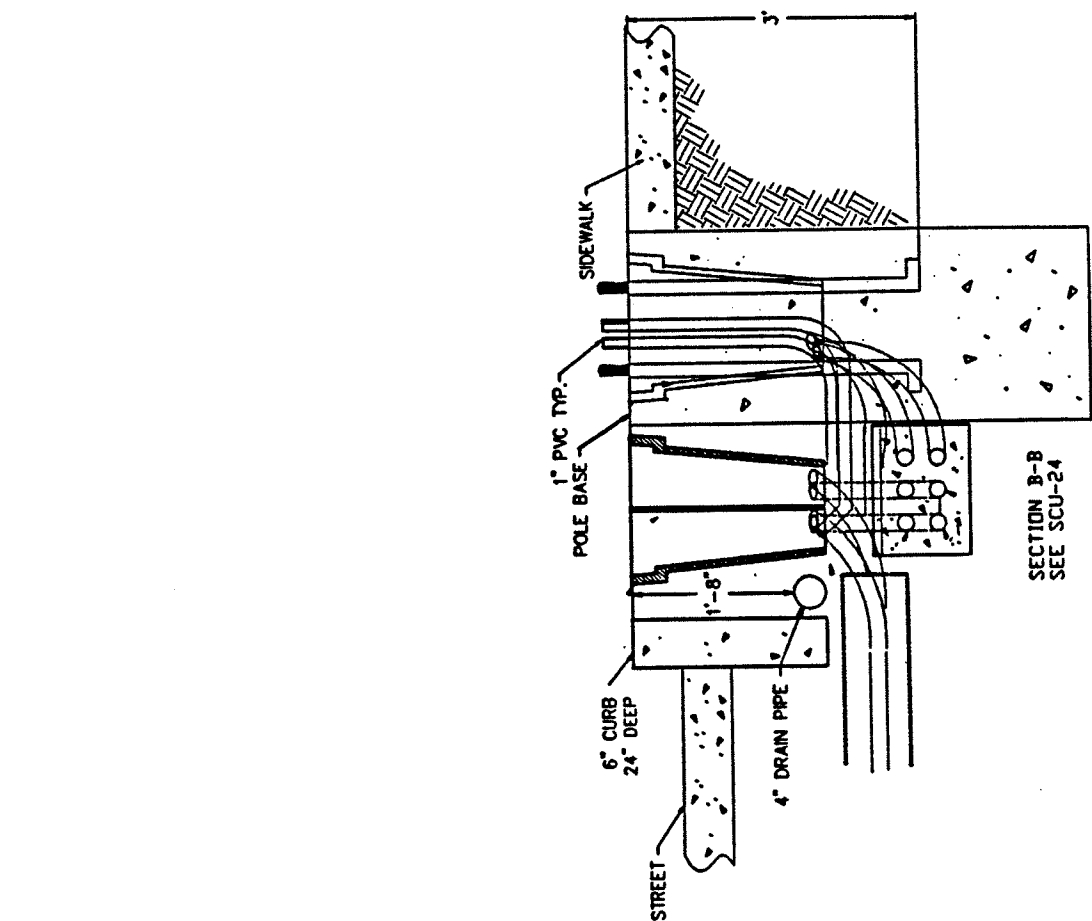
SECTION A-A
FROM SCU-24



SECTION A-1

SHEET 2 OF 6

 CLEVELAND PUBLIC POWER ENGINEERING DEPARTMENT		
LIGHTING POLE BASE, PULL BOX DETAIL		
DRAWN BY: WALUNIS	SCALE 1/2"=1'	DRAWING NUMBER
CH'K'D BY:	DATE 7-23-91	SCU-24-A

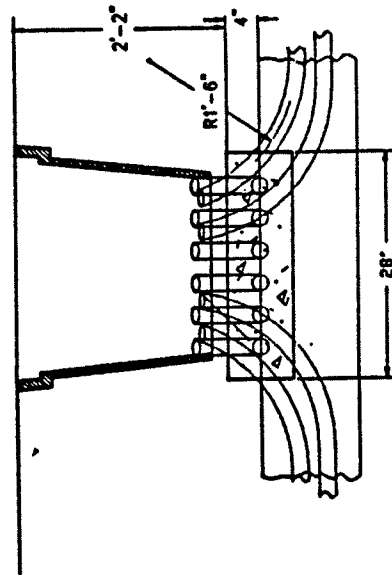
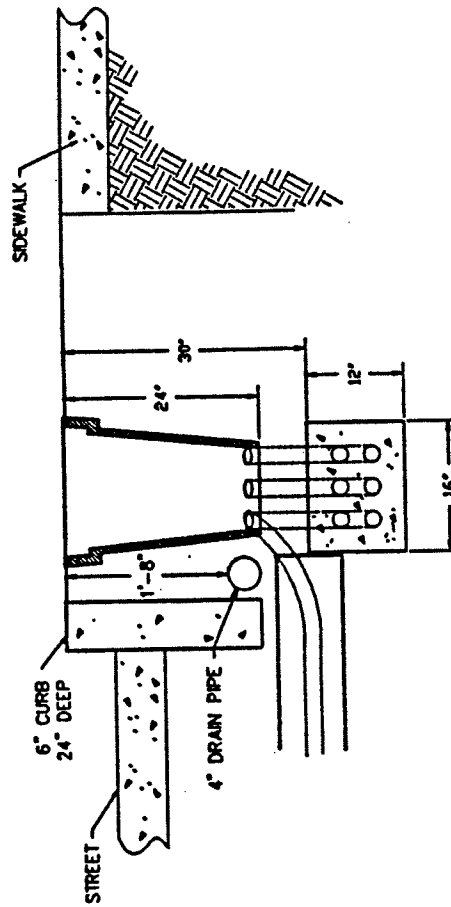
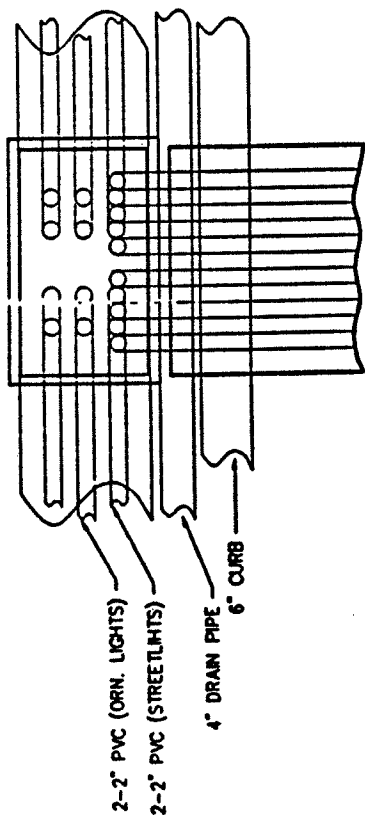


SHEET 3 OF 6

**CLEVELAND PUBLIC POWER
ENGINEERING DEPARTMENT**

CORNER POLE BASE DETAILS

DRAWN BY.....WALUNIS.....	SCALE 1/2"=1'	DRAWING NUMBER
CHK'D BY.....	DATE 7-11-91	SCU-24-B



SECTION C-C
 FROM SCU-24

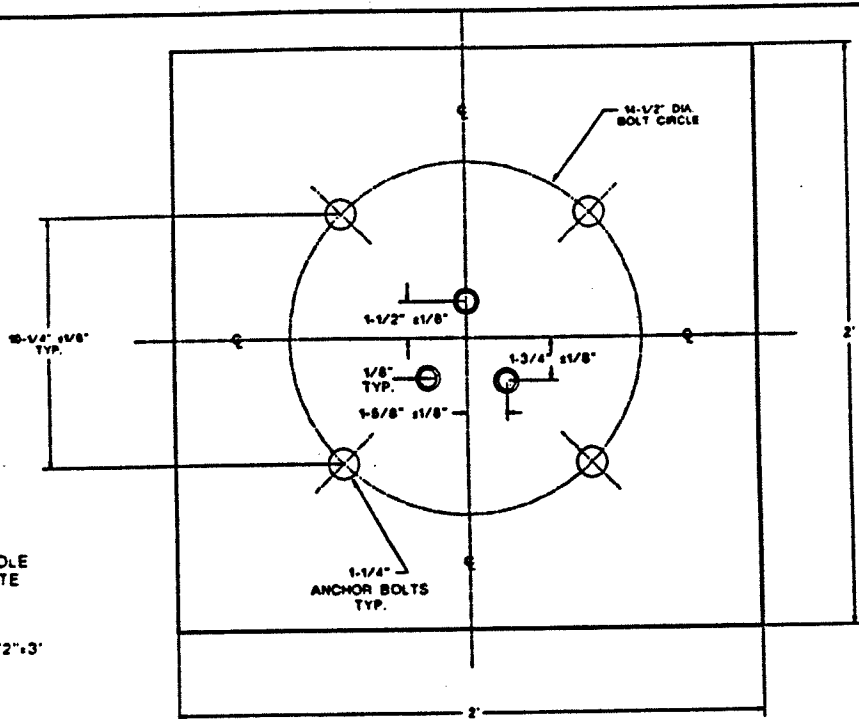
SHEET 4 OF 6



CLEVELAND PUBLIC POWER
 ENGINEERING DEPARTMENT

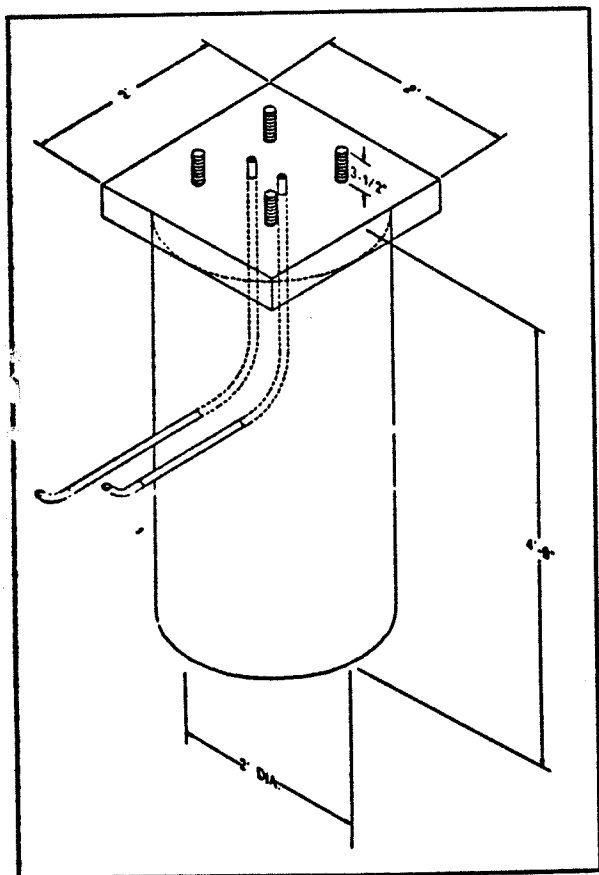
POWER PULLBOX

DRAWN BY..... WALUNIS.....	SCALE 1/2"=1'	DRAWING NUMBER SCU-24-C
CHK'D BY.....	DATE 7-24-91	

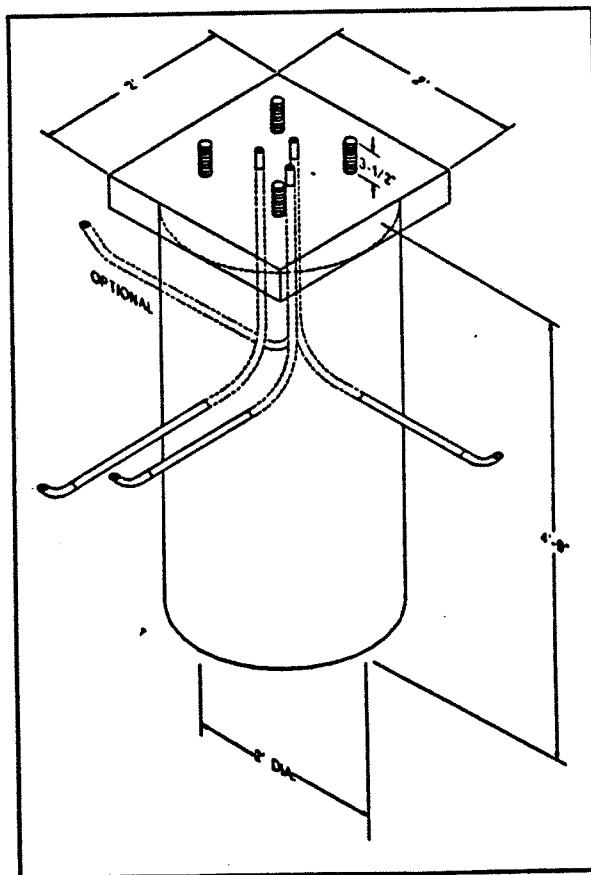


BOLT HOLE
TEMPLATE

SCALE: 1/2"=3'



MID-BLOCK



CORNER

SCALE: 1/2"=1'-0"

**CLEVELAND PUBLIC POWER
ENGINEERING DEPARTMENT**

STREETLIGHTING POLE FOUNDATION DETAILS

DRAWN BY: M. AUGUST	SCALE SHOWN: 1/2"=1'-0"	DRAWING NUMBER: SCU-24-D
DATE: 5-22-00		

DRAWING NAME:
CREATED BY:
LAST REV. DATE:

Sasaki Associates, Inc.

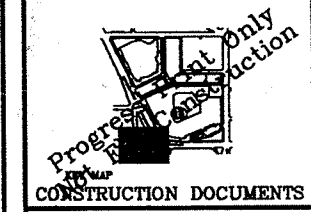
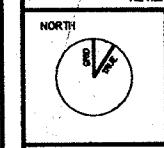
Planning / Architecture / Landscape Architecture
Urban Design / Transportation Planning / Civil Engineering
Mechanical Services / Interior Design / Graphic Design
64 Pleasant Street, Waltham, Massachusetts 02157
617/252-8800 Fax: 617/251-0711 Inc. 617/256-3748



GATEWAY

CLEVELAND, OHIO

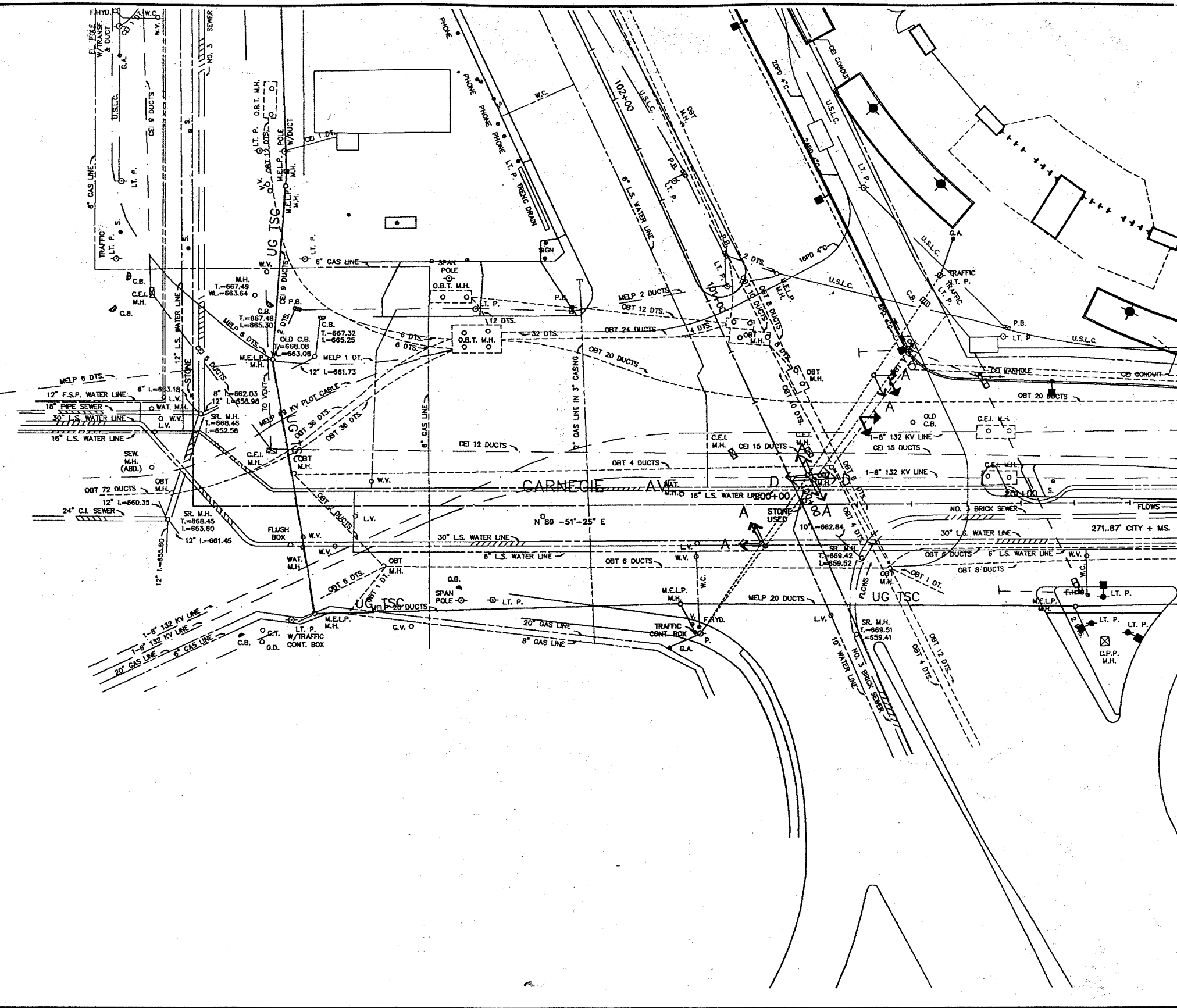
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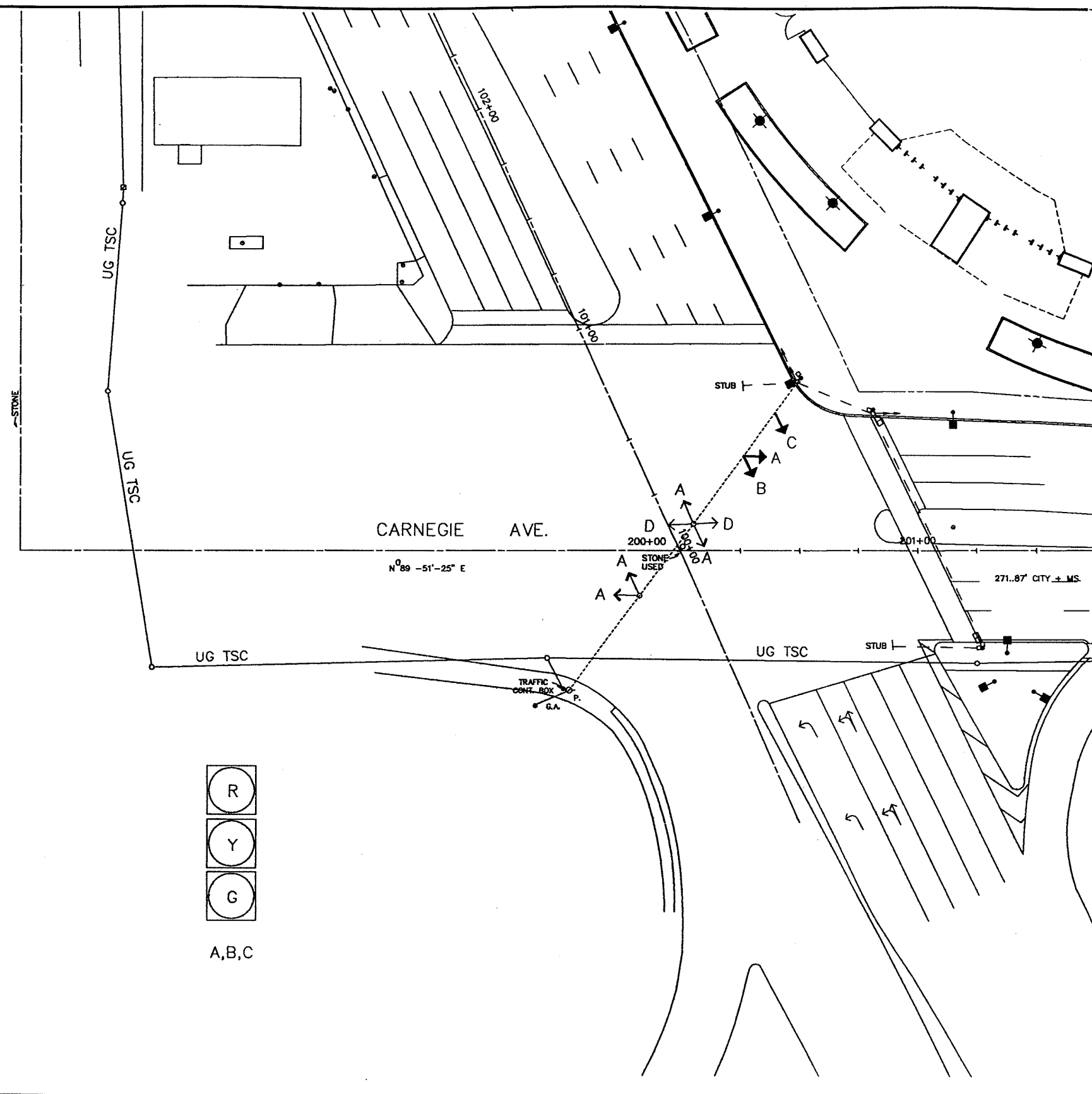


TITLE:
**Carnegie/Ontario
Carnegie/Commercial
Interim Construction**

Scale 1"=20' Date Aug. 14, 1992
Drawn By: IS
Checked By:
Approved By:
Project No. 11004.00

DWG No. **C6-21**





Sasaki Associates, Inc.

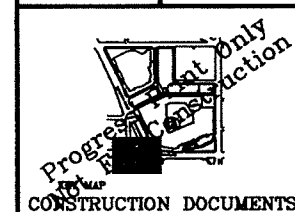
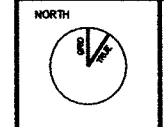
Planning / Architecture / Landscape Architecture
 Urban Design / Transportation Planning / Civil Engineering
 Environmental Services / Interior Design / Graphic Design
 44 Phoenix Street, Woburn, Massachusetts 02457
 617/265-2800 Fax: 617/265-2740



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CLEVELAND, OHIO

No.	Description	Date
REVISIONS		

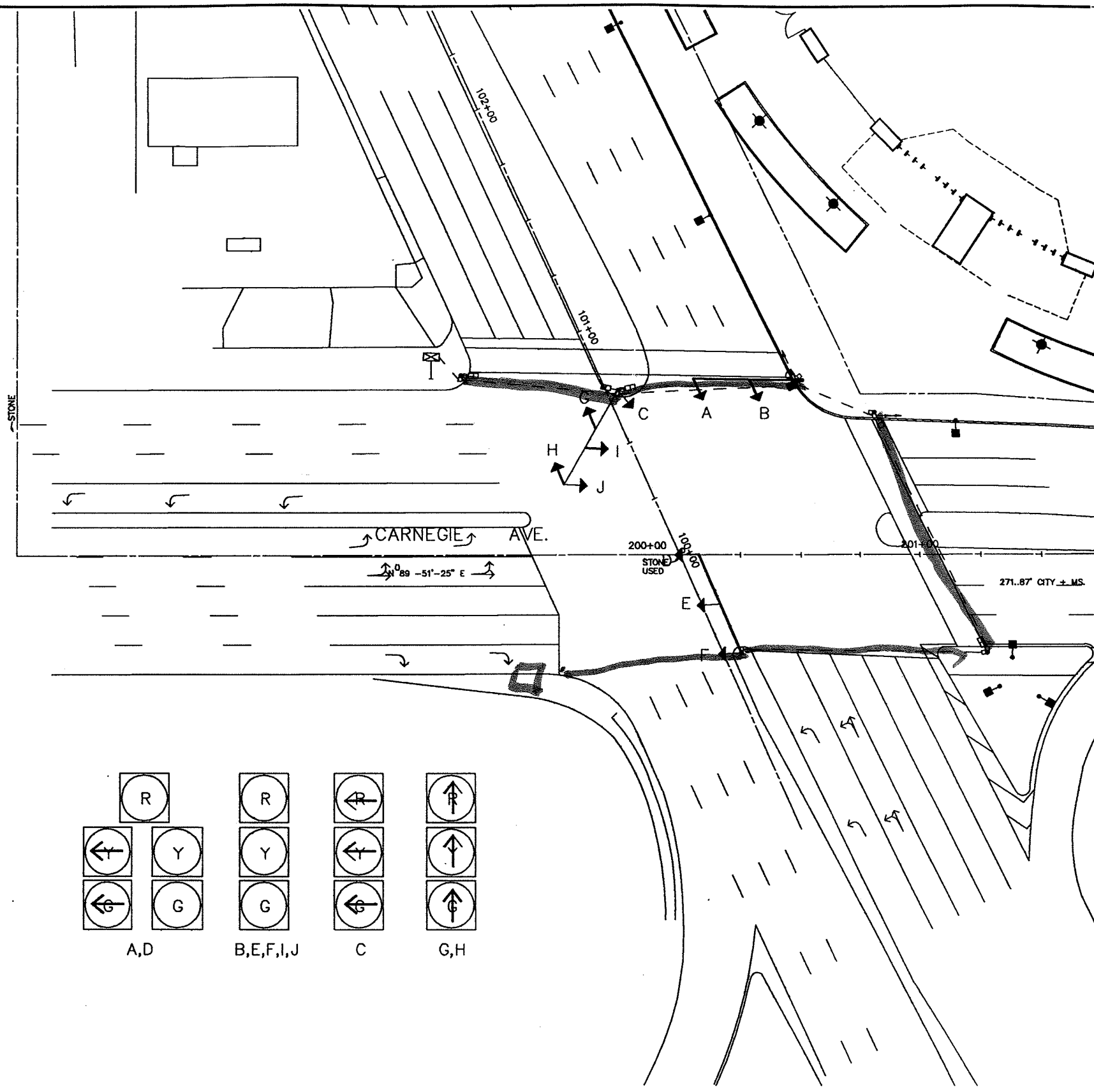


TITLE:
 Carnegie/Ontario
 Carnegie/Commercial
 Interum Signals

Scale 1"=20' Date Aug. 14, 1992
 Drawn By IS
 Checked By
 Approved By
 Project No. 11004.00

DWG No. C6-31

DRAWING NAME:
 CREATED BY:
 LAST REV. DATE:



Sasaki Associates, Inc.

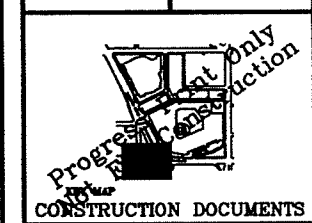
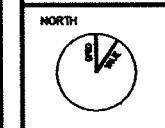
Planning / Architecture / Landscape Architecture
 Urban Design / Transportation Planning / Civil Engineering
 Environmental Services / Water Design / Graphic Design
 64 Plenum Road, Waltham, Massachusetts 02157
 617/890-3000 Telex 982971 Fax 617/890-3048



GATEWAY

CLEVELAND, OHIO

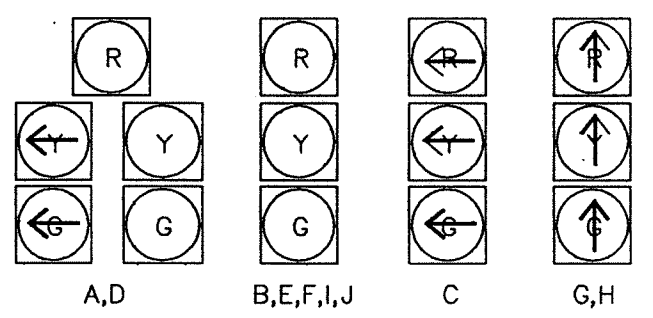
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REVISIONS		



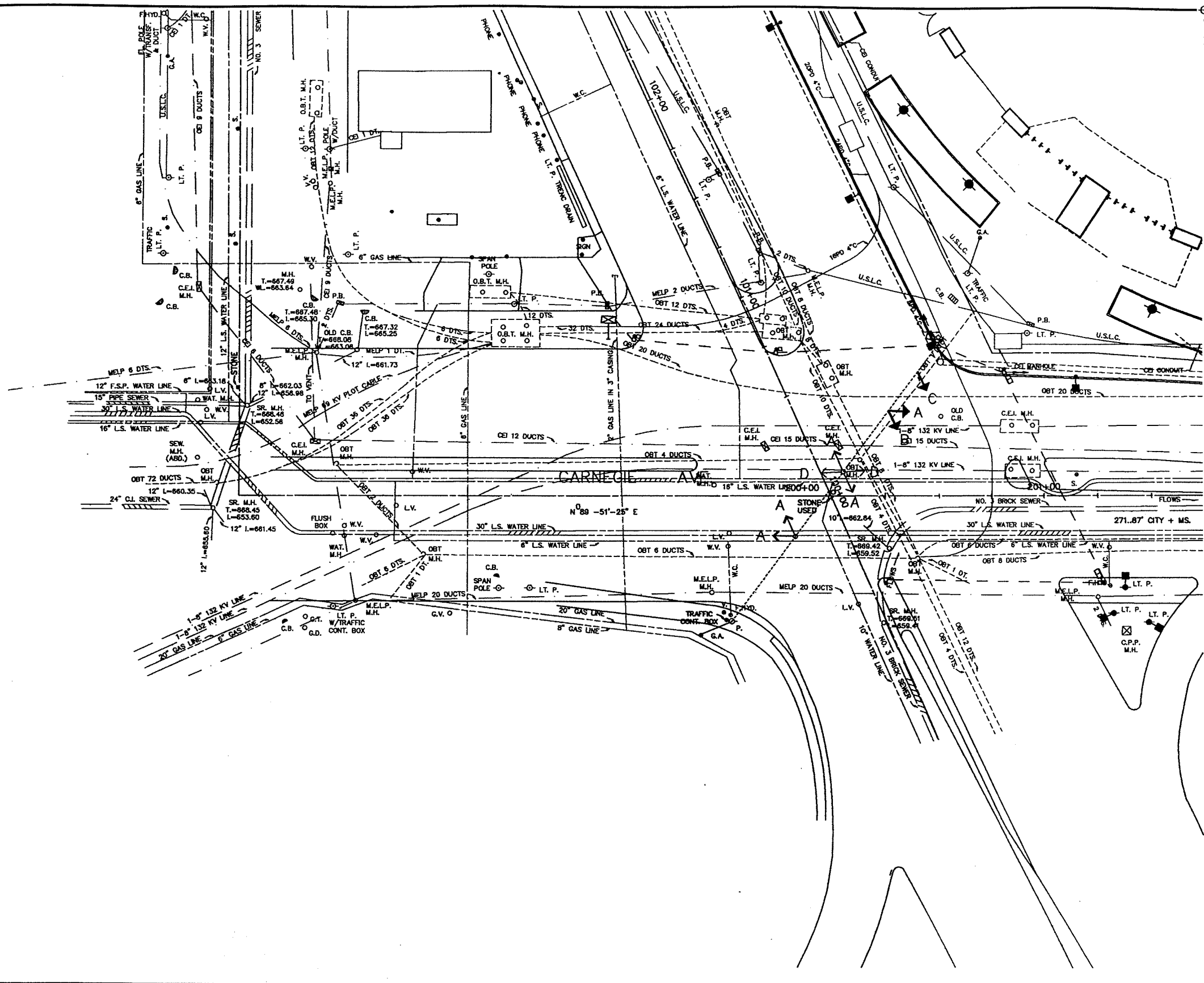
TITLE
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 Carnegie/Commercial
 Final Construction

Scale 1"=20' Date Aug. 14, 1992
 Drawn By IS
 Checked By
 Approved By
 Project No. 11004.00

DWG No. C6-41



LAST REV. DATE



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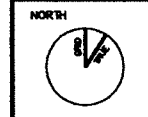
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 Environmental Services / Structural Design / Graphic Design
 64 Forest Street, Waltham, Massachusetts 02451
 617/251-2800 Fax: 617/251-2801



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CLEVELAND, OHIO

No.	Description	Date
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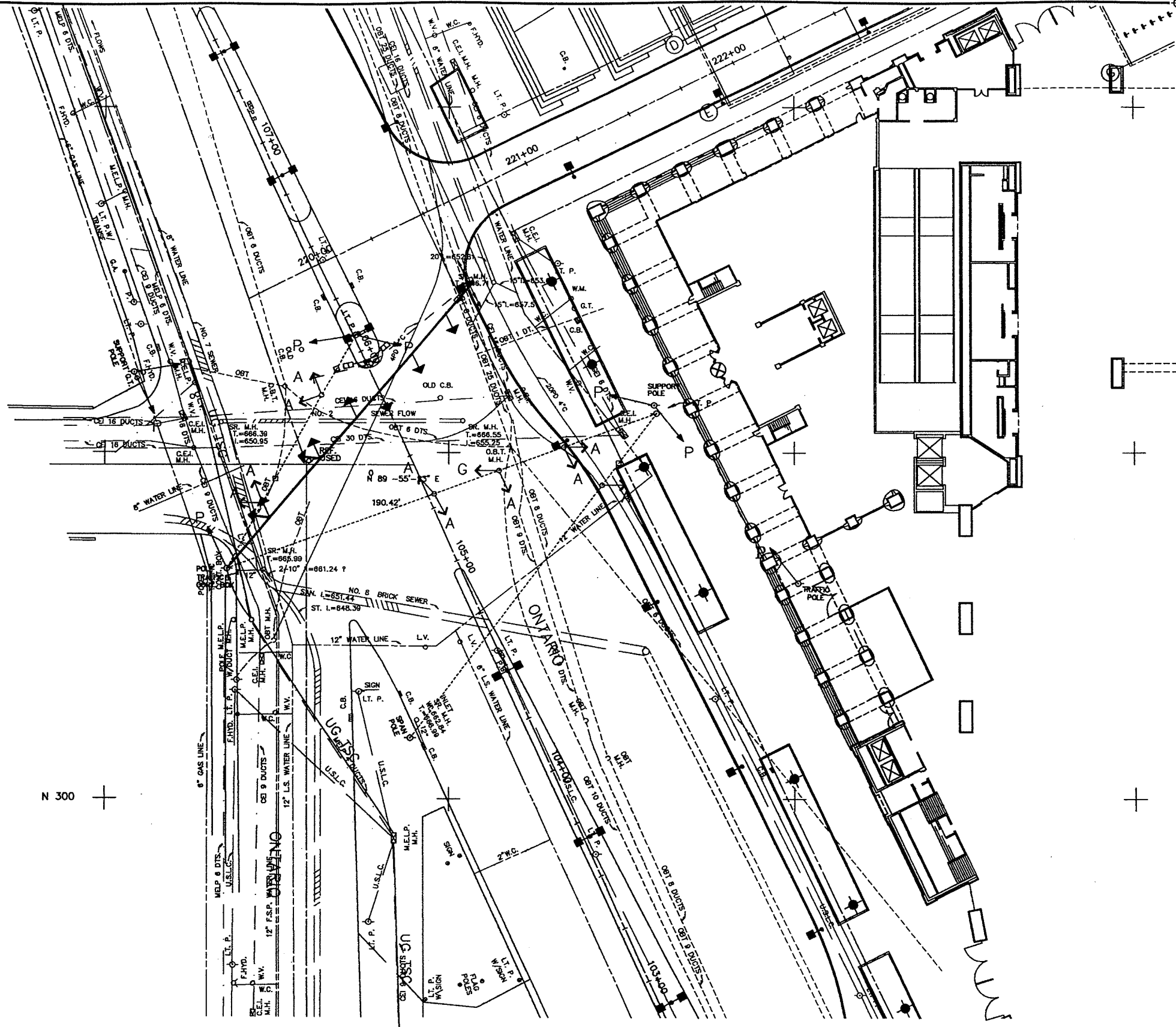


Progress not for construction
CONSTRUCTION DOCUMENTS

TITLE:
**Carnegie/Ontario
 Carnegie/Commercial
 Final Signals**

Scale 1"=20' Date Aug. 14, 1992
 Drawn By IS
 Checked By
 Approved By
 Project No. 11004.00

DWG No. **C6-51**



N 300

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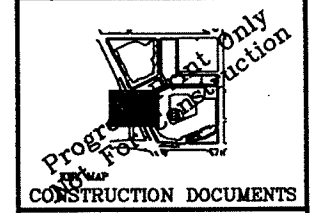
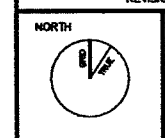
Planning / Architecture / Landscape Architecture
 Urban Design / Transportation Planning / Civil Engineering
 Environmental Services / Interior Design / Graphic Design
 64 Pleasant Street, Westport, Massachusetts 02157
 617/865-2000 Fax 617/865-2740



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CLEVELAND, OHIO

No.	Description	Date
REVISIONS		



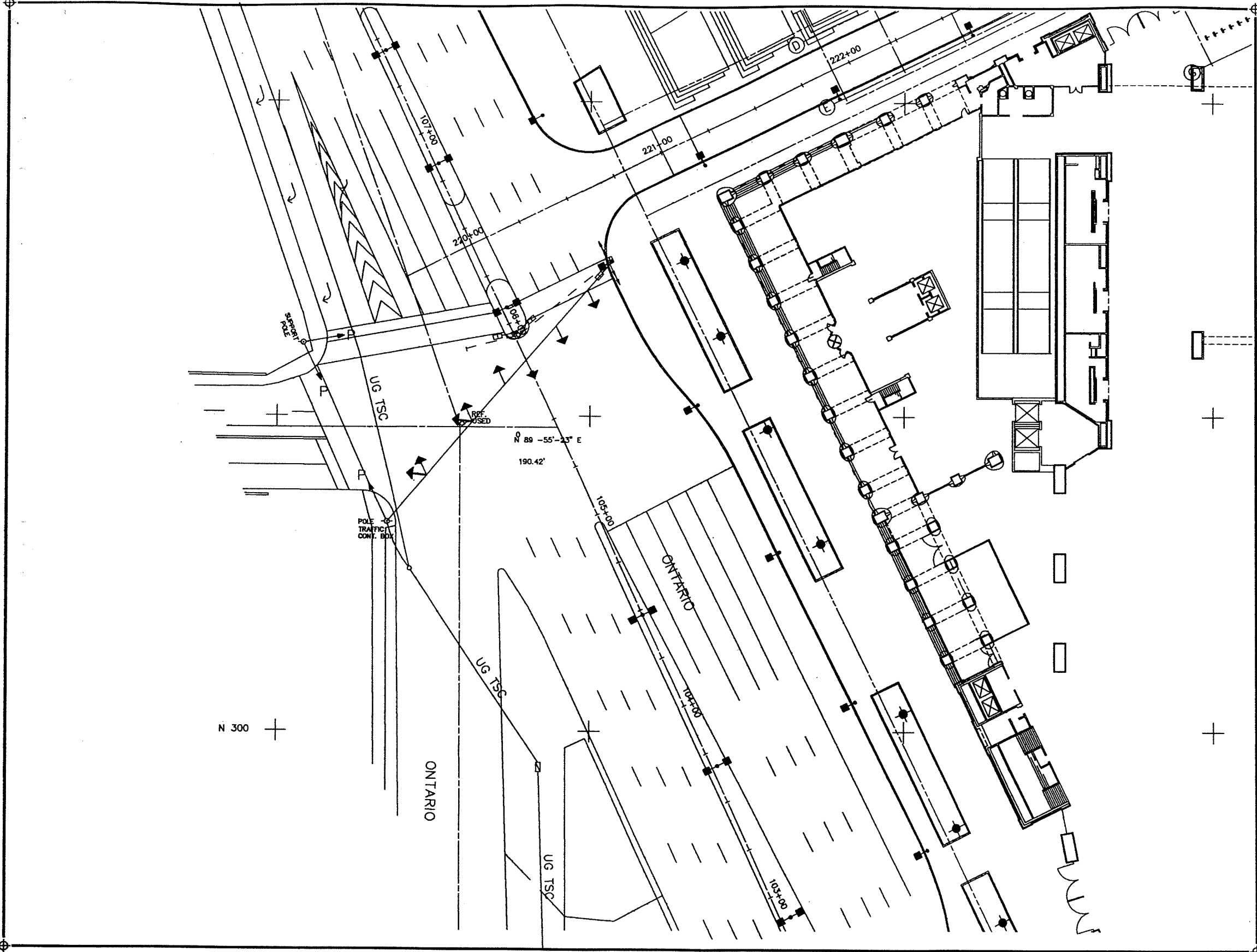
TITLE:

Ontario/Eagle

Interim Construction

Scale 1"=20' Date
 Drawn By
 Checked By
 Approved By
 Project No. 11004.00

DWG No. C6-22



Sasaki Associates, Inc.

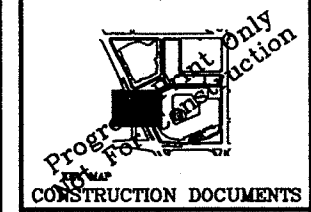
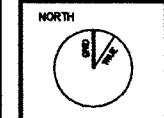
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 Urban Design / Transportation Planning / Civil Engineering
 Environmental Services / Interior Design / Graphic Design
 64 Pleasant Street, Westport, Massachusetts 02157
 617/765-8888 Fax: 617/764-2746



GATEWAY

CLEVELAND, OHIO

No.	Description	Date
REVISIONS		



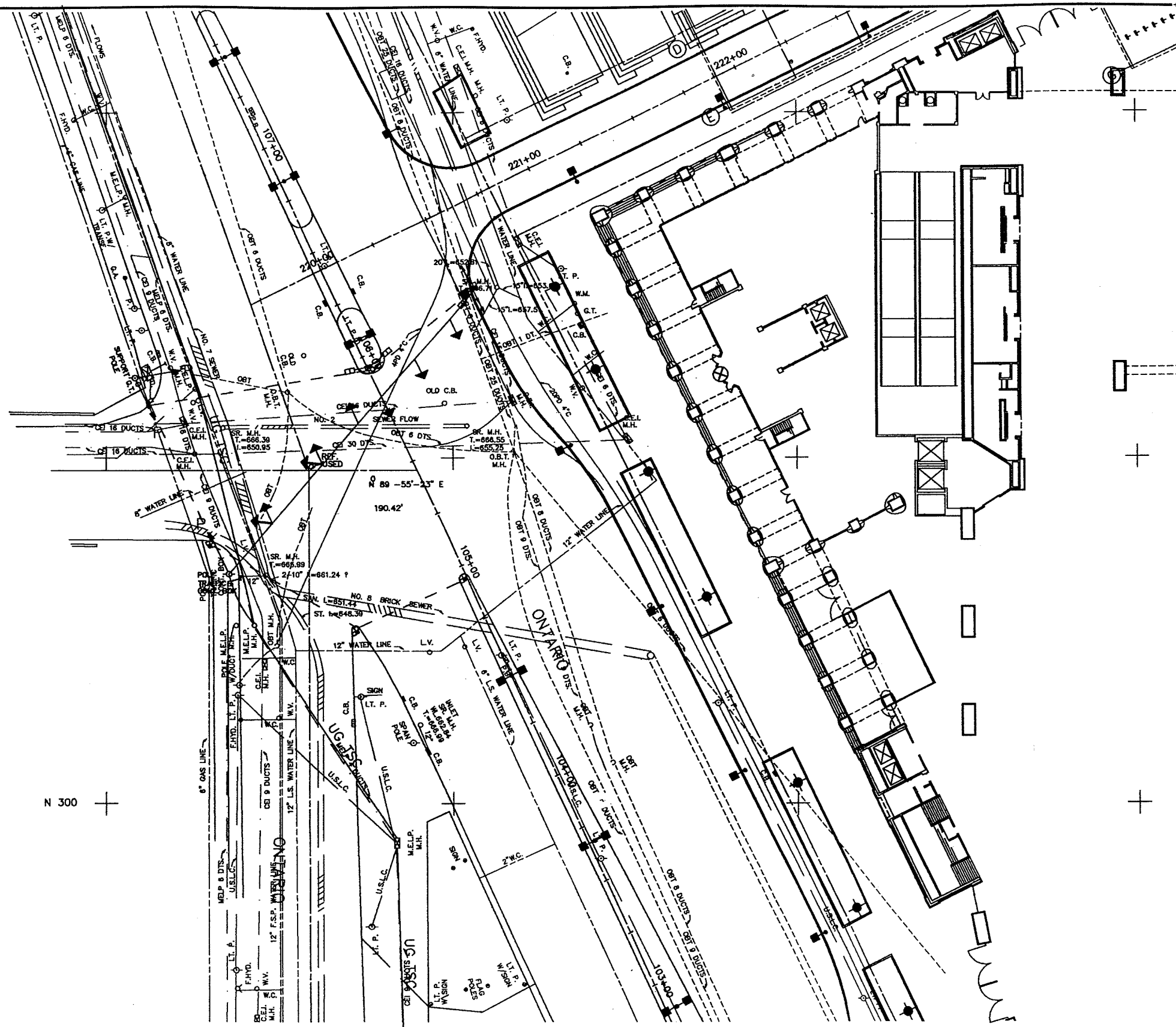
TITLE:

Ontario/Eagle

Interum Signals

Scale 1"=20' Date
 Drawn By
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 Approved By
 Project No. 11004.00

DWG No. C6-32



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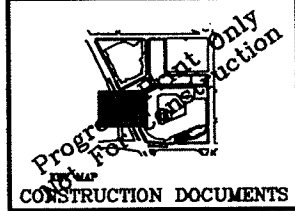
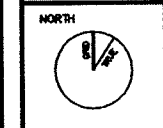
Planning / Architecture / Landscape Architecture
 Urban Design / Transportation Planning / Civil Engineering
 Environmental Services / Interior Design / Graphic Design
 64 Phoenix Street, Watertown, Massachusetts 02459
 617/924-2000 Fax 617/924-2040



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CLEVELAND, OHIO

No.	Description	Date
REVISIONS		



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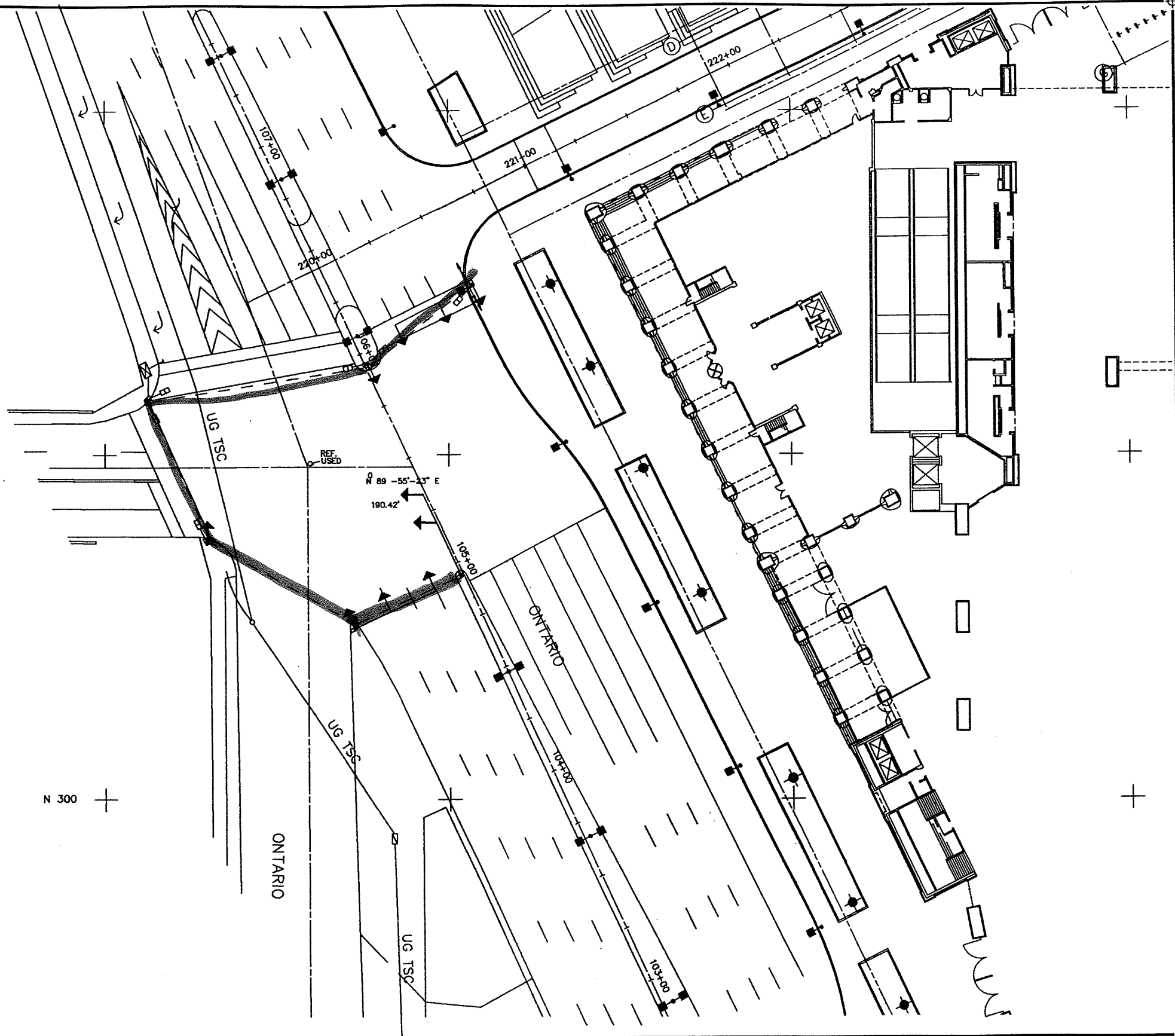
Ontario/Eagle

Final Signals

Scale 1"=20' Date
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 Checked By
 Approved By
 Project No. 11004.00

DWG No. C6-52

LAST REV. DATE:



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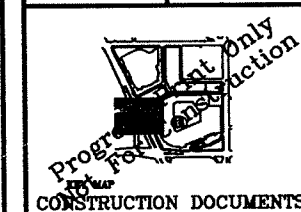
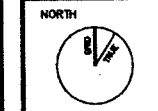
Planning / Architecture / Landscape Architecture
 Urban Design / Transportation Planning / Civil Engineering
 Environmental Services / Interior Design / Graphic Design
 44 Pleasant Street, Watertown, Massachusetts 02472
 617/253-2800 Fax: 617/247-1000



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CLEVELAND, OHIO

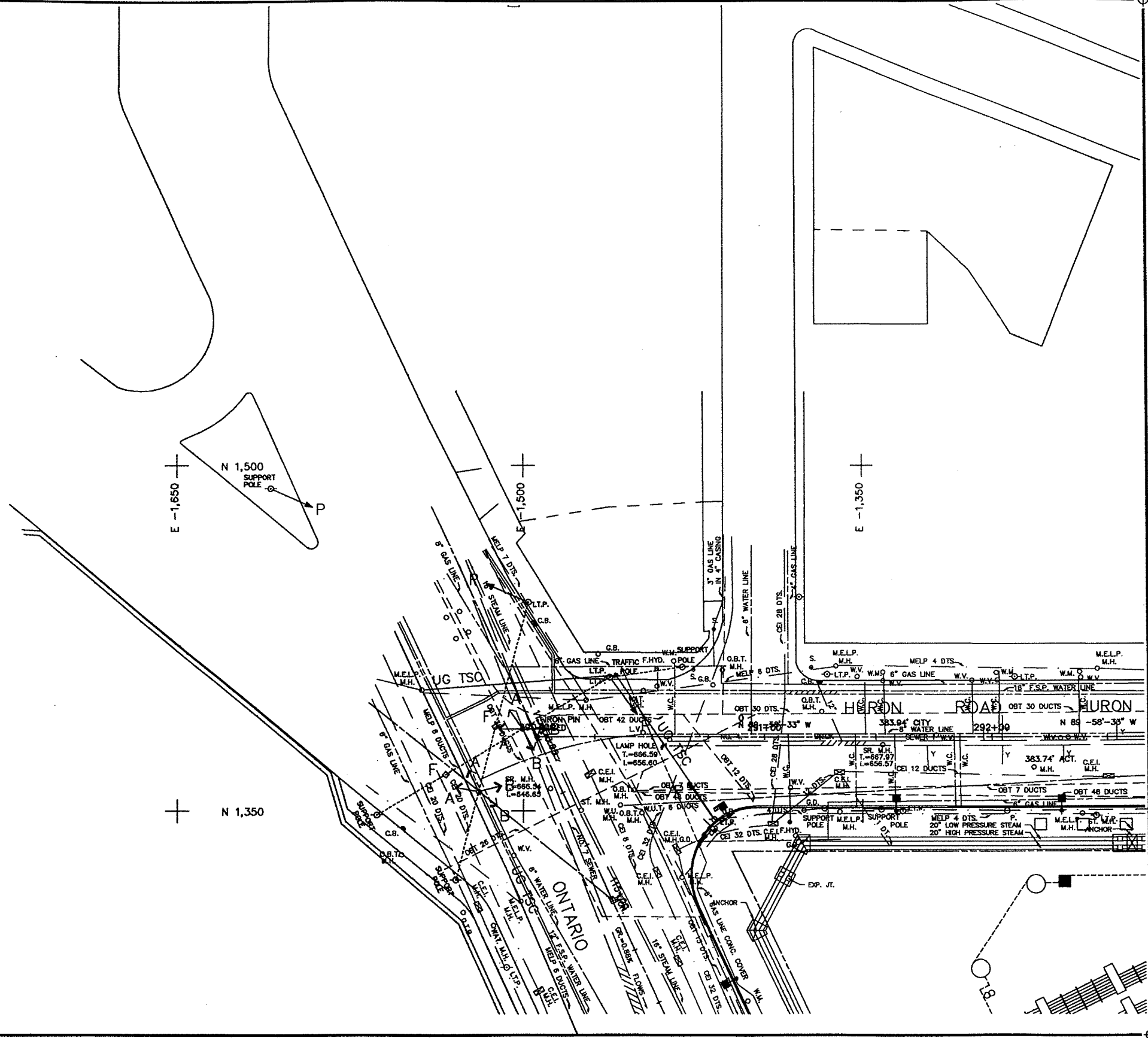
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TITLE:
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 Final Construction

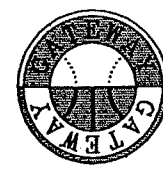
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 Project No. 11004.00

DWG No. C6-42



Sasaki Associates, Inc.

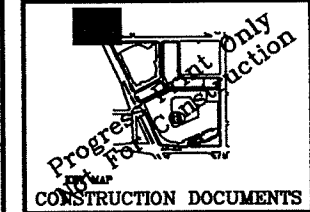
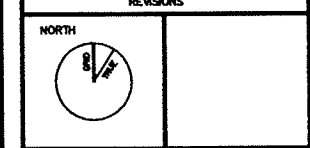
Planning / Architecture / Landscape Architecture
 Urban Design / Transportation Planning / Civil Engineering
 Environmental Services / Interior Design / Graphic Design
 66 Flannell Street, Woburn, Massachusetts 02471
 617/938-3800 Fax 617/938-3749



GATEWAY

CLEVELAND, OHIO

No.	Description	Date
REVISIONS		



TITLE

Ontario/Huron

Interim Construction

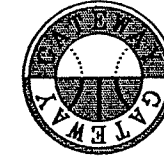
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 Checked By
 Approved By
 Project No. 11004.00

DWG No. C6-23

LAST REV. DATE:

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Environmental Services / Interior Design / Graphic Design
64 Forest Street, Woburn, Massachusetts 02491
OFFICE 978 865 2700 FAX 978 865 2701



GATEWAY

CLEVELAND, OHIO

No.	Description	Date
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REVISIONS

NORTH



Progress Not for Construction
CONSTRUCTION DOCUMENTS

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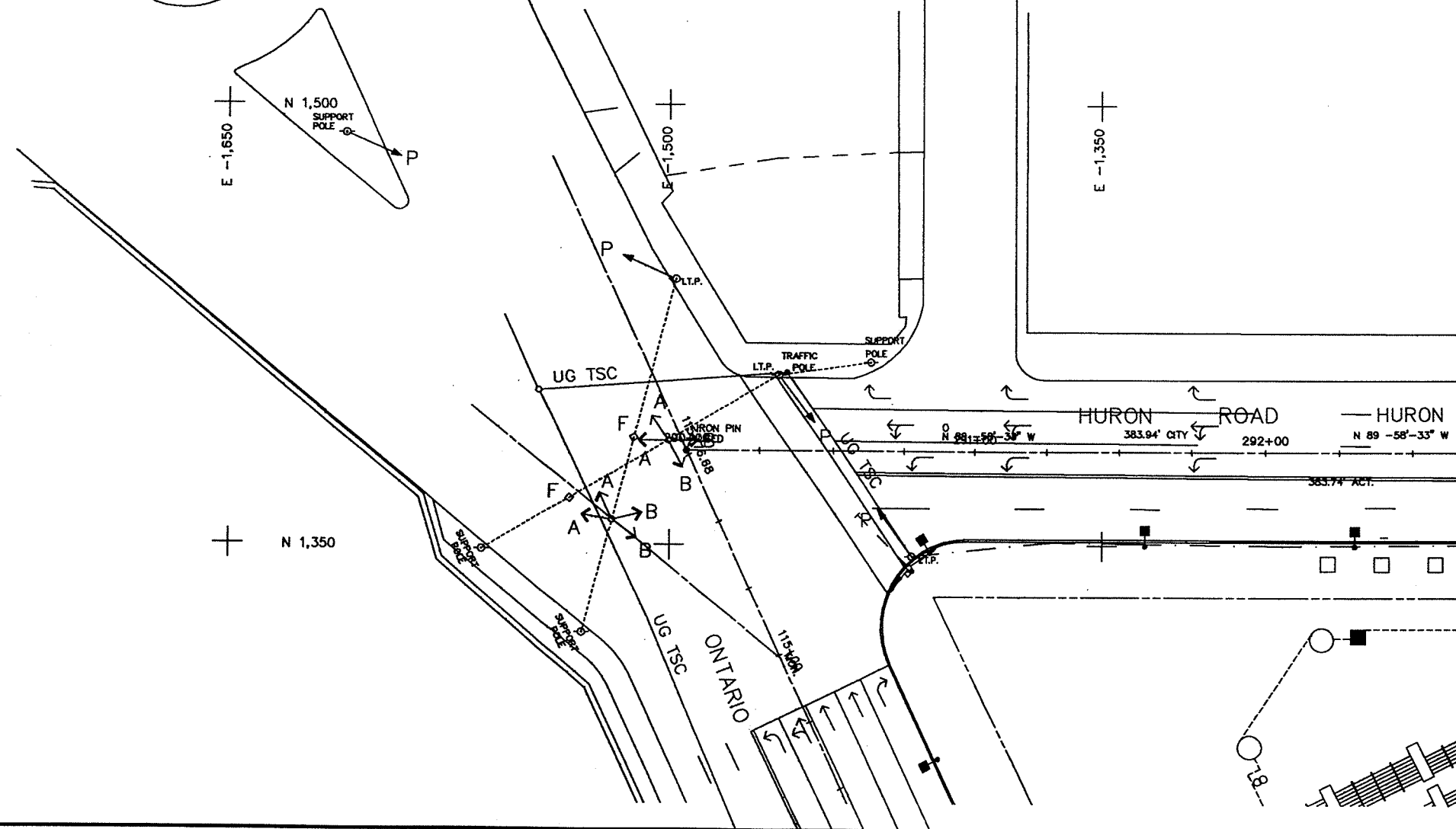
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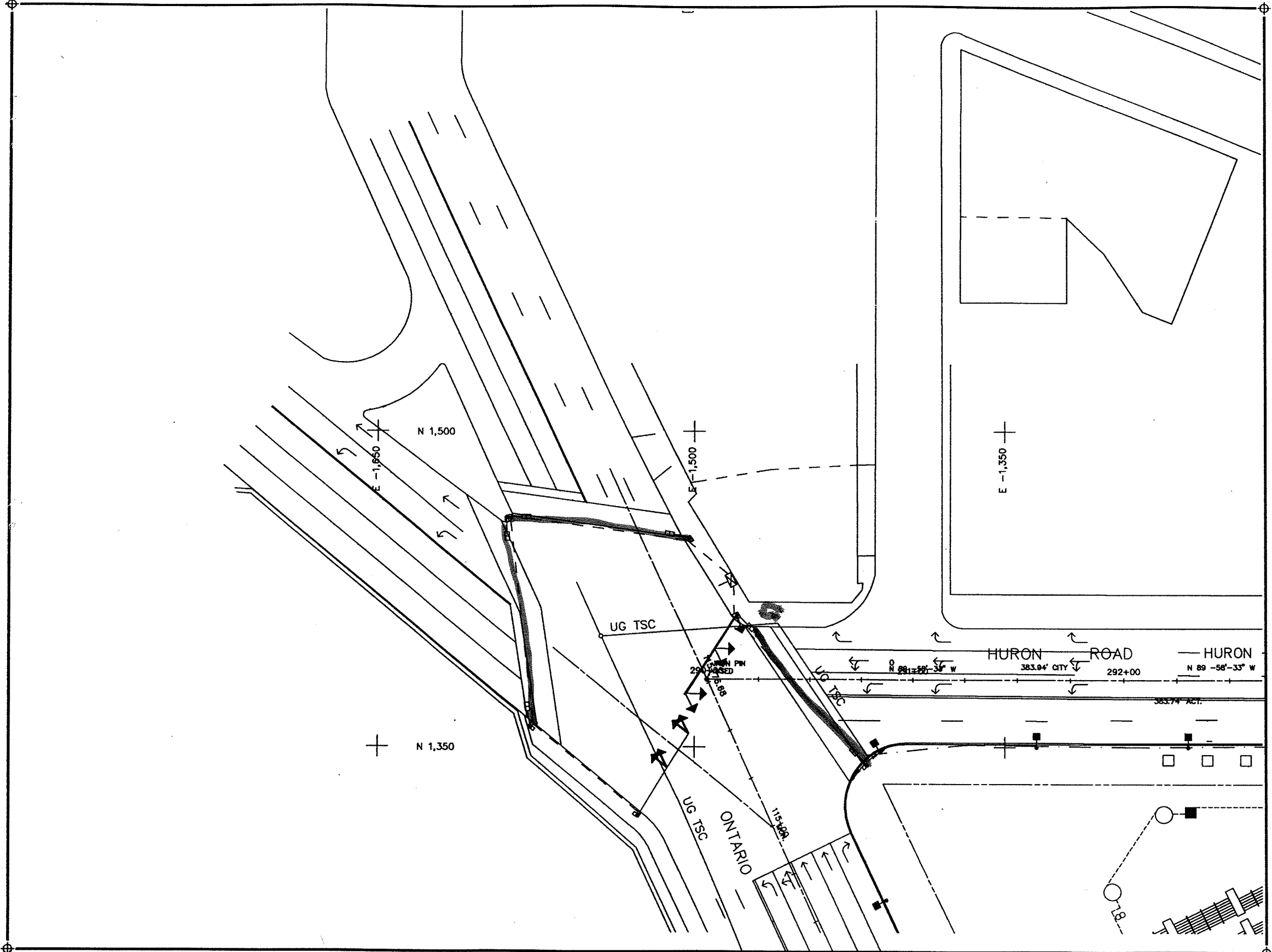
Interum Signals

Scale 1"=20' Date
Drawn By
Checked By
Approved By
Project No. 11004.00

DWG No.

C6-33



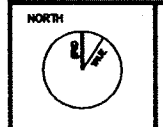


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 Urban Design / Transportation Planning / Civil Engineering
 Environmental Services / Interior Design / Graphic Design
 44 Belmont Street, Woburn, Massachusetts 02457
 617/235-2200 Fax 617/235-2747



GATEWAY
 CLEVELAND, OHIO

No.	Description	Date
REVISIONS		

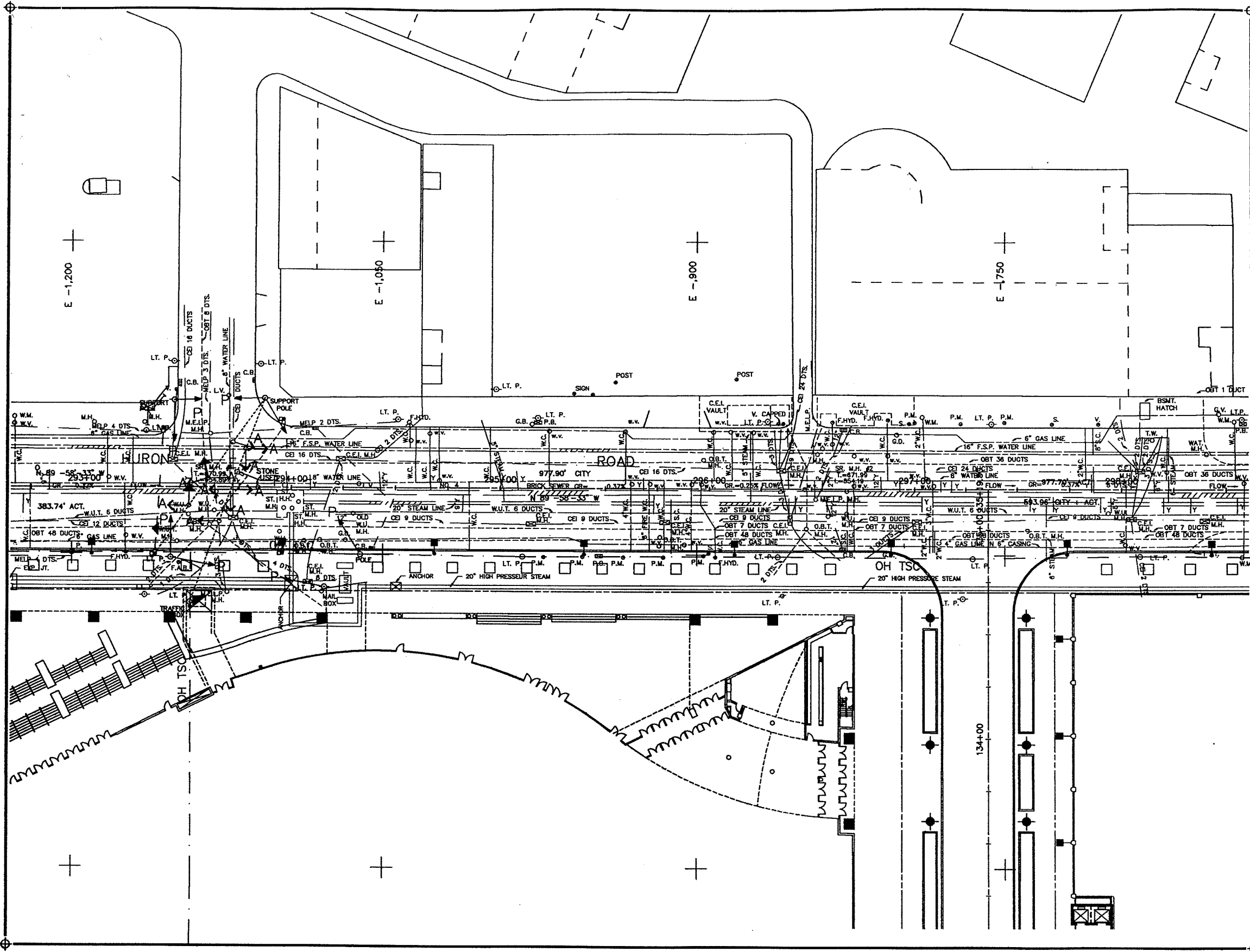


Progress Not for Construction
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TITLE
Ontario/Huron
 Final Signals

Scale 1"=20' Date
 Drawn By
 Checked By
 Approved By
 Project No. 11004.00

DWG No. **C6-53**



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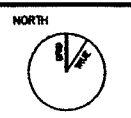
Planning / Architecture / Landscape Architecture
 Urban Design / Transportation Planning / Civil Engineering
 Environmental Services / Interior Design / Graphic Design
 64 Pleasant Street, Watertown, Massachusetts 02472
 617.924.2200 Fax 617.924.2201



GATEWAY

CLEVELAND, OHIO

No.	Description	By	Date
REVISIONS			



Progress For Construction Only

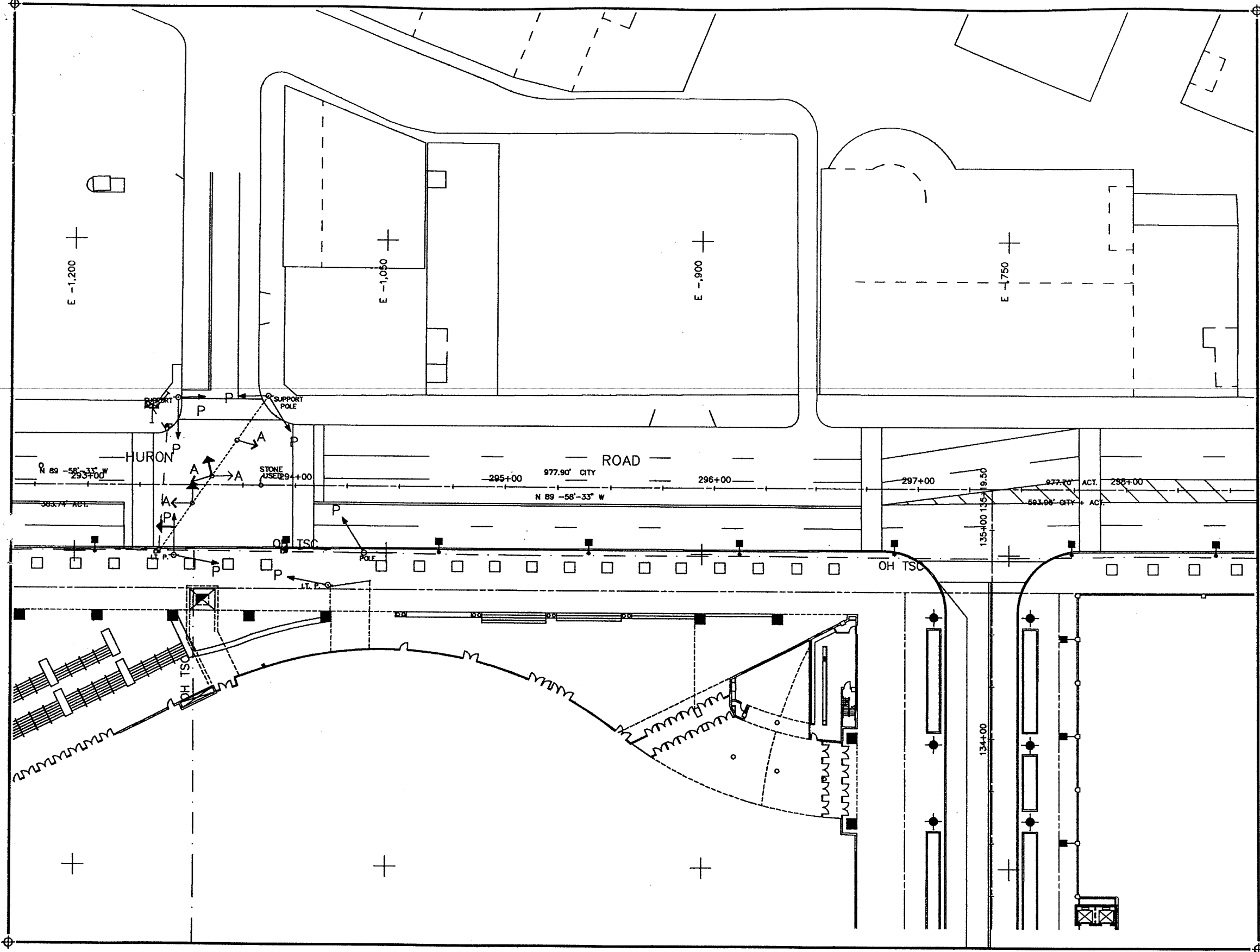
CONSTRUCTION DOCUMENTS

TITLE:

East 4th Street/
 Huron
 Interum Construction

Scale 1"=20' Date
 Drawn By
 Checked By
 Approved By
 Project No. 11004.00

DWG No. C6-24

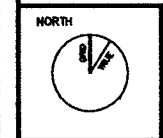


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 Urban Design / Transportation Planning / Civil Engineering
 Environmental Services / Interior Design / Graphic Design
 64 Forest Street, Westport, Massachusetts 02091
 617/865-2000 Fax 617/865-2001



GATEWAY
 CLEVELAND, OHIO

No.	Description	Date
REVISIONS		



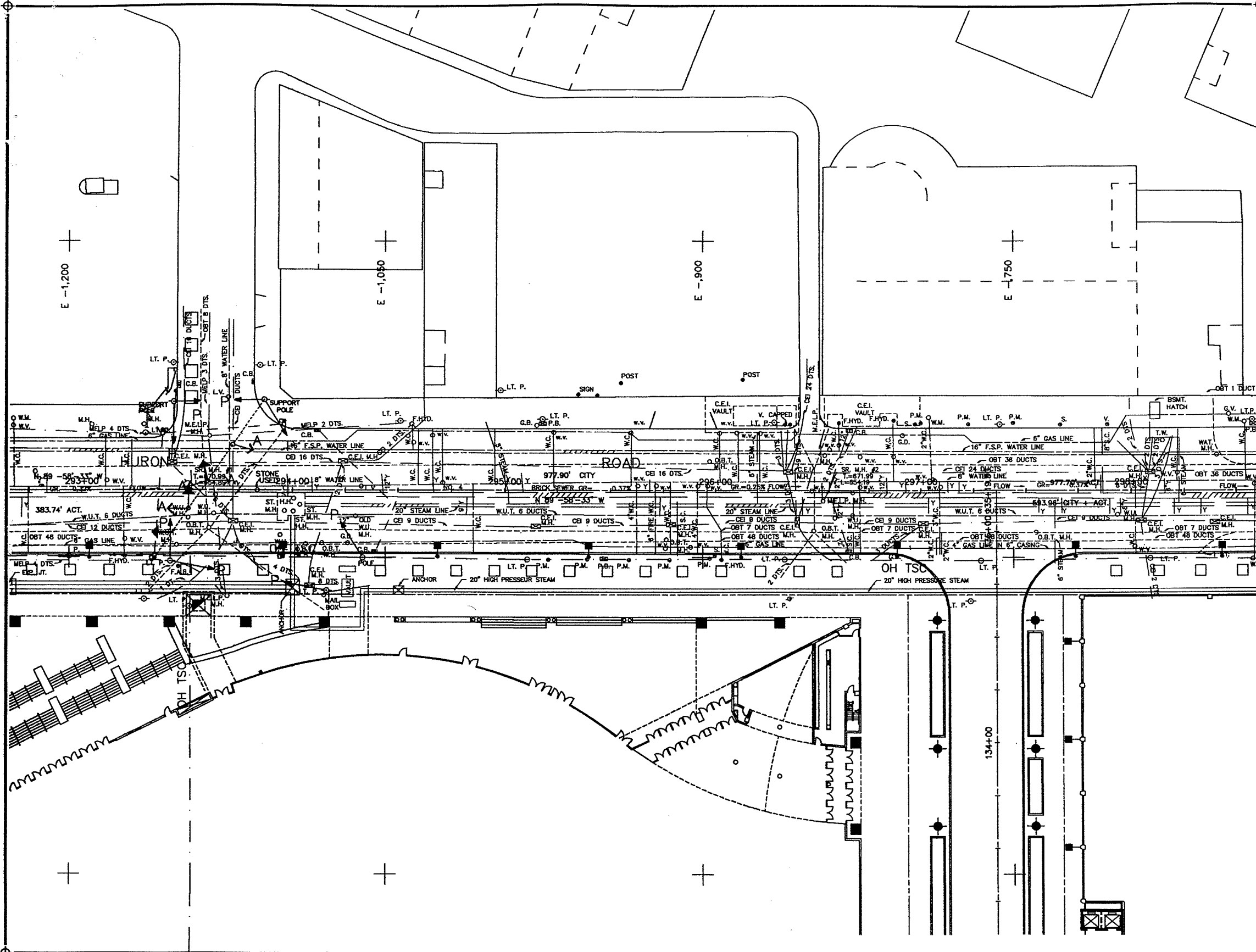
Progress Not for Construction
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TITLE:
 East 4th Street/
 Huron
 Interum Signals

Scale 1"=20' Date
 Drawn By
 Checked By
 Approved By
 Project No. 11004.00

DWG No. C6-34

LAST REV. DATE:



Sasaki Associates, Inc.

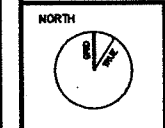
Planning / Architecture / Landscape Architecture
 Urban Design / Transportation Planning / Civil Engineering
 Mechanical Services / Interior Design / Graphic Design
 64 Pleasant Street, Waltham, Massachusetts 02451
 617/251-8800 Fax 617/251-8946



GATEWAY

CLEVELAND, OHIO

No.	Description	Date
REVISIONS		



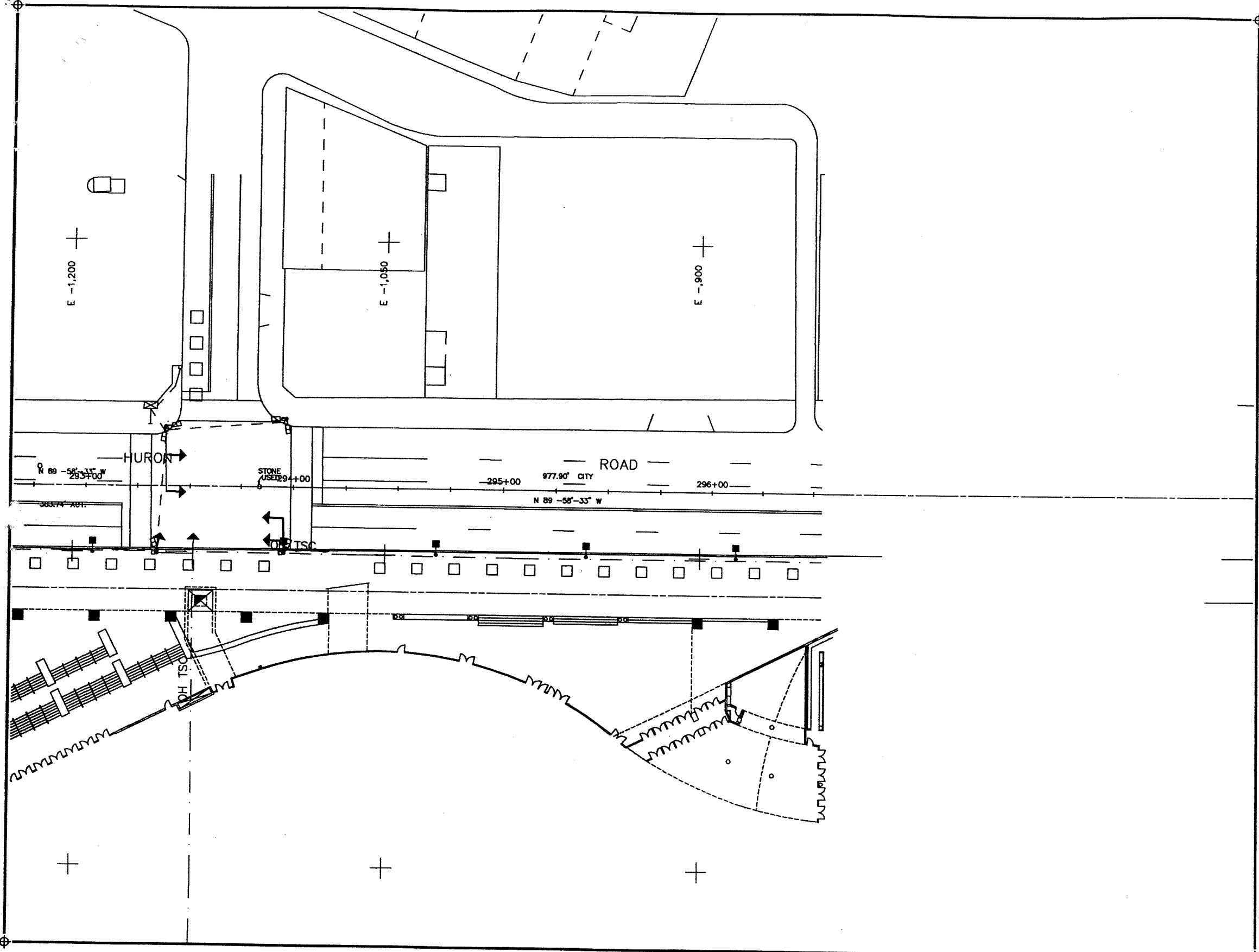
Progress Not to be Used for Construction

CONSTRUCTION DOCUMENTS

TITLE:
 East 4th Street/
 Huron
 Final Construction

Scale 1"=20' Date
 Drawn By
 Checked By
 Approved By
 Project No. 11004.00

DWG No.
C6-44

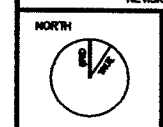


Sasaki Associates, Inc.
 Planning / Architecture / Landscape Architecture
 Urban Design / Transportation Planning / Civil Engineering
 Environmental Services / Interior Design / Graphic Design
 64 Pleasant Street, Wellesley, Massachusetts 02157
 617/862-2200 Fax 617/862-1700



GATEWAY
 CLEVELAND, OHIO

No.	Description	By	Date
REVISIONS			

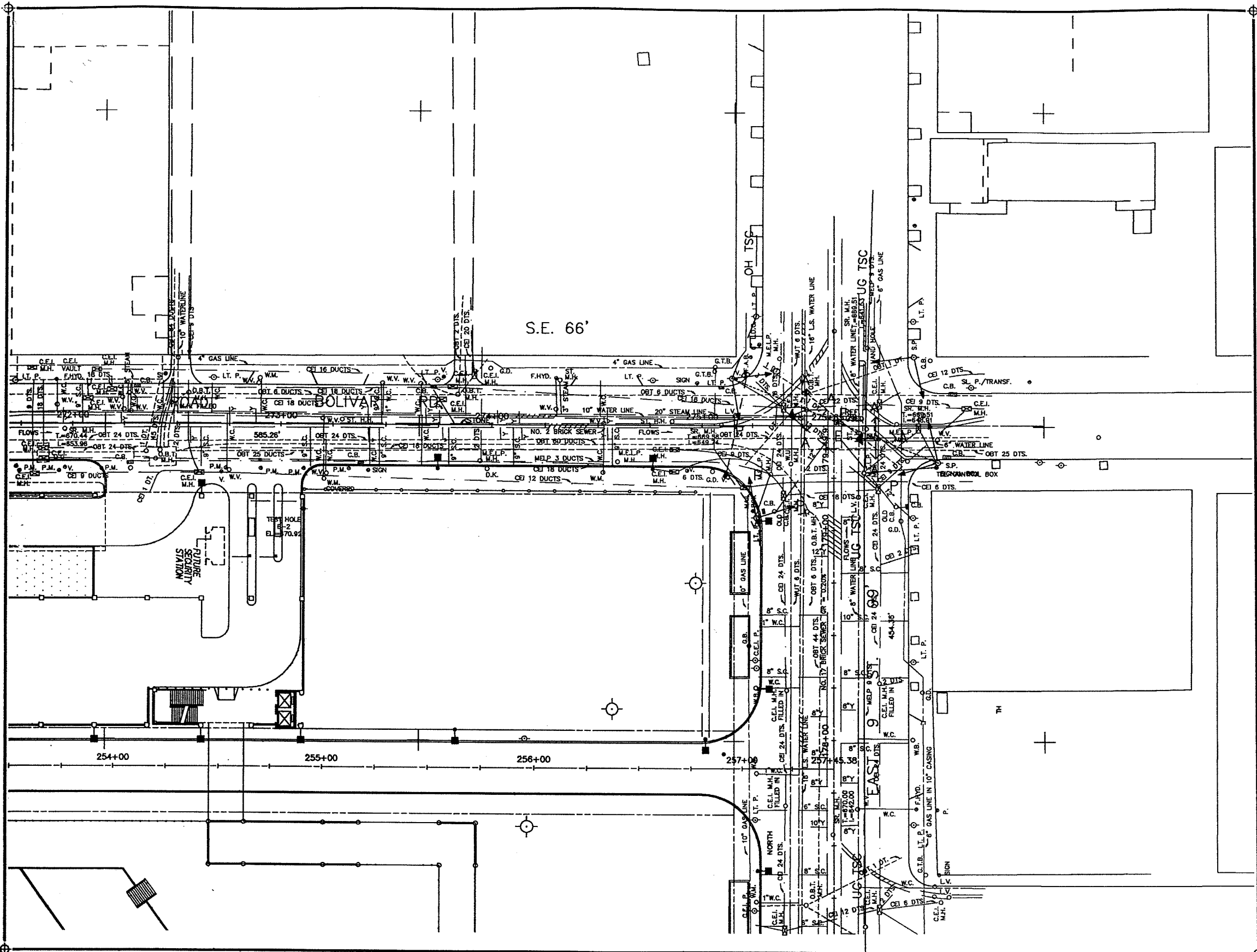


Progress Not to be Used for Construction
 CONSTRUCTION DOCUMENTS


TITLE:
 East 4th Street/
 Huron
 Final Signals

Scale 1"=20' Date
 Drawn By
 Checked By
 Approved By
 Project No. 11004.00



DWG No. C6-54

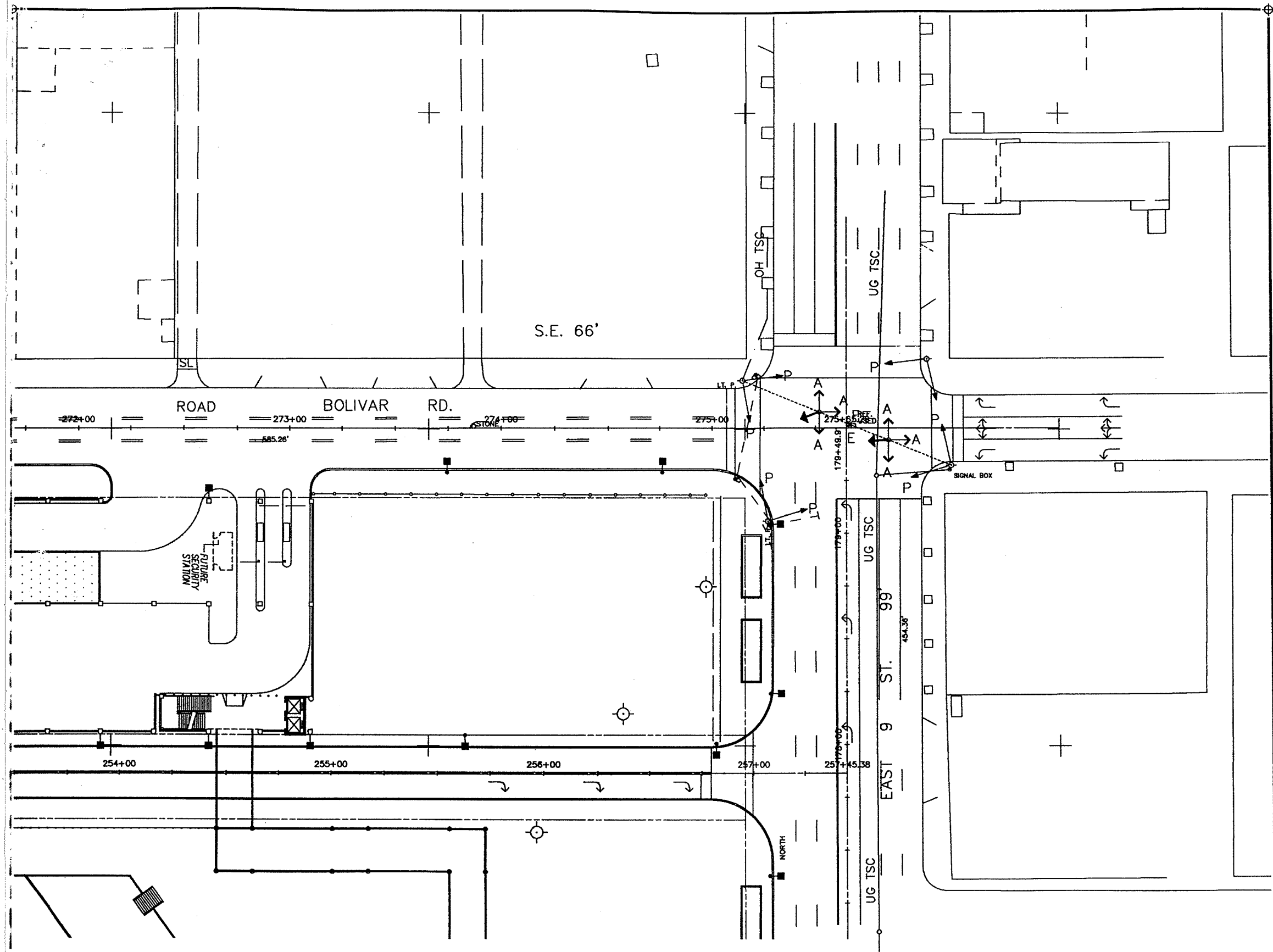


Sasaki Associates, Inc.
 Planning / Architecture / Landscape Architecture
 Urban Design / Transportation Planning / Civil Engineering
 Mechanical Services / Interior Design / Graphic Design
 64 Pleasant Street, Watertown, Massachusetts 02472
 617/924-2000 Fax: 617/924-2748



GATEWAY
 CLEVELAND, OHIO

No.	Description	Date
REVISIONS		
NORTH		
		
		
CONSTRUCTION DOCUMENTS		
TITLE:		
East 9th Street/ Bolivar Interim Construction		
Scale 1"=20' Date _____ Drawn By _____ Checked By _____ Approved By _____ Project No. 11004.00		
DWG No. C6-25		



Sasaki Associates, Inc.
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 Urban Design / Transportation Planning / Civil Engineering
 Environmental Services / Interior Design / Graphic Design
 64 Forest Street, Woburn, Massachusetts 02472
 617/938-2000 Fax: 617/938-2748

GATEWAY
 CLEVELAND, OHIO

No.	Description	Date
REVISIONS		

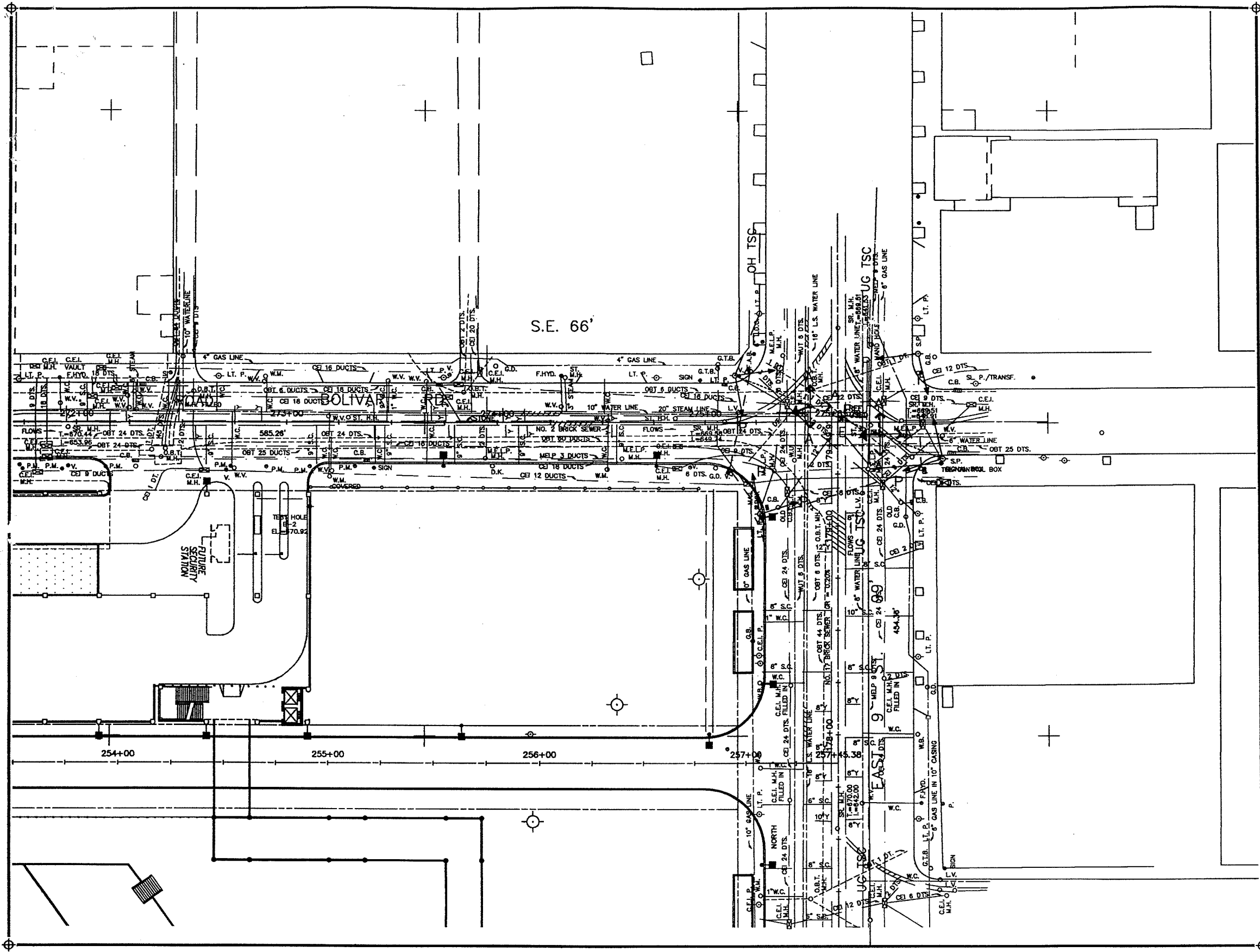
NORTH

CONSTRUCTION DOCUMENTS

TITLE:
**East 9th Street/
 Bolivar
 Interim Signals**

Scale 1"=20' Date
 Drawn By
 Checked By
 Approved By
 Project No. 11004.00

DWG No. **C6-35**



Sasaki Associates, Inc.

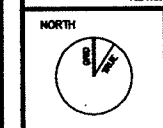
Planning / Architecture / Landscape Architecture
 Urban Design / Transportation Planning / Civil Engineering
 Mechanical Services / Interior Design / Graphic Design
 64 Pleasant Street, Waltham, Massachusetts 02451
 617/954-2000 Fax 617/954-2001



GATEWAY

CLEVELAND, OHIO

No.	Description	Date
REVISIONS		



Progress for Construction Only
 CONSTRUCTION DOCUMENTS

TITLE:

East 9th Street/
 Bolivar
 Final Construction

Scale 1"=20' Date
 Drawn By
 Checked By
 Approved By
 Project No. 11004.00

DWG No.
C6-45

LAST REV. DATE

Sasaki Associates, Inc.

Planning / Architecture / Landscape Architecture
Urban Design / Transportation Planning / Civil Engineering
Environmental Services / Interior Design / Graphic Design
64 Pleasant Street, Woburn, Massachusetts 01897
617/235-2200 Fax 617/235-2741



GATEWAY

CLEVELAND, OHIO

No.	Description	Date
-----	-------------	------

REVISIONS

NORTH



Progress Only
For Construction

CONSTRUCTION DOCUMENTS

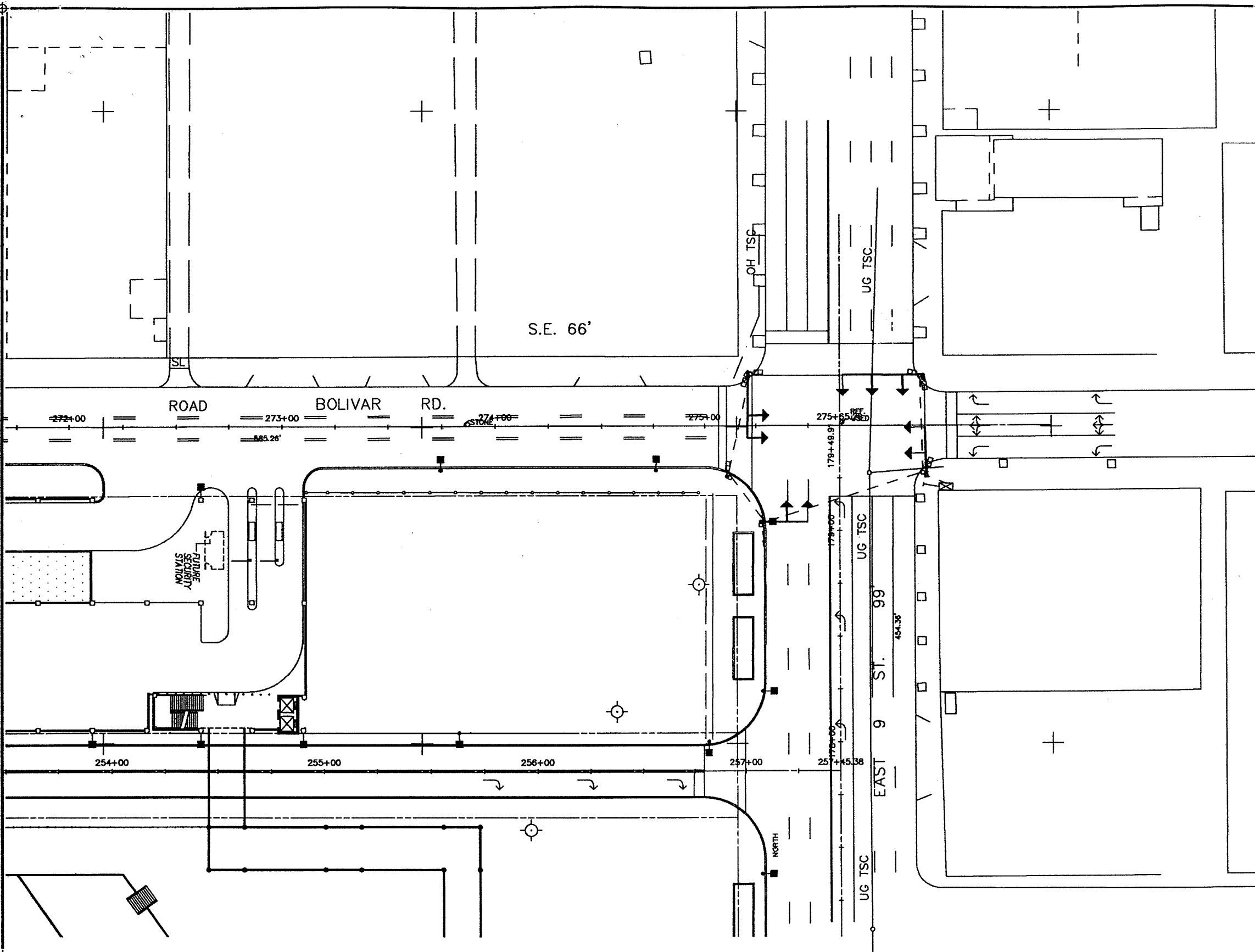
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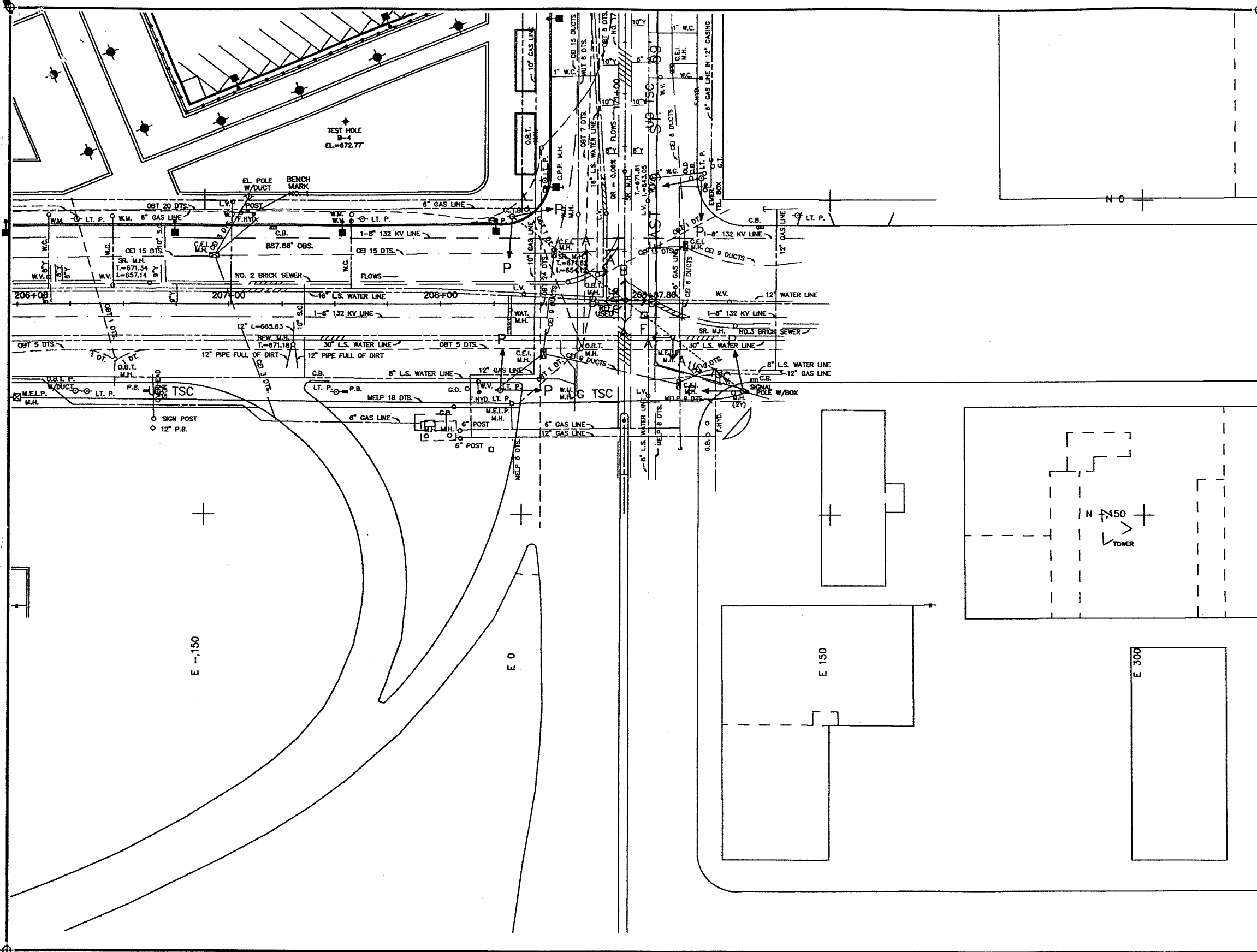
East 9th Street/
Bolivar
Final Signals

Scale 1"=20' Date
Drawn By
Checked By
Approved By
Project No. 11004.00

DWG No.

C6-55





Sasaki Associates, Inc.

Planning / Architecture / Landscape Architecture
 Utility Design / Transportation Planning / Civil Engineering
 Environmental Services / Studies Design / Graphic Design

64 Pleasant Street, Woburn, Massachusetts 02457
 617/251-2200 Fax 617/251-2748



GATEWAY

CLEVELAND, OHIO

No.	Description	Date
REVISIONS		



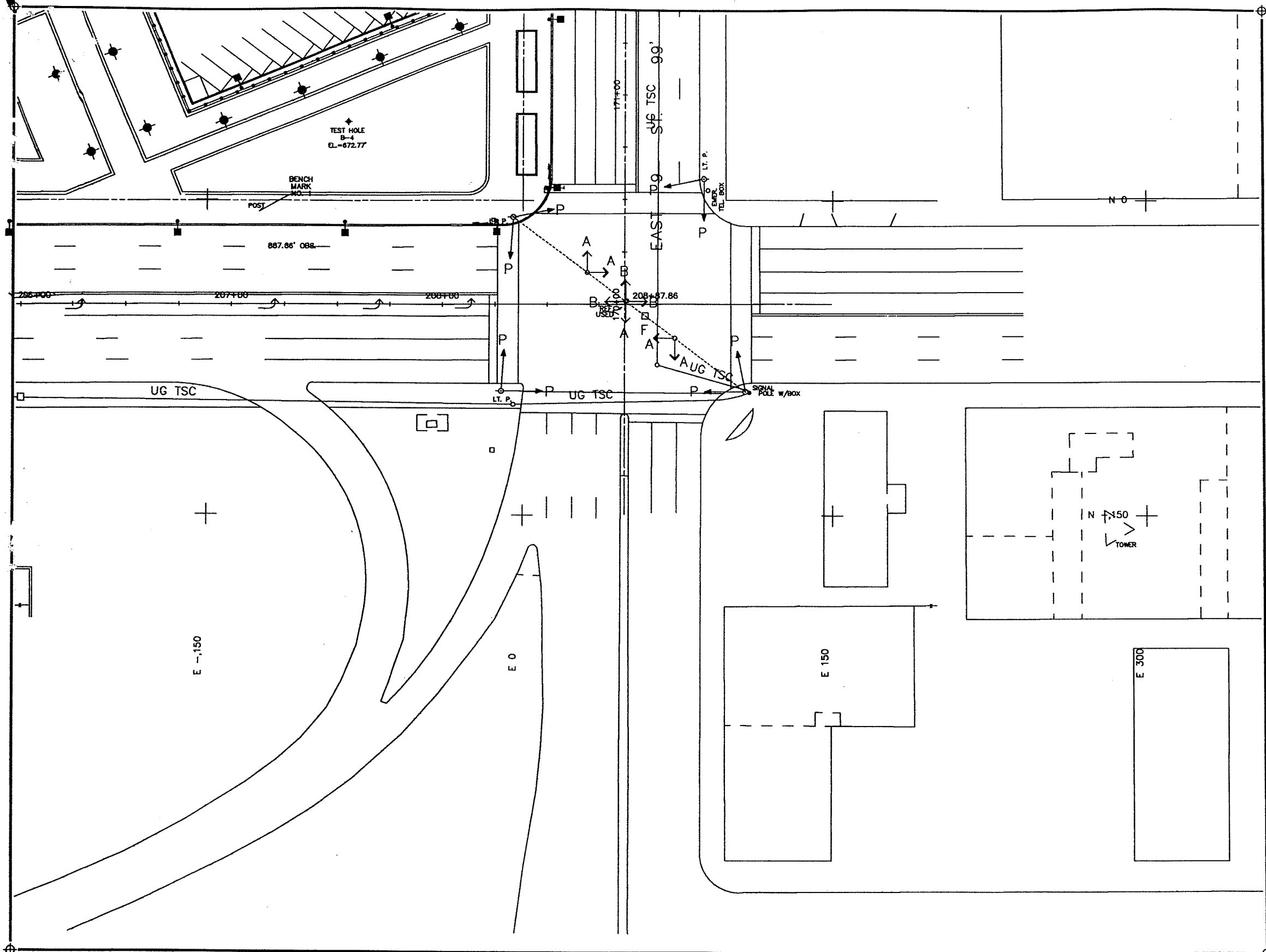
Progress not for construction
CONSTRUCTION DOCUMENTS

TITLE:
 East 9th Street/
 Carnegie
 Interim Construction

Scale 1"=20' Date
 Drawn By
 Checked By
 Approved By
 Project No. 11004.00

DWG No. C6-26

CREATED BY:
 LAST REV. DATE:



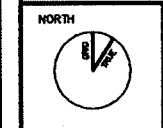
Sasaki Associates, Inc.
 Planning / Architecture / Landscape Architecture
 Urban Design / Transportation Planning / Civil Engineering
 Environmental Services / Interior Design / Graphic Design
 64 Pleasant Street, Waltham, Massachusetts 02452
 617/252-2000 Fax 617/252-2001 for 617/252-2040



GATEWAY

CLEVELAND, OHIO

No.	Description	Date
REVISIONS		



Progress not to be used for construction

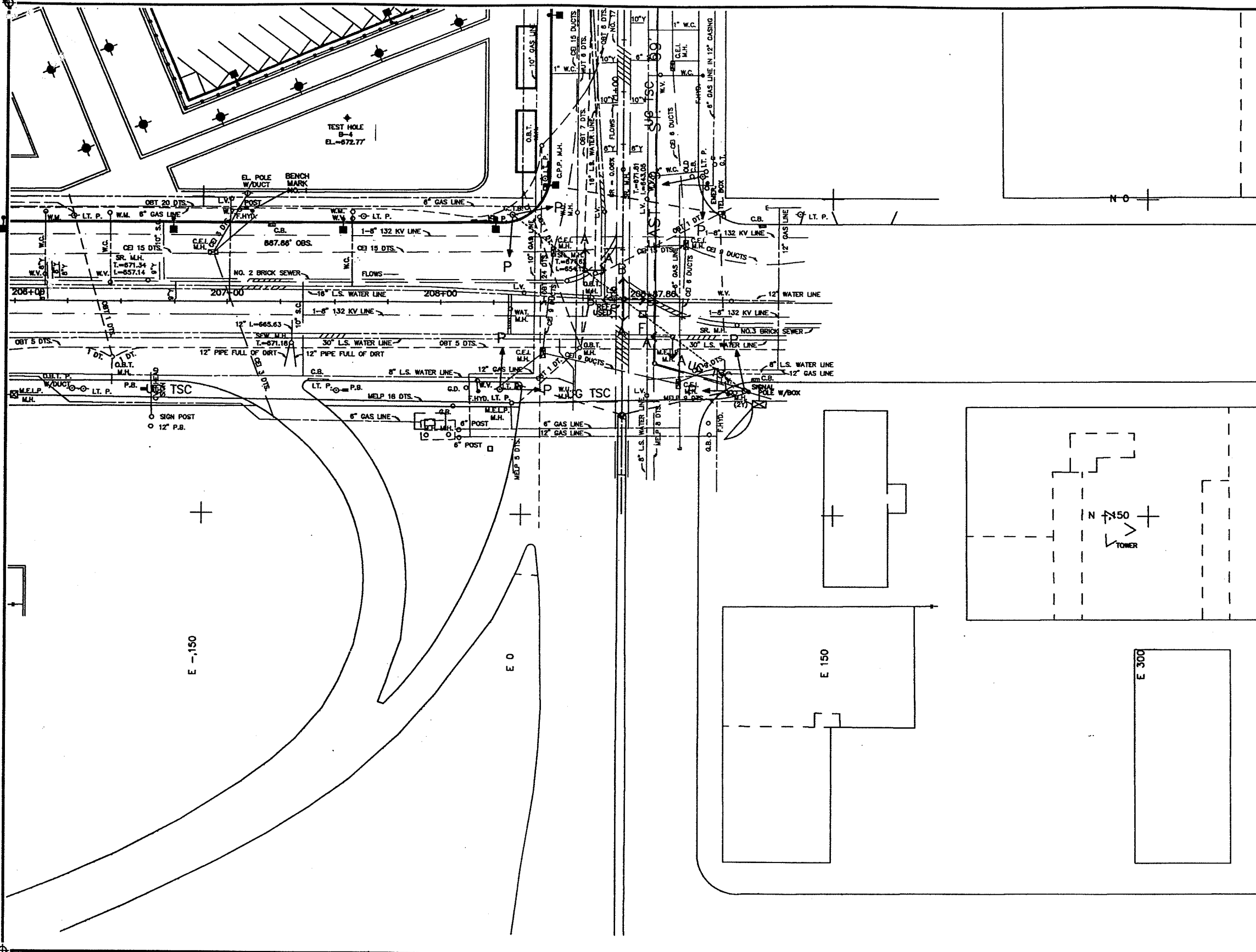
CONSTRUCTION DOCUMENTS

TITLE:
 East 9th Street/
 Carnegie
 Interim Signals

Scale 1"=20' Date
 Drawn By
 Checked By
 Approved By
 Project No. 11004.00

DWG No. C6-36

LAST REV. DATE



Sasaki Associates, Inc.

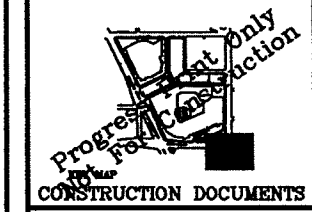
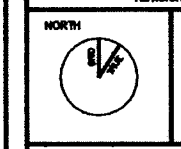
Planning / Architecture / Landscape Architecture
 Urban Design / Transportation Planning / Civil Engineering
 Environmental Services / Interior Design / Graphic Design
 64 Pleasant Street, Westport, Massachusetts 02157
 617/865-2200 Fax 617/865-2201



GATEWAY

CLEVELAND, OHIO

No.	Description	Date
REVISIONS		

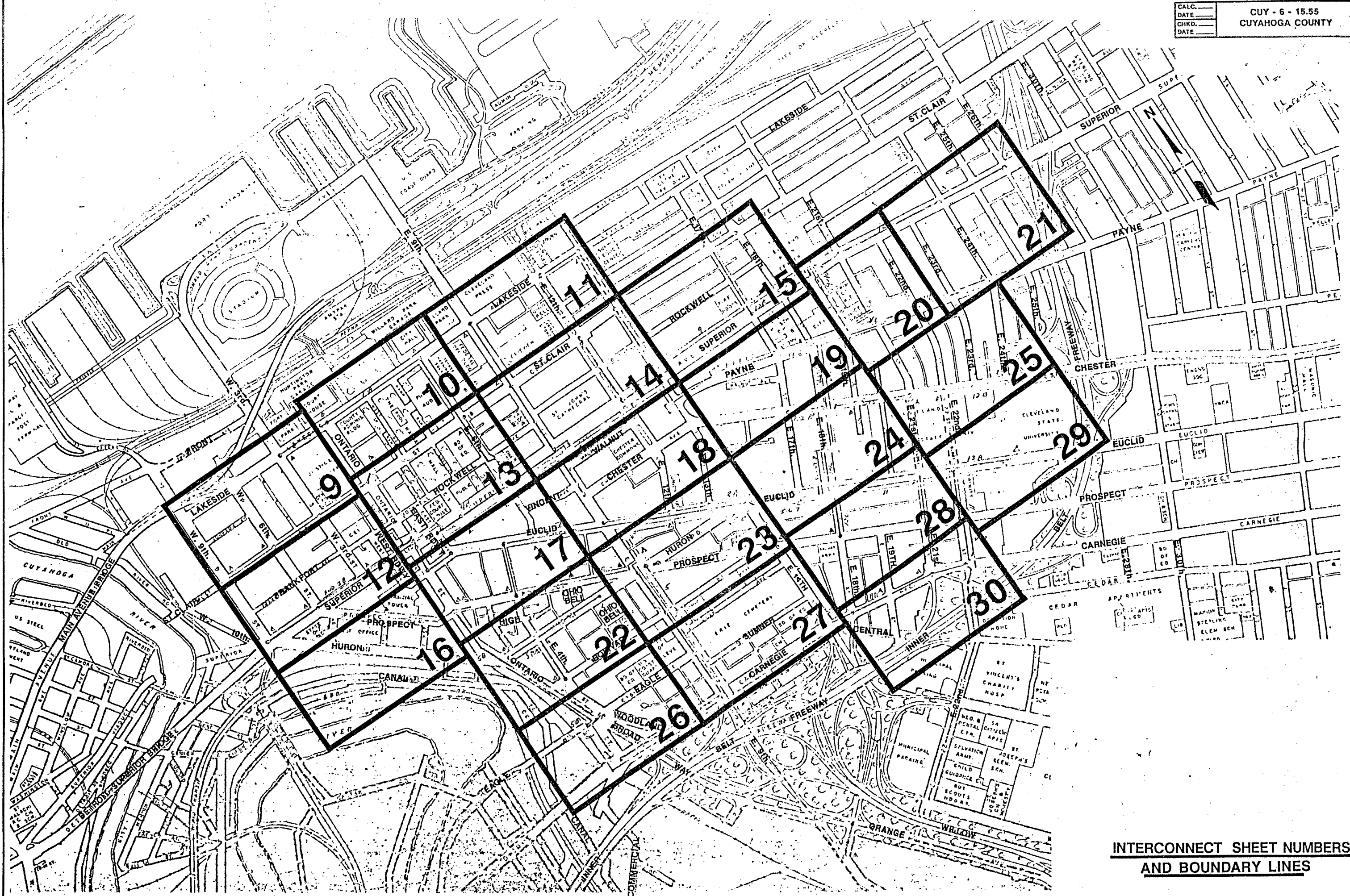


TITLE:
 East 9th Street/
 Carnegie
 Final Construction

Scale 1"=20' Date
 Drawn By
 Checked By
 Approved By
 Project No. 11004.00

DWG No.
 C6-46

DRAWING NAME
 CREATED BY
 LAST REV. DATE



**INTERCONNECT SHEET NUMBERS
AND BOUNDARY LINES**

LEGEND

PROPOSED EXISTING

- MANHOLE CLEV. ELEV.
- HANDHOLE CLEV. ELEV.
- HYDRANT
- MANHOLE SEWER
- MANHOLE CLEV. ILLUM.
- LIGHT POLE
- VAULT
- PULL BOX
- TREE
- STRAIN POLE
- WOOD POLE
- △ PARKING METER
- ⊠ CONTROLLER
- ⊙ MELP
- SIGN POST
- ⊠ ALUM. PLATE
- ▽ VENT
- ⊙ WATER METER MANHOLE
- ⊙ CATCH BASIN MANHOLE
- ⊙ VALVE BOX
- ⊙ CPP
- ▶ GAS (TEST)
- ⊙ BELL MANHOLE
- PED. SIGNAL
- 6" POT (PLANTER)
- WATER METER
- TRENCH DRAIN
- ▽ TRAFFIC LID (FLUSH)
- ⊙ WESTERN UNION MANHOLE
- ⊙ RTA SHELTER
- ⊙ TREE GRATE

EXISTING UTILITIES

- W --- WATER
- E --- ELECTRIC
- S --- SEWER
- T --- TELEPHONE
- G --- GAS
- CEI --- CLEV. ILLUM.

PROPOSED

- INTERCONNECT THROUGH EXISTING DUCTWORK
- INTERCONNECT THROUGH NEW CONDUIT

SUBSUMMARY OF QUANTITIES

DESCRIPTION	UNIT	I	II
TRENCH IN PAVED AREAS, TYPE A,	LIN FT	1,055	25
TRENCH IN PAVED AREAS, TYPE B,	LIN FT	235	
CONDUIT, GALVANIZED STEEL, 2" 713.04	LIN FT	1,290	25
SIGNAL CABLE, 15-CONDUCTOR, NO. 14 AWG	LIN FT	60	20
INTERCONNECT CABLE, 6 PAIR, NO. 19 AWG, SOLID, REA (PE-39)	LIN FT	1,468	470
CONTROLLER, ACTUATED, 4 PHASE, SOLID STATE DIGITAL	EACH	3	1
PULL BOX, 713.08, 24"	EACH	10	1
INTERSECTION CHANGE-OUT, TYPE 3A, AS PER PLAN	EACH	1	
INTERSECTION CHANGE-OUT, TYPE 3B, AS PER PLAN	EACH	1	1
INTERSECTION CHANGE-OUT, TYPE 4, AS PER PLAN	EACH	1	
CONDUIT 3"			
PULL BOX 18"			

EXISTING R.O.W.

- 2" CONDUIT
- 1) 250.0 ✓
 - 2) 219.0
 - 3) 381.0 + 18 = 399.0

PULL BOXES 24"

- 1) 6 ea
 - 1) 2 ea
- PULL BOXES 18"

1" = 50' scale

3" CONDUIT

- 1) 61.5
- 2) 77.0
- 3) 23.0

TRENCH TYPE A

- 1) 250.0 ✓
- 3) 381.0

TRENCH TYPE B

- 1) 61.5
- 2) 77.0
- 3) 23.0

4 PHASE CHANGE-OUT TYPE 4 ✓

CONTINUED SHEET NO.

W. 9TH ST.

EXISTING R.O.W.

EXISTING R.O.W.

4 PHASE CHANGE-OUT TYPE 3B ✓
100% CITY FUNDED

ST CLAIR

4 PHASE CHANGE-OUT TYPE 3B ✓

W. 6TH ST.

EXISTING R.O.W.

AVENUE

W 4TH ST

W. 3RD ST.

EXISTING R.O.W.

EXISTING R.O.W.

INTERCOM...

2" CONDUIT

- 1) 185.0
- 2) 246.0
- 3) 312.0
- 4) 319.0
- 5) 277.0
- 6) 344.0
- 7) 240.0
- 8) 300.0

3" CONDUIT

- 1) 89.0
- 2) 80.0
- 3) 75.0

TRENCH TYPE A

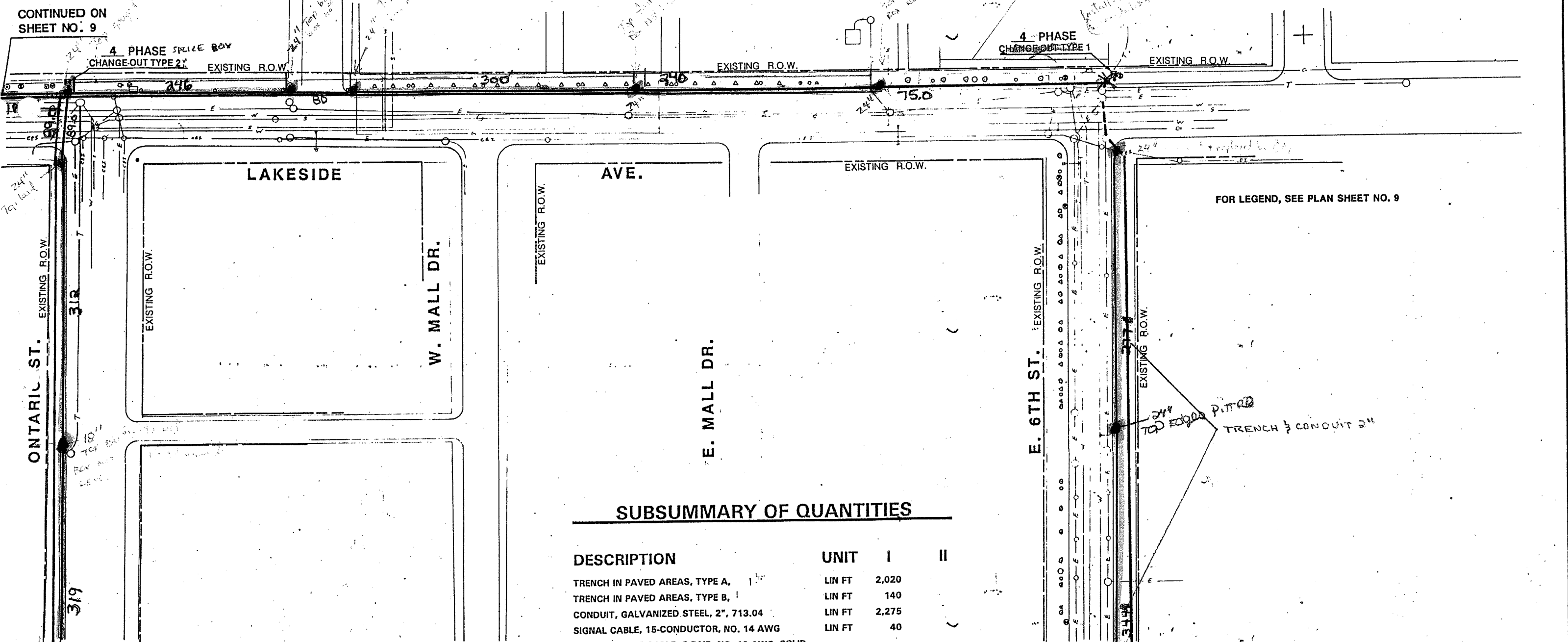
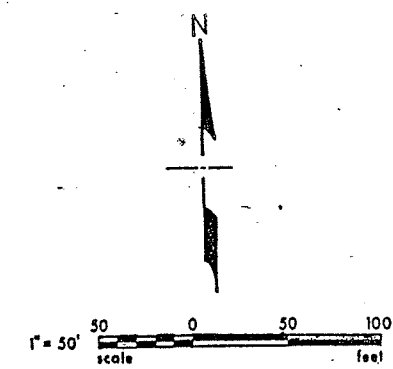
- 1) 185.0
- 2) 246.0
- 3) 312.0
- 4) 319.0
- 5) 277.0
- 6) 344.0
- 7) 240.0
- 8) 300.0

TRENCH TYPE B

- 1) 89.0
- 2) 80.0

PULL BOXES

- 24" - 8 ea
- 18" - 1 ea



SUBSUMMARY OF QUANTITIES

DESCRIPTION	UNIT	I	II
TRENCH IN PAVED AREAS, TYPE A,	LIN FT	2,020	
TRENCH IN PAVED AREAS, TYPE B,	LIN FT	140	
CONDUIT, GALVANIZED STEEL, 2", 713.04	LIN FT	2,275	
SIGNAL CABLE, 15-CONDUCTOR, NO. 14 AWG	LIN FT	40	
INTERCONNECT CABLE, 6 PAIR, NO. 19 AWG, SOLID REA (PE-39)	LIN FT	2,410	
CONTROLLER, ACTUATED, 4 PHASE, SOLID STATE	EACH	2	
PULL BOX, 713.08, 24"	EACH	10	
INTERSECTION CHANGE-OUT, TYPE 1, AS PER PLAN	EACH	1	
INTERSECTION CHANGE-OUT, TYPE 2, AS PER PLAN	EACH	1	

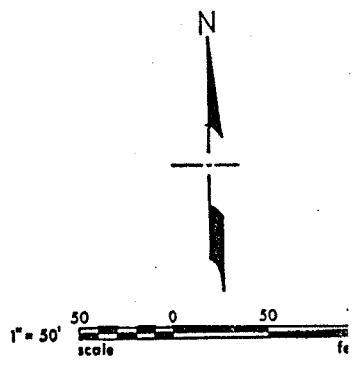
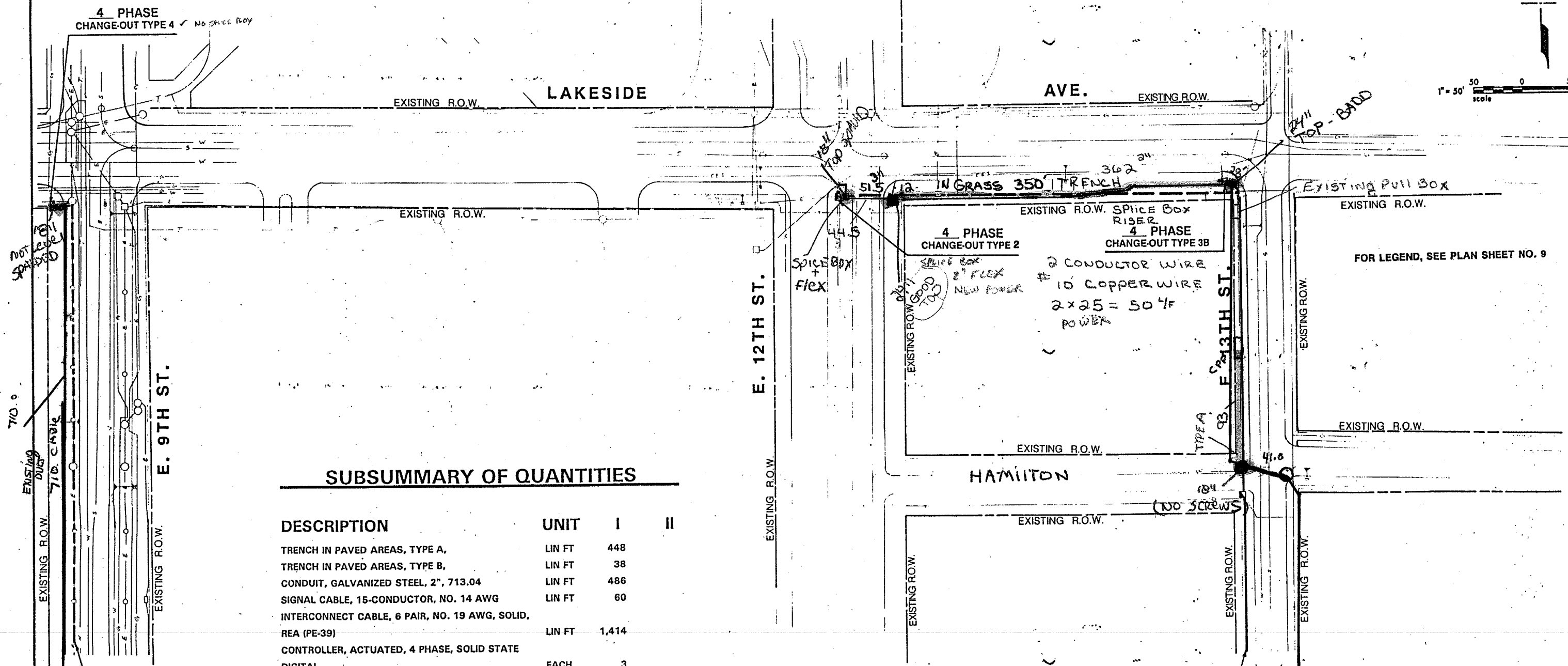
Pull Boxes
 24" - 2 ea
 18" - 3 ea

TRENCH TYPE A	TRENCH TYPE B	3" CONDUIT	2" CONDUIT	TRENCH IN GRASS
1) 7	1) 44.5	1) 51.5	1) 362.0	1) 350.0
2) 12		41.0	2) 28.0	2) 28.0
3) 93			3) 93.0	

CALC. _____
 DATE _____
 CHKD. _____
 DATE _____

CUY-6-15-55
 CUYAHOGA COUNTY

OHIO
 F.H.W
 REGO



SUBSUMMARY OF QUANTITIES

DESCRIPTION	UNIT	I	II
TRENCH IN PAVED AREAS, TYPE A,	LIN FT	448	
TRENCH IN PAVED AREAS, TYPE B,	LIN FT	38	
CONDUIT, GALVANIZED STEEL, 2", 713.04	LIN FT	486	
SIGNAL CABLE, 15-CONDUCTOR, NO. 14 AWG	LIN FT	60	
INTERCONNECT CABLE, 6 PAIR, NO. 19 AWG, SOLID, REA (PE-39)	LIN FT	1,414	
CONTROLLER, ACTUATED, 4 PHASE, SOLID STATE DIGITAL	EACH	3	
PULL BOX, 713.08, 24"	EACH	5	
INTERSECTION CHANGE-OUT, TYPE 2; AS PER PLAN	EACH	1	
INTERSECTION CHANGE-OUT, TYPE 3B, AS PER PLAN	EACH	1	
INTERSECTION CHANGE-OUT, TYPE 4, AS PER PLAN	EACH	1	

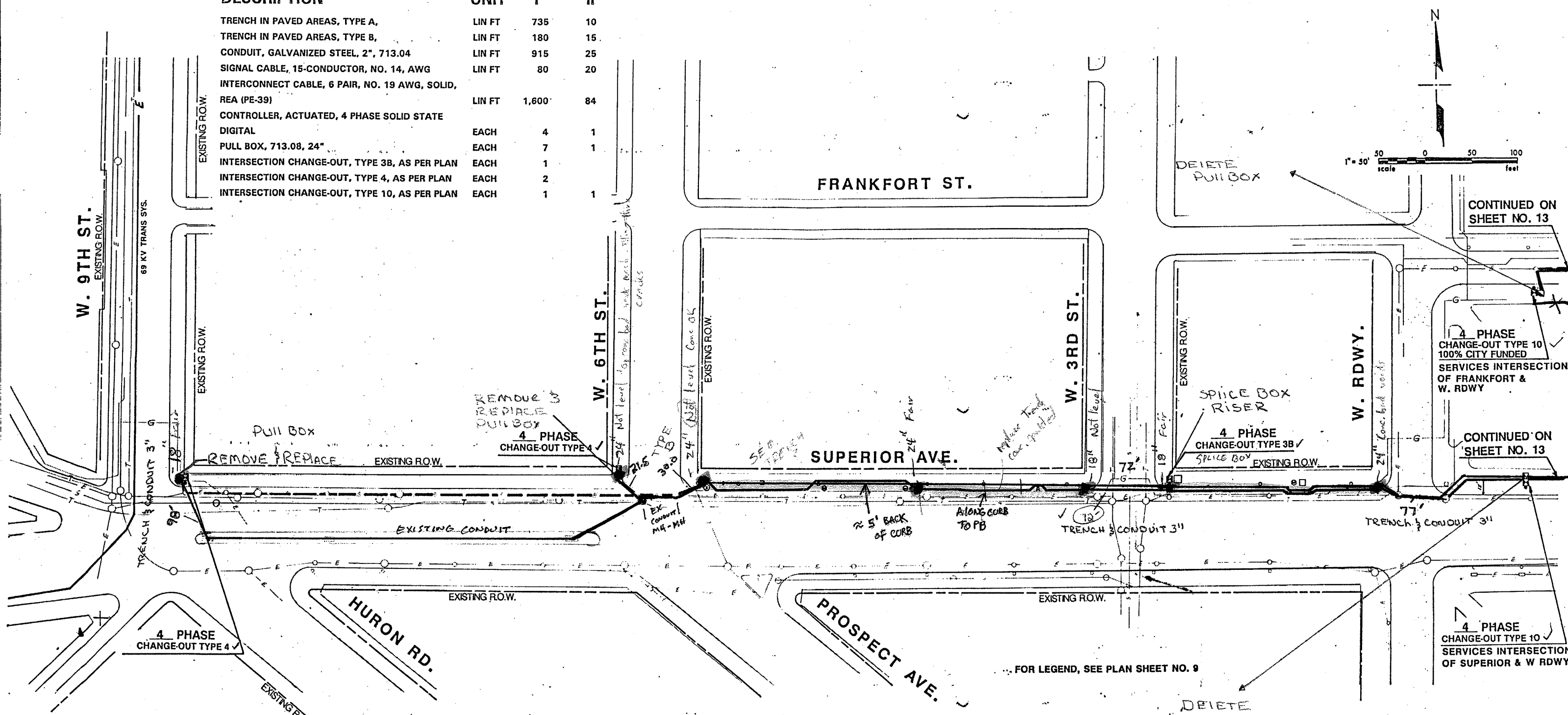
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CONTINUED ON SHEET NO. 14

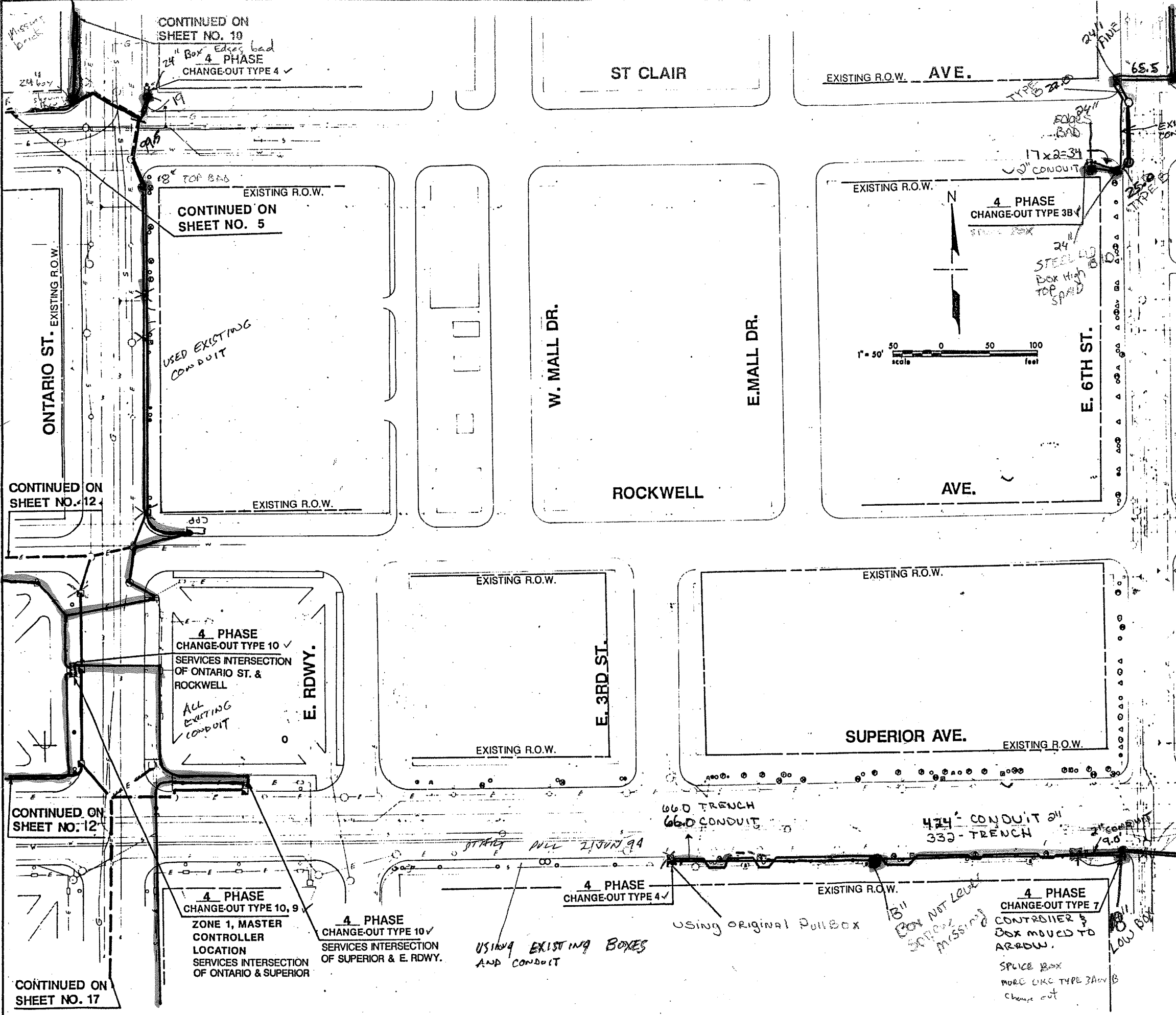
FOR LEGEND, SEE PLAN SHEET NO. 9

SUBSUMMARY OF QUANTITIES

DESCRIPTION	UNIT	I	II
TRENCH IN PAVED AREAS, TYPE A,	LIN FT	735	10
TRENCH IN PAVED AREAS, TYPE B,	LIN FT	180	15
CONDUIT, GALVANIZED STEEL, 2", 713.04	LIN FT	915	25
SIGNAL CABLE, 15-CONDUCTOR, NO. 14, AWG	LIN FT	80	20
INTERCONNECT CABLE, 6 PAIR, NO. 19 AWG, SOLID, REA (PE-39)	LIN FT	1,600	84
CONTROLLER, ACTUATED, 4 PHASE SOLID STATE DIGITAL	EACH	4	1
PULL BOX, 713.08, 24"	EACH	7	1
INTERSECTION CHANGE-OUT, TYPE 3B, AS PER PLAN	EACH	1	
INTERSECTION CHANGE-OUT, TYPE 4, AS PER PLAN	EACH	2	
INTERSECTION CHANGE-OUT, TYPE 10, AS PER PLAN	EACH	1	1



TRENCH TYPE B	3" CONDUIT	PULL BOX	REMOVE & REPLACE
1) 98.0	1) 98.0	24" - 4 ea	
2) 72.0	2) 72.0	18" 2	
3) 77.0	3) 77.0	18 1	(Remove & replace)
4) 30.0	4) 30.0		
5) 21.5	5) 21.5		



TRENCH TYPE A

- 66.0
- 333.0
- 251.0
- 17.0
- 9.0

TRENCH TYPE B

- 65.5
- 25.0
- 22.0
- 54.0

2" CONDUIT

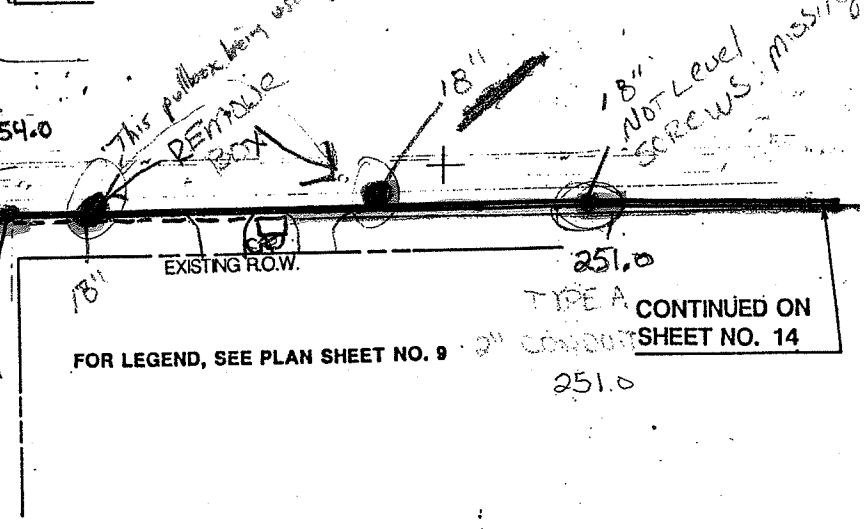
- 66.0
- 424.0
- 251.0
- 34.0
- 9.0

3" CONDUIT

- 65.5
- 25.0
- 22.0
- 54.0
- 17.0
- 9.0

SUBSUMMARY OF QUANTITIES

DESCRIPTION	UNIT	I	II
TRENCH IN PAVED AREAS, TYPE A,	LIN FT	1,677	
TRENCH IN PAVED AREAS, TYPE B,	LIN FT	355	
CONDUIT, GALVANIZED STEEL, 2", 713.04	LIN FT	2,032	
SIGNAL CABLE, 15-CONDUCTOR, NO. 14, AWG	LIN FT	140	
INTERCONNECT CABLE, 6 PAIR, NO. 19 AWG, SOLID, REA (PE-39)	LIN FT	2,674	86
CONTROLLER, ACTUATED, 4 PHASE SOLID STATE DIGITAL	EACH	7	
ON STREET MASTER CONTROLLER, SOLID STATE DIGITAL, AS PER PLAN	EACH	1	
PULL BOX, 713.08, 24"	EACH	20	
INTERSECTION CHANGE-OUT, TYPE 3B, AS PER PLAN	EACH	1	
INTERSECTION CHANGE-OUT, TYPE 4, AS PER PLAN	EACH	2	
INTERSECTION CHANGE-OUT, TYPE 7, AS PER PLAN	EACH	1	
INTERSECTION CHANGE-OUT, TYPE 9, AS PER PLAN	EACH	1	
INTERSECTION CHANGE-OUT, TYPE 10, AS PER PLAN	EACH	3	



CONTINUED ON SHEET NO. 11

CONTINUED ON SHEET NO. 11

PULL BOXES
 24" - 14
 18" - 6

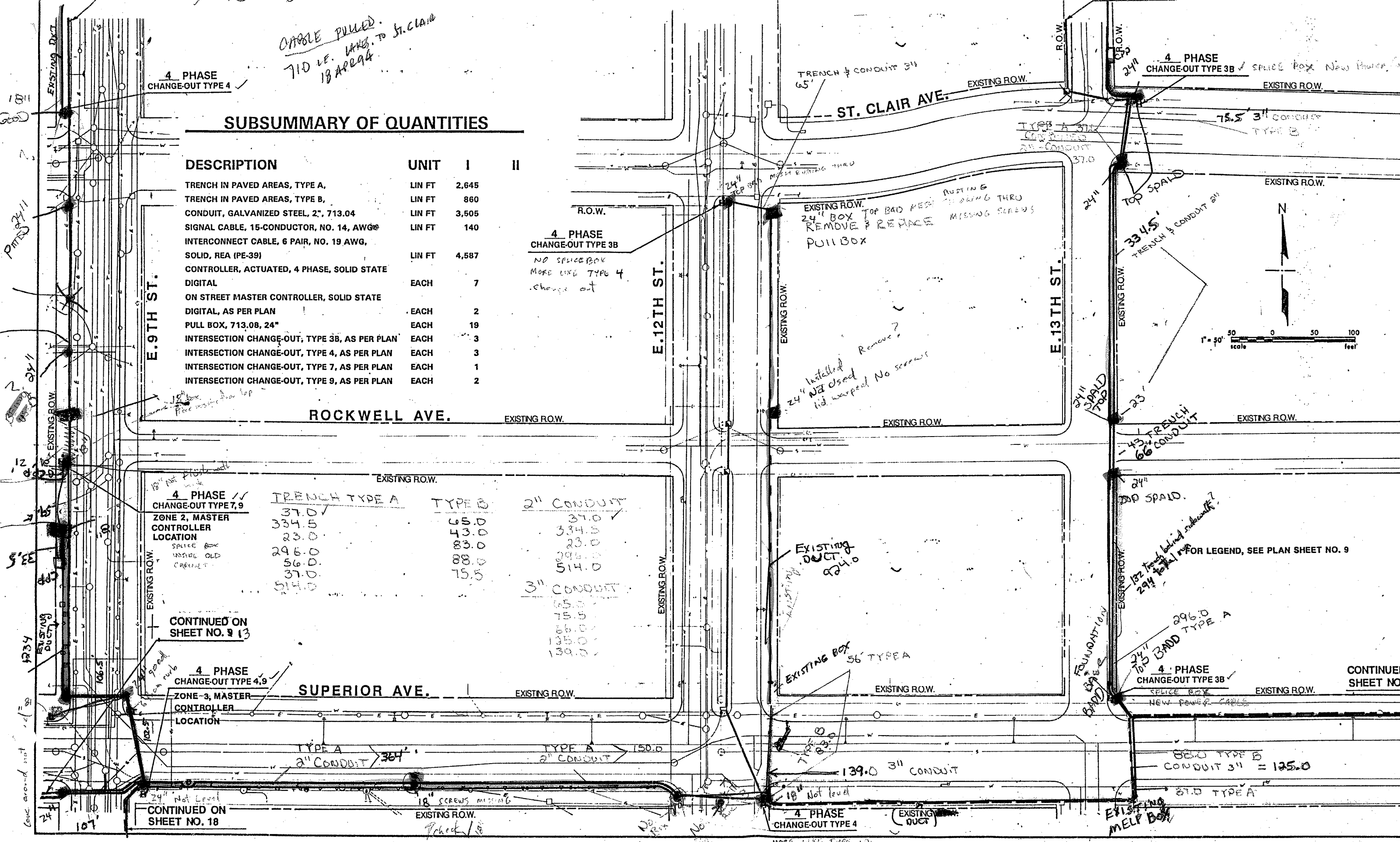
*CABLE PULLED
 710 LF. WKS. TO ST. CLAIR
 18 APR 94*

4 PHASE CHANGE-OUT TYPE 4

SUBSUMMARY OF QUANTITIES

DESCRIPTION	UNIT	I	II
TRENCH IN PAVED AREAS, TYPE A,	LIN FT	2,645	
TRENCH IN PAVED AREAS, TYPE B,	LIN FT	860	
CONDUIT, GALVANIZED STEEL, 2", 713.04	LIN FT	3,505	
SIGNAL CABLE, 15-CONDUCTOR, NO. 14, AWG@	LIN FT	140	
INTERCONNECT CABLE, 6 PAIR, NO. 19 AWG, SOLID, REA (PE-39)	LIN FT	4,587	
CONTROLLER, ACTUATED, 4 PHASE, SOLID STATE DIGITAL	EACH	7	
ON STREET MASTER CONTROLLER, SOLID STATE DIGITAL, AS PER PLAN	EACH	2	
PULL BOX, 713.08, 24"	EACH	19	
INTERSECTION CHANGE-OUT, TYPE 3B, AS PER PLAN	EACH	3	
INTERSECTION CHANGE-OUT, TYPE 4, AS PER PLAN	EACH	3	
INTERSECTION CHANGE-OUT, TYPE 7, AS PER PLAN	EACH	1	
INTERSECTION CHANGE-OUT, TYPE 9, AS PER PLAN	EACH	2	

4 PHASE CHANGE-OUT TYPE 3B
 NO SPICE BOX MORE LIKE TYPE 4 change out



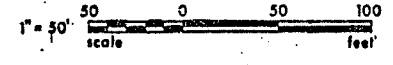
*1811
 2500
 1811
 2500
 12
 415
 5' EE
 1234
 106.5
 102.5
 107*

4 PHASE CHANGE-OUT TYPE 7,9 ZONE 2, MASTER CONTROLLER LOCATION	TRENCH TYPE A		TYPE B		2" CONDUIT	
	37.0	334.5	65.0	43.0	37.0	334.5
SPICE BOX	23.0	246.0	83.0	83.0	23.0	296.0
REMOVE OLD CABLE	56.0	56.0	88.0	88.0	56.0	514.0
	37.0	514.0	15.5			
					3" CONDUIT	
					65.0	
					75.5	
					85.0	
					135.0	
					139.0	

CONTINUED ON SHEET NO. 9 13

4 PHASE CHANGE-OUT TYPE 4,9 ZONE 3, MASTER CONTROLLER LOCATION

CONTINUED ON SHEET NO. 18

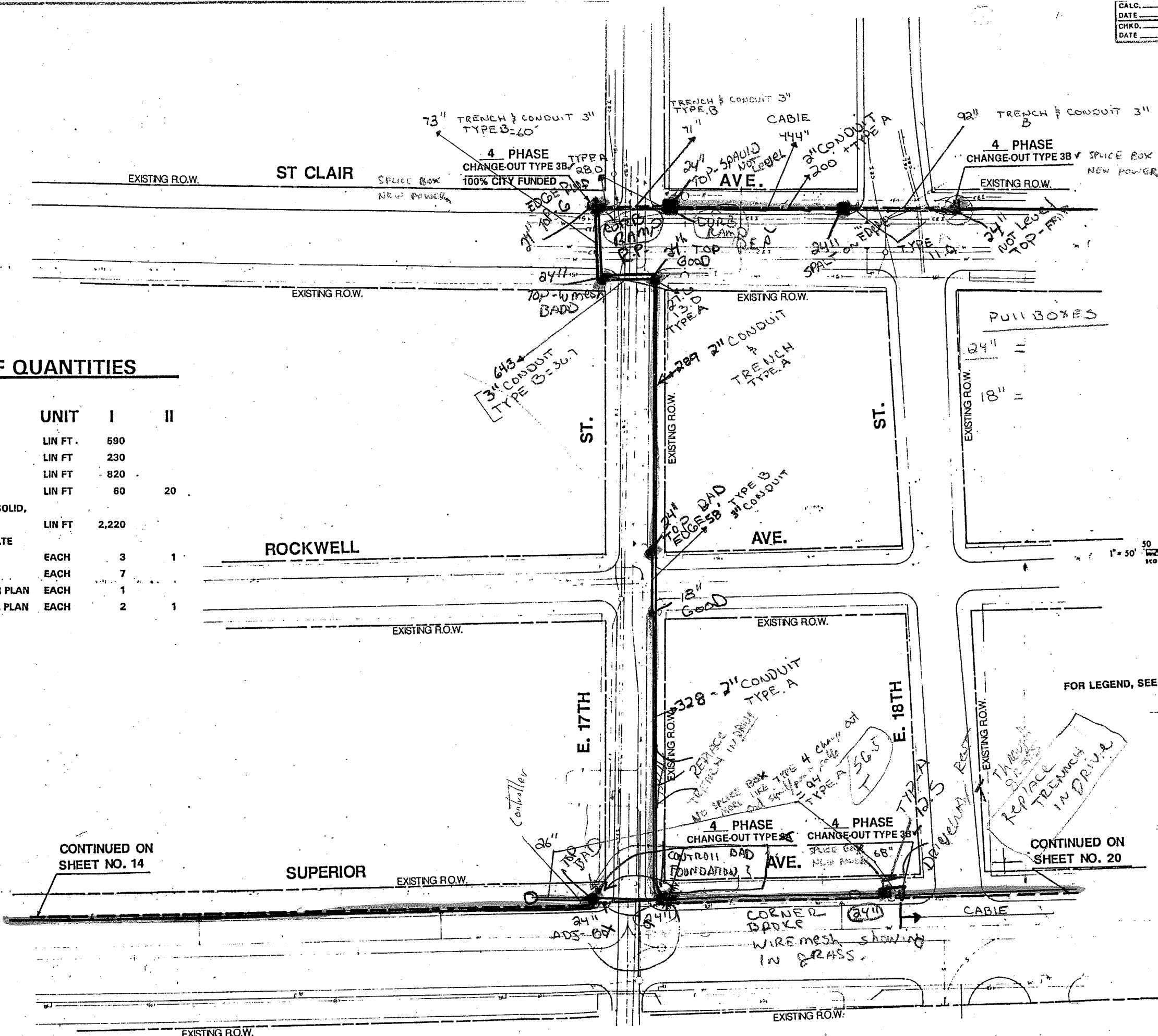


FOR LEGEND, SEE PLAN SHEET NO. 9

CONTINUED SHEET NO.

Cont around not 12/20

MORE LIKE TYPE 10

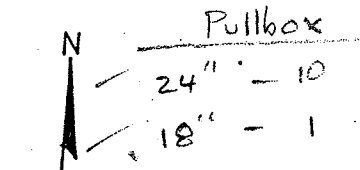


SUBSUMMARY OF QUANTITIES

DESCRIPTION	UNIT	I	II
TRENCH IN PAVED AREAS, TYPE A,	LIN FT.	590	
TRENCH IN PAVED AREAS, TYPE B,	LIN FT.	230	
CONDUIT, GALVANIZED STEEL, 2", 713.04	LIN FT.	820	
SIGNAL CABLE, 15-CONDUCTOR, NO. 14, AWG	LIN FT.	60	20
INTERCONNECT CABLE, 6 PAIR, NO. 19 AWG, SOLID, AS PER PLAN	LIN FT.	2,220	
CONTROLLER, ACTUATED, 4 PHASE SOLID STATE DIGITAL	EACH	3	1
PULL BOX, 713.08, 24"	EACH	7	
INTERSECTION CHANGE-OUT, TYPE 3A, AS PER PLAN	EACH	1	
INTERSECTION CHANGE-OUT, TYPE 3B, AS PER PLAN	EACH	2	1

- 2" CONDUIT
- 328 ✓
 - 289
 - 200
 - 26+68 = 94

- 3" CONDUIT
- 64.3 ✓
 - 73.0 ✓
 - 71.0
 - 92.0
 - 58.0



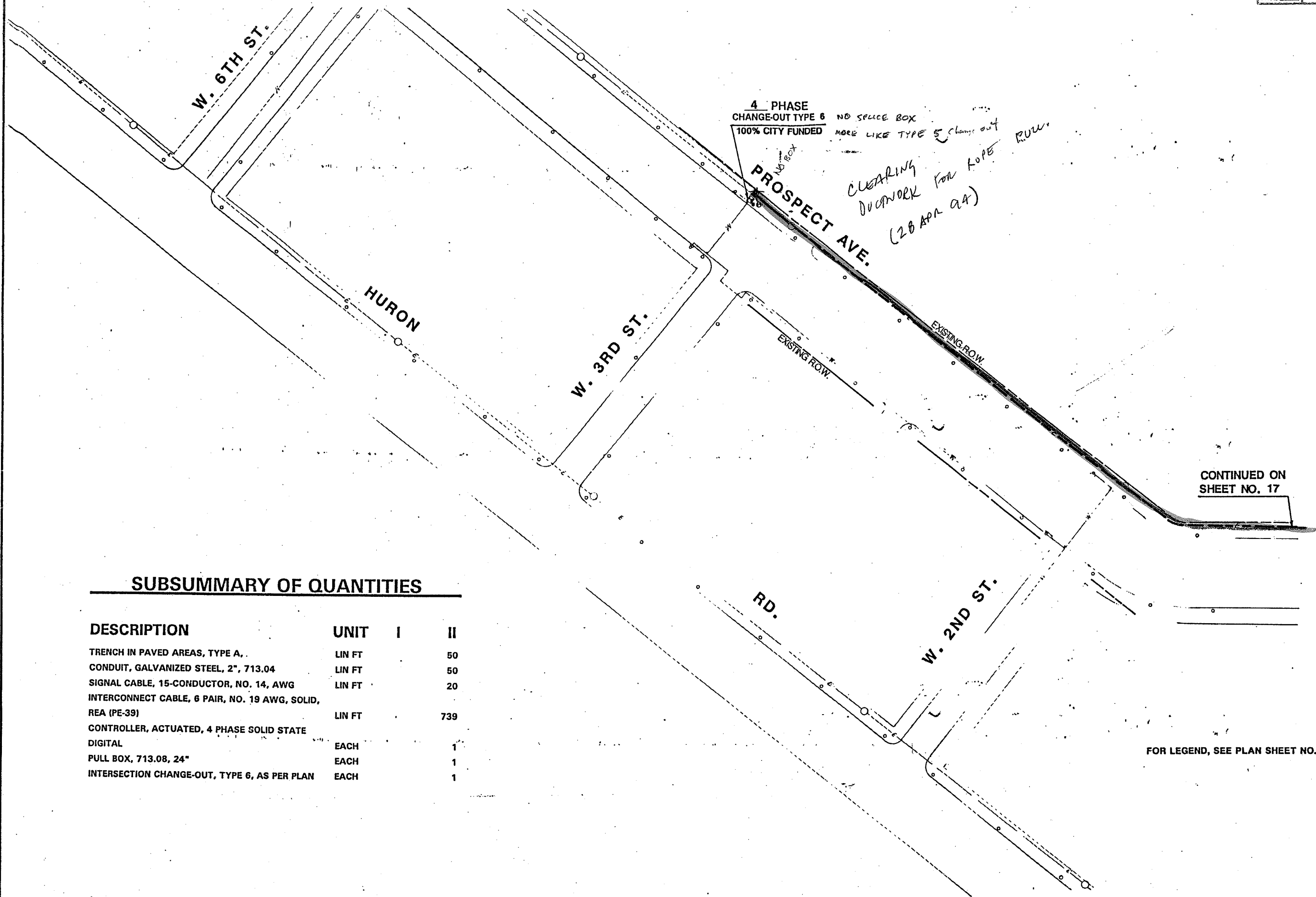
CONTINUED ON SHEET NO. 14

CONTINUED ON SHEET NO. 20

FOR LEGEND, SEE PLAN SHEET NO. 9

- TYPE A- TRENCH
- 94 = 26+68
 - 328 ✓
 - 289
 - 28
 - 27.6 ✓
 - 13.0
 - 11.0
 - 200.0

- TYPE B TRENCH
- 58.0
 - 36.7 ✓
 - 60.0 ✓
 - 43.6
 - 81.0



CONTINUED ON SHEET NO. 17

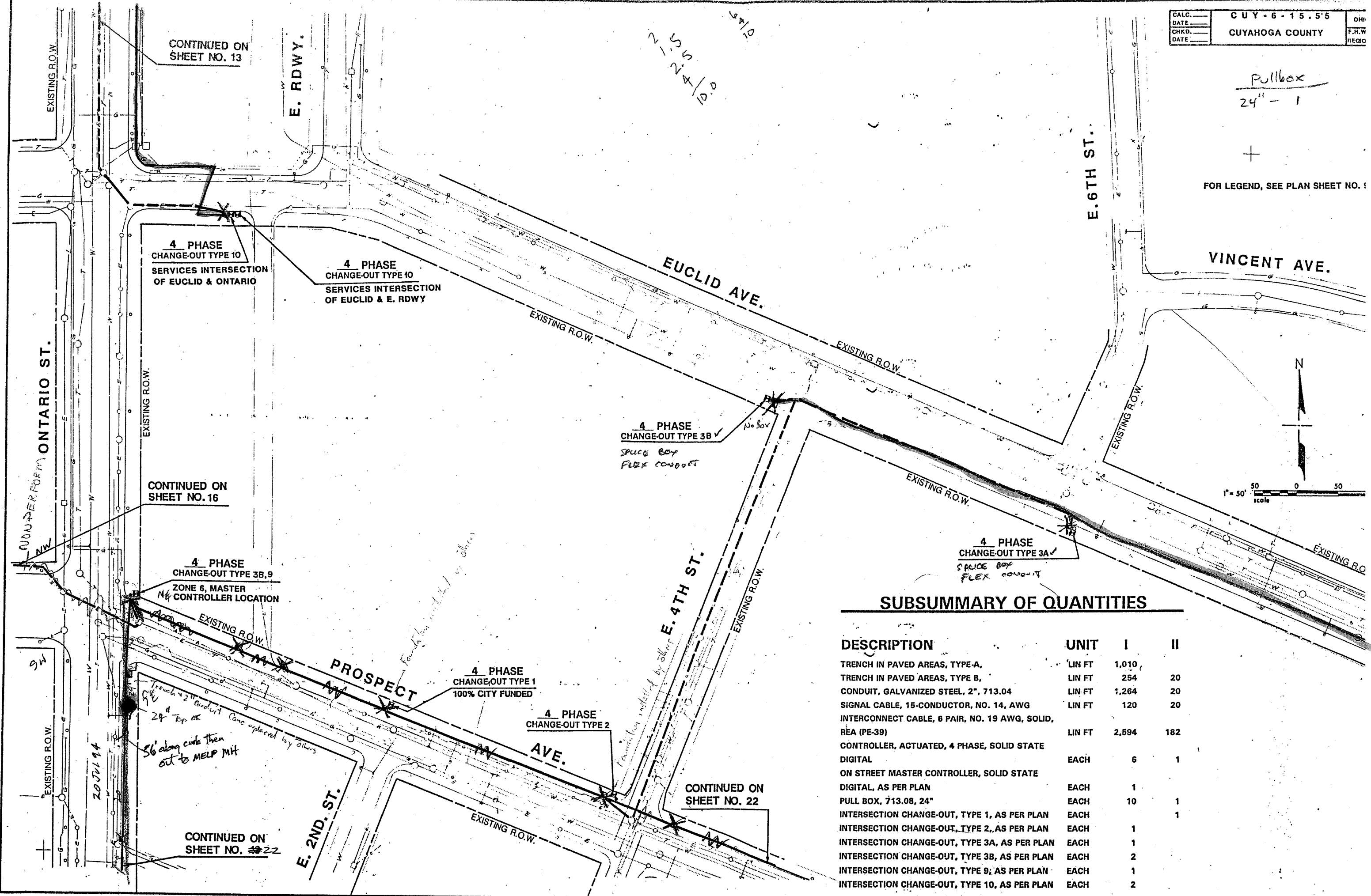
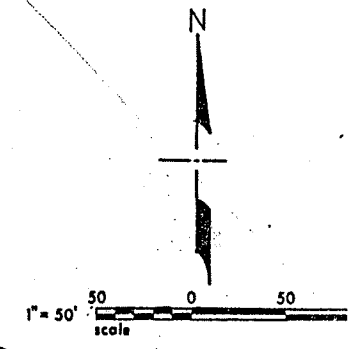
SUBSUMMARY OF QUANTITIES

DESCRIPTION	UNIT	I	II
TRENCH IN PAVED AREAS, TYPE A.	LIN FT		50
CONDUIT, GALVANIZED STEEL, 2", 713.04	LIN FT		50
SIGNAL CABLE, 15-CONDUCTOR, NO. 14, AWG	LIN FT		20
INTERCONNECT CABLE, 6 PAIR, NO. 19 AWG, SOLID, REA (PE-39)	LIN FT		739
CONTROLLER, ACTUATED, 4 PHASE SOLID STATE DIGITAL	EACH		1
PULL BOX, 713.08, 24"	EACH		1
INTERSECTION CHANGE-OUT, TYPE 6, AS PER PLAN	EACH		1

FOR LEGEND, SEE PLAN SHEET NO. 9

pullbox
24" - 1

FOR LEGEND, SEE PLAN SHEET NO. 1



SUBSUMMARY OF QUANTITIES

DESCRIPTION	UNIT	I	II
TRENCH IN PAVED AREAS, TYPE A,	LIN FT	1,010	
TRENCH IN PAVED AREAS, TYPE B,	LIN FT	254	20
CONDUIT, GALVANIZED STEEL, 2", 713.04	LIN FT	1,264	20
SIGNAL CABLE, 15-CONDUCTOR, NO. 14, AWG	LIN FT	120	20
INTERCONNECT CABLE, 6 PAIR, NO. 19 AWG, SOLID, REA (PE-39)	LIN FT	2,594	182
CONTROLLER, ACTUATED, 4 PHASE, SOLID STATE DIGITAL	EACH	6	1
ON STREET MASTER CONTROLLER, SOLID STATE DIGITAL, AS PER PLAN	EACH	1	
PULL BOX, 713.08, 24"	EACH	10	1
INTERSECTION CHANGE-OUT, TYPE 1, AS PER PLAN	EACH		1
INTERSECTION CHANGE-OUT, TYPE 2, AS PER PLAN	EACH	1	
INTERSECTION CHANGE-OUT, TYPE 3A, AS PER PLAN	EACH	1	
INTERSECTION CHANGE-OUT, TYPE 3B, AS PER PLAN	EACH	2	
INTERSECTION CHANGE-OUT, TYPE 9, AS PER PLAN	EACH	1	
INTERSECTION CHANGE-OUT, TYPE 10, AS PER PLAN	EACH	2	

2-1-5-24-10.0
6/10

CONTINUED ON SHEET NO. 13

4 PHASE CHANGE-OUT TYPE 10 SERVICES INTERSECTION OF EUCLID & ONTARIO

4 PHASE CHANGE-OUT TYPE 10 SERVICES INTERSECTION OF EUCLID & E. RDWY

4 PHASE CHANGE-OUT TYPE 3B
SPACE BOX
FLEX CONDUIT

4 PHASE CHANGE-OUT TYPE 3A
SPACE BOX
FLEX CONDUIT

CONTINUED ON SHEET NO. 16

4 PHASE CHANGE-OUT TYPE 3B,9
ZONE 6, MASTER CONTROLLER LOCATION

4 PHASE CHANGE-OUT TYPE 1
100% CITY FUNDED

4 PHASE CHANGE-OUT TYPE 2

CONTINUED ON SHEET NO. 22

CONTINUED ON SHEET NO. 22

Trench 2" conduit
24" top ok
56' along curb then out to MELP MH
Lane replaced by others

Found to be installed by others

ONTARIO ST.

E. RDWY.

EUCLID AVE.

E. 6TH ST.

VINCENT AVE.

E. 4TH ST.

PROSPECT AVE.

E. 2ND ST.

EXISTING R.O.W.

EXISTING R.O.W.

EXISTING R.O.W.

EXISTING R.O.W.

EXISTING R.O.W.

EXISTING R.O.W.

EXISTING R.O.W.

EXISTING R.O.W.

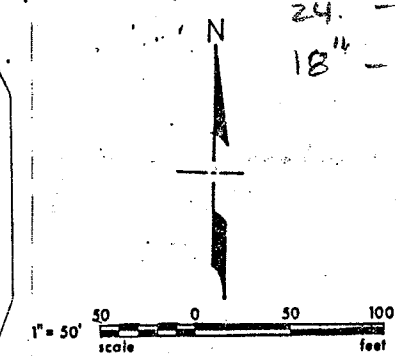
EXISTING R.O.W.

EXISTING R.O.W.

EXISTING R.O.W.

20 JUL 14

Pullbox
24" - 3 ✓
18" - 3 ✓



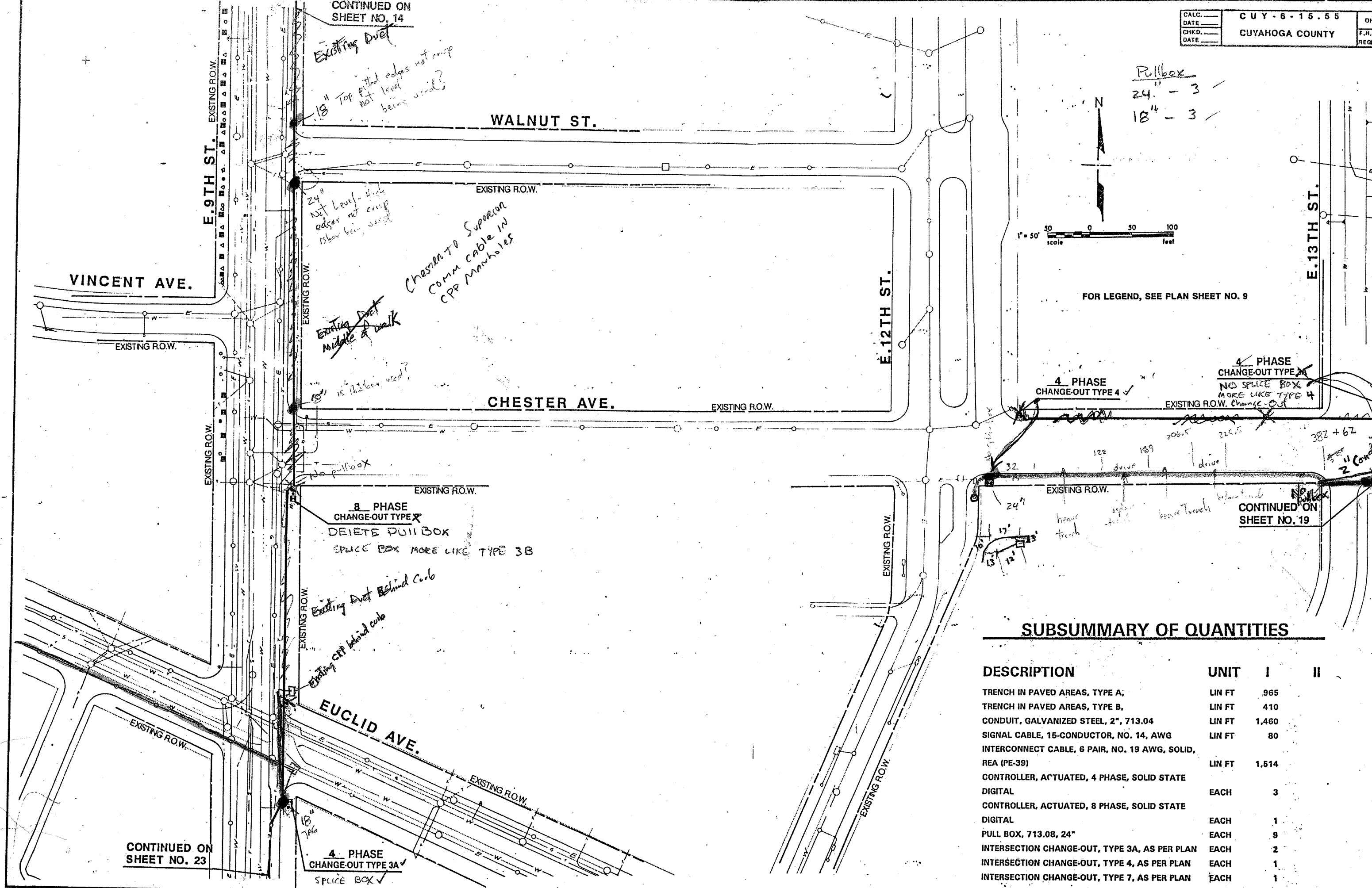
FOR LEGEND, SEE PLAN SHEET NO. 9

4 PHASE CHANGE-OUT TYPE 4 ✓
4 PHASE CHANGE-OUT TYPE 4 ✓
NO SPICE BOX MORE LIKE TYPE 4
EXISTING R.O.W. Change-Out

CONTINUED ON SHEET NO. 19

SUBSUMMARY OF QUANTITIES

DESCRIPTION	UNIT	I	II
TRENCH IN PAVED AREAS, TYPE A;	LIN FT	965	
TRENCH IN PAVED AREAS, TYPE B,	LIN FT	410	
CONDUIT, GALVANIZED STEEL, 2", 713.04	LIN FT	1,460	
SIGNAL CABLE, 15-CONDUCTOR, NO. 14, AWG	LIN FT	80	
INTERCONNECT CABLE, 6 PAIR, NO. 19 AWG, SOLID, REA (PE-39)	LIN FT	1,514	
CONTROLLER, ACTUATED, 4 PHASE, SOLID STATE DIGITAL	EACH	3	
CONTROLLER, ACTUATED, 8 PHASE, SOLID STATE DIGITAL	EACH	1	
PULL BOX, 713.08, 24"	EACH	9	
INTERSECTION CHANGE-OUT, TYPE 3A, AS PER PLAN	EACH	2	
INTERSECTION CHANGE-OUT, TYPE 4, AS PER PLAN	EACH	1	
INTERSECTION CHANGE-OUT, TYPE 7, AS PER PLAN	EACH	1	



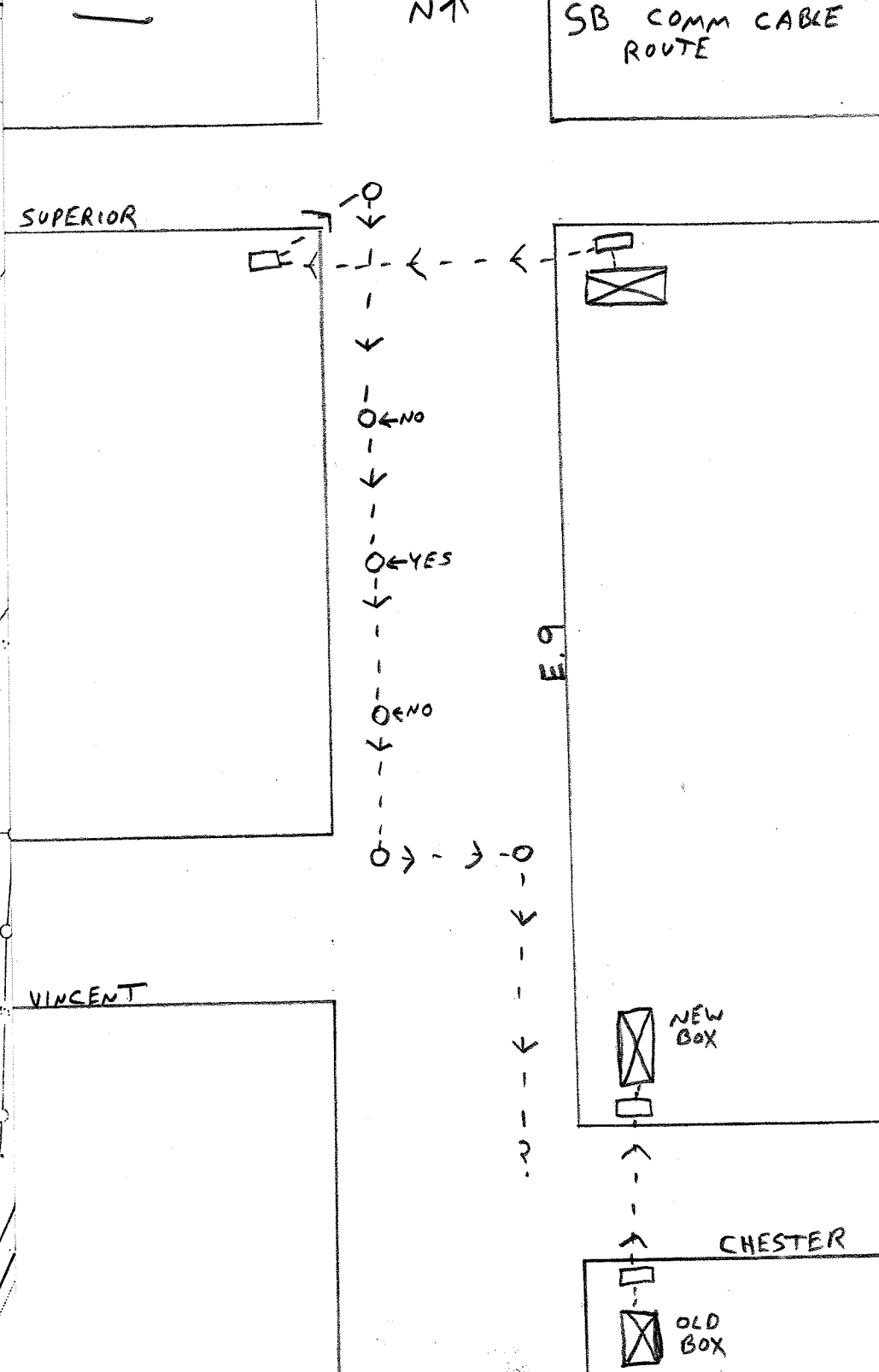
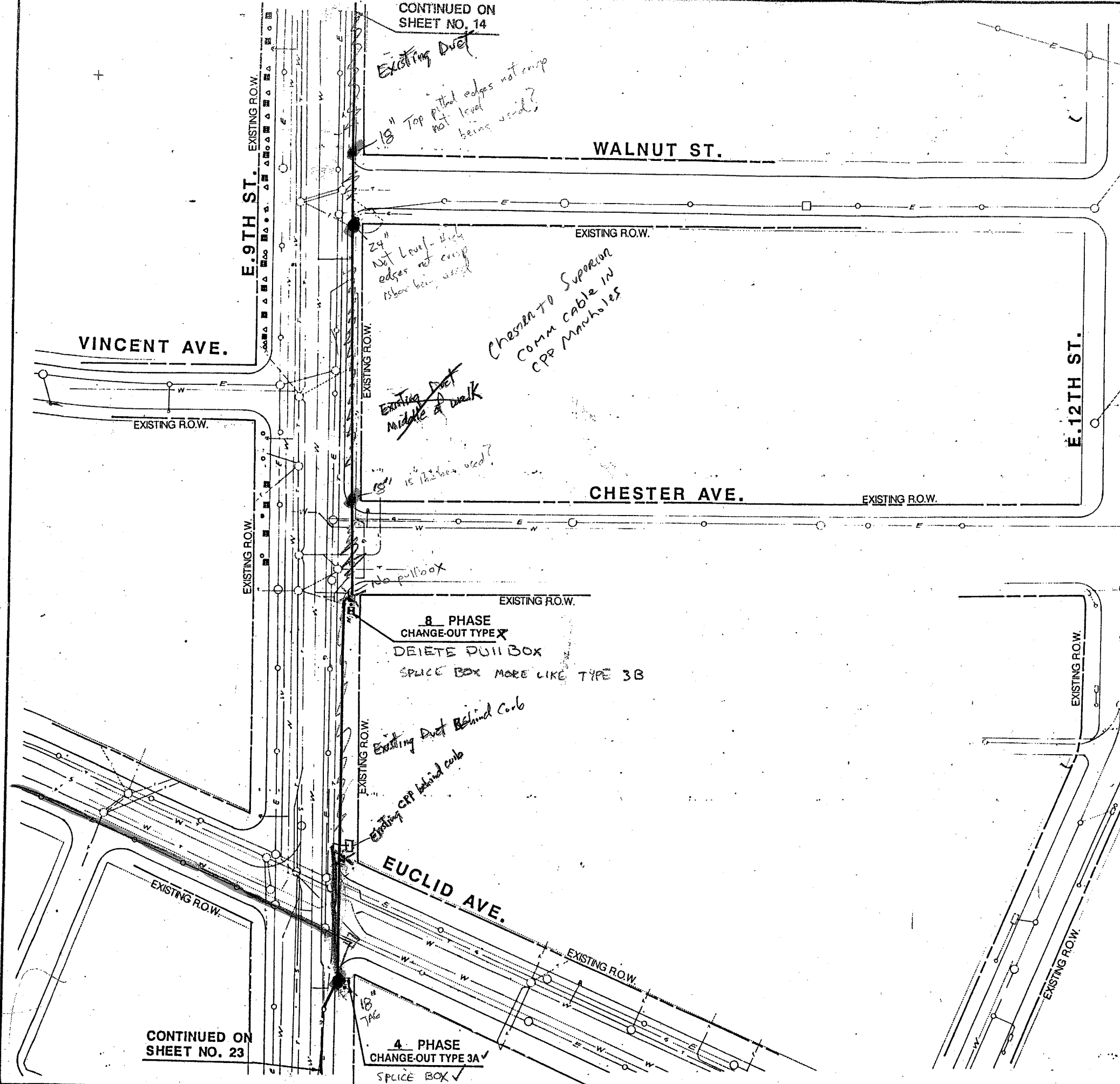
CONTINUED ON SHEET NO. 23

4 PHASE CHANGE-OUT TYPE 3A ✓
SPICE BOX ✓

CONTINUED ON SHEET NO. 14

SB COMM CABLE ROUTE

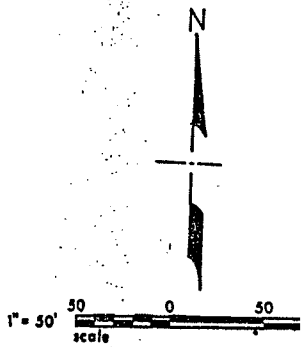
N ↑



CONTINUED ON SHEET NO. 23

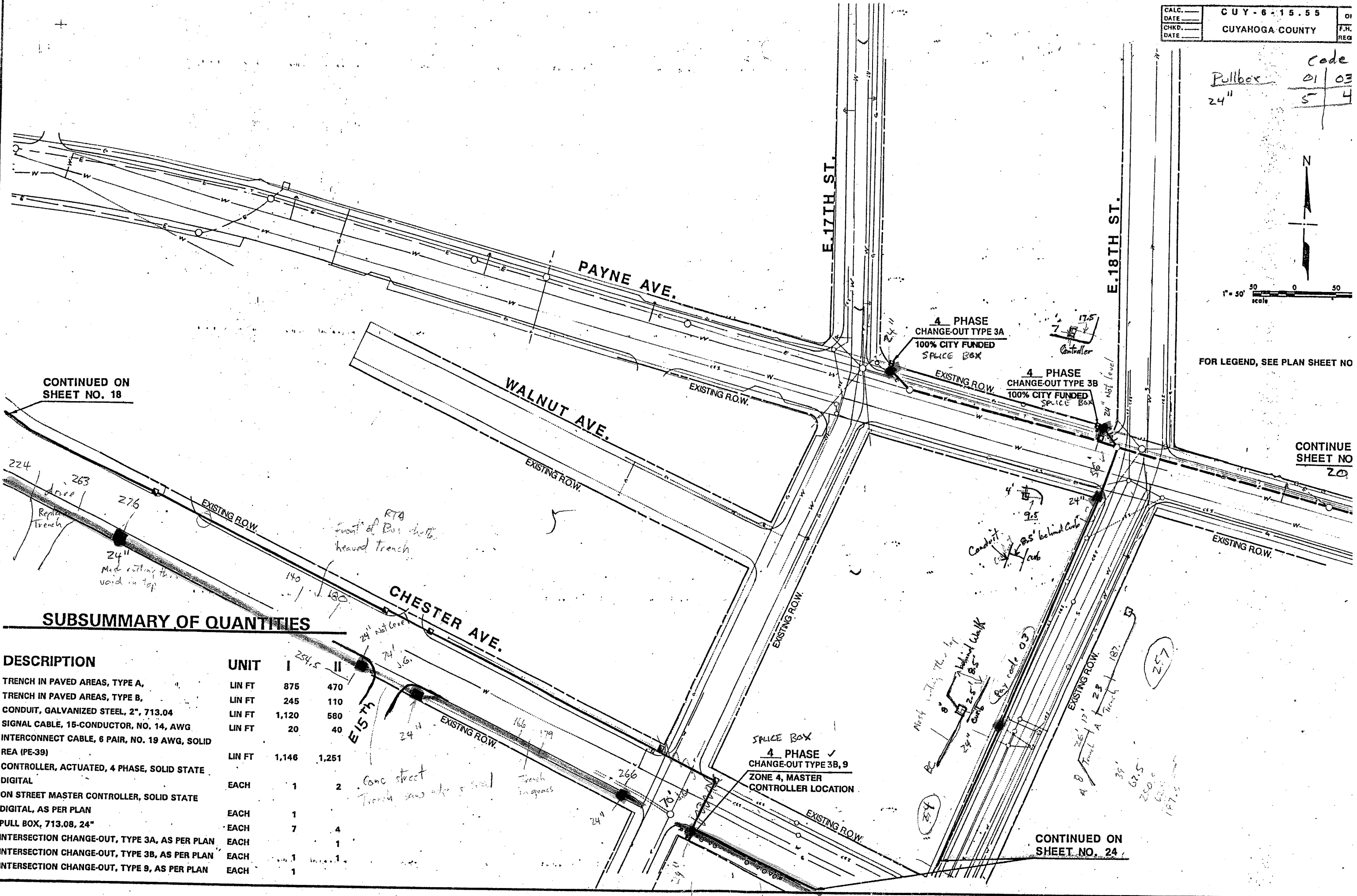
CONDUIT, GALVANIZED STEEL, 2", 713.04	LIN FT	1,460
SIGNAL CABLE, 15-CONDUCTOR, NO. 14, AWG	LIN FT	80
INTERCONNECT CABLE, 6 PAIR, NO. 19 AWG, SOLID, REA (PE-39)	LIN FT	1,514
CONTROLLER, ACTUATED, 4 PHASE, SOLID STATE DIGITAL	EACH	3
CONTROLLER, ACTUATED, 8 PHASE, SOLID STATE DIGITAL	EACH	1
PULL BOX, 713.08, 24"	EACH	9
INTERSECTION CHANGE-OUT, TYPE 3A, AS PER PLAN	EACH	2
INTERSECTION CHANGE-OUT, TYPE 4, AS PER PLAN	EACH	1
INTERSECTION CHANGE-OUT, TYPE 7, AS PER PLAN	EACH	1

	Code	
Pullbox	01	03
24"	5	4



FOR LEGEND, SEE PLAN SHEET NO

CONTINUE SHEET NO 20



CONTINUED ON SHEET NO. 18

SUBSUMMARY OF QUANTITIES

DESCRIPTION	UNIT	I	II
TRENCH IN PAVED AREAS, TYPE A,	LIN FT	875	470
TRENCH IN PAVED AREAS, TYPE B,	LIN FT	245	110
CONDUIT, GALVANIZED STEEL, 2", 713.04	LIN FT	1,120	580
SIGNAL CABLE, 15-CONDUCTOR, NO. 14, AWG	LIN FT	20	40
INTERCONNECT CABLE, 6 PAIR, NO. 19 AWG, SOLID REA (PE-39)	LIN FT	1,146	1,251
CONTROLLER, ACTUATED, 4 PHASE, SOLID STATE DIGITAL	EACH	1	2
ON STREET MASTER CONTROLLER, SOLID STATE DIGITAL, AS PER PLAN	EACH	1	
PULL BOX, 713.08, 24"	EACH	7	4
INTERSECTION CHANGE-OUT, TYPE 3A, AS PER PLAN	EACH		1
INTERSECTION CHANGE-OUT, TYPE 3B, AS PER PLAN	EACH	1	1
INTERSECTION CHANGE-OUT, TYPE 9, AS PER PLAN	EACH	1	

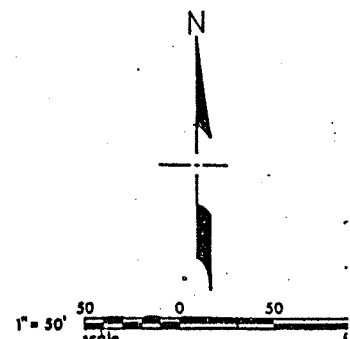
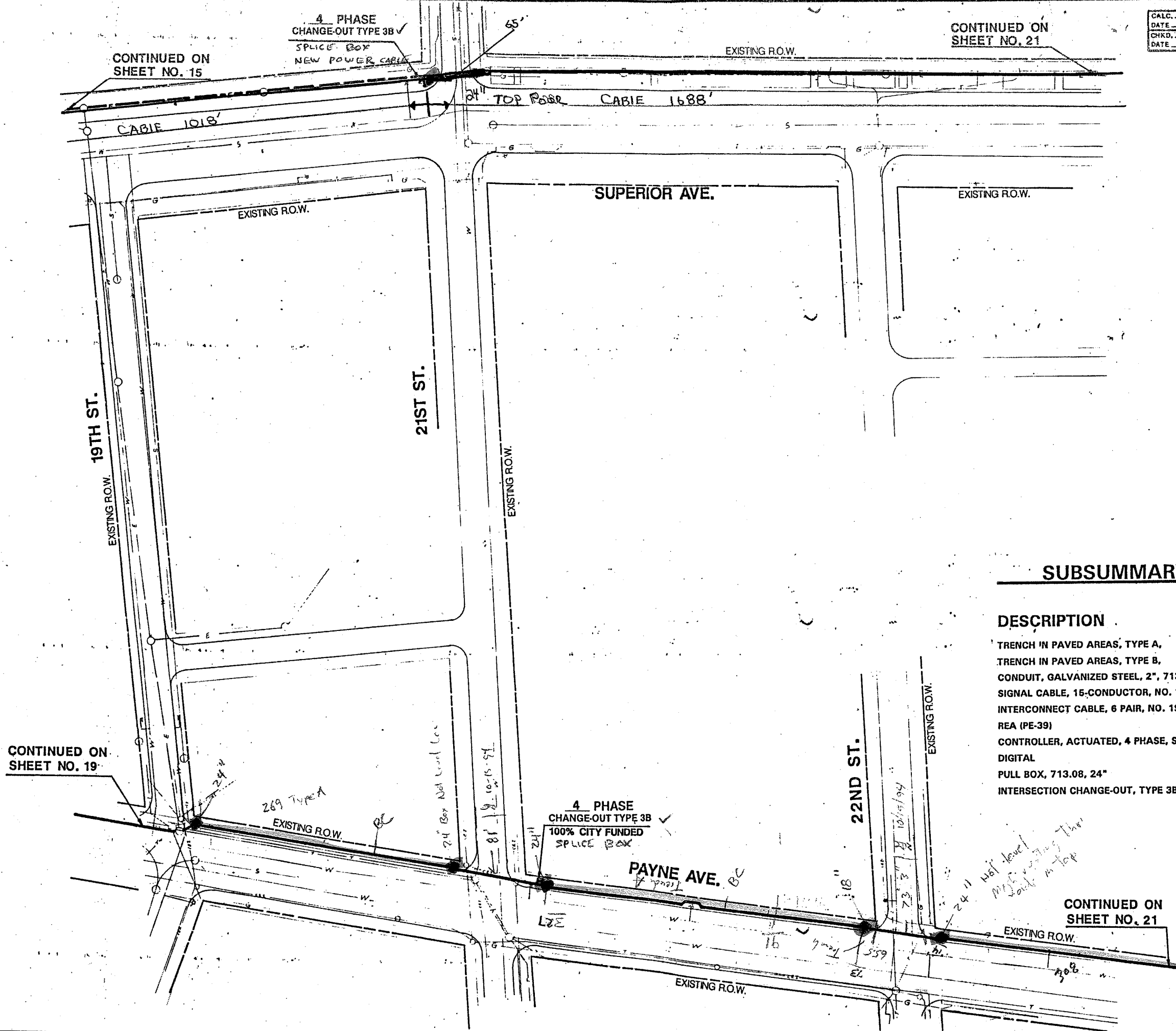
CONTINUED ON SHEET NO. 24

CONTINUED ON SHEET NO. 21

CONTINUED ON SHEET NO. 15

Pullbox code

24"	1	4
18"		1



FOR LEGEND, SEE PLAN SHEET NO. 19

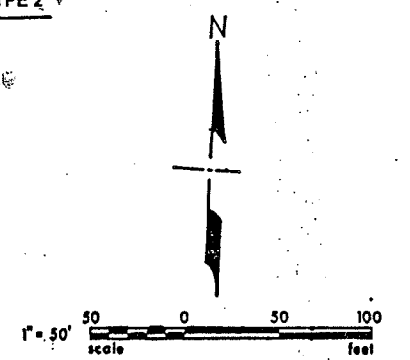
SUBSUMMARY OF QUANTITIES

DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL
TRENCH IN PAVED AREAS, TYPE A,	LIN FT.	10	83	
TRENCH IN PAVED AREAS, TYPE B,	LIN FT.	35	11	
CONDUIT, GALVANIZED STEEL, 2", 713.04	LIN FT.	45	1,00	
SIGNAL CABLE, 15-CONDUCTOR, NO. 14, AWG	LIN FT.	20		
INTERCONNECT CABLE, 6 PAIR, NO. 19 AWG, SOLID REA (PE-39)	LIN FT.	1,000	1,31	
CONTROLLER, ACTUATED, 4 PHASE, SOLID STATE DIGITAL	EACH	1		
PULL BOX, 713.08, 24"	EACH	1		
INTERSECTION CHANGE-OUT, TYPE 3B, AS PER PLAN	EACH	1		

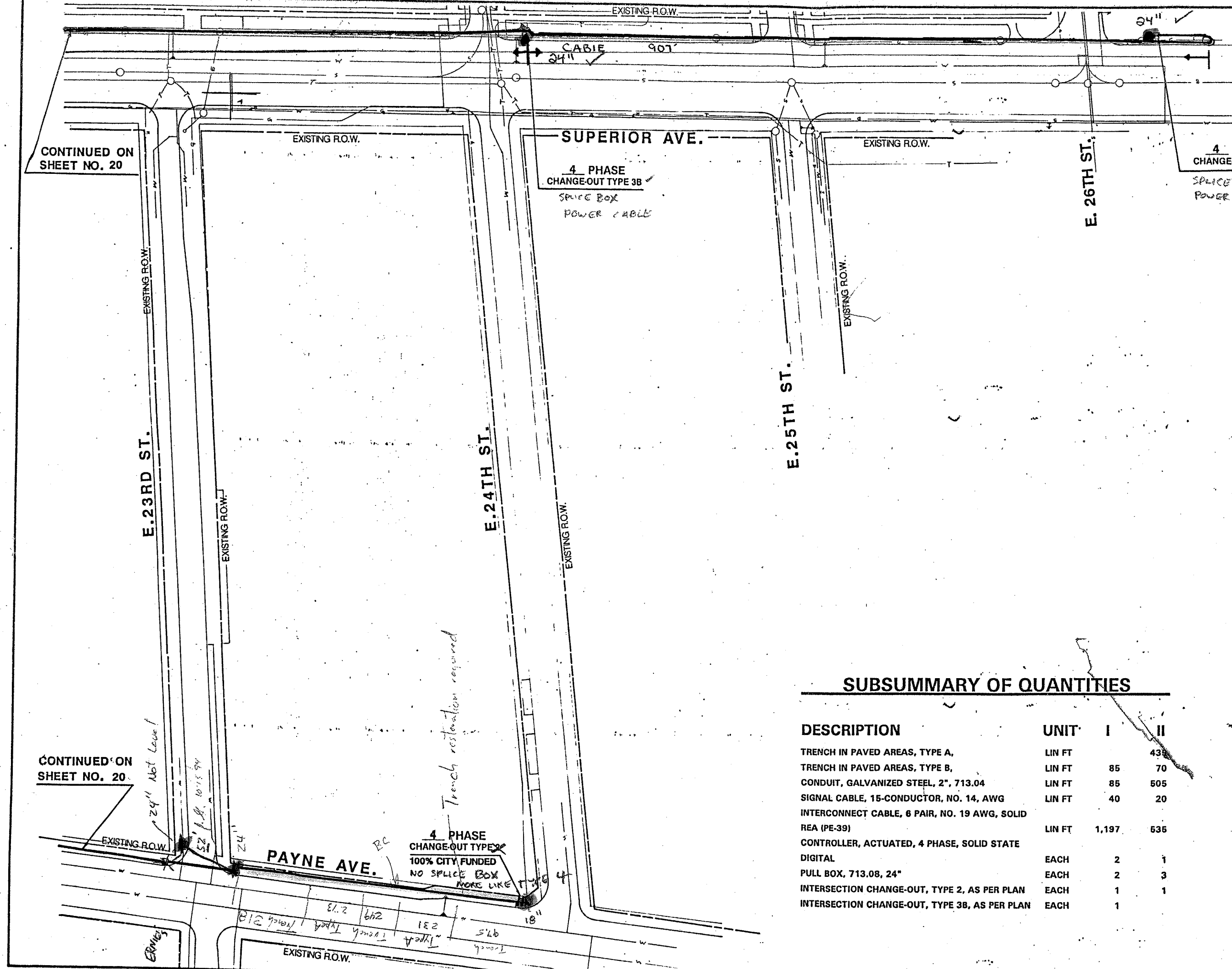
CONTINUED ON SHEET NO. 19

CONTINUED ON SHEET NO. 21

Pullbox	Code	01	03
24"		2	2
18"			1



FOR LEGEND, SEE PLAN SHEET NO. 9



SUBSUMMARY OF QUANTITIES

DESCRIPTION	UNIT	I	II
TRENCH IN PAVED AREAS, TYPE A,	LIN FT		43
TRENCH IN PAVED AREAS, TYPE B,	LIN FT	85	70
CONDUIT, GALVANIZED STEEL, 2", 713.04	LIN FT	85	505
SIGNAL CABLE, 15-CONDUCTOR, NO. 14, AWG	LIN FT	40	20
INTERCONNECT CABLE, 6 PAIR, NO. 19 AWG, SOLID REA (PE-39)	LIN FT	1,197	636
CONTROLLER, ACTUATED, 4 PHASE, SOLID STATE DIGITAL	EACH	2	1
PULL BOX, 713.08, 24"	EACH	2	3
INTERSECTION CHANGE-OUT, TYPE 2, AS PER PLAN	EACH	1	1
INTERSECTION CHANGE-OUT, TYPE 3B, AS PER PLAN	EACH	1	

CONTINUED ON SHEET NO. 20

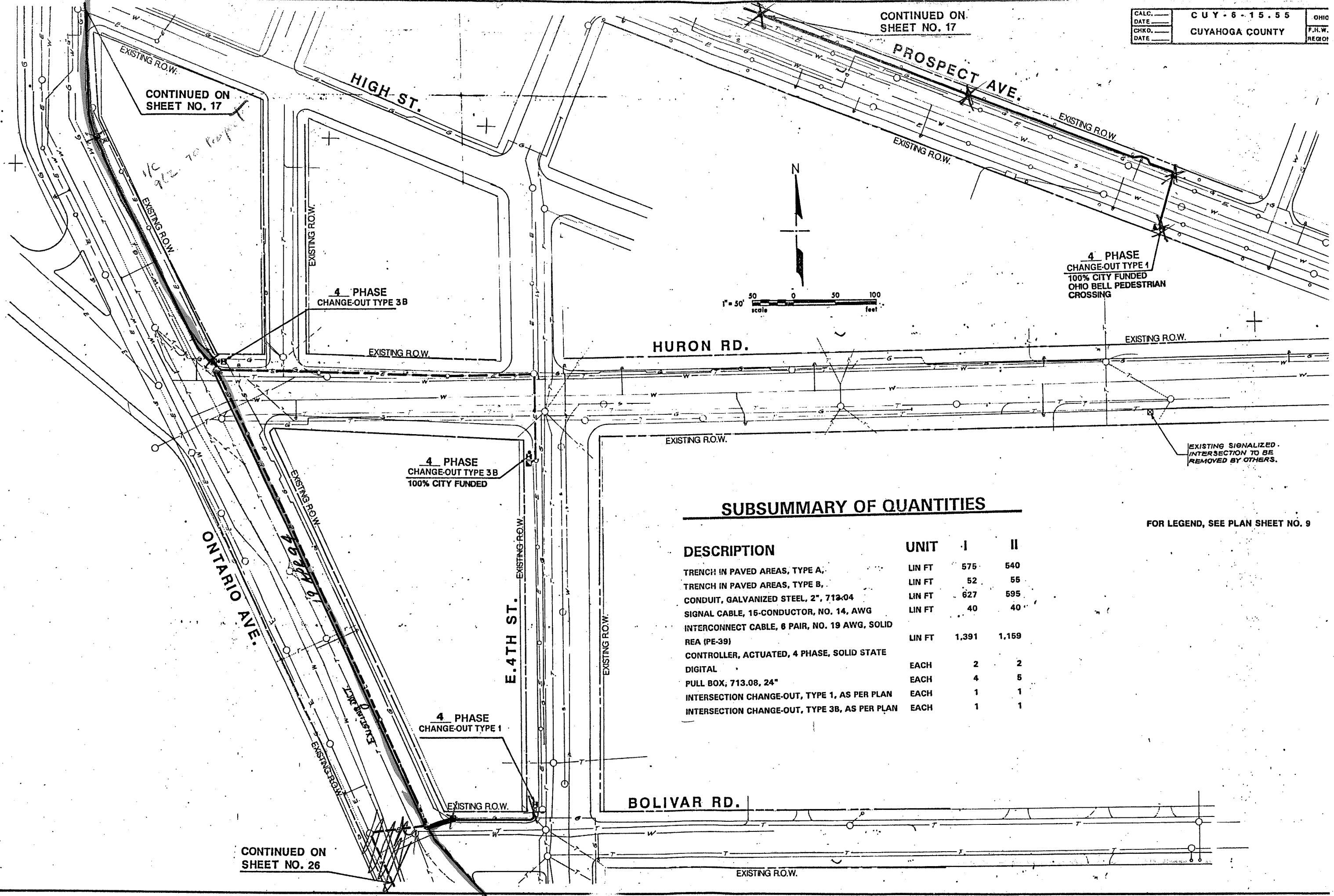
CONTINUED ON SHEET NO. 20

24" Not Level

Trench restoration required

4 PHASE CHANGE-OUT TYPE 2
100% CITY FUNDED
NO SPlice BOX
MORE LIKE TYPE 4

Trench	97.5	Type A	231
Trench	249	Type A	273
Trench	218	Type A	218



CONTINUED ON SHEET NO. 17

1/2 912 to Prospect

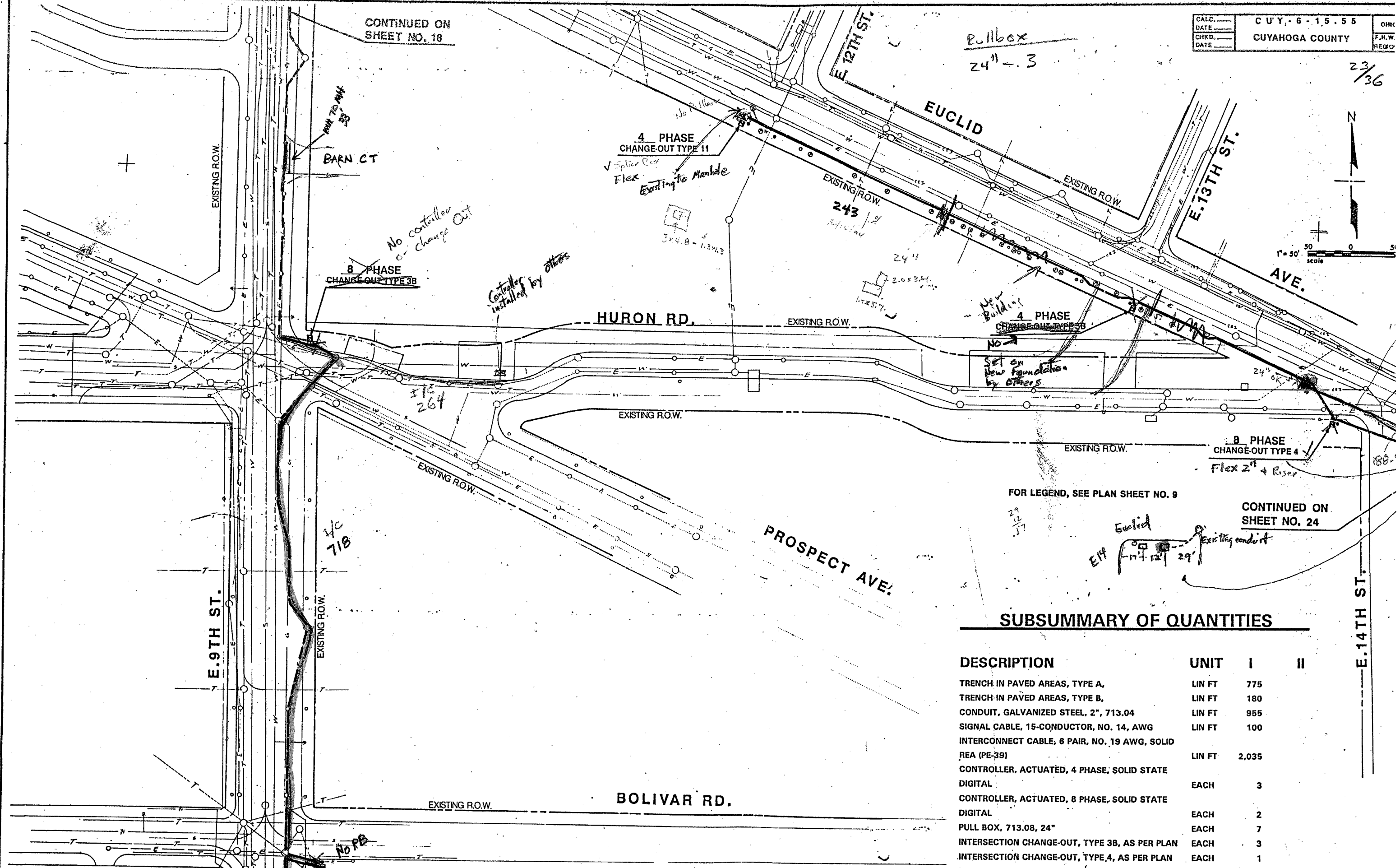
CONTINUED ON SHEET NO. 26

SUBSUMMARY OF QUANTITIES

FOR LEGEND, SEE PLAN SHEET NO. 9

DESCRIPTION	UNIT	I	II
TRENCH IN PAVED AREAS, TYPE A,	LIN FT	575	540
TRENCH IN PAVED AREAS, TYPE B,	LIN FT	52	55
CONDUIT, GALVANIZED STEEL, 2", 713-04	LIN FT	627	595
SIGNAL CABLE, 15-CONDUCTOR, NO. 14, AWG	LIN FT	40	40
INTERCONNECT CABLE, 6 PAIR, NO. 19 AWG, SOLID REA (PE-39)	LIN FT	1,391	1,159
CONTROLLER, ACTUATED, 4 PHASE, SOLID STATE DIGITAL	EACH	2	2
PULL BOX, 713.08, 24"	EACH	4	5
INTERSECTION CHANGE-OUT, TYPE 1, AS PER PLAN	EACH	1	1
INTERSECTION CHANGE-OUT, TYPE 3B, AS PER PLAN	EACH	1	1

23/36



FOR LEGEND, SEE PLAN SHEET NO. 8

CONTINUED ON SHEET NO. 24

SUBSUMMARY OF QUANTITIES

DESCRIPTION	UNIT	I	II
TRENCH IN PAVED AREAS, TYPE A,	LIN FT	775	
TRENCH IN PAVED AREAS, TYPE B,	LIN FT	180	
CONDUIT, GALVANIZED STEEL, 2", 713.04	LIN FT	955	
SIGNAL CABLE, 15-CONDUCTOR, NO. 14, AWG	LIN FT	100	
INTERCONNECT CABLE, 6 PAIR, NO. 19 AWG, SOLID REA (PE-39)	LIN FT	2,035	
CONTROLLER, ACTUATED, 4 PHASE, SOLID STATE DIGITAL	EACH	3	
CONTROLLER, ACTUATED, 8 PHASE, SOLID STATE DIGITAL	EACH	2	
PULL BOX, 713.08, 24"	EACH	7	
INTERSECTION CHANGE-OUT, TYPE 3B, AS PER PLAN	EACH	3	
INTERSECTION CHANGE-OUT, TYPE 4, AS PER PLAN	EACH	1	
INTERSECTION CHANGE-OUT, TYPE 11, AS PER PLAN	EACH	1	

CONTINUED ON SHEET NO. 27

NO CHANGE OUT
4 PHASE Controller installed on new foundation (Foundation by others)
CHANGE-OUT TYPE 3B

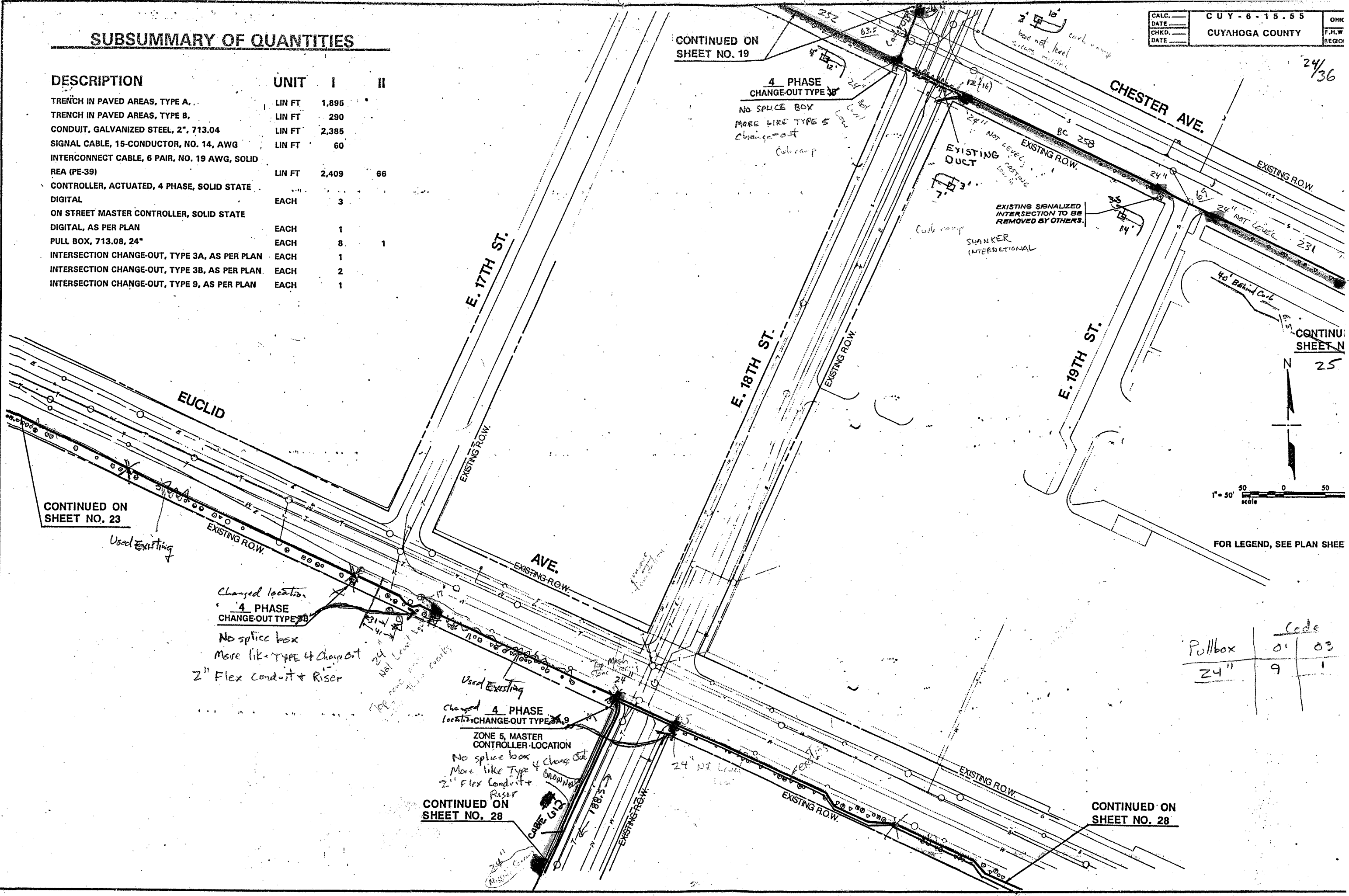
SUBSUMMARY OF QUANTITIES

DESCRIPTION	UNIT	I	II
TRENCH IN PAVED AREAS, TYPE A,	LIN FT	1,895	
TRENCH IN PAVED AREAS, TYPE B,	LIN FT	290	
CONDUIT, GALVANIZED STEEL, 2", 713.04	LIN FT	2,385	
SIGNAL CABLE, 15-CONDUCTOR, NO. 14, AWG	LIN FT	60	
INTERCONNECT CABLE, 6 PAIR, NO. 19 AWG, SOLID REA (PE-39)	LIN FT	2,409	66
CONTROLLER, ACTUATED, 4 PHASE, SOLID STATE DIGITAL	EACH	3	
ON STREET MASTER CONTROLLER, SOLID STATE DIGITAL, AS PER PLAN	EACH	1	
PULL BOX, 713.08, 24"	EACH	8	1
INTERSECTION CHANGE-OUT, TYPE 3A, AS PER PLAN	EACH	1	
INTERSECTION CHANGE-OUT, TYPE 3B, AS PER PLAN	EACH	2	
INTERSECTION CHANGE-OUT, TYPE 9, AS PER PLAN	EACH	1	

CONTINUED ON SHEET NO. 19

4 PHASE CHANGE-OUT TYPE 3B
 NO SPLICE BOX
 MORE LIKE TYPE 5
 Change-out
 Cable ramp

24/36



CONTINUED ON SHEET NO. 23

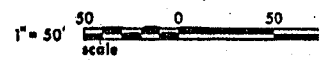
CONTINUED ON SHEET NO. 25

Changed location
 4 PHASE CHANGE-OUT TYPE 3B
 No splice box
 More like Type 4 Change-out
 2" Flex Conduit + Riser

Used Existing
 Changed 4 PHASE CHANGE-OUT TYPE 3A, 9
 ZONE 5, MASTER CONTROLLER LOCATION
 No splice box
 More like Type 4 Change-out
 2" Flex Conduit + Riser

CONTINUED ON SHEET NO. 28

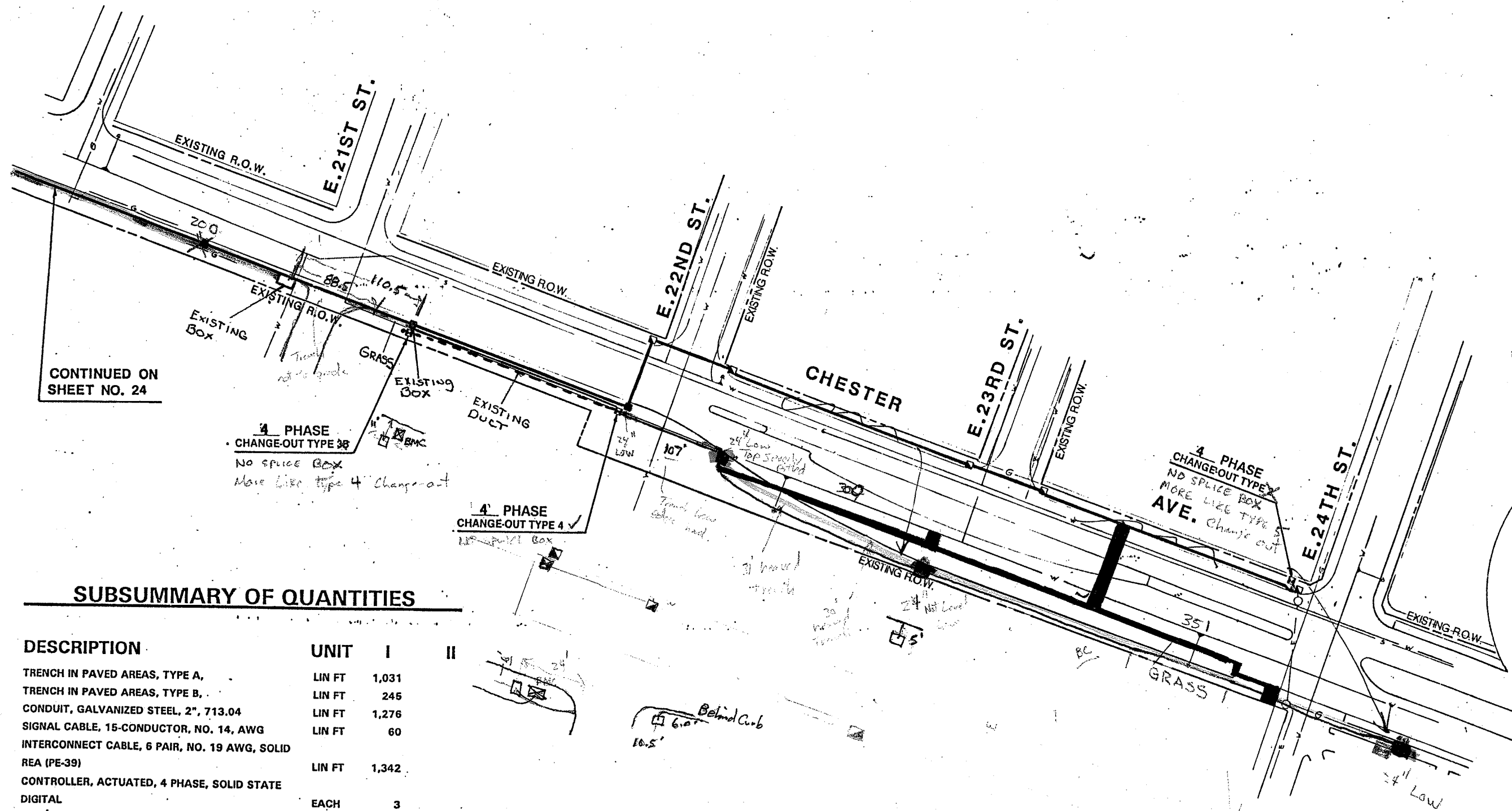
CONTINUED ON SHEET NO. 28



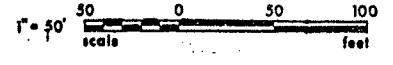
FOR LEGEND, SEE PLAN SHEET

Pullbox	Code
24"	01 03 9 1

Pullbox
24" - 4



CONTINUED ON SHEET NO. 24



FOR LEGEND, SEE PLAN SHEET NO. 9

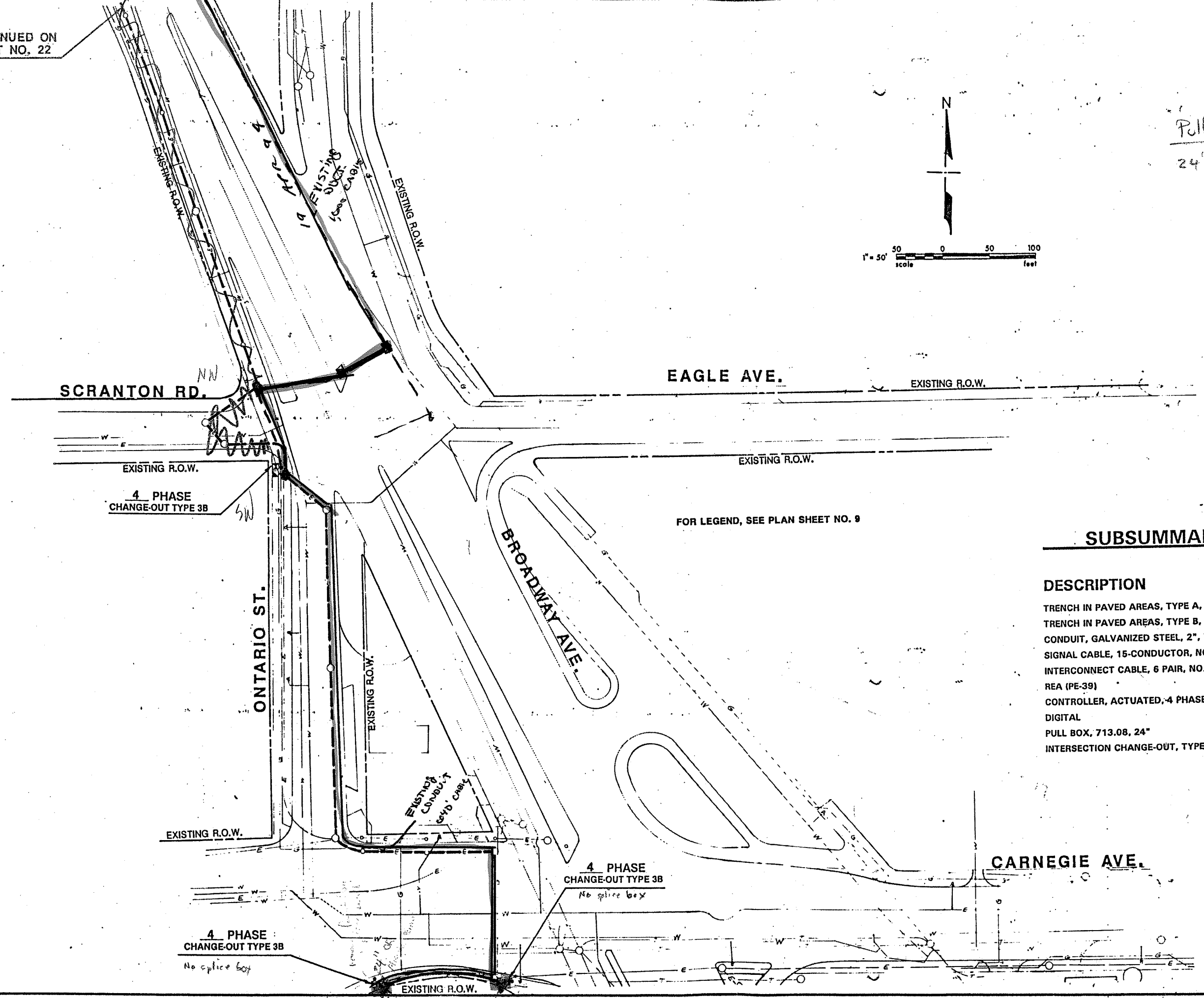
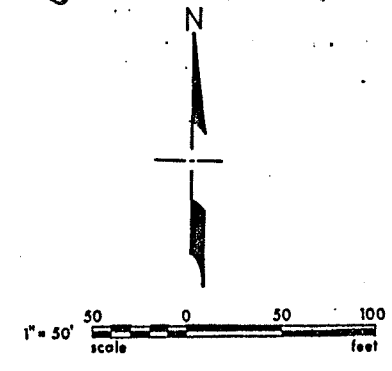
SUBSUMMARY OF QUANTITIES

DESCRIPTION	UNIT	I	II
TRENCH IN PAVED AREAS, TYPE A,	LIN FT	1,031	
TRENCH IN PAVED AREAS, TYPE B,	LIN FT	245	
CONDUIT, GALVANIZED STEEL, 2", 713.04	LIN FT	1,276	
SIGNAL CABLE, 15-CONDUCTOR, NO. 14, AWG	LIN FT	60	
INTERCONNECT CABLE, 6 PAIR, NO. 19 AWG, SOLID REA (PE-39)	LIN FT	1,342	
CONTROLLER, ACTUATED, 4 PHASE, SOLID STATE DIGITAL	EACH	3	
PULL BOX, 713.08, 24"	EACH	8	
INTERSECTION CHANGE-OUT, TYPE 2, AS PER PLAN	EACH	1	
INTERSECTION CHANGE-OUT, TYPE 3B, AS PER PLAN	EACH	1	
INTERSECTION CHANGE-OUT, TYPE 4, AS PER PLAN	EACH	1	

Behind curb
6.0'
10.5'

CONTINUED ON SHEET NO. 22

Pullbox
24" - 2



FOR LEGEND, SEE PLAN SHEET NO. 9

SUBSUMMARY OF QUANTITIES

DESCRIPTION	UNIT	I	II
TRENCH IN PAVED AREAS, TYPE A,	LIN FT	120	
TRENCH IN PAVED AREAS, TYPE B,	LIN FT	125	
CONDUIT, GALVANIZED STEEL, 2", 713.04	LIN FT	245	
SIGNAL CABLE, 15-CONDUCTOR, NO. 14, AWG	LIN FT	60	
INTERCONNECT CABLE, 6 PAIR, NO. 19 AWG, SOLID REA (PE-39)	LIN FT	1,509	
CONTROLLER, ACTUATED, 4 PHASE, SOLID STATE DIGITAL	EACH	3	
PULL BOX, 713.08, 24"	EACH	3	
INTERSECTION CHANGE-OUT, TYPE 3B, AS PER PLAN	EACH	3	

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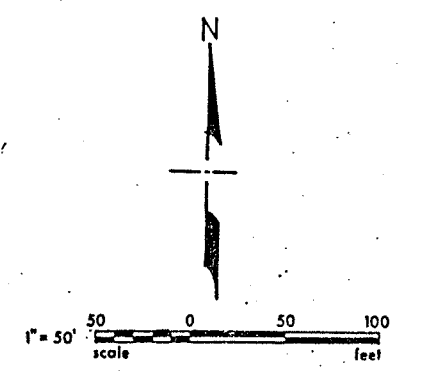
Pullbox
 24" - 2

CONTINUED ON
 SHEET NO. 23

ERIE AVE.

SUBSUMMARY OF QUANTITIES

DESCRIPTION	UNIT	I	II
TRENCH IN PAVED AREAS, TYPE A,	LIN FT	5	
TRENCH IN PAVED AREAS, TYPE B,	LIN FT	115	
CONDUIT, GALVANIZED STEEL, 2", 713.04	LIN FT	120	
SIGNAL CABLE, 15-CONDUCTOR, NO. 14, AWG	LIN FT	60	
INTERCONNECT CABLE, 6 PAIR, NO. 19 AWG, SOLID REA (PE-39)	LIN FT	1,195	
CONTROLLER, ACTUATED, 4 PHASE, SOLID STATE DIGITAL	EACH	3	
PULL BOX, 713.08, 24"	EACH	3	
INTERSECTION CHANGE-OUT, TYPE 3B, AS PER PLAN	EACH	2	
INTERSECTION CHANGE-OUT, TYPE 7, AS PER PLAN	EACH	1	



FOR LEGEND, SEE PLAN SHEET NO. 9 .

E. 9TH ST.

EAGLE AVE.

~~4 PHASE
 CHANGE-OUT TYPE 3B~~

SUMNER AVE.

E. 14TH ST.

CARNEGIE AVE.

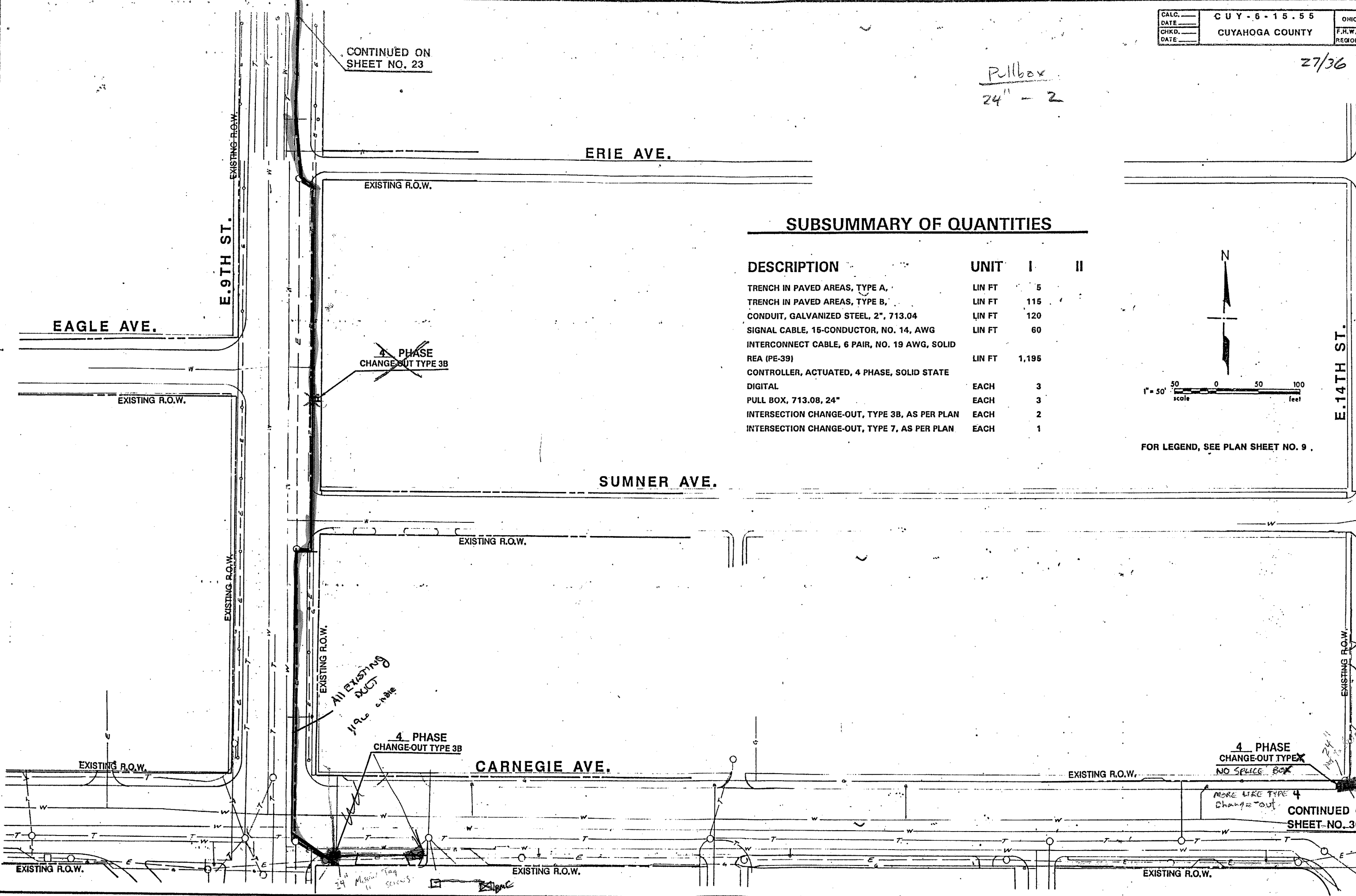
All existing
 duct
 119.0 cable

4 PHASE
 CHANGE-OUT TYPE 3B

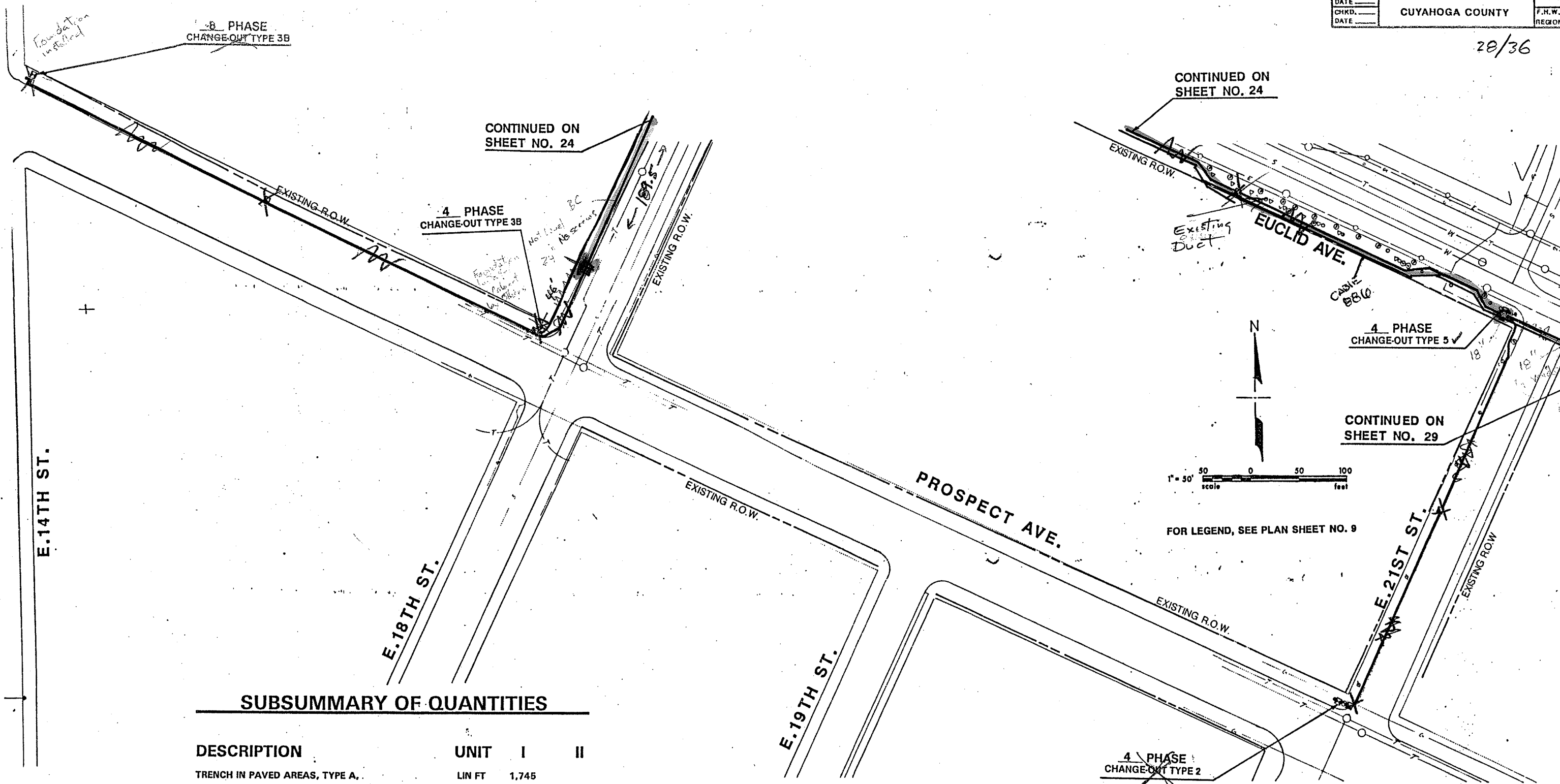
4 PHASE
 CHANGE-OUT TYPE X
 NO SPICE BOX

MORE LIKE TYPE 4
 CHANGE-OUT

CONTINUED C
 SHEET NO. 30



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SUBSUMMARY OF QUANTITIES

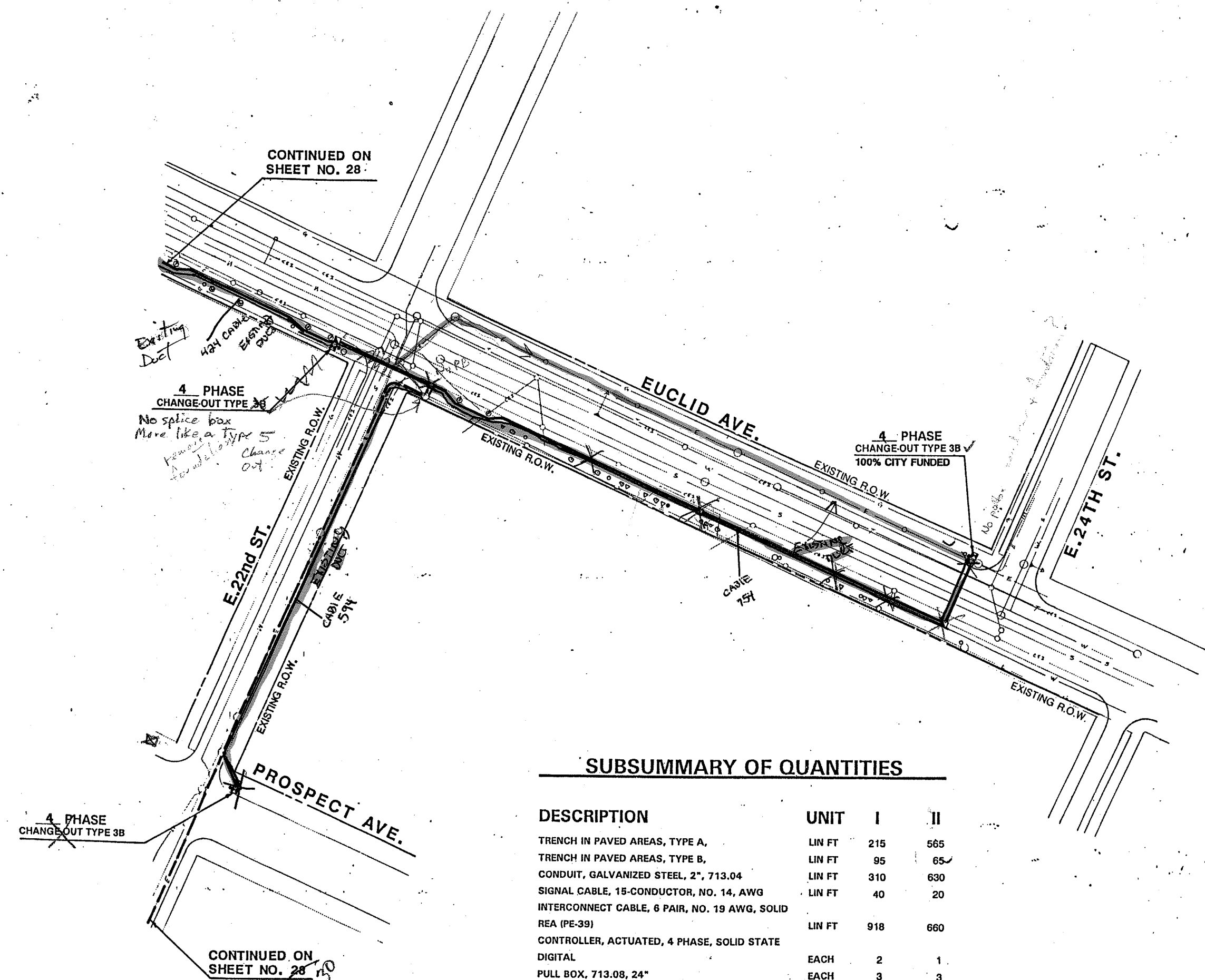
DESCRIPTION	UNIT	I	II
TRENCH IN PAVED AREAS, TYPE A,	LIN FT	1,745	
TRENCH IN PAVED AREAS, TYPE B,	LIN FT	100	
CONDUIT, GALVANIZED STEEL, 2", 713.04	LIN FT	1,845	
SIGNAL CABLE, 15-CONDUCTOR, NO. 14, AWG	LIN FT	80	
INTERCONNECT CABLE, 6 PAIR, NO. 19 AWG, SOLID REA (PE-39)	LIN FT	1,917	
CONTROLLER, ACTUATED, 4 PHASE, SOLID STATE DIGITAL	EACH	3	
CONTROLLER, ACTUATED, 8 PHASE, SOLID STATE DIGITAL	EACH	1	
PULL BOX, 713.08, 24"	EACH	8	
INTERSECTION CHANGE-OUT, TYPE 2, AS PER PLAN	EACH	1	
INTERSECTION CHANGE-OUT, TYPE 3B, AS PER PLAN	EACH	2	
INTERSECTION CHANGE-OUT, TYPE 5, AS PER PLAN	EACH	1	

Pullbox

24" - 1

Remove + Replace 18" - 2

Pullbox 0



FOR LEGEND, SEE PLAN SHEET NO. 9

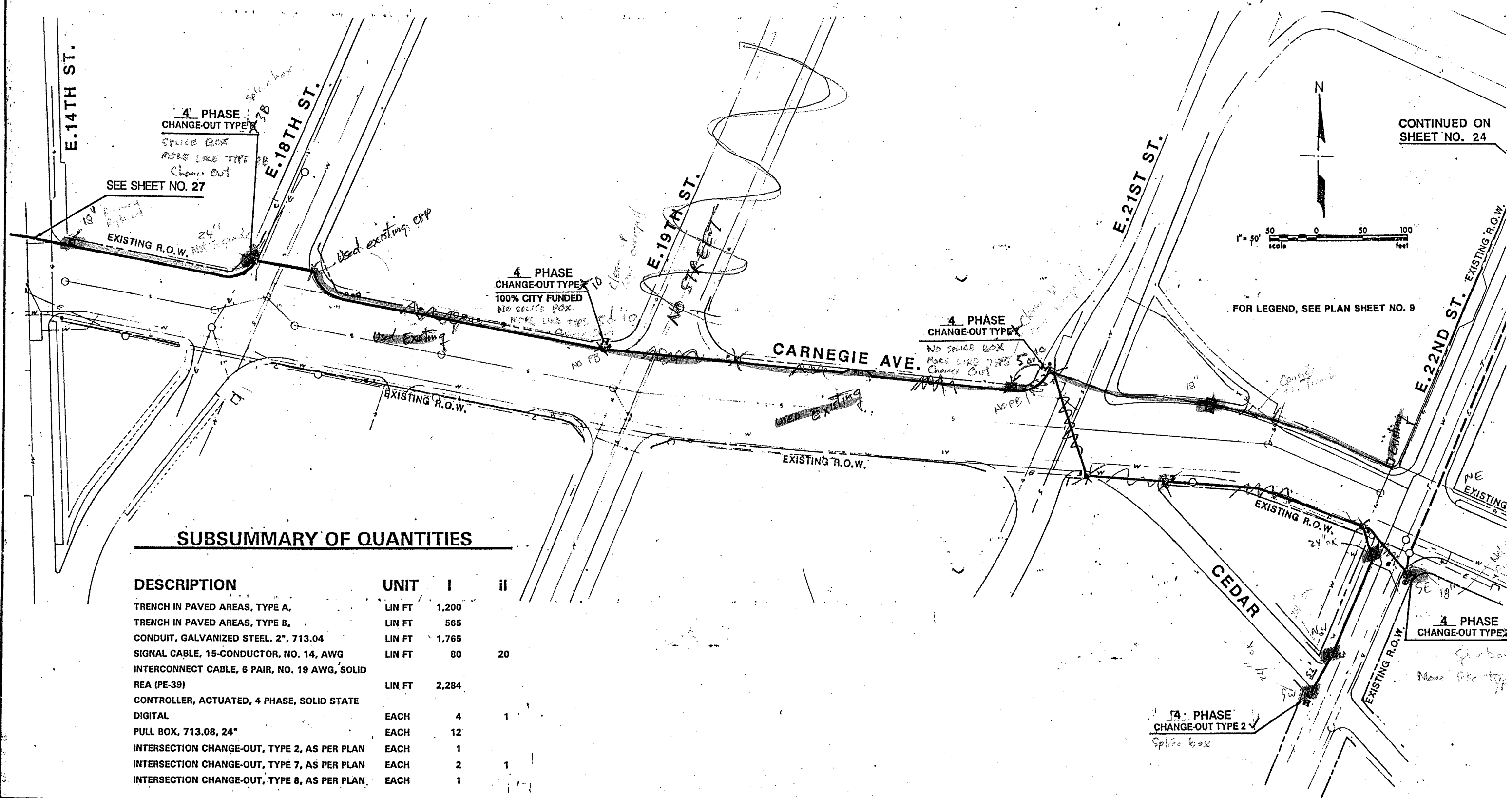
SUBSUMMARY OF QUANTITIES

DESCRIPTION	UNIT	I	II
TRENCH IN PAVED AREAS, TYPE A,	LIN FT	215	565
TRENCH IN PAVED AREAS, TYPE B,	LIN FT	95	65
CONDUIT, GALVANIZED STEEL, 2", 713.04	LIN FT	310	630
SIGNAL CABLE, 15-CONDUCTOR, NO. 14, AWG	LIN FT	40	20
INTERCONNECT CABLE, 6 PAIR, NO. 19 AWG, SOLID REA (PE-39)	LIN FT	918	660
CONTROLLER, ACTUATED, 4 PHASE, SOLID STATE DIGITAL	EACH	2	1
PULL BOX, 713.08, 24"	EACH	3	3
INTERSECTION CHANGE-OUT, TYPE 3B, AS PER PLAN	EACH	2	1

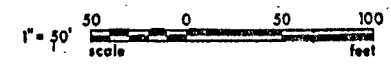
CONTINUED ON SHEET NO. 28

CONTINUED ON SHEET NO. 28

Pullbox
 24" - 4
 18" - 1
 18" - 2 (Remove & Replace)



CONTINUED ON SHEET NO. 24



FOR LEGEND, SEE PLAN SHEET NO. 9

SUBSUMMARY OF QUANTITIES

DESCRIPTION	UNIT	I	II
TRENCH IN PAVED AREAS, TYPE A,	LIN FT	1,200	
TRENCH IN PAVED AREAS, TYPE B,	LIN FT	565	
CONDUIT, GALVANIZED STEEL, 2", 713.04	LIN FT	1,765	
SIGNAL CABLE, 15-CONDUCTOR, NO. 14, AWG	LIN FT	80	20
INTERCONNECT CABLE, 6 PAIR, NO. 19 AWG, SOLID REA (PE-39)	LIN FT	2,284	
CONTROLLER, ACTUATED, 4 PHASE, SOLID STATE DIGITAL	EACH	4	1
PULL BOX, 713.08, 24"	EACH	12	
INTERSECTION CHANGE-OUT, TYPE 2, AS PER PLAN	EACH	1	
INTERSECTION CHANGE-OUT, TYPE 7, AS PER PLAN	EACH	2	1
INTERSECTION CHANGE-OUT, TYPE 8, AS PER PLAN	EACH	1	

4 PHASE CHANGE-OUT TYPE 2
 Splice box