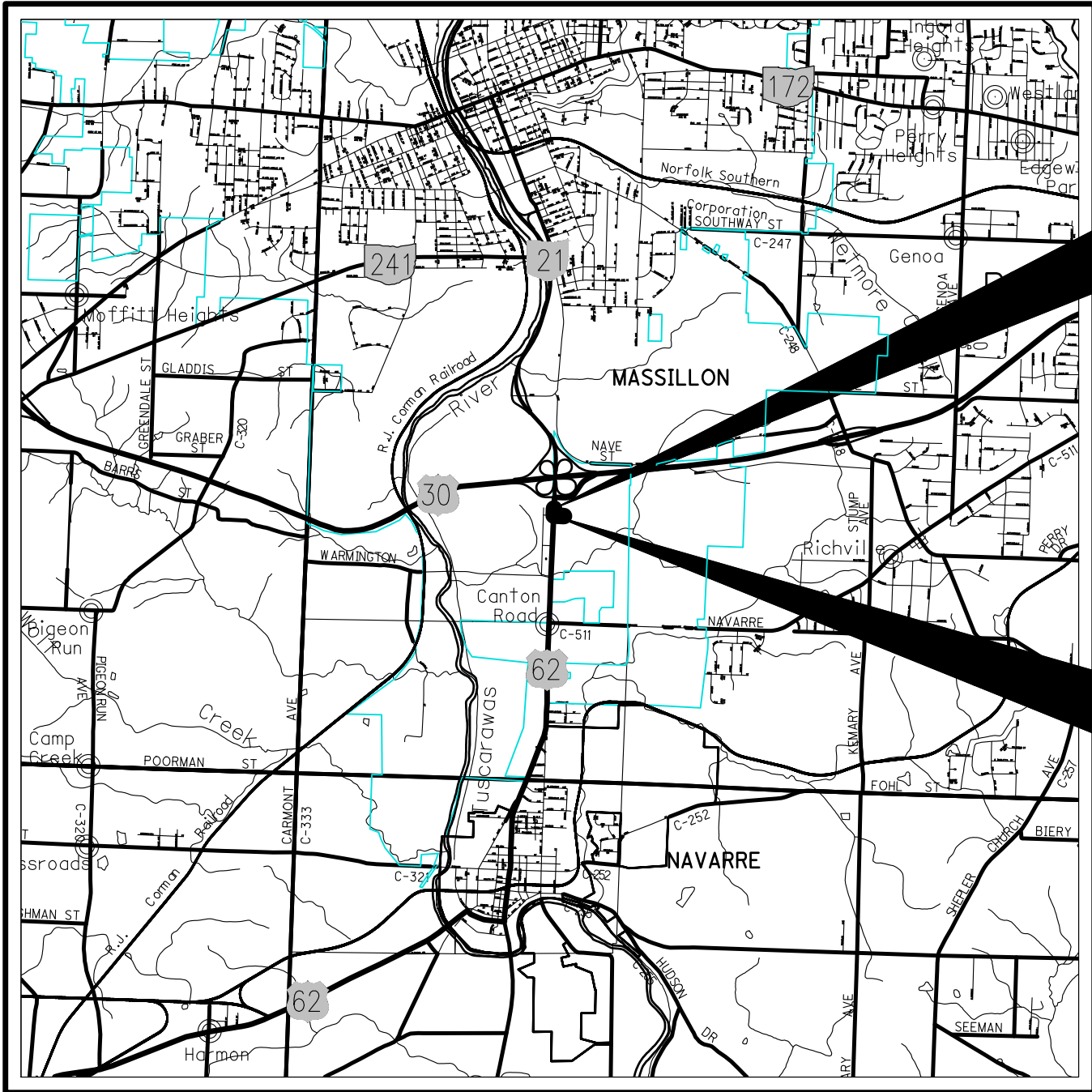


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LOCATION MAP

LATITUDE: 40° 45' 24" LONGITUDE: 81° 30' 59"



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

DESIGN DESIGNATION

DESIGN SPEED	ERIE ST	ORTT DR
LEGAL SPEED	55 MPH	25 MPH
DESIGN FUNCTIONAL CLASSIFICATION	50 MPH	25 MPH
	03 PRINCIPAL ARTERIAL	07 LOCAL

DEVELOPER INFORMATION:

SHEETZ, INC.
5700 6TH AVENUE
ALTOONA, PA 16602

CONTACT: RYAN BALKO
PHONE: 330-388-9885
EMAIL: RBALKO@SHEETZ.COM

PLAN PREPARED BY:



ENGINEERS SEAL:

SIGNED: _____
DATE: _____

STATE OF OHIO

STARK COUNTY

ERIE AVE (US 62/SR 21)/
ORTT ST IMPROVEMENTS

PERRY TOWNSHIP

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PROJECT DESCRIPTION

THIS PROJECT CONSISTS OF THE DEVELOPMENT OF ORTT ST ALONG S.R. 21, AN ADDITION OF A RIGHT TURN LANE AND A RIGHT IN-RIGHT OUT TURN ACCESS TO THE PROPOSED SITE WORK. THE WORK WILL INCLUDE DRAINAGE, PAVEMENT MARKING AND SIGNAL IMPROVEMENTS.

PROJECT EARTH DISTURBED AREA

PROJECT EARTH DISTURBED AREA:	0.99 ACRES
ESTIMATED CONTRACTOR EARTH DISTURBED AREA:	0.00 ACRES
NOTICE OF INTENT EARTH DISTURBED AREA:	0.99 ACRES

2023 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; EXCEPT SANITARY SEWAGE SHALL BE IN ACCORDANCE WITH STARK COUNTY SPECIFICATIONS, REGULATIONS AND STANDARDS.

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

ENGINEERING APPROVAL SANITARY SEWER:

APPROVED BY: _____ DATE _____
STARK COUNTY
SANITARY ENGINEER

APPROVED BY: _____ DATE _____
CITY OF MASSILLON
SANITARY EFFLUENT

ENGINEERING APPROVAL FOR OEPA WATER REVIEW ONLY

APPROVED BY: _____ DATE _____
AQUA WATER

APPROVED _____
DATE _____ CURTIS D. BUNGARD, PE
STARK COUNTY SUBDIVISION ENGINEER

APPROVED _____
DATE _____ CITY OF MASSILLON

OHIO E.P.A.

WATER APPROVED BY O.E.P.A. LETTER DATED: _____
PERMIT NUMBER: _____

SANITARY APPROVED BY O.E.P.A. LETTER DATED: _____
PERMIT NUMBER: _____

FEDERAL PROJECT NO.

N/A

PID NO.

N/A

CONSTRUCTION PROJECT NO

N/A

RAILROAD INVOLVEMENT

NONE

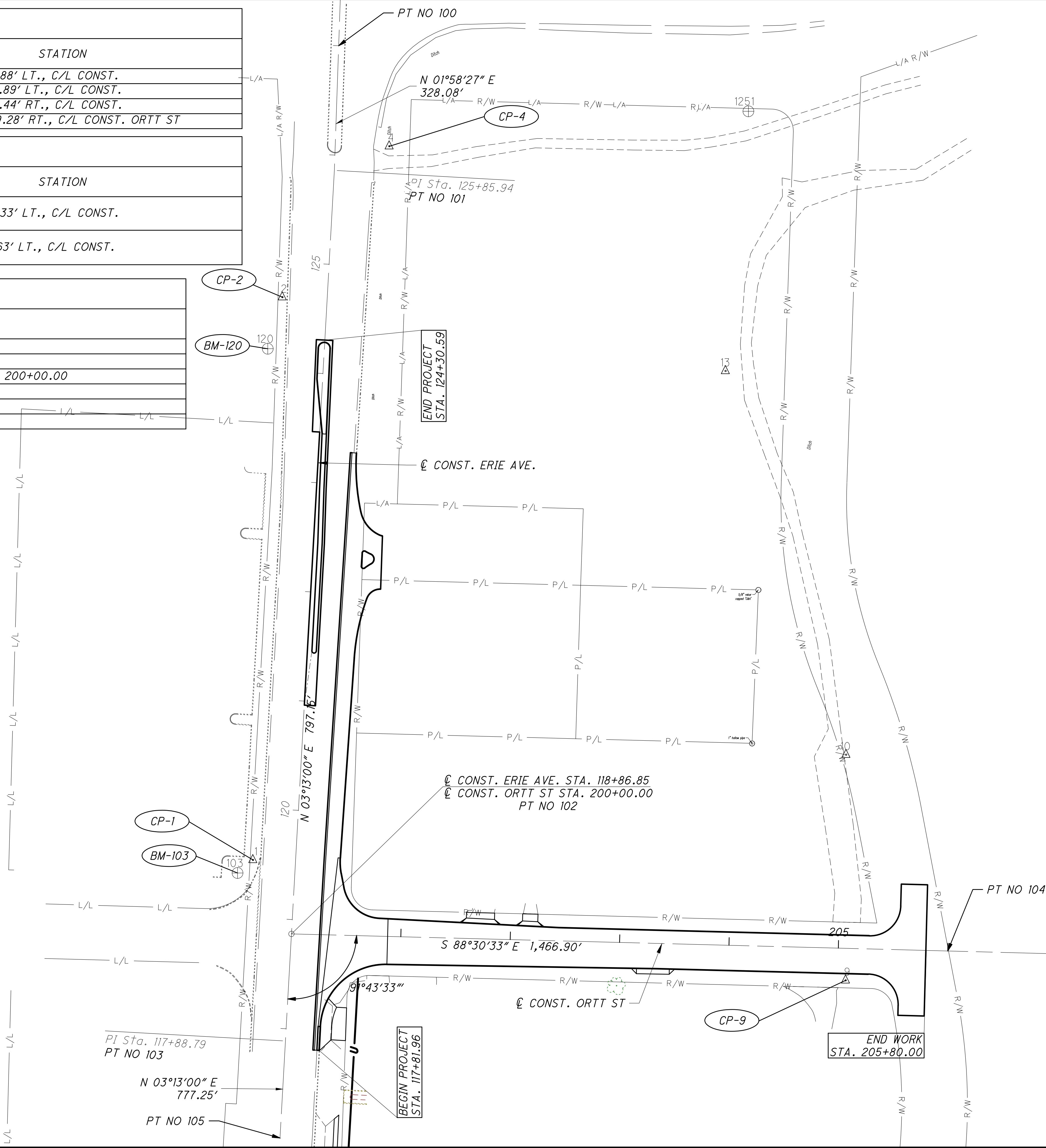
ERIE AVE (US 62/SR 21)/
ORTT ST IMPROVEMENTS

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CONTROL POINT					
CONTROL POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION	STATION
CP-1	398730.3530	2240957.1510	988.236	5/8" REBAR WITH RED GPD CAP	STA. 119+52.40, 38.88' LT., C/L CONST.
CP-2	399244.8180	2240984.0520	990.254	5/8" REBAR WITH RED GPD CAP	STA. 124+67.56, 40.89' LT., C/L CONST.
CP-4	399382.7970	2241081.7550	988.440	5/8" REBAR WITH RED GPD CAP	STA. 126+09.74, 49.44' RT., C/L CONST.
CP-9	398620.2600	2241498.8380	984.074	5/8" REBAR WITH RED GPD CAP	STA. 205+07.48, 29.28' RT., C/L CONST. ORTT ST

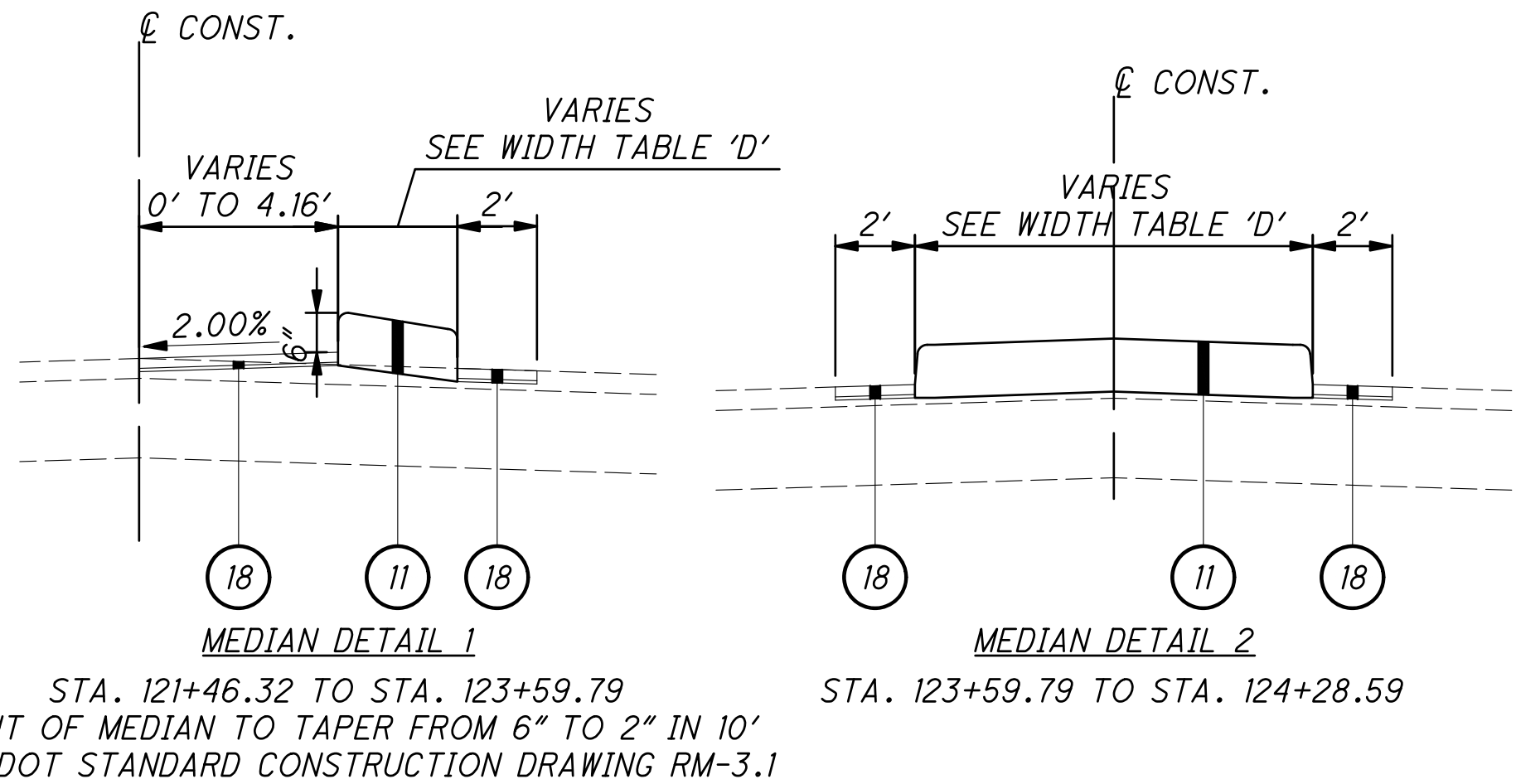
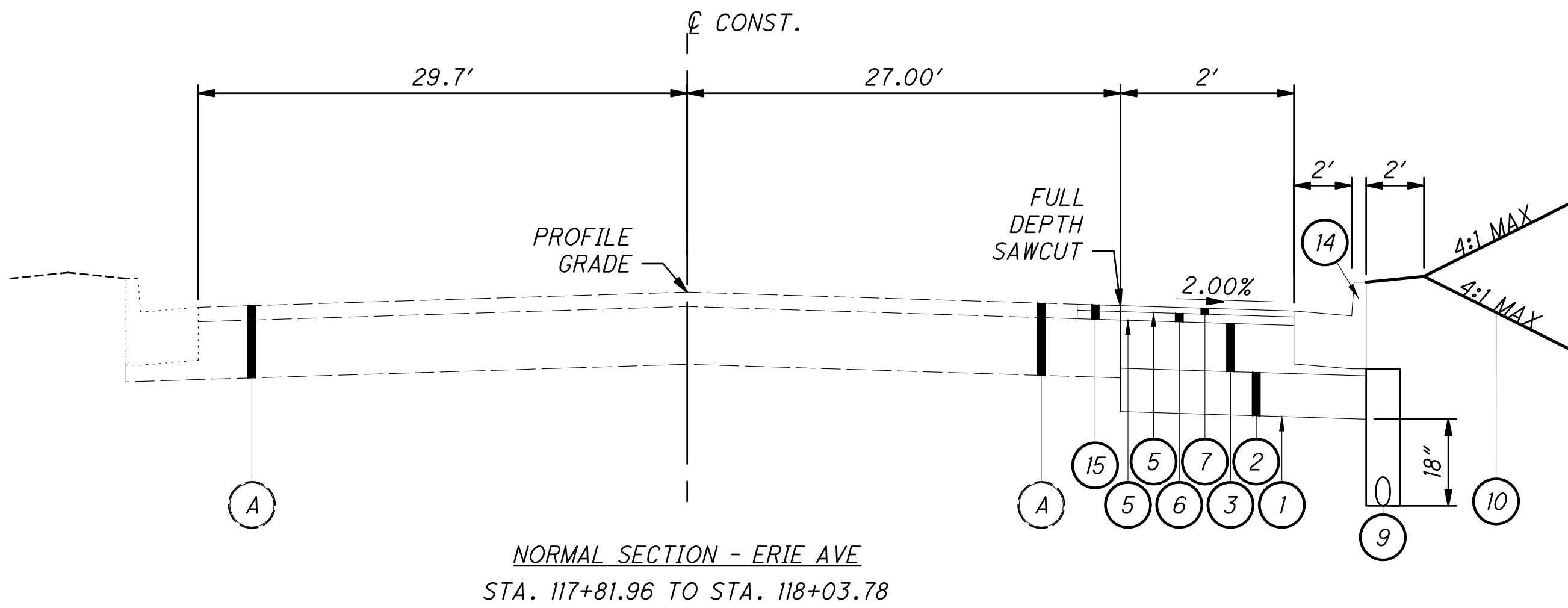
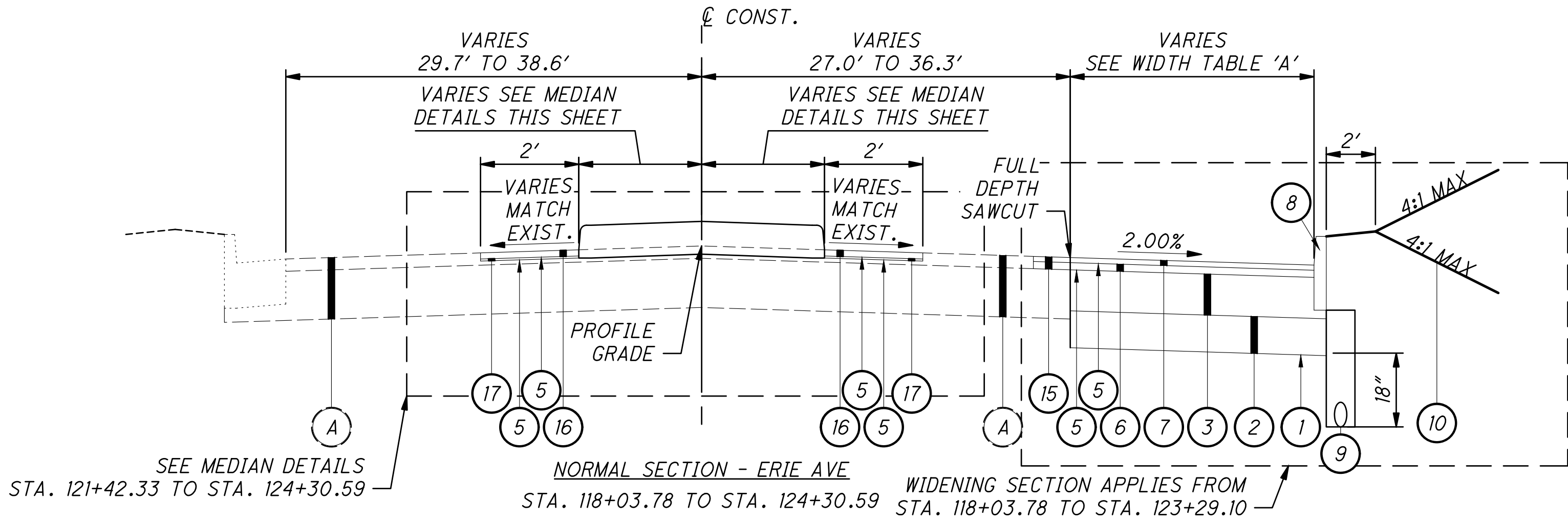
BENCHMARK TABLE					
CONTROL POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION	STATION
BM-103	398718.4320	2240943.0110	988.901	NW BONNET BOLT BETWEEN MUE & LLER	STA. 119+39.70, 52.33' LT., C/L CONST.
BM-120	399197.7030	2240970.6530	992.197	BENCH SPIKE IN EAST SIDE OF UTILITY POLE	STA. 124+19.77, 51.63' LT., C/L CONST.

REFERENCE POINTS			
POINT NUMBER	NORTHING	EASTING	DESCRIPTION
100	399474.7095	2241035.4500	C/L CONST. STA. 127+00.00
101	399360.7156	2241031.5207	C/L CONST. PI STA. 125+85.94
102	398662.7328	2240992.2937	C/L CONST. STA. 118+86.85; C/L CONST. ORTT ST STA. 200+00.00
103	398564.8189	2240986.7909	C/L CONST. PI STA. 117+88.79
104	398647.1238	2241592.0907	C/L CONST. ORTT ST STA. 206+00.00
105	398476.1730	2240981.8090	C/L CONST. STA. 117+50.00



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WIDTH TABLES											
WIDTH 'A'				WIDTH 'B'				WIDTH 'C'			
BEGIN	END	WIDTH	WIDTH	BEGIN	END	WIDTH	WIDTH	BEGIN	END	WIDTH	WIDTH
118+03.78	119+58.64	2	13.1	200+80.03	202+43.91	16.2'	12'	200+87.92	203+34.01	25.5'	23'
119+58.64	121+42.20	13.1	14.1	202+43.91	205+28.00	12'	12'	203+34.01	205+28.00	23'	23'
WIDTH 'D'											
BEGIN	END	WIDTH	WIDTH								
121+44.33	121+46.32	0'	4								
121+46.32	123+44.84	4	4								
123+44.84	123+94.84	4	11'								
123+94.84	124+23.07	11'	11'								
124+23.07	124+28.59	11'	0'								



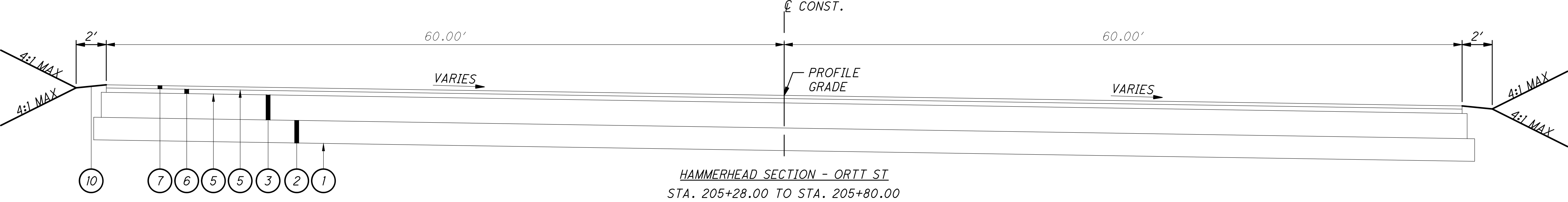
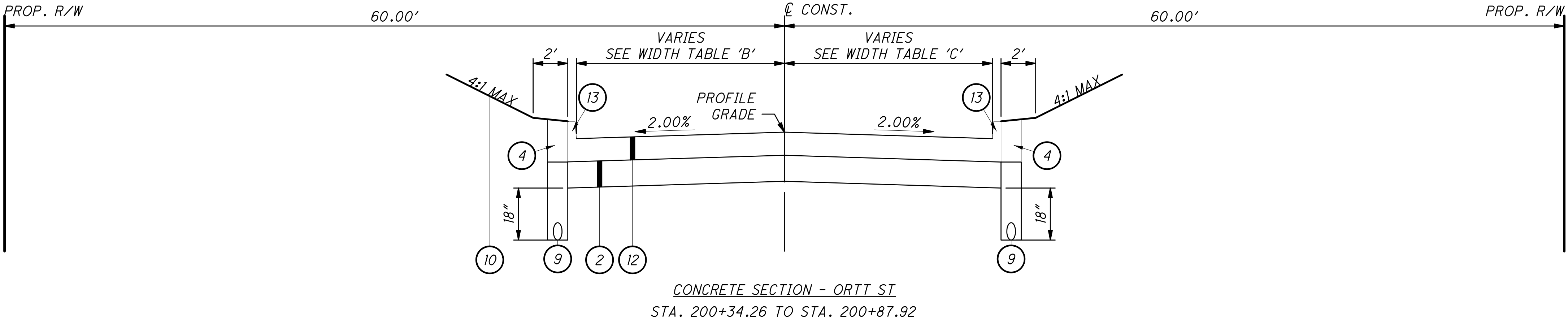
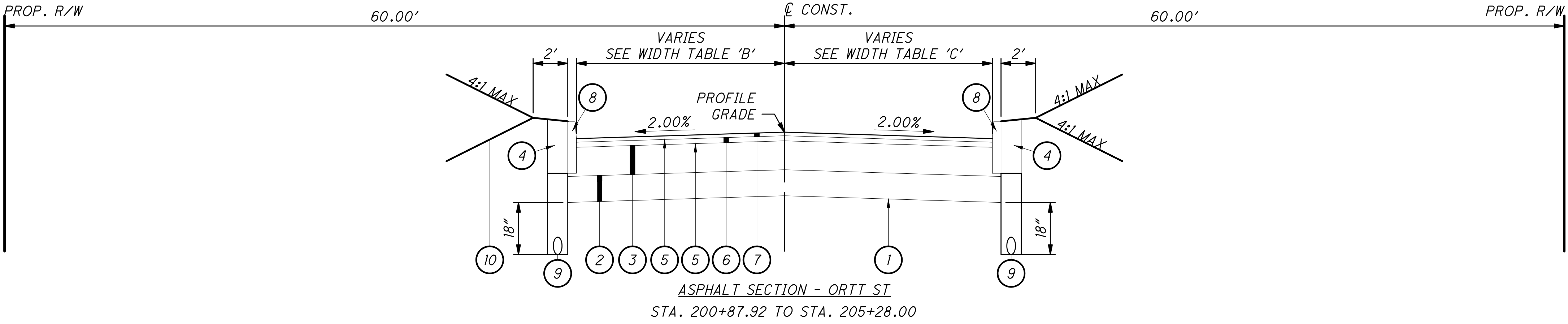
EXISTING LEGEND

1 ASPHALT CONCRETE PAVEMENT

PROPOSED LEGEND

- 1 ITEM 204 - SUBGRADE COMPACTION / PROOF ROLLING
- 2 ITEM 304 - 9" AGGREGATE BASE
- 3 ITEM 301 - 10" ASPHALT CONCRETE BASE, (449), PG64-22
- 4 ITEM 304 - AGGREGATE BASE, AS PER PLAN
- 5 ITEM 407 - NON-TRACKING TACK COAT
- 6 ITEM 441 - 1 3/4" ASPHALT CONCRETE INTERMEDIATE COURSE, (448), TYPE 2
- 7 ITEM 441 - 1 1/4" ASPHALT CONCRETE SURFACE COURSE, (448), TYPE 1, PG70-22M, AS PER PLAN
- 8 ITEM 609 - CURB, TYPE 6
- 9 ITEM 605 - 6" BASE PIPE UNDERDRAINS WITH GEOTEXTILE FABRIC (TRENCH TO BE WRAPPED WITH FILTER FABRIC)
- 10 ITEM 659 - SEEDING AND MULCHING, AS PER PLAN
- 11 ITEM 609 - CONCRETE MEDIAN
- 12 ITEM 452 - 8" NON-REINFORCED CONCRETE PAVEMENT, CLASS QC 1
- 13 ITEM 609 - CURB, TYPE 2-A
- 14 ITEM 609 - CURB, TYPE 2
- 15 ITEM SPECIAL - PAVEMENT OVERLAY FABRIC COMPOSITE
- 16 ITEM 441 - 1 1/2" ASPHALT CONCRETE SURFACE COURSE, (448), TYPE 1, PG70-22M, AS PER PLAN
- 17 ITEM 441 - 1/2" VARIABLE DEPTH LEVELING COURSE, (448), TYPE 1, PG70-22M, AS PER PLAN
- 18 ITEM 254 - PAVEMENT PLANING, ASPHALT CONCRETE

FOR PROPOSED AND EXISTING LEGENDS, SEE SHEET 3



CALCULATED
JMB
CHECKED
JJS

TYPICAL SECTIONS

ERIE AVE (US 62/SR 21)/
ORTT ST IMPROVEMENTS

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GENERAL

ROUNDING

THE ROUNDING AT SLOPE BREAKPOINTS SHOWN ON THE TYPICAL SECTIONS APPLIES TO ALL CROSS- SECTIONS, EVEN THOUGH OTHERWISE SHOWN.

UTILITIES

LISTED BELOW ARE ALL UTILITIES LOCATED WITHIN THE PROJECT CONSTRUCTION LIMITS TOGETHER WITH THEIR RESPECTIVE OWNERS:

WATER:
AQUA AMERICA
870 3RD ST. NW
MASSILON, OHIO 44647
PHONE: 330-832-5764 X50650
EMAIL: DLSNYDER@AQUAAMERICA.COM

SANITARY SEWER:
STARK COUNTY SANITARY
ENGINEERING DEPARTMENT
1701 MAHONING RD. NE, P.O. BOX 9972
CANTON, OH 44711-0972
PHONE: 330-451-2335
EMAIL: TBDAVIS@STARKCOUNTYOHIO.GOV

STORM SEWER:
STARK COUNTY SUBDIVISION ENGINEER
ATTN: CURTIS BUNGARD
201 3RD STREET NE
CANTON, OHIO 44702
PHONE: 330-451-7366
FAX: 330-451-7990
EMAIL: CDBUNGARD@STARKCOUNTYOHIO.GOV

ELECTRIC:
OHIO EDISON
ATTN: CHAD UHLMAN
2600 SOUTH ERIE ST.
MASSILLON, OH 44646
PHONE: 330-301-6316

TELEPHONE:
ATTN: CHRIS EMRICH
AT&T OHIO
50 WEST BOWERY ST.
4TH FLOOR
AKRON, OH 44308
CE314@ATT.COM

GAS (MAIN):
DOMINION ENERGY OHIO
ATTN: ADAM KEARNS
320 SPRINGSIDE DRIVE, SUITE 320
AKRON, OHIO 44333
PHONE: 330-620-9127
EMAIL: ADAM.J.KEARNS@DOMINIONENERGY.COM

GAS (PRIVATE)
SOUND ENERGY COMPANY, INC.
ATTN: TYLER LEVENGOOD
PHONE: 330-260-0788
EMAIL: TYLER@SOUNDENERGYOIL.COM

THE LOCATION OF THE UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE AS OBTAINED FROM THE OWNERS AS REQUIRED BY SECTION 153.64 O.R.C.

SURVEYING PARAMETERS

PRIMARY PROJECT CONTROL MONUMENTS GOVERN ALL POSITIONING ON ODOT PROJECTS. SEE SHEET 2 OF THE PLANS FOR A TABLE CONTAINING PROJECT CONTROL INFORMATION. USE THE FOLLOWING PROJECT CONTROL, VERTICAL POSITIONING, AND HORIZONTAL POSITIONING PARAMETERS FOR ALL SURVEYING:

PROJECT CONTROL
POSITIONING METHOD: GPS
MONUMENT TYPE: 5/8" X 30" REBAR WITH RED "GPD" CAP

VERTICAL POSITIONING
ORTHOMETRIC HEIGHT DATUM: NAVD88
GEOID: GEOID12B

HORIZONTAL POSITIONING
REFERENCE FRAME: NAD83 (2011)
ELLIPSOID: NAD83
MAP PROJECTION: LAMBERT
COORDINATE SYSTEM: OHIO STATE PLAN, NORTH ZONE
COMBINED SCALE FACTOR: 1.00000000000
ORIGIN OF COORDINATE SYSTEM: 0,0

USE THE POSITIONING METHODS AND MONUMENT TYPE USED IN THE ORIGINAL SURVEY TO RESTORE ALL MONUMENTS RELATED TO PRIMARY PROJECT CONTROL THAT ARE DAMAGED OR DESTROYED BY CONSTRUCTION ACTIVITIES. RESTORE THE DAMAGED OR DESTROYED MONUMENTS IN ACCORDANCE WITH CMS 623. UNITS ARE IN U.S. SURVEY FEET.

DOMINION ENERGY OHIO GAS LINE

IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN THE LATERAL AND SUBJACENT SUPPORT OF DOMINION'S PIPELINE(S), IN COMPLIANCE TO 29 CFR, PART 1926, SUBPART P, (SAFE EXCAVATION AND SHORING). ONE-FOOT MINIMUM VERTICAL AND HORIZONTAL CLEARANCE MUST BE MAINTAINED BETWEEN DOMINION ENERGY OHIO'S (DEO) EXISTING PIPELINE(S) AND ALL OTHER IMPROVEMENTS. EXTREME CARE SHOULD BE TAKEN NOT TO HARM ANY DEO FACILITY (PIPELINES, ETC.) OR APPURTENANCE (PIPE COATING, TRACER WIRE, CATHODIC PROTECTION TEST STATION WIRES & DEVICES, VALVE BOXES, ETC.). DEO FACILITIES MUST BE PROTECTED WITH A TARP DURING BRIDGE CONSTRUCTION. THE CONTRACTOR WILL BE RESPONSIBLE AND LIABLE FOR ENSURING THAT ALL DEO EXISTING FACILITIES, ABOVE AND BELOW GROUND, REMAIN UNDAMAGED, ACCESSIBLE AND IN WORKING ORDER. THE CROSSING OF DEO'S PIPELINE WITH ANOTHER STEEL FACILITY MAY CREATE A POTENTIAL CORROSION ISSUE FOR THE PROPOSED FACILITY AND THE EXISTING DEO FACILITY. PLEASE CONTACT DOMINION'S CORROSION DEPARTMENT: DAVE CUTLIP (330-266-2121), RICK MCDONALD (330-266-2122), OR AL HUMRICHOUER (330-478-3757).

ROADWAY

WORK LIMITS

THE WORK LIMITS SHOWN ON THESE PLANS ARE FOR PHYSICAL CONSTRUCTION ONLY. PROVIDE THE INSTALLATION AND OPERATION OF ALL WORK ZONE TRAFFIC CONTROL AND WORK ZONE TRAFFIC CONTROL DEVICES REQUIRED BY THESE PLANS WHETHER INSIDE OR OUTSIDE THESE WORK LIMITS.

CLEARING AND GRUBBING

ALTHOUGH THERE ARE NO TREES OR STUMPS SPECIFICALLY MARKED FOR REMOVAL WITHIN THE LIMITS OF THE PROJECT, A LUMP SUM QUANTITY IS INCLUDED IN THE GENERAL SUMMARY FOR ITEM 201, CLEARING AND GRUBBING. ALL PROVISIONS AS SET FORTH IN THE SPECIFICATIONS UNDER THIS ITEM ARE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 201, CLEARING AND GRUBBING.

ITEM SPECIAL - SURVEY CONTROL VERIFICATION

THE CONTRACTOR SHALL PERFORM THIS WORK TO VERIFY THE PROVIDED SURVEY CONTROL. THE CONTRACTOR WILL PERFORM THE VERIFICATION USING ONE OF THE TWO METHODS BELOW DEPENDENT UPON THE CONTRACTOR'S CHOSEN MEANS OF SURVEY CONTROL TO BE USED ON THE PROJECT. THE WORK SHALL BE PERFORMED UNDER THE DIRECT SUPERVISION OF AN OHIO LICENSED SURVEYOR.

- 1) IF USING GPS DEVICES TO ESTABLISH AND OR PROVIDE SUPPLEMENTAL HORIZONTAL AND VERTICAL SURVEY CONTROL
- A) LOCATE VERTICAL CONTROL POINTS PROVIDED IN THE PLANS AND PERFORM A DIFFERENTIAL LEVEL CIRCUIT.
- B) PERFORM A SITE CALIBRATION UTILIZING THE AVAILABLE HORIZONTAL AND VERTICAL CONTROL POINTS PROVIDED IN THE PLAN.
- C) PROVIDE A REPORT, SIGNED BY AN OHIO LICENSED SURVEYOR, TO THE PROJECT ENGINEER COMPARING THE OBSERVED DATA TO THE PLAN DATA ALONG WITH A NARRATIVE DETAILING ANY DISCREPANCIES FOUND.
- 2) IF USING CONVENTIONAL SURVEY INSTRUMENTATION TO ESTABLISH AND OR PROVIDE SUPPLEMENTAL HORIZONTAL AND VERTICAL SURVEY CONTROL
- A) LOCATE VERTICAL CONTROL POINTS PROVIDED IN THE PLANS AND PERFORM A DIFFERENTIAL LEVEL CIRCUIT.
- B) LOCATE AND OBSERVE ANGLE AND DISTANCE TO ALL AVAILABLE HORIZONTAL CONTROL POINTS PROVIDED IN THE PLAN.
- C) PROVIDE A REPORT, SIGNED BY AN OHIO LICENSED SURVEYOR, TO THE PROJECT ENGINEER COMPARING THE OBSERVED DATA TO THE PLAN DATA ALONG WITH A NARRATIVE DETAILING ANY DISCREPANCIES FOUND.

ITEM 203 - ROADWAY, MISC.: PRECONSTRUCTION VIDEO RECORDING

THE CONTRACTOR SHALL SUBMIT A DVD RECORDING OF THE CONSTRUCTION LIMITS TO THE CITY OF BARBERTON PRIOR TO ANY WORK PERFORMED. THE RECORDING SHALL TAKE SPECIAL NOTE OF ALL SURFACE FEATURES INCLUDING DRIVEWAYS, TREES, FENCES, LANDSCAPING FEATURES AND PLANTERS. THE RECORDING WILL BE USED TO ASSIST THE ENGINEER IN THE CASE THAT PROPERTY OWNERS CLAIM DAMAGE HAS BEEN DONE TO THE PROPERTY BY THE CONTRACTOR DURING CONSTRUCTION. AREAS THAT HAVE BEEN DAMAGED DUE TO CONTRACTOR NEGLIGENCE AS DETERMINED BY THE ENGINEER SHALL BE RESTORED TO THEIR ORIGINAL CONDITION BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE CITY OR TO THE PROPERTY OWNER.

ITEM 204 - SUBGRADE COMPACTION AND PROOF ROLLING

CONSTRUCT THE SUBGRADE AS FOLLOWS AND IN THE FOLLOWING SEQUENCE:

1. SHAPE THE SUBGRADE TO WITHIN 0.2 FEET OF THE PLAN SUBGRADE ELEVATION.
2. EXCAVATE AND REPLACE UNSUITABLE SUBGRADE BEFORE PROOF ROLLING.
- UNSUITABLE SUBGRADE INCLUDES UNSUITABLE SOIL (A-4B, A-2-5, A-5, A-7-5, AND SOIL WITH A LIQUID LIMIT GREATER THAN 65) AND ANY COAL, SHALE, OR ROCK WHICH NEEDS TO BE REMOVED ACCORDING TO 204.05.
- IF THERE IS UNSUITABLE SUBGRADE IN A SHALLOW FILL LOCATION, EXCAVATE AND REPLACE THE UNSUITABLE SUBGRADE BEFORE CONSTRUCTING THE SHALLOW FILL AND SHAPING THE SUBGRADE.
3. COMPACT THE SUBGRADE ACCORDING TO 204.03.
4. THE CONTRACTOR WILL IDENTIFY THE ACTUAL LIMITS OF EXCAVATION FOR UNSTABLE SUBGRADE BASED ON THE PROOF ROLLING RESULTS AND VISUAL OBSERVATIONS.
- PROOF ROLL THE COMPACTED SUBGRADE ACCORDING TO 204.06.
5. EXCAVATE UNSTABLE SUBGRADE AS DIRECTED BY THE ENGINEER AND STABILIZE BY REPLACING WITH THE SPECIFIED MATERIALS ACCORDING TO 204.07. EXCAVATIONS WILL EXTEND 18 INCHES BEYOND THE EDGE OF THE SURFACE OF PAVEMENT, PAVED SHOULDERS, OR PAVED MEDIANS.
6. PROOF ROLL THE STABILIZED AREAS ACCORDING TO 204.06 TO VERIFY STABILITY.
7. FINE GRADE THE SUBGRADE TO THE SPECIFIED GRADE.

CALCULATED
JMB

CHECKED
JLS

GENERAL NOTES

ERIE AVE (US 62/SR 21)/
ORTT ST IMPROVEMENTS

5
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EROSION CONTROL

SEEDING AND MULCHING

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

ITEM 659, SOIL ANALYSIS TEST	2 EACH
ITEM 659, TOPSOIL	94 CU. YD.
ITEM 659, SEEDING AND MULCHING	844 SQ. YD.
ITEM 659, REPAIR SEEDING AND MULCHING	42 SQ. YD.
ITEM 659, INTER-SEEDING	42 SQ. YD.
ITEM 659, COMMERCIAL FERTILIZER	0.12 TON
ITEM 659, LIME	0.17 ACRES
ITEM 659, WATER	5 M. GAL.

APPLY SEEDING AND MULCHING S TO ALL AREAS OF EXPOSED SOIL BETWEEN THE RIGHT-OF-WAY LINES AND WITHIN THE CONSTRUCTION LIMITS FOR AREAS OUTSIDE THE RIGHT-OF-WAY LINES COVERED BY WORK AGREEMENT OR SLOPE EASEMENT. QUANTITY CALCULATIONS FOR SEEDING AND MULCHING ARE BASED ON THESE LIMITS.

ITEM 832 - EROSION CONTROL

ALL SOIL AND SEDIMENT CONTROL MEASURES AS SPECIFIED HEREIN OR DIRECTED BY THE ENGINEER SHALL BE IN PLACE PRIOR TO ANY CLEARING, GRUBBING, EXCAVATION, GRADING, OR MILLING OPERATIONS, AND INSTALLATIONS OF PROPOSED STRUCTURES OR UTILITIES. THESE CONTROL MEASURES SHALL REMAIN IN PLACE UNTIL CONSTRUCTION IS COMPLETE AND THE AREA IS STABILIZED AS ACCEPTED BY THE ENGINEER.

DRAINAGE

CROSSING AND CONNECTION TO EXISTING PIPES AND UTILITIES

WHERE PLANS PROVIDE FOR A PROPOSED CONDUIT TO BE CONNECTED TO, OR CROSS OVER OR UNDER AN EXISTING SEWER OR UNDERGROUND UTILITY, LOCATE THE EXISTING PIPES OR UTILITIES BOTH AS TO LINE AND GRADE BEFORE STARTING TO LAY THE PROPOSED CONDUIT.

IF IT IS DETERMINED THAT THE ELEVATION OF THE EXISTING CONDUIT, OR EXISTING APPURTENANCE TO BE CONNECTED, DIFFERS FROM THE PLAN ELEVATION OR RESULTS IN A CHANGE IN THE PLAN CONDUIT SLOPE, NOTIFY THE ENGINEER BEFORE STARTING CONSTRUCTION OF ANY PORTION OF THE PROPOSED CONDUIT WHICH WILL BE AFFECTED BY THE VARIANCE IN THE EXISTING ELEVATIONS.

IF IT IS DETERMINED THAT THE PROPOSED CONDUIT WILL INTERSECT AN EXISTING SEWER OR UNDERGROUND UTILITY IF CONSTRUCTED AS SHOWN ON THE PLAN, NOTIFY THE ENGINEER BEFORE STARTING CONSTRUCTION ON ANY PORTION OF THE PROPOSED CONDUIT WHICH WOULD BE AFFECTED BY THE INTERFERENCE WITH AN EXISTING FACILITY.

PAYMENT FOR ALL THE OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE CONTRACT BID FOR THE PERTINENT 611 ITEM (603 - 2005 CMS).

REVIEW OF DRAINAGE FACILITIES

PRIOR TO THE START OF WORK AND AGAIN BEFORE FINAL ACCEPTANCE, PERFORM AN INSPECTION WITH REPRESENTATIVES OF THE DEPARTMENT, CONTRACTOR AND LOCALS OF ALL EXISTING DRAINAGE FACILITIES THAT ARE TO REMAIN IN SERVICE WHICH MAY BE AFFECTED BY THE WORK. THE CONDITION OF THE EXISTING CONDUITS AND THEIR APPURTENANCES IS DETERMINED FROM FIELD OBSERVATIONS. RECORDS OF THE INSPECTION ARE MAINTAINED BY THE DEPARTMENT.

CONFIRM ALL EXISTING SEWERS INSPECTED INITIALLY BY THE ABOVE-MENTIONED PARTIES ARE MAINTAINED AND LEFT IN A CONDITION COMPARABLE TO THAT DETERMINED BY THE ORIGINAL INSPECTION. THE CONTRACTOR IS RESPONSIBLE TO CORRECT ANY CHANGE IN THE CONDITION RESULTING FROM THEIR OPERATIONS AS DIRECTED AND APPROVED BY THE ENGINEER.

PAYMENT FOR ALL OPERATIONS DESCRIBED ABOVE IS INCLUDED IN THE CONTRACT PRICE FOR THE PERTINENT 611 CONDUIT ITEMS (603 - 2005 CMS).

PAVEMENT

UNSTABLE OR UNSUITABLE SOILS FOR PAVEMENT STABILIZATION

THE FOLLOWING ITEMS AND QUANTITIES ARE TO BE USED AS DIRECTED BY THE ENGINEER TO ADDRESS UNSTABLE OR UNSUITABLE SOILS ENCOUNTERED IN AREAS OF PAVEMENT CONSTRUCTION:

ITEM 204, EXCAVATION OF SUBGRADE	100 CY
ITEM 204, GRANULAR MATERIAL, TYPE B	100 CY
ITEM 204, GEOTEXTILE FABRIC	700 SY

PROFILE AND ALIGNMENT

PLACE THE PROPOSED PAVEMENT ON ERIE ST TO FOLLOW THE ALIGNMENT AND PROFILE OF THE EXISTING PAVEMENT. THE CONTRACTOR SHALL ENSURE POSITIVE DRAINAGE AT GUTTER LINE.

ITEM 304 - AGGREGATE BASE. AS PER PLAN

THIS ITEM SHALL BE IN ACCORDANCE WITH C&MS 304. THE CONTRACTOR SHALL PLACE THE AGGREGATE BASE 14" BEHIND THE PROPOSED CURB. THE AGGREGATE BASE SHALL BE PLACED UP TO 4" BELOW THE PROPOSED GRADE. TOPSOIL SHALL BE PLACED ON TOP AND SEEDED AND MULCHED AS DETAILED IN THE PLANS.

PAYMENT FOR ITEM 304 - AGGREGATE BASE, AS PER PLAN SHALL INCLUDE ALL MATERIALS, EQUIPMENT, LABOR AND ANY INCIDENTALS NECESSARY TO COMPLETE THE WORK DESCRIBED ABOVE.

ITEM SPECIAL - PAVEMENT OVERLAY FABRIC COMPOSITE

DESCRIPTION. THIS WORK SHALL CONSIST OF FURNISHING AND INSTALLING PAVEMENT OVERLAY FABRIC COMPOSITE AS SHOWN ON THE PLANS AND AT LOCATIONS DESIGNATED BY THE ENGINEER. THIS FABRIC COMPOSITE MAY BE PLACED ON A MILLED SURFACE.

MATERIALS. PAVEMENT OVERLAY FABRIC COMPOSITE SHALL BE CONSTRUCTED OF LONG CHAIN SYNTHETIC POLYMERS COMPOSED OF AT LEAST 85 PERCENT OF POLYOLEPHINES, POLYESTERS, AND POLYAMIDES BY WEIGHT, SHALL BE RESISTANT TO CHEMICAL ATTACK, MILDEW, ROT, AND ATTACHED TO A FIBERGLASS GRID. COMPOSITE SHALL MEET THE FOLLOWING PHYSICAL REQUIREMENTS:

PROPERTY	SPECIFICATION TEST METHOD		
PAVING FABRIC:	GLASSGRID CG2300 OR APPROVED EQUAL		
GRAB TENSILE STRENGTH, LBS.	90 MIN.	ASTM D 1682	
GRAB ELONGATION, PRECENT	50 MIN.	ASTM D 1682	
ASPHALT RETENTION GAL./SY.	0.20 MIN.	AASHTO M-288	
COMPOSTIE			
ULTIMATE TENSILE STRENGTH (LBS/FT)	MD 6720 MIN.	ASTM D 6637	
	XD 13440 MIN.		
MAXIMUM ELONGATION	LESS THAN 3%	ASTM D 6637	
PERCENT OPEN AREA	>50	TEX-621-J "TESTING GEOGRIDS"	
MELTING POINT MIN (DEGREES F)	1000	ASTM C338	
LOSS ON IGNITION %	>15	TEX-621-J "TESTING GEOGRIDS"	
MASS/UNIT AREA	16.0 OZ./SY MIN.	ASTM D 5261-92	

THE COMPOSITE FABRIC SHALL NOT BE EXPOSED TO UL TRAVIOLET RADIATION FOR MORE THAN 7 DAYS. THE FABRIC SHALL BE AT LEAST 60 INCHES BUT NO MORE THAN 150 INCHES IN WIDTH AND FURNISHED IN ROLLS OF APPROXIMATELY 104 YARDS IN LENGTH. THE FABRIC CAN BE CUT TO A 30 INCH WIDTH IF A 30 INCH WIDTH IS SPECIFIED IN THE PLAN.

THE ASPHALT SEALANT SHALL BE PG64-22 MEETING THE REQUIREMENTS OF 702.01.

CERTIFICATION SHALL BE FURNISHED IN ACCORDANCE WITH 101.061 BEFORE THE FABRIC IS PLACED. THE ENGINEER MAY REQUIRE SAMPLING FOR TESTING PURPOSES AS DIRECTED BY THE LABORATORY. EQUIPMENT. THE CONTRACTOR SHALL PROVIDE EQUIPMENT FOR HEATING AND APPLYING BITUMINOUS MATERIAL. HEATING EQUIPMENT AND DISTRIBUTORS SHALL MEET THE REQUIREMENTS OF 407. THE MECHANICAL LAYDOWN EQUIPMENT SHALL BE MOUNTED ON A FOUR-WHEELED VEHICLE THAT IS CAPABLE OF DRIVING OVER THE FABRIC WHILE IT IS BEING INSTALLED TO CONTROL THE TENSION ON THE MATERIAL. THE LAYDOWN MACHINE SHALL BE EQUIPPED WITH CLUTCHES TO ADJUST THE ROLL TENSION AND BROOMS TO SMOOTH OUT WRINKLES DURING INSTALLATION. MANUAL LAYDOWN MAY ONLY BE USED IN AREAS INACCESSIBLE TO THE LAYDOWN MACHINE. CONSTRUCTION DETAILS

1. SURFACE PREPARATION: THE CRACKS AND ENTIRE ROAD SURFACE TO BE TREATED, AND AT LEAST ONE ADDITIONAL FOOT ON EACH SIDE, SHALL BE CLEANED BY SWEEPING, BLOWING, OR OTHER METHODS UNTIL ALL DUST, MUD, CLAY LUMPS, VEGETATION, AND FOREIGN MATERIAL ARE REMOVED ENTIRELY FROM THE PAVEMENT BEFORE THE BITUMINOUS MATERIAL IS APPLIED. CARE SHALL BE EXERCISED TO PREVENT MATERIAL SO REMOVED FROM BECOMING MIXED WITH THE NEW SURFACE. LARGE CRACKS AND POTHoles SHOULD BE FILLED.

2. APPLICATION OF ASPHALT SEALANT: THE APPLICATION OF THE ASPHALT SEALANT SHALL CONFORM TO THE APPLICABLE PORTIONS OF 407. THE ASPHALT SEALANT SHALL BE UNIFORMLY SPRAYED OVER THE AREA TO BE COVERED BY FABRIC AT A RATE OF 0.25 TO 0.30 GALLON PER SQUARE YARD. THE QUANTITY APPLIED WILL VARY WITH THE SURFACE CONDITION OF THE EXISTING PAVEMENT (DEGREE OF POROSITY, FOR EXAMPLE). THE FABRIC ALONE, UNDER HEAT OF THE OVERLAY, WILL ABSORB AT LEAST 0.20 GALLON PER SQUARE YARD. WITHIN INTERSECTIONS OR OTHER ZONES WHERE VEHICLE BRAKING IS COMMON PLACE, THE APPLICATION SHALL BE REDUCED 20 PERCENT. THE SEALANT SHALL BE APPLIED TO AN AREA TWO TO SIX INCHES WIDER THAN THE WIDTHS OF THE FABRIC BEING PLACED, BUT RESTRICTED TO THE AREA OF IMMEDIATE FABRIC LAYDOWN. APPLICATION SHALL BE BY DISTRIBUTOR WITH HAND SPRAYING ALLOWED ONLY WHERE THE DISTRIBUTOR CANNOT BE USED. ASPHALT SPILLS SHALL BE CLEANED FROM THE ROAD SURFACE TO AVOID FLUSHING AND POSSIBLE MOVEMENT AT THESE ASPHALT RICH AREAS. THE ASPHALT CEMENT USED AS A SEALANT SHALL HAVE DISTRIBUTOR TANK TEMPERATURE BETWEEN 300 DEGREES AND 350 DEGREES F. APPLICATION TEMPERATURE IS NOT CRITICAL AFTER THE ASPHALT IS SPRAYED ON THE PAVEMENT. IF THE FABRIC IS TO BE OVER-SPRAYED, DISTRIBUTOR TANK TEMPERATURES SHOULD NOT EXCEED 350 DEGREES F TO AVOID DAMAGE TO THE FABRIC.

3. COMPOSITE FABRIC PLACEMENT: THE COMPOSITE FABRIC SHALL BE PLACED ON THE ASPHALT SEALANT AS SOON AS PRACTICAL AND BEFORE THE TACKINESS OF THE SEALANT IS LOST. THE COMPOSITE SHALL BE PLACED AS SMOOTHLY AS POSSIBLE TO AVOID WRINKLES. IT SHALL BE UNROLLED SO THAT THE SOFT SIDE IS UNWOUND INTO THE SEALANT AND THE GRID SIDE UP, THUS PROVIDING OPTIMUM BOND BETWEEN FABRIC AND PAVEMENT DURING THE CONSTRUCTION PROCESS. WRINKLES SEVERE ENOUGH TO CAUSE "FOLDS" SHALL BE SLIT AND LAID FLAT. SMALL WRINKLES, WHICH FLATTEN UNDER COMPACTION ARE NOT DETRIMENTAL TO PERFORMANCE. THE COMPOSITE SHALL BE BROOMED OR SQUEEGEED TO REMOVE AIR BUBBLES AND MAKE COMPLETE CONTACT WITH THE ROAD SURFACE AS RECOMMENDED BY THE FABRIC MANUFACTURER. THE FABRIC SHALL BE LAID STRAIGHT, WITHIN THE SEALANT AREA. MODERATE CURVES CAN BE NEGOTIATED BY STRETCHING THE FABRIC ON THE OUTSIDE OF THE CURVE BY ADJUSTING THE DRAG ON THE BRAKES OF THE LAYDOWN EQUIPMENT. TRANSVERSE JOINTS SHALL BE "SHINGLED" IN THE DIRECTION OF PAVING.

LONGITUDINAL JOINTS SHALL BE MADE BY OVERLAPPING THE FABRIC ONE TO TWO INCHES. TRANSVERSE JOINTS SHALL BE MADE BY OVERLAPPING THE FABRIC MINIMUM OF FOUR INCHES. ADDITIONAL SEALANT (ABOUT 0.20 GAL. PER SQ. YD.) SHALL BE ADDED TO THE JOINTS AS REQUIRED. THE ADDITIONAL SEALANT FOR TRANSVERSE JOINTS MAY BE APPLIED BY HAND SPRAYING OR WITH MOP AND BUCKET IF EXTREME CARE IS TAKEN TO NOT EXCEED THE SPECIFIED RATE.

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GENERAL NOTES

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TO ENHANCE THE BOND OF THE FABRIC WITH THE EXISTING PAVEMENT AND TO SMOOTH OUT ANY WRINKLES FOR FOLDS IN THE FABRIC, THE CONTRACTOR MAY BE REQUIRED TO PNEUMATICALLY ROLL THE FABRIC AFTER IT IS PLACED.

4. TREATMENT OF THE APPLIED COMPOSITE PRIOR TO PLACEMENT OF ASPHALT CONCRETE: TACK COAT THE FABRIC PRIOR TO PLACEMENT OF THE ASPHALT CONCRETE OVERLAY. TACK COAT SHALL BE APPLIED AT A RATE OF 0.02 TO 0.05 GALLON PER SQUARE YARD. PLACEMENT OF THE ASPHALT CONCRETE OVERLAY SHALL CLOSELY FOLLOW FABRIC LAYDOWN. IN THE EVENT THAT THE SEALANT BLEEDS THROUGH THE FABRIC BEFORE THE ASPHALT CONCRETE IS PLACED, IT MAY BE NECESSARY TO BLOT THE SEALANT BY SPREADING SAND OR ASPHALT CONCRETE OVER THE AFFECTED AREAS. THIS WILL PREVENT ANY TENDENCY FOR CONSTRUCTION EQUIPMENT TO PICK UP THE FABRIC WHEN DRIVING OVER IT.

TURNING OF THE PAVER AND OTHER VEHICLES SHALL BE GRADUAL TO AVOID MOVEMENT OR DAMAGE TO THE COMPOSITE. UNESSENTIAL TRAFFIC ON COMPOSITE SHOULD BE ELIMINATED. IF IT IS NECESSARY TO OPEN THE ROAD TO TRAFFIC AFTER FABRIC PLACEMENT, BUT PRIOR TO PAVING, IT IS ADVISABLE TO SPREAD A SMALL AMOUNT OF SAND OVER THE MEMBRANE TO PREVENT TIRES FROM STICKING TO THE SEALANT OR PULLING UP THE COMPOSITE. THIS PRACTICE IS TO BE AVOIDED IF POSSIBLE TO PREVENT DAMAGE TO THE MEMBRANE. QUICK STOPS AND SHARP TURNS MAY DAMAGE THE MATERIAL. IF RAIN PRIOR TO THE OVERLAY SHOULD CAUSE A BLISTERED APPEARANCE AND SOME BOND LOSS THROUGHOUT THE MEMBRANE, IT SHOULD BE CORRECTED BY PNEUMATIC ROLLING UNTIL ADHESION IS RESTORED.

5. ASPHALT CONCRETE: THE ASPHALT CONCRETE OVERLAY SHALL CONFORM TO 401 SPECIFICATION WITH A MINIMUM THICKNESS OF 1.5". A TWO COURSE OVERLAY IS PREFERRED.

METHOD OF MEASUREMENT. THE ACCEPTED FABRIC COMPOSITE PLACED IN ACCORDANCE WITH THESE SPECIFICATIONS AND AS DIRECTED WILL BE MEASURED BY THE SQUARE YARD OF ROADWAY, RAMPS, AND TURNOUTS COVERED BY THE COMPOSITE FABRIC. LAPS IN COMPOSITE FABRIC WILL NOT BE MEASURED.

BLOTTING THE SEALANT, SPREADING SAND OR ASPHALT CONCRETE OVER THE MEMBRANE TO PREVENT TIRES FROM STICKING TO THE SEALANT OR PULLING UP THE FABRIC, ROLLING TO RESTORE BOND, OR APPLICATION OF A TACK COAT WILL NOT BE MEASURED FOR DIRECT PAYMENT BUT SHALL BE CONSIDERED A NECESSARY PART OF THE CONSTRUCTION INVOLVED AND THE COST THEREFORE SHALL BE INCLUDED IN OTHER APPROPRIATE CONTRACT UNIT PRICES.

BASIS OF PAYMENT. THE ACCEPTED QUANTITIES OF PAVEMENT OVERLAY FABRIC COMPOSITE WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER SQUARE YARD, WHICH PRICE AND PAYMENT SHALL BE FULL COMPENSATION FOR FURNISHING ALL LABOR, MATERIALS (INCLUDING ASPHALT SEALANT AND OVERLAP), TOOLS, EQUIPMENT AND INCIDENTALS FOR DOING ALL THE WORK INVOLVED IN FURNISHING AND PLACING THE COMPOSITE COMPLETE IN PLACE AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

ITEM UNIT DESCRIPTION

SPECIAL SQUARE YARD PAVEMENT OVERLAY FABRIC COMPOSITE

ITEM 441 - ASPHALT CONCRETE SURFACE COURSE. TYPE 1. (448). PG70-22M. AS PER PLAN

703.05 DO NOT USE COARSE AGGREGATE FROM A SOURCE DESIGNATED 'SR' OR 'SRH' ACCORDING TO THE OFFICE OF MATERIALS MANAGEMENT (OMM) IN ANY JOB MIX FORMULA (JMF) FOR THIS ITEM.

SANITARY

1. SANITARY SEWERS AND APPURTENANCES SHALL BE CONSTRUCTED IN ACCORDANCE WITH STARK COUNTY SANITARY ENGINEERING DEPARTMENT SPECIFICATIONS AND DETAILS IN EFFECT AT THE TIME OF CONSTRUCTION.
2. ROOF DRAINS, FOUNDATION DRAINS AND OTHER CLEAN WATER CONNECTIONS TO THE SANITARY SEWER ARE PROHIBITED. ADOPTED DECEMBER 27, 1968.
3. PRIOR TO START OF CONSTRUCTION, THE CONTRACTOR SHALL HAVE A PRE-CONSTRUCTION MEETING WITH THE CONSTRUCTION ENGINEER OF THE STARK COUNTY SANITARY ENGINEERING DEPARTMENT (330-451-2310). A MINIMUM OF 72 HOUR NOTICE IS REQUIRED.
4. THE CONTRACTOR SHALL NOTIFY ALL PROPERTY OWNERS ALONG THE ROUTE OF THE SANITARY SEWER AT LEAST 3 DAYS PRIOR TO THE START OF SANITARY SEWER CONSTRUCTION.
5. THE CONTRACTOR SHALL ALERT THE UTILITIES PROTECTION SERVICE AT LEAST 48 HOURS PRIOR TO START OF CONSTRUCTION.
6. APPROVAL BY THE STARK COUNTY SANITARY ENGINEERING DEPARTMENT CONSTITUTES NEITHER EXPRESSED NOR IMPLIED WARRANTIES AS TO FITNESS, ACCURACY, OR SUFFICIENCY OF PLANS, DESIGNS OR SPECIFICATIONS.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROPERLY MAINTAINING EXISTING SANITARY FLOW DURING THE CONSTRUCTION AND TESTING OF THE PROPOSED IMPROVEMENTS. THE CONTRACTOR'S METHODS FOR MAINTAINING FLOW MUST BE APPROVED BY THE STARK COUNTY SANITARY ENGINEERING DEPARTMENT AT THE PRE-CONSTRUCTION MEETING.
8. ALL ROUGH GRADING TO WITHIN 6" OF FINISHED GRADE SHALL BE COMPLETED WITHIN THE RIGHTS-OF-WAY AND EASEMENTS PRIOR TO SANITARY SEWER CONSTRUCTION.
9. BULKHEADS SHALL BE ERECTED IN EXISTING MANHOLES WHERE TAPS FOR NEW LOCAL SEWERS ARE MADE AND SHALL REMAIN IN PLACE UNTIL THE NEW SEWERS ARE COMPLETE, TESTED AND APPROVED. IN CASES WHERE A BULKHEAD WOULD INTERRUPT THE FLOW FROM EXISTING SERVICE CONNECTIONS, THE BULKHEAD SHALL BE PLACED IN THE FIRST NEW MANHOLE UPSTREAM OF THE EXISTING MANHOLE.
10. MINIMUM CLEARANCE BETWEEN SANITARY SEWERS AND WATERLINES SHALL BE 18 INCHES VERTICALLY AND 10 FEET HORIZONTALLY.
11. MINIMUM NOMINAL PIPE DIAMETER OR SANITARY SERVICE SEWERS AND BUILDING SEWERS (LATERALS) SHALL BE 6". PIPES SHALL BE LAID AT NO LESS THAN 1.0% GRADE.
12. NO CHANGES TO SANITARY SERVICE SEWER AND BUILDING SEWER (LATERAL) LOCATIONS SHALL BE MADE WITHOUT THE APPROVAL OF THE STARK COUNTY SANITARY ENGINEER.

13. FOR NEW SUBDIVISION CONSTRUCTION, SANITARY BUILDING SEWERS (LATERALS) SHALL EXTEND 15 FEET INTO EACH LOT WHEN THE LOCAL SEWER IS IN A STREET RIGHT OF WAY OR SHALL TERMINATE AT THE EASEMENT LINE WHEN THE LOCAL SEWER IS IN AN EASEMENT. FOR OTHER SEWER CONSTRUCTION, SERVICE AND BUILDING SEWERS SHALL TERMINATE AT THE RIGHT OF WAY LINE OR THE EASEMENT LINE, WHICHEVER IS APPLICABLE.
14. SERVICE SEWER STACKS SHALL BE EPOXY LINED DUCTILE IRON PIPE IN ACCORDANCE WITH ITEM 11 OF THE STARK COUNTY SANITARY ENGINEERING DEPARTMENT SPECIFICATIONS, REGARDLESS OF LOCAL SEWER MATERIAL. A CAST IRON TEE SHALL BE INSTALLED IN THE LOCAL SEWER.
15. MINIMUM COVER OVER SANITARY SEWERS SHALL BE 4 FEET.
16. ACCEPTABLE SANITARY SEWER PIPE MATERIALS ARE:

<u>PIPE</u>	<u>JOINTS</u>	<u>INSTALLATION</u>
PVC SMOOTH EXTERIOR: ASTM D-3034	ASTM D-3212	ASTM D-2321
PVC WATER PIPE: AWWA C-900	AWWA C-110/C-111	AWWA C-151
DIP (CL 52): AWWA C - 151	AWWA C-110/C-111	AWWA C-151

17. ALL SANITARY SEWERS, 8 INCHES IN DIAMETER AND LARGER, SHALL PASS AN INTERNAL TELEVISION INSPECTION. THE CONTRACTOR SHALL PROVIDE A COMPLETE INTERNAL INSPECTION VIDEOTAPE TO THE STARK COUNTY SANITARY ENGINEERING DEPARTMENT. THE VIDEOTAPING PROCEDURE SHALL BE IN ACCORDANCE WITH STARK COUNTY SANITARY ENGINEERING DEPARTMENT SPECIFICATIONS.
18. A DEFLECTION TEST SHALL BE REQUIRED FOR ALL FLEXIBLE PIPE OF 8 INCHES IN DIAMETER AND LARGER. THE TEST SHALL BE CONDUCTED AT LEAST 30 DAYS AFTER COMPLETION OF BACKFILL AND SHALL BE IN ACCORDANCE WITH STARK COUNTY SANITARY ENGINEERING DEPARTMENT SPECIFICATIONS. THE ALLOWABLE DEFLECTION RATE SHALL NOT EXCEED FIVE PERCENT (5%). TESTING SHALL BE IN ACCORDANCE WITH APPENDIX C OF THE STARK COUNTY SANITARY ENGINEERING DEPARTMENT SPECIFICATIONS.
19. ALL SANITARY SEWERS MUST PASS A LOW PRESSURE AIR TEST, WHICH SHALL BE CONDUCTED IN ACCORDANCE WITH STARK COUNTY SANITARY ENGINEERING DEPARTMENT SPECIFICATIONS. THE MAXIMUM ALLOWABLE TEST LEAKAGE SHALL BE 100 GAL/INCH OF DIAMETER/MILE/DAY. THIS TEST SHALL CONFORM TO ASTM F-1417.
20. MANHOLE CONSTRUCTION SHALL MEET THE REQUIREMENTS OF ASTM C-478 AND C-443. ALL MANHOLES SHALL BE AIR/VACUUM TESTED IN ACCORDANCE WITH AND MEET ALL THE REQUIREMENTS OF ASTM C-1244.
21. CONNECTIONS TO EXISTING MANHOLES SHALL BE CORE DRILLED, WITH BENCHES AND CHANNELS FORMED AND REPAIRED AS NECESSARY. FLEXIBLE GASKETS CONFORMING TO ASTM C-923 (A-LOK, KOR-N-SEAL, OR APPROVED EQUAL) SHALL SEAL THE SPACE BETWEEN THE PIPE AND THE MANHOLE WALL.
22. ANY MANHOLE DROP ATTACHMENTS SHALL BE "OUTSIDE" TYPE.

23. MANHOLE TOP OF CASTING ELEVATIONS MAY REQUIRE ADJUSTMENT DURING SITE GRADING. MANHOLE COVERS MAY NOT BE BURIED. UPON COMPLETION OF CONSTRUCTION AND RESTORATION, ALL MANHOLES, PROPOSED AND EXISTING, SHALL BE IN CONFORMANCE IN ALL RESPECTS WITH STARK COUNTY SANITARY ENGINEERING DEPARTMENT SPECIFICATIONS AND DETAILS.
24. ALL SANITARY SEWER TRENCHES BENEATH PROPOSED OR EXISTING PAVEMENT SHALL BE COMPACTED IN LIFTS, IN A MANNER AND WITH MATERIAL AS SPECIFIED BY THE STARK COUNTY SANITARY ENGINEERING DEPARTMENT AND ALL APPLICABLE ODOT SPECIFICATIONS.

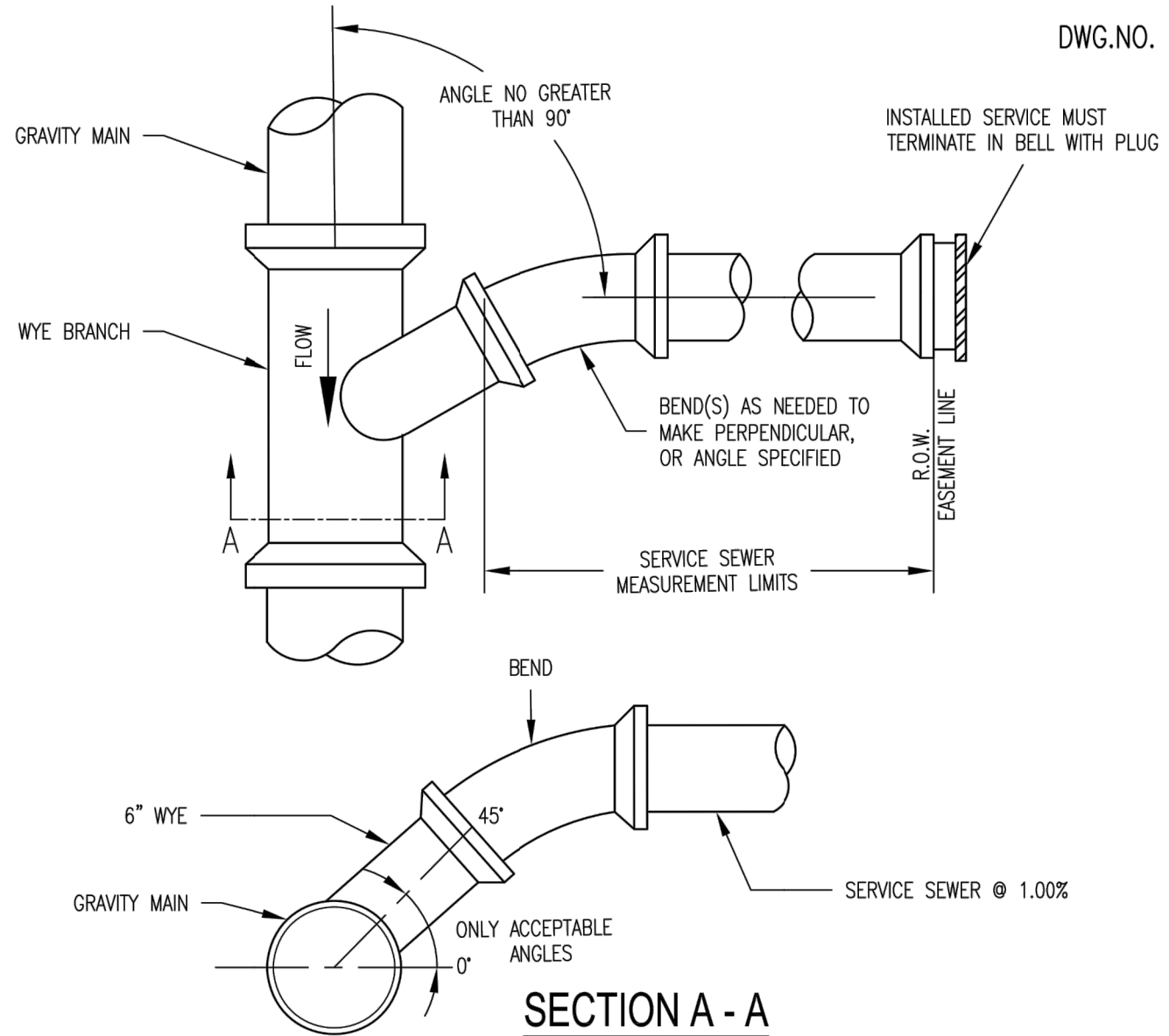
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**ITEM 611 - CONDUIT, MISC. : SANITARY SHORT SIDE, COMPLETE
(ITEM 603 - 2005 CMS)**

THE CONTRACTOR SHALL INSTALL SANITARY LATERALS AT THE LOCATIONS DETAILED IN THE PLANS. THE CONTRACTOR SHALL COORDINATE THE FINAL LOCATION WITH THE PROPERTY OWNER OF THE ADJACENT PARCEL PRIOR TO INSTALLATION.

THE SANITARY LATERAL AND SERVICE CONNECTION SHALL BE INSTALLED PER STARK COUNTY SANITARY ENGINEERING DEPARTMENT STANDARDS. THE STANDARD DRAWING HAS BEEN PROVIDED.

PAYMENT SHALL INCLUDE ALL MATERIAL, LABOR, EQUIPMENT AND INCIDENTALS NECESSARY TO INSTALL THE SANITARY LATERALS.



NOTES:

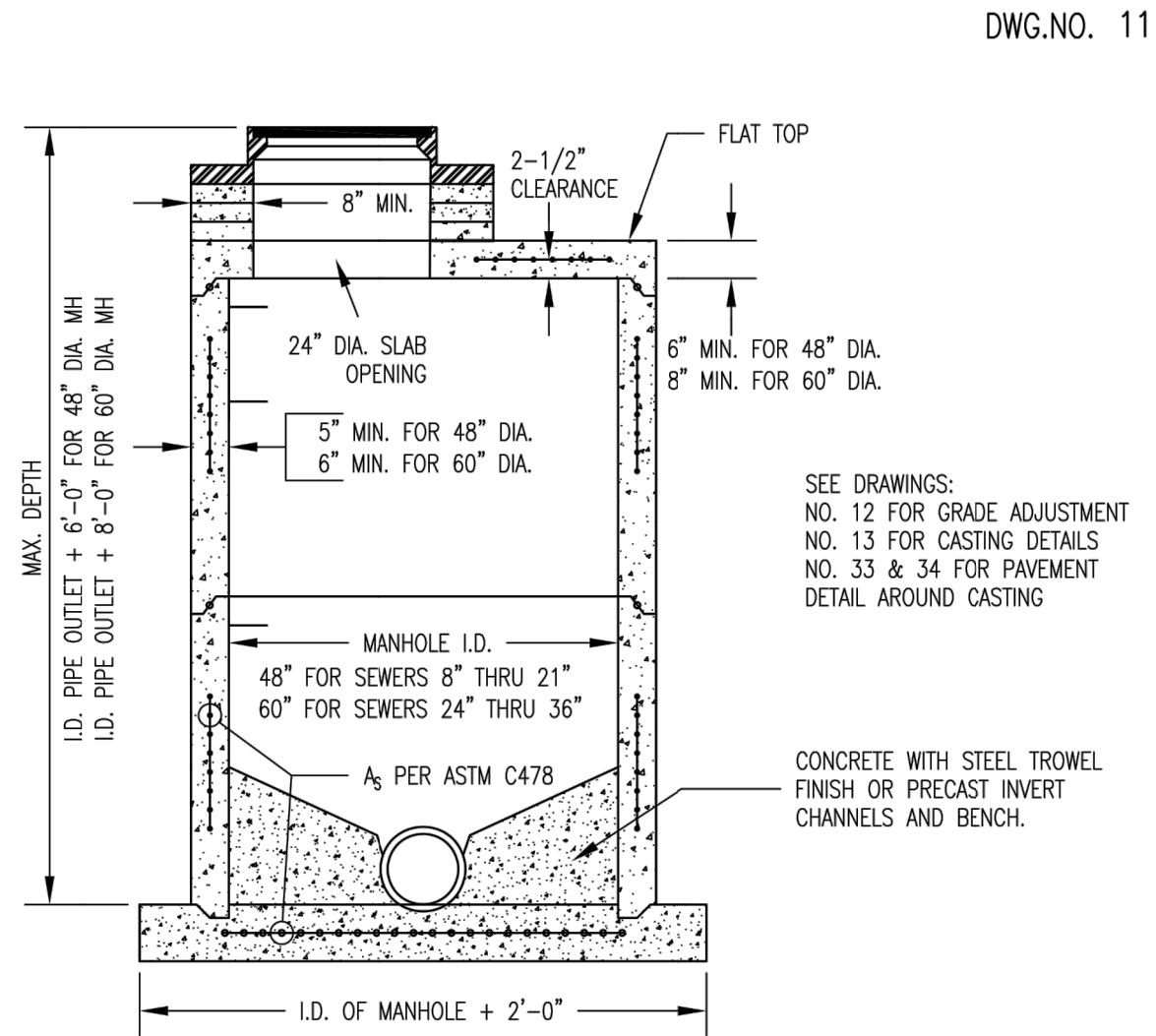
- SERVICE SEWER TO BE LAID ON CONTINUOUS SLOPE, MIN. 1.00% GRADE.
- WYE ANGLES TURNED GREATER THAN 45° AS SHOWN, WILL REQUIRE A STACK. SEE DWG 7 FOR STACK ON 8"-12" MAINLINE & 7A FOR 15" & LARGER MAINLINE
- SERVICE SEWER WILL BE 6" DIAMETER UNLESS OTHERWISE STATED, PAYMENT & MEASUREMENT IS BASED ON SHORT & LONG SIDES OF THE R/W. BORING UNDER PAVEMENTS MAY BE REQUIRED BY ENGINEER.
- NO CLEANOUTS WILL BE ALLOWED WITHIN ROW OR EASEMENT UNLESS OTHERWISE STATED OR APPROVED BY ENGINEER.
- SEE DWG 1 OR DWG 2 FOR BEDDING & TRENCH REQUIREMENTS.

APPROVED 03/18			NO SCALE	
			STARK COUNTY	
			SANITARY ENGINEERING DEPT.	
			DETAIL DWG.NO. 6	
			ITEM NO. N/A	
			STANDARD SERVICE CONNECTION	

**ITEM 611 - MANHOLE, NO. 3, AS PER PLAN
(ITEM 603 - 2005 CMS)**

THE CONTRACTOR SHALL INSTALL A SHALLOW MANHOLE IN ACCORDANCE WITH THE DETAIL BELOW. THE MANHOLE SHALL BE INSTALLED AT THE LOCATIONS SHOWN IN THE DETAILED PLANS.

PAYMENT SHALL INCLUDE ALL MATERIAL, LABOR, EQUIPMENT AND INCIDENTALS NECESSARY TO INSTALL THE SANITARY LATERALS.



NOTES:

- PRECAST MANHOLE SECTIONS SHALL MEET ASTM C478. MANHOLE JOINTS SHALL MEET ASTM C443. CONCRETE IN MANHOLES SHALL MEET THE SPECIFICATION ITEM NOS. 4 & 16.
- MANHOLE STEPS SHALL MEET ASTM D4101 & BE M.A. IND. PS1-PF REINFORCED PLASTIC STEPS OR APPROVED EQUAL. IF TOP STEP IS IN 24" DIA. OPENING IT MAY PROJECT NO MORE THAN 3 1/2". INSTALLATION SHALL BE PER MANUFACTURER'S INSTRUCTIONS.
- FOR PVC & ABS PIPE CONNECTIONS USE ASTM C-923 FLEXIBLE GASKET SUCH AS A-LOK, DURA SEAL III, KOR-N-SEAL OR APPROVED EQUAL. THIS CONNECTION IS NOT ACCEPTABLE FOR EXISTING VCP. FOR CONNECTION TO EXISTING VCP A SUFFICIENT LENGTH PVC SHOULD BE INSTALLED OUT OF MANHOLE TO ALLOW FOR COUPLING TO VCP.
- BUTYL SEALANT (CONSEAL 102 OR APPROVED EQUAL) SHALL BE USED AT ALL JOINTS. APPLY WRAP EXTERIOR JOINT SEALER, CONSEAL 212 OR APPROVED EQUAL TO OUTSIDE OF PRECAST RINGS & ALL OTHER JOINTS.
- IF JOINT SEALER WRAP IS USED, TROWELABLE TAR SHOULD BE USED TO FURTHER SEAL TOP & BOTTOM EDGES, IF NEEDED.

APR'D 03/18			NO SCALE	
			STARK COUNTY	
			SANITARY ENGINEERING DEPT.	
			DETAIL DWG.NO. 11	
			ITEM NO. 16	
			SHALLOW PRECAST MANHOLE	

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GENERAL NOTES

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STARK COUNTY SUBDIVISION ENGINEERING DEPARTMENT STANDARD GENERAL NOTES

1. CONSTRUCTION AND MATERIALS FOR THIS PROJECT SHALL BE IN ACCORDANCE WITH THE 2019 EDITION OF THE OHIO DEPARTMENT OF TRANSPORTATION'S CONSTRUCTION AND MATERIAL SPECIFICATIONS AND THE CURRENT STARK COUNTY SUBDIVISION REGULATIONS. WHERE CONFLICTS OCCUR BETWEEN THE ABOVE, THE STARK COUNTY SUBDIVISION ENGINEER SHALL DETERMINE THE GOVERNING AUTHORITY.

ANY DEFECTS IN THE CONSTRUCTION INCLUDING MATERIALS AND/OR WORKMANSHIP SHALL BE REPLACED OR CORRECTED BY REMOVAL AND REPLACEMENT OR OTHER APPROVED METHOD PRIOR TO ACCEPTANCE BY THE STARK COUNTY SUBDIVISION ENGINEER.

2. THE STARK COUNTY SUBDIVISION ENGINEER SHALL NOT BE HELD LIABLE FOR DAMAGES OF ANY TYPE WHICH MAY OCCUR AS A RESULT OF ERROR AND/OR OMISSIONS IN THE ENGINEERING DESIGN DATA PRESENTED BY THE DEVELOPER'S ENGINEER NOR SHALL THE STARK COUNTY SUBDIVISION ENGINEER BE HELD LIABLE FOR DAMAGES RESULTING FROM THE DEVELOPER'S CONTRACTOR NOT COMPLYING WITH THE APPROVED PLANS OR BY USING CONSTRUCTION METHODS OR MATERIALS NOT APPROVED BY THE STARK COUNTY SUBDIVISION ENGINEER.

3. THE DEVELOPER'S ENGINEER CERTIFIES THAT ALL DESIGN DATA AND CALULATIONS PERTAINING TO THESE IMPROVEMENT PLANS ARE CORRECT AND CONFORM TO THE CURRENT DESIGN CRITERIA. THE STARK COUNTY SUBDIVISION ENGINEER IN APPROVING THESE PLANS AND DEDICATION PLAT THEREOF, DOES NOT IN ANY WAY RELIEVE THE DEVELOPER'S ENGINEER OF HIS RESPONSIBILITY FOR ACCURATE AND COMPLETE ENGINEERING DESIGN RELATIVE TO THE PLANS.

4. ANY EXISTING HORIZONTAL AND VERTICAL CONTROL MONUMENTS AFFECTED BY THIS PROJECT SHALL BE REMOVED AND REPLACED TO THEIR ORIGINAL REFERENCE LOCATIONS AND ELEVATIONS BY THE DEVELOPER'S CONTRACTOR.

5. THE DEVELOPER'S CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGES TO EXISTING UTILITIES, BUILDINGS, ROADWAYS, STRUCTURES AND OTHER SITE CONDITIONS RESULTING FROM HIS WORK TO THE CONDITION EXISTING PRIOR TO CONSTRUCTION UNLESS NOTED OTHERWISE ON THESE CONSTRUCTION DRAWINGS.

6. ALL EXISTING ROAD SURFACES, EASEMENTS OR RIGHT-OF-WAY AREAS DISTRUBED BY THE CONSTRUCTION OF ANY PART OF THIS IMPROVEMENT SHALL BE RESTORED COMPLETELY BY THE DEVELOPER'S CONTRACTOR TO THE BEFORE CONSTRUCTION CONDITION OR BETTER WHEN ORDERED TO DO SO BY THE STARK COUNTY SUBDIVISION ENGINEER.

7. THE DEVELOPER'S CONTRACTOR MUST CONTACT THE STARK COUNTY SUBDIVISION ENGINEER (PHONE: 330-451-7403) TO SCHEDULE A PRE-CONSTRUCTION MEETING AT LEAST SEVENTY-TWO (72) HOURS PRIOR TO STARTING ANY CONSTRUCTION ACTIVITIES.

8. DURING THE PROJECT, THE DEVELOPER'S CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE STARK COUNTY SUBDIVISION ENGINEER OF WHEN THEIR WORK FORCES ARE PERFORMING ANY CONSTRUCTION ACTIVITIES AT THE SITE. FAILURE OF THE DEVELOPER'S CONTRACTOR TO PROVIDE THESE NOTICES MAY RESULT IN THE INSTALLED WORK NOT BEING ACCEPTED AS WELL AS HAVING TO BE REINSTALLED. THE PROJECT'S PERFORMANCE BOND SHALL NOT BE RELEASED UNTIL ALL OF THE PROJECT'S PUBLIC IMPROVEMENTS ARE CONSTRUCTED TO THE SATISFACTION OF THE SUBDIVISION ENGINEER.

9. ALL KNOWN UTILITIES HAVE BEEN SHOWN ON THE PLANS. THE DEVELOPER'S CONTRACTOR SHALL FIELD VERIFY THE LOCATIONS OF ALL EXISTING UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION. EXISTING APPURTENANCES TO REMAIN SUCH AS UTILITY POLES, VALVE BOXES, ETC. SHALL REMAIN UNDISTURBED BY THE DEVELOPER'S CONTRACTOR DURING CONSTRUCTION.

10. THE DEVELOPER'S CONTRACTOR SHALL CONTACT THE UTILITIES PROTECTION SERVICE (PHONE: 1-800-362-2764) AT LEAST FORTY-EIGHT (48) HOURS BEFORE ANY EXCAVATION OR CONSTRUCTION IS INITIATED OR ANY UNDERGROUND WORK IS COMMENCED IN EXISTING STREETS TO ARRANGE FOR UTILITY VERIFICATION AND CONSTRUCTION INSPECTION SERVICES RESPECTIVELY.

PUBLIC UTILITIES IN THE PROJECT AREA AND THEIR RESPECTIVE OWNERS ARE SHOWN ON SHEET 5.

11. THE DEVELOPER'S CONTRACTOR SHALL BE RESPONSIBLE FOR TEMPORARY SOIL EROSION AND SEDIMENT CONTROL IN ACCORDANCE WITH ODOT ITEM 207 AND REQUIREMENTS OF THE STARK COUNTY SOIL AND WATER CONSERVATION SERVICE. THE DEVELOPER'S CONTRACTOR ON A DAILY BASIS SHALL CLEAN ALL EXISTING STREETS OF MUD AND DIRT RESULTING FROM HIS WORK DURING THE CONSTRUCTION PHASE.

12. ALL STORM SEWER CONSTRUCTION INCLUDING EXCAVATING, CONDUIT BEDDING, PIPE COVER AND BACKFILLING SHALL CONFORM TO ODOT ITEM 611 (603 - 2005 CMS).

13. BEFORE ACCEPTANCE OF THE ROAD PAVEMENT SUBGRADES BY THE STARK COUNTY SUBDIVISION ENGINEER, SUBGRADES SHALL BE COMPACTED AND TESTED IN ACCORDANCE WITH ODOT ITEM 204. WHEREVER UNSTABLE SOIL SUBGRADE CONDITIONS ARE ENCOUNTERED, ADDITIONAL WORK ON THE SUBGRADES SHALL BE DONE BY THE DEVELOPER'S CONTRACTOR AND PAID FOR BY THE DEVELOPER UNTIL SUCH CONDITIONS ARE CORRECTED AND APPROVED BY THE STARK COUNTY SUBDIVISION ENGINEER.

SUBGRADE TESTING AND/OR PROOF ROLLING MUST BE WITNESSED AND APPROVED BY THE STARK COUNTY SUBDIVISION ENGINEER PRIOR TO THE PLACEMENT OF THE PAVEMENT MATERIALS.

14. FOR ALL REQUIRED ODOT PAVEMENT RELATED ITEMS, THE DEVELOPER'S CONTRACTOR SHALL PROVIDE MATERIALS OBTAINED FROM A SOURCE APPROVED BY THE OHIO DEPARTMENT OF TRANSPORTATION.

NO ASPHALT PAVEMENT, CONCRETE PAVEMENT OR CONCRETE CURBS SHALL BE PLACED ON FROZEN PAVEMENT, BASE OR SUBBASE.

15. TOPSOIL AND EXISTING VEGETATION SHALL BE STRIPPED FROM THE PROPOSED PAVEMENT AREAS AND A MINIMUM OF THREE (3) FEET PAST THE EDGE OF PROPOSED PAVEMENT AREAS. THE DEVELOPER'S CONTRACTOR SHALL LEGALLY DISPOSE OF REMOVED TOPSOIL AND VEGETATION.

OTHER EXCAVATION REQUIRED SHALL BE BASED UPON THE LINES AND GRADES GIVEN IN THE PLANS AND BE LEGALLY DISPOSED OF BY THE DEVELOPER'S CONTRACTOR.

16. A ROAD OPENING PERMIT WILL BE REQUIRED FOR ANY NEW SUBDIVISION STREET THAT CONNECTS TO AN EXISTING PUBLIC ROADWAY BEFORE ACCESS IS GRANTED FOR CONSTRUCTION PURPOSES.

17. THE DEVELOPER'S CONTRACTOR SHALL OBTAIN AND PAY FOR ALL NECESSARY CONSTRUCTION PERMITS.

18. THE DEVELOPER'S CONTRACTOR SHALL MAINTAIN TRAFFIC ON EXISTING ROADWAYS AT ALL TIMES DURING THE CONSTRUCTION PERIOD.

19. IF ANY CHANGE IN THE WORK SCHEDULE BECOMES NECESSARY, IT WILL BE THE RESPONSIBILITY OF THE DEVELOPER'S CONTRACTOR TO NOTIFY THE STARK COUNTY SUBDIVISION INSPECTOR TO AVOID UNNECESSARY INSPECTION COSTS.

20. AT THE COMPLETION OF CONSTRUCTION, THE DEVELOPER'S CONTRACTOR SHALL VERIFY THAT THE LINES AND GRADES SHOWN ON THE IMPROVEMENT PLANS FOR THE STORM WATER MANAGEMENT BASIN ARE MET. REGRADE ANY AREAS WHERE SEDIMENTATION OR EROSION HAS OCCURRED DURING THE CONSTRUCTION PERIOD AND HAS REDUCED THE BASIN'S REQUIRED STORAGE CAPACITY. THE DEVELOPER'S CONTRACTOR SHALL RESEED AND MULCH ALL REGRADED AREAS IN ACCORDANCE WITH ODOT ITEM 659.

21. THE DEVELOPER'S CONTRACTOR SHALL INSURE THAT ALL NEW UTILITY LINES REQUIRED UNDER PROPOSED PAVEMENTS SHALL BE IN PLACE PRIOR TO THE START OF THE SUBGRADE PREPARATION. BACKFILL OF EXCAVATIONS FOR TRENCHES UNDER PROPOSED PAVEMENTS AND A MINIMUM OF THREE (3) FEET PAST THE BACK OF CURB SHALL CONFORM TO ODOT ITEM 611.

22. THE COMPLETE RIGHT-OF-WAY SHALL BE GRADED AS SHOWN ON THE TYPICAL SECTION. DURING THE LOT DEVELOPMENT AND HOUSE BUILDING PHASE, THE DEVELOPER SHALL BE RESPONSIBLE FOR MAINTAINING THE TYPICAL SECTION BETWEEN THE BACK OF CONCRETE CURB AND THE RIGHT-OF-WAY LINE.

23. THE CONTRACTOR SHALL FURNISH AND INSTALL 2"x2" WOOD STAKES WITH A THREE FOOT HEIGHT AT THE ENDS OF WATER, SANITARY SEWER AND STORM SEWER LATERALS SERVING EACH LOT. STAKES SHALL BE PAINTED BLUE FOR WATER LATERALS, GREEN FOR SANITARY SEWER LATERALS AND WHITE FOR STORM SEWER LATERALS.

IN ADDITION, THE SAME SIZE STAKES SHALL BE PLACED AT EACH END OF PIPE SLEEVES INSTALLED UNDER STREET PAVEMENTS FOR THE GAS SERVICE LINES AS WELL AS SLEEVES FOR THE ELECTRIC/TELEPHONE/CABLE TV SERVICE LINES. STAKES SHALL BE PAINTED YELLOW FOR THE GAS SLEEVES AND RED FOR THE ELECTRIC/TELEPHONE/CABLE TV SLEEVES.

24. STREET SAFETY SIGNS SHALL BE MADE OF MATERIALS AND CONSTRUCTED IN ACCORDANCE WITH ODOT ITEM 630. STREET NAME SIGNS SHALL BE MADE OF MATERIALS AND CONSTRUCTED IN ACCORDANCE WITH THE LOCAL TOWNSHIP ROAD DEPARTMENT HAVING JURISDICTION. ALL SIGNS ARE THE RESPONSIBILITY OF THE DEVELOPER.
- CALCULATED
JMB

CHECKED
JLS

GENERAL NOTES

ERIE AVE (US 62/SR 21)/
ORTT ST IMPROVEMENTS

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GENERAL WATERLINE INSTALLATION NOTES

1. CONTRACTOR TO PROVIDE LINE AND GRADE STAKES AT 100' INTERVALS FOR WATER MAIN AND FOR EACH FITTING AND APPURTENANCE. A COPY OF CUT SHEET SHALL BE PROVIDED TO FIELD INSPECTOR PRIOR TO INSTALLATION.

2. WATER WORK SHALL NOT BEGIN UNTIL AREAS OF WATERLINE CONSTRUCTION ARE ROUGH GRADED (WITHIN 1FT. OF FINISHED GRADE" AND FILL AREAS ARE COMPLETED AND COMPACTED.)

3. NO WATER SERVICE CONNECTIONS TO ANY BUILDINGS SHALL BE PERMITTED PRIOR TO FINAL ACCEPTANCE BY AQUA OHIO, INC. WHICH SHALL INCLUDE APPROVED RECTIFICATION OF ALL PUNCH LIST ITEMS. ONCE PUNCH LIST ITEMS ARE COMPLETED, THE BUILDER SHALL BE RESPONSIBLE FOR GRADE ADJUSTMENTS TO WATER FACILITIES AT TIME OF BUILDING CONSTRUCTION AND DURING FINAL SITE GRADING.

4. A MINIMUM OF 5 FEET HORIZONTAL SEPARATION SHALL BE MAINTAINED BETWEEN UTILITY CONDUIT CROSSEOVERS AND WATERLINE APPURTENANCES, I.E. HYDRANTS, VALVES, TEES, ETC.

5. WATER LINE MATERIALS AND INSTALLATION PROCEDURES SHALL MEET OR EXCEED ALL APPLICABLE A.W.W.A. STANDARDS INCLUDING BUT NOT LIMITED TO THE MOST RECENT VERSIONS OF C600 AND C651.

6. WATERLINE MATERIAL AND INSTALLATION PROCEDURES SHALL BE IN ACCORDANCE WITH AQUA OHIO SPECIFICATIONS. CLASS 52 D.I.P. POLYWRAPPED, FITTINGS CLASS 53 CEMENT LINED POLYWRAPPED AND 1" COPPER TUBING WITH COMPRESSION FITTINGS FOR DOMESTIC SERVICES OR 2" HDPE SDR 9 POLYETHYLENE 3408 PIPE AROUND CUL-DE-SAC. IF POLYETHYLENE IS USED, A 12 GAUGE WIRE AND METALLIC CAUTION TAPE MUST BE USED.

7. ALL PIPE AND APPURTENANCES INSTALLED ON A DEPRESSURIZED WATER MAIN ARE TO BE WIPED CLEAN AND ALL INTERIOR SURFACES SATURATED WITH A MINIMUM 1% CHLORINE SOLUTION.

8. ALL MECHANICAL JOINTS ARE TO BE RESTRAINED USING MEGALUG OR "FORD" EQUIVALENT. FIRE LINE RISERS TO INCLUDE (2) 5/8" ALL THREAD RODS EXTENDING FROM LOWER BEND TO RISER FLANGE.

9. A RESTRAINT GASKET (FIELD-LOK OR APPROVED EQUAL) SHALL BE UTILIZED ON PUSH-ON JOINTS AS REQUIRED BY AQUA OHIO STANDARDS.

10. ALL DUCTILE IRON PIPE AND FITTINGS TO BE POLYWRAPPED AND TAPED AS PER DUCTILE IRON PIPE RESEARCH ASSOCIATION RECOMMENDATIONS.

11. DUCTILE IRON IN CASING SHALL BE CLASS 52, POLYWRAPPED AND ALL PUSH-ON JOINTS SHALL BE EQUIPPED WITH RESTRAINT GASKETS (FIELD-LOK OR APPROVED EQUAL) AND STAINLESS-STEEL CASING SPACERS ARE REQUIRED.

12. ALL THRUST BLOCKING WILL BE SOLID CONCRETE BLOCKS WITH OAK WEDGES OR POURED CONCRETE, PER AQUA STANDARDS DRAWING.

13. ALL VALVES ARE OPEN RIGHT AND ALL MAIN LINE VALVES ARE TO BE PLACED ON A MINIMUM OF ONE 4" SOLID CONCRETE BLOCK. ALL VALVES TO HAVE #57 LIMESTONE UP TO OPERATING NUT OF VALVE.

14. ALL FIRE HYDRANTS TO HAVE A MINIMUM OF 1/2 CUBIC YARD OF #57 LIMESTONE 6" ABOVE DRAIN HOLE OR EQUIVALENT SIZE BANK RUN GRAVEL. PLASTIC SHALL BE PLACED OVER STONE PRIOR TO BACKFILL. ALL HYDRANTS TO BE TURNED WITH 5" STORZ NOZZLE FACING STREET AND MEETING FIRE DEPARTMENT SPECIFICATIONS.

15. ALL VALVE BOX COVERS ARE TO BE PAINTED BLUE. CONTRACTOR IS RESPONSIBLE FOR ADJUSTMENTS TO VALVE BOXES, CURB BOXES, AND FIRE HYDRANTS WITH RESPECT TO FINAL GRADING. ALL VALVES BOXES IN NEW OR PROPOSED PAVEMENT SHALL BE SCREW TYPE.

16. WATERLINE WILL NOT BE ACCEPTED OR PLACED IN SERVICE UNTIL CONTRACTOR CONDUCTS AND OBTAINS SATISFACTORY RESULTS OF PRESSURE AND CHLORINE TESTS. BACTERIA TEST WILL THEN BE CONDUCTED BY AQUA OHIO. ALL VALVES, HYDRANTS, AND CURB BOXES ARE TO BE AT PROPER GRADE PRIOR TO ACCEPTANCE.

17. THE CONTRACTOR SHALL TAKE PRECAUTIONARY MEASURES TO ENSURE SAFETY OF THE PUBLIC ON AND SURROUNDING THE SITE DURING CONSTRUCTION.

18. THE LOCATION OF EXISTING UTILITIES AND STRUCTURES, BOTH ABOVE GROUND AND UNDERGROUND ARE SHOWN ON THE PLANS FROM DATA AVAILABLE AT THE TIME OF THE SURVEY AND ARE NOT NECESSARILY COMPLETE AND/OR CORRECT. THE EXACT LOCATION AND PROTECTION OF EXISTING UTILITIES AND STRUCTURES IS THE RESPONSIBILITY OF THE CONTRACTOR. DURING CONSTRUCTION, THE CONTRACTOR SHALL USE DUE DILIGENCE IN PROTECTING FROM DAMAGE ALL EXISTING UTILITIES AND STRUCTURES WHETHER SHOWN ON PLANS OR NOT. IF DAMAGE IS CAUSED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIR OR RESTORATION OF SAME IN ACCORDANCE WITH THE DIRECTIONS OF THE OWNER. THE CONTRACTOR SHALL CONTACT OHIO UTILITIES PROTECTION SERVICE, AT 1-800-362-2764, TWO WORKING DAYS PRIOR TO START OF CONSTRUCTION AS REQUIRED BY OHIO LAW.

19. THE WATERLINE SHALL BE INSTALLED AT 4'-0" OF COVER FROM EXISTING/PROPOSED GRADE TO TOP OF THE WATERLINE. THIS 4' SHALL BE MAINTAINED UNLESS OTHERWISE NOTED.

20. A MINIMUM 10' -0" HORIZONTAL SEPARATION MUST BE MAINTAINED BETWEEN ALL STORM AND SANITARY SEWERS AND WATERLINE, OUT TO OUT.

21. A MINIMUM 18" VERTICAL SEPARATION MUST BE MAINTAINED BETWEEN ALL STORM AND SANITARY SEWERS AND WATERLINE, OUT TO OUT.

22. THE CONTRACTOR SHALL CAREFULLY LAYOUT THE WATERLINE AND ALL RELATED FACILITIES TO ENSURE THAT THEY ARE LOCATED WITHIN THE PUBLIC RIGHT-OF-WAY AND/OR ACQUIRED EASEMENTS AS INDICATED.

23. THE CONTRACTOR IS RESPONSIBLE FOR RESTORING THE SITE (YARDS, DITCHES, DRIVEWAYS, ETC.) TO ITS ORIGINAL OR BETTER CONDITION UPON COMPLETION OF THE WATERLINE INSTALLATION.

24. THE CONTRACTOR MAY DEFLECT THE WATERLINE AS PER MANUFACTURER'S SPECS WITH PERMISSION FROM AQUA AS NEEDED TO MAINTAIN MINIMUM HORIZONTAL AND VERTICAL SEPARATION DISTANCES.

25. THE CONTRACTOR SHALL CAREFULLY PRESERVE BENCHMARKS, PROPERTY CORNERS, REFERENCE POINTS, AND STAKES. ANY BENCHMARK, PROPERTY CORNER, OR SURVEY MARKER DAMAGED OR DISTURBED BY THE CONTRACTOR SHALL BE RESET BY AN OHIO REGISTERED PROFESSIONAL SURVEYOR AT THE CONTRACTORS EXPENSE.

26. ALL MAILBOXES, TRAFFIC CONTROL SIGNS AND ADVERTISING SIGNS ENCOUNTERED DURING CONSTRUCTION SHALL BE REPLACED IMMEDIATELY AFTER THE WATER MAIN HAS BEEN INSTALLED AND BACKFILLED. TEMPORARY SIGNS TO BE USED AS NEEDED.

27. WATER SERVICE LINE CONNECTIONS ARE NOT TO BE INSTALLED UNTIL PRESSURE TEST AND BACTERIA TESTS HAVE BEEN APPROVED.

28. THE NORMAL WORKING PRESSURE IN WATER LINES SHALL NOT BE LESS THAN 35 PSI.

WATERLINE QUANTITIES

ERIE ST/ORTT DR

8" WATER MAIN, DIP, CLASS 52, APP:426 LF

6" HYDRANT ASSEMBLY, COMPLETE:1 EA

8" WATER VALVE:1 EA

16"x8" TAPPING SLEEVE, VALVE AND VALVE BOX:1 EA

8"x8"x1" TEE:1 EA

8"x8"x2" TEE:1 EA

8"x8"x6" TEE:1 EA

8" PLUG:1 EA

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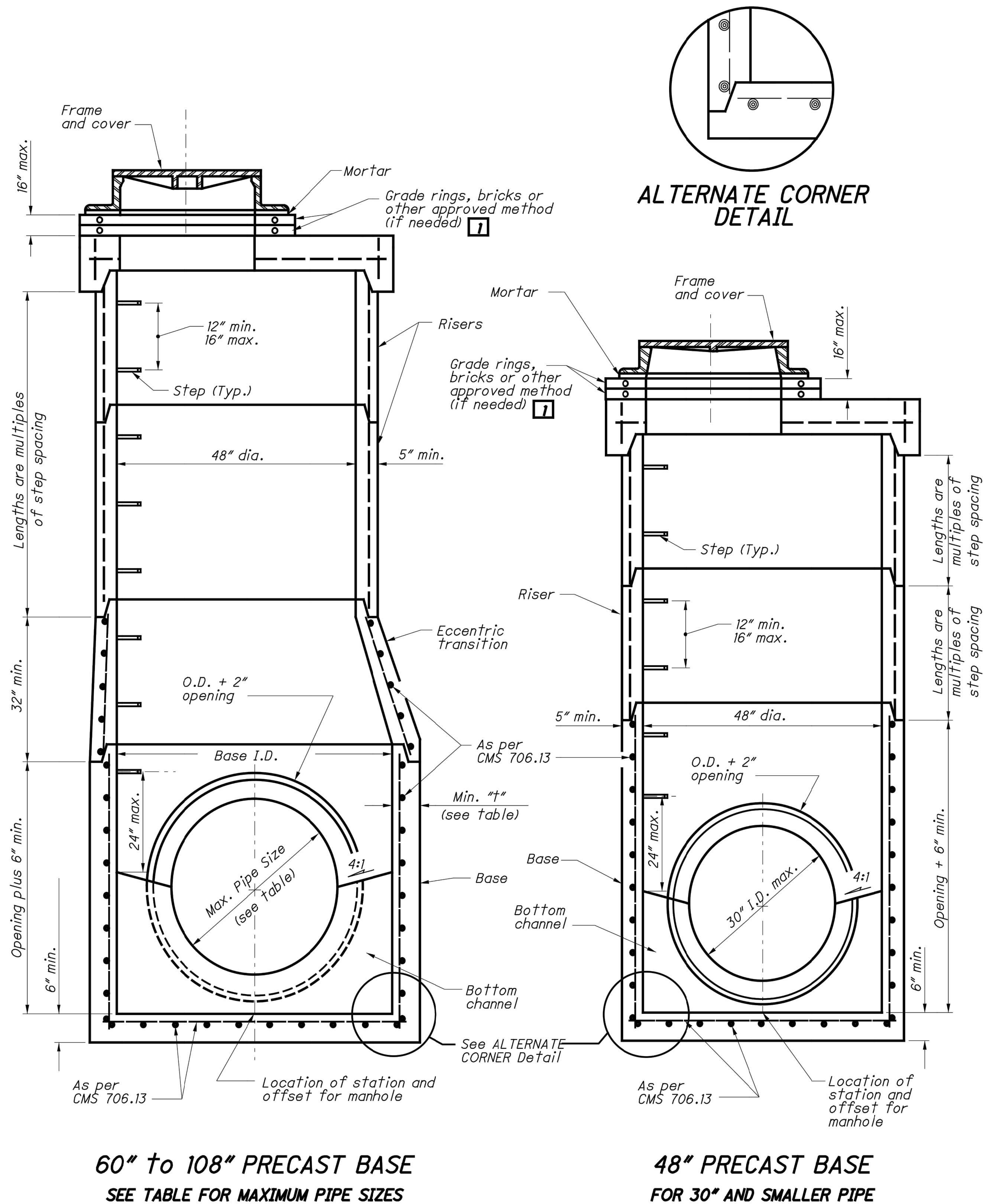
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GENERAL NOTES

ERIE AVE (US 62/SR 21)/
ORTT ST IMPROVEMENTS

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NOTES

GENERAL: With normal soil and site conditions, this standard precast manhole may be used for any required manhole depth.

Cast and assemble sections of the precast manhole with either all tongue or all groove ends up. Lift holes may be provided in each section for handling.

Leave handling device for the flat slab in place.

TOP: Provide a flat slab for this section unless an eccentric cone is specified.

TRANSITION (OR REDUCER): This section can be either eccentric cone or flat slab.

BASE: Manhole No. 3 is shown with a 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. Provide openings for inlet and outlet pipes, either when the unit is cast or later, to meet project requirements. Bottom channels may be formed of concrete or steel. The base or field constructed as shown on **SCD MH-1 and MH-2.**

RISER SECTIONS: Openings for 18" and smaller inlet pipes may be either prefabricated or cut in the field provided the sides of the pipe at the springline do not project into the manhole.

CONNECTIONS: Connections between precast manhole sections and pipes on sanitary sewers may be sealed with resilient connectors conforming to ASTM C 923.

JOINT SEAL: Furnish resilient seal between precast manhole sections on sanitary sewers and flexible gasket joints per CMS 706.11.

OPENINGS: Ensure pipe openings are the O.D. of the pipe being supplied plus 2" when fabricated or field cut. Fill any voids per C&MS 611.

MATERIALS: Provide materials for bases and other precast sections, including reinforcement not specified here, that meet the requirements of CMS 706.13.

DROP PIPE: When specified on the plans, construct drop pipe as shown on **SCD MH-2.**

STEPS, FRAMES AND COVERS: Meet the requirements shown on **SCD MH-1.**

TOP SLAB REBAR: Use epoxy coated reinforcing steel within the top slab.

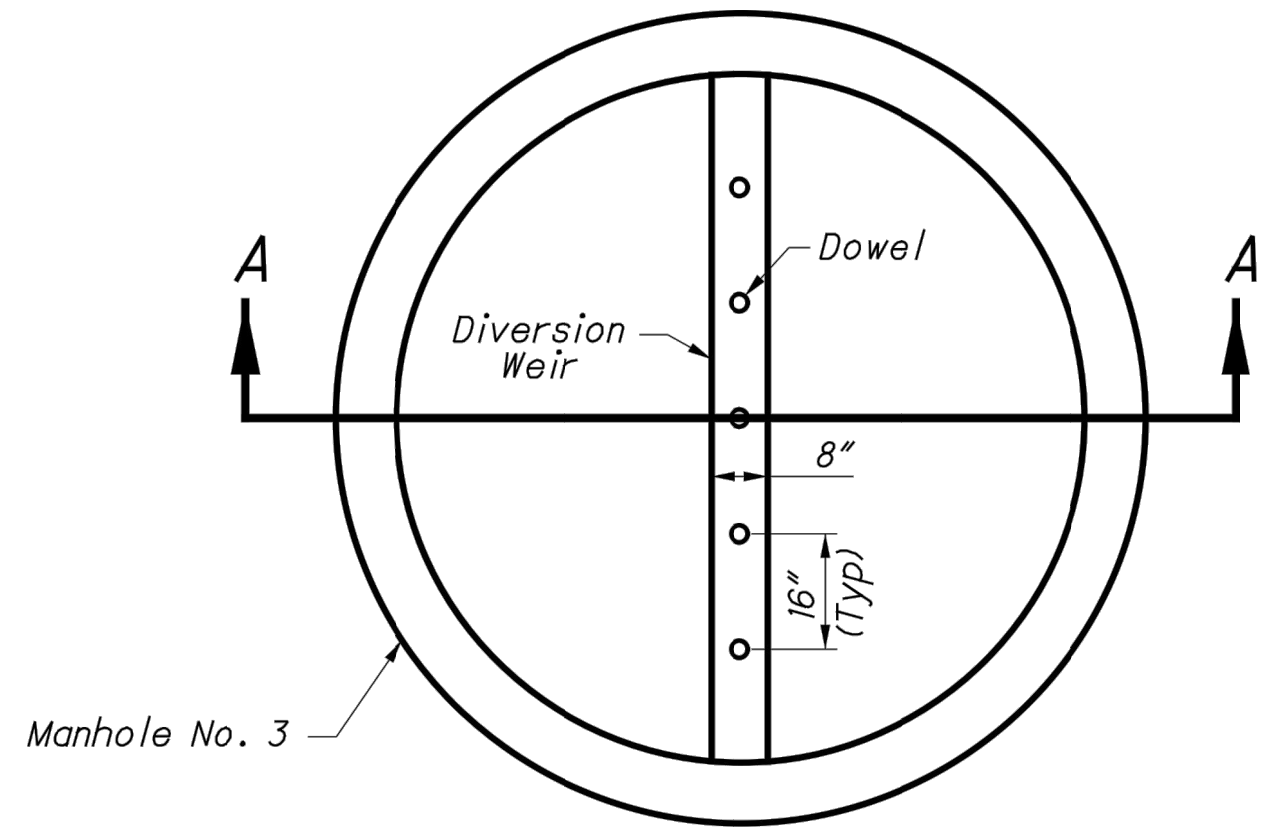
LEGEND

1 Reconstruction to grade only. Approved materials are kept on file by the Office of Materials Management.

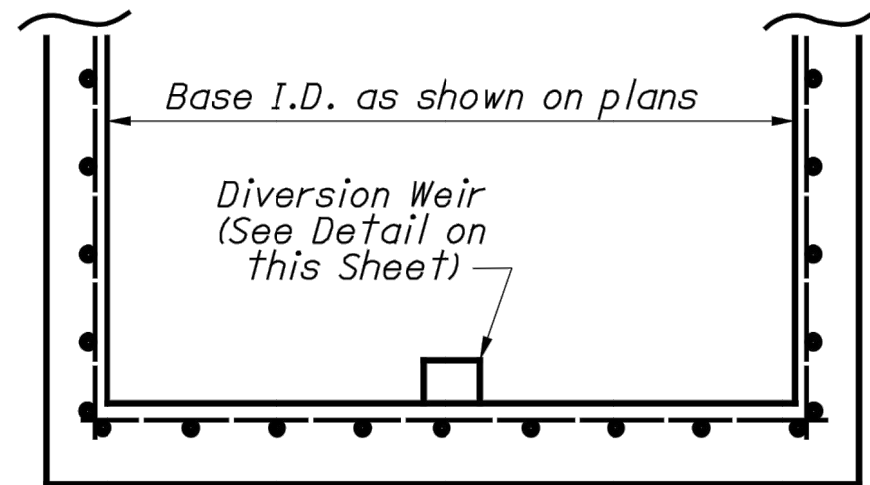
MAXIMUM PIPE SIZES		
BASE I.D.	MIN. #"	MAX. PIPE SIZE
60"	5"	36"
72"	6"	48"
84"	7"	54"
90"	7½"	60"
96"	8"	66"
108"	9"	72"

1 / 2	DRAWING MH-3	STANDARD HYDRAULIC CONSTRUCTION DRAWING MANHOLE No. 3	OFFICE OF HYDRAULICS ENGINEERING	ROADWAY HYDRAULIC ENGINEER M. Cozzoli	REVISIONS 7-19-02 7-15-05 1-20-06 7-20-12 1-18-13 1-15-16 7-16-21	STATE OF OHIO DEPARTMENT OF TRANSPORTATION HYDRAULIC ENGINEER Jeffery E. Syar
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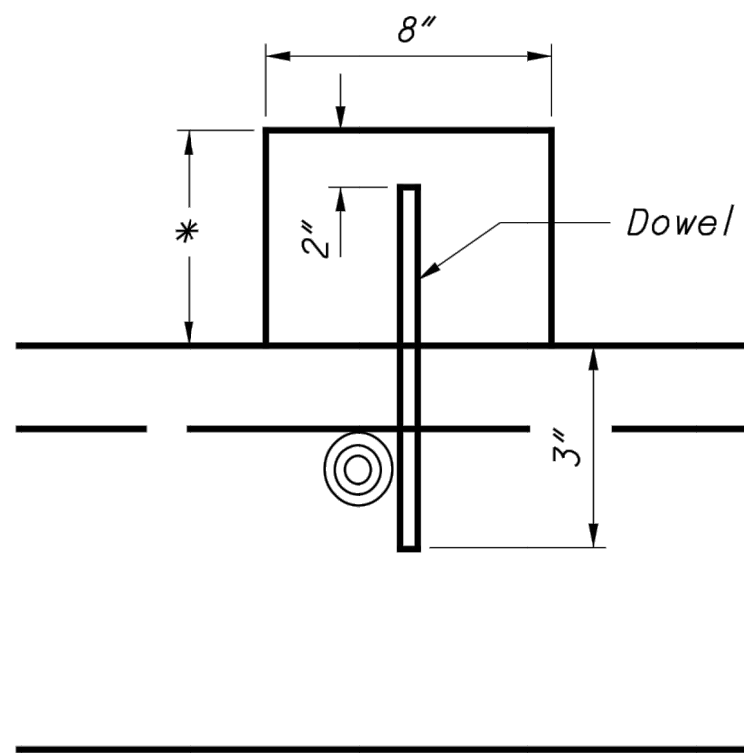
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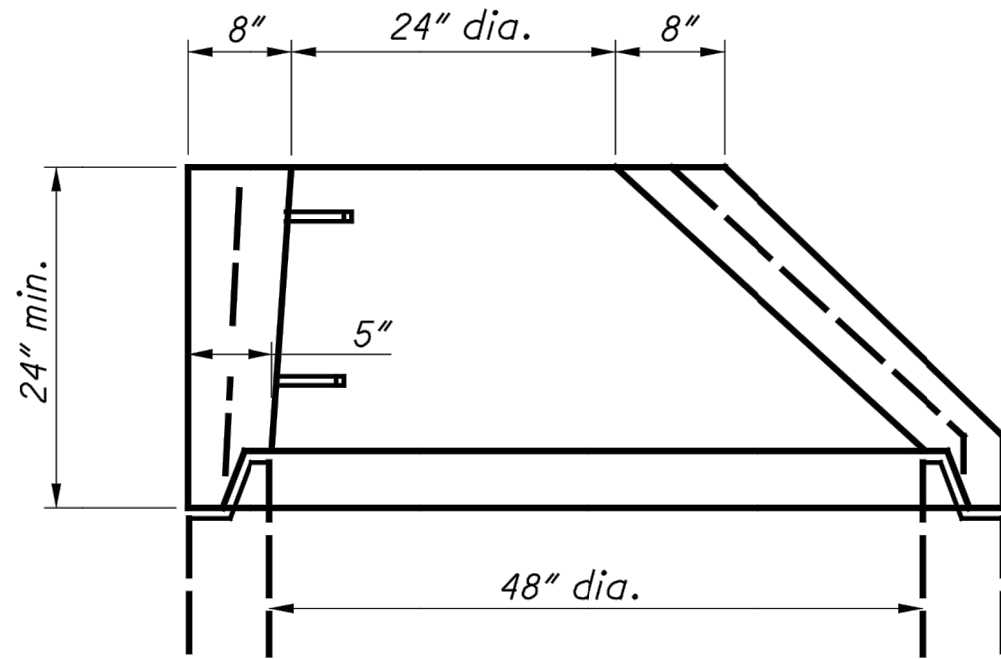
MANHOLE NO. 3 W/
" BASE I.D. AND " WEIR
(NTS)



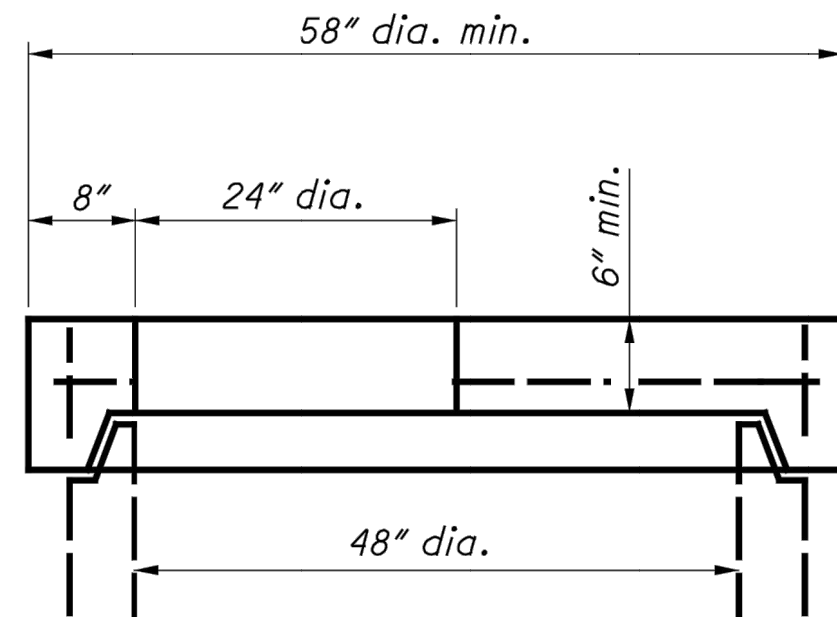
SECTION A-A
(NTS)



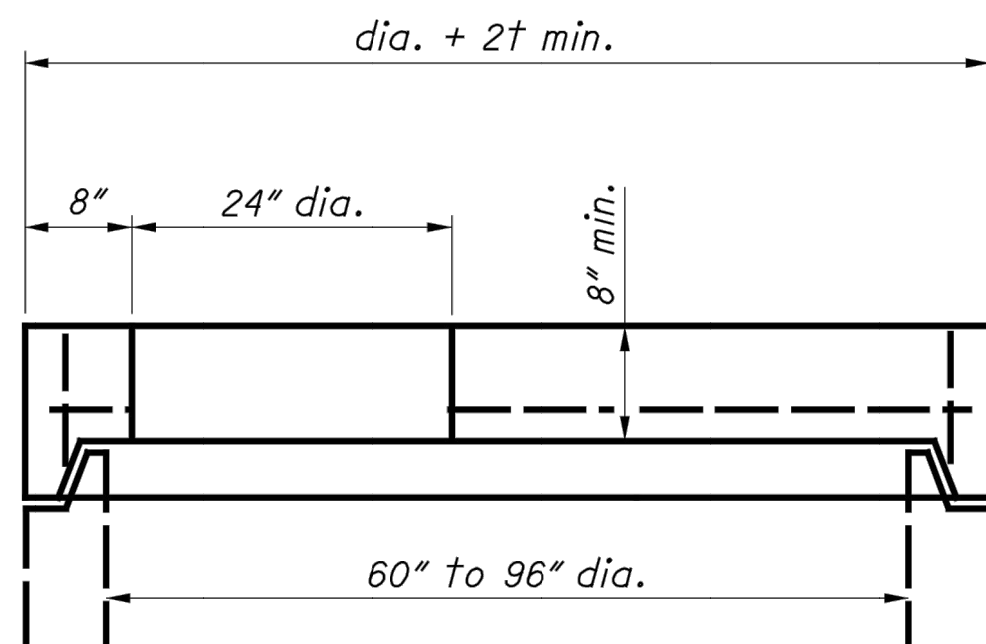
* Furnish weir height as shown in plans.
DIVERSION WEIR DETAIL
(NTS)



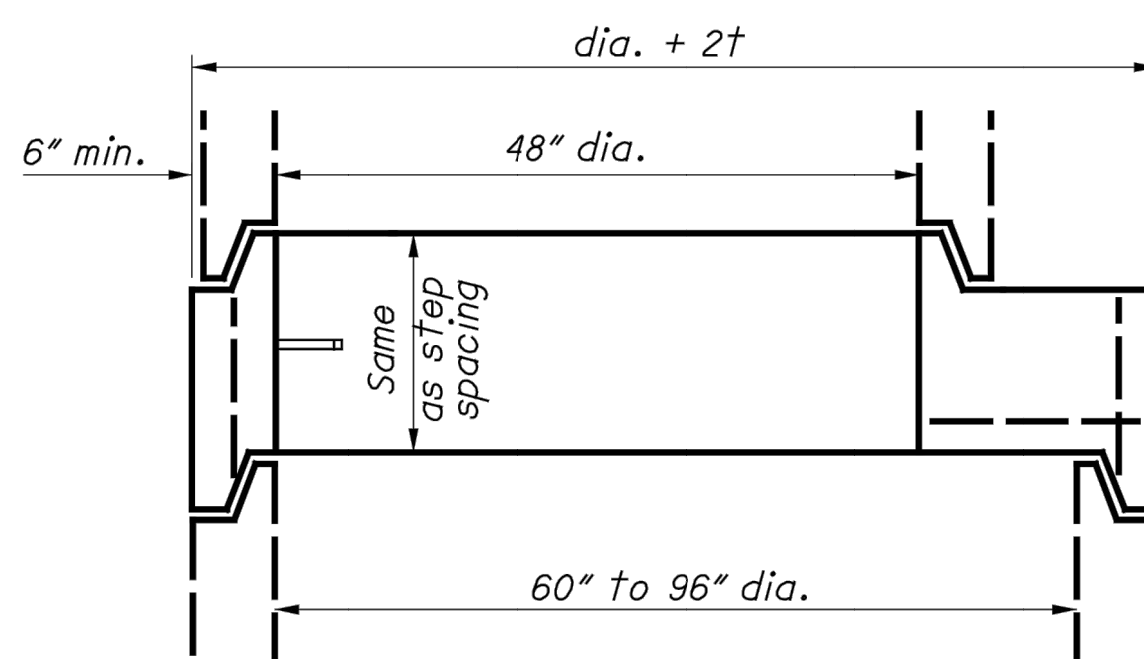
ALTERNATE
ECCENTRIC CONE TOP
(Only if speci fied)



FLAT SLAB TOP



FLAT SLAB TOP



FLAT SLAB TRANSITION

NOTES

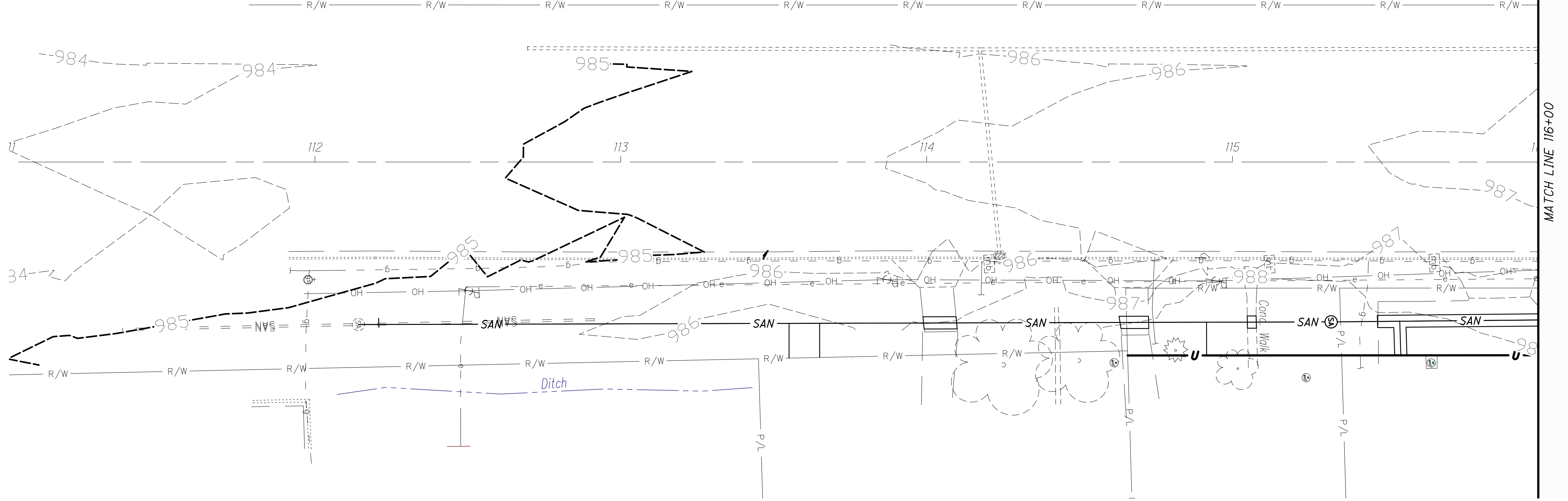
MANHOLE NO. 3 W/ " BASE I.D. AND " DIVERSION WEIR:
Furnish manhole base with precast diversion weir or construct diversion weir from Structural Concrete, 4000 psi compressive strength concrete or Brick and Masonry Units conforming to CMS 611. A bottom channel section for the manhole is not required when a diversion weir is specified on the plans.

Place diversion weir perpendicular to flow of inflowing trunk sewer. Dowel concrete or masonry units into the base of the manhole to a depth of 3" using epoxy coated #4 reinforcing bars. Start dowels at the center of the diversion weir and space 16" on center across the entire weir.

All materials and labor, including excavation and backfill, are paid for at the contract price for **ITEM 611 - MANHOLE NO. 3 WITH " BASE I.D. AND " DIVERSION WEIR.**

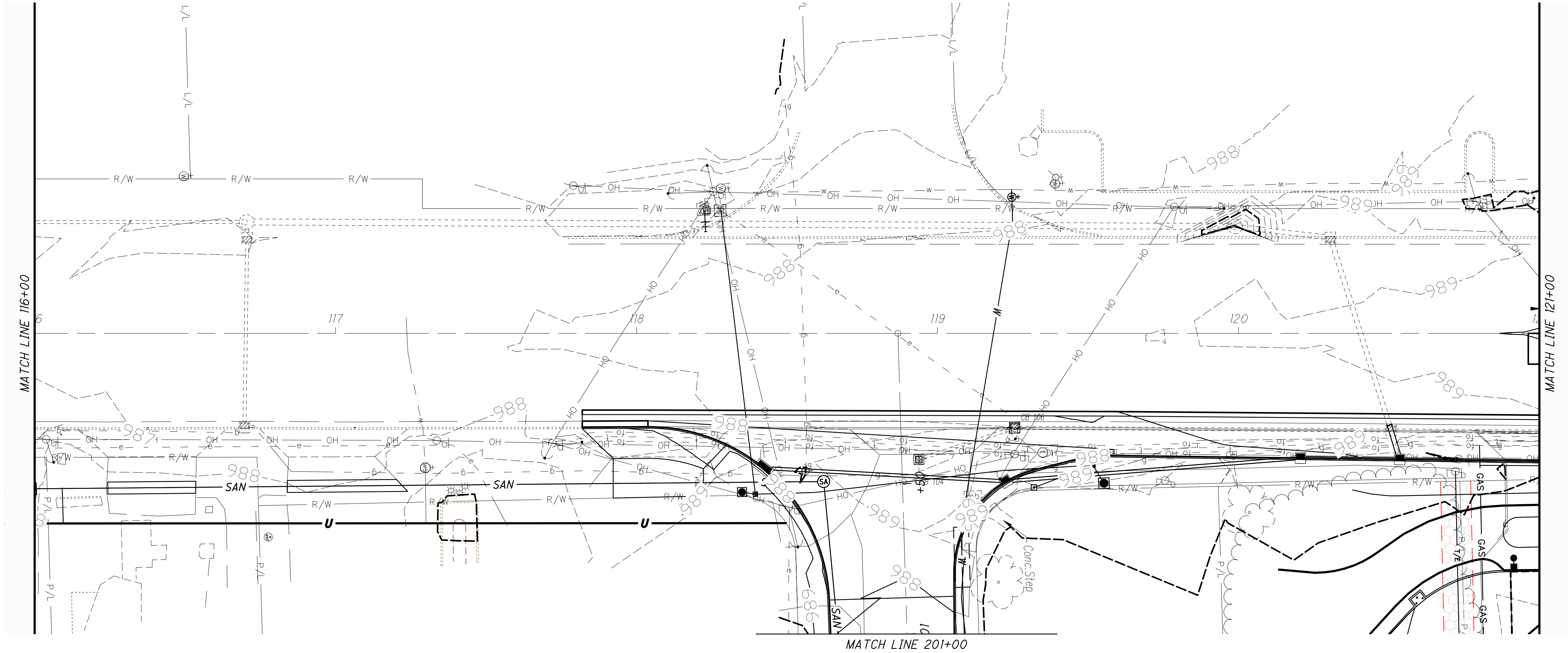
DRAWING	MH-3	MANHOLE No. 3	OFFICE OF HYDRAULICS ENGINEERING	ROADWAY HYDRAULIC ENGINEER M. Cozzoli	REVISIONS 7-19-02 7-15-05 1-20-06 7-20-12 1-18-13 1-15-16 7-16-21	STATE OF OHIO DEPARTMENT OF TRANSPORTATION HYDRAULIC ENGINEER Jeffery E. Syar
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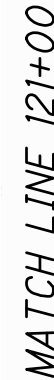


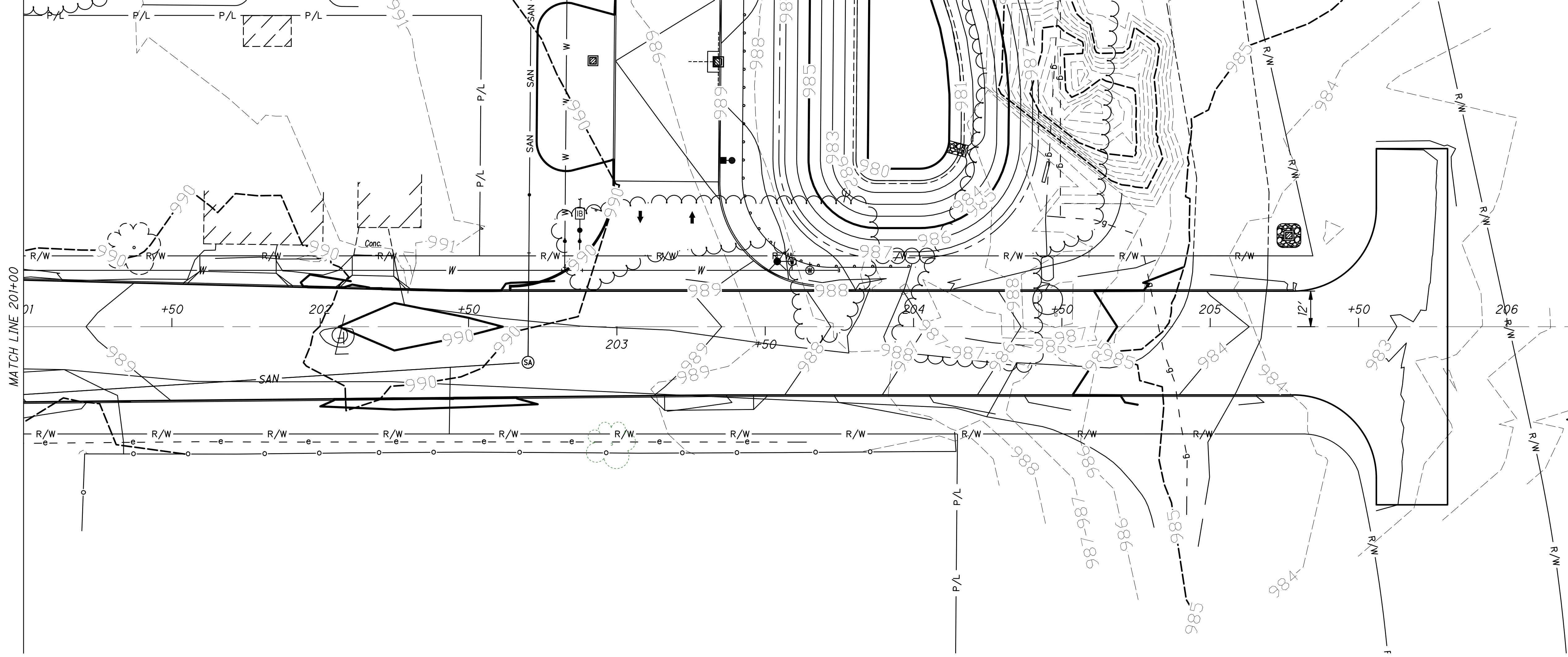
13 65	ERIE AVE (US 62/SR 21) ORTT ST IMPROVEMENTS	PROJECT SITE PLAN - ERIE AVE STA. 111+00 TO STA. 116+00		CALCULATED SRT CHECKED JJS	 0 10 20 40 HORIZONTAL SCALE IN FEET

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ERIE AVE (US 62/SR 21) ORTT ST IMPROVEMENTS	PROJECT SITE PLAN - ERIE AVE STA. 116+00 TO STA. 121+00		CALCULATED SRT CHECKED JJS	 0 10 20 40 HORIZONTAL SCALE IN FEET
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SEQUENCE OF CONSTRUCTION

PRE-PHASE 1
THE CONTRACTOR SHALL INSTALL THE TEMPORARY SIGNAL FOR THE ERIE AVE SW / ORTT ST SW INTERSECTION, WHICH SHALL REMAIN IN PLACE UNTIL THE PROPOSED SIGNAL IMPROVEMENTS ARE FULLY OPERATIONAL.

THE CONTRACTOR SHALL INSTALL THE TEMPORARY SIGNAL DURING OFF-PEAK HOURS WHILE MAINTAINING TRAFFIC IN ACCORDANCE WITH MT-95.31.

PHASE 1
FOR THE DURATION OF THE CONSTRUCTION PROJECT, THE CONTRACTOR SHALL CLOSE THE INSIDE, EASTBOUND LEFT TURN LANE ON THE COMMERCIAL DRIVE UTILIZING DRUMS. ACCESS TO THE RESIDENTIAL PROPERTY ON ORTT ST SW SHALL REMAIN OPEN DURING CONSTRUCTION AT ALL TIMES.

THE CONTRACTOR SHALL CLOSE THE NORTHBOUND OUTSIDE LANE ON ERIE AVE SW IN ACCORDANCE WITH MT-95.31. THE CONTRACTOR SHALL MAINTAIN THE EXISTING NORTHBOUND LEFT TURN LANE THE ERIE AVE SW / ORTT ST SW INTERSECTION.

A SINGLE LANE SHALL BE MAINTAINED NORTH OF THE ERIE AVE SW / ORTT ST SW INTERSECTION THROUGH THE WORK ZONE LIMITS FOR THE ROAD WIDENING FOR THE DEDICATED RIGHT TURN LANE.

SOUTHBOUND ERIE AVE SW SHALL REMAIN OPEN TO EXISTING CONDITIONS. THE SOUTHBOUND LEFT TURN LANE TO ORTT ST SW SHALL BE CLOSED FOR THE DURATION OF THE PHASE.

THE CONTRACTOR SHALL CONSTRUCT ALL ROADWAY AND UTILITY IMPROVEMENTS TO THE EAST SIDE OF ERIE AVE SW. THE ORTT ST SW INTERSECTION RETURNS SHALL BE CONSTRUCTED IN THIS PHASE. ACCESS TO THE RESIDENTIAL PROPERTY ON ORTT ST SW SHALL REMAIN OPEN DURING CONSTRUCTION AT ALL TIMES.

PHASE 2
THE CONTRACTOR SHALL CLOSE THE NORTHBOUND INSIDE LANE ON ERIE AVE SW IN ACCORDANCE WITH MT-95.32. THE CONTRACTOR SHALL MAINTAIN THE EXISTING NORTHBOUND LEFT TURN LANE THE ERIE AVE SW / ORTT ST SW INTERSECTION. THE CONTRACTOR SHALL CLOSE THE SOUTHBOUND INSIDE LANE ON ERIE AVE SW ACCORDANCE WITH MT-95.32. A SINGLE LANE IN EACH DIRECTION SHALL BE MAINTAINED THROUGH THE WORK ZONE LIMITS FOR THE MEDIAN CONSTRUCTION.

THE CONTRACTOR SHALL CONSTRUCT THE MEDIAN ON ERIE AVE SW WHICH SHALL INCLUDE ALL ROADWAY AND UTILITY IMPROVEMENTS.

PHASE 3
THE CONTRACTOR SHALL CONSTRUCT ALL TRAFFIC SIGNAL IMPROVEMENTS AT THE ERIE AVE SW / ORTT ST SW INTERSECTION. THE TEMPORARY SIGNAL SHALL NOT BE TAKEN OUT OF SERVICE UNTIL THE PROPOSED TRAFFIC SIGNAL IS FULLY OPERATIONAL AND ALL TESTING HAS BEEN COMPLETED. THE CONTRACTOR SHALL INSTALL THE SIGNAL DURING OFF-PEAK HOURS WHILE MAINTAINING TRAFFIC IN ACCORDANCE WITH MT-95.31.

THE CONTRACTOR SHALL PLACE ALL FINAL PAVEMENT MARKINGS DURING OFF-PEAK HOURS WHILE MAINTAINING TRAFFIC IN ACCORDANCE WITH MT-99.20.

WORK HOUR DESCRIPTIONS

- OFF-PEAK HOURS ARE DEFINED AS ANY PERIOD OTHER THAN 6:00-8:00AM AND 3:00-6:00PM (MONDAY THRU FRIDAY) AND LEGAL HOLIDAYS.
- NIGHT TIME HOURS ARE DEFINED AS BETWEEN 8:00PM - 6:00AM.

ITEM 614 - MAINTAINING TRAFFIC

THIS ITEM SHALL CONSIST OF MAINTENANCE OF TRAFFIC ON EXISTING ROADWAYS IN ACCORDANCE WITH THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS, CURRENT EDITION, LATEST REVISION, THE SPECIFICATIONS AND THE FOLLOWING:

- THE CONTRACTOR SHALL INFORM THE CITY OF MASSILLON (330)-830-1722 AND OHIO DEPARTMENT OF TRANSPORTATION DISTRICT 4 (330)-786-2208, AT LEAST FOURTEEN (14) DAYS PRIOR TO THE BEGINNING OF WORK.
- A MINIMUM OF ONE TEN FOOT LANE IN EACH DIRECTION SHALL BE MAINTAINED ON THE EXISTING PAVEMENT DURING CONSTRUCTION, AT ALL TIMES.
- LANE RESTRICTIONS OR LANE REDUCTIONS SHALL NOT BE PERMITTED AFTER NORMAL WORKING HOURS. NORMAL WORKING HOURS SHALL BE THOSE HOURS DURING WHICH THE CONTRACTOR HAS A FULL COMPLIMENT OF EMPLOYEES AND EQUIPMENT ACTIVELY REMOVING AND/OR PLACING PAVEMENT MATERIALS.
- ALL FULL DEPTH PAVEMENT REMOVAL AND REPLACEMENT OPERATIONS SHALL BE COMPLETED THE SAME DAY THE EXCAVATION IS MADE. IF THE CONTRACTOR CANNOT COMPLETE THE WORK, THE EXCAVATION SHALL BE BACKFILLED OR PROTECTED AS PER STANDARD CONSTRUCTION DRAWING MT-101.90.
- LENGTH AND DURATION OF LANE CLOSURES AND RESTRICTIONS SHALL BE AT THE APPROVAL OF THE ENGINEER. IT IS THE INTENT TO MINIMIZE THE IMPACT TO THE TRAVELING PUBLIC. LANE CLOSURES OR RESTRICTION OVER SEGMENTS OF THE PROJECT IN WHICH NO WORK IS ANTICIPATED WITHIN A REASONABLE TIME FRAME, AS DETERMINED BY THE ENGINEER, SHALL NOT BE PERMITTED. THE LEVEL OF UTILIZATION OF MAINTENANCE OF TRAFFIC DEVICES SHALL BE COMMENSURATE WITH THE WORK IN PROGRESS.
- IF THE CONTRACTOR FAILS TO COMPLY WITH THE PROVISIONS FOR TRAFFIC CONTROL AS SET FORTH IN THESE PLANS AND PROVISIONS OF THE OMUTCD AND THE FAILURE RESULTS IN A CONDITION AT THE WORK SITE WHICH IS UNSAFE FOR TRAFFIC, THE ENGINEER SHALL SUSPEND WORK UNTIL THE CONTRACTOR COMPLIES WITH THE NECESSARY REQUIREMENTS.
- TRUCK MOUNTED ATTENUATORS [TMA'S] SHALL BE USED AS SHOWN IN THE STANDARD CONSTRUCTION DRAWINGS.
- WHEN LANE CLOSURES ARE REQUIRED, ALL ADVANCE WARNING SIGNS FOR ANY CONDITION WHICH RESTRICTS TRAFFIC SHALL BE ERECTED BEFORE ANY SUCH RESTRICTION IS PUT INTO EFFECT. ALL SUCH SIGNS SHALL BE COVERED OR REMOVED FROM THE VIEW OF TRAFFIC WHEN THEY ARE NOT APPLICABLE, AS DETERMINED BY THE ENGINEER.
- NO DAILY LANE CLOSURE SHALL BE IMPLEMENTED DURING THE HOURS OF 6:00AM TO 8:00AM AND 3:00PM TO 6:00PM WEEKDAYS. ALL ADVANCE WARNING SIGNS FOR ANY CONDITION WHICH RESTRICTS TRAFFIC SHALL BE ERECTED BEFORE ANY SUCH RESTRICTION IS PUT INTO EFFECT. ALL SUCH SIGNS SHALL BE COVERED OR REMOVED FROM THE VIEW OF TRAFFIC WHEN THEY ARE NOT APPLICABLE, AS DETERMINED BY THE ENGINEER. LANE RESTRICTIONS AND LANE REDUCTIONS SHALL BE SIGNED AND DELINEATED PER SCD MT-97.10 OR AS APPROVED BY THE ENGINEER.
- FOR ROUTES NOT ON THE PERMITTED LANE CLOSURE CHART, ONLY DURING OFF-PEAK PERIODS (IE ANY PERIOD OTHER THAN 6:00-8:00AM AND 3:00-6:00PM) SHALL THE CONTRACTOR INSTALL AND SUBSEQUENTLY RESET ALL TRAFFIC CONTROL NECESSARY FOR THE WORK ZONE FOR EACH CONSTRUCTION PHASE.

ITEM 614 - MAINTAINING TRAFFIC

- IN ADDITION TO THE REQUIREMENTS OF 614.11 WORK ZONE PAVEMENT MARKINGS, AT THE END OF EACH DAY OF WORK, THE CONTRACTOR SHALL REPLACE (WITH WORK ZONE MARKINGS) ALL LANE, CENTER, STOP OR CHANNELIZING LINES THAT WERE REMOVED OR COVERED DURING THE PAVEMENT REMOVAL OF REPLACEMENT OPERATIONS. QUANTITIES FOR SUCH PLACEMENT ARE CARRIED AS PART OF THE ITEMS LISTED UNDER 614 WORK ZONE PAVEMENT MARKINGS.
- PRIOR TO OPENING TO TRAFFIC EACH LANE SHALL BE IN A SAFE, PASSABLE CONDITION. ALL TRANSVERSE JOINTS SHALL EXTEND ACROSS THE FULL LANE AND SHOULDER WIDTH AND EACH LANE SHALL BE FREE FROM UNEVEN LONGITUDINAL JOINTS. THE CONTRACTOR SHALL PROVIDE ASPHALT WEDGES FOR TRANSVERSE JOINTS WHEREVER THERE ARE PAVEMENT ELEVATIONS DIFFERENCES.
- THE CONTRACTOR SHALL FURNISH AND MAINTAIN ALL FLAGS, FLAGGERS, WATCHERS, BARRICADES, SIGNS, SIGN SUPPORTS AND INCIDENTALS RELATED TO TRAFFIC CONTROL.
- ACCESS SHALL BE MAINTAINED AT ALL TIME TO PROPERTIES ON THE EASTERN SIDE OF ERIE STREET.

ALL WORK AND TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH C&MS 614 AND OTHER APPLICABLE PORTIONS OF THE SPECIFICATIONS, AS WELL AS THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, CURRENT EDITION, LATEST REVISION. PAYMENT FOR ALL LABOR, EQUIPMENT AND MATERIALS SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE FOR ITEM 614 - MAINTAINING TRAFFIC, UNLESS SEPARATELY ITEMIZED IN THE PLAN.

WORK ZONE PAVEMENT MARKINGS

THE FOLLOWING QUANTITY HAS BEEN PROVIDED FOR BIDDING PURPOSES AS AN ESTIMATE OF THE TYPE AND QUANTITY OF VARIOUS WORK ZONE PAVEMENT MARKINGS AND SHALL BE INSTALLED PER C&MS 614.11 AS DIRECTED BY THE ENGINEER.

ITEM 614 - WORK ZONE EDGE LINE, CLASS I, 4" 0.89 MILE
ITEM 614 - WORK ZONE STOP LINE, CLASS I 12 FT

TRENCH FOR WIDENING

TRENCH EXCAVATION FOR BASE WIDENING SHALL BE ONLY ON ONE SIDE OF THE PAVEMENT AT A TIME. THE OPEN TRENCH SHALL BE ADEQUATELY MAINTAINED AND PROTECTED WITH DRUMS OR BARRICADES AT ALL TIMES, AS SHOWN ON MT-101.90. PLACEMENT OF PROPOSED BASE MATERIAL SHALL NOW FOLLOW AS CLOSELY AS POSSIBLE BEHIND THE EXCAVATION OPERATIONS. THE LENGTH OF WIDENING TRENCH WHICH IS OPEN AT ANY ONE TIME SHALL BE HELD TO A MINIMUM AND SHALL AT ALL TIMES BE SUBJECT TO THE APPROVAL OF THE ENGINEER. THE BASE WIDENING ON THIS PROJECT WILL BE COMPLETED TO A DEPTH OF 3 INCHES BELOW THE EXISTING PAVEMENT BY THE END OF THE WORK DAY. NO TRENCH WILL BE LEFT OPEN OVERNIGHT. IN CASE WORK MUST BE SUSPENDED BECAUSE OF INCLEMENT WEATHER OR OTHER REASONS, THE TRENCH FOR THE UNCOMPLETED BASE WIDENING WILL BE BACKFILLED AT THE DIRECTION OF THE ENGINEER.

ITEM SPECIAL - WORK ZONE TRAFFIC SIGNAL

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

ALL METHODS OF TRAFFIC CONTROL SHALL BE APPROVED BY THE ENGINEER AND SHALL BE IN PLACE AND OPERATING PRIOR TO THE DEACTIVATION AND REMOVAL AND/OR RELOCATION OF ANY EXISTING SIGNAL EQUIPMENT. REFERENCE IS MADE TO THE REQUIREMENTS OF ITEM 614. ALL MODIFICATIONS TO SIGNALIZATION SHALL BE DONE UNDER THE PROTECTION OF A LAW ENFORCEMENT OFFICER.

THIS ITEM OF WORK SHALL INCLUDE ALL LABOR, EQUIPMENT AND MATERIAL NECESSARY TO PROVIDE POWER TO THE TRAFFIC SIGNAL CONTROLLER FORM THE PROPOSED OR EXISTING POWER SOURCES AS DETERMINED BY CONSTRUCTION SEQUENCING. IT SHALL ALSO INCLUDE ALL LABOR, EQUIPMENT AND MATERIALS NECESSARY TO FURNISH, INSTALL, MODIFY, REMOVE, STORE, ERECT, RELOCATE, ADJUST AND REPAIR TEMPORARY TRAFFIC SIGNAL ITEMS AS DESCRIBED ABOVE.

ALL COSTS FOR THE ABOVE WORK SHALL BE INCLUDED IN THE PRICE BID FOR ITEM 614 - WORK ZONE TRAFFIC SIGNAL, AS PER PLAN AND SHALL BE PER EACH INTERSECTION.

THE FOLLOWING QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY:

ITEM SPECIAL, WORK ZONE TRAFFIC SIGNAL 1 EACH

DUST CONTROL

THE CONTRACTOR SHALL FURNISH AND APPLY WATER FOR DUST CONTROL AS DIRECTED BY THE ENGINEER. THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED FOR DUST CONTROL PURPOSES:

ITEM 616, WATER 10 MGAL

ACCESS TO PROPERTIES

ACCESS SHALL BE MAINTAINED TO ALL RESIDENTIAL AND COMMERCIAL PROPERTIES EXCEPT WHEN A DRIVEWAY MUST BE CLOSED FOR CONSTRUCTION. ALL RESIDENTS AND PROPERTY OWNERS SHALL BE PROVIDED WRITTEN NOTIFICATION BY THE CONTRACTOR A MINIMUM OF 72 HOURS PRIOR TO THE CLOSURE. THE NOTICE SHALL LIST THE TIME THE CLOSURE WILL BE IN EFFECT AND SHALL LIST 24-HOUR EMERGENCY PHONE NUMBERS OF THE CONTRACTOR RESPONSIBLE FOR THE CLOSURE. THE TIMES SHALL BE COORDINATED WITH EACH RESIDENT AND PROPERTY OWNER. INDIVIDUAL DRIVE CLOSURES SHALL BE KEPT TO THE MINIMUM TIME NEEDED FOR CONSTRUCTION ACTIVITIES. EVERY EFFORT MUST BE MADE TO ACCOMMODATE THE RESIDENT OR OWNER'S NEED FOR ACCESS. ACCESS MAY BE MAINTAINED WITH THE USE OF ASPHALT, AGGREGATE, OR STEEL PLATES.

WHERE A DRIVEWAY IS WIDE ENOUGH, THE CONTRACTOR SHALL CONSTRUCT THE DRIVEWAY PART-WIDTH WHILE MAINTAINING TWO-WAY TRAFFIC. WHERE A PROPERTY HAS MORE THAN ONE DRIVEWAY, DRIVES SHALL BE CONSTRUCTED ONE AT A TIME.

ALL LABOR AND MATERIALS REQUIRED FOR THE WORK DESCRIBED ABOVE SHALL BE CONSIDERED INCIDENTAL TO AND INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 614 - MAINTAINING TRAFFIC.

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ITEM 614 - LAW ENFORCEMENT OFFICER (WITH PATROL CAR) FOR ASSISTANCE DURING CONSTRUCTION OPERATIONS

USE OF LAW ENFORCEMENT OFFICERS (LEOS) BY CONTRACTORS OTHER THAN THE USES SPECIFIED BELOW WILL NOT BE PERMITTED AT PROJECT COST. LEOS SHOULD NOT BE USED WHERE THE OMTCD INTENDS THAT FLAGGERS BE USED.

IN ADDITION TO THE REQUIREMENTS OF CMS 614 AND THE OMTCD, A UNIFORMED LEO WITH AN OFFICIAL PATROL CAR (CAR WITH TOP-MOUNTED EMERGENCY FLASHING LIGHTS AND COMPLETE MARKINGS OF THE APPROPRIATE LAW ENFORCEMENT AGENCY) SHALL BE PROVIDED FOR THE FOLLOWING TRAFFIC CONTROL TASKS:

DURING THE ENTIRE ADVANCE PREPARATION AND CLOSURE SEQUENCE WHERE COMPLETE BLOCKAGE OF TRAFFIC IS REQUIRED.

DURING A TRAFFIC SIGNAL INSTALLATION WHEN IMPACTING THE NORMAL FUNCTION OF THE SIGNAL FOR THE FLOW OF TRAFFIC OR WHEN TRAFFIC NEEDS TO BE DIRECTED THROUGH AN ENERGIZED TRAFFIC SIGNAL CONTRARY TO THE SIGNAL DISPLAY (E.G., DIRECTING MOTORISTS THROUGH A RED LIGHT).

FOR LANE CLOSURES: DURING INITIAL SET-UP PERIODS, TEAR DOWN PERIODS, SUBSTANTIAL SHIFTS OF A CLOSURE POINT OR WHEN NEW LANE CLOSURE ARRANGEMENTS ARE INITIATED FOR LONG-TERM LANE CLOSURES/SHIFTS (FOR THE FIRST AND LAST DAY OF MAJOR CHANGES IN TRAFFIC CONTROL SETUP).

LEOS SHOULD NOT FORGO THEIR TRAFFIC CONTROL RESPONSIBILITIES TO APPREHEND MOTORISTS FOR ROUTINE TRAFFIC VIOLATIONS. HOWEVER, IF A MOTORIST’S ACTIONS ARE CONSIDERED TO BE RECKLESS, THEN PURSUIT OF THE MOTORIST IS APPROPRIATE.

IN GENERAL LEOS SHOULD BE POSITIONED IN ADVANCE OF AND ON THE SAME SIDE AS THE LANE RESTRICTION OR AT THE POINT OF ROAD CLOSURE, AND TO MANUALLY CONTROL TRAFFIC MOVEMENTS THROUGH SIGNALIZED INTERSECTIONS IN WORK ZONE.

THE LEOS WORK AT THE DIRECTION OF THE ENGINEER. THE CONTRACTOR IS RESPONSIBLE FOR SECURING THE SERVICES OF THE LEOS WITH THE APPROPRIATE AGENCIES AND COMMUNICATING THE INTENTIONS OF THE PLANS WITH RESPECT TO DUTIES OF THE LEOS. THE ENGINEER SHALL HAVE FINAL CONTROL OVER THE LEOS’ DUTIES AND PLACEMENT, AND WILL RESOLVE ANY ISSUES THAT MAY ARISE BETWEEN THE TWO PARTIES.

THE LEO SHALL REPORT IN TO THE CONTRACTOR PRIOR TO THE START OF THE SHIFT, IN ORDER TO RECEIVE INSTRUCTIONS REGARDING SPECIFIC WORK ASSIGNMENTS DURING HIS/HER SHIFT. THE LEO IS EXPECTED TO STAY AT THE PROJECT SITE FOR THE ENTIRE DURATION OF HIS/HER SHIFT. THE LEO SHALL REPORT TO THE CONTRACTOR AT THE END OF HIS/HER SHIFT. ONCE THE LEO HAS COMPLETED THE DUTIES DESCRIBED ABOVE AND STILL HAS TIME REMAINING ON HIS/HER SHIFT, THE LEO MAY BE ASKED TO PATROL THROUGH THE WORK ZONE (WITH FLASHING LIGHTS OFF) OR BE PLACED AT A LOCATION TO DETER MOTORISTS FROM SPEEDING. SHOULD IT BE NECESSARY TO LEAVE THE PROJECT SITE, THE LEO SHALL NOTIFY THE ENGINEER. THE CONTRACTOR SHALL PROVIDE THE LEO WITH A TWO-WAY COMMUNICATION DEVICE WHICH SHALL BE RETURNED TO THE CONTRACTOR AT THE END OF HIS/HER SHIFT.

ITEM 614 - LAW ENFORCEMENT OFFICER (WITH PATROL CAR) FOR ASSISTANCE DURING CONSTRUCTION OPERATIONS (CONTINUED)

LEOS (WITH PATROL CAR) REQUIRED BY THE TRAFFIC MAINTENANCE TASKS ABOVE SHALL BE PAID FOR ON A UNIT PRICE (HOURLY) BASIS UNDER ITEM 614, LAW ENFORCEMENT OFFICER (WITH PATROL CAR) FOR ASSISTANCE. THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY.

ITEM 614, LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE 40 HOURS

THE HOURS PAID SHALL INCLUDE ANY MINIMUM SHOW-UP TIME REQUIRED BY THE LAW ENFORCEMENT AGENCY INVOLVED.

ANY ADDITIONAL COSTS (ADMINISTRATIVE OR OTHERWISE) INCURRED BY THE CONTRACTOR TO OBTAIN THE SERVICES OF AN LEO ARE INCLUDED WITH THE BID UNIT PRICE FOR ITEM 614, LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE.

DROPOFFS

THE CONTRACTOR SHALL NOT BE PERMITTED TO LEAVE A DIFFERENCE IN ELEVATION BETWEEN EXISTING PAVEMENT AND BOTTOM OF EXCAVATION GREATER THAN 12” WHEN THE DISTANCE BETWEEN THE TRAVELED WAY AND SAWCUT IS LESS THAN 12’ PER SCD MT-101.90. THE CONTRACTOR SHALL NOT EXCAVATE MORE THAN THEY CAN BACKFILL AT THIS SPECIFIC AREAS. IF THE CONTRACTOR CHOOSES TO LEAVE THE DROPOFF GREATER THAN 12”, THE CONTRACTOR SHALL PROTECT THE AREA WITH PORTABLE BARRIER AT THE CONTRACTOR’S COST.

MAINTENANCE OF TRAFFIC SIGNAL/FLASHER INSTALLATION

THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING TRAFFIC SIGNAL/FLASHER INSTALLATIONS WITHIN THE PROJECT UNDER THE FOLLOWING CONDITIONS:

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

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

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

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

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

WHERE THE CONTRACTOR HAS FAILED TO, OR CANNOT RESPOND TO, AN OUTAGE OR SIGNAL EQUIPMENT MALFUNCTION, AT THESE LOCATIONS WITHIN HIS RESPONSIBILITY, WITHIN PERIODS AS SPECIFIED ABOVE, THE ENGINEER MAY INVOKE THE PROVISIONS OF SECTION 105.15 AND ANY SUBSEQUENT BILLINGS TO THE STATE OR THE CITY OF MASSILLON POLICE DEPARTMENT 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 CONTRACTOR SHALL PROVIDE THE MAINTENANCE SERVICE ENTIRELY WITH HIS FORCES OR HE MAY CHOOSE TO ENTER INTO A COOPERATIVE UNDERSTANDING WITH THE LOCAL MAINTAINING AGENCY TO PROVIDE THE MAINTENANCE. THE CONTRACTOR SHALL INFORM THE ENGINEER, IN WRITING, OF THE MAINTENANCE METHOD SELECTED.

MAINTENANCE OF TRAFFIC SIGNAL/FLASHER INSTALLATION (CONTINUED)

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO ANY TRAFFIC SIGNAL COMPONENTS REQUIRED TO BE HANDLED DURING THE RELOCATION OF POLES AND REVISIONS TO THE SIGNAL SYSTEM. WHEN A TRAFFIC SIGNAL MUST BE TAKEN OUT OF SERVICE BY THE CONTRACTOR, DUE TO CONSTRUCTION PROCEDURES, THIS OUTAGE SHALL NOT EXCEED FOUR HOURS AND SHALL NOT INCLUDE THE HOURS OF 6:00AM TO 9:00AM AND 3:00PM TO 6:00PM, MONDAY THROUGH FRIDAY. ANY SIGNALIZED INTERSECTION, WHERE THE SIGNAL IS OUT OF SERVICE DUE TO CONSTRUCTION PROCEDURES, OR DUE TO AN OUTAGE OR MALFUNCTION OF EQUIPMENT AS DESCRIBED ABOVE, SHALL BE PROTECTED, BY OFF-DUTY CITY OF MASSILLON POLICE, HIRED BY THE CONTRACTOR.

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

THE CONTRACTOR SHALL MAINTAIN COMPLETE RECORDS OF MALFUNCTIONS INCLUDING:

- TIME OF NOTIFICATION OF MALFUNCTION;
- TIME OF WORK CREWS ARRIVAL TO CORRECT THE MALFUNCTION;
- ACTIONS TAKEN TO CORRECT THE MALFUNCTION, INCLUDING A LIST OF PARTS REPAIRED OR REPLACED;
- A DIAGNOSIS OF REASON FOR THE MALFUNCTION AND PROBABILITY OF REOCCURRENCE;
- TIME OF COMPLETION OF THE REPAIR AND SYSTEM RESTORED TO FULL SERVICE.

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

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

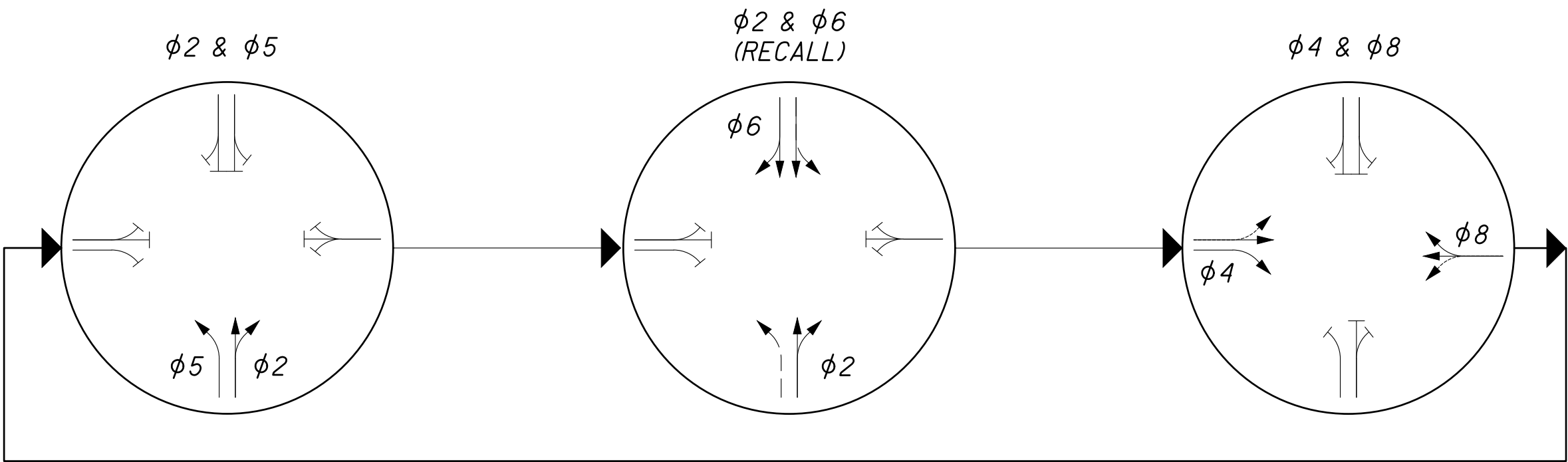
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SIGNAL TIMING CHART

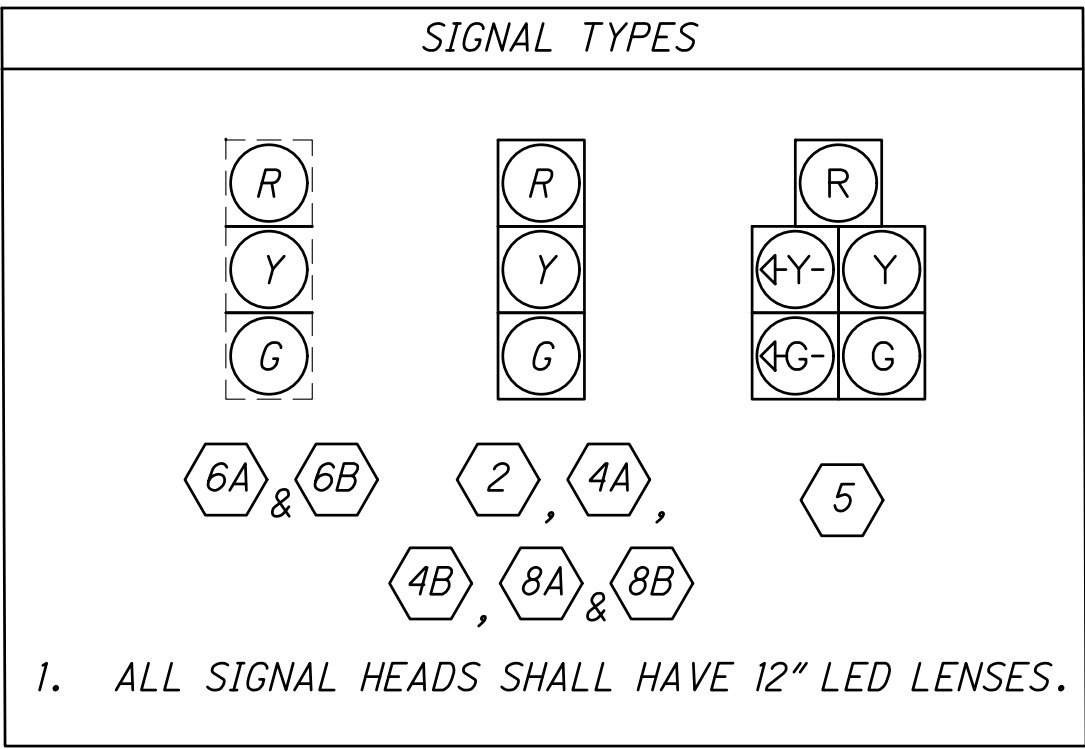
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MAINTAINING AGENCY: CITY OF MASSILLON										
START UP START IN: YELLOW/RED FLASH TIME FOR: FLASH , ALL RED (SEC.): 9, 6 FIRST PHASE(S): 2 & 6 COLOR DISPLAYED: GREEN			DUAL ENTRY: YES		PHASES: 2, 6					
			REST IN RED:		RING 1 -		RING 2 -			
			OVERLAP		A	B	C	D		
			PHASES		-	-	-	-		
INTERVAL OR FEATURE			CONTROLLER MOVEMENT NO.							
INTERSECTION MOVEMENT (PHASE)			1	2	3	4	5	6	7	8
DIRECTION			SB LT	NB	WB LT	EB	NB LT	SB	EB LT	WB
MINIMUM GREEN (INITIAL) (SEC.)			-	20	-	10	7	20	-	10
ADDED INITIAL *(SEC./ACTUATION)			-	-	-	-	-	-	-	-
MAXIMUM INITIAL *(SEC.)			-	-	-	-	-	-	-	-
PASSAGE TIME (PRESET GAP) (SEC.)			-	3.0	-	3.0	3.0	3.0	-	3.0
TIME BEFORE REDUCTION *(SEC.)			-	-	-	-	-	-	-	-
MINIMUM GAP *(SEC.)			-	-	-	-	-	-	-	-
TIME TO REDUCE *(SEC.)			-	-	-	-	-	-	-	-
MAXIMUM GREEN I (SEC.)			-	60	-	30	20	60	-	30
MAXIMUM GREEN II (SEC.)			-	-	-	-	-	-	-	-
YELLOW CHANGE (SEC.)			-	4.5	-	3.2	3.5	4.5	-	3.2
ALL RED CLEARANCE (SEC.)			-	1.0	-	2.1	2.8	1.0	-	2.1
DELAYED GREEN (LPI) # (SEC.)			-	-	-	-	-	-	-	-
FLASHING YELLOW ARROW DELAY^ (SEC.)			-	-	-	-	-	-	-	-
WALK (SEC.)			-	-	-	-	-	-	-	-
PEDESTRIAN CLEARANCE (SEC.)			-	-	-	-	-	-	-	-
RECALL	MAXIMUM (ON/OFF)	-	-	-	-	-	-	-	-	-
	MINIMUM (ON/OFF)	-	ON	-	-	-	ON	-	-	-
	PEDESTRIAN (ON/OFF)	-	-	-	-	-	-	-	-	-
MEMORY (ON/OFF)			-	-	-	-	-	-	-	-

*VOLUME DENSITY CONTROLS

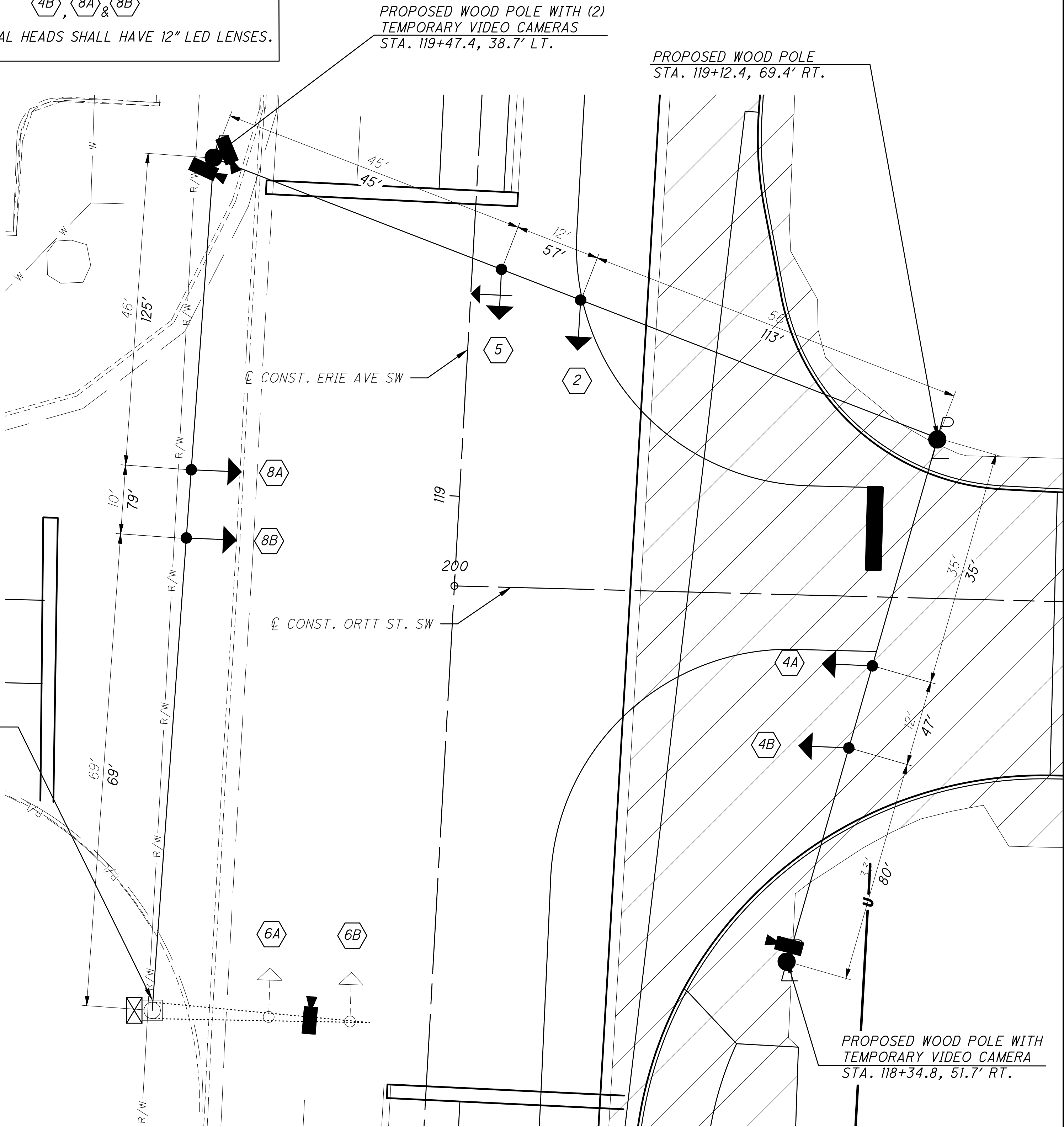
LEGEND	
VEHICLE ϕ	
PERMITTED ϕ	



EXISTING SIGNAL SUPPORT, SIGNAL HEADS AND POLE MOUNTED CONTROLLER CABINET TO REMAIN
TEMPORARY VIDEO CAMERA TO BE MOUNTED ON EXISTING SIGNAL SUPPORT
STA. 118+22.3, 40.7' LT.



- NOTES:
- THE CONTRACTOR SHALL UTILIZE EXISTING VEHICULAR SIGNAL HEADS, AS NEEDED.
 - THE CONTRACTOR SHALL ADJUST VIDEO DETECTION CAMERAS AND ZONES AS NECESSARY.



SPAN WIRE DIAGRAM
N.T.S.



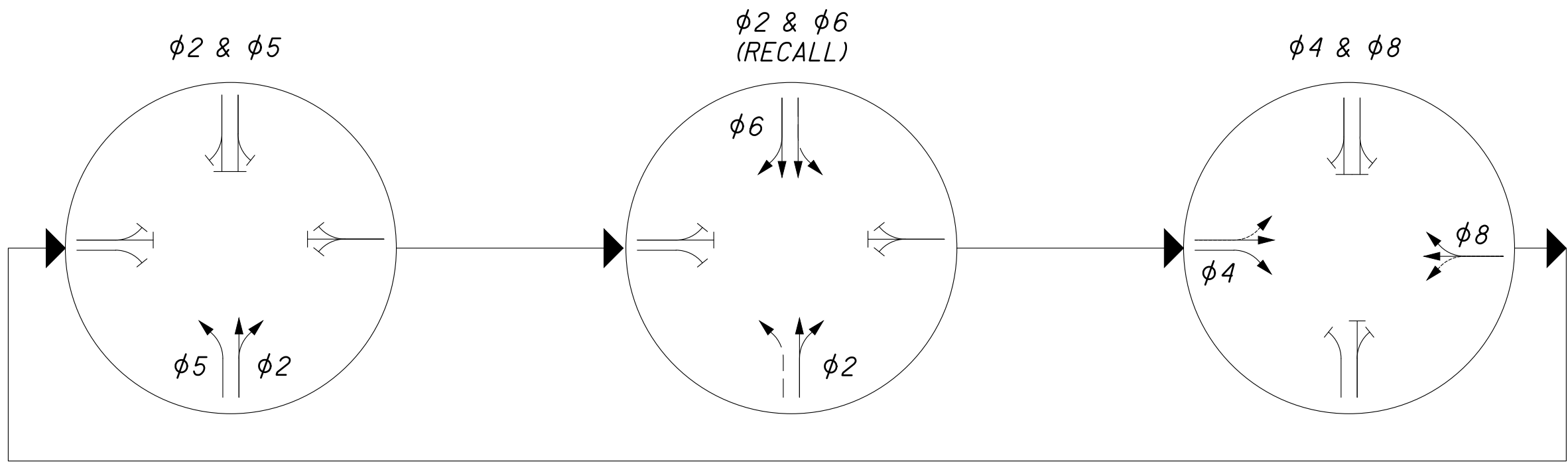
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SIGNAL TIMING CHART

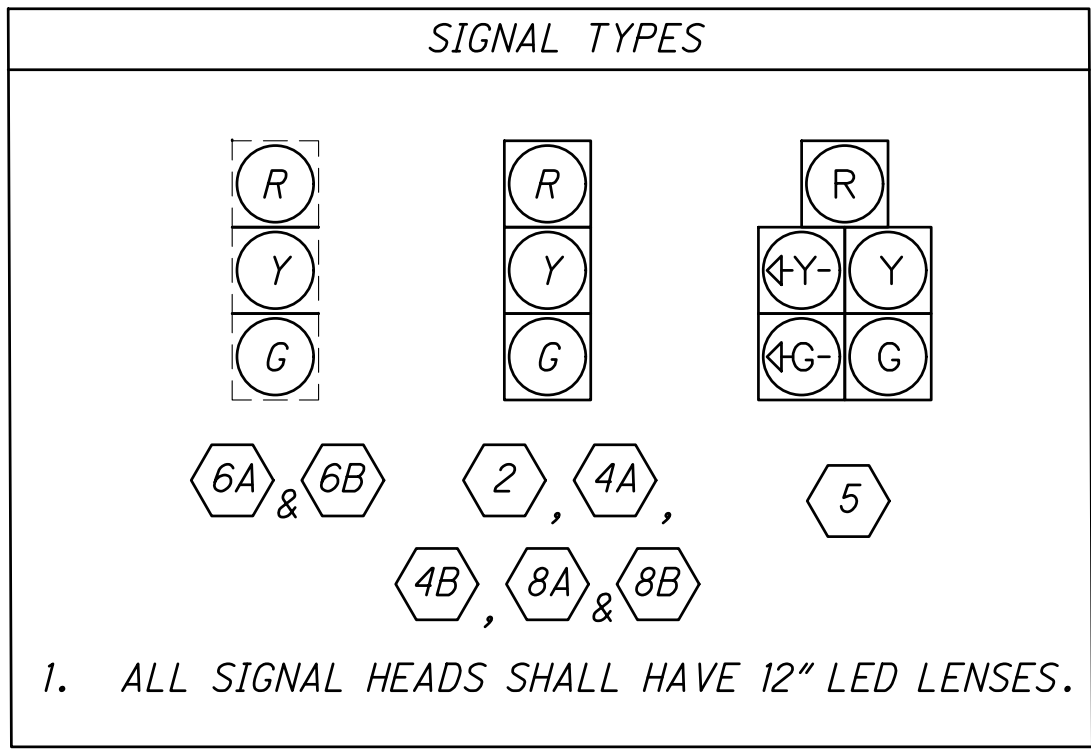
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<u>START UP</u> START IN: YELLOW/RED FLASH TIME FOR: FLASH , ALL RED (SEC.): 9, 6 FIRST PHASE(S): 2 & 6 COLOR DISPLAYED: GREEN		DUAL ENTRY: YES		PHASES:		2, 6					
		REST IN RED:		RING 1		-		RING 2		-	
		OVERLAP				A		B		C	D
		PHASES				-		-		-	-
INTERVAL OR FEATURE		CONTROLLER MOVEMENT NO.									
INTERSECTION MOVEMENT (PHASE)		1	2	3	4	5	6	7	8		
DIRECTION		SB LT	NB	WB LT	EB	NB LT	SB	EB LT	WB		
MINIMUM GREEN (INITIAL) (SEC.)		-	20	-	10	7	20	-	10		
ADDED INITIAL *(SEC./ACTUATION)		-	-	-	-	-	-	-	-		
MAXIMUM INITIAL *(SEC.)		-	-	-	-	-	-	-	-		
PASSAGE TIME (PRESET GAP) (SEC.)		-	3.0	-	3.0	3.0	3.0	-	3.0		
TIME BEFORE REDUCTION *(SEC.)		-	-	-	-	-	-	-	-		
MINIMUM GAP *(SEC.)		-	-	-	-	-	-	-	-		
TIME TO REDUCE *(SEC.)		-	-	-	-	-	-	-	-		
MAXIMUM GREEN I (SEC.)		-	60	-	30	20	60	-	30		
MAXIMUM GREEN II (SEC.)		-	-	-	-	-	-	-	-		
YELLOW CHANGE (SEC.)		-	4.5	-	3.2	3.5	4.5	-	3.2		
ALL RED CLEARANCE (SEC.)		-	1.0	-	2.1	2.8	1.0	-	2.1		
DELAYED GREEN (LPI) # (SEC.)		-	-	-	-	-	-	-	-		
FLASHING YELLOW ARROW DELAY^ (SEC.)		-	-	-	-	-	-	-	-		
WALK (SEC.)		-	-	-	-	-	-	-	-		
PEDESTRIAN CLEARANCE (SEC.)		-	-	-	-	-	-	-	-		
RECALL	MAXIMUM (ON/OFF)	-	-	-	-	-	-	-	-		
	MINIMUM (ON/OFF)	-	ON	-	-	-	ON	-	-		
	PEDESTRIAN (ON/OFF)	-	-	-	-	-	-	-	-		
MEMORY (ON/OFF)		-	-	-	-	-	-	-	-		

*VOLUME DENSITY CONTROLS

LEGEND	
VEHICLE ϕ	
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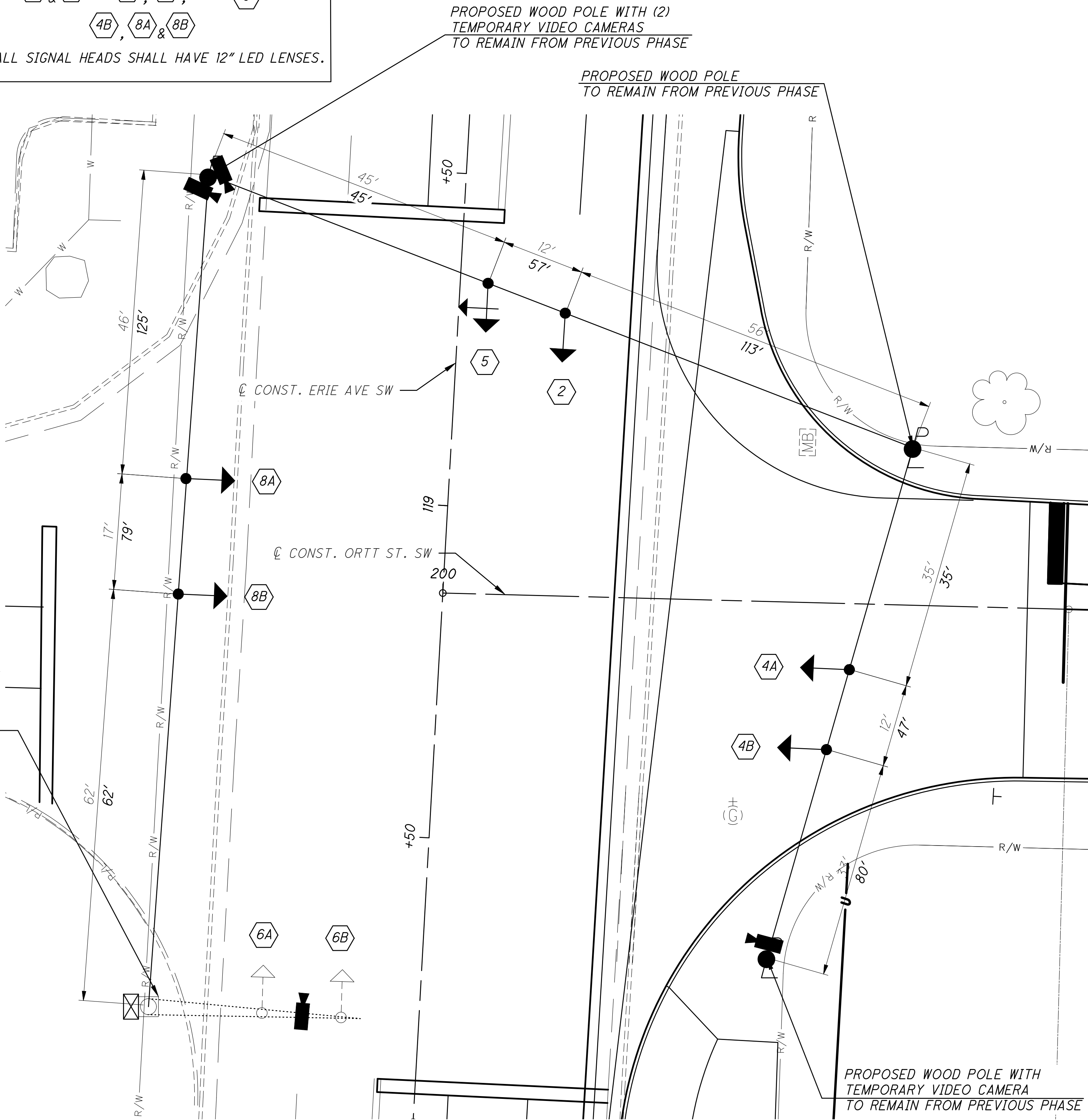


EXISTING SIGNAL SUPPORT, SIGNAL HEADS AND POLE MOUNTED CONTROLLER CABINET TO REMAIN
TEMPORARY VIDEO CAMERA TO BE MOUNTED ON EXISTING SIGNAL SUPPORT
STA. 118+22.3, 40.7' LT.

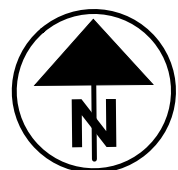


NOTES:

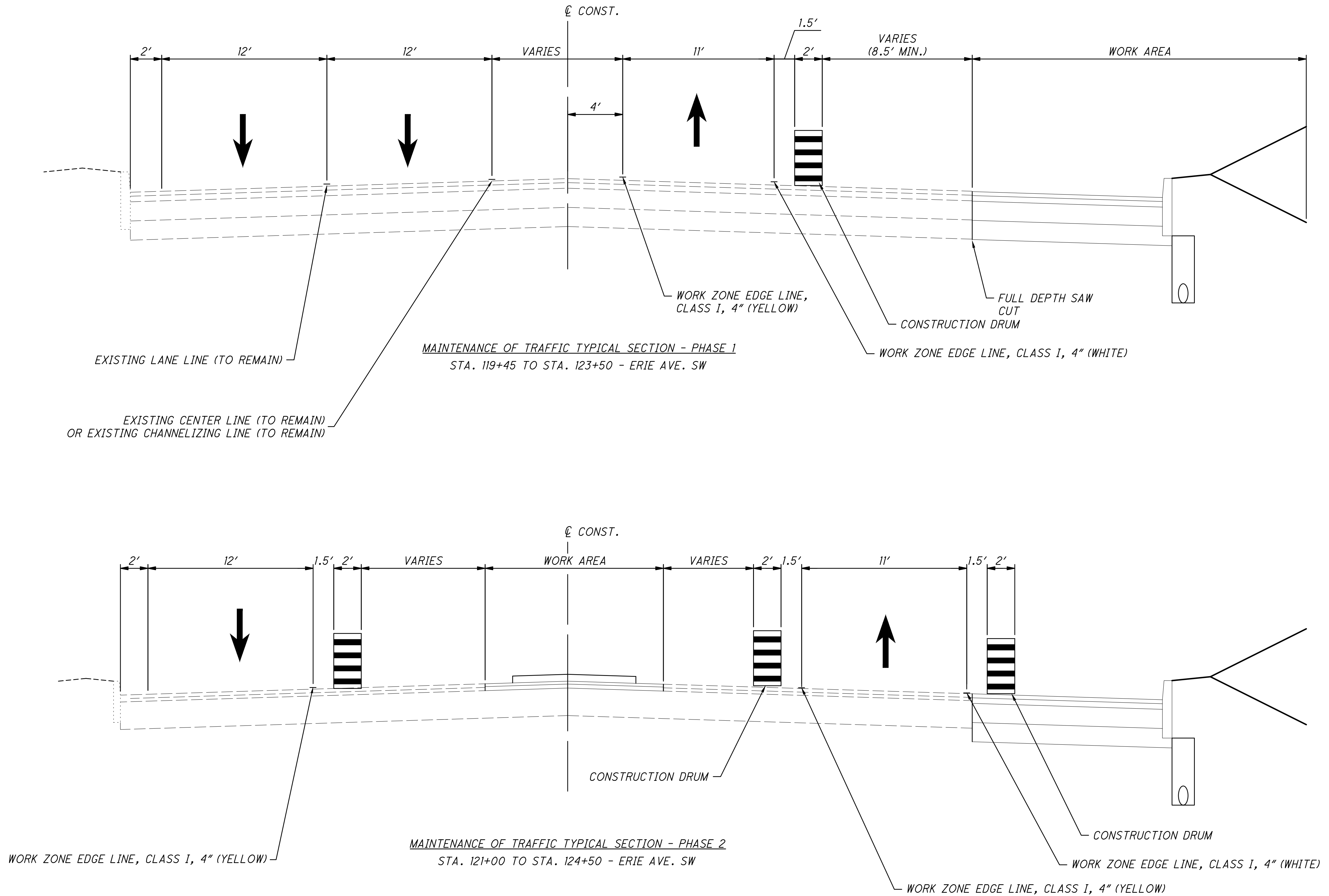
1. THE CONTRACTOR SHALL UTILIZE EXISTING VEHICULAR SIGNAL HEADS, AS NEEDED.
2. THE CONTRACTOR SHALL ADJUST VIDEO DETECTION CAMERAS AND ZONES AS NECESSARY.



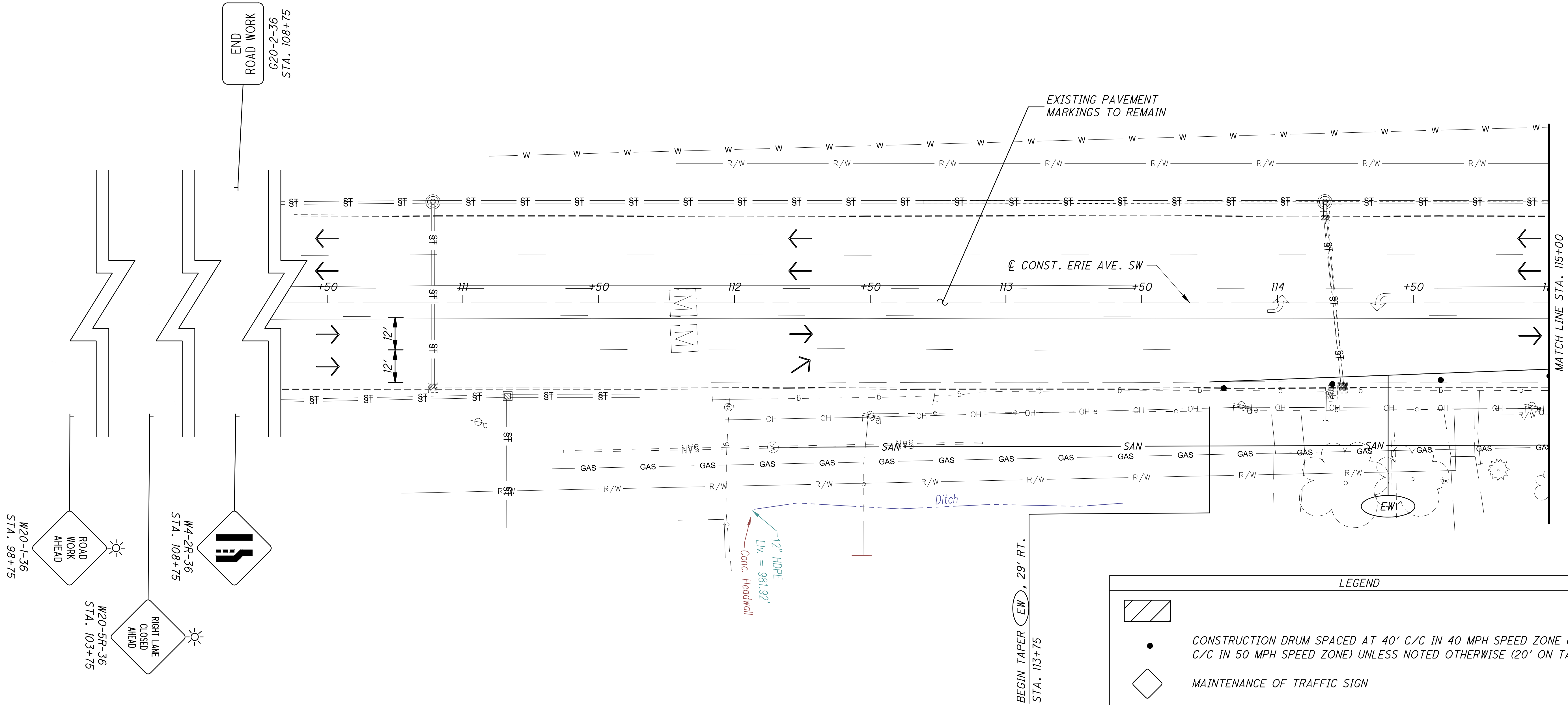
SPAN WIRE DIAGRAM
N.T.S.



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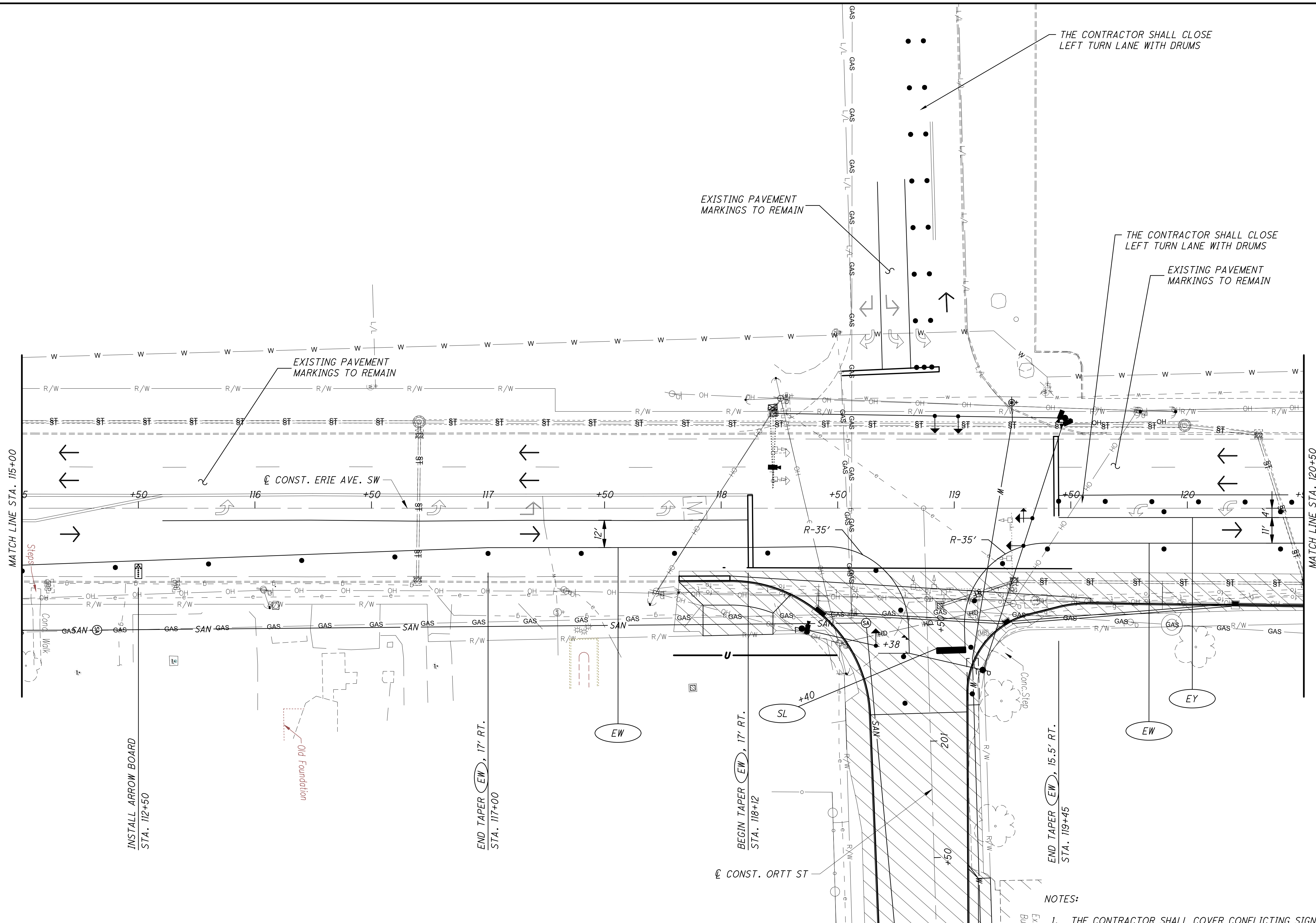


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- NOTES:
- THE CONTRACTOR SHALL COVER CONFLICTING SIGNING AND COVER OR REMOVE CONFLICTING PAVEMENT MARKINGS PRIOR TO CONSTRUCTION.
 - FOR MAINTENANCE OF TRAFFIC LEGEND, SEE SHEET 25.

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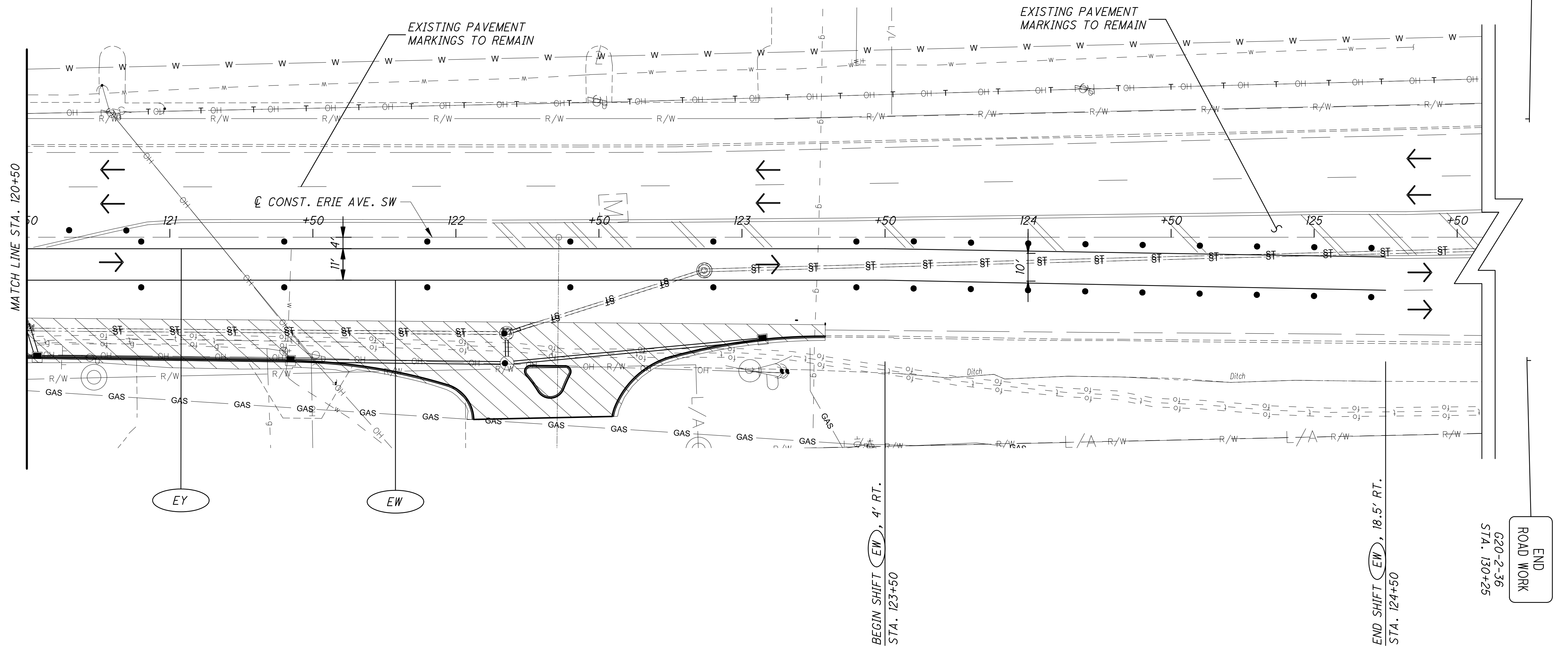


NOTES:

1. THE CONTRACTOR SHALL COVER CONFLICTING SIGNING AND COVER OR REMOVE CONFLICTING PAVEMENT MARKINGS PRIOR TO CONSTRUCTION.
2. FOR MAINTENANCE OF TRAFFIC LEGEND, SEE SHEET 22.

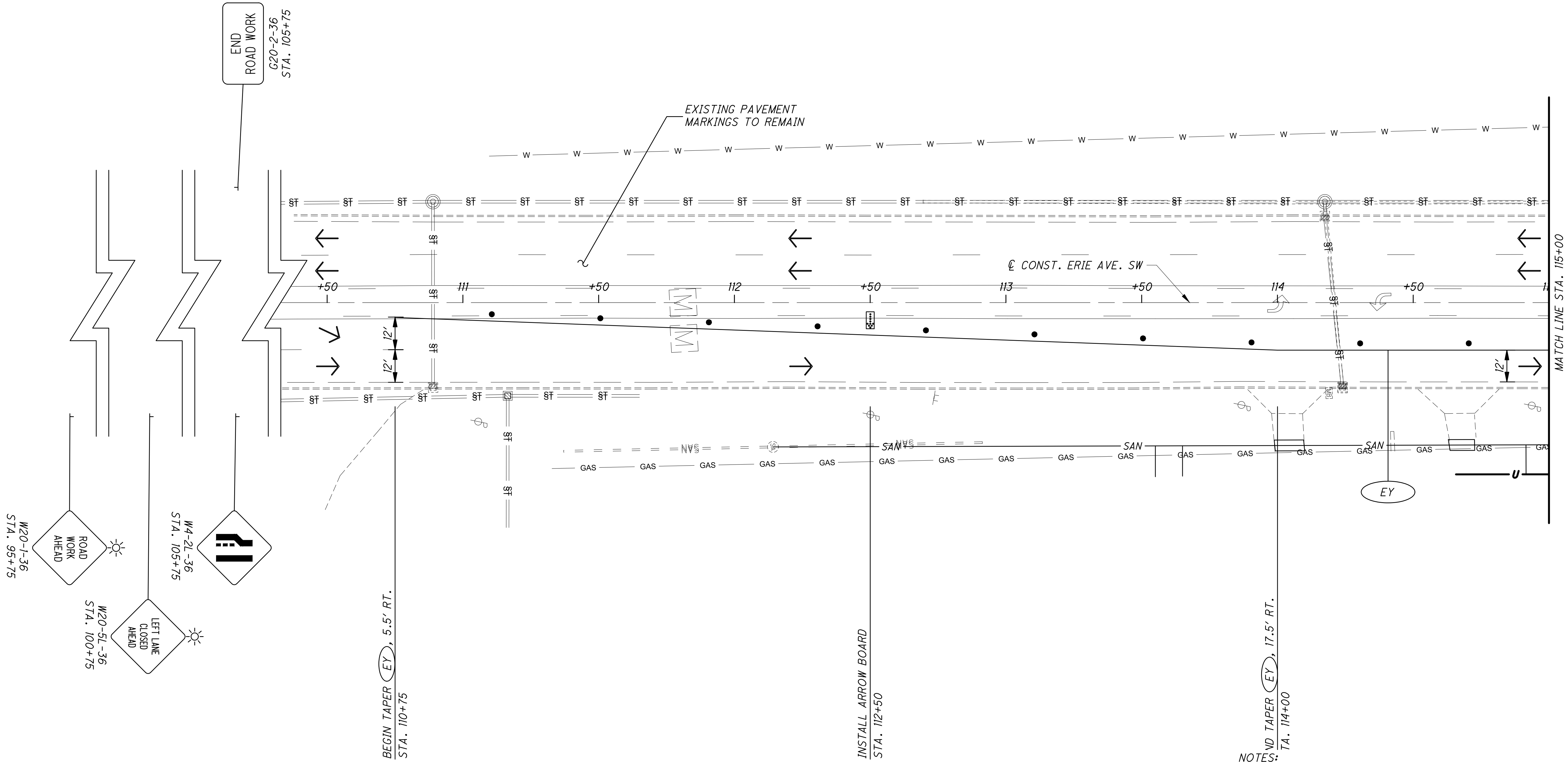
CALCULATED DGD	CHECKED AKF	N 0 20 40 HORIZONTAL SCALE IN FEET	MAINTENANCE OF TRAFFIC PLAN - PHASE 1 STA. 115+00 TO STA. 120+50	ERIE AVE (US 62/SR 21) ORTT ST IMPROVEMENTS	23 65

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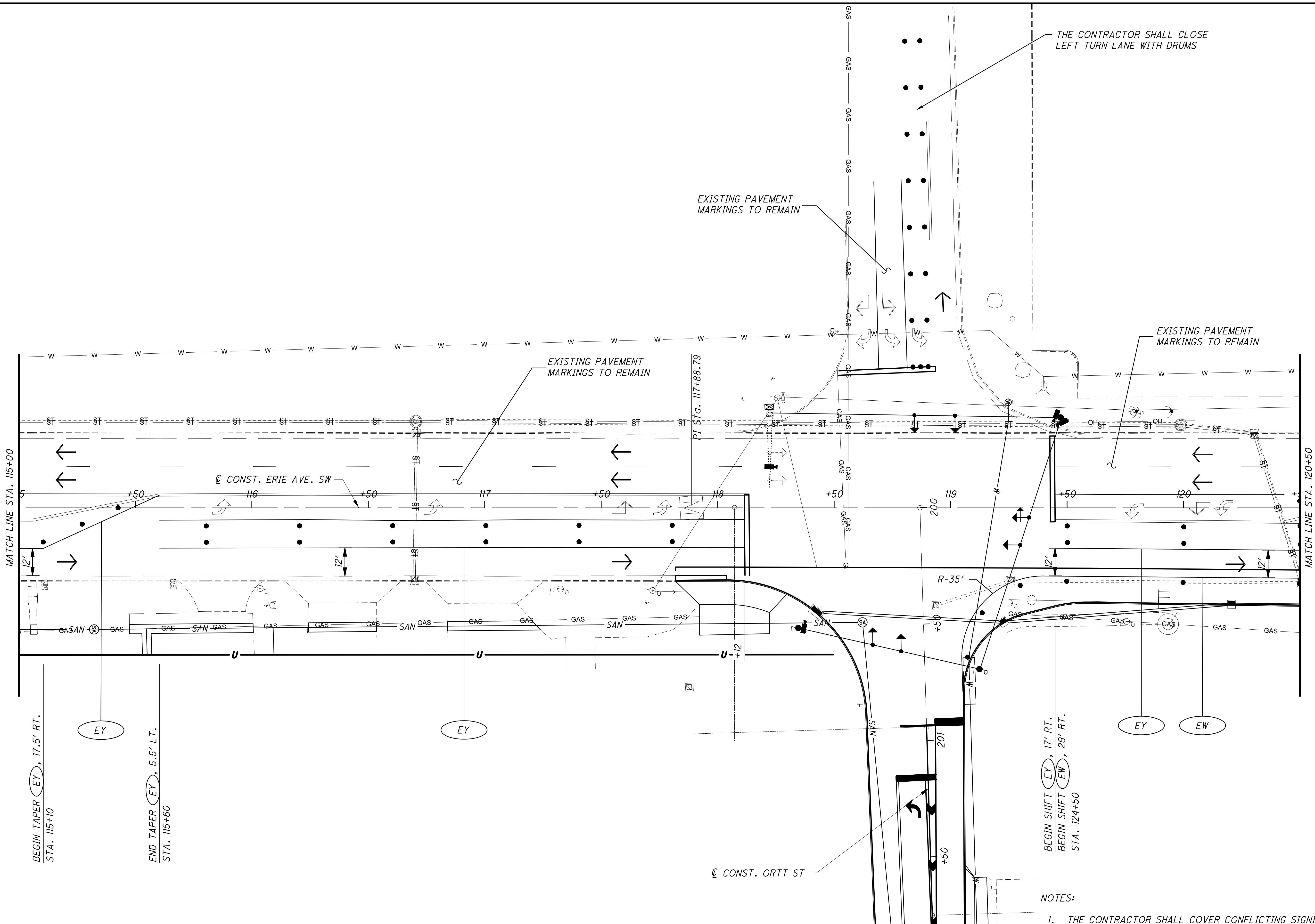


- NOTES:
1. THE CONTRACTOR SHALL COVER CONFLICTING SIGNING AND COVER OR REMOVE CONFLICTING PAVEMENT MARKINGS PRIOR TO CONSTRUCTION.
 2. FOR MAINTENANCE OF TRAFFIC LEGEND, SEE SHEET 22.

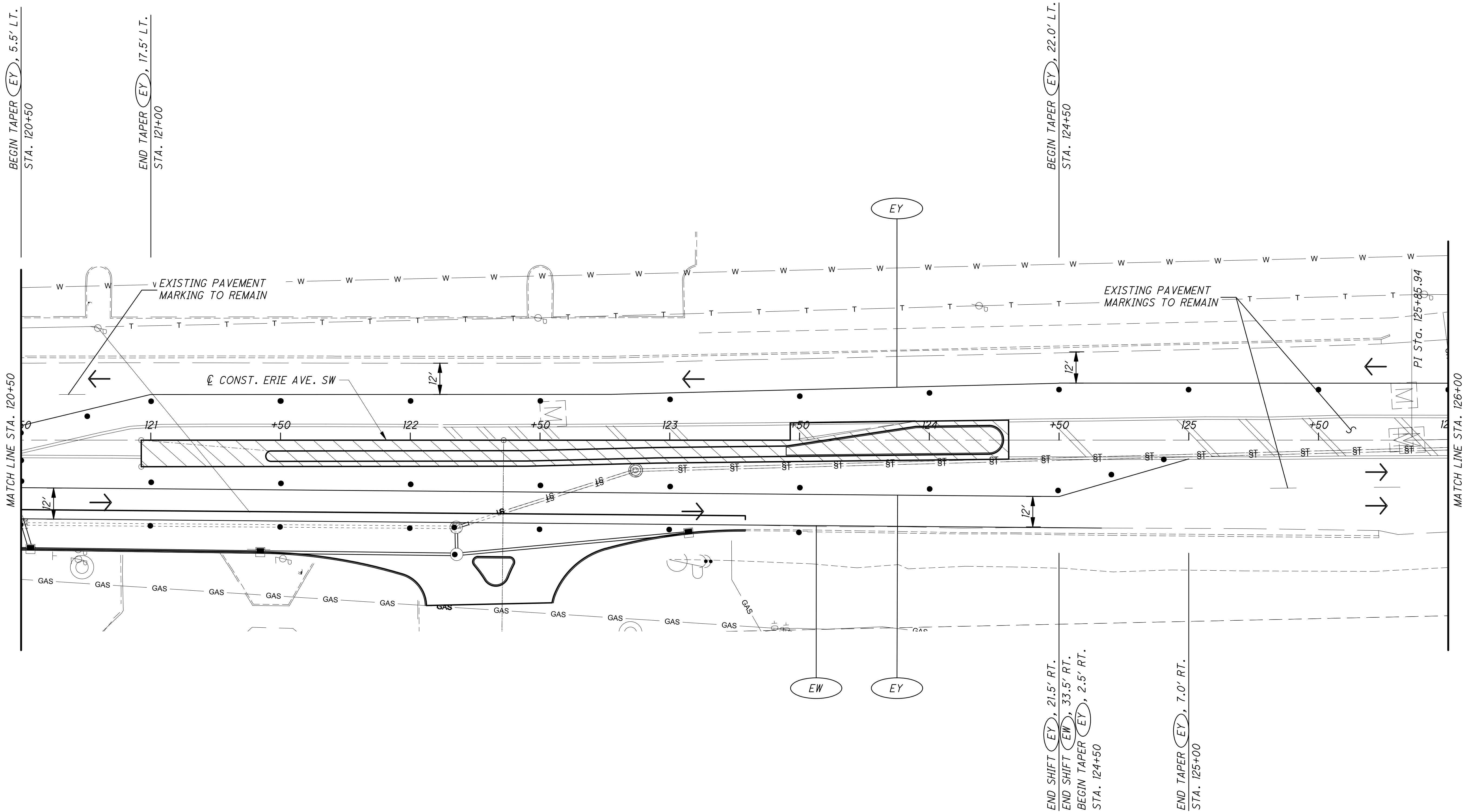
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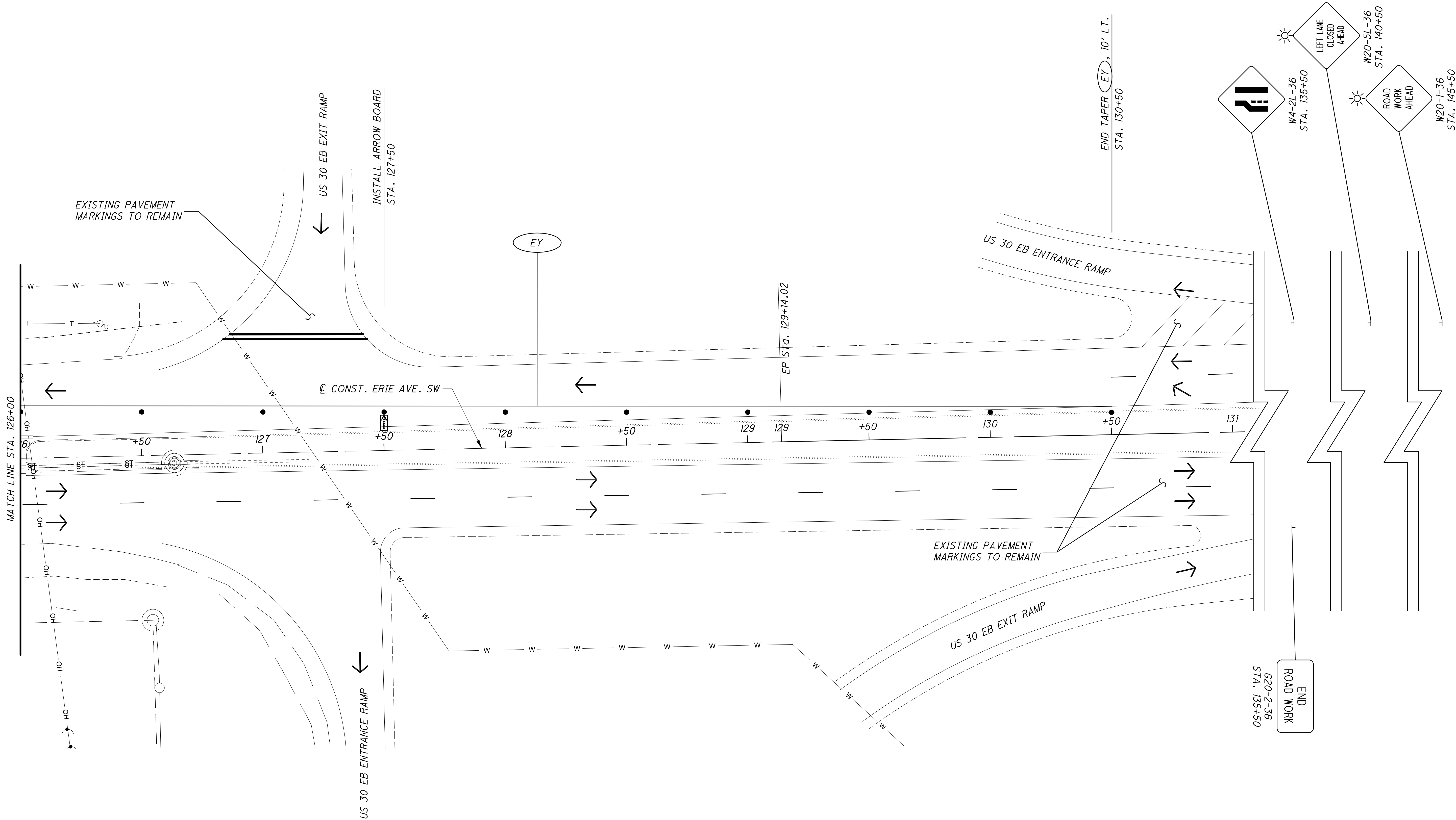


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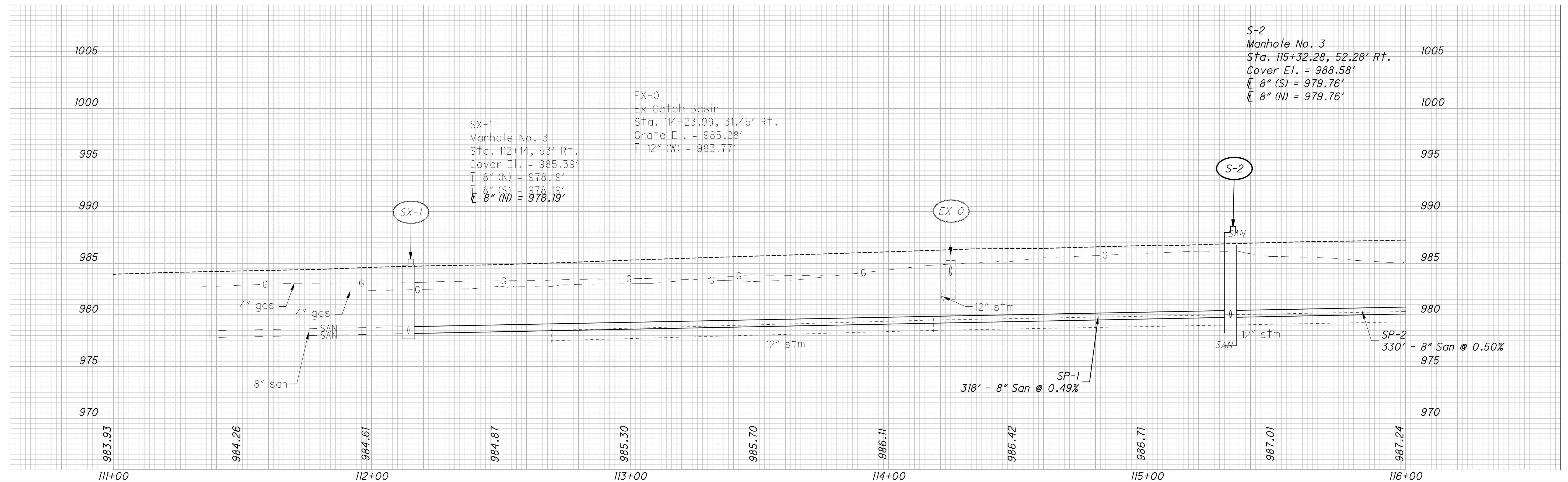
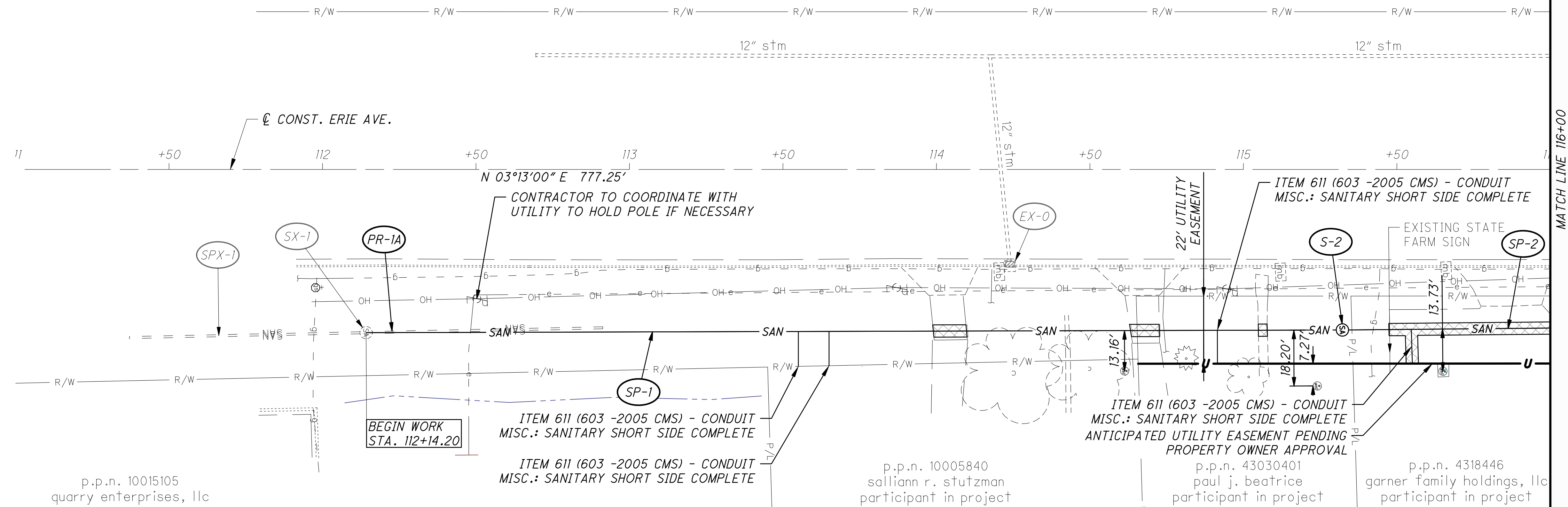
- NOTES:
1. THE CONTRACTOR SHALL COVER CONFLICTING SIGNING AND COVER OR REMOVE CONFLICTING PAVEMENT MARKINGS PRIOR TO CONSTRUCTION.
 2. FOR MAINTENANCE OF TRAFFIC LEGEND, SEE SHEET 22.

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- NOTES:
1. THE CONTRACTOR SHALL COVER CONFLICTING SIGNING AND COVER OR REMOVE CONFLICTING PAVEMENT MARKINGS PRIOR TO CONSTRUCTION.
 2. FOR MAINTENANCE OF TRAFFIC LEGEND, SEE SHEET 22.

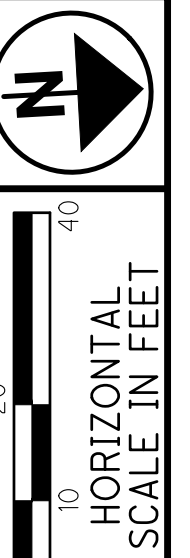
FOR CROSS SECTIONS - ERIE ST, SEE SHEETS 34-38
FOR DRIVE DETAILS, SEE SHEETS 48-49
FOR DRIVE PROFILES, SEE SHEETS 50-51



PLAN AND PROFILE - ERIE AVE
STA. 111+00 TO STA. 116+00

**ERIE AVE (US 62/SR 21)/
PORTT ST IMPROVEMENTS**

29
65

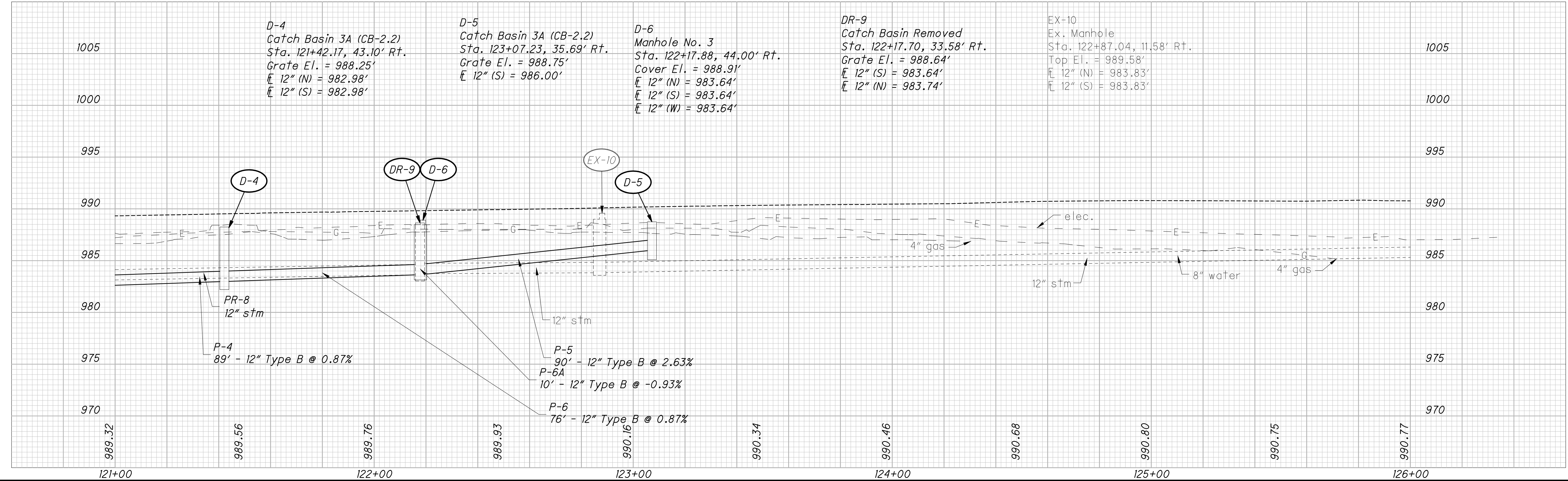
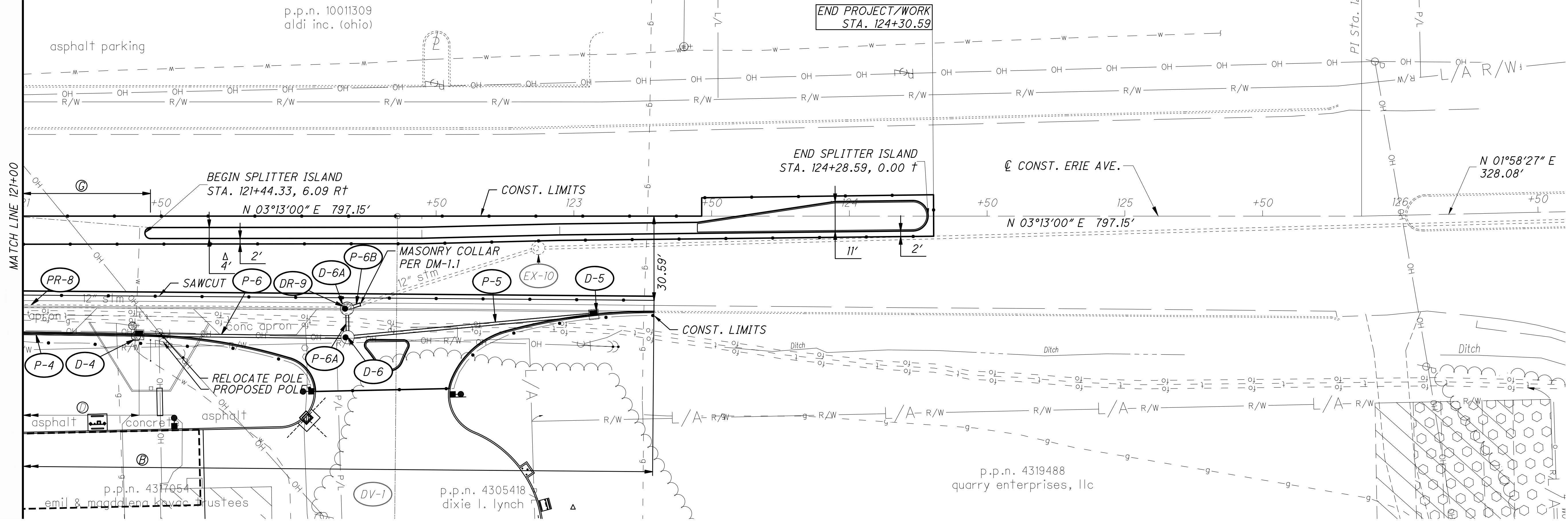


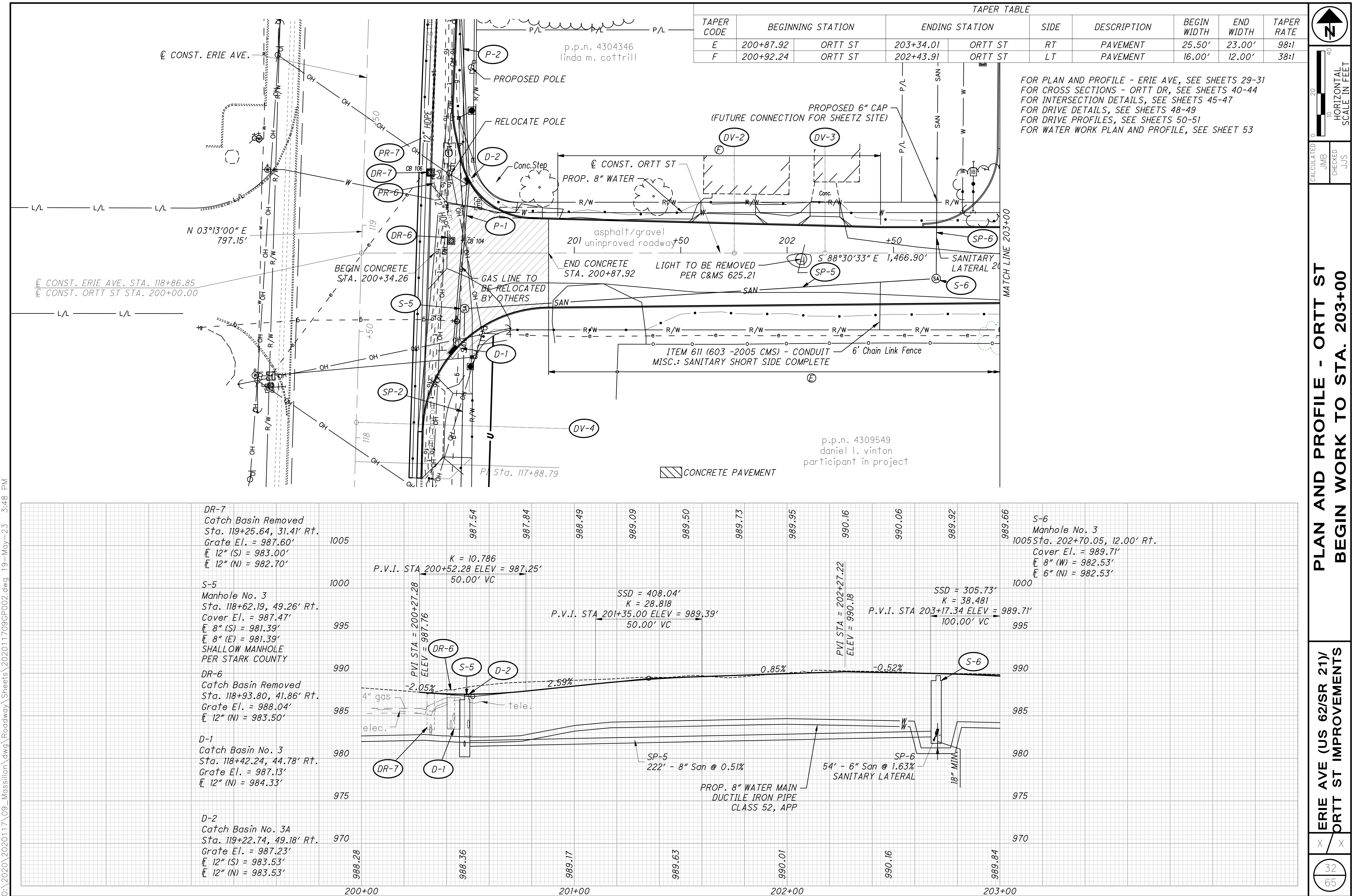
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TAPER TABLE									
TAPER CODE	BEGINNING STATION		ENDING STATION		SIDE	DESCRIPTION	BEGIN WIDTH	END WIDTH	TAPER RATE
B	119+58.64	ERIE AVE	123+29.11	ERIE AVE	RT	SAWCUT	27.50'	30.50'	123:1
D	119+58.64	ERIE AVE	121+42.20	ERIE AVE	RT	PAVEMENT	11.10'	12.10'	184:1
G	120+96.31	ERIE AVE	121+46.32	ERIE AVE	RT	CROWN	0'	4.16'	12:1

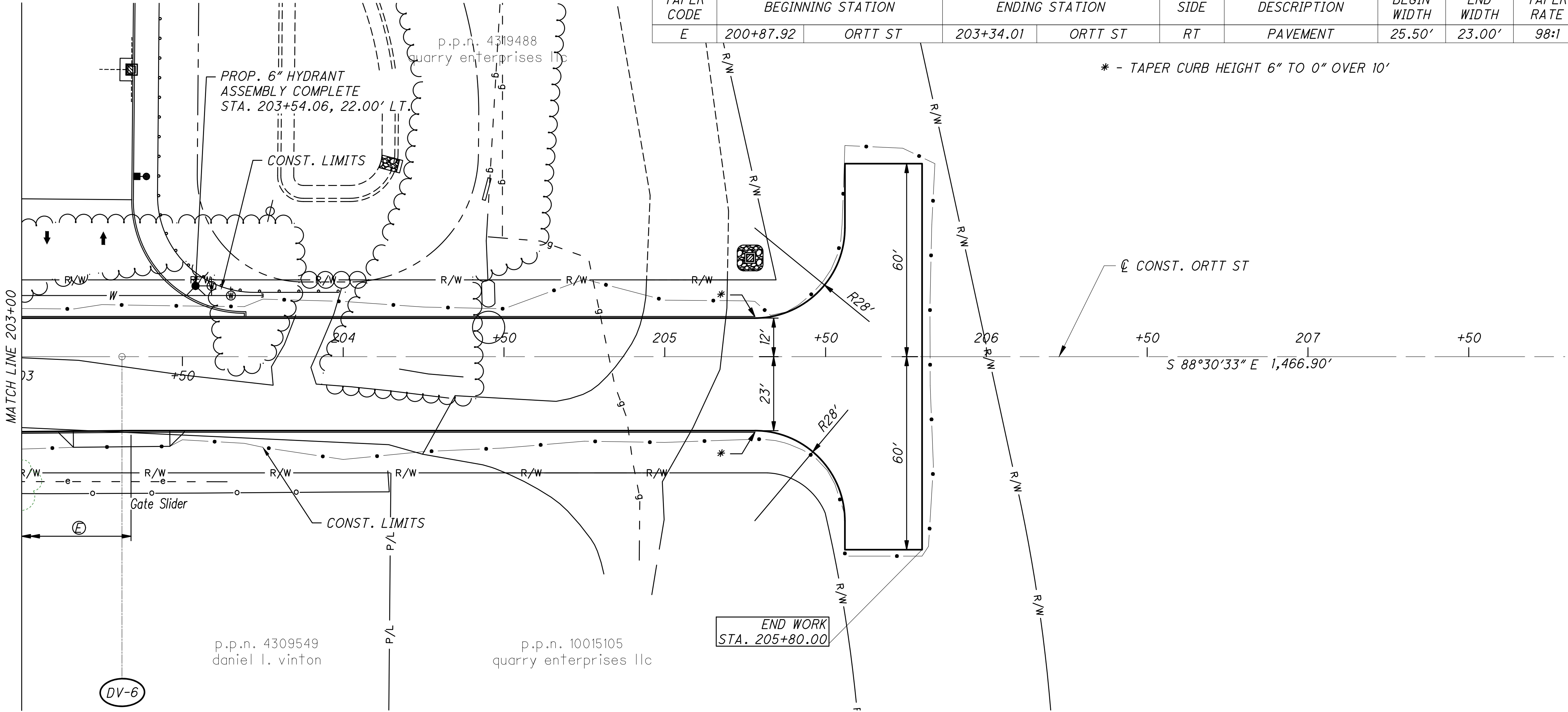
Δ TAPER MEDIAN HEIGHT FROM 6" TO 2" IN 10' PER ODOT SCD RM-3.1

FOR CROSS SECTIONS - ERIE ST, SEE SHEETS 34-38
FOR DRIVE DETAILS, SEE SHEETS 48-49
FOR DRIVE PROFILES, SEE SHEETS 50-51



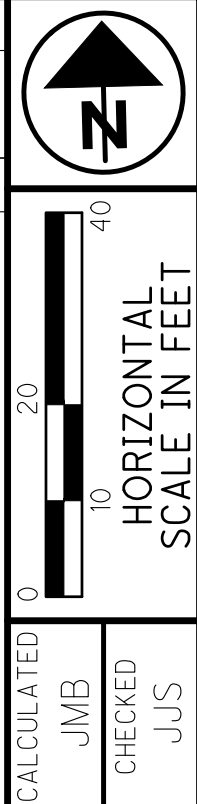


FOR CROSS SECTIONS - ORTT DR, SEE SHEETS 40-44
FOR INTERSECTION DETAILS, SEE SHEETS 45-47
FOR DRIVE DETAILS, SEE SHEETS 48-49
FOR DRIVE PROFILES, SEE SHEETS 50-51
FOR WATER WORK PLAN AND PROFILE, SEE SHEET 53



TAPER TABLE									
TAPER CODE	BEGINNING STATION		ENDING STATION		SIDE	DESCRIPTION	BEGIN WIDTH	END WIDTH	TAPER RATE
E	200+87.92	ORTT ST	203+34.01	ORTT ST	RT	PAVEMENT	25.50'	23.00'	98:1

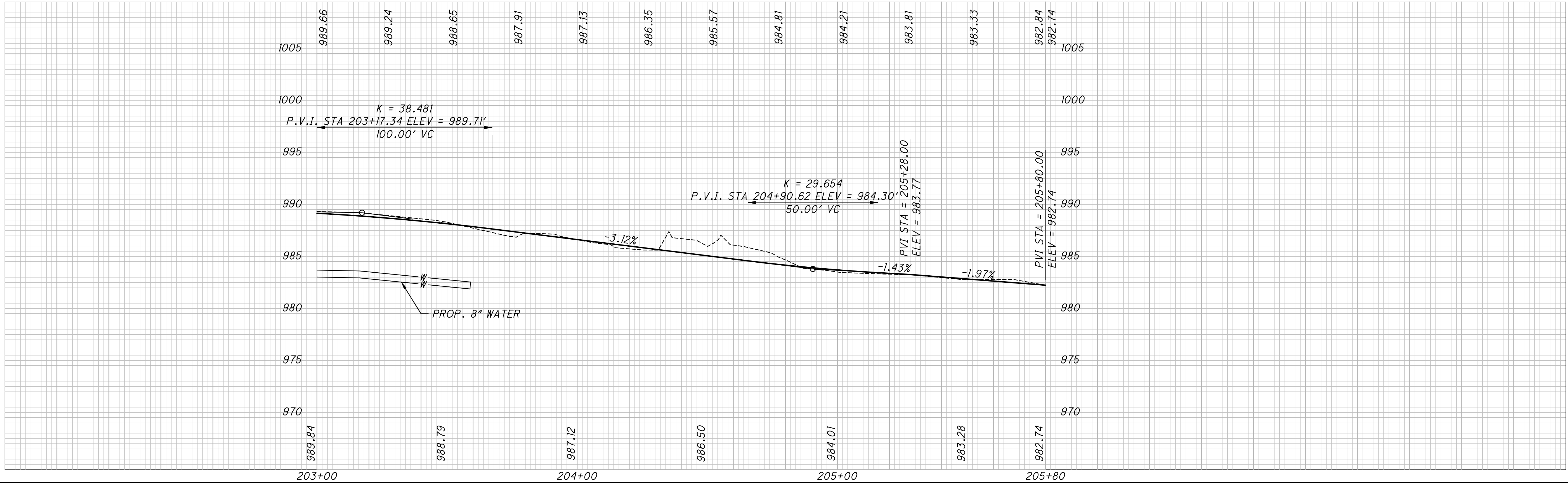
* - TAPER CURB HEIGHT 6" TO 0" OVER 10'



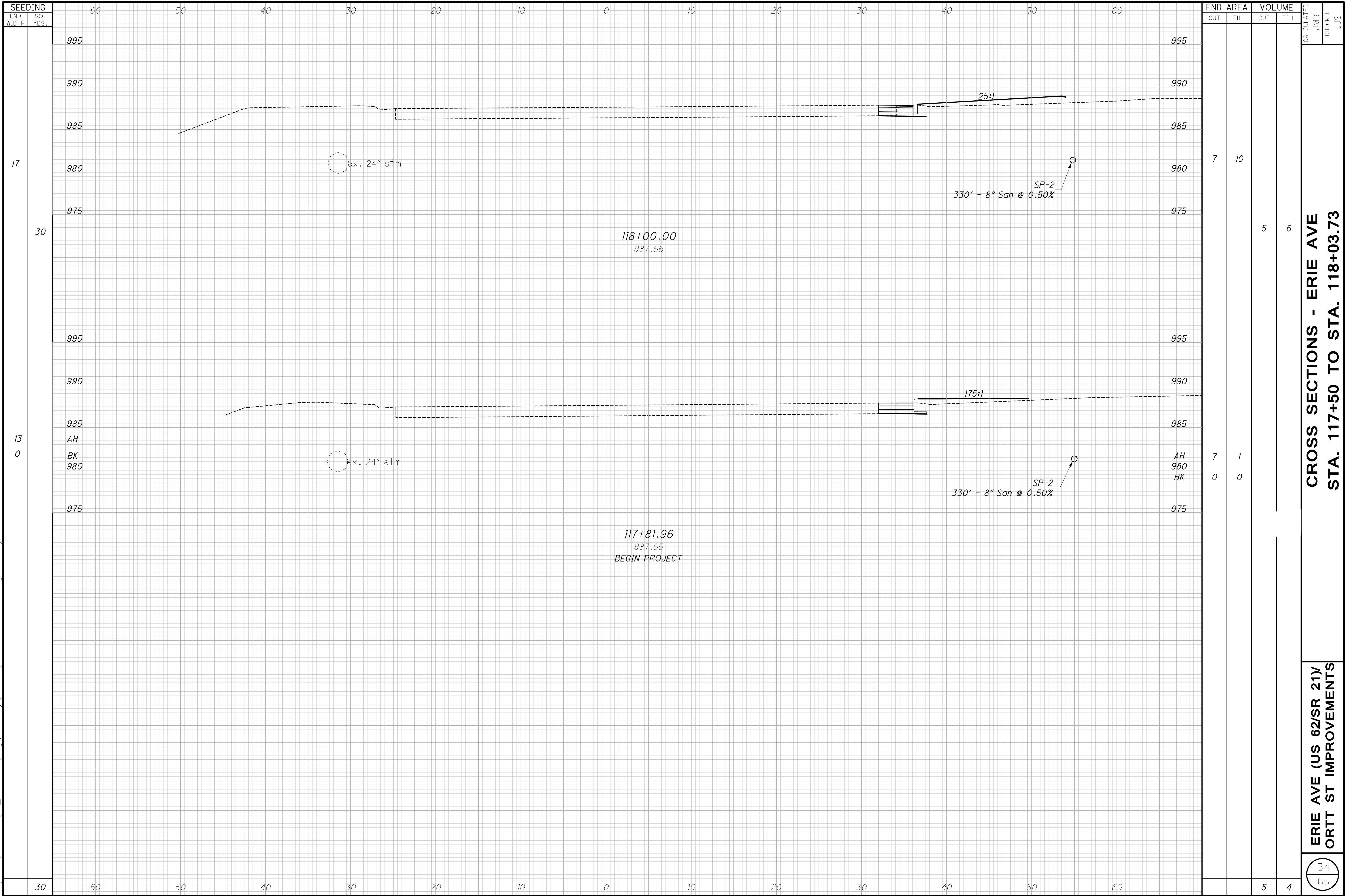
PLAN AND PROFILE - ORTT ST
STA. 203+00 TO END WORK

ERIE AVE (US 62/SR 21)/
ORTT ST IMPROVEMENTS

33
65



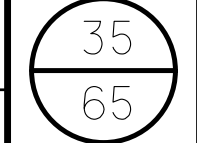
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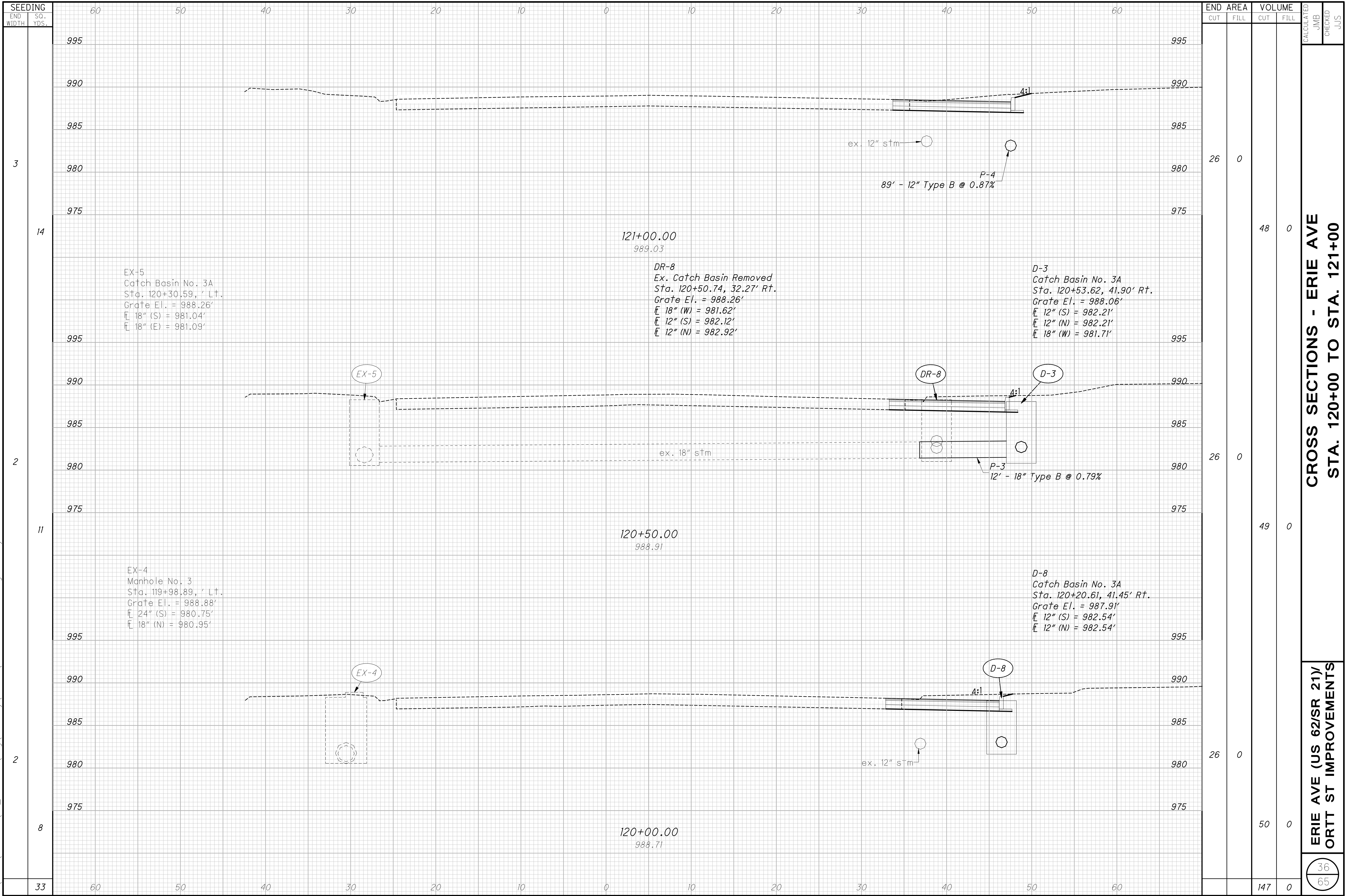
CROSS SECTIONS - ERIE AVE
STA. 117+50 TO STA. 118+03.73

ERIE AVE (US 62/SR 21)/
ORTT ST IMPROVEMENTS

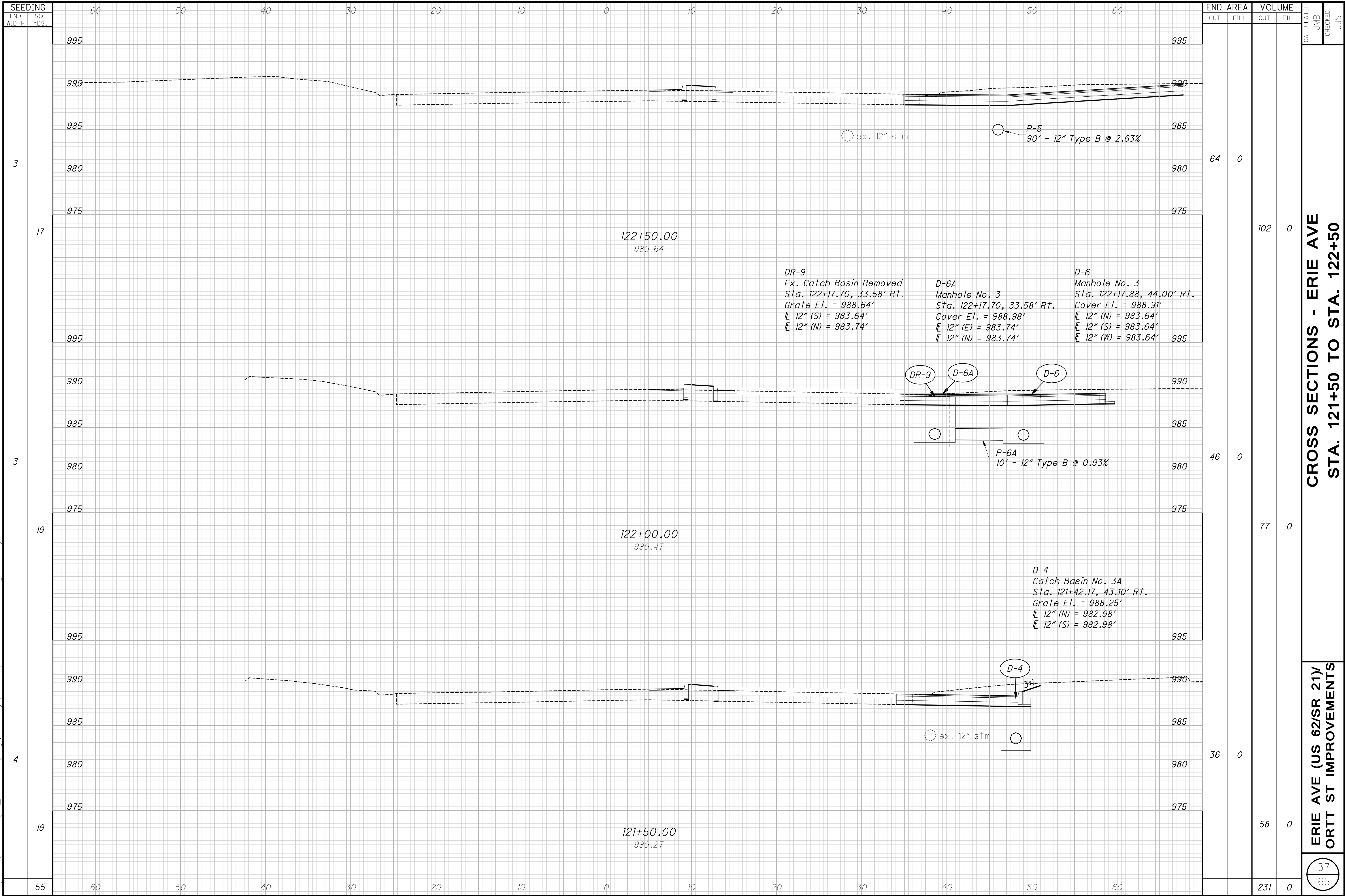
34
65



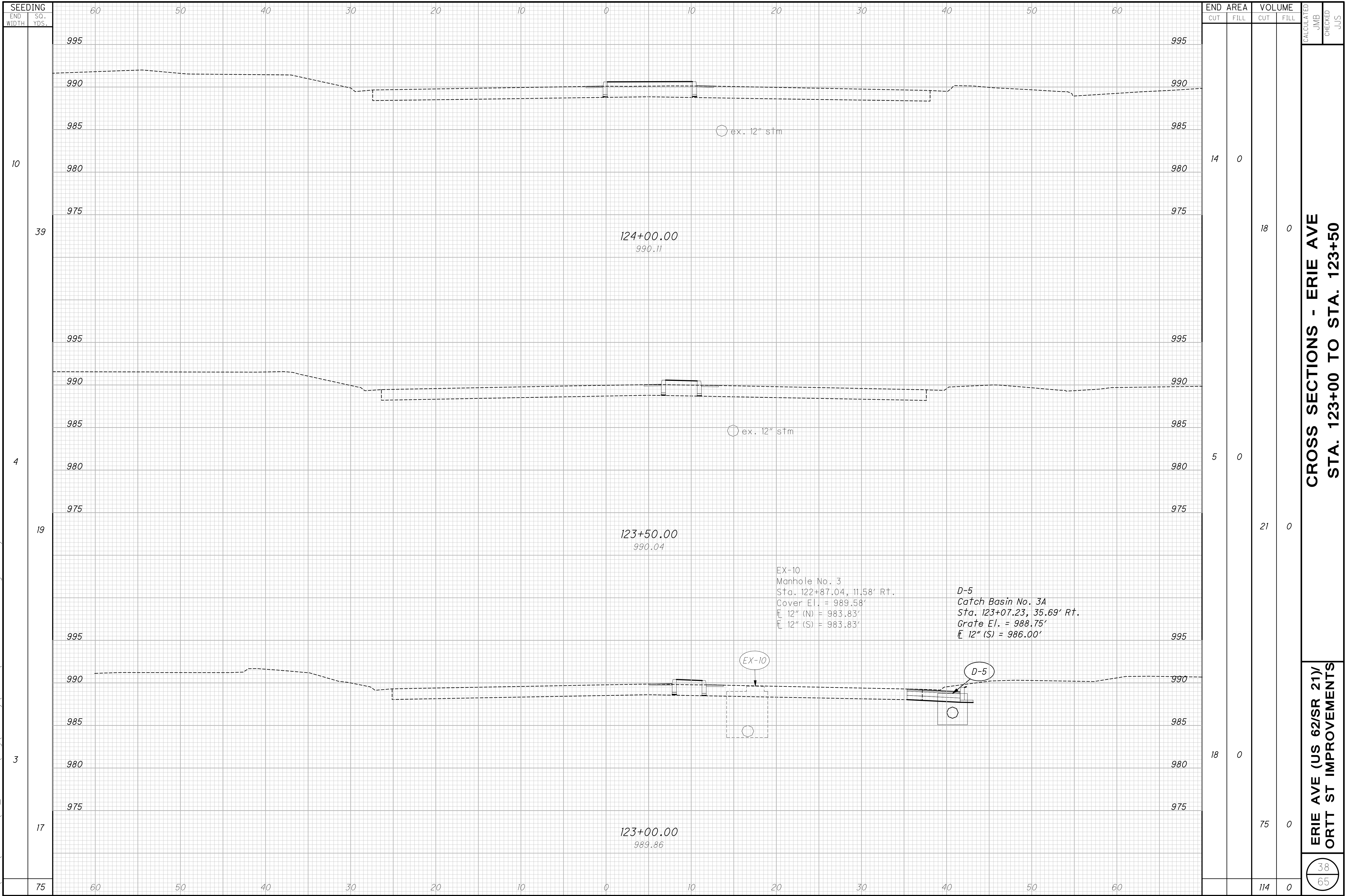
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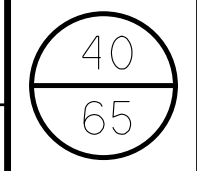


CROSS SECTIONS - ERIE AVE
STA. 123+00 TO STA. 123+50

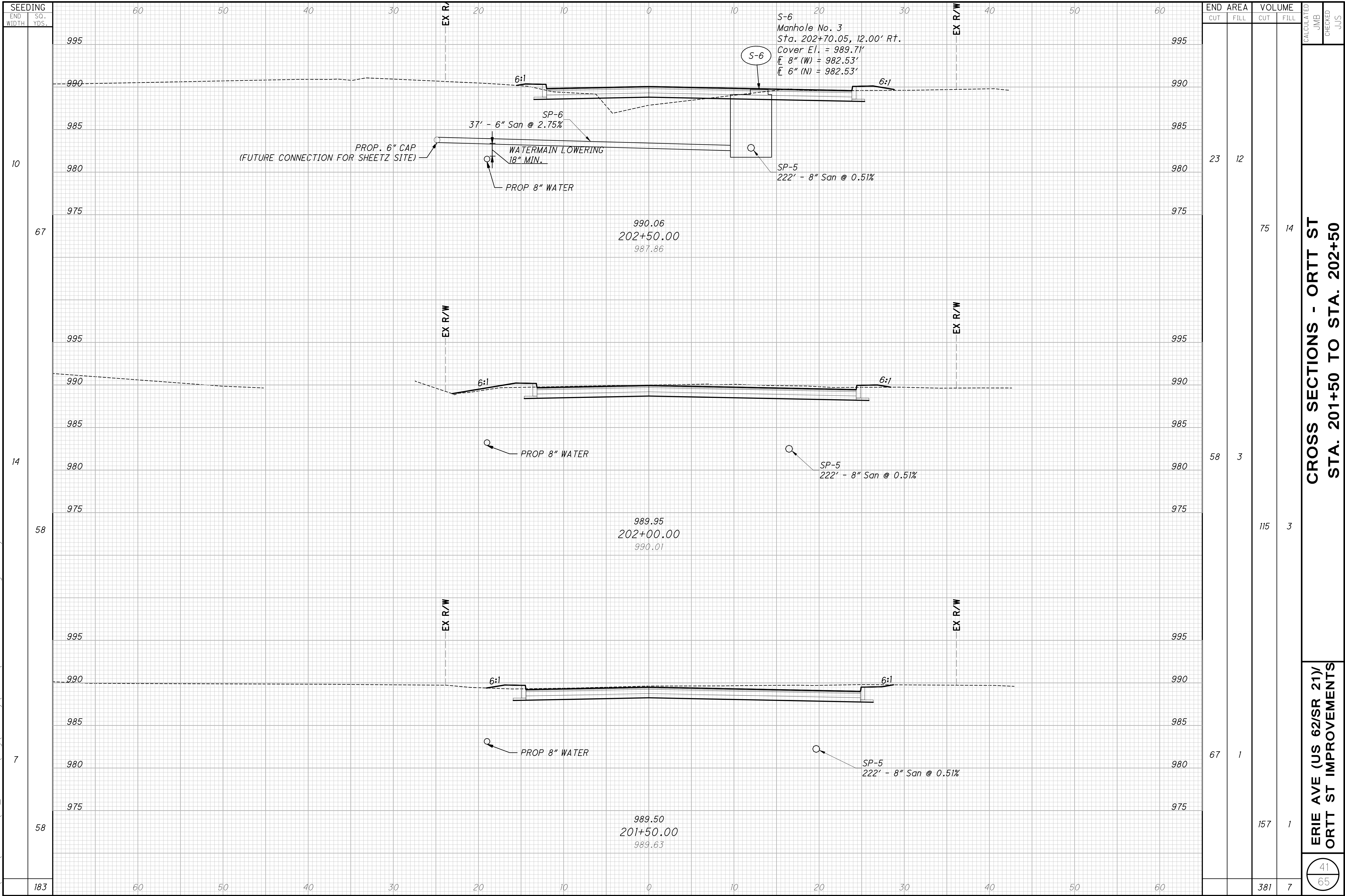
ERIE AVE (US 62/SR 21)/
ORTT ST IMPROVEMENTS

38
65

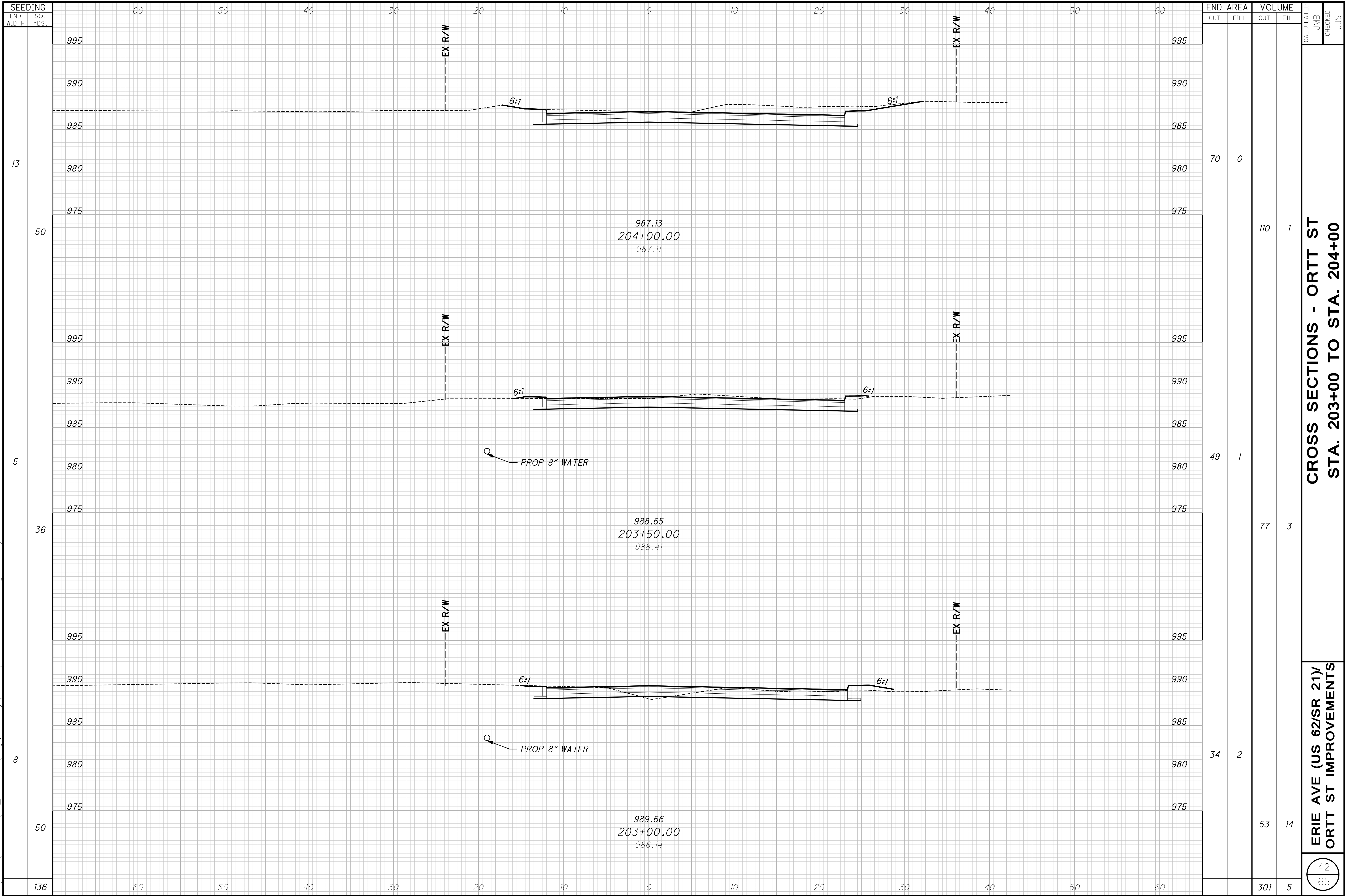




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CROSS SECTIONS - ORTT ST
STA. 203+00 TO STA. 204+00

ERIE AVE (US 62/SR 21)/
ORTT ST IMPROVEMENTS

42
65





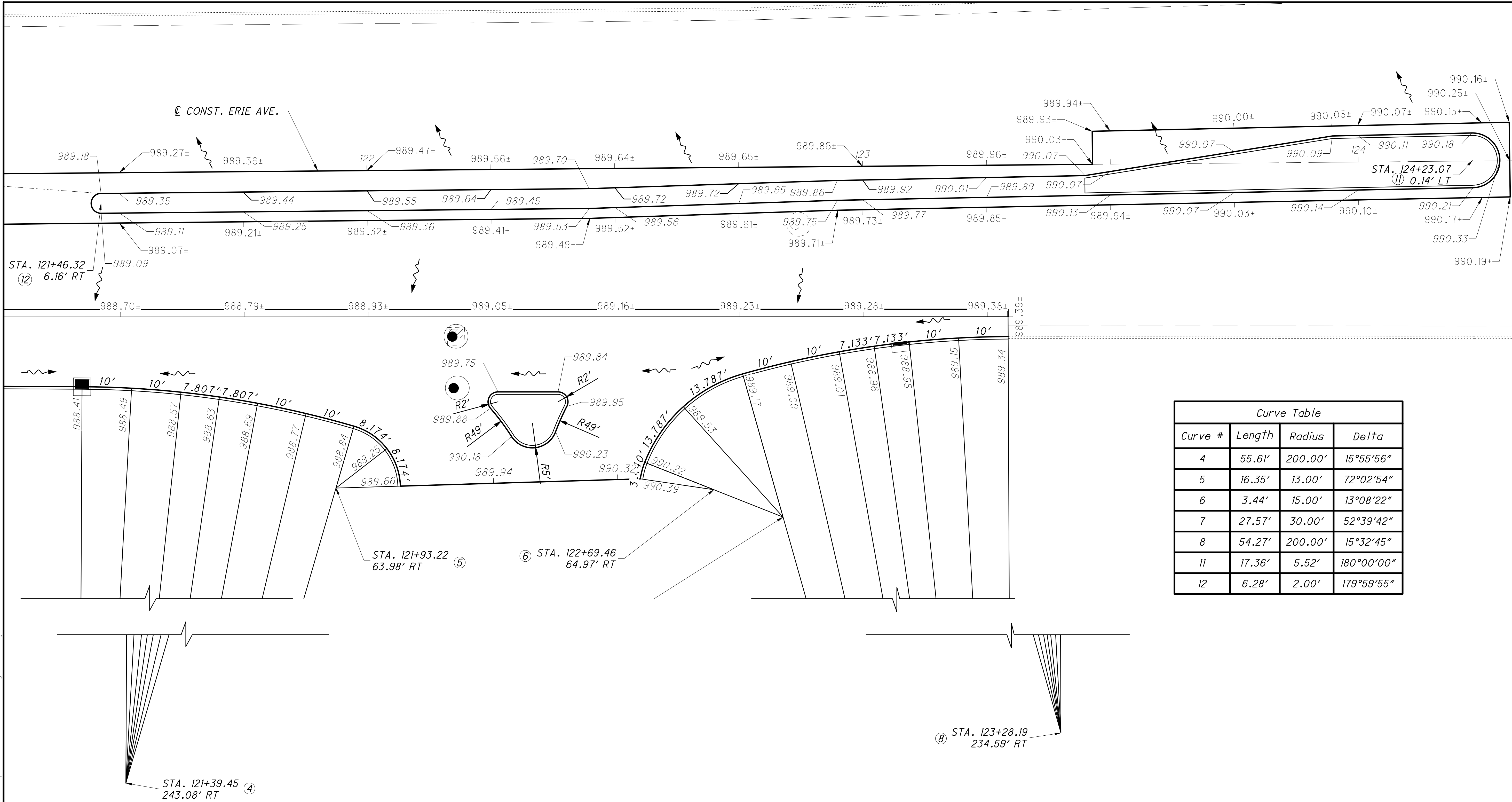


NOTES

1. ALL ELEVATIONS ARE GIVEN TO THE BOTTOM FACE OF CURB OR PAVEMENT SURFACE, UNLESS OTHERWISE NOTED. TOP BACK OF CURB ELEVATIONS ARE 0.50' HIGHER THAN BOTTOM FACE OF CURB ELEVATION, UNLESS OTHERWISE NOTED. CONTRACTOR SHALL ADJUST TOP BACK OF CURB ELEVATIONS IN AREAS OF CURB RAMPS AND DRIVE APRONS.

2. CURVE GEOMETRY IS GIVEN AT THE BOTTOM FACE OF CURB/EDGE OF PAVEMENT WHERE APPLICABLE.

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- NOTES**
- ALL ELEVATIONS ARE GIVEN TO THE BOTTOM FACE OF CURB OR PAVEMENT SURFACE, UNLESS OTHERWISE NOTED. TOP BACK OF CURB ELEVATIONS ARE 0.50' HIGHER THAN BOTTOM FACE OF CURB ELEVATION, UNLESS OTHERWISE NOTED. CONTRACTOR SHALL ADJUST TOP BACK OF CURB ELEVATIONS IN AREAS OF CURB RAMPS AND DRIVE APRONS.
 - CURVE GEOMETRY IS GIVEN AT THE BOTTOM FACE OF CURB/EDGE OF PAVEMENT WHERE APPLICABLE.

N

0

5

10

20

HORIZONTAL SCALE IN FEET

CALCULATED

JMB

CHECKED

JJS

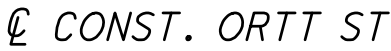
INTERSECTION DETAILS
ERIE AVE CURB AND SAWCUT LINE

ERIE AVE (US 62/SR 21)/
ORTT ST IMPROVEMENTS

46

65

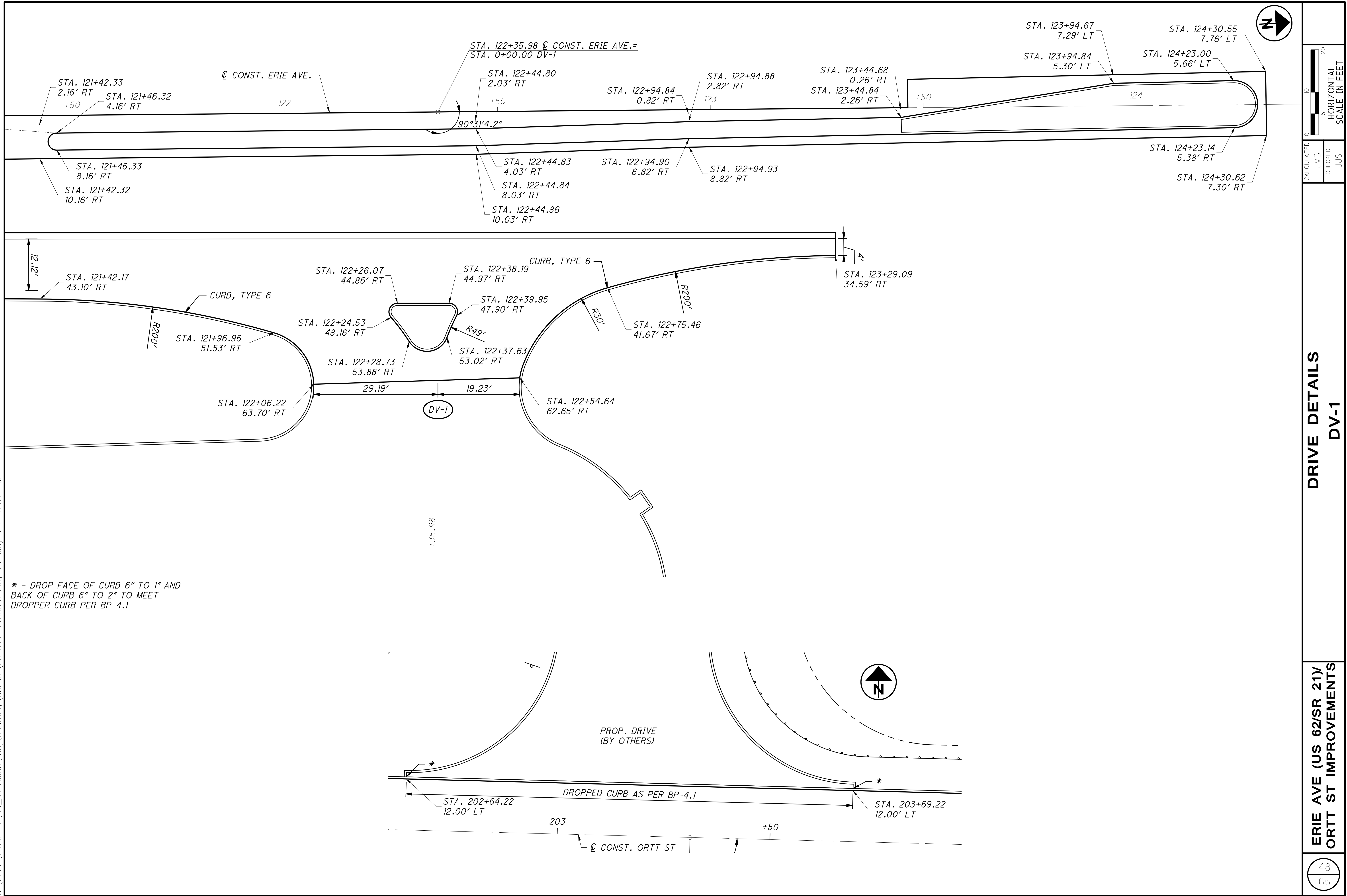
2. CURVE GEOMETRY IS GIVEN AT THE BOTTOM FACE OF CURB/EDGE OF PAVEMENT WHERE APPLICABLE.



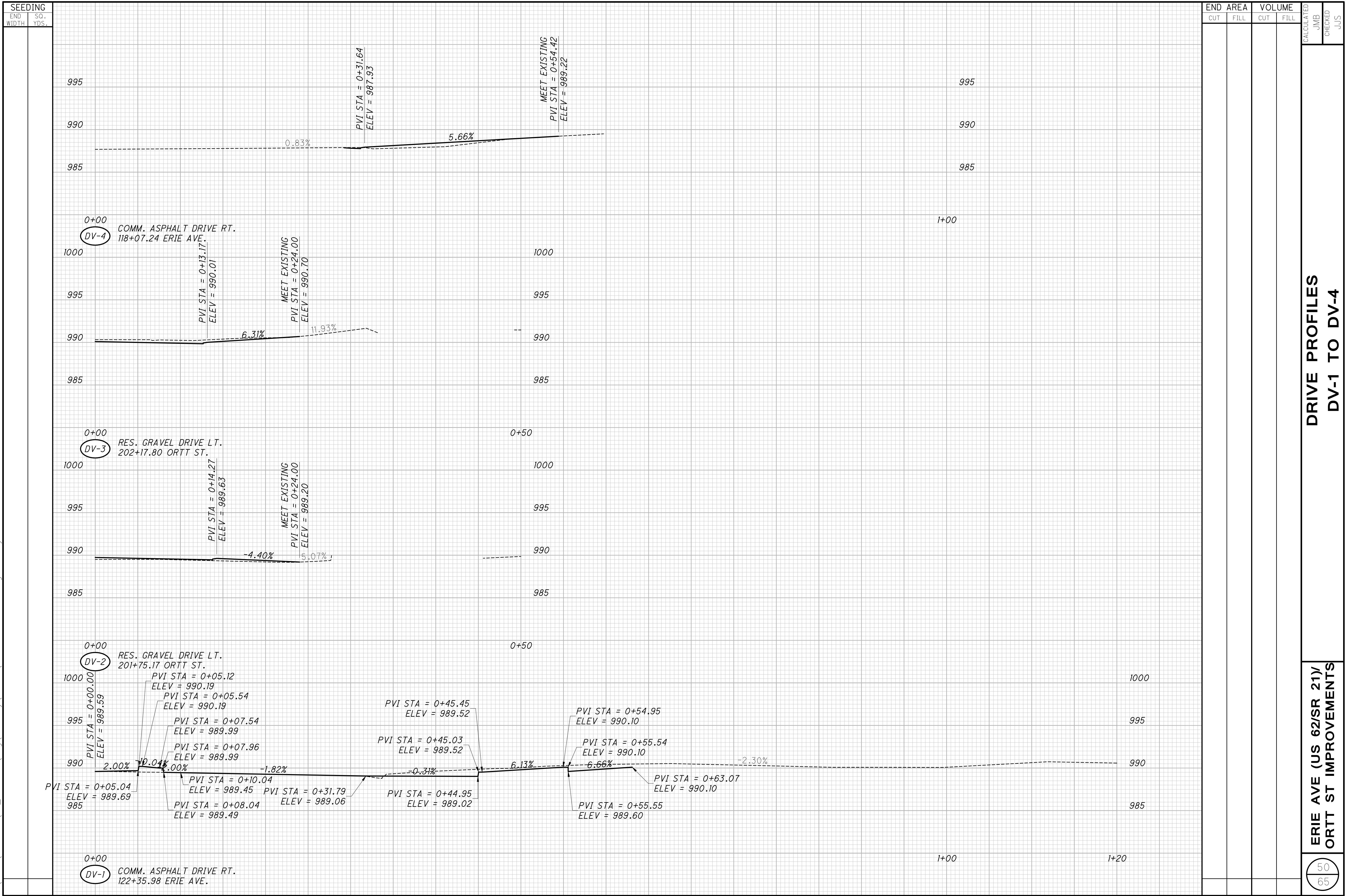
Curve Table			
Curve #	Length	Radius	Delta
9	43.98'	28.00'	89°59'54"
10	43.98'	28.00'	89°59'57"

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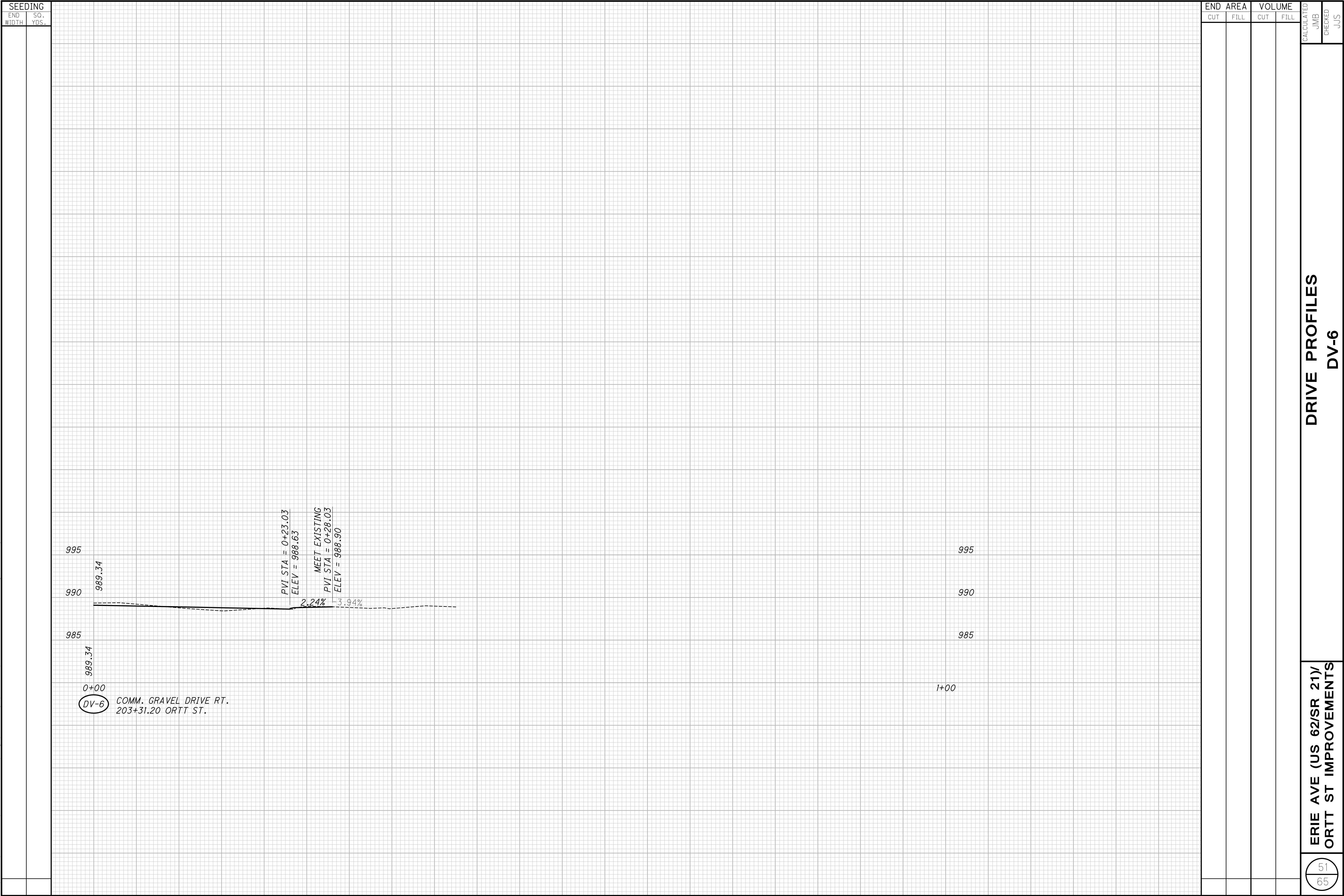
* - DROP FACE OF CURB 6" TO 1" AND
BACK OF CURB 6" TO 2" TO MEET
DROPPER CURB PER BP-4.1



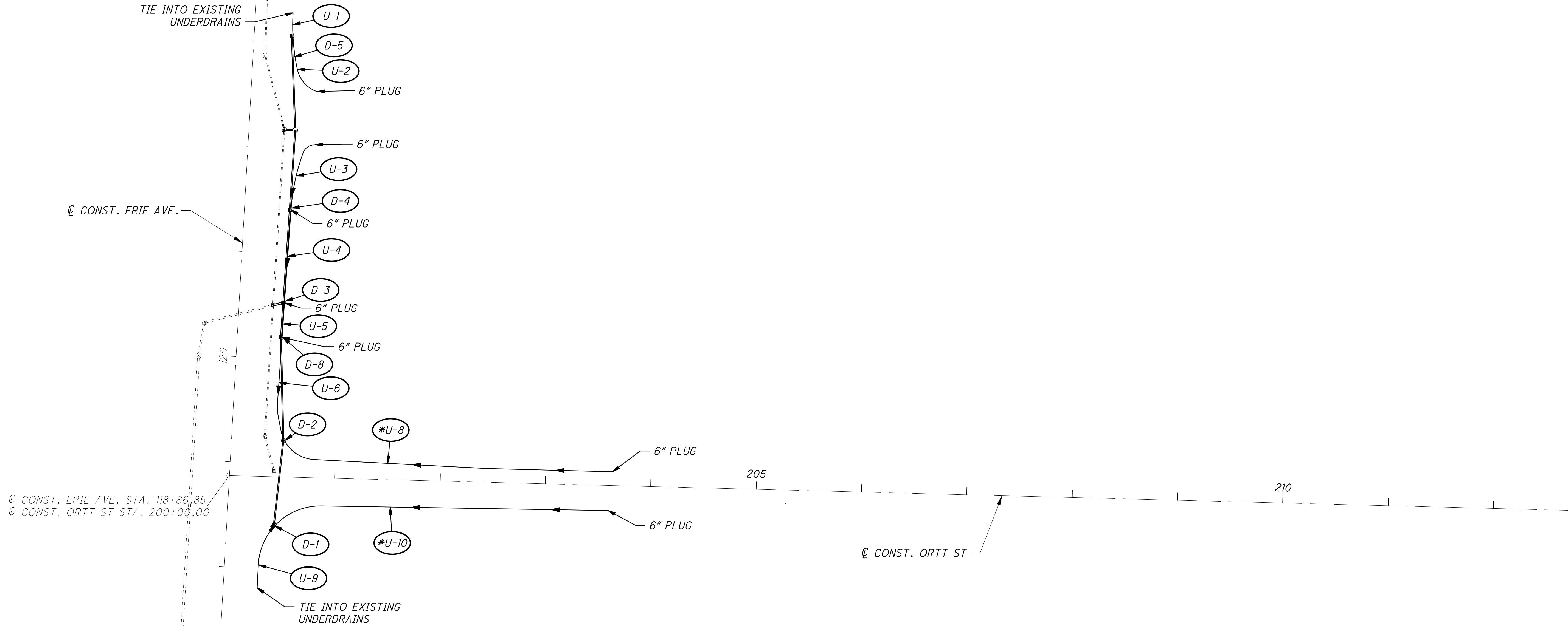
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UNCLASSIFIED UNDERDRAIN TABLE								
UD CODE	STREET	BEGIN			LENGTH	OUTLET		SLOPE
		STA.	OFFSET	ELEV.		STRUCT. NO.	ELEV.	
U-8	ORTT	203+63.43	13.08' LT.	985.26	318.12	D-2	984.31	0.30%
U-10	ORTT	203+49.33	23.93' LT.	985.25	311.90	D-1	984.31	0.30%

ERIE AVE (US 62/SR 21)/
ORTT ST IMPROVEMENTS

52
65

UNDERDRAIN SCHEMATIC PLAN

CALCULATED
JMB

CHECKED
JJS

0 10 20 40
HORIZONTAL
SCALE IN FEET

W-1 16" x 8" TAPPING SLEEVE, VALVE AND VALVE BOX
STA. 119+24.72, 45.29' LT.

A-1 STA. 119+24.64, 47.79' LT.

A-2 8" 11.25° BEND
STA. 119+24.95, 37.78' LT.

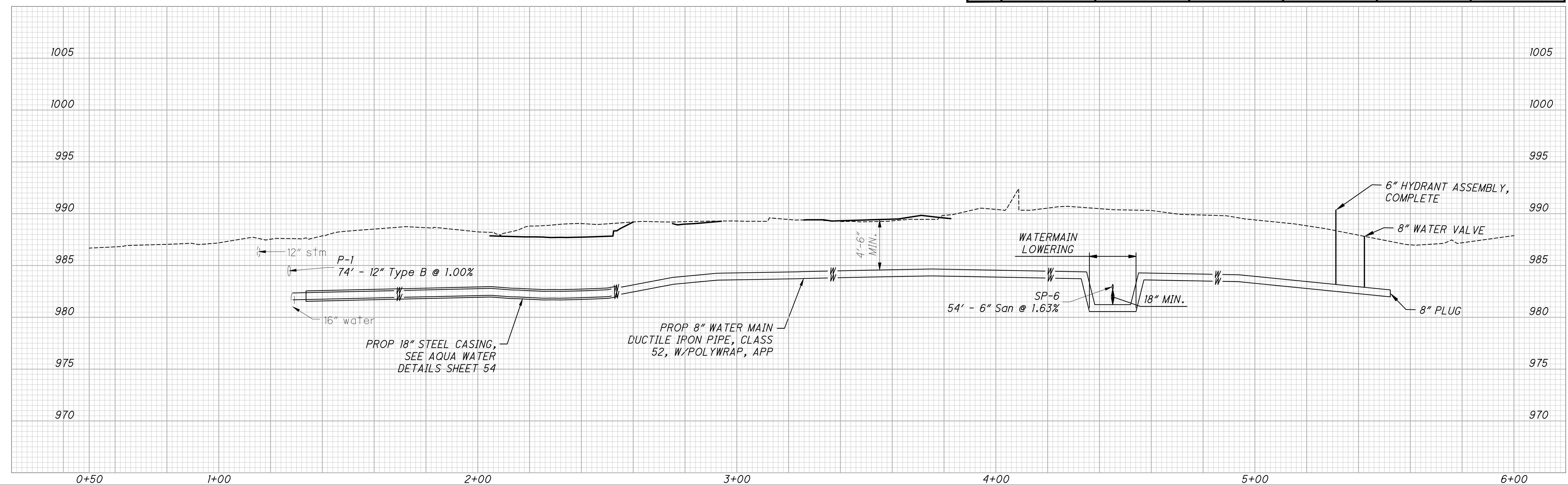
A-3 8" 11.25° BEND
STA. 200+65.00, 19.00' LT.

A-4 6" 90° BEND
STA. 203+59.06, 19.00' LT.
426' - 8" WATER MAIN DUCTILE IRON
PIPE CLASS 52, W/POLYWRAP, APP
6" HYDRANT ASSEMBLY COMPLETE

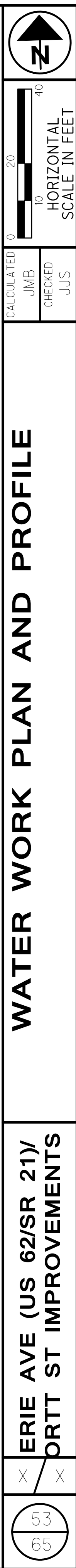
W-3 STA. 203+54.06, 22.00' LT.

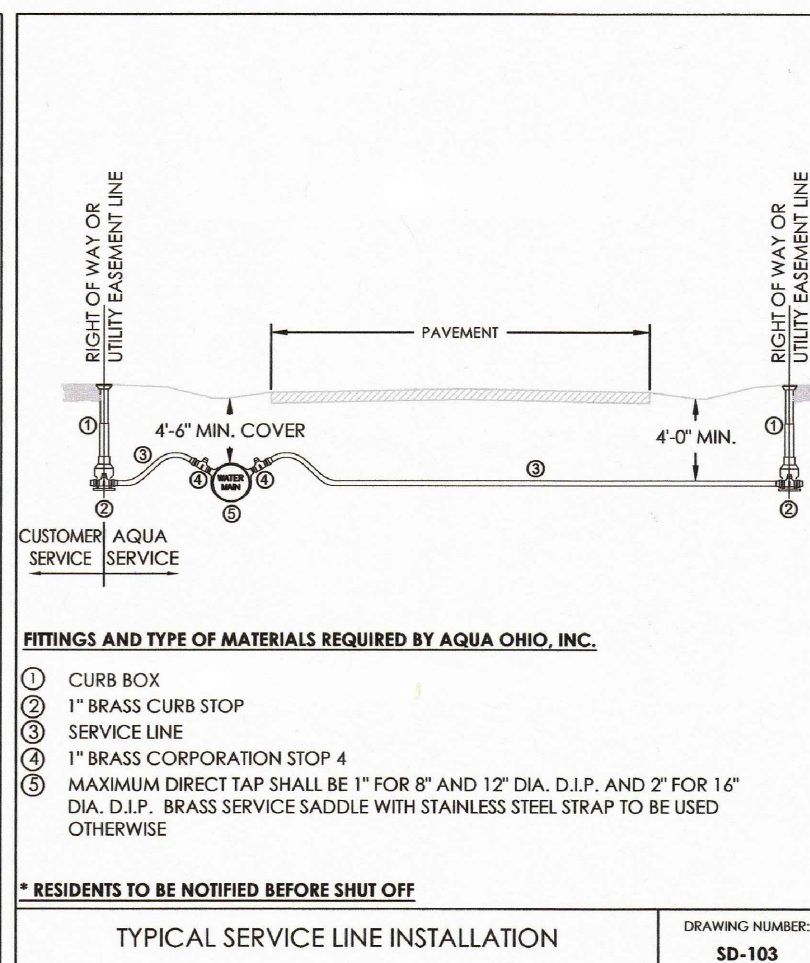
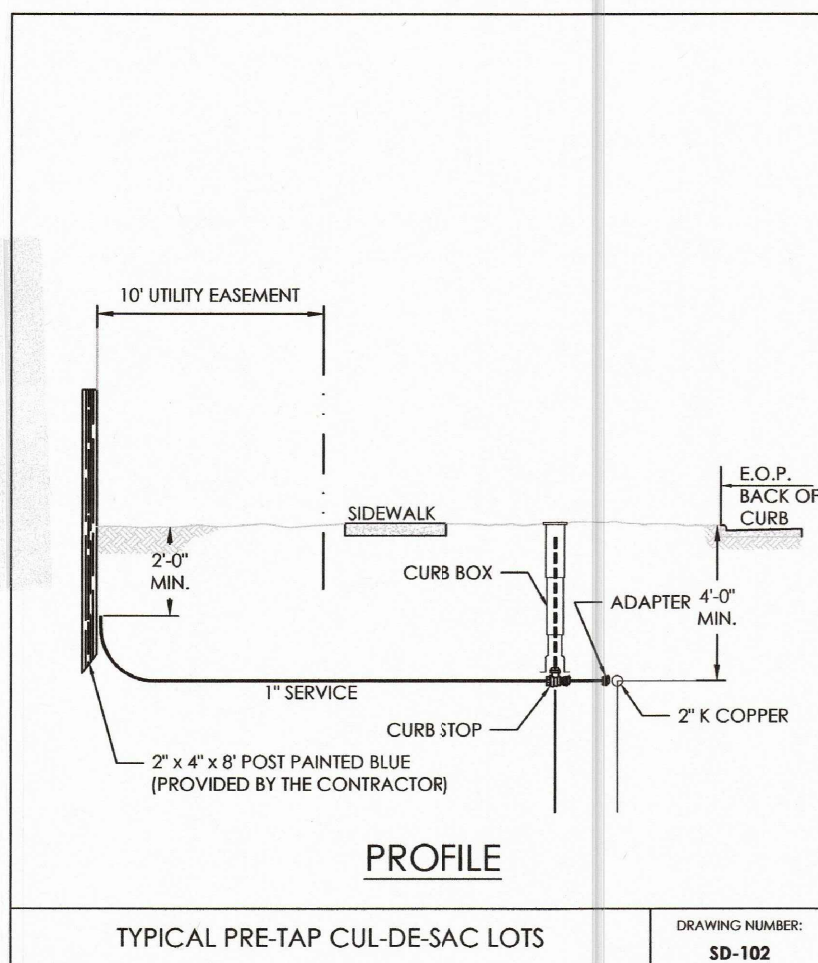
W-4 8" WATER VALVE
STA. 203+65.07, 19.00' LT.

A-2



WATERLINE ALIGNMENT TABLE						
	ALIGNMENT	STATION	OFFSET	ALIGNMENT	STATION	OFFSET
1	ERIE AVE	119+22.28	126.33' L.T.	WATERLINE	0+50.00	0
2	ERIE AVE	119+24.95	37.78' L.T.	WATERLINE	1+38.59	0
3	ORTT ST	200+65.00	19.00' L.T.	WATERLINE	2+42.20	0
4	ORTT ST	204+22.80	19.00' L.T.	WATERLINE	6+00.00	0





FIELD-LOG GASKETS OR OTHER APPROVED PIPE RESTRAINT SYSTEMS WILL BE USED TO RESTRAIN PIPE OR WITH PRIOR APPROVAL BY AQUA FOR THE FOLLOWING SITUATIONS:

1. FOR VERTICAL BENDS IN LIEU OF DEAD-MAN CONCRETE RESTRANT
2. FOR VERTICAL AND HORIZONTAL BENDS INSTALLED IN POOR SOIL CONDITIONS
3. FOR HYDRANTS OR BENDS WITH SLOPING DOWN BEHIND THE POINT OF THURST

NOTE: MEGA-AUGS OR APPROVED EQUAL SHALL BE USED TO RESTRAIN FITTINGS AND VALVES

- THURST BLOCKS WILL NORMALLY BE USED FOR ALL HORIZONTAL BENDS. THE CONTRACTOR WILL GET WRITTEN PRIOR APPROVAL FROM AQUA TO SUBSTITUTE A RESTRAINT SYSTEM IN LIEU OF THURST BLOCKING FOR HORIZONTAL BENDS.
- CONTRACTOR WILL SUPPLY ALL FIELD-LOG GASKETS

LINEAR FEET OF MECHANICAL PIPE RESTRAINT REQUIRED (EITHER SIDE OF FITTING)									
PIPE DIA. (IN.)	4"	6"	8"	10"	12.5"	VERT. UP	VERT. DOWN	TEE BRANCH	TEE END
4	36	16	8	4*	22.5*	0	4	16	18
6	60	28	13	0	0	0	10	24	35
8	108	54	18	0	0	0	18	36	90
12	162	114	30	36	18	0	36	72	144
16	216	118	49	23	12	12	12	21	200
24	304	165	68	33	16	16	30	30	289

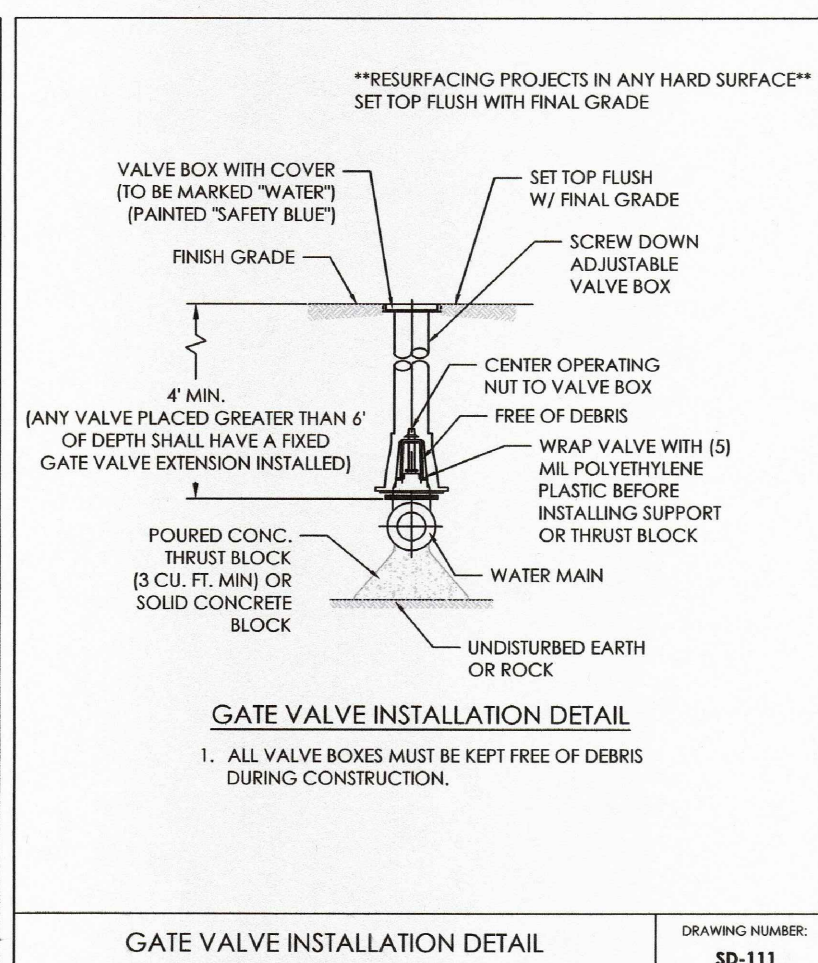
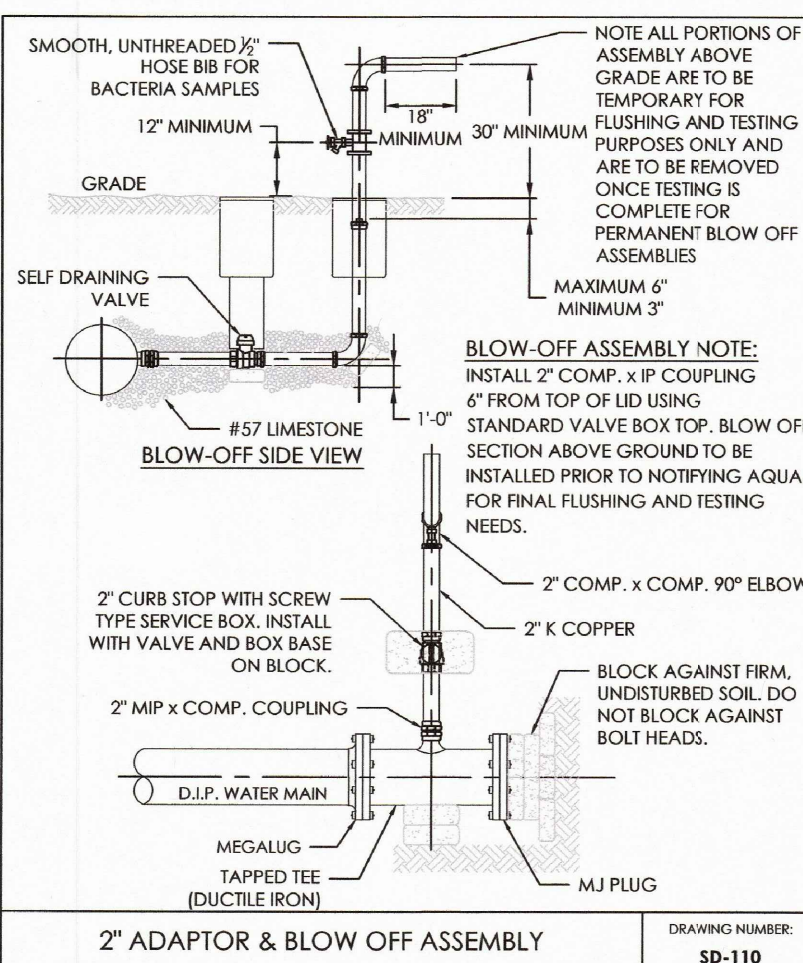
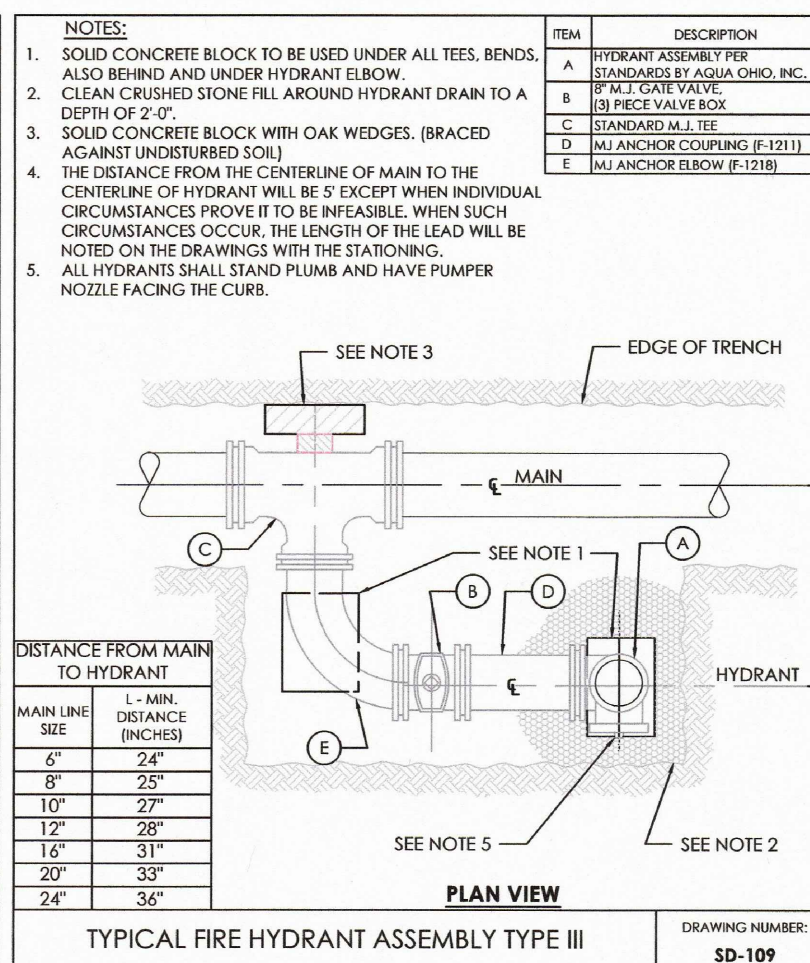
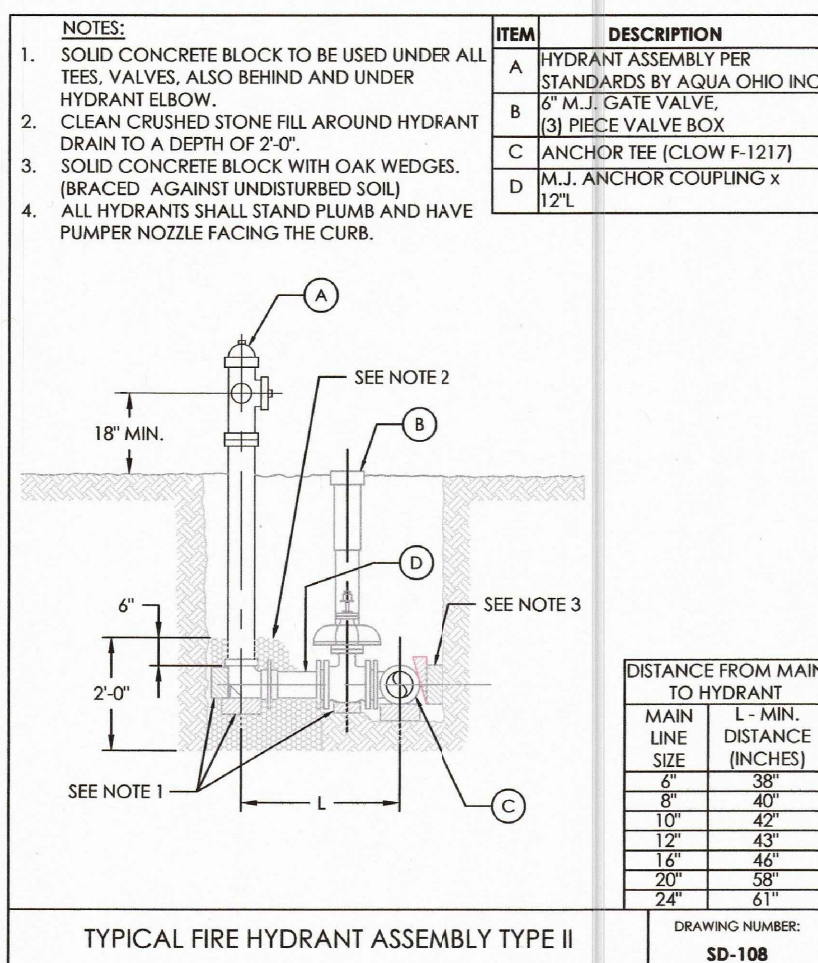
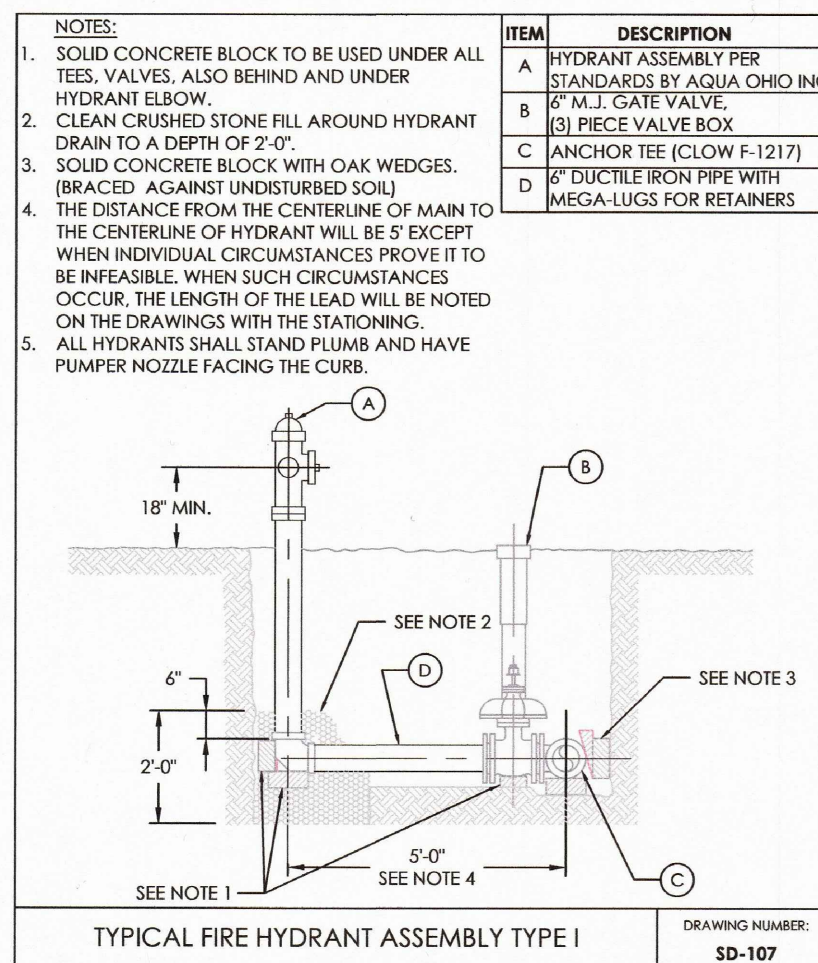
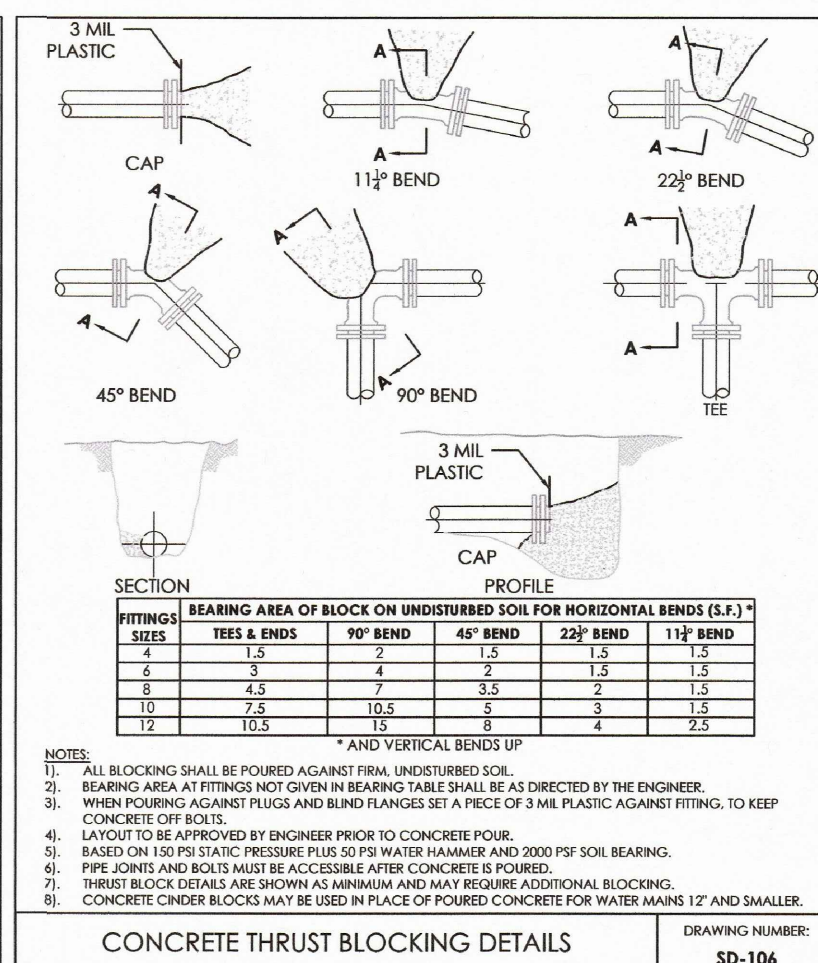
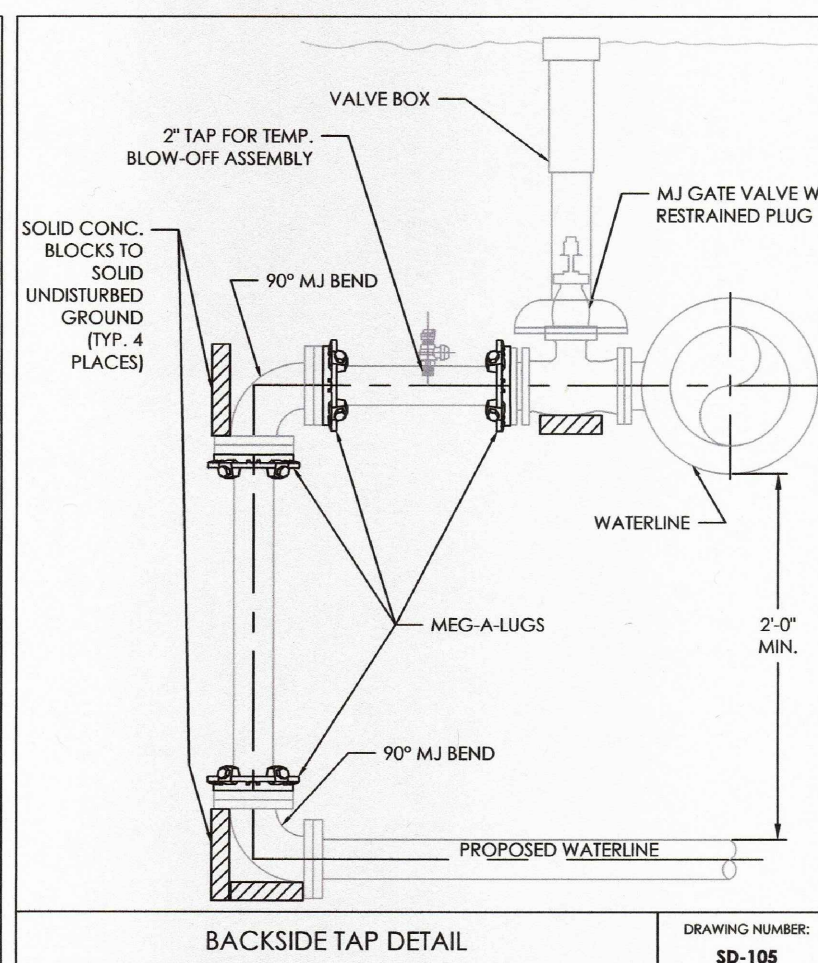
CONSTRUCTION CRITERIA:

1. FOR WORKING AND/OR TEST PRESSURES ≤ 150 PSI.
2. TYPE 2 BRENCH WITH MINIMUM OF 4.0 FT. OF COVER
3. POLYWRAPPED PIPE
4. 18 FT. PIPE LENGTHS
5. FITTINGS REPAIRED WITH MEGA-AUGS OR APPROVED EQUAL

NOTE: IF FIELD CONDITIONS DO NOT CONFORM TO THE NOTED CONSTRUCTION CRITERIA, THE CONTRACTOR SHALL GET WRITTEN APPROVAL FROM AQUA FOR THE NUMBER OF RESTRAINED JOINTS.

THRUST RESTRAINT WITH FIELD-LOG GASKETS

DRAWING NUMBER: SD-104



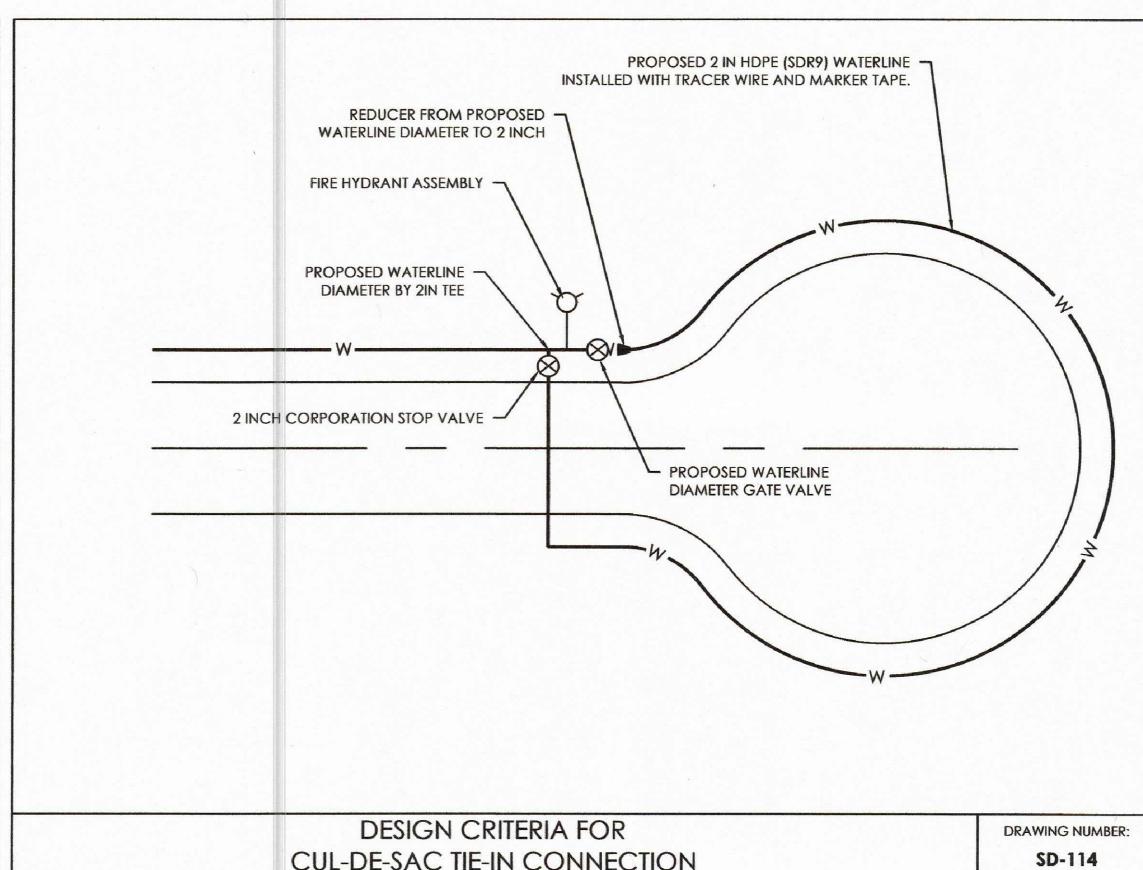
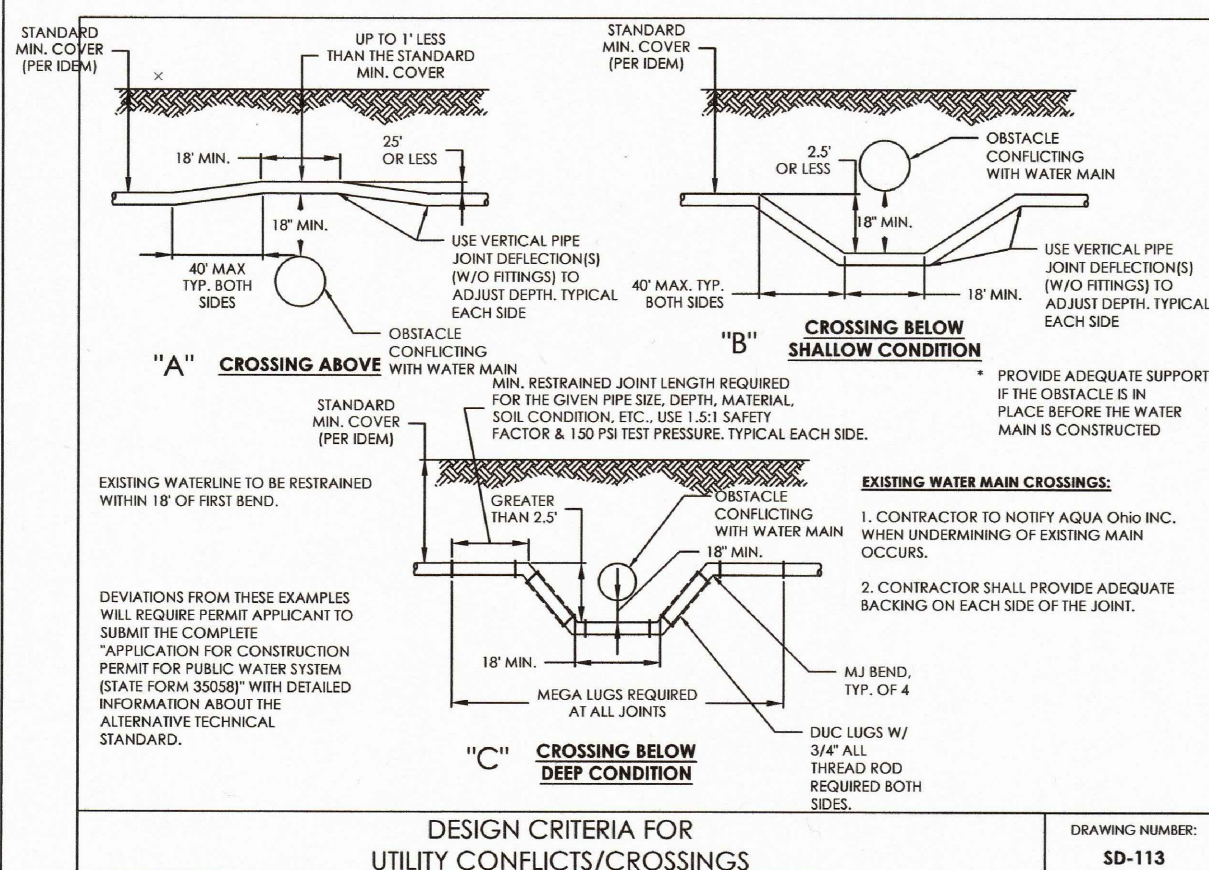
—PIPE CROSSING DATA SHEET—						
PIPE DATA		CARRIER PIPE			CASING PIPE	
MATERIAL		DUCTILE IRON			STEEL	
PROCESS OF MANUFACTURE		SIN CAST			ELECTRIC	
WELD SPECIFICATION		ANSI A21.51			ASTM A53	
GRADE OF CLASS		SEE SPEC.			GRADE B TEST	
PRESSURE		SEE SPEC.			\$5.00 PSI	
TYPE OF JOINT		PUSH ON FIELD LOG RUBBER GASKET			WELDED	
TYPE OF COATING		ASPHALTIC PRIMER			NONE	
CATHODIC PROTECTION		N/A			NO	
SEAL AT END OF CASING		N/A			MOLDED SYN. RUBBER END SEAL	
METHOD OF INSTALLATION		PUSH ON SKIDS			JACK AND BORE	

CASING PIPE SIZING						
WATER MAIN SIZE	NOMINAL SIZE OF CASING PIPE	OUTSIDE DIAMETER	INSIDE DIAMETER	WALL THICKNESS [IN.]	WEIGHT PER FOOT	
6"	16"	16.000	15.520	0.375	62.64	
8"	18"	18.000	17.220	0.375	70.65	
12"	24"	24.000	23.000	0.500	126.61	
16"	30"	30.000	29.000	0.500	157.68	
20"	36"	36.000	35.000	0.500	189.75	
24"	42"	42.000	41.000	0.500	221.82	
30"	48"	48.000	47.000	0.500	253.89	
36"	54"	54.000	53.000	0.500	285.96	
42"	60"	60.000	59.000	0.500	318.03	

SMITH-BLAIR CASING SPACERS
@ 1/3 POINTS EACH P.I.
LENGTH (2" PER LENGTH)
(NOTE: AS AN ALTERNATIVE,
P.S.J. OR CASCADE CASING
SPACERS MAY BE USED)

D.L.P. WATER LINE
POLYWRAPPED

FIELD CASING



AQUA OHIO, INC.
STARK REGIONAL DIVISION
1", 1-1/2" & 2" WATER SERVICE MATERIAL SPECIFICATIONS

AQUA PORTION OF SERVICE LINE

SERVICE SADDLES. Stainless steel, double stud, CC outlet, Smith-Blair model 372 or equal.

CORPORATION STOPS. Brass, ball valve, CC inlet, CTS compression outlet, Mueller model B-25508S or equal.

CURB STOPS. Brass, ball valve, CTS compression inlet and outlet, Mueller model B-25209N or equal.

CURB BOXES. Two pieces, cast iron, 2-1/2" buffalo style, screw type for adjustable height, hinge range to be approximately 36" to 54" with cast iron lid and brass bolt, the word "WATER" to be cast on lid, General Foundries product no. 37093S or equal.

SERVICE LINES. Type K soft copper tubing is required.

CUSTOMER PORTION OF SERVICE LINE

1" customer service lines require type K copper tubing.

1-1/2" and 2" customer service lines may be type-K copper tubing, or as an alternate material, HDPE plastic, copper tube OD, SDR 9, 200 psi. HDPE needs SS stiffeners at each joint. A tracer wire and marking tape is recommended.

AQUA OHIO, INC.
STARK REGIONAL DIVISION
WATER MAIN MATERIAL SPECIFICATIONS

DUCTILE IRON PIPE. Type required: push-on joints, cement lined, thickness class 52 for 4 inch through 16 inch, manufacturing standards AWWA C100 and C151. Polyethylene encasement shall be installed on all ductile pipe and fittings.

4" THROUGH 16" GATE VALVES. Type required: resilient seat, iron body, stainless steel bonnet bolts and nuts, mechanical joint accessories, non-rising stem, for underground service, O-ring packing method, OPEN RHTD (clockwise), 2 inch square operating nut, manufacturing standards and pressure ratings AWWA C509, MSHA A-2360 or equivalent.

FIRE HYDRANTS. Type required: post top, breakable flange design for traffic collisions, 5 1/4" diameter main valve, one 5" Street connection and two 3/4" hose nozzles, 6" MI inlet, main valve to open left, direction of opening to be indicated with arrow on cast hydrant, to be designed to meet or exceed the following specifications: O-ring packing preferred, type 304 stainless steel bolts and nuts, operating nut and nut on caps: 1/2" pentagon, color yellow painted on trim molded with red paint on bonnet and caps, AWWA standard C502, Mellowell Company, 203-59382, US, Types M-34 or Cross Mettallum.

DUCTILE IRON FITTINGS. (tees, crosses, bends, reducers, sleeves, couplings and plugs.) Type required: mechanical joint, 150 lb. working pressure, to be cement lined, 150 lb. working pressure rating 250 psi, manufacturing standards ANSI A21.53, ANSI A21.4 and ANSI A21.10. Compact style is acceptable. Retainer glands are required on all mechanical joints.

TAPPING SLEEVES. Type required: Stainless steel or ductile iron with MI outlet, stainless steel bolts and nuts, manufacturing standards and pressure ratings AWWA specification C223.

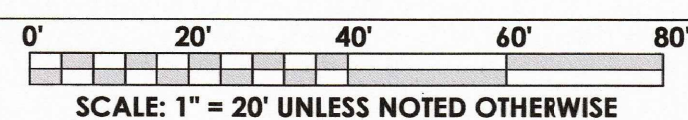
2" WATER MAIN. 2" water main shall be called out type "K" copper tubing or high density polyethylene plastic (HDPE, copper tube size, as defined under the term "K" in HDPE is used, it shall be 200 psi, 300" x with no weld joints. All fittings shall be lead free. All pipe and fittings, branch compression fittings shall be used. Stainless steel stiffeners are necessary at each joint.

VALVE BOXES. Type required: two piece, cast iron, screw type for adjustable height, brant range to be approximately 36 to 60 inches. They are to include a well fitting cast iron lid, the word "WATER" to be cast on lid.

POLYETHYLENE ENCASEMENT. Type required: Eight mil thick polyethylene tube manufactured in accordance with ANSI/AWWA C105/A15.3. Polyethylene adhesive tape, 1 1/2" wide, 10 mil thick, to be used.

BLOW OFF ASSEMBLIES. Type required: Kargfeldt Fountry TE500 or approved equal. Install in valve box. Install 2" curb stop with curb, backflow preventer and 1/2" blow off.

ON	DESIGNED: MAB	DATE: OCTOBER 2020
	DRAWN: MAB	DATE: OCTOBER 2020
	BACKGROUND: ATWELL FIELD SURVEY	



AQUA™
An Essential Utilities Company

PREPARED BY:
SERVICE CENTER - ENGINEERING DEPT.
6650 SOUTH AVE., BOARDMAN OHIO 44512

DIVISION

STARK

AQUA OHIO WATERLINE DETAILS
AQUA OHIO, INC.

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TRAFFIC CONTROL LEGEND	
	PROPOSED SIGN
	EXISTING SIGN TO REMAIN
	EXISTING SIGN TO BE REMOVED
	SIGN SUPPORT
	EXISTING RPM (RAISED PAVEMENT MARKER)
	PROPOSED RPM
	PROPOSED REBOUNDABLE DELINEATOR POST
	PROPOSED SIGN
	EXISTING SIGN TO BE REMOVED
	CENTER LINE, DOUBLE SOLID
	CHANNELIZING LINE, 12"
	LANE ARROW
	LANE LINE
	STOP LINE
	TRANSVERSE/DIAGONAL LINE, YELLOW
	TRANSVERSE/DIAGONAL LINE, WHITE
	CHEVRON MARKING
	EDGE LINE, WHITE, 6"
	EDGE LINE, YELLOW, 6"
	ISLAND MARKING, YELLOW

MAINTENANCE OF TRAFFIC PAVEMENT MARKING RESTORATION

WHEN IT IS NECESSARY FOR MAINTENANCE OF TRAFFIC LIMITS TO EXCEED THE WORK LIMITS, THE CONTRACTOR SHALL BE RESPONSIBLE TO RESTORE PAVEMENT MARKINGS TO THEIR ORIGINAL STATE.

IN LIEU OF A PAVEMENT MARKING PLAN, THE CONTRACTOR SHALL, PRIOR TO THE START OF CONSTRUCTION, PREPARE AN INVENTORY AND LOG ALL EXISTING PAVEMENT MARKINGS FOR USE IN RESTORING THE MARKINGS AT THE END OF CONSTRUCTION. THE CONTRACTOR SHALL DELIVER TWO (2) COPIES OF THE INVENTORY AND LOG TO THE ENGINEER BEFORE BEGINNING ANY PAVEMENT REMOVALS.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LAYOUT OF THE VARIOUS FINAL PAVEMENT MARKINGS, INCLUDING LOCATION OF NO PASSING ZONES, CENTER LINES, EDGE LINES AND STOP LINES ON THE FINAL SURFACE COURSE IN ACCORDANCE WITH SECTION 641.06.

UNLESS DIRECTED OTHERWISE BY THE ENGINEER, THE FINAL PAVEMENT MARKINGS SHALL BE RESTORED IN THEIR ORIGINAL PATTERNS AND LOCATION. FINAL LOCATION OF ALL PAVEMENT MARKINGS (PRE-LINE LAYOUT) SHALL BE APPROVED BY THE CITY OF MASSILLON IN THE FIELD.

THE COST OF LOGGING AND PREMARKING SHALL BE INCLUDED IN THE PRICE BID FOR THE VARIOUS PAVEMENT MARKINGS ITEMS. NO SEPARATE PAVEMENT WILL BE MADE.

THE FOLLOWING QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY:

ITEM 644 - LANE LINE, 6"	0.33 MILE
ITEM 644 - CENTER LINE	0.02 MILE
ITEM 644 - CHANNELIZING LINE, 12"	250 FT

REMOVAL OF PAVEMENT MARKINGS

THE CONTRACTOR SHALL REMOVE THE EXISTING CONFLICTING PAVEMENT MARKINGS PER CONSTRUCTION AND MATERIALS SPECIFICATION (CURRENT VERSION) SECTION 614.11G. THE FOLLOWING LIMITS SHALL BE USED WHEN REMOVING THE EXISTING CONFLICTING PAVEMENT MARKINGS ON ERIE STREET:

CENTER LINE	
• STA. 119+45 TO STA. 122+45 (RT)	299 FT
• STA. 120+43 TO STA. 123+80 (RT/LT)	337 FT

LANE LINE	
• STA. 119+45 TO STA. 124+28 (RT)	483 FT

TRANSVERSE/DIAGONAL LINE	
• STA. 122+16 TO STA. 123+80 (RT/LT)	135 FT

CHANNELIZING LINE	
• STA. 119+45 TO STA. 120+43 (LT)	98 FT

LANE ARROW	
• STA. 119+75 (CEN)	1 EACH
• STA. 120+13 (CEN)	1 EACH
• STA. 118+65 (LT)	1 EACH

THE FOLLOWING QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY:

ITEM 644 - REMOVAL OF PAVEMENT MARKING	1352 FT
ITEM 644 - REMOVAL OF PAVEMENT MARKING	3 EACH

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

FLAT SHEET SIGNS SHALL BE RIGIDLY ATTACHED TO TRAFFIC SIGNAL MAST ARMS WITH THE SIGN CENTERED VERTICALLY ON THE ARM, USING THE SIGN BRACKET DETAIL ON STANDARD CONSTRUCTION DRAWING TC-16.22, OR ANOTHER METHOD OF RIGID ATTACHMENT AS APPROVED BY THE ENGINEER. THE CONTRACTOR SHALL ENSURE THAT THE SIGN FACE IS MOUNTED PERPENDICULAR (90 DEGREES) TO THE DIRECTION OF TRAFFIC.

PAYMENT FOR ITEM 630, SIGN HANGER ASSEMBLY, MAST ARM, AS PER PLAN SHALL BE MADE AT THE CONTRACT UNIT PRICE BID PER EACH. PAYMENT SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, AND ALL PARTS NECESSARY TO ATTACH ONE SIGN.

ITEM 630 - SIGNING. MISC.: REBOUNDABLE DELINEATOR POST ASSEMBLY

THE CONTRACTOR SHALL PROVIDE REBOUNDABLE DELINEATOR POST ASSEMBLY FROM STA. 121+45 TO STA. 124+20. REBOUNDABLE DELINEATORS SHALL BE SPACED AT 25' FROM CENTER TO CENTER.

REBOUNDABLE DELINEATOR POST SHALL BE ROUND, YELLOW, POLYURETHANE, 36" TALL, 3" ROUND POST WITH TWO (2) REFLECTIVE COLLARS. MUST BE OMUTCD COMPLIANT PER SECTION 31.05, LATEST EDITION.

THE FOLLOWING MANUFACTURERS SHALL BE USED OR AN APPROVED EQUAL:

TRAFFIC SAFETY STORE
1247 WRIGHT'S LANE, UNIT E
WEST CHESTER, PA 19380
1-800-429-9030
ITEM #: SU36YEL2YRCA

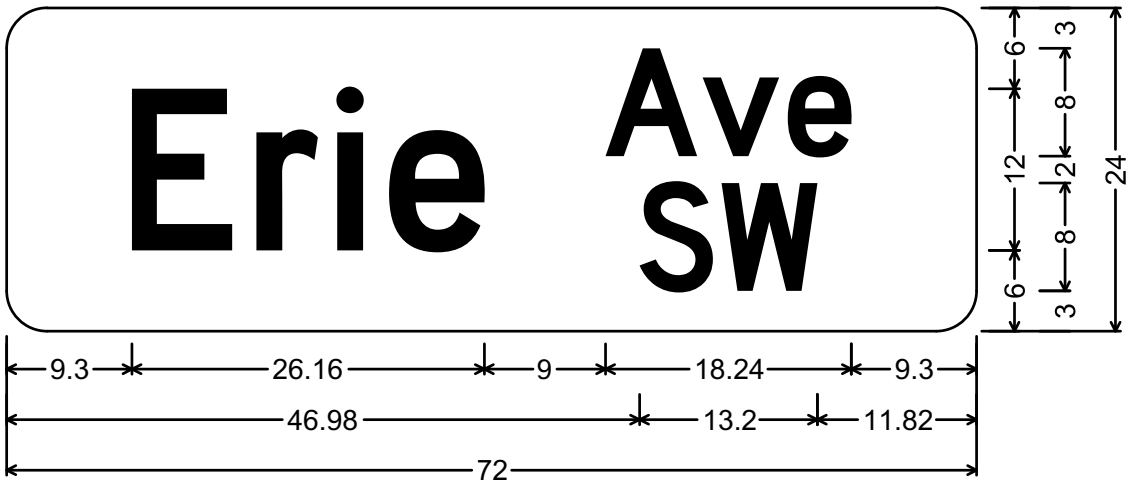
GRAINGER
CANTON BRANCH #163
1721 6TH ST SW
CANTON OH 44706
1-800-472-4643
ITEM #: 3UTX5
MODEL: 04-736Y

ULINE
12575 ULINE DR
PLEASANT PRAIRE, WI 53158
1-800-295-5510
MODEL NO. H-4465

PAYMENT FOR ITEM 630 - SIGNING, MISC.: REBOUNDABLE DELINEATOR POST ASSEMBLY SHALL BE MADE AT THE CONTRACT UNIT PRICE BID PER EACH. PAYMENT SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, AND ALL PARTS NECESSARY TO INSTALL ONE POST IN MEDIAN ISLAND.

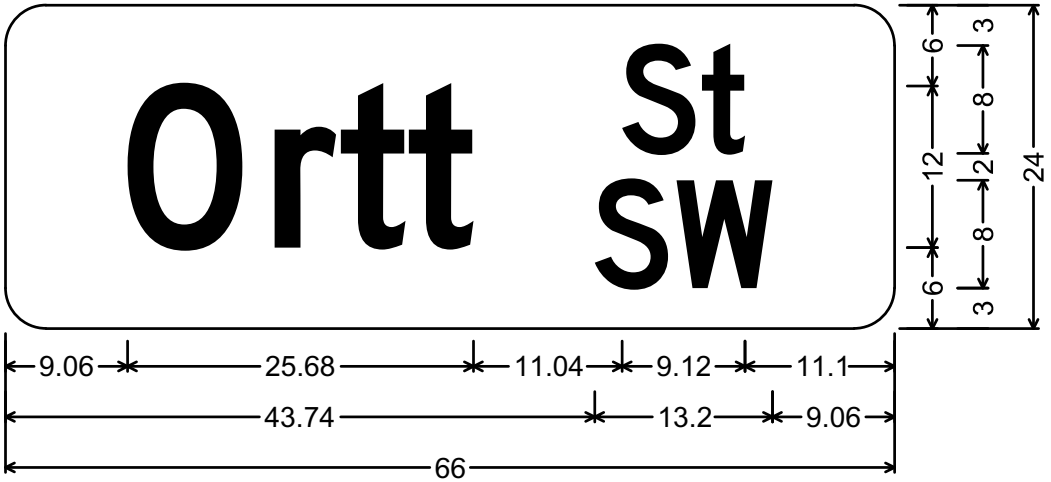
THE FOLLOWING QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY:

ITEM 630 - SIGNING, MISC.: REBOUNDABLE DELINEATOR POST ASSEMBLY	16 EACH
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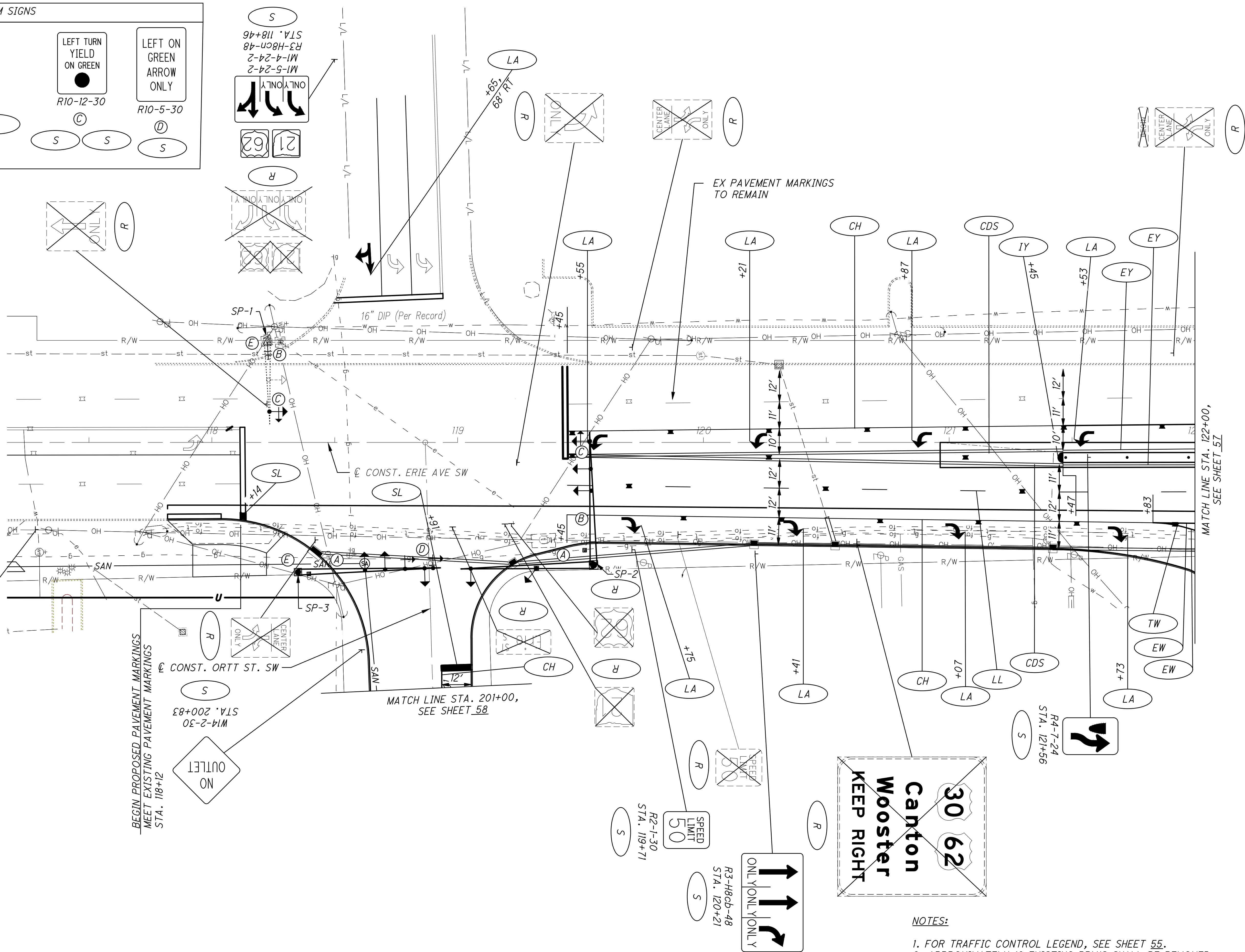
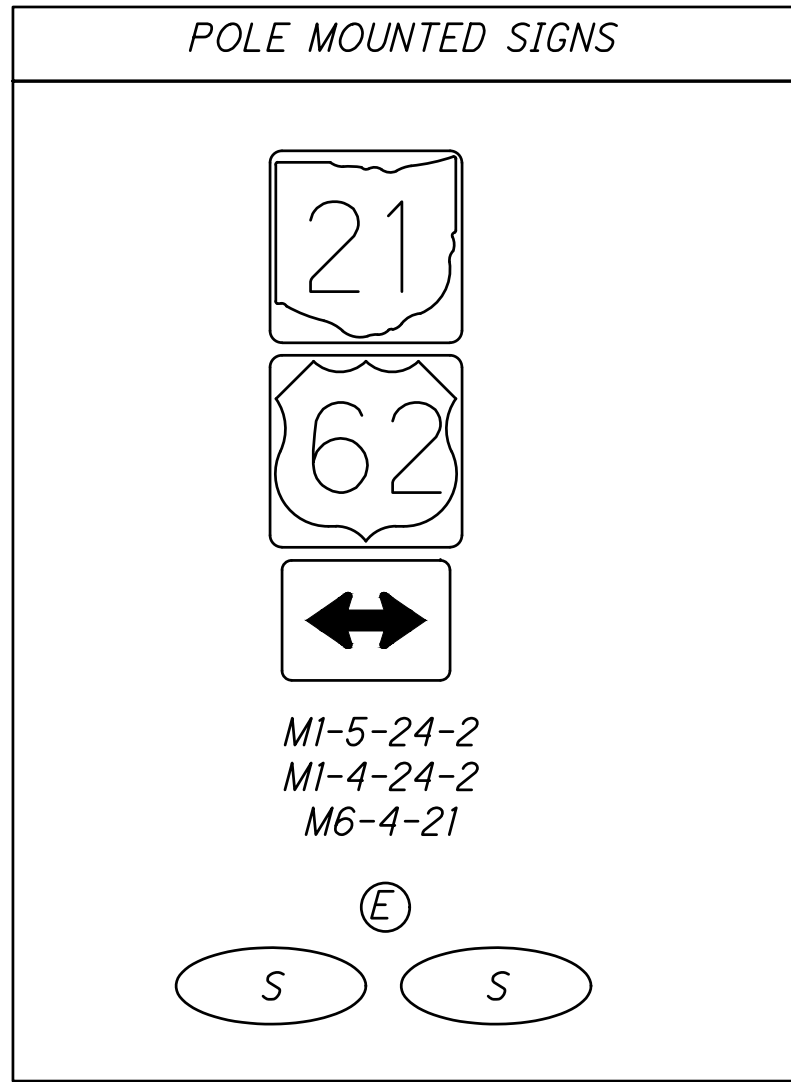
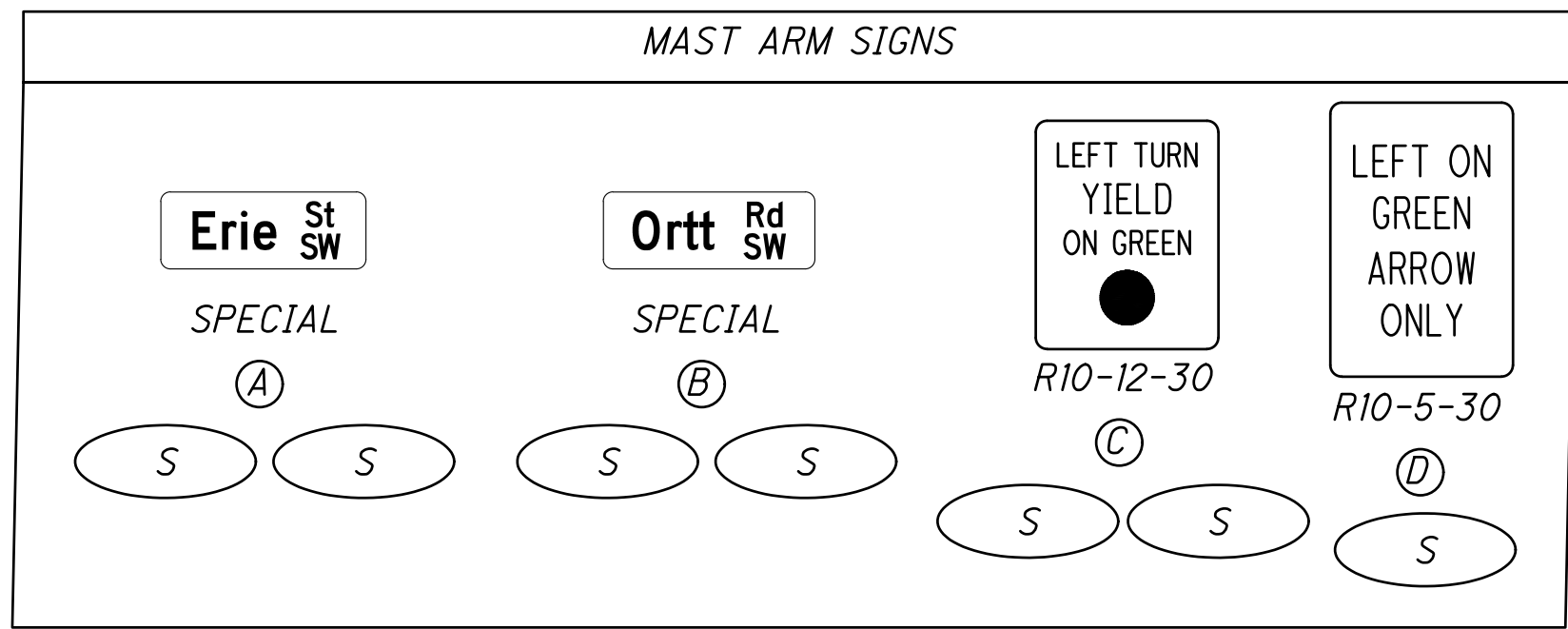
3.00" Radius, No border, White on Blue;
"Erie", D 2K; "Ave", D 2K; "SW", D 2K;
Table of widths and spaces

9.30	E	7.44	1.80	r	4.56	1.44	i	1.92	1.92	e	7.08
		9.00	A	6.80	0.40	v	5.68	0.64	e	4.72	9.30
46.98	S	5.44		0.64	W	7.12		11.82			



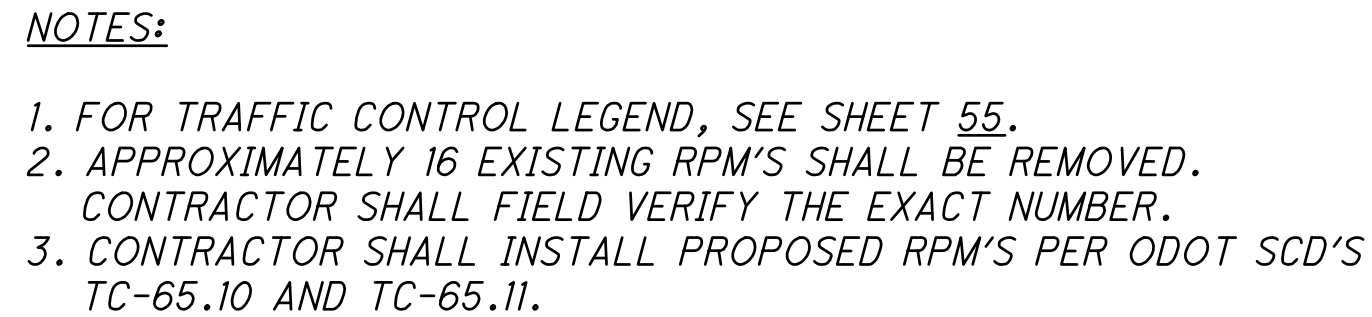
3.00" Radius, No border, White on Blue;
"Ortt", D 2K; "St", D 2K; "SW", D 2K;
Table of widths and spaces

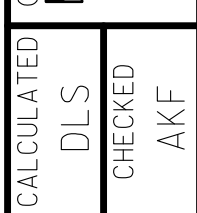
9.06	O	8.52	2.40	r	4.56	0.36	t	4.80	0.24	t	4.80
		11.04	S	5.44	0.48	t	3.20	11.10			
43.74	S	5.44		0.64	W	7.12		9.06			



NOTES:

1. FOR TRAFFIC CONTROL LEGEND, SEE SHEET 55.
2. APPROXIMATELY 16 EXISTING RPM'S SHALL BE REMOVED.
CONTRACTOR SHALL FIELD VERIFY THE EXACT NUMBER.
3. CONTRACTOR SHALL INSTALL PROPOSED RPM'S PER ODOT
SCD'S TC-65.10 AND TC-65.11.
4. BEAM ELEVATION WILL BE PROVIDED WITH STAGE 3 SUBMITTAL.



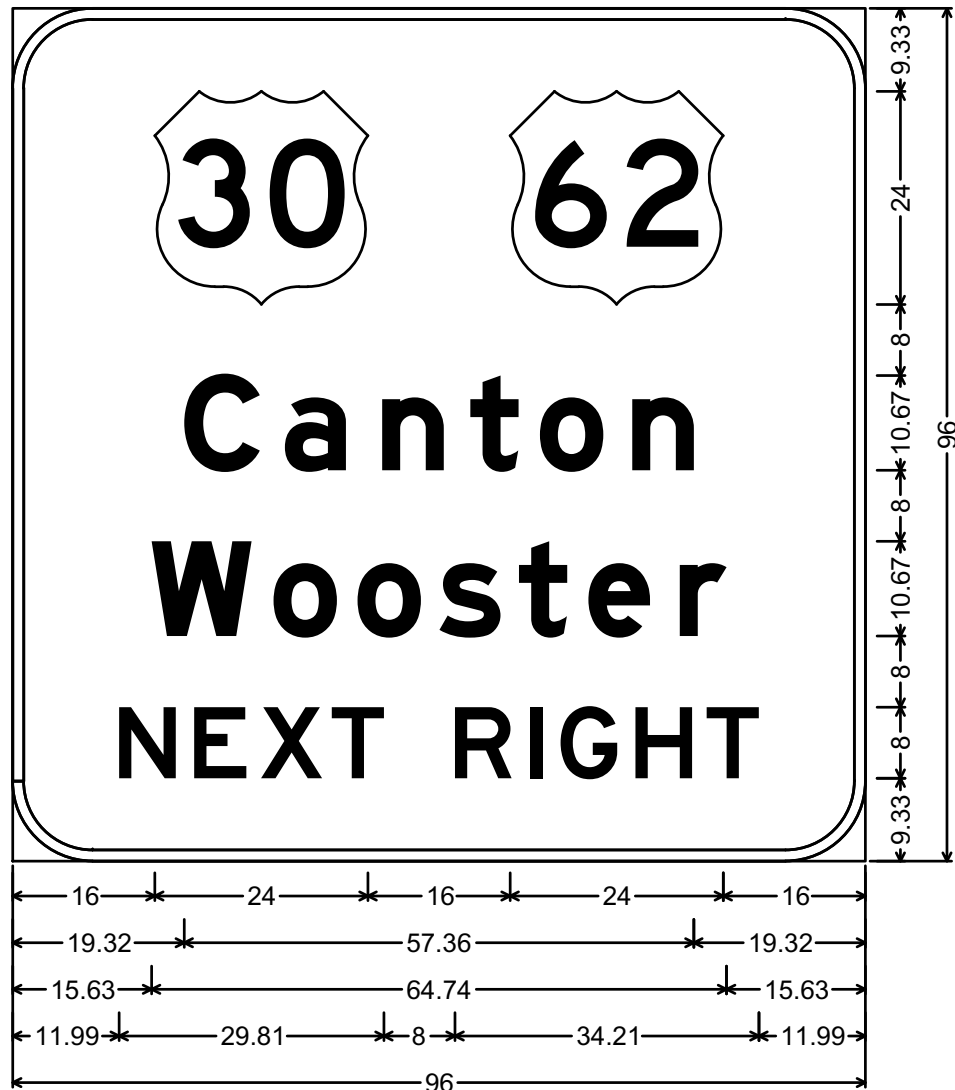


**ERIE AVE (US 62/SR 21)/
ORTT ST IMPROVEMENTS**

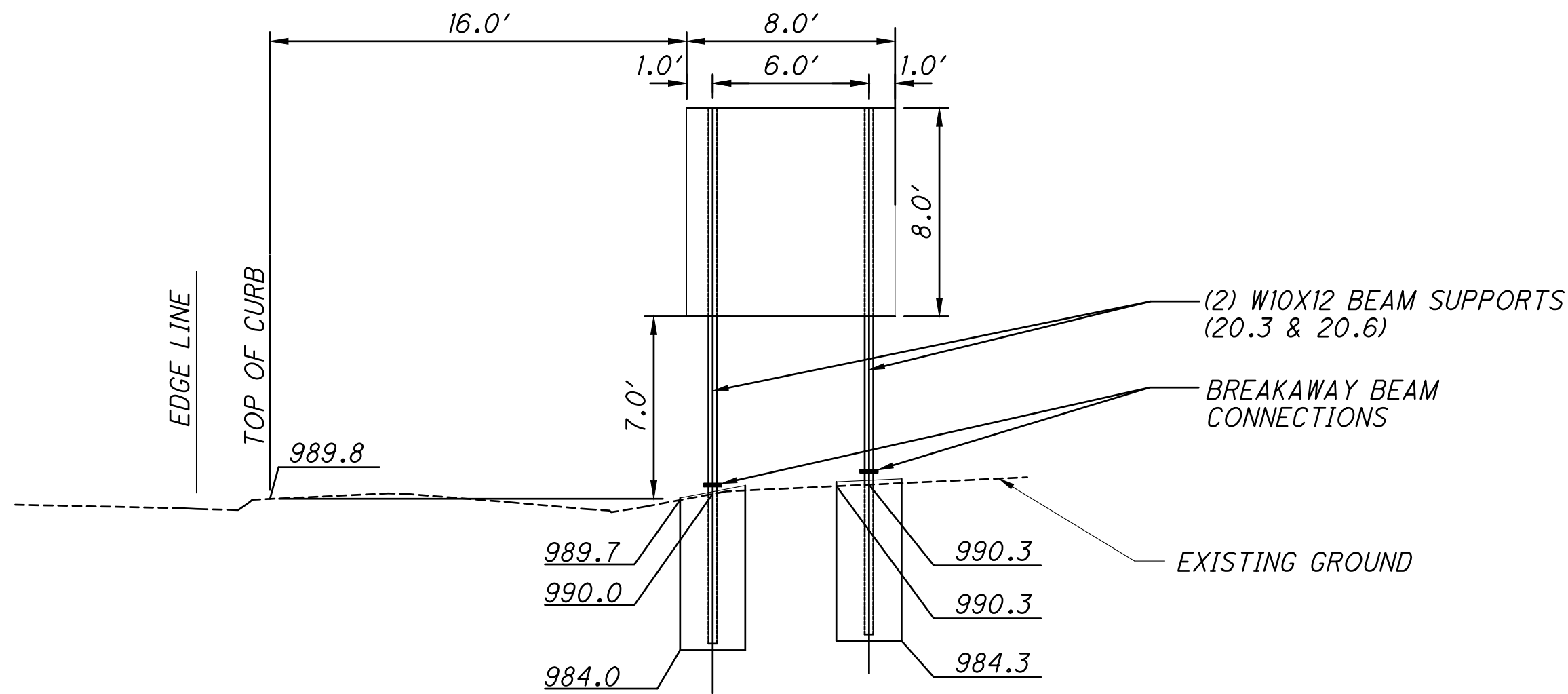
FOR TRAFFIC CONTROL LEGEND, SEE SHEET 56.

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SIGN INFORMATION	
PANEL A	
DESIGN LEVEL:	3
SIGN DESIGNATION:	SPECIAL
TEXT FONT:	E MOD/E
PANEL SIZE:	8' X 8'
BACKGROUND:	GREEN
FILL COLOR:	WHITE
PROPOSED BEAM INFORMATION	
TOTAL SIGN AREA:	64.0 SQ. FT.
DESIGN TYPE:	W10X12
SIZE:	9-7/8" X 4"
FOUNDATION INFORMATION	
DIAMETER:	30"
DEPTH:	6.0'



PANEL A
N.T.S.



5 BEAM SUPPORT TYPE W10X12
STA. 123+50, US 62 NORTHBOUND

NOTES:

1. CONTRACTOR SHALL FIELD VERIFY EXISTING ELEVATIONS PRIOR TO THE ORDERING OF ANY MATERIALS.
2. ALL SIGNS ARE VIEWED IN THE DIRECTION OF TRAVEL.
3. CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES IN FIELD PRIOR TO ANY EXCAVATION.

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NOTIFICATION

THE CONTRACTOR SHALL GIVE THE PROJECT ENGINEER AND THE CITY OF MASSILLON, 330-833-5746, 10 WORKING DAYS NOTICE PRIOR TO THE NEW SIGNAL BEING PLACED IN OPERATION.

THE SIGNAL INSTALLATION SHALL BE INSPECTED BY CITY OF MASSILLON PERSONNEL. ALL DEFICIENCIES SHALL BE CORRECTED BY THE CONTRACTOR AND APPROVED BY THE CITY OF MASSILLON.

GUARANTEE

THE CONTRACTOR SHALL GUARANTEE THAT THE TRAFFIC CONTROL SYSTEM INSTALLED AS PART OF 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 THE CONTRACTOR SHALL CORRECT FAULTY INSTALLATIONS, 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 ALL ITEMS ASSOCIATED WITH THE TRAFFIC SIGNAL SYSTEMS.

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

WORK INSPECTION

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

SIGNAL ACTIVATION

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

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

GROUNDING AND BONDING

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

- A. ALL METALLIC PARTS CONTAINING ELECTRICAL CONDUCTORS SHALL BE PERMANENTLY JOINED TO FORM AN EFFECTIVE GROUND FAULT CURRENT PATH BACK TO THE GROUNDED CONDUCTOR IN THE POWER SERVICE DISCONNECT SWITCH. PROVIDE AN EQUIPMENT GROUNDING CONDUCTOR IN METALLIC CONDUITS (725.04) IN ADDITION TO THE CONDUCTORS SPECIFIED AND BOND THE CONDUIT TO THIS GROUNDING CONDUCTOR.
- B. WHEN AN EQUIPMENT GROUNDING CONDUCTOR IS REQUIRED IN PLASTIC CONDUIT (725.05), THE INSTALLATION SHALL INCLUDE A SEPARATE EQUIPMENT GROUNDING CONDUCTOR IN ADDITION TO THE CONDUCTORS SPECIFIED.
- C. METALLIC CONDUIT CARRYING THE LOOP WIRES FROM IN THE PAVEMENT TO THE PULL BOX SPLICE LOCATION WILL ONLY BE BONDED AT THE PULL BOX END, AND WILL NOT CONTAIN AN EQUIPMENT GROUNDING CONDUCTOR.
- D. IF MULTIPLE CONDUIT RUNS BEGIN AND END AT THE SAME POINTS, ONLY ONE EQUIPMENT GROUNDING CONDUCTOR IS REQUIRED.
- E. IF AN EQUIPMENT GROUNDING CONDUCTOR IS NEEDED IN CONDUIT BETWEEN SIGNALIZED INTERSECTIONS FOR UNDERGROUND INTERCONNECT CABLE, THE GROUNDING SYSTEM FOR EACH SIGNALIZED INTERSECTION WILL BE SEPARATED ABOUT MIDWAY BETWEEN THE INTERSECTIONS.
- F. THE MESSENGER WIRE AT SIGNALIZED INTERSECTIONS WILL BE USED AS THE CONDUCTIVE PATH FROM CORNER TO CORNER IF CONDUIT IS NOT PROVIDED UNDER THE ROADWAY. WHEN CONDUIT CONNECTS THE CORNERS OF AN INTERSECTION, AN EQUIPMENT GROUNDING CONDUCTOR SHALL BE USED IN THE CONDUIT.

2. CONDUITS.

- A. THE 725.04 CONDUIT SHALL HAVE GROUNDING BUSHINGS INSTALLED AT ALL TERMINATION POINTS. THE BUSHING MATERIAL SHALL BE COMPATIBLE WITH GALVANIZED STEEL CONDUIT AND THE GROUNDING LUG MATERIAL SHALL BE COMPATIBLE FOR USE WITH COPPER WIRE. THREADED OR COMPRESSION TYPE BUSHINGS MAY BE USED.
- B. THE 725.05 CONDUIT SHALL HAVE THE INSIDE AND OUTSIDE DIAMETERS OF THE CONDUIT DEBURRED AT ALL TERMINATION POINTS.
- C. BOTH ENDS OF METALLIC CONDUIT SHALL BE BONDED TO THE EQUIPMENT GROUNDING CONDUCTOR.
- D. METALLIC CONDUIT MAY BE BONDED TO METALLIC BOXES THROUGH THE USE OF CONDUIT FITTINGS UL APPROVED FOR THIS TYPE OF CONNECTION, WITH THE BOX BONDED TO THE EQUIPMENT GROUNDING CONDUCTOR.

3. WIRE FOR GROUNDING AND BONDING.

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

GROUNDING AND BONDING (CONT.)

- i. USE 4 AWG BETWEEN THE POWER SERVICE AND SUPPORTS, POLES, PEDESTALS, CONTROLLER OR FLASHER CABINETS.
- ii. USE A MINIMUM 8 AWG BETWEEN LOOP DETECTOR PULL BOXES AND THE FIRST CONDUIT THAT REQUIRES A LARGER SIZE AS SPECIFIED IN 3.A.I ABOVE.
- iii. USE A MINIMUM 8 AWG BETWEEN THE "PREPARE TO STOP WHEN FLASHING" INSTALLATION (INCLUDING SUPPORT) AND THE FIRST CONDUIT THAT REQUIRES A LARGER SIZE AS SPECIFIED IN 3.A.I ABOVE.
- iv. THE INSULATION SHALL BE GREEN OR GREEN WITH YELLOW STRIPE(S). FOR 4 AWG OR LARGER, INSULATION MAY ALSO BE BLACK WITH GREEN TAPE/LABELS INSTALLED AT ALL ACCESS POINTS.
- B. IN A HIGHWAY LIGHTING SYSTEM, THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE THE SAME WIRE SIZE AS THE DUCT CABLE OR DISTRIBUTION CABLE CIRCUIT CONDUCTORS, WITH THE MINIMUM CONDUCTOR SIZE OF 4 AWG. BONDING JUMPERS WILL BE MINIMUM SIZE 4 AWG.
- 4. GROUND ROD.
 - A. A 3/4 INCH SCHEDULE 40 PVC CONDUIT WILL BE USED IN FOUNDATIONS AND CONCRETE WALLS FOR THE GROUNDING CONDUCTOR (GROUND WIRE) RACEWAY TO THE GROUND ROD. SHOULD METALLIC CONDUIT BE USED, BOTH ENDS OF THE CONDUIT SHALL BE BONDED TO THE GROUNDING CONDUCTOR.
 - B. THE TYPICAL GROUNDING CONDUCTOR (GROUND WIRE) SHALL BE 4 AWG INSULATED, COPPER.
- 5. THE GREEN CONDUCTOR IN SIGNAL CABLES (CONDUCTOR #4) SHALL NOT BE USED TO SUPPLY POWER TO A SIGNAL INDICATION. IT WILL BE CONNECTED TO THE SIGNAL BODY AS AN EQUIPMENT GROUND IN ALUMINUM HEADS AND IT WILL BE UNUSED IN PLASTIC HEADS. UNUSED CONDUCTORS SHALL BE GROUNDED IN THE CABINET. TYPICAL USE OF CONDUCTORS IS AS FOLLOWS:

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

6. POWER SERVICE AND DISCONNECT SWITCH.

- A. AT THE POWER SERVICE LOCATION, THE GROUNDING CONDUCTOR (GROUND WIRE) FROM THE DISCONNECT SWITCH NEUTRAL (AC-) BAR TO THE GROUND ROD SHALL BE A CONTINUOUS, UNSPLICED CONDUCTOR. IF SPLICED, IT SHALL BE AN EXOTHERMIC WELD BUTT SPLICE.
- B. THE SERVICE NEUTRAL (AC-) SHALL ONLY BE CONNECTED TO GROUND AT THE PRIMARY POWER SERVICE DISCONNECT SWITCH.
 - i. NEMA CONTROLLER CABINETS: IF A POWER SERVICE DISCONNECT SWITCH IS LOCATED BEFORE THE CONTROLLER CABINET, THE NEUTRAL (AC-) AND THE GROUNDING BARS IN THE CONTROLLER CABINET SHALL NOT BE CONNECTED TOGETHER AS SHOWN IN NEMA TS-2, FIGURE 5-4.
 - ii. IF SECONDARY DISCONNECT SWITCHES ARE CONNECTED AFTER THE PRIMARY DISCONNECT SWITCH, THE NEUTRAL (AC-) SHALL ONLY BE GROUNDED AT THE PRIMARY SWITCH. EQUIPMENT GROUNDING CONDUCTORS SHALL BE BROUGHT TO THE PRIMARY SWITCH, BUT SHALL BE GROUNDED AT BOTH SECONDARY AND PRIMARY SWITCHES.

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

DETECTION MAINTENANCE

IF VEHICLE DETECTION BECOMES UNEXPECTEDLY DISABLED, REQUIRES MODIFICATION, OR IS SCHEDULED TO BE TEMPORARILY REMOVED DURING THE CONSTRUCTION PROJECT, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE PROJECT ENGINEER AND THE CITY OF MASSILLON.

IF THE LOSS OF VEHICLE DETECTION IS KNOWN PRIOR TO THE START OF CONSTRUCTION, IT SHALL BE DISCUSSED AT THE PRECONSTRUCTION MEETING. AT SUCH TIME, THE CITY OF MASSILLON SHALL ADVISE THE PROJECT ENGINEER AND CONTRACTOR ON THE APPROPRIATE ACTION TO RECTIFY ANY LOSS OF VEHICLE DETECTION. THIS MAY INCLUDE PLACING THE TRAFFIC SIGNAL ON MINIMUM OR MAXIMUM RECALL, MODIFYING THE MINIMUM GREEN TIMES, AND REMOVING THE MALFUNCTIONING DETECTION FROM SERVICE. WHERE NONINTRUSIVE DETECTION (I.E. VIDEO, RADAR) ALREADY EXISTS, THE CONTRACTOR SHALL INSURE THAT DETECTION IS OPERATING AND MAINTAINED BY RECONFIGURING THE DETECTION UNITS ACCORDINGLY DURING ALL CONSTRUCTION PHASES. THIS IS TO AVOID THE SIGNAL FROM MAXING OUT THE EFFECTED SIGNAL PHASE AND CREATING UNNECESSARY DELAYS.

LOCATIONS WHERE NON-INTRUSIVE DETECTION IS PROPOSED AND THE EXISTING VEHICLE DETECTION IS TO BE ABANDONED, THE NON-INTRUSIVE VEHICLE DETECTION SHALL BE INSTALLED, CONFIGURED AND MADE FULLY FUNCTIONAL PRIOR TO THE EXISTING DETECTION BEING DISABLED. THE CONTRACTOR SHALL CONTINUE TO MAINTAIN AND MODIFY THE DETECTION UNTIL FINAL ACCEPTANCE OF THE TRAFFIC SIGNAL. THIS IS TO ENSURE VEHICLE DETECTION REMAINS FULLY FUNCTIONAL THROUGHOUT CONSTRUCTION.

ITEM 632 - TEST HOLE PERFORMED

IT IS ANTICIPATED THAT THE CONTRACTOR WILL ENCOUNTER UNDERGROUND UTILITIES WHILE EXCAVATING FOR SIGNAL SUPPORT FOUNDATIONS. IF, AFTER ACCURATELY IDENTIFYING THE PROPOSED LOCATION OF THE FOUNDATION, AS SHOWN IN THE PLAN, AND AFTER MODIFYING THAT LOCATION, IF NECESSARY, BASED ON THE FIELD MARKING OF UNDERGROUND UTILITY LOCATION, THE CONTRACTOR DISCOVERS A UTILITY CONFLICT DURING HIS EXCAVATION OPERATION, HE WILL BE COMPENSATED FOR THE LABOR AND EQUIPMENT COST ASSOCIATED FOR EACH PARTIAL FOUNDATION EXCAVATION ACCORDING TO HIS BID PRICE.

BEFORE THE CONTRACTOR BEGINS THE EXCAVATION AT THE MODIFIED LOCATION, HE SHALL VERIFY THAT THERE WILL BE NO OVERHEAD UTILITY CONFLICTS RESULTING FROM THE NEW SIGNAL SUPPORT LOCATION. NEW SUPPORT LOCATIONS ARE TO BE APPROVED BY THE ENGINEER.

THE CONTRACTOR'S WORK UNDER THIS BID ITEM SHALL INCLUDE BACKFILLING, COMPACTING, AND RESTORATION OF THE EXCAVATION TO ITS ORIGINAL CONDITION.

EXCAVATIONS SHALL NOT BE LEFT OPEN OVERNIGHT.

PAYMENT FOR THIS ITEM SHALL BE AT THE UNIT PRICE BID PER EACH ITEM 632 - TEST HOLE PERFORMED. A QUANTITY OF 1 HAS BEEN PROVIDED FOR THE PROJECT TO BE USED AS DIRECTED BY THE ENGINEER.

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ITEM 632 - SIGNAL SUPPORT FOUNDATION, AS PER PLAN

PRIOR TO ORDERING THE SIGNAL SUPPORTS, THE CONTRACTOR SHALL CONTACT OUPS TO HAVE ALL THE UTILITIES LOCATED IN THE FIELD. THEN, THE CONTRACTOR SHALL MEET THE PROJECT ENGINEER TO LOCATE THE PROPOSED SUPPORT LOCATIONS TO INSURE THERE ARE NO CONFLICTS WITH UTILITIES. IF THERE ARE ISSUES, THE PROJECT ENGINEER SHALL PROVIDE GUIDANCE AS TO THE RELOCATION OF THE SUPPORTS.

DUE TO THE FURTHER POSSIBILITY OF CONFLICT WITH EXISTING OR PROPOSED UNDERGROUND OBSTRUCTIONS (INCLUDING THE POSSIBILITY OF UNRECORDED OBSTRUCTIONS) WHICH COULD AFFECT THE LOCATION OF THE FOUNDATION FOR THIS ITEM, AND CONSEQUENTLY, THE DESIGN OF THE SUPPORT AND/OR ARMS, THE CONTRACTOR SHALL NOT PLACE FINAL ORDERS FOR THE ITEM UNTIL THE FOUNDATIONS HAVE BEEN INSTALLED, AT FINAL GRADE, AND THE CONTRACTOR HAS RECEIVED, FROM ENGINEER, WRITTEN NOTICE TO PROCEED WITH THE ORDERS FOR THE ITEM.

IF ANY FOUNDATION LOCATIONS MUST BE ADJUSTED, THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND MAINTAINING AGENCY, WHO WILL DETERMINE THE REVISED LOCATION AND IF NEEDED, THE SUPPORT DESIGN. THE CONTRACTOR WILL NOT BE RESPONSIBLE FOR DETERMINING THE REVISED DESIGN. THE ENGINEER WILL INFORM THE CONTRACTOR OF ANY CHANGES NECESSARY AND AUTHORIZE THE CONTRACTOR TO ORDER THE SUPPORT.

THE CONTRACTOR SHALL, WHEN DEVELOPING THE PROGRESS SCHEDULE, AND THOSE OF SUBCONTRACTORS, ENSURE THAT THE FOUNDATIONS ARE INSTALLED AT THE EARLIEST TIME AS IS FEASIBLE AND PRACTICAL, AND SHALL INCLUDE SUFFICIENT TIME IN THE PROGRESS SCHEDULE FOR ORDERING, MANUFACTURING, DELIVERY, AND INSTALLATION OF THE SUPPORT ITEMS AFTER THE FOUNDATIONS ARE IN PLACE.

NO PAYMENTS FOR DELIVERED MATERIALS FOR THE FOUNDATION OR SUPPORT ITEMS SHALL BE MADE UNTIL THE FOUNDATIONS ARE IN PLACE, AND IF CHANGES IN THE DESIGN OF THIS ITEM ARE REQUIRED, NO PAYMENT SHALL BE MADE FOR THE ITEMS MANUFACTURED TO THE ORIGINAL DESIGN.

PAYMENT WILL BE AT THE CONTRACT UNIT PRICE AND WILL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS, TOOLS, EQUIPMENT AND OTHER INCIDENTALS NECESSARY FOR EACH SUPPORT FURNISHED, IN PLACE, COMPLETE AND ACCEPTED.

ITEM 632 - SIGNAL SUPPORT, TYPE TC-81.22, DESIGN 14, AS PER PLAN
ITEM 632 - SIGNAL SUPPORT, TYPE TC-12.31, DESIGN 10 POLE, WITH MAST ARMS TC-81.22 DESIGN 13 AND DESIGN 13, AS PER PLAN

THIS ITEM SHALL CONFORM TO ITEM 632.15 AND 732.11, EXCEPT THAT POLES SHALL BE TAPERED TUBES OF CONTINUOUS TAPER. POLES CONSISTING OF STRAIGHT SECTIONS WITH A TAPERED EFFECT ACCOMPLISHED BY THE USE OF REDUCERS SHALL NOT BE PERMITTED. POLES SHALL BE ROUND IN SHAPE. OCTAGON SHAPED POLES ARE NOT PERMITTED.

PAYMENT SHALL BE AT THE CONTRACT UNIT PRICE AND SHALL INCLUDE ALL LABOR, MATERIALS, EQUIPMENT AND OTHER INCIDENTALS NECESSARY FOR EACH SIGNAL SUPPORT FURNISHED, IN PLACE, COMPLETE AND ACCEPTED.

ITEM 632 - SIGNALIZATION, MISC.: REMOVAL AND RE-ERECTION OF VIDEO DETECTION CAMERAS

IN ADDITION TO C&MS 632.26, THE CONTRACTOR SHALL REMOVE THE EXISTING SIGNAL EQUIPMENT, INCLUDING THE VIDEO DETECTION CAMERAS, MOUNTING HARDWARE, AND ALL ASSOCIATED CABLES, AND RE-ERECT THE EQUIPMENT AT THE LOCATIONS DETAILS IN THE TRAFFIC SIGNAL PLANS.

THE CONTRACTOR SHALL TAKE GREAT CARE AS TO NOT DAMAGE THE EXISTING SIGNAL EQUIPMENT, AS IT IS THE DESIGNER'S INTENT TO REUSE THE EQUIPMENT. IF IT IS DETERMINED BY THE ENGINEER THAT THE EXISTING EQUIPMENT DESIGNATED FOR REUSE HAS BEEN DAMAGED BY CONTRACTOR NEGLIGENCE, THEN THE EQUIPMENT SHALL BE REPLACED IN LIKE KIND AT THE COST OF THE CONTRACTOR.

NEW WIRING AND MOUNTING HARDWARE SHALL BE PROVIDED AS NECESSARY TO INSTALL THE EQUIPMENT AND CONNECT IT TO THE CONTROLLER CABINET. ANY NEW MATERIALS SHALL BE CONSIDERED INCIDENTAL TO THIS PAY ITEM.

PAYMENT SHALL BE MADE AT THE CONTRACT UNIT BID PRICE AND SHALL INCLUDE ALL LABOR, MATERIALS, EQUIPMENT, AND ANY NECESSARY HARDWARE TO INSTALL THE EQUIPMENT AND RETURN IT TO A FULLY OPERATIONAL STATUS.

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

TRAFFIC SIGNAL INSTALLATIONS, INCLUDING SIGNAL HEADS, CABLE, MESSENGER WIRE, STRAIN POLES, CABINET, CONTROLLER, PULL BOXES, ETC., SHALL BE REMOVED IN ACCORDANCE WITH C&MS 632.26 AND AS INDICATED ON THE PLANS. REMOVED ITEMS SHALL BE REUSED AS PART OF A NEW INSTALLATION ON THE PROJECT OR STORED ON THE PROJECT FOR SALVAGE BY THE CITY OF MASSILLON. THE CONTRACTOR SHALL CONTACT THE CITY AT (330) 833-5746 TO ARRANGE A MUTUALLY AGREEABLE TIME TO DELIVER THE SIGNAL MATERIALS.

ITEMS TO BE REUSED:
- VIDEO DETECTION CAMERAS

REMOVED ITEMS SHALL BE DELIVERED OR DISPOSED OF SHALL BE PER THE REMOVAL CHART ON THE SIGNAL PLAN.

IN THE EVENT THE ITEMS STORED ON THE PROJECT FOR SALVAGE BY THE LOCAL AGENCY ARE NOT REMOVED, THE CONTRACTOR SHALL, WHEN DIRECTED BY THE ENGINEER IN WRITING, REMOVE AND DISPOSE OF THE ITEMS AT NO ADDITIONAL COST TO THE PROJECT.

ITEMS NOT SPECIFIED FOR STORAGE SHALL BE DISPOSED OF BY THE CONTRACTOR.

ITEM 632 - VEHICULAR SIGNAL HEAD, (LED), 5-SECTION, 12" LENS, 1-WAY, POLYCARBONATE, AS PER PLAN

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

- SIGNAL HEADS AND VISORS SHALL BE CONSTRUCTED OF YELLOW POLYCARBONATE PLASTIC WITH VISORS AS SPECIFIED AND MEET ITE SPECIFICATIONS.
- PROPER EXTERIOR COLORS SHALL BE OBTAINED BY USE OF COLORED PLASTIC MATERIAL RATHER THAN PAINTING.
- THE ENTRANCE FITTING SHALL BE OF THE TRI-STUD DESIGN WITH SERRATED RINGS IN ORDER TO ACHIEVE POSITIVE LOCKING.
- ALL SIGNAL HEADS SHALL BE RIGIDLY MOUNTED TO THE MAST ARM WITH THE YELLOW MODULE LOCATED IN FRONT OF THE MAST ARM.
- THE LIGHT EMITTING DIODE (LED) MODULES SHALL MEET THE REQUIREMENTS OF C&MS 732.04-C. THE CONTRACTOR SHALL PROVIDE THE CITY OF MASSILLON, IN WRITING, WITH THE LED MANUFACTURER NAME, SERIAL NUMBER, PART NUMBER, DESCRIPTION OF LAMP, AND DATE OF MANUFACTURE FOR ALL LED UNITS THAT ARE TO BE USED IN THE SIGNAL HEAD PRIOR TO INSTALLATION, FOR ACCEPTANCE AND WARRANTY PURPOSES.
- SIGNAL HEADS SHALL HAVE A MINIMUM WALL THICKNESS OF 0.117 INCHES.
- SIGNAL HEADS SHALL INCLUDE CUTAWAY TYPE VISORS UNLESS OTHERWISE SPECIFIED IN THE PLANS.
- APPLY A BEAD OF SILICONE TO THE SIGNAL HEAD, WASHER, AND ENTRANCE ADAPTER SERRATIONS TO PREVENT WATER INTRUSION. ALSO, FILL THE SPACE BETWEEN CONCENTRIC SERRATION RINGS ON THE TOP OF THE SIGNAL HEAD TO COMPLETELY EXCLUDE WATER FROM THE SPACE BETWEEN THE CONCENTRIC RINGS.

PAYMENT FOR ITEM 632 - VEHICULAR SIGNAL HEAD, (LED), 5-SECTION, 12" LENS, 1-WAY, POLYCARBONATE, AS PER PLAN SHALL BE MADE FOR COMPLETE SIGNAL HEAD FURNISHED AND INSTALLED, INCLUDING ALL LABOR, EQUIPMENT, MATERIALS, AND NEW ATTACHMENT HARDWARE.

ITEM 633 - CONTROLLER ITEM, MISC.: CABINET MODIFICATIONS

THE CONTRACTOR SHALL BE RESPONSIBLE FOR UPDATING THE EXISTING CONTROLLER TO INCORPORATE THE CHANGES IN THE DETAILED TRAFFIC SIGNAL PLANS. THESE CHANGES SHALL INCLUDE, BUT ARE NOT LIMITED TO, INSTALLING NEW LOAD SWITCHES, RECONNECTING THE RELOCATED VIDEO CAMERAS, AND UPDATING THE EXISTING CONTROLLER WITH THE NEW TIMINGS AND PHASING PROVIDED IN THE PLANS. THE CONTRACTOR SHALL SUPPLY ALL NECESSARY LOAD SWITCHES, CABLES NOT INDIVIDUALLY QUANTIFIED, AND CABLE SPLICES TO RESTORE ALL SIGNAL EQUIPMENT TO WORKING ORDER.

PAYMENT SHALL BE MADE AT THE CONTRACT UNIT PRICE PER EACH AND SHALL INCLUDE ALL LABOR, EQUIPMENT, AND MATERIALS NECESSARY TO MODIFY THE CONTROLLER AS INDICATED IN THE PLANS AND RETURN THE TRAFFIC SIGNAL TO A FULLY OPERATIONAL STATUS.

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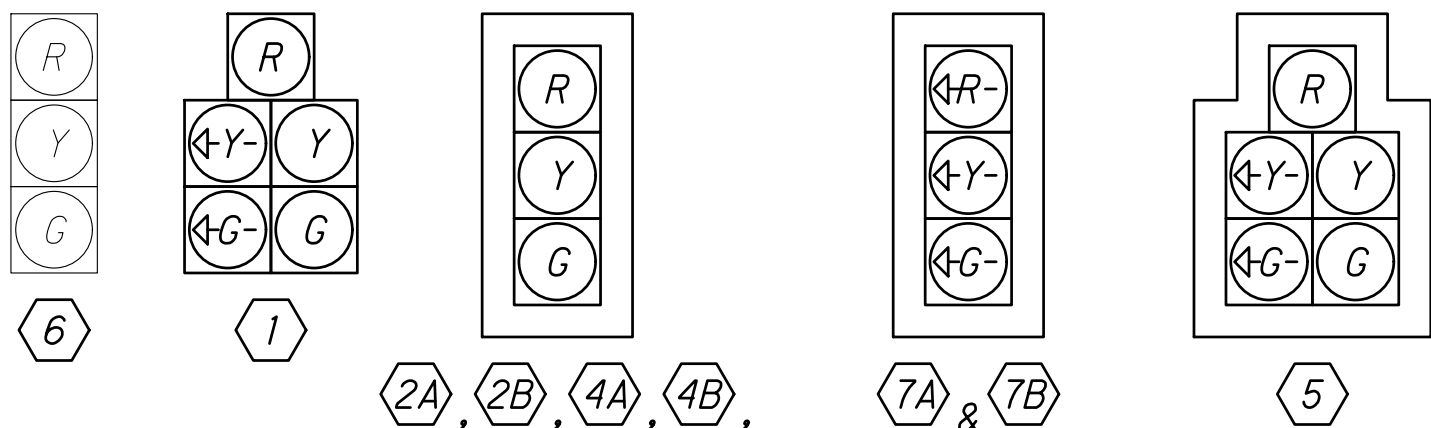
NOTES:

- THE CONTRACTOR SHALL ENSURE THAT ALL SIGNAL FACES ARE CLEARLY VISIBLE TO ALL ONCOMING VEHICLES; CLEAR OF ANY OBSTRUCTION ONCE MOUNTED TO THE MAST ARMS.
- THE CONTRACTOR SHALL FIELD VERIFY THE LOCATIONS OF ALL UTILITIES AND EXISTING SIGNAL EQUIPMENT PRIOR TO EXCAVATION.
- FOR REFERENCE TO SIGNS (A) , (B) , (C) & (D) , SEE SHEET 56.

REMOVAL CHART

QUANTITY	REMOVED ITEM DESCRIPTION	DISPOSED	REUSE
7	1-WAY VEHICULAR SIGNAL HEADS	X	
1	POLE MOUNTED CABINET & CONTROLLER		X
1	SIGNAL SUPPORTS	X	
2	MAST ARMS	X	
LUMP	VIDEO DETECTION SYSTEM		X
LUMP	SIGNAL CABLES	X	
LUMP	PULL BOXES	X	

SIGNAL TYPES



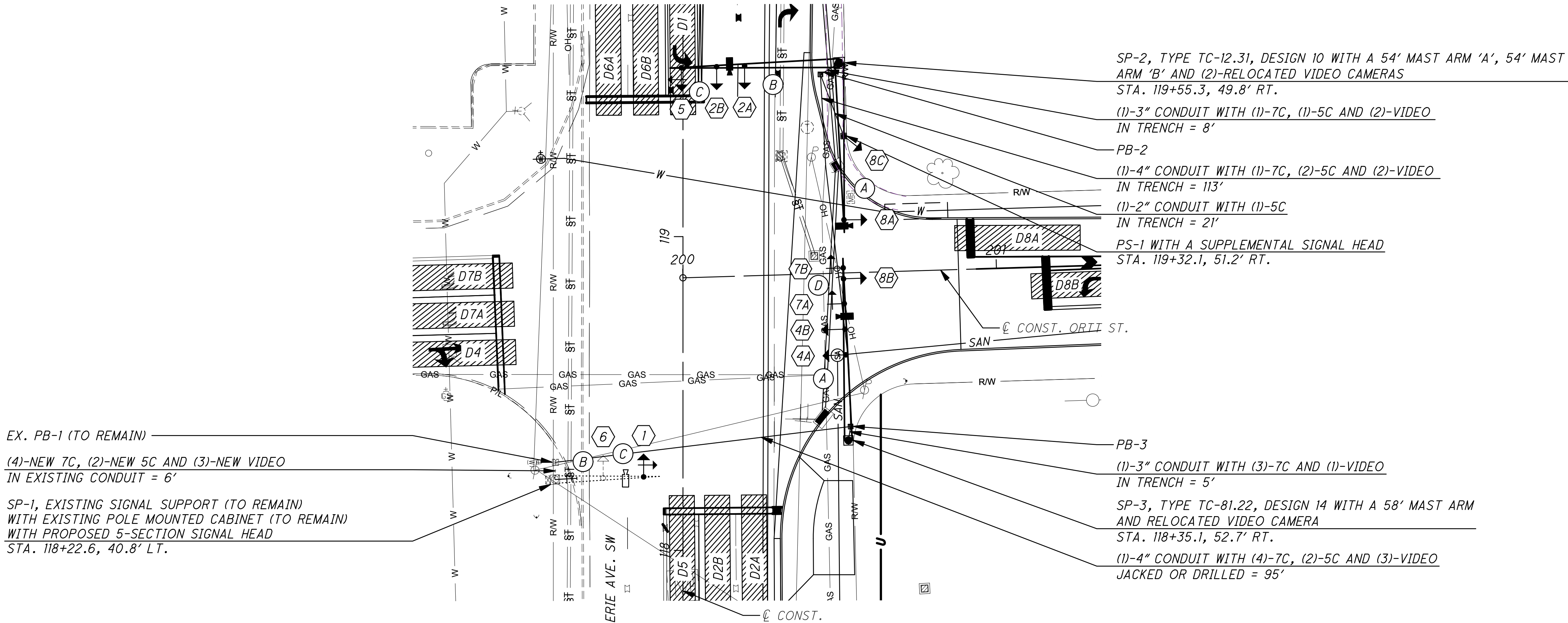
- ALL PROPOSED SIGNAL HEADS SHALL HAVE 12" LED LENSES.
- ALL PROPOSED SIGNAL HEADS SHALL BE YELLOW IN COLOR.
- ALL PROPOSED HEADS, EXCEPT SIGNAL HEAD (1), SHALL HAVE BACKPLATES.
- ALL PROPOSED SIGNAL HEAD VISORS SHALL BE CUTAWAY TYPE.

PULL BOX TABLE

PULL BOX #	STATION	SIDE	OFFSET	SIZE (IN.)
EX. PB-1	118+28.1	LT	40.7'	EX
PB-2	119+51.7	RT	43.8'	18 X 18
PB-3	118+39.5	RT	53.5'	18 X 18

LEGEND

	PROP.	EXIST.
SIGNAL SUPPORT POLE		
PEDESTAL SUPPORT		
TRAFFIC SIGNAL, 3 UNIT HEAD, 12" WITH ARROWS		
TRAFFIC SIGNAL, 5 UNIT HEAD, 12"		
CONTROLLER CABINET		
VIDEO DETECTION CAMERA		
DETECTION ZONE		
TRAFFIC PULL BOX		

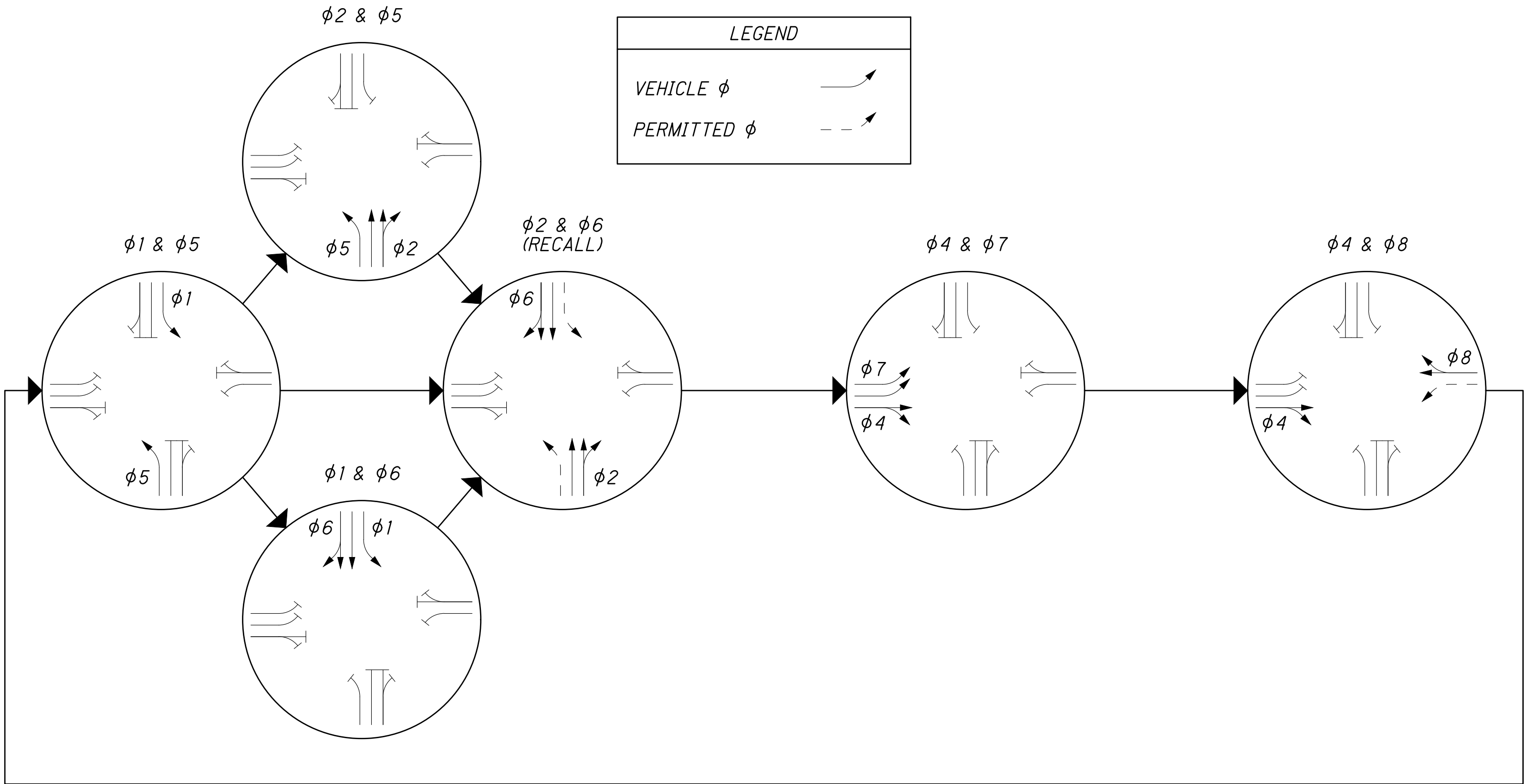


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SIGNAL TIMING CHART

INTERSECTION: ERIE AVE. / ORTT ST. MAINTAINING AGENCY: CITY OF MASSILLON									
START UP START IN: ALL-RED FLASH TIME FOR: FLASH , ALL RED (SEC.): 9, 6 FIRST PHASE(S): 2 & 6 COLOR DISPLAYED: GREEN		DUAL ENTRY: YES		PHASES: 2, 4, 6, 8					
		REST IN RED:		RING 1 -		RING 2 -			
		OVERLAP				A	B	C	D
		PHASES				-	-	-	-
INTERVAL OR FEATURE		CONTROLLER MOVEMENT NO.							
INTERSECTION MOVEMENT (PHASE)		1	2	3	4	5	6	7	8
DIRECTION		SB LT	NB	WB LT	EB	NB LT	SB	EB LT	WB
MINIMUM GREEN (INITIAL) (SEC.)		7	20	-	10	7	20	7	10
ADDED INITIAL *(SEC./ACTUATION)		-	-	-	-	-	-	-	-
MAXIMUM INITIAL *(SEC.)		-	-	-	-	-	-	-	-
PASSAGE TIME (PRESET GAP) (SEC.)		3.0	3.0	-	3.0	3.0	3.0	3.0	3.0
TIME BEFORE REDUCTION *(SEC.)		-	-	-	-	-	-	-	-
MINIMUM GAP *(SEC.)		-	-	-	-	-	-	-	-
TIME TO REDUCE *(SEC.)		-	-	-	-	-	-	-	-
MAXIMUM GREEN I (SEC.)		20	40	-	20	20	40	20	20
MAXIMUM GREEN II (SEC.)		-	-	-	-	-	-	-	-
YELLOW CHANGE (SEC.)		3.6	4.5	-	4.3	3.6	4.5	3.4	4.3
ALL RED CLEARANCE (SEC.)		2.3	1.0	-	1.1	2.3	1.0	1.9	1.1
DELAYED GREEN (LPI) # (SEC.)		-	-	-	-	-	-	-	-
FLASHING YELLOW ARROW DELAY^ (SEC.)		-	-	-	-	-	-	-	-
WALK (SEC.)		-	-	-	-	-	-	-	-
PEDESTRIAN CLEARANCE (SEC.)		-	-	-	-	-	-	-	-
RECALL	MAXIMUM (ON/OFF)	-	-	-	-	-	-	-	-
	MINIMUM (ON/OFF)	-	ON	-	-	-	ON	-	-
	PEDESTRIAN (ON/OFF)	-	-	-	-	-	-	-	-
MEMORY (ON/OFF)		-	-	-	-	-	-	-	-

PHASING DIAGRAM



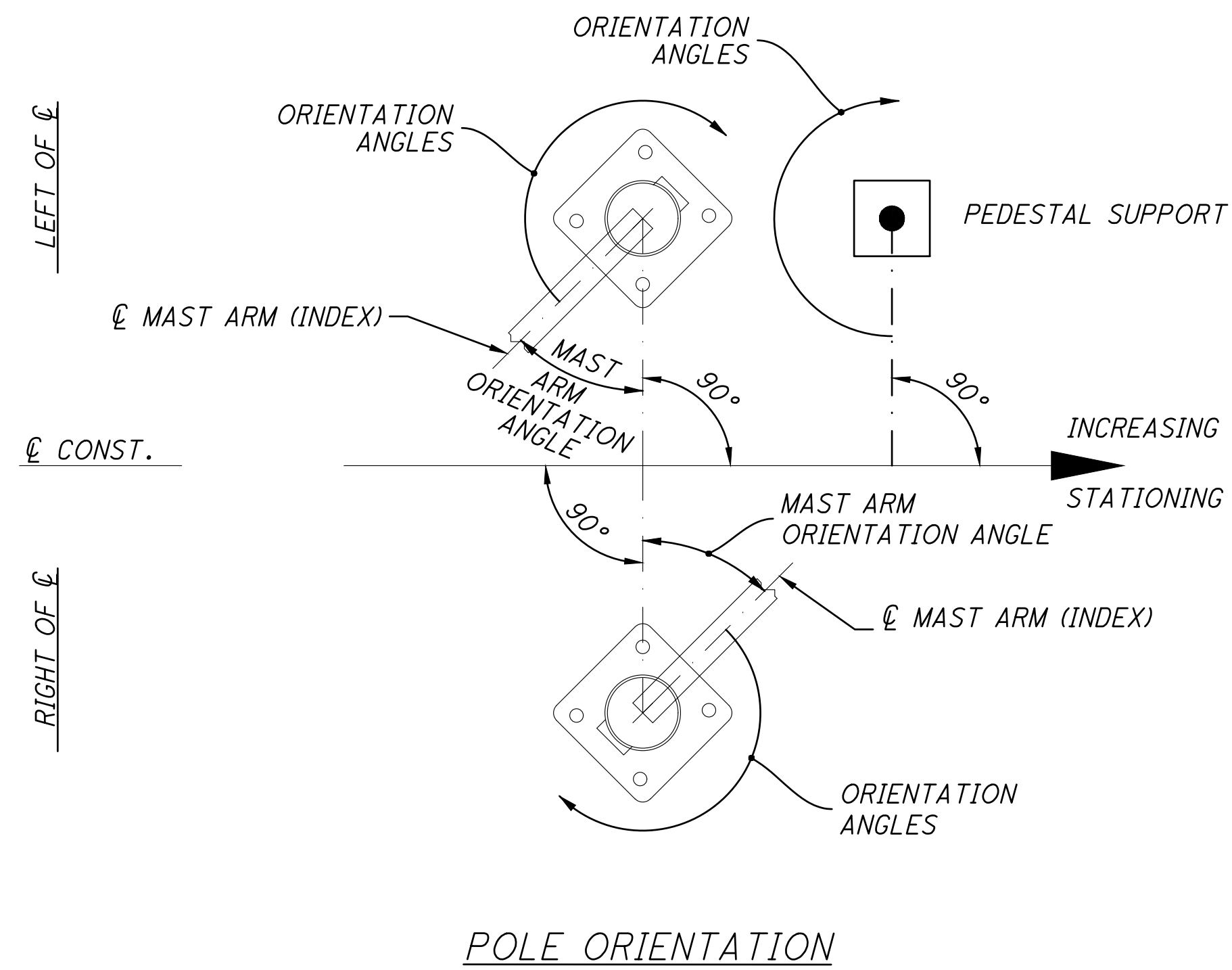
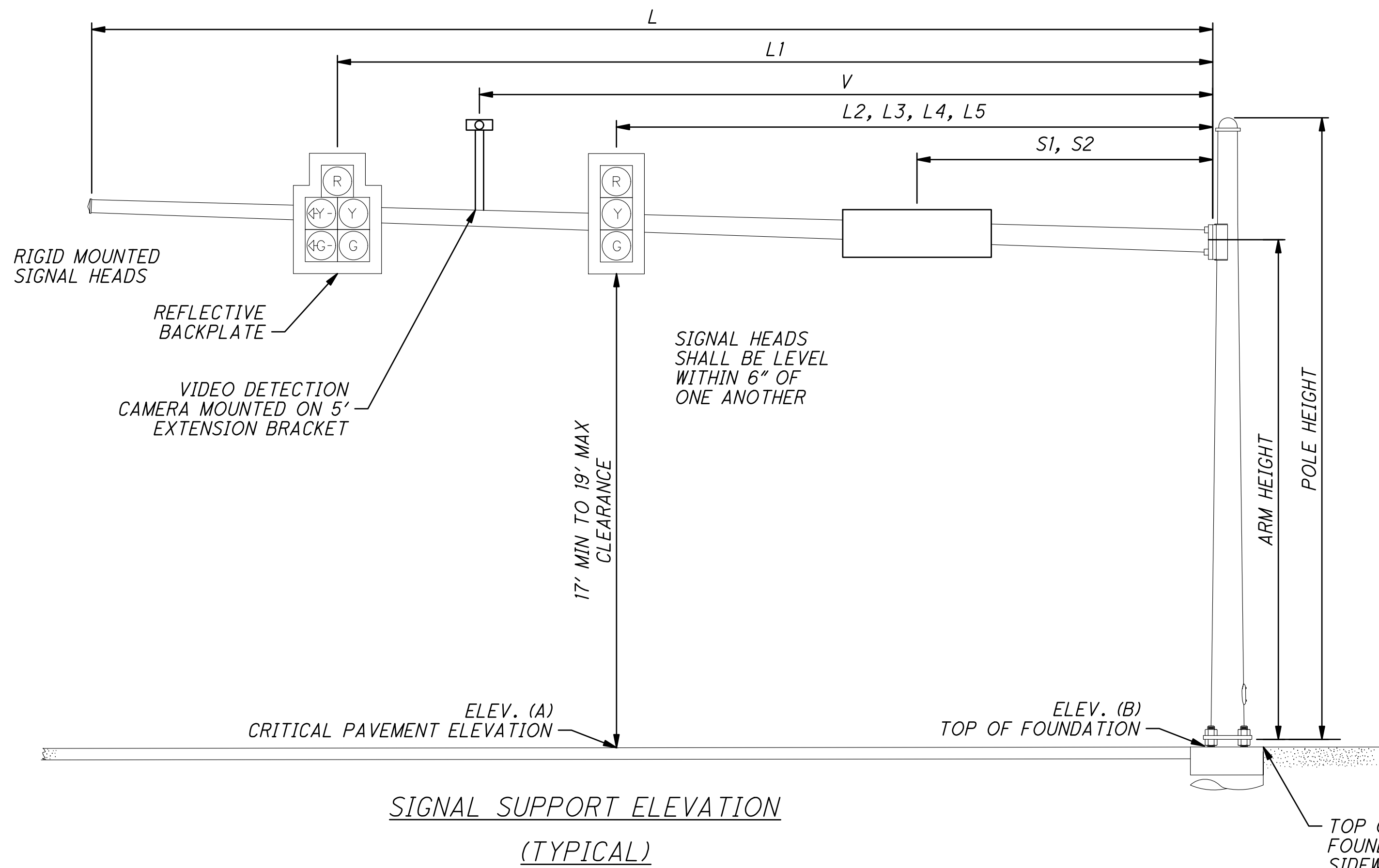
RADAR DETECTION CHART

DETECTION ZONE	SIZE	PULSE OR PRESENCE	ASSOCIATED PHASE	DELAY (SEC.)	DESCRIPTION
D1	8 X 40	PRESENCE	$\phi 1$	5	SB LEFT CALL
D2A	8 X 40	PRESENCE	$\phi 2$	-	NB CALL
D2B	8 X 40	PRESENCE	$\phi 2$	-	NB CALL
D4	8 X 40	PRESENCE	$\phi 4$	10	EB CALL
D5	8 X 40	PRESENCE	$\phi 5$	5	NB LEFT CALL
D6A	8 X 40	PRESENCE	$\phi 6$	-	SB CALL
D6B	8 X 40	PRESENCE	$\phi 6$	-	SB CALL
D7A	8 X 40	PRESENCE	$\phi 7$	-	EB LEFT CALL
D7B	8 X 40	PRESENCE	$\phi 7$	-	EB LEFT CALL
D8A	8 X 40	PRESENCE	$\phi 8$	10	WB CALL
D8B	8 X 40	PRESENCE	$\phi 8$	-	WB CALL

NOTES:

- ALL MOVEMENTS SHALL BE ACTUATED. THE PRIMARY THRU MOVEMENT SHOULD HAVE MIN RECALL ACTIVE TO REST IN GREEN.
- FOR PROTECTED/PERMISSIVE PHASES, IMPLEMENT CALL OMITS TO AVOID YELLOW BALL TRAP.
- ALL DETECTOR DELAYS SHALL BE PLACED IN THE CONTROLLER.

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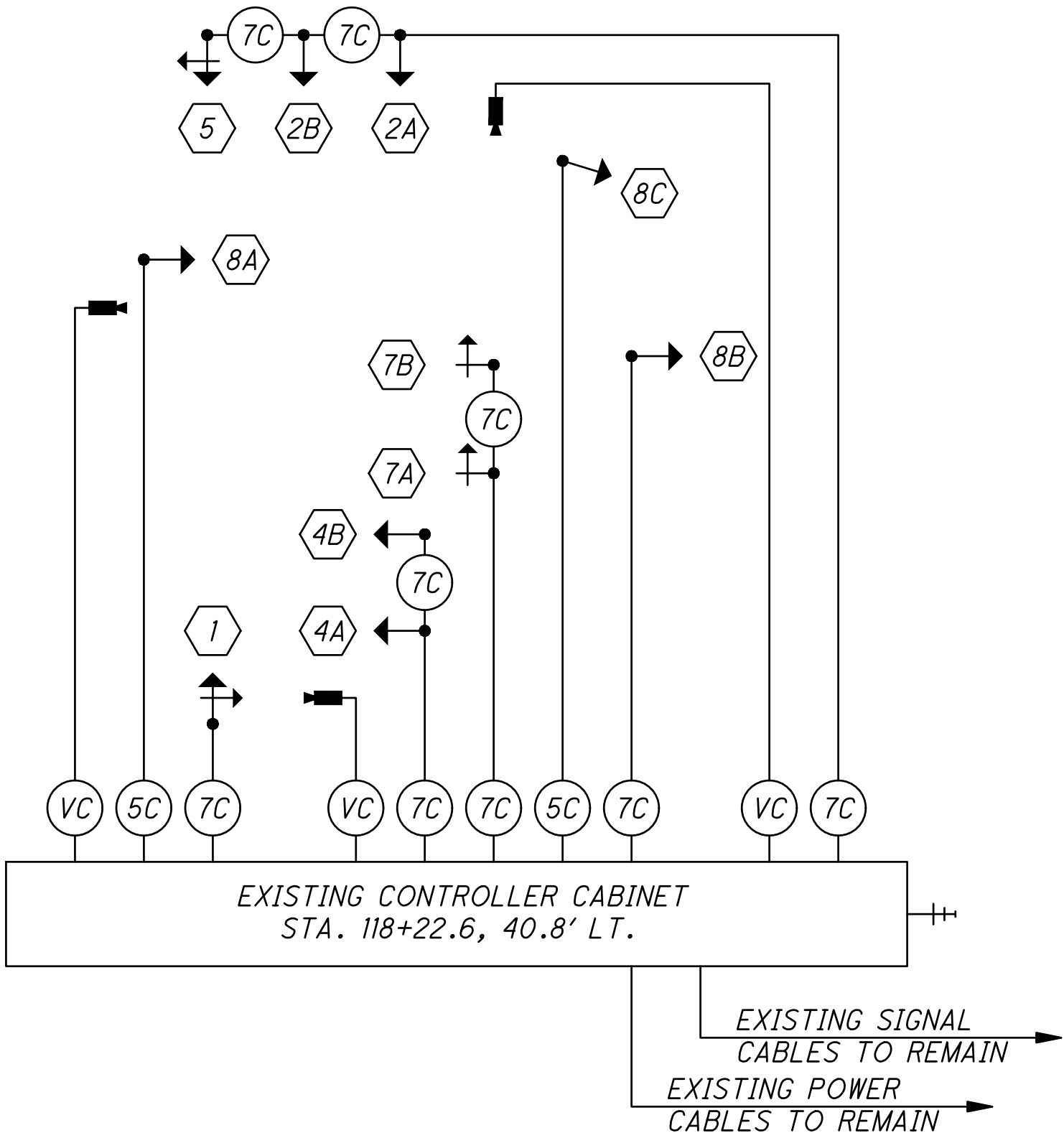


MAST ARM TABLE

SUPPORT NO.	ARM	STATION	OFFSET	ELEVATION		SIGNAL SUPPORT DETAILS														MAST ARM A ANGLE	ORIENTATION ANGLES FROM MAST ARM A		
				A (Pavt. Elev.)	B (Top of Found.)	DESIGN TYPE	DESIGN NO.	POLE HEIGHT	ARM HEIGHT	L	L1	L2	L3	L4	L5	S1	S2	V	MAST ARM B ANGLE		SUPPLEMENTAL SIGNAL HEAD	HANDHOLE	
SP-1	-	EX	EX	EX	EX	EX	EX	FT EX	FT EX	FT EX	FT 28	FT EX	FT -	FT -	FT -	FT 24	FT 5	FT EX	DEG EX	DEG EX	DEG -	DEG EX	
SP-2	A	119+55.3	49.8' RT.	988.91	989.15	TC-12.31	10	21	19.5	54	50.5	39	30	-	-	46.5	15	34.5	0	-	-	90	
-	B	-	-	987.45	-	-	-	21	19.5	54	50	-	-	-	-	30	-	51.5	-	270	-	-	
SP-3	-	118+35.1	52.7' RT.	987.54	989.71	TC-81.22	14	20	18.5	58	55	51.5	43.5	35.5	27.5	49.5	13.5	39.5	90	-	-	180	
PS-1	-	119+32.1	51.2' RT.	-	-	-	-	15	-	-	-	-	-	-	-	-	-	-	-	-	220	90	

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WIRING DIAGRAM



FIELD WIRING HOOK-UP CHART

SIGNAL HEAD	INDICATION	FIELD TERMINAL	FLASH
1 (SB LT)	R	Ø6 R	Y
	Y	Ø6 Y	
	G	Ø6 G	
	<--Y---	Ø1 Y	
	<--G---	Ø1 G	
2A, 2B (NB)	R	Ø2 R	Y
	Y	Ø2 Y	
	G	Ø2 G	
4A, 4B (EB)	R	Ø4 R	R
	Y	Ø4 Y	
	G	Ø4 G	
5 (NB LT)	R	Ø2 R	Y
	Y	Ø2 Y	
	G	Ø2 G	
	<--Y---	Ø5 Y	
	<--G---	Ø5 G	
7A, 7B (EB LT)	<--R---	Ø7 R	R
	<--Y---	Ø7 Y	
	<--G---	Ø7 G	
8A, 8B, 8C (WB)	R	Ø8 R	R
	Y	Ø8 Y	
	G	Ø8 G	
LS = LOAD SWITCH			

LEGEND

	5 SECTION VEHICULAR SIGNAL HEAD, 1-WAY
	3 SECTION VEHICULAR SIGNAL HEAD WITH ARROWS, 1-WAY
	3 SECTION VEHICULAR SIGNAL HEAD, 1-WAY
	VIDEO DETECTION CAMERA
	SPREAD SPECTRUM RADIO
	VIDEO CAMERA CABLE
	SIGNAL CABLE, 7 CONDUCTOR, NO. 14 AWG