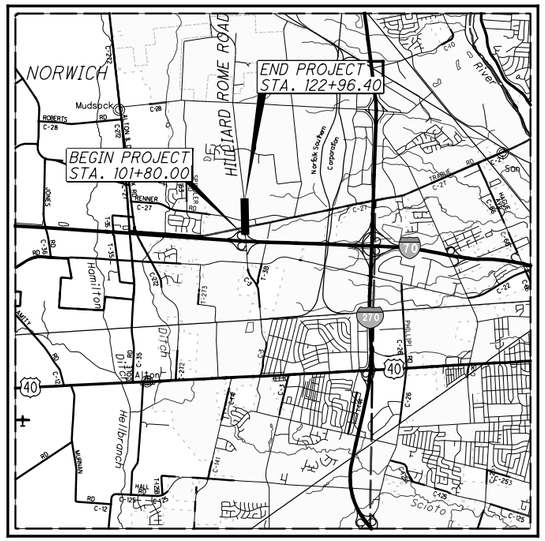
STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

HILLIARD ROME ROAD

FRANKLIN COUNTY
CITY OF COLUMBUS



LOCATION MAP

LATITUDE: 39 °58'53" LONGITUDE: 83 °09'03"

SCALE IN MILES

0 1 2 3 4

N

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

DESIGN DESIGNATION

	HILLIARD ROME RD	RAMP B	RAMP C
CURRENT ADT (2013)	26,910	6,440	11,520
DESIGN YEAR ADT (2033)	31710	7,040	13,380
DESIGN HOURLY VOLUME (2033)	2480	750	1,400
DIRECTIONAL DISTRIBUTION	0.50	1.0	1.0
TRUCKS (24 HOUR B&C)	0.02	0.08	0.08
DESIGN SPEED	45 MPH	35 MPH	35 MPH
LEGAL SPEED	45 MPH	35 MPH	35 MPH

DESIGN FUNCTIONAL CLASSIFICATION:
URBAN PRINCIPAL ARTERIAL
NHS PROJECT ..... YES

DESIGN EXCEPTIONS

NONE

INDEX OF SHEETS:

TITLE SHEET	1
SCHEMATIC PLAN	2
TYPICAL SECTIONS	3-6
GENERAL NOTES	7-9
MAINTENANCE OF TRAFFIC	10-28
PLAN AND PROFILE - HILLIARD ROME ROAD	29-34
PLAN AND PROFILE - INTERCHANGE RAMPS	35-38
CROSS SECTIONS - HILLIARD ROME ROAD	39-51
CROSS SECTIONS - INTERCHANGE RAMPS	52-60
SUPERELEVATION TABLES	61
INTERSECTION DETAILS	62-67
CURB RAMP DETAILS	68-69
DRIVEWAY DETAILS	70-72
PAVEMENT DETAILS	73-76
STORM PROFILE	77
SIGNING AND PAVEMENT MARKING PLAN	78-84
SIGNAL PLANS	85-103
LIGHTING PLANS	105-109
SHEETS NOT USED	104

AS-BUILT
OCTOBER 13TH 2015

UNDERGROUND UTILITIES

CONTACT BOTH SERVICES
CALL TWO WORKING DAYS
BEFORE YOU DIG

CALL
1-800-362-2764
(TOLL FREE)

OHIO UTILITIES PROTECTION SERVICE
NON-MEMBERS
MUST BE CALLED DIRECTLY

OIL & GAS PRODUCERS UNDERGROUND
PROTECTION SERVICE CALL: **1-800-925-0988**

COMPLETE AND FINAL SET
APPROVED FOR CONSTRUCTION
6/20/2014

ENGINEERS SEAL:

STATE OF OHIO
RAVINDER GUPTA
E-70880
REGISTERED
PROFESSIONAL ENGINEER

SIGNED:
DATE:

PLAN PREPARED BY:

PRIME AE

STANDARD CONSTRUCTION DRAWINGS CITY OF COLUMBUS				STANDARD CONSTRUCTION DRAWINGS ODOT										SUPPLEMENTAL SPECIFICATIONS		SPECIAL PROVISIONS
4021	5/01/14	4251	5/01/14	BP-2.1	7/19/13	HW-2.1	1/18/13	TC-12.30	10/18/13	TC-82.10	10/18/13	HL-60.11	1/17/14	800	4/18/14	
4022	5/01/14	4253	5/01/14	BP-2.2	7/28/00	HW-2.2	1/18/13	TC-21.20	10/18/13	TC-82.20	1/17/14	HL-60.31	1/17/14	816	1/20/12	
4024	5/01/14	4300	5/01/14	BP-2.5	7/19/13			TC-41.10	07/19/13	TC-83.20	10/18/13			832	1/17/14	
4051	5/01/14	4330	5/01/14	BP-3.1	4/20/12	MT-95.30	7/19/13	TC-41.20	10/18/13	TC-84.20	10/18/13	RM-3.1	7/19/13	902	12/31/12	
4102	5/01/14	4331	5/01/14	BP-4.1	7/19/13	MT-95.50	7/19/13	TC-41.30	10/18/13	TC-85.10	10/18/13	RM-4.2	10/15/10	907	1/20/12	
4105	5/01/14			BP-5.1	7/19/13	MT-97.12	7/19/13	TC-41.40	10/18/13	TC-85.21	1/17/14					
4110	5/01/14			BP-7.1	10/15/10	MT-98.28	7/19/13	TC-42.10	10/18/13	TC-85.22	1/17/14	DM-1.1	1/18/13			
4120	5/01/14			CB-3.3	1/18/13	MT-99.20	7/19/13	TC-42.20	10/18/13			DM-1.2	1/18/13			
4160	5/01/14					MT-101.60	7/19/13	TC-52.10	18/18/13	HL-10.11	1/17-/4	DM-1.4	1/18/13			
4162	5/01/14			MH-1.2	1/18/13	MT-101.70	1/17/14	TC-52.20	1/17/14	HL-10.12	1/17/14	DM-4.4	7/20/12			
4163	5/01/14					MT-101.90	7/19/13	TC-61.10	1/17/14	HL-10.13	1/17/13					
4170	5/01/14			MGS-1.1	7/19/13	MT-102.10	7/19/13	TC-61.30	1/17/14	HL-20.11	1/17/14					
4202	5/01/14			MGS-2.1	7/19/13	MT-102.20	7/19/13	TC-65.10	1/17/14	HL-30.11	1/17/14					
4205	5/01/14			MGS-3.1	7/19/13	MT-105.10	7/19/13	TC-65.11	1/17/14	HL-30.21	1/17-/4					
4230	5/01/14			MGS-5.3	7/19/13	MT-110.10	7/19/13	TC-71.10	1/17/14	HL-40.10	1/17/14					
4250	5/01/14			MGS-6.1	7/19/13	MT-120.00	7/19/13	TC-81.10	10/18/13	HL-40.20	1/17/13					

PROJECT DESCRIPTION

THE IMPROVEMENT OF 1.1 MILES OF HILLIARD-ROME ROAD WIDENING, REALIGNMENT, AND RESURFACING OF HILLIARD-ROME ROAD. THE IMPROVEMENT OF I-70 BY WIDENING AND REALIGNING THE WB EXIT RAMP TO NB AND SB HILLIARD-ROME ROAD, AND THE INSTALLATION OF NEW TRAFFIC SIGNAL AT THE WB RAMPS INTERSECTION.

PROJECT EARTH DISTURBED AREA: 3.59 ACRES
ESTIMATED CONTRACTOR EARTH DISTURBED AREA: 0.30 ACRES
NOTICE OF INTENT EARTH DISTURBED AREA: 4.90 ACRES

LIMITED ACCESS

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

2013 SPECIFICATIONS

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

I HEREBY APPROVED 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.

UNDER AUTHORITY OF SECTION 4511.21, DIVISION (H) OF THE OHIO REVISED CODE, THE REVISED PRIMA FACIE SPEED LIMITS AS INDICATED HEREIN ARE DETERMINED TO BE REASONABLE AND SAFE, AND ARE HEREBY ESTABLISHED FOR THE DURATION OF THIS PROJECT. THE PRIMA FACIE SPEED LIMIT OF LIMITS HEREBY ESTABLISHED SHALL BECOME EFFECTIVE WHEN APPROPRIATE SIGNS GIVING NOTICE THEREOF ARE ERECTED.

DESIGN SECTION ENGINEER, DIVISION OF DESIGN AND CONSTRUCTION — DATE

ADMINISTRATOR, DIVISION OF POWER — DATE

ADMINISTRATOR, DIVISION OF SEWERAGE AND DRAINAGE — DATE

ADMINISTRATOR, DIVISION OF WATER — DATE

DIRECTOR, DEPARTMENT OF PUBLIC UTILITIES — DATE

FIRE AND PREVENTION BUREAU, DIVISION OF FIRE — DATE

ENGINEERING SUPERVISOR, DEPARTMENT OF TECHNOLOGY — DATE

DIRECTOR, DEPARTMENT OF RECREATION AND PARKS — DATE

CITY ENGINEER, ADMINISTRATOR, DIVISION OF DESIGN AND CONSTRUCTION — DATE

DIRECTOR, DEPARTMENT OF PUBLIC SERVICE — DATE

DISTRICT DEPUTY DIRECTOR — DATE

DIRECTOR, DEPARTMENT OF TRANSPORTATION — DATE

3103-E

FEDERAL PROJECT NO. E130(145)

PID NO. 94460

CONSTRUCTION PROJECT NO.

RAILROAD INVOLVEMENT NONE

HILLIARD ROME RD

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① ℄ RAMP B STA. 263+59.02= ℄ HILLIARD ROME ROAD STA. 105+19.62

② ℄ RAMP A STA. 278+87.21 = ℄ HILLIARD ROME ROAD STA. 107+28.64

③ ℄ RAMP C STA. 272+80.74 = ℄ HILLIARD ROME ROAD STA. 108+84.67

④ ℄ RENNER ROAD STA. 80+70.46 = ℄ HILLIARD ROME ROAD STA. 114+50.92

⑤ ℄ CONST. WESTPOINTE PLAZA DRIVE STA. 10+00 = ℄ CONST. HILLIARD ROME ROAD STA. 123+14.25

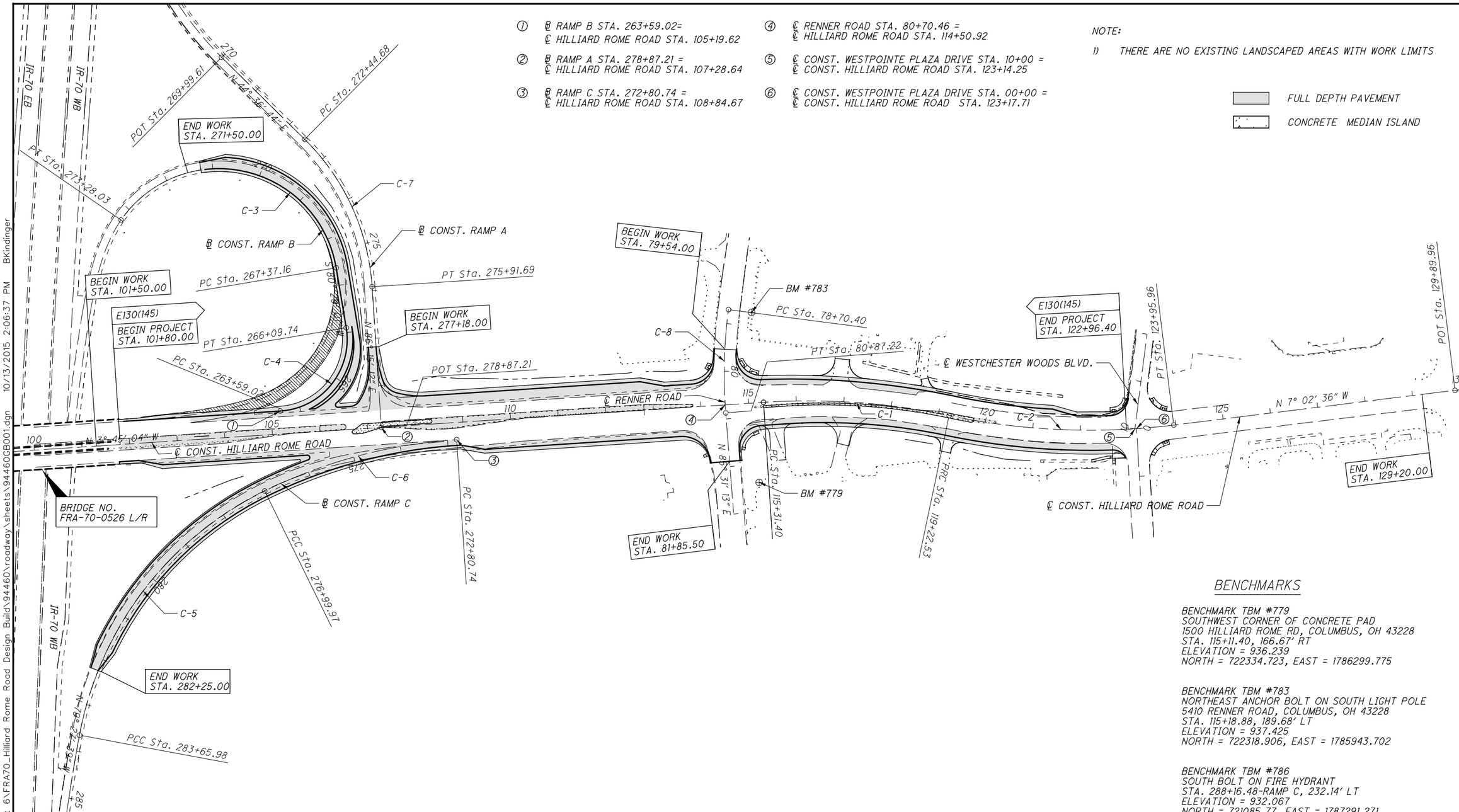
⑥ ℄ CONST. WESTPOINTE PLAZA DRIVE STA. 00+00 = ℄ CONST. HILLIARD ROME ROAD STA. 123+17.71

NOTE:

1) THERE ARE NO EXISTING LANDSCAPED AREAS WITH WORK LIMITS

FULL DEPTH PAVEMENT

CONCRETE MEDIAN ISLAND



BENCHMARKS

BENCHMARK TBM #779
SOUTHWEST CORNER OF CONCRETE PAD
1500 HILLIARD ROME RD, COLUMBUS, OH 43228
STA. 115+11.40, 166.67' RT
ELEVATION = 936.239
NORTH = 722334.723, EAST = 1786299.775

BENCHMARK TBM #783
NORTHEAST ANCHOR BOLT ON SOUTH LIGHT POLE
5410 RENNER ROAD, COLUMBUS, OH 43228
STA. 115+18.88, 189.68' LT
ELEVATION = 937.425
NORTH = 722318.906, EAST = 1785943.702

BENCHMARK TBM #786
SOUTH BOLT ON FIRE HYDRANT
STA. 288+16.48-RAMP C, 232.14' LT
ELEVATION = 932.067
NORTH = 721085.77, EAST = 1787291.271

CURVE DATA - HILLIARD ROME ROAD		CURVE DATA - RAMP A	CURVE DATA - RAMP B		CURVE DATA - RAMP C		CURVE DATA - RENNER RD
C-1	C-2	C-7	C-3	C-4	C-5	C-6	C-8
P.I. Sta. 117+28.19	P.I. Sta. 121+61.42	P.I. Sta. 274+26.25	P.I. Sta. 273+52.20	P.I. Sta. 265+24.94	P.I. Sta. 280+59.25	P.I. Sta. 274+93.08	P.I. Sta. 79+79.21
Δ = 15° 38' 42" (RT)	Δ = 18° 56' 14" (LT)	Δ = 41° 38' 28" (RT)	Δ = 135° 54' 03" (LT)	Δ = 95° 46' 10" (LT)	Δ = 53° 16' 48" (LT)	Δ = 22° 26' 03" (LT)	Δ = 11° 55' 30" (LT)
Dc = 4° 00' 00"	Dc = 4° 00' 00"	Dc = 12° 00' 00"	Dc = 23° 00' 00"	Dc = 38° 11' 50"	Dc = 8° 00' 00"	Dc = 5° 21' 04"	Dc = 5° 30' 00"
R = 1,432.42'	R = 1,432.37'	R = 477.46'	R = 249.11'	R = 150.00'	R = 716.20'	R = 1,070.71'	R = 1,041.74'
T = 196.79'	T = 238.89'	T = 181.57'	T = 615.04'	T = 165.92'	T = 359.27'	T = 212.34'	T = 108.80'
L = 391.13'	L = 473.42'	L = 347.01'	L = 590.87'	L = 250.72'	L = 666.00'	L = 419.23'	L = 216.82'
E = 13.45'	E = 19.78'	E = 33.36'	E = 414.46'	E = 73.67'	E = 85.06'	E = 20.85'	E = 5.67'
C = 389.92'	C = 471.27'	C = 339.42'	C = 461.78'	C = 222.54'	C = 642.26'	C = 416.56'	C = 216.43'
C.B. = N 4° 04' 17" E	C.B. = N 2° 25' 31" E	C.B. = N 65° 25' 58" E	C.B. = S 12° 32' 00" W	C.B. = N 51° 37' 54" W	C.B. = S 52° 49' 15" E	C.B. = S 14° 57' 50" E	C.B. = S 88° 31' 02" E

3103-E

N

HORIZONTAL SCALE IN FEET 0 50 100 200

CALCULATED JEP
CHECKED RG

SCHEMATIC PLAN

HILLIARD ROME RD

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LEGEND

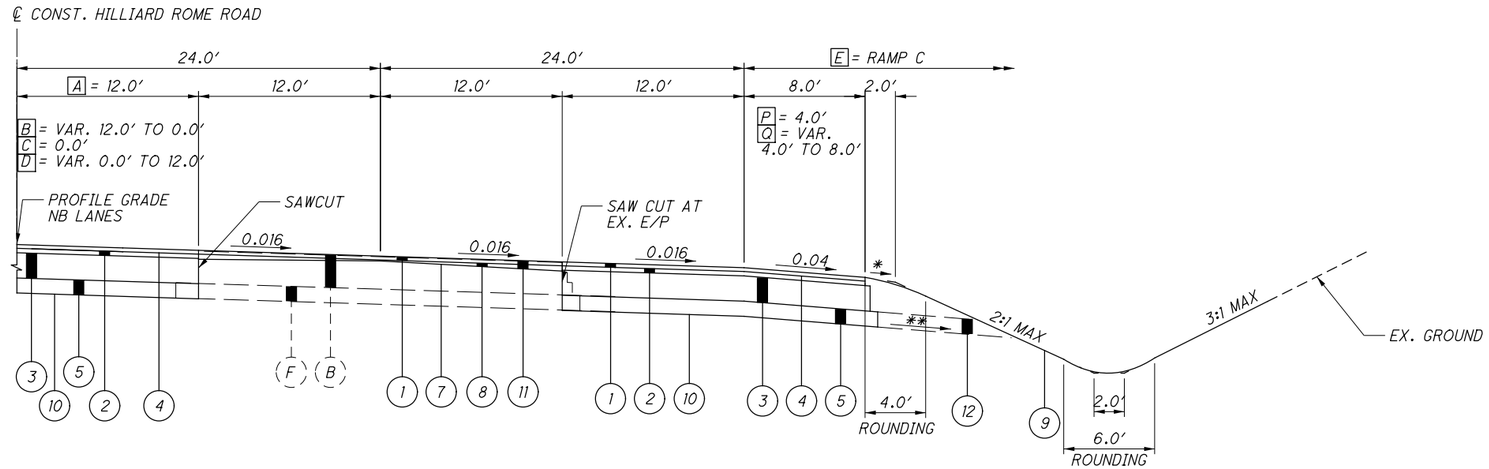
1. ITEM 448 - 1.50" ASPHALT CONCRETE SURFACE COURSE, 12.5 MM, TYPE A (446), AS PER PLAN
2. ITEM 448 - 1.75" ASPHALT CONCRETE INTERMEDIATE COURSE, 19MM, TYPE A (446)
3. ITEM 301 - 10" ASPHALT CONCRETE BASE, PG64-22
4. ITEM 407 - TACK COAT FOR INTERMEDIATE COURSE (0.04 GAL/ SQ. YD.)
5. ITEM 304 - 6" AGGREGATE BASE
6. ITEM 452 - 10" NON-REINFORCED CONCRETE PAVEMENT
7. ITEM 407 - TACK COAT (0.075 GAL./SQ.YD.)
8. ITEM 448 - VARIABLE THICKNESS ASPHALT CONCRETE SCRATCH COURSE PG 64-22
9. ITEM 659 - SEEDING AND MULCHING
10. ITEM 204 - SUBGRADE COMPACTION
11. ITEM 254 - PAVEMENT PLANNING, ASPHALT CONCRETE, SEE NOTE "A"
12. ITEM 605 - AGGREGATE DRAINS
13. ITEM 605 - 4" BASE PIPE UNDERDRAINS
14. ITEM 254 - PAVEMENT PLANNING, ASPHALT CONCRETE, 1½"

(A) EXISTING 10.5"± ASPHALT CONCRETE
(B) EXISTING 13"± ASPHALT CONCRETE
(D) EXISTING 12"± ASPHALT CONCRETE
(E) EXISTING 10"± CONCRETE
(F) EXISTING 6"± AGGREGATE
(G) EXISTING 9"± CONCRETE

NOTE "A"

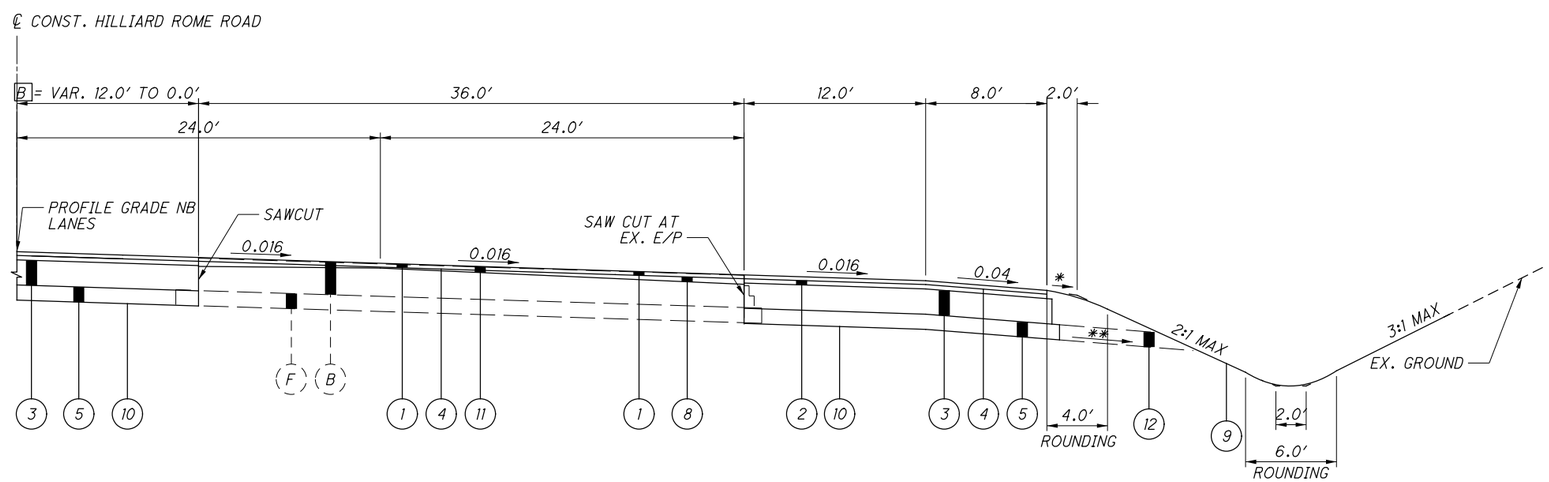
PAVEMENT PLANING SHALL BE A CONSTANT DEPTH OF 1½" AT THE ℄ OF CONSTRUCTION WITH A UNIFORM CROSS SLOPE OF 0.016 ESTABLISHED FOR NORTHBOUND LANES AND 0.02 ESTABLISHED FOR SOUTHBOUND LANES

A = STA. 102+50.00 TO STA. 104+00.00 AND STA. 108+33.00 TO STA. 109+00.00
B = STA. 104+00.00 TO STA. 105+50.00 AND STA. 109+00.00 TO STA. 110+50.00
C = STA. 105+50.00 TO STA. 107+33.00 AND STA. 110+50.00 TO STA. 113+58.00
D = STA. 107+33.00 TO STA. 108+33.00
E = STA. 105+70.00 TO STA. 108+85.00
P = STA. 101+76.18 TO STA. 102+21.34
Q = STA. 102+21.34 TO STA. 102+66.34



NORMAL SECTION
NORTHBOUND LANES HILLIARD ROME ROAD

STA. 101+76.18 TO 108+85.00



NORMAL SECTION
NORTHBOUND LANES HILLIARD ROME ROAD

STA. 108+85.00 TO STA. 113+58.00

* = 0.08
** = 0.04 MIN.
*** = 0.04 OR RATE OF SUPER IF GREATER
**** = VARIES 0.04 TO 0.01

3103-E

TYPICAL SECTIONS - HILLIARD ROME ROAD

HILLIARD ROME RD

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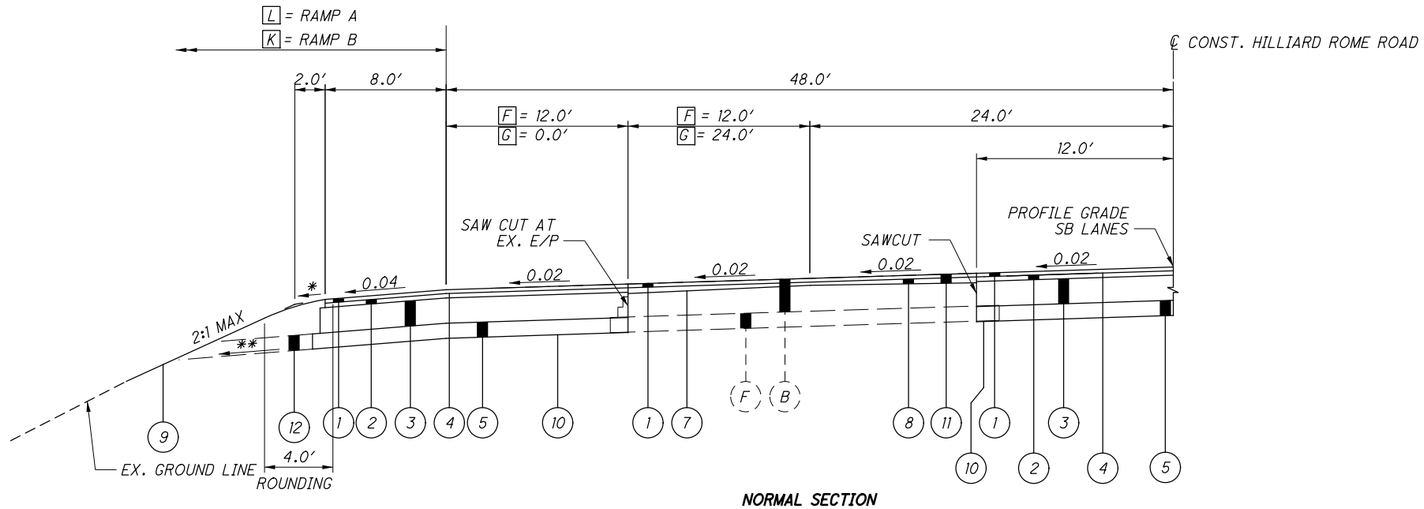
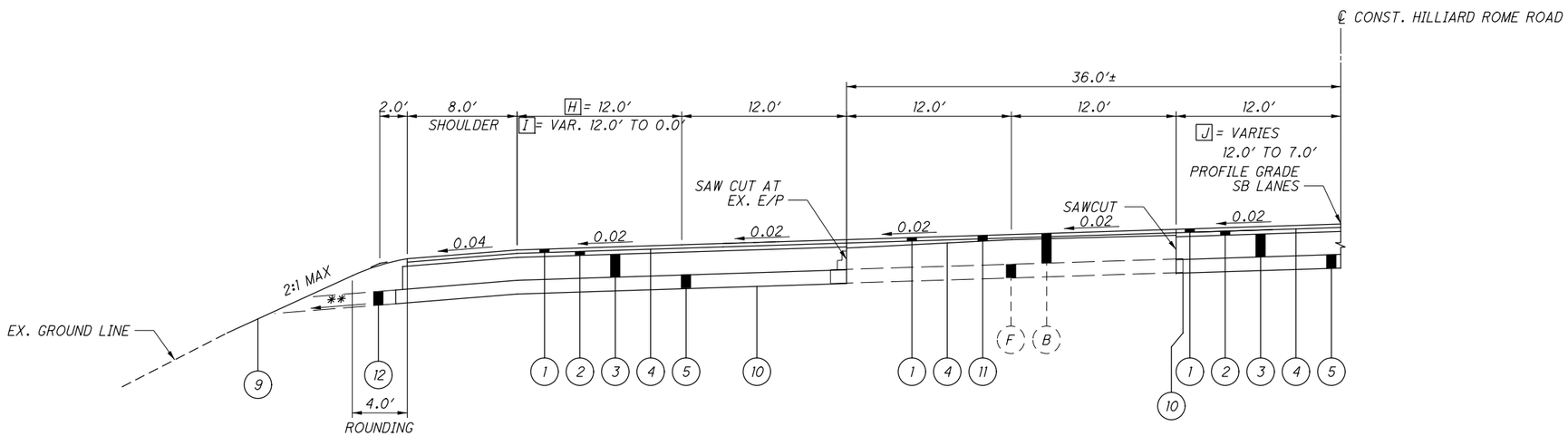
NOTE

FOR LEGEND SEE SHEET 3/109



NORMAL SECTION
SOUTHBOUND LANES HILLIARD ROME ROAD

STA. 101+90.54 TO STA. 106+66.00



NORMAL SECTION
SOUTHBOUND LANES HILLIARD ROME ROAD

STA. 108+25.00 TO STA. 113+86.00

F = STA. 103+30.00 TO STA. 106+66.00
G = STA. 101+90.54 TO STA. 103+30.00
H = STA. 108+25.00 TO STA. 112+75.00
I = STA. 112+75.00 TO STA. 113+25.00
J = STA. 112+80.00 TO STA. 113+86.00
K = STA. 105+20.00 TO STA. 106+66.00
L = STA. 106+66.00 TO STA. 108+25.00

* = 0.08
** = 0.04 MIN.
*** = 0.04 OR RATE OF SUPER IF GREATER
**** = VARIES 0.04 TO 0.01

3103-E

TYPICAL SECTIONS - HILLIARD ROME ROAD

HILLIARD ROME RD

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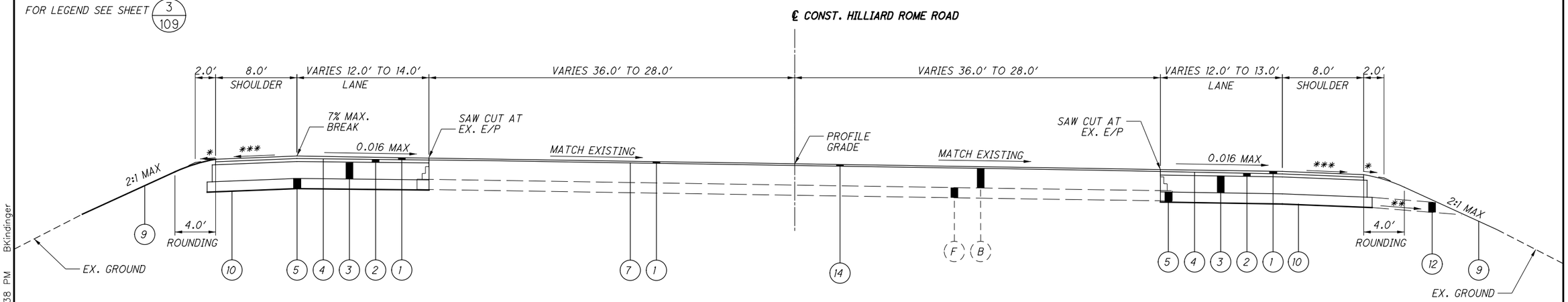
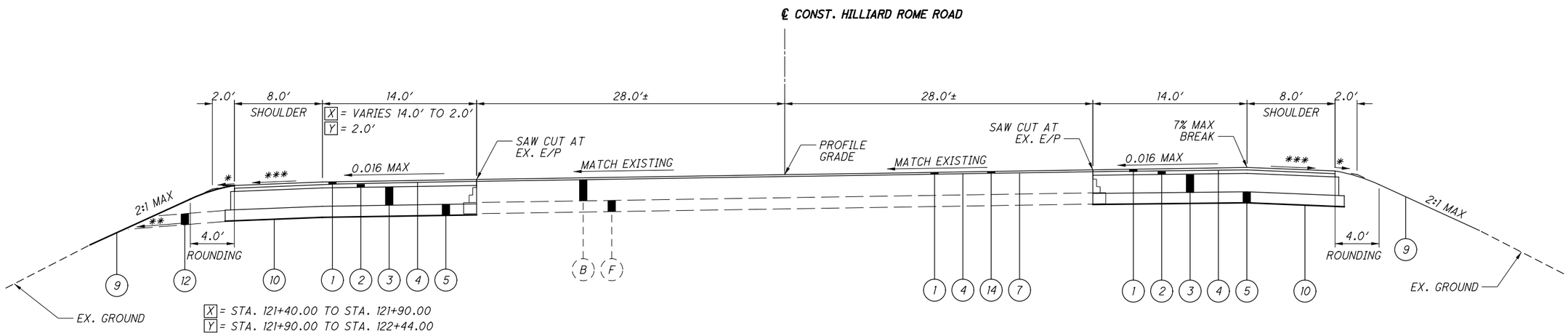
NOTE

FOR LEGEND SEE SHEET 3/109



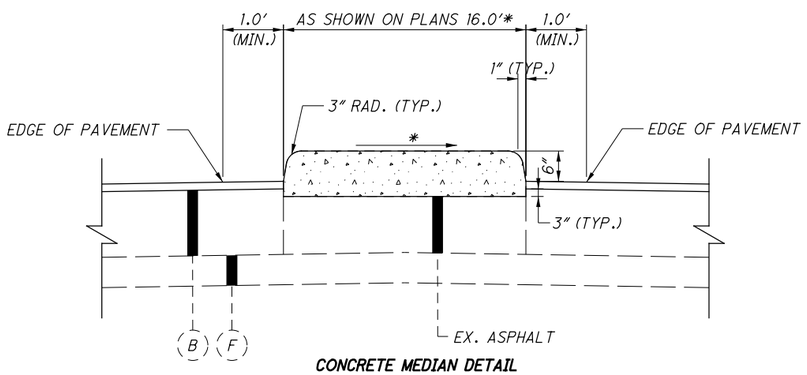
SUPERELEVATION SECTION
HILLIARD ROME ROAD

STA. 115+31.40 TO STA. 119+50.00



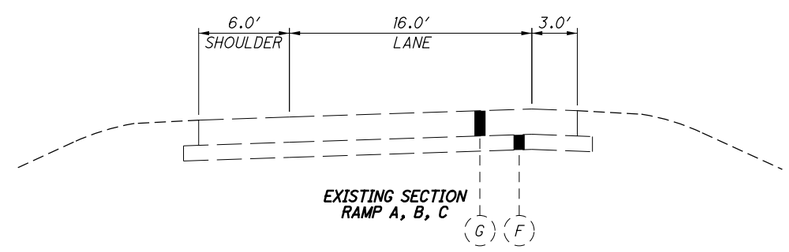
TRANSITION SECTION
HILLIARD ROME ROAD

STA. 119+50.00 TO STA. 122+50.00



CONCRETE MEDIAN DETAIL

STA. 106+57.08 TO 108+35.34
STA. 115+29.40 TO 119+27.53



EXISTING SECTION
RAMP A, B, C

* = MATCH PAVEMENT SLOPE
** SEE PLAN ON SHEET 30, 31,32

* = 0.08
** = 0.04 MIN.
*** = 0.04 OR RATE OF SUPER IF GREATER
**** = VARIES 0.04 TO 0.01

3103-E

TYPICAL SECTIONS - HILLIARD ROME ROAD

HILLIARD ROME RD

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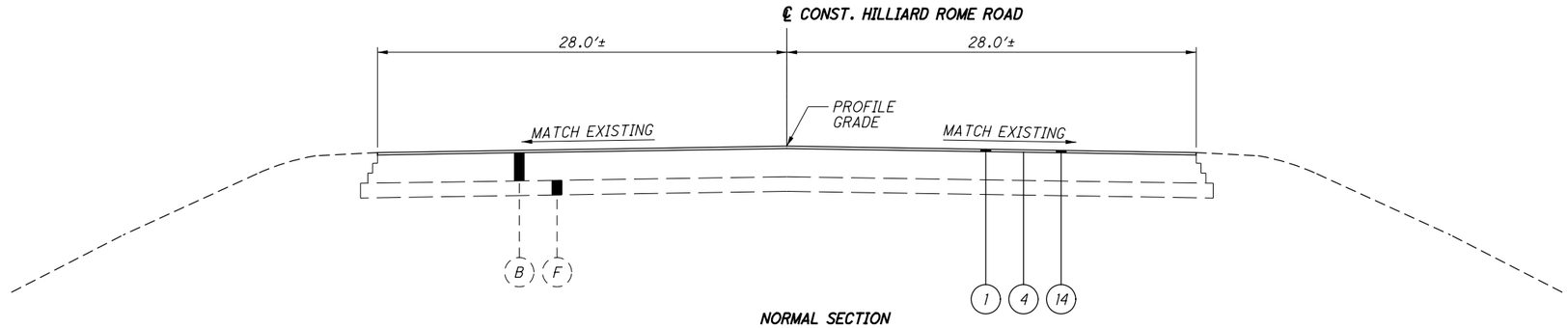
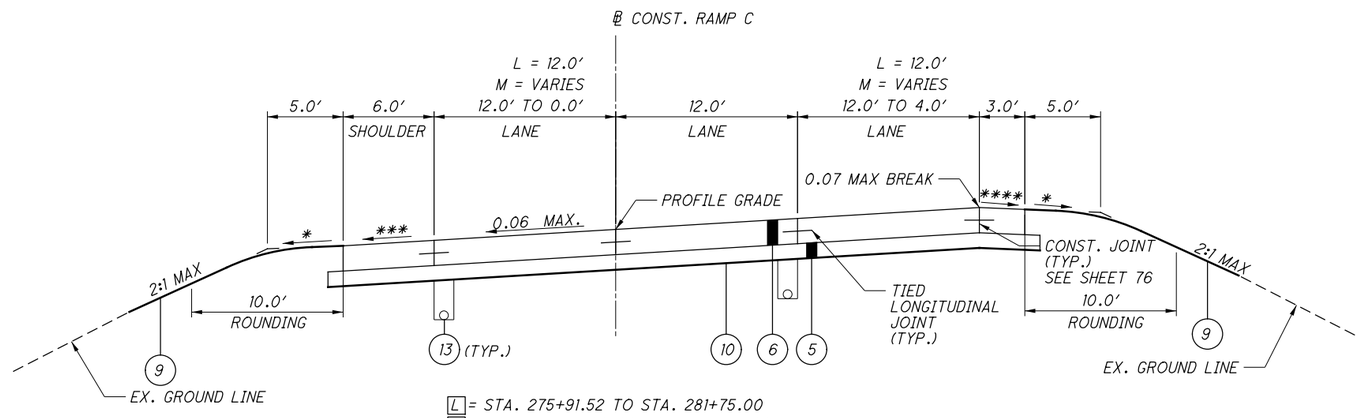
NOTE

FOR LEGEND SEE SHEET 3/109



NORMAL SECTION
HILLIARD ROME ROAD

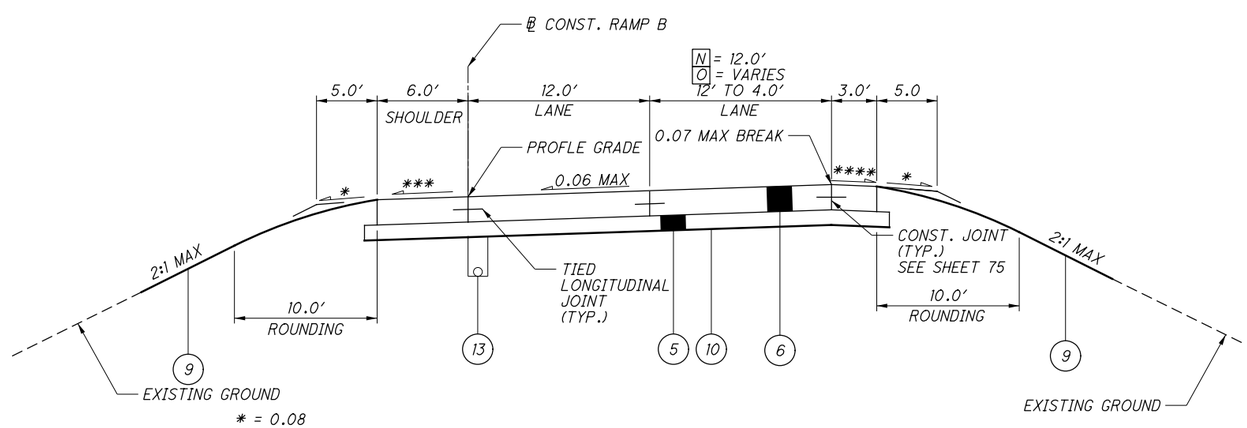
STA. 123+80.00 TO STA. 129+20.00



L = STA. 275+91.52 TO STA. 281+75.00
M = STA. 281+75.00 TO STA. 282+25.00

SUPERELEVATED SECTION
RAMP C

STA. 275+91.52 TO STA. 282+25.00



* = 0.08

N = STA. 266+09.74 TO STA. 270+75.00
O = STA. 270+75.00 TO STA. 271+25.00

SUPER ELEVATION SECTION
RAMP B

STA. 266+09.74 TO STA. 271+25.00

* = 0.08
** = 0.04 MIN.
*** = 0.04 OR RATE OF SUPER IF GREATER
**** = VARIES 0.04 TO 0.01

3103-E

TYPICAL SECTIONS - HILLIARD ROME ROAD

HILLIARD ROME RD

6/109

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ROUNDING

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

UTILITIES

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

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

ELECTRIC
AEP TRANSMISSION
ATTN: BARBARA L. DUNLAP
700 MORRISON ROAD
GAHANNA, OH 43230
614-552-1893
BDUNLAP@AEP.COM

ELECTRIC
AEP
850 TECH CENTER DRIVE
GAHANNA, OHIO 43230
ATTN: PAUL PAXTON
614-883-6831
PTPAXTON@AEP.COM

ELECTRIC
AEP
ATTN: JEFF MOMME
614-552-1180
JEMOMME@AEP.COM

TELEPHONE
AT&T
ATTN: HOWARD LAUDERMILK
937-296-3929
HPTICKETS@TRANSLORE.COM

TELEPHONE
AT&T
ATTN: AL WIEGING
614-534-0281

TELEPHONE
AT&T
ATTN: TOM ZIOMEK
614-233-7162
TZ7315@ATT.COM

CABLE
TIME WARNER
3760 INTERCHANGE RD
COLUMBUS, OH 43204
ATTN: STEPHEN RAY
614-255-6340
STEPHEN.RAY@TWCABLE.COM

TELECOM
CENTURY LINK/QWEST
ATTN: ROCKY SEARLES
614-215-7662
ROCKY.SEARLES@CENTURYLINK.COM

CABLE
WIDE OPEN WEST
ATTN: HEATH GRANT
H_GRANT20@WIDEOPENWEST.COM

TELECOM
CENTURY LINK/QWEST
ATTN: CHRISTOPHER STRAYER
614-215-5606
CHRISTOPHER.STRAYER@CENTURYLINK.COM

TELECOM
LEVEL 3
ATTN: TIM BOYKIN
720-888-7280
LEVEL3.NETWORK-RELOCATIONS@LEVEL3.COM

GAS
COLUMBIA GAS TRANSMISSION
301 MAPLE ST
PO BOX 330
ATTN: JAMES (JIM) SCOTT
740-304-4304
JSCOTT@NISOURCE.COM

CITY OF COLUMBUS
DIVISION OF WATER
910 DUBLIN ROAD
COLUMBUS, OH 43215
614-645-7788

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.

THE FOLLOWING CITY OF COLUMBUS UTILITIES ARE NOT MEMBERS OF THE OUPS. CONTACT THE FOLLOWING UTILITIES BY FAX NOT LESS THAN TWO BUSINESS DAYS PRIOR TO CONSTRUCTION.

DIVISION OF PLANNING AND OPERATIONS
1820 SEVENTH AVE.
COLUMBUS, OH 43219
P: 614-645-7393
F: 614-645-5967

DEPARTMENT OF TECHNOLOGY
90 W. BROAD ST.
COLUMBUS, OH 43215
P: 614-645-1501
F: 614-645-6627

COMMUNICATION SECTION
4211 GROVES ROAD
COLUMBUS, OH 43232
P: 614-645-7344 EXT. 125
F: 614-645-6588

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.

EXISTING PLANS

EXISTING PLANS ENTITLED FRA-70-3.41 MAY BE INSPECTED IN THE ODOT DISTRICT 6 OFFICE IN DELAWARE, OH.

WATERING PERMANENT SEEDED AREAS

THE WATER QUANTITY IS TO BE USED AS DIRECTED BY THE ENGINEER TO PROMOTE GROWTH FOR THE PERMANENT SEEDED AREAS AS PER 659.09.

CLEARING AND GRUBBING

THE DEPARTMENT HAS NOT MARKED INDIVIDUAL TREES AND STUMPS FOR REMOVAL. UNLESS SPECIFICALLY DESIGNATED AS "DO NOT DISTURB" IN THE PLANS, REMOVE ALL TREES AND STUMPS WITHIN THE CONSTRUCTION LIMITS UNDER THE LUMP SUM BID FOR ITEM 201 CLEARING AND GRUBBING.

PROOF ROLLING

A QUANTITY ITEM IS PROVIDED IN THE ADDRESS LOCATIONS REQUIRING PROOF ROLLING.

SEEDING AND MULCHING

SEEDING AND MULCHING SHALL BE APPLIED 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.

PART-WIDTH CONSTRUCTION

BECAUSE OF THE NECESSITY TO BUILD THIS PROJECT UNDER TRAFFIC AND TO CONSTRUCT THE FULL PAVEMENT WIDTH IN STAGES, EXERCISE CARE TO PREVENT THE CONSTRUCTION OF A BUTT JOINT IN THE BASE COURSES. LAP LONGITUDINAL JOINTS AS SHOWN ON STANDARD CONSTRUCTION DRAWING BP-3.1.

UNSUITABLE FOUNDATION SOILS

IF UNSUITABLE FOUNDATION SOILS ARE ENCOUNTERED IN THE AREAS OF THE PROPOSED CONSTRUCTION, THEY SHALL BE REMOVED AND REPLACED WITH SUITABLE MATERIAL MEETING THE REQUIREMENTS OF 203.02.R. THE LOCATIONS AND DIMENSIONS WILL BE AS DETERMINED BY THE ENGINEER.

THE CONTINGENCY ITEMS HAVE BEEN INCLUDED TO BE USED AS DIRECTED BY THE ENGINEER:

ITEM 204, GRANULAR MATERIAL, TYPE D

ITEM 203, EXCAVATION

ITEM 606 - ANCHOR ASSEMBLY, TYPE E

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING ANY OF THE GUARDRAIL END TERMINALS FOR TYPE MGS GUARDRAIL AS LISTED ON ROADWAY ENGINEERING'S WEB PAGE UNDER ROADSIDE SAFETY DEVICES FOR APPROVED GUARDRAIL END TREATMENTS. INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIED IN THE PLANS, IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.

THE FACE OF THE TYPE E IMPACT HEAD SHALL BE COVERED WITH A SHEET OF TYPE G REFLECTIVE SHEETING, PER CMS 730.19.

REFER TO THE MANUFACTURER'S INSTRUCTIONS REGARDING THE INSTALLATION OF, AND THE GRADING AROUND THE FOUNDATION TUBES AND GROUND STRUT. THE TOP OF ANY

ITEM 606 - ANCHOR ASSEMBLY, TYPE E (CONTINUED)

FOUNDATION TUBE SHOULD BE LESS THAN 4 INCHES ABOVE THE GROUND. THE PLACEMENT OF THE FOUNDATION TUBES SHOULD BE AN APPROPRIATE DEPTH BELOW THE LEVEL LINE IN ORDER TO MAINTAIN THE FINISHED GUARDRAIL HEIGHT OF 27.75 INCHES FROM THE EDGE OF THE SHOULDER.

ON-SITE GRADING IS REQUIRED IF THE TOP OF THE FOUNDATION TUBES OR TOP OF THE GROUND STRUT DOES PROJECT MORE THAN 4 INCHES ABOVE THE GROUND LINE.

PAYMENT FOR THE ABOVE WORK SHALL BE MADE AT THE UNIT PRICE BID FOR ITEM 606, ANCHOR ASSEMBLY, TYPE E, EACH, AND SHALL INCLUDE ALL LABOR, TOOLS, EQUIPMENT AND MATERIALS NECESSARY TO CONSTRUCT A COMPLETE AND FUNCTIONAL ANCHOR ASSEMBLY SYSTEM, INCLUDING ALL RELATED TRANSITIONS, REFLECTIVE SHEETING, HARDWARE, GRADING, EMBANKMENT AND EXCAVATION NOT SEPARATELY SPECIFIED, AS REQUIRED BY THE MANUFACTURER.

ITEM 606 - IMPACT ATTENUATOR, TYPE 1 (BIDIRECTIONAL)

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING ANY ONE OF THE TYPE 1 IMPACT ATTENUATORS AS LISTED ON THE OFFICE OF ROADWAY ENGINEERING'S WEB PAGE. INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIED IN THE PLANS, IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.

THE FACE OF THE TYPE 1 IMPACT HEAD SHALL BE COVERED WITH A SHEET OF TYPE G REFLECTIVE SHEETING, PER CMS 730.19. PAYMENT FOR THE ABOVE WORK SHALL BE MADE AT THE UNIT PRICE BID FOR ITEM 606, IMPACT ATTENUATOR, TYPE 1 [(BIDIRECTIONAL)], EACH, AND SHALL INCLUDE ALL LABOR, TOOLS, EQUIPMENT AND MATERIALS NECESSARY TO CONSTRUCT A COMPLETE AND FUNCTIONAL IMPACT ATTENUATOR SYSTEM, INCLUDING ALL RELATED TRANSITIONS, HARDWARE, REFLECTIVE SHEETING AND GRADING, NOT SEPARATELY SPECIFIED, AS REQUIRED BY THE MANUFACTURER.

CONTRACTION AND/OR EXPANSION JOINTS

ALTHOUGH SPECIFIC LOCATIONS OF CERTAIN CONTRACTION AND EXPANSION JOINTS HAVE BEEN DETAILED ON THIS PLAN, NO WAIVER OF THE SPECIFICATIONS IS INTENDED. IN ALL CASES, THE PROVISION OF EXPANSION JOINTS AT ALL MAJOR STRUCTURES INCLUDING THE MAXIMUM SPACING BETWEEN CONTRACTION JOINTS IS IN ACCORDANCE WITH STANDARD CONSTRUCTION DRAWING BP-2.2 AND THE SPECIFICATIONS.

MAINTAIN DRAINAGE

THE CONTRACTOR AT HIS OWN EXPENSE SHALL MAINTAIN THE FLOW IN ALL SEWERS, DRAINS, FIELD TILES, AND WATERCOURSES ENCOUNTERED IN AND AROUND THE PROJECT SITE. IF SUCH WATERCOURSES OR DRAINS ARE DISTURBED OR DESTROYED DURING THE EXECUTION OF THE PROJECT, THEY SHALL BE RESTORED BY THE CONTRACTOR AT HIS OWN EXPENSE TO A CONDITION SATISFACTORY TO THE ENGINEER.

REVIEW OF DRAINAGE FACILITIES

BEFORE ANY WORK IS STARTED ON THE PROJECT AND AGAIN BEFORE FINAL ACCEPTANCE BY THE STATE, REPRESENTATIVES OF THE STATE AND THE CONTRACTOR, ALONG WITH LOCAL REPRESENTATIVES, SHALL MAKE AN INSPECTION OF ALL EXISTING SEWERS WHICH ARE TO REMAIN IN SERVICE AND WHICH MAY BE AFFECTED BY THE WORK. THE CONDITION OF THE EXISTING CONDUITS AND THEIR APPURTENANCE SHALL BE DETERMINED FROM FIELD OBSERVATIONS. RECORDS OF THE INSPECTION SHALL BE KEPT IN WRITING BY THE STATE.

ALL NEW CONDUITS, INLETS, CATCH BASINS, AND MANHOLES CONSTRUCTED AS A PART OF THE PROJECT SHALL BE FREE OF ALL FOREIGN MATTER AND IN A CLEAN CONDITION BEFORE THE PROJECT WILL BE ACCEPTED BY THE STATE.

REVIEW OF DRAINAGE FACILITIES (CONTINUED)

ALL EXISTING SEWERS INSPECTED INITIALLY BY THE ABOVE MENTIONED PARTIES SHALL BE MAINTAINED AND LEFT IN A CONDITION REASONABLY COMPARABLE TO THAT DETERMINED BY THE ORIGINAL INSPECTION. ANY CHANGE IN THE CONDITION RESULTING FROM THE CONTRACTOR'S OPERATIONS SHALL BE CORRECTED BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER.

PAYMENT FOR ALL OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE PERTINENT 611 CONDUIT ITEMS.

SURVEYING PARAMETERS

USE THE FOLLOWING PROJECT CONTROL, VERTICAL POSITIONING, AND HORIZONTAL POSITIONING PARAMETERS FOR ALL SURVEYING:

PROJECT CONTROL

VERTICAL POSITIONING

ORTHOMETRIC HEIGHT DATUM: NAVD 88
GEOID: GEOID 03

HORIZONTAL POSITIONING

REFERENCE FRAME: NAD83 (CORS96)
ELLIPSOID: GRS 80
MAP PROJECTION: LAMBERT CONFORMAL CONIC
COORDINATE SYSTEM: OHIO STATE PLANE - SOUTH ZONE
COMBINED SCALE FACTOR: 0.999950282

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 SUPPLEMENTAL SPECIFICATION 823.

UNITS ARE IN U.S. SURVEY FEET. USE THE FOLLOWING CONVERSION FACTOR: 1 METER = 3.280833333 U.S. SURVEY FEET.

ITEM 605 - AGGREGATE DRAINS

AGGREGATE DRAINS SHALL BE PLACED AT 50 FOOT INTERVALS ON EACH SIDE OF NORMAL CROWNED SECTIONS, STAGGERED SO THAT EACH DRAIN IS 25 FEET FROM THE ADJACENT DRAIN ON THE OPPOSITE SIDE, AND AT 25 FOOT INTERVALS ON THE LOW SIDE ONLY OF SUPERELEVATED SECTIONS. AN AGGREGATE DRAIN SHALL BE PLACED AT THE LOW POINT OF EACH SAG VERTICAL CURVE.

FOR THE CITY OF COLUMBUS DIVISION OF POWER AND WATER (POWER)

THE CITY OF COLUMBUS DIVISION OF POWER AND WATER (POWER) HAS UNDERGROUND STREET LIGHTING IN THE PROJECT AREA. THE CONTRACTOR IS HEREBY REQUIRED TO CONTACT OUPS 1-800-362-2764 FORTY-EIGHT HOURS PRIOR TO CONDUCTING ANY ACTIVITY WITHIN THE CONSTRUCTION AREA. THE DOPW (POWER) DISPATCH OFFICE NUMBER IS: (614) 645-7627 (VOICE).

ANY REQUIRED RELOCATION, SUPPORT, PROTECTION, OR ANY OTHER ACTIVITY CONCERNED WITH THE CITY'S ELECTRICAL FACILITIES IN THE CONSTRUCTION AREA IS TO BE PERFORMED BY THE CONTRACTOR UNDER THE DIRECTION OF DIVISION OF POWER AND WATER (POWER) (DOPW) PERSONNEL AND AT THE EXPENSE OF THE PROJECT. DOPW SHALL MAKE ALL FINAL CONNECTIONS TO DOPW'S EXISTING ELECTRICAL SYSTEM AT THE EXPENSE OF THE PROJECT. THE CONTRACTOR SHALL USE MATERIAL AND MAKE REPAIRS TO THE CITY OF COLUMBUS STREET LIGHTING SYSTEM BY FOLLOWING THE DIVISION OF POWER AND WATER (POWER)'S "MATERIAL AND INSTALLATION SPECIFICATIONS" (MIS) AND THE CITY OF COLUMBUS "CONSTRUCTION AND MATERIAL SPECIFICA-

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FOR THE CITY OF COLUMBUS DIVISION OF POWER (CONTINUED)

TIONS" (CMS). ANY NEW OR RE-INSTALLED STREET LIGHT SYSTEM SHALL REQUIRE TESTING AS REFERRED TO IN SECTION 1000.18 OF THE CMS MANUAL. THE CONTRACTOR SHALL CONFORM TO THE DIVISION OF POWER AND WATER (POWER)'S EXISTING CONDUCTOR SAFETY POLICY AND HOLD CARD SYSTEM (MIS-95), COPIES OF WHICH ARE AVAILABLE FROM THE DIVISION OF POWER AND WATER (POWER).

IF ANY ELECTRIC FACILITY BELONGING TO THE DIVISION OF POWER AND WATER (POWER) IS DAMAGED IN ANY MANNER BY THE CONTRACTOR, ITS AGENTS, SERVANTS, OR EMPLOYEES, AND REQUIRES EMERGENCY REPAIRS, THE DIVISION OF POWER AND WATER (POWER) SHALL MAKE ALL NECESSARY REPAIRS, AND THE EXPENSE OF SUCH REPAIRS AND OTHER RELATED COSTS SHALL BE PAID BY THE CONTRACTOR TO THE DIVISION OF POWER AND WATER (POWER), CITY OF COLUMBUS, OHIO.

POST CONSTRUCTION STORM WATER TREATMENT

THIS PLAN UTILIZES STRUCTURAL BEST MANAGEMENT PRACTICES (BMP'S) FOR POST CONSTRUCTION STORM WATER TREATMENT.

VEGETATED DITCHES

VEGETATED STRIPS (& SWALES) HAVE BEEN IDENTIFIED IN THIS PLAN. TAKE CARE TO GRADE THESE AREAS AS THE PLAN INDICATES. STABILIZE THE VEGETATED DITCHES WITH THE PERMANENT DITCH EROSION PROTECTION UPON FINAL GRADING. PAYMENT SHALL BE INCLUDED IN THE PERMANENT DITCH EROSION PROTECTION ITEMS.

REF.	SHEET NO.	STATION FROM	STATION TO	SIDE
V-1	35-36	B-265+00	B-271+50	LT

EXISTING WATER LINES

DURING CONSTRUCTION, THE CONTRACTOR SHALL USE EXTREME CAUTION NOT TO DAMAGE THE EXISTING 16-INCH WATER MAIN DUE TO MINIMAL COVER.

EXISTING UNDERDRAINS

PROVIDE UNOBSTRUCTED OUTLETS FOR ALL EXISTING UNDER-DRAINS ENCOUNTERED DURING CONSTRUCTION.

PROVIDE AN OUTLET PER STANDARD CONSTRUCTION DRAWING DM-1.1 FOR ALL UNDERDRAINS THAT OUTLET TO A SLOPE.

WATER WORK NOTES

THE CITY OF COLUMBUS, CONSTRUCTION AND MATERIAL SPECIFICATIONS, 2012 EDITION AND ALL REVISIONS, INCLUDING ALL SUPPLEMENTS THERETO, SHALL GOVERN ALL CONSTRUCTION ITEMS THAT ARE A PART OF THIS PLAN, UNLESS OTHERWISE NOTED.

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

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

IT SHALL BE UNLAWFUL FOR ANY PERSON TO PERFORM ANY

WATER WORK NOTES (CONTINUED)

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

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

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

ALL WATER MAINS SHALL BE CLEANED AND FLUSHED, AND ANY WATER MAIN 12-INCH AND LARGER MUST BE PROPERLY PIGGED, IN ACCORDANCE WITH SECTION 801.13 OF THE CITY OF COLUMBUS, CONSTRUCTION AND MATERIAL SPECIFICATIONS.

ALL WATER MAINS SHALL BE PRESSURE TESTED IN ACCORDANCE WITH SECTION 801.14 OF CITY OF COLUMBUS CONSTRUCTION AND MATERIAL SPECIFICATIONS. 150 PSI OF PRESSURE SHALL BE MAINTAINED FOR AT LEAST TWO HOURS IN ANY TESTED SECTION. THE CITY MAY NOT APPROVE ANY TEST LANDING LESS THAN TWO HOURS REGARDLESS OF THE AMOUNT OF LEAKAGE.

ALL WATER MAINS SHALL BE DISINFECTED IN ACCORDANCE WITH SECTION 801.15 OF THE CITY OF COLUMBUS CONSTRUCTION AND MATERIAL SPECIFICATIONS. SPECIAL ATTENTION IS DIRECTED TO APPLICABLE SECTIONS OF A.W.W.A. C-651. WHEN THE WATER MAINS ARE READY FOR DISINFECTION, THE INSPECTOR SHALL SUBMIT A WRITTEN REQUEST FOR CHLORINATION OF THE MAINS THAT NEED DISINFECTED, THREE (3) SETS OF "AS-BUILT" PLANS (FULL SIZE SHEETS ONLY), THE AS-BUILT SURVEY COORDINATES, WATER SERVICE REPORTS AND A PRESSURE TEST TO THE CITY OF COLUMBUS, DIVISION OF WATER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH THE DISINFECTION OF ALL WATER MAINS CONSTRUCTED UNDER THIS PLAN.

ALL FIRE HYDRANTS TO BE INSTALLED IN THE CITY OF COLUMBUS SHALL BE PAINTED WITH THE COLOR "SAFETY ORANGE". THE FIRE HYDRANTS SHALL BE PROVIDED WITH TWO COATS IN A GLOSS ENAMEL OF THE "SAFETY ORANGE" COLOR FOR THE ENTIRE HYDRANT. THE TOPS OF THE FIRE HYDRANTS ARE NO LONGER REQUIRED TO BE PAINTED BLACK. AFTER INSTALLATION OF FIRE HYDRANTS, THE CONTRACTOR IS RESPONSIBLE TO APPLY TOUCH UP PAINT TO ANY DAMAGE TO THE FACTORY APPLIED HYDRANT PAINT. HYDRANTS WILL NOT BE ACCEPTED UNTIL ANY PAINT DAMAGE FROM SHIPPING OR INSTALLATION HAS BEEN REPAIRED. USE HYDRANT TOUCH UP PAINT IN ACCORDANCE WITH THE APPROVED MATERIALS LIST. THIS GENERAL NOTE SHALL SUPERSEDE THE CURRENT PAINT

WATER WORK NOTES (CONTINUED)

DESCRIPTION SPECIFIED IN ITEM 809.02 OF THE CITY OF COLUMBUS CONSTRUCTION AND MATERIAL SPECIFICATIONS.

MAINTAIN EIGHTEEN (18) INCHES VERTICAL AND TEN (10) FEET HORIZONTAL SEPARATION BETWEEN ANY SANITARY OR STORM SEWER PIPING AND STRUCTURES AND ALL PROPOSED WATER MAINS. FOR INSTANCES WHERE TEN (10) FEET OF HORIZONTAL SEPARATION CANNOT BE MAINTAINED FROM A SEWER STRUCTURE, THE WATER LINE SHALL BE INSTALLED SUCH THAT THE STRUCTURE IS CENTERED BETWEEN THE PIPE JOINTS ON A FULL LENGTH (18 FOOT MINIMUM) PIECE OF WATER PIPE.

SURVEY COORDINATES" SHALL INCLUDE ALL MATERIAL, EQUIPMENT, AND LABOR NECESSARY TO OBTAIN HORIZONTAL AND VERTICAL (NORTHING, EASTING, AND ELEVATION) SURVEY COORDINATES FOR THE WATER MAIN IMPROVEMENTS. THE SURVEY COORDINATES SHALL BE OBTAINED FOR THE COMPLETED WATER MAIN CONSTRUCTION AND SHALL INCLUDE ALL VALVES, TEES, CROSSES, BENDS, DEFLECTIONS, PLUGS, REDUCERS, TAPPING SLEEVES, BLOW OFFS, CHLORINATION TAPS, FIRE HYDRANTS, AIR RELEASES, CURB STOPS, CASING PIPE TERMINI, AND OTHER FITTINGS. ADDITIONAL SURVEY COORDINATES ARE REQUIRED ON THE WATER MAIN EVERY 500' WHERE NO FITTING OR OTHER WATER MAIN STRUCTURE IS BEING INSTALLED WITHIN THAT LENGTH OF THE IMPROVEMENT. ALL SURVEY COORDINATES SHALL BE REFERENCED TO THE APPLICABLE COUNTY ENGINEER'S MONUMENTS, AND SHALL BE BASED ON THE NORTH AMERICAN DATUM OF 1983 (NAD 83) WITH THE (NSRS2007) ADJUSTMENT, WITH FURTHER REFERENCE MADE TO THE OHIO STATE PLANE SOUTH COORDINATE SYSTEM, SOUTH ZONE, WITH ELEVATIONS BASED ON NAVD 88 DATUM. ALL COORDINATES (NORTHING, EASTING, ELEVATION) SHALL BE REFERENCED TO THE NEAREST HUNDREDTH (N XXXXXX.XX, E XXXXXX.XX, ELEV. XXX.XX). ALL SURVEY COORDINATES SHALL BE ACCURATE TO WITHIN 1.0 FOOT HORIZONTAL AND A TENTH OF A FOOT (0.10) OR LESS VERTICAL.

THE COORDINATES SHALL BE DOCUMENTED TO THE ENGINEER IN DIGITAL SPREADSHEET FORM AND SHALL INCLUDE THE APPLICABLE ITEM, STATION, NORTHING, EASTING, AND ELEVATION. COORDINATES SHALL BE SUBMITTED TO THE ENGINEER ON A BI-WEEKLY BASIS. COORDINATES SHALL ALSO BE REQUIRED TO BE SUBMITTED TO THE DIVISION OF WATER AS PART OF THE REQUEST FOR CHLORINATION.

LUMP SUM PAYMENT IS FULL COMPENSATION FOR ALL WORK INVOLVED IN OBTAINING AND DOCUMENTING THE SURVEY COORDINATES AS DESCRIBED IN THIS SPECIFICATION.

DURING CONSTRUCTION, THE CONTRACTOR SHALL USE EXTREME CAUTION NOT TO DAMAGE THE EXISTING16 INCH WATER MAIN DUE TO MINIMAL COVER.

WHERE INDICATED ON THE PLANS, THE EXISTING WATER MAIN SHALL BE ABANDONED; AND ANY EXISTING WATER SERVICES OFF THIS MAIN SHALL BE TRANSFERRED TO THE NEW WATER MAIN. PRIOR TO ABANDONMENT OF THE EXISTING WATER MAIN, THE PROPOSED WATER MAIN SHALL BE PIGGED (IF REQUIRED), TESTED, CHLORINATED AND PUT IN SERVICE AND THEN THE EXISTING WATER SERVICES SHALL BE TRANSFERRED. THE CONTRACTOR SHALL MAINTAIN WATER SERVICES TO ALL PROPERTIES DURING CONSTRUCTION OF THE NEW WATER MAIN AND SHALL NOTIFY ALL CUSTOMERS AFFECTED BY THE TRANSFER OF SERVICES. TO ENSURE THAT ALL EXISTING SERVICES ARE TRANSFERRED TO THE NEW MAIN, NO WATER MAIN SHALL BE ABANDONED UNTIL THE NEW WATER MAIN HAS BEEN PUT IN SERVICE; ALL AFFECTED WATER SERVICES HAVE BEEN TRANSFERRED; AND THE EXISTING WATER MAIN TO BE ABANDONED HAS BEEN SHUT DOWN FOR 24 HOURS. ALL

WATER WORK NOTES (CONTINUED)

VISIBLE VALVE BOXES, FIRE HYDRANTS, AND SERVICE BOXES ON THE WATER MAIN TO BE ABANDONED, WHICH WILL NO LONGER BE IN SERVICE, SHALL BE REMOVED. ALL WATER MAINS TO BE ABANDONED SHALL BE MADE WATER TIGHT. THE REQUIRED SURFACE RESTORATION SHALL BE PAID FOR UNDER THE APPROPRIATE BID ITEM(S).

FIRE HYDRANT RELOCATIONS SHALL CONFORM TO APPLICABLE SECTIONS OF ITEM 809 OF THE CITY OF COLUMBUS CONSTRUCTION AND MATERIAL SPECIFICATIONS. WORK SHALL CONSIST OF REMOVING THE EXISTING HYDRANT, INSTALLING NEW 6" PIPE AND FITTING AS REQUIRED TO LOCATE THE FIRE HYDRANT 2 FEET FROM BACK OF PROPOSED CURB OR 8 FEET OFF EDGE OF PAVEMENT, RESETTING HYDRANT AND BLOCKING AS REQUIRED. ALL 6" PIPE SHALL BE INSTALLED AT 4'-0" MINIMUM COVER. HYDRANT EXTENSIONS SHALL BE PROVIDED PER ITEM 810, AS REQUIRED. RELOCATED FIRE HYDRANTS SHALL BE ADJUSTED TO PROPER GRADE AND FACED IN THE PROPER DIRECTION. WHEN A HYDRANT IS RELOCATED FIFTEEN (15) FEET OR MORE FROM THE "TYPICAL HYDRANT SETTING" VALVE LOCATION (SEE L-6409 & L-6637), AN ADDITIONAL VALVE SHALL BE INSTALLED, AND RESTRAINED, WITHIN TWO (2) FEET OF THE RELOCATED HYDRANT. PAYMENT IS TO BE INCLUDED UNDER ITEM 809, FIRE HYDRANT RELOCATED.

NO TWO (2) ADJACENT FIRE HYDRANTS SHALL BE TAKEN OUT OF SERVICE CONCURRENTLY.

THE CONTRACTOR SHALL NOTIFY THE DIVISION OF FIRE ALARM OFFICE, 221-3132, WHENEVER FIRE HYDRANTS ARE TAKEN OUT OF SERVICE AND PLACED BACK IN SERVICE.

RELOCATED FIRE HYDRANTS SHALL BE PUT BACK IN SERVICE AS SOON AS POSSIBLE.

THE CONTRACTOR SHALL COORDINATE HIS WORK SUCH THAT NO WATER CUSTOMER WILL HAVE THEIR SERVICE DISRUPTED MORE THAN TWO (2) TIMES THROUGHOUT THE DURATION OF THIS PROJECT.

DIVISION OF SEWERAGE AND DRAINAGE UTILITIES

CITY OF COLUMBUS LOCATORS WILL ONLY LOCATE AND MARK MAIN LINE SEWERS. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL SERVICE LATERALS AND FIELD VERIFYING THE LOCATION OF MAIN SEWER LINES. ANY DAMAGE AND/OR REPAIRS TO THE MAIN SEWER LINES OR SERVICE LATERALS ARE THE RESPONSIBILITY OF THE SEWER CONTRACTOR. REPAIRS MUST BE COMPLETED BY A LICENSED SEWER CONTRACTOR UNDER A SEPARATE SEWER PERMIT.

CLEAN WATER CONNECTIONS TO SANITARY SEWERS:

ROOF DRAINS, FOUNDATION DRAINS, DRAIN TILES, AND OTHER CLEAN WATER CONNECTIONS TO THE SANITARY SYSTEM ARE PROHIBITED.

CERTIFICATION OF PIPE AND STRUCTURES:

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

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STORMWATER FACILITIES:

BEFORE ANY WORK IS STARTED ON THE PROJECT AND AGAIN BEFORE FINAL ACCEPTANCE BY THE OWNER, THE ENGINEER AND THE CONTRACTOR SHALL MAKE AN INSPECTION OF ALL EXISTING SEWERS WHICH ARE TO REMAIN IN SERVICE AND WHICH MAY BE AFFECTED BY THE WORK. THE CONDITION OF THE EXISTING CONDUITS AND THEIR APPURTENANCES SHALL BE DETERMINED FROM FIELD OBSERVATIONS. THE ENGINEER SHALL KEEP RECORDS OF THE INSPECTION IN WRITING.

ALL NEW CONDUITS, INLETS, CATCH BASINS, AND MANHOLES CONSTRUCTED OR RECONSTRUCTED AS A PART OF THE PROJECT SHALL BE FREE OF ALL FOREIGN MATTER AND IN A CLEAN CONDITION BEFORE THE PROJECT WILL BE ACCEPTED BY THE OWNER. ALL EXISTING MANHOLES, CATCH BASINS, DRAINS, SEWERS, AND APPURTENANCES INSPECTED INITIALLY BY THE ABOVE MENTIONED PARTIES SHALL BE MAINTAINED AND LEFT IN A CONDITION REASONABLE COMPARABLE TO THAT DETERMINED BY THE ORIGINAL INSPECTION. THE CONTRACTOR SHALL CORRECT ANY CHANGE IN THE CONDITION RESULTING FROM THE CONTRACTOR'S OPERATIONS TO THE SATISFACTION OF THE ENGINEER. THE ABOVE IS NOT APPLICABLE FOR STRUCTURES TO BE ABANDONED. THE CONTRACTOR SHALL REMOVE DEBRIS, SILT, ETC. FROM THE EXISTING MANHOLES AND CATCH BASINS THAT HAVE BEEN AFFECTED BY CONSTRUCTION OPERATIONS. THE CONTRACTOR SHALL MAINTAIN SERVICE IN EXISTING SEWERS DURING CONSTRUCTION.

EXISTING DRAINAGE SYSTEMS:

EXISTING DRAINAGE SYSTEMS (FIELD TILES, ROOF DRAIN OUTLETS, SUMP PUMPS, ETC.) ENCOUNTERED DURING CONSTRUCTION OF THE NEW STORM SEWER OR REMOVAL OF EXISTING STORM SEWERS SHALL BE EXTENDED AS NECESSARY AND BLIND TAPPED TO THE NEW STORM SEWER PER DIVISION OF SEWERAGE AND DRAINAGE STANDARD DRAWING AA-S159 OR CONNECTED TO THE CATCH BASIN AS DIRECTED BY THE ENGINEER. ALL COSTS ASSOCIATED WITH THIS WORK SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CMSC ITEM 901.

IF THE CONTRACTOR ENCOUNTERS A PIPE OR CONNECTION TO THE STORM SEWER THAT IN THE ESTIMATE OF THE ENGINEER MAY BE AN ILLICIT CONNECTION FROM AN ON-SITE SEWAGE DISPOSAL SYSTEM, COLUMBUS PUBLIC HEALTH SHALL BE CONTACTED AT 645-6448 TO DETERMINE WHETHER THE PIPE MAY BE RECONNECTED TO THE CITY'S STORM SEWER SYSTEM.

GRADE CHANGES:

IF IT IS DETERMINED THAT THE ELEVATION OF THE EXISTING SEWER, OR EXISTING APPURTENANCE TO BE CONNECTED, DIFFERS FROM THE PLAN ELEVATION OR RESULTS IN A CHANGE IN THE PLAN SEWER SLOPE, THE ENGINEER SHALL BE NOTIFIED BEFORE STARTING CONSTRUCTION OF ANY PORTION OF THE PROPOSED SEWER WHICH WILL BE AFFECTED BY THE VARIANCE IN THE EXISTING ELEVATIONS. IF IT IS DETERMINED THAT THE PROPOSED SEWER WILL INTERSECT AN EXISTING SEWER OR UNDERGROUND UTILITY IF CONSTRUCTED AS SHOWN ON THE PLAN, THE ENGINEER SHALL BE NOTIFIED BEFORE STARTING CONSTRUCTION OF ANY PORTION OF THE PROPOSED SEWER WHICH WOULD BE AFFECTED BY THE INTERFERENCE WITH AN EXISTING FACILITY.

GRADES AND ELEVATIONS SHOWN ON THE PLANS SHALL NOT BE REVISED UNDER ANY CIRCUMSTANCES WITHOUT FIRST OBTAINING WRITTEN APPROVAL FROM THE ENGINEER. INVERT ELEVATIONS SHALL NOT DEVIATE FROM PLAN ELEVATION BY MORE THAN 0.05 FOOT. FAILING TO MEET THE ABOVE REQUIREMENTS IS CAUSE FOR REJECTION OF THE AFFECTED SECTION OF SEWER.

END TREATMENT:

IMMEDIATELY AFTER PLACEMENT OF ANY CONDUITS, THE CONTRACTOR SHALL CONSTRUCT THE END TREATMENTS REQUIRED BY THE PLANS AT BOTH THE OUTLET AND INLET ENDS. THIS SHALL INCLUDE HEADWALLS, CONCRETE, RIPRAP, ROCK CHANNEL PROTECTION, SODDING, ETC.

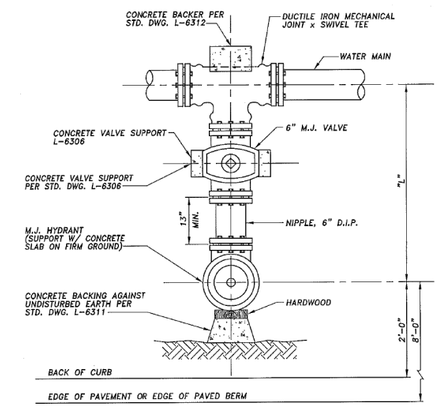
LICENSED SEWER TAPPER REQUIREMENT

IT SHALL BE UNLAWFUL FOR ANY PERSON TO ENGAGE IN THE BUSINESS OF SEWER TAPPING AND SEWER BUILDING, OR TO OPEN OR TAP ANY SEWER IN ANY STREET, ALLEY OR ANY PUBLIC OR PRIVATE PLACE OR REHABILITATION OF ANY SEWER OR APPURTENANCES (INCLUDING MANHOLES, INLETS AND SERVICE LATERALS) IN THE CITY OF COLUMBUS WITHOUT FIRST SECURING LICENSE TO ENGAGE IN SUCH BUSINESS, AS INDICATED IN COLUMBUS CITY CODE SECTION 1131.01. UTILIZATION OF SUBCONTRACTOR MUST MEET THE LICENSING REQUIREMENTS OF CITY OF COLUMBUS BUILDING CODE, IN PARTICULAR SECTION 4114.119 AND 4114.529.

WATER WORK AS-BUILT COORDINATE TABLE

STATE PLANE COORDINATES (OHIO SOUTH ZONE)					
			AS-BUILT		
SHT #	℄ STATION	DESCRIPTION	NORTHING	EASTING	℄ ELEV
31	117+63.17 85.5' RT	BEGIN W.M. LOWERING			
31	117+71.11 61.70' RT	END W.M. LOWERING			
31	117+71.27 61.40' RT	6" VALVE			
31	117+71.88 59.10' RT	TYPE "A" HYDRANT SETTING			
31	117+72.00 59.0' RT	CUT AND PLUG EX. 6" W.M.			
31	117+78.00 38.30' RT	REMOVE EX. TYPE "A" HYDRANT SETTING			
32	121+92.95 55.60' RT	6" VALVE			
32	121+93.25 58.0' RT	TYPE "A" HYDRANT SETTING			

TYPICAL TYPE "A" HYDRANT SETTING



MAIN LINE	DIMENSION "L" TYPE "A"
6"	39"
8"	40"
12"	43"
16"	46"
20"	58"
24"	61"
30"	64"

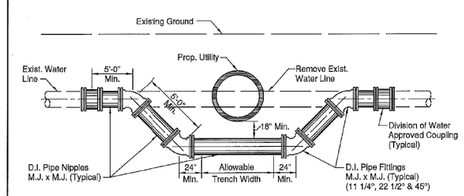
NOTES:

1. FIRE HYDRANT SHALL HAVE A MAXIMUM BURY OF 7'-0". MODIFICATION OF THE HYDRANT LEAD TO MEET THIS REQUIREMENT SHALL BE IN THAT SECTION FROM THE VALVE TO THE HYDRANT AS PER STANDARD DETAIL L-7601.
2. FIRE HYDRANTS SHALL BE SET A MINIMUM OF 6' FROM ALL DRIVEWAY OPENINGS.
3. TEE USED TO CONNECT HYDRANT LEAD TO WATER MAIN IS INCLUDED IN COST OF ITEM 809, FIRE HYDRANT.

CITY OF COLUMBUS DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER	STANDARD DETAIL TYPICAL TYPE "A" HYDRANT SETTING FOR DUCTILE IRON MECHANICAL JOINT x SWIVEL TEES	L-6637A
APPROVED: R.C. Westerfield 5-16-13 ADMINISTRATOR DATE		

L-6637A_Dwg Revision Date: 1/2/13

TYPICAL WATERLINE LOWERING



1. The scheduling of any water shut downs shall be as per Item 801 of the current CCMS. Time and duration of all shut downs shall be determined by Division of Water. The Contractor shall notify all water customers effected by the proposed work at least 24 hours in advance of the scheduled shut down.
2. All bends shall be secured by retaining glands, rodding or other methods as approved by the Engineer to restore the water main to service as soon as possible. For water lines 16" and under concrete backing shall then be provided in accordance with Standard Detail L-6310 for over bends and L-6311 for sag bends.
3. Existing Water Lines 20" and greater must have prior approval of DOW to lower under a proposed utility. Approval will only be given under special circumstances and contingent upon the Contractor submitting a designed drawing, stamped by a Professional Engineer, detailing how the lowered water line will be restrained to the existing water main.
4. The relocated lines shall be laid to the new line and grade, tested and disinfected prior to shut down of existing main and connection of the relocated lines to the existing main.
5. All water lines shall be disinfected by swabbing with a 5 per cent Hypochlorite solution in accordance with the applicable sections of A.W.W.A. C-601.

CITY OF COLUMBUS DEPARTMENT OF PUBLIC UTILITIES DIVISION OF WATER	STANDARD DETAIL TYPICAL WATER LINE LOWERING	L-7401
APPROVED: R.C. Westerfield 5-16-13 ADMINISTRATOR DATE		

L-7401_Dwg Revision Date: 1/2/13

CALCULATED JEP CHECKED RG

GENERAL NOTES DETAILS & COORDINATE TABLE

WATER WORK

HILLIARD ROME RD

3103-E

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ITEM 614, MAINTAINING TRAFFIC

A MINIMUM OF TWO LANE, TWO WAY TRAFFIC SHALL BE MAINTAINED AT ALL TIMES BY USE OF A COMBINATION OF EXISTING PAVEMENT, ITEM 615 PAVEMENT FOR MAINTAINING TRAFFIC, AND THE COMPLETED PAVEMENT PER FIGURE 6H-32 TYPICAL APPLICATION 32 (TA-32) OF THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (OMUTCD).

SETTING OF PORTABLE BARRIER SHALL NOT TAKE PLACE DURING PEAK HOURS OF 6:00 AM TO 9:00 AM OR 4:00 PM TO 6:00 PM MONDAY THROUGH FRIDAY.

ACCESS TO RENNER ROAD, WESTPOINTE PLAZA DRIVE AND COMMERCIAL DRIVES SHALL BE MAINTAINED AT ALL TIMES AND OTHER LOCAL TRAFFIC SHALL BE MAINTAINED AS PER CMS 614.02(a).

ACCESS FOR PEDESTRIAN AND VEHICULAR TRAFFIC TO ALL ADJOINING PROPERTIES SHALL BE MAINTAINED AT ALL TIMES.

IF EXISTING AREAS BEYOND THE CONSTRUCTION LIMITS ARE DAMAGED OR DESTROYED DUE TO THE CONTRACTOR'S NEGLIGENCE OR FAILURE TO PROVIDE ADEQUATE SIGNS, DRUMS OR OTHER TRAFFIC CONTROL DEVICES, THE RESTORATION OF AFFECTED AREAS WILL BE AT THE CONTRACTOR'S EXPENSE.

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 RESTRICTIONS 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.

ALL WORK AND TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH CMS 614 AND OTHER APPLICABLE PORTIONS OF THE SPECIFICATIONS, AS WELL AS THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. 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.

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. PLACEMENT OF PROPOSED SUBBASE AND BASE MATERIAL SHALL FOLLOW AS CLOSELY AS POSSIBLE BEHIND 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 APPROVAL OF THE ENGINEER.

OVER NIGHT TRENCH CLOSING

THE BASE WIDENING SHALL BE COMPLETED TO A DEPTH OF NO MORE THAN 1½INCHES BELOW THE EXISTING PAVEMENT BY THE END OF EACH WORK DAY. NO TRENCH SHALL BE LEFT OPEN OVERNIGHT EXCEPT FOR A SHORT LENGTH (25 FEET OR LESS) OF A WORK SECTION AT THE END OF THE TRENCH. IN CASE WORK MUST BE SUSPENDED BECAUSE OF INCLEMENT WEATHER OR OTHER REASONS, THE TRENCH FOR THE UNCOMPLETED BASE WIDENING SHALL BE BACKFILLED AT THE DIRECTION OF THE ENGINEER.

ALL TRENCHES WITHIN THE ROAD RIGHT OF WAY SHALL BE BACKFILLED OR SECURELY PLATED PER (CITY OF COLUMBUS GENERAL POLICY ON STEEL PLATE USAGE DATES 11/15/2006 AND 2007 STD. DWG. 1441) DURING NON-WORKING HOURS.

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 6 M. GAL

FLOODLIGHTING

FLOODLIGHTING OF THE WORK SITE FOR OPERATIONS CONDUCTED DURING NIGHTTIME PERIODS SHALL BE ACCOMPLISHED SO THAT THE LIGHTS DO NOT CAUSE GLARE TO THE DRIVERS ON THE ROADWAY. TO ENSURE THE ADEQUACY OF THE FLOODLIGHT PLACEMENT, THE CONTRACTOR AND THE ENGINEER SHALL DRIVE THROUGH THE WORK SITE EACH NIGHT WHEN THE LIGHTING IS IN PLACE AND OPERATIVE PRIOR TO COMMENCING ANY WORK. IF GLARE IS DETECTED, THE LIGHT PLACEMENT AND SHIELDING SHALL BE ADJUSTED TO THE SATISFACTION OF THE ENGINEER BEFORE WORK PROCEEDS.

PAYMENT FOR ALL LABOR, EQUIPMENT AND MATERIALS SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE FOR ITEM 614, MAINTAINING TRAFFIC (PLAN NOTE 642-2).

ITEM 614, WORK ZONE IMPACT ATTENUATOR FOR 24" WIDE HAZARDS (UNIDIRECTIONAL OR BIDIRECTIONAL)

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING A NON-GATING IMPACT ATTENUATOR. FURNISH AN IMPACT ATTENUATOR FROM THE OFFICE OF ROADWAY ENGINEERING'S APPROVED LIST FOR WORK ZONE IMPACT ATTENUATORS, FROM THE ROADWAY STANDARDS WEB PAGE FOR ROADWAY STANDARDS APPROVED PRODUCTS.

INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIED IN THE PLANS IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.

THE CONTRACTOR SHALL REPAIR OR REPLACE A DAMAGED UNIT WITHIN 24 HOURS OF A DAMAGING IMPACT.

WHEN BIDIRECTIONAL DESIGNS ARE SPECIFIED, THE CONTRACTOR SHALL SUPPLY APPROPRIATE TRANSITIONS. WHEN GATING IMPACT ATTENUATORS ARE DESIRED, THE CONTRACTOR SHALL SUBMIT DOCUMENTATION TO THE ENGINEER FOR ACCEPTANCE.

THE COST FOR THE ADDITIONAL BARRIER REQUIRED FOR A GATING IMPACT ATTENUATOR SHALL BE INCLUDED IN THE COST OF THE GATING IMPACT ATTENUATOR.

PAYMENT FOR THE ABOVE WORK SHALL BE MADE AT THE UNIT PRICE BID AND SHALL INCLUDE ALL LABOR, TOOLS, EQUIPMENT AND MATERIALS NECESSARY TO CONSTRUCT AND MAINTAIN A COMPLETE AND FUNCTIONAL IMPACT

ATTENUATOR SYSTEM, INCLUDING ALL RELATED BACKUPS, TRANSITIONS, LEVELING PADS, HARDWARE AND GRADING, NOT SEPARATELY SPECIFIED, AS REQUIRED BY THE MANUFACTURER.

ITEM 614, WORK ZONE IMPACT ATTENUATOR FOR HAZARDS OVER 24" WIDE AND LESS THAN 36" WIDE, (UNIDIRECTIONAL OR BIDIRECTIONAL)

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING A NON-GATING IMPACT ATTENUATOR. FURNISH AN IMPACT ATTENUATOR FROM THE OFFICE OF ROADWAY ENGINEERING APPROVED LIST FOR WORK ZONE IMPACT ATTENUATORS, FROM THE ROADWAY STANDARDS WEB PAGE FOR ROADWAY STANDARDS APPROVED PRODUCTS.

ITEM 614, WORK ZONE IMPACT ATTENUATOR FOR HAZARDS OVER 24" WIDE AND LESS THAN 36" WIDE, (UNIDIRECTIONAL OR BIDIRECTIONAL) (CONTINUED)

INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIED IN THE PLANS, IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.

THE CONTRACTOR SHALL REPAIR OR REPLACE A DAMAGED UNIT WITHIN 24 HOURS OF A DAMAGING IMPACT.

WHEN BIDIRECTIONAL DESIGNS ARE SPECIFIED, THE CONTRACTOR SHALL SUPPLY APPROPRIATE TRANSITIONS.

PAYMENT FOR THE ABOVE WORK SHALL BE MADE AT THE UNIT PRICE BID AND SHALL INCLUDE ALL LABOR, TOOLS, EQUIPMENT AND MATERIALS NECESSARY TO CONSTRUCT AND MAINTAIN A COMPLETE AND FUNCTIONAL IMPACT ATTENUATOR SYSTEM, INCLUDING ALL RELATED BACKUPS, TRANSITIONS, LEVELING PADS, HARDWARE AND GRADING, NOT SEPARATELY SPECIFIED, AS REQUIRED BY THE MANUFACTURER.

ITEM 614 - WORK ZONE RAISED PAVEMENT MARKERS ON CONCRETE SURFACES

RAISED PAVEMENT MARKERS IN WORK ZONES, INSTALLED ON TO CONCRETE SURFACES, SHALL BE ITEM 614 WORK ZONE RAISED PAVEMENT MARKERS. WZRPMS ARE INTENDED FOR USE ONLY DURING THE NON-SNOW-PLOWING SEASON. WZRPMS SHALL NOT BE PROVIDED DURING THE SNOW-PLOWING SEASON.

THE SNOW-PLOWING SEASON SHALL RUN FROM NOVEMBER 15 THROUGH MARCH 15.

WHERE A TEMPORARY ALIGNMENT WILL REMAIN IN USE THROUGH THE WINTER, THE WZRPMS SHALL BE REMOVED PRIOR TO THE BEGINNING OF THE SNOW-PLOWING SEASON AND REPLACED APPROXIMATELY APRIL 1, OR AS OTHERWISE DETERMINED BY THE ENGINEER.

THIS ITEM SHALL INCLUDE PURCHASE, INSTALLATION AND REMOVAL OF ITEM 614 WORK ZONE RAISED PAVEMENT MARKERS.

AN ESTIMATED QUANTITY OF 137 EACH OF ITEM 614 WORK ZONE RAISED PAVEMENT MARKER HAS BEEN PROVIDED AND CARRIED TO THE GENERAL SUMMARY.

MOT PHASE CHANGES: NOTIFICATION AND COORDINATION REQUIREMENTS

AT LEAST FOURTEEN DAYS PRIOR TO ANY CONSTRUCTION ACTIVITIES, LANE CLOSURES, OR ROAD CLOSURES, THE CONTRACTOR SHALL ADVISE THE DISTRICT OFFICE OF COMMUNICATIONS VIA EMAIL AT d06.pio@dot.state.oh.us AND THE DISTRICT WORK ZONE TRAFFIC MANAGER VIA EMAIL AT d06.mot@dot.state.oh.us OF THE ANTICIPATED START DATE OF ANY CONSTRUCTION ACTIVITIES, INCLUDING BUT NOT LIMITED TO

THE ANTICIPATED IMPACT ON TRAFFIC. THE CONTRACTOR SHALL IMMEDIATELY INFORM THE DISTRICT OFFICE OF COMMUNICATIONS AND THE DISTRICT WORK ZONE TRAFFIC MANAGER OF ANY AND ALL DELAYS AND/OR CHANGES REGARDING THE CONSTRUCTION INITIATION DATE.

MOT PHASE CHANGES: NOTIFICATION AND COORDINATION REQUIREMENTS (CONTINUED)

THROUGHOUT THE DURATION OF THE PROJECT, THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER AND THE OTHERS LISTED IN THIS SECTION IN WRITING OF ALL TRAFFIC RESTRICTIONS AND UPCOMING MAINTENANCE OF TRAFFIC CHANGES. THE CONTRACTOR SHALL ENSURE THE WRITTEN NOTIFICATION IS SUBMITTED IN A TIMELY MANNER TO ALLOW THE PROJECT ENGINEER TO MEET THE REQUIRED TIME FRAMES SET FORTH IN THE TABLE BELOW. THIS NOTIFICATION SHALL BE RECEIVED BY THE PROJECT ENGINEER PRIOR TO THE PHYSICAL SETUP OF ANY APPLICABLE SIGNS OR MESSAGE BOARDS.

ITEM	DURATION OF CLOSURE	NOTIFICATION TIME FRAME
LANE CLOSURES/RESTRICTIONS	>= 2 WEEKS	7 BUSINESS DAYS PRIOR TO CLOSURE
	< 2 WEEKS	2 BUSINESS DAYS PRIOR TO CLOSURE

INFORMATION SHALL INCLUDE BUT IS NOT LIMITED TO ALL CONSTRUCTION ACTIVITIES THAT IMPACT OR INTERFERE WITH TRAFFIC AND SHALL LIST THE SPECIFIC LOCATION, TYPE OF WORK, ROAD STATUS, DATE AND TIME OF RESTRICTION, DURATION OF RESTRICTION, NUMBER OF LANES MAINTAINED, DETOUR ROUTES IF APPLICABLE, AND ANY OTHER INFORMATION REQUESTED BY THE PROJECT ENGINEER AND THE DISTRICT 6 COMMUNICATIONS OFFICE. ANY UNFORESEEN CONDITIONS NOT SPECIFIED IN THE PLANS REQUIRING TRAFFIC RESTRICTIONS SHALL ALSO BE REPORTED TO THE PROJECT ENGINEER, THE DISTRICT 6 COMMUNICATIONS OFFICE, AND THE DISTRICT WORK ZONE TRAFFIC MANAGER USING THE NOTIFICATION TIME FRAME TABLE.

PUBLIC OUTREACH AND NOTIFICATION

THE DISTRICT 6 COMMUNICATIONS OFFICE WILL NOTIFY THE PUBLIC, THE LOCAL EMERGENCY SERVICES, AFFECTED SCHOOLS AND BUSINESSES, AND ANY OTHER IMPACTED LOCAL PUBLIC AGENCY OF ANY OF THE ABOVE MENTIONED ITEMS, VIA MEDIA SOURCES.

POINTS OF CONTACT

ODOT DISTRICT 6 COMMUNICATIONS OFFICE
NANCY BURTON
(740) 833-8063
NANCY.BURTON@DOT.STATE.OH.US

ODOT DISTRICT 6, DISTRICT 6 WORK ZONE TRAFFIC MANAGER
D06.MOT@DOT.STATE.OH.US

ITEM 630, SPECIFIC SERVICE AND TOURIST-ORIENTED DIRECTIONAL SIGNS REMOVAL AND REINSTALLATION

TOURIST-ORIENTED DIRECTIONAL SIGNS (TODS) AND LOGO SIGNS ARE INSTALLED AND MAINTAINED BY OHIO LOGOS, INC., UNDER CONTRACT WITH AND IN LOCATIONS APPROVED BY ODOT. UNDER THE TERMS OF THE CONTRACT, OHIO LOGOS CAN BE REQUIRED TO TEMPORARILY REMOVE OR RELOCATE THE SIGNS DURING CONSTRUCTION. THEY CAN ALSO BE REQUIRED TO PERMANENTLY REMOVE OR RELOCATE THE SIGNS. CONTACT OHIO LOGOS AT 1-800-860-5646 TO COORDINATE REMOVALS OR RELOCATIONS OF TODS AND LOGO SIGNS.

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DELINEATION OF PORTABLE AND PERMANENT BARRIER

BARRIER REFLECTORS AND OBJECT MARKERS SHALL BE INSTALLED ON ALL PORTABLE BARRIER (PB) USED FOR TRAFFIC CONTROL AND ON PERMANENT CONCRETE BARRIER (INCLUDING BRIDGE PARAPETS) LOCATED WITHIN 5 FEET OF THE EDGE OF THE ADJACENT TRAVEL LANE.

BARRIER REFLECTORS SHALL CONFORM TO C&MS 626, EXCEPT THAT THE SPACING SHALL BE AS PER TRAFFIC SCD MT-101.70. OBJECT MARKERS AND THEIR INSTALLATION SHALL CONFORM TO C&MS 614.03 AND SCD MT-101.70. WHEN THE PB CONTAINS GLARE SCREEN, ONE SET OF THREE VERTICAL STRIPES OF SHEETING SHALL BE CONSIDERED EQUIVALENT TO AN OBJECT MARKER, ONE-WAY.

DELINEATION OF PORTABLE AND PERMANENT BARRIER

INCREASED BARRIER DELINEATION, AS SPECIFIED HEREIN, SHALL BE INSTALLED ON ALL PB AND CONCRETE PERMANENT BARRIER LOCATED WITHIN 5 FEET OF THE EDGE OF THE TRAVELED LANE ALONG TAPERS AND TRANSITION AREAS AND ALONG CURVES (OUTSIDE ONLY) WITH DEGREE OF CURVATURE GREATER THAN OR EQUAL TO 3 DEGREES.

THE INCREASED BARRIER DELINEATION SHALL CONSIST OF EITHER DELINEATION PANELS OR THE TRIPLE STACKING OF WORK ZONE BARRIER REFLECTORS.

DELINEATION PANELS SHALL CONSIST OF PANELS OF DELINEATION, APPROXIMATELY 34 INCHES LONG AND 6 INCHES WIDE AND SHALL BE CRIMPED. PANELS SHALL BE INSTALLED AND SPACED PER TRAFFIC SCD MT-101.70.

TRIPLE-STACKED BARRIER REFLECTORS SHALL CONSIST OF ALIGNING THREE BARRIER REFLECTORS VERTICALLY, AT LOCATIONS WHERE A SINGLE BARRIER REFLECTOR WOULD BE OTHERWISE ATTACHED. THERE SHALL BE NO OPEN SPACE BETWEEN THE ADJACENT BARRIER REFLECTORS. THE TRIPLE-STACKED BARRIER REFLECTORS SHALL CONFORM TO C&MS 626, EXCEPT THAT THEY SHALL BE SPACED AND ALIGNED PER TRAFFIC SCD MT-101.70.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE PLANS:

ITEM 614, BARRIER REFLECTOR, TYPE B 104 EACH
ITEM 614, OBJECT MARKER, ONE-WAY 104 EACH

PAYMENT SHALL BE FULL COMPENSATION FOR ALL MATERIAL, LABOR, INCIDENTALS AND EQUIPMENT NECESSARY FOR FURNISHING, INSTALLING, MAINTAINING AND REMOVING EACH OF THE ABOVE ITEMS.

ALONG RUNS OF INCREASED BARRIER DELINEATION WHERE THIS ITEM IS PROVIDED, THE QUANTITY SHALL BE MEASURED AS THE ENTIRE LENGTH OF THE RUN OF INCREASED BARRIER DELINEATION, INCLUDING THE SPACES BETWEEN THE INDIVIDUAL DELINEATION PANELS OR STACKS OF BARRIER REFLECTORS.

DELINEATION OF TEMPORARY AND PERMANENT GUARDRAIL

BARRIER REFLECTORS SHALL BE INSTALLED ON ALL TEMPORARY GUARDRAIL USED FOR TRAFFIC CONTROL AND ON ALL PERMANENT GUARDRAIL LOCATED WITHIN 5 FEET OF THE EDGE OF THE ADJACENT TRAVEL LANE. BARRIER REFLECTORS SHALL CONFORM TO C&MS 626.

OBJECT MARKERS SHALL BE INSTALLED ON ALL TEMPORARY AND PERMANENT GUARDRAIL LOCATED WITHIN 5 FEET OF THE EDGE OF THE ADJACENT TRAVEL LANE. GUARDRAIL-MOUNTING OF OBJECT MARKERS SHALL BE MADE BY INSTALLING THE OBJECT MARKERS ON THE EXTENSION BLOCKS RATHER THAN DIRECTLY ONTO THE GUARDRAIL ITSELF. OBJECT MARKERS SHALL CONFORM TO C&MS 614.03 AND THE SPACING SHALL BE APPROXIMATELY 50 FEET.

THE FOLLOWING ESTIMATED QUANITIES HAVE BEEN INCLUDED IN THE PLANS:

ITEM 614, BARRIER REFLECTOR, TYPE A 16 EACH
ITEM 614, OBJECT MARKER, ONE WAY 16 EACH

PAYMENT SHALL BE FULL COMPENSATION FOR ALL MATERIAL, LABOR, INCIDENTALS AND EQUIPMENT NECESSARY FOR FURNISHING, INSTALLING, MAINTAINING AND REMOVING THE ABOVE ITEM(S).

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 OMUTCD INTENDS THAT FLAGGERS BE USED.

IN ADDITION TO THE REQUIREMENTS OF C&MS 614 AND THE OMUTCD, 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 OR 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).

IN ADDITION TO THE REQUIREMENT OF C&MS 614 AND THE OMUTCD, A UNIFORMED LEO WITH AN OFFICIAL PATROL CAR (CAR WITH TOP-MOUNTED EMERGENCY FLASHING LIGHTS AND COMPLETE MARKINGS OF THE APPROPRIATE LAW ENFORCEMENT AGENCY) **SHOULD** BE PROVIDED FOR THE FOLLOWING TRAFFIC CONTROL TASKS:

- 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). IN GENERAL, LEOS SHOULD BE POSITIONED AT THE POINT OF LANE RESTRICTION OR ROAD CLOSURE AND TO MANUALLY CONTROL TRAFFIC MOVEMENTS THROUGH INTERSECTIONS IN WORK ZONES.

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

- WHEN CONSTRUCTION VEHICLES ARE ENTERING/EXITING THE ZONE DIRECTLY FROM/INTO AN OPEN LANE OF TRAFFIC. IF A LANE HAS BEEN CLOSED TO PROVIDE AN ACCELERATION/DECELERATION LANE FOR THE VEHICLE, THE LEO WILL NOT BE REQUIRED.

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.

THE LEOS WORK AT THE DIRECTION OF THE CONTRACTOR. 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 RE- TURNED TO THE CONTRACTOR AT THE END OF HIS/HER SHIFT.

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.

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.

LAW ENFORCEMENT OFFICERS (LEO'S)

LEO'S WITHOUT PATROL CARS SHALL BE REQUIRED FOR THE FOLLOWING SITUATIONS:

- LEOS SHALL BE PROVIDED AT A TRAFFIC SIGNAL WHEN IMPACTING THE NORMAL FUNCTION OF THE SIGNAL OR 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). LEOS SHALL NOT BE USED WHERE THE OMUTCD INTENDS THAT FLAGGERS BE USED.

- LEOS SHALL BE USED DURING CONSTRUCTION OPERATIONS AT AND WITHIN 150 FEET OF SIGNALIZED INTERSECTIONS.

SEQUENCE OF CONSTRUCTION

IT IS THE INTENT OF THE FOLLOWING SEQUENCE OF CONSTRUCTION TO PROVIDE A WORK AREA FOR THE CONTRACTOR WHILE ALSO MAINTAINING TRAFFIC IN THE MANNER WHICH IS SAFE FOR THE TRAVELING PUBLIC. ALL WORK ZONE OR PERMANENT PAVEMENT MARKINGS SHALL BE IN PLACE BEFORE ANY PAVEMENT IS OPEN TO TRAFFIC.

PRE-PHASE I OPERATIONS

IT IS THE INTENT OF THE FOLLOWING SEQUENCE OF CONSTRUCTION TO PROVIDE A WORK AREA FOR THE CONTRACTOR WHILE ALSO MAINTAINING TRAFFIC IN THE MANNER WHICH IS SAFE FOR THE TRAVELING PUBLIC. ALL WORK ZONE OR PERMANENT PAVEMENT MARKINGS SHALL BE IN PLACE BEFORE ANY PAVEMENT IS OPEN TO TRAFFIC.

1. REMOVAL OF THE EXISTING RAISED MEDIAN ON HILLIARD-ROME ROAD SHALL OCCUR FROM STA. 101+85 TO 106+55; STA. 107+29 TO STA. 113+82; AND FROM STA. 115+12 TO 120+22. THIS WORK WILL BE PERFORMED DURING THE DAY HOURS FROM 9 AM TO 3 PM AND NIGHT HOURS FROM 7 PM TO 5 AM USING LEFT-LANE CLOSURE PER ODOT SCD MT-95.30 AND A FLAGGER. A LAW ENFORCEMENT OFFICER WITH PATROL CAR WILL BE REQUIRED DURING LEFT LANE CLOSURE.

PHASE IA OPERATIONS

FOLLOWING COMPLETION OF PRE-PHASE I CONSTRUCTION AS DESCRIBED, PHASE IA WORK ZONE PAVEMENT MARKING, AND PLACEMENT OF ALL PHASE IA TRAFFIC CONTROL DEVICES (AS SHOWN ON THE PLAN), TRAFFIC WILL BE SHIFTED TO THE LEFT SIDE OF NORTHBOUND HILLIARD ROME ROAD AND THE RIGHT SIDE OF ENTRANCE RAMP C AND LEFT SIDE OF EXIT RAMP B.

1. CONSTRUCT TEMPORARY PAVEMENT ON LEFT SIDE OF RAMP B FROM STATION 266+80 TO STATION 272+00. THIS WORK WILL BE PERFORMED DURING NIGHT HOURS FROM 7PM TO 5AM. TO PERFORM THIS WORK, A PORTION OF THE EXIT RAMP LANE WILL BE CLOSED USING DRUMS ACCORDING TO ODOT STD MT-98.28.
2. INSTALL PORTABLE BARRIER AND STRIPING ALONG THE RIGHT SIDE OF RAMP C AND CONSTRUCT RAMP WIDENING ON THE LEFT SIDE OF RAMP C.
3. INSTALL PORTABLE BARRIER AND STRIPING ALONG THE RIGHT SIDE OF RAMP B AND CONSTRUCT RAMP WIDENING ON THE RIGHT SIDE OF RAMP B.
4. INSTALL DRUMS AND STRIPING ALONG THE RIGHT SIDE OF NORTHBOUND HILLIARD-ROME ROAD AND CONSTRUCT PAVEMENT WIDENING.
5. INSTALL DRUMS AND STRIPING ALONG THE LEFT SIDE OF SOUTHBOUND HILLIARD-ROME ROAD AND CONSTRUCT RAMP B WIDENING.

FOLLOWING COMPLETION OF THE ABOVE DESCRIBED ITEMS, BETWEEN THE PHASE CHANGES, THE CONTRACTOR SHALL REMOVE WORK ZONE TRAFFIC CONTROL DEVICES, BETWEEN THE HOURS OF 9 PM AND 5 AM.

PHASE IB OPERATIONS

FOLLOWING COMPLETION OF PHASE IA CONSTRUCTION AS DESCRIBED, PHASE IB WORK ZONE PAVEMENT MARKING, AND PLACEMENT OF ALL PHASE IB TRAFFIC CONTROL DEVICES (AS SHOWN ON THE PLAN), TRAFFIC WILL BE SHIFTED TO THE LEFT SIDE OF NORTHBOUND HILLIARD-ROME ROAD AND THE RIGHT SIDE OF EXIT RAMP B, AND THE LEFT SIDE OF ENTRANCE RAMP C.

1. INSTALL PORTABLE BARRIER AND STRIPING ALONG THE LEFT SIDE OF RAMP C AND CONSTRUCT RAMP WIDENING AND TEMPORARY PAVEMENT ON THE RIGHT SIDE.

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SEQUENCE OF CONSTRUCTION (CONTINUED)

PHASE IB OPERATIONS (CONTINUED)

2. INSTALL PORTABLE BARRIER AND STRIPING ALONG THE RIGHT SIDE OF RAMP B AND CONSTRUCT RAMP WIDENING AND TEMPORARY PAVEMENT ON THE LEFT SIDE.

FOLLOWING COMPLETION OF THE ABOVE DESCRIBED ITEMS, BETWEEN THE TRAFFIC PHASE CHANGES, THE CONTRACTOR SHALL REMOVE WORK ZONE TRAFFIC CONTROL DEVICES, BETWEEN THE HOURS OF 9 PM AND 5 AM.

PHASE IIA OPERATIONS

FOLLOWING COMPLETION OF PHASE IB CONSTRUCTION AS DESCRIBED, PHASE IIA WORK ZONE PAVEMENT MARKING, AND PLACEMENT OF ALL PHASE IIA TRAFFIC CONTROL DEVICES (AS SHOWN ON THE PLAN), TRAFFIC WILL BE SHIFTED TO THE INNER PORTION OF HILLIARD-ROME ROAD, AND THE SOUTHERN HALF OF RAMP A.

1. CLOSE AND REMOVE EXISTING RAMP B.

2. INSTALL DRUMS AND STRIPING ALONG THE LEFT SIDE OF SOUTHBOUND HILLIARD-ROME ROAD. THIS SET-UP IS FOR DAYTIME ONLY. AT NIGHT, THE CONTRACTOR MAY CLOSE 1 LANE IN THE SOUTHBOUND DIRECTION PER ODOT SCD MT-95.30.

3. INSTALL PORTABLE BARRIER AND STRIPING ALONG THE RIGHT SIDE OF EX. RAMP A AND CONSTRUCT RAMP A.

4. INSTALL DRUMS AND STRIPING ALONG THE RIGHT SIDE OF RAMP C TO DIRECT TRAFFIC.

FOLLOWING COMPLETION OF THE ABOVE DESCRIBED ITEMS, BETWEEN THE TRAFFIC PHASE CHANGES, THE CONTRACTOR SHALL REMOVE WORK ZONE TRAFFIC CONTROL DEVICES, BETWEEN THE HOURS OF 9 PM AND 5 AM.

PHASE IIB OPERATIONS

FOLLOWING COMPLETION OF PHASE IIA CONSTRUCTION AS DESCRIBED, PHASE IIB WORK ZONE PAVEMENT MARKING, AND PLACEMENT OF ALL PHASE IIB TRAFFIC CONTROL DEVICES (AS SHOWN ON THE PLAN), TRAFFIC WILL BE SHIFTED TO THE NORTHERN HALF OF RAMP A.

1. INSTALL TEMPORARY BARRIER AND STRIPING ALONG THE RIGHT SIDE OF EX. RAMP A AND CONSTRUCT RAMP A.

FOLLOWING COMPLETION OF THE ABOVE DESCRIBED ITEMS, BETWEEN THE TRAFFIC PHASE CHANGES, THE CONTRACTOR SHALL REMOVE WORK ZONE TRAFFIC CONTROL DEVICES, BETWEEN THE HOURS OF 9 PM AND 5 AM.

PHASE III OPERATIONS

1. CONSTRUCT RAISED CONCRETE MEDIAN ALONG HILLIARD-ROME ROAD FROM STA. 106+70 TO STA. 108+31; AND STA. 115+31 TO STA. 119+75. THIS WORK WILL BE PERFORMED DURING NIGHT HOURS FROM 7 PM - 5 AM AND DAYTIME HOURS FROM 9 AM - 3 PM USING LEFT-LANE CLOSURE PER ODOT SCD MT-95.30. DURING DAYTIME HOURS, MAINTAIN NORTHBOUND HILLIARD-ROME ROAD LEFT TURN LANE TO RAMP A AND TO RENNER ROAD AT ALL TIMES. A LAW ENFORCEMENT OFFICER WITHOUT PATROL CAR WILL BE REQUIRED DURING LEFT LANE CLOSURE.

PHASE IV OPERATIONS

1. RESURFACING SHALL OCCUR ON HILLIARD-ROME ROAD USING PAVING OPERATION PER ODOT SCD MT-97.12. THIS WORK WILL BE PERFORMED DURING NIGHT HOURS FROM 7 PM - 5 AM AND DAYTIME HOURS FROM 9 AM - 3 PM.

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CALCULATED EMR
CHECKED RG

MAINTENANCE OF TRAFFIC GENERAL NOTES

HILLIARD ROME RD

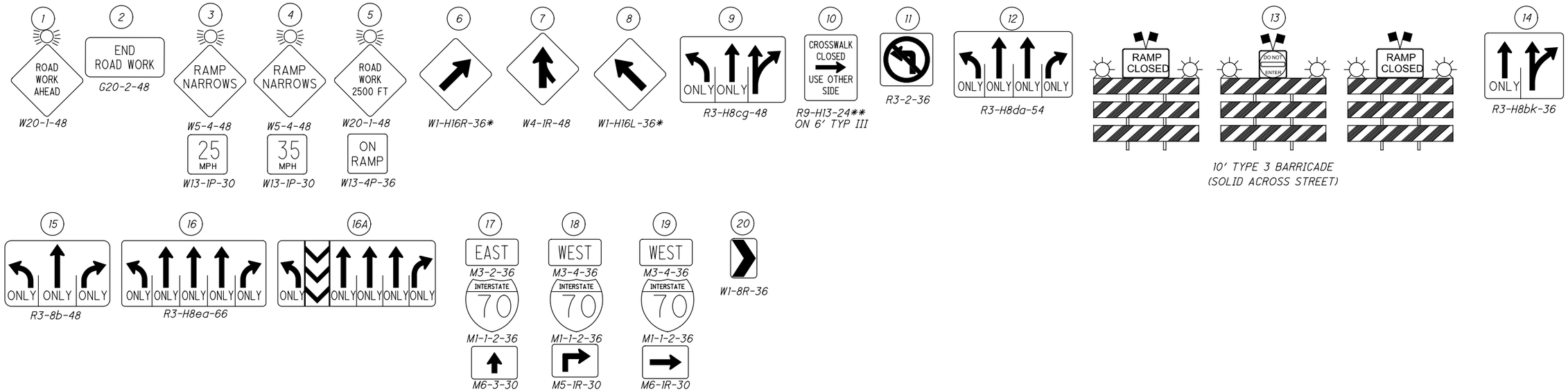
LEGEND

TYPE A WARNING LIGHT

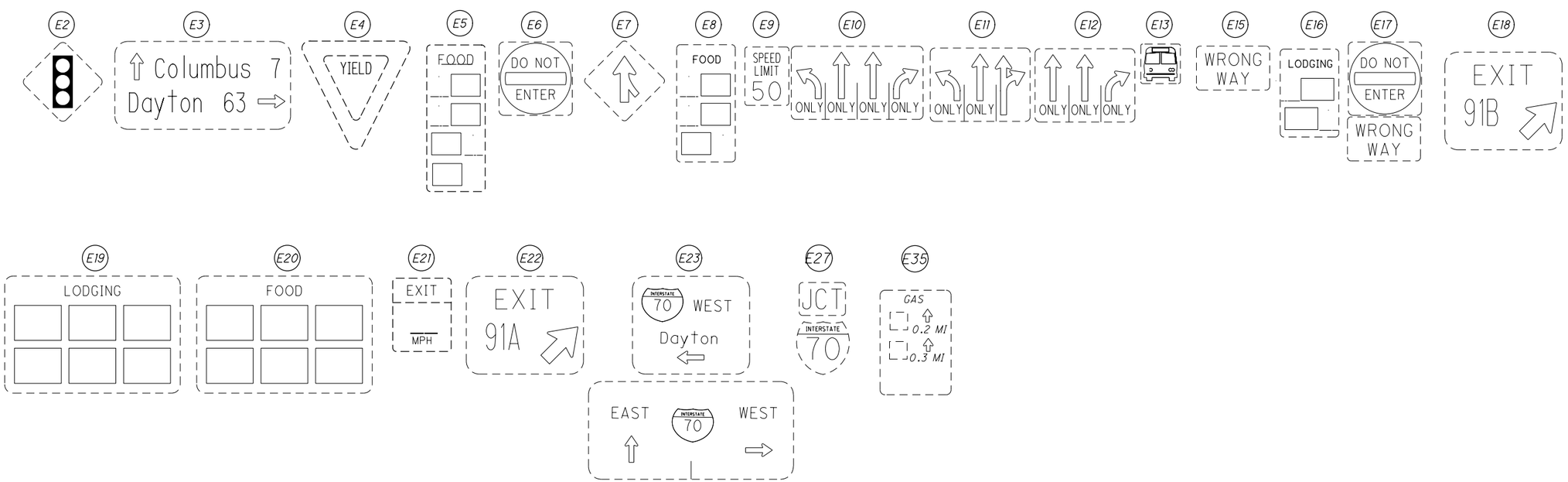
* ERECT FIRST SIGN ADJACENT TO BEGINNING OF SHIFT, THEN EVERY 50 FT. ALONG THE SHIFT TAPER.

** CLOSE CROSSWALK ONE SIDE AT A TIME.

PROPOSED SIGNS



EXISTING SIGNS



3103-E

HORIZONTAL SCALE IN FEET 0 20 40 80

CALCULATED EMR
CHECKED RG

MOT SIGN LEGEND

HILLIARD ROME RD

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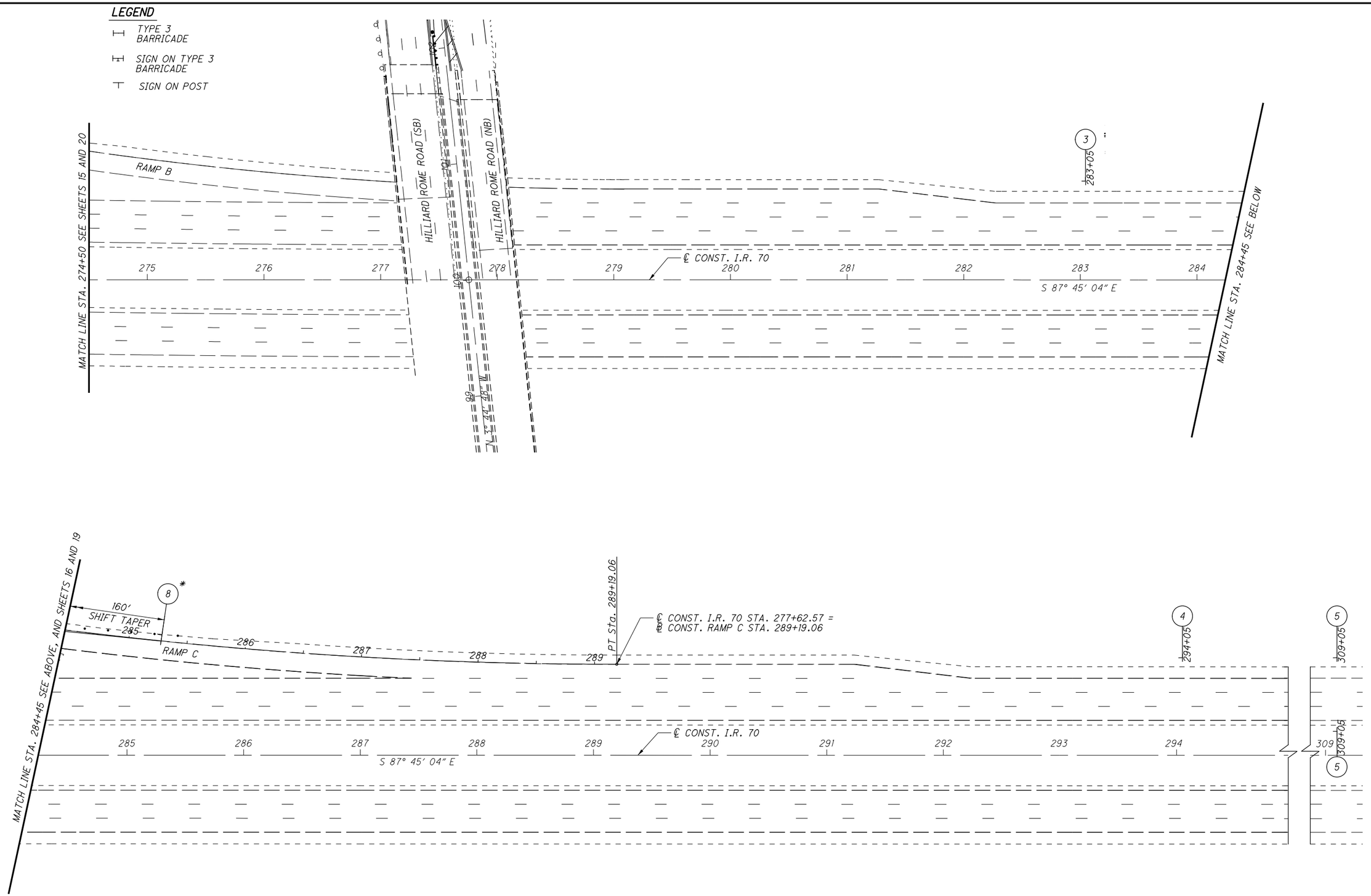

HORIZONTAL SCALE IN FEET 0 20 40 80

CALCULATED EMR
CHECKED RG

MOT - I.R. 70 ADVANCE WARNING SIGNS

HILLIARD ROME RD

3103-E

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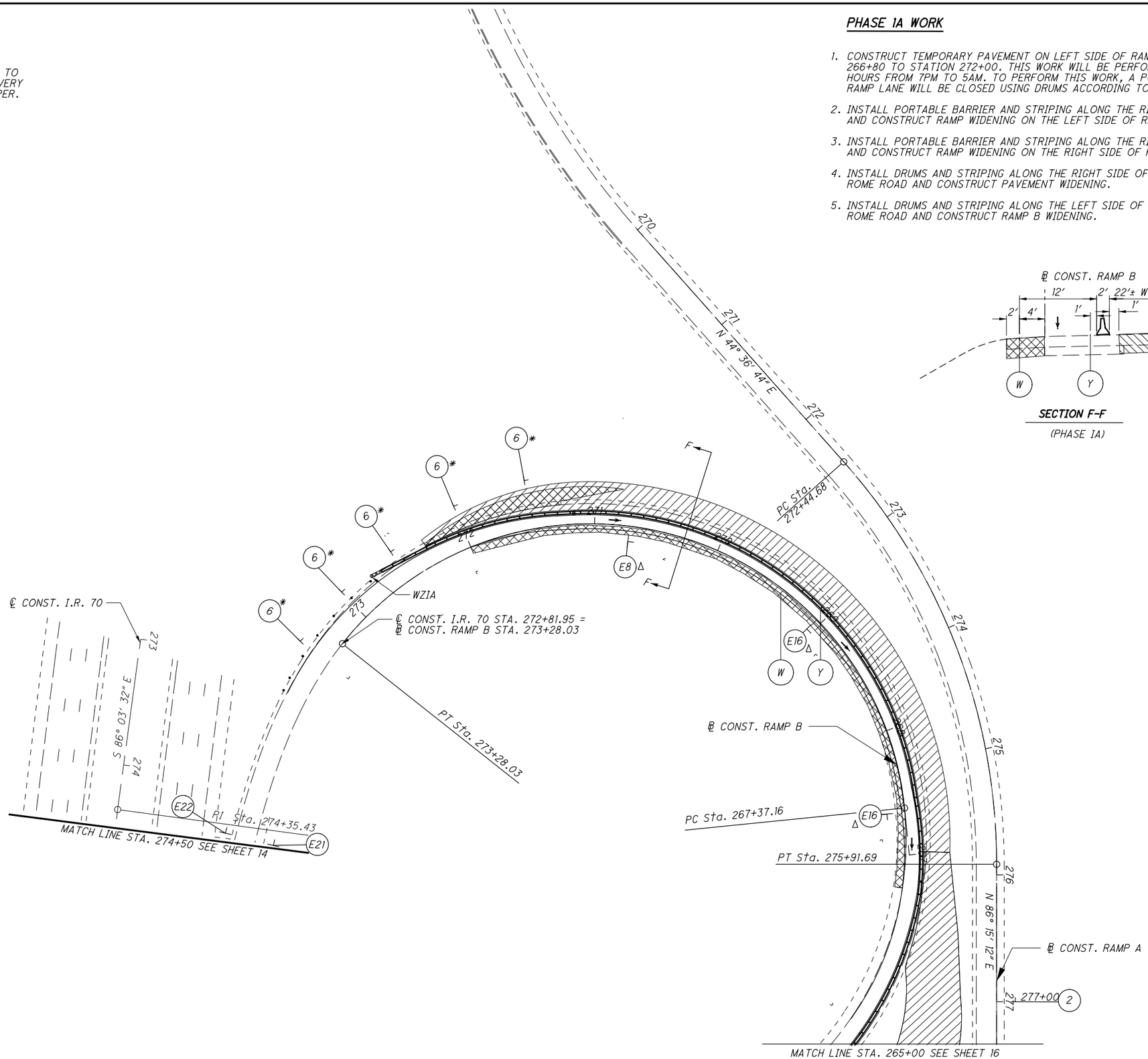
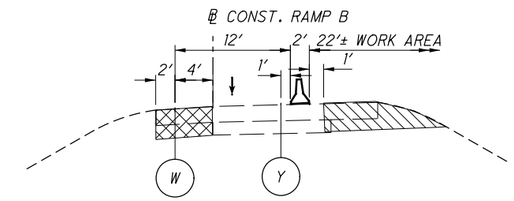
LEGEND

- WORK AREA
- * ERECT FIRST SIGN ADJACENT TO BEGINNING OF SHIFT, THEN EVERY 50 FT. ALONG THE SHIFT TAPER.
- Δ RELOCATE SIGN ON NEW POST
- (W) WORK ZONE EDGE LINE (WHITE)
- (Y) WORK ZONE EDGE LINE (YELLOW)
- PAVEMENT FOR MAINTAINING TRAFFIC, CLASS A
- TYPE 3 BARRICADE
- SIGN ON TYPE 3 BARRICADE
- SIGN ON POST
- TAPERED END SECTION
- WORK ZONE IMPACT ATTENUATOR
- • DRUMS AT 20' SPA. (TANGENT)
  DRUMS AT 15' SPA. (TAPER)
  DRUMS AT 8' SPA. (RADII)

PHASE 1A WORK

1. CONSTRUCT TEMPORARY PAVEMENT ON LEFT SIDE OF RAMP B FROM STATION 266+80 TO STATION 272+00. THIS WORK WILL BE PERFORMED DURING NIGHT HOURS FROM 7PM TO 5AM. TO PERFORM THIS WORK, A PORTION OF THE EXIT RAMP LANE WILL BE CLOSED USING DRUMS ACCORDING TO ODOT STD MT-98.28.
2. INSTALL PORTABLE BARRIER AND STRIPING ALONG THE RIGHT SIDE OF RAMP C AND CONSTRUCT RAMP WIDENING ON THE LEFT SIDE OF RAMP C.
3. INSTALL PORTABLE BARRIER AND STRIPING ALONG THE RIGHT SIDE OF RAMP B AND CONSTRUCT RAMP WIDENING ON THE RIGHT SIDE OF RAMP B.
4. INSTALL DRUMS AND STRIPING ALONG THE RIGHT SIDE OF NORTHBOUND HILLIARD-ROME ROAD AND CONSTRUCT PAVEMENT WIDENING.
5. INSTALL DRUMS AND STRIPING ALONG THE LEFT SIDE OF SOUTHBOUND HILLIARD-ROME ROAD AND CONSTRUCT RAMP B WIDENING.





SECTION F-F

(PHASE IA)

N

0 20 40 80 HORIZONTAL SCALE IN FEET

CALCULATED EMR
CHECKED RG

MOT PHASE IA - RAMP B
STA. 265+00 TO 272+76.12

HILLIARD ROME RD

3103-E

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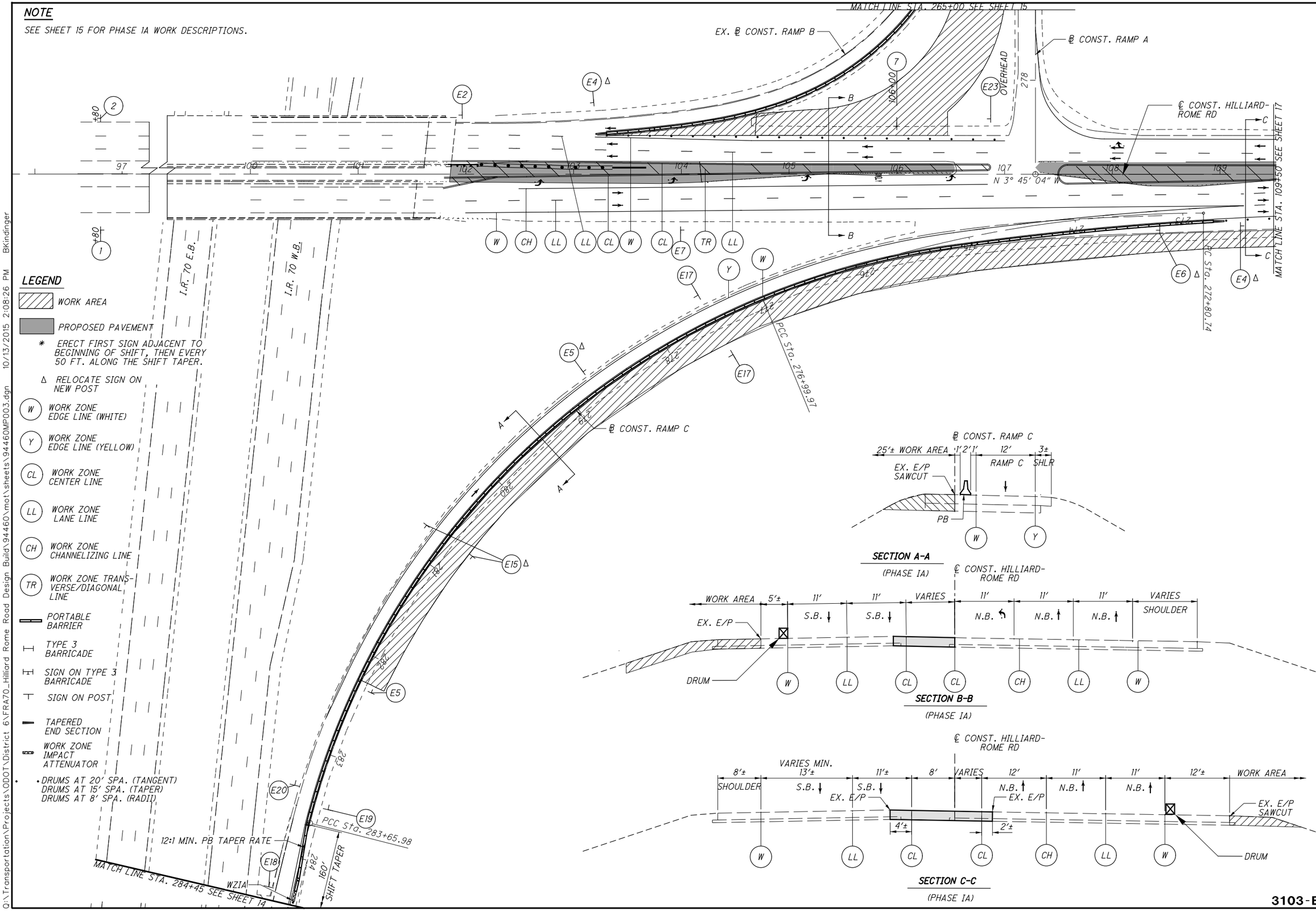
NOTE

SEE SHEET 15 FOR PHASE 1A WORK DESCRIPTIONS.



3103-E

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CALCULATED EMR
CHECKED RG

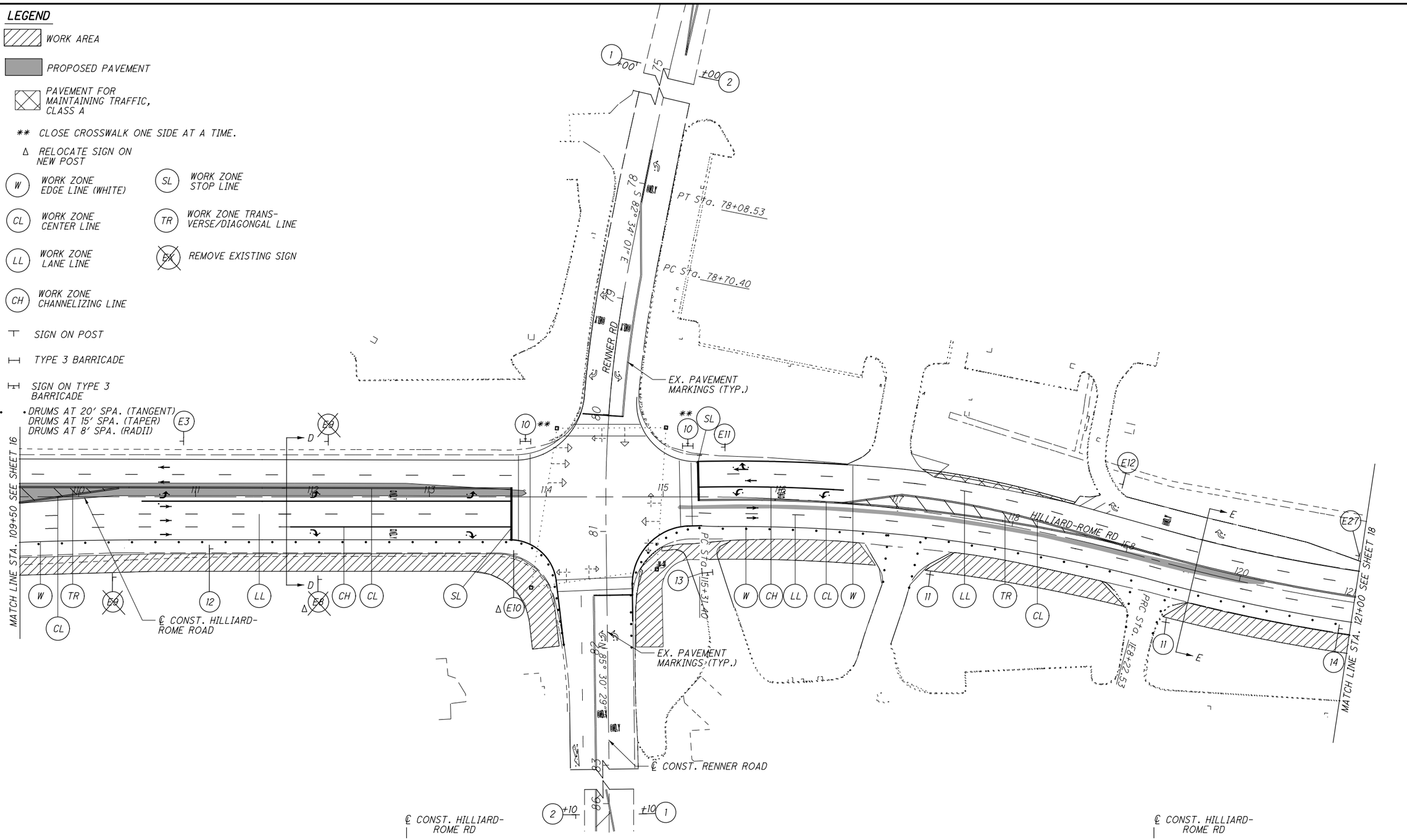
HORIZONTAL SCALE IN FEET 0 20 40 80

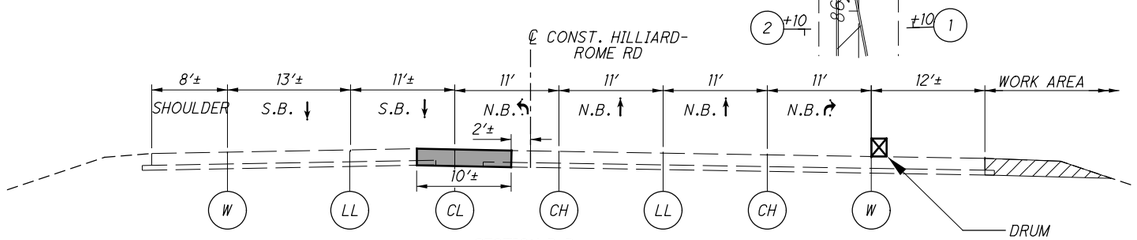
MOT PHASE IA - HILLIARD-ROME ROAD
STA. 100+00 TO 109+50

HILLIARD ROME RD

LEGEND

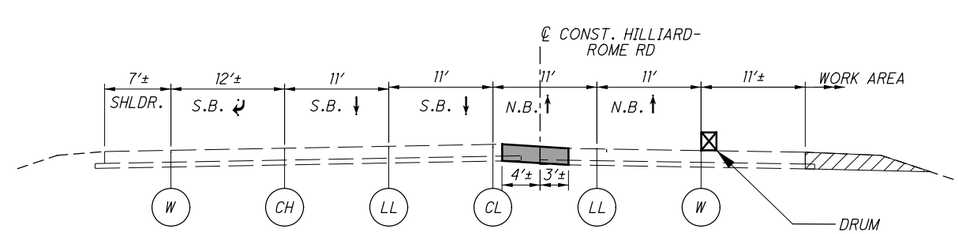
- WORK AREA
- PROPOSED PAVEMENT
- PAVEMENT FOR MAINTAINING TRAFFIC, CLASS A
- ** CLOSE CROSSWALK ONE SIDE AT A TIME.
- Δ RELOCATE SIGN ON NEW POST
- (W) WORK ZONE EDGE LINE (WHITE)
- (SL) WORK ZONE STOP LINE
- (CL) WORK ZONE CENTER LINE
- (TR) WORK ZONE TRANSVERSE/DIAGONGAL LINE
- (LL) WORK ZONE LANE LINE
- (EX) REMOVE EXISTING SIGN
- (CH) WORK ZONE CHANNELIZING LINE
- SIGN ON POST
- TYPE 3 BARRICADE
- SIGN ON TYPE 3 BARRICADE
- DRUMS AT 20' SPA. (TANGENT)
- DRUMS AT 15' SPA. (TAPER)
- DRUMS AT 8' SPA. (RADII)





SECTION D-D

(PHASE IA)



SECTION E-E

(PHASE IA)

3103-E

N

HORIZONTAL SCALE IN FEET 0 20 40 80

CALCULATED EMR
CHECKED RG

MOT PHASE IA - HILLIARD-ROME ROAD
STA. 109+50 TO 121+00

HILLIARD ROME RD

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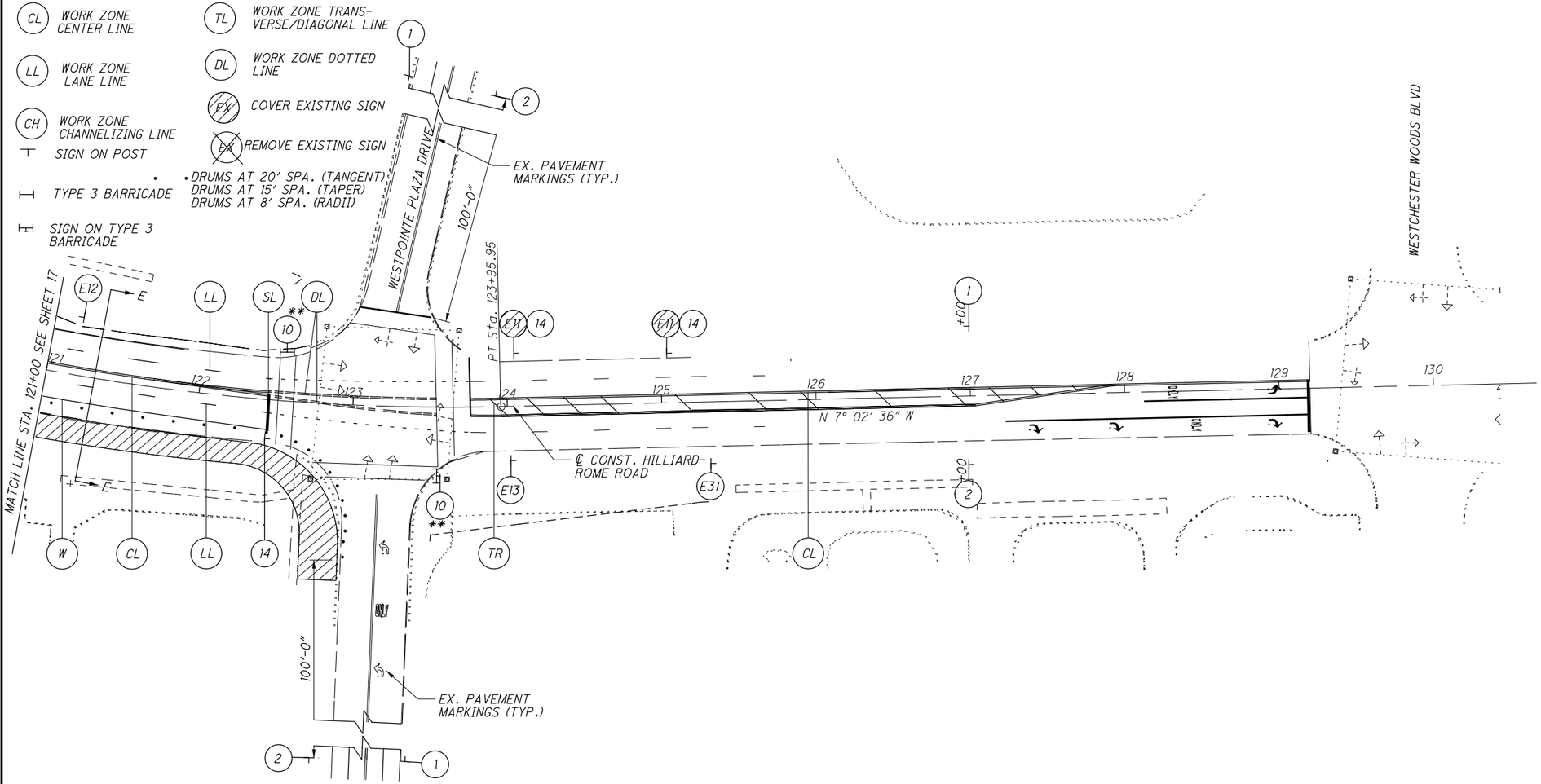
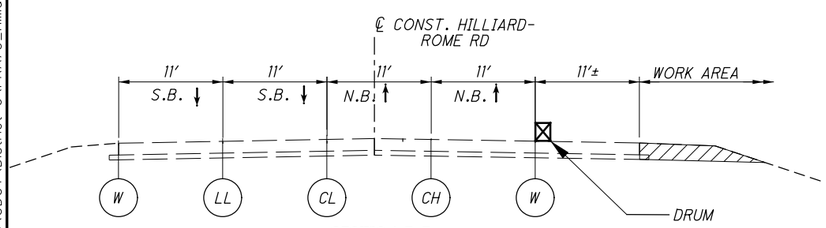
LEGEND

- WORK AREA
- ** CLOSE CROSSWALK ONE SIDE AT A TIME.
- Δ RELOCATE SIGN ON NEW POST
- (W) WORK ZONE EDGE LINE (WHITE)
- (SL) WORK ZONE STOP LINE
- (CL) WORK ZONE CENTER LINE
- (TL) WORK ZONE TRANS-VERSE/DIAGONAL LINE
- (LL) WORK ZONE LANE LINE
- (DL) WORK ZONE DOTTED LINE
- (CH) WORK ZONE CHANNELIZING LINE
- (EX) COVER EXISTING SIGN
- SIGN ON POST
- (EX) REMOVE EXISTING SIGN
- TYPE 3 BARRICADE
- • DRUMS AT 20' SPA. (TANGENT) DRUMS AT 15' SPA. (TAPER) DRUMS AT 8' SPA. (RADII)
- SIGN ON TYPE 3 BARRICADE





SECTION E-E

(PHASE IA)

N

HORIZONTAL SCALE IN FEET 0 20 40 80

CALCULATED EMR
CHECKED RG

MOT PHASE IA - HILLIARD-ROME ROAD
STA. 121+00 TO 130+50

HILLIARD ROME RD

18/109

3103-E

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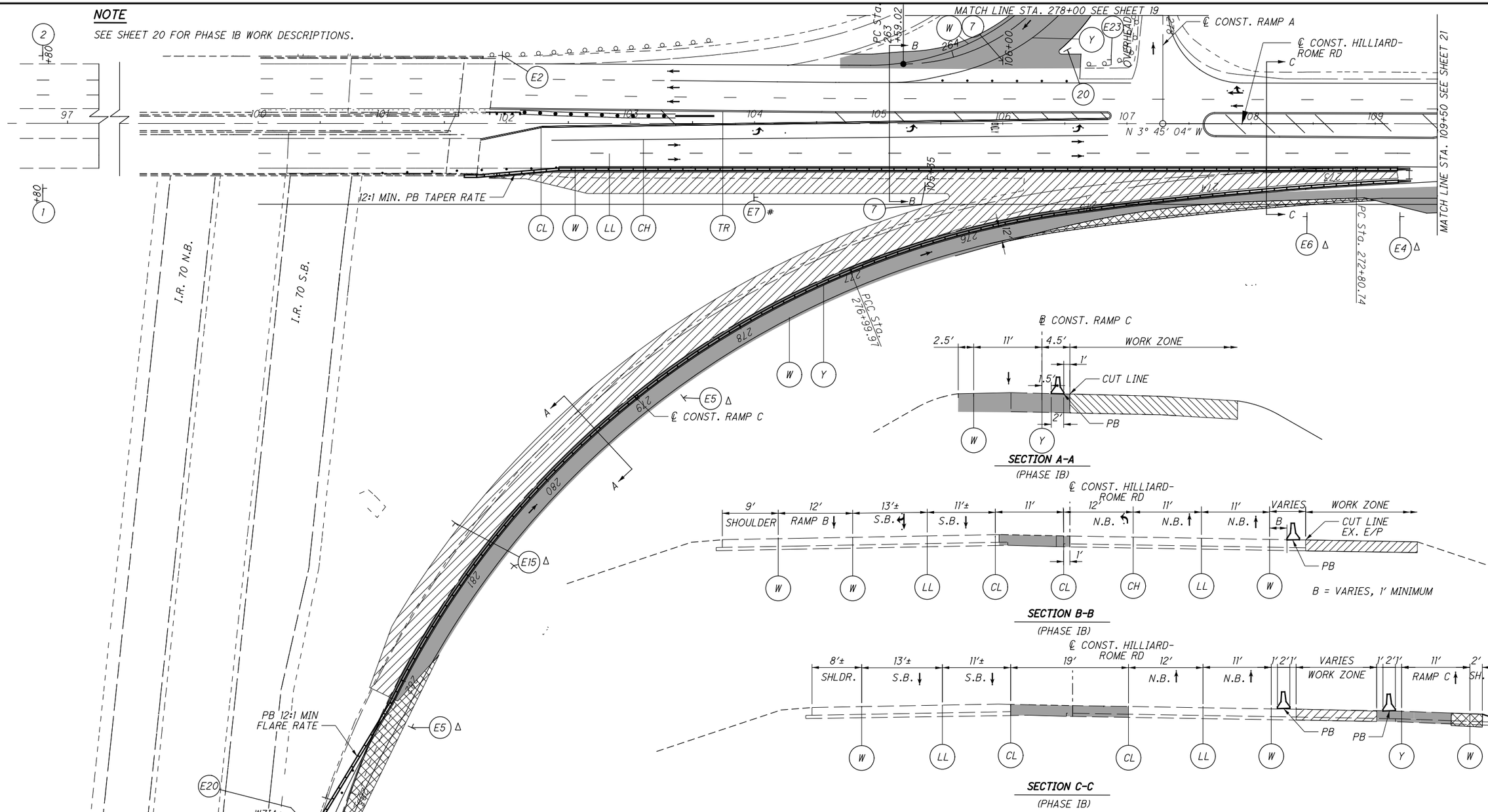
NOTE

SEE SHEET 20 FOR PHASE 1B WORK DESCRIPTIONS.



LEGEND

- WORK AREA
- PAVMENT FOR MAINTAINING TRAFFIC, CLASS A
- PROPOSED PAVEMENT
- * ERECT FIRST SIGN ADJACENT TO BEGINNING OF SHIFT, THEN EVERY 50 FT. ALONG THE SHIFT TAPER.
- Δ RELOCATE SIGN ON NEW POST
- (W) WORK ZONE EDGE LINE (WHITE)
- (Y) WORK ZONE EDGE LINE (YELLOW)
- (CL) WORK ZONE CENTER LINE
- (TR) WORK ZONE TRANSVERSE/DIAGONAL LINE
- (LL) WORK ZONE LANE LINE
- (CH) WORK ZONE CHANNELIZING LINE
- PORTABLE BARRIER
- TYPE 3 BARRICADE
- SIGN ON TYPE 3 BARRICADE
- SIGN ON POST
- TAPERED END SECTION
- WORK ZONE IMPACT ATTENUATOR
- DRUMS AT 20' SPA. (TANGENT)
- DRUMS AT 15' SPA. (TAPER)
- DRUMS AT 8' SPA. (RADII)

3103-E

HORIZONTAL SCALE IN FEET 0 20 40 80

CALCULATED EMR
CHECKED RG

MOT PHASE 1B - HILLIARD-ROME ROAD
STA. 100+00 TO 109+50

HILLIARD ROME RD

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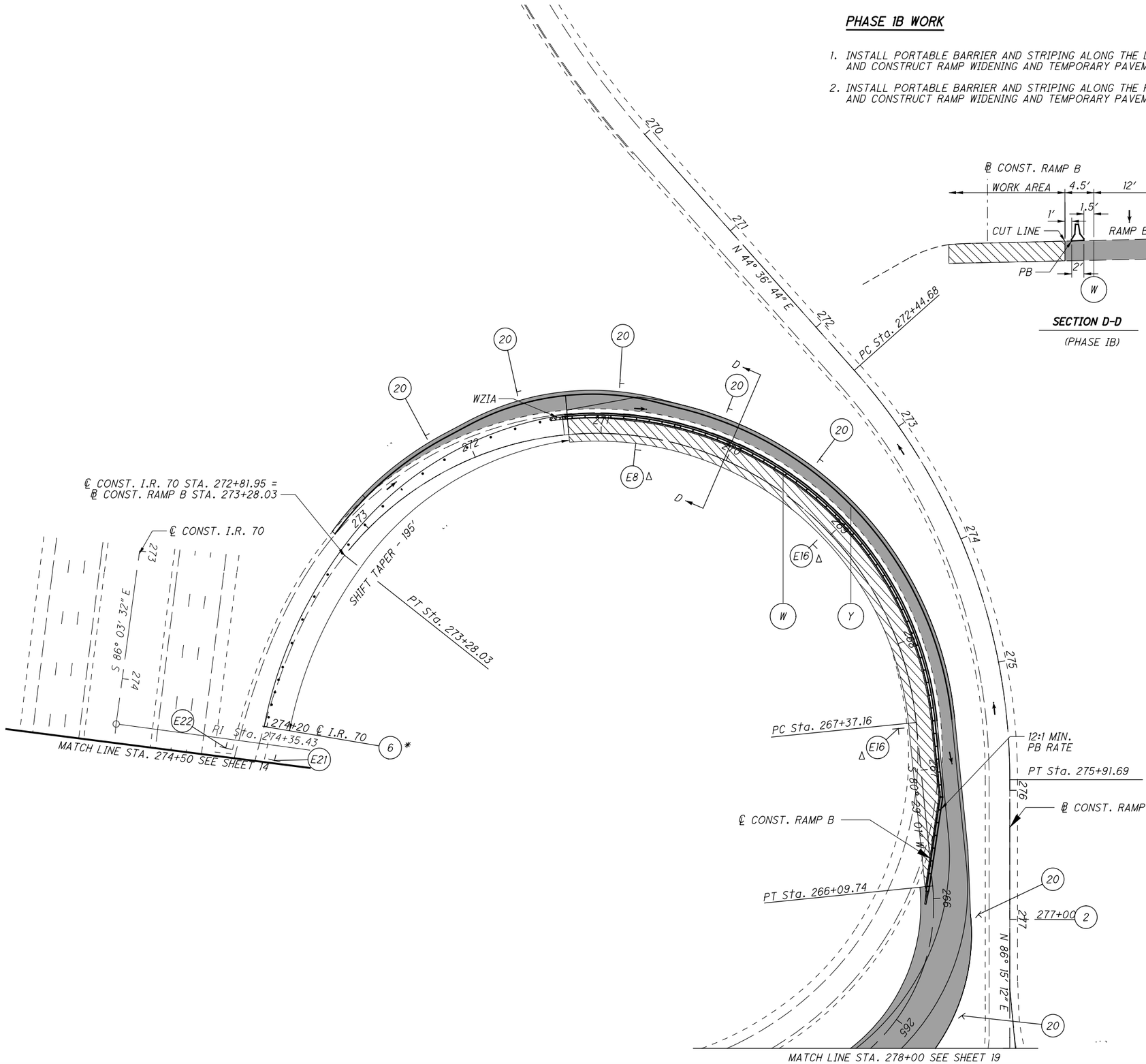
PHASE 1B WORK

1. INSTALL PORTABLE BARRIER AND STRIPING ALONG THE LEFT SIDE OF RAMP C AND CONSTRUCT RAMP WIDENING AND TEMPORARY PAVEMENT ON RIGHT SIDE.
2. INSTALL PORTABLE BARRIER AND STRIPING ALONG THE RIGHT SIDE OF RAMP B AND CONSTRUCT RAMP WIDENING AND TEMPORARY PAVEMENT ON LEFT SIDE.



HORIZONTAL SCALE IN FEET 0 20 40 80

CALCULATED EMR
CHECKED RG

MOT PHASE IB - RAMP B
STA. 273+28.03 TO 265+30

HILLIARD ROME RD

3103-E

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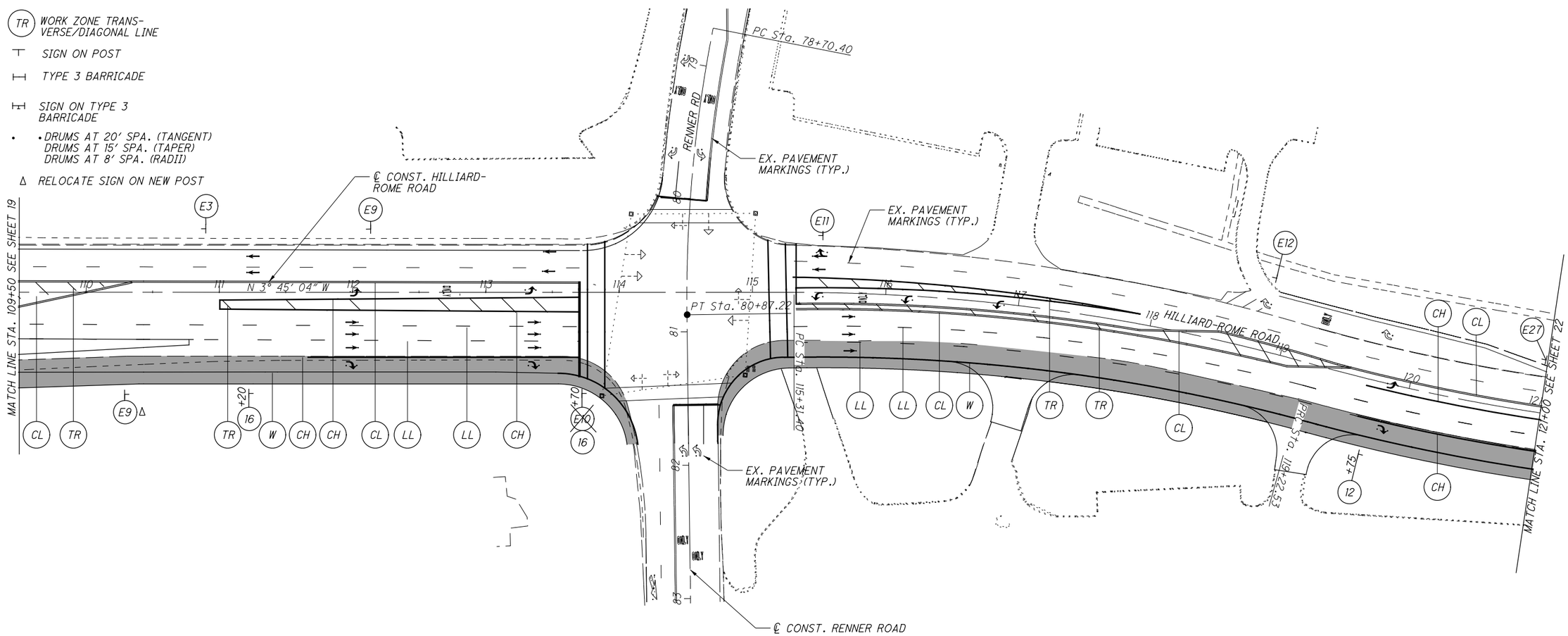
LEGEND

- PROPOSED PAVEMENT
- (W) WORK ZONE EDGE LINE (WHITE)
- (EX) REMOVE EXISTING SIGN
- (Y) WORK ZONE EDGE LINE (YELLOW)
- (CL) WORK ZONE CENTER LINE
- (LL) WORK ZONE LANE LINE
- (CH) WORK ZONE CHANNELIZING LINE
- (TR) WORK ZONE TRANSVERSE/DIAGONAL LINE
- SIGN ON POST
- TYPE 3 BARRICADE
- SIGN ON TYPE 3 BARRICADE
- • DRUMS AT 20' SPA. (TANGENT)
  DRUMS AT 15' SPA. (TAPER)
  DRUMS AT 8' SPA. (RADII)
- Δ RELOCATE SIGN ON NEW POST



3103-E

HORIZONTAL SCALE IN FEET 0 20 40 80

CALCULATED EMR
CHECKED RG

MOT PHASE IB - HILLIARD-ROME ROAD
STA. 109+50 TO 121+00

HILLIARD ROME RD

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LEGEND

PROPOSED PAVEMENT

Δ RELOCATE SIGN ON NEW POST

(W) WORK ZONE EDGE LINE (WHITE)

(CH) WORK ZONE CHANNELIZING LINE

(CL) WORK ZONE CENTER LINE

(SL) WORK ZONE STOP LINE

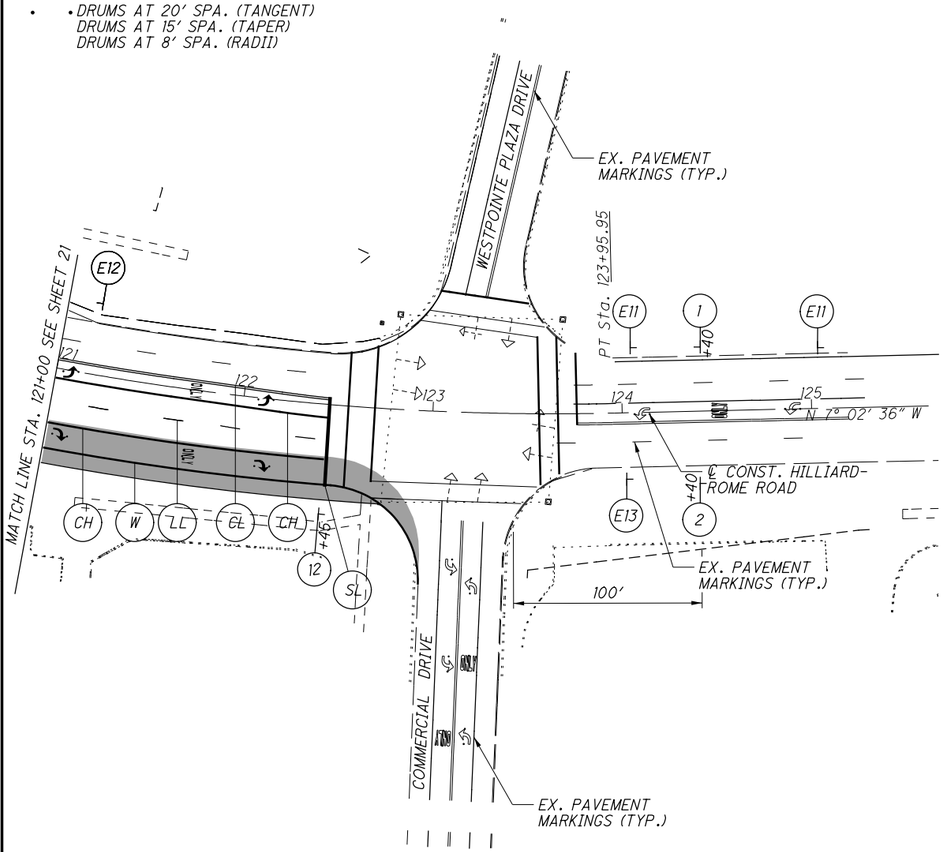
(LL) WORK ZONE LANE LINE

SIGN ON POST

TYPE 3 BARRICADE

SIGN ON TYPE 3 BARRICADE

• DRUMS AT 20′ SPA. (TANGENT)
DRUMS AT 15′ SPA. (TAPER)
DRUMS AT 8′ SPA. (RADII)



N

0 20 40 80
HORIZONTAL SCALE IN FEET

CALCULATED EMR
CHECKED RG

MOT PHASE IB - HILLIARD-ROME ROAD
STA. 121+00 TO 125+00

HILLIARD ROME RD

3103-E

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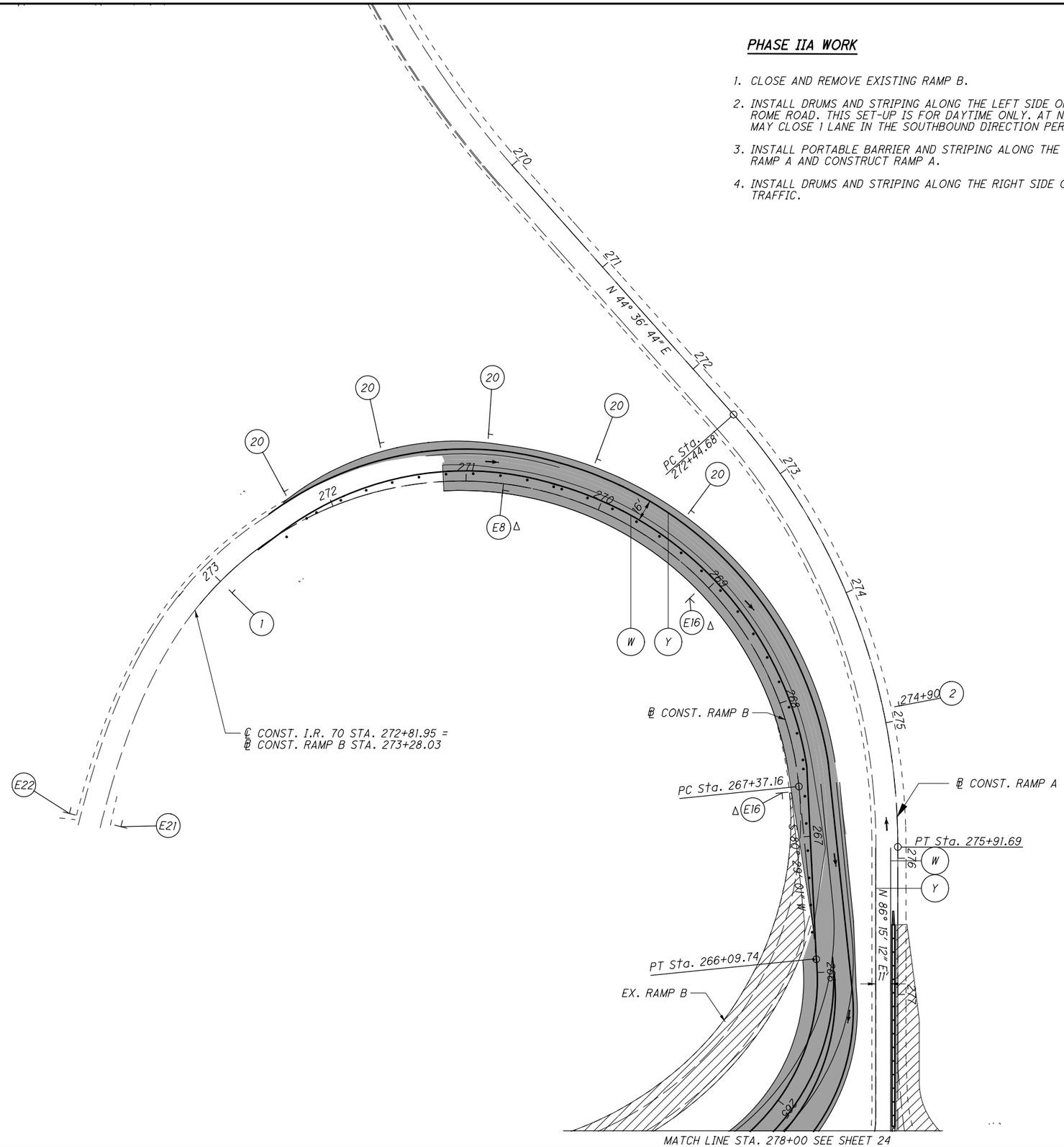
LEGEND

- WORK AREA
- PROPOSED PAVEMENT
- (W) WORK ZONE EDGE LINE (WHITE)
- (Y) WORK ZONE EDGE LINE (YELLOW)
- Δ RELOCATE SIGN ON NEW POST
- PORTABLE BARRIER
- TAPERED END SECTION
- WORK ZONE IMPACT ATTENUATOR
- TYPE 3 BARRICADE
- SIGN ON TYPE 3 BARRICADE
- SIGN ON POST
- • DRUMS AT 20' SPA. (TANGENT)
  DRUMS AT 15' SPA. (TAPER)
  DRUMS AT 8' SPA. (RADII)

PHASE IIA WORK

1. CLOSE AND REMOVE EXISTING RAMP B.
2. INSTALL DRUMS AND STRIPING ALONG THE LEFT SIDE OF SOUTHBOUND HILLIARD-ROME ROAD. THIS SET-UP IS FOR DAYTIME ONLY. AT NIGHT, THE CONTRACTOR MAY CLOSE 1 LANE IN THE SOUTHBOUND DIRECTION PER ODOT SCD MT-95.30.
3. INSTALL PORTABLE BARRIER AND STRIPING ALONG THE RIGHT SIDE OF EX. RAMP A AND CONSTRUCT RAMP A.
4. INSTALL DRUMS AND STRIPING ALONG THE RIGHT SIDE OF RAMP C TO DIRECT TRAFFIC.



3103-E

CALCULATED EMR
CHECKED RG

HORIZONTAL SCALE IN FEET 0 20 40 80

MOT PHASE IIA - RAMP A
STA. 265+30 TO 273+28.03

HILLIARD ROME RD

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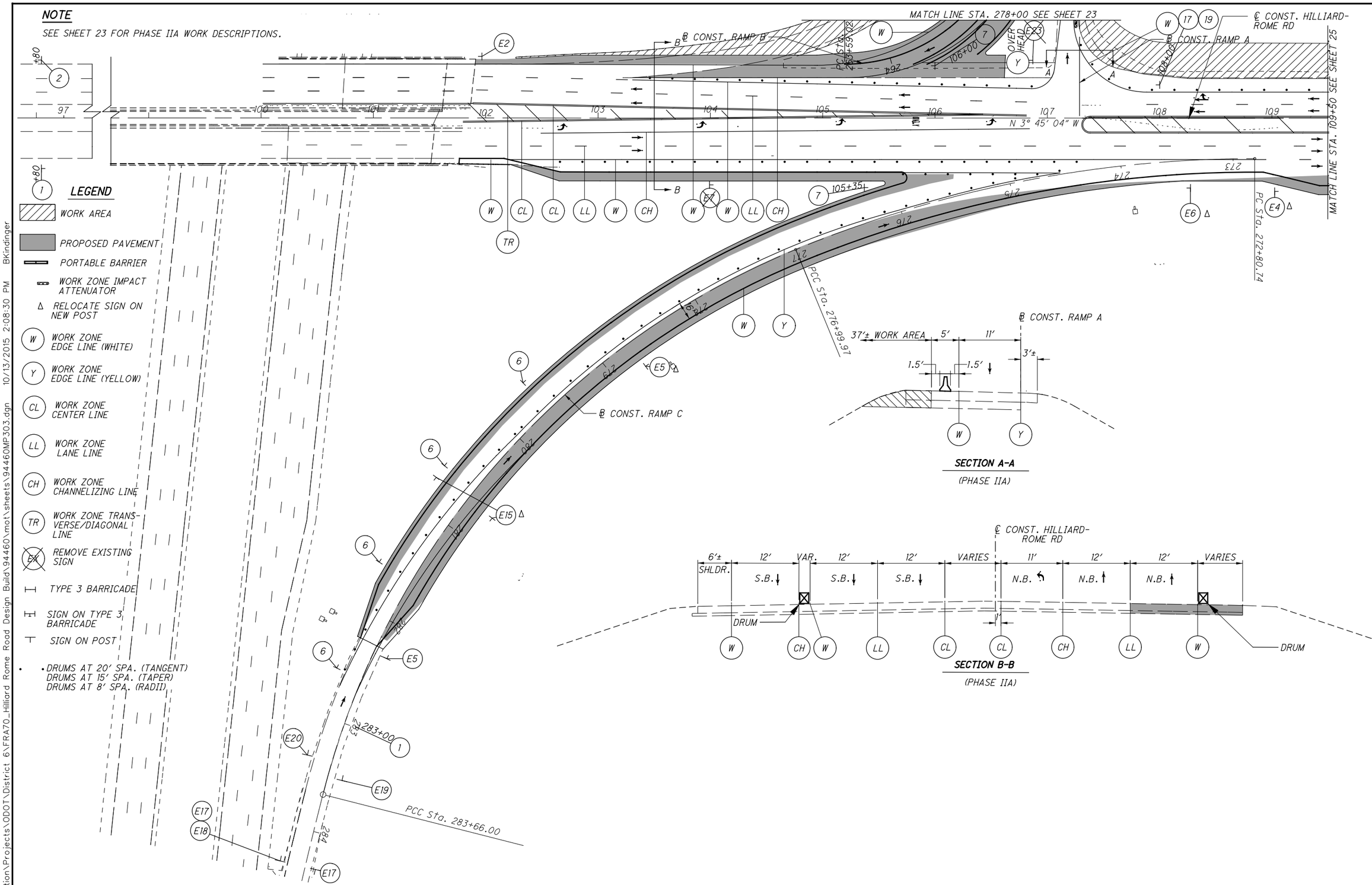
NOTE

SEE SHEET 23 FOR PHASE IIA WORK DESCRIPTIONS.



LEGEND

- WORK AREA
- PROPOSED PAVEMENT
- PORTABLE BARRIER
- WORK ZONE IMPACT ATTENUATOR
- Δ RELOCATE SIGN ON NEW POST
- (W) WORK ZONE EDGE LINE (WHITE)
- (Y) WORK ZONE EDGE LINE (YELLOW)
- (CL) WORK ZONE CENTER LINE
- (LL) WORK ZONE LANE LINE
- (CH) WORK ZONE CHANNELIZING LINE
- (TR) WORK ZONE TRANSVERSE/DIAGONAL LINE
- (EX) REMOVE EXISTING SIGN
- TYPE 3 BARRICADE
- SIGN ON TYPE 3 BARRICADE
- SIGN ON POST
- DRUMS AT 20' SPA. (TANGENT)
  DRUMS AT 15' SPA. (TAPER)
  DRUMS AT 8' SPA. (RADII)

HORIZONTAL SCALE IN FEET 0 20 40 80

CALCULATED EMR
CHECKED RG

MOT PHASE IIA - HILLIARD-ROME ROAD
STA. 100+00 TO 109+50

HILLIARD ROME RD

3103-E

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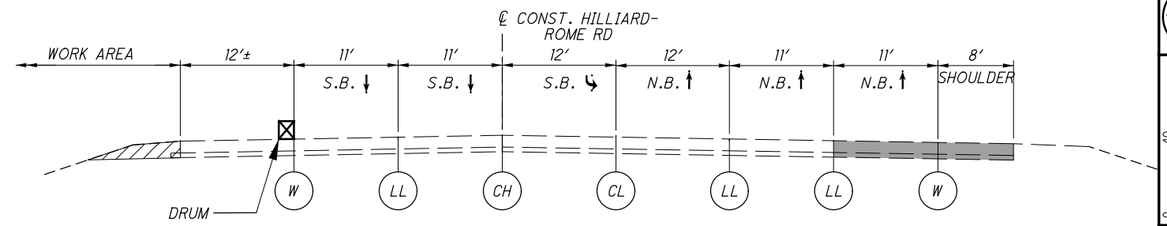
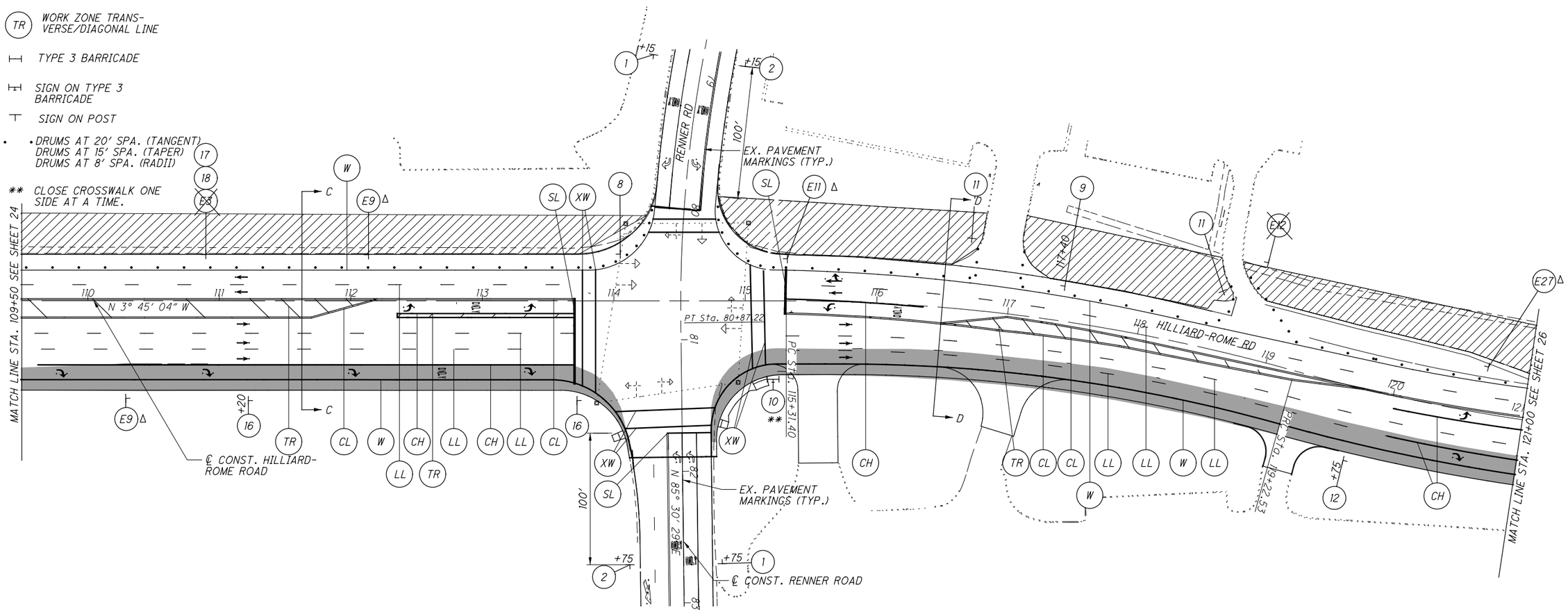
LEGEND

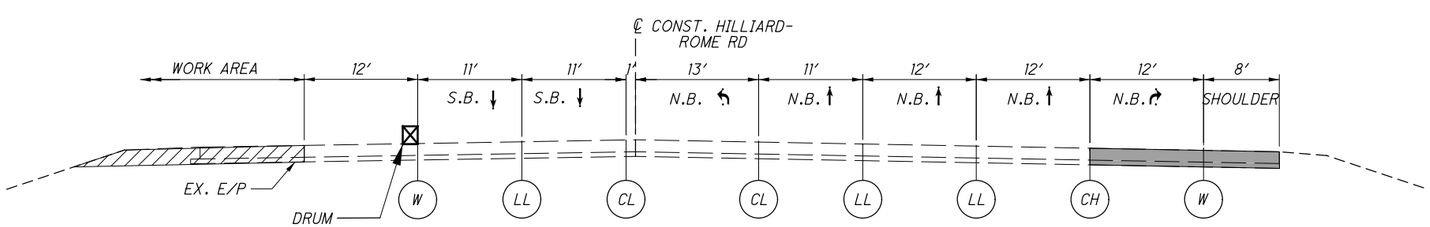
- WORK AREA
- PROPOSED PAVEMENT
- Δ RELOCATE SIGN ON NEW POST
- (W) WORK ZONE EDGE LINE (WHITE)
- (XW) WORK ZONE CROSSWALK LINE
- (CL) WORK ZONE CENTER LINE
- (SL) WORK ZONE STOP LINE
- (LL) WORK ZONE LANE LINE
- (EX) REMOVE EXISTING SIGN
- (CH) WORK ZONE CHANNELIZING LINE
- (TR) WORK ZONE TRANSVERSE/DIAGONAL LINE
- TYPE 3 BARRICADE
- SIGN ON TYPE 3 BARRICADE
- SIGN ON POST
- DRUMS AT 20' SPA. (TANGENT)
  DRUMS AT 15' SPA. (TAPER)
  DRUMS AT 8' SPA. (RADII)
- ** CLOSE CROSSWALK ONE SIDE AT A TIME.



SECTION D-D

(PHASE IIA)





SECTION C-C

(PHASE IIA)

HORIZONTAL SCALE IN FEET 0 20 40 80

CALCULATED EMR
CHECKED RG

MOT PHASE IIA - HILLIARD-ROME ROAD
STA. 109+50 TO 121+00

HILLIARD ROME RD

3103-E

25/109

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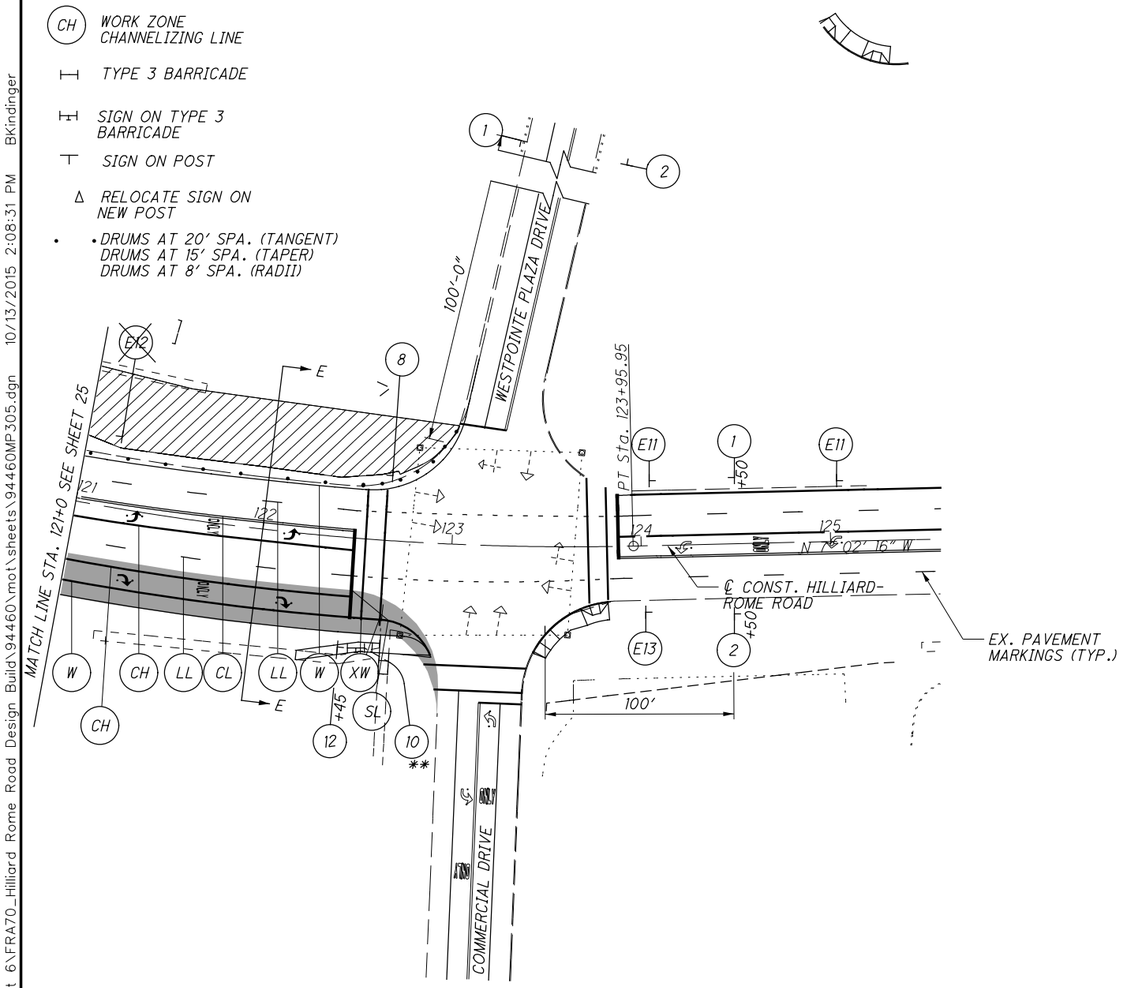
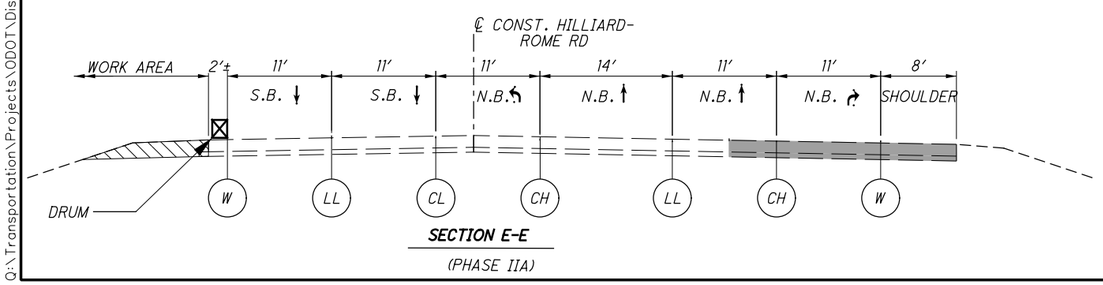
LEGEND

- WORK AREA
- PROPOSED PAVEMENT
- ** CLOSE CROSSWALK ONE SIDE AT A TIME.
- (W) WORK ZONE EDGE LINE (WHITE)
- (XW) WORK ZONE CROSSWALK LINE
- (CL) WORK ZONE CENTER LINE
- (CL) WORK ZONE STOP LINE
- (LL) WORK ZONE LANE LINE
- (EX) REMOVE EXISTING SIGN
- (CH) WORK ZONE CHANNELIZING LINE
- TYPE 3 BARRICADE
- SIGN ON TYPE 3 BARRICADE
- SIGN ON POST
- Δ RELOCATE SIGN ON NEW POST
- • DRUMS AT 20′ SPA. (TANGENT)
  DRUMS AT 15′ SPA. (TAPER)
  DRUMS AT 8′ SPA. (RADII)





SECTION E-E

(PHASE IIA)

3103-E

HORIZONTAL SCALE IN FEET 0 20 40 80

CALCULATED EMR
CHECKED RG

MOT PHASE IIA - HILLIARD-ROME ROAD
STA. 121+00 TO 125+25

HILLIARD ROME RD

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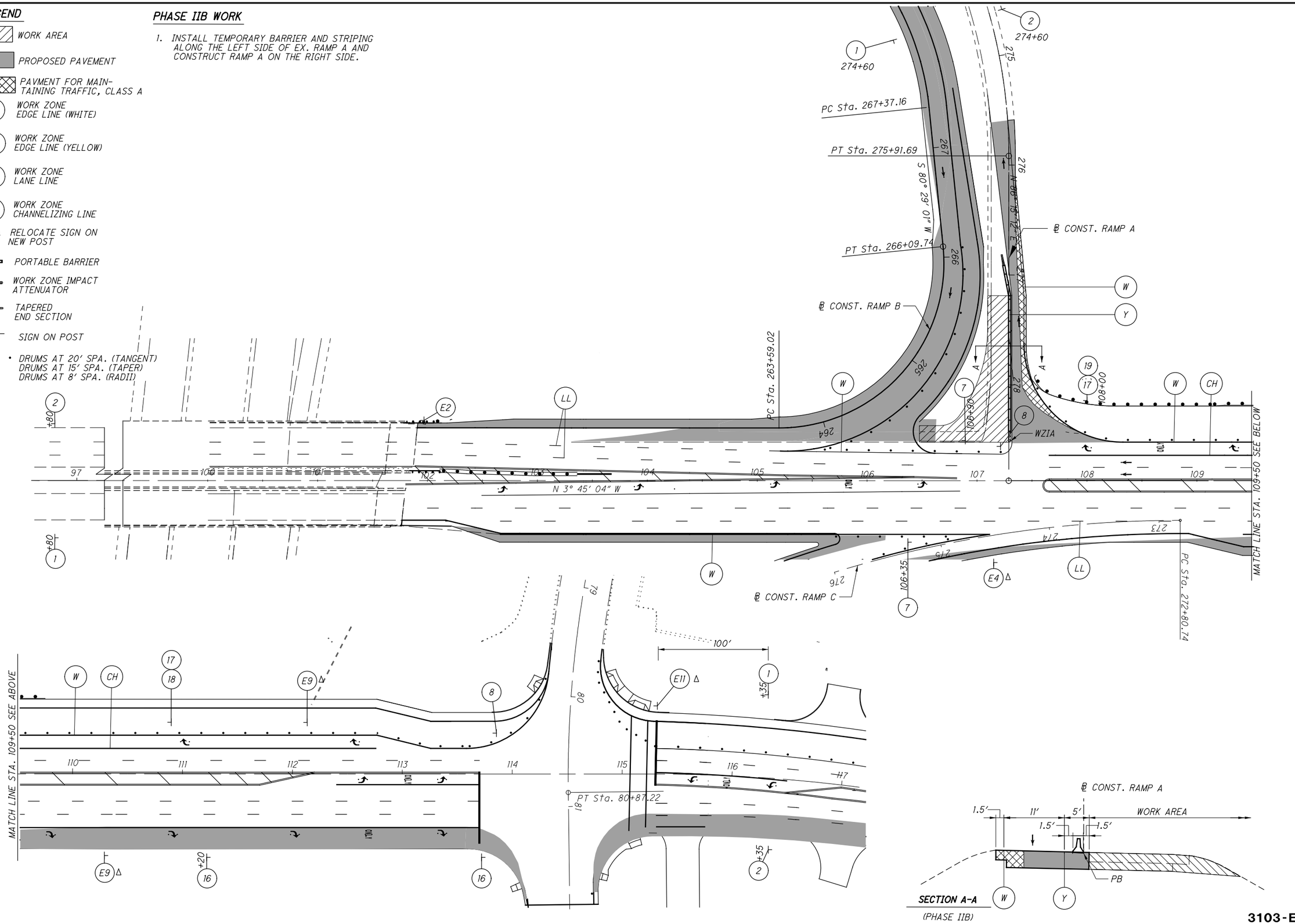
LEGEND

- WORK AREA
- PROPOSED PAVEMENT
- PAVMENT FOR MAINTAINING TRAFFIC, CLASS A
- (W) WORK ZONE EDGE LINE (WHITE)
- (Y) WORK ZONE EDGE LINE (YELLOW)
- (LL) WORK ZONE LANE LINE
- (CH) WORK ZONE CHANNELIZING LINE
- Δ RELOCATE SIGN ON NEW POST
- PORTABLE BARRIER
- WORK ZONE IMPACT ATTENUATOR
- TAPERED END SECTION
- SIGN ON POST
- DRUMS AT 20′ SPA. (TANGENT)
  DRUMS AT 15′ SPA. (TAPER)
  DRUMS AT 8′ SPA. (RADII)

PHASE IIB WORK

1. INSTALL TEMPORARY BARRIER AND STRIPING ALONG THE LEFT SIDE OF EX. RAMP A AND CONSTRUCT RAMP A ON THE RIGHT SIDE.



3103-E

HORIZONTAL SCALE IN FEET 0 20 40 80

CALCULATED EMR
CHECKED RG

MOT PHASE IIB - HILLIARD-ROME ROAD STA. 100+00 TO 117+00

HILLIARD ROME RD

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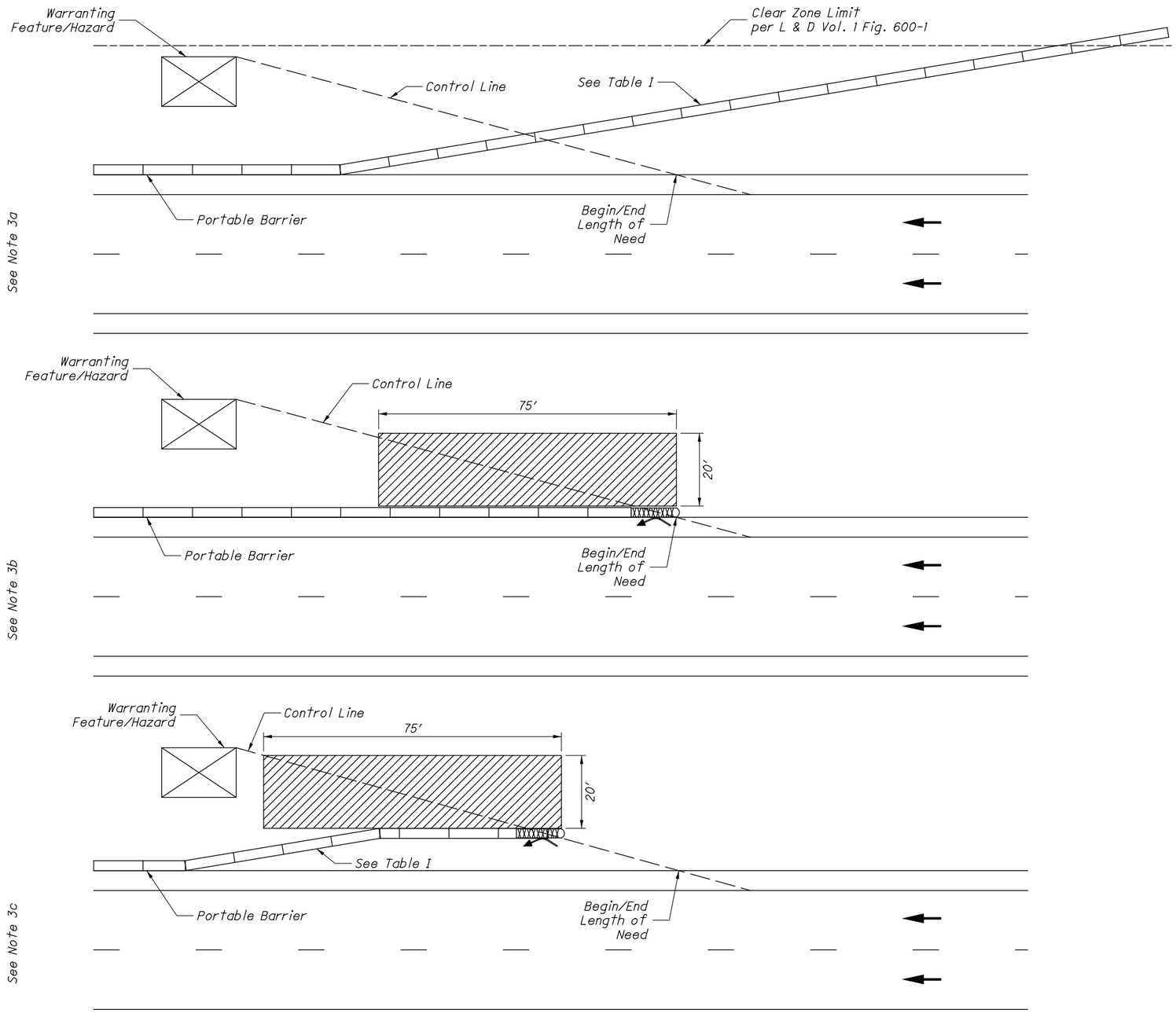


LEGEND

- RECOVERY AREA
- PORTABLE BARRIER
- NON-GATING IMPACT ATTENUATOR
- DIRECTION OF TRAVEL

NOTES:

1. Attenuators shall be installed per the manufacturer's specifications.

2. Recovery area shall have slopes 3:1 or flatter and be free of workers, hazards, equipment, drop-offs, and material storage.

3. The Contractor shall select one of the three acceptable options for terminating portable barrier:

   a) Terminate flared section of portable barrier outside clear zone with tapered end only where cross slopes are 10:1 or flatter.
   b) Terminate portable barrier with an impact attenuator. A non-gating attenuator may be included in the length of need measurement.
   c) Flare a section of portable barrier to the length of need control line and terminate with an impact attenuator. A non-gating impact attenuator may be included in the flared section of portable barrier.

4. The Contractor shall submit documentation to the Engineer, 2 weeks prior to implementation, for acceptance when:

   a) Deviating from the three acceptable options for terminating portable barrier.

      Documentation shall explain any deviations and verify that the recovery area fulfills the manufacturer's specifications and Note 2.

   b) Using a gating impact attenuator in lieu of a non-gating impact attenuator.

      The gating impact attenuator length shall not be included as part of the length of need or recovery area requirements. Additional portable barrier will need to be added. The additional cost for the additional barrier required for a gating impact attenuator shall be included in the cost of the gating impact attenuator.

      Documentation shall verify that the extended recovery area fulfills the manufacturer's specifications and and Note 2.

5. Gating impact attenuators shall not be used in gore locations or within the clear zone between bi-directional traffic.

TABLE I

SPEED LIMIT (MPH)	PB FLARE RATE MINIMUM
25	8:1
30	8:1
35	9:1
40	10:1
45	12:1
50	14:1
55	16:1
60	18:1
65	19:1
70	20:1

THIS DRAWING REPLACES PIS 2010175 DATED 7-20-2012.

3103-E

OFFICE OF ROADWAY ENGINEERING

DESIGNED | REVIEWED

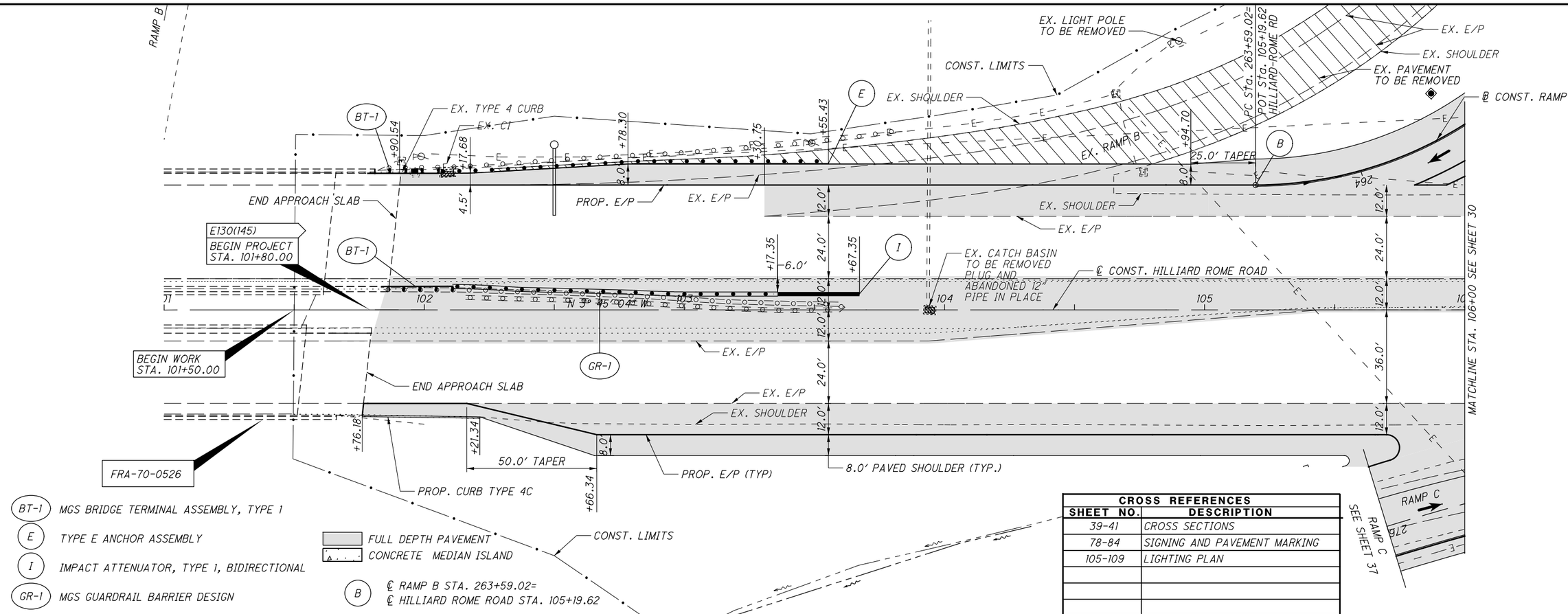
REVISION DATE 7-19-2013 | CHECKED

PIS NUMBER 2010175

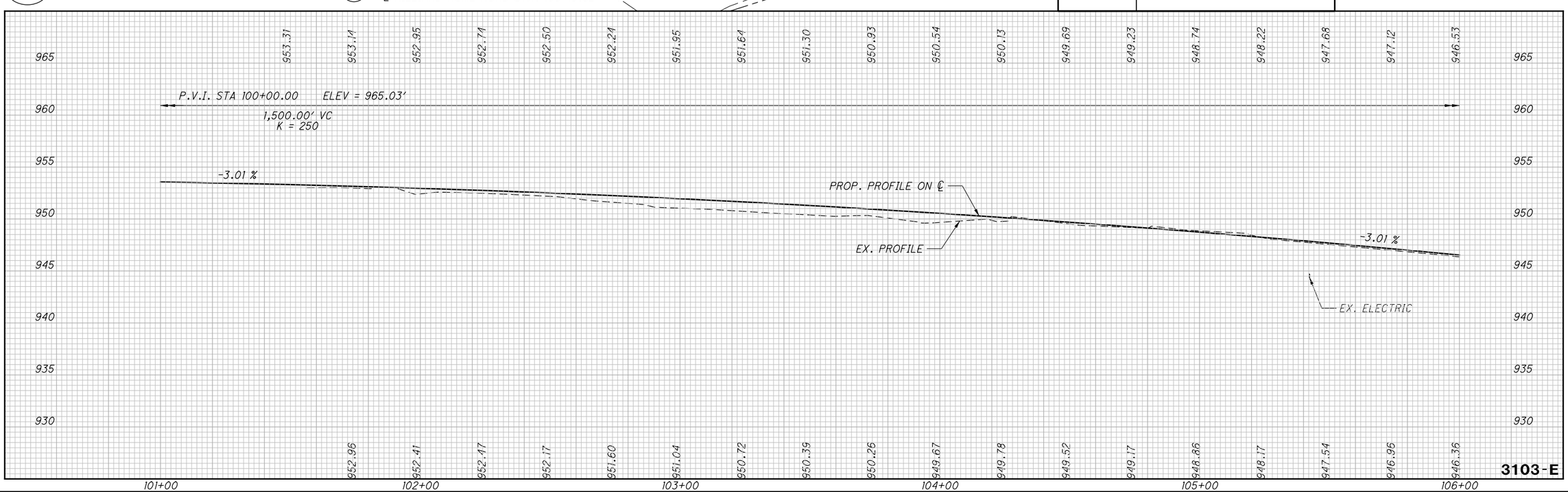
PLAN INSERT SHEET

IMPACT ATTENUATOR PLACEMENT

PIS 2010175



CROSS REFERENCES	
SHEET NO.	DESCRIPTION
39-41	CROSS SECTIONS
78-84	SIGNING AND PAVEMENT MARKING
105-109	LIGHTING PLAN



HORIZONTAL SCALE IN FEET 0 10 20 40

CALCULATED SRR
CHECKED RG

PLAN AND PROFILE HILLIARD-ROME ROAD STA.101+00 TO STA.106+00

HILLIARD ROME RD

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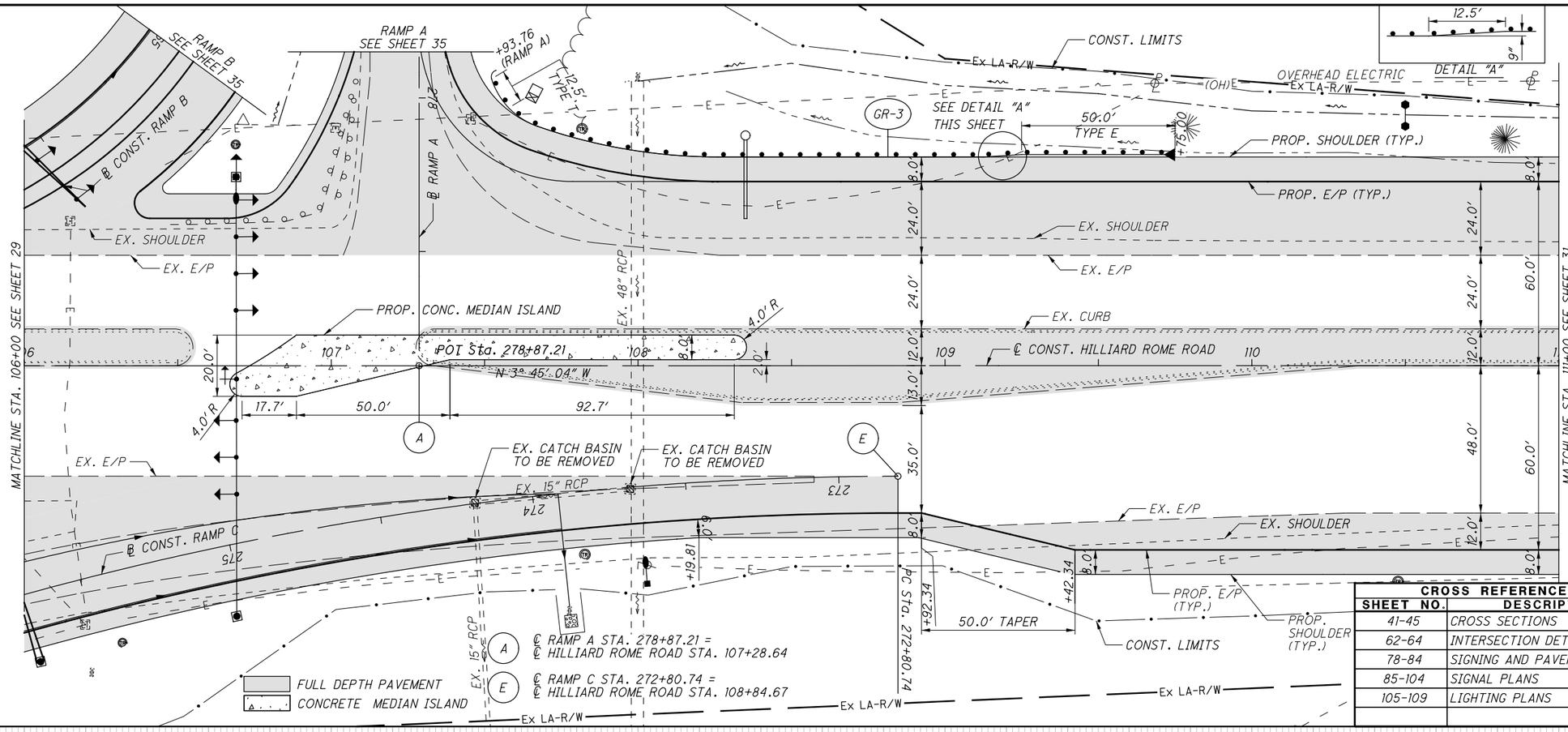
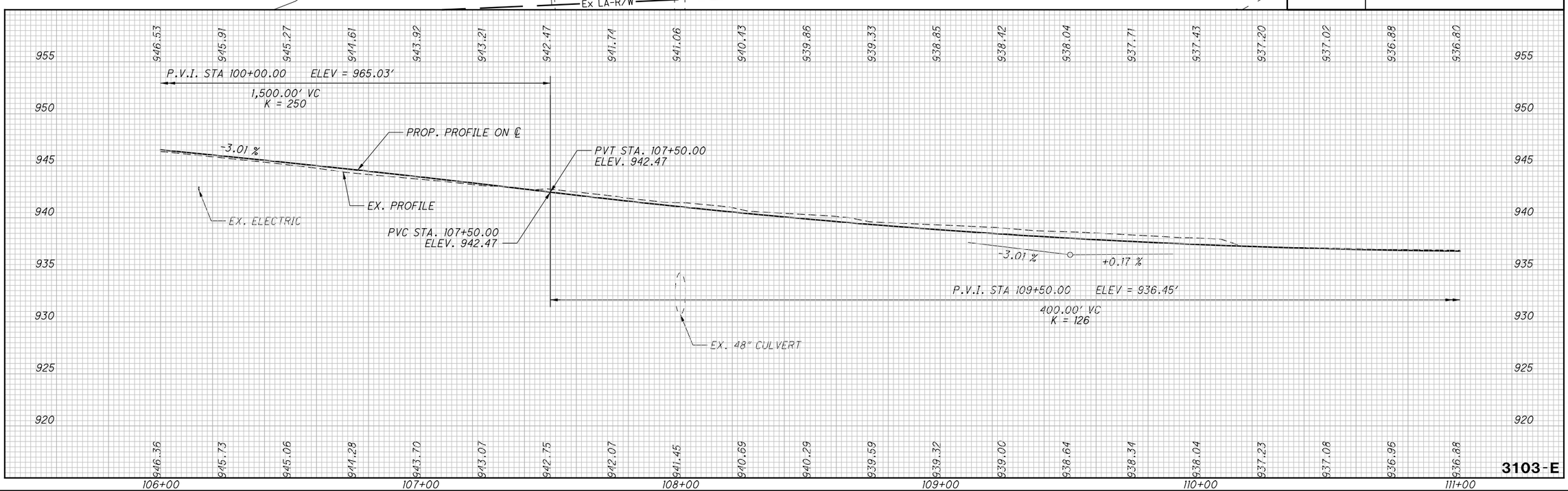


CROSS REFERENCES	
SHEET NO.	DESCRIPTION
41-45	CROSS SECTIONS
62-64	INTERSECTION DETAILS
78-84	SIGNING AND PAVEMENT MARKING
85-104	SIGNAL PLANS
105-109	LIGHTING PLANS



HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED SRR
CHECKED RG

PLAN AND PROFILE - HILLIARD ROME ROAD
STA. 106+00 TO STA.111+00

HILLIARD ROME RD

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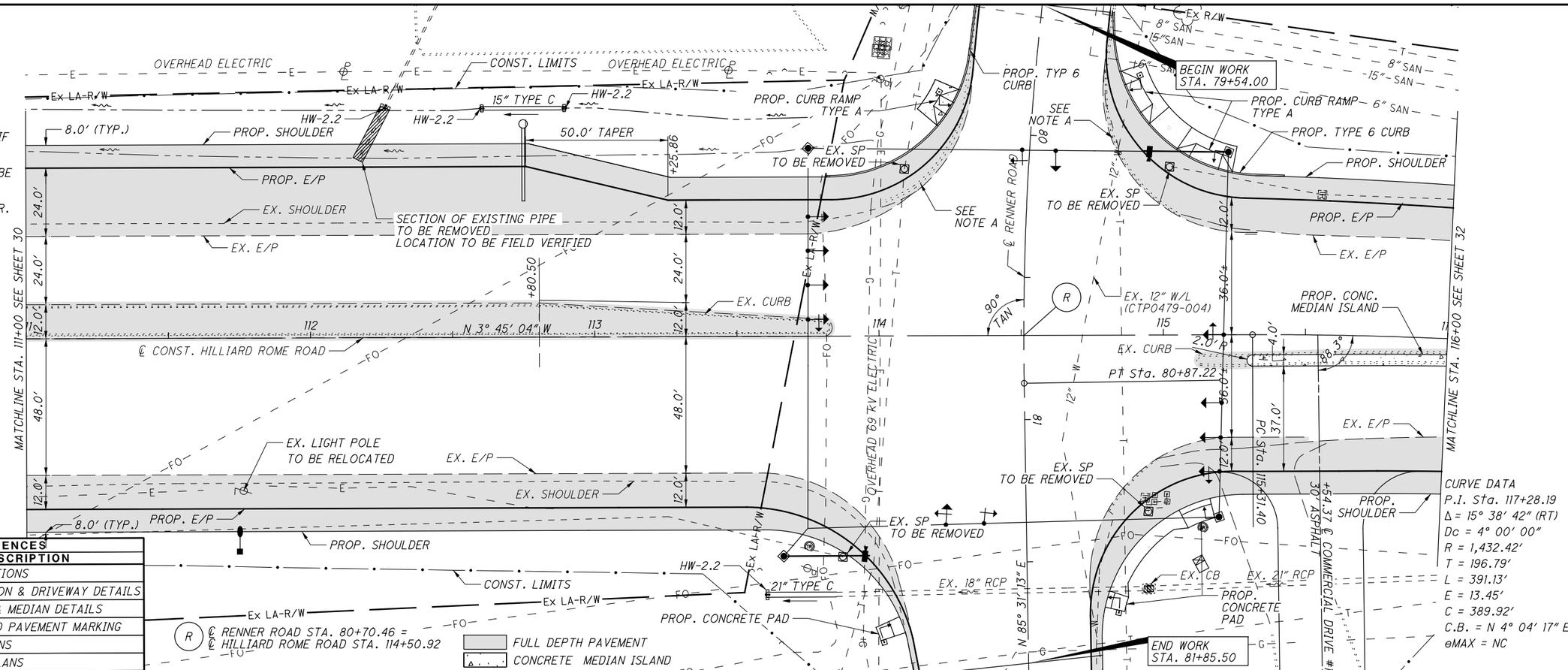
NOTE A

CONTRACTOR SHALL REMOVE EXISTING CURBS WITHOUT DISTURBING EXISTING UNDERDRAINS. IF EXISTING UNDERDRAIN IS DAMAGED BY THE CONTRACTOR, IT SHALL BE REPLACED WITH NEW UNDERDRAIN AT THE EXPENSE OF CONTRACTOR.



CURVE DATA
P.I. Sta. 117+28.19
Δ = 15° 38' 42" (RT)
Dc = 4° 00' 00"
R = 1,432.42'
T = 196.79'
L = 391.13'
E = 13.45'
C = 389.92'
C.B. = N 4° 04' 17" E
eMAX = NC

CROSS REFERENCES	
SHEET NO.	DESCRIPTION
45-47, 51	CROSS SECTIONS
65-66, 70,72	INTERSECTION & DRIVEWAY DETAILS
73-74	PAVEMENT & MEDIAN DETAILS
78-84	SIGNING AND PAVEMENT MARKING
85-104	SIGNAL PLANS
105-109	LIGHTING PLANS

3103-E

HORIZONTAL SCALE IN FEET 0 10 20 40

CALCULATED SRR
CHECKED RG

PLAN AND PROFILE - HILLIARD-ROME ROAD STA. 111+00 TO STA. 116+00

HILLIARD ROME RD

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CURVE DATA
P.I. Sta. 117+28.19
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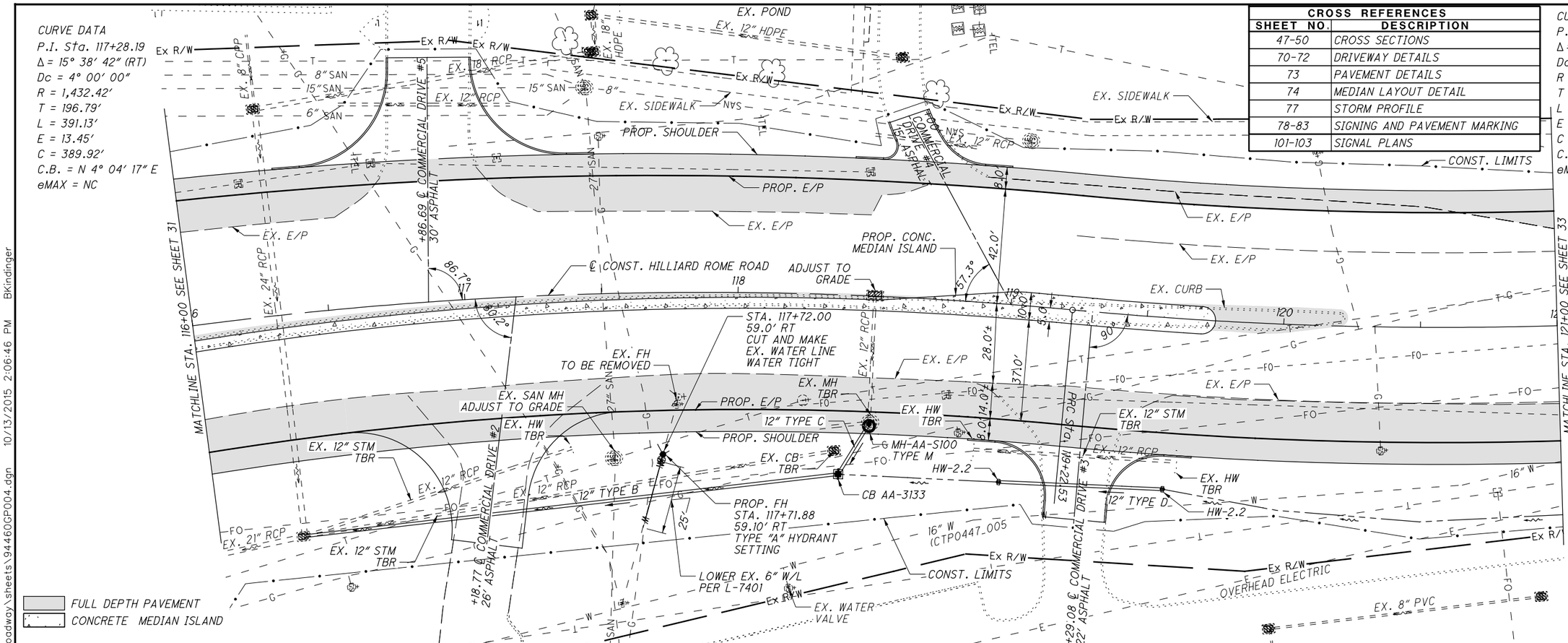
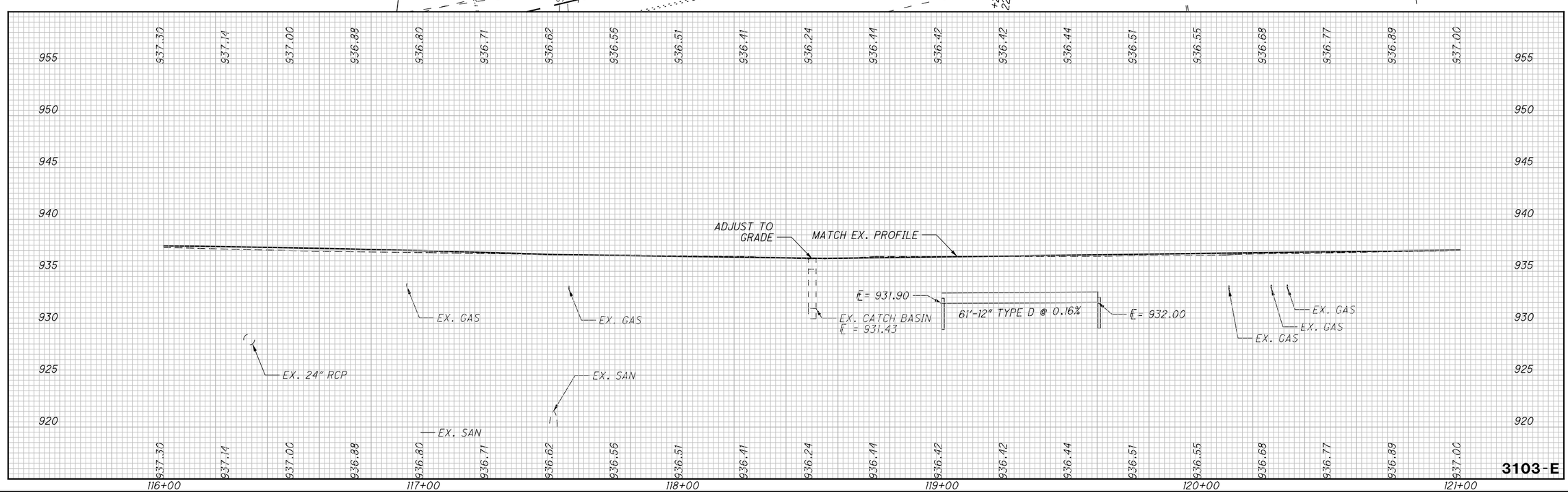
Dc = 4° 00′ 00″
R = 1,432.42′
T = 196.79′
L = 391.13′
E = 13.45′
C = 389.92′
C.B. = N 4° 04′ 17″ E
eMAX = NC

CURVE DATA
P.I. Sta. 121+61.42
Δ = 18° 56′ 14″ (LT)
Dc = 4° 00′ 00″
R = 1,432.37′
T = 238.89′
L = 473.42′
E = 19.78′
C = 471.27′
C.B. = N 2° 25′ 31″ E
eMAX = NC

CROSS REFERENCES	
SHEET NO.	DESCRIPTION
47-50	CROSS SECTIONS
70-72	DRIVEWAY DETAILS
73	PAVEMENT DETAILS
74	MEDIAN LAYOUT DETAIL
77	STORM PROFILE
78-83	SIGNING AND PAVEMENT MARKING
101-103	SIGNAL PLANS





HORIZONTAL SCALE IN FEET 0 10 20 40

CALCULATED SRR
CHECKED RG

PLAN AND PROFILE - HILLIARD-ROME ROAD
STA. 116+00 TO STA. 121+00

HILLIARD ROME RD

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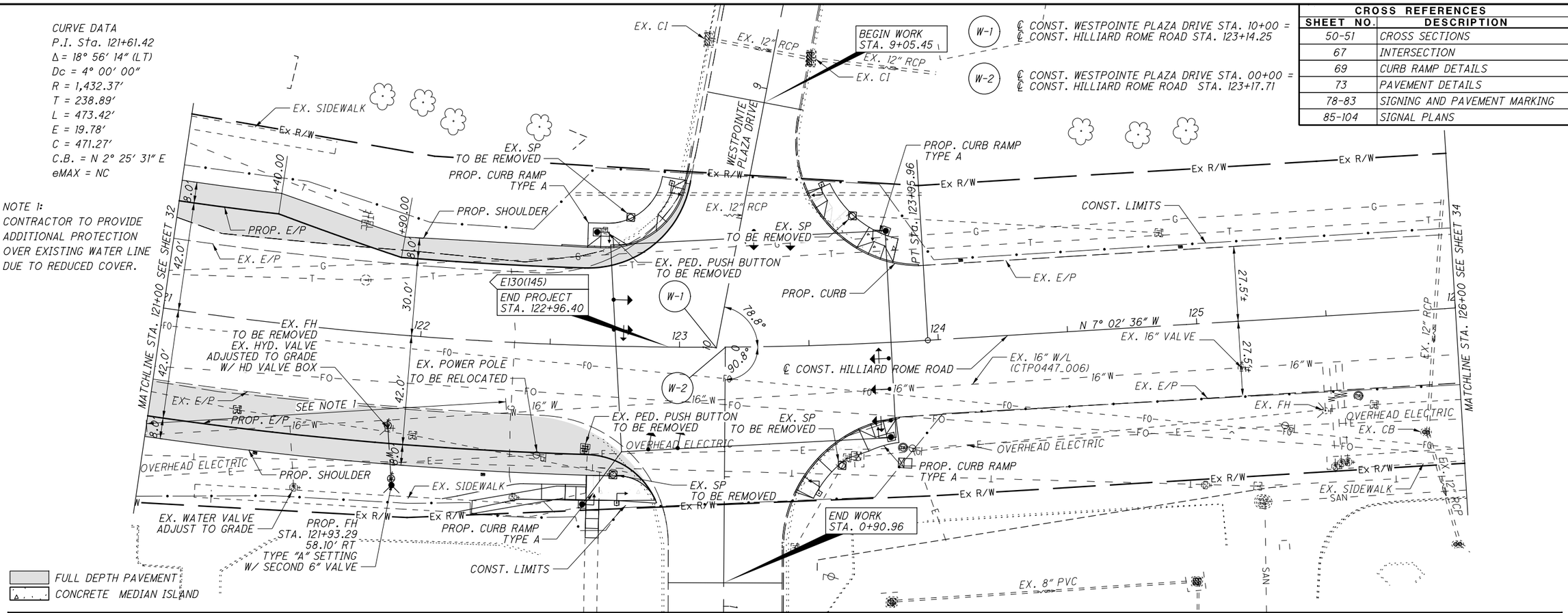
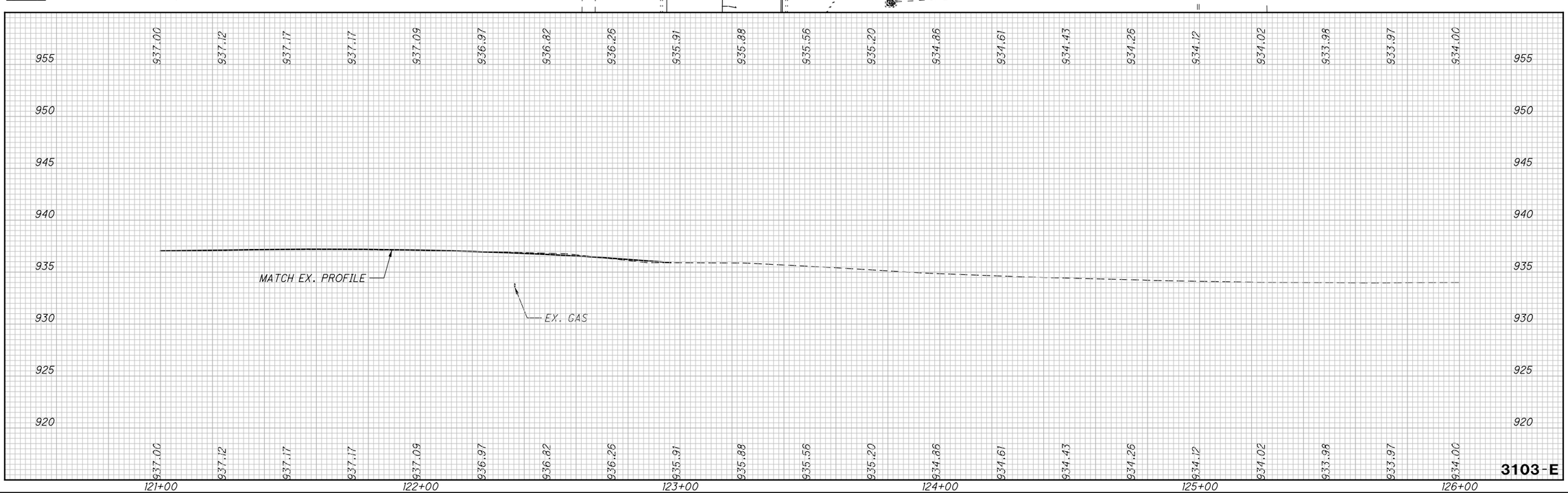
CURVE DATA
P.I. Sta. 121+61.42
Δ = 18° 56′ 14″ (LT)
Dc = 4° 00′ 00″
R = 1,432.37′
T = 238.89′
L = 473.42′
E = 19.78′
C = 471.27′
C.B. = N 2° 25′ 31″ E
eMAX = NC

NOTE 1:
CONTRACTOR TO PROVIDE ADDITIONAL PROTECTION OVER EXISTING WATER LINE DUE TO REDUCED COVER.

CROSS REFERENCES	
SHEET NO.	DESCRIPTION
50-51	CROSS SECTIONS
67	INTERSECTION
69	CURB RAMP DETAILS
73	PAVEMENT DETAILS
78-83	SIGNING AND PAVEMENT MARKING
85-104	SIGNAL PLANS





HORIZONTAL SCALE IN FEET 0 10 20 40

CALCULATED SRR
CHECKED RG

PLAN AND PROFILE - HILLIARD ROME ROAD STA. 121+00 TO STA. 126+00

HILLIARD ROME RD

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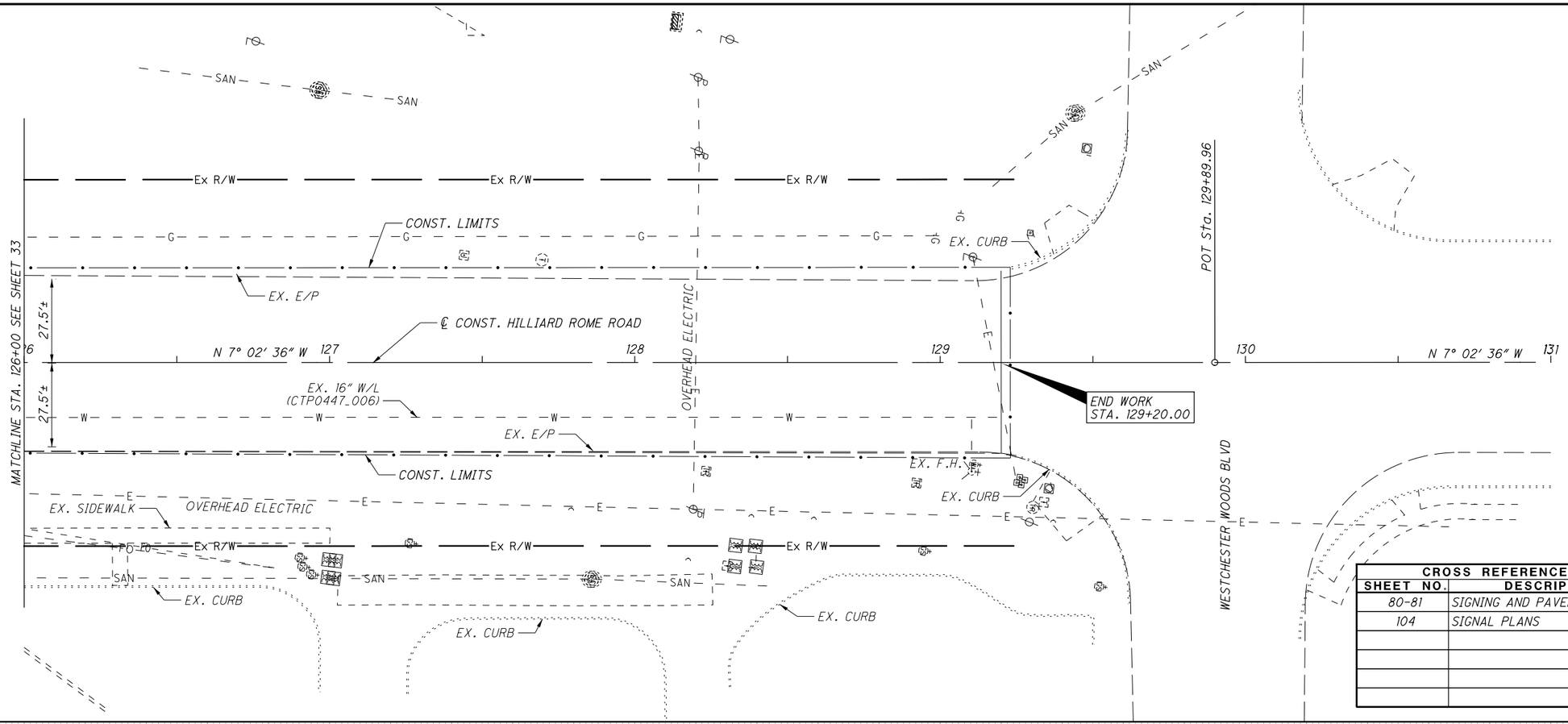
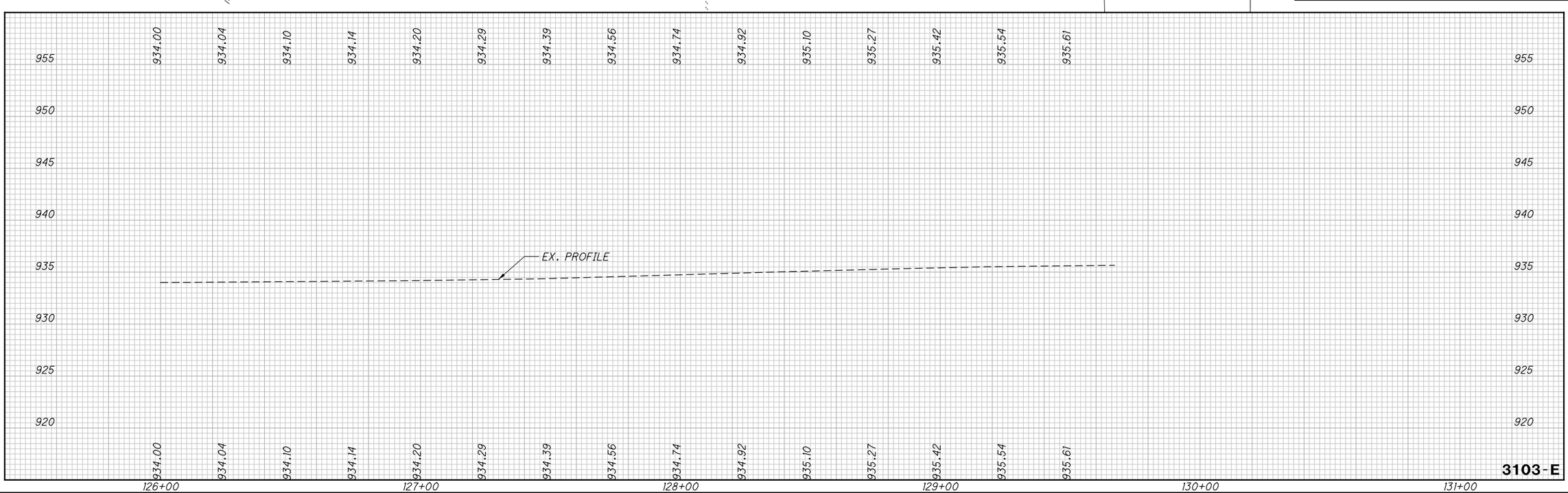


CROSS REFERENCES	
SHEET NO.	DESCRIPTION
80-81	SIGNING AND PAVEMENT MARKING
104	SIGNAL PLANS



HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED SRR
CHECKED RG

PLAN AND PROFILE
STA. 126+00 TO STA. 131+00

HILLIARD ROME RD

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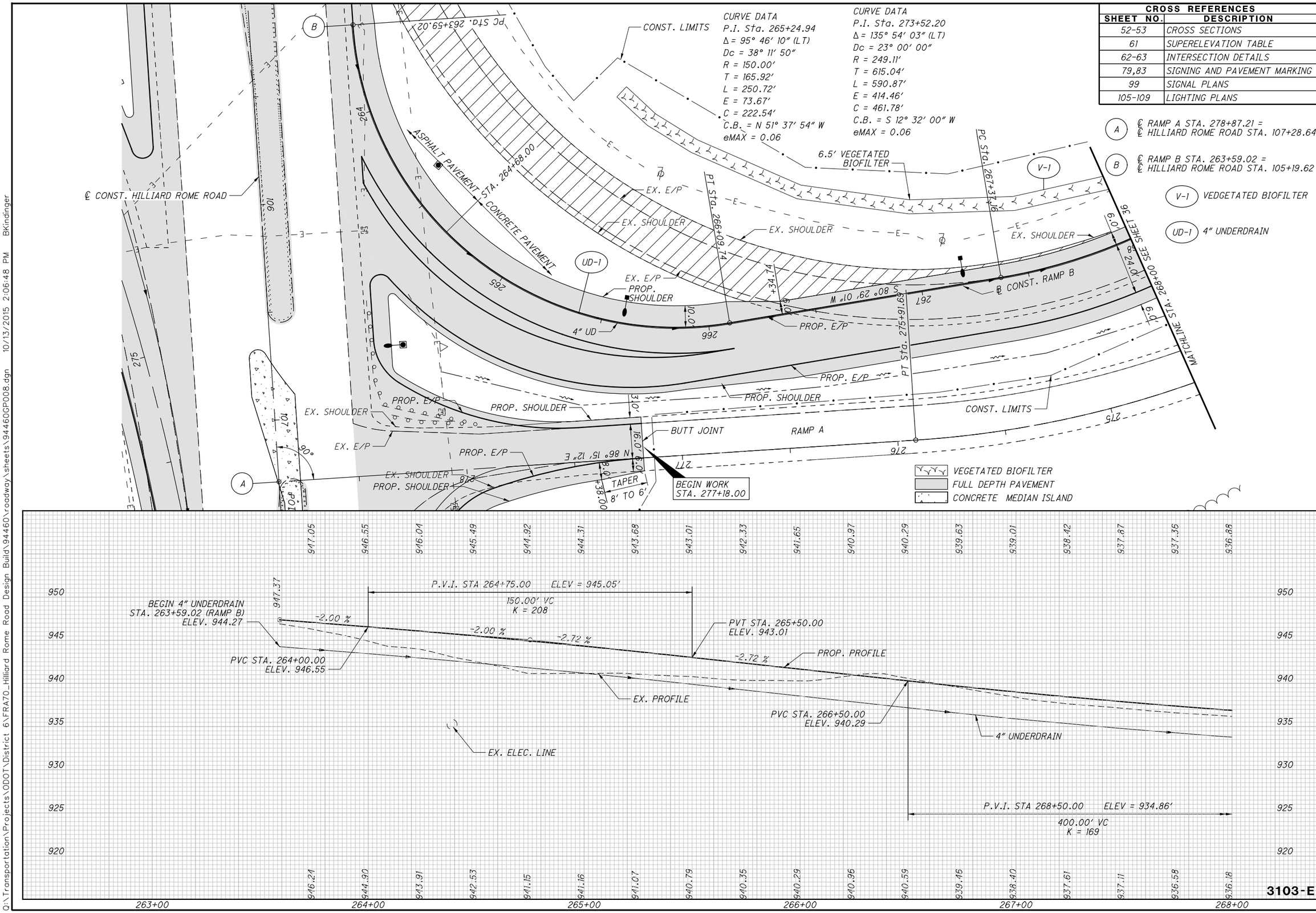
CROSS REFERENCES	
SHEET NO.	DESCRIPTION
52-53	CROSS SECTIONS
61	SUPERELEVATION TABLE
62-63	INTERSECTION DETAILS
79,83	SIGNING AND PAVEMENT MARKING
99	SIGNAL PLANS
105-109	LIGHTING PLANS



PLAN AND PROFILE - RAMP B
STA. 263+29.35 TO STA. 268+00

HILLIARD ROME RD

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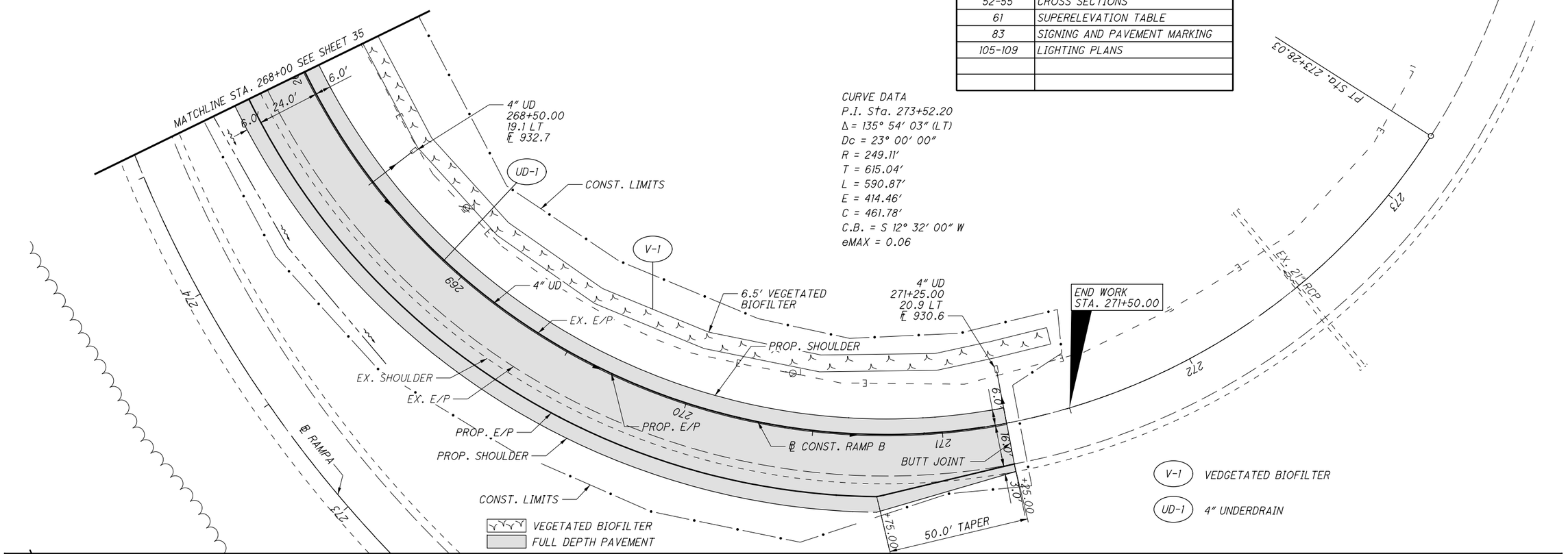
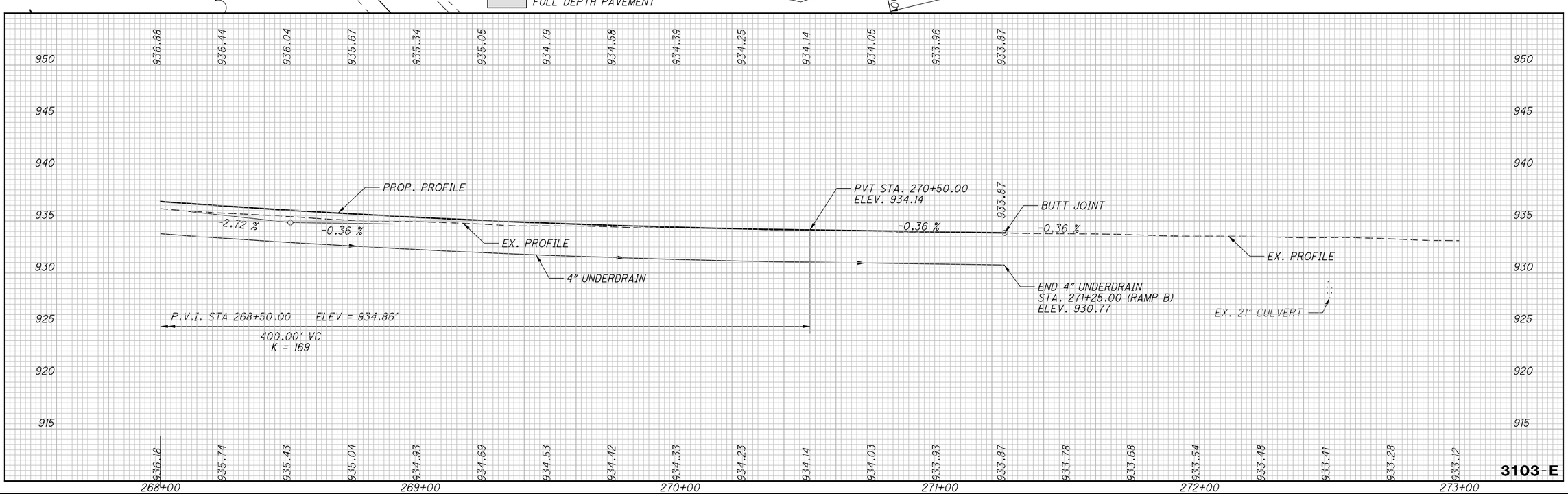
CROSS REFERENCES	
SHEET NO.	DESCRIPTION
52-55	CROSS SECTIONS
61	SUPERELEVATION TABLE
83	SIGNING AND PAVEMENT MARKING
105-109	LIGHTING PLANS

CURVE DATA
P.I. Sta. 273+52.20
Δ = 135° 54′ 03″ (LT)
Dc = 23° 00′ 00″
R = 249.11′
T = 615.04′
L = 590.87′
E = 414.46′
C = 461.78′
C.B. = S 12° 32′ 00″ W
eMAX = 0.06





HORIZONTAL SCALE IN FEET 0 10 20 40

CALCULATED EMR
CHECKED RG

PLAN AND PROFILE - RAMP B
STA. 268+00 TO STA. 273+00

HILLIARD ROME RD

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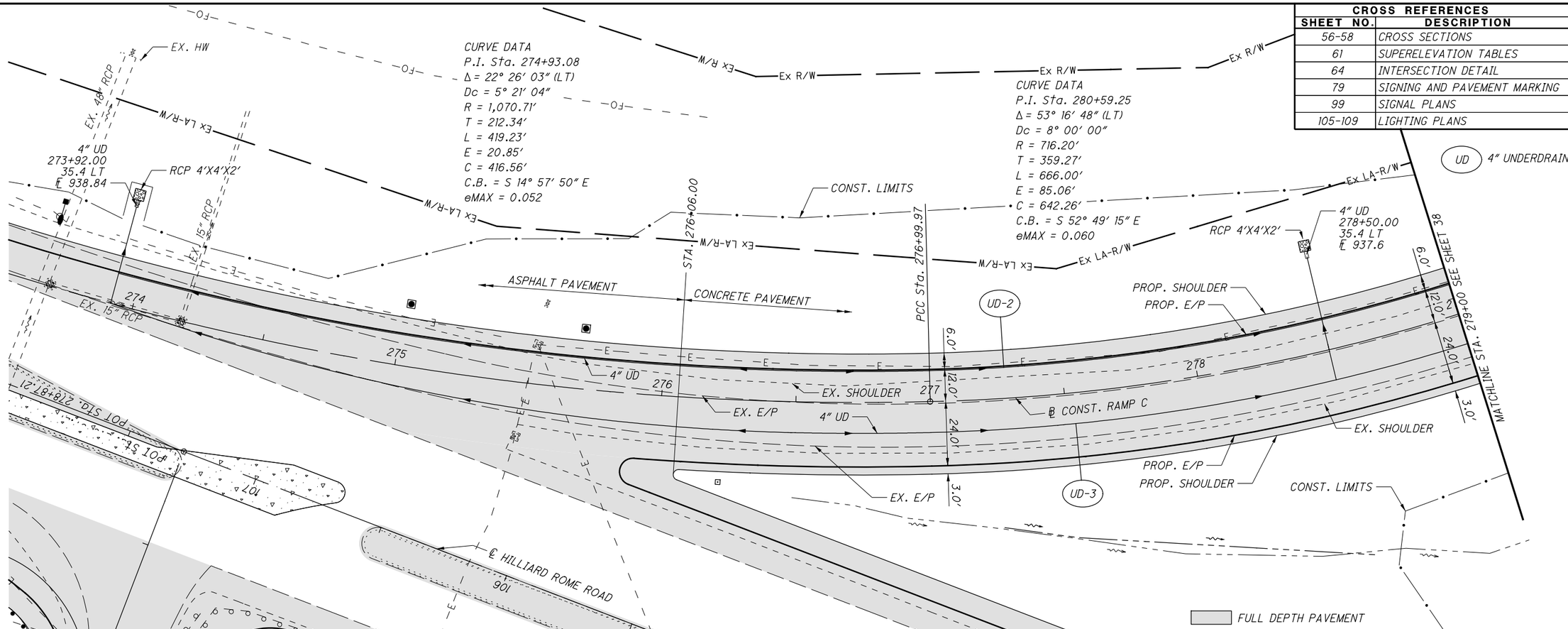
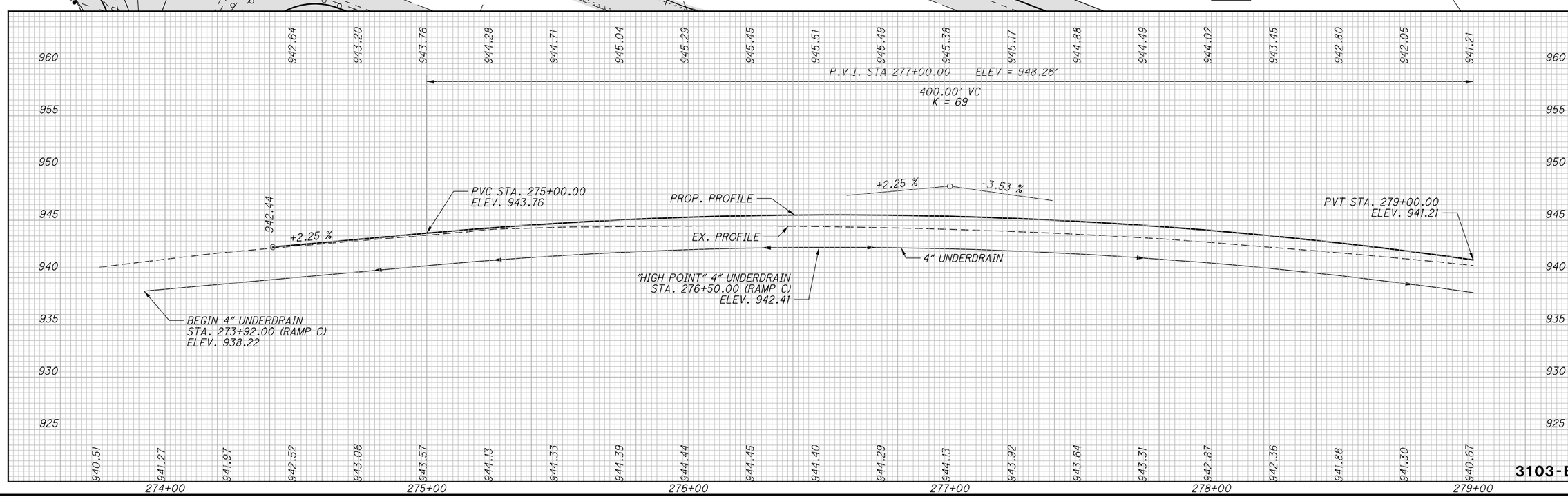
CROSS REFERENCES	
SHEET NO.	DESCRIPTION
56-58	CROSS SECTIONS
61	SUPERELEVATION TABLES
64	INTERSECTION DETAIL
79	SIGNING AND PAVEMENT MARKING
99	SIGNAL PLANS
105-109	LIGHTING PLANS





HORIZONTAL SCALE IN FEET 0 10 20 40

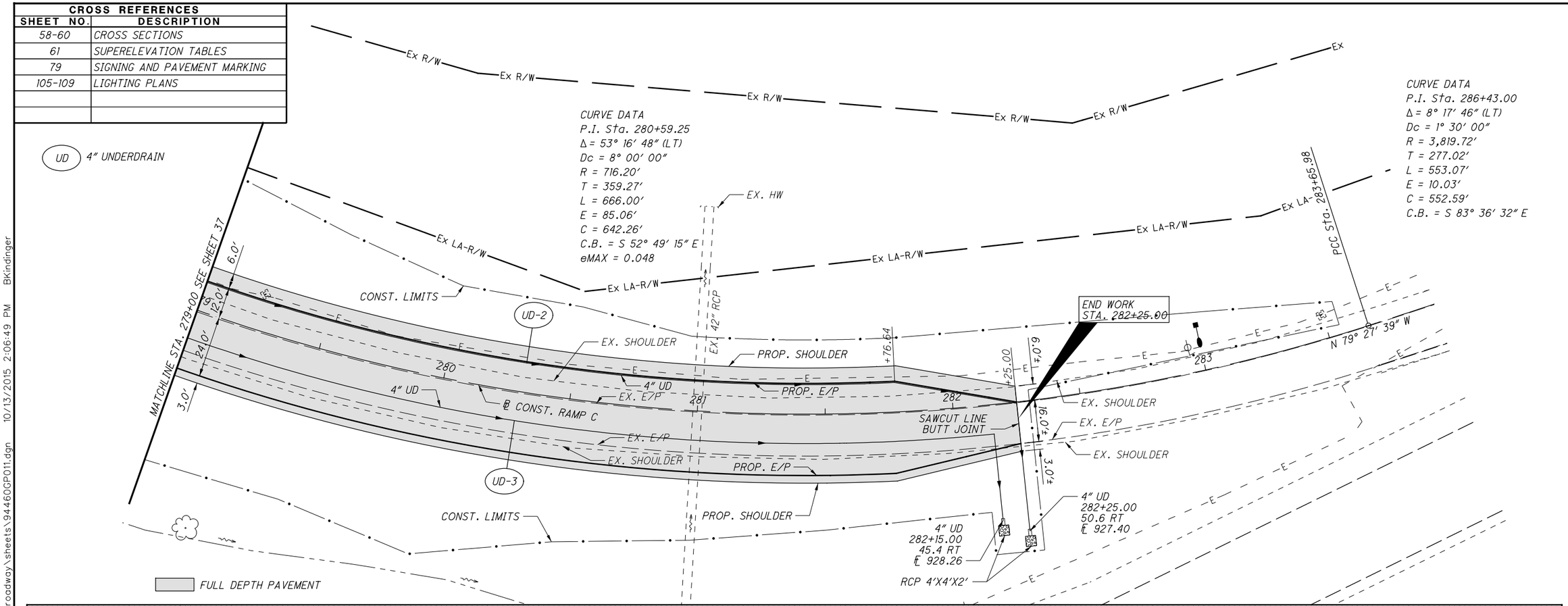
CALCULATED EMR
CHECKED RG

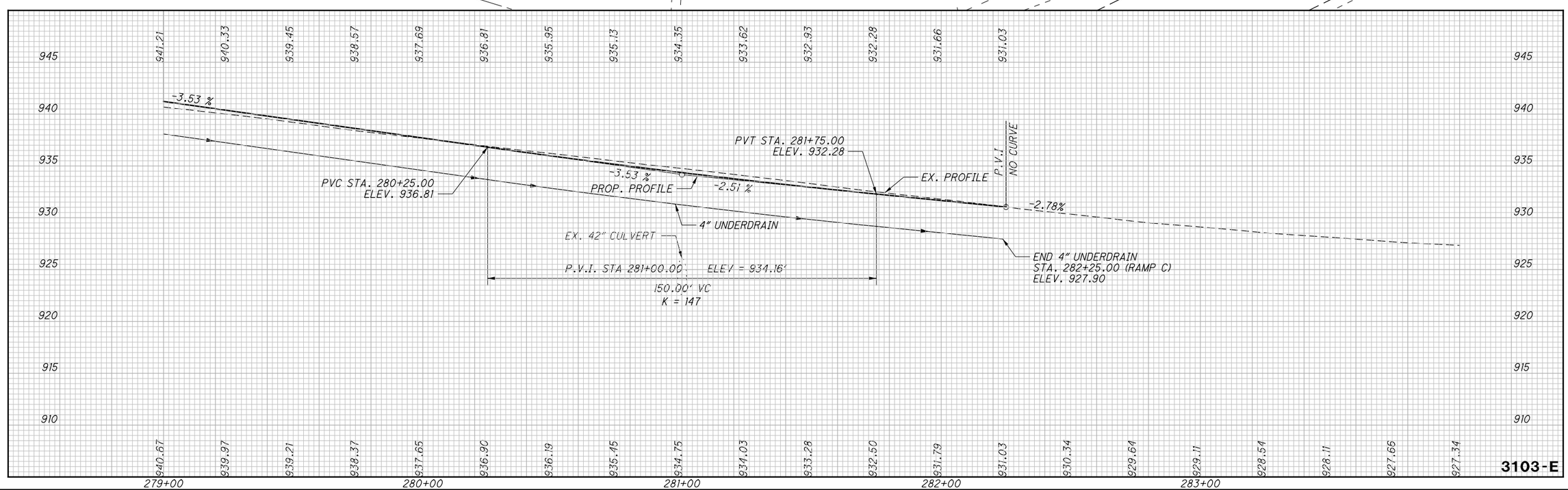
PLAN AND PROFILE - RAMP C
STA. 273+50 TO STA. 279+00

HILLIARD ROME RD

Q:\Transportation\Projects\ODOT\District 6\FRA70_Hilliard Rome Road Design Build\94460\roadway\sheets\94460GP010.dgn 10/13/2015 2:06:49 PM BKindinger

CROSS REFERENCES	
SHEET NO.	DESCRIPTION
58-60	CROSS SECTIONS
61	SUPERELEVATION TABLES
79	SIGNING AND PAVEMENT MARKING
105-109	LIGHTING PLANS





HORIZONTAL SCALE IN FEET 0 10 20 40

CALCULATED EMR
CHECKED RG

PLAN AND PROFILE - RAMP C
STA. 279+00 TO STA. 284+00

HILLIARD ROME RD

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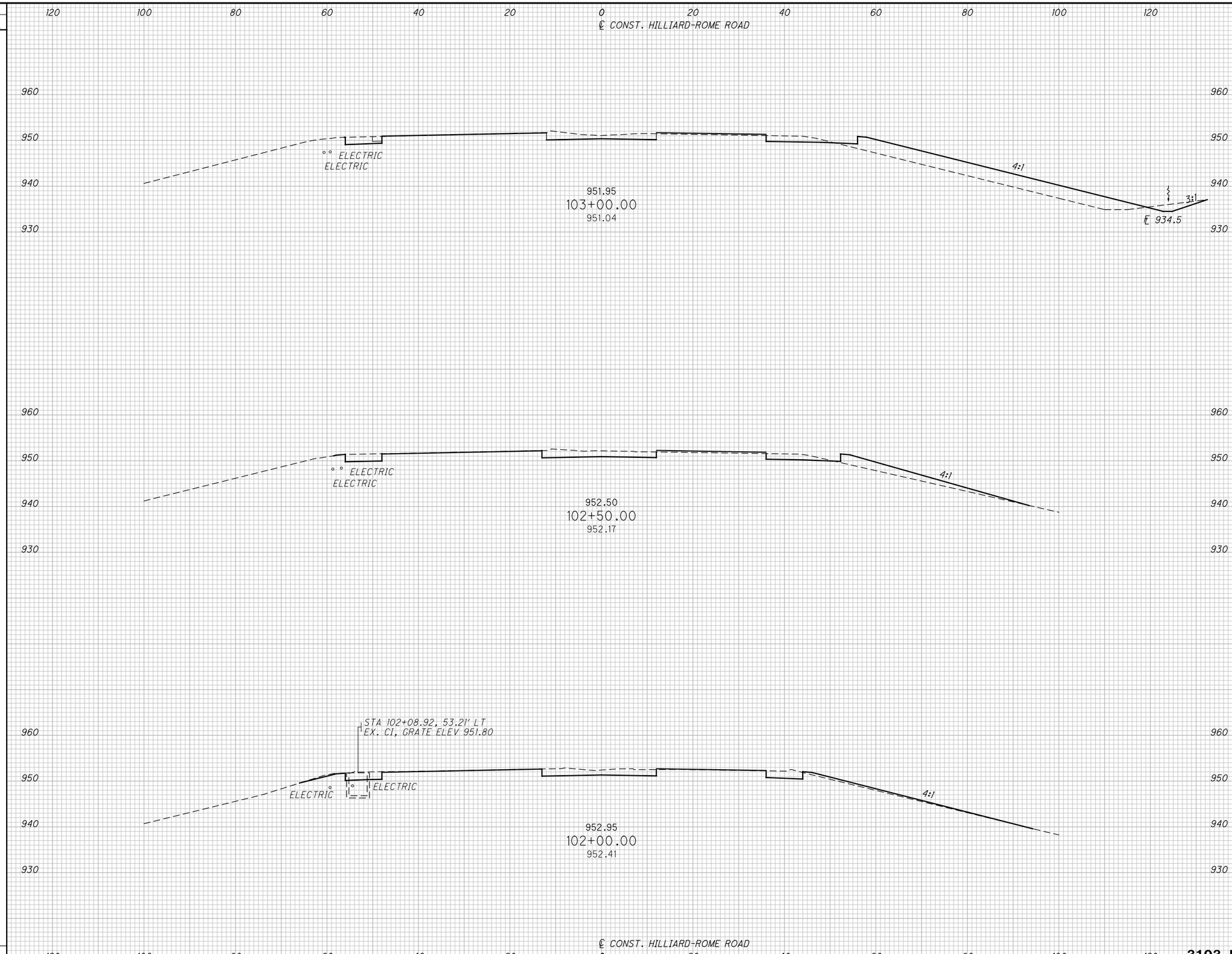
SEEDING	
END WIDTH	SQ. YDS.



END AREA		VOLUME	
CUT	FILL	CUT	FILL

CALCULATED SR
CHECKED RG

CROSS SECTIONS HILLIARD ROME RD
STA. 102+00.00 TO STA. 103+00.00

HILLIARD ROME RD

3103-E

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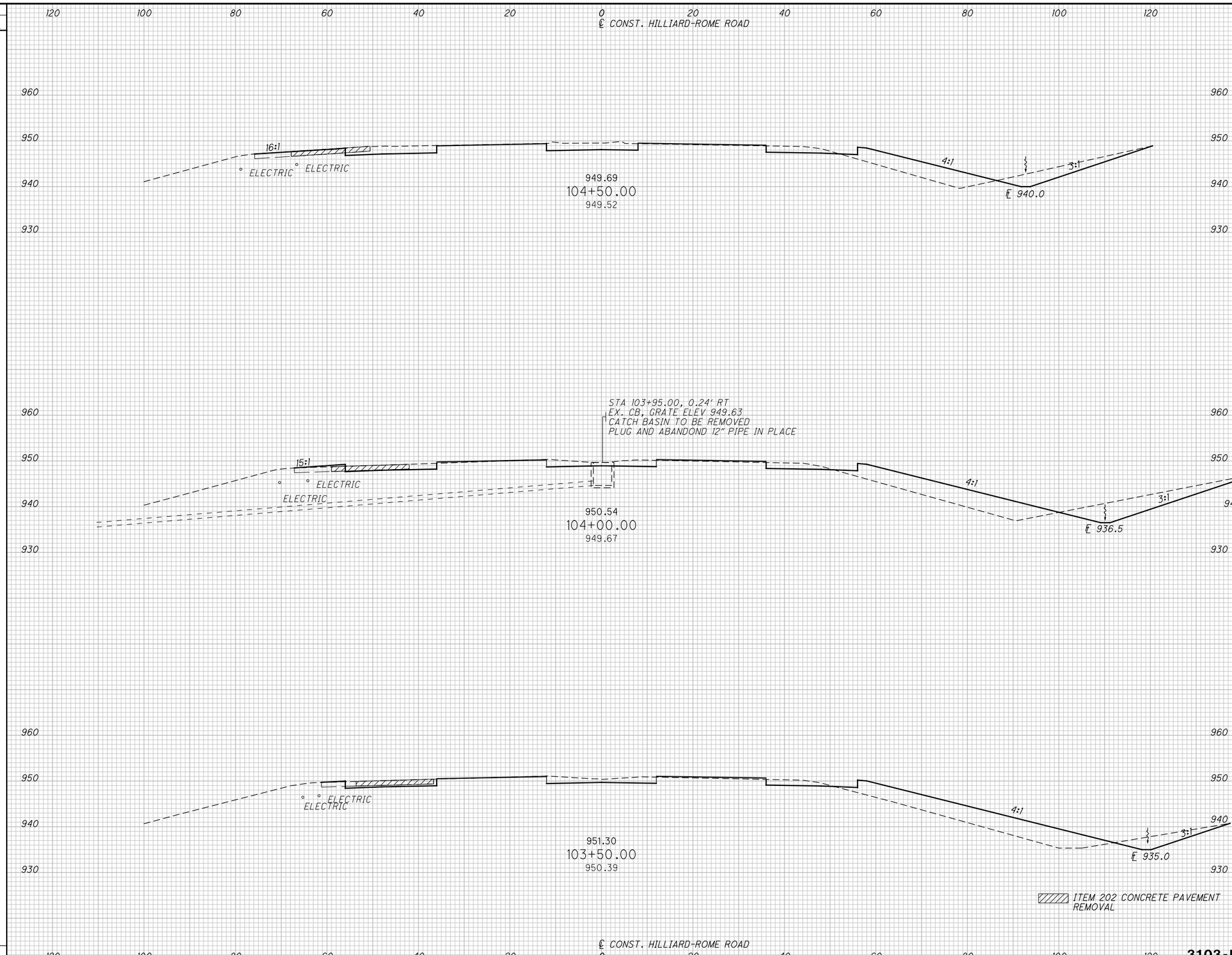
SEEDING	
END WIDTH	SQ. YDS.

END AREA		VOLUME	
CUT	FILL	CUT	FILL

CALCULATED SR
CHECKED RG



3103-E

CROSS SECTIONS HILLIARD ROME RD
STA. 103+50.00 TO STA. 104+50.00

HILLIARD ROME RD

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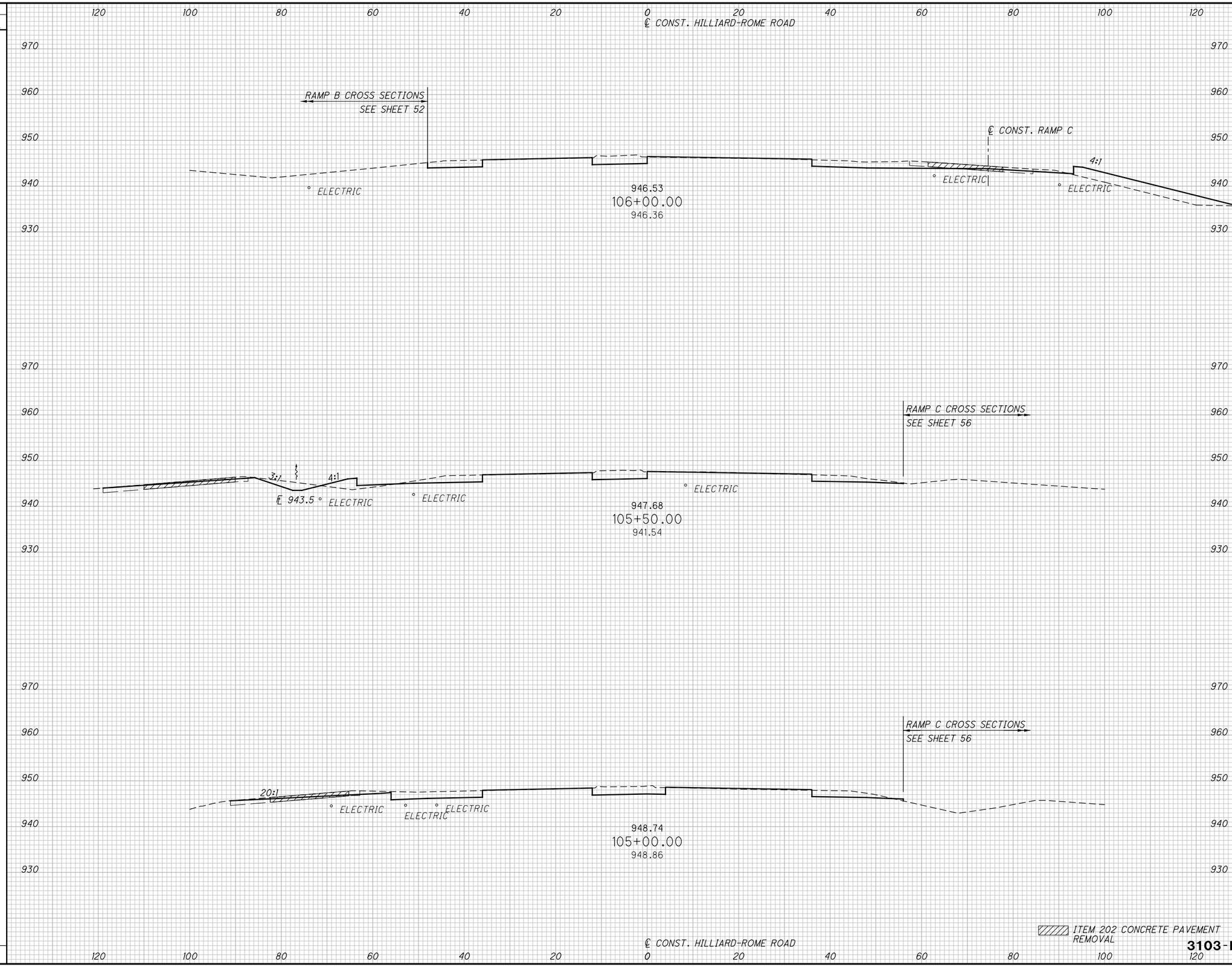
SEEDING	
END WIDTH	SQ. YDS.



END AREA		VOLUME	
CUT	FILL	CUT	FILL

CALCULATED SR
CHECKED RG

CROSS SECTIONS HILLIARD ROME RD
STA. 105+00.00 TO STA. 106+00.00

HILLIARD ROME RD

3103-E

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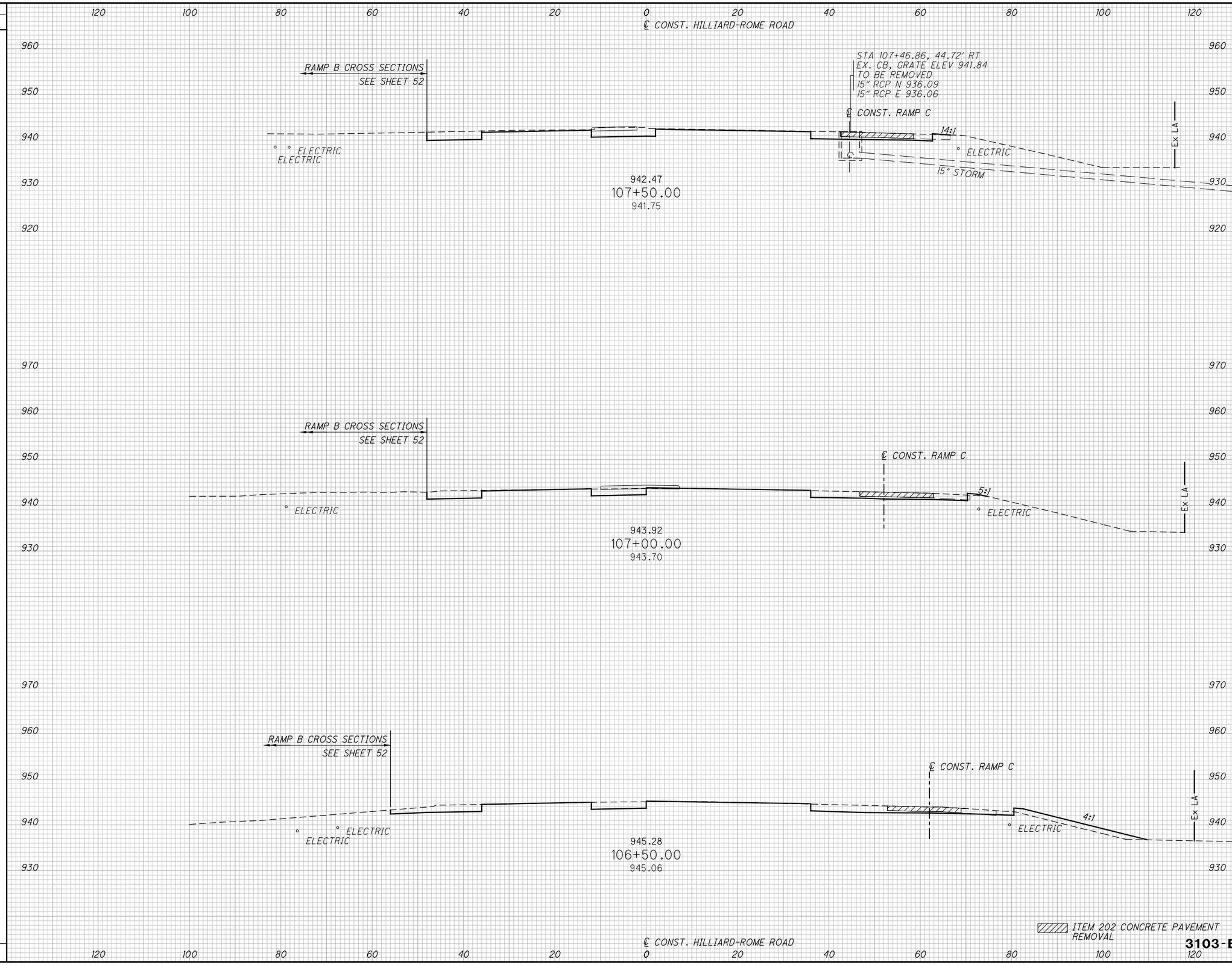
SEEDING	
END WIDTH	SQ. YDS.

END AREA		VOLUME	
CUT	FILL	CUT	FILL



3103-E

CALCULATED SR
CHECKED RG

CROSS SECTIONS HILLIARD ROME RD
STA. 106+50.00 TO STA. 107+50.00

HILLIARD ROME RD

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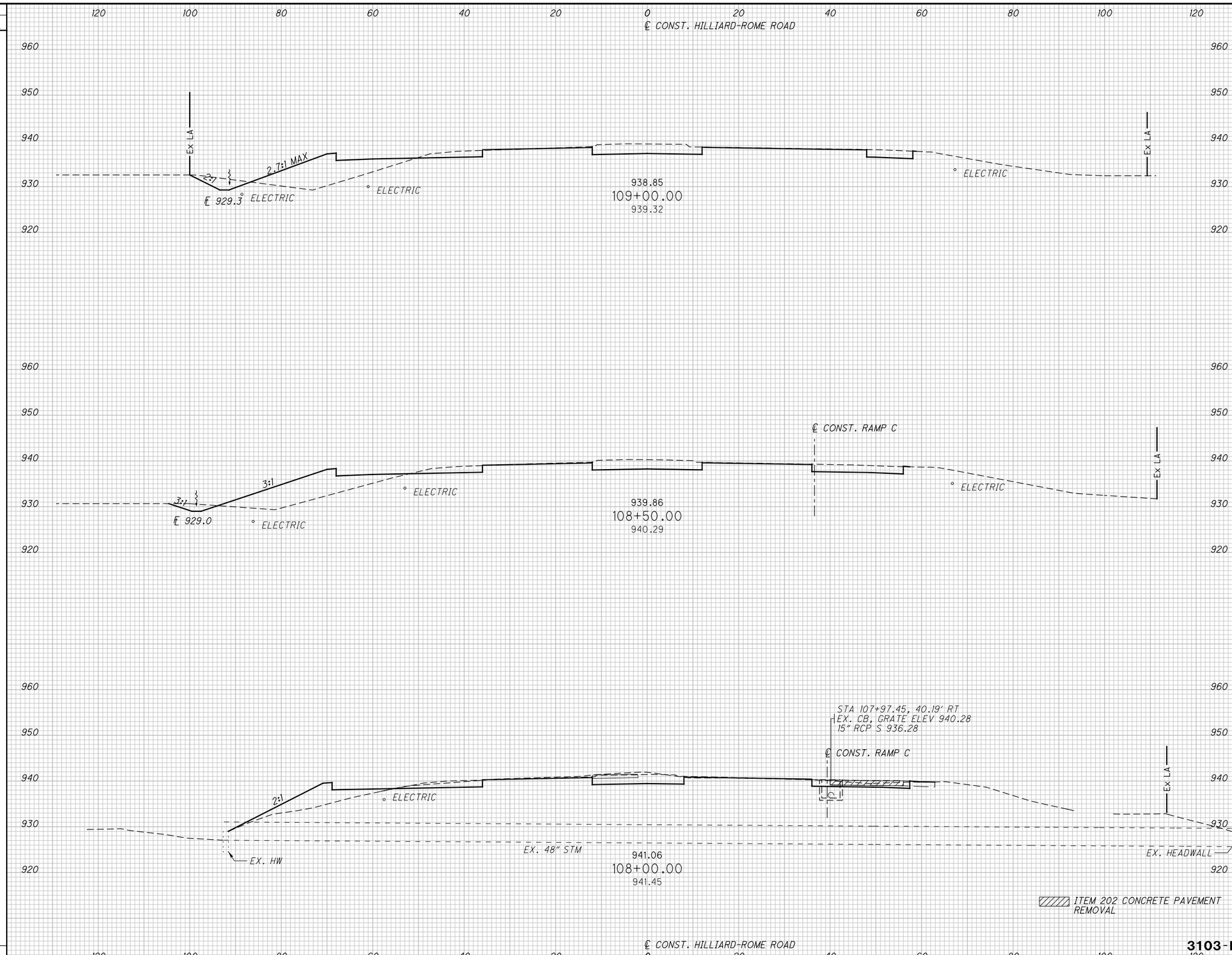
SEEDING	
END WIDTH	SQ. YDS.



END AREA		VOLUME	
CUT	FILL	CUT	FILL

CALCULATED SR
CHECKED RG

CROSS SECTIONS HILLIARD ROME RD
STA. 108+00.00 TO STA. 109+00.00

HILLIARD ROME RD

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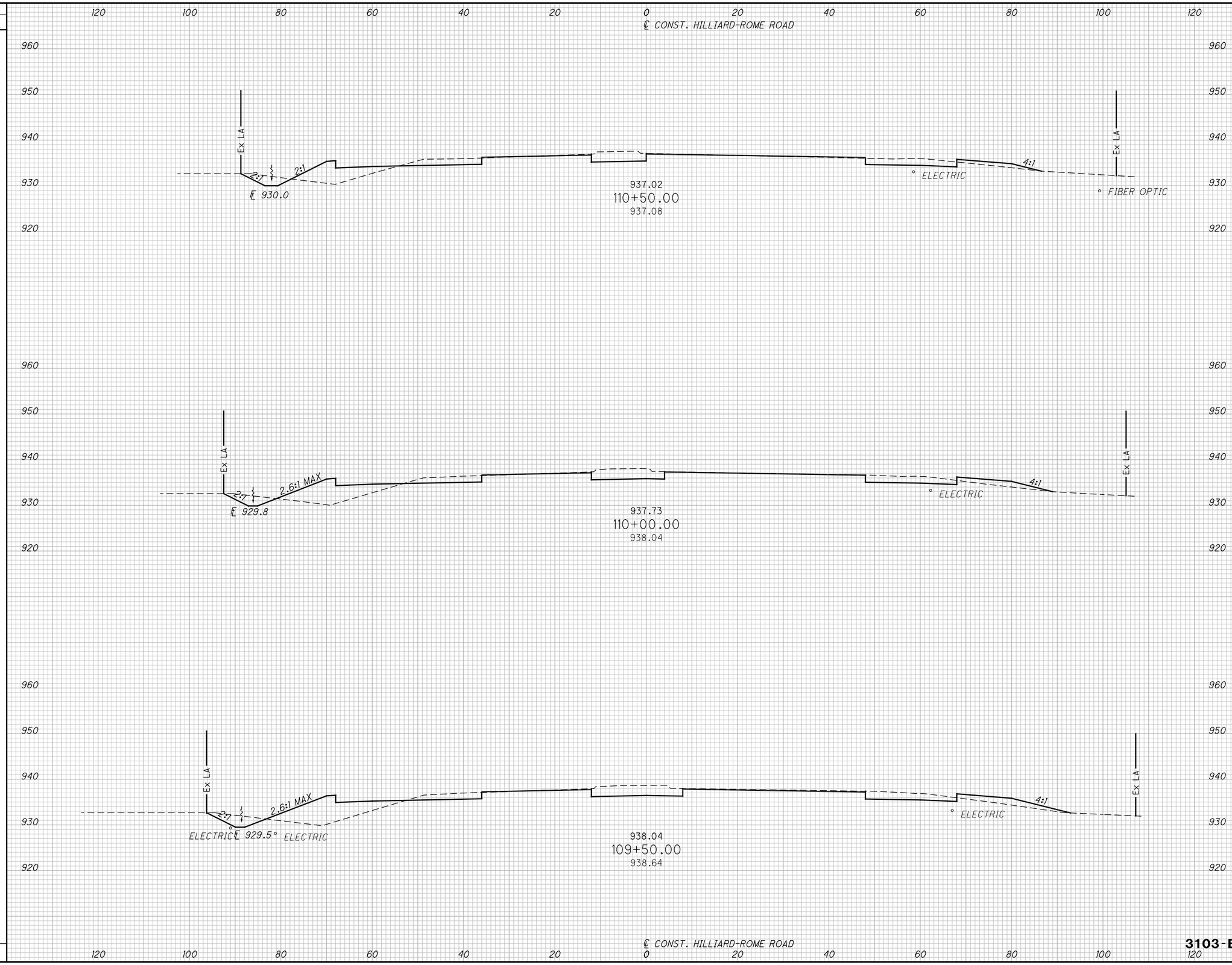
SEEDING	
END WIDTH	SQ. YDS.



END AREA		VOLUME	
CUT	FILL	CUT	FILL

CALCULATED SR
CHECKED RG

CROSS SECTIONS HILLIARD ROME RD
STA. 109+50.00 TO STA. 110+50.00

HILLIARD ROME RD

3103-E

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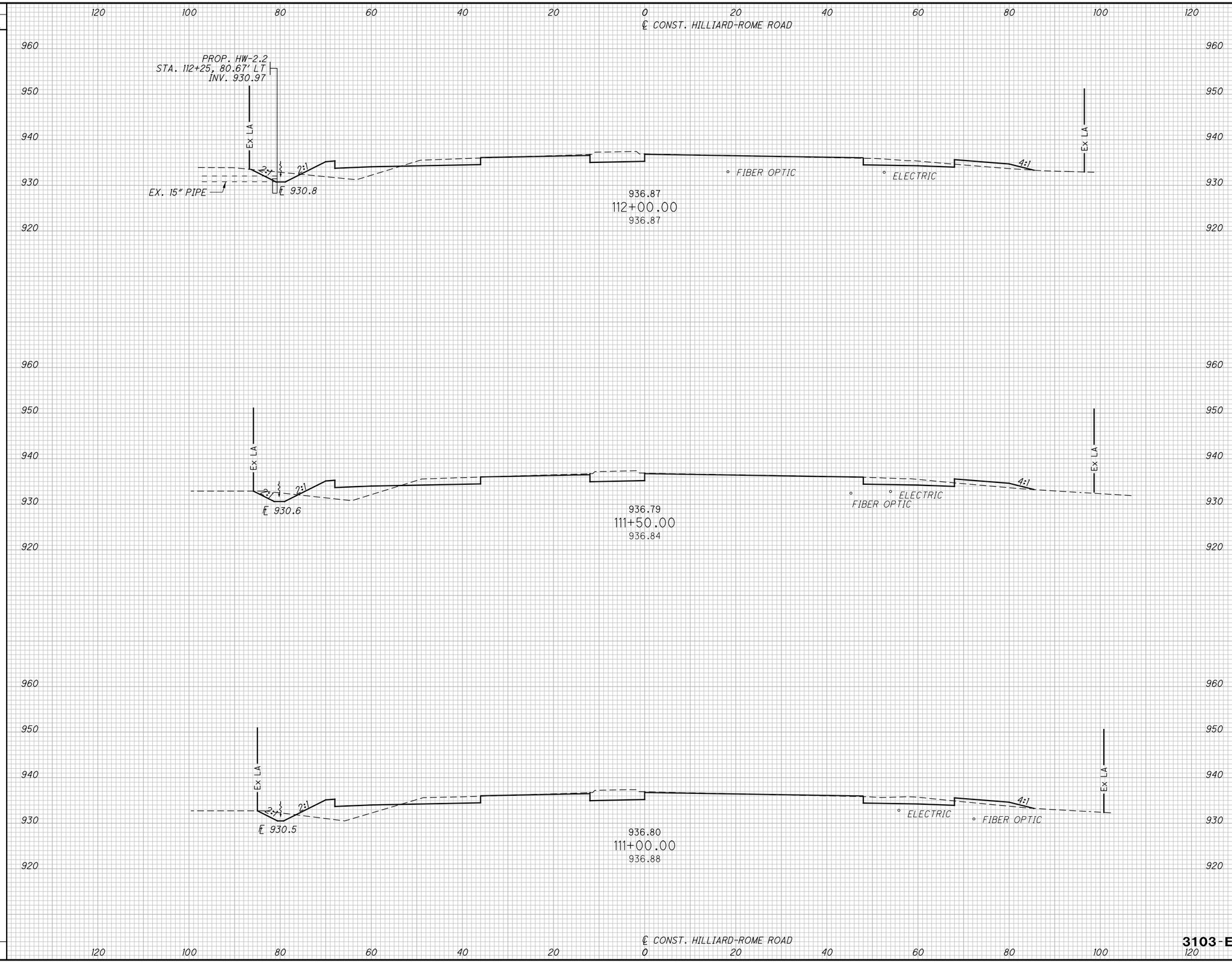
SEEDING	
END WIDTH	SQ. YDS.



END AREA		VOLUME	
CUT	FILL	CUT	FILL

CALCULATED SR
CHECKED RG

CROSS SECTIONS HILLIARD ROME RD
STA. 111+00.00 TO STA. 112+00.00

HILLIARD ROME RD

3103-E

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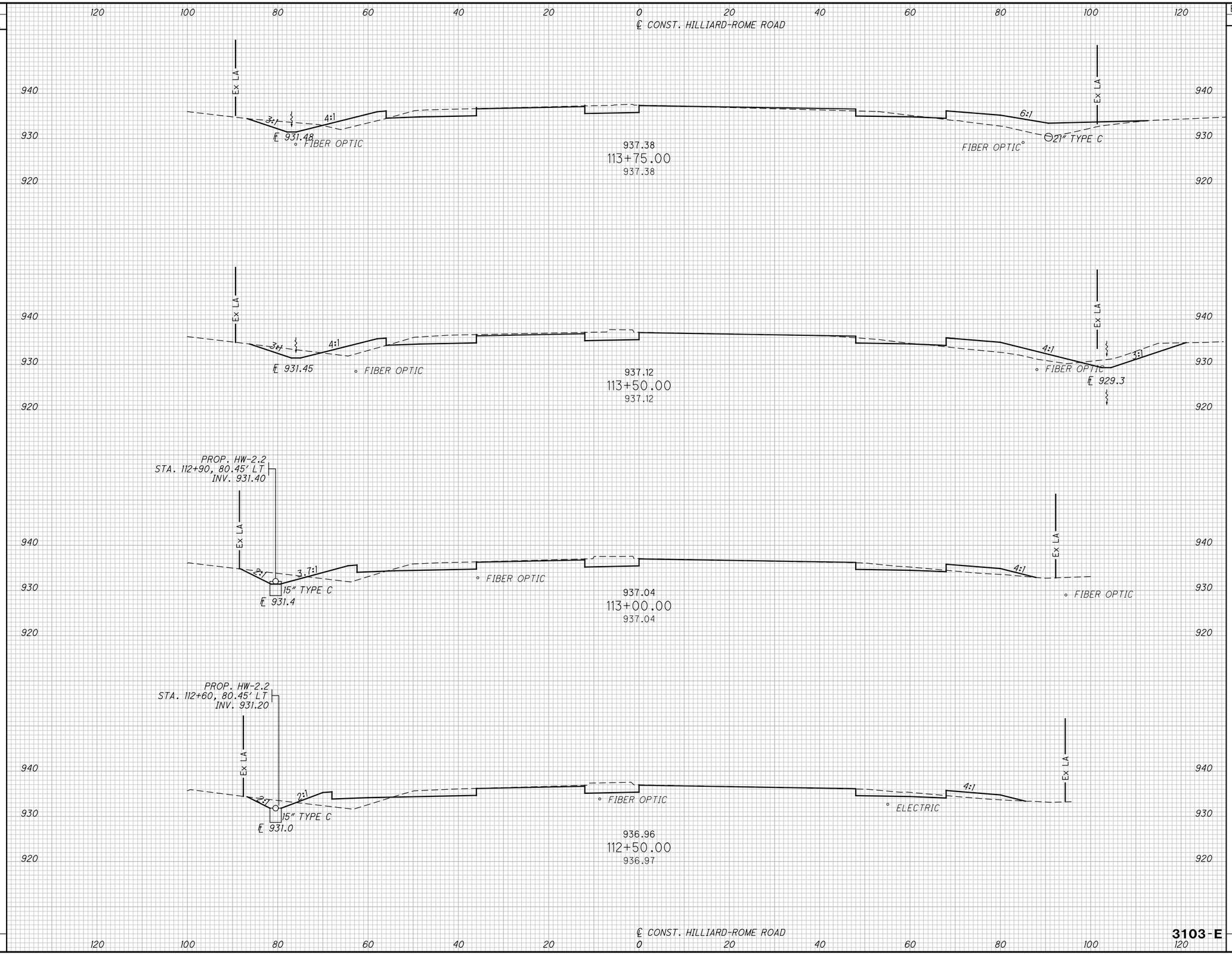
SEEDING	
END WIDTH	SQ. YDS.

END AREA		VOLUME	
CUT	FILL	CUT	FILL

CALCULATED SR
CHECKED RG



CROSS SECTIONS HILLIARD ROME RD
STA. 112+50.00 TO STA. 113+75.00

HILLIARD ROME RD

3103-E

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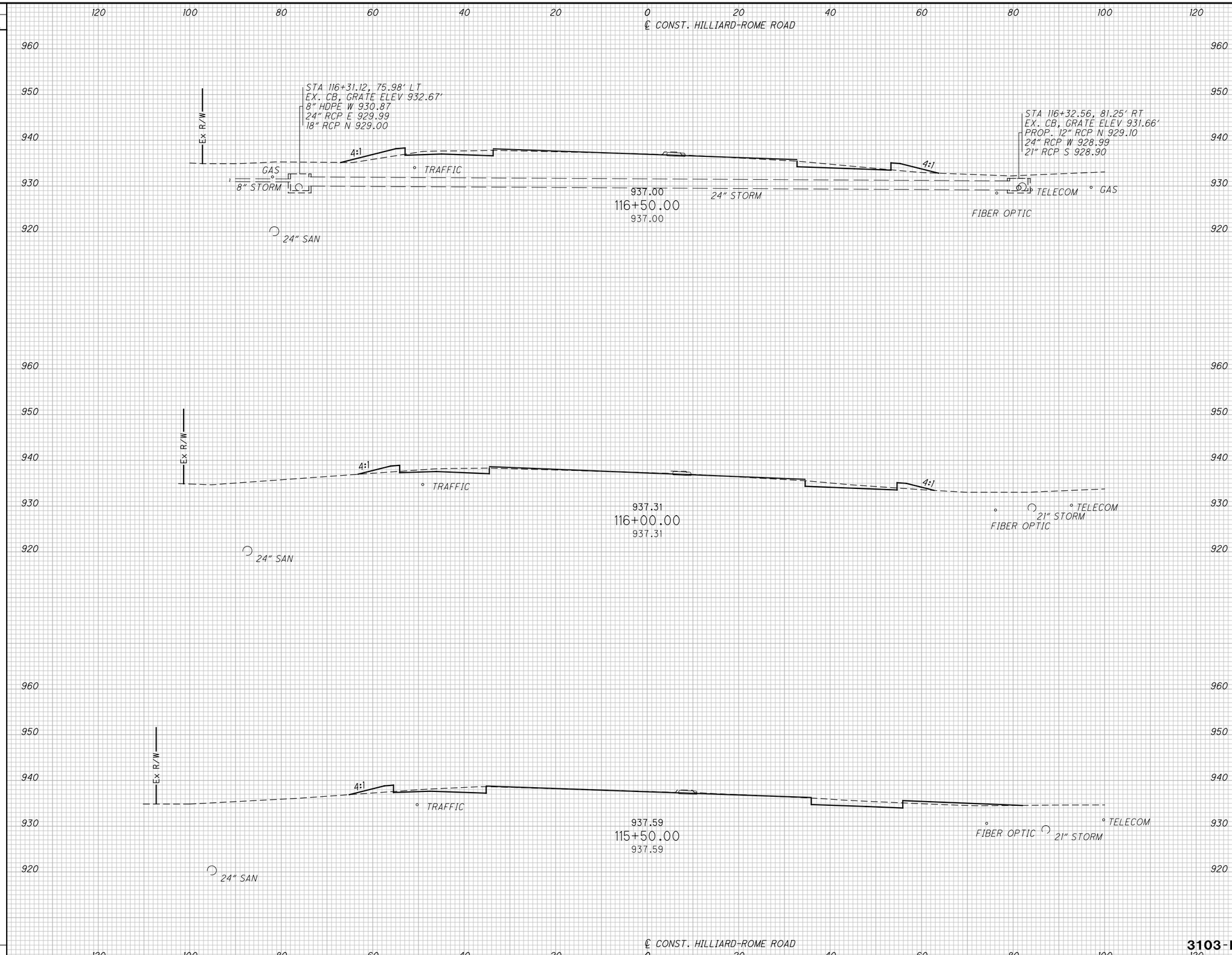
SEEDING	
END WIDTH	SQ. YDS.

END AREA		VOLUME	
CUT	FILL	CUT	FILL

CALCULATED SR
CHECKED RG



3103-E

CROSS SECTIONS HILLIARD ROME RD
STA. 115+50.00 TO STA. 116+50.00

HILLIARD ROME RD

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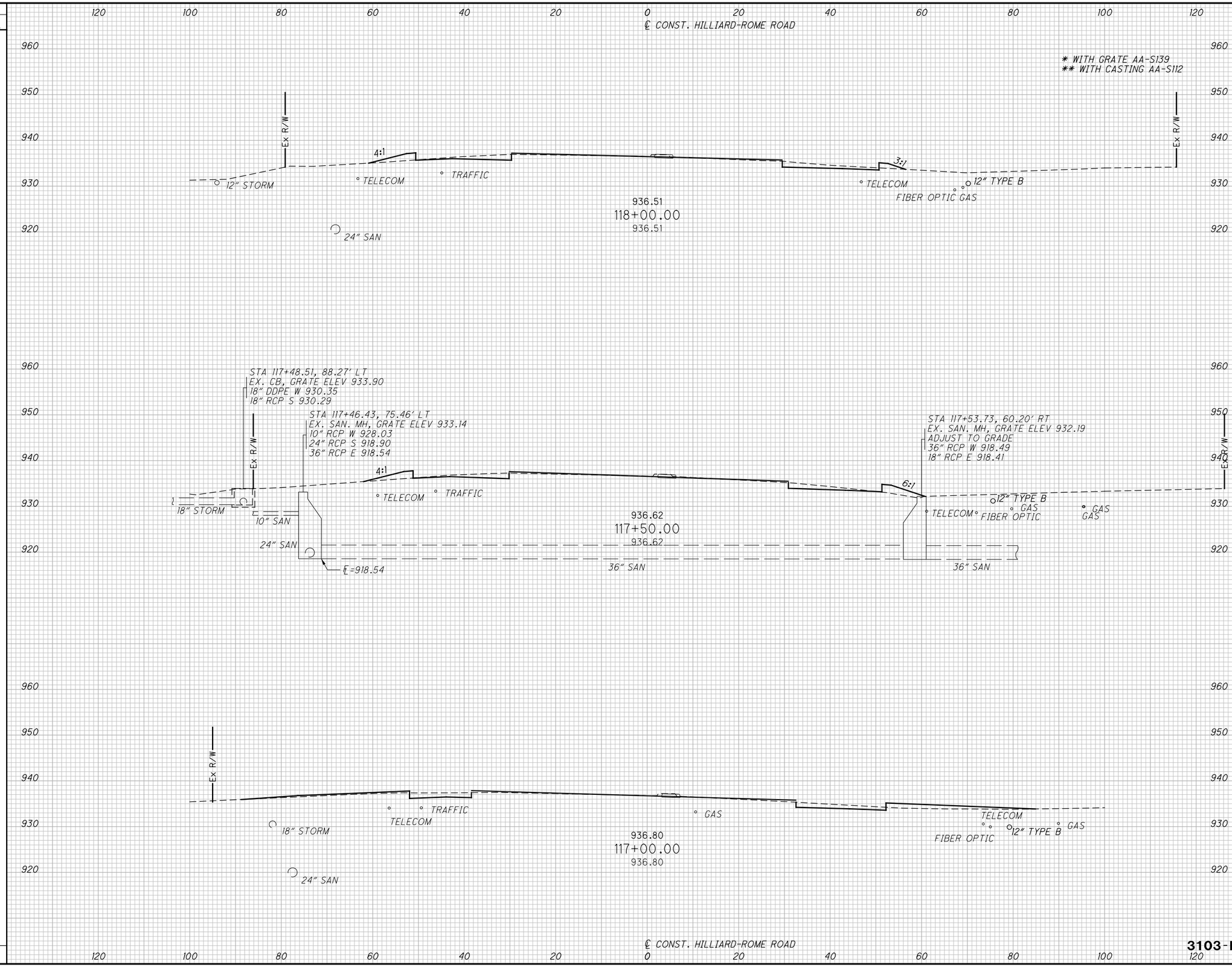
SEEDING	
END WIDTH	SQ. YDS.

END AREA		VOLUME	
CUT	FILL	CUT	FILL

CALCULATED SR
CHECKED RG



CROSS SECTIONS HILLIARD ROME RD
STA. 117+00.00 TO STA. 118+00.00

HILLIARD ROME RD

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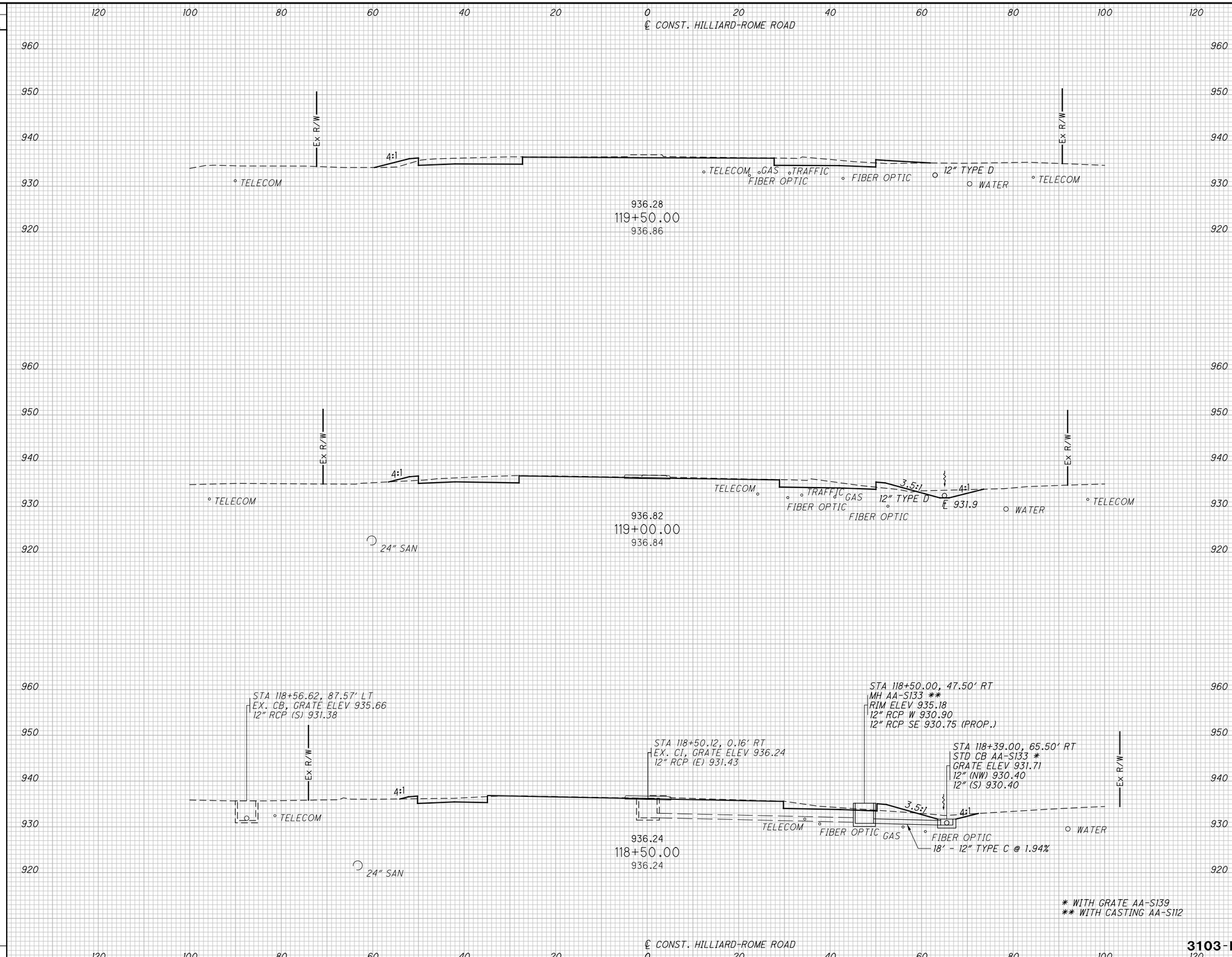
SEEDING	
END WIDTH	SQ. YDS.

END AREA		VOLUME	
CUT	FILL	CUT	FILL

CALCULATED SR
CHECKED RG

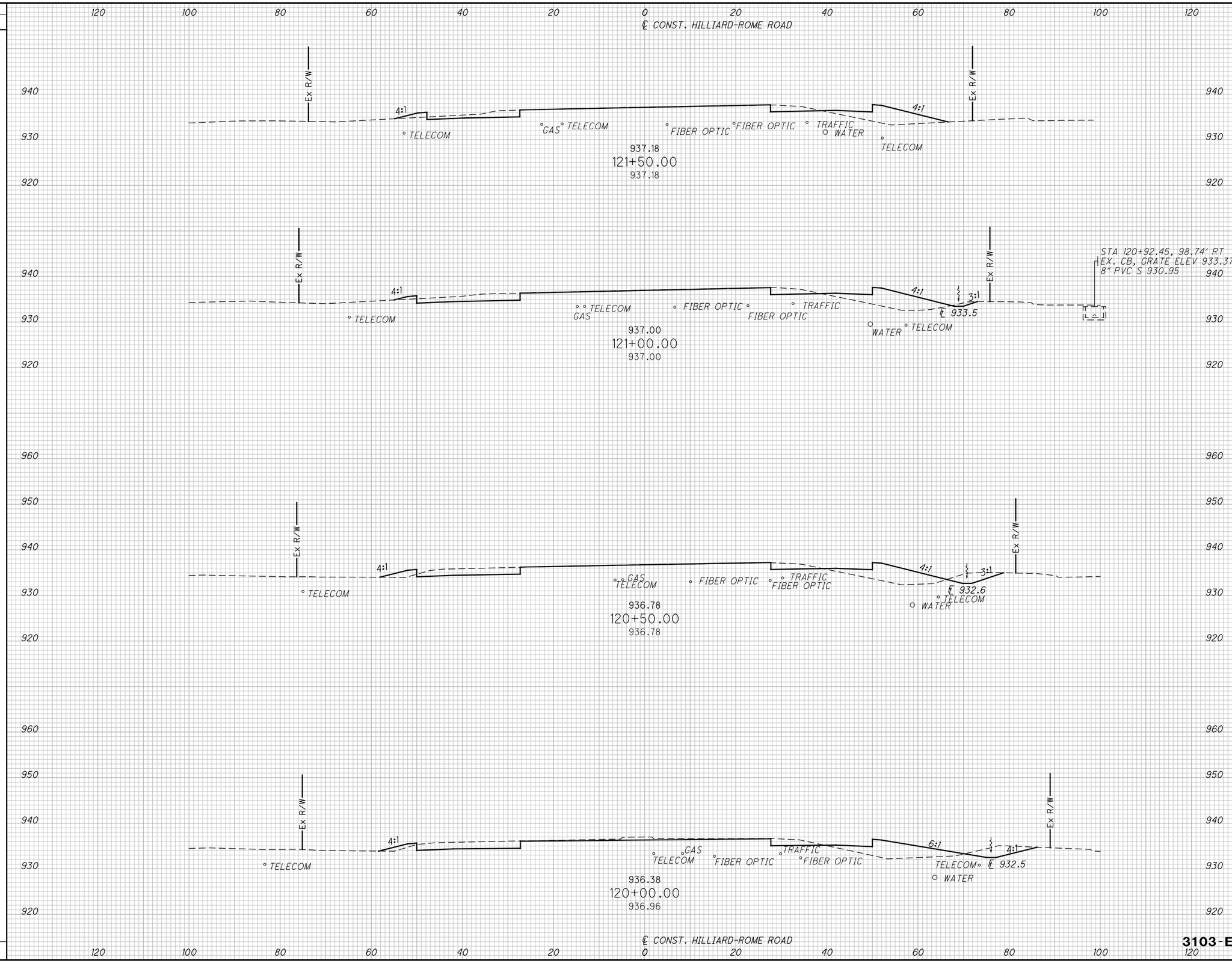


CROSS SECTIONS HILLIARD ROME RD
STA. 118+50.00 TO STA. 119+50.00

HILLIARD ROME RD

Q:\Transportation\Projects\ODOT\District 6\FRA70_Hilliard Rome Road Design Build\94460\roadway\sheets\94460XS001.dgn 10/13/2015 2:06:54 PM BKindinger

SEEDING	
END WIDTH	SQ. YDS.



END AREA		VOLUME	
CUT	FILL	CUT	FILL

CALCULATED SR
CHECKED RG

CROSS SECTIONS HILLIARD ROME RD
STA. 120+00.00 TO STA. 121+50.00

HILLIARD ROME RD

3103-E

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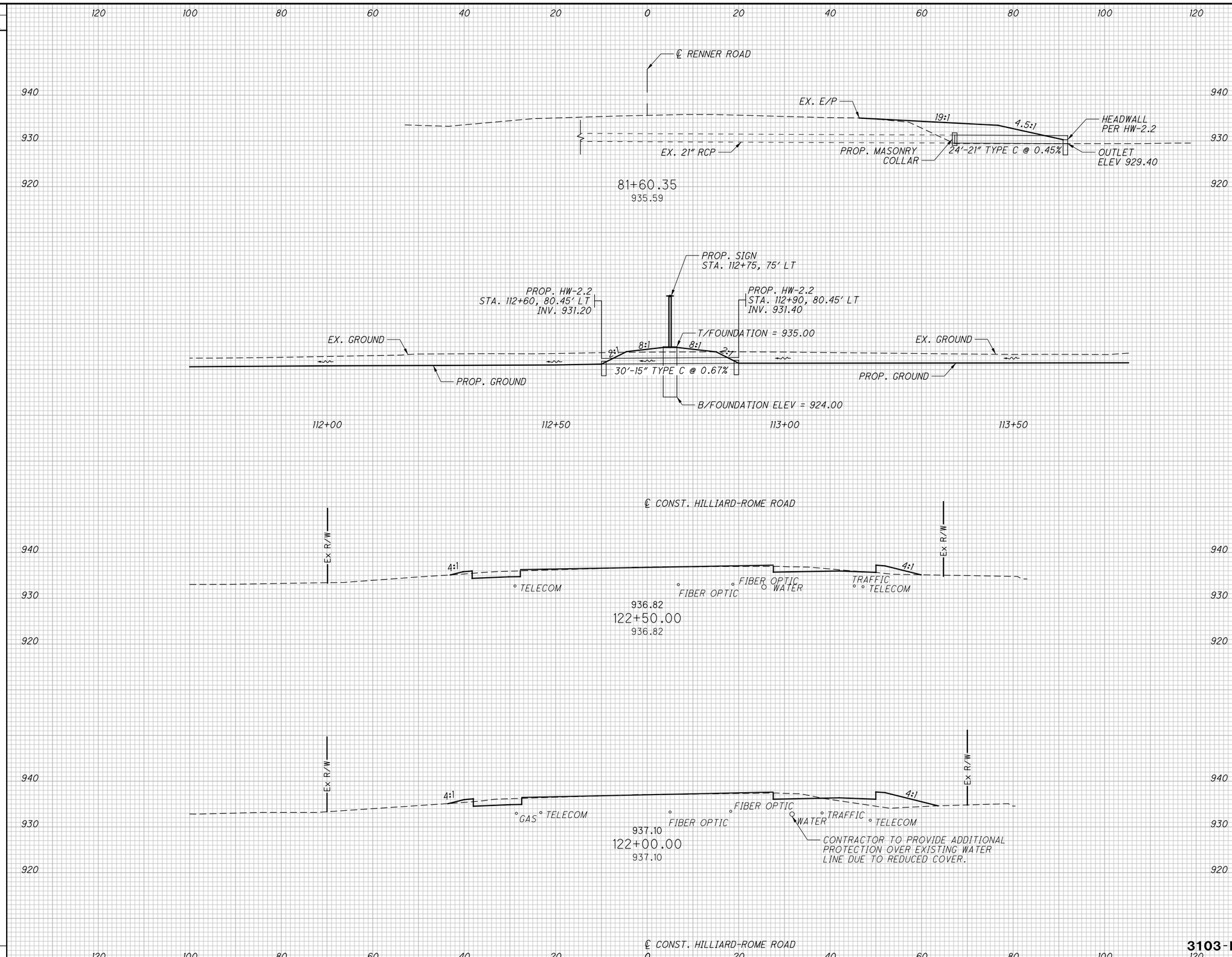
SEEDING	
END WIDTH	SQ. YDS.

END AREA		VOLUME	
CUT	FILL	CUT	FILL

CALCULATED SR
CHECKED RG



3103-E

CROSS SECTIONS HILLIARD ROME RD
STA. 122+00.00 TO STA. 122+50.00

HILLIARD ROME RD

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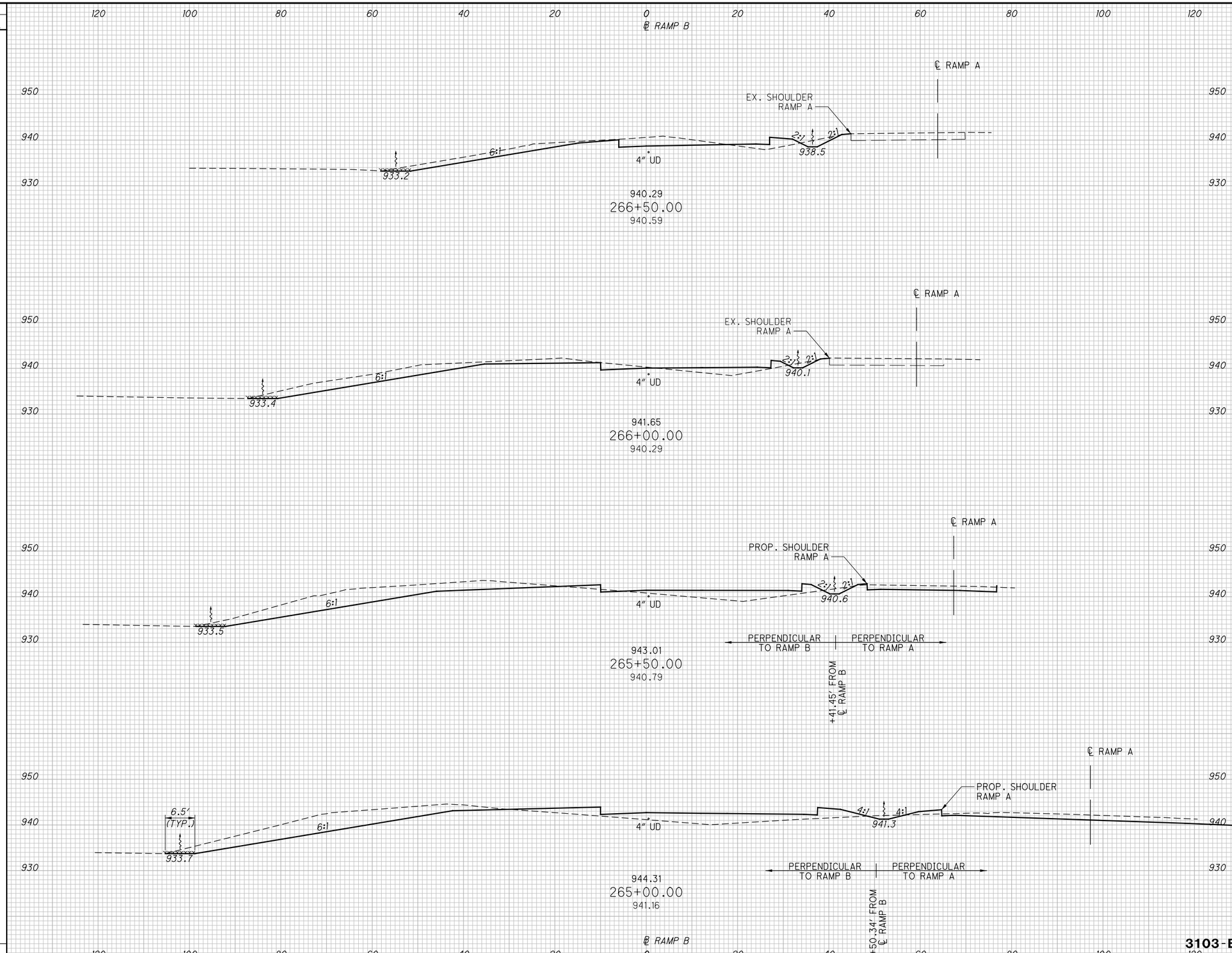
SEEDING	
END WIDTH	SQ. YDS.

END AREA		VOLUME	
CUT	FILL	CUT	FILL

CALCULATED

CHECKED RG



3103-E

CROSS SECTIONS RAMP B
STA. 265+00.00 TO STA. 266+50.00

HILLIARD ROME RD

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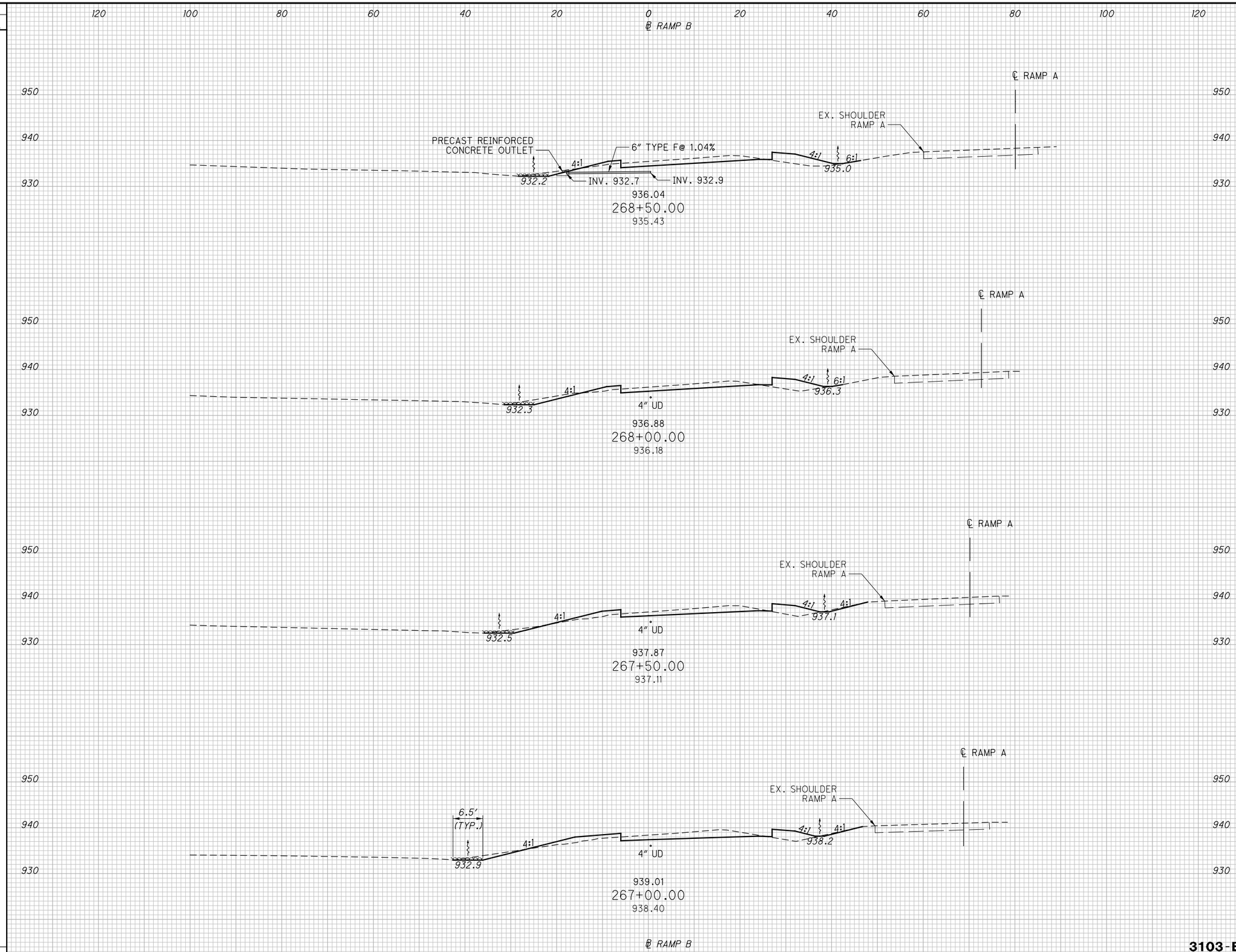
SEEDING	
END WIDTH	SQ. YDS.

END AREA		VOLUME	
CUT	FILL	CUT	FILL

CALCULATED

CHECKED RG



3103-E

CROSS SECTIONS RAMP B
STA. 267+00.00 TO STA. 268+50.00

HILLIARD ROME RD

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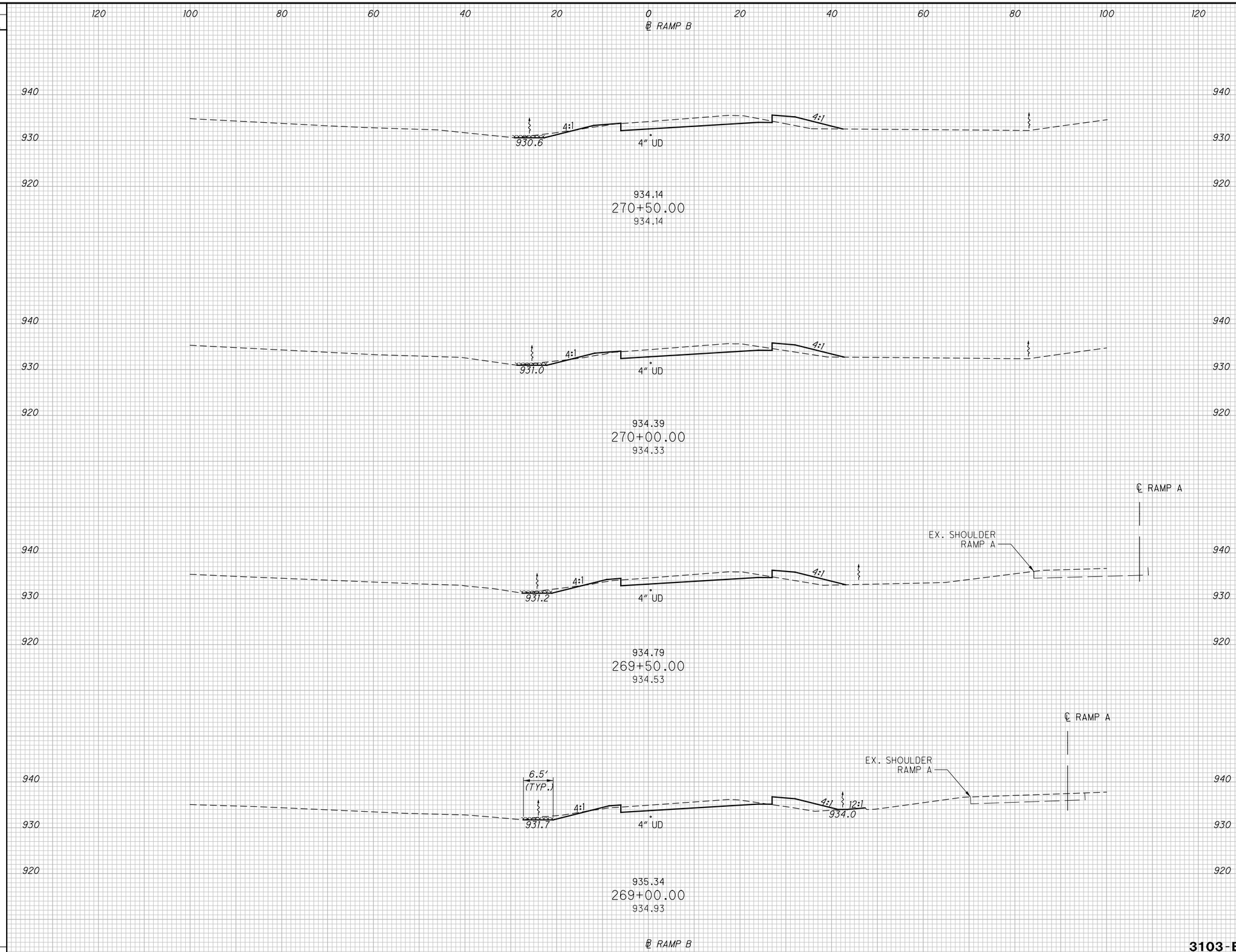
SEEDING	
END WIDTH	SQ. YDS.



END AREA		VOLUME	
CUT	FILL	CUT	FILL

CALCULATED

CHECKED RG

CROSS SECTIONS RAMP B
STA. 269+00.00 TO STA. 270+50.00

HILLIARD ROME RD

3103-E

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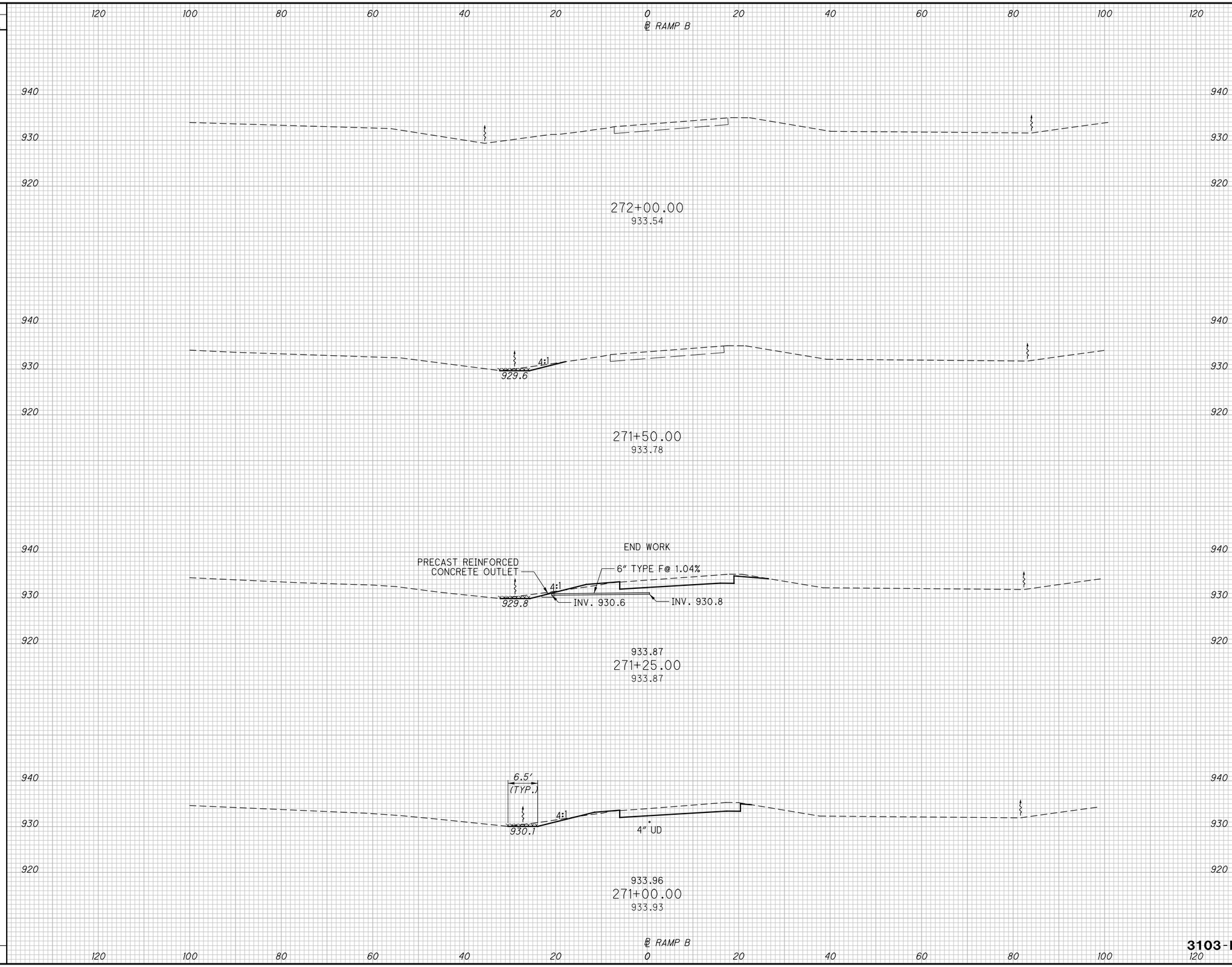
SEEDING	
END WIDTH	SQ. YDS.

END AREA		VOLUME	
CUT	FILL	CUT	FILL

CALCULATED

CHECKED RG



3103-E

CROSS SECTIONS RAMP B
STA. 271+00.00 TO STA. 272+00.00

HILLIARD ROME RD

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SEEDING	
END WIDTH	SQ. YDS.

END AREA		VOLUME	
CUT	FILL	CUT	FILL

CALCULATED EMR
CHECKED RG

CROSS SECTIONS RAMP C
STA. 276+00.00 TO STA. 277+00.00

HILLIARD ROME RD

3103-E

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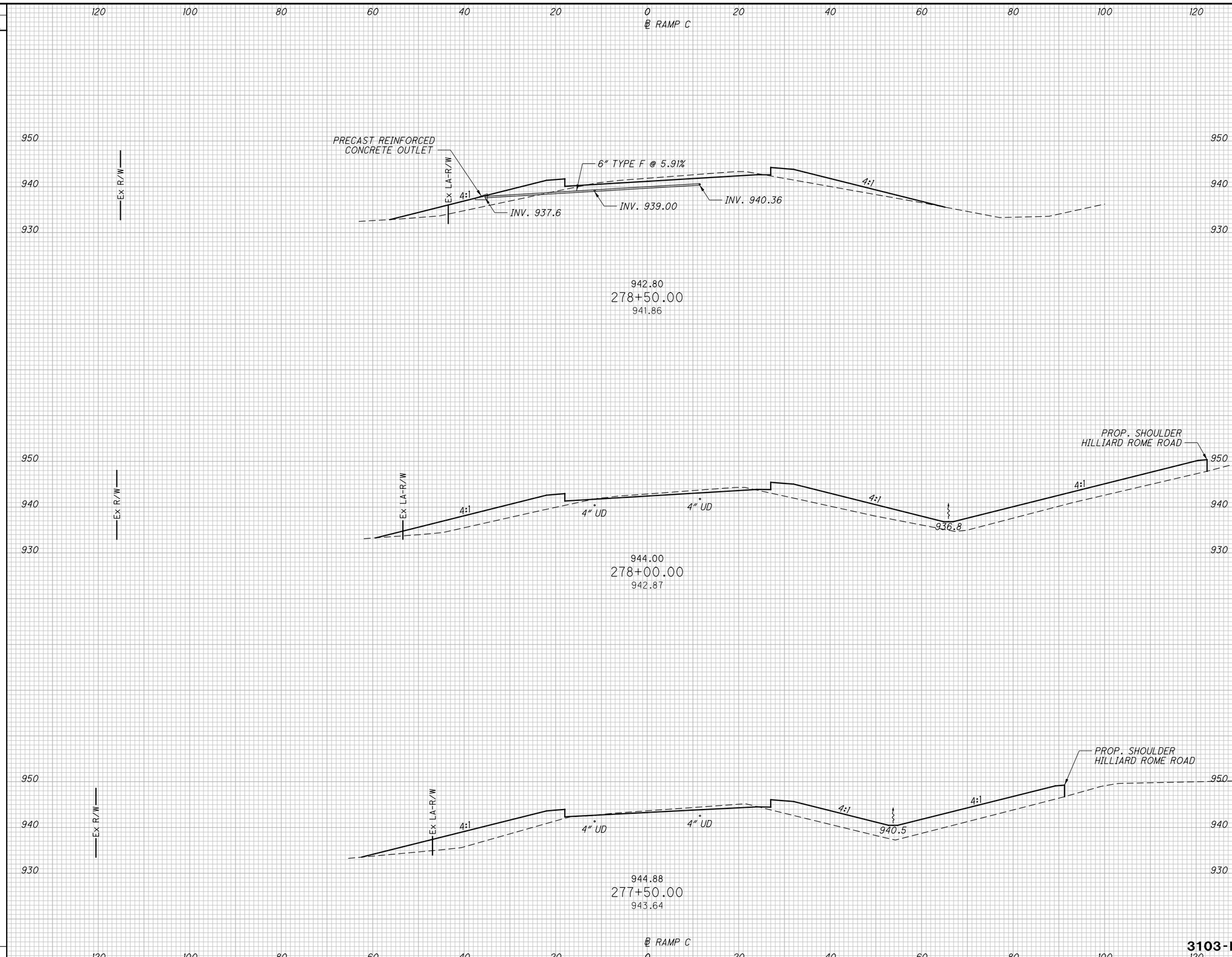
SEEDING	
END WIDTH	SQ. YDS.

END AREA		VOLUME	
CUT	FILL	CUT	FILL

CALCULATED EMR
CHECKED RG

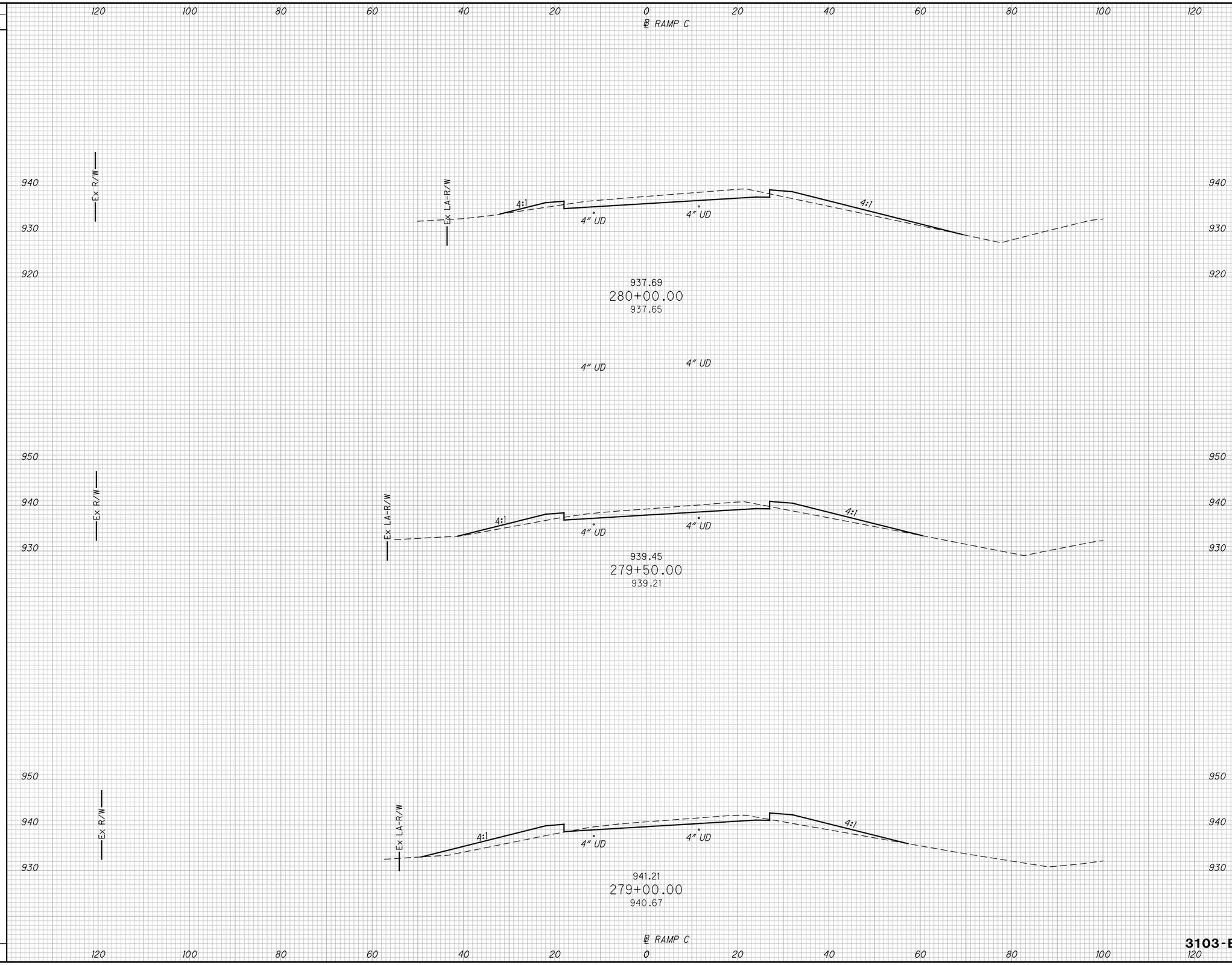


CROSS SECTIONS RAMP C
STA. 277+50.00 TO STA. 278+50.00

HILLIARD ROME RD

Q:\Transportation\Projects\ODOT\District 6\FRA70_Hilliard Rome Road Design Build\94460\roadway\sheets\94460XS003.dgn 10/13/2015 2:06:56 PM BKindinger

SEEDING	
END WIDTH	SQ. YDS.



END AREA		VOLUME	
CUT	FILL	CUT	FILL

CALCULATED EMR
CHECKED RG

CROSS SECTIONS RAMP C
STA. 279+00.00 TO STA. 280+00.00

HILLIARD ROME RD

3103-E

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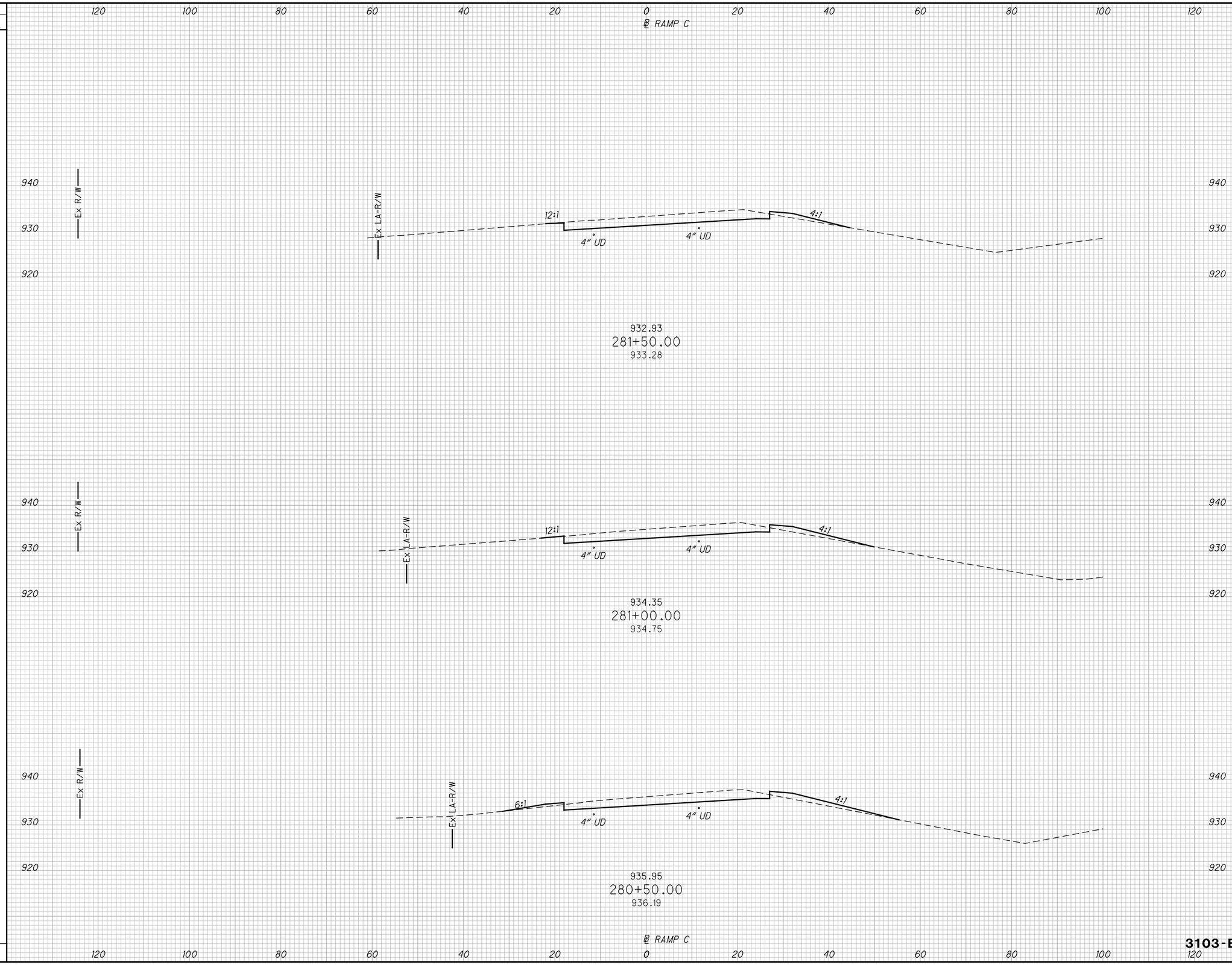
SEEDING	
END WIDTH	SQ. YDS.



END AREA		VOLUME	
CUT	FILL	CUT	FILL

CALCULATED EMR
CHECKED RG

CROSS SECTIONS RAMP C
STA. 280+50.00 TO STA. 281+50.00

HILLIARD ROME RD

3103-E

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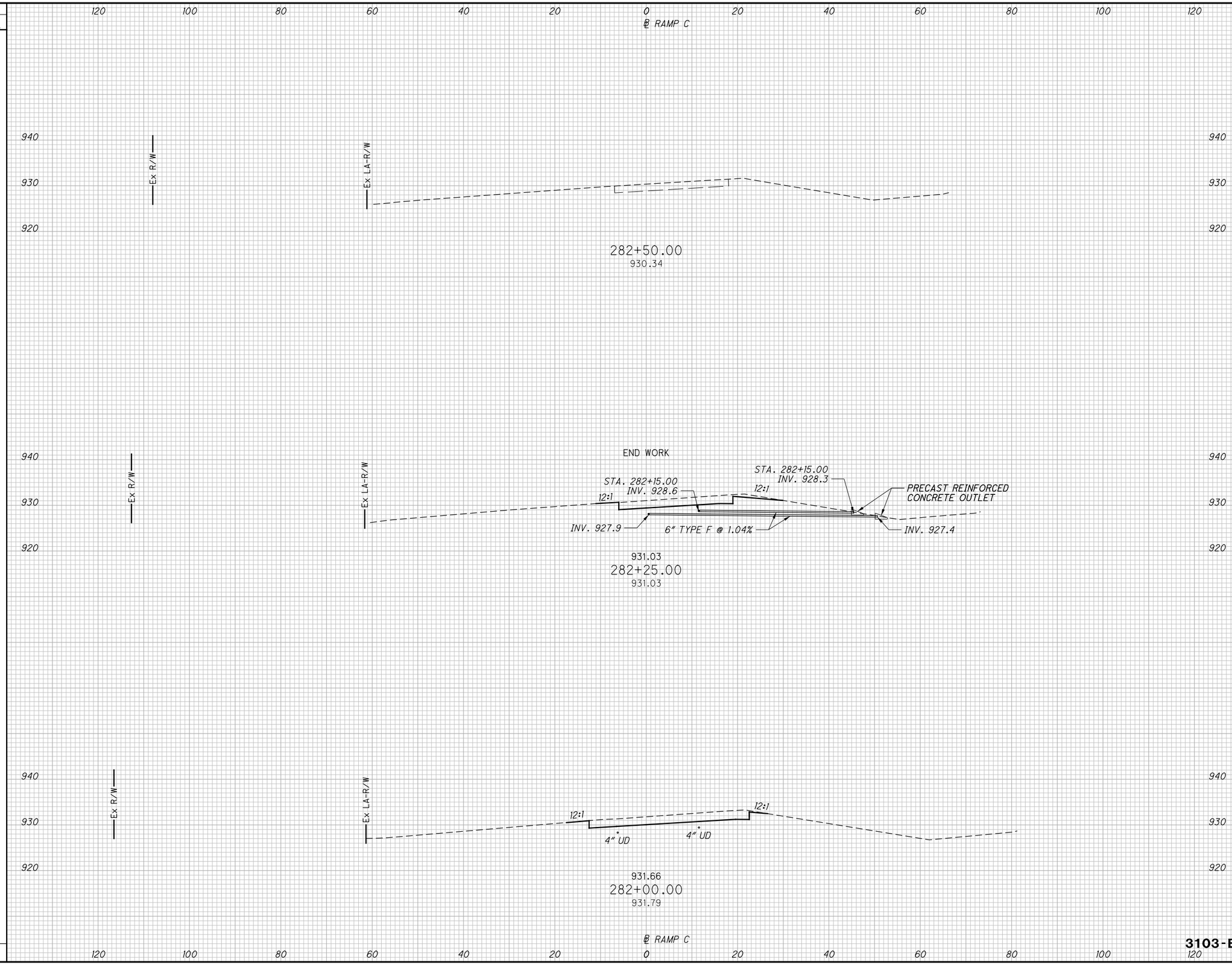
SEEDING	
END WIDTH	SQ. YDS.



END AREA		VOLUME	
CUT	FILL	CUT	FILL

CALCULATED EMR
CHECKED RG

CROSS SECTIONS RAMP C
STA. 282+00.00 TO STA. 282+50.00

HILLIARD ROME RD

3103-E

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SUPERELEVATION TABLE RAMP C

P.I. STA 274+93.08 Dc = 5° 21′ 04″, P.I. STA 280+59.25 Dc = 8° 00′ 00″

LEFT SIDE					CENTERLINE CONTROL		RIGHT SIDE					
EDGE ELEVATION	TRANSITION RATE	ELEVATION CORRECTION	CROSS SLOPE	WIDTH	STATION	PROFILE GRADE	WIDTH	CROSS SLOPE	ELEVATION CORRECTION	TRANSITION RATE	EDGE ELEVATION	REMARKS
944.86		-0.36	-0.030	12.00	275+91.52	945.22	24.00	0.030	0.72		945.94	
944.91		-0.38	-0.032	12.00	276+00.	945.29	24.00	0.032	0.77		946.06	
945.00		-0.45	-0.038	12.00	276+25.	945.45	24.00	0.038	0.90	185	946.35	
945.00		-0.52	-0.043	12.00	276+50.	945.51	24.00	0.043	1.04		946.55	
944.90		-0.59	-0.049	12.00	276+75.	945.49	24.00	0.049	1.17		946.66	
944.82		-0.62	-0.052	12.00	276+88.3	945.44	24.00	0.052	1.24		946.68	
944.76		-0.62	-0.052	12.00	276+99.97	945.38	24.00	0.052	1.24		946.62	PCC
944.75		-0.62	-0.052	12.00	277+00.	945.38	24.00	0.052	1.25		946.62	FULL SUPER
944.55		-0.62	-0.052	12.00	277+25.	945.17	24.00	0.052	1.25		946.42	
944.25		-0.62	-0.052	12.00	277+50.	944.88	24.00	0.052	1.25		946.12	
943.80		-0.69	-0.058	12.00	277+75.	944.49	24.00	0.058	1.38	185	945.87	
943.56		-0.72	-0.060	12.00	277+86.92	944.28	24.00	0.060	1.45		945.73	
943.29		-0.72	-0.060	12.00	278+00.	944.02	24.00	0.060	1.45		945.46	
942.73		-0.72	-0.060	12.00	278+25.	943.45	24.00	0.060	1.45		944.90	
942.07		-0.72	-0.060	12.00	278+50.	942.80	24.00	0.060	1.45		944.24	
941.33		-0.72	-0.060	12.00	278+75.	942.05	24.00	0.060	1.45		943.50	
940.49		-0.72	-0.060	12.00	279+00.	941.21	24.00	0.060	1.45		942.66	
939.61		-0.72	-0.060	12.00	279+25.	940.33	24.00	0.060	1.45		941.78	
938.73		-0.72	-0.060	12.00	279+50.	939.45	24.00	0.060	1.45		940.90	
937.85		-0.72	-0.060	12.00	279+75.	938.57	24.00	0.060	1.45		940.02	FULL SUPER
936.96		-0.72	-0.060	12.00	280+00.	937.69	24.00	0.060	1.45		939.14	
936.08		-0.72	-0.060	12.00	280+25.	936.81	24.00	0.060	1.45		938.25	
935.22		-0.72	-0.060	12.00	280+50.	935.95	24.00	0.060	1.45		937.39	
934.41		-0.72	-0.060	12.00	280+75.	935.13	24.00	0.060	1.45		936.58	
933.63		-0.72	-0.060	12.00	281+00.	934.35	24.00	0.060	1.45		935.80	
932.90		-0.72	-0.060	12.00	281+25.	933.62	24.00	0.060	1.45		935.07	
932.21		-0.72	-0.060	12.00	281+50.	932.93	24.00	0.060	1.45		934.38	
931.56		-0.72	-0.060	12.00	281+75.	932.28	24.00	0.060	1.45		933.73	
930.93		-0.72	-0.060	12.00	282+00.	931.66	24.00	0.060	1.45		933.10	
930.31		-0.72	-0.060	12.00	282+25.	931.03	24.00	0.060	1.45		932.48	MATCH EX.

SUPERELEVATION TABLE RAMP B

P.I. STA 265+24.94 Dc = 38° 11′ 50″, P.I. STA 273+52.20 Dc = 23° 00′ 00″

CENTERLINE CONTROL		RIGHT SIDE					
STATION	PROFILE GRADE	WIDTH	CROSS SLOPE	ELEVATION CORRECTION	TRANSITION RATE	EDGE ELEVATION	REMARKS
264+66.67	945.11	34.00	-0.016	-0.54		944.57	
264+75.	944.92	34.47	-0.015	-0.51		944.41	
265+00.	944.31	34.53	-0.011	-0.37		943.94	
265+25.	943.68	33.43	-0.007	-0.23		943.44	
265+50.	943.01	31.19	-0.002	-0.08		942.93	
265+75.	942.33	27.91	0.002	0.08		942.41	
266+00.	941.65	24.31	0.008	0.22		941.88	
266+09.74	941.39	24.00	0.010	0.24		941.63	PT
266+25.	940.97	24.00	0.014	0.33		941.30	
266+38.3	940.61	24.00	0.017	0.40		941.01	
266+50.	940.29	24.00	0.019	0.46	185	940.76	
266+75.	939.63	24.00	0.025	0.60		940.23	
267+00.	939.01	24.00	0.031	0.73		939.74	
267+25.	938.42	24.00	0.036	0.87		939.29	
267+37.16	938.15	24.00	0.039	0.93		939.08	PC
267+50.	937.87	24.00	0.042	1.00		938.87	
267+75.	937.36	24.00	0.047	1.14		938.50	
268+00.	936.88	24.00	0.053	1.27		938.63	
268+25.	936.44	24.00	0.059	1.41		938.29	
268+29.4	936.37	24.00	0.060	1.43		937.87	
268+50.	936.04	24.00	0.060	1.43		937.80	
268+75.	935.67	24.00	0.060	1.43		937.47	
269+00.	935.34	24.00	0.060	1.43		937.10	
269+25.	935.05	24.00	0.060	1.43		936.77	
269+50.	934.79	24.00	0.060	1.43		936.48	FULL SUPER
269+75.	934.58	24.00	0.060	1.43		936.23	
270+00.	934.39	24.00	0.060	1.43		936.01	
270+25.	934.25	24.00	0.060	1.43		935.83	
270+50.	934.14	24.00	0.060	1.43		935.68	
270+75.	934.05	24.00	0.060	1.43		935.57	
271+00.	933.96	24.00	0.060	1.43		935.48	
271+25.	933.87	24.00	0.060	1.43		935.39	MATCH EX.

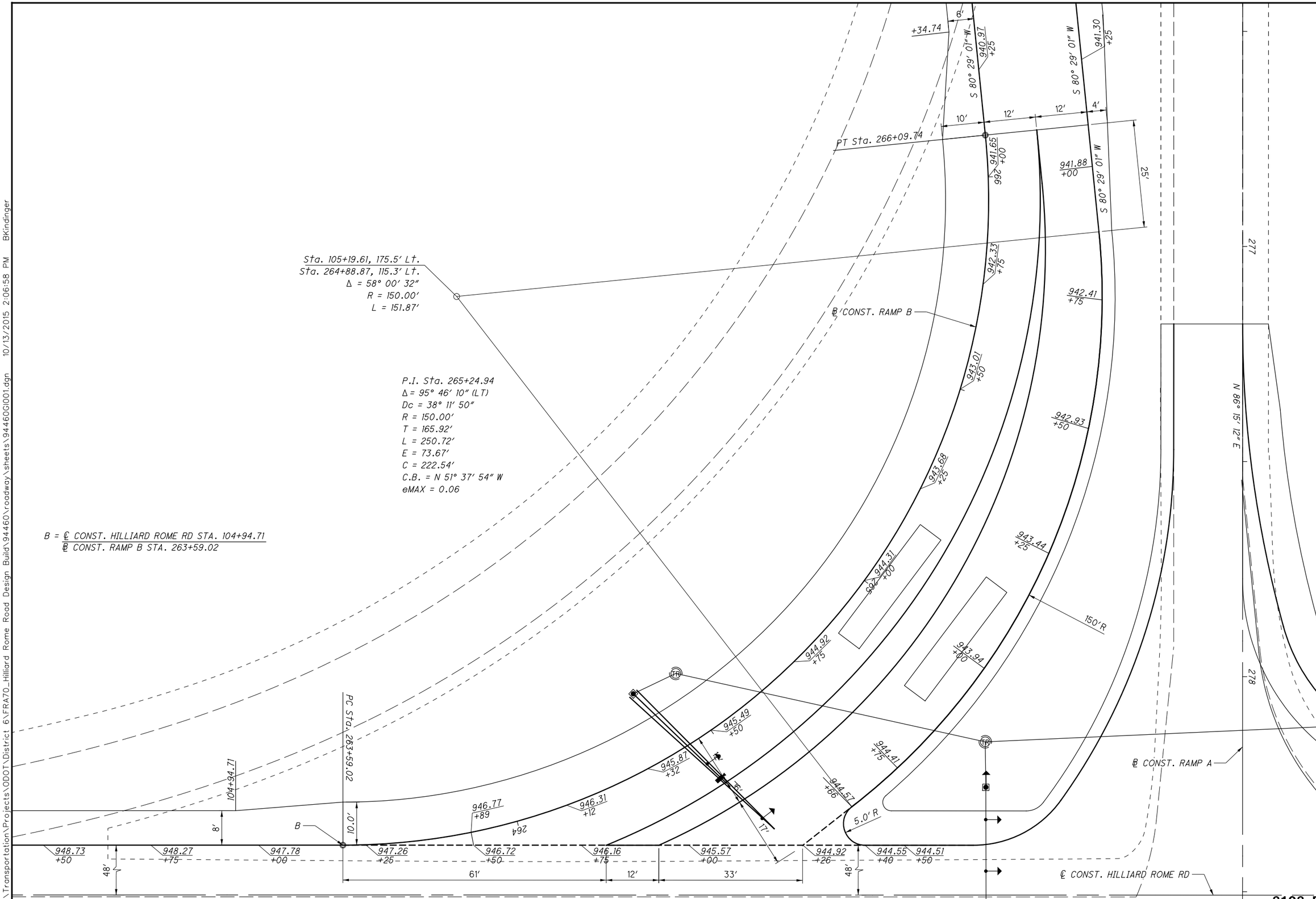
CALCULATED RG
CHECKED EAH

SUPERELEVATION TABLE
RAMP B & RAMP C

HILLIARD ROME RD

3103-E

Q:\Transportation\Projects\ODOT\District 6\FRA70_Hilliard Rome Road Design Build\94460\roadway\sheets\94460GE001.dgn 10/13/2015 2:06:57 PM BKindinger



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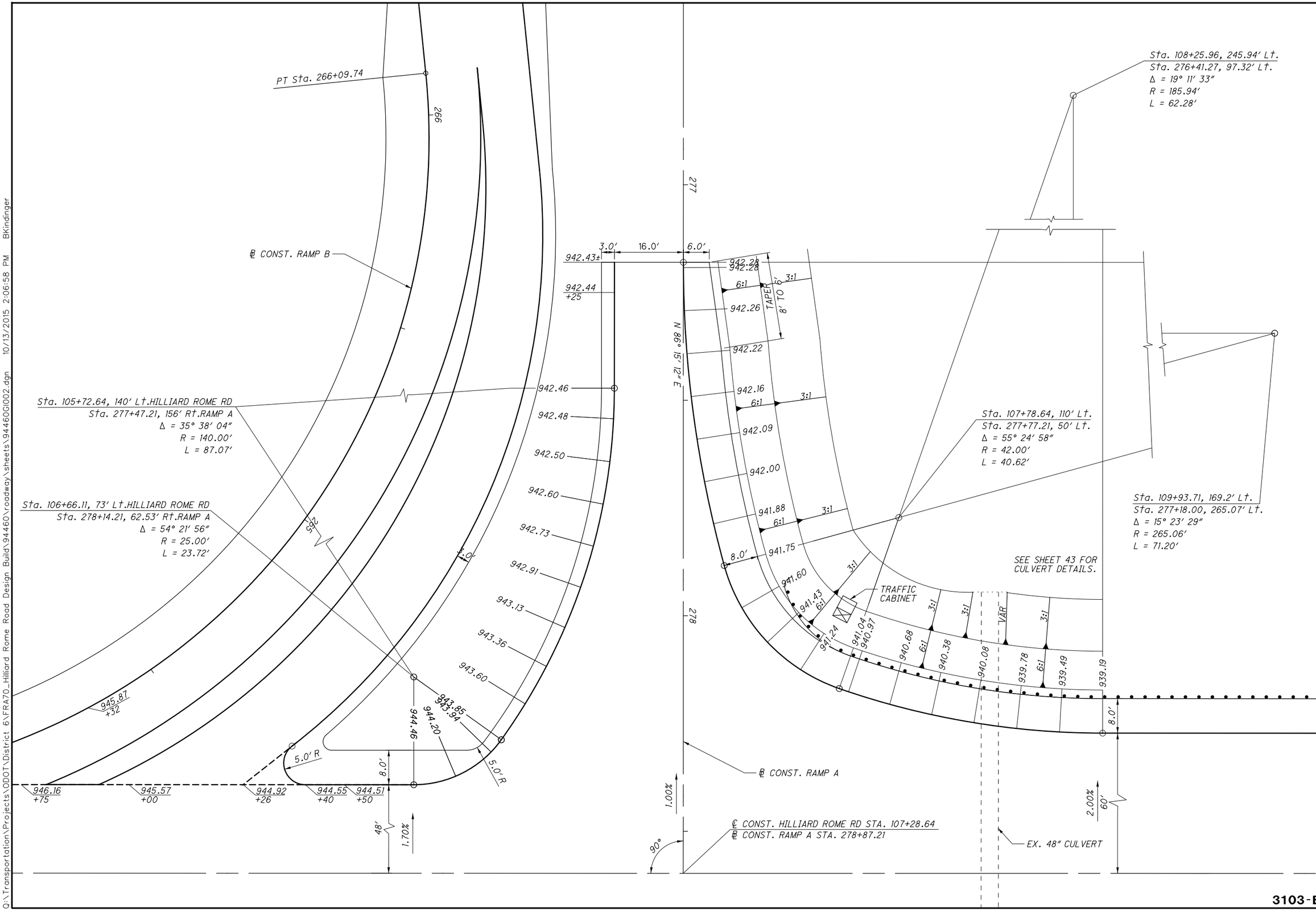
HORIZONTAL SCALE IN FEET 0 5 10 20

CALCULATED BDK
CHECKED RG

INTERSECTION DETAIL
RAMP B

HILLIARD ROME RD



HORIZONTAL SCALE IN FEET
0 5 10 20

CALCULATED BDK
CHECKED RG

INTERSECTION DETAIL RAMP A

HILLIARD ROME RD

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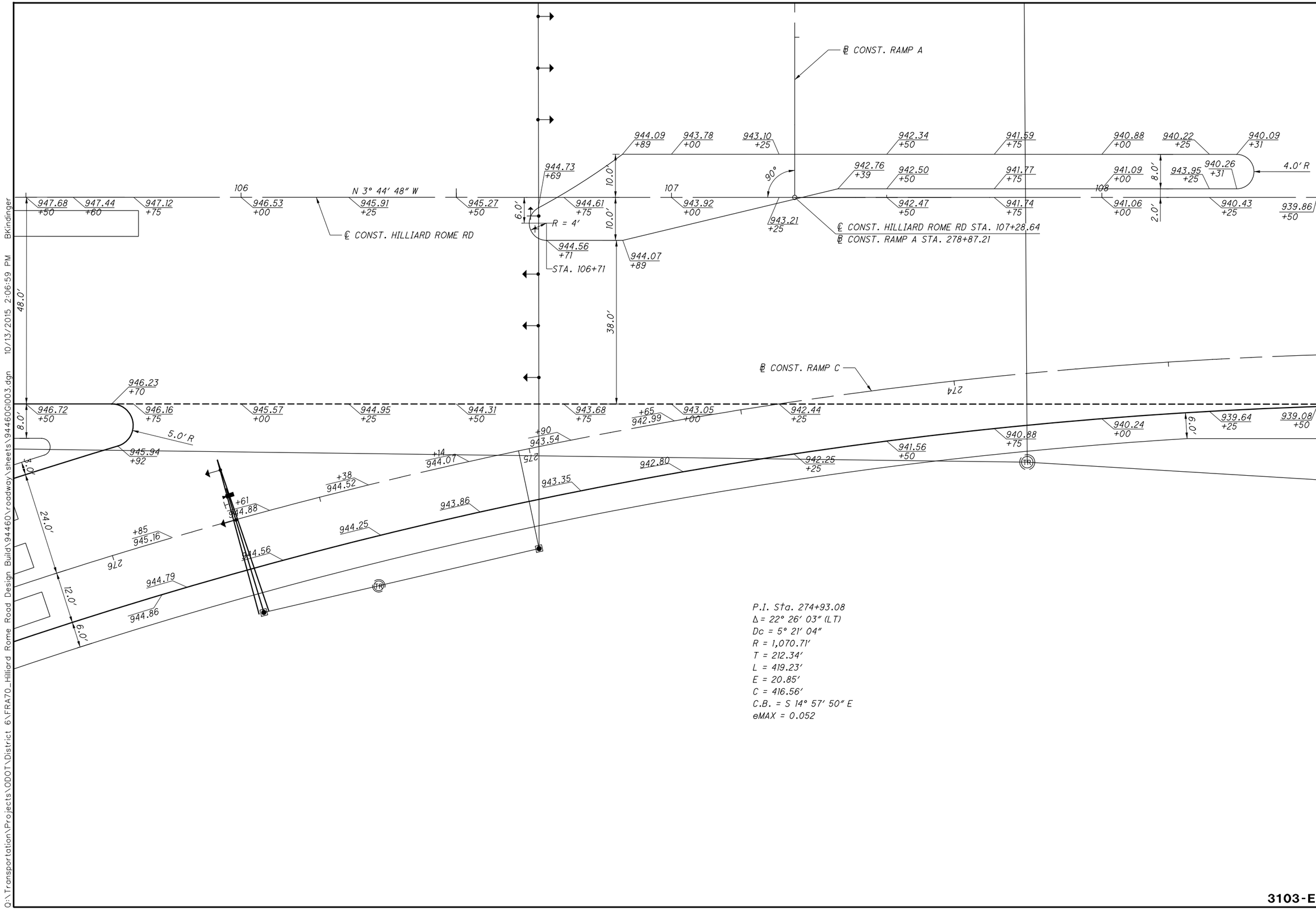

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N

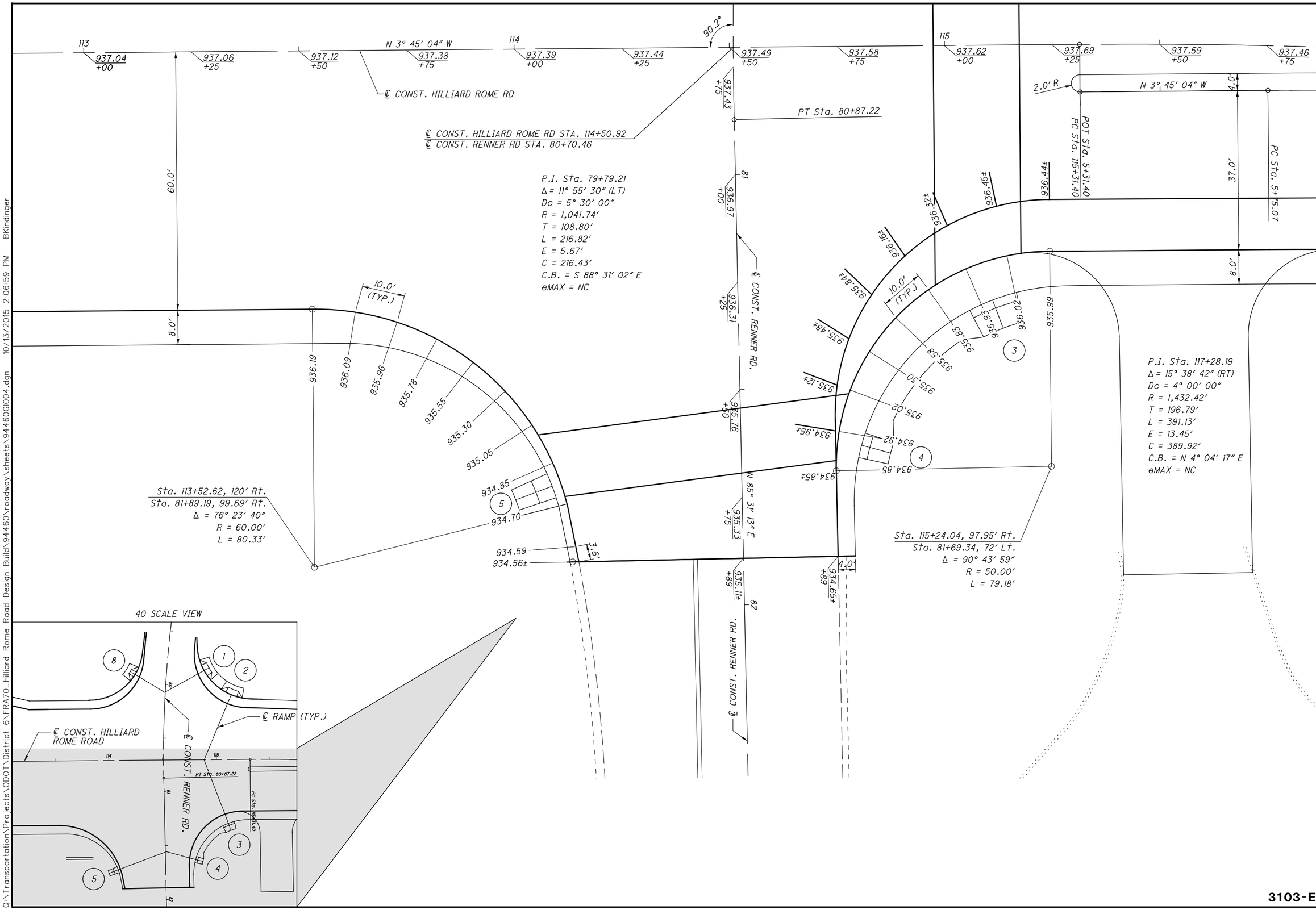
0 5 10 20
HORIZONTAL SCALE IN FEET

CALCULATED BDK
CHECKED RG

INTERSECTION DETAIL
HILLIARD ROME RD & RAMP C

HILLIARD ROME RD

3103-E



3103-E

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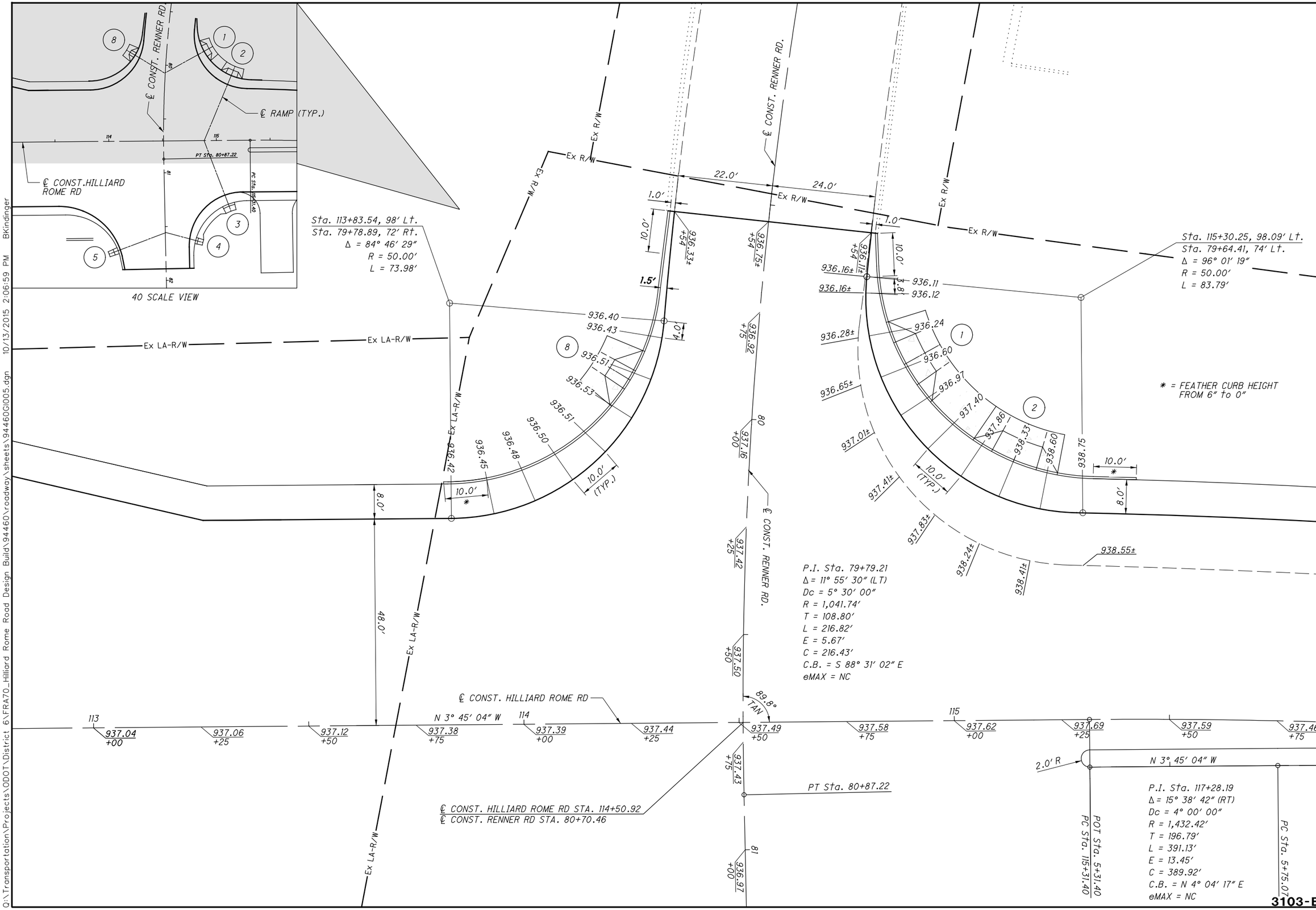
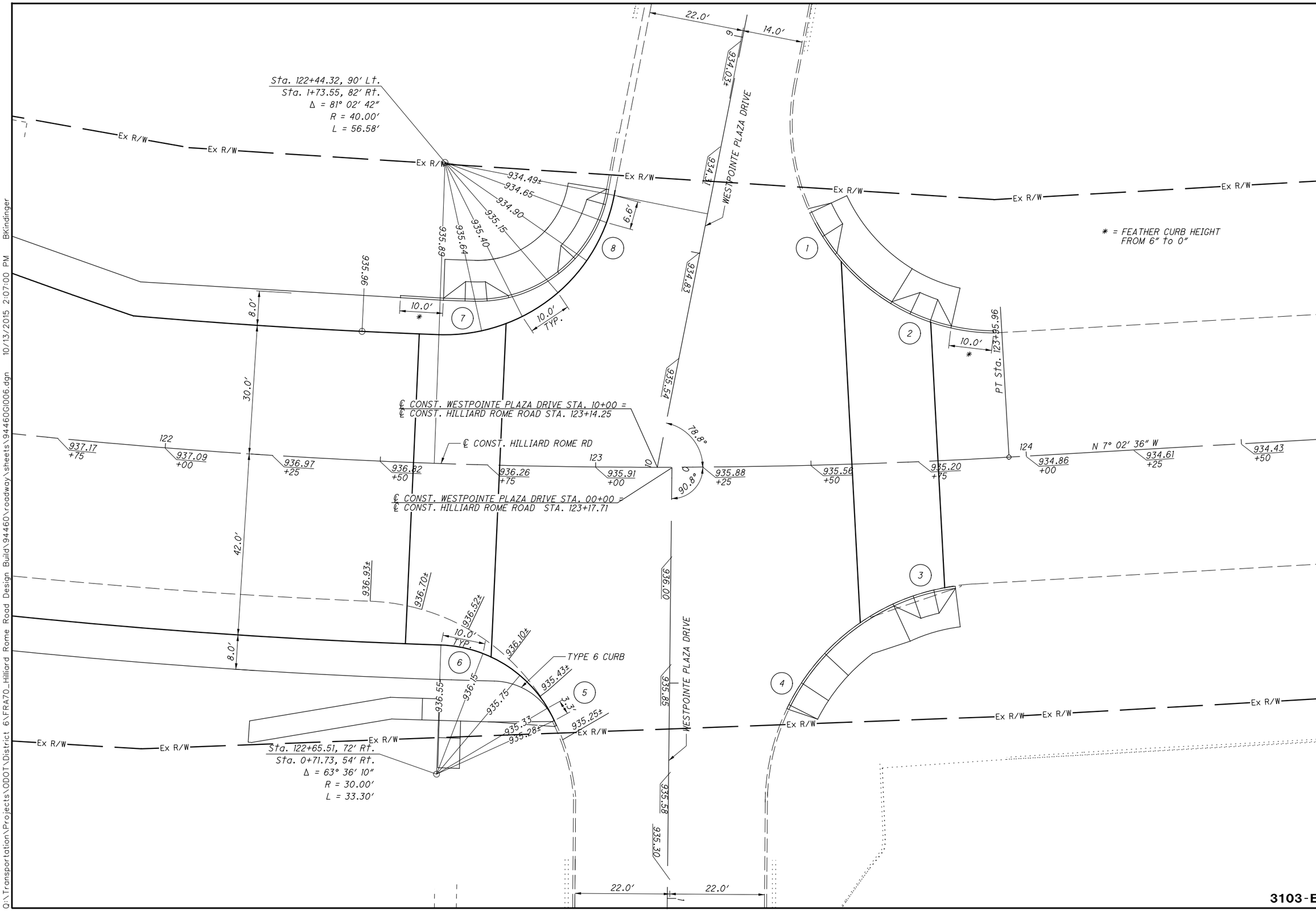
HORIZONTAL SCALE IN FEET 0 5 10 20

CALCULATED BDK
CHECKED RG

INTERSECTION DETAIL
HILLIARD ROME RD & RENNER RD (E.)

HILLIARD ROME RD


℄ CONST. RENNER RD
℄ RAMP (TYP.)
℄ CONST.HILLIARD ROME RD
PT Sta. 80+87.22
PC Sta. 113+83.54
40 SCALE VIEW
Sta. 113+83.54, 98′ Lt.
Sta. 79+78.89, 72′ Rt.
Δ = 84° 46′ 29″
R = 50.00′
L = 73.98′
Sta. 115+30.25, 98.09′ Lt.
Sta. 79+64.41, 74′ Lt.
Δ = 96° 01′ 19″
R = 50.00′
L = 83.79′
Ex R/W
Ex LA-R/W
22.0′
24.0′
1.0′
10.0′
1.5′
4.0′
8.0′
48.0′
10.0′ (TYP.)
10.0′ *
936.40
936.43
936.51
936.53
936.51
936.50
936.48
936.45
936.42
936.33±
936.75±
936.16±
936.11
936.12
936.28±
936.24
936.60
936.97
936.65±
937.40
937.86
938.33
938.60
938.75
937.01±
937.41±
937.83±
938.24±
938.41±
938.55±
936.92
937.16
937.42
937.50
937.49
937.43
936.97
937.04
937.06
937.12
937.38
937.39
937.44
937.58
937.62
937.69
937.59
937.46
℄ CONST. RENNER RD.
℄ CONST. HILLIARD ROME RD
N 3° 45′ 04″ W
89.8° TAN
2.0′ R
PT Sta. 80+87.22
℄ CONST. HILLIARD ROME RD STA. 114+50.92
℄ CONST. RENNER RD STA. 80+70.46
* = FEATHER CURB HEIGHT FROM 6″ to 0″
P.I. Sta. 79+79.21
Δ = 11° 55′ 30″ (LT)
Dc = 5° 30′ 00″
R = 1,041.74′
T = 108.80′
L = 216.82′
E = 5.67′
C = 216.43′
C.B. = S 88° 31′ 02″ E
eMAX = NC
P.I. Sta. 117+28.19
Δ = 15° 38′ 42″ (RT)
Dc = 4° 00′ 00″
R = 1,432.42′
T = 196.79′
L = 391.13′
E = 13.45′
C = 389.92′
C.B. = N 4° 04′ 17″ E
eMAX = NC
POT Sta. 5+31.40
PC Sta. 115+31.40
PC Sta. 5+75.07
3103-E
HORIZONTAL SCALE IN FEET
CALCULATED BDK
CHECKED RG
INTERSECTION DETAIL
HILLIARD ROME RD & RENNER RD (W.)
HILLIARD ROME RD
66
99
Q:\Transportation\Projects\ODOT\District 6\FRA70_Hilliard Rome Road Design Build\94460\roadway\sheets\94460GI005.dgn 10/13/2015 2:06:59 PM BKindinger



N

HORIZONTAL SCALE IN FEET
0 5 10 20

CALCULATED BDK
CHECKED RG

INTERSECTION DETAIL
HILLIARD ROME RD & WESTPOINTE PLAZA DR.

HILLIARD ROME RD

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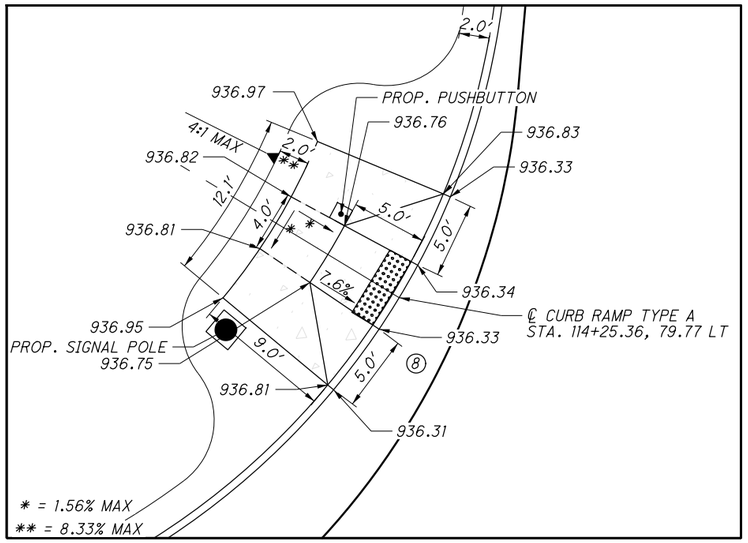
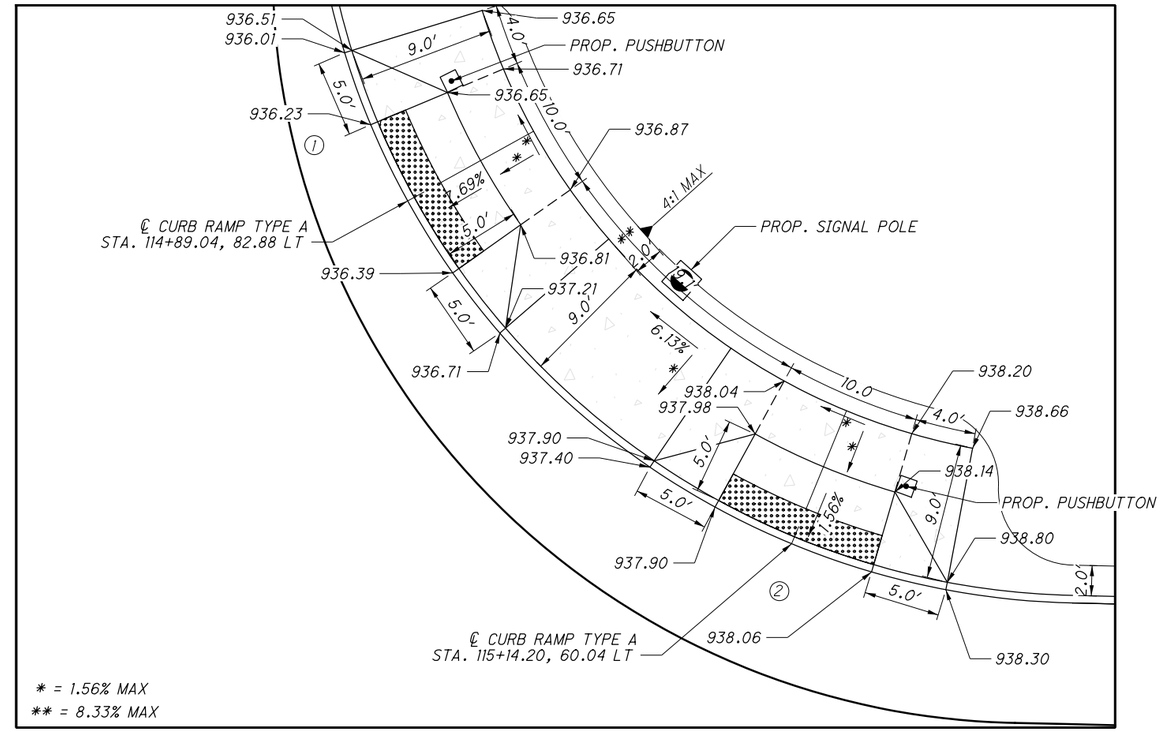
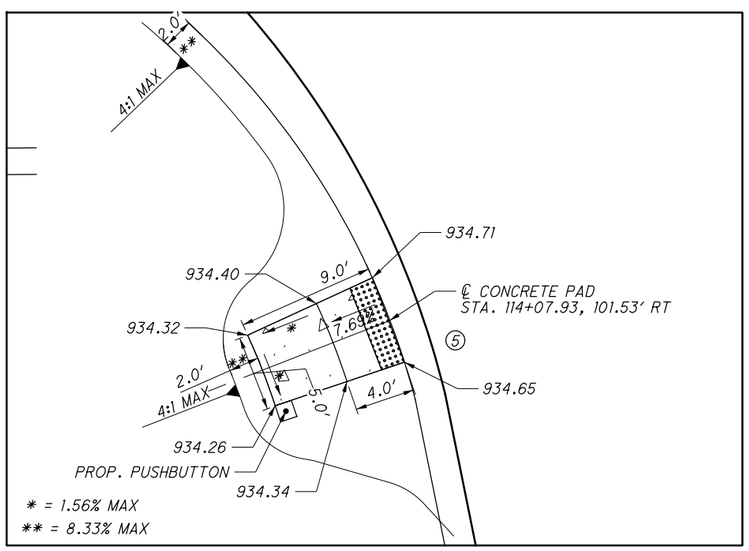


HILLIARD ROME ROAD

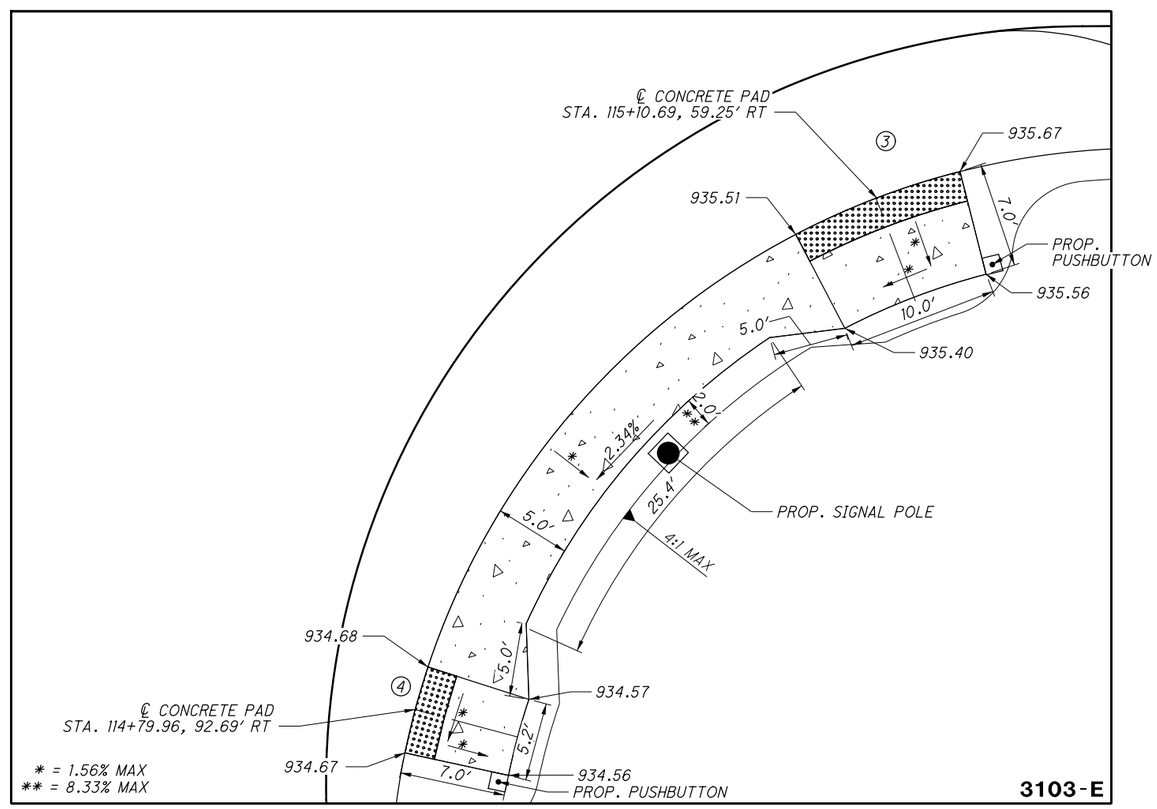
RENNER ROAD



HILLIARD ROME ROAD



RENNER ROAD



N

0 2.5 5 10
HORIZONTAL SCALE IN FEET

CALCULATED BDK
CHECKED RG

CURB RAMP DETAIL
HILLIARD ROME RD & RENNER RD

HILLIARD ROME RD

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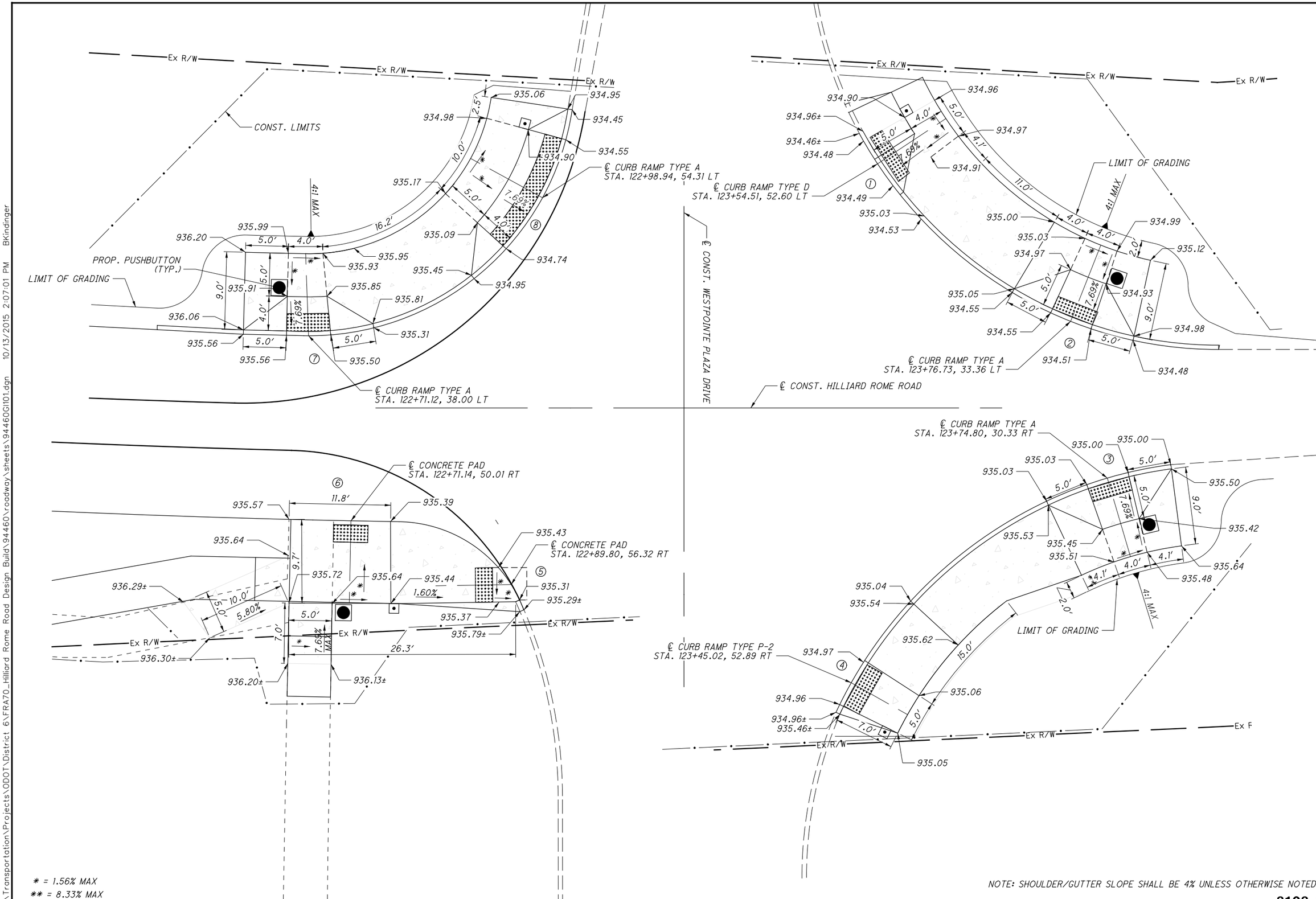

* = 1.56% MAX

** = 8.33% MAX

NOTE: SHOULDER/GUTTER SLOPE SHALL BE 4% UNLESS OTHERWISE NOTED

3103-E

HORIZONTAL SCALE IN FEET 0 2.5 5 10

CALCULATED BDK
CHECKED RG

CURB RAMP DETAIL
HILLIARD ROME RD & WESTPOINTE PLAZA DR

HILLIARD ROME RD

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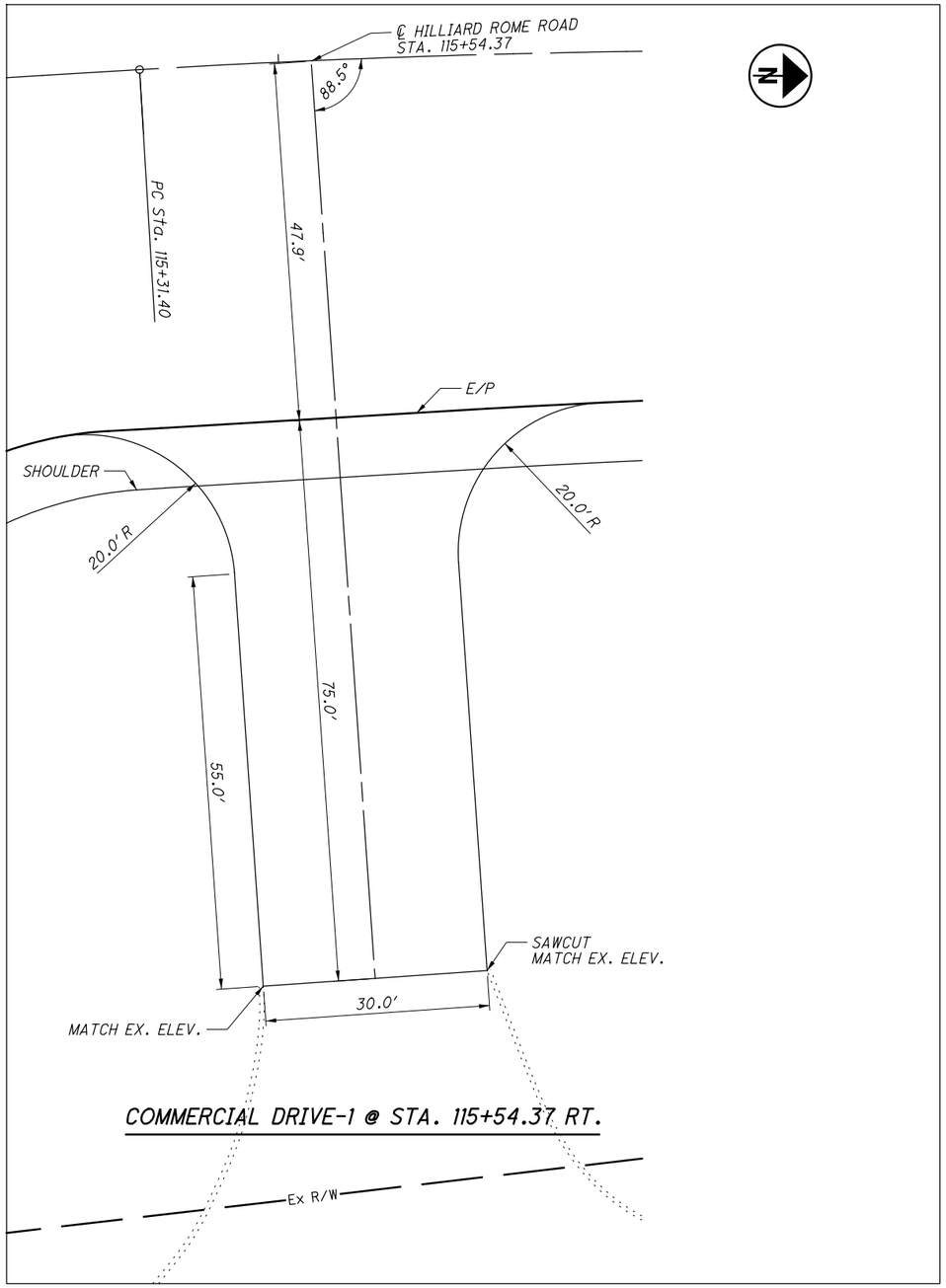
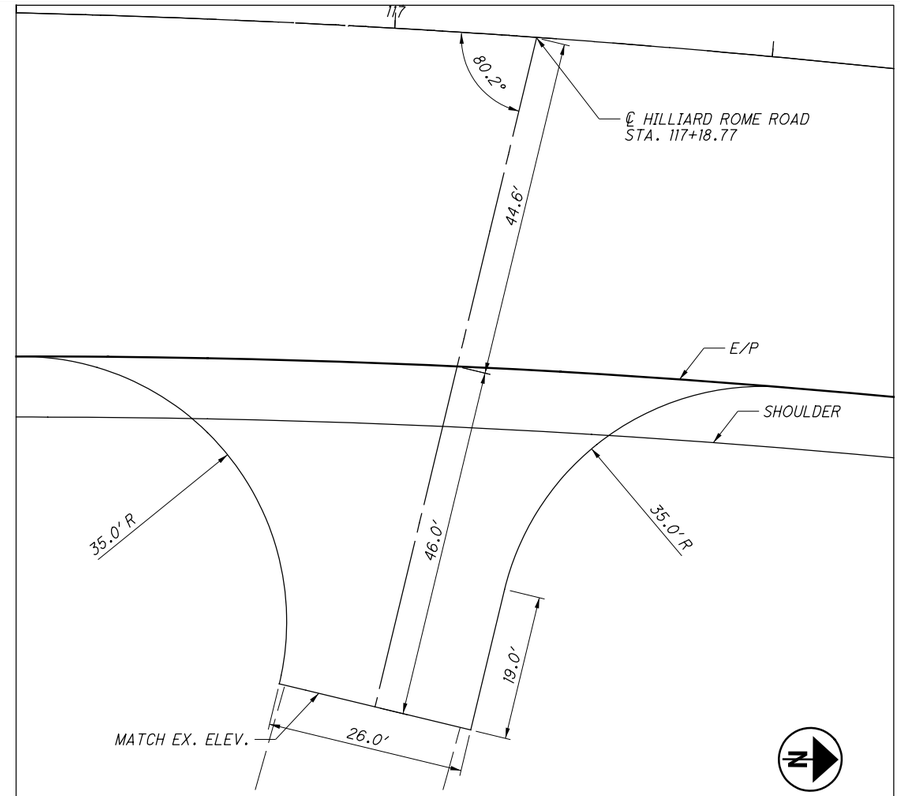
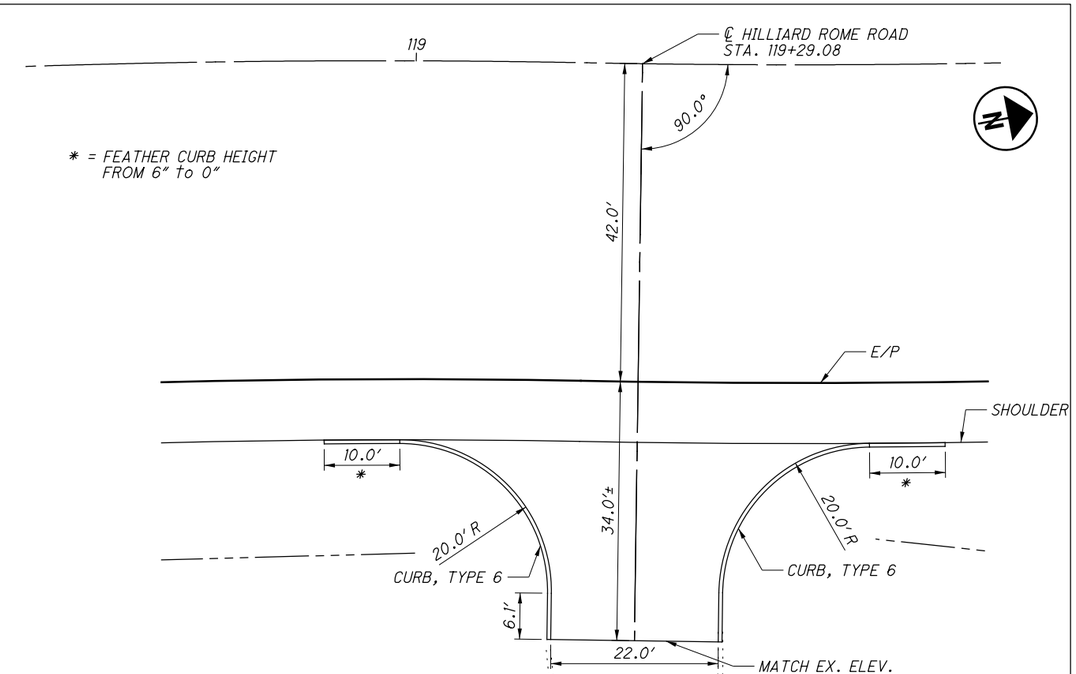


COMMERCIAL DRIVE-1 @ STA. 115+54.37 RT.



COMMERCIAL DRIVE-2 @ STA. 117+18.77 RT.



COMMERCIAL DRIVE-3 @ STA. 119+29.08 RT.

SEE DRIVE PROFILES ON SHEET 72
SEE PLAN AND PROFILE SHEETS FOR LOCATION OF RIGHT-OF-WAY

HORIZONTAL SCALE IN FEET 0 5 10 20

CALCULATED SRR
CHECKED RG

DRIVEWAY DETAILS

HILLIARD ROME RD

3103-E

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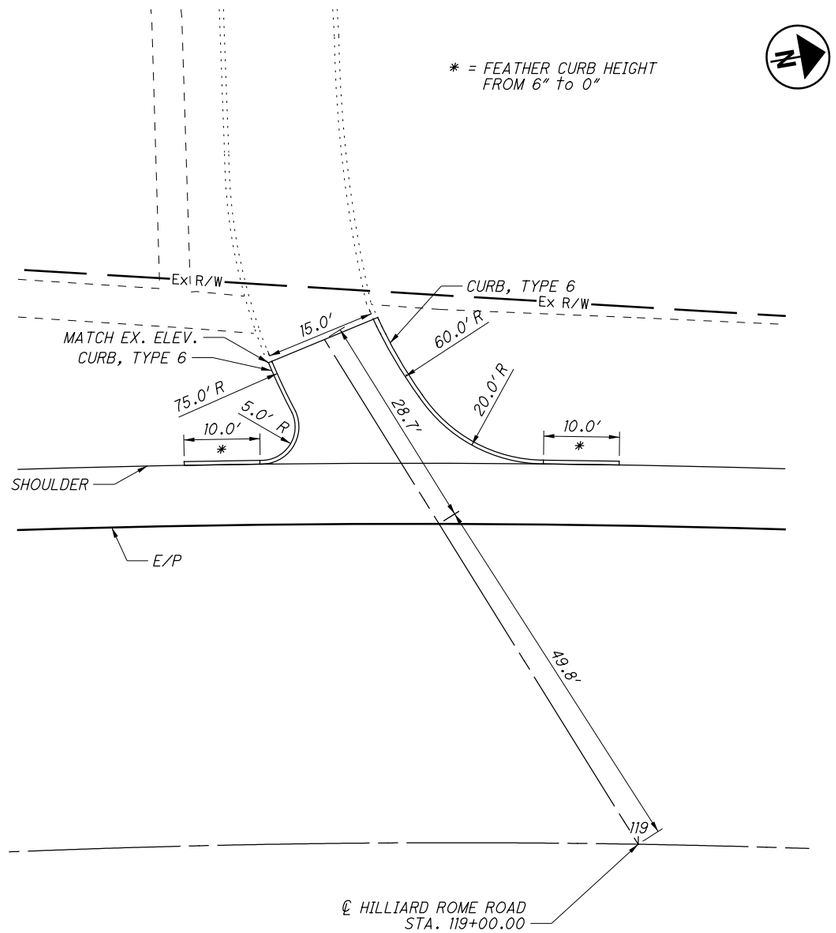
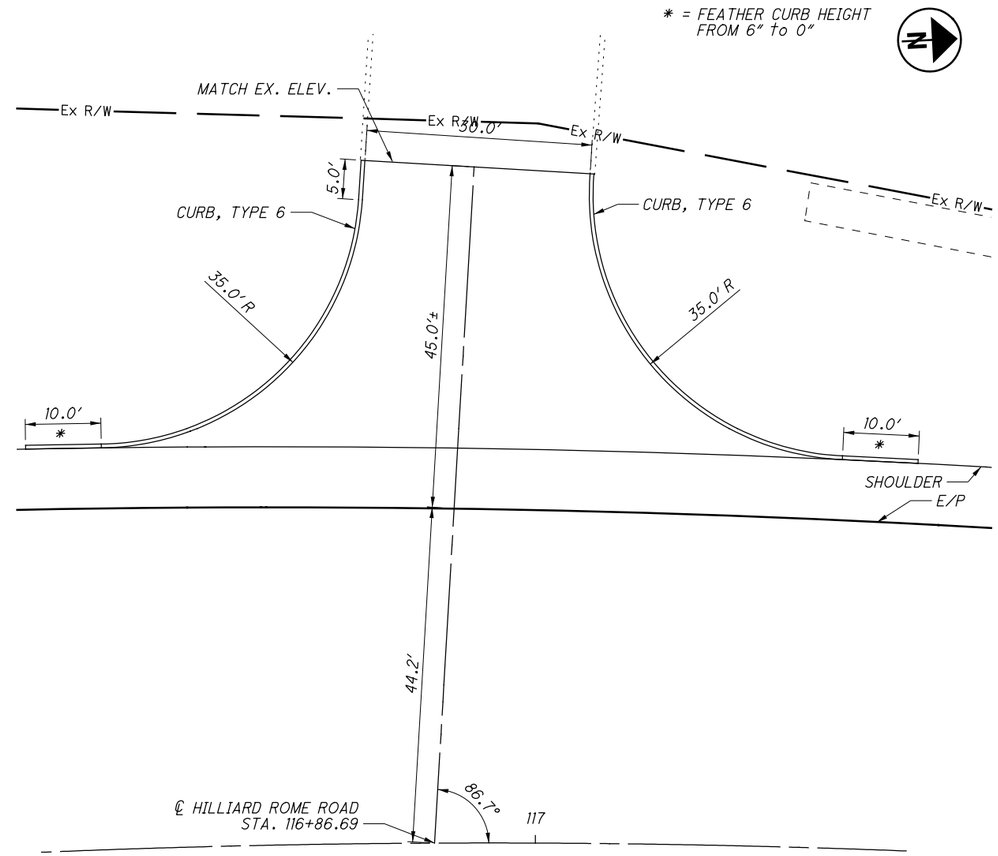


COMMERCIAL DRIVE-4 @ STA. 119+00.00 LT.



COMMERCIAL DRIVE-5 @ STA. 116+86.69 LT.

SEE DRIVE PROFILES ON SHEET 72

HORIZONTAL SCALE IN FEET 0 5 10 20

CALCULATED SRR
CHECKED RG

DRIVEWAY DETAILS

HILLIARD ROME RD

3103-E

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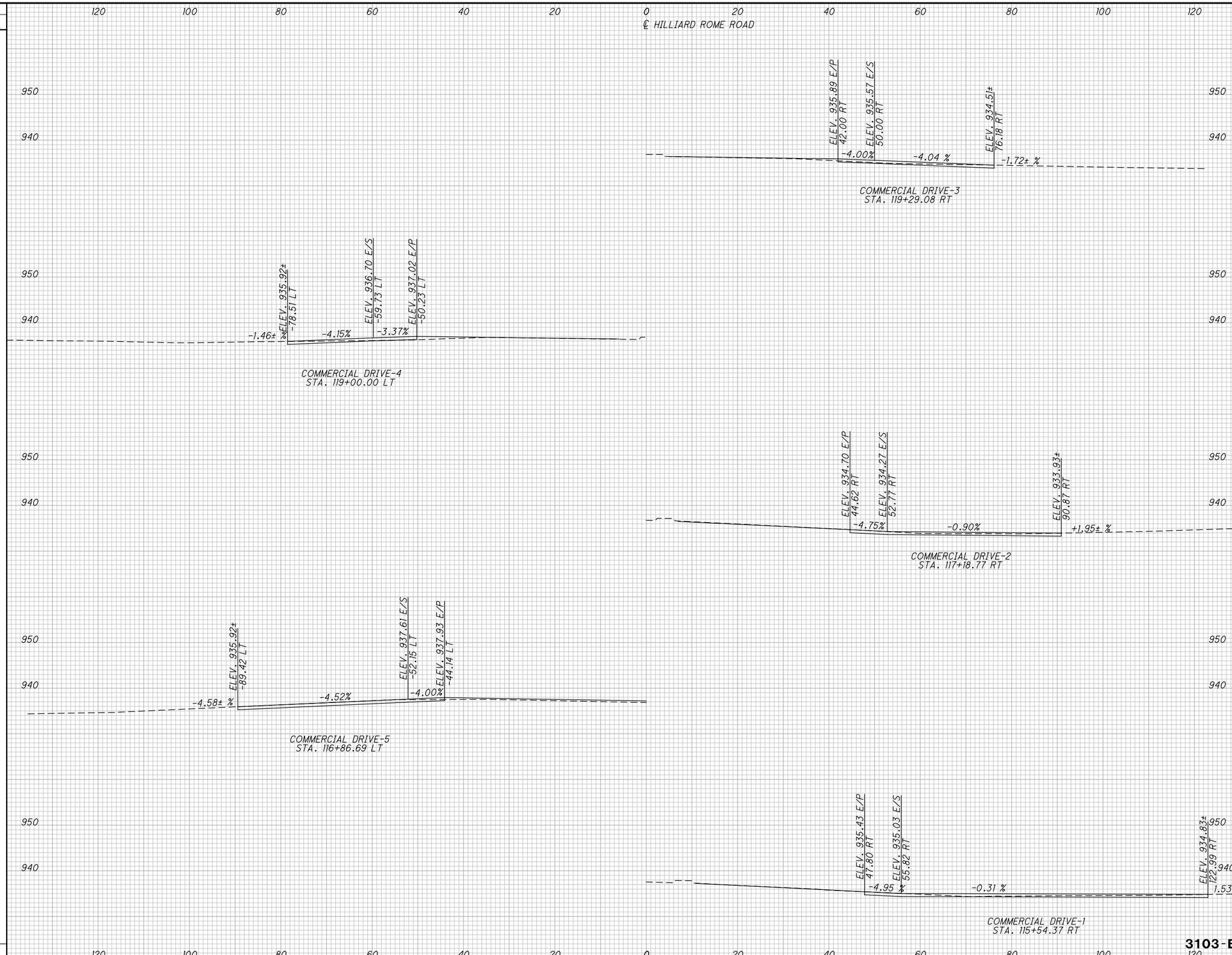
SEEDING	
END WIDTH	SQ. YDS.

END AREA		VOLUME	
CUT	FILL	CUT	FILL

CALCULATED SRR
CHECKED RG



3103-E

DRIVEWAY PROFILES

HILLIARD ROME RD

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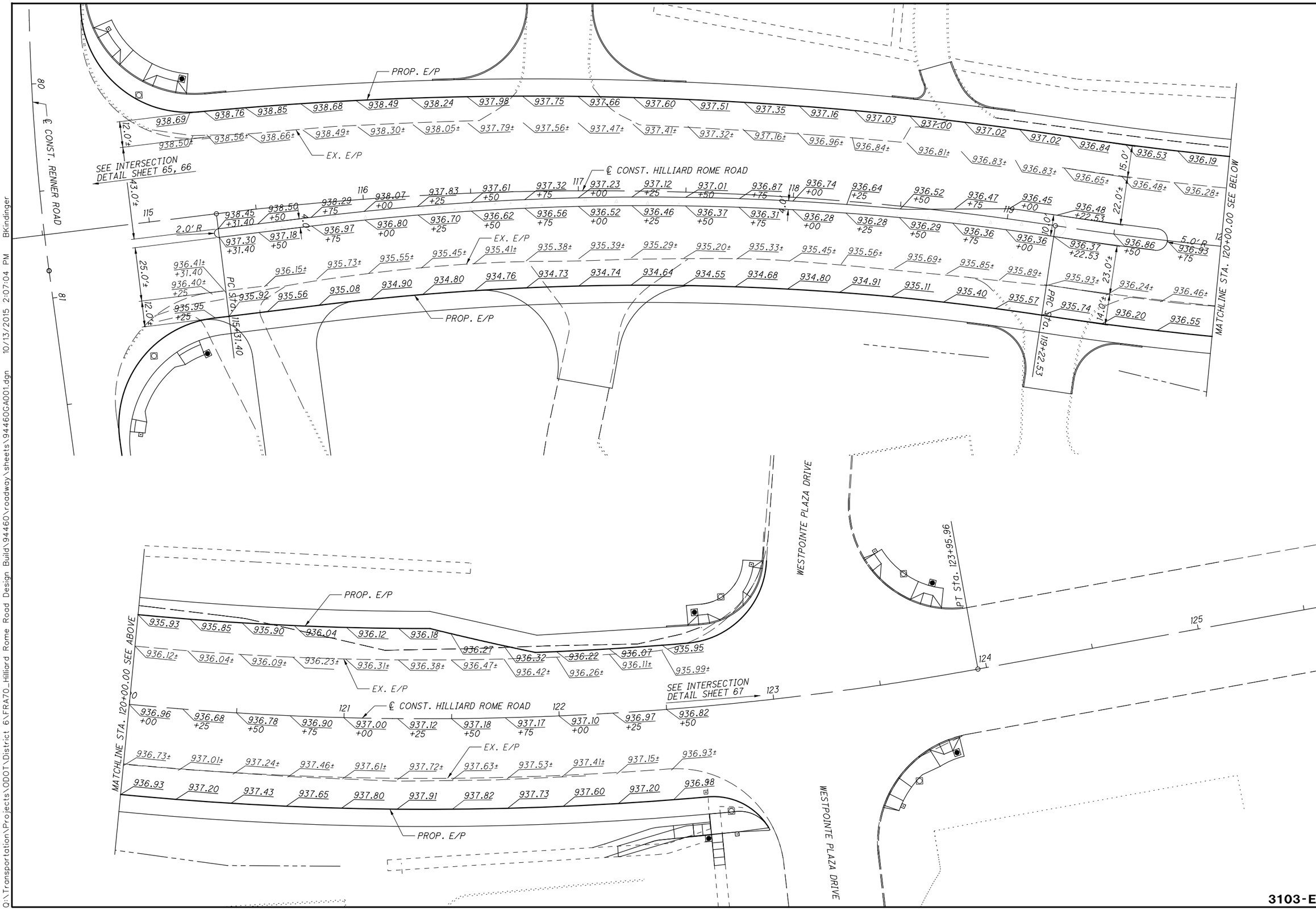

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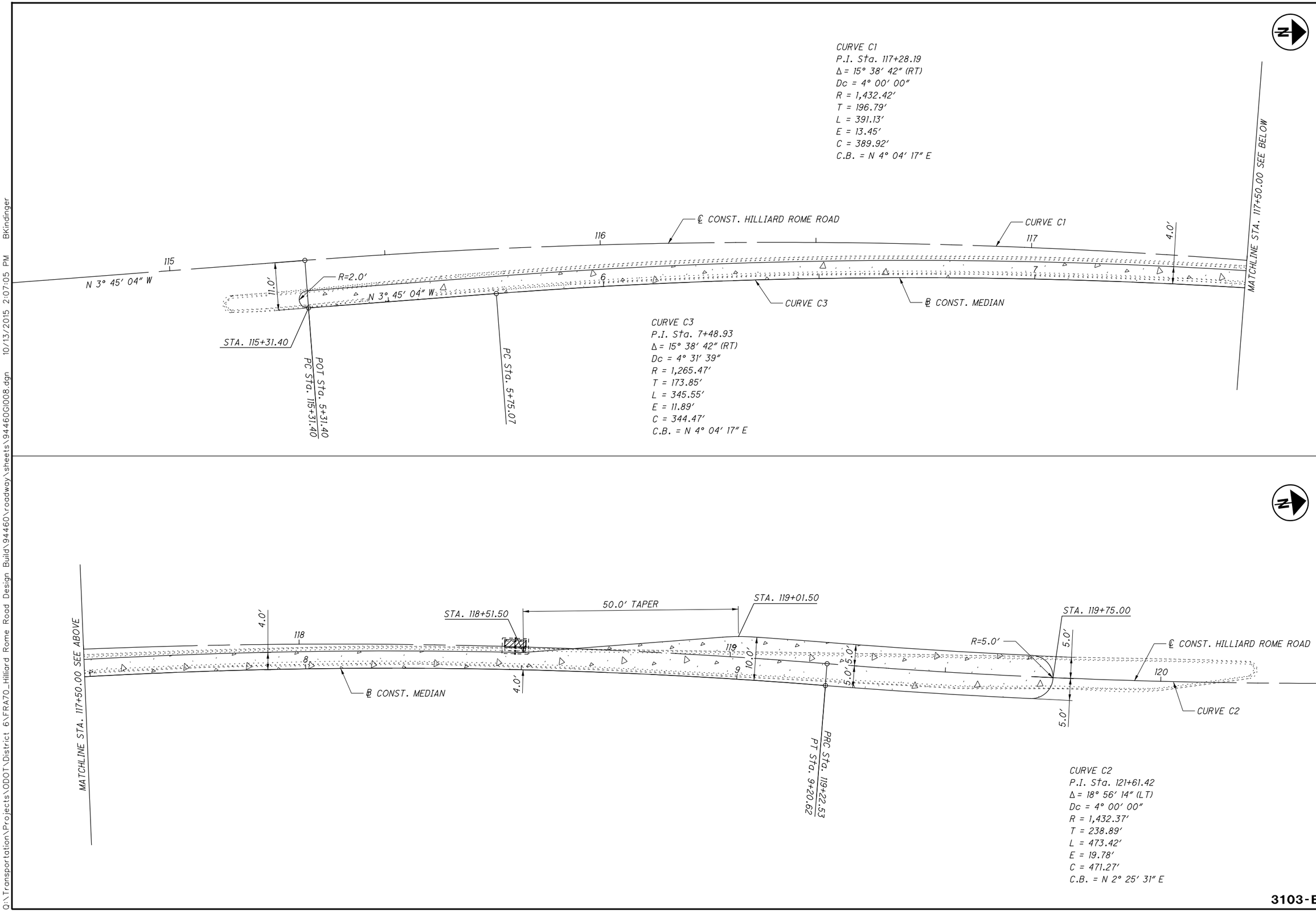
HORIZONTAL SCALE IN FEET 0 10 20 40

CALCULATED SRR
CHECKED RG

PAVEMENT DETAIL
HILLIARD ROME RD

HILLIARD ROME RD

3103-E



HORIZONTAL SCALE IN FEET 0 5 10 20

CALCULATED BDK
CHECKED RG

MEDIAN LAYOUT DETAIL
STA. 115+29.40 TO STA. 119+75.00

HILLIARD ROME RD

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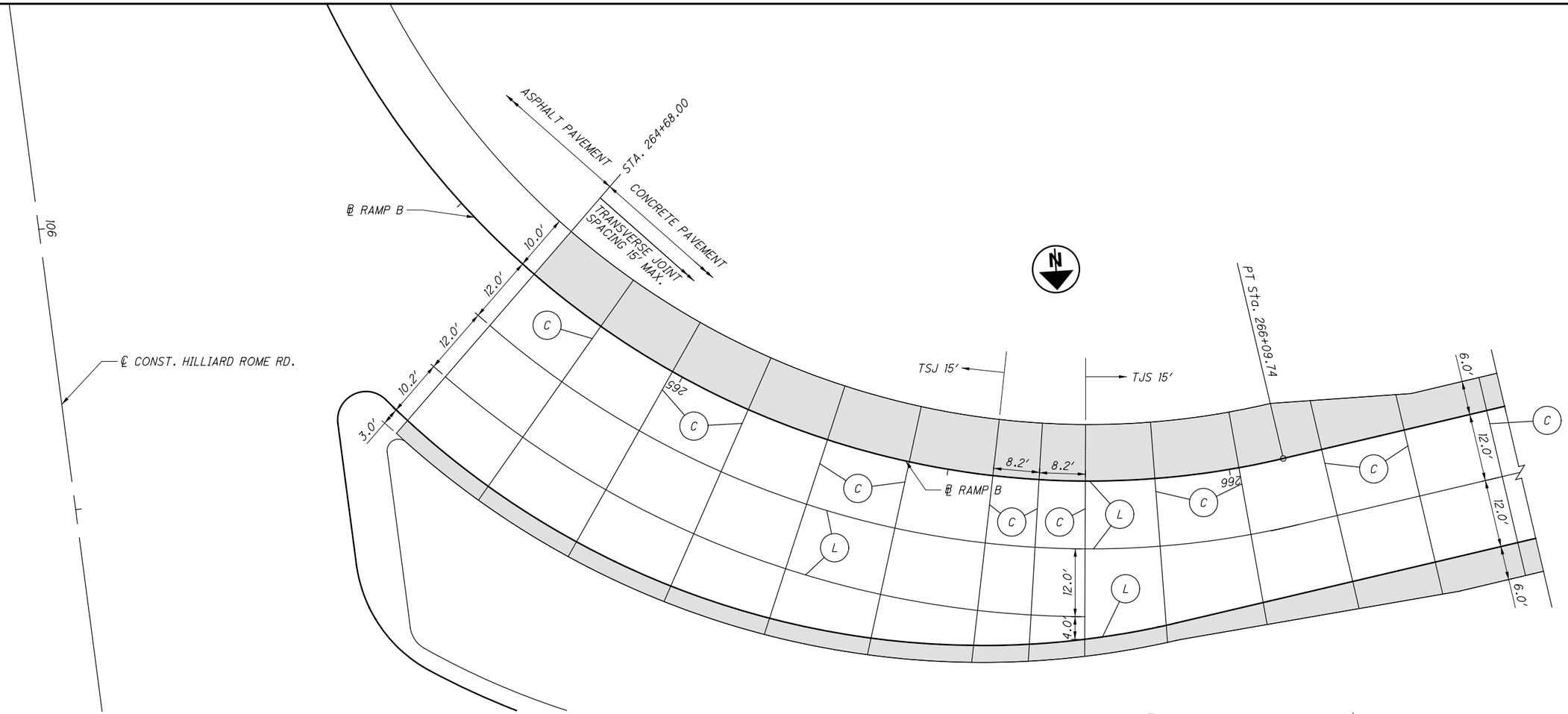

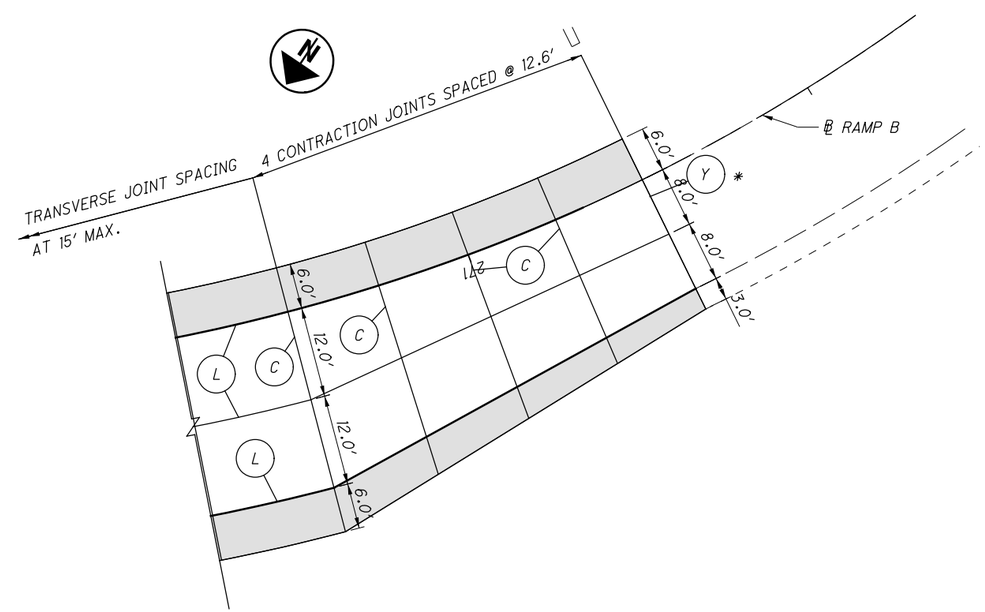

C - CONTRACTION JOINT AS PER BP-2.2

L - STANDARD LONGITUDINAL JOINT WITH TIE BARS AS PER BP-2.1

Y - BUTT JOINT BETWEEN EXISTING PAVEMENT AND PROPOSED PAVEMENT, A DOWELLED TYPE Y JOINT AS PER BP-2.5 SHALL BE PROVIDED. GROUTING AND DRILLING REQUIREMENTS SHALL BE PER SPECIFICATION 255 AND BP-2.5 EXCEPT THE REQUIREMENT THAT THE DRILLING DEVICE SHALL BE CAPABLE OF DRILLING THREE HOLES AT ONE TIME SHAL BE WAIVED.

CONCRETE SHOULDER

* = PROVIDED THIS DETAIL ONLY IF EX. PAVEMENT IS CONCRETE

3103-E

HORIZONTAL SCALE IN FEET 0 5 10 20

CALCULATED SRR
CHECKED RG

PAVEMENT JOINT DETAIL RAMP B

HILLIARD ROME RD

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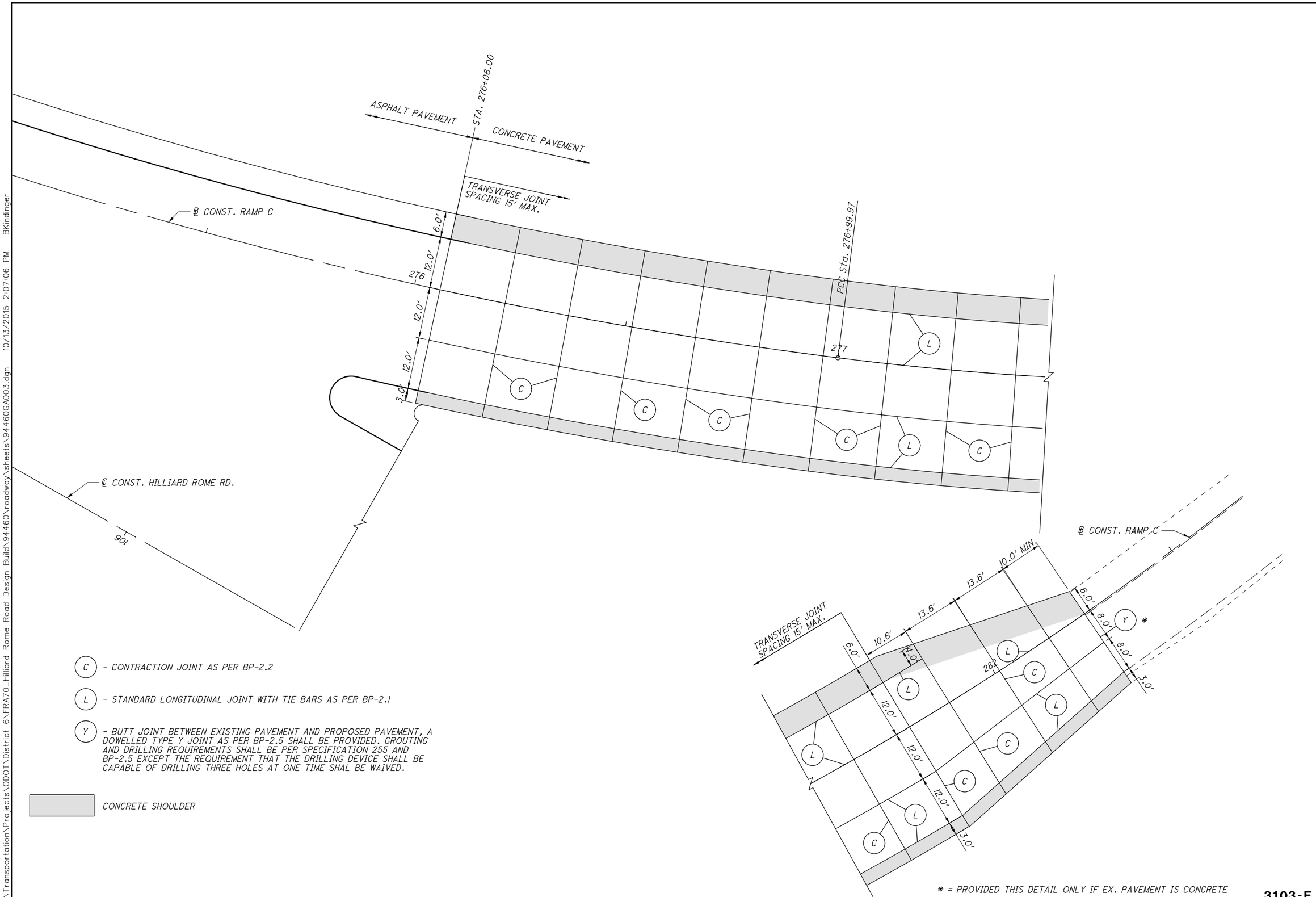

(C) - CONTRACTION JOINT AS PER BP-2.2

(L) - STANDARD LONGITUDINAL JOINT WITH TIE BARS AS PER BP-2.1

(Y) - BUTT JOINT BETWEEN EXISTING PAVEMENT AND PROPOSED PAVEMENT, A DOWELLED TYPE Y JOINT AS PER BP-2.5 SHALL BE PROVIDED. GROUTING AND DRILLING REQUIREMENTS SHALL BE PER SPECIFICATION 255 AND BP-2.5 EXCEPT THE REQUIREMENT THAT THE DRILLING DEVICE SHALL BE CAPABLE OF DRILLING THREE HOLES AT ONE TIME SHAL BE WAIVED.

CONCRETE SHOULDER

HORIZONTAL SCALE IN FEET 0 5 10 20

CALCULATED SRR
CHECKED RG

PAVEMENT JOINT DETAILS RAMP C

HILLIARD ROME RD

3103-E

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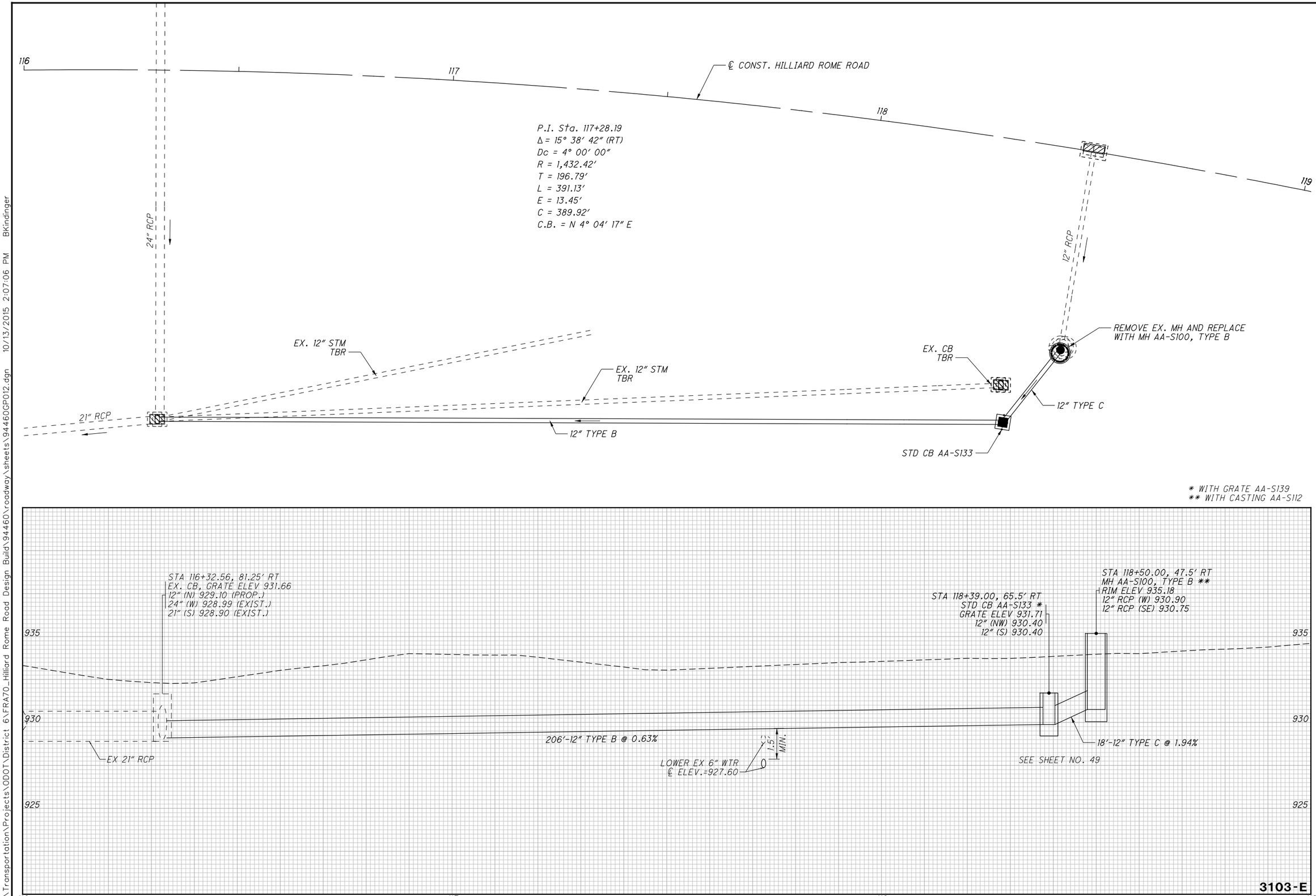

HORIZONTAL SCALE IN FEET
0 5 10 20

CALCULATED JEP
CHECKED RG

HILLIARD ROME ROAD DRAINAGE PROFILE

HILLIARD ROME RD

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LEGEND

- (DY) 5" CENTERLINE, DOUBLE YELLOW
- (WE) 5" EDGE LINE, WHITE
- (YE) 5" EDGE LINE, YELLOW
- (LL) 5" LANE LINE, DASHED
- (YT) 20" TRANSVERSE LINE, YELLOW
- (WP) WORD ON PAVEMENT (72")
- (A) ARROW (96")
- (WT) 20" TRANSVERSE LINE, WHITE
- (SL) 20" STOP LINE
- (XW) 10" CROSSWALK, TYPE 1
- (CH) 10" CHANNELIZING LINE
- (WD5) 5" DOTTED LINE, WHITE
- 1 POST SIGN SUPPPORT
- 2 POST SIGN SUPPORT
- PROPOSED SIGN
- EXISTING SIGN TO BE REMOVED
- EXISTING SIGN TO REMAIN OR BE RELOCATED

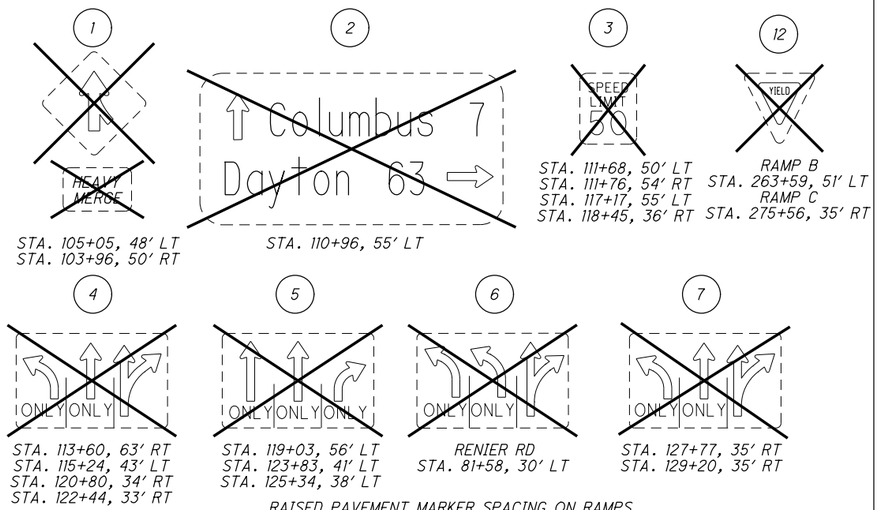
RAISED PAVEMENT MARKER SPACING ON HILLIARD ROME ROAD

NORMAL
CENTERLINES - 80' TWO-WAY YELLOW
LANE LINES - 80' TWO-WAY WHITE
EDGE LINES - 80' TWO-WAY WHITE
CHANNELIZING LINES - 20' TWO-WAY WHITE
TWO WAY LEFT TURN LANE - 40' BOTH SIDES TWO-WAY YELLOW

APPROACH TO SIGNAL:
(MEASURED FROM STOPLINE OR RADIUS TANGENT POINT)
EDGELINES 12@20' / 9@40' / 5@80'
LANE LINES 12@20' / 9@40' / 80' NORMAL SPACING
CENTERLINES 12@20' / 9@ 40' / 80' NORMAL SPACING

DEPARTURE FROM THROUGH STREET, SIGNAL OR STOP CONDITION
LANE LINE 5@80' TWO-WAY WHITE
EDGE LINE 5@80' ONE-WAY

EXISTING SIGNS TO BE REMOVED



RAISED PAVEMENT MARKER SPACING ON RAMPS
CHANNELIZING LINE - 40' TWO-WAY WHITE/RED
EDGE LINE YELLOW - 80' TWO-WAY YELLOW/RED

NOTES:

WHERE EDGE LINE RPMS FALL WITHIN THE LIMITS OF A DRIVEWAY, THEY ARE TO BE RELOCATED LONGITUDINALLY A MAXIMUM OF TEN PERCENT (10%) OF THE NORMAL SPACING. IF RELOCATION IS STILL WITHIN THE DRIVEWAY LIMITS, THE AFFECTED RPM SHALL NOT BE INSTALLED.

WHITE EDGELINE RMPS SHALL NOT BE INSTALLED ADJACENT TO CURBS EVEN IF EDGE LINE EXISTS.

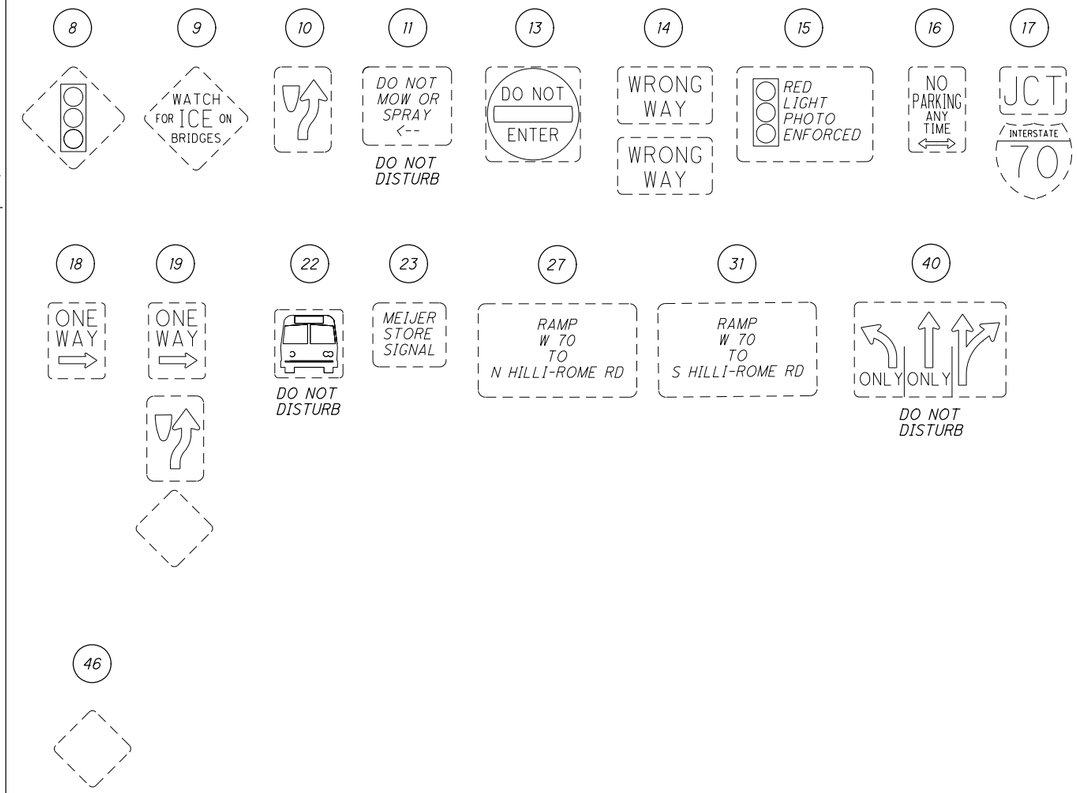
RPMS SHALL NOT BE INSTALLED ON BRIDGE DECKS.

RPMS SHALL NOT BE INSTALLED ON DOTTED LINES. (2' DOT/4' GAP)

DIVERGING TAPERS (RETURNS) SHALL HAVE A MINIMUM OF THREE (3) EVENLY SPACED TWO-WAY YELLOW RPMS IF NORMAL SPACING DOES NOT PROVIDE FOR AT LEAST THREE.

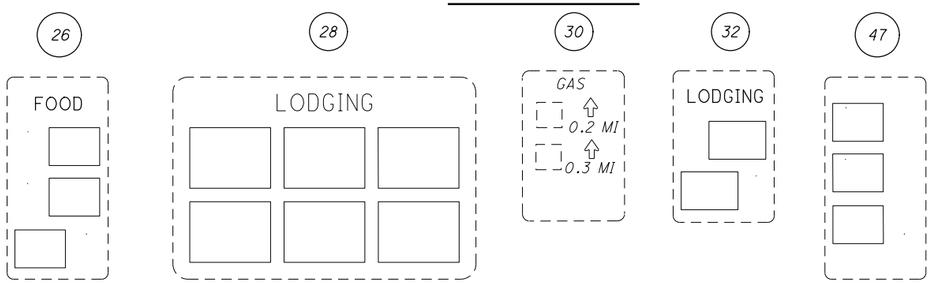
RPMS SHALL NOT BE PLACED WITHIN CROSSWALKS, SCHOOL SYMBOLS, OR RAILROAD MARKINGS.

EXISTING SIGNS TO BE RETAINED OR RELOCATED ON NEW POSTS

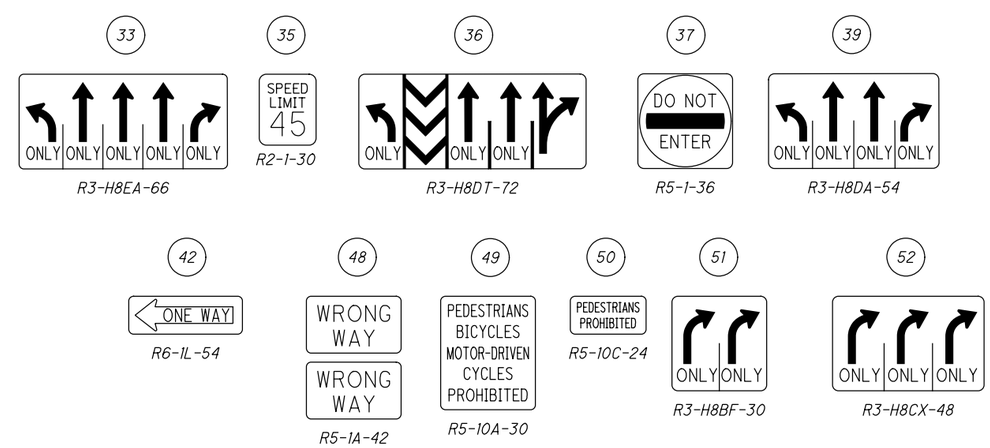


EXISTING TOD SIGNS TO BE RETAINED PER SECTION 15.2.B.2

(SEE NOTE ON SHEET 10)



PROPOSED SIGNS



3103-E

CALCULATED SRR
CHECKED RG

SIGNING AND PAVEMENT MARKING LEGEND

HILLIARD ROME RD

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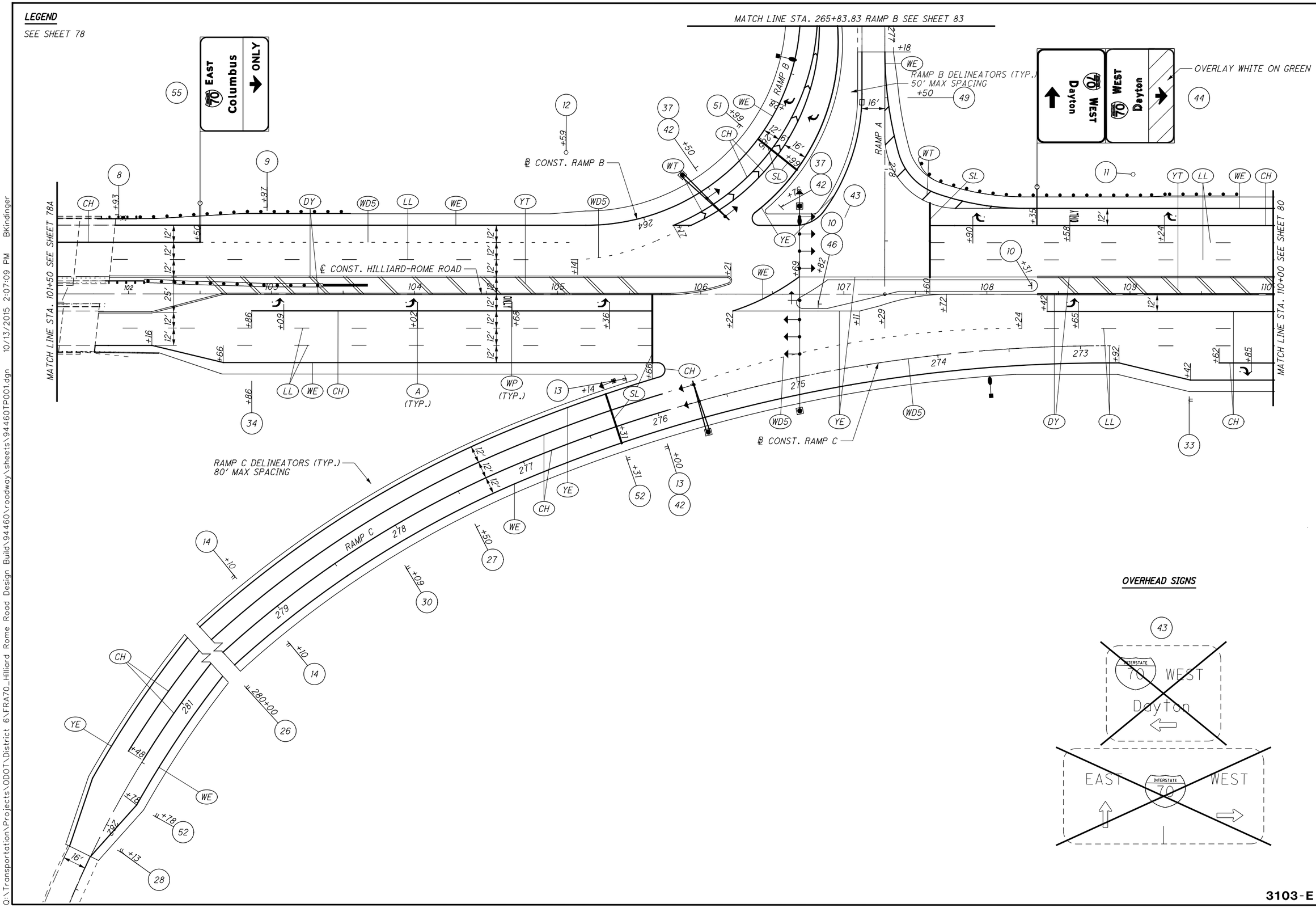
LEGEND

SEE SHEET 78



3103-E

HORIZONTAL SCALE IN FEET 0 15 30 60

CALCULATED EMR CHECKED RG

SIGNING AND PAVEMENT MARKING PLAN
STA. 101+50 TO STA. 110+00

HILLIARD ROME RD

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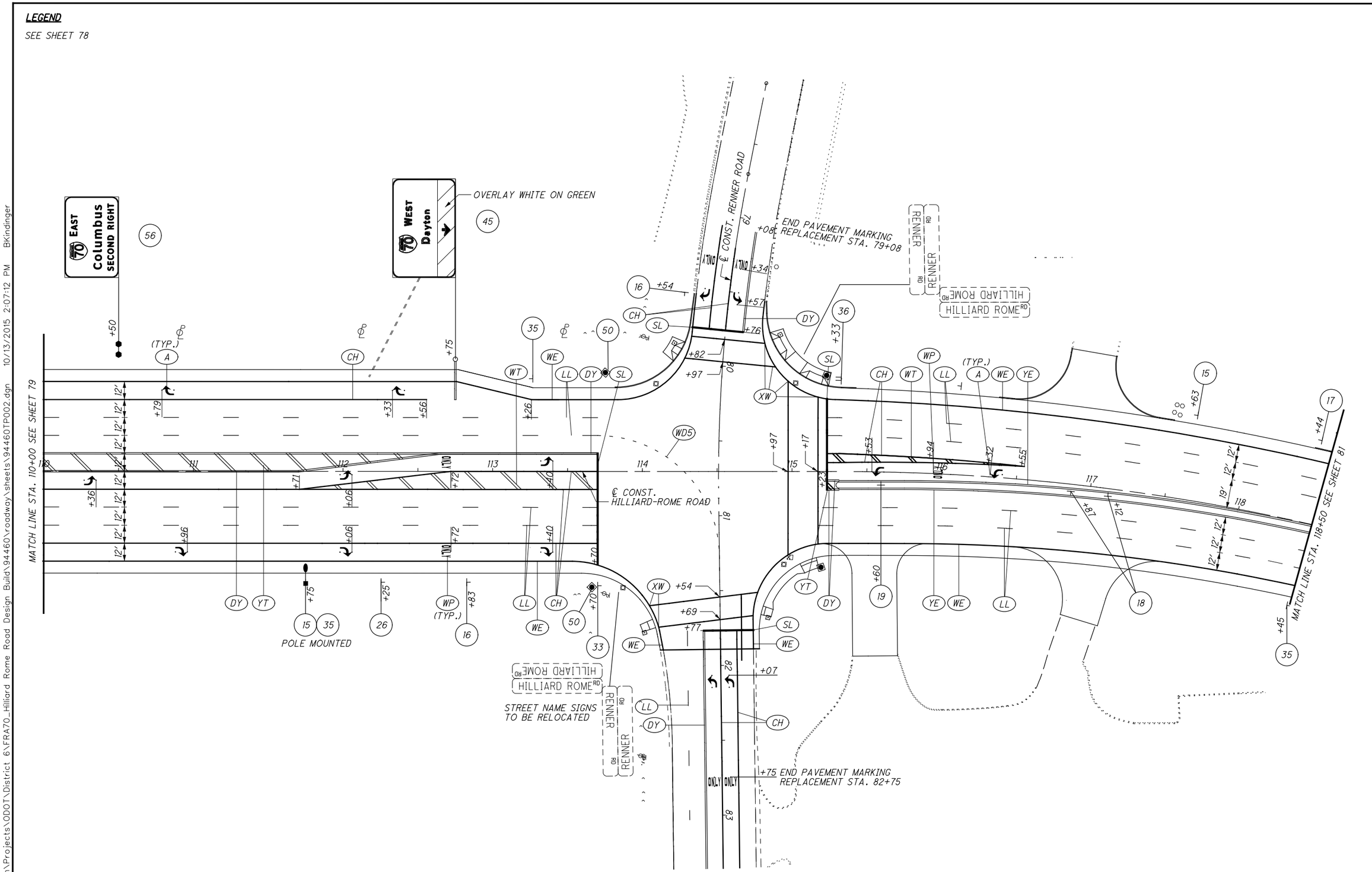
LEGEND

SEE SHEET 78



3103-E

HORIZONTAL SCALE IN FEET 0 15 30 60

CALCULATED EMR
CHECKED RG

SIGNING AND PAVEMENT MARKING PLAN
STA. 110+00 TO STA. 118+50

HILLIARD ROME RD

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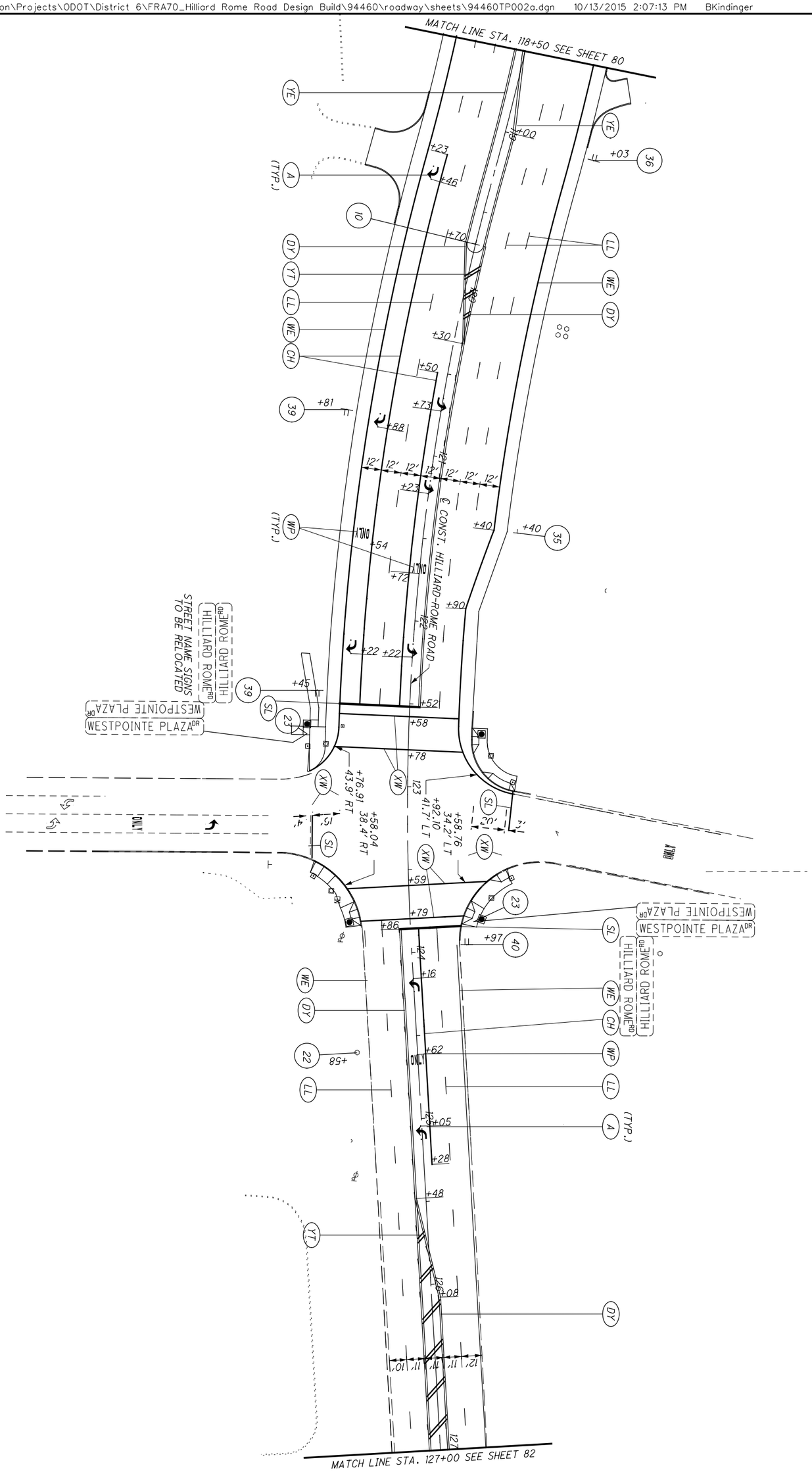
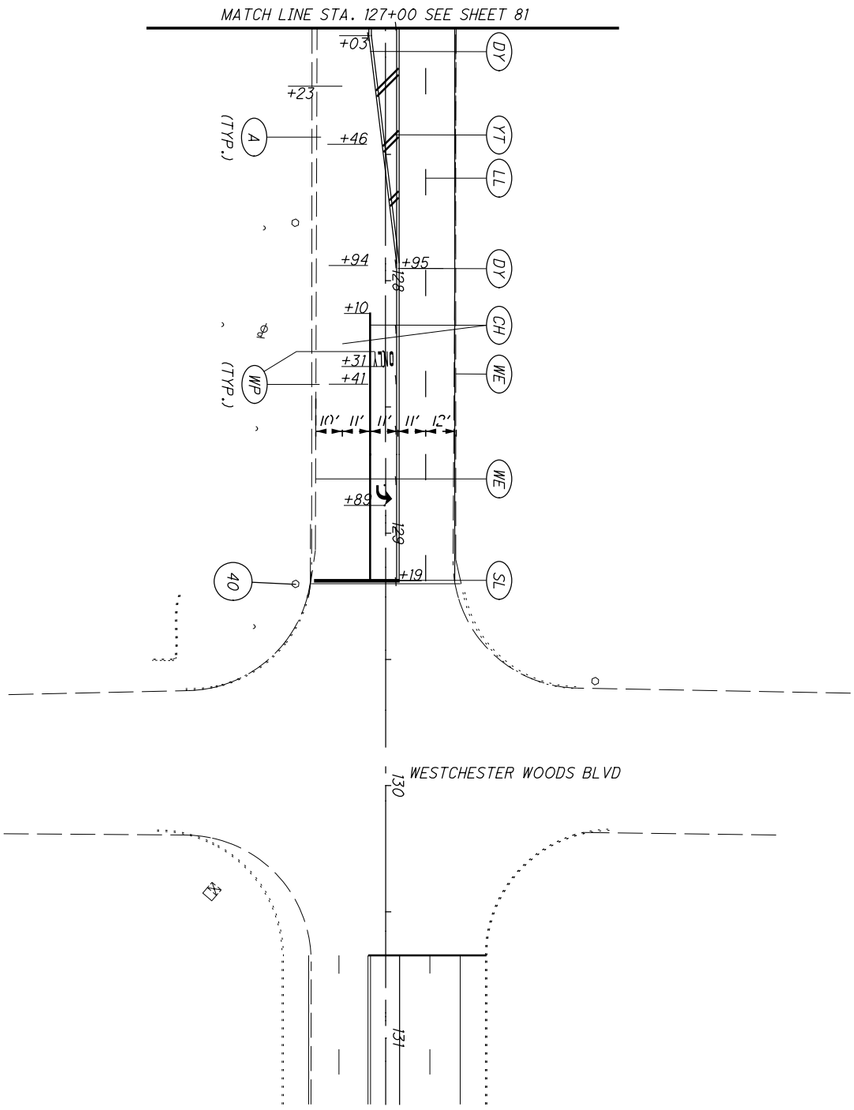


LEGEND
SEE SHEET 78

3103-E

81 / 109	HILLIARD ROME RD	SIGNING AND PAVEMENT MARKING PLAN STA. 118+50 TO STA. 127+00	CALCULATED EMR CHECKED RG 0 15 30 60 HORIZONTAL SCALE IN FEET

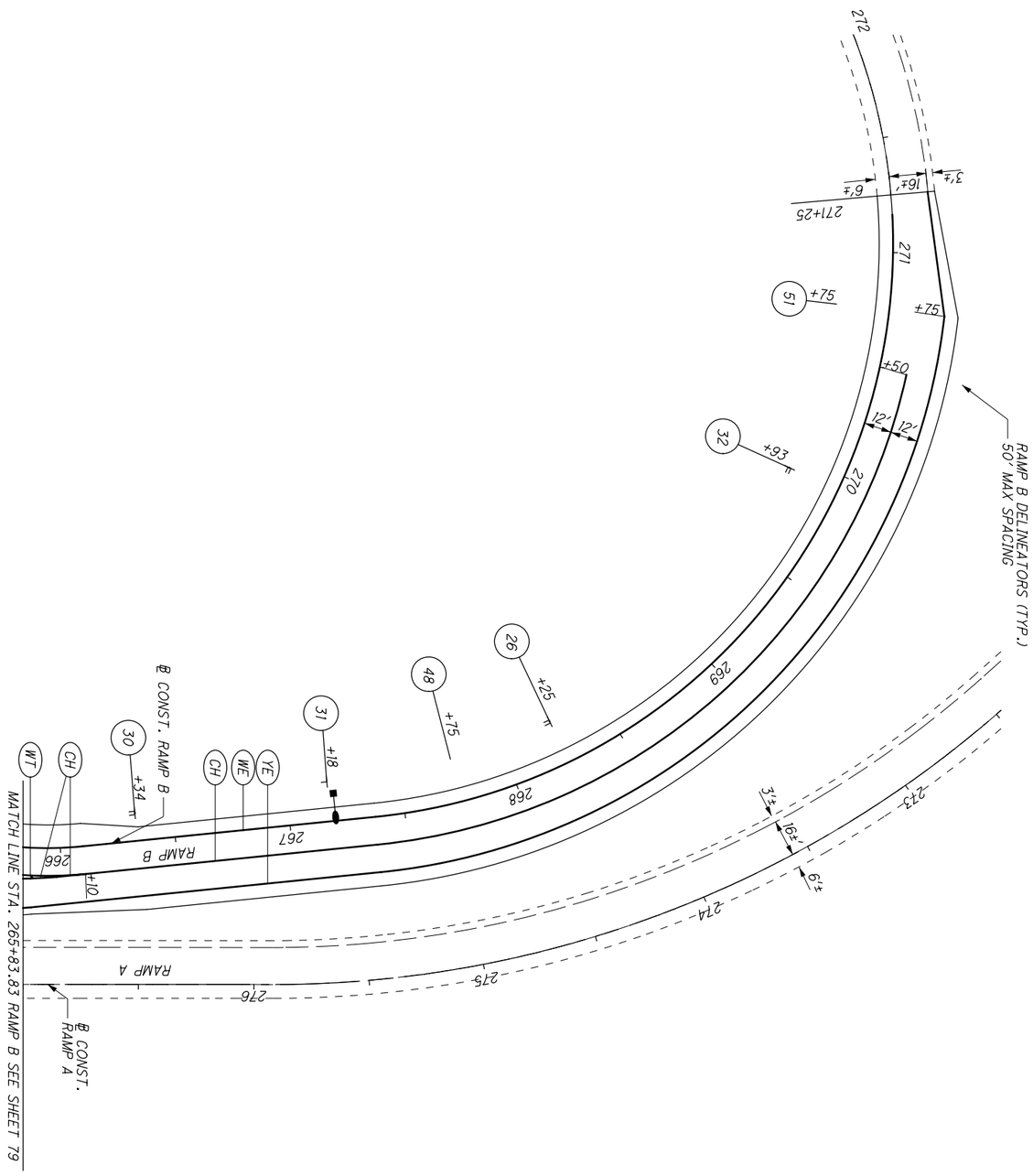


LEGEND

SEE SHEET 78

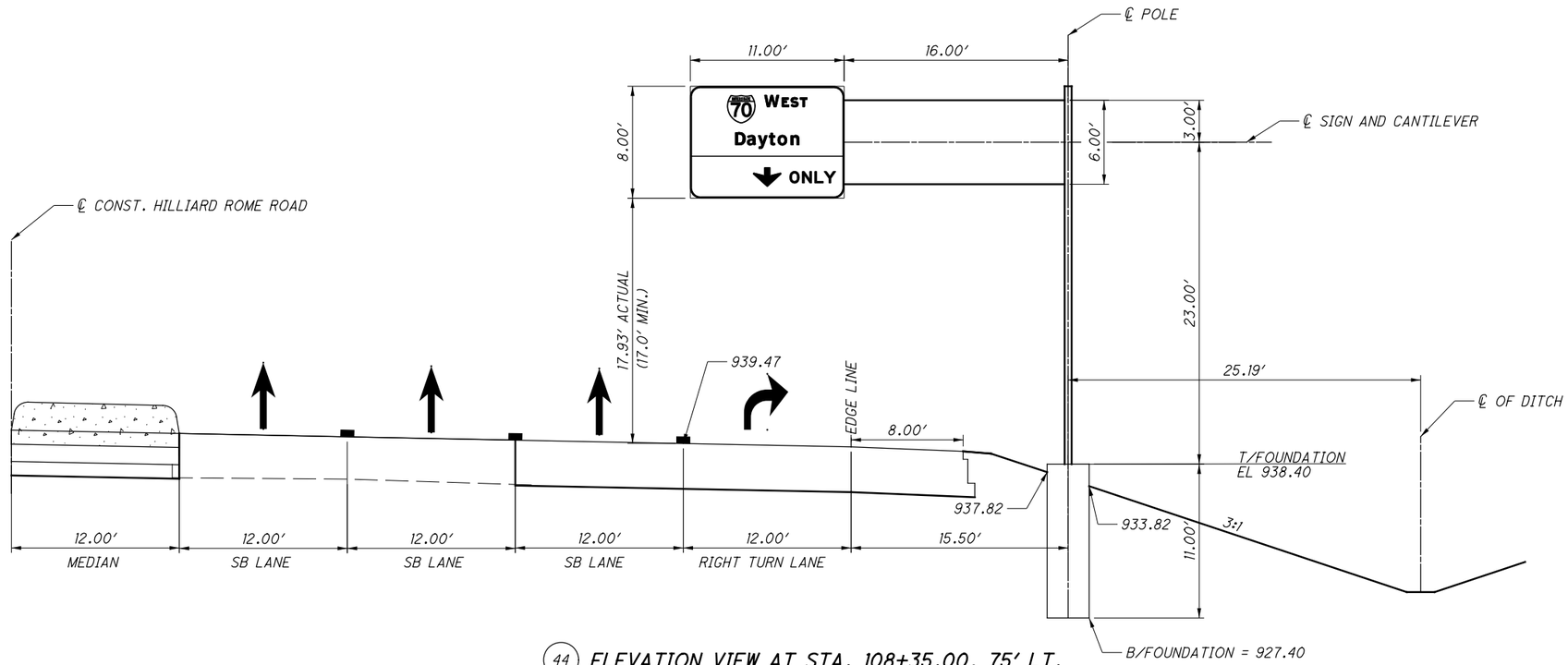
3103-E

82 / 109	HILLIARD ROME RD	SIGNING AND PAVEMENT MARKING PLAN STA. 127+00 TO STA. 131+25	CALCULATED EMR CHECKED RG	0 15 30 60 HORIZONTAL SCALE IN FEET



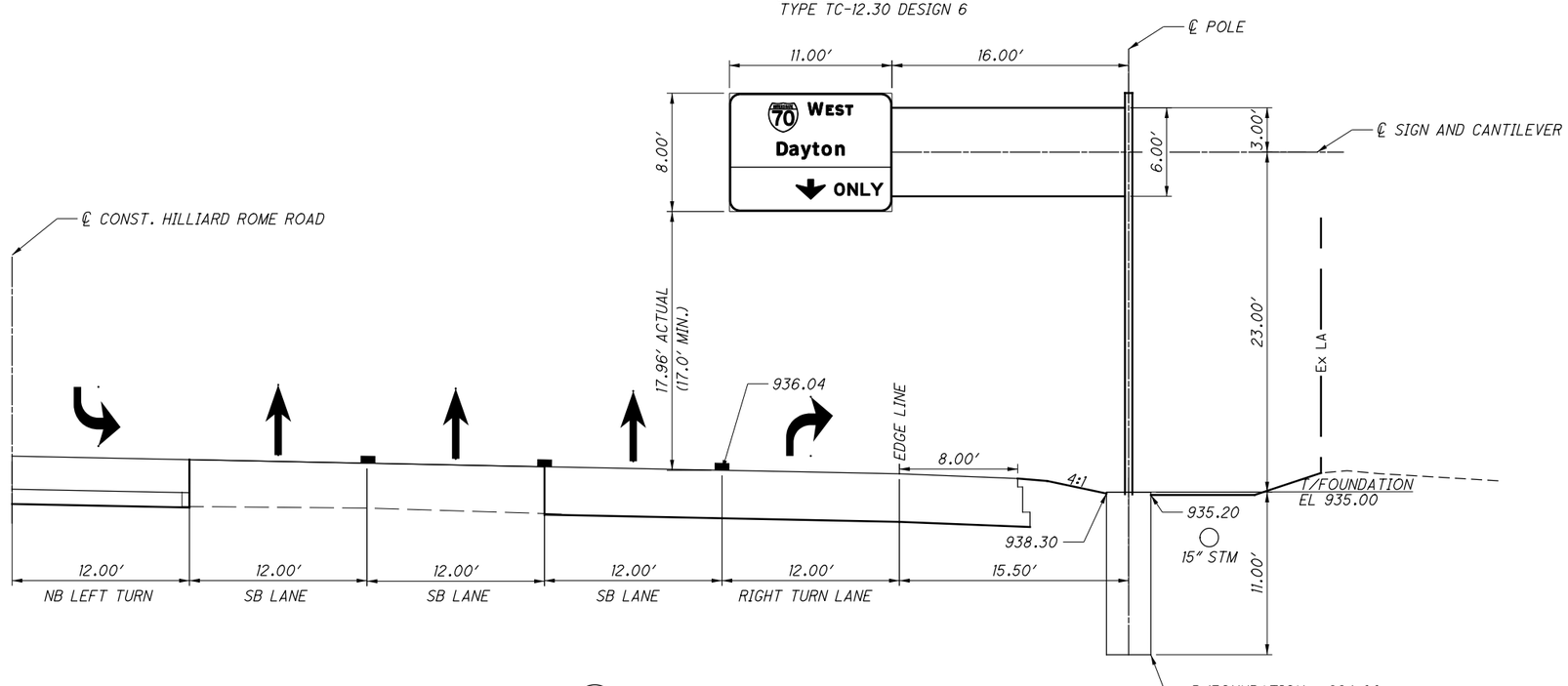
3103-E

83/109	HILLIARD ROME RD	SIGNING AND PAVEMENT MARKING PLAN RAMP B STA. 266+16.17 TO STA. 270+50	CALCULATED EMR CHECKED RG	0 15 30 60 HORIZONTAL SCALE IN FEET



44 ELEVATION VIEW AT STA. 108+35.00, 75′ LT.

(LOOKING DOWN STATION)
OVERHEAD SIGN SUPPORT
TYPE TC-12.30 DESIGN 6



45 ELEVATION VIEW AT STA. 112+75.00, 75′ LT.

(LOOKING DOWN STATION)
OVERHEAD SIGN SUPPORT
TYPE TC-12.30 DESIGN 6

CALCULATED SRR
CHECKED RG

ELEVATION VIEW

HILLIARD ROME RD

3103-E

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TRAFFIC SIGNAL SPECIFICATIONS

THE STANDARD SPECIFICATIONS FOR THE CITY OF COLUMBUS, INCLUDING STANDARD DRAWINGS AND SUPPLEMENTAL SPECIFICATIONS LISTED ON THE TITLE SHEET, SHALL GOVERN TRAFFIC SIGNAL INSTALLATIONS.

MAINTENANCE OF TRAFFIC SIGNAL INSTALLATIONS

A) PROPOSED TRAFFIC SIGNAL INSTALLATION THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL PROPOSED TRAFFIC SIGNAL DEVICES UNDER THE FOLLOWING CONDITIONS FROM THE TIME OF INSTALLATION UNTIL THE DEVICE HAS BEEN ACCEPTED BY THE DIVISION OF DESIGN AND CONSTRUCTION, CONSTRUCTION SECTION.

THE CONTRACTOR SHALL PROVIDE TWO CONTACT PERSONS WHO CAN RECEIVE ALL DEVICE OUT-OF-SERVICE CALLS THAT FALL UNDER THE CONTRACTOR'S RESPONSIBILITY. THE CONTRACTOR SHALL DISPATCH MAINTENANCE PERSONNEL TO CORRECT THE PROBLEM. THE CONTRACTOR SHALL PROVIDE THIS DIVISION AND THE PROJECT ENGINEER WITH ADDRESSES AND PHONE NUMBERS OF THESE CONTACT PERSONS. MAINTENANCE PERSONNEL MAY BE USED TO PERFORM OTHER DUTIES AS LONG AS PROMPT ATTENTION IS GIVEN TO THESE CALLS AND A PERSON IS CONTINUOUSLY AVAILABLE TWENTY-FOUR (24) HOURS A DAY AND SEVEN (7) DAYS A WEEK. THE CONTRACTOR SHALL PROVIDE MAINTENANCE SERVICE ENTIRELY WITH HIS PERSONNEL.

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

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

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

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

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

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

B) TEMPORARY CONTROLLER OR TRAFFIC SIGNALS
IN ADDITION TO ITEM 614.10, THE FOLLOWING SHALL APPLY:
IF THE CONTRACTOR IS REQUIRED TO ERECT AND/OR INSTALL ANY TEMPORARY TRAFFIC CONTROL DEVICE OR TEMPORARY SIGNAL/SUPPORT POLE THAT IS NOT SPECIFIED IN THESE PLANS, THEN THE CONTRACTOR SHALL SUBMIT THE DESIGN CHANGE TO THE CITY OF COLUMBUS, DIVISION OF DESIGN AND CONSTRUCTION, FOR APPROVAL PRIOR TO THEIR INSTALLATION. THIS DIVISION ALSO RESERVES THE RIGHT TO MAKE OR HAVE THE CONTRACTOR MAKE CHANGES TO THE TRAFFIC SIGNAL OPERATION.

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

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

COLOR COATING FINISH

THE COLOR COATING FINISH SHALL BE DARK BRONZE.

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

ALL EXTERIOR SURFACES OF THE MASTARM POLE SHAFT ASSEMBLY, MASTARM ASSEMBLY, ALL BOLT COVERS, ALL ATTACHMENT HARDWARE, ALL WIRE ENTRANCES, ALL CLEVIS HANGERS, ALL HANDHOLE COVERS, BRACKETS, POLE AND ARM CAPS AND TRAFFIC PEDESTAL STRUCTURES SHALL HAVE A COATING APPLIED TO THEM. EXTERIOR SURFACES OF ALL BOLT AND SCREW FASTENERS, WASHERS, NUTS, AND OTHER ATTACHMENT HARDWARE SHALL HAVE A COATING APPLIED TO THEM. FASTENER THREADS SHALL NOT BE CLOGGED WITH COATING MATERIAL.

THE EXTERIOR COATING FOR ALL ITEMS ABOVE SHALL:

1. MEET FEDERAL SPEC # 595B, BE SEMI-GLOSS AND CONFORM TO COLOR #20040 (FOR DARK BRONZE); AND

2. BE APPLIED OVER PROPERLY PREPARED GALVANIZING MATERIAL ON STEEL PRODUCTS AND OVER PROPERLY PREPARED ALUMINUM FOR ALUMINUM PRODUCTS; AND

3. HAVE A MINIMUM 5-YEAR REPAIR WARRANTY OF COATING DELAMINATION, BLISTERING, OR CORROSION. POWDER COATED UNION METAL STRUCTURES SHALL HAVE THE THOMARIOS COATING WARRANTY REVISION DATE JULY 17TH 2007. POWDER COATED VALMONT STEEL STRUCTURES SHALL BE COATED WITH FINISH SPECIFICATION F-573 DATED 4-11-07, WHICH INCLUDES EPOXY POWDER PRIME COAT AND PENTABOND POWDER FINISH COAT.

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

ALUMINUM STRUCTURE FINISH

ALUMINUM STRUCTURES SHALL BE COATED AS PER PLAN.

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

THE COATING PROCESS SHALL INVOLVE SUCH STEPS AS THE FOLLOWING:

1. MECHANICAL PREPARATION
   PEDESTAL SHAFTS SHALL BE ROTARY-SANDED TO A SATIN-GROUND FINISH. BRACKETS SHALL BE ETCHED TO A MATTE FINISH. THIS TREATMENT WILL PLACE A ROUGH SURFACE ON THESE ITEMS SO THE BASE COATING LAYER WILL HAVE EXCELLENT ADHESION.

2. CLEANING
   THE BRACKET AND TRAFFIC PEDESTAL POLE ASSEMBLY SHALL BE IMMERSED IN AN ALCOHOLIC-PHOSPHORIC ACID SOLUTION THAT WILL CHEMICALLY CLEAN THESE ITEMS. THE CLEANING SOLUTIONS SHALL BE KEPT AT A NOMINAL 70 DEGREES FAHRENHEIT. THE BRACKET AND PEDESTAL ASSEMBLY SHALL BE IMMERSED IN THE SOLVENT SOLUTION FOR 5 MINUTES AND THEN COLD-WATER RINSED UNTIL ALL CHEMICALS ARE WASHED OFF.

3. CONVERSION COATING
   THE BRACKET AND TRAFFIC PEDESTAL POLE ASSEMBLY SHALL THEN BE IMMERSED IN AN AMORPHOUS CHROMATE CONVERSION COATING SOLUTION FOR 5 MINUTES. THE SOLUTION SHALL BE MAINTAINED AT 70 DEGREES FAHRENHEIT. THIS TREATMENT WILL RESULT IN THE FORMATION OF A SURFACE FILM IN WHICH THE FILM CHEMICALLY BONDS ITSELF TO THE BASE METAL BY DIFFUSION AND BECOMES A PART OF THE BASE METAL. THE BRACKET AND PEDESTAL ASSEMBLY SHALL BE COLD-WATER RINSED. THIS SURFACE WILL PROVIDE OPTIMUM ADHESION AND GOOD STABILITY FOR THE COLOR FILM SO THAT IT DOES NOT CHIP, PEEL OR FLAKE.

4. PRIMER COATING
   AN ALUMINUM PRIMER SHALL BE APPLIED AS REQUIRED TO THE BRACKET AND TRAFFIC PEDESTAL POLE ASSEMBLY TO FURTHER IMPROVE COATING ADHESION.

5. FINAL COATING
   EACH COAT SHALL BE PROPERLY DRIED BEFORE ADDITIONAL COATS ARE APPLIED.

6. DRYING
   THE BRACKET AND TRAFFIC PEDESTAL POLE ASSEMBLY SHALL BE THOROUGHLY DRIED THEN PROTECTED FOR SHIPMENT AS OUTLINED BEFORE.

STEEL STRUCTURE FINISH

THE INSIDE OF EACH MASTARM POLE ASSEMBLY, EACH MASTARM ASSEMBLY AND OTHER MASTARM ACCESSORIES SHALL BE GALVANIZED. THE INSIDE AREA FORMED BY THE GUSSETS, POLE AND POLE FLANGE PLATE SHALL ALSO BE GALVANIZED TO PROTECT THE AREA FROM CORROSION. IT IS TO BE NOTED THAT SOME TYPE OF OPENING SHALL BE REQUIRED TO GALVANIZE THE GUSSET AREA. THIS OPENING SHALL NOT HAMPER THE STRUCTURAL INTEGRITY OF THE FLANGE ASSEMBLY. EXTERNAL SURFACES OF THE MASTARM STRUCTURE SHALL BE GALVANIZED.

MASTARM STRUCTURE SURFACES SHALL BE PREPARED FOR GALVANIZING BY USING A SOLVENT CLEANING METHOD TO REMOVE DIRT, OIL, DUST, GREASE AND ANY OTHER CONTAMINANT THAT WILL REDUCE THE ADHESION OF THE GALVANIZING. MILL SCALE, RUST OR ANY OTHER FOREIGN MATERIAL NOT REMOVED BY SOLVENTS SHALL BE REMOVED USING MECHANICAL METHODS. (PER STEEL STRUCTURES PAINTING COUNCIL: SSPC-VIS-1-67.) MANUFACTURER RECOMMENDED ABRASIVE TECHNIQUES SHALL BE USED TO PROVIDE THE PROPER PROFILE FOR ADHERENCE TO ASTM A123 GALVANIC COATING.

THE MASTARM STRUCTURE SHALL THEN BE COATED AS PER PLAN. EACH COATING LAYER SHALL BE PROPERLY CURED BEFORE THE APPLICATION OF THE NEXT COAT. MINIMUM DRY THICKNESS MEASUREMENTS FOR STEEL SHALL CONFORM TO SECTION SSPC-PA2-82, STEEL STRUCTURES PAINTING COUNCIL.

CALCULATED MJH CHECKED KAE

TRAFFIC SIGNAL GENERAL NOTES

HILLIARD ROME ROAD

ITEM 632 VEHICULAR SIGNAL HEAD, L.E.D., 3, 4 & 5 SECTION, 12" LENS, 1 WAY, AS PER PLAN

THE CIRCULAR LIGHT EMITTING DIODE (LED) TRAFFIC SIGNAL MODULES SHALL BE DIALIGHT MODEL NUMBERS 433-1210-003XL (RED), 433-3230-901XL (YELLOW), 433-2270-001XL (GREEN); GE LUMINATION MODEL NUMBERS DR6-RTFB-17A (RED), DR6-YTFB-17A-YX (YELLOW), DR6-GCFB-17A (GREEN); OR APPROVED EQUAL. TURN ARROWS SHALL BE DIALIGHT MODEL NUMBERS 431-3334-901XOD (3 ROW YELLOW) AND 432-2374-001XOD (3 ROW GREEN); GE LUMINATION DR6-YTAAN-17A-YX (3 ROW YELLOW) AND DR6-GCAAN-17A (3 ROW GREEN); OR APPROVED EQUAL. ALL MODULES SHALL HAVE SPADE TYPE TERMINALS SECURELY ATTACHED TO THE UNIT LEAD WIRES.

THE SIGNAL HEAD HOUSING AND THE OUTSIDE VISOR SURFACE SHALL BE COATED YELLOW MATCHING THE FEDERAL STANDARD 595B, COLOR # 13655 SPECIFICATIONS. THE HOUSING SHALL BE SUPPLIED WITH FIVE PAIR (FOR 3 OR 4 SECTION HEADS) OR SIX PAIR (FOR 5 SECTION HEADS), BARRIER TYPE TERMINAL BLOCK (NO QUICK-DISCONNECT SLIP-ON CONNECTORS ACCEPTABLE) THAT IS SCREW MOUNTED AT EACH END AND LOCATED IN THE RED SECTION. THE TERMINAL BLOCK SHALL MEET UL E62622, CSA LR15364, BE IEC COMPLIANT, CONTAIN #10-32 x 1/4" (MIN) ZINC PLATED STEEL PHILSLOT SCREWS THAT ARE INSTALLED BETWEEN BARRIERS WHOSE WIDTH OPENING IS A NOMINAL .41" AND HEIGHT IS A NOMINAL .45" ABOVE THE TERMINAL PLATE, BE RATED FOR 30 AMPS, AND SHALL HAVE A BREAKDOWN VOLTAGE OF 7500V RMS (SIMILAR TO BUSSMAN CIRCUIT COMPONENT SERIES TB345). ALL BOLTS AND WASHERS FOR SECURING SECTIONS TOGETHER, ALL LENS MOUNTING HARDWARE, ALL DOOR LATCHING BOLTS, AND ALL HINGE PINS SHALL BE STAINLESS STEEL. DOOR LATCHING BOLTS SHALL FIT THROUGH A SLOT IN THE DOOR. THE GREEN AND/OR YELLOW INDICATION DOORS ON ALL 4 AND 5 SECTION HEADS SHALL OPEN IN BOOK LIKE FASHION.

AN ALUMINUM, WEATHERPROOF TRI-STUD SINGLE WIRE ENTRANCE WITH THREE (3) 5/16" x 1-7/16" STAINLESS STEEL STUDS, LOCK WASHERS, AND HEX NUTS SHALL BE PROVIDED WITH EACH SIGNAL HEAD. THE WEATHER HEAD ENTRANCE SHALL HAVE A MINIMUM INSIDE DIAMETER OPENING OF 1-1/2", INCLUDING ANY RUBBER OR PLASTIC GROMMET THAT PROTECTS THE CABLE. THE OPENING AT THE TRI-STUD END MAY BE IRREGULARLY SHAPED, BUT IT MUST HAVE A MINIMUM OPENING OF 1-1/2" AT ITS WIDEST POINT AND A MINIMUM OPENING OF 11/16" AT ITS NARROWEST POINT. THE TRI-STUD WASHER MUST HAVE THE SAME OPENING AT THE ENTRANCE. THE TOP OF THE ENTRANCE SHALL HAVE ONLY ONE (1) CLEVIS HOLE AND IT MUST ACCOMMODATE A 5/8" STAINLESS STEEL CLEVIS PIN. THE CLEVIS ATTACHMENT, MEASURED AT THE CENTER OF THE CLEVIS HOLE, SHALL BE NO GREATER THAN 5/8" THICK OR GREATER THAN 1-3/4" IN WIDTH. (SIMILAR TO ENGINEERED CASTINGS MODEL #2084-T1) FOR SPAN WIRE MOUNTING INSTALLATIONS, THE WIRE ENTRANCE SHALL BE COATED THE SAME COLOR AS THE VEHICULAR SIGNAL HEAD. FOR USE ON MASTARMS THE WIRE ENTRANCE SHALL BE COATED THE SAME COLOR AS THE MASTARM STRUCTURE.

SPAN WIRE HANGER, PROVIDED WITH EACH SIGNAL HEAD, SHALL BE ALUMINUM, SHALL HAVE A 5/8" STAINLESS STEEL CLEVIS PIN AND SHALL BE CAPABLE OF MOUNTING TO SPAN WIRES UP TO 1/2" IN DIAMETER. THE HANGER SHALL BE PROVIDED WITH TWO (2) U-TYPE STAINLESS STEEL MOUNTING BOLTS WITH HEX NUTS AND LOCK WASHERS. THE HANGER SPACER SHALL BE CAST ALUMINUM. THE CLEVIS PIN HOLE SHALL HAVE A STAINLESS STEEL BUSHING INSERT AND SHALL BE LOCATED A MINIMUM OF 2-1/2" FROM THE OUTSIDE TOP OF THE HANGER. (SIMILAR TO ENGINEERED CASTINGS MODEL #2079-S).

FOR MASTARM STRUCTURES A 90 DEGREE 3/4" CLEVIS HANGER WITH PINS SIMILAR TO PELCO PART SE-0467 OR ENGINEERING CASTINGS PART EC-65 SHALL BE USED TO ALLOW THE SIGNAL HEAD TO FREELY SWING ON THE ARM. THE CLEVIS HANGER SHALL BE COATED THE SAME COLOR AS THE MASTARM STRUCTURE. THE BUSHING SHALL BE STAINLESS STEEL.

ITEM 632 STRAIN POLE, TYPE TC-81.10, ANCHOR BASE, (DESIGN & SIZE), AS PER PLAN

STRAIN POLES SHALL BE MANUFACTURED BY UNION METAL, VALMONT, OR AN APPROVED EQUAL. THE POLES SHALL BE GALVANIZED, THEN COATED WITH A SEMI-GLOSS, DARK BRONZE POWDER COATING FINISH. THE GALVANIZING SHALL BE PROPERLY PREPARED SO THE POWDER COATING WILL ADHERE TO THE GALVANIZING.

THE POLE SHAFT SHALL:

1. BE MADE OF WELDABLE GRADE, HOT ROLLED COMMERCIAL QUALITY CARBON STEEL FORMED WITH A BASE DIAMETER AND HEIGHT AS PER PLAN.
2. BE CONTINUOUSLY TAPERED FROM THE POLE BOTTOM TO THE POLE TOP AT A RATE OF 0.14 INCH PER FOOT.
3. BE CONSTRUCTED WITH ONE (1) LONGITUDINAL AUTOMATICALLY, ELECTRICALLY WELDED SEAM.

5. CONFORM TO ASTM-A572 GRADE 55, ASTM-A595 GRADE A (55,000 PSI MINIMUM YIELD STRENGTH AFTER FABRICATION), OR ASTM-A572 GRADE 65 AS PER PLAN DESIGN REQUIREMENTS.

6. HAVE 1 OR 2 HANDHOLES, AS PER PLAN DESIGN, EACH COMPLETE WITH A COVER, A RECTANGULAR OR ELLIPTICAL REINFORCED FRAME, AND A STAINLESS STEEL FASTENER FOR THE COVER. THE FASTENER SHALL BE FLUSH WITH THE HANDHOLE SURFACE. THE HANDHOLES SHALL BE LOCATED AS PER PLAN.
   A) THE TOP HANDHOLE SHALL HAVE A MINIMUM INSIDE OPENING OF 4" x 6" AND BE SIMILAR IN DESIGN TO THE BOTTOM HANDHOLE EXCEPT THAT NO GROUNDING PROVISION IS REQUIRED.
   B) THE BOTTOM HANDHOLE SHALL HAVE A MINIMUM OPENING OF 5" X 8". A GROUNDING BOLT CAPABLE OF ACCEPTING FOUR (4) #4 AWG AND TWO (2) #8 AWG COPPER GROUNDING WIRE LUGS SHALL BE PROVIDED AND ATTACHED TO THE POLE FRAME.

7. HAVE A REMOVABLE POLE CAP ATTACHED EITHER BY A MINIMUM OF 3 STAINLESS STEEL SET SCREWS OR BY A STAINLESS STEEL THROUGH BOLT.

8. HAVE 1 OR 2 WELDED CABLE SUPPORT HOOKS ("J" OR "C" HOOKS) LOCATED ON THE INSIDE OF THE POLE.

9. BE TELESCOPED THROUGH A BASE PLATE THAT HAS A BOLT PATTERN AS PER PLAN.

THE POLE BASE PLATE SHALL:

1. BE FABRICATED FROM ASTM-A36 STEEL (36K PSI) OR ASTM-A42 STEEL (42K PSI) AS PER PLAN DESIGN REQUIREMENTS.

2. TELESCOPE THE POLE SHAFT AND BE WELDED TO THE POLE BY MEANS OF 2 CONTINUOUS WELDS-ONE ON THE INSIDE OF THE BASE PLATE AT THE END OF THE POLE SHAFT AND THE OTHER ON THE OUTSIDE AT THE TOP OF THE BASE PLATE. ALL INSIDE WELDS SHALL BE VOID OF SHARP EDGES. ALL OUTSIDE WELDS SHALL BE ROLLED OR GROUND SMOOTH.

3. CONFORM TO THE BOLT PATTERN AS PER PLAN.

ANCHOR BOLTS SHALL HAVE ROLLED THREADS FOR ALL POLE DESIGNS UP TO AND INCLUDING D11. CUT THREADS ARE TO BE USED FOR 2.5" DIAMETER BOLTS OR LARGER. THE BOLTS CAN BE A36/M55 FOR DESIGN 7 OR SMALLER POLES. FOR LARGER POLES THE ANCHOR BOLTS SHALL MEET ODOT REQUIREMENTS OR BE AS SPECIFIED BY THE MANUFACTURER. BOLT-NUT COVERS SHALL BE INSTALLED.

EACH ANCHOR BOLT SHALL:

1. CONFORM TO ASTM-F1554 GRADE 105.
2. BE GALVANIZED PER ASTM-A153.
3. COME WITH 2 HEX NUTS MEETING ASTM-F563 GRADE DH, ANSI B18.2.2 AND SHALL HAVE ANSI B1.1
   CLASS 2 UNC ROLLED THREADS. A WASHER AND LOCKWASHER SHALL ALSO BE PROVIDED. HARDWARE SHALL BE HD GALVANIZED PER ASTM-A153.
4. HAVE DIMENSIONS AS PER PLAN.

STRAIN POLE STRUCTURE SURFACES SHALL BE PREPARED FOR GALVANIZING BY USING A SOLVENT CLEANING METHOD TO REMOVE DIRT, OIL, DUST, GREASE AND ANY OTHER CONTAMINANT THAT WILL REDUCE THE ADHESION OF THE GALVANIZING. MILL SCALE, RUST OR ANY OTHER FOREIGN MATERIAL NOT REMOVED BY SOLVENTS SHALL BE REMOVED USING MECHANICAL METHODS (PER STEEL STRUCTURES PAINTING COUNCIL, SSPC-VIS-1-67.). MANUFACTURER RECOMMENDED ABRASIVE TECHNIQUES SHALL BE USED TO PROVIDE THE PROPER PROFILE FOR ADHERENCE TO ASTM A123 GALVANIC COATING.

THE STRAIN POLE STRUCTURE SHALL THEN BE COATED AS PER PLAN. EACH COATING LAYER SHALL BE PROPERLY CURED BEFORE THE APPLICATION OF THE NEXT COAT. MINIMUM DRY THICKNESS MEASUREMENTS FOR STEEL SHALL CONFORM TO SECTION SSPC-PA2-82, STEEL STRUCTURES PAINTING COUNCIL.

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

ALL EXTERIOR SURFACES OF THE STRAIN POLE STRUCTURE, ALL BOLT COVERS, ALL ATTACHMENT HARDWARE, ALL WIRE ENTRANCES, ALL SPAN WIRE CLAMPS, ALL HANDHOLE COVERS, BRACKETS, POLE CAPS AND TRAFFIC PEDESTAL STRUCTURES SHALL HAVE A COATING APPLIED TO THEM. EXTERIOR SURFACES OF ALL BOLT AND SCREW FASTENERS, WASHERS, NUTS, AND OTHER ATTACHMENT HARDWARE SHALL HAVE A COATING APPLIED TO THEM. FASTENER THREADS SHALL NOT BE CLOGGED WITH COATING MATERIAL.

THE EXTERIOR COATING FOR ALL ITEMS LISTED IN THE PREVIOUS PARAGRAPH SHALL:
1. MEET FEDERAL STANDARD # 595B AND CONFORM TO COLOR # 20040.
2. BE APPLIED OVER PROPERLY PREPARED GALVANIZING MATERIAL ON STEEL PRODUCTS AND OVER PROPERLY PREPARED ALUMINUM FOR ALUMINUM PRODUCTS.

3. HAVE A MINIMUM 5-YEAR REPAIR WARRANTY OF COATING DELAMINATION, BLISTERING, OR CORROSION. POWDER COATED UNION METAL STRUCTURES SHALL HAVE THE THOMARIOS COATING WARRANTY REVISION DATE JULY 17, 2007. POWDER COATED VALMONT STEEL STRUCTURES SHALL BE COATED WITH FINISH SPECIFICATION F-573, DATED APRIL 11, 2007, WHICH INCLUDES EPOXY POWDER PRIME COAT AND PENTABOND POWDER FINISH COAT.

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

ITEM 632 PEDESTRIAN SIGNAL HEAD, AS PER PLAN

THE PEDESTRIAN SIGNAL HEAD SHALL BE A 16-IN. x 18-IN., SYMBOLIC LED COUNTDOWN UNIT WITH FULL HAND AND FULL PERSON SYMBOLS. THE UNIT SHALL BE A DIALIGHT CORPORATION LED PEDESTRIAN SIGNAL, PART NO. 430-6479-001X; GE LUMINATION GT1 LED PEDESTRIAN SIGNAL, MODEL NO. PS7-CFF1-26A; OR TRASTAR, INC. DURALIGHT LED PEDESTRIAN SIGNAL, MODEL NO. JXM-400VIEIL. THE HOUSING SHALL BE BLACK AND SHALL BE MOUNTED ON BLACK, TWO-HINGED TYPE BRACKETS THAT ARE BOLTED OR BANDED (2 BANDS PER BRACKET) TO THE POLE. BRACKETS USED ON MASTARM POLES SHALL BE BOLTED ONLY. THE HOUSING SHALL BE FIELD DRILLED AND REINFORCED (MANUFACTURER TO SUPPLY REINFORCEMENT) SO IT FITS ON THE HINGED BRACKET. WHEN TWO PEDESTRIAN SIGNAL HEADS ARE ATTACHED TO A SINGLE POLE, THE BOTTOM OF THE MAINLINE SIGNAL HEAD SHALL BE MOUNTED AT 8 FT. ABOVE FOUNDATION LEVEL AND THE SECOND SIDE STREET SIGNAL HEAD SHALL BE MOUNTED ONE-HALF ITS HOUSING HEIGHT ABOVE THE FIRST. THE BRACKETS SHALL BE HINGED TO ALLOW THE PEDESTRIAN HEADS TO SWING AWAY FROM EACH OTHER.

EXISTING UTILITIES

SUPPORT, PROTECTION, AND RESTORATION OF ALL EXISTING UTILITIES AND APPURTENANCES SHALL BE THE CONTRACTOR'S RESPONSIBILITY. THE COST OF THIS WORK SHALL BE INCLUDED IN THE BID PRICE FOR THE VARIOUS ITEMS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE OHIO UTILITIES PROTECTION SERVICE (OUPS) AND THE FOLLOWING CITY UTILITIES SO THEIR RESPECTIVE UTILITIES CAN BE MARKED. THE PROJECT ENGINEER SHALL NOT AUTHORIZE THE START OF ANY SIGNAL UNDERGROUND WORK UNTIL ALL UTILITIES HAVE BEEN MARKED.

PLANNING AND OPERATIONS 645-7393 (FAX -5967)
TECHNOLOGY 645-1501 (FAX 6627)
COMMUNICATIONS 645-7344 (FAX 6588)

CALCULATED MJH CHECKED KAE

TRAFFIC SIGNAL GENERAL NOTES

HILLIARD ROME ROAD

ITEM 633 CONTROLLER UNIT TS2/A2, W/CABINET 8PH, P44, GROUND MOUNTED, AS PER PLAN

IN ADDITION TO THE OTHER REQUIREMENTS OF ODOT 633 & 733, THE CONTROLLER (TS2, TYPE 2/TS1 COMPATIBLE) SHALL BE ECONOLITE ASC/3-211120 CLOSED LOOP MODEL WITH AN ETHERNET PORT. THE TS1 CABINET ASSEMBLY SHALL BE COMPLETELY WIRED (INCLUDES ALL PANELS & HARNESSES) FOR RS-232 (FIBER OPTIC) CLOSED LOOP SYSTEM OPERATION AND FOR THE PHASE OPERATION, DETECTION, AND ALL ADDITIONAL DEVICES AS CALLED FOR IN THE PLANS AND SHALL CONTAIN AN EXPANDABLE SYSTEM DETECTOR TYPE OF CONFIGURATION PROM. EACH LOCAL CONTROLLER SHALL BE SHIPPED WITH TWO (2) SYSTEM COMPATIBLE INTERNAL TELEMETRY MODULE BOARDS (ONE SHALL BE A SPARE). THE COLUMBUS MUTCD FLASH CIRCUITRY SHALL BE INSTALLED AS A PANEL MOUNTED, CABINET ASSEMBLY ITEM. THE CABINET ASSEMBLY SHALL MEET ALL CITY STANDARDS AS SET FORTH BETWEEN THE SUPPLIERS AND THIS DIVISION. CONTACT THE DIVISION'S ELECTRONIC SYSTEMS SUPERVISOR FOR DETAILS (614-645-7933).

THE LOOP DETECTOR UNIT SHALL BE A SOLID STATE, 2-CHANNEL, SHELF MOUNTED INTERSECTION DEVELOPMENT CORPORATION (IDC) MODEL 921-2TCSS-1, RENO A&E MODEL S-1201-SS, OR EBERLE DESIGN INC. (EDI) MODEL ORACLE S2ECS.

IN ADDITION TO THE FIBER OPTIC PLUG-IN MODEMS, THE MODEM WIRING BOARD, AND THE PLUG-IN FIBER OPTIC TELEMETRY MODULE, SIECOR ZIPCORDS AND A SIECOR WIC012 WALL MOUNTABLE INTERCONNECT CENTER SHALL BE INSTALLED IN THE CABINET.

ZIPCORDS SHALL BE PROVIDED TO CONNECT THE INTERCONNECT CENTER ADAPTERS TO THE PLUG-IN MODEMS. EACH ZIPCORD SHALL BE CONSTRUCTED USING TWO SINGLE-FIBER PATCH CORDS THAT ARE CONTINUOUSLY JOINED TOGETHER. EACH FIBER END SHALL HAVE A "ST" CONNECTOR AS DESCRIBED BELOW ATTACHED TO IT. THE ZIPCORDS SHALL BE SIMILAR TO SIECOR ZIPCORD CABLE (5050-02K5141-006F).

EACH INTERCONNECT CENTER SHALL CONTAIN A WIC-CP1-15 CONNECTOR PANEL, A WXC-SEAL-KIT, ONE (1) OR TWO (2) BUFFER TUBE FAN OUT KITS SIMILAR TO SIECOR FAN-OD25-06 KIT, AND TWO (2) OR FOUR (4) "ST" COMPATIBLE CONNECTORS. THE "ST" CONNECTOR SHALL BE DESIGNED FOR A 62.5/125 MICROMETER, MULTIMODE FIBER AND SHALL HAVE NEITHER A CERAMIC OR COMPOSITE FERRULE WITH A COMPOSITE HOUSING. THE CONNECTOR SHALL BE NEITHER A SIECOR UNICAM 95-000-50 OR 95-000-51 CONNECTOR. THE ADAPTERS SHALL BE FLANGED, "ST" COMPATIBLE SIECOR TER-067 (CERAMIC) OR TER-067-P (COMPOSITE).

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

(A) ALL LABELS SHALL BE PERMANENTLY SECURED TO THE CABINET. PLASTIC LABEL MAKER TAPE IS NOT CONSIDERED TO BE PERMANENT. CROY TYPE LABELS ARE ACCEPTABLE.

(B) IN LIEU OF A LAMP ASSEMBLY, A DOOR MOUNTED FLEX LIGHT THAT ILLUMINATES THE ENTIRE BACK PANEL SHALL BE INSTALLED. THE 120 VAC, CONVENIENCE OUTLET ASSEMBLY (GFI TYPE) SHALL BE MOUNTED ON THE RIGHT CABINET SIDE PANEL NEAR THE DOOR HINGE AREA AND FACE THE DOOR OR THE CENTER INTERIOR PORTION OF THE CABINET. THE OUTLET & FLEX LIGHT ASSEMBLIES SHALL NOT INTERFERE WITH THE REMOVAL OR INSTALLATION OF ANY EQUIPMENT.

(C) LOAD SWITCHES SHALL BE EDI MODEL 510 WITH LIGHTS PERMANENTLY LABELLED AS R, Y, G OR A, B, C. A LOAD SWITCH SHALL BE PROVIDED FOR EACH BACK PANEL LOAD SWITCH SOCKET POSITION WHETHER USED OR UNUSED. ALL LOAD SWITCHES SHALL REST IN A SUPPORT RACK. LOAD SWITCH POSITIONS 5-8 (4PH) OR 9-12 (8PH) SHALL BE USED FOR EITHER A PEDESTRIAN OR OVERLAP LOAD SWITCH UNLESS SPECIFIED OTHERWISE.

(D) LIGHTNING PROTECTION DEVICES SUCH AS ITT, SURRESTOR, GENERAL ELECTRIC, OR APPROVED EQUAL (AS DETERMINED BY THE COLUMBUS TRANSPORTATION DIVISION) SHALL BE PROVIDED.

(E) THE MAIN CABINET DOOR LOCK (CCL ENCLOSURE LOCK 15481RS) SHALL HAVE A LOCK KEYHOLE COVER AND SHALL BE KEYED TO THE CITY OF COLUMBUS MASTER, # 2 KEY (1R 6380). THE POLICE PANEL DOOR LOCK (CCL ENCLOSURE LOCK # R357SGS) SHALL HAVE A LOCK KEYHOLE COVER AND SHALL BE SUPPLIED WITH A R4266 KEY.

(F) THE NEMA 3R CABINET SHALL BE MADE BY APX ENCLOSURES, CALIFORNIA CHASSIS, EAGLE OR ECONOLITE. IT SHALL BE OF STANDARD SIZE AND SHALL BE SUPPLIED WITH A COMPLETE BACK PANEL AS PER PLAN. THE CABINET MATERIAL SHALL BE 5052 MARINE GRADE, .125 INCH THICK ALUMINUM SHEETING WITH A 32 HARDNESS IN ITS NATURAL COLOR AND SHALL BE PAINTED WHITE ON THE INSIDE. THE INSIDE OF THE CABINET SHALL BE TREATED WITH A THREE (3) STAGE IRON PHOSPHATE COATING AND A ZINC CHROMATE PRIMER COATING. A BAKED WHITE ALKALI ENAMEL FINISH SHALL THEN BE APPLIED. ALL COATINGS SHALL BE PROPERLY DRIED AND APPLIED SUCH THAT THE INSIDE WHITE PAINT WILL NOT PEEL FOR A GUARANTEED PERIOD OF TWO (2) YEARS. ALL EXTERIOR SEAMS SHALL BE EITHER CONTINUOUSLY WELDED, TACK WELDED, SEALED WITH A 15 TO 20 YEAR SILICONE SEALER, AND/OR OVERLAPPED SUCH THAT WATER DOES NOT ENTER THE CABINET. ALL CABINET EDGES SHALL BE SMOOTH (FREE OF ANY SHARP EDGES). THE CABINET DOOR FRAME OPENING SHALL BE DOUBLEFLANGED ON ALL FOUR SIDES. THE CABINET DOOR SHALL BE HINGED USING A HEAVY GAUGE CONTINUOUS HINGE THAT HAS A STAINLESS STEEL HINGE PIN. THE HINGE SHALL BE BOLTED TO THE CABINET SO THE DOOR CAN BE REMOVED. THE BOLTS AND NUTS SHALL BE MADE OF STAINLESS STEEL, TAMPERPROOF AND SECURELY FASTENED TO PREVENT VIBRATIONS FROM LOOSENING THE NUTS. THE DOOR, SEALED WITH A NEOPRENE GASKET, SHALL BE EQUIPPED WITH A THREE (3) POINT LATCHING MECHANISM AND A HANDLE WHICH CAN BE PADLOCKED. THE DOOR SHALL BE DESIGNED SUCH THAT THE DOOR CAN BE LOCKED IN AN OPEN POSITION AT 90, 135, AND 180 DEGREES TO THE CABINET FACE (NOMINAL VALUES). THE POLICE DOOR AND MAIN CABINET DOOR SHALL HAVE A KEYHOLE COVER. BOLT PATTERN SHALL CONSIST OF AN ANCHOR BOLT POSITIONED IN EACH CABINET CORNER. (M36 CABINET SIZE - 50"H x 36"W x 17"D; DOOR OPENING - 39"H x 33.5"W; P44 CABINET SIZE - 55"H x 44"W x 26"D; DOOR OPENING - 44"H x 41.5"W)

(G) A THYRECTOR SURGE PROTECTOR WITH A RMS INPUT OF 150 VOLTS AND INPUT PEAK OF 210 VOLTS SHALL BE PROVIDED IN ADDITION TO ANY LIGHTNING PROTECTION DEVICE. THE THYRECTOR SHALL BE PLACED ACROSS THE INPUT AC POWER LINE.

(H) A 35 AMP LINE FILTER SHALL BE SUPPLIED AND SHALL BE MOUNTED ON THE POWER DISTRIBUTION PANEL.

(I) TWO (2) CIRCUIT SOLID STATE FLASHER, EDI MODEL 810, RATED AT 15 AMPS (MINIMUM) PER CIRCUIT SHALL BE PROVIDED (NEMA TYPE 3). CIRCUIT 1 SHALL CONTROL THE MAINLINE FLASHING SIGNAL INDICATIONS. CIRCUIT 2 SHALL CONTROL THE SIDE STREET FLASHING SIGNAL INDICATIONS.

(J) ONE (1) 30-AMP CIRCUIT BREAKER, LABELLED AS "MAIN", SHALL BE WIRED AS THE MAIN POWER DISTRIBUTION BREAKER. A SECOND CIRCUIT BREAKER, LABELLED AS "PED" AND RATED AT 10 AMPS, SHALL BE SUPPLIED FOR THE PEDESTRIAN SIGNAL LOAD ONLY. THE PEDESTRIAN SIGNAL BREAKER SHALL BE WIRED IN SERIES WITH BUT AFTER THE MAIN POWER BREAKER. A THIRD CIRCUIT BREAKER, LABELLED AS "AUX" AND RATED AT 15 AMPS, SHALL SUPPLY A SEPARATE BRANCH OF AC+ POWER TO THE VENTILATING FAN, CONVENIENCE 'GFI' OUTLET AND LIGHT SO THAT THEY MAY OPERATE INDEPENDENTLY OF THE MAIN POWER BREAKER. THE POWER TO THE FAN AND LIGHT SHALL ALSO BE INTERRUPTED BY THE 'GFI' OUTLET. ALL BREAKERS SHALL BE MOUNTED SIDE-BY-SIDE ON THE POWER DISTRIBUTION PANEL.

(K) ALL CONTROLLER MS CONNECTOR HARNESSES SHALL HAVE A CONDUCTOR FOR EACH PLUG PIN EXCEPT THE REMOTE RESET FUNCTION FOR THE CONFLICT MONITOR. THE CONTROLLER AND CONFLICT MONITOR MS HARNESS CONDUCTORS SHALL BE CONNECTED TO A BACK PANEL TERMINAL STRIP WHICH IS ACCESSIBLE FROM THE FRONT OF THE PANEL. DETECTOR UNIT HARNESS CONDUCTORS SHALL BE CONNECTED TO A LEFT SIDE CABINET MOUNTED TERMINAL STRIP. OTHER EQUIPMENT SHALL BE CONNECTED AS APPROPRIATE.

(L) THE CABINET ASSEMBLY SHALL CONTAIN ALL PEDESTRIAN SIGNAL CIRCUITRY FOR EACH NEMA DEFINED THROUGH PHASE.

(M) A POLICE DOOR MOUNTED SIGNAL SHUTDOWN SWITCH WITH SWITCH POSITIONS LABELED AS "SIG ON" AND "SIG OFF" SHALL BE INSTALLED.

(N) A POLICE DOOR MOUNTED SIGNAL-FLASH SWITCH WITH SWITCH POSITIONS LABELED AS "ON SIG" AND "ON FLASH" SHALL NOT ONLY PLACE THE SIGNALS ON FLASH BUT ALSO STOP-TIME THE CONTROLLER UNIT. A RUN/STOP-TIME SWITCH WITH SWITCH POSITIONS LABELLED AS "CONT. RUN" AND "STOP-TIME" SHALL BE INSTALLED ON THE INSIDE OF THE CABINET DOOR. THE RUN/STOP-TIME SWITCH SHALL ALLOW THE CONTROLLER UNIT TO TIME NORMALLY BUT KEEP THE SIGNALS ON FLASH. THE SIGNAL-FLASH SWITCH SHALL NOT RETURN THE SIGNALS TO NORMAL OPERATION UNLESS THE RUN/STOP-TIME SWITCH IS RESET TO THE STOP-TIME POSITION SO THE SIGNAL-FLASH SWITCH CAN AGAIN STOP-TIME THE CONTROLLER UNIT. THE SIGNAL-FLASH SWITCH SHALL NOT REMOVE POWER TO THE CONTROLLER UNIT OR ITS AUXILIARY EQUIPMENT.

(O) A POLICE DOOR MOUNTED AUTO-MANUAL TRANSFER SWITCH WITH SWITCH POSITIONS LABELED AS "AUTO" AND "MANUAL" SHALL BE INSTALLED. A MANUAL PUSH BUTTON CONTROL SHALL NOT BE INSTALLED UNLESS SPECIFIED, BUT WIRING FOR A PUSH BUTTON CONTROL SHALL BE PROVIDED UP TO THE POINT WHERE THE PUSH BUTTON WOULD HAVE BEEN CONNECTED.

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

(Q) AFTER A NEMA DEFINED POWER INTERRUPTION THE CONFLICT MONITOR SHALL CAUSE THE INTERSECTION SIGNALS TO FLASH AS PER PLAN FOR 10 SECONDS BEFORE THE INITIALIZED CONTROLLER UNIT TAKES CONTROL OF THE INTERSECTION SIGNALS. THE CONFLICT MONITOR SHALL BE EDI MODEL SERIES SSM LE AND SHALL CONTAIN SUFFICIENT CHANNELS AS CALLED FOR IN THESE PLANS.

(R) THE CONFLICT MONITOR SHALL BE CONNECTED DIRECTLY TO THE FIELD TERMINALS. USING JUMPERS OR LINKS ON THE BACK PANEL TO FORM A CIRCUIT FOR THE CONFLICT MONITOR SHALL NOT BE ACCEPTABLE.

(S) THE CONFLICT MONITOR SETTINGS FOR MINIMUM YELLOW TIMING ON ALL CHANNELS SHALL BE SET AT THREE AND ONE HALF (3.5) SECONDS.

CALCULATED MJH
CHECKED KAE

TRAFFIC SIGNAL GENERAL NOTES

HILLIARD ROME ROAD

ITEM 633 CONTROLLER UNIT TS2/A2, W/CABINET 8PH, GROUND MOUNTED, AS PER PLAN (CONT.)

(T) THE WATCH DOG TIMER SHALL CAUSE THE CONTROLLER TO GO INTO A FLASH OPERATION IF A MICROPROCESSOR FAILURE IS DETECTED.

(U) ALL BACK PANEL HARDWARE SHALL BE MOUNTED WITH SCREWS. ALL SCREWS SHALL BE COMPLETELY SCREWED DOWN. RIVETS OR OTHER NON-REMOVABLE FASTENERS ARE NOT ACCEPTABLE.

(V) WIRE CONNECTIONS ON THE BACK PANEL SHALL BE MADE WITH CRIMP TERMINALS AND THREADED FASTENERS. TELEPHONE TYPE KNIFE CONNECTORS (SOLDERED OR OTHERWISE) ARE NOT ACCEPTABLE.

(W) ALL WIRES FASTENED TO THE LOAD SWITCH AND FLASHER PLUGS SHALL BE SOLDERED IN PLACE.

(X) THE BACK PANEL AND POWER DISTRIBUTION PANEL SHALL HAVE SILK SCREENED TERMINAL/SOCKET FUNCTION IDENTIFICATION LABELS SUCH AS AC COM, PHASE 3 GREEN, 115 VAC, SIGNAL BUS, ETC. REFERENCE NUMBERS SHALL NOT BE ACCEPTABLE IN LIEU OF FUNCTION LABELS BUT THEY CAN SUPPLEMENT THEM. ADDITIONAL TERMINAL BLOCKS AND AUXILIARY PANELS SHALL USE SILK SCREENED REFERENCE NUMBERS TO IDENTIFY TERMINAL CONNECTIONS.

(Y) ALL TERMINAL STRIPS IN CLOSE PROXIMITY OF SHELF MOUNTED CONTROL DEVICE EQUIPMENT SHALL BE COVERED WITH NON-CONDUCTIVE MATERIAL TO PREVENT ACCIDENTAL CONTACT WITH THE DEVICES. ALL TERMINAL STRIPS SHALL BE READILY ACCESSIBLE WITHOUT REMOVAL OF ANY EQUIPMENT.

(Z) THE CABINET SHALL HAVE TWO (2) NON-VENTED (SOLID) SHELVES SPACED AT LEAST 9" APART. BOTH SHELVES SHALL HAVE A WIDTH OF 13" AND THE BACK EDGE OF THE SHELF SHALL BE LIPPED WITH THE LIP POINTING UP. THE FRONT EDGE OF THE SHELF SHALL BE LIPPED WITH THE LIP POINTING DOWN. ALL LIP EDGES SHALL BE ROUNDED. THE SHELVES SHALL BE ATTACHED TO THE CABINET SIDE PANELS. THE SHELF ARRANGEMENT SHALL BE DESIGNED SO ALL SHELF DEVICES FIT ON THEM.

(AA) THERE SHALL BE A MINIMUM OF ONE (1) INCH EMPTY SPACE BETWEEN ALL ITEMS ATTACHED TO THE DOOR AND ALL SHELF-MOUNTED DEVICES INCLUDING ITS CONNECTING HARNESS(ES), ALL LOAD SWITCHES, FLASHER AND ALL SIDE-PANELMOUNTED ITEMS.

(BB) "P" AND "M" SIZED CABINETS SHALL HAVE TWO VENTILATION FANS. THE THERMOSTAT CONTROLLING THE VENTILATING FAN CIRCUIT SHALL BE SET AT 95 DEGREES FAHRENHEIT.

(CC) ALL FLASH TRANSFER RELAYS SHALL BE WIRED FOR FAIL-SAFE OPERATION (ENERGIZED DURING NORMAL OPERATION) AND WIRED WITH A MAXIMUM OF TWO PHASES PER RELAY.

(DD) THE CONTROLLER ASSEMBLY, WHEN PLACED IN OR COMING OUT OF AN AUTOMATIC FLASHING MODE, SHALL CONFORM TO THE AUTOMATIC FLASHING CRITERIA SET FORTH IN THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, SECTION 4D-12, INCLUDING THE FOLLOWING ADDITIONS.

1) A VEHICULAR CALL SHALL BE PLACED ON ALL PHASES IMMEDIATELY PRIOR TO ENTERING THE "FLASH" MODE SO THE CONTROLLER WILL CYCLE TO THE "FLASH" POINT. IT IS OPTIONAL TO HAVE ONE EXTERNAL VEHICULAR CALL PLACED IMMEDIATELY ON ALL PHASES WHEN THE "FLASH" MODE TERMINATES. THE CONTROLLER SHALL OPERATE NORMALLY ONCE THE "FLASH" MODE SEQUENCE IS TERMINATED.

2) THE CONTROLLER SHALL ENTER THE "FLASH" MODE AT THE END OF THE THROUGH SIDE STREET PHASE(S) YELLOW (OR DURING THE SIDESTREET PHASE(S) RED CLEARANCE INTERVAL) BUT JUST PRIOR TO ANY MAIN STREET GREEN.

THE FLASH TRANSFER LOGIC DEVICE SHALL TRIGGER THE "FLASH" OPERATION, SHALL BE SOLID STATE, SHALL BE EXTERNAL TO THE CONTROLLER (A CABINET ASSEMBLY DEVICE), AND SHALL FUNCTION WITH ANY NEMA CONTROLLER. THIS CIRCUITRY SHALL BE SUPPLIED IN ADDITION TO ANY INTERNAL CONTROLLER FLASH LOGIC PROVIDED BY THE CONTROLLER.

EXCEPTION: FOR ON-STREET MASTER ARTERIAL CONTROLLERS ONLY, INTERNAL IC LOGIC CAN BE USED IN LIEU OF AN EXTERNAL DEVICE AS LONG AS THE INTERNAL IC LOGIC MEETS THE STANDARDS SET FORTH ABOVE.

(EE) THE POWER CABLE SHALL BE CONNECTED TO AN ACCESSIBLE TERMINAL STRIP THAT SHALL BE LOCATED NEAR THE BOTTOM OF THE CABINET AND SHALL BE OF SUFFICIENT SIZE TO ACCEPT A SUPPLIED #8 WIRE LUG. THE TERMINAL STRIP SHALL BE COVERED OR SHIELDED TO MINIMIZE ACCIDENTAL CONTACT DURING NORMAL SERVICING OPERATIONS. THE COVER SHALL BE SNAPPED ON/OFF OR SECURED BY STANDARD SCREWS. THE POWER CABLE LUG TERMINAL CONNECTION SHALL BE LOCATED IMMEDIATELY BELOW THE MAIN POWER DISTRIBUTION BREAKER. POWER SHALL BE JUMPERED TO THE MAIN POWER DISTRIBUTION BREAKER. THE POWER DISTRIBUTION PANEL SHALL BE LOCATED IN THE BOTTOM RIGHT SIDE OF THE CABINET OR IT SHALL BE AN INTEGRAL PART OF THE RIGHT SIDE OF THE BACK PANEL. THERE SHALL BE A MINIMUM OF TWO (2) INCHES CLEARANCE BETWEEN THE POWER TERMINAL AND THE BOTTOM OF THE CABINET.

(FF) A #4 WIRE LUG SHALL BE PROVIDED FOR ATTACHING A GROUNDING WIRE FROM A GROUND ROD. THE GROUNDING WIRE LUG SHALL BE ATTACHED TO THE POWER DISTRIBUTION PANEL (LOWER LEFT CORNER), OR IF NONE, TO THE BACK PANEL (BOTTOM MIDDLE). IT SHALL BE DIRECTLY GROUNDED TO THE CABINET.

(GG) A SINGLE POLE MERCURY PLUNGER RELAY SHALL BE INSTALLED WHICH WILL ALLOW POWER TO BE REMOVED FROM THE VEHICULAR AND PEDESTRIAN POWER BUSES. THE MERCURY RELAY SHALL BE RATED AT 35 AMPS AND THE RELAY COIL WIRED WITH A NOISE SUPPRESSION DEVICE.

(HH) ALL EXTERNAL RELAY COILS SHALL HAVE NOISE SUPPRESSION DEVICES.

(II) THE DOOR FILTER (U.L. LISTED CLASS 2, STANDARD 900) SHALL CONSIST OF THREE DISTINCT LAYERS OF FILTERING MEDIA. THE FIRST AIR ENTERING LAYER SHALL BE COMPOSED OF A DUAL FIBER BLEND OF 100% NON-WOVEN POLYESTER TO TRAP LARGER SIZED PARTICLES. THE NEXT LAYER SHALL BE A DUAL PLY, DUAL DENIER, 100% NON-WOVEN POLYESTER OF SMALLER SIZE TO TRAP FINER PARTICLES PASSING THROUGH THE FIRST LAYER. A NON-TOXIC, NON-MIGRATORY, ODORLESS TACKIFIER SHALL BE APPLIED TO THESE LAYERS. ADHESIVES SPRAYED ON THE LAYERS ARE NOT ACCEPTABLE. THE TACKIFIER SHALL BE INCORPORATED INTO THE LAYER MEDIA DURING THE MANUFACTURING PROCESS OF THE RAW MATERIAL. A 10 GAUGE MESH SHALL BE INCORPORATED IN THE FILTER DESIGN FOR RIGIDITY. SUFFICIENT MEDIA OVERLAP SHALL BE PRESENT ABOUT THE WIRE PERIMETER TO INSURE POSITIVE SELF SEAL. THE DOOR FILTER HOLDER SHALL BE DESIGNED SO THE FILTER MAKES POSITIVE CONTACT WITH THE CABINET DOOR AT ALL TIMES AND UNDER ALL CONDITIONS AND SITUATIONS.

(JJ) ALARM 1 CIRCUITRY SHALL BE ASSOCIATED WITH A DOOR SWITCH: DOOR OPEN = TRUE; DOOR CLOSED = FALSE.

SYSTEM DETECTORS "A1" THROUGH "D2" CAN BE HARDWIRED DIRECTLY TO THE SCREW TERMINALS ON THE TIO BOARD. ALL "D" HARNESS WIRES SHALL BE ROUTED THROUGH A LABELED TERMINAL STRIP THAT IS MOUNTED ON THE LEFT SIDE OF THE CABINET. THE J18 SYSTEM DETECTOR HARNESS SHALL BE USED FOR SYSTEM DETECTOR OR EXPANDED DETECTOR PULSED INPUTS TO THE TIO BOARD OR TO THE "D" CONNECTOR TERMINAL BLOCK STRIP.

FOUR (4) SETS OF CABINET WIRING SCHEMATICS, TWO (2) SERVICE MANUALS AND TWO (2) INSTRUCTIONAL MANUALS SHALL BE PROVIDED PER CABINET. DELIVERY OF THESE DIAGRAMS & MANUALS SHALL ACCOMPANY THE CABINET. THE CONTRACTOR SHALL CLEARLY NOTE ANY DEVIATIONS, CHANGES, ADDITIONS OR OTHER MODIFICATIONS ON THE DIAGRAMS AND MANUALS THAT ARE APPROPRIATE TO REFLECT THE EXACT EQUIPMENT TO BE PROVIDED. THE COST FOR THIS MATERIAL SHALL BE INCIDENTAL TO THE COST OF THE SIGNAL EQUIPMENT. THE COPIES OF DIAGRAMS AND MANUALS SHALL BE STORED IN A PLASTIC ENVELOPE MOUNTED HORIZONTALLY AND SECURELY FASTENED TO THE INSIDE OF THE MAIN CABINET DOOR. THE ENVELOPE OPENING SHALL BE TO THE RIGHT OR LEFT. THE ENVELOPE SHALL NOT BLOCK ANY PART OF THE AIR FILTER OR THE AIR INTAKE LOCATED IN THE DOOR.

SERVICE & INSTRUCTIONAL MANUALS SHALL INCLUDE SECTIONS COVERING THE GENERAL DESCRIPTION OF EQUIPMENT, EQUIPMENT INSTALLATION PROCEDURES, EQUIPMENT PROGRAMMING PROCEDURES, THEORY OF OPERATION WITH SYSTEM DESCRIPTION INCLUDING BLOCK DIAGRAMS AND DETAILED CIRCUIT DIAGRAMS, PREVENTIVE MAINTENANCE, FIELD TROUBLE ANALYSIS, BENCH TROUBLE ANALYSIS, TROUBLESHOOTING ANALYSIS CHART, WAVE FORMS, VOLTAGE MEASUREMENTS, VOLTAGE MEASUREMENT CHARTS, PARTS LIST, ELECTRICAL INTERCONNECTION DRAWINGS, SCHEMATIC AND LOGIC DIAGRAMS, ASSEMBLY DRAWINGS WITH PICTORIAL DIAGRAMS SHOWING PHYSICAL LOCATIONS AND IDENTIFICATION OF EACH COMPONENT.

ITEM 633 CONTROLLER, MASTER EQUIPMENT, FURNISH ONLY, AS PER PLAN

THE CABINET AT WESTPOINTE PLAZA SHALL CONTAIN A MENU STYLE MASTER (ECONOLITE ASC/2M-1000), MODEM, A SMALL VOICE COMMUNICATION PHONE PLUS ALL ITS CONNECTORS, AND ALL HARDWARE ATTACHMENTS. THE MASTER AND ITS ASSOCIATED ITEMS SHALL BE COMPLETELY WIRED IN PLACE AND COMPATIBLE WITH THE INTERCONNECT SYSTEM AS PER PLAN.

ITEM 633 TELEPHONE SERVICE, AS PER PLAN

THE CONTRACTOR SHALL MAKE ARRANGEMENTS WITH THE DIVISION OF PLANNING AND OPERATIONS (614-645-7933) AND THE LOCAL PHONE CARRIER (AT&T) TO HAVE THE EXISTING CENTREX DATA COMMUNICATION PHONE LINE AT WESTPOINTE PLAZA RELOCATED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH THE RELOCATION OF THIS LINE. THE PROPOSED MASTER OPERATION AND SYSTEM ACTIVATION SHALL NOT OCCUR UNTIL THE COMMUNICATION PHONE LINE IS RELOCATED AND OPERATING PROPERLY. SYSTEM COMMUNICATION MUST BE MAINTAINED AT ALL TIMES. THE DATA LINE SHALL REMAIN CONNECTED TO THE CITY CENTREX SYSTEM. THE BILLING ADDRESS AND PHONE NUMBER SHALL REMAIN THE SAME.

ITEM 632 POWER CABLE, 2 CONDUCTOR, CU, #6 AWG, AS PER PLAN

POWER SHALL BE SUPPLIED BY DOPW(P) OR AMERICAN ELECTRIC POWER (AEP), SHALL BE 120VAC, AND SHALL BE FROM THE APPROXIMATE LOCATION AS SHOWN ON THE PLANS. THE CONTRACTOR SHALL CONTACT THE OWNER OF THE POWER SOURCE DESIGNATED IN THE PLANS A MINIMUM OF FOUR (4) WORK WEEKS PRIOR TO THE NEED FOR POWER AND MAKE ARRANGEMENTS FOR THE CONNECTION OF POWER TO THE CONTROLLER CABINET. FOR DIVISION OF POWER AND WATER POWER SOURCES, CONTACT DARYL CAVIN (614-645-6650) OR DAVID KANNING (614-645-7688), AND FOR AEP POWER SOURCES, CONTACT GREG ZORICH (614-883-7935). THE POWER COMPANY WILL MAKE POWER SERVICE CONNECTION SPLICE. ALL POWER SERVICE FEEDS SHALL BE UNDERGROUND, AND UNMETERED.

ITEM 632 INTERCONNECT CABLE, MISC.: FIBER OPTIC INTERCONNECT CABLE

THIS PAY ITEM INCLUDES FIBER OPTIC CABLE, LASHING WIRE, HANGERS, CONNECTORS, KITS, AND ANY OTHER ACCESSORIES NECESSARY TO INSTALL AND CONNECT THE FIBER OPTIC INTERCONNECT CABLE SYSTEM. ALL REQUIRED TESTING OF THE FIBER OPTIC CABLE SHALL BE INCIDENTAL TO THE COST OF THIS PAY ITEM.

THE FIBER OPTIC CABLE SHALL BE A 62.5/125-MICROMETER, LOOSE TUBE, 6-FIBER, MULTIMODE ALL-DIELECTRIC CABLE. THE FIBER OPTIC CABLE SHALL BE RATED FOR OUTDOOR USE (-30 TO +120 DEGREES FAHRENHEIT), SHALL BE DESIGNED TO BE PULLED THROUGH AN UNDERGROUND CONDUIT/PULLBOX SYSTEM, SHALL BE DESIGNED WITH WATER-BLOCKING OR FLOODED MATERIAL, SHALL BE DESIGNED TO BE INSTALLED AERIALLY BY BEING LASHED ONTO MESSENGER WIRE, AND SHALL HAVE A PULLING TENSILE STRENGTH OF 600 POUNDS OR MORE. THE FIBER CABLE SHALL ALSO MEET ALL REQUIREMENTS STIPULATED BY ECONOLITE CONTROLS FOR THEIR FIBER OPTIC INTERCONNECT TRAFFIC CONTROL SYSTEM. THE ONLY APPROVED FIBER OPTIC CABLE SUPPLIERS ARE SIECOR, BELDEN, AMP, MOHAWK, OFS, 3M, SUPERIOR, BERTECH OR COMMSCOPE.

ALL THE FIBERS SHALL BE IN A SINGLE BUFFER TUBE. EVERY FIBER IN THE FIBER OPTIC CABLE SHALL BE FREE OF SURFACE IMPERFECTIONS AND INCLUSIONS AND SHALL MEET OR EXCEED ONE HUNDRED PERCENT (100%) OF THE REQUIREMENTS CONTAINED IN THIS SPECIFICATION. FIBERS SHALL CONTAIN NO FACTORY SPLICES. IF THESE CONDITIONS ARE NOT MET, THE CABLE SHALL BE REPLACED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE.

THE FIBER OPTIC CABLE SHALL HAVE A MEDIUM-DENSITY POLYETHYLENE OUTER JACKET WITH NO ARMORING OR METAL ELEMENTS. THE CABLE SHALL HAVE AT LEAST ONE RIPCORD UNDER THE JACKET FOR EASY REMOVAL OF THE JACKET. THE OUTER JACKET SHALL BE MARKED WITH THE MANUFACTURER'S NAME, YEAR OF MANUFACTURE, THE WORDS "CITY OF COLUMBUS TRAFFIC" FIBER COUNT, TYPE OF FIBER, AND SEQUENTIAL LINEAR FOOT MARKS. THE MARKINGS SHALL BE REPEATED EVERY 2 FEET. THE MARKING SHALL BE IN A CONTRASTING COLOR TO THE CABLE JACKET, SHALL BE 2.5 MILLIMETERS IN HEIGHT, SHALL BE PERMANENT WEATHERPROOF, AND SHALL NOT WEAR OFF DURING INSTALLATION.

BUFFER TUBES SHALL BE POLYPROPYLENE. FILLERS SHALL BE INCLUDED IN THE CABLE CORE TO LEND SYMMETRY TO THE CABLE CROSS-SECTION WHERE NEEDED. EACH BUFFER TUBE SHALL CONTAIN A WATER-BLOCKING ELEMENT FOR WATER-BLOCKING PROTECTION. NO WATER-BLOCKING YARNS ARE PERMITTED. THE WATER-BLOCKING ELEMENTS SHALL BE NON-NUTRITIVE TO FUNGUS, ELECTRICALLY NON-CONDUCTIVE, AND HOMOGENOUS. THE WATER-BLOCKING ELEMENT SHALL PRECLUDE THE NEED FOR OTHER WATER-BLOCKING MATERIAL; THE BUFFER TUBES SHALL BE GEL-FREE.

THE LOOSE BUFFER TUBES SHALL BE STRANDED AROUND AN ALL-DIELECTRIC CENTER STRENGTH USING A REVERSE OSCILLATION LAY, WRAPPED BY A WATER-BLOCKING CORE SEPARATOR OR FUNCTIONAL EQUIVALENT. WATER SWELLABLE TAPE SHALL BE APPLIED LONGITUDINALLY AROUND THE OUTSIDE OF THE STRANDED TUBES/FILLERS. THE WATER SWELLABLE TAPE SHALL BE NON-NUTRITIVE TO FUNGUS, ELECTRICALLY NON-CONDUCTIVE, AND HOMOGENOUS.

THE CONTRACTOR SHALL PROVIDE FACTORY TEST DATA SHEETS FOR EACH REEL OF FIBER OPTIC CABLE DELIVERED. THESE TESTS SHALL BE PERFORMED AT THE FACTORY AND SHALL INCLUDE THE MANUFACTURER?.S ON-REEL BOTH-WAY OTDR ATTENTUATION TEST DATA AT BOTH 850 NM AND 1300 NM FOR EACH FIBER IN THE CABLE PRIOR TO SHIPMENT FROM THE FACTORY. THE CONTRACTOR SHALL TEST EACH REEL AT 1300 NM PRIOR TO INSTALLATION TO ENSURE NO DAMAGE OCCURRED TO THE CABLE IN TRANSIT AND TO VERIFY THE LENGTH OF THE CABLE. THESE TEST RESULTS SHALL BE PROVIDED TO THE PROJECT ENGINEER FOR APPROVAL PRIOR TO INSTALLATION. CABLE SHALL NOT BE INSTALLED UNTIL THE PROJECT ENGINEER HAS APPROVED IT.

AFTER CABLE INSTALLATION AND TERMINATION HAS BEEN COMPLETED, THE CONTRACTOR SHALL PERFORM BI-DIRECTIONAL TESTING OF EACH FIBER WITH AN ODTR FOR LENGTH, TRANSMISSION ANOMALIES, AND END-TO-END ATTENTUATION AT BOTH 850 NM AND 1300 NM. THE MAXIMUM ALLOWABLE ATTENUTION IS 3.0 DB/KM AT 850 NM AND 0.9 DB/KM AT 1300 NM. THE MAXIMUM ALLOWABLE ATTENUATION FOR ANY TERMINATION IS 0.3 DB. THE ODTR TEST RESULTS SHALL CONSIST OF THE WAVELENGTH OF THE CONDUCTED TEST; THE LINK LENGTH; ATTENTUATION; CABLE IDENTIFICATION; AND THE LOCATIONS OF THE NEAR END, THE FAR END, AND POINTS OF DISCONTINUITY.

ALL TEST RESULTS SHALL BE SUBMITTED TO THE PROJECT ENGINEER IN THE ELECTRONIC FORMAT PROVIDED BY THE MANUFACTURER OF THE TEST EQUIPMENT USED BY THE CONTRACTOR. THESE TEST RESULTS SHALL BE VIEWABLE BY THE PROJECT ENGINEER WITHOUT THE USE OF SPECIAL SOFTWARE OR ADDITIONAL EQUIPMENT. IF THE TEST RESULTS CANNOT BE VIEWED ON A STANDARD PC WITHOUT REQUIRING THE NEED FOR ADDITIONAL SOFTWARE OR EQUIPMENT, THAT SOFTWARE AND EQUIPMENT SHALL ALSO BE DELIVERED TO AND BECOME THE PERMANENT PROPERTY OF THE CITY OF COLUMBUS.

THE CONTRACTOR SHALL PROVIDE WRITTEN REPORTS OF ALL TEST DATA IN ELECTRONIC FORMAT TO THE PROJECT ENGINEER. TEST RESULTS SHALL INCLUDE A RECORD OF WAVELENGTH, FIBER TYPE, FIBER AND BUNDLE NUMBER, TEST EQUIPMENT INCLUDING MODEL NUMBER, DATE REFERENCE SETUP, AND OPERATOR AND CREW MEMBERS. IN THE EVENT THAT THE TEST RESULTS ARE NOT SATISFACTORY, THE CONTRACTOR SHALL MAKE THE NECESSARY ADJUSTMENTS OR REPLACEMENT AND THEN REPEAT THE TESTING PROCESS.

INTERCONNECT CABLE SHALL RUN CONTINUOUSLY FROM CONTROLLER CABINET TO CONTROLLER CABINET. NO SPLICES SHALL BE ALLOWED. THE FIBER OPTIC CABLE SHALL BE TERMINATED IN EACH CONTROLLER CABINET. ALL FIBERS OF THE CABLE SHALL BE TERMINATED. THE FOLLOWING SHALL BE INSTALLED ON EACH END OF FIBER OPTIC CABLE: ONE (1) FIBER BUFFER TUBE FAN-OUT KIT, CORNING CABLE SYSTEMS PART NO. FAN-OD25 -06; SIX (6) UNICAM ST CONNECTORS, 62.5 MICROMETERS, WITH CERAMIC FERRULE, CORNING CABLE SYSTEMS PART NO. 95-000-51; AND ONE (1) PATCH PANEL SEAL KIT, CORNING CABLE SYSTEMS PART NO. SC-WXC-SEALKIT.

EACH CONTROL CABINET SHALL HAVE SIX (6) FEET OF FIBER OPTIC CABLE COILED NEATLY INSIDE. EACH INTERCONNECT PULLBOX SHALL HAVE SIX (6) TURNS OF FIBER OPTIC CABLE (50 FEET) COILED NEATLY INSIDE.

MINIMUM CABLE BENDING RADIUS OF THE FIBER OPTIC CABLE, AS SPECIFIED BY THE MANUFACTURER, SHALL NOT BE EXCEEDED.

FOR THE AERIAL INSTALLATION OF FIBER OPTIC CABLE, THE CABLE SHALL BE LASHED TO THE MESSENGER WIRE USING 0.061-IN. STAINLESS LASHING WIRE, HAVING AN AVERAGE OF ONE WRAP PER LINEAR FOOT OF MESSENGER WIRE. DOUBLE LASHINGS SHALL BE USED. LASHING WIRE SHALL MAINTAIN A CONSISTENT SPIRAL THROUGHOUT THE ENTIRE SPAN, WITHOUT EXCEPTION, AND MUST MAINTAIN A MINIMUM OF 40 LB. OF PULL DURING AND AFTER INSTALLATION. THERE SHALL BE NO VISIBLE SEPARATION OF MESSENGER WIRE AND CABLE IN MID-SPAN LASHING. THE LASHED CABLE REQUIRES SUPPORT WHEN IT EXTENDS BEYOND THE POINTS OF TERMINATION OF THE LASHING WIRE. THIS SUPPORT IS NECESSARY TO KEEP THE CABLE IN PLACE AND TO MAINTAIN CLEARANCES BETWEEN THE CABLE SHEATH AND VARIOUS ITEMS OF HARDWARE. A POLYPROPYLENE AERIAL SUPPORT TIE WITH AN INTEGRAL 0.50-IN. SPACER SHALL BE USED TO FASTEN THE CABLE TO THE SUPPORTING MESSENGER WIRE AND MAINTAIN SEPARATION BETWEEN THE CABLE AND MESSENGER WIRE.

EXPANSION LOOPS SHALL BE PLACED AT EACH POLE ATTACHMENT. TREE GUARDS SHALL BE INSTALLED ON CABLE AND MESSENGER WIRE WHERE LIMBS OR OTHER OBSTACLES ARE WITHIN 4 IN. OF CABLE. TREES WITHIN 2 IN. OF THE CABLE SHALL BE TRIMMED BACK TO 6 IN. FROM THE CABLE.

THE CONTRACTOR SHALL INSTALL CABLE MARKERS ON THE FIBER OPTIC INTERCONNECT CABLE INSTALLED ON THIS PROJECT. THE CABLE MARKERS SHALL BE SUPPLIED BY THE DIVISION OF PLANNING AND OPERATIONS. FOR AERIAL INSTALLATIONS, IT SHALL BE NECESSARY TO INSTALL ONLY ONE CABLE MARKER ON ONE CABLE, EVEN IF THERE ARE MORE THAN ONE CABLE IN THE SAME BUNDLE. THERE SHALL BE A CABLE MARKER INSTALLED ON THE EXPANSION LOOP OF THE FIBER OPTIC CABLE NEAREST EACH POLE ATTACHMENT. IN UNDERGROUND INSTALLATIONS, A CABLE MARKER SHALL BE INSTALLED ON EACH CABLE IN EACH PULL BOX. THE INSTALLATION OF CABLE MARKERS SHALL BE INCIDENTAL TO THE COST OF THIS PAY ITEM.

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

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

ITEM 625 BRACKET ARM VIDEO CAMERA, AS PER PLAN

BRACKET ARMS SHALL BE AS DETAILED ON THE TRAFFIC SIGNAL DETAILS SHEETS AND SHALL MEET THE REQUIREMENTS OUTLINED WITHIN.

THE BRACKET ARM SHALL BE:
1. BE MADE OF ALUMINUM ALLOY TUBING.
2. BE OF TRUSS-STYLE DESIGN AND SHALL BE CAPABLE OF SUPPORTING A TRAFFIC FLOW MONITOR CAMERA AND A VIDEO DETECTION CAMERA WEIGHING A TOTAL OF 75 POUNDS AND HAVING AN EFFECTIVE PROJECTED AREA OF 1.6 SQUARE FEET.
3. BE DESIGNED FOR A 70 MPH WIND LOADING WITH APPROPRIATE GUST FACTOR.
4. BE CLAMP MOUNTED AND SHALL COME WITH BOTH CLAMPS AND MOUNTING HARDWARE.
5. CONFORM TO DESIGN AS PER PLAN.

THE ALUMINUM BRACKET ARM SHALL BE MANUFACTURED BY HAPCO, VALMONT INDUSTRIES, OR FLAGPOLES INC.

ITEM 625 ENCASED (# - SIZE) INTERCONNECT CONDUIT BANK, TC-2, SCH 40, AS PER PLAN

ANY CONDUIT WITHOUT A SPACER ABOVE IT (I.E. ANY TOP ROW CONDUIT) SHALL BE WIRE-WRAPPED TO THE SPACER BENEATH IT IN ORDER TO BE HELD IN PLACE.

A NUMBER 10 GAUGE, STRANDED COPPER, POLYESTER OR CROSS LINKED POLYETHYLENE (XLPE) INSULATED TRACING WIRE SHALL BE INSTALLED IN THE 1-1/2$^{9}/_{32}$ CONDUIT. THE WIRE INSULATION SHALL BE RESISTANT TO MOISTURE ABSORPTION AND ABRASIVE ACTIONS. THE TRACING WIRE JACKET SHALL BE ORANGE; NO OTHER JACKET COLOR IS ALLOWED. THE TRACING WIRE SHALL ENTER A PULLBOX THROUGH THE 1-1/2" CONDUIT AND SHALL BE ROUTED AROUND THE INSIDE PERIMETER OF THE PULLBOX TO THE OTHER SIDE AND THEN EXIT THE OPPOSING 1-1/2$^{9}/_{32}$CONDUIT. THE TRACING WIRE SHALL BE CONTINUOUSLY RUN BETWEEN PULLBOXES (ABSOLUTELY NO SPLICES EXCEPT IN A PULLBOX). CONDUIT THAT BRANCHES OFF THE MAIN CONDUIT RUN SHALL HAVE ITS TRACING WIRE TERMINATED IN A PULLBOX OR CONTROLLER CABINET. THE WIRE SHALL BE TAGGED AS "TRACING WIRE", COILED (3 FEET IN LENGTH) AND LEFT DISCONNECTED AT EACH END (OPEN CIRCUIT).

ITEM 625 PULLBOX, AS PER PLAN

THE PULLBOX ASSEMBLY SHALL BE RATED AS HEAVY DUTY, SHALL BE RATED FOR INSTALLATION IN CONCRETE AREAS AND SHALL HAVE ALL STAINLESS STEEL HARDWARE. THE PULLBOX COVER SHALL HAVE THE WORD "TRAFFIC" ON IT. THE COVER SHALL BE BOLTED TO THE BOX USING HEX HEAD BOLTS AND SHALL BE POLYMER CONCRETE. THE BOX DEPTH SHALL BE 15 INCHES MINIMUM. THE SUPPLIED PULLBOX ASSEMBLY SHALL BE A SYNERTECH CATALOG NO. S1118B18FA, CDR SYSTEMS MODEL SA32-1015-18, OR APPROVED EQUAL. CONDUIT ELLS MAY BE USED TO BRING THE CONDUIT UP INTO THE HOUSING. EXTENSIONS, IF AVAILABLE, CAN BE USED TO ELIMINATE THE NEED FOR CONDUIT ELLS.

ITEM 633 VIDEO DETECTION SYSTEM, (# IMAGE SENSORS), AS PER PLAN

THE VIDEO DETECTION SYSTEM SHALL MONITOR VEHICLES ON THE ROADWAY VIA PROCESSING OF VIDEO IMAGES AND PROVIDE STANDARD DETECTOR OUTPUTS TO THE TRAFFIC SIGNAL CONTROLLER. THE SYSTEM SHALL BE DESIGNED TO OPERATE ON A 110/220 VAC, 50/60 HZ INCOMING CONTROLLER CABINET POWER LINE. ALL MAJOR COMPONENTS OF THE VIDEO DETECTION SYSTEM SHALL BE SUPPLIED BY THE SAME MANUFACTURER AS A COMPLETE SYSTEM, READY TO OPERATE.

THE VIDEO DETECTION SYSTEM SHALL BE COMPRISED OF IMAGE SENSOR UNITS (CAMERAS), EACH ATTACHED TO A SUPPORT BRACKET ARM; ALL MOUNTING HARDWARE; A MODULAR CABINET INTERFACE UNIT; A COMMUNICATIONS INTERFACE PANEL; AND ALL CABLING, HARNESSES, AND CONNECTORS. ALL VIDEO DETECTION DEVICES EXCEPT THE IMAGE SENSOR UNITS SHALL BE HOUSED IN THE CONTROLLER CABINET. ALL DEVICES SHALL BE MOUNTED SO ALL CABLE CONNECTIONS ARE ACCESSIBLE AND ALL DEVICE DOORS CAN BE FULLY OPENED FOR SERVICING. SHELF MOUNTED DEVICES SHALL BE POSITIONED SO THEY ARE ACCESSIBLE AND DO NOT INTERFERE WITH OTHER CABINET DEVICES.

THE VIDEO DETECTION SYSTEM SHALL PROVIDE SELF-DIAGNOSTIC PROGRAMMING AND SHOW THE OPERATIONAL STATUS OF ALL DEVICES. THIS SYSTEM SHALL BE CAPABLE OF OPERATING SIMULTANEOUSLY WITH AND WITHOUT INTERFERENCE FROM A LOOP DETECTOR SYSTEM AND PROVIDING TIME-DELAYED DETECTION INPUTS. THE SYSTEM SHALL MONITOR AND PROCESS ALL PROPOSED PHASE GREENS AND REDS FOR EACH SIGNAL PHASE INDICATED. ALL DATASHALL BE TRANSMITTED AND PROCESSED IN REAL TIME. THE SYSTEM SHALL PROVIDE I/O's FOR FIELD PROGRAMMING VIA A LAPTOP COMPUTER AND A VIDEO MONITOR.

A PC NETWORK SYSTEM COMMUNICATION SOFTWARE SHALL ALSO BE PROVIDED AND INSTALLED ON EXISTING EQUIPMENT AS PART OF THIS BID ITEM SO INCIDENT ALARMS, TRAFFIC DATA PARAMETERS, REMOTE IMAGE SENSOR PROGRAMMING AND CUSTOMIZED DETECTOR ZONES CAN BE ACCOMPLISHED. THIS SYSTEM SHALL PROVIDE VOLUME COUNTS, LANE OCCUPANCIES, PRESENCE OR PULSE DETECTION AND THE ABILITY TO ADD OR ASSIGN DIRECTIONALITY TO DETECTION ZONES. VIDEO DETECTION SYSTEM LAPTOP PROGRAMMING SOFTWARE SHALL ALSO BE PROVIDED FOR EIGHT (8) CITY MAINTENANCE TECH LAPTOPS. THE LAPTOP AND SYSTEM COMMUNICATION SOFTWARE PROVISIONS SHALL BE WAIVED IF THE CITY OF COLUMBUS DIVISION OF PLANNING AND OPERATIONS HAS SOFTWARE THAT FUNCTIONS COMPLETELY WITH THE PROPOSED VIDEO DETECTION SYSTEM.

THE IMAGE SENSOR UNIT SHALL BE DESIGNED TO MEET THE FOLLOWING SPECIFICATIONS:

1. BE A SELF-CONTAINED, LOW POWER (30 WATTS MAX), TOTALLY INTEGRATED, IMAGING COLOR CCD ARRAY WITH ZOOM LENS OPTICS, HIGH-SPEED, DUAL-CORE IMAGE PROCESSING HARDWARE BUNDLED INTO A SEALED ENCLOSURE. THE CCD ARRAY SHALL BE DIRECTLY CONTROLLED BY THE DUAL-CORE PROCESSOR.

2. PROVIDE JPEG VIDEO COMPRESSION AS WELL AS STANDARD MPEG-4 DIGITAL STREAMING VIDEO WITH FLASHING DETECTOR OVERLAY.

3. HAVE A 22X OR LARGER CONTINUOUSLY FOCUSING ZOOM LENS THAT HAS A HORIZONTAL VIEW OF 4 TO 74 DEGREES AND A VERTICAL VIEW OF 3 TO 59 DEGREES.

4. OPERATE ON 110/220 VAC, 50/60 HZ, AT A MAXIMUM OF 25 WATTS. THE CAMERA AND PROCESSOR ELECTRONICS SHALL CONSUME A MAXIMUM OF 10 WATTS WHILE THE REMAINING 15 WATTS SHALL SUPPORT AN ENCLOSED HEATER.

5. QUICKLY ADJUST TO DYNAMIC LIGHT CHANGES IN SUCH A WAY AS TO NOT LOSE THE IMAGE OF A CURRENT VEHICULAR DETECTION AND THUS NOT FAIL TO DETECT OR HOLD THE VEHICULAR CALL INPUT.

6. CONTAIN LIGHTNING AND TRANSIENT VOLTAGE PROTECTION.

7. CONTAIN APPROPRIATE ELECTRONIC CIRCUITRY AND OPTICAL FILTER(S) TO MINIMIZE THE EFFECTS OF NIGHTTIME HEADLIGHT BLOOMING AND STREAKING.

8. HAVE DIRECT REAL-TIME IRIS AND SHUTTER SPEED CONTROL AND BE INDIVIDUALLY ADDRESSABLE FOR USE IN A MULTI-CAMERA IMAGING VIDEO DETECTION NETWORK SYSTEM.

9. BE HOUSED IN A RUGGED, NEMA 4, WEATHERPROOF, ENVIRONMENTALLY SEALED ENCLOSURE THAT UTILIZES AN ADJUSTABLE SUNSHIELD AND FACEPLATE DRIP GUARD.

10. OPERATE IN A TEMPERATURE RANGE OF -29 TO +165 DEGREES FAHRENHEIT AND 100% HUMIDITY RANGE AS SPECIFIED IN MIL-E-5400T.

11. HAVE A HYDROPHILIC FACEPLATE COATING AND A LOW POWERED (ABOUT 5 WATTS), THERMOSTATICALLY CONTROLLED ITO FACEPLATE HEATER THAT DOES NOT INTERFERE WITH ANY OTHER ELECTRONIC CIRCUIT.

12. HAVE FAILSAFE CHANNEL DETECTION THAT PROVIDES A CONSTANT VEHICULAR CALL IF THE DETECTION CHANNEL FAILS TO OPERATE PROPERLY.

13. HAVE A SELF-CONTAINED DIAGNOSTIC PROGRAM THAT WILL EVALUATE THE UNITS OWN PERFORMANCE AND AN OPERATIONAL LOGGING PROGRAM THAT WILL RETAIN COMMUNICATION AND OPERATIONAL DATA.

14. BE WARRANTED FOR NO LESS THAN TWO YEARS.

THE IMAGE SENSOR UNIT SHALL BE MOUNTED ON A BRACKET ARM USING A LOW PROFILE BANDED OR CLAMPED MOUNTING ASSEMBLY. THE IMAGE SENSOR MOUNTING ASSEMBLY AND THE IMAGE SENSOR HOUSING, INCLUDING THE VISOR, SHALL BE POWDER COATED BLACK, CONFORMING TO THE REQUIREMENTS OF FEDERAL STANDARD #595B, COLOR #27038, TO MATCH THE COLOR OF THE BRACKET ARM AND THE SIGNAL SUPPORT STRUCTURE.

PLACEMENT OF DETECTION ZONES SHALL BE BY MEANS OF A PC WITH A WINDOWS XP OR VISTA OPERATING SYSTEM, A KEYBOARD, AND A MOUSE. THE SYSTEM SHALL PROVIDE THE CAPABILITY TO SHOW THE DETECTION ZONES SUPERIMPOSED ON IMAGES OF TRAFFIC SCENES ON THE PC MONITOR. THE DETECTION ZONES SHALL BE CREATED BY USING A MOUSE TO DRAW DETECTION ZONES ON THE PC MONITOR. IT SHALL BE POSSIBLE TO PLACE, SIZE, AND ORIENT DETECTION ZONES TO PROVIDE OPTIMAL ROAD COVERAGE FOR VEHICLE DETECTION USING THE MOUSE AND KEYBOARD. THE SYSTEM SHALL PROVIDE THE CAPABILITY TO DOWNLOAD DETECTOR CONFIGURATIONS FROM THE PC TO THE IMAGE SENSOR AND CABINET INTERFACE MODULE, TO RETRIEVE THE DETECTOR CONFIGURATION THAT IS CURRENTLY RUNNING IN THE IMAGE SENSOR, AND TO BACK UP DETECTOR CONFIGURATIONS BY SAVING THEM TO THE PC FIXED DISKS OR OTHER REMOVABLE STORAGE MEDIA. THE SYSTEM SHALL PROVIDE THE CAPABILITY TO USE THE MOUSE AND KEYBOARD OF THE SUPERVISOR COMPUTER TO EDIT PREVIOUSLY DEFINED DETECTOR CONFIGURATIONS IN ORDER TO PERMIT ADJUSTMENT OF DETECTION ZONE SIZE AND PLACEMENT, TO ADD DETECTION ZONES FOR ADDITIONAL TRAFFIC APPLICATIONS, OR TO REPROGRAM THE IMAGE SENSOR FOR DIFFERENT TRAFFIC APPLICATIONS OR CHANGES IN INSTALLATION SITE GEOMETRY OR TRAFFIC.

THE IMAGE SENSOR EMBEDDED SOFTWARE SHALL INCORPORATE MULTIPLE APPLICATIONS THAT PERFORM A VARIETY OF DIAGNOSTIC, INSTALLATION, FAULT TOLERANT OPERATIONS, DATA COMMUNICATIONS, DIGITAL VIDEO STREAMING, AND VEHICLE DETECTION PROCESSING. THE DETECTION SHALL BE RELIABLE AND CONSISTENT AND SHALL PERFORM UNDER ALL WEATHER, LIGHTING, AND TRAFFIC CONGETION LEVELS. AN EMBEDDED WEB SERVER SHALL PERMIT STANDARD INTERNET BROWSERS TO CONNECT AND PERFORM BASIC CONFIGURATION, MAINTENANCE, AND VIDEO STREAMING SERVICES.

THE SUITE OF CLIENT APPLICATIONS THAT RESIDE ON A HOST CLIENT/SERVER PC SHALL EXECUTE UNDER MICROSOFT WINDOWS XP OR VISTA. THE AVAILABLE CLIENT APPLICATIONS SHALL INCLUDE:

1. MASTER NETWORK BROWSER: LEARN A NETWORK OF CONNECTED MODULAR CABINET INTERFACE UNITS AND IMAGE SENSORS, DISPLAY BASIC INFORMATION, AND LAUNCH APPLICATIONS SOFTWARE TO PERFORM OPERATIONS WITHIN THAT SYSTEM OF IMAGE SENSORS.

2. CONFIGURATION SETUP: CREATE AND MODIFY DETECTOR CONFIGURATIONS TO BE EXECUTED ON THE IMAGE SENSOR AND MODULAR CABINET INTERFACE UNIT.

3. OPERATION LOG: RETRIEVE, DISPLAY, AND SAVE FIELD HARDWARE RUN-TIME OPERATION LOGS OF SPECIAL EVENTS THAT HAVE OCCURRED.

4. SOFTWARE INSTALL: RECONFIGURE ONE OR MORE IMAGE SENSORS WITH A NEWER RELEASE OF EMBEDDED SYSTEM SOFTWARE.

5. STREAMING VIDEO PLAYER: PLAY AND RECORD STREAMING VIDEO WITH FLASHING DETECTOR OVERLAY.

6. DATA RETRIEVAL: FETCH ONCE OR POLL FOR TRAFFIC DATA AND ALARMS AND STORE ON PC STORAGE MEDIA.

7. COMMUNICATIONS SERVER: PROVIDE FAULT-TOLERANT, REAL-TIME TCP/IP COMMUNICATIONS TO/FROM ALL DEVICES AND CLIENT APPLICATIONS WITH FULL LOGGING CAPABILITY FOR SYSTEMS INTEGRATION.

THE MODULAR CABINET INTERFACE UNIT SHALL PROVIDE THE HARDWARE AND SOFTWARE MEANS FOR UP TO EIGHT (8) IMAGE SENSORS TO COMMUNICATE REAL-TIME DETECTION STATES AND ALARMS TO A LOCAL TRAFFIC SIGNAL CONTROLLER. THE INTERFACE UNITS SHALL BE DESIGNED TO COMMUNICATE WITH A NEMA TS2 TYPE 2/TS1 CONTROLLER. THE MODULAR CABINET INTERFACE UNIT SHALL BE A SHELF-MOUNTED UNIT AND SHALL COMPLY WITH THE FORM FACTOR AND ELECTRICAL CHARACTERISTICS TO PLUG DIRECTLY INTO A NEMA TYPE C OR D DETECTOR RACK, ACCEPTING UP TO SIXTEEN (16) PHASE INPUTS AND PROVIDING UP TO TWENTY-FOUR (24) DETECTOR OUTPUTS. THE MODULAR CABINET INTERFACE UNIT SHALL CONTAIN OPTICALLY ISOLATED OUTPUTS AND HAVE FRONT PANEL I/O INDICATOR LIGHTS AND CONNECTORS.

THE COMMUNICATIONS INTERFACE PANEL SHALL SUPPORT UP TO EIGHT (8) IMAGE SENSORS. THE COMMUNICATIONS INTERFACE PANEL SHALL ACCEPT 110/220 VAC, 50/60 HZ POWER AND PROVIDED PREDEFINED WIRE TERMINATION BLOCKS FOR THE IMAGE SENSOR POWER CONNECTIONS, A BROADBAND-OVER-POWER LINE TRANSCEIVER TO SUPPORT UP TO 10 MB/SEC INTERDEVICE COMMUNICATIONS, ELECTRICAL SURGE PROTECTORS TO ISOLATE THE MODULAR INTERFACE UNIT AND IMAGE SENSORS, AND AN INTERFACE CONNECTOR TO CABLE DIRECTLY TO THE MODULAR CABINET INTERFACE UNIT. THE COMMUNICATIONS INTERFACE PANEL SHALL PROVIDE SINGLE-POINT ETHERNET CONNECTIVITY VIA RJ45 CONNECTOR FOR COMMUNICATIONS TO AND BETWEEN THE MODULAR CABINET INTERFACE UNIT AND THE IMAGE SENSORS.

THE COMMUNICATIONS INTERFACE PANEL SHALL PROVIDE POWER FOR UP TO EIGHT (8) IMAGE SENSORS, TAKING LOCAL LINE VOLTAGE 110/220 VAC, 50/60 HZ AND PRODUCING 110/220 VAC, 50/60 HZ, AT APPROXIMATELY 30 WATTS TO EACH IMAGE SENSOR. TWO 0.5 AMP SLO-BLO FUSES SHALL PROTECT THE COMMUNICATIONS INTERFACE PANEL. THE CONDUCTOR FUNCIONS OF THE INTERFACE PANEL SHALL BE PERMANENTLY-LABELED NEXT TO THE APPROPRIATE TERMINALS.

THE DIGITAL STREAMING VIDEO OUTPUT AND ALL DATA COMMUNICATIONS SHALL BE TRANSMITTED OVER 3-CONDUCTOR CAMERA CABLE. THE 3-CONDUCTOR CAMERA CABLE (REFERRED TO AS "VIDEO DET. CABLE") IN THE SIGNAL PLANS) INSTALLED SHALL MEET ALL THE REQUIREMENTS FOR VIDEO AND DATA TRANSMISSION SET FORTH IN THESE SPECIFICATIONS AND SHALL MEET ALL SPECIFICATIONS SET FORTH BY THE VIDEO DETECTION SYSTEM MANUFACTURER. THE CAMERA CABLE SHALL BE SUITABLE FOR INSTALLATION IN CONDUIT AND OVERHEAD WITH APPROPRIATE SPAN WIRE. THE CAMERA CABLE SHALL BE RUN CONTINUOUSLY FROM THE IMAGE SENSOR UNIT TO THE CONTROLLER CABINET (NO SPLICES).

TWO (2) SERVICE MANUALS AND TWO (2) INSTRUCTIONAL MANUALS SHALL BE PROVIDED PER CABINET. DELIVERY OF THESE MANUALS SHALL ACCOMPANY THE CABINET. SERVICE & INSTRUCTIONAL MANUALS SHALL INCLUDE SECTIONS COVERING THE GENERAL DESCRIPTION OF EQUIPMENT, EQUIPMENT INSTALLATION PROCEDURES, EQUIPMENT PROGRAMMING PROCEDURES, THEORY OF OPERATION WITH SYSTEM DESCRIPTION INCLUDING BLOCK DIAGRAMS AND DETAILED CIRCUIT DIAGRAMS, PREVENTIVE MAINTENANCE, FIELD TROUBLE ANALYSIS, BENCH TROUBLE ANALYSIS, TROUBLESHOOTING ANALYSIS CHART, WAVE FORMS, VOLTAGE MEASUREMENTS, VOLTAGE MEASUREMENT CHARTS, PARTS LIST, ELECTRICAL INTERCONNECTION DRAWINGS, SCHEMATIC AND LOGIC DIAGRAMS, ASSEMBLY DRAWINGS WITH PICTORIAL DIAGRAMS SHOWING PHYSICAL LOCATIONS AND IDENTIFICATION OF EACH COMPONENT.

IN ADDITION TO THE MATERIALS THAT ARE MENTIONED ABOVE OR SHOWN IN THE PLANS, THE CONTRACTOR SHALL ALSO FURNISH ONE (1) SPARE IMAGE SENSOR (COMPLETE UNIT) WITH A LOW PROFILE MOUNTING ASSEMBLY. THE IMAGE SENSOR HOUSING, INCLUDING THE VISOR, AND THE MOUNTING ASSEMBLY SHALL BE POWDER COATED BLACK, CONFORMING TO THE REQUIREMENTS OF FEDERAL STANDARD #595B, COLOR #27038.

INTERSECTION LAYOUT NOTES

1. THE CONTRACTOR SHALL ENSURE THAT ALL SIDEWALKS/PATHWAYS MEET ADA GUIDELINES PER CITY SPECIFICATIONS.

2. ALL CABLES UNLESS SPECIFIED IN THE PLANS ARE TO BE ROUTED INSIDE THE ANCHOR BASE SIGNAL SUPPORT POLE OR PEDESTAL.

3. POWER SERVICE AND INTERCONNECT CABLE SHALL BE CONTINUOUS WITH NO SPLICES EXCEPT AS NOTED.

PED UNIT FIELD WIRING HOOKUP

PED UNIT LOCATION	CROSSWALK DISPLAY	WIRE COLOR
SOUTH CROSSWALK	WALK	BLACK
	DONT WALK	ORANGE
WEST CROSSWALK	WALK	GREEN
	DONT WALK	RED
NORTH CROSSWALK	WALK	BLUE
	DONT WALK	WHITE W/BLACK TRACER
EAST CROSSWALK	WALK	GREEN W/BLACK TRACER
	DONT WALK	RED W/BLACK TRACER

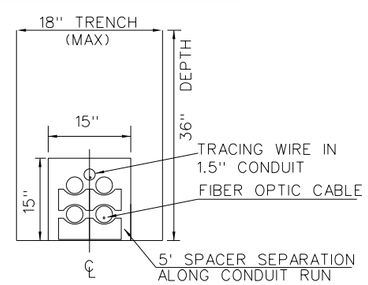
SIGNAL HEAD & CABINET FIELD WIRING HOOKUP

SIGNAL DISPLAY	WIRE COLOR PER APPROACH
THRU R	RED
THRU Y	ORANGE
THRU G	GREEN
L/T ~~R~~	BLACK
L/T ~~Y~~	WHITE W/BLACK TRACER
L/T ~~G~~	BLUE
R/T R	NOT USED BY CITY
R/T ~~Y~~	RED W/BLACK TRACER
R/T ~~G~~	GREEN W/BLACK TRACER

WHITE SHALL BE USED FOR THE COMMON. SPLICE ALL WIRES IN THE SIGNAL HEAD OR PED UNIT. USE A #14 AWG 2 WIRE SPADE TERMINAL FOR EVERY 2 WIRES PER CONNECTION AND A #14 AWG 1 WIRE SPADE TERMINAL FOR EACH SINGLE WIRE CONNECTION TO CONNECT ALL WIRES TO ALL FIELD TERMINALS. USE BUTT SPLICES ON ALL THROUGH WIRES. ALL UNUSED WIRES SHALL BE SPLICED THROUGH AND SHALL HAVE A DEAD-END TERMINAL AT THE END OF THE WIRE.

SECTION A-A

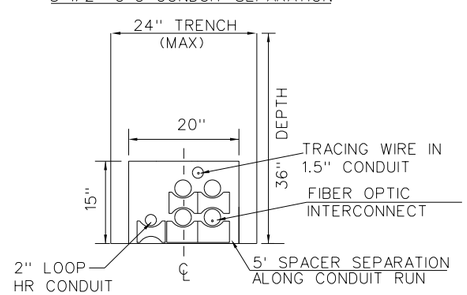
FOUR 3" CONDUIT BANK
3" CONCRETE ENCASEMENT
5-1/2" C-C CONDUIT SEPARATION



LOOKING UPSTATION

SECTION B-B

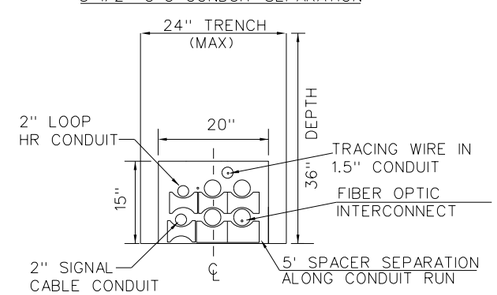
4-3"C + 1-2"C CONDUIT BANK
3" CONCRETE ENCASEMENT
5-1/2" C-C CONDUIT SEPARATION



LOOKING UPSTATION

SECTION C-C

4-3"C + 2-2"C CONDUIT BANK
3" CONCRETE ENCASEMENT
5-1/2" C-C CONDUIT SEPARATION



LOOKING UPSTATION

DUCT BANK NOTES:
1) USE SECTION A-A FOR TYPICAL DUCT BANK.

2) USE SECTION B-B WHEN DUCT BANK IS COMBINED WITH CONDUIT FOR LOOP DETECTOR LEAD-IN CABLE.

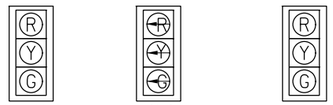
3) USE SECTION C-C WHEN DUCT BANK IS COMBINED CONDUIT FOR LOOP DETECTOR LEAD-IN CABLE AND CONDUIT FOR TRAFFIC SIGNAL CABLE.

CALCULATED MJH
CHECKED KAE

TRAFFIC SIGNAL DETAILS

HILLIARD ROME ROAD

12" (LED) SIGNAL INDICATIONS

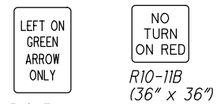


W-1, W-2, N-2, N-3, N-4 (SEE NOTE C.)

N-1 (SEE NOTE C.)

S-1, S-2, S-3, S-4 E-1, E-2, E-3, W-3

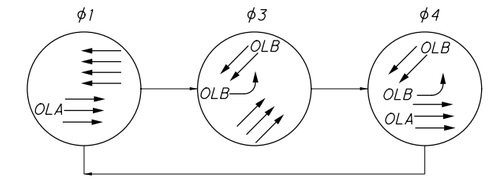
SIGN CODES

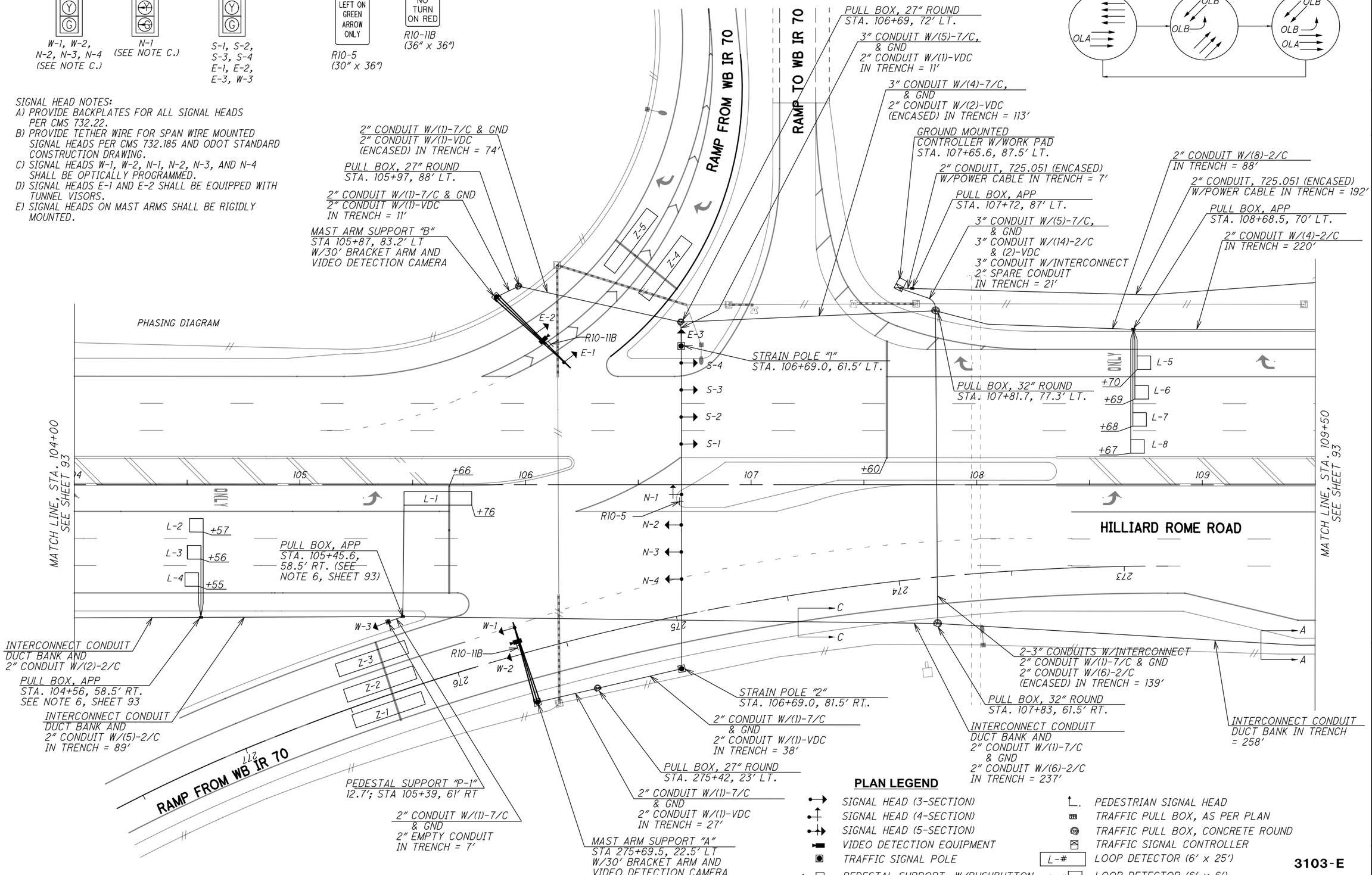


R10-5 (30" x 36")

R10-11B (36" x 36")

SIGNAL HEAD NOTES:
A) PROVIDE BACKPLATES FOR ALL SIGNAL HEADS PER CMS 732.22.
B) PROVIDE TETHER WIRE FOR SPAN WIRE MOUNTED SIGNAL HEADS PER CMS 732.185 AND ODOT STANDARD CONSTRUCTION DRAWING.
C) SIGNAL HEADS W-1, W-2, N-1, N-2, N-3, AND N-4 SHALL BE OPTICALLY PROGRAMMED.
D) SIGNAL HEADS E-1 AND E-2 SHALL BE EQUIPPED WITH TUNNEL VISORS.
E) SIGNAL HEADS ON MAST ARMS SHALL BE RIGIDLY MOUNTED.





PLAN LEGEND

- SIGNAL HEAD (3-SECTION)
- SIGNAL HEAD (4-SECTION)
- SIGNAL HEAD (5-SECTION)
- VIDEO DETECTION EQUIPMENT
- TRAFFIC SIGNAL POLE
- PEDESTAL SUPPORT, W/PUSHBUTTON
- PEDESTRIAN SIGNAL HEAD
- TRAFFIC PULL BOX, AS PER PLAN
- TRAFFIC PULL BOX, CONCRETE ROUND
- TRAFFIC SIGNAL CONTROLLER
- L-# LOOP DETECTOR (6' x 25')
- L-# LOOP DETECTOR (6' x 6')

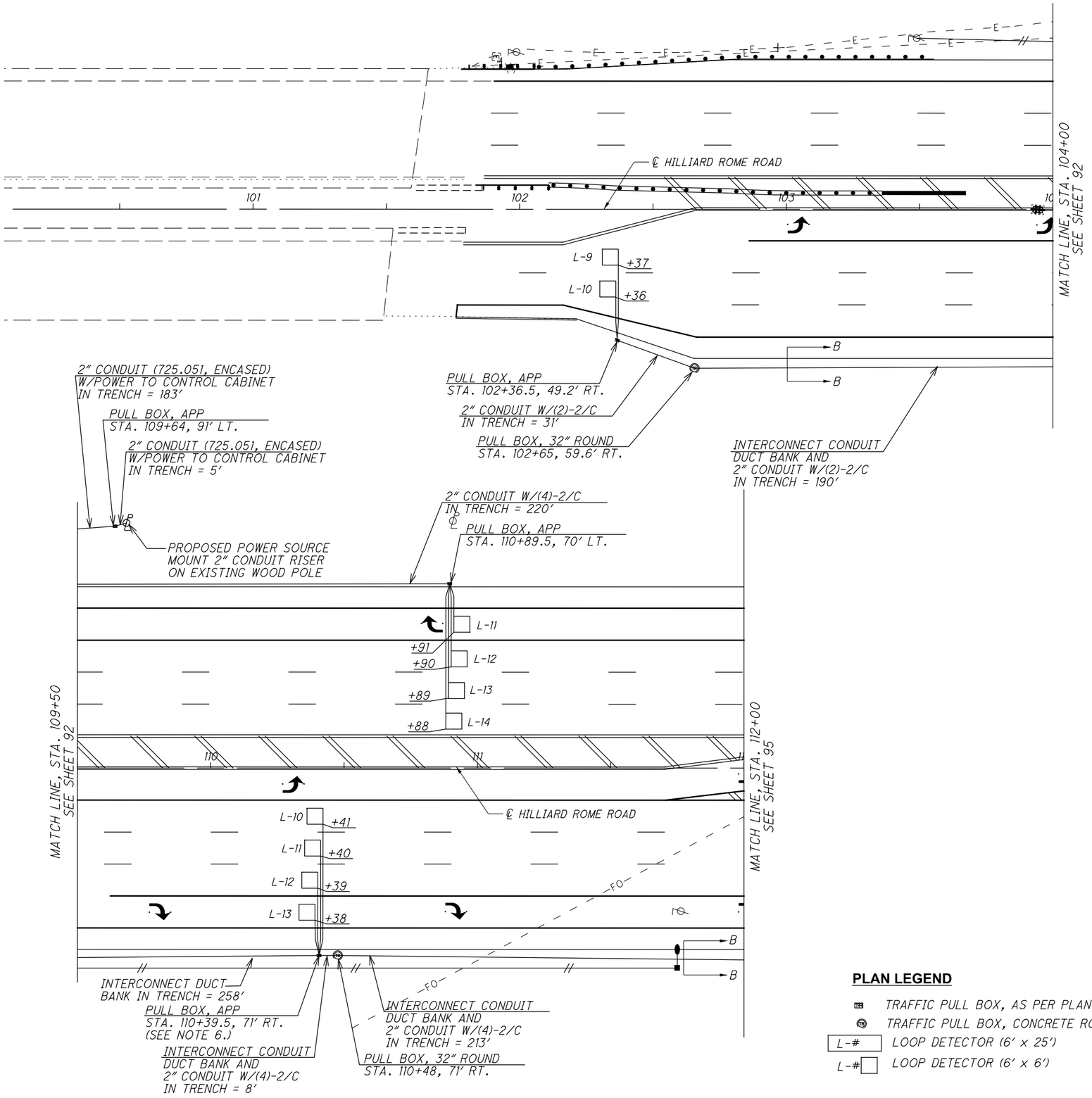
3103-E

HORIZONTAL SCALE IN FEET 0 10 20 40

CALCULATED MJH CHECKED KAE

SIGNAL PLAN
HILLIARD ROME ROAD & I.R. 70 WB RAMPS

HILLIARD ROME ROAD



SIGNAL PLAN NOTES (I-70 INTERCHANGE):

1. SEE SHEET 91 FOR ADDITIONAL INTERSECTION LAYOUT NOTES AND DETAILS.

2. THE CONTRACTOR SHALL PROVIDE AND INSTALL POWER AND/OR SERVICE CABLE BETWEEN THE CONTROL CABINET AND THE DESIGNATED POWER SOURCE LOCATION. THE DUPLEX POWER SERVICE CABLE SHALL BE RUN SEPARATELY AND SHALL NOT BE BUNDLED WITH ANY OTHER CABLE.

3. THE TRAFFIC CONTROL CABINET DOOR SHALL BE LOCATED ON THE NORTHWEST SIDE OF THE CABINET.

4. ALL CONDUIT CONTAINING POWER AND/OR INTERCONNECT, AND ALL CONDUIT UNDER ROADWAYS SHALL BE ENCASED IN CONCRETE.

5. PROVIDE 2" CONDUIT (725.051, ENCASED) WITH POWER TO CONTROL CABINET.

6. CONDUIT DUCT BANK SHALL PASS UNDER LOOP DETECTOR PULL BOX. SEE STANDARD DRAWING 4024 FOR ADDITIONAL DETAILS.

7. ALL CABLES UNLESS SPECIFIED IN THE PLANS ARE TO BE ROUTED INSIDE THE ANCHOR BASE SIGNAL SUPPORT POLE OR PEDESTAL.

8. POWER, SERVICE AND INTERCONNECT CABLE SHALL BE CONTINUOUS WITH NO SPLICES EXCEPT AS NOTED.

9. FOR SIGNING AND PAVEMENT MARKINGS, SEE TRAFFIC CONTROL SHEETS.

10. THE TOP OF THE POLE BASE FOUNDATION SHALL BE EDGED USING A 1/2" SIDEWALK EDGER INSTEAD OF BEING CHAMFERED.

11. THE DIVISION OF DESIGN AND CONSTRUCTION, CONSTRUCTION SECTION PERSONNEL SHALL APPROVE BOLT ALIGNMENT, POLE/PEDESTAL FOUNDATION LOCATION AND ELEVATION PRIOR TO THE CONTRACTOR INSTALLING THE FOUNDATION.

12. TAGGING OF CABLE IN THE PULLBOX IMMEDIATELY ADJACENT TO THE CONTROL CABINET IS NOT REQUIRED EXCEPT FOR TAGGING OF CERTAIN CABLE AS DIRECTED BY THE PROJECT ENGINEER OR AS PER PLAN.

13. DO NOT ENCASE THE GROUND ROD, THE GROUNDING WIRE OR THE EMT CONDUIT ENDS IN CONCRETE THAT FALL OUTSIDE OF THE FOUNDATION. FULL ACCESS TO THESE ITEMS MUST BE MAINTAINED AT ALL TIMES. PERMANENTLY MARK THE TOP OF CONCRETE, IF VISIBLE, WITH A MARKER OR SYMBOL SO THE ROD LOCATION CAN BE KNOWN BY OTHERS.

15. THE CONTRACTOR SHALL NOT INSTALL POLE FOUNDATIONS UNTIL THE POLE LOCATION AREA IS AT FINISHED GRADE.

16. UNDERGROUND CONDUIT AND TRENCH THAT ARE UNDER PROPOSED SIDEWALK OR ROADWAY AREAS SHALL BE INSTALLED PRIOR TO THE PLACEMENT OF SIDEWALKS OR ANY ASPHALT OR CONCRETE ROADWAY COURSE.

17. USE A SEPARATE CONDUIT FOR EACH GROUPING OF CABLES UNLESS OTHERWISE INDICATED: ONE CONDUIT FOR 120VAC SIGNAL CABLE (7C, 9C); ONE CONDUIT FOR POWER; ONE CONDUIT FOR 2 CONDUCTOR CABLE (LOOP); AND ONE CONDUIT FOR INTERCONNECT CABLE (FIBER OPTICS). ANY OTHER LOW VOLTAGE CABLE NOT SPECIFIED ABOVE CAN BE PLACED IN THE 2 CONDUCTOR CABLE CONDUIT.

18. UNLESS OTHERWISE SPECIFIED THE FOLLOWING SHALL APPLY. A PREFORMED PVC CONDUIT ELBOW SHALL BE USED TO CHANGE THE PVC CONDUIT DIRECTION BEYOND WHAT ITS NATURAL BENDING FLEX WOULD YIELD. RIGID METAL CONDUIT CAN BE BENT TO FORM AN ELBOW OR ANY OTHER BENDING ANGLE REQUIRED ONLY IF A PROPER CONDUIT BENDING MACHINE IS USED. THE ELBOW RADIUS FOR ANY NON-INTERCONNECT CONDUIT SHALL BE 24" OR LARGER WHEN USED IN A HORIZONTAL OR VERTICAL MANNER. ANY TYPE OF ELBOW USED FOR INTERCONNECT CONDUIT SHALL HAVE A RADIUS OF 36" OR LARGER WHEN USED IN A HORIZONTAL DIRECTION OR IN A VERTICAL DIRECTION WHEN THE TRENCH IS 36" OR DEEPER. IF THE TRENCH IS LESS THAN 36" THEN THE VERTICAL ELBOW RADIUS SHALL BE 24".

PLAN LEGEND

- TRAFFIC PULL BOX, AS PER PLAN
- TRAFFIC PULL BOX, CONCRETE ROUND
- L-# LOOP DETECTOR (6' x 25')
- L-# LOOP DETECTOR (6' x 6')

3103-E

HORIZONTAL SCALE IN FEET 0 10 20 40

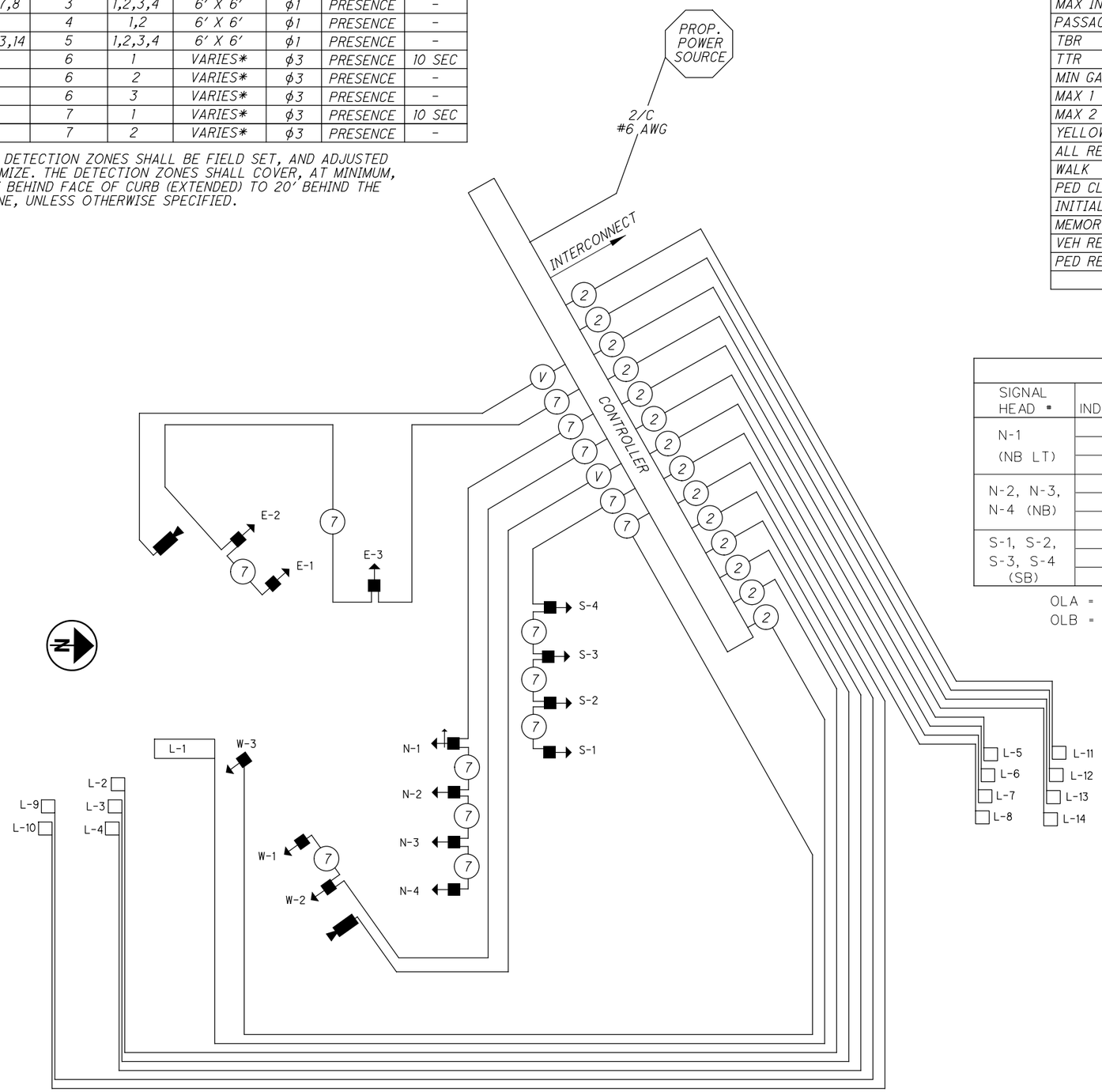
CALCULATED MJH CHECKED KAE

SIGNAL PLAN
BEGIN PROJECT TO STA 112+00

HILLIARD ROME ROAD

DETECTOR CHART						
ZONE	DETECTOR UNIT	CHAN.	SIZE*	PHASE	MODE	DELAY
L-1	1	1	6' X 30'	ϕ4	PRESENCE	-
L-2,3,4	1	2,3,4	6' X 6'	ϕ1	PRESENCE	-
L-5,6,7,8	3	1,2,3,4	6' X 6'	ϕ1	PRESENCE	-
L-9,10	4	1,2	6' X 6'	ϕ1	PRESENCE	-
L-11,12,13,14	5	1,2,3,4	6' X 6'	ϕ1	PRESENCE	-
Z-1	6	1	VARIES*	ϕ3	PRESENCE	10 SEC
Z-2	6	2	VARIES*	ϕ3	PRESENCE	-
Z-3	6	3	VARIES*	ϕ3	PRESENCE	-
Z-4	7	1	VARIES*	ϕ3	PRESENCE	10 SEC
Z-5	7	2	VARIES*	ϕ3	PRESENCE	-

* VIDEO DETECTION ZONES SHALL BE FIELD SET, AND ADJUSTED TO OPTIMIZE. THE DETECTION ZONES SHALL COVER, AT MINIMUM, FROM 15' BEHIND FACE OF CURB (EXTENDED) TO 20' BEHIND THE STOP LINE, UNLESS OTHERWISE SPECIFIED.



INTERSECTION TIMING								
PHASE	ϕ1 NB,SB		ϕ3 EB,WB	ϕ4 NBL				
MIN GREEN	30		10	10				
ADD INITIAL	-		-	-				
MAX INITIAL	0		0	0				
PASSAGE	2.0		2.0	2.0				
TBR	-		-	-				
TTR	-		-	-				
MIN GAP	-		-	-				
MAX 1	60.0		20.0	20.0				
MAX 2	60.0		60.0	99.0				
YELLOW	4.5		4.5	3.6				
ALL RED	2.0		1.0	2.0				
WALK	-		-	-				
PED CLEAR	-		-	-				
INITIALIZE	G		R	R				
MEMORY								
VEH RECALL								
PED RECALL								

FIELD WIRING HOOKUP CHART							
SIGNAL HEAD #	INDICATION	FIELD TERMINAL	FLASH	SIGNAL HEAD #	INDICATION	FIELD TERMINAL	FLASH
N-1 (NB LT)	R	OLB R	R	W-1, W-2 W-3 (WB)	R	ϕ3 R	R
	~~Y~~	OLB Y			Y	ϕ3 Y	
	~~G~~	OLB G			G	ϕ3 G	
N-2, N-3, N-4 (NB)	R	OLA R	R	E-1, E-2, E-3 (EB)	R	OLB R	R
	Y	OLA Y			Y	OLB Y	
	G	OLA G			G	OLB G	
S-1, S-2, S-3, S-4 (SB)	R	ϕ1 R	R				
	Y	ϕ1 Y					
	G	ϕ1 G					

OLA = ø1 + ø4
OLB = ø3 + ø4

WIRING DIAGRAM LEGEND

- PEDESTRIAN SIGNAL HEAD
- PEDESTRIAN PUSHBUTTON
- VEHICULAR SIGNAL HEAD WITH TURN ARROW
- VEHICULAR SIGNAL HEAD
- VIDEO DETECTION CAMERA
- PROPOSED LOOP DETECTOR
- (9) SIGNAL CABLE, 9-CONDUCTOR
- (7) SIGNAL CABLE, 7-CONDUCTOR
- (2) SIGNAL CABLE, 2-CONDUCTOR
- (V) VIDEO DETECTION CABLE

CALCULATED MJH
CHECKED KAE

SIGNAL PLAN - TRAFFIC SIGNAL TIMING
HILLIARD ROME ROAD & I-70 WB RAMPS

HILLIARD ROME ROAD

ITEM 632 - REMOVAL OF TRAFFIC SIGNAL		
DESCRIPTION OF ITEM TO BE REMOVED BY THE CONTRACTOR	REMOVE AND	
	DELIVER	DISPOSE
4- STRAIN POLES	X	
1- CONTROL CABINET	X	
CABLE, WIRE & PULL BOXES		X
8- PED SIGNALS	X	
10-VEHICULAR SIGNAL HEADS	X	
FOUNDATIONS		X

RADIO INTERCONNECT NOTE:
A) REUSE EXISTING SPREAD SPECTRUM RADIO EQUIPMENT. MOUNT ANTENNA ON POLE "1".

SIGN CODES

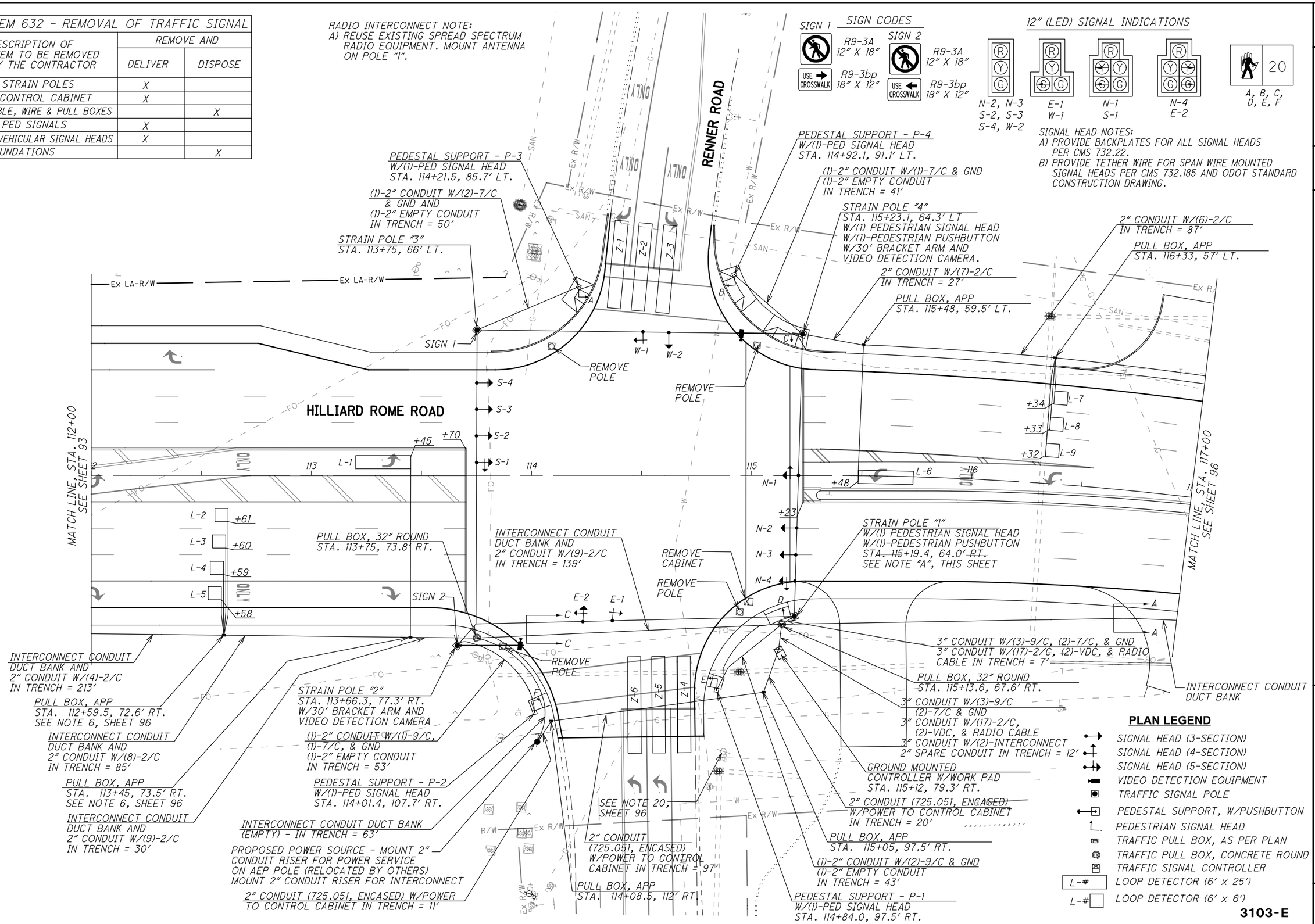
SIGN 1: R9-3A 12" X 18"; USE CROSSWALK R9-3bp 18" X 12"

SIGN 2: R9-3A 12" X 18"; USE CROSSWALK R9-3bp 18" X 12"

12" (LED) SIGNAL INDICATIONS

N-2, N-3, S-2, S-3, S-4, W-2 | E-1, W-1 | N-1, S-1 | N-4, E-2 | 20 A, B, C, D, E, F

SIGNAL HEAD NOTES:
A) PROVIDE BACKPLATES FOR ALL SIGNAL HEADS PER CMS 732.22.
B) PROVIDE TETHER WIRE FOR SPAN WIRE MOUNTED SIGNAL HEADS PER CMS 732.185 AND ODOT STANDARD CONSTRUCTION DRAWING.



3103-E

HORIZONTAL SCALE IN FEET 0 10 20 40

CALCULATED MJH CHECKED KAE

SIGNAL PLAN
HILLIARD ROME ROAD & RENNER ROAD

HILLIARD ROME ROAD

SIGNAL PLAN NOTES (RENNER RD):

1. SEE SHEET 91 FOR ADDITIONAL INTERSECTION LAYOUT NOTES AND DETAILS.

2. THE CONTRACTOR SHALL PROVIDE AND INSTALL POWER AND/OR SERVICE CABLE BETWEEN THE CONTROL CABINET AND THE DESIGNATED POWER SOURCE LOCATION. THE DUPLEX POWER SERVICE CABLE SHALL BE RUN SEPARATELY AND SHALL NOT BE BUNDLED WITH ANY OTHER CABLE.

3. THE TRAFFIC CONTROL CABINET DOOR SHALL BE LOCATED ON THE NORTHEAST SIDE OF THE CABINET.

4. ALL CONDUIT CONTAINING POWER AND/OR INTERCONNECT, AND ALL CONDUIT UNDER ROADWAYS SHALL BE ENCASED IN CONCRETE.

5. PROVIDE 2" CONDUIT (725.051, ENCASED) WITH POWER TO CONTROL CABINET.

6. CONDUIT DUCT BANK SHALL PASS UNDER LOOP DETECTOR PULL BOX. SEE STANDARD DRAWING 4024 FOR ADDITIONAL DETAILS.

7. ALL CABLES UNLESS SPECIFIED IN THE PLANS ARE TO BE ROUTED INSIDE THE ANCHOR BASE SIGNAL SUPPORT POLE OR PEDESTAL.

8. POWER, SERVICE AND INTERCONNECT CABLE SHALL BE CONTINUOUS WITH NO SPLICES EXCEPT AS NOTED.

9. FOR SIGNING AND PAVEMENT MARKINGS, SEE TRAFFIC CONTROL SHEETS.

10. THE TOP OF THE POLE BASE FOUNDATION SHALL BE EDGED USING A 1/2" SIDEWALK EDGER INSTEAD OF BEING CHAMFERED.

11. THE DIVISION OF DESIGN AND CONSTRUCTION, CONSTRUCTION SECTION PERSONNEL SHALL APPROVE BOLT ALIGNMENT, POLE/PEDESTAL FOUNDATION LOCATION AND ELEVATION PRIOR TO THE CONTRACTOR INSTALLING THE FOUNDATION.

12. TAGGING OF CABLE IN THE PULLBOX IMMEDIATELY ADJACENT TO THE CONTROL CABINET IS NOT REQUIRED EXCEPT FOR TAGGING OF CERTAIN CABLE AS DIRECTED BY THE PROJECT ENGINEER OR AS PER PLAN.

13. THE PEDESTRIAN SIGNAL HEAD UNIT SHALL BE AIMED AT THE CENTERLINE OF THE CROSSWALK AREA (NOT THE CURB RAMP) THAT IS OPPOSITE OF THE UNIT. THE PEDESTRIAN UNIT SHALL ALSO HAVE A SLIGHT DOWNWARD ANGLE TO IT.

14. DO NOT ENCASE THE GROUND ROD, THE GROUNDING WIRE OR THE EMT CONDUIT ENDS IN CONCRETE THAT FALL OUTSIDE OF THE FOUNDATION. FULL ACCESS TO THESE ITEMS MUST BE MAINTAINED AT ALL TIMES. PERMANENTLY MARK THE TOP OF CONCRETE, IF VISIBLE, WITH A MARKER OR SYMBOL SO THE ROD LOCATION CAN BE KNOWN BY OTHERS.

15. ANY SIGNAL SUPPORT BASE FOUNDATION WITHIN OR ADJACENT TO A SIDEWALK AREA SHALL BE FLUSH WITH THE TOP OF THE SIDEWALK UNLESS OTHERWISE STATED.

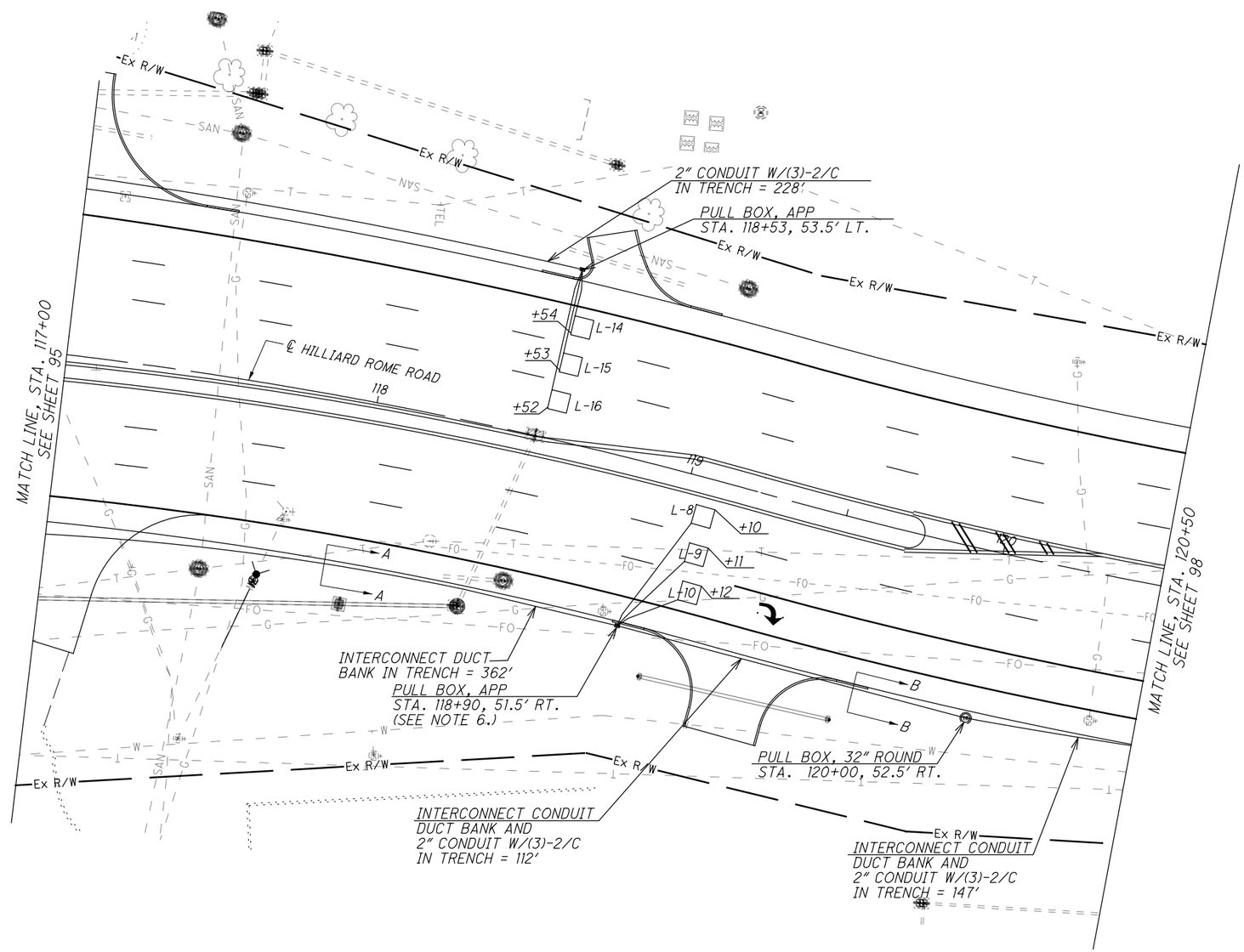
16. THE CONTRACTOR SHALL NOT INSTALL POLE FOUNDATIONS UNTIL THE POLE LOCATION AREA IS AT FINISHED GRADE.

17. UNDERGROUND CONDUIT AND TRENCH THAT ARE UNDER PROPOSED SIDEWALK OR ROADWAY AREAS SHALL BE INSTALLED PRIOR TO THE PLACEMENT OF SIDEWALKS OR ANY ASPHALT OR CONCRETE ROADWAY COURSE.

18. USE A SEPARATE CONDUIT FOR EACH GROUPING OF CABLES UNLESS OTHERWISE INDICATED: ONE CONDUIT FOR 120VAC SIGNAL CABLE (7C, 9C); ONE CONDUIT FOR POWER; ONE CONDUIT FOR 2 CONDUCTOR CABLE (LOOP & PUSHBUTTON); AND ONE CONDUIT FOR INTERCONNECT CABLE (FIBER OPTICS). ANY OTHER LOW VOLTAGE CABLE NOT SPECIFIED ABOVE CAN BE PLACED IN THE 2 CONDUCTOR CABLE CONDUIT.

19. UNLESS OTHERWISE SPECIFIED THE FOLLOWING SHALL APPLY. A PREFORMED PVC CONDUIT ELBOW SHALL BE USED TO CHANGE THE PVC CONDUIT DIRECTION BEYOND WHAT ITS NATURAL BENDING FLEX WOULD YIELD. RIGID METAL CONDUIT CAN BE BENT TO FORM AN ELBOW OR ANY OTHER BENDING ANGLE REQUIRED ONLY IF A PROPER CONDUIT BENDING MACHINE IS USED. THE ELBOW RADIUS FOR ANY NON-INTERCONNECT CONDUIT SHALL BE 24" OR LARGER WHEN USED IN A HORIZONTAL OR VERTICAL MANNER. ANY TYPE OF ELBOW USED FOR INTERCONNECT CONDUIT SHALL HAVE A RADIUS OF 36" OR LARGER WHEN USED IN A HORIZONTAL DIRECTION OR IN A VERTICAL DIRECTION WHEN THE TRENCH IS 36" OR DEEPER. IF THE TRENCH IS LESS THAN 36" THEN THE VERTICAL ELBOW RADIUS SHALL BE 24".

20. REDFLEX SHALL BE RESPONSIBLE FOR RELOCATING THE EXISTING RED LIGHT CAMERA APPURTENANCES, AND REATTACHMENT OF THE SYSTEM TO THE PROPOSED CABINET. THE CONTRACTOR SHALL CONTACT REDFLEX A MINIMUM OF EIGHT WEEKS PRIOR TO THE POINT IN TIME WHEN RELOCATION OF THE RED LIGHT CAMERA EQUIPMENT WILL BE NECESSARY.



PLAN LEGEND

- TRAFFIC PULL BOX, AS PER PLAN
- TRAFFIC PULL BOX, CONCRETE ROUND
- L-# — LOOP DETECTOR (6' x 25')
- L-# — LOOP DETECTOR (6' x 6')

3103-E

HORIZONTAL SCALE IN FEET 0 10 20 40

CALCULATED MJH
CHECKED KAE

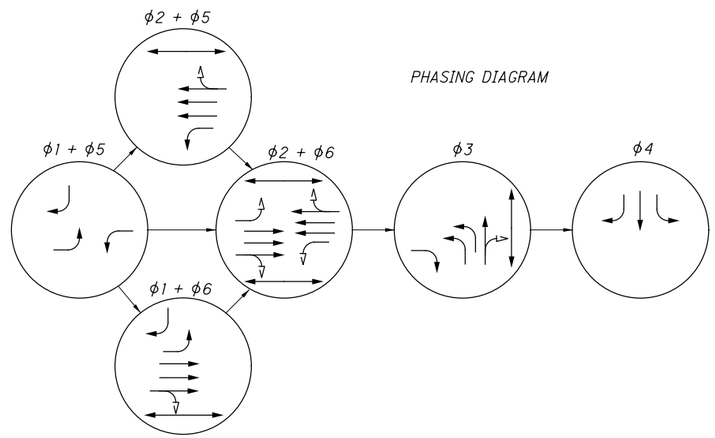
SIGNAL PLAN
STA 117+00 TO STA 120+50

HILLIARD ROME ROAD

DETECTOR CHART

ZONE	DETECTOR UNIT	CHAN.	SIZE*	PHASE	MODE	DELAY
L-1	1	1	6' X 25'	ϕ1	PRESENCE	-
L-2,3,4,5	2	1,2,3,4	6' X 6'	ϕ6	PRESENCE	-
L-6	3	1	6' X 25'	ϕ5	PRESENCE	-
L-7,8,9	3	2,3,4	6' X 6'	ϕ2	PRESENCE	-
L-10,11,12,13	4	1,2,3,4	6' X 6'	ϕ6	PRESENCE	-
L-14,15,16	4	1,2,3	6' X 6'	ϕ2	PRESENCE	-
Z-1	5	1	VARIES*	ϕ4	PRESENCE	10 SEC
Z-2	5	2	VARIES*	ϕ4	PRESENCE	-
Z-3	5	3	VARIES*	ϕ4	PRESENCE	-
Z-4	6	1	VARIES*	ϕ3	PRESENCE	10 SEC
Z-5	6	2	VARIES*	ϕ3	PRESENCE	-
Z-6	6	3	VARIES*	ϕ3	PRESENCE	-

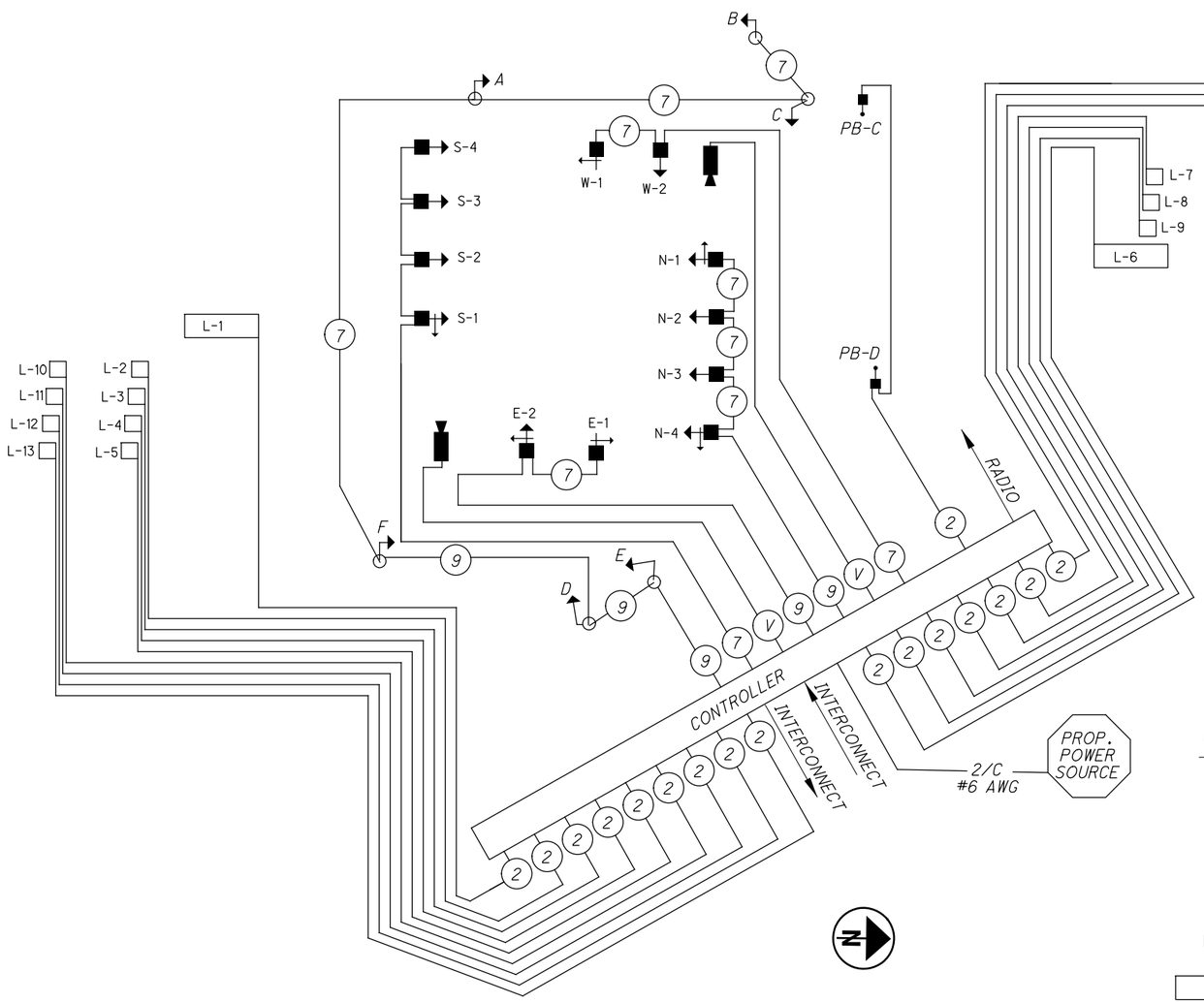
* VIDEO DETECTION ZONES SHALL BE FIELD SET, AND ADJUSTED TO OPTIMIZE. THE DETECTION ZONES SHALL COVER, AT MINIMUM, FROM 15' BEHIND FACE OF CURB (EXTENDED) TO 20' BEHIND THE STOP LINE, UNLESS OTHERWISE SPECIFIED.



PHASING DIAGRAM

INTERSECTION TIMING

PHASE	ϕ1 NBL	ϕ2 SB	ϕ3 WB	ϕ4 EB	ϕ5 SBL	ϕ6 NB		
MIN GREEN	10	30	10	10	10	30		
ADD INITIAL	-	-	-	-	-	-		
MAX INITIAL	0	0	0	0	0	0		
PASSAGE	2.0	2.0	2.0	2.0	2.0	2.0		
TBR	-	-	-	-	-	-		
TTR	-	-	-	-	-	-		
MIN GAP	-	-	-	-	-	-		
MAX 1	20.0	60.0	20.0	20.0	20.0	60.0		
MAX 2	99.0	60.0	99.0	60.0	99.0	60.0		
YELLOW	3.6	4.5	3.6	4.5	3.6	4.5		
ALL RED	2.0	2.0	2.0	2.0	2.0	2.0		
WALK	-	-	7.0	7.0	-	-		
PED CLEAR	-	-	18.0	18.0	-	-		
INITIALIZE	-	G	R	R	-	G		
MEMORY								
VEH RECALL								
PED RECALL								



FIELD WIRING HOOKUP CHART

SIGNAL HEAD *	INDICATION	FIELD TERMINAL	FLASH
N-1 (NB LT)	R	ϕ6 R	R
	Y	ϕ6 Y	
	G	ϕ6 G	
	~~Y~~	ϕ1 Y	
	~~G~~	ϕ1 G	
N-2, N-3 (NB)	R	ϕ6 R	R
	Y	ϕ6 Y	
	G	ϕ6 G	
N-4 (NB RT)	R	ϕ6 R	R
	Y	ϕ6 Y	
	G	ϕ6 G	
	~~Y~~	ϕ3 Y	
	~~G~~	ϕ3 G	
S-1 (SB LT)	R	ϕ2 R	R
	Y	ϕ2 Y	
	G	ϕ2 G	
	~~Y~~	ϕ5 Y	
	~~G~~	ϕ5 G	
S-2, S-3 S-4 (SB)	R	ϕ2 R	R
	Y	ϕ2 Y	
	G	ϕ2 G	

SIGNAL HEAD *	INDICATION	FIELD TERMINAL	FLASH
E-1 (EB LT)	R	ϕ4 R	R
	Y	ϕ4 Y	
	G	ϕ4 G	
	~~Y~~	ϕ4 G	
E-2 (EB)	R	ϕ4 R	R
	Y	ϕ4 Y	
	G	ϕ4 G	
	~~Y~~	ϕ1 Y	
	~~G~~	ϕ1 G	
W-1 (WB LT)	R	ϕ3 R	R
	Y	ϕ3 Y	
	G	ϕ3 G	
	~~G~~	ϕ3 G	
W-2 (WB)	R	ϕ3 R	R
	Y	ϕ3 Y	
	G	ϕ3 G	

SIGNAL HEAD *	INDICATION	FIELD TERMINAL	FLASH
C&D (NORTH)	W	ϕ3 W	OUT
	DW	ϕ3 DW	
E&F (EAST)	W	ϕ6 W	OUT
	DW	ϕ6 DW	
A&B (WEST)	W	ϕ2 W	OUT
	DW	ϕ2 DW	

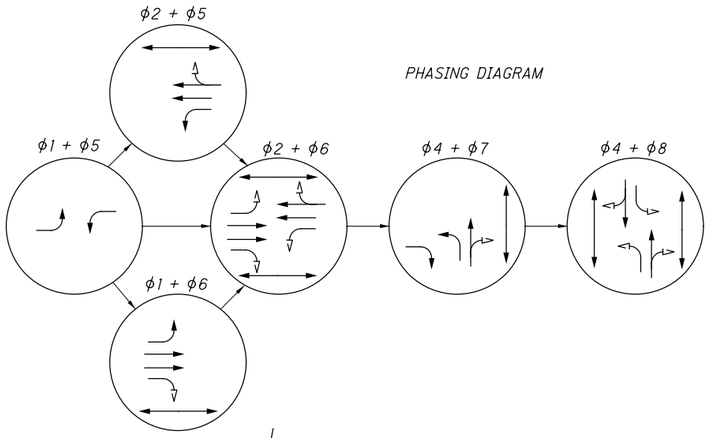
WIRING DIAGRAM LEGEND

- PEDESTRIAN SIGNAL HEAD
- PEDESTRIAN PUSHBUTTON
- VEHICULAR SIGNAL HEAD WITH TURN ARROW
- VEHICULAR SIGNAL HEAD
- VIDEO DETECTION CAMERA
- PROPOSED LOOP DETECTOR
- (9) SIGNAL CABLE, 9-CONDUCTOR
- (7) SIGNAL CABLE, 7-CONDUCTOR
- (2) SIGNAL CABLE, 2-CONDUCTOR
- (V) VIDEO DETECTION CABLE

CALCULATED MJH
CHECKED KAE

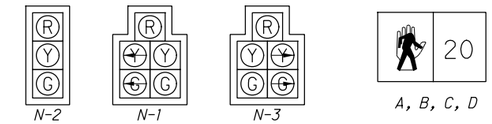
SIGNAL PLAN - TRAFFIC SIGNAL TIMING
HILLIARD ROME ROAD & RENNER RD

HILLIARD ROME ROAD



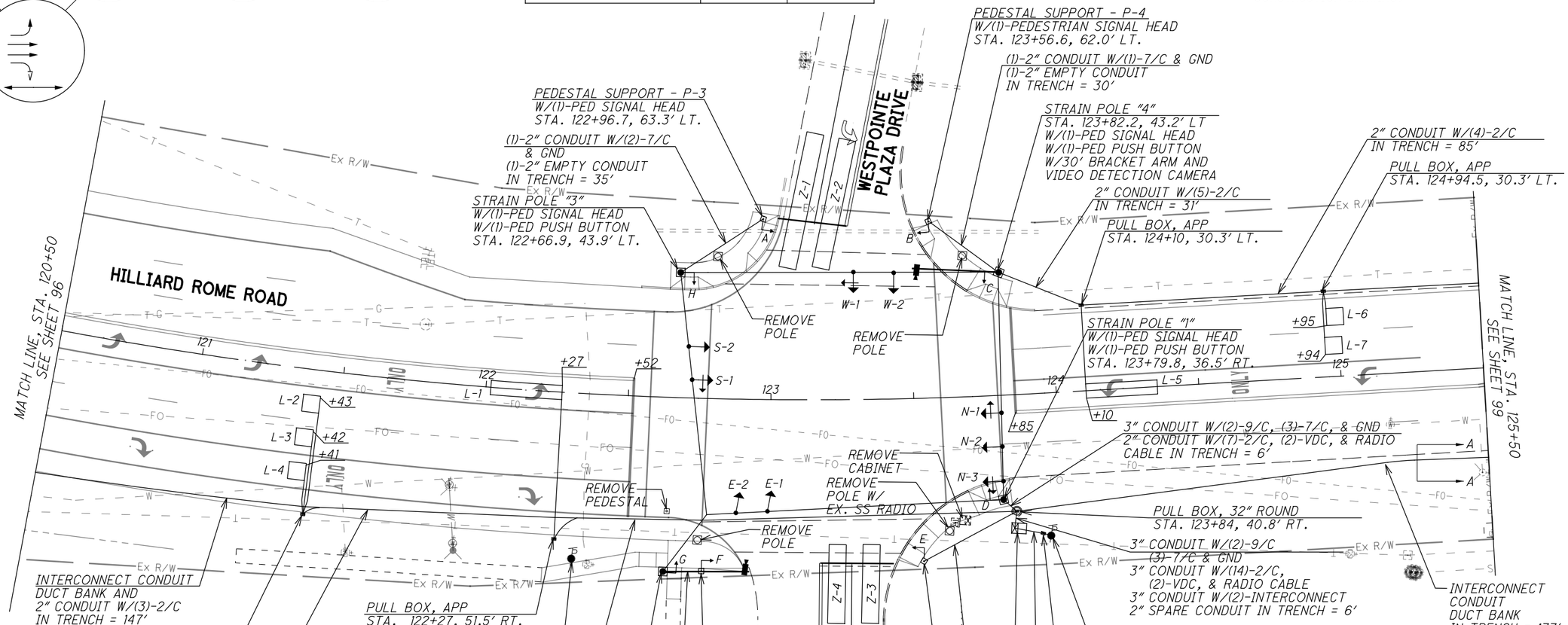
ITEM 632 - REMOVAL OF TRAFFIC SIGNAL		
DESCRIPTION OF ITEM TO BE REMOVED BY THE CONTRACTOR	REMOVE AND	
	DELIVER	DISPOSE
1- PEDESTAL	X	
4- STRAIN POLES	X	
1- CONTROL CABINET	X	
FOUNDATIONS		X
CABLE WIRE, & PULL BOXES		X
8- PED SIGNALS	X	
8- VEHICULAR SIGNAL HEADS	X	

12" (LED) SIGNAL INDICATIONS



N-2 S-2, E-1, E-2 W-2 | N-1 W-1 S-1 | N-3 | A, B, C, D

SIGNAL HEAD NOTES:
A) PROVIDE BACKPLATES FOR ALL SIGNAL HEADS PER CMS 732.22.
B) PROVIDE TETHER WIRE FOR SPAN WIRE MOUNTED SIGNAL HEADS PER CMS 732.185 AND ODOT STANDARD CONSTRUCTION DRAWING.



PLAN LEGEND

- SIGNAL HEAD (3-SECTION)
- SIGNAL HEAD (4-SECTION)
- SIGNAL HEAD (5-SECTION)
- VIDEO DETECTION EQUIPMENT
- TRAFFIC SIGNAL POLE
- PEDESTAL SUPPORT, W/PUSHBUTTON
- PEDESTRIAN SIGNAL HEAD
- TRAFFIC PULL BOX, AS PER PLAN
- TRAFFIC PULL BOX, CONCRETE ROUND
- TRAFFIC SIGNAL CONTROLLER
- L-# LOOP DETECTOR (6' x 25')
- L-# LOOP DETECTOR (6' x 6')

RADIO INTERCONNECT NOTE:
A) REUSE EXISTING SPREAD SPECTRUM RADIO EQUIPMENT. MOUNT ANTENNA ON POLE "1".

3103-E

HORIZONTAL SCALE IN FEET 0 10 20 40

CALCULATED MJH
CHECKED KAE

SIGNAL PLAN
HILLIARD ROME RD & WESTPOINTE PLAZA DR

HILLIARD ROME ROAD

SIGNAL PLAN NOTES (WESTPOINTE PLAZA):

1. SEE SHEET 91 FOR ADDITIONAL INTERSECTION LAYOUT NOTES AND DETAILS.

2. THE CONTRACTOR SHALL PROVIDE AND INSTALL POWER AND/OR SERVICE CABLE BETWEEN THE CONTROL CABINET AND THE DESIGNATED POWER SOURCE LOCATION. THE DUPLEX POWER SERVICE CABLE SHALL BE RUN SEPARATELY AND SHALL NOT BE BUNDLED WITH ANY OTHER CABLE.

3. THE TRAFFIC CONTROL CABINET DOOR SHALL BE LOCATED ON THE NORTHEAST SIDE OF THE CABINET.

4. ALL CONDUIT CONTAINING POWER AND/OR INTERCONNECT, AND ALL CONDUIT UNDER ROADWAYS SHALL BE ENCASED IN CONCRETE.

5. PROVIDE 2" CONDUIT (725.051, ENCASED) WITH POWER TO CONTROL CABINET.

6. CONDUIT DUCT BANK SHALL PASS UNDER LOOP DETECTOR PULL BOX. SEE STANDARD DRAWING 4024 FOR ADDITIONAL DETAILS.

7. ALL CABLES UNLESS SPECIFIED IN THE PLANS ARE TO BE ROUTED INSIDE THE ANCHOR BASE SIGNAL SUPPORT POLE OR PEDESTAL.

8. POWER, SERVICE AND INTERCONNECT CABLE SHALL BE CONTINUOUS WITH NO SPLICES EXCEPT AS NOTED.

9. FOR SIGNING AND PAVEMENT MARKINGS, SEE TRAFFIC CONTROL SHEETS.

10. THE TOP OF THE POLE BASE FOUNDATION SHALL BE EDGED USING A 1/2" SIDEWALK EDGER INSTEAD OF BEING CHAMFERED.

11. THE DIVISION OF DESIGN AND CONSTRUCTION, CONSTRUCTION SECTION PERSONNEL SHALL APPROVE BOLT ALIGNMENT, POLE/PEDESTAL FOUNDATION LOCATION AND ELEVATION PRIOR TO THE CONTRACTOR INSTALLING THE FOUNDATION.

12. TAGGING OF CABLE IN THE PULLBOX IMMEDIATELY ADJACENT TO THE CONTROL CABINET IS NOT REQUIRED EXCEPT FOR TAGGING OF CERTAIN CABLE AS DIRECTED BY THE PROJECT ENGINEER OR AS PER PLAN.

13. THE PEDESTRIAN SIGNAL HEAD UNIT SHALL BE AIMED AT THE CENTERLINE OF THE CROSSWALK AREA (NOT THE CURB RAMP) THAT IS OPPOSITE OF THE UNIT. THE PEDESTRIAN UNIT SHALL ALSO HAVE A SLIGHT DOWNWARD ANGLE TO IT.

14. DO NOT ENCASE THE GROUND ROD, THE GROUNDING WIRE OR THE EMT CONDUIT ENDS IN CONCRETE THAT FALL OUTSIDE OF THE FOUNDATION. FULL ACCESS TO THESE ITEMS MUST BE MAINTAINED AT ALL TIMES. PERMANENTLY MARK THE TOP OF CONCRETE, IF VISIBLE, WITH A MARKER OR SYMBOL SO THE ROD LOCATION CAN BE KNOWN BY OTHERS.

15. ANY SIGNAL SUPPORT BASE FOUNDATION WITHIN OR ADJACENT TO A SIDEWALK AREA SHALL BE FLUSH WITH THE TOP OF THE SIDEWALK UNLESS OTHERWISE STATED.

16. THE CONTRACTOR SHALL NOT INSTALL POLE FOUNDATIONS UNTIL THE POLE LOCATION AREA IS AT FINISHED GRADE.

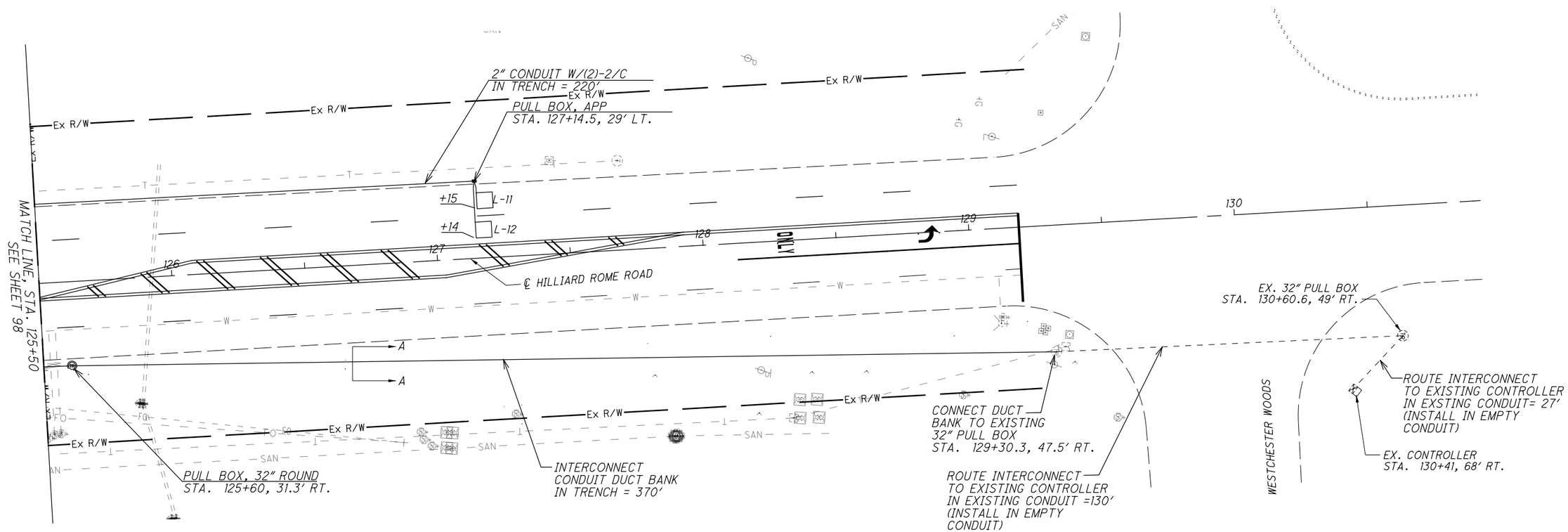
17. UNDERGROUND CONDUIT AND TRENCH THAT ARE UNDER PROPOSED SIDEWALK OR ROADWAY AREAS SHALL BE INSTALLED PRIOR TO THE PLACEMENT OF SIDEWALKS OR ANY ASPHALT OR CONCRETE ROADWAY COURSE.

18. USE A SEPARATE CONDUIT FOR EACH GROUPING OF CABLES UNLESS OTHERWISE INDICATED: ONE CONDUIT FOR 120VAC SIGNAL CABLE (7C, 9C); ONE CONDUIT FOR POWER; ONE CONDUIT FOR 2 CONDUCTOR CABLE (LOOP & PUSHBUTTON); AND ONE CONDUIT FOR INTERCONNECT CABLE (FIBER OPTICS). ANY OTHER LOW VOLTAGE CABLE NOT SPECIFIED ABOVE CAN BE PLACED IN THE 2 CONDUCTOR CABLE CONDUIT.

19. UNLESS OTHERWISE SPECIFIED THE FOLLOWING SHALL APPLY. A PREFORMED PVC CONDUIT ELBOW SHALL BE USED TO CHANGE THE PVC CONDUIT DIRECTION BEYOND WHAT ITS NATURAL BENDING FLEX WOULD YIELD. RIGID METAL CONDUIT CAN BE BENT TO FORM AN ELBOW OR ANY OTHER BENDING ANGLE REQUIRED ONLY IF A PROPER CONDUIT BENDING MACHINE IS USED. THE ELBOW RADIUS FOR ANY NON-INTERCONNECT CONDUIT SHALL BE 24" OR LARGER WHEN USED IN A HORIZONTAL OR VERTICAL MANNER. ANY TYPE OF ELBOW USED FOR INTERCONNECT CONDUIT SHALL HAVE A RADIUS OF 36" OR LARGER WHEN USED IN A HORIZONTAL DIRECTION OR IN A VERTICAL DIRECTION WHEN THE TRENCH IS 36" OR DEEPER. IF THE TRENCH IS LESS THAN 36" THEN THE VERTICAL ELBOW RADIUS SHALL BE 24".

PLAN LEGEND

- TRAFFIC PULL BOX, AS PER PLAN
- TRAFFIC PULL BOX, CONCRETE ROUND
- L-# LOOP DETECTOR (6' x 25')
- L-# LOOP DETECTOR (6' x 6')



3103-E

N

0 10 20 40
HORIZONTAL SCALE IN FEET

CALCULATED MJH
CHECKED KAE

SIGNAL PLAN
STA 125+50 TO END PROJECT

HILLIARD ROME ROAD

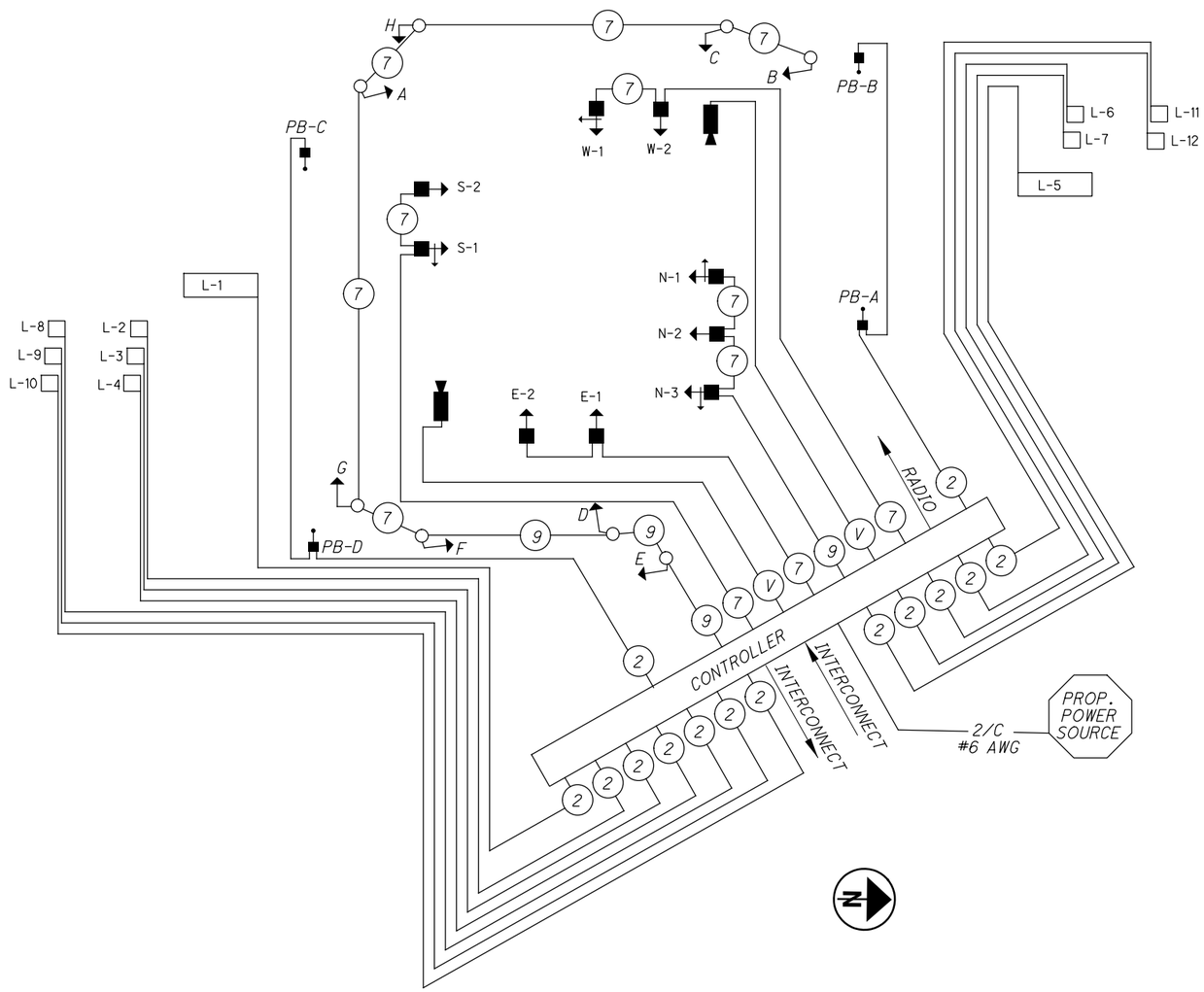
DETECTOR CHART

ZONE	DETECTOR UNIT	CHAN.	SIZE*	PHASE	MODE	DELAY
L-1	1	1	6′ X 25′	ϕ1	PRESENCE	-
L-2,3,4	1	2,3,4	6′ X 6′	ϕ6	PRESENCE	-
L-5	2	1	6′ X 25′	ϕ5	PRESENCE	-
L-6,7	2	2,3	6′ X 6′	ϕ2	PRESENCE	-
L-8,9,10	3	1,2,3	6′ X 6′	ϕ6	PRESENCE	-
L-11,12	4	1,2	6′ X 6′	ϕ2	PRESENCE	-
Z-1	5	2	VARIES*	ϕ8	PRESENCE	10 SEC
Z-2	5	2	VARIES*	ϕ8	PRESENCE	-
Z-3	6	1	VARIES*	ϕ4	PRESENCE	10 SEC
Z-4	6	2	VARIES*	ϕ4	PRESENCE	-
Z-5	6	3	6′ X 25′	ϕ7	PRESENCE	-

* VIDEO DETECTION ZONES SHALL BE FIELD SET, AND ADJUSTED TO OPTIMIZE. THE DETECTION ZONES SHALL COVER, AT MINIMUM, FROM 15′ BEHIND FACE OF CURB (EXTENDED) TO 20′ BEHIND THE STOP LINE, UNLESS OTHERWISE SPECIFIED.

INTERSECTION TIMING

PHASE	ϕ1 NBL	ϕ2 SB		ϕ4 WB	ϕ5 SBL	ϕ6 NB	ϕ7 WBL	ϕ8 EB
MIN GREEN	10	30		30	10	30	10	30
ADD INITIAL	-	-		-	-	-	-	-
MAX INITIAL	0	0		0	0	0	0	0
PASSAGE	2.0	2.0		2.0	2.0	2.0	2.0	-
TBR	-	-		-	-	-	-	-
TTR	-	-		-	-	-	-	-
MIN GAP	-	-		-	-	-	-	-
MAX 1	20.0	60.0		60.0	20.0	60.0	20.0	60.0
MAX 2	99.0	60.0		60.0	99.0	60.0	99.0	60.0
YELLOW	3.6	4.5		4.5	3.6	4.5	3.6	4.5
ALL RED	2.0	2.0		2.0	2.0	2.0	2.0	2.0
WALK	-	-		7.0	-	-	-	7.0
PED CLEAR	-	-		18.0	-	-	-	18.0
INITIALIZE	-	G		R	-	G	-	R
MEMORY								
VEH RECALL								
PED RECALL		ON				ON		



FIELD WIRING HOOKUP CHART

SIGNAL HEAD *	INDICATION	FIELD TERMINAL	FLASH	SIGNAL HEAD *	INDICATION	FIELD TERMINAL	FLASH
N-1 (NB LT)	R	ϕ6 R	R	W-1 (WB LT)	R	ϕ4 R	R
	Y	ϕ6 Y			Y	ϕ4 Y	
	G	ϕ6 G			G	ϕ4 G	
	~~Y~~	ϕ1 Y			~~Y~~	ϕ7 G	
	~~G~~	ϕ1 G			~~G~~	ϕ7 G	
N-2 (NB)	R	ϕ6 R	R	W-2 (WB)	R	ϕ4 R	R
	Y	ϕ6 Y			Y	ϕ4 Y	
	G	ϕ6 G			G	ϕ4 G	
N-3 (NB RT)	R	ϕ6 R	R				
	Y	ϕ6 Y					
	G	ϕ6 G					
	~~Y~~	ϕ7 Y					
	~~G~~	ϕ7 G					
E-1,E-2 (EB)	R	ϕ8 R	R				
	Y	ϕ8 Y					
	G	ϕ8 G					
S-1 (SB LT)	R	ϕ2 R	R				
	Y	ϕ2 Y					
	G	ϕ2 G					
	~~Y~~	ϕ5 Y					
	~~G~~	ϕ5 G					
S-2 (SB)	R	ϕ2 R	R				
	Y	ϕ2 Y					
	G	ϕ2 G					

SIGNAL HEAD *	INDICATION	FIELD TERMINAL	FLASH
A&B (WEST)	W	ϕ2 W	OUT
	DW	ϕ2 DW	
C&D (NORTH)	W	ϕ4 W	OUT
	DW	ϕ4 DW	
E&F (EAST)	W	ϕ6 W	OUT
	DW	ϕ6 DW	
G&H (SOUTH)	W	ϕ8 W	OUT
	DW	ϕ8 DW	

WIRING DIAGRAM LEGEND

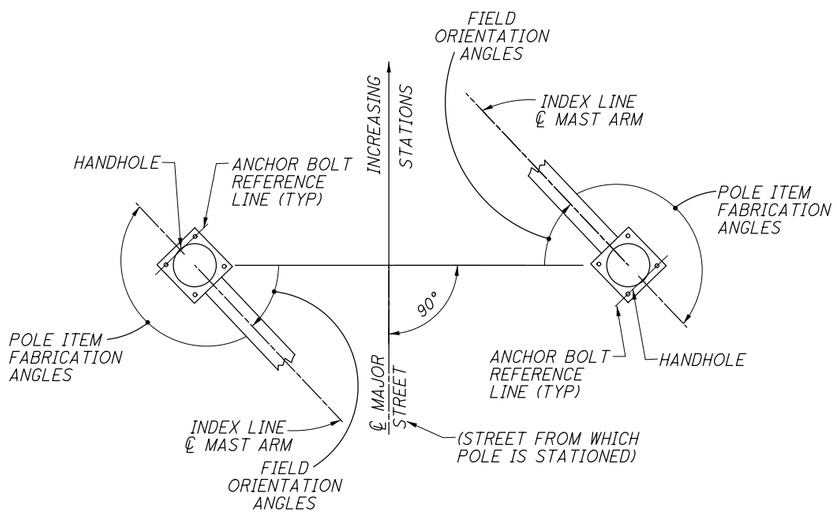
- PEDESTRIAN SIGNAL HEAD
- PEDESTRIAN PUSHBUTTON
- VEHICULAR SIGNAL HEAD WITH TURN ARROW
- VEHICULAR SIGNAL HEAD
- VIDEO DETECTION CAMERA
- PROPOSED LOOP DETECTOR
- (9) SIGNAL CABLE, 9-CONDUCTOR
- (7) SIGNAL CABLE, 7-CONDUCTOR
- (2) SIGNAL CABLE, 2-CONDUCTOR
- (V) VIDEO DETECTION CABLE

CALCULATED MJH
CHECKED KAE

SIGNAL PLAN - TRAFFIC SIGNAL TIMING
HILLIARD ROME ROAD & WESTPOINT PLAZA DR

HILLIARD ROME ROAD

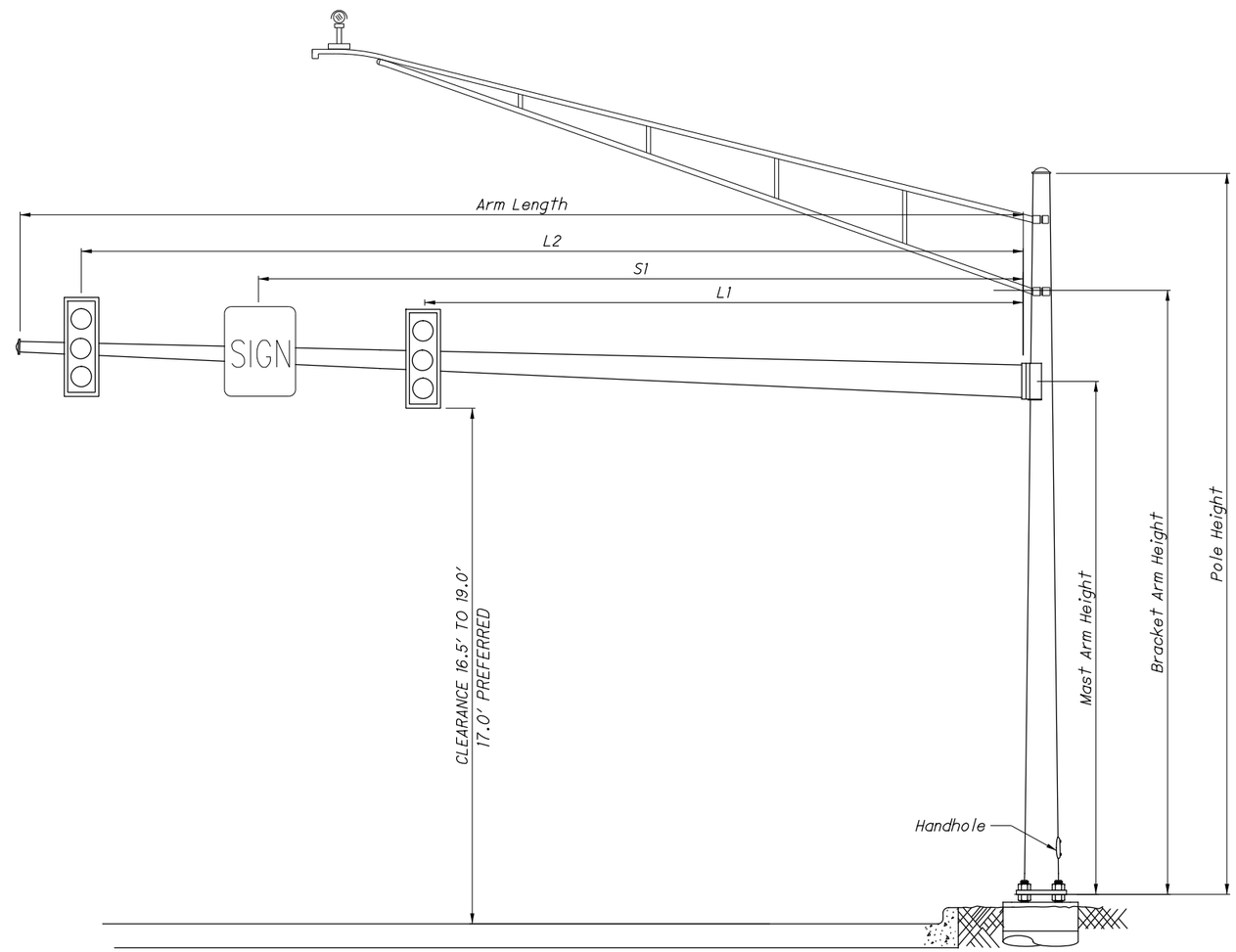
INTERSECTION	SHEET NUMBER	SUPPORT DESIGNATION	POLE COLOR	DESIGN NUMBER	POLE HEIGHT	ARM LENGTH		OBJECT ATTACHMENT HEIGHT			DISTANCE FROM BUTT PLATE					ORIENTATION ANGLES (DEG.) FROM MAST ARM A				FIELD ORIENTATION			
						ARM LENGTH "L" (FT.)	VIDEO BRACKET ARM	MAST ARM	VIDEO BRACKET ARM	VIDEO DETECTOR MOUNTING HEIGHT	L1 (FT.)	L2 (FT.)	L3 (FT.)	S1 (FT.)			ANCHOR BOLT REFERENCE LINE	VIDEO BRACKET ARM		INDEX LINE ANGLE	ANCHOR BOLT REFERENCE LINE	CAPPED FOUNDN. CONDUIT ELL, 2" DIAMETER	FOUNDATION ELEVATION
HILLIARD-ROME @ I-70 RAMPS	92	A	DARK BRONZE	4	27	35	30'	19'	22'	29'	21	33		27			90°	0°		0°	90°	270°	945.4
		B	DARK BRONZE	12	27	42	30'	19'	22'	29'	28	40		34			90°	0°		315°	45°	45°	945.2



ALL ANGLES ARE MEASURED CLOCKWISE.

BASE PLATE IS ORIENTED SQUARE TO MAST ARM.

TYPICAL SIGNAL SUPPORT ORIENTATION DETAIL



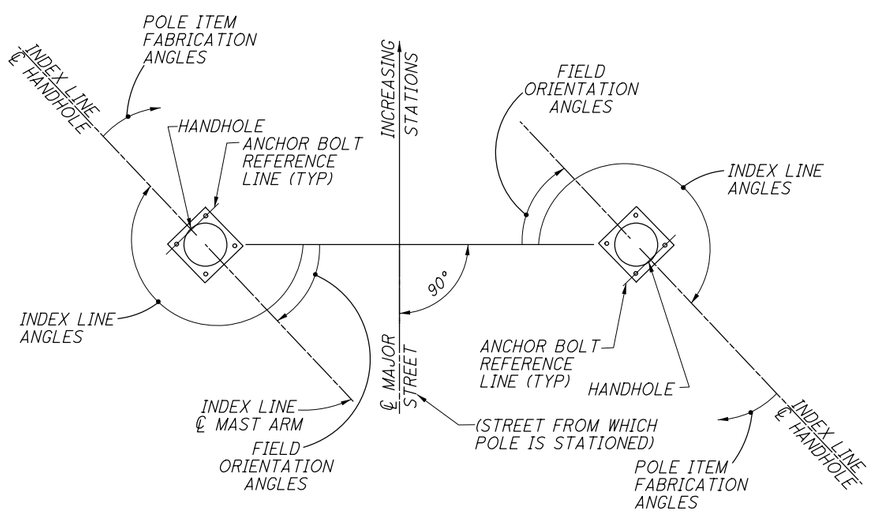
CALCULATED MJH
CHECKED KAE

TRAFFIC SIGNAL PLAN
MAST ARM ORIENTATION CHART

HILLIARD ROME ROAD

INTERSECTION	SHEET NUMBER	POLE DESIGNATION	COLOR	DESIGN NUMBER	POLE HEIGHT (FT)	SPAN ATTACHMENT HEIGHT (FT)	POLE FABRICATION DATA CLOCKWISE FROM HANDHOLE AT 0 DEGREES								FIELD ORIENTATION			
							VIDEO BRACKET ARM ORIENTATION	VIDEO BRACKET ARM - ARM LENGTH	ANCHOR BOLT REF. LINE	CABLE ENTRANCE 1	CABLE ENTRANCE 2	PEDESTRIAN SIGNALS	PEDESTRIAN PUSH BUTTONS	AUX. SIGNAL HEAD	INDEX LINE ANGLE	ANCHOR BOLT REFERENCE LINE	CAPPED FOUNDN CONDUIT ELL 2" DIAMETER	FOUNDATION ELEVATION
HILLIARD-ROME @ I-70 RAMPS	95	1	DARK BRONZE	10	32	27.5			90°	135°/27′	225°/28′	-	-	0°/12′	180°	90°	270°	943.8
		2	DARK BRONZE	10	32	27.5			90°	180°/27′		-	-		180°	90°	270°	943.9
		P-1	DARK BRONZE		12.7				90°					0°	250°	70°		
HILLIARD-ROME @ RENNER RD	98	1	DARK BRONZE	10	31	27			90°	135°/28′	225°/28′	135°	135°		135°	45°	90°	SEE SHEET 68
		2	DARK BRONZE	11	37	29	230°	30′	90°	180°/27′					220°	130°	270°	
		3	DARK BRONZE	10	31	27			90°	180°/28′					135°	45°	90°	
		4	DARK BRONZE	10	35	27	225°	30′	90°	180°/28′		230°	230°		225°	135°	270°	
		P-1	DARK BRONZE	PEDESTAL	12.7				90°			240°			105°	15°		
		P-2	DARK BRONZE	PEDESTAL	12.7				90°			110°			250°	70°		
		P-3	DARK BRONZE	PEDESTAL	12.7				90°			240°			120°	30°		
		P-4	DARK BRONZE	PEDESTAL	12.7				90°			100°			245°	65°		
HILLIARD-ROME @ WESTPOINTE PLAZA DR	101	1	DARK BRONZE	9	30	25			90°	135°/27′	225°/28′	135°	135°		135°	45°	80°	SEE SHEET 69
		2	DARK BRONZE	9	37	29	235°	30′	90°	180°/27′		225°	225°		215°	125°	270°	
		3	DARK BRONZE	9	30	25			90°	180°/27′		140°	140°		130°	40°	90°	
		4	DARK BRONZE	9	33	25	255°	30′	90°	180°/27′		225°	225°		230°	140°	270°	
		P-1	DARK BRONZE	PEDESTAL	12.7				90°			240°			120°	30°		
		P-2	DARK BRONZE	PEDESTAL	12.7				90°			180°			180°	90°		
		P-3	DARK BRONZE	PEDESTAL	12.7				90°			250°			120°	30°		
		P-3	DARK BRONZE	PEDESTAL	12.7				90°			105°			255°	75°		

SEE NEXT SHEET FOR TYPICAL SIGNAL ELEVATION DETAIL.



ALL ANGLES ARE MEASURED CLOCKWISE.

INDEX LINE GOES THROUGH CENTER OF THE HANDHOLE.

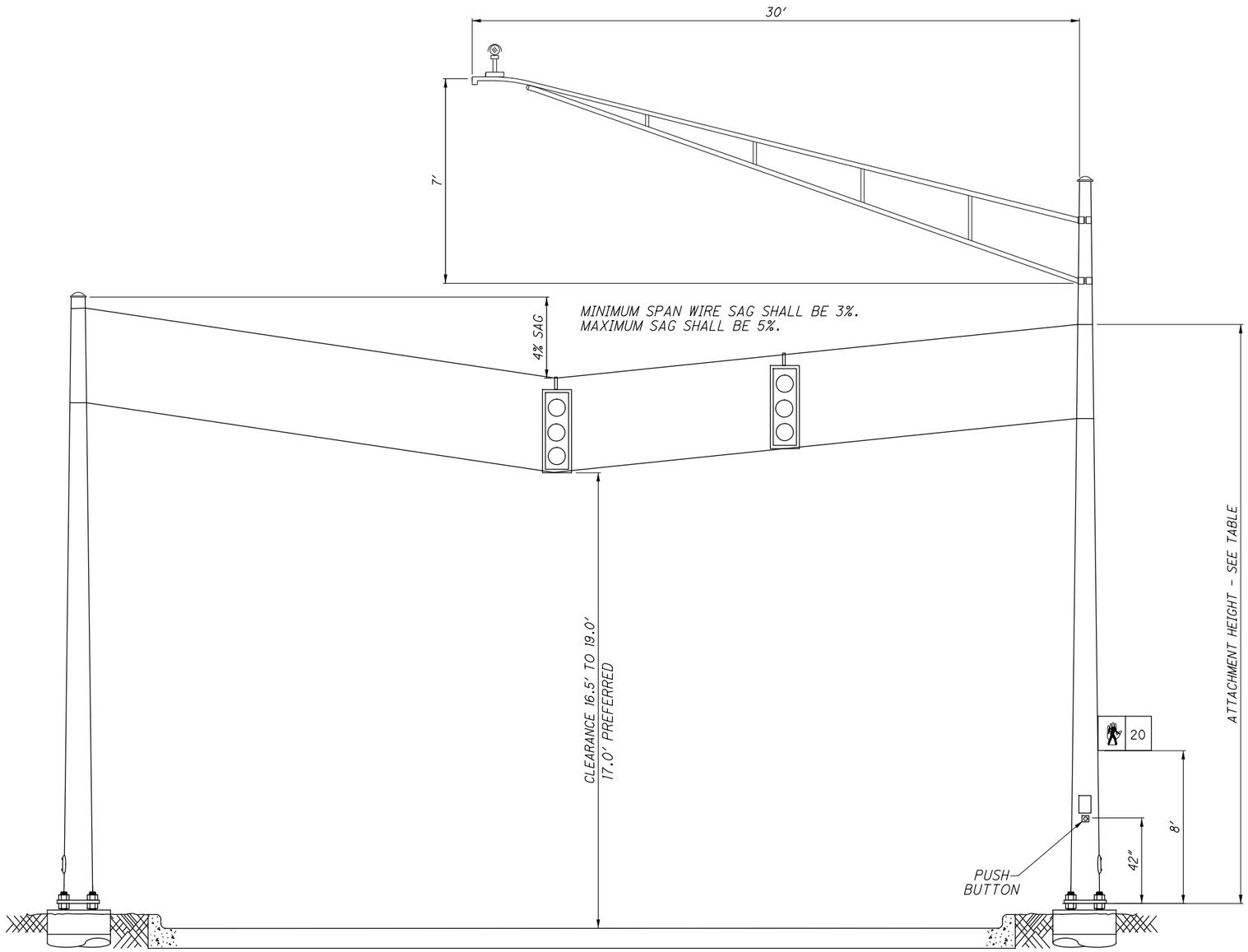
TYPICAL STRAIN POLE ORIENTATION DETAIL

NOT TO SCALE

CALCULATED MJH
CHECKED KAE

TRAFFIC SIGNAL PLAN
POLE ORIENTATION CHART

HILLIARD ROME ROAD



TYPICAL SIGNAL ELEVATION

CALCULATED	CHECKED
MJH	KAE

TRAFFIC SIGNAL PLAN
TYPICAL SIGNAL ELEVATION

HILLIARD ROME ROAD

POWER SUPPLY

THE ELECTRICAL POWER REQUIRED WILL BE SUPPLIED BY THE AEP, 215 NORTH FRONT STREET, COLUMBUS, OHIO - 43215.

LUMINAIRES

POLE-BRACKET-ARM MOUNTED LUMINAIRES FOR THIS PROJECT SHALL BE HIGH PRESSURE SODIUM TYPE WITH INTEGRAL REGULATOR TYPE BALLAST WHICH IS DUAL VOLTAGE RATED FOR 240/480 VOLT OPERATION DESIGNED TO FURNISH LIGHT DISTRIBUTION PATTERNS.

LAMPS

ALL LAMPS FOR THIS PROJECT SHALL BE FIRST LINE HIGH PRESSURE SODIUM TYPE. LAMPS FOR POLE-BRACKET-ARM MOUNTED LUMINAIRES SHALL BE 400 WATT.

PULL BOXES

PULL BOXES SHALL BE 18" OR 24", 725.08

713.04 CONDUIT

CROSSOVER CONDUIT, EXPOSED CONDUIT, AND CONDUIT BURIED IN THE EARTH SHALL BE RIGID FERROUS METAL ELECTRICAL CONDUIT. (SECTION 713.04)

ELECTRICAL CABLE

POLE AND BRACKET CABLE SHALL BE SINGLE CONDUCTOR #10-AWG COPPER.

DUCT-CABLE

THE MINIMUM INSIDE DIAMETER OF THE DUCT FOR THE DUCT CABLE SHALL NOT BE LESS THAN 1½".

CONNECTIONS

SUFFICIENT SLACK SHALL BE PROVIDED IN THE CABLE TO ALLOW CONNECTORS TO BE REMOVED THROUGH THE HAND HOLE.

EACH LIGHT POLE SHALL BE EQUIPPED WITH TWO TYPE II FUSED "Y" CONNECTOR KITS.

ALL ROADWAY PULL BOXES SHALL BE EQUIPED WITH UNFUSED PULL APART.

CONDUIT, CONNECTOR, AND LIGHT POLE INSTALLATION

TERMINAL POINTS OF ALL CONDUITS CONTAINING CONDUCTOR WIRE OR CABLE, SHALL BE COMPLETELY SEALED IN AN APPROVED MANNER WITH A REMOVEABLE SEALING COMPOUND WHICH IS COMPATIBLE WITH THE CABLE JACKET, THE INSULATION, AND THE CONDUIT MATERIAL. THE SEALING MATERIAL MUST BE INSTALLED IMMEDIATELY UPON THE COMPLETION OF THE DUCT CABLE INSTALLATION. FURTHER, ALL EMPTY CONDUITS SHALL BE IMMEDIATELY CAPPED UNTIL PULL WIRES OR CABLE IS INSTALLED. FURTHER, LIGHT POLE HAND HOLES SHALL HAVE THEIR COVERS INSTALLED IMMEDIATELY UPON ERRECTION OF POLE. FURTHER, ALL CABLE CONNECTOR KITS AND EXPOSED CABLE ENDS SHALL BE ADEQUATELY PROTECTED BY ENCLOSING IN PLASTIC BAGS OR BY TAPING OR BY OTHER APPROVED MEANS UNTIL SUCH TIME AS THE CABLE CONNECTION SHALL HAVE BEEN COMPELTED.

UTILITIES

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

LUMINAIRE REMOVED, AS PER PLAN

THIS ITEM OF WORK SHALL CONSIST OF REMOVING AN EXISTING LUMINAIRE AND PROPERLY STORING IT ON THE PROJECT SITE FOR RE-ERECTION.

EACH LUMINAIRE REMOVED AND STORED SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS, AND INCIDENTALS REQUIRED TO COMPELTE THE ITEM IN A SATISFACTORY AND WORKMANLIKE MANNER.

LUMINAIRE INSTALLATION ONLY, AS PER PLAN

THIS ITEM OF WORK SHALL CONSIST OF INSTALLING A LUMINAIRE REMOVED FROM A PREVIOUS LOCATION ON THE PROJECT SITE.

EACH LUMINAIRE INSTALLED SHALL INCLUDE ALL LABOR, MATERIALS, AND INCIDENTALS REQUIRED TO PERFORM THIS ITEM IN A SATISFACTORY AND WORKMANLIKE MANNER.

LIGHT POLE REMOVED FOR STORAGE, AS PER PLAN

THIS ITEM OF WORK SHALL CONSIST OF REMOVING AN EXISTING LIGHT POLE AND PROPERLY STORING IT ON THE PROJECT SITE FOR RE-ERECTION.

EACH POLE REMOVED AND STORED SHALL INCLUDE ALL LABOR, MATERIALS, AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY AND WORKMANLIKE MANNER.

RE-ERECT EXISTING LIGHT POLE, AS PER PLAN

THIS ITEM OF WORK SHALL CONSIST OF RE-ERECTING AN EXISTING LIGHT POLE PREVIOUSLY REMOVED AND STORED BY THIS PROJECT.

WHERE THE LIGHT POLE WILL BE INSTALLED ON A NEW 24" X 6' FOUNDATION, NEW ANCHOR BOLTS SHALL BE FURNISHED.

ANY REPAIRS AND ADJUSTMENTS NECESSARY TO RETURN THE LIGHT POLE TO GOOD OPERATING CONDITION SHALL BE MADE AND INCIDENTAL TO THIS ITEM.

POLES RE-ERECTED SHALL INCLUDE ALL LABOR, MATERIALS, AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY AND WORKMANLIKE MANNER.

CONDUIT CLEANED AND CABLES REMOVED, AS PER PLAN

THIS ITEM SHALL CONSIST OF CLEANING AN EXISTING CONDUIT BY REMOVING EXISTING CABLES, MUD, AND DEBRIS SO THAT NEW CABLE CAN BE INSTALLED. INCIDENTAL TO THE CLEANING IS THE INSTALLATION OF BUSHINGS AND/OR COUPLINGS ON THE ENDS OF EXISTING CONDUIT AS REQUIRED. MATERIALS REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR FOR PROPER DISPOSAL OFF OF THE PROJECT SITE. DISTURBED AREAS SHALL BE PROPERLY RESTORED.

CONDUIT CLEANED AND CABLE REMOVED SHALL INCLUDE ALL LABOR, MATERIALS, AND INCIDENTALS REQUIRED TO COMPLETE THIS ITEM IN A SATISFACTORY AND WORKMANLIKE MANNER.

UNDERDRAINS FOR PULL BOXES

REFERENCE IS MADE TO THE STANDARD DRAWINGS FOR DETAILS OF DRAINING PULL BOXES. UNDERDRAINS FOR PULL BOXES SHALL BE USED AS DIRECTED BY THE ENGINEER AND SHALL BE PROVIDED WHERE THE LENGTH REQUIRED FOR A SATISFACTORY OUTLET DOES NOT EXCEED APPROXIMATELY 20 FEET. AN ANIMAL GUARD SHALL BE INCLUDED AT THE OUTLET END OF THE DRAIN. PER CMS 625.20, PULL BOXES SHALL INCLUDE UNDERDRAINS AND NO SEPARATE PAY ITEM SHALL BE PROVIDED.

SPECIAL, MAINTAIN EXISTING LIGHTING

EXISTING ROADWAYS WHICH ARE TO REMAIN OPEN TO TRAFFIC DURING CONSTRUCTION OF THIS PROJECT AND WHICH ARE LIGHTED SHALL HAVE THE LIGHTING MAINTAINED AS DESCRIBED HEREIN.

BEFORE ANY WORK IS STARTED IN THE IMMEDIATE VICINITY OF THE EXISTING LIGHTING CIRCUITS, REPRESENTATIVES OF ODOT, THE MAINTAINING AGENCY AND THE CONTRACTOR SHALL MAKE A VISUAL INSPECTION OF THE EXISTING ROADWAY LIGHTING CIRCUITS TO BE MAINTAINED. DURING THIS INSPECTION, A WRITTEN RECORD OF THE CONDITION OF EXISTING LIGHTING SHALL BE MADE BY ODOT'S REPRESENTATIVE. THIS WRITTEN REPORT SHALL NOTE INDIVIDUAL LUMINAIRES WHICH ARE NOT IN WORKING ORDER, INDIVIDUAL POLES WHICH ARE STANDING, AND INDIVIDUAL CIRCUITS WHICH ARE NOT IN WORKING ORDER. THE COMPLETED REPORT SHALL BE SIGNED BY THE REPRESENTATIVES OF ODOT, THE MAINTAINING AGENCY AND THE CONTRACTOR.

IF, AS A RESULT OF THIS INSPECTION, IT IS DETERMINED THAT THE CONDITION OF THE EXISTING SYSTEM IS BELOW THAT REQUIRED FOR THE SAFETY OF THE TRAVELING PUBLIC, THEN THE MAINTAINING AGENCY SHALL MAKE THE REPAIRS NECESSARY TO RETURN THE SYSTEM TO AN ACCEPTABLE CONDITION.

FOLLOWING THESE REPAIRS, THE SYSTEM SHALL AGAIN BE INSPECTED AND A REPORT SHALL BE MADE AND SIGNED AS OUTLINED HEREIN.

WHEN THE EXISTING SYSTEM IS IN AN ACCEPTABLE CONDITION, IT SHALL BE TURNED OVER TO THE CONTRACTOR WHO SHALL THEN BE REQUIRED TO MAINTAIN THE EXISTING LIGHTING TO THE CONDITION OUTLINED IN THIS REPORT WITH THE EXCEPTION OF KNOCKDOWNS DUE TO TRAFFIC ACCIDENTS.

REPLACEMENT OF KNOCKED DOWNED UNITS SHALL BE DONE ONLY WHEN THE ENGINEER HAS DETERMINED THAT THE REPLACEMENT OF THE KNOCKED DOWN UNIT IS NECESSARY AND SHALL BE PAID SEPARATELY ON A UNIT BASIS.

SPECIAL, MAINTAIN EXISTING LIGHTING (CONTINUED)

WHEN THE SEQUENCE OF CONSTRUCTION ACTIVITIES REQUIRES, OR SHOULD THE CONTRACTOR DESIRE, THE REMOVAL OF THE EXISTING LIGHTING BEFORE THE NEW LIGHTING IS OPERATIONAL, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING TEMPORARY LIGHTING OF THIS PORTION OF THE ROADWAY.

PRIOR TO INSTALLING SUCH LIGHTING, THE CONTRACTOR SHALL PREPARE AND SUBMIT FOUR SETS OF THE TEMPORARY LIGHTING PLAN TO THE ENGINEER FOR REVIEW AND APPROVAL.

THIS PLAN SHALL SHOW LOCATIONS OF POLES, LENGTHS OF BRACKET ARMS, STYLES OF LUMINAIRES, MOUNTING HEIGHTS, WIRING METHODS AND OTHER PERTINENT INFORMATION. THE TEMPORARY LIGHTING SHALL PROVIDE AN AVERAGE INITIAL INTENSITY OF 1.2 FOOTCANDLES WITH AN AVERAGE TO MINIMUM UNIFORMITY NOT TO EXCEED 3:1. MOUNTING HEIGHT OF TEMPORARY LUMINAIRES SHALL NOT BE LESS THAN 30 FEET, AND THE MINIMUM OVERHEAD CONDUCTOR CLEARANCE SHALL BE 20 FEET. TEMPORARY OVERHEAD CONSTRUCTION SHALL NOT BE LESS THAN GRADE "A" FOR STRENGTH REQUIREMENTS AS DEFINED BY THE NATIONAL ELECTRIC SAFETY CODE. WOOD POLES WITH OVERHEAD WIRING MAY BE USED. HOWEVER, TEMPORARY LIGHTING SHALL MEET FEDERAL AND STATE SAFETY CRITERIA. IF BREAKAWAY POLES ARE USED TO MEET THESE CRITERIA, THEN UNDERGROUND WIRING SHALL BE USED. RECONDITIONED OR USED MATERIALS MAY BE FURNISHED FOR TEMPORARY LIGHTING.

ALL MATERIALS NECESSARY TO COMPLETE THE TEMPORARY LIGHTING SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR. WHEN NO LONGER NEEDED, THE TEMPORARY LIGHTING INSTALLATION SHALL BE REMOVED AND PROPERLY DISPOSED OF BY THE CONTRACTOR.

THE MAINTAINING AGENCY WILL PAY FOR ELECTRICAL ENERGY CONSUMED BY EXISTING POWER SERVICES AND BY PROPOSED PERMANENT POWER SERVICES AFTER ACCEPTANCE OF THE LIGHTING WORK. THE CONTRACTOR WILL PAY FOR ELECTRICAL ENERGY, INSTALLATION, REMOVAL AND MAINTENANCE OF ANY TEMPORARY POWER SERVICES.

MAINTAIN EXISTING LIGHTING SHALL INCLUDE PAYMENT FOR ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS NECESSARY TO MAINTAIN THE EXISTING LIGHTING AS SPECIFIED HEREIN.

THE REPLACEMENT OF AN EXISTING LIGHTING UNIT WHICH HAS BEEN KNOCKED DOWN AFTER THE AFOREMENTIONED INSPECTION AND SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS NECESSARY TO PROVIDE A REPLACEMENT FOR SUCH UNIT.

HIGH VOLTAGE TEST WAIVED

THE HIGH VOLTAGE TEST SHALL NOT BE PERFORMED ON THE CIRCUITS CONSTRUCTED BY THIS PROJECT, SINCE THE TEST COULD DAMAGE THE PORTION OF THE COMPLETED CIRCUIT WHICH HAS BEEN IN SERVICE PRIOR TO THIS PROJECT.

COORDINATION FOR LIGHTING POWER

THE CONTRACTOR SHALL NOTIFY THE FOLLOWING BEFORE STARTING WORK ON THE LIGHTING:

CITY OF COLUMBUS
DEPARTMENT OF PUBLIC UTILITIES
DIVISION OF POWER
TOM GLIVA
(614)-645-7019
TGLIVA@COLUMBUS.GOV

AMERICAN ELECTRIC POWER (AEP)
GREG ZORICH
(614)-883-7935
GLZORICH@AEP.COM

CONVENTIONAL LIGHTING

CONDUIT (CIRCUIT CABLE AND SIZE AS NOTED)

CKT "A" NO. 2 1½" POLYETHYLENE CONDUIT, 725.052, WITH 2 NO. 4 AWG DISTRIBUTION CABLES (CIRCUIT CABLE AND SIZE AS NOTED)

PULL BOX

CONTROL CENTER

REMOVAL OF EXISTING LIGHTING OR PULL BOX

STREET LIGHT CABLES

THE CABLES USED FOR THIS PROJECT WILL BE NO. 4 AWG, 5000 VOLT DISTRIBUTION CABLES.

COLOR FOR MAST ARM AND STRAIN POLE

THE COLOR FOR THE MAST ARM POLES AND STRAIN POLE WILL BE FEDERAL STANDARD 595 B, COLOR NUMBER 20040 (DARK BRONZE).

CALCULATED JEP CHECKED EAH

LIGHTING GENERAL NOTES

HILLIARD ROME RD

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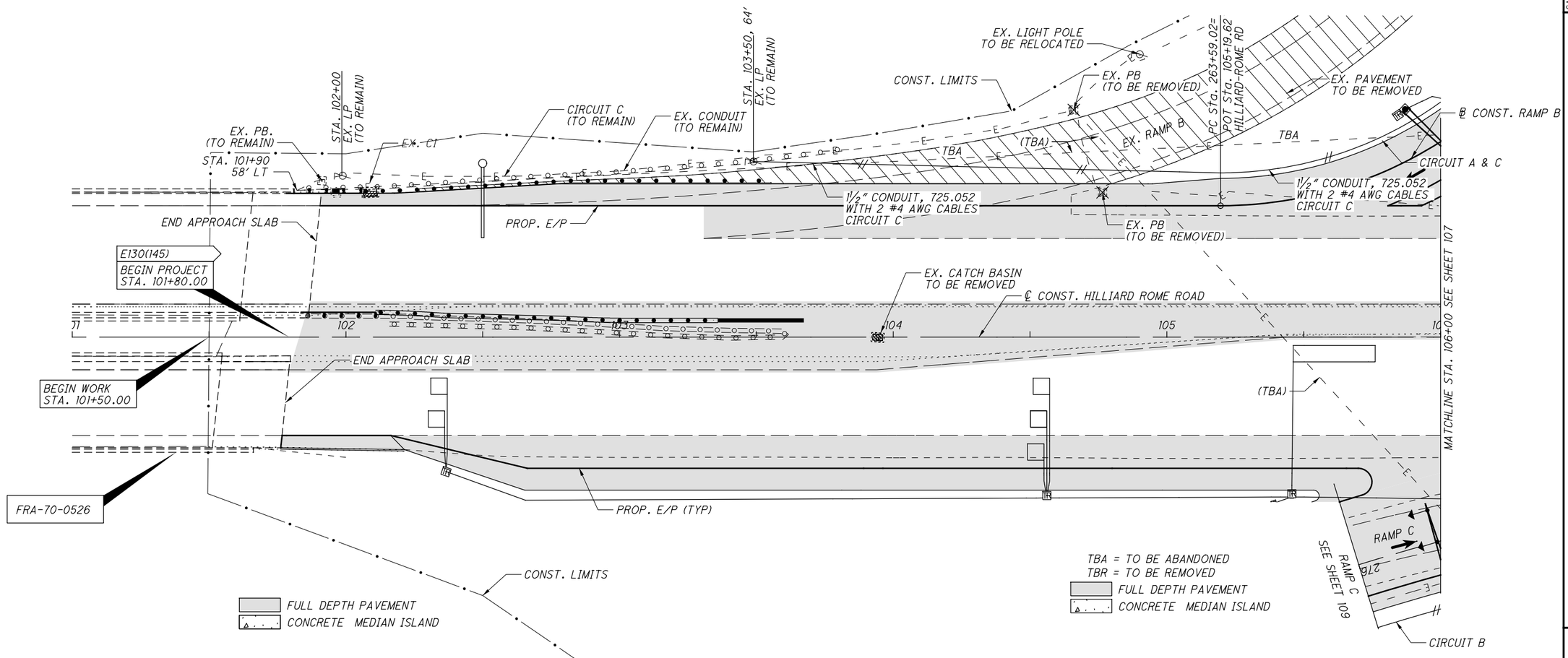

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED JEP
CHECKED EAH

LIGHTING PLAN - HILLIARD-ROME ROAD
STA.101+00.00 TO STA.106+00.00

HILLIARD ROME RD

106
109

3103-E

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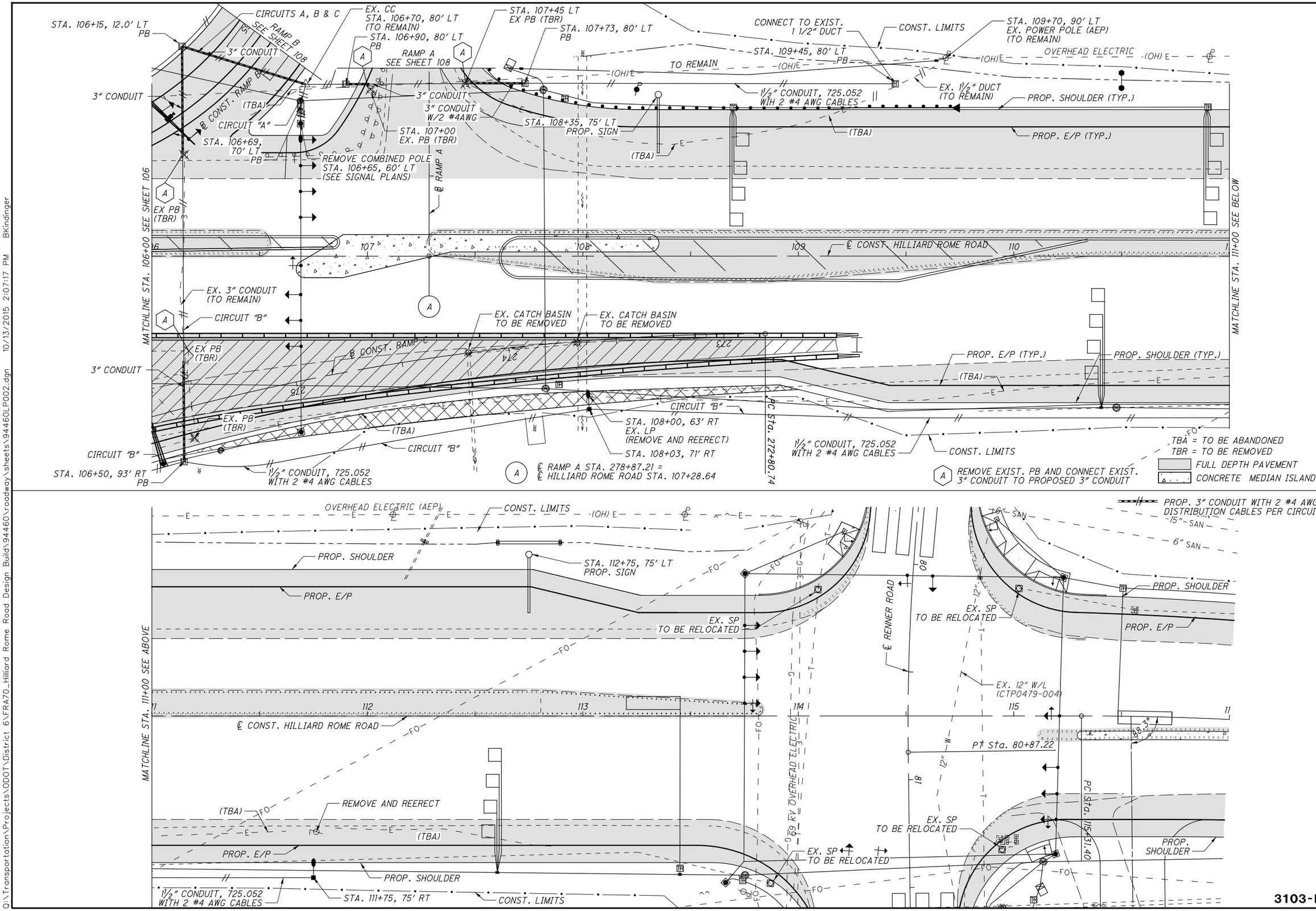

HORIZONTAL SCALE IN FEET 0 10 20 40

CALCULATED SRR
CHECKED EAH

LIGHTING PLAN STA. 106+00 - HILLIARD ROME ROAD STA. 116+00.00

HILLIARD ROME RD

107
109

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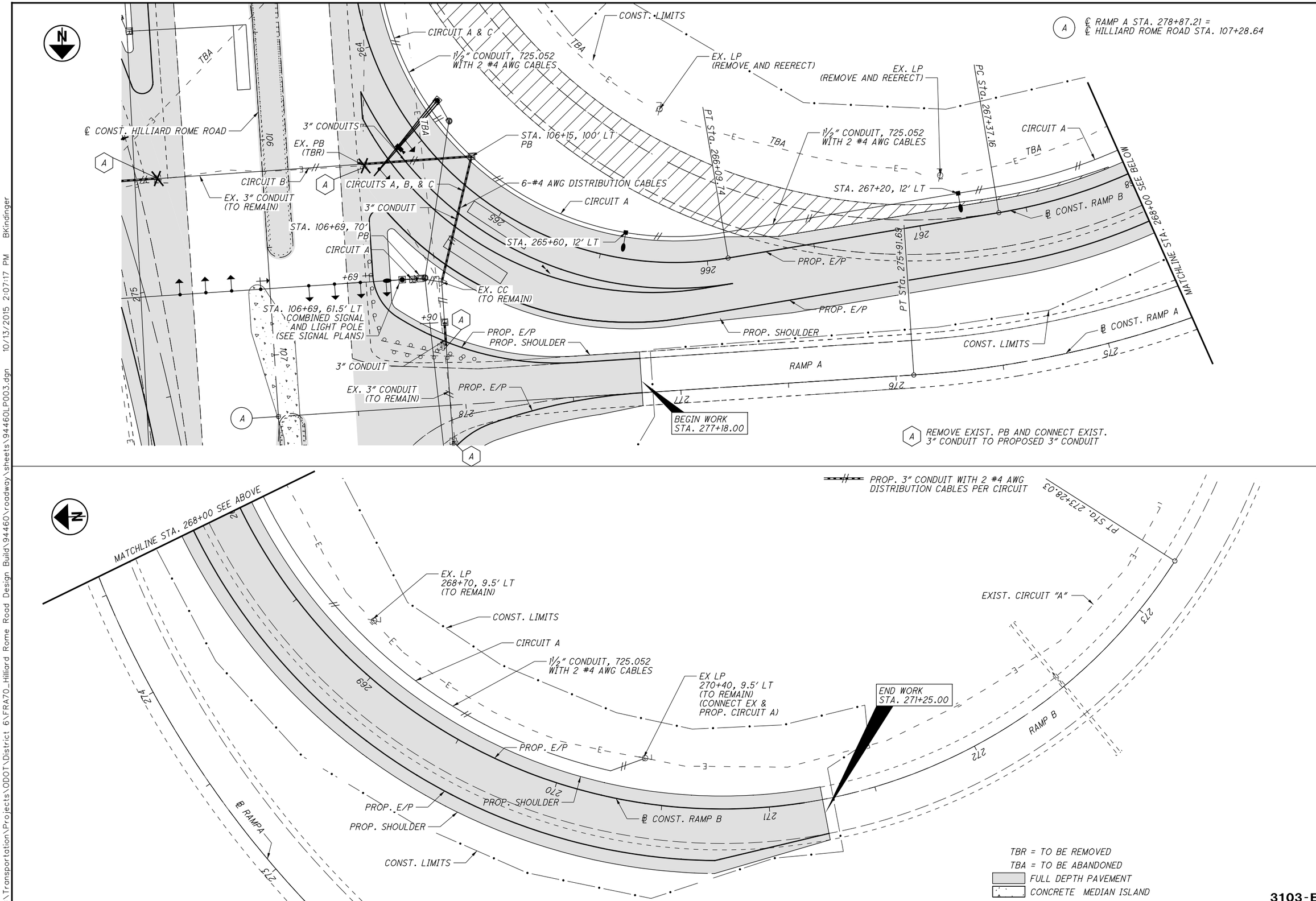

HORIZONTAL SCALE IN FEET 0 10 20 40

CALCULATED JEP
CHECKED EAH

LIGHTING PLAN - RAMP B
STA. 263+29.35 TO STA. 273+00.00

HILLIARD ROME RD

108
109

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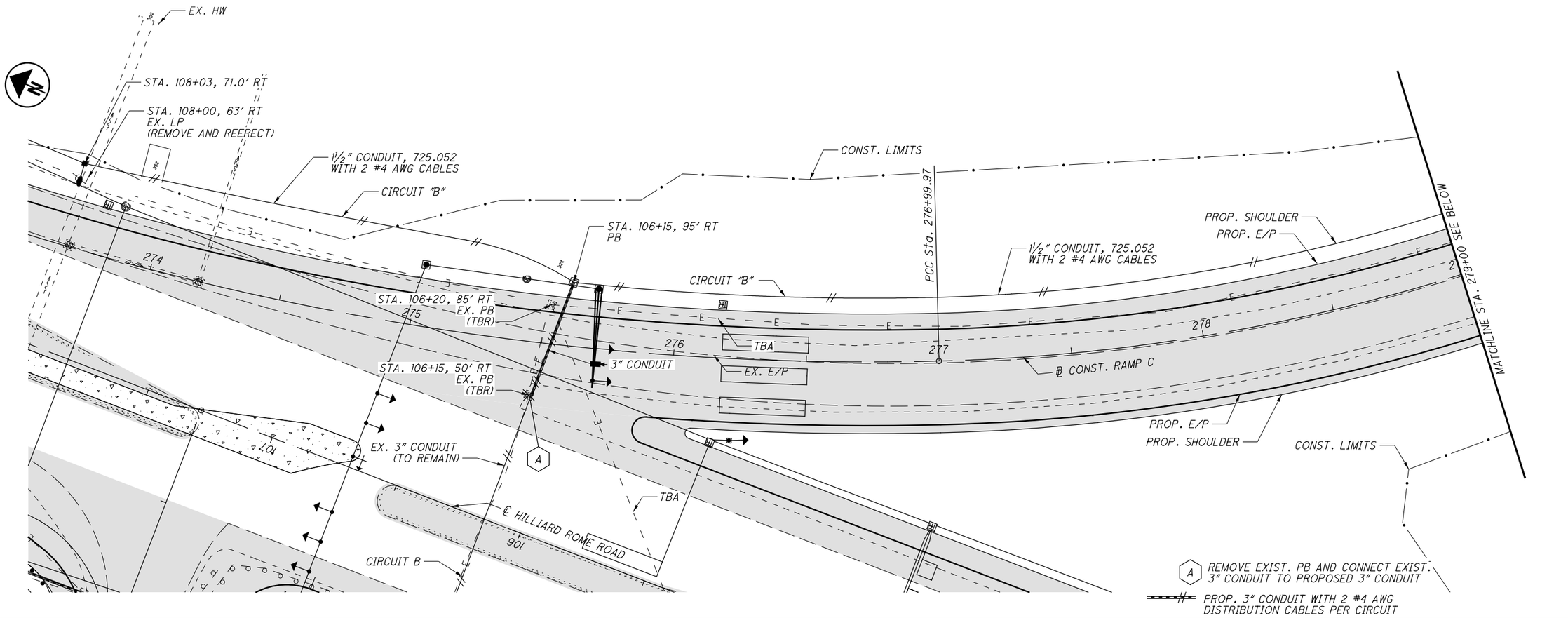

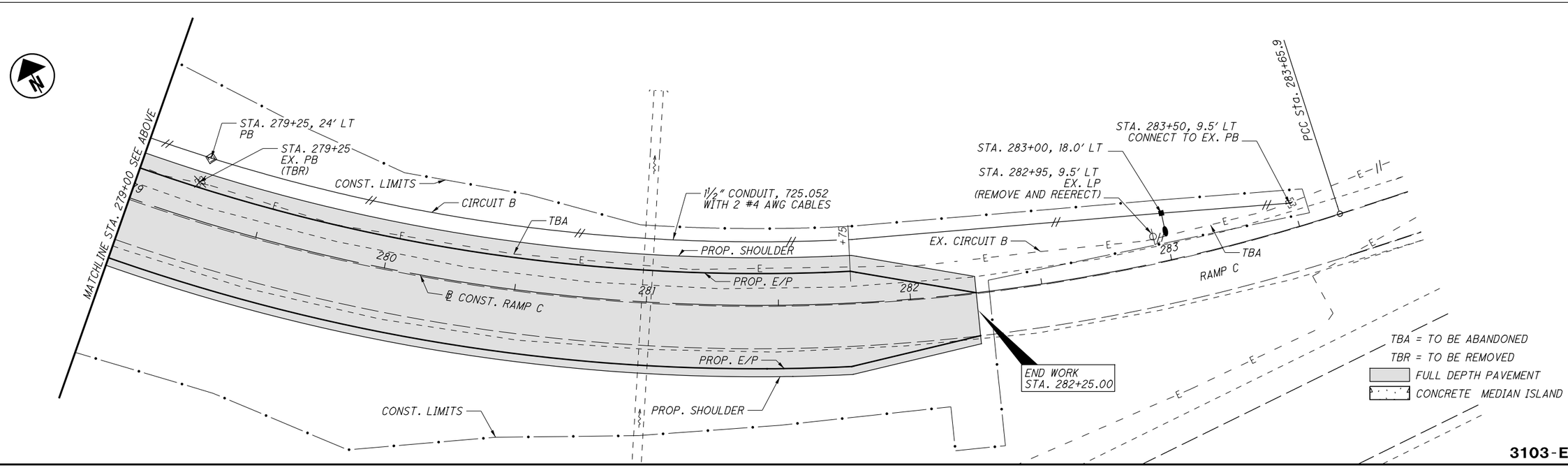

3103-E

HORIZONTAL SCALE IN FEET 0 10 20 40

CALCULATED JEP
CHECKED EAH

LIGHTING PLAN - RAMP C
STA. 273+50.00 TO STA. 284+00.00

HILLIARD ROME RD

109/109

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