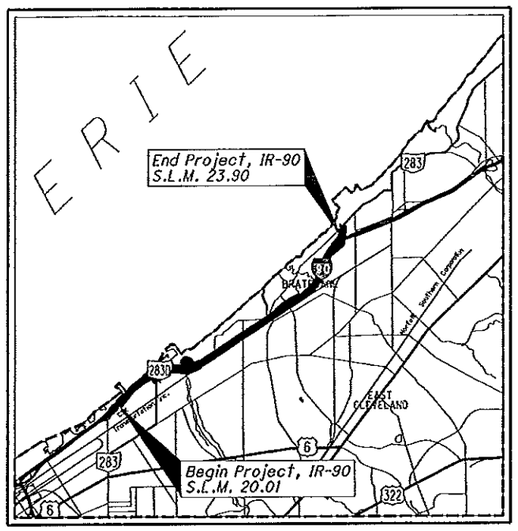
CUY - IR 90-20.01
170160 PID - 89408
Dist 12 3/30/2017

Contract Proposal Available @ www.
Contracts.dot.state.oh.us/home

I:\ProjectData\CUY\89408\Design\Roadway\Sheets\89408_GT001.dgn Sheet 12/15/2



LOCATION MAP

LATITUDE: 41°32'50" N LONGITUDE: 81°36'41" W

SCALE IN MILES
0 1 2 3 4

N

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

STATE OF OHIO

DEPARTMENT OF TRANSPORTATION

CUY-90-20.01

City of Cleveland

Village of Bratenahl

CUYAHOGA COUNTY

PROJECT DESCRIPTION

This project consists of the resurfacing of 3.89 miles with asphalt concrete from S.L.M. 20.01 to S.L.M. 23.90 in the City of Cleveland and Village of Bratenahl in Cuyahoga County. This project also includes guardrail replacement, curve warning signs and increased barrier delineation.

PROJECT EARTH DISTURBED AREA:	N/A (MAINTENANCE PROJECT)
ESTIMATED CONTRACTOR EARTH DISTURBED AREA:	N/A (MAINTENANCE PROJECT)
NOTICE OF INTENT EARTH DISTURBED AREA:	N/A (MAINTENANCE PROJECT)

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.

2016 SPECIFICATIONS

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

INDEX OF SHEETS:

DESIGN DESIGNATION

	S.L.M. 19.73-20.66	S.L.M. 20.66-21.02	S.L.M. 21.02-22.72	S.L.M. 22.72-23.71	S.L.M. 23.71-24.10
CURRENT ADT (2017)	121,000	121,000	128,000	127,000	124,000
DESIGN YEAR ADT (2037)	129,000	127,000	133,000	138,000	128,000
DESIGN HOURLY VOLUME (2037)	12,000	13,000	12,000	12,000	12,000
DIRECTIONAL DISTRIBUTION	0.59	0.60	0.60	0.55	0.56
TRUCKS (24 HOUR B&C)	0.09	0.10	0.09	0.09	0.09
DESIGN SPEED	65 MPH	65 MPH	65 MPH	65 MPH	65 MPH
LEGAL SPEED	60 MPH	60 MPH	60 MPH	60 MPH	60 MPH

DESIGN FUNCTIONAL CLASSIFICATION:
Urban Interstate
NHS PROJECT — Yes

DESIGN EXCEPTIONS

Yes

UNDERGROUND UTILITIES

CONTACT BOTH SERVICES TWO WORKING DAYS BEFORE YOU DIG.

OHIO Utilities Protection SERVICE — Call Before You Dig 1-800-362-2764
(Non-members must be called directly)

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

PLAN PREPARED BY:
ODOT - District 12
Planning and Engineering
5500 Transportation Blvd.
Garfield Heights, OH 44125

ENGINEERS SEAL:

STATE OF OHIO — Erika Joy Kenzig — E-78379 — REGISTERED PROFESSIONAL ENGINEER

SIGNED: [signature]
DATE: 12/15/16

STANDARD CONSTRUCTION DRAWINGS

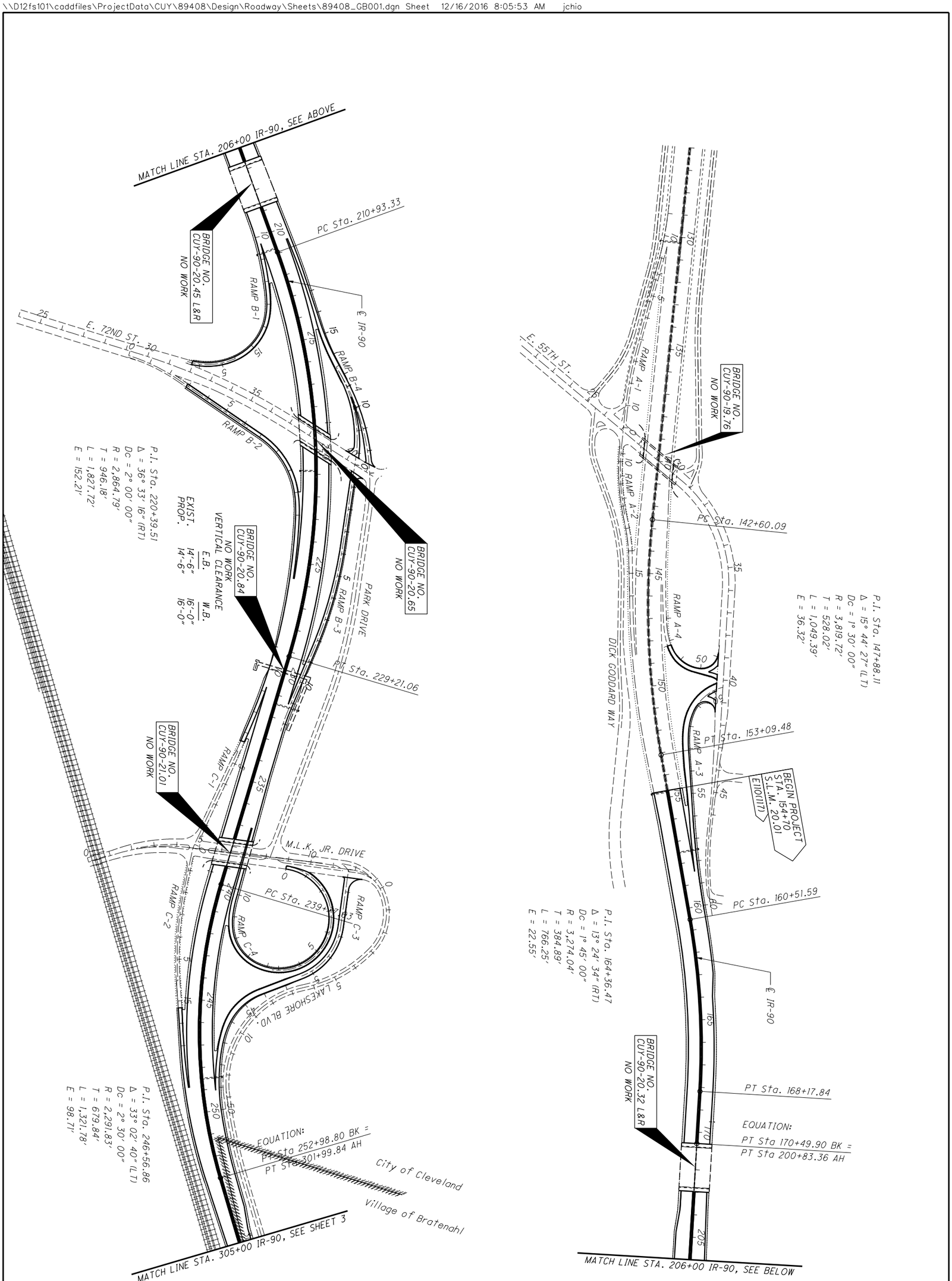
BP-3.1	7/18/14	MT-95.30	7/15/16	TC-41.20	10/18/13		
BP-5.1	7/19/13	MT-95.50	10/16/15	TC-42.20	10/18/13		
BP-9.1	7/19/13	MT-98.10	7/18/14	TC-52.10	10/18/13		
		MT-98.11	7/18/14	TC-52.20	7/15/16		
DM-4.4	1/15/16	MT-98.20	7/18/14	TC-61.10	1/17/14		
		MT-98.22	7/18/14	TC-61.30	7/18/14		
MGS-1.1	7/19/13	MT-98.28	7/18/14	TC-64.10	7/17/15		
MGS-2.1	7/19/13	MT-98.29	7/19/13	TC-65.10	1/17/14		
MGS-3.1	7/18/14	MT-99.20	7/19/13	TC-65.11	7/15/16		
MGS-3.2	1/18/13	MT-101.70	1/17/14	TC-71.10	7/15/16		
MGS-4.2	7/19/13	MT-101.90	7/17/15	TC-72.20	7/15/16		
MGS-4.3	1/18/13	MT-104.10	10/16/15				
MGS-5.2	7/15/16	MT-105.10	7/19/13				
MGS-5.3	7/15/16						

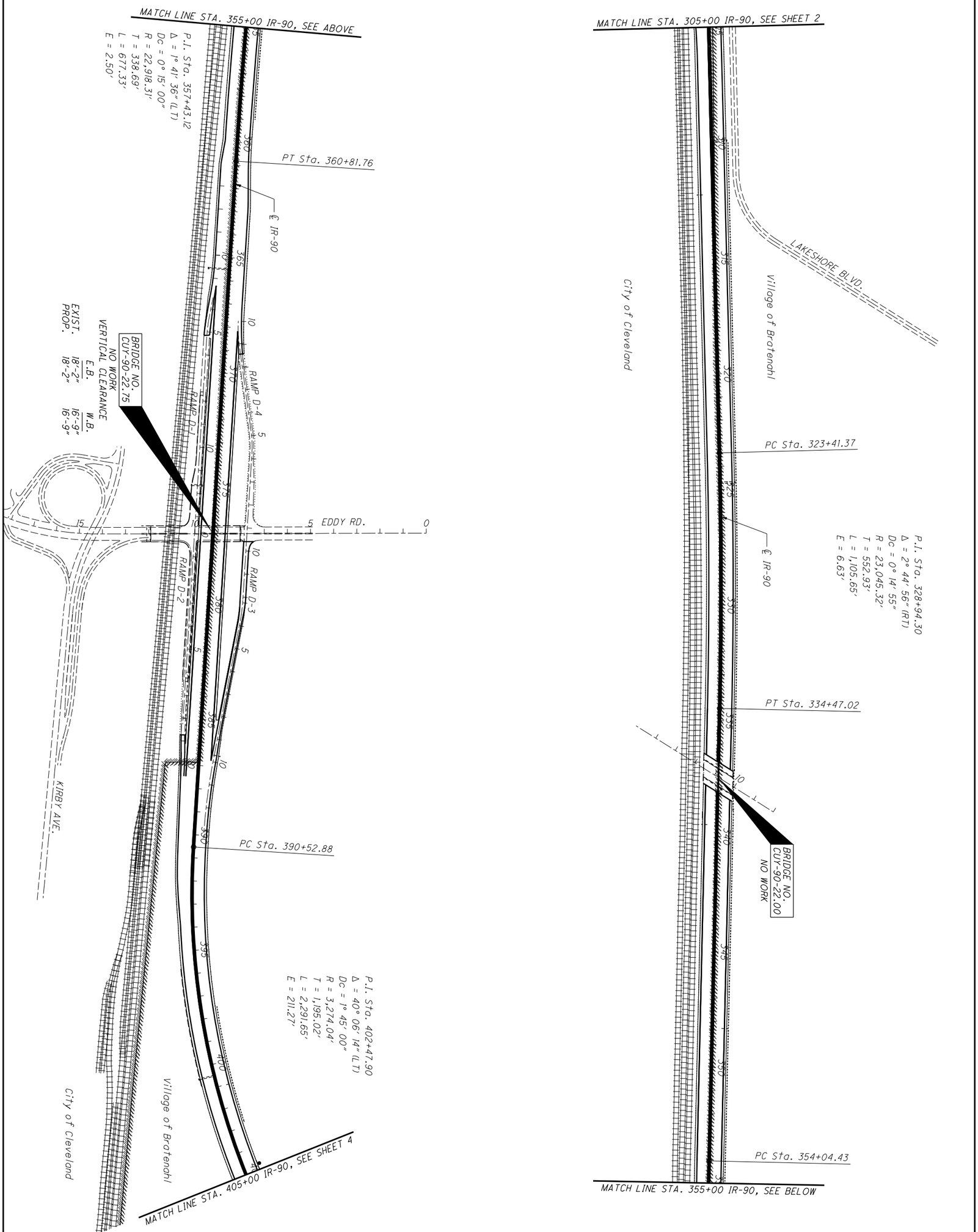
SUPPLEMENTAL SPECIFICATIONS		SPECIAL PROVISIONS
800-2016	1/20/17	
808	1/29/16	
821	4/20/12	
832	1/17/14	
875	1/17/14	
908	1/29/16	
921	4/20/12	
939	7/17/15	

APPROVED [signature]
DATE 12-15-16 DISTRICT DEPUTY DIRECTOR

APPROVED [signature]
DATE 1-10-17 DIRECTOR, DEPARTMENT OF TRANSPORTATION

FEDERAL PROJECT NO.	E110(117)
PID NO.	89408
CONSTRUCTION PROJECT NO.	0
RAILROAD INVOLVEMENT	NONE
	CUY-90-20.01


MATCH LINE STA. 206+00 IR-90, SEE ABOVE
BRIDGE NO. CUY-90-20.45 L&R NO WORK
PC Sta. 210+93.33
℄ IR-90
RAMP B-1
RAMP B-4
RAMP B-2
E. 72ND ST.
BRIDGE NO. CUY-90-20.84 NO WORK VERTICAL CLEARANCE
EXIST. E.B. 14'-6"
PROP. E.B. 14'-6"
W.B. 16'-0"
W.B. 16'-0"
BRIDGE NO. CUY-90-20.65 NO WORK
PARK DRIVE
RAMP B-3
℄ Sta. 229+21.06
BRIDGE NO. CUY-90-21.01 NO WORK
RAMP C-1
M.L.K. JR. DRIVE
PC Sta. 239+42.93
RAMP C-2
RAMP C-3
RAMP C-4
LAKESHORE BLVD.
EQUATION:
PT Sta 252+98.80 BK =
PT Sta 301+99.84 AH
City of Cleveland
Village of Bratenahl
MATCH LINE STA. 305+00 IR-90, SEE SHEET 3
P.I. Sta. 220+39.51
Δ = 36° 33' 16" (RT)
Dc = 2° 00' 00"
R = 2,864.79'
T = 946.18'
L = 1,827.72'
E = 152.21'
P.I. Sta. 246+56.86
Δ = 33° 02' 40" (LT)
Dc = 2° 30' 00"
R = 2,291.83'
T = 679.84'
L = 1,321.78'
E = 98.71'
E. 55TH ST.
RAMP A-1
RAMP A-2
BRIDGE NO. CUY-90-19.76 NO WORK
PC Sta. 142+60.09
RAMP A-4
DICK GODDARD WAY
RAMP A-3
PT Sta. 153+09.48
BEGIN PROJECT STA. 154+70 S.L.M. 20.01 E110(117)
PC Sta. 160+51.59
℄ IR-90
BRIDGE NO. CUY-90-20.32 L&R NO WORK
PT Sta. 168+17.84
EQUATION:
PT Sta 170+49.90 BK =
PT Sta 200+83.36 AH
MATCH LINE STA. 206+00 IR-90, SEE BELOW
P.I. Sta. 147+88.11
Δ = 15° 44' 27" (LT)
Dc = 1° 30' 00"
R = 3,819.72'
T = 528.02'
L = 1,049.39'
E = 36.32'
P.I. Sta. 164+36.47
Δ = 13° 24' 34" (RT)
Dc = 1° 45' 00"
R = 3,274.04'
T = 384.89'
L = 766.25'
E = 22.55'


MATCH LINE STA. 355+00 IR-90, SEE ABOVE
P.I. Sta. 357+43.12
Δ = 1° 41' 36" (LT)
Dc = 0° 15' 00"
R = 22,918.31'
T = 338.69'
L = 677.33'
E = 2.50'
PT Sta. 360+81.76
℄ IR-90
BRIDGE NO. CUY-90-22.75
NO WORK
VERTICAL CLEARANCE
EXIST. E.B. 18'-2"
PROP. E.B. 18'-2"
EXIST. W.B. 16'-9"
PROP. W.B. 16'-9"
RAMP D-1
RAMP D-4
RAMP D-2
RAMP D-3
EDDY RD.
KIRBY AVE.
PC Sta. 390+52.88
P.I. Sta. 402+47.90
Δ = 40° 06' 14" (LT)
Dc = 1° 45' 00"
R = 3,274.04'
T = 1,195.02'
L = 2,291.65'
E = 211.27'
City of Cleveland
Village of Bratenahl
MATCH LINE STA. 405+00 IR-90, SEE SHEET 4
MATCH LINE STA. 305+00 IR-90, SEE SHEET 2
LAKESHORE BLVD.
PC Sta. 323+41.37
P.I. Sta. 328+94.30
Δ = 2° 44' 56" (RT)
Dc = 0° 14' 55"
R = 23,045.32'
T = 552.93'
L = 1,105.65'
E = 6.63'
PT Sta. 334+47.02
BRIDGE NO. CUY-90-22.00
NO WORK
PC Sta. 354+04.43
MATCH LINE STA. 355+00 IR-90, SEE BELOW

P.I. Sta. 423+08.83
Δ = 20° 55′ 36″ (RT)
Dc = 1° 45′ 00″
R = 3,274.04′
T = 604.64′
L = 1,195.81′
E = 55.36′

P.I. Sta. 437+11.67
Δ = 27° 57′ 39″ (RT)
Dc = 1° 45′ 27″
R = 3,260.18′
T = 811.67′
L = 1,591.00′
E = 99.52′

P.I. Sta. 402+47.90
Δ = 40° 06′ 14″ (LT)
Dc = 1° 45′ 00″
R = 3,274.04′
T = 1,195.02′
L = 2,291.65′
E = 211.27′

PT Sta. 413+44.53
PC Sta. 417+04.19
℄ IR-90
PCC Sta. 429+00.00
RAMP E-2
RAMP E-1
END PROJECT
STA. 439+29
S.L.M. 23.90
E110(117)
LAKESHORE BLVD.
CS Sta. 444+91.00
ST Sta. 448+91.00
E. 140TH ST.
BRIDGE NO.
CUY-90-24.10
NO WORK
BRIDGE NO.
CUY-90-23.93
NO WORK
VERTICAL CLEARANCE

	E.B.	W.B.
EXIST.	19′-0″	14′-10″
PROP.	19′-0″	14′-10″

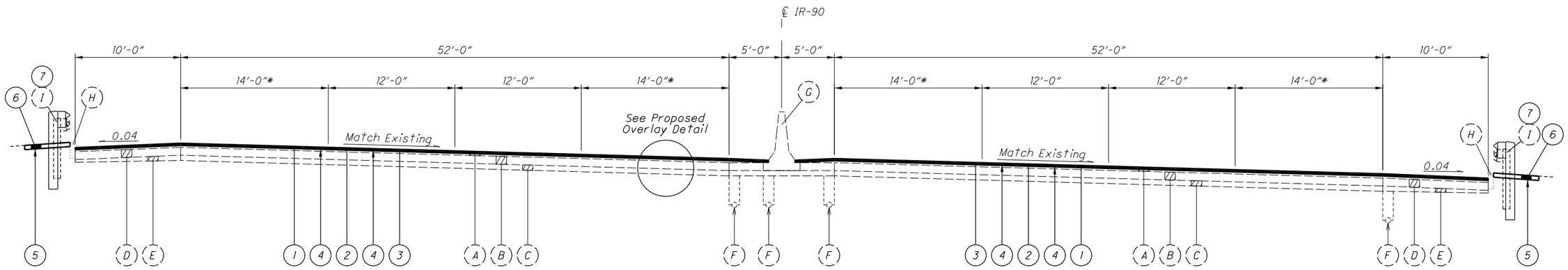
Village of Bratenahl
City of Cleveland
MATCH LINE STA. 405+00 IR-90, SEE SHEET 3

HORIZONTAL SCALE IN FEET
0 100 200 400

CALCULATED JAC
CHECKED EJK

SCHEMATIC PLAN SHEET IR-90

CUY-90-20.01



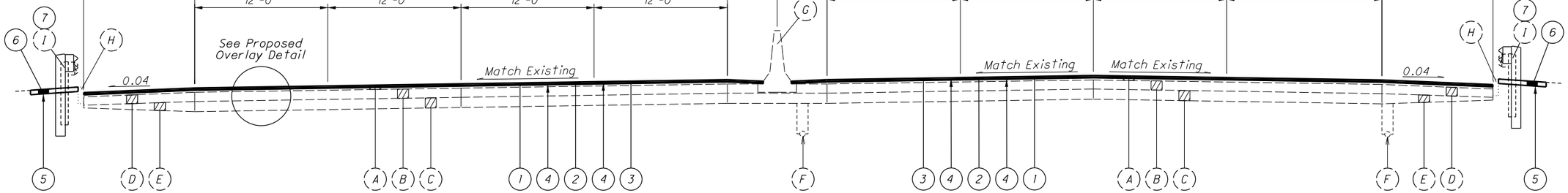
Superelevated Section

(Curve Right Shown)
Sta. 162+22 to 247+75

** 14'-0" to 12'-0" Sta. 252+00 to Sta. 252+98.80*

Transition Sections

Sta. 154+70 to Sta. 162+22
Sta. 164+67 to Sta. 200+83.36
Sta. 170+49.90 BK = Sta. 200+83.36 AH
EB Sta. 208+65.10 to Sta. 215+25.00
WB Sta. 208+65.10 to Sta. 214+00.00
Sta. 228+20 to Sta. 240+75
Sta. 247+75 to Sta. 252+68.80



Transition Section

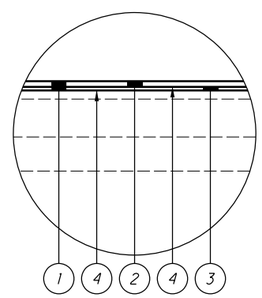
Sta. 170+49.90 BK = Sta. 200+83.36 AH
200+83.36 to Sta. 208+65.10

Existing Legend

- (A) *Asphalt Concrete ± 4.75"*
- (B) *Reinforced Concrete ± 9"*
- (C) *Subbase*
- (D) *Concrete Base ± 9"*
- (E) *Aggregate Base*
- (F) *Underdrain*
- (G) *Concrete Barrier*
- (H) *Concrete Curb*
- (I) *Guardrail*

Proposed Legend

1. *Item 254 - Pavement Planing, Asphalt Concrete, 2.5"*
2. *Item 442 - Asphalt Concrete Surface Course, 12.5mm, Type A, (446), PG 76-22M, As Per Plan, 1.5"*
3. *Item 442 - Asphalt Concrete Intermediate Course, 9.5mm, Type A, (448), PG 70-22M, As Per Plan, 1"*
4. *Item 407 - Non-Tracking Tack Coat*
5. *Item 209 - Reshaping Under Guardrail, As Per Plan*
6. *Item 441 - Asphalt Concrete Intermediate Course, Type 1, (448), (Under Guardrail), As Per Plan*
7. *Item 606 - Guardrail, Type MGS*
8. *Item 618 - Rumble Strips, (Asphalt Concrete), As Per Plan*

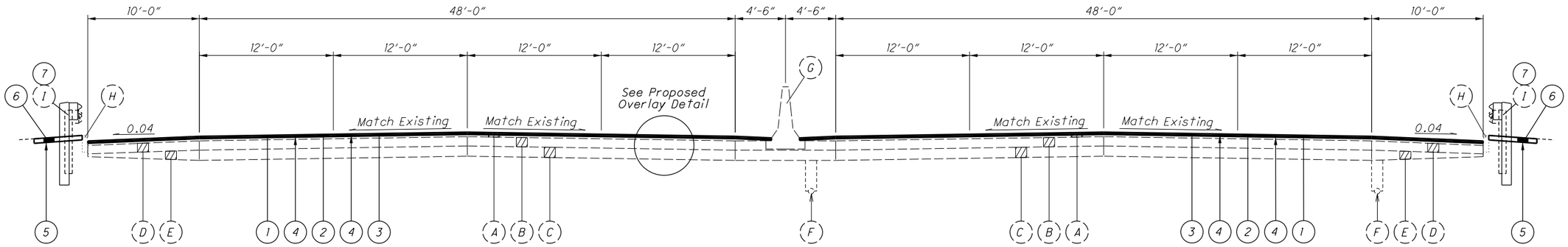


Proposed Overlay Detail

For Guardrail and Rumble Strip Details, See Sheet 7.

TYPICAL SECTIONS

CUY-90-20.01

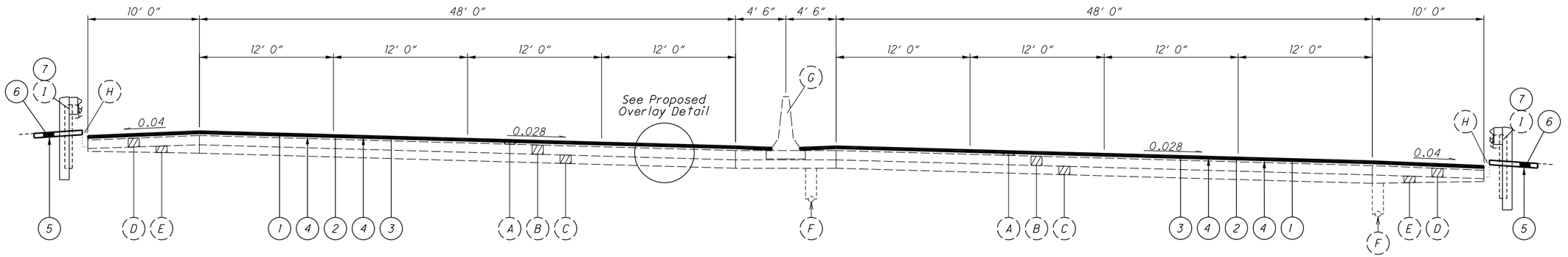


Normal Section

Sta. 303+76.04 to Sta. 388+50.00

Transition Sections

Sta. 252+98.80 BK = Sta. 301+99.84 AH
Sta. 301+99.84 to Sta. 303+76.04
Sta. 388+50.00 to Sta. 390+52.88

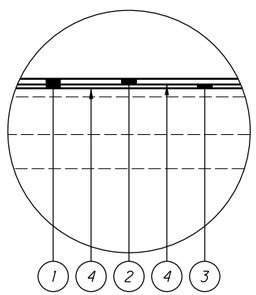


Superelevated Section

(Curve Right Shown)
Sta. 390+52.88 to Sta. 437+75

Transition Sections

Sta. 413+44.53 to Sta. 417+04.19

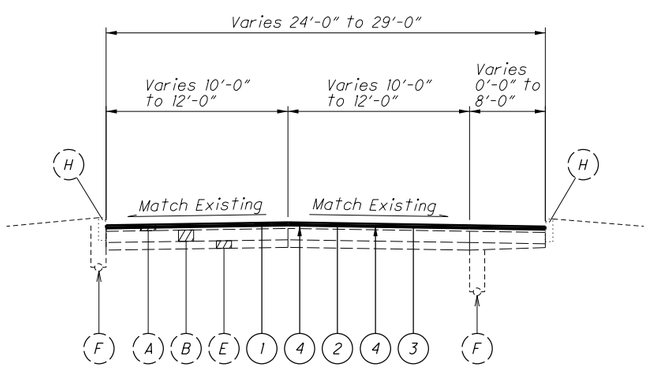


Proposed Overlay Detail

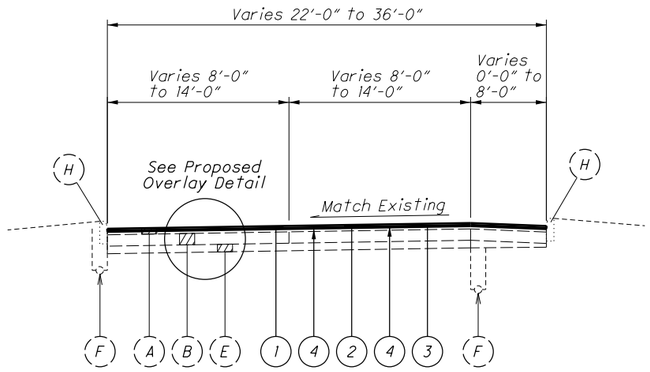
For Guardrail and Rumble Strip Details, See Sheet 7.
For Legend, See Sheet 5.

TYPICAL SECTIONS

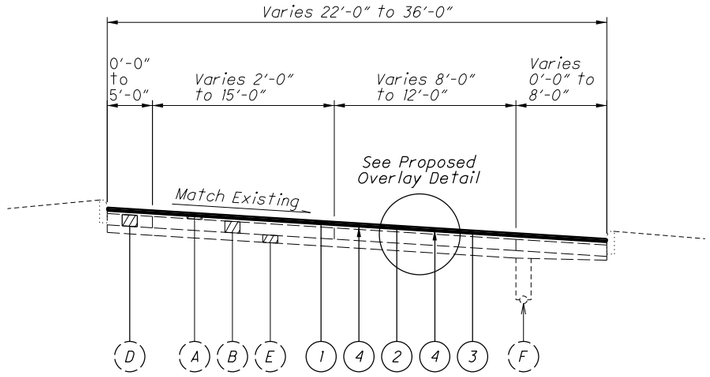
CUY-90-20.01



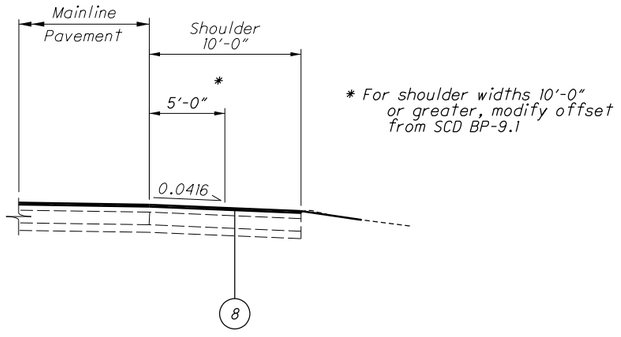
Ramp Normal Section



Ramp Superelevated Section

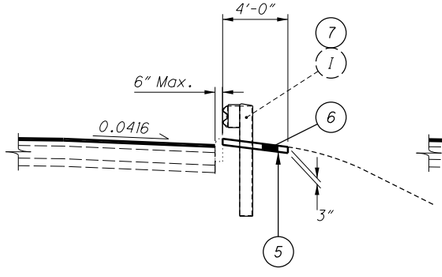


Ramp Superelevated Section

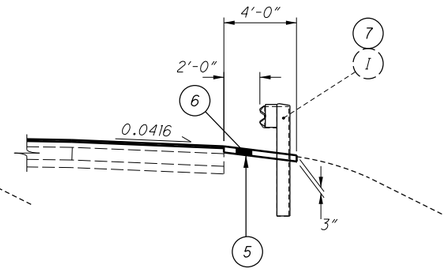


* For shoulder widths 10'-0" or greater, modify offset from SCD BP-9.1

Rumble Strip Detail

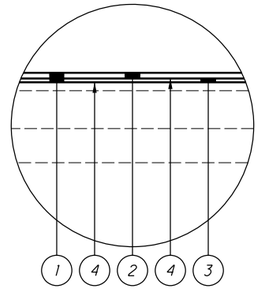


Curbed



Uncurbed

Guardrail Details



Proposed Overlay Detail

For Legend, See Sheet 5.

TYPICAL SECTIONS

CUY-90-20.01

7
57

General

Project Description

This project involves the improvement of IR-90 by removing 2.5" of asphalt and overlaying the roadway with 1.5" of Item 442, Asphalt Concrete Surface Course, 12.5mm, Type A (446), PG 76-22M, As Per Plan and 1" of Item 442, Asphalt concrete Intermediate Course, 9.5mm, Type A, (448), PG 70-22M, As Per Plan from East 55th St. (SLM 20.01) to the Bratenahl East Corp Line (SLM 23.90). Additional work includes guardrail replacement and addition, installation of curve warning signs and barrier reflectors and increased barrier delineation. Incidental work includes pavement repairs, pavement markings and raised pavement markers.

Existing Typical Sections

Existing typical sections have been taken from the records and are believed to represent the existing pavement, but the State of Ohio does not guarantee the accuracy of the same.

For further information in regard to the existing typical sections, the Contractor shall refer to the previous construction plans.

These plans may be reviewed at the following location:

Ohio Department of Transportation
District 12 Office
5500 Transportation Boulevard
Garfield Heights, Ohio 44125

Plan Sheet Stationing

The roadway was not surveyed prior to the preparation of these plans. Record drawings were used to prepare plan sheets and to calculate estimated pavement area quantities and pavement marking quantities.

Right of Way

All work shall be performed within the existing right of way or easements.

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.

Contingency Quantities

The Contractor shall not order materials or perform work for items designated by plan note to be used "as directed by the Engineer" unless authorized by the Engineer. The actual work locations and quantities used for such items shall be incorporated into the final change order governing completion of this project.

Equipment and Material Storage

In order to provide for the safety of the traveling public the Contractor's attention is directed to 614.03. In addition the following provisions shall apply:

- Any removed items shall not be stored on the right of way for more than thirty (30) days.
- The storage of equipment, materials, and vehicles within the highway right of way will be permitted. The number of areas and exact locations shall be approved by the Engineer.
- All disturbed areas shall be returned to their original condition at no expense to the state.

Cooperation Between Contractors

The Contractor shall cooperate and coordinate his/her operations with the contractors on other projects that may be in force during the life of the contract. No waiver of any provisions of 105.07 of the Construction and Material Specifications is intended.

Staging Areas

There are no specific areas given in the plans for the Contractor to use as a staging area(s). If the Contractor wants to use an area(s) for staging, regardless if it falls within the project limits or not, the Contractor is to contact Jill Powers at 216-584-2195 at District 12 in order to apply for a permit per Section 107.02 of the CMS.

If a permit is granted, all conditions of the permit shall be met in addition to the requirements of 104.04 of the CMS, at no additional cost to the State. If the Project Engineer deems that all the conditions of the permit were not met, then 10% of the Contract bid amount for mobilization shall be withheld until all the conditions of the permit are satisfied.

Item 619 – Field Office, Type B, As Per Plan

A Type B Field Office is required for this project.

The following revisions to equipment supplied with the Type B Field Office, as specified in Table 619.02-1, Field Office, shall apply:

- The copier supplied must meet the requirements of copier supplied with the Type C Field Office.
- The broadband internet connection must meet a minimum download speed of 10MB per second and a minimum upload speed of 5MB per second.
- Contractor shall furnish and set up a Wi-Fi router meeting the requirements of IEEE 802.11ac for the exclusive use of the Department.

All other field office items supplied shall meet the requirements of a Type B, Field Office.

Item 619 – Field Office, Type B, As Per Plan..... **6 Months**

Item 623 - Construction Layout Stakes and Surveying, As Per Plan

In addition to the requirements of the CMS, this item of work will include the following additional requirements.

An Ohio professional surveyor shall determine the minimum vertical clearances of all existing and new bridges within the project limits after completion of all the work, but prior to final acceptance of the project. At a minimum, measurements shall be taken along the centerline of each fascia beam at the edge of shoulders, edge lines, lane lines, and crown of the roadway below. The measurements shall be documented on the ODOT vertical clearance survey form. The form shall bear the stamp or seal of the Ohio professional surveyor who has taken the measurements. The Ohio professional surveyor shall submit the completed form to the Project Engineer and the District Bridge Maintenance Engineer prior to final acceptance of the project.

Payment for all of the above work shall be at the unit price bid for Item 623 – Construction Layout Stakes, As Per Plan, which shall include all labor, equipment, materials and incidentals necessary to complete the above work.

Location of Guardrail

The locations of guardrail runs, as described in these plans, are subject to adjustment prior to final acceptance. The Engineer shall be satisfied that all installations will afford maximum protection for traffic.

Utilities

Listed below are all known utilities located within the project construction limits together with their respective owners. The Ohio Department of Transportation has used the best available information to determine the utility companies serving this area but cannot guarantee that this utility company list is complete.

City of Cleveland
Division of Water Pollution Control
12302 Kirby Road
Cleveland, Ohio 44108
Attn: Rachid Zoghaib
Phone: (216) 664-3785
rzoghaib@ClevelandWPC.com

AT&T
13630 Lorain Ave. – 2nd Floor
Cleveland, Ohio 44111
Attn: James Janis
Phone: (216) 476-6142
Fax: (216) 476-6013
pj8191@att.com

Dominion East Ohio Gas Co.
320 Springside Dr.
Fairlawn, Ohio 44333
Attn: Ed Goubeaux
Phone: (330) 664-2494
Mobile: (330) 604-7482
edward.t.goubeaux@dom.com

The Illuminating Co.
6896 Miller Rd.
Brecksville, Ohio 44141
Attn: Ted Rader
Phone: (440) 546-8738
radert@firstenergycorp.com

City of Cleveland Division of Water
1201 Lakeside Ave.
Cleveland, Ohio 44114
Attn: Andrew Krawczyk
Phone: (216) 664-2444, Ext. 5520
Fax: (216) 664-2378
andrew_krawczyk@ClevelandWater.com

City of Cleveland Division of Traffic Engineering
601 Lakeside Ave.
Cleveland, Ohio 44114
Attn: Dimitri Szynal
Phone: (216) 402-9278
Dszynal@City.Cleveland.Oh.Us

Ohio Department of Transportation
District 12 – Roadway Services
5500 Transportation Blvd.
Garfield Heights, Ohio 44125
Attn: Tony Toth, P.E.
Phone: (216) 584-2220
anthony.toth@dot.ohio.gov

City of Cleveland Division of Cleveland Public Power
1300 Lakeside Ave.
Cleveland, Ohio 44114
Attn: Chris Hirzel
Phone: (216) 664-3922, Ext. 115
Fax: (216) 664-2972
chirzel@cpp.org

Charter Communications (Formerly Time Warner Cable)
8179 Dow Circle
Strongsville, Ohio 44136
Attn: Gary Naumann
Phone: (216) 575-8016, Ext. 5033
Gary.naumann1@charter.com

Northeast Ohio Regional Sewer District (NEORSD)
3900 Euclid Ave.
Cleveland, Ohio 44115
Attn: Mary Maciejowski – CDPP
Phone: (216) 881-6600, Ext. 6466
maciejowskim@neorsd.org

Sprint Nextel Corporation
875 Greentree Rd.
Ste. 410, Building 7
Pittsburgh, Pennsylvania 15220
Attn: Luke Bryan
Phone: (412) 960-4071
Luke.Bryan@sprint.com

Western Reserve Communications
2801 Hamilton Ave.
Cleveland, Ohio 44114
Phone: (216) 621-8121

There are no underground utilities shown on this plan. The nature of the work required by this project will not affect any known underground utilities that exist under or adjacent to the work area.

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GENERAL NOTES

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Roadway and Erosion Control

Item 209 - Linear Grading, As Per Plan

This item of work shall consist of grading along the outside edge of the paved shoulder to eliminate high spots and provide positive sheet flow off the pavement and shoulder into roadside ditches or drainage structures. This item is not intended to be used to excavate a uniform depth to place Item 617 – Compacted Aggregate, As Per Plan.

Any debris collected shall be removed and disposed of as specified in Section 105.16 & 105.17 of the Construction and Material Specifications.

Payment for the above work shall be made at the unit bid price for Item 209 – Linear Grading, As Per Plan and shall include all labor, tools, equipment and materials necessary to perform this item of work.

Item 209 – Borrow

The Contractor shall be responsible for the placement of borrow material (topsoil, clay or ODOT items 304, 411 or 617 granular material) to correct the guardrail height or low shoulder condition, as directed by the Engineer. The material shall be placed and compacted to correct the shoulder to the satisfaction of the Engineer. The embankment material shall extend to the back of the guardrail posts at a slope of 0.042 (half inch per foot) and then make a smooth transition into the existing embankment slopes.

Embankment placed immediately in front of a residence shall be graded and finished per CMS 659.10. The cost of removal and disposal shall be included in the unit cost of Item 209 – Borrow.

Connection Between Existing and Proposed Guardrail

When it is necessary to splice proposed guardrail to existing guardrail, only the existing guardrail shall be cut, drilled or punched. The connection shall be made using a W-Beam, beam splice as shown in AASHTO M 180-12, except the beam washers are not to be used. Payment shall be included in the contract price for the respective guardrail items.

Item 209 – Reshaping Under Guardrail, As Per Plan

This item of work shall be used to prepare proposed and existing guardrail runs for paving under guardrail, including the removal and disposal of existing asphalt under guardrail.

A sawcut will be performed, when applicable, to assist in the removal of existing asphalt under guardrail and minimize damage to the existing shoulder asphalt. Payment for sawcutting shall be included in the unit bid price for Item 209 – Reshaping under Guardrail, As Per Plan.

Fill all holes remaining after removal of guardrail posts and anchor assemblies with granular material. Do not use fill material containing sod. All fill material shall be approved by the Engineer and shall be compacted as directed by the Engineer. Payment for the above is included in the applicable guardrail item.

Reshape and compact subgrade to ensure positive drainage. Establish a cross-slope of 0.042 (half inch per foot). Grade to a maximum width of 6' to provide positive drainage away from the travel lanes.

All collected debris and topsoil shall be removed and disposed of as specified in section 105.17 of the CMS.

In areas where asphalt under guardrail will not be replaced, the removed material shall be replaced with compactable granular material conforming to 703.16 and placed to grade as approved by the Engineer. Seed and mulch these areas according to section 659.

Payment for the above work shall be made at the unit bid price for Item 209 – Reshaping Under Guardrail, As Per Plan and shall include all labor, tools, equipment and materials necessary to perform the work.

For estimated quantities, see sheet 25 .

Item 606 –Anchor Assembly, MGS Type E

This item shall consist of furnishing and installing any of the guardrail end terminals 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 foundation tube should be less than 4" 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 31" from the edge of the shoulder.

On-site grading is required if the foundation tubes or top of the ground strut does project more than 4" above the ground line.

Payment for the above work shall be made at the unit bid price for Item 606 – Anchor Assembly, MGS 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.

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GENERAL NOTES

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Drainage

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 appurtenances 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 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.

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 drainage items.

Castings Adjusted to Grade, As Per Plan

All castings shall be adjusted to the finished roadway elevation by the Contractor. The time between adjusting the castings and resurfacing shall be kept to an absolute minimum. No adjusting rings shall be permitted. When performing this work, the pavement shall be sawcut prior to removal and hook bolts shall be used where practical to connect existing pavement to new concrete.

The following estimated quantities have been carried to the General Summary:

Item 611 – Catch Basin Adjusted to Grade,
As Per Plan..... **35 Each**
Item 611 – Manhole Adjusted to Grade,
As Per Plan..... **32 Each**

Castings Reconstructed to Grade

The Contractor and Field Engineer shall field check all existing catch basins, manholes, or monument boxes located within the limits of the project. Any casting found that exhibits substantial deterioration and requires more work than is specified under "Castings Adjusted to Grade" shall be "Reconstructed to Grade", as directed by the Engineer. If none are needed, these items are to be non-performed.

The following estimated quantities have been carried to the General Summary for use as directed by the Engineer:

Item 611 – Catch Basin Reconstructed to Grade ..... **70 Each**

Item 611 – Manhole Reconstructed to Grade..... **6 Each**

Item Special – Miscellaneous Metal

Existing castings may prove to be unsuitable for reuse, as determined by the Engineer. It shall be the Contractor's responsibility to provide the castings of the required type, size, and strength (heavy duty) for the particular structure in question. All materials must meet Item 611 of the CMS and shall have the prior approval of the Engineer.

The Contractor is cautioned to use extreme care in the removal, storage, and replacement of all existing castings. Castings damaged by the negligence of the Contractor, as determined by the Engineer, shall be replaced with the proper new castings at the expense of the Contractor.

The Contractor shall not order materials until authorized by the Engineer, and if none are needed, the item shall be non-performed.

The following estimated quantity has been carried to the General Summary for use as directed by the Engineer:

Item Special – Miscellaneous Metal..... **50,000 Lbs**

Item Special – Trench Drain

This item shall be used for the installation of a trench drain under the E. 105th Street Bridge in front of the abutment walls along the north and south sidewalks.

Sawcut the existing sidewalk at a distance away from the abutment wall to be able to install the trench drain and to assist in the removal of existing sidewalk and minimize damage to the existing sidewalk.

After removing the sidewalk, excavate enough material to ensure the proper depth and width of trench is used to install the proposed trench drain.

Once the excavation is complete, install the proposed trench drain. The contractor may use approved materials from ABT, Inc., ACO Polymer Products, Eric' Sons, and Zurn Industries per the Ohio Department of Transportation Qualified Products List on the Office of Materials Management website. The contractor is to refer to the manufacturer's instructions regarding the installation of the trench drain.

After the trench drain is in place and all connections have been made, fill in the trench with appropriate material conforming to item 608 – Concrete Walk.

Payment for the above work shall be made at the unit bid price for Item Special – Trench Drain and shall include sawcutting and removal of existing walk, excavation of material to install trench drain, concrete around trench drain, replacement of walk, all labor, tools, and equipment necessary to perform the work.

For estimated quantities and details, see sheet 39.

Item 611 – 12" Conduit, Type C, As Per Plan

This item shall be used for the installation of the connections between Item Special – Trench Drain and the existing catch basins under the E. 105th Street Bridge along the north and south sidewalks of E. 105th Street.

Sawcut the existing sidewalk a distance perpendicular from the abutment walls to be able to install the 12" conduit to connect to the trench drain and existing catch basin. Remove existing walk after sawcutting is complete.

After removing the sidewalk, excavate enough material to ensure the proper depth and width of trench is used to install the proposed 12" conduit and make a connection sloping towards the existing catch basin. Connection of the 12" conduit to the trench drain and existing catch basins shall be determined by the Contractor and approved by the Engineer.

After the conduit is in place and all connections have been made, fill in the trench with appropriate material conforming to Item 608 – Concrete Walk.

Payment for the above work shall be made at the unit bid price for Item 611 – 12" Conduit, Type C, As Per Plan and shall include sawcutting and removal of existing walk, excavation of material to install 12" conduit and make the appropriate connections, materials for conduit connections, concrete around conduit, replacement of walk, all labor, tools, and equipment necessary to perform the work.

For estimated quantities and details, see sheet 39.

GENERAL NOTES

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GENERAL NOTES

Pavement

Profile and Alignment

Place the proposed pavement to follow the alignment of the existing pavement. Previous construction plans showing the original alignment are available for inspection at the ODOT District 12 office. Place the proposed asphalt concrete as shown on the typical sections. The intent of the plans is to keep the existing profile at the same elevations.

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 transverse butt joint in the asphalt surface course. Lap longitudinal joints as shown on Standard Construction Drawing BP-3.1.

Asphalt Concrete Surface Course Sealing Requirements

In addition to the gutter sealing requirements specified in SCD BP-3.1 and C&MS 401.15, after completion of the surface course, the contractor shall use a certified 702.01 PG binder to seal the following locations:

- All castings including but not limited to monuments, manholes, water valves, catch basins, curb inlets.
- Butt joints and feather joints including bridge approaches.
- Forward joint for driveway asphalt and trailing joint when butting to existing asphalt drive.
- Perimeter of all pavement repairs or other asphalt inlays when pavement repairs/inlays are not overlaid with an asphalt concrete surface course.
- All cold longitudinal joints between paved shoulders and guardrail asphalt.

The material used shall be a certified 702.01 PG binder. The width of the sealer shall be 2-3 inches.

Any additional costs associated with the work identified in this note shall be included in the appropriate asphalt concrete surface course item of work.

Longitudinal Joints (Flexible Pavement)

Longitudinal joints between a pavement lane and adjoining shoulder or speed change lane, and between a speed change lane and the adjoining shoulder shall be made the same day. All longitudinal joints shall be hot with the exception of one cold joint per roadway. Locate the cold joint along the centerline or a lane line. Longitudinal joint locations shall be as approved by the Engineer. Each ramp shall have a maximum of one longitudinal cold joint located approximately halfway across the ramp.

Item 251 - Partial Depth Pavement Repair (442), As Per Plan A

This item shall be used for the repair of unsound, cold patch, or pop-out areas of longitudinal joints consisting of existing asphalt or concrete as directed by the Engineer. This work shall be performed prior to the planing operation. The depth of the repair from the top of the surface shall be 5". The width of the repair shall be 12" centered over the existing joint.

Use replacement materials conforming to the requirements of Item 442, 19mm.

The following estimated quantity is carried to the General Summary.

Item 251 – Partial Depth Pavement Repair,
As Per Plan A ..... **1,000 Sq Yd**

Item 251 - Partial Depth Pavement Repair (442), As Per Plan B

This item shall be used for the repair of unsound, cold patch, or pop-out areas of transverse joints consisting of existing asphalt or concrete as directed by the Engineer. This work shall be performed prior to the planing operation. The depth of the repair from the top of the surface shall be 5". The width of the repair shall be 12" centered over the existing joint.

Use replacement materials conforming to the requirements of Item 442, 19mm.

The following estimated quantity is carried to the General Summary:

Item 251 – Partial Depth Pavement Repair,
As Per Plan B ..... **1,200 Sq Yd**

Item 253 – Pavement Repair, As Per Plan

Use this item to repair severely distressed areas in the outside shoulders. Make repairs prior to planing the existing overlay.

Make the majority of repairs at an average depth of 5". The size, location and depth of the repair areas will be as determined by the Engineer.

Use replacement materials conforming to the requirements of Item 442, 19mm.

The following estimated quantity has been carried to the General Summary:

Item 253 –Pavement Repair, As Per Plan..... **50 Cu Yd**

Item 618 – Rumble Strips, (Asphalt Concrete), As Per Plan

For all freeways, the lateral position of edge line rumble strips shown in SCD BP-9.1 is revised as follows:

1. Median and Outside Shoulder Offset for shoulders less than 6':
   Dimension A and B are equal to 6"
2. Median and Outside Shoulder Offset for shoulders 6' to 12':
   Dimension A and B are equal to half the shoulder width minus 12".
3. Median and Outside Shoulder Offset for shoulders greater than 12':
   Dimension A and B are equal to 5'.

The following estimated quantity shall be used to construct Item 618 – Rumble Strips, (Asphalt Concrete), As Per Plan as per Standard Drawing BP-9.1 except as noted above:

Item 618 – Rumble Strips (Asphalt Concrete) ..... **14.96 Miles**

Paving Under Guardrail
Item 441 – Asphalt Concrete Intermediate Course, Type 1, (448), (Under Guardrail), As Per Plan

This operation shall include paving under the guardrail using Item 209 – Reshaping Under Guardrail, As Per Plan and paving under the guardrail using item 441 – Asphalt Concrete Intermediate Course, Type 1, (448), Under Guardrail, As Per Plan.

Herbicide shall be EPA approved for paving under guardrail. It shall be applied to the prepared area within 7 days after the final leveling and grading has been completed. The application shall be just prior to paving and shall strictly adhere to the manufacturer's instructions. Do not spray within 1000 ft. of a scenic river.

Each successful bidder must be licensed by the Ohio Department of Agriculture as a commercial applicator and all persons involved in the actual spraying shall be licensed as commercial operators in the appropriate spray category.

Herbicide label, material safety data sheet and copy of application licenses shall be submitted to the Engineer for verification prior to commencing work.

As directed by the Engineer, all vegetation present just prior to placement of paving under guardrail shall be removed.

Paving under guardrail shall consist of placing Item 441 to a depth of 3" and a maximum width of 4' using one of the following methods:

Method A:
1. Set guardrail posts
2. Place Item 441

Method B:
1. Place Item 441
2. Bore asphalt at post locations (may be omitted if steel posts are used)
3. Set guardrail posts
4. Patch around posts. The materials used for patching shall be an asphalt concrete approved by the Engineer. Patched areas shall be compacted using either hand or mechanical methods. Finished surfaces shall be smooth and sloped to drain away from the posts.

All equipment, materials and labor required to perform the work outlined above, with the exception of setting guardrail posts, shall be included for payment under Item 441 – Asphalt Concrete, Intermediate Course, Type 1, (448), Under Guardrail, As Per Plan.

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Item 442 – Asphalt Concrete Surface Course, 12.5mm, Type A, (446), PG 76-22M, As Per Plan

The coarse virgin aggregate shall be limited to air cooled blast furnace slag (ACBFS). At least 50% of fine virgin aggregate shall be limited to air cooled blast furnace slag (ACBFS) or Trap Rock from Ontario.

Table 442.02-2 applies except No. 4 sieve requirements are 52 to 62 Total Percent Passing.

Item 442 – Asphalt Concrete Intermediate Course, 9.5mm, Type A, (448), PG 70-22M, As Per Plan

Use a PG 70-22M binder for this item.

Item 442 – Anti-Segregation Equipment

The following estimated quantity has been carried to the General Summary.

Item 442 – Anti-Segregation Equipment..... **22,617 Cu Yd**

Item 617 – Compacted Aggregate, As Per Plan

This item shall be used to place compacted aggregate at a variable depth only where needed to fill in low spots along the shoulder and eliminate drop offs. Material shall be limited to reclaimed asphalt concrete pavement.

The actual depth of compacted aggregate placed will vary depending upon existing conditions. For estimating purposes, an average depth of two inches (2") has been used. Water, if needed, shall be applied as per 617.05 and included under Item 617 – Compacted Aggregate, As Per Plan.

Traffic Control

Pavement Markings

Auxiliary markings shall be located and installed as per Standard Drawing TC-71.10

Permanent Pavement Markings on Bridges

Proposed pavement markings on bridges shall be placed on top of existing markings.

Raised Pavement Markers

Install raised pavement markers for lane lines at a spacing of eighty feet (80') center-to-center.

Item 620 – Removal of Delineator

This item shall include the removal and disposal of existing delineators.

The following estimated quantity has been carried to the General Summary:

Item 620 – Removal of Delineator..... **271 Each**

Item 621 – Raised Pavement Marker Removed

This item shall include the removal and disposal of existing RPMs.

The following estimated quantity has been carried to the General Summary:

Item 621 – Raised Pavement Marker Removed..... **1,490 Each**

Item 626 – Barrier Reflector, Type B

Barrier Reflectors shall be installed on both sides of the median concrete barrier through the entire length of the project at a spacing of one hundred feet (100') center-to-center and at least one additional point evenly spaced between the termini.

Item 644 - Wrong Way Arrow

This item shall consist of installing a wrong way arrow on exit ramps to discourage drivers from traveling the wrong direction. See sheet 57 for dimensions and location details.

Item 614 – Increased Barrier Delineation, As Per Plan

This item shall consist of providing and attaching Linear Delineation System (LDS) on permanent concrete barrier as itemized on sheet 25. LDS shall consist of panels of delineation, approximately 34 inches long and 6 inches wide. Panels shall be provided at the rate of one panel every 10 feet (3 m), spaced evenly along the length of the curve. The panels shall be mounted such that the tops of the panels are 26 inches (660 mm) from the base of the concrete barrier.

On curves where this item is provided, it shall be measured from the entire length of the section being delineated, including the space between panels. This item shall remain as a permanent item once construction is complete.

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GENERAL NOTES

CUY-90-20.01

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General

It is the responsibility of the Contractor to provide through vehicular access in both directions at all times throughout the project area. The project shall be constructed in phases in order to minimize traffic disruption and inconvenience to the general public. The Contractor shall be responsible for providing all equipment, materials and manpower needed to adequately maintain traffic as provided for in the plans and specifications.

The Contractor is reminded that, in the conduct of this project, the sequence of operations shall be planned in a fashion which minimizes the number of lane reductions and/or lane width reductions required to maintain traffic through the project.

Permitted lane closures shall be as shown on the "Schedule of Through Lanes to be Maintained" table. The time limits shown in this table shall be adhered to or road user costs will be assessed.

Maintenance of Traffic Control Zones

The Contractor shall be responsible to maintain the signs, drums or cones specified in the Standard Construction Drawings. When the Contractor is notified of deficiencies, he shall correct the deficiencies as soon as possible, preferably within 12 hours and no later than 24 hours. If any noted deficiencies are not corrected within 24 hours the Engineer shall deduct one day pay for Item 614 – Maintaining Traffic, not as a penalty but as road user costs. The Contractor shall be subject to these road user costs for each and every day that these provisions are not met. All costs for maintaining the work zones as described above shall be included under Item 614 – Maintaining Traffic.

Suspension of Work

If the Contractor fails to comply with the provisions for traffic control as set forth in these plans or with provisions of the OMUTCD, the Engineer shall suspend work until the Contractor complies with the necessary requirements.

Lane Closure/Reduction Required

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.

Payment

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 plans.

Road User Costs - Short Term Lane Closures

Short term lane closures are those which are permitted by the "Schedule of Through Lanes to be Maintained" table. These times shall not be revised without prior approval from the District 12 Work Zone Traffic Control Engineer.

If short term lane closures are in place outside the specified times, the Contractor will be assessed road user costs in the amount of $200.00 per minute for each minute the lane remains closed past the specified time.

Short term lane closures shall only be implemented when work is being continuously performed. The closure shall be removed as soon as possible after work has stopped.

Schedule of Through Lanes to be Maintained

◆All lane closures may only be implemented at the times permitted by the "District 12 Permitted Lane Closure Times" list, which is located on the ODOT website:

www.dot.state.oh.us/dist12/workzone/laneclo.htm

The latest revision, at 14 days prior to the bid date, shall be in effect for this project.

Shoulder closures shall only be allowed at the times specified for lane closures. No lane or shoulder closures shall be in place when no work is being performed.

Any roadway not listed shall not have any lane closures on weekdays from 6:30am to 9:00am and 3:00pm to 6:00pm. Contact Dennis O'Neil, District 12 Work Zone Traffic Manager, at (216) 584-2204 if there are any questions.

All notes on the Permitted Lane Closure Times shall be part of the project.

IR-90 Ramps		
Location	Permitted Ramp Closures, Lane Reductions	
	Short Term Closure	Partial Width Closure (maintain one 11' lane)
One-Lane Ramps	8:00pm – 6:00am **	8:00pm – 6:00am
Two-Lane Ramps	Not Permitted	8:00pm – 6:00am

**Each ramp shall be closed for a maximum of two (2) separate times using an approved detour. Any closure shall be as directed by the Engineer.

Ramp Closures for Resurfacing

The Contractor may close one ramp at a time at each location for milling, partial depth pavement repairs, or resurfacing. Closures for ramps scheduled for repairs and resurfacing shall be limited according to the days of the week and hours shown in the "Schedule of Through Lanes to be Maintained" table.

The motoring public shall be given advance warning of closures at least 72 hours in advance through the use of either a ground mounted flat sheet sign or a portable changeable message sign. A LEO with patrol car (paid for separately) shall be used for each ramp closure and be present for the entire closure time.

Freeway entrance ramps shall be closed with a PCMS suggesting a recommended detour.

Freeway exit ramps shall be closed with a PCMS routing traffic to the next exit and a second PCMS indicating a U-turn at the exit, unless directed differently by the Project Engineer.

For ramp closures, one or two additional PCMS units will be needed as described above. These will be in addition to the PCMS units specified in the plans and shall be included for payment in Item 614 – Maintaining Traffic.

Alternate Methods

If the Contractor so elects, he may submit alternate methods for the maintenance of traffic, provided the intent of the provisions is followed and no additional inconvenience to the traveling public results there from. No alternate plan shall be placed into effect until approval has been granted, in writing, by the Director.

All items proposed for use under these provisions must comply with current Department standards for their use when the plan detail, Standard Construction Drawing or other bid document governing their use is not provided as part of the bid package.

Construction Traffic

All construction traffic shall use acceptable truck routes to access the construction area. Use of local residential streets is strictly prohibited unless allowed in writing by the local enforcement authorities.

Contractor's Equipment – Operation and Storage

Vehicles and equipment must always move with, not across or against, the flow of traffic. Vehicles and other equipment must not park or stop except within designated work areas; and shall not enter and leave work areas in a manner which will be hazardous to, or interfere with normal traffic flow.

Personal vehicles are not permitted to park within the right-of-way except in specific areas designated by the Engineer.

Equipment, vehicles and materials shall not be stored or parked within 30 feet of the traveled way unless 6 feet behind PCB or guardrail.

All work vehicles and equipment entering the work zone more than once a day must be equipped with at least one flashing, rotating, or oscillating amber light that is visible in all directions of traffic for at least one quarter of a mile, day or night.

MAINTENANCE OF TRAFFIC NOTES

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Maintaining Traffic – General Provisions

1. Traffic shall be maintained in accordance with the "Schedule of Through Lanes to be Maintained." The Contractor shall set up and operate his equipment in such a manner as to minimize encroachment upon the traveled width of pavement

2. The Contractor shall notify the Engineer, the responsible law enforcement agency and the Ohio Department of Transportation, District 12 Public Information Officer ((216) 584-2007) not less than 24 hours prior to a scheduled disruption of traffic.

3. Nighttime work shall be permitted in accordance with these plans and notes. The Contractor shall provide flood lighting of the work area in accordance with CMS 401.15 in order to assure the safest conditions during nighttime work. A lighting plan for nighttime operations shall be presented to and approved by the Engineer.

4. The Contractor shall furnish, erect and maintain all warning and information signs necessary for maintaining traffic. The sign faces shall be reflectorized with type G sheeting complying with the requirements of CMS 730.19. The Contractor shall determine what signs are needed and advise the Engineer two weeks in advance of his detailed plans. See the OMUTCD and standard drawings for the minimum signage required.

5. Traffic control devices shall be set up prior to the start of construction and shall be properly maintained during the time special conditions exist. They shall remain in place only as long as they are needed and shall be immediately removed thereafter. Where operations are performed in stages, there shall be in place only those devices that apply to the condition present during the stage in progress. All signs with messages which do not apply during a certain period shall be covered or set aside out of the view of traffic.

6. Placement of final roadway pavement markings and raised pavement markers shall be accomplished in accordance with the "Schedule of Through Lanes to be Maintained." The Contractor shall provide 2 shadow vehicles as per MT-99.20 following the pavement marking equipment. The shadow vehicles shall travel 500' apart with the remote vehicle traveling on the shoulder (left or right as applicable) where usable shoulder is available. The first shadow vehicle in a traffic lane shall be equipped with a truck mounted attenuator meeting NCHRP 350 requirements. Each shadow vehicle shall have a yellow flashing beacon plus 48" construction warning signs mounted on the back facing traffic with standard type messages advising motorists of the work ahead, advisory warning speed, and which lane is closed.

7. During non-working periods, open excavations shall be delineated with warning flashers and/or other approved devices as deemed appropriate by the Engineer.

8. Existing signs located within the road work areas which are necessary for interim or permanent traffic control shall be removed and re-erected in locations as approved by the Engineer.

9. No stoppage of traffic shall occur without law enforcement personnel at each location to direct traffic.

10. Whenever a total closure is implemented, the Contractor shall provide a portable changeable message sign from ODOT's pre-approved list. It shall be placed 1.5 miles to 2 miles in advance of the closure or as directed by the Engineer.

11. For any operation not specifically mentioned in these plans, the traffic shall be maintained in accordance with the OMUTCD.

Holiday Closures

No work shall be performed and all existing lanes shall be open to traffic during the following designated holidays or events:

Christmas	New Year's	Mother's Day
Memorial Day	Fourth of July	Easter
Labor Day	Thanksgiving	

The period of time that the lanes are to be open depends on the day of the week on which the holiday or event falls. The following schedule shall be used to determine this period:

Day	Times All Lanes Must Be Open
Sunday	12 noon Friday Through 6:00AM Monday
Monday	12 noon Friday Through 6:00AM Tuesday
Tuesday	12 noon Monday Through 6:00AM Wednesday
Wednesday	12 noon Tuesday Through 6:00AM Thursday
Thursday	12 noon Wednesday Through 6:00AM Monday
Thursday (Thanksgiving only)	6:00AM Wednesday Through 6:00AM Monday
Friday	12 noon Thursday Through 6:00AM Monday
Saturday	12 noon Friday Through 6:00AM Monday

No extensions of time shall be granted for delays in material deliveries, unless such delays are industry-wide, or for labor strikes, unless such strikes are area-wide.

Should the Contractor fail to meet any of these requirements, the Contractor shall be assessed a disincentive in the amount of $200 for each minute the above described lane closure restrictions are violated.

Truck Mounted Attenuator

When the Contractor is setting short term work zones and the shoulders (right or left shoulder) are less than 10 feet in width and are on a road with speeds 45 mph or higher, a Truck Mounted Attenuator (TMA) must trail the operation of setting the advance warning signs up or taking them down. This same truck must have a Type B flashing arrow panel mounted on it facing the rear of the truck,

The TMA must bring a vehicle weighing 1800 to 4500 pounds to a safe, controlled stop per NCHRP 350 TL-3 criteria. The manufacturer's specification must be followed concerning the size of the truck and the connections to the TMA.

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.

Maintaining Traffic and Sequence of Operations

All asphalt concrete operations shall be conducted in a manner that will assure minimum danger and inconvenience to highway users. The procedure for the removal or placement of any existing or proposed asphalt course shall be such that no greater than 1-1/2" discontinuity in the elevation of the traveled surface shall be exposed to traffic.

Traffic shall not be permitted to cross any partial-width removal or resurfacing joint during the actual removal or paving operation except as necessary. Any partial-width longitudinal joints with a discontinuity greater than 1-1/2" which must be exposed to traffic shall be ramped using Item 614 – Asphalt Concrete for Maintaining Traffic at a rate not steeper than 6:1.

Temporary transverse removal or paving joints which must be exposed to traffic shall be ramped using Item 614 – Asphalt Concrete for Maintaining Traffic at a rate not to exceed 1" in 10'.

For removal of existing overlays, a transition may be planed into the existing overlay and may be substituted for the asphalt ramps previously described.

Whenever traffic is subject to partial width removals or overlays prior to full width completion, the Contractor shall provide W8-11-48 "UNEVEN LANES" signs (dual sign installation). Placement shall be as directed by the Engineer and included in the lump sum payment for Item 614 – Maintaining Traffic.

Whenever any part of the traveled surface is closed, the motorists shall be warned and diverted by the Contractor through the use of a flashing arrow, in addition to those provisions set forth in the OMUTCD, the Traffic Engineering Manual and the applicable Standard Construction Drawings.

Sequence of Operations:

1. Prior to Pavement Planing

   - Remove existing raised pavement markers and fill in new holes with asphalt for maintaining traffic.
   - Perform pavement repairs.

2. Pavement Planing and Asphalt Concrete Intermediate Course

   - Plane existing asphalt to the depth specified in the plans and place asphalt concrete intermediate course within the same operation prior to opening lane(s) to normal traffic.
   - Place work zone pavement markings.
   - Place Item 614 – Asphalt Concrete for Maintaining Traffic as specified.

3. Surface Course

   - Place asphalt concrete surface course.
   - Place work zone pavement markings or permanent pavement markings.
   - Install raised pavement markers.

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MAINTENANCE OF TRAFFIC NOTES

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Item 614 – Asphalt Concrete for Maintaining Traffic, As Per Plan

This item shall be used to provide temporary asphalt ramps for transverse discontinuities. Ramping shall be placed at the rate of 1" per 10' or to be used as directed by the Engineer.

Remove temporary asphalt ramps as part of this item. Materials shall be removed prior to the placement of the next course of asphalt.

Item 614 – Asphalt Concrete for Maintaining Traffic..... **200 Cu Yd**

Permanent Pavement Markings

After placing the surface course, the Contractor may place permanent pavement markings instead of placing work zone pavement markings, which shall be non-performed at these locations.

Item 614 – Work Zone Pavement Markings

The following estimated quantities have been carried to the General Summary to be used as directed by the Engineer for work zone pavement markings per the requirements of CMS 614.04 and 614.11. Place temporary markings at the same locations as the proposed permanent pavement markings.

Place work zone edge lines and lane lines at a width of 6". All other temporary marking widths shall be as given in CMS 614 or 641.

After the planing and the intermediate course has been placed and after the surface course has been placed (2 applications total), use the following temporary markings:

Item 614 – Work Zone Lane Line, Class I,
642 Paint, As Per Plan, 6"..... **46.80 Mile**
Item 614 – Work Zone Edge Line, Class I,
642 Paint, As Per Plan, 6"..... **41.52 Mile**
Item 614 – Work Zone Channelizing Line, Class I,
642 Paint..... **18,470 Ft**
Item 614 – Work Zone Dotted Line, Class I,
642 Paint..... **14,420 Ft**
Item 614 – Work Zone Stop Line, Class I,
642 Paint..... **148 Ft**
Item 614 – Work Zone Crosswalk Line, Class I,
642 Paint..... **430 Ft**
Item 614 – Work Zone Arrow, Class I,
642 Paint..... **13 Each**
Item 614 – Work Zone Channelizing Line, Class III,
642 Paint..... **583 Ft**
Item 614 – Work Zone Stop Line, Class III,
642 Paint..... **148 Ft**
Item 614 – Work Zone Crosswalk Line, Class III,
642 Paint..... **430 Ft**
Item 614 – Work Zone Arrow, Class III,
642 Paint..... **13 Each**

Item 614 – Work Zone Impact Attenuator for 24" Wide Hazards (Unidirectional)

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 Standard's 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.

Public Safety and Protection of Incomplete Work

The following provisions "A", "B", and "C", shall apply when the lane adjacent to the guardrail is open to traffic. The period of time that a hazard is left unprotected by the removal of guardrail shall be held to an absolute minimum. If, after one day, the entire run of guardrail construction is not complete, meet the following requirements:

A. In areas where existing guardrail has been removed or the guardrail is in a partial stage of completion, the Contractor shall provide and maintain Type II barricades with Type C (steady burning) warning lights within the limits of the unprotected area. The barricades shall be placed at 50' intervals and offset at least 2' from the edge of the traveled roadway and in close proximity to the construction. The approach end of a partially completed run of guardrail shall be fastened at ground level to a steel drum.

B. If the existing guardrail is for the protection of a fixed hazard (such as a sign support, bridge pier or bridge parapet), the Contractor shall erect portable concrete barrier in the direction of traffic. The requirements of paragraph "A" apply to the remaining guardrail within the run. Portable barrier shall be flared at an 18:1 (minimum) taper rate and shall terminate outside the clear zone, behind existing guardrail or barrier or with a work zone impact attenuator.

C. The requirements stated in paragraph "A" apply for a period not to exceed one week. Where the rebuilding or construction of any run of guardrail cannot be accomplished within one week, the Contractor shall provide and maintain portable concrete barrier as detailed in "B" in the interim time it takes to complete the work. In addition, a Type II barricade with Type B (high intensity flasher) warning light shall be placed in front of the first section of portable barrier to provide forewarning to the approaching traffic.

The term "guardrail" is understood to cover all types of existing or proposed barrier, including standard guardrail, barrier design guardrail, bridge parapets and concrete barrier.

The cost of complying with these safety procedures shall be included in the Lump Sum bid price for Item 614 – Maintaining Traffic.

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MAINTENANCE OF TRAFFIC NOTES

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Item 614 – Portable Changeable Message Signs, As Per Plan

The Contractor shall furnish, install, maintain and remove, when no longer needed, a changeable message sign. The sign shall be of a type shown on a list of approved PCMS units available on the Office of Materials Management web page. The list contains Class A and B units with minimum legibility distances of 800 feet and 650 feet, respectively.

Each sign shall be trailer-mounted and equipped with a functional dimming mechanism, to dim the sign during darkness, and a tamper and vandal proof enclosure. Each sign shall be provided with appropriate training and operation instructions to enable on-site personnel to operate and troubleshoot the unit. The sign shall also be capable of being powered by an electrical service drop from a local utility company. The PCMS shall be delineated in accordance with CMS 614.03.

Placement, operation, maintenance and all activation of the signs by the Contractor shall be as directed by the Engineer. The PCMS shall be located in a highly visible position yet protected from traffic. The Contractor shall, at the direction of the Engineer, relocate the PCMS to improve visibility or accommodate changed conditions. When not in use, the PCMS shall be turned off. Additionally, when not in use for extended periods of time, the PCMS shall be turned away from all traffic.

The Engineer shall be provided access to each sign unit and shall be provided with appropriate training and operation instructions to enable ODOT personnel to operate and troubleshoot the unit, and to revise sign messages, if necessary.

All messages to be displayed on the sign will be provided by the Engineer. A list of all required pre-programmed messages will be given to the Contractor at the project preconstruction conference. The sign shall have the capability to store up to 99 messages. Message memory or pre-programmed displays shall not be lost as a result of power failures to the on-board computer. The sign legend shall be capable of being changed in the field. Three-line presentation formats with up to six message phases shall be supported. PCMS format shall permit the complete message for each phase to be read at least twice.

The PCMS shall contain an accurate clock and programming logic which will allow the sign to be activated, deactivated or messages changed automatically at different times of the day for different days of the week.

The PCMS unit shall be maintained in good working order by the Contractor in accordance with the provisions of CMS 614.07. The Contractor shall, prior to activating the unit, make arrangements, with an authorized service agent for the PCMS, to assure prompt service in the event of failure. Any failure shall not result in the sign being out of service for more than 12 hours, including weekends. Failure to comply may result in an order to stop work and open all traffic lanes and/or in the Department taking appropriate action to safely control traffic. The entire cost to control traffic, accrued by the Department due to the Contractor's noncompliance, will be deducted from moneys due, or to become due the Contractor on his contract.

The Contractor shall be responsible for 24-hour-per-day operation and maintenance of these signs on the project for the duration of the phases when the plan requires their use.

Payment for the above described item shall be at the contract unit price. Payment shall include all labor, materials, equipment, fuels, lubricating oils, software, hardware and incidentals to perform the above described work.

The estimated quantity provides for two PCMS units at 90 days each.

The following estimated quantity has been carried to the General Summary:

Item 614 – Portable Changeable Message Sign,
As Per Plan ..... **180 Days**

Item 614 – Law Enforcement Officer with Patrol Car for Assistance

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 CMS 614 and the latest edition of 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 CMS 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 as approved by the Engineer:

- 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 in advance of and on the same side as the lane restriction or at the point of road closure, and to manually control traffic movements through intersections in work zones.

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 returned 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. The following estimated quantities have been carried to the General Summary.

Item 614 – Law Enforcement Officer
With Patrol Car for Assistance ..... **500 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 price for Item 614, Law Enforcement Officer with Patrol Car for Assistance.

Item 614 - Worksite Traffic Supervisor

Subject to approval of the Engineer, the Contractor shall employ and identify (someone other than the superintendent) a certified Worksite Traffic Supervisor (WTS) before starting work in the field. The WTS shall be certified from one of the following organizations:

1. American Traffic Safety Service Association (ATSSA), phone number 1-800-272-8772, certified Traffic Control Supervisor (TCS).

2. National Highway Institute, Design and Operation of Work Zone Traffic Control, phone number 1-703-235-0528.

3. The Ohio Contractors Association, Traffic Control Supervisor (OCA/TCS) work zone class, only if taken after May 5, 2004, phone number 1-800-229-1388.

4. Ohio Laborers' Training, Traffic Control Supervisors Class, phone number 1-740-599-7915.

A copy of each WTSs certification and 24-hour contact information shall be provided to the Engineer at the preconstruction conference. If the designated WTS will not be available full time (24/7) the Contractor may designate an alternate WTS to be available when the primary is off duty. Each WTS shall have a current WTS certification (with an expiration date no more than 5 years from the date of issue) from any of the approved organizations.

The WTS position has the responsibility of monitoring traffic control deficiencies for the entire work zone. The duties of the WTS are as follows:

1. Be available on a 24-hour per day basis, and be able to be on site for all emergency traffic control needs within one hour of notification by police or project staff and be prepared to effect corrective measures immediately on existing work zone traffic control devices.

2. Attend preconstruction and all project meetings where traffic control management is discussed.

3. Be available for meetings or discussions with the Engineer upon request or within 36 hours.

4. Coordinate a Traffic Incident Management meeting each year before construction work begins with ODOT and the Safety Forces that will respond to incidents on the project. Items to be discussed will be the:

    a. Traffic Incident Management Plan (TIMP);
    b. Emergency Response and Notification;
    c. Project work/phasing concerns (e.g., ramp closures); and
    d. Responders concerns.

5. Be aware of, and coordinate if necessary, all traffic control operations, including those of subcontractors and suppliers.

6. Coordinate project activities with all Law Enforcement Officers (LEOs). A WTS shall also be the main contact person with the LEOs while they are on the project.

7. Coordinate meetings with ODOT personnel, LEOs and other applicable entities before each plan phase switch to discuss work zone traffic control.

8. Ensure compliance with the contract documents for signs, barricades, temporary concrete barrier, pavement markings, portable message signs, and other traffic control devices on a daily basis; and facilitate any corrective action necessary.

9. Notify the Contractor of the need for cleaning and maintenance of all traffic control devices, including the covering and removal of inapplicable signs.

10. Inspect, evaluate, propose necessary modifications to, and document the effectiveness of, the traffic control devices and/or traffic operations on a DAILY BASIS (7 days a week). In addition, a weekly night inspection of the work zone setup for daytime work operations; and one daytime inspection per week for nighttime projects. This shall include (but not be limited to) documentation on the following project events:

    a. Initial traffic control setup (day and night review).
    b. Daily traffic control setup and removal.
    c. When construction staging causes a change in the traffic control setup.
    d. Crash occurrences within the construction area.
    e. Removal of traffic control devices at the end of a phase or project.
    f. All other emergency traffic control needs.

11. Complete the Department approved Long Term Inspection form (CA-D-8) after each inspection as required in #10 and submit it to the Engineer the following work day. These reports shall include a checklist of all traffic control maintenance items to be reviewed. A copy of the form will be provided at the pre-construction meeting. Any deficiencies observed shall be noted, along with recommended corrective actions and the dates by which such corrections were, or will be, completed. A copy of this document can be found in current revision of the Department of Transportation Construction Inspection Forms Manual.

12. Verify that all flagging operations are being conducted per the Ohio Manual of Uniform Traffic Control Devices.

13. Have copies of the ODOT Temporary Traffic Control Manual and applicable standards and specifications included in the contract documents available at all times on the project.

14. Identify and contact all possible response personnel; preplan and keep an updated roster with phone numbers:

    a. Federal, State, and local transportation agencies (Traffic Management Center);
    b. Regional, county or local 911 dispatch; and
    c. Towing and recovery providers.

15. Comply with the provisions of OMUTCD Chapter 6I, Control of Traffic Through Traffic Incident Management Areas.

16. Propose a response/action plan to:

    a. Establish alternate route plans per the provided ODOT Playbook;
    b. Remove traffic demand from impacted roadway(s);
    c. Divert traffic to routes that can accommodate demands;
    d. Detour traffic away from sensitive areas (such as schools, hospitals, etc.);
    e. Discuss methods of determining a staging area for responders within or near the construction zone; and
    f. Discuss methods of developing ingress and egress sites within the construction zone.

    The response/action plan shall be submitted to ODOT for acceptance before the Contractor's first day of work.

17. Perform, at a minimum, the following functions in incident detection and verification:

    a. Call 911/ notify Traffic Management Center and provide the following:
        I. Location – including milepost number and direction of travel.
        II. Number and type of vehicles involved.
        III. Estimated extent of damage or injury.
        IV. Estimated number of patients involved.
        V. Any potential hazardous conditions.
        VI. The placard number on any hazardous materials placard from a safe distance.

    b. Initiate traffic management/provide traffic control.
    c. Assist motorist with disabled vehicles.
    d. Recommend roadway repair needs.
    e. Provide repair resources.

18. Attend post-incident debriefings if required.

The Department will deduct the prorated daily amount of the unit price bid for the WTS for any day on which the Contractor fails to perform the duties set forth above. Should the Contractor's failure to perform any of the duties described above result in a maintenance of traffic safety issue, the Department will deduct the prorated daily amount for Item 614 Maintenance of Traffic from the Contractor's next scheduled estimate.

In addition to the plan requirements for Worksite Traffic Supervisor, complete a department-approved inspection form for each day a work zone speed zone is implemented. In the inspection report, note the disposition of all existing and work zone speed limit signing, including the actual times that the work zone speed limit signs were in place each day. Submit these daily inspection reports to the Engineer at least as often as the weekly inspection reports required in Item 10 of the Work Zone Supervisor plan note.

If three or more failures to perform the duties set forth above occur, the WTS shall be immediately removed from the work in accordance with C&MS 108.05.

The following estimated quantity has been carried to the General Summary for the Worksite Traffic Supervisor:

Item 614 – Worksite Traffic Supervisor ..... **6 Months**

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MAINTENANCE OF TRAFFIC NOTES

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Item 630 – Signing Misc.: Additional Signs, Ground Mounted, As Directed by the Engineer

When additional signing is needed to maintain traffic, the Contractor shall furnish the sign or signs as directed by the Engineer. These signs shall be ground mounted and meet all the specifications of the plan, proposal and current year CMS.

Payment for this item shall include, but not be limited to, the cost to furnish and erect the sign, including driving posts or other approved methods of sign support, maintaining the sign and removal of the sign.

This item of work shall be used to provide signs that are beyond the requirements of the signage detailed in the Standard Construction Drawings and the OMUTCD.

The following estimated quantity has been carried to the General Summary to be used as directed by the Engineer:

Item 630 – Signing Misc.: Additional Signs, Ground Mounted,
As Directed by the Engineer..... **300 Sq Ft**

Covering of Ground-Mounted Signs--General

When required by other items or incidentally to Item 614 – Maintaining Traffic, cover existing ground-mounted signs with plywood or OSB blanks (1/2" minimum thickness) covering 80% of the sign area and all of the sign legend. The use of low quality materials such as duct tape and black plastic is not permitted.

Item 614 – Maintaining Traffic – Work Zone Speed Zone Signs for Freeway Resurfacings

The following Work Zone Speed Zone (WZSZ) Speed Limit Revision(s) have been approved for use on this project when work zone conditions and factors are met as described below:

WZSZ Revision Number	County & Route	Direction
WZ-65201	Cuyahoga IR-90	EB & WB

Potential WZSZ locations shall have an original (pre-construction) posted speed limit of ≥55 mph, a qualifying work zone condition of at least 0.5 mile in length, an expected work duration of at least three hours, and a work zone condition in place that reduces the existing functionality of the travel lanes or shoulders (i.e., lane closure, lane shift, crossover, contraflow and/or shoulder closure). The length of the work zone condition is measured from the beginning of the taper for the subject work zone condition impacting the travel lanes and/or shoulder to the end of the downstream taper, where drivers are returned to typical alignment. An expected work duration of at least three hours is required to balance the additional exposure created by installing and removing WZSZ signing with the time needed to complete the work.

If the work zone meets these minimum criteria, it shall be analyzed further using Table 1 below to determine if and when it qualifies for a speed limit reduction. Depending on the original posted speed limit, the type of temporary traffic control used, and whether or not workers are present, a warranted WZSZ will vary in the approved speed limit to be posted over time.

C&MS Item 614, Paragraph 614.02(B), indicates that two directions of a divided highway are considered separate highway sections. Therefore, if the work on a multi-lane divided highway is limited to only one direction, a speed limit reduction in the direction of the work does not automatically constitute a speed limit reduction in the opposite direction. Each direction shall be analyzed independently from each other.

All WZSZs fluctuate between two approved reduced speed limits or between an approved reduced speed limit and the original posted speed limit. Only one of two signing strategies shall be used to implement a WZSZ.

WZSZs using DSL Sign Assemblies shall be in accordance with this note, Approved List, Supplemental Specification (SS) 808, and Traffic SCD MT-104.10.

WZSZs using temporary flatsheet Speed Limit signs shall be in accordance with this note and SCD MT-104.10. Additionally payment may be removed, or a disincentive applied, for WZSZs using temporary flatsheet Speed Limit signs the same as described in the most recent publication of SS 808 in regards to WZSZs using DSL Sign Assemblies (see SS 808.06 paragraphs 4 through 7, including Table 1).

Only one warranted speed limit applies at any one time; speed limit reductions are not cumulative. WZSZs shall not be used for Moving/Mobile activities, as defined in OMUTCD Part 6.

When looking up the warranted work zone speed limits, always use the original, preconstruction, posted speed limit. Do not use a prior or current work zone speed limit as a look up value in the table. Positive Protection is generally regarded as portable barrier or other rigid barrier in use along the work area within the subject warranted work zone condition. Without Positive Protection is generally regarded as using drums, cones, shadow vehicle, etc., along the work area within the subject warranted work zone condition. Workers are considered as being present when on-site, working within the subject warranted work zone condition. When the work zone condition reducing the existing functionality of the travel lanes or shoulders is removed, the speed limit displayed shall return to the original posted speed limit.

Table 1: Warranted Work Zone Speed Limits (MPH) for Work Zones on High-Speed (≥55 mph) Multi-Lane Highways

	WITH Positive Protection		WITHOUT Positive Protection	
Original Posted Speed Limit	Workers Present	Workers NOT Present	Workers Present	Workers NOT Present
70	60	65	55	65
65	55	60	50	60
60	55	60	50	60
55	50	55	45	55

The following estimated quantity has been carried to the General Summary.

Item 614 – Digital Speed Limit (DSL) Sign Assembly ..... **45 Sign Month**
Assuming 15 DSL Sign Assemblies for 3 Months

Item 614 Work Zone Increased Penalties Sign

R11-H5A-48 signs shall be furnished, erected, and maintained in good condition and/or replaced as necessary and subsequently removed by the Contractor. Signs shall be mounted at the appropriate offsets and elevations as prescribed by the Ohio Manual of Uniform Traffic Control Devices. They shall be maintained on supports meeting current safety criteria.

Uncover or place Work Zone Increased Penalties signs once the pavement surface is under construction for overlay removal, pavement repair, and placement of intermediate and surface courses. Uncover or place increased penalties signs no more than four hours before the actual start of work. Do not cover signs when lanes are re-opened to traffic subject to the provisions of the "Schedule of Through Lanes to be Maintained." Cover or remove signs between October 15 and April 1 each year. Remove signs once all work requiring lane closures is complete.

The signs shall be dual mounted. The first sign shall be placed between the Road Work Ahead (W20-1) sign and the next sign in the sequence. Signs shall be erected on each entrance ramp and every 2 miles (3 kilometers) through the construction work limits.

The Contractor may use signs and supports in used, but good condition provided the signs meet current ODOT specifications. Sign faces shall be reflectorized with Type G sheeting complying with the requirements of CMS 730.19.

Work Zone Increased Penalties signs and supports will be measured as the number of sign installations, including the sign and necessary supports. If a sign and support combination is removed and re-erected at another location as directed by the Engineer, it shall be considered another unit.

Payment for accepted quantities, complete, in place will be made at the contract unit price. Payment shall be full compensation for all materials, labor, incidentals and equipment for furnishing, erecting, maintaining, covering during suspension of work, and removal of the sign and support.

Item 614 - Work Zone Increased Penalties Sign..... **20 Each**

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MAINTENANCE OF TRAFFIC NOTES

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SHEET NUM.												PART.		ITEM	ITEM EXT	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
8-12	13-18	21	22	23	24	25	39					01/IMS/PV							
																		ROADWAY	
						280						280		202	32000	280	FT	CURB REMOVED	
						21,632.5						21,632.5		202	38000	21,632.5	FT	GUARDRAIL REMOVED	
						287						287		203	40000	287	CY	BORROW	
						233						233		209	15001	233	STA	RESHAPING UNDER GUARDRAIL, AS PER PLAN	9
		0.35	0.22		0.19							0.76		209	60501	0.76	MILE	LINEAR GRADING, AS PER PLAN	9
						20,145						20,145		606	15050	20,145	FT	GUARDRAIL, TYPE MGS	
						750						750		606	15150	750	FT	GUARDRAIL, TYPE MGS HALF POST SPACING	
						587.5						587.5		606	15250	587.5	FT	GUARDRAIL, TYPE MGS QUARTER POST SPACING	
						21						21		606	26150	21	EACH	ANCHOR ASSEMBLY, MGS TYPE E	
						19						19		606	26550	19	EACH	ANCHOR ASSEMBLY, MGS TYPE T	
						14						14		606	35002	14	EACH	MGS BRIDGE TERMINAL ASSEMBLY, TYPE 1	
						13						13		606	35102	13	EACH	MGS BRIDGE TERMINAL ASSEMBLY, TYPE 2	
																		EROSION CONTROL	
												1,000		832	30000	1,000	EACH	EROSION CONTROL	
																		DRAINAGE	
							22					22		611	04601	22	FT	12" CONDUIT, TYPE C, AS PER PLAN	10
35												35		611	98631	35	EACH	CATCH BASIN ADJUSTED TO GRADE, AS PER PLAN	10
70												70		611	98634	70	EACH	CATCH BASIN RECONSTRUCTED TO GRADE	
32												32		611	99655	32	EACH	MANHOLE ADJUSTED TO GRADE, AS PER PLAN	10
6												6		611	99660	6	EACH	MANHOLE RECONSTRUCTED TO GRADE	
50,000												50,000		SPECIAL	61199820	50,000	LB	MISCELLANEOUS METAL	10
							309					309		SPECIAL	61199830	309	FT	TRENCH DRAIN	10
																		PAVEMENT	
1,000												1,000		251	01021	1,000	SY	PARTIAL DEPTH PAVEMENT REPAIR (442), AS PER PLAN, A	11
1,200												1,200		251	01021	1,200	SY	PARTIAL DEPTH PAVEMENT REPAIR (442), AS PER PLAN, B	11
50												50		253	02001	50	CY	PAVEMENT REPAIR, AS PER PLAN	11
		147,297	148,334	11,754	18,250							325,635		254	01000	325,635	SY	PAVEMENT PLANING, ASPHALT CONCRETE, 2-1/2"	
		22,096	22,251	1,763	2,738							48,848		407	20000	48,848	GAL	NON-TRACKING TACK COAT	
						857						857		441	50701	857	CY	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 1, (448), (UNDER GUARDRAIL), AS PER PLAN	12
22,617												22,617		442	00100	22,617	CY	ANTI-SEGREGATION EQUIPMENT	
		6,136	6,181	490	759							13,566		442	10001	13,566	CY	ASPHALT CONCRETE SURFACE COURSE, 12.5 MM, TYPE A (446), AS PER PLAN, PG76-22M, 1.5"	
		4,094	4,123	326	508							9,051		442	20101	9,051	CY	ASPHALT CONCRETE INTERMEDIATE COURSE, 9.5 MM, TYPE A (448), AS PER PLAN, PG70-22M, 1"	
						280						280		609	24510	280	FT	CURB, TYPE 4-C	
		6	4		6							16		617	10101	16	CY	COMPACTED AGGREGATE, AS PER PLAN	12
14.96												14.96		618	40601	14.96	MILE	RUMBLE STRIPS, (ASPHALT CONCRETE), AS PER PLAN	11
		4,933	4,933	992	1,521							12,379		875	10000	12,379	LB	LONGITUDINAL JOINT ADHESIVE	

CALCULATED JAC
CHECKED EJK

GENERAL SUMMARY

CUY-90-20.01

SHEET NUM.													PART.	ITEM	ITEM EXT	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
8-12	13-18	25	40	41	42	43	44						01/IMS/PV						
																		TRAFFIC CONTROL	
		21											21	620	00500	21	EACH	DELINEATOR, POST GROUND MOUNTED, TYPE C	
271													271	620	31200	271	EACH	REMOVAL OF DELINEATOR	
			889	902	118	77							1,986	621	00100	1,986	EACH	RPM	
1,490													1,490	621	54000	1,490	EACH	RAISED PAVEMENT MARKER REMOVED	
		267											267	626	00100	267	EACH	BARRIER REFLECTOR, TYPE A	
		415											415	626	00100	415	EACH	BARRIER REFLECTOR, TYPE B	
							143						143	630	04100	143	FT	GROUND MOUNTED SUPPORT, NO. 4 POST	
							77						77	630	80100	77	SF	SIGN, FLAT SHEET	
	300												300	630	97800	300	SF	SIGNING, MISC.: ADDITIONAL SIGNS, GROUND MOUNTED, AS DIRECTED BY THE ENGINEER	18
					80	503							583	644	00400	583	FT	CHANNELIZING LINE, 8"	
					82	66							148	644	00500	148	FT	STOP LINE	
					340	90							430	644	00600	430	FT	CROSSWALK LINE	
						65							65	644	00700	65	FT	TRANSVERSE/DIAGONAL LINE	
					3	10							13	644	01300	13	EACH	LANE ARROW	
					1	1							2	644	01360	2	EACH	WRONG WAY ARROW	12
					16								16	644	20800	16	FT	YIELD LINE	
			7.78	7.78	2.68	2.52							20.76	646	10010	20.76	MILE	EDGE LINE, 6"	
			11.64	11.7		0.06							23.4	646	10110	23.4	MILE	LANE LINE, 6"	
					185								185	646	10300	185	FT	CHANNELIZING LINE, 8"	
			3,874	4,554	224								8,652	646	10310	8,652	FT	CHANNELIZING LINE, 12"	
					40								40	646	10400	40	FT	STOP LINE	
					110	120							230	646	10500	230	FT	CROSSWALK LINE	
			120	125									245	646	10620	245	FT	CHEVRON MARKING	
			2,692	3,472									6,164	646	20504	6,164	FT	DOTTED LINE, 6"	
			483	563									1,046	646	20510	1,046	FT	DOTTED LINE, 12"	
																		MAINTENANCE OF TRAFFIC	
	500												500	614	11110	500	HOUR	LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE	
	6												6	614	11500	6	MNTH	WORKSITE TRAFFIC SUPERVISOR	
		3,150											3,150	614	11631	3,150	FT	INCREASED BARRIER DELINEATION, AS PER PLAN	12
	20												20	614	12484	20	EACH	WORK ZONE INCREASED PENALTIES SIGN	
	200												200	614	13001	200	CY	ASPHALT CONCRETE FOR MAINTAINING TRAFFIC, AS PER PLAN	14
	180												180	614	18401	180	DAY	PORTABLE CHANGEABLE MESSAGE SIGN, AS PER PLAN	16
	45												45	614	18700	45	SNMT	DIGITAL SPEED LIMIT (DSL) SIGN ASSEMBLY	
	46.8												46.8	614	20101	46.8	MILE	WORK ZONE LANE LINE, CLASS I, 642 PAINT, AS PER PLAN, 6"	15
	41.52												41.52	614	22101	41.52	MILE	WORK ZONE EDGE LINE, CLASS I, 642 PAINT, AS PER PLAN, 6"	15
	18,470												18,470	614	23200	18,470	FT	WORK ZONE CHANNELIZING LINE, CLASS I, 642 PAINT	
	583												583	614	23680	583	FT	WORK ZONE CHANNELIZING LINE, CLASS III, 642 PAINT	
	14,420												14,420	614	24200	14,420	FT	WORK ZONE DOTTED LINE, CLASS I, 642 PAINT	
	148												148	614	26200	148	FT	WORK ZONE STOP LINE, CLASS I, 642 PAINT	
	148												148	614	26610	148	FT	WORK ZONE STOP LINE, CLASS III, 642 PAINT	
	430												430	614	27200	430	FT	WORK ZONE CROSSWALK LINE, CLASS I, 642 PAINT	
	430												430	614	27620	430	FT	WORK ZONE CROSSWALK LINE, CLASS III, 642 PAINT	
	13												13	614	30200	13	EACH	WORK ZONE ARROW, CLASS I, 642 PAINT	
	13												13	614	30650	13	EACH	WORK ZONE ARROW, CLASS III, 642 PAINT	
																		INCIDENTALS	
													LS	108	30000	LS		CPM PROGRESS SCHEDULE SHORT DURATION PROJECTS	PN105
													LS	614	11000	LS		MAINTAINING TRAFFIC	
6													6	619	16011	6	MNTH	FIELD OFFICE, TYPE B, AS PER PLAN	8
LS													LS	623	10000	LS		CONSTRUCTION LAYOUT STAKES AND SURVEYING	
													LS	624	10000	LS		MOBILIZATION	

CALCULATED JAC
CHECKED EJK

GENERAL SUMMARY

CUY-90-20.01

REF. NO.	SHEET NO.	PLAN SPLIT NO.	STATION TO STATION		LENGTH	BEGIN WIDTH	ENDING WIDTH	AVERAGE WIDTH	AREA		254 PAVEMENT PLANING, ASPHALT CONCRETE, 2-1/2"			407 NON-TRACKING TACK COAT	442 ASPHALT CONCRETE SURFACE COURSE, 12.5 MM, TYPE A (446), AS PER PLAN, PG76-22M, 1.5"	442 ASPHALT CONCRETE INTERMEDIATE COURSE, 9.5 MM, TYPE A (448), AS PER PLAN, PG70-22M, 1"	875 LONGITUDINAL JOINT ADHESIVE			209 LINEAR GRADING, AS PER PLAN	617 COMPACTED AGGREGATE, AS PER PLAN
					FT.	FT.	FT.	FT.	SO. YD.		SY			GAL	CY	CY	LB			MILE	CY
			IR-90 Eastbound																		
		1	154+70.00	156+10.30	141	68.2	65.0	66.6	1044		1044			157	44	29	35				
		1	156+10.30	170+49.90	1440	65.0	65.0	65.0	10400		10400			1560	433	289	360				
			Sta. 170+49.90 BK = Sta. 200+83.36 AH																		
			Bridge No. CUY-90-20.32																		
		1	202+97.02	203+80.00	83	65.0	65.0	65.0	599		599			90	25	17	21				
		1	203+80.00	204+80.00	100	65.0	75.0	70.0	778		778			117	32	22	25				
		1	204+80.00	206+66.44	187	75.0	75.0	75.0	1558		1558			234	65	43	47				
			Bridge No. CUY-90-20.45																		
		1	208+80.10	212+15.29	336	75.0	103.5	89.3	3332		3332			500	139	93	84				
		1	212+15.29	218+55.66	641	65.0	65.0	65.0	4629		4629			694	193	129	160				
			Bridge No. CUY-90-20.65																		
		1	219+94.28	221+80.40	187	65.0	65.0	65.0	1351		1351			203	56	38	47				
		1	221+80.40	225+76.84	397	100.5	82.6	91.5	4038		4038			606	168	112	99				
		1	225+76.84	227+83.00	207	82.6	77.7	80.2	1844		1844			277	77	51	52				
		1	227+83.00	229+79.39	197	77.7	67.9	72.8	1594		1594			239	66	44	49				
		1	229+79.39	229+96.55	18	67.9	67.9	67.9	136		136			20	6	4	5				
		1	229+96.55	230+44.64	49	67.9	77.4	72.7	396		396			59	17	11	12				
		1	230+44.64	233+24.24	280	77.4	100.4	88.9	2765		2765			415	115	77	70				
		1	233+24.24	233+40.68	17	90.0	90.0	90.0	170		170			26	7	5	4				
		1	233+40.68	237+73.09	433	65.0	65.0	65.0	3127		3127			469	130	87	108				
			Bridge No. CUY-90-21.01																		
		1	238+97.93	245+38.02	641	65.0	65.0	65.0	4629		4629			694	193	129	160				
		1	245+38.02	245+45.22	8	90.0	90.0	90.0	80		80			12	3	2	2				
		1	245+45.22	252+98.80	754	100.3	68.5	84.4	7071		7071			1061	295	196	189				
			Sta. 252+98.80 BK = Sta. 301+99.84 AH																		
		1	301+99.84	302+74.74	75	70.9	69.0	69.9	583		583			87	24	16	19				
		1	302+74.74	323+41.37	2067	69.0	61.0	65.0	14928		14928			2239	622	415	517				
		1	323+41.37	336+62.15	1321	61.0	61.0	61.0	8953		8953			1343	373	249	330				
			Bridge No. CUY-90-22.00																		
		1	337+92.57	359+92.00	2200	61.0	61.0	61.0	14911		14911			2237	621	414	550				
		1	359+92.00	360+95.00	103	61.0	71.0	66.0	755		755			113	31	21	26				
		1	360+95.00	364+92.08	398	71.0	71.0	71.0	3140		3140			471	131	87	100				
		1	364+92.08	368+42.00	350	71.0	89.7	80.3	3124		3124			469	130	87	88				
		1	368+42.00	368+53.74	12	66.3	66.3	66.3	88		88			13	4	2	3				
		1	368+53.74	385+71.56	1718	61.0	61.0	61.0	11644		11644			1747	485	323	430				
		1	385+71.56	391+90.19	619	87.2	70.6	78.9	5427		5427			814	226	151	155				
		1	391+90.19	393+90.18	200	70.6	61.0	65.8	1462		1462			219	61	41	50				
		1	393+90.18	421+01.76	2712	61.0	61.0	61.0	18381		18381			2757	766	511	678				
		1	421+00.50	422+00.50	100	61.0	73.0	67.0	744		744			112	31	21	25			100	1
		1	422+00.50	425+99.60	400	73.0	73.0	73.0	3244		3244			487	135	90	100			400	1
		1	425+99.60	429+16.74	318	73.0	100.0	86.5	3056		3056			458	127	85	80			318	1
		1	429+16.74	439+29.15	1013	65.0	65.0	65.0	7316		7316			1097	305	203	253			1013	3
SUBTOTALS											**147297**			**22096**	**6136**	**4094**	**4933**			**1831**	**6**
TOTALS CARRIED TO GENERAL SUMMARY											**147297**			**22096**	**6136**	**4094**	**4933**			**0.35 MI**	**6**

CALCULATED JAC
CHECKED EJK

PAVEMENT SUBSUMMARY

CUY-90-20.01

REF. NO.	SHEET NO.	PLAN SPLIT NO.	STATION TO STATION		LENGTH	BEGIN WIDTH	ENDING WIDTH	AVERAGE WIDTH	AREA		254 PAVEMENT PLANING, ASPHALT CONCRETE, 2-1/2"			407 NON-TRACKING TACK COAT	442 ASPHALT CONCRETE SURFACE COURSE, 12.5 MM, TYPE A (446), AS PER PLAN, PG76-22M, 1.5"	442 ASPHALT CONCRETE INTERMEDIATE COURSE, 9.5 MM, TYPE A (448), AS PER PLAN, PG70-22M, 1"	875 LONGITUDINAL JOINT ADHESIVE			209 LINEAR GRADING, AS PER PLAN	617 COMPACTED AGGREGATE, AS PER PLAN
					FT.	FT.	FT.	FT.	SO. YD.		SY			GAL	CY	CY	LB			MILE	CY
			IR-90 Westbound																		
		1	154+70.00	155+49.94	80	65.0	65.0	65.0	578		578			87	24	16	20				
		1	155+49.94	160+51.59	502	103.2	75.0	89.1	4,970		4970			746	207	138	126				
		1	160+51.59	163+00.00	249	75.0	75.0	75.0	2,075		2075			311	86	58	62				
		1	163+00.00	164+00.00	100	75.0	65.0	70.0	778		778			117	32	22	25				
		1	164+00.00	170+49.90	650	65.0	65.0	65.0	4,694		4694			704	196	130	163				
			Sta. 170+49.90 BK = Sta. 200+83.36 AH																		
			Bridge No. CUY-90-20.32																		
		1	202+97.02	206+66.44	370	65.0	72.7	68.8	2,830		2830			425	118	79	93				
			Bridge No. CUY-90-20.45																		
		1	208+80.10	214+66.89	587	78.3	100.4	89.3	5,825		5825			874	243	162	147				
		1	214+66.89	219+02.26	436	65.0	65.0	65.0	3,149		3149			472	131	87	109				
			Bridge No. CUY-90-20.65																		
		1	220+38.26	229+37.19	899	65.0	65.0	65.0	6,493		6493			974	271	180	225				
		1	229+37.19	232+50.00	313	100.4	75.0	87.7	3,050		3050			458	127	85	78				
		1	232+50.00	234+64.00	214	75.0	75.0	75.0	1,783		1783			267	74	50	54				
		1	234+64.00	237+61.64	298	75.0	82.5	78.8	2,608		2608			391	109	72	75				
			Bridge No. CUY-90-21.01																		
		1	238+86.44	241+51.23	265	85.6	101.5	93.6	2,755		2755			413	115	77	66				
		1	241+51.23	247+28.05	577	65.0	65.0	65.0	4,167		4167			625	174	116	144				
		1	247+28.05	252+98.80	571	102.3	72.4	87.4	5,542		5542			831	231	154	143				
			Sta. 252+98.80 BK = Sta. 301+99.84 AH																		
		1	301+99.84	303+51.04	152	72.0	71.0	71.5	1,208		1208			181	50	34	38				
		1	303+51.04	304+51.04	100	71.0	61.0	66.0	733		733			110	31	20	25				
		1	304+51.04	336+98.65	3248	61.0	61.0	61.0	22,014		22014			3302	917	612	812				
			Bridge No. CUY-90-22.00																		
		1	338+28.99	360+16.94	2188	61.0	61.0	61.0	14,830		14830			2225	618	412	547				
		1	360+16.94	362+94.54	278	61.0	73.0	67.0	2,070		2070			311	86	58	70				
		1	362+94.54	369+14.29	620	73.0	84.7	78.8	5,431		5431			815	226	151	155				
		1	369+14.29	384+98.87	1585	61.0	61.0	61.0	10,743		10743			1611	448	298	396				
		1	384+98.87	390+52.88	555	94.7	61.0	77.9	4,801		4801			720	200	133	139				
		1	390+52.88	423+99.84	3347	61.0	61.0	61.0	22,685		22685			3403	945	630	837				
		1	423+99.84	427+50.00	351	61.0	73.0	67.0	2,613		2613			392	109	73	88				
		1	427+50.00	432+37.11	488	73.0	73.0	73.0	3,958		3958			594	165	110	122			488	2
		1	432+37.11	436+26.80	390	73.0	100.7	86.8	3,763		3763			564	157	105	98			390	1
		1	436+26.80	439+29.15	303	65.0	65.0	65.0	2,188		2188			328	91	61	76			303	1
SUBTOTALS											**148334**			**22251**	**6181**	**4123**	**4933**			**1181**	**4**
TOTALS CARRIED TO GENERAL SUMMARY											**148334**			**22251**	**6181**	**4123**	**4933**			**0.22 MI**	**4**

CALCULATED JAC
CHECKED EJK

PAVEMENT SUBSUMMARY

CUY-90-20.01

REF. NO.	SHEET NO.	PLAN SPLIT NO.	STATION TO STATION		LENGTH	BEGIN WIDTH	ENDING WIDTH	AVERAGE WIDTH	AREA		254 PAVEMENT PLANING, ASPHALT CONCRETE, 2-1/2"			407 NON-TRACKING TACK COAT	442 ASPHALT CONCRETE SURFACE COURSE, 12.5 MM, TYPE A (446), AS PER PLAN, PG76-22M, 1.5"	442 ASPHALT CONCRETE INTERMEDIATE COURSE, 9.5 MM, TYPE A (448), AS PER PLAN, PG70-22M, 1"	875 LONGITUDINAL JOINT ADHESIVE				
					FT.	FT.	FT.	FT.	SO. YD.		SY			GAL	CY	CY	LB				
			Ramp A-4																		
		1	48+19.56	49+96.39	177	27.0	27.0	27.0	531		531			80	22	15	44				
		1	49+96.39	50+25.00	29	27.0	42.0	34.5	111		111			17	5	3	7				
		1	50+25.00	50+89.00	64	24.0	24.0	24.0	171		171			26	7	5	16				
		1	Extra Ramp Area		41	16.0	20.0	18.0	82		82			12	3	2	10				
			Ramp A-3																		
		1	49+83.50	50+36.47	53	33.0	33.0	33.0	194		194			29	8	5	13				
		1	50+36.47	51+05.36	69	64.0	33.0	48.5	372		372			56	16	10	17				
		1	51+05.36	53+81.67	277	33.0	28.0	30.5	939		939			141	39	26	69				
		1	53+81.67	55+51.09	170	28.0	29.0	28.5	538		538			81	22	15	43				
		1	Extra Ramp Area		45	24.0	24.0	24.0	120		120			18	5	3	11				
			Ramp B-1																		
		1	12+09.62	12+76.67	68	28.0	26.0	27.0	204		204			31	9	6	17				
		1	12+76.67	13+76.67	100	26.0	25.0	25.5	283		283			42	12	8	25				
		1	13+76.67	15+99.00	223	25.0	25.0	25.0	619		619			93	26	17	56				
		1	4+45.00	6+34.32	190	25.0	24.0	24.5	517		517			78	22	14	48				
			Ramp B-2																		
		1	2+92.29	6+30.00	338	25.0	25.0	25.0	939		939			141	39	26	85				
		1	8+30.00	11+63.94	334	25.0	25.0	25.0	928		928			139	39	26	84				
		1	11+63.94	11+98.95	36	25.0	24.3	24.7	99		99			15	4	3	9				
			Ramp B-3																		
		1	0+34.47	0+81.68	48	65.4	25.0	45.2	241		241			36	10	7	12				
		1	0+81.68	9+22.61	841	25.0	25.0	25.0	2,336		2,336			350	97	65	210				
			Ramp B-4																		
		1	14+71.64	16+13.00	142	25.2	28.0	26.6	420		420			63	18	12	36				
		1	16+13.00	17+36.92	124	28.0	32.0	30.0	413		413			62	17	11	31				
		1	8+78.00	10+08.00	130	26.0	38.0	32.0	462		462			69	19	13	33				
			Ramp B-4 North																		
		1	10+08.00	12+44.12	237	16.2	24.0	20.1	529		529			79	22	15	59				
		1	12+44.12	12+60.62	17	24.0	54.0	39.0	74		74			11	3	2	4				
			Ramp B-4 South																		
		1	10+08.00	11+67.67	160	16.7	24.1	20.4	363		363			54	15	10	40				
		1	11+67.67	12+16.73	50	24.0	73.0	48.5	269		269			40	11	7	13				
SUBTOTALS											11754			1763	490	326	992				
TOTALS CARRIED TO GENERAL SUMMARY											11754			1763	490	326	992				

CALCULATED JAC
CHECKED EJK

PAVEMENT SUBSUMMARY

CUY-90-20.01

REF. NO.	SHEET NO.	PLAN SPLIT NO.	STATION TO STATION		LENGTH	BEGIN WIDTH	ENDING WIDTH	AVERAGE WIDTH	AREA		254 PAVEMENT PLANING, ASPHALT CONCRETE, 2-1/2"			407 NON-TRACKING TACK COAT	442 ASPHALT CONCRETE SURFACE COURSE, 12.5 MM, TYPE A (446), AS PER PLAN, PG76-22M, 1.5"	442 ASPHALT CONCRETE INTERMEDIATE COURSE, 9.5 MM, TYPE A (448), AS PER PLAN, PG70-22M, 1"	875 LONGITUDINAL JOINT ADHESIVE			209 LINEAR GRADING, AS PER PLAN	617 COMPACTED AGGREGATE, AS PER PLAN
					FT.	FT.	FT.	FT.	SO. YD.		SY			GAL	CY	CY	LB			MILE	CY
			Ramp C-3																		
		1	0+36.00	0+86.00	50	89.0	25.0	57.0	317		317			48	13	9	13				
		1	0+86.00	5+50.00	464	25.0	25.0	25.0	1,289		1,289			193	54	36	116				
		1	42+19.70	42+69.70	50	25.0	28.0	26.5	147		147			22	6	4	13				
		1	42+69.70	42+94.70	25	28.0	30.0	29.0	81		81			12	3	2	6				
		1	42+94.70	44+16.10	122	30.0	30.0	30.0	407		407			61	17	11	31				
		1	44+16.10	45+61.68	146	30.0	33.0	31.5	511		511			77	21	14	37				
		1	45+61.68	46+80.00	119	33.0	28.0	30.5	403		403			60	17	11	30				
		1	46+80.00	47+40.53	61	28.0	28.6	28.3	192		192			29	8	5	15				
			Ramp C-4																		
		1	11+41.07	11+84.10	44	24.1	25.0	24.6	120		120			18	5	3	11				
		1	11+84.10	14+27.00	243	25.0	25.0	25.0	675		675			101	28	19	61				
		1	7+30.00	1+13.91	617	25.0	25.0	25.0	1,714		1,714			257	71	48	154				
		1	1+13.91	0+00.00	114	25.0	15.0	20.0	253		253			38	11	7	29				
			Ramp D-3																		
		1	0+24.00	0+78.06	55	53.0	24.0	38.5	235		235			35	10	7	14				
		1	0+78.06	8+18.38	741	24.0	24.0	24.0	1,976		1,976			296	82	55	185				
			Ramp E-1																		
		1	2+86.03	3+85.19	100	31.0	27.0	29.0	322		322			48	13	9	25			200	1
		1	3+85.19	10+62.85	678	27.0	27.0	27.0	2,034		2,034			305	85	57	170				
		1	10+62.85	11+12.85	50	27.0	30.0	28.5	158		158			24	7	4	13				
		1	11+12.85	12+43.46	131	30.0	30.0	30.0	437		437			66	18	12	33				
			Bridge No. CUY-90-23.93																		
		1	14+94.51	18+25.00	331	30.0	30.0	30.0	1,103		1,103			165	46	31	83				
		1	18+25.00	18+50.00	25	30.0	26.0	28.0	78		78			12	3	2	6				
		1	18+50.00	18+75.00	25	26.0	19.0	22.5	63		63			9	3	2	6				
		1	18+75.00	22+00.00	325	19.0	19.0	19.0	686		686			103	29	19	81				
		1	22+00.00	22+50.00	50	19.0	36.0	27.5	153		153			23	6	4	13				
		1	22+50.00	24+45.00	195	36.0	36.0	36.0	780		780			117	33	22	49				
			Ramp E-2																		
		1	4+34.22	4+59.58	26	26.5	27.0	26.8	77		77			12	3	2	7			52	1
		1	4+59.58	7+42.53	283	27.0	33.5	30.3	953		953			143	40	26	71			566	2
		1	7+42.53	7+92.53	50	33.5	27.0	30.3	168		168			25	7	5	13			100	1
		1	7+92.53	8+34.58	43	27.0	28.0	27.5	131		131			20	5	4	11			86	1
		1	8+34.58	8+75.00	41	28.0	29.0	28.5	130		130			20	5	4	10				
		1	8+75.00	9+00.00	25	29.0	29.5	29.3	81		81			12	3	2	6				
		1	9+00.00	9+59.58	60	29.5	28.0	28.8	192		192			29	8	5	15				
		1	9+59.58	15+93.01	634	28.0	28.0	28.0	1,972		1,972			296	82	55	159				
		1	15+93.01	17+00.00	107	28.0	32.0	30.0	357		357			54	15	10	27				
		1	Extra Ramp Area		31	16.0	16.0	16.0	55		55			8	2	2	8				
SUBTOTALS											18250			2738	759	508	1521			1004	6
TOTALS CARRIED TO GENERAL SUMMARY											18250			2738	759	508	1521			0.19 MI	6

CALCULATED JAC
CHECKED EJK

PAVEMENT SUBSUMMARY

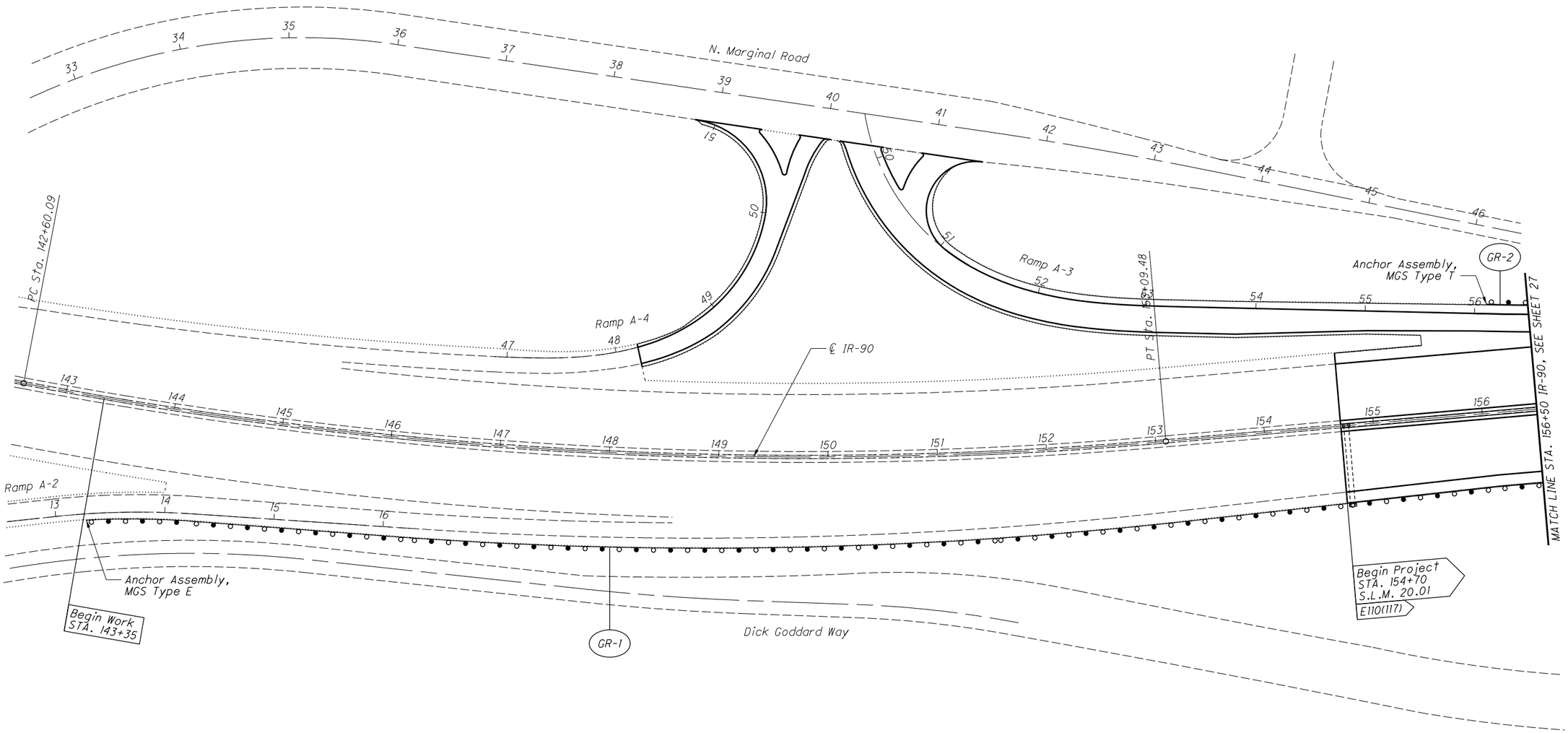
CUY-90-20.01

REF. NO.	SHEET NO.	PLAN SPLIT NO.	STATION TO STATION FROM	STATION TO STATION TO	DIRECTION	SIDE	202 CURB REMOVED FT	202 GUARDRAIL REMOVED FT	203 BORROW CY	209 RESHAPING UNDER GUARDRAIL, AS PER PLAN STA	441 ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I, (448), (UNDER GUARDRAIL), AS PER PLAN CY	606 GUARDRAIL, TYPE MGS FT	606 GUARDRAIL, TYPE MGS HALF POST SPACING FT	606 GUARDRAIL, TYPE MGS QUARTER POST SPACING FT	606 ANCHOR ASSEMBLY, MGS TYPE E EACH	606 ANCHOR ASSEMBLY, MGS TYPE T EACH	606 MGS BRIDGE TERMINAL ASSEMBLY, TYPE 1 EACH	606 MGS BRIDGE TERMINAL ASSEMBLY, TYPE 2 EACH	609 CURB, TYPE 4-C FT	620 DELINEATOR, POST GROUND MOUNTED, TYPE C EACH	626 BARRIER REFLECTOR, TYPE A EACH	626 BARRIER REFLECTOR, TYPE B EACH	614 INCREASED BARRIER DELINEATION, AS PER PLAN FT
GR-1	26, 27	1	143+37.50	164+00.00	EB	RT		2062.5	25	21	76	1950	25	25	1	1				1	22		
GR-2	26, 27	1	156+12.40	170+49.90	WB	LT		1437.5	18	14	53	1325	50	50		1		1			15		
GR-3	27	1	166+25.90	200+84.36	EB	RT	20	425.0	5	4	16	350			1		1		20	1	5		
GR-4	27	1	202+96.02	206+67.44	WB	LT	20	375.0	5	4	14	350					1	1	20		5		
GR-5	27	1	202+96.02	206+67.44	EB	RT	20	375.0	5	4	14	350					1	1	20		5		
GR-6	27, 28	1	208+79.10	216+85.88	WB	LT	20	837.5	10	8	31	762.5			1		1		20	1	9		
GR-7	27, 28	1	208+79.10	211+79.10	EB	RT		300.0	4	3	11	237.5	25	25		1		1			4		
GR-8	28	1	215+28.54	219+28.54	WB	LT		400.0	5	4	15	337.5	25	25		1		1			5		
GR-9	28	1	216+52.13	218+27.13	EB	RT	20	175.0	2	2	6	100			1		1		20	1	3		
GR-10	28	1	219+68.85	221+18.85	EB	RT		150.0	2	2	6	87.5	25	25		1		1			3		
GR-11	28, 29	1	220+59.59	228+59.59	WB	LT	20	800.0	10	8	30	725			1		1		20	1	9		
GR-12	29	1	227+32.50	230+07.50	EB	RT		275.0	3	3	10	162.5	25	25	1	1				1	4		
GR-13	29, 30	1	229+75.00	237+45.00	WB	LT		770.0	10	8	29	757.5				1		1			9		
GR-14	30	1	234+91.20	237+78.70	EB	RT	20	287.5	4	3	11	212.5			1		1		20	1	4		
GR-15	30	1	238+89.95	242+47.93	WB	LT	20	350	4	4	13	275			1		1		20	1	5		
GR-16	30	1	239+03.59	241+66.09	EB	RT		262.5	3	3	10	200	25	25		1		1			4		
GR-17	30, 31	1	244+26.08	306+16.00	EB	RT		1325.0	16	13	49	1262.5			1	1				1	14		
GR-18	31	1	252+50.00	305+51.00	WB	LT		400	5	4	15	337.5			1	1				1	5		
GR-19	31	1	310+57.50	312+57.50	EB	RT		200.0	2	2	7	87.5	25	25	1	1				1	3		
GR-20	31, 32	1	309+67.41	337+17.41	WB	LT		2750.0	34	28	102	2550	25	162.5		1		1			29		
GR-21	32	1	335+18.00	336+43.00	EB	RT	20	125.0	2	1	5	50			1		1		20	1	2		
GR-22	32	1	337+72.36	338+94.47	EB	RT	20	125.0	2	1	5	100					1	1	20		2		
GR-22A	32	1	339+23.74	339+86.24	EB	RT		62.5	1	1	2		25	25		1		1			2		
GR-23	32, 33	1	338+47.54	361+47.54	WB	LT	20	2300.0	28	23	85	2125	50	50	1		1		20	1	24		
GR-24	33	1	360+37.50	362+50.00	EB	RT		212.5	3	2	8	162.5			1					1	3		
GR-25	34	1	385+96.50	388+46.50	WB	LT		250.0	3	3	9	137.5	25	25	1	1				1	4		
GR-26	35, 36	1	397+30.36	424+55.36	WB	LT		1237.5	34	27	101	2262.5	350	50	1	1				1	28		
GR-27	35	1	414+02.50	416+02.50	EB	RT		200	2	2	7	87.5	25	25	1	1				1	3		
GR-28	36	1	425+99.60	428+87.10	EB	RT		287.5	4	3	11	175	25	25	1	1				1	4		
GR-29	36, 37	1	4+35.18	12+35.18	RAMP E-1	LT	20	800.0	10	8	30	725			1		1		20	1	9		
GR-30	36, 37	1	5+58.09	12+70.59	RAMP E-1	RT	20	712.5	9	7	26	637.5			1		1		20	1	8		
GR-31	37	1	14+71.11	19+96.11	RAMP E-1	LT		525	6	5	19	512.5				1		1			6		
GR-32	37	1	15+06.21	22+00.01	RAMP E-1	RT		700	9	7	26	687.5				1		1			8		
GR-33	37	1	436+26.22	437+63.72	EB	RT	20	137.50	2	1	5	62.5			1		1		20	1	2		
			Concrete Barrier																				
		1	154+70.00	170+49.90																		33	
		1	200+83.36	252+98.80																		106	
		1	301+99.84	439+29.15																		276	
		1	210+93.33	229+21.06																			1828
		1	239+77.03	252+98.80																			1322
TOTALS CARRIED TO GENERAL SUMMARY							**280**	**21632.5**	**287**	**233**	**857**	**20145**	**750**	**587.5**	**21**	**19**	**14**	**13**	**280**	**21**	**267**	**415**	**3150**

CALCULATED JAC
CHECKED EJK

GUARDRAIL SUBSUMMARY

CUY-90-20.01



For Guardrail Subsummary, See Sheet 25
For Guardrail Details, See Sheet 38

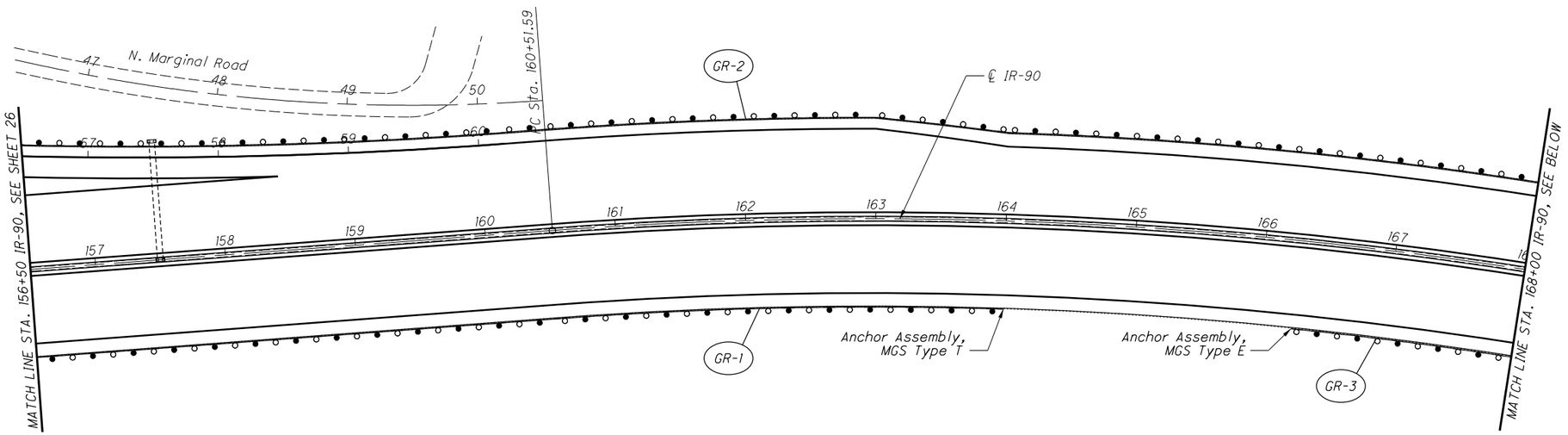
HORIZONTAL SCALE IN FEET
0 25 50 100

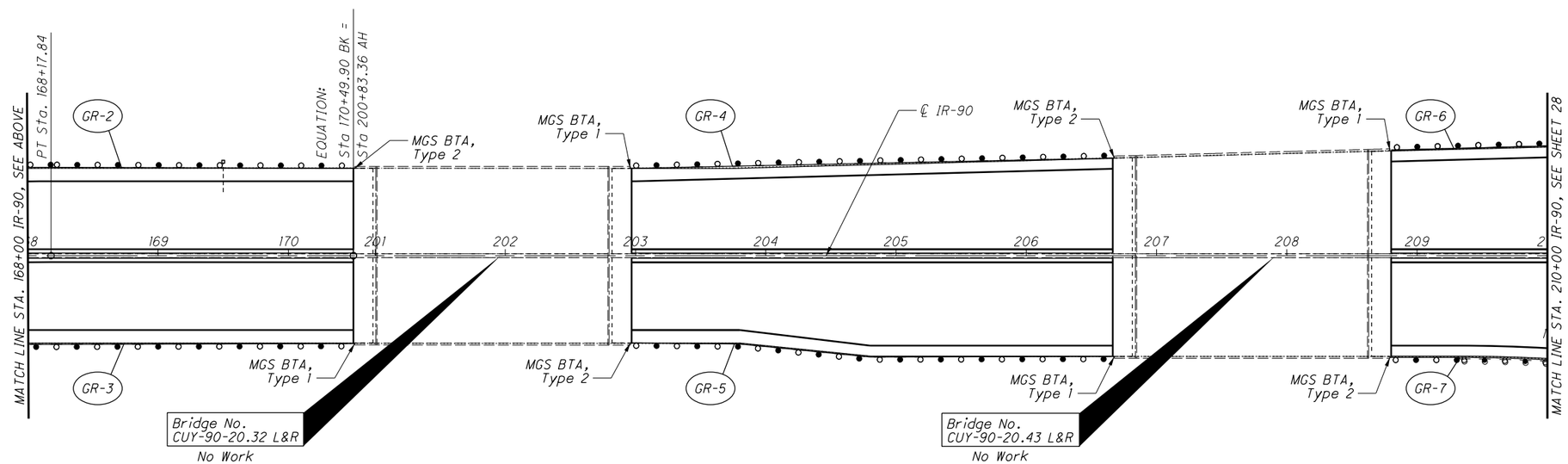
CALCULATED KAH
CHECKED EJK

GENERAL PLAN SHEET
IR-90, STA. 154+70 TO STA. 156+50

CUY-90-20.01

26
57





For Guardrail Subsummary, See Sheet 25
For Guardrail Details, See Sheet 38

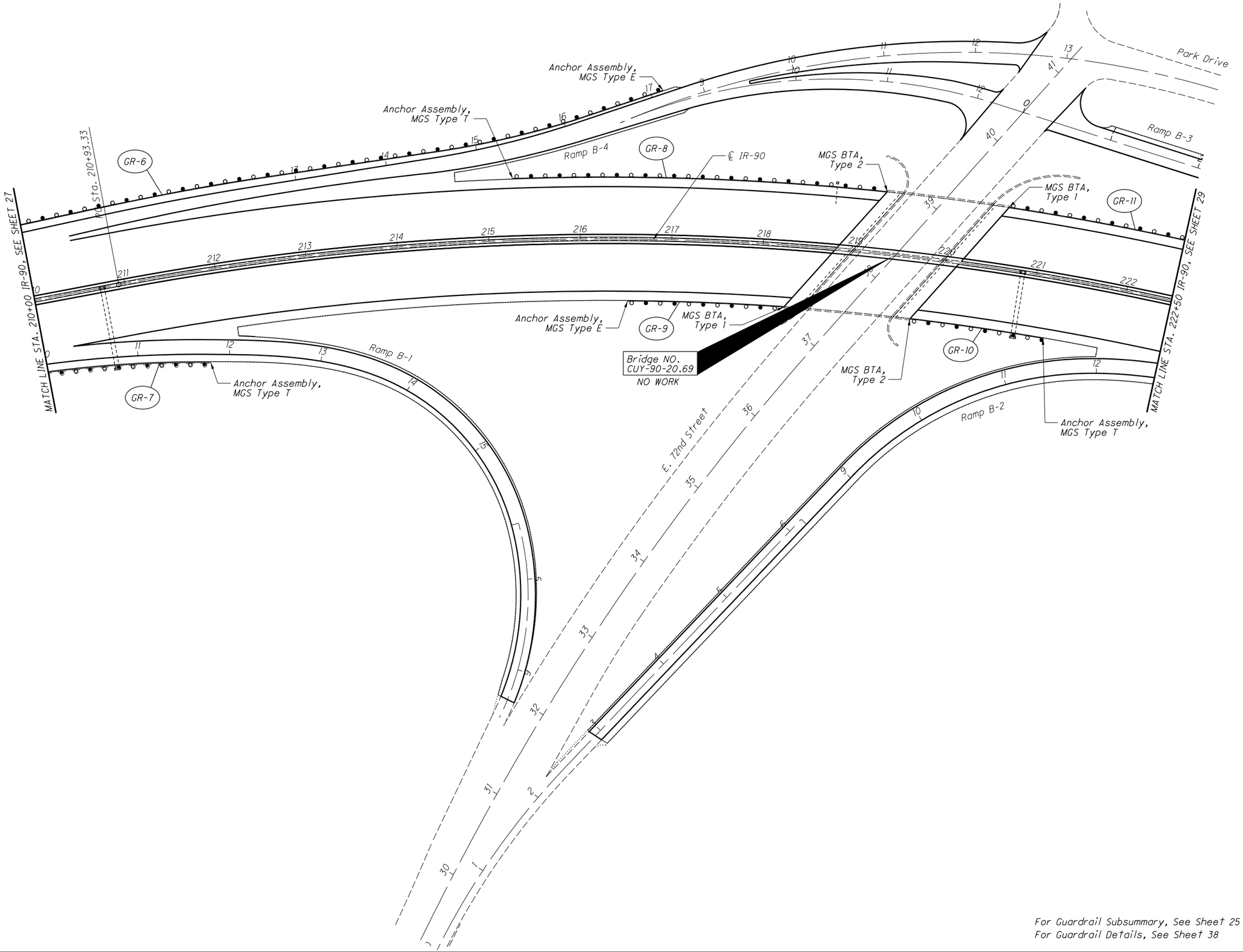
HORIZONTAL SCALE IN FEET
0 25 50 100

CALCULATED KAH
CHECKED EJK

GENERAL PLAN SHEET
IR-90, STA. 156+50 TO STA. 210+00

CUY-90-20.01

27
57



For Guardrail Subsummary, See Sheet 25
For Guardrail Details, See Sheet 38

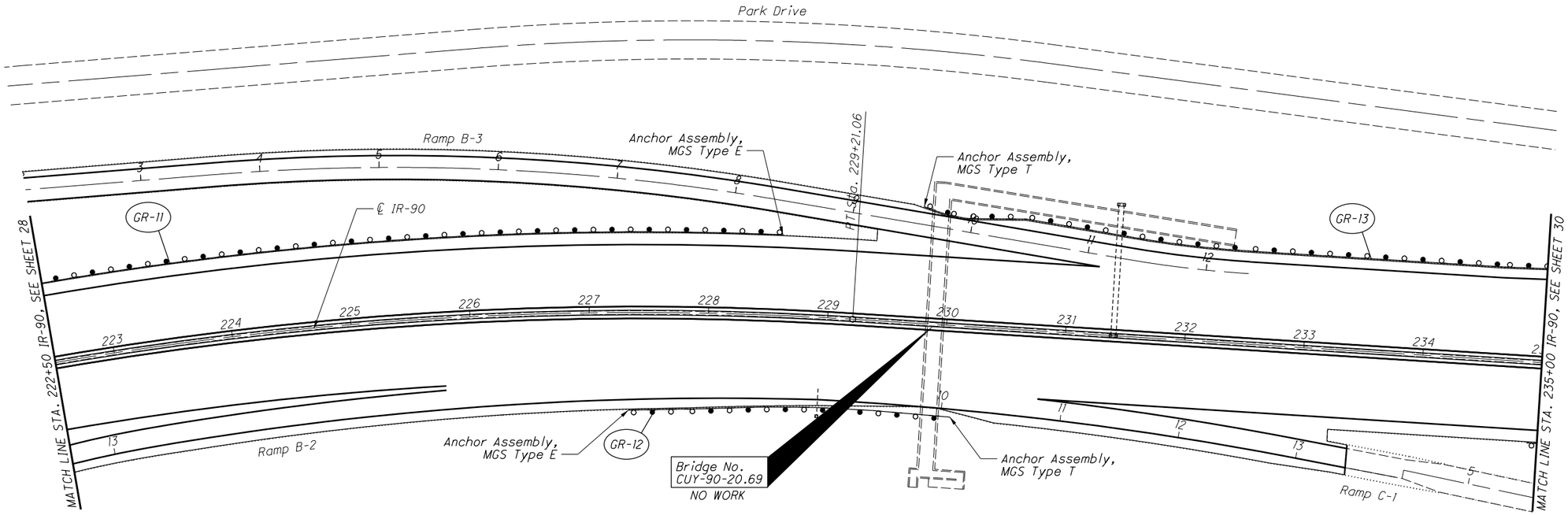
HORIZONTAL SCALE IN FEET
0 25 50 100

CALCULATED KAH
CHECKED EJK

GENERAL PLAN SHEET
IR-90, STA. 210+00 TO STA. 222+50

CUY-90-20.01

28
57



For Guardrail Subsummary, See Sheet 25
For Guardrail Details, See Sheet 38

N

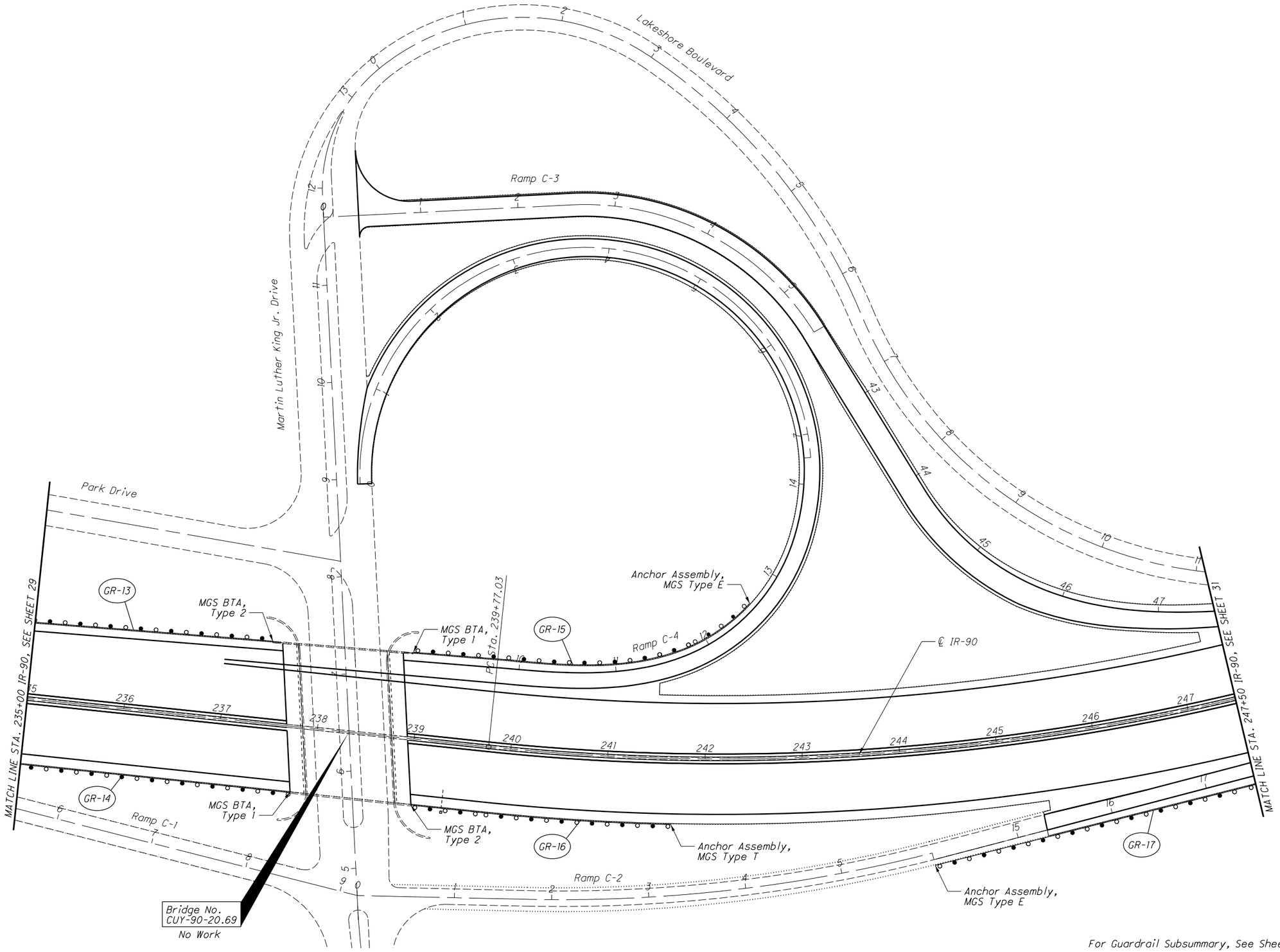
0 25 50 100
HORIZONTAL SCALE IN FEET

CALCULATED KAH
CHECKED EJK

GENERAL PLAN SHEET
IR-90, STA. 222+50 TO STA. 235+00

CUY-90-20.01

29
57



For Guardrail Subsummary, See Sheet 25
For Guardrail Details, See Sheet 38

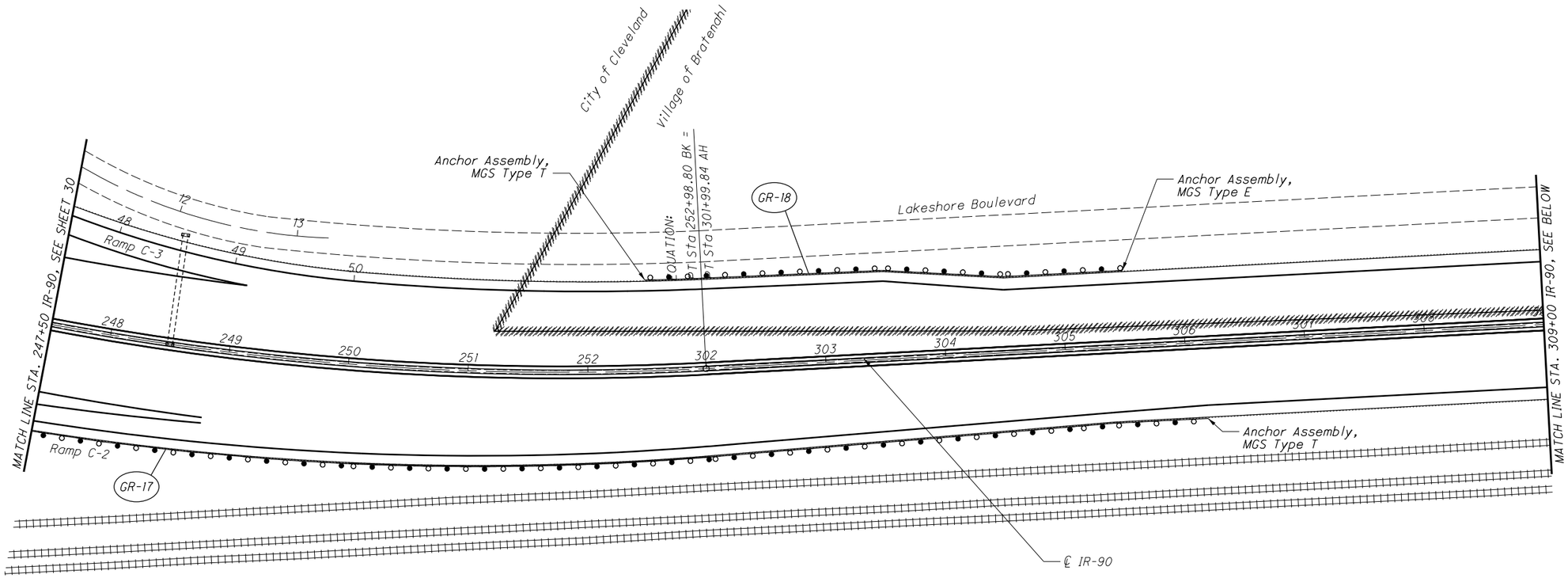
HORIZONTAL SCALE IN FEET
0 25 50 100

CALCULATED KAH
CHECKED EJK

GENERAL PLAN SHEET
IR-90, STA. 235+00 TO STA. 247+50

CUY-90-20.01

30
57



For Guardrail Subsummary, See Sheet 25
For Guardrail Details, See Sheet 38

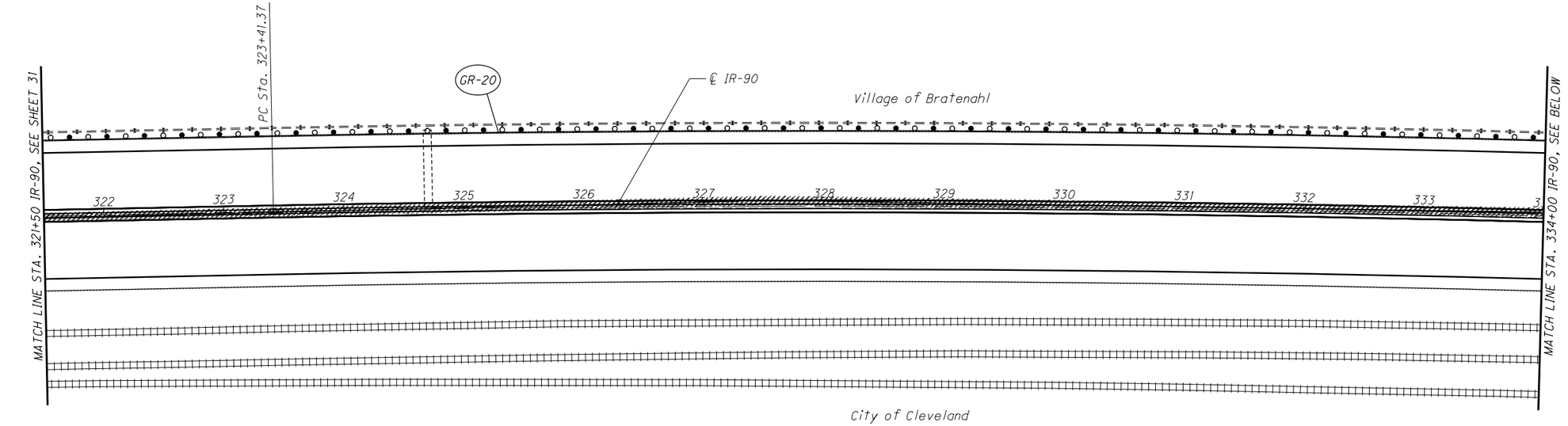
HORIZONTAL SCALE IN FEET
0 25 50 100

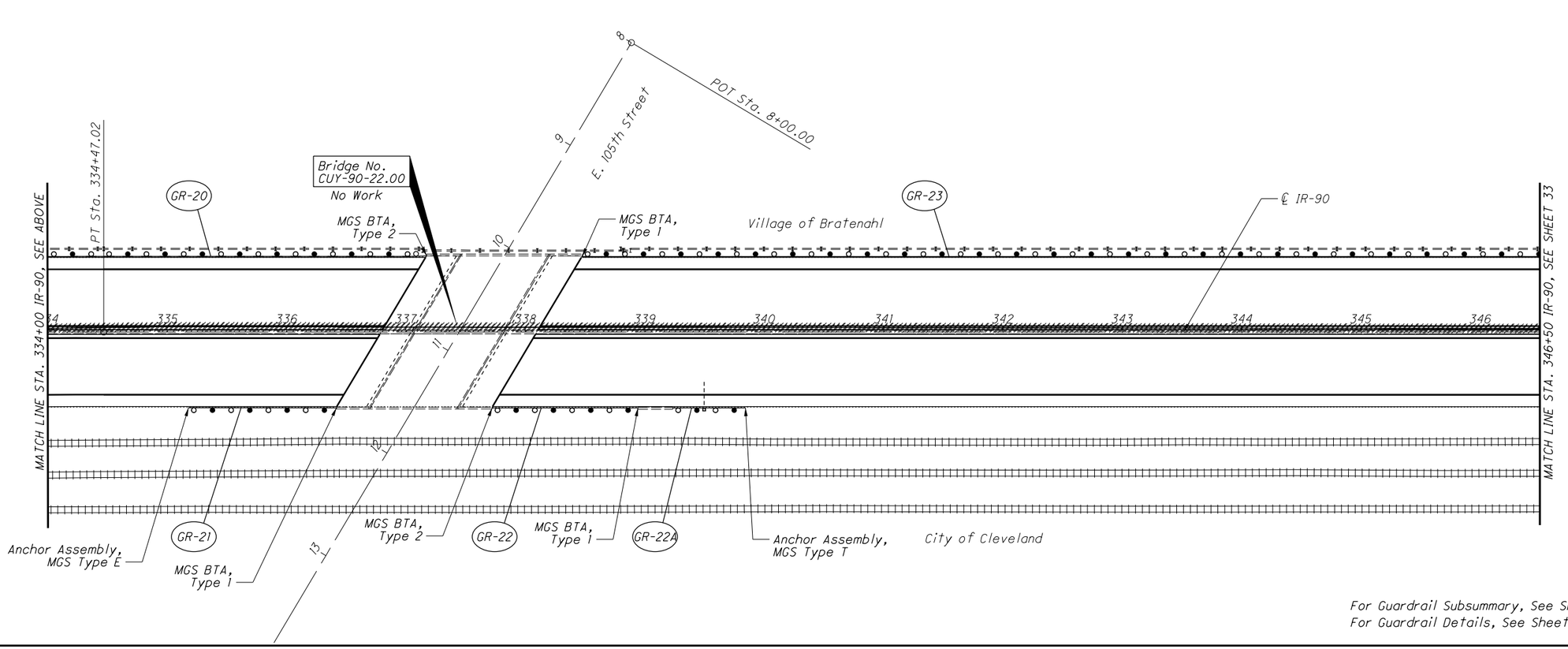
CALCULATED KAH
CHECKED EJK

GENERAL PLAN SHEET
IR-90, STA. 247+50 TO STA. 321+50

CUY-90-20.01

31
57





For Guardrail Subsummary, See Sheet 25
For Guardrail Details, See Sheet 38

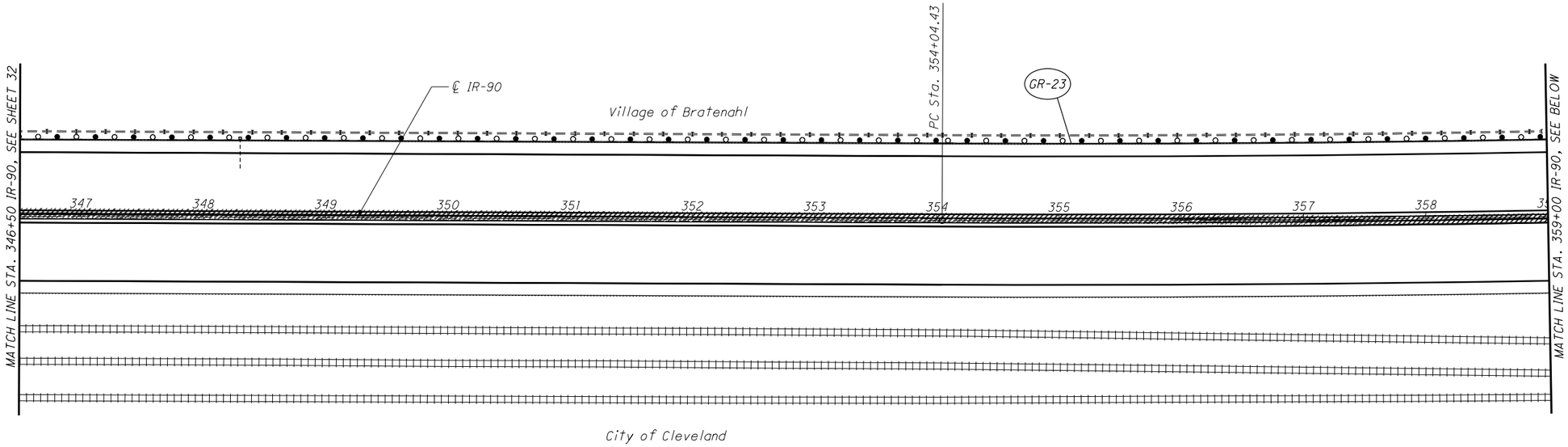
HORIZONTAL SCALE IN FEET
0 25 50 100

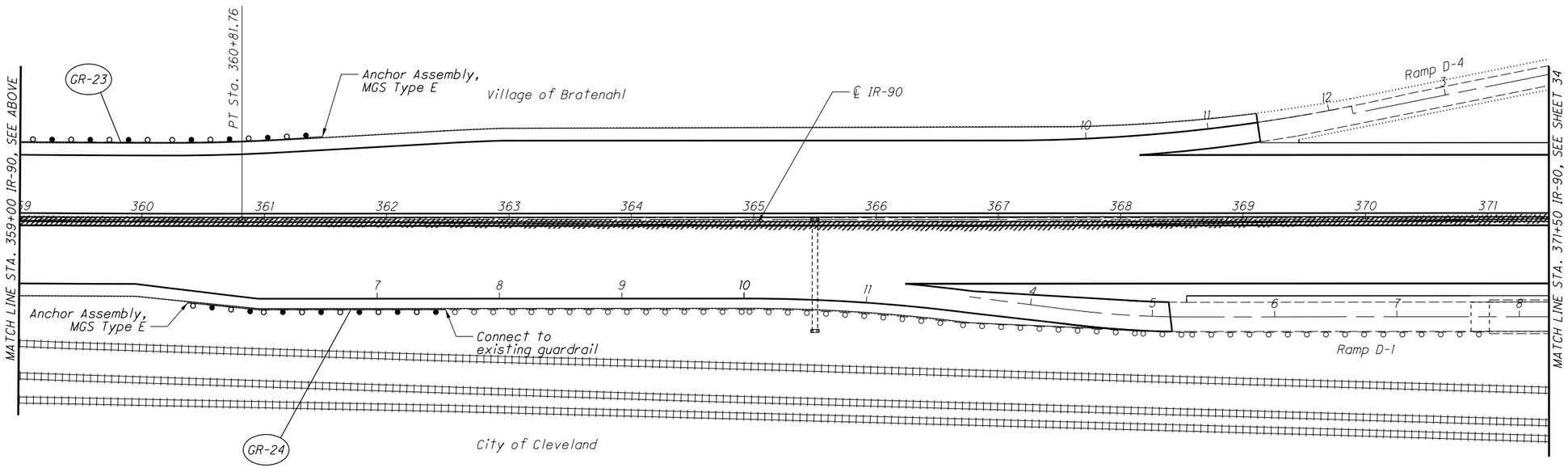
CALCULATED KAH
CHECKED EJK

GENERAL PLAN SHEET
IR-90, STA. 321+50 TO STA. 346+50

CUY-90-20.01

32
57





For Guardrail Subsummary, See Sheet 25
For Guardrail Details, See Sheet 38

0 25 50 100
HORIZONTAL SCALE IN FEET

CALCULATED KAH
CHECKED EJK

GENERAL PLAN SHEET
IR-90, STA. 346+50 TO STA. 371+50

CUY-90-20.01

33
57

For Guardrail Subsummary, See Sheet 25
For Guardrail Details, See Sheet 38

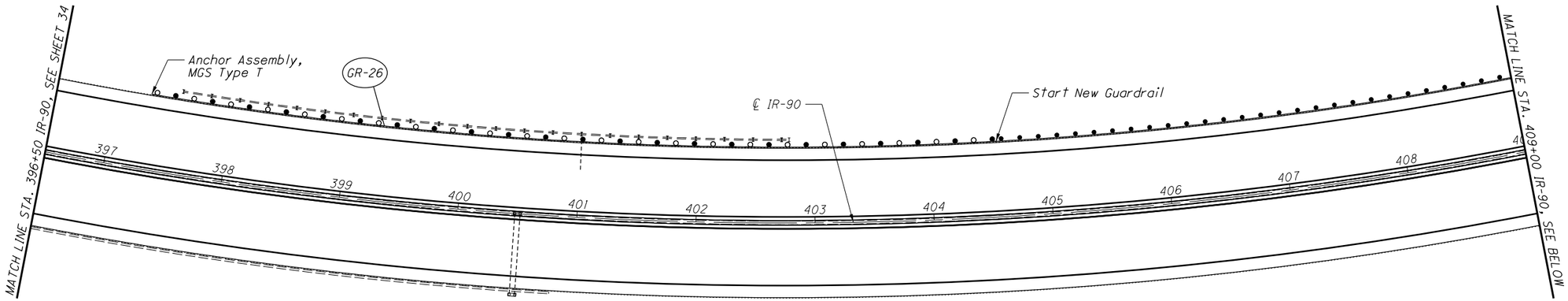
HORIZONTAL SCALE IN FEET
0 25 50 100

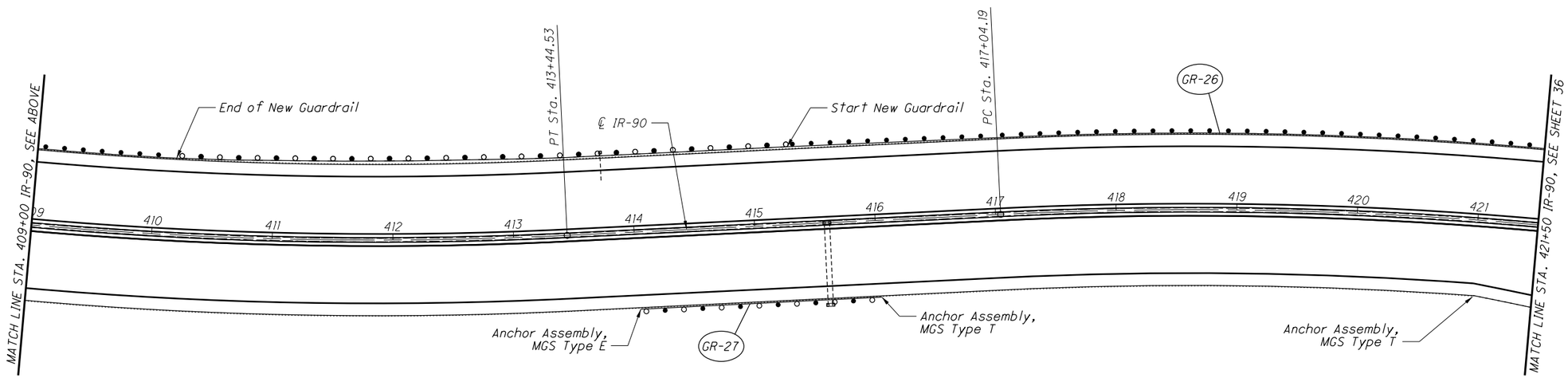
CALCULATED KAH
CHECKED EJK

GENERAL PLAN SHEET
IR-90, STA. 371+50 TO STA. 396+50

CUY-90-20.01

34
57





For Guardrail Subsummary, See Sheet 25
For Guardrail Details, See Sheet 38

HORIZONTAL SCALE IN FEET
0 25 50 100

CALCULATED KAH
CHECKED EJK

GENERAL PLAN SHEET
IR-90, STA. 396+50 TO STA. 421+50

CUY-90-20.01

35
57

For Guardrail Subsummary, See Sheet 25
For Guardrail Details, See Sheet 38

GENERAL PLAN SHEET
IR-90, STA. 421+50 TO STA. 434+00

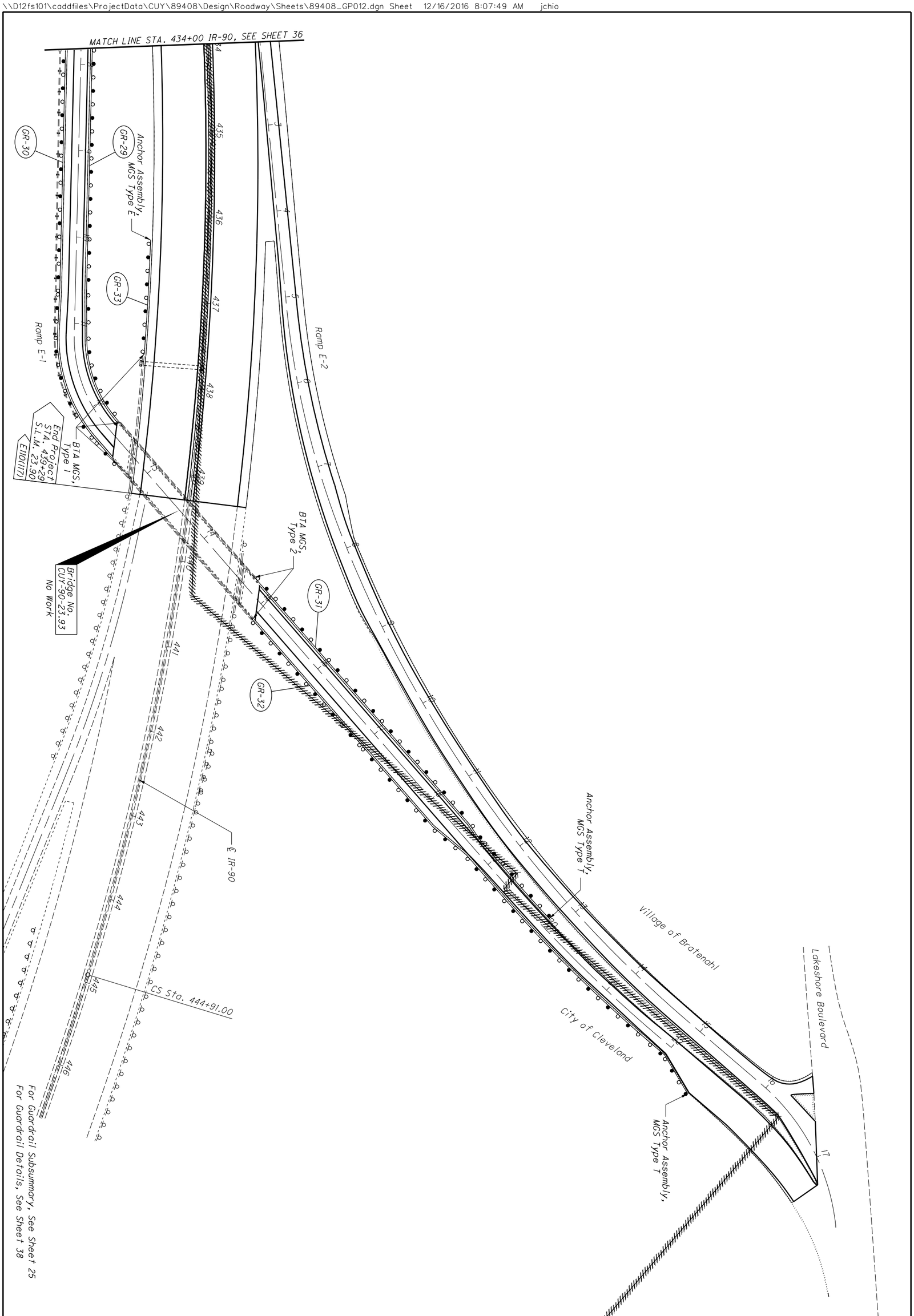
CALCULATED KAH
CHECKED EJK

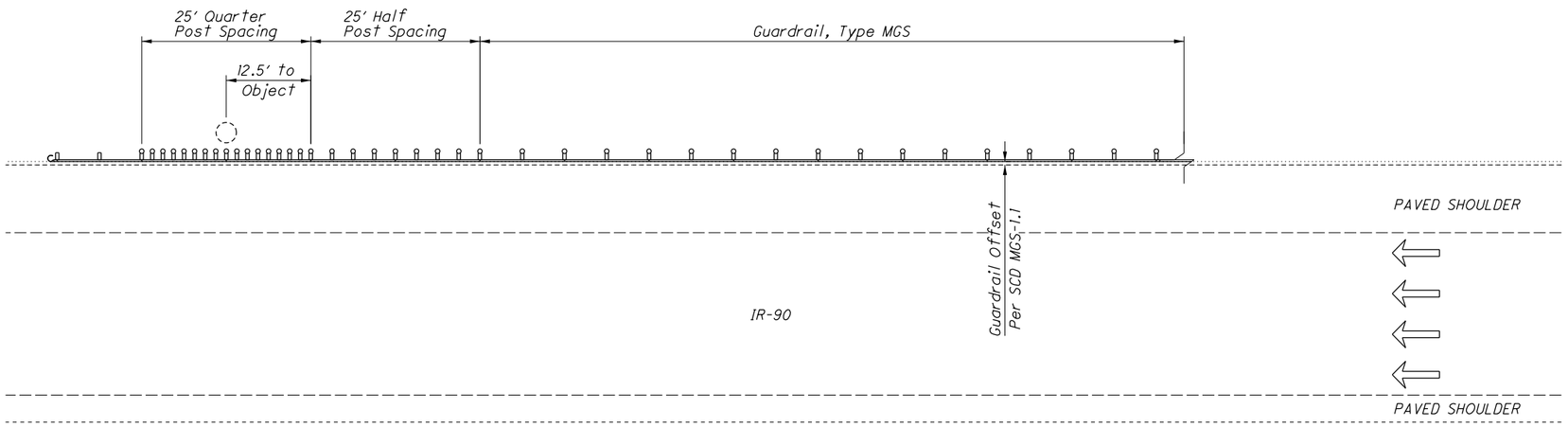
HORIZONTAL SCALE IN FEET
0 25 50 100

CUY-90-20.01

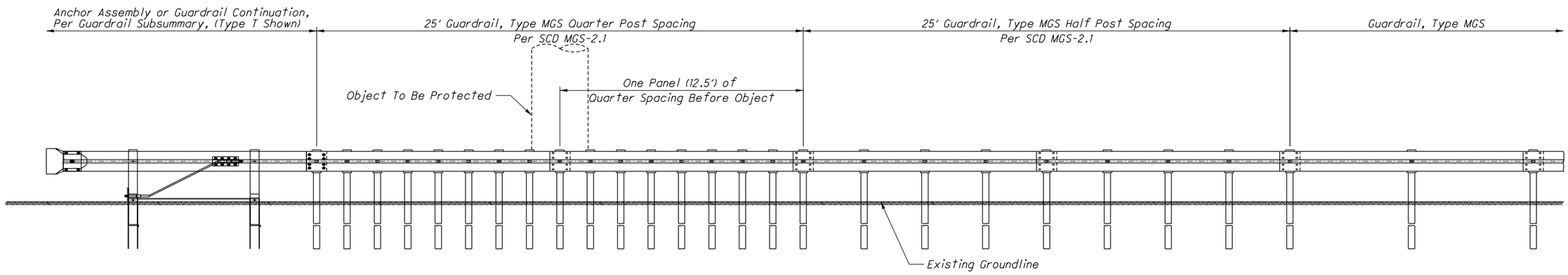
36
57

\\D121s101\caddfiles\ProjectData\CUY\89408\Design\Roadway\Sheets\89408_GP011.dgn Sheet 12/16/2016 8:07:49 AM jchio


MATCH LINE STA. 434+00 IR-90, SEE SHEET 36
GR-30
GR-29
Anchor Assembly, MGS Type E
GR-33
Ramp E-1
Ramp E-2
End Project STA. 439+29 S.L.M. 23.90 E1101(117)
BTA MGS, Type 1
Bridge No. CUY-90-23.93 No Work
BTA MGS, Type 2
GR-31
GR-32
℄ IR-90
CS Sta. 444+91.00
Anchor Assembly, MGS Type T
Village of Bratenahl
City of Cleveland
Lakeshore Boulevard
Anchor Assembly, MGS Type T
For Guardrail Subsummary, See Sheet 25
For Guardrail Details, See Sheet 38



Plan View Guardrail Protection for Overhead Sign Suppots



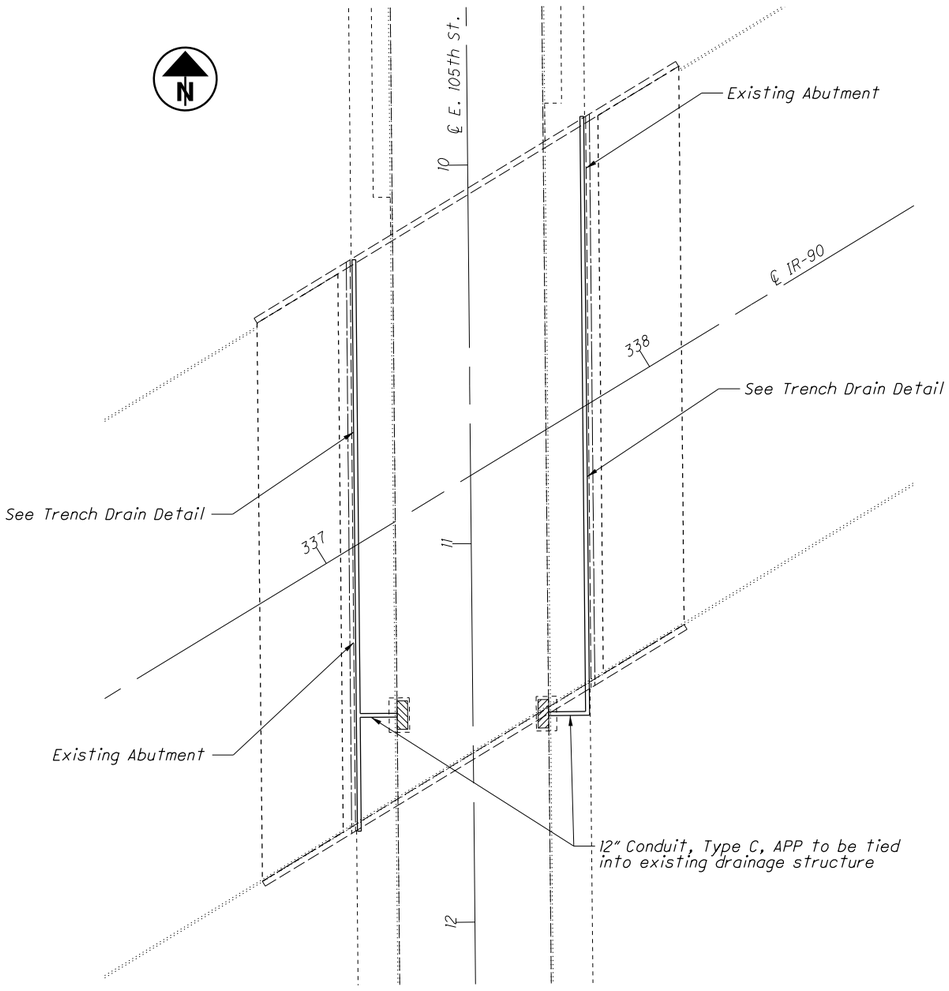
Elevation View

For Guardrail Subsummary, See Sheet 25
For General Plan Sheets, See Sheets 26 - 37

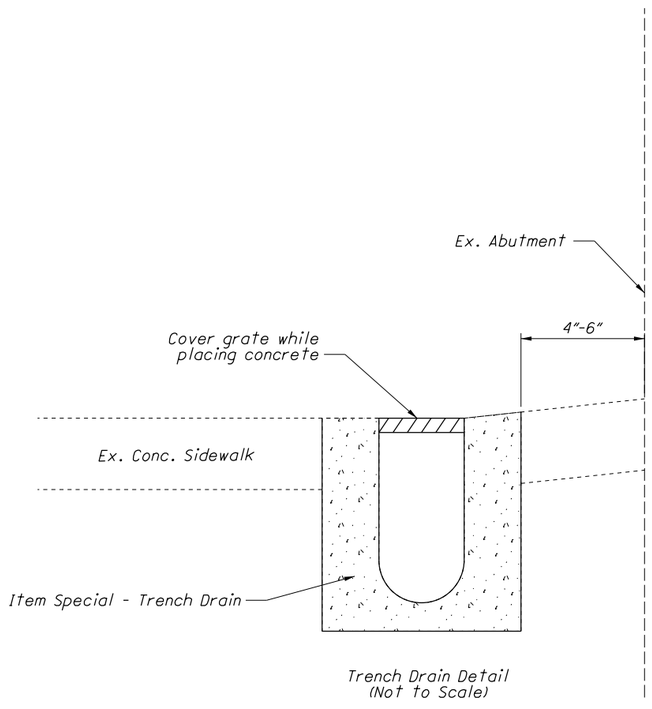
CALCULATED JAC
CHECKED EJK

GUARDRAIL DETAILS

CUY-90-20.01



Plan View
(Not to Scale)



Trench Drain Detail
(Not to Scale)

REF. NO.	PLAN SPLIT NO.	STATION FROM	STATION TO	SIDE	LENGTH FT.	AVG. WIDTH FT.	AREA SQ. YD.		TOTALS CARRIED TO GENERAL SUMMARY
611	1	9+87.50	11+45.60	LT	158.0	1	11	22	
611	1	10+24.70	11+75.70	RT	151.0	1	11	19	
SPECIAL	1							309	

611 12" CONDUIT, TYPE C, AS PER PLAN FT

SPECIAL TRENCH DRAIN FT

CALCULATED JAC
CHECKED EJK

DRAINAGE DETAILS

CUY-90-20.01

SHEET NO.	PLAN SPLIT NO.	STATION TO STATION	LENGTH	646 EDGE LINE, 6", WHITE	646 EDGE LINE, 6", YELLOW	646 LANE LINE, 6"			646 CHANNELIZING LINE, 12"		646 CHEVRON MARKING		646 DOTTED LINE, 6"	646 DOTTED LINE, 12"						621 RPM (WHITE)	621 RPM (WHITE/RED)	621 RPM (YELLOW/RED)
			FT	FT	FT	MILE			FT		FT		FT	FT						EACH	EACH	EACH
		IR-90 Eastbound																				
	1	154+70.00 170+49.90	1,580	1,580	1,580	0.90														60		
		Sta. 170+49.90 BK = Sta. 200+83.36 AH																				
	1	200+83.36 203+80.03	297	297	297	0.18														13		
	1	203+80.03 210+18.82	639	639	639	0.36			100				539							25	5	
	1	210+18.82 212+14.89	196	196	196	0.12			392											9	12	
	1	212+14.89 221+80.40	966	966	966	0.54														37		
	1	221+80.40 225+76.84	396	396	396	0.24			792											17	12	
	1	225+76.84 230+59.40	483	483	483	0.27								483						19		
	1	230+59.40 233+24.24	265	265	265	0.15			530		120									11	15	
	1	233+24.24 245+45.22	1,221	1,221	1,221	0.69														47		
	1	245+45.22 248+84.10	339	339	339	0.18			678											13	10	
	1	248+84.10 252+98.80	415	415	415	0.24							415							17		
		Sta. 252+98.80 BK = Sta. 301+99.84 AH																				
	1	301+99.84 302+74.74	75	75	75	0.03							75							3		
	1	302+74.74 359+95.00	5,720	5,720	5,720	3.24														215		
	1	359+95.00 366+12.39	617	617	617	0.36			100				517							25	5	
	1	366+12.39 368+53.74	241	241	241	0.15			482											11	14	
	1	368+53.74 386+09.92	1,756	1,756	1,756	0.99														66		
	1	386+09.92 387+49.37	139	139	139	0.09			278											7	5	
	1	387+49.37 393+90.00	641	641	641	0.36							641							25		
	1	393+90.00 421+00.00	2,710	2,710	2,710	1.53														102		
	1	421+00.00 427+05.34	605	605	605	0.33			100				505							23	5	
	1	427+05.34 429+16.72	211	211	211	0.12			422											9	13	
	1	429+16.72 439+29.15	1,012	1,012	1,012	0.57														39		
SUBTOTALS				20524	20524	11.64			3874		120		2692	483						793	96	
TOTALS CARRIED TO GENERAL SUMMARY				7.77 MI		11.64			3874		120		2692	483						889		

CALCULATED JAC
CHECKED EJK

TRAFFIC CONTROL SUBSUMMARY

CUY-90-20.01

SHEET NO.	PLAN SPLIT NO.	STATION TO STATION		LENGTH	646 EDGE LINE, 6", WHITE	646 EDGE LINE, 6", YELLOW	646 LANE LINE, 6"			646 CHANNELIZING LINE, 12"		646 CHEVRON MARKING		646 DOTTED LINE, 6"	646 DOTTED LINE, 12"						621 RPM (WHITE)	621 RPM (WHITE/RED)	621 RPM (YELLOW/RED)
				FT	FT	FT	MILE			FT		FT		FT	FT						EACH	EACH	EACH
		IR-90 Westbound																					
	1	154+70.00	155+49.94	80	80	80	0.06														5		
	1	155+49.94	158+68.17	318	318	318	0.18			636											13	18	
	1	158+68.17	164+00.00	532	532	532	0.30			100				432							21	5	
	1	164+00.00	170+49.90	650	650	650	0.36														25		
		Sta. 170+49.90 BK = Sta. 200+83.36 AH																					
	1	200+83.36	204+23.11	340	340	340	0.18														13		
	1	204+23.11	210+50.00	627	627	627	0.36							627							25		
	1	210+50.00	214+66.89	417	417	417	0.24			834											17	12	
	1	214+66.89	229+37.19	1,470	1,470	1,470	0.84														56		
	1	229+37.19	231+34.28	197	197	197	0.12			394		125									9	12	
	1	231+34.28	236+97.51	563	563	563	0.33								563						23		
	1	236+97.51	241+51.23	454	454	454	0.27			908											19	13	
	1	241+51.23	247+28.05	577	577	577	0.33														23		
	1	247+28.05	249+23.49	195	195	195	0.12			390											9	12	
	1	249+23.49	252+98.80	375	375	375	0.21			100				275							15	5	
		Sta. 252+98.80 BK = Sta. 301+99.84 AH																					
	1	301+99.84	304+51.01	251	251	251	0.15							251							11		
	1	304+51.01	360+68.28	5,617	5,617	5,617	3.18														211		
	1	360+68.28	368+00.91	733	733	733	0.42							733							29		
	1	368+00.91	369+14.29	113	113	113	0.06			226											5	5	
	1	369+14.29	384+98.87	1,585	1,585	1,585	0.90														60		
	1	384+98.87	386+83.26	184	184	184	0.09			368											7	11	
	1	386+83.26	389+38.82	256	256	256	0.15							256							11		
	1	389+38.82	424+29.25	3,490	3,490	3,490	1.98														132		
	1	424+29.25	433+26.80	898	898	898	0.51							898							35		
	1	433+26.80	436+26.21	299	299	299	0.18			598											13	9	
	1	436+26.21	439+29.15	303	303	303	0.18														13		
SUBTOTALS					20524	20524	11.70			4554		125		3472	563						800	102	
TOTALS CARRIED TO GENERAL SUMMARY					7.77 MI		11.70			4554		125		3472	563						902		

CALCULATED JAC
CHECKED EJK

TRAFFIC CONTROL SUBSUMMARY

CUY-90-20.01

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57

CALCULATED JAC
CHECKED EJK

TRAFFIC CONTROL SUBSUMMARY

CUY-90-20.01

SHEET NO.	PLAN SPLIT NO.	STATION TO STATION		LENGTH	646 EDGE LINE, 6", WHITE	646 EDGE LINE, 6", YELLOW		644 CHANNELIZING LINE, 8"	644 STOP LINE	644 CROSSWALK LINE	644 LANE ARROW	644 WRONG WAY ARROW	644 YIELD LINE		646 CHANNELIZING LINE, 8"	646 CHANNELIZING LINE, 12"	646 STOP LINE	646 CROSSWALK LINE			621 RPM (WHITE)	621 RPM (WHITE/RED)	621 RPM (YELLOW/RED)
				FT	FT	FT		FT	FT	FT	EACH	EACH	FT		FT	FT	FT	FT			EACH	EACH	EACH
		Ramp A-3																					
	1	49+87.80	50+40.47	53	106	106		80	60	130	3											4	2
	1	50+40.47	55+51.61	511	511	511						1											7
		Ramp A-4																					
	1	48+20.09	50+18.77	199	199	199																	3
	1	50+18.77	50+89.49	71	142	142				100													3
		Ramp B-1																					
	1	12+08.82	15+90.61	382	382	382																	6
	1	4+38.00	6+34.32	196	196	196							16										3
		Ramp B-2																					
	1	2+91.96	6+17.84	326	326	326				60													5
	1	8+30.00	11+99.08	369	369	369																	6
		Ramp B-3																					
	1	0+34.47	9+23.12	889	889	889			22	50													12
		Ramp B-4																					
	1	14+71.04	17+36.92	266	266	266																	4
	1	8+98.88	10+11.05	112	112	112										224							2
	1	10+11.05	12+29.13	218	436	436																	6
		Ramp C-1																					
	1	13+22.44	13+90.82	68	68	68									185		40	110				7	2
	1	4+44.56	8+75.95	431	431	431																	6
		Ramp C-2																					
	1	0+42.23	5+95.37	553	553	553																	8
	1	14+10.50	15+39.82	129	129	129																	3
		Ramp C-3																					
	1	0+36.00	5+50.66	515	515	515																	7
	1	42+19.70	47+41.46	522	522	522																	8
		Ramp C-4																					
	1	0+96.48	7+24.33	628	628	628																	9
	1	14+27.00	11+38.75	288	288	288																	5
SUBTOTALS					7068	7068		80	82	340	3	1	16		185	224	40	110				11	107
TOTALS CARRIED TO GENERAL SUMMARY					2.68 MI			80	82	340	3	1	16		185	224	40	110			118		

SHEET NO.	PLAN SPLIT NO.	STATION TO STATION	LENGTH	646 EDGE LINE, 6", WHITE	646 EDGE LINE, 6", YELLOW	646 LANE LINE, 6"			644 CHANNELIZING LINE, 8"	644 STOP LINE	644 CROSSWALK LINE	644 TRANSVERSE/DIAGONAL LINE	644 LANE ARROW	644 WRONG WAY ARROW			646 CROSSWALK LINE			621 RPM (WHITE)	621 RPM (WHITE/RED)	621 RPM (YELLOW/RED)
			FT	FT	FT	MILE			FT	FT	FT	FT	EACH	EACH			FT			EACH	EACH	EACH
		Ramp D-1																				
	1	5+27.97 13+30.98	803	803	803																	
		Ramp D-2																				
	1	0+34.61 9+11.59	877	877	877																	
		Ramp D-3																				
	1	9+59.07 12+12.41	253	253	253				253	34	90		6								8	4
	1	2+87.87 8+19.03	531	531	531																	8
		Ramp D-4																				
	1	11+71.44 12+18.83	47	47	47																	
	1	2+22.84 8+87.34	665	665	665												120					
		Ramp E-1																				
	1	3+09.58 22+00.01	1,890	1,890	1,890									1								25
	1	14+86.53 17+36.61	250	250	250				250	32			4								8	4
		Ramp E-2																				
	1	4+34.17 12+85.23	851	851	851																	12
	1	12+85.23 16+00.14	315	315	315	0.06																5
	1	16+00.14 16+85.17	85	170	170							65										3
		SUBTOTALS		6652	6652	0.06			503	66	90	65	10	1			120				16	61
		TOTALS CARRIED TO GENERAL SUMMARY		2.52 MI		0.06			503	66	90	65	10	1			120			77		

CALCULATED JAC
CHECKED EJK

TRAFFIC CONTROL SUBSUMMARY

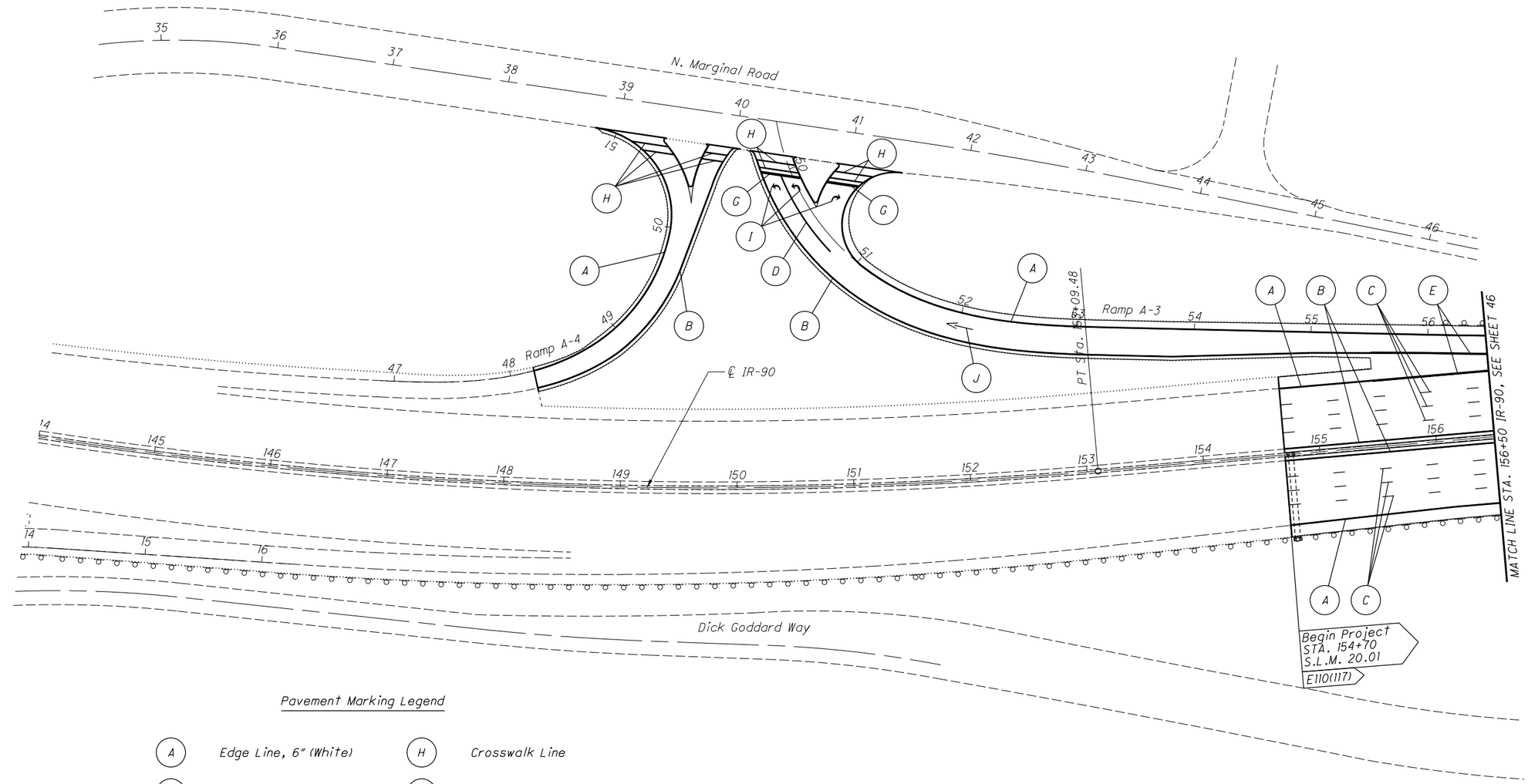
CUY-90-20.01

SHEET NO.	REFERENCE NO.	PLAN SPLIT NO.	LOCATION	STATION	SIDE	CODE	SIZE (INCHES)	630 GROUND MOUNTED SUPPORT, NO. 4 POST FT	FT	630 SIGN, FLAT SHEET SF
46	S-1	1	IR 90 Eastbound	169+50	RT	W1-2R-48	48" X 48"	17.5	17.5	16
						W13-1P-30	30" X 30"			6.25
48	S-2	1	IR 90 Westbound	234+75	RT	W1-2L-48	48" X 48"	17.5	19.0	16
49	S-3	1	IR 90 Eastbound	235+50	RT	W1-2L-48	48" X 48"	17.5	19.0	16
50	S-4	1	IR 90 Westbound	307+00	RT	W1-2R-48	48" X 48"	17.5	17.5	16
						W13-1P-30	30" X 30"			6.25
SUBTOTALS								70.0	73.0	76.5
TOTALS CARRIED TO GENERAL SUMMARY								143		77

CALCULATED JAC
CHECKED EJK

SIGNING SUBSUMMARY

CUY-90-20.01



Pavement Marking Legend

A	Edge Line, 6" (White)	H	Crosswalk Line
B	Edge Line, 6" (Yellow)	I	Lane Arrow
C	Lane Line, 6"	J	Wrong Way Arrow
D	Channelizing Line, 8"	K	Dotted Line, 6"
E	Channelizing Line, 12"	L	Dotted Line, 12"
F	Chevron Marking	M	Transverse Line (White)
G	Stop Line	N	Yield Line

For Traffic Control Subsummary, See Sheets 40 - 43

HORIZONTAL SCALE IN FEET
0 25 50 100

CALCULATED JAC
CHECKED EJK

TRAFFIC CONTROL PLAN SHEET
IR-90, STA. 144+00 TO STA. 156+50

CUY-90-20.01

For Pavement Marking Legend, See Sheet 45
For Traffic Control Subsummary, See Sheets 40 - 43
For Sign Subsummary, See Sheet 44

0 25 50 100
HORIZONTAL SCALE IN FEET

CALCULATED JAC
CHECKED EJK

TRAFFIC CONTROL PLAN SHEET
IR-90, STA 156+50 TO STA. 210+00

CUY-90-20.01

For Pavement Marking Legend, See Sheet 45
For Traffic Control Subsummary, See Sheets 40 - 43

HORIZONTAL SCALE IN FEET
0 25 50 100

CALCULATED JAC
CHECKED EJK

TRAFFIC CONTROL PLAN SHEET
IR-90, STA. 210+00 TO STA. 222+50

CUY-90-20.01

47
57

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For Pavement Marking Legend, See Sheet 45
For Traffic Control Subsummary, See Sheets 40 - 43
For Sign Subsummary, See Sheet 44

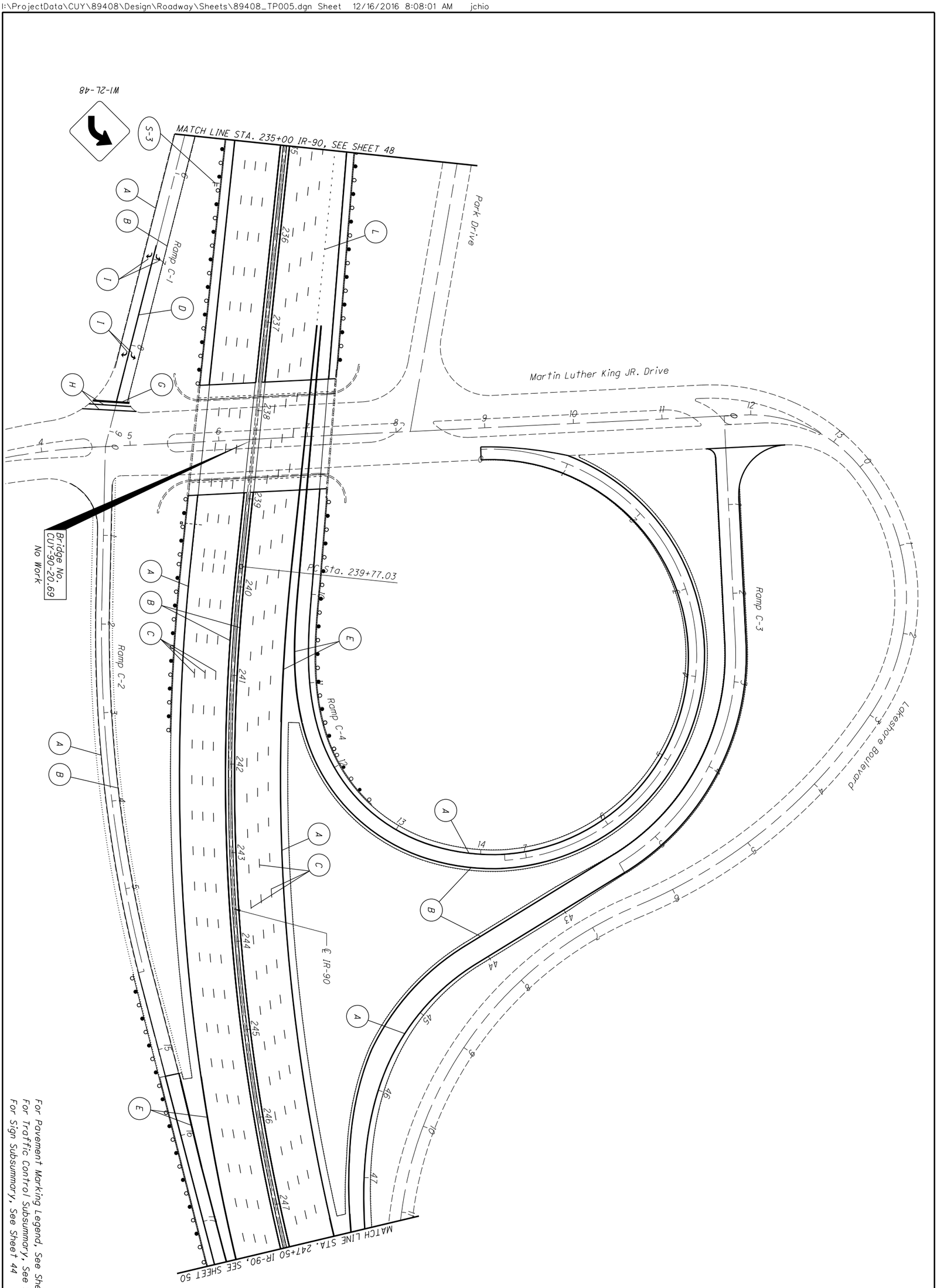
N

0 25 50 100
HORIZONTAL SCALE IN FEET

CALCULATED JAC
CHECKED EJK

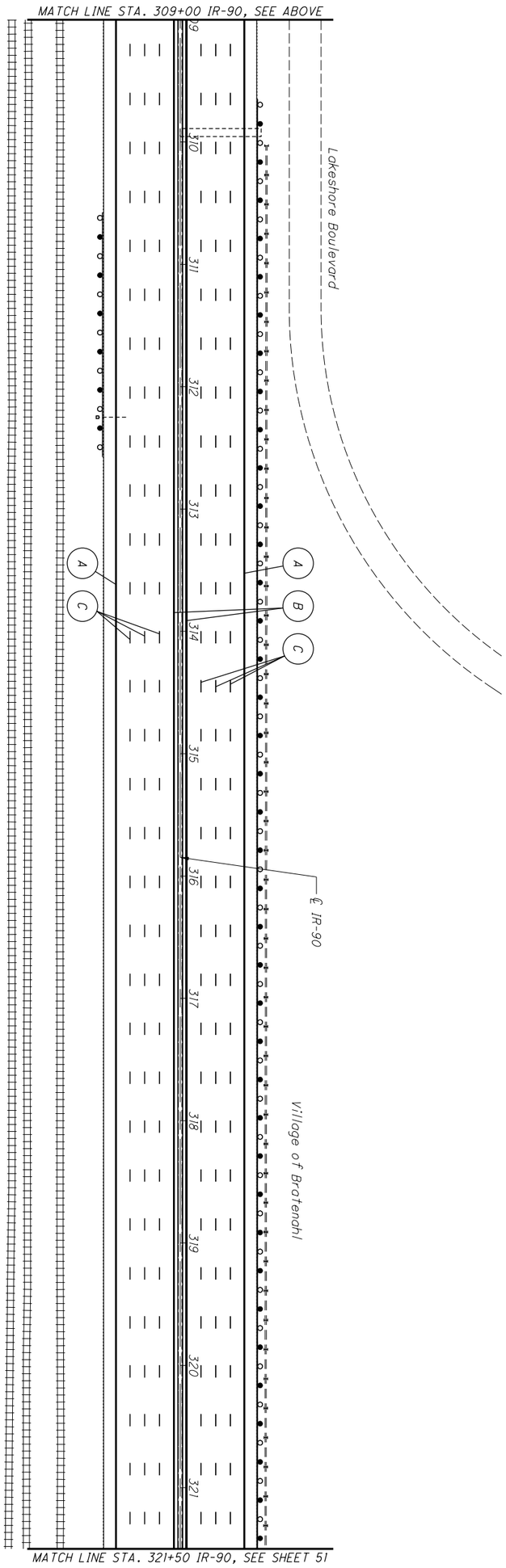
TRAFFIC CONTROL PLAN SHEET
IR-90, STA. 222+50 TO STA. 235+00

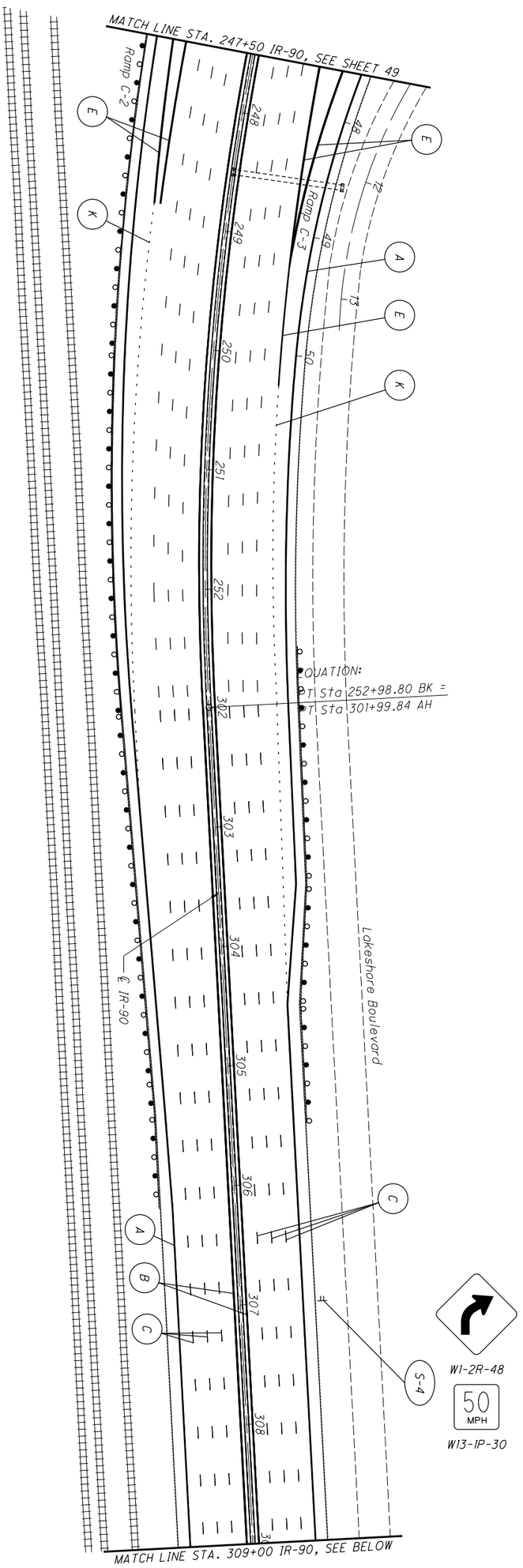
CUY-90-20.01



For Pavement Marking Legend, See Sheet 45
For Traffic Control Subsummary, See Sheets 40 - 43
For Sign Subsummary, See Sheet 44

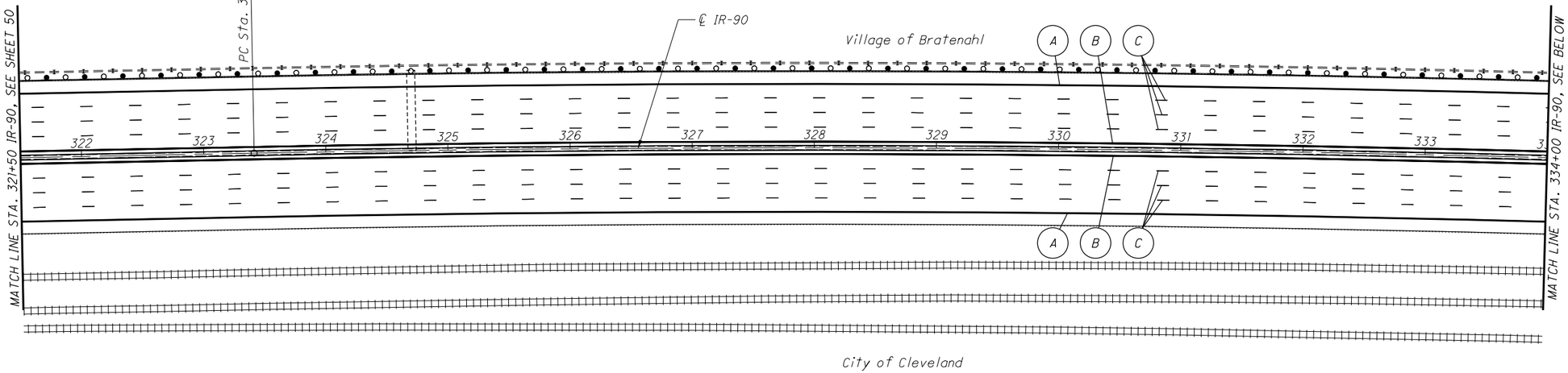
49 / 57	CUY-90-20.01	TRAFFIC CONTROL PLAN SHEET IR-90, STA. 235+00 TO STA. 245+50	CALCULATED JAC CHECKED EJK	0 50 25 100 HORIZONTAL SCALE IN FEET	N

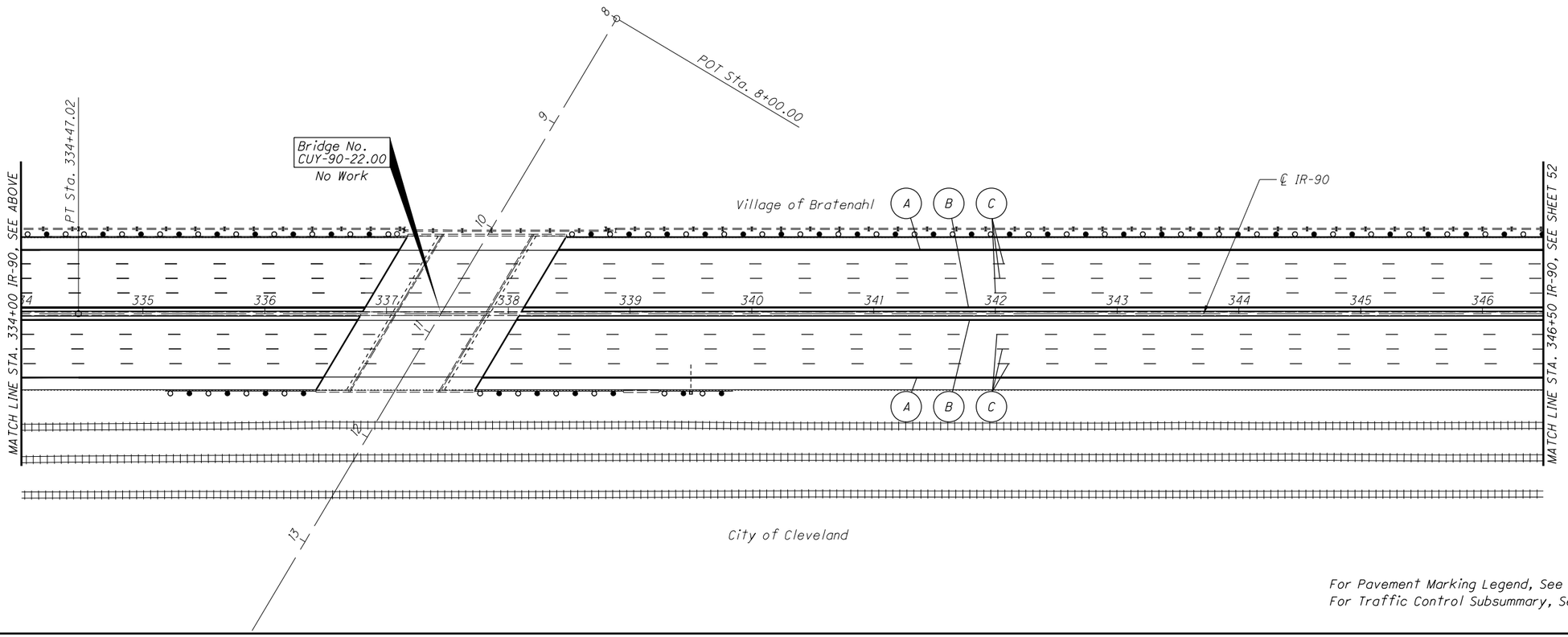




For Pavement Marking Legend, See Sheet 45
For Traffic Control Subsummary, See Sheets 40 - 43
For Sign Subsummary, See Sheet 44

50 / 57	CUY-90-20.01	TRAFFIC CONTROL PLAN SHEET IR-90, STA. 247+50 TO STA. 321+50	CALCULATED JAC CHECKED EJK	0 50 25 100 HORIZONTAL SCALE IN FEET





For Pavement Marking Legend, See Sheet 45
For Traffic Control Subsummary, See Sheets 40 - 43

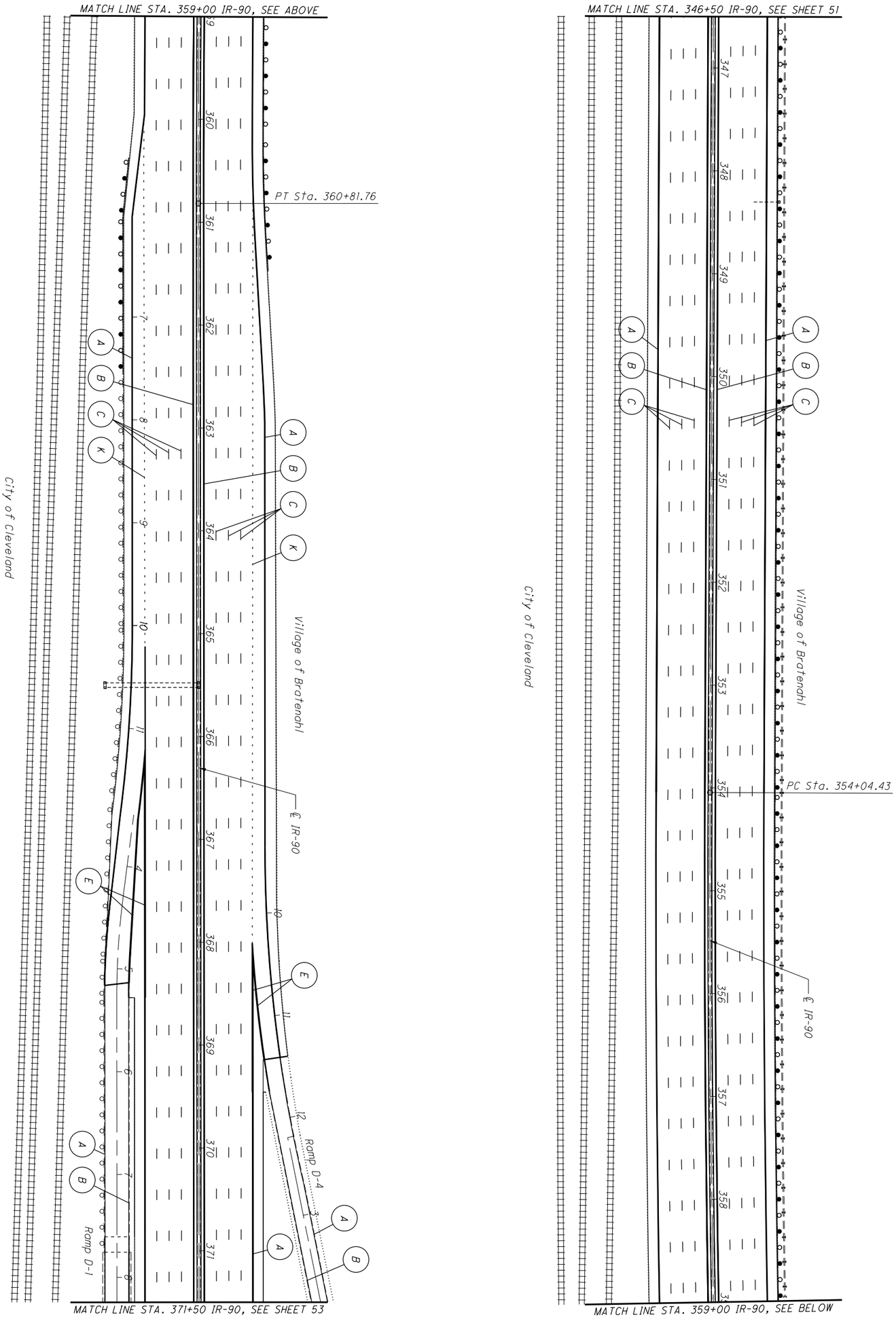
HORIZONTAL SCALE IN FEET
0 25 50 100

CALCULATED JAC
CHECKED EJK

TRAFFIC CONTROL PLAN SHEET
IR-90, STA. 321+50 TO STA. 346+50

CUY-90-20.01

51
57



For Pavement Marking Legend, See Sheet 45
For Traffic Control Subsummary, See Sheets 40 - 43

52 / 57	CUY-90-20.01	TRAFFIC CONTROL PLAN SHEET IR-90, STA. 346+50 TO STA. 371+50	CALCULATED JAC CHECKED EJK	0 50 25 100 HORIZONTAL SCALE IN FEET

For Pavement Marking Legend, See Sheet 45
For Traffic Control Subsummary, See Sheets 40 - 43

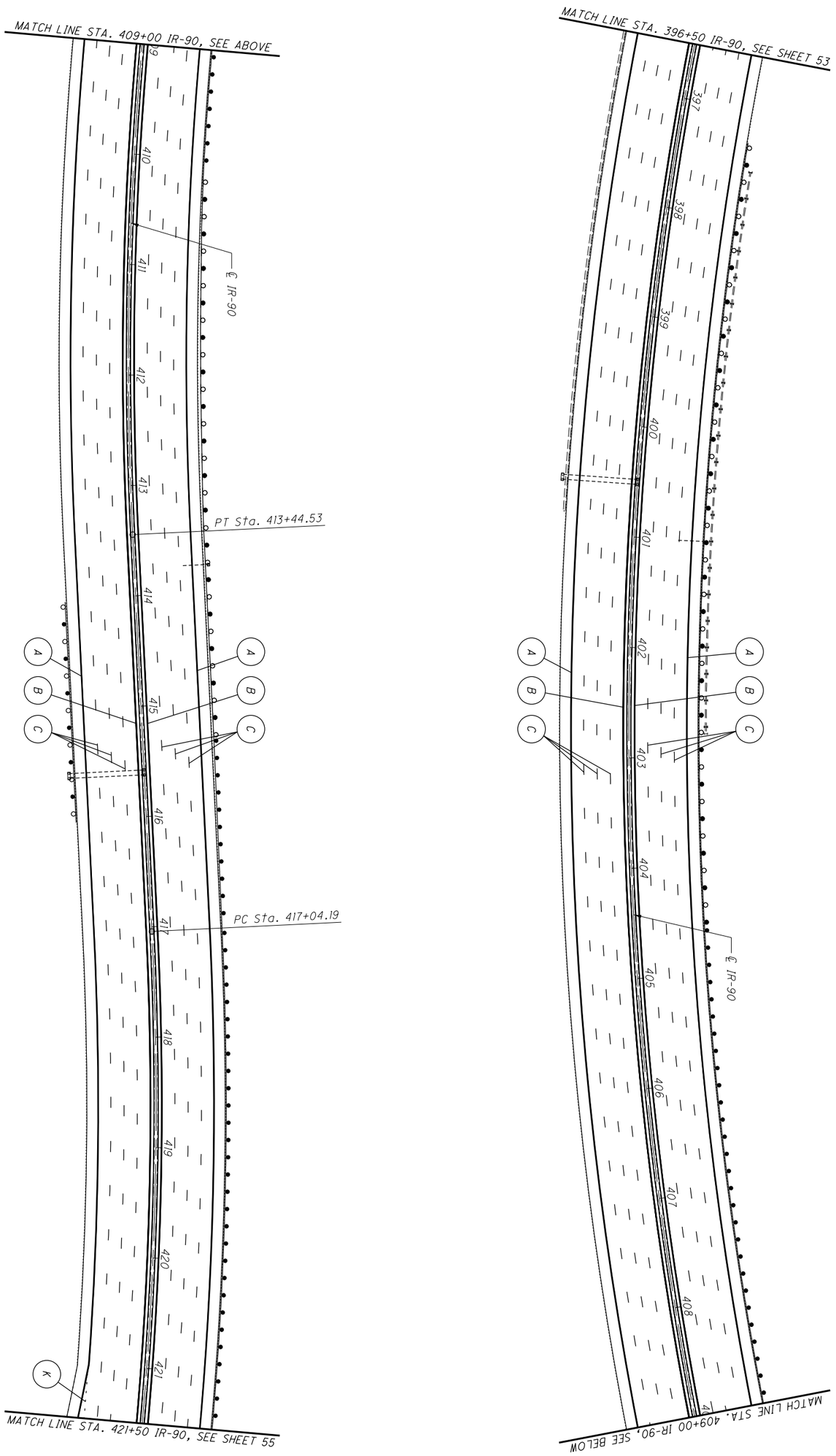
HORIZONTAL SCALE IN FEET
0 25 50 100

CALCULATED JAC
CHECKED EJK

TRAFFIC CONTROL PLAN SHEET
IR-90, STA. 371+50 TO STA. 396+50

CUY-90-20.01

53
57



For Pavement Marking Legend, See Sheet 45
For Traffic Control Subsummary, See Sheets 40 - 43

CUY-90-20.01

TRAFFIC CONTROL PLAN SHEET
IR-90, STA. 396+50 TO STA. 421+50

CALCULATED JAC
CHECKED EJK

0 50
25 100
HORIZONTAL SCALE IN FEET

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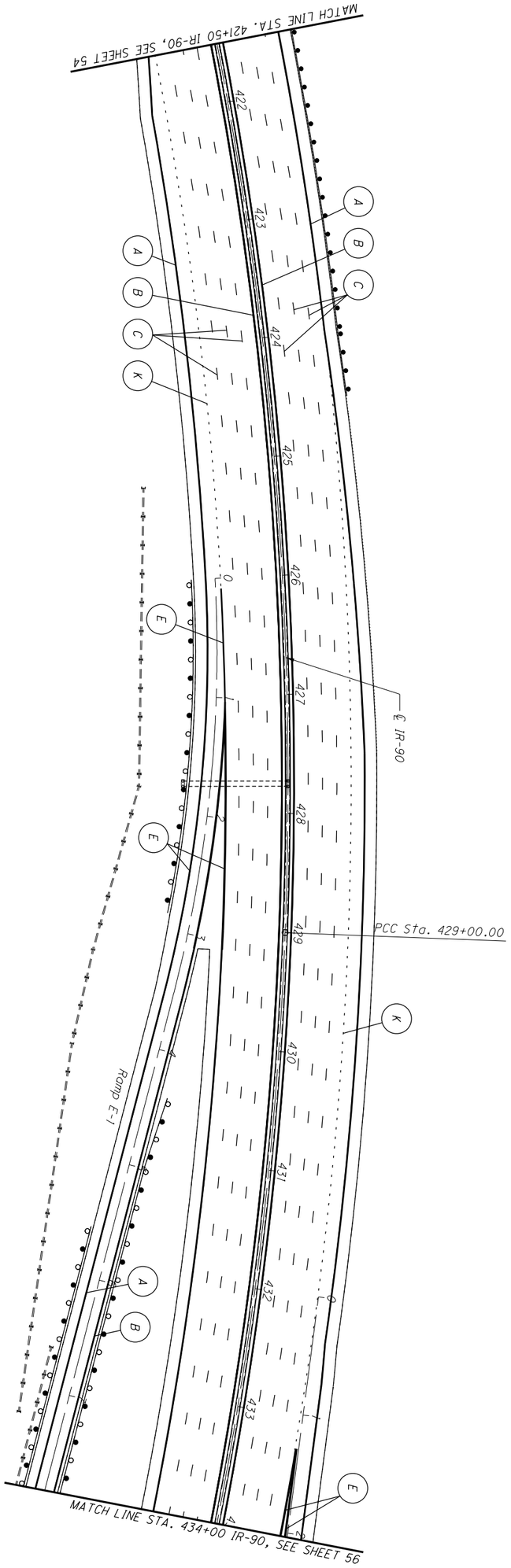

For Pavement Marking Legend, See Sheet 45
For Traffic Control Subsummary, See Sheets 40 - 43

55
57

CUY-90-20.01

TRAFFIC CONTROL PLAN SHEET
IR-90, STA. 421+50 TO STA. 434+00

CALCULATED JAC
CHECKED EJK

0 50
25 100
HORIZONTAL SCALE IN FEET

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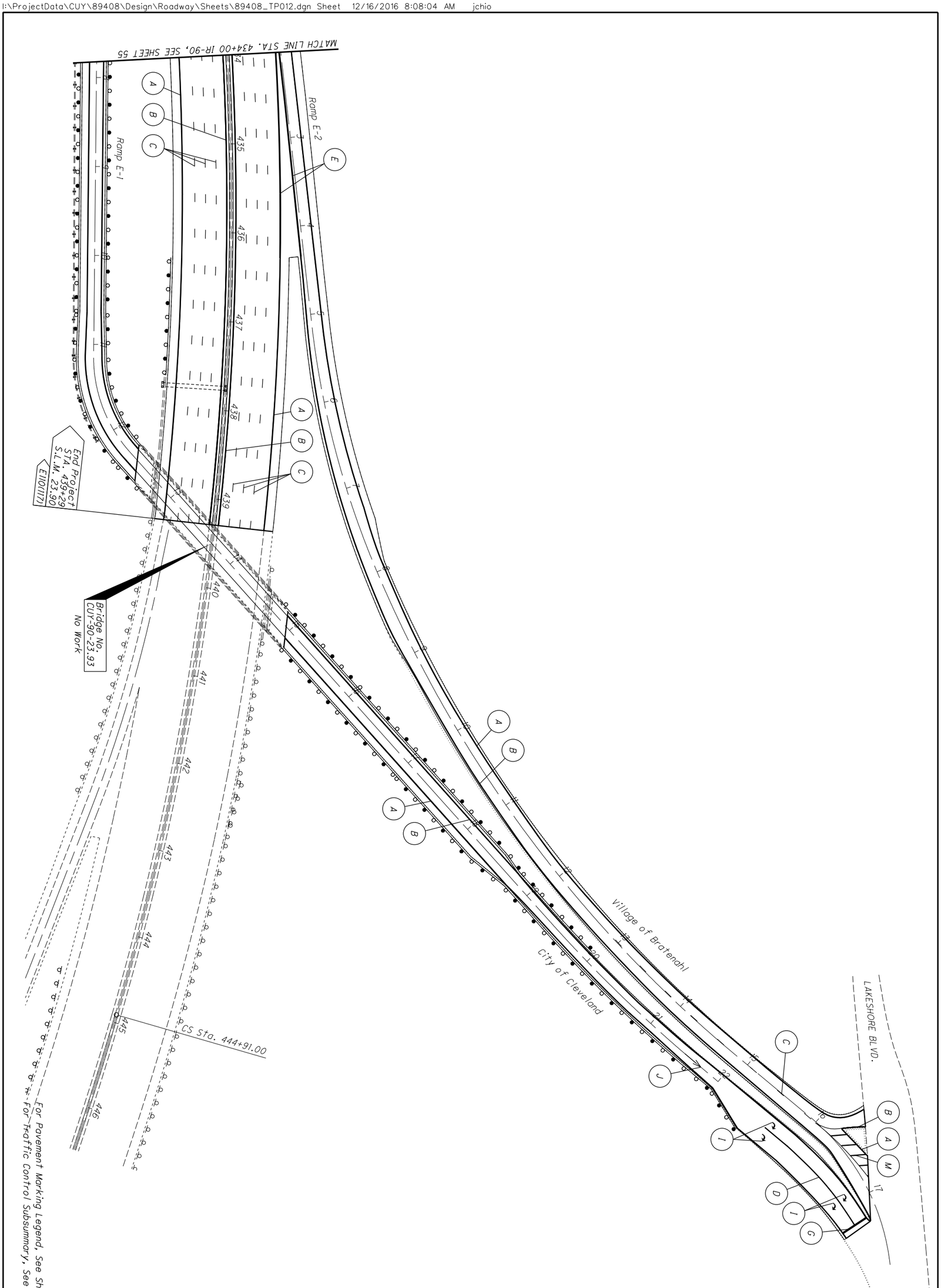

56 / 57	CUY-90-20.01	TRAFFIC CONTROL PLAN SHEET IR-90, STA. 434+00 TO STA. 439+29	CALCULATED JAC CHECKED EJK	0 50 25 100 HORIZONTAL SCALE IN FEET

WRONG WAY ARROW

ONE LANE RAMP

MULTI LANE RAMP

* Use multiple Wrong Way Arrows as detailed in the plans

CALCULATED EJK
CHECKED EMK

PAVEMENT MARKING DETAIL WRONG WAY ARROW

CUY-90-20.01

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57